

Edition: November 2013
Revision: November 2013
Pub. No. SM14E00T32U0

NISSAN

ROGUE

MODEL T32 SERIES

All rights reserved. No part of this Service Manual may be reproduced or stored in a retrieval system, or transmitted in any form, or by any means, electronic, mechanical, photo-copying, recording or otherwise, without the prior written permission of Nissan North America, Inc.

QUICK REFERENCE INDEX

A GENERAL INFORMATION	GI General Information
B ENGINE	EM Engine Mechanical
	LU Engine Lubrication System
	CO Engine Cooling System
	EC Engine Control System
	FL Fuel System
	EX Exhaust System
	STR Starting System
	ACC Accelerator Control System
C HYBRID	
D TRANSMISSION & DRIVE-LINE	TM Transaxle & Transmission
	DLN Driveline
	FAX Front Axle
	RAX Rear Axle
E SUSPENSION	FSU Front Suspension
	RSU Rear Suspension
F BRAKES	WT Road Wheels & Tires
	BR Brake System
	PB Parking Brake System
	BRC Brake Control System
G STEERING	ST Steering System
	STC Steering Control System
H RESTRAINTS	SB Seat Belt
	SR SRS Airbag
	SRC SRS Airbag Control System
I VENTILATION, HEATER & AIR CONDITIONER	VTL Ventilation System
	HA Heater & Air Conditioning System
	HAC Heater & Air Conditioning Control System
J BODY INTERIOR	INT Interior
	IP Instrument Panel
	SE Seat
K BODY EXTERIOR, DOORS, ROOF & VEHICLE SECURITY	DLK Door & Lock
	SEC Security Control System
	GW Glass & Window System
	PWC Power Window Control System
	RF Roof
	EXT Exterior
	BRM Body Repair Manual
L DRIVER CONTROLS	MIR Mirrors
	EXL Exterior Lighting System
	INL Interior Lighting System
	WW Wiper & Washer
	DEF Defogger
	HRN Horn
M ELECTRICAL & POWER CONTROL	PWO Power Outlet
	BCS Body Control System
	LAN LAN System
	PCS Power Control System
	CHG Charging System
	PG Power Supply, Ground & Circuit Elements
N DRIVER INFORMATION & MULTIMEDIA	MWI Meter, Warning Lamp & Indicator
	WCS Warning Chime System
	AV Audio, Visual & Navigation System
O CRUISE CONTROL	CCS Cruise Control System
	DAS Driver Assistance System
	DMS Drive Mode System
P MAINTENANCE	MA Maintenance

A

B

C

D

E

F

G

H

I

J

K

L

M

N

O

P

FOREWORD

This manual contains maintenance and repair procedure for the 2014 NISSAN ROGUE.

In order to assure your safety and the efficient functioning of the vehicle, this manual should be read thoroughly. It is especially important that the PRECAUTIONS in the GI section be completely understood before starting any repair task.

All information in this manual is based on the latest product information at the time of publication. The right is reserved to make changes in specifications and methods at any time without notice.

IMPORTANT SAFETY NOTICE

The proper performance of service is essential for both the safety of the technician and the efficient functioning of the vehicle.

The service methods in this Service Manual are described in such a manner that the service may be performed safely and accurately. Service varies with the procedures used, the skills of the technician and the tools and parts available. Accordingly, anyone using service procedures, tools or parts which are not specifically recommended by NISSAN must first be completely satisfied that neither personal safety nor the vehicle's safety will be jeopardized by the service method selected.



NISSAN NORTH AMERICA, INC.
Technical Publications Department



PLEASE HELP MAKE THIS SERVICE MANUAL BETTER!

Your comments are important to NISSAN and will help us to improve our Service Manuals.
Use this form to report any issues or comments you may have regarding our Service Manuals.
Please print this form and type or write your comments below. Mail or fax to:

Nissan North America, Inc.
Technical Service Information
39001 Sunrise Drive, P.O. Box 9200
Farmington Hills, MI USA 48331
FAX: (248) 488-3880

SERVICE MANUAL: Model: _____ Year: _____

PUBLICATION NO. (Refer to Quick Reference Index): _____

Please describe any Service Manual issues or problems in detail:

Page number(s) _____ *Note: Please include a copy of each page, marked with your comments.*

Are the trouble diagnosis procedures logical and easy to use? (circle your answer) YES NO

If no, what page number(s)? _____ *Note: Please include a copy of each page, marked with your comments.*

Please describe the issue or problem in detail: _____

Is the organization of the manual clear and easy to follow? (circle your answer) YES NO

Please comment: _____

What information should be included in NISSAN Service Manuals to better support you in servicing or repairing customer vehicles?

DATE: _____ YOUR NAME: _____ POSITION: _____

DEALER: _____ DEALER NO.: _____ ADDRESS: _____

CITY: _____ STATE/PROV./COUNTRY: _____ ZIP/POSTAL CODE: _____

QUICK REFERENCE CHART: ROGUE

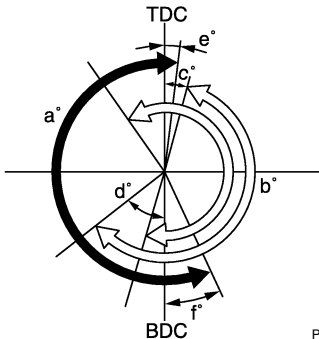
Engine Tune-up Data

INFOID:0000000010435980

GENERAL SPECIFICATIONS

Cylinder arrangement		In-line 4
Displacement	cm ³ (cu in)	2,488 (151.82)
Bore and stroke	mm (in)	89.0 x 100.0 (3.504 x 3.940)
Valve arrangement		DOHC
Firing order		1-3-4-2
Number of piston rings	Compression	2
	Oil	1
Compression ratio		9.6
Compression pressure kPa (kg/cm ² , psi)/250 rpm	Standard	1,412 (14.4, 204.7)
	Minimum	1,216 (12.4, 176.3)
	Differential limit between cylinders	100 (1.0, 14.5)

Unit: degree

Valve timing ↶ : Intake valve ↷ : Exhaust valve						
	a	b	c	d	e	f
Except for California	220	232	12 (-28) ATDC	64 (24) ABDC	10	30
For California	224	236	8 (-32) ATDC	64 (24) ABDC	8	36

() : Valve timing control "ON"

Drive belt

INFOID:0000000010435979

DRIVE BELT

Tension of drive belt	Belt tension is not necessary, as it is automatically adjusted by drive belt auto-tensioner.
-----------------------	--

Spark Plug

INFOID:0000000010435978

SPARK PLUG

Unit: mm (in)

Make	DENSO
Standard type	FXE20HE11C
Spark plug gap (Nominal)	1.1 (0.043)

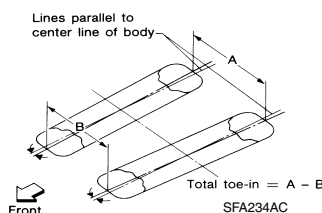
QUICK REFERENCE CHART: ROGUE

2014

Front Wheel Alignment (Unladen*¹)

INFOID:000000010435977

Axle type		FWD		AWD	
Body type		2 ROW	3 ROW	2 ROW	3 ROW
Camber Degree minute (Decimal degree)	Minimum	-1° 04' (-1.07°)	-1° 20' (-1.33°)	-1° 05' (-1.08°)	-1° 15' (-1.25°)
	Nominal	-0° 25' (-0.42°)	-0° 35' (-0.58°)	-0° 20' (-0.33°)	-0° 30' (-0.50°)
	Maximum	0° 14' (0.23°)	-0° 10' (0.17°)	0° 20' (0.33°)	0° 15' (0.25°)
	(LH) and (RH) difference	0° 35' (0.58°) - -0° 35' (-0.58°)			
Caster Degree minute (Decimal degree)	Minimum	5° 0' (5.00°)		4° 50' (4.83°)	4° 55' (4.92°)
	Nominal	5° 45' (5.75°)		5° 35' (5.58°)	5° 40' (5.67°)
	Maximum	6° 30' (6.50°)		6° 20' (6.33°)	6° 25' (6.42°)
	(LH) and (RH) difference	0° 35' (-0.58°) - -0° 35' (-0.58°)			
Kingpin inclination Degree minute (Decimal degree)	Minimum	11° 05' (11.08°)		10° 55' (10.92°)	10° 50' (10.83°)
	Nominal	11° 50' (11.83°)		11° 40' (11.67°)	11° 35' (11.58°)
	Maximum	12° 35' (12.58°)		12° 25' (12.42°)	12° 20' (12.33°)



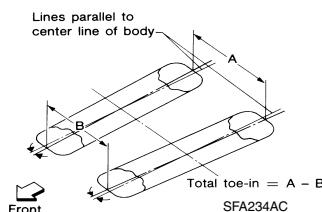
Total toe-in	Distance (A - B)	Minimum	Out 0.9 mm (Out 0.04 in)	Out 0.8 mm (Out 0.01 in)	In 0.4 mm (In 0.02 in)	In 0.5 mm (In 0.02 in)
		Nominal	In 0.1 mm (In 0.00 in)	In 0.2 mm (In 0.01 in)	In 1.4 mm (In 0.06 in)	In 1.5 mm (In 0.06 in)
		Maximum	In 1.1 mm (In 0.04 in)	In 1.2 mm (In 0.05 in)	In 2.4 mm (In 0.09 in)	In 2.5 mm (In 0.10 in)
	Angle (LH and RH) Degree minute (Decimal degree)	Minimum	Out 0° 06' (Out 0.1°)	Out 0° 06' (Out 0.10°)	Out 0° 12' (Out 0.20°)	
		Nominal	In 0° 00' (In 0.0°)	In 0° 01' (In 0.01°)	In 0° 06' (In 0.10°)	
		Maximum	In 0° 06' (In 0.1°)	In 0° 07' (In 0.12°)	In 0° 00' (In 0.00°)	

*1: Fuel, engine coolant, and lubricants are full. Spare tire, jack, hand tools, and mats are in designated positions.

Rear Wheel Alignment (Unladen*¹)

INFOID:000000010435976

Drive Type		FWD	AWD
Camber Degree minute (Decimal degree)	Minimum	-0° 10' (-0.17°)	0° 10' (0.17°)
	Nominal	-0° 55' (-0.92°)	-0° 35' (-0.58°)
	Maximum	-1° 40' (-1.67°)	-1° 20' (-1.33°)



QUICK REFERENCE CHART: ROGUE

2014

Total toe-in	Distance (A - B)	Minimum	In 2 mm (In 0.08 in)	
		Nominal	In 4 mm (In 0.12 in)	In 2.0 mm (0.08 in)
		Maximum	In 6 mm (In 0.24in)	
	Angle (LH and RH)* ² Degree minute (Decimal degree)	Minimum	In 0° 10' (In 0.17°)	Out 0° 15' (Out 0.25°)
		Nominal	In 0° 20' (In 0.33°)	In 0° 10' (In 0.17°)
		Maximum	In 0° 30' (In 0.50°)	In 0° 35' (In 0.58°)

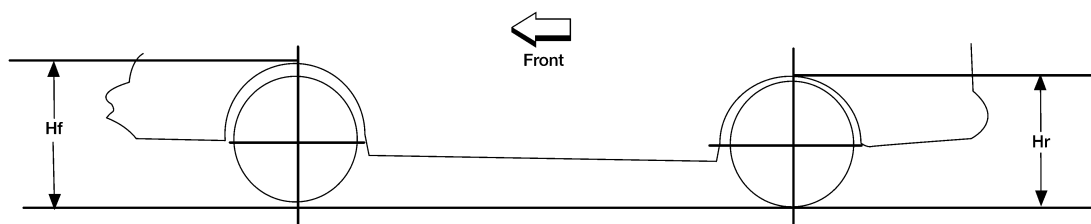
*1: Fuel, engine coolant, and lubricants are full. Spare tire, jack, hand tools, and mats are in designated positions.

*2: Since an adjustment mechanism is not included, the value of the left and right wheels must be used as the standard value.

Wheelarch Height (Unladen*)

INFOID:0000000010435975

Unit: mm (in)



LEIA0085E

Axle type	FWD			AWD		
Body type	2 ROW		3 ROW	2 ROW		3 ROW
Tire size	225/65R17	225/60R18	225/65R17 RF	225/65R17	225/60R18	225/65R17 RF
Front (Hf)	788 (31.02)	792 (31.18)	791 (31.14)	798 (31.42)	801 (31.54)	801 (31.54)
Rear (Hr)	787 (30.98)	789 (31.06)	787 (30.98)	796 (31.34)	798 (31.42)	796 (31.34)

*: Fuel, engine coolant, and lubricants are full. Spare tire, jack, hand tools, and mats are in designated positions.

Brake Specifications

INFOID:0000000010435974

Unit: mm (in)

Front disc brake (One piston caliper)	Cylinder bore diameter	60.33 (2.375)
	Pad length × width × thickness	123.6 × 46.5 × 11.0 (4.87 × 1.870 × 0.433)
	Disc brake rotor outer diameter × thickness	296 × 26.0 (11.65 × 1.024)
Front disc brake (Two piston caliper)	Cylinder bore diameter	60.33 (2.375)
	Pad length × width × thickness	133.6 × 47.5 × 11.0 (5.26 × 1.909 × 0.433)
	Disc brake rotor outer diameter × thickness	320 × 28.0 (12.60 × 1.102)
Rear disc brake	Cylinder bore diameter	38.1 (1.5)
	Pad length × width × thickness	83.0 × 31.9 × 8.5 (3.268 × 1.256 × 0.335)
	Disc brake rotor outer diameter × thickness	292 × 16.0 (11.50 × 0.630)
Master cylinder	Cylinder bore diameter	23.8 (15/16)
Control valve	Valve type	Electric brake force distribution

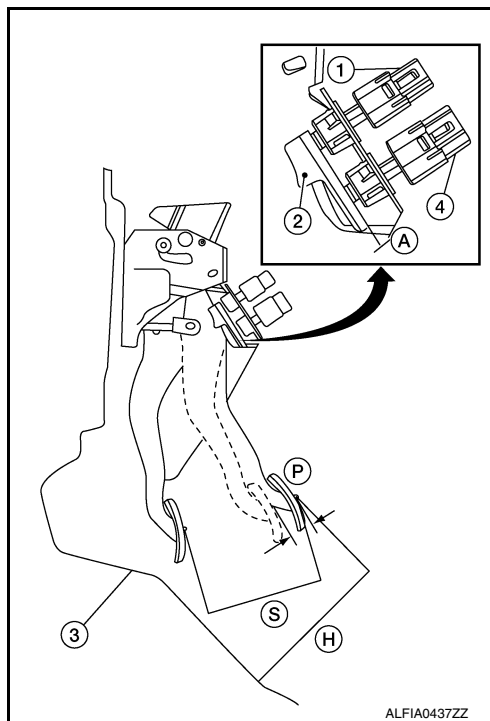
QUICK REFERENCE CHART: ROGUE

2014

Brake Pedal

INFOID:0000000010435973

Unit: mm (in)



Item	Standard
Brake pedal height (H)	175.9 – 185.9 (9.63 – 7.32)
Clearance (A) between brake pedal stopper bracket (2), stop lamp switch (4) and brake pedal position switch (1) contact ends	0.20 – 1.96 (0.0079 – 0.0772)
Brake pedal full stroke (S)	135.1 (5.32)
Brake pedal play	—

Front Disc Brake

INFOID:0000000010435972

Unit: mm (in)

Item	Limit
Brake pad	Wear limit thickness 2.0 (0.079)
Disc brake rotor	Wear limit thickness 24.0 (0.945)
	Thickness variation (measured at 8 positions) 0.020 (0.0008)
	Runout limit (with it attached to the vehicle) 0.035 (0.0014)

Rear Disc Brake

INFOID:0000000010435971

Unit: mm (in)

Item	Limit
Brake pad	Wear limit thickness 1.5 (0.059)
Disc brake rotor	Wear limit thickness 14.0 (0.551)
	Thickness variation (measured at 8 positions) 0.020 (0.0008)
	Runout limit (with it attached to the vehicle) 0.070 (0.0028)

QUICK REFERENCE CHART: ROGUE

2014

Fluids and Lubricants

INFOID:0000000010435970

			Capacity (Approximate)	
		Liter	US measure	Imp measure
Fuel		55 ℓ	14-1/2 gal	12-1/8 gal
Engine oil Drain and refill	With oil filter change	4.6 ℓ	4-7/8 qt	4 qt
	Without oil filter change	4.3 ℓ	4-1/2 qt	3-3/4 qt
Dry engine (Overhaul)		5.3 ℓ	5-5/8 qt	4-5/8 qt
Cooling system	With reservoir tank	7.3 ℓ	7-3/4 qt	6-3/8 qt
	Reservoir tank	0.75 ℓ	3/4 qt	5/8 qt
CVT fluid		7.9 ℓ	8-3/8 qt	7 qt
Differential gear oil		0.55 ℓ	1-1/8 pt	1 pt
Transfer oil		0.31 ℓ	5/8 pt	1/2 qt
Brake fluid		—	—	—
Multi-purpose grease		—	—	—
Windshield washer fluid		5.45 ℓ	5-3/4 qt	4-3/4 qt
Air conditioning system refrigerant		0.50 kg	1.10 lb	1.10 lb
Air conditioning system oil		110 m ℓ	3.7 fl oz	3.9 fl oz

QUICK REFERENCE CHART: QX60

2014

Description	Capacity (Approximate)		
	Metric	US measure	Imp measure
Air conditioning system refrigerant	0.83 ± 0.03 kg	1.83 ± 0.07 lb	1.83 ± 0.07 lb
Air conditioning system oil	230 m ℓ	7.8 fl oz	8.1 fl oz

FOR MEXICO : Fluids and Lubricants

INFOID:000000009914741

		Capacity (Approximate)		
		Metric	US measure	Imp measure
Fuel		74.0 ℓ	19-1/2 gal	16-1/4 gal
Engine oil Drain and refill	With oil filter change	4.8 ℓ	5-1/8 qt	4-1/4 qt
	Without oil filter change	4.5 ℓ	4-3/4 qt	4 qt
	Dry engine (engine overhaul)	5.1 ℓ	5-3/8 qt	4-1/2 qt
Cooling system (with reservoir at MAX line)		9.6 ℓ	10-1/8 qt	8-1/2 qt
CVT fluid		8.8 ℓ	9-1/4 qt	7-3/4 qt
Differential gear oil		0.5 ℓ	1 pt	7/8 pt
Transfer fluid		0.31 ℓ	5/8 pt	1/2 pt
Power steering fluid		1.0 ℓ	2-1/8 qt	1-3/4 qt
Brake fluid		—	—	—
Multi-purpose grease		—	—	—
Windshield washer fluid		4.6 ℓ	4-7/8 qt	4 qt
Air conditioning system refrigerant		0.83 ± 0.03 kg	1.83 ± 0.07 lb	1.83 ± 0.07 lb
Air conditioning system oil		230 m ℓ	7.8 fl oz	8.1 fl oz

SECTION

GI

GENERAL INFORMATION

CONTENTS

HOW TO USE THIS MANUAL	3	Cautions in Removing Battery Terminal and AV Control Unit (Models with AV Control Unit)	23
HOW TO USE THIS MANUAL	3	General Precautions	24
Description	3	Three Way Catalyst	25
Terms	3	Fuel (Regular Unleaded Gasoline Recommended)	25
Units	3	Multiport Fuel Injection System or Engine Control System	26
Contents	3	Hoses	26
Relation between Illustrations and Descriptions	4	Engine Oils	27
Components	4	Air Conditioning	27
HOW TO FOLLOW TROUBLE DIAGNOSES	6	LIFTING POINT	28
Description	6	Special Service Tool	28
How to Follow Test Groups in Trouble Diagnosis	6	Pantograph Jack	28
Key to Symbols Signifying Measurements or Procedures	7	Garage Jack and Safety Stand and 2-Pole Lift	29
HOW TO READ WIRING DIAGRAMS	9	Board-on Lift	29
Connector Symbols	9	TOW TRUCK TOWING	30
Sample/Wiring Diagram -Example-	10	Tow Truck Towing	30
Connector Information	12	Vehicle Recovery (Freeing a Stuck Vehicle)	31
ABBREVIATIONS	14	VEHICLE INFORMATION	33
Abbreviation List	14	IDENTIFICATION INFORMATION	33
TIGHTENING TORQUE OF STANDARD BOLTS	19	Model Variation	33
Description	19	Identification Number	34
Tightening Torque Table (New Standard Included)	19	Identification Plate	35
RECOMMENDED CHEMICAL PRODUCTS AND SEALANTS	22	Engine Serial Number	36
Recommended Chemical Products and Sealants	22	CVT Number	36
PRECAUTION	23	Dimensions	36
PRECAUTIONS	23	Wheels & Tires	36
Description	23	BASIC INSPECTION	37
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	23	SERVICE INFORMATION FOR ELECTRICAL INCIDENT	37
Procedures without Cowl Top Cover	23	Work Flow	37
		Control Units and Electrical Parts	37
		How to Check Terminal	38
		Intermittent Incident	41
		Circuit Inspection	44

CONSULT/GST CHECKING SYSTEM	49	CONSULT Data Link Connector (DLC) Circuit	50
Description	49	Wiring Diagram - CONSULT/GST CHECKING	
Function and System Application	49	SYSTEM	51

HOW TO USE THIS MANUAL

< HOW TO USE THIS MANUAL >

HOW TO USE THIS MANUAL

HOW TO USE THIS MANUAL

Description

INFOID:0000000009981444

This volume explains “Removal, Disassembly, Installation, Inspection and Adjustment” and “Trouble Diagnoses”.

Terms

INFOID:0000000009981445

- The captions **WARNING** and **CAUTION** warn you of steps that must be followed to prevent personal injury and/or damage to some part of the vehicle.

WARNING indicates the possibility of personal injury if instructions are not followed.

CAUTION indicates the possibility of component damage if instructions are not followed.

BOLD TYPED STATEMENTS except **WARNING** and **CAUTION** give you helpful information.

Standard value: Tolerance at inspection and adjustment.

Limit value: The maximum or minimum limit value that should not be exceeded at inspection and adjustment.

Units

INFOID:0000000009981446

- The **UNITS** given in this manual are primarily expressed as the SI UNIT (International System of Unit), and alternatively expressed in the metric system and in the yard/pound system.
Also with regard to tightening torque of bolts and nuts, there are descriptions both about range and about the standard tightening torque.

“Example”

Range

Outer Socket Lock Nut : 59 - 78 N·m (6.0 - 8.0 kg-m, 43 - 58 ft-lb)

Standard

Drive Shaft Installation Bolt : 44.3 N·m (4.5 kg-m, 33 ft-lb)

Contents

INFOID:0000000009981447

- A **QUICK REFERENCE INDEX**, a black tab (e.g. **BR**) is provided on the first page. You can quickly find the first page of each section by matching it to the section's black tab.
- THE CONTENTS** are listed on the first page of each section.
- THE TITLE** is indicated on the upper portion of each page and shows the part or system.
- THE PAGE NUMBER** of each section consists of two or three letters which designate the particular section and a number (e.g. “BR-5”).
- THE SMALL ILLUSTRATIONS** show the important steps such as inspection, use of special tools, knacks of work and hidden or tricky steps which are not shown in the previous large illustrations.
Assembly, inspection and adjustment procedures for the complicated units such as the automatic transaxle or transmission, etc. are presented in a step-by-step format where necessary.

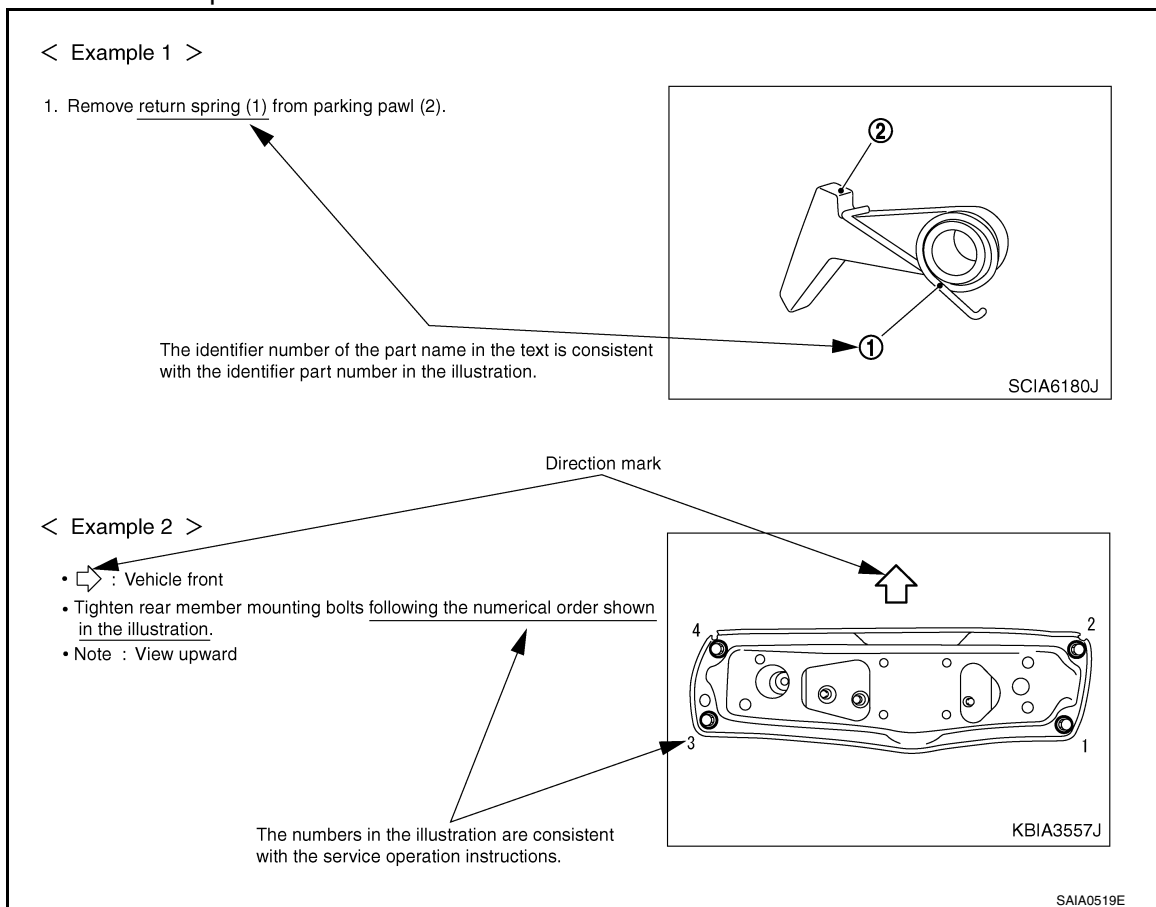
HOW TO USE THIS MANUAL

< HOW TO USE THIS MANUAL >

Relation between Illustrations and Descriptions

INFOID:000000009981448

The following sample explains the relationship between the part description in an illustration, the part name in the text and the service procedures.



Components

INFOID:000000009981449

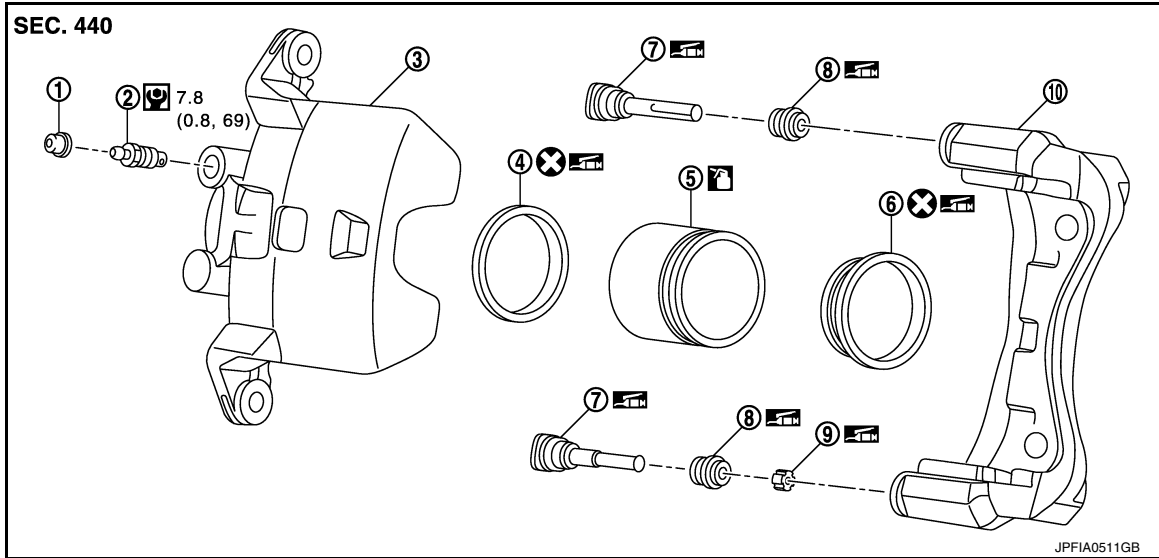
- **THE LARGE ILLUSTRATIONS** are exploded views (see the following) and contain tightening torques, lubrication points, section number of the **PARTS CATALOG** (e.g. SEC. 440) and other information necessary to perform repairs.

The illustrations should be used in reference to service matters only. When ordering parts, refer to the appropriate **PARTS CATALOG**.

Components shown in an illustration may be identified by a circled number. When this style of illustration is used, the text description of the components will follow the illustration.

HOW TO USE THIS MANUAL

< HOW TO USE THIS MANUAL >



- | | | |
|-------------------|---------------------|------------------|
| 1. Cap | 2. Bleeder valve | 3. Cylinder body |
| 4. Piston seal | 5. Piston | 6. Piston boot |
| 7. Sliding pin | 8. Sliding pin boot | 9. Bushing |
| 10. Torque member | | |

: Apply rubber grease.

: Apply brake fluid.

: N·m (kg-m, in-lb)

: Always replace after every disassembly

SYMBOLS

SYMBOL	DESCRIPTION		SYMBOL	DESCRIPTION
	Tightening torque The tightening torque specifications of bolts and nuts may be presented as either a range or a standard tightening torque.	: N·m (kg-m, ft-lb)		Always replace after every disassembly.
		: N·m (kg-m, in-lb)		Apply petroleum jelly.
	Should be lubricated with grease. Unless otherwise indicated, use recommended multi-purpose grease.			Apply molybdenum added petroleum jelly.
	Should be lubricated with oil.			Apply ATF.
	Sealing point			Select with proper thickness.
	Sealing point with locking sealant.			Adjustment is required.
	Checking point			

SAIA0749E

HOW TO FOLLOW TROUBLE DIAGNOSES

< HOW TO USE THIS MANUAL >

HOW TO FOLLOW TROUBLE DIAGNOSES

Description

INFOID:000000009981450

NOTICE:

Trouble diagnoses indicate work procedures required to diagnose problems effectively. Observe the following instructions before diagnosing.

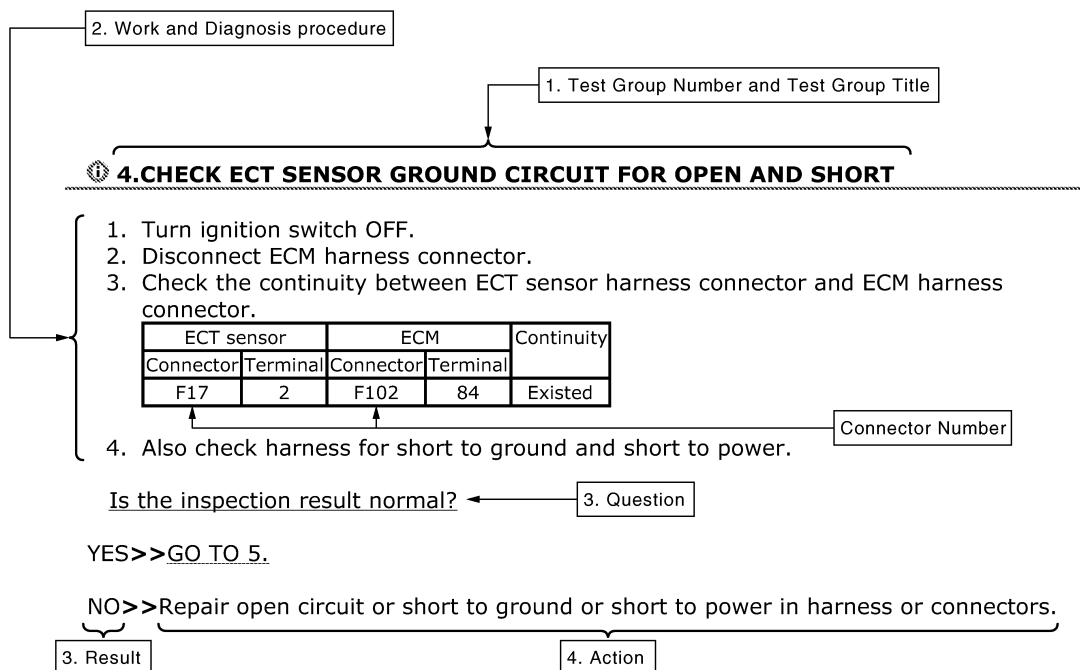
- Before performing trouble diagnoses, read the “Work Flow” in each section.
- After repairs, re-check that the problem has been completely eliminated.
- Refer to Component Parts and Harness Connector Location for the Systems described in each section for identification/location of components and harness connectors.
- When checking circuit continuity, ignition switch should be OFF.
- Refer to the Circuit Diagram for quick pinpoint check.

If you need to check circuit continuity between harness connectors in more detail, such as when a sub-harness is used, refer to Wiring Diagram in each individual section and Harness Layout in PG section for identification of harness connectors.

- Before checking voltage at connectors, check battery voltage.
- After accomplishing the Diagnosis Procedures and Electrical Components Inspection, make sure that all harness connectors are reconnected as they were.

How to Follow Test Groups in Trouble Diagnosis

INFOID:000000009981451



JPAIA0021GB

1. Test group number and test group title
 - Test group number and test group title are shown in the upper portion of each test group.
2. Work and diagnosis procedure
 - Start to diagnose a problem using procedures indicated in enclosed test groups.
3. Questions and results
 - Questions and required results are indicated in test group.
4. Action
 - Next action for each test group is indicated based on result of each question.

HOW TO FOLLOW TROUBLE DIAGNOSES

< HOW TO USE THIS MANUAL >

Key to Symbols Signifying Measurements or Procedures

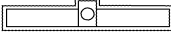
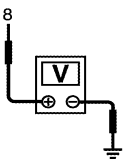
INFOID:000000009981452

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	Check after disconnecting the connector to be measured.		Procedure with Generic Scan Tool. (GST, OBD-II scan tool)
	Check after connecting the connector to be measured.		Procedure without CONSULT or GST
	Insert key into ignition switch.		A/C switch is "OFF".
	Remove key from ignition switch.		A/C switch is "ON".
	Insert and remove key repeatedly.		REC switch is "ON".
	Turn ignition switch to "OFF" position.		REC switch is "OFF".
	Turn ignition switch to "ACC" position.		Fan switch is "ON". (At any position except for "OFF" position)
	Turn ignition switch to "ON" position.		Fan switch is "OFF".
	Turn ignition switch to "START" position.		Apply fuse.
	Turn ignition switch from "OFF" to "ACC" position.		Apply positive voltage from battery with fuse directly to components.
	Turn ignition switch from "ACC" to "ON" position.		
	Turn ignition switch from "ACC" to "OFF" position.		

JPAIA0982GB

HOW TO FOLLOW TROUBLE DIAGNOSES

< HOW TO USE THIS MANUAL >

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	Turn ignition switch from "OFF" to "ON" position.		Drive vehicle.
	Turn ignition switch from "ON" to "OFF" position.		
	Do not start engine, or check with engine stopped.		Disconnect battery negative cable.
	Start engine, or check with engine running.		Depress brake pedal.
	Apply parking brake.		Release brake pedal.
	Release parking brake.		Depress accelerator pedal.
	Check after engine is warmed up sufficiently.		Release accelerator pedal.
	Voltage should be measured with a voltmeter.	  	Pin terminal check for SMJ type ECM or TCM connectors. For details regarding the terminal arrangement, refer to the "ELECTRICAL UNITS" electrical reference page at the end of the manual.
	Circuit resistance should be measured with an ohmmeter.		
	Current should be measured with an ammeter.		
	Pulse signal should be checked with an oscilloscope.		
	Procedure with CONSULT		
	Procedure without CONSULT		
	Place selector lever in "P" position.		
	Place selector lever in "N" position.		
	Jack up front portion.		
	Jack up rear portion.		
	Inspect under engine room.		
	Inspect under floor.		
	Inspect rear under floor.		

JSAIA1461GB

HOW TO READ WIRING DIAGRAMS

< HOW TO USE THIS MANUAL >

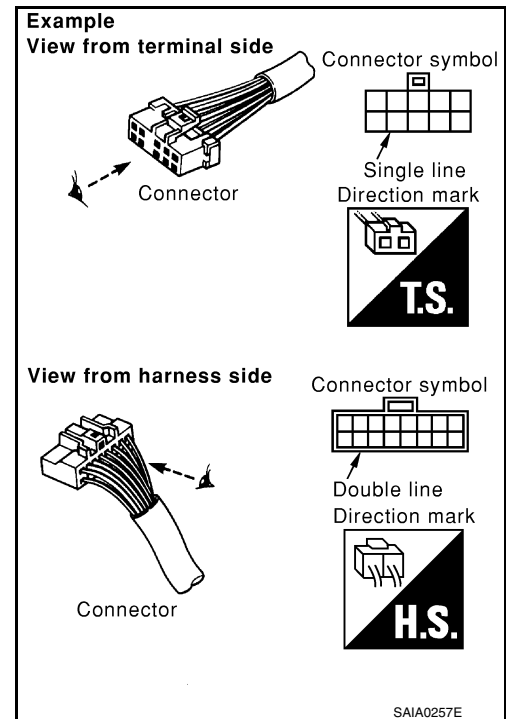
HOW TO READ WIRING DIAGRAMS

Connector Symbols

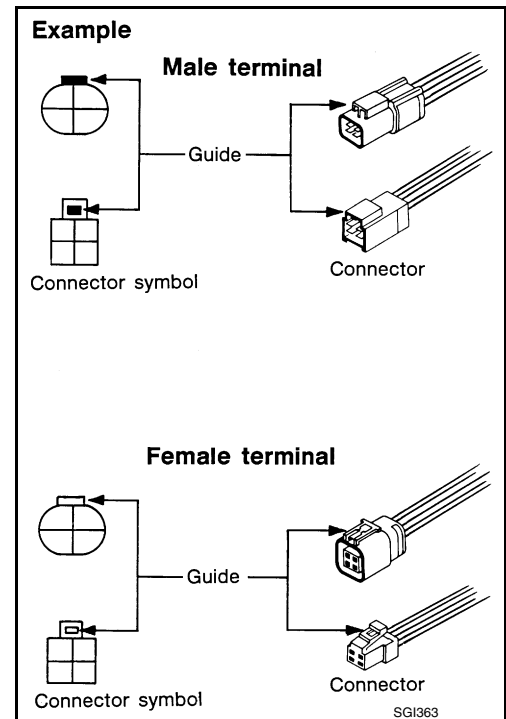
INFOID:000000009981453

Most of connector symbols in wiring diagrams are shown from the terminal side.

- Connector symbols shown from the terminal side are enclosed by a single line and followed by the direction mark.
- Connector symbols shown from the harness side are enclosed by a double line and followed by the direction mark.
- Certain systems and components, especially those related to OBD, may use a new style slide-locking type harness connector. For description and how to disconnect, refer to PG section, "Description", "HARNESS CONNECTOR".



- Male and female terminals
Connector guides for male terminals are shown in black and female terminals in white in wiring diagrams.



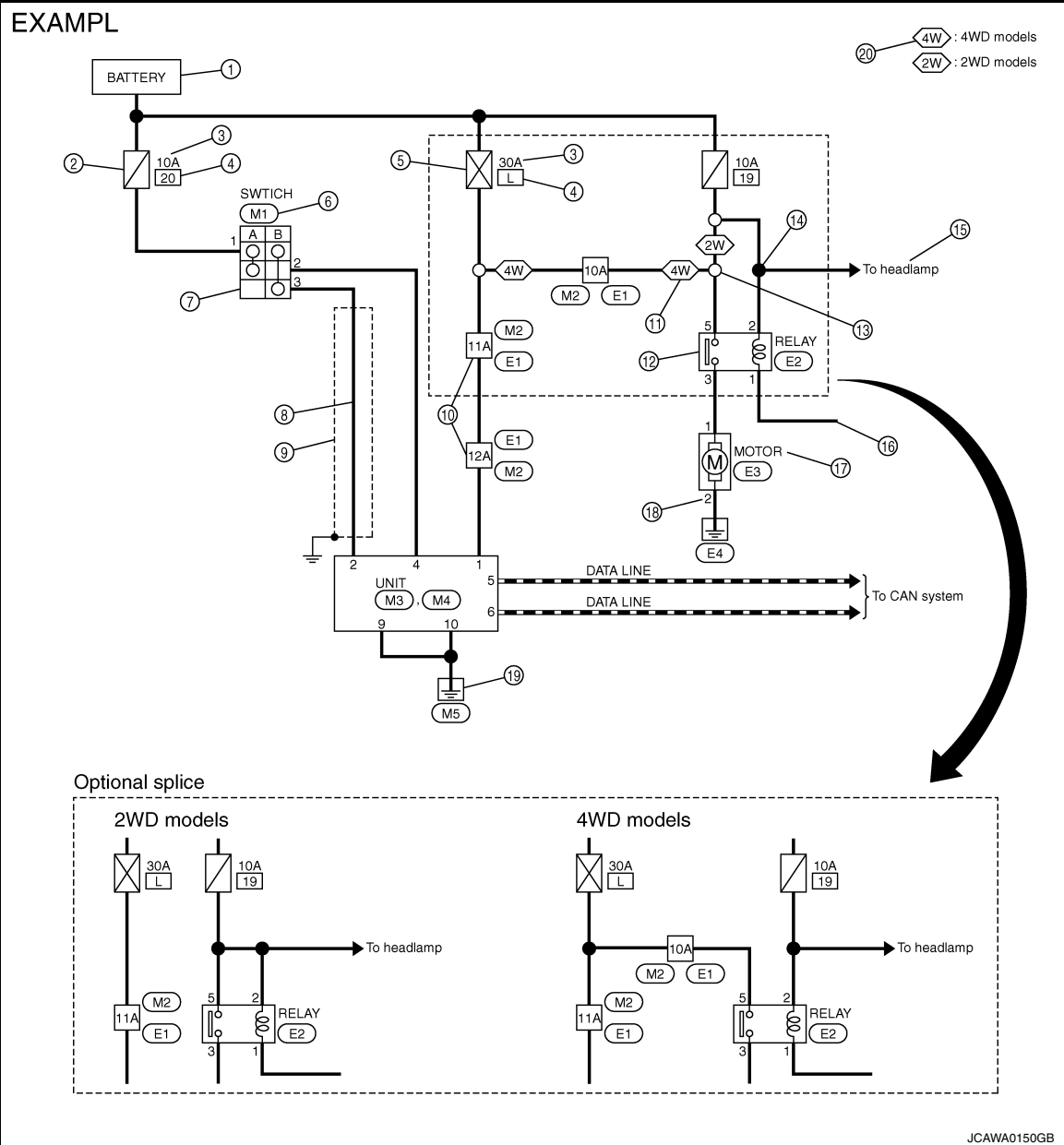
HOW TO READ WIRING DIAGRAMS

< HOW TO USE THIS MANUAL >

Sample/Wiring Diagram -Example-

INFOID:000000009981454

Each section includes wiring diagrams.



Description

Number	Item	Description
1	Power supply	• This means the power supply of fusible link or fuse.
2	Fuse	• “/” means the fuse.
3	Current rating of fusible link/fuse	• This means the current rating of the fusible link or fuse.
4	Number of fusible link/fuse	• This means the number of fusible link or fuse location.
5	Fusible link	• “X” means the fusible link.
6	Connector number	• Alphabetic characters show to which harness the connector is placed. • Numeric characters show the identification number of connectors.
7	Switch	• This shows that continuity exists between terminals 1 and 2 when the switch is in the A position. Continuity exists between terminals 1 and 3 when the switch is in the B position.
8	Circuit (Wiring)	• This means the wiring.

HOW TO READ WIRING DIAGRAMS

< HOW TO USE THIS MANUAL >

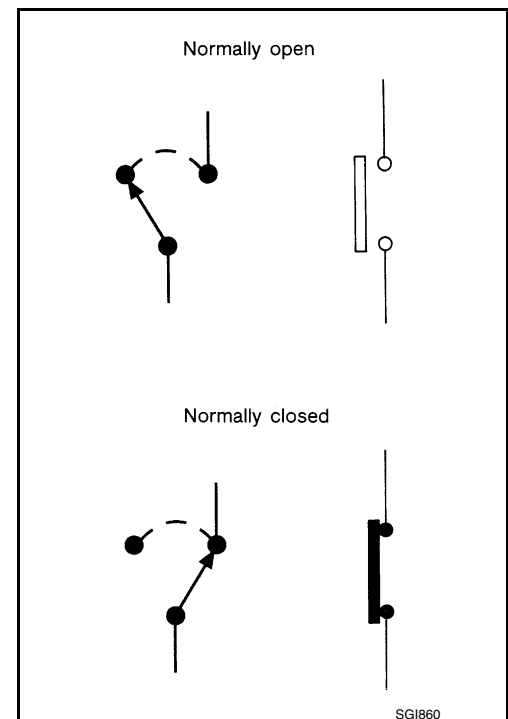
Number	Item	Description
9	Shielded line	• The line enclosed by broken line circle shows shield wire.
10	Connectors	• This means that a transmission line bypasses two connectors or more.
11	Option abbreviation	• This means the vehicle specifications which layouts the circuit between "O".
12	Relay	• This shows an internal representation of the relay.
13	Optional splice	• The open circle shows that the splice is optional depending on vehicle application.
14	Splice	• The shaded circle "●" means the splice.
15	System branch	• This shows that the circuit is branched to other systems.
16	Page crossing	• This circuit continues to an adjacent page.
17	Component name	• This shows the name of a component.
18	Terminal number	• This means the terminal number of a connector.
19	Ground (GND)	• This shows the ground connection.
20	Explanation of option description	• This shows a description of the option abbreviation used on the page.

SWITCH POSITIONS

Switches are shown in wiring diagrams as if the vehicle is in the "normal" condition.

A vehicle is in the "normal" condition when:

- ignition switch is "OFF"
- doors, hood and trunk lid/back door are closed
- pedals are not depressed
- parking brake is released



MULTIPLE SWITCH

The continuity of multiple switch is described in two ways as shown below.

- The switch chart is used in schematic diagrams.

HOW TO READ WIRING DIAGRAMS

< HOW TO USE THIS MANUAL >

- The switch diagram is used in wiring diagrams.

Example

(SWITCH CHART)

	OFF	INT	LO	HI	WASH
1					○
2				○	
3	○	○	○		
4	○	○			
5		○			
6		○	○	○	○

(SWITCH DIAGRAM)

Both switches are turned in combination.

Continuity circuit of wiper switch

SWITCH POSITION	CONTINUITY CIRCUIT
OFF	3 - 4
INT	3 - 4, 5 - 6
LO	3 - 6
HI	2 - 6
WASH	1 - 6

JSAIA0017GB

Connector Information

INFOID:000000009981455

HOW TO USE CONNECTOR INFORMATION

① Connector No. M3

Connector Name UNIT

② Connector Type NS06FW-M2

H.S.

③ ④

Terminal No.	Color of Wire	Signal Name [Specification]
1	W	BAT
2	G	SWITCH B
4	V	SWITCH A
5	L	CAN-H
6	P	CAN-L

⑤

Connector No. M4

Connector Name UNIT

Connector Type NS10FW-CS

H.S.

Terminal No.	Color of Wire	Signal Name [Specification]
9	B	GND
10	B	GND

JCAWA0152GB

Description

Number	Item	Description
1	Connector number	- Alphabetic characters show to which harness the connector is placed. - Numeric characters show the identification number of connectors.
2	Connector type	This means the connector number.
3	Terminal number	This means the terminal number of a connector.

HOW TO READ WIRING DIAGRAMS

< HOW TO USE THIS MANUAL >

Number	Item	Description
4	Wire color	This shows a code for the color of the wire.
		B = Black W = White R = Red G = Green L = Blue Y = Yellow LG = Light Green BG = Beige BR = Brown LA = Lavender OR or O = Orange P = Pink PU or V (Violet) = Purple GY or GR = Gray SB = Sky Blue CH = Dark Brown DG = Dark Green
		When the wire color is striped, the base color is given first, followed by the stripe color as shown below: Example: L/W = Blue with White Stripe
5	Connector	- This means the connector information. - This unit-side is described by the connector symbols.

GI

B

C

D

E

F

G

H

I

J

K

L

M

N

O

P

ABBREVIATIONS

< HOW TO USE THIS MANUAL >

ABBREVIATIONS

Abbreviation List

INFOID:000000009981456

The following **ABBREVIATIONS** are used:

A	
ABBREVIATION	DESCRIPTION
A/C	Air conditioner
A/C	Air conditioning
A/F sensor	Air fuel ratio sensor
A/T	Automatic transaxle/transmission
ABS	Anti-lock braking system
ACCS	Advance climate control system
ACL	Air cleaner
AP	Accelerator pedal
APP	Accelerator pedal position
ATF	Automatic transmission fluid
AV	Audio visual
AWD	All wheel drive

B	
ABBREVIATION	DESCRIPTION
BARO	Barometric pressure
BCM	Body control module
BLSD	Brake limited slip differential
BPP	Brake pedal position
BSW	Blind spot warning

C	
ABBREVIATION	DESCRIPTION
CKP	Crankshaft position
CL	Closed loop
CMP	Camshaft position
CPP	Clutch pedal position
CTP	Closed throttle position
CVT	Continuously variable transaxle/transmission

D	
ABBREVIATION	DESCRIPTION
D1	Drive range first gear
D2	Drive range second gear
D3	Drive range third gear
D4	Drive range fourth gear
DCA	Distance control assist
DDS	Downhill drive support
DFI	Direct fuel injection system
DLC	Data link connector
DTC	Diagnostic trouble code

ABBREVIATIONS

< HOW TO USE THIS MANUAL >

E		GI
ABBREVIATION	DESCRIPTION	
E/T	Exhaust temperature	
EBD	Electric brake force distribution	
EC	Engine control	
ECL	Engine coolant level	
ECM	Engine control module	
ECT	Engine coolant temperature	
ECV	Electrical control valve	
EEPROM	Electrically erasable programmable read only memory	
EFT	Engine fuel temperature	
EGR	Exhaust gas recirculation	
EGRT	Exhaust gas recirculation temperature	
EGT	Exhaust gas temperature	
EOP	Engine oil pressure	
EP	Exhaust pressure	
EPR	Exhaust pressure regulator	
EPS	Electronically controlled power steering	B
ESP	Electronic stability program system	
EVAP canister	Evaporative emission canister	
EVSE	Electric vehicle supply equipment	
EXC	Exhaust control	C

F		D
ABBREVIATION	DESCRIPTION	
FC	Fan control	
FCW	Forward collision warning	
FIC	Fuel injector control	
FP	Fuel pump	
FR	Front	
FRP	Fuel rail pressure	
FRT	Fuel rail temperature	
FTP	Fuel tank pressure	
FTT	Fuel tank temperature	

G		E
ABBREVIATION	DESCRIPTION	
GND	Ground	
GPS	Global positioning system	
GST	Generic scan tool	F

H		G
ABBREVIATION	DESCRIPTION	
HBMC	Hydraulic body-motion control system	
HDD	Hard disk drive	
HO2S	Heated oxygen sensor	
HOC	Heated oxidation catalyst	
HPCM	Hybrid power train control module	H

ABBREVIATIONS

< HOW TO USE THIS MANUAL >

I	
ABBREVIATION	DESCRIPTION
I/M	Inspection and maintenance
IA	Intake air
IAC	Idle air control
IAT	Intake air temperature
IBA	Intelligent brake assist
IC	Ignition control
ICC	Intelligent cruise control
ICM	Ignition control module
IPDM E/R	Intelligent power distribution module engine room
ISC	Idle speed control
ISS	Input shaft speed

K	
ABBREVIATION	DESCRIPTION
KS	Knock sensor

L	
ABBREVIATION	DESCRIPTION
LBC	Li-ion battery controller
LCD	Liquid crystal display
LCU	Local control unit
LDP	Lane departure prevention
LDW	Lane departure warning
LED	Light emitting diode
LH	Left-hand
LIN	Local interconnect network

M	
ABBREVIATION	DESCRIPTION
M/T	Manual transaxle/transmission
MAF	Mass airflow
MAP	Manifold absolute pressure
MDU	Multi display unit
MI	Malfunction indicator
MIL	Malfunction indicator lamp

N	
ABBREVIATION	DESCRIPTION
NOX	Nitrogen oxides

O	
ABBREVIATION	DESCRIPTION
O2	Oxygen
O2S	Oxygen sensor
OBD	On board diagnostic
OC	Oxidation catalytic converter
OD	Overdrive
OL	Open loop
OSS	Output shaft speed

ABBREVIATIONS

< HOW TO USE THIS MANUAL >

P	
ABBREVIATION	DESCRIPTION
P/S	Power steering
PBR	Potential balance resistor
PCV	Positive crankcase ventilation
PNP	Park/Neutral position
PSP	Power steering pressure
PTC	Positive temperature coefficient
PTO	Power takeoff
PWM	Pulse width modulation
R	
ABBREVIATION	DESCRIPTION
RAM	Random access memory
RAS	Rear active steer
RH	Right-hand
ROM	Read only memory
RPM	Engine speed
RR	Rear
S	
ABBREVIATION	DESCRIPTION
SAE	Society of Automotive Engineers, Inc.
SCK	Serial clock
SDS	Service Data and Specifications
SRT	System readiness test
SST	Special Service Tools
T	
ABBREVIATION	DESCRIPTION
TC	Turbocharger
TCM	Transmission control module
TCS	Traction control system
TCU	Telematics communication unit
TP	Throttle position
TPMS	Tire pressure monitoring system
TSS	Turbine shaft speed
TWC	Three way catalytic converter
U	
ABBREVIATION	DESCRIPTION
USS	Uphill start support
V	
ABBREVIATION	DESCRIPTION
VCM	Vehicle control module
VDC	Vehicle dynamics control system
VIN	Vehicle identification number
VSS	Vehicle speed sensor

ABBREVIATIONS

< HOW TO USE THIS MANUAL >

W	
ABBREVIATION	DESCRIPTION
WOT	Wide open throttle
1	
ABBREVIATION	DESCRIPTION
11	1st range first gear
12	1st range second gear
1GR	First gear
2	
ABBREVIATION	DESCRIPTION
21	2nd range first gear
22	2nd range second gear
2GR	Second gear
2WD	2-wheel drive
3	
ABBREVIATION	DESCRIPTION
3GR	Third gear
4	
ABBREVIATION	DESCRIPTION
4GR	Fourth gear
4WAS	Four wheel active steer
4WD	Four wheel drive
5	
ABBREVIATION	DESCRIPTION
5GR	Fifth gear
6	
ABBREVIATION	DESCRIPTION
6GR	Sixth gear
7	
ABBREVIATION	DESCRIPTION
7GR	Seventh gear

TIGHTENING TORQUE OF STANDARD BOLTS

< HOW TO USE THIS MANUAL >

TIGHTENING TORQUE OF STANDARD BOLTS

GI

Description

INFOID:000000009981457

This vehicle has both new standard based on ISO* and previous standard bolts/nuts. There are some differences between these two types of bolts/ nuts; shape of the head, grade of strength, hexagonal width across flats and the standard tightening torque.

- For guidance in discriminating, refer to [GI-19. "Tightening Torque Table \(New Standard Included\)".](#)
- If the tightening torque is not described in the description or figure, refer to [GI-19. "Tightening Torque Table \(New Standard Included\)".](#)

*ISO: International Organization for Standardization

Tightening Torque Table (New Standard Included)

INFOID:000000009981458

CAUTION:

- The special parts are excluded.
- The bolts/nuts in these tables have a strength (discrimination) number/symbol assigned to the head or the like. As to the relation between the strength grade in these tables and the strength (discrimination) number/symbol, refer to "DISCRIMINATION OF BOLTS AND NUTS".

PREVIOUS STANDARD

Grade (Strength grade)	Bolt size	Bolt di- ameter mm	Hexagonal width across flats mm	Pitch mm	Tightening torque (Without lubricant)							
					Hexagon head bolt				Hexagon flange bolt			
					N·m	kg·m	ft·lb	in·lb	N·m	kg·m	ft·lb	in·lb
4T	M6	6.0	10	1.0	5.5	0.56	4	49	7	0.71	5	62
	M8	8.0	12	1.25	13.5	1.4	10	—	17	1.7	13	—
				1.0	13.5	1.4	10	—	17	1.7	13	—
	M10	10.0	14	1.5	28	2.9	21	—	35	3.6	26	—
				1.25	28	2.9	21	—	35	3.6	26	—
	M12	12.0	17	1.75	45	4.6	33	—	55	5.6	41	—
				1.25	45	4.6	33	—	65	6.6	48	—
M14	14.0	19	1.5	80	8.2	59	—	100	10	74	—	
7T	M6	6.0	10	1.0	9	0.92	7	80	11	1.1	8	97
	M8	8.0	12	1.25	22	2.2	16	—	28	2.9	21	—
				1.0	22	2.2	16	—	28	2.9	21	—
	M10	10.0	14	1.5	45	4.6	33	—	55	5.6	41	—
				1.25	45	4.6	33	—	55	5.6	41	—
	M12	12.0	17	1.75	80	8.2	59	—	100	10	74	—
				1.25	80	8.2	59	—	100	10	74	—
M14	14.0	19	1.5	130	13	96	—	170	17	125	—	
9T	M6	6.0	10	1.0	11	1.1	8	—	13.5	1.4	10	—
	M8	8.0	12	1.25	28	2.9	21	—	35	3.6	26	—
				1.0	28	2.9	21	—	35	3.6	26	—
	M10	10.0	14	1.5	55	5.6	41	—	80	8.2	59	—
				1.25	55	5.6	41	—	80	8.2	59	—
	M12	12.0	17	1.75	100	10	74	—	130	13	96	—
				1.25	100	10	74	—	130	13	96	—
M14	14.0	19	1.5	170	17	125	—	210	21	155	—	

CAUTION:

The parts with aluminum or the cast iron washer surface/thread surface are excluded.

TIGHTENING TORQUE OF STANDARD BOLTS

< HOW TO USE THIS MANUAL >

NEW STANDARD BASED ON ISO

Grade (Strength grade)	Bolt size	Bolt di- ameter mm	Hexagonal width across flats mm	Pitch mm	Tightening torque							
					Hexagon head bolt				Hexagon flange bolt			
					N-m	kg-m	ft-lb	in-lb	N-m	kg-m	ft-lb	in-lb
4.8 (Without lubricant)	M6	6.0	10	1.0	5.5	0.56	4	49	7	0.71	5	62
	M8	8.0	13	1.25	13.5	1.4	10	—	17	1.7	13	—
				1.0	13.5	1.4	10	—	17	1.7	13	—
	M10	10.0	16	1.5	28	2.9	21	—	35	3.6	26	—
				1.25	28	2.9	21	—	35	3.6	26	—
	M12	12.0	18	1.75	45	4.6	33	—	55	5.6	41	—
				1.25	45	4.6	33	—	65	6.6	48	—
M14	14.0	21	1.5	80	8.2	59	—	100	10	74	—	
4.8 (With lu- bricant)	M6	6.0	10	1.0	4	0.41	3	35	5.5	0.56	4	49
	M8	8.0	13	1.25	11	1.1	8	—	13.5	1.4	10	—
				1.0	11	1.1	8	—	13.5	1.4	10	—
	M10	10.0	16	1.5	22	2.2	16	—	28	2.9	21	—
				1.25	22	2.2	16	—	28	2.9	21	—
	M12	12.0	18	1.75	35	3.6	26	—	45	4.6	33	—
				1.25	35	3.6	26	—	45	4.6	33	—
M14	14.0	21	1.5	65	6.6	48	—	80	8.2	59	—	
8.8 (With lu- bricant)	M6	6.0	10	1.0	8	0.82	6	71	10	1.0	7	89
	M8	8.0	13	1.25	21	2.1	15	—	25	2.6	18	—
				1.0	21	2.1	15	—	25	2.6	18	—
	M10	10.0	16	1.5	40	4.1	30	—	50	5.1	37	—
				1.25	40	4.1	30	—	50	5.1	37	—
	M12	12.0	18	1.75	70	7.1	52	—	85	8.7	63	—
				1.25	70	7.1	52	—	85	8.7	63	—
M14	14.0	21	1.5	120	12	89	—	140	14	103	—	
10.9 (With lu- bricant)	M6	6.0	10	1.0	10	1.0	7	89	12	1.2	9	106
	M8	8.0	13	1.25	27	2.8	20	—	32	3.3	24	—
				1.0	27	2.8	20	—	32	3.3	24	—
	M10	10.0	16	1.5	55	5.6	41	—	65	6.6	48	—
				1.25	55	5.6	41	—	65	6.6	48	—
	M12	12.0	18	1.75	95	9.7	70	—	110	11	81	—
				1.25	95	9.7	70	—	110	11	81	—
M14	14.0	21	1.5	160	16	118	—	180	18	133	—	

CAUTION:

1. Use tightening torque with lubricant for the new standard bolts/nuts in principle. Friction coefficient stabilizer is applied to the new standard bolts/nuts.
2. However, use tightening torque without lubricant for the following cases. Friction coefficient stabilizer is not applied to the following bolts/nuts.
 - Grade 4.8, M6 size bolt, Conical spring washer installed
 - Paint removing nut (Size M6 and M8) for fixing with weld bolt

TIGHTENING TORQUE OF STANDARD BOLTS

< HOW TO USE THIS MANUAL >

DISCRIMINATION OF BOLTS AND NUTS

GI

BOLTS

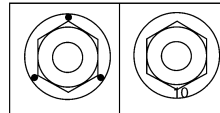
	Grade (Strength)	Discrimination	
Previous standard	4T (392N/mm ²)		 (No number/ symbol)
	7T (686N/mm ²)		
	9T (883N/mm ²)		
New Standard	4.8 (420N/mm ²)		 (No number/ symbol)
	8.8 (800N/mm ²)		
	10.9 (1040N/mm ²)		

NUTS

	Grade (Proof load stress)	Discrimination		
Previous standard	7N (686N/mm ²)	 (No number/ symbol)		
	9N (883N/mm ²)			
New Standard	8 (800N/mm ²)			 (No number/ symbol)
	10 (1040N/mm ²)			

NOTICE:

- A number is assigned on the side of the nuts in some cases.
- A number or symbol is assigned on the upper surface of the flange for the nut with flange.



MACHINE SCREWS AND TAPPING SCREWS

Shape of the head :

Cross recess for the previous standard
Torx recess for the new standard

Screw size	Screw diameter	Torx size
M4	4.0	T20
M5	5.0	T20
M6	6.0	T30

NOTICE:

Use torx size T20 (united with M4 screw) for M5 screw although ISO standard specifies T25.

SAIA0453E

B

C

D

E

F

G

H

I

J

K

L

M

N

O

P

RECOMMENDED CHEMICAL PRODUCTS AND SEALANTS

< HOW TO USE THIS MANUAL >

RECOMMENDED CHEMICAL PRODUCTS AND SEALANTS

Recommended Chemical Products and Sealants

INFOID:000000009981459

Refer to the following chart for help in selecting the appropriate chemical product or sealant.

	Product Description	Purpose	NISSAN North America Part No. (USA)	NISSAN Canada Part No. (Canada)	Aftermarket Cross- reference Part Nos.
1	Rear View Mirror Adhesive	Used to permanently re-mount rear view mirrors to windows.	999MP-AM000P	99998-50505	Permatex 81844
2	Anaerobic Liquid Gasket	For metal-to-metal flange sealing. Can fill a 0.38 mm (0.015 inch) gap and provide instant sealing for most powertrain applications.	999MP-AM001P	99998-50503	Permatex 51813 and 51817
3	High Performance Thread Sealant	Provides instant sealing on any threaded straight or parallel threaded fitting. (Thread sealant only, no locking ability.) • Do not use on plastic.	999MP-AM002P	999MP-AM002P	Permatex 56521
4	Silicone RTV	Gasket Maker	999MP-AM003P (Ultra Grey)	99998-50506 (Ultra Grey)	Permatex Ultra Grey 82194; Three Bond 1207, 1215, 1216, 1217F, 1217G and 1217H Nissan RTV Part No. 999MP-A7007
5	High Temperature, High Strength Thread Locking Sealant (Red)	Threadlocker	999MP-AM004P	999MP-AM004P	Permatex 27200; Three Bond 1360, 1360N, 1305 N&P, 1307N, 1335, 1335B, 1363B, 1377C, 1386B, D&E and 1388 Loctite 648
6	Medium Strength Thread Locking Sealant (Blue)	Threadlocker (service tool removable)	999MP-AM005P	999MP-AM005P	Permatex 24200, 24206, 24240, 24283 and 09178; Three Bond 1322, 1322N, 1324 D&N, 1333D, 1361C, 1364D, 1370C and 1374

PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

Description

INFOID:0000000009981460

Observe the following precautions to ensure safe and proper servicing. These precautions are not described in each individual section.

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010291447

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

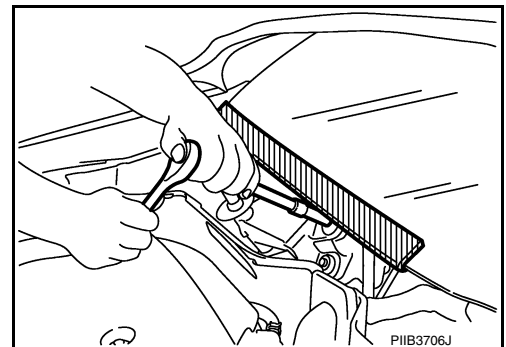
WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Procedures without Cowl Top Cover

INFOID:0000000009981462

When performing the procedure after removing cowl top cover, cover the lower end of windshield with urethane, etc.



Cautions in Removing Battery Terminal and AV Control Unit (Models with AV Control Unit)

INFOID:0000000009981463

CAUTION:

Remove battery terminal and AV control unit after a lapse of 30 seconds or more after turning the ignition switch OFF.

NOTE:

After the ignition switch is turned OFF, the AV control unit continues operating for approximately 30 seconds. Therefore, data corruption may occur if battery voltage is cut off within 30 seconds.

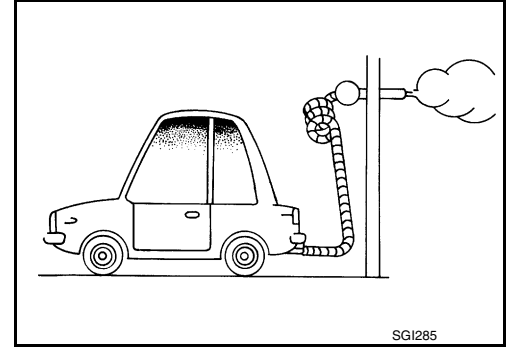
PRECAUTIONS

< PRECAUTION >

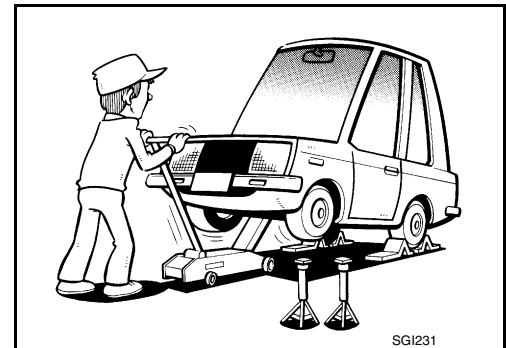
General Precautions

INFOID:000000009981464

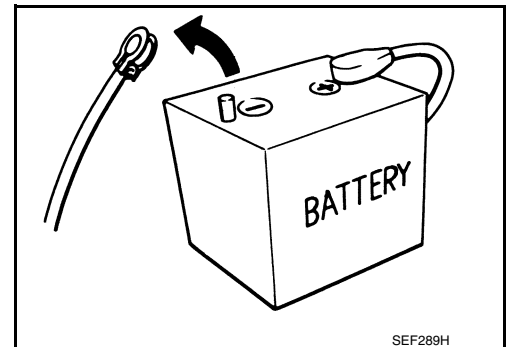
- Do not operate the engine for an extended period of time without proper exhaust ventilation.
Keep the work area well ventilated and free of any inflammable materials. Special care should be taken when handling any inflammable or poisonous materials, such as gasoline, refrigerant gas, etc. When working in a pit or other enclosed area, be sure to properly ventilate the area before working with hazardous materials. Do not smoke while working on the vehicle.



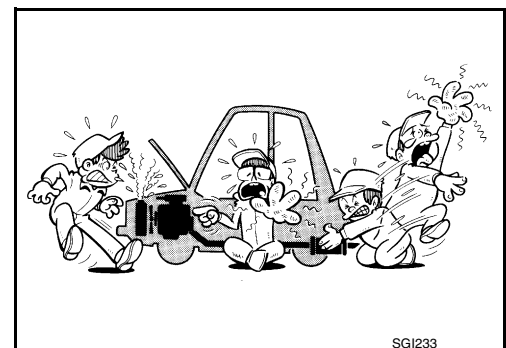
- Before jacking up the vehicle, apply wheel chocks or other tire blocks to the wheels to prevent the vehicle from moving. After jacking up the vehicle, support the vehicle weight with safety stands at the points designated for proper lifting before working on the vehicle.
These operations should be done on a level surface.
- When removing a heavy component such as the engine or transaxle/transmission, be careful not to lose your balance and drop them. Also, do not allow them to strike adjacent parts, especially the brake tubes and master cylinder.



- Before starting repairs which do not require battery power:
Turn off ignition switch.
Disconnect the negative battery terminal.
- If the battery terminals are disconnected, recorded memory of radio and each control unit is erased.



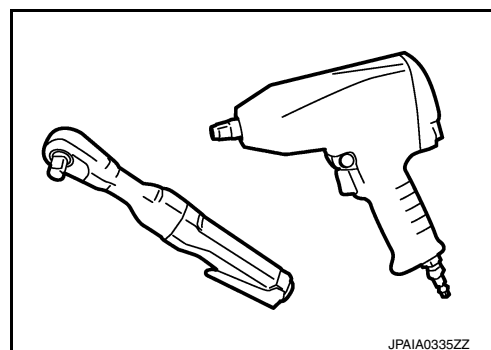
- To prevent serious burns:
Avoid contact with hot metal parts.
Do not remove the radiator cap when the engine is hot.
- Dispose of drained oil or the solvent used for cleaning parts in an appropriate manner.
- Do not attempt to top off the fuel tank after the fuel pump nozzle shuts off automatically.
Continued refueling may cause fuel overflow, resulting in fuel spray and possibly a fire.
- Clean all disassembled parts in the designated liquid or solvent prior to inspection or assembly.
- Replace oil seals, gaskets, packings, O-rings, locking washers, cotter pins, self-locking nuts, etc. with new ones.
- Replace inner and outer races of tapered roller bearings and needle bearings as a set.
- Arrange the disassembled parts in accordance with their assembled locations and sequence.
- Do not touch the terminals of electrical components which use microcomputers (such as ECM).
Static electricity may damage internal electronic components.
- After disconnecting vacuum or air hoses, attach a tag to indicate the proper connection.
- Use only the fluids and lubricants specified in this manual.
- Use approved bonding agent, sealants or their equivalents when required.



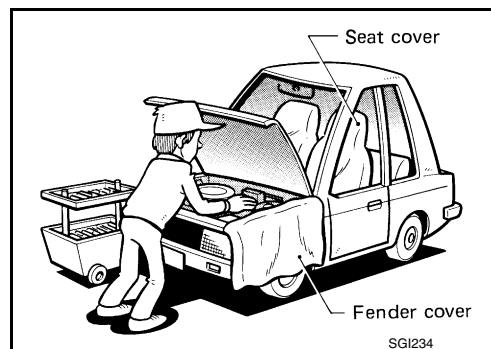
PRECAUTIONS

< PRECAUTION >

- Use hand tools, power tools (disassembly only) and recommended special tools where specified for safe and efficient service repairs.
- When repairing the fuel, oil, water, vacuum or exhaust systems, check all affected lines for leaks.



- Before servicing the vehicle:
Protect fenders, upholstery and carpeting with appropriate covers.
Take caution that keys, buckles or buttons do not scratch paint.



WARNING:

To prevent ECM from storing the diagnostic trouble codes, do not carelessly disconnect the harness connectors which are related to the engine control system and TCM (transmission control module) system. The connectors should be disconnected only when working according to the WORK FLOW of TROUBLE DIAGNOSES in EC and TM sections.

Three Way Catalyst

INFOID:000000009981465

If a large amount of unburned fuel flows into the catalyst, the catalyst temperature will be excessively high. To prevent this, follow the instructions.

- Use unleaded gasoline only. Leaded gasoline will seriously damage the three way catalyst.
- When checking for ignition spark or measuring engine compression, make tests quickly and only when necessary.
- Do not run engine when the fuel tank level is low, otherwise the engine may misfire, causing damage to the catalyst.

Do not place the vehicle on flammable material. Keep flammable material off the exhaust pipe and the three way catalyst.

Fuel (Regular Unleaded Gasoline Recommended)

INFOID:000000009981466

Use unleaded regular gasoline with an octane rating of at least 87 AKI (Anti-Knock Index) number (Research octane number 91). E-85 fuel (85% fuel ethanol, 15% unleaded gasoline) may only be used in vehicles specifically designed for E-85 fuel (i.e. Flexible Fuel Vehicle - FFV models).

CAUTION:

Do not use leaded gasoline. Using leaded gasoline will damage the three way catalyst. Do not use E-85 fuel (85% fuel ethanol, 15% unleaded gasoline) unless the vehicle is specifically designed for E-85 fuel (i.e. Flexible Fuel Vehicle - FFV models). Using a fuel other than that specified could adversely affect the emission control devices and systems, and could also affect the warranty coverage validity.

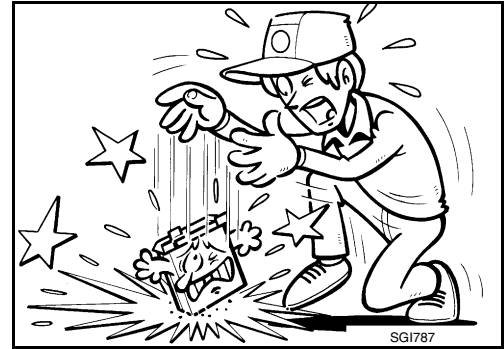
PRECAUTIONS

< PRECAUTION >

Multiport Fuel Injection System or Engine Control System

INFOID:000000009981467

- Before connecting or disconnecting any harness connector for the multiport fuel injection system or ECM:
Turn ignition switch to "OFF" position.
Disconnect negative battery terminal.
Otherwise, there may be damage to ECM.
- Before disconnecting pressurized fuel line from fuel pump to injectors, be sure to release fuel pressure.
- Be careful not to jar components such as ECM and mass air flow sensor.

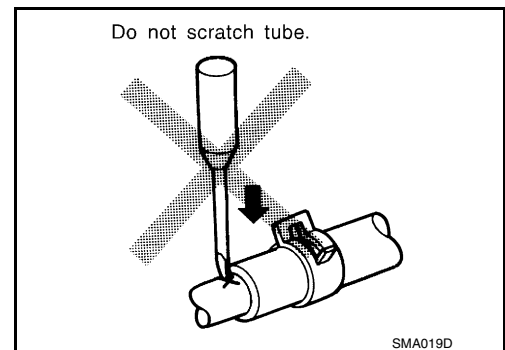


Hoses

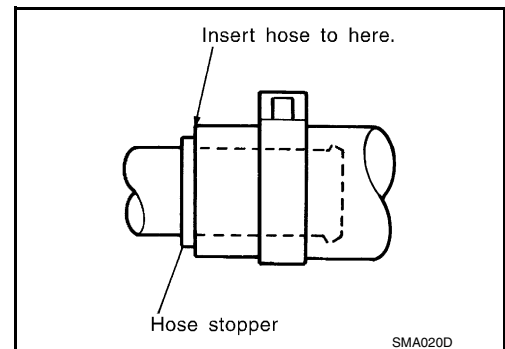
INFOID:000000009981468

HOSE REMOVAL AND INSTALLATION

- To prevent damage to rubber hose, do not pry off rubber hose with tapered tool or screwdriver.

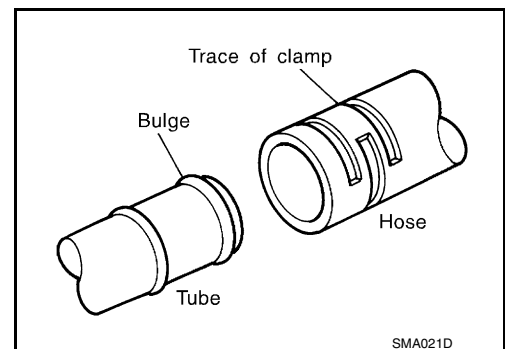


- To reinstall the rubber hose securely, make sure that hose insertion length and orientation is correct. (If tube is equipped with hose stopper, insert rubber hose into tube until it butts up against hose stopper.)



HOSE CLAMPING

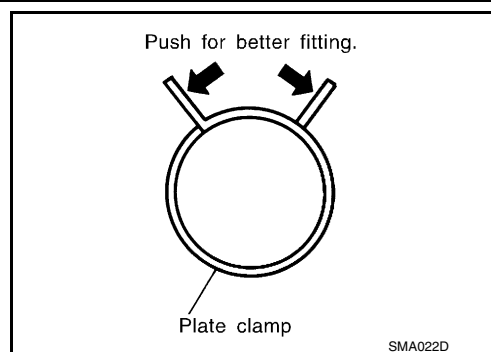
- If old rubber hose is re-used, install hose clamp in its original position (at the indentation where the old clamp was). If there is a trace of tube bulging left on the old rubber hose, align rubber hose at that position.
- Discard old clamps; replace with new ones.



PRECAUTIONS

< PRECAUTION >

- After installing plate clamps, apply force to them in the direction of the arrow, tightening rubber hose equally all around.



Engine Oils

INFOID:000000009981469

Prolonged and repeated contact with used engine oil may cause skin cancer. Try to avoid direct skin contact with used oil.

If skin contact is made, wash thoroughly with soap or hand cleaner as soon as possible.

HEALTH PROTECTION PRECAUTIONS

- Avoid prolonged and repeated contact with oils, particularly used engine oils.
- Wear protective clothing, including impervious gloves where practicable.
- Do not put oily rags in pockets.
- Avoid contaminating clothes, particularly underpants, with oil.
- Heavily soiled clothing and oil-impregnated footwear should not be worn. Overalls must be cleaned regularly.
- First aid treatment should be obtained immediately for open cuts and wounds.
- Use barrier creams, applying them before each work period, to help the removal of oil from the skin.
- Wash with soap and water to ensure all oil is removed (skin cleansers and nail brushes will help). Preparations containing lanolin replace the natural skin oils which have been removed.
- Do not use gasoline, kerosene, diesel fuel, gas oil, thinners or solvents for cleaning skin.
- If skin disorders develop, obtain medical advice without delay.
- Where practical, degrease components prior to handling.
- Where there is a risk of eye contact, eye protection should be worn, for example, chemical goggles or face shields; in addition an eye wash facility should be provided.

ENVIRONMENTAL PROTECTION PRECAUTIONS

Dispose of used oil and used oil filters through authorized waste disposal contractors to licensed waste disposal sites, or to the waste oil reclamation trade. If in doubt, contact the local authority for advice on disposal facilities.

It is illegal to pour used oil on to the ground, down sewers or drains, or into water sources.

The regulations concerning pollution vary between regions.

Air Conditioning

INFOID:000000009981470

Use an approved refrigerant recovery unit any time the air conditioning system must be discharged. Refer to [HA-21, "Description"](#).

LIFTING POINT

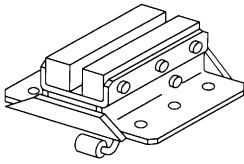
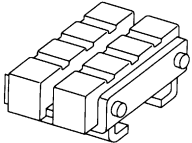
< PRECAUTION >

LIFTING POINT

Special Service Tool

INFOID:000000009981471

The actual shapes of Kent-Moore tools may differ from those of special service tools illustrated here.

Tool number (Kent-Moore No.) Tool name	Description
LM4086-0200 (-) Board on attachment	 S-NT001
LM4519-0000 (-) Safety stand attachment	 S-NT002

CAUTION:

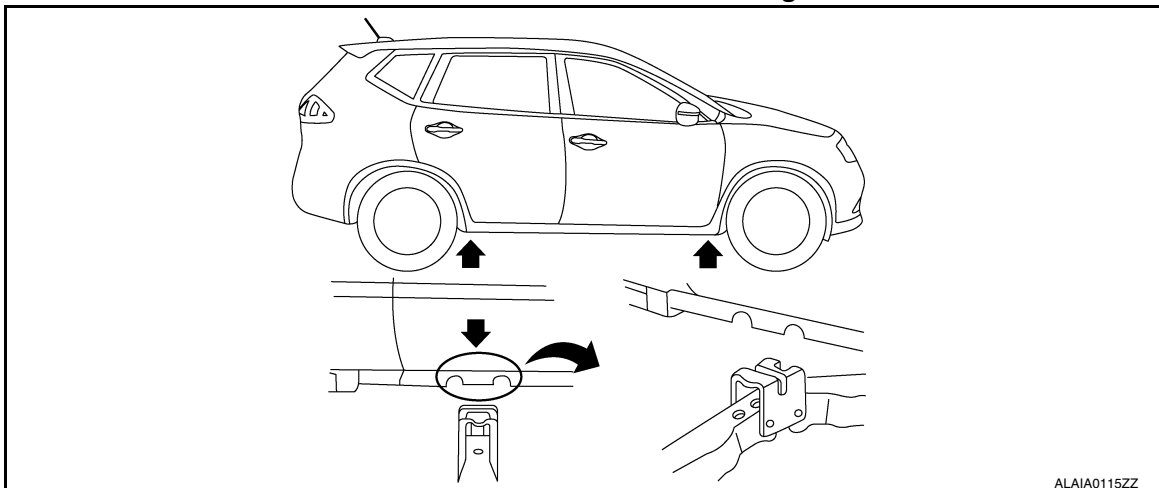
- Every time the vehicle is lifted up, maintain the complete vehicle curb condition.
- Since the vehicle's center of gravity changes when removing main parts on the front side (engine, transmission, suspension etc.), support a jack up point on the rear side garage jack with a transmission jack or equivalent.
- Since the vehicle's center of gravity changes when removing main parts on the rear side (rear axle, suspension, etc.), support a jack up point on the front side garage jack with a transmission jack or equivalent.
- Be careful not to smash or do anything that would affect piping parts.

Pantograph Jack

INFOID:000000010288621

WARNING:

- Never get under the vehicle while it is supported only by the jack. Always use safety stands to support the frame when you have to get under the vehicle.
- Place wheel chocks at both front and back of the wheels on the ground.



LIFTING POINT

< PRECAUTION >

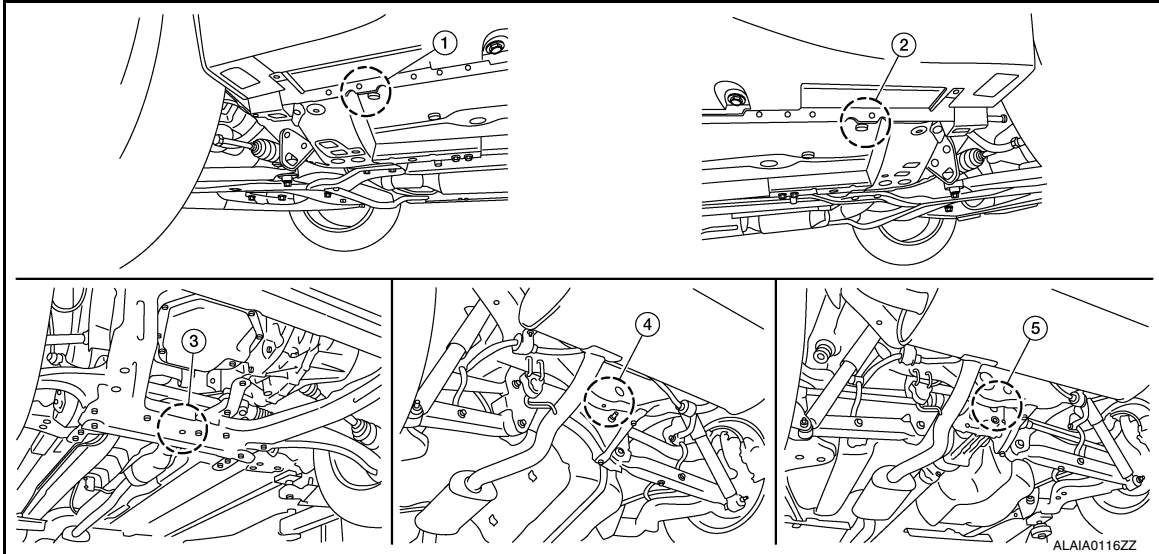
Garage Jack and Safety Stand and 2-Pole Lift

INFOID:000000010288620

GI

WARNING:

- Park the vehicle on a level surface when using the jack. Check to avoid damaging pipes, tubes, etc. under the vehicle.
- Never get under the vehicle while it is supported only by the jack. Always use safety stands when you have to get under the vehicle.
- Place wheel chocks at both front and back of the wheels on the ground.
- When lifting the vehicle, open the lift arms as wide as possible and ensure that the front and rear of the vehicle are well balanced.
- When setting the lift arm, never allow the arm to contact the brake tubes, brake cable, fuel lines and sill spoiler.



1. Safety stand point and lift up point (front)
2. Safety stand point and lift up point (rear)
3. Garage jack point (front)
4. Garage jack point (rear) (FWD)
5. Garage jack point (rear) (AWD)

CAUTION:

There is canister just behind Garage jack point rear. Jack up carefully.

Board-on Lift

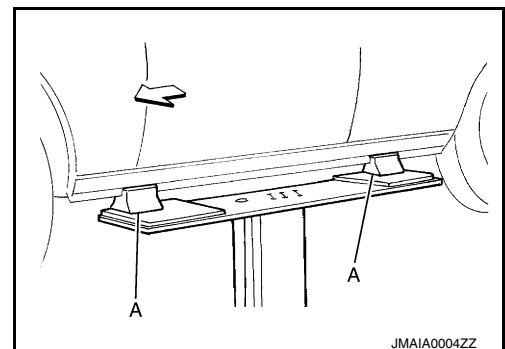
INFOID:000000009981474

CAUTION:

Make sure vehicle is empty when lifting.

- The board-on lift attachment (A) set at front end of vehicle should be set on the front of the sill under the front door opening.
- Position attachments at front and rear ends of board-on lift.

← : Vehicle front



JMAIA0004ZZ

TOW TRUCK TOWING

< PRECAUTION >

TOW TRUCK TOWING

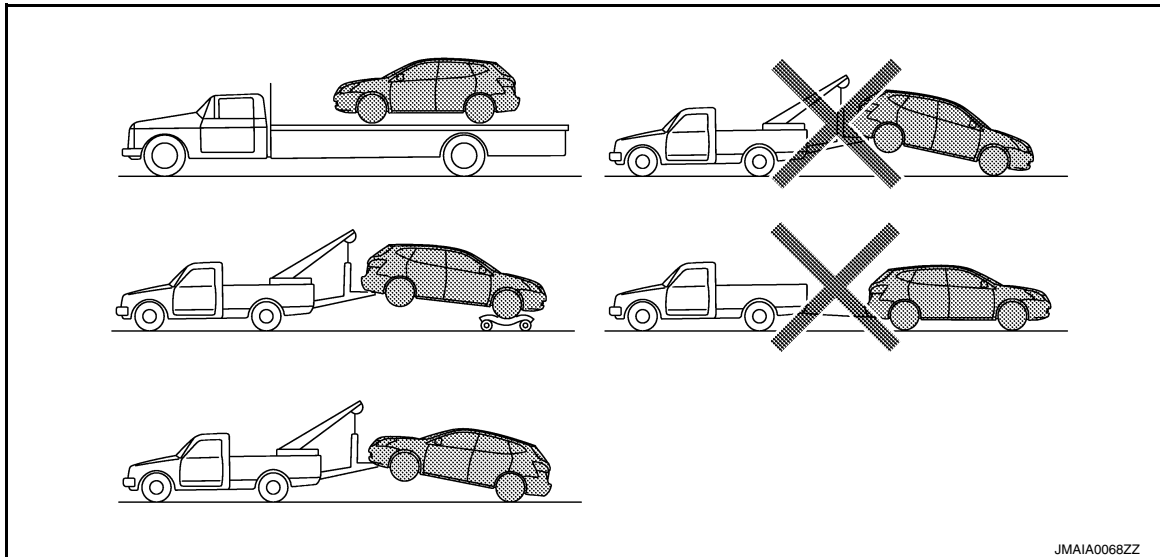
Tow Truck Towing

INFOID:000000010288632

CAUTION:

- All applicable state or Provincial (in Canada) laws and local laws regarding the towing operation must be obeyed.
- It is necessary to use proper towing equipment to avoid possible damage to the vehicle during towing operation. Towing is in accordance with Towing Procedure Manual at dealer.
- Always attach safety chains before towing.
- When towing, check that the transmission, steering system and powertrain are in good order. If any unit is damaged, dollies must be used.
- Never tow a CVT model from the rear (that is backward) with four wheels on the ground. This may cause serious and expensive damage to the transmission.

FWD MODELS



NISSAN recommends that vehicle be towed with the driving (front) wheels off the ground or that a dolly be used as illustrated.

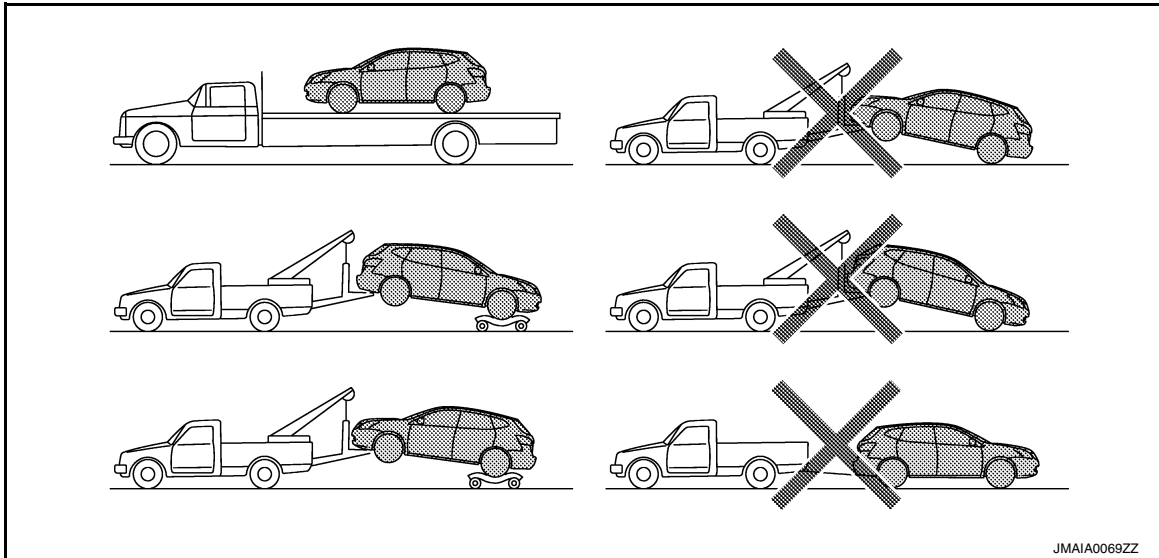
CAUTION:

- Never tow CVT models with the front wheels on the ground or four wheels on the ground (forward or backward), as this may cause serious and expensive damage to the transmission.
If it is necessary to tow the vehicle with the rear wheels raised, always use towing dollies under the front wheels.
- When towing CVT models with the front wheels on towing dollies:
 - Turn the ignition switch to the OFF position, and secure the steering wheel in a straight ahead position with a rope or similar device. Never secure the steering wheel by turning the ignition switch to the LOCK position. This may damage the steering lock mechanism.
 - Move the selector lever to the N (Neutral) position.
- When the battery of vehicle equipped with the Intelligent Key system is discharged, your vehicle should be towed with the front wheels on towing dollies or place the vehicle on a flat bed truck.
- When towing two wheel drive CVT model with the rear wheels on the ground (if you do not use towing dollies): Always release the parking brake.

TOW TRUCK TOWING

< PRECAUTION >

AWD MODELS



NISSAN recommends that a dolly be used as illustrated when towing AWD models.

CAUTION:

Never tow AWD models with any of the wheels on the ground as this may cause serious and expensive damage to the powertrain.

Vehicle Recovery (Freeing a Stuck Vehicle)

INFOID:0000000010288633

FRONT

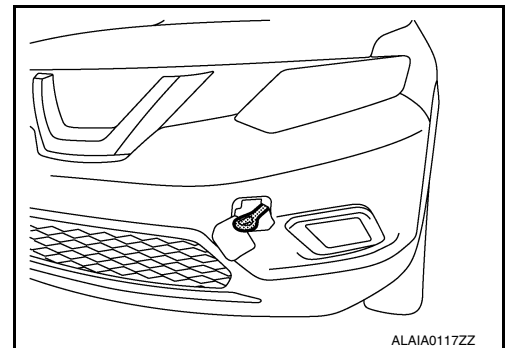
Securely install the vehicle recovery hook stored with jacking tools. Check that the hook is properly secured in the stored place after use.

WARNING:

- Stand clear of a stuck vehicle.
- Never spin your tires at high speed. This could cause them to explode and result in serious injury. Parts of your vehicle could also overheat and be damaged.

CAUTION:

- Tow chains or cables must be attached only to the vehicle recovery hooks or main structural members of the vehicle. Otherwise, the vehicle body will be damaged.
- Never use the vehicle tie downs to free a vehicle stuck in sand, snow, mud, etc. Never tow the vehicle using the vehicle tie downs or recovery hooks.
- Always pull the cable straight out from the front of the vehicle. Never pull on the hook at an angle.
- Pulling devices should be routed so they never touch any part of the suspension, steering, brake or cooling systems.
- Pulling devices such as ropes or canvas straps are not recommended for use in vehicle towing or recovery.



REAR

WARNING:

- Rear hook is not available.

CVT

To tow a vehicle equipped with an automatic transmission, an appropriate vehicle dolly **MUST** be placed under the towed vehicle's drive wheels. **Always** follow the dolly manufacture's recommendations when using their product.

If the vehicle is stuck in sand, snow, mud, etc., use the following procedure:

1. Turn off the Vehicle Dynamic Control System.
2. Check the area in front and behind the vehicle is clear of obstructions.

TOW TRUCK TOWING

< PRECAUTION >

3. Turn the steering wheel right and left to clear an area around the front tires.
4. Slowly rock the vehicle forward and backward.
Shift back and forth between R (reverse) and D (drive).
Apply the accelerator as little as possible to maintain the rocking motion.
Release the accelerator pedal before shifting between R and D.
Do not spin the tires above 35 mph (55 km/h).
5. If the vehicle can not be freed after a few tries, contact a professional towing service to remove the vehicle.

IDENTIFICATION INFORMATION

< VEHICLE INFORMATION >

VEHICLE INFORMATION

IDENTIFICATION INFORMATION

Model Variation

INFOID:000000009981477

FWD Model

Body	Engine	Grade	Transmission	Destination	
				US	Canada
2 Row Wagon	QR25DE	S	CVT	TDBALPZ-EUA	TDBALPZ-ENA
		SV		TDBALQZ-EUA	TDBALQZ-ENA
		SV Premium		TDBALTZ-EUA	—
		SL		TDBALRZ-EUA	—
		SL Premium		TDBALSZ-EUA	—
3 Row Wagon		S		JDBALPZ-EUA	—
		SV		JDBALQZ-EUA	JDBALQZ-ENA JDBALRZ-ENA
		SV Premium		JDBALQZ-EUA	—

AWD Model

Body	Engine	Grade	Transmission	Destination	
				US	Canada
2 Row Wagon	QR25DE	S	CVT	TDBNLPZ-EUA	TDBNLPZ-ENA
		SV		TDBNLQZ-EUA	TDBNLQZ-ENA
		SV Premium		TDBNLTZ-EUA	—
		SL		TDBNLRZ-EUA	TDBNLRZ-ENA
		SL Premium		TDBNLSZ-EUA	TDBNLSZ-EUA
3 Row Wagon		S		JDBNLPZ-EUA	—
		SV		JDBNLQZ-EUA	JDBNLQZ-ENA JDBNLRZ-ENA
		SV Premium		JDBNLQZ-EUA	—

Prefix and Suffix Designations

Position	Character	Qualifier	Definition
1	T	Body type	J: 3 Row Wagon
			T: 2 Row Wagon
2	DB	Engine	DB: QR25DE
3			
4	A	Axle	A: FWD
			N: AWD
5	L	Drive	L: LH
6	P	Grade	P: S
			Q: SV
			R: SL
			S: SL Premium
			T: SV Premium
7	Z	Transmission	Z: CVT

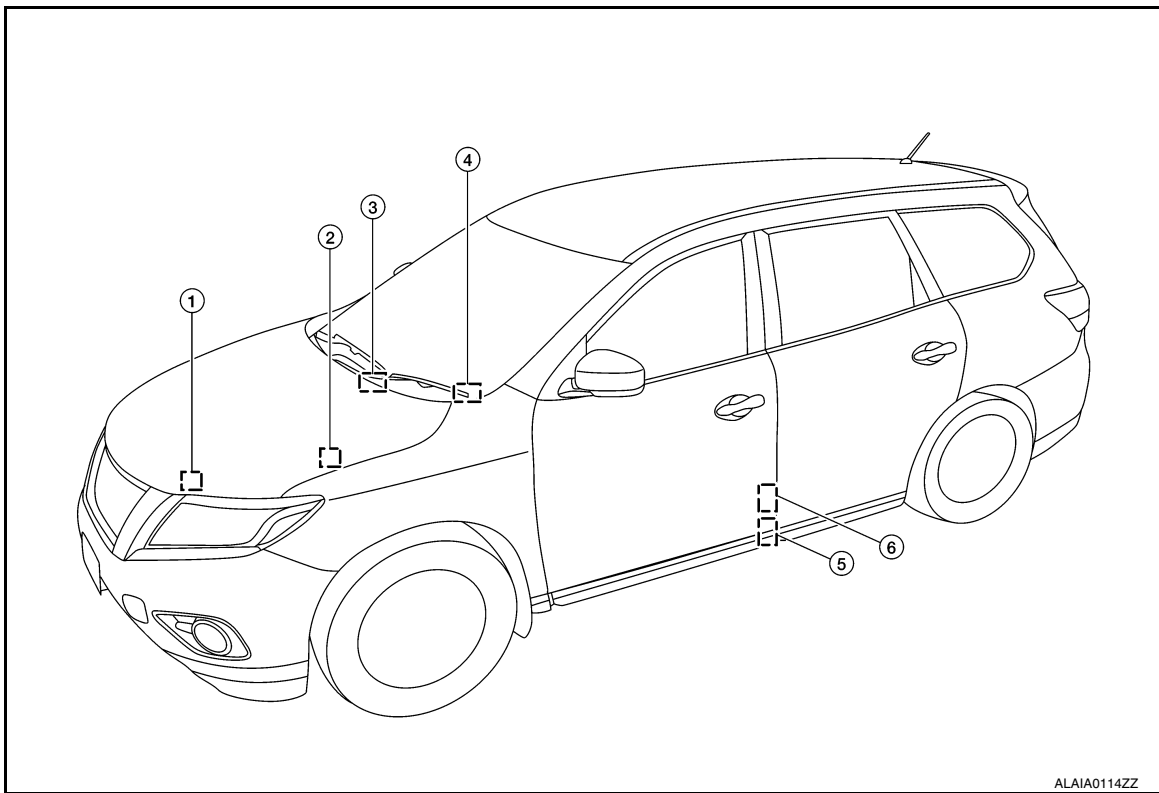
IDENTIFICATION INFORMATION

< VEHICLE INFORMATION >

Position	Character	Qualifier	Definition
8	T32	Model	T32: Rogue
9			
10			
11	E	Intake	E: EGI
12	U	Zone	U: 50-state
			N: Canada
13	A	Equipment	A: Standard
14	XXXXX	Option Codes	Option Codes
15			
16			
17			
18			

Identification Number

INFOID:000000009981478



ALAIA0114ZZ

1. Air conditioner specification label
2. Emission control information label
3. Vehicle identification number chassis number (center of bulkhead)
4. Vehicle Identification Number (VIN) plate
5. F.M.V.S.S./C.M.V.S.S. certification label
6. Tire and loading information label

Vehicle Identification Number Arrangement

Position	Character	Qualifier	Definition
1	5N1	Manufacturer	5N1: Multi-purpose Vehicle
2			
3			
4	A	Engine type	A: QR25DE

IDENTIFICATION INFORMATION

< VEHICLE INFORMATION >

Position	Character	Qualifier	Definition
5	T2	Model series	T2: T32 (Rogue)
6			
7	M	Body type	M: 4 Door Wagon
8	L	Restraint system	L: 2WD, Class C (7 seating capacity) • (Driver and Passenger) 3-Point Manual Belts, Frontal Air Bags, Side Air Bags and Curtain Side Air Bags. • (2nd Row Outboard): 3-Point Manual Belts and Curtain Side Air Bags. • (2nd Row Center): 3-Point Manual Belt. • (3rd Row Outboard): 3-Point Manual Belts and Curtain Side Air Bags.
			T: 2WD, Class C (5 seating capacity) • (Driver and Passenger) 3-Point Manual Belts, Frontal Air Bags, Side Air Bags and Curtain Side Air Bags. • (2nd Row Outboard): 3-Point Manual Belts and Curtain Side Air Bags. • (2nd Row Center): 3-Point Manual Belt.
			V: 4WD, Class C (5 seating capacity) • (Driver and Passenger) 3-Point Manual Belts, Frontal Air Bags, Side Air Bags and Curtain Side Air Bags. • (2nd Row Outboard): 3-Point Manual Belts and Curtain Side Air Bags. • (2nd Row Center): 3-Point Manual Belt.
9	*	Check digit	(0 to 9 or X) The code for the check digit is determined by a mathematical computation
10	E	Model year	E: 2014
11	C	Manufacturing plant	C: Smyrna, Tennessee
12	XXXXXX	Vehicle serial number	Chassis number
13			
14			
15			
16			
17			

Identification Plate

INFOID:000000009981479

MFD BY NISSAN MOTOR CO., LTD.		1 Date of manufacture
DATE: 1		2 Vehicle identification number (Chassis number)
GVWR:		3 Model
GAWR FR.:		4 Body color code
GAWR RR.:		5 Trim color code
THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY, BUMPER AND THEFT PREVENTION STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE. 2 1N4AA5APXAC 058021 PASSENGER CAR 200 3 MODEL: COLOR: 4 TRIM: 5		

ALAI0012GB

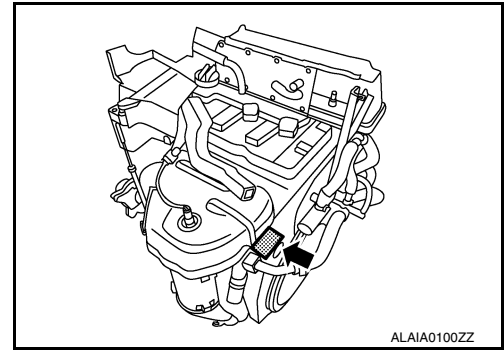
IDENTIFICATION INFORMATION

< VEHICLE INFORMATION >

Engine Serial Number

INFOID:000000009981480

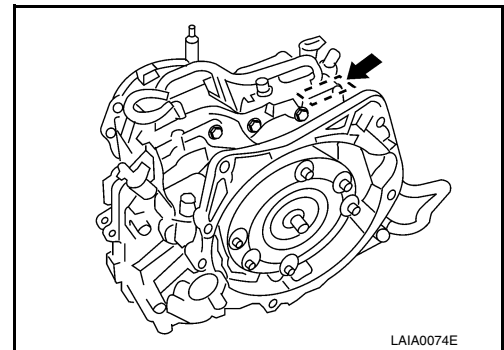
QR25DE



↶: Vehicle front

CVT Number

INFOID:000000009981481



Dimensions

INFOID:000000009981483

Unit: mm (in)

Overall length	without front license plate bracket	4,643 (182.8)
	with front license plate bracket	4,655 (183.3)
Overall width		1,830 (72.0)
Overall height	without roof rack	1,696 (66.8)
	with roof rack	1,714 (67.5)
Front tread		1,595 (62.8)
Rear tread		1,595 (62.8)
Wheelbase		2,706 (106.5)

Wheels & Tires

INFOID:000000009981484

	Conventional	Spare (if equipped)
Road wheel/offset mm (in)	17 X 7.0J Steel/35 (1.38) 17 X 7.0J Aluminum/35 (1.38) 18 X 7.0J Aluminum/35 (1.38)	
Tire size	P225/65R17 P225/65RF17 P225/60R18	T145/90D16 T155/90D17

SERVICE INFORMATION FOR ELECTRICAL INCIDENT

< BASIC INSPECTION >

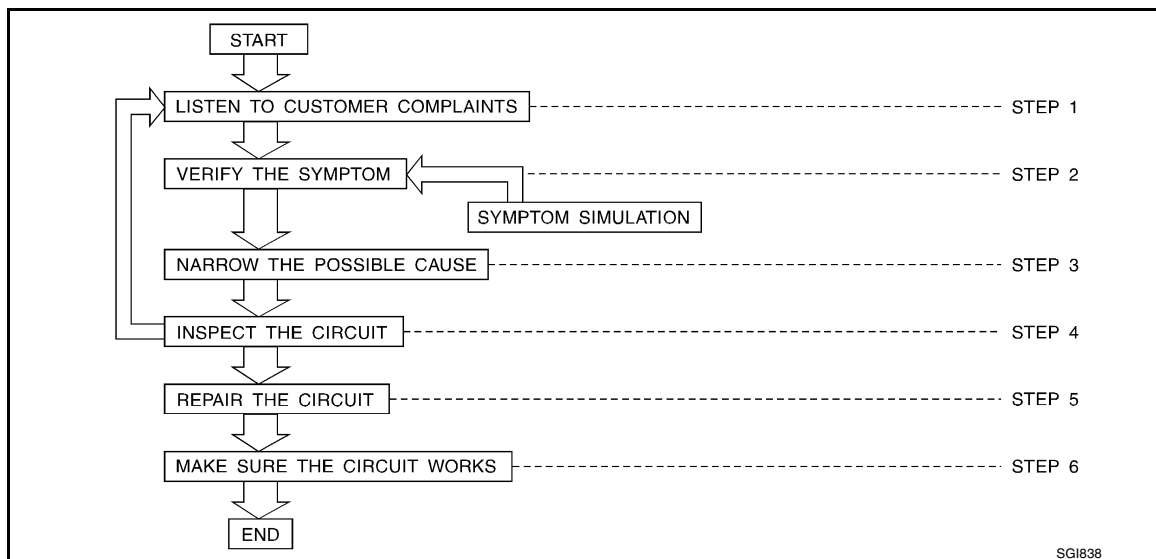
BASIC INSPECTION

SERVICE INFORMATION FOR ELECTRICAL INCIDENT

Work Flow

INFOID:000000009981485

WORK FLOW



STEP	DESCRIPTION	
STEP 1	Get detailed information about the conditions and the environment when the incident occurred. The following are key pieces of information required to make a good analysis:	
	WHAT	Vehicle Model, Engine, Transmission/Transaxle and the System (i.e. Radio).
	WHEN	Date, Time of Day, Weather Conditions, Frequency.
	WHERE	Road Conditions, Altitude and Traffic Situation.
	HOW	System Symptoms, Operating Conditions (Other Components Interaction). Service History and if any After Market Accessories have been installed.
STEP 2	Operate the system, road test if necessary. Verify the parameter of the incident. If the problem cannot be duplicated, refer to "Incident Simulation Tests".	
STEP 3	Get the proper diagnosis materials together including: • Power Supply Routing • System Operation Descriptions • Applicable Service Manual Sections • Check for any Service Bulletins Identify where to begin diagnosis based upon your knowledge of the system operation and the customer comments.	
STEP 4	Inspect the system for mechanical binding, loose connectors or wiring damage. Determine which circuits and components are involved and diagnose using the Power Supply Routing and Harness Lay-outs.	
STEP 5	Repair or replace the incident circuit or component.	
STEP 6	Operate the system in all modes. Verify the system works properly under all conditions. Make sure you have not inadvertently created a new incident during your diagnosis or repair steps.	

Control Units and Electrical Parts

INFOID:000000009981486

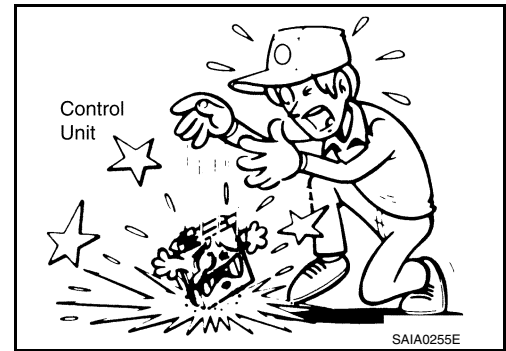
PRECAUTIONS

- Never reverse polarity of battery terminals.
- Install only parts specified for a vehicle.
- Before replacing the control unit, check the input and output and functions of the component parts.
- Do not apply excessive force when disconnecting a connector.

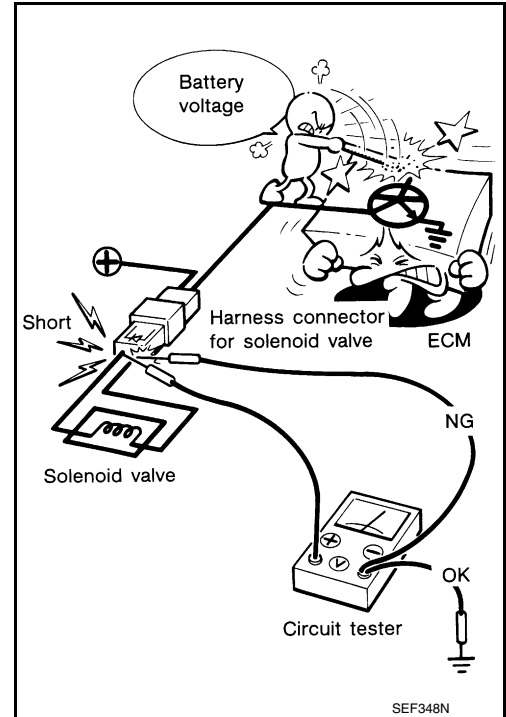
SERVICE INFORMATION FOR ELECTRICAL INCIDENT

< BASIC INSPECTION >

- Do not apply excessive shock to the control unit by dropping or hitting it.
- Be careful to prevent condensation in the control unit due to rapid temperature changes and do not let water or rain get on it. If water is found in the control unit, dry it fully and then install it in the vehicle.
- Be careful not to let oil get on the control unit connector.
- Avoid cleaning the control unit with volatile oil.
- Do not disassemble the control unit, and do not remove the upper and lower covers.



- When using a DMM, be careful not to let test probes get close to each other to prevent the power transistor in the control unit from damaging battery voltage because of short circuiting.
- When checking input and output signals of the control unit, use the specified check adapter.



How to Check Terminal

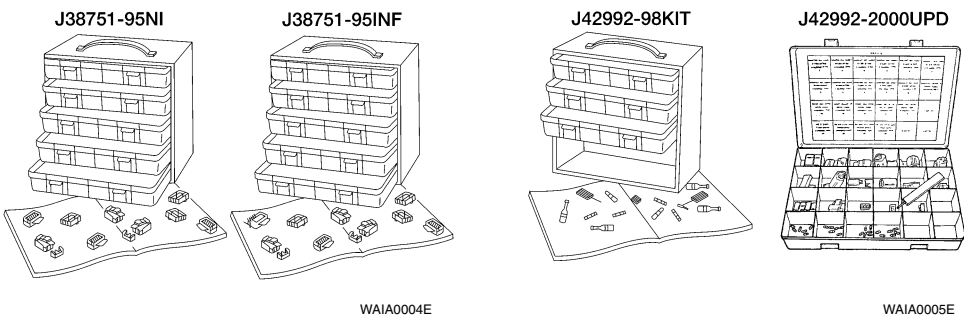
INFOID:000000009981487

CONNECTOR AND TERMINAL PIN KIT

- Use the connector and terminal pin kits listed below when replacing connectors or terminals.
- The connector and terminal pin kits contain some of the most commonly used NISSAN/INFINITI connectors and terminals. For detailed connector and terminal pin replacement procedures, refer to the latest NISSAN/INFINITI CONNECTOR AND TERMINAL PIN SERVICE MANUAL.

SERVICE INFORMATION FOR ELECTRICAL INCIDENT

< BASIC INSPECTION >

Tool number (Kent-Moore No.) Tool name	Description
- (J38751-95NI) Connector and terminal pin kit (NISSAN)	
- (J38751-95INF) Connector and terminal pin kit (INFINITI)	
- (J42992-98KIT) OBD and terminal repair kit	
- (J42992-2000UPD) OBD-II Connector Kit Up- date	

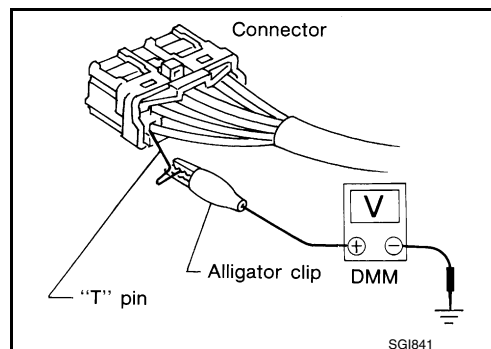
HOW TO PROBE CONNECTORS

- Connector damage and an intermittent connection can result from improperly probing of the connector during circuit checks.
- The probe of a digital multimeter (DMM) may not correctly fit the connector cavity. To correctly probe the connector, follow the procedures below using a "T" pin. For the best contact grasp the "T" pin using an alligator clip.

Probing from Harness Side

Standard type (not waterproof type) connector should be probed from harness side with "T" pin.

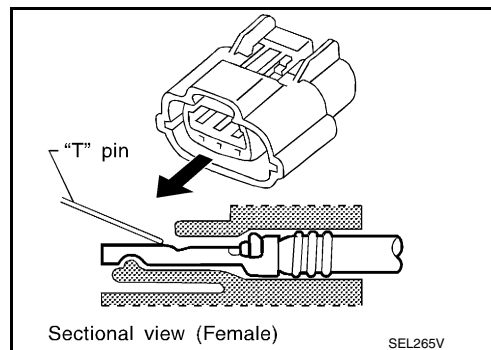
- If the connector has a rear cover such as a ECM connector, remove the rear cover before probing the terminal.
- Do not probe waterproof connector from harness side. Damage to the seal between wire and connector may result.



Probing from Terminal Side

FEMALE TERMINAL

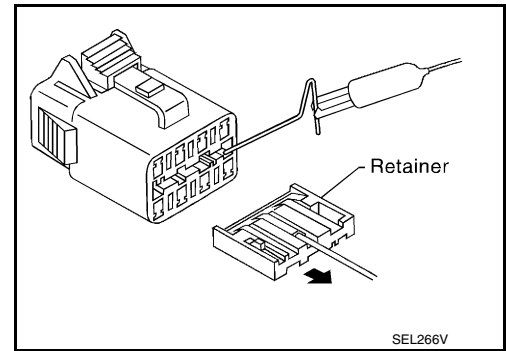
- There is a small notch above each female terminal. Probe each terminal with the "T" pin through the notch. Do not insert any object other than the same type male terminal into female terminal.



SERVICE INFORMATION FOR ELECTRICAL INCIDENT

< BASIC INSPECTION >

- Some connectors do not have a notch above each terminal. To probe each terminal, remove the connector retainer to make contact space for probing.

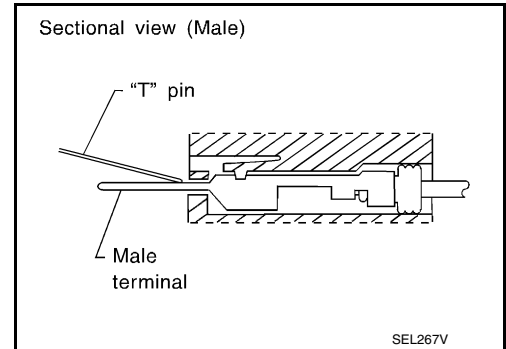


MALE TERMINAL

- Carefully probe the contact surface of each terminal using a "T" pin.

CAUTION:

Do not bend terminal.



How to Check Enlarged Contact Spring of Terminal

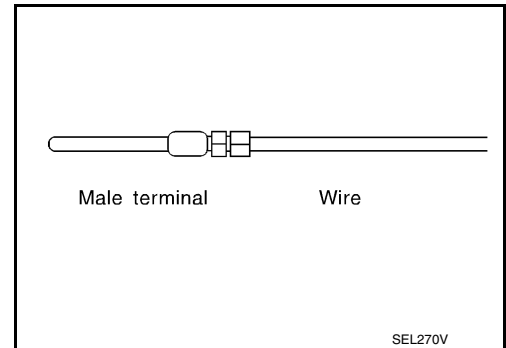
- An enlarged contact spring of a terminal may create intermittent signals in the circuit.
- If the intermittent open circuit occurs, follow the procedure below to inspect for open wires and enlarged contact spring of female terminal.

- Assemble a male terminal and approx. 10 cm (3.9 in) of wire.

NOTE:

Use a male terminal which matches the female terminal.

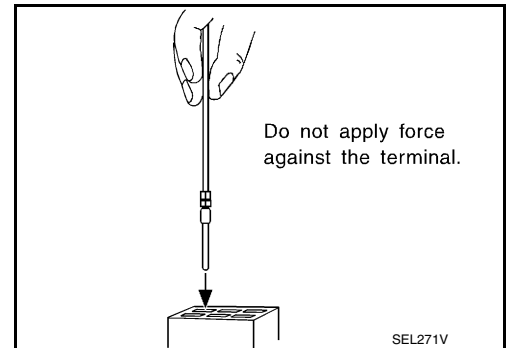
- Disconnect the suspected faulty connector and hold it terminal side up.



- While holding the wire of the male terminal, try to insert the male terminal into the female terminal.

CAUTION:

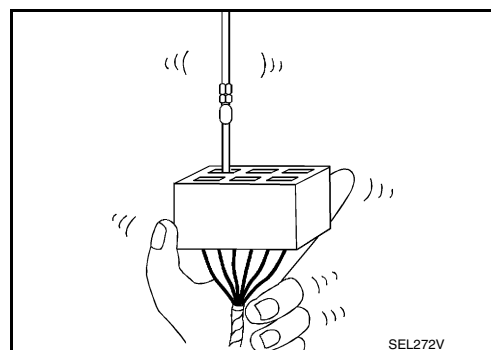
Do not force the male terminal into the female terminal with your hands.



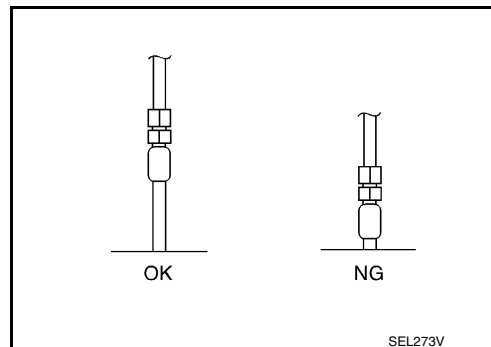
SERVICE INFORMATION FOR ELECTRICAL INCIDENT

< BASIC INSPECTION >

4. While moving the connector, check whether the male terminal can be easily inserted or not.



- If the male terminal can be easily inserted into the female terminal, replace the female terminal.



Waterproof Connector Inspection

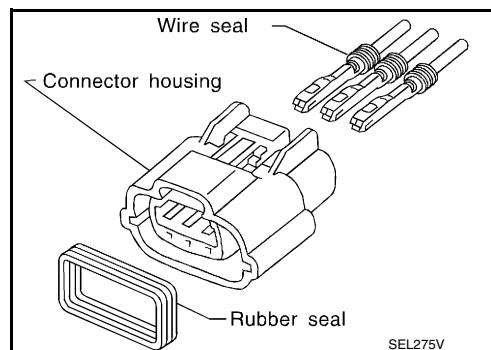
If water enters the connector, it can short interior circuits. This may lead to intermittent problems. Check the following items to maintain the original waterproof characteristics.

RUBBER SEAL INSPECTION

- Most waterproof connectors are provided with a rubber seal between the male and female connectors. If the seal is missing, the waterproof performance may not meet specifications.
- The rubber seal may come off when connectors are disconnected. Whenever connectors are reconnected, make sure the rubber seal is properly installed on either side of male or female connector.

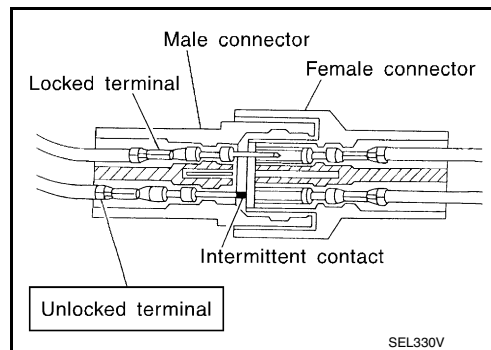
WIRE SEAL INSPECTION

- The wire seal must be installed on the wire insertion area of a waterproof connector. Be sure that the seal is installed properly.



Terminal Lock Inspection

Check for unlocked terminals by pulling wire at the end of connector. An unlocked terminal may create intermittent signals in the circuit.



Intermittent Incident

INFOID:000000009981488

DESCRIPTION

Sometimes the symptom is not present when the vehicle is brought in for service. If possible, re-create the conditions present at the time of the incident. Doing so may help avoid a No Trouble Found Diagnosis. The fol-

SERVICE INFORMATION FOR ELECTRICAL INCIDENT

< BASIC INSPECTION >

Following section illustrates ways to simulate the conditions/environment under which the owner experiences an electrical incident.

The section is broken into the six following topics:

- Vehicle vibration
- Heat sensitive
- Freezing
- Water intrusion
- Electrical load
- Cold or hot start up

Get a thorough description of the incident from the customer. It is important for simulating the conditions of the problem.

VEHICLE VIBRATION

The problem may occur or become worse while driving on a rough road or when engine is vibrating (idle with A/C on). In such a case, you will want to check for a vibration related condition. Refer to the following illustration.

Connector & Harness

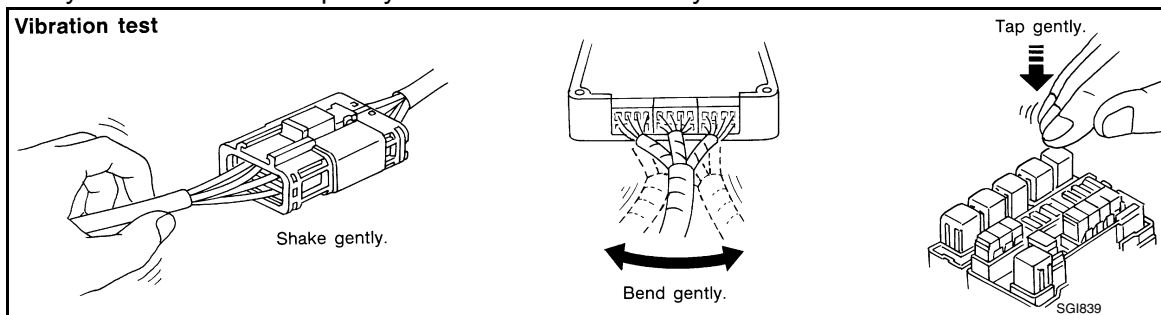
Determine which connectors and wiring harness would affect the electrical system you are inspecting. Gently shake each connector and harness while monitoring the system for the incident you are trying to duplicate. This test may indicate a loose or poor electrical connection.

Hint

Connectors can be exposed to moisture. It is possible to get a thin film of corrosion on the connector terminals. A visual inspection may not reveal this without disconnecting the connector. If the problem occurs intermittently, perhaps the problem is caused by corrosion. It is a good idea to disconnect, inspect and clean the terminals on related connectors in the system.

Sensor & Relay

Gently apply a slight vibration to sensors and relays in the system you are inspecting. This test may indicate a loose or poorly mounted sensor or relay.



Engine Compartment

There are several reasons a vehicle or engine vibration could cause an electrical complaint. Some of the things to check for are:

- Connectors not fully seated.
- Wiring harness not long enough and is being stressed due to engine vibrations or rocking.
- Wires laying across brackets or moving components.
- Loose, dirty or corroded ground wires.
- Wires routed too close to hot components.

To inspect components under the hood, start by verifying the integrity of ground connections. (Refer to Ground Inspection described later.) First check that the system is properly grounded. Then check for loose connection by gently shaking the wiring or components as previously explained. Using the wiring diagrams inspect the wiring for continuity.

Behind the Instrument Panel

An improperly routed or improperly clamped harness can become pinched during accessory installation. Vehicle vibration can aggravate a harness which is routed along a bracket or near a screw.

Under Seating Areas

SERVICE INFORMATION FOR ELECTRICAL INCIDENT

< BASIC INSPECTION >

An unclamped or loose harness can cause wiring to be pinched by seat components (such as slide guides) during vehicle vibration. If the wiring runs under seating areas, inspect wire routing for possible damage or pinching.

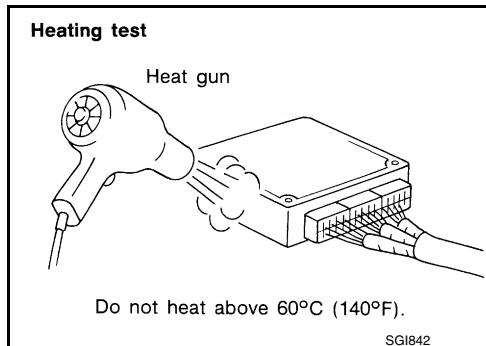
HEAT SENSITIVE

- The customer's concern may occur during hot weather or after car has sat for a short time. In such cases you will want to check for a heat sensitive condition.
- To determine if an electrical component is heat sensitive, heat the component with a heat gun or equivalent.

CAUTION:

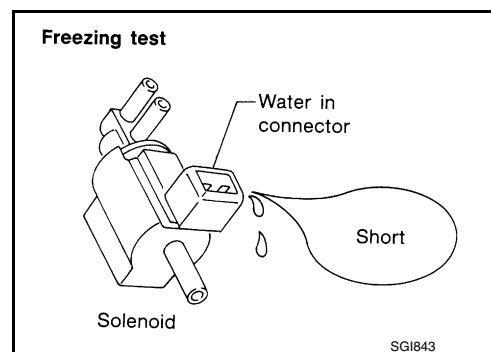
Do not heat components above 60°C (140°F).

- If incident occurs while heating the unit, either replace or properly insulate the component.



FREEZING

- The customer may indicate the incident goes away after the car warms up (winter time). The cause could be related to water freezing somewhere in the wiring/electrical system.
- There are two methods to check for this. The first is to arrange for the owner to leave his car overnight. Make sure it will get cold enough to demonstrate his complaint. Leave the car parked outside overnight. In the morning, do a quick and thorough diagnosis of those electrical components which could be affected.
- The second method is to put the suspect component into a freezer long enough for any water to freeze. Reinstall the part into the car and check for the reoccurrence of the incident. If it occurs, repair or replace the component.

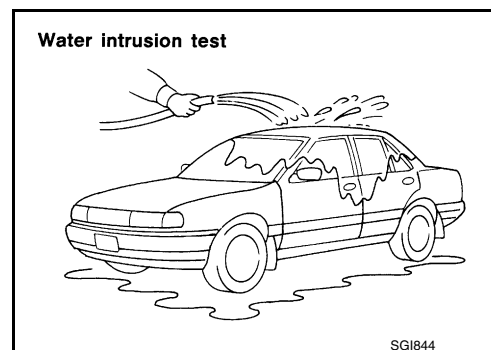


WATER INTRUSION

The incident may occur only during high humidity or in rainy/snowy weather. In such cases the incident could be caused by water intrusion on an electrical part. This can be simulated by soaking the car or running it through a car wash.

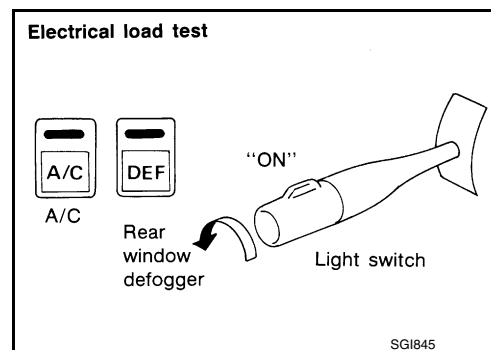
CAUTION:

Do not spray water directly on any electrical components.



ELECTRICAL LOAD

The incident may be electrical load sensitive. Perform diagnosis with all accessories (including A/C, rear window defogger, radio, fog lamps) turned on.



COLD OR HOT START UP

On some occasions an electrical incident may occur only when the car is started cold, or it may occur when the car is restarted hot shortly after being turned off. In these cases you may have to keep the car overnight to make a proper diagnosis.

SERVICE INFORMATION FOR ELECTRICAL INCIDENT

< BASIC INSPECTION >

Circuit Inspection

INFOID:000000009981489

DESCRIPTION

- In general, testing electrical circuits is an easy task if it is approached in a logical and organized method. Before beginning it is important to have all available information on the system to be tested. Also, get a thorough understanding of system operation. Then you will be able to use the appropriate equipment and follow the correct test procedure.
- You may have to simulate vehicle vibrations while testing electrical components. Gently shake the wiring harness or electrical component to do this.

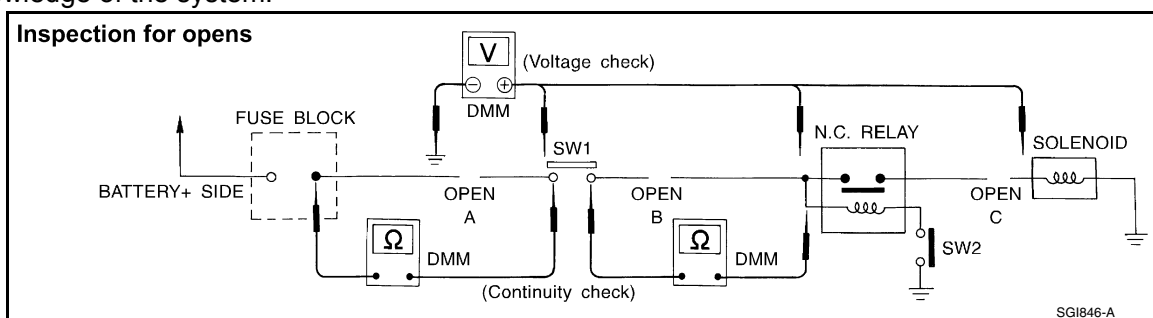
OPEN	A circuit is open when there is no continuity through a section of the circuit.	
SHORT	There are two types of shorts.	
	• SHORT CIRCUIT	When a circuit contacts another circuit and causes the normal resistance to change.
	• SHORT TO GROUND	When a circuit contacts a ground source and grounds the circuit.

NOTE:

Refer to [GI-38, "How to Check Terminal"](#) to probe or check terminal.

TESTING FOR "OPENS" IN THE CIRCUIT

Before you begin to diagnose and test the system, you should rough sketch a schematic of the system. This will help you to logically walk through the diagnosis process. Drawing the sketch will also reinforce your working knowledge of the system.



Continuity Check Method

The continuity check is used to find an open in the circuit. The digital multimeter (DMM) set on the resistance function will indicate an open circuit as over limit (no beep tone or no ohms symbol). Make sure to always start with the DMM at the highest resistance level.

To help in understanding the diagnosis of open circuits, please refer to the previous schematic.

- Disconnect the battery negative cable.
- Start at one end of the circuit and work your way to the other end. (At the fuse block in this example)
- Connect one probe of the DMM to the fuse block terminal on the load side.
- Connect the other probe to the fuse block (power) side of SW1. Little or no resistance will indicate that portion of the circuit has good continuity. If there were an open in the circuit, the DMM would indicate an over limit or infinite resistance condition. (point A)
- Connect the probes between SW1 and the relay. Little or no resistance will indicate that portion of the circuit has good continuity. If there were an open in the circuit, the DMM would indicate an over limit or infinite resistance condition. (point B)
- Connect the probes between the relay and the solenoid. Little or no resistance will indicate that portion of the circuit has good continuity. If there were an open in the circuit, the DMM would indicate an over limit or infinite resistance condition. (point C)

Any circuit can be diagnosed using the approach in the previous example.

Voltage Check Method

To help in understanding the diagnosis of open circuits please refer to the previous schematic.

In any powered circuit, an open can be found by methodically checking the system for the presence of voltage. This is done by switching the DMM to the voltage function.

- Connect one probe of the DMM to a known good ground.
- Begin probing at one end of the circuit and work your way to the other end.
- With SW1 open, probe at SW1 to check for voltage.
- voltage; open is further down the circuit than SW1.

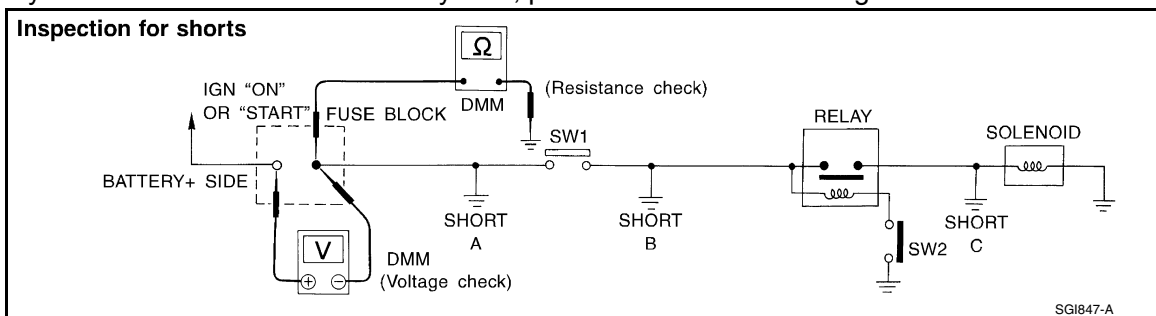
SERVICE INFORMATION FOR ELECTRICAL INCIDENT

< BASIC INSPECTION >

- no voltage; open is between fuse block and SW1 (point A).
 - Close SW1 and probe at relay.
 - voltage; open is further down the circuit than the relay.
 - no voltage; open is between SW1 and relay (point B).
 - Close the relay and probe at the solenoid.
 - voltage; open is further down the circuit than the solenoid.
 - no voltage; open is between relay and solenoid (point C).
- Any powered circuit can be diagnosed using the approach in the previous example.

TESTING FOR "SHORTS" IN THE CIRCUIT

To simplify the discussion of shorts in the system, please refer to the following schematic.



Resistance Check Method

- Disconnect the battery negative cable and remove the blown fuse.
- Disconnect all loads (SW1 open, relay disconnected and solenoid disconnected) powered through the fuse.
- Connect one probe of the DMM to the load side of the fuse terminal. Connect the other probe to a known good ground.
- With SW1 open, check for continuity.
 - continuity; short is between fuse terminal and SW1 (point A).
 - no continuity; short is further down the circuit than SW1.
- Close SW1 and disconnect the relay. Put probes at the load side of fuse terminal and a known good ground. Then, check for continuity.
 - continuity; short is between SW1 and the relay (point B).
 - no continuity; short is further down the circuit than the relay.
- Close SW1 and jump the relay contacts with jumper wire. Put probes at the load side of fuse terminal and a known good ground. Then, check for continuity.
 - continuity; short is between relay and solenoid (point C).
 - no continuity; check solenoid, retrace steps.

Voltage Check Method

- Remove the blown fuse and disconnect all loads (i.e. SW1 open, relay disconnected and solenoid disconnected) powered through the fuse.
- Turn the ignition key to the ON or START position. Verify battery voltage at the battery + side of the fuse terminal (one lead on the battery + terminal side of the fuse block and one lead on a known good ground).
- With SW1 open and the DMM leads across both fuse terminals, check for voltage.
 - voltage; short is between fuse block and SW1 (point A).
 - no voltage; short is further down the circuit than SW1.
- With SW1 closed, relay and solenoid disconnected and the DMM leads across both fuse terminals, check for voltage.
 - voltage; short is between SW1 and the relay (point B).
 - no voltage; short is further down the circuit than the relay.
- With SW1 closed, relay contacts jumped with fused jumper wire check for voltage.
 - voltage; short is down the circuit of the relay or between the relay and the disconnected solenoid (point C).
 - no voltage; retrace steps and check power to fuse block.

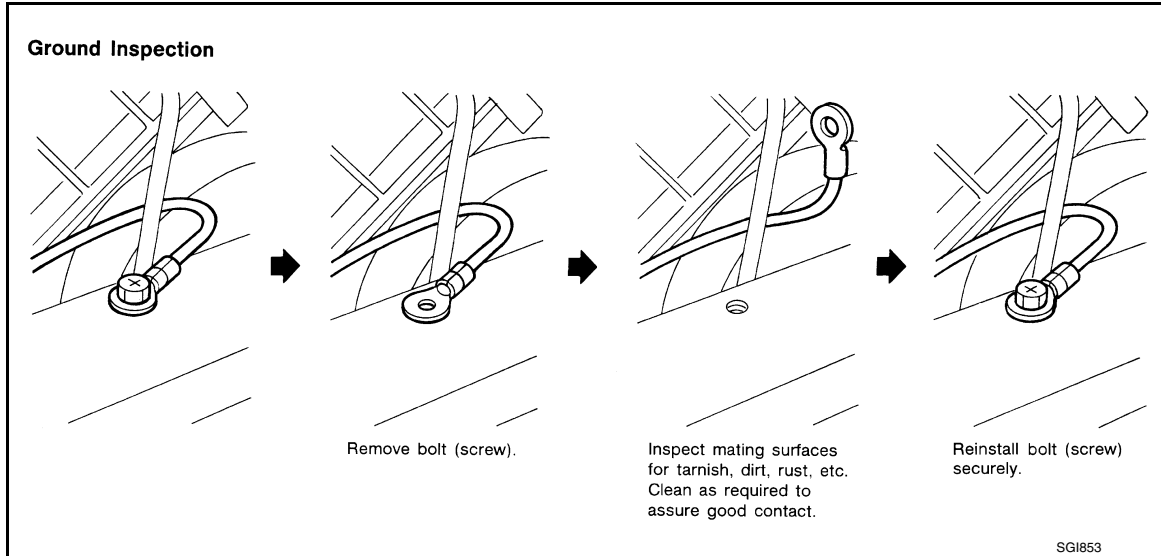
GROUND INSPECTION

- Ground connections are very important to the proper operation of electrical and electronic circuits. Ground connections are often exposed to moisture, dirt and other corrosive elements. The corrosion (rust) can become an unwanted resistance. This unwanted resistance can change the way a circuit works.
- Electronically controlled circuits are very sensitive to proper grounding. A loose or corroded ground can drastically affect an electronically controlled circuit. A poor or corroded ground can easily affect the circuit. Even when the ground connection looks clean, there can be a thin film of rust on the surface.

SERVICE INFORMATION FOR ELECTRICAL INCIDENT

< BASIC INSPECTION >

- When inspecting a ground connection follow these rules:
 - Remove the ground bolt or screw.
 - Inspect all mating surfaces for tarnish, dirt, rust, etc.
 - Clean as required to assure good contact.
 - Reinstall bolt or screw securely.
- Inspect for “add-on” accessories which may be interfering with the ground circuit.
- If several wires are crimped into one ground eyelet terminal, check for proper crimps. Make sure all of the wires are clean, securely fastened and providing a good ground path. If multiple wires are cased in one eyelet make sure no ground wires have excess wire insulation.
- For detailed ground distribution information, refer to “Ground Distribution” in PG section.



VOLTAGE DROP TESTS

- Voltage drop tests are often used to find components or circuits which have excessive resistance. A voltage drop in a circuit is caused by a resistance when the circuit is in operation.
- Check the wire in the illustration. When measuring resistance with DMM, contact by a single strand of wire will give reading of 0 ohms. This would indicate a good circuit. When the circuit operates, this single strand of wire is not able to carry the current. The single strand will have a high resistance to the current. This will be picked up as a slight voltage drop.
- Unwanted resistance can be caused by many situations as follows:
 - Undersized wiring (single strand example)
 - Corrosion on switch contacts
 - Loose wire connections or splices.
- If repairs are needed always use wire that is of the same or larger gauge.

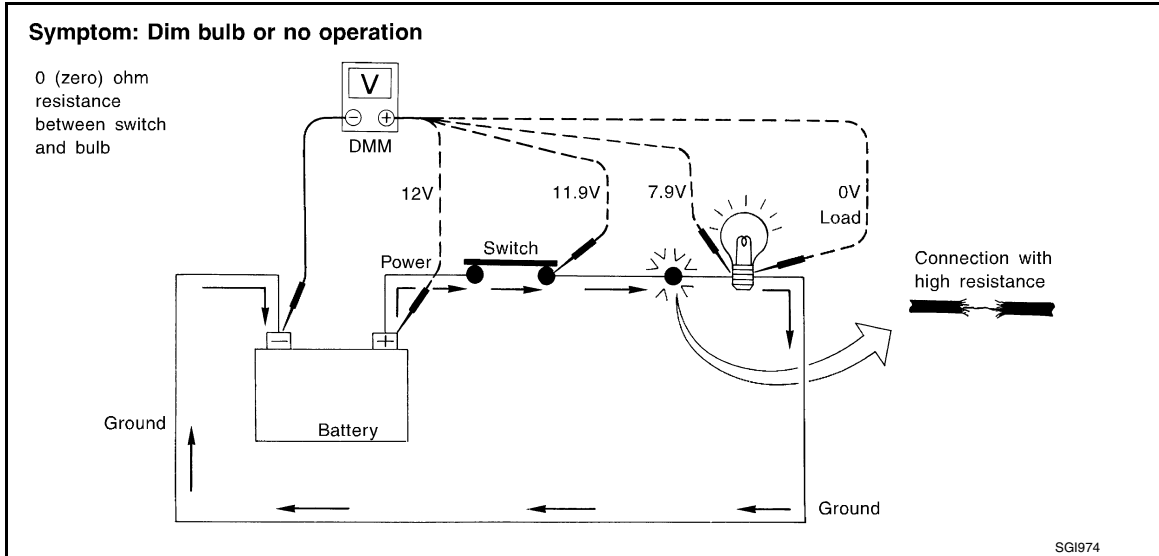
Measuring Voltage Drop — Accumulated Method

- Connect the DMM across the connector or part of the circuit you want to check. The positive lead of the DMM should be closer to power and the negative lead closer to ground.
- Operate the circuit.
- The DMM will indicate how many volts are being used to “push” current through that part of the circuit.

SERVICE INFORMATION FOR ELECTRICAL INCIDENT

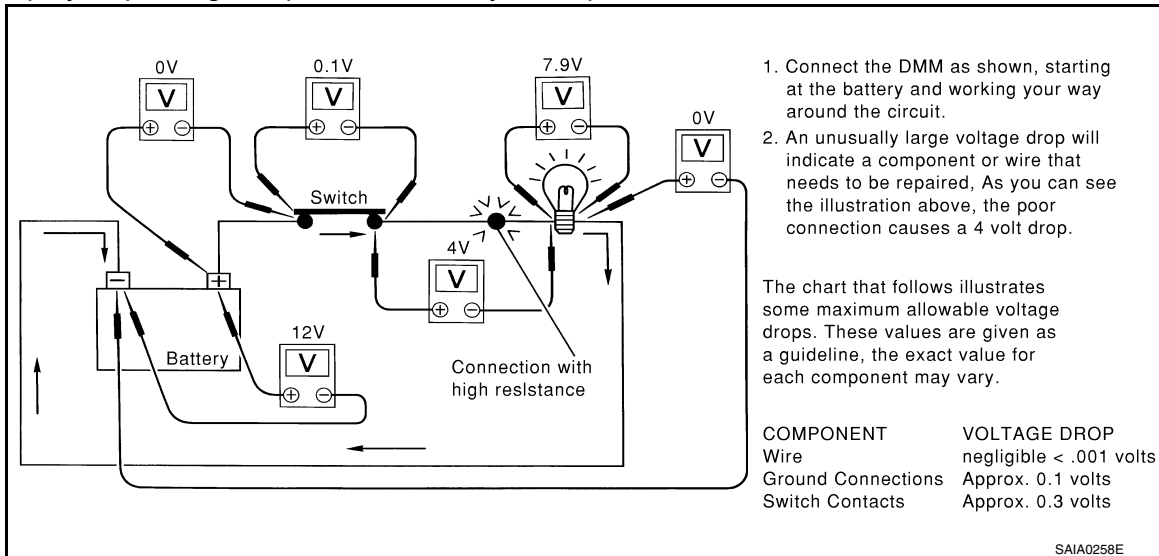
< BASIC INSPECTION >

Note in the illustration that there is an excessive 4.1 volt drop between the battery and the bulb.



Measuring Voltage Drop — Step-by-Step

- The step-by-step method is most useful for isolating excessive drops in low voltage systems (such as those in “Computer Controlled Systems”).
- Circuits in the “Computer Controlled System” operate on very low amperage.
- The (Computer Controlled) system operations can be adversely affected by any variation in resistance in the system. Such resistance variation may be caused by poor connection, improper installation, improper wire gauge or corrosion.
- The step by step voltage drop test can identify a component or wire with too much resistance.

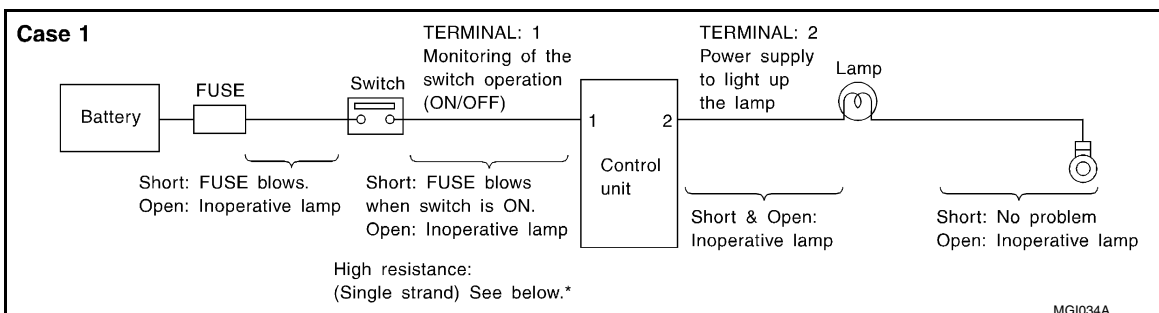


CONTROL UNIT CIRCUIT TEST

System Description

- When the switch is ON, the control unit lights up the lamp.

CASE 1



SERVICE INFORMATION FOR ELECTRICAL INCIDENT

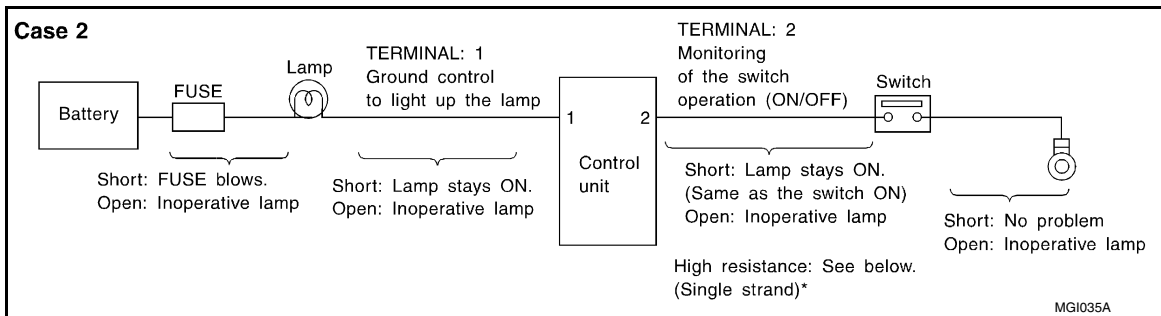
< BASIC INSPECTION >

INPUT-OUTPUT VOLTAGE CHART

Terminal No.		Description		Condition	Value (Approx.)	In case of high resistance such as single strand (V) *
+	-	Signal name	Input/Output			
1	Body ground	Switch	Input	Switch ON	Battery voltage	Lower than battery voltage Approx. 8 (Example)
				Switch OFF	0 V	Approx. 0
2	Body ground	Lamp	Output	Switch ON	Battery voltage	Approx. 0 (Inoperative lamp)
				Switch OFF	0 V	Approx. 0

- The voltage value is based on the body ground.
- *: If high resistance exists in the switch side circuit (caused by a single strand), terminal 1 does not detect battery voltage. Control unit does not detect the switch is ON even if the switch does not turn ON. Therefore, the control unit does not supply power to light up the lamp.

CASE 2



INPUT-OUTPUT VOLTAGE CHART

Terminal No.		Description		Condition	Value (Approx.)	In case of high resistance such as single strand (V) *
+	-	Signal name	Input/Output			
1	Body ground	Lamp	Output	Switch ON	0V	Battery voltage (Inoperative lamp)
				Switch OFF	Battery voltage	Battery voltage
2	Body ground	Switch	Input	Switch ON	0 V	Higher than 0 Approx. 4 (Example)
				Switch OFF	5 V	Approx. 5

- The voltage value is based on the body ground.
- *: If high resistance exists in the switch side circuit (caused by a single strand), terminal 2 does not detect approx. 0V. Control unit does not detect the switch is ON even if the switch does not turn ON. Therefore, the control unit does not control ground to light up the lamp.

CONSULT/GST CHECKING SYSTEM

< BASIC INSPECTION >

CONSULT/GST CHECKING SYSTEM

Description

INFOID:000000009981490

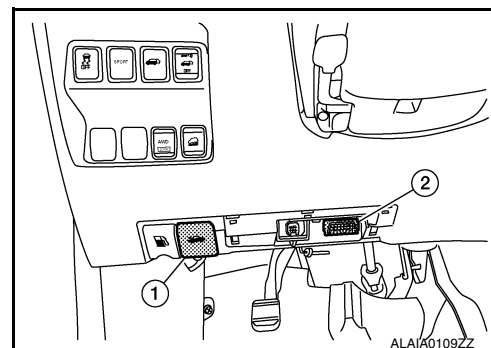
NOTE:

This vehicle is diagnosed using the CONSULT-III plus.

- When CONSULT is connected with a data link connector equipped on the vehicle side, it will communicate with the control unit equipped in the vehicle and then enable various kinds of diagnostic tests.

- 1 : Hood release handle
- 2 : Data link connector

- Refer to "CONSULT-III plus Operation Manual" for more information.



Function and System Application

INFOID:000000009981491

Diagnosis (All Systems)	Description	ENGINE	ABS	METER/M&A	BCM	CAN GATEWAY	AIR BAG	TRANSMISSION	EPS/DAST 3	IPDM E/R	AVM	LASER/RADR ¹	AIR PRESSURE MONITOR	ALL MODE AWD/4WD ¹	CHASSIS CONTROL ¹	HVAC	ATUO BACK DOOR ¹	MULTI AV	OCCUPANT DETECTION
Self Diagnostic Result	The ECU self diagnostic results are displayed.	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	-
Data Monitor	The ECU input/output data is displayed in real time.	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	-
Work support	The settings for ECU functions can be changed.	x	x	x	x	-	-	x	-	x	x	x	x	x	-	x	x	-	x
Active Test	The ECU activates outputs to test components.	x	x	-	-	-	-	x	-	x	-	x	x	x	x	x	-	-	-
ECU identification	The ECU part number is displayed.	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	-
DTC Work Support	The status of system monitoring tests and the self diagnosis status/results can be confirmed.	x	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Warning History	Displays the history of the combination meter warning lamp indicators.	-	-	x	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TROUBLE DIAG RECORD	Self diagnostic history and trouble diagnosis records in ECU are displayed.	-	-	-	-	-	x	-	-	-	-	-	-	-	-	-	-	-	-
CAN Diag	This mode displays network diagnostic results of CAN communication using a diagram.	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	-
CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication is displayed.	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	-	-
Configuration	- The vehicle specification can be read and saved. - The vehicle specification can be written when replacing ECU.	-	x	-	x	x	x	-	-	x	x	-	x	-	x	-	-	x	-

CONSULT/GST CHECKING SYSTEM

< BASIC INSPECTION >

Diagnosis (All Systems)	Description	ENGINE	ABS	METER/M&A	BCM	CAN GATEWAY	AIR BAG	TRANSMISSION	EPS/DAST 3	IPDM E/R	AVM	LASER/RADR ¹	AIR PRESSURE MONITOR	ALL MODE AWD/4WD ¹	CHASSIS CONTROL ¹	HVAC	ATUO BACK DOOR ¹	MULTI AV	OCCUPANT DETECTION
CALIB DATA	The calibration values of the ECU are displayed.	-	-	-	-	-	-	x	-	-	-	-	-	-	-	-	-	-	-
SRT & P-DTC Confirmation	The status of system monitoring tests and the self diagnosis status/results can be confirmed.	x	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

x: Applicable

1: If equipped

CONSULT Data Link Connector (DLC) Circuit

INFOID:000000009981492

INSPECTION PROCEDURE

If the CONSULT cannot diagnose the system properly, check the following items.

Symptom	Check item
CONSULT cannot access any system.	CONSULT DLC power supply circuit (Terminal 8 and 16) and ground circuit (Terminal 4 and 5)
CONSULT cannot access individual system. (Other systems can be accessed.)	- Power supply and ground circuit for the control unit of the system (For detailed circuit, refer to wiring diagram for each system.) - Open or short circuit between the system and CONSULT DLC (For detailed circuit, refer to wiring diagram for each system.) - Open or short circuit CAN communication line. Refer to LAN-17. "Trouble Diagnosis Flow Chart".

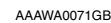
NOTE:

The DDL2 circuits and CAN communication lines from DLC pins 6, 7 and 14 may be connected to more than one system. A short in a DDL circuit or CAN lines connected to a control unit in one system may affect CONSULT access to other systems. For a complete DDL circuit layout, refer to [GI-51. "Wiring Diagram - CONSULT/GST CHECKING SYSTEM"](#). For a complete CAN line layout, refer to [LAN-35. "Wiring Diagram - CAN SYSTEM -"](#).

INFOID:0000000009981493

Wiring Diagram - CONSULT/GST CHECKING SYSTEM

P



SECTION **EM**

ENGINE MECHANICAL

CONTENTS

PRECAUTION	3	Exploded View	17
PRECAUTIONS	3	Removal and Installation	17
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	3	CAMSHAFT VALVE CLEARANCE	19
Precaution for Procedure without Cowl Top Cover.....	3	Camshaft valve clearance	19
Parts Requiring Angle Tightening	3	COMPRESSION PRESSURE	22
Precautions For Engine Service	4	Compression pressure	22
Special Cautions to Ensure the Safe Disposal of Sodium-filled Exhaust Valves	4	REMOVAL AND INSTALLATION	24
Liquid Gasket	5	AIR CLEANER AND AIR DUCT	24
SYMPTOM DIAGNOSIS	7	Exploded View	24
NOISE, VIBRATION, AND HARSHNESS (NVH) TROUBLESHOOTING	7	Removal and Installation	24
NVH Troubleshooting - Engine Noise	7	Inspection	25
Use the Chart Below to Help You Find the Cause of the Symptom	8	INTAKE MANIFOLD	26
PREPARATION	10	Exploded View	26
PREPARATION	10	Removal and Installation	26
Special Service Tools	10	EXHAUST MANIFOLD AND THREE WAY CATALYST	29
Commercial Service Tools	10	Exploded View	29
PERIODIC MAINTENANCE	13	Removal and Installation	29
DRIVE BELTS	13	OIL PAN AND OIL STRAINER	32
Exploded View	13	Exploded View	32
Checking	13	Removal and Installation	32
Tension Adjustment	13	IGNITION COIL	36
Removal and Installation	13	Exploded View	36
Removal and Installation of Drive Belt Auto-tensioner	14	Removal and Installation	36
AIR CLEANER FILTER	16	ROCKER COVER	37
Exploded View	16	Exploded View	37
Removal and Installation	16	Removal and Installation	37
SPARK PLUG	17	FUEL INJECTOR AND FUEL TUBE	40
		Exploded View	40
		Removal and Installation	40
		TIMING CHAIN	44
		Exploded View	44

Removal and Installation	45	Exploded View	81
CYLINDER HEAD	54	Removal and Installation (FWD)	81
Exploded View	54	Removal and Installation (AWD)	85
Removal and Installation	54	Inspection	89
Disassembly and Assembly	56	UNIT DISASSEMBLY AND ASSEMBLY ...	91
Inspection After Disassembly	61	ENGINE STAND SETTING	91
CAMSHAFT	64	Setting	91
Exploded View	64	CYLINDER BLOCK	92
Removal and Installation	64	Exploded View	92
Inspection After Installation	72	Disassembly and Assembly	93
VALVE TIMING CONTROL	74	Inspection	100
Exploded View	74	HOW TO SELECT PISTON AND BEARING ..	109
Intake Valve Timing Intermediate Lock Control		How to Select Piston and Bearing	109
Solenoid Valve, Intake Valve Timing Control Sole-		SERVICE DATA AND SPECIFICATIONS	
noid Valve, and Exhaust Valve Timing Control So-		(SDS)	115
lenoid Valve	74	SERVICE DATA AND SPECIFICATIONS	
Valve Timing Control Cover	75	(SDS)	115
OIL SEAL	77	General Specification	115
VALVE OIL SEAL	77	Drive belt	115
VALVE OIL SEAL : Removal and Installation	77	Spark Plug	115
FRONT OIL SEAL	78	Intake Manifold	116
FRONT OIL SEAL : Removal and Installation	78	Exhaust Manifold	116
REAR OIL SEAL	79	Camshaft	116
REAR OIL SEAL : Removal and Installation	79	Cylinder Head	118
UNIT REMOVAL AND INSTALLATION	81	Cylinder Block	120
ENGINE ASSEMBLY	81	Main Bearing	123
		Connecting Rod Bearing	125

PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010275616

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

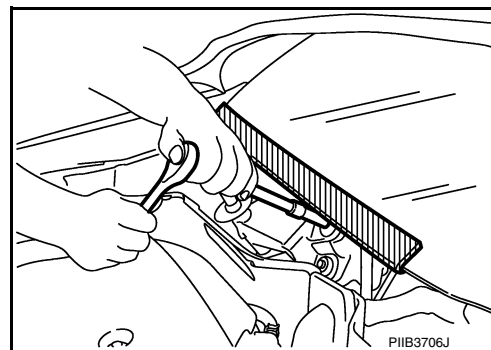
WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Precaution for Procedure without Cowl Top Cover

INFOID:0000000010275617

When performing the procedure after removing cowl top cover, cover the lower end of windshield with urethane, etc to prevent damage to windshield.



Parts Requiring Angle Tightening

INFOID:0000000010275618

- Use the Tool for the final tightening of the following engine parts:

Tool number : KV10112100 (BT-8653-A)

- Camshaft sprocket (INT) bolt
- Cylinder head bolts
- Main bearing cap bolts
- Connecting rod cap bolts
- Crankshaft pulley bolt (The angle wrench is not required as bolt flange is provided with notches for angle tightening)
- Do not use a torque value for final tightening.
- Ensure thread and seat surfaces are clean and coated with engine oil.

PRECAUTIONS

< PRECAUTION >

Precautions For Engine Service

INFOID:0000000010275619

DISCONNECTING FUEL PIPING

- Before starting work, check no fire or spark producing items are in the work area.
- Release fuel pressure before disconnecting and disassembly.
- After disconnecting pipes, plug openings to stop fuel leaks.

DRAINING ENGINE COOLANT

Drain engine coolant and engine oil when the engine is cooled.

INSPECTION, REPAIR AND REPLACEMENT

Before repairing or replacing, thoroughly inspect parts. Inspect new replacement parts in the same way, and replace if necessary.

REMOVAL AND DISASSEMBLY

- When instructed to use SST, use specified tools. Always be careful to work safely, avoid forceful or uninstructed operations.
- Exercise maximum care to avoid damage to mating or sliding surfaces.
- Dowel pins are used for several parts alignment. When replacing and reassembling parts with dowel pins, check that dowel pins are installed in the original position.
- Cover openings of engine system with a tape or equivalent, if necessary, to seal out foreign materials.
- Mark and arrange disassembly parts in an organized way for easy troubleshooting and reassembly.
- When loosening nuts and bolts, as a basic rule, start with the one furthest outside, then the one diagonally opposite, and so on. If the order of loosening is specified, do exactly as specified. Power tools may be used in the step.

ASSEMBLY AND INSTALLATION

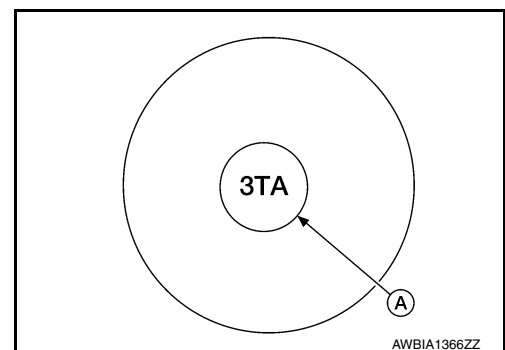
- Use torque wrench to tighten bolts or nuts to specification.
- When tightening nuts and bolts, as a basic rule, equally tighten in several different steps starting with the ones in center, then ones on inside and outside diagonally in this order. If the order of tightening is specified, do exactly as specified.
- Replace with new gasket, packing, oil seal or O-ring.
- Thoroughly wash, clean, and air-blow each part. Carefully check engine oil or engine coolant passages for any restriction and blockage.
- Avoid damaging sliding or mating surfaces. Completely remove foreign materials such as cloth lint or dust. Before assembly, oil sliding surfaces well.
- Release air within route when refilling after draining engine coolant.
- After repairing, start the engine and increase engine speed to check engine coolant, fuel, engine oil, and exhaust gases for leaks.

Special Cautions to Ensure the Safe Disposal of Sodium-filled Exhaust Valves

INFOID:0000000010293402

Handling and disposal of sodium-filled exhaust valves requires special care and consideration. Under conditions such as breakage with subsequent contact with water, metal sodium which lines the inner portion of exhaust valve will react violently, forming sodium hydroxide and hydrogen which may result in an explosion. Sodium-filled exhaust valve is identified on the top of its stem as shown in illustration.

(A) : Identification mark of sodium-filled exhaust valve



DEALER DISPOSAL INSTRUCTIONS

CAUTION:

- Use approved shatter-resistant eye protection when performing this procedure.

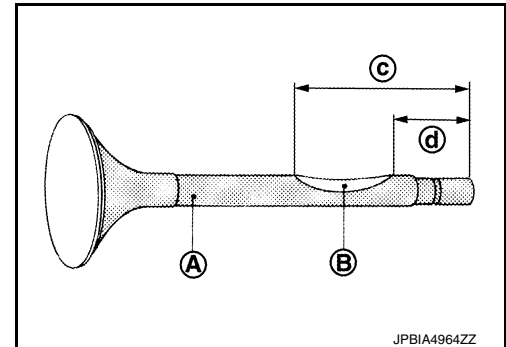
PRECAUTIONS

< PRECAUTION >

- Perform this and all subsequent disposal work procedures in an open room, away from flammable liquids. Keep a fire extinguisher, rated at least 10 ABC, in close proximity to the work area.
- Be sure to wear rubber gloves when performing the following operations.
- Make sure the resultant (high alkalinity) waste water does not contact your skin. If the waste water does contact you, wash the contacted area immediately with large quantities of water.
- Dealers should check their respective state and local regulations concerning any chemical treatment or waste water discharge permits which may be required to dispose of the resultant (high alkalinity) waste water.

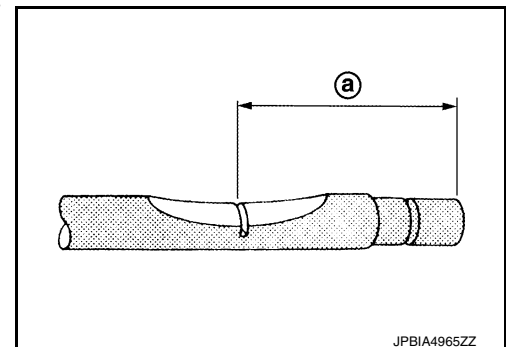
1. Clamp valve stem in a vice.
2. The valve has a specially-hardened surface. To cut through it, first remove a half-round section, approximately 30 mm (1.18 in) long using air-powered grinder until black color is removed and silver color appears.

- (A) : Black color
 (B) : Silver color
 (c) : 47 mm (1.85 in)
 (d) : 17 mm (0.67 in)

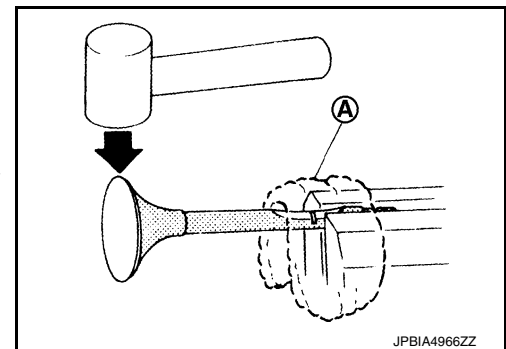


3. Use hacksaw to cut through approximately half the diameter of valve stem. Make the serration at a point 40 mm (1.57 in) from the end of valve stem.

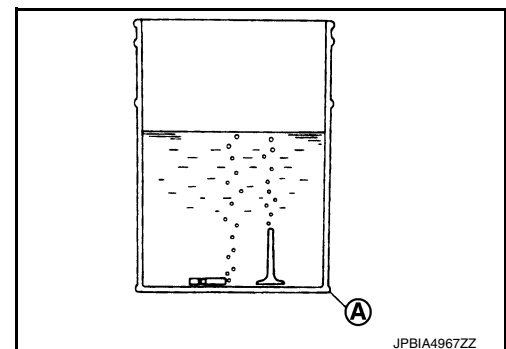
- (a) : 40 mm (1.57 in)



4. Cover the serrated end of the valve with a large shop towel (A). Strike the valve face end with a hammer, separating it into two pieces.
5. Fill a bucket, such as a 20 ℓ (5-1/4 US gal, 4-3/8 Imp gal) oil can, with at least 10 ℓ (2-5/8 US gal, 2-1/4 Imp gal) of water. Carefully place the already cut (serrated) valves into the water one-at-a-time using a set of large tweezers and quickly move away at least 2.7 m (9 ft).



6. The valves should be placed in a standing position as shown in the illustration to allow complete reaction. After the bubbling action has subsided, additional valves can be placed into the bucket allowing each subsequent chemical reaction to subside. However, no more than 8 valves should be placed in the same 10 ℓ (2-5/8 US gal, 2-1/4 Imp gal) amount of water. The complete chemical reaction may take as long as 4 to 5 hours. Remove the valves using a set of large tweezers after the chemical reaction has stopped. Afterwards, valves can be disposed as ordinary scrap.



- A : Bucket [Such as 20 ℓ (5-1/4 US gal, 4-3/8 Imp gal) oil can]

Liquid Gasket

INFOID:0000000010275620

REMOVAL OF LIQUID GASKET SEALING

PRECAUTIONS

< PRECAUTION >

- After removing the bolts and nuts, separate the mating surface and remove the liquid gasket using Tool (A).

Tool Number : KV10111100 (J-37228)

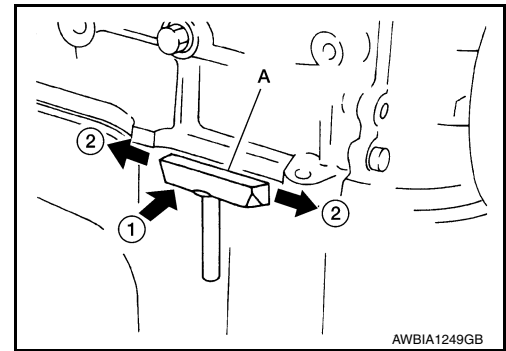
CAUTION:

Be careful not to damage the mating surfaces.

- In areas where the cutter is difficult to use, use a plastic hammer to lightly tap (1) the cutter where the liquid gasket is applied. Use a plastic hammer to slide (2) the cutter by tapping on the side.

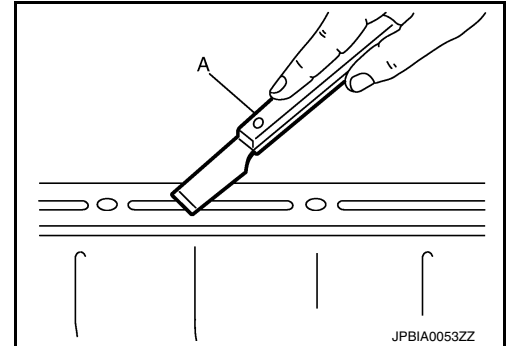
CAUTION:

Do not damage the mating surfaces.

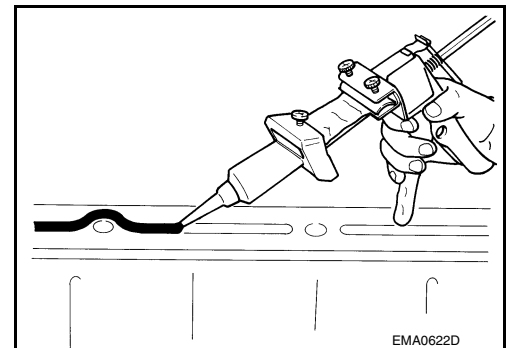


LIQUID GASKET APPLICATION PROCEDURE

- Using suitable tool (A), remove old liquid gasket adhering to the liquid gasket application surface and the mating surface.
 - Remove liquid gasket completely from the groove of the liquid gasket application surface, bolts, and bolt holes.
- Thoroughly clean the mating surfaces and remove adhering moisture, grease and foreign materials.



- Attach liquid gasket tube to the suitable tool. **Use Genuine Silicone RTV Sealant, or equivalent. Refer to [GI-22, "Recommended Chemical Products and Sealants"](#).**
- Apply liquid gasket without gaps to the specified location according to the specified dimensions.
 - If there is a groove for liquid gasket application, apply liquid gasket to the groove.



- As for bolt holes (B), normally apply liquid gasket inside the holes. Occasionally, it should be applied outside the holes. Check to read the text of this manual.

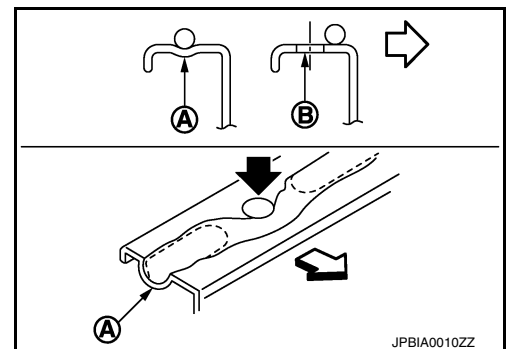
(A) : Groove

⇐ : Inside bolt hole

- Within five minutes of liquid gasket application, install the mating component.
- If liquid gasket protrudes, wipe it off immediately.
- Do not retighten bolts or nuts after the installation.
- After 30 minutes or more have passed from the installation, fill engine oil and engine coolant.

CAUTION:

If there are specific instructions in the procedures contained in this manual concerning liquid gasket application, observe them.



NOISE, VIBRATION, AND HARSHNESS (NVH) TROUBLESHOOTING

< SYMPTOM DIAGNOSIS >

SYMPTOM DIAGNOSIS

NOISE, VIBRATION, AND HARSHNESS (NVH) TROUBLESHOOTING

NVH Troubleshooting - Engine Noise

INFOID:000000010275691

A

EM

C

D

E

F

G

H

I

J

K

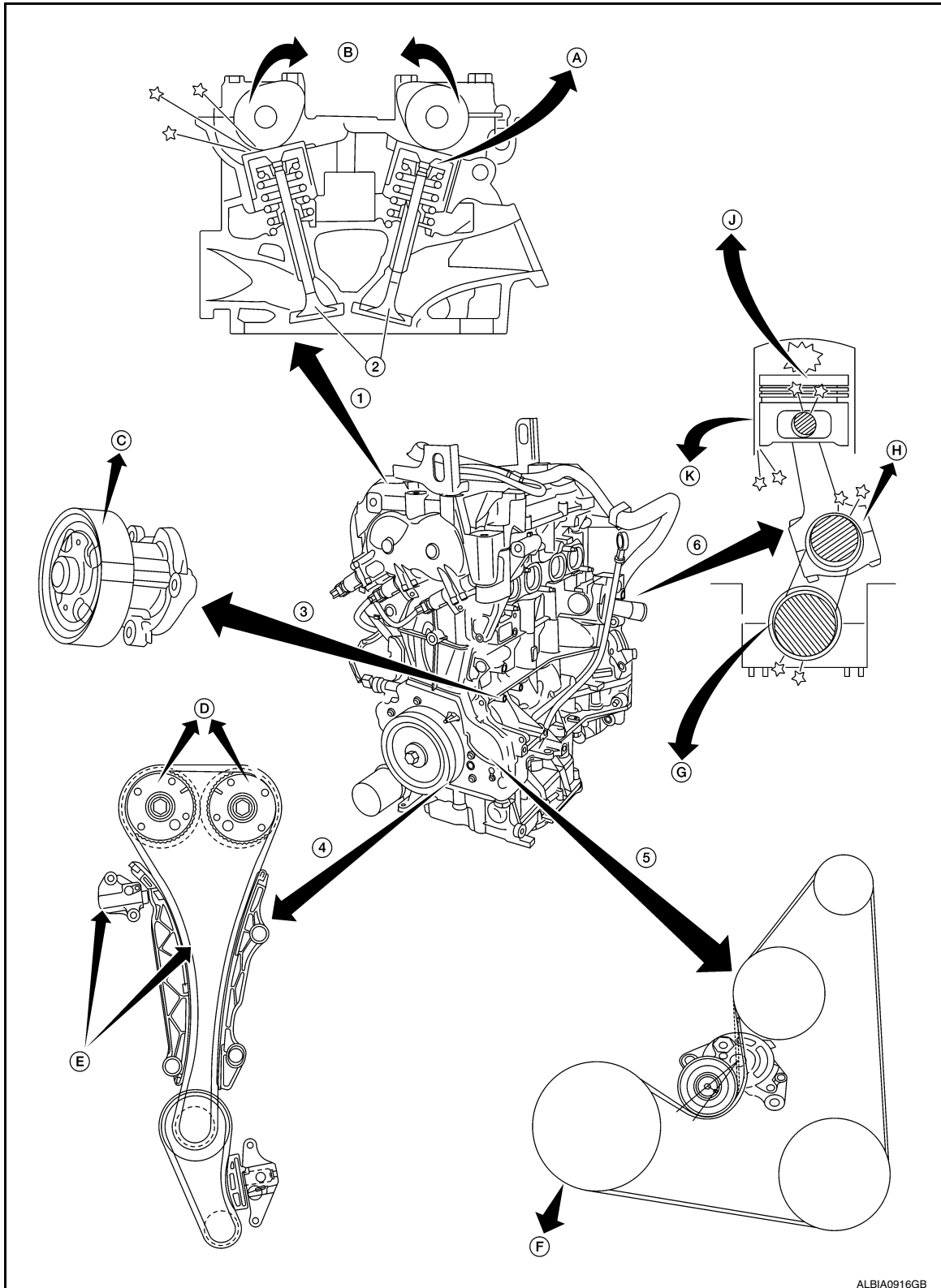
L

M

N

O

P



NOISE, VIBRATION, AND HARSHNESS (NVH) TROUBLESHOOTING

< SYMPTOM DIAGNOSIS >

- | | | |
|-----------------------|---|--------------------------------|
| 1. Valve mechanism | 2. Intake and exhaust valve | 3. Water pump |
| 4. Timing chain | 5. Drive belt | 6. Rotation mechanism |
| A. Tappet noise | B. Camshaft bearing noise | C. Water pump noise |
| D. VTC noise | E. Timing chain and chain tensioner noise | F. Drive belt noise (slipping) |
| G. Main bearing noise | H. Connecting rod bearing noise | J. Piston pin noise |
| K. Piston slap noise | | |

Use the Chart Below to Help You Find the Cause of the Symptom

INFOID:0000000010275692

1. Locate the area where noise occurs.
2. Confirm the type of noise.
3. Specify the operating condition of engine.
4. Check specified noise source.

If necessary, repair or replace these parts.

Location of noise	Type of noise	Operating condition of engine						Source of noise	Check item	Reference page
		Before warm-up	After warm-up	When starting	When idling	When racing	While driving			
Top of engine Rocker cover Cylinder head	Ticking or clicking	C	A	—	A	B	—	Tappet noise	Valve clearance	EM-116
	Rattle	C	A	—	A	B	C	Camshaft bearing noise	Camshaft journal clearance Camshaft runout	EM-116 EM-116
Crankshaft pulley Cylinder block (Side of engine) Oil pan	Slap or knock	—	A	—	B	B	—	Piston pin noise	Piston and piston pin clearance Connecting rod bushing clearance	EM-125 EM-125
	Slap or rap	A	—	—	B	B	A	Piston slap noise	Piston-to-bore clearance Piston ring side clearance Piston ring end gap Connecting rod bend and torsion	EM-125 EM-125 EM-125 EM-125
	Knock	A	B	C	B	B	B	Connecting rod bearing noise	Connecting rod bushing clearance (Small end) Connecting rod bearing clearance (Big end)	EM-125 EM-125
	Knock	A	B	—	A	B	C	Main bearing noise	Main bearing oil clearance Crankshaft runout	EM-123 EM-120
Front of engine Timing chain cover	Tapping or ticking	A	A	—	B	B	B	Timing chain and chain tensioner noise	Timing chain cracks and wear Timing chain tensioner operation	EM-45

NOISE, VIBRATION, AND HARSHNESS (NVH) TROUBLESHOOTING

< SYMPTOM DIAGNOSIS >

Location of noise	Type of noise	Operating condition of engine						Source of noise	Check item	Reference page
		Before warm-up	After warm-up	When starting	When idling	When racing	While driving			
Front of engine	Squeaking or fizzing	A	B	—	B	—	B	Drive belts (Sticking or slipping)	Drive belts deflection	EM-13
	Creaking	A	B	A	B	A	B	Drive belts (Slipping)	Idler pulley bearing operation	
	Squall Creak	A	B	—	B	A	B	Water pump noise	Water pump operation	CO-19
	Rattle	—	—	A	—	—	—	VTC	VTC sprockets	EM-74

A: Closely related B: Related C: Sometimes related —: Not related

PREPARATION

< PREPARATION >

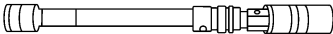
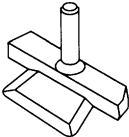
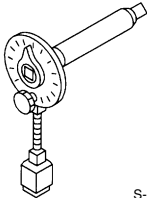
PREPARATION

PREPARATION

Special Service Tools

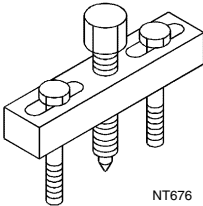
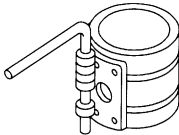
INFOID:0000000010275698

The actual shape of the tools may differ from those illustrated here.

Tool number (TechMate No.) Tool name	Description
— (J-48891) Spark plug socket	Removing and installing spark plug
 AWBIA1785ZZ	
KV10111100 (J-37228) Seal cutter	Removing oil pan and timing chain case
 S-NT046	
KV10112100 (BT-8653-A) Torque angle meter	Tightening bolts for bearing cap, cylinder head, etc.
 S-NT014	

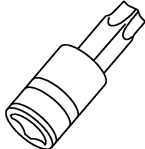
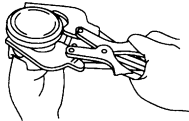
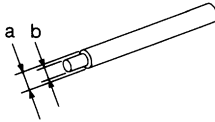
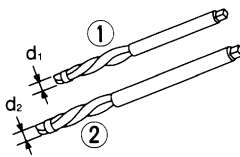
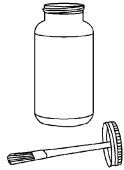
Commercial Service Tools

INFOID:0000000010275699

Tool number (TechMate No.) Tool name	Description
Pulley puller	Removing crankshaft pulley
 NT676	
Piston ring compressor	Installing piston assembly into cylinder bore
 S-NT044	

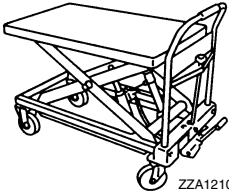
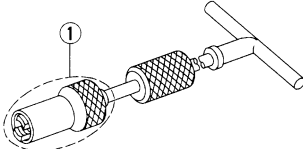
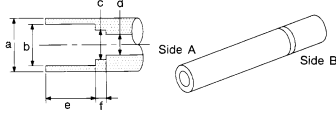
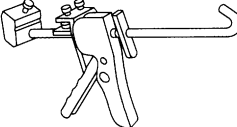
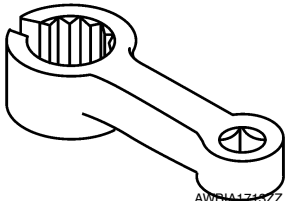
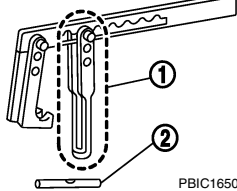
PREPARATION

< PREPARATION >

Tool number (TechMate No.) Tool name	Description	A
Pulley holder	Crankshaft pulley removing and installing	EM
 ZZA1010D		C
Valve seat cutter set	Finishing valve seat dimensions	D
 S-NT048		E
Socket	Removing and installing flywheel Size: T55	F
 PBIC1113E		G
Piston ring expander	Removing and installing piston ring	H
 S-NT030		I
Valve guide drift	Removing and installing valve guide Intake & Exhaust: a: 9.5 mm (0.374 in) dia. b: 5.5 mm (0.217 in) dia.	J
 S-NT015		K
Valve guide reamer	1: Reaming valve guide inner hole 2: Reaming hole for oversize valve guide Intake & Exhaust: d1: 6.0 mm (0.236 in) dia. d2: 10.2 mm (0.402 in) dia.	L
 S-NT016		M
Anti-seize lubricant i.e.: (Permatex™ 133AR or equivalent meeting MIL specification MIL-A-907)	Lubricating oxygen sensor thread cleaning tool when reconditioning exhaust system threads	N
 AEM489		O
		P

PREPARATION

< PREPARATION >

Tool number (TechMate No.) Tool name		Description
Manual lift table caddy		Removing and installing engine
KV10107902 (J-38959) Valve oil seal puller with adapter (1)		Removing valve oil seal
KV10115600 (J-38958) Valve oil seal drift		Installing valve oil seal Use side A. a: 20 (0.79) dia. d: 8 (0.31) dia. b: 13 (0.51) dia. e: 10.7 (0.421) dia. c: 10.3 (0.406) dia. f: 5 (0.20) dia. Unit: mm (in)
Tube presser		Pressing the tube of liquid gasket
Exhaust gas sensor wrench		Removing exhaust gas sensor
KV10116200 (J-26336-A) Valve spring compressor 1. KV10115900 (J-26336-20) Attachment 2. KV10109220 (—) Adapter		Disassembling valve mechanism Part (1) is a component of KV10116200 (J-26336-A), but part (2) is not.

DRIVE BELTS

< PERIODIC MAINTENANCE >

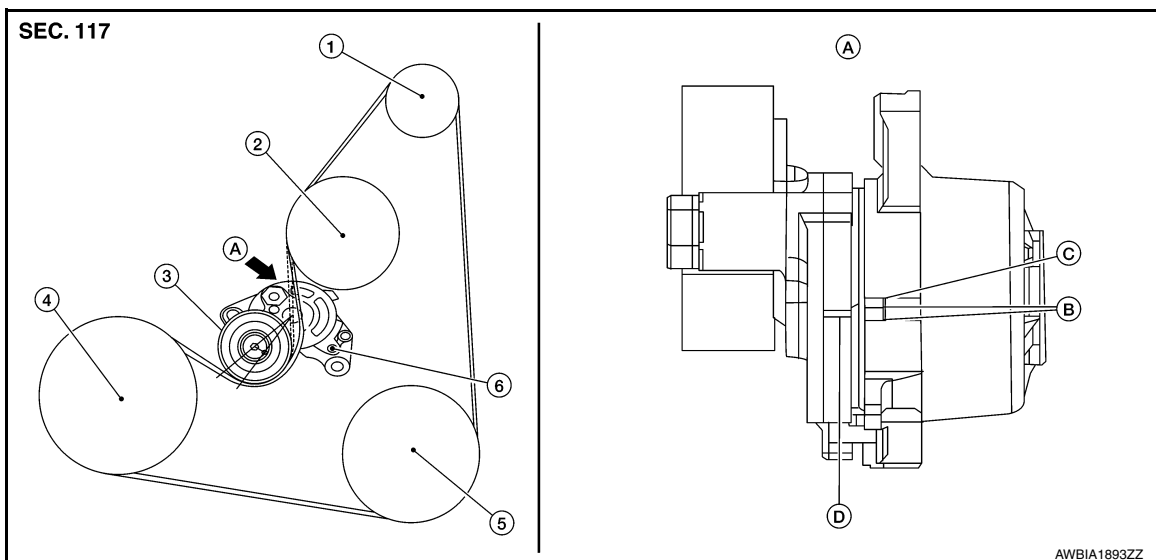
PERIODIC MAINTENANCE

DRIVE BELTS

Exploded View

INFOID:000000009798921

EM



Checking

INFOID:000000009798922

WARNING:

Inspect the drive belt only when the engine is stopped.

1. Visually check entire drive belt for wear, damage or cracks.
2. Check that the drive belt auto-tensioner indicator is within the possible use range.

NOTE:

- When new drive belt is installed, the drive belt auto-tensioner indicator should be within the new drive belt range.
 - Check the drive belt auto-tensioner indicator when the engine is cold.
3. If the drive belt auto-tensioner indicator is out of the possible use range or belt is damaged, replace drive belt.

Tension Adjustment

INFOID:000000009798923

Belt tension is not manually adjustable. It is automatically adjusted by the drive belt auto-tensioner.

Removal and Installation

INFOID:000000009798924

REMOVAL

1. Remove wheel and tire (RH) using a power tool.
2. Remove engine under cover. Refer to [EXT-37, "ENGINE UNDER COVER : Removal and Installation"](#)
3. Remove fender protector side cover. Refer to [EXT-28, "FENDER PROTECTOR : Exploded View"](#).

DRIVE BELTS

< PERIODIC MAINTENANCE >

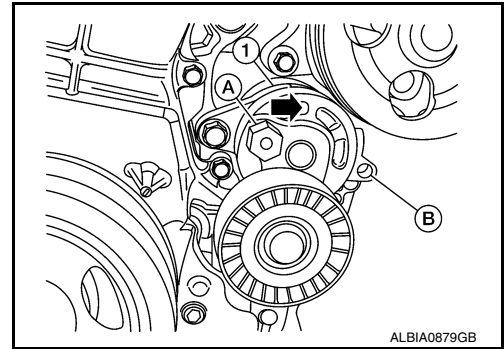
- Securely hold the hexagonal part (A) of drive belt auto-tensioner (1) using suitable tool, and move in the direction of arrow (loosening direction of tensioner).
- Insert a rod approximately 6 mm (0.24 in) in diameter through the rear of the drive belt auto-tensioner into retaining boss (B) to lock drive belt auto-tensioner pulley.

WARNING:

Avoid placing hand in a location where pinching may occur if the holding tool accidentally comes off.

NOTE:

Leave drive belt auto-tensioner pulley arm locked until drive belt is installed again.



- Loosen drive belt from drive belt auto-tensioner and then remove it from the other pulleys.
- Installation of remaining components is in the reverse order of removal.

INSTALLATION

Installation is in the reverse order of removal.

- Install the drive belt onto all of the pulleys except for the drive belt auto-tensioner. Then install the drive belt onto drive belt auto-tensioner last.

CAUTION:

- Confirm belts are completely set on the pulleys.
- Check for engine oil and engine coolant. Be sure they are not adhered to the drive belt and each pulley groove.

- Release the drive belt auto-tensioner and apply tension to drive belt.

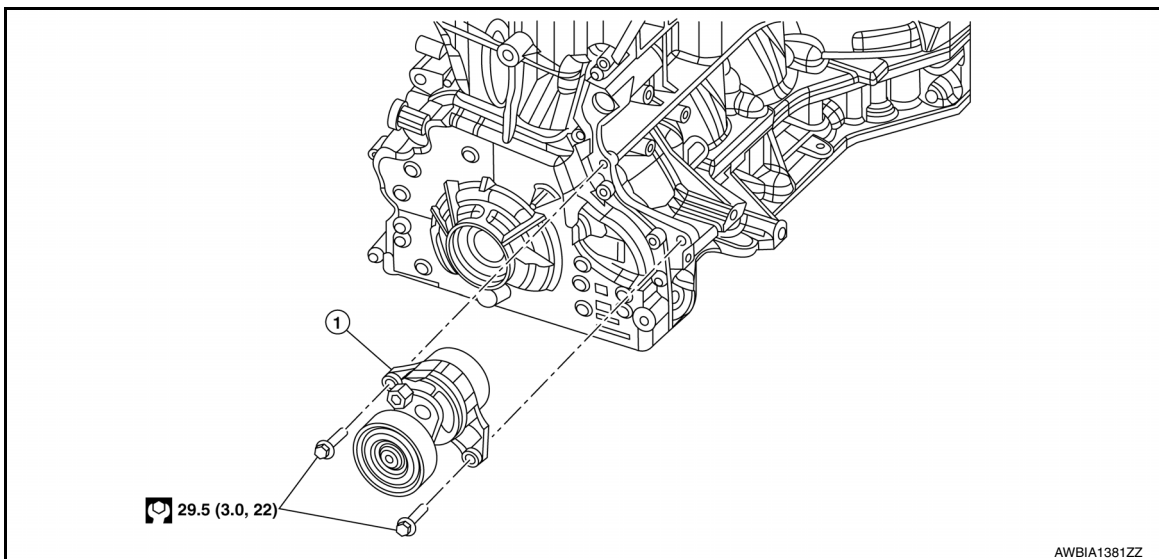
WARNING:

Avoid placing hand in a location where pinching may occur if the holding tool accidentally comes off.

- Turn crankshaft pulley clockwise several times to equalize tension between each pulley.
- Confirm the indicator is within the possible use range. Refer to [EM-13. "Checking"](#).
- Install wheel and tire (RH). Refer to [WT-57. "Adjustment"](#).

Removal and Installation of Drive Belt Auto-tensioner

INFOID:0000000010275774



1. Drive belt auto-tensioner

REMOVAL

CAUTION:

The complete drive belt auto-tensioner must be replaced as a unit, including the pulley.

DRIVE BELTS

< PERIODIC MAINTENANCE >

1. Remove the drive belt. Refer to [EM-13. "Removal and Installation"](#).
2. Remove the drive belt auto-tensioner.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

Install the drive belt auto-tensioner carefully so not to damage the water pump pulley.

A

EM

C

D

E

F

G

H

I

J

K

L

M

N

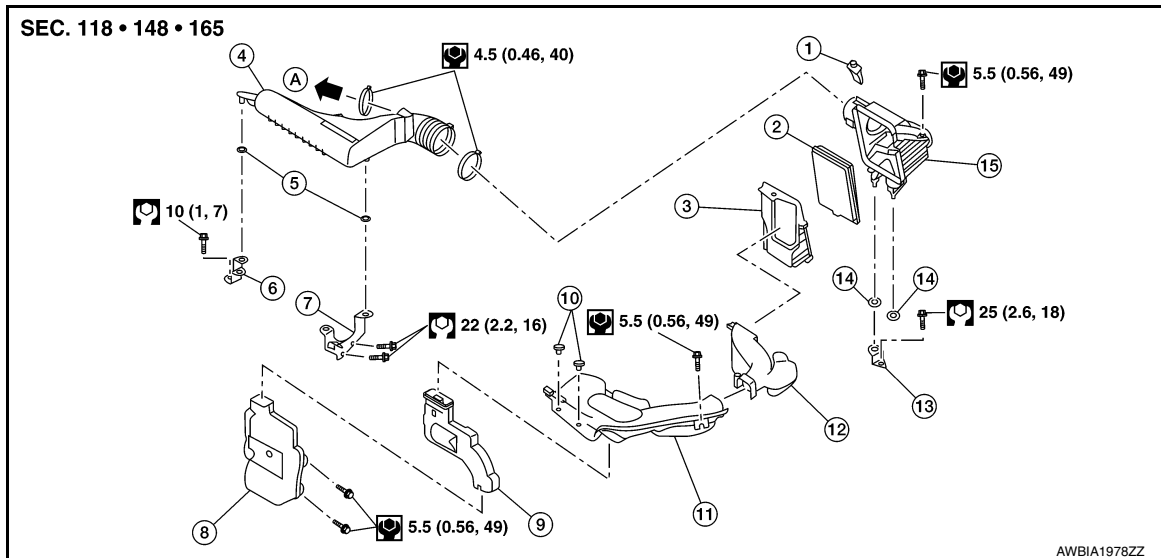
O

P

AIR CLEANER FILTER

Exploded View

INFOID:0000000010282397



- | | | | | | |
|-----|---------------------------------------|-----|--------------------|-----|---------------------------|
| 1. | Mass air flow sensor | 2. | Air cleaner filter | 3. | Air cleaner case (lower) |
| 4. | Air duct assembly | 5. | Grommet | 6. | Resonator bracket (front) |
| 7. | Resonator bracket (rear) | 8. | Resonator | 9. | Air duct |
| 10. | Mounting clip | 11. | Air duct assembly | 12. | Air duct assembly |
| 13. | Air cleaner bracket | 14. | Grommet | 15. | Air cleaner case (upper) |
| A. | To Electric throttle control actuator | | | | |

Removal and Installation

INFOID:0000000010282398

CHANGING THE AIR CLEANER FILTER

1. Remove air duct assembly from air cleaner case (upper).
2. Open the air cleaner case.
3. Remove the air cleaner filter.
4. Install a new air cleaner filter.
5. Close the air cleaner case.
6. Secure the air cleaner case clips.

INSPECTION AFTER REMOVAL

Examine the air cleaner filter for stains, clogging, or damage.

- Remove dirt and foreign objects (such as dead leaves) on air cleaner filter surface and inside cleaner case.
- If clogging or damage is observed, replace the air cleaner filter.

CAUTION:

Do not clean the viscous paper type air cleaner filter by blowing as there is a risk of deterioration of its performance.

MAINTENANCE INTERVAL

Refer to MA-7, "Introduction of Periodic Maintenance".

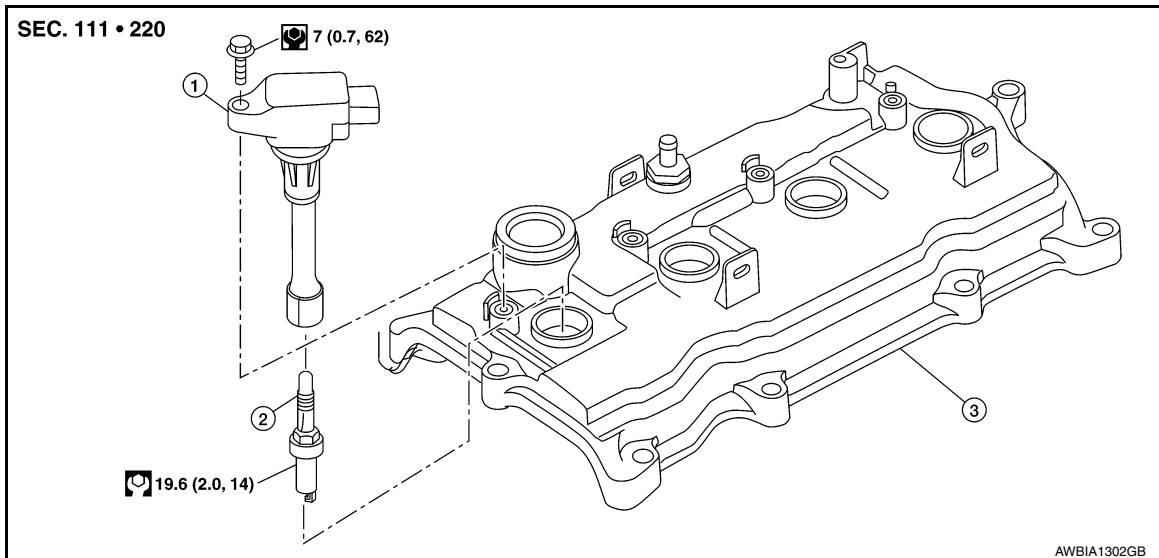
SPARK PLUG

< PERIODIC MAINTENANCE >

SPARK PLUG

Exploded View

INFOID:000000010282414



1. Ignition coil

2. Spark plug

3. Rocker cover

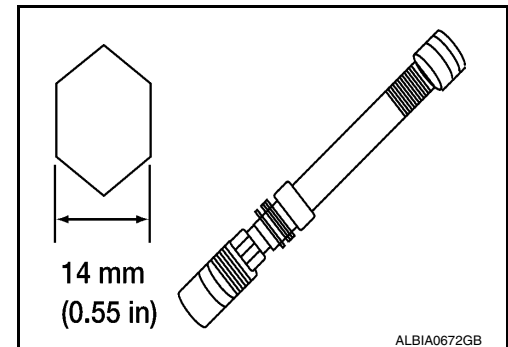
Removal and Installation

INFOID:000000010282415

REMOVAL

1. Remove air duct assembly.
2. Remove ignition coil. Refer to [EM-36, "Exploded View"](#).
3. Remove spark plug using Tool.

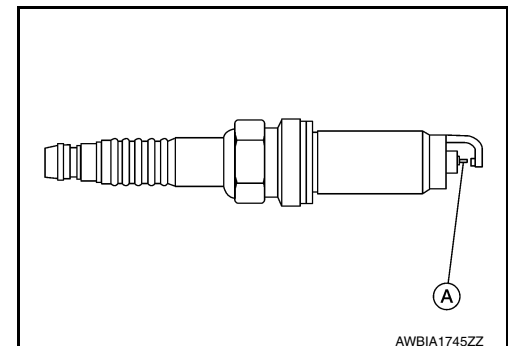
Tool number : — (J-48891)



INSPECTION AFTER REMOVAL

Visually check the electrode for dirt and wear and the insulator for burning.

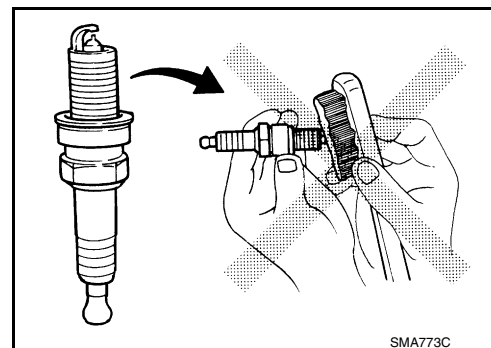
(A) : Iridium alloy



SPARK PLUG

< PERIODIC MAINTENANCE >

- Do not use a wire brush for cleaning the spark plugs. Replace as necessary.



- If plug is covered with carbon, a spark plug cleaner may be used.

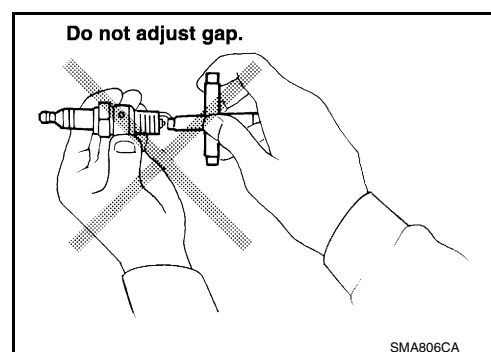
Cleaner air pressure : less than 588 kPa (6 kg/cm², 85 psi)

Cleaning time : less than 20 seconds

- Checking and adjusting plug gap is not required between change intervals. If the gap is out of specification, replace the spark plug.

CAUTION:

Do not drop or shock plug.



INSTALLATION

Installation is in the reverse order of removal.

Standard type*	DENSO
	FXE20HE11C
Gap (nominal)	1.1 mm (0.043 in)

*: Always check with the Parts Department for the latest parts information.

CAMSHAFT VALVE CLEARANCE

< PERIODIC MAINTENANCE >

CAMSHAFT VALVE CLEARANCE

Camshaft valve clearance

INFOID:0000000010282416

- Perform this inspection as follows after removal, installation, or replacement of the camshaft or any valve parts, or if there are any unusual engine conditions due to changes in valve clearance over time (starting, idling, and/or noise).

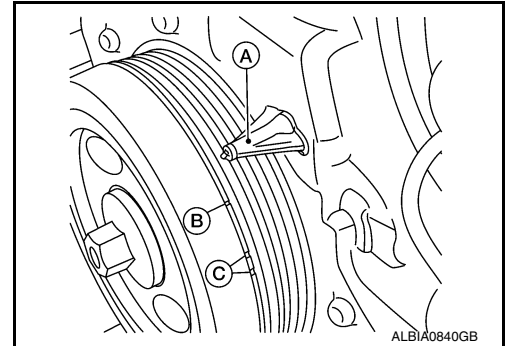
1. Remove the fender protector side cover (RH). Refer to [EXT-28. "FENDER PROTECTOR : Exploded View"](#).

2. Remove the rocker cover. Refer to [EM-37. "Exploded View"](#).

3. Turn crankshaft pulley clockwise when viewed from front to align TDC identification mark (B) with timing indicator (A).

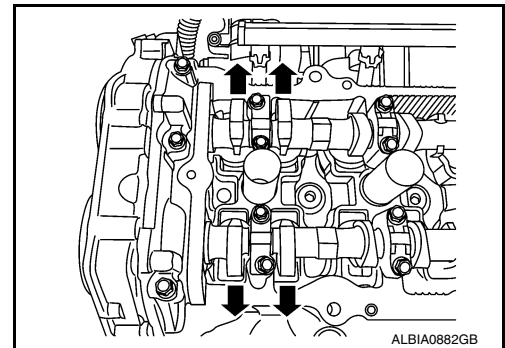
NOTE:

Do not confuse TDC mark (B) with paint marks (C).



4. At this time, check that the both intake and exhaust cam lobes of No. 1 cylinder face outside.

- If they do not face outside, turn crankshaft pulley once more.

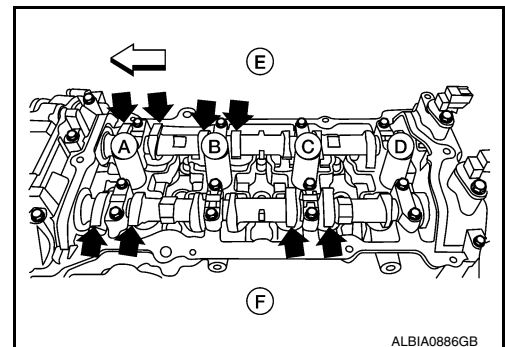


5. Measure valve clearances with a suitable tool at locations marked (X) in the table below.

- No.1 cylinder compression TDC.

Cylinder	No.1 (A)		No.2 (B)		No.3 (C)		No.4 (D)	
Valve	INT (E)	EXH (F)	INT (E)	EXH (F)	INT (E)	EXH (F)	INT (E)	EXH (F)
Measure	x	x	x			x		

← : Engine front

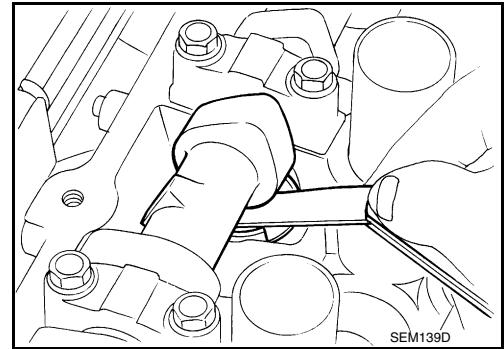


CAMSHAFT VALVE CLEARANCE

< PERIODIC MAINTENANCE >

- Use a suitable tool to measure the clearance between valve lifter and camshaft.

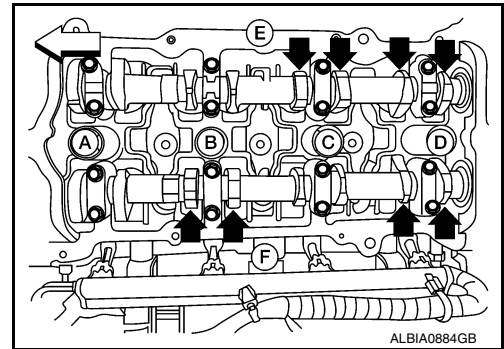
Valve clearance: Refer to [EM-116, "Camshaft"](#).



- Turn crankshaft one complete revolution (360°) and align mark on crankshaft pulley with pointer.
- Measure valve clearances with a suitable tool at locations marked (X) in the table below.
 - No.4 cylinder compression TDC.

Cylinder	No.1 (A)		No.2 (B)		No.3 (C)		No.4 (D)	
Valve	INT (E)	EXH (F)	INT (E)	EXH (F)	INT (E)	EXH (F)	INT (E)	EXH (F)
Measure				X	X		X	X

If out of specifications, make necessary adjustment.

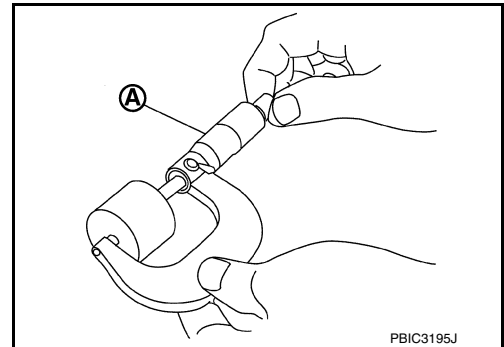


← : Engine front

ADJUSTMENT

NOTE:

- Perform adjustment by selecting the valve lifter with the correct head thickness.
- Remove camshaft. Refer to [EM-64, "Exploded View"](#).
 - Remove the valve lifters at the locations that are outside the standard.
 - Measure the center thickness of the removed valve lifters with a suitable tool (A).



- Use the equation below to calculate valve lifter thickness for replacement.
 - Valve lifter thickness calculation.
$$t = t1 + (C1 - C2)$$

t = Thickness of replacement valve lifter.
 t1 = Thickness of removed valve lifter.
 C1 = Measured valve clearance.
 C2 = Standard valve clearance.

CAMSHAFT VALVE CLEARANCE

< PERIODIC MAINTENANCE >

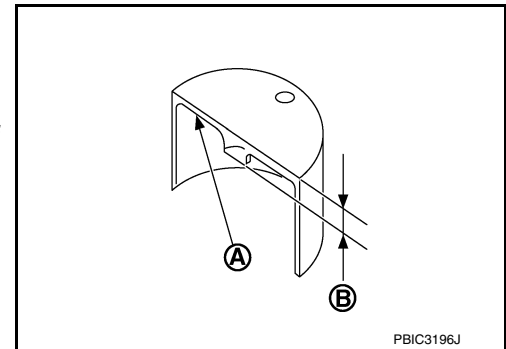
- Thickness of a new valve lifter (B) can be identified by stamp marks (A) on the reverse side (inside the cylinder). Stamp mark 324H indicates a thickness of 3.24 mm (0.1276 in)

Available thickness of valve lifter: 26 sizes with a range of 3.00 to 3.50 mm (0.1181 to 0.1378 in), in steps of 0.02 mm (0.0008 in), when assembled at the factory.

5. Install the selected valve lifter.
6. Install camshaft. Refer to [EM-64, "Exploded View"](#).
7. Install timing chain and related parts. Refer to [EM-44, "Exploded View"](#).
8. Manually rotate crankshaft pulley a few rotations.
9. Check that valve clearances for cold engine are within specifications by referring to the specified values.

Valve clearance Refer to [EM-116, "Camshaft"](#).

10. Install all removed parts in the reverse order of removal.
11. Warm up the engine, and check for unusual noise and vibration.



COMPRESSION PRESSURE

< PERIODIC MAINTENANCE >

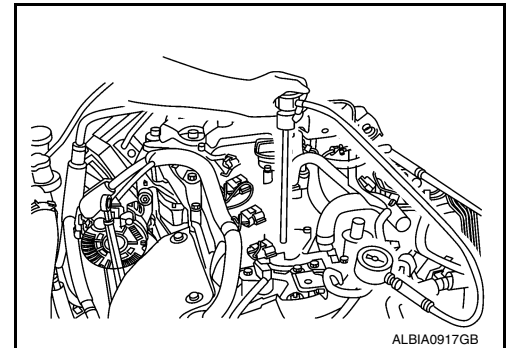
COMPRESSION PRESSURE

Compression pressure

INFOID:0000000010282417

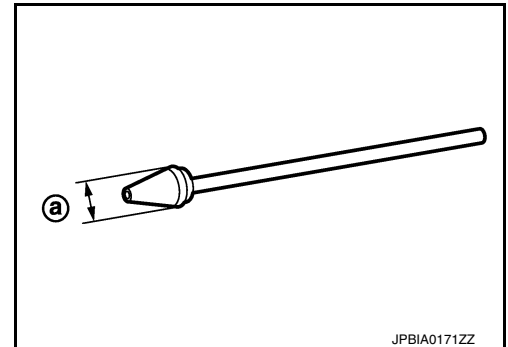
CHECKING COMPRESSION PRESSURE

1. Warm up the engine to full operating temperature.
2. Release the fuel pressure. Refer to [EC-144, "Work Procedure"](#).
3. Remove the ignition coil and spark plug from each cylinder. Refer to [EM-36, "Removal and Installation"](#) and [EM-17, "Removal and Installation"](#).
4. Connect engine tachometer (not required in use of CONSULT).
5. Disconnect the fuel injector harness connector to avoid any residual fuel injection during the measurement.
6. Install the compression tester with the adapter into the spark plug hole.



ALBIA0917GB

- Use compression tester whose end (a) (rubber portion) is smaller than 20 mm (0.79 in) in diameter. Otherwise, it may be caught by cylinder head during removal.



JPBIA0171ZZ

7. With the accelerator pedal fully depressed, turn the ignition switch to the "START" position to crank over the engine. When the gauge pointer stabilizes, read the compression pressure and engine rpm. Perform these steps to check each cylinder.

Unit: kPa (kg/cm², psi) / rpm

Standard	Minimum	Difference limit between cylinders
1410 (14.4, 204.5) / 250	1220 (12.4, 176.9) / 250	100 (1.0, 14) / 250

CAUTION:

Always use a fully charged battery to obtain specified engine cranking speed.

- If the engine speed is out of specified rpm range, check the battery. Check engine speed again with a fully charged battery.
- If compression pressure is below minimum value, check valve clearances and parts associated with combustion chamber (valve, valve seat, piston, piston ring, cylinder bore, cylinder head, cylinder head gasket). After the checking, measure compression pressure again.
- If some cylinders have low compression pressure, pour small amount of engine oil into the spark plug hole of the cylinder to re-check it for compression.
- If the added engine oil improves the compression, the piston rings may be worn or damaged. Check the piston rings and replace if necessary.
- If the compression pressure remains at low level despite the addition of engine oil, the valves may be malfunctioning. Check the valves for damage. Replace the valve or valve seat accordingly.

COMPRESSION PRESSURE

< PERIODIC MAINTENANCE >

- If two adjacent cylinders have respectively low compression pressure and their compression remains low even after the addition of engine oil, the head gasket is leaking. In such a case, replace the cylinder head gasket.
- 8. Install spark plug, ignition coil and harness connectors. Refer to [EM-17. "Removal and Installation"](#).

A

EM

C

D

E

F

G

H

I

J

K

L

M

N

O

P

AIR CLEANER AND AIR DUCT

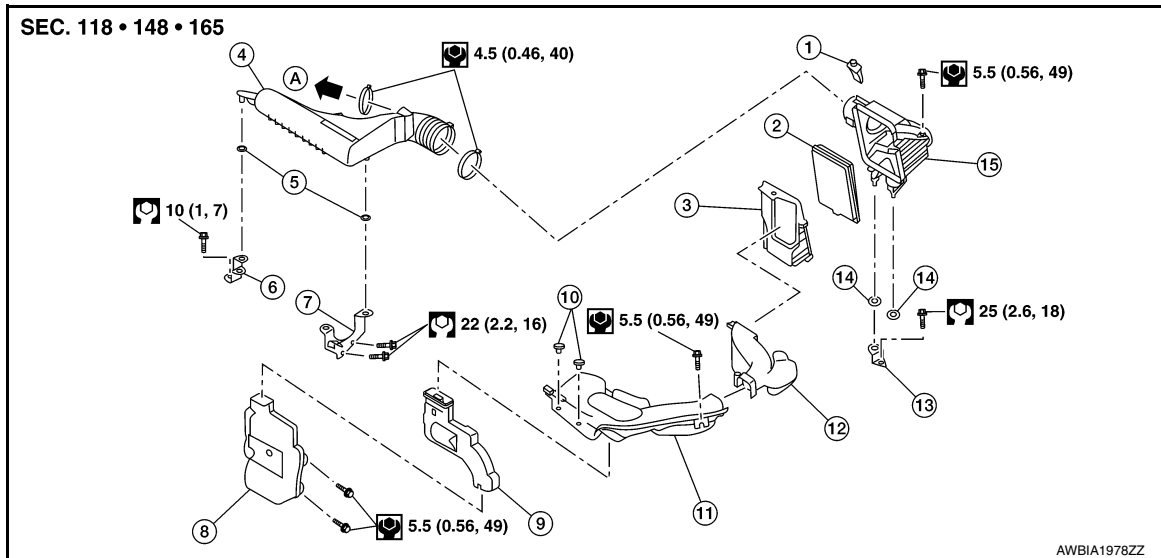
< REMOVAL AND INSTALLATION >

REMOVAL AND INSTALLATION

AIR CLEANER AND AIR DUCT

Exploded View

INFOID:000000009798933



- | | | |
|--|-----------------------|------------------------------|
| 1. Mass air flow sensor | 2. Air cleaner filter | 3. Air cleaner case (lower) |
| 4. Air duct assembly | 5. Grommet | 6. Resonator bracket (front) |
| 7. Resonator bracket (rear) | 8. Resonator | 9. Air duct |
| 10. Mounting clip | 11. Air duct assembly | 12. Air cleaner case duct |
| 13. Air cleaner bracket | 14. Grommet | 15. Air cleaner case (upper) |
| A. To Electric throttle control actuator | | |

Removal and Installation

INFOID:000000009798934

REMOVAL

NOTE:

Mass air flow sensor is removable under the car-mounted condition.

1. Remove cowl top extension. Refer to [EXT-25. "Removal and Installation"](#).
2. Remove air cleaner filter. Refer to [EM-16. "Removal and Installation"](#).
3. Remove air duct assembly from air cleaner case (lower).
4. Remove air cleaner case (lower).
5. Disconnect harness connector from mass air flow sensor.
6. Remove air cleaner case (upper).
7. Remove mass air flow sensor from air cleaner case (upper) (if necessary).
8. Separate air cleaner case duct from air cleaner case (lower) and air duct assembly.
9. Remove air duct from air duct assembly and resonator.
10. Remove resonator.

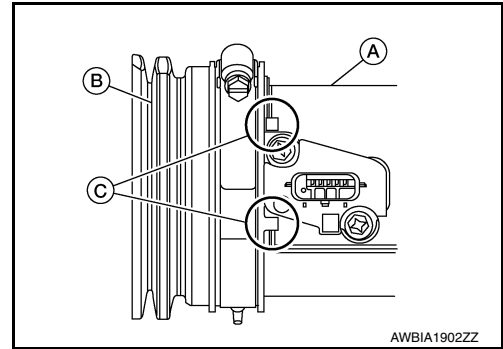
INSTALLATION

Installation is in the reverse order of removal.

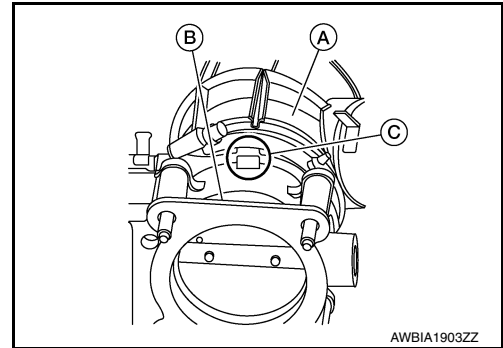
AIR CLEANER AND AIR DUCT

< REMOVAL AND INSTALLATION >

- Align mating marks (C) of air duct assembly (B) with air cleaner case (upper) (A) as shown.



- Align mating marks (C) of air duct assembly (A) with electric throttle control actuator (B) as shown.



Inspection

INSPECTION AFTER REMOVAL

- Inspect air duct and resonator assembly for cracks or tears.
- If anything found, replace air duct and resonator assembly.

INFOID:000000009798935

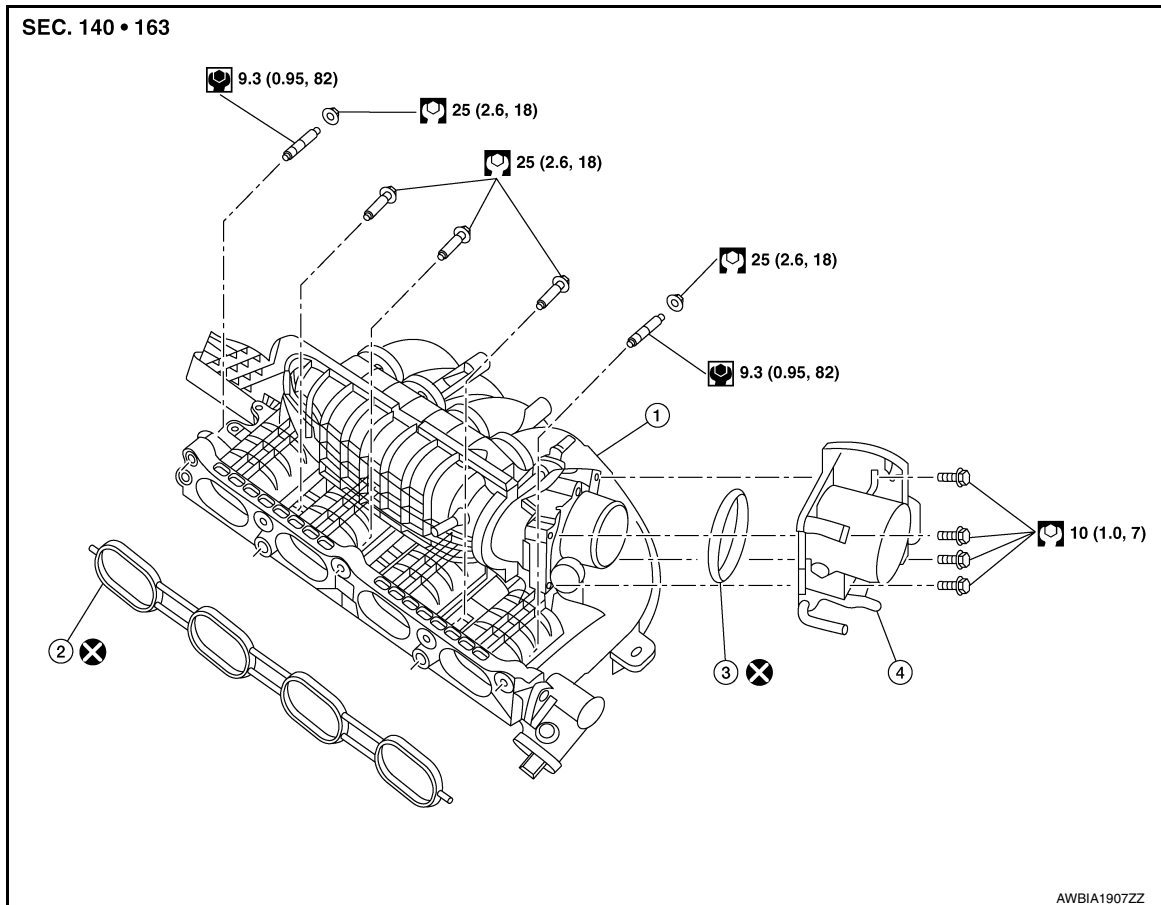
INTAKE MANIFOLD

< REMOVAL AND INSTALLATION >

INTAKE MANIFOLD

Exploded View

INFOID:000000009798936



1. Intake manifold 2. Intake manifold gasket 3. Electric throttle control actuator O-ring
4. Electric throttle control actuator

Removal and Installation

INFOID:0000000010284112

REMOVAL

WARNING:

To avoid danger of being scalded, do not drain engine coolant when engine is hot.

NOTE:

When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid from spilling.

1. Disconnect battery negative terminal.
2. Remove the air cleaner and air duct. Refer to [EM-24, "Removal and Installation"](#).
3. Disconnect the PCV hose from the rocker cover.
4. Disconnect harness connector from EVAP canister purge volume control solenoid.
5. Disconnect the EVAP hose and EVAP canister purge volume control solenoid.
6. Disconnect the brake booster vacuum hose from the intake manifold.
7. Disconnect harness connector from electric throttle control actuator.
8. Disconnect the water hoses from the electric throttle control actuator (if necessary).

CAUTION:

- Do not allow the engine coolant to contact the drive belt.
- Perform this step when engine is cold.

NOTE:

INTAKE MANIFOLD

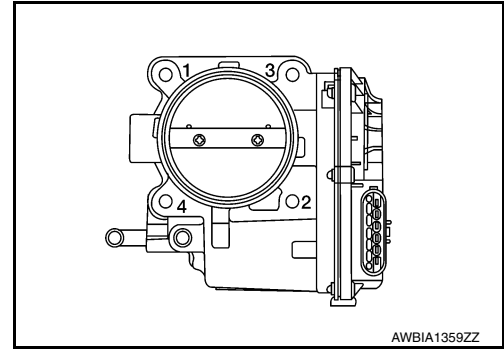
< REMOVAL AND INSTALLATION >

When removing only intake manifold, position electric throttle control actuator aside without disconnecting the water hose.

- Loosen bolts in reverse order as shown, then remove electric throttle control actuator and electric throttle control actuator O-ring.

CAUTION:

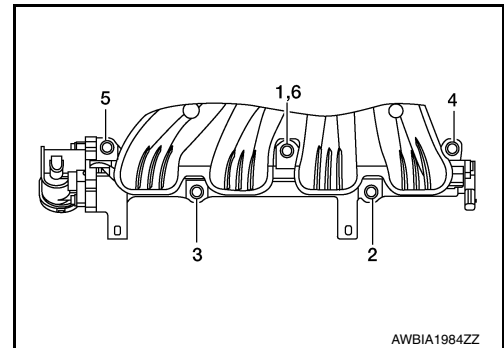
- Handle carefully to avoid any damage.
- Cover intake manifold opening to prevent entry of foreign materials.



- Remove front exhaust tube. Refer to [EX-5, "Exploded View"](#).
- Disconnect harness connector from intake manifold runner control valve.
- Disconnect harness connector from intake manifold runner control valve position sensor.
- Remove harness retainers.
- Remove intake manifold in the reverse order shown and remove the intake manifold gasket.

CAUTION:

Cover engine openings to prevent entry of foreign materials.



INSTALLATION

Installation is in the reverse order of removal. Follow the tightening sequences and specifications below and perform the following:

- Add engine coolant (if necessary). Refer to [CO-9, "Refilling"](#).
- Perform the "Throttle Valve Closed Position Learning" when harness connector of electric throttle control actuator is disconnected. Refer to [EC-140, "Work Procedure"](#).
- Perform the "Idle Air Volume Learning" and "Throttle Valve Closed Position Learning" when electric throttle control actuator is replaced. Refer to [EC-141, "Work Procedure"](#) or [EC-140, "Work Procedure"](#).

Intake Manifold

- Securely install gasket to groove.
CAUTION:
Do not reuse gasket.
- If studs were removed, install them and tighten to specification.

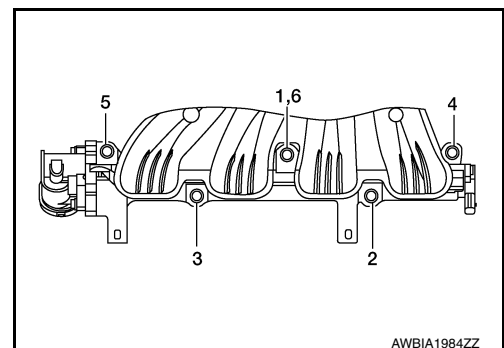
Studs : 9.4 N·m (0.96 kg-m, 83 in-lb)

- Tighten in numerical order as shown.

CAUTION:

After tightening the five bolts in the order shown, the 1, 6 position designates that the first bolt tightened is to be retightened to specification.

Nuts/Bolts 1, 2, 3, 4, 5, 6 : 25 N·m (2.6 kg-m, 18 ft-lb)



INTAKE MANIFOLD

< REMOVAL AND INSTALLATION >

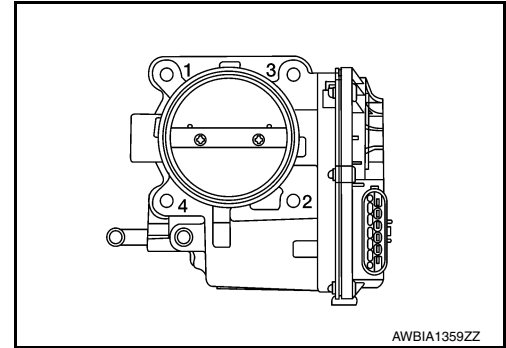
Electric Throttle Control Actuator

1. Install a new O-ring on the electric throttle control actuator.

CAUTION:

Do not reuse electric throttle control actuator O-ring.

2. Tighten the bolts of electric throttle control actuator equally and diagonally in several steps in numerical order as shown.



INSPECTION AFTER INSTALLATION

Make sure there are no fuel leaks at connections as follows:

1. Apply fuel pressure to fuel lines by turning ignition switch ON (with engine stopped). Then check for fuel leaks at connections.

NOTE:

Use mirrors for checking on connections out of the direct line of sight.

2. Start the engine and rev it up and check for fuel leaks at connections.

WARNING:

Do not touch engine immediately after stopping as engine is extremely hot.

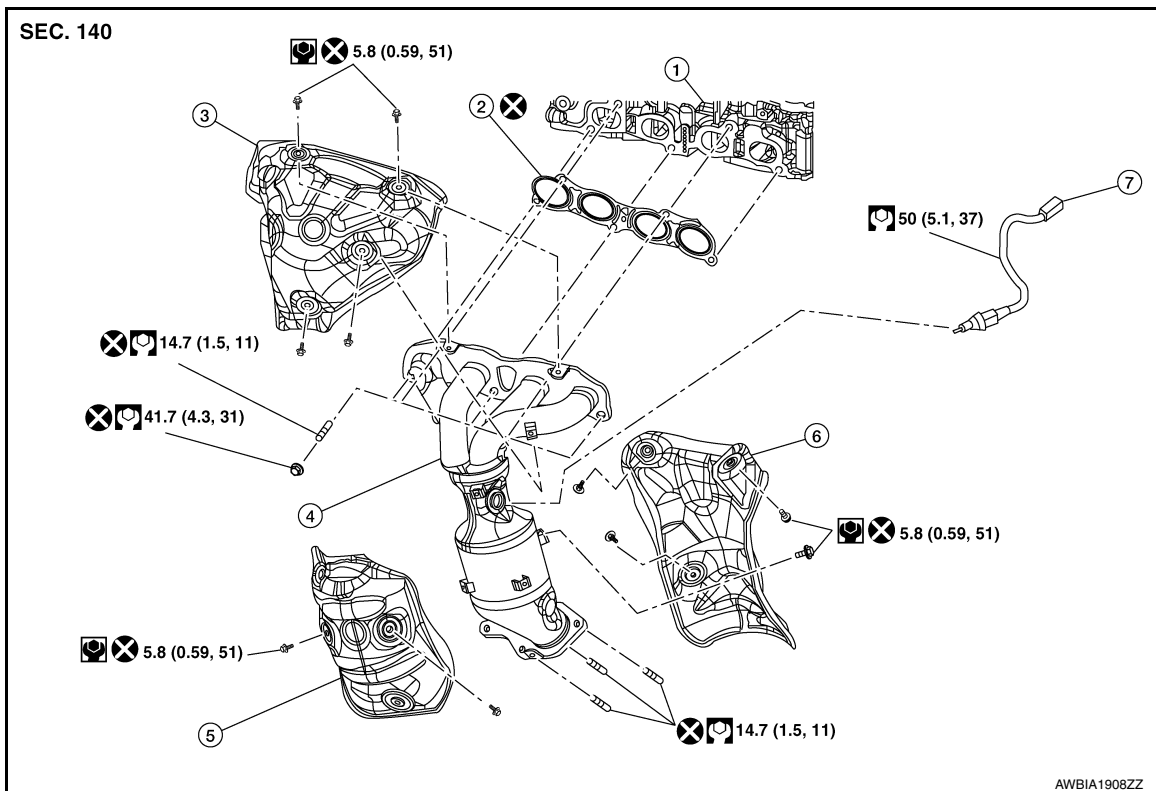
EXHAUST MANIFOLD AND THREE WAY CATALYST

< REMOVAL AND INSTALLATION >

EXHAUST MANIFOLD AND THREE WAY CATALYST

Exploded View

INFOID:000000009798939



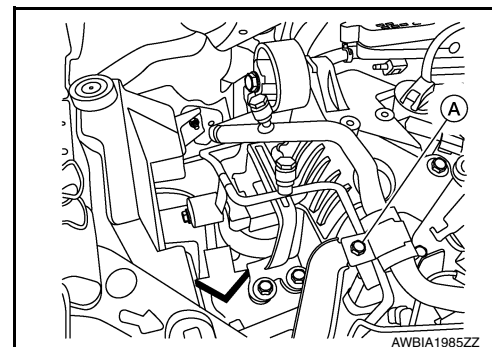
- | | | |
|--|---|--|
| 1. Cylinder head | 2. Exhaust manifold and three way catalyst gasket | 3. Exhaust manifold cover (upper) |
| 4. Exhaust manifold and three way catalyst | 5. Exhaust manifold cover (lower front) | 6. Exhaust manifold cover (lower rear) |
| 7. Air fuel ratio (A/F) sensor 1 | | |

Removal and Installation

INFOID:000000009798940

REMOVAL

1. Disconnect battery negative terminal.
2. Remove A/C line bracket bolt (A).



3. Remove engine under cover. Refer to [EXT-37, "ENGINE UNDER COVER : Removal and Installation"](#).
4. Remove the oil level gauge and oil level gauge guide. Refer to [EM-92, "Exploded View"](#).
5. Remove harness ground wire bolt from generator bracket.
6. Disconnect harness connector from air fuel ratio (A/F) sensor 1.

EXHAUST MANIFOLD AND THREE WAY CATALYST

< REMOVAL AND INSTALLATION >

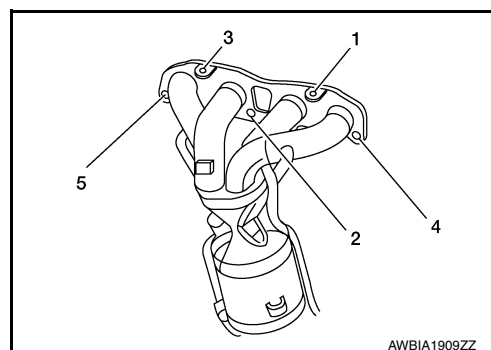
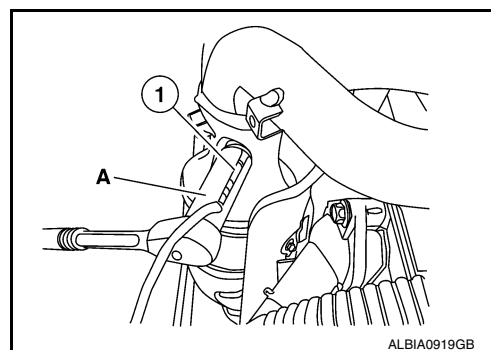
7. Remove the air fuel ratio (A/F) sensor 1 (1) using Tool (A), (if necessary).

Tool number : KV10117100 (J-36471-A)

CAUTION:

- Be careful not to damage air fuel ratio (A/F) sensor.
- Discard any air fuel ratio (A/F) sensor which has been dropped from a height of more than 0.5 m (19.7 in) onto a hard surface such as a concrete floor; replace with a new one.

8. Detach front exhaust tube from exhaust manifold and three way catalyst. Discard the gasket. Refer to [EM-29. "Exploded View"](#).
9. Remove the exhaust manifold cover (upper).
10. Loosen the exhaust manifold and three way catalyst nuts in the reverse order as shown.



11. Remove exhaust manifold and three way catalyst.
12. Remove the exhaust manifold cover (lower front) (if necessary).
13. Remove the exhaust manifold cover (lower rear) (if necessary).

INSPECTION AFTER REMOVAL

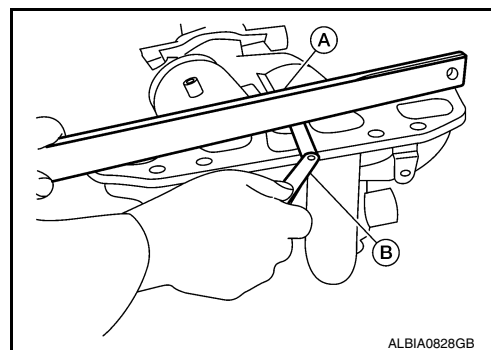
Surface Distortion

- Check the flatness of exhaust manifold and three way catalyst using suitable tools (A/B).

NOTE:

Place the suitable tool (A) diagonally and measure in several locations.

Limit : 0.3 mm (0.012 in)



INSTALLATION

Exhaust Manifold

Installation is in the reverse order of removal.

CAUTION:

- Do not reuse an exhaust manifold cover which has been dropped.
- Be careful not to deform exhaust manifold covers.

1. Install studs in cylinder head studs and exhaust manifold and three way catalyst (if removed). Then tighten to specification.

CAUTION:

Do not reuse cylinder head or exhaust manifold studs.

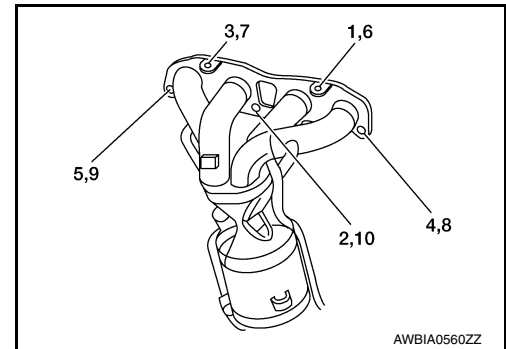
EXHAUST MANIFOLD AND THREE WAY CATALYST

< REMOVAL AND INSTALLATION >

2. Install the exhaust manifold and exhaust manifold and three way catalyst gasket. Then tighten the nuts to specification in the numerical order shown.

CAUTION:

Do not reuse exhaust manifold and three way catalyst gasket.

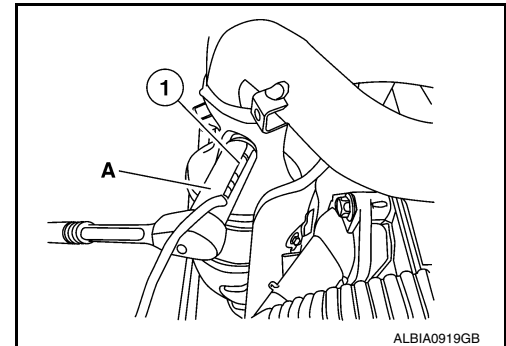


3. Install the air fuel ratio (A/F) sensor 1 (1) using Tool (A) and tighten to specification.

Tool number : KV10117100 (J-36471-A)

CAUTION:

- Be careful not to damage air fuel ratio (A/F) sensor.
- Discard any air fuel ratio (A/F) sensor which has been dropped from a height of more than 0.5 m (19.7 in) onto a hard surface such as a concrete floor; replace with a new one.
- Do not over-tighten the air fuel ratio (A/F) sensor 1. Doing so may cause damage to the air fuel ratio (A/F) sensor 1, resulting in a malfunction and the MIL coming on.



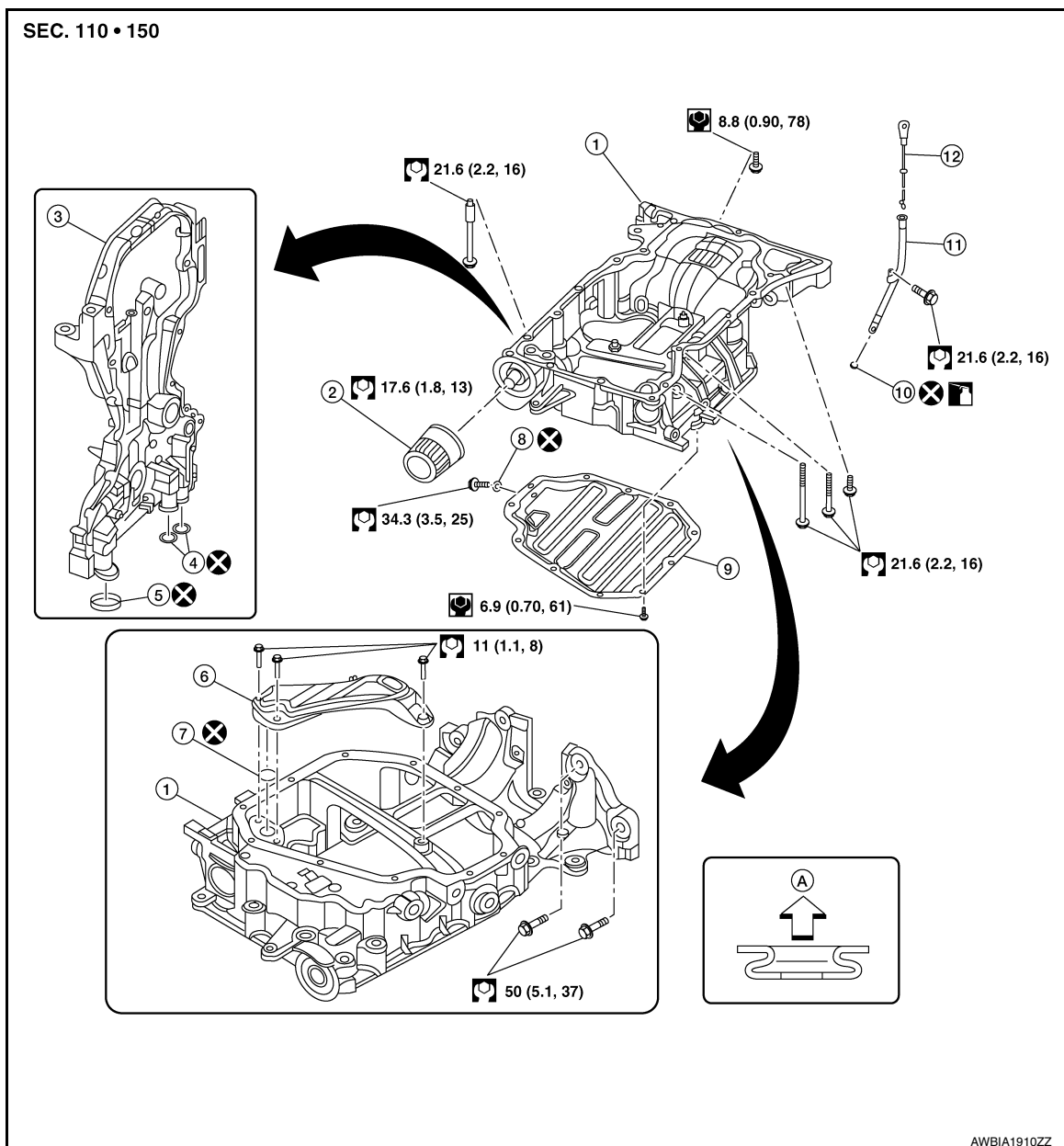
OIL PAN AND OIL STRAINER

< REMOVAL AND INSTALLATION >

OIL PAN AND OIL STRAINER

Exploded View

INFOID:0000000010284116



AWBIA1910ZZ

- | | | |
|---------------------------|---------------------|----------------------|
| 1. Oil pan, upper | 2. Oil filter | 3. Front cover |
| 4. O-ring | 5. Oil strainer | 6. Oil pan, lower |
| 7. Washer | 8. Drain plug | 9. O-ring |
| 10. Oil level gauge guide | 11. Oil level gauge | 12. Rear cover plate |
| A. To Oil pan, lower | | |

Removal and Installation

INFOID:0000000010284117

REMOVAL

WARNING:

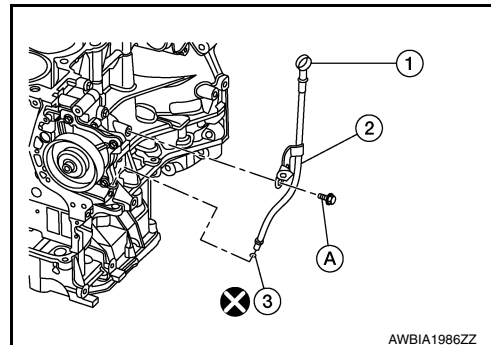
To avoid danger of being scalded, do not drain engine oil when engine is hot.

1. Drain engine oil. Refer to [LU-8, "Draining"](#).
2. Remove the oil filter. Refer to [LU-10, "Removal and Installation"](#).

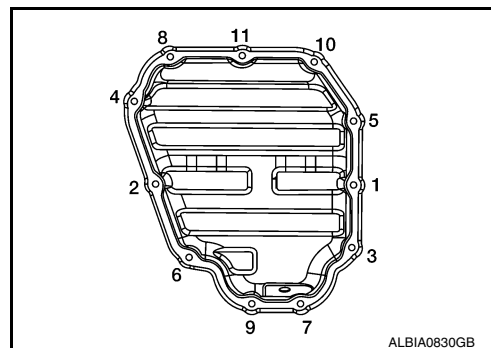
OIL PAN AND OIL STRAINER

< REMOVAL AND INSTALLATION >

3. Remove fender protector (RH). Refer to [EXT-28, "FENDER PROTECTOR : Removal and Installation"](#).
4. Remove the front driveshaft (RH). Refer to [FAX-20, "Removal and Installation \(RH\)"](#).
5. Remove the front exhaust tube and gaskets. Refer to [EX-5, "Exploded View"](#).
6. Remove bolt (A) securing oil level gauge (2).
7. Remove oil level gauge (1), oil level gauge guide (2), and O-ring (3).



8. Remove the power steering gear bolts and support the power steering gear. Refer to [ST-14, "Removal and Installation"](#).
9. Remove the rear engine mount torque rod bracket. Refer to [EM-81, "Exploded View"](#).
10. Remove the front suspension member for clearance to remove the oil pan. Refer to [FSU-20, "Removal and Installation"](#).
11. On models equipped with AWD, remove transfer assembly. Refer to [DLN-70, "Removal and Installation"](#).
12. Disconnect the A/C compressor harness connector.
13. Remove the A/C compressor bolts, position the A/C compressor aside and support. Refer to [HA-30, "Removal and Installation"](#).
14. Remove the lower oil pan bolts in the reverse order as shown.



15. Remove the lower oil pan using Tool (A).

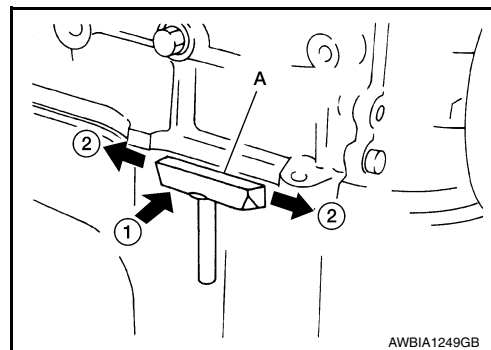
CAUTION:

Be careful not to damage the mating surfaces.

NOTE:

In areas where the cutter is difficult to use, use a plastic hammer to lightly tap (1) the cutter where the liquid gasket is applied. Use a plastic hammer to slide (2) the cutter by tapping on the side.

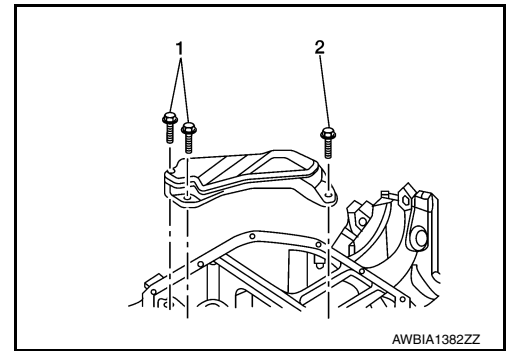
Tool number : KV10111100 (J-37228)



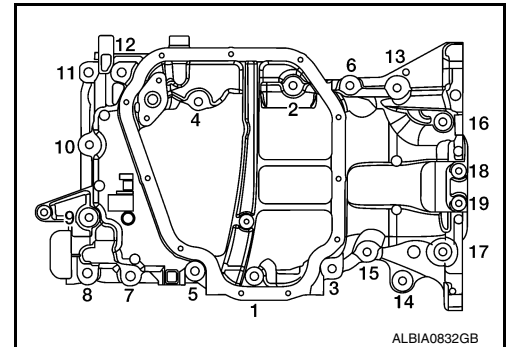
OIL PAN AND OIL STRAINER

< REMOVAL AND INSTALLATION >

16. Remove the oil strainer bolts in the reverse order as shown then remove the oil strainer.



17. Remove rear cover plate and engine-to transaxle bolts.
18. Loosen the upper oil pan bolts in the order shown.



19. Remove upper oil pan using Tool (A).
• Remove the three O-rings from the upper oil pan and front cover.

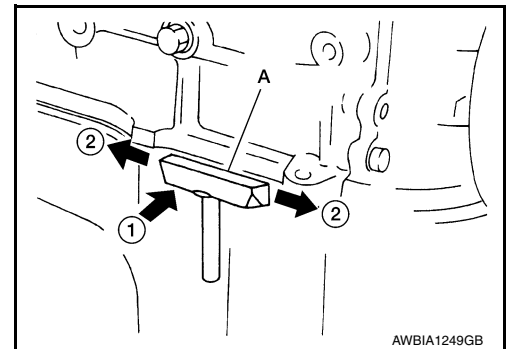
CAUTION:

Be careful not to damage the mating surfaces.

NOTE:

In areas where the cutter is difficult to use, use a plastic hammer to lightly tap (1) the cutter where the liquid gasket is applied. Use a plastic hammer to slide (2) the cutter by tapping on the side.

Tool number : KV10111100 (J-37228)



INSPECTION AFTER REMOVAL

Clean the oil strainer screen to remove any foreign material.

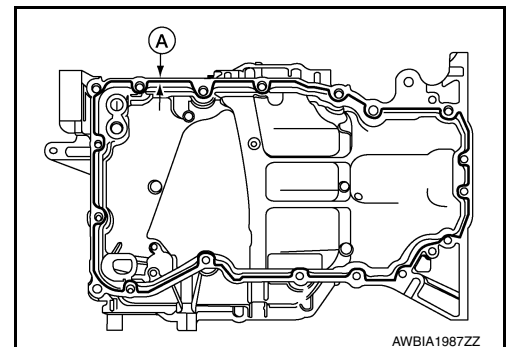
INSTALLATION

1. Apply Genuine Silicone RTV Sealant or equivalent to the upper oil pan at the specified sealant bead diameter (A) as shown. Refer to [GI-22. "Recommended Chemical Products and Sealants"](#).

**Sealant bead : 4.0 - 5.0 mm (0.157 - 0.197 in)
diameter (A)**

CAUTION:

- Be sure liquid gasket application surface is free from dust, grease, and water.
- Install two new O-rings in the upper oil pan and a new O-ring in the front cover.
- Do not reuse O-rings.
- Be sure to apply liquid gasket to the outside of bolt holes 1, 2, and 4.
- Be sure to apply liquid gasket without breaks or overlap.
- Installation should be done within 5 minutes after applying liquid gasket.
- Do not fill the engine with engine oil for at least 30 minutes after the components are installed to allow the liquid gasket to cure.



OIL PAN AND OIL STRAINER

< REMOVAL AND INSTALLATION >

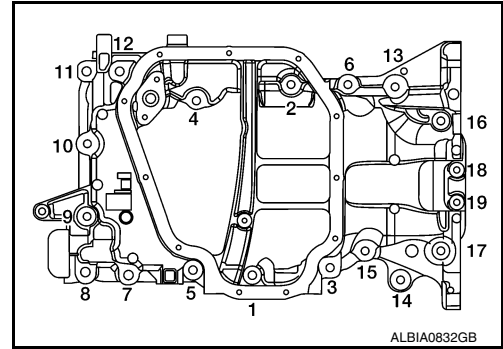
2. Install the upper oil pan to the block and tighten the upper oil pan bolts to specification in the order shown.

CAUTION:

Install upper oil pan bolts in the same position from which they were removed.

All bolts except 18 and 19 : 21.6 N·m (2.2 kg-m, 16 ft-lb)

Bolts 18 and 19 : 8.8 N·m (0.90 kg-m, 78 in-lb)

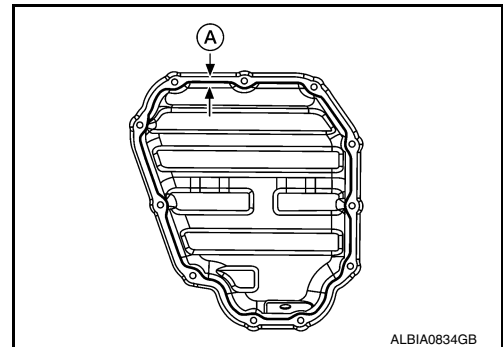


3. Apply Genuine Silicone RTV Sealant or equivalent to the lower oil pan at the specified sealant bead diameter (A) as shown. Refer to [GI-22, "Recommended Chemical Products and Sealants"](#).

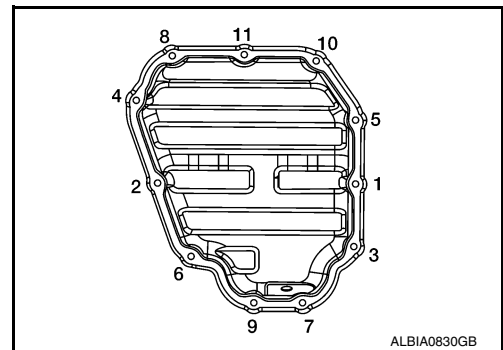
CAUTION:

- Be sure liquid gasket application surface is free from dust, grease, and water.
- Be sure to apply liquid gasket to the inside of all bolt holes.
- Be sure to apply liquid gasket without breaks or overlap.
- Installation should be done within 5 minutes after applying liquid gasket.
- Do not fill the engine with engine oil for at least 30 minutes after the components are installed to allow the liquid gasket to cure.

Sealant bead : 4.0 - 5.0 mm (0.157 - 0.197 in) diameter (A)

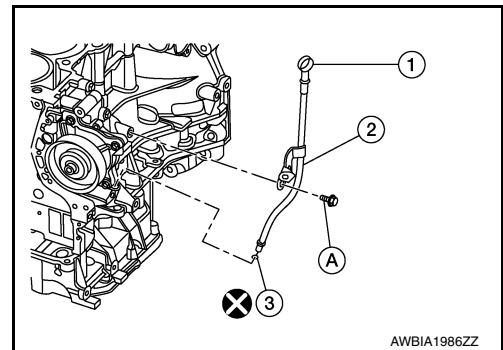


4. Install the lower oil pan to the upper oil pan and tighten the lower oil pan bolts to specification in the numerical order shown.



5. Install oil level gauge (1), oil level gauge guide (2), and O-ring (3).

Bolt (A) : 21.6 N·m (2.2 kg-m, 16 ft-lb)



6. Installation of the remaining components is in the reverse order of removal.

INSPECTION AFTER INSTALLATION

Check for engine oil leaks with the engine at operating temperature and running at idle. Refer to [LU-7, "Inspection"](#).

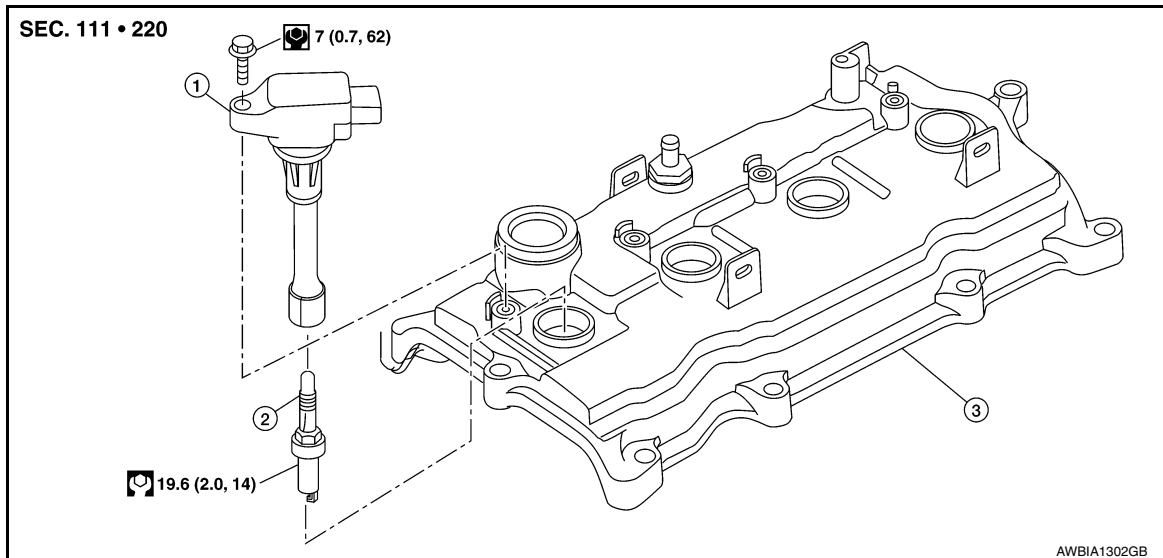
IGNITION COIL

< REMOVAL AND INSTALLATION >

IGNITION COIL

Exploded View

INFOID:0000000010288640



1. Ignition coil

2. Spark plug

3. Rocker cover

Removal and Installation

INFOID:0000000010288641

REMOVAL

1. Remove air duct assembly. Refer to [EM-24, "Exploded View"](#) .
2. Disconnect the harness connector from the ignition coil.
3. Remove the ignition coil.

CAUTION:

Do not drop or shock it.

INSTALLATION

Installation is in the reverse order of removal.

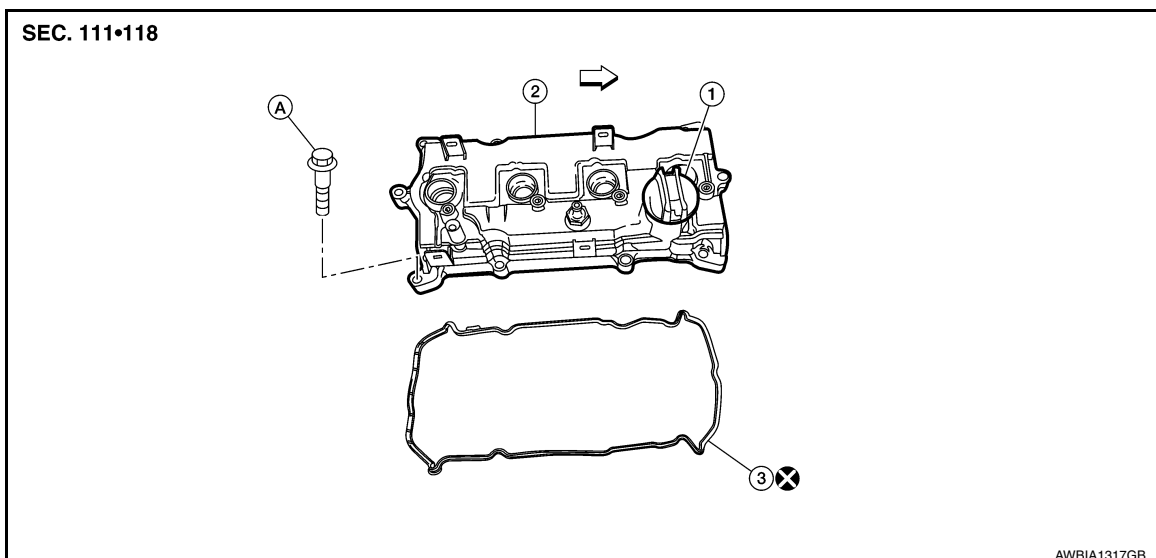
ROCKER COVER

< REMOVAL AND INSTALLATION >

ROCKER COVER

Exploded View

INFOID:0000000010288642



1. Oil filler cap 2. Rocker cover 3. Rocker cover gasket
A. Refer to INSTALLATION ⇐ Engine front

Removal and Installation

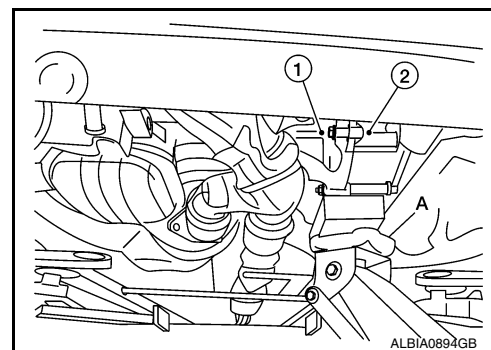
INFOID:0000000010288643

REMOVAL

1. Remove intake manifold. Refer to [EM-26, "Removal and Installation"](#).
2. Remove wheel and tire (RH) using a power tool.
3. Remove engine under cover. Refer to [EXT-37, "ENGINE UNDER COVER : Removal and Installation"](#).
4. Remove fender protector side cover. Refer to [EXT-28, "FENDER PROTECTOR : Exploded View"](#).
5. Remove drive belt. Refer to [EM-13, "Removal and Installation"](#).
6. Remove the RH engine mount torque rod. Refer to [EM-81, "Exploded View"](#).
7. Use a suitable jack (A) to securely support the bottom of the engine (1) and the transaxle assembly (2).

CAUTION:

Put a piece of wood or an equivalent as the supporting surface and secure in a stable condition.

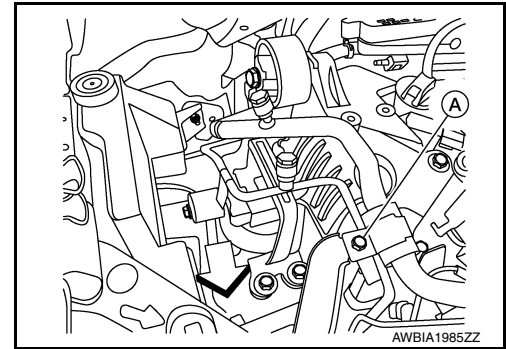


ROCKER COVER

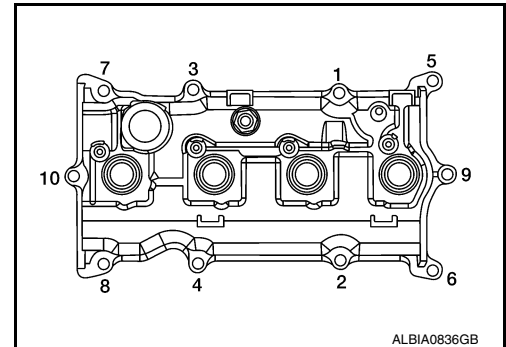
< REMOVAL AND INSTALLATION >

8. Remove A/C line bracket bolt.

⇐ : Engine front



9. Remove harness grounds from engine mounting bracket (RH).
10. Remove harness retainers from engine mounting bracket (RH).
11. Remove the engine mounting bracket (RH). Refer to [EM-81, "Exploded View"](#)
12. Remove the engine mounting bracket (LH). Refer to [EM-81, "Exploded View"](#)
13. Disconnect the PCV hose.
14. Disconnect harness connector from intake valve timing control solenoid valve. Refer to [EM-44, "Exploded View"](#)
15. Disconnect harness connector from intermediate valve timing control solenoid valve. Refer to [EM-44, "Exploded View"](#)
16. Disconnect harness connector from exhaust valve timing control solenoid valve. Refer to [EM-44, "Exploded View"](#)
17. Disconnect harness connector from camshaft position sensors. Refer to [EM-64, "Exploded View"](#)
18. Remove the spark plugs. Refer to [EM-17, "Removal and Installation"](#).
19. Loosen the bolts in the numerical order as shown using power tool.
20. Remove the rocker cover and the rocker cover gasket. Discard the rocker cover gasket.
CAUTION:
Do not reuse the rocker cover gasket.
21. Remove the oil filler cap, (if necessary).



INSTALLATION

ROCKER COVER

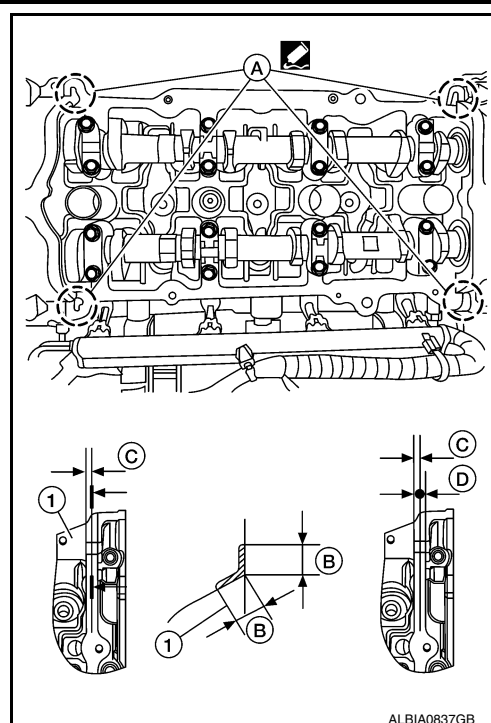
< REMOVAL AND INSTALLATION >

1. Apply liquid gasket to the position shown (A) with the following procedure:
 - a. Apply liquid gasket to joint part of No.1 camshaft bracket (1) and cylinder head.
 - b. Apply liquid gasket in a 90° degree angle (B).
 - **Use Genuine Silicone RTV Sealant, or equivalent. Refer to [GI-22, "Recommended Chemical Products and Sealants"](#).**

(B) : 10 mm (0.39 in)

(C) : 4 mm (0.16 in)

(D) : 5 mm (0.20 in)

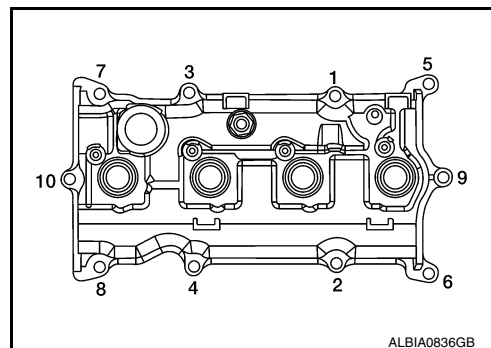


2. Install rocker cover gasket to rocker cover.

NOTE:
The rocker cover gasket must be securely installed in the groove in the rocker cover.
3. Install the rocker cover and rocker cover gasket onto the cylinder head.
4. Tighten the rocker cover bolts to specification in two steps in the order shown.

Step 1 : 1.96 N·m (0.20 kg-m, 17 in-lb)

Step 2 : 8.33 N·m (0.85 kg-m, 74 in-lb)

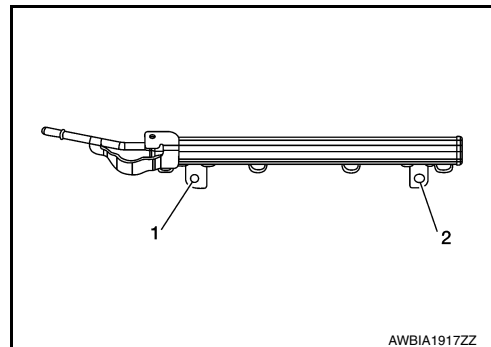


5. Installation of the remaining components is in the reverse order of removal.
6. Inspect for engine oil leaks. Refer to [LU-7, "Inspection"](#).

FUEL INJECTOR AND FUEL TUBE

< REMOVAL AND INSTALLATION >

- Prepare container and cloth beforehand as fuel will leak out.
 - Avoid fire and sparks.
 - Keep parts away from heat source. Especially, be careful when welding is performed around them.
 - Do not expose parts to battery electrolyte or other acids.
 - Do not bend or twist connection between quick connector and fuel feed tube during installation/removal.
 - To keep the connecting portion clean and to avoid damage and foreign materials, cover them completely with plastic bags or something similar.
 - Do not reuse O-ring.
6. Disconnect sub-harness for injectors at engine front side, and remove it from bracket.
 7. Disconnect the fuel injector harness connectors.
 8. Loosen the bolts in the reverse order shown, then remove fuel tube and fuel injectors as an assembly.
 9. Remove the fuel injectors from the fuel tube, (if necessary).
 - a. Release the clip.
 - b. Pull fuel injector straight out of the fuel tube.
- CAUTION:**
- Be careful not to damage the nozzle.
 - Avoid any impact, such as dropping the fuel injector.
 - Do not disassemble or adjust the fuel injector.



INSTALLATION

1. Install new O-rings on the fuel injector.

CAUTION:

 - Do not reuse O-rings.
 - Upper and lower O-rings are different. Be careful not to confuse them.

Fuel tube side : Black
Nozzle side : Green

 - Handle O-rings with bare hands only. Do not wear gloves.
 - Lubricate O-rings with new engine oil.
 - Do not clean O-rings with solvent.
 - Make sure that O-ring and its mating part are free of foreign material.
 - Be careful not to scratch O-rings during installation.
 - Do not twist or stretch the O-ring. If the O-ring was stretched while it is attached, do not insert it into the fuel tube immediately.

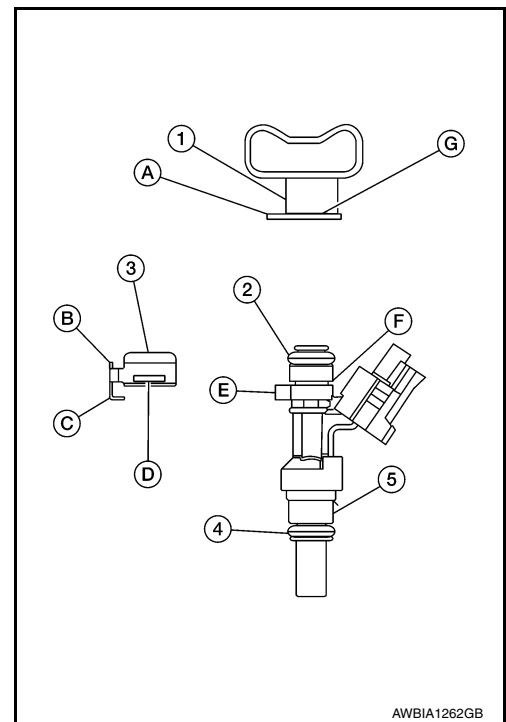
FUEL INJECTOR AND FUEL TUBE

< REMOVAL AND INSTALLATION >

2. Install the fuel injector (5) into the fuel tube (1) with the following procedure:
 - (2): O-ring (black)
 - (4): O-ring (green)
 - a. Insert the new clip (3) into the clip groove (F) on fuel injector (5).
 - Insert the clip (3) so that protrusion (E) of fuel injector (5) matches cutout (C) of the clip (3).

CAUTION:

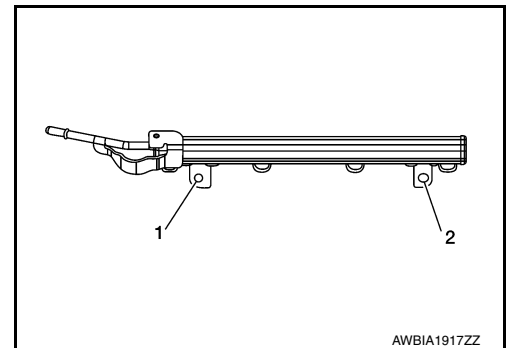
 - **Do not reuse clip (3), replace it with a new one.**
 - **Be careful to keep clip from interfering with O-ring. If interference occurs, replace O-ring.**
 - b. Insert fuel injector (5) into fuel tube (1) with clip (3) attached.
 - Insert fuel injector (5) so that protrusion (A) of fuel tube (1) matches cut-out (B) of the clip (3).
 - Check that fuel tube flange (G) is securely fixed in flange groove (D) on the clip (3).
 - c. Check that installation is complete by checking that fuel injector (5) does not rotate or come off.



3. Install fuel tube and fuel injector assembly with the following procedure.
 - a. Insert the tip of each fuel injector into intake manifold.
 - b. Tighten the bolts to specification in the numerical order as shown.

CAUTION:

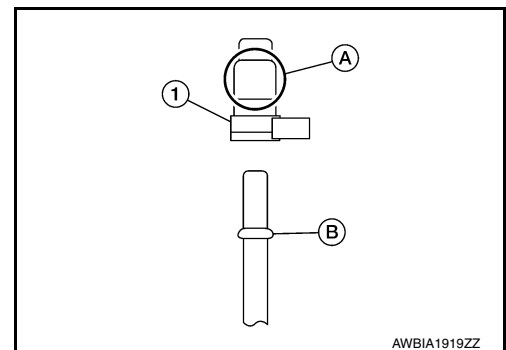
After properly connecting fuel tube assembly to injector and fuel hose, check connection for fuel leaks.



4. Connect the fuel hose quick connector.
 - a. Make sure no foreign substances are deposited in and around the fuel tube and quick connector, and there is no damage to them.
 - b. Thinly apply new engine oil around the fuel tube tip end.
 - c. Align center to insert quick connector straight onto fuel tube.
 - d. Insert fuel tube into quick connector (1) until the spool (B) on fuel tube is inserted completely.
 - e. Engage red locking clip on quick connector.

CAUTION:

- **Hold at position (A) as shown, when inserting the fuel tube into the quick connector (1).**
- **Carefully align to center to avoid inclined insertion to prevent damage to the O-ring inside the quick connector (1).**
- **Insert the fuel tube until you hear a “click” sound and actually feel the engagement.**
- **To avoid misidentification of engagement with a similar sound.**
- **Do not reuse O-ring.**
- **Ensure that red locking clip is firmly secured.**



5. Installation of the remaining components is in the reverse order of removal.

FUEL INJECTOR AND FUEL TUBE

< REMOVAL AND INSTALLATION >

INSPECTION AFTER INSTALLATION

Make sure there are no fuel leaks at connections as follows:

1. Apply fuel pressure to fuel lines by turning ignition switch ON (with engine stopped). Then check for fuel leaks at connections.
2. Start the engine and rev it up and check for fuel leaks at connections.
 - Perform procedures for “Throttle Valve Closed Position Learning” after finishing repairs. Refer to [EC-140, "Work Procedure"](#).
 - If electric throttle control actuator is replaced, perform procedures for “Idle Air Volume Learning” after finishing repairs. Refer to [EC-141, "Work Procedure"](#).

WARNING:

Do not touch engine immediately after stopping as engine is extremely hot.

NOTE:

Use mirrors for checking on connections out of the direct line of sight.

A

EM

C

D

E

F

G

H

I

J

K

L

M

N

O

P

TIMING CHAIN

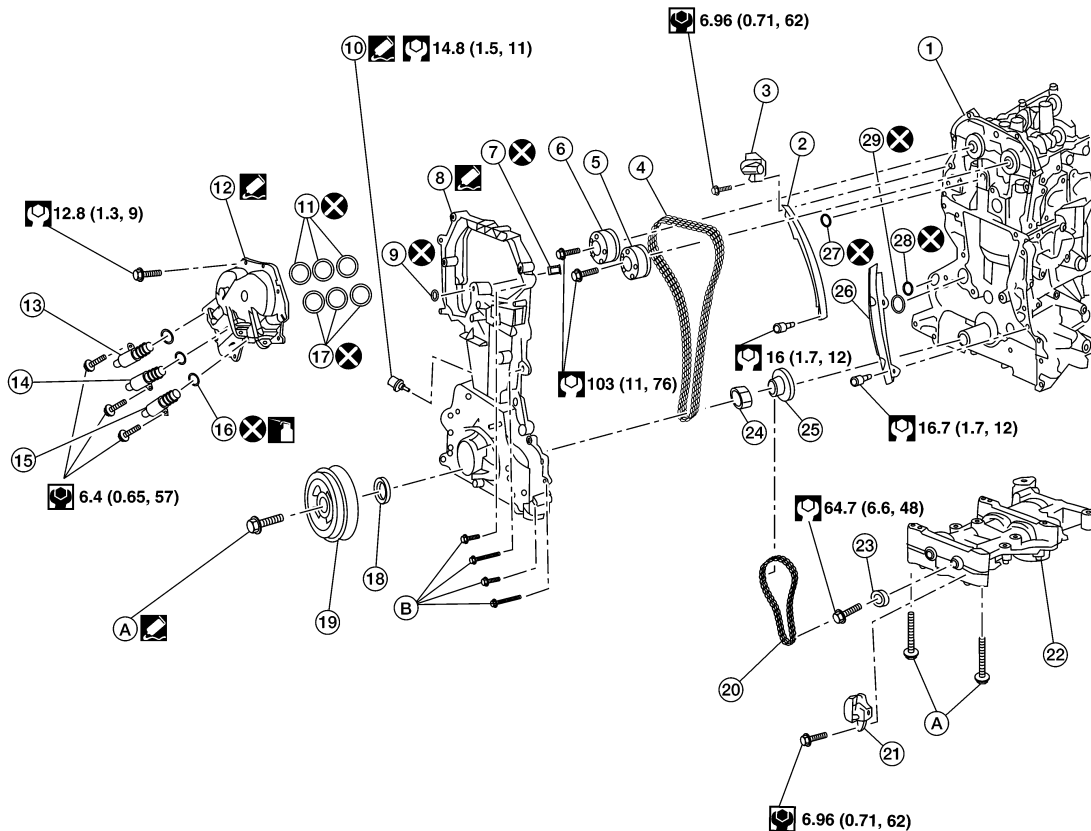
< REMOVAL AND INSTALLATION >

TIMING CHAIN

Exploded View

INFOID:000000010284121

SEC. 111 • 130 • 135



AWBIA2002ZZ

- | | | |
|--|--|---|
| 1. Cylinder block | 2. Timing chain slack guide | 3. Chain tensioner |
| 4. Timing chain | 5. Camshaft sprocket (EXH) | 6. Camshaft sprocket (INT) |
| 7. Oil filter | 8. Front cover | 9. O-ring |
| 10. Oil pressure sensor | 11. Valve timing control cover O-rings | 12. Valve timing control cover |
| 13. Intake valve timing intermediate lock control solenoid valve | 14. Intake valve timing control solenoid valve | 15. Exhaust valve timing control solenoid valve |
| 16. Valve timing control solenoid valve O-rings | 17. Valve timing control cover O-rings | 18. Front oil seal |
| 19. Crankshaft pulley | 20. Balancer unit timing chain | 21. Balancer unit timing chain tensioner |
| 22. Balancer unit | 23. Balancer unit sprocket | 24. Oil pump drive spacer |
| 25. Crankshaft sprocket | 26. Timing chain tension guide | 27. O-ring |
| 28. O-ring | 29. O-ring | A. Refer to INSTALLATION |

TIMING CHAIN

< REMOVAL AND INSTALLATION >

Removal and Installation

INFOID:000000010284122

CAUTION:

Apply new engine oil to parts as indicated in the illustration before installation.

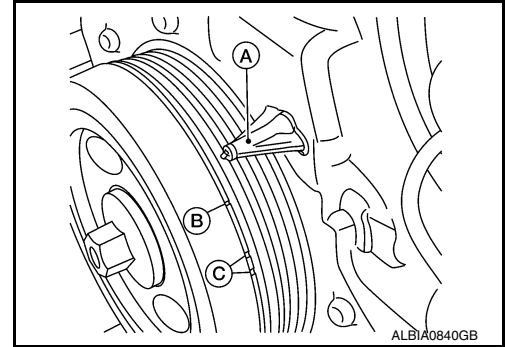
REMOVAL

1. Remove the engine and transaxle assembly. Refer to [EM-81, "Exploded View"](#).
2. Remove intake manifold. Refer to [EM-26, "Removal and Installation"](#).
3. Remove the drive plate assembly. Refer to [EM-92, "Exploded View"](#).
4. Install engine to a suitable engine stand. Refer to [EM-91, "Setting"](#).
5. Disconnect harness connector from intake valve timing intermediate lock control solenoid valve.
6. Disconnect harness connector from intake valve timing control solenoid valve.
7. Disconnect harness connector from exhaust valve timing control solenoid valve.
8. Remove valve timing control cover.
9. Remove the upper and lower oil pan, oil strainer, and O-ring. Refer to [EM-32, "Removal and Installation"](#).
10. Remove generator. Refer to [CHG-20, "Removal and Installation"](#).
11. Set the No.1 cylinder at TDC on the compression stroke using the following procedure:

- a. Rotate the crankshaft pulley clockwise and align the mating mark (B) to the timing indicator (A) on the front cover.

NOTE:

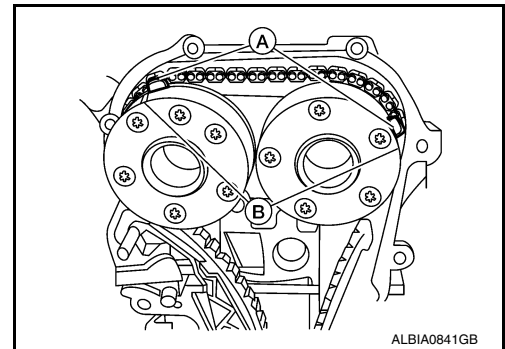
Do not use the white paint marks (C).



- b. At the same time, make sure that the camshaft sprocket mating marks (B) line up with the painted marks on the timing chain (A).
 - If not lined up, rotate the crankshaft pulley one more turn to line up the mating marks to the positions as shown.

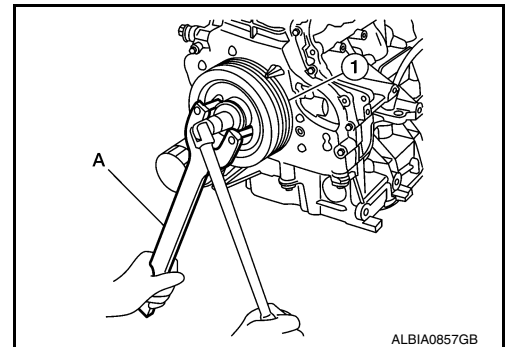
NOTE:

Shown with front cover removed for illustration purposes only.



12. Remove crankshaft pulley (1) using the following procedure:

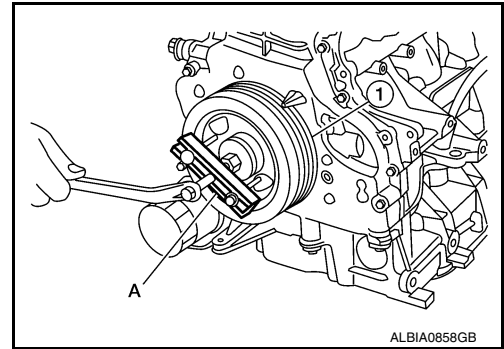
- a. Hold the crankshaft pulley (1) using suitable tool (A), then loosen and remove the crankshaft pulley bolt.



TIMING CHAIN

< REMOVAL AND INSTALLATION >

- b. Attach suitable tool (A) in the M 6 (0.24 in diameter) thread hole on crankshaft pulley (1), and remove crankshaft pulley.

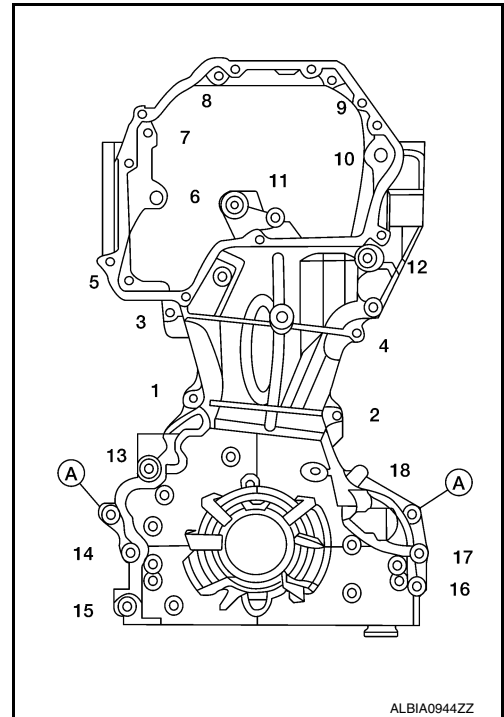


13. Remove the intake valve timing control cover. Refer to [EM-75. "Valve Timing Control Cover"](#).

14. Remove the front cover using the following procedure:

- a. Loosen the bolts in reverse order as shown, and remove them.

(A) : Dowel pin



- b. Cut liquid gasket using Tool (A).

Tool number : KV10111100 (J-37228)

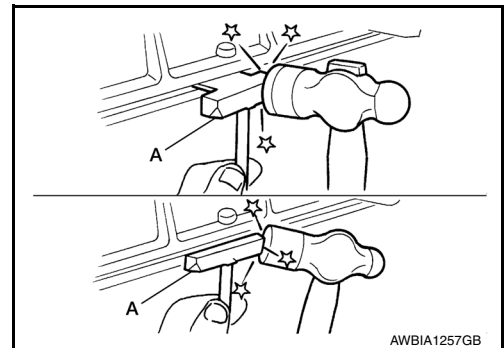
CAUTION:

Be careful not to damage the front cover.

- c. Remove the front cover.
d. Remove front oil seal using suitable tool, (if necessary).

CAUTION:

Be careful not to damage the front cover.



15. Remove chain tensioner (1) and timing chain using the following procedure:

- a. Pull the lever (B) down and release the plunger stopper tab (C).

TIMING CHAIN

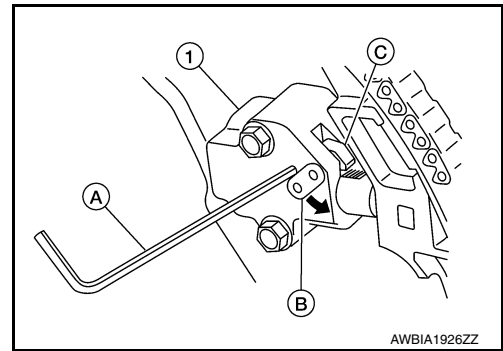
< REMOVAL AND INSTALLATION >

- Plunger stopper tab (C) can be pushed up to release (coaxial structure with lever (B)).

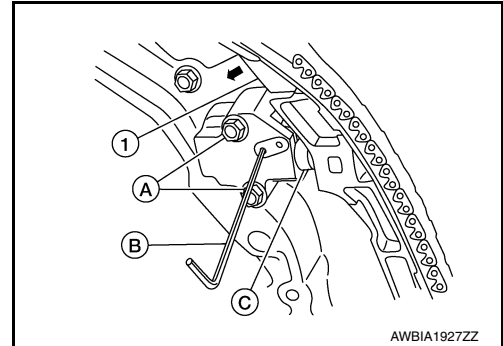
- b. Insert the stopper pin (A) into the tensioner body hole to hold the lever (B) and keep tab released.

NOTE:

Allen wrench [2.5 mm (0.098)] is used for a stopper pin as an example.



- c. Insert plunger (C) into tensioner body by pressing timing chain slack guide (1).
- d. Keep timing chain slack (1) guide pressed and hold it by pushing the stopper pin (B) through the lever hole and body hole.
- e. Remove the chain tensioner bolts (A) and chain tensioner.



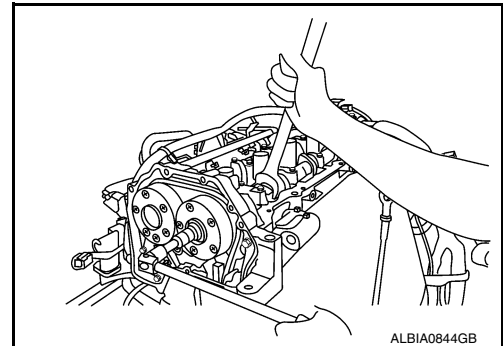
- f. Remove the timing chain.

CAUTION:

Do not rotate the crankshaft or camshafts while the timing chain is removed. It can cause damage to the valves and pistons.

16. Remove the camshaft sprockets using the following procedure:

- a. Secure hexagonal part of the camshaft with a wrench and loosen the camshaft sprocket bolt.
- b. Remove the camshaft sprocket bolt and camshaft sprockets for both camshafts.

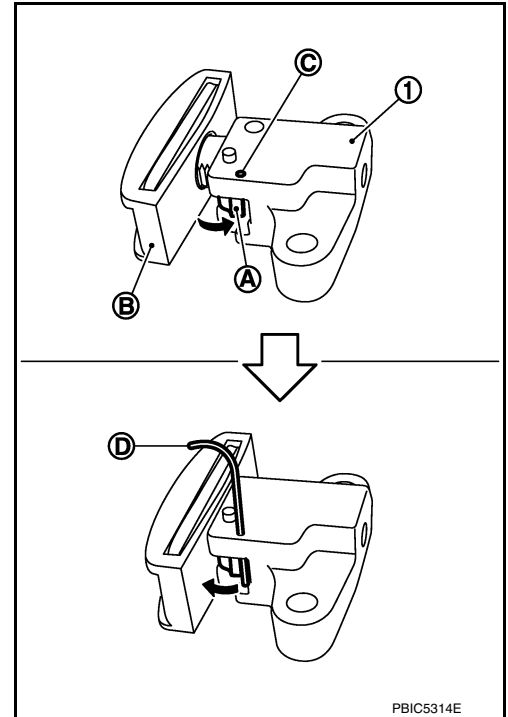


17. Remove the timing chain slack guide, timing chain tension guide, and oil pump drive spacer.

TIMING CHAIN

< REMOVAL AND INSTALLATION >

18. Press stopper tab (A) in the direction shown to push the timing chain slack guide (B) toward timing chain tensioner (1) for the balancer unit.
 - The timing chain slack guide (B) is released by pressing the stopper tab (A). As a result, the timing chain slack guide (B) can be moved.
19. Insert stopper pin (D) into tensioner body hole (C) to secure timing chain slack guide (B).
NOTE:
Use a hard metal pin with a diameter of approximately 1.2 mm (0.047 in) as a stopper pin.
20. Remove timing chain tensioner (1) for balancer unit.
21. Secure width across flats of the balancer unit LH side shaft using a suitable tool. Loosen the balancer unit sprocket bolt.
22. Remove balancer unit timing chain, balancer unit sprocket and crankshaft sprocket.

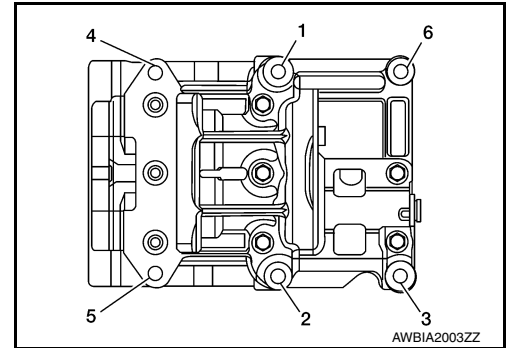


23. Loosen bolts in the reverse order shown, and remove balancer unit.

CAUTION:

- Do not disassemble balancer unit.

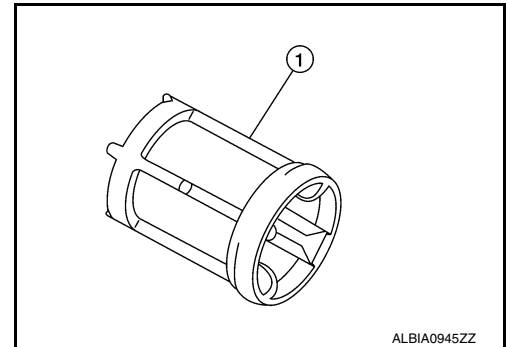
⇐ : Engine front



INSPECTION AFTER REMOVAL

Oil Filter

- Check that there is no foreign material on the oil filter (1) and check for clogging.
- Check the oil filter for damage.
- If there is damage, replace the oil filter.
- Do not reuse oil filter.

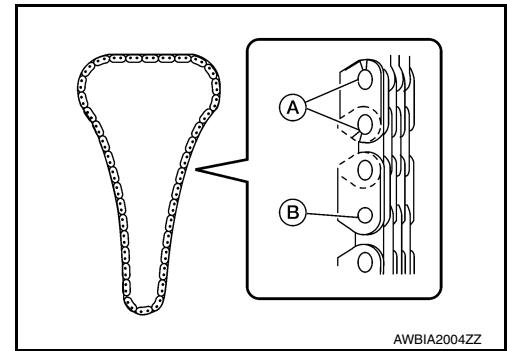


Timing Chain

TIMING CHAIN

< REMOVAL AND INSTALLATION >

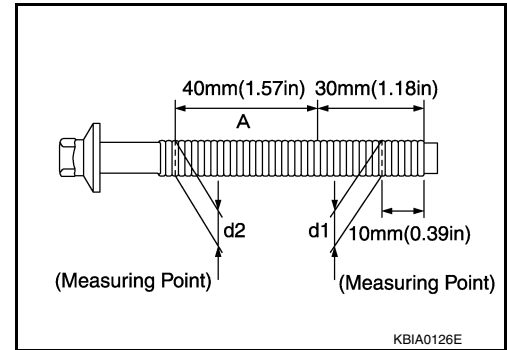
Check the timing chain for cracks (A) or excessive wear (B). If a defect is found, replace the timing chain.



Balancer Unit Bolt Outer Diameter

- Measure outer diameters (d1, d2) at the two positions as shown.
- Measure d2 within the range (A).
- If the value difference (d1 - d2) exceeds the limit, replace the balancer unit bolt with a new one.

Limit : 0.15 mm (0.0059 in) or more



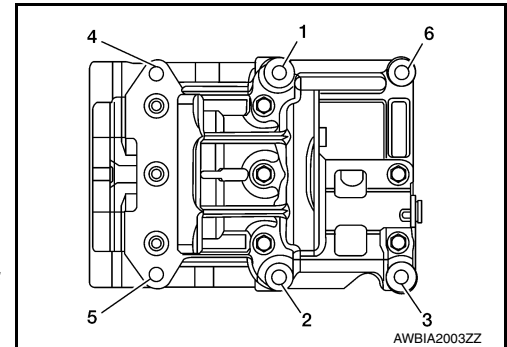
INSTALLATION

1. Make sure the crankshaft key points straight up.
2. Install the balancer unit and tighten the bolts in the numerical order as shown:

← : Engine front

CAUTION:

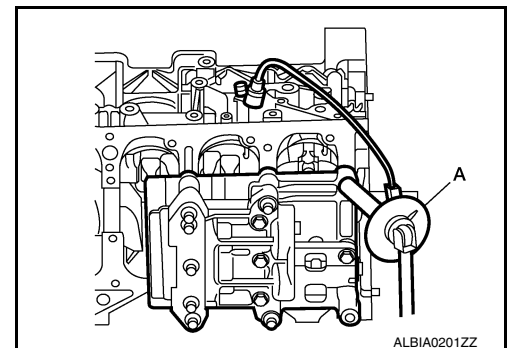
- When reusing a bolt, check its outer diameter before installation. Follow the Balancer Unit Bolt Outer Diameter procedure.
- Apply new engine oil to threads and seating surfaces of bolts.



- Check tightening angle with an angle wrench (A) or a protractor. Do not make judgment by visual check alone.

Tool number : KV10112100 (BT-8653-A)

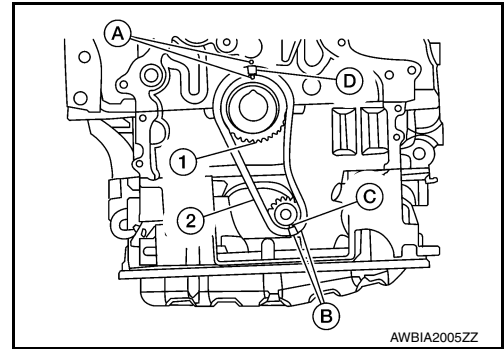
Step 1	Bolts 1-5	: 42 N·m (4.3 kg-m, 31 ft-lb)
	Bolt 6	: 36 N·m (3.7 kg-m, 27 ft-lb)
Step 2	Bolts 1-5	: 120° + 5°
	Bolt 6	: 90° + 5°
Step 3	Loosen in reverse order	: 0 N·m (0 kg-m, 0 ft-lb)
Step 4	Bolts 1-5	: 42 N·m (4.3 kg-m, 31 ft-lb)
	Bolt 6	: 36 N·m (3.7 kg-m, 27 ft-lb)
Step 5	Bolts 1-5	: 120° + 5°
	Bolt 6	: 90° + 5°



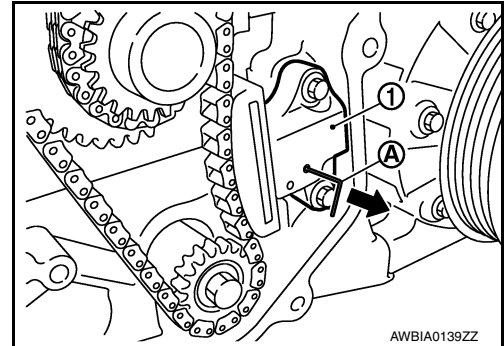
TIMING CHAIN

< REMOVAL AND INSTALLATION >

3. Install the crankshaft sprocket (1) and timing chain (2) for the balancer unit.
- Make sure that the crankshaft sprocket (1) is positioned with mating marks (A) on the block and sprocket meeting at the top.
 - Install it by lining up mating marks on each sprocket (A), (C) and timing chain (B), (D).
 - (B): Pink link
 - (D): Yellow link



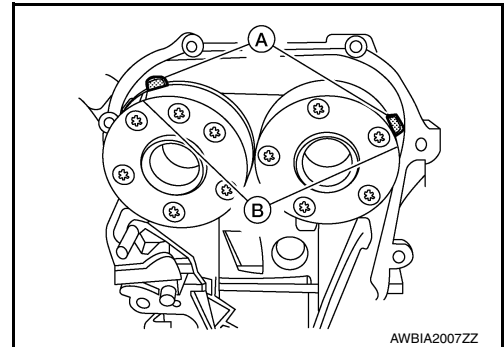
4. Install timing chain tensioner for balancer unit (1).
- Compress the plunger, insert a stopper pin (A), and then install the tensioner for the balancer unit.
 - Do not pull out (←) the stopper pin until after installing the timing chain tensioner for balancer unit.
 - Check matching mark position of balancer unit drive chain and each sprocket again.



5. Install camshaft sprockets.
- Install them by lining up the mating marks on each camshaft sprocket (B) with the ones painted on the timing chain (A) during removal.
 - Before installation of chain tensioner, it is possible to re-match the marks on timing chain with the ones on each sprocket.

CAUTION:

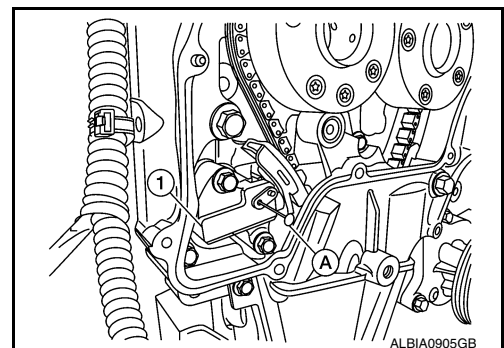
- **Aligned mating marks could slip. Therefore, after matching them, hold the timing chain in place by hand.**
- **Before and after installing chain tensioner, check again to make sure that mating marks have not slipped.**



6. Install chain tensioner using the following procedure:
- a. Install stopper pin (A) into the chain tensioner (1).
 - b. Install the chain tensioner and pull the stopper pin out.

CAUTION:

After installation, pull the stopper pin out, and make sure that the tensioner is fully released.



TIMING CHAIN

< REMOVAL AND INSTALLATION >

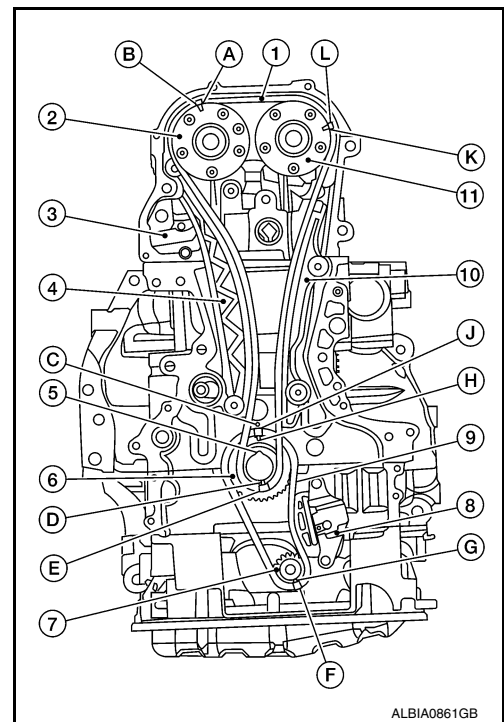
7. Install timing chain (1) and related parts.
 - Install by lining up mating marks on each sprocket and timing chain as shown.
 - Before and after installing chain tensioner (3), check to make sure the mating marks have not slipped.
 - After installing timing chain tensioner (3), remove the stopper pin, and make sure that the tensioner moves freely.

CAUTION:

- **For the following note, after the mating marks are aligned, keep them aligned by holding them by hand.**
- **To avoid skipped teeth, do not move crankshaft and camshaft until front cover is installed.**

NOTE:

- Before installing chain tensioner (3) it is possible to slip the chain on the sprocket to align the chain timing mark with the sprocket timing mark.
- There may be two color variations of the link marks (link colors) on the timing chain.
- There are 26 links between the pink mating marks on the timing chain; and 64 links between the camshaft sprocket pink link and the crankshaft sprocket yellow link, on the timing chain side without the tensioner.



- (2) : Camshaft sprocket (INT)
- (4) : Timing chain slack guide
- (5) : Crankshaft key
- (6) : Crankshaft sprocket
- (7) : Balancer unit sprocket
- (8) : Balancer unit chain tensioner
- (9) : Balancer unit timing chain
- (10) : Timing chain tension guide
- (11) : Camshaft sprocket (EXH)
- (A) : Mating mark (Outer groove)
- (B) : Pink link
- (C) : Mating mark (lug)
- (D) : Mating mark (stamp)
- (E) : Yellow link
- (F) : Pink link
- (G) : Mating mark (stamp)
- (H) : Mating mark (stamp)
- (J) : Yellow link
- (K) : Mating mark (Outer groove)
- (L) : Pink link

8. Install new front oil seal to front cover. Refer to [EM-78. "FRONT OIL SEAL : Removal and Installation"](#).
9. Install front cover with the following procedure:
 - a. Install O-rings to cylinder head and cylinder block.

CAUTION:

Do not reuse O-rings.

TIMING CHAIN

< REMOVAL AND INSTALLATION >

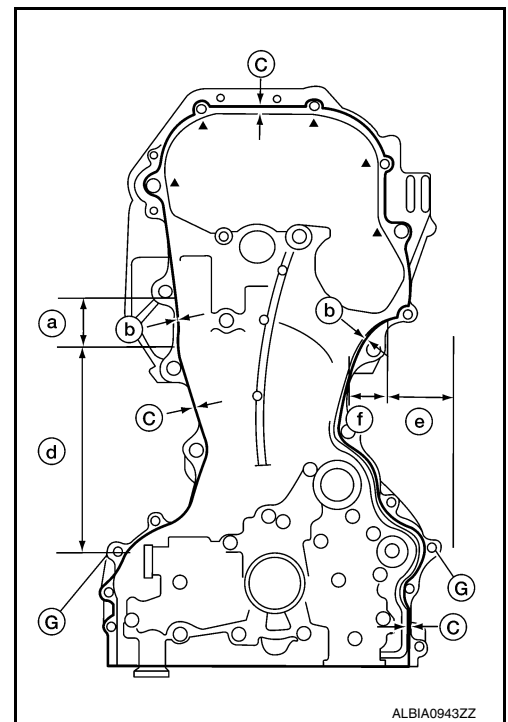
- b. Apply a continuous bead of liquid gasket to front cover as shown.

- (a) : 35.7 mm (1.406 in)
- (b) : 6.0 – 7.0 mm (0.236 – 0.276 in)
- (c) : 3.4 – 4.4 mm (0.134 – 0.173 in)
- (d) : 179.6 mm (7.07 in)
- (e) : 35.5 mm (1.398 in)
- (f) : 31.3 mm (1.232 in)
- (G) : Dowel pin hole

Use Genuine RTV Silicone Sealant or equivalent. Refer to [GI-22, "Recommended Chemical Products and Sealants"](#).

CAUTION:

- Be sure sealant surfaces are free from grease, dirt, water, and engine oil.
- Be sure to apply sealant without breaks or overlap.
- Installation should be done within 5 minutes after application of liquid gasket.
- Do not fill the engine with engine oil for at least 30 minutes after the components are installed to allow the liquid gasket to cure.



ALBIA0943ZZ

- c. Make sure the mating marks on the timing chain and each sprocket are still aligned. Then install the front cover.

CAUTION:

Do not damage the front oil seal during installation.

- d. Tighten front cover bolts in the numerical order shown.
e. After all bolts are tightened, retighten them to the specified torque.

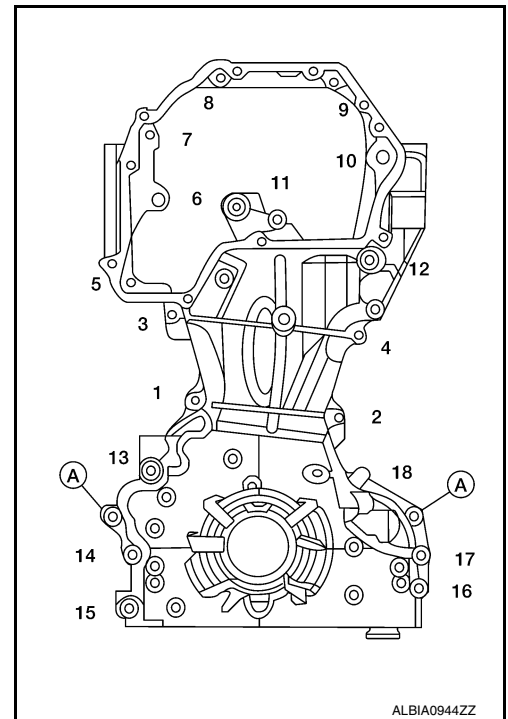
Front cover bolts

- Bolts 6, 10, 12** : 49 N·m (5.0 kg-m, 36 ft-lb)
- Bolts (all remaining)** : 12.8 N·m (1.3 kg-m, 9 ft-lb)
- (A)** : Dowel pin

CAUTION:

Wipe off excess sealant leaking at the surface for installing the oil pan.

10. Install the chain guide between the camshaft sprockets.



ALBIA0944ZZ

11. Install valve timing control cover. Refer to [EM-75, "Valve Timing Control Cover"](#).

12. Insert crankshaft pulley by aligning with crankshaft key.

- Tap its center with a plastic hammer to insert.

CAUTION:

- Do not hit belt mounting section with hammer to avoid breaking belt guide.
- Be sure not to damage front oil seal while installing crankshaft pulley.

TIMING CHAIN

< REMOVAL AND INSTALLATION >

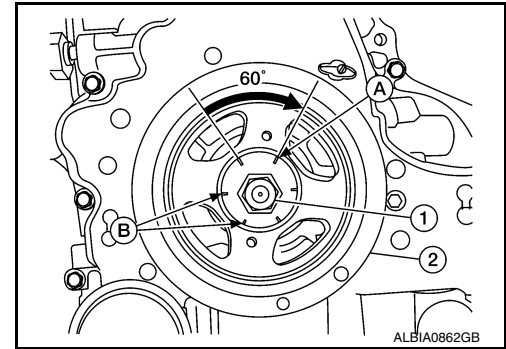
13. Install crankshaft pulley bolt (1) and tighten to specification.

CAUTION:

- Apply anti-corrosive engine oil to threads of crankshaft pulley bolt (1) and bolt bearing surface prior to installation.
- Secure crankshaft pulley (2) with suitable tool to tighten the bolt.

Step 1 : Crankshaft bolt (1) : 42.1 N·m (4.3 kg-m, 31 ft-lb)

Step 2 : Crankshaft bolt (1) : 60° + 6°



14. Apply a paint mark (A) on the front cover, mating with any one of six easy to recognize stamp marks on bolt flange (B).
15. Installation of the remaining components is in the reverse order of removal.

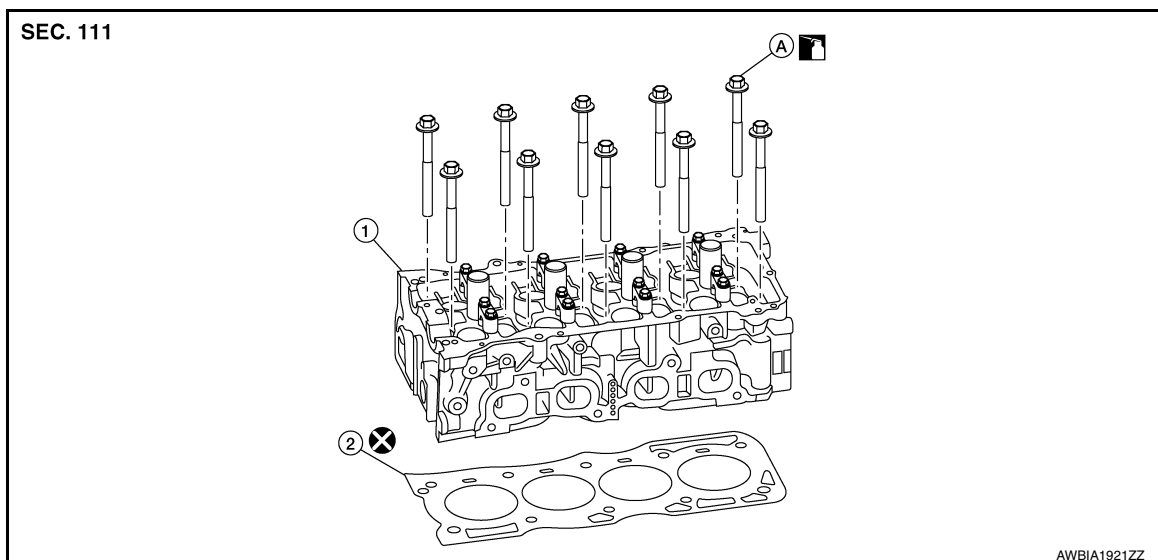
CYLINDER HEAD

< REMOVAL AND INSTALLATION >

CYLINDER HEAD

Exploded View

INFOID:000000010284123



1. Cylinder head

2. Cylinder head gasket

A. Refer to INSTALLATION

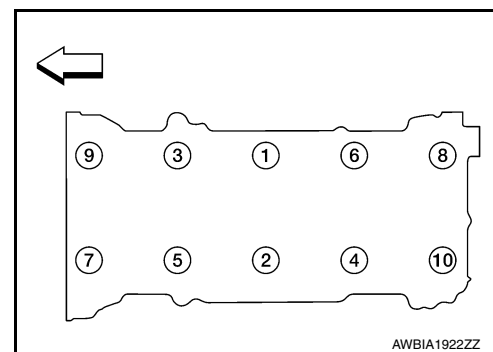
Removal and Installation

INFOID:000000010284124

REMOVAL

1. Remove the timing chain. Refer to [EM-45, "Removal and Installation"](#).
2. Remove the camshafts. Refer to [EM-64, "Exploded View"](#).
3. Remove spark plugs. Refer to [EM-17, "Removal and Installation"](#).
4. Remove the intake manifold. Refer to [EM-26, "Removal and Installation"](#).
5. Remove the exhaust manifold and three way catalyst. Refer to [EM-29, "Removal and Installation"](#).
6. Loosen the cylinder head bolts in the reverse order shown, using power tool.

⇐ : Engine front



7. Remove cylinder head.
8. Remove cylinder head gasket.

INSPECTION AFTER REMOVAL

Outer Diameter of Cylinder Head Bolts

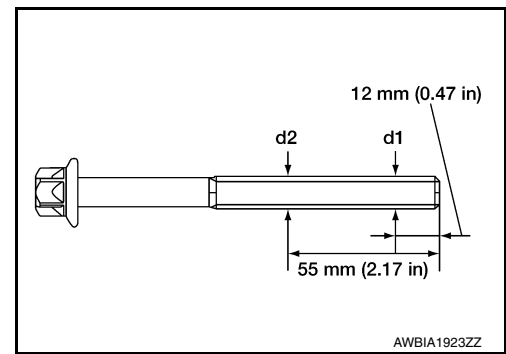
CYLINDER HEAD

< REMOVAL AND INSTALLATION >

- Replace the cylinder head bolts with new ones if the size difference between d1 and d2 exceeds the limit.

Limit (d1 - d2) : 0.23 mm (0.0091 in) or more

- If reduction of outer diameter appears in a position other than d2, use it as d2 point.



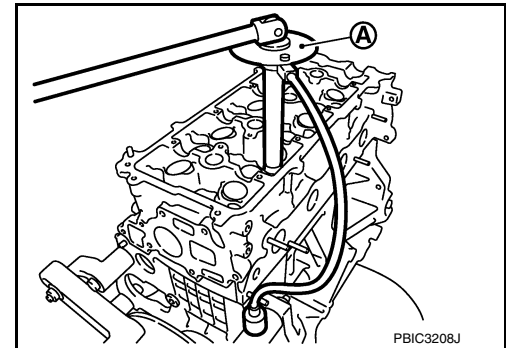
INSTALLATION

1. Clean surfaces of cylinder head and cylinder block.
2. Install a new cylinder head gasket.
 - CAUTION:**
Do not reuse cylinder head gasket.
3. Install the cylinder head.
4. Follow the steps below to tighten the cylinder head bolts in the numerical order as shown.
 - Clean threads and seating surfaces of bolts.
 - Apply new engine oil to the threads and the seating surfaces of bolts.

CAUTION:

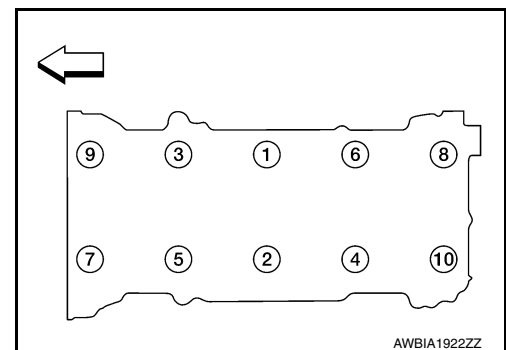
- If cylinder head bolts are re-used, check their outer diameters before installation. Follow the Outer Diameter of Cylinder Head Bolts measurement procedure.
- Check and confirm the tightening angle by using angle wrench or protractor. Do not judge angle by visual inspection.

Tool number (A) : KV10112100 (BT-8653-A)



- Step a : 50 N·m (5.1 kg-m, 37 ft-lb) in order**
Step b : 60° clockwise in order
Step c : Loosen to 0 N·m in order
Step d : 39.2 N·m (4.0 kg-m, 29 ft-lb) in order
Step e : 75° clockwise in order
Step f : 75° clockwise in order

← : Engine front



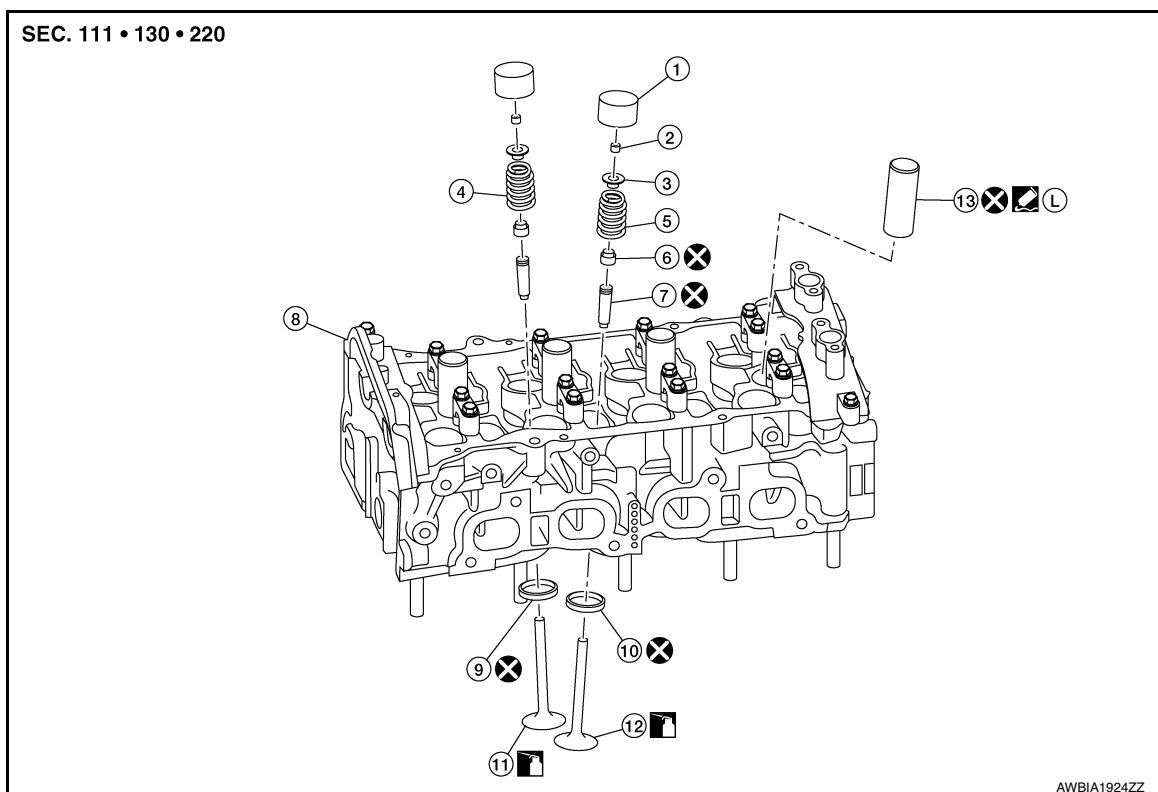
5. Installation of the remaining components is in the reverse order of removal.

CYLINDER HEAD

< REMOVAL AND INSTALLATION >

Disassembly and Assembly

INFOID:0000000010284125



- | | | |
|-----------------------|--------------------------------|--------------------------|
| 1. Valve lifter | 2. Valve collet | 3. Valve spring retainer |
| 4. Valve spring (INT) | 5. Valve spring (EXH) | 6. Valve oil seal |
| 7. Valve guide | 8. Cylinder head | 9. Valve seat (INT) |
| 10. Valve seat (EXH) | 11. Valve (INT) | 12. Valve (EXH) |
| 13. Spark plug tube | L Apply thread locking sealant | |

CAUTION:

- When installing camshafts, chain tensioners, oil seals or other sliding parts, lubricate contacting surfaces with new engine oil.
- Apply new engine oil to threads and seat surfaces when installing the cylinder head, camshaft sprocket, crankshaft pulley and camshaft bracket.
- Attach tags to valve lifters so all parts are assembled in their original position.

CAUTION:

Read PRECAUTION carefully.

The exhaust valve contains metallic sodium. Therefore, extreme caution must be taken when handling and disposing of the exhaust valve. Refer to [EM-4, "Special Cautions to Ensure the Safe Disposal of Sodium-filled Exhaust Valves"](#).

DISASSEMBLY

1. Remove the valve lifter.

NOTE:

Confirm installation point to return valve lifter to original location during assembly.

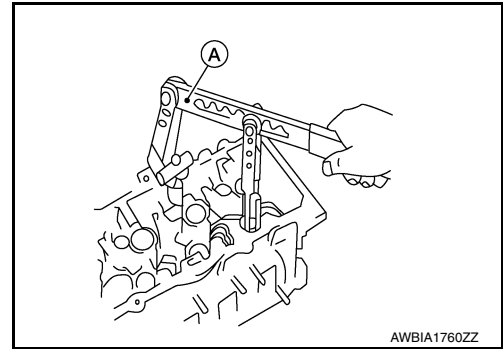
CYLINDER HEAD

< REMOVAL AND INSTALLATION >

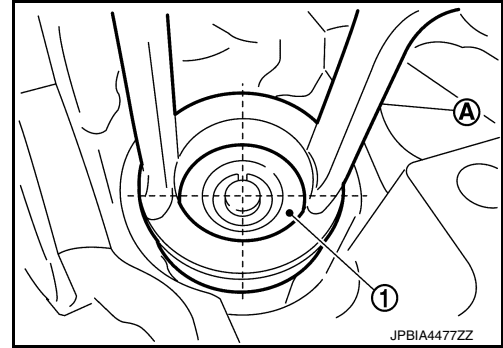
2. Remove valve collet, valve spring retainer, and valve spring using suitable tool (A). Remove valve collet with magnetic hand.

CAUTION:

- Be careful not to damage valve lifter holes.



- Install suitable tool (A) in the center of valve spring retainer (1) to install it.

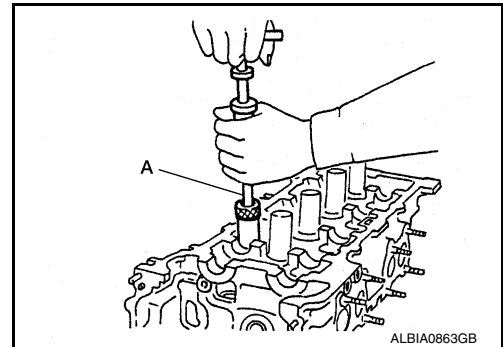


3. Remove valve spring retainer and valve spring (with valve spring seat).

CAUTION:

Do not remove valve spring seat from valve spring.

4. Push valve stem to combustion chamber side, and remove valve.
 - Inspect valve guide clearance before removal. Refer to [EM-61, "Inspection After Disassembly"](#).
 - Confirm installation point to return valve to original location during assembly.
5. Remove valve oil seal using suitable tool (A).



6. Remove valve seat, if necessary.
 - Bore out old seat until it collapses. Boring should not continue beyond the bottom face of the seat recess in cylinder head. Set the machine depth stop to ensure this. Refer to [EM-118, "Cylinder Head"](#).

CAUTION:

Do not bore excessively to prevent damage to cylinder head.

7. Remove valve guide, if necessary.

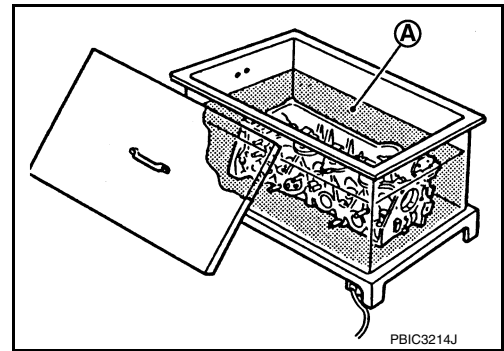
CYLINDER HEAD

< REMOVAL AND INSTALLATION >

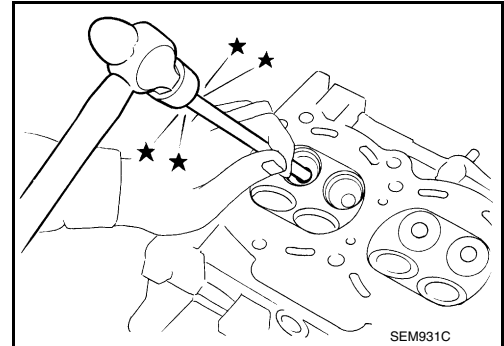
- a. To remove valve guide, heat cylinder head to 110°C to 130°C (230°F to 266°F) by soaking in heated engine oil (A).

WARNING:

Cylinder head contains heat. When working, wear protective equipment to avoid getting burned.



- b. Drive out valve guide using suitable tool.



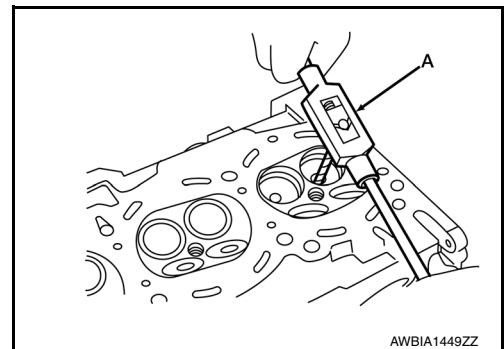
8. Remove spark plugs. Refer to [EM-17. "Removal and Installation"](#)
9. Remove spark plug tubes, if necessary, using suitable tool.

CAUTION:

- Be careful not to damage cylinder head.
- Do not remove spark plug tube if not necessary. Once removed, the spark plug tube cannot be reused because of deformation during removal.

ASSEMBLY

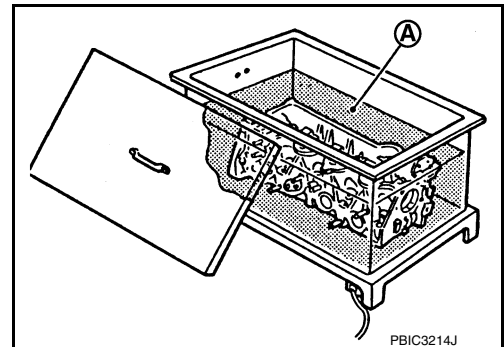
1. Install valve guide, if removed.
a. Ream cylinder head valve guide hole using suitable tool (A). Refer to [EM-118. "Cylinder Head"](#).



- b. Heat cylinder head to 110°C to 130°C (230°F to 266°F) by soaking in heated engine oil (A).

WARNING:

Cylinder head contains heat. When working, wear protective equipment to avoid getting burned.

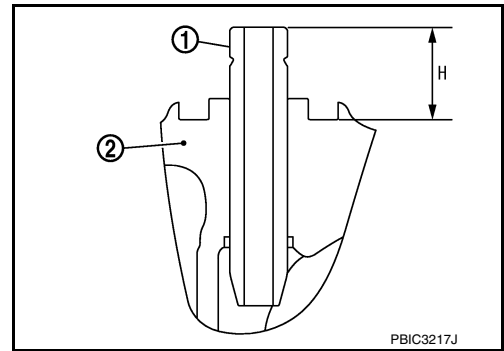


CYLINDER HEAD

< REMOVAL AND INSTALLATION >

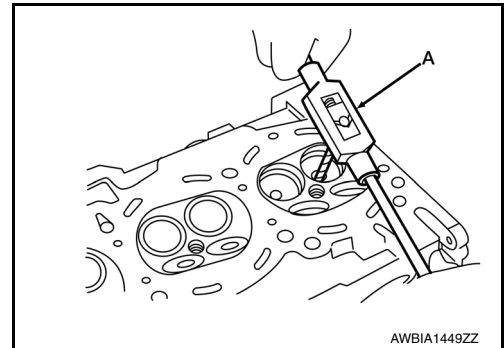
- c. Press valve guide (1) into cylinder head (2) from camshaft side to dimension as shown.

Projection (H) : Refer to [EM-118. "Cylinder Head"](#)



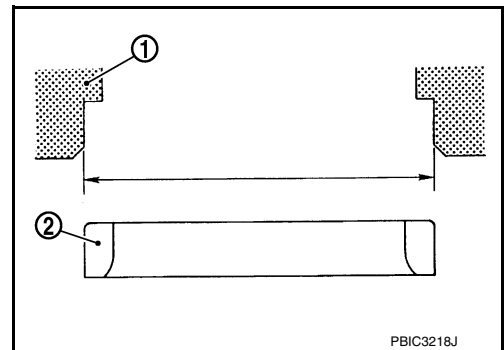
- d. Apply reamer finish to valve guide using suitable tool (A).

Standard : Refer to [EM-118. "Cylinder Head"](#)



2. Install valve seat, if removed.

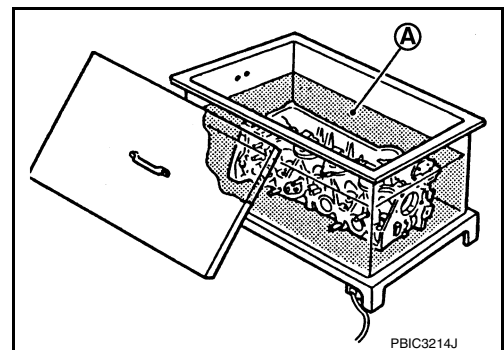
- a. Ream cylinder head (1) recess diameter for service valve seat (2).



- b. Heat cylinder head to 110°C to 130°C (230°F to 266°F) by soaking in heated engine oil (A).

WARNING:

Cylinder head contains heat. When working, wear protective equipment to avoid getting burned.



- c. Allow valve seats to cool with dry ice. Press-fit valve seat into cylinder head.

CAUTION:

Do not touch cold valve seats directly.

CYLINDER HEAD

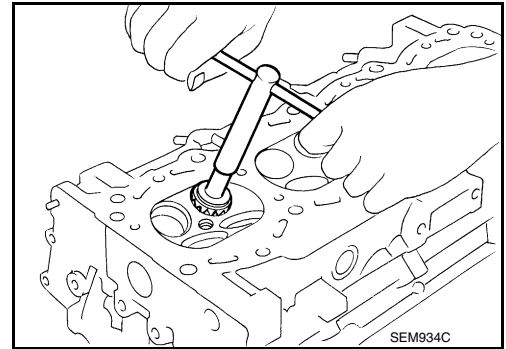
< REMOVAL AND INSTALLATION >

- d. Finish valve seat to the specified dimension using suitable tool. Refer to [EM-118, "Cylinder Head"](#).

CAUTION:

When using valve seat cutter, firmly grip the cutter handle with both hands. Then, press on the contacting surface all around the circumference to cut in a single drive. Improper pressure on the cutter or cutting many different times may result in stage valve seat.

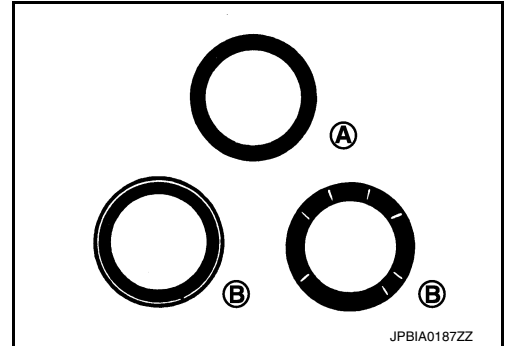
- e. Using compound, grind to adjust valve.



- f. Check again for normal contact. Refer to [EM-118, "Cylinder Head"](#).

(A) : OK

(B) : NG

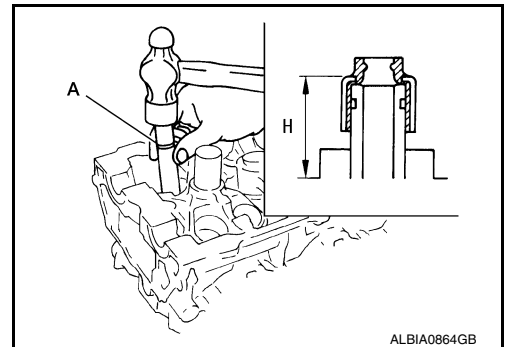


3. Apply new engine oil to new valve oil seal joint surface and seal lip.
4. Install new valve oil seal using suitable tool (A) as shown.

NOTE:

Dimension is height measured before installing valve spring (with valve spring seat).

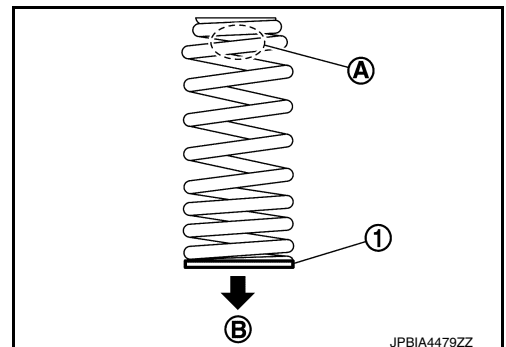
Projection (H) : Refer to [EM-118, "Cylinder Head"](#)



5. Install valve.
• Install larger diameter to intake side.
6. Install valve spring with valve spring seat (1).
• Install valve spring so that the identification color faces upward (A).
• Install smaller pitch to cylinder head side (B).
• Confirm the identification color of the valve spring.

Intake : White

Exhaust : Light blue



7. Install valve spring retainer.
8. Install valve collet.

CYLINDER HEAD

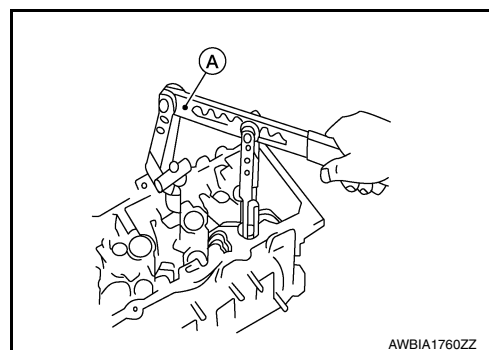
< REMOVAL AND INSTALLATION >

- Compress valve spring using suitable tool (A). Install valve collet with a magnet hand.

CAUTION:

When working do not damage valve lifter holes.

- Tap valve stem edge lightly with a plastic hammer after installation to check its installed condition.



9. Install valve lifter.

10. Install spark plug. Refer to [EM-17, "Removal and Installation"](#)

Inspection After Disassembly

INFOID:000000010284126

CYLINDER HEAD DISTORTION

- Wipe off engine oil and remove water scale deposits, old gasket, old sealer, and carbon using a suitable tool.

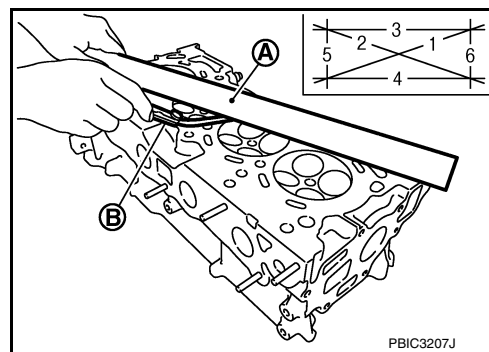
CAUTION:

Use care not to allow gasket debris to enter passages for engine oil or engine coolant.

- At each of several locations on bottom surface of cylinder head, measure distortion in six directions using suitable tools (A, B).

Limit : Refer to [EM-118, "Cylinder Head"](#)

- If measurements exceed the limit, replace cylinder head.



VALVE DIMENSIONS

- Check dimensions of each valve. Refer to [EM-118, "Cylinder Head"](#).
- If dimensions are out of the standard, replace valve and check valve seat contact.

VALVE SEAT CONTACT

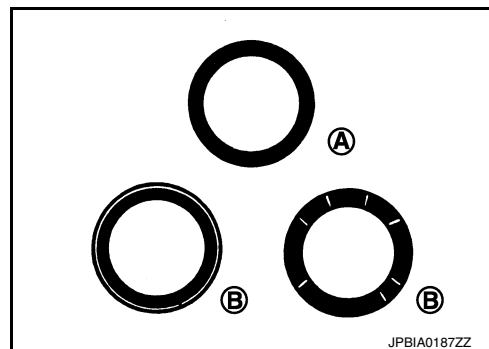
NOTE:

After confirming that the dimensions of valve guides and valves are within specifications, perform this procedure:

- Apply prussian blue (or white lead) onto contacting surface of valve seat to check the condition of the valve contact on the seat surface.
- Ensure that the contact area band is continuous all around the circumference.

(A) : OK

(B) : NG



- If the contact area is not continuous, grind to adjust valve fitting and check again. If the contacting surface still has NG conditions even after the re-check, replace the valve seat.

VALVE GUIDE CLEARANCE

CYLINDER HEAD

< REMOVAL AND INSTALLATION >

1. Measure diameter of valve stem using suitable tool (A) as shown.

Standard : Refer to [EM-118, "Cylinder Head"](#)

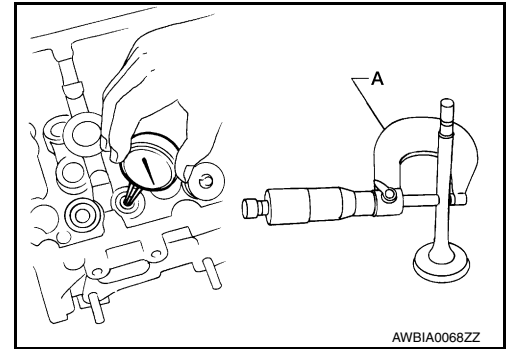
2. Measure inner diameter of valve guide using suitable tool.

Standard : Refer to [EM-118, "Cylinder Head"](#)

3. Valve guide clearance = (Valve guide inner diameter) - (Valve stem diameter)

Standard and Limit : Refer to [EM-118, "Cylinder Head"](#)

4. If the calculated value exceeds the limit, replace valve and/or valve guide. When valve guide must be replaced. Refer to [EM-56, "Disassembly and Assembly"](#)



VALVE SPRING SQUARENESS

CAUTION:

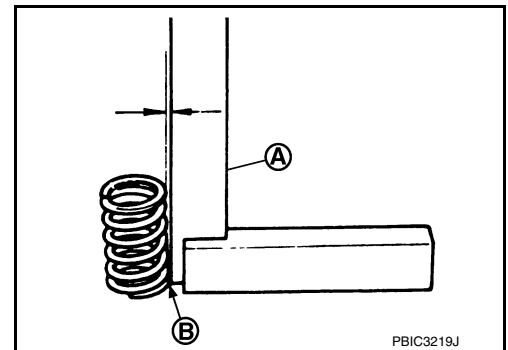
Do not remove the valve spring seat from the valve spring

1. Set a try square (A) along the side of valve spring and rotate spring. Measure the maximum clearance between the top of spring and try square.

(B) : Contact

Limit : Refer to [EM-118, "Cylinder Head"](#).

2. If the valve spring exceeds the limit, replace the valve spring with the valve spring seat.



VALVE SPRING PRESSURE LOAD

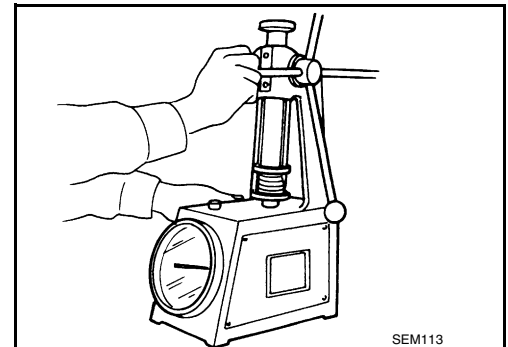
CAUTION:

Do not remove the valve spring seat.

1. Check valve spring pressure with valve spring seat installed at the specified spring height.

Standard : Refer to [EM-118, "Cylinder Head"](#).

2. If the installation load or load with valve open is out of the standard, replace valve spring with valve spring seat.



INSPECTION AFTER INSTALLATION

Inspection for Leaks

1. Before starting engine, check oil/fluid levels including engine coolant and engine oil. If less than required quantity, fill to the specified level. Refer to [LU-8, "Refilling"](#).
2. Use the following steps to check for fuel leaks.
 - a. Turn ignition switch "ON" (with engine stopped).
 - b. With fuel pressure applied to fuel piping, check for fuel leaks at connection points.

CYLINDER HEAD

< REMOVAL AND INSTALLATION >

- c. Start engine.
- d. With engine speed increased, check again for fuel leaks at connection points.
3. Run engine to check for unusual noise and vibration.

NOTE:

If hydraulic pressure inside timing chain tensioner drops after removal and installation, slack in the guide may generate a pounding noise during and just after engine start. However, this is normal. Noise will stop after hydraulic pressure rises.

4. Warm up engine thoroughly to check there are no fuel leaks, exhaust gas leaks, or any oil/fluid leaks including engine oil and engine coolant.
5. Bleed air from lines and hoses of applicable lines, such as in cooling system.
6. After cooling down engine, again check oil/fluid levels including engine oil and engine coolant. Refill to the specified level, if necessary.

Summary of the inspection items:

Items		Before starting engine	Engine running	After engine stopped
Engine coolant		Level	Leakage	Level
Engine oil		Level	Leakage	Level
Transmission / transaxle fluid	AT & CVT Models	Leakage	Level / Leakage	Leakage
	MT Models	Level / Leakage	Leakage	Level / Leakage
Other oils and fluids*		Level	Leakage	Level
Fuel		Leakage	Leakage	Leakage
Exhaust gases		—	Leakage	—

*: Power steering fluid, brake fluid, etc.

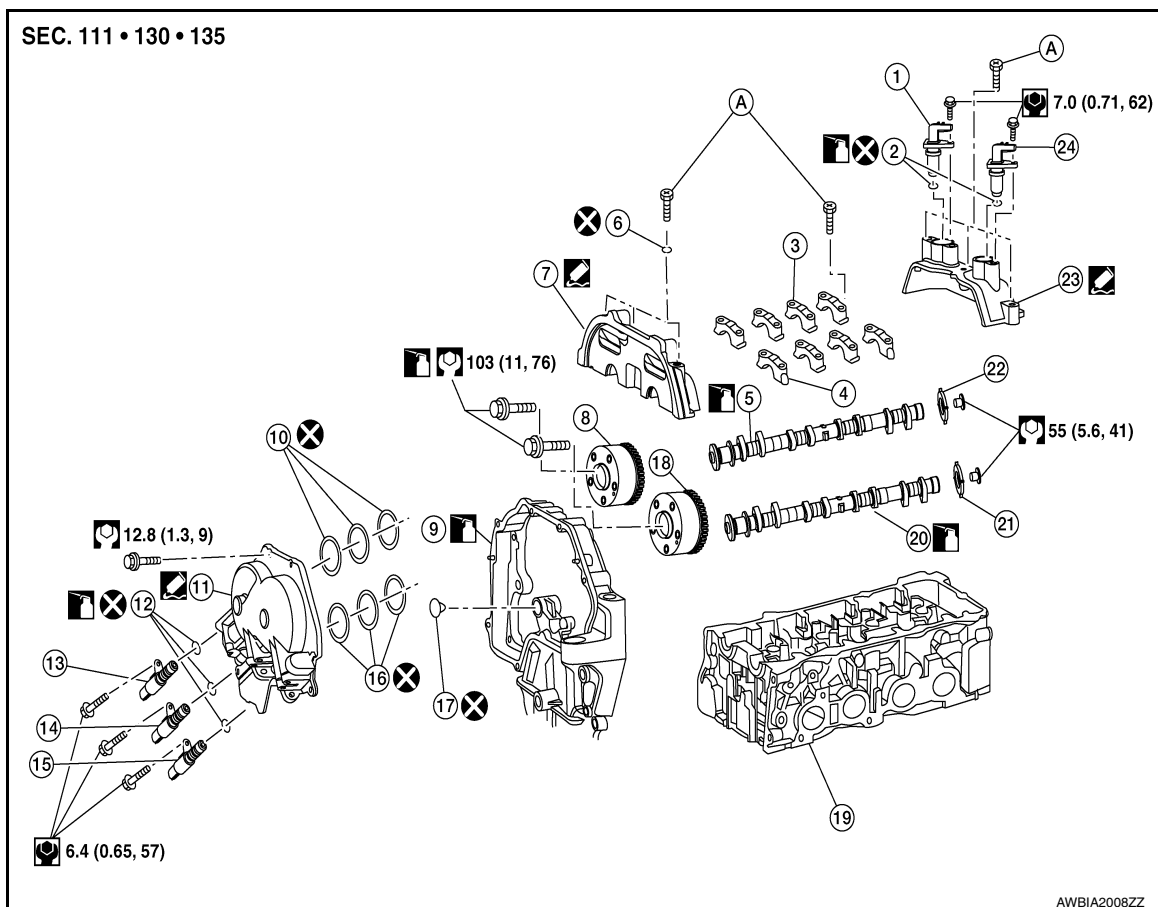
CAMSHAFT

< REMOVAL AND INSTALLATION >

CAMSHAFT

Exploded View

INFOID:000000009798953



- | | | |
|--|--|---|
| 1. Camshaft position sensor (INT) | 2. O-ring | 3. Camshaft brackets (INT) |
| 4. Camshaft brackets (EXH) | 5. Camshaft (INT) | 6. O-ring |
| 7. Camshaft bracket (No. 1) | 8. Camshaft sprocket (INT) | 9. Front cover (partial view) |
| 10. Valve timing control cover O-rings (INT) | 11. Valve timing control cover | 12. Valve timing control solenoid valve O-rings |
| 13. Intake valve timing intermediate lock control solenoid valve | 14. Intake valve timing control solenoid valve | 15. Exhaust valve timing control solenoid valve |
| 16. Valve timing control cover O-rings (EXH) | 17. O-ring | 18. Camshaft sprocket (EXH) |
| 19. Cylinder head | 20. Camshaft (EXH) | 21. Signal plate (EXH) |
| 22. Signal plate (INT) | 23. Camshaft position sensor bracket | 24. Camshaft position sensor (EXH) |
| A. Refer to INSTALLATION | | |

Removal and Installation

INFOID:0000000010305575

REMOVAL

1. Remove the rocker cover. Refer to [EM-37, "Removal and Installation"](#).
2. Remove camshaft position sensors.
3. Remove camshaft position sensor bracket.
4. Remove the valve timing control cover. Refer to [EM-75, "Valve Timing Control Cover"](#).

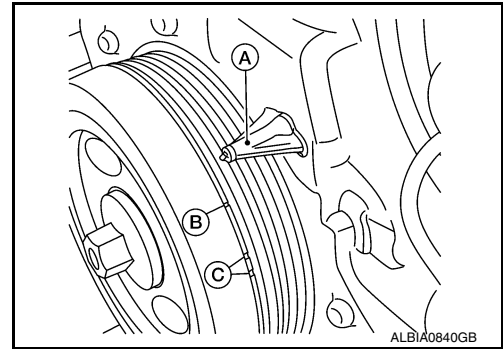
CAMSHAFT

< REMOVAL AND INSTALLATION >

5. Set the No.1 cylinder at TDC on its compression stroke using the following procedure:
 - a. Rotate crankshaft pulley clockwise, and align mating mark for TDC (B) with timing indicator (A) on front cover, as shown.

NOTE:

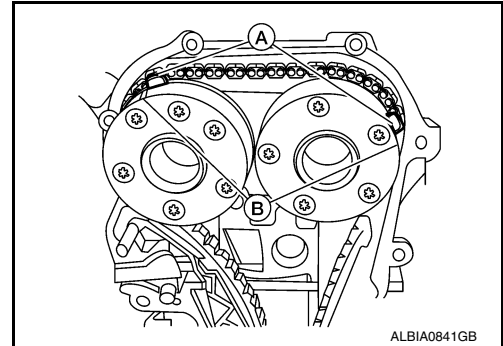
Do not use the white paint mark (C).



- b. At the same time, make sure that the mating marks (outer groove) (B) on camshaft sprockets are lined up with the pink links (A) in the timing chain, as shown.
 - If not, rotate crankshaft pulley one more turn to line up the mating marks (outer groove) (B) to the pink links (A), as shown.

NOTE:

Shown with front cover removed for illustration purposes only.

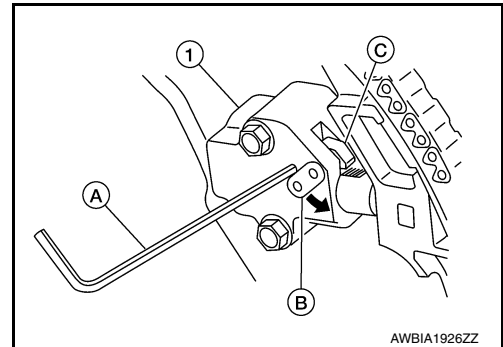


6. Remove chain tensioner (1) and timing chain using the following procedure:

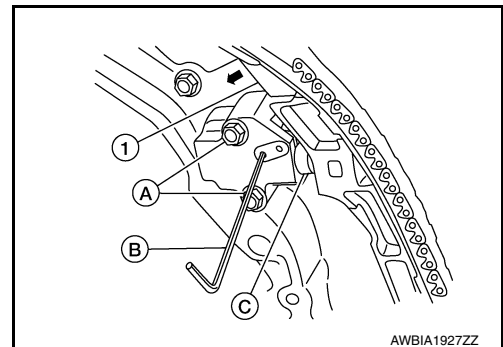
- a. Pull the lever (B) down and release the plunger stopper tab (C).
 - Plunger stopper tab (C) can be pushed up to release (coaxial structure with lever (B)).
 - b. Insert the stopper pin (A) into the tensioner body hole to hold the lever (B) and keep tab released.

NOTE:

Allen wrench [2.5 mm (0.098)] is used for a stopper pin as an example.



- c. Insert plunger (C) into tensioner body by pressing timing chain slack guide (1).
 - d. Keep timing chain slack (1) guide pressed and hold it by pushing the stopper pin (B) through the lever hole and body hole.
 - e. Remove the chain tensioner bolts (A) and chain tensioner.



- f. Remove the timing chain from camshaft sprocket (INT) and camshaft sprocket (EXH).

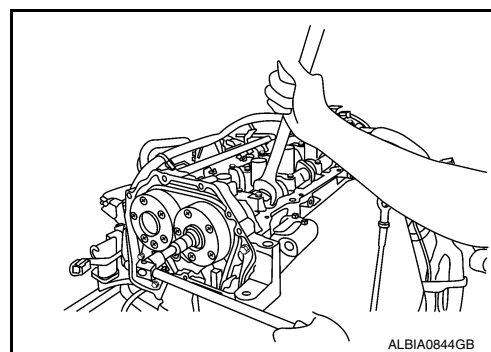
CAUTION:

- Use suitable tool to prevent timing chain from falling into front cover after it has been removed from camshaft sprocket (INT) and camshaft sprocket (EXH).
- Do not rotate the crankshaft or camshafts while the timing chain is removed. It can cause damage to the valves and pistons.

CAMSHAFT

< REMOVAL AND INSTALLATION >

7. Remove the camshaft sprockets using the following procedure:
 - a. Secure hexagonal part of the camshaft with a suitable tool and loosen the camshaft sprocket bolt.
 - b. Remove the camshaft sprocket bolt and camshaft sprockets for both camshafts.

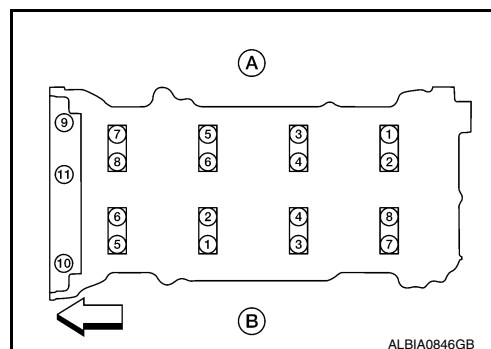


8. Loosen the camshaft bracket bolts in the order as shown, and remove the camshaft brackets and camshafts.

NOTE:

Remove camshaft bracket (No. 1) by slightly tapping it with a rubber mallet.

- (A) : Intake side
 (B) : Exhaust side
 ⇐ : Engine front



9. Remove the valve lifters.

NOTE:

Check installation positions, and set them aside in the order removed.

INSPECTION AFTER REMOVAL

Camshaft Runout

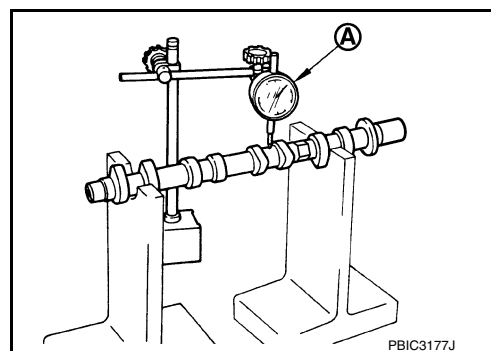
1. Put the camshaft on a V-block supporting the No.2 and No.5 journals.

CAUTION:

Do not support the No. 1 journal (on the side of the camshaft sprocket) because it has different diameter from the other four locations.

2. Set suitable tool (A) vertically on the No.3 journal.
3. Turn camshaft in one direction by hand, and measure the camshaft runout on the dial gauge total indicator reading.

Standard : Refer to [EM-116, "Camshaft"](#)



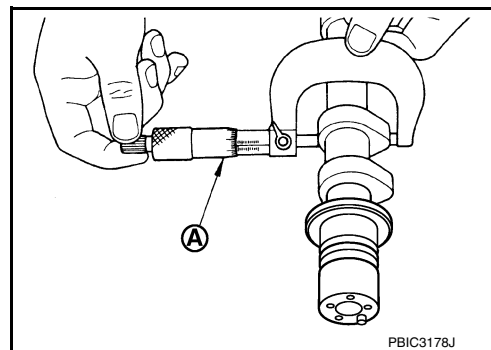
Camshaft Cam Height

1. Measure the camshaft cam height using suitable tool (A).

Standard intake cam height : Refer to [EM-116, "Camshaft"](#)

Standard exhaust cam height : Refer to [EM-116, "Camshaft"](#)

2. If wear is beyond the limit, replace the camshaft.



Camshaft Journal Clearance

Outer Diameter of Camshaft Journal

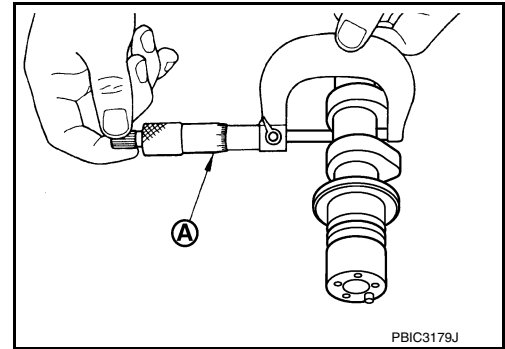
CAMSHAFT

< REMOVAL AND INSTALLATION >

- Measure the outer diameter of the camshaft journal using suitable tool (A).

Standard No.1 outer diameter : Refer to [EM-116, "Camshaft"](#)

Standard No.2, 3, 4, 5, outer diameter : Refer to [EM-116, "Camshaft"](#)



Inner Diameter of Camshaft Bracket

- Tighten the camshaft bracket bolts to the specified torque following the tightening pattern as shown.

Step 1 (bolts 9 - 11) : 1.96 N·m (0.20 kg-m, 17 in-lb)

Step 2 (bolts 1 - 8) : 1.96 N·m (0.20 kg-m, 17 in-lb)

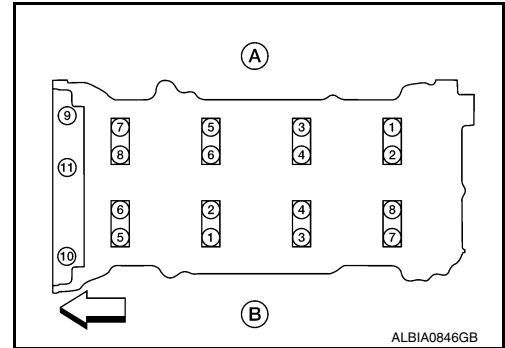
Step 3 (bolts 1 - 11) : 5.88 N·m (0.60 kg-m, 52 in-lb)

Step 4 (bolts 1 - 11) : 10.41 N·m (1.1 kg-m, 8 ft-lb)

(A) : Intake side

(B) : Exhaust side

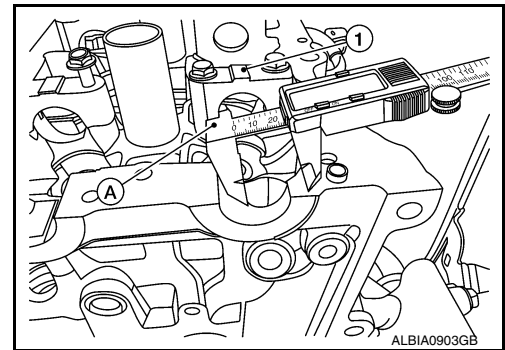
↶ : Engine front



- Using suitable tool (A), measure inner diameter of camshaft bracket (1).

Standard No.1 : Refer to [EM-116, "Camshaft"](#)

Standard No.2, 3, 4, 5 : Refer to [EM-116, "Camshaft"](#)



Calculation of Camshaft Journal Clearance

- (Journal clearance) = (inner diameter of camshaft bracket) – (outer diameter of camshaft journal)

Standard : Refer to [EM-116, "Camshaft"](#)

- When out of the specified range above, replace either or both the camshaft and the cylinder head assembly.

NOTE:

Inner diameter of the camshaft bracket is manufactured together with the cylinder head. If the camshaft bracket is out of specification, replace the whole cylinder head assembly.

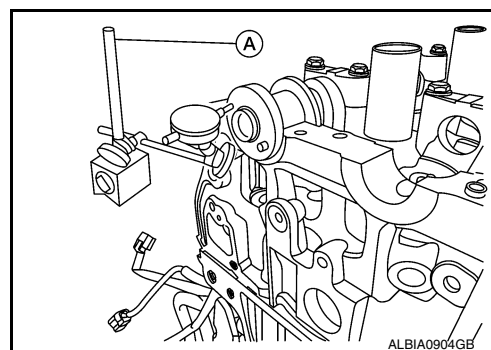
Camshaft End Play

CAMSHAFT

< REMOVAL AND INSTALLATION >

1. Install suitable tool (A) in the thrust direction on the front end of the camshaft. Measure the end play with the dial gauge while moving the camshaft forward and backward (in direction to axis).

Standard end play : Refer to [EM-116, "Camshaft"](#)



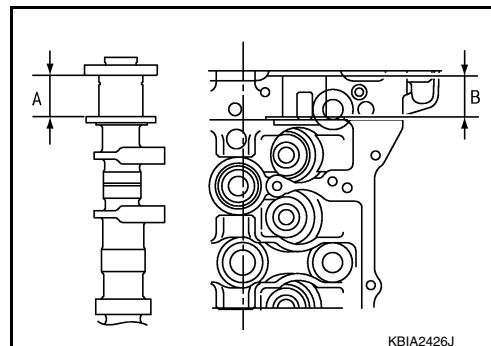
- Measure the following parts if out of the standard.
- Dimension (A) for camshaft No. 1 journal

Standard : Refer to [EM-116, "Camshaft"](#)

- Dimension (B) for cylinder head No. 1 journal

Standard : Refer to [EM-116, "Camshaft"](#)

- Refer to the standards above, and then replace camshaft and/or cylinder head.

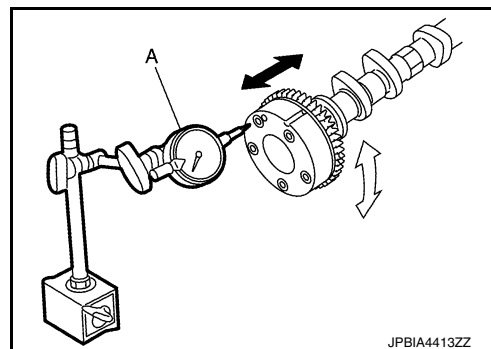


Camshaft Sprocket Runout

1. Install the camshaft in the cylinder head.
2. Install the camshaft sprocket on the camshaft.
3. Measure camshaft sprocket runout while turning the camshaft by hand using suitable tool (A).

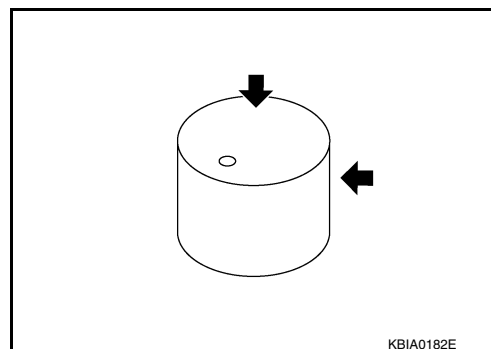
Runout : Refer to [EM-116, "Camshaft"](#)

4. If it exceeds the specification, replace camshaft sprocket.



Valve Lifter

- Check if the surface of the valve lifter has any excessive wear or cracks, replace as necessary.



Valve Lifter Clearance

Outer Diameter of Valve Lifter

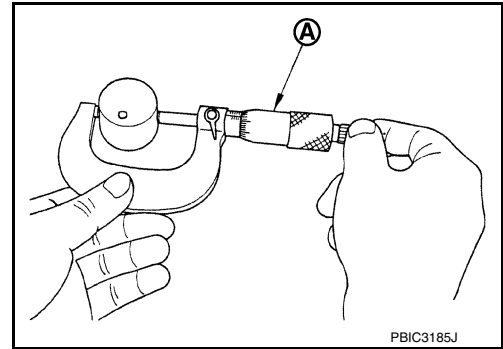
CAMSHAFT

< REMOVAL AND INSTALLATION >

- Measure the outer diameter of the valve lifter using suitable tool (A).

Valve lifter outer diameter : Refer to [EM-116, "Camshaft"](#)

- If out of the specified range, replace the valve lifter.

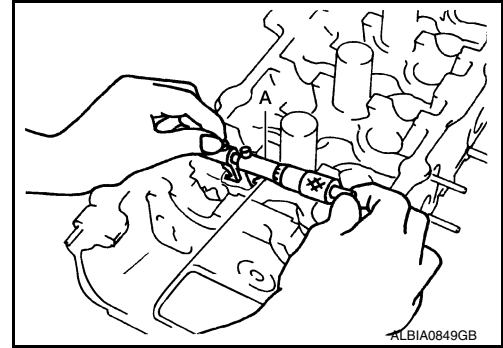


Valve Lifter Bore Inner Diameter

- Measure diameter of valve lifter bore of cylinder head using suitable tool (A).

Standard : Refer to [EM-116, "Camshaft"](#)

- If out of the specified range, replace the cylinder head assembly.



Calculation of Valve Lifter Clearance

- (Valve lifter clearance) = (hole diameter for valve lifter) – (outer diameter of valve lifter)

Standard : Refer to [EM-116, "Camshaft"](#)

- If out of specified range, replace either or both valve lifter and cylinder head assembly.

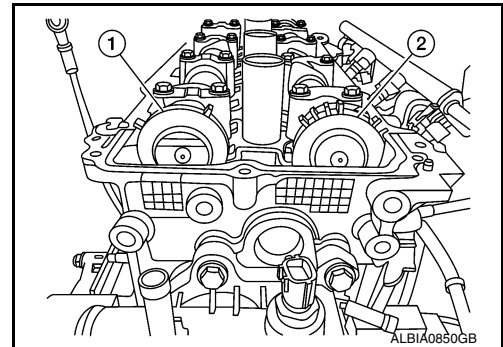
INSTALLATION

1. Install the valve lifter.
 - Install them in the same position from which they were removed.
2. Install the camshafts.

- (1) : Exhaust camshaft
(2) : Intake camshaft

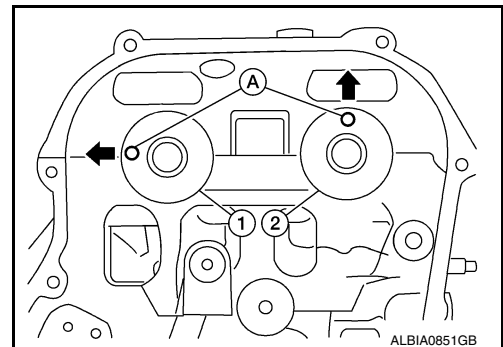
NOTE:

The distinction between the intake and exhaust camshafts is the difference in the shape of the rear.



- Install camshafts so that the dowel pins (A) on the front side are positioned as shown.

- (1) : Intake camshaft
(2) : Exhaust camshaft



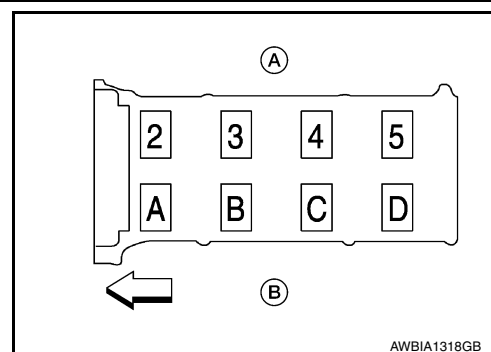
CAMSHAFT

< REMOVAL AND INSTALLATION >

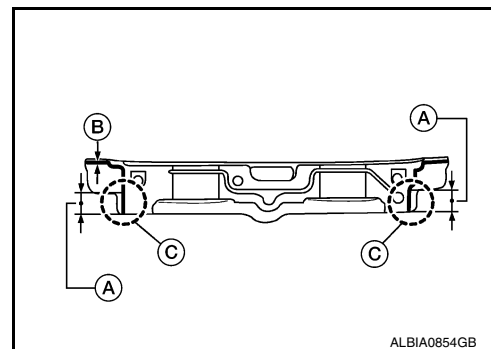
3. Install camshaft brackets.

- Install by referring to identification mark on upper surface mark.
- Install so that identification mark can be correctly read when viewed from the exhaust side.

(A) : Intake side
 (B) : Exhaust side
 ⇐ : Engine front



- Install camshaft bracket (No. 1) as follows.
- Apply liquid gasket to camshaft bracket (No. 1) as shown (A), (B). Refer to [EM-5, "Liquid Gasket"](#).

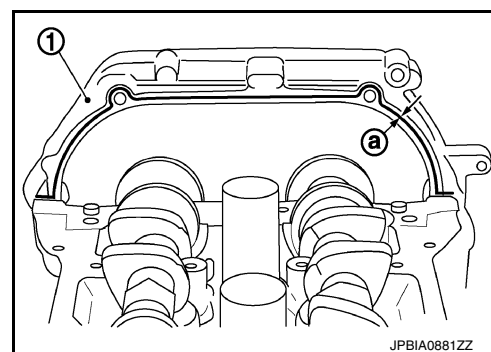


- Apply liquid gasket to camshaft bracket (No. 1) contact surface on the front cover backside. Refer to [EM-5, "Liquid Gasket"](#)

(a) : 3.4 - 4.4 mm (0.134-0.173 in)

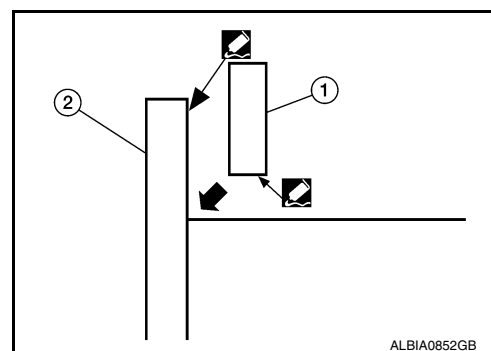
(1) : Front cover

- Apply liquid gasket to the outside of bolt hole on front cover. Refer to [EM-5, "Liquid Gasket"](#)



- Position the camshaft bracket (No. 1) near the installation position, and install it without disturbing the liquid gasket applied to the surfaces.

(1) : Camshaft bracket (No. 1)
 (2) : Front cover



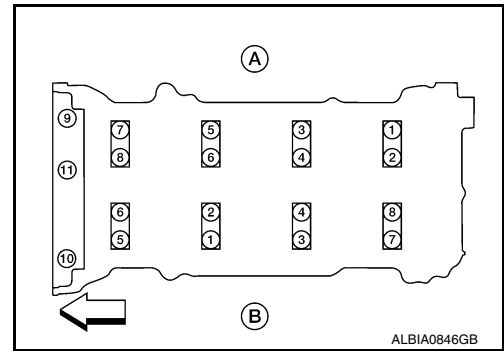
CAMSHAFT

< REMOVAL AND INSTALLATION >

4. Tighten camshaft bracket bolts in four steps in the order as shown.

- Step 1 (bolts 9 - 11) : 1.96 N·m (0.20 kg-m, 17 in-lb)**
Step 2 (bolts 1 - 8) : 1.96 N·m (0.20 kg-m, 17 in-lb)
Step 3 (bolts 1 - 11) : 5.88 N·m (0.60 kg-m, 52 in-lb)
Step 4 (bolts 1 - 11) : 10.41 N·m (1.1 kg-m, 8 ft-lb)

- (A) : Intake side
 (B) : Exhaust side
 : Engine front



CAUTION:

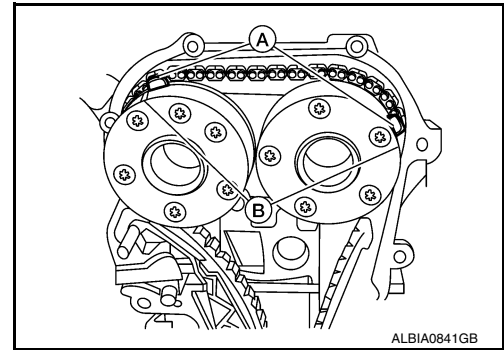
After tightening camshaft bracket bolts, be sure to wipe off excessive liquid gasket from the parts listed below.

- Mating surface of rocker cover.
- Mating surface of front cover, when installed without the front cover.

5. Install camshaft sprockets.
 - Install them by lining up the mating marks (outer groove) (B) on each camshaft sprocket with the painted marks (A) on the timing chain during removal.
 - Before installation of chain tensioner, it is possible to re-match the painted marks (A) on timing chain with the mating marks (B) on each sprocket.

CAUTION:

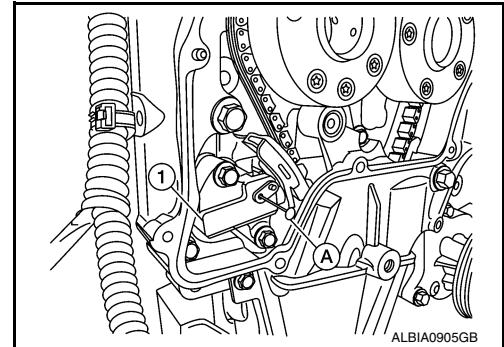
- Aligned mating marks could slip. Therefore, after matching them, hold the timing chain in place by hand.
- Before and after installing chain tensioner, check again to make sure that mating marks have not slipped.



6. Install timing chain tension guide.
7. Install chain tensioner using the following procedure:
 - a. Install stopper pin (A) into the chain tensioner (1).
 - b. Install the chain tensioner and pull the stopper pin out.

CAUTION:

After installation, pull the stopper pin out, and make sure that the tensioner is fully released.



8. Install intake valve timing control cover with the following procedure.
 - a. Install intake valve timing intermediate lock control solenoid valve, intake valve timing control solenoid valve, and exhaust valve timing control solenoid valve to valve timing control cover.

CAUTION:

Do not reuse O-ring.

- b. Install O-ring to front cover side.

CAUTION:

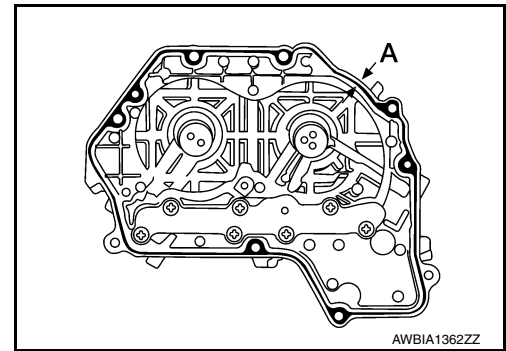
Do not reuse O-ring.

CAMSHAFT

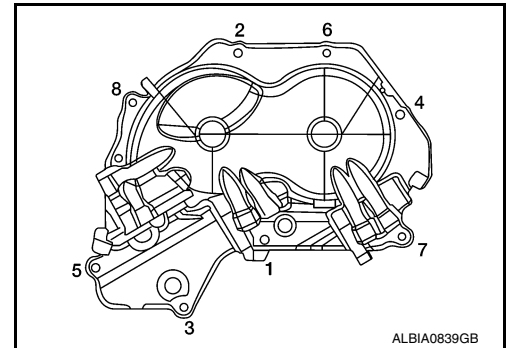
< REMOVAL AND INSTALLATION >

- c. Apply liquid gasket to the positions shown. Refer to [GI-22, "Recommended Chemical Products and Sealants"](#).

Diameter (A) : 3.4 - 4.4 mm (0.134 - 0.173 in)



- d. Install valve timing control cover.
- Tighten the bolts to specification in the numerical order as shown.



9. Check and adjust valve clearances. Refer to [EM-19, "Camshaft valve clearance"](#).
10. Install camshaft position sensor bracket.

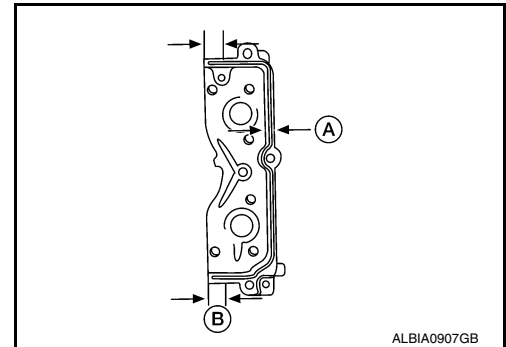
- a. Apply liquid gasket to camshaft position sensor bracket as shown.

(A) : 2.0 - 3.0 mm (0.079-0.118)

(B) : 10.5 mm (0.413 in)

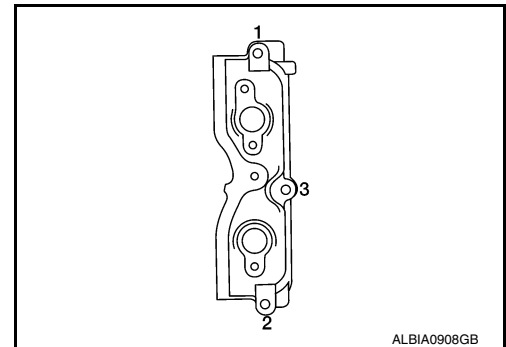
CAUTION:

- Use Genuine Silicone RTV Sealant, or equivalent. Refer to [GI-22, "Recommended Chemical Products and Sealants"](#).
- After installation be sure to wipe off excessive liquid gasket leaking from part (B).
- Installation should be done within 5 minutes after applying liquid gasket.
- Do not fill the engine with engine oil for at least 30 minutes after the components are installed to allow the liquid gasket to cure.



- b. Tighten bolts to specification in numerical order shown.

Camshaft position sensor bracket bolts : 10.41 N·m (1.1 kg-m, 8 ft-lb)



11. Install the camshaft position sensors. Refer to [EM-64, "Exploded View"](#).
12. Installation of the remaining components is in the reverse order of removal.

Inspection After Installation

INFOID:0000000010305576

Inspection of Camshaft Sprocket (INT) Oil Groove and Camshaft Sprocket (EXH) Oil Groove

CAMSHAFT

< REMOVAL AND INSTALLATION >

WARNING:

Check when engine is cold so as to prevent burns from any splashing engine oil.

CAUTION:

Perform this inspection only when DTC P0011, P0014, P052A, P052B is detected in self-diagnostic results of CONSULT and it is directed according to inspection procedure of EC section.

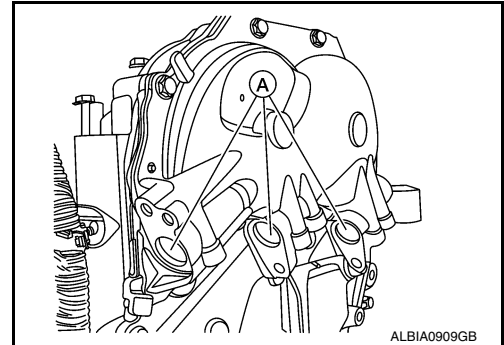
1. Check engine oil level and adjust oil level as necessary. Refer to [LU-7, "Inspection"](#).
2. Remove the intake valve timing intermediate lock control solenoid valve, intake valve timing control solenoid valve, and exhaust valve timing control solenoid valve. Refer to [EM-74, "Intake Valve Timing Intermediate Lock Control Solenoid Valve, Intake Valve Timing Control Solenoid Valve, and Exhaust Valve Timing Control Solenoid Valve"](#).
3. Perform the following procedure to prevent the engine from being unintentionally started while checking.
 - a. Release fuel pressure. Refer to [EC-144, "Work Procedure"](#).
 - b. Disconnect injector harness connectors.
4. Crank engine, and then make sure that engine oil comes out of the valve timing control cover oil holes (A). End cranking after checking.

WARNING:

Be careful not to touch rotating parts (drive belt, crankshaft pulley, etc.).

CAUTION:

- Engine oil may squirt from intake valve timing intermediate lock control solenoid valve, intake valve timing control solenoid valve, exhaust valve timing control solenoid valve installation holes during cranking. Use a shop cloth to prevent engine oil from splashing on worker, engine components and vehicle.
 - Do not allow engine oil to get on rubber components such as drive belts or engine mount insulators. Immediately wipe off any splashed engine oil.
5. If engine oil does not come out from valve timing control cover oil holes (A), diagnose problem in lubrication circuit such as dirty oil groove between oil strainer and intake valve timing intermediate lock control solenoid valve, intake valve timing control solenoid valve, or exhaust valve timing control solenoid valve. Refer to [LU-5, "Engine Lubrication System"](#).
 - a. Remove components between intake valve timing intermediate lock control solenoid valve, intake valve timing control solenoid valve, exhaust valve timing control solenoid valve and camshaft sprocket (INT) or camshaft sprocket (EXH), (if necessary) and then check each oil groove for clogging.
 - b. Clean oil groove if necessary. Refer to [LU-5, "Engine Lubrication System"](#).
 6. After inspection, install the remaining components in the reverse order of removal.



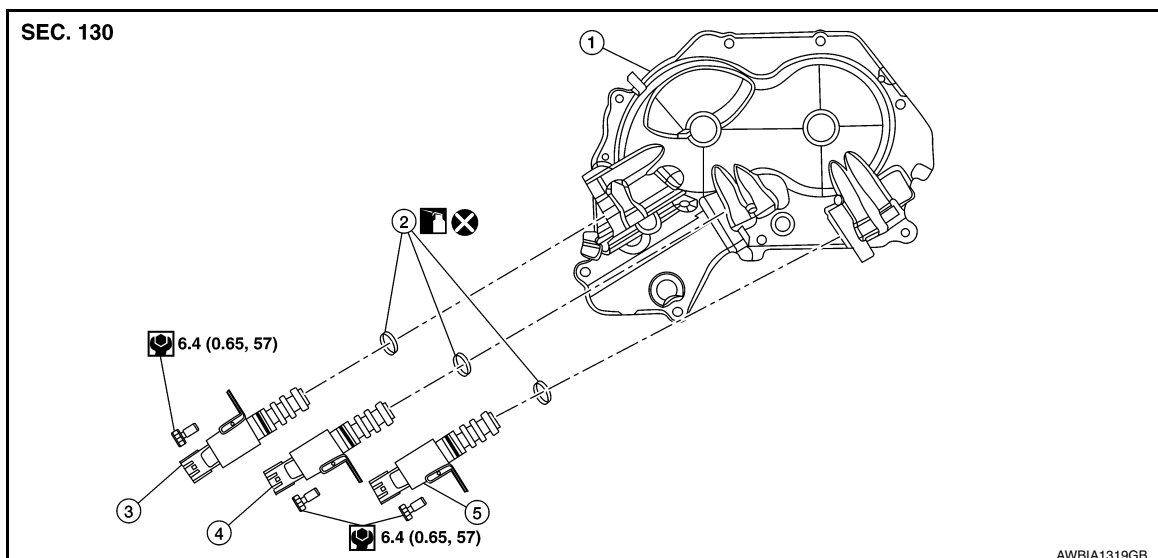
VALVE TIMING CONTROL

< REMOVAL AND INSTALLATION >

VALVE TIMING CONTROL

Exploded View

INFOID:0000000010284118



- | | | |
|---|--|---|
| 1. Valve timing cover | 2. O-rings | 3. Intake valve timing intermediate lock control solenoid valve |
| 4. Intake valve timing control solenoid valve | 5. Exhaust valve timing control solenoid valve | |

Intake Valve Timing Intermediate Lock Control Solenoid Valve, Intake Valve Timing Control Solenoid Valve, and Exhaust Valve Timing Control Solenoid Valve

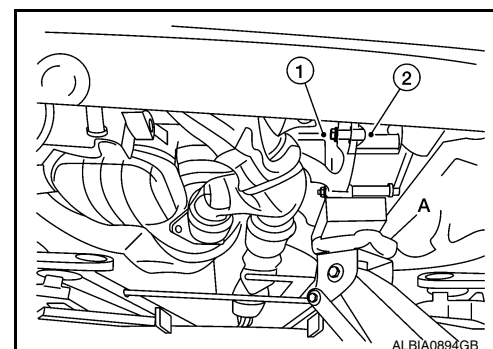
INFOID:0000000010284119

REMOVAL

1. Disconnect the battery negative terminal. Refer to [PG-75, "Exploded View"](#).
2. Remove cowl top extension. Refer to [EXT-25, "Removal and Installation"](#).
3. Remove the RH engine mount torque rod. Refer to [EM-81, "Exploded View"](#).
4. Use a suitable jack (A) to securely support the bottom of the engine (1) and the transaxle assembly (2).

CAUTION:

Put a piece of wood or an equivalent as the supporting surface and secure in a stable condition.



5. Remove A/C line bracket bolt.
6. Remove harness grounds from engine mounting bracket (RH).
7. Remove harness retainers from engine mounting bracket (RH).
8. Remove the engine mounting bracket (RH). Refer to [EM-81, "Exploded View"](#).
9. Remove the RH engine mounting support bracket. Refer to [EM-81, "Exploded View"](#).
10. Remove the RH engine mount torque rod. Refer to [EM-81, "Exploded View"](#).
11. Disconnect harness connectors from intake valve timing intermediate lock control solenoid valve, intake valve timing control solenoid valve, and exhaust valve timing control solenoid valve connectors.

VALVE TIMING CONTROL

< REMOVAL AND INSTALLATION >

12. Remove intake valve timing intermediate lock control solenoid valve, intake valve timing control solenoid valve, and exhaust valve timing control solenoid valve bolts.
13. Remove intake valve timing intermediate lock control solenoid valve, intake valve timing control solenoid valve, exhaust valve timing control solenoid valve from valve timing control cover.
14. Remove O-rings from intake valve timing intermediate lock control solenoid valve, intake valve timing control solenoid valve, and exhaust valve timing control solenoid valve.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

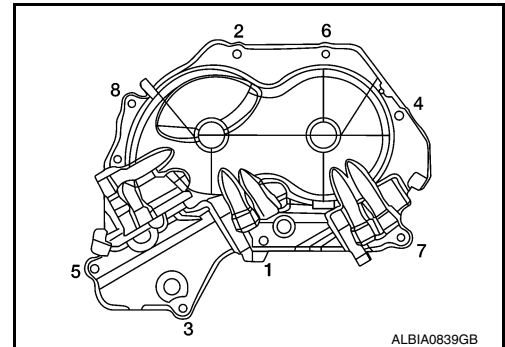
- Do not reuse O-rings.
- Lubricate O-rings with clean engine oil before installing.

Valve Timing Control Cover

INFOID:000000010284120

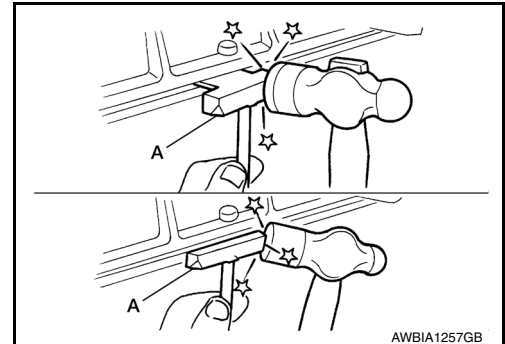
REMOVAL

1. Remove the intake valve timing intermediate lock control solenoid valve, intake valve timing control solenoid valve, exhaust valve timing control solenoid valve. Refer to [EM-74, "Intake Valve Timing Intermediate Lock Control Solenoid Valve, Intake Valve Timing Control Solenoid Valve, and Exhaust Valve Timing Control Solenoid Valve"](#).
2. Remove harness grounds and retainers from the top of the engine mount bracket.
3. Loosen the valve timing control cover bolts in the reverse order shown.
 - a. Remove the valve timing control cover bolts.



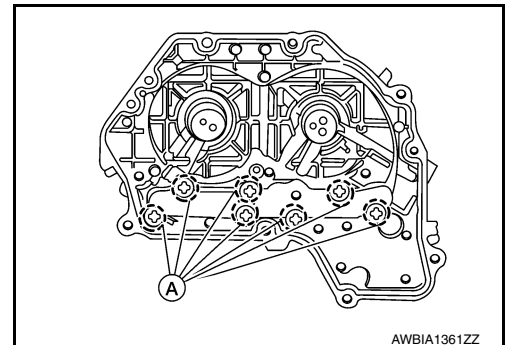
- b. Remove the valve timing control cover by cutting the liquid gasket using Tool (A).

Tool number : KV10111100 (J-37228)



NOTE:

Do not loosen screws (A) on the back of the valve timing control cover.



VALVE TIMING CONTROL

< REMOVAL AND INSTALLATION >

INSTALLATION

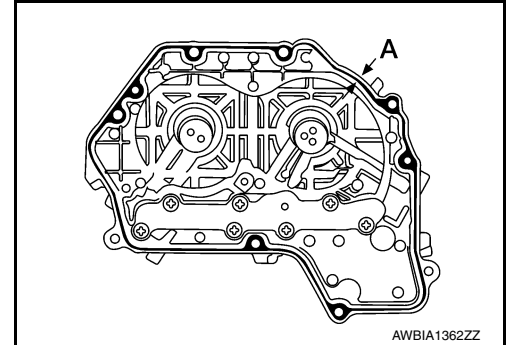
1. Install valve timing control cover with the following procedure.
 - a. Install intake valve timing intermediate lock control solenoid valve, intake valve timing control solenoid valve and exhaust valve timing control solenoid valve to valve timing control cover.
 - b. Install O-ring to front cover side.

CAUTION:

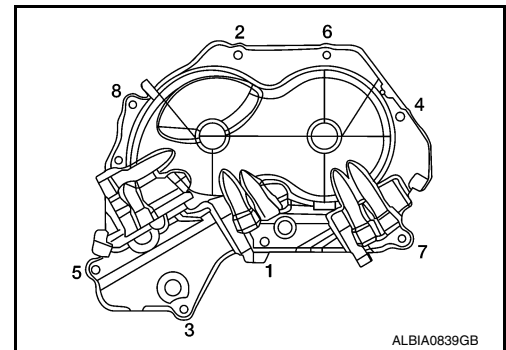
Do not reuse O-ring.

- c. Apply liquid gasket to the positions shown. Refer to [GI-22. "Recommended Chemical Products and Sealants"](#).

Diameter (A) : 3.4 - 4.4 mm (0.134 - 0.173 in)



- d. Install valve timing control cover.
 - Tighten the bolts to specification in the numerical order shown.



OIL SEAL

< REMOVAL AND INSTALLATION >

OIL SEAL

VALVE OIL SEAL

VALVE OIL SEAL : Removal and Installation

INFOID:000000009798956

A

EM

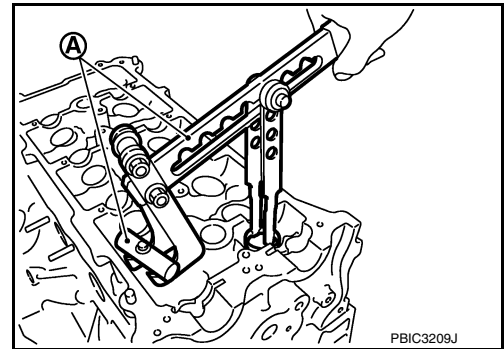
REMOVAL

1. Remove camshafts. Refer to [EM-64. "Removal and Installation"](#).
2. Remove valve lifters. Refer to [EM-56. "Disassembly and Assembly"](#).
3. Rotate crankshaft, and set piston whose valve oil seal is to be removed to TDC. This will prevent valve from dropping into cylinder.

CAUTION:

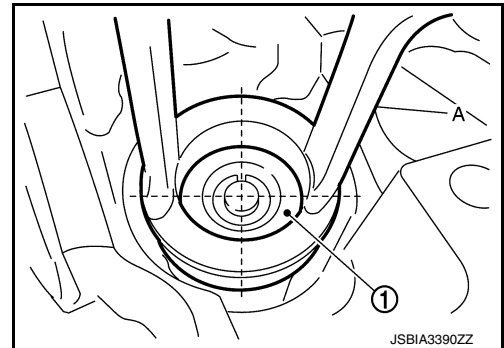
When rotating crankshaft, be careful to avoid scarring front cover with timing chain.

4. Remove valve collet.
 - Compress valve spring using suitable tool (A). Remove valve collet with a magnet.



CAUTION:

- Be careful not to damage valve lifter holes.
- Install suitable tool (A) in the center of valve spring retainer (1) to press it.

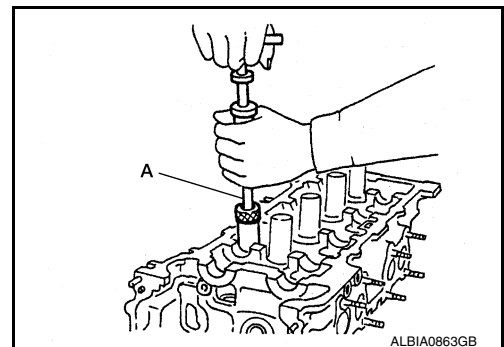


5. Remove valve spring retainer and valve spring (with valve spring seat).

CAUTION:

Do not remove valve spring seat from valve spring.

6. Remove valve oil seal using suitable tool (A).



INSTALLATION

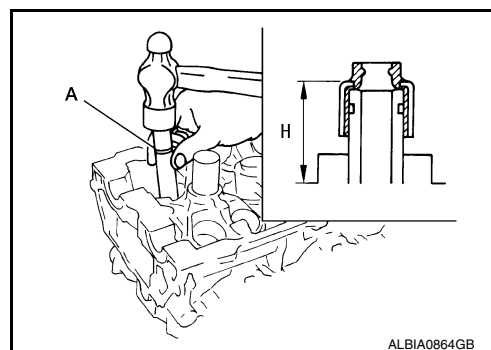
1. Apply new engine oil to valve oil seal joint surface and seal lip.

OIL SEAL

< REMOVAL AND INSTALLATION >

2. Press in valve oil seal to the height "H" as shown using suitable tool (A).

Height "H" : Refer to [EM-118, "Cylinder Head"](#)



3. Installation of the remaining components is in the reverse order of removal.

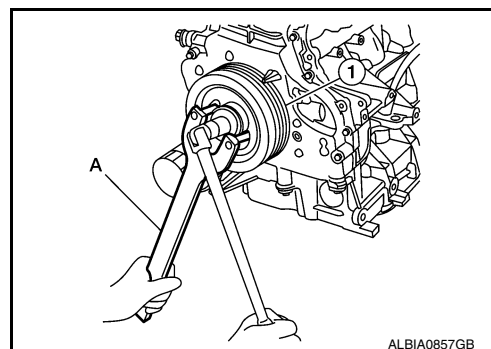
FRONT OIL SEAL

FRONT OIL SEAL : Removal and Installation

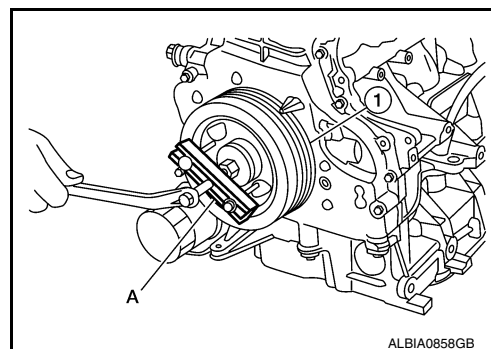
INFOID:000000009798957

REMOVAL

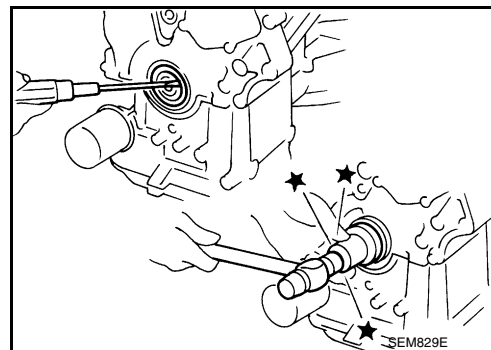
1. Remove engine undercover. Refer to [EXT-37, "ENGINE UNDER COVER : Removal and Installation"](#).
2. Remove front fender protector. Refer to [EXT-28, "FENDER PROTECTOR : Removal and Installation"](#).
3. Remove drive belt. Refer to [EM-13, "Removal and Installation"](#).
4. Remove crankshaft pulley (1) using the following procedure:
 - a. Hold the crankshaft pulley (1) using suitable tool (A), then loosen and remove the crankshaft pulley bolt.



- b. Attach suitable tool (A) in the threaded hole on crankshaft pulley (1), and remove crankshaft pulley.



5. Remove front oil seal with a suitable tool.
CAUTION:
Do not damage front cover and crankshaft.



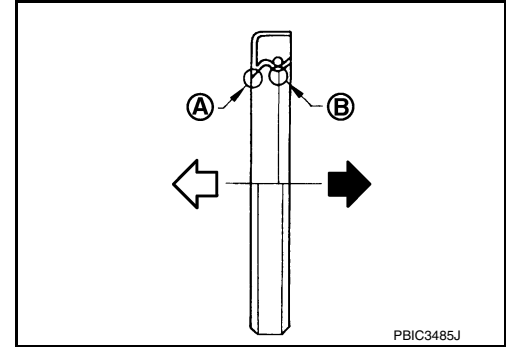
INSTALLATION

OIL SEAL

< REMOVAL AND INSTALLATION >

1. Apply new engine oil to seal lip.
2. Install front oil seal so that each seal lip is oriented as shown.

- (A) : Dust seal lip
(B) : Oil seal lip
⇐ : Engine outside
➡ : Engine inside



- Press-fit front oil seal until it is flush with front end surface of front cover using a suitable drift (A).

CAUTION:

- Do not damage front cover and crankshaft.
- Press-fit oil seal straight to avoid causing burrs or tilting.
- Do not touch the grease applied to the oil seal lip.
- Do not reuse oil seal.

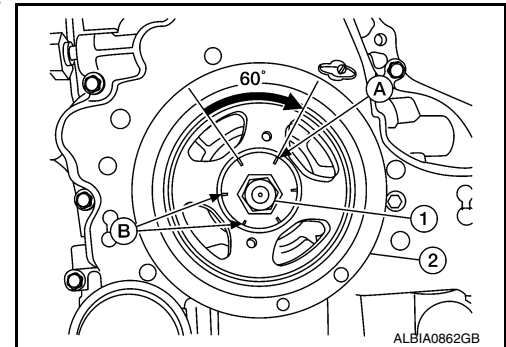
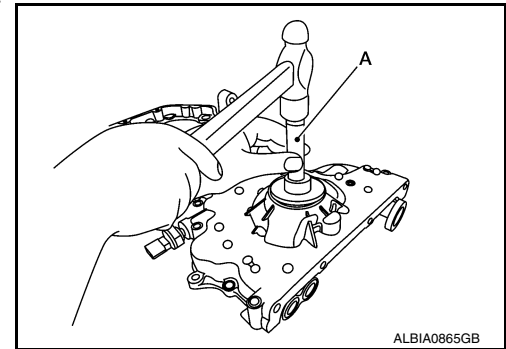
3. Insert crankshaft pulley by aligning with crankshaft key.
 - Tap its center with a plastic hammer to insert.
 - Do not tap the crankshaft pulley outer diameter.
4. Tighten crankshaft pulley bolt.
 - Secure crankshaft pulley with suitable tool to tighten the bolt.
 - Perform angle tightening with the following procedure.
- a. Apply new engine oil to threads and seat surfaces of bolts.
- b. Apply a paint mark (A) on the front cover, mating with any one of six easy to recognize stamp marks on bolt flange (B).
- c. Tighten crankshaft bolt (1) to specification.

NOTE:

Check that the assembled unit does not interfere with adjacent components by turning the crankshaft in the tightening direction.

Step 1 : 42.1 N·m (4.3 kg-m, 31 ft-lb)

Step 2 : Turn crankshaft bolt (1) an additional 60° +6°/-0°.



5. Installation of the remaining components is in the reverse order of removal.

REAR OIL SEAL

REAR OIL SEAL : Removal and Installation

INFOID:000000009798958

REMOVAL

1. Remove the engine and transaxle. Refer to [EM-81, "Removal and Installation \(FWD\)"](#) and [EM-85, "Removal and Installation \(AWD\)"](#).
2. Separate engine from transaxle.
3. Remove drive plate. Refer to [EM-92, "Exploded View"](#).
4. Remove rear oil seal with a suitable tool.

CAUTION:

Be careful not to damage crankshaft and cylinder block.

INSTALLATION

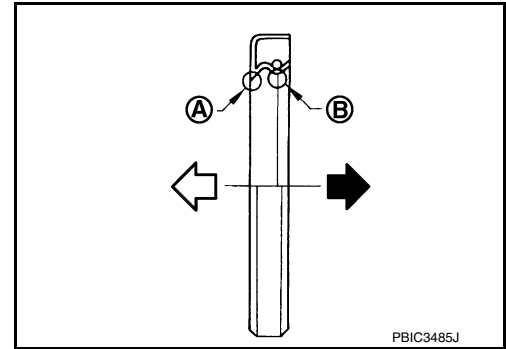
1. Apply new engine oil to rear oil seal lip.

OIL SEAL

< REMOVAL AND INSTALLATION >

2. Install rear oil seal so that each seal lip is oriented as shown.

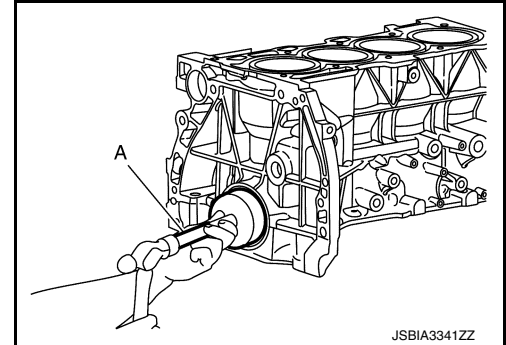
- (A) : Dust seal lip
- (B) : Oil seal lip
- ⇐ : Engine outside
- ➡ : Engine inside



- Press-fit rear oil seal with a suitable drift.

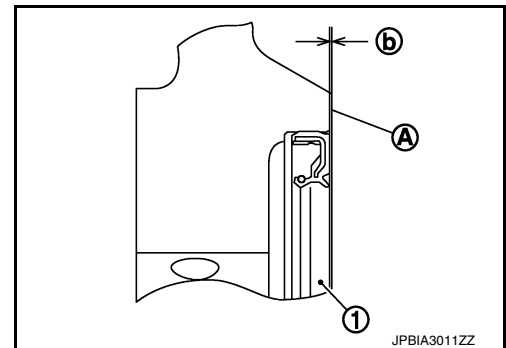
CAUTION:

- Do not damage crankshaft and cylinder block.
- Press-fit oil seal straight to avoid causing burrs or tilting.
- Do not touch grease applied onto oil seal lip.
- Apply neutral detergent (if needed) to outer circumference of oil seal to aid installation. Do not allow detergent to contact inner circumference of oil seal.



- Press in the new rear oil seal (1) to the position as shown.

- (A) : Rear end surface of cylinder block
- (b) : 0.0 mm - 0.5 mm (0.000 in - 0.020 in)



3. Installation of the remaining components is in the reverse order of removal.

ENGINE ASSEMBLY

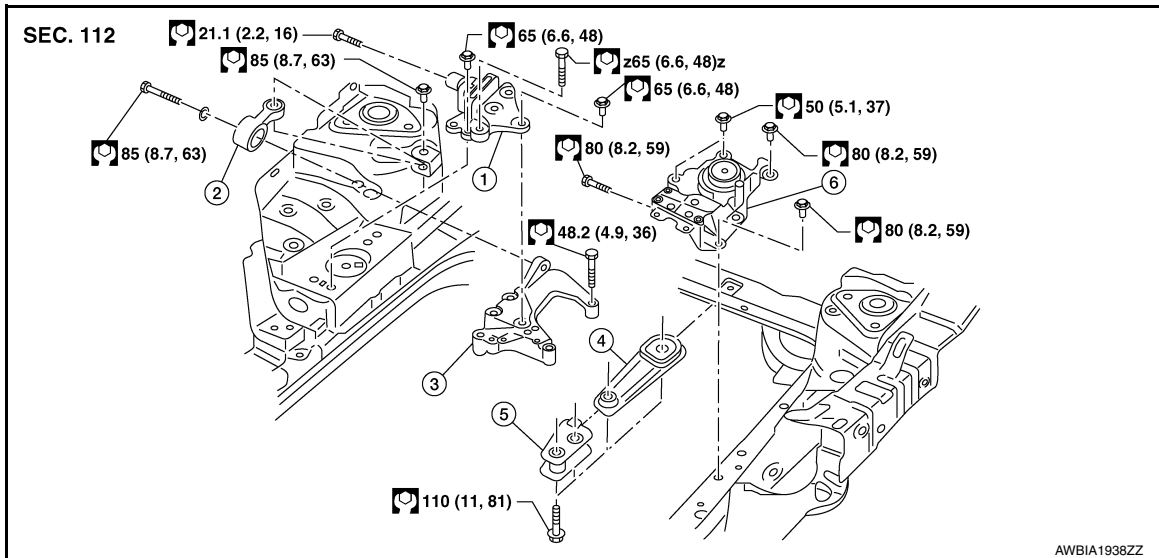
< UNIT REMOVAL AND INSTALLATION >

UNIT REMOVAL AND INSTALLATION

ENGINE ASSEMBLY

Exploded View

INFOID:000000009798959



- | | | |
|-----------------------------------|--------------------------|-----------------------------------|
| 1. Engine mounting insulator (RH) | 2. Upper torque rod (RH) | 3. Engine mounting bracket (RH) |
| 4. Lower torque rod | 5. Torque rod bracket | 6. Engine mounting insulator (LH) |

Removal and Installation (FWD)

INFOID:0000000010325903

WARNING:

- Situate the vehicle on a flat and solid surface.
- Place chocks at front and back of rear wheels.
- Attach proper slingers and bolts described in PARTS CATALOG if engine slingers are not equipped.

CAUTION:

- Always be careful to work safely, avoid forceful or uninstructed operations.
- Do not start working until exhaust system and engine coolant is cool enough.
- If items or work required are not covered by the engine section, refer to the applicable sections.
- Always use the support point specified for lifting.
- Use either 2-pole lift type or separate type lift as best you can. If board-on type is used for unavoidable reasons, support at the rear axle jacking point with a transmission jack or similar tool before starting work, in preparation for the backward shift of center of gravity.
- For supporting points for lifting and jacking point at rear axle, refer to [GI-29, "Garage Jack and Safety Stand and 2-Pole Lift"](#).

NOTE:

When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid from spilling.

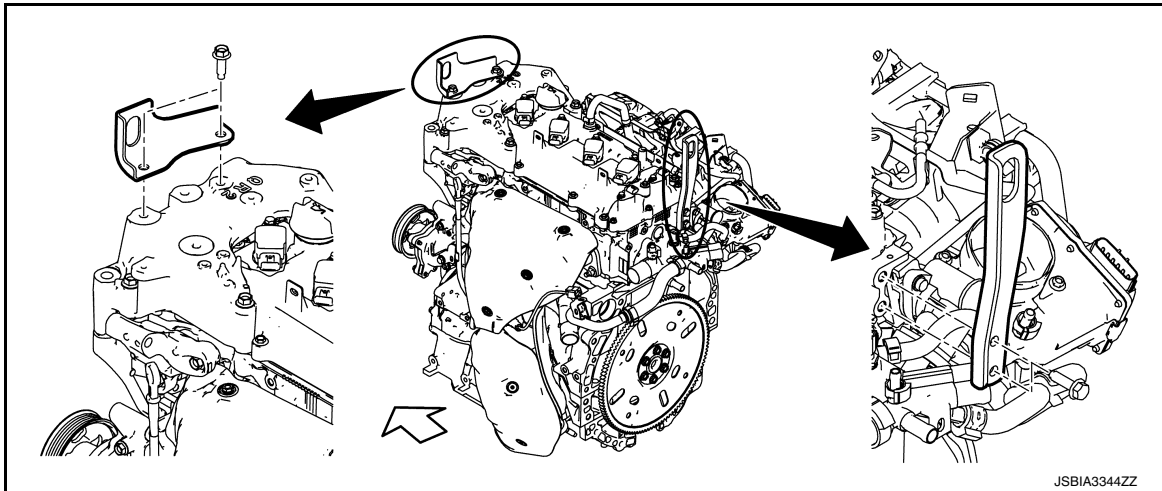
REMOVAL

1. Remove hood assembly. Refer to [DLK-233, "HOOD ASSEMBLY : Removal and Installation"](#).
2. Relieve fuel system pressure. Refer to [EC-144, "Work Procedure"](#).
3. Remove fender protector. Refer to [EXT-28, "FENDER PROTECTOR : Removal and Installation"](#).
4. Remove battery tray. Refer to [PG-76, "Removal and Installation \(Battery Tray\)"](#).
5. Remove air cleaner and air duct. Refer to [EM-24, "Removal and Installation"](#).
6. Remove harness grounds.
7. Remove harness bracket retainer.
8. Remove relay box assembly from underhood.

ENGINE ASSEMBLY

< UNIT REMOVAL AND INSTALLATION >

9. Drain engine coolant. Refer to [CO-8, "Draining"](#).
10. Remove radiator hose (upper/lower). Refer to [CO-13, "Exploded View"](#).
11. Disconnect heater hose inlet from engine side.
12. Disconnect heater hose outlet from engine side.
13. Disconnect control cable. Refer to [TM-197, "Removal and Installation"](#).
14. Remove EVAP and vacuum hose from intake manifold.
15. Remove quick connector cap from fuel hose and fuel tube.
16. Disconnect fuel hose.
17. Remove harness ground wire bolt from generator bracket.
18. Remove fuse box cover.
19. Disconnect harness connector from fuse box.
20. Disconnect harness connector from IPDM E/R.
21. Disconnect harness connector from cooling fan controller.
22. Disconnect harness connector from refrigerant pressure sensor.
23. Remove low-pressure pipe. Refer to [HA-32, "LOW-PRESSURE PIPE : Removal and Installation"](#).
24. Remove high-pressure pipe. Refer to [HA-34, "HIGH-PRESSURE PIPE : Removal and Installation"](#).
25. Remove steering knuckles (LH/RH). Refer to [FSU-9, "Exploded View"](#).
26. Remove front drive shaft (LH/RH). Refer to [FAX-18, "Removal and Installation \(LH\)"](#) and [FAX-20, "Removal and Installation \(RH\)"](#).
27. Remove front exhaust tube. Refer to [EX-5, "Exploded View"](#).
28. Remove front suspension member. Refer to [FSU-20, "Removal and Installation"](#).
29. Remove CVT fluid cooler hoses from radiator. Refer to [CO-13, "Exploded View"](#).
30. Disconnect battery negative cable ground bolt from transaxle.
31. Remove upper torque rod (RH).
32. Remove engine mounting bracket (RH).
33. Install engine slingers into front left of engine mount bracket (RH) and rear right of cylinder head.



↖ : Engine front

Slinger bolts

Cylinder head side : 22.0 N·m (2.2 kg-m, 16 ft-lb)

Engine mount bracket side : 48.1 N·m (4.9 kg-m, 35 ft-lb)

34. Support weight of engine and transaxle assembly with a shop crane.

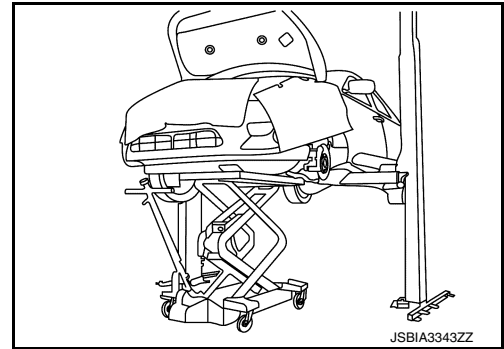
ENGINE ASSEMBLY

< UNIT REMOVAL AND INSTALLATION >

35. Use a suitable jack and securely support bottom of the engine and the transaxle assembly.

CAUTION:

Put a piece of wood or an equivalent as the supporting surface, secure a completely stable condition.



36. Slowly lower engine and transaxle assembly.

CAUTION:

- As engine and transaxle assembly is being lowered ensure there is no interference with body or engine harness connectors.
- Before and during this procedure, always check if any harnesses are left connected.
- Avoid any damage to, or any oil/grease smearing or spills onto the engine mounting insulators.

37. Disconnect harness connector from input speed sensor. Refer to [TM-207. "Removal and Installation"](#).
38. Disconnect harness connector from output speed sensor. Refer to [TM-209. "Removal and Installation"](#).
39. Disconnect harness connector from primary speed sensor. Refer to [TM-208. "Removal and Installation"](#).
40. Remove PNP switch from transaxle assembly.
41. Remove harness connector from transaxle assembly.
42. Remove starter motor. Refer to [STR-21. "Removal and Installation"](#).
43. Remove drive plate inspection cover from engine.
44. Hold drive plate with suitable tool and remove torque converter nuts.
45. Remove transaxle to engine mount bolts.

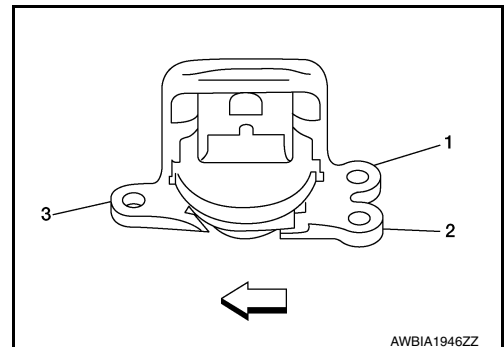
INSTALLATION

Installation is in the reverse order of removal.

NOTE:

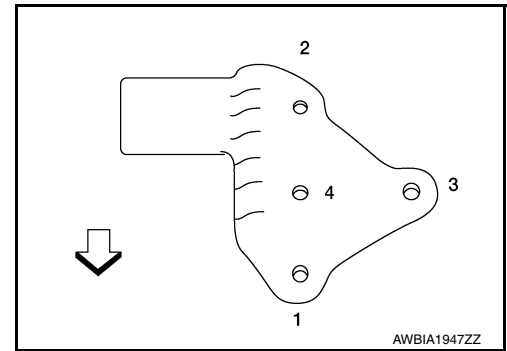
- Tighten the transmission bolts to specification. Refer to [TM-220. "Exploded View"](#).
 - Do not allow oil to get on mounting insulators. Be careful not to damage mounting insulators.
1. Install the engine mount insulator (RH) as follows:
 - a. Temporarily tighten the bolts.
 - b. Tighten the bolts in sequence as shown to the specified torque.

← : Front



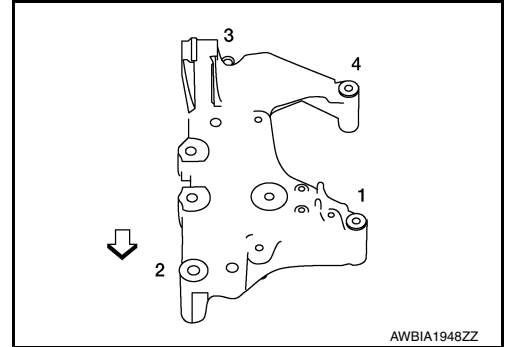
ENGINE ASSEMBLY

< UNIT REMOVAL AND INSTALLATION >

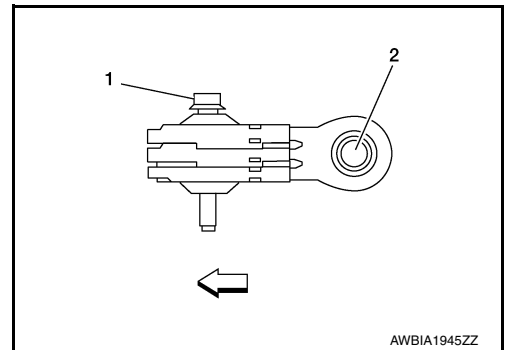


2. Install the engine mounting bracket (RH).
 - a. Temporarily tighten the bolts.
 - b. Tighten the bolts in sequence as shown to the specified torque.

⇐ : Front

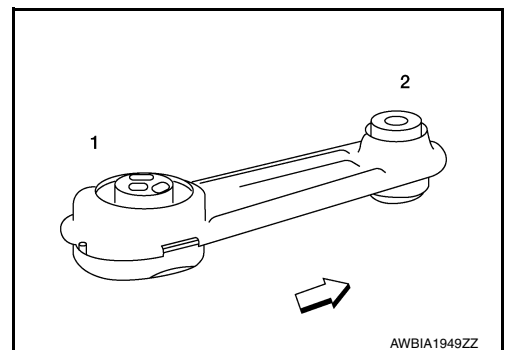


3. Install the upper torque rod (RH) as follows:
 - a. Temporarily tighten bolts.
 - b. Tighten the bolts in sequence as shown to the specified torque.



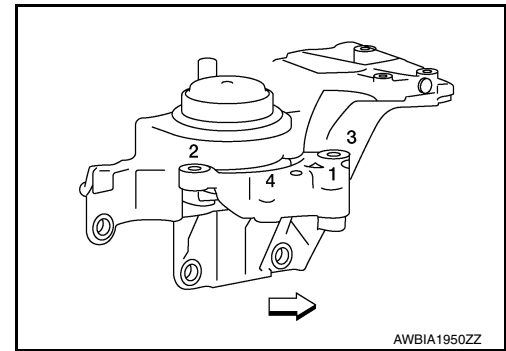
4. Install the lower torque rod bolts as follows:
 - a. Temporarily tighten the bolts.
 - b. Tighten the bolts in sequence as shown to the specified torque.

⇐ : Front



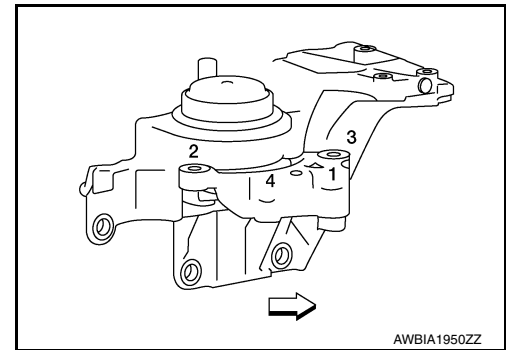
ENGINE ASSEMBLY

< UNIT REMOVAL AND INSTALLATION >



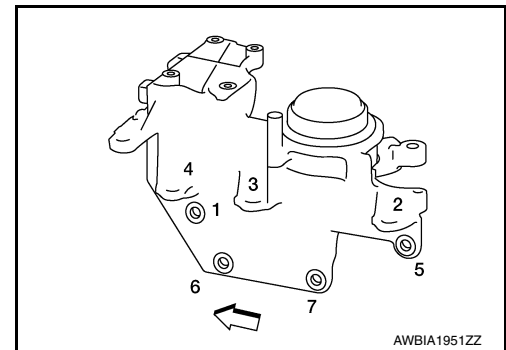
5. Install the lower torque rod bracket bolts as follows:
 - a. Temporarily tighten the bolts.
 - b. Tighten the bolts in sequence as shown to the specified torque.

← : Front



Removal and Installation (AWD)

INFOID:0000000010325904



WARNING:

- Situate the vehicle on a flat and solid surface.
- Place chocks at front and back of rear wheels.
- Attach proper slingers and bolts described in PARTS CATALOG if engine slingers are not equipped.

CAUTION:

- Always be careful to work safely, avoid forceful or uninstructed operations.
- Do not start working until exhaust system and engine coolant is cool enough.
- If items or work required are not covered by the engine section, refer to the applicable sections.
- Always use the support point specified for lifting.
- Use either 2-pole lift type or separate type lift as best you can. If board-on type is used for unavoidable reasons, support at the rear axle jacking point with a transmission jack or similar tool before starting work, in preparation for the backward shift of center of gravity.
- For supporting points for lifting and jacking point at rear axle, refer to [GI-29, "Garage Jack and Safety Stand and 2-Pole Lift"](#).

NOTE:

When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid from spilling.

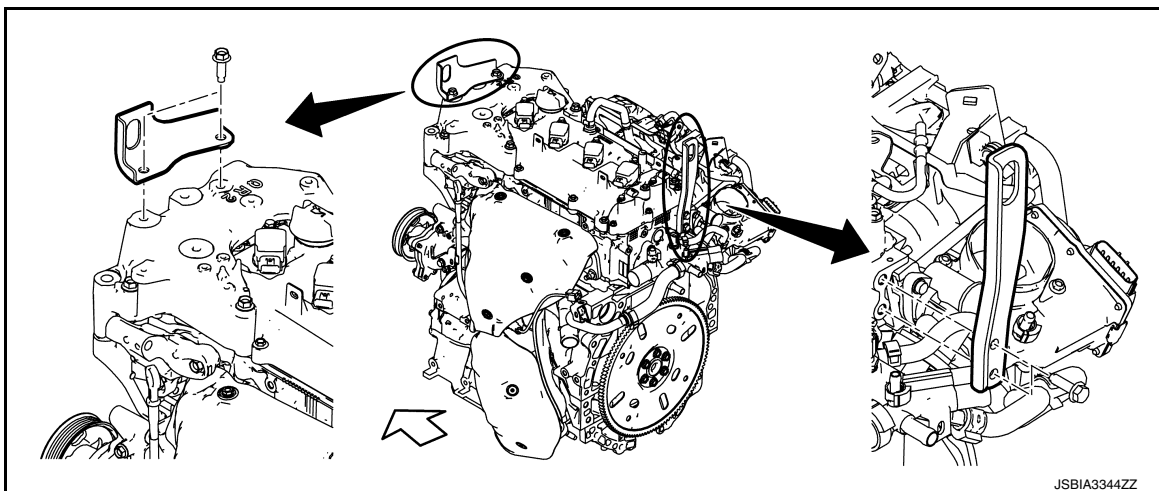
REMOVAL

1. Remove hood assembly. Refer to [DLK-233, "HOOD ASSEMBLY : Removal and Installation"](#).

ENGINE ASSEMBLY

< UNIT REMOVAL AND INSTALLATION >

2. Relieve fuel system pressure. Refer to [EC-144, "Work Procedure"](#).
3. Remove fender protector. Refer to [EXT-28, "FENDER PROTECTOR : Removal and Installation"](#).
4. Remove battery tray. Refer to [PG-76, "Removal and Installation \(Battery Tray\)"](#).
5. Remove air cleaner and air duct. Refer to [EM-24, "Removal and Installation"](#).
6. Remove harness grounds.
7. Remove harness bracket retainer.
8. Remove relay box assembly from underhood.
9. Drain engine coolant. Refer to [CO-8, "Draining"](#).
10. Remove radiator hose (upper/lower). Refer to [CO-13, "Exploded View"](#).
11. Disconnect heater hose inlet from engine side.
12. Disconnect heater hose outlet from engine side.
13. Disconnect control cable. Refer to [TM-197, "Removal and Installation"](#).
14. Remove EVAP and vacuum hose from intake manifold.
15. Remove quick connector cap from fuel hose and fuel tube.
16. Disconnect fuel hose.
17. Remove harness ground wire bolt from generator bracket.
18. Remove fuse box cover.
19. Disconnect harness connector from fuse box.
20. Disconnect harness connector from IPDM E/R.
21. Disconnect harness connector from cooling fan controller.
22. Disconnect harness connector from refrigerant pressure sensor.
23. Remove low-pressure pipe. Refer to [HA-32, "LOW-PRESSURE PIPE : Removal and Installation"](#).
24. Remove high-pressure pipe. Refer to [HA-34, "HIGH-PRESSURE PIPE : Removal and Installation"](#).
25. Remove steering knuckles (LH/RH). Refer to [FSU-9, "Exploded View"](#).
26. Remove front drive shaft (LH/RH). Refer to [FAX-18, "Removal and Installation \(LH\)"](#) and [FAX-52, "Removal and Installation \(RH\)"](#).
27. Remove front exhaust tube. Refer to [EX-5, "Exploded View"](#).
28. Remove transfer assembly. Refer to [DLN-70, "Removal and Installation"](#).
29. Remove front suspension member. Refer to [FSU-20, "Removal and Installation"](#).
30. Remove CVT fluid cooler hoses from radiator. Refer to [CO-13, "Exploded View"](#).
31. Disconnect battery negative cable ground bolt from transaxle.
32. Remove upper torque rod (RH).
33. Remove engine mounting bracket (RH).
34. Install engine slingers into front left of engine mount bracket (RH) and rear right of cylinder head.



⇐ : Engine front

ENGINE ASSEMBLY

< UNIT REMOVAL AND INSTALLATION >

Slinger bolts

Cylinder head side : 22.0 N·m (2.2 kg-m, 16 ft-lb)

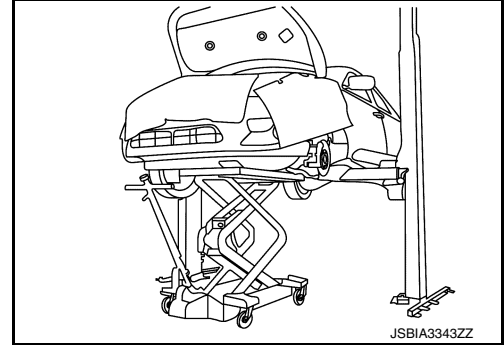
Engine mount bracket side : 48.1 N·m (4.9 kg-m, 35 ft-lb)

35. Support weight of engine and transaxle assembly with a shop crane.

36. Use a suitable jack and securely support bottom of the engine and the transaxle assembly.

CAUTION:

Put a piece of wood or an equivalent as the supporting surface, secure a completely stable condition.



37. Slowly lower engine and transaxle assembly.

CAUTION:

- As engine and transaxle assembly is being lowered ensure there is no interference with body or engine harness connectors.
- Before and during this procedure, always check if any harnesses are left connected.
- Avoid any damage to, or any oil/grease smearing or spills onto the engine mounting insulators.

38. Disconnect harness connector from input speed sensor. Refer to [TM-207. "Removal and Installation"](#).

39. Disconnect harness connector from output speed sensor. Refer to [TM-209. "Removal and Installation"](#).

40. Disconnect harness connector from primary speed sensor. Refer to [TM-208. "Removal and Installation"](#).

41. Remove PNP switch from transaxle assembly.

42. Remove harness connector from transaxle assembly.

43. Remove starter motor. Refer to [STR-21. "Removal and Installation"](#).

44. Remove drive plate inspection cover from engine.

45. Hold drive plate with suitable tool and remove torque converter nuts.

46. Remove transaxle to engine mount bolts.

INSTALLATION

Installation is in the reverse order of removal.

NOTE:

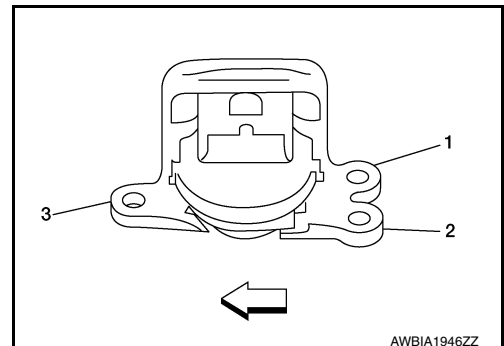
- Tighten the transmission bolts to specification. Refer to [TM-220. "Exploded View"](#).
- Do not allow oil to get on mounting insulators. Be careful not to damage mounting insulators.

1. Install the engine mount insulator (RH) as follows:

a. Temporarily tighten the bolts.

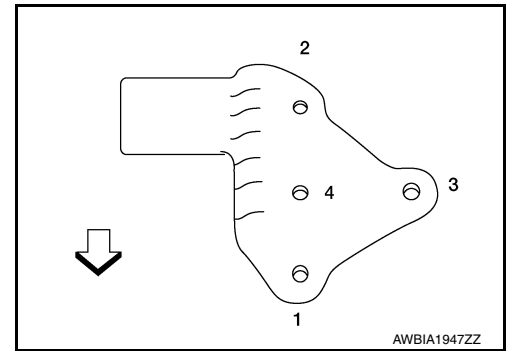
b. Tighten the bolts in sequence as shown to the specified torque.

← : Front



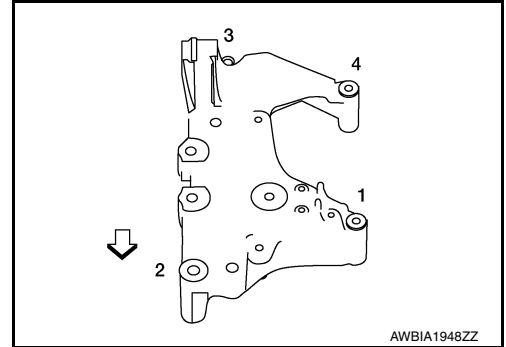
ENGINE ASSEMBLY

< UNIT REMOVAL AND INSTALLATION >

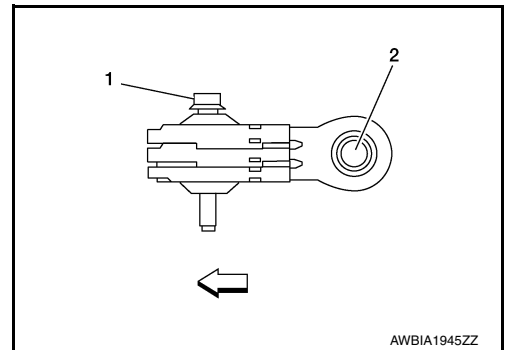


2. Install the engine mounting bracket (RH).
 - a. Temporarily tighten the bolts.
 - b. Tighten the bolts in sequence as shown to the specified torque.

⇐ : Front

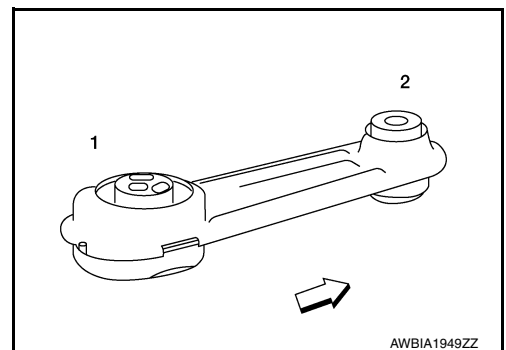


3. Install the upper torque rod (RH) as follows:
 - a. Temporarily tighten bolts.
 - b. Tighten the bolts in sequence as shown to the specified torque.



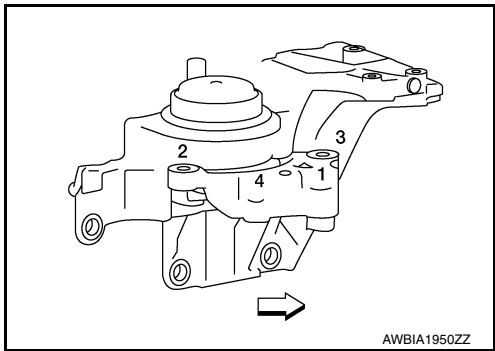
4. Install the lower torque rod bolts as follows:
 - a. Temporarily tighten the bolts.
 - b. Tighten the bolts in sequence as shown to the specified torque.

⇐ : Front



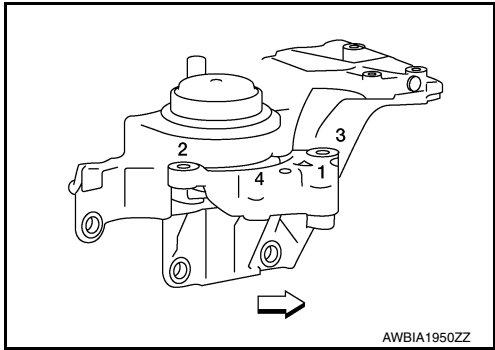
ENGINE ASSEMBLY

< UNIT REMOVAL AND INSTALLATION >



5. Install the lower torque rod bracket bolts as follows:
- Temporarily tighten the bolts.
 - Tighten the bolts in sequence as shown to the specified torque.

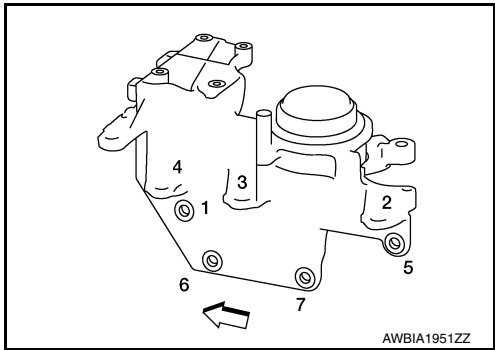
← : Front



Inspection

INSPECTION AFTER INSTALLATION

INFOID:0000000010325905



- Before starting engine, check oil/fluid levels including engine coolant and engine oil. If less than required quantity, fill to the specified level. Refer to [MA-11. "Fluids and Lubricants"](#) (United States and Canada).
- Use procedure below to check for fuel leaks.
- Turn ignition switch ON (with engine stopped). With fuel pressure applied to fuel piping, check for fuel leaks at connection points.
- Start engine. With engine speed increased, check again for fuel leaks at connection points.
- Run engine to check for unusual noise and vibration.

NOTE:

- If hydraulic pressure inside timing chain tensioner drops after removal and installation, slack in the guide may generate a pounding noise during and just after engine start. However, this is normal. Noise will stop after hydraulic pressure rises.
- Warm up engine thoroughly to make sure there are no leaks of fuel, exhaust gas, or any oils/fluids including engine oil and engine coolant.
 - Bleed air from passages in lines and hoses, such as in cooling system.
 - After cooling down engine, again check oil/fluid levels including engine oil and engine coolant. Refill to specified level, if necessary.
 - Summary of the inspection items:

Items	Before starting engine	Engine running	After engine stopped
Engine coolant	Level	Leakage	Level
Engine oil	Level	Leakage	Level

ENGINE ASSEMBLY

< UNIT REMOVAL AND INSTALLATION >

Transmission / transaxle fluid	AT & CVT Models	Leakage	Level / Leakage	Leakage
Other oils and fluids*		Level	Leakage	Level
Fuel		Leakage	Leakage	Leakage
Exhaust gases		—	Leakage	—

*: Power steering fluid, brake fluid, etc.

ENGINE STAND SETTING

< UNIT DISASSEMBLY AND ASSEMBLY >

UNIT DISASSEMBLY AND ASSEMBLY

ENGINE STAND SETTING

Setting

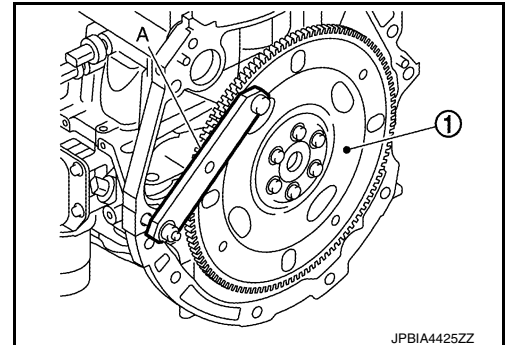
INFOID:000000009798962

EM

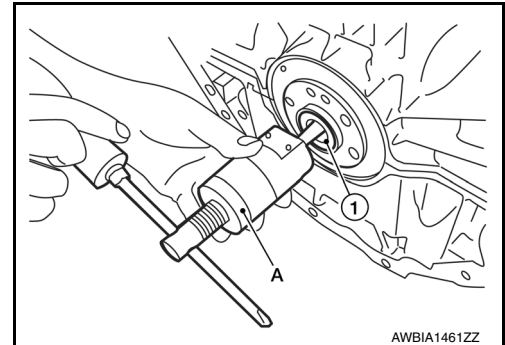
NOTE:

Explained here is how to disassemble with engine stand supporting transaxle surface. When using a different type of engine stand, note difference in steps, etc.

1. Remove engine and transaxle assembly from vehicle, and separate transaxle from engine. Refer to [EM-81, "Exploded View"](#).
2. Install engine to engine stand with the following procedure:
 - a. Remove drive plate.
 - Secure drive plate (1) using suitable tool (A) and remove bolts using suitable tool.



- b. Remove pilot converter (1) from the rear end of the crankshaft. Use suitable tool (A), if necessary.



- c. Lift the engine with a hoist to install it onto widely used engine stand.

CAUTION:

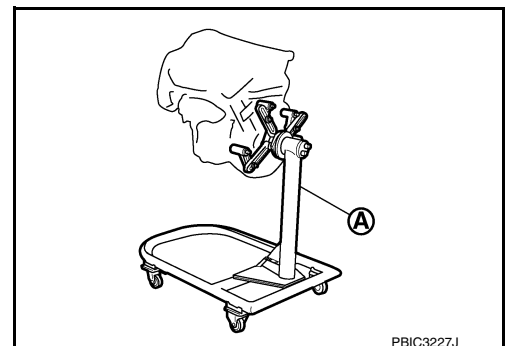
- Use the engine stand that has a load capacity [approximately 135 kg (298 lb) or more] large enough for supporting the engine weight.
- If the load capacity of stand is not adequate, remove the following parts beforehand to reduce the potential risk of overturning stand.
 - Intake manifold: Refer to [EM-26, "Removal and Installation"](#).
 - Exhaust manifold: Refer to [EM-29, "Removal and Installation"](#).
 - Rocker cover: Refer to [EM-37, "Removal and Installation"](#).

NOTE:

The figure shows an example of widely used engine stand (A) that can support mating surface of transaxle with drive plate removed.

CAUTION:

Before removing the hanging chains, check the engine stand is stable and there is no risk of overturning.



CYLINDER BLOCK

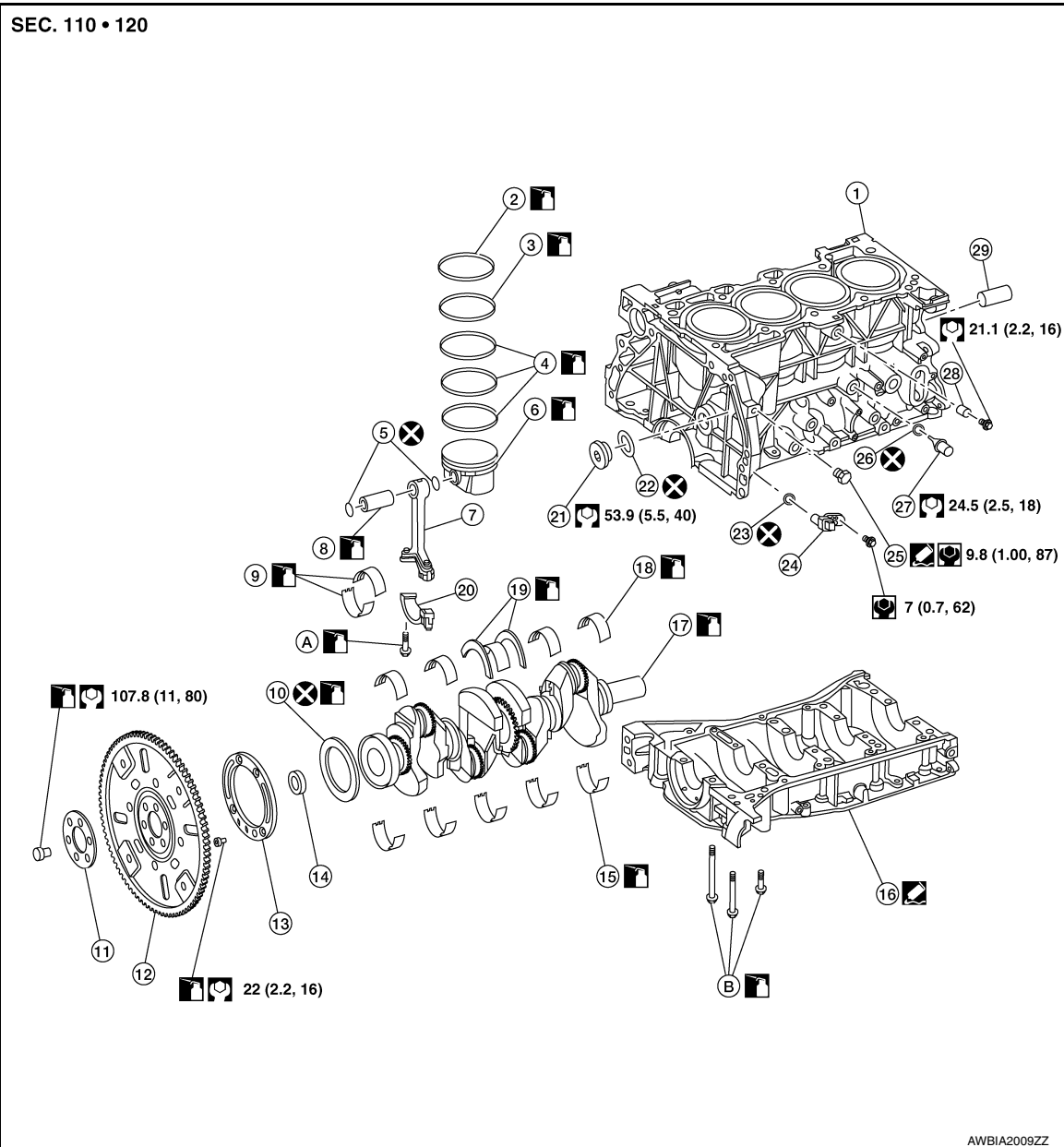
< UNIT DISASSEMBLY AND ASSEMBLY >

CYLINDER BLOCK

Exploded View

INFOID:000000009798972

SEC. 110 • 120



AWBIA2009ZZ

- | | | |
|--------------------------|---|--------------------------------|
| 1. Cylinder block | 2. Top ring | 3. Second ring |
| 4. Oil ring | 5. Snap ring | 6. Piston |
| 7. Connecting rod | 8. Piston pin | 9. Connecting rod bearing |
| 10. Rear oil seal | 11. Reinforcement plate | 12. Drive plate |
| 13. Signal plate | 14. Pilot converter | 15. Main bearing (lower) |
| 16. Lower cylinder block | 17. Crankshaft | 18. Main bearing (upper) |
| 19. Thrust bearing | 20. Connecting rod bearing cap | 21. Drain plug |
| 22. O ring | 23. O ring | 24. Crankshaft position sensor |
| 25. Drain plug | 26. O ring | 27. Oil temperature sensor |
| 28. Knock sensor | 29. Cylinder block heater (if equipped) | A. Refer to INSTALLATION |
| B. Refer to INSTALLATION | | |

CYLINDER BLOCK

< UNIT DISASSEMBLY AND ASSEMBLY >

Disassembly and Assembly

INFOID:000000009798973

DISASSEMBLY

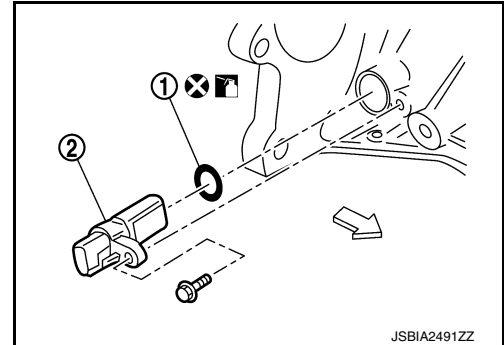
1. Mount the engine on a suitable engine stand. Refer to [EM-91, "Setting"](#).
2. Drain any remaining engine oil and engine coolant, (if necessary).
3. Remove drain plugs from cylinder block.
4. Remove cylinder block heater (if equipped).
5. Remove cylinder head. Refer to [EM-54, "Exploded View"](#).
6. Remove knock sensor.
- CAUTION:**
Carefully handle knock sensor avoiding shocks.
7. Remove crankshaft position sensor (POS) (2).

(1) : O-ring

⇐ : Engine front

CAUTION:

- Avoid impacts such as dropping.
- Do not disassemble.
- Keep crankshaft position sensor (POS) away from metal particles.
- Do not place crankshaft position sensor (POS) in a location where it is exposed to magnetism.



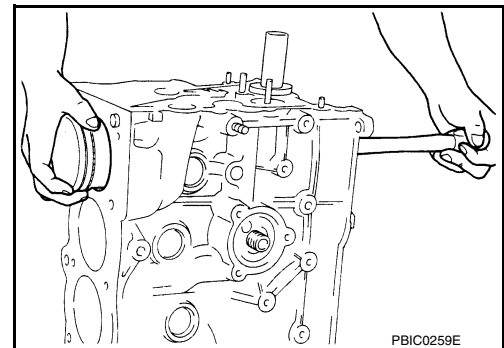
8. Remove oil temperature sensor.
- CAUTION:**
Do not reuse O-ring.
9. Remove piston and connecting rod assembly with the following procedure:
 - Before removing piston and connecting rod assembly, check the connecting rod side clearance. Refer to [EM-100, "Inspection"](#).
- a. Position crankshaft pin corresponding to connecting rod to be removed onto the bottom dead center.
- b. Remove connecting rod cap. Number connecting rod caps so they can be assembled in the same position and direction.
- c. Using a hammer handle or similar tool, push piston and connecting rod assembly out to cylinder head side.

CAUTION:

- Do not damage matching surface with connecting rod cap.
- Do not damage cylinder wall and crankshaft pin, resulting from an interference of the connecting rod big end.

NOTE:

Number the pistons and rods so they can be installed in the same position.



10. Remove connecting rod bearings.
- CAUTION:**
When removing them note the installation position. Keep them in the correct order.
11. Remove piston rings from piston.
 - Before removing piston rings check the piston ring side clearance. Refer to [EM-100, "Inspection"](#).

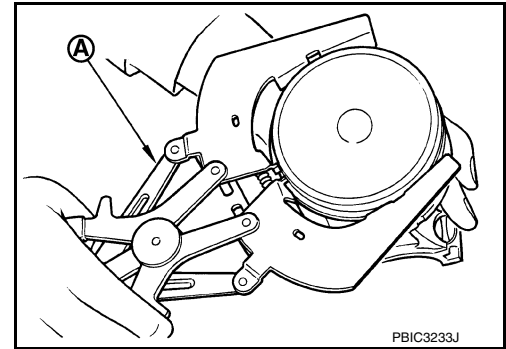
CYLINDER BLOCK

< UNIT DISASSEMBLY AND ASSEMBLY >

- Remove piston rings using suitable tool (A).

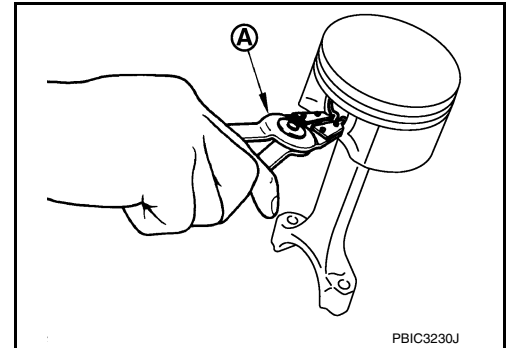
CAUTION:

- When removing piston rings, be careful not to damage the piston.
- Do not damage piston rings by expanding them excessively.

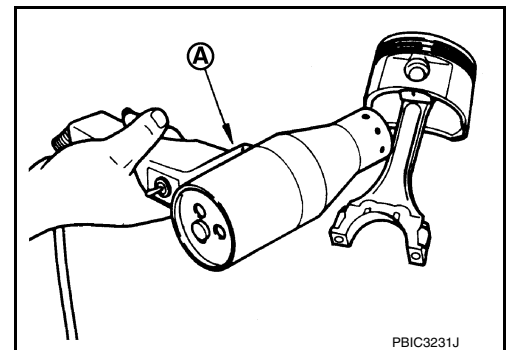


12. Remove piston from connecting rod using the following procedure:

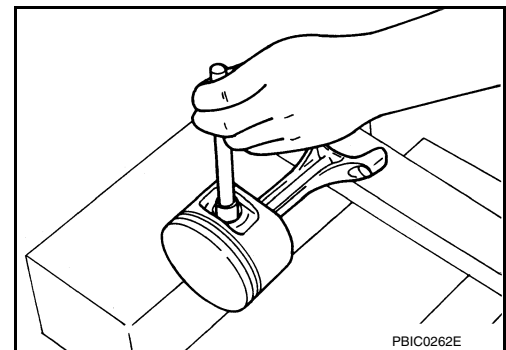
- a. Remove snap rings using snap ring pliers (A).



- b. Heat piston to 60°C to 70°C (140°F to 158°F) with a heat gun (A).



- c. Push out piston pin using a suitable tool.



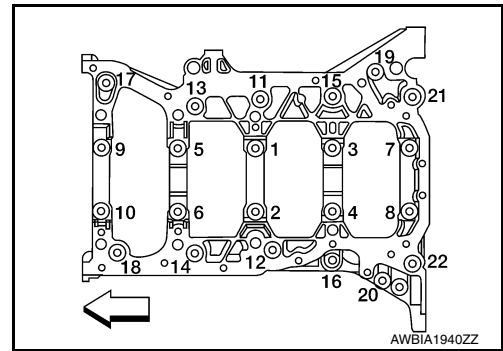
13. Remove lower cylinder block using the following procedure:

- Measure crankshaft end play before loosening lower cylinder block bolts. Refer to [EM-100, "Inspection"](#).

CYLINDER BLOCK

< UNIT DISASSEMBLY AND ASSEMBLY >

- a. Loosen and remove lower cylinder block bolts in reverse order as shown.



- b. Remove the lower cylinder block using Tool (A).

CAUTION:

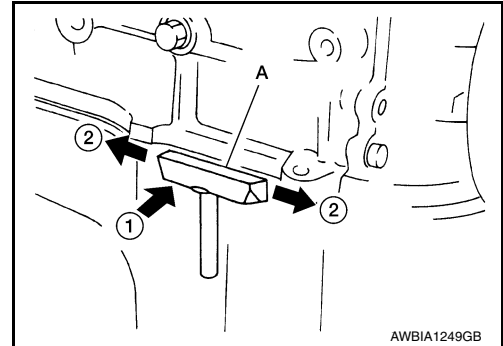
Be careful not to damage the mating surfaces.

NOTE:

In areas where the cutter is difficult to use, use a plastic hammer to lightly tap (1) the cutter where the liquid gasket is applied. Use a plastic hammer to slide (2) the cutter by tapping on the side.

Tool number : KV10111100 (J-37228)

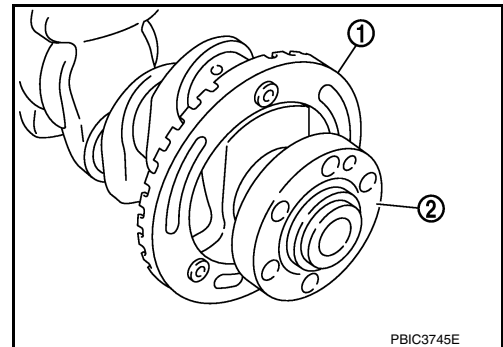
- c. Remove the lower cylinder block while tapping lightly with a plastic hammer.



14. Remove crankshaft (2).

CAUTION:

- Do not damage or deform signal plate (1) mounted on crankshaft.
- When setting crankshaft on a flat floor surface, use a block of wood to avoid contact between signal plate and floor surface.
- Do not remove signal plate unless it is necessary.



15. Remove rear oil seal from rear end of crankshaft.

CAUTION:

Do not damage the crankshaft or cylinder block when removing the rear main seal.

16. Remove main bearing (upper and lower) and thrust bearings from cylinder block and lower cylinder block.

CAUTION:

When removing bearings note the installation position. Keep them in the correct order.

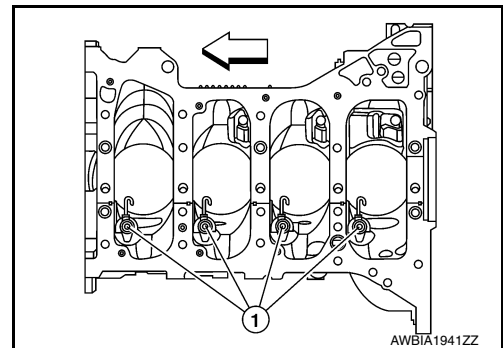
NOTE:

When removing the rear oil seal without removing the cylinder block, use a suitable tool to pull it out between the crankshaft and block.

17. Remove oil jets (1) from cylinder block.

CAUTION:

When removing oil jet assemblies note the installation position. Keep them in the correct order.



ASSEMBLY

CYLINDER BLOCK

< UNIT DISASSEMBLY AND ASSEMBLY >

1. Fully air-blow engine coolant and engine oil passages in cylinder block, cylinder bore and crankcase to remove any foreign material.

CAUTION:

Use goggles to protect your eyes.

2. Install drain plugs to cylinder block as shown.

CAUTION:

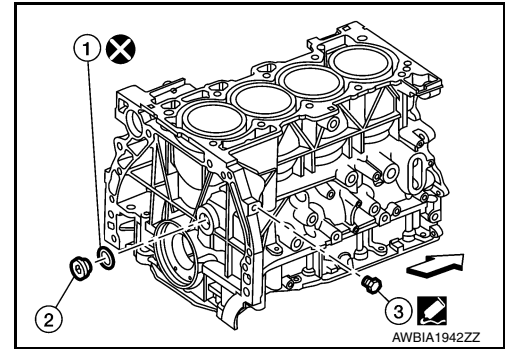
Do not reuse washer (1).

- Apply liquid gasket to the threads of drain plug (3).

Use Genuine RTV Silicone Sealant or equivalent. Refer to [GI-22, "Recommended Chemical Products and Sealants"](#).

NOTE:

Do not apply liquid gasket to the thread of plug (2).

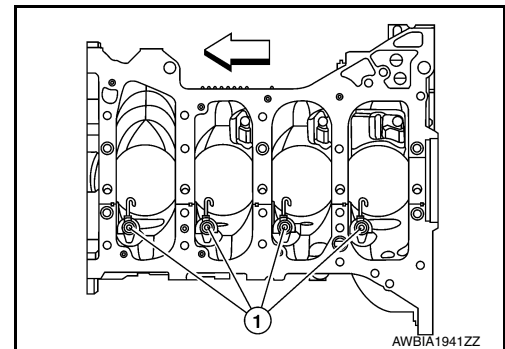


- Tighten each plug as specified below.

Part	Washer	Tightening torque
2	Yes	53.9 N·m (5.5 kg-m, 40 ft-lb)
3	No	9.8 N·m (1.00 kg-m, 17 in-lb)

3. Install oil jets (1).

Oil jets (1) : 23 N·m (2.3 kg-m, 17 ft-lb)

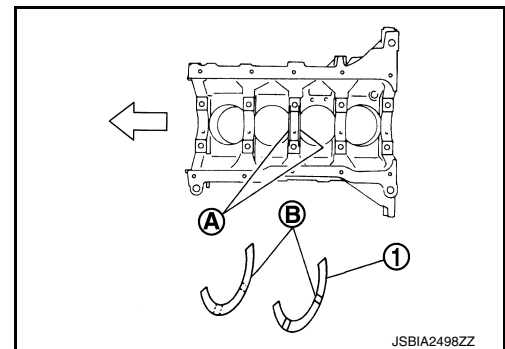


4. Install main bearings and thrust bearings using following procedure:

- a. Remove dust, dirt, and engine oil on the bearing mating surfaces of cylinder block and lower cylinder block.

- b. Install thrust bearings (1) to both sides of the No. 3 journal (A) housing on cylinder block.

- Install thrust bearings with the oil groove (B) facing crankshaft arm (outside).



- c. Install the main bearings paying attention to the direction.

- Main bearing with an oil hole and groove (E) goes on cylinder block. The one without them (C) goes on lower cylinder block.

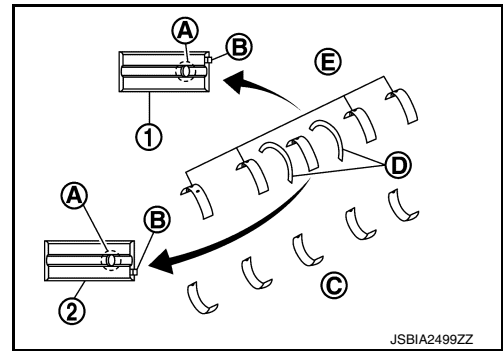
CYLINDER BLOCK

< UNIT DISASSEMBLY AND ASSEMBLY >

- Only main bearing (on cylinder block) for No. 3 journal (2) has different specifications.

- (1) : Journal other than no. 3
(D) : Thrust bearings

- Before installing main bearings, apply new engine oil to the bearing surface (inside). Do not apply engine oil to the back surface, but thoroughly clean it.
- When installing, align main bearing stopper (B) to the notch.
- Ensure the oil holes (A) on cylinder block and those on the corresponding bearing are aligned.



5. Install signal plate to crankshaft (if removed).

- a. Set the signal plate with flange facing toward the counterweight side (engine front side).
b. After positioning crankshaft (2) and signal plate (1) with positioning dowl pin (A), tighten bolts.

- (1) : Signal plate
(2) : Crankshaft
(A) : Dowel pin (used to position the signal plate)

- c. Remove dowel pin.

CAUTION:

Be sure to remove dowel pin.

6. Install crankshaft to cylinder block.

- While turning crankshaft by hand, check that it turns smoothly.

CAUTION:

Do not install rear oil seal yet.

7. Install lower cylinder block with the following procedure:

- a. Apply liquid gasket with a suitable tool to lower cylinder block.

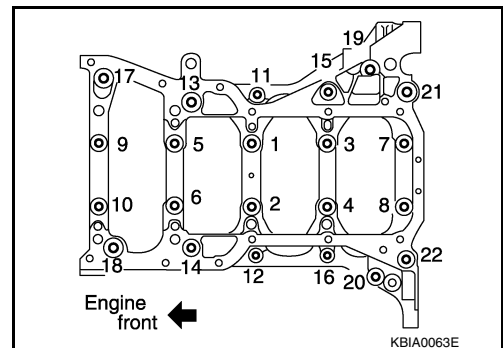
Use Genuine RTV Silicone Sealant or equivalent. Refer to [GI-22, "Recommended Chemical Products and Sealants"](#).

- (B) : Apply liquid gasket to an end
(a) : 4.0 - 5.0 mm (0.157 - 0.197 in)

NOTE:

Lower cylinder block cannot be replaced as a single part because it is machined together with cylinder block.

- b. Apply new engine oil to threads and seat surfaces of the bolts.
c. Tighten lower cylinder block bolts to specification in the numerical order as shown.



CYLINDER BLOCK

< UNIT DISASSEMBLY AND ASSEMBLY >

- d. Tighten bolts to specification using suitable tool and Tool (A).

CAUTION:

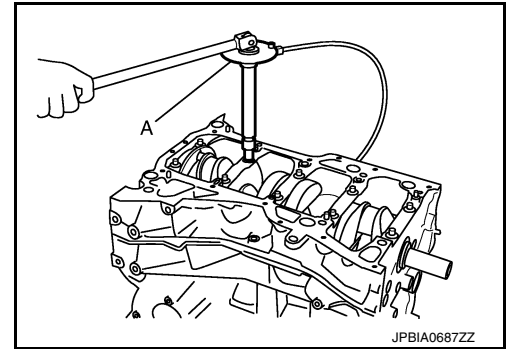
Check tightening angle. Do not judge angle by visual inspection.

Step 1, bolts 11 - 22 only : 25.1 N·m (2.6 kg-m, 19 ft-lb)

Step 2, bolts 1 - 10 only : 39.2 N·m (4.0 kg-m, 29 ft-lb)

Step 3, bolts 1 - 10 only : 60°degrees rotation

Tool number (A) : KV10112100 (BT-8653-A)



- e. Install rear oil seal. Refer to [EM-79, "REAR OIL SEAL : Removal and Installation"](#).

- After installing bolts, check that crankshaft can be rotated smoothly by hand.
- Wipe off completely any protruding liquid gasket on front side of engine.
- Check crankshaft end play. Refer to [EM-100, "Inspection"](#).

8. Install piston to connecting rod with the following procedure:

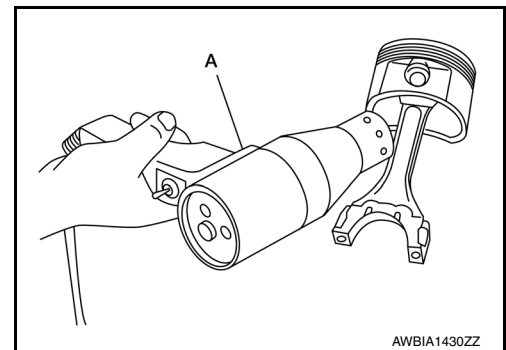
- a. Install new snap ring to the groove of the piston rear side using snap ring pliers.
- Insert it fully into groove to install.

CAUTION:

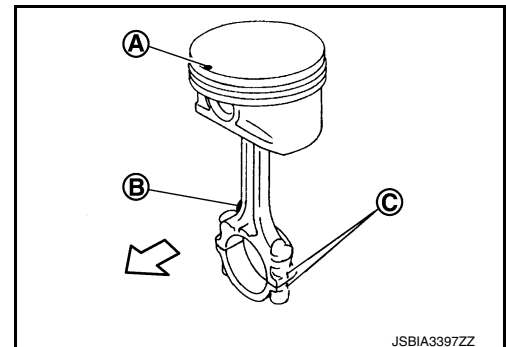
Do not reuse snap rings.

- b. Assemble piston to connecting rod.

- Using a heat gun, heat piston until piston pin can be pushed in by hand without excess force [approximately 60°C to 70°C (140°F to 158°F)]. From the front to the rear, insert piston pin into piston and connecting rod.



- Set so that the front mark (A) on the piston head, the oil splash (B) and the cylinder number (C) on connecting rod are positioned as shown.



- c. Install new snap ring to the groove of the piston front side.
- Insert it fully into groove to install.
 - After installing, check that connecting rod moves smoothly.

CYLINDER BLOCK

< UNIT DISASSEMBLY AND ASSEMBLY >

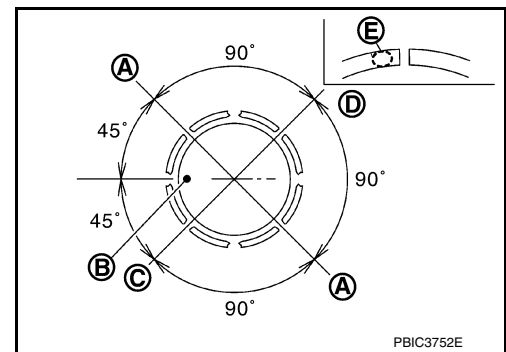
9. Install piston rings using suitable tool.
- Position each ring with the gap as shown referring to the piston front mark (B).

- (A) : Oil ring upper or lower rail gap (either of them)
 (C) : Second ring and oil ring spacer gap
 (D) : Top ring gap

- Install second ring with the stamped surface (E) facing upward.

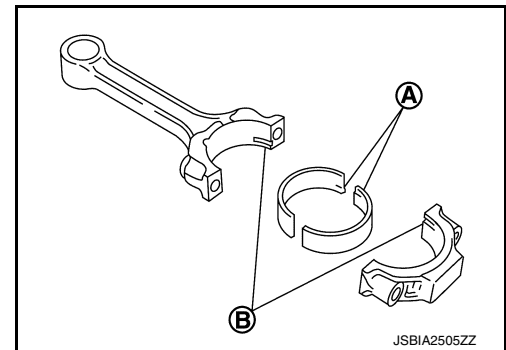
CAUTION:

- Do not damage piston.**
- Do not damage piston rings by expanding them excessively.**
- Do not contact rail end gap under oil ring with oil drain cast groove of piston.**



10. Install connecting rod bearings to connecting rod and connecting rod cap.

- When installing connecting rod bearings apply new engine oil to the bearing surface (inside). Do not apply engine oil to the back surface, but thoroughly clean it.
- When installing, align the connecting rod bearing stopper protrusion (A) with the cutout (B) of connecting rod and connecting rod cap to install.
- Ensure the oil hole on connecting rod and that on the corresponding bearing are aligned.

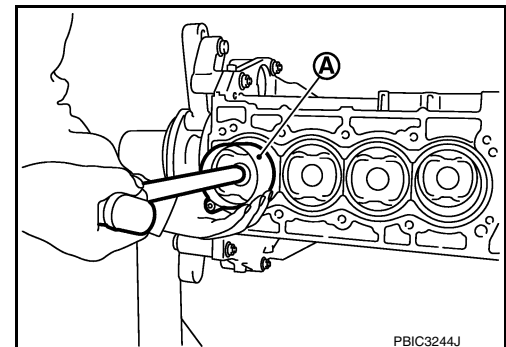


11. Install piston and connecting rod assembly to crankshaft.

- Position crankshaft pin corresponding to connecting rod to be installed onto the bottom dead center.
- Apply new engine oil sufficiently to the cylinder bore, piston and crankshaft pin.
- Match the cylinder position with the cylinder number on connecting rod to install.
- Using a suitable tool, install piston with the front mark on the piston head facing the front of the engine.

CAUTION:

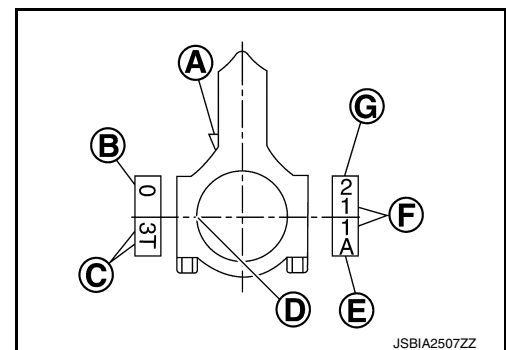
Be careful not to damage the cylinder wall and crankshaft pin, resulting from an interference of the connecting rod big end.



12. Install connecting rod cap.

- Match the stamped cylinder number marks on connecting rod with those on connecting rod cap to install.

- (A) : Oil splash
 (B) : Small end diameter grade
 (C) : Production control number
 (D) : Bearing stopper groove
 (E) : Production control number
 (F) : Cylinder number
 (G) : Big end diameter grade



13. Tighten connecting rod bolt with the following procedure:

CYLINDER BLOCK

< UNIT DISASSEMBLY AND ASSEMBLY >

- a. Tighten the connecting rod bolts using Tool (A) as follows:
Apply engine oil to the threads and seats of the connecting rod bolts.

CAUTION:

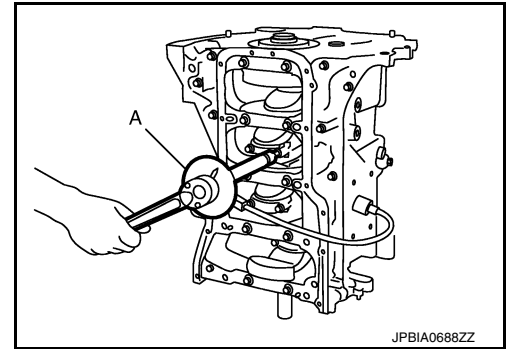
Check tightening angle. Do not judge angle by visual inspection.

Step 1 : 27.4 N·m (2.8 kg-m, 20 ft-lb)

Step 2 : 0 N·m

Step 3 : 19.6 N·m (2.0 kg-m, 14 lb-ft)

Step 4 : Rotate bolts 90° + 0.5°



Tool number : KV10112100 (BT-8653-A)

- After tightening connecting rod bolts, check that crankshaft rotates smoothly.
- Check the connecting rod side clearance. Refer to [EM-100, "Inspection"](#).

14. Install knock sensor (1).

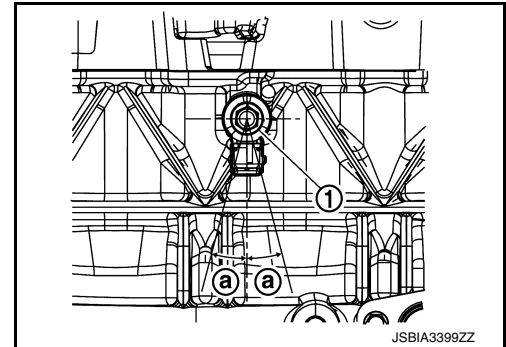
- Install knock sensor with connector facing 180° +/- 15° (a) as shown.

CAUTION:

- **Do not tighten bolts while holding connector.**
- **If any impact by dropping is applied to knock sensor, replace it with a new one.**

NOTE:

- Check that there is no foreign material on the cylinder block mating surface and the back surface of knock sensor.
- Check that knock sensor does not interfere with other parts.



15. Install crankshaft position sensor (POS).

16. Assembly of remaining components is in the reverse order of disassembly.

Inspection

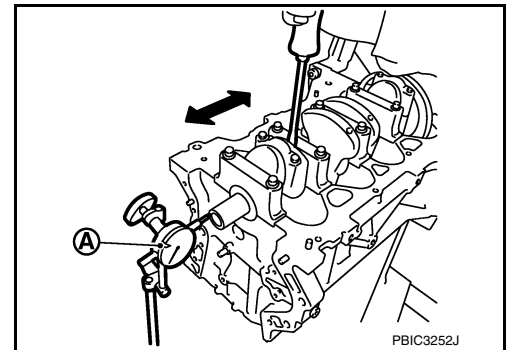
INFOID:000000009798974

CRANKSHAFT END PLAY

- Measure clearance between thrust bearings and crankshaft arm when crankshaft is moved fully forward or backward using suitable tool (A).

Standard and Limit : Refer to [EM-120, "Cylinder Block"](#).

- If measured value exceeds limit replace thrust bearings and measure again. If it still exceeds limit replace crankshaft.

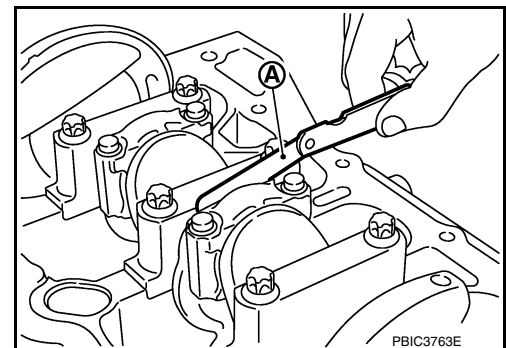


CONNECTING ROD SIDE CLEARANCE

- Measure side clearance between connecting rod and crankshaft arm using suitable tool (A).

Standard and Limit : Refer to [EM-120, "Cylinder Block"](#).

- If measured value exceeds limit replace connecting rod and measure again. If it still exceeds limit replace crankshaft.



CYLINDER BLOCK

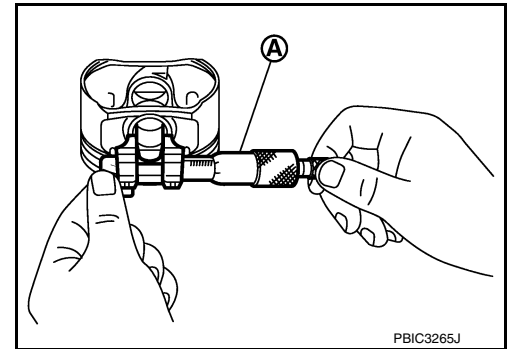
< UNIT DISASSEMBLY AND ASSEMBLY >

PISTON TO PISTON PIN OIL CLEARANCE

Piston Pin Hole Diameter

- Measure inner diameter of piston pin hole using suitable tool (A).

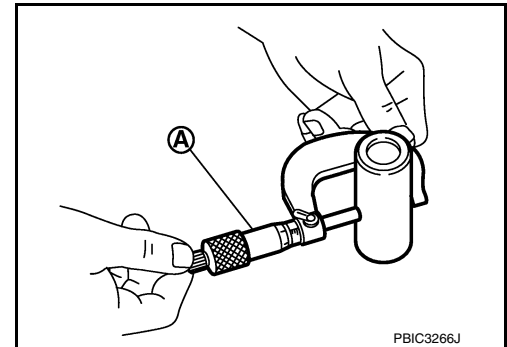
Standard : Refer to [EM-120, "Cylinder Block"](#).



Piston Pin Outer Diameter

- Measure outer diameter of piston pin using suitable tool (A).

Standard : Refer to [EM-120, "Cylinder Block"](#).



Piston to Piston Pin Oil Clearance

- $(\text{Piston to piston pin oil clearance}) = (\text{Piston pin hole diameter}) - (\text{Piston pin outer diameter})$

Standard : Refer to [EM-120, "Cylinder Block"](#).

- If oil clearance value exceeds the limit replace piston and piston pin assembly.

NOTE:

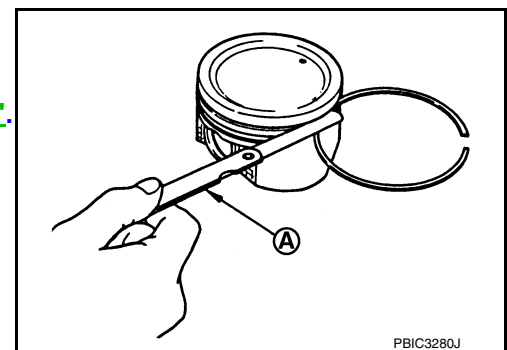
Piston is available together with piston pin as assembly.

PISTON RING SIDE CLEARANCE

- Measure side clearance of piston ring and piston ring groove using suitable tool (A).

Standard and Limit : Refer to [EM-120, "Cylinder Block"](#).

- If measured value exceeds limit replace piston ring and measure again. If value still exceeds the limit replace piston.



CONNECTING ROD BEND AND TORSION

CYLINDER BLOCK

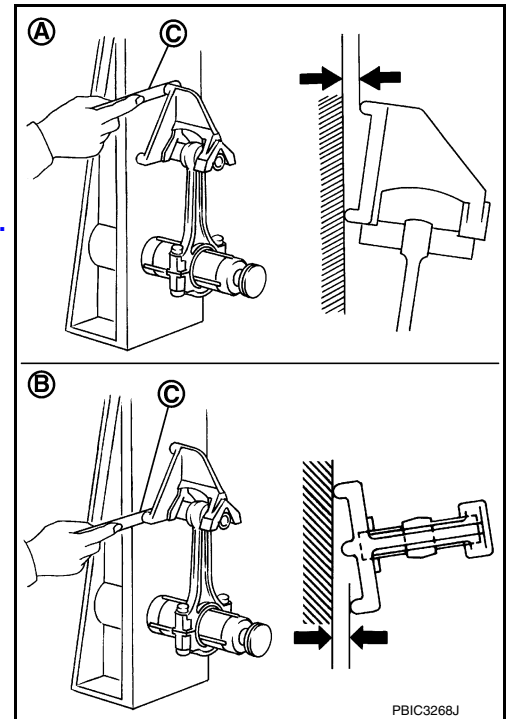
< UNIT DISASSEMBLY AND ASSEMBLY >

- Check with a connecting rod aligner.

- (A) : Bend
(B) : Torsion
(C) : Feeler gauge

Limit : Refer to [EM-120, "Cylinder Block"](#).

- If measured value exceeds limit replace connecting rod assembly.



CONNECTING ROD BIG END DIAMETER

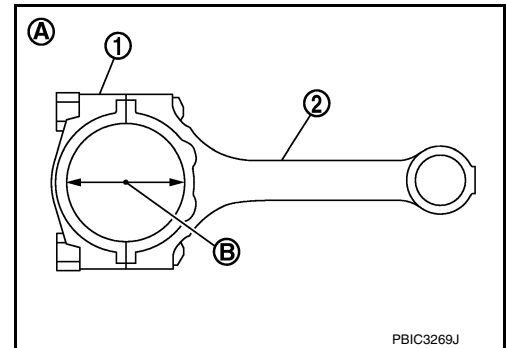
- Install connecting rod cap (1) without connecting rod bearing installed and tighten connecting rod bolts. Refer to [EM-93, "Disassembly and Assembly"](#).

- (2) : Connecting rod
(A) : Example
(B) : Measuring direction of inner diameter

- Measure inner diameter of connecting rod big end using suitable tool.

Standard : Refer to [EM-120, "Cylinder Block"](#).

- If measured value exceeds standard replace connecting rod assembly.

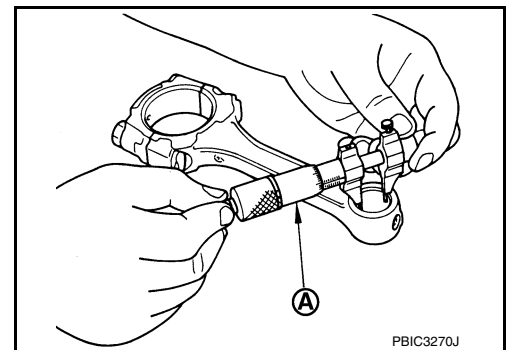


CONNECTING ROD BUSHING OIL CLEARANCE

Connecting Rod Bushing Inner Diameter

- Measure inner diameter of connecting rod bushing using suitable tool (A).

Standard : Refer to [EM-120, "Cylinder Block"](#).



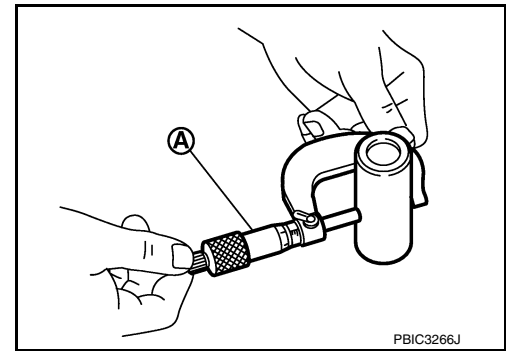
Piston Pin Outer Diameter

CYLINDER BLOCK

< UNIT DISASSEMBLY AND ASSEMBLY >

- Measure outer diameter of piston pin using suitable tool (A).

Standard : Refer to [EM-120, "Cylinder Block"](#).



Connecting Rod Bushing Oil Clearance

- (Connecting rod bushing oil clearance) = (Connecting rod bushing inner diameter) - (Piston pin outer diameter)

Standard : Refer to [EM-120, "Cylinder Block"](#).

- If measured value exceeds standard replace connecting rod assembly and/or piston and piston pin assembly.

CYLINDER BLOCK TOP SURFACE DISTORTION

- Remove gasket on the cylinder block surface and also remove engine oil, scale, carbon and other contamination using suitable tool.

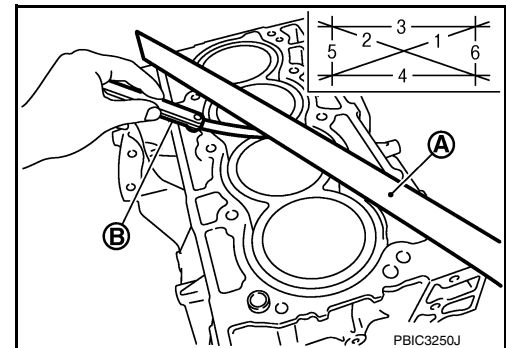
CAUTION:

Do not allow gasket flakes to enter engine oil or engine coolant passages.

- Measure distortion on cylinder block upper face at some different points in six directions using suitable tools (A/B).

Limit : Refer to [EM-120, "Cylinder Block"](#).

- If measured value exceeds standard replace cylinder block.



MAIN BEARING HOUSING INNER DIAMETER

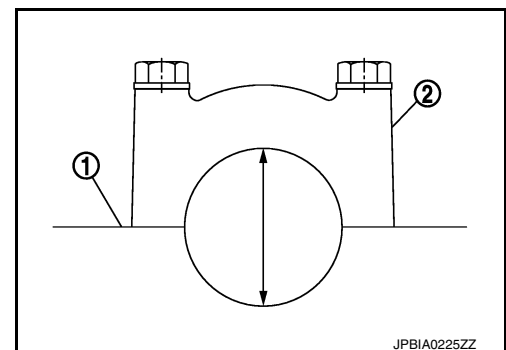
- Install lower cylinder block without main bearings installed and tighten lower cylinder block bolts. Refer to [EM-93, "Disassembly and Assembly"](#).
- Measure inner diameter of main bearing housing using suitable tool.

Standard : Refer to [EM-120, "Cylinder Block"](#).

- If measured value exceeds standard replace cylinder block (1) and lower cylinder block (2) assembly.

NOTE:

Lower cylinder block cannot be replaced as a single unit because it is machined together with cylinder block.



PISTON TO CYLINDER BORE CLEARANCE

Cylinder Bore Inner Diameter

- Measure cylinder bore for wear, out-of-round and taper at six different points on each cylinder using suitable tool. [(A) and (B) directions at (C), (D), and (E)] [(A) is in longitudinal direction of engine]

CYLINDER BLOCK

< UNIT DISASSEMBLY AND ASSEMBLY >

- (f) : 10 mm (0.39 in)
- (g) : 75 mm (2.95 in)
- (h) : 140 mm (5.51 in)

NOTE:

When determining cylinder bore grade, measure the cylinder bore at (B) position.

Standard:

Cylinder bore inner diameter

: Refer to [EM-120, "Cylinder Block"](#).

Limit:

Out-of-round [Difference between (A) and (B)]

Taper [Difference between (C) and (D)]

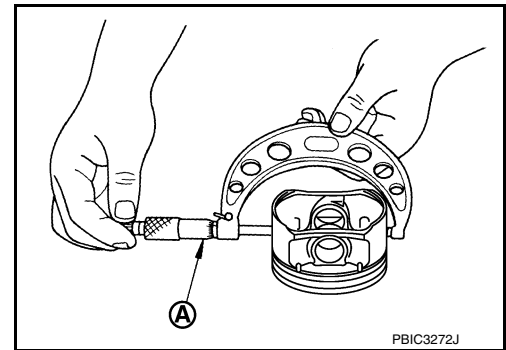
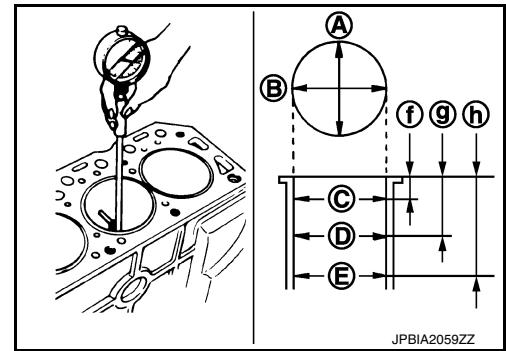
: Refer to [EM-120, "Cylinder Block"](#).

- If measured value exceeds limit or if there are scratches and/or seizure on the cylinder inner wall hone or re-bore the cylinder inner wall.

Piston Skirt Diameter

- Measure outer diameter of piston skirt with suitable tool (A).

Standard : Refer to [EM-120, "Cylinder Block"](#).



Piston to Cylinder Bore Clearance

- (Piston to cylinder bore clearance) = (Cylinder bore inner diameter) - (Piston skirt diameter)

Standard and Limit : Refer to [EM-120, "Cylinder Block"](#).

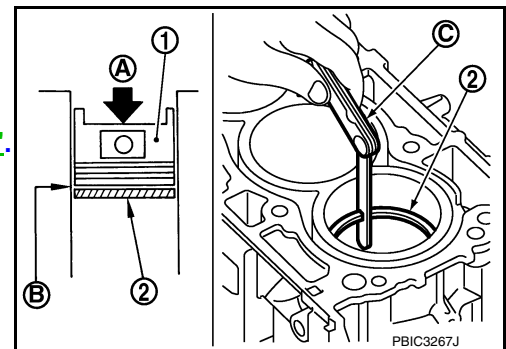
- If measured value exceeds limit replace piston and piston pin assembly..

PISTON RING END GAP

- Check that cylinder bore inner diameter is within standards.
- Lubricate with new engine oil to piston (1) and piston ring (2), and then insert (A) piston ring to middle of cylinder (B) with piston and measure piston ring end gap using suitable tool (C).

Standard and Limit : Refer to [EM-120, "Cylinder Block"](#).

- If measured value exceeds limit replace piston ring and measure again. If it still exceeds the limit replace cylinder block.



CRANKSHAFT MAIN JOURNAL DIAMETER

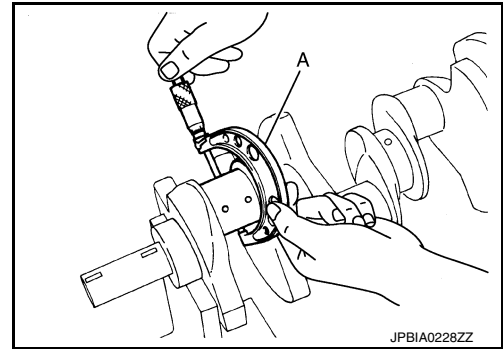
CYLINDER BLOCK

< UNIT DISASSEMBLY AND ASSEMBLY >

- Measure outer diameter of crankshaft main journals using suitable tool (A).

Standard : Refer to [EM-120, "Cylinder Block"](#).

- If measured value exceeds limit measure the main bearing oil clearance and use undersize bearing.



CRANKSHAFT PIN JOURNAL DIAMETER

- Measure outer diameter of crankshaft pin journal using suitable tool.

Standard : Refer to [EM-120, "Cylinder Block"](#).

- If measured value exceeds limit measure connecting rod bearing oil clearance and use undersize bearing.

OUT-OF-ROUND AND TAPER OF CRANKSHAFT

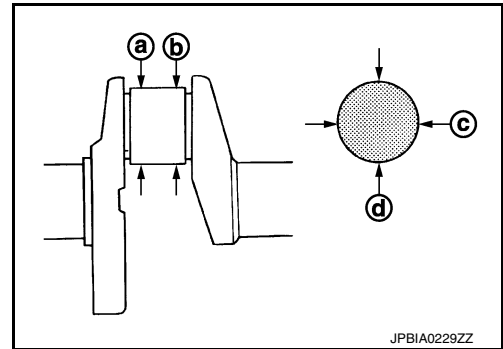
- Measure dimensions at four different points as shown on each main journal and pin journal using suitable tool.
- Out-of-round is indicated by the difference in dimension between (a) and (b) at (c) and (d).
- Taper is indicated by difference in dimension between (c) and (d) at (a) and (b).

Limit:

Out-of-round [Difference between (a) and (b)]

Taper [Difference between (c) and (d)]

: Refer to [EM-120, "Cylinder Block"](#).



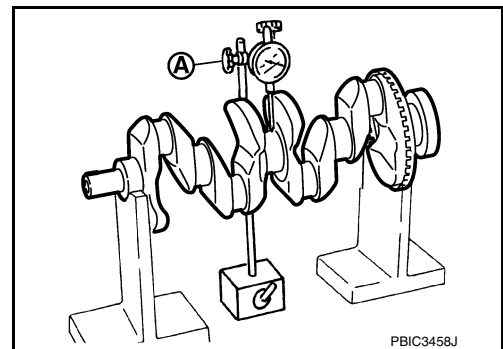
- If measured value exceeds limit correct or replace crankshaft.
- If corrected, measure bearing oil clearance of corrected main journal and/or pin journal. Then select main bearing and/or connecting rod bearing.

CRANKSHAFT RUNOUT

- Place V-block on precise flat table to support the journals on both ends of crankshaft.
- Place suitable tool (A) straight up on No. 3 journal.
- While rotating crankshaft, read movement of pointer on suitable tool. (Total indicator reading)

Limit : Refer to [EM-120, "Cylinder Block"](#).

- If measured value exceeds limit replace crankshaft.



CONNECTING ROD BEARING OIL CLEARANCE

Method by Calculation

CYLINDER BLOCK

< UNIT DISASSEMBLY AND ASSEMBLY >

- Install connecting rod bearings (2) to connecting rod (3) and connecting rod bearings cap (1) and tighten connecting rod bolts. Refer to [EM-93, "Disassembly and Assembly"](#).

(A) : Example

- Measure inner diameter (B) of connecting rod bearing using suitable tool.
- (Bearing oil clearance) = (Connecting rod bearing inner diameter) - (Crankshaft pin journal diameter)

Standard and Limit : Refer to [EM-125, "Connecting Rod Bearing"](#).

- If measured value exceeds limit select proper connecting rod bearing. Use connecting rod big end diameter and crankshaft pin journal diameter to obtain specified bearing oil clearance.

Method by Using Plastigage

- Remove engine oil and dust on crankshaft pin and the surfaces of each bearing completely.
- Cut plastigage slightly shorter than bearing width and place it in crankshaft axial direction avoiding oil holes.
- Install connecting rod bearings to connecting rod and cap and tighten connecting rod bolts. Refer to [EM-93, "Disassembly and Assembly"](#).

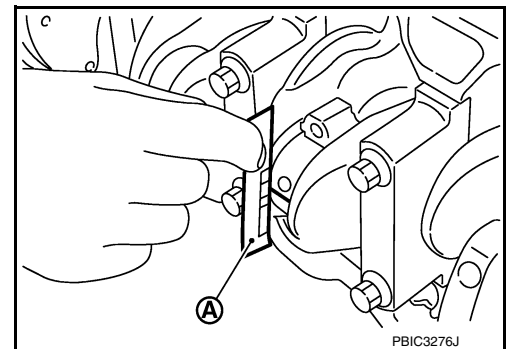
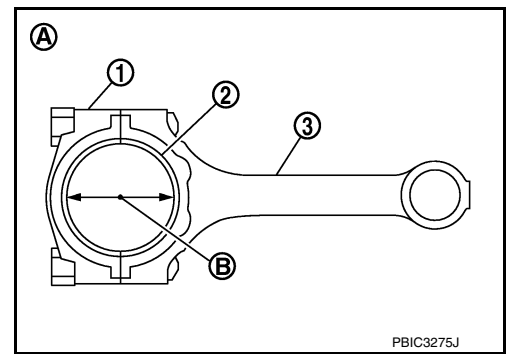
CAUTION:

Do not rotate crankshaft.

- Remove connecting rod cap and bearing and using the scale (A) on the plastigage bag measure the plastigage width.

NOTE:

The procedure when the measured value exceeds the limit is same as that described in the "Method by Calculation".



MAIN BEARING OIL CLEARANCE

Method by Calculation

- Install main bearings (3) to cylinder block (1) and lower cylinder block (2) and tighten lower cylinder block bolts. Refer to [EM-93, "Disassembly and Assembly"](#).

(A) : Example

- Measure the inner diameter (B) of main bearing with bore gauge.
- (Bearing oil clearance) = (Main bearing inner diameter) - (Crankshaft main journal diameter)

Standard and Limit : Refer to [EM-123, "Main Bearing"](#).

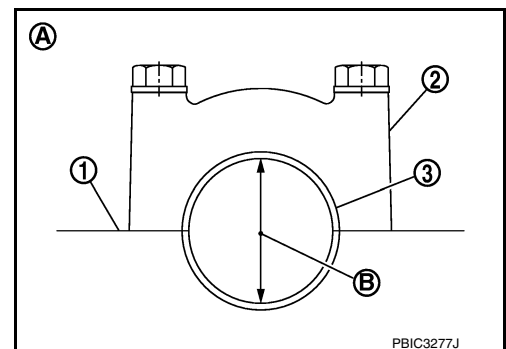
- If measured value exceeds limit select proper main bearing. Use main bearing inner diameter and crankshaft main journal diameter to obtain specified bearing oil clearance. Refer to [EM-93, "Disassembly and Assembly"](#).

Method by Using Plastigage

- Remove engine oil and dust on crankshaft main journal and surfaces of each bearing completely.
- Cut plastigage slightly shorter than bearing width and place it in crankshaft axial direction avoiding oil holes.
- Install main bearings on cylinder block and lower cylinder block and tighten lower cylinder block bolts. Refer to [EM-93, "Disassembly and Assembly"](#).

CAUTION:

Do not rotate crankshaft.



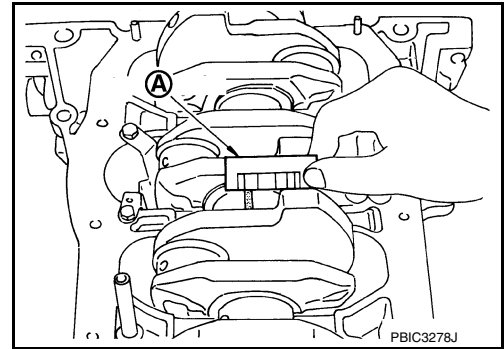
CYLINDER BLOCK

< UNIT DISASSEMBLY AND ASSEMBLY >

- Remove lower cylinder block and bearings and using the scale (A) on the plastigage bag measure the plastigage width.

NOTE:

The procedure when measured value exceeds the limit is same as that described in "Method by Calculation".



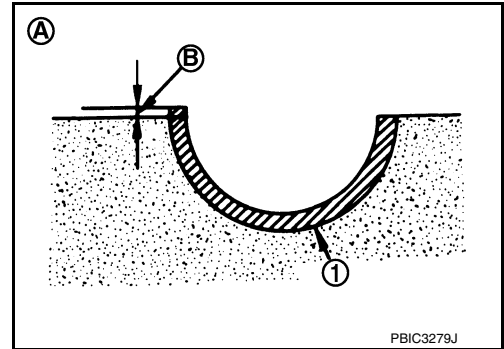
MAIN BEARING CRUSH HEIGHT

- When lower cylinder block is removed after being tightened to specified torque with main bearings (1) installed, tip end of bearing must protrude (B). Refer to [EM-93, "Disassembly and Assembly"](#).

(A) : Example

Standard: There must be crush height.

- If standard is not met, replace main bearings.



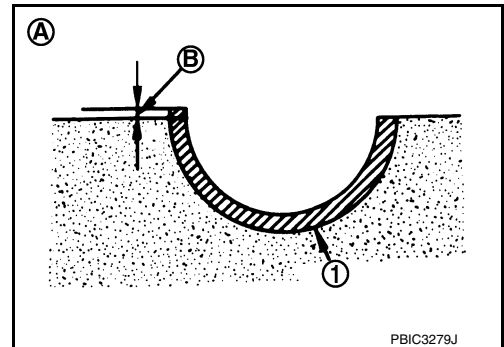
CONNECTING ROD BEARING CRUSH HEIGHT

- When connecting rod bearing cap is removed after being tightened to specified torque with connecting rod bearings (1) installed, tip end of bearing must protrude (B). Refer to [EM-93, "Disassembly and Assembly"](#).

(A) : Example

Standard: There must be crush height.

- If standard is not met, replace connecting rod bearings.

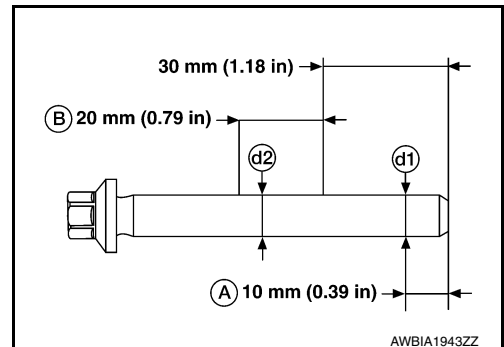


LOWER CYLINDER BLOCK BOLT OUTER DIAMETER

- Measure outer diameters (d1) and (d2) at two positions as shown.
- If reduction appears in (B) range, regard it as (d2).

Limit [(d1) - (d2)]: 0.13 mm (0.0051 in)

- If measured value exceeds limit (a large difference in dimensions) replace lower cylinder block bolt with new one.



CONNECTING ROD BOLT OUTER DIAMETER

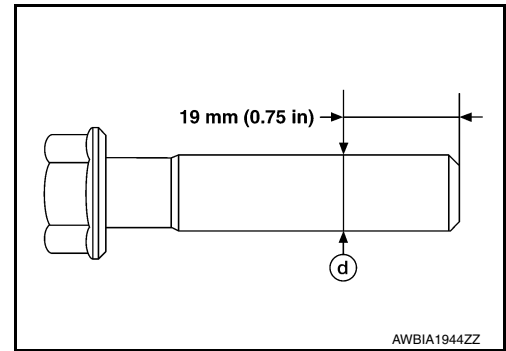
CYLINDER BLOCK

< UNIT DISASSEMBLY AND ASSEMBLY >

- Measure outer diameter (d) at position as shown.
- If reduction appears in position other than (d), regard it as (d).

Limit: 7.75 mm (0.3051 in)

- If measured value exceeds limit (large difference in dimensions) replace connecting rod bolt with new one.



HOW TO SELECT PISTON AND BEARING

< UNIT DISASSEMBLY AND ASSEMBLY >

HOW TO SELECT PISTON AND BEARING

How to Select Piston and Bearing

INFOID:0000000010331177

DESCRIPTION

Selection points	Selection parts	Selection items	Selection methods
Between cylinder block to crankshaft	Main bearing	Main bearing grade (bearing thickness)	Determined by match of cylinder block bearing housing grade (inner diameter of housing) and crankshaft journal grade (outer diameter of journal)
Between crankshaft to connecting rod	Connecting rod bearing	Connecting rod bearing grade (bearing thickness)	Combining service grades for connecting rod big end inner diameter and crankshaft pin outer diameter determine connecting rod bearing selection
Between cylinder block to piston	Piston and piston pin assembly (The piston is available together with piston pin as an assembly)	Piston grade (piston outer diameter)	Piston grade = cylinder bore grade (inner diameter of bore)
*Between piston to connecting rod	—	—	—

*For the service parts, the grade for fitting cannot be selected between a piston pin and a connecting rod. (Only 0 grade is available.) The information at the shipment from the plant is described as a reference.

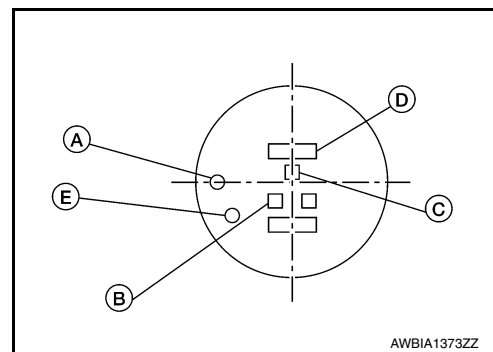
- The identification grade stamped on each part is the grade for the dimension measured in new condition. This grade cannot apply to reused parts.
- For reused or repaired parts, measure the dimension accurately. Determine the grade by comparing the measurement with the values of each selection table.
- For details of the measurement method of each part, the reuse standards, and the selection method of the selective fitting parts, follow the applicable procedures.

HOW TO SELECT A PISTON

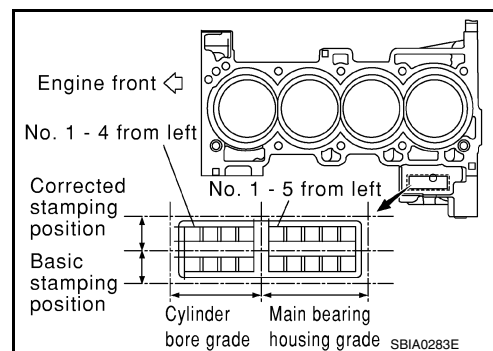
When New Cylinder Block is Used:

- Check the cylinder bore grade on rear left side of cylinder block, and select a piston of the same grade.

- (A) : Front mark
 (B) : Piston pin bore grade
 (C) : Piston grade I.D. stamp
 (D) : Piston crown I.D. code stamp
 (E) : ID marks



- If there is a corrected stamp mark on the cylinder block, use it as a correct reference.



HOW TO SELECT PISTON AND BEARING

< UNIT DISASSEMBLY AND ASSEMBLY >

When a Cylinder Block is Reused:

1. Measure the cylinder block bore inner diameter.
2. Determine the bore grade by comparing the measurement with the values under the cylinder bore inner diameter of the "Piston Selection Table". Select the piston of the same grade.

Piston Selection Table

- For the piston selection table, refer to [EM-120. "Cylinder Block"](#).

NOTE:

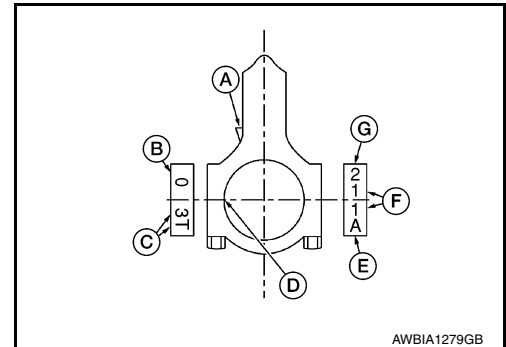
- The piston is available together with piston pin as an assembly.
- The piston pin (piston pin bore) grade is provided only for the parts installed at the plant. For service parts, no grades can be selected. Only 0 grade is available.

HOW TO SELECT A CONNECTING ROD BEARING

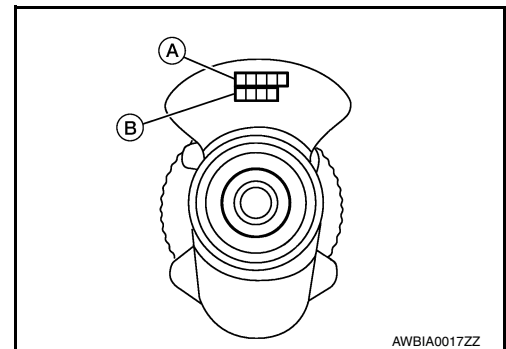
When New Connecting Rod and Crankshaft are Used:

1. Apply big end inside diameter grade stamped on connecting rod side face to the row in the "Connecting Rod Bearing Selection Table".

- (A) : Oil splash
(B) : Small end diameter grade
(C) : Reference code
(D) : Bearing stopper groove
(E) : Reference code
(F) : Cylinder No.
(G) : Big end diameter grade



2. Apply pin diameter grade (B) stamped on crankshaft front side to the column in the "Connecting Rod Bearing Selection Table".
 - Journal diameter grade (A)
3. Read the symbol at the cross point of selected row and column in the "Connecting Rod Bearing Selection Table".
4. Apply the symbol obtained to connecting rod bearing grade table to select.



When Crankshaft and Connecting Rod are Reused:

1. Measure dimensions of the big end inner diameter of connecting rod and outer diameter of crankshaft pin individually.
2. Apply the dimension measured to the "Connecting Rod Bearing Selection Table" below.

HOW TO SELECT PISTON AND BEARING

< UNIT DISASSEMBLY AND ASSEMBLY >

Connecting Rod Bearing Selection Table

Mark	Outer diameter Unit: mm (in)	Connecting rod big end. inner diameter		Crankshaft pin outer diameter		Mark		0	1	2	3	4	5	6	7	8	9	A	B	C
		Inner diameter Unit: mm (in)						48.000 - 48.001 (1.8898 - 1.8898)	48.001 - 48.002 (1.8898 - 1.8898)	48.002 - 48.003 (1.8898 - 1.8898)	48.003 - 48.004 (1.8898 - 1.8898)	48.004 - 48.005 (1.8898 - 1.8900)	48.005 - 48.006 (1.8899 - 1.8900)	48.006 - 48.007 (1.8899 - 1.8900)	48.007 - 48.008 (1.8899 - 1.8901)	48.008 - 48.009 (1.8901 - 1.8901)	48.009 - 48.010 (1.8901 - 1.8902)	48.010 - 48.011 (1.8902 - 1.8902)	48.011 - 48.012 (1.8902 - 1.8902)	48.012 - 48.013 (1.8902 - 1.8903)
A	44.974 - 44.973 (1.7706 - 1.7706)	0	0	0	0	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01
B	44.973 - 44.972 (1.7706 - 1.7705)	0	0	0	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01
C	44.972 - 44.971 (1.7705 - 1.7705)	0	0	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01
D	44.971 - 44.970 (1.7705 - 1.7705)	0	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01
E	44.970 - 44.969 (1.7705 - 1.7704)	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01
F	44.969 - 44.968 (1.7704 - 1.7704)	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01
G	44.968 - 44.967 (1.7704 - 1.7704)	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01
H	44.967 - 44.966 (1.7704 - 1.7703)	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01
J	44.966 - 44.965 (1.7703 - 1.7703)	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01
K	44.965 - 44.964 (1.7703 - 1.7702)	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01
L	44.964 - 44.963 (1.7702 - 1.7702)	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01
M	44.963 - 44.962 (1.7702 - 1.7702)	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01
N	44.962 - 44.961 (1.7702 - 1.7701)	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01
P	44.961 - 44.960 (1.7701 - 1.7701)	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01
R	44.960 - 44.959 (1.7701 - 1.7700)	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01
S	44.959 - 44.958 (1.7700 - 1.7700)	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01
T	44.958 - 44.957 (1.7700 - 1.7700)	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01
U	44.957 - 44.956 (1.7700 - 1.7699)	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01

AWBIA0021GB

Connecting Rod Bearing Grade Table. Refer to [EM-125, "Connecting Rod Bearing"](#).

Undersize Bearing Usage Guide

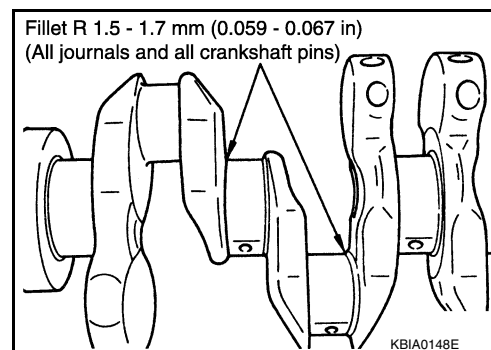
- When the specified oil clearance is not obtained with standard size connecting rod bearing, use undersize (US) bearing.
- When using undersize bearing, measure the bearing inner diameter with bearing installed, and grind the crankshaft pin so that the oil clearance satisfies the standard.

Bearing Undersize Table

Unit: mm (in)	
Size U.S.	Thickness
0.25 (0.0098)	1.622 - 1.630 (0.0639 - 0.0642)

CAUTION:

In grinding the crankshaft pin to use undersize bearings, do not damage the fillet R (All crankshaft pins).



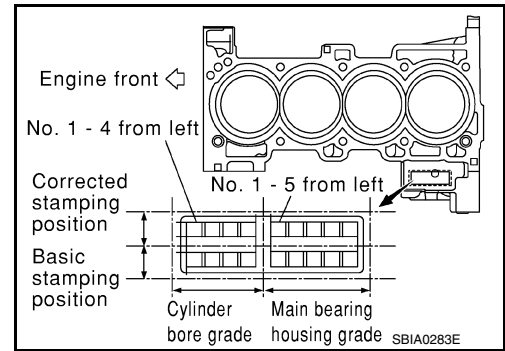
HOW TO SELECT A MAIN BEARING

When New Cylinder Block and Crankshaft are Used:

HOW TO SELECT PISTON AND BEARING

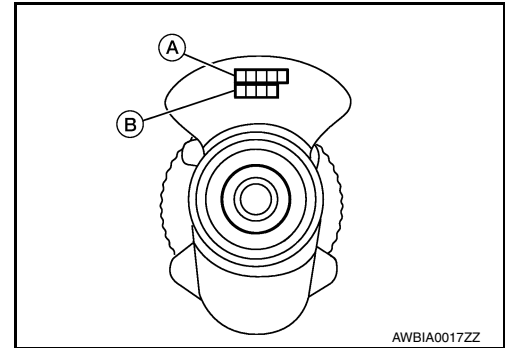
< UNIT DISASSEMBLY AND ASSEMBLY >

1. "Main Bearing Selection Table" rows correspond to bearing housing grade on rear left side of cylinder block.
 - If there is a corrected stamp mark on the cylinder block, use it as a correct reference.



2. Apply journal diameter grade (A) stamped on crankshaft front side to column in "Main Bearing Selection Table".

(B) : Pin diameter grade



3. Find value at crossing of row and column in "Main Bearing Selection Table".

CAUTION:

- There are two main bearing selection tables. One is for odd-numbered journals (1, 3, and 5) and the other is for even-numbered journals (2 and 4). Make certain to use the appropriate table. This is due to differences in the specified clearances.

4. Apply the symbol obtained to "Main Bearing Grade Table" to select.

NOTE:

- Service parts are available as a set of both upper and lower.

When Cylinder Block and Crankshaft are Reused:

1. Measure inner diameter of cylinder block main bearing housing and outer diameter of crankshaft journal.
2. Apply measurement in above step 1 to the "Main Bearing Selection Table".
3. Follow steps 3 and 4 in "When New Cylinder Block and Crankshaft are Used".

HOW TO SELECT PISTON AND BEARING

< UNIT DISASSEMBLY AND ASSEMBLY >

Main Bearing Selection Table (No.1, 3, and No.5 journals)

Cylinder block main bearing hausing inner diameter Crankshaft journal outer diameter		Mark	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	U	V	W	X	Y	4	7		
		Inner diameter Unit: mm (in)	58.944 (2.3206 - 2.3207)	58.945 (2.3207 - 58.946 (2.3207	58.946 (2.3207 - 58.947 (2.3207	58.947 (2.3207 - 58.948 (2.3208	58.948 (2.3208 - 58.949 (2.3208	58.949 (2.3208 - 58.950 (2.3209	58.950 (2.3209 - 58.951 (2.3209	58.951 (2.3209 - 58.952 (2.3209	58.952 (2.3209 - 58.953 (2.3210	58.953 (2.3210 - 58.954 (2.3210	58.954 (2.3210 - 58.955 (2.3211	58.955 (2.3211 - 58.956 (2.3211	58.956 (2.3211 - 58.957 (2.3212	58.957 (2.3212 - 58.958 (2.3212	58.958 (2.3212 - 58.959 (2.3213	58.959 (2.3213 - 58.960 (2.3213	58.960 (2.3213 - 58.961 (2.3213	58.961 (2.3213 - 58.962 (2.3213	58.962 (2.3213 - 58.963 (2.3214	58.963 (2.3214 - 58.964 (2.3214	58.964 (2.3214 - 58.965 (2.3215	58.965 (2.3215 - 58.966 (2.3215	58.966 (2.3215 - 58.967 (2.3215	58.967 (2.3215 - 58.968 (2.3216		
Mark	Outer diameter Unit: mm (in)																											
A	54.979 - 54.978 (2.1645 - 2.1645)	0	0	01	01	01	1	1	1	1	12	12	12	2	2	2	23	23	23	3	3	3	34	34	34	4	4	
B	54.978 - 54.977 (2.1645 - 2.1644)	0	01	01	01	1	1	1	1	12	12	12	2	2	2	2	23	23	23	3	3	3	34	34	34	4	4	
C	54.977 - 54.976 (2.1644 - 2.1644)	01	01	01	1	1	1	1	12	12	12	2	2	2	2	23	23	23	3	3	3	34	34	34	4	4	4	
D	54.976 - 54.975 (2.1644 - 2.1644)	01	01	1	1	1	12	12	12	12	2	2	2	2	23	23	23	3	3	3	34	34	34	4	4	4	45	
E	54.975 - 54.974 (2.1644 - 2.1643)	01	1	1	1	12	12	12	12	2	2	2	2	23	23	23	3	3	3	34	34	34	4	4	4	45	45	
F	54.974 - 54.973 (2.1643 - 2.1643)	1	1	1	12	12	12	12	2	2	2	2	23	23	23	3	3	3	34	34	34	4	4	4	45	45	45	
G	54.973 - 54.972 (2.1643 - 2.1642)	1	1	12	12	12	2	2	2	2	23	23	23	3	3	3	34	34	34	4	4	4	4	45	45	5	5	
H	54.972 - 54.971 (2.1642 - 2.1642)	1	12	12	12	2	2	2	2	23	23	23	3	3	3	34	34	34	4	4	4	4	45	45	45	5	5	
J	54.971 - 54.970 (2.1642 - 2.1642)	12	12	12	2	2	2	2	23	23	23	3	3	3	34	34	34	4	4	4	4	45	45	45	5	5	5	
K	54.970 - 54.969 (2.1642 - 2.1641)	12	12	2	2	2	23	23	23	3	3	3	34	34	34	4	4	4	4	45	45	45	5	5	5	5	56	
L	54.969 - 54.968 (2.1641 - 2.1641)	12	2	2	2	23	23	23	3	3	3	34	34	34	4	4	4	4	45	45	45	5	5	5	5	56	56	
M	54.968 - 54.967 (2.1641 - 2.1641)	2	2	2	23	23	23	3	3	3	3	34	34	34	4	4	4	4	45	45	45	5	5	5	5	56	56	56
N	54.967 - 54.966 (2.1641 - 2.1640)	2	2	23	23	23	3	3	3	3	34	34	34	4	4	4	4	45	45	45	5	5	5	5	56	56	56	6
P	54.966 - 54.965 (2.1640 - 2.1640)	2	23	23	23	3	3	3	3	34	34	34	4	4	4	4	45	45	45	5	5	5	5	56	56	56	6	6
R	54.965 - 54.964 (2.1640 - 2.1639)	23	23	23	3	3	3	3	34	34	34	4	4	4	4	45	45	45	5	5	5	5	56	56	56	6	6	6
S	54.964 - 54.963 (2.1639 - 2.1639)	23	23	3	3	3	34	34	34	4	4	4	4	45	45	45	5	5	5	5	56	56	56	6	6	6	67	
T	54.963 - 54.962 (2.1639 - 2.1639)	23	3	3	3	34	34	34	4	4	4	4	45	45	45	5	5	5	5	56	56	56	6	6	6	67	67	
U	54.962 - 54.961 (2.1639 - 2.1638)	3	3	3	34	34	34	4	4	4	4	45	45	45	5	5	5	5	56	56	56	6	6	6	67	67	67	
V	54.961 - 54.960 (2.1638 - 2.1638)	3	3	34	34	34	4	4	4	4	4	45	45	45	5	5	5	5	56	56	56	6	6	6	67	67	67	7
W	54.960 - 54.959 (2.1638 - 2.1637)	3	34	34	34	4	4	4	4	45	45	45	5	5	5	5	56	56	56	6	6	6	67	67	67	7	7	
X	54.959 - 54.958 (2.1637 - 2.1637)	34	34	34	4	4	4	4	45	45	45	5	5	5	5	56	56	56	6	6	6	67	67	67	7	7	7	
Y	54.958 - 54.957 (2.1637 - 2.1637)	34	34	4	4	4	4	45	45	45	5	5	5	5	56	56	56	6	6	6	67	67	67	7	7	7	7	
4	54.957 - 54.956 (2.1637 - 2.1636)	34	4	4	4	4	45	45	45	5	5	5	5	56	56	56	6	6	6	67	67	67	7	7	7	7	7	
7	54.956 - 54.955 (2.1636 - 2.1636)	4	4	4	4	45	45	45	5	5	5	5	56	56	56	6	6	6	67	67	67	7	7	7	7	7	7	

KBIA0149E

KBIA0149E

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

General Specification

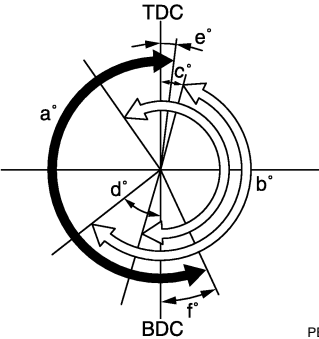
INFOID:0000000009798979

EM

GENERAL SPECIFICATIONS

Cylinder arrangement		In-line 4
Displacement	cm ³ (cu in)	2,488 (151.82)
Bore and stroke	mm (in)	89.0 x 100.0 (3.504 x 3.940)
Valve arrangement		DOHC
Firing order		1-3-4-2
Number of piston rings	Compression	2
	Oil	1
Compression ratio		9.6
Compression pressure kPa (kg/cm ² , psi)/250 rpm	Standard	1,412 (14.4, 204.7)
	Minimum	1,216 (12.4, 176.3)
	Differential limit between cylinders	100 (1.0, 14.5)

Unit: degree

Valve timing ↶ : Intake valve ↷ : Exhaust valve						
	a	b	c	d	e	f
Except for California	220	232	12 (-28) ATDC	64 (24) ABDC	10	30
For California	224	236	8 (-32) ATDC	64 (24) ABDC	8	36

() : Valve timing control "ON"

Drive belt

INFOID:0000000009798980

DRIVE BELT

Tension of drive belt	Belt tension is not necessary, as it is automatically adjusted by drive belt auto-tensioner.
-----------------------	--

Spark Plug

INFOID:0000000009798981

SPARK PLUG

Unit: mm (in)

Make	DENSO
Standard type	FXE20HE11C
Spark plug gap (Nominal)	1.1 (0.043)

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

Intake Manifold

INFOID:000000009798982

INTAKE MANIFOLD

Unit: mm (in)

Items		Limit
Surface distortion	Intake manifold adaptor	0.1 (0.004)

Exhaust Manifold

INFOID:000000009798983

EXHAUST MANIFOLD

Unit: mm (in)

Items		Limit
Surface distortion	Exhaust manifold	0.3 (0.012)

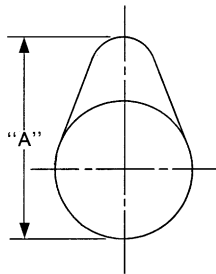
Camshaft

INFOID:000000009798984

CAMSHAFT

Unit: mm (in)

Items		Standard	Limit
Camshaft journal oil clearance		0.045 - 0.086 (0.0018 - 0.0034)	—
Camshaft bracket inner diameter	No. 1	28.000 - 28.021 (1.1024 - 1.1032)	—
	No. 2, 3, 4, 5	23.500 - 23.521 (0.9252 - 0.9260)	—
Camshaft journal diameter	No. 1	27.935 - 27.955 (1.0998 - 1.1006)	—
	No. 2, 3, 4, 5	23.435 - 23.455 (0.9226 - 0.9234)	—
Camshaft end play		0.115 - 0.188 (0.0045 - 0.0074)	—
Camshaft cam height "A"	Intake	45.865 - 46.055 (1.8057 - 1.8132)	0.2 (0.008)* ¹
	Exhaust	44.175 - 44.365 (1.7392 - 1.7467)	
Camshaft runout [TIR* ²]		Less than 0.02 mm (0.0008)	—
Camshaft sprocket runout [TIR* ²]		—	0.15 (0.0059)



SEM671

*1: Cam wear limit

*2: Total indicator reading

VALVE LIFTER

Unit: mm (in)

Items	Standard
Valve lifter outer diameter	33.977 - 33.987 (1.3377 - 1.3381)
Valve lifter hole diameter	34.000 - 34.021 (1.3386 - 1.3394)
Valve lifter clearance	0.013 - 0.034 (0.0008 - 0.0012)

VALVE CLEARANCE

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

Unit: mm (in)

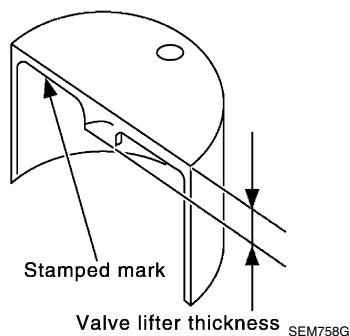
Items	Cold	Hot* (reference data)
Intake	0.240 - 0.320 (0.0094 - 0.0126)	0.304 - 0.416 (0.0120 - 0.0164)
Exhaust	0.260 - 0.340 (0.0102 - 0.0134)	0.308 - 0.432 (0.0121 - 0.0170)

*: Approximately 80°C (176°F)

AVAILABLE VALVE LIFTER

Unit: mm (in)

Thickness	Identification (stamped) mark
3.00 (0.1181)	300H
3.02 (0.1189)	302H
3.04 (0.1197)	304H
3.06 (0.1205)	306H
3.08 (0.1213)	308H
3.10 (0.1220)	310H
3.12 (0.1228)	312H
3.14 (0.1236)	314H
3.16 (0.1244)	316H
3.18 (0.1252)	318H
3.20 (0.1260)	320H
3.22 (0.1268)	322H
3.24 (0.1276)	324H
3.26 (0.1283)	326H
3.28 (0.1291)	328H
3.30 (0.1299)	330H
3.32 (0.1307)	332H
3.34 (0.1315)	334H
3.36 (0.1323)	336H
3.38 (0.1331)	338H
3.40 (0.1339)	340H
3.42 (0.1346)	342H
3.44 (0.1354)	344H
3.46 (0.1362)	346H
3.48 (0.1370)	348H
3.50 (0.1378)	350H



SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

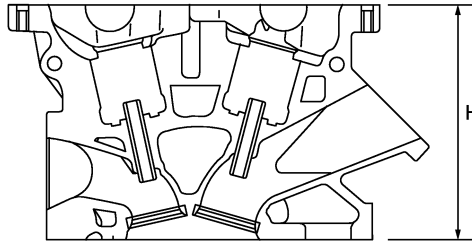
Cylinder Head

INFOID:000000009798985

CYLINDER HEAD

Unit: mm (in)

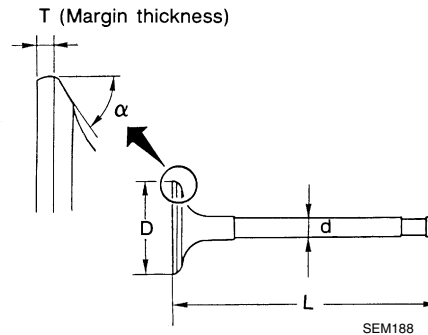
Items	Standard	Limit
Head surface distortion	Less than 0.03 (0.0012)	0.1 (0.004)
Normal cylinder head height "H"	129.3 - 129.5 (5.09 - 5.10)	—



PBIC0924E

VALVE DIMENSIONS

Unit: mm (in)



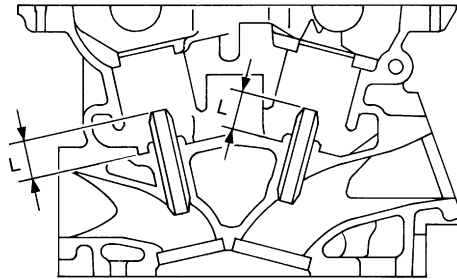
Valve head diameter "D"	Intake	35.5 - 35.8 (1.398 - 1.409)
	Exhaust	30.3 - 30.6 (1.193 - 1.205)
Valve length "L"	Intake	101.72 (4.005)
	Exhaust	102.78 (4.046)
Valve stem diameter "d"	Intake	5.965 - 5.980 (0.2348 - 0.2354)
	Exhaust	5.955 - 5.970 (0.2344 - 0.2350)
Valve seat angle "α"	Intake	44°15' - 44°45'
	Exhaust	
Valve margin "T"	Intake	1.15 - 1.45 (0.0453 - 0.0571)
	Exhaust	1.45 - 1.75 (0.0571 - 0.0689)
Valve stem end surface grinding limit		0.2 (0.008)

VALVE GUIDE

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

Unit: mm (in)

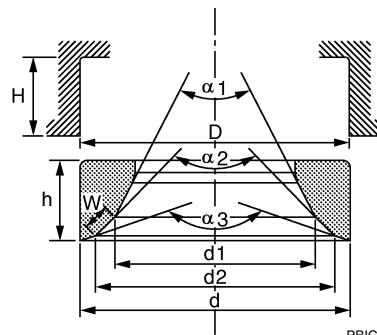


SEM950E

Items		Standard	Oversize (Service) [0.2 (0.008)]
Valve guide	Outer diameter	10.023 - 10.034 (0.3946 - 0.3950)	10.223 - 10.234 (0.4025 - 0.4029)
	Inner diameter (Finished size)	6.000 - 6.018 (0.2362 - 0.2369)	
Cylinder head valve guide hole diameter		9.975 - 9.996 (0.3927 - 0.3935)	10.175 - 10.196 (0.4006 - 0.4014)
Interference fit of valve guide		0.027 - 0.059 (0.0011 - 0.0023)	
Items		Standard	Limit
Valve guide clearance	Intake	0.020 - 0.053 (0.0008 - 0.0021)	0.08 (0.0031)
	Exhaust	0.030 - 0.063 (0.0012 - 0.0025)	0.09 (0.0035)
Projection length "L"	Intake	10.1 - 10.3 (0.398 - 0.406)	
	Exhaust	10.0 - 10.4 (0.394 - 0.409)	

VALVE SEAT

Unit: mm (in)



PBIC2745E

Items		Standard	Oversize (Service) [0.5 (0.020)]
Cylinder head seat recess diameter "D"	Intake	36.500 - 36.516 (1.4370 - 1.4376)	37.000 - 37.016 (1.4567 - 1.4573)
	Exhaust	31.500 - 31.516 (1.2402 - 1.2408)	32.000 - 32.016 (1.2598 - 1.2605)
Valve seat outer diameter "d"	Intake	36.597 - 36.613 (1.4408 - 1.4415)	37.097 - 37.113 (1.4605 - 1.4611)
	Exhaust	31.600 - 31.616 (1.2441 - 1.2447)	32.100 - 32.116 (1.2638 - 1.2644)
Valve seat interference fit	Intake	0.081 - 0.113 (0.0032 - 0.0044)	
	Exhaust	0.084 - 0.116 (0.0033 - 0.0046)	
Diameter "d1"*1	Intake	30.85 - 31.15 (1.2146 - 1.2264)	
	Exhaust	25.05 - 25.35 (0.9862 - 0.9980)	
Diameter "d2"*2	Intake	34.35 - 34.65 (1.3524 - 1.3642)	
	Exhaust	29.35 - 29.65 (1.1555 - 1.1673)	
Angle "α1"	Intake	60°	
	Exhaust	60°	

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

Angle "α2"	Intake	88°45' - 90°15'	
	Exhaust	88°45' - 90°15'	
Angle "α3"	Intake	120°	
	Exhaust	120°	
Contacting width "W"*3	Intake	0.99 - 1.35 (0.0390 - 0.0531)	
	Exhaust	1.19 - 1.55 (0.0469 - 0.0610)	
Height "h"	Intake	5.9 - 6.0 (0.232 - 0.236)	5.0 - 5.1 (0.197 - 0.201)
	Exhaust	5.9 - 6.0 (0.232 - 0.236)	4.91 - 5.01 (0.1933 - 0.1972)
Depth "H"		6.0 (0.236)	

*1: Diameter made by intersection point of conic angles "α1" and "α2"

*2: Diameter made by intersection point of conic angles "α2" and "α3"

*3: Machining data

VALVE SPRING

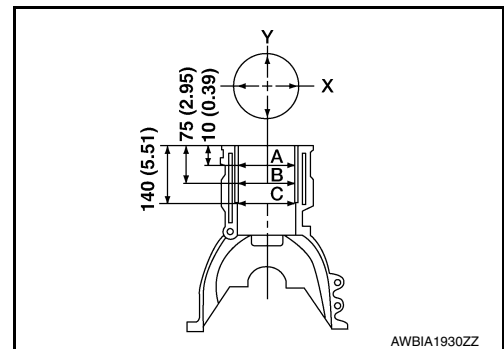
Items	Intake	Exhaust
Free height	47.02 mm (1.8512 in)	47.75 mm (1.8799 in)
Installation height	35.96 mm (1.4157 in)	35.96 mm (1.4157 in)
Installation load	153N - 173N (15.6kg - 17.6kg, 34.4lb - 38.9lb)	153N - 173N (15.6kg - 17.6kg, 34.4lb - 38.9lb)
Height during valve open	25.76 mm (1.0142 in)	27.46 mm (1.0811 in)
Load with valve open	337N - 381N (34.4kg - 38.9kg, 75.8lb - 85.6lb)	302N - 340N (30.8kg - 34.7kg, 67.9lb - 76.4lb)
Identification color	White	Light blue
Out-of-Square	1.9 mm (0.075 in)	

Cylinder Block

INFOID:000000009798986

CYLINDER BLOCK

Unit: mm (in)



Surface distortion		Limit		0.1 (0.004)
Cylinder bore	Inner diameter	Standard	Grade No. 2	89.010 - 89.020 (3.5043 - 3.5047)
			Grade No. 3	89.020 - 89.030 (3.5047 - 3.5051)
		Wear limit		0.2 (0.008)
Out-of-round (Difference between “X” and “Y”)		Limit		0.015 (0.0006)
Taper (Difference between “A” and “C”)				0.01 (0.0004)

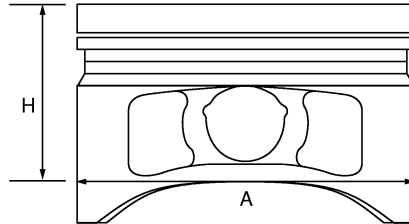
SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

Main bearing housing inner diameter grade	Grade No. A	58.944 - 58.945 (2.3206 - 2.3207)
	Grade No. B	58.945 - 58.946 (2.3207 - 2.3207)
	Grade No. C	58.946 - 58.947 (2.3207 - 2.3207)
	Grade No. D	58.947 - 58.948 (2.3207 - 2.3208)
	Grade No. E	58.948 - 58.949 (2.3208 - 2.3208)
	Grade No. F	58.949 - 58.950 (2.3208 - 2.3209)
	Grade No. G	58.950 - 58.951 (2.3209 - 2.3209)
	Grade No. H	58.951 - 58.952 (2.3209 - 2.3209)
	Grade No. J	58.952 - 58.953 (2.3209 - 2.3210)
	Grade No. K	58.953 - 58.954 (2.3210 - 2.3210)
	Grade No. L	58.954 - 58.955 (2.3210 - 2.3211)
	Grade No. M	58.955 - 58.956 (2.3211 - 2.3211)
	Grade No. N	58.956 - 58.957 (2.3211 - 2.3211)
	Grade No. P	58.957 - 58.958 (2.3211 - 2.3212)
	Grade No. R	58.958 - 58.959 (2.3212 - 2.3212)
	Grade No. S	58.959 - 58.960 (2.3212 - 2.3213)
	Grade No. T	58.960 - 58.961 (2.3213 - 2.3213)
	Grade No. U	58.961 - 58.962 (2.3213 - 2.3213)
	Grade No. V	58.962 - 58.963 (2.3213 - 2.3214)
	Grade No. W	58.963 - 58.964 (2.3214 - 2.3214)
	Grade No. X	58.964 - 58.965 (2.3214 - 2.3215)
	Grade No. Y	58.965 - 58.966 (2.3215 - 2.3215)
	Grade No. 4	58.966 - 58.967 (2.3215 - 2.3215)
	Grade No. 7	58.967 - 58.968 (2.3215 - 2.3216)
Difference in inner diameter between cylinders		Standard
		Less than 0.03 (0.0012)

AVAILABLE PISTON

Unit: mm (in)



PBIC0188E

Piston skirt diameter “A”	Standard	Grade No. 2	88.990 - 89.000 (3.5035 - 3.5039)
		Grade No. 3	89.000 - 89.010 (3.5039 - 3.5043)
		Oversize (Service) [0.20 (0.008)]	89.180 - 89.210 (3.5110 - 3.5122)
Piston height “H” dimension			48.95 (1.9272)
Piston pin hole diameter	Grade No. 0		19.993 - 19.999 (0.7871 - 0.7874)
	Grade No. 1		19.999 - 20.005 (0.7874 - 0.7876)
Piston to cylinder bore clearance	Standard		0.010 - 0.030 (0.0004 - 0.0012)
	Limit		0.08 (0.0031)

PISTON RING

Unit: mm (in)

Items		Standard	Limit
Side clearance	Top	0.040 - 0.080 (0.0016 - 0.0031)	0.11 (0.0043)
	2nd	0.030 - 0.070 (0.0012 - 0.0028)	0.1 (0.004)
	Oil ring	0.045 - 0.125 (0.0018 - 0.0049)	—

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

End gap	Top	0.21 - 0.31 (0.0083 - 0.0122)	0.54 (0.0213)
	2nd	0.37 - 0.52 (0.0146 - 0.0205)	0.80 (0.0315)
	Oil (rail ring)	0.20 - 0.45 (0.0079 - 0.0177)	0.90 (0.0354)

PISTON PIN

Unit: mm (in)

Items	Standard	Limit
Piston pin outer diameter	Grade No. 0	19.989 - 19.995 (0.7870 - 0.7872)
	Grade No. 1	19.995 - 20.001 (0.7872 - 0.7874)
Piston to piston pin oil clearance	0.002 - 0.006 (0.0001 - 0.0002)	—
Connecting rod bushing oil clearance	0.005 - 0.017 (0.0002 - 0.0007)	0.030 (0.0012)

CONNECTING ROD

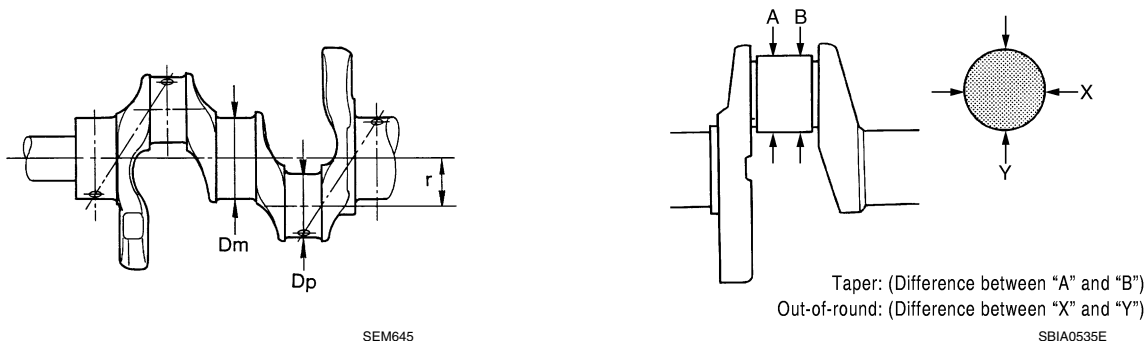
Unit: mm (in)

Center distance		143.00 - 143.10 (5.63 - 5.63)
Bend [per 100 (3.94)]	Limit	0.15 (0.0059)
Torsion [per 100 (3.94)]	Limit	0.3 (0.012)
Connecting rod bushing inner diameter*	Grade No. 0	20.000 - 20.006 (0.7874 - 0.7876)
	Grade No. 1	20.006 - 20.012 (0.7876 - 0.7879)
Side clearance	Standard	0.20 - 0.35 (0.0079 - 0.0138)
	Limit	0.5 (0.020)
Connecting rod big end diameter	Grade No. 0	48.000 - 48.001 (1.8898 - 1.8898)
	Grade No. 1	48.001 - 48.002 (1.8898 - 1.8898)
	Grade No. 2	48.002 - 48.003 (1.8898 - 1.8899)
	Grade No. 3	48.003 - 48.004 (1.8899 - 1.8899)
	Grade No. 4	48.004 - 48.005 (1.8899 - 1.8900)
	Grade No. 5	48.005 - 48.006 (1.8900 - 1.8900)
	Grade No. 6	48.006 - 48.007 (1.8900 - 1.8900)
	Grade No. 7	48.007 - 48.008 (1.8900 - 1.8901)
	Grade No. 8	48.008 - 48.009 (1.8901 - 1.8901)
	Grade No. 9	48.009 - 48.010 (1.8901 - 1.8902)
	Grade No. A	48.010 - 48.011 (1.8902 - 1.8902)
	Grade No. B	48.011 - 48.012 (1.8902 - 1.8902)
	Grade No. C	48.012 - 48.013 (1.8902 - 1.8903)

*: After installing in connecting rod

CRANKSHAFT

Unit: mm (in)



Center distance "r"		50.52 - 51.00 (1.9890 - 2.0079)
Out-of-round (Difference between "X" and "Y")	Limit	0.005 (0.0002)
Taper (Difference between "A" and "B")	Limit	0.005 (0.0002)
Runout [TIR*]	Limit	0.05 (0.0020)

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

Crankshaft end play	Standard	0.10 - 0.26 (0.0039 - 0.0102)
	Limit	0.3 (0.012)
Pin journal diameter grade. "Dp"	Grade No. A	44.973 - 44.974 (1.7706 - 1.7706)
	Grade No. B	44.972 - 44.973 (1.7705 - 1.7706)
	Grade No. C	44.971 - 44.972 (1.7705 - 1.7705)
	Grade No. D	44.970 - 44.971 (1.7705 - 1.7705)
	Grade No. E	44.969 - 44.970 (1.7704 - 1.7705)
	Grade No. F	44.968 - 44.969 (1.7704 - 1.7704)
	Grade No. G	44.967 - 44.968 (1.7704 - 1.7704)
	Grade No. H	44.966 - 44.967 (1.7703 - 1.7704)
	Grade No. J	44.965 - 44.966 (1.7703 - 1.7703)
	Grade No. K	44.964 - 44.965 (1.7702 - 1.7703)
	Grade No. L	44.963 - 44.964 (1.7702 - 1.7702)
	Grade No. M	44.962 - 44.963 (1.7702 - 1.7702)
	Grade No. N	44.961 - 44.962 (1.7701 - 1.7702)
	Grade No. P	44.960 - 44.961 (1.7701 - 1.7701)
	Grade No. R	44.959 - 44.960 (1.7700 - 1.7701)
	Grade No. S	44.958 - 44.959 (1.7700 - 1.7700)
	Grade No. T	44.957 - 44.958 (1.7700 - 1.7700)
	Grade No. U	44.956 - 44.957 (1.7699 - 1.7700)
Main journal diameter grade. "Dm"	Grade No. A	54.978 - 54.979 (2.1645 - 2.1645)
	Grade No. B	54.977 - 54.978 (2.1644 - 2.1645)
	Grade No. C	54.967 - 54.977 (2.1644 - 2.1644)
	Grade No. D	54.975 - 54.976 (2.1644 - 2.1644)
	Grade No. E	54.974 - 54.975 (2.1643 - 2.1644)
	Grade No. F	54.973 - 54.974 (2.1643 - 2.1643)
	Grade No. G	54.972 - 54.973 (2.1642 - 2.1643)
	Grade No. H	54.971 - 54.972 (2.1642 - 2.1642)
	Grade No. J	54.970 - 54.971 (2.1642 - 2.1642)
	Grade No. K	54.969 - 54.970 (2.1641 - 2.1642)
	Grade No. L	54.968 - 54.969 (2.1641 - 2.1641)
	Grade No. M	54.967 - 54.968 (2.1641 - 2.1641)
	Grade No. N	54.966 - 54.967 (2.1640 - 2.1641)
	Grade No. P	54.965 - 54.966 (2.1640 - 2.1640)
	Grade No. R	54.964 - 54.965 (2.1639 - 2.1640)
	Grade No. S	54.963 - 54.964 (2.1639 - 2.1639)
	Grade No. T	54.962 - 54.963 (2.1639 - 2.1639)
	Grade No. U	54.961 - 54.962 (2.1638 - 2.1639)
	Grade No. V	54.960 - 54.961 (2.1638 - 2.1638)
	Grade No. W	54.959 - 54.960 (2.1637 - 2.1638)
	Grade No. X	54.958 - 54.959 (2.1637 - 2.1637)
	Grade No. Y	54.957 - 54.958 (2.1637 - 2.1637)
	Grade No. 4	54.956 - 54.957 (2.1636 - 2.1637)
	Grade No. 7	54.955 - 54.956 (2.1636 - 2.1636)

*: Total indicator reading

Main Bearing

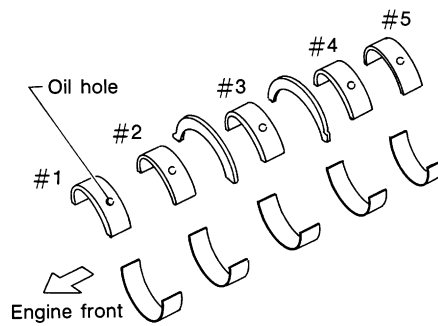
INFOID:000000009798987

MAIN BEARING

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

Unit: mm (in)



SEM685D

Grade number		Thickness	Identification color	Remarks
-1		1.970 - 1.973 (0.0776 - 0.0777)	Red	Grade and color are the same upper and lower bearings
0		1.973 - 1.976 (0.0777 - 0.0778)	Black	
1		1.976 - 1.979 (0.0778 - 0.0779)	Brown	
2		1.979 - 1.982 (0.0779 - 0.0780)	Green	
3		1.982 - 1.985 (0.0780 - 0.0781)	Yellow	
4		1.985 - 1.988 (0.0781 - 0.0783)	Blue	
5		1.988 - 1.991 (0.0783 - 0.0784)	Pink	
6		1.991 - 1.994 (0.0784 - 0.0785)	Purple	
7		1.994 - 1.997 (0.0785 - 0.0786)	White	
-10	UPR	1.970 - 1.973 (0.0776 - 0.0777)	Red	Grade and color are different for upper and lower bearings
	LWR	1.973 - 1.976 (0.0777 - 0.0778)	Black	
01	UPR	1.973 - 1.976 (0.0777 - 0.0778)	Black	
	LWR	1.976 - 1.979 (0.0778 - 0.0779)	Brown	
12	UPR	1.976 - 1.979 (0.0778 - 0.0779)	Brown	
	LWR	1.979 - 1.982 (0.0779 - 0.0780)	Green	
23	UPR	1.979 - 1.982 (0.0779 - 0.0780)	Green	
	LWR	1.982 - 1.985 (0.0780 - 0.0781)	Yellow	
34	UPR	1.982 - 1.985 (0.0780 - 0.0781)	Yellow	
	LWR	1.985 - 1.988 (0.0781 - 0.0783)	Blue	
45	UPR	1.985 - 1.988 (0.0781 - 0.0783)	Blue	
	LWR	1.988 - 1.991 (0.0783 - 0.0784)	Pink	
56	UPR	1.988 - 1.991 (0.0783 - 0.0784)	Pink	
	LWR	1.991 - 1.994 (0.0784 - 0.0785)	Purple	
67	UPR	1.991 - 1.994 (0.0784 - 0.0785)	Purple	
	LWR	1.994 - 1.997 (0.0785 - 0.0786)	White	

UNDERSIZE

Unit: mm (in)

Items	Thickness	Main journal diameter
0.25 (0.0098)	2.106 - 2.114 (0.0829 - 0.0832)	Grind so that bearing clearance is the specified value.

MAIN BEARING OIL CLEARANCE

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

Unit: mm (in)

Main bearing oil clearance	Standard	No. 1 and 5	0.012 - 0.022 (0.0005 - 0.0009)
		No. 2 and 4	0.018 - 0.028 (0.0007 - 0.0011)
		No. 3	0.021 - 0.031 (0.0008 - 0.0012)
	Limit		0.1 (0.004)

Connecting Rod Bearing

INFOID:000000009798988

CONNECTING ROD BEARING

Unit: mm (in)

Grade number		Thickness	Identification color	Remarks
0		1.493 - 1.496 (0.0588 - 0.0589)	Black	Grade and color are the same for upper and lower bearings.
1		1.496 - 1.499 (0.0589 - 0.0590)	Brown	
2		1.499 - 1.502 (0.0590 - 0.0591)	Green	
3		1.502 - 1.505 (0.0591 - 0.0593)	Yellow	
4		1.505 - 1.508 (0.0593 - 0.0594)	Blue	
01	UPR	1.493 - 1.496 (0.0588 - 0.0589)	Black	Grade and color are different for upper and lower bearings.
	LWR	1.496 - 1.499 (0.0589 - 0.0590)	Brown	
12	UPR	1.496 - 1.499 (0.0589 - 0.0590)	Brown	
	LWR	1.499 - 1.502 (0.0590 - 0.0591)	Green	
23	UPR	1.499 - 1.502 (0.0590 - 0.0591)	Green	
	LWR	1.502 - 1.505 (0.0591 - 0.0593)	Yellow	
34	UPR	1.502 - 1.505 (0.0591 - 0.0593)	Yellow	
	LWR	1.505 - 1.508 (0.0593 - 0.0594)	Blue	

UNDERSIZE

Unit: mm (in)

Items	Thickness	Crank pin journal diameter
0.25 (0.0098)	1.622 - 1.630 (0.0639 - 0.0642)	Grind so that bearing clearance is the specified value.

CONNECTING ROD BEARING OIL CLEARANCE

Unit: mm (in)

Items	Standard	Limit
Connecting rod bearing oil clearance	0.035 - 0.045 (0.0014 - 0.0018)	0.1 (0.004)

SECTION

LU

LU

ENGINE LUBRICATION SYSTEM

CONTENTS

PRECAUTION	2	OIL FILTER	10	
PRECAUTIONS	2	Removal and Installation	10	
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	2	Inspection	11	
Liquid Gasket	2	REMOVAL AND INSTALLATION	12	
PREPARATION	4	OIL COOLER	12	
PREPARATION	4	Exploded View	12	
Special Service Tools	4	Removal and Installation	12	
Commercial Service Tools	4	Inspection	13	
SYSTEM DESCRIPTION	5	OIL PUMP	14	
DESCRIPTION	5	Exploded View	14	
Engine Lubrication System	5	Removal and Installation	14	
Engine Lubrication System Schematic	6	Disassembly and Assembly	14	
PERIODIC MAINTENANCE	7	Inspection	15	
ENGINE OIL	7	SERVICE DATA AND SPECIFICATIONS (SDS)	17	
Inspection	7	SERVICE DATA AND SPECIFICATIONS (SDS)	17	
Draining	8	Oil Pressure	17	
Refilling	8	Oil Pump	17	
		Relief Valve	17	
		Oil Capacity	17	

PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010249191

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Liquid Gasket

INFOID:0000000010249192

REMOVAL OF LIQUID GASKET SEALING

- After removing the bolts and nuts, separate the mating surface and remove the liquid gasket using Tool (A).

Tool Number : KV10111100 (J-37228)

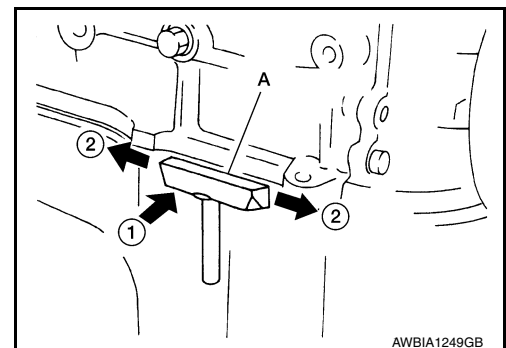
CAUTION:

Be careful not to damage the mating surfaces.

- In areas where the cutter is difficult to use, use a plastic hammer to lightly tap (1) the cutter where the liquid gasket is applied. Use a plastic hammer to slide (2) the cutter by tapping on the side.

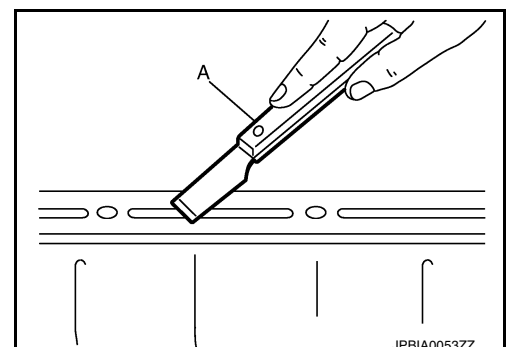
CAUTION:

Do not damage the mating surfaces.



LIQUID GASKET APPLICATION PROCEDURE

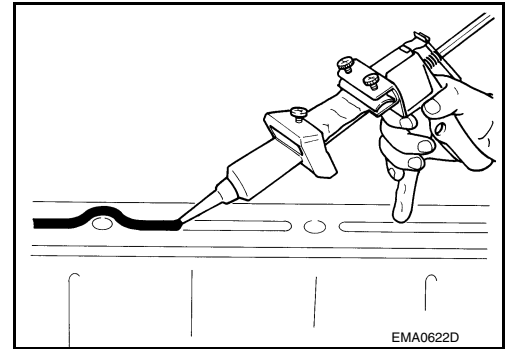
1. Using suitable tool (A), remove old liquid gasket adhering to the liquid gasket application surface and the mating surface.
 - Remove liquid gasket completely from the groove of the liquid gasket application surface, mounting bolts, and bolt holes.
2. Thoroughly clean the mating surfaces and remove adhering moisture, grease and foreign material.



PRECAUTIONS

< PRECAUTION >

3. Attach liquid gasket tube to the suitable tool.
Use Genuine Silicone RTV Sealant, or equivalent. Refer to [GI-22, "Recommended Chemical Products and Sealants"](#).
4. Apply liquid gasket without gaps to the specified location according to the specified dimensions.
 - If there is a groove for liquid gasket application, apply liquid gasket to the groove.

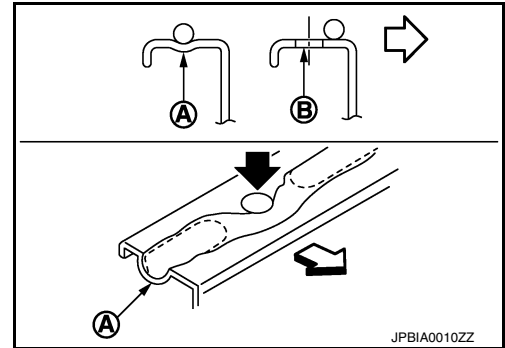


- As for bolt holes (B), normally apply liquid gasket inside the holes. Occasionally, it should be applied outside the holes. Check to read the text of this manual.

(A) : Groove

⇐ : Inside

- Within five minutes of liquid gasket application, install the mating component.
- If liquid gasket protrudes, wipe it off immediately.
- Do not retighten mounting bolts or nuts after the installation.
- After 30 minutes or more have passed from the installation, fill engine oil. Refer to [LU-8, "Refilling"](#).



CAUTION:

If there are specific instructions in the procedures contained in this manual concerning liquid gasket application, observe them.

PREPARATION

< PREPARATION >

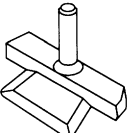
PREPARATION

PREPARATION

Special Service Tools

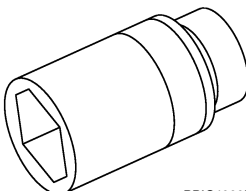
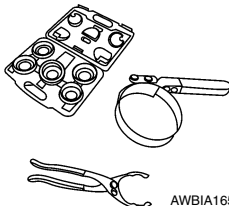
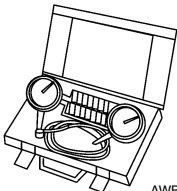
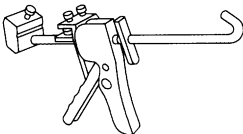
INFOID:000000009796744

The actual shape of the tools may differ from those illustrated here.

Tool number (TechMate No.) Tool name	Description
KV10111100 (J-37228) Seal cutter	Removing oil pan (lower) etc.
 NT046	

Commercial Service Tools

INFOID:000000009796745

Tool name	Description
Deep socket	Removing and installing oil pressure sensor 27 mm (1.06 in)
 PBIC4066E	
— (223-50000) Oil filter wrench assortment	Removing oil filter
 AWBIA1656ZZ	
— (16-5610) Oil pressure kit	Measuring oil pressure. Comes with adapter and hose. Designed to be used for both static and on road testing.
 AWBIA1657ZZ	
Tube presser	Pressing the tube of liquid gasket
 NT052	

DESCRIPTION

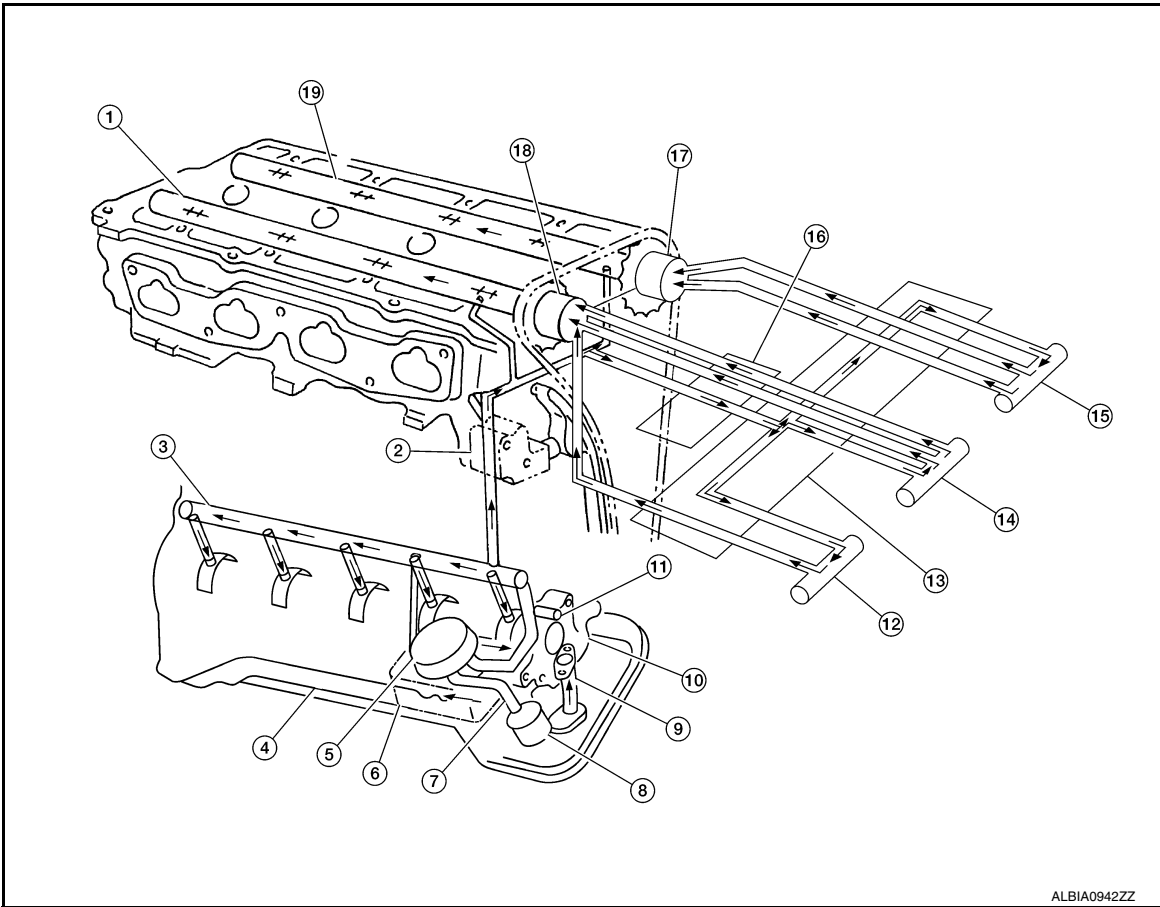
< SYSTEM DESCRIPTION >

SYSTEM DESCRIPTION

DESCRIPTION

Engine Lubrication System

INFOID:000000009796741



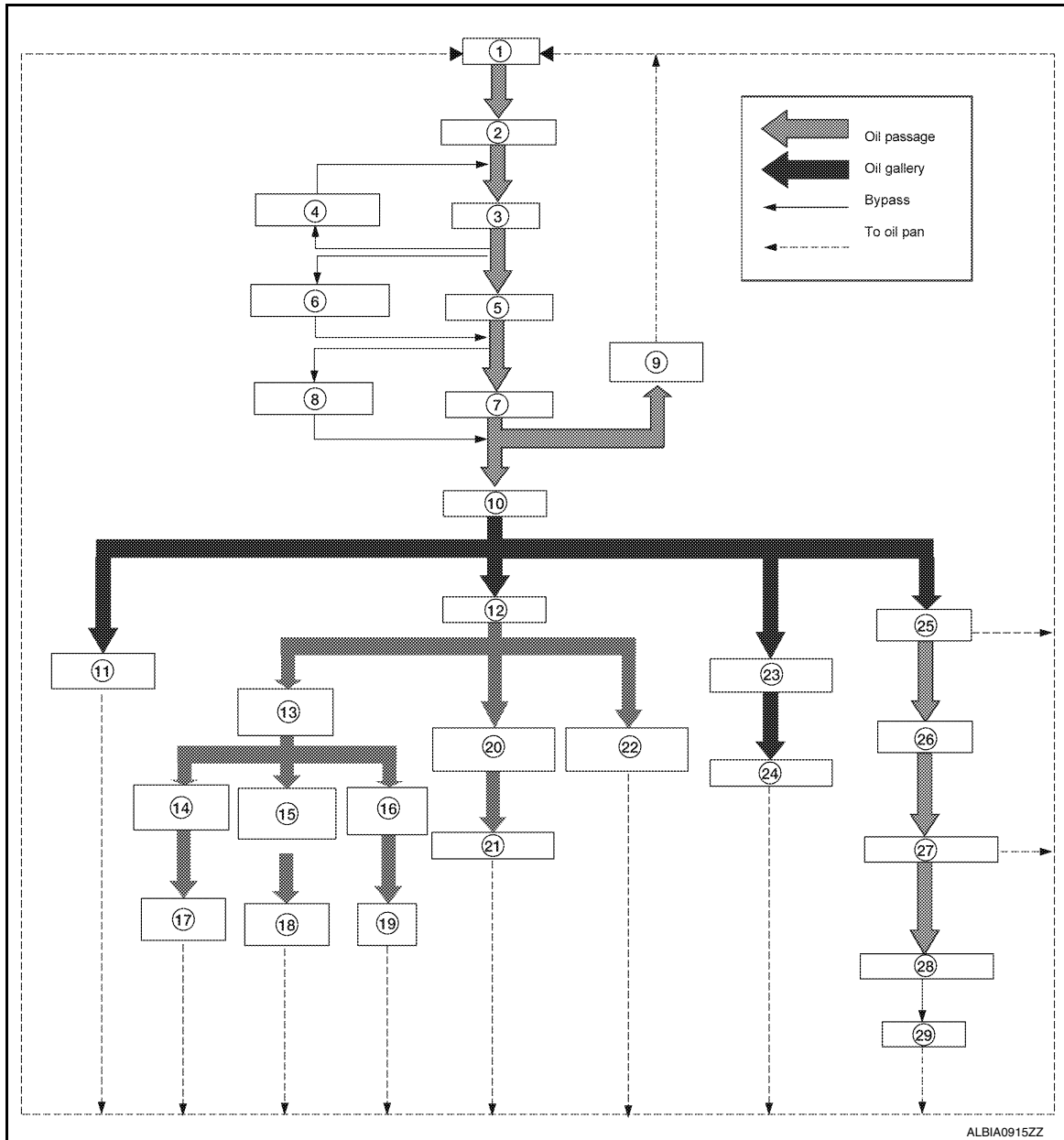
- | | | |
|---------------------------------------|---|--|
| 1. Camshaft (INT) | 2. Chain tensioner | 3. Main gallery |
| 4. Oil pan | 5. Oil cooler | 6. Balancer unit |
| 7. Oil pan oil gallery | 8. Oil filter (with relief valve) | 9. Oil Strainer |
| 10. Oil pump | 11. Timing chain and balancer unit timing chain oil jet | 12. Intake valve timing intermediate lock-control solenoid valve |
| 13. Intake valve timing control cover | 14. Intake valve timing control solenoid valve | 15. Exhaust valve timing control solenoid valve |
| 16. Front cover | 17. Exhaust valve timing controller | 18. Intake valve timing controller |
| 19. Camshaft (EXH) | | |

DESCRIPTION

< SYSTEM DESCRIPTION >

Engine Lubrication System Schematic

INFOID:000000009796742



- | | | |
|------------------------------|------------------------------|---------------------------------------|
| 1. Oil pan | 2. Oil strainer | 3. Oil pump |
| 4. Regulator valve | 5. Oil filter | 6. Relief valve (Built in oil filter) |
| 7. Oil cooler | 8. Relief valve | 9. Chain oil jet |
| 10. Main gallery | 11. Piston oil jet | 12. Cylinder head |
| 13. C-VTC oil filter | 14. C-VTC EXH solenoid valve | 15. C-VTC intermediate solenoid valve |
| 16. C-VTC INT solenoid valve | 17. C-VTC exhaust | 18. C-VTC intermediate |
| 19. C-VTC intake | 20. Camshaft journal | 21. Camshaft |
| 22. Chain tensioner | 23. Balancer housing | 24. Balancershaft journal |
| 25. Main bearing | 26. Crankshaft | 27. Connecting rod bearing |
| 28. Connecting rod | 29. Piston | |

PERIODIC MAINTENANCE

ENGINE OIL

Inspection

INFOID:000000009796746

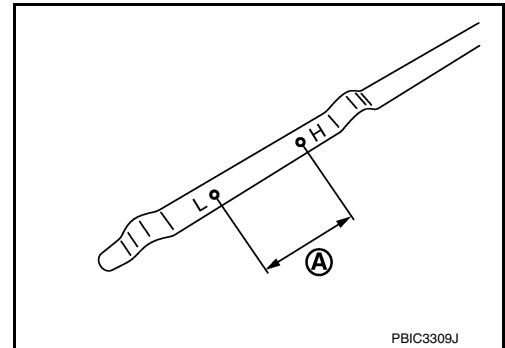
LU

ENGINE OIL LEVEL

NOTE:

Before starting engine, put vehicle horizontally and check the engine oil level. If engine is already started, stop it and allow 5 minutes before checking.

1. Pull out oil level gauge and wipe it clean.
2. Insert oil level gauge and check the engine oil level is within the range (A) as shown.
3. If it is out of range, adjust it.



ENGINE OIL APPEARANCE

- Check engine oil for white milky appearance or excessive contamination.
- If engine oil becomes turbid and white, it is highly probable that it is contaminated with engine coolant. Repair or replace damaged parts.

ENGINE OIL LEAKS

Check for engine oil leaks around the following areas:

- Oil temperature sensor
- Oil level sensor
- Oil level gauge assembly O-ring.
- Crankshaft position sensor
- Camshaft position sensors
- Oil cooler
- Oil pan (upper and lower)
- Oil pan drain plug
- Oil pressure switch
- Oil filter
- Intake valve timing intermediate lock control solenoid valve
- Intake valve timing control solenoid valve
- Exhaust valve timing control solenoid valve
- Front cover
- Mating surface between cylinder head and camshaft bracket
- Mating surface between cylinder block and cylinder head
- Mating surface between cylinder head and rocker cover
- Crankshaft oil seals (front and rear)

OIL PRESSURE CHECK

WARNING:

- **Be careful not to get burn yourself, as engine oil may be hot.**
- **When checking engine oil pressure, CVT shift lever should be in "P" position. Be sure to apply parking brake.**

1. Check the engine oil level.
2. Remove fender protector side cover (RH). Refer to [EXT-28. "FENDER PROTECTOR : Exploded View"](#).
3. Disconnect harness connector at oil pressure switch and remove oil pressure switch using suitable tool.

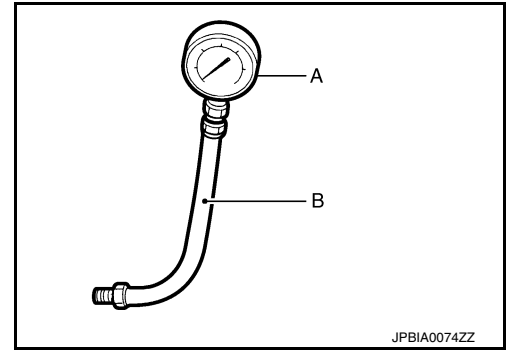
CAUTION:

Never drop or shock oil pressure switch.

ENGINE OIL

< PERIODIC MAINTENANCE >

4. Install suitable tools (A/B).



5. Start the engine and warm it up to normal operating temperature.
6. Check the engine oil pressure with engine running under no-load.

NOTE:

- When engine oil temperature is low, engine oil pressure becomes high.
- If difference is extreme, check oil passage and oil pump for engine oil leaks.

Engine oil pressure : Refer to [LU-17, "Oil Pressure"](#).

7. After the inspections, install oil pressure switch as follows:
 - a. Remove old liquid gasket adhering to oil pressure switch and engine.
 - b. Apply liquid gasket and tighten oil pressure switch to the specification.

Use Genuine RTV Silicone Sealant or equivalent. Refer to [GI-22, "Recommended Chemical Products and Sealants"](#).

Tightening torque : Refer to [EM-92, "Exploded View"](#).

8. Check engine oil level.
9. After warming up engine, check that there are no engine oil leaks with the engine running.
10. Install fender protector side cover (RH). Refer to [EXT-28, "FENDER PROTECTOR : Exploded View"](#).

Draining

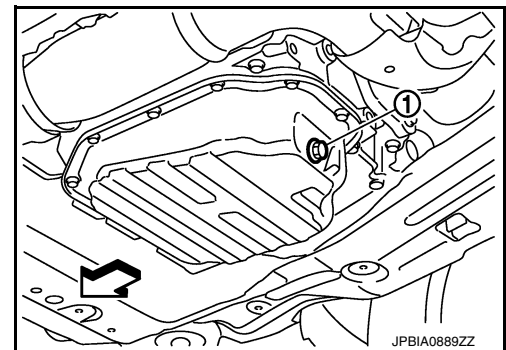
INFOID:000000009796747

WARNING:

- Be careful not to get burn yourself, as engine oil may be hot.
- Prolonged and repeated contact with used engine oil may cause skin cancer. Try to avoid direct skin contact with used engine oil. If skin contact is made, wash thoroughly with soap or hand cleaner as soon as possible.

1. Warm up the engine, and check for engine oil leaks from engine components. Refer to [LU-7, "Inspection"](#).
2. Stop the engine and wait for 10 minutes.
3. Loosen oil filler cap.
4. Remove drain plug (1) and then drain engine oil.

⇐ : Front



Refilling

INFOID:000000009796748

1. Install drain plug with new drain plug washer. Refer to [EM-32, "Exploded View"](#).

CAUTION:

ENGINE OIL

< PERIODIC MAINTENANCE >

Be sure to clean drain plug and install with new drain plug washer.

Tightening torque : Refer to [EM-32, "Exploded View"](#).

2. Refill with new engine oil.

Engine oil specification and viscosity: Refer to [MA-11, "Engine Oil Recommendation"](#).

Engine oil capacity : Refer to [LU-17, "Oil Capacity"](#).

CAUTION:

- The refill capacity depends on the engine oil temperature and drain time. Use these specifications for reference only.
- Always use oil level gauge to determine the proper amount of engine oil in engine.

3. Warm up the engine and check area around drain plug and oil filter for engine oil leaks.
4. Stop the engine and wait for 5 minutes.
5. Check the engine oil level. Refer to [LU-7, "Inspection"](#).

A

LU

C

D

E

F

G

H

I

J

K

L

M

N

O

P

OIL FILTER

< PERIODIC MAINTENANCE >

OIL FILTER

Removal and Installation

INFOID:000000009796749

REMOVAL

1. Remove fender protector side cover (RH). Refer to [EXT-28, "FENDER PROTECTOR : Exploded View"](#).
2. Drain engine oil. Refer to [LU-8, "Draining"](#).
3. Remove oil filter using suitable tool (A)..

↩ : Front

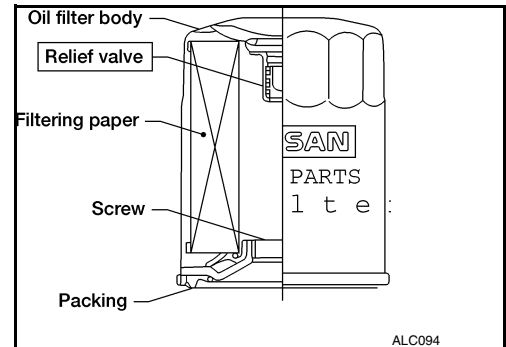
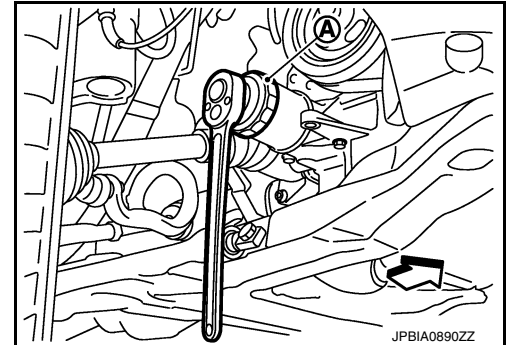
WARNING:

Be careful not to burn yourself, as engine oil may be hot.

CAUTION:

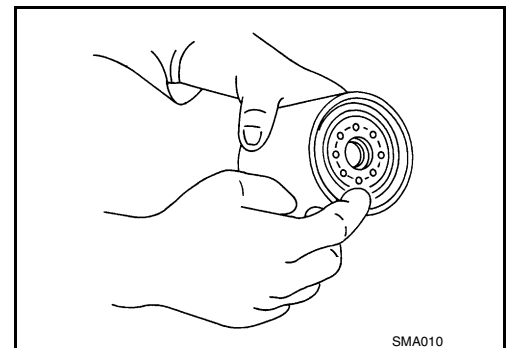
- When removing, prepare a shop cloth to absorb any engine oil leaks or spills.
- Do allow engine oil to adhere to drive belt.
- Completely wipe off any engine oil that adheres to engine and vehicle.

- Oil filter is provided with relief valve. Use genuine NISSAN oil filter or equivalent.



INSTALLATION

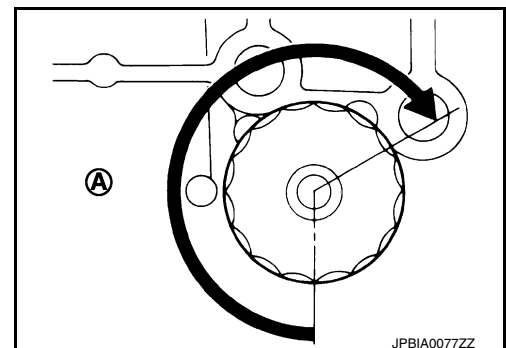
1. Remove foreign materials adhering to oil filter installation surface.
2. Apply new engine oil to the oil seal contact surface of new oil filter.



3. Screw oil filter manually until it touches the installation surface, then tighten it by 2/3 turn (A). Or tighten to the specification.

Oil filter:

: 17.7 N·m (1.8 kg-m, 13 ft-lb)



OIL FILTER

< PERIODIC MAINTENANCE >

Inspection

INFOID:000000009796750

INSPECTION AFTER INSTALLATION

1. Check the engine oil level. Refer to [LU-7. "Inspection"](#).
2. Start the engine, and check that there is are no leaks of engine oil.
3. Stop the engine and wait for at least 5 minutes.
4. Check the engine oil level, and adjust the level (if necessary). Refer to [LU-7. "Inspection"](#).

A

LU

C

D

E

F

G

H

I

J

K

L

M

N

O

P

OIL COOLER

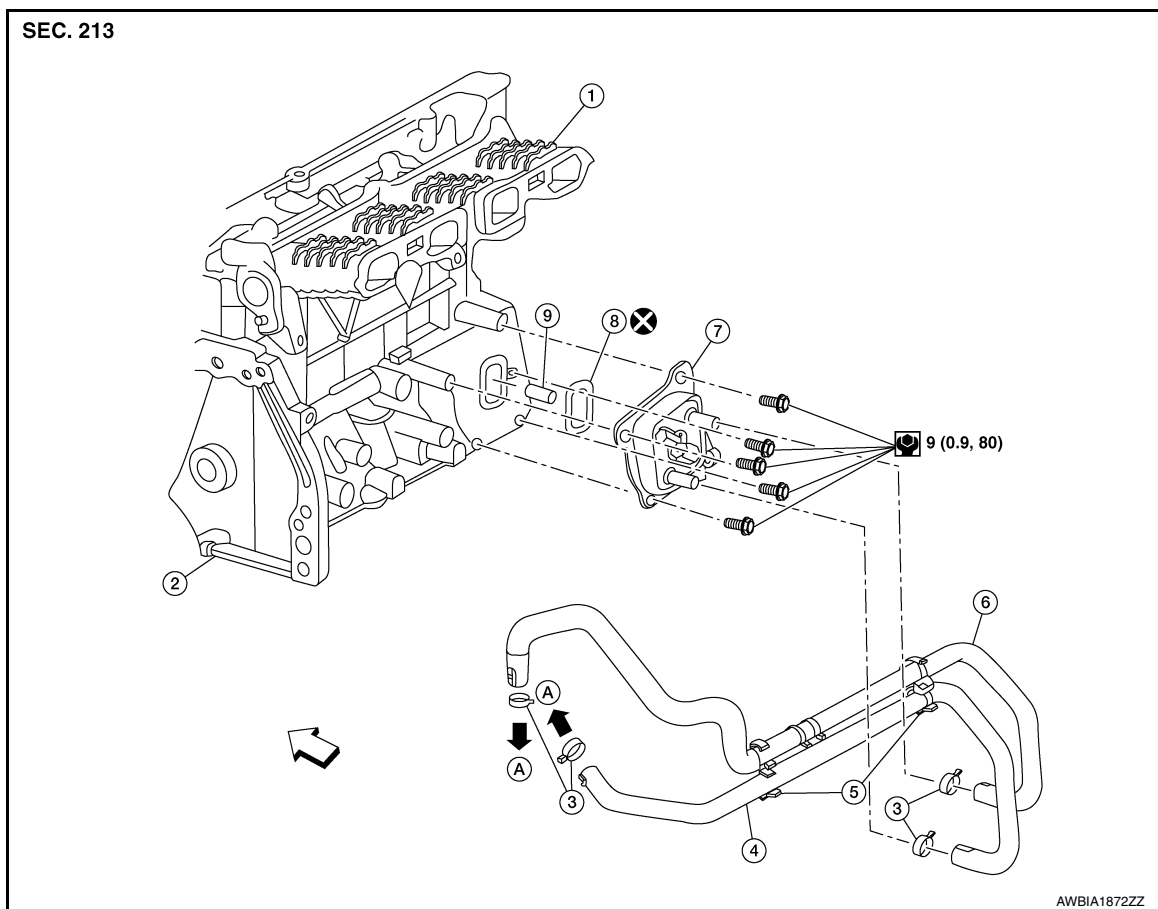
< REMOVAL AND INSTALLATION >

REMOVAL AND INSTALLATION

OIL COOLER

Exploded View

INFOID:000000010249290



- | | | |
|--------------------|--------------------|----------------------------|
| 1. Intake manifold | 2. Cylinder block | 3. Clamp |
| 4. Water hose | 5. Water hose clip | 6. Water hose |
| 7. Oil cooler | 8. Gasket | 9. Oil cooler relief valve |
| ⇐ Front | | |

Removal and Installation

INFOID:000000010249291

WARNING:

Be careful not to burn yourself, as engine oil and engine coolant may be hot.

NOTE:

When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid from spilling.

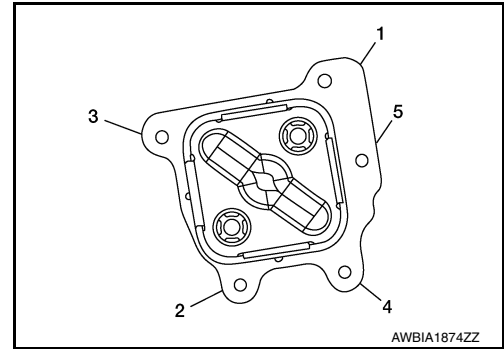
REMOVAL

1. Drain engine coolant. Refer to [CO-8, "Draining"](#).
2. Remove front air spoiler (RH). Refer to [EXT-16, "Exploded View"](#).
3. Remove fender protector (RH). Refer to [EXT-28, "FENDER PROTECTOR : Exploded View"](#).
4. Disconnect water hoses from the oil cooler.

OIL COOLER

< REMOVAL AND INSTALLATION >

5. Remove oil cooler bolts in reverse numerical order.



6. Remove oil cooler.

CAUTION:

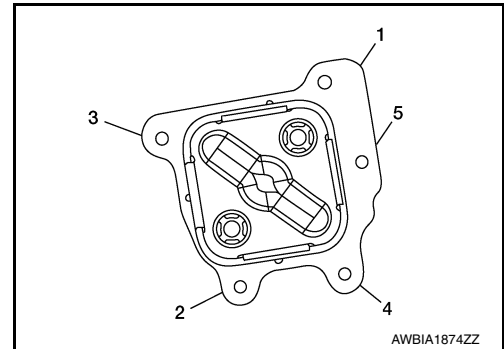
- Be careful not to get burned when engine and engine oil may be hot.
- When removing, prepare a shop cloth to absorb any engine oil leaks or spillage.
- Completely wipe off any engine oil that adheres to engine and vehicle.

7. Remove relief valve and O-ring, (if necessary).

INSTALLATION

Installation is in the reverse order of removal.

1. Tighten oil cooler to specification as shown.



CAUTION:

- Do not reuse O-ring.
- Ensure O-ring and oil cooler sealing surface is free from dust, flaws, or deformation.
- Ensure water hose assembly is installed without kinks or areas of collapse.
- Replace relief valve, if removed.

Inspection

INFOID:0000000010249292

INSPECTION AFTER REMOVAL

Oil Cooler

Check oil cooler for cracks. Check oil cooler for clogging by blowing through engine coolant inlet. If necessary, replace oil cooler.

Relief valve

Inspect relief valve for movement, cracks, and breaks by pushing the ball. If replacement is necessary, remove the valve by prying it out using a suitable tool. Install a new valve by tapping it in place.

INSPECTION AFTER INSTALLATION

1. Check the engine oil level and the engine coolant level and add engine oil and engine coolant. Refer to [LU-7, "Inspection"](#) and [CO-8, "Inspection"](#).
2. Start the engine, and check that there are no leaks of engine oil or engine coolant.
3. Stop the engine and wait for 5 minutes.
4. Check the engine oil level and the engine coolant level again. Refer to [LU-7, "Inspection"](#) and [CO-8, "Inspection"](#).

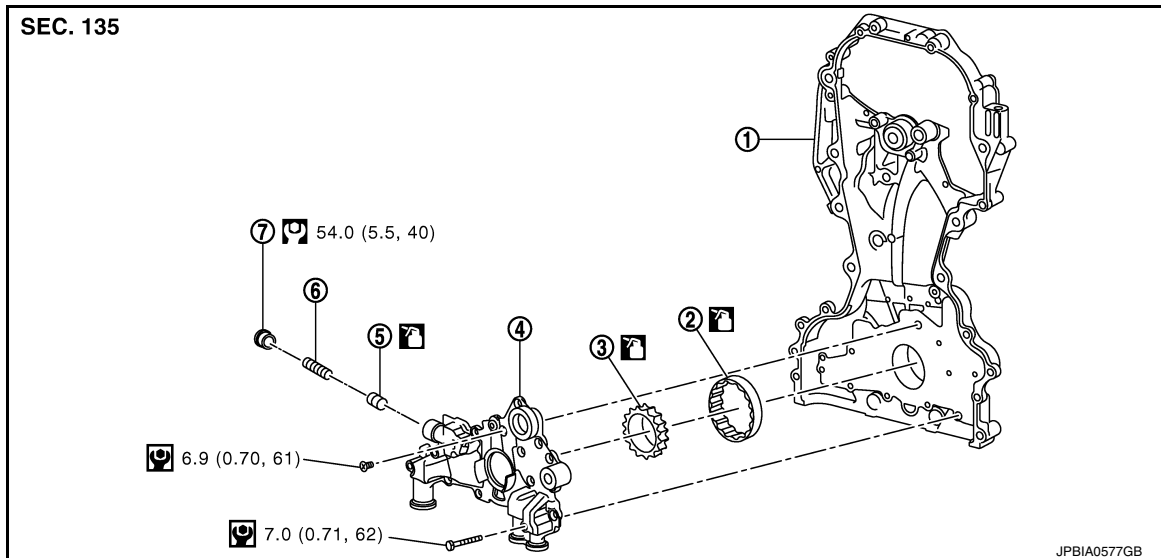
OIL PUMP

< REMOVAL AND INSTALLATION >

OIL PUMP

Exploded View

INFOID:0000000010249293



- | | | |
|---------------------------------------|--------------------|---------------------------|
| 1. Front cover (Oil pump body united) | 2. Outer rotor | 3. Inner rotor |
| 4. Oil pump cover | 5. Regulator valve | 6. Regulator valve spring |
| 7. Regulator valve plug | | |

CAUTION:

Before assembly, apply new engine oil to the parts as shown above.

Removal and Installation

INFOID:0000000010249294

REMOVAL

Remove front cover. Refer to [EM-44, "Exploded View"](#).

NOTE:

Oil pump is built into front cover.

INSTALLATION

Installation is in the reverse order of removal.

- When installing, align crankshaft flat faces with inner rotor flat faces.

Disassembly and Assembly

INFOID:0000000010249295

DISASSEMBLY

1. Remove bolts and oil pump cover.
2. Remove inner rotor and outer rotor from front cover.
3. After removing regulator valve plug, remove regulator valve spring and regulator valve.

ASSEMBLY

Assembly is in the reverse order of disassembly.

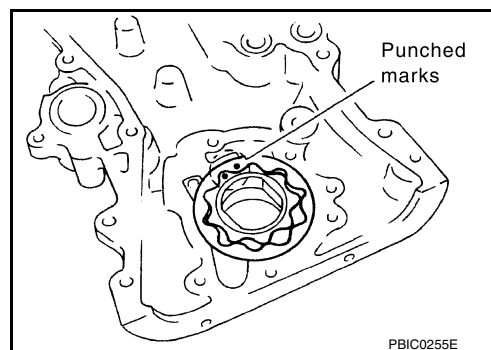
OIL PUMP

< REMOVAL AND INSTALLATION >

- Install the inner rotor and outer rotor with the punched marks on the oil pump cover side.

CAUTION:

Before assembly apply new engine oil to the parts specified.



Inspection

INFOID:000000010249296

INSPECTION AFTER DISASSEMBLY

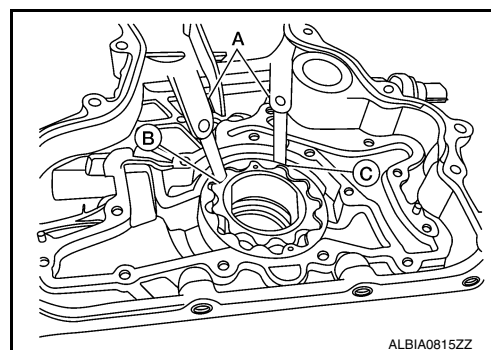
OIL PUMP CLEARANCE

- Measure the clearance using a suitable tool (A).
- Clearance between outer rotor (B) and front cover (C)

Standard : Refer to [LU-17, "Oil Pump"](#).

- Tip clearance between inner rotor and outer rotor (B)

Standard : Refer to [LU-17, "Oil Pump"](#).

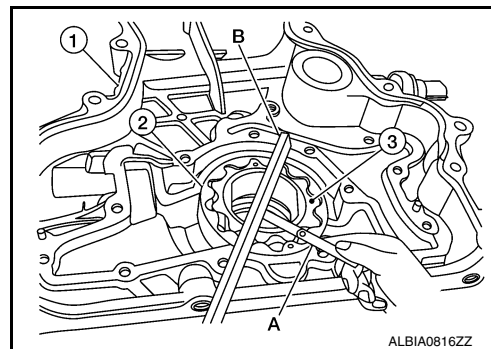


- Measure the clearance using suitable tools (A/B).
- Side clearance between inner rotor (3) and front cover (1)

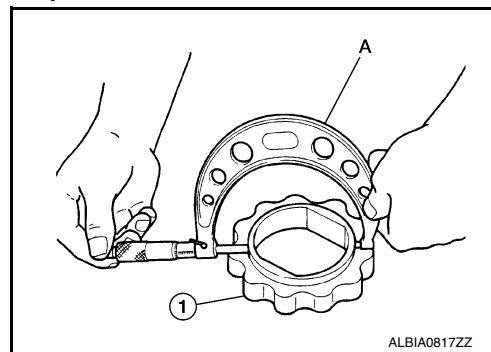
Standard : Refer to [LU-17, "Oil Pump"](#).

- Side clearance between outer rotor (2) and front cover (1)

Standard : Refer to [LU-17, "Oil Pump"](#).



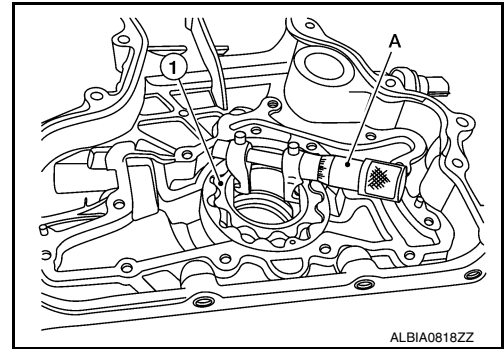
- Calculate the clearance between oil pump inner rotor and oil pump body as follows:
- Measure the outer diameter of protruded portion of inner rotor (1) using a suitable tool (A).



OIL PUMP

< REMOVAL AND INSTALLATION >

- Measure the inner diameter of inner rotor (1) using a suitable tool (A).



- (Clearance) = (Inner rotor inner diameter) – (Oil pump inner rotor outer diameter)

Standard : Refer to [LU-17, "Oil Pump"](#).

- If measured/calculated values are out of the standard, replace front cover and oil pump assembly.

REGULATOR VALVE TO OIL PUMP COVER CLEARANCE

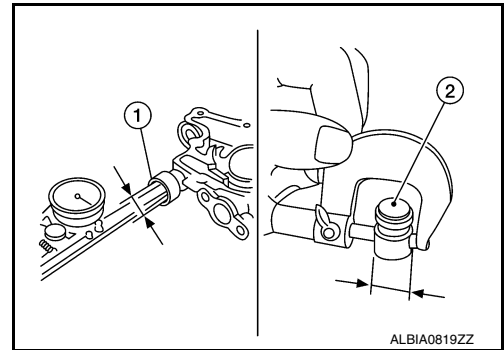
- (Clearance) = (Regulator valve hole (1) diameter) – (Regulator valve (2) outer diameter)

Standard : Refer to [LU-17, "Oil Pump"](#).

- If the calculated value is out of the standard, replace front cover and oil pump assembly.

CAUTION:

- Coat regulator valve with engine oil.
- Make sure that it falls smoothly into valve hole by its own weight.



INSPECTION AFTER INSTALLATION

- Before starting engine, check oil/fluid levels including engine coolant and engine oil. If less than required quantity, fill to the specified level. Refer to [MA-11, "Fluids and Lubricants"](#).
- Use procedure below to check for fuel leaks.
- Turn ignition switch ON (with engine stopped). With fuel pressure applied to fuel piping, check for fuel leaks at connection points.
- Start engine. With engine speed increased, check again for fuel leaks at connection points.
- Run engine to check for unusual noise and vibration.

NOTE:

If hydraulic pressure inside timing chain tensioner drops after removal and installation, slack in the guide may generate a pounding noise during and just after engine start. However, this is normal. Noise will stop after hydraulic pressure rises.

- Warm up engine thoroughly to make sure there are no leaks of fuel, exhaust gas, or any oils/fluids including engine oil and engine coolant.
- Bleed air from passages in lines and hoses, such as in cooling system.
- After cooling down engine, again check oil/fluid levels including engine oil and engine coolant. Refill to specified level, if necessary.
- Summary of the inspection items:

Item		Before starting engine	Engine running	After engine stopped
Engine coolant		Level	Leakage	Level
Engine oil		Level	Leakage	Level
Transmission/transaxle fluid	CVT Models	Leakage	Level/Leakage	Leakage
Other oils and fluids*		Level	Leakage	Level
Fuel		Leakage	Leakage	Leakage
Exhaust gas		—	Leakage	—

*Power steering fluid, brake fluid, etc.

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

Oil Pressure

INFOID:0000000010250270

LU

Unit: kPa (kg/cm², psi)

Engine speed	Approximate discharge oil pressure*
Idle speed	98 (1.0, 14)
2,000 rpm	294 (3.0, 43)
6,000 rpm	392 (4.0, 57)

*: Engine oil temperature at 80°C (176°F)

Oil Pump

INFOID:0000000010250271

Unit: mm (in)

Clearance between outer rotor and oil pump body	0.114 - 0.179 (0.0045 - 0.0070)
Tip clearance between inner rotor and outer rotor	0.170 - 0.220 (0.0067 - 0.0087)
Side clearance between inner rotor and oil pump body	0.030 - 0.070 (0.0012 - 0.0028)
Side clearance between outer rotor and oil pump body	0.060 - 0.110 (0.0024 - 0.0043)
Inner rotor to brazed portion of housing clearance	0.035 - 0.070 (0.0014 - 0.0028)

Relief Valve

INFOID:0000000010250272

Unit: mm (in)

Relief valve to oil pump cover clearance	0.040 - 0.097 (0.0016 - 0.0038)
--	---------------------------------

Oil Capacity

INFOID:0000000010250273

Unit: ℓ (US qt, Imp qt)

Drain and refill	With oil filter change	Approximately 4.6 (4-7/8, 4)
	Without oil filter change	Approximately 4.3 (4-1/2, 3-3/4)
Dry engine (engine overhaul)		Approximately 5.3 (5-5/8, 4-5/8)

CO

SECTION

ENGINE COOLING SYSTEM

CONTENTS

PRECAUTION	2	REMOVAL AND INSTALLATION	13
PRECAUTIONS	2	RADIATOR	13
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	2	Exploded View	13
PREPARATION	3	Removal and Installation	13
PREPARATION	3	Inspection	16
Special Service Tool	3	COOLING FAN	17
Commercial Service Tools	3	Exploded View	17
SYSTEM DESCRIPTION	4	Removal and Installation	17
DESCRIPTION	4	Disassembly and Assembly	18
Engine Cooling System	4	Inspection	18
Engine Cooling System Schematic	5	WATER PUMP	19
SYMPTOM DIAGNOSIS	6	Exploded View	19
OVERHEATING CAUSE ANALYSIS	6	Removal and Installation	19
Troubleshooting Chart	6	Inspection	20
PERIODIC MAINTENANCE	8	THERMOSTAT AND WATER CONTROL VALVE	21
ENGINE COOLANT	8	Exploded View	21
Inspection	8	Removal and Installation	21
Draining	8	Inspection	22
Refilling	9	WATER OUTLET AND WATER PIPING	23
Flushing	11	Exploded View	23
RADIATOR	12	Removal and Installation	23
RADIATOR CAP	12	SERVICE DATA AND SPECIFICATIONS (SDS)	25
RADIATOR CAP : Inspection	12	SERVICE DATA AND SPECIFICATIONS (SDS)	25
RADIATOR	12	Periodical Maintenance Specification	25
RADIATOR : Inspection	12	Radiator	25
		Thermostat	25

PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010197011

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

PREPARATION

< PREPARATION >

PREPARATION

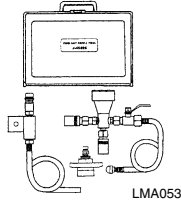
PREPARATION

Special Service Tool

INFOID:0000000010197016

The actual shape of the tools may differ from those illustrated here.

Tool number (TechMate No.) Tool name	Description
KV991J0070 (J-45695-A) Coolant refill tool	Refilling engine cooling system



LMA053

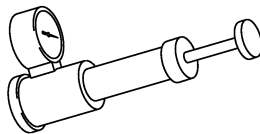
Commercial Service Tools

INFOID:0000000010197017

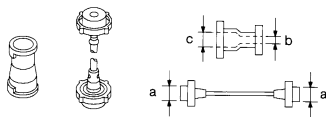
Tool name	Description
Power tool	Loosening nuts, screws and bolts
Radiator cap tester	Checking radiator and radiator cap
Radiator cap tester adapter	Adapting radiator cap tester to radiator cap and radiator pipe (upper) filler neck a: 28 (1.10) diameter b: 31.4 (1.236) diameter c: 41.3 (1.626) diameter Unit: mm (in)



PIIB1407E



PBIC1982E



S-NT564

DESCRIPTION

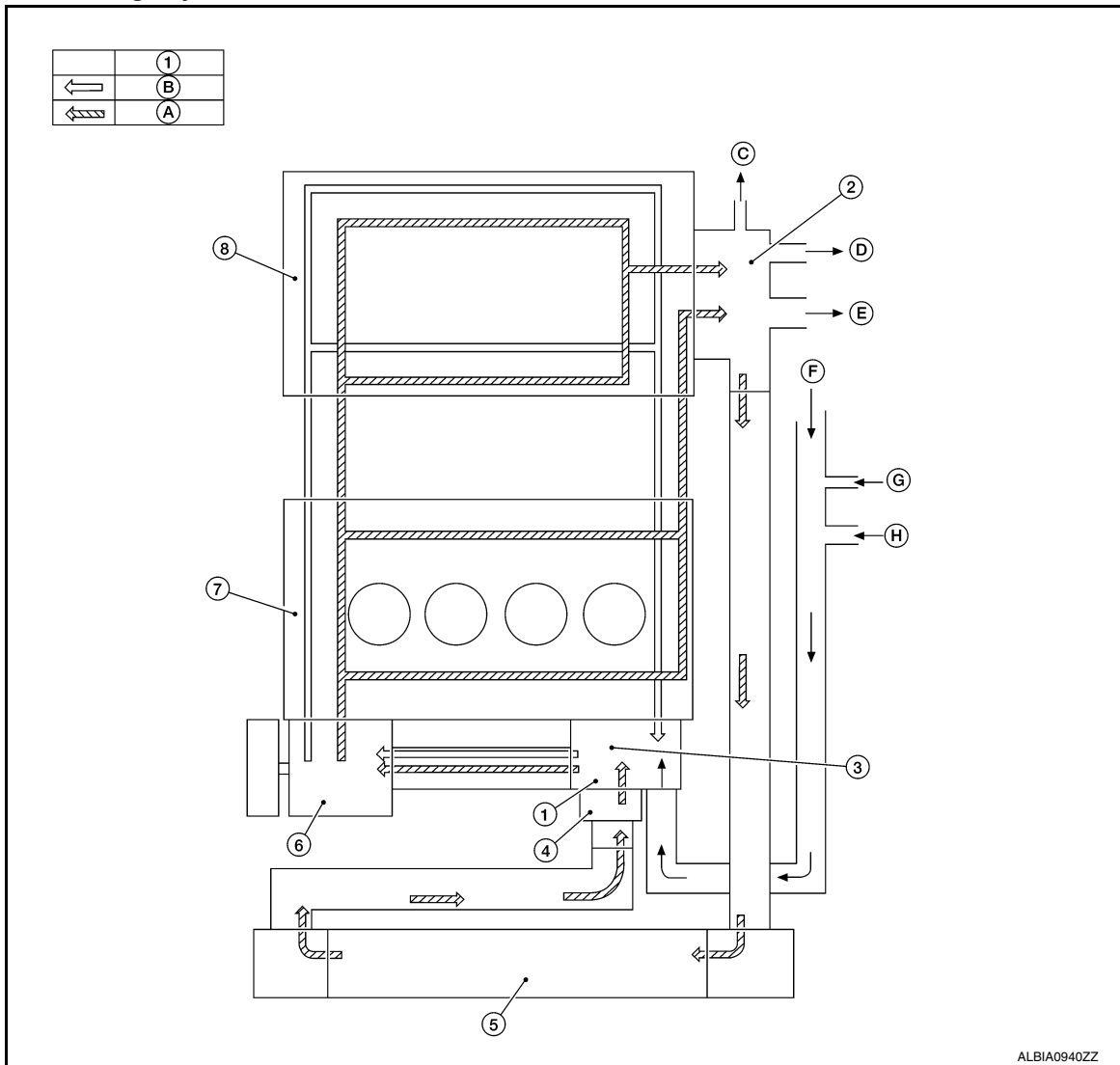
< SYSTEM DESCRIPTION >

SYSTEM DESCRIPTION

DESCRIPTION

Engine Cooling System

INFOID:000000009794899



ALBIA0940ZZ

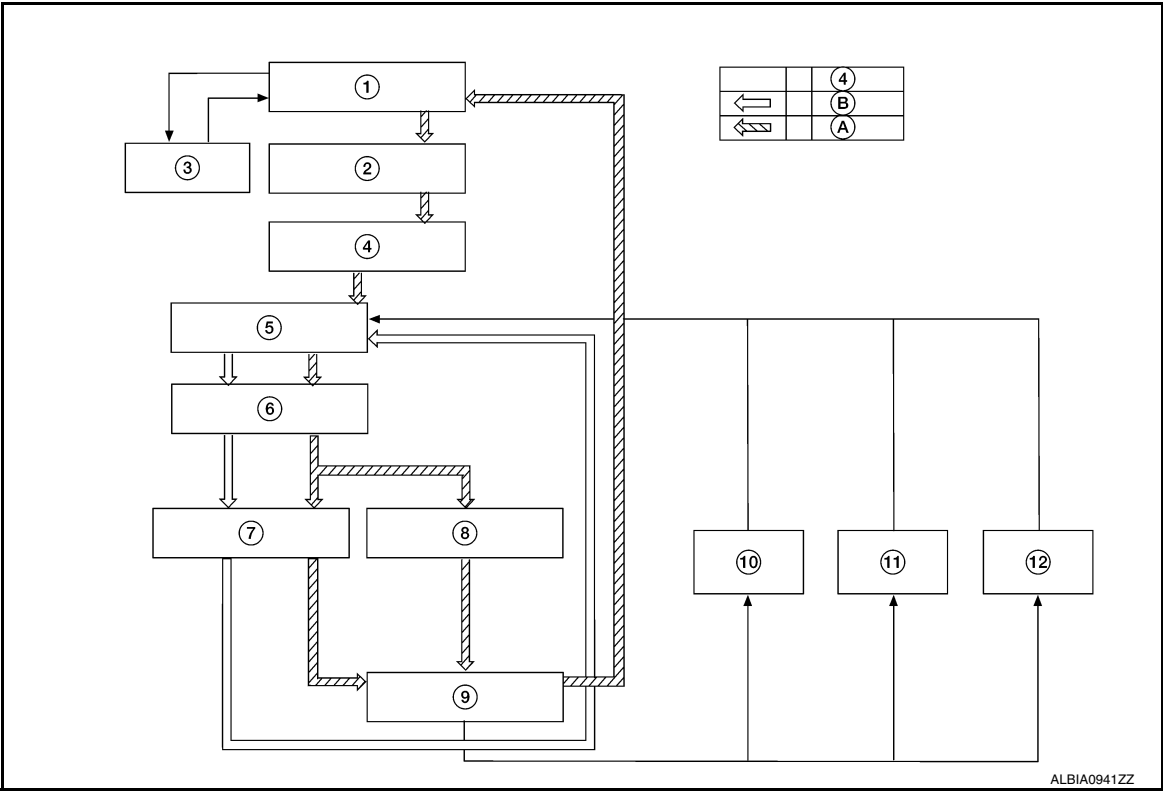
- | | | |
|--------------------|--|--|
| 1. Thermostat | 2. Water outlet | 3. Cylinder block (Thermostat housing) |
| 4. Water inlet | 5. Radiator | 6. Water pump |
| 7. Cylinder block | 8. Cylinder head | A. Open |
| B. Closed | C. To electric throttle control actuator | D. To oil cooler |
| E. To heater | F. From heater | G. From electric throttle control actuator |
| H. From oil cooler | | |

DESCRIPTION

< SYSTEM DESCRIPTION >

Engine Cooling System Schematic

INFOID:000000009794900



- | | | |
|------------------|-----------------------|--|
| 1. Radiator | 2. Water inlet | 3. Reservoir tank |
| 4. Thermostat | 5. Thermostat housing | 6. Water pump |
| 7. Cylinder head | 8. Cylinder block | 9. Water outlet |
| 10. Heater | 11. Oil cooler | 12. Electric throttle control actuator |
| A. Open | B. Closed | |

A
CO
C
D
E
F
G
H
I
J
K
L
M
N
O
P

OVERHEATING CAUSE ANALYSIS

< SYMPTOM DIAGNOSIS >

SYMPTOM DIAGNOSIS

OVERHEATING CAUSE ANALYSIS

Troubleshooting Chart

INFOID:000000009794901

		Symptom	Check items	
Cooling system parts malfunction	Poor heat transfer	Water pump malfunction	Worn or loose drive belt	—
		Thermostat and water control valve stuck closed	—	
		Damaged radiator fins	Dust contamination or paper clogging	
			Physical damage	
		Clogged radiator cooling tube	Excess foreign material (rust, dirt, sand, etc.)	
	Reduced air flow	Cooling fan does not operate	Fan assembly	—
		High resistance to fan rotation		
		Damaged fan blades		
	Damaged radiator shroud	—	—	—
	Improper engine coolant mixture ratio	—	—	—
	Poor engine coolant quality	—	Engine coolant density	—
	Insufficient engine coolant	Engine coolant leakage	Cooling hose	Loose clamp
				Cracked hose
			Water pump	Poor sealing
			Radiator cap	Loose
				Poor sealing
			Radiator	O-ring for damage, deterioration or improper fitting
				Cracked radiator tank
				Cracked radiator core
			Reservoir tank	Cracked reservoir tank
		Overflowing reservoir tank	Exhaust gas leakage into cooling system	Cylinder head deterioration
				Cylinder head gasket deterioration

OVERHEATING CAUSE ANALYSIS

< SYMPTOM DIAGNOSIS >

	Symptom		Check items	
Except cooling system parts malfunction	—	Overload on engine	Abusive driving	High engine rpm under no load
				Driving in low gear for extended time
				Driving at extremely high speed
			Powertrain system malfunction	—
			Installed improper size wheels and tires	
			Dragging brakes	
			Improper ignition timing	
	Blocked or restricted air flow	Blocked bumper	—	—
		Blocked radiator grille	Installed car brassiere	
			Mud contamination or paper clogging	
		Blocked radiator	—	
		Blocked condenser	Blocked air flow	
		Installed large fog lamp		

A

CO

C

D

E

F

G

H

I

J

K

L

M

N

O

P

ENGINE COOLANT

< PERIODIC MAINTENANCE >

PERIODIC MAINTENANCE

ENGINE COOLANT

Inspection

INFOID:000000009794907

LEVEL

- Check that the reservoir tank engine coolant level is within the "MIN" to "MAX" when the engine is cool.

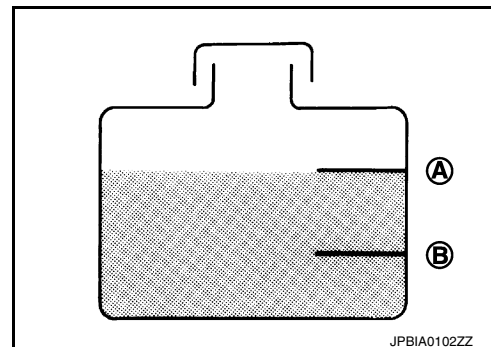
(A) : MAX

(B) : MIN

- Adjust the engine coolant level if necessary.

CAUTION:

Refill Genuine NISSAN Long Life Antifreeze/Coolant (blue) or equivalent in its quality mixed with water (distilled or demineralized). Refer to [MA-11, "Fluids and Lubricants"](#).



CHECKING COOLING SYSTEM FOR LEAKS

- To check for leaks, apply pressure to the cooling system using suitable tools (A/B).

Testing pressure : Refer to [CO-25, "Radiator"](#).

WARNING:

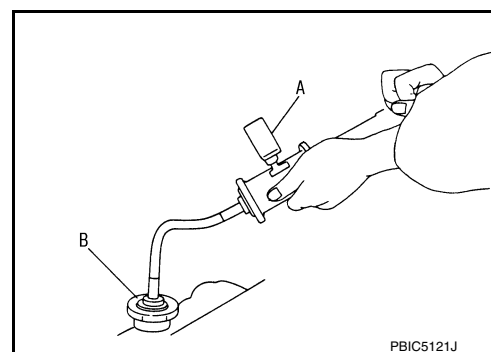
Do not remove the radiator cap when the engine is hot. Serious burns could occur from high-pressure engine coolant escaping from the radiator. Wrap a thick cloth around the cap. Slowly push down and turn it a quarter turn to allow built-up pressure to escape. Carefully remove the cap by pushing it down and turning it all the way.

CAUTION:

- Perform this step when the engine is cold.
- Do not spill engine coolant on drivebelt.
- Higher test pressure than specified may cause radiator damage.

NOTE:

- If engine coolant decreases, replenish radiator with engine coolant. Refer to [MA-11, "Fluids and Lubricants"](#).
- If anything is found, repair or replace damaged parts.



Draining

INFOID:000000009794908

WARNING:

Do not remove radiator cap when engine is hot. Serious burns could occur from high pressure engine coolant escaping the radiator. Wrap a thick cloth around the cap. Slowly push down and turn it a quarter turn to allow built-up pressure to escape. Carefully remove the cap by pushing it down and turning it all the way.

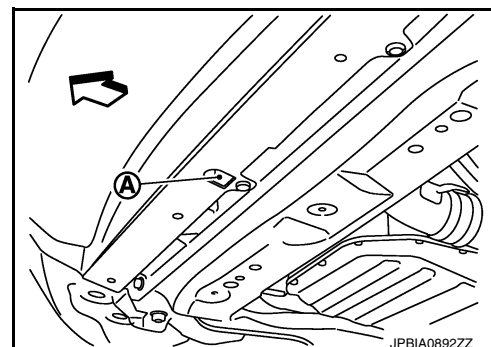
1. Open radiator drain plug at the bottom of radiator, and then remove radiator cap.

(A) : Radiator drain plug hole

⇐ : Vehicle front

CAUTION:

- Do not allow engine coolant to contact the drive belt.
- Perform this step when the engine is cold.



ENGINE COOLANT

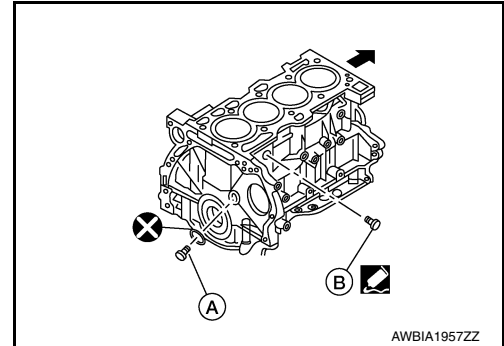
< PERIODIC MAINTENANCE >

- Follow this step for heater core removal/replacement only. Disconnect the upper heater hose at the engine side and apply moderate air pressure [103.46 kPa (1.055 kg/cm², 15 psi) maximum air pressure] into the hose for 30 seconds to blow the excess engine coolant out of the heater core.
- When draining all of the engine coolant in the system, remove the reservoir tank and drain the engine coolant, then clean the reservoir tank before installation.

CAUTION:

- Do not allow the engine coolant to contact the drive belt.
- Perform this step when engine is cold.

- When draining all of the engine coolant in the system for engine removal or repair, remove the engine coolant drain plugs (A/B) from the cylinder block.



- Check the drained engine coolant for contaminants such as rust, corrosion or discoloration. If the engine coolant is contaminated, flush the engine cooling system. Refer to [CO-11, "Flushing"](#).

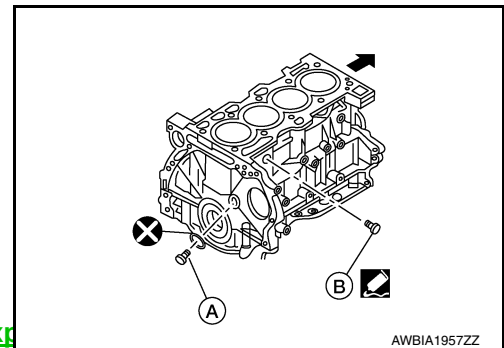
Refilling

INFOID:0000000010245793

CAUTION:

- Do not put additive such as waterleak preventive, since it may cause cooling waterway clogging.
- When refilling use Genuine NISSAN Long Life Antifreeze/Coolant (blue) or equivalent in its quality mixed with water (distilled or demineralized). Refer to [MA-11, "Fluids and Lubricants"](#).

- Install the radiator drain plug. Install the reservoir tank and cylinder block drain plug, if removed for a total system drain or for engine removal or repair.
 - The radiator must be completely empty of coolant and water.
 - Apply sealant to the threads of the cylinder block drain plug.
 - Use recommended coolant or equivalent. Refer to [MA-11, "Fluids and Lubricants"](#).



Radiator drain plug : Refer to [CO-13, "Ex"](#)

Cylinder block drain plug (A) : 53.9 Nm (5.5 kg-m, 40 ft-lb)

Cylinder block drain plug (B) : 9.8 N·m (1.0 kg-m, 87 in-lb)

- If disconnected, reattach the upper radiator hose at the engine side.
- Set the vehicle heater controls to the full HOT and heater ON position. Turn the vehicle ignition ON with the engine OFF as necessary to activate the heater mode.

ENGINE COOLANT

< PERIODIC MAINTENANCE >

4. Install the Tool by installing the radiator cap adapter onto the radiator neck opening. Then attach the gauge body assembly with the refill tube and the venturi assembly to the radiator cap adapter.

Tool number : KV991J0070 (J-45695)

5. Insert the refill hose into the coolant mixture container that is placed at floor level. Make sure the ball valve is in the closed position.

- Use recommended coolant or equivalent.

Refer to [MA-11, "Fluids and Lubricants"](#).

Engine coolant capacity (with reservoir tank) : Refer to [CO-25, "Periodical Maintenance Specification"](#).

CAUTION:

Do not use any cooling system additives such as radiator sealer. Additives may clog the cooling system and cause damage to the engine, transmission and/or cooling system.

6. Install an air hose to the venturi assembly, the air pressure must be within specification.

Compressed air supply pressure : 549 - 824 kPa (5.6 - 8.4 kg/cm², 80 - 119 psi)

CAUTION:

The compressed air supply must be equipped with an air dryer.

7. The vacuum gauge will begin to rise and there will be an audible hissing noise. During this process open the ball valve on the refill hose slightly. Coolant will be visible rising in the refill hose. Once the refill hose is full of coolant, close the ball valve. This will purge any air trapped in the refill hose.
8. Continue to draw the vacuum until the gauge reaches 28 inches of vacuum. The gauge may not reach 28 inches in high altitude locations, use the vacuum specifications based on the altitude above sea level.

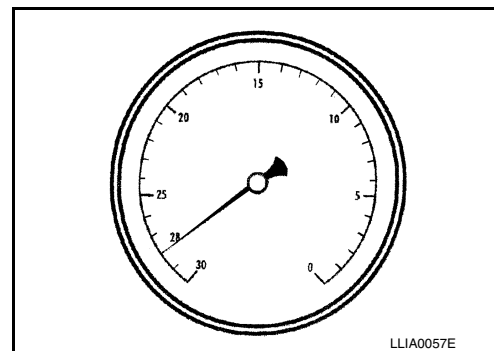
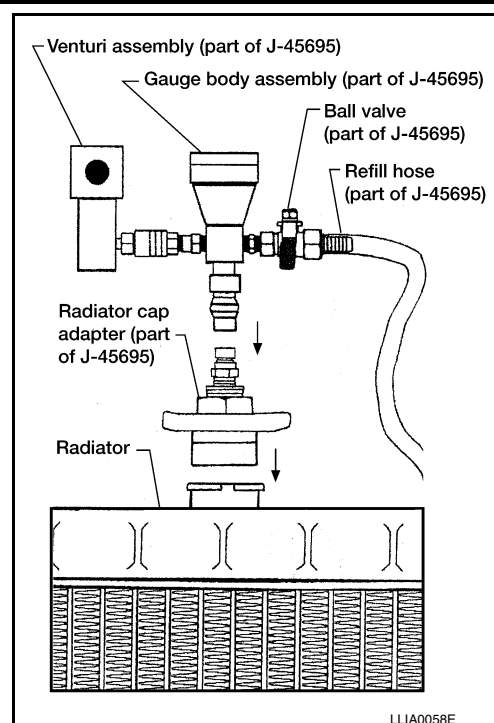
Altitude above sea level	Vacuum gauge reading
0 - 100 m (328 ft)	: 28 inches of vacuum
300 m (984 ft)	: 27 inches of vacuum
500 m (1,641 ft)	: 26 inches of vacuum
1,000 m (3,281 ft)	: 24 - 25 inches of vacuum

9. When the vacuum gauge has reached the specified amount, disconnect the air hose and wait 20 seconds to see if the system loses any vacuum. If the vacuum level drops, perform any necessary repairs to the system and repeat steps 6 - 8 to bring the vacuum to the specified amount. Recheck for any leaks.
10. Place the coolant container (with the refill hose inserted) at the same level as the top of the radiator. Then open the ball valve on the refill hose so the coolant will be drawn up to fill the cooling system. The cooling system is full when the vacuum gauge reads zero.

CAUTION:

Do not allow the coolant container to get too low when filling, to avoid air from being drawn into the cooling system.

11. Remove the Tool from the radiator neck opening.
12. Fill the cooling system reservoir tank to the specified level and install the radiator cap. Run the engine to warm up the cooling system and top up the system as necessary.



ENGINE COOLANT

< PERIODIC MAINTENANCE >

Flushing

INFOID:000000009794910

1. Install reservoir tank, if removed, and radiator drain plug.

CAUTION:

- Be sure to clean drain plug.
- Do not reuse O-ring.

Radiator drain plug : Refer to [CO-13, "Exploded View"](#).

- If water drain plugs on cylinder block are removed, close and tighten them. Refer to [EM-92, "Exploded View"](#).
2. Run the engine and warm it up to normal operating temperature.
 3. Rev the engine two or three times under no-load.
 4. Stop the engine and wait until it cools down.
 5. Drain water from the system. Refer to [CO-8, "Draining"](#).
 6. Repeat steps 1 through 5 until clear water begins to drain from radiator.

A

CO

C

D

E

F

G

H

I

J

K

L

M

N

O

P

RADIATOR

< PERIODIC MAINTENANCE >

RADIATOR

RADIATOR CAP

RADIATOR CAP : Inspection

INFOID:0000000010245846

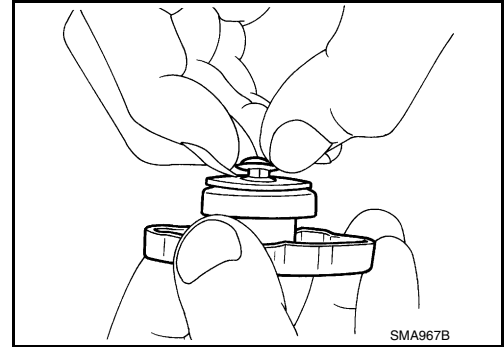
CHECKING RADIATOR CAP

1. Inspect the radiator cap.
 - Replace the cap if the metal plunger cannot be seen around the edge of the black rubber gasket.
 - Replace the cap if deposits of waxy residue or other foreign material are on the black rubber gasket or the metal retainer.

NOTE:

Thoroughly wipe out the radiator filler neck to remove any waxy residue or foreign material.

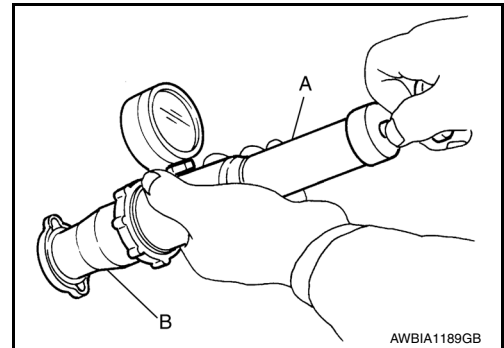
2. Pull the negative-pressure valve to open it and check that it closes completely when released.
 - Check that there is no dirt or damage on the valve seat of the radiator cap negative-pressure valve.
 - Check that there are no abnormalities in the opening and closing conditions of the negative-pressure valve.



3. Check radiator cap relief pressure using suitable tool (A/B).

Standard : Refer to [CO-25, "Radiator"](#).

- Apply water or engine coolant to the cap seal surface before connecting the radiator cap to the tester.
- Replace the radiator cap if there is an abnormality in the negative-pressure valve, or if the open-valve pressure is outside of the standard values.



RADIATOR

RADIATOR : Inspection

INFOID:0000000010245847

Check radiator for mud or clogging. If necessary, clean radiator as follows.

CAUTION:

- **Be careful not to bend or damage radiator fins.**
- **When radiator is cleaned without removal, remove all surrounding parts such as radiator cooling fan assembly and horns. Then tape harness and harness connectors to prevent water from entering.**

1. Spray water to the back side of the radiator core using a side to side motion from the top down.
2. Stop spraying when debris no longer flows from radiator core.
3. Blow air into the back side of radiator core using a side to side motion from the top down.
 - Use compressed air lower than 490 kPa (5 kg/cm², 71 psi) and keep distance more than 30 cm (11.8 in).
4. Continue to blow air until no water sprays out.
5. Check for engine coolant leaks. Repair as necessary.

RADIATOR

< REMOVAL AND INSTALLATION >

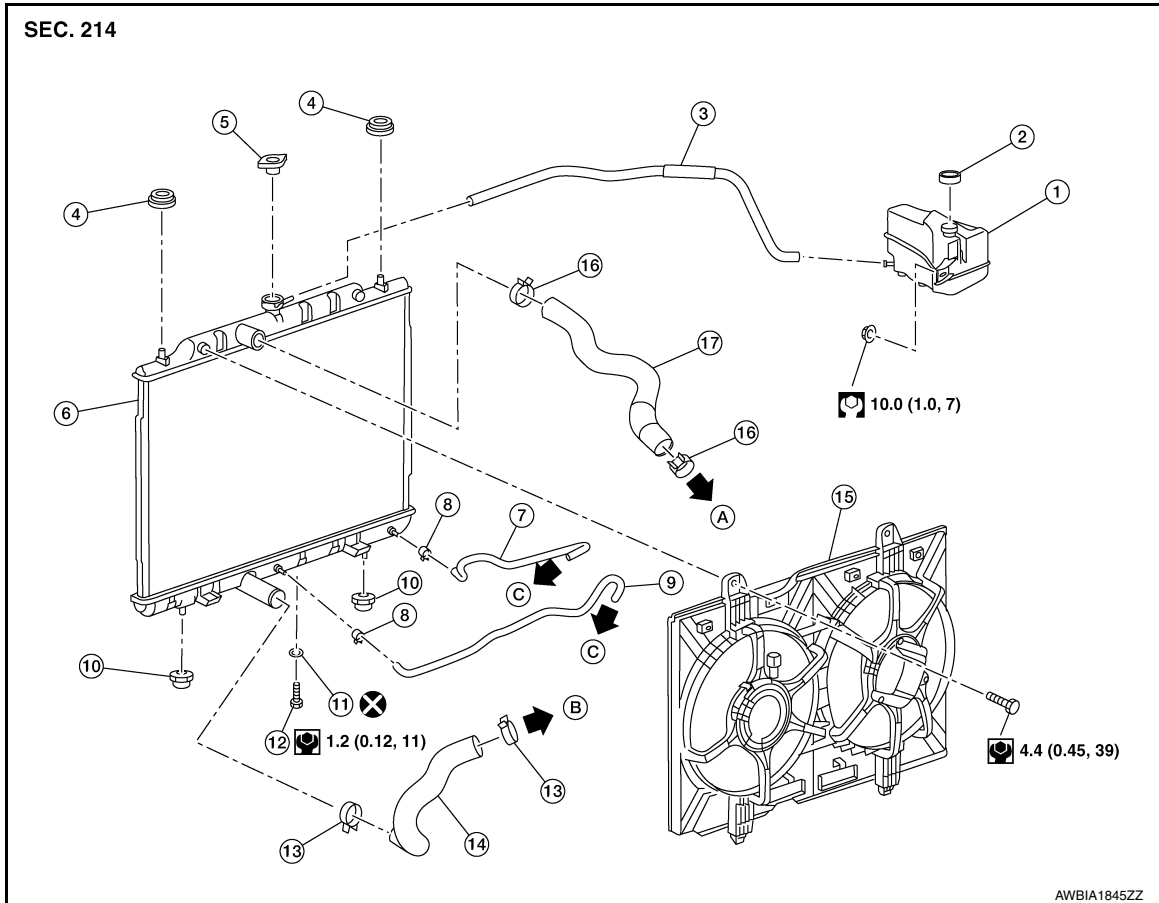
REMOVAL AND INSTALLATION

RADIATOR

Exploded View

INFOID:000000009794913

REMOVAL



- | | | |
|-----------------------------|---------------------------|--------------------------|
| 1. Reservoir tank | 2. Reservoir tank cap | 3. Reservoir tank hose |
| 4. Mounting rubber (upper) | 5. Radiator cap | 6. Radiator |
| 7. CVT fluid cooler hose | 8. Clamp | 9. CVT fluid cooler hose |
| 10. Mounting rubber (lower) | 11. O-ring | 12. Drain plug |
| 13. Clamp | 14. Radiator hose (lower) | 15. Cooling fan assembly |
| 16. Clamp | 17. Radiator hose (upper) | A. To water outlet |
| B. To water inlet | C. To CVT fluid warmer | |

Removal and Installation

INFOID:000000009794914

REMOVAL

WARNING:

Do not remove the radiator cap when the engine is hot. Serious burns could occur from high-pressure engine coolant escaping from the radiator. Wrap a thick cloth around the cap. Slowly push down and turn it a quarter turn to allow built-up pressure to escape. Carefully remove the cap by pushing it down and turning it all the way.

NOTE:

When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid from spilling.

1. Disconnect battery negative terminal.

RADIATOR

< REMOVAL AND INSTALLATION >

2. Disconnect battery positive terminal. Refer to [PG-77, "Exploded View"](#).
3. Depower SRS system. Refer to [SR-2, "Service"](#).
4. Drain engine coolant from radiator. Refer to [CO-8, "Draining"](#).
CAUTION:
 - Perform this step when the engine is cold.
 - Do not spill engine coolant on the drive belt.
5. Remove engine under cover. Refer to [EXT-37, "ENGINE UNDER COVER : Removal and Installation"](#).
6. Remove over fender. Refer to [EXT-30, "FRONT OVER FENDER : Removal and Installation"](#).
7. Remove front air spoiler. Refer to [EXT-16, "Exploded View"](#).
8. Remove fender protector side cover. Refer to [EXT-28, "FENDER PROTECTOR : Exploded View"](#).
9. Remove radiator core support (upper). Refer to [EXT-16, "Exploded View"](#).
10. Remove radiator hose (upper/lower) from radiator. Refer to [CO-13, "Exploded View"](#).
CAUTION:
Do not spill engine coolant on the drive belt.
11. Remove clamps from radiator hose (upper/lower), (if necessary).
NOTE:
Radiator hoses have glued on clamps.
 - Apply heat gun at glued location, usually located on the underside of the radiator hose (upper/lower), a short distance from clamp.
 - While applying heat, simultaneously wiggle or pressure the clamp tab gently until it can be removed from the hose without damaging it.
WARNING:
Wear hand protection while applying heat to remove glue.
12. Remove condenser. Refer to [HA-37, "CONDENSER : Removal and Installation"](#).
CAUTION:
Be careful not to damage the condenser.
13. Remove cooling fan assembly. Refer to [CO-17, "Exploded View"](#).
CAUTION:
Be careful not to damage the radiator.
14. Remove radiator.
CAUTION:
Be careful not to damage or scratch the radiator.

INSTALLATION

Installation is in the reverse order of removal.

- After installation, refill coolant and check for leaks. Refer to [CO-9, "Refilling"](#) and [CO-8, "Inspection"](#).

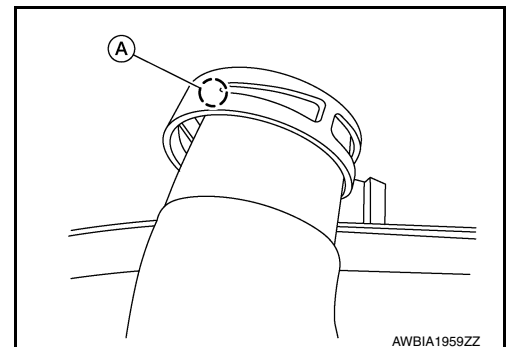
CAUTION:

Do not spill coolant in engine compartment. Use a shop cloth to absorb coolant.

Radiator hose

NOTE:

- Once hose clamp has been placed into position, place a small amount of glue between the hose and the clamp (A).

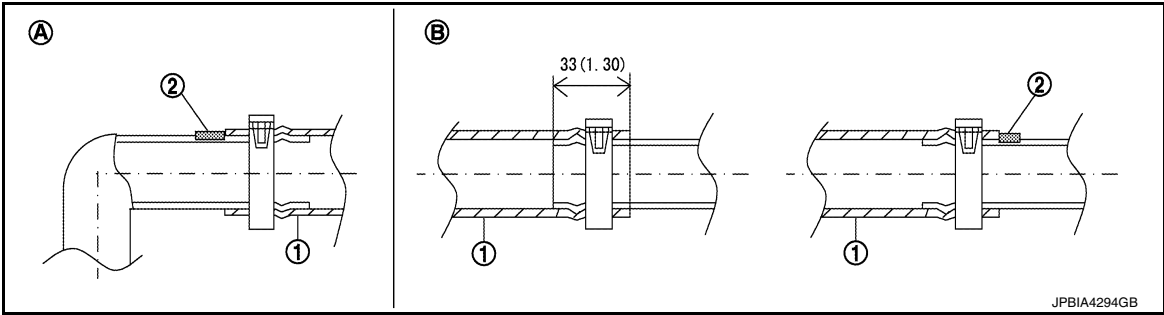


AWBIA1959ZZ

- Insert the radiator hose (1) all the way to the stopper (2) or by 33 mm (1.30 in) (hose without a stopper).

RADIATOR

< REMOVAL AND INSTALLATION >



Unit: mm (in)

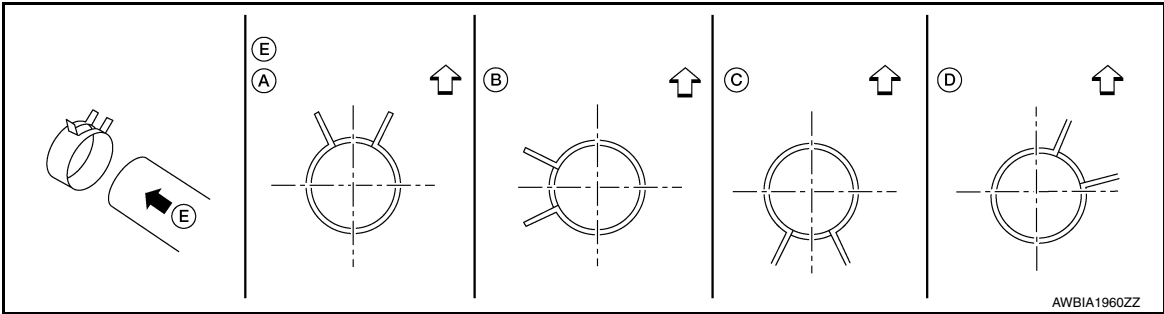
A. Radiator side

B. Engine side

- For the orientation of the hose clamp pawl, refer to the figure.

Radiator hose	Hose end	Paint mark	Position of hose clamp*
Radiator hose (upper)	Radiator side	Upper	A
	Engine side	Upper	D
Radiator hose (lower)	Radiator side	Upper	C
	Engine side	Side	B
CVT fluid cooler hoses	Radiator side	Lower	C

*: Refer to the illustrations for the specific position each hose clamp tab.

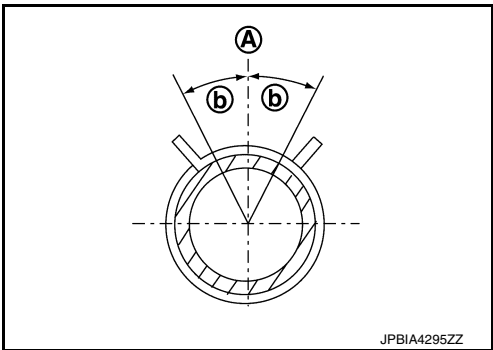


E. View E

↖ : Vehicle upper

↗ : Vehicle back side

- The angle (b) created by the hose clamp pawl and the specified line (A) must be within ± 30 as shown in the figure.

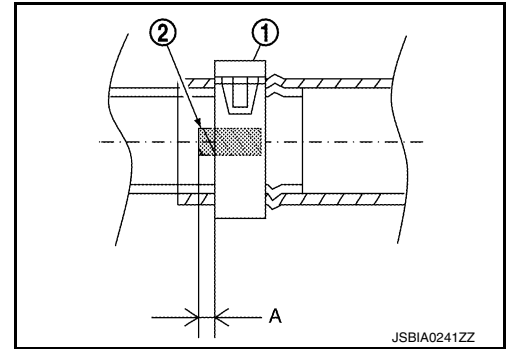


RADIATOR

< REMOVAL AND INSTALLATION >

- To install hose clamps (1), check that the dimension (A) from the end of the hose clamp on the radiator hose to the hose clamp is within the reference value.

Dimension "A" : (-3) – (+3) mm [(-0.12) – (+0.12) in]



Inspection

INFOID:000000009794915

INSPECTION AFTER INSTALLATION

- Start and warm up the engine. Check visually and verify that there are no engine coolant leaks, if engine coolant leaks are found perform inspection. Refer to [CO-8, "Inspection"](#).

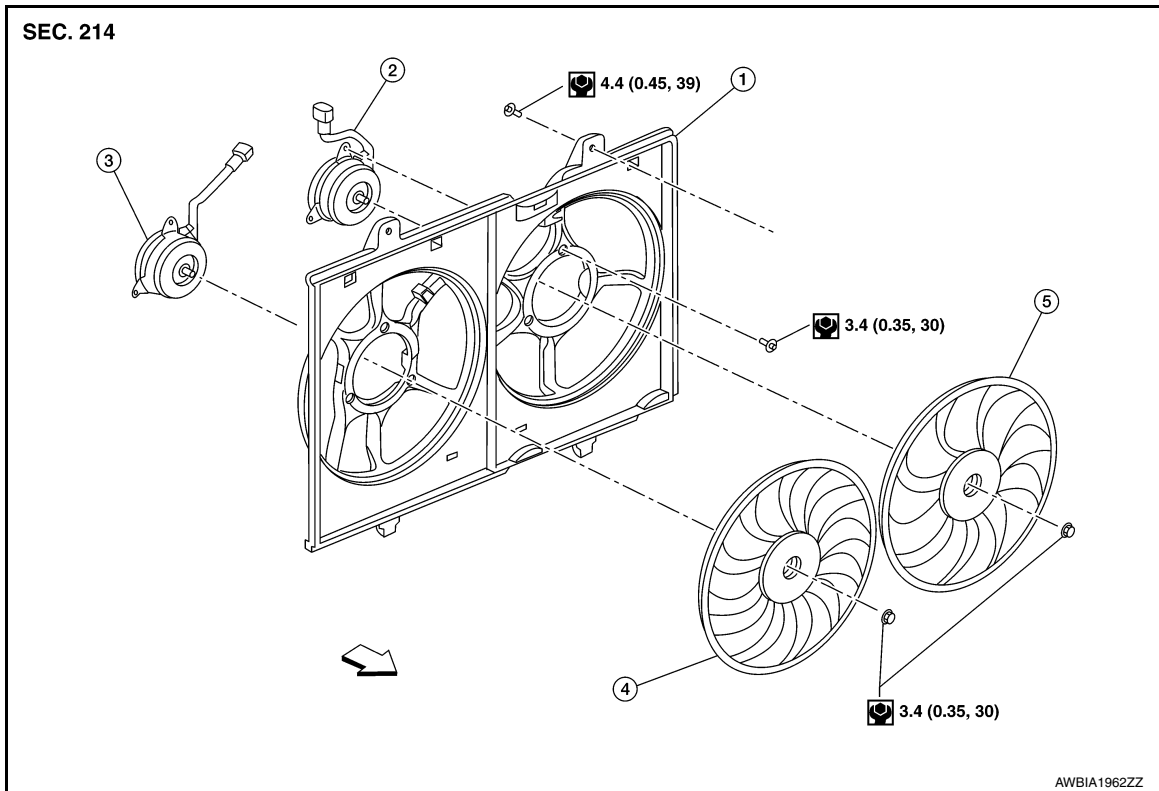
COOLING FAN

< REMOVAL AND INSTALLATION >

COOLING FAN

Exploded View

INFOID:000000009794916



- | | | |
|---------------------|---------------------|-------------------|
| 1. Fan shroud | 2. Fan motor (LH) | 3. Fan motor (RH) |
| 4. Cooling fan (RH) | 5. Cooling fan (LH) | ⇐ Front |

Removal and Installation

INFOID:000000009794917

REMOVAL

WARNING:

Do not remove the radiator cap when the engine is hot. Serious burns could occur from high pressure engine coolant escaping from the radiator. Wrap a thick cloth around the cap. Slowly turn it a quarter turn to allow built-up pressure to escape. Carefully remove the cap by turning it all the way.

NOTE:

When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid from spilling.

1. Disconnect battery negative terminal.
2. Disconnect battery positive terminal. Refer to [PG-77, "Exploded View"](#).
3. Depower SRS system. Refer to [SR-2, "Service"](#).
4. Drain engine coolant from radiator. Refer to [CO-8, "Draining"](#).

CAUTION:

- Perform this step when the engine is cold.
- Do not spill engine coolant on the drive belt.

5. Remove engine under cover. Refer to [EXT-37, "ENGINE UNDER COVER : Removal and Installation"](#).
6. Remove front air spoiler. Refer to [EXT-16, "Exploded View"](#).
7. Remove fender protector side cover. Refer to [EXT-28, "FENDER PROTECTOR : Exploded View"](#).
8. Remove air duct (inlet). Refer to [EM-24, "Exploded View"](#).
9. Remove bumper fascia assembly. Refer to [EXT-16, "Exploded View"](#).
10. Remove radiator core support (upper). Refer to XX.

COOLING FAN

< REMOVAL AND INSTALLATION >

11. Remove radiator hose (upper) from radiator. Refer to [CO-13, "Exploded View"](#).

CAUTION:

Do not spill engine coolant on the drive belt.

12. Disconnect harness connector from cooling fan controller.
13. Remove harness retainers from fan shroud.
14. Remove CVT cooler hose retainers from fan shroud.
15. Remove reservoir tank hose from fan shroud. Refer to [CO-13, "Exploded View"](#).
16. Remove fan shroud. Refer to [CO-17, "Exploded View"](#).

CAUTION:

Be careful not to damage the radiator.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

Do not spill engine coolant in the engine compartment. Use a shop cloth to absorb engine coolant.

NOTE:

Cooling fan is controlled by ECM. For details, refer to [EC-64, "On Board Diagnosis Function"](#).

Disassembly and Assembly

INFOID:000000009794918

DISASSEMBLY

1. Remove cooling fan mounting nuts, and then remove the cooling fans (RH and LH).
2. Remove fan motor cover and fan motors (RH and LH).

ASSEMBLY

Assembly is in the reverse order of disassembly.

CAUTION:

Apply high thread locking sealant to cooling fan motor shaft.

Inspection

INFOID:000000009794919

INSPECTION AFTER DISASSEMBLY

Cooling Fan

Inspect cooling fan for cracks or unusual bends.

- If anything is found, replace cooling fan.

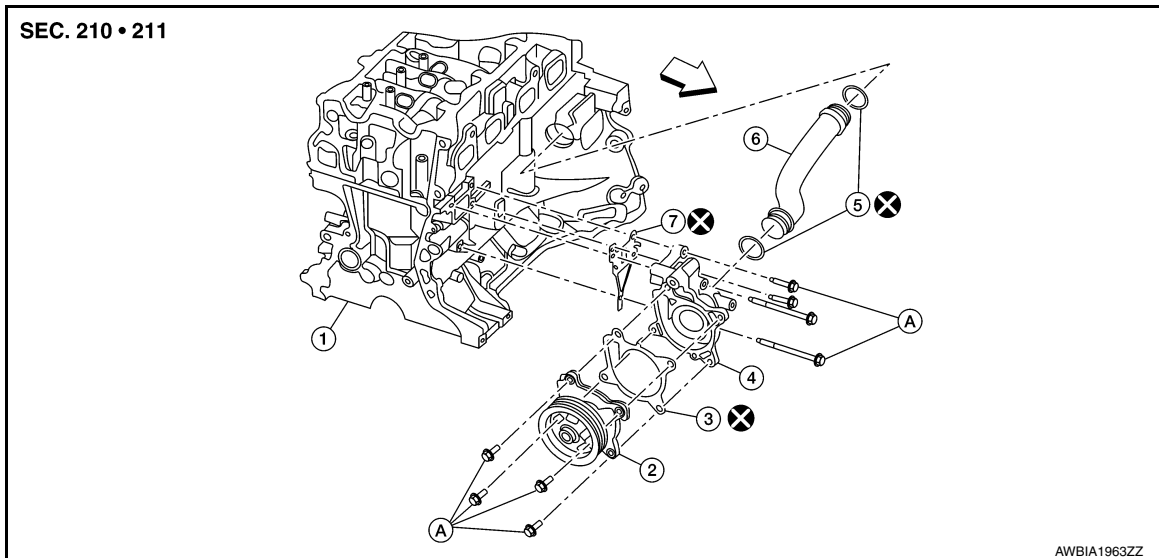
WATER PUMP

< REMOVAL AND INSTALLATION >

WATER PUMP

Exploded View

INFOID:000000009794920



- | | | |
|------------------------------|--------------------------|----------------------|
| 1. Cylinder block | 2. Water pump | 3. Water pump gasket |
| 4. Water pump housing | 5. O-ring | 6. Water pipe |
| 7. Water pump housing gasket | A. Refer to INSTALLATION | |

Removal and Installation

INFOID:000000009794921

REMOVAL

1. Drain engine coolant. Refer to [CO-8, "Draining"](#).

WARNING:

Do not remove the radiator cap when the engine is hot. Serious burns could occur from high pressure coolant escaping from the radiator.

CAUTION:

- Perform this step when the engine is cold.
- Do not spill engine coolant on the drive belt.

2. Remove the generator. Refer to [CHG-20, "Removal and Installation"](#).
3. Remove water pump.
 - Engine coolant will leak from the cylinder block.

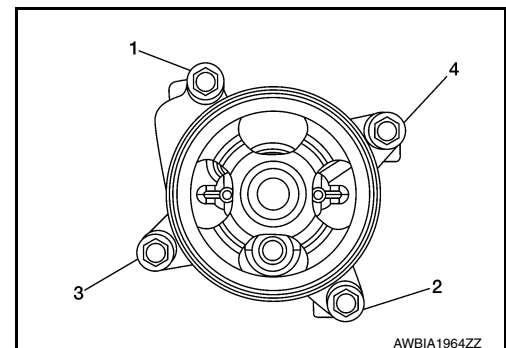
CAUTION:

- Handle water pump vane so that it does not contact any other parts.
- Water pump cannot be disassembled and should be replaced as a unit.

INSTALLATION

1. Tighten water pump bolts in sequence to specification.

25 N·m (2.6 kg-m, 18 ft-lb)

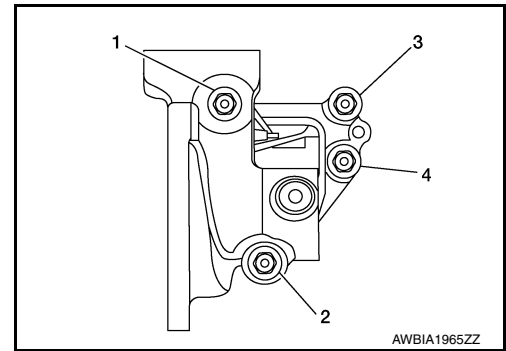


WATER PUMP

< REMOVAL AND INSTALLATION >

2. Tighten water pump housing bolts in sequence to specification.

25 N·m (2.6 kg-m, 18 ft-lb)



Installation of remaining components is in the reverse order of removal.

- After installation, refill coolant and check for leaks. Refer to [CO-9, "Refilling"](#) and [CO-8, "Inspection"](#).

CAUTION:

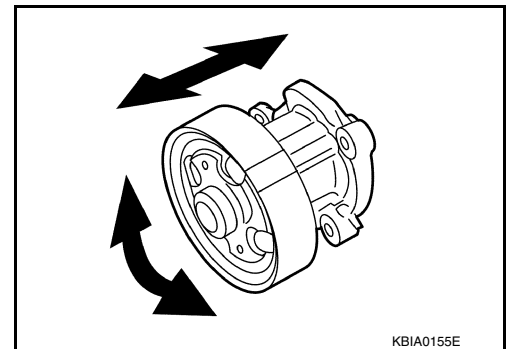
- Do not spill coolant in engine compartment. Use a shop cloth to absorb coolant.
- Do not reuse water pump gasket.

Inspection

INFOID:000000009794922

INSPECTION AFTER REMOVAL

- Check visually that there is no significant dirt or rusting on water pump body and vane.
- Check that there is no looseness in vane shaft, and that it turns smoothly when rotated by hand.
- Replace water pump, if necessary.



INSPECTION AFTER INSTALLATION

- Check for leakage of engine coolant using the radiator cap tester adapter (commercial service tool) and the radiator cap tester (commercial service tool). Refer to [CO-8, "Inspection"](#).
- Start and warm up engine. Check visually that there is no leakage of engine coolant.

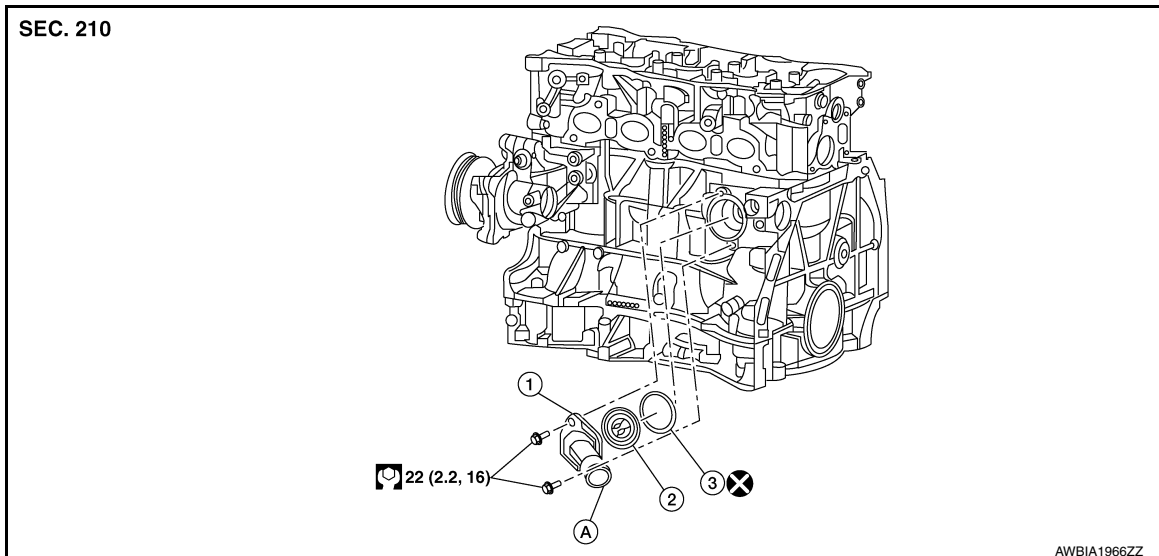
THERMOSTAT AND WATER CONTROL VALVE

< REMOVAL AND INSTALLATION >

THERMOSTAT AND WATER CONTROL VALVE

Exploded View

INFOID:000000009794923



1. Water inlet
2. Thermostat
3. Rubber ring
A. To radiator hose (lower)

NOTE:

When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid from spilling.

Removal and Installation

INFOID:000000009794924

WARNING:

Do not remove the radiator cap when the engine is hot. Serious burns could occur from high-pressure engine coolant escaping from the radiator. Wrap a thick cloth around the cap. Slowly push down and turn it a quarter turn to allow built-up pressure to escape. Carefully remove the cap by pushing it down and turning it all the way.

REMOVAL

1. Drain engine coolant from the radiator. Refer to [CO-8, "Draining"](#).
CAUTION:
 - Perform this step when the engine is cold.
 - Do not spill coolant on drive belt.
2. Remove engine under cover. Refer to [EXT-37, "ENGINE UNDER COVER : Removal and Installation"](#).
3. Remove radiator hose (lower) from the water inlet side.
4. Remove exhaust manifold heat shield. Refer to [EM-29, "Exploded View"](#).
5. Remove water inlet and thermostat.

INSTALLATION

Installation is in the reverse order of removal.

- Install the thermostat with the whole circumference of the flange fitting securely inside the rubber ring.

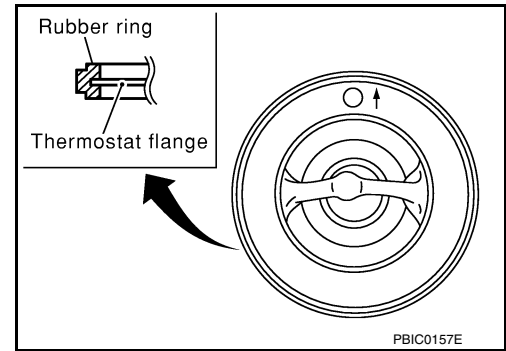
CAUTION:

- Do not reuse rubber ring.
- Ensure thermostat rubber ring mounting surface is free from dents or flaws.

THERMOSTAT AND WATER CONTROL VALVE

< REMOVAL AND INSTALLATION >

- Install the thermostat with the jiggle valve facing upwards. The position deviation may be within the range of $\pm 20^\circ$.
- After installation, refill coolant and check for leaks. Refer to [CO-9, "Refilling"](#) and [CO-8, "Inspection"](#).



INFOID:000000009794925

Inspection

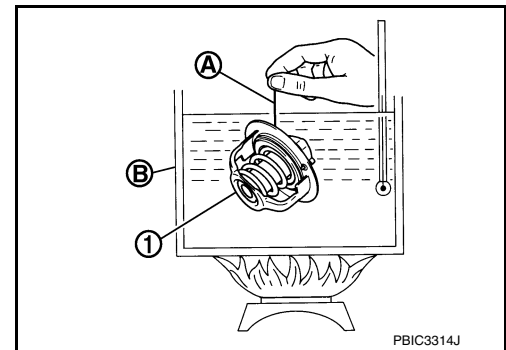
INSPECTION AFTER REMOVAL

- Place a thread (A) so that it is caught in the valves of thermostat (1) and water control valve. Immerse fully in a container (B) filled with water. Heat while stirring. (The example in the figure shows thermostat.)
- The valve opening temperature is the temperature at which the valve opens and falls from the thread.
- Continue heating. Check the maximum valve lift amount.

NOTE:

The maximum valve lift amount standard temperature for water control valve is the reference value.

- After checking the maximum valve lift amount, lower the water temperature and check the valve closing temperature.



Standard

Thermostat : Refer to [CO-25, "Thermostat"](#).

- If out of the standard, replace either or both thermostat and water control valve.

INSPECTION AFTER INSTALLATION

- Check for leakage of engine coolant using the radiator cap tester adapter (commercial service tool) and the radiator cap tester (commercial service tool). Refer to [CO-8, "Inspection"](#).
- Start and warm up engine. Check visually that there is no leakage of engine coolant.

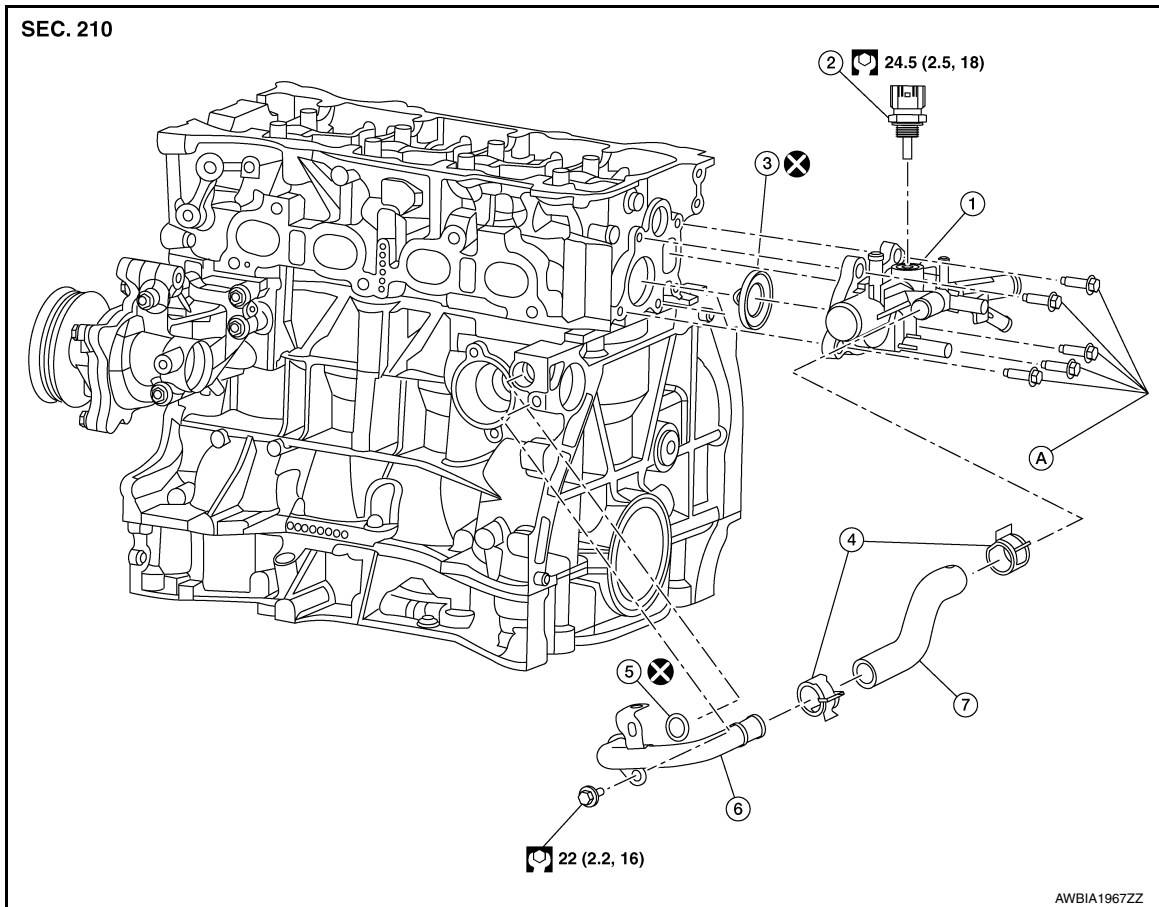
WATER OUTLET AND WATER PIPING

< REMOVAL AND INSTALLATION >

WATER OUTLET AND WATER PIPING

Exploded View

INFOID:0000000010201297



- | | | |
|-----------------|-----------------------------|------------------------|
| 1. Water outlet | 2. Water temperature sensor | 3. Water outlet O-ring |
| 4. Clamp | 5. Heater pipe O-ring | 6. Heater pipe |
| 7. Water hose | A. Refer to INSTALLATION | |

Removal and Installation

INFOID:0000000010201298

WARNING:

Do not remove the radiator cap when the engine is hot. Serious burns could occur from high-pressure engine coolant escaping from the radiator. Wrap a thick cloth around the cap. Slowly push down and turn it a quarter turn to allow built-up pressure to escape. Carefully remove the cap by pushing it down and turning it all the way.

NOTE:

When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid from spilling.

CAUTION:

Perform when the engine cold.

REMOVAL

1. Drain engine coolant from the radiator. Refer to [CO-8, "Draining"](#).
2. Remove the upper radiator hose from water outlet.
3. Remove resonator assembly. Refer to [EM-24, "Exploded View"](#).
4. Remove battery tray. Refer to [PG-75, "Exploded View"](#).
5. Remove ECM/TCM bracket, (if necessary).
6. Disconnect harness connector from water temperature sensor.

WATER OUTLET AND WATER PIPING

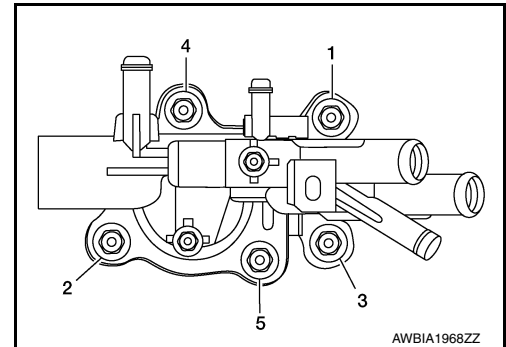
< REMOVAL AND INSTALLATION >

7. Remove water temperature sensor from water outlet, (if necessary).
8. Remove heater hoses from water outlet.
NOTE:
Note location of heater hoses prior to removal to serve as an installation aid.
9. Remove water hoses from water outlet.
NOTE:
Note location of heater hoses prior to removal to serve as an installation aid.
10. Remove water hoses from electric throttle control actuator.
11. Remove the water outlet.

INSTALLATION

1. Tighten water outlet bolts in sequence to specification.

22 N·m (2.2 kg-m, 16 ft-lb)



Installation of remaining components is in the reverse order of removal.

CAUTION:

- Do not reuse heater pipe O-ring.
- Do not reuse water outlet O-ring.
- To install heater pipe, first apply a mild soap to the O-ring and quickly insert the heater pipe into the housing.
- Do not spill coolant in engine compartment. Use a shop cloth to absorb coolant.

After installation, refill coolant and check for leaks. Refer to [CO-9, "Refilling"](#) and [CO-8, "Inspection"](#).

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

Periodical Maintenance Specification

INFOID:000000009794926

A

CO

ENGINE COOLANT CAPACITY (APPROXIMATE)

Unit: ℓ (US qt, Imp qt)

Engine coolant capacity (With reservoir tank at "MAX" level)	7.3 (7-3/4, 6-3/8)
Reservoir tank	0.75 (3/4, 5/8)

C

D

Radiator

INFOID:000000009794927

Unit: kPa (kg/cm², psi)

Cap relief pressure	Standard	78.4 - 98.0 (0.8 - 1.0, 11 - 14)
	Limit	59 (0.6, 9)
Leakage test pressure		157 (1.60, 22.8)

E

F

Thermostat

INFOID:000000009794928

Standard

Valve opening temperature	80.5 - 83.5°C (177 - 182°F)
Maximum valve lift	8 mm/95°C (0.315 in/203°F)
Valve closing temperature	77°C (171°F)

G

H

I

J

K

L

M

N

O

P

SECTION **FL**

FUEL SYSTEM

CONTENTS

PRECAUTION	2	AWD : Exploded View	16
PRECAUTIONS	2	AWD : Removal and Installation	16
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TEN- SIONER"	2	AWD : Inspection	18
General Precaution	2	EVAP CANISTER	19
PREPARATION	4	Exploded View	19
PREPARATION	4	Removal and Installation	19
Special Service Tool	4	Inspection	20
PERIODIC MAINTENANCE	5	EVAP CANISTER VENT CONTROL VALVE ...	21
FUEL SYSTEM	5	Exploded View	21
Inspection	5	Removal and Installation	21
Quick Connector	5	EVAP CONTROL SYSTEM PRESSURE SEN- SOR	22
REMOVAL AND INSTALLATION	6	Exploded View	22
FUEL LEVEL SENSOR UNIT, FUEL FILTER AND FUEL PUMP ASSEMBLY	6	Removal and Installation	22
Exploded View	6	EVAP CANISTER FILTER	23
Removal and Installation	6	Exploded View	23
Inspection	10	Removal and Installation	23
FUEL TANK	12	DISASSEMBLY AND ASSEMBLY	24
FWD	12	FUEL LEVEL SENSOR UNIT	24
FWD : Exploded View	12	Exploded View	24
FWD : Removal and Installation	12	Disassembly and Assembly	24
FWD : Inspection	15	SERVICE DATA AND SPECIFICATIONS (SDS)	26
AWD	15	SERVICE DATA AND SPECIFICATIONS (SDS)	26
		Fuel Tank	26

PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010186479

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

General Precaution

INFOID:0000000010186087

WARNING:

When replacing fuel line parts, be sure to observe the following.

- Put a "CAUTION: FLAMMABLE" sign in the work area.
- Be sure to work in a well ventilated area and have a CO² fire extinguisher.
- Do not smoke while working on the fuel system. Keep open flames and sparks away from the work area.

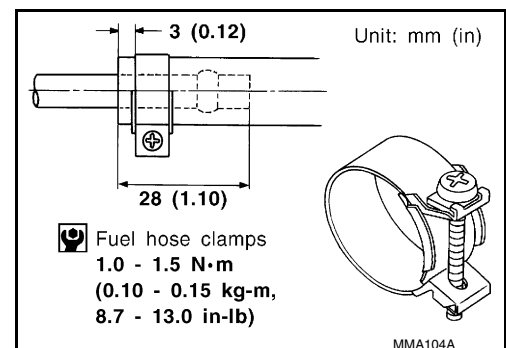
CAUTION:

- Before removing fuel line parts, carry out the following procedures:
 - Put drained fuel in an explosion-proof container and put the lid on securely. Keep the container in safe area.
 - Release fuel pressure from the fuel lines. Refer to [EC-144, "Work Procedure"](#).
 - Disconnect the battery ground cable.
- Always replace O-rings and clamps with new ones.
- Do not kink or twist tubes when they are being installed.
- Do not tighten hose clamps excessively to avoid damaging hoses.

Tighten high-pressure rubber hose clamp so that clamp end is 3 mm (0.12 in) from hose end.

Tightening torque specifications are the same for all rubber hose clamps.

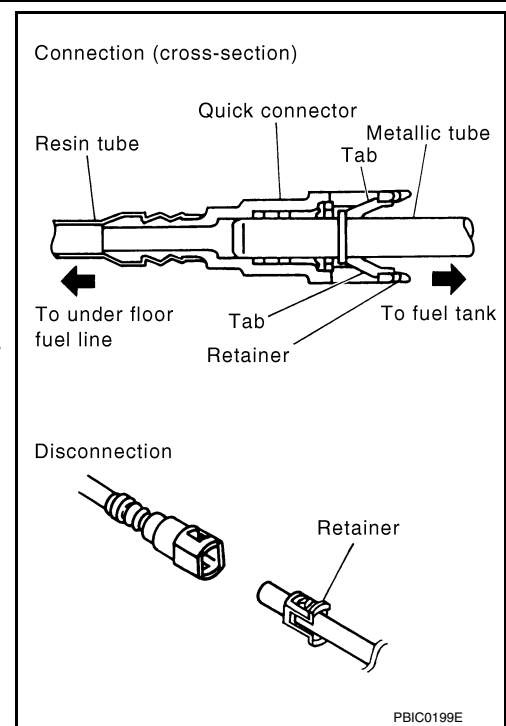
Ensure that screw does not contact adjacent parts.



PRECAUTIONS

< PRECAUTION >

- After connecting the fuel tube quick connectors, make sure the quick connectors are secure.
Check that the connector and resin tube do not contact any adjacent parts.
- a) Apply fuel pressure to the fuel system by turning the ignition switch to ON (without starting the engine). Then check for fuel leaks at the fuel tube connections.
- b) Start the engine and rev the engine, then check for fuel leaks at the fuel tube connections.
- After installing the tubes, run the engine and check for fuel leaks at the connections.
- Use only a Genuine NISSAN fuel filler cap as a replacement. If an incorrect fuel filler cap is used, the MIL may come on.
- For servicing "Evaporative Emission System" parts, refer to [EC-53, "EVAPORATIVE EMISSION SYSTEM : System Description"](#).



PREPARATION

< PREPARATION >

PREPARATION

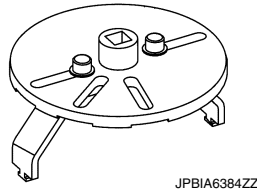
PREPARATION

Special Service Tool

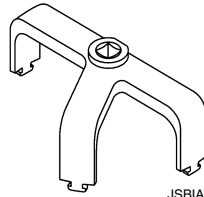
INFOID:000000009797494

The actual shape of the tools may differ from those illustrated here

Tool number (TechMate No.) Tool name	Description
KV101207S0 (—) Unified fuel lock ring wrench	Removing and installing fuel tank lock ring
— (J-45747) Fuel tank lock ring wrench	



JPBIA6384ZZ



JSBIA1952ZZ

FUEL SYSTEM

< PERIODIC MAINTENANCE >

PERIODIC MAINTENANCE

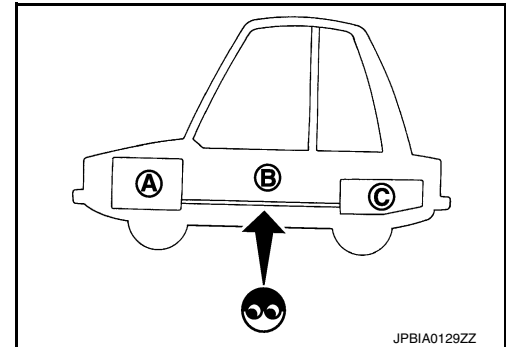
FUEL SYSTEM

Inspection

Inspect fuel lines, fuel filler cap, and fuel tank for improper attachment, leaks, cracks, damage, loose connections, chafing or deterioration.

- (A) : Engine
- (B) : Fuel line
- (C) : Fuel tank

If necessary, repair or replace damaged parts.



INFOID:000000009797495

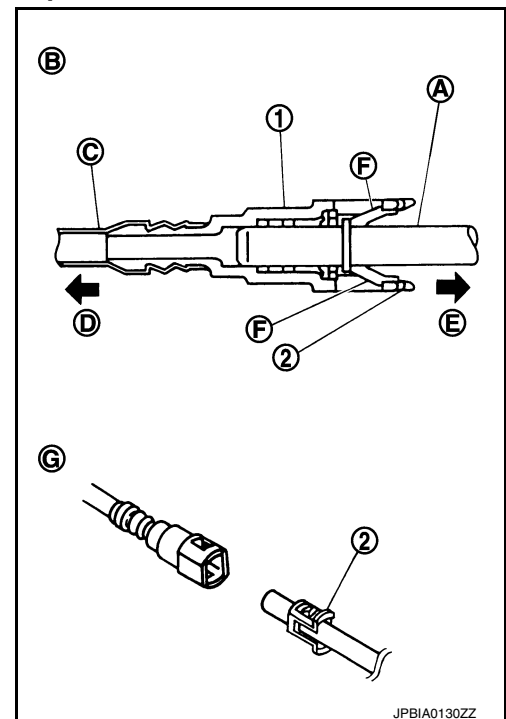
Quick Connector

CAUTION:

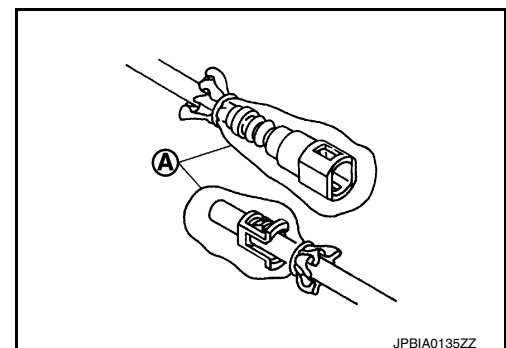
- After connecting fuel tube quick connectors, check that quick connectors are secure.
- Ensure that connector and resin tube never contact any adjacent parts.
- Quick connector (1) can be disconnected when the tabs (F) are depressed completely. Do not twist it more than necessary.

- (B) : Connection (cross-section)
- (D) : To under floor fuel line
- (E) : To fuel tank
- (G) : Disconnection

- Do not use any tools to disconnected quick connector.
- Keep resin tube (C) away from heat. Be especially careful when welding near the resin tube.
- Prevent acid liquid such as battery electrolyte, etc. from getting on resin tube.
- Do not bend or twist resin tube during installation and disconnection.
- Do not remove the remaining retainer (2) on hard tube (or the equivalent) (A) except when resin tube or retainer is replaced.
- When resin tube or hard tube (or the equivalent) is replaced, also replace retainer with new one.



- To keep the connecting portion clean and to avoid damage and foreign materials, cover them completely with plastic bags (A) or something similar.



FUEL LEVEL SENSOR UNIT, FUEL FILTER AND FUEL PUMP ASSEMBLY

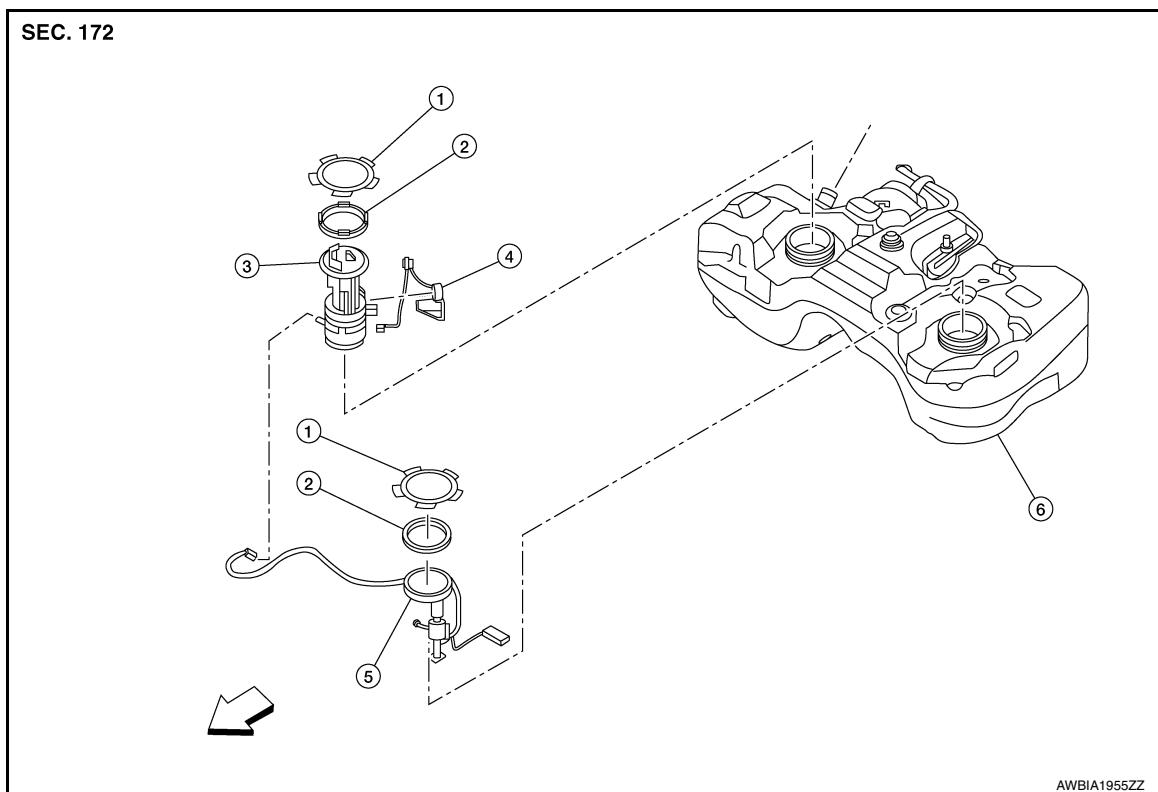
< REMOVAL AND INSTALLATION >

REMOVAL AND INSTALLATION

FUEL LEVEL SENSOR UNIT, FUEL FILTER AND FUEL PUMP ASSEMBLY

Exploded View

INFOID:000000009797500



- | | | |
|---|--------------|---------------------------------------|
| 1. Lock ring | 2. O-ring | 3. Fuel filter and fuel pump assembly |
| 4. Fuel level sensor and fuel tank temperature sensor | 5. Lock ring | 6. O-ring |
| 7. Sub fuel level sensor assembly | 8. Fuel tank | ↙ Front |

CAUTION:

Do not remove or disassemble parts unless instructed as shown.

Removal and Installation

INFOID:000000009797501

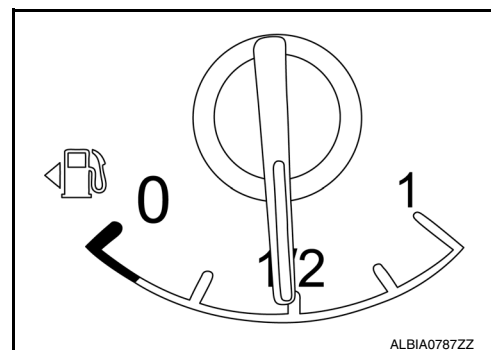
REMOVAL

WARNING:

Be sure to read "General Precautions" before working on the fuel system. Refer to [FL-2, "General Precaution"](#).

Fuel Level Sensor Unit, Fuel Filter And Fuel Pump Assembly

1. Check the fuel level with the vehicle on a level surface. If the fuel gauge indicates more than the level as shown (1/2 full), drain the fuel from the fuel tank until the fuel gauge indicates a level at or below as shown (1/2 full).
 - In case the fuel pump does not operate, use the following procedure.
- a. Insert fuel tubing of less than 25mm (0.98in) diameter into the fuel filler tube through the fuel filler opening to drain fuel from the fuel filler tube.
- b. Disconnect the fuel filler hose from the fuel filler tube.

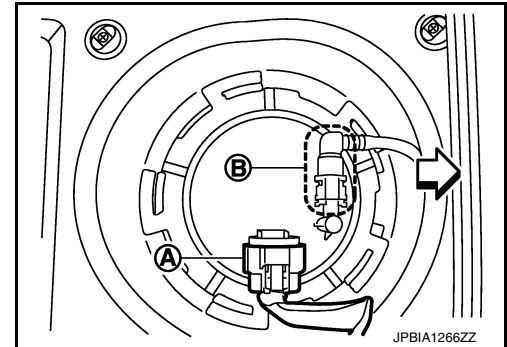


FUEL LEVEL SENSOR UNIT, FUEL FILTER AND FUEL PUMP ASSEMBLY

< REMOVAL AND INSTALLATION >

- c. Insert fuel tubing into the fuel tank through the fuel filler hose to drain fuel from the fuel tank.
 - As a guide, the fuel level reaches or is less than the level on the fuel gauge as shown, when approximately 27.5 ℓ (7-1/4 US gal, 6 Imp gal) of fuel is drained from a full fuel tank.
2. Release the fuel pressure from the fuel lines. Refer to [EC-144, "Work Procedure"](#).
3. Open fuel filler lid.
4. Open fuel filler cap and release the pressure inside the fuel tank.
5. Remove rear seat cushion. Refer to [SE-37, "Exploded View"](#).
6. Turn the four retainers 90 degrees to disengage the clips and remove the fuel pump inspection hole cover.
CAUTION:
Cover the immediate area surrounding the fuel pump inspection hole cover with plastic to avoid gasoline damage to carpet.
7. Disconnect harness connector (A) and quick connector (B).

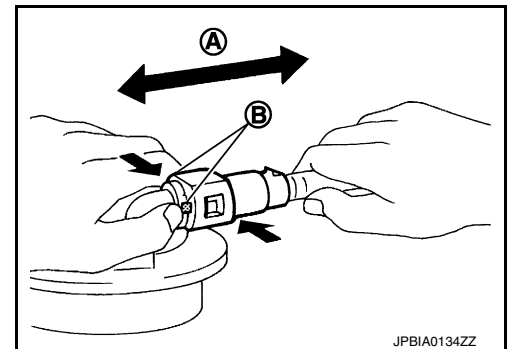
↩ : Front



Disconnect quick connector as follows:

- Hold the sides of connector, press tabs and pull out fuel feed tube.

- (A) : Pull
(B) : Push in tabs



If quick connector sticks to tube of main fuel level sensor unit, push and pull quick connectors several times until they start to move. Then disconnect them by pulling.

CAUTION:

FUEL LEVEL SENSOR UNIT, FUEL FILTER AND FUEL PUMP ASSEMBLY

< REMOVAL AND INSTALLATION >

- Quick connector (1) can be disconnected when the tabs (F) are depressed completely. Do not twist it more than necessary.

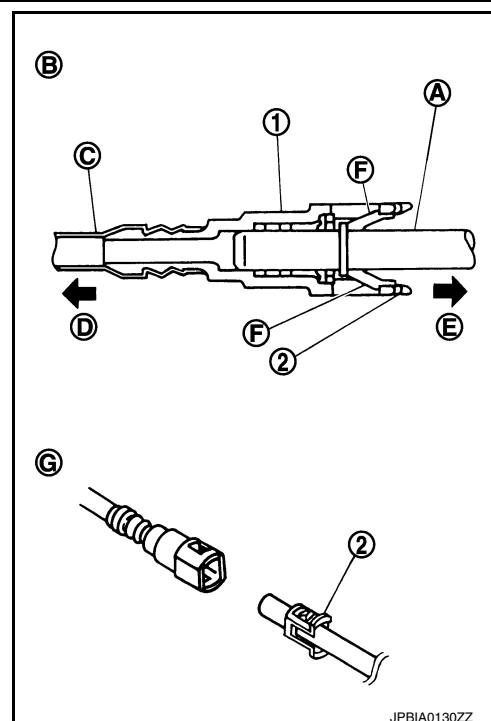
(B) : Connection (cross-section)

(D) : To under floor fuel line

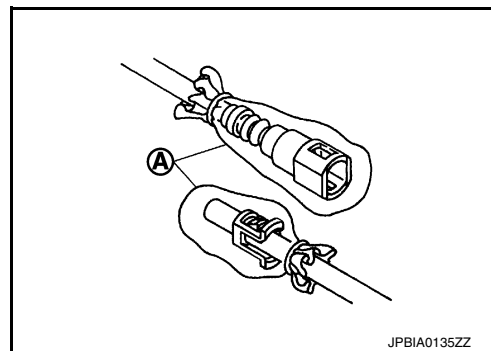
(E) : To fuel tank

(G) : Disconnection

- Do not use any tools to disconnected quick connector.
- Keep resin tube (C) away from heat. Be especially careful when welding near the resin tube.
- Prevent acid liquid such as battery electrolyte, etc. from getting on resin tube.
- Do not bend or twist resin tube during installation and disconnection.
- Do not remove the remaining retainer (2) on hard tube (or the equivalent) (A) except when resin tube or retainer is replaced.
- When resin tube or hard tube (or the equivalent) is replaced, also replace retainer with new one.



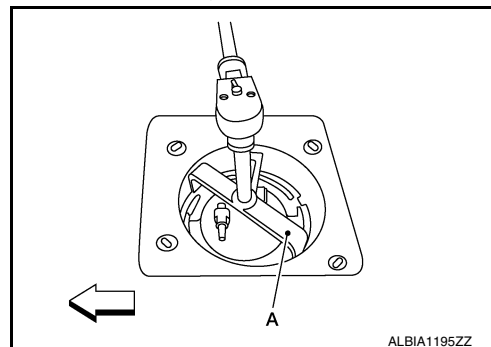
- To keep the connecting portion clean and to avoid damage and foreign materials, cover them completely with plastic bags (A) or something similar.



- Remove the lock ring from the fuel level sensor, fuel filter, and fuel pump assembly.
 - Remove the lock ring using Tool (A).

Tool number : (—) J-45747 (shown)
: KV101207S0 (—)

⇐ : Front

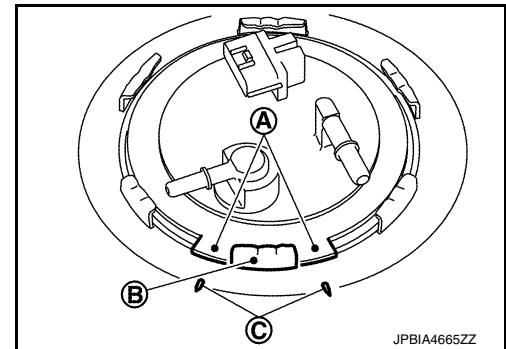


FUEL LEVEL SENSOR UNIT, FUEL FILTER AND FUEL PUMP ASSEMBLY

< REMOVAL AND INSTALLATION >

- Prior to removal, observe the alignment between the fuel level sensor, fuel filter, and fuel pump assembly tabs (A) and the matching marks (C) on the fuel tank as shown. This alignment is necessary for proper installation.

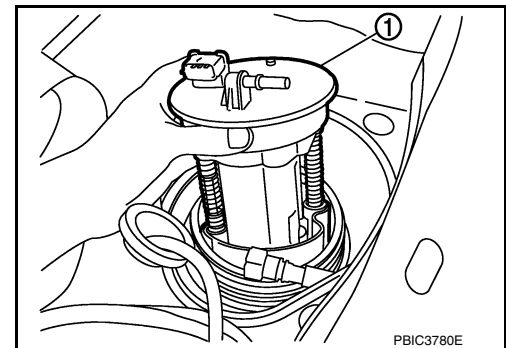
(B) : Retainer mounting pawl



- Raise fuel level sensor unit, fuel filter and fuel pump assembly (1), and disconnect fuel tube and harness connector.

CAUTION:

- Do not bend float arm during removal.
- Do not pollute the inside by residue fuel. Draw out avoiding inclination by supporting with a cloth.
- Do not cause impacts such by dropping when handling components.

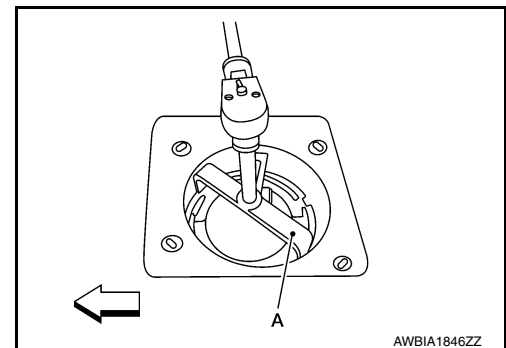


Sub Fuel Level Sensor Assembly

- Remove fuel level sensor unit, fuel filter and fuel pump assembly.
- Remove inspection hole cover.
 - Using a suitable, remove it by turning clips clockwise by 90 degrees.
- Remove the lock ring from the fuel level sensor, fuel filter, and sub fuel level assembly.

Tool number : (—) J-45747 (shown)
: KV101207S0 (—)

← : Front



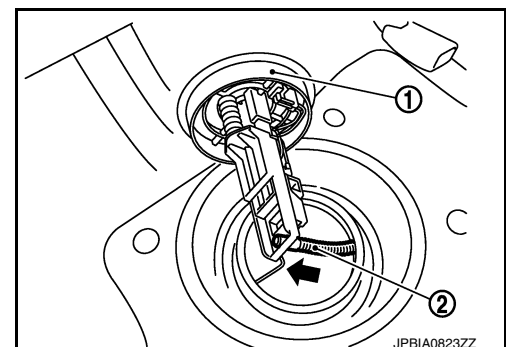
- Remove sub fuel level sensor assembly (1).

CAUTION:

- Do not disassemble a fuel tube (2) from sub fuel sensor assembly.
- Do not bend float arm during removal.
- Do not pollute the inside by residue fuel. Draw out avoiding inclination by supporting with a cloth.
- Do not cause impacts such by dropping when handling components.

NOTE:

Tie a gasoline-resistance rope to a tip of the tube. Draw (←) and leave the rope to the fuel tank side so that the rope can be the guide for installation.



INSTALLATION

Installation is in the reverse order of removal.

- Install O-ring to fuel tank without any twist.

CAUTION:

FUEL LEVEL SENSOR UNIT, FUEL FILTER AND FUEL PUMP ASSEMBLY

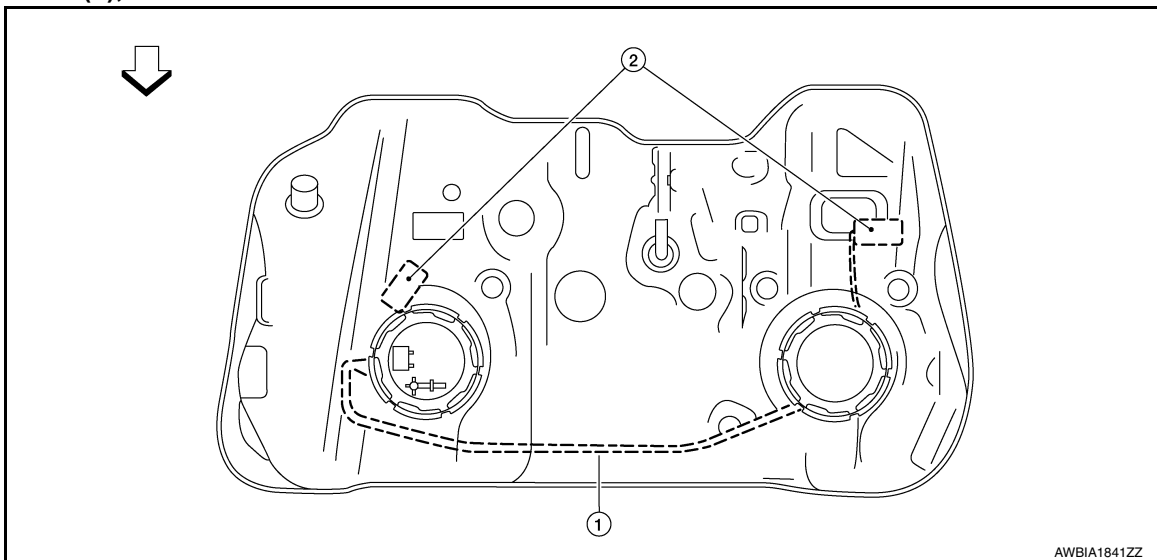
< REMOVAL AND INSTALLATION >

Do not reuse O-ring.

- Using the rope left on the fuel tank side at removal, run the fuel tube inside the fuel tank to install the sub fuel level sensor assembly to the fuel tank.

CAUTION:

- Do not bend float arm during installation.
- To install, fuel tube (1) must run to the front (↔) of the vehicle to avoid the interference with the float arm (2), as shown.

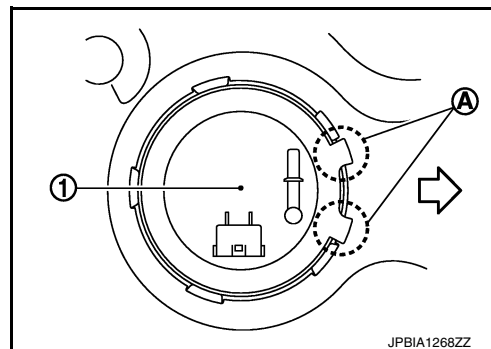


- Align the tabs (A) of the fuel level sensor unit, fuel filter and fuel pump assembly (1) as shown.

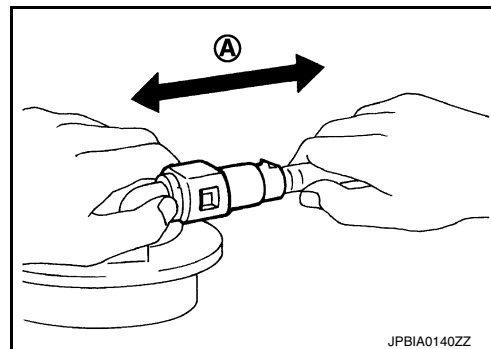
↔ : Front

NOTE:

Fuel level sensor unit, fuel filter and fuel pump assembly side of fuel tank shown.



- Check the connection for damage or any foreign materials.
- Align the connector with the tube, then insert the connector straight into the tube until a “click” sound is heard.
- After connecting, check that the connection is secured with following procedures.
 - Visually confirm that the two tabs are connected to the connector.
 - Pull (A) the tube and the connector to check that they are securely connected.
- Before installing inspection hole cover, check that the connecting part has no fuel leaks. Refer to [FL-10. "Inspection"](#).
- Install inspection hole covers with the front mark (arrow) facing front.
- Lock clips by turning counterclockwise.



Inspection

INFOID:000000009797502

INSPECTION AFTER INSTALLATION

Use the following procedure to check for fuel leaks.

FUEL LEVEL SENSOR UNIT, FUEL FILTER AND FUEL PUMP ASSEMBLY

< REMOVAL AND INSTALLATION >

1. Turn ignition switch "ON" (with engine stopped), then check connections for leaks by applying fuel pressure to fuel piping.
2. Start engine. Then let it idle and check that there is no fuel leaks at the fuel system connections.

A

FL

C

D

E

F

G

H

I

J

K

L

M

N

O

P

FUEL TANK

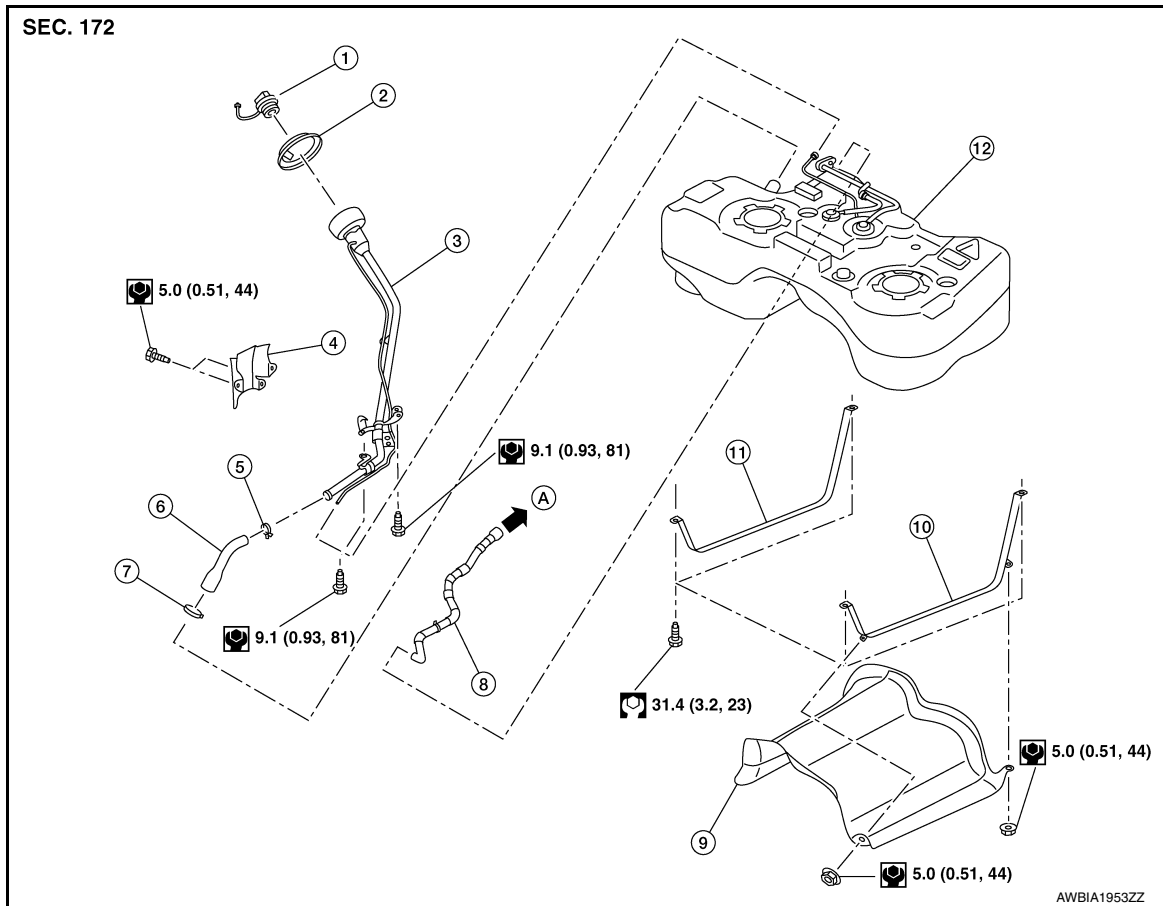
< REMOVAL AND INSTALLATION >

FUEL TANK

FWD

FWD : Exploded View

INFOID:000000009797503



- | | | |
|--------------------------|--------------------------|------------------------|
| 1. Fuel filler cap | 2. Grommet | 3. Fuel filler tube |
| 4. Cover | 5. Clamp | 6. Fuel filler hose |
| 7. Clamp | 8. Vent hose | 9. Fuel tank protector |
| 10. Fuel tank strap (LH) | 11. Fuel tank strap (RH) | 12. Fuel tank |
| A. To EVAP canister | | |

: N·m (kg-m, in-lb)

FWD : Removal and Installation

INFOID:000000009797504

REMOVAL

WARNING:

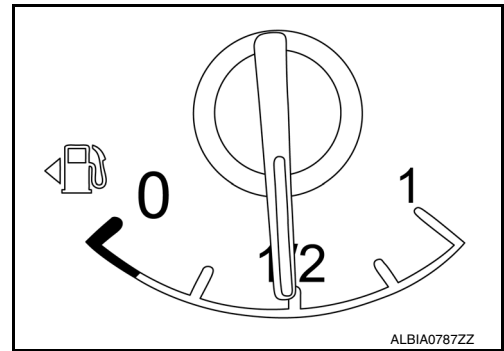
Be sure to read "General Precautions" when working on the fuel system. Refer to [FL-2, "General Precaution"](#).

FUEL TANK

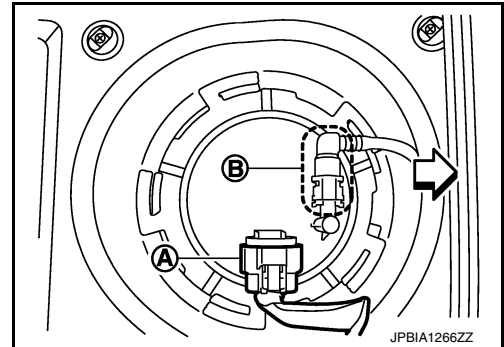
< REMOVAL AND INSTALLATION >

1. Check the fuel level with the vehicle on a level surface. If the fuel gauge indicates more than the level as shown (1/2 full), drain the fuel from the fuel tank until the fuel gauge indicates a level at or below as shown (1/2 full).
 - In case the fuel pump does not operate, use the following procedure.
- a. Insert fuel tubing of less than 25mm (0.98in) diameter into the fuel filler tube through the fuel filler opening to drain fuel from the fuel filler tube.
- b. Disconnect the fuel filler hose from the fuel filler tube.
- c. Insert fuel tubing into the fuel tank through the fuel filler hose to drain fuel from the fuel tank.
 - As a guide, the fuel level reaches or is less than the level on the fuel gauge as shown, when approximately 27.5 ℓ (7-1/4 US gal, 6 Imp gal) of fuel is drained from a full fuel tank.
2. Release the fuel pressure from the fuel lines. Refer to [EC-144, "Work Procedure"](#).
3. Disconnect negative battery terminal. Refer to [PG-75, "Removal and Installation \(Battery\)"](#).
4. Unscrew the fuel filler cap to release the pressure inside the fuel tank.
5. Remove second row seat (RH). Refer to [SE-37, "Exploded View"](#).
6. Turn the four retainers 90 degrees to disengage the clips and remove the fuel pump inspection hole cover.

CAUTION:
Cover the immediate area surrounding the fuel pump inspection hole cover with plastic to avoid gasoline damage to carpet.
7. Disconnect harness connector (A) and quick connector (B).



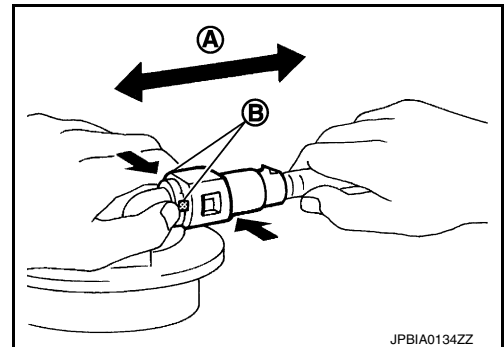
↩ : Front



Disconnect quick connector as follows:

- Hold the sides of connector, press tabs and pull out fuel feed tube.

- (A) : Pull
(B) : Push in tabs



- If quick connector sticks to tube of main fuel level sensor unit, push and pull quick connectors several times until they start to move. Then disconnect them by pulling.

CAUTION:

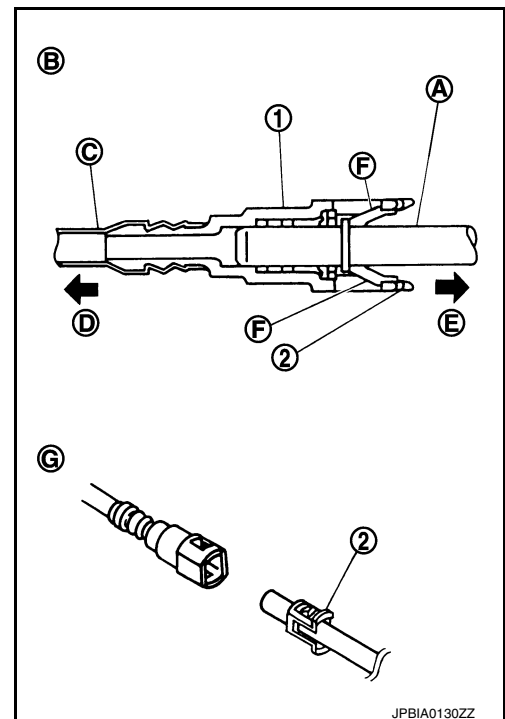
FUEL TANK

< REMOVAL AND INSTALLATION >

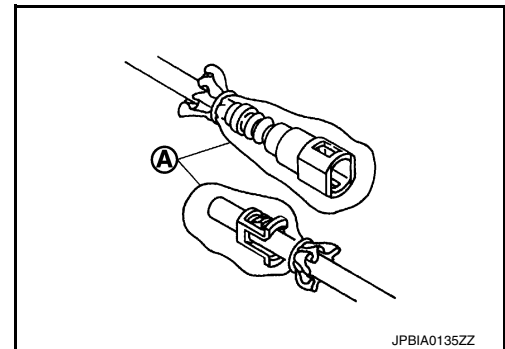
- **Quick connector (1) can be disconnected when the tabs (F) are depressed completely. Do not twist it more than necessary.**

(B) : Connection (cross-section)
 (D) : To under floor fuel line
 (E) : To fuel tank
 (G) : Disconnection

- **Do not use any tools to disconnected quick connector.**
- **Keep resin tube (C) away from heat. Be especially careful when welding near the resin tube.**
- **Prevent acid liquid such as battery electrolyte, etc. from getting on resin tube.**
- **Do not bend or twist resin tube during installation and disconnection.**
- **Do not remove the remaining retainer (2) on hard tube (or the equivalent) (A) except when resin tube or retainer is replaced.**
- **When resin tube or hard tube (or the equivalent) is replaced, also replace retainer with new one.**

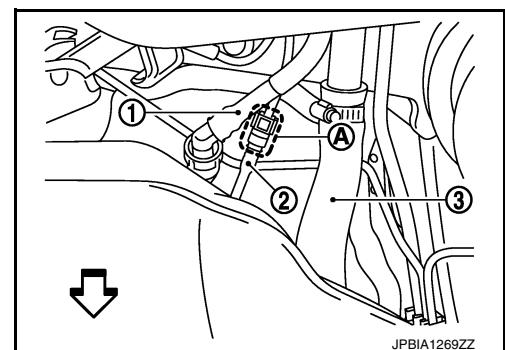


- **To keep the connecting portion clean and to avoid damage and foreign materials, cover them completely with plastic bags (A) or something similar.**



- Remove center exhaust tube and muffler assembly. Refer to [EX-5, "Exploded View"](#).
- Remove protector from fuel tank.
- Remove vent hose (1) at rear side of fuel tank.
- Disconnect EVAP tube (2) at rear side of fuel tank.
 - Instruction for quick connector (A) of EVAP tube. Refer to [FL-5, "Quick Connector"](#).
- Remove fuel filler hose (3) at fuel filler tube side.

⇐: Front



- Remove parking brake cable bolts and separate parking brake cable from suspension arm. Refer to [PB-7, "Exploded View"](#).
- Remove rear suspension bars. Refer to [RSU-22, "Exploded View"](#).

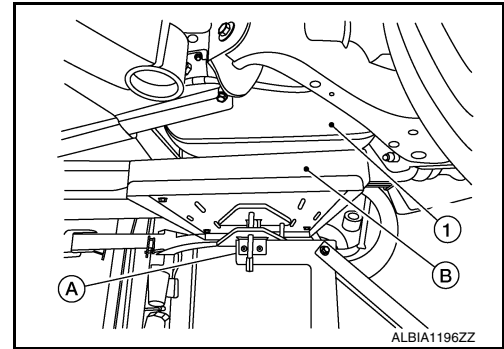
FUEL TANK

< REMOVAL AND INSTALLATION >

15. Support center of fuel tank (1) with suitable jack (A).

CAUTION:

Securely support the fuel tank with a piece of wood (B).



16. Remove fuel tank bands.

17. Lower suitable jack carefully to remove fuel tank while holding it by hand.

CAUTION:

Fuel tank may be in an unstable condition because of the shape of fuel tank bottom. Be sure to secure fuel tank at all times.

18. If replacing the fuel tank, remove the fuel level sensor unit, fuel filter and fuel pump assembly to transfer to the new fuel tank. Remove and discard the O-ring. Refer to [FL-6, "Removal and Installation"](#).

INSTALLATION

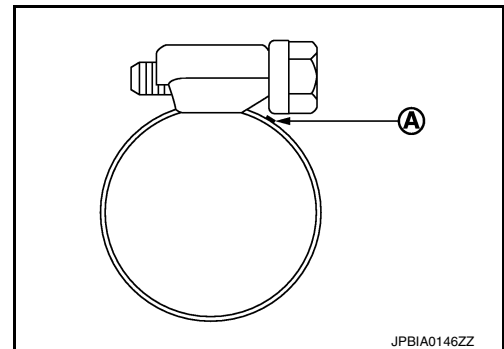
Installation is in the reverse order of removal.

Fuel Filler Hose

- Insert fuel filler hose to the length below.

: 35 mm (1.38 in)

- Be sure hose clamp is not placed on swelled area of fuel filler tube.
- Tighten the clamp hand with the top mark (A) until the mark is on the bolt head flange.



FWD : Inspection

INFOID:000000009797505

INSPECTION AFTER INSTALLATION

Use the following procedure to check for fuel leaks.

1. Turn the ignition switch ON (without starting the engine). Then check the connections for fuel leaks by applying fuel pressure to the fuel piping.
2. Start engine, raise idle and verify there are no leaks at the fuel system connections.

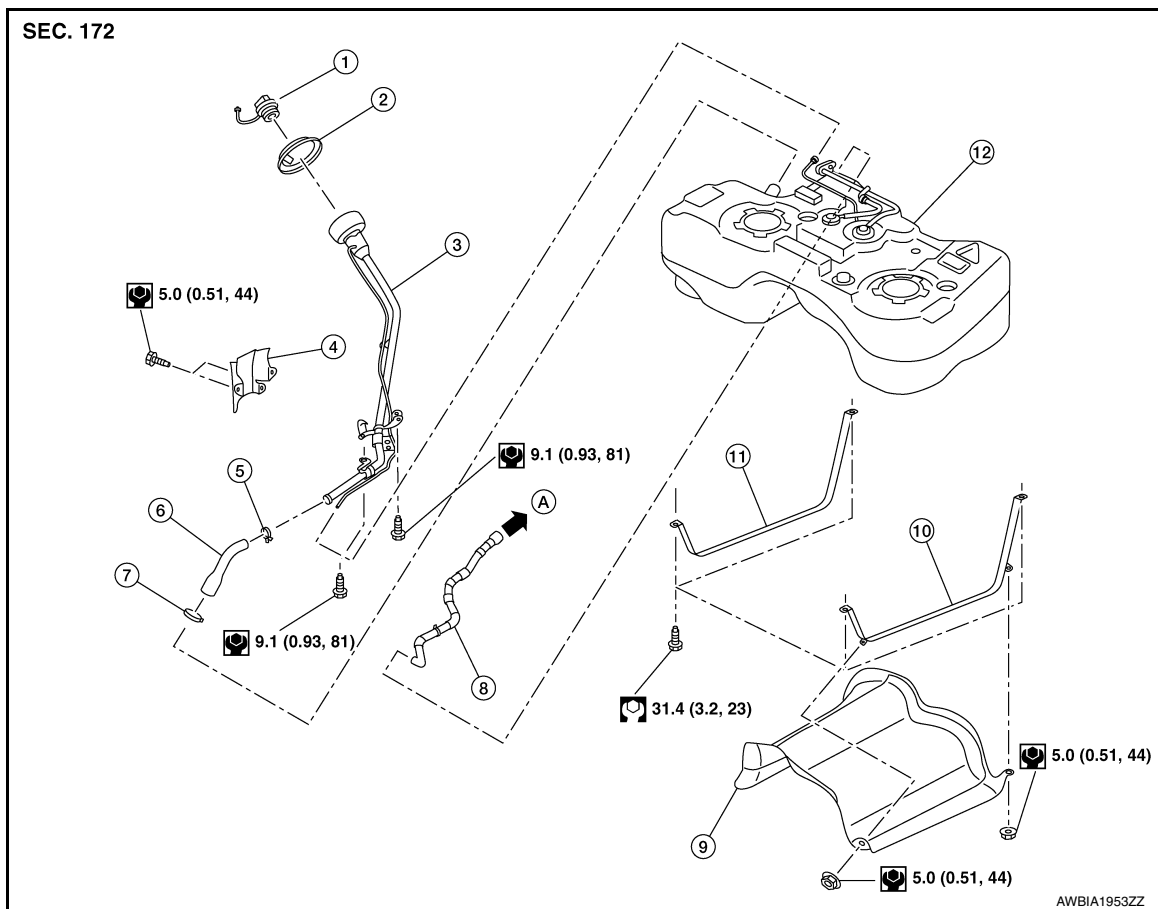
AWD

FUEL TANK

< REMOVAL AND INSTALLATION >

AWD : Exploded View

INFOID:000000009797506



- | | | |
|--------------------------|--------------------------|------------------------|
| 1. Fuel filler cap | 2. Grommet | 3. Fuel filler tube |
| 4. Cover | 5. Clamp | 6. Fuel filler hose |
| 7. Clamp | 8. Vent hose | 9. Fuel tank protector |
| 10. Fuel tank strap (LH) | 11. Fuel tank strap (RH) | 12. Fuel tank |
| A. To EVAP canister | | |

: N-m (kg-m, in-lb)

AWD : Removal and Installation

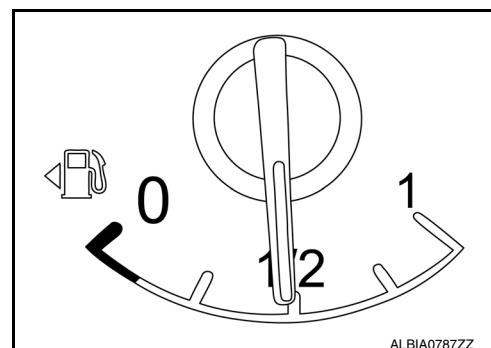
INFOID:000000009797507

REMOVAL

WARNING:

Be sure to read "General Precautions" when working on the fuel system. Refer to [FL-2, "General Precaution"](#).

1. Check the fuel level with the vehicle on a level surface. If the fuel gauge indicates more than the level as shown (1/2 full), drain the fuel from the fuel tank until the fuel gauge indicates a level at or below as shown (1/2 full).
 - In case the fuel pump does not operate, use the following procedure.
- a. Insert fuel tubing of less than 25mm (0.98in) diameter into the fuel filler tube through the fuel filler opening to drain fuel from the fuel filler tube.
- b. Disconnect the fuel filler hose from the fuel filler tube.
- c. Insert fuel tubing into the fuel tank through the fuel filler hose to drain fuel from the fuel tank.

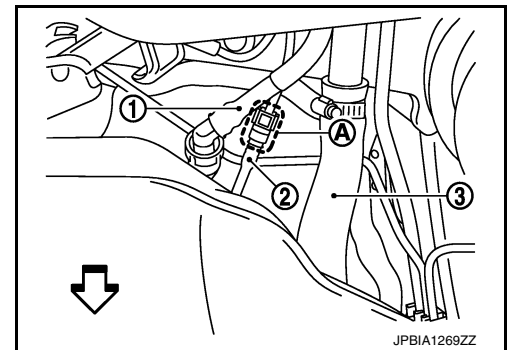


FUEL TANK

< REMOVAL AND INSTALLATION >

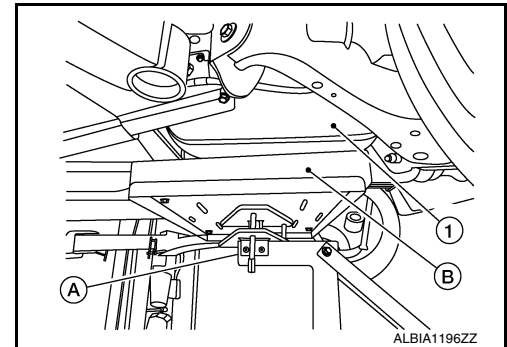
- As a guide, the fuel level reaches or is less than the level on the fuel gauge as shown, when approximately 27.5 ℓ (7-1/4 US gal, 6 Imp gal) of fuel is drained from a full fuel tank.
 - 2. Release the fuel pressure from the fuel lines. Refer to [EC-144, "Work Procedure"](#).
 - 3. Disconnect negative battery terminal. Refer to [PG-75, "Removal and Installation \(Battery\)"](#).
 - 4. Unscrew the fuel filler cap to release the pressure inside the fuel tank.
 - 5. Remove second row seat (RH). Refer to [SE-37, "Exploded View"](#).
 - 6. Turn the four retainers 90 degrees to disengage the clips and remove the fuel pump inspection hole cover..
- CAUTION:**
Cover the immediate area surrounding the fuel pump inspection hole cover with plastic to avoid gasoline damage to carpet.
- 7. Remove center exhaust tube and muffler assembly. Refer to [EX-5, "Exploded View"](#).
 - 8. Remove propeller shaft. Refer to [DLN-99, "Removal and Installation"](#).
 - 9. Remove protector from fuel tank.
 - 10. Remove vent hose (1) at rear side of fuel tank.
 - 11. Disconnect EVAP tube (2) at rear side of fuel tank.
 - Instruction for quick connector (A) of EVAP tube. Refer to [FL-5, "Quick Connector"](#).
 - 12. Remove fuel filler hose (3) at fuel filler tube side.

⇐: Front



- 13. Remove parking brake cable bolts and separate parking brake cable from suspension arm. Refer to [PB-7, "Exploded View"](#).
- 14. Remove rear suspension bars. Refer to [RSU-22, "Exploded View"](#).
- 15. Support center of fuel tank (1) with suitable jack (A).

CAUTION:
Securely support the fuel tank with a piece of wood (B).



- 16. Remove fuel tank bands.
- 17. Lower suitable jack carefully to remove fuel tank while holding it by hand.

CAUTION:
Fuel tank may be in an unstable condition, due to the shape of the fuel tank bottom. Be sure to secure tank at all times.
- 18. If replacing the fuel tank, remove the fuel level sensor unit, fuel filter and fuel pump assembly to transfer to the new fuel tank. Remove and discard the O-ring. Refer to [FL-6, "Removal and Installation"](#).

INSTALLATION

Installation is in the reverse order of removal.

Fuel Filler Hose

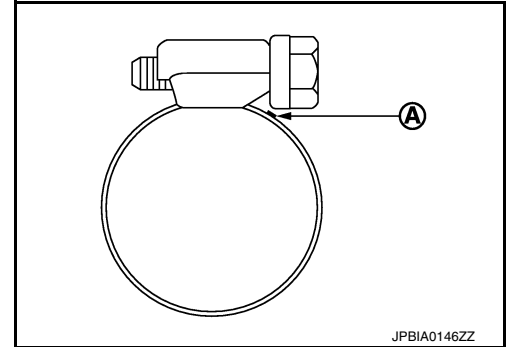
- Insert fuel filler hose to the length below.

FUEL TANK

< REMOVAL AND INSTALLATION >

: 35 mm (1.38 in)

- Be sure hose clamp is not placed on swelled area of fuel filler tube.
- Tighten the clamp hand with the top mark (A) until the mark is on the bolt head flange.



AWD : Inspection

INFOID:000000009797508

INSPECTION AFTER INSTALLATION

Use the following procedure to check for fuel leaks.

1. Turn the ignition switch ON (without starting the engine). Then check the connections for fuel leaks by applying fuel pressure to the fuel piping.
2. Start engine, raise idle and verify there are no leaks at the fuel system connections.

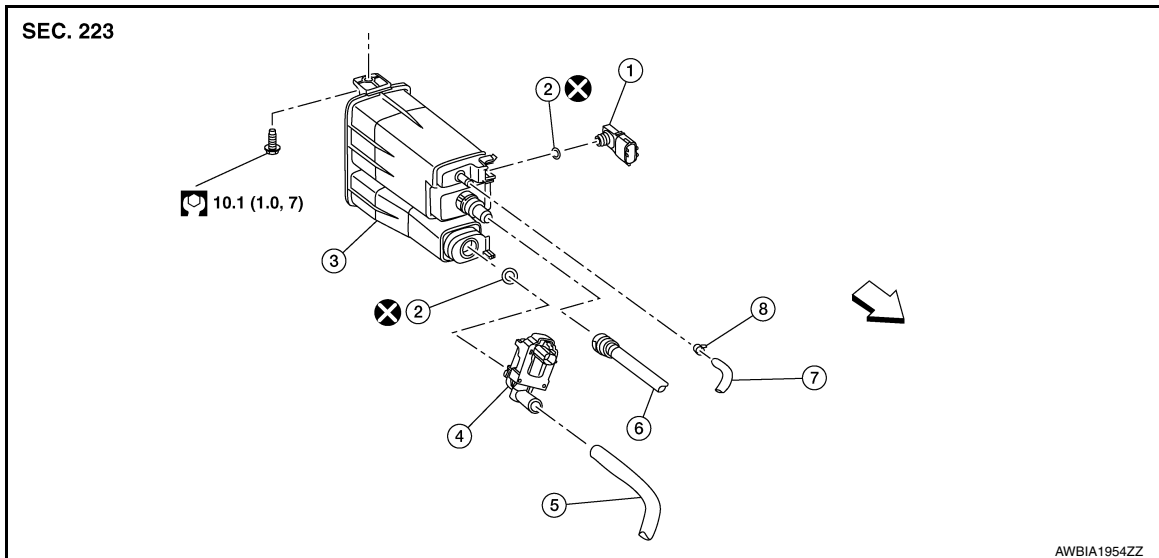
EVAP CANISTER

< REMOVAL AND INSTALLATION >

EVAP CANISTER

Exploded View

INFOID:000000009797509



- | | | |
|--|--|-------------------|
| 1. EVAP control system pressure sensor | 2. O-ring | 3. EVAP canister |
| 4. EVAP canister vent control valve | 5. EVAP canister vent control valve hose | 6. EVAP vent line |
| 7. EVAP canister purge hose | 8. Clamp | ← Front |

Removal and Installation

INFOID:000000009797510

NOTE:

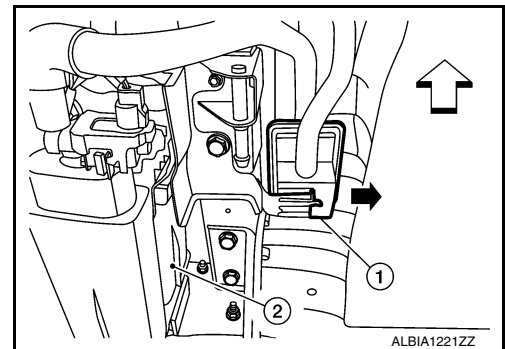
The EVAP canister vent control valve and EVAP control system pressure sensor can be removed without removing the EVAP canister.

REMOVAL

1. Disconnect the EVAP control system pressure sensor harness connector and the EVAP canister vent control valve harness connector.
2. Remove EVAP canister filter (1) and place aside (←).

(2) : EVAP canister

← : Front



3. Disconnect the EVAP canister purge hose, the EVAP vent line, and the EVAP canister vent control valve hose.
4. Remove the EVAP canister bolt.
5. Remove the EVAP canister from the vehicle.
6. Remove EVAP control system pressure sensor and EVAP canister vent control valve (if necessary).

INSTALLATION

Installation is in the reverse order of removal.

EVAP CANISTER

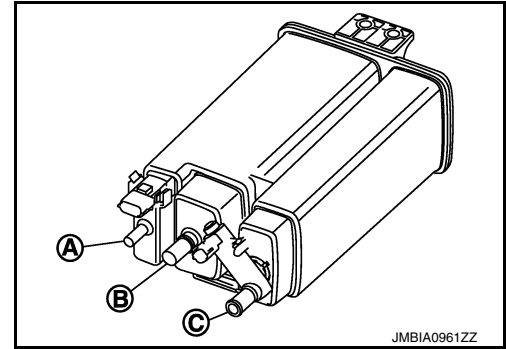
< REMOVAL AND INSTALLATION >

Inspection

INFOID:000000009797511

Check EVAP canister as follows:

1. Block port (B).
2. Blow air into port (A) and check that it flows freely out of port (C).
3. Release blocked port (B).
4. Apply vacuum pressure to port (B) and check that vacuum pressure exists at the ports (A) and (C).
5. Block port (A) and (B).
6. Apply pressure to port (C) and check that there is no leakage.



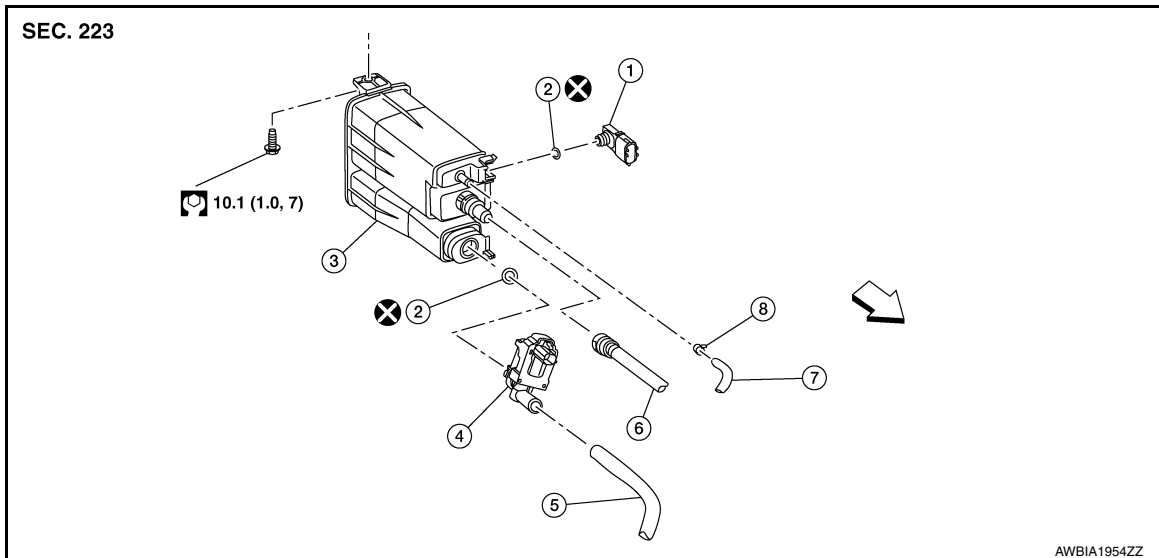
EVAP CANISTER VENT CONTROL VALVE

< REMOVAL AND INSTALLATION >

EVAP CANISTER VENT CONTROL VALVE

Exploded View

INFOID:0000000010186083



- | | | |
|--|--|-------------------|
| 1. EVAP control system pressure sensor | 2. O-ring | 3. EVAP canister |
| 4. EVAP canister vent control valve | 5. EVAP canister vent control valve hose | 6. EVAP vent line |
| 7. EVAP canister purge hose | 8. Clamp | ← Front |

Removal and Installation

INFOID:0000000010186084

NOTE:

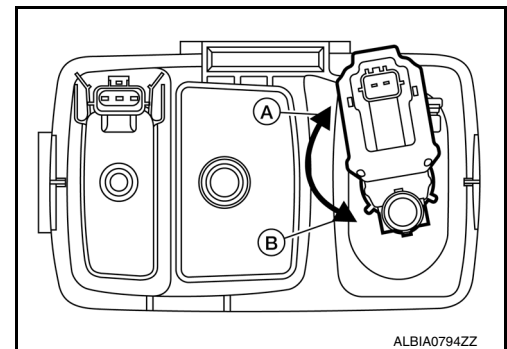
The EVAP canister vent control valve can be removed without removing the EVAP canister.

REMOVAL

1. Disconnect EVAP canister vent control valve hose from EVAP canister vent control valve.
2. Disconnect EVAP canister vent control valve harness connector.
3. Turn EVAP canister vent control valve counterclockwise.

- (A) : Lock
(B) : Unlock

4. Remove the EVAP canister vent control valve and O-ring.



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

Do not reuse O-ring.

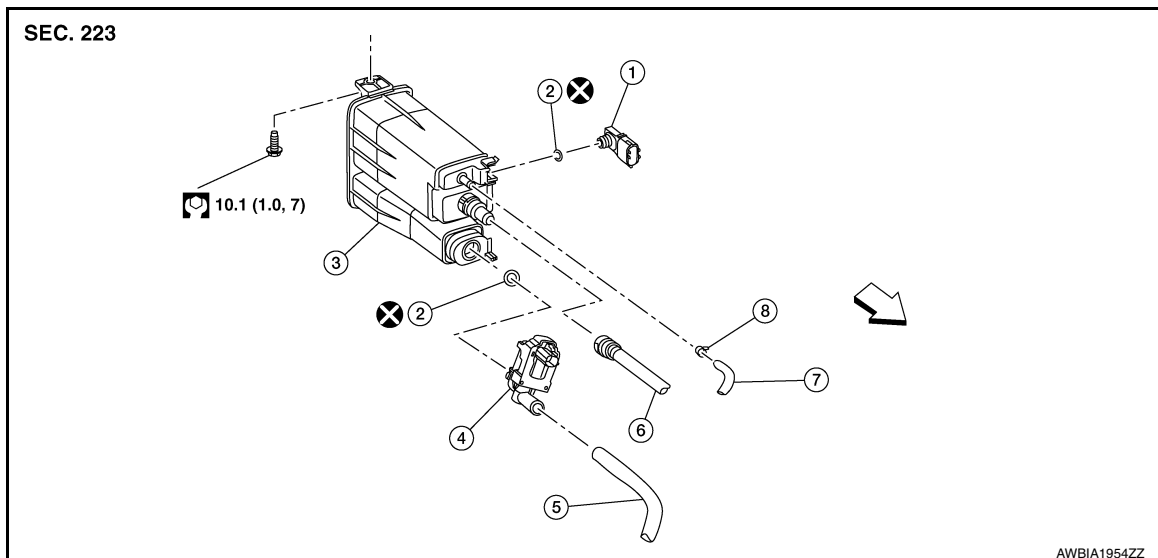
EVAP CONTROL SYSTEM PRESSURE SENSOR

< REMOVAL AND INSTALLATION >

EVAP CONTROL SYSTEM PRESSURE SENSOR

Exploded View

INFOID:0000000010186085



- | | | |
|--|--|-------------------|
| 1. EVAP control system pressure sensor | 2. O-ring | 3. EVAP canister |
| 4. EVAP canister vent control valve | 5. EVAP canister vent control valve hose | 6. EVAP vent line |
| 7. EVAP canister purge hose | 8. Clamp | ⇐ Front |

Removal and Installation

INFOID:0000000010186086

NOTE:

The EVAP canister system pressure sensor can be removed without removing the EVAP canister.

REMOVAL

1. Disconnect EVAP canister purge hose from EVAP canister.
2. Disconnect EVAP control system pressure sensor.
3. Remove EVAP control system pressure sensor and O-ring.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

Do not reuse O-ring.

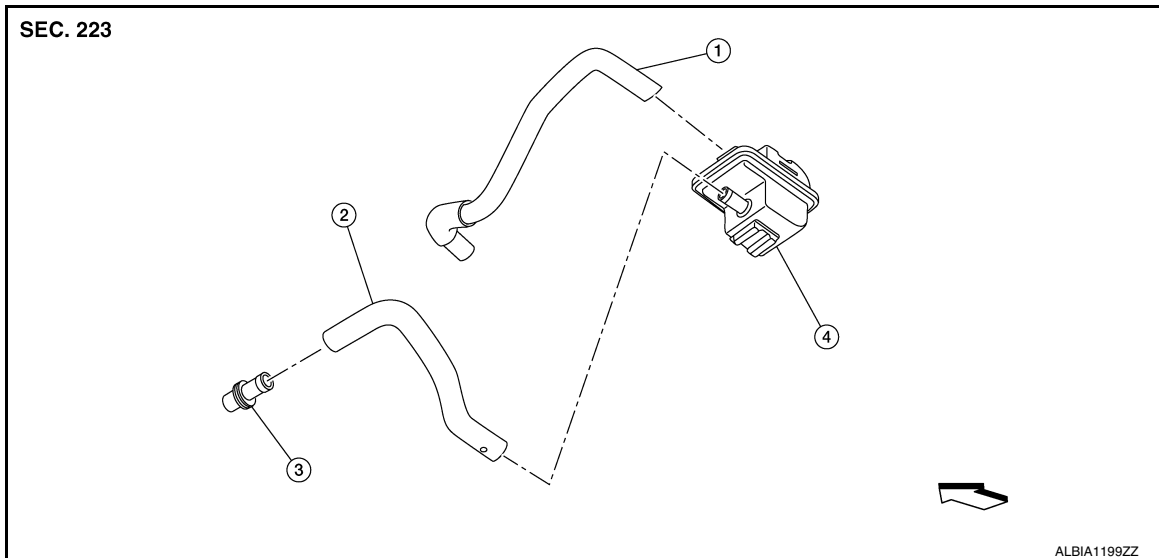
EVAP CANISTER FILTER

< REMOVAL AND INSTALLATION >

EVAP CANISTER FILTER

Exploded View

INFOID:000000010186081



Removal and Installation

INFOID:000000010186082

REMOVAL

1. Disconnect EVAP canister vent control valve hose from EVAP canister filter.
2. Disconnect canister drain hose from EVAP canister filter.
3. Remove the bolt and the EVAP canister filter.

INSTALLATION

Installation is in the reverse order of removal.

FUEL LEVEL SENSOR UNIT

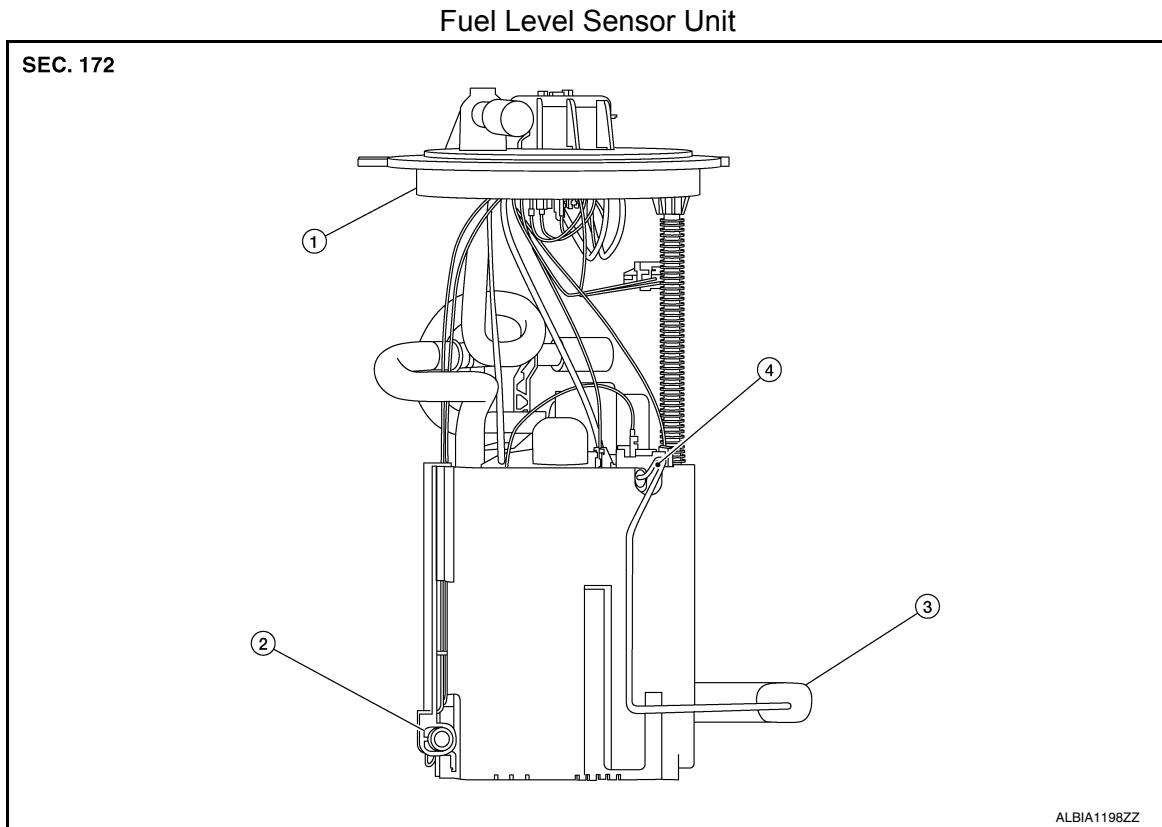
< DISASSEMBLY AND ASSEMBLY >

DISASSEMBLY AND ASSEMBLY

FUEL LEVEL SENSOR UNIT

Exploded View

INFOID:0000000010195840



1. Fuel filter and pump assembly 2. Fuel level sensor unit 3. Float arm assembly
4. Fuel tank temperature sensor

Disassembly and Assembly

INFOID:0000000010195841

NOTE:

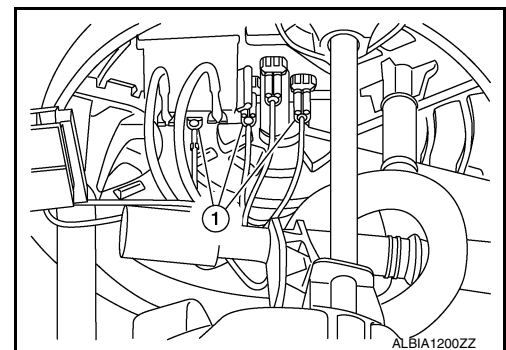
Fuel level sensor unit and fuel tank temperature sensor are replaced as and assembly.

DISASSEMBLY

1. Disconnect fuel level sensor unit/fuel tank temperature sensor harness connector (1).

NOTE:

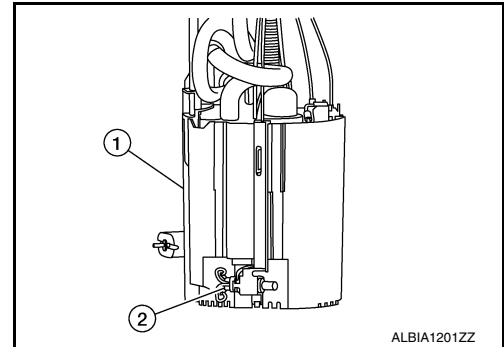
Hold connector with your fingers, because there is no tab for releasing stopper. Pull harness connector straight downward.



FUEL LEVEL SENSOR UNIT

< DISASSEMBLY AND ASSEMBLY >

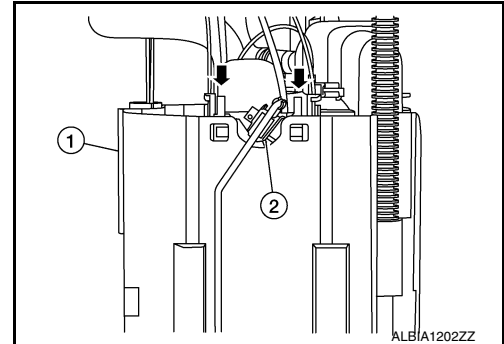
2. Remove fuel tank temperature sensor (2) from fuel filter and fuel pump assembly (1).



3. Using a suitable tool press up on clip (←) and remove fuel level sensor unit (2) from fuel filter and fuel pump assembly (1).

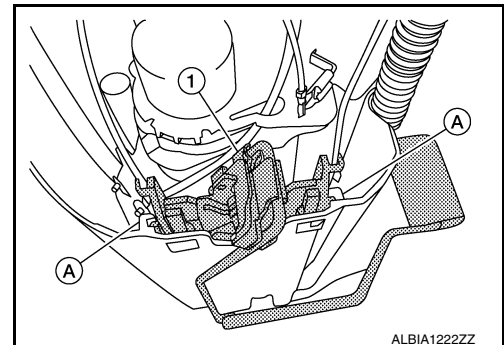
CAUTION:

- Be careful not to damage the fuel level sensor unit.
- Do not disassemble fuel filter and fuel pump assembly.

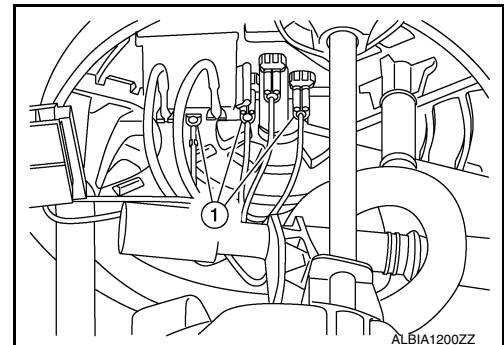


ASSEMBLY

1. Slide fuel level sensor unit (1) until it aligns to installation groove (A).
- After inserting, apply force in reverse direction (removal direction) to ensure it cannot be pulled out.



2. Connect fuel level sensor unit/fuel tank temperature sensor harness connectors (1).



3. Check fuel level sensor unit installation position to fuel filter and pump assembly for damage. Replace as necessary.
4. Assembly of remaining components is in the reverse order of disassembly.

INSPECTION AFTER INSTALLATION

Use the following procedure to check for fuel leaks.

1. Turn ignition switch "ON" (with engine stopped), then check connections for leaks by applying fuel pressure to fuel piping.
2. Start engine and let it idle and check there are no fuel leaks at the fuel system connections.

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

Fuel Tank

INFOID:000000009797512

Standard and Limit

Fuel tank capacity	Approx. 55 ℓ (14-1/2 US gal, 12-1/8 Imp gal)
Fuel recommendation	Refer to MA-11

SECTION

EX

EX

EXHAUST SYSTEM

CONTENTS

PRECAUTION	2	PERIODIC MAINTENANCE	4
PRECAUTIONS	2	EXHAUST SYSTEM	4
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	2	Inspection	4
PREPARATION	3	REMOVAL AND INSTALLATION	5
PREPARATION	3	EXHAUST SYSTEM	5
Special Service Tool	3	Exploded View	5
Commercial Service Tools	3	Removal and Installation	5
		Inspection	6

PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010247493

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

PREPARATION

< PREPARATION >

PREPARATION

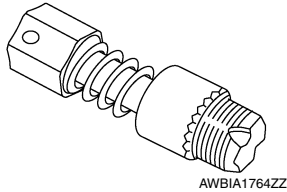
PREPARATION

Special Service Tool

INFOID:0000000010247612

The actual shape of the tools may differ from those illustrated here.

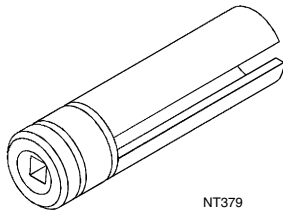
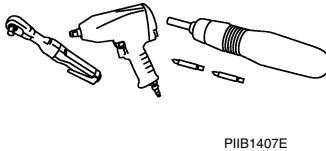
Tool number (TechMate No.) Tool name	Description
— (J-43897-18) Oxygen sensor thread cutter	Reconditioning the exhaust system threads before installing a new oxygen sensor (Use with anti-seize lubricant) M18 x 1.5 threads



Commercial Service Tools

INFOID:0000000010247613

Tool name	Description
Power tool	Loosening nuts, screws and bolts
Heated oxygen sensor wrench	Loosening or tightening heated oxygen sensor For 22 mm (0.87 in) hexagon nut
Anti-seize lubricant (Permatex 133AR or equivalent meeting MIL specification MIL-A-907)	Lubricating oxygen sensor thread cleaning tool when reconditioning exhaust system threads



EXHAUST SYSTEM

< PERIODIC MAINTENANCE >

PERIODIC MAINTENANCE

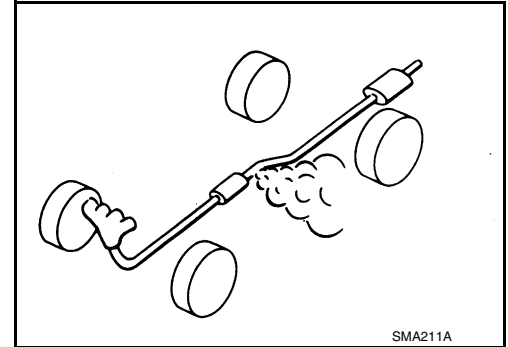
EXHAUST SYSTEM

Inspection

INFOID:000000009797960

Check exhaust pipes, muffler, and mounting for improper attachment, leakage, cracks, damage or deterioration.

- If anything is found, repair or replace damaged parts.



EXHAUST SYSTEM

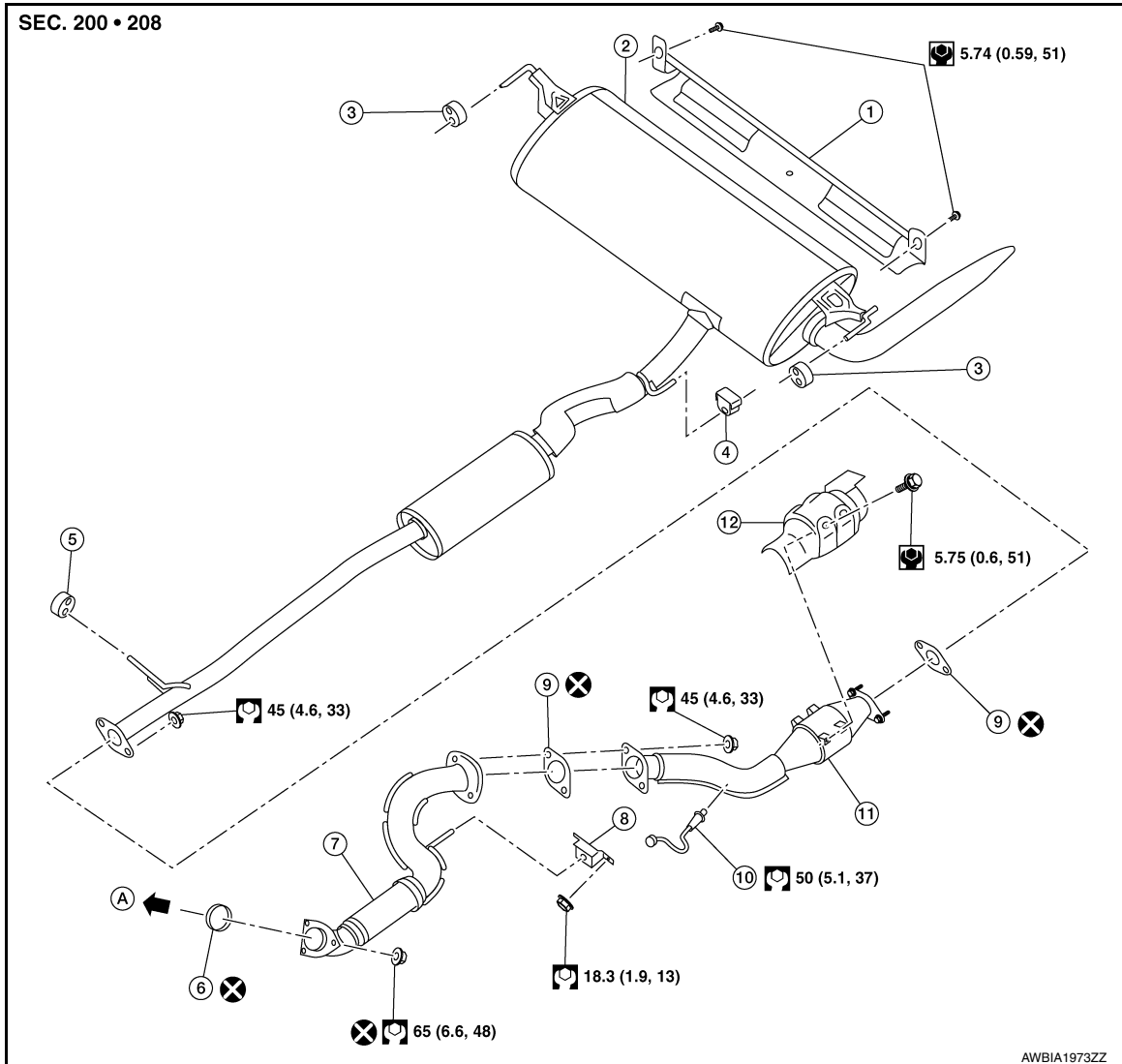
< REMOVAL AND INSTALLATION >

REMOVAL AND INSTALLATION

EXHAUST SYSTEM

Exploded View

INFOID:000000009797961



- | | | |
|---|-------------------------|---------------------|
| 1. Exhaust diffuser | 2. Muffler assembly | 3. Mounting rubber |
| 4. Mounting rubber | 5. Mounting rubber | 6. Ring gasket |
| 7. Front exhaust tube | 8. Mounting rubber | 9. Exhaust gasket |
| 10. Oxygen sensor 2 | 11. Center exhaust tube | 12. Catalyst shroud |
| A. To exhaust manifold and three way catalyst | | |

Removal and Installation

INFOID:000000009797962

WARNING:

- Perform the procedures with the exhaust system fully cooled down to avoid injury from the hot exhaust system.
- Be careful not to cut your hand on the catalyst shroud edge.

CAUTION:

Use genuine NISSAN exhaust system parts or equivalent, which are specifically designed for heat resistance, corrosion resistance, and shape.

EXHAUST SYSTEM

< REMOVAL AND INSTALLATION >

REMOVAL

1. Remove exhaust system components using power tool.
2. Remove heated oxygen sensor 2 using suitable tool.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Do not reuse exhaust gasket.
- Do not reuse nuts securing front exhaust tube to exhaust manifold and three way catalyst.
- Do not allow foreign substances to contact new exhaust gasket.
- Be sure to install ring gasket to prevent catching when tightening.
- Do not reuse ring gasket.
- Ensure flexible portion of front exhaust tube is free from deformation.
- During installation, take care not to deform mounting rubbers. After installing, the mounting rubbers shall show no excessive movement, twisting, or elongation. To facilitate installation, a neutral detergent may be used.
- Mounting rubbers installed at either side of muffler are to be installed in accordance with paint marks. Mounting rubber at LH side is installed with white paint mark facing forward. Mounting rubber at RH side is installed with white paint mark facing rearward.
- Do not spray exhaust tubes, muffler, heated oxygen sensor 2, or catalyst shroud with anti-corrosive wax.
- If catalyst shroud is badly deformed, repair or replace it. If deposits, such as mud, pile up on the catalyst shroud, remove them.
- When installing catalyst shroud, avoid large gaps or interference between catalyst shroud and exhaust pipe.
- Temporarily tighten fasteners and check each part for interference with other components, and then tighten fasteners to specification.
- Discard any heated oxygen sensor 2 which has been dropped.
- Before installing a new heated oxygen sensor 2, clean exhaust system threads using Tool.

Oxygen sensor thread cleaner : J-43897-18

- Tighten heated oxygen sensor 2 using suitable tool. Do not use impact wrench.
- Do not over tighten heated oxygen sensor 2. Doing so may cause damage to the heated oxygen sensor 2, resulting in the "MIL" coming on.
- Remove deposits from the sealing surface of each connection. Connect them securely to avoid exhaust gas leaks.

Inspection

INFOID:000000009797963

INSPECTION AFTER INSTALLATION

- Check clearance between tail tube and rear bumper is even.
- With engine running, check exhaust tube joints for gas leakage and unusual noises.
- Check to ensure that mounting brackets and mounting rubbers are installed properly and free from undue stress. Improper installation could result in excessive noise and vibration.

SECTION

STR

STR

STARTING SYSTEM

CONTENTS

PRECAUTION	2	Work Flow (Without GR8-1200 NI)	15
PRECAUTIONS	2	DTC/CIRCUIT DIAGNOSIS	17
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	2	B TERMINAL CIRCUIT	17
PREPARATION	3	Description	17
PREPARATION	3	Diagnosis Procedure	17
Special Service Tools	3	S CONNECTOR CIRCUIT	19
Commercial Service Tools	3	Description	19
SYSTEM DESCRIPTION	4	Diagnosis Procedure	19
COMPONENT PARTS	4	SYMPTOM DIAGNOSIS	20
Component Parts Location	4	STARTING SYSTEM	20
SYSTEM	6	Symptom Table	20
System Description	6	REMOVAL AND INSTALLATION	21
WIRING DIAGRAM	7	STARTER MOTOR	21
STARTING SYSTEM	7	Exploded View	21
Wiring Diagram	7	Removal and Installation	21
BASIC INSPECTION	11	SERVICE DATA AND SPECIFICATIONS (SDS)	22
DIAGNOSIS AND REPAIR WORKFLOW	11	SERVICE DATA AND SPECIFICATIONS (SDS)	22
Work Flow (With GR8-1200 NI)	11	Starter Motor	22

A
STR
C
D
E
F
G
H
I
J
K
L
M
N
O
P

PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010195809

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

PREPARATION

< PREPARATION >

PREPARATION

PREPARATION

Special Service Tools

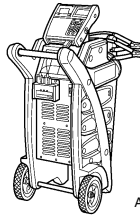
INFOID:000000009797537

A

STR

The actual shape of the tools may differ from those illustrated here.

Tool number (TechMate No.) Tool name	Description
— (165-GR8-1200KIT-NI) Multitasking battery and electrical diagnostic station	Testing batteries, starting and charging systems and charges batteries. For operating instructions, refer to diagnostic station instruction manual.



AWIIA1239ZZ

Commercial Service Tools

INFOID:000000009797538

Tool name	Description
Power tool	Loosening bolts, nuts and screws



PIIB1407E

COMPONENT PARTS

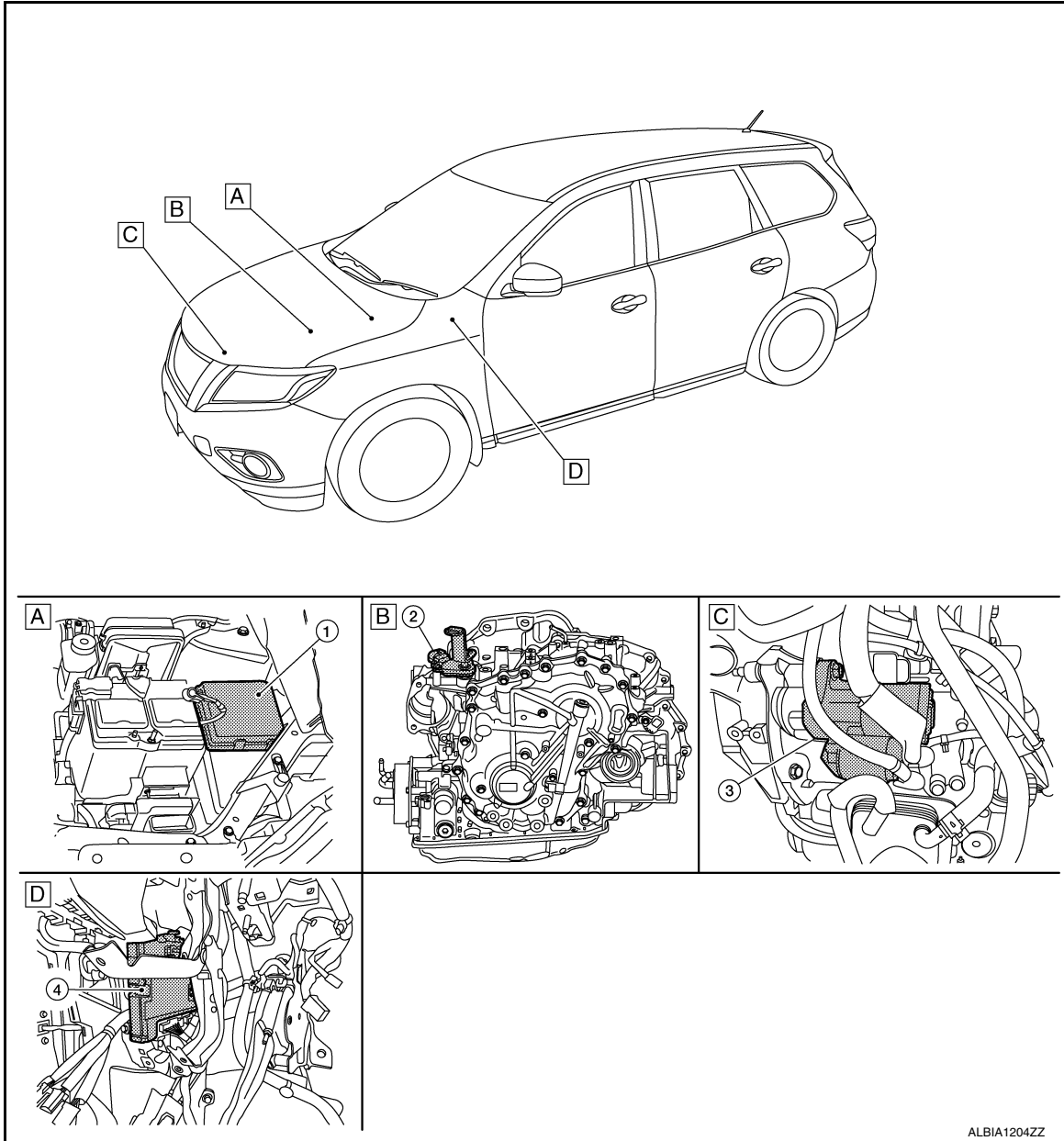
< SYSTEM DESCRIPTION >

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:0000000010223742



ALBIA1204ZZ

- A. Engine room (RH) B. View with transmission removed C. View with engine and transmission removed
- D. Behind instrument panel (LH)

No.	Component part	Description
1.	IPDM E/R	CPU inside IPDM E/R operates the starter relay when the ignition switch is in the start position.
2.	Transmission range switch	Transmission range switch supplies power to the starter relay and starter control relay inside the IPDM E/R when the selector lever is shifted to the P (Park) or N (Neutral) position.

COMPONENT PARTS

< SYSTEM DESCRIPTION >

No.	Component part	Description
3.	Starter motor	The starter motor plunger closes and the motor is supplied with battery power, which in turn cranks the engine, when the S terminals supplied with electric power.
4.	BCM	BCM controls the starter relay inside IPDM E/R.

A

STR

C

D

E

F

G

H

I

J

K

L

M

N

O

P

SYSTEM

< SYSTEM DESCRIPTION >

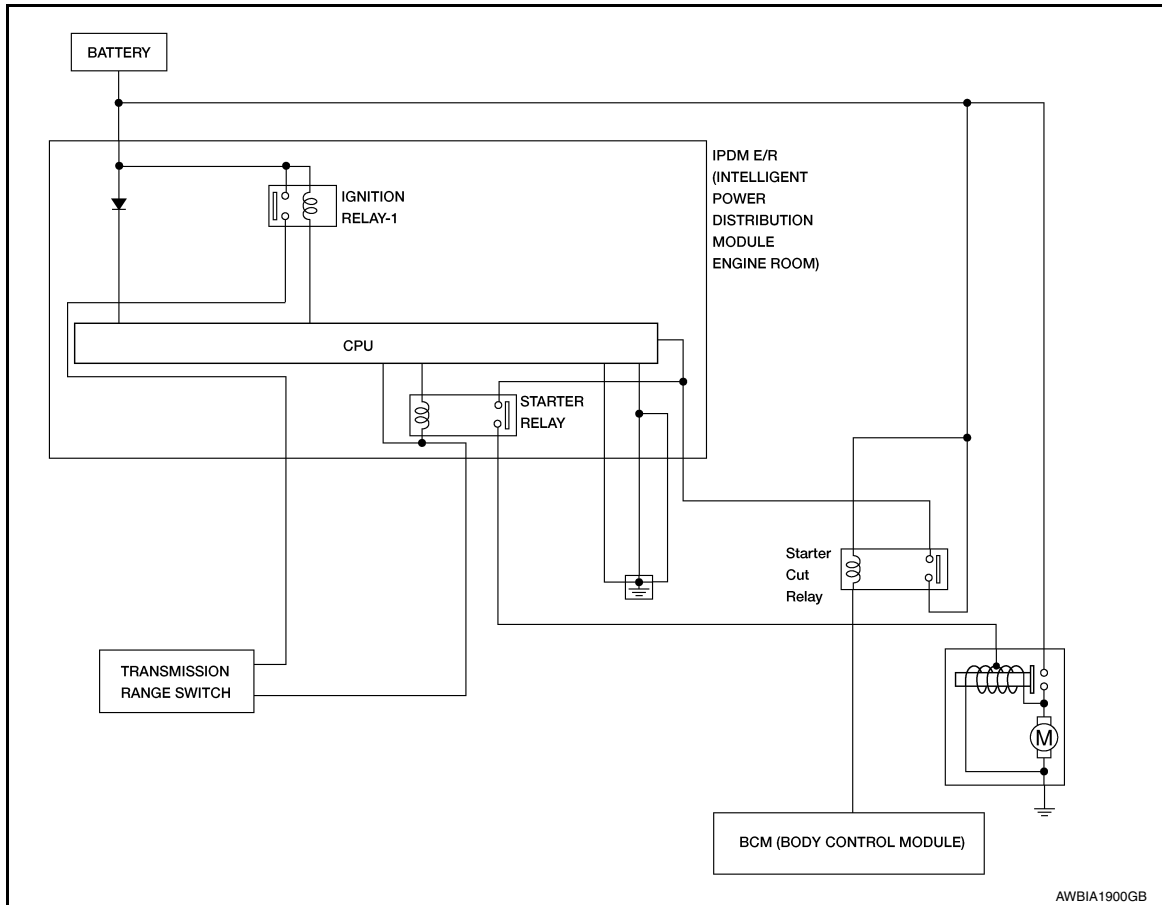
SYSTEM

System Description

INFOID:000000010223745

The starter motor plunger closes and provides a closed circuit between the battery and the starter motor. The starter motor is grounded to the cylinder block. With power and ground supplied, the starter motor operates.

SYSTEM DIAGRAM



STARTING SYSTEM

< WIRING DIAGRAM >

WIRING DIAGRAM

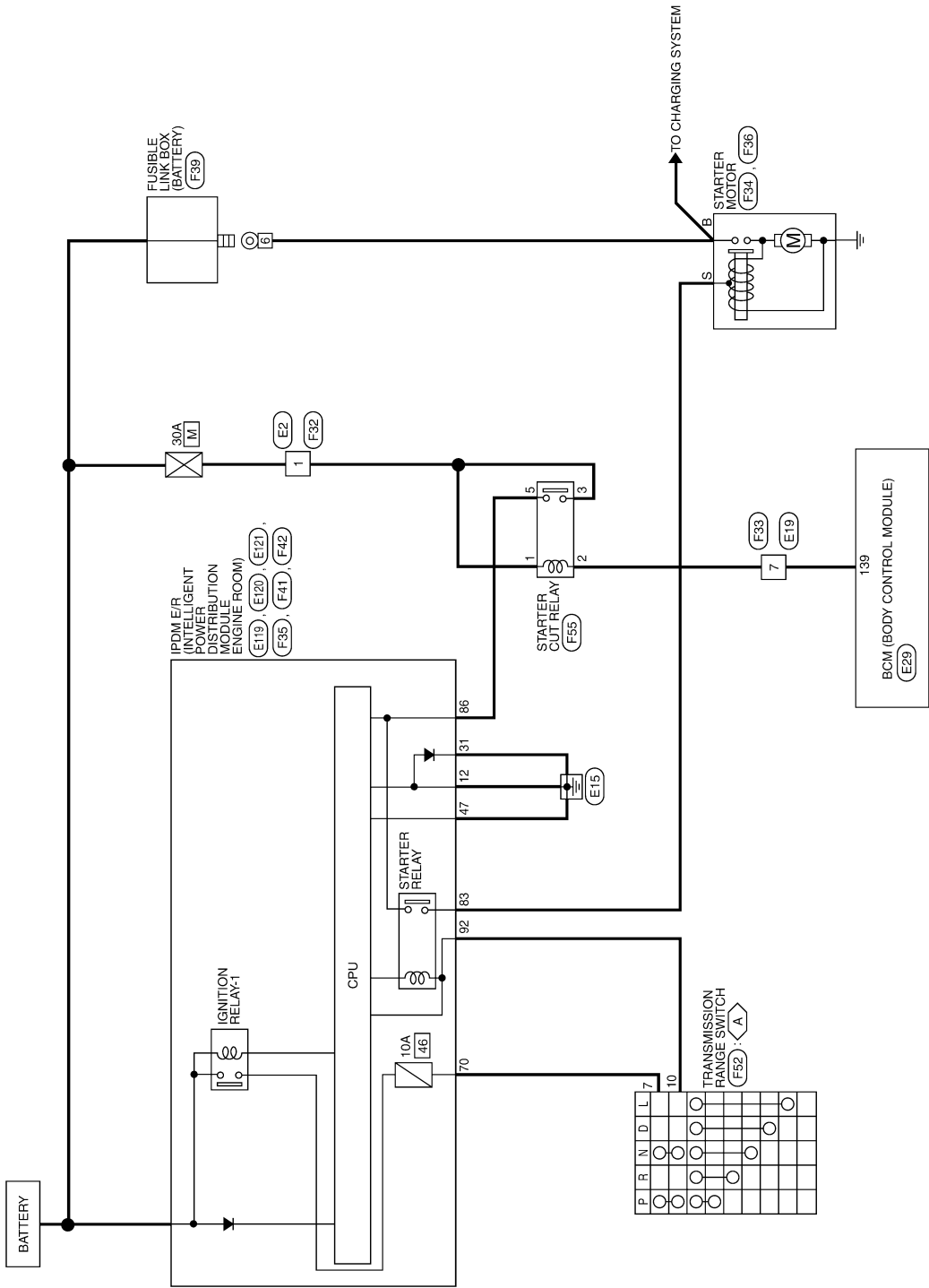
STARTING SYSTEM

Wiring Diagram

INFOID:000000010223746

STR

STARTING SYSTEM



AABWA0857GB

A
C
D
E
F
G
H
I
J
K
L
M
N
O
P

STARTING SYSTEM

< WIRING DIAGRAM >

STARTING SYSTEM CONNECTORS

Connector No.	E2
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7		
8	9	10	11	12	13	14	15	16

Connector No.	E19
Connector Name	WIRE TO WIRE
Connector Color	BROWN



132	131	130	129	128	127	126	125	124	123	122	121
144	143	142	141	140	139	138	137	136	135	134	133

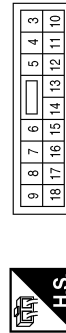
Connector No.	E29
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK

Terminal No.	1
Color of Wire	L
Signal Name	-

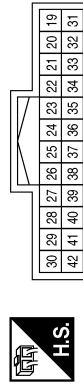
Terminal No.	7
Color of Wire	G
Signal Name	-

Terminal No.	139
Color of Wire	G
Signal Name	O STCUT RL

Connector No.	E119
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



Connector No.	E120
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



Connector No.	E121
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	RED



Terminal No.	12
Color of Wire	B
Signal Name	SIGNAL GROUND

Terminal No.	31
Color of Wire	B
Signal Name	2ND SIGNAL GROUND

Terminal No.	47
Color of Wire	B
Signal Name	POWER GROUND

AABIA1218GB

STARTING SYSTEM

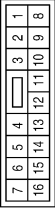
< WIRING DIAGRAM >

Connector No.	F32
Connector Name	WIRE TO WIRE
Connector Color	WHITE




Terminal No.	1
Color of Wire	L
Signal Name	-

Connector No.	F33
Connector Name	WIRE TO WIRE
Connector Color	BROWN

Terminal No.	7
Color of Wire	G
Signal Name	-

Connector No.	F34
Connector Name	STARTER MOTOR
Connector Color	-




Terminal No.	S
Color of Wire	G
Signal Name	-

Connector No.	F35
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE




Terminal No.	70
Color of Wire	BG
Signal Name	O IGN AT LPG

Connector No.	F36
Connector Name	STARTER MOTOR
Connector Color	-




Terminal No.	B
Color of Wire	B/R
Signal Name	-

Connector No.	F39
Connector Name	FUSIBLE LINK BOX (BATTERY)
Connector Color	-




Terminal No.	6
Color of Wire	B/R
Signal Name	-

AABIA1219GB

STARTING SYSTEM

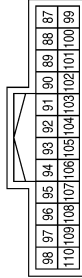
< WIRING DIAGRAM >

Connector No.	F55
Connector Name	STARTER CUT RELAY
Connector Color	BLUE



Terminal No.	Color of Wire	Signal Name
1	SB	-
2	G	-
3	L	-
5	GR	-

Connector No.	F42
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK



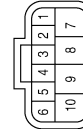
Terminal No.	Color of Wire	Signal Name
92	GR	LI NP SW

Connector No.	F41
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
83	G	O STARTER
86	GR	FL STARTER

Connector No.	F78
Connector Name	TRANSMISSION RANGE SWITCH
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
7	BG	-
10	GR	-

AABIA1220GB

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow (With GR8-1200 NI)

INFOID:0000000010223747

A

STR

STARTING SYSTEM DIAGNOSIS WITH GR8-1200 NI

To test the starting system, use the following special service tool:

- GR8-1200 NI Multitasking battery and electrical diagnostic station

NOTE:

Refer to the diagnostic station Instruction Manual for proper starting system diagnosis procedures.

C

D

E

F

G

H

I

J

K

L

M

N

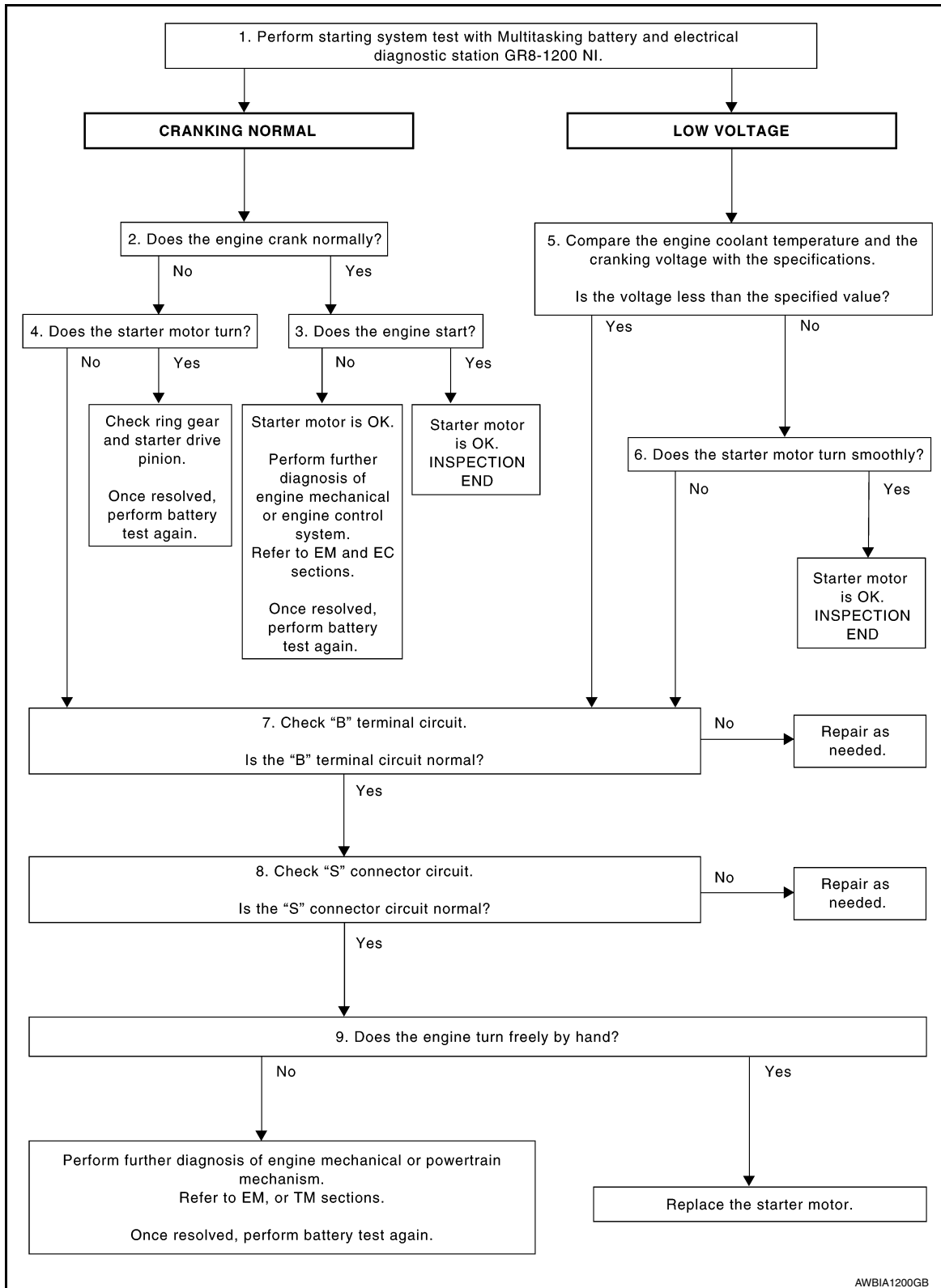
O

P

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

OVERALL SEQUENCE



DETAILED FLOW

NOTE:

To ensure a complete and thorough diagnosis, the battery, starter motor and generator test segments must be done as a set from start to finish.

1. DIAGNOSIS WITH MULTITASKING BATTERY AND ELECTRICAL DIAGNOSTIC STATION GR8-1200 NI

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

Perform the starting system test with Multitasking battery and electrical diagnostic station GR8-1200 NI. For details and operating instructions, refer to diagnostic station Instruction Manual.

Test result

CRANKING NORMAL>>GO TO 2.

LOW VOLTAGE>>GO TO 5.

CHARGE BATTERY>>Perform the slow battery charging procedure. (Initial rate of charge is 10A for 12 hours.) Perform battery test again. Refer to diagnostic station instruction manual.

REPLACE BATTERY>>Before replacing battery, clean the battery cable clamps and battery posts. Perform battery test again. Refer to diagnostic station instruction manual. If second test result is "REPLACE BATTERY", then do so. Perform battery test again to confirm repair.

2. CRANKING CHECK

Check that the starter motor operates properly.

Does the engine crank normally?

YES >> GO TO 3.

NO >> GO TO 4.

3. ENGINE START CHECK

Check that the engine starts.

Does the engine start?

YES >> Inspection End.

NO >> Perform further diagnosis of engine mechanical or engine control system. Refer to EM and EC sections. Once resolved, perform battery test again.

4. STARTER MOTOR ACTIVATION

Check that the starter motor operates.

Does the starter motor turn?

YES >> Check ring gear and starter motor drive pinion. Once resolved, perform battery test again.

NO >> GO TO 7.

5. COMPARISON BETWEEN ENGINE COOLANT AND CRANKING VOLTAGE

Compare the engine coolant temperature and verify the cranking voltage is within specifications.

Minimum Specification of Cranking Voltage Referencing Coolant Temperature

Engine coolant temperature [°C (°F)]	Voltage [V]
-30 to -20 (-22 to -4)	8.6
-19 to -10 (-2 to 14)	9.1
-9 to 0 (16 to 32)	9.5
More than 1 (More than 34)	9.9

Is the voltage less than the specified value?

YES >> GO TO 7.

NO >> GO TO 6.

6. STARTER OPERATION

Check the starter operation.

Does the starter motor turn smoothly?

YES >> Inspection End.

NO >> GO TO 7.

7. "B" TERMINAL CIRCUIT INSPECTION

Check "B" terminal circuit. Refer to [STR-17, "Diagnosis Procedure"](#).

Is "B" terminal circuit normal?

YES >> GO TO 8.

NO >> Repair as needed.

8. "S" CONNECTOR CIRCUIT INSPECTION

Check "S" connector circuit. Refer to [STR-19, "Diagnosis Procedure"](#).

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

Is "S" connector circuit normal?

YES >> GO TO 9.

NO >> Repair as needed.

9.ENGINE ROTATION STATUS

Check that the engine can be rotated by hand.

Does the engine turn freely by hand?

YES >> Replace starter motor.

NO >> Perform further diagnosis of engine mechanical or powertrain mechanism. Once resolved, perform battery test again using Multitasking battery and electrical diagnostic station GR8-1200 NI. Refer to the diagnostic station Instruction Manual for proper testing procedures.

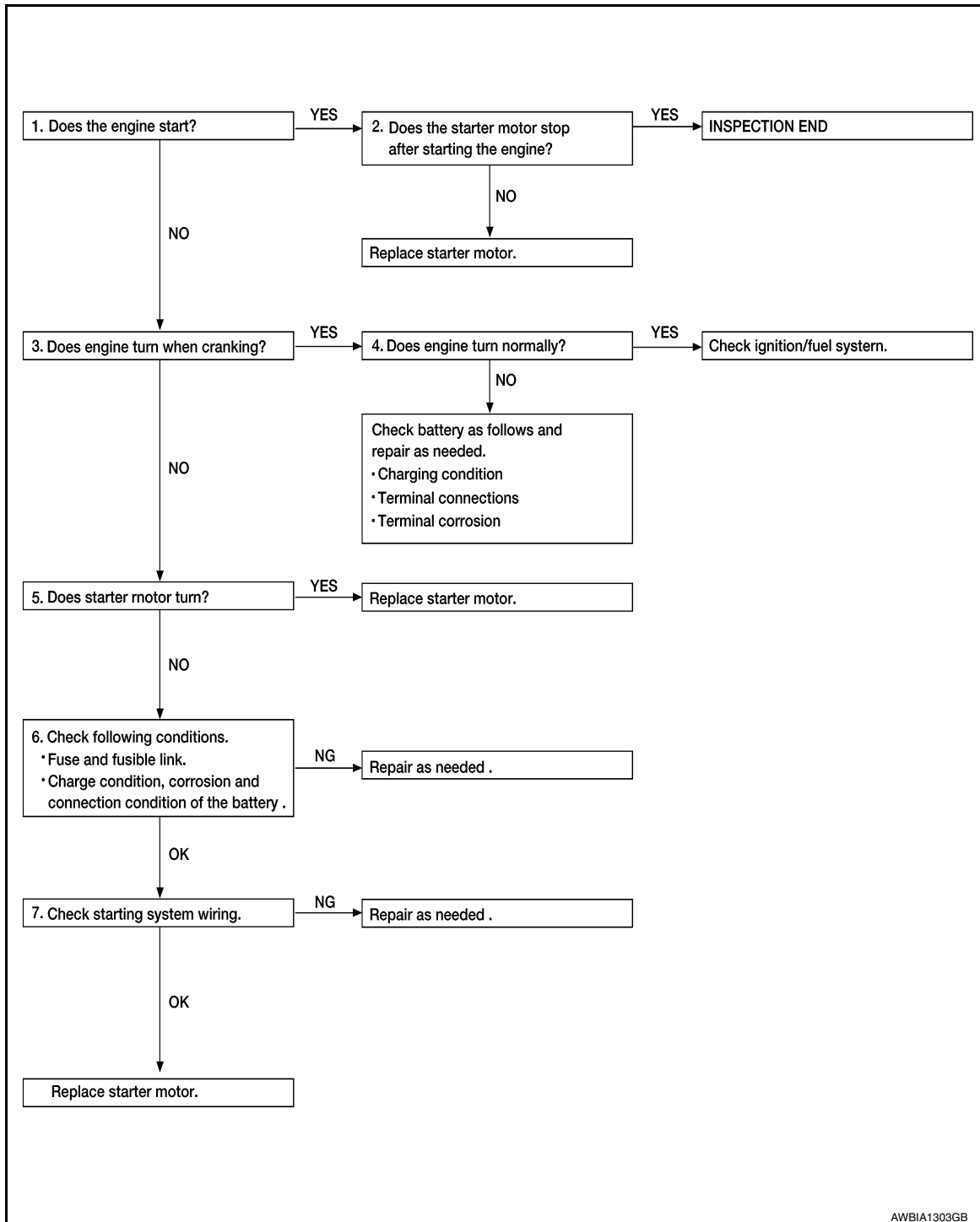
DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

Work Flow (Without GR8-1200 NI)

INFOID:000000010223748

OVERALL SEQUENCE



DETAILED FLOW

NOTE:

If any malfunction is found, immediately disconnect the battery cable from the negative terminal.

1.CHECK ENGINE START

Crank the engine and check that the engine starts.

Does the engine start?

YES >> GO TO 2.

NO >> GO TO 3.

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

2. CHECK THAT THE STARTER MOTOR STOPS

Check that the starter motor stops after starting the engine.

Does the starter motor stop?

YES >> Inspection End.

NO >> Replace starter motor. Refer to [STR-21. "Removal and Installation"](#).

3. CHECK THAT THE ENGINE TURNS WHEN CRANKING

Check that the engine turns when cranking.

Does engine turn when cranking?

YES >> GO TO 4.

NO >> GO TO 5.

4. CHECK THE ENGINE SPEED WHEN CRANKING

Check that the engine speed is not low when cranking.

Does engine turn normally?

YES >> Check ignition/fuel system.

NO >> Check charge condition, corrosion and connection condition of the battery.

5. CHECK STARTER MOTOR ACTIVATION

Check that the starter motor runs at cranking.

Does starter motor turn?

YES >> Replace starter motor. Refer to [STR-21. "Removal and Installation"](#).

NO >> GO TO 6.

6. CHECK POWER SUPPLY CIRCUIT

Check the following conditions:

- Fuse and fusible link
- Charge condition, corrosion and connection of the battery.

Are these inspection results normal?

YES >> GO TO 7.

NO >> Repair as needed.

7. CHECK STARTING SYSTEM WIRING

Check the following:

- "B" terminal circuit. Refer to [STR-17. "Diagnosis Procedure"](#).
- "S" terminal circuit. Refer to [STR-19. "Diagnosis Procedure"](#).

Are the inspection results normal?

YES >> Replace starter motor. Refer to [STR-21. "Removal and Installation"](#).

NO >> Repair as needed.

B TERMINAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

DTC/CIRCUIT DIAGNOSIS

B TERMINAL CIRCUIT

Description

INFOID:0000000010223749

STR

Terminal "B" is constantly supplied with battery power.

Diagnosis Procedure

INFOID:0000000010223750

Regarding Wiring Diagram information, refer to [STR-7. "Wiring Diagram"](#).

CAUTION:

Perform diagnosis under the condition that the engine cannot start by the following procedure.

1. Remove fuel pump fuse.
2. Crank or start the engine (where possible) until the fuel pressure is released.

1.CHECK "B" TERMINAL CIRCUIT

1. Turn ignition switch OFF.
2. Check that starter motor "B" terminal connection is clean and tight.
3. Check voltage between starter motor "B" terminal and ground.

Terminals			Voltage (Approx.)
(+)		(-)	
Starter motor "B" terminal	Terminal		
F36	B	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 2.

NO >> Check harness between battery and starter motor for open circuit.

2.CHECK BATTERY CABLE CONNECTION STATUS (VOLTAGE DROP TEST)

1. Shift selector lever to "P" (Park) or "N" (Neutral) position.
2. Check voltage between battery positive terminal and starter motor "B" terminal.

Terminals			Condition	Voltage (Approx.)
(+)	(-)			
	Starter motor "B" terminal	Terminal		
Battery positive terminal	F36	B	When the ignition switch is in START position	Less than 0.5V

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check harness between the battery and starter motor for continuity.

3.CHECK GROUND CIRCUIT STATUS (VOLTAGE DROP TEST)

1. Shift selector lever to "P" (Park) or "N" (Neutral) position.
2. Check voltage between starter motor case and battery negative terminal.

Terminals		Condition	Voltage (Approx.)
(+)	(-)		
Starter motor case	Battery negative terminal	When the ignition switch is in START position	Less than 0.2V

Is the inspection result normal?

B TERMINAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

- YES >> "B" terminal circuit is OK. Further inspection is necessary. Refer to [STR-11, "Work Flow \(With GR8-1200 NI\)"](#) or [STR-15, "Work Flow \(Without GR8-1200 NI\)"](#).
- NO >> Check the starter motor case to engine mounting for high resistance.

S CONNECTOR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

S CONNECTOR CIRCUIT

Description

INFOID:0000000010223751

The starter motor magnetic switch is supplied with power when the ignition switch is turned to the START position while the selector lever is in the P (Park) or N (Neutral) position.

Diagnosis Procedure

INFOID:0000000010223752

Regarding Wiring Diagram information, refer to [STR-7, "Wiring Diagram"](#).

CAUTION:

Perform diagnosis under the condition that engine cannot start by the following procedure.

1. Remove fuel pump fuse.
2. Crank or start the engine (where possible) until the fuel pressure is released.

1.CHECK "S" CONNECTOR CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect starter motor connector.
3. Shift selector lever to "P" (Park) or "N" (Neutral) position.
4. Check voltage between starter motor harness connector and ground.

(+) (Approx.)		(-) (Approx.)	Condition	Voltage (Approx.)
Connector	Terminal			
F34	S	Ground	When the ignition switch is in START position	Battery voltage

Is the inspection result normal?

YES >> "S" circuit is OK. Further inspection is necessary. Refer to [STR-11, "Work Flow \(With GR8-1200 NI\)"](#) or [STR-15, "Work Flow \(Without GR8-1200 NI\)"](#).

NO >> GO TO 2.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect IPDM E/R connector.
2. Check continuity between starter motor harness connector and the IPDM E/R harness connector.

Starter motor harness connector		IPDM E/R harness connector		Continuity
Connector	Terminal	Connector	Terminal	
F34	S	F41	83	Yes

3. Check continuity between starter motor terminal S and ground.

Connector	Terminal	—	Continuity
F34	S	Ground	No

Is the inspection result normal?

YES >> Further inspection is necessary. Refer to [STR-11, "Work Flow \(With GR8-1200 NI\)"](#) or [STR-15, "Work Flow \(Without GR8-1200 NI\)"](#).

NO >> Repair or replace the harness or connectors.

STARTING SYSTEM

< SYMPTOM DIAGNOSIS >

SYMPTOM DIAGNOSIS

STARTING SYSTEM

Symptom Table

INFOID:0000000010223753

Symptom	Reference
No normal cranking	Refer to STR-11. "Work Flow (With GR8-1200 NI)" or STR-15. "Work Flow (Without GR8-1200 NI)" .
Starter motor does not rotate	

STARTER MOTOR

< REMOVAL AND INSTALLATION >

REMOVAL AND INSTALLATION

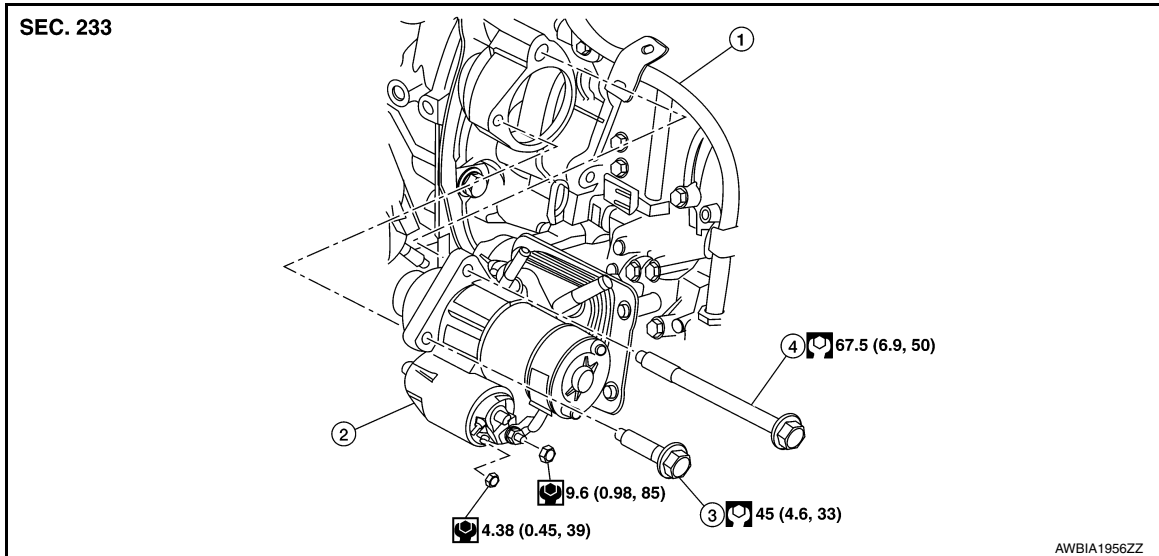
STARTER MOTOR

Exploded View

INFOID:000000010195838

STR

REMOVAL



Removal and Installation

INFOID:000000010195839

REMOVAL

1. Remove battery tray. Refer to [PG-77, "Removal and Installation"](#).
2. Remove terminal B nut and terminal B harness.
3. Remove terminal S nut and terminal S harness.
4. Remove starter motor mounting bolts.
5. Remove starter motor upward from the vehicle.

INSTALLATION

Installation is in the reverse order of removal. Perform the following: Learning".

- Perform the "Throttle Valve Closed Position Learning" and "Accelerator Pedal Released Position Learning" when harness connector of ECM is disconnected. Refer to [EC-140, "Work Procedure"](#) and [EC-139, "Work Procedure"](#).

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

Starter Motor

INFOID:000000009797545

Applied model		QR25DE
Type		M000TB0071ZC
		MITSUBISHI make
		Reduction gear type
System voltage		[V] 12
No-load	Terminal voltage	[V] 11
	Current	[A] 90 Maximum
	Revolution	[rpm] 2,370 Minimum

SECTION

ACC

ACC

ACCELERATOR CONTROL SYSTEM

CONTENTS

PRECAUTION	2	Removal and Installation	3
PRECAUTIONS	2	Inspection	3
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	2	SERVICE DATA AND SPECIFICATIONS (SDS)	5
REMOVAL AND INSTALLATION	3	SERVICE DATA AND SPECIFICATIONS (SDS)	5
ACCELERATOR PEDAL ASSEMBLY	3	Accelerator Control	5
Exploded View	3		

A
C
D
E
F
G
H
I
J
K
L
M
N
O
P

PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010308266

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

ACCELERATOR PEDAL ASSEMBLY

< REMOVAL AND INSTALLATION >

REMOVAL AND INSTALLATION

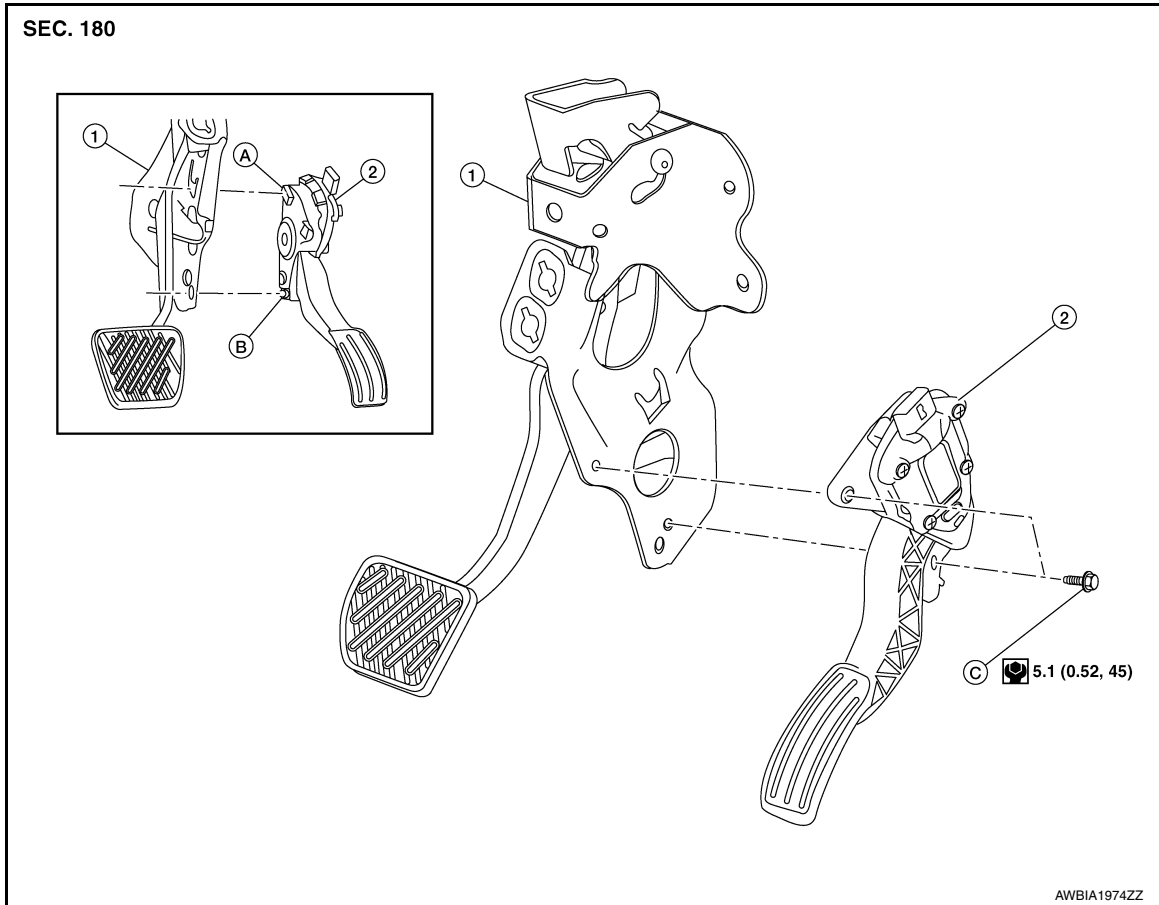
ACCELERATOR PEDAL ASSEMBLY

Exploded View

INFOID:0000000010306125

A

ACC



C

D

E

F

G

H

I

J

K

Removal and Installation

INFOID:0000000010306126

REMOVAL

1. Disconnect the harness connector from the accelerator pedal assembly.
2. Remove the bolts, then remove accelerator pedal assembly.

CAUTION:

- Do not disassemble accelerator pedal assembly.
- Do not drop or impact accelerator pedal assembly.
- Do not expose accelerator pedal assembly to water.

INSTALLATION

Installation is in the reverse order of removal.

NOTE:

When installing the accelerator pedal assembly, make sure to align locator hook and locator pin before installing bolts.

For inspection, refer to [ACC-3. "Inspection"](#).

Inspection

INFOID:0000000010306819

INSPECTION AFTER INSTALLATION

Revision: November 2013

ACC-3

2014 Rogue NAM

L

M

N

O

P

ACCELERATOR PEDAL ASSEMBLY

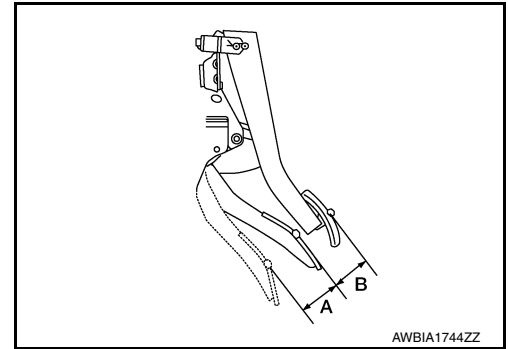
< REMOVAL AND INSTALLATION >

- Check that the accelerator pedal moves smoothly within the specified range.

Accelerator pedal stroke (A) : Refer to [ACC-5, "Accelerator Control"](#)

- Check the accelerator pedal height.

Accelerator pedal height (B) : Refer to [ACC-5, "Accelerator Control"](#)



- If accelerator pedal does not meet specified values, check brake pedal height. Refer to [ACC-3, "Inspection"](#).
- Depress and release the accelerator pedal to check that it returns quickly and smoothly to the original released position.

CAUTION:

- Whenever the harness connector of the accelerator pedal position sensor has been disconnected, perform "Accelerator Pedal Released Position Learning". Refer to [EC-139, "Work Procedure"](#).
- The accelerator pedal should operate smoothly without catching when the pedal operating force is released. The pedal should return smoothly to the fully raised position. The spring should be free from damage.

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

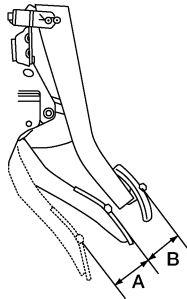
SERVICE DATA AND SPECIFICATIONS (SDS)

Accelerator Control

INFOID:0000000010306845

ACC

Unit: mm (in)



AWBIA1744ZZ

Accelerator pedal stroke (A)	49.6 - 52.4 (1.95 - 2.06)
Pedal height difference between accelerator and brake (B)	35 - 45 (1.38 - 1.77)

A
C
D
E
F
G
H
I
J
K
L
M
N
O
P

SECTION **AV**

AUDIO, VISUAL & NAVIGATION SYSTEM

CONTENTS

DISPLAY AUDIO	WIRING DIAGRAM	27
PRECAUTION	DISPLAY AUDIO	27
PRECAUTIONS	Wiring Diagram	27
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	BASIC INSPECTION	42
Precaution for Harness Repair	DIAGNOSIS AND REPAIR WORKFLOW	42
Precaution for Work	Work Flow	42
PREPARATION	DTC/CIRCUIT DIAGNOSIS	44
PREPARATION	POWER SUPPLY AND GROUND CIRCUIT	44
Special Service Tool	AUDIO UNIT	44
Commercial Service Tools	AUDIO UNIT : Diagnosis Procedure	44
SYSTEM DESCRIPTION	FRONT TWEETER	45
COMPONENT PARTS	Diagnosis Procedure	45
Component Parts Location	FRONT DOOR SPEAKER	47
Audio Unit	Diagnosis Procedure	47
Speakers	REAR DOOR SPEAKER	49
USB Interface and AUX in Jack	Diagnosis Procedure	49
Steering Switches	REAR VIEW CAMERA IMAGE SIGNAL CIRCUIT	51
Microphone	Diagnosis Procedure	51
Rear View Camera	MICROPHONE SIGNAL CIRCUIT	53
Steering Angle Sensor	Diagnosis Procedure	53
Rod Antenna, Antenna Amp., Satellite Antenna and Antenna Feeder	STEERING SWITCH	55
SYSTEM	Diagnosis Procedure	55
System Description	USB CONNECTOR	57
DIAGNOSIS SYSTEM (AUDIO UNIT)	Diagnosis Procedure	57
Description	AUXILIARY INPUT JACK	58
On Board Diagnosis Function	Diagnosis Procedure	58
ECU DIAGNOSIS INFORMATION	SYMPTOM DIAGNOSIS	59
AUDIO UNIT		
Reference Value		

AUDIO SYSTEM	59	COMPONENT PARTS	77
Symptom Table	59	Component Parts Location	77
NORMAL OPERATING CONDITION	62	AV Control Unit	78
Description	62	Speakers	78
REMOVAL AND INSTALLATION	64	USB Interface and AUX In Jack	79
AUDIO UNIT	64	Steering Switches	79
Exploded View	64	Microphone	79
Removal and Installation	64	Around View Monitor Control Unit	80
STEERING SWITCHES	65	Rear View Camera	80
Exploded View	65	Side Cameras	80
Removal and Installation	65	Front Camera	80
FRONT TWEETER	66	Steering Angle Sensor	81
Removal and Installation	66	Rod Antenna, Antenna Amp., Satellite Antenna and Antenna Feeder	81
FRONT DOOR SPEAKER	67	GPS Antenna	82
Exploded View	67	SD Card	82
Removal and Installation	67	SYSTEM	83
REAR DOOR SPEAKER	68	System Description	83
Exploded View	68	DIAGNOSIS SYSTEM (AV CONTROL UNIT)...	91
Removal and Installation	68	Description	91
USB INTERFACE AND AUX IN JACK	69	On Board Diagnosis Function	91
Removal and Installation	69	CONSULT Function	92
MICROPHONE	70	DIAGNOSIS SYSTEM (AROUND VIEW MON- ITOR CONTROL UNIT)	93
Removal and Installation	70	WITHOUT DRIVER ASSISTANCE SYSTEM	93
REAR VIEW CAMERA	71	WITHOUT DRIVER ASSISTANCE SYSTEM :	
Removal and Installation	71	CONSULT Function	93
AUDIO ANTENNA	72	WITH DRIVER ASSISTANCE SYSTEM	94
Removal and Installation	72	WITH DRIVER ASSISTANCE SYSTEM : CON- SULT Function	94
ANTENNA FEEDER	73	ECU DIAGNOSIS INFORMATION	97
Feeder Layout	73	AV CONTROL UNIT	97
NAVIGATION WITHOUT BOSE		Reference Value	97
PRECAUTION	74	DTC Index	100
PRECAUTIONS	74	AROUND VIEW MONITOR CONTROL UNIT ..	101
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TEN- SIONER"	74	WITHOUT DRIVER ASSISTANCE SYSTEM	101
Cautions in Removing Battery Terminal and AV Control Unit (Models with AV Control Unit)	74	WITHOUT DRIVER ASSISTANCE SYSTEM :	
Precaution for Trouble Diagnosis	74	Reference Value	101
Precaution for Harness Repair	74	WITHOUT DRIVER ASSISTANCE SYSTEM :	
Precaution for Work	75	DTC Index	103
PREPARATION	76	WITH DRIVER ASSISTANCE SYSTEM	103
PREPARATION	76	WITH DRIVER ASSISTANCE SYSTEM : Refer- ence Value	103
Special Service Tool	76	WITH DRIVER ASSISTANCE SYSTEM : DTC In- dex	107
Commercial Service Tools	76	WIRING DIAGRAM	108
SYSTEM DESCRIPTION	77	NAVIGATION WITHOUT BOSE	108
		Wiring Diagram	108
		BASIC INSPECTION	129

DIAGNOSIS AND REPAIR WORKFLOW	129	AV CONTROL UNIT : Diagnosis Procedure	142
Work Flow	129		
INSPECTION AND ADJUSTMENT	131	AROUND VIEW MONITOR CONTROL UNIT	142
ADDITIONAL SERVICE WHEN REPLACING AV CONTROL UNIT	131	AROUND VIEW MONITOR CONTROL UNIT :	
ADDITIONAL SERVICE WHEN REPLACING AV CONTROL UNIT : Description	131	DTC Logic	142
ADDITIONAL SERVICE WHEN REPLACING AV CONTROL UNIT : Work Procedure	131	AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure	142
ADDITIONAL SERVICE WHEN REPLACING AROUND VIEW MONITOR CONTROL UNIT	131	U1010 CONTROL UNIT (CAN)	143
ADDITIONAL SERVICE WHEN REPLACING AROUND VIEW MONITOR CONTROL UNIT : Description	132	AV CONTROL UNIT	143
ADDITIONAL SERVICE WHEN REPLACING AROUND VIEW MONITOR CONTROL UNIT : Work Procedure	132	AV CONTROL UNIT : DTC Logic	143
CONFIGURATION (AV CONTROL UNIT)	132	AROUND VIEW MONITOR CONTROL UNIT	143
CONFIGURATION (AV CONTROL UNIT) : Description	133	AROUND VIEW MONITOR CONTROL UNIT : DTC Logic	143
CONFIGURATION (AV CONTROL UNIT) : Work Procedure	133	U111A REAR CAMERA IMAGE SIGNAL CIRCUIT	144
CONFIGURATION (AV CONTROL UNIT) : Configuration List	134	DTC Logic	144
CONFIGURATION (AROUND VIEW MONITOR CONTROL UNIT)	134	Diagnosis Procedure	144
CONFIGURATION (AROUND VIEW MONITOR CONTROL UNIT) : Description	134	U111B SIDE CAMERA RH IMAGE SIGNAL CIRCUIT	148
CONFIGURATION (AROUND VIEW MONITOR CONTROL UNIT) : Work Procedure	134	DTC Logic	148
CONFIGURATION (AROUND VIEW MONITOR CONTROL UNIT) : Configuration List	135	Diagnosis Procedure	148
PREDICTED COURSE LINE CENTER POSITION ADJUSTMENT	135	U111C FRONT CAMERA IMAGE SIGNAL CIRCUIT	152
PREDICTED COURSE LINE CENTER POSITION ADJUSTMENT : Description	135	DTC Logic	152
PREDICTED COURSE LINE CENTER POSITION ADJUSTMENT : Work Procedure	135	Diagnosis Procedure	152
CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR)	135	U111D SIDE CAMERA LH IMAGE SIGNAL CIRCUIT	156
CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR) : Description	135	DTC Logic	156
CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR) : Work Procedure	136	Diagnosis Procedure	156
DTC/CIRCUIT DIAGNOSIS	141	U1217 AV CONTROL UNIT	160
U0428 STEERING ANGLE SENSOR	141	DTC Logic	160
DTC Logic	141	U1229 AV CONTROL UNIT	161
Diagnosis Procedure	141	DTC Logic	161
U1000 CAN COMM CIRCUIT	142	U122F AV CONTROL UNIT	162
AV CONTROL UNIT	142	DTC Logic	162
AV CONTROL UNIT : DTC Logic	142	U1232 STEERING ANGLE SENSOR	163
		DTC Logic	163
		Diagnosis Procedure	163
		U1244 GPS ANTENNA	164
		DTC Logic	164
		Diagnosis Procedure	164
		U1258 SATELLITE RADIO ANTENNA	165
		DTC Logic	165
		Diagnosis Procedure	165
		U1263 USB	166
		DTC Logic	166
		Diagnosis Procedure	166
		U12AA CONFIGURATION ERROR	167

A

B

C

D

E

F

G

H

I

J

K

L

M

AV

O

P

DTC Logic	167	Diagnosis Procedure	191
Diagnosis Procedure	167	USB CONNECTOR	193
U12AB ANTENNA	168	Diagnosis Procedure	193
DTC Logic	168	AUXILIARY INPUT JACK	194
Diagnosis Procedure	168	Diagnosis Procedure	194
U12AC AV CONTROL UNIT	169	SYMPTOM DIAGNOSIS	195
DTC Logic	169	MULTI AV SYSTEM	195
U12AD AV CONTROL UNIT	170	Symptom Table	195
DTC Logic	170	NORMAL OPERATING CONDITION	200
U12AE AV CONTROL UNIT	171	Description	200
DTC Logic	171	REMOVAL AND INSTALLATION	209
U12AF AV CONTROL UNIT	172	AV CONTROL UNIT	209
DTC Logic	172	Exploded View	209
U12B0 POWER SUPPLY VOLTAGE	173	Removal and Installation	209
DTC Logic	173	STEERING SWITCH	211
Diagnosis Procedure	173	Exploded View	211
U12B1 POWER SUPPLY VOLTAGE	174	Removal and Installation	211
DTC Logic	174	FRONT TWEETER	212
Diagnosis Procedure	174	Removal and Installation	212
U1300 AV COMM CIRCUIT	175	FRONT DOOR SPEAKER	213
DTC Logic	175	Exploded View	213
Diagnosis Procedure	175	Removal and Installation	213
U1304 CAMERA IMAGE CALIBRATION	177	REAR DOOR SPEAKER	214
DTC Logic	177	Exploded View	214
Diagnosis Procedure	177	Removal and Installation	214
U1305 CONFIG UNFINISH	178	USB INTERFACE AND AUX IN JACK	215
DTC Logic	178	Removal and Installation	215
Diagnosis Procedure	178	MICROPHONE	216
U1310 CONTROL UNIT (AV)	179	Removal and Installation	216
DTC Logic	179	AROUND VIEW MONITOR CONTROL UNIT	217
POWER SUPPLY AND GROUND CIRCUIT ..	180	Exploded View	217
AV CONTROL UNIT	180	Removal and Installation	217
AV CONTROL UNIT : Diagnosis Procedure	180	FRONT CAMERA	218
AROUND VIEW MONITOR CONTROL UNIT	180	Exploded View	218
AROUND VIEW MONITOR CONTROL UNIT : Di-		Removal and Installation	218
agnosis Procedure	180	SIDE CAMERA	219
FRONT TWEETER	183	Removal and Installation	219
Diagnosis Procedure	183	REAR VIEW CAMERA	220
FRONT DOOR SPEAKER	185	Removal and Installation	220
Diagnosis Procedure	185	GPS ANTENNA	221
REAR DOOR SPEAKER	187	Removal and Installation	221
Diagnosis Procedure	187	AUDIO ANTENNA	222
MICROPHONE SIGNAL CIRCUIT	189	Removal and Installation	222
Diagnosis Procedure	189	ANTENNA FEEDER	223
STEERING SWITCH	191		

Feeder Layout	223	AV CONTROL UNIT	248	
NAVIGATION WITH BOSE		Reference Value	248	A
PRECAUTION	224	DTC Index	251	
PRECAUTIONS	224	BOSE SPEAKER AMP	252	B
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	224	Reference Value	252	
Cautions in Removing Battery Terminal and AV Control Unit (Models with AV Control Unit)	224	AROUND VIEW MONITOR CONTROL UNIT .	255	C
Precaution for Trouble Diagnosis	224	WITHOUT DRIVER ASSISTANCE SYSTEM	255	
Precaution for Harness Repair	224	WITHOUT DRIVER ASSISTANCE SYSTEM : Reference Value	255	D
Precaution for Work	225	WITHOUT DRIVER ASSISTANCE SYSTEM : DTC Index	257	
PREPARATION	226	WITH DRIVER ASSISTANCE SYSTEM	257	E
PREPARATION	226	WITH DRIVER ASSISTANCE SYSTEM : Reference Value	257	
Special Service Tool	226	WITH DRIVER ASSISTANCE SYSTEM : DTC Index	261	F
Commercial Service Tools	226	WIRING DIAGRAM	262	
SYSTEM DESCRIPTION	227	NAVIGATION WITH BOSE	262	G
COMPONENT PARTS	227	Wiring Diagram	262	
Component Parts Location	227	BASIC INSPECTION	285	H
AV Control Unit	228	DIAGNOSIS AND REPAIR WORKFLOW	285	
BOSE Speaker Amp.	228	Work Flow	285	I
Speakers	229	INSPECTION AND ADJUSTMENT	287	
USB Interface and AUX In Jack	230	ADDITIONAL SERVICE WHEN REPLACING AV CONTROL UNIT	287	J
Steering Switches	230	ADDITIONAL SERVICE WHEN REPLACING AV CONTROL UNIT : Description	287	
Microphone	230	ADDITIONAL SERVICE WHEN REPLACING AV CONTROL UNIT : Work Procedure	287	K
Around View Monitor Control Unit	231	ADDITIONAL SERVICE WHEN REPLACING AROUND VIEW MONITOR CONTROL UNIT	287	
Rear View Camera	231	ADDITIONAL SERVICE WHEN REPLACING AROUND VIEW MONITOR CONTROL UNIT : Description	288	L
Side Cameras	231	ADDITIONAL SERVICE WHEN REPLACING AROUND VIEW MONITOR CONTROL UNIT : Work Procedure	288	M
Front Camera	231	CONFIGURATION (AV CONTROL UNIT)	288	
Steering Angle Sensor	232	CONFIGURATION (AV CONTROL UNIT) : Description	289	O
Rod Antenna, Antenna Amp., Satellite Antenna and Antenna Feeder	232	CONFIGURATION (AV CONTROL UNIT) : Work Procedure	289	
GPS Antenna	233	CONFIGURATION (AV CONTROL UNIT) : Configuration List	290	P
SD Card	233	CONFIGURATION (AROUND VIEW MONITOR CONTROL UNIT)	290	
SYSTEM	234	CONFIGURATION (AROUND VIEW MONITOR CONTROL UNIT) : Description	290	
System Description	234			
DIAGNOSIS SYSTEM (AV CONTROL UNIT)..	242			
Description	242			
On Board Diagnosis Function	242			
CONSULT Function	243			
DIAGNOSIS SYSTEM (AROUND VIEW MONITOR CONTROL UNIT)	244			
WITHOUT DRIVER ASSISTANCE SYSTEM	244			
WITHOUT DRIVER ASSISTANCE SYSTEM : CONSULT Function	244			
WITH DRIVER ASSISTANCE SYSTEM	245			
WITH DRIVER ASSISTANCE SYSTEM : CONSULT Function	245			
ECU DIAGNOSIS INFORMATION	248			

CONFIGURATION (AROUND VIEW MONITOR CONTROL UNIT) : Work Procedure	290	U111D SIDE CAMERA LH IMAGE SIGNAL CIRCUIT	312
CONFIGURATION (AROUND VIEW MONITOR CONTROL UNIT) : Configuration List	291	DTC Logic	312
PREDICTED COURSE LINE CENTER POSITION ADJUSTMENT	291	Diagnosis Procedure	312
PREDICTED COURSE LINE CENTER POSITION ADJUSTMENT : Description	291	U1217 AV CONTROL UNIT	316
PREDICTED COURSE LINE CENTER POSITION ADJUSTMENT : Work Procedure	291	DTC Logic	316
CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR)	291	U1229 AV CONTROL UNIT	317
CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR) : Description	291	DTC Logic	317
CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR) : Work Procedure	292	U122F AV CONTROL UNIT	318
DTC/CIRCUIT DIAGNOSIS	297	DTC Logic	318
U0428 STEERING ANGLE SENSOR	297	U1232 STEERING ANGLE SENSOR	319
DTC Logic	297	DTC Logic	319
Diagnosis Procedure	297	Diagnosis Procedure	319
U1000 CAN COMM CIRCUIT	298	U1244 GPS ANTENNA	320
AV CONTROL UNIT	298	DTC Logic	320
AV CONTROL UNIT : DTC Logic	298	Diagnosis Procedure	320
AV CONTROL UNIT : Diagnosis Procedure	298	U1258 SATELLITE RADIO ANTENNA	321
AROUND VIEW MONITOR CONTROL UNIT	298	DTC Logic	321
AROUND VIEW MONITOR CONTROL UNIT : DTC Logic	298	Diagnosis Procedure	321
AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure	298	U1263 USB	322
U1010 CONTROL UNIT (CAN)	299	DTC Logic	322
AV CONTROL UNIT	299	Diagnosis Procedure	322
AV CONTROL UNIT : DTC Logic	299	U1265 BOSE AMP.	323
AROUND VIEW MONITOR CONTROL UNIT	299	DTC Logic	323
AROUND VIEW MONITOR CONTROL UNIT : DTC Logic	299	Diagnosis Procedure	323
U111A REAR CAMERA IMAGE SIGNAL CIRCUIT	300	U12AA CONFIGURATION ERROR	324
DTC Logic	300	DTC Logic	324
Diagnosis Procedure	300	Diagnosis Procedure	324
U111B SIDE CAMERA RH IMAGE SIGNAL CIRCUIT	304	U12AB ANTENNA	325
DTC Logic	304	DTC Logic	325
Diagnosis Procedure	304	Diagnosis Procedure	325
U111C FRONT CAMERA IMAGE SIGNAL CIRCUIT	308	U12AC AV CONTROL UNIT	326
DTC Logic	308	DTC Logic	326
Diagnosis Procedure	308	U12AD AV CONTROL UNIT	327
U111D SIDE CAMERA LH IMAGE SIGNAL CIRCUIT	312	DTC Logic	327
DTC Logic	312	U12AE AV CONTROL UNIT	328
Diagnosis Procedure	312	DTC Logic	328
U1217 AV CONTROL UNIT	316	U12AF AV CONTROL UNIT	329
DTC Logic	316	DTC Logic	329
U1229 AV CONTROL UNIT	317	U12B0 POWER SUPPLY VOLTAGE	330
DTC Logic	317	DTC Logic	330
U122F AV CONTROL UNIT	318	Diagnosis Procedure	330
DTC Logic	318	U12B1 POWER SUPPLY VOLTAGE	331
U1232 STEERING ANGLE SENSOR	319	DTC Logic	331
DTC Logic	319	Diagnosis Procedure	331
Diagnosis Procedure	319	U1300 AV COMM CIRCUIT	332
U1244 GPS ANTENNA	320		
DTC Logic	320		
Diagnosis Procedure	320		
U1258 SATELLITE RADIO ANTENNA	321		
DTC Logic	321		
Diagnosis Procedure	321		
U1263 USB	322		
DTC Logic	322		
Diagnosis Procedure	322		
U1265 BOSE AMP.	323		
DTC Logic	323		
Diagnosis Procedure	323		
U12AA CONFIGURATION ERROR	324		
DTC Logic	324		
Diagnosis Procedure	324		
U12AB ANTENNA	325		
DTC Logic	325		
Diagnosis Procedure	325		
U12AC AV CONTROL UNIT	326		
DTC Logic	326		
U12AD AV CONTROL UNIT	327		
DTC Logic	327		
U12AE AV CONTROL UNIT	328		
DTC Logic	328		
U12AF AV CONTROL UNIT	329		
DTC Logic	329		
U12B0 POWER SUPPLY VOLTAGE	330		
DTC Logic	330		
Diagnosis Procedure	330		
U12B1 POWER SUPPLY VOLTAGE	331		
DTC Logic	331		
Diagnosis Procedure	331		
U1300 AV COMM CIRCUIT	332		

DTC Logic	332	NORMAL OPERATING CONDITION	367	
Diagnosis Procedure	332	Description	367	A
U1304 CAMERA IMAGE CALIBRATION	334	REMOVAL AND INSTALLATION	376	
DTC Logic	334	AV CONTROL UNIT	376	B
Diagnosis Procedure	334	Exploded View	376	
U1305 CONFIG UNFINISH	335	Removal and Installation	376	C
DTC Logic	335	STEERING SWITCH	378	
Diagnosis Procedure	335	Exploded View	378	
U1310 CONTROL UNIT (AV)	336	Removal and Installation	378	D
DTC Logic	336	BOSE SPEAKER AMP	379	
POWER SUPPLY AND GROUND CIRCUIT ...	337	Removal and Installation	379	E
AV CONTROL UNIT	337	FRONT TWEETER	380	
AV CONTROL UNIT : Diagnosis Procedure	337	Removal and Installation	380	
BOSE SPEAKER AMP	337	FRONT DOOR SPEAKER	381	F
BOSE SPEAKER AMP : Diagnosis Procedure	337	Exploded View	381	
AROUND VIEW MONITOR CONTROL UNIT	338	Removal and Installation	381	
AROUND VIEW MONITOR CONTROL UNIT : Di-		CENTER SPEAKER	382	G
agnosis Procedure	338	Removal and Installation	382	
FRONT TWEETER	340	REAR DOOR SPEAKER	383	H
Diagnosis Procedure	340	Exploded View	383	
CENTER SPEAKER	343	Removal and Installation	383	
Diagnosis Procedure	343	SUBWOOFER	384	I
FRONT DOOR SPEAKER	345	Removal and Installation	384	
Diagnosis Procedure	345	USB INTERFACE AND AUX IN JACK	385	J
REAR DOOR SPEAKER	348	Removal and Installation	385	
Diagnosis Procedure	348	MICROPHONE	386	K
SUBWOOFER	351	Removal and Installation	386	
Diagnosis Procedure	351	AROUND VIEW MONITOR CONTROL UNIT .	387	L
AMP ON SIGNAL CIRCUIT	354	Exploded View	387	
Diagnosis Procedure	354	Removal and Installation	387	
MICROPHONE SIGNAL CIRCUIT	355	FRONT CAMERA	388	M
Diagnosis Procedure	355	Exploded View	388	
STEERING SWITCH	357	Removal and Installation	388	
Diagnosis Procedure	357	SIDE CAMERA	389	AV
USB CONNECTOR	359	Removal and Installation	389	
Diagnosis Procedure	359	REAR VIEW CAMERA	390	O
AUXILIARY INPUT JACK	360	Removal and Installation	390	
Diagnosis Procedure	360	GPS ANTENNA	391	P
SYMPTOM DIAGNOSIS	361	Removal and Installation	391	
MULTI AV SYSTEM	361	AUDIO ANTENNA	392	
Symptom Table	361	Removal and Installation	392	
		ANTENNA FEEDER	393	
		Feeder Layout	393	

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010197340

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

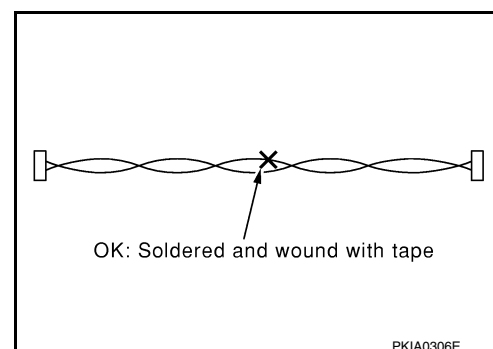
- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Precaution for Harness Repair

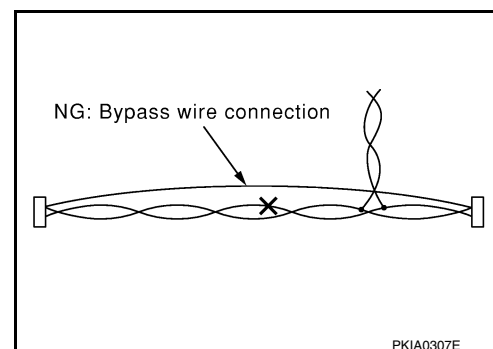
INFOID:0000000010197351

AV COMMUNICATION SYSTEM

- Solder the repaired parts, and wrap with tape. [Frays of twisted line must be within 110 mm (4.33 in).]



- Do not perform bypass wire connections for the repair parts. (The spliced wire will become separated and the characteristics of twisted line will be lost.)



PRECAUTIONS

< PRECAUTION >

[DISPLAY AUDIO]

Precaution for Work

INFOID:0000000010197352

- When removing or disassembling each component, be careful not to damage or deform it. If a component may be subject to interference, be sure to protect it with a shop cloth.
- When removing (disengaging) components with a screwdriver or similar tool, be sure to wrap the component with a shop cloth or vinyl tape to protect it.
- Protect the removed parts with a shop cloth and prevent them from being dropped.
- Replace a deformed or damaged clip.
- If a part is specified as a non-reusable part, always replace it with a new one.
- Be sure to tighten bolts and nuts securely to the specified torque.
- After installation is complete, be sure to check that each part works properly.
- Follow the steps below to clean components:
 - Water soluble dirt:
 - Dip a soft cloth into lukewarm water, wring the water out of the cloth and wipe the dirty area.
 - Then rub with a soft, dry cloth.
 - Oily dirt:
 - Dip a soft cloth into lukewarm water with mild detergent (concentration: within 2 to 3%) and wipe the dirty area.
 - Then dip a cloth into fresh water, wring the water out of the cloth and wipe the detergent off.
 - Then rub with a soft, dry cloth.
 - Do not use organic solvent such as thinner, benzene, alcohol or gasoline.
 - For genuine leather seats, use a genuine leather seat cleaner.

A
B
C
D
E
F
G
H
I
J
K
L
M
O
P

AV

PREPARATION

< PREPARATION >

[DISPLAY AUDIO]

PREPARATION

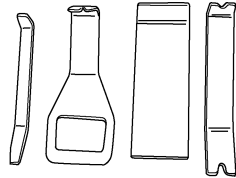
PREPARATION

Special Service Tool

INFOID:0000000010197485

The actual shape of the tools may differ from those illustrated here.

Tool number (TechMate No.) Tool name	Description
— (J-46534) Trim Tool Set	Removing trim components



AWJIA0483ZZ

Commercial Service Tools

INFOID:0000000010197484

Tool name	Description
Power tool	Loosening nuts, screws and bolts



PIIB1407E

COMPONENT PARTS

< SYSTEM DESCRIPTION >

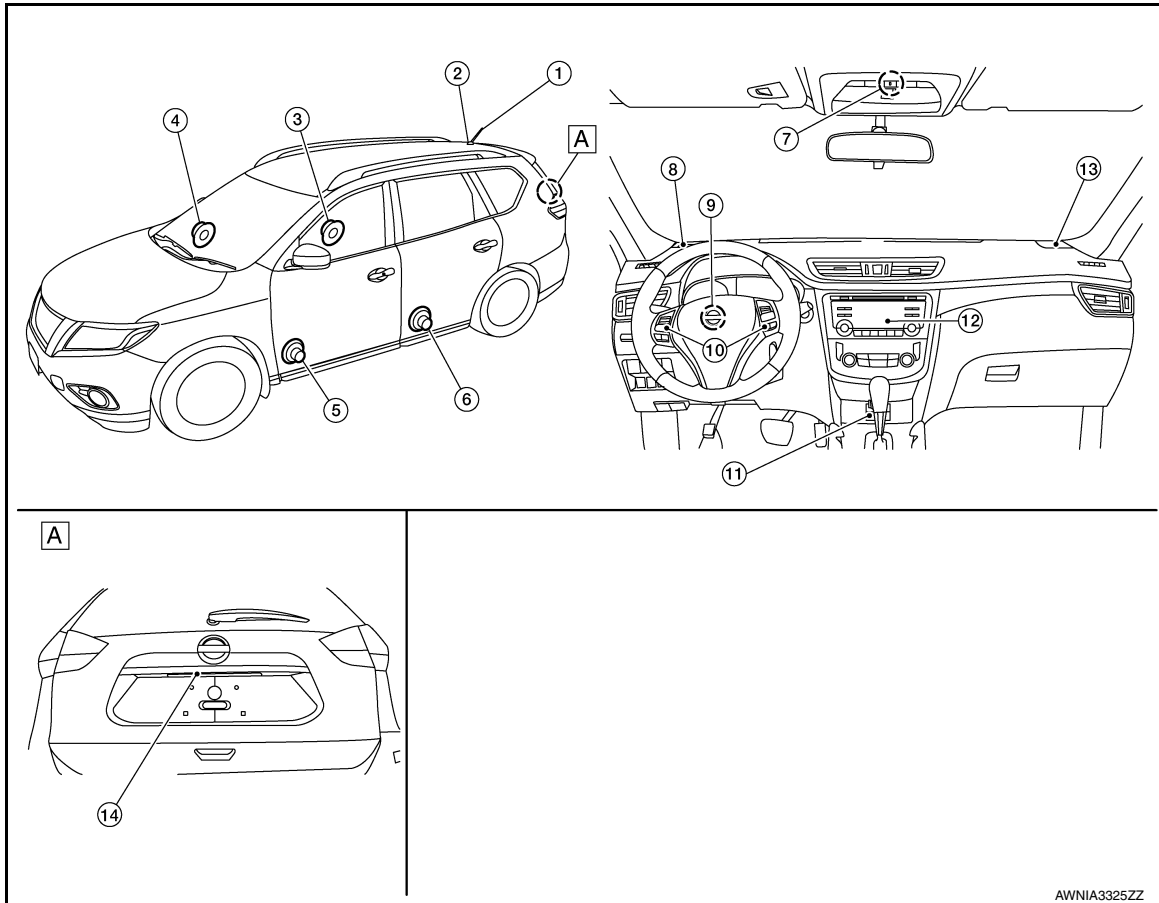
[DISPLAY AUDIO]

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:0000000010245811



A. Center of back door

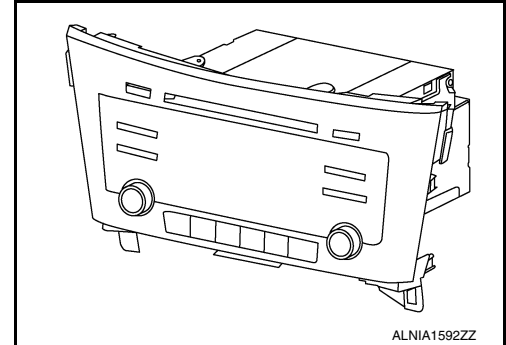
No.	Component	Function
1.	Rod antenna	Refer to AV-14, "Rod Antenna, Antenna Amp., Satellite Antenna and Antenna Feeder" .
2.	Antenna base (antenna amp. and satellite antenna)	
3.	Rear door speaker RH	Refer to AV-12, "Speakers" .
4.	Front door speaker RH	
5.	Front door speaker LH	
6.	Rear door speaker LH	
7.	Microphone	Refer to AV-13, "Microphone" .
8.	Front tweeter LH	Refer to AV-12, "Speakers" .
9.	Steering angle sensor	Refer to AV-14, "Steering Angle Sensor" .
10.	Steering switches	Refer to AV-13, "Steering Switches" .
11.	USB interface and AUX in jack	Refer to AV-13, "USB Interface and AUX in Jack" .
12.	Audio unit	Refer to AV-12, "Audio Unit" .
13.	Front tweeter RH	Refer to AV-12, "Speakers" .
14.	Rear view camera	Refer to AV-13, "Rear View Camera" .

Audio Unit

INFOID:0000000010245812

Description

- AM/FM electronic tuner radio, CD drive and camera controller are integrated into the audio unit.
- The display can show audio status and rear view monitor images.
- Music files stored in iPod®/USB memory can be played using the separate USB connector.
- Music files stored in an external audio device can be played using the separate AUX in jack.

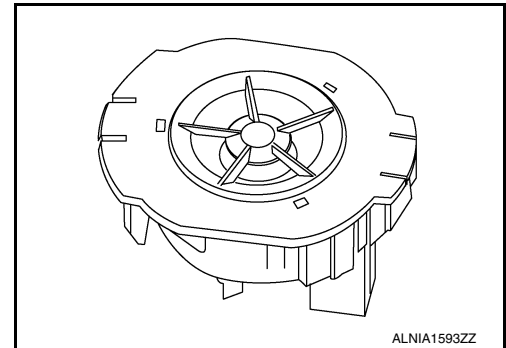


Speakers

INFOID:0000000010245813

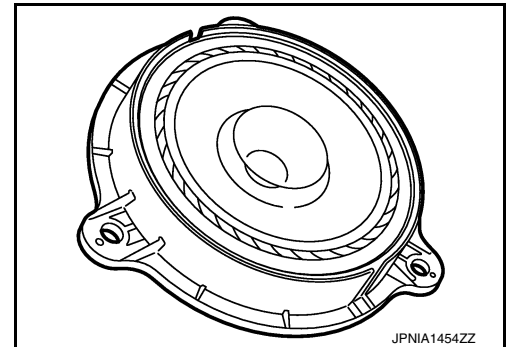
FRONT TWEETER

- 2.5 cm (1 in) tweeters are installed in the top front corners of the instrument panel.
- Sound signals are input from the audio unit to output high range sounds.



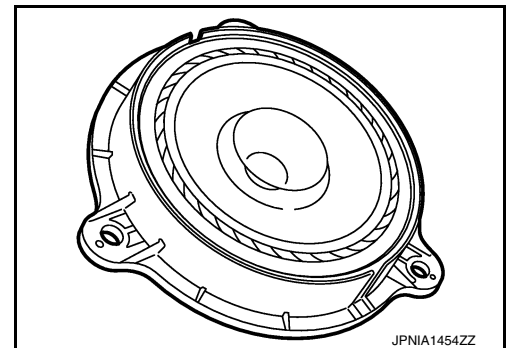
FRONT DOOR SPEAKER

- 16.5 cm (6.5 in) speakers are installed in the bottom of the front doors.
- Sound signals are input from the audio unit to output high, mid and low range sounds.



REAR DOOR SPEAKER

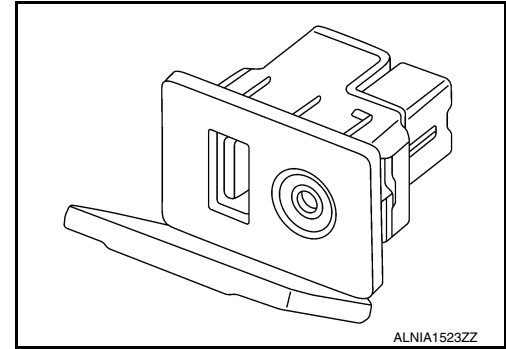
- 16.5 cm (6.5 in) speakers are installed in the bottom of the rear doors.
- Sound signals are input from the audio unit to output high, mid and low range sounds.



USB Interface and AUX in Jack

INFOID:000000010245814

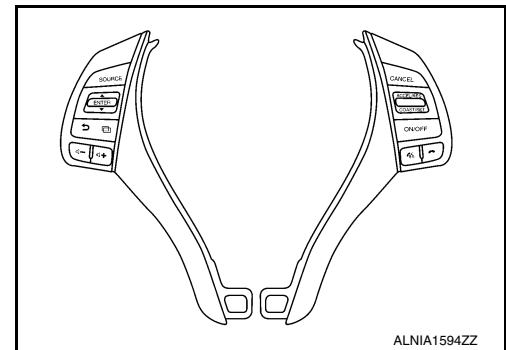
- USB Interface and AUX in jack is installed in the console.
- iPod® and USB memory can be connected to the audio unit through the USB interface.
- An external audio device can be connected to the audio unit through the AUX in jack.



Steering Switches

INFOID:000000010245817

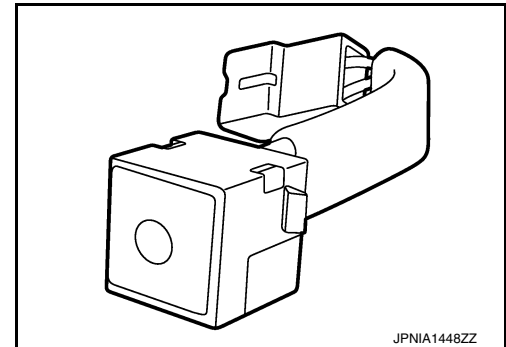
- Steering switches are installed in the steering wheel.
- Operations for audio and hands-free phone are possible.
- Switches are connected to the combination meter.
- Combination meter is connected to the audio unit via AV communication.



Microphone

INFOID:000000010245818

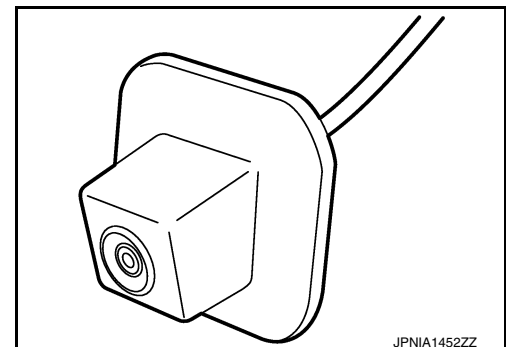
- The microphone is installed in the roof in the map lamp assembly.
- Power is supplied from the audio unit.



Rear View Camera

INFOID:000000010245819

- The rear view camera is installed to the back door finisher.
- Power is supplied from the audio unit.



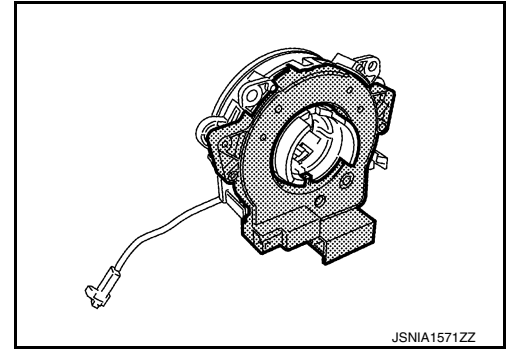
A
B
C
D
E
F
G
H
I
J
K
L
M
O
P

AV

Steering Angle Sensor

INFOID:000000010249286

- Steering sensor is installed to the spiral cable.
- Steering angle sends the steering signal necessary for predictive course line via CAN communication.

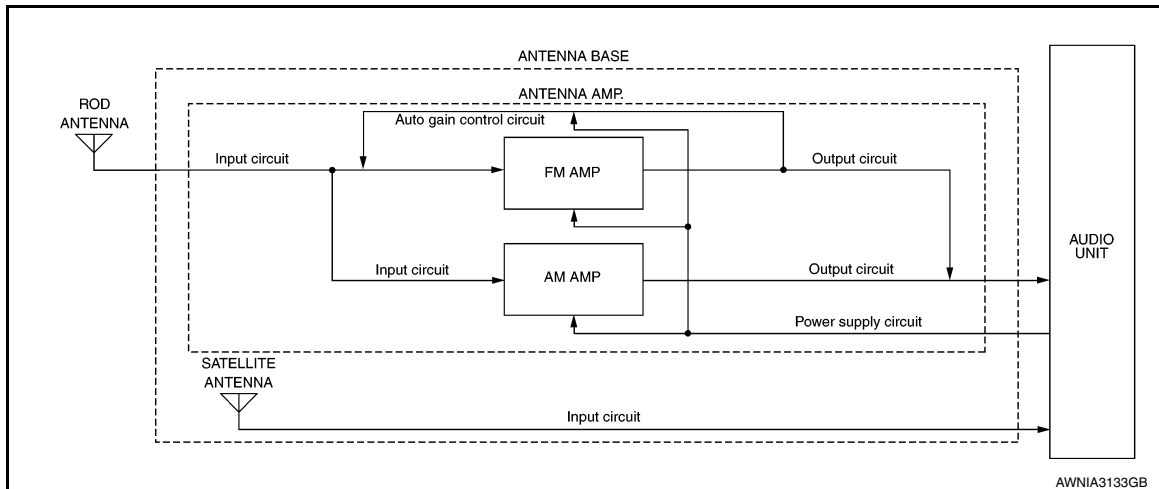


Rod Antenna, Antenna Amp., Satellite Antenna and Antenna Feeder

INFOID:000000010245820

RADIO ANTENNA AND SATELLITE ANTENNA

AM/FM radio rod antenna, antenna base and satellite antenna are located on the rear of the roof. The antenna amp. and satellite antenna are built into the antenna base.

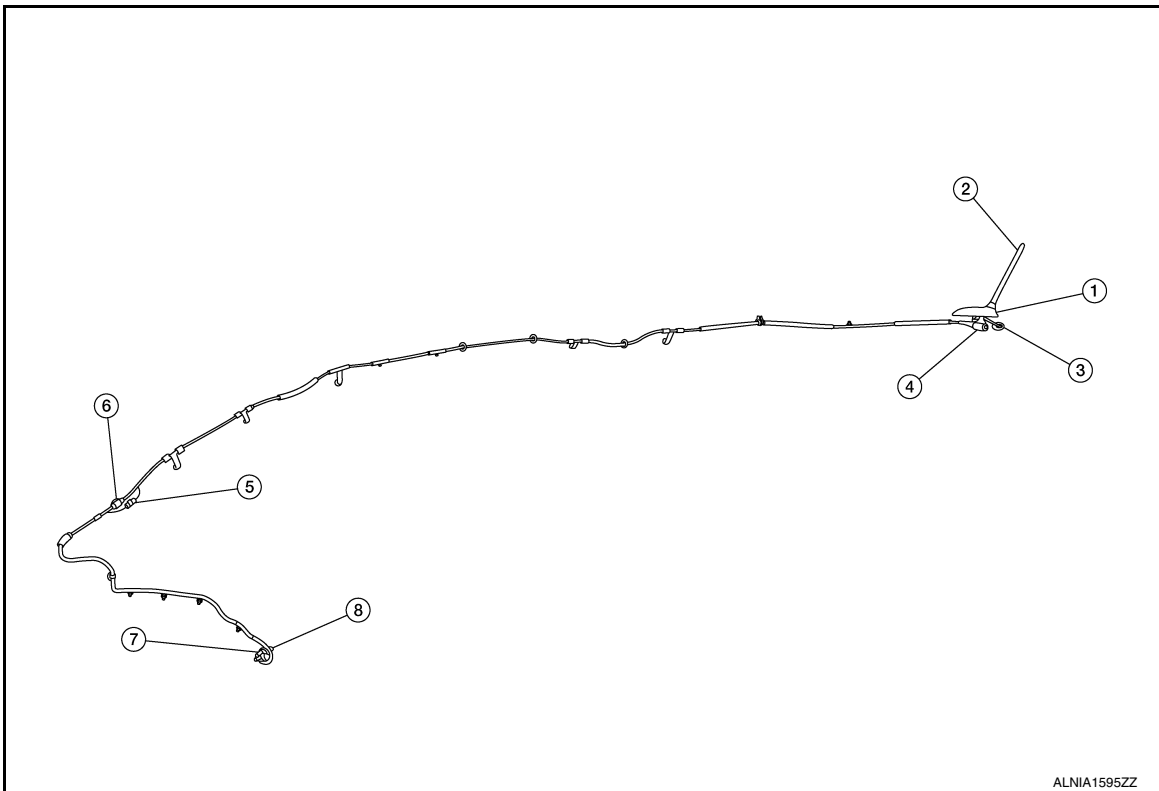


ANTENNA FEEDER LAYOUT

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[DISPLAY AUDIO]



- | | | |
|--|----------------|---------------|
| 1. Antenna base (antenna amp. and satellite antenna) | 2. Rod Antenna | 3. M503 |
| 4. M502 | 5. M130, M501 | 6. M129, M500 |
| 7. M126 | 8. M124 | |

A
B
C
D
E
F
G
H
I
J
K
L
M
O
P

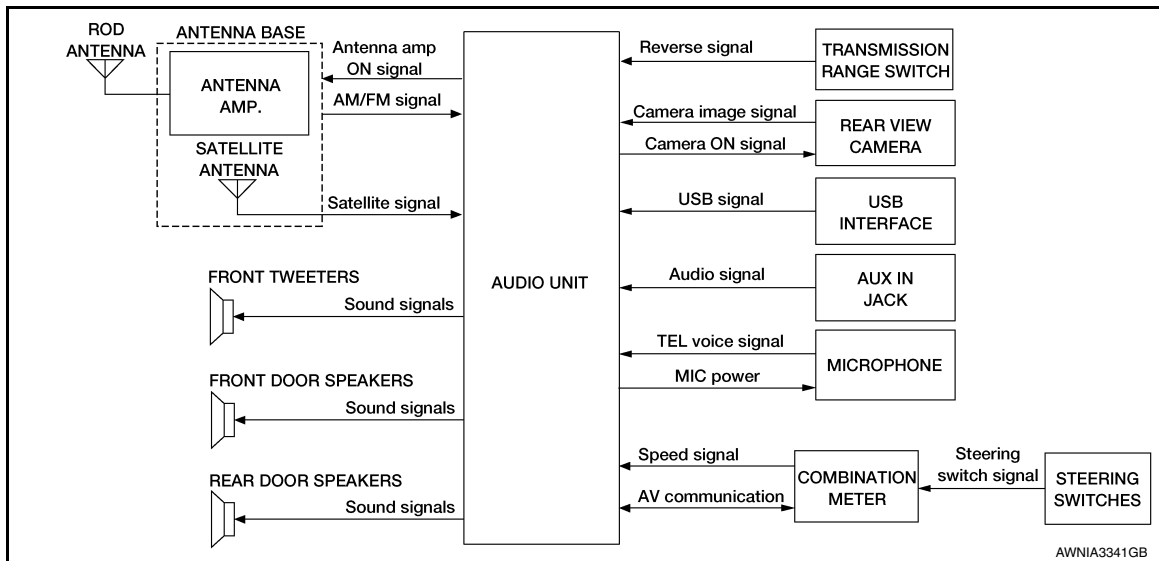
AV

SYSTEM

System Description

INFOID:0000000010245821

SYSTEM DIAGRAM



AUDIO SYSTEM

The audio system consists of the following components

- Audio unit
- Front tweeters
- Front door speakers
- Rear door speakers
- USB interface
- AUX in jack
- Steering switches
- Antenna base (rod antenna, antenna amp. and satellite antenna)

When the audio system is on, AM/FM signals received by the rod antenna are amplified by the antenna amp. and sent to the audio unit. The audio unit then sends audio signals to the front tweeters, front door speakers and rear door speakers.

Refer to Owner's Manual for audio system operating instructions.

HANDS-FREE PHONE SYSTEM

- Bluetooth® control is built into audio unit.
- The connection between cellular phone and audio unit is performed with Bluetooth® communication.
- The voice guidance signal is input from the audio unit and output to the front speakers when operating the cellular phone.

When A Call Is Originated

- Spoken voice sound output from the microphone (microphone signal) is input to audio unit.
- Audio unit outputs to cellular phone with Bluetooth® communication as a TEL voice signal.
- Voice sound is then heard at the other party.

When Receiving A Call

- Voice sound is input to own cellular phone from the other party.
- TEL voice signal is input to audio unit by establishing Bluetooth® communication from cellular phone, and the signal is output to front speakers.

SPEED SENSITIVE VOLUME SYSTEM

Volume level of this system goes up and down automatically in proportion to the vehicle speed. The control level can be selected by the customer. Refer to Owner's Manual for operating instructions.

REAR VIEW MONITOR FUNCTION

Camera Image Operation Principle

- The audio unit supplies power to the rear view camera when receiving a reverse signal.
- The rear view camera transmits camera images to the audio unit when power is supplied from the audio unit.
- The audio unit combines a warning message and fixed guide lines with an image received from the rear view camera to display a rear view camera image on the screen.

A

B

C

D

E

F

G

H

I

J

K

L

M

AV

O

P

DIAGNOSIS SYSTEM (AUDIO UNIT)

< SYSTEM DESCRIPTION >

[DISPLAY AUDIO]

DIAGNOSIS SYSTEM (AUDIO UNIT)

Description

INFOID:0000000010245822

The audio unit on board diagnosis performs the functions listed in the table below:

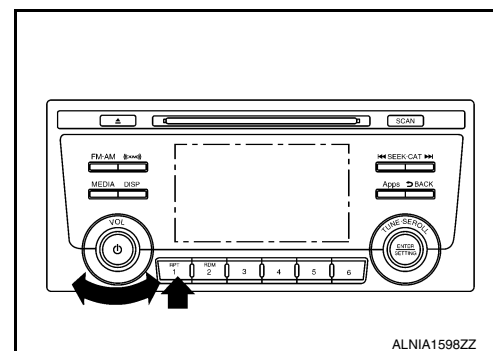
Mode		Description
Self Diagnosis		- Audio unit diagnosis. - Diagnoses the connections across system components.
Confirmation/ Adjustment	Display Diagnosis	The following check functions are available: color tone check by color bar display and white display, light and shade check by gray scale display.
	Vehicle Signals	Diagnosis of signals can be performed for vehicle speed, lights, reverse, EQ pin, destination and camera type.
	Speaker Test	The connection of a speaker can be confirmed by test tone.
	Error History	The system malfunction and the frequency when occurring in the past are displayed. When the malfunctioning item is selected, the time and place that the selected malfunction last occurred are displayed.
	Camera System	Displayed but not used.
	AV COMM Diagnosis	The communication condition of each unit of display audio system can be monitored.
	Delete Unit Connection Log	Erase the connection history of unit and error history.
	Version Information	Audio unit software and hardware versions are displayed.
	Initialize Setting	Initializes the audio unit memory.

On Board Diagnosis Function

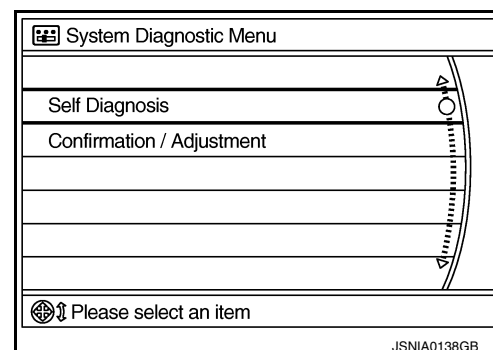
INFOID:0000000010245823

METHOD OF STARTING

1. Turn the ignition ON.
2. Turn the audio system OFF.
3. While pressing the preset 1 button, turn the volume control dial clockwise or counterclockwise for 40 clicks or more. Shifting from current screen to previous screen is performed by pressing BACK button.



4. The trouble diagnosis initial screen is displayed, and Self Diagnosis or Confirmation/Adjustment can be selected.



SELF DIAGNOSIS MODE

Audio Unit Self Diagnosis

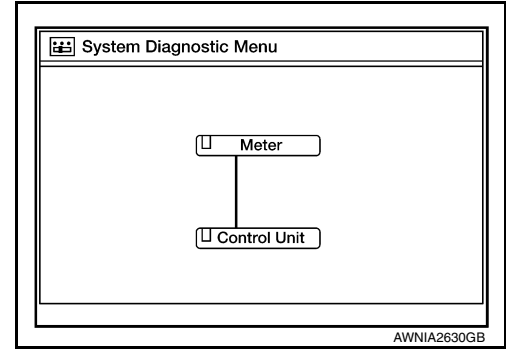
1. Select Self Diagnosis.

DIAGNOSIS SYSTEM (AUDIO UNIT)

< SYSTEM DESCRIPTION >

[DISPLAY AUDIO]

- Self diagnosis screen is displayed. The bar graph visible in center of screen indicates progress of self diagnosis.
- Diagnosis results are displayed after the self diagnosis is completed. The unit names and the connection lines are color coded according to the diagnostic results.

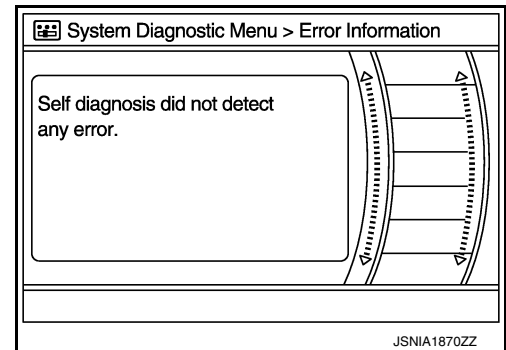


Diagnosis results	Unit	Connection line
Normal	Green	Green
Connection malfunction	Gray	Yellow
Unit malfunction ¹	Red	Green

1: Control unit (audio unit) is displayed in red.

- Replace audio unit if Self Diagnosis did not run because control unit malfunction is indicated. The symptom is audio unit internal error. Refer to [AV-64, "Removal and Installation"](#).
- If multiple errors occur at the same time for a single unit, the screen switch colors are determined according to the following order of priority: red > gray.

- Comments of self diagnosis results can be viewed in the diagnosis result screen.



Audio Unit Self Diagnosis Results

Only Unit Part Is Displayed In Red		
Screen switch	Description	Possible cause
Control unit	Malfunction is detected in audio unit power supply and ground circuits.	- Audio unit power supply or ground circuits. Refer to AV-44, "AUDIO UNIT : Diagnosis Procedure". - If no malfunction is detected in audio unit power supply and ground circuits, replace audio unit. Refer to AV-64, "Removal and Installation".

A Connecting Cable Between Units Is Displayed In Yellow		
Area with yellow connection lines	Description	Possible cause
Control unit ↔ Meter	When one of the following is detected: - malfunction is detected in combination meter power supply and ground circuits. - malfunction is detected in AV communication circuits between audio unit and combination meter.	- Combination meter power supply or ground circuits. Refer to MWI-59, "COMBINATION METER : Diagnosis Procedure". - AV communication circuits between audio unit and combination meter.

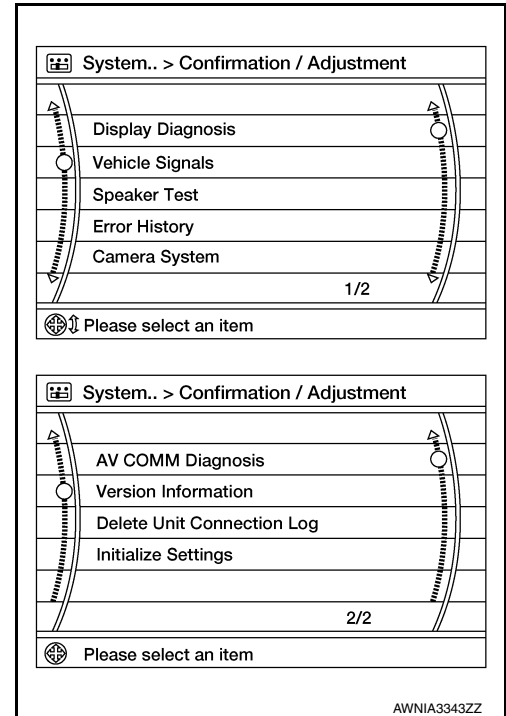
DIAGNOSIS SYSTEM (AUDIO UNIT)

< SYSTEM DESCRIPTION >

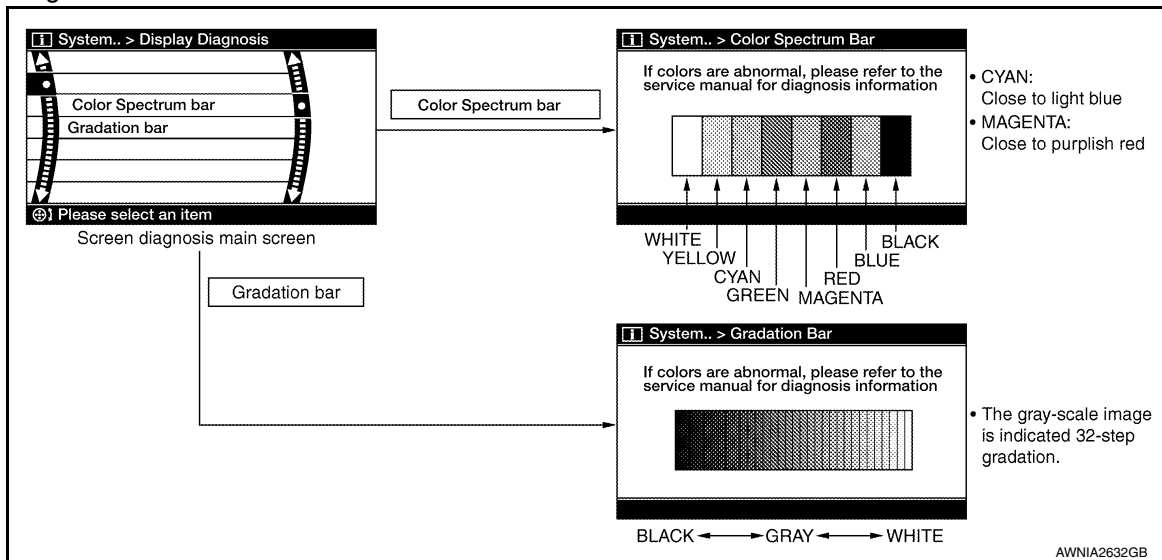
[DISPLAY AUDIO]

Audio Unit Confirmation/Adjustment

1. Select Confirmation/Adjustment.
2. Select each switch on the Confirmation/Adjustment screen to display the relevant trouble diagnosis screen. Press the BACK switch to return to the initial Confirmation/Adjustment screen.

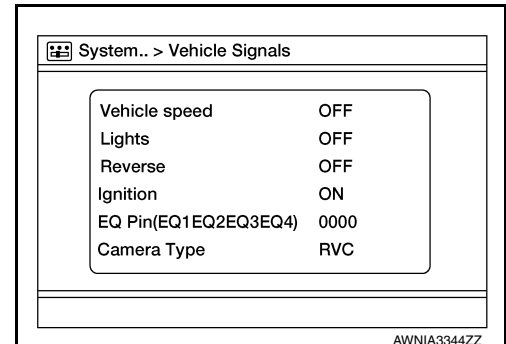


Display Diagnosis



Vehicle Signals

A comparison check can be made of each actual vehicle signal and the signals recognized by the system.



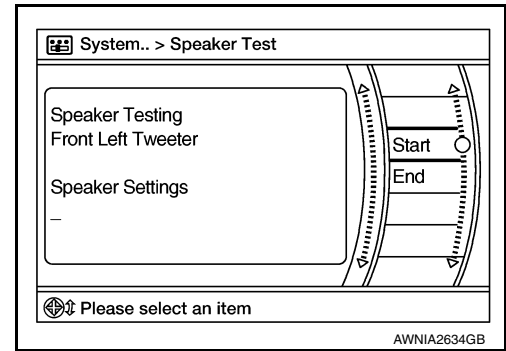
Speaker Test

DIAGNOSIS SYSTEM (AUDIO UNIT)

< SYSTEM DESCRIPTION >

[DISPLAY AUDIO]

Select Speaker Test to display the Speaker Diagnosis screen. Press Start to generate a test tone in a speaker. Press Start again to generate a test tone in the next speaker. Press End to stop the test tones.



Error History

The self diagnosis results are judged depending on whether any error occurs from when Self Diagnosis is selected until the self diagnosis results are displayed.

However, the diagnosis results are judged normal if an error has occurred before the ignition switch is turned ON and then no error has occurred until the self diagnosis start. Check the Error Record to detect any error that may have occurred before the self diagnosis start because of this situation.

The frequency of occurrence is displayed in a count up manner. The actual count up method differs depending on the error item.

Count up method A

- The counter is set to 40 if an error occurs. 1 is subtracted from the counter if the condition is normal at a next ignition ON cycle.
- The counter lower limit is 1. The counter can be reset (no error record display) with the Delete log switch.

Count up method B

- The counter increases by 1 if an error occurs when ignition switch is ON. The counter will not decrease even if the condition is normal at the next ignition ON cycle.
- The counter upper limit is 50. Any counts exceeding 50 are ignored. The counter can be reset (no error record display) with the Delete log switch.

Display type of occurrence frequency	Error history display item
Count up method A	AV communication line, control unit (AV)
Count up method B	Other than the above

Error item

Some error items may be displayed simultaneously according to the cause. If some error items are displayed simultaneously, the detection of the cause can be performed by the combination of display items

Error item	Description	Possible cause
CONTROL UNIT (AV)	AV communication circuit initial diagnosis malfunction is detected.	Replace the audio unit if the malfunction occurs constantly. Refer to AV-64, "Removal and Installation"
AV COMM CIRCUIT	When one of the following is detected: • malfunction is detected in combination meter power supply and ground circuits. • malfunction is detected in AV communication circuits between audio unit and combination meter.	• Combination meter power supply or ground circuits. Refer to MWI-59, "COMBINATION METER : Diagnosis Procedure". • AV communication circuits between audio unit and combination meter.

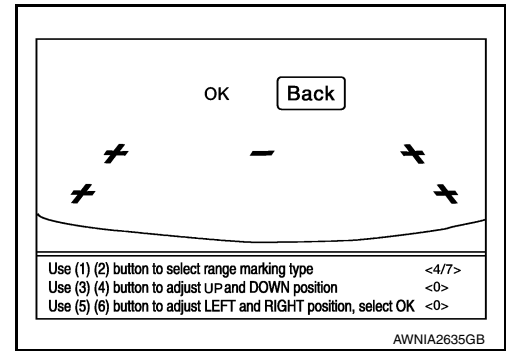
Camera System

DIAGNOSIS SYSTEM (AUDIO UNIT)

< SYSTEM DESCRIPTION >

[DISPLAY AUDIO]

This mode is used to adjust the guide line display position of the rear view camera.



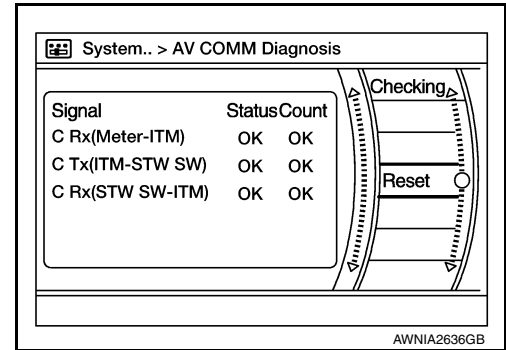
AV COMM Diagnosis

- Displays the communication status between audio unit (master unit) and each unit.
- The error counter displays OK if any malfunction was not detected in the past and displays 0 if a malfunction is detected. It increases by 1 if the condition is normal at the next ignition switch ON cycle. The upper limit of the counter is 39.
- The error counter is erased if Reset is pressed.

Items	Status (Current)	Counter (Past)
C Rx(Meter-ITM)	OK / ???	OK / 0 – 39
C Tx(ITM-TW SW)	OK / ???	OK / 0 – 39
C Rx(STW SW-ITM)	OK / ???	OK / 0 – 39

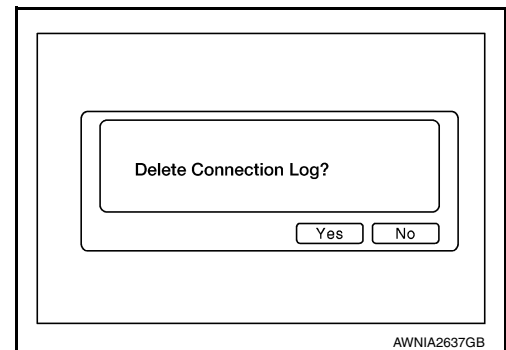
NOTE:

“???” indicates UNKWN.



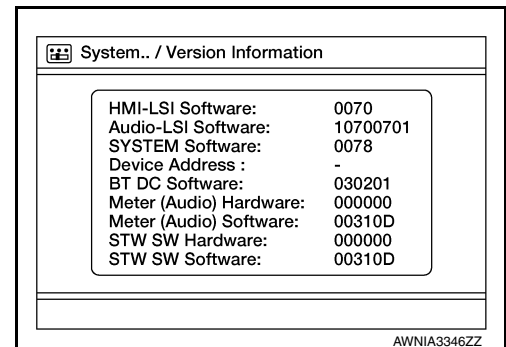
Delete Unit Connection Log

Deletes any unit connection records and error records from the audio unit memory (clears the records of the unit that has been removed).



Version Information

Displays audio unit software and hardware version numbers.



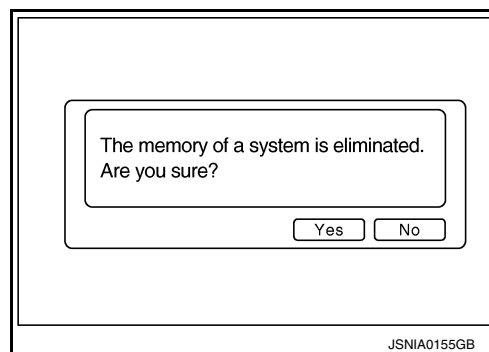
Initialize Settings

DIAGNOSIS SYSTEM (AUDIO UNIT)

< SYSTEM DESCRIPTION >

[DISPLAY AUDIO]

Deletes data stored from the audio unit.



A
B
C
D
E
F
G
H
I
J
K
L
M
O
P

AV

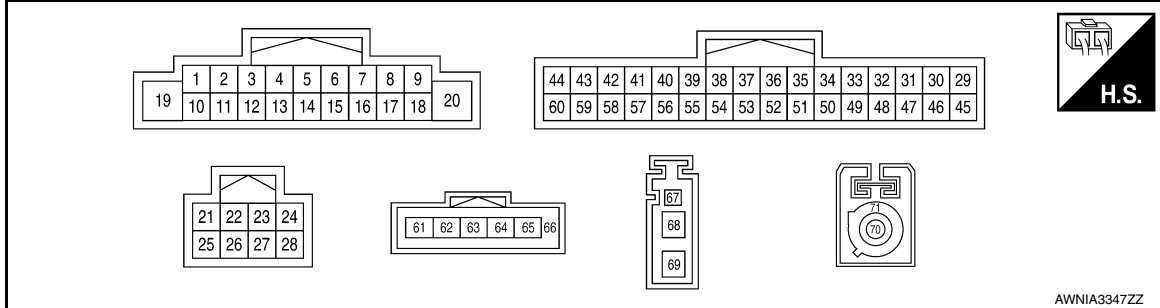
ECU DIAGNOSIS INFORMATION

AUDIO UNIT

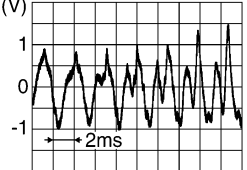
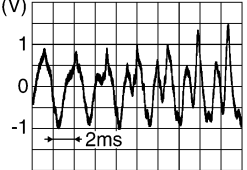
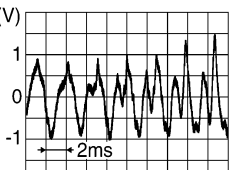
Reference Value

INFOID:0000000010245826

TERMINAL LAYOUT



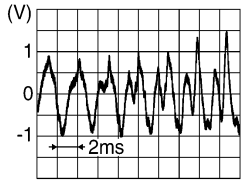
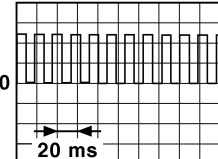
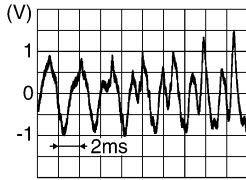
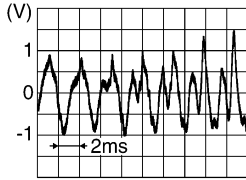
PHYSICAL VALUES

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	-	Signal name	Input/ Output	Ignition switch	Operation	
2 (W)	3 (P)	Sound signal front door speaker and front tweeter LH	Output	ON	Sound output	 SKIB3609E
4 (GR)	5 (BR)	Sound signal rear door speaker LH	Output	ON	Sound output	 SKIB3609E
7 (LG)	Ground	Ignition power supply	Input	ON	—	Battery voltage
9 (V)	8 (R)	Illumination control signal	Input	ON	Headlamps ON	Battery voltage
11 (G)	12 (V)	Sound signal front door speaker and front tweeter RH	Output	ON	Sound output	 SKIB3609E

AUDIO UNIT

< ECU DIAGNOSIS INFORMATION >

[DISPLAY AUDIO]

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	—	Signal name	Input/ Output	Ignition switch	Operation	
13 (LG)	14 (Y)	Sound signal rear door speaker RH	Output	ON	Sound output	
18 (G)	Ground	Vehicle speed signal	Input	ON	When vehicle speed is ap- prox. 40 km/h (25 MPH)	
19 (L)	Ground	Battery power supply	Input	OFF	—	Battery voltage
20 (B)	Ground	Ground	—	ON	—	0 V
21 (L)	Ground	AUX jack audio signal LH	Input	ON	Received audio signal (AUX input)	
22 (G)	Ground	AUX jack audio signal RH	Input	ON	Received audio signal (AUX input)	
23 (Y)	Ground	AUX ground	—	ON	—	0V
24 (Shield)	—	AUX signal shield	—	—	—	—
35 (W)	Ground	ACC power supply	Input	ON	—	Battery voltage
36 (SB)	—	AV communication (H)	Input/ Output	—	—	—
37 (LG)	—	AV communication (L)	Input/ Output	—	—	—
39 (SB)	—	AV communication (H)	Input/ Output	—	—	—
40 (LG)	—	AV communication (L)	Input/ Output	—	—	—
41 (B)	Ground	Camera ground	—	ON	—	0 V

A

B

C

D

E

F

G

H

I

J

K

L

M

AV

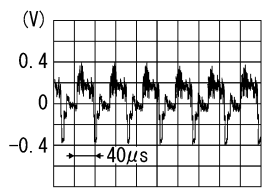
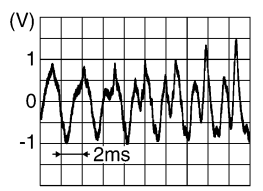
O

P

AUDIO UNIT

< ECU DIAGNOSIS INFORMATION >

[DISPLAY AUDIO]

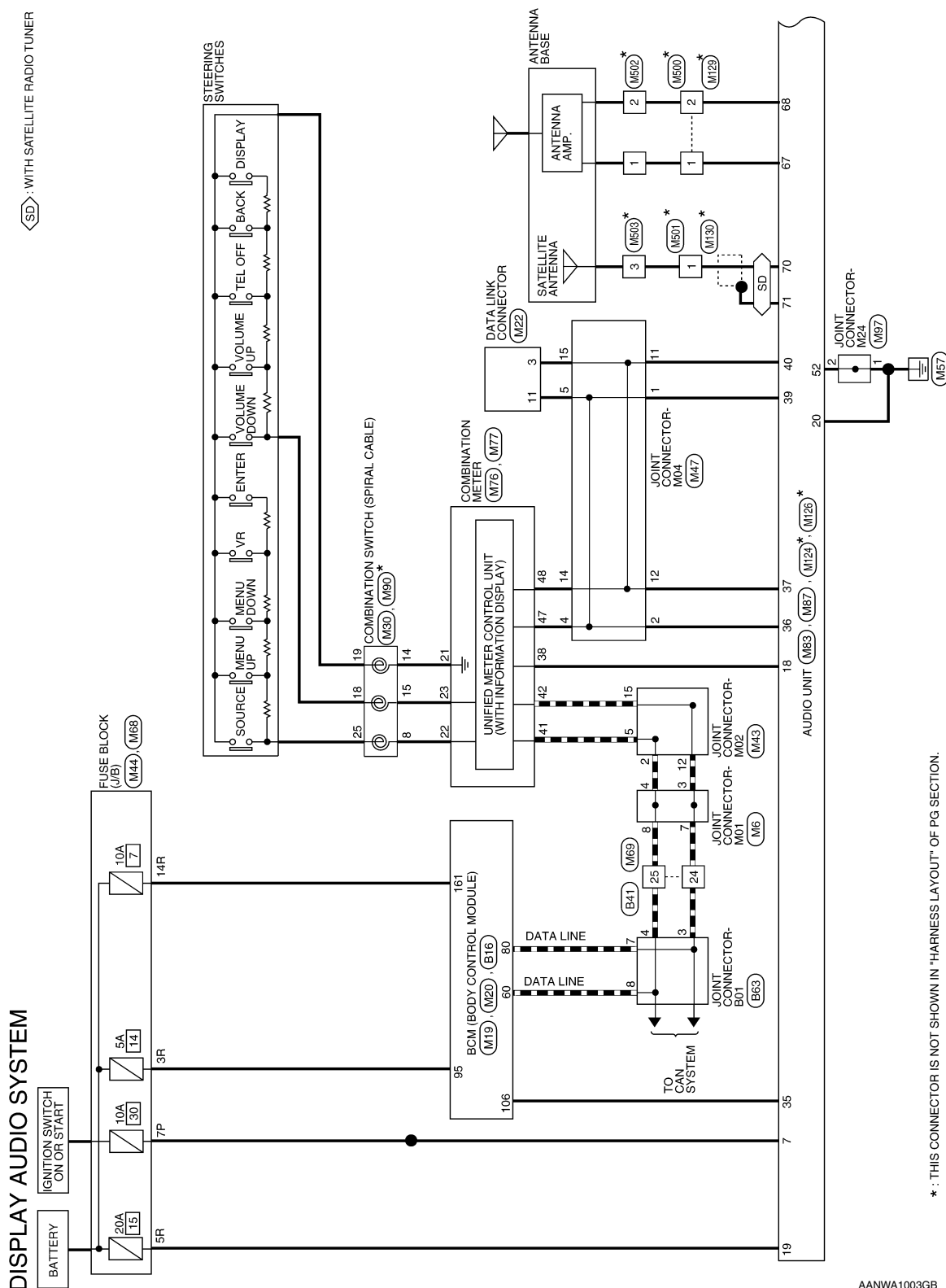
Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	—	Signal name	Input/ Output	Ignition switch	Operation	
42 (R)	Ground	Camera power supply	Output	ON	Camera image displayed	6.0 V
					Except for above	0 V
43 (W)	44 (Shield)	Camera image signal	Input	ON	Camera image displayed	
45 (W)	47 (Shield)	Microphone signal	Input	ON	While speaking into microphone.	
46 (B)	—	MIC VCC	Input	ON	—	—
52 (B)	Ground	Camera detection	—	ON	—	0 V
58 (BR)	Ground	Reverse signal	Input	ON	Selector lever in R (reverse)	Battery voltage
					Selector lever in any position other than R (reverse)	0 V
61 (R)	—	V BUS signal	—	—	—	—
62 (W)	—	USB D- signal	—	—	—	—
63 (G)	—	USB D+ signal	—	—	—	—
65 (B)	—	USB ground	—	—	—	—
66 (Shield)	—	USB shield	—	—	—	—
67 (B)	Ground	Antenna amp. ON signal	Output	ON	Audio unit ON, FM-AM selected.	Battery voltage
68 (B)	Ground	AM/FM antenna signal	Input	ON	Audio unit ON, FM-AM selected.	5.0 V
70 (B)	Ground	Satellite antenna signal	Input	ON	Audio unit ON, XM selected.	5.0 V
71 (B)	—	Satellite antenna shield	—	—	—	—

WIRING DIAGRAM

DISPLAY AUDIO

Wiring Diagram

INFOID:0000000009795407



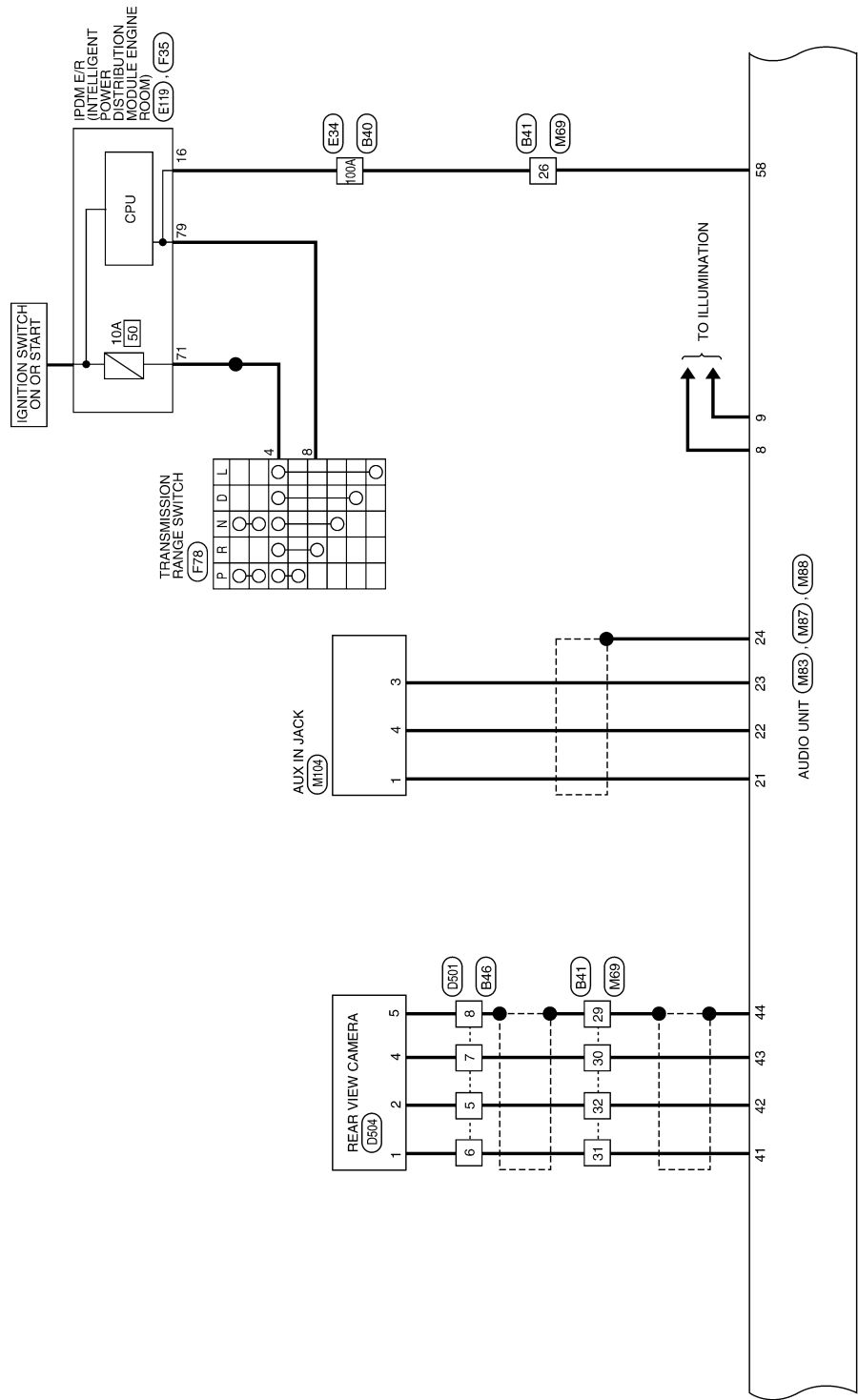
* : THIS CONNECTOR IS NOT SHOWN IN "HARNES LAYOUT" OF PG SECTION.

AANWA1003GB

DISPLAY AUDIO

< WIRING DIAGRAM >

[DISPLAY AUDIO]



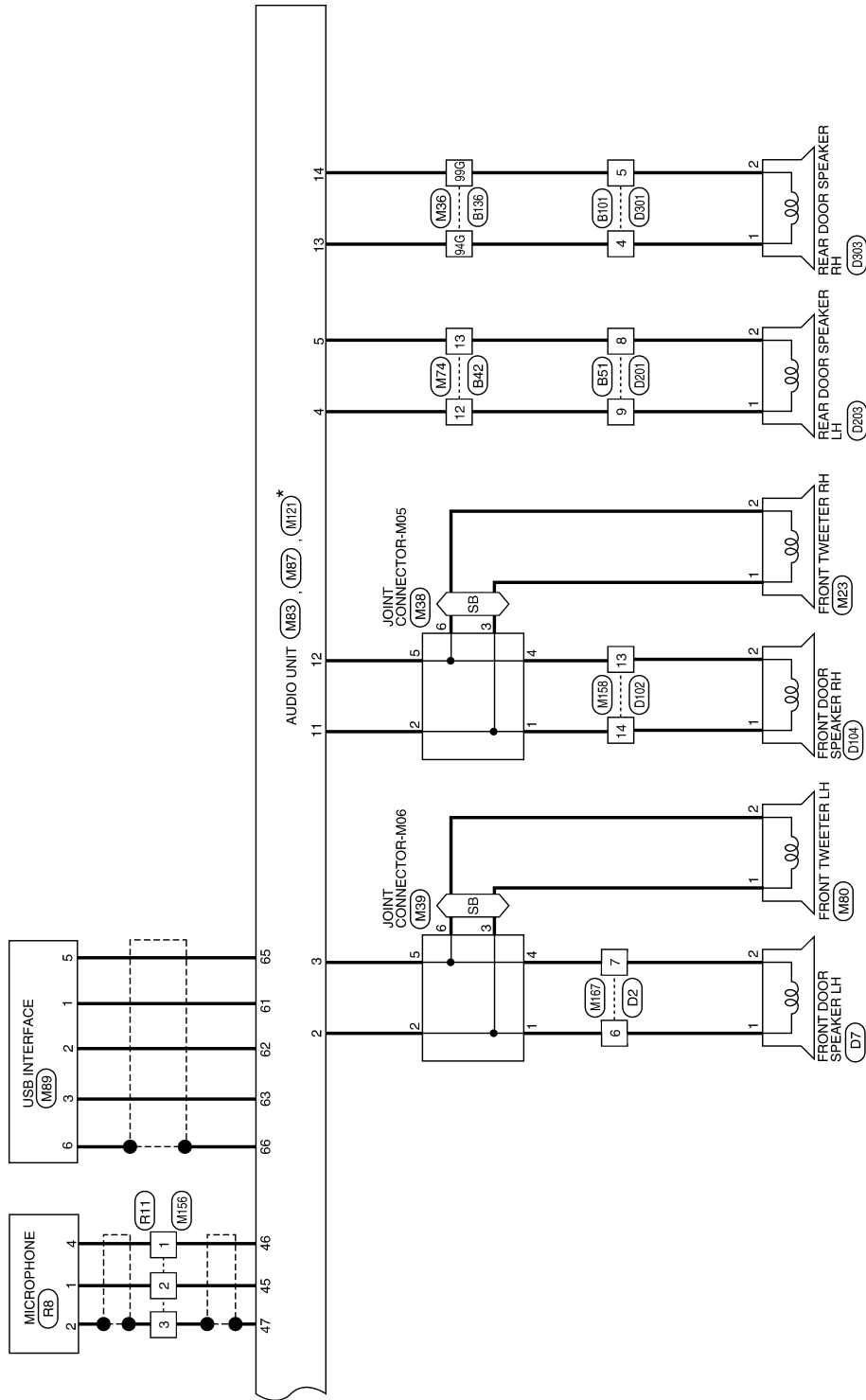
AANWA1004GB

DISPLAY AUDIO

< WIRING DIAGRAM >

[DISPLAY AUDIO]

SB WITH 6 SPEAKERS



AANWA1005GB

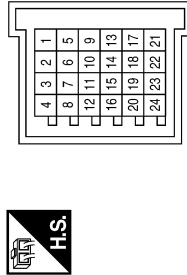
AV

O
P

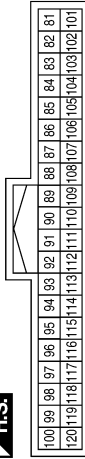
A
B
C
D
E
F
G
H
I
J
K
L
M

DISPLAY AUDIO SYSTEM CONNECTORS

Connector No.	M6
Connector Name	JOINT CONNECTOR-M01
Connector Color	GRAY



Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BROWN

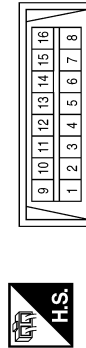


Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

Terminal No.	Color of Wire	Signal Name
95	V	I SHORTING PIN
106	W	O AUTO ACC2

Terminal No.	Color of Wire	Signal Name
161	W	I PWR ECU

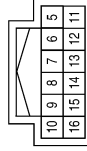
Connector No.	M22
Connector Name	DATA LINK CONNECTOR
Connector Color	WHITE



Connector No.	M23
Connector Name	FRONT TWEETER RH
Connector Color	WHITE



Connector No.	M30
Connector Name	COMBINATION SWITCH (SPIRAL CABLE)
Connector Color	WHITE

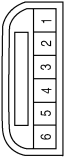


Terminal No.	Color of Wire	Signal Name
3	LG	-
11	SB	-

Terminal No.	Color of Wire	Signal Name
1	G	-
2	R	-

Terminal No.	Color of Wire	Signal Name
8	Y	-
14	L	-
15	GR	-

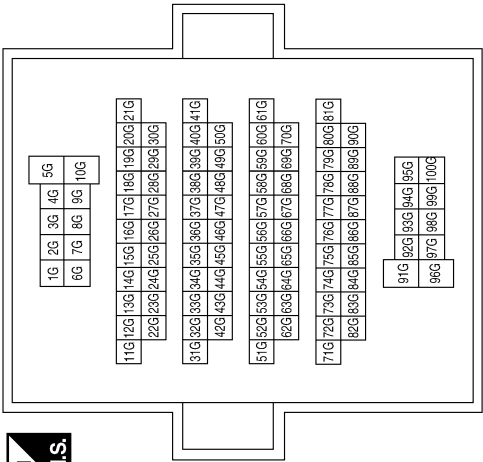
Connector No.	M38
Connector Name	JOINT CONNECTOR-M05
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	W	-
2	G	-
3	G	-
4	GR	-
5	V	-
6	R	-

Terminal No.	Color of Wire	Signal Name
94G	LG	-
99G	Y	-

Connector No.	M36
Connector Name	WIRE TO WIRE
Connector Color	WHITE

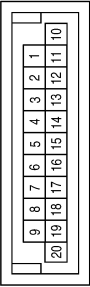


Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
7P	Y	-

Connector No.	M43
Connector Name	JOINT CONNECTOR-M02
Connector Color	BLUE



Terminal No.	Color of Wire	Signal Name
2	L	-
5	L	-
12	P	-
15	P	-

Connector No.	M39
Connector Name	JOINT CONNECTOR-M06
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	Y	-
2	W	-
3	W	-
4	R	-
5	P	-
6	GR	-

AANIA2412GB

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P

AV

Connector No.	M47
Connector Name	JOINT CONNECTOR-M04
Connector Color	BLUE



Terminal No.	Color of Wire	Signal Name
1	SB	-
2	SB	-
4	SB	-
5	SB	-
11	LG	-
12	LG	-
14	LG	-
15	LG	-

Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN

7R	6R	5R	4R	3R	2R	1R		
16R	15R	14R	13R	12R	11R	10R	9R	8R



Terminal No.	Color of Wire	Signal Name
3R	V	-
5R	L	-
14R	W	-

Connector No.	M69
Connector Name	WIRE TO WIRE
Connector Color	WHITE

16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17



Terminal No.	Color of Wire	Signal Name
24	P	-
25	L	-
26	BR	-
29	SHIELD	-
30	W	-
31	B	-
32	R	-

Connector No.	M74
Connector Name	WIRE TO WIRE
Connector Color	WHITE

7	6	5	4	3	2	1		
16	15	14	13	12	11	10	9	8



Terminal No.	Color of Wire	Signal Name
12	GR	-
13	BR	-

Connector No.	M76
Connector Name	COMBINATION METER
Connector Color	WHITE

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40



Terminal No.	Color of Wire	Signal Name
21	L	STRG SW GND
22	Y	STRG SW INPUT1
23	GR	STRG SW INPUT2
38	G	8P/R OUT

Connector No.	M77
Connector Name	COMBINATION METER
Connector Color	WHITE

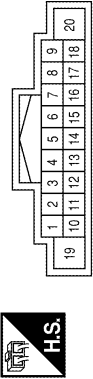
41	42	43	44	45	46
47	48	49	50	51	52



Terminal No.	Color of Wire	Signal Name
41	L	CAN-H
42	P	CAN-L
47	SB	M-CAN H
48	LG	M-CAN L

Terminal No.	Color of Wire	Signal Name
9	V	ILL+, LIGHT SW
10	-	-
11	G	FR SP RH+
12	V	FR SP RH-
13	LG	RR SP RH+
14	Y	RR SP RH-
15	-	-
16	-	-
17	-	-
18	G	SPEED SIGNAL
19	L	+B
20	B	GND

Connector No.	M83
Connector Name	AUDIO UNIT
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	-	-
2	W	FR SP LH+
3	P	FR SP LH-
4	GR	RR SP LH+
5	BR	RR SP LH-
6	-	-
7	LG	IGN2
8	R	ILL-

Connector No.	M80
Connector Name	FRONT TWEETER LH
Connector Color	WHITE

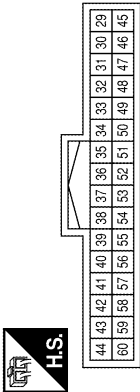


Terminal No.	Color of Wire	Signal Name
1	W	-
2	GR	-

Terminal No.	Color of Wire	Signal Name
46	B	MIC V+
47	SHIELD	MIC GND
48	-	-
49	-	-
50	-	-
51	-	-
52	B	CAM DET
53	-	-
54	-	-
55	-	-
56	-	-
57	-	-
58	BR	REV (FOR RR VIEW)
59	-	-
60	-	-

Terminal No.	Color of Wire	Signal Name
33	-	-
34	-	-
35	W	AUTO ACC
36	SB	MCAN2 H
37	LG	MCAN2 L
38	-	-
39	SB	MCAN1 H
40	LG	MCAN1 L
41	B	CAM GND
42	R	CAM 6.2V
43	W	COMPOSITE+ (CAM NTSC)
44	SHIELD	COMPOSITE- (CAM GND)
45	W	MIC +

Connector No.	M87
Connector Name	AUDIO UNIT
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
29	-	-
30	-	-
31	-	-
32	-	-

AANIA2414GB

A
B
C
D
E
F
G
H
I
J
K
L
M
O
P

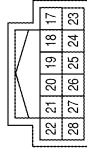
AV

DISPLAY AUDIO

< WIRING DIAGRAM >

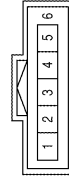
[DISPLAY AUDIO]

Connector No.	M90
Connector Name	COMBINATION SWITCH (SPIRAL CABLE)
Connector Color	WHITE



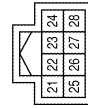
Terminal No.	Color of Wire	Signal Name
18	L	-
19	G	-
25	P	-

Connector No.	M89
Connector Name	USB INTERFACE
Connector Color	BLACK



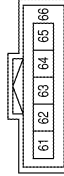
Terminal No.	Color of Wire	Signal Name
1	R	-
2	W	-
3	G	-
5	B	-
6	SHIELD	-

Connector No.	M88
Connector Name	AUDIO UNIT
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
21	L	AUXIN-L
22	G	AUXIN-R
23	Y	AUXIN-GND
24	SHIELD	AUXIN-SHIELD
25	-	-
26	-	-
27	-	-
28	-	-

Connector No.	M121
Connector Name	AUDIO UNIT
Connector Color	BLACK



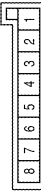
Terminal No.	Color of Wire	Signal Name
61	R	V BUS
62	W	USB D-
63	G	USB D+
64	-	-
65	B	USB GND
66	SHIELD	USB SHIELD

Connector No.	M104
Connector Name	AUX IN JACK
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	L	-
3	Y	-
4	G	-

Connector No.	M97
Connector Name	JOINT CONNECTOR-M24
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	B	-
2	B	-

AANIA2415GB

DISPLAY AUDIO

< WIRING DIAGRAM >

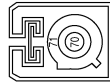
[DISPLAY AUDIO]

Connector No.	M129
Connector Name	WIRE TO WIRE
Connector Color	GRAY



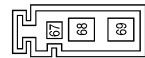
Terminal No.	Color of Wire	Signal Name
1	B	-
2	B	-

Connector No.	M126
Connector Name	AUDIO UNIT
Connector Color	PINK



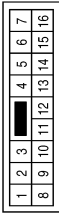
Terminal No.	Color of Wire	Signal Name
70	B	SAT ANT
71	B	SAT SHIELD

Connector No.	M124
Connector Name	AUDIO UNIT
Connector Color	GRAY



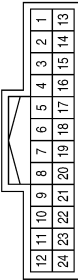
Terminal No.	Color of Wire	Signal Name
67	B	ANT+B
68	B	ANT MAIN
69	-	-

Connector No.	M158
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
13	GR	-(WITHOUT BOSE AUDIO SYSTEM)
14	W	-(WITHOUT BOSE AUDIO SYSTEM)

Connector No.	M156
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	B	-
2	W	-
3	SHIELD	-

Connector No.	M130
Connector Name	WIRE TO WIRE
Connector Color	BROWN



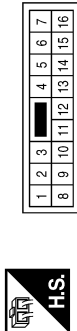
Terminal No.	Color of Wire	Signal Name
1	B	-

AANIA2416GB

A
B
C
D
E
F
G
H
I
J
K
L
M
O
P

AV

Connector No.	M167
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
6	Y	-(WITHOUT BOSE AUDIO SYSTEM)
7	R	-(WITHOUT BOSE AUDIO SYSTEM)

Connector No.	M500
Connector Name	WIRE TO WIRE
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
1	B	-
2	B	-

Connector No.	M501
Connector Name	WIRE TO WIRE
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
1	B	-

Connector No.	M502
Connector Name	ANTENNA BASE (ANTENNA AMP)
Connector Color	GRAY



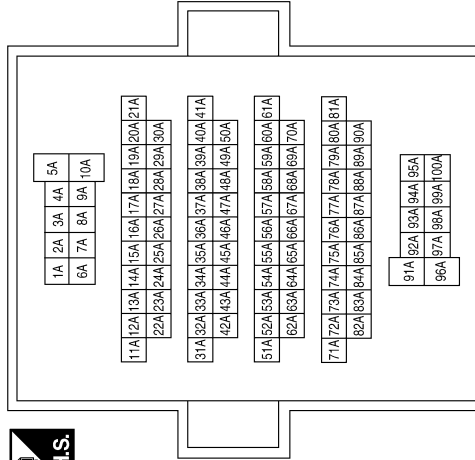
Terminal No.	Color of Wire	Signal Name
1	B	-
2	B	-

Connector No.	M503
Connector Name	ANTENNA BASE (SATELLITE RADIO ANTENNA)
Connector Color	GREEN



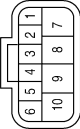
Terminal No.	Color of Wire	Signal Name
3	B	-

Connector No.	E34
Connector Name	WIRE TO WIRE
Connector Color	GRAY



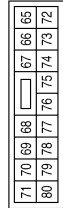
Terminal No.	Color of Wire	Signal Name
100A	G	-

Connector No.	F78
Connector Name	TRANSMISSION RANGE SWITCH
Connector Color	BLACK



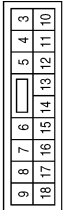
Terminal No.	Color of Wire	Signal Name
4	W	-
8	G	-

Connector No.	F35
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
71	SB	O IGN REVERSE SW AC VALVE
79	G	LI LIGHT REVERSE SW

Connector No.	E119
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY

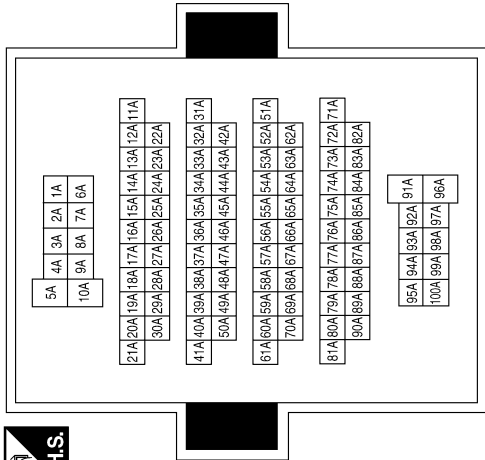


Terminal No.	Color of Wire	Signal Name
16	G	O LIGHT REVERSE LAMP

Connector No.	B41
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	B40
Connector Name	WIRE TO WIRE
Connector Color	GRAY



Connector No.	B16
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GREEN



Terminal No.	Color of Wire	Signal Name
60	L	CAN-H
80	P	CAN-L

Terminal No.	Color of Wire	Signal Name
24	P	-
25	L	-
26	G	-
29	SHIELD	-
30	W	-
31	B	-
32	R	-

AANIA2418GB

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P

AV

Connector No.	B51
Connector Name	WIRE TO WIRE
Connector Color	WHITE

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16					



Connector No.	B46
Connector Name	WIRE TO WIRE
Connector Color	WHITE

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32



Connector No.	B42
Connector Name	WIRE TO WIRE
Connector Color	WHITE

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16					



Terminal No.	Color of Wire	Signal Name
8	LA/GR	-(WITHOUT BOSE AUDIO SYSTEM)
9	LA/Y	-(WITHOUT BOSE AUDIO SYSTEM)

Terminal No.	Color of Wire	Signal Name
5	R	-
6	B	-
7	W	-
8	SHIELD	-

Terminal No.	Color of Wire	Signal Name
12	LA/Y	-
13	LA/GR	-

Connector No.	B101
Connector Name	WIRE TO WIRE
Connector Color	WHITE

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16					



Connector No.	B63
Connector Name	JOINT CONNECTOR-B01
Connector Color	GRAY

4	3	2	1
8	7	6	5
12	11	10	9
16	15	14	13
20	19	18	17
24	23	22	21

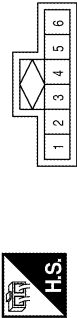


Terminal No.	Color of Wire	Signal Name
4	LA/V	-(WITHOUT BOSE AUDIO SYSTEM)
5	LA/Y	-(WITHOUT BOSE AUDIO SYSTEM)

Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

AANIA2419GB

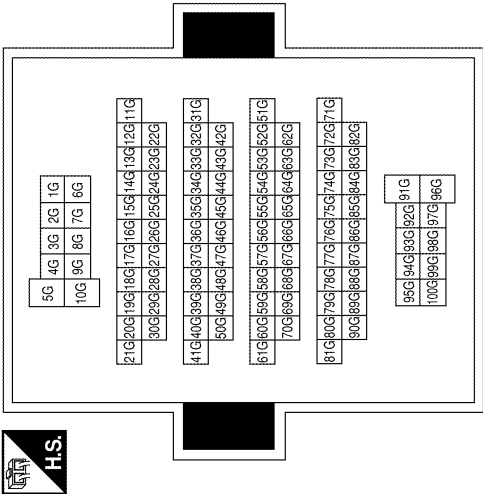
Connector No.	R8
Connector Name	MICROPHONE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	W	-
2	SHIELD	-
4	B	-

Terminal No.	Color of Wire	Signal Name
94G	LA/V	-
99G	LA/Y	-

Connector No.	B136
Connector Name	WIRE TO WIRE
Connector Color	WHITE

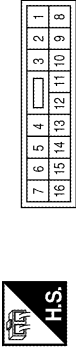


Connector No.	D7
Connector Name	FRONT DOOR SPEAKER LH (WITHOUT BOSE AUDIO SYSTEM)
Connector Color	WHITE



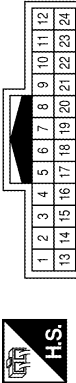
Terminal No.	Color of Wire	Signal Name
1	LA/L	-
2	LA/BR	-

Connector No.	D2
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
6	LA/L	-
7	LA/BR	-

Connector No.	R11
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	B	-
2	W	-
3	SHIELD	-

AANIA2420GB

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P

DISPLAY AUDIO

< WIRING DIAGRAM >

[DISPLAY AUDIO]

Connector No.	D201
Connector Name	WIRE TO WIRE
Connector Color	WHITE



5	4	3		2	1
12	11	10	9	8	7
					6

Terminal No.	Color of Wire	Signal Name
8	LA/R	—
9	LA/L	—

Connector No.	D104
Connector Name	FRONT DOOR SPEAKER RH (WITHOUT BOSE AUDIO SYSTEM)
Connector Color	WHITE



2	1
---	---

Terminal No.	Color of Wire	Signal Name
1	LA/G	—
2	LA/R	—

Connector No.	D102
Connector Name	WIRE TO WIRE
Connector Color	WHITE



7	6	5	4	3	2	1		
16	15	14	13	12	11	10	9	8

Terminal No.	Color of Wire	Signal Name
13	LA/R	—
14	LA/G	—

Connector No.	D303
Connector Name	REAR DOOR SPEAKER RH
Connector Color	WHITE



2	1
---	---

Connector No.	B301
Connector Name	WIRE TO WIRE
Connector Color	WHITE



5	4			3	2	1
12	11	10	9	8	7	6

Terminal No.	Color of Wire	Signal Name
1	LA/V	—
2	LA/Y	—

Terminal No.	Color of Wire	Signal Name
4	LA/V	—(WITHOUT BOSE AUDIO SYSTEM)
5	LA/Y	—(WITHOUT BOSE AUDIO SYSTEM)

Connector No.	D203
Connector Name	REAR DOOR SPEAKER LH
Connector Color	WHITE



2	1
---	---

Terminal No.	Color of Wire	Signal Name
1	LA/L	—
2	LA/R	—

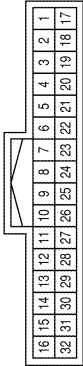
AANIA2421GB

Connector No.	D504
Connector Name	REAR VIEW CAMERA (WITHOUT DRIVER ASSISTANCE SYSTEM)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	B	-
2	R	-
4	W	-
5	V	-

Connector No.	D501
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
5	R	-
6	B	-
7	W	-
8	V	-

A
B
C
D
E
F
G
H
I
J
K
L
M
O
P

AV

AANIA2422GB

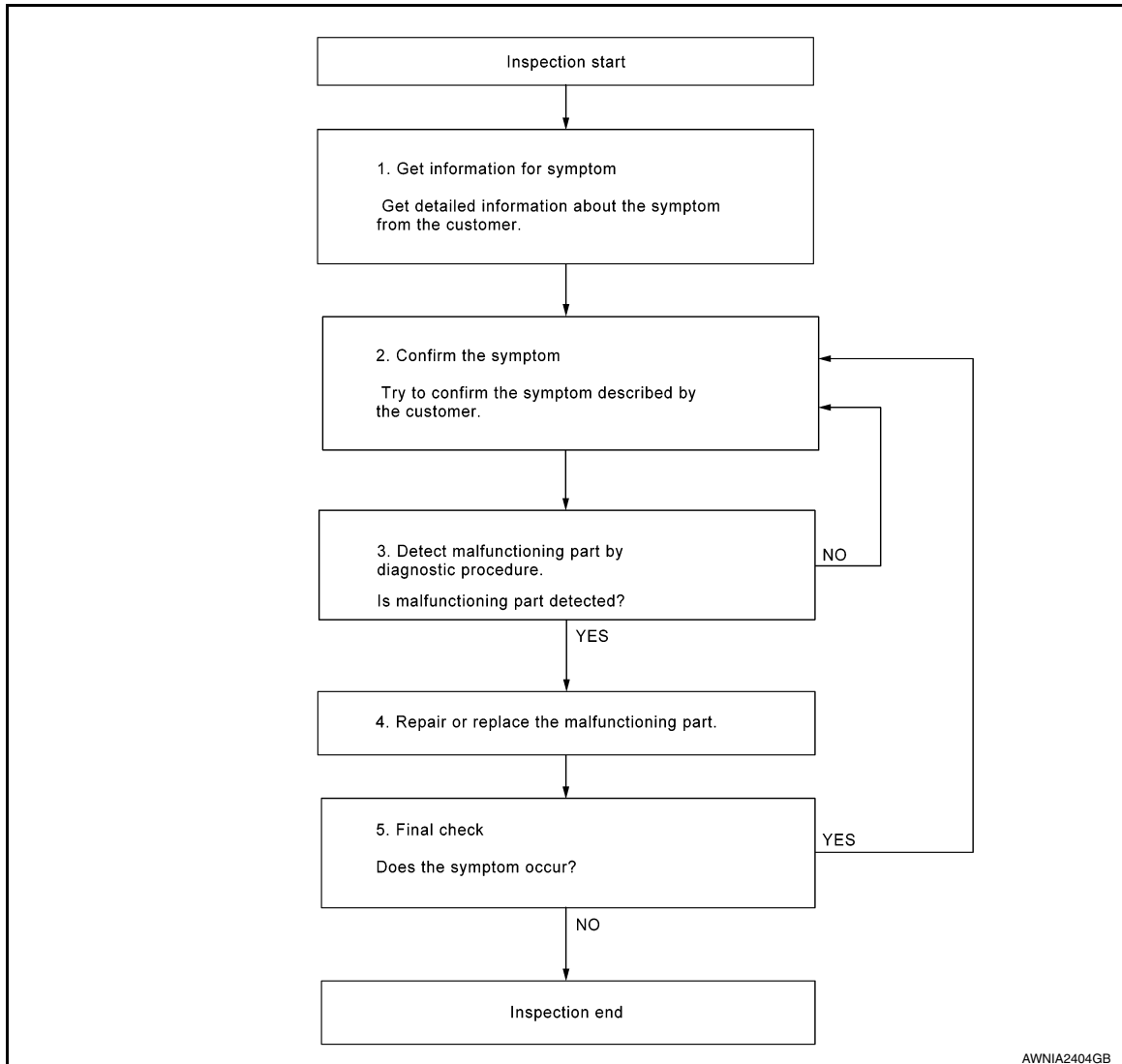
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:000000010245828

OVERALL SEQUENCE



DETAILED FLOW

1.GET INFORMATION FOR SYMPTOM

Get detailed information from the customer about the symptom (the condition and the environment when the incident/malfunction occurred).

>> GO TO 2.

2.CONFIRM THE SYMPTOM

Try to confirm the symptom described by the customer. Verify relation between the symptom and the condition when the symptom is detected. Refer to [AV-59. "Symptom Table"](#).

>> GO TO 3.

3.DETECT MALFUNCTIONING PART BY DIAGNOSTIC PROCEDURE

Inspect according to Diagnostic Procedure of the system.

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

[DISPLAY AUDIO]

Is malfunctioning part detected?

YES >> GO TO 4.

NO >> GO TO 2.

4.REPAIR OR REPLACE THE MALFUNCTIONING PART

1. Repair or replace the malfunctioning part.
2. Reconnect parts or connectors disconnected during Diagnostic Procedure.

>> GO TO 5.

5.FINAL CHECK

Refer to confirmed symptom in step 2, and make sure that the symptom is not detected.

Was the repair confirmed?

YES >> Inspection End.

NO >> GO TO 2.

A

B

C

D

E

F

G

H

I

J

K

L

M

AV

O

P

DTC/CIRCUIT DIAGNOSIS**POWER SUPPLY AND GROUND CIRCUIT****AUDIO UNIT****AUDIO UNIT : Diagnosis Procedure**

INFOID:0000000010245829

Regarding Wiring Diagram information, refer to [AV-27, "Wiring Diagram"](#).

1.CHECK FUSE

Check that the following fuses are not blown.

Terminal No.	Signal name	Fuse No.
7	Ignition power supply	30 (10A)
19	Battery power supply	15 (20A)

Are the fuses blown?

YES >> Replace the blown fuse after repairing the affected circuit.

NO >> GO TO 2.

2.CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect audio unit connector M83.
3. Check voltage between audio unit connector M83 and ground.

Audio unit		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
M83	7	—	Ignition switch: ON	Battery voltage
	19		Ignition switch: OFF	

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

3.CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect audio unit connector M87.
3. Check continuity between audio unit connectors and ground.

Audio unit		Ground	Continuity
Connector	Terminal		
M83	20	—	Yes
M87	52		

Is the inspection result normal?

YES >> Inspection End.

NO >> Repair or replace harness or connectors.

FRONT TWEETER

Diagnosis Procedure

INFOID:000000010245842

Regarding Wiring Diagram information, refer to [AV-27. "Wiring Diagram"](#).

1.CONNECTOR CHECK

Check the audio unit and speaker connectors for the following:

- Proper connection
- Damage
- Disconnected or loose terminals

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminals or connectors.

2.CHECK FRONT TWEETER SIGNAL CIRCUIT CONTINUITY

1. Disconnect audio unit connector M83 and suspect front tweeter connector.
2. Check continuity between audio unit connector M83 and suspect front tweeter connector.

Audio unit		Front tweeter		Continuity
Connector	Terminal	Connector	Terminal	
M83	2	M80 (LH)	1	Yes
	3		2	
	11	M23 (RH)	1	
	12		2	

3. Check continuity between audio unit connector M83 and ground.

Audio unit		Ground	Continuity
Connector	Terminal		
M83	2	—	No
	3		
	11		
	12		

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

3.CHECK FRONT TWEETER SIGNAL

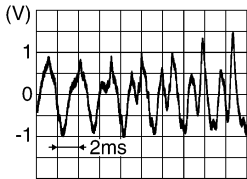
1. Connect audio unit connector M83 and suspect front tweeter connector.
2. Turn ignition switch to ON.
3. Push audio unit POWER switch.
4. Check signal between the terminals of audio unit connector M83.

Audio unit connector M83		Condition	Reference value
(+)	(-)		
Terminal	Terminal		

FRONT TWEETER

< DTC/CIRCUIT DIAGNOSIS >

[DISPLAY AUDIO]

2	3	Audio signal output	
11	12		

Is the inspection result normal?

- YES >> Replace front tweeter. Refer to [AV-66. "Removal and Installation"](#).
- NO >> Replace audio unit. Refer to [AV-64. "Removal and Installation"](#).

FRONT DOOR SPEAKER

< DTC/CIRCUIT DIAGNOSIS >

[DISPLAY AUDIO]

FRONT DOOR SPEAKER

Diagnosis Procedure

INFOID:000000010245831

Regarding Wiring Diagram information, refer to [AV-27. "Wiring Diagram"](#).

1.CONNECTOR CHECK

Check the audio unit and speaker connectors for the following:

- Proper connection
- Damage
- Disconnected or loose terminals

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminals or connectors.

2.CHECK FRONT DOOR SPEAKER SIGNAL CIRCUIT CONTINUITY

1. Disconnect audio unit connector M83 and suspect front door speaker connector.
2. Check continuity between audio unit connector M83 and suspect front door speaker connector.

Audio unit		Front door speaker		Continuity
Connector	Terminal	Connector	Terminal	
M83	2	D7 (LH)	1	Yes
	3		2	
	11	D104 (RH)	1	
	12		2	

3. Check continuity between audio unit connector M83 and ground.

Audio unit		Ground	Continuity
Connector	Terminal		
M83	2	—	No
	3		
	11		
	12		

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

3.CHECK FRONT DOOR SPEAKER SIGNAL

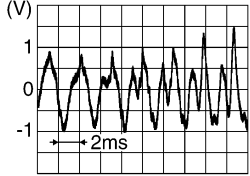
1. Connect audio unit connector M83 and suspect front door speaker connector.
2. Turn ignition switch to ON.
3. Push audio unit POWER switch.
4. Check signal between the terminals of audio unit connector M83.

Audio unit connector M83		Condition	Reference value
(+)	(-)		
Terminal	Terminal		

FRONT DOOR SPEAKER

< DTC/CIRCUIT DIAGNOSIS >

[DISPLAY AUDIO]

2	3		
11	12	Audio signal output	

Is the inspection result normal?

- YES >> Replace front door speaker. Refer to [AV-67. "Removal and Installation"](#).
 NO >> Replace audio unit. Refer to [AV-64. "Removal and Installation"](#).

REAR DOOR SPEAKER

Diagnosis Procedure

INFOID:000000010245832

Regarding Wiring Diagram information, refer to [AV-27. "Wiring Diagram"](#).

1.CONNECTOR CHECK

Check the audio unit and speaker connectors for the following:

- Proper connection
- Damage
- Disconnected or loose terminals

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminals or connectors.

2.CHECK REAR DOOR SPEAKER SIGNAL CIRCUIT CONTINUITY

1. Disconnect audio unit connector M83 and suspect rear door speaker connector.
2. Check continuity between audio unit connector M83 and suspect rear door speaker connector.

Audio unit		Rear speaker		Continuity
Connector	Terminal	Connector	Terminal	
M83	4	D203 (LH)	1	Yes
	5		2	
	13	D303 (RH)	1	
	14		2	

3. Check continuity between audio unit connector M83 and ground.

Audio unit		Ground	Continuity
Connector	Terminal		
M83	4	—	No
	5		
	13		
	14		

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

3.CHECK REAR DOOR SPEAKER SIGNAL

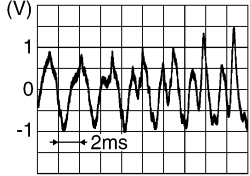
1. Connect audio unit connector M83 and suspect rear door speaker connector.
2. Turn ignition switch to ON.
3. Push audio unit POWER switch.
4. Check signal between the terminals of audio unit connector M83.

Audio unit connector M83		Condition	Reference value
(+)	(-)		
Terminal	Terminal		

REAR DOOR SPEAKER

< DTC/CIRCUIT DIAGNOSIS >

[DISPLAY AUDIO]

4	5	Audio signal output	 SKIB3609E
13	14		

Is the inspection result normal?

- YES >> Replace rear door speaker. Refer to [AV-68. "Removal and Installation"](#).
 NO >> Replace audio unit. Refer to [AV-64. "Removal and Installation"](#).

REAR VIEW CAMERA IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[DISPLAY AUDIO]

REAR VIEW CAMERA IMAGE SIGNAL CIRCUIT

Diagnosis Procedure

INFOID:000000010245835

Regarding Wiring Diagram information, refer to [AV-27, "Wiring Diagram"](#).

1. CHECK REVERSE INPUT SIGNAL

1. Turn ignition switch ON.
2. Shift the selector lever to R (reverse).
3. Check voltage between audio unit connector M87 and ground.

Audio unit		Ground	Condition	Voltage (Approx.)
(+)		(-)		
Connector	Terminal			
M87	58	—	Selector lever in R (reverse)	Battery Voltage

Is inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness or connectors.

2. CHECK CAMERA POWER SUPPLY CIRCUIT CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect audio unit connector M87 and rear view camera connector.
3. Check continuity between audio unit connector M87 and rear view camera connector D504.

Audio unit		Rear view camera		Continuity
Connector	Terminal	Connector	Terminal	
M87	42	D504	2	Yes

4. Check continuity between audio unit connector M87 and ground.

Audio unit		Ground	Continuity
Connector	Terminal		
M87	42		No

Is inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

3. CHECK CAMERA POWER SUPPLY VOLTAGE

1. Connect audio unit connector M87 and rear view camera connector.
2. Turn ignition switch ON.
3. Shift the selector lever to R (reverse).
4. Check voltage between audio unit connector M87 and ground.

Audio unit		Ground	Condition	Voltage (Approx.)
(+)		(-)		
Connector	Terminal			
M87	42	—	Selector lever is in “R”.	6.0 V

Is inspection result normal?

YES >> GO TO 4.

NO >> Replace audio unit. Refer to [AV-64, "Removal and Installation"](#).

REAR VIEW CAMERA IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[DISPLAY AUDIO]

4. CHECK CAMERA IMAGE SIGNAL CIRCUIT CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect audio unit connector M87 and rear view camera connector.
3. Check continuity between audio unit connector M87 and rear view camera connector D504.

Audio unit		Rear view camera		Continuity
Connector	Terminal	Connector	Terminal	
M87	43	D504	4	Yes

4. Check continuity between audio unit connector M87 and ground.

Audio unit		Ground	Continuity
Connector	Terminal		
M87	43		No

Is inspection result normal?

- YES >> GO TO 5.
 NO >> Repair or replace harness or connectors.

5. CHECK CAMERA GROUND CIRCUIT CONTINUITY

Check continuity between audio unit connector M87 and rear view camera connector D504.

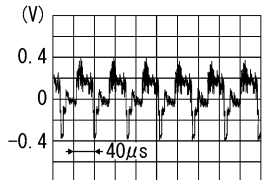
Audio unit		Rear view camera		Continuity
Connector	Terminal	Connector	Terminal	
M87	41	D504	1	Yes

Is inspection result normal?

- YES >> GO TO 6.
 NO >> Repair or replace harness or connectors.

6. CHECK CAMERA IMAGE SIGNAL

1. Connect audio unit connector M87 and rear view camera connector.
2. Turn ignition switch ON.
3. Shift the selector lever to R (reverse).
4. Check signal between audio unit connector M87 and ground.

Audio unit		Ground	Condition	Reference value
(+) (V)		(-)		
Connector	Terminal			
M87	43	—	Camera image displayed.	 SKIB2251J

Is inspection result normal?

- YES >> Replace audio unit. Refer to [AV-64, "Removal and Installation"](#).
 NO >> Replace rear view camera. Refer to [AV-71, "Removal and Installation"](#).

MICROPHONE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[DISPLAY AUDIO]

MICROPHONE SIGNAL CIRCUIT

Diagnosis Procedure

INFOID:000000010245836

Regarding Wiring Diagram information, refer to [AV-27. "Wiring Diagram"](#).

1.CHECK HARNESS BETWEEN AUDIO UNIT AND MICROPHONE

1. Turn ignition switch OFF.
2. Disconnect audio unit connector M87 and microphone connector R8.
3. Check continuity between audio unit connector M87 and microphone connector R8.

Audio unit		Microphone		Continuity
Connector	Terminal	Connector	Terminal	
M87	45	R8	1	Yes
	46		4	
	47		2	

4. Check continuity between audio unit connector M87 and ground.

Audio unit		Ground	Continuity
Connector	Terminal		
M87	45	—	No
	46		

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connectors.

2.CHECK MICROPHONE POWER SUPPLY

1. Connect audio unit connector M87 and microphone connector R8.
2. Turn ignition switch ON.
3. Check voltage between microphone connector R8 and ground.

Microphone		Ground	Voltage (Approx.)
(+)		(-)	
Connector	Terminal		
R8	4	—	5V

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace audio unit. Refer to [AV-64. "Removal and Installation"](#).

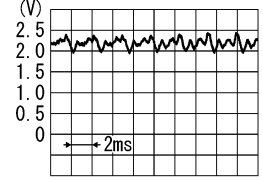
3.CHECK MICROPHONE SIGNAL

Check signal between terminals of audio unit connector M87.

MICROPHONE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[DISPLAY AUDIO]

Audio unit connector M87		Condition	Reference value
(+)	(-)		
Terminal	Terminal		
45	47	Speak into microphone.	 PKIB5037J

Is the inspection result normal?

- YES >> Replace audio unit. Refer to [AV-64. "Removal and Installation"](#).
 NO >> Replace microphone. Refer to [AV-70. "Removal and Installation"](#).

STEERING SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[DISPLAY AUDIO]

STEERING SWITCH

Diagnosis Procedure

INFOID:0000000010245837

Regarding Wiring Diagram information, refer to [AV-27. "Wiring Diagram"](#).

1. CHECK STEERING WHEEL AUDIO CONTROL SWITCH RESISTANCE

1. Turn ignition switch OFF.
2. Disconnect combination switch connector M90.
3. Check resistance between the terminals of combination switch connector M90.

Combination switch connector M88		Condition	Resistance Ω (Approx.)
Terminal	Terminal		
25	19	Depress SOURCE switch.	1
		Depress Δ switch.	121
		Depress ∇ switch.	321
		Depress ↙ switch.	723
		Depress ENTER switch.	2023
18		Depress - 🔊 switch.	1
		Depress 🔊+ switch.	121
		Depress 🔌 switch.	321
		Depress ↻ switch.	723
		Depress DISPLAY switch.	2023

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace steering switches. Refer to [AV-65. "Removal and Installation"](#).

2. CHECK HARNESS BETWEEN COMBINATION METER AND COMBINATION SWITCH

1. Disconnect combination meter connector M76 and combination switch connector M30.
2. Check continuity between combination meter connector M76 and combination switch connector M30.

Combination meter		Combination switch		Continuity
Connector	Terminal	Connector	Terminal	
M76	22	M30	8	Yes
	23		15	
	21		14	

3. Check continuity between combination meter connector M76 and ground.

Combination meter		Ground	Continuity
Connector	Terminal		
M76	22	—	No
	23		
	21		

Is the inspection result normal?

STEERING SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[DISPLAY AUDIO]

- YES >> GO TO 3.
NO >> Repair or replace harness or connectors.

3.CHECK COMBINATION SWITCH

Check continuity between combination switch connectors M90 and M30.

Combination switch				Continuity
Connector	Terminal	Connector	Terminal	
M90	25	M30	8	Yes
	18		15	
	19		14	

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Replace spiral cable. Refer to [SR-15, "Removal and Installation"](#).

4.CHECK HARNESS BETWEEN COMBINATION METER AND AUDIO UNIT

1. Disconnect combination meter connector M77 and audio unit connector M87.
2. Check continuity between combination meter connector M77 and audio unit connector M87.

Combination meter		Audio unit		Continuity
Connector	Terminal	Connector	Terminal	
M77	47	M87	36	Yes
	48		37	

3. Check continuity between combination meter connector M77 and ground.

Combination meter		Ground	Continuity
Connector	Terminal		
M77	47	—	No
	48		

Is the inspection result normal?

- YES >> Replace audio unit. Refer to [AV-64, "Removal and Installation"](#).
NO >> Repair or replace harness or connectors.

USB CONNECTOR

Diagnosis Procedure

INFOID:0000000010245838

Regarding Wiring Diagram information, refer to [AV-27, "Wiring Diagram"](#).

1. CHECK USB INTERFACE HARNESS CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect audio unit connector M121 and USB interface connector M89.
3. Check continuity between audio unit connector M121 and USB interface connector M89.

Audio unit		USB interface		Continuity
Connector	Terminal	Connector	Terminal	
M121	61	M89	1	Yes
	62		2	
	63		3	
	65		5	
	66		6	

4. Check continuity between audio unit connector M121 and ground.

Audio unit		—	Continuity
Connector	Terminal		
M121	61	Ground	No
	63		

Is the inspection result normal?

- YES >> Replace the USB interface. Refer to [AV-69, "Removal and Installation"](#).
 NO >> Repair or replace harness or connectors.

AUXILIARY INPUT JACK

Diagnosis Procedure

INFOID:000000010245841

Regarding Wiring Diagram information, refer to [AV-27. "Wiring Diagram"](#).

1. CHECK AUX JACK HARNESS CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect audio control unit connector M88 and AUX in jack connector M104.
3. Check continuity between audio control unit connector M88 and AUX in jack connector M104.

Audio control unit		AUX in jack		Continuity
Connector	Terminal	Connector	Terminal	
M88	21	M104	1	Yes
	22		4	
	23		3	

4. Check continuity between audio control unit connector M88 and ground.

Audio control unit		—	Continuity
Connector	Terminal		
M88	21	Ground	No
	22		

Is the inspection result normal?

- YES >> Replace the AUX in jack. Refer to [AV-69. "Removal and Installation"](#).
 NO >> Repair or replace harness or connectors.

SYMPTOM DIAGNOSIS

AUDIO SYSTEM

Symptom Table

INFOID:0000000010245839

RELATED TO AUDIO

Symptoms	Check items	Probable malfunction location
The disk cannot be removed.	Audio unit	Malfunction in audio unit. Refer to AV-18, "On Board Diagnosis Function" .
No sound comes out or the level of the sound is low.	No sound from all speakers.	• Speaker circuit shorted to ground. Refer to AV-27, "Wiring Diagram". • Audio unit power supply and ground circuits malfunction. Refer to AV-44, "AUDIO UNIT : Diagnosis Procedure".
	Only a certain speaker (front tweeter LH, front tweeter RH, front door speaker LH, front door speaker RH, rear door speaker LH, rear door speaker RH) does not output sound.	• Poor connector connection of speaker. • Sound signal circuit malfunction between audio unit and speaker. Refer to: - AV-45, "Diagnosis Procedure" (front tweeter). - AV-47, "Diagnosis Procedure" (front door speaker). - AV-49, "Diagnosis Procedure" (rear door speaker). • Malfunction in speaker. Refer to: - AV-66, "Removal and Installation" (front tweeter). - AV-67, "Removal and Installation" (front door speaker). - AV-68, "Removal and Installation" (rear door speaker). • Malfunction in audio unit. Refer to AV-18, "On Board Diagnosis Function".

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P

AV

AUDIO SYSTEM

< SYMPTOM DIAGNOSIS >

[DISPLAY AUDIO]

Symptoms	Check items	Probable malfunction location
Noise is mixed with audio.	Noise comes out from all speakers.	Malfunction in audio unit. Refer to AV-18, "On Board Diagnosis Function" .
	Noise comes out only from a certain speaker (front tweeter LH, front tweeter RH, front door speaker LH, front door speaker RH, rear door speaker LH, rear door speaker RH).	- Poor connector connection of speaker. - Sound signal circuit malfunction between audio unit and speaker. Refer to: AV-45, "Diagnosis Procedure" (front tweeter). AV-47, "Diagnosis Procedure" (front door speaker). AV-49, "Diagnosis Procedure" (rear door speaker). - Malfunction in speaker. - Poor Installation of speaker (e.g. backlash and looseness). Refer to: AV-66, "Removal and Installation" (front tweeter). AV-67, "Removal and Installation" (front door speaker). AV-68, "Removal and Installation" (rear door speaker). - Malfunction in audio unit. Refer to AV-18, "On Board Diagnosis Function".
	Noise is mixed with radio only (when the vehicle hits a bump or while driving over bad roads)	Poor connector connection of antenna or antenna feeder. Refer to AV-73, "Feeder Layout" .
No radio reception or poor reception.	- Other audio sounds are normal. - Any radio station cannot be received or poor reception is caused even after moving to a service area with good reception (e.g. a place with clear view and no obstacles generating external noises).	- Antenna amp. ON signal circuit malfunction. Refer to AV-24, "Reference Value". - Poor connector connection of antenna or antenna feeder. Refer to AV-73, "Feeder Layout".
No satellite radio reception.	Satellite radio antenna malfunction.	- Poor continuity in antenna feeder. - Poor connector connection of antenna or antenna feeder. - Loose satellite radio antenna mounting nut. Refer to AV-73, "Feeder Layout".
Buzz/rattle sound from speaker	The majority of buzz/rattle sounds are not indicative of an issue with the speaker, usually something nearby the speaker is causing the buzz/rattle.	Refer to "SQUEAK AND RATTLE TROUBLE DIAGNOSIS" in the appropriate interior trim section.

RELATED TO HANDS-FREE PHONE

- Before performing diagnosis, confirm that the cellular phone being used by the customer is compatible with the vehicle.
- It is possible that a malfunction is occurring due to a version change of the phone even though the phone is a compatible type. This can be confirmed by changing the cellular phone to another compatible type, and check that it operates normally. It is important to determine whether the cause of the malfunction is the vehicle or the cellular phone.

Check Compatibility

- Make sure the customer's Bluetooth® related concern is understood.
- Verify the customer's concern.

NOTE:

The customer's phone may be required, depending upon their concern.

- Write down the customer's phone brand, model and service provider.

NOTE:

AUDIO SYSTEM

< SYMPTOM DIAGNOSIS >

[DISPLAY AUDIO]

It is necessary to know the service provider. On occasion, a given phone may be on the approved list with one provider, but may not be on the approved list with other providers.

4. Go to "www.nissanusa.com/bluetooth/".
 - a. Using the website's search engine, find out if the customer's phone is on the approved list.
 - b. If the customer's phone is NOT on the approved list:
Stop diagnosis here. The customer needs to obtain a Bluetooth® phone that is on the approved list before any further action.
 - c. If the feature related to the customer's concern shows as "N" (not compatible):
Stop diagnosis here. If the customer still wants the feature to function, they will need to get an approved phone showing the feature as "Y" (compatible) in the "Basic Features".
 - d. If the feature related to the customer's concern shows as "Y" (compatible):
Perform diagnosis as per the following table.

Symptoms	Check items	Probable malfunction location
Does not recognize cellular phone connection (no connection is displayed on the display at the guide).	Repeat the registration of cellular phone.	Malfunction in audio unit. Replace audio unit. Refer to AV-64, "Removal and Installation" .
Hands-free phone cannot be established.	- Hands-free phone operation can be made, but the communication cannot be established. - Hands-free phone operation can be performed, however, voice between each other cannot be heard during the conversation.	
The other party's voice cannot be heard by hands-free phone.	Check the "microphone speaker" in Inspection & Adjustment Mode if sound is heard.	
Originating sound is not heard by the other party with hands-free phone communication.	Sound operation function is normal. Sound operation function does not work.	
The system cannot be operated.	- The voice recognition can be controlled. - Steering switch's , , and  switch works, but  does not work.	Steering switch malfunction. Replace steering switch. Refer to AV-65, "Removal and Installation" .
	Steering switch's  ,  , and  switches do not work.	Steering switch signal circuit malfunction. Refer to AV-55, "Diagnosis Procedure" .
	All steering switches do not work.	Steering switch ground circuit malfunction. Refer to AV-55, "Diagnosis Procedure" .

RELATED TO REAR VIEW CAMERA

Symptoms	Check items	Probable malfunction location
Rear view camera is inoperative.	Reverse signal circuit malfunction.	Reverse signal circuit malfunction between BCM and audio unit. Refer to AV-51, "Diagnosis Procedure" .
	Camera image signal circuit malfunction.	Camera image signal circuit malfunction between rear view camera and audio unit. Refer to AV-51, "Diagnosis Procedure" .
	Rear view camera malfunction.	Replace rear view camera. Refer to AV-71, "Removal and Installation" .

NORMAL OPERATING CONDITION

Description

INFOID:000000010245840

RELATED TO NOISE

The majority of the audio concerns are the result of outside causes (bad CD, electromagnetic interference, etc.).

The following noise results from variations in field strength, such as fading noise and multi-path noise, or external noise from trains and other sources. It is not a malfunction.

- Fading noise: This noise occurs because of variations in the field strength in a narrow range due to mountains or buildings blocking the signal.
- Multi-path noise: This noise results from the waves sent directly from the broadcast station arriving at the antenna at a different time from the waves which reflect off mountains or buildings.

The vehicle itself can be a source of noise if noise prevention parts or electrical equipment is malfunctioning. Check if noise is caused and/or changed by engine speed, ignition switch turned to each position, and operation of each piece of electrical equipment, and determine the cause.

NOTE:

The source of the noise can be found easily by listening to the noise while removing the fuses of electrical components, one by one.

Type of Noise and Possible Cause

Occurrence condition		Possible cause
Occurs only when engine is ON.	A continuous growling noise occurs. The speed of the noise varies with changes in the engine speed.	• Ignition components
The occurrence of the noise is linked with the operation of the fuel pump.		• Fuel pump condenser
Noise only occurs when various electrical components are operating.	A cracking or snapping sound occurs with the operation of various switches.	• Relay malfunction, audio unit malfunction
	The noise occurs when various motors are operating.	• Motor case ground • Motor
The noise occurs constantly, not just under certain conditions.		• Rear defogger coil malfunction • Open circuit in printed heater • Poor ground of antenna feeder line
A cracking or snapping sound occurs while the vehicle is being driven, especially when it is vibrating excessively.		• Ground wire of body parts • Ground due to improper part installation • Wiring connections or a short circuit

RELATED TO HANDS-FREE PHONE

Symptom	Cause and Counter measure
Does not recognize cellular phone connection (No connection is displayed on the display at the guide).	Some Bluetooth® enabled cellular phones may not be recognized by the in-vehicle phone module. Refer to "RELATED TO HANDS-FREE PHONE (Check Compatibility)" in AV-59, "Symptom Table".
Cannot use hands-free phone.	Customer will not be able to use a hands-free phone under the following conditions: • The vehicle is outside of the telephone service area. • The vehicle is in an area where it is difficult to receive radio waves; such as in a tunnel, in an underground parking garage, near a tall building or in a mountainous area. • The cellular phone is locked to prevent it from being dialed. NOTE: While a cellular phone is connected through the Bluetooth® wireless connection, the battery power of the cellular phone may discharge quicker than usual. The Bluetooth® Hands-Free Phone System cannot charge cellular phones.

NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

[DISPLAY AUDIO]

Symptom	Cause and Counter measure
The other party's voice cannot be heard by hands-free phone.	When the radio wave condition is not ideal or ambient sound is too loud, it may be difficult to hear the other person's voice during a call.
Poor sound quality.	Do not place the cellular phone in an area surrounded by metal or far away from the in-vehicle phone module to prevent tone quality degradation and wireless connection disruption.

A

B

C

D

E

F

G

H

I

J

K

L

M

AV

O

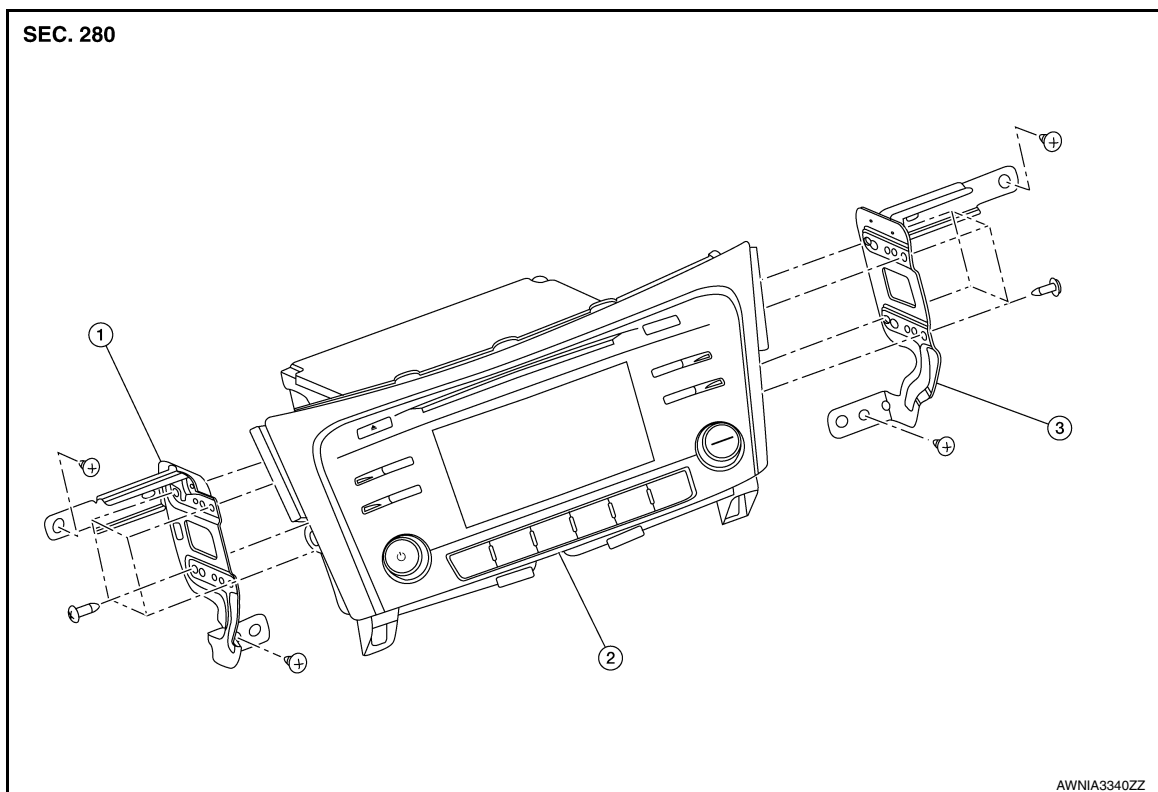
P

REMOVAL AND INSTALLATION

AUDIO UNIT

Exploded View

INFOID:000000010197923



1. Audio unit bracket (LH)

2. Audio unit

3. Audio unit bracket (RH)

Removal and Installation

INFOID:000000010197924

REMOVAL

1. Disconnect the negative battery terminal. Refer to [PG-75. "Removal and Installation \(Battery\)"](#).
2. Remove A/C switch (AUTOMATIC AIR CONDITIONING) or front air control (MANUAL AIR CONDITIONING). Refer to [HAC-102. "Removal and Installation" \(AUTOMATIC AIR CONDITIONING\)](#) or [HAC-181. "Removal and Installation" \(MANUAL AIR CONDITIONING\)](#).
3. Remove instrument finisher B. Refer to [IP-16. "INSTRUMENT FINISHER B : Removal and Installation"](#).
4. Remove instrument finisher E. Refer to [IP-16. "INSTRUMENT FINISHER E : Removal and Installation"](#).
5. Remove the audio unit screws, then pull out the audio unit.
6. Disconnect the harness connectors from the audio unit and remove.
7. Remove the audio unit bracket (LH/RH) screws and the audio unit brackets (LH/RH) (if necessary).

INSTALLATION

Installation is in the reverse order of removal.

STEERING SWITCHES

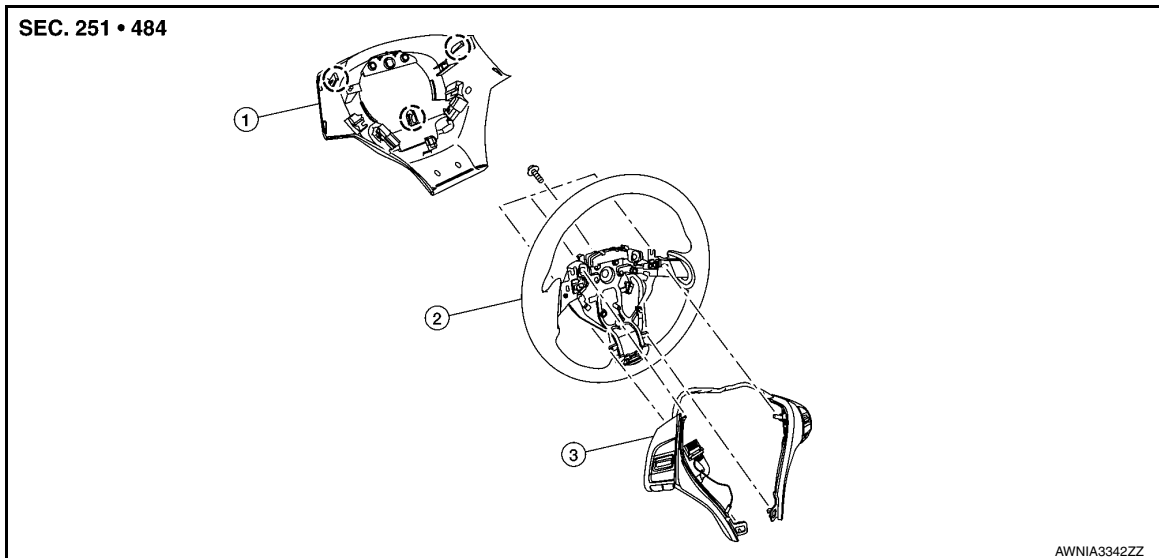
< REMOVAL AND INSTALLATION >

[DISPLAY AUDIO]

STEERING SWITCHES

Exploded View

INFOID:0000000010197930



1. Steering wheel rear finisher

2. Steering wheel

3. Steering switches

○ Pawl

Removal and Installation

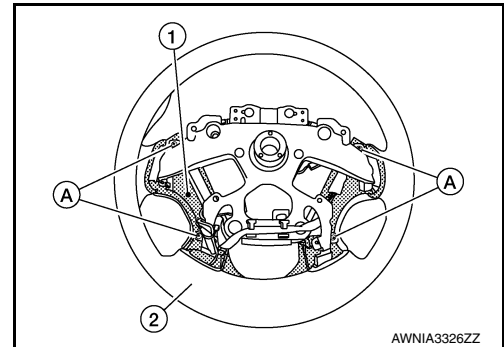
INFOID:0000000010197931

REMOVAL

NOTE:

The steering switches are serviced as an assembly.

1. Remove steering wheel. Refer to [ST-11, "Removal and Installation"](#).
2. Release pawls on the steering wheel rear finisher and remove.
3. Remove screws (A) and steering switches (1) from steering wheel (2).



INSTALLATION

Installation is in the reverse order of removal.

FRONT TWEETER

Removal and Installation

INFOID:0000000010198035

REMOVAL

1. Remove defroster grille. Refer to [VTL-12. "DEFROSTER GRILLE : Removal and Installation"](#).
2. Remove bolts and pull out the front tweeter.
3. Disconnect the harness connector from the front tweeter and remove.

INSTALLATION

Installation is in the reverse order of removal.

FRONT DOOR SPEAKER

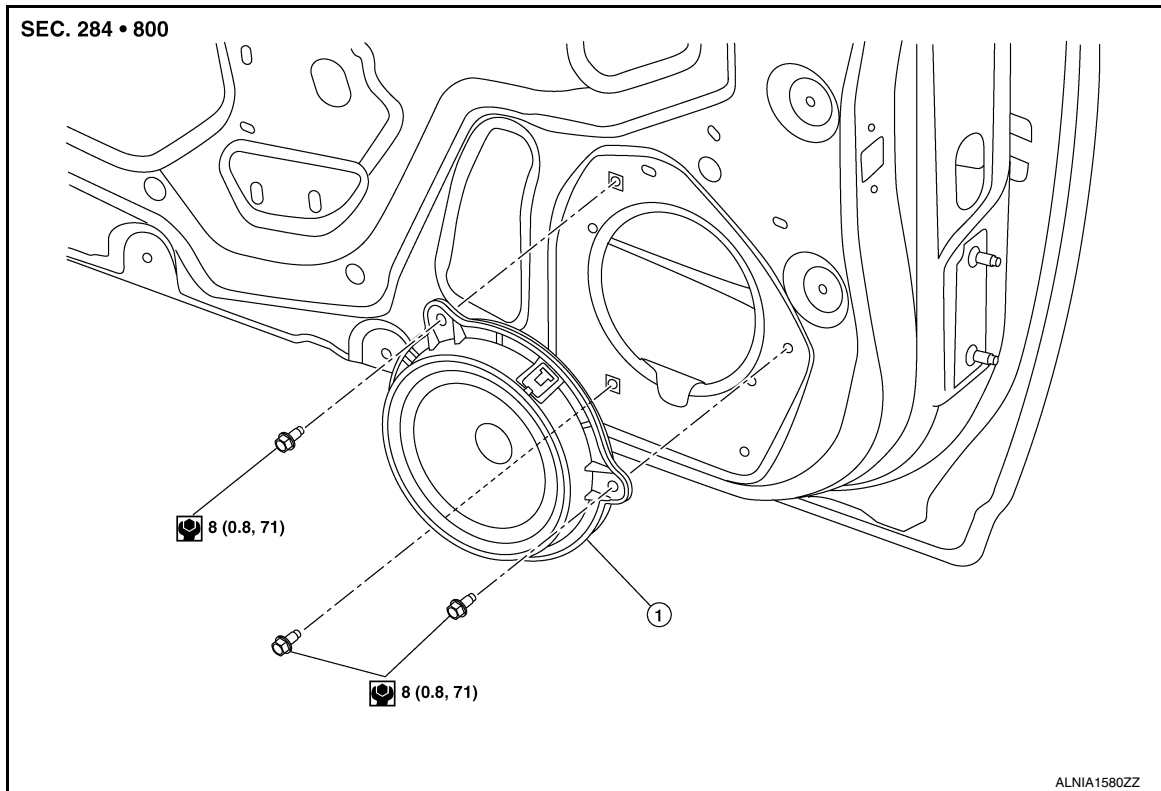
< REMOVAL AND INSTALLATION >

[DISPLAY AUDIO]

FRONT DOOR SPEAKER

Exploded View

INFOID:000000010198033



1. Front door speaker

Removal and Installation

INFOID:000000010198034

REMOVAL

1. Remove front door finisher. Refer to [INT-15. "Removal and Installation"](#).
2. Remove front door speaker bolts, then pull out front door speaker.
3. Disconnect the harness connector from front door speaker and remove.

INSTALLATION

Installation is in the reverse order of removal.

A
B
C
D
E
F
G
H
I
J
K
L
M
O
P

AV

REAR DOOR SPEAKER

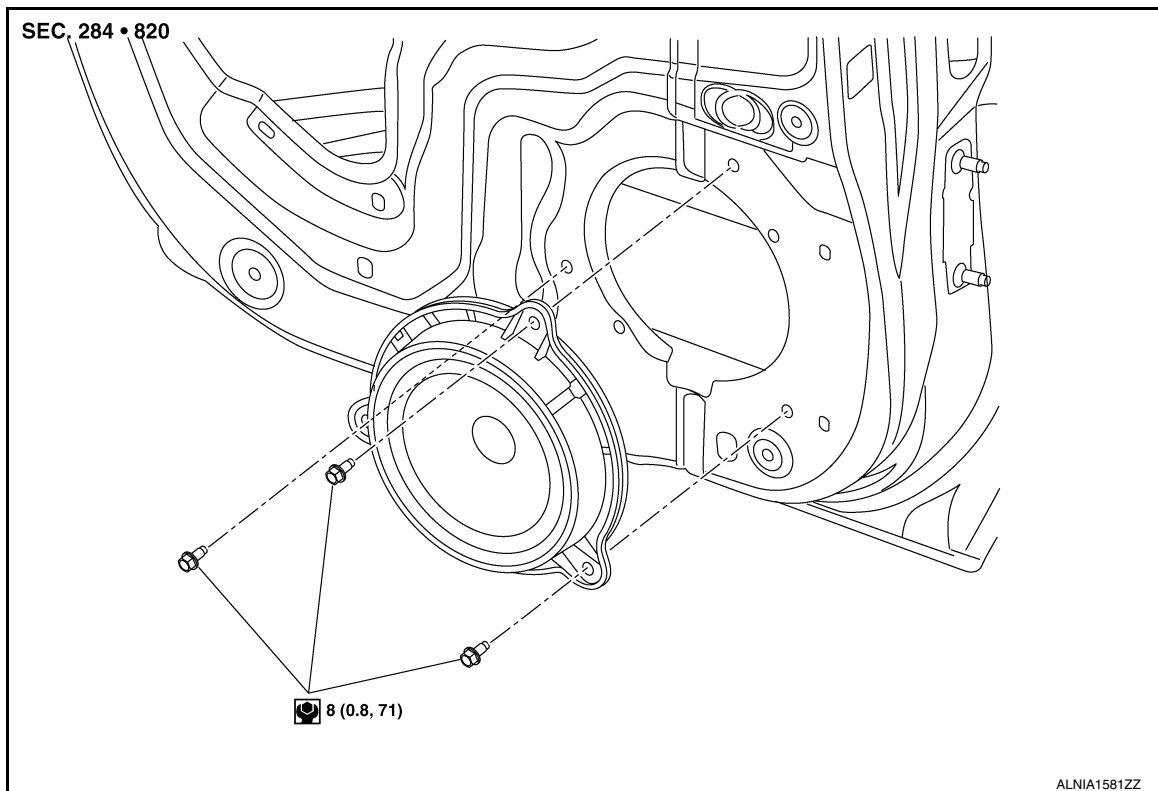
< REMOVAL AND INSTALLATION >

[DISPLAY AUDIO]

REAR DOOR SPEAKER

Exploded View

INFOID:0000000010198036



1. Rear door speaker

Removal and Installation

INFOID:0000000010198037

REMOVAL

1. Remove rear door finisher. Refer to [INT-18. "Removal and Installation"](#).
2. Remove rear door speaker bolts, then pull out rear door speaker.
3. Disconnect the harness connector from the rear door speaker and remove.

INSTALLATION

Installation is in the reverse order of removal.

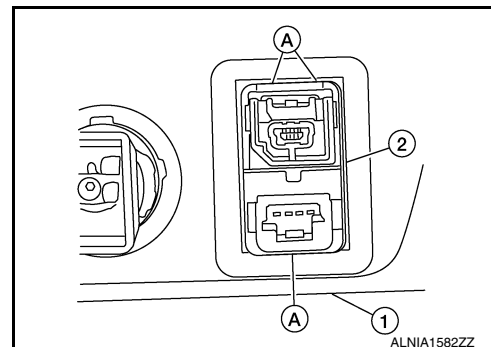
USB INTERFACE AND AUX IN JACK

Removal and Installation

INFOID:0000000010198038

REMOVAL

1. Remove cluster lid C. Refer to [IP-21. "Removal and Installation"](#).
2. Release the pawls (A) on the back of USB interface and AUX in jack (2), then remove from the front of cluster lid C (1).



INSTALLATION

Installation is in the reverse order of removal.

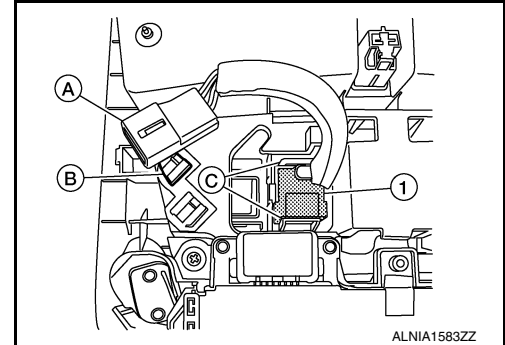
MICROPHONE

Removal and Installation

INFOID:000000010198042

REMOVAL

1. Remove the map lamp assembly. Refer to [INL-55, "Removal and Installation"](#).
2. Release harness connector (A) by sliding rearward to remove from the pawl (B).
3. Release pawls (C) and remove the microphone (1) from the front room/map lamp assembly.



INSTALLATION

Installation is in the reverse order of removal.

REAR VIEW CAMERA

Removal and Installation

INFOID:0000000010198043

REMOVAL

1. Remove the back door outer finisher. Refer to [EXT-50. "Removal and Installation"](#).
2. Release pawl, disconnect harness connector from rear view camera and remove.

INSTALLATION

Installation is in the reverse order of removal.

A
B
C
D
E
F
G
H
I
J
K
L
M
O
P

AV

AUDIO ANTENNA

Removal and Installation

INFOID:0000000010198047

REMOVAL

1. Remove the luggage side upper finisher (RH). Refer to [INT-36. "LUGGAGE SIDE UPPER FINISHER : Removal and Installation"](#).
2. Partially lower headlining (rear). Refer to [INT-30. "Removal and Installation"](#).
3. Disconnect harness connectors from antenna feeder.
4. Remove nut from audio antenna and remove.

INSTALLATION

Installation is in the reverse order of removal.

Audio antenna nut : 6.5 N·m (0.66 kg-m, 58 in-lb)

CAUTION:

If the audio antenna nut is not properly tightened, lower sensitivity of the antenna may be experienced. If the nut is over tightened, this will deform the roof panel.

ANTENNA FEEDER

< REMOVAL AND INSTALLATION >

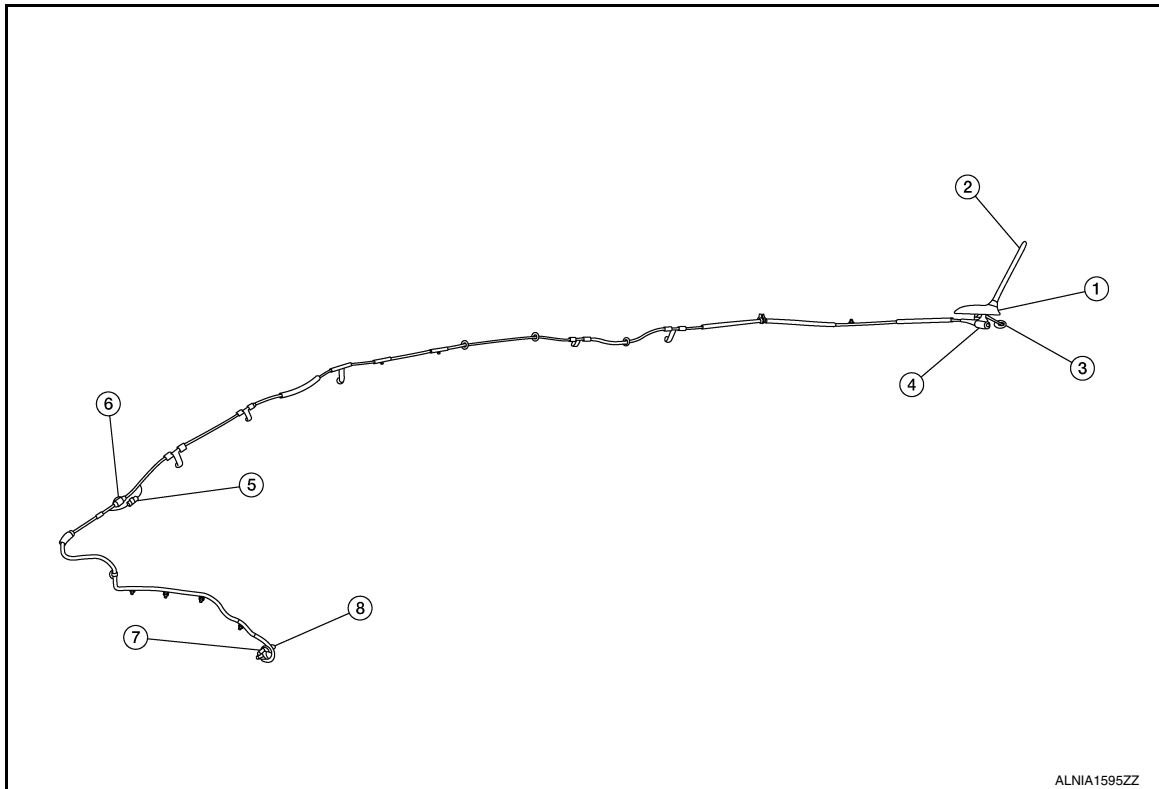
[DISPLAY AUDIO]

ANTENNA FEEDER

Feeder Layout

INFOID:0000000010270716

ANTENNA FEEDER LAYOUT



- | | | |
|--|----------------|---------------|
| 1. Antenna base (antenna amp. and satellite antenna) | 2. Rod Antenna | 3. M503 |
| 4. M502 | 5. M130, M501 | 6. M129, M500 |
| 7. M126 | 8. M124 | |

AV

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010197341

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Cautions in Removing Battery Terminal and AV Control Unit (Models with AV Control Unit)

INFOID:0000000010275668

CAUTION:

Remove battery terminal and AV control unit 30 seconds or more after turning the ignition switch OFF.

NOTE:

After the ignition switch is turned OFF, the AV control unit continues operating for approximately 30 seconds. Therefore, data corruption may occur if battery voltage is cut off within 30 seconds.

Precaution for Trouble Diagnosis

INFOID:0000000010275669

AV COMMUNICATION SYSTEM

- Do not apply voltage of 7.0 V or higher to the measurement terminals.
- Use the tester with its open terminal voltage being 7.0 V or less.
- Be sure to turn ignition switch OFF and disconnect the battery cable from the negative terminal before checking the circuit.

Precaution for Harness Repair

INFOID:0000000010197353

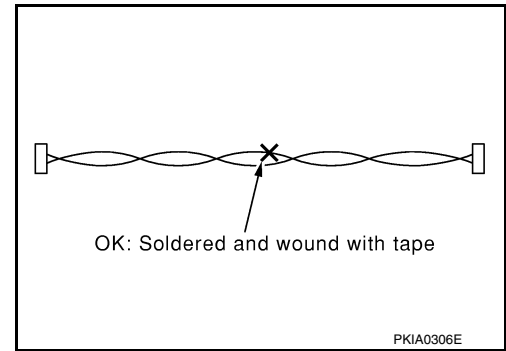
AV COMMUNICATION SYSTEM

PRECAUTIONS

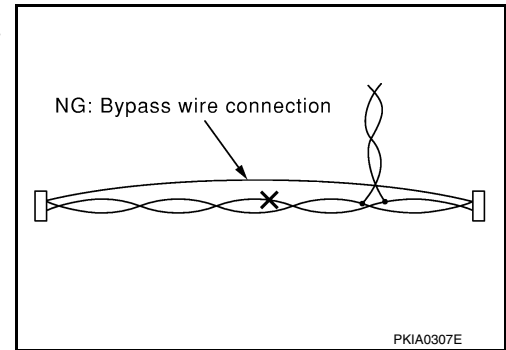
< PRECAUTION >

[NAVIGATION WITHOUT BOSE]

- Solder the repaired parts, and wrap with tape. [Frays of twisted line must be within 110 mm (4.33 in).]



- Do not perform bypass wire connections for the repair parts. (The spliced wire will become separated and the characteristics of twisted line will be lost.)



Precaution for Work

INFOID:000000010197354

- When removing or disassembling each component, be careful not to damage or deform it. If a component may be subject to interference, be sure to protect it with a shop cloth.
- When removing (disengaging) components with a screwdriver or similar tool, be sure to wrap the component with a shop cloth or vinyl tape to protect it.
- Protect the removed parts with a shop cloth and prevent them from being dropped.
- Replace a deformed or damaged clip.
- If a part is specified as a non-reusable part, always replace it with a new one.
- Be sure to tighten bolts and nuts securely to the specified torque.
- After installation is complete, be sure to check that each part works properly.
- Follow the steps below to clean components:
 - Water soluble dirt:
 - Dip a soft cloth into lukewarm water, wring the water out of the cloth and wipe the dirty area.
 - Then rub with a soft, dry cloth.
 - Oily dirt:
 - Dip a soft cloth into lukewarm water with mild detergent (concentration: within 2 to 3%) and wipe the dirty area.
 - Then dip a cloth into fresh water, wring the water out of the cloth and wipe the detergent off.
 - Then rub with a soft, dry cloth.
 - Do not use organic solvent such as thinner, benzene, alcohol or gasoline.
 - For genuine leather seats, use a genuine leather seat cleaner.

PREPARATION

< PREPARATION >

[NAVIGATION WITHOUT BOSE]

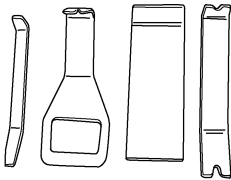
PREPARATION

PREPARATION

Special Service Tool

INFOID:0000000010197481

The actual shape of the tools may differ from those illustrated here.

Tool number (TechMate No.) Tool name	Description
— (J-46534) Trim Tool Set	Removing trim components
 AWJIA0483ZZ	

Commercial Service Tools

INFOID:0000000010197480

Tool name	Description
Power tool	Loosening nuts, screws and bolts
 PIIB1407E	

COMPONENT PARTS

< SYSTEM DESCRIPTION >

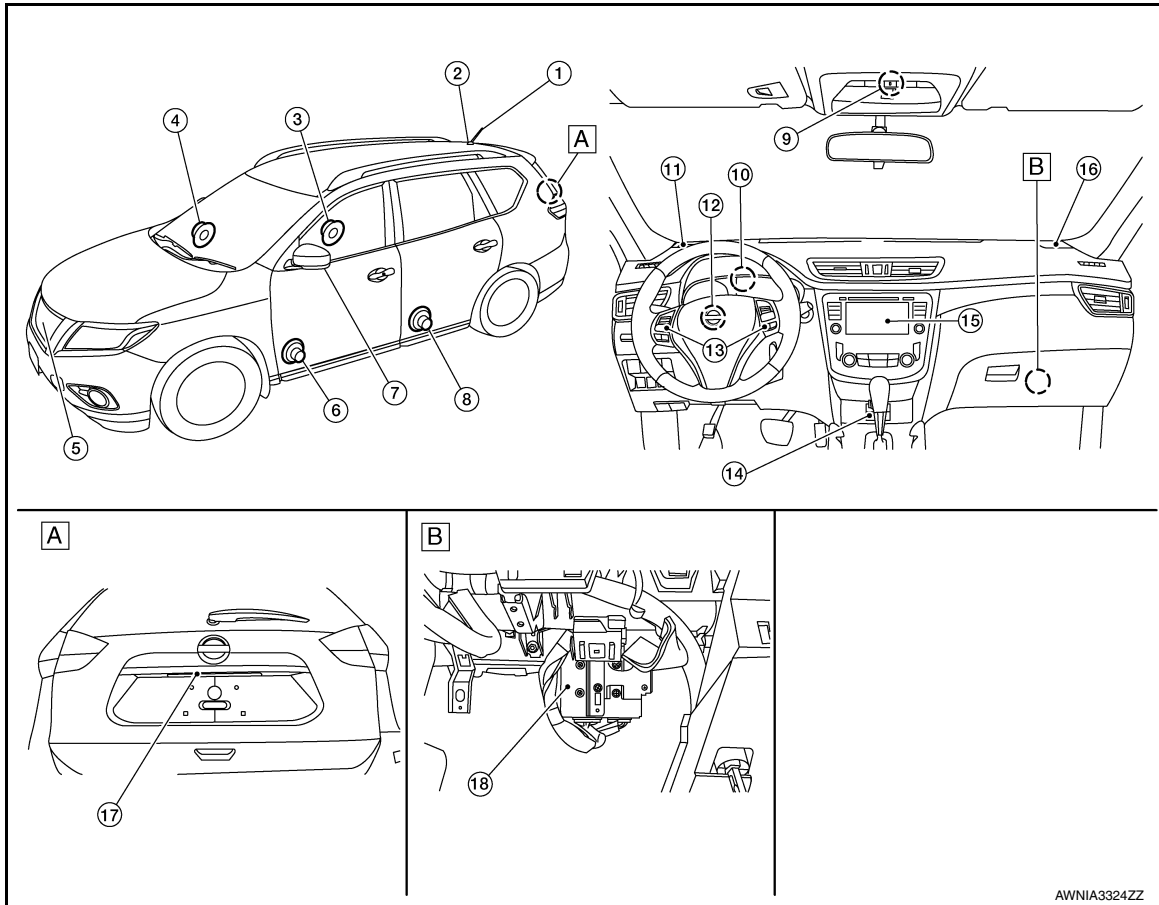
[NAVIGATION WITHOUT BOSE]

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:0000000010244496



A. Center of back door

B. View with glove box removed

No.	Component	Function
1.	Rod antenna	Refer to AV-232, "Rod Antenna, Antenna Amp., Satellite Antenna and Antenna Feeder" .
2.	Antenna base (antenna amp. and satellite antenna)	
3.	Rear door speaker RH	Refer to AV-229, "Speakers" .
4.	Front door speaker RH	
5.	Front camera	Refer to AV-231, "Front Camera" .
6.	Front door speaker LH	Refer to AV-229, "Speakers" .
7.	Side camera	Refer to AV-231, "Side Cameras" .
8.	Rear door speaker LH	Refer to AV-229, "Speakers" .
9.	Microphone	Refer to AV-230, "Microphone" .
10.	GPS antenna	Refer to AV-233, "GPS Antenna" .
11.	Front tweeter LH	Refer to AV-229, "Speakers" .
12.	Steering angle sensor	Refer to AV-232, "Steering Angle Sensor" .
13.	Steering switches	Refer to AV-230, "Steering Switches" .
14.	USB interface and AUX in jack	Refer to AV-230, "USB Interface and AUX In Jack" .

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[NAVIGATION WITHOUT BOSE]

No.	Component	Function
15.	AV control unit	Refer to AV-228, "AV Control Unit" .
16.	Front tweeter RH	Refer to AV-229, "Speakers" .
17.	Rear view camera	Refer to AV-231, "Rear View Camera" .
18.	Around View [®] * Monitor control unit	Refer to AV-231, "Around View Monitor Control Unit" .

*: Around View Monitor is a parking aid/convenience feature. Around View Monitor cannot completely eliminate blind spots. Around View Monitor may not detect every object and does not warn of moving objects. Always check surroundings before moving vehicle. Around View Monitor is not a substitute for proper backing procedures. Always turn to check what is behind you before backing up.

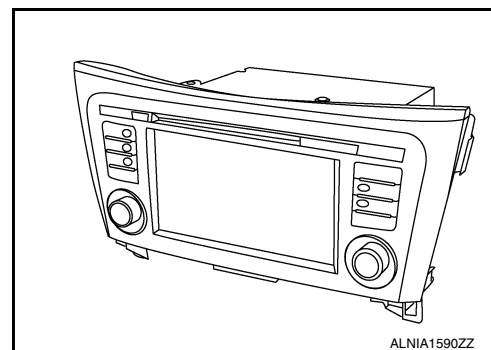
AV Control Unit

INFOID:0000000010244497

Description

- A 7-inch WVGA display, an AM/FM electronic tuner radio, CD drive, audio amplifier, camera controller and navigation unit are integrated into the AV control unit.
- The 7-inch display is a high resolution monitor that includes touch panel functions.
- Music files stored in iPod[®]/USB memory can be played using the separate USB interface.
- Music files stored in an external audio device can be played using the separate AUX in jack.

*: iPod[®] is a registered trademark of Apple, Inc. All rights reserved.

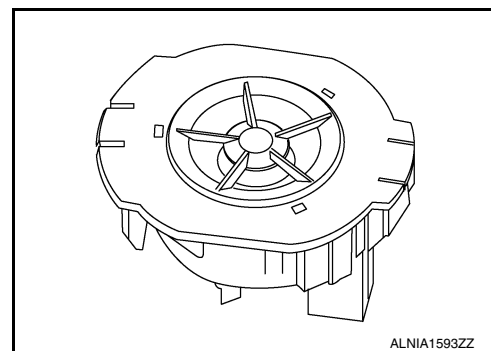


INFOID:0000000010244498

Speakers

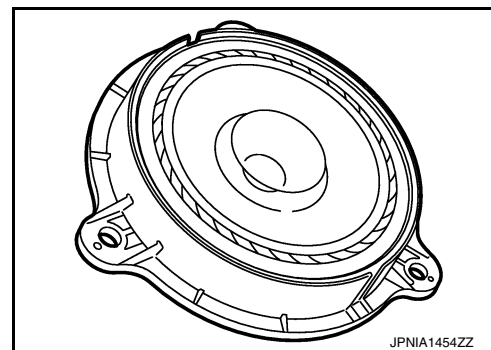
FRONT TWEETER

- 2.5 cm (1 in) tweeters are installed in the top front corners of the instrument panel.
- Sound signals are input from the AV control unit to output high range sounds.



FRONT DOOR SPEAKER

- 16.5 cm (6.5 in) speakers are installed in the bottom of the front doors.
- Sound signals are input from the AV control unit to output high, mid and low range sounds.



REAR DOOR SPEAKER

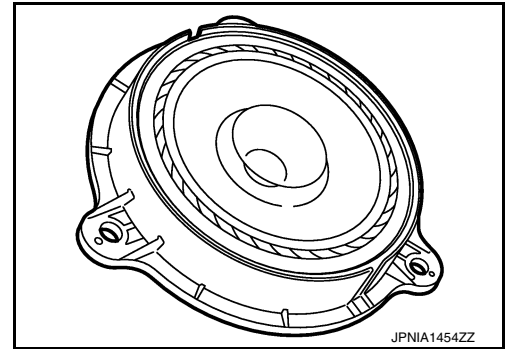
- 16.5 cm (6.5 in) speakers are installed in the bottom of the rear doors.

COMPONENT PARTS

< SYSTEM DESCRIPTION >

- Sound signals are input from the AV control unit to output high, mid and low range sounds.

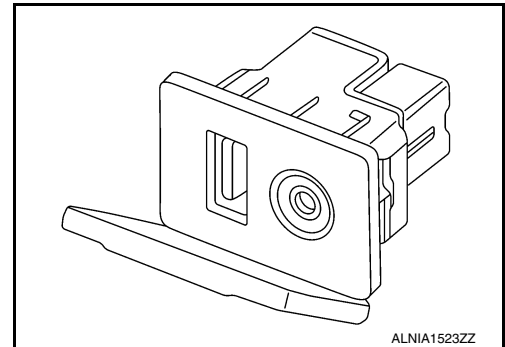
[NAVIGATION WITHOUT BOSE]



INFOID:0000000010244499

USB Interface and AUX In Jack

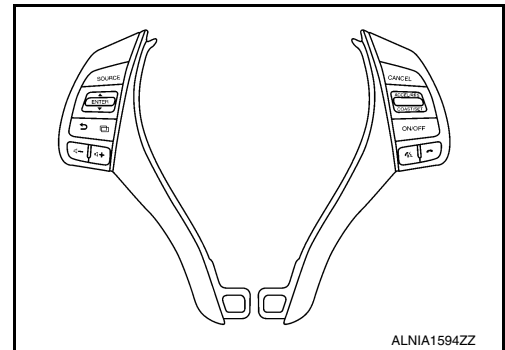
- USB Interface and AUX in jack is installed in the console.
- iPod® and USB memory can be connected to the AV control unit through the USB interface.
- An external audio device can be connected to the AV control unit through the AUX in jack.



INFOID:0000000010244500

Steering Switches

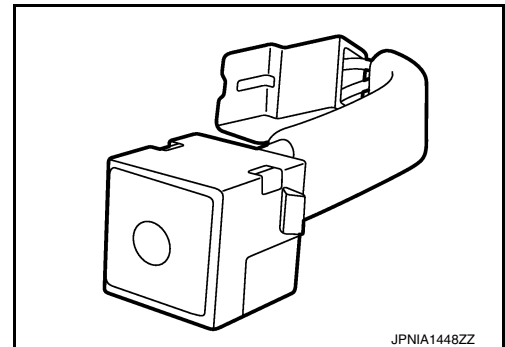
- Steering switches are installed in the steering wheel.
- Operations for audio and hands-free phone are possible.
- Switches are connected to the combination meter.
- Combination meter is connected to the AV control unit via AV communication.



INFOID:0000000010244501

Microphone

- The microphone is installed in the roof in the map lamp assembly.
- Power is supplied from the AV control unit.

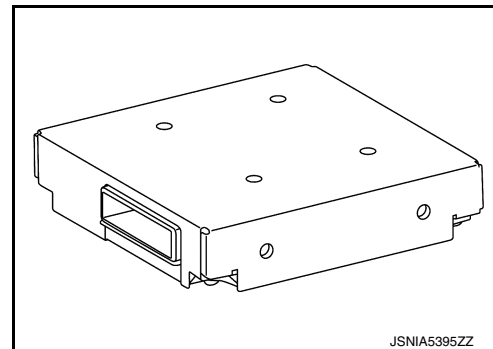


A
B
C
D
E
F
G
H
I
J
K
L
M
AV
O
P

Around View Monitor Control Unit

INFOID:000000010244502

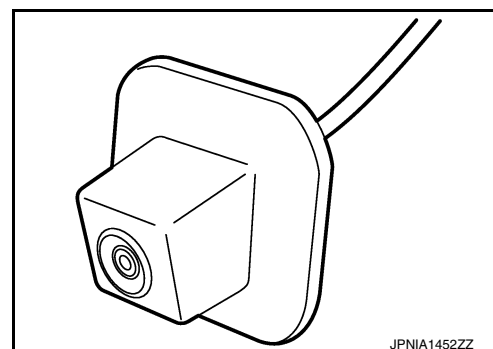
- The around view monitor control unit is installed behind the glove box.
- Vehicle width guide lines, predicted course line, vehicle front guiding line and vehicle side line, and vehicle icon are displayed and combined with camera images.



INFOID:000000010244503

Rear View Camera

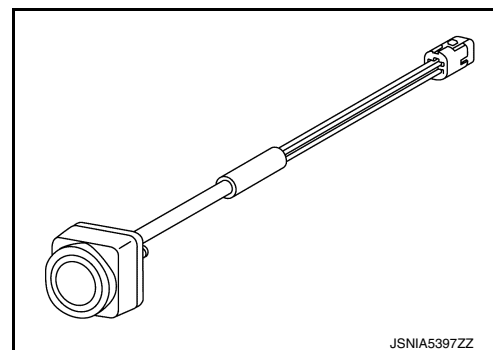
- The rear view camera is installed in the back door finisher.
- Power is supplied from the around view monitor control unit.



INFOID:000000010244504

Side Cameras

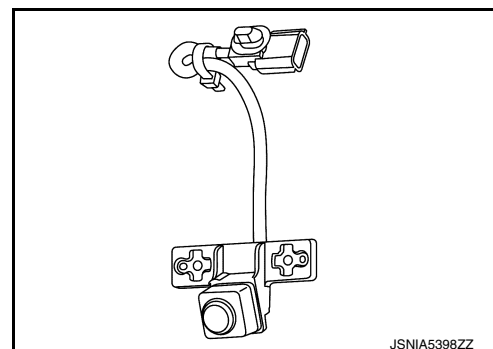
- The side cameras are installed in the door mirrors.
- Power is supplied from the around view monitor control unit.



INFOID:000000010244505

Front Camera

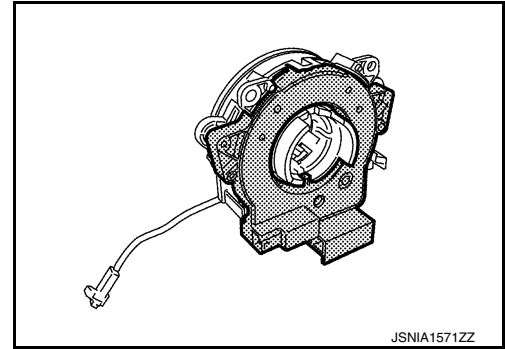
- The front camera is installed in the front grille.
- Power is supplied from the around view monitor control unit.



Steering Angle Sensor

INFOID:000000010244506

- Steering sensor is installed to the spiral cable.
- Steering angle sends the steering signal necessary for predictive course line via CAN communication.

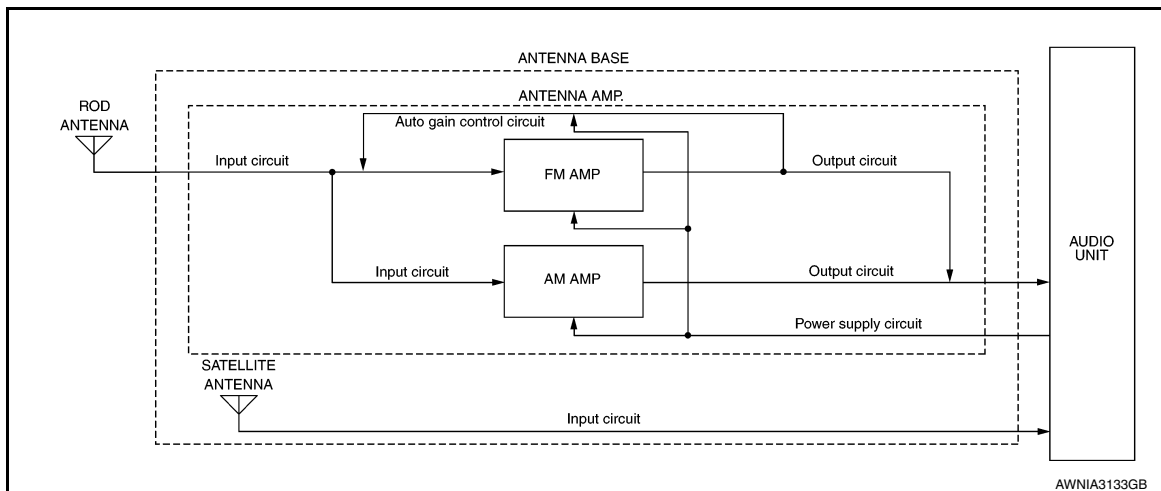


Rod Antenna, Antenna Amp., Satellite Antenna and Antenna Feeder

INFOID:000000010244507

RADIO ANTENNA AND SATELLITE ANTENNA

AM/FM radio rod antenna, antenna base and satellite antenna are located on the rear of the roof. The antenna amp. and satellite antenna are built into the antenna base.

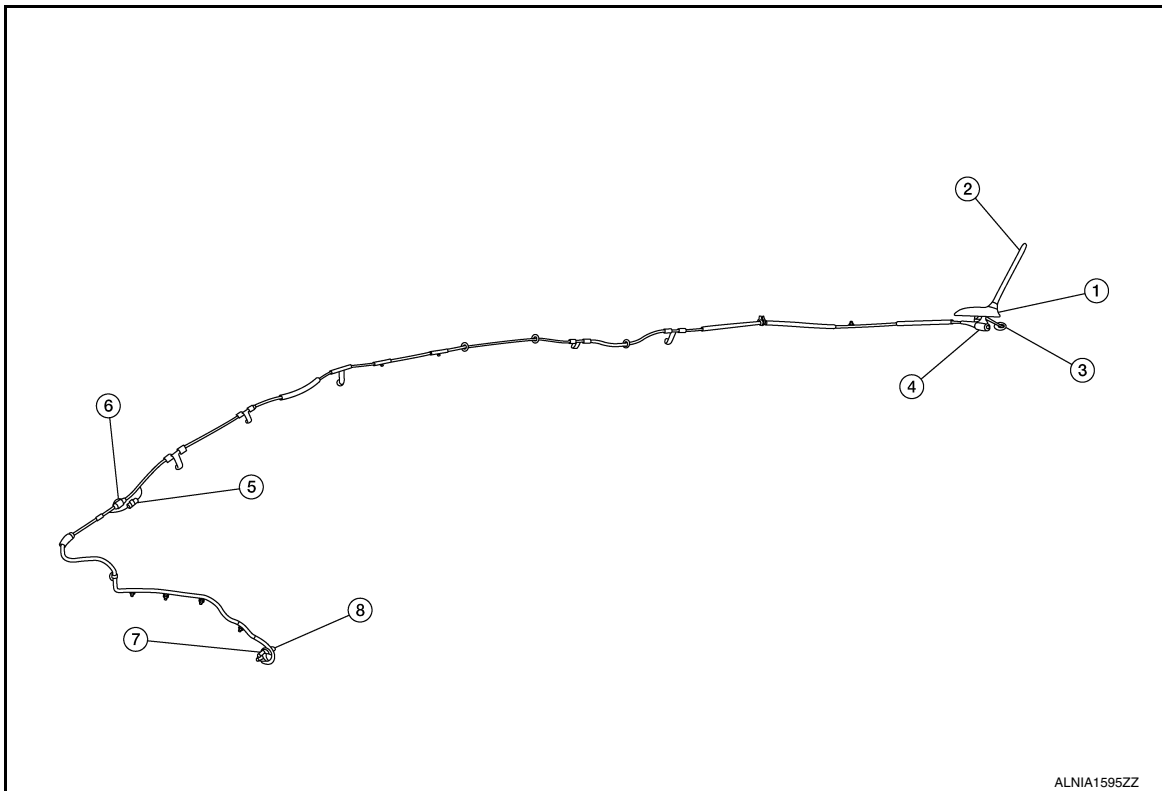


ANTENNA FEEDER LAYOUT

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[NAVIGATION WITHOUT BOSE]

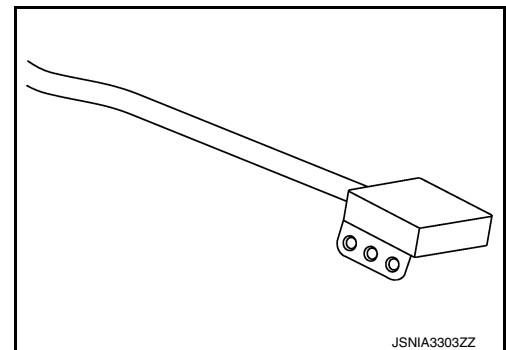


- | | | |
|--|----------------|---------------|
| 1. Antenna base (antenna amp. and satellite antenna) | 2. Rod Antenna | 3. M503 |
| 4. M502 | 5. M130, M501 | 6. M129, M500 |
| 7. M142 | 8. M139 | |

GPS Antenna

INFOID:0000000010244508

- GPS antenna is installed in the instrument panel, behind the combination meter.
- Power is supplied from the AV control unit.



INFOID:0000000010244509

SD Card

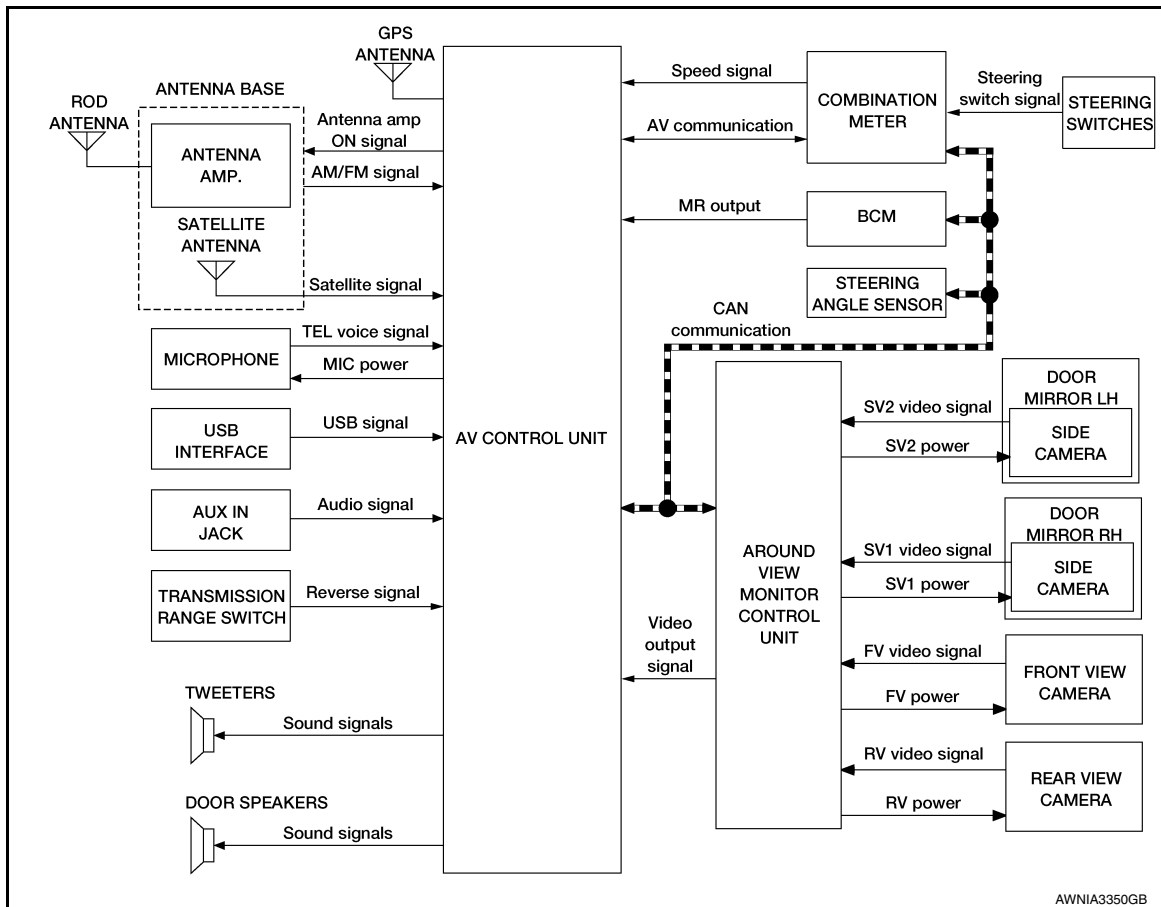
- Map data is memorized in the SD card.
- Map data is sent to the AV control unit from the SD slot.

SYSTEM

System Description

INFOID:000000010244510

SYSTEM DIAGRAM



AUDIO SYSTEM

The audio system consists of the following component:

- AV control unit
- Front tweeters
- Front door speakers
- Rear door speakers
- USB interface
- AUX in jack
- Steering switches
- Antenna base (rod antenna, antenna amp. and satellite antenna)

When the audio system is on, AM/FM signals received by the rod antenna are amplified by the antenna amp. and sent to the AV control unit. The AV control unit then sends audio signals to the front tweeters, front door speakers and rear door speakers.

Refer to Owner's Manual for audio system operating instructions.

NAVIGATION SYSTEM

Description

- The navigation system can be operated by control panel of the AV control unit and display (touch panel) of the AV control unit.
- Guide sound during the operation of the navigation system is output from AV control unit to front tweeters.
- AV control unit calculates the vehicle location based on the signals from GYRO (angle speed sensor), vehicle sensor, and GPS satellite, as well as the map data from map SD-card. The vehicle location is displayed on the AV control unit.

POSITION DETECTION PRINCIPLE

SYSTEM

< SYSTEM DESCRIPTION >

[NAVIGATION WITHOUT BOSE]

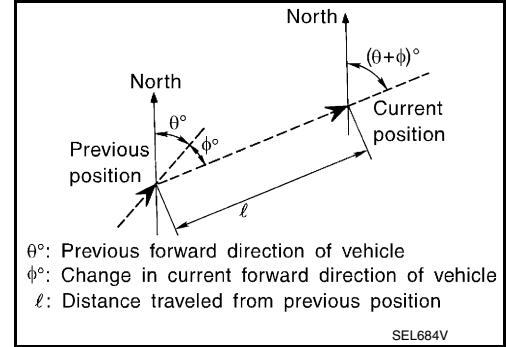
The navigation system periodically calculates the vehicle's current position according to the following three signals:

- Travel distance of the vehicle as determined by the vehicle speed sensor
- Turning angle of the vehicle as determined by the gyroscope (angular velocity sensor)
- Direction of vehicle travel as determined by the GPS antenna (GPS information)

The current position of the vehicle is then identified by comparing the calculated vehicle position with map data read from the map SD-card (map-matching), and indicated on the screen as a vehicle mark. More accurate data is judged and used by comparing vehicle position detection results found by the GPS with the result by map-matching.

The current vehicle position will be calculated by detecting the distance the vehicle moved from the previous calculation point and its direction.

- Travel distance
Travel distance calculations are based on the vehicle speed sensor input signal. Therefore, the calculation may become incorrect as the tires wear down. To prevent this, an automatic distance correction function has been adopted.
- Travel direction
Change in the travel direction of the vehicle is calculated by a gyroscope (angular velocity sensor) and a GPS antenna (GPS information). They have both advantages and disadvantages.



Type	Advantage	Disadvantage
Gyroscope (angular velocity sensor)	Can detect the vehicle's turning angle quite accurately.	Direction errors may accumulate when vehicle is driven for long distances without stopping.
GPS antenna (GPS information)	Can detect the vehicle's travel direction (North/South/East/West).	Correct direction cannot be detected when vehicle speed is low.

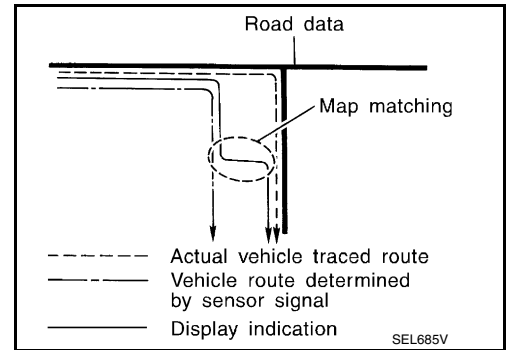
More accurate traveling direction is detected because priorities are set for the signals from these two devices according to the situation.

MAP-MATCHING

Map-matching compares a current location detected by the method in the "Location Detection Principle" with a road map data from map SD-card.

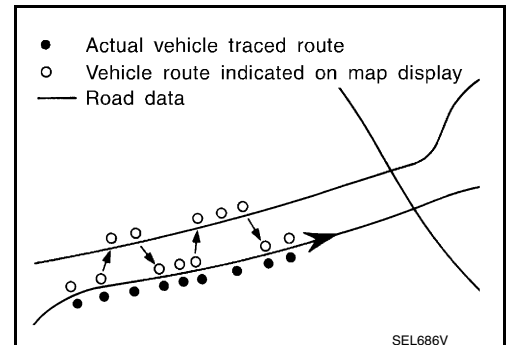
NOTE:

The road map data is based on data stored in the map SD-card.



The vehicle position may not be corrected under the following circumstances and after driving for a certain time when GPS information is difficult to receive. In this case, the vehicle mark on the display must be corrected manually.

- In map-matching, alternative routes to reach the destination will be shown and prioritized, after the road on which the vehicle is currently driven has been judged and the vehicle mark has been repositioned. Alternative routes will be shown in different order of priority, and the incorrect road can be avoided if there is an error in distance and/or direction. Routes are of the same priority if two roads are running in parallel. Therefore, the vehicle mark may appear on either of them alternately, depending on maneuvering of the steering wheel and configuration of the road.

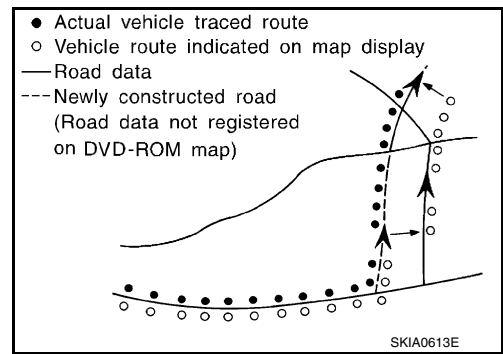


SYSTEM

< SYSTEM DESCRIPTION >

[NAVIGATION WITHOUT BOSE]

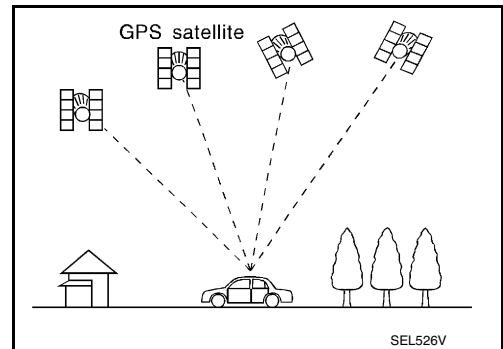
- Map-matching does not function correctly when a road on which the vehicle is driving is new and not recorded in the map SD-card, or when road pattern stored in the map data and the actual road pattern are different due to repair. The map-matching function may find another road and position the vehicle mark on it when driving on a road not present in the map. Then, the vehicle mark may change to it when the correct road is detected.
- Effective range for comparing the vehicle position and travel direction calculated by the distance and direction with the road data read from the map SD-card is limited. Therefore, correction by map-matching is not possible when there is an excessive gap between current vehicle position and the position on the map.



GPS (Global Positioning System)

GPS (Global Positioning System) is developed for and is controlled by the US Department of Defense. The system utilizes GPS satellites (NAVSTAR), transmitting out radio waves while flying on an orbit around the earth at an altitude of approximately 21,000 km (13,049 mile).

The receiver calculates the travel position in three dimensions (latitude/longitude/altitude) according to the time lag of the radio waves that four or more GPS satellites transmit (three-dimensional positioning). The GPS receiver calculates the travel position in two dimensions (latitude/longitude) with the previous altitude data if the GPS receiver receives only three radio waves (two-dimensional positioning). GPS position correction is not performed while stopping the vehicle.



Accuracy of the GPS will deteriorate under the following conditions:

- In two-dimensional positioning, GPS accuracy will deteriorate when altitude of the vehicle position changes.
- The position of GPS satellite affects GPS detection precision. The position detection may not be precisely performed.
- The position detection is not performed if GPS receiver does not receive radio waves from GPS satellites. (Inside a tunnel, parking in a building, under an elevated highway etc.) GPS receiver may not receive radio waves from GPS satellites if any object is placed on the GPS antenna.

NOTE:

- The detection result has an error of approximately 10 m (32.81 ft) even with a high-precision three dimensional positioning.
- There may be cases when the accuracy is lowered and radio waves are stopped intentionally because the GPS satellite signal is controlled by the US trace control center.

USB INTERFACE

- iPod® or music files in USB memory can be played.
- Sound signals are transmitted from USB interface to the AV control unit and output to each speaker.
- iPod® is recharged when connected to USB interface.

AUX IN JACK

- Sound can be output from an external device by connecting a device to the AUX in jack.
- AUX sound signals are transmitted to each speaker via AV control unit.

SPEED SENSITIVE VOLUME SYSTEM

- Volume level of this system goes up and down automatically in proportion to the vehicle speed.
- The control level can be selected by the customer.

HANDS-FREE PHONE SYSTEM

- Bluetooth® control is built into AV control unit.
- The connection between cellular phone and AV control unit is performed with Bluetooth® communication.
- The voice guidance signal is input from the AV control unit and output to the front speakers when operating the cellular phone.

When A Call Is Originated

SYSTEM

< SYSTEM DESCRIPTION >

[NAVIGATION WITHOUT BOSE]

- Spoken voice sound output from the microphone (microphone signal) is input to AV control unit.
- AV control unit outputs to cellular phone with Bluetooth® communication as a TEL voice signal.
- Voice sound is then heard at the other party.

When Receiving A Call

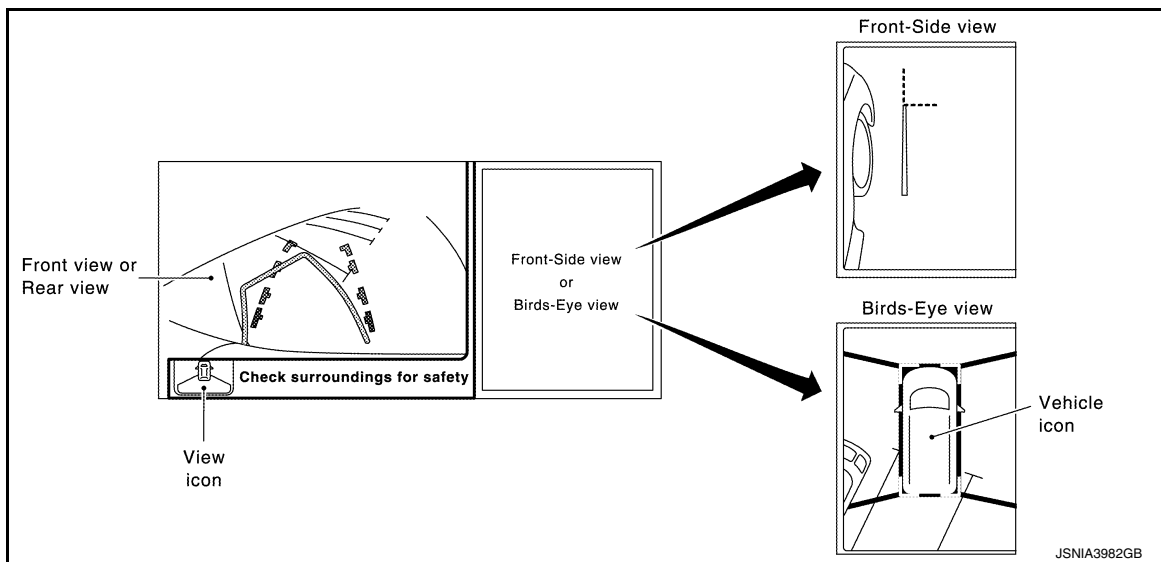
- Voice sound is input to own cellular phone from the other party.
- TEL voice signal is input to AV control unit by establishing Bluetooth® communication from cellular phone, and the signal is output to front speakers.

AROUND VIEW MONITOR FUNCTION

- This system is equipped with wide-angle cameras on the front, rear and right and left door mirrors.
- Images from front view, rear view, front-side view (RH side), and birds-eye view are displayed to monitor the vehicle surroundings.
- Around view monitor control unit expands the image received from each camera to create each view.
- In front view and rear view, the vehicle width, distance lines and predictive course lines are displayed.
- In front-side view, the vehicle distance guiding line and vehicle width guiding line are displayed.
- Birds-eye view converts the images from the cameras into an overhead view and displays the status of the vehicle on the display. The vehicle icon that is displayed in the birds-eye view is depicted by the around view monitor control unit.

Display

The around view monitor combines and displays travel direction view (front or rear), front-side view and birds-eye view.



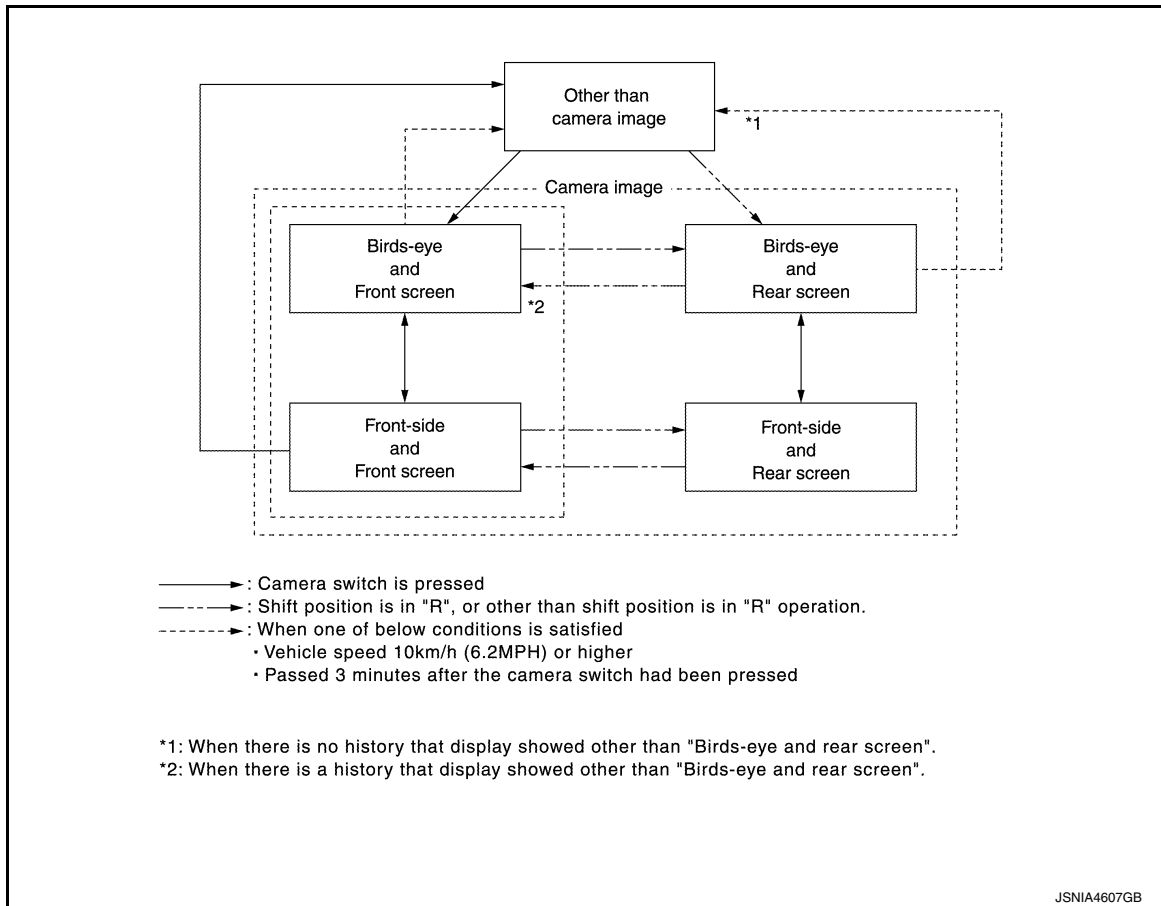
Operation

- The around view monitor operates by pressing the CAMERA switch on the AV control unit or by shifting the selector lever to the R (reverse) position.
- When the selector lever is in any position other than R (reverse) and the CAMERA switch is pressed, the screen displays front travel direction view and birds-eye view. Pressing the CAMERA switch again changes birds-eye view to front-side view.
- When the selector lever is placed in R (reverse), the screen displays rear travel direction view and birds-eye view. Pressing the CAMERA switch changes birds-eye view to front-side view.
- In birds-eye view, the blind spot area is displayed in black to show the border of the camera images. In addition, red fixed lines are displayed in the 4 corners of the vehicle icon. After pressing the CAMERA switch for the first time or placing the selector lever in R (reverse) for the first time, the blind spot area is highlighted in yellow for 3 seconds and the red fixed lines blink five times.
- With the selector lever in any position other than R (reverse), the around view monitor screen display is cancelled 3 minutes after pressing the CAMERA switch. The screen returns to the AV control unit display.
- With the selector lever in R (reverse) position, the around view monitor screen display remains on constantly. To return to the AV control unit display, place the selector lever in any position other than R (reverse).
- If camera image calibration is incomplete, the applicable camera position is indicated as an error on the birds-eye view display.

NOTE:

Calibration is necessary when replacing each camera or when replacing around view monitor control unit.

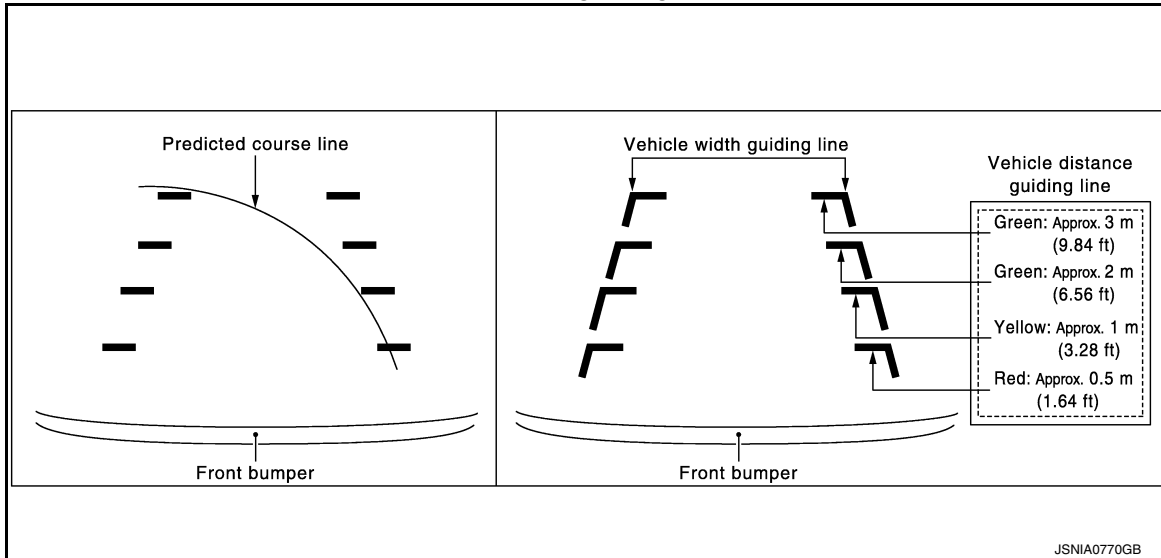
Around view monitor screen transition



Front View

- The front view image improves the visibility of obstacles in front of the vehicle and assists driving by displaying images from birds-eye view and front-side view.
- The front view image displays the vehicle width guiding line and vehicle distance guiding line, in addition to the predictive course line according to the steering angle.
- If the steering angle is within approximately 90 degrees, the predictive course lines on the left/right side are displayed. If the steering angle exceeds approximately 90 degrees, only the predictive course line on the outside is displayed (opposite side of steering direction).
- The around view monitor control unit receives the steering angle signal from steering angle sensor via CAN communication, and controls the direction and distance of the predictive course line.
- ON/OFF setting of predictive course line can be performed using CONSULT.

Front view guiding lines



Rear View

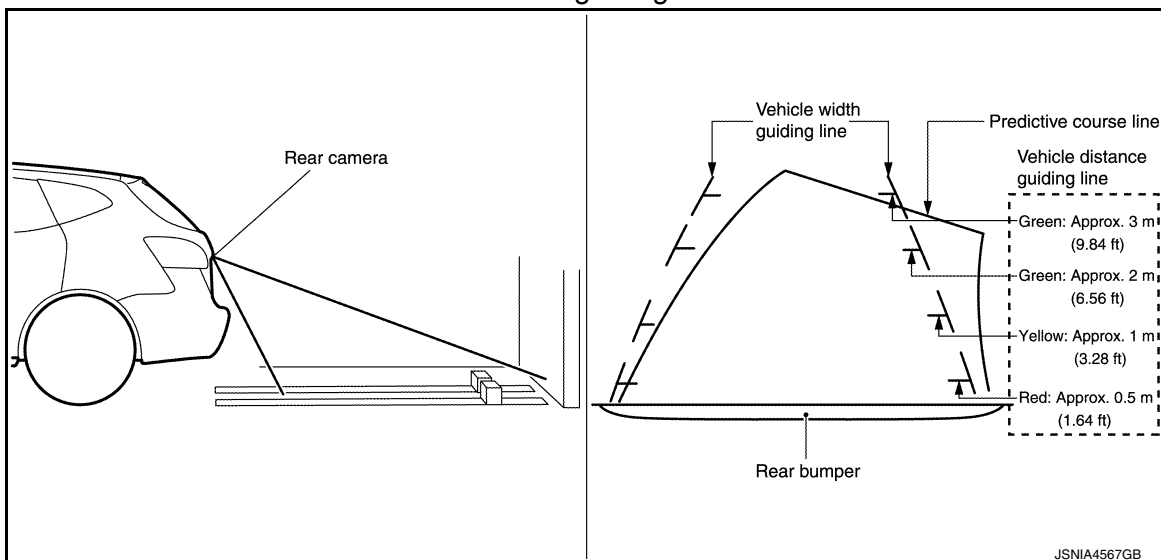
- The rear view image improves the visibility of obstacles in the rear of the vehicle and assists backing and parking by displaying images from birds-eye view and front side view.
- The rear view image displays the vehicle width guiding line and vehicle distance guiding line, in addition to the predictive course line according to the steering angle.

NOTE:

The predictive course line is not displayed at the steering neutral position.

- The around view monitor control unit receives the steering angle signal from steering angle sensor via CAN communication, and controls the direction and distance of the predictive course line.
- ON/OFF setting of predictive course line can be performed using CONSULT.

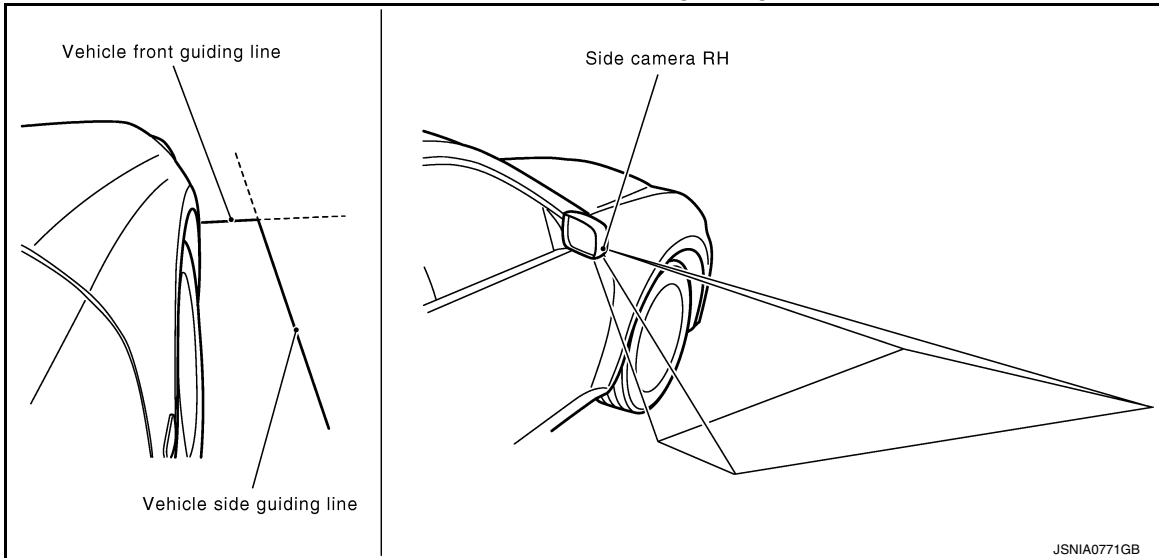
Rear view guiding lines



Front-Side View

- The front-side view image improves the visibility of obstacles in the front RH side of the vehicle and assists backing and parking.
- The front-side view image displays the vehicle distance guiding line and vehicle width guiding line.

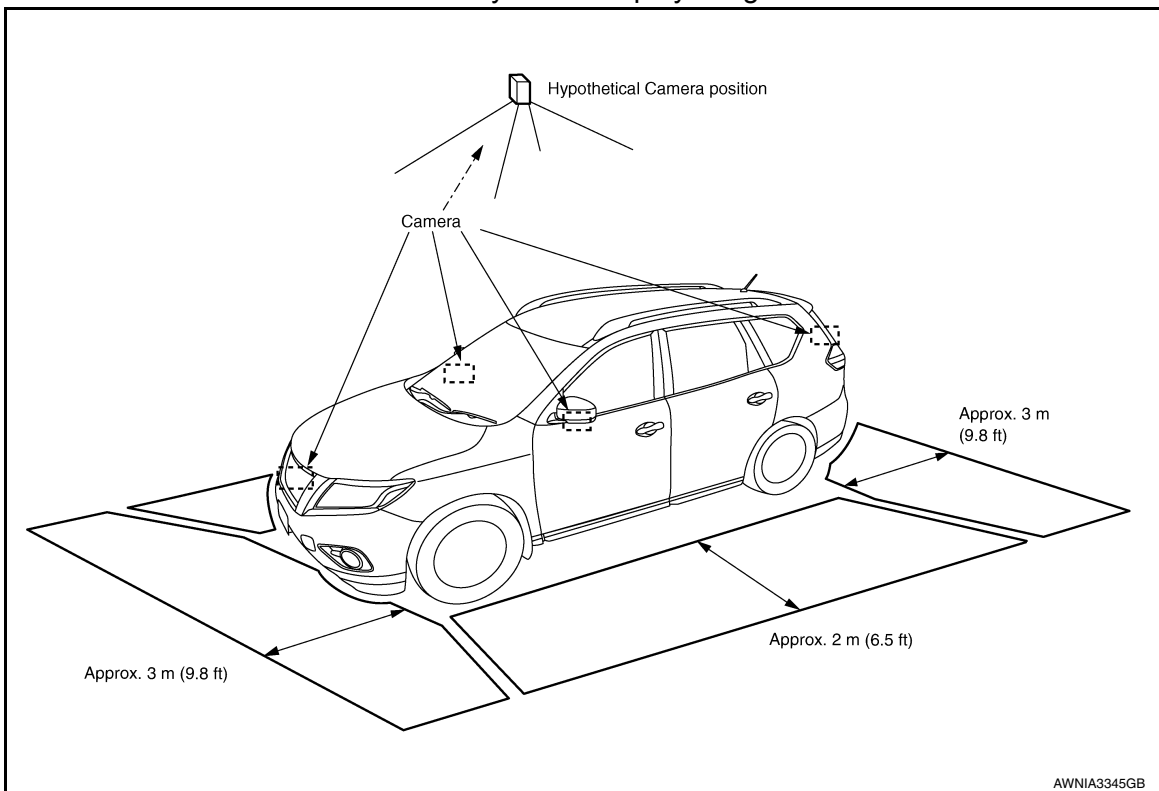
Front-side view area and guiding line



Birds-Eye View

- The birds-eye view image improves the visibility of obstacles all around the vehicle and assists backing and parking.
- The images from the four cameras are converted into an overhead view, and the surroundings of the vehicle are displayed.
- The blind spot area is displayed on the image to specify the boundary of the four cameras.

Birds-Eye view display image

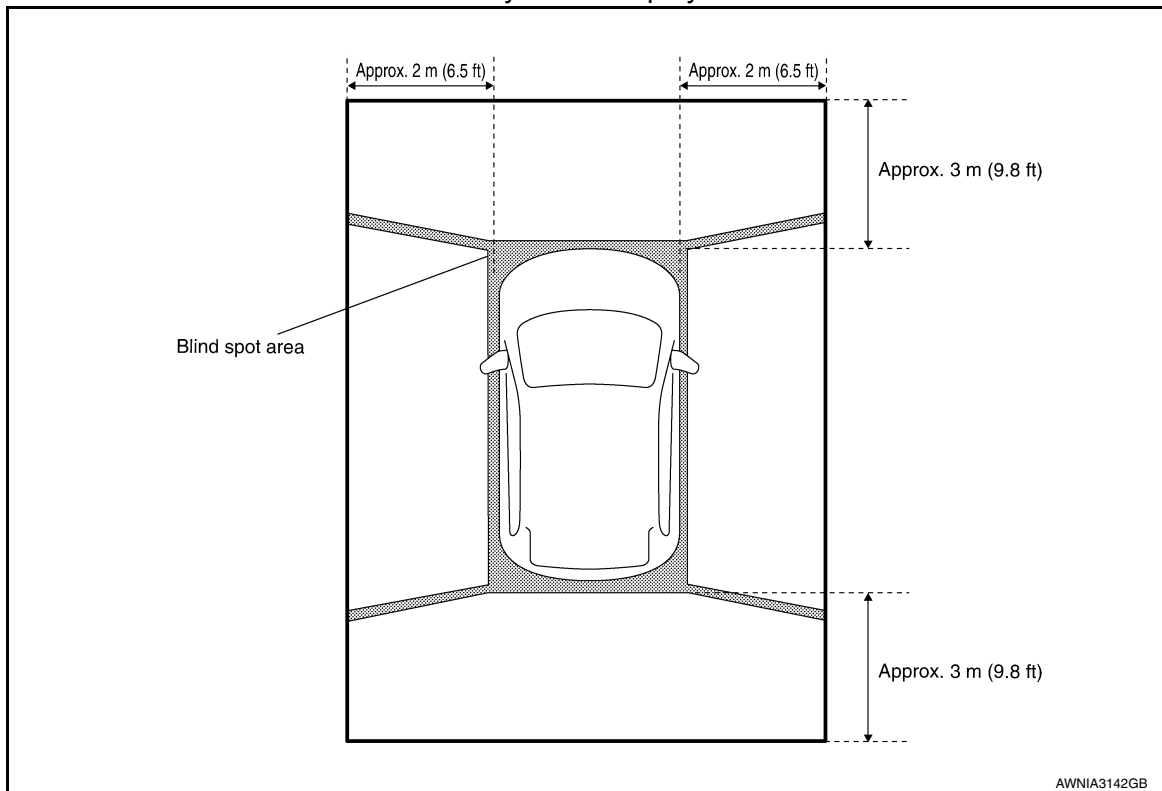


SYSTEM

< SYSTEM DESCRIPTION >

[NAVIGATION WITHOUT BOSE]

Birds-Eye view display area



DIAGNOSIS SYSTEM (AV CONTROL UNIT)

< SYSTEM DESCRIPTION >

[NAVIGATION WITHOUT BOSE]

DIAGNOSIS SYSTEM (AV CONTROL UNIT)

Description

INFOID:0000000010244511

The AV control unit on board diagnosis performs the functions listed in the table below:

Mode		Item	Content
Version		—	Version data of the AV control unit is displayed.
User Configuration	Touch Display Calibration	—	Allows correction of the position detection accuracy of the touch panel.
Radio	FM monitor	—	Monitors the dynamic values of the current tuner
	AM monitor	—	
	SXM monitor	—	Version data is displayed.
System State	Running System Status	• SD card slot Access • Power Supply • Speed Signal • Direction Signal • Illumination Signal • GPS Antenna • GPS Tracking • Satellites Visible • Satellites Tracked • Microphone Current • Steering wheel key • Radio Antenna • SXM Antenna • USB Device • iPod® firmware version • BT Status	The current system status is displayed.
	Speaker Test 4kHz	—	This activates a sequence of test tone outputs to the audio circuits one after the other for 1 second.
	Speaker Test 100Hz		
	Display-Test	—	This provides a test sequence where test displays (plain colored display: e.g. white, black, red, blue, green) are shown one after the other. The respective color is shown for an indicated period of time (parameter). After the display test, the design of the display previously available is stored. While the screen shows a plain colored display, a pixel malfunction may be detected.
Self Test		• SD Card Access • BT Module Access • Radio Antenna • GPS Antenna • SXM Antenna	A system self test is executed and the results are stored into the error memory.

Perform CONSULT diagnosis if the AV control unit on board diagnosis does not start or the screen does not display anything.

On Board Diagnosis Function

INFOID:0000000010244512

METHOD OF STARTING

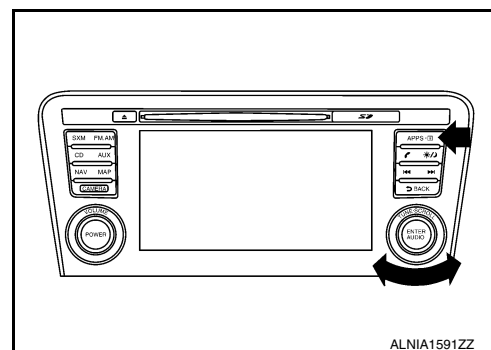
1. Turn the ignition ON.

DIAGNOSIS SYSTEM (AV CONTROL UNIT)

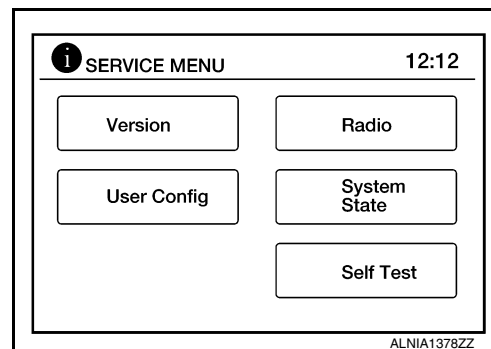
< SYSTEM DESCRIPTION >

[NAVIGATION WITHOUT BOSE]

2. While pressing the APPS button, turn the TUNE-SCROLL dial counterclockwise 3 or more clicks, then clockwise 3 or more clicks, then counterclockwise 3 or more clicks. Shifting from current screen to previous screen is performed by pressing BACK button.



3. The trouble diagnosis initial screen is displayed, and Version, User Config, Radio, System State or Self Test can be selected.



CONSULT Function

INFOID:000000010244513

CONSULT FUNCTIONS

CONSULT performs the following functions via communication with the AV control unit.

Direct Diagnostic Mode	Description
Ecu Identification	The AV control unit part number is displayed.
Self Diagnostic Result	The AV control unit self diagnostic results are displayed.
Data Monitor	The AV control unit input/output data is displayed in real time.
Configuration	• The vehicle specification can be read and saved. • The vehicle specification can be written when replacing AV control unit.
CAN Diag Support Mntr	• The result of transmit/receive diagnosis of AV communication is displayed. • The result of transmit/receive diagnosis of CAN communication is displayed.

ECU IDENTIFICATION

The part number of AV control unit is displayed.

SELF DIAGNOSTIC RESULT

Refer to [AV-100, "DTC Index"](#).

DATA MONITOR

Monitor Item [Unit]	Description
VHCL SPD SIG [On/Off]	Indicates vehicle speed signal received from combination meter on CAN communication line.
ILLUM SIG [On/Off]	Indicates condition of illumination signal for the AV control unit.
IGN SIG [On/Off]	Indicates condition of ignition signal.
REV SIG [On/Off]	Indicates condition of reverse signal received from BCM.

CONFIGURATION

Refer to [AV-133, "CONFIGURATION \(AV CONTROL UNIT\) : Description"](#).

CAN DIAG SUPPORT MNTR

Refer to [LAN-14, "CAN Diagnostic Support Monitor"](#).

DIAGNOSIS SYSTEM (AROUND VIEW MONITOR CONTROL UNIT)

< SYSTEM DESCRIPTION >

[NAVIGATION WITHOUT BOSE]

DIAGNOSIS SYSTEM (AROUND VIEW MONITOR CONTROL UNIT) WITHOUT DRIVER ASSISTANCE SYSTEM

WITHOUT DRIVER ASSISTANCE SYSTEM : CONSULT Function

INFOID:0000000010244514

CONSULT FUNCTIONS

CONSULT performs the following functions via communication with the around view monitor control unit.

Direct Diagnostic Mode	Description
Ecu Identification	The around view monitor control unit part number is displayed.
Self Diagnostic Result	The around view monitor control unit self diagnostic results are displayed.
Data Monitor	The around view monitor control unit input/output data is displayed in real time.
Work support	The settings for around view monitor control unit functions can be changed.
Configuration	- The vehicle specification can be read and saved. - The vehicle specification can be written when replacing around view monitor control unit.
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.

ECU IDENTIFICATION

The part number of around view monitor control unit is displayed.

SELF DIAGNOSTIC RESULT

Refer to [AV-103. "WITHOUT DRIVER ASSISTANCE SYSTEM : DTC Index"](#).

DATA MONITOR

Monitor Item	Description
ST ANGLE SENSOR SIGNAL [On/Off]	Indicates condition of steering angle sensor signal.
REVERSE SIGNAL [On/Off]	Indicates selector lever position.
VEHICLE SPEED SIGNAL [mph/km/h]	Indicates condition of vehicle speed signal.
CAMERA SWITCH SIGNAL [On/Off]	Indicates condition of camera switch signal.
CAMERA OFF SIGNAL [On/Off]	Indicates condition of camera OFF signal.
ST ANGLE SENSOR TYPE [Absolute]	Indicates steering angle sensor type.
ST GEAR RATIO TYPE [Type O]	Indicates steering gear ratio type.
STEERING POSITION [LHD/RHD]	Indicates LH or RH drive type.
REAR CAMERA IMAGE SIGNAL [OK/NG]	Indicates condition of camera image signal.
F-CAMERA IMAGE SIGNAL [OK/NG]	Indicates condition of camera image signal.
DR-SIDE CAMERA IMAGE SIG [OK/NG]	Indicates condition of camera image signal.
PA-SIDE CAMERA IMAGE SIG [OK/NG]	Indicates condition of camera image signal.

WORK SUPPORT

Support Item	Setting	Description
NON-VIEWABLE AREA REMINDER	ON	ON/OFF setting of non-viewable area can be performed.
	OFF	
PREDICTIVE COURSE LINE DISPLAY	ON	ON/OFF setting of predictive course line display can be performed.
	OFF	
INITIALIZE CAMERA IMAGE CALIBRATION	—	Factory image calibration restoration can be performed.
STEERING ANGLE SENSOR ADJUSTMENT	—	Steering angle sensor neutral position adjustment can be performed.

DIAGNOSIS SYSTEM (AROUND VIEW MONITOR CONTROL UNIT)

< SYSTEM DESCRIPTION >

[NAVIGATION WITHOUT BOSE]

Support Item	Setting	Description
CALIBRATING CAMERA IMAGE (FRONT CAMERA)	STATUS	Performs calibration of front camera.
	AXIS X	
	AXIS Y	
	ROTATE	
CALIBRATING CAMERA IMAGE (PASS-SIDE CAMERA)	STATUS	Performs calibration of passenger side camera.
	AXIS X	
	AXIS Y	
	ROTATE	
CALIBRATING CAMERA IMAGE (DR-SIDE CAMERA)	STATUS	Performs calibration of driver side camera.
	AXIS X	
	AXIS Y	
	ROTATE	
CALIBRATING CAMERA IMAGE (REAR CAMERA)	STATUS	Performs calibration of rear camera.
	AXIS X	
	AXIS Y	
	ROTATE	
FINE TUNING OF BIRDS-EYE VIEW	STATUS	Confirmation and adjustment of difference between each camera can be performed.
	SELECT	
	AXIS X	
	AXIS Y	
	ROTATE	

CONFIGURATION

Refer to [AV-134. "CONFIGURATION \(AROUND VIEW MONITOR CONTROL UNIT\) : Description"](#).

CAN DIAG SUPPORT MNTR

Refer to [LAN-14. "CAN Diagnostic Support Monitor"](#).

WITH DRIVER ASSISTANCE SYSTEM

WITH DRIVER ASSISTANCE SYSTEM : CONSULT Function

INFOID:0000000010271360

CONSULT FUNCTIONS

CONSULT performs the following functions via communication with the around view monitor control unit.

Direct Diagnostic Mode	Description
Ecu Identification	The around view monitor control unit part number is displayed.
Self Diagnostic Result	The around view monitor control unit self diagnostic results are displayed.
Data Monitor	The around view monitor control unit input/output data is displayed in real time.
Work support	The settings for around view monitor control unit functions can be changed.
Configuration	- The vehicle specification can be read and saved. - The vehicle specification can be written when replacing around view monitor control unit.
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.

ECU IDENTIFICATION

The part number of around view monitor control unit is displayed.

SELF DIAGNOSTIC RESULT

Refer to [AV-103. "WITHOUT DRIVER ASSISTANCE SYSTEM : DTC Index"](#).

DATA MONITOR

DIAGNOSIS SYSTEM (AROUND VIEW MONITOR CONTROL UNIT)

< SYSTEM DESCRIPTION >

[NAVIGATION WITHOUT BOSE]

Monitor Item	Description	
ST ANGLE SENSOR SIGNAL [On/Off]	Indicates condition of steering angle sensor signal.	A
REVERSE SIGNAL [On/Off]	Indicates selector lever position.	B
VEHICLE SPEED SIGNAL [mph/km/h]	Indicates condition of vehicle speed signal.	B
CAMERA SWITCH SIGNAL [On/Off]	Indicates condition of camera switch signal.	
CAMERA OFF SIGNAL [On/Off]	Indicates condition of camera OFF signal.	C
ST ANGLE SENSOR TYPE [Absolute]	Indicates steering angle sensor type.	
ST GEAR RATIO TYPE [Type O]	Indicates steering gear ratio type.	
STEERING POSITION [LHD/RHD]	Indicates LH or RH drive type.	D
REAR CAMERA IMAGE SIGNAL [OK/NG]	Indicates condition of camera image signal.	
WASH SW [On/Off]	Indicates state of wash switch indicator output.	E
R-CAMERA COMM STATUS [OK/Not]	Indicates status of rear camera communication.	
R-CAMERA COMM LINE [OK/Not]	Indicates condition of rear camera communication line.	F
F-CAMERA IMAGE SIGNAL [OK/NG]	Indicates condition of camera image signal.	
DR-SIDE CAMERA IMAGE SIG [OK/NG]	Indicates condition of camera image signal.	G
PA-SIDE CAMERA IMAGE SIG [OK/NG]	Indicates condition of camera image signal.	
PUMP COMM STATUS [OK/Not]	Indicates state of communication signal from pump control unit.	
ILL [On/Off]	Indicates status of illumination signal.	H
ITS SW 1 [On/Off]	Indicates state of warning system switch.	
ITS SW 1 IND [On/Off]	Indicates state of warning system switch indicator output.	I
TURN SIGNAL [Left/N/Right]	Indicates status of turn signal output.	
ITS SW 2 [ON/OFF/No setting]	Indicates state of warning system secondary switch.	J
ITS SW 2 IND [ON/OFF/No setting]	Indicates state of warning system secondary switch indicator output.	

ACTIVE TEST

Test item	Description	
LED RH INDICATOR	This test is able to check RH LED indicator operation [LED Off/LED On].	K
LED LH INDICATOR	This test is able to check LH LED indicator operation [LED Off/LED On].	L
WASH ACTIVE	This test is able to check rear camera wash operation [WASH Off/WASH On].	
AIR ACTIVE	This test is able to check rear camera air operation [AIR Off/AIR On].	M
AIR & WASH ACTIVE	This test is able to check rear camera air and wash operation [Off/On].	
AVM BUZZER CONTROL	This test is able to check AVM buzzer operation [Off/On].	

WORK SUPPORT

Support Item	Setting	Description	
REAR CAMERA ITS	—	Displays and sets camera image calibration values.	O
CAUSE OF LDW CANCEL	—	Displays the information about reason of LDW cancellation.	
CAUSE OF BSW CANCEL	—	Displays the information about reason of BSW cancellation.	P
CALIBRATING CAMERA IMAGE (FRONT CAMERA)	STATUS	Performs calibration of front camera.	
	AXIS X		
	AXIS Y		
	ROTATE		

DIAGNOSIS SYSTEM (AROUND VIEW MONITOR CONTROL UNIT)

< SYSTEM DESCRIPTION >

[NAVIGATION WITHOUT BOSE]

Support Item	Setting	Description
CALIBRATING CAMERA IMAGE (PASS-SIDE CAMERA)	STATUS	Performs calibration of passenger side camera.
	AXIS X	
	AXIS Y	
	ROTATE	
CALIBRATING CAMERA IMAGE (DR-SIDE CAMERA)	STATUS	Performs calibration of driver side camera.
	AXIS X	
	AXIS Y	
	ROTATE	
CALIBRATING CAMERA IMAGE (REAR CAMERA)	STATUS	Performs calibration of rear camera.
	AXIS X	
	AXIS Y	
	ROTATE	
FINE TUNING OF BIRDS-EYE VIEW	STATUS	Confirmation and adjustment of difference between each camera can be performed.
	SELECT	
	AXIS X	
	AXIS Y	
	ROTATE	
REAR WIDE-VIEW FIXED GUIDE LINE CORRECTION	STATUS	Adjusts position of fixed guide line on rear wide view
	AXIS X	
	AXIS Y	
	Pattern	
FRONT WIDE-VIEW FIXED GUIDE LINE CORRECTION	STATUS	Adjusts position of fixed guide line on front wide view
	AXIS X	
	AXIS Y	
	Pattern	
NON-VIEWABLE AREA REMINDER	ON	ON/OFF setting of non-viewable area can be performed.
	OFF	
PREDICTIVE COURSE LINE DISPLAY	ON	ON/OFF setting of predictive course line display can be performed.
	OFF	
INITIALIZE CAMERA IMAGE CALIBRATION	—	Factory image calibration restoration can be performed.
STEERING ANGLE SENSOR ADJUSTMENT	—	Steering angle sensor neutral position adjustment can be performed.

CONFIGURATION

Refer to [AV-134, "CONFIGURATION \(AROUND VIEW MONITOR CONTROL UNIT\) : Description"](#).

CAN DIAG SUPPORT MNTR

Refer to [LAN-14, "CAN Diagnostic Support Monitor"](#).

AV CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[NAVIGATION WITHOUT BOSE]

ECU DIAGNOSIS INFORMATION

AV CONTROL UNIT

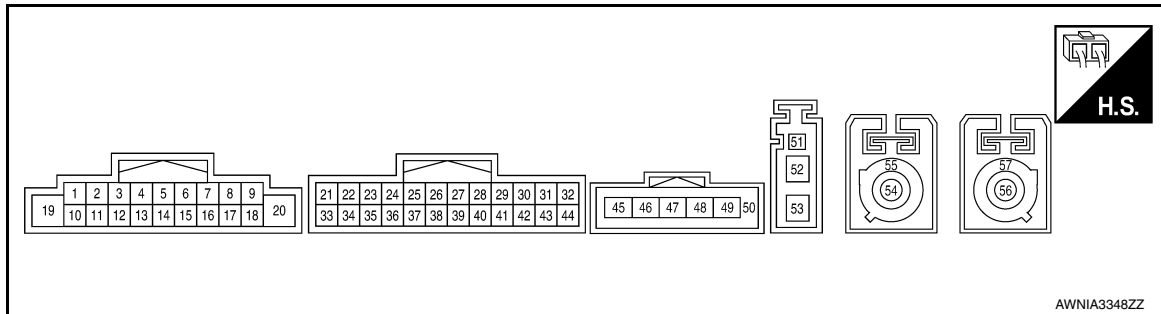
Reference Value

INFOID:0000000010244515

VALUES ON THE DIAGNOSIS TOOL

Monitor Item	Condition	Value/Status
VHCL SPD SIG	Vehicle speed = 0 km/h (0 MPH).	Off
	Vehicle speed > 0 km/h (0 MPH).	On
ILLUM SIG	Illumination signal is not received.	Off
	Illumination signal is received.	On
IGN SIG	Ignition switch OFF.	Off
	Ignition switch ON.	On
REV SIG	Selector lever in any position other than R.	Off
	Selector lever in R position.	On

TERMINAL LAYOUT



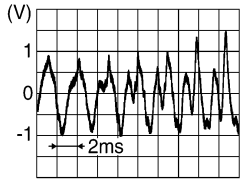
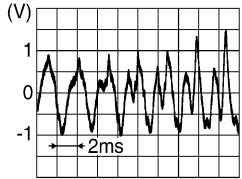
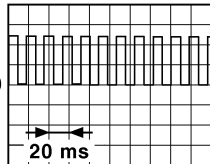
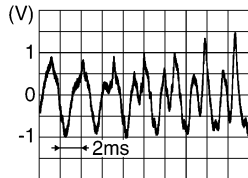
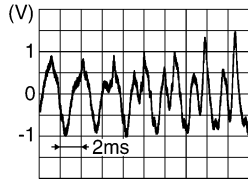
PHYSICAL VALUES

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	-	Signal name	Input/ Output	Ignition switch	Operation	
2 (W)	3 (P)	Sound signal front speaker and tweeter LH	Output	ON	Sound output	SKIB3609E
4 (GR)	5 (BR)	Sound signal rear speaker LH	Output	ON	Sound output	SKIB3609E
7 (W)	Ground	ACC power supply	Input	ON	—	Battery voltage
8 (L)	—	CAN (H)	Input/ Output	—	—	—

AV CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

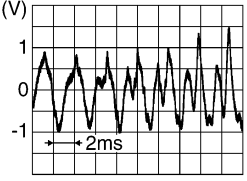
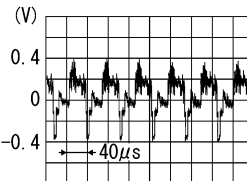
[NAVIGATION WITHOUT BOSE]

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	—	Signal name	Input/ Output	Ignition switch	Operation	
9 (V)	Ground	Illumination control signal	Input	ON	Headlamps ON	Battery voltage
11 (G)	12 (V)	Sound signal front speaker and tweeter RH	Output	ON	Sound output	 SKIB3609E
13 (LG)	14 (Y)	Sound signal rear speaker RH	Output	ON	Sound output	 SKIB3609E
17 (R)	—	CAN (L)	Input/ Output	—	—	—
18 (G)	Ground	Vehicle speed signal	Input	ON	When vehicle speed is approx. 40 km/h (25 MPH)	 JSNIA0012GB
19 (L)	Ground	Battery power supply	Input	OFF	—	Battery voltage
20 (B)	Ground	Ground	—	ON	—	0 V
21 (G)	Ground	AUX jack audio signal RH	Input	ON	Received audio signal (AUX input)	 SKIB3609E
22 (Y)	Ground	AUX ground	—	ON	—	0V
23 (L)	Ground	AUX jack audio signal LH	Input	ON	Received audio signal (AUX input)	 SKIB3609E
25 (BR)	Ground	Reverse signal	Input	ON	Selector lever in R (reverse)	Battery voltage
					Selector lever in any position other than R (reverse)	0 V

AV CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[NAVIGATION WITHOUT BOSE]

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	—	Signal name	Input/ Output	Ignition switch	Operation	
30 (BG)	—	MR output	Output	—	—	—
31 (SB)	—	AV communication (H)	Input/ Output	—	—	—
32 (LG)	—	AV communication (L)	Input/ Output	—	—	—
34 (W)	36 (Shield)	Microphone signal	Input	ON	While speaking into microphone.	 SKIB3609E
35 (B)	—	MIC VCC	Input	ON	—	—
37 (Shield)	—	AUX signal shield	—	—	—	—
38 (SB)	—	AV communication (H)	Input/ Output	—	—	—
39 (LG)	—	AV communication (L)	Input/ Output	—	—	—
40 (LG)	Ground	Ignition power supply	Input	ON	—	Battery voltage
41 (W)	Ground	Camera image signal	Input	ON	When camera image is displayed	 SKIB2251J
42 (Shield)	—	Camera image signal shield	—	—	—	—
45 (R)	—	V BUS signal	—	—	—	—
46 (W)	—	USB D- signal	—	—	—	—
47 (G)	—	USB + signal	—	—	—	—
49 (B)	—	USB ground	—	—	—	—
50 (Shield)	—	USB shield	—	—	—	—
51 (B)	Ground	Antenna amp. ON signal	Output	ON	AV control unit ON, FM-AM selected.	Battery voltage
52 (B)	Ground	AM-FM main antenna	Input	ON	AV control unit ON, FM-AM selected.	5.0 V
54 (B)	Ground	GPS antenna signal	Input	ON	AV control unit ON, NAV selected.	5.0 V

A

B

C

D

E

F

G

H

I

J

K

L

M

AV

O

P

AV CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[NAVIGATION WITHOUT BOSE]

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	—	Signal name	Input/ Output	Ignition switch	Operation	
55 (Shield)	—	GPS antenna shield	—	—	—	—
56 (B)	Ground	Satellite antenna signal	Input	ON	AV control unit ON, SXM selected.	5.0 V
57 (Shield)	—	Satellite antenna shield	—	—	—	—

DTC Index

INFOID:0000000010244516

CONSULT Display	Reference Page
U1000: CAN COMM CIRCUIT	AV-142, "AV CONTROL UNIT : DTC Logic"
U1010: CONTROL UNIT (CAN)	AV-143, "AV CONTROL UNIT : DTC Logic"
U1217: BLUETOOTH MODULE	AV-160, "DTC Logic"
U1229: iPod CERTIFICATION	AV-161, "DTC Logic"
U122F: Digital broadcasting connection error	AV-162, "DTC Logic"
U1244: GPS ANTENNA CONN	AV-164, "DTC Logic"
U1258: SXM ANTENNA CONN	AV-165, "DTC Logic"
U1263: USB OVERCURRENT	AV-166, "DTC Logic"
U12AA: Configuration Error	AV-167, "DTC Logic"
U12AB: FM Antenna error	AV-168, "DTC Logic"
U12AC: Display Temperature too High	AV-169, "DTC Logic"
U12AD: ECU Temperature too High	AV-170, "DTC Logic"
U12AE: Internal Amplifier temperature Warning	AV-171, "DTC Logic"
U12AF: CD Mechanism Temperature Warning	AV-172, "DTC Logic"
U12B0: Supply Voltage Goes below 9V > 20s	AV-173, "DTC Logic"
U12B1: Supply Voltage Goes High > 16V for 20s	AV-174, "DTC Logic"
U1300: AV COMM CIRCUIT	AV-175, "DTC Logic"
U1310: CONTROL UNIT(AV)	AV-179, "DTC Logic"

AROUND VIEW MONITOR CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[NAVIGATION WITHOUT BOSE]

AROUND VIEW MONITOR CONTROL UNIT WITHOUT DRIVER ASSISTANCE SYSTEM

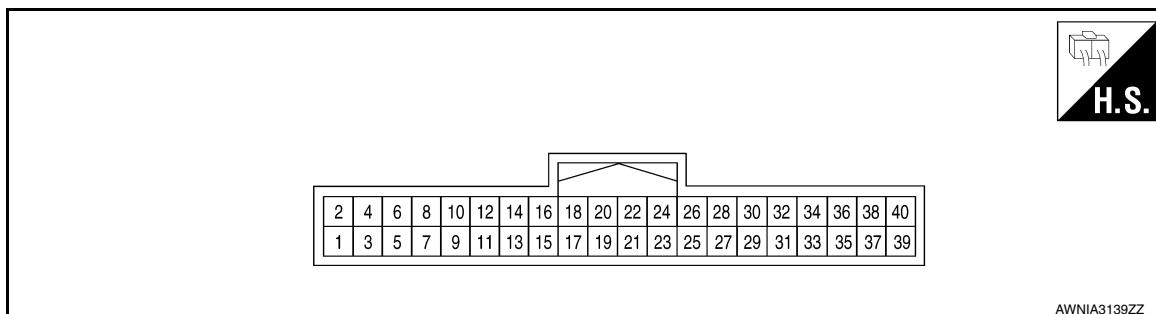
WITHOUT DRIVER ASSISTANCE SYSTEM : Reference Value

INFOID:0000000010244517

VALUES ON THE DIAGNOSIS TOOL

Monitor Item	Condition	Value/Status
CAMERA OFF SIGNAL	CAMERA switch ON.	Off
	CAMERA switch OFF.	On
CAMERA SWITCH SIGNAL	CAMERA switch OFF.	Off
	CAMERA switch ON.	On
DR-SIDE CAMERA IMAGE SIG	Side camera LH inoperative.	NG
	Side camera LH operative.	OK
F-CAMERA IMAGE SIG	Front camera inoperative.	NG
	Front camera operative.	OK
PA-SIDE CAMERA IMAGE SIG	Side camera RH inoperative.	NG
	Side camera RH operative.	OK
REAR CAMERA IMAGE SIGNAL	Rear camera LH inoperative.	NG
	Rear camera LH operative.	OK
REVERSE SIGNAL	When selector lever is in any position other than R (reverse).	Off
	When selector lever in R (reverse).	On
ST ANGLE SENSOR SIGNAL	Around view monitor control unit is not receiving steering angle sensor signal.	Off
	Around view monitor control unit is receiving steering angle sensor signal.	On
ST ANGLE SENSOR TYPE	Steering angle sensor type.	Absolute
ST GEAR RATIO TYPE	Steering gear ratio type.	Type O
STEERING POSITION	Left hand drive vehicle.	LHD
	Right hand drive vehicle.	RHD
VEHICLE SPEED SIGNAL	While driving, equivalent to speedometer reading	mph, km/h

TERMINAL LAYOUT

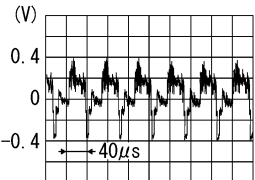
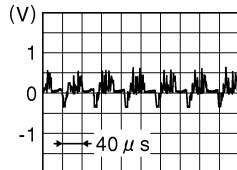
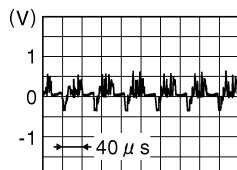


PHYSICAL VALUES

AROUND VIEW MONITOR CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

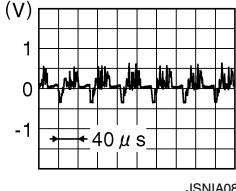
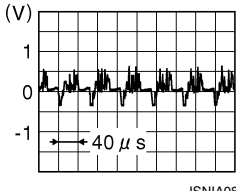
[NAVIGATION WITHOUT BOSE]

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	—	Signal name	Input/ Output	Ignition switch	Operation	
1 (B)	Ground	Ground	—	ON	—	0 V
2 (Y)	Ground	Battery power supply	Input	OFF	—	Battery voltage
4 (SB)	Ground	Ignition signal	Input	ON	—	Battery voltage
10 (R)	—	CAN (L)	Input/ Output	—	—	—
12 (L)	—	CAN (H)	Input/ Output	—	—	—
23 (Shield)	—	Camera image signal shield	—	—	—	—
24 (G)	Ground	Camera image signal	Output	ON	When camera image display	 SKIB2251J
25 (B)	Ground	Rear camera ground	—	ON	—	0 V
26 (R)	Ground	Rear camera power supply	Output	ON	CAMERA selected or Shift selector in R (reverse) position.	6.0 V
28 (W)	27 (Shield)	Rear camera image signal	Input	ON	CAMERA selected or Shift selector in R (reverse) position.	 JSNIA0834GB
29 (Y)	Ground	Side camera LH ground	—	ON	—	0 V
30 (L)	Ground	Side camera LH power supply	Output	ON	CAMERA selected or Shift selector in R (reverse) position.	6.0 V
32 (G)	31 (Shield)	Side camera LH image signal	Input	ON	CAMERA selected or Shift selector in R (reverse) position.	 JSNIA0834GB
33 (L)	Ground	Side camera RH ground	—	ON	—	0 V

AROUND VIEW MONITOR CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[NAVIGATION WITHOUT BOSE]

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	−	Signal name	Input/ Output	Ignition switch	Operation	
34 (B)	Ground	Side camera RH power supply	Output	ON	CAMERA selected or Shift selector in R (reverse) position.	6.0 V
36 (Y)	35 (Shield)	Side camera RH image signal	Input	ON	CAMERA selected or Shift selector in R (reverse) position.	
37 (V)	Ground	Front camera ground	—	ON	—	0 V
38 (L)	Ground	Front camera power supply	Output	ON	CAMERA selected or Shift selector in R (reverse) position.	6.0 V
40 (LG)	39 (Shield)	Front camera image signal	Input	ON	CAMERA selected or Shift selector in R (reverse) position.	

WITHOUT DRIVER ASSISTANCE SYSTEM : DTC Index

INFOID:0000000010244518

CONSULT Display	Reference Page
U0428: ST ANG SEN CALIB	AV-141. "DTC Logic"
U1000: CAN COMM CIRCUIT	AV-142. "AROUND VIEW MONITOR CONTROL UNIT : DTC Logic"
U1010: CONTROL UNIT (CAN)	AV-143. "AROUND VIEW MONITOR CONTROL UNIT : DTC Logic"
U111A: Rear display output signal diagnosis (Harness disconnection)	AV-144. "DTC Logic"
U111B: Right side display output signal diagnosis (Harness disconnection)	AV-148. "DTC Logic"
U111C: Front display output signal diagnosis (Harness disconnection)	AV-152. "DTC Logic"
U111D: Left side display output signal diagnosis (Harness disconnection)	AV-156. "DTC Logic"
U1232: ST ANG SEN CALIB	AV-163. "DTC Logic"
U1304: Non-completion of the calibration	AV-177. "DTC Logic"
U1305: Non-completion of the configuration	AV-178. "DTC Logic"

WITH DRIVER ASSISTANCE SYSTEM

WITH DRIVER ASSISTANCE SYSTEM : Reference Value

INFOID:0000000010269693

VALUES ON THE DIAGNOSIS TOOL

AROUND VIEW MONITOR CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[NAVIGATION WITHOUT BOSE]

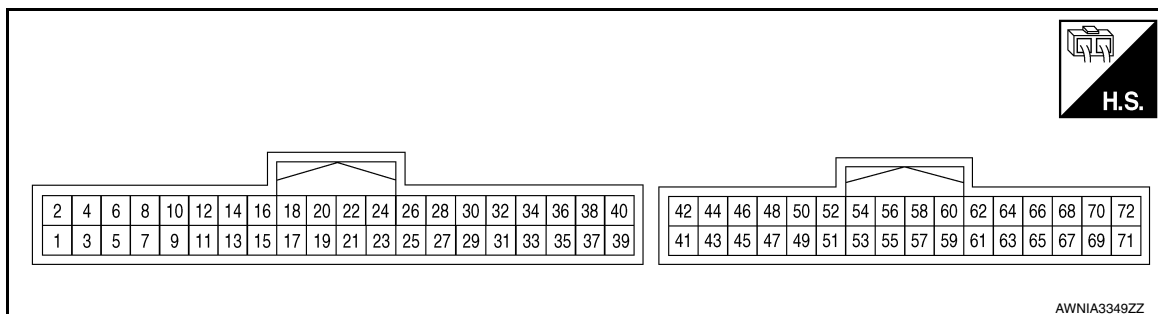
Monitor Item	Condition	Value/Status
CAMERA OFF SIGNAL	CAMERA switch ON.	Off
	CAMERA switch OFF.	On
CAMERA SWITCH SIGNAL	CAMERA switch OFF.	Off
	CAMERA switch ON.	On
DR-SIDE CAMERA IMAGE SIG	Side camera LH inoperative.	NG
	Side camera LH operative.	OK
ILL	Illumination is ON	On
	Illumination is OFF	Off
ITS SW 1	ITS switch is pressed	On
	ITS switch is not pressed	Off
ITS SW 1 IND	Indicator of ITS switch 1 is lighting	On
	Indicator of ITS switch 1 is not lighting	Off
ITS SW 2	For this vehicle, the displaying is fixed	No SET
ITS SW 2 IND	For this vehicle, the displaying is fixed	No SET
F-CAMERA IMAGE SIG	Front camera inoperative.	NG
	Front camera operative.	OK
PA-SIDE CAMERA IMAGE SIG	Side camera RH inoperative.	NG
	Side camera RH operative.	OK
PUMP COMM STATUS	Pump communication signal is received	On
	Pump communication signal is not received	Off
R-CAMERA COMM STATUS	Rear camera serial status is OK	OK
	Rear camera serial status is not OK	NG
R-CAMERA COMM LINE	Rear camera serial communication signal is received	OK
	Rear camera serial communication signal is not received	NG
REAR CAMERA IMAGE SIGNAL	Rear camera LH inoperative.	NG
	Rear camera LH operative.	OK
REVERSE SIGNAL	When selector lever is in any position other than R (reverse).	Off
	When selector lever in R (reverse).	On
ST ANGLE SENSOR SIGNAL	Around view monitor control unit is not receiving steering angle sensor signal.	Off
	Around view monitor control unit is receiving steering angle sensor signal.	On
ST ANGLE SENSOR TYPE	Steering angle sensor type.	Absolute
ST GEAR RATIO TYPE	Steering gear ratio type.	Type O
STEERING POSITION	Left hand drive vehicle.	LHD
	Right hand drive vehicle.	RHD
TURN SIGNAL	Turn signal left is received	Left
	Turn signal neutral is received	N
	Turn signal right is received	Right
VEHICLE SPEED SIGNAL	While driving, equivalent to speedometer reading	mph, km/h
WASH SW	Wash switch signal is pressed	On
	Wash switch signal is not pressed	Off

AROUND VIEW MONITOR CONTROL UNIT

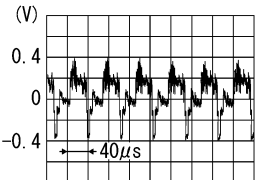
< ECU DIAGNOSIS INFORMATION >

[NAVIGATION WITHOUT BOSE]

TERMINAL LAYOUT



PHYSICAL VALUES

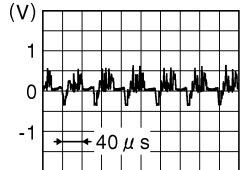
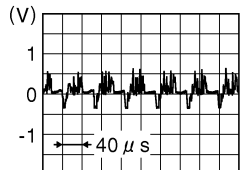
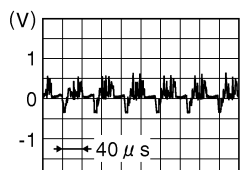
Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	—	Signal name	Input/ Output	Ignition switch	Operation	
1 (B)	Ground	Ground	—	ON	—	0 V
2 (Y)	Ground	Battery power supply	Input	OFF	—	Battery voltage
3 (SB)	Ground	Ignition signal	Input	ON	—	Battery voltage
7 (R)	Ground	SOW LED signal L	Output	—	LDW/BSW detected (while driving)	12 V
					LDW/BSW is not detected (while driving)	0 V
8 (G)	Ground	SOW LED signal R	Output	—	LDW/BSW detected (while driving)	12 V
					LDW/BSW is not detected (while driving)	0 V
15 (BR)	Ground	ITS sw indicator	Output	ON	Warning system is ON	12 V
					Warning system is OFF	0 V
16 (Y)	Ground	Warning buzzer control	Output	—	—	—
17 (W)	Ground	ITS OFF sw	Input	ON	Cancel switch pressed	0 V
					Cancel switch released	12 V
27 (L)	—	CAN (H)	Input/ Output	—	—	—
28 (R)	—	CAN (L)	Input/ Output	—	—	—
36 (Y)	Ground	Washer signal AVM to pump	Output	ON	Rear view camera washer motor operated	5 V
37 (V)	Ground	Pump signal ground	Input	ON	—	0 V
38 (SB)	Ground	Washer signal pump to AVM	Input	ON	Rear view camera washer motor operated	5 V
47 (G)	Ground	Camera image signal	Output	ON	When camera image display	

SKIB2251J

AROUND VIEW MONITOR CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

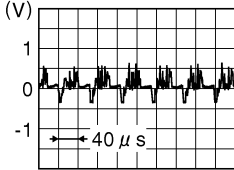
[NAVIGATION WITHOUT BOSE]

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	—	Signal name	Input/ Output	Ignition switch	Operation	
48 (Shield)	—	Camera image signal shield	—	—	—	—
49 (LG)	—	Rear view serial signal	Input/ Output	—	—	—
50 (R)	Ground	Rear camera power supply	Output	ON	CAMERA selected or Shift selector in R (reverse) position.	6.0 V
52 (B)	Ground	Rear camera ground	—	ON	—	0 V
53 (W)	54 (Shield)	Rear camera image signal	Input	ON	CAMERA selected or Shift selector in R (reverse) position.	 JSNIA0834GB
56 (L)	Ground	Side camera LH power supply	Output	ON	CAMERA selected or Shift selector in R (reverse) position.	6.0 V
58 (Y)	Ground	Side camera LH ground	—	ON	—	0 V
59 (G)	60 (Shield)	Side camera LH image sig- nal	Input	ON	CAMERA selected or Shift selector in R (reverse) position.	 JSNIA0834GB
62 (B)	Ground	Side camera RH power supply	Output	ON	CAMERA selected or Shift selector in R (reverse) position.	6.0 V
64 (L)	Ground	Side camera RH ground	—	ON	—	0 V
65 (Y)	66 (Shield)	Side camera RH image sig- nal	Input	ON	CAMERA selected or Shift selector in R (reverse) position.	 JSNIA0834GB
68 (L)	Ground	Front camera power supply	Output	ON	CAMERA selected or Shift selector in R (reverse) position.	6.0 V

AROUND VIEW MONITOR CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[NAVIGATION WITHOUT BOSE]

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	–	Signal name	Input/ Output	Ignition switch	Operation	
70 (V)	Ground	Front camera ground	—	ON	—	0 V
71 (LG)	72 (Shield)	Front camera image signal	Input	ON	CAMERA selected or Shift selector in R (reverse) position.	 (V) 40 μs JSNIA0834GB

WITH DRIVER ASSISTANCE SYSTEM : DTC Index

INFOID:0000000010269694

CONSULT Display	Reference Page
U0428: ST ANG SEN CALIB	AV-141. "DTC Logic"
U1000: CAN COMM CIRCUIT	AV-142. "AROUND VIEW MONITOR CONTROL UNIT : DTC Logic"
U1010: CONTROL UNIT (CAN)	AV-143. "AROUND VIEW MONITOR CONTROL UNIT : DTC Logic"
U111A: Rear display output signal diagnosis (Harness disconnection)	AV-144. "DTC Logic"
U111B: Right side display output signal diagnosis (Harness disconnection)	AV-148. "DTC Logic"
U111C: Front display output signal diagnosis (Harness disconnection)	AV-152. "DTC Logic"
U111D: Left side display output signal diagnosis (Harness disconnection)	AV-156. "DTC Logic"
U1232: ST ANG SEN CALIB	AV-163. "DTC Logic"
U1304: Non-completion of the calibration	AV-177. "DTC Logic"
U1305: Non-completion of the configuration	AV-178. "DTC Logic"

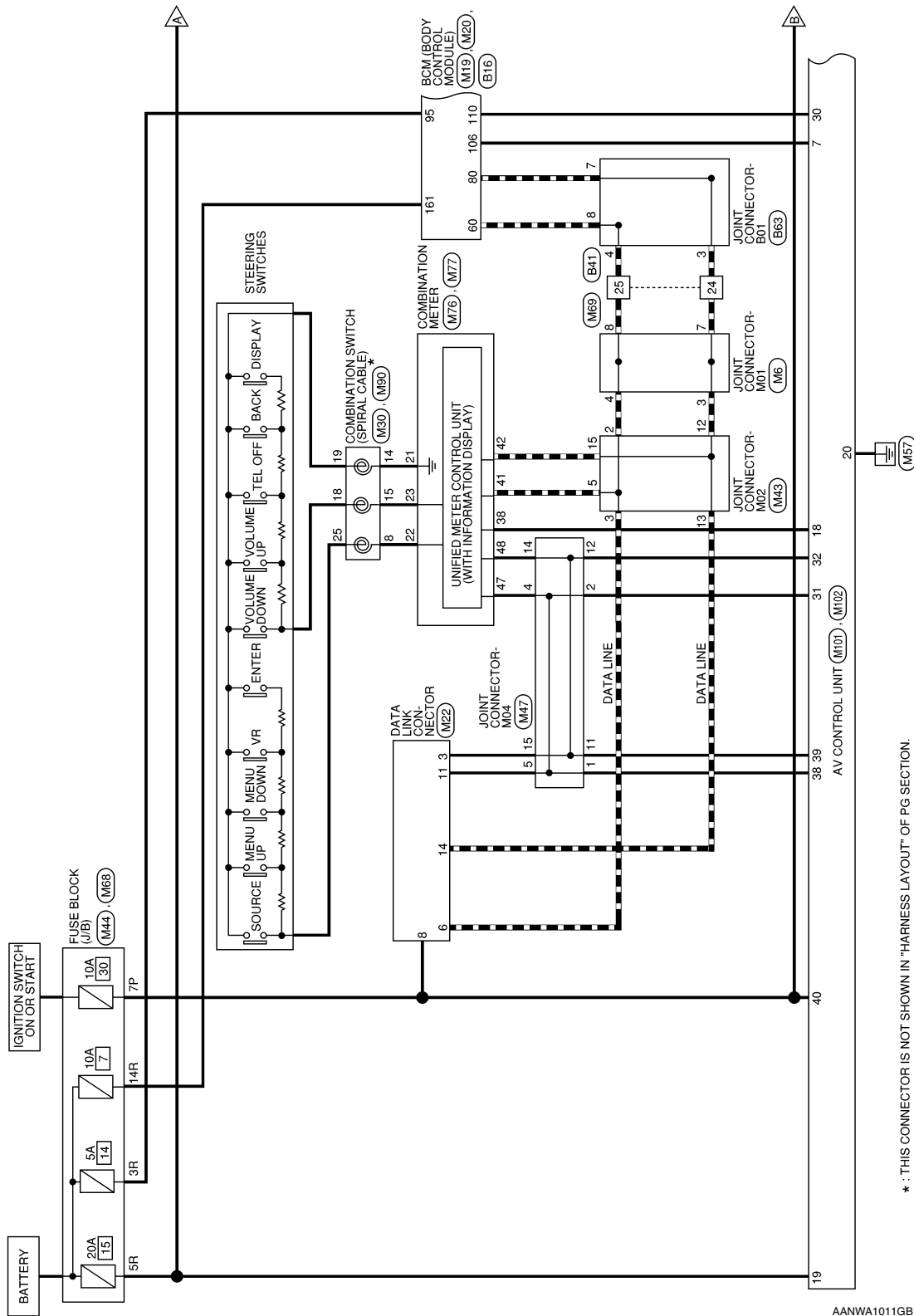
WIRING DIAGRAM

NAVIGATION WITHOUT BOSE

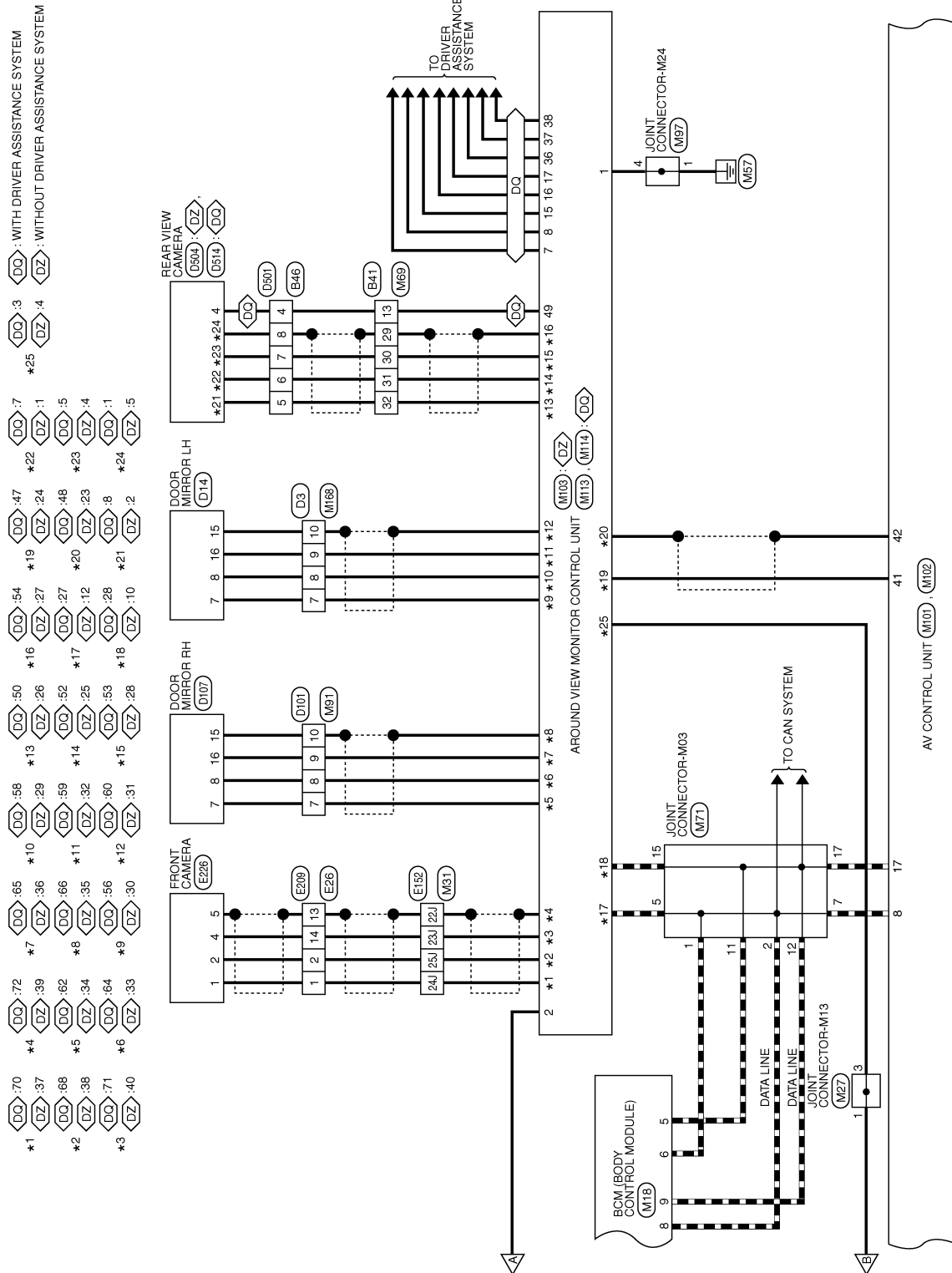
Wiring Diagram

INFOID:000000009795497

NAVIGATION SYSTEM - WITHOUT BOSE AUDIO SYSTEM



AANWA1011GB



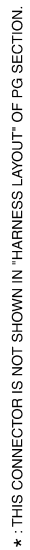
AANWA1012GB

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P

AV

[NAVIGATION WITHOUT BOSE]

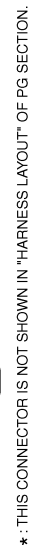
[NAVIGATION WITHOUT BOSE]



2014 Rogue NAM

[NAVIGATION WITHOUT BOSE]

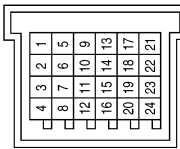
A
B
C
D
E
F
G
H
I
J
K
L
M
AV
O
P



AANWA1014GB

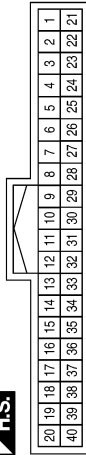
NAVIGATION SYSTEM CONNECTORS - WITHOUT BOSE AUDIO SYSTEM

Connector No.	M6
Connector Name	JOINT CONNECTOR-M01
Connector Color	GRAY



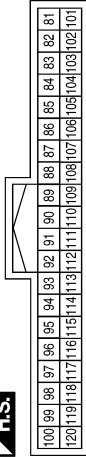
Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
5	R	CAN-L
6	L	CAN-H
8	L	CAN-H
9	R	CAN-L

Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



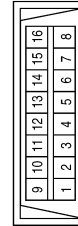
Terminal No.	Color of Wire	Signal Name
95	V	I SHORTING PIN
106	W	O AUTO ACC2
110	BG	O GND AUTOLIGHT SENSOR

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
161	W	I PWR ECU

Connector No.	M22
Connector Name	DATA LINK CONNECTOR
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
3	LG	-
6	L	-
8	Y	-
11	SB	-
14	P	-

Connector No.	M23
Connector Name	FRONT TWEETER RH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	G	-
2	R	-

NAVIGATION WITHOUT BOSE

< WIRING DIAGRAM >

[NAVIGATION WITHOUT BOSE]

Connector No.	M27
Connector Name	JOINT CONNECTOR-M13
Connector Color	WHITE



8	7	6	5	4	3	2	1
---	---	---	---	---	---	---	---

Connector No.	M30
Connector Name	COMBINATION SWITCH (SPIRAL CABLE)
Connector Color	WHITE

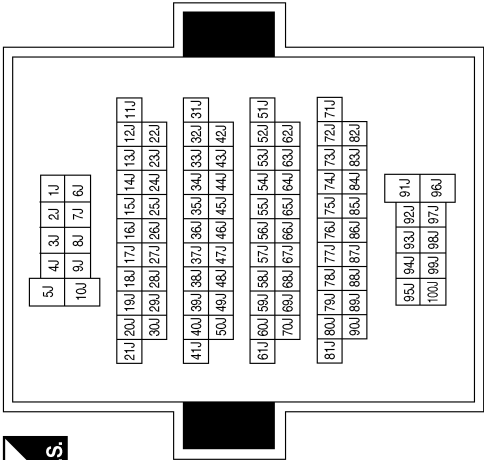


10	9	8	7	6	5
16	15	14	13	12	11

Terminal No.	Color of Wire	Signal Name
1	SB	-
3	SB	-

Terminal No.	Color of Wire	Signal Name
8	Y	-
14	L	-
15	GR	-

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
22J	SHIELD	-
23J	LG	-
24J	V	-
25J	L	-

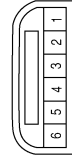
A
B
C
D
E
F
G
H
I
J
K
L
M
AV
O
P

NAVIGATION WITHOUT BOSE

< WIRING DIAGRAM >

[NAVIGATION WITHOUT BOSE]

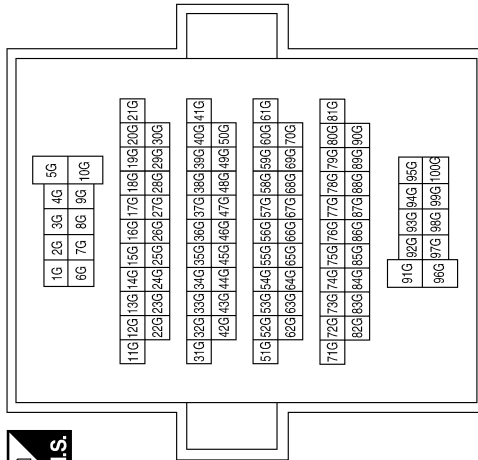
Connector No.	M38
Connector Name	JOINT CONNECTOR-M05
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	W	-
2	G	-
3	G	-
4	GR	-
5	V	-
6	R	-

Terminal No.	Color of Wire	Signal Name
94G	LG	-
99G	Y	-

Connector No.	M36
Connector Name	WIRE TO WIRE
Connector Color	WHITE

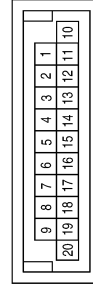


Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
7P	Y	-

Connector No.	M43
Connector Name	JOINT CONNECTOR-M02
Connector Color	BLUE



Terminal No.	Color of Wire	Signal Name
2	L	-
3	L	-
5	L	-
12	P	-
13	P	-
15	P	-

Connector No.	M39
Connector Name	JOINT CONNECTOR-M06
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	Y	-
2	W	-
3	W	-
4	R	-
5	P	-
6	GR	-

AANIA2426GB

NAVIGATION WITHOUT BOSE

< WIRING DIAGRAM >

[NAVIGATION WITHOUT BOSE]

Connector No.	M69
Connector Name	WIRE TO WIRE
Connector Color	WHITE



16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17

Terminal No.	Color of Wire	Signal Name
13	LG	-
24	P	-
25	L	-
26	BR	-
29	SHIELD	-
30	W	-
31	B	-
32	R	-

Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN



7R	6R	5R	4R	3R	2R	1R
16R	15R	14R	13R	12R	11R	10R
9R	8R	7R	6R	5R	4R	3R

Terminal No.	Color of Wire	Signal Name
3R	V	-
5R	L	-
14R	W	-

Connector No.	M74
Connector Name	WIRE TO WIRE
Connector Color	WHITE



7	6	5	4	3	2	1
16	15	14	13	12	11	10
9	8	7	6	5	4	3

Terminal No.	Color of Wire	Signal Name
12	GR	-
13	BR	-

Connector No.	M47
Connector Name	JOINT CONNECTOR-M04
Connector Color	BLUE



9	8	7	6	5	4	3	2	1
20	19	18	17	16	15	14	13	12
11	10	9	8	7	6	5	4	3

Terminal No.	Color of Wire	Signal Name
1	SB	-
2	SB	-
4	SB	-
5	SB	-
11	LG	-
12	LG	-
14	LG	-
15	LG	-

Connector No.	M71
Connector Name	JOINT CONNECTOR- M03
Connector Color	BLUE



9	8	7	6	5	4	3	2	1
20	19	18	17	16	15	14	13	12
11	10	9	8	7	6	5	4	3

Terminal No.	Color of Wire	Signal Name
1	L	-
2	L	-
5	L	-
7	L	-
11	R	-
12	R	-
15	R	-
17	R	-

AANIA2427GB

A
B
C
D
E
F
G
H
I
J
K
L
M
O
P

AV

NAVIGATION WITHOUT BOSE

< WIRING DIAGRAM >

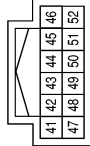
[NAVIGATION WITHOUT BOSE]

Connector No.	M80
Connector Name	FRONT TWEETER LH
Connector Color	WHITE



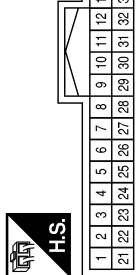
Terminal No.	Color of Wire	Signal Name
1	W	–
2	GR	–

Connector No.	M77
Connector Name	COMBINATION METER
Connector Color	WHITE



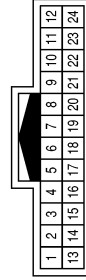
Terminal No.	Color of Wire	Signal Name
41	L	CAN-H
42	P	CAN-L
47	SB	M-CAN H
48	LG	M-CAN L

Connector No.	M76
Connector Name	COMBINATION METER
Connector Color	WHITE



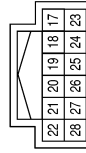
Terminal No.	Color of Wire	Signal Name
21	L	STRG SW GND
22	Y	STRG SW INPUT1
23	GR	STRG SW INPUT2
38	G	8P/R OUT

Connector No.	M91
Connector Name	WIRE TO WIRE
Connector Color	WHITE



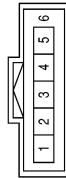
Terminal No.	Color of Wire	Signal Name
7	B	–
8	L	–
9	Y	–
10	SHIELD	–

Connector No.	M90
Connector Name	COMBINATION SWITCH (SPIRAL CABLE)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
18	L	–
19	G	–
25	P	–

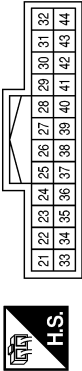
Connector No.	M89
Connector Name	USB INTERFACE
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	R	–
2	W	–
3	G	–
5	B	–
6	SHIELD	–

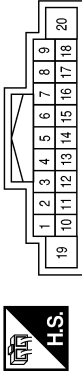
AANIA2428GB

Connector No.	M102
Connector Name	AV CONTROL UNIT (WITHOUT BOSE AUDIO SYSTEM)
Connector Color	WHITE



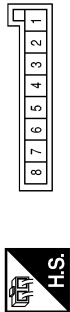
Terminal No.	Color of Wire	Signal Name
21	G	AUX R
22	Y	AUX GND
23	L	AUX L
24	-	-
25	BR	REVERSE
26	-	-
27	-	-
28	-	-
29	-	-
30	BG	MR OUTPUT
31	SB	M-CAN TERMINATION
32	LG	M-CAN TERMINATION
33	-	-
34	W	MIC SIGNAL
35	B	MIC VCC
36	SHIELD	MIC GND
37	SHIELD	SUB OUT/AUX SHIELD
38	SB	MCAN +
39	LG	MCAN -
40	LG	IGNITION
41	G	CAMERA+
42	SHIELD	CAMERA- (SHIELD)
43	-	-
44	-	-

Connector No.	M101
Connector Name	AV CONTROL UNIT (WITHOUT BOSE AUDIO SYSTEM)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	-	-
2	W	FR SP LH (+)
3	P	FR SP LH (-)
4	GR	RR SP LH (+)
5	BR	RR SP LH (-)
6	-	-
7	W	ACC
8	L	CAN-H
9	V	ILL (+), LIGHT SW
10	-	-
11	G	FR SP RH (+)
12	V	FR SP RH (-)
13	LG	RR SP RH (+)
14	Y	RR SP RH (-)
15	-	-
16	-	-
17	R	CAN-L
18	G	SPEED SIGNAL
19	L	BAT
20	B	GND

Connector No.	M97
Connector Name	JOINT CONNECTOR- M24
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	B	-
4	B	-

AANIA2429GB

A
B
C
D
E
F
G
H
I
J
K
L
M
O
P

AV

NAVIGATION WITHOUT BOSE

< WIRING DIAGRAM >

[NAVIGATION WITHOUT BOSE]

Connector No.	M113
Connector Name	AROUND VIEW MONITOR CONTROL UNIT (WITH DRIVER ASSISTANCE SYSTEM)
Connector Color	WHITE



2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40
1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	35	37	39

Terminal No.	Color of Wire	Signal Name
1	B	GND
2	Y	+B
3	SB	IGN
7	R	INDICATOR L
8	G	INDICATOR R
15	BR	ITS SW INDICATOR
16	Y	BUZZER CONT
17	W	ITS SW
27	L	CAN-H
28	R	CAN-L
36	Y	FROM C/U TO PUMP
37	V	SIGNAL GND
38	SB	FROM PUMP TO C/U

Connector No.	M104
Connector Name	AUX IN JACK
Connector Color	WHITE



1	2	3	4
---	---	---	---

Terminal No.	Color of Wire	Signal Name
1	L	-
3	Y	-
4	G	-

Connector No.	M103
Connector Name	AROUND VIEW MONITOR CONTROL UNIT (WITHOUT DRIVER ASSISTANCE SYSTEM)
Connector Color	WHITE



2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40
1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	35	37	39

Terminal No.	Color of Wire	Signal Name
1	B	GND
2	Y	+B
4	SB	IGN
10	R	CAN-L
12	L	CAN-H
23	SHIELD	VIDEO OUTPUT GND
24	G	VIDEO OUTPUT SIGNAL
25	B	RV POWER GND
26	R	RV POWER 6.2V
27	SHIELD	RV VIDEO GND
28	W	RV VIDEO SIGNAL
29	Y	SV2 POWER GND
30	L	SV2 POWER 6.2V
31	SHIELD	SV2 VIDEO GND
32	G	SV2 VIDEO SIGNAL
33	L	SV1 POWER GND
34	B	SV1 POWER 6.2V
35	SHIELD	SV1 VIDEO GND
36	Y	SV1 VIDEO SIGNAL
37	V	FV POWER GND
38	L	FV POWER 6.2V
39	SHIELD	FV VIDEO GND
40	LG	FV VIDEO SIGNAL

AANIA2430GB

NAVIGATION WITHOUT BOSE

< WIRING DIAGRAM >

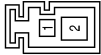
[NAVIGATION WITHOUT BOSE]

Connector No.	M130
Connector Name	WIRE TO WIRE
Connector Color	BROWN



Terminal No.	1	Color of Wire	B	Signal Name	—
--------------	---	---------------	---	-------------	---

Connector No.	M129
Connector Name	WIRE TO WIRE
Connector Color	GRAY



Terminal No.	1	2	Color of Wire	B	B	Signal Name	—	—
--------------	---	---	---------------	---	---	-------------	---	---

Connector No.	M114
Connector Name	AROUND VIEW MONITOR CONTROL UNIT (WITH DRIVER ASSISTANCE SYSTEM)
Connector Color	WHITE



42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	72
41	43	45	47	49	51	53	55	57	59	61	63	65	67	69	71

Terminal No.	Color of Wire	Signal Name
47	G	VIDEO OUTPUT SIGNAL
48	SHIELD	VIDEO OUTPUT GND
49	LG	RV SERIAL SIGNAL
50	R	RV POWER 6.2V
52	B	RV POWER GND
53	W	RV POWER SIGNAL
54	SHIELD	RV VIDEO GND
56	L	SV2 POWER 6.2V
58	Y	SV2 POWER GND
59	G	SV2 VIDEO SIGNAL
60	SHIELD	SV2 VIDEO GND
62	B	SV1 POWER 6.2V
64	L	SV1 POWER GND
65	Y	SV1 VIDEO SIGNAL
66	SHIELD	SV1 VIDEO GND
68	L	FV POWER 6.2V
70	V	FV POWER GND
71	LG	FV VIDEO SIGNAL
72	SHIELD	FV VIDEO GND

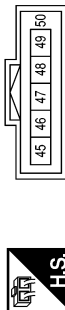
AV

NAVIGATION WITHOUT BOSE

< WIRING DIAGRAM >

[NAVIGATION WITHOUT BOSE]

Connector No.	M138
Connector Name	AV CONTROL UNIT
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
45	R	V BUS
46	W	USB D-
47	G	USB D+
48	-	-
49	B	USB GND
50	SHIELD	USB SHIELD

Connector No.	M139
Connector Name	AV CONTROL UNIT
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
51	B	ANT +B
52	B	ANT MAIN
53	-	-

Connector No.	M141
Connector Name	AV CONTROL UNIT
Connector Color	BLUE



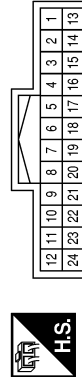
Terminal No.	Color of Wire	Signal Name
54	B	GPS ANT
55	SHIELD	GPS SHIELD

Connector No.	M142
Connector Name	AV CONTROL UNIT
Connector Color	PINK



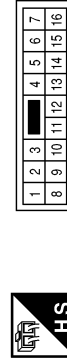
Terminal No.	Color of Wire	Signal Name
56	B	SAT ANT
57	SHIELD	SAT SHIELD

Connector No.	M156
Connector Name	WIRE TO WIRE
Connector Color	WHITE



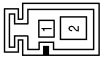
Terminal No.	Color of Wire	Signal Name
1	B	-
2	W	-
3	SHIELD	-

Connector No.	M158
Connector Name	WIRE TO WIRE
Connector Color	WHITE



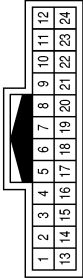
Terminal No.	Color of Wire	Signal Name
13	GR	-(WITHOUT BOSE AUDIO SYSTEM)
14	W	-(WITHOUT BOSE AUDIO SYSTEM)

Connector No.	M500
Connector Name	WIRE TO WIRE
Connector Color	GRAY



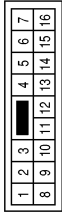
Terminal No.	Color of Wire	Signal Name
1	B	-
2	B	-

Connector No.	M168
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
7	L	-
8	Y	-
9	G	-
10	SHIELD	-

Connector No.	M167
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
6	Y	-(WITHOUT BOSE AUDIO SYSTEM)
7	R	-(WITHOUT BOSE AUDIO SYSTEM)

Connector No.	M503
Connector Name	ANTENNA BASE (SATELLITE RADIO ANTENNA)
Connector Color	GREEN



Terminal No.	Color of Wire	Signal Name
3	B	-

Connector No.	M502
Connector Name	ANTENNA BASE (ANTENNA AMP)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
1	B	-
2	B	-

Connector No.	M501
Connector Name	WIRE TO WIRE
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
1	B	-

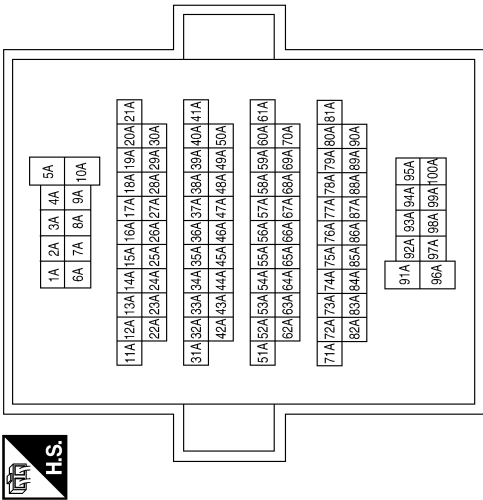
AANIA2433GB

A
B
C
D
E
F
G
H
I
J
K
L
M
O
P

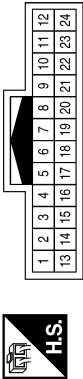
AV

Terminal No.	Color of Wire	Signal Name
100A	G	-

Connector No.	E34
Connector Name	WIRE TO WIRE
Connector Color	GRAY



Connector No.	E26
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	V	-
2	L	-
13	SHIELD	-
14	LG	-

Connector No.	E119
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
16	G	O LIGHT REVERSE LAMP

Connector No.	E209
Connector Name	WIRE TO WIRE
Connector Color	WHITE

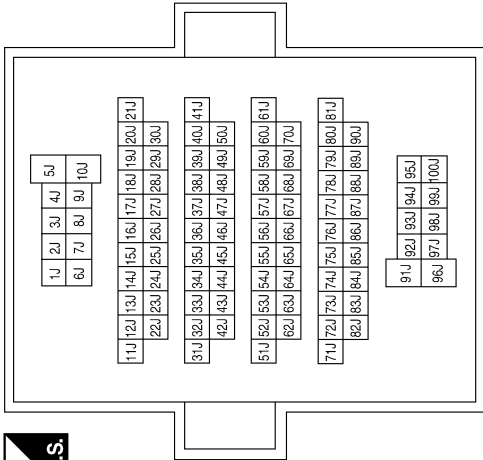


12	11	10	9	8	7	6	5	4	3	2	1
24	23	22	21	20	19	18	17	16	15	14	13

Terminal No.	Color of Wire	Signal Name
1	V	-
2	L	-
13	SHIELD	-
14	LG	-

Terminal No.	Color of Wire	Signal Name
22J	SHIELD	-
23J	LG	-
24J	V	-
25J	L	-

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	F78
Connector Name	TRANSMISSION RANGE SWITCH
Connector Color	BLACK



6	5	4	3	2	1
10	9	8	7		

Terminal No.	Color of Wire	Signal Name
4	W	-
8	G	-

Connector No.	F35
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE



71	70	69	68	67	66	65
80	79	78	77	76	75	74
73	72					

Terminal No.	Color of Wire	Signal Name
71	SB	OIGN AT LPG
79	G	LI LIGHT REVERSE SW

Connector No.	E226
Connector Name	FRONT CAMERA
Connector Color	BLACK



1	2	3
4	5	6

Terminal No.	Color of Wire	Signal Name
1	V	-
2	L	-
4	LG	-
5	SHIELD	-

AANIA2435GB

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P

AV

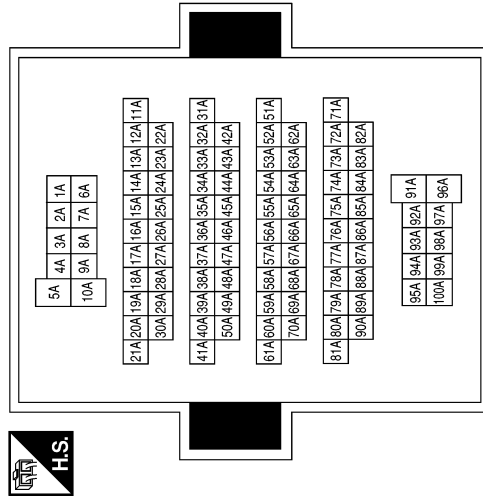
NAVIGATION WITHOUT BOSE

< WIRING DIAGRAM >

[NAVIGATION WITHOUT BOSE]

Terminal No.	Color of Wire	Signal Name
100A	G	—

Connector No.	B40
Connector Name	WIRE TO WIRE
Connector Color	GRAY



Connector No.	B16
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GREEN



Terminal No.	Color of Wire	Signal Name
60	L	CAN-H
80	P	CAN-L

Terminal No.	Color of Wire	Signal Name
60	L	CAN-H
80	P	CAN-L

Connector No.	B46
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
4	W	—
5	R	—
6	B	—
7	W	—
8	SHIELD	—

Connector No.	B42
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
12	LA/Y	—
13	LA/GR	—

Terminal No.	Color of Wire	Signal Name
13	W	—
24	P	—
25	L	—
26	G	—
29	SHIELD	—
30	W	—
31	B	—
32	R	—



Terminal No.	Color of Wire	Signal Name
13	W	—
24	P	—
25	L	—
26	G	—
29	SHIELD	—
30	W	—
31	B	—
32	R	—

Terminal No.	Color of Wire	Signal Name
13	W	—
24	P	—
25	L	—
26	G	—
29	SHIELD	—
30	W	—
31	B	—
32	R	—

AANIA2436GB

NAVIGATION WITHOUT BOSE

< WIRING DIAGRAM >

[NAVIGATION WITHOUT BOSE]

Connector No.	B101
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5
6	7	8	9	10
11	12			

Connector No.	B63
Connector Name	JOINT CONNECTOR-B01
Connector Color	GRAY



4	3	2	1
8	7	6	5
12	11	10	9
16	15	14	13
20	19	18	17
24	23	22	21

Connector No.	B51
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5
6	7	8	9	10
11	12			

Terminal No.	Color of Wire	Signal Name
4	LAV	-(WITHOUT BOSE AUDIO SYSTEM)
5	LAY	-(WITHOUT BOSE AUDIO SYSTEM)

Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

Terminal No.	Color of Wire	Signal Name
8	LA/GR	-(WITHOUT BOSE AUDIO SYSTEM)
9	LAY	-(WITHOUT BOSE AUDIO SYSTEM)

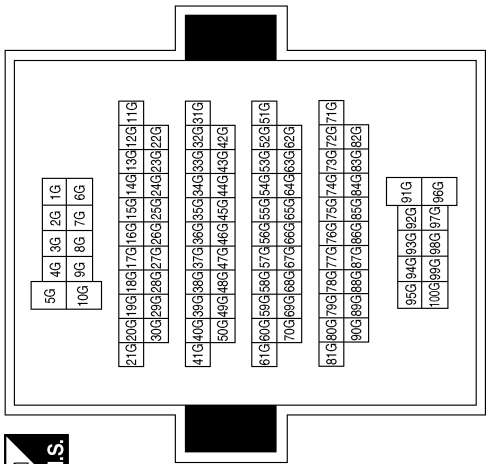
Connector No.	R8
Connector Name	MICROPHONE
Connector Color	WHITE



1	2	3	4	5	6
---	---	---	---	---	---

Terminal No.	Color of Wire	Signal Name
94G	LAV	-
99G	LAY	-

Connector No.	B136
Connector Name	WIRE TO WIRE
Connector Color	WHITE



AANIA2437GB

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P

AV

NAVIGATION WITHOUT BOSE

< WIRING DIAGRAM >

[NAVIGATION WITHOUT BOSE]

Connector No.	D3
Connector Name	WIRE TO WIRE
Connector Color	WHITE

7	6	5	4	3	2	1
12	11	10	9	8	7	6
24	23	22	21	20	19	18
17	16	15	14	13		



Terminal No.	Color of Wire	Signal Name
7	GR	-
8	G	-
9	Y	-
10	B	-

Connector No.	D2
Connector Name	WIRE TO WIRE
Connector Color	WHITE

7	6	5	4	3	2	1
16	15	14	13	12	11	10
9	8					



Terminal No.	Color of Wire	Signal Name
6	LA/L	-
7	LA/BR	-

Connector No.	R11
Connector Name	WIRE TO WIRE
Connector Color	WHITE

1	2	3	4	5	6	7	8	9	10	11	12
13	14	15	16	17	18	19	20	21	22	23	24



Terminal No.	Color of Wire	Signal Name
1	B	-
2	W	-
3	SHIELD	-

Connector No.	D101
Connector Name	WIRE TO WIRE
Connector Color	WHITE

7	6	5	4	3	2	1
12	11	10	9	8	7	6
24	23	22	21	20	19	18
17	16	15	14	13		



Terminal No.	Color of Wire	Signal Name
7	L	-
8	V	-
9	Y	-
10	B	-

Connector No.	D14
Connector Name	DOOR MIRROR LH
Connector Color	WHITE

8	7	6	5	4	3	2	1
16	15	14	13	12	11	10	9



Terminal No.	Color of Wire	Signal Name
7	GR	-
8	G	-
15	B	-
16	Y	-

Connector No.	D7
Connector Name	FRONT DOOR SPEAKER LH (WITHOUT BOSE AUDIO SYSTEM)
Connector Color	WHITE

2	1
---	---



Terminal No.	Color of Wire	Signal Name
1	LA/L	-
2	LA/BR	-

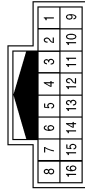
AANIA2438GB

NAVIGATION WITHOUT BOSE

< WIRING DIAGRAM >

[NAVIGATION WITHOUT BOSE]

Connector No.	D107
Connector Name	DOOR MIRROR RH
Connector Color	WHITE



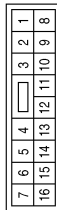
Terminal No.	Color of Wire	Signal Name
7	L	-
8	V	-
15	B	-
16	Y	-

Connector No.	D104
Connector Name	FRONT DOOR SPEAKER RH (WITHOUT BOSE AUDIO SYSTEM)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	LA/G	-
2	LA/R	-

Connector No.	D102
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
13	LA/R	-
14	LA/G	-

Connector No.	D301
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
4	LA/V	-
5	LA/Y	-

Connector No.	D203
Connector Name	REAR DOOR SPEAKER LH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	LA/L	-
2	LA/R	-

Connector No.	D201
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
8	LA/R	-
9	LA/L	-

AANIA2457GB

NAVIGATION WITHOUT BOSE

< WIRING DIAGRAM >

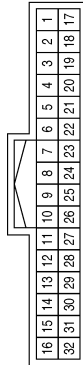
[NAVIGATION WITHOUT BOSE]

Connector No.	D504
Connector Name	REAR VIEW CAMERA (WITHOUT DRIVER ASSISTANCE SYSTEM)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	B	-
2	R	-
4	W	-
5	V	-

Connector No.	D501
Connector Name	WIRE TO WIRE
Connector Color	WHITE



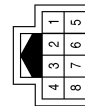
Terminal No.	Color of Wire	Signal Name
4	L	-
5	R	-
6	B	-
7	W	-
8	V	-

Connector No.	D303
Connector Name	REAR DOOR SPEAKER RH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	LA/V	-
2	LA/Y	-

Connector No.	D514
Connector Name	REAR VIEW CAMERA (WITH DRIVER ASSISTANCE SYSTEM)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	V	-
4	L	-
5	W	-
7	B	-
8	R	-

AANIA2458GB

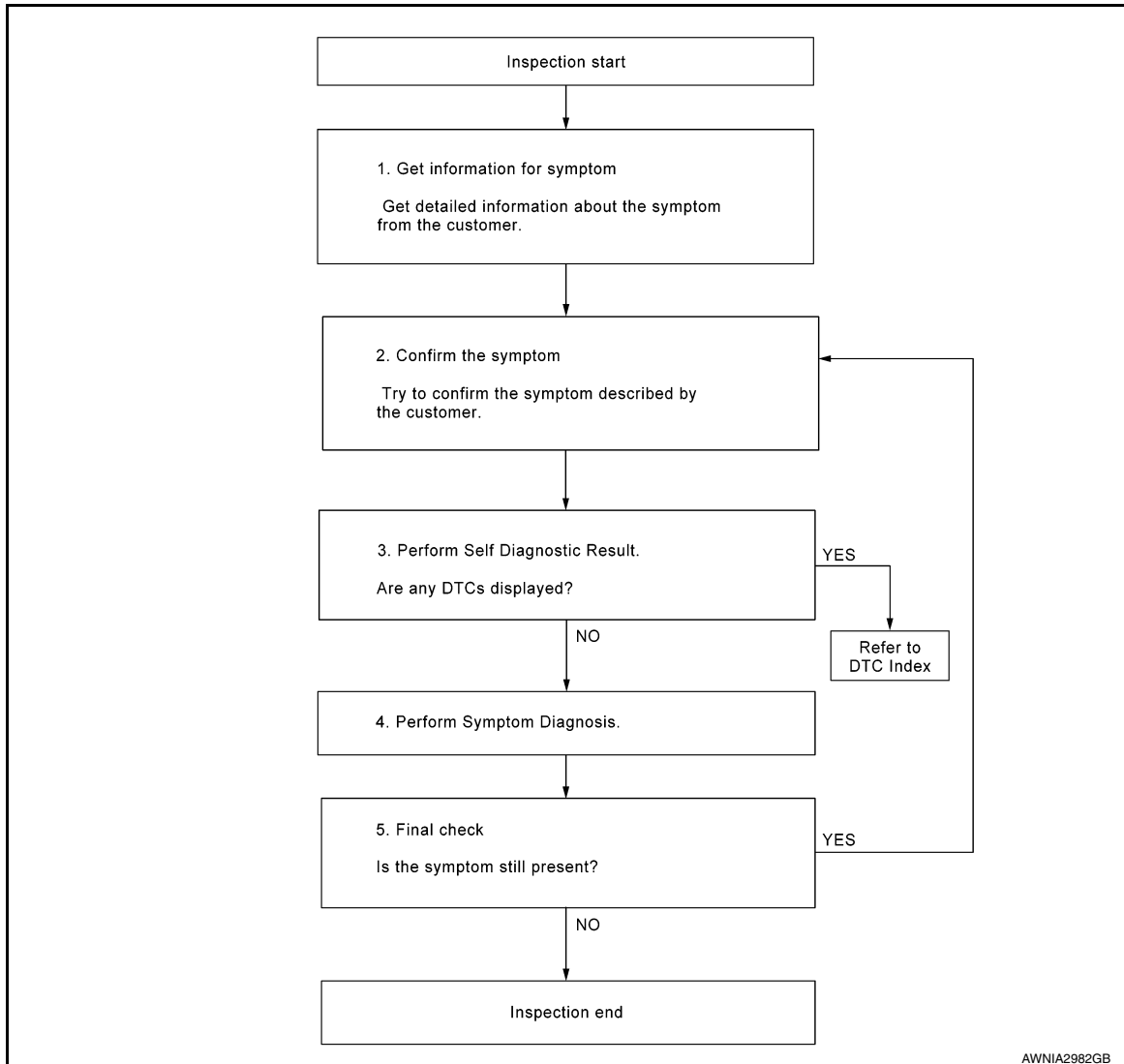
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:0000000010244519

OVERALL SEQUENCE



DETAILED FLOW

1.GET INFORMATION FOR SYMPTOM

Get detailed information from the customer about the symptom (the condition and the environment when the incident/malfunction occurred).

>> GO TO 2.

2.CONFIRM THE SYMPTOM

Try to confirm the symptom described by the customer. Verify relation between the symptom and the condition when the symptom is detected.

>> GO TO 3.

3.PERFORM SELF DIAGNOSTIC RESULT

1. Turn ignition switch ON and wait for 2 seconds or more.

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

[NAVIGATION WITHOUT BOSE]

2. Depending on system being diagnosed, perform Self Diagnostic Result for:

- MULTI AV.
- AVM.

Are any DTCs displayed?

YES >> Refer to [AV-100, "DTC Index"](#) (MULTI AV) or [AV-103, "WITHOUT DRIVER ASSISTANCE SYSTEM : DTC Index"](#) (AVM).

NO >> GO TO 4.

4.PERFORM SYMPTOM DIAGNOSIS

Refer to [AV-195, "Symptom Table"](#).

>> GO TO 5.

5.FINAL CHECK

Refer to symptom described by the customer in step 1.

Is the symptom still present?

YES >> GO TO 2.

NO >> Inspection End.

INSPECTION AND ADJUSTMENT

ADDITIONAL SERVICE WHEN REPLACING AV CONTROL UNIT

ADDITIONAL SERVICE WHEN REPLACING AV CONTROL UNIT : Description

INFOID:0000000010244520

BEFORE REPLACEMENT

When replacing AV control unit, save or print current vehicle specification with CONSULT configuration before replacement.

NOTE:

If "Before Replace ECU" cannot be used, use the "After Replace ECU" or "Manual Configuration" after replacing AV control unit.

AFTER REPLACEMENT

CAUTION:

When replacing AV control unit, you must perform "After Replace ECU" with CONSULT.

- Complete the procedure of "After Replace ECU" in order.
- If you set incorrect "After Replace ECU", incidents might occur.
- Configuration is different for each vehicle model. Confirm configuration of each vehicle model.

ADDITIONAL SERVICE WHEN REPLACING AV CONTROL UNIT : Work Procedure

INFOID:0000000010244521

1. SAVING VEHICLE SPECIFICATION

 CONSULT

Enter "Re/Programming, Configuration" and perform "Before Replace ECU" to save or print current vehicle specification.

NOTE:

If "Before Replace ECU" cannot be used, use the "After Replace ECU" or "Manual Configuration" after replacing AV control unit.

>> GO TO 2.

2. REPLACE AV CONTROL UNIT

Replace AV control unit. Refer to [AV-209, "Removal and Installation"](#).

>> GO TO 3.

3. WRITING VEHICLE SPECIFICATION

 CONSULT

1. Enter "Re/Programming, Configuration".
2. If "Before Replace ECU" operation was performed, automatically an "Operation Log Selection" screen will be displayed. Select the applicable file from the "Saved Data List" and press "Confirm" to write vehicle specification. Refer to [AV-133, "CONFIGURATION \(AV CONTROL UNIT\) : Work Procedure"](#).
3. If "Before Replace ECU" operation was not performed, select "After Replace ECU" or "Manual Configuration" to write vehicle specification. Refer to [AV-133, "CONFIGURATION \(AV CONTROL UNIT\) : Work Procedure"](#).

>> GO TO 4.

4. OPERATION CHECK

Check that the operation of the AV control unit and camera images (fixed guide lines) are normal.

>> Work End.

ADDITIONAL SERVICE WHEN REPLACING AROUND VIEW MONITOR CONTROL UNIT

ADDITIONAL SERVICE WHEN REPLACING AROUND VIEW MONITOR CONTROL UNIT : Description

INFOID:0000000010244522

BEFORE REPLACEMENT

When replacing around view monitor control unit, save or print current vehicle specification with CONSULT configuration before replacement.

NOTE:

If "Before Replace ECU" cannot be used, use the "After Replace ECU" or "Manual Configuration" after replacing around view monitor control unit.

AFTER REPLACEMENT

CAUTION:

When replacing around view monitor control unit, you must perform "After Replace ECU" with CONSULT.

- Complete the procedure of "After Replace ECU" in order.
- If you set incorrect "After Replace ECU", incidents might occur.
- Configuration is different for each vehicle model. Confirm configuration of each vehicle model.

ADDITIONAL SERVICE WHEN REPLACING AROUND VIEW MONITOR CONTROL UNIT : Work Procedure

INFOID:0000000010244523

1. SAVING VEHICLE SPECIFICATION

Ⓟ-CONSULT

Enter "Re/Programming, Configuration" and perform "Before Replace ECU" to save or print current vehicle specification.

NOTE:

If "Before Replace ECU" cannot be used, use the "After Replace ECU" or "Manual Configuration" after replacing around view monitor control unit.

>> GO TO 2.

2. REPLACE AROUND VIEW MONITOR CONTROL UNIT

Replace around view monitor control unit. Refer to [AV-217, "Removal and Installation"](#).

>> GO TO 3.

3. WRITING VEHICLE SPECIFICATION

ⓅCONSULT

1. Enter "Re/Programming, Configuration".
2. If "Before Replace ECU" operation was performed, automatically an "Operation Log Selection" screen will be displayed. Select the applicable file from the "Saved Data List" and press "Confirm" to write vehicle specification. Refer to [AV-134, "CONFIGURATION \(AROUND VIEW MONITOR CONTROL UNIT\) : Work Procedure"](#).
3. If "Before Replace ECU" operation was not performed, select "After Replace ECU" or "Manual Configuration" to write vehicle specification. Refer to [AV-134, "CONFIGURATION \(AROUND VIEW MONITOR CONTROL UNIT\) : Work Procedure"](#).

>> GO TO 4.

4. OPERATION CHECK

Check that the operation of the around view monitor control unit and camera images (fixed guide lines and predictive course lines) are normal.

>> Work End.

CONFIGURATION (AV CONTROL UNIT)

INSPECTION AND ADJUSTMENT

< BASIC INSPECTION >

[NAVIGATION WITHOUT BOSE]

CONFIGURATION (AV CONTROL UNIT) : Description

INFOID:0000000010244524

Vehicle specification needs to be written with CONSULT because it is not written after replacing AV control unit.

Configuration has three functions as follows:

Function	Description
"Before Replace ECU"	• Reads the vehicle configuration of current AV control unit. • Saves the read vehicle configuration.
"After Replace ECU"	Writes the vehicle configuration with manual selection.
"Select Saved Data List"	Writes the vehicle configuration with saved data.

CAUTION:

- When replacing AV control unit, you must perform "Select Saved Data List" or "After Replace ECU" with CONSULT.
- Complete the procedure of "Select Saved Data List" or "After Replace ECU" in order.
- If you set incorrect "Select Saved Data List" or "After Replace ECU", incidents might occur.
- Configuration is different for each vehicle model. Confirm configuration of each vehicle model.
- Never perform "Select Saved Data List" or "After Replace ECU" except for new AV control unit.

CONFIGURATION (AV CONTROL UNIT) : Work Procedure

INFOID:0000000010244525

1. WRITING MODE SELECTION

CONSULT

Select "Reprogramming, Configuration" of AV control unit.

When writing saved data>>GO TO 2.

When writing manually>>GO TO 3.

2. PERFORM "SAVED DATA LIST"

CONSULT

Automatically "Operation Log Selection" window will display if "Before Replace ECU" was performed. Select applicable file from the "Save Data List" and press "Confirm".

>> Work End.

3. PERFORM "AFTER REPLACE ECU" OR "MANUAL CONFIGURATION"

CONSULT

1. Select "After Replace ECU" or "Manual Configuration".
2. Identify the correct model and configuration list. Refer to [AV-134. "CONFIGURATION \(AV CONTROL UNIT\) : Configuration List"](#).
3. Confirm and/or change setting value for each item.

CAUTION:

Thoroughly read and understand the vehicle specification. ECU control may not operate normally if the setting is not correct.

4. Select "Next".

CAUTION:

Make sure to select "Next", confirm each setting value and press "OK" even if the indicated configuration of brand new AV control unit is same as the desirable configuration. If not, configuration which is set automatically by selecting vehicle model can not be memorized.

5. When "Completed", select "End".

>> GO TO 4.

4. OPERATION CHECK

Confirm that each function controlled by AV control unit operates normally.

>> Work End.

CONFIGURATION (AV CONTROL UNIT) : Configuration List

INFOID:0000000010244526

CAUTION:

Thoroughly read and understand the vehicle specification. Incorrect settings may result in abnormal control of ECU.

MANUAL SETTING ITEM	
Items	Setting value
SOUND SYSTEM	BASE ⇔ BOSE
CAMERA SYSTEM	NONE/AVM ⇔ REAR CAMERA

⇔: Items which confirm vehicle specifications

CONFIGURATION (AROUND VIEW MONITOR CONTROL UNIT)

CONFIGURATION (AROUND VIEW MONITOR CONTROL UNIT) : Description

INFOID:0000000010244527

Vehicle specification needs to be written with CONSULT because it is not written after replacing around view monitor control unit.

Configuration has three functions as follows:

Function	Description
"Before Replace ECU"	- Reads the vehicle configuration of current around view monitor control unit. - Saves the read vehicle configuration.
"After Replace ECU"	Writes the vehicle configuration with manual selection.
"Select Saved Data List"	Writes the vehicle configuration with saved data.

CAUTION:

- When replacing around view monitor control unit, you must perform "Select Saved Data List" or "After Replace ECU" with CONSULT.
- Complete the procedure of "Select Saved Data List" or "After Replace ECU" in order.
- If you set incorrect "Select Saved Data List" or "After Replace ECU", incidents might occur.
- Configuration is different for each vehicle model. Confirm configuration of each vehicle model.
- Never perform "Select Saved Data List" or "After Replace ECU" except for new around view monitor control unit.

CONFIGURATION (AROUND VIEW MONITOR CONTROL UNIT) : Work Procedure

INFOID:0000000010244528

1. WRITING MODE SELECTION

CONSULT

Select "Reprogramming, Configuration" of around view monitor control unit.

When writing saved data>>GO TO 2.

When writing manually>>GO TO 3.

2. PERFORM "SAVED DATA LIST"

CONSULT

Automatically "Operation Log Selection" window will display if "Before Replace ECU" was performed. Select applicable file from the "Save Data List" and press "Confirm".

>> Work End.

3. PERFORM "AFTER REPLACE ECU" OR "MANUAL CONFIGURATION"

CONSULT

- Select "After Replace ECU" or "Manual Configuration".

INSPECTION AND ADJUSTMENT

< BASIC INSPECTION >

[NAVIGATION WITHOUT BOSE]

- Identify the correct model and configuration list. Refer to [AV-135. "CONFIGURATION \(AROUND VIEW MONITOR CONTROL UNIT\) : Configuration List"](#).
- Confirm and/or change setting value for each item.

CAUTION:

Thoroughly read and understand the vehicle specification. ECU control may not operate normally if the setting is not correct.

- Select "Next".

CAUTION:

Make sure to select "Next", confirm each setting value and press "OK" even if the indicated configuration of brand new around view monitor control unit is same as the desirable configuration. If not, configuration which is set automatically by selecting vehicle model can not be memorized.

- When "Completed", select "End".

>> GO TO 4.

4. OPERATION CHECK

Confirm that each function controlled by around view monitor control unit operates normally.

>> Work End.

CONFIGURATION (AROUND VIEW MONITOR CONTROL UNIT) : Configuration List

INFOID:0000000010244529

CAUTION:

Thoroughly read and understand the vehicle specification. Incorrect settings may result in abnormal control of ECU.

MANUAL SETTING ITEM	
Items	Setting value
BCI FUNCTION	WITH ⇔ WITHOUT

⇔: Items which confirm vehicle specifications

PREDICTED COURSE LINE CENTER POSITION ADJUSTMENT

PREDICTED COURSE LINE CENTER POSITION ADJUSTMENT : Description

INFOID:0000000010244530

Adjust the center position of the predictive course line of the rear view monitor if it is shifted.

PREDICTED COURSE LINE CENTER POSITION ADJUSTMENT : Work Procedure

INFOID:0000000010244531

1. DRIVING

Drive the vehicle straight ahead 100 m (328.1 ft) or more at a speed of 30 km/h (18.6 MPH) or more.

>> End.

CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR)

CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR) : Description

INFOID:0000000010244532

- Calibration must be performed after removing/replacing the cameras, removing parts (e.g. front grille, door mirror, and others) mounted on the cameras, or replacing the Around view monitor control unit.
- The use of CONSULT is required to perform calibration or writing of calibration results to the Around view monitor control unit.
- Align the white lines on the road near the vehicle at the boundary of each camera image by this camera calibration. The white lines far from the vehicle may not be aligned at the boundary of each camera image. The farther the line, the greater the difference is.

INSPECTION AND ADJUSTMENT

< BASIC INSPECTION >

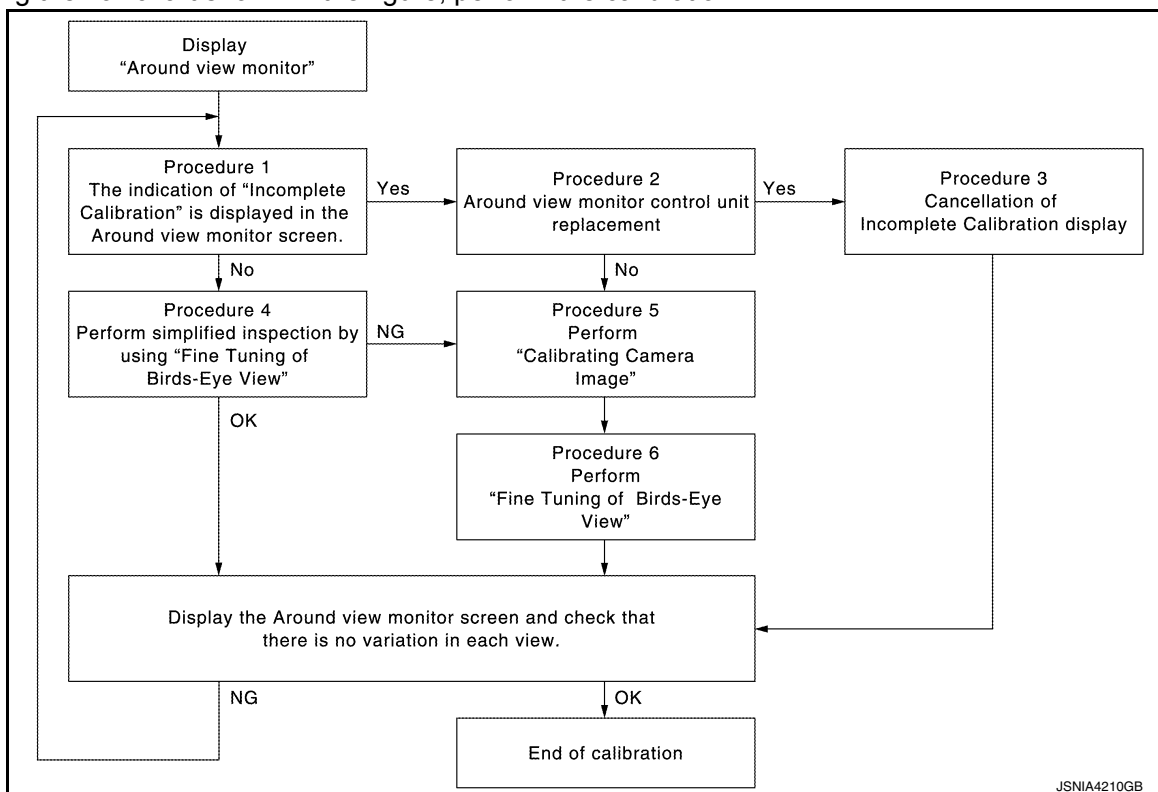
[NAVIGATION WITHOUT BOSE]

CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR) : Work Procedure

INFOID:000000010244533

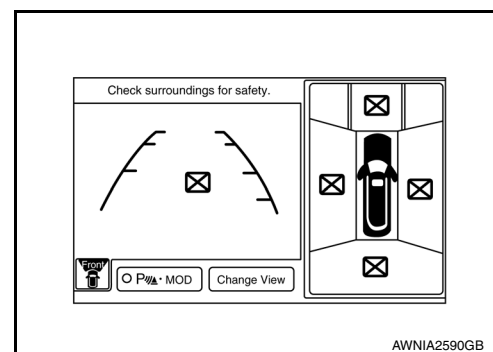
CALIBRATION FLOWCHART

Following the flowchart shown in the figure, perform the calibration.



NOTE:

View in the incomplete calibration state is indicated by "⊠" on the around view monitor.



CALIBRATION PROCEDURE

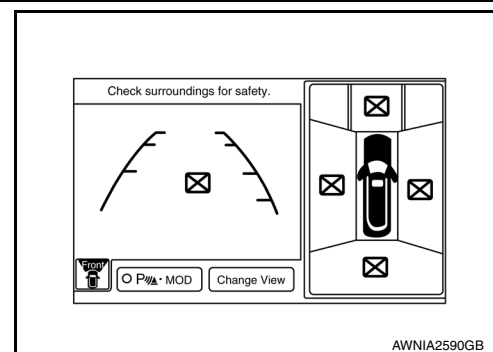
1. AROUND VIEW MONITOR SCREEN CONFIRMATION

Check that there is no indication of "Incomplete calibration".

Is the "Incomplete calibration" display visible?

YES >> GO TO 2.

NO >> GO TO 4.



2. CHECK THAT AROUND VIEW MONITOR CONTROL UNIT IS REPLACED

Check that the around view monitor control unit is replaced.

Is the around view monitor control unit replaced?

YES >> GO TO 3.

NO >> GO TO 5.

3. CANCEL THE INDICATION OF INCOMPLETE CALIBRATION (PERFORM THIS ONLY AFTER REPLACING AROUND VIEW MONITOR CONTROL UNIT.)

CONSULT work support

- On the CONSULT screen, touch "CALIBRATING CAMERA IMAGE (FRONT CAMERA)", "CALIBRATING CAMERA IMAGE (PASS-SIDE CAMERA)", "CALIBRATING CAMERA IMAGE (DR-SIDE CAMERA)", or "CALIBRATING CAMERA IMAGE (REAR CAMERA)" to accept the selection.

NOTE:

To cancel the indication of Incomplete calibration, select items based on the target camera.

- On the adjustment screen of each camera, touch "APPLY" button. After this, touch "OK" button.

CAUTION:

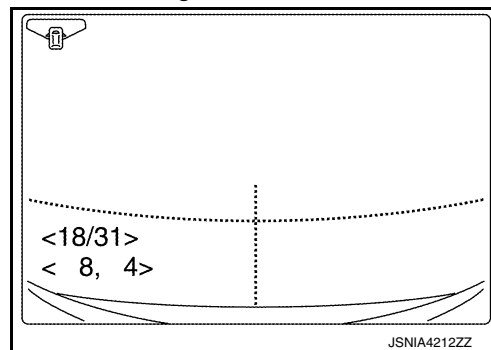
- Never perform operations other than those mentioned above.
- Never perform "Initialize Camera Image Calibration".

- Display the around view monitor screen to check that there is no errors, such as deviations among the camera images.

Is there a malfunction?

YES >> Calibration End.

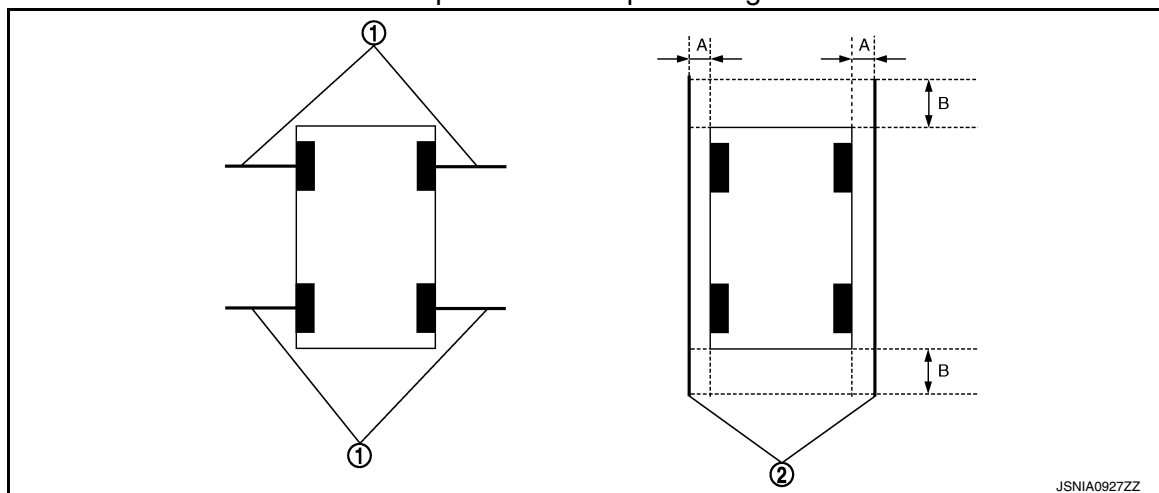
NO >> GO TO 1.



4. PERFORM SIMPLIFIED CONFIRMATION/ADJUSTMENT BY "FINE TUNING OF BIRDS-EYE VIEW"

- Put target line 1 on the ground beside each axle using packing tape, etc.
- Put target lines 2 equal to the vehicle total length + approximately 1.0 m (39.3 in) from the vehicle side (right and left) at approximately 30 cm (11.8 in) away from the vehicle (make the line as parallel with the vehicle as possible)

Preparation of simplified target line



1. Target lines 1

2. Target lines 2

A. Approx. 30 cm (11.8 in)

B. Approx. 1.0 m (39.3 in)

3. CONSULT work support

Touch "FINE TUNING OF BIRDS-EYE VIEW" on the CONSULT screen.

- On the CONSULT screen, touch "SELECT" button to select right or left camera and perform camera calibration as instructed below:
 - If the marker on the screen deviates from Target line 1, touch "AXIS X" button and "AXIS Y" button to adjust so that the marker is placed on the Target line 1.
 - If Target line 2 is misaligned among the cameras, adjust each camera image to bring Target line 2 into a straight line.

CAUTION:

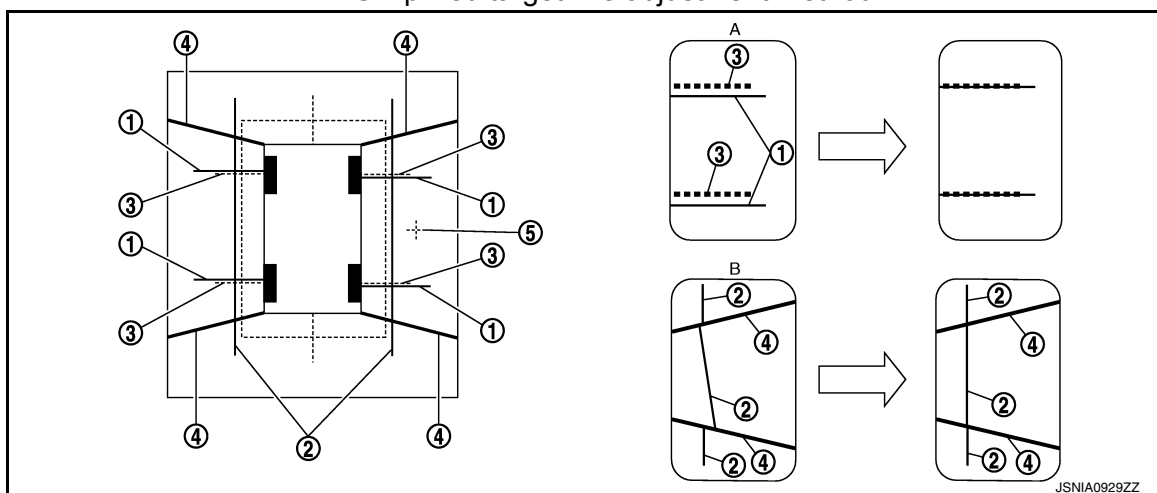
INSPECTION AND ADJUSTMENT

< BASIC INSPECTION >

[NAVIGATION WITHOUT BOSE]

Never adjust the front camera and rear camera. Only adjust the right and left cameras.

Simplified target line adjustment method



- | | | |
|---|---|-----------------------------|
| 1. Target lines 1 | 2. Target lines 2 | 3. Marker for target line 1 |
| 4. Boundary between cameras | 5. Crosshairs cursor (mark indicated the selected camera) | |
| A. Adjustment method for target lines 1 (right) | B. Adjustment method for target lines 2 (right) | |

- Adjust right and left cameras. Touch "APPLY" on the CONSULT screen to display adjustment results.
- After adjusting right and left cameras, check that the marker is properly placed on the screen and there is no deviation in Target line 1.

NOTE:

- It can be initialized to the NISSAN factory default condition with "Initialize Camera Image Calibration".
- The adjustment value is cancelled on this mode by performing "Initialize Camera Image Calibration".

Is the difference corrected?

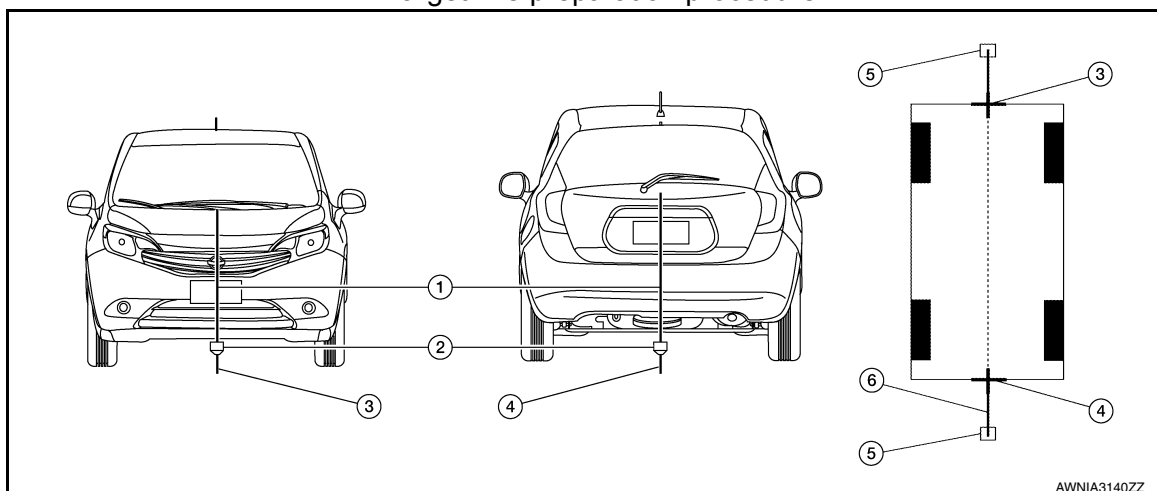
- YES >> On the CONSULT screen, touch "OK" button to complete writing to the around view monitor control unit.
- NO >> GO TO 5.

5.PERFORM "CALIBRATING CAMERA IMAGE"

Preparation of target line

- Hang a string with a weight as shown in the figure. Put the points FM0, RM0 (mark) on the ground at the center of the vehicle front end and rear end with white packing tape or a pen.
- Route the vinyl string under the vehicle, and then pull and fix it on the point approximately 1.0 m (39.9 in) to the front and rear of the vehicle through the points FM0 and RM0 using packing tape.

Target line preparation procedure 1



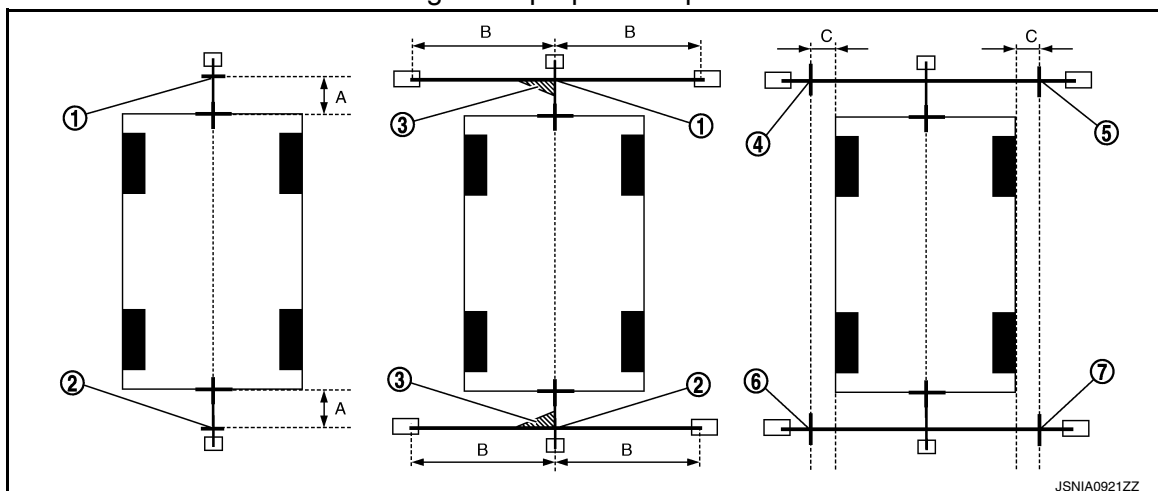
INSPECTION AND ADJUSTMENT

< BASIC INSPECTION >

[NAVIGATION WITHOUT BOSE]

1. Thread
2. Weight
3. Point FM0 (mark)
4. Point RM0 (mark)
5. Packing tape (to fix the vinyl string)
6. Vinyl string
3. Put the points FM and RM (mark) 75 cm (29.5 in) from the points FM0 and RM0 individually.
4. Route the vinyl string through the points FM and RM using a triangle scale, and then fix it at approximately 1.5 m (59 in) on both sides with packing tape.
5. Put the points FL, FR, RL, and RR (mark) to both right and left [vehicle width / 2 + 30 cm (11.8 in)] from the points FM and RM.

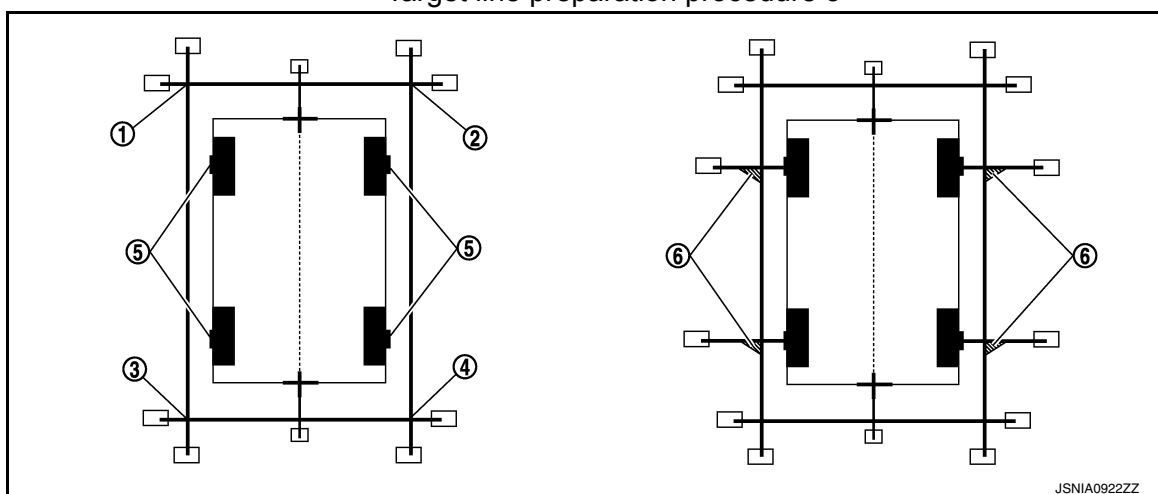
Target line preparation procedure 2



1. Point FM
 2. Point RM
 3. Triangle scale
 4. Point FL (mark)
 5. Point FR (mark)
 6. Point RL (mark)
 7. Point RR (mark)
- A. 75 cm (29.5 in)
- B. Approx. 1.5 m (59 in)
- C. 30 cm (11.8 in)
[Vehicle width / 2 + 30 cm (11.8 in) from the points FM and RM]

6. Draw the lines of the points FL – RL and FR – RR with vinyl string, and fix it with packing tape.
7. Put a mark on the center of each axle, draw vertical lines to the lines of the points FL – RL and FR – RR from the marks on the center of the axle using a triangle scale, and then fix the lines using packing tape.

Target line preparation procedure 3



1. Point FL
2. Point FR
3. Point RL
4. Point RR
5. Center position of axle
6. Triangle scale

Perform “Calibrating Camera Image”

CONSULT work support

INSPECTION AND ADJUSTMENT

< BASIC INSPECTION >

[NAVIGATION WITHOUT BOSE]

1. On the CONSULT screen, touch "CALIBRATING CAMERA IMAGE (FRONT CAMERA)", "CALIBRATING CAMERA IMAGE (PASS-SIDE CAMERA)", "CALIBRATING CAMERA IMAGE (DR-SIDE CAMERA)", or "CALIBRATING CAMERA IMAGE (REAR CAMERA)" to accept the selection.

NOTE:

To cancel the indication of Incomplete calibration, select items based on the target camera.

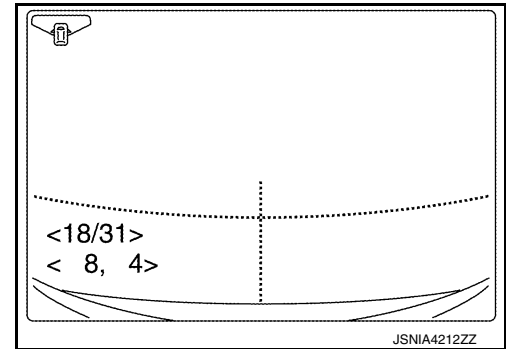
2. On the adjustment screen of each camera, adjust the parameter by touching the "AXIS X" button, "AXIS Y" button, and "ROTATE" button to place the calibration marker shown on the camera screen on the target line drawn on the ground.

Adjustment range

Rotation direction (Center dial) : 31 patterns (16 on the center)

Upper/lower direction (upper/lower switch) : -22 - 22

Left/right direction (left/right switch) : -22 - 22



3. Touch "APPLY" button on the CONSULT screen. "PRCSNG" is displayed and adjustment results are shown on the camera screen.

CAUTION:

Check that "PRCSNG" is displayed. Never perform other operations while "PRCSNG" is displayed.

4. Touch "OK" button on the CONSULT screen. "PRCSNG" is displayed and adjustment results are written to the around view monitor control unit.

CAUTION:

Check that "PRCSNG" is displayed. Never perform other operations while "PRCSNG" is displayed.

>> GO TO 6.

6.PERFORM "FINE TUNING OF BIRDS-EYE VIEW"

This mode is designed to align the boundary between each camera image that could not be aligned in the "Calibrating Camera Image" mode.

ⓅCONSULT work support

1. Select "FINE TUNING OF BIRDS-EYE VIEW" by touching CONSULT screen.

2. On the adjustment screen of each camera, adjust the parameter by touching the "AXIS X" button, "AXIS Y" button, and "ROTATE" button to place the calibration marker shown on the camera screen on the target line drawn on the ground.

NOTE:

Touch "SELECT" button on the CONSULT screen to select the target camera.

3. Touch "APPLY" button on the CONSULT screen. "PRCSNG" is displayed and adjustment results are shown on the camera screen.

CAUTION:

Check that "PRCSNG" is displayed. Never perform other operations while "PRCSNG" is displayed.

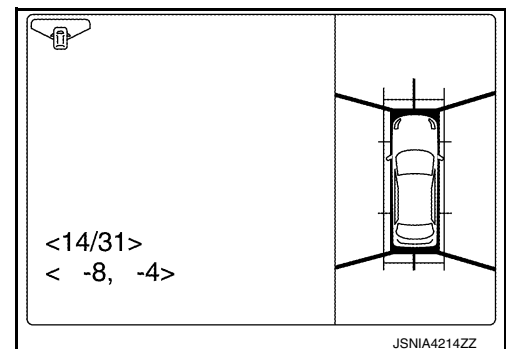
4. Touch "OK" button on the CONSULT screen. "PRCSNG" is displayed and adjustment results are written to the around view monitor control unit.

CAUTION:

- Check that "PRCSNG" is displayed. Never perform other operations while "PRCSNG" is displayed.
- After pressing the "OK" button, never press buttons other than the "BACK" button.

NOTE:

- It can be initialized to the NISSAN factory default condition with "Initialize Camera Image Calibration".
- The adjustment value is cancelled in this mode by performing "Initialize Camera Image Calibration".



>> Calibration End.

U0428 STEERING ANGLE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

DTC/CIRCUIT DIAGNOSIS

U0428 STEERING ANGLE SENSOR

DTC Logic

INFOID:0000000010244536

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
ST ANG SEN CALIB [U0428]	The neutral position adjustment of the steering angle sensor is incomplete.	Adjust neutral position of the steering angle sensor.

Diagnosis Procedure

INFOID:0000000010244537

1. ADJUST THE NEUTRAL POSITION OF THE STEERING ANGLE SENSOR

When U0428 is detected, adjust the neutral position of the steering angle sensor.

>> Perform adjustment of the neutral position of the steering angle sensor. Refer to [AV-93. "WITHOUT DRIVER ASSISTANCE SYSTEM : CONSULT Function"](#).

A
B
C
D
E
F
G
H
I
J
K
L
M
O
P

AV

U1000 CAN COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

U1000 CAN COMM CIRCUIT

AV CONTROL UNIT

AV CONTROL UNIT : DTC Logic

INFOID:0000000010244538

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
CAN COMM CIRCUIT [U1000]	AV control unit is not transmitting or receiving CAN communication signal for 2 seconds or more.	CAN communication system.

AV CONTROL UNIT : Diagnosis Procedure

INFOID:0000000010244539

1.PERFORM SELF DIAGNOSTIC RESULT

1. Turn ignition switch ON and wait for 2 seconds or more.
2. Perform "Self Diagnostic Result" for "MULTI AV".

Is CAN COMM CIRCUIT displayed?

YES >> Refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).

NO >> Refer to [GI-41, "Intermittent Incident"](#).

AROUND VIEW MONITOR CONTROL UNIT

AROUND VIEW MONITOR CONTROL UNIT : DTC Logic

INFOID:0000000010244540

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
CAN COMM CIRCUIT [U1000]	Around view monitor control unit is not transmitting or receiving CAN communication signal for 2 seconds or more.	CAN communication system.

AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure

INFOID:0000000010244541

1.PERFORM SELF DIAGNOSTIC RESULT

1. Turn ignition switch ON and wait for 2 seconds or more.
2. Perform "Self Diagnostic Result" for "AVM".

Is CAN COMM CIRCUIT displayed?

YES >> Refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).

NO >> Refer to [GI-41, "Intermittent Incident"](#).

U1010 CONTROL UNIT (CAN)

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

U1010 CONTROL UNIT (CAN)

AV CONTROL UNIT

AV CONTROL UNIT : DTC Logic

INFOID:0000000010244542

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
CONTROL UNIT (CAN) [U1010]	Error during CAN controller hardware initialization (VCAN).	Replace the AV control unit if the malfunction occurs constantly. Refer to AV-209, "Removal and Installation" .

AROUND VIEW MONITOR CONTROL UNIT

AROUND VIEW MONITOR CONTROL UNIT : DTC Logic

INFOID:0000000010244543

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
CONTROL UNIT (CAN) [U1010]	Error during CAN controller hardware initialization (VCAN).	Replace the Around view monitor control unit if the malfunction occurs constantly. Refer to AV-217, "Removal and Installation" .

AV

U111A REAR CAMERA IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

U111A REAR CAMERA IMAGE SIGNAL CIRCUIT

DTC Logic

INFOID:0000000010244544

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
Rear display output signal diagnosis (Harness disconnection) [U111A]	Rear view camera image signal circuit open or short.	Check rear view camera image signal circuit.

Diagnosis Procedure

INFOID:0000000010244545

Regarding Wiring Diagram information, refer to [AV-108, "Wiring Diagram"](#).

WITHOUT DRIVER ASSISTANCE SYSTEM

1.CHECK REAR VIEW CAMERA POWER SUPPLY AND GROUND CIRCUIT CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit and rear view camera connectors.
3. Check continuity between around view monitor control unit connector M103 and rear view camera connector D504.

Around view monitor control unit		Rear view camera		Continuity
Connector	Terminals	Connector	Terminals	
M103	26	D504	2	Yes
	25		1	

4. Check continuity between around view monitor control unit connector M103 and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M103	26		No

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness or connectors.

2.CHECK REAR VIEW CAMERA POWER SUPPLY VOLTAGE

1. Connect around view monitor control unit and rear view camera connectors.
2. Turn ignition switch ON.
3. Check voltage between around view monitor control unit connector M103 and ground.

Around view monitor control unit		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
M103	26	—	CAMERA switch is ON or selector lever in R (reverse).	6.0 V

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace around view monitor control unit. Refer to [AV-217, "Removal and Installation"](#).

3.CHECK REAR VIEW CAMERA IMAGE SIGNAL AND IMAGE SIGNAL GROUND CIRCUIT CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit and rear view camera connectors.

U111A REAR CAMERA IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

3. Check continuity between around view monitor control unit connector M103 and rear view camera connector D504.

Around view monitor control unit		Rear view camera		Continuity
Connector	Terminals	Connector	Terminals	
M103	28	D504	4	Yes
	27		5	

4. Check continuity between around view monitor control unit connector M103 and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M103	28		No

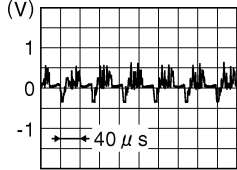
Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness or connectors.

4.CHECK REAR VIEW CAMERA IMAGE SIGNAL

1. Connect around view monitor control unit and rear view camera connectors.
2. Turn ignition switch ON.
3. Check signal between the terminals of around view monitor control unit connector M103.

Around view monitor control unit connector M103		Condition	Reference value
(+)	(-)		
Terminal	Terminal		
28	27	CAMERA switch is ON or selector lever in R (reverse).	 JSNIA0834GB

Is the inspection result normal?

YES >> Replace around view monitor control unit. Refer to [AV-217, "Removal and Installation"](#).

NO >> Replace rear view camera. Refer to [AV-220, "Removal and Installation"](#).

WITH DRIVER ASSISTANCE SYSTEM

1.CHECK REAR VIEW CAMERA POWER SUPPLY AND GROUND CIRCUIT CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit and rear view camera connectors.
3. Check continuity between around view monitor control unit connector M114 and rear view camera connector D514.

Around view monitor control unit		Rear view camera		Continuity
Connector	Terminals	Connector	Terminals	
M114	50	D514	8	Yes
	52		7	

4. Check continuity between around view monitor control unit connector M114 and ground.

U111A REAR CAMERA IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M114	50		No

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness or connectors.

2.CHECK REAR VIEW CAMERA POWER SUPPLY VOLTAGE

1. Connect around view monitor control unit and rear view camera connectors.
2. Turn ignition switch ON.
3. Check voltage between around view monitor control unit connector M114 and ground.

Around view monitor control unit		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
M114	50	—	CAMERA switch is ON or selector lever in R (reverse).	6.0 V

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace around view monitor control unit. Refer to [AV-217, "Removal and Installation"](#).

3.CHECK REAR VIEW CAMERA IMAGE SIGNAL AND IMAGE SIGNAL GROUND CIRCUIT CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit and rear view camera connectors.
3. Check continuity between around view monitor control unit connector M114 and rear view camera connector D514.

Around view monitor control unit		Rear view camera		Continuity
Connector	Terminals	Connector	Terminals	
M114	53	D514	5	Yes
	54		1	

4. Check continuity between around view monitor control unit connector M114 and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M114	53		No

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness or connectors.

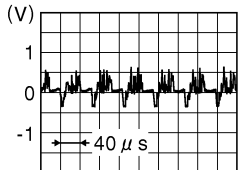
4.CHECK REAR VIEW CAMERA IMAGE SIGNAL

1. Connect around view monitor control unit and rear view camera connectors.
2. Turn ignition switch ON.
3. Check signal between the terminals of around view monitor control unit connector M114.

U111A REAR CAMERA IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

Around view monitor control unit connector M114		Condition	Reference value
(+)	(-)		
Terminal	Terminal		
53	54	CAMERA switch is ON or selector lever in R (reverse).	 JSNIA0834GB

Is the inspection result normal?

- YES >> Replace around view monitor control unit. Refer to [AV-217, "Removal and Installation"](#).
 NO >> Replace rear view camera. Refer to [AV-220, "Removal and Installation"](#).

AV

U111B SIDE CAMERA RH IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

U111B SIDE CAMERA RH IMAGE SIGNAL CIRCUIT

DTC Logic

INFOID:0000000010244546

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
Right side display output signal diagnosis (Harness disconnection) [U111B]	Right side camera image signal circuit open or short.	Check right side camera image signal circuit.

Diagnosis Procedure

INFOID:0000000010244547

Regarding Wiring Diagram information, refer to [AV-108, "Wiring Diagram"](#).

WITHOUT DRIVER ASSISTANCE SYSTEM

1.CHECK RH SIDE CAMERA POWER SUPPLY AND GROUND CIRCUIT CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit and RH side camera connectors.
3. Check continuity between around view monitor control unit connector M103 and RH side camera connector D107.

Around view monitor control unit		RH side camera		Continuity
Connector	Terminals	Connector	Terminals	
M103	34	D107	7	Yes
	33		8	

4. Check continuity between around view monitor control unit connector M103 and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M103	34		No

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness or connectors.

2.CHECK RH SIDE CAMERA POWER SUPPLY VOLTAGE

1. Connect around view monitor control unit and RH side camera connectors.
2. Turn ignition switch ON.
3. Check voltage between around view monitor control unit connector M103 and ground.

Around view monitor control unit		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
M103	34	—	CAMERA switch is ON or selector lever in R (reverse).	6.0 V

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace around view monitor control unit. Refer to [AV-217, "Removal and Installation"](#).

3.CHECK RH SIDE CAMERA IMAGE SIGNAL AND IMAGE SIGNAL GROUND CIRCUIT CONTINUITY

1. Turn ignition switch OFF.

U111B SIDE CAMERA RH IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

2. Disconnect around view monitor control unit and RH side camera connectors.
3. Check continuity between around view monitor control unit connector M103 and RH side camera connector D107.

Around view monitor control unit		RH side camera		Continuity
Connector	Terminals	Connector	Terminals	
M103	36	D107	16	Yes
	35		15	

4. Check continuity between around view monitor control unit connector M103 and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M103	36		No

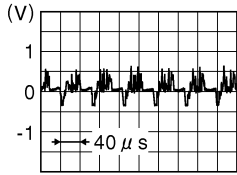
Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness or connectors.

4.CHECK RH SIDE CAMERA IMAGE SIGNAL

1. Connect around view monitor control unit and RH side camera connectors.
2. Turn ignition switch ON.
3. Check signal between the terminals of around view monitor control unit connector M103.

Around view monitor control unit connector M103		Condition	Reference value
(+)	(-)		
Terminal	Terminal		
36	35	CAMERA switch is ON or selector lever in R (reverse).	

Is the inspection result normal?

YES >> Replace around view monitor control unit. Refer to [AV-217, "Removal and Installation"](#).

NO >> Replace RH side camera. Refer to [AV-219, "Removal and Installation"](#).

WITH DRIVER ASSISTANCE SYSTEM

1.CHECK RH SIDE CAMERA POWER SUPPLY AND GROUND CIRCUIT CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit and RH side camera connectors.
3. Check continuity between around view monitor control unit connector M114 and RH side camera connector D107.

Around view monitor control unit		RH side camera		Continuity
Connector	Terminals	Connector	Terminals	
M114	62	D107	7	Yes
	64		8	

4. Check continuity between around view monitor control unit connector M114 and ground.

U111B SIDE CAMERA RH IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M114	62		No

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness or connectors.

2.CHECK RH SIDE CAMERA POWER SUPPLY VOLTAGE

1. Connect around view monitor control unit and RH side camera connectors.
2. Turn ignition switch ON.
3. Check voltage between around view monitor control unit connector M114 and ground.

Around view monitor control unit		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
M114	62	—	CAMERA switch is ON or selector lever in R (reverse).	6.0 V

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace around view monitor control unit. Refer to [AV-217, "Removal and Installation"](#).

3.CHECK RH SIDE CAMERA IMAGE SIGNAL AND IMAGE SIGNAL GROUND CIRCUIT CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit and RH side camera connectors.
3. Check continuity between around view monitor control unit connector M114 and RH side camera connector D107.

Around view monitor control unit		RH side camera		Continuity
Connector	Terminals	Connector	Terminals	
M114	65	D107	16	Yes
	66		15	

4. Check continuity between around view monitor control unit connector M114 and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M114	65		No

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness or connectors.

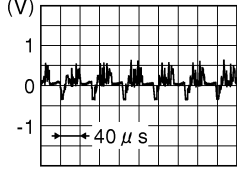
4.CHECK RH SIDE CAMERA IMAGE SIGNAL

1. Connect around view monitor control unit and RH side camera connectors.
2. Turn ignition switch ON.
3. Check signal between the terminals of around view monitor control unit connector M114.

U111B SIDE CAMERA RH IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

Around view monitor control unit connector M114		Condition	Reference value
(+)	(-)		
Terminal	Terminal		
65	66	CAMERA switch is ON or selector lever in R (reverse).	 JSNIA0834GB

Is the inspection result normal?

- YES >> Replace around view monitor control unit. Refer to [AV-217, "Removal and Installation"](#).
 NO >> Replace RH side camera. Refer to [AV-219, "Removal and Installation"](#).

AV

U111C FRONT CAMERA IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

U111C FRONT CAMERA IMAGE SIGNAL CIRCUIT

DTC Logic

INFOID:0000000010244548

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
Front display output signal diagnosis (Harness disconnection) [U111C]	Front camera image signal circuit open or short.	Check front camera image signal circuit.

Diagnosis Procedure

INFOID:0000000010244549

Regarding Wiring Diagram information, refer to [AV-108, "Wiring Diagram"](#).

WITHOUT DRIVER ASSISTANCE SYSTEM

1.CHECK FRONT CAMERA POWER SUPPLY AND GROUND CIRCUIT CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit and front camera connectors.
3. Check continuity between around view monitor control unit connector M103 and front camera connector E226.

Around view monitor control unit		Front camera		Continuity
Connector	Terminals	Connector	Terminals	
M103	38	E226	2	Yes
	37		1	

4. Check continuity between around view monitor control unit connector M103 and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M103	38		No

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace harness or connectors.

2.CHECK FRONT CAMERA POWER SUPPLY VOLTAGE

1. Connect around view monitor control unit and front camera connectors.
2. Turn ignition switch ON.
3. Check voltage between around view monitor control unit connector M103 and ground.

Around view monitor control unit		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
M103	38	—	CAMERA switch is ON or selector lever in R (reverse).	6.0 V

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Replace around view monitor control unit. Refer to [AV-217, "Removal and Installation"](#).

3.CHECK FRONT CAMERA IMAGE SIGNAL AND IMAGE SIGNAL GROUND CIRCUIT CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit and front camera connectors.

U111C FRONT CAMERA IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

3. Check continuity between around view monitor control unit connector M103 and front camera connector E226.

Around view monitor control unit		Front camera		Continuity
Connector	Terminals	Connector	Terminals	
M103	40	E226	4	Yes
	39		5	

4. Check continuity between around view monitor control unit connector M103 and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M103	40		No

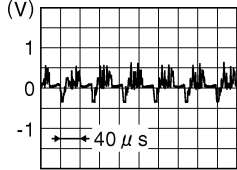
Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness or connectors.

4.CHECK FRONT CAMERA IMAGE SIGNAL

1. Connect around view monitor control unit and front camera connectors.
2. Turn ignition switch ON.
3. Check signal between the terminals of around view monitor control unit connector M103.

Around view monitor control unit connector M103		Condition	Reference value
(+)	(-)		
Terminal	Terminal		
40	39	CAMERA switch is ON or selector lever in R (reverse).	 JSNIA0834GB

Is the inspection result normal?

YES >> Replace around view monitor control unit. Refer to [AV-217, "Removal and Installation"](#).

NO >> Replace front camera. Refer to [AV-218, "Removal and Installation"](#).

WITH DRIVER ASSISTANCE SYSTEM

1.CHECK FRONT CAMERA POWER SUPPLY AND GROUND CIRCUIT CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit and front camera connectors.
3. Check continuity between around view monitor control unit connector M114 and front camera connector E226.

Around view monitor control unit		Front camera		Continuity
Connector	Terminals	Connector	Terminals	
M114	68	E226	2	Yes
	70		1	

4. Check continuity between around view monitor control unit connector M114 and ground.

U111C FRONT CAMERA IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M114	68		No

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness or connectors.

2.CHECK FRONT CAMERA POWER SUPPLY VOLTAGE

1. Connect around view monitor control unit and front camera connectors.
2. Turn ignition switch ON.
3. Check voltage between around view monitor control unit connector M114 and ground.

Around view monitor control unit		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
M114	68	—	CAMERA switch is ON or selector lever in R (reverse).	6.0 V

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace around view monitor control unit. Refer to [AV-217, "Removal and Installation"](#).

3.CHECK FRONT CAMERA IMAGE SIGNAL AND IMAGE SIGNAL GROUND CIRCUIT CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit and front camera connectors.
3. Check continuity between around view monitor control unit connector M114 and front camera connector E226.

Around view monitor control unit		Front camera		Continuity
Connector	Terminals	Connector	Terminals	
M114	71	E226	4	Yes
	72		5	

4. Check continuity between around view monitor control unit connector M114 and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M114	71		No

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness or connectors.

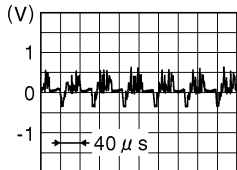
4.CHECK FRONT CAMERA IMAGE SIGNAL

1. Connect around view monitor control unit and front camera connectors.
2. Turn ignition switch ON.
3. Check signal between the terminals of around view monitor control unit connector M114.

U111C FRONT CAMERA IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

Around view monitor control unit connector M114		Condition	Reference value
(+)	(-)		
Terminal	Terminal		
71	72	CAMERA switch is ON or selector lever in R (reverse).	(V)  40 μs JSNIA0834GB

Is the inspection result normal?

- YES >> Replace around view monitor control unit. Refer to [AV-217, "Removal and Installation"](#).
- NO >> Replace front camera. Refer to [AV-218, "Removal and Installation"](#).

AV

U111D SIDE CAMERA LH IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

U111D SIDE CAMERA LH IMAGE SIGNAL CIRCUIT

DTC Logic

INFOID:0000000010244550

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
Left side display output signal diagnosis (Harness disconnection) [U111D]	Left side camera image signal circuit open or short.	Check left side camera image signal circuit.

Diagnosis Procedure

INFOID:0000000010244551

Regarding Wiring Diagram information, refer to [AV-108, "Wiring Diagram"](#).

WITHOUT DRIVER ASSISTANCE SYSTEM

1.CHECK LH SIDE CAMERA POWER SUPPLY AND GROUND CIRCUIT CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit and LH side camera connectors.
3. Check continuity between around view monitor control unit connector M103 and LH side camera connector D14.

Around view monitor control unit		LH side camera		Continuity
Connector	Terminals	Connector	Terminals	
M103	30	D14	7	Yes
	29		8	

4. Check continuity between around view monitor control unit connector M103 and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M103	30		No

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness or connectors.

2.CHECK LH SIDE CAMERA POWER SUPPLY VOLTAGE

1. Connect around view monitor control unit and LH side camera connectors.
2. Turn ignition switch ON.
3. Check voltage between around view monitor control unit connector M103 and ground.

Around view monitor control unit		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
M103	30	—	CAMERA switch is ON or selector lever in R (reverse).	6.0 V

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace around view monitor control unit. Refer to [AV-217, "Removal and Installation"](#).

3.CHECK LH SIDE CAMERA IMAGE SIGNAL AND IMAGE SIGNAL GROUND CIRCUIT CONTINUITY

1. Turn ignition switch OFF.

U111D SIDE CAMERA LH IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

2. Disconnect around view monitor control unit and LH side camera connectors.
3. Check continuity between around view monitor control unit connector M103 and LH side camera connector D14.

Around view monitor control unit		LH side camera		Continuity
Connector	Terminals	Connector	Terminals	
M103	32	D14	16	Yes
	31		15	

4. Check continuity between around view monitor control unit connector M103 and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M103	32		No

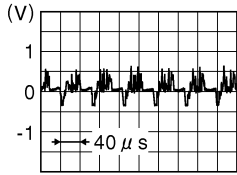
Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness or connectors.

4.CHECK LH SIDE CAMERA IMAGE SIGNAL

1. Connect around view monitor control unit and LH side camera connectors.
2. Turn ignition switch ON.
3. Check signal between the terminals of around view monitor control unit connector M103.

Around view monitor control unit connector M103		Condition	Reference value
(+)	(-)		
Terminal	Terminal		
32	31	CAMERA switch is ON or selector lever in R (reverse).	

Is the inspection result normal?

YES >> Replace around view monitor control unit. Refer to [AV-217, "Removal and Installation"](#).

NO >> Replace LH side camera. Refer to [AV-219, "Removal and Installation"](#).

WITH DRIVER ASSISTANCE SYSTEM

1.CHECK LH SIDE CAMERA POWER SUPPLY AND GROUND CIRCUIT CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit and LH side camera connectors.
3. Check continuity between around view monitor control unit connector M114 and LH side camera connector D14.

Around view monitor control unit		LH side camera		Continuity
Connector	Terminals	Connector	Terminals	
M114	56	D14	7	Yes
	58		8	

4. Check continuity between around view monitor control unit connector M114 and ground.

U111D SIDE CAMERA LH IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M114	56		No

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness or connectors.

2.CHECK LH SIDE CAMERA POWER SUPPLY VOLTAGE

1. Connect around view monitor control unit and LH side camera connectors.
2. Turn ignition switch ON.
3. Check voltage between around view monitor control unit connector M114 and ground.

Around view monitor control unit		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
M114	56	—	CAMERA switch is ON or selector lever in R (reverse).	6.0 V

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace around view monitor control unit. Refer to [AV-217, "Removal and Installation"](#).

3.CHECK LH SIDE CAMERA IMAGE SIGNAL AND IMAGE SIGNAL GROUND CIRCUIT CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit and LH side camera connectors.
3. Check continuity between around view monitor control unit connector M114 and LH side camera connector D14.

Around view monitor control unit		LH side camera		Continuity
Connector	Terminals	Connector	Terminals	
M114	59	D14	16	Yes
	60		15	

4. Check continuity between around view monitor control unit connector M114 and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M114	59		No

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness or connectors.

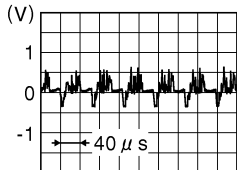
4.CHECK LH SIDE CAMERA IMAGE SIGNAL

1. Connect around view monitor control unit and LH side camera connectors.
2. Turn ignition switch ON.
3. Check signal between the terminals of around view monitor control unit connector M114.

U111D SIDE CAMERA LH IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

Around view monitor control unit connector M114		Condition	Reference value
(+)	(-)		
Terminal	Terminal		
59	60	CAMERA switch is ON or selector lever in R (reverse).	 JSNIA0834GB

Is the inspection result normal?

- YES >> Replace around view monitor control unit. Refer to [AV-217, "Removal and Installation"](#).
 NO >> Replace LH side camera. Refer to [AV-219, "Removal and Installation"](#).

U1217 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

U1217 AV CONTROL UNIT

DTC Logic

INFOID:0000000010244553

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
BLUETOOTH MODULE [U1217]	Connection failure to the internal Bluetooth [®] sub unit is detected.	Replace AV control unit if malfunction occurs constantly. Refer to AV-209, "Removal and Installation" .

U1229 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

U1229 AV CONTROL UNIT

DTC Logic

INFOID:000000010244554

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
iPod CERTIFICATION [U1229]	iPod authentication chip error.	Replace AV control unit if malfunction occurs constantly. Refer to AV-209, "Removal and Installation" .

A
B
C
D
E
F
G
H
I
J
K
L
M
O
P

AV

U122F AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

U122F AV CONTROL UNIT

DTC Logic

INFOID:0000000010244555

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
Digital broadcasting connection error [U122F]	Communication error with digital audio broadcast module internal to AV control unit.	Replace AV control unit if malfunction occurs constantly. Refer to AV-209, "Removal and Installation" .

U1232 STEERING ANGLE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

U1232 STEERING ANGLE SENSOR

DTC Logic

INFOID:0000000010244556

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
ST ANG SEN CALIB [U1232]	The neutral position adjustment of the steering angle sensor is incomplete.	Adjust neutral position of the steering angle sensor.

Diagnosis Procedure

INFOID:0000000010244557

1. ADJUST THE NEUTRAL POSITION OF THE STEERING ANGLE SENSOR

When U1232 is detected, adjust the neutral position of the steering angle sensor.

>> Perform adjustment of the neutral position of the steering angle sensor. Refer to [AV-93. "WITHOUT DRIVER ASSISTANCE SYSTEM : CONSULT Function"](#).

A
B
C
D
E
F
G
H
I
J
K
L
M
O
P

AV

U1244 GPS ANTENNA

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

U1244 GPS ANTENNA

DTC Logic

INFOID:0000000010244558

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
GPS ANTENNA CONN [U1244]	Open or short to ground is detected in GPS antenna connection.	- GPS antenna disconnection. - Open or short to ground in GPS antenna signal circuit.

Diagnosis Procedure

INFOID:0000000010244559

Regarding Wiring Diagram information, refer to [AV-108, "Wiring Diagram"](#).

1. GPS ANTENNA INSPECTION

Visually inspect the GPS antenna and antenna feeder. Refer to [AV-221, "Removal and Installation"](#).

Is inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace malfunctioning components.

2. CHECK AV CONTROL UNIT VOLTAGE

1. Disconnect AV control unit connector M141.
2. Turn ignition switch ON.
3. Check voltage between AV control unit connector M141 and ground.

AV control unit		Ground	Voltage
Connector	Terminal		
M141	54	—	5.0 V

Is inspection result normal?

YES >> Replace GPS antenna. Refer to [AV-221, "Removal and Installation"](#).

NO >> Replace AV control unit. Refer to [AV-209, "Removal and Installation"](#).

U1258 SATELLITE RADIO ANTENNA

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

U1258 SATELLITE RADIO ANTENNA

DTC Logic

INFOID:0000000010244560

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
SXM ANTENNA CONN [U1258]	Open or short to ground is detected in satellite antenna connection.	- Satellite antenna disconnection. - Open or short to ground in satellite antenna signal circuit.

Diagnosis Procedure

INFOID:0000000010244561

Regarding Wiring Diagram information, refer to [AV-108, "Wiring Diagram"](#).

1. SATELLITE ANTENNA INSPECTION

Visually inspect the satellite antenna and antenna feeder. Refer to [AV-223, "Feeder Layout"](#).

Is inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace malfunctioning components.

2. CHECK AV CONTROL UNIT VOLTAGE

- Turn ignition switch ON.
- Check voltage between AV control unit connector M142 and ground.

AV control unit		Ground	Voltage
Connector	Terminal		
M142	56	—	5.0 V

Is inspection result normal?

YES >> Replace satellite radio antenna [AV-222, "Removal and Installation"](#).

NO >> Replace AV control unit. Refer to [AV-209, "Removal and Installation"](#).

AV

U1263 USB

DTC Logic

INFOID:0000000010244562

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
USB OVERCURRENT [U1263]	Overcurrent in USB harness is detected.	• Device connected to USB interface. • Harness between the AV control unit and USB interface.

DTC CONFIRMATION PROCEDURE

1.PERFORM SELF DIAGNOSTIC RESULT

1. If there is a device connected to the USB interface, disconnect it.
2. Turn ignition switch ON and wait for 2 seconds or more.
3. Perform "Self Diagnostic Result" for "MULTI AV".

Is DTC U1263 displayed?

- YES >> Refer to [AV-166, "Diagnosis Procedure"](#).
 NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010244563

1.CHECK USB INTERFACE HARNESS

Visually inspect USB interface harness. Refer to [AV-215, "Removal and Installation"](#).

Is the inspection result normal?

- YES >> GO TO 2.
 NO >> Replace USB interface harness. Refer to [AV-215, "Removal and Installation"](#).

2.CHECK USB INTERFACE HARNESS

Check USB interface harness. Refer to [AV-193, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> Replace AV control unit. Refer to [AV-209, "Removal and Installation"](#).
 NO >> Replace USB interface harness. Refer to [AV-215, "Removal and Installation"](#).

U12AA CONFIGURATION ERROR

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

U12AA CONFIGURATION ERROR

DTC Logic

INFOID:0000000010244577

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
Configuration Error [U12AA]	AV control unit is not properly configured or con- figuration is corrupt.	Configuration data needs to be written. Refer to AV-133, "CONFIGURATION (AV CON- TROL UNIT) : Work Procedure" .

Diagnosis Procedure

INFOID:0000000010244578

1.PERFORM CONFIGURATION

When U12AA is detected, configuration data must be written.

>> Write configuration data with CONSULT. Refer to [AV-133, "CONFIGURATION \(AV CONTROL UNIT\) : Work Procedure"](#).

AV

U12AB ANTENNA

DTC Logic

INFOID:0000000010244564

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
FM Antenna error [U12AB]	Open or short to ground is detected in AM-FM antenna connection.	- AM-FM antenna disconnection. - Open or short to ground in AM-FM antenna signal circuit.

Diagnosis Procedure

INFOID:0000000010244565

Regarding Wiring Diagram information, refer to [AV-108, "Wiring Diagram"](#).

1. AM-FM ANTENNA INSPECTION

Visually inspect the antenna base (AM-FM antenna) and antenna feeder. Refer to [AV-223, "Feeder Layout"](#).

Is inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace malfunctioning components.

2. CHECK CONTINUITY BETWEEN AV CONTROL UNIT AND ANTENNA BASE

- Turn ignition switch OFF.
- Disconnect AV control unit connector M139 and antenna base connector M502.
- Check continuity between AV control unit connector M139 and antenna base connector M502.

AV control unit		Antenna base		Continuity
Connector	Terminal	Connector	Terminal	
M139	52	M502	2	Yes

- Check continuity between AV control unit connector M139 and ground.

AV control unit		Ground	Continuity
Connector	Terminal		
M139	52	—	No

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

3. CHECK AV CONTROL UNIT VOLTAGE

- Connect AV control unit connector M139.
- Turn ignition switch ON.
- Check voltage between AV control unit connector M139 and ground.

AV control unit		Ground	Voltage (Approx.)
Connector	Terminal		
M139	52	—	5.0 V

Is the inspection result normal?

YES >> Replace antenna base. Refer to [AV-222, "Removal and Installation"](#).

NO >> Replace AV control unit. Refer to [AV-209, "Removal and Installation"](#).

U12AC AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

U12AC AV CONTROL UNIT

DTC Logic

INFOID:000000010244579

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
Display Temperature too High [U12AC]	Display temperature has exceeded maximum temperature. Display is switched OFF to avoid irreversible damage.	Replace AV control unit if malfunction occurs constantly. Refer to AV-209, "Removal and Installation" .

A

B

C

D

E

F

G

H

I

J

K

L

M

AV

O

P

U12AD AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

U12AD AV CONTROL UNIT

DTC Logic

INFOID:0000000010244580

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
ECU Temperature too High [U12AD]	AV control unit temperature has exceeded maximum temperature.	Replace AV control unit if malfunction occurs constantly. Refer to AV-209, "Removal and Installation" .

U12AE AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

U12AE AV CONTROL UNIT

DTC Logic

INFOID:0000000010244581

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
Internal Amplifier temperature Warning [U12AE]	Internal amplifier temperature has exceeded maximum temperature.	Replace AV control unit if malfunction occurs constantly. Refer to AV-209, "Removal and Installation" .

A

B

C

D

E

F

G

H

I

J

K

L

M

AV

O

P

U12AF AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

U12AF AV CONTROL UNIT

DTC Logic

INFOID:0000000010244582

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
CD Mechanism Temperature Warning [U12AF]	CD drive temperature has exceeded maximum temperature. CD drive is switched OFF to avoid irreversible damage.	Replace AV control unit if malfunction occurs constantly. Refer to AV-209, "Removal and Installation" .

U12B0 POWER SUPPLY VOLTAGE

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

U12B0 POWER SUPPLY VOLTAGE

DTC Logic

INFOID:0000000010244583

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
Supply Voltage Goes below 9V > 20s [U12B0]	AV control unit supply voltage exceeds lower limits.	- Charging system malfunction. - AV control unit power supply or ground circuits.

Diagnosis Procedure

INFOID:0000000010244584

1.CHECK CHARGING SYSTEM

Check the vehicle charging system. Refer to [CHG-11, "Work Flow \(With EXP-800 NI or GR8-1200 NI\)"](#) or [CHG-14, "Work Flow \(Without EXP-800 NI or GR8-1200 NI\)"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning components.

2.CHECK AV CONTROL UNIT POWER SUPPLY AND GROUND CIRCUITS

Perform the AV control unit power supply and ground circuit diagnosis procedure. Refer to [AV-180, "AV CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> Replace the AV control unit. Refer to [AV-209, "Removal and Installation"](#).

NO >> Repair or replace harness or connectors.

U12B1 POWER SUPPLY VOLTAGE

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

U12B1 POWER SUPPLY VOLTAGE

DTC Logic

INFOID:0000000010244585

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
Supply Voltage Goes High > 16V for 20s [U12B1]	AV control unit supply voltage exceeds upper limits.	Charging system malfunction.

Diagnosis Procedure

INFOID:0000000010244586

1.CHECK CHARGING SYSTEM

Check the vehicle charging system. Refer to [CHG-11, "Work Flow \(With EXP-800 NI or GR8-1200 NI\)"](#) or [CHG-14, "Work Flow \(Without EXP-800 NI or GR8-1200 NI\)"](#).

Is the inspection result normal?

- YES >> Replace the AV control unit. Refer to [AV-209, "Removal and Installation"](#).
NO >> Repair or replace the malfunctioning components.

U1300 AV COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

U1300 AV COMM CIRCUIT

DTC Logic

INFOID:0000000010365209

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
AV COMM CIRCUIT [U1300]	AV communication circuit malfunction (MCAN) between AV control unit and combination meter.	AV communication circuits between AV control unit and combination meter.

Diagnosis Procedure

INFOID:0000000010365210

1.PERFORM SELF DIAGNOSTIC RESULT FOR METER M&A

1. Turn ignition switch ON and wait for 2 seconds or more.
2. Perform "Self Diagnostic Result" for "METER M&A".

Are any DTCs displayed?

YES >> Refer to [MWI-30, "DTC Index"](#).

NO >> GO TO 2.

2.CHECK AV COMMUNICATION CIRCUIT (MCAN L) CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect AV control unit connector M102 and combination meter connector M77.
3. Check continuity between AV control unit connector M102 and combination meter connector M77.

AV control unit		Combination meter		Continuity
Connector	Terminal	Connector	Terminal	
M102	32	M77	48	Yes
	39			

4. Check continuity between AV control unit connector M102 and ground.

AV control unit		Ground	Continuity
Connector	Terminal		
M102	32	—	No
	39		

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

3.CHECK AV COMMUNICATION CIRCUIT (MCAN H) CONTINUITY

1. Check continuity between AV control unit connector M102 and combination meter connector M77.

AV control unit		Combination meter		Continuity
Connector	Terminal	Connector	Terminal	
M102	31	M77	47	Yes
	38			

2. Check continuity between AV control unit connector M102 and ground.

AV control unit		Ground	Continuity
Connector	Terminal		
M102	31	—	No
	38		

U1300 AV COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

Is the inspection result normal?

- YES >> Replace the AV control unit. Refer to [AV-209, "Removal and Installation"](#).
- NO >> Repair or replace harness or connectors.

U1304 CAMERA IMAGE CALIBRATION

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

U1304 CAMERA IMAGE CALIBRATION

DTC Logic

INFOID:0000000010244587

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
Non-completion of the calibration [U1304]	Camera image calibration is incomplete.	Perform calibration of camera image.

Diagnosis Procedure

INFOID:0000000010244588

1.PERFORM CALIBRATION

When U1304 is detected, perform calibration of camera image.

>> Refer to [AV-136, "CALIBRATING CAMERA IMAGE \(AROUND VIEW MONITOR\) : Work Procedure"](#).

A
B
C
D
E
F
G
H
I
J
K
L
M
O
P

AV

U1305 CONFIG UNFINISH

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

U1305 CONFIG UNFINISH

DTC Logic

INFOID:0000000010244589

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
Non-completion of the configuration [U1305]	Configuration of around view monitor control unit is incomplete.	Perform configuration of around view monitor control unit.

Diagnosis Procedure

INFOID:0000000010244590

1.PERFORM CONFIGURATION

When U1305 is detected, perform configuration of around view monitor control unit.

>> Refer to [AV-134, "CONFIGURATION \(AROUND VIEW MONITOR CONTROL UNIT\) : Work Procedure"](#).

U1310 CONTROL UNIT (AV)

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

U1310 CONTROL UNIT (AV)

DTC Logic

INFOID:0000000010244591

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
CONTROL UNIT (AV) [U1310]	Error during CAN controller hardware initialization (MCAN).	Replace AV control unit if malfunction occurs constantly. Refer to AV-209, "Removal and Installation" .

A

B

C

D

E

F

G

H

I

J

K

L

M

AV

O

P

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

POWER SUPPLY AND GROUND CIRCUIT

AV CONTROL UNIT

AV CONTROL UNIT : Diagnosis Procedure

INFOID:0000000010244592

Regarding Wiring Diagram information, refer to [AV-108, "Wiring Diagram"](#).

1.CHECK FUSE

Check that the following fuses are not blown.

Terminal No.	Signal name	Fuse No.
19	Battery power supply	15 (20A)
40	Ignition power supply	30 (10A)

Are the fuses blown?

YES >> Replace the blown fuse after repairing the affected circuit.

NO >> GO TO 2.

2.CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect AV control unit connectors M101 and M102.
3. Check voltage between AV control unit connectors M101 and M102 and ground.

AV control unit		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
M101	19	—	Ignition switch: OFF	Battery voltage
M102	40		Ignition switch: ON	

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

3.CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check continuity between AV control unit connector M101 and ground.

AV control unit		Ground	Continuity
Connector	Terminal		
M101	20	—	Yes

Is the inspection result normal?

YES >> Inspection End.

NO >> Repair or replace harness or connectors.

AROUND VIEW MONITOR CONTROL UNIT

AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure

INFOID:0000000010244593

Regarding Wiring Diagram information, refer to [AV-108, "Wiring Diagram"](#).

WITHOUT DRIVER ASSISTANCE SYSTEM

1.CHECK FUSE

Check that the following fuses are not blown.

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

Terminal No.	Signal name	Fuse No.
2	Battery power supply	15 (20A)

Are the fuses blown?

YES >> Replace the blown fuse after repairing the affected circuit.

NO >> GO TO 2.

2.CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit connector M103.
3. Check voltage between around view monitor control unit connector M103 and ground.

Around view monitor control unit		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
M103	2	—	Ignition switch: OFF	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

3.CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check continuity between around view monitor control unit connector M103 and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M103	1	—	Yes

Is the inspection result normal?

YES >> Inspection End.

NO >> Repair or replace harness or connectors.

WITH DRIVER ASSISTANCE SYSTEM

1.CHECK FUSE

Check that the following fuses are not blown.

Terminal No.	Signal name	Fuse No.
2	Battery power supply	15 (20A)

Are the fuses blown?

YES >> Replace the blown fuse after repairing the affected circuit.

NO >> GO TO 2.

2.CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit connector M113.
3. Check voltage between around view monitor control unit connector M113 and ground.

Around view monitor control unit		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
M113	2	—	Ignition switch: OFF	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

3.CHECK GROUND CIRCUIT

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

1. Turn ignition switch OFF.
2. Check continuity between around view monitor control unit connector M113 and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M113	1	—	Yes

Is the inspection result normal?

- YES >> Inspection End.
NO >> Repair or replace harness or connectors.

FRONT TWEETER

Diagnosis Procedure

INFOID:000000010244595

Regarding Wiring Diagram information, refer to [AV-108, "Wiring Diagram"](#).

1.CONNECTOR CHECK

Check the AV control unit and speaker connectors for the following:

- Proper connection
- Damage
- Disconnected or loose terminals

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminals or connectors.

2.CHECK FRONT TWEETER SIGNAL CIRCUIT CONTINUITY

1. Disconnect AV control unit connector M101 and suspect front tweeter connector.
2. Check continuity between AV control unit connector M101 and suspect front tweeter connector.

AV control unit		Front tweeter		Continuity
Connector	Terminal	Connector	Terminal	
M101	2	M80 (LH)	1	Yes
	3		2	
	11	M23 (RH)	1	
	12		2	

3. Check continuity between AV control unit connector M101 and ground.

AV control unit		Ground	Continuity
Connector	Terminal		
M101	2	—	No
	3		
	11		
	12		

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

3.CHECK FRONT TWEETER SIGNAL

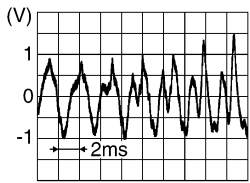
1. Connect AV control unit connector M101 and suspect front tweeter connector.
2. Turn ignition switch to ON.
3. Push AV control unit POWER switch.
4. Check signal between the terminals of AV control unit connector M101.

AV control unit connector M101		Condition	Reference value
(+)	(-)		
Terminal	Terminal		

FRONT TWEETER

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

2	3	Audio signal output	
11	12		

Is the inspection result normal?

- YES
- >> Replace front tweeter. Refer to [AV-212. "Removal and Installation"](#).
- NO
- >> Replace AV control unit. Refer to [AV-209. "Removal and Installation"](#).

FRONT DOOR SPEAKER

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

FRONT DOOR SPEAKER

Diagnosis Procedure

INFOID:000000010244594

Regarding Wiring Diagram information, refer to [AV-108. "Wiring Diagram"](#).

1.CONNECTOR CHECK

Check the AV control unit and speaker connectors for the following:

- Proper connection
- Damage
- Disconnected or loose terminals

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminals or connectors.

2.CHECK FRONT DOOR SPEAKER SIGNAL CIRCUIT CONTINUITY

1. Disconnect AV control unit connector M101 and suspect front door speaker connector.
2. Check continuity between AV control unit connector M101 and suspect front door speaker connector.

AV control unit		Front door speaker		Continuity
Connector	Terminal	Connector	Terminal	
M101	2	D7 (LH)	1	Yes
	3		2	
	11	D104 (RH)	1	
	12		2	

3. Check continuity between AV control unit connector M101 and ground.

AV control unit		Ground	Continuity
Connector	Terminal		
M101	2	—	No
	3		
	11		
	12		

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

3.CHECK FRONT DOOR SPEAKER SIGNAL

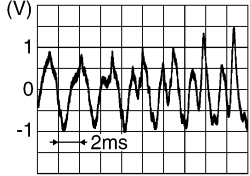
1. Connect AV control unit connector M101 and suspect front door speaker connector.
2. Turn ignition switch to ON.
3. Push AV control unit POWER switch.
4. Check signal between the terminals of AV control unit connector M101.

AV control unit connector M101		Condition	Reference value
(+)	(-)		
Terminal	Terminal		

FRONT DOOR SPEAKER

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

2	3		
11	12	Audio signal output	

Is the inspection result normal?

- YES >> Replace front door speaker. Refer to [AV-213. "Removal and Installation"](#).
 NO >> Replace AV control unit. Refer to [AV-209. "Removal and Installation"](#).

REAR DOOR SPEAKER

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

REAR DOOR SPEAKER

Diagnosis Procedure

INFOID:000000010244605

Regarding Wiring Diagram information, refer to [AV-108. "Wiring Diagram"](#).

1.CONNECTOR CHECK

Check the AV control unit and speaker connectors for the following:

- Proper connection
- Damage
- Disconnected or loose terminals

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminals or connectors.

2.CHECK REAR DOOR SPEAKER SIGNAL CIRCUIT CONTINUITY

1. Disconnect AV control unit connector M101 and suspect rear door speaker connector.
2. Check continuity between AV control unit connector M101 and suspect rear door speaker connector.

AV control unit		Rear door speaker		Continuity
Connector	Terminal	Connector	Terminal	
M101	4	D203 (LH)	1	Yes
	5		2	
	13	D303 (RH)	1	
	14		2	

3. Check continuity between AV control unit connector M101 and ground.

AV control unit		Ground	Continuity
Connector	Terminal		
M101	4	—	No
	5		
	13		
	14		

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

3.CHECK REAR DOOR SPEAKER SIGNAL

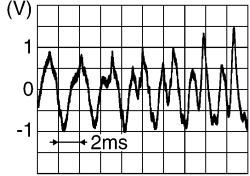
1. Connect AV control unit connector M101 and suspect rear door speaker connector.
2. Turn ignition switch to ON.
3. Push AV control unit POWER switch.
4. Check signal between the terminals of AV control unit connector M101.

AV control unit connector M101		Condition	Reference value
(+)	(-)		
Terminal	Terminal		

REAR DOOR SPEAKER

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

4	5	Audio signal output	
13	14		

Is the inspection result normal?

- YES >> Replace rear door speaker. Refer to [AV-214. "Removal and Installation"](#).
 NO >> Replace AV control unit. Refer to [AV-209. "Removal and Installation"](#).

MICROPHONE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

MICROPHONE SIGNAL CIRCUIT

Diagnosis Procedure

INFOID:0000000010244606

Regarding Wiring Diagram information, refer to [AV-108. "Wiring Diagram"](#).

1.CHECK HARNESS BETWEEN AV CONTROL UNIT AND MICROPHONE

1. Turn ignition switch OFF.
2. Disconnect AV control unit connector M102 and microphone connector R8.
3. Check continuity between AV control unit connector M102 and microphone connector R8.

AV control unit		Microphone		Continuity
Connector	Terminal	Connector	Terminal	
M102	34	R8	1	Yes
	35		4	
	36		2	

4. Check continuity between AV control unit connector M102 and ground.

AV control unit		Ground	Continuity
Connector	Terminal		
M102	34	—	No
	35		

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connectors.

2.CHECK MICROPHONE POWER SUPPLY

1. Connect AV control unit connector M102 and microphone connector R8.
2. Turn ignition switch ON.
3. Check voltage between microphone connector R8 and ground.

Microphone		Ground	Voltage (Approx.)
(+)		(-)	
Connector	Terminal		
R8	4	—	5V

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace AV control unit. Refer to [AV-209. "Removal and Installation"](#).

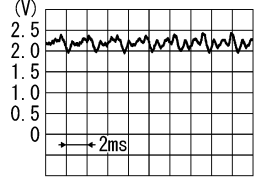
3.CHECK MICROPHONE SIGNAL

Check signal between terminals of AV control unit connector M102.

MICROPHONE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

AV control unit connector M102		Condition	Reference value
(+)	(-)		
Terminal	Terminal		
34	36	Speak into microphone.	 (V) 2.5 2.0 1.5 1.0 0.5 0 2ms PKIB5037J

Is the inspection result normal?

- YES >> Replace AV control unit. Refer to [AV-209. "Removal and Installation"](#).
NO >> Replace microphone. Refer to [AV-216. "Removal and Installation"](#).

STEERING SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

STEERING SWITCH

Diagnosis Procedure

INFOID:0000000010244607

Regarding Wiring Diagram information, refer to [AV-108. "Wiring Diagram"](#).

1. CHECK STEERING WHEEL AUDIO CONTROL SWITCH RESISTANCE

1. Turn ignition switch OFF.
2. Disconnect combination switch connector M90.
3. Check resistance between the terminals of combination switch connector M90.

Combination switch connector M90		Condition	Resistance Ω (Approx.)
Terminal	Terminal		
25	19	Depress SOURCE switch.	1
		Depress Δ switch.	121
		Depress ∇ switch.	321
		Depress ⤵↙ switch.	723
		Depress ENTER switch.	2023
18		Depress − 🔊 switch.	1
		Depress 🔊+ switch.	121
		Depress 🔌 switch.	321
		Depress ↺ switch.	723
		Depress DISPLAY switch.	2023

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace steering switches. Refer to [AV-211. "Removal and Installation"](#).

2. CHECK HARNESS BETWEEN COMBINATION METER AND COMBINATION SWITCH

1. Disconnect combination meter connector M76 and combination switch connector M30.
2. Check continuity between combination meter connector M76 and combination switch connector M30.

Combination meter		Combination switch		Continuity
Connector	Terminal	Connector	Terminal	
M76	22	M30	8	Yes
	23		15	
	21		14	

3. Check continuity between combination meter connector M76 and ground.

Combination meter		Ground	Continuity
Connector	Terminal		
M76	22	—	No
	23		
	21		

Is the inspection result normal?

STEERING SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

- YES >> GO TO 3.
NO >> Repair or replace harness or connectors.

3.CHECK COMBINATION SWITCH

Check continuity between combination switch connectors M90 and M30.

Combination switch				Continuity
Connector	Terminal	Connector	Terminal	
M90	25	M30	8	Yes
	18		15	
	19		14	

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Replace spiral cable. Refer to [SR-15. "Removal and Installation"](#).

4.CHECK HARNESS BETWEEN COMBINATION METER AND AV CONTROL UNIT

1. Disconnect combination meter connector M77 and AV control unit connector M102.
2. Check continuity between combination meter connector M77 and AV control unit connector M102.

Combination meter		AV control unit		Continuity
Connector	Terminal	Connector	Terminal	
M77	47	M102	31	Yes
	48		32	

3. Check continuity between combination meter connector M77 and ground.

Combination meter		Ground	Continuity
Connector	Terminal		
M77	47	—	No
	48		

Is the inspection result normal?

- YES >> Replace AV control unit. Refer to [AV-209. "Removal and Installation"](#).
NO >> Repair or replace harness or connectors.

USB CONNECTOR

Diagnosis Procedure

INFOID:0000000010244608

Regarding Wiring Diagram information, refer to [AV-108, "Wiring Diagram"](#).

1. CHECK USB INTERFACE HARNESS CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect AV control unit connector M138 and USB interface connector M89.
3. Check continuity between AV control unit connector M138 and USB interface connector M89.

AV control unit		USB interface		Continuity
Connector	Terminal	Connector	Terminal	
M138	45	M89	1	Yes
	46		2	
	47		3	
	49		5	
	50		6	

4. Check continuity between AV control unit connector M138 and ground.

AV control unit		—	Continuity
Connector	Terminal		
M138	45	Ground	No
	47		

Is the inspection result normal?

- YES >> Replace the USB interface. Refer to [AV-215, "Removal and Installation"](#).
 NO >> Repair or replace harness or connectors.

AV

AUXILIARY INPUT JACK

Diagnosis Procedure

INFOID:000000010244609

Regarding Wiring Diagram information, refer to [AV-108. "Wiring Diagram"](#).

1. CHECK AUX IN JACK HARNESS CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect AV control unit connector M102 and AUX in jack connector M104.
3. Check continuity between AV control unit connector M102 and AUX in jack connector M104.

AV control unit		AUX in jack		Continuity
Connector	Terminal	Connector	Terminal	
M102	21	M104	4	Yes
	22		3	
	23		1	

4. Check continuity between AV control unit connector M102 and ground.

AV control unit		—	Continuity
Connector	Terminal		
M102	21	Ground	No
	23		

Is the inspection result normal?

- YES >> Replace the AUX in jack. Refer to [AV-215. "Removal and Installation"](#).
- NO >> Repair or replace harness or connectors.

SYMPTOM DIAGNOSIS

MULTI AV SYSTEM

Symptom Table

INFOID:0000000010244534

RELATED TO AUDIO

Symptoms	Check items	Probable malfunction location
The disk cannot be removed.	AV control unit	Malfunction in AV control unit. Refer to AV-91, "On Board Diagnosis Function" .
No sound comes out or the level of the sound is low.	No sound from all speakers.	• Speaker circuit shorted to ground. Refer to AV-108, "Wiring Diagram". • AV control unit power supply and ground circuits malfunction. Refer to AV-180, "AV CONTROL UNIT : Diagnosis Procedure".
	Only a certain speaker (front tweeter LH, front tweeter RH, front door speaker LH, front door speaker RH, rear door speaker LH, rear door speaker RH) does not output sound.	• Poor connector connection of speaker. • Sound signal circuit malfunction between AV control unit and speaker. Refer to: - AV-183, "Diagnosis Procedure" (front tweeter). - AV-185, "Diagnosis Procedure" (front door speaker). - AV-187, "Diagnosis Procedure" (rear door speaker). • Malfunction in speaker. Refer to: - AV-212, "Removal and Installation" (front tweeter). - AV-213, "Removal and Installation" (front door speaker). - AV-214, "Removal and Installation" (rear door speaker). • Malfunction in AV control unit. Refer to AV-91, "On Board Diagnosis Function".

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P

AV

MULTI AV SYSTEM

< SYMPTOM DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

Symptoms	Check items	Probable malfunction location
Noise is mixed with audio.	Noise comes out from all speakers.	Malfunction in AV control unit. Refer to AV-91, "On Board Diagnosis Function" .
	Noise comes out only from a certain speaker (front tweeter LH, front tweeter RH, front door speaker LH, front door speaker RH, rear door speaker LH, rear door speaker RH).	- Poor connector connection of speaker. - Sound signal circuit malfunction between AV control unit and speaker. Refer to: AV-183, "Diagnosis Procedure" (front tweeter). AV-185, "Diagnosis Procedure" (front door speaker). AV-187, "Diagnosis Procedure" (rear door speaker). - Malfunction in speaker. - Poor Installation of speaker (e.g. backlash and looseness). Refer to: AV-212, "Removal and Installation" (front tweeter). AV-213, "Removal and Installation" (front door speaker). AV-214, "Removal and Installation" (rear door speaker). - Malfunction in AV control unit. Refer to AV-91, "On Board Diagnosis Function".
	Noise is mixed with radio only (when the vehicle hits a bump or while driving over bad roads)	Poor connector connection of antenna or antenna feeder. Refer to AV-223, "Feeder Layout" .
No radio reception or poor reception.	- Other audio sounds are normal. - Any radio station cannot be received or poor reception is caused even after moving to a service area with good reception (e.g. a place with clear view and no obstacles generating external noises).	- Antenna amp. ON signal circuit malfunction. Refer to AV-168, "Diagnosis Procedure". - Poor connector connection of antenna or antenna feeder. Refer to AV-223, "Feeder Layout".
No satellite radio reception.	There is malfunction in the CONSULT self diagnosis result. Refer to AV-92, "CONSULT Function" .	- Malfunction in antenna, antenna feeder or AV control unit. Perform DTC diagnosis. Refer to AV-165, "Diagnosis Procedure". - Poor continuity in antenna feeder. - Poor connector connection of antenna or antenna feeder. Refer to AV-223, "Feeder Layout".
	There is no malfunction in the CONSULT self diagnosis result. Refer to AV-92, "CONSULT Function" .	- Poor continuity in antenna feeder. - Poor connector connection of antenna or antenna feeder. - Loose satellite radio antenna mounting nut. Refer to AV-223, "Feeder Layout".
Buzz/rattle sound from speaker	The majority of buzz/rattle sounds are not indicative of an issue with the speaker, usually something nearby the speaker is causing the buzz/rattle.	Refer to "SQUEAK AND RATTLE TROUBLE DIAGNOSIS" in the appropriate interior trim section.

RELATED TO HANDS-FREE PHONE

- Before performing diagnosis, confirm that the cellular phone being used by the customer is compatible with the vehicle.
- It is possible that a malfunction is occurring due to a version change of the phone even though the phone is a compatible type. This can be confirmed by changing the cellular phone to another compatible type, and check that it operates normally. It is important to determine whether the cause of the malfunction is the vehicle or the cellular phone.

Check Compatibility

1. Make sure the customer's Bluetooth® related concern is understood.
2. Verify the customer's concern.
NOTE:
The customer's phone may be required, depending upon their concern.
3. Write down the customer's phone brand, model and service provider.
NOTE:
It is necessary to know the service provider. On occasion, a given phone may be on the approved list with one provider, but may not be on the approved list with other providers.
4. Go to "www.nissanusa.com/bluetooth/".
 - a. Using the website's search engine, find out if the customer's phone is on the approved list.
 - b. If the customer's phone is NOT on the approved list:
Stop diagnosis here. The customer needs to obtain a Bluetooth® phone that is on the approved list before any further action.
 - c. If the feature related to the customer's concern shows as "N" (not compatible):
Stop diagnosis here. If the customer still wants the feature to function, they will need to get an approved phone showing the feature as "Y" (compatible) in the "Basic Features".
 - d. If the feature related to the customer's concern shows as "Y" (compatible):
Perform diagnosis as per the following table.

Symptoms	Check items	Probable malfunction location
Does not recognize cellular phone connection (no connection is displayed on the display at the guide).	Repeat the registration of cellular phone.	
Hands-free phone cannot be established.	- Hands-free phone operation can be made, but the communication cannot be established. - Hands-free phone operation can be performed, however, voice between each other cannot be heard during the conversation.	Malfunction in AV control unit. Replace AV control unit. Refer to AV-209, "Removal and Installation" .
The other party's voice cannot be heard by hands-free phone.	Check the "microphone speaker" in Inspection & Adjustment Mode if sound is heard.	
Originating sound is not heard by the other party with hands-free phone communication.	Sound operation function is normal.	
	Sound operation function does not work.	Microphone signal circuit malfunction. Refer to AV-189, "Diagnosis Procedure" .
The system cannot be operated.	- The voice recognition can be controlled. - Steering switch's , , and  switch works, but  does not work.	Steering switch malfunction. Replace steering switch. Refer to AV-211, "Removal and Installation" .
	Steering switch's  ,  ,  , and  switches do not work.	Steering switch signal circuit malfunction. Refer to AV-191, "Diagnosis Procedure" .
	All steering switches do not work.	Steering switch ground circuit malfunction. Refer to AV-191, "Diagnosis Procedure" .

RELATED TO NAVIGATION

MULTI AV SYSTEM

< SYMPTOM DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

Symptoms	Check items	Probable malfunction location
Navigation system is inoperative.	Navigation malfunction.	- Malfunction in SD card. - Malfunction in AV control unit. Refer to AV-91, "On Board Diagnosis Function".
	Steering switches malfunction.	Steering switch signal circuit malfunction. Refer to AV-191, "Diagnosis Procedure" .
	Voice activated control malfunction.	Microphone signal circuit malfunction. Refer to AV-189, "Diagnosis Procedure" . Steering switch signal circuit malfunction. Refer to AV-191, "Diagnosis Procedure" .

RELATED TO AROUND VIEW MONITOR

Symptoms	Check items	Probable malfunction location
Display does not switch to camera image when CAMERA switch is pressed or selector lever is in R (reverse).	Around view monitor control unit malfunction.	Around view monitor control unit power supply and ground circuits malfunction. Refer to AV-180, "AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure" .
	Camera image signal circuit (output) malfunction.	Camera image signal circuit (output) malfunction between around view monitor control unit and display unit. Refer to AV-101, "WITHOUT DRIVER ASSISTANCE SYSTEM : Reference Value" .
Display switches to camera image when CAMERA switch is pressed or selector lever is in R (reverse), but all views are not displayed.	Camera image signal circuit (input) malfunction.	Camera image signal circuit (input) malfunction between camera and around view monitor control unit. Refer to: AV-152, "Diagnosis Procedure" (front camera). AV-144, "Diagnosis Procedure" (rear camera). AV-156, "Diagnosis Procedure" (side camera LH). AV-148, "Diagnosis Procedure" (side camera RH).
Camera image is rolling.	Camera image signal circuit (output) malfunction.	Camera image signal circuit (output) malfunction between around view monitor control unit and display unit. Refer to AV-101, "WITHOUT DRIVER ASSISTANCE SYSTEM : Reference Value" .
Display does not switch to rear view monitor even when selector lever is in R (reverse).	Reverse signal circuit malfunction.	Reverse signal circuit between BCM and around view monitor control unit. Refer to AV-101, "WITHOUT DRIVER ASSISTANCE SYSTEM : Reference Value" .
Predicted course line display in front view and rear view is malfunctioning.	Steering angle sensor malfunction.	Predicted course line center position is malfunctioning. Refer to AV-135, "PREDICTED COURSE LINE CENTER POSITION ADJUSTMENT : Work Procedure" .
Front view and front of birds-eye view is not displayed.	- Front camera malfunction. - Front camera image signal circuit malfunction.	- Front camera power supply and ground circuits malfunction. - Front camera image signal circuit malfunction between front camera and around view monitor control unit. Refer to AV-152, "Diagnosis Procedure" .
Rear view and rear of birds-eye view is not displayed.	- Rear view camera malfunction. - Rear view camera image signal circuit malfunction.	- Rear view camera power supply and ground circuits malfunction. - Rear view camera image signal circuit malfunction between rear view camera and around view monitor control unit. Refer to AV-144, "Diagnosis Procedure" .

MULTI AV SYSTEM

< SYMPTOM DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

Symptoms	Check items	Probable malfunction location
Driver side of birds-eye view is not displayed.	- Side camera LH malfunction. - Side camera LH image signal circuit malfunction.	- Side camera LH power supply and ground circuits malfunction. - Side camera LH image signal circuit malfunction between side camera LH and around view monitor control unit. Refer to AV-156, "Diagnosis Procedure" .
Front-side and passenger side of birds-eye view is not displayed.	- Side camera RH malfunction. - Side camera RH image signal circuit malfunction.	- Side camera RH power supply and ground circuits malfunction. - Side camera RH image signal circuit malfunction between side camera RH and around view monitor control unit. Refer to AV-148, "Diagnosis Procedure" .
Selector lever is in a position other than R (reverse) and front, rear, front-side and Birds-Eye views are displayed even as vehicle speed increases.	Vehicle speed signal malfunction.	Vehicle speed signal malfunction between ABS actuator and electric unit (control unit) and around view monitor control unit. Refer to AV-101, "WITHOUT DRIVER ASSISTANCE SYSTEM : Reference Value" .

A

B

C

D

E

F

G

H

I

J

K

L

M

AV

O

P

NORMAL OPERATING CONDITION

Description

INFOID:0000000010244535

RELATED TO NOISE

The majority of the audio concerns are the result of outside causes (bad CD, electromagnetic interference, etc.).

The following noise results from variations in field strength, such as fading noise and multi-path noise, or external noise from trains and other sources. It is not a malfunction.

- Fading noise: This noise occurs because of variations in the field strength in a narrow range due to mountains or buildings blocking the signal.
- Multi-path noise: This noise results from the waves sent directly from the broadcast station arriving at the antenna at a different time from the waves which reflect off mountains or buildings.

The vehicle itself can be a source of noise if noise prevention parts or electrical equipment is malfunctioning. Check if noise is caused and/or changed by engine speed, ignition switch turned to each position, and operation of each piece of electrical equipment, and determine the cause.

NOTE:

The source of the noise can be found easily by listening to the noise while removing the fuses of electrical components, one by one.

Type of Noise and Possible Cause

Occurrence condition		Possible cause
Occurs only when engine is ON.	A continuous growling noise occurs. The speed of the noise varies with changes in the engine speed.	• Ignition components
The occurrence of the noise is linked with the operation of the fuel pump.		• Fuel pump condenser
Noise only occurs when various electrical components are operating.	A cracking or snapping sound occurs with the operation of various switches.	• Relay malfunction, AV control unit malfunction
	The noise occurs when various motors are operating.	• Motor case ground • Motor
The noise occurs constantly, not just under certain conditions.		• Rear defogger coil malfunction • Open circuit in printed heater • Poor ground of antenna feeder line
A cracking or snapping sound occurs while the vehicle is being driven, especially when it is vibrating excessively.		• Ground wire of body parts • Ground due to improper part installation • Wiring connections or a short circuit

RELATED TO HANDS-FREE PHONE

Symptom	Cause and Counter measure
Does not recognize cellular phone connection (No connection is displayed on the display at the guide).	Some Bluetooth® enabled cellular phones may not be recognized by the in-vehicle phone module. Refer to "RELATED TO HANDS-FREE PHONE (Check Compatibility)" in AV-195, "Symptom Table".
Cannot use hands-free phone.	Customer will not be able to use a hands-free phone under the following conditions: • The vehicle is outside of the telephone service area. • The vehicle is in an area where it is difficult to receive radio waves; such as in a tunnel, in an underground parking garage, near a tall building or in a mountainous area. • The cellular phone is locked to prevent it from being dialed. NOTE: While a cellular phone is connected through the Bluetooth® wireless connection, the battery power of the cellular phone may discharge quicker than usual. The Bluetooth® Hands-Free Phone System cannot charge cellular phones.

NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

Symptom	Cause and Counter measure
The other party's voice cannot be heard by hands-free phone.	When the radio wave condition is not ideal or ambient sound is too loud, it may be difficult to hear the other person's voice during a call.
Poor sound quality.	Do not place the cellular phone in an area surrounded by metal or far away from the in-vehicle phone module to prevent tone quality degradation and wireless connection disruption.

RELATED TO NAVIGATION

Basic Operation

Symptom	Cause	Remedy
No image is shown.	Display brightness adjustment is set fully to DARK side.	Adjust the display brightness.
No guide sound is heard. Audio guide volume is too low or too high.	Volume control is set to OFF, MIN or MAX.	Adjust the audio guide volume.
	Audio guidance is not available while the vehicle is driving on a dark pink route.	System is not malfunctioning.
Screen is too dark. Motion of the image is too slow.	Temperature inside the vehicle is low.	Wait until the temperature inside the vehicle reaches the proper temperature.
Small black or bright spots appear on the screen.	Symptom peculiar to a liquid crystal display (display unit).	System is not malfunction.

Vehicle Mark

Symptom	Cause	Remedy
Map screen and BIRDVIEW™ Name of the place vary with the screen.	Some thinning of the character data is done to prevent the display becoming to complex. In some cases and in some locations, the display contents may differ. The same place name, street name, etc. may not be displayed every time on account of the data processing.	System is not malfunctioning.
Vehicle mark is not positioned correctly.	Vehicle is transferred by ferry or by towing after its ignition switch is turned to OFF.	Drive the vehicle for a while in the GPS satellite signal receiving condition.
Screen will not switch to nighttime mode after the lighting switch is turned ON.	The daytime screen is selected by the "SWITCH SCREENS" when the last time the screen dimming setting is done. Switching between daytime/nighttime screen may be inhibited by the automatic illumination adjustment function.	Perform screen dimming and select the nighttime screen by "SWITCH SCREENS".
Map screen will not scroll in accordance with the vehicle travel.	Current location is not displayed.	Press "MAP" button to display the current location.
Vehicle mark will not be shown.	Current location is not displayed.	Press "MAP" button to display the current location.
Accuracy indicator (GPS satellite mark) on the map screen stays gray.	GPS satellite signal is intercepted because the vehicle is in or behind a building.	Move the vehicle out to an open space.
	GPS satellite signal cannot be received because an obstacle is placed on top of the instrument panel.	Do not place anything on top of the meter display (instrument panel).
	GPS satellites are not visible from current location.	Wait until GPS satellites are visible by moving the vehicle.

NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

Symptom	Cause	Remedy
Vehicle location accuracy is low.	Accuracy indicator (GPS satellite mark) on the map screen stays gray.	Current location is not determined.
	Vehicle speed setting by the vehicle speed pulse has been deviated (advanced or retarded) from the actual vehicle speed because tire chain is fitted or the system has been used on another vehicle.	Drive the vehicle for a while [for approx. 30 minutes at approx. 30 km/h (19 MPH)] and the deviation will be automatically adjusted. If advancement or retard still occur, perform the distance adjustment by CONFIRMATION/ADJUSTMENT mode of diagnosis function.
	Map data has error or omission. (Vehicle mark is always deviated to the same position.)	As a rule, an updated map DVD-ROM will be released once a year.

Destination, Passing Points and Menu Items Cannot be Selected/Set

Symptom	Cause	Remedy
Destination cannot be set.	Destination to be set is on an expressway.	Set the destination on an ordinary road.
Passing point is not searched when re-searching the route.	The vehicle has already passed the passing point, or the system judged so.	To include the passing points that have been passed into the route again, set the route again.
Route information will not be displayed.	Route searching has not been done.	Set the destination and perform route searching.
	Vehicle mark is not on the recommended route.	Drive on the recommended route.
	Route guide is turned OFF.	Turn route guide ON.
	Route information is not available on the dark pink route.	System is not malfunctioning.
After the route searching, no guide sign will appear as the vehicle goes near the entrance/exit to the toll road.	Vehicle mark is not on the recommended route. (On the display, only guide signs related to the recommended route will be shown.)	Drive on the recommended route.
Automatic route searching is not possible.	Vehicle is driving on a highway (gray route), or no recommended route is available.	Drive on a road to be searched. Or re-search the route manually. In this case, however, the whole route will be searched.
Performed automatic detour search (or detour search). However, the result is the same as that of the previous search.	Performed search with every conditions considered. However, the result is the same as that of the previous search.	System is not malfunctioning.
Passing points cannot be set.	More than five passing points were set.	Passing points can be set up to five. To stop at more than five points, perform sharing in several steps.
When setting the route, the starting point cannot be selected.	The current vehicle location is always set as the starting point of a route.	System is not malfunctioning.
Some menu items cannot be selected.	The vehicle is being driven.	Stop the vehicle at a safe place and then operate the system.

Voice Guide

NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

Symptom	Cause	Remedy
Voice guide will not operate.	Note: Voice guide is only available at intersections that satisfy certain conditions (indicated by ● on the map). Therefore, guidance may not be given even when the route on the map changes direction.	System is not malfunctioning.
	The vehicle is not on the recommended route.	Return to the recommended route or re-search the route.
	Voice guide is turned OFF.	Turn voice guide ON.
	Route guide is turned OFF.	Turn route guide ON.
Voice guide does not match the actual road pattern.	Voice guide may vary with the direction to which the vehicle is turn and the connection of the road to other roads.	Drive in conformity to the actual traffic rules.

Route Search

Symptom	Cause	Remedy
No route is shown.	No road to be searched is found around the destination.	Find wider road (orange road or wider) nearby and reset the destination and passing points onto it. Take care of the traveling direction when there are separate up and down roads.
	Starting point and the destination are too close.	Set the destination at more distant point.
	Conditional traffic regulation (day of the week/ time of the day) is set at the area around the current location or the destination.	Turn the time-regulating search conditions OFF. Turn "Avoid regulation time" in the search conditions OFF.
Indicated route is intermittent.	In some areas, highways (gray routes) are not used for the search ^(Note) . Therefore, the route to the current location or the passing points may be intermittent.	System is not malfunctioning.
When the vehicle has passed the recommended route, it is deleted from the screen.	A recommended route is controlled by each section. When the vehicle has passed the passing point 1, then the map data from the starting point up to the passing point 1 will be deleted. (The data may remain undeleted in some area.)	System is not malfunctioning.
Detouring route is recommended.	In some areas, highways (gray routes) are not used for the search. (Note). Therefore, detour route may be recommended.	Set the route closer to the basic route (gray route).
	A detour route may be shown when some traffic regulation (one-way traffic, etc.) is set at the area around the starting point or the destination.	Slightly move the starting point or the destination, or set the passing point on the route of your choice.
	In the area where highways (gray routes) are used for the search, left turn has priority around the current location and the destination (passing points). For this reason, the recommended route may be detouring.	System is not malfunctioning.
Landmarks on the map do not match the actual ones.	This can be happen due to omission or error in the map data.	As a rule, an updated map DVD-ROM will be released once a year. Wait until the latest map has become available.
Recommended route is far from the starting point, passing points, and destination.	Starting point, passing points, and destination of the route guide were set far from the desired points because route searching data around these area were not stored.	Reset the destination onto the road nearby. If this road is one of the highways (gray routes), an ordinary road nearby may be displayed as the recommended route.

NOTE:

Except for the ordinance-designated cities. (Malfunctioning areas may be changed in the updated map disc.)

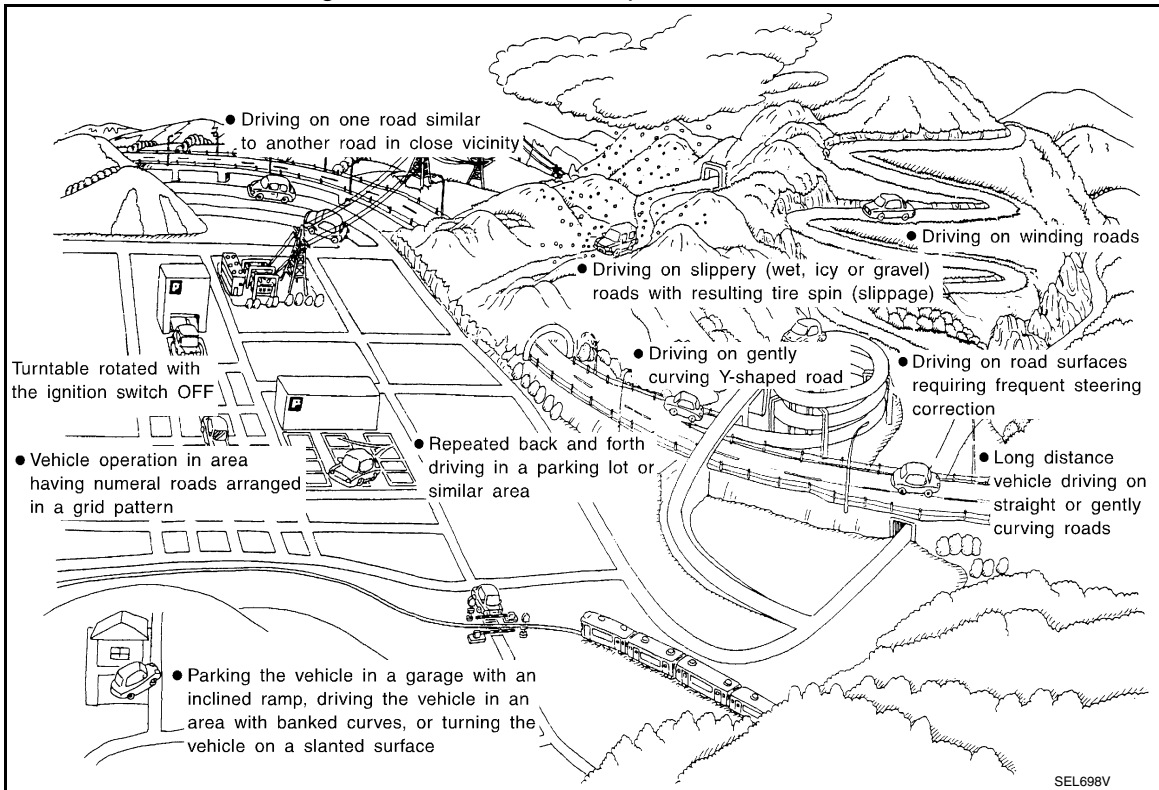
Examples of Current-Location Mark Displacement

NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

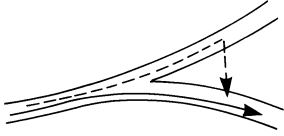
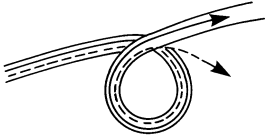
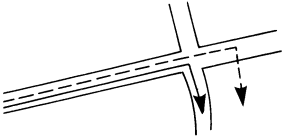
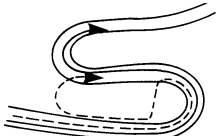
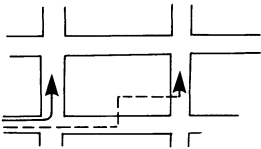
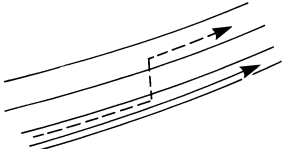
Vehicle's travel amount is calculated by reading its travel distance and turning angle. Therefore, if the vehicle is driven in the following manner, an error will occur in the vehicle's current location display. If correct location has not been restored after driving the vehicle for a while, perform location correction.



NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

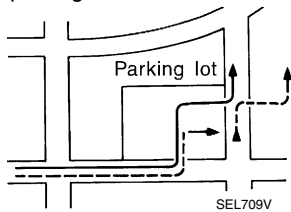
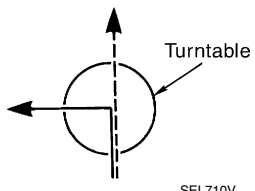
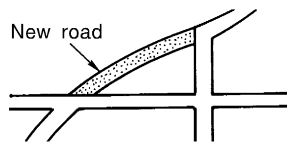
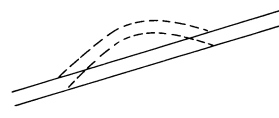
Cause (condition) -: While driving ooo: Display		Driving condition	Remarks (correction, etc.)
Road configuration	Y-intersections  ELK0192D	At a Y intersection or similar gradual division of roads, an error in the direction of travel deduced by the sensor may result in the current-location mark appearing on the wrong road.	
	Spiral roads  ELK0193D	When driving on a large, continuous spiral road (such as loop bridge), turning angle error is accumulated and the vehicle mark may deviate from the correct location.	
	Straight roads  ELK0194D	When driving on a long, straight road and slow curve without stopping, map-matching does not work effectively enough and distance errors may accumulate. As a result, the vehicle mark may deviate from the correct location when the vehicle is turned at a corner.	If after travelling about 10 km (6 miles) the correct location has not been restored, perform location correction and, if necessary, direction correction.
	Zigzag roads  ELK0195D	When driving on a zigzag road, the map may be matched to other roads in the similar direction nearby at every turn, and the vehicle mark may deviate from the correct location.	
	Roads laid out in a grid pattern  ELK0196D	When driving where roads are laid out in a grid pattern, or where many roads are running in the similar direction nearby, the map may be matched to them by mistake and the vehicle mark may deviate from the correct location.	
	Parallel roads  ELK0197D	When two roads are running in parallel (such as highway and sideways), the map may be matched to the other road by mistake and the vehicle mark may deviate from the correct location.	

A
B
C
D
E
F
G
H
I
J
K
L
M
AV
O
P

NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

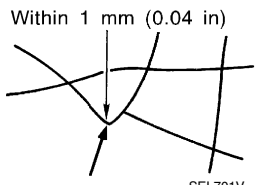
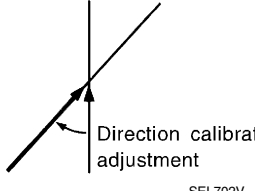
[NAVIGATION WITHOUT BOSE]

Cause (condition) -: While driving ooo: Display		Driving condition	Remarks (correction, etc.)
Place	In a parking lot  SEL709V	When driving in a parking lot, or other location where there are no roads on the map, matching may place the vehicle mark on a nearby road. When the vehicle returns to the road, the vehicle mark may have deviated from the correct location. When driving in circle or turning the steering wheel repeatedly, direction errors accumulate, and the vehicle mark may deviate from the correct location.	If after travelling about 10 km (6 miles) the correct location has not been restored, perform location correction and, if necessary, direction correction.
	Turntable  SEL710V	When the ignition switch is OFF, the navigation system cannot get the signal from the gyroscope (angular speed sensor). Therefore, the displayed direction may be wrong and the correct road may not be easily returned to after rotating the vehicle on a turntable with the ignition OFF.	
	Slippery roads	On snow, wet roads, gravel, or other roads where tires may slip easily, accumulated mileage errors may cause the vehicle mark to deviate from the correct road.	
	Slopes	When parking in sloped garages, when travelling on banked roads, or in other cases where the vehicle turns when tilted, an error in the turning angle will occur, and the vehicle mark may deviate from the road.	
Map data	Road not displayed on the map screen  SEL699V	When driving on new roads or other roads not displayed on the map screen, map matching does not function correctly and matches the location to a nearby road. When the vehicle returns to a road which is on the map, the vehicle mark may deviate from the correct road.	
	Different road pattern (Changed due to repair)  ELK0201D	If the road pattern stored in the map data and the actual road pattern are different, map matching does not function correctly and matches the location to a nearby road. The vehicle mark may deviate from the correct road.	
Vehicle	Use of tire chains	When tire chains are used, the mileage is not correctly detected, and the vehicle mark may deviate from the correct road.	Drive the vehicle for a while. If the distance still deviates, adjust it by using the distance adjustment function. (If the tire chain is removed, recover the original value.)

NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

Cause (condition) -: While driving ooo: Display		Driving condition	Remarks (correction, etc.)
Precautions for driving	Just after the engine is started	If the vehicle is driven just after the engine is started when the gyroscope (angular speed sensor) correction is not completed, the vehicle can lose its direction and may have deviated from the correct location.	Wait for a short while before driving after starting the engine.
	Continuous driving without stopping	When driving long distances without stopping, direction errors may accumulate, and the current-location mark may deviate from the correct road.	Stop and adjust the orientation.
	Abusive driving	Spinning the wheels or engaging in other kinds of abusive driving may result in the system being unable perform correct detection, and may cause the vehicle mark to deviate from the correct road.	If after travelling about 10 km (6 miles) the correct location has not been restored, perform location correction and, if necessary, direction correction.
How to correct location	Position correction accuracy 	If the accuracy of location settings is poor, accuracy may be reduced when the correct road cannot be found, particularly in places where there are many roads.	Enter in the road displayed on the screen with an accuracy of approx. 1mm. Caution: Whenever possible, use detailed map for the correction.
	Direction when location is corrected 	If the accuracy of location settings during correction is poor, accuracy may be reduced afterwards.	Perform direction correction.

Location Correction by Map-Matching is Slow

- The map-matching function needs to refer to the data of the surrounding area. It is necessary to drive some distance for the function to work.
- Because map-matching operates on this principle, when there are many roads running in similar directions in the surrounding area, no matching determination may be made. The location may not be corrected until some special feature is found.

Name of Road is Not Displayed

The current road name may not be displayed if there are no road names displayed on the map screen.

Contents of Display Differ for Birdview™ and the (Flat) Map Screen

Difference of the BIRDVIEW™ screen from the flat map screen are as follows.

- The current place name displays names which are primarily in the direction of vehicle travel.
- The amount of time before the vehicle travel or turn angle is updated on the screen is longer than for the (flat) map display.
- The conditions for display of place names, roads, and other data are different for nearby areas and for more distant areas.
- Some thinning of the character data is done to prevent the display becoming too complex. In some cases and in some locations, the display contents may differ.
- The same place name, street name, etc. may be displayed multiple times.

Vehicle Mark Shows a Position Which is Completely Wrong

In the following cases, the vehicle mark may appear on completely different position in the map depending on the GPS satellite signal receiving conditions. In this case, perform location correction and direction correction.

- When location correction has not been done
- If the receiving conditions of the GPS satellite signal is poor, if the vehicle mark becomes out of place, it may move to a completely different location and not come back if location correction is not done. The position will be corrected if the GPS signal can be received.
- When the vehicle has traveled by ferry, or when the vehicle has been being towed

NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

[NAVIGATION WITHOUT BOSE]

- Because calculation of the current location cannot be done when traveling with the ignition off, for example when traveling by ferry or when being towed, the location before travel is displayed. If the precise location can be detected with GPS, the location will be corrected.

Vehicle Mark Jumps

In the following cases, the vehicle mark may appear to jump as a result of automatic correction of the current location.

- When map matching has been done
- If the current location and the vehicle mark are different when map matching is done, the vehicle mark may seem to jump. At this time, the location may be “corrected” to the wrong road or to a location which is not on a road.
- When GPS location correction has been done
- If the current location and the vehicle mark are different when the location is corrected using GPS measurements, the vehicle mark may seem to jump. At this time, the location may be “corrected” to a location which is not on a road.

Vehicle Mark is in a River or Sea

The navigation system moves the vehicle mark with no distinction between land and rivers or sea. If the vehicle mark is somehow out of place, it may appear that the vehicle is driving in a river or the sea.

Vehicle Mark Automatically Rotates

The system wrongly memorizes the rotating status as stopping when the ignition switch is turned ON with the turntable rotating. That causes the vehicle mark to rotate when the vehicle is stopped.

When Driving on Same Road, Sometimes Vehicle Mark is in Right Place and Sometimes it is in Wrong Place

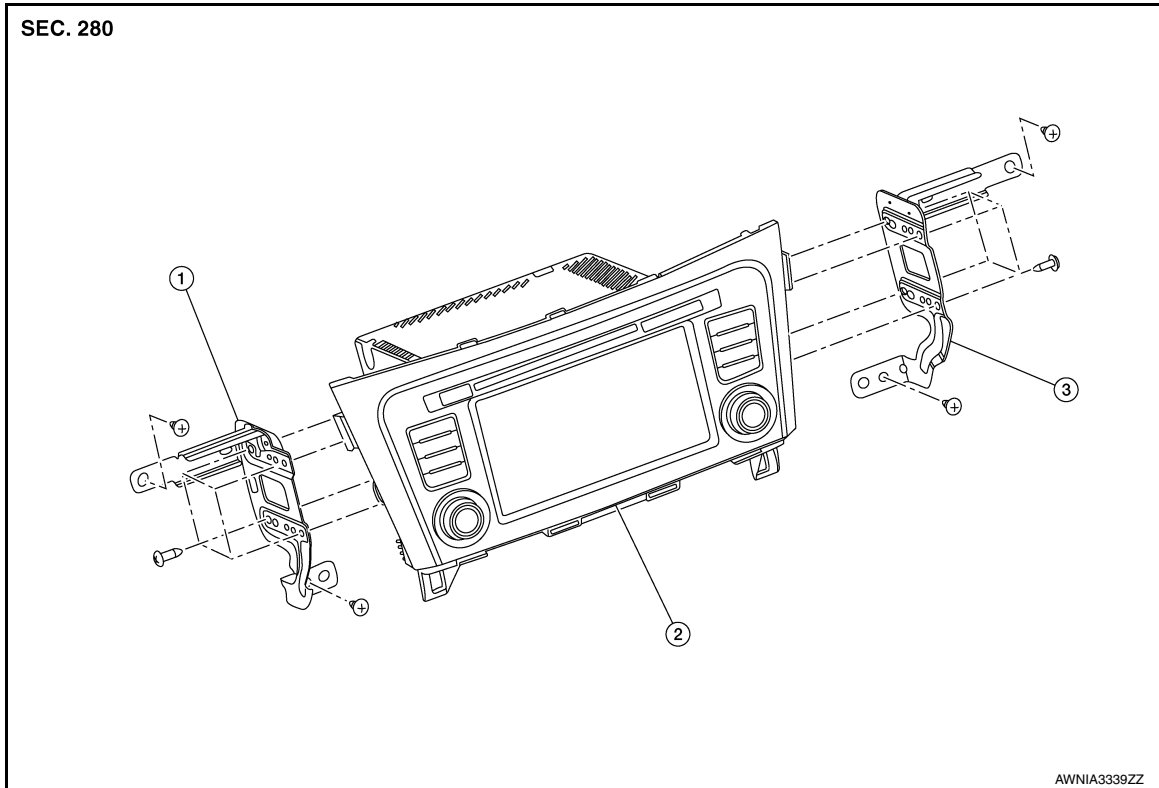
The conditions of the GPS antenna (GPS data) and gyroscope (angular speed sensor) change gradually. Depending on the road traveled and the operation of the steering wheel, the location detection results will be different. Therefore, even on a road on which the location has never been wrong, conditions may cause the vehicle mark to deviate.

REMOVAL AND INSTALLATION

AV CONTROL UNIT

Exploded View

INFOID:000000010197494



1. AV control unit bracket (LH) 2. AV control unit 3. AV control unit bracket (RH)

Removal and Installation

INFOID:000000010197495

REMOVAL

CAUTION:

- Before disconnecting the AV control unit and battery terminals, turn the ignition switch OFF and wait at least 30 seconds.
- Before replacing AV control unit, perform "READ CONFIGURATION" to save current vehicle specification. Refer to [AV-134, "CONFIGURATION \(AV CONTROL UNIT\) : Configuration List"](#).

NOTE:

After the ignition switch is turned OFF, the AV control unit continues operating for approximately 30 seconds. Therefore, data corruption may occur if battery voltage is cut off within 30 seconds.

1. Disconnect the negative battery terminal. Refer to [PG-75, "Removal and Installation \(Battery\)"](#).
2. Remove A/C switch (AUTOMATIC AIR CONDITIONING) or front air control (MANUAL AIR CONDITIONING). Refer to [HAC-102, "Removal and Installation"](#) (AUTOMATIC AIR CONDITIONING) or [HAC-181, "Removal and Installation"](#) (MANUAL AIR CONDITIONING).
3. Remove instrument finisher B. Refer to [IP-16, "INSTRUMENT FINISHER B : Removal and Installation"](#).
4. Remove instrument finisher E. Refer to [IP-16, "INSTRUMENT FINISHER E : Removal and Installation"](#).
5. Remove the AV control unit screws, then pull out the AV control unit.
6. Disconnect the harness connectors from the AV control unit and remove.
7. Remove the AV control unit bracket (LH/RH) screws and the AV control unit brackets (LH/RH) (if necessary).

INSTALLATION

AV CONTROL UNIT

< REMOVAL AND INSTALLATION >

[NAVIGATION WITHOUT BOSE]

Installation is in the reverse order of removal.

CAUTION:

When replacing AV control unit, perform "WRITE CONFIGURATION". Refer to [AV-134, "CONFIGURATION \(AV CONTROL UNIT\) : Configuration List"](#).

STEERING SWITCH

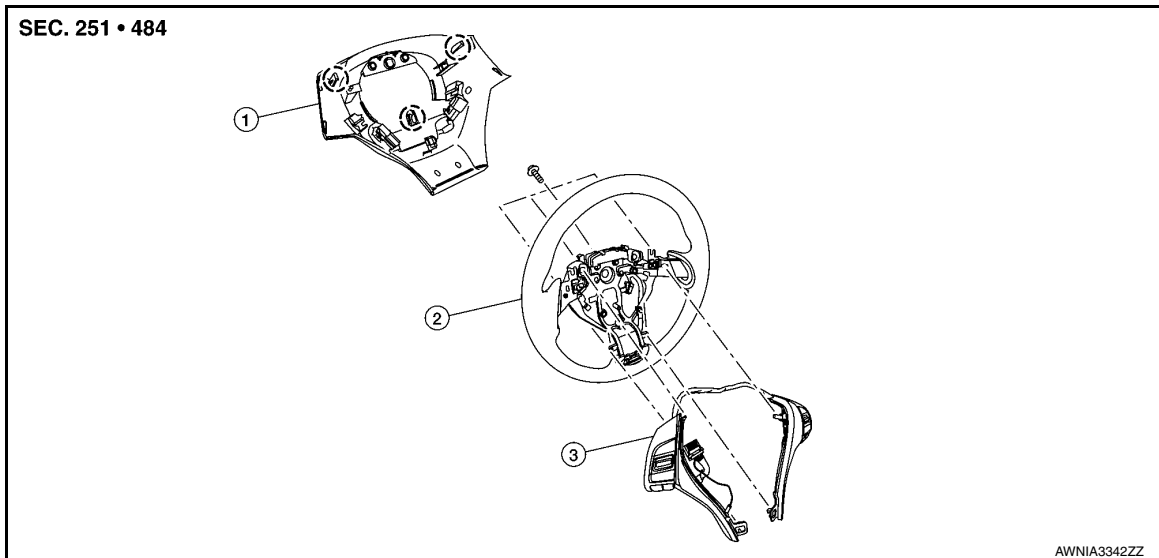
< REMOVAL AND INSTALLATION >

[NAVIGATION WITHOUT BOSE]

STEERING SWITCH

Exploded View

INFOID:0000000010197497



Removal and Installation

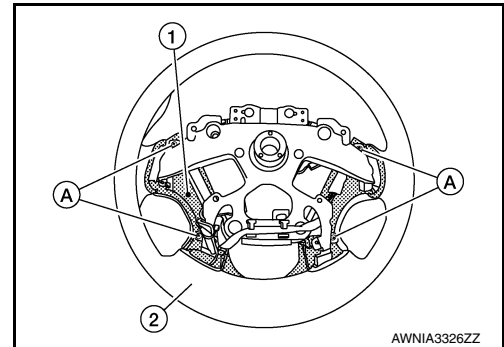
INFOID:0000000010197498

REMOVAL

NOTE:

The steering switches are serviced as an assembly.

1. Remove steering wheel. Refer to [ST-11, "Removal and Installation"](#).
2. Release pawls on the steering wheel rear finisher and remove.
3. Remove screws (A) and steering switches (1) from steering wheel (2).



INSTALLATION

Installation is in the reverse order of removal.

FRONT TWEETER

Removal and Installation

INFOID:0000000010258510

REMOVAL

1. Remove defroster grille. Refer to [VTL-12. "DEFROSTER GRILLE : Removal and Installation"](#).
2. Remove bolts and pull out the front tweeter.
3. Disconnect the harness connector from the front tweeter and remove.

INSTALLATION

Installation is in the reverse order of removal.

FRONT DOOR SPEAKER

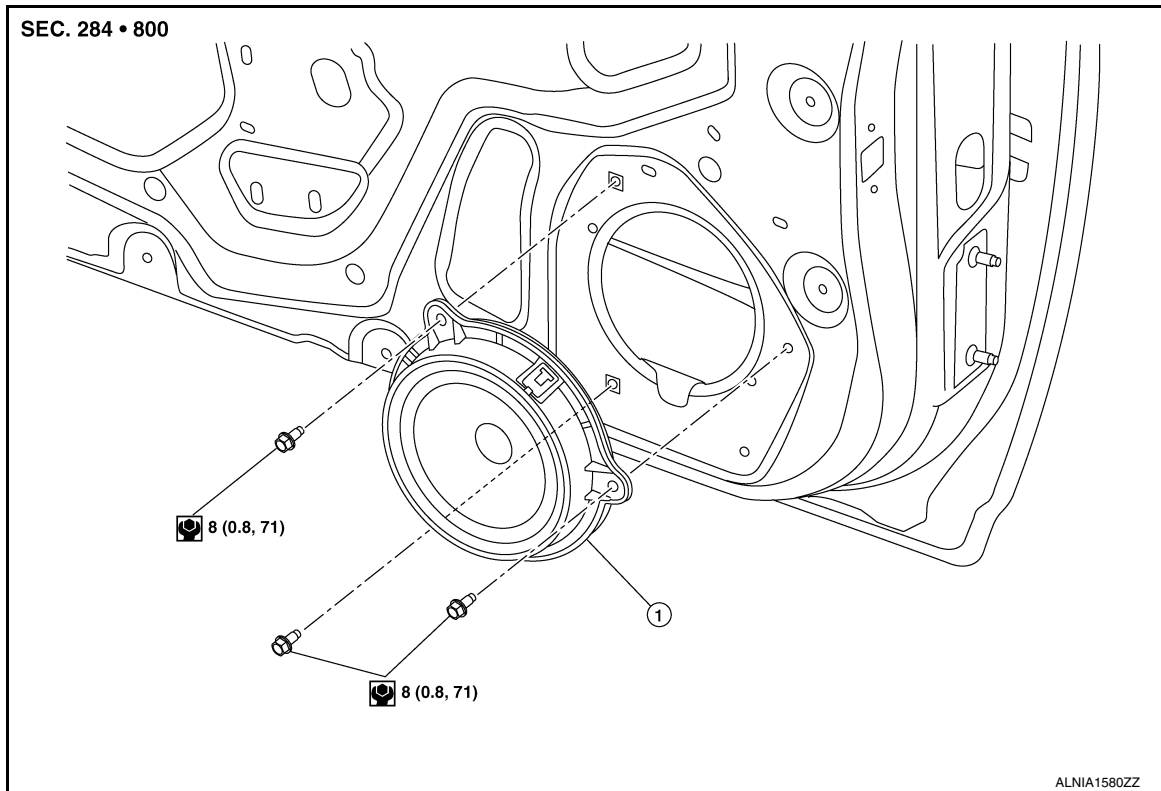
< REMOVAL AND INSTALLATION >

[NAVIGATION WITHOUT BOSE]

FRONT DOOR SPEAKER

Exploded View

INFOID:000000010197503



1. Front door speaker

Removal and Installation

INFOID:000000010197504

REMOVAL

1. Remove front door finisher. Refer to [INT-15. "Removal and Installation"](#).
2. Remove front door speaker bolts, then pull out front door speaker.
3. Disconnect the harness connector from front door speaker and remove.

INSTALLATION

Installation is in the reverse order of removal.

A
B
C
D
E
F
G
H
I
J
K
L
M
O
P

AV

REAR DOOR SPEAKER

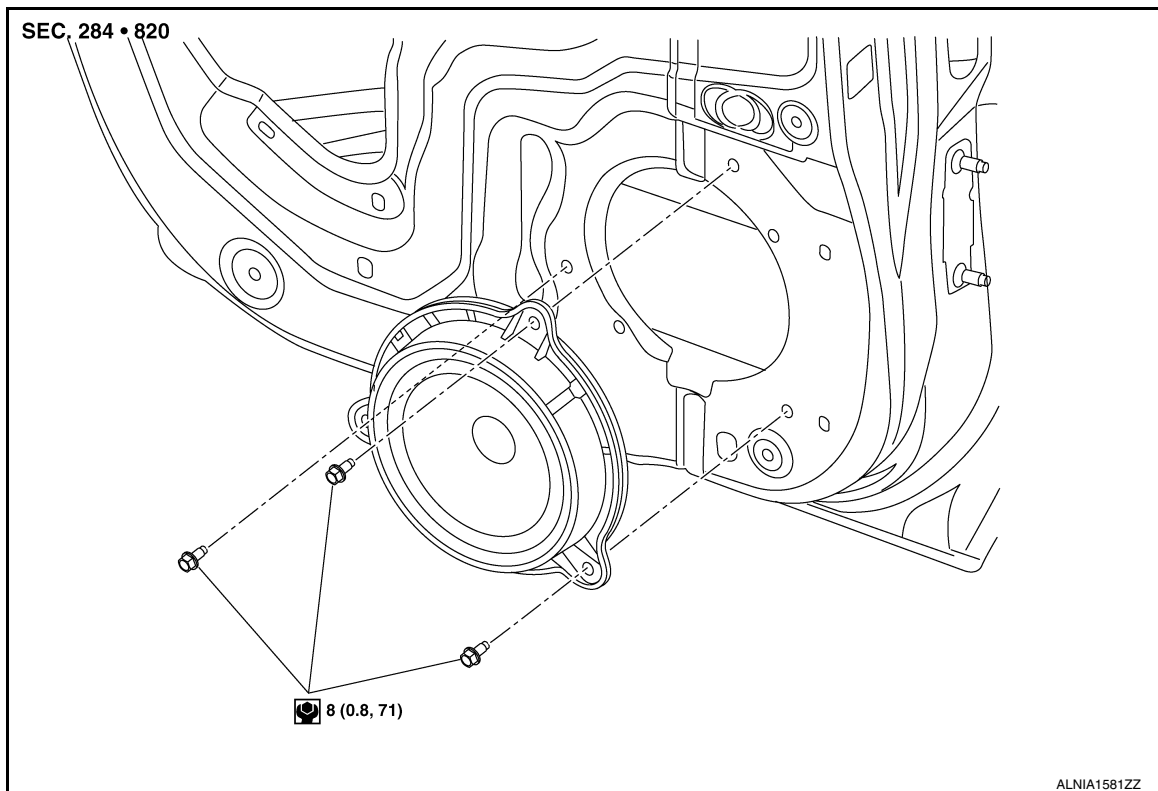
< REMOVAL AND INSTALLATION >

[NAVIGATION WITHOUT BOSE]

REAR DOOR SPEAKER

Exploded View

INFOID:0000000010197506



1. Rear door speaker

Removal and Installation

INFOID:0000000010197507

REMOVAL

1. Remove rear door finisher. Refer to [INT-18. "Removal and Installation"](#).
2. Remove rear door speaker bolts, then pull out rear door speaker.
3. Disconnect the harness connector from the rear door speaker and remove.

INSTALLATION

Installation is in the reverse order of removal.

USB INTERFACE AND AUX IN JACK

< REMOVAL AND INSTALLATION >

[NAVIGATION WITHOUT BOSE]

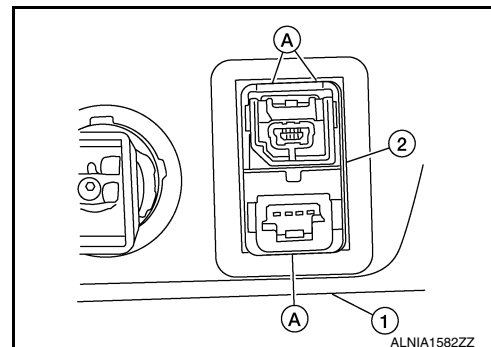
USB INTERFACE AND AUX IN JACK

Removal and Installation

INFOID:0000000010199269

REMOVAL

1. Remove cluster lid C. Refer to [IP-21. "Removal and Installation"](#).
2. Release the pawls (A) on the back of USB interface and AUX in jack (2), then remove from the front of cluster lid C (1).



INSTALLATION

Installation is in the reverse order of removal.

A
B
C
D
E
F
G
H
I
J
K
L
M
O
P

AV

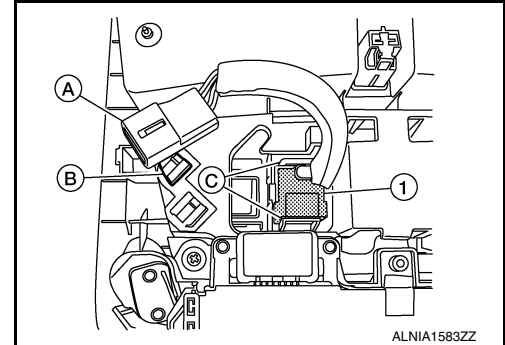
MICROPHONE

Removal and Installation

INFOID:000000010197511

REMOVAL

1. Remove the map lamp assembly. Refer to [INL-55, "Removal and Installation"](#).
2. Release harness connector (A) by sliding rearward to remove from the pawl (B).
3. Release pawls (C) and remove the microphone (1) from the front room/map lamp assembly.



INSTALLATION

Installation is in the reverse order of removal.

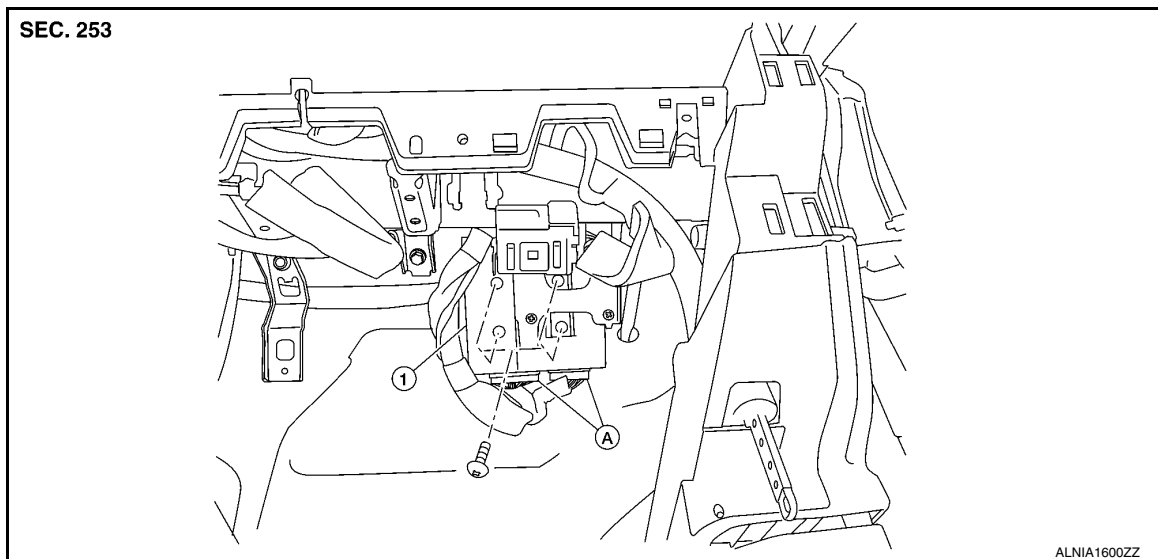
AROUND VIEW MONITOR CONTROL UNIT

< REMOVAL AND INSTALLATION >

[NAVIGATION WITHOUT BOSE]

AROUND VIEW MONITOR CONTROL UNIT

Exploded View



1. Around view monitor control unit A. Harness connector

Removal and Installation

INFOID:0000000010198117

REMOVAL

CAUTION:

Before replacing around view monitor control unit, save or print current vehicle specification with CONSULT configuration before replacement. Refer to [AV-132, "ADDITIONAL SERVICE WHEN REPLACING AROUND VIEW MONITOR CONTROL UNIT : Work Procedure"](#).

1. Remove glove box assembly. Refer to [IP-23, "Removal and Installation"](#).
2. Remove around view monitor control unit screws.
3. Disconnect the harness connector from the around view monitor control unit and remove.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Replace the around view monitor control unit if it has been dropped or sustained an impact.
- When replacing around view monitor control unit, you must perform "After Replace ECU" with CONSULT. Refer to [AV-132, "ADDITIONAL SERVICE WHEN REPLACING AROUND VIEW MONITOR CONTROL UNIT : Work Procedure"](#).

NOTE:

Perform camera image calibration. Refer to [AV-136, "CALIBRATING CAMERA IMAGE \(AROUND VIEW MONITOR\) : Work Procedure"](#).

FRONT CAMERA

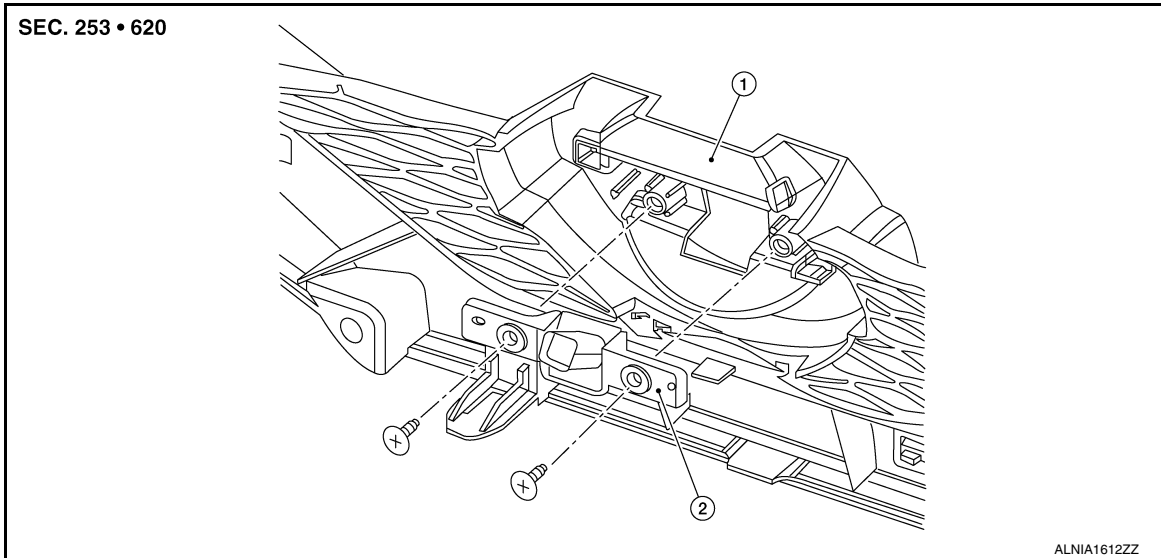
< REMOVAL AND INSTALLATION >

[NAVIGATION WITHOUT BOSE]

FRONT CAMERA

Exploded View

INFOID:0000000010250299



1. Front grille

2. Front camera

Removal and Installation

INFOID:0000000010198118

REMOVAL

1. Remove the front grille. Refer to [EXT-23, "Removal and Installation"](#).
2. Remove screws and front camera.

INSTALLATION

Installation is in the reverse order of removal.

NOTE:

Perform camera image calibration. Refer to [AV-136, "CALIBRATING CAMERA IMAGE \(AROUND VIEW MONITOR\) : Work Procedure"](#).

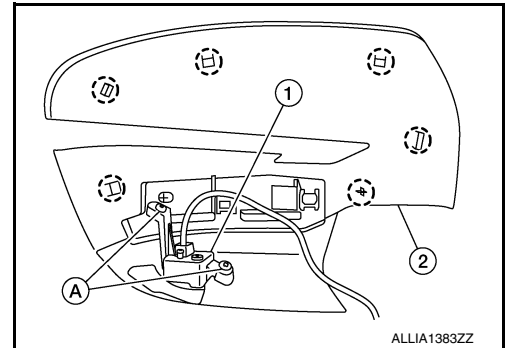
SIDE CAMERA

Removal and Installation

INFOID:0000000010198119

REMOVAL

1. Remove door mirror rear finisher (2). Refer to [MIR-25. "Removal and Installation"](#).
2. Remove screws (A) and side camera (1).
○: Pawl



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

Perform camera image calibration (if equipped with around view camera). Refer to [AV-135. "CALIBRATING CAMERA IMAGE \(AROUND VIEW MONITOR\) : Description"](#).

A
B
C
D
E
F
G
H
I
J
K
L
M
O
P

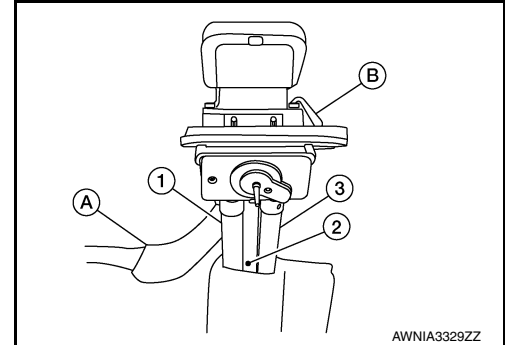
AV

REAR VIEW CAMERA**Removal and Installation**

INFOID:0000000010199271

REMOVAL

1. Remove the back door outer finisher. Refer to [EXT-50. "Removal and Installation"](#).
2. Disconnect washer tubes (1,3) and air tube (2) (if equipped).
3. Release pawl (B), disconnect harness connector (A) from rear view camera and remove.

**INSTALLATION**

Installation is in the reverse order of removal.

GPS ANTENNA

Removal and Installation

INFOID:000000010272097

REMOVAL

1. Remove instrument panel. Refer to [IP-14, "INSTRUMENT PANEL ASSEMBLY : Removal and Installation"](#).
2. Remove screw and the GPS antenna.

INSTALLATION

Installation is in the reverse order of removal.

A

B

C

D

E

F

G

H

I

J

K

L

M

AV

O

P

AUDIO ANTENNA

Removal and Installation

INFOID:0000000010199279

REMOVAL

1. Remove the luggage side upper finisher (RH). Refer to [INT-36, "LUGGAGE SIDE UPPER FINISHER : Removal and Installation"](#).
2. Partially lower headlining (rear). Refer to [INT-30, "Removal and Installation"](#).
3. Disconnect harness connectors from antenna feeder.
4. Remove nut from audio antenna and remove.

INSTALLATION

Installation is in the reverse order of removal.

Audio antenna nut : 6.5 N·m (0.66 kg-m, 58 in-lb)

CAUTION:

If the audio antenna nut is not properly tightened, lower sensitivity of the antenna may be experienced. If the nut is over tightened, this will deform the roof panel.

ANTENNA FEEDER

< REMOVAL AND INSTALLATION >

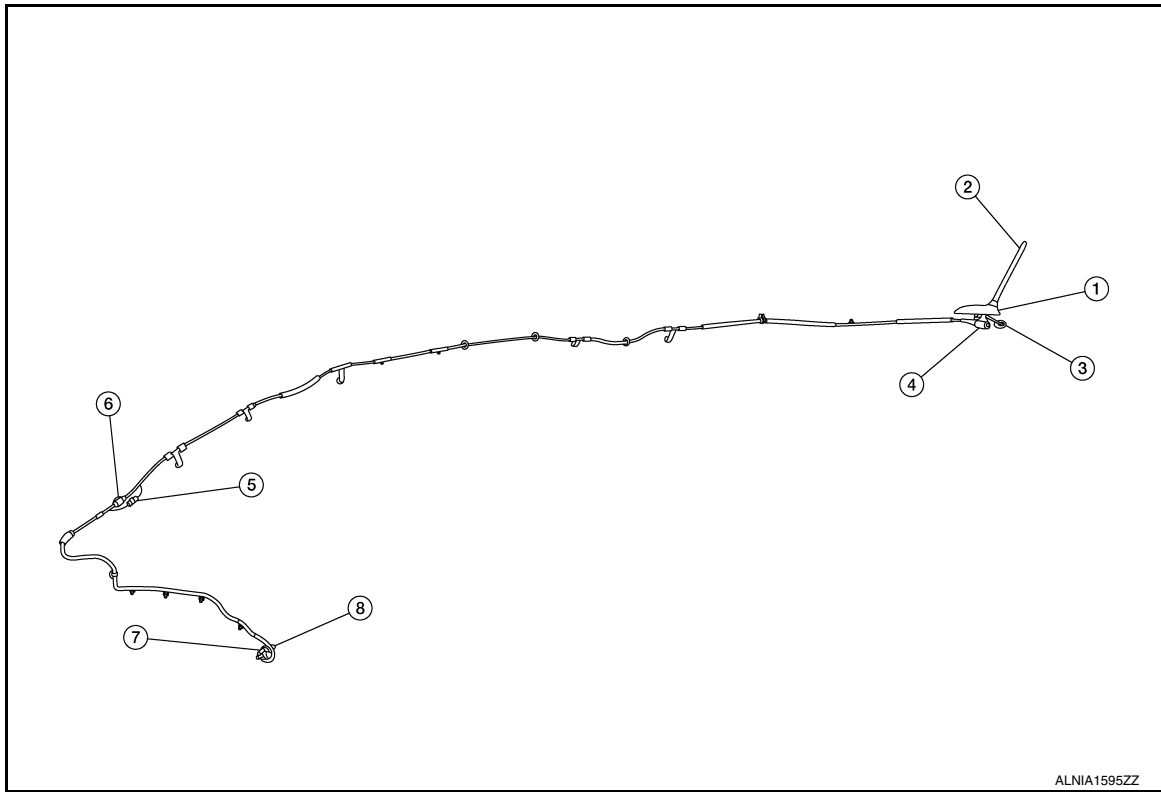
[NAVIGATION WITHOUT BOSE]

ANTENNA FEEDER

Feeder Layout

INFOID:0000000010270717

ANTENNA FEEDER LAYOUT



- | | | |
|--|----------------|---------------|
| 1. Antenna base (antenna amp. and satellite antenna) | 2. Rod Antenna | 3. M503 |
| 4. M502 | 5. M130, M501 | 6. M129, M500 |
| 7. M142 | 8. M139 | |

AV

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010197342

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Cautions in Removing Battery Terminal and AV Control Unit (Models with AV Control Unit)

INFOID:0000000010275689

CAUTION:

Remove battery terminal and AV control unit 30 seconds or more after turning the ignition switch OFF.

NOTE:

After the ignition switch is turned OFF, the AV control unit continues operating for approximately 30 seconds. Therefore, data corruption may occur if battery voltage is cut off within 30 seconds.

Precaution for Trouble Diagnosis

INFOID:0000000010275690

AV COMMUNICATION SYSTEM

- Do not apply voltage of 7.0 V or higher to the measurement terminals.
- Use the tester with its open terminal voltage being 7.0 V or less.
- Be sure to turn ignition switch OFF and disconnect the battery cable from the negative terminal before checking the circuit.

Precaution for Harness Repair

INFOID:0000000010197355

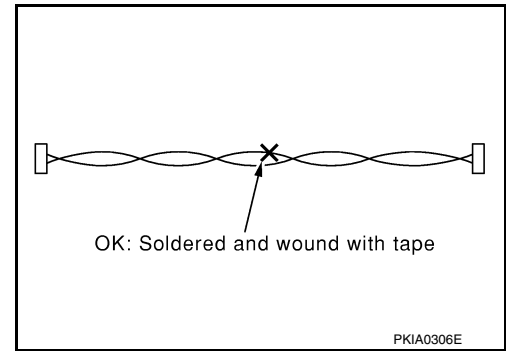
AV COMMUNICATION SYSTEM

PRECAUTIONS

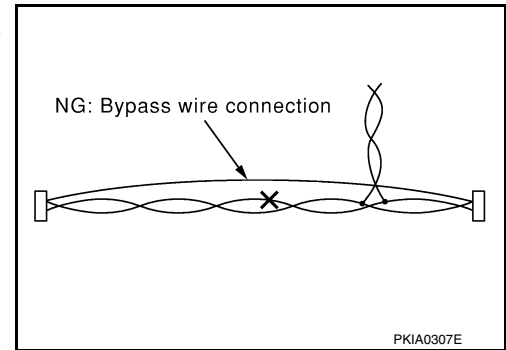
< PRECAUTION >

[NAVIGATION WITH BOSE]

- Solder the repaired parts, and wrap with tape. [Frays of twisted line must be within 110 mm (4.33 in).]



- Do not perform bypass wire connections for the repair parts. (The spliced wire will become separated and the characteristics of twisted line will be lost.)



Precaution for Work

INFOID:000000010197356

- When removing or disassembling each component, be careful not to damage or deform it. If a component may be subject to interference, be sure to protect it with a shop cloth.
- When removing (disengaging) components with a screwdriver or similar tool, be sure to wrap the component with a shop cloth or vinyl tape to protect it.
- Protect the removed parts with a shop cloth and prevent them from being dropped.
- Replace a deformed or damaged clip.
- If a part is specified as a non-reusable part, always replace it with a new one.
- Be sure to tighten bolts and nuts securely to the specified torque.
- After installation is complete, be sure to check that each part works properly.
- Follow the steps below to clean components:
 - Water soluble dirt:
 - Dip a soft cloth into lukewarm water, wring the water out of the cloth and wipe the dirty area.
 - Then rub with a soft, dry cloth.
 - Oily dirt:
 - Dip a soft cloth into lukewarm water with mild detergent (concentration: within 2 to 3%) and wipe the dirty area.
 - Then dip a cloth into fresh water, wring the water out of the cloth and wipe the detergent off.
 - Then rub with a soft, dry cloth.
 - Do not use organic solvent such as thinner, benzene, alcohol or gasoline.
 - For genuine leather seats, use a genuine leather seat cleaner.

PREPARATION

< PREPARATION >

[NAVIGATION WITH BOSE]

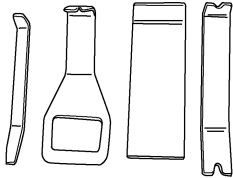
PREPARATION

PREPARATION

Special Service Tool

INFOID:0000000010197483

The actual shape of the tools may differ from those illustrated here.

Tool number (TechMate No.) Tool name	Description
— (J-46534) Trim Tool Set  AWJIA0483ZZ	Removing trim components

Commercial Service Tools

INFOID:0000000010197482

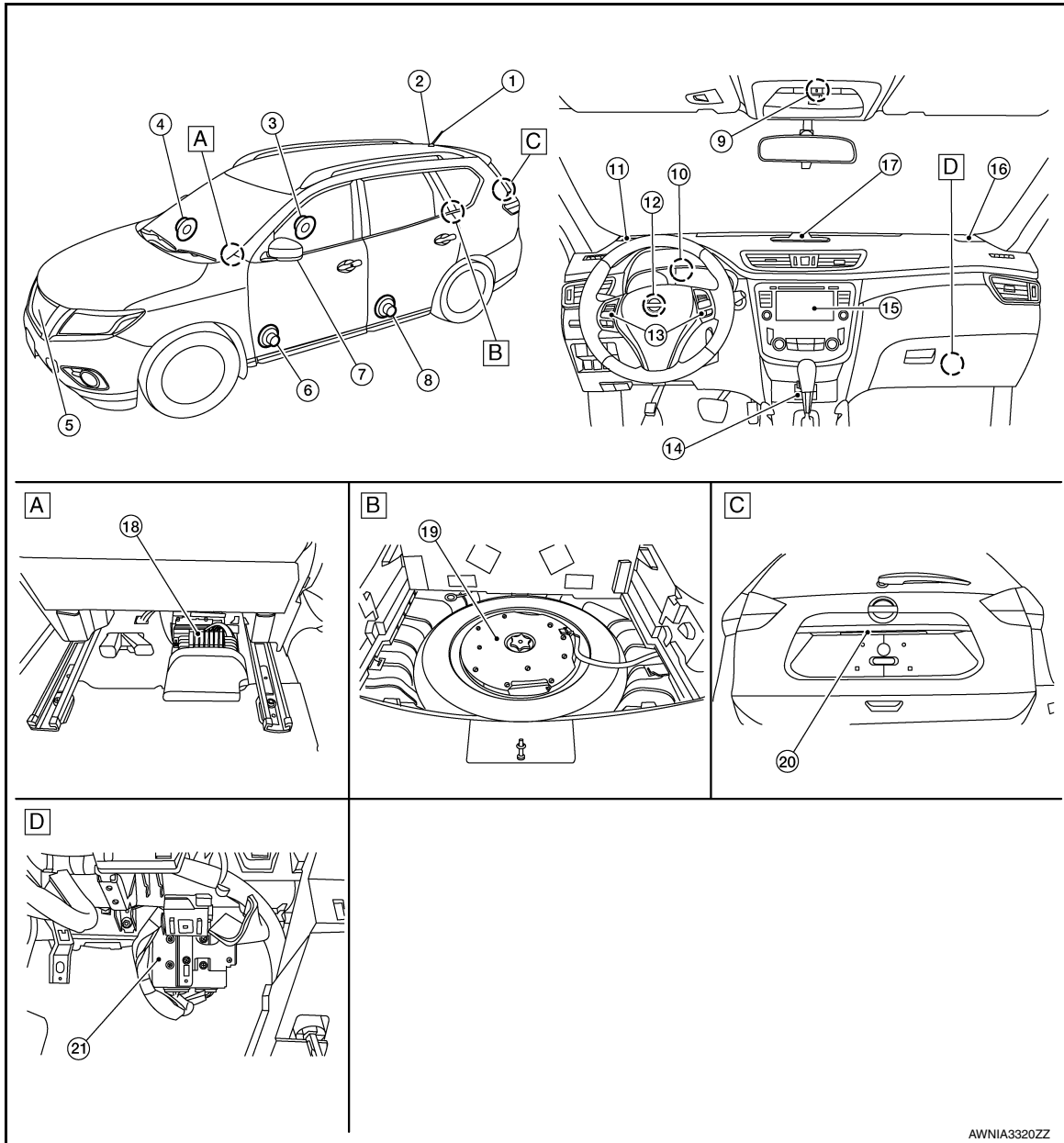
Tool name	Description
Power tool  PIIB1407E	Loosening nuts, screws and bolts

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:000000010244390



- A. View under rear of front passenger seat
 B. View with spare tire cover removed
 C. Center of back door
 D. View with glove box removed

No.	Component	Function
1.	Rod antenna	Refer to AV-232. "Rod Antenna, Antenna Amp., Satellite Antenna and Antenna Feeder".
2.	Antenna base (antenna amp. and satellite antenna)	
3.	Rear door speaker RH	Refer to AV-229. "Speakers".
4.	Front door speaker RH	

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[NAVIGATION WITH BOSE]

No.	Component	Function
5.	Front camera	Refer to AV-231, "Front Camera" .
6.	Front door speaker LH	Refer to AV-229, "Speakers" .
7.	Side camera	Refer to AV-231, "Side Cameras" .
8.	Rear door speaker LH	Refer to AV-229, "Speakers" .
9.	Microphone	Refer to AV-230, "Microphone" .
10.	GPS antenna	Refer to AV-233, "GPS Antenna" .
11.	Front tweeter LH	Refer to AV-229, "Speakers" .
12.	Steering angle sensor	Refer to AV-232, "Steering Angle Sensor" .
13.	Steering switches	Refer to AV-230, "Steering Switches" .
14.	USB interface and AUX in jack	Refer to AV-230, "USB Interface and AUX In Jack" .
15.	AV control unit	Refer to AV-228, "AV Control Unit" .
16.	Front tweeter RH	Refer to AV-229, "Speakers" .
17.	Center speaker	Refer to AV-229, "Speakers" .
18.	BOSE speaker amp.	Refer to AV-228, "BOSE Speaker Amp." .
19.	Subwoofer	Refer to AV-229, "Speakers" .
20.	Rear view camera	Refer to AV-231, "Rear View Camera" .
21.	Around View [®] * Monitor control unit	Refer to AV-231, "Around View Monitor Control Unit" .

*: Around View Monitor is a parking aid/convenience feature. Around View Monitor cannot completely eliminate blind spots. Around View Monitor may not detect every object and does not warn of moving objects. Always check surroundings before moving vehicle. Around View Monitor is not a substitute for proper backing procedures. Always turn to check what is behind you before backing up.

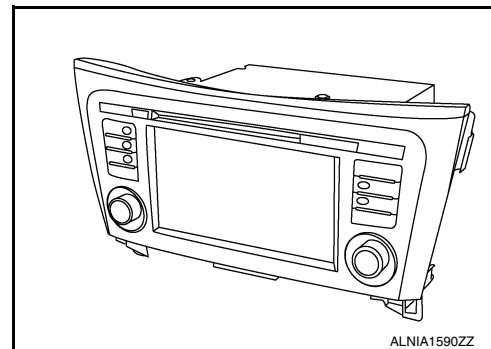
AV Control Unit

INFOID:0000000010244391

Description

- A 7-inch WVGA display, an AM/FM electronic tuner radio, CD drive and navigation unit are integrated into the AV control unit.
- The 7-inch display is a high resolution monitor that includes touch panel functions.
- Music files stored in iPod[®]*/USB memory can be played using the separate USB interface.
- Music files stored in an external audio device can be played using the separate AUX in jack.

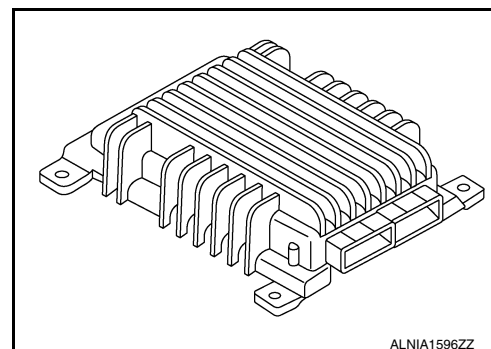
*: iPod[®] is a registered trademark of Apple, Inc. All rights reserved.



BOSE Speaker Amp.

INFOID:0000000010249285

- Installed under the rear of the front passenger seat.
- Receives sound signal from AV control unit, and outputs sound signal to each tweeter, speaker and the subwoofer.

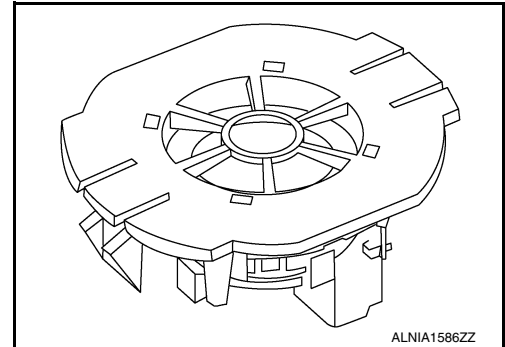


Speakers

INFOID:000000010244392

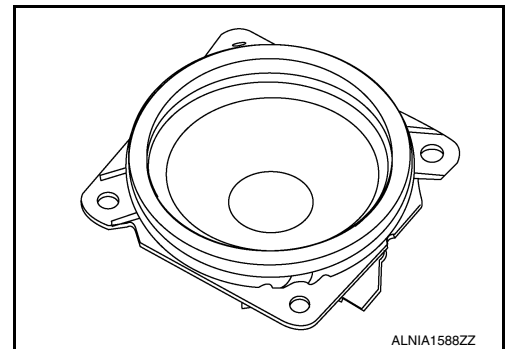
FRONT TWEETER

- 2.5 cm (1 in) tweeters are installed in the top front corners of the instrument panel.
- Sound signals are input from the Bose speaker amp. to output high range sounds.



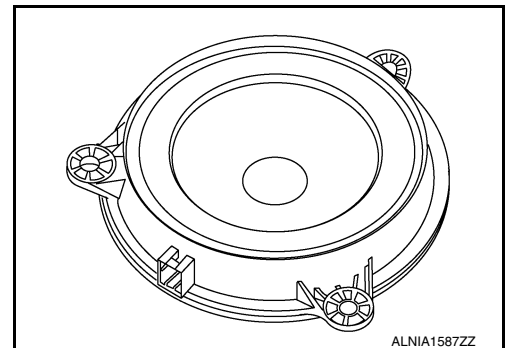
CENTER SPEAKER

- 7.6 cm (3 in) speaker is installed in the top center of the instrument panel.
- Sound signals are input from the Bose speaker amp. to output mid range sounds.



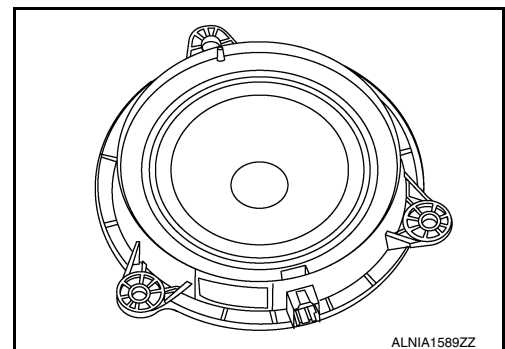
FRONT DOOR SPEAKER

- 16.5 cm (6.5 in) speakers are installed in the bottom of the front doors.
- Sound signals are input from the Bose speaker amp. to output high, mid and low range sounds.



REAR DOOR SPEAKER

- 12.7 cm (5 in) speakers are installed in the bottom of the rear doors.
- Sound signals are input from the Bose speaker amp. to output high, mid and low range sounds.



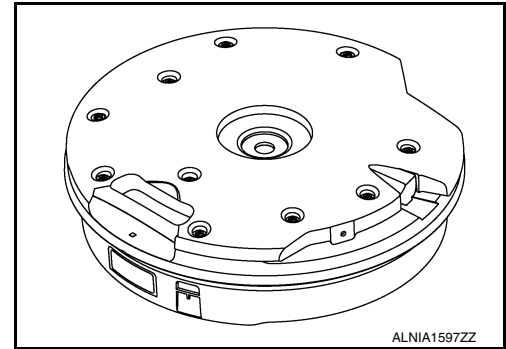
SUBWOOFER

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[NAVIGATION WITH BOSE]

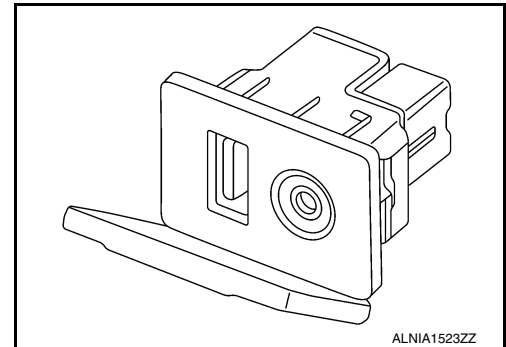
- Installed on top of the spare tire underneath the spare tire cover.
- Sound signals are input from the Bose speaker amp. to output low range sounds.



INFOID:000000010244393

USB Interface and AUX In Jack

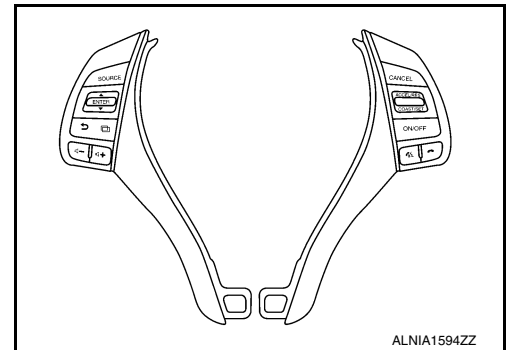
- USB Interface and AUX in jack is installed in the console.
- iPod® and USB memory can be connected to the AV control unit through the USB interface.
- An external audio device can be connected to the AV control unit through the AUX in jack.



INFOID:000000010244394

Steering Switches

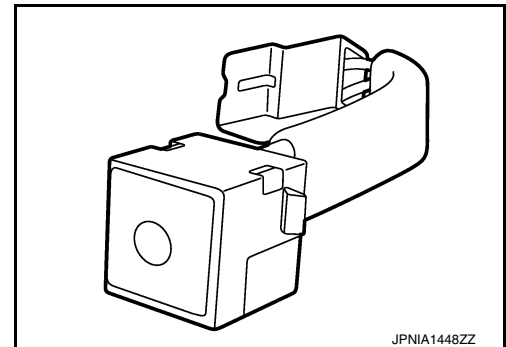
- Steering switches are installed in the steering wheel.
- Operations for audio and hands-free phone are possible.
- Switches are connected to the combination meter.
- Combination meter is connected to the AV control unit via AV communication.



INFOID:000000010244395

Microphone

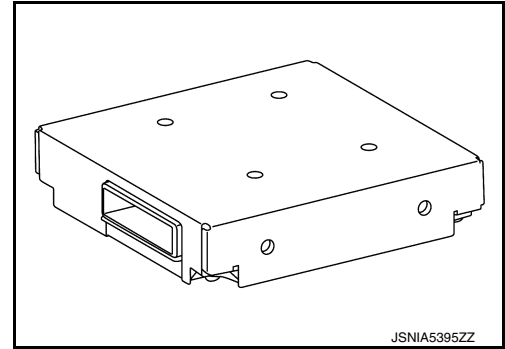
- The microphone is installed in the map lamp assembly.
- Power is supplied from the AV control unit.



Around View Monitor Control Unit

INFOID:000000010244396

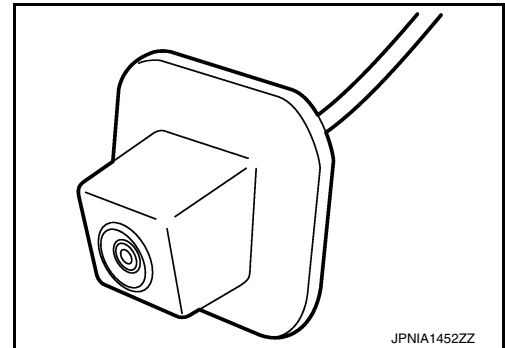
- The around view monitor control unit is installed behind the glove box.
- Vehicle width guide lines, predicted course line, vehicle front guiding line and vehicle side line, and vehicle icon are displayed and combined with camera images.



Rear View Camera

INFOID:000000010244397

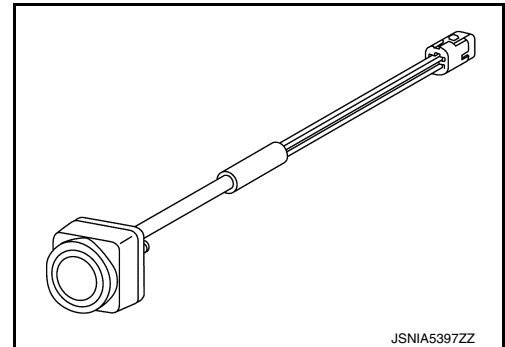
- The rear view camera is installed in the back door finisher.
- Power is supplied from the around view monitor control unit.



Side Cameras

INFOID:000000010244398

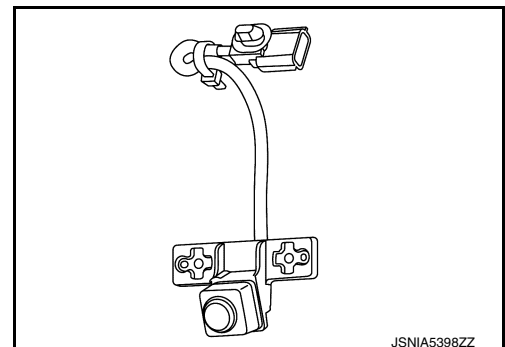
- The side cameras are installed in the door mirrors.
- Power is supplied from the around view monitor control unit.



Front Camera

INFOID:000000010244399

- The front camera is installed in the front grille.
- Power is supplied from the around view monitor control unit.

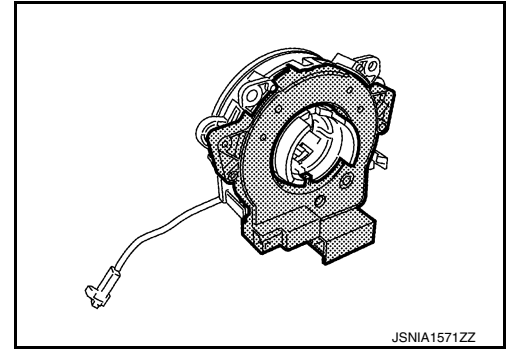


A
B
C
D
E
F
G
H
I
J
K
L
M
AV
O
P

Steering Angle Sensor

INFOID:000000010244400

- Steering sensor is installed to the spiral cable.
- Steering angle sends the steering signal necessary for predictive course line via CAN communication.

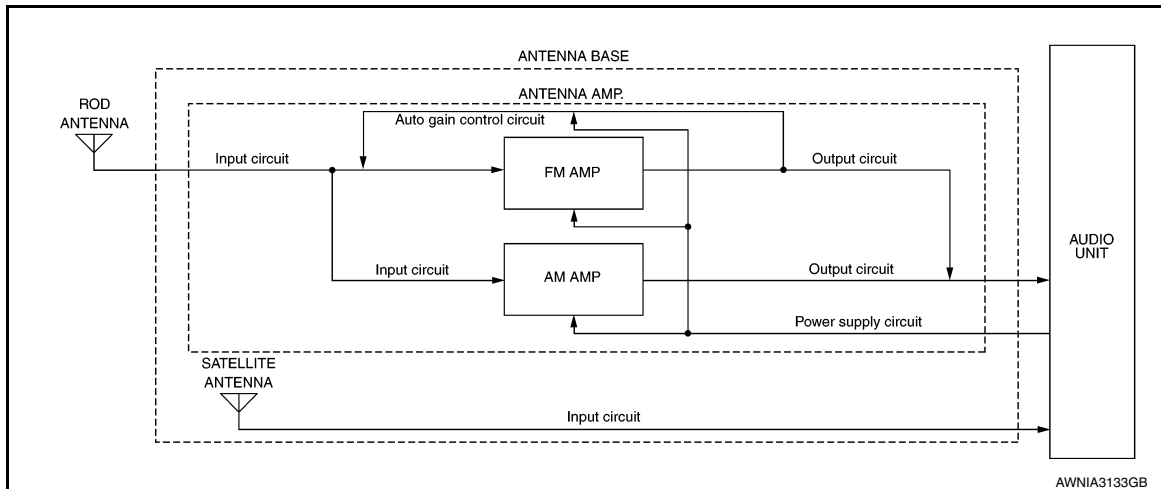


Rod Antenna, Antenna Amp., Satellite Antenna and Antenna Feeder

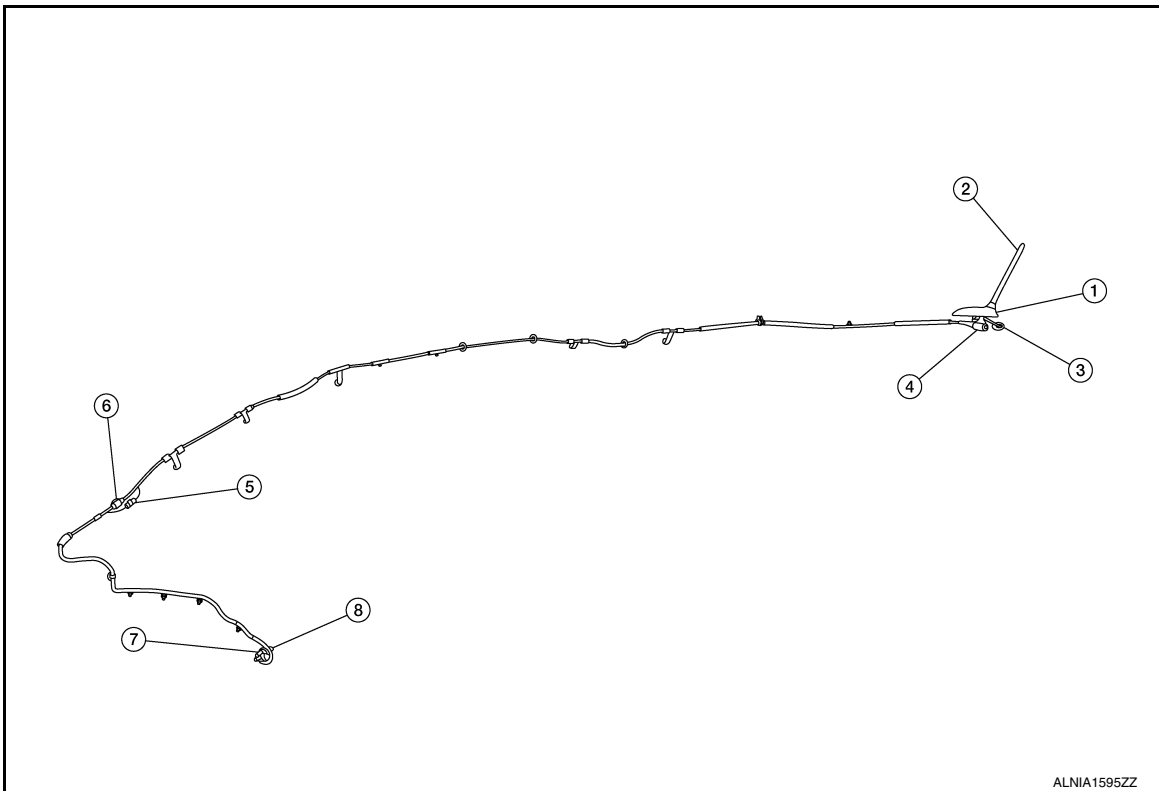
INFOID:000000010244401

RADIO ANTENNA AND SATELLITE ANTENNA

AM/FM radio rod antenna, antenna base and satellite antenna are located on the rear of the roof. The antenna amp. and satellite antenna are built into the antenna base.



ANTENNA FEEDER LAYOUT

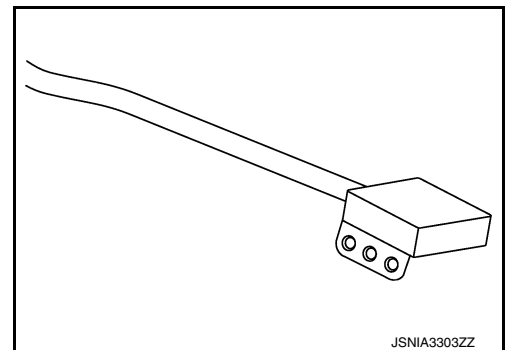


- | | | |
|--|----------------|---------------|
| 1. Antenna base (antenna amp. and satellite antenna) | 2. Rod Antenna | 3. M503 |
| 4. M502 | 5. M130, M501 | 6. M129, M500 |
| 7. M142 | 8. M139 | |

GPS Antenna

INFOID:0000000010244402

- GPS antenna is installed in the instrument panel, behind the combination meter.
- Power is supplied from the AV control unit.



INFOID:0000000010244403

SD Card

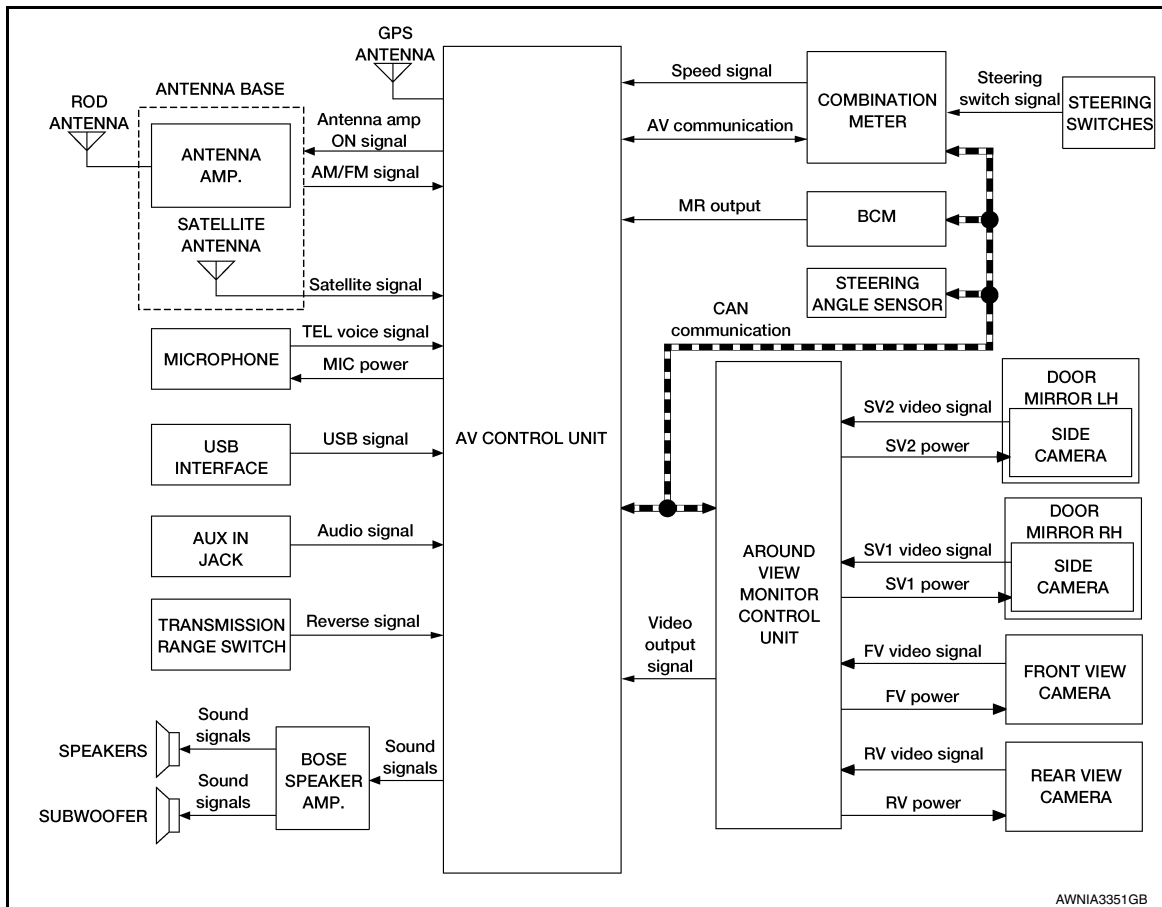
- Map data is memorized in the SD card.
- Map data is sent to the AV control unit from the SD slot.

SYSTEM

System Description

INFOID:000000010244404

SYSTEM DIAGRAM



AUDIO SYSTEM

The audio system consists of the following component:

- AV control unit
- Bose speaker amp.
- Front tweeters
- Center speaker
- Front door speakers
- Rear door speakers
- Subwoofer
- USB interface
- AUX in jack
- Antenna base (rod antenna, antenna amp. and satellite antenna)

When the audio system is on, AM/FM signals received by the rod antenna are amplified by the antenna amp. and sent to the AV control unit. The AV control unit sends the audio signals to the Bose speaker amp. The Bose speaker amp. then sends the audio signals to the tweeters, speakers and subwoofer.

Refer to Owner's Manual for audio system operating instructions.

NAVIGATION SYSTEM

Description

- The navigation system can be operated by control panel of the AV control unit and display (touch panel) of the AV control unit.
- Guide sound during the operation of the navigation system is output from AV control unit to front tweeters.
- AV control unit calculates the vehicle location based on the signals from GYRO (angle speed sensor), vehicle sensor, and GPS satellite, as well as the map data from map SD-card. The vehicle location is displayed on the AV control unit.

< SYSTEM DESCRIPTION >

POSITION DETECTION PRINCIPLE

The navigation system periodically calculates the vehicle's current position according to the following three signals:

- Travel distance of the vehicle as determined by the vehicle speed sensor
- Turning angle of the vehicle as determined by the gyroscope (angular velocity sensor)
- Direction of vehicle travel as determined by the GPS antenna (GPS information)

The current position of the vehicle is then identified by comparing the calculated vehicle position with map data read from the map SD-card (map-matching), and indicated on the screen as a vehicle mark. More accurate data is judged and used by comparing vehicle position detection results found by the GPS with the result by map-matching.

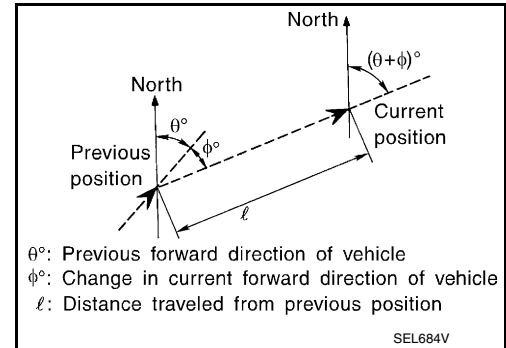
The current vehicle position will be calculated by detecting the distance the vehicle moved from the previous calculation point and its direction.

• Travel distance

Travel distance calculations are based on the vehicle speed sensor input signal. Therefore, the calculation may become incorrect as the tires wear down. To prevent this, an automatic distance correction function has been adopted.

• Travel direction

Change in the travel direction of the vehicle is calculated by a gyroscope (angular velocity sensor) and a GPS antenna (GPS information). They have both advantages and disadvantages.



Type	Advantage	Disadvantage
Gyroscope (angular velocity sensor)	Can detect the vehicle's turning angle quite accurately.	Direction errors may accumulate when vehicle is driven for long distances without stopping.
GPS antenna (GPS information)	Can detect the vehicle's travel direction (North/South/East/West).	Correct direction cannot be detected when vehicle speed is low.

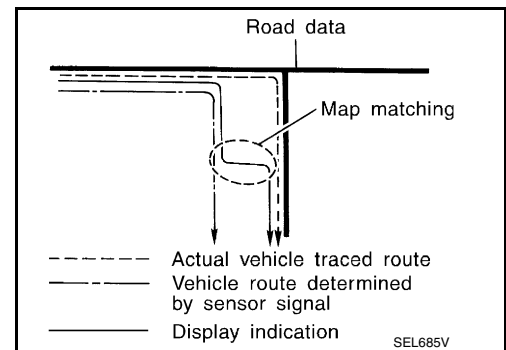
More accurate traveling direction is detected because priorities are set for the signals from these two devices according to the situation.

MAP-MATCHING

Map-matching compares a current location detected by the method in the "Location Detection Principle" with a road map data from map SD-card.

NOTE:

The road map data is based on data stored in the map SD-card.

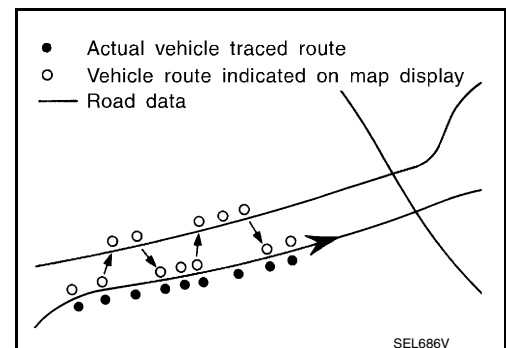


The vehicle position may not be corrected under the following circumstances and after driving for a certain time when GPS information is difficult to receive. In this case, the vehicle mark on the display must be corrected manually.

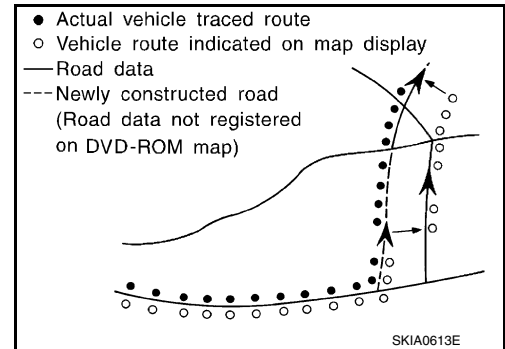
- In map-matching, alternative routes to reach the destination will be shown and prioritized, after the road on which the vehicle is currently driven has been judged and the vehicle mark has been repositioned.

Alternative routes will be shown in different order of priority, and the incorrect road can be avoided if there is an error in distance and/or direction.

Roads are of the same priority if two roads are running in parallel. Therefore, the vehicle mark may appear on either of them alternately, depending on maneuvering of the steering wheel and configuration of the road.



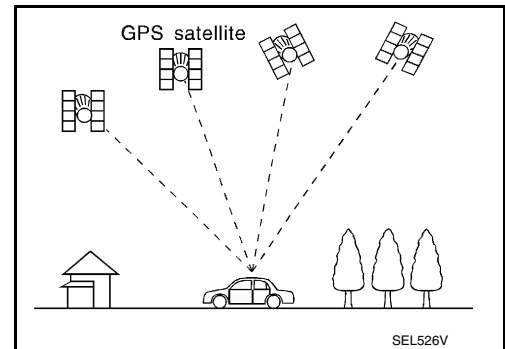
- Map-matching does not function correctly when a road on which the vehicle is driving is new and not recorded in the map SD-card, or when road pattern stored in the map data and the actual road pattern are different due to repair.
The map-matching function may find another road and position the vehicle mark on it when driving on a road not present in the map. Then, the vehicle mark may change to it when the correct road is detected.
- Effective range for comparing the vehicle position and travel direction calculated by the distance and direction with the road data read from the map SD-card is limited. Therefore, correction by map-matching is not possible when there is an excessive gap between current vehicle position and the position on the map.



GPS (Global Positioning System)

GPS (Global Positioning System) is developed for and is controlled by the US Department of Defense. The system utilizes GPS satellites (NAVSTAR), transmitting out radio waves while flying on an orbit around the earth at an altitude of approximately 21,000 km (13,049 mile).

The receiver calculates the travel position in three dimensions (latitude/longitude/altitude) according to the time lag of the radio waves that four or more GPS satellites transmit (three-dimensional positioning). The GPS receiver calculates the travel position in two dimensions (latitude/longitude) with the previous altitude data if the GPS receiver receives only three radio waves (two-dimensional positioning). GPS position correction is not performed while stopping the vehicle.



Accuracy of the GPS will deteriorate under the following conditions:

- In two-dimensional positioning, GPS accuracy will deteriorate when altitude of the vehicle position changes.
- The position of GPS satellite affects GPS detection precision. The position detection may not be precisely performed.
- The position detection is not performed if GPS receiver does not receive radio waves from GPS satellites. (Inside a tunnel, parking in a building, under an elevated highway etc.) GPS receiver may not receive radio waves from GPS satellites if any object is placed on the GPS antenna.

NOTE:

- The detection result has an error of approximately 10 m (32.81 ft) even with a high-precision three dimensional positioning.
- There may be cases when the accuracy is lowered and radio waves are stopped intentionally because the GPS satellite signal is controlled by the US trace control center.

USB INTERFACE

- iPod® or music files in USB memory can be played.
- Sound signals are transmitted from USB interface to the AV control unit and output to each speaker.
- iPod® is recharged when connected to USB interface.

AUX IN JACK

- Sound can be output from an external device by connecting a device to the AUX in jack.
- AUX sound signals are transmitted to each speaker via AV control unit.

SPEED SENSITIVE VOLUME SYSTEM

- Volume level of this system goes up and down automatically in proportion to the vehicle speed.
- The control level can be selected by the customer.

HANDS-FREE PHONE SYSTEM

- Bluetooth® control is built into AV control unit.
- The connection between cellular phone and AV control unit is performed with Bluetooth® communication.
- The voice guidance signal is input from the AV control unit and output to the front speakers when operating the cellular phone.

< SYSTEM DESCRIPTION >

When A Call Is Originated

- Spoken voice sound output from the microphone (microphone signal) is input to AV control unit.
- AV control unit outputs to cellular phone with Bluetooth® communication as a TEL voice signal.
- Voice sound is then heard at the other party.

When Receiving A Call

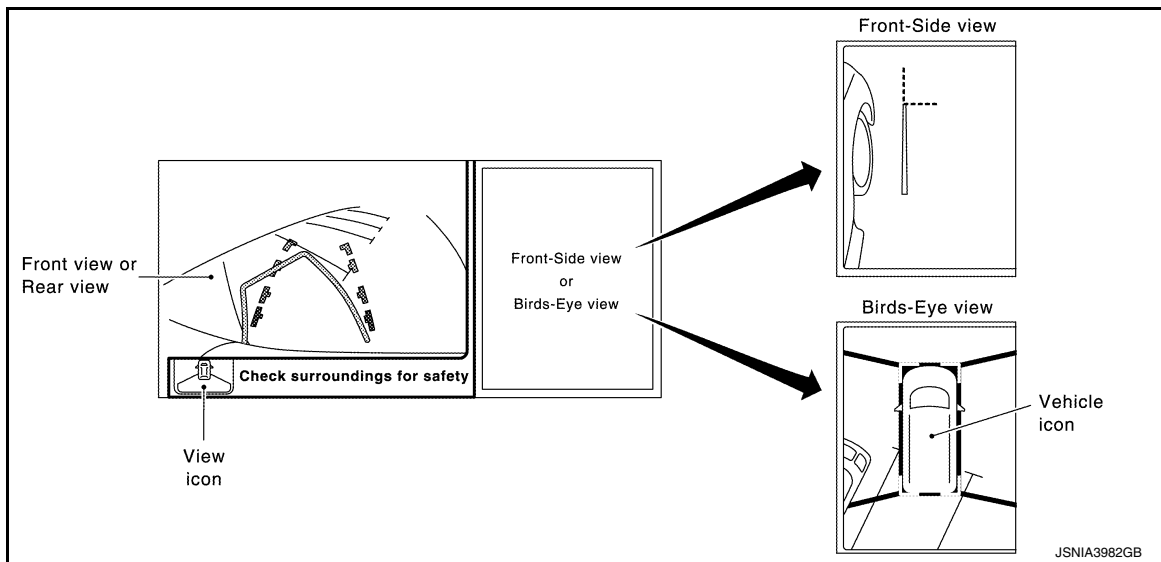
- Voice sound is input to own cellular phone from the other party.
- TEL voice signal is input to AV control unit by establishing Bluetooth® communication from cellular phone, and the signal is output to front speakers.

AROUND VIEW MONITOR FUNCTION

- This system is equipped with wide-angle cameras on the front, rear and right and left door mirrors.
- Images from front view, rear view, front-side view (RH side), and birds-eye view are displayed to monitor the vehicle surroundings.
- Around view monitor control unit expands the image received from each camera to create each view.
- In front view and rear view, the vehicle width, distance lines and predictive course lines are displayed.
- In front-side view, the vehicle distance guiding line and vehicle width guiding line are displayed.
- Birds-eye view converts the images from the cameras into an overhead view and displays the status of the vehicle on the display. The vehicle icon that is displayed in the birds-eye view is depicted by the around view monitor control unit.

Display

The around view monitor combines and displays travel direction view (front or rear), front-side view and birds-eye view.



Operation

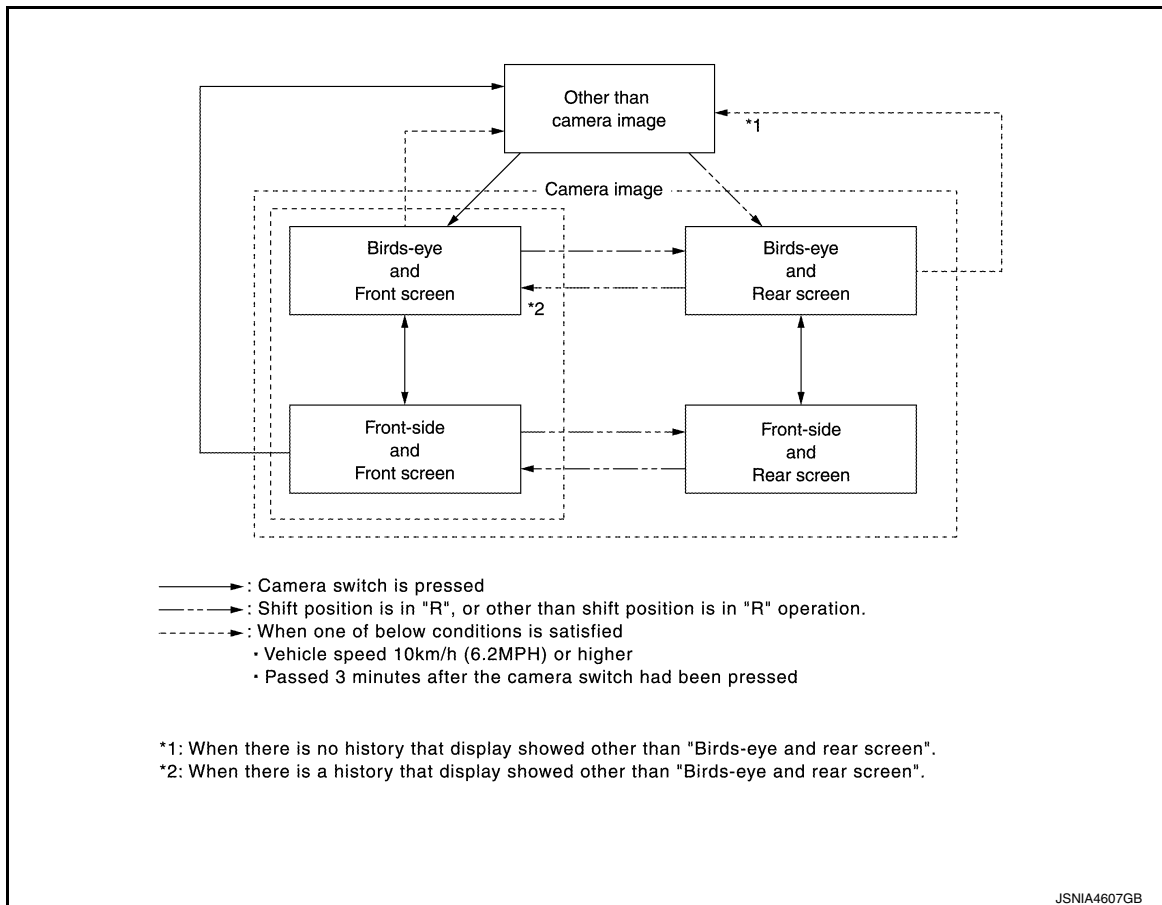
- The around view monitor operates by pressing the CAMERA switch on the AV control unit or by shifting the selector lever to the R (reverse) position.
- When the selector lever is in any position other than R (reverse) and the CAMERA switch is pressed, the screen displays front travel direction view and birds-eye view. Pressing the CAMERA switch again changes birds-eye view to front-side view.
- When the selector lever is placed in R (reverse), the screen displays rear travel direction view and birds-eye view. Pressing the CAMERA switch changes birds-eye view to front-side view.
- In birds-eye view, the blind spot area is displayed in black to show the border of the camera images. In addition, red fixed lines are displayed in the 4 corners of the vehicle icon. After pressing the CAMERA switch for the first time or placing the selector lever in R (reverse) for the first time, the blind spot area is highlighted in yellow for 3 seconds and the red fixed lines blink five times.
- With the selector lever in any position other than R (reverse), the around view monitor screen display is cancelled 3 minutes after pressing the CAMERA switch. The screen returns to the AV control unit display.
- With the selector lever in R (reverse) position, the around view monitor screen display remains on constantly. To return to the AV control unit display, place the selector lever in any position other than R (reverse).

- If camera image calibration is incomplete, the applicable camera position is indicated as an error on the birds-eye view display.

NOTE:

Calibration is necessary when replacing each camera or when replacing around view monitor control unit.

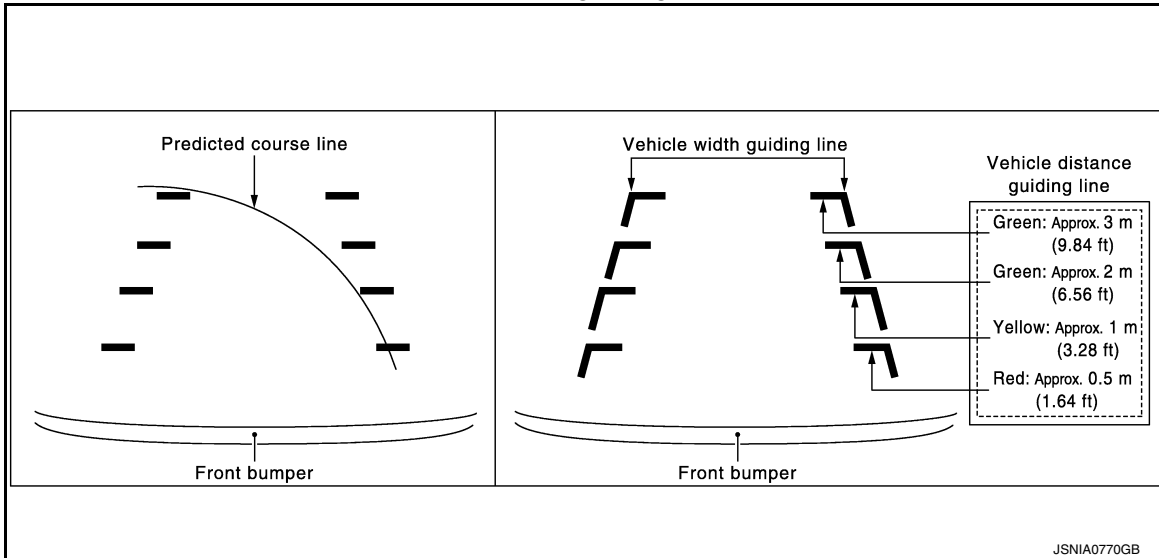
Around view monitor screen transition



Front View

- The front view image improves the visibility of obstacles in front of the vehicle and assists driving by displaying images from birds-eye view and front-side view.
- The front view image displays the vehicle width guiding line and vehicle distance guiding line, in addition to the predictive course line according to the steering angle.
- If the steering angle is within approximately 90 degrees, the predictive course lines on the left/right side are displayed. If the steering angle exceeds approximately 90 degrees, only the predictive course line on the outside is displayed (opposite side of steering direction).
- The around view monitor control unit receives the steering angle signal from steering angle sensor via CAN communication, and controls the direction and distance of the predictive course line.
- ON/OFF setting of predictive course line can be performed using CONSULT.

Front view guiding lines



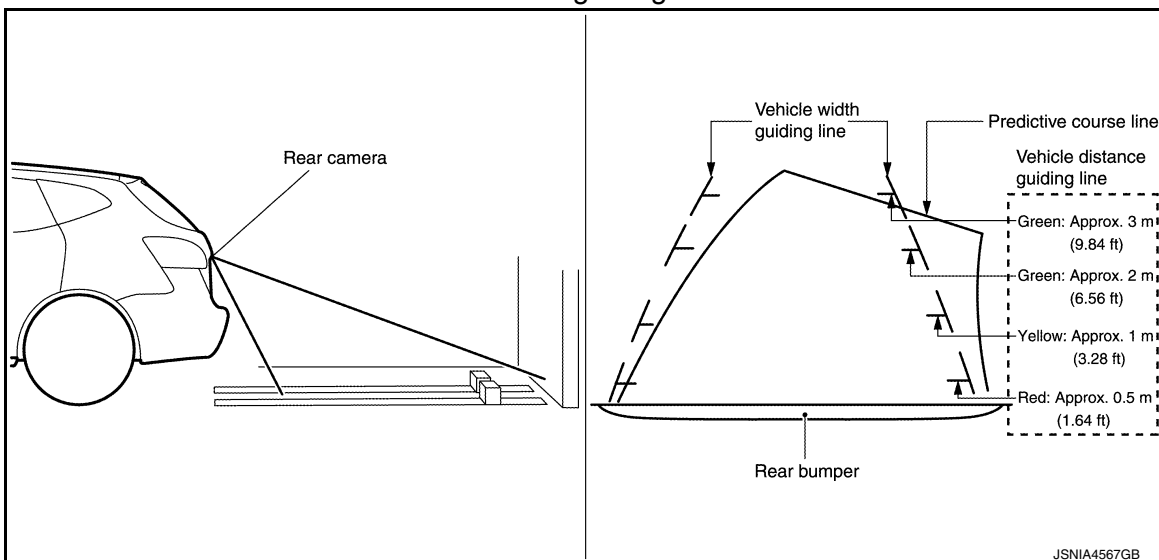
Rear View

- The rear view image improves the visibility of obstacles in the rear of the vehicle and assists backing and parking by displaying images from birds-eye view and front side view.
- The rear view image displays the vehicle width guiding line and vehicle distance guiding line, in addition to the predictive course line according to the steering angle.

NOTE:

- The predictive course line is not displayed at the steering neutral position.
- The around view monitor control unit receives the steering angle signal from steering angle sensor via CAN communication, and controls the direction and distance of the predictive course line.
- ON/OFF setting of predictive course line can be performed using CONSULT.

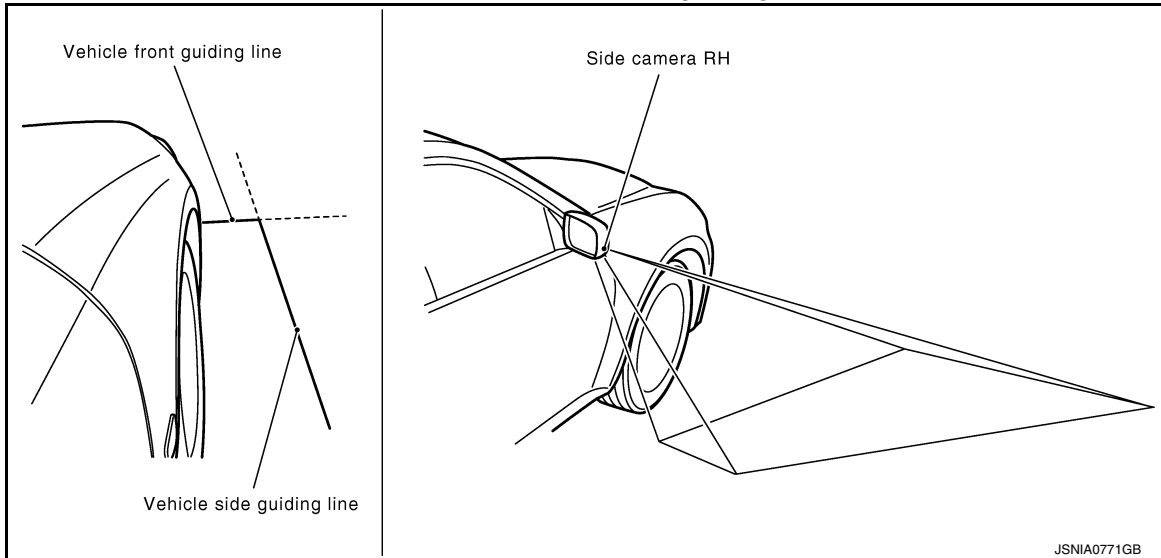
Rear view guiding lines



Front-Side View

- The front-side view image improves the visibility of obstacles in the front RH side of the vehicle and assists backing and parking.
- The front-side view image displays the vehicle distance guiding line and vehicle width guiding line.

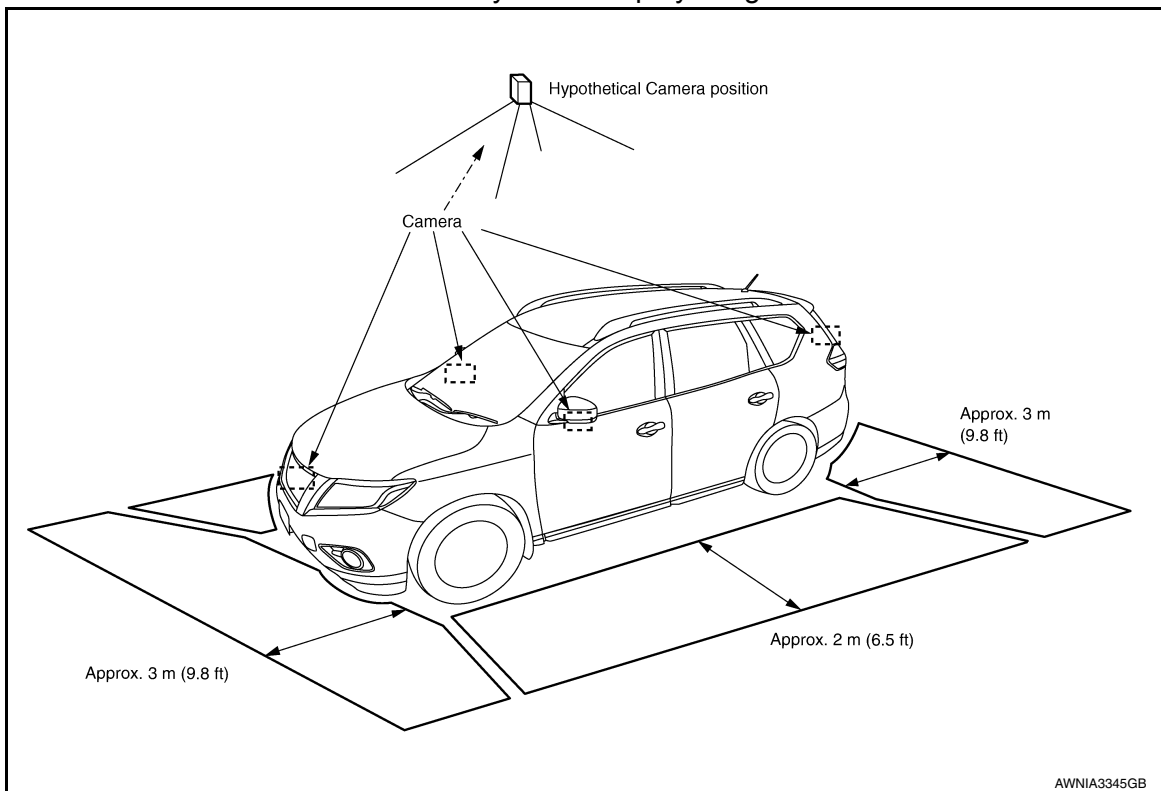
Front-side view area and guiding line



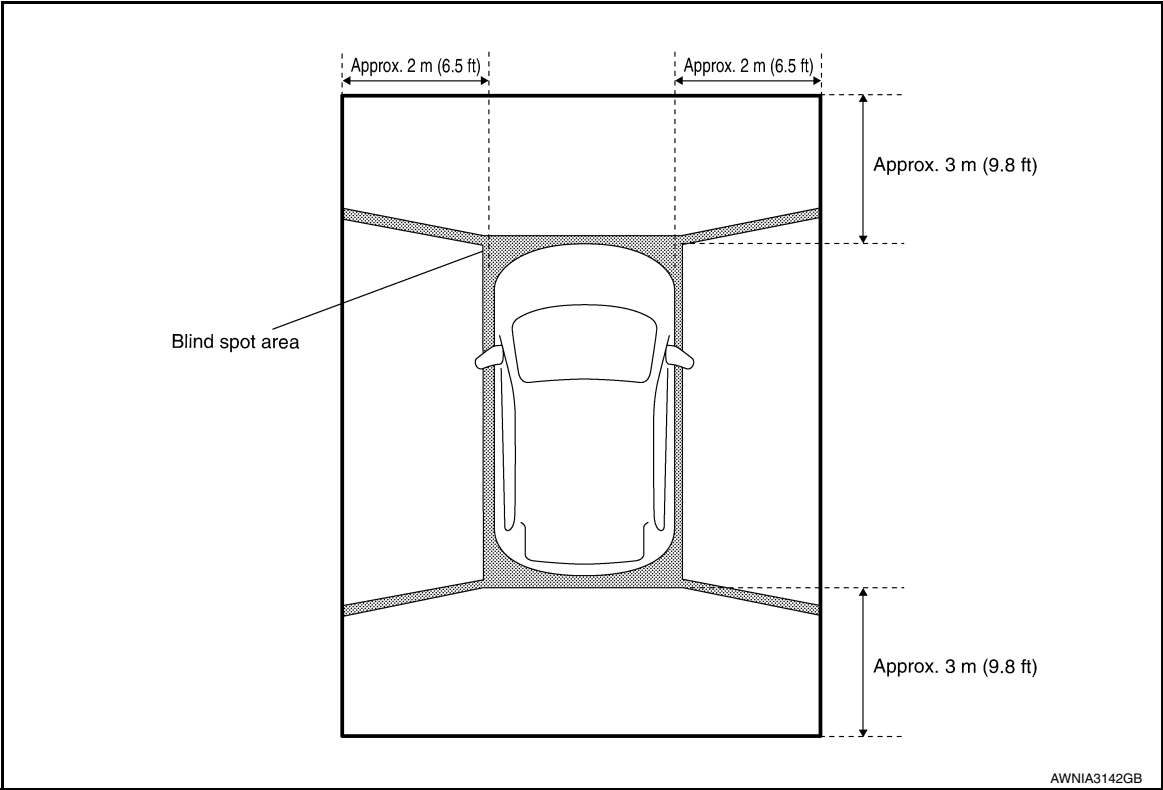
Birds-Eye View

- The birds-eye view image improves the visibility of obstacles all around the vehicle and assists backing and parking.
- The images from the four cameras are converted into an overhead view, and the surroundings of the vehicle are displayed.
- The blind spot area is displayed on the image to specify the boundary of the four cameras.

Birds-Eye view display image



Birds-Eye view display area



A
B
C
D
E
F
G
H
I
J
K
L
M
AV
O
P

DIAGNOSIS SYSTEM (AV CONTROL UNIT)

< SYSTEM DESCRIPTION >

[NAVIGATION WITH BOSE]

DIAGNOSIS SYSTEM (AV CONTROL UNIT)

Description

INFOID:0000000010244405

The AV control unit on board diagnosis performs the functions listed in the table below:

Mode		Item	Content
Version		—	Version data of the AV control unit is displayed.
User Configuration	Touch Display Calibration	—	Allows correction of the position detection accuracy of the touch panel.
Radio	FM monitor	—	Monitors the dynamic values of the current tuner
	AM monitor	—	
	SXM monitor	—	Version data is displayed.
System State	Running System Status	• SD card slot Access • Power Supply • Speed Signal • Direction Signal • Illumination Signal • GPS Antenna • GPS Tracking • Satellites Visible • Satellites Tracked • Microphone Current • Steering wheel key • Radio Antenna • SXM Antenna • USB Device • iPod® firmware version • BT Status	The current system status is displayed.
	Speaker Test 4kHz	—	This activates a sequence of test tone outputs to the audio circuits one after the other for 1 second.
	Speaker Test 100Hz		
	Display-Test	—	This provides a test sequence where test displays (plain colored display: e.g. white, black, red, blue, green) are shown one after the other. The respective color is shown for an indicated period of time (parameter). After the display test, the design of the display previously available is stored. While the screen shows a plain colored display, a pixel malfunction may be detected.
Self Test		• SD Card Access • BT Module Access • Radio Antenna • GPS Antenna • SXM Antenna	A system self test is executed and the results are stored into the error memory.

Perform CONSULT diagnosis if the AV control unit on board diagnosis does not start or the screen does not display anything.

On Board Diagnosis Function

INFOID:0000000010244406

METHOD OF STARTING

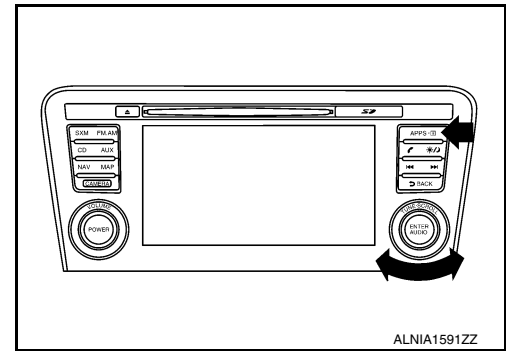
1. Turn the ignition ON.

DIAGNOSIS SYSTEM (AV CONTROL UNIT)

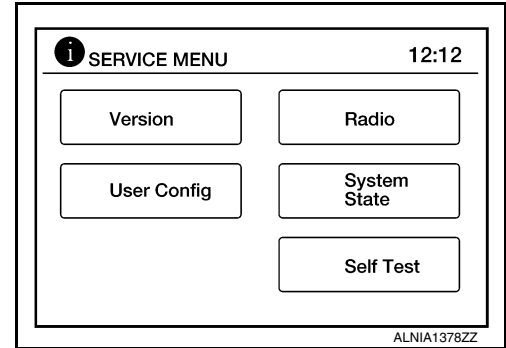
< SYSTEM DESCRIPTION >

[NAVIGATION WITH BOSE]

2. While pressing the APPS button, turn the TUNE-SCROLL dial counterclockwise 3 or more clicks, then clockwise 3 or more clicks, then counterclockwise 3 or more clicks. Shifting from current screen to previous screen is performed by pressing BACK button.



3. The trouble diagnosis initial screen is displayed, and Version, User Config, Radio, System State or Self Test can be selected.



CONSULT Function

INFOID:0000000010244407

CONSULT FUNCTIONS

CONSULT performs the following functions via communication with the AV control unit.

Direct Diagnostic Mode	Description
Ecu Identification	The AV control unit part number is displayed.
Self Diagnostic Result	The AV control unit self diagnostic results are displayed.
Data Monitor	The AV control unit input/output data is displayed in real time.
Configuration	• The vehicle specification can be read and saved. • The vehicle specification can be written when replacing AV control unit.
CAN Diag Support Mntr	• The result of transmit/receive diagnosis of AV communication is displayed. • The result of transmit/receive diagnosis of CAN communication is displayed.

ECU IDENTIFICATION

The part number of AV control unit is displayed.

SELF DIAGNOSTIC RESULT

Refer to [AV-251, "DTC Index"](#).

DATA MONITOR

Monitor Item [Unit]	Description
VHCL SPD SIG [On/Off]	Indicates vehicle speed signal received from combination meter on CAN communication line.
ILLUM SIG [On/Off]	Indicates condition of illumination signal for the AV control unit.
IGN SIG [On/Off]	Indicates condition of ignition signal.
REV SIG [On/Off]	Indicates condition of reverse signal received from BCM.

CONFIGURATION

Refer to [AV-289, "CONFIGURATION \(AV CONTROL UNIT\) : Description"](#).

CAN DIAG SUPPORT MNTR

Refer to [LAN-14, "CAN Diagnostic Support Monitor"](#).

DIAGNOSIS SYSTEM (AROUND VIEW MONITOR CONTROL UNIT)

< SYSTEM DESCRIPTION >

[NAVIGATION WITH BOSE]

DIAGNOSIS SYSTEM (AROUND VIEW MONITOR CONTROL UNIT) WITHOUT DRIVER ASSISTANCE SYSTEM

WITHOUT DRIVER ASSISTANCE SYSTEM : CONSULT Function

INFOID:0000000010244408

CONSULT FUNCTIONS

CONSULT performs the following functions via communication with the around view monitor control unit.

Direct Diagnostic Mode	Description
Ecu Identification	The around view monitor control unit part number is displayed.
Self Diagnostic Result	The around view monitor control unit self diagnostic results are displayed.
Data Monitor	The around view monitor control unit input/output data is displayed in real time.
Work support	The settings for around view monitor control unit functions can be changed.
Configuration	- The vehicle specification can be read and saved. - The vehicle specification can be written when replacing around view monitor control unit.
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.

ECU IDENTIFICATION

The part number of around view monitor control unit is displayed.

SELF DIAGNOSTIC RESULT

Refer to [AV-257, "WITHOUT DRIVER ASSISTANCE SYSTEM : DTC Index"](#).

DATA MONITOR

Monitor Item	Description
ST ANGLE SENSOR SIGNAL [On/Off]	Indicates condition of steering angle sensor signal.
REVERSE SIGNAL [On/Off]	Indicates selector lever position.
VEHICLE SPEED SIGNAL [mph/km/h]	Indicates condition of vehicle speed signal.
CAMERA SWITCH SIGNAL [On/Off]	Indicates condition of camera switch signal.
CAMERA OFF SIGNAL [On/Off]	Indicates condition of camera OFF signal.
ST ANGLE SENSOR TYPE [Absolute]	Indicates steering angle sensor type.
ST GEAR RATIO TYPE [Type O]	Indicates steering gear ratio type.
STEERING POSITION [LHD/RHD]	Indicates LH or RH drive type.
REAR CAMERA IMAGE SIGNAL [OK/NG]	Indicates condition of camera image signal.
F-CAMERA IMAGE SIGNAL [OK/NG]	Indicates condition of camera image signal.
DR-SIDE CAMERA IMAGE SIG [OK/NG]	Indicates condition of camera image signal.
PA-SIDE CAMERA IMAGE SIG [OK/NG]	Indicates condition of camera image signal.

WORK SUPPORT

Support Item	Setting	Description
NON-VIEWABLE AREA REMINDER	ON	ON/OFF setting of non-viewable area can be performed.
	OFF	
PREDICTIVE COURSE LINE DISPLAY	ON	ON/OFF setting of predictive course line display can be performed.
	OFF	
INITIALIZE CAMERA IMAGE CALIBRATION	—	Factory image calibration restoration can be performed.
STEERING ANGLE SENSOR ADJUSTMENT	—	Steering angle sensor neutral position adjustment can be performed.

DIAGNOSIS SYSTEM (AROUND VIEW MONITOR CONTROL UNIT)

< SYSTEM DESCRIPTION >

[NAVIGATION WITH BOSE]

Support Item	Setting	Description	
CALIBRATING CAMERA IMAGE (FRONT CAMERA)	STATUS	Performs calibration of front camera.	A
	AXIS X		
	AXIS Y		B
	ROTATE		
CALIBRATING CAMERA IMAGE (PASS-SIDE CAMERA)	STATUS	Performs calibration of passenger side camera.	C
	AXIS X		
	AXIS Y		D
	ROTATE		
CALIBRATING CAMERA IMAGE (DR-SIDE CAMERA)	STATUS	Performs calibration of driver side camera.	E
	AXIS X		
	AXIS Y		
	ROTATE		
CALIBRATING CAMERA IMAGE (REAR CAMERA)	STATUS	Performs calibration of rear camera.	F
	AXIS X		
	AXIS Y		G
	ROTATE		
FINE TUNING OF BIRDS-EYE VIEW	STATUS	Confirmation and adjustment of difference between each camera can be performed.	H
	SELECT		
	AXIS X		
	AXIS Y		
	ROTATE		I

CONFIGURATION

Refer to [AV-290, "CONFIGURATION \(AROUND VIEW MONITOR CONTROL UNIT\) : Description"](#).

CAN DIAG SUPPORT MNTR

Refer to [LAN-14, "CAN Diagnostic Support Monitor"](#).

WITH DRIVER ASSISTANCE SYSTEM

WITH DRIVER ASSISTANCE SYSTEM : CONSULT Function

INFOID:0000000010271550

CONSULT FUNCTIONS

CONSULT performs the following functions via communication with the around view monitor control unit.

Direct Diagnostic Mode	Description	
Ecu Identification	The around view monitor control unit part number is displayed.	
Self Diagnostic Result	The around view monitor control unit self diagnostic results are displayed.	AV
Data Monitor	The around view monitor control unit input/output data is displayed in real time.	
Work support	The settings for around view monitor control unit functions can be changed.	
Configuration	- The vehicle specification can be read and saved. - The vehicle specification can be written when replacing around view monitor control unit.	O
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.	P

ECU IDENTIFICATION

The part number of around view monitor control unit is displayed.

SELF DIAGNOSTIC RESULT

Refer to [AV-261, "WITH DRIVER ASSISTANCE SYSTEM : DTC Index"](#).

DATA MONITOR

DIAGNOSIS SYSTEM (AROUND VIEW MONITOR CONTROL UNIT)

< SYSTEM DESCRIPTION >

[NAVIGATION WITH BOSE]

Monitor Item	Description
ST ANGLE SENSOR SIGNAL [On/Off]	Indicates condition of steering angle sensor signal.
REVERSE SIGNAL [On/Off]	Indicates selector lever position.
VEHICLE SPEED SIGNAL [mph/km/h]	Indicates condition of vehicle speed signal.
CAMERA SWITCH SIGNAL [On/Off]	Indicates condition of camera switch signal.
CAMERA OFF SIGNAL [On/Off]	Indicates condition of camera OFF signal.
ST ANGLE SENSOR TYPE [Absolute]	Indicates steering angle sensor type.
ST GEAR RATIO TYPE [Type O]	Indicates steering gear ratio type.
STEERING POSITION [LHD/RHD]	Indicates LH or RH drive type.
REAR CAMERA IMAGE SIGNAL [OK/NG]	Indicates condition of camera image signal.
WASH SW [On/Off]	Indicates state of wash switch indicator output.
R-CAMERA COMM STATUS [OK/Not]	Indicates status of rear camera communication.
R-CAMERA COMM LINE [OK/Not]	Indicates condition of rear camera communication line.
F-CAMERA IMAGE SIGNAL [OK/NG]	Indicates condition of camera image signal.
DR-SIDE CAMERA IMAGE SIG [OK/NG]	Indicates condition of camera image signal.
PA-SIDE CAMERA IMAGE SIG [OK/NG]	Indicates condition of camera image signal.
PUMP COMM STATUS [OK/Not]	Indicates state of communication signal from pump control unit.
ILL [On/Off]	Indicates status of illumination signal.
ITS SW 1 [On/Off]	Indicates state of warning system switch.
ITS SW 1 IND [On/Off]	Indicates state of warning system switch indicator output.
TURN SIGNAL [Left/N/Right]	Indicates status of turn signal output.
ITS SW 2 [ON/OFF/No setting]	Indicates state of warning system secondary switch.
ITS SW 2 IND [ON/OFF/No setting]	Indicates state of warning system secondary switch indicator output.

ACTIVE TEST

Test item	Description
LED RH INDICATOR	This test is able to check RH LED indicator operation [LED Off/LED On].
LED LH INDICATOR	This test is able to check LH LED indicator operation [LED Off/LED On].
WASH ACTIVE	This test is able to check rear camera wash operation [WASH Off/WASH On].
AIR ACTIVE	This test is able to check rear camera air operation [AIR Off/AIR On].
AIR & WASH ACTIVE	This test is able to check rear camera air and wash operation [Off/On].
AVM BUZZER CONTROL	This test is able to check AVM buzzer operation [Off/On].

WORK SUPPORT

Support Item	Setting	Description
REAR CAMERA ITS	—	Displays and sets camera image calibration values.
CAUSE OF LDW CANCEL	—	Displays the information about reason of LDW cancellation.
CAUSE OF BSW CANCEL	—	Displays the information about reason of BSW cancellation.
CALIBRATING CAMERA IMAGE (FRONT CAMERA)	STATUS	Performs calibration of front camera.
	AXIS X	
	AXIS Y	
	ROTATE	

DIAGNOSIS SYSTEM (AROUND VIEW MONITOR CONTROL UNIT)

< SYSTEM DESCRIPTION >

[NAVIGATION WITH BOSE]

Support Item	Setting	Description	
CALIBRATING CAMERA IMAGE (PASS-SIDE CAMERA)	STATUS	Performs calibration of passenger side camera.	A
	AXIS X		
	AXIS Y		B
	ROTATE		
CALIBRATING CAMERA IMAGE (DR-SIDE CAMERA)	STATUS	Performs calibration of driver side camera.	C
	AXIS X		
	AXIS Y		
	ROTATE		D
CALIBRATING CAMERA IMAGE (REAR CAMERA)	STATUS	Performs calibration of rear camera.	E
	AXIS X		
	AXIS Y		
	ROTATE		
FINE TUNING OF BIRDS-EYE VIEW	STATUS	Confirmation and adjustment of difference between each camera can be performed.	F
	SELECT		
	AXIS X		
	AXIS Y		G
	ROTATE		
REAR WIDE-VIEW FIXED GUIDE LINE CORRECTION	STATUS	Adjusts position of fixed guide line on rear wide view	H
	AXIS X		
	AXIS Y		
	Pattern		I
FRONT WIDE-VIEW FIXED GUIDE LINE CORRECTION	STATUS	Adjusts position of fixed guide line on front wide view	J
	AXIS X		
	AXIS Y		
	Pattern		
NON-VIEWABLE AREA REMINDER	ON	ON/OFF setting of non-viewable area can be performed.	K
	OFF		
PREDICTIVE COURSE LINE DISPLAY	ON	ON/OFF setting of predictive course line display can be performed.	L
	OFF		
INITIALIZE CAMERA IMAGE CALIBRATION	—	Factory image calibration restoration can be performed.	M
STEERING ANGLE SENSOR ADJUSTMENT	—	Steering angle sensor neutral position adjustment can be performed.	

CONFIGURATION

Refer to [AV-289, "CONFIGURATION \(AV CONTROL UNIT\) : Description"](#).

CAN DIAG SUPPORT MNTR

Refer to [LAN-14, "CAN Diagnostic Support Monitor"](#).

ECU DIAGNOSIS INFORMATION

AV CONTROL UNIT

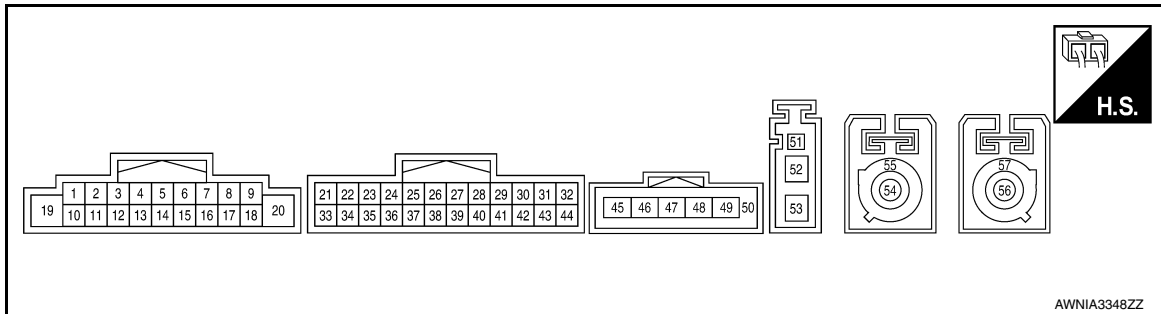
Reference Value

INFOID:0000000010244410

VALUES ON THE DIAGNOSIS TOOL

Monitor Item	Condition	Value/Status
VHCL SPD SIG	Vehicle speed = 0 km/h (0 MPH).	Off
	Vehicle speed > 0 km/h (0 MPH).	On
ILLUM SIG	Illumination signal is not received.	Off
	Illumination signal is received.	On
IGN SIG	Ignition switch OFF.	Off
	Ignition switch ON.	On
REV SIG	Selector lever in any position other than R.	Off
	Selector lever in R position.	On

TERMINAL LAYOUT



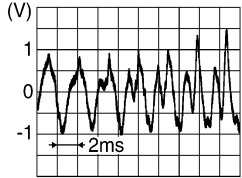
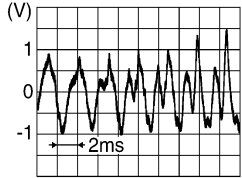
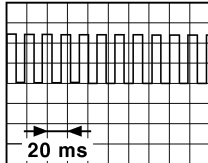
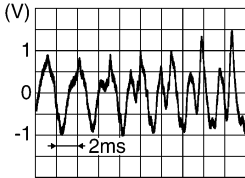
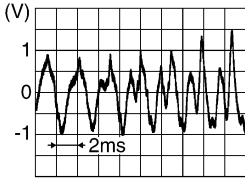
PHYSICAL VALUES

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	–	Signal name	Input/ Output	Ignition switch	Operation	
1 (BR)	Ground	BOSE amp. ON signal	Output	ON	—	Battery voltage
2 (R)	3 (G)	Pre-amp sound signal front LH	Output	ON	Sound output	SKIB3609E
4 (V)	5 (LG)	Pre-amp sound signal rear LH	Output	ON	Sound output	SKIB3609E
7 (W)	Ground	ACC power supply	Input	ON	—	Battery voltage

AV CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[NAVIGATION WITH BOSE]

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	—	Signal name	Input/ Output	Ignition switch	Operation	
8 (L)	—	CAN (H)	Input/ Output	—	—	—
9 (V)	Ground	Illumination control signal	Input	ON	Headlamps ON	Battery voltage
10 (B)	—	Pre-amp sound signal shield	—	—	—	—
11 (R)	12 (W)	Pre-amp sound signal front RH	Output	ON	Sound output	 SKIB3609E
13 (L)	14 (Y)	Pre-amp sound signal rear RH	Output	ON	Sound output	 SKIB3609E
17 (R)	—	CAN (L)	Input/ Output	—	—	—
18 (G)	Ground	Vehicle speed signal	Input	ON	When vehicle speed is ap- prox. 40 km/h (25 MPH)	 JSNIA0012GB
19 (L)	Ground	Battery power supply	Input	OFF	—	Battery voltage
20 (B)	Ground	Ground	—	ON	—	0 V
21 (G)	Ground	AUX jack audio signal RH	Input	ON	Received audio signal (AUX input)	 SKIB3609E
22 (Y)	Ground	AUX ground	—	ON	—	0V
23 (L)	Ground	AUX jack audio signal LH	Input	ON	Received audio signal (AUX input)	 SKIB3609E

A
B
C
D
E
F
G
H
I
J
K
L
M

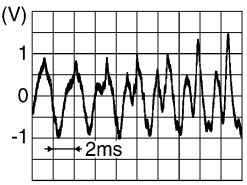
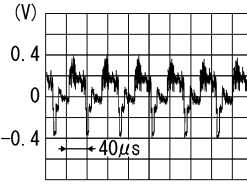
AV

O
P

AV CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[NAVIGATION WITH BOSE]

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	—	Signal name	Input/ Output	Ignition switch	Operation	
25 (BR)	Ground	Reverse signal	Input	ON	Selector lever in R (reverse)	Battery voltage
					Selector lever in any position other than R (reverse)	0 V
30 (BG)	—	MR output	Output	—	—	—
31 (SB)	—	AV communication (H)	Input/ Output	—	—	—
32 (LG)	—	AV communication (L)	Input/ Output	—	—	—
34 (W)	36 (Shield)	Microphone signal	Input	ON	While speaking into microphone.	 SKIB3609E
35 (B)	—	MIC VCC	Input	ON	—	—
37 (Shield)	—	AUX signal shield	—	—	—	—
38 (SB)	—	AV communication (H)	Input/ Output	—	—	—
39 (LG)	—	AV communication (L)	Input/ Output	—	—	—
40 (LG)	Ground	Ignition power supply	Input	ON	—	Battery voltage
41 (W)	Ground	Camera image signal	Input	ON	When camera image is displayed	 SKIB2251J
42 (Shield)	—	Camera image signal shield	—	—	—	—
45 (R)	—	V BUS signal	—	—	—	—
46 (W)	—	USB D— signal	—	—	—	—
47 (G)	—	USB + signal	—	—	—	—
49 (B)	—	USB ground	—	—	—	—
50 (Shield)	—	USB shield	—	—	—	—
51 (B)	Ground	Antenna amp. ON signal	Output	ON	AV control unit ON, FM-AM selected.	Battery voltage

AV CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[NAVIGATION WITH BOSE]

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	—	Signal name	Input/ Output	Ignition switch	Operation	
52 (B)	Ground	AM-FM main antenna	Input	ON	AV control unit ON, FM-AM selected.	5.0 V
54 (B)	Ground	GPS antenna signal	Input	ON	AV control unit ON, NAV selected.	5.0 V
55 (Shield)	—	GPS antenna shield	—	—	—	—
56 (B)	Ground	Satellite antenna signal	Input	ON	AV control unit ON, SXM selected.	5.0 V
57 (Shield)	—	Satellite antenna shield	—	—	—	—

DTC Index

INFOID:0000000010244411

CONSULT Display	Reference Page
U1000: CAN COMM CIRCUIT	AV-298, "AV CONTROL UNIT : DTC Logic"
U1010: CONTROL UNIT (CAN)	AV-299, "AV CONTROL UNIT : DTC Logic"
U1217: BLUETOOTH MODULE	AV-316, "DTC Logic"
U1229: iPod CERTIFICATION	AV-317, "DTC Logic"
U122F: Digital broadcasting connection error	AV-318, "DTC Logic"
U1244: GPS ANTENNA CONN	AV-320, "DTC Logic"
U1258: SXM ANTENNA CONN	AV-321, "DTC Logic"
U1263: USB OVERCURRENT	AV-322, "DTC Logic"
U12AA: Configuration Error	AV-324, "DTC Logic"
U12AB: FM Antenna error	AV-325, "DTC Logic"
U12AC: Display Temperature too High	AV-326, "DTC Logic"
U12AD: ECU Temperature too High	AV-327, "DTC Logic"
U12AE: Internal Amplifier temperature Warning	AV-328, "DTC Logic"
U12AF: CD Mechanism Temperature Warning	AV-329, "DTC Logic"
U12B0: Supply Voltage Goes below 9V > 20s	AV-330, "DTC Logic"
U12B1: Supply Voltage Goes High > 16V for 20s	AV-331, "DTC Logic"
U1300: AV COMM CIRCUIT	AV-332, "DTC Logic"
U1310: CONTROL UNIT(AV)	AV-336, "DTC Logic"

AV

BOSE SPEAKER AMP

< ECU DIAGNOSIS INFORMATION >

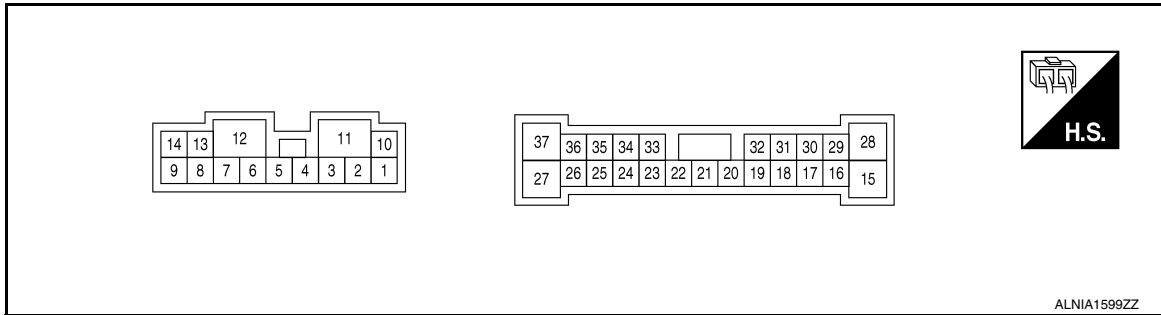
[NAVIGATION WITH BOSE]

BOSE SPEAKER AMP

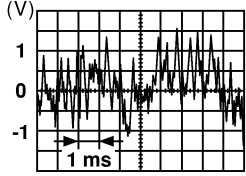
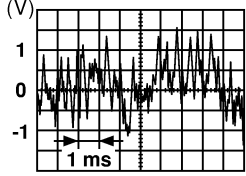
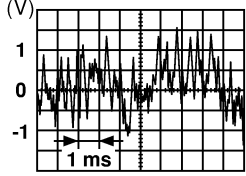
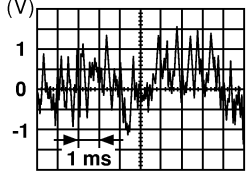
Reference Value

INFOID:000000010244484

TERMINAL LAYOUT



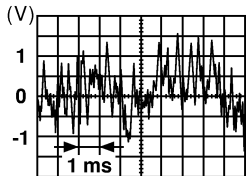
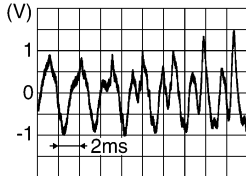
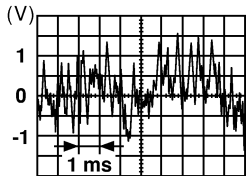
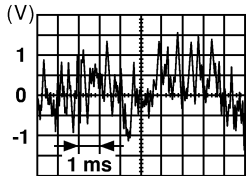
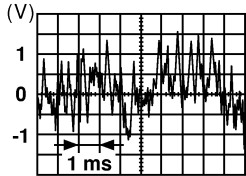
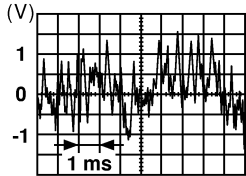
PHYSICAL VALUES

Terminal (wire color)		Description		Condition		Reference value (Approx.)
+	–	Signal name	Input/ Output	Ignition switch	Operation	
1 (L)	10 (R)	Rear door speaker signal LH	Output	ON	Sound output	 SKIA0177E
2 (LG)	3 (V)	Rear door speaker signal RH	Output	ON	Sound output	 SKIA0177E
4 (BR)	5 (P)	Front door speaker signal LH	Output	ON	Sound output	 SKIA0177E
6 (W)	7 (GR)	Front tweeter signal LH	Output	ON	Sound output	 SKIA0177E

BOSE SPEAKER AMP

< ECU DIAGNOSIS INFORMATION >

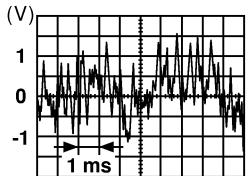
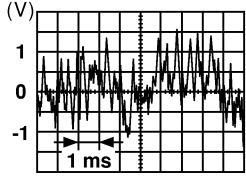
[NAVIGATION WITH BOSE]

Terminal (wire color)		Description		Condition		Reference value (Approx.)
+	-	Signal name	Input/ Output	Ignition switch	Operation	
8 (G)	13 (R)	Front door speaker signal RH	Output	ON	Sound output	 SKIA0177E
9 (Y)	14 (BR)	Sound signal subwoofer	Output	ON	Sound output	 SKIB3609E
11 (W)	Ground	Battery power supply	Input	-	-	Battery voltage
12 (B)	Ground	Ground	-	ON	-	0V
15 (V)	28 (BG)	Center speaker signal	Output	ON	Sound output	 SKIA0177E
18 (R)	32 (G)	Sound signal front LH	Input	ON	Sound output	 SKIA0177E
19 (Y)	20 (L)	Sound signal front RH	Input	ON	Sound output	 SKIA0177E
21 (V)	22 (LG)	Sound signal rear LH	Input	ON	Sound output	 SKIA0177E

BOSE SPEAKER AMP

< ECU DIAGNOSIS INFORMATION >

[NAVIGATION WITH BOSE]

Terminal (wire color)		Description		Condition		Reference value (Approx.)
+	–	Signal name	Input/ Output	Ignition switch	Operation	
23 (W)	33 (R)	Sound signal rear RH	Input	ON	Sound output	 SKIA0177E
25 (G)	Ground	Subwoofer ON signal	Output	ON	–	Greater than 6.5V
31 (BR)	Ground	Amp. ON signal	Input	ON	–	Greater than 6.5V
37 (G)	27 (R)	Front tweeter signal RH	Output	ON	Sound output	 SKIA0177E

AROUND VIEW MONITOR CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[NAVIGATION WITH BOSE]

AROUND VIEW MONITOR CONTROL UNIT WITHOUT DRIVER ASSISTANCE SYSTEM

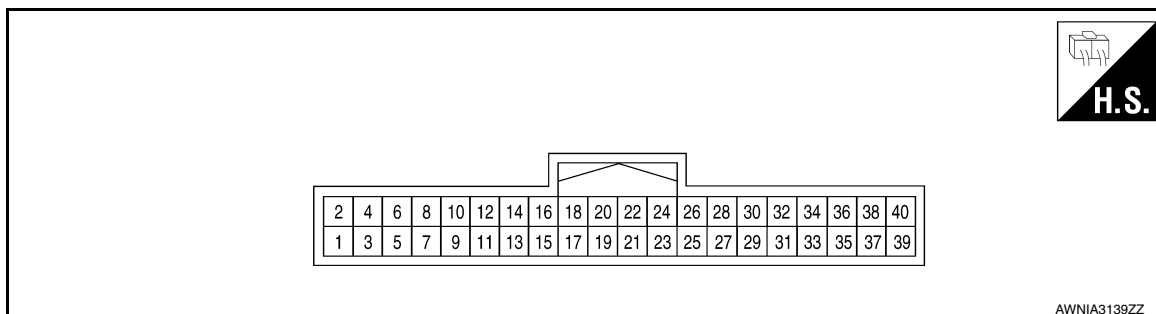
WITHOUT DRIVER ASSISTANCE SYSTEM : Reference Value

INFOID:0000000010244412

VALUES ON THE DIAGNOSIS TOOL

Monitor Item	Condition	Value/Status
CAMERA OFF SIGNAL	CAMERA switch ON.	Off
	CAMERA switch OFF.	On
CAMERA SWITCH SIGNAL	CAMERA switch OFF.	Off
	CAMERA switch ON.	On
DR-SIDE CAMERA IMAGE SIG	Side camera LH inoperative.	NG
	Side camera LH operative.	OK
F-CAMERA IMAGE SIG	Front camera inoperative.	NG
	Front camera operative.	OK
PA-SIDE CAMERA IMAGE SIG	Side camera RH inoperative.	NG
	Side camera RH operative.	OK
REAR CAMERA IMAGE SIGNAL	Rear camera LH inoperative.	NG
	Rear camera LH operative.	OK
REVERSE SIGNAL	When selector lever is in any position other than R (reverse).	Off
	When selector lever in R (reverse).	On
ST ANGLE SENSOR SIGNAL	Around view monitor control unit is not receiving steering angle sensor signal.	Off
	Around view monitor control unit is receiving steering angle sensor signal.	On
ST ANGLE SENSOR TYPE	Steering angle sensor type.	Absolute
ST GEAR RATIO TYPE	Steering gear ratio type.	Type O
STEERING POSITION	Left hand drive vehicle.	LHD
	Right hand drive vehicle.	RHD
VEHICLE SPEED SIGNAL	While driving, equivalent to speedometer reading	mph, km/h

TERMINAL LAYOUT

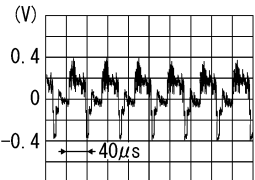
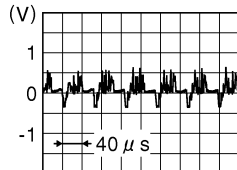
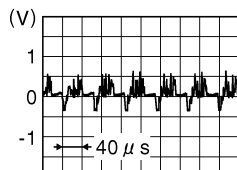


PHYSICAL VALUES

AROUND VIEW MONITOR CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

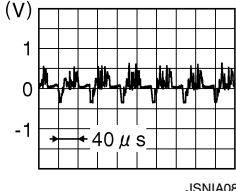
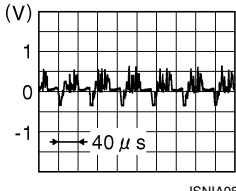
[NAVIGATION WITH BOSE]

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	—	Signal name	Input/ Output	Ignition switch	Operation	
1 (B)	Ground	Ground	—	ON	—	0 V
2 (Y)	Ground	Battery power supply	Input	OFF	—	Battery voltage
4 (SB)	Ground	Ignition signal	Input	ON	—	Battery voltage
10 (R)	—	CAN (L)	Input/ Output	—	—	—
12 (L)	—	CAN (H)	Input/ Output	—	—	—
23 (Shield)	—	Camera image signal shield	—	—	—	—
24 (G)	Ground	Camera image signal	Output	ON	When camera image display	 SKIB2251J
25 (B)	Ground	Rear camera ground	—	ON	—	0 V
26 (R)	Ground	Rear camera power supply	Output	ON	CAMERA selected or Shift selector in R (reverse) position.	6.0 V
28 (W)	27 (Shield)	Rear camera image signal	Input	ON	CAMERA selected or Shift selector in R (reverse) position.	 JSNIA0834GB
29 (Y)	Ground	Side camera LH ground	—	ON	—	0 V
30 (L)	Ground	Side camera LH power supply	Output	ON	CAMERA selected or Shift selector in R (reverse) position.	6.0 V
32 (G)	31 (Shield)	Side camera LH image signal	Input	ON	CAMERA selected or Shift selector in R (reverse) position.	 JSNIA0834GB
33 (L)	Ground	Side camera RH ground	—	ON	—	0 V

AROUND VIEW MONITOR CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[NAVIGATION WITH BOSE]

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	—	Signal name	Input/ Output	Ignition switch	Operation	
34 (B)	Ground	Side camera RH power supply	Output	ON	CAMERA selected or Shift selector in R (reverse) position.	6.0 V
36 (Y)	35 (Shield)	Side camera RH image signal	Input	ON	CAMERA selected or Shift selector in R (reverse) position.	
37 (V)	Ground	Front camera ground	—	ON	—	0 V
38 (L)	Ground	Front camera power supply	Output	ON	CAMERA selected or Shift selector in R (reverse) position.	6.0 V
40 (LG)	39 (Shield)	Front camera image signal	Input	ON	CAMERA selected or Shift selector in R (reverse) position.	

WITHOUT DRIVER ASSISTANCE SYSTEM : DTC Index

INFOID:0000000010244413

CONSULT Display	Reference Page
U0428: ST ANG SEN CALIB	AV-297, "DTC Logic"
U1000: CAN COMM CIRCUIT	AV-298, "AROUND VIEW MONITOR CONTROL UNIT : DTC Logic"
U1010: CONTROL UNIT (CAN)	AV-299, "AROUND VIEW MONITOR CONTROL UNIT : DTC Logic"
U111A: Rear display output signal diagnosis (Harness disconnection)	AV-300, "DTC Logic"
U111B: Right side display output signal diagnosis (Harness disconnection)	AV-304, "DTC Logic"
U111C: Front display output signal diagnosis (Harness disconnection)	AV-308, "DTC Logic"
U111D: Left side display output signal diagnosis (Harness disconnection)	AV-312, "DTC Logic"
U1232: ST ANG SEN CALIB	AV-319, "DTC Logic"
U1304: Non-completion of the calibration	AV-334, "DTC Logic"
U1305: Non-completion of the configuration	AV-335, "DTC Logic"

WITH DRIVER ASSISTANCE SYSTEM

WITH DRIVER ASSISTANCE SYSTEM : Reference Value

INFOID:0000000010269695

VALUES ON THE DIAGNOSIS TOOL

AROUND VIEW MONITOR CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[NAVIGATION WITH BOSE]

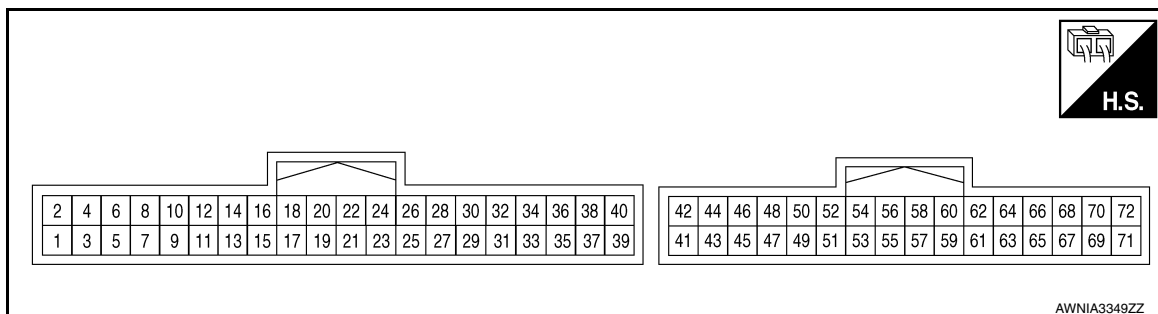
Monitor Item	Condition	Value/Status
CAMERA OFF SIGNAL	CAMERA switch ON.	Off
	CAMERA switch OFF.	On
CAMERA SWITCH SIGNAL	CAMERA switch OFF.	Off
	CAMERA switch ON.	On
DR-SIDE CAMERA IMAGE SIG	Side camera LH inoperative.	NG
	Side camera LH operative.	OK
ILL	Illumination is ON	On
	Illumination is OFF	Off
ITS SW 1	ITS switch is pressed	On
	ITS switch is not pressed	Off
ITS SW 1 IND	Indicator of ITS switch 1 is lighting	On
	Indicator of ITS switch 1 is not lighting	Off
ITS SW 2	For this vehicle, the displaying is fixed	No SET
ITS SW 2 IND	For this vehicle, the displaying is fixed	No SET
F-CAMERA IMAGE SIG	Front camera inoperative.	NG
	Front camera operative.	OK
PA-SIDE CAMERA IMAGE SIG	Side camera RH inoperative.	NG
	Side camera RH operative.	OK
PUMP COMM STATUS	Pump communication signal is received	On
	Pump communication signal is not received	Off
R-CAMERA COMM STATUS	Rear camera serial status is OK	OK
	Rear camera serial status is not OK	NG
R-CAMERA COMM LINE	Rear camera serial communication signal is received	OK
	Rear camera serial communication signal is not received	NG
REAR CAMERA IMAGE SIGNAL	Rear camera LH inoperative.	NG
	Rear camera LH operative.	OK
REVERSE SIGNAL	When selector lever is in any position other than R (reverse).	Off
	When selector lever in R (reverse).	On
ST ANGLE SENSOR SIGNAL	Around view monitor control unit is not receiving steering angle sensor signal.	Off
	Around view monitor control unit is receiving steering angle sensor signal.	On
ST ANGLE SENSOR TYPE	Steering angle sensor type.	Absolute
ST GEAR RATIO TYPE	Steering gear ratio type.	Type O
STEERING POSITION	Left hand drive vehicle.	LHD
	Right hand drive vehicle.	RHD
TURN SIGNAL	Turn signal left is received	Left
	Turn signal neutral is received	N
	Turn signal right is received	Right
VEHICLE SPEED SIGNAL	While driving, equivalent to speedometer reading	mph, km/h
WASH SW	Wash switch signal is pressed	On
	Wash switch signal is not pressed	Off

AROUND VIEW MONITOR CONTROL UNIT

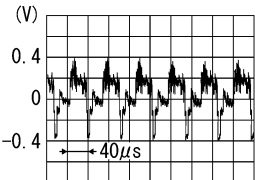
< ECU DIAGNOSIS INFORMATION >

[NAVIGATION WITH BOSE]

TERMINAL LAYOUT



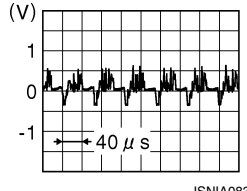
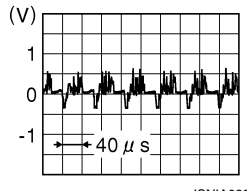
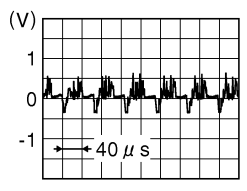
PHYSICAL VALUES

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	—	Signal name	Input/ Output	Ignition switch	Operation	
1 (B)	Ground	Ground	—	ON	—	0 V
2 (Y)	Ground	Battery power supply	Input	OFF	—	Battery voltage
3 (SB)	Ground	Ignition signal	Input	ON	—	Battery voltage
7 (R)	Ground	SOW LED signal L	Output	—	LDW/BSW detected (while driving)	12 V
					LDW/BSW is not detected (while driving)	0 V
8 (G)	Ground	SOW LED signal R	Output	—	LDW/BSW detected (while driving)	12 V
					LDW/BSW is not detected (while driving)	0 V
15 (BR)	Ground	ITS sw indicator	Output	ON	Warning system is ON	12 V
					Warning system is OFF	0 V
16 (Y)	Ground	Warning buzzer control	Output	—	—	—
17 (W)	Ground	ITS OFF sw	Input	ON	Cancel switch pressed	0 V
					Cancel switch released	12 V
27 (L)	—	CAN (H)	Input/ Output	—	—	—
28 (R)	—	CAN (L)	Input/ Output	—	—	—
36 (Y)	Ground	Washer signal AVM to pump	Output	ON	Rear view camera washer motor operated	5 V
37 (V)	Ground	Pump signal ground	Input	ON	—	0 V
38 (SB)	Ground	Washer signal pump to AVM	Input	ON	Rear view camera washer motor operated	5 V
47 (G)	Ground	Camera image signal	Output	ON	When camera image display	

AROUND VIEW MONITOR CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

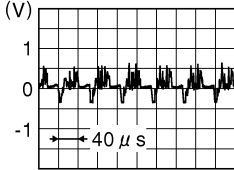
[NAVIGATION WITH BOSE]

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	—	Signal name	Input/ Output	Ignition switch	Operation	
48 (Shield)	—	Camera image signal shield	—	—	—	—
49 (LG)	—	Rear view serial signal	Input/ Output	—	—	—
50 (R)	Ground	Rear camera power supply	Output	ON	CAMERA selected or Shift selector in R (reverse) position.	6.0 V
52 (B)	Ground	Rear camera ground	—	ON	—	0 V
53 (W)	54 (Shield)	Rear camera image signal	Input	ON	CAMERA selected or Shift selector in R (reverse) position.	
56 (L)	Ground	Side camera LH power supply	Output	ON	CAMERA selected or Shift selector in R (reverse) position.	6.0 V
58 (Y)	Ground	Side camera LH ground	—	ON	—	0 V
59 (G)	60 (Shield)	Side camera LH image sig- nal	Input	ON	CAMERA selected or Shift selector in R (reverse) position.	
62 (B)	Ground	Side camera RH power supply	Output	ON	CAMERA selected or Shift selector in R (reverse) position.	6.0 V
64 (L)	Ground	Side camera RH ground	—	ON	—	0 V
65 (Y)	66 (Shield)	Side camera RH image sig- nal	Input	ON	CAMERA selected or Shift selector in R (reverse) position.	
68 (L)	Ground	Front camera power supply	Output	ON	CAMERA selected or Shift selector in R (reverse) position.	6.0 V

AROUND VIEW MONITOR CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[NAVIGATION WITH BOSE]

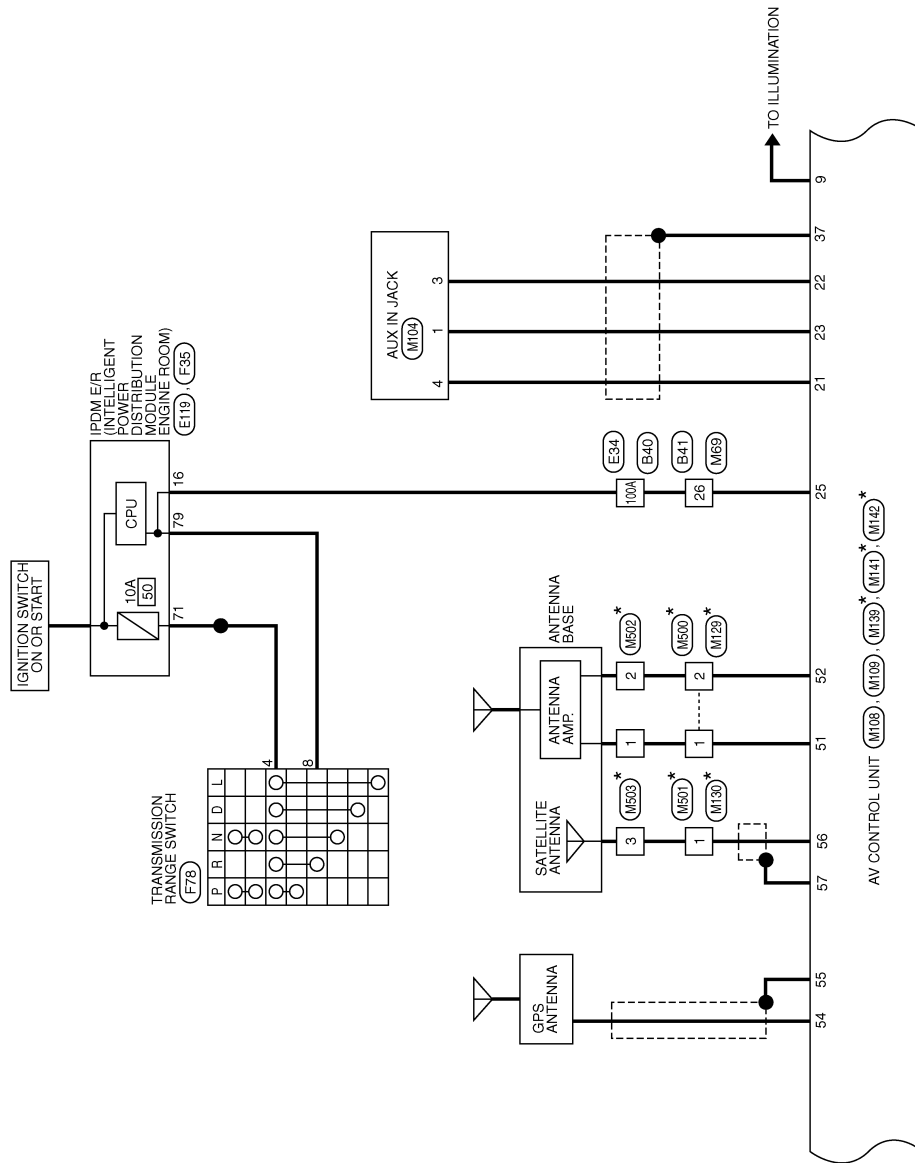
Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	-	Signal name	Input/ Output	Ignition switch	Operation	
70 (V)	Ground	Front camera ground	—	ON	—	0 V
71 (LG)	72 (Shield)	Front camera image signal	Input	ON	CAMERA selected or Shift selector in R (reverse) position.	 (V) 40 μs JSNIA0834GB

WITH DRIVER ASSISTANCE SYSTEM : DTC Index

INFOID:0000000010269696

CONSULT Display	Reference Page
U0428: ST ANG SEN CALIB	AV-141, "DTC Logic"
U1000: CAN COMM CIRCUIT	AV-142, "AROUND VIEW MONITOR CONTROL UNIT : DTC Logic"
U1010: CONTROL UNIT (CAN)	AV-143, "AROUND VIEW MONITOR CONTROL UNIT : DTC Logic"
U111A: Rear display output signal diagnosis (Harness disconnection)	AV-144, "DTC Logic"
U111B: Right side display output signal diagnosis (Harness disconnection)	AV-148, "DTC Logic"
U111C: Front display output signal diagnosis (Harness disconnection)	AV-152, "DTC Logic"
U111D: Left side display output signal diagnosis (Harness disconnection)	AV-156, "DTC Logic"
U1232: ST ANG SEN CALIB	AV-163, "DTC Logic"
U1302: Camera supply power supply voltage abnormality	DAS-117, "DTC Logic"
U1303: LED supply power supply voltage abnormality	DAS-121, "DTC Logic"
U1304: Non-completion of the calibration	AV-177, "DTC Logic"
U1305: Non-completion of the configuration	AV-178, "DTC Logic"
U1308: Rear camera judgment	DAS-124, "DTC Logic"
U1309 PUMP UNIT CURRENT	DAS-125, "DTC Logic"
U130A: PUMP ECU JUDGE	DAS-127, "DTC Logic"
U0122: VDC CAN CIR1 (LDP)	DAS-100, "DTC Logic"
U0416: VDC CAN CIR2 (LDP)	DAS-104, "DTC Logic"
U1232: ST ANG SEN CALIB	DAS-116, "DTC Logic"
C1A03: VHCL SPEED SE CIRC	DAS-131, "AROUND VIEW MONITOR CONTROL UNIT : DTC Logic"
C1A39: STRG SEN CIR	DAS-142, "AROUND VIEW MONITOR CONTROL UNIT : DTC Logic"
C1A04: ABS/TCS/VDC CIRC	DAS-132, "AROUND VIEW MONITOR CONTROL UNIT : DTC Logic"
U130B: Rear camera serial communication err	DAS-128, "DTC Logic"

AANWA1007GB



*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT" OF PG SECTION.

AANWA1008GB

[NAVIGATION WITH BOSE]

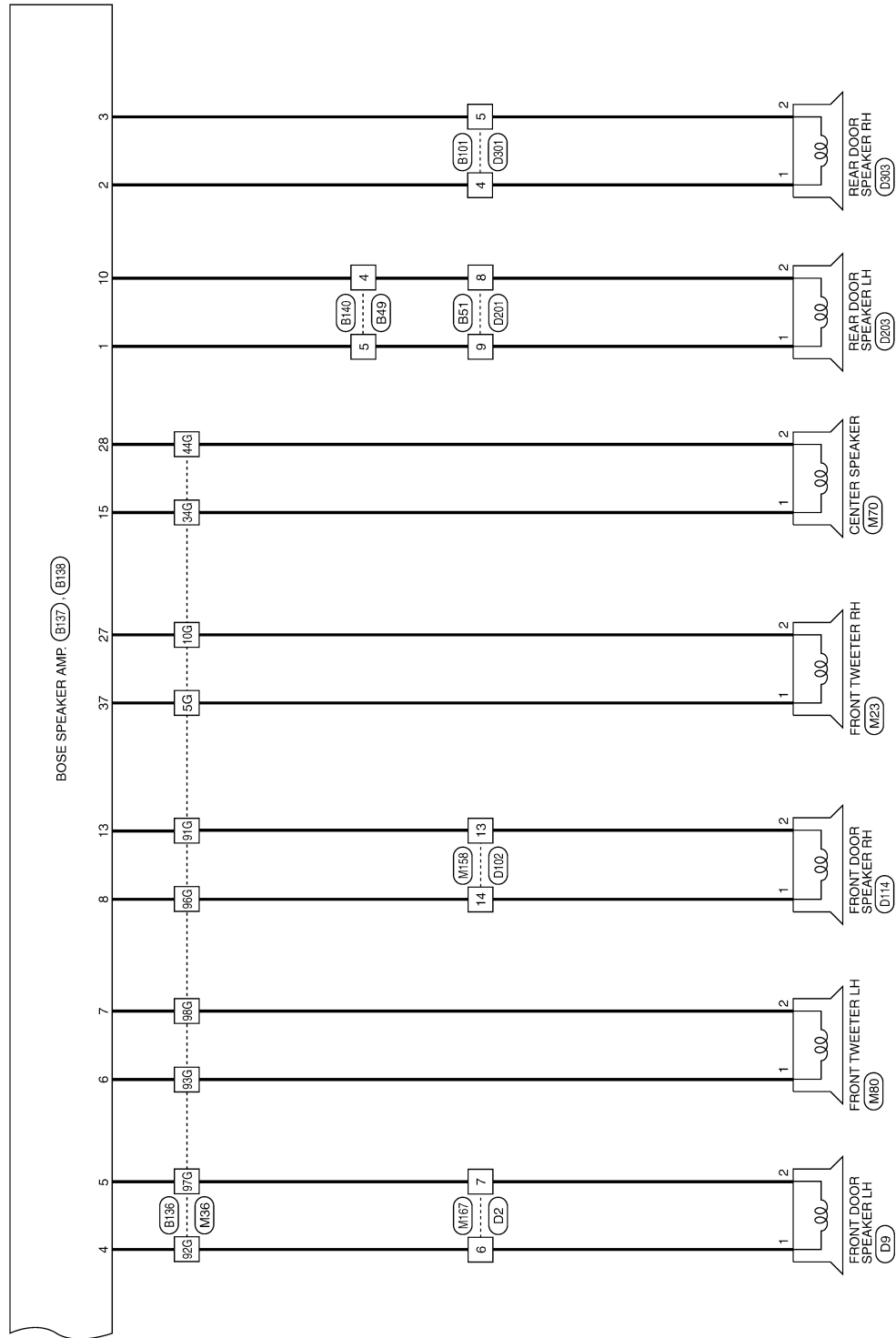
A
B
C
D
E
F
G
H
I
J
K
L
M
AV
O
P



NAVIGATION WITH BOSE

< WIRING DIAGRAM >

[NAVIGATION WITH BOSE]



AANWA1010GB

NAVIGATION SYSTEM CONNECTORS - WITH BOSE AUDIO SYSTEM

Connector No.	M6
Connector Name	JOINT CONNECTOR-M01
Connector Color	GRAY



4	3	2	1
8	7	6	5
12	11	10	9
16	15	14	13
20	19	18	17
24	23	22	21



3	2	1
6	5	4

Connector No.	M8
Connector Name	WIRE TO WIRE
Connector Color	WHITE

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY



20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21

Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

Terminal No.	Color of Wire	Signal Name
1	L	-
2	SB	-

Terminal No.	Color of Wire	Signal Name
5	R	CAN-L
6	L	CAN-H
8	L	CAN-H
9	R	CAN-L

Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



100	99	98	97	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81
120	119	118	117	116	115	114	113	112	111	110	109	108	107	106	105	104	103	102	101

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BROWN



167	166	165	164	163	162	161
176	175	174	173	172	171	170
169	168					

Terminal No.	Color of Wire	Signal Name
95	V	I SHORTING PIN
106	W	O AUTO ACC2
110	BG	O GND AUTOLIGHT SENSOR

Terminal No.	Color of Wire	Signal Name
161	W	I PWR ECU

Connector No.	M22
Connector Name	DATA LINK CONNECTOR
Connector Color	WHITE



9	10	11	12	13	14	15	16
1	2	3	4	5	6	7	8

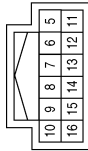
Terminal No.	Color of Wire	Signal Name
3	LG	-
6	L	-
8	Y	-
11	SB	-
14	P	-

AANIA2439GB

A B C D E F G H I J K L M O P

AV

Connector No.	M30
Connector Name	COMBINATION SWITCH (SPIRAL CABLE)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
8	Y	-
14	L	-
15	GR	-

Connector No.	M27
Connector Name	JOINT CONNECTOR-M13
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	SB	-
3	SB	-

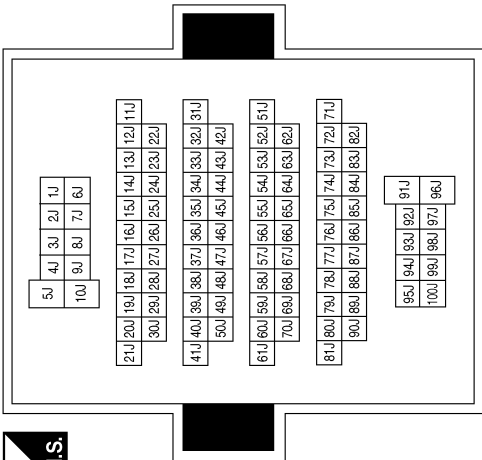
Connector No.	M23
Connector Name	FRONT TWEETER RH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	G	-
2	R	-

Terminal No.	Color of Wire	Signal Name
22J	SHIELD	-
23J	LG	-
24J	V	-
25J	L	-

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE



AANIA2440GB

Connector No.	M43
Connector Name	JOINT CONNECTOR-M02
Connector Color	BLUE

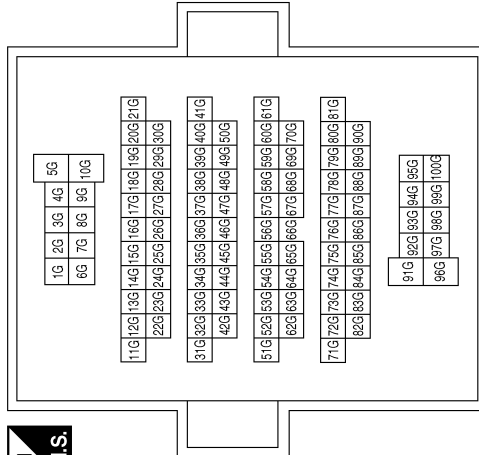


																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						</
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	----

Terminal No.	Color of Wire	Signal Name
2	L	-
3	L	-
5	L	-
12	P	-
13	P	-
15	P	-

Terminal No.	Color of Wire	Signal Name
34G	V	-
35G	BR	-
36G	SHIELD	-
37G	LG	-
38G	V	-
39G	SHIELD	-
40G	G	-
41G	R	-
44G	BG	-
45G	SHIELD	-
46G	L	-
47G	Y	-
48G	SHIELD	-
49G	W	-
50G	R	-
91G	R	-
92G	LA/L	-
93G	W	-
96G	SB	-
97G	LA/BR	-
98G	GR	-

Connector No.	M36
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
5G	G	-
10G	R	-

Terminal No.	Color of Wire	Signal Name
5	SB	-
11	LG	-
12	LG	-
14	LG	-
15	LG	-

Connector No.	M47
Connector Name	JOINT CONNECTOR-M04
Connector Color	BLUE



--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Terminal No.	Color of Wire	Signal Name
1	SB	-
2	SB	-
4	SB	-

Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



7P	8P	3P	4P	13P	12P	11P	10P	9P	8P
----	----	----	----	-----	-----	-----	-----	----	----

Terminal No.	Color of Wire	Signal Name
7P	Y	-
14P	SB	-
15P	L	-

AAANIA2441GB

Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN

7R	6R	5R	4R	3R	2R	1R
16R	15R	14R	13R	12R	11R	10R
9R	8R	7R	6R	5R	4R	3R



Terminal No.	Color of Wire	Signal Name
3R	V	-
5R	L	-
14R	W	-

Connector No.	M69
Connector Name	WIRE TO WIRE
Connector Color	WHITE

16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17



Terminal No.	Color of Wire	Signal Name
13	LG	-
24	P	-
25	L	-
26	BR	-
29	SHIELD	-
30	W	-
31	B	-
32	R	-

Connector No.	M70
Connector Name	CENTER SPEAKER
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
1	V	-
2	BG	-

Connector No.	M71
Connector Name	JOINT CONNECTOR-M03
Connector Color	BLUE

9	8	7	6	5	4	3	2	1
20	19	18	17	16	15	14	13	12
11	10	9	8	7	6	5	4	3



Terminal No.	Color of Wire	Signal Name
1	L	-
2	L	-
5	L	-
7	L	-
11	R	-
12	R	-
15	R	-
17	R	-

Connector No.	M76
Connector Name	COMBINATION METER
Connector Color	WHITE

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40



Terminal No.	Color of Wire	Signal Name
21	L	STRG SW GND
22	Y	STRG SW INPUT1
23	GR	STRG SW INPUT2
38	G	8P/R OUT

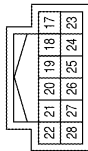
Connector No.	M77
Connector Name	COMBINATION METER
Connector Color	WHITE

41	42	43	44	45	46
47	48	49	50	51	52



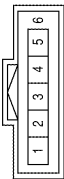
Terminal No.	Color of Wire	Signal Name
41	L	CAN-H
42	P	CAN-L
47	SB	M-CAN H
48	LG	M-CAN L

Connector No.	M90
Connector Name	COMBINATION SWITCH (SPIRAL CABLE)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
18	L	-
19	G	-
25	P	-

Connector No.	M89
Connector Name	USB INTERFACE
Connector Color	BLACK



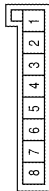
Terminal No.	Color of Wire	Signal Name
1	R	-
2	W	-
3	G	-
5	B	-
6	SHIELD	-

Connector No.	M80
Connector Name	FRONT TWEETER LH
Connector Color	WHITE



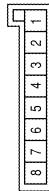
Terminal No.	Color of Wire	Signal Name
1	W	-
2	GR	-

Connector No.	M98
Connector Name	JOINT CONNECTOR-M22
Connector Color	WHITE



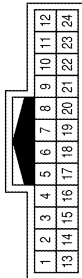
Terminal No.	Color of Wire	Signal Name
1	SHIELD	-
2	B	-
3	SHIELD	-
4	SHIELD	-
5	SHIELD	-

Connector No.	M97
Connector Name	JOINT CONNECTOR-M24
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	B	-
4	B	-

Connector No.	M91
Connector Name	WIRE TO WIRE
Connector Color	WHITE



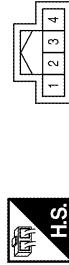
Terminal No.	Color of Wire	Signal Name
7	B	-
8	L	-
9	Y	-
10	SHIELD	-

AANIA2443GB

A
B
C
D
E
F
G
H
I
J
K
L
M
O
P

AV

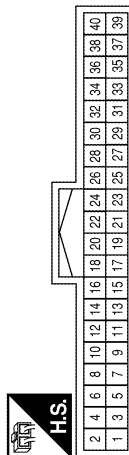
Connector No.	M104
Connector Name	AUX IN JACK
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	L	—
3	Y	—
4	G	—

Terminal No.	Color of Wire	Signal Name
24	G	VIDEO OUTPUT SIGNAL
25	B	RV POWER GND
26	R	RV POWER 6.2V
27	SHIELD	RV VIDEO GND
28	W	RV VIDEO SIGNAL
29	Y	SV2 POWER GND
30	L	SV2 POWER 6.2V
31	SHIELD	SV2 VIDEO GND
32	G	SV2 VIDEO SIGNAL
33	L	SV1 POWER GND
34	B	SV1 POWER 6.2V
35	SHIELD	SV1 VIDEO GND
36	Y	SV1 VIDEO SIGNAL
37	V	FV POWER GND
38	L	FV POWER 6.2V
39	SHIELD	FV VIDEO GND
40	LG	FV VIDEO SIGNAL

Connector No.	M103
Connector Name	AROUND VIEW MONITOR CONTROL UNIT (WITHOUT DRIVER ASSISTANCE SYSTEM)
Connector Color	WHITE

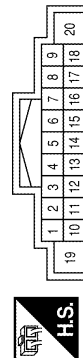


Terminal No.	Color of Wire	Signal Name
1	B	GND
2	Y	+B
4	SB	IGN
10	R	CAN-L
12	L	CAN-H
23	SHIELD	VIDEO OUTPUT GND

Terminal No.	Color of Wire	Signal Name
17	R	CAN-L
18	G	SPEED SIGNAL
19	L	BAT
20	B	GND

Terminal No.	Color of Wire	Signal Name
5	LG	RR SP LH (-)
6	—	—
7	W	ACC
8	L	CAN-H
9	V	ILL (+), LIGHT SW
10	B	PRE AMP SHIELD
11	R	FR SP RH (+)
12	W	FR SP RH (-)
13	L	RR SP RH (+)
14	Y	RR SP RH (-)
15	—	—
16	—	—

Connector No.	M108
Connector Name	AV CONTROL UNIT (WITH BOSE AUDIO SYSTEM)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	BR	AMP ON
2	R	FR SP LH (+)
3	G	FR SP LH (-)
4	V	RR SP LH (+)

AAANIA2444GB

Terminal No.	Color of Wire	Signal Name
37	SHIELD	SUB OUT/AUX SHIELD
38	SB	MCAN +
39	LG	MCAN -
40	LG	IGNITION
41	W	CAMERA+
42	SHIELD	CAMERA- (SHIELD)
43	-	-
44	-	-

Terminal No.	Color of Wire	Signal Name
25	BR	REVERSE
26	-	-
27	-	-
28	-	-
29	-	-
30	BG	MR OUTPUT
31	SB	M-CAN TERMINATION
32	LG	M-CAN TERMINATION
33	-	-
34	W	MIC SIGNAL
35	B	MIC VCC
36	SHIELD	MIC GND

Connector No.	M109
Connector Name	AV CONTROL UNIT (WITH BOSE AUDIO SYSTEM)
Connector Color	WHITE

21	22	23	24	25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40	41	42	43	44

Terminal No.	Color of Wire	Signal Name
21	G	AUX R
22	Y	AUX GND
23	L	AUX L
24	-	-

Terminal No.	Color of Wire	Signal Name
16	Y	BUZZER CONT
17	W	ITS SW
27	L	CAN-H
28	R	CAN-L
36	Y	FROM C/U TO PUMP
37	V	SIGNAL GND
38	SB	FROM PUMP TO C/U

Connector No.	M113
Connector Name	AROUND VIEW MONITOR CONTROL UNIT (WITH DRIVER ASSISTANCE SYSTEM)
Connector Color	WHITE

2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40
1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	35	37	39

Terminal No.	Color of Wire	Signal Name
1	B	GND
2	Y	+B
3	SB	IGN
7	R	INDICATOR L
8	G	INDICATOR R
15	BR	ITS SW INDICATOR

AA01A2445GB

NAVIGATION WITH BOSE

< WIRING DIAGRAM >

[NAVIGATION WITH BOSE]

Connector No.	M114
Connector Name	AROUND VIEW MONITOR CONTROL UNIT (WITH DRIVER ASSISTANCE SYSTEM)
Connector Color	WHITE



42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	72
41	43	45	47	49	51	53	55	57	59	61	63	65	67	69	71

Terminal No.	Color of Wire	Signal Name
47	G	VIDEO OUTPUT SIGNAL
48	SHIELD	VIDEO OUTPUT GND
49	LG	RV SERIAL SIGNAL
50	R	RV POWER 6.2V

Terminal No.	Color of Wire	Signal Name
52	B	RV POWER GND
53	W	RV POWER SIGNAL
54	SHIELD	RV VIDEO GND
56	L	SV2 POWER 6.2V
58	Y	SV2 POWER GND
59	G	SV2 VIDEO SIGNAL
60	SHIELD	SV2 VIDEO GND
62	B	SV1 POWER 6.2V
64	L	SV1 POWER GND
65	Y	SV1 VIDEO SIGNAL
66	SHIELD	SV1 VIDEO GND
68	L	FV POWER GND
70	V	FV POWER GND
71	LG	FV VIDEO SIGNAL
72	SHIELD	FV VIDEO GND

Connector No.	M129
Connector Name	WIRE TO WIRE
Connector Color	GRAY



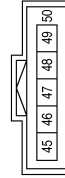
Terminal No.	Color of Wire	Signal Name
1	B	–
2	B	–

Connector No.	M130
Connector Name	WIRE TO WIRE
Connector Color	BROWN



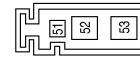
Terminal No.	Color of Wire	Signal Name
1	B	–

Connector No.	M138
Connector Name	AV CONTROL UNIT
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
45	R	V BUS
46	W	USB D -
47	G	USB +
48	–	–
49	B	USB GND
50	SHIELD	USB SHIELD

Connector No.	M139
Connector Name	AV CONTROL UNIT
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
51	B	ANT +B
52	B	ANT MAIN
53	–	–

NAVIGATION WITH BOSE

< WIRING DIAGRAM >

[NAVIGATION WITH BOSE]

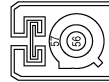
Connector No.	M156
Connector Name	WIRE TO WIRE
Connector Color	WHITE



12	11	10	9	8	7	6	5	4	3	2	1
24	23	22	21	20	19	18	17	16	15	14	13

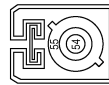
Terminal No.	Color of Wire	Signal Name
1	B	-
2	W	-
3	SHIELD	-

Connector No.	M142
Connector Name	AV CONTROL UNIT
Connector Color	PINK



Terminal No.	Color of Wire	Signal Name
56	B	SAT ANT
57	SHIELD	SAT SHIELD

Connector No.	M141
Connector Name	AV CONTROL UNIT
Connector Color	BLUE



Terminal No.	Color of Wire	Signal Name
54	B	GPS ANT
55	SHIELD	GPS SHIELD

Connector No.	M168
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12
13	14	15	16	17	18	19	20	21	22	23	24

Terminal No.	Color of Wire	Signal Name
7	L	-
8	Y	-
9	G	-
10	SHIELD	-

Connector No.	M167
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16					

Terminal No.	Color of Wire	Signal Name
6	LA/L	- (WITH BOSE AUDIO SYSTEM)
7	LA/BR	- (WITH BOSE AUDIO SYSTEM)

Connector No.	M158
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16					

Terminal No.	Color of Wire	Signal Name
13	R	- (WITH BOSE AUDIO SYSTEM)
14	SB	- (WITH BOSE AUDIO SYSTEM)

AANIA2447GB

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P

AV

NAVIGATION WITH BOSE

< WIRING DIAGRAM >

[NAVIGATION WITH BOSE]

Connector No.	M500
Connector Name	WIRE TO WIRE
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
1	B	—
2	B	—

Connector No.	M501
Connector Name	WIRE TO WIRE
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
1	B	—

Connector No.	M502
Connector Name	ANTENNA BASE (ANTENNA AMP)
Connector Color	GRAY



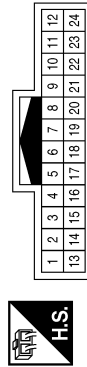
Terminal No.	Color of Wire	Signal Name
1	B	—
2	B	—

Connector No.	M503
Connector Name	ANTENNA BASE (SATELLITE RADIO ANTENNA)
Connector Color	GREEN



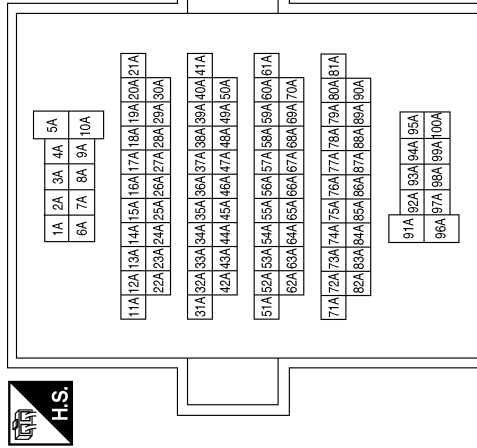
Terminal No.	Color of Wire	Signal Name
3	B	—

Connector No.	E26
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	V	—
2	L	—
13	SHIELD	—
14	LG	—

Connector No.	E34
Connector Name	WIRE TO WIRE
Connector Color	GRAY

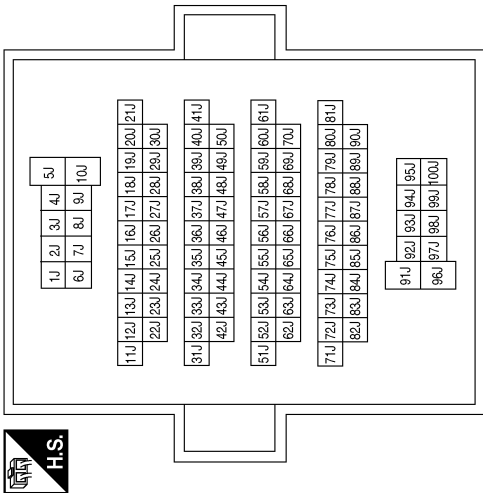


Terminal No.	Color of Wire	Signal Name
100A	G	—

AANIA2448GB

Terminal No.	Color of Wire	Signal Name
22J	SHIELD	-
23J	LG	-
24J	V	-
25J	L	-

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	E119
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY

9	8	7	6	5	4	3
18	17	16	15	14	13	12
11	10	9	8	7	6	5
4	3	2	1	0	9	8



Terminal No.	Color of Wire	Signal Name
16	G	O LIGHT REVERSE LAMP

Connector No.	F35
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE

71	70	69	68	67	66	65
80	79	78	77	76	75	74
73	72	71	70	69	68	67



Terminal No.	Color of Wire	Signal Name
71	SB	O IGN AT LPG
79	G	LI LIGHT REVERSE SW

Connector No.	E226
Connector Name	FRONT CAMERA
Connector Color	BLACK

1	2	3
4	5	6



Terminal No.	Color of Wire	Signal Name
1	V	-
2	L	-
4	LG	-
5	SHIELD	-

Connector No.	E209
Connector Name	WIRE TO WIRE
Connector Color	WHITE

12	11	10	9	8	7	6	5	4	3	2	1
24	23	22	21	20	19	18	17	16	15	14	13



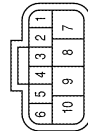
Terminal No.	Color of Wire	Signal Name
1	V	-
2	L	-
13	SHIELD	-
14	LG	-

AANIA2449GB

A B C D E F G H I J K L M O P

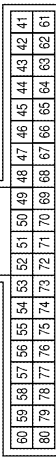
AV

Connector No.	F78
Connector Name	TRANSMISSION RANGE SWITCH
Connector Color	BLACK



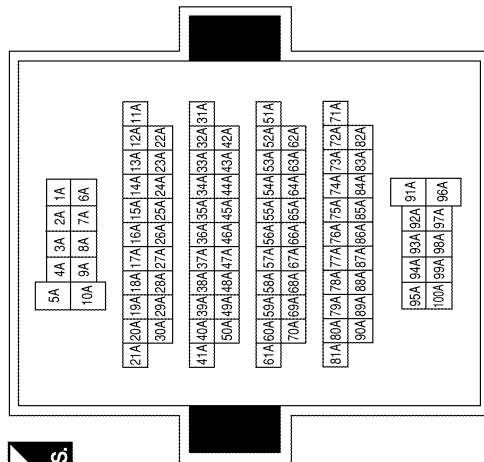
Terminal No.	Color of Wire	Signal Name
4	W	-
8	G	-

Connector No.	B16
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GREEN



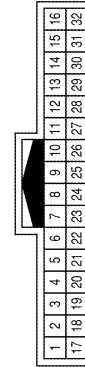
Terminal No.	Color of Wire	Signal Name
60	L	CAN-H
80	P	CAN-L

Connector No.	B40
Connector Name	WIRE TO WIRE
Connector Color	GRAY



Terminal No.	100A
Color of Wire	G
Signal Name	-

Connector No.	B41
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
13	W	-
24	P	-
25	L	-
26	G	-
29	SHIELD	-
30	W	-
31	B	-
32	R	-

Connector No.	B51
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5		
6	7	8	9	10	11	12

Terminal No.	Color of Wire	Signal Name
8	LA/G	– (WITH BOSE AUDIO SYSTEM)
9	LA/P	– (WITH BOSE AUDIO SYSTEM)

Connector No.	B49
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5		
6	7	8	9	10	11	12

Terminal No.	Color of Wire	Signal Name
4	LA/G	–
5	LA/P	–

Connector No.	B46
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Terminal No.	Color of Wire	Signal Name
4	W	–
5	R	–
6	B	–
7	W	–
8	SHIELD	–

Connector No.	B106
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6
---	---	---	---	---	---

Terminal No.	Color of Wire	Signal Name
1	W	–
2	SB	–

Connector No.	B101
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5		
6	7	8	9	10	11	12

Terminal No.	Color of Wire	Signal Name
4	LG	– (WITH BOSE AUDIO SYSTEM)
5	V	– (WITH BOSE AUDIO SYSTEM)

Connector No.	B63
Connector Name	JOINT CONNECTOR-B01
Connector Color	GRAY



4	3	2	1
8	7	6	5
12	11	10	9
16	15	14	13
20	19	18	17
24	23	22	21

Terminal No.	Color of Wire	Signal Name
3	P	–
4	L	–
7	P	–
8	L	–

AANIA2451GB

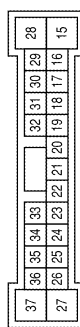
[NAVIGATION WITH BOSE]

Terminal No.	Color of Wire	Signal Name
9	Y	OUTPUT 4+ (STBB SIGNAL+)
10	R	OUTPUT 7- (REAR LEFT DOOR SP-)
11	W	B+
12	B	GND
13	R	OUTPUT 6- (FRONT RIGHT DOOR SP-)
14	BR	OUTPUT 4- (STBB SIGNAL-)

Terminal No.	Color of Wire	Signal Name
32	G	INPUT 1- (FRONT LEFT IN-)
33	R	INPUT 4- (REAR RIGHT IN-)
34	-	-
35	-	-
36	-	-
37	G	OUTPUT 2+ (IP RIGHT, 1" TWEETER+)

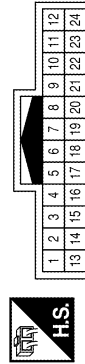
Terminal No.	Color of Wire	Signal Name
21	V	INPUT 3+ (REAR LEFT IN+)
22	LG	INPUT 3- (REAR LEFT IN-)
23	W	INPUT 4+ (REAR RIGHT IN +)
24	-	-
25	G	GPIO D (EXTERNAL AMP ENABLE)
26	-	-
27	R	OUTPUT 2- (IP RIGHT, 1" TWEETER-)
28	BG	OUTPUT 3- (IP CENT, 80MM TWID-)
29	-	-
30	-	-
31	BR	SWB+

Connector No.	B138
Connector Name	BOSE SPEAKER AMP.
Connector Color	BROWN



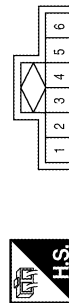
Terminal No.	Color of Wire	Signal Name
15	V	OUTPUT 3+ (IP CENT, 80MM TWID+)
16	-	-
17	-	-
18	R	INPUT 1+ (FRONT LEFT IN+)
19	Y	INPUT 2+ (FRONT RIGHT IN+)
20	L	INPUT 2- (FRONT RIGHT IN-)

Connector No.	R11
Connector Name	WIRE TO WIRE
Connector Color	WHITE



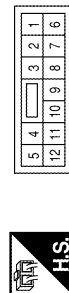
Terminal No.	Color of Wire	Signal Name
1	B	-
2	W	-
3	SHIELD	-

Connector No.	R8
Connector Name	MICROPHONE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	W	-
2	SHIELD	-
4	B	-

Connector No.	B140
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
4	R	-
5	L	-

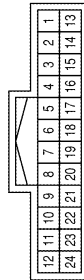
AANIA2453GB

Connector No.	D9
Connector Name	FRONT DOOR SPEAKER LH (WITH BOSE AUDIO SYSTEM)
Connector Color	BROWN



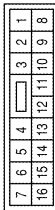
Terminal No.	Color of Wire	Signal Name
1	LA/L	—
2	LA/BR	—

Connector No.	D3
Connector Name	WIRE TO WIRE
Connector Color	WHITE



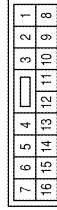
Terminal No.	Color of Wire	Signal Name
7	GR	—
8	G	—
9	Y	—
10	B	—

Connector No.	D2
Connector Name	WIRE TO WIRE
Connector Color	WHITE



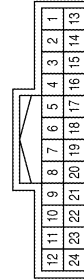
Terminal No.	Color of Wire	Signal Name
6	LA/L	—
7	LA/BR	—

Connector No.	D102
Connector Name	WIRE TO WIRE
Connector Color	WHITE



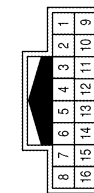
Terminal No.	Color of Wire	Signal Name
13	LA/R	—
14	LA/G	—

Connector No.	D101
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
7	L	—
8	V	—
9	Y	—
10	B	—

Connector No.	D14
Connector Name	DOOR MIRROR LH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
7	GR	—
8	G	—
15	B	—
16	Y	—

AANIA2467GB

Connector No.	D201
Connector Name	WIRE TO WIRE
Connector Color	WHITE



5	4			3	2	1
12	11	10	9	8	7	6

Terminal No.	Color of Wire	Signal Name
8	LA/R	–
9	LA/L	–

Connector No.	D114
Connector Name	FRONT DOOR SPEAKER RH (WITH BOSE AUDIO SYSTEM)
Connector Color	BROWN



2	1
---	---

Terminal No.	Color of Wire	Signal Name
1	LA/G	–
2	LA/R	–

Connector No.	D107
Connector Name	DOOR MIRROR RH
Connector Color	WHITE



8	7	6	5	4	3	2	1
16	15	14	13	12	11	10	9

Terminal No.	Color of Wire	Signal Name
7	L	–
8	V	–
15	B	–
16	Y	–

Connector No.	D303
Connector Name	REAR DOOR SPEAKER RH
Connector Color	WHITE



2	1
---	---

Terminal No.	Color of Wire	Signal Name
1	LA/V	–
2	LA/Y	–

Connector No.	D301
Connector Name	WIRE TO WIRE
Connector Color	WHITE



5	4		3	2	1	
12	11	10	9	8	7	6

Terminal No.	Color of Wire	Signal Name
4	LA/V	–
5	LA/Y	–

Connector No.	D203
Connector Name	REAR DOOR SPEAKER LH
Connector Color	WHITE

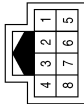


2	1
---	---

Terminal No.	Color of Wire	Signal Name
1	LA/L	–
2	LA/R	–

AANIA2468GB

Connector No.	D514
Connector Name	REAR VIEW CAMERA (WITH DRIVER ASSISTANCE SYSTEM)
Connector Color	WHITE



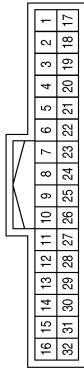
Terminal No.	Color of Wire	Signal Name
1	V	-
4	L	-
5	W	-
7	B	-
8	R	-

Connector No.	D504
Connector Name	REAR VIEW CAMERA (WITHOUT DRIVER ASSISTANCE SYSTEM)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	B	-
2	R	-
4	W	-
5	V	-

Connector No.	D501
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
4	L	-
5	R	-
6	B	-
7	W	-
8	V	-

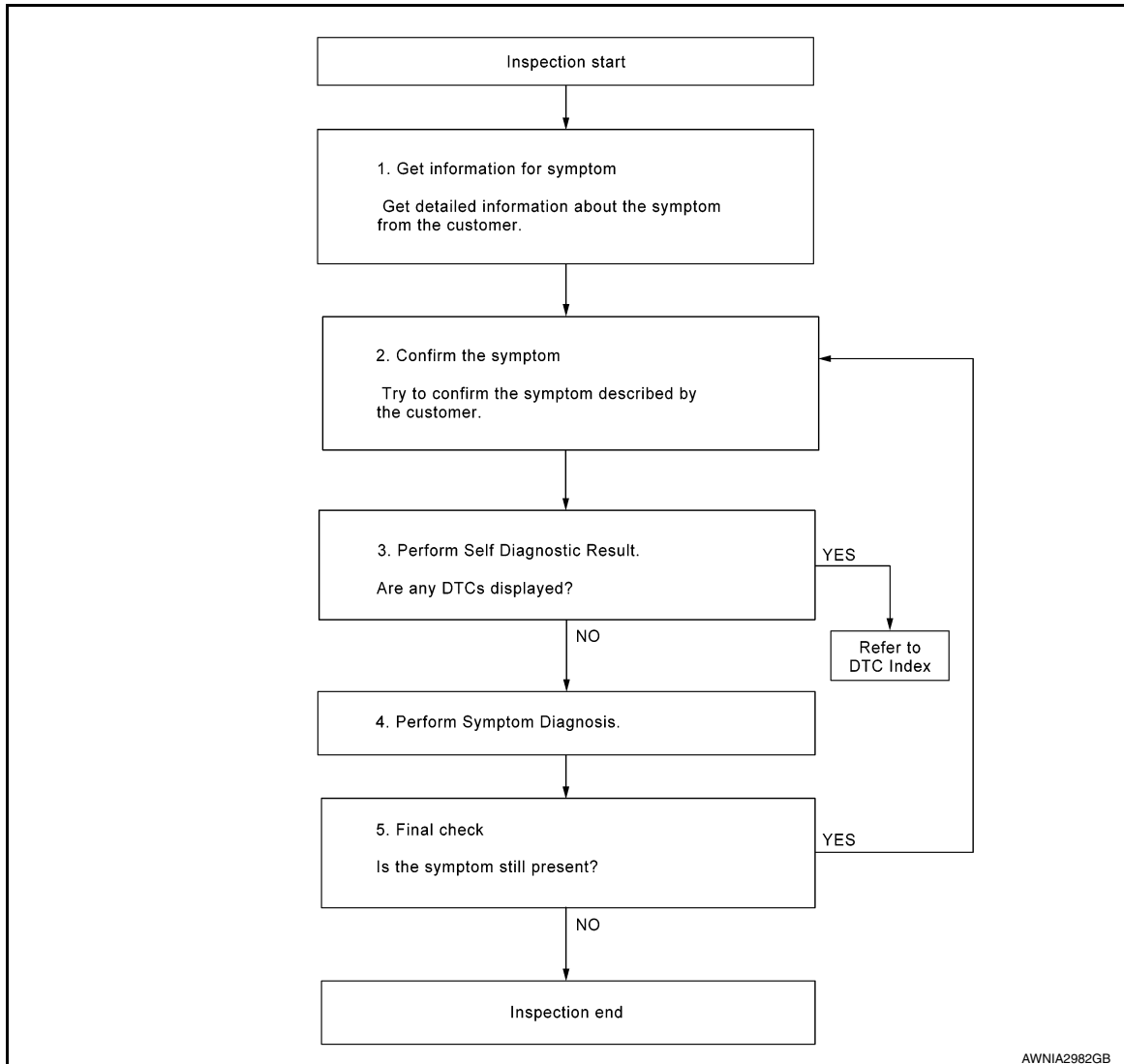
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:000000010244414

OVERALL SEQUENCE



DETAILED FLOW

1.GET INFORMATION FOR SYMPTOM

Get detailed information from the customer about the symptom (the condition and the environment when the incident/malfunction occurred).

>> GO TO 2.

2.CONFIRM THE SYMPTOM

Try to confirm the symptom described by the customer. Verify relation between the symptom and the condition when the symptom is detected.

>> GO TO 3.

3.PERFORM SELF DIAGNOSTIC RESULT

1. Turn ignition switch ON and wait for 2 seconds or more.

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

[NAVIGATION WITH BOSE]

2. Depending on system being diagnosed, perform Self Diagnostic Result for:

- MULTI AV.
- AVM.

Are any DTCs displayed?

YES >> Refer to [AV-251, "DTC Index"](#) (MULTI AV) or [AV-257, "WITHOUT DRIVER ASSISTANCE SYSTEM : DTC Index"](#) (AVM).

NO >> GO TO 4.

4.PERFORM SYMPTOM DIAGNOSIS

Refer to [AV-361, "Symptom Table"](#).

>> GO TO 5.

5.FINAL CHECK

Refer to symptom described by the customer in step 1.

Is the symptom still present?

YES >> GO TO 2.

NO >> Inspection End.

INSPECTION AND ADJUSTMENT

ADDITIONAL SERVICE WHEN REPLACING AV CONTROL UNIT

ADDITIONAL SERVICE WHEN REPLACING AV CONTROL UNIT : Description

INFOID:0000000010244415

BEFORE REPLACEMENT

When replacing AV control unit, save or print current vehicle specification with CONSULT configuration before replacement.

NOTE:

If "Before Replace ECU" cannot be used, use the "After Replace ECU" or "Manual Configuration" after replacing AV control unit.

AFTER REPLACEMENT

CAUTION:

When replacing AV control unit, you must perform "After Replace ECU" with CONSULT.

- Complete the procedure of "After Replace ECU" in order.
- If you set incorrect "After Replace ECU", incidents might occur.
- Configuration is different for each vehicle model. Confirm configuration of each vehicle model.

ADDITIONAL SERVICE WHEN REPLACING AV CONTROL UNIT : Work Procedure

INFOID:0000000010244416

1. SAVING VEHICLE SPECIFICATION

 CONSULT

Enter "Re/Programming, Configuration" and perform "Before Replace ECU" to save or print current vehicle specification.

NOTE:

If "Before Replace ECU" cannot be used, use the "After Replace ECU" or "Manual Configuration" after replacing AV control unit.

>> GO TO 2.

2. REPLACE AV CONTROL UNIT

Replace AV control unit. Refer to [AV-376, "Removal and Installation"](#).

>> GO TO 3.

3. WRITING VEHICLE SPECIFICATION

 CONSULT

1. Enter "Re/Programming, Configuration".
2. If "Before Replace ECU" operation was performed, automatically an "Operation Log Selection" screen will be displayed. Select the applicable file from the "Saved Data List" and press "Confirm" to write vehicle specification. Refer to [AV-289, "CONFIGURATION \(AV CONTROL UNIT\) : Work Procedure"](#).
3. If "Before Replace ECU" operation was not performed, select "After Replace ECU" or "Manual Configuration" to write vehicle specification. Refer to [AV-289, "CONFIGURATION \(AV CONTROL UNIT\) : Work Procedure"](#).

>> GO TO 4.

4. OPERATION CHECK

Check that the operation of the AV control unit and camera images (fixed guide lines) are normal.

>> Work End.

ADDITIONAL SERVICE WHEN REPLACING AROUND VIEW MONITOR CONTROL UNIT

ADDITIONAL SERVICE WHEN REPLACING AROUND VIEW MONITOR CONTROL UNIT : Description

INFOID:000000001024417

BEFORE REPLACEMENT

When replacing around view monitor control unit, save or print current vehicle specification with CONSULT configuration before replacement.

NOTE:

If "Before Replace ECU" cannot be used, use the "After Replace ECU" or "Manual Configuration" after replacing around view monitor control unit.

AFTER REPLACEMENT

CAUTION:

When replacing around view monitor control unit, you must perform "After Replace ECU" with CONSULT.

- Complete the procedure of "After Replace ECU" in order.
- If you set incorrect "After Replace ECU", incidents might occur.
- Configuration is different for each vehicle model. Confirm configuration of each vehicle model.

ADDITIONAL SERVICE WHEN REPLACING AROUND VIEW MONITOR CONTROL UNIT : Work Procedure

INFOID:000000001024418

1. SAVING VEHICLE SPECIFICATION

Ⓟ-CONSULT

Enter "Re/Programming, Configuration" and perform "Before Replace ECU" to save or print current vehicle specification.

NOTE:

If "Before Replace ECU" cannot be used, use the "After Replace ECU" or "Manual Configuration" after replacing around view monitor control unit.

>> GO TO 2.

2. REPLACE AROUND VIEW MONITOR CONTROL UNIT

Replace around view monitor control unit. Refer to [AV-387, "Removal and Installation"](#).

>> GO TO 3.

3. WRITING VEHICLE SPECIFICATION

ⓅCONSULT

1. Enter "Re/Programming, Configuration".
2. If "Before Replace ECU" operation was performed, automatically an "Operation Log Selection" screen will be displayed. Select the applicable file from the "Saved Data List" and press "Confirm" to write vehicle specification. Refer to [AV-290, "CONFIGURATION \(AROUND VIEW MONITOR CONTROL UNIT\) : Work Procedure"](#).
3. If "Before Replace ECU" operation was not performed, select "After Replace ECU" or "Manual Configuration" to write vehicle specification. Refer to [AV-290, "CONFIGURATION \(AROUND VIEW MONITOR CONTROL UNIT\) : Work Procedure"](#).

>> GO TO 4.

4. OPERATION CHECK

Check that the operation of the around view monitor control unit and camera images (fixed guide lines and predictive course lines) are normal.

>> Work End.

CONFIGURATION (AV CONTROL UNIT)

CONFIGURATION (AV CONTROL UNIT) : Description

INFOID:0000000010244419

Vehicle specification needs to be written with CONSULT because it is not written after replacing AV control unit.

Configuration has three functions as follows:

Function	Description
"Before Replace ECU"	• Reads the vehicle configuration of current AV control unit. • Saves the read vehicle configuration.
"After Replace ECU"	Writes the vehicle configuration with manual selection.
"Select Saved Data List"	Writes the vehicle configuration with saved data.

CAUTION:

- When replacing AV control unit, you must perform "Select Saved Data List" or "After Replace ECU" with CONSULT.
- Complete the procedure of "Select Saved Data List" or "After Replace ECU" in order.
- If you set incorrect "Select Saved Data List" or "After Replace ECU", incidents might occur.
- Configuration is different for each vehicle model. Confirm configuration of each vehicle model.
- Never perform "Select Saved Data List" or "After Replace ECU" except for new AV control unit.

CONFIGURATION (AV CONTROL UNIT) : Work Procedure

INFOID:0000000010244420

1. WRITING MODE SELECTION

 CONSULT

Select "Reprogramming, Configuration" of AV control unit.

When writing saved data>>GO TO 2.

When writing manually>>GO TO 3.

2. PERFORM "SAVED DATA LIST"

 CONSULT

Automatically "Operation Log Selection" window will display if "Before Replace ECU" was performed. Select applicable file from the "Save Data List" and press "Confirm".

>> Work End.

3. PERFORM "AFTER REPLACE ECU" OR "MANUAL CONFIGURATION"

 CONSULT

1. Select "After Replace ECU" or "Manual Configuration".
2. Identify the correct model and configuration list. Refer to [AV-290, "CONFIGURATION \(AV CONTROL UNIT\) : Configuration List"](#).
3. Confirm and/or change setting value for each item.

CAUTION:

Thoroughly read and understand the vehicle specification. ECU control may not operate normally if the setting is not correct.

4. Select "Next".

CAUTION:

Make sure to select "Next", confirm each setting value and press "OK" even if the indicated configuration of brand new AV control unit is same as the desirable configuration. If not, configuration which is set automatically by selecting vehicle model can not be memorized.

5. When "Completed", select "End".

>> GO TO 4.

4. OPERATION CHECK

Confirm that each function controlled by AV control unit operates normally.

>> Work End.

CONFIGURATION (AV CONTROL UNIT) : Configuration List

INFOID:0000000010244421

CAUTION:

Thoroughly read and understand the vehicle specification. Incorrect settings may result in abnormal control of ECU.

MANUAL SETTING ITEM	
Items	Setting value
SOUND SYSTEM	BASE ⇔ BOSE
CAMERA SYSTEM	NONE/AVM ⇔ REAR CAMERA

⇔: Items which confirm vehicle specifications

CONFIGURATION (AROUND VIEW MONITOR CONTROL UNIT)

CONFIGURATION (AROUND VIEW MONITOR CONTROL UNIT) : Description

INFOID:0000000010244422

Vehicle specification needs to be written with CONSULT because it is not written after replacing around view monitor control unit.

Configuration has three functions as follows:

Function	Description
"Before Replace ECU"	- Reads the vehicle configuration of current around view monitor control unit. - Saves the read vehicle configuration.
"After Replace ECU"	Writes the vehicle configuration with manual selection.
"Select Saved Data List"	Writes the vehicle configuration with saved data.

CAUTION:

- When replacing around view monitor control unit, you must perform "Select Saved Data List" or "After Replace ECU" with CONSULT.
- Complete the procedure of "Select Saved Data List" or "After Replace ECU" in order.
- If you set incorrect "Select Saved Data List" or "After Replace ECU", incidents might occur.
- Configuration is different for each vehicle model. Confirm configuration of each vehicle model.
- Never perform "Select Saved Data List" or "After Replace ECU" except for new around view monitor control unit.

CONFIGURATION (AROUND VIEW MONITOR CONTROL UNIT) : Work Procedure

INFOID:0000000010244423

1. WRITING MODE SELECTION

CONSULT

Select "Reprogramming, Configuration" of around view monitor control unit.

When writing saved data>>GO TO 2.

When writing manually>>GO TO 3.

2. PERFORM "SAVED DATA LIST"

CONSULT

Automatically "Operation Log Selection" window will display if "Before Replace ECU" was performed. Select applicable file from the "Save Data List" and press "Confirm".

>> Work End.

3. PERFORM "AFTER REPLACE ECU" OR "MANUAL CONFIGURATION"

CONSULT

- Select "After Replace ECU" or "Manual Configuration".

INSPECTION AND ADJUSTMENT

< BASIC INSPECTION >

[NAVIGATION WITH BOSE]

2. Identify the correct model and configuration list. Refer to [AV-291. "CONFIGURATION \(AROUND VIEW MONITOR CONTROL UNIT\) : Configuration List"](#).
3. Confirm and/or change setting value for each item.
CAUTION:
Thoroughly read and understand the vehicle specification. ECU control may not operate normally if the setting is not correct.
4. Select "Next".
CAUTION:
Make sure to select "Next", confirm each setting value and press "OK" even if the indicated configuration of brand new around view monitor control unit is same as the desirable configuration. If not, configuration which is set automatically by selecting vehicle model can not be memorized.
5. When "Completed", select "End".

>> GO TO 4.

4. OPERATION CHECK

Confirm that each function controlled by around view monitor control unit operates normally.

>> Work End.

CONFIGURATION (AROUND VIEW MONITOR CONTROL UNIT) : Configuration List

INFOID:0000000010244424

CAUTION:

Thoroughly read and understand the vehicle specification. Incorrect settings may result in abnormal control of ECU.

MANUAL SETTING ITEM	
Items	Setting value
BCI FUNCTION	WITH ⇔ WITHOUT

⇔: Items which confirm vehicle specifications

PREDICTED COURSE LINE CENTER POSITION ADJUSTMENT

PREDICTED COURSE LINE CENTER POSITION ADJUSTMENT : Description

INFOID:0000000010244425

Adjust the center position of the predictive course line of the rear view monitor if it is shifted.

PREDICTED COURSE LINE CENTER POSITION ADJUSTMENT : Work Procedure

INFOID:0000000010244426

1. DRIVING

Drive the vehicle straight ahead 100 m (328.1 ft) or more at a speed of 30 km/h (18.6 MPH) or more.

>> End.

CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR)

CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR) : Description

INFOID:0000000010244427

- Calibration must be performed after removing/replacing the cameras, removing parts (e.g. front grille, door mirror, and others) mounted on the cameras, or replacing the Around view monitor control unit.
- The use of CONSULT is required to perform calibration or writing of calibration results to the Around view monitor control unit.
- Align the white lines on the road near the vehicle at the boundary of each camera image by this camera calibration. The white lines far from the vehicle may not be aligned at the boundary of each camera image. The farther the line, the greater the difference is.

INSPECTION AND ADJUSTMENT

< BASIC INSPECTION >

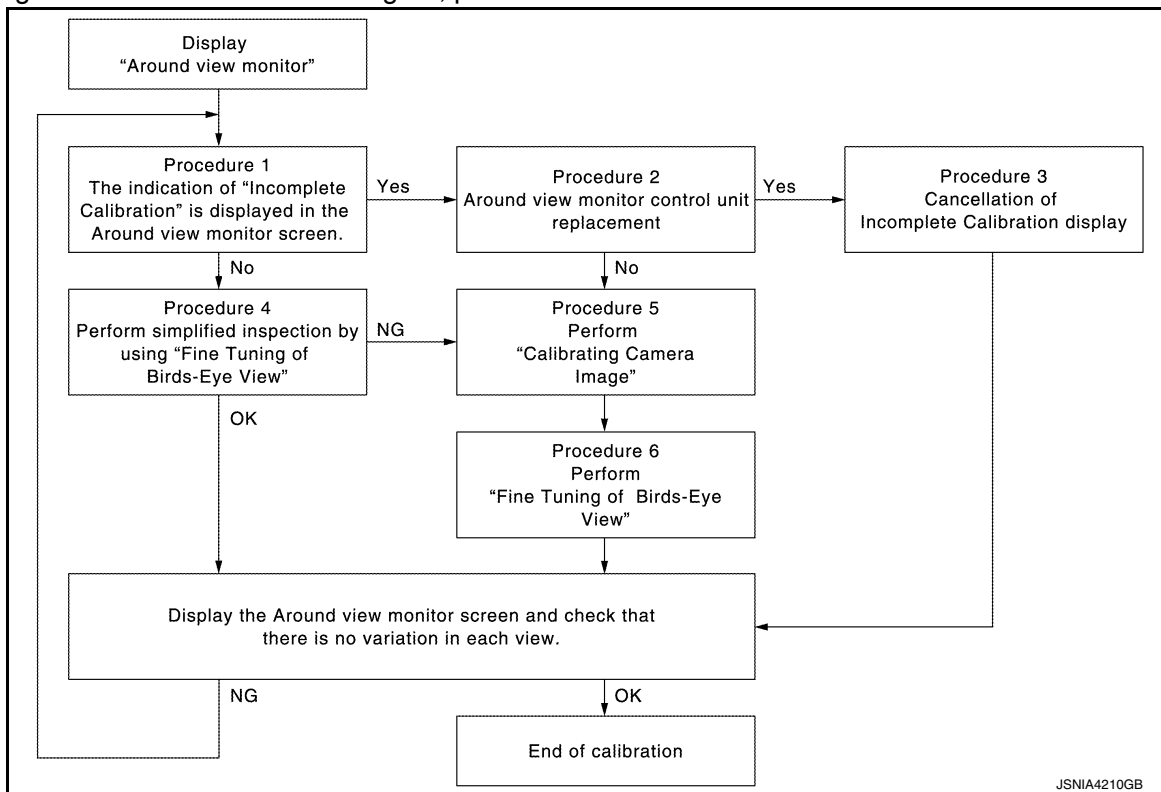
[NAVIGATION WITH BOSE]

CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR) : Work Procedure

INFOID:000000010244428

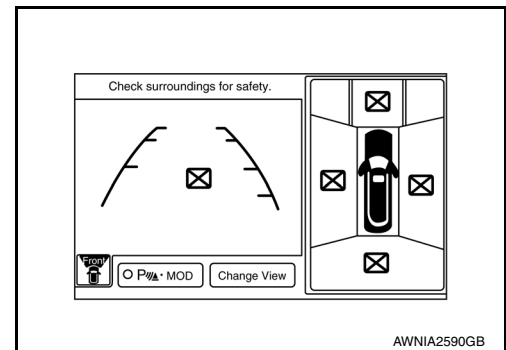
CALIBRATION FLOWCHART

Following the flowchart shown in the figure, perform the calibration.



NOTE:

View in the incomplete calibration state is indicated by "⊠" on the around view monitor.



CALIBRATION PROCEDURE

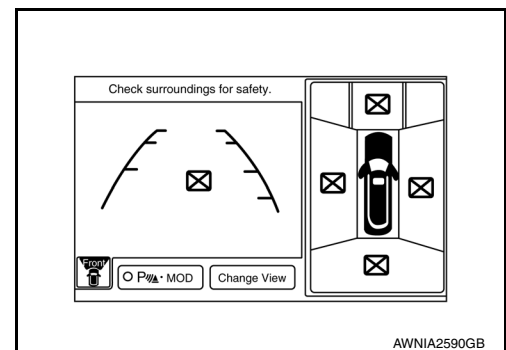
1. AROUND VIEW MONITOR SCREEN CONFIRMATION

Check that there is no indication of "Incomplete calibration".

Is the "Incomplete calibration" display visible?

YES >> GO TO 2.

NO >> GO TO 4.



2. CHECK THAT AROUND VIEW MONITOR CONTROL UNIT IS REPLACED

Check that the around view monitor control unit is replaced.

Is the around view monitor control unit replaced?

YES >> GO TO 3.

NO >> GO TO 5.

3. CANCEL THE INDICATION OF INCOMPLETE CALIBRATION (PERFORM THIS ONLY AFTER REPLACING AROUND VIEW MONITOR CONTROL UNIT.)

CONSULT work support

- On the CONSULT screen, touch "CALIBRATING CAMERA IMAGE (FRONT CAMERA)", "CALIBRATING CAMERA IMAGE (PASS-SIDE CAMERA)", "CALIBRATING CAMERA IMAGE (DR-SIDE CAMERA)", or "CALIBRATING CAMERA IMAGE (REAR CAMERA)" to accept the selection.

NOTE:

To cancel the indication of Incomplete calibration, select items based on the target camera.

- On the adjustment screen of each camera, touch "APPLY" button. After this, touch "OK" button.

CAUTION:

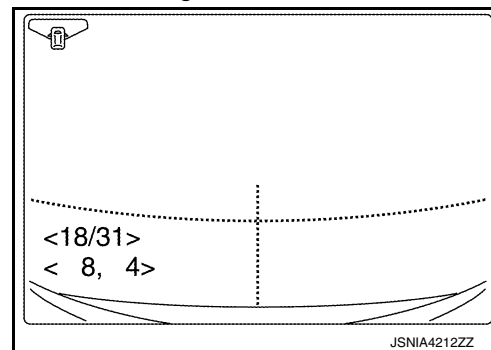
- Never perform operations other than those mentioned above.
- Never perform "Initialize Camera Image Calibration".

- Display the around view monitor screen to check that there is no errors, such as deviations among the camera images.

Is there a malfunction?

YES >> Calibration End.

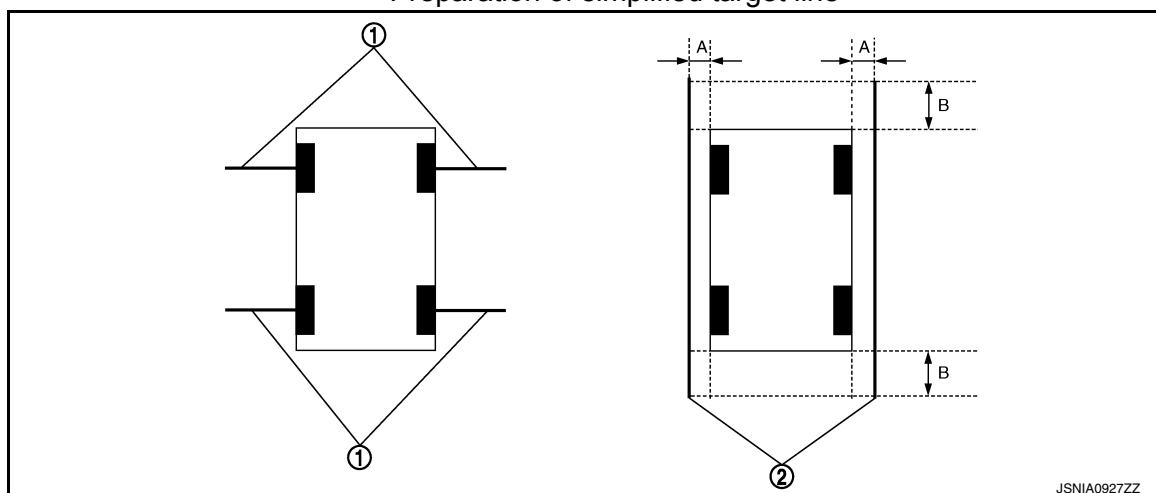
NO >> GO TO 1.



4. PERFORM SIMPLIFIED CONFIRMATION/ADJUSTMENT BY "FINE TUNING OF BIRDS-EYE VIEW"

- Put target line 1 on the ground beside each axle using packing tape, etc.
- Put target lines 2 equal to the vehicle total length + approximately 1.0 m (39.3 in) from the vehicle side (right and left) at approximately 30 cm (11.8 in) away from the vehicle (make the line as parallel with the vehicle as possible)

Preparation of simplified target line



1. Target lines 1

2. Target lines 2

A. Approx. 30 cm (11.8 in)

B. Approx. 1.0 m (39.3 in)

- CONSULT work support

Touch "FINE TUNING OF BIRDS-EYE VIEW" on the CONSULT screen.

- On the CONSULT screen, touch "SELECT" button to select right or left camera and perform camera calibration as instructed below:
 - If the marker on the screen deviates from Target line 1, touch "AXIS X" button and "AXIS Y" button to adjust so that the marker is placed on the Target line 1.
 - If Target line 2 is misaligned among the cameras, adjust each camera image to bring Target line 2 into a straight line.

CAUTION:

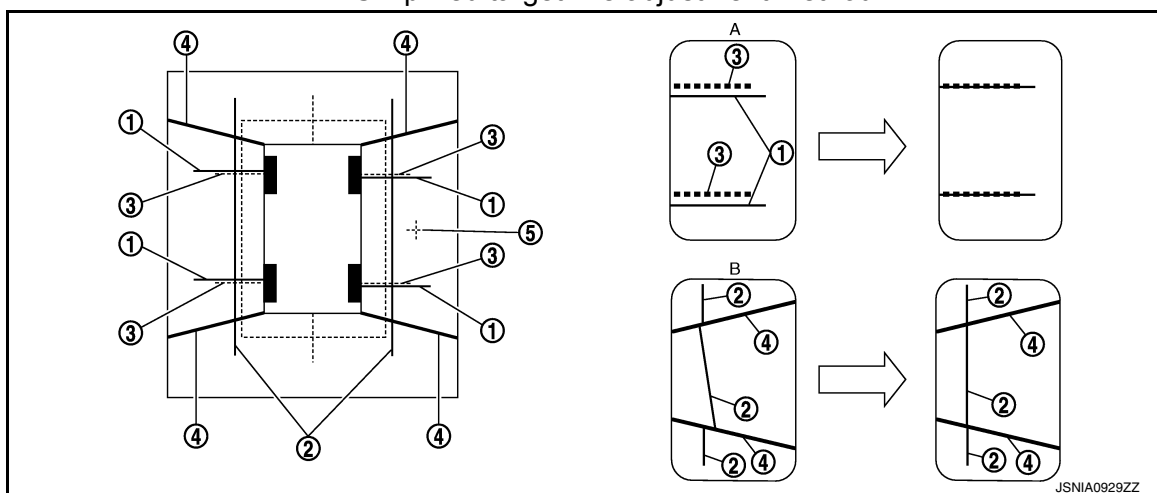
INSPECTION AND ADJUSTMENT

< BASIC INSPECTION >

[NAVIGATION WITH BOSE]

Never adjust the front camera and rear camera. Only adjust the right and left cameras.

Simplified target line adjustment method



- | | | |
|---|---|-----------------------------|
| 1. Target lines 1 | 2. Target lines 2 | 3. Marker for target line 1 |
| 4. Boundary between cameras | 5. Crosshairs cursor (mark indicated the selected camera) | |
| A. Adjustment method for target lines 1 (right) | B. Adjustment method for target lines 2 (right) | |

- Adjust right and left cameras. Touch "APPLY" on the CONSULT screen to display adjustment results.
- After adjusting right and left cameras, check that the marker is properly placed on the screen and there is no deviation in Target line 1.

NOTE:

- It can be initialized to the NISSAN factory default condition with "Initialize Camera Image Calibration".
- The adjustment value is cancelled on this mode by performing "Initialize Camera Image Calibration".

Is the difference corrected?

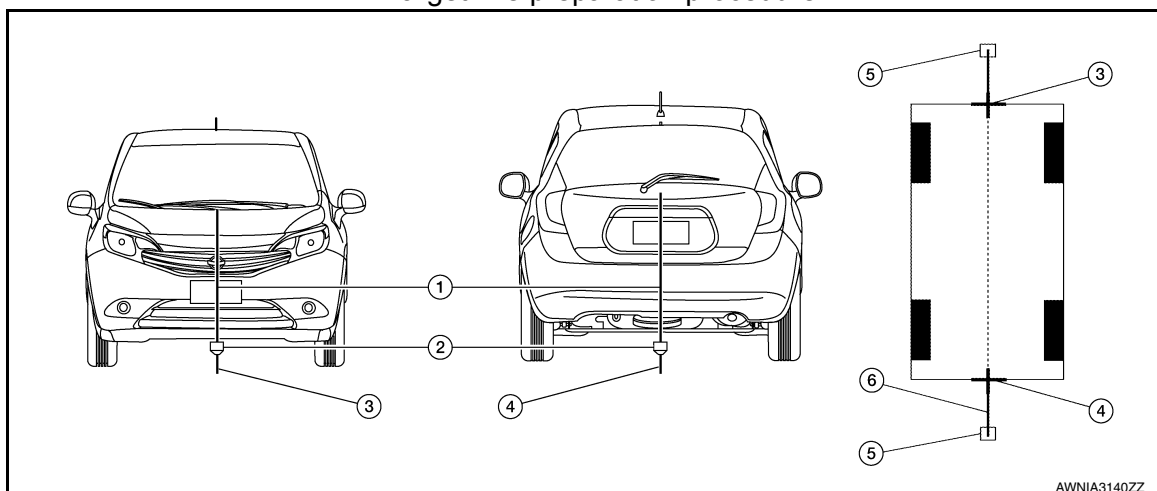
- YES >> On the CONSULT screen, touch "OK" button to complete writing to the around view monitor control unit.
- NO >> GO TO 5.

5.PERFORM "CALIBRATING CAMERA IMAGE"

Preparation of target line

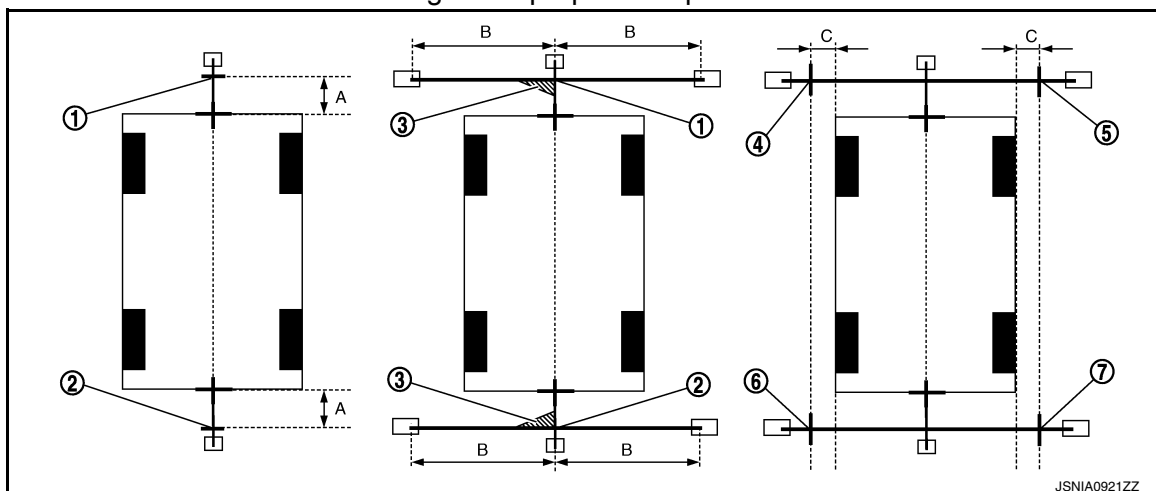
- Hang a string with a weight as shown in the figure. Put the points FM0, RM0 (mark) on the ground at the center of the vehicle front end and rear end with white packing tape or a pen.
- Route the vinyl string under the vehicle, and then pull and fix it on the point approximately 1.0 m (39.9 in) to the front and rear of the vehicle through the points FM0 and RM0 using packing tape.

Target line preparation procedure 1



1. Thread
2. Weight
3. Point FM0 (mark)
4. Point RM0 (mark)
5. Packing tape (to fix the vinyl string)
6. Vinyl string
3. Put the points FM and RM (mark) 75 cm (29.5 in) from the points FM0 and RM0 individually.
4. Route the vinyl string through the points FM and RM using a triangle scale, and then fix it at approximately 1.5 m (59 in) on both sides with packing tape.
5. Put the points FL, FR, RL, and RR (mark) to both right and left [vehicle width / 2 + 30 cm (11.8 in)] from the points FM and RM.

Target line preparation procedure 2



1. Point FM
4. Point FL (mark)
7. Point RR (mark)

2. Point RM
5. Point FR (mark)

3. Triangle scale
6. Point RL (mark)

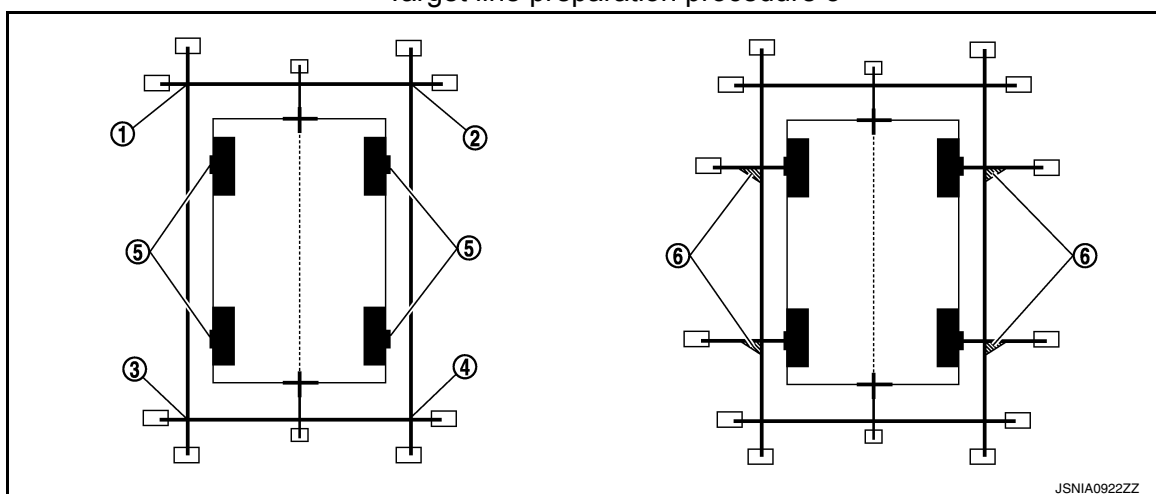
A. 75 cm (29.5 in)

B. Approx. 1.5 m (59 in)

C. 30 cm (11.8 in)
[Vehicle width / 2 + 30 cm (11.8 in)
from the points FM and RM]

6. Draw the lines of the points FL – RL and FR – RR with vinyl string, and fix it with packing tape.
7. Put a mark on the center of each axle, draw vertical lines to the lines of the points FL – RL and FR – RR from the marks on the center of the axle using a triangle scale, and then fix the lines using packing tape.

Target line preparation procedure 3



1. Point FL
4. Point RR

2. Point FR
5. Center position of axle

3. Point RL
6. Triangle scale

Perform “Calibrating Camera Image”

CONSULT work support

INSPECTION AND ADJUSTMENT

< BASIC INSPECTION >

[NAVIGATION WITH BOSE]

1. On the CONSULT screen, touch “CALIBRATING CAMERA IMAGE (FRONT CAMERA)”, “CALIBRATING CAMERA IMAGE (PASS-SIDE CAMERA)”, “CALIBRATING CAMERA IMAGE (DR-SIDE CAMERA)”, or “CALIBRATING CAMERA IMAGE (REAR CAMERA)” to accept the selection.

NOTE:

To cancel the indication of Incomplete calibration, select items based on the target camera.

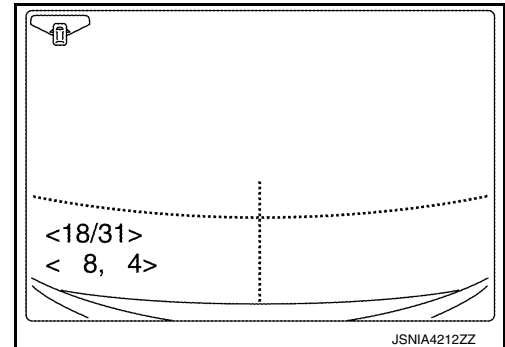
2. On the adjustment screen of each camera, adjust the parameter by touching the “AXIS X” button, “AXIS Y” button, and “ROTATE” button to place the calibration marker shown on the camera screen on the target line drawn on the ground.

Adjustment range

Rotation direction (Center dial) : 31 patterns (16 on the center)

Upper/lower direction (upper/lower switch) : -22 – 22

Left/right direction (left/right switch) : -22 – 22



3. Touch “APPLY” button on the CONSULT screen. “PRCSNG” is displayed and adjustment results are shown on the camera screen.

CAUTION:

Check that “PRCSNG” is displayed. Never perform other operations while “PRCSNG” is displayed.

4. Touch “OK” button on the CONSULT screen. “PRCSNG” is displayed and adjustment results are written to the around view monitor control unit.

CAUTION:

Check that “PRCSNG” is displayed. Never perform other operations while “PRCSNG” is displayed.

>> GO TO 6.

6. PERFORM “FINE TUNING OF BIRDS-EYE VIEW”

This mode is designed to align the boundary between each camera image that could not be aligned in the “Calibrating Camera Image” mode.

ⓅCONSULT work support

1. Select “FINE TUNING OF BIRDS-EYE VIEW” by touching CONSULT screen.

2. On the adjustment screen of each camera, adjust the parameter by touching the “AXIS X” button, “AXIS Y” button”, and “ROTATE” button to place the calibration marker shown on the camera screen on the target line drawn on the ground.

NOTE:

Touch “SELECT” button on the CONSULT screen to select the target camera.

3. Touch “APPLY” button on the CONSULT screen. “PRCSNG” is displayed and adjustment results are shown on the camera screen.

CAUTION:

Check that “PRCSNG” is displayed. Never perform other operations while “PRCSNG” is displayed.

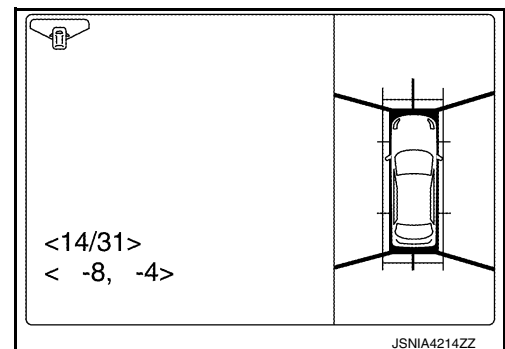
4. Touch “OK” button on the CONSULT screen. “PRCSNG” is displayed and adjustment results are written to the around view monitor control unit.

CAUTION:

- Check that “PRCSNG” is displayed. Never perform other operations while “PRCSNG” is displayed.
- After pressing the “OK” button, never press buttons other than the “BACK” button.

NOTE:

- It can be initialized to the NISSAN factory default condition with “Initialize Camera Image Calibration”.
- The adjustment value is cancelled in this mode by performing “Initialize Camera Image Calibration”.



>> Calibration End.

U0428 STEERING ANGLE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITH BOSE]

DTC/CIRCUIT DIAGNOSIS

U0428 STEERING ANGLE SENSOR

DTC Logic

INFOID:0000000010244429

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
ST ANG SEN CALIB [U0428]	Predictive course line center position adjustment of steering angle sensor is incomplete.	Adjust predictive course line center position adjustment of steering angle sensor.

Diagnosis Procedure

INFOID:0000000010244430

1. ADJUST PREDICTIVE COURSE LINE CENTER POSITION ADJUSTMENT OF STEERING ANGLE SENSOR

When U0428 is detected, the predictive course line center position of steering angle sensor needs to be adjusted.

>> Adjust the predictive course line center position of steering angle sensor. Refer to [AV-291, "PREDICTED COURSE LINE CENTER POSITION ADJUSTMENT : Work Procedure"](#).

A
B
C
D
E
F
G
H
I
J
K
L
M
O
P

AV

U1000 CAN COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITH BOSE]

U1000 CAN COMM CIRCUIT

AV CONTROL UNIT

AV CONTROL UNIT : DTC Logic

INFOID:0000000010244431

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
CAN COMM CIRCUIT [U1000]	AV control unit is not transmitting or receiving CAN communication signal for 2 seconds or more.	CAN communication system.

AV CONTROL UNIT : Diagnosis Procedure

INFOID:0000000010244432

1.PERFORM SELF DIAGNOSTIC RESULT

1. Turn ignition switch ON and wait for 2 seconds or more.
2. Perform "Self Diagnostic Result" for "MULTI AV".

Is CAN COMM CIRCUIT displayed?

YES >> Refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).

NO >> Refer to [GI-41, "Intermittent Incident"](#).

AROUND VIEW MONITOR CONTROL UNIT

AROUND VIEW MONITOR CONTROL UNIT : DTC Logic

INFOID:0000000010244433

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
CAN COMM CIRCUIT [U1000]	Around view monitor control unit is not transmitting or receiving CAN communication signal for 2 seconds or more.	CAN communication system.

AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure

INFOID:0000000010244434

1.PERFORM SELF DIAGNOSTIC RESULT

1. Turn ignition switch ON and wait for 2 seconds or more.
2. Perform "Self Diagnostic Result" for "AVM".

Is CAN COMM CIRCUIT displayed?

YES >> Refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).

NO >> Refer to [GI-41, "Intermittent Incident"](#).

U1010 CONTROL UNIT (CAN)

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITH BOSE]

U1010 CONTROL UNIT (CAN)

AV CONTROL UNIT

AV CONTROL UNIT : DTC Logic

INFOID:0000000010244435

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
CONTROL UNIT (CAN) [U1010]	Error during CAN controller hardware initialization (VCAN).	Replace the AV control unit if the malfunction occurs constantly. Refer to AV-376 , "Removal and Installation".

AROUND VIEW MONITOR CONTROL UNIT

AROUND VIEW MONITOR CONTROL UNIT : DTC Logic

INFOID:0000000010244436

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
CONTROL UNIT (CAN) [U1010]	Error during CAN controller hardware initialization (VCAN).	Replace the Around view monitor control unit if the malfunction occurs constantly. Refer to AV-387 , "Removal and Installation".

U111A REAR CAMERA IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITH BOSE]

U111A REAR CAMERA IMAGE SIGNAL CIRCUIT

DTC Logic

INFOID:0000000010244437

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
Rear display output signal diagnosis (Harness disconnection) [U111A]	Rear view camera image signal circuit open or short.	Check rear view camera image signal circuit.

Diagnosis Procedure

INFOID:0000000010244438

Regarding Wiring Diagram information, refer to [AV-262, "Wiring Diagram"](#).

WITHOUT DRIVER ASSISTANCE SYSTEM

1.CHECK REAR VIEW CAMERA POWER SUPPLY AND GROUND CIRCUIT CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit and rear view camera connectors.
3. Check continuity between around view monitor control unit connector M103 and rear view camera connector D504.

Around view monitor control unit		Rear view camera		Continuity
Connector	Terminals	Connector	Terminals	
M103	26	D504	2	Yes
	25		1	

4. Check continuity between around view monitor control unit connector M103 and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M103	26		No

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness or connectors.

2.CHECK REAR VIEW CAMERA POWER SUPPLY VOLTAGE

1. Connect around view monitor control unit and rear view camera connectors.
2. Turn ignition switch ON.
3. Check voltage between around view monitor control unit connector M103 and ground.

Around view monitor control unit		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
M103	26	—	CAMERA switch is ON or selector lever in R (reverse).	6.0 V

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace around view monitor control unit. Refer to [AV-387, "Removal and Installation"](#).

3.CHECK REAR VIEW CAMERA IMAGE SIGNAL AND IMAGE SIGNAL GROUND CIRCUIT CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit and rear view camera connectors.

U111A REAR CAMERA IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITH BOSE]

- Check continuity between around view monitor control unit connector M103 and rear view camera connector D504.

Around view monitor control unit		Rear view camera		Continuity
Connector	Terminals	Connector	Terminals	
M103	28	D504	4	Yes
	27		5	

- Check continuity between around view monitor control unit connector M103 and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M103	28		No

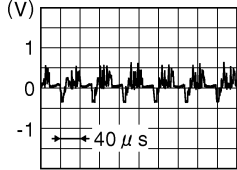
Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness or connectors.

4.CHECK REAR VIEW CAMERA IMAGE SIGNAL

- Connect around view monitor control unit and rear view camera connectors.
- Turn ignition switch ON.
- Check signal between the terminals of around view monitor control unit connector M103.

Around view monitor control unit connector M103		Condition	Reference value
(+)	(-)		
Terminal	Terminal		
28	27	CAMERA switch is ON or selector lever in R (reverse).	 JSNIA0834GB

Is the inspection result normal?

YES >> Replace around view monitor control unit. Refer to [AV-387, "Removal and Installation"](#).

NO >> Replace rear view camera. Refer to [AV-390, "Removal and Installation"](#).

WITH DRIVER ASSISTANCE SYSTEM

1.CHECK REAR VIEW CAMERA POWER SUPPLY AND GROUND CIRCUIT CONTINUITY

- Turn ignition switch OFF.
- Disconnect around view monitor control unit and rear view camera connectors.
- Check continuity between around view monitor control unit connector M114 and rear view camera connector D514.

Around view monitor control unit		Rear view camera		Continuity
Connector	Terminals	Connector	Terminals	
M114	50	D514	8	Yes
	52		7	

- Check continuity between around view monitor control unit connector M114 and ground.

U111A REAR CAMERA IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITH BOSE]

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M114	50		No

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness or connectors.

2.CHECK REAR VIEW CAMERA POWER SUPPLY VOLTAGE

1. Connect around view monitor control unit and rear view camera connectors.
2. Turn ignition switch ON.
3. Check voltage between around view monitor control unit connector M114 and ground.

Around view monitor control unit		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
M114	50	—	CAMERA switch is ON or selector lever in R (reverse).	6.0 V

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace around view monitor control unit. Refer to [AV-387, "Removal and Installation"](#).

3.CHECK REAR VIEW CAMERA IMAGE SIGNAL AND IMAGE SIGNAL GROUND CIRCUIT CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit and rear view camera connectors.
3. Check continuity between around view monitor control unit connector M114 and rear view camera connector D514.

Around view monitor control unit		Rear view camera		Continuity
Connector	Terminals	Connector	Terminals	
M114	53	D514	5	Yes
	54		1	

4. Check continuity between around view monitor control unit connector M114 and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M114	53		No

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness or connectors.

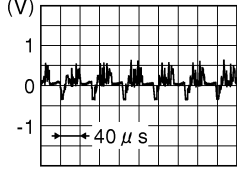
4.CHECK REAR VIEW CAMERA IMAGE SIGNAL

1. Connect around view monitor control unit and rear view camera connectors.
2. Turn ignition switch ON.
3. Check signal between the terminals of around view monitor control unit connector M114.

U111A REAR CAMERA IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITH BOSE]

Around view monitor control unit connector M114		Condition	Reference value
(+)	(-)		
Terminal	Terminal		
53	54	CAMERA switch is ON or selector lever in R (reverse).	 JSNIA0834GB

Is the inspection result normal?

- YES >> Replace around view monitor control unit. Refer to [AV-387, "Removal and Installation"](#).
 NO >> Replace rear view camera. Refer to [AV-390, "Removal and Installation"](#).

AV

U111B SIDE CAMERA RH IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITH BOSE]

U111B SIDE CAMERA RH IMAGE SIGNAL CIRCUIT

DTC Logic

INFOID:0000000010244439

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
Right side display output signal diagnosis (Harness disconnection) [U111B]	Right side camera image signal circuit open or short.	Check right side camera image signal circuit.

Diagnosis Procedure

INFOID:0000000010244440

Regarding Wiring Diagram information, refer to [AV-262, "Wiring Diagram"](#).

WITHOUT DRIVER ASSISTANCE SYSTEM

1.CHECK RH SIDE CAMERA POWER SUPPLY AND GROUND CIRCUIT CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit and RH side camera connectors.
3. Check continuity between around view monitor control unit connector M103 and RH side camera connector D107.

Around view monitor control unit		RH side camera		Continuity
Connector	Terminals	Connector	Terminals	
M103	34	D107	7	Yes
	33		8	

4. Check continuity between around view monitor control unit connector M103 and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M103	34		No

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness or connectors.

2.CHECK RH SIDE CAMERA POWER SUPPLY VOLTAGE

1. Connect around view monitor control unit and RH side camera connectors.
2. Turn ignition switch ON.
3. Check voltage between around view monitor control unit connector M103 and ground.

Around view monitor control unit		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
M103	34	—	CAMERA switch is ON or selector lever in R (reverse).	6.0 V

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace around view monitor control unit. Refer to [AV-387, "Removal and Installation"](#).

3.CHECK RH SIDE CAMERA IMAGE SIGNAL AND IMAGE SIGNAL GROUND CIRCUIT CONTINUITY

1. Turn ignition switch OFF.

U111B SIDE CAMERA RH IMAGE SIGNAL CIRCUIT

[NAVIGATION WITH BOSE]

< DTC/CIRCUIT DIAGNOSIS >

2. Disconnect around view monitor control unit and RH side camera connectors.
3. Check continuity between around view monitor control unit connector M103 and RH side camera connector D107.

Around view monitor control unit		RH side camera		Continuity
Connector	Terminals	Connector	Terminals	
M103	36	D107	16	Yes
	35		15	

4. Check continuity between around view monitor control unit connector M103 and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M103	36		No

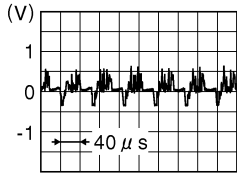
Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness or connectors.

4.CHECK RH SIDE CAMERA IMAGE SIGNAL

1. Connect around view monitor control unit and RH side camera connectors.
2. Turn ignition switch ON.
3. Check signal between the terminals of around view monitor control unit connector M103.

Around view monitor control unit connector M103		Condition	Reference value
(+)	(-)		
Terminal	Terminal		
36	35	CAMERA switch is ON or selector lever in R (reverse).	

Is the inspection result normal?

YES >> Replace around view monitor control unit. Refer to [AV-387, "Removal and Installation"](#).

NO >> Replace RH side camera. Refer to [AV-389, "Removal and Installation"](#).

WITH DRIVER ASSISTANCE SYSTEM

1.CHECK RH SIDE CAMERA POWER SUPPLY AND GROUND CIRCUIT CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit and RH side camera connectors.
3. Check continuity between around view monitor control unit connector M114 and RH side camera connector D107.

Around view monitor control unit		RH side camera		Continuity
Connector	Terminals	Connector	Terminals	
M114	62	D107	7	Yes
	64		8	

4. Check continuity between around view monitor control unit connector M114 and ground.

U111B SIDE CAMERA RH IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITH BOSE]

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M114	62		No

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness or connectors.

2.CHECK RH SIDE CAMERA POWER SUPPLY VOLTAGE

1. Connect around view monitor control unit and RH side camera connectors.
2. Turn ignition switch ON.
3. Check voltage between around view monitor control unit connector M114 and ground.

Around view monitor control unit		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
M114	62	—	CAMERA switch is ON or selector lever in R (reverse).	6.0 V

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace around view monitor control unit. Refer to [AV-387, "Removal and Installation"](#).

3.CHECK RH SIDE CAMERA IMAGE SIGNAL AND IMAGE SIGNAL GROUND CIRCUIT CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit and RH side camera connectors.
3. Check continuity between around view monitor control unit connector M114 and RH side camera connector D107.

Around view monitor control unit		RH side camera		Continuity
Connector	Terminals	Connector	Terminals	
M114	65	D107	16	Yes
	66		15	

4. Check continuity between around view monitor control unit connector M114 and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M114	65		No

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness or connectors.

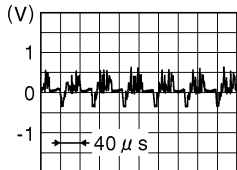
4.CHECK RH SIDE CAMERA IMAGE SIGNAL

1. Connect around view monitor control unit and RH side camera connectors.
2. Turn ignition switch ON.
3. Check signal between the terminals of around view monitor control unit connector M114.

U111B SIDE CAMERA RH IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITH BOSE]

Around view monitor control unit connector M114		Condition	Reference value
(+)	(-)		
Terminal	Terminal		
65	66	CAMERA switch is ON or selector lever in R (reverse).	 (V) 1 0 -1 40 μs JSNIA0834GB

Is the inspection result normal?

- YES >> Replace around view monitor control unit. Refer to [AV-387, "Removal and Installation"](#).
 NO >> Replace RH side camera. Refer to [AV-389, "Removal and Installation"](#).

U111C FRONT CAMERA IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITH BOSE]

U111C FRONT CAMERA IMAGE SIGNAL CIRCUIT

DTC Logic

INFOID:0000000010244441

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
Front display output signal diagnosis (Harness disconnection) [U111C]	Front camera image signal circuit open or short.	Check front camera image signal circuit.

Diagnosis Procedure

INFOID:0000000010244442

Regarding Wiring Diagram information, refer to [AV-262, "Wiring Diagram"](#).

WITHOUT DRIVER ASSISTANCE SYSTEM

1.CHECK FRONT CAMERA POWER SUPPLY AND GROUND CIRCUIT CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit and front camera connectors.
3. Check continuity between around view monitor control unit connector M103 and front camera connector E226.

Around view monitor control unit		Front camera		Continuity
Connector	Terminals	Connector	Terminals	
M103	38	E226	2	Yes
	37		1	

4. Check continuity between around view monitor control unit connector M103 and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M103	38		No

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness or connectors.

2.CHECK FRONT CAMERA POWER SUPPLY VOLTAGE

1. Connect around view monitor control unit and front camera connectors.
2. Turn ignition switch ON.
3. Check voltage between around view monitor control unit connector M103 and ground.

Around view monitor control unit		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
M103	38	—	CAMERA switch is ON or selector lever in R (reverse).	6.0 V

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace around view monitor control unit. Refer to [AV-387, "Removal and Installation"](#).

3.CHECK FRONT CAMERA IMAGE SIGNAL AND IMAGE SIGNAL GROUND CIRCUIT CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit and front camera connectors.

U111C FRONT CAMERA IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITH BOSE]

- Check continuity between around view monitor control unit connector M103 and front camera connector E226.

Around view monitor control unit		Front camera		Continuity
Connector	Terminals	Connector	Terminals	
M103	40	E226	4	Yes
	39		5	

- Check continuity between around view monitor control unit connector M103 and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M103	40		No

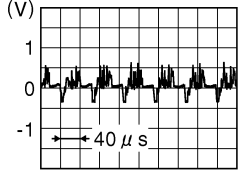
Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness or connectors.

4.CHECK FRONT CAMERA IMAGE SIGNAL

- Connect around view monitor control unit and front camera connectors.
- Turn ignition switch ON.
- Check signal between the terminals of around view monitor control unit connector M103.

Around view monitor control unit connector M103		Condition	Reference value
(+)	(-)		
Terminal	Terminal		
40	39	CAMERA switch is ON or selector lever in R (reverse).	 JSNIA0834GB

Is the inspection result normal?

YES >> Replace around view monitor control unit. Refer to [AV-387, "Removal and Installation"](#).

NO >> Replace front camera. Refer to [AV-388, "Removal and Installation"](#).

WITH DRIVER ASSISTANCE SYSTEM

1.CHECK FRONT CAMERA POWER SUPPLY AND GROUND CIRCUIT CONTINUITY

- Turn ignition switch OFF.
- Disconnect around view monitor control unit and front camera connectors.
- Check continuity between around view monitor control unit connector M114 and front camera connector E226.

Around view monitor control unit		Front camera		Continuity
Connector	Terminals	Connector	Terminals	
M114	68	E226	2	Yes
	70		1	

- Check continuity between around view monitor control unit connector M114 and ground.

U111C FRONT CAMERA IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITH BOSE]

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M114	68		No

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness or connectors.

2.CHECK FRONT CAMERA POWER SUPPLY VOLTAGE

1. Connect around view monitor control unit and front camera connectors.
2. Turn ignition switch ON.
3. Check voltage between around view monitor control unit connector M114 and ground.

Around view monitor control unit		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
M114	68	—	CAMERA switch is ON or selector lever in R (reverse).	6.0 V

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace around view monitor control unit. Refer to [AV-387, "Removal and Installation"](#).

3.CHECK FRONT CAMERA IMAGE SIGNAL AND IMAGE SIGNAL GROUND CIRCUIT CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit and front camera connectors.
3. Check continuity between around view monitor control unit connector M114 and front camera connector E226.

Around view monitor control unit		Front camera		Continuity
Connector	Terminals	Connector	Terminals	
M114	71	E226	4	Yes
	72		5	

4. Check continuity between around view monitor control unit connector M114 and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M114	71		No

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness or connectors.

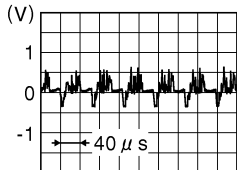
4.CHECK FRONT CAMERA IMAGE SIGNAL

1. Connect around view monitor control unit and front camera connectors.
2. Turn ignition switch ON.
3. Check signal between the terminals of around view monitor control unit connector M114.

U111C FRONT CAMERA IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITH BOSE]

Around view monitor control unit connector M114		Condition	Reference value
(+)	(-)		
Terminal	Terminal		
71	72	CAMERA switch is ON or selector lever in R (reverse).	(V)  40 μs JSNIA0834GB

Is the inspection result normal?

- YES >> Replace around view monitor control unit. Refer to [AV-387, "Removal and Installation"](#).
- NO >> Replace front camera. Refer to [AV-388, "Removal and Installation"](#).

AV

P

U111D SIDE CAMERA LH IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITH BOSE]

U111D SIDE CAMERA LH IMAGE SIGNAL CIRCUIT

DTC Logic

INFOID:0000000010244443

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
Left side display output signal diagnosis (Harness disconnection) [U111D]	Left side camera image signal circuit open or short.	Check left side camera image signal circuit.

Diagnosis Procedure

INFOID:0000000010244444

Regarding Wiring Diagram information, refer to [AV-262, "Wiring Diagram"](#).

WITHOUT DRIVER ASSISTANCE SYSTEM

1.CHECK LH SIDE CAMERA POWER SUPPLY AND GROUND CIRCUIT CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit and LH side camera connectors.
3. Check continuity between around view monitor control unit connector M103 and LH side camera connector D14.

Around view monitor control unit		LH side camera		Continuity
Connector	Terminals	Connector	Terminals	
M103	30	D14	7	Yes
	29		8	

4. Check continuity between around view monitor control unit connector M103 and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M103	30		No

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness or connectors.

2.CHECK LH SIDE CAMERA POWER SUPPLY VOLTAGE

1. Connect around view monitor control unit and LH side camera connectors.
2. Turn ignition switch ON.
3. Check voltage between around view monitor control unit connector M103 and ground.

Around view monitor control unit		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
M103	30	—	CAMERA switch is ON or selector lever in R (reverse).	6.0 V

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace around view monitor control unit. Refer to [AV-387, "Removal and Installation"](#).

3.CHECK LH SIDE CAMERA IMAGE SIGNAL AND IMAGE SIGNAL GROUND CIRCUIT CONTINUITY

1. Turn ignition switch OFF.

U111D SIDE CAMERA LH IMAGE SIGNAL CIRCUIT

[NAVIGATION WITH BOSE]

< DTC/CIRCUIT DIAGNOSIS >

2. Disconnect around view monitor control unit and LH side camera connectors.
3. Check continuity between around view monitor control unit connector M103 and LH side camera connector D14.

Around view monitor control unit		LH side camera		Continuity
Connector	Terminals	Connector	Terminals	
M103	32	D14	16	Yes
	31		15	

4. Check continuity between around view monitor control unit connector M103 and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M103	32		No

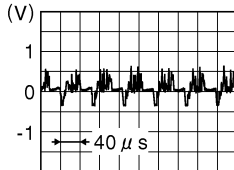
Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness or connectors.

4.CHECK LH SIDE CAMERA IMAGE SIGNAL

1. Connect around view monitor control unit and LH side camera connectors.
2. Turn ignition switch ON.
3. Check signal between the terminals of around view monitor control unit connector M103.

Around view monitor control unit connector M103		Condition	Reference value
(+)	(-)		
Terminal	Terminal		
32	31	CAMERA switch is ON or selector lever in R (reverse).	 JSNIA0834GB

Is the inspection result normal?

YES >> Replace around view monitor control unit. Refer to [AV-387, "Removal and Installation"](#).

NO >> Replace LH side camera. Refer to [AV-389, "Removal and Installation"](#).

WITH DRIVER ASSISTANCE SYSTEM

1.CHECK LH SIDE CAMERA POWER SUPPLY AND GROUND CIRCUIT CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit and LH side camera connectors.
3. Check continuity between around view monitor control unit connector M114 and LH side camera connector D14.

Around view monitor control unit		LH side camera		Continuity
Connector	Terminals	Connector	Terminals	
M114	56	D14	7	Yes
	58		8	

4. Check continuity between around view monitor control unit connector M114 and ground.

U111D SIDE CAMERA LH IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITH BOSE]

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M114	56		No

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness or connectors.

2.CHECK LH SIDE CAMERA POWER SUPPLY VOLTAGE

1. Connect around view monitor control unit and LH side camera connectors.
2. Turn ignition switch ON.
3. Check voltage between around view monitor control unit connector M114 and ground.

Around view monitor control unit		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
M114	56	—	CAMERA switch is ON or selector lever in R (reverse).	6.0 V

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace around view monitor control unit. Refer to [AV-387, "Removal and Installation"](#).

3.CHECK LH SIDE CAMERA IMAGE SIGNAL AND IMAGE SIGNAL GROUND CIRCUIT CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit and LH side camera connectors.
3. Check continuity between around view monitor control unit connector M114 and LH side camera connector D14.

Around view monitor control unit		LH side camera		Continuity
Connector	Terminals	Connector	Terminals	
M114	59	D14	16	Yes
	60		15	

4. Check continuity between around view monitor control unit connector M114 and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M114	59		No

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness or connectors.

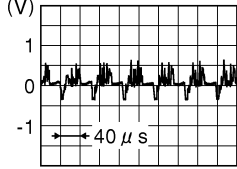
4.CHECK LH SIDE CAMERA IMAGE SIGNAL

1. Connect around view monitor control unit and LH side camera connectors.
2. Turn ignition switch ON.
3. Check signal between the terminals of around view monitor control unit connector M114.

U111D SIDE CAMERA LH IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITH BOSE]

Around view monitor control unit connector M114		Condition	Reference value
(+)	(-)		
Terminal	Terminal		
59	60	CAMERA switch is ON or selector lever in R (reverse).	 JSNIA0834GB

Is the inspection result normal?

- YES >> Replace around view monitor control unit. Refer to [AV-387, "Removal and Installation"](#).
 NO >> Replace LH side camera. Refer to [AV-389, "Removal and Installation"](#).

U1217 AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITH BOSE]

U1217 AV CONTROL UNIT

DTC Logic

INFOID:0000000010244446

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
BLUETOOTH MODULE [U1217]	Connection failure to the internal Bluetooth [®] sub unit is detected.	Replace AV control unit if malfunction occurs constantly. Refer to AV-376, "Removal and Installation" .

U1229 AV CONTROL UNIT

DTC Logic

INFOID:000000010244447

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
iPod CERTIFICATION [U1229]	iPod authentication chip error.	Replace AV control unit if malfunction occurs constantly. Refer to AV-376, "Removal and Installation" .

A
B
C
D
E
F
G
H
I
J
K
L
M
O
P

AV

U122F AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITH BOSE]

U122F AV CONTROL UNIT

DTC Logic

INFOID:0000000010244448

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
Digital broadcasting connection error [U122F]	Communication error with digital audio broadcast module internal to AV control unit.	Replace AV control unit if malfunction occurs constantly. Refer to AV-376, "Removal and Installation" .

U1232 STEERING ANGLE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITH BOSE]

U1232 STEERING ANGLE SENSOR

DTC Logic

INFOID:0000000010244449

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
ST ANG SEN CALIB [U1232]	Predictive course line center position adjustment of steering angle sensor is incomplete.	Adjust predictive course line center position ad- justment of steering angle sensor.

Diagnosis Procedure

INFOID:0000000010244450

1. ADJUST PREDICTIVE COURSE LINE CENTER POSITION ADJUSTMENT OF STEERING ANGLE SENSOR

When U1232 is detected, the predictive course line center position of steering angle sensor needs to be adjusted.

>> Adjust the predictive course line center position of steering angle sensor. Refer to [AV-291, "PREDICTED COURSE LINE CENTER POSITION ADJUSTMENT : Work Procedure"](#).

A
B
C
D
E
F
G
H
I
J
K
L
M
O
P

AV

U1244 GPS ANTENNA

DTC Logic

INFOID:0000000010244451

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
GPS ANTENNA CONN [U1244]	Open or short to ground is detected in GPS antenna connection.	- GPS antenna disconnection. - Open or short to ground in GPS antenna signal circuit.

Diagnosis Procedure

INFOID:0000000010244452

Regarding Wiring Diagram information, refer to [AV-262, "Wiring Diagram"](#).

1. GPS ANTENNA INSPECTION

Visually inspect the GPS antenna and antenna feeder. Refer to [AV-391, "Removal and Installation"](#).

Is inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace malfunctioning components.

2. CHECK AV CONTROL UNIT VOLTAGE

1. Disconnect AV control unit connector M141.
2. Turn ignition switch ON.
3. Check voltage between AV control unit connector M141 and ground.

AV control unit		Ground	Voltage
Connector	Terminal		
M141	54	—	5.0 V

Is inspection result normal?

YES >> Replace GPS antenna. Refer to [AV-391, "Removal and Installation"](#).

NO >> Replace AV control unit. Refer to [AV-376, "Removal and Installation"](#).

U1258 SATELLITE RADIO ANTENNA

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITH BOSE]

U1258 SATELLITE RADIO ANTENNA

DTC Logic

INFOID:0000000010244453

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
SXM ANTENNA CONN [U1258]	Open or short to ground is detected in satellite antenna connection.	- Satellite antenna disconnection. - Open or short to ground in satellite antenna signal circuit.

Diagnosis Procedure

INFOID:0000000010244454

Regarding Wiring Diagram information, refer to [AV-262, "Wiring Diagram"](#).

1. SATELLITE ANTENNA INSPECTION

Visually inspect the satellite antenna and antenna feeder. Refer to [AV-393, "Feeder Layout"](#).

Is inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace malfunctioning components.

2. CHECK AV CONTROL UNIT VOLTAGE

- Turn ignition switch ON.
- Check voltage between AV control unit connector M142 and ground.

AV control unit		Ground	Voltage
Connector	Terminal		
M142	56	—	5.0 V

Is inspection result normal?

YES >> Replace satellite radio antenna [AV-392, "Removal and Installation"](#).

NO >> Replace AV control unit. Refer to [AV-376, "Removal and Installation"](#).

AV

U1263 USB

DTC Logic

INFOID:0000000010244455

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
USB OVERCURRENT [U1263]	Overcurrent in USB harness is detected.	- Device connected to USB interface. - Harness between the AV control unit and USB interface.

DTC CONFIRMATION PROCEDURE

1.PERFORM SELF DIAGNOSTIC RESULT

1. If there is a device connected to the USB interface, disconnect it.
2. Turn ignition switch ON and wait for 2 seconds or more.
3. Perform "Self Diagnostic Result" for "MULTI AV".

Is DTC U1263 displayed?

- YES >> Refer to [AV-322, "Diagnosis Procedure"](#).
 NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010244456

1.CHECK USB INTERFACE HARNESS

Visually inspect USB interface harness. Refer to [AV-385, "Removal and Installation"](#).

Is the inspection result normal?

- YES >> GO TO 2.
 NO >> Replace USB interface harness. Refer to [AV-385, "Removal and Installation"](#).

2.CHECK USB INTERFACE HARNESS

Check USB interface harness. Refer to [AV-359, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> Replace AV control unit. Refer to [AV-376, "Removal and Installation"](#).
 NO >> Replace USB interface harness. Refer to [AV-385, "Removal and Installation"](#).

U1265 BOSE AMP.

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITH BOSE]

U1265 BOSE AMP.

DTC Logic

INFOID:0000000010244485

CONSULT Display	DTC Detection Condition	Possible Cause
AMP ON TERMINAL [U1265]	Open or short to ground is detected in BOSE amp. ON signal circuit.	Open or short to ground in BOSE amp. ON signal circuit.

Diagnosis Procedure

INFOID:0000000010244486

Regarding Wiring Diagram information, refer to [AV-262, "Wiring Diagram"](#).

1.CHECK CONTINUITY BETWEEN AV CONTROL UNIT AND BOSE SPEAKER AMP.

1. Turn ignition switch OFF.
2. Disconnect AV control unit connector M108 and Bose speaker amp. connector B138.
3. Check continuity between AV control unit connector M108 and Bose speaker amp. connector B138.

AV control unit		Bose speaker amp.		Continuity
Connector	Terminal	Connector	Terminal	
M108	1	B138	31	Yes

4. Check continuity between AV control unit connector M108 and ground.

AV control unit		Ground	Continuity
Connector	Terminal		
M108	1	—	No

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness or connectors.

2.CHECK AV CONTROL UNIT VOLTAGE

1. Connect AV control unit connector M108.
2. Turn ignition switch ON.
3. Check voltage between AV control unit connector M108 and ground.

AV control unit		Ground	Voltage (Approx.)
(+)		(-)	
Connector	Terminal		
M108	1	—	Battery voltage

Is the inspection result normal?

YES >> Replace Bose speaker amp. Refer to [AV-379, "Removal and Installation"](#).

NO >> Replace AV control unit. Refer to [AV-376, "Removal and Installation"](#).

U12AA CONFIGURATION ERROR

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITH BOSE]

U12AA CONFIGURATION ERROR

DTC Logic

INFOID:0000000010244459

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
Configuration Error [U12AA]	AV control unit is not properly configured or configuration is corrupt.	Configuration data needs to be written. Refer to AV-289, "CONFIGURATION (AV CONTROL UNIT) : Work Procedure" .

Diagnosis Procedure

INFOID:0000000010244460

1.PERFORM CONFIGURATION

When U12AA is detected, configuration data must be written.

>> Write configuration data with CONSULT. Refer to [AV-289, "CONFIGURATION \(AV CONTROL UNIT\) : Work Procedure"](#).

U12AB ANTENNA

DTC Logic

INFOID:000000010244457

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
FM Antenna error [U12AB]	Open or short to ground is detected in AM-FM antenna connection.	- AM-FM antenna disconnection. - Open or short to ground in AM-FM antenna signal circuit.

Diagnosis Procedure

INFOID:000000010244458

Regarding Wiring Diagram information, refer to [AV-262, "Wiring Diagram"](#).

1. AM-FM ANTENNA INSPECTION

Visually inspect the antenna base (AM-FM antenna) and antenna feeder. Refer to [AV-393, "Feeder Layout"](#).

Is inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace malfunctioning components.

2. CHECK CONTINUITY BETWEEN AV CONTROL UNIT AND ANTENNA BASE

- Turn ignition switch OFF.
- Disconnect AV control unit connector M139 and antenna base connector M502.
- Check continuity between AV control unit connector M139 and antenna base connector M502.

AV control unit		Antenna base		Continuity
Connector	Terminal	Connector	Terminal	
M139	52	M502	2	Yes

- Check continuity between AV control unit connector M139 and ground.

AV control unit		Ground	Continuity
Connector	Terminal		
M139	52	—	No

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

3. CHECK AV CONTROL UNIT VOLTAGE

- Connect AV control unit connector M139.
- Turn ignition switch ON.
- Check voltage between AV control unit connector M139 and ground.

AV control unit		Ground	Voltage (Approx.)
Connector	Terminal		
M139	52	—	Battery voltage

Is the inspection result normal?

YES >> Replace antenna base. Refer to [AV-392, "Removal and Installation"](#).

NO >> Replace AV control unit. Refer to [AV-376, "Removal and Installation"](#).

U12AC AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITH BOSE]

U12AC AV CONTROL UNIT

DTC Logic

INFOID:0000000010244461

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
Display Temperature too High [U12AC]	Display temperature has exceeded maximum temperature. Display is switched OFF to avoid irreversible damage.	Replace AV control unit if malfunction occurs constantly. Refer to AV-376, "Removal and Installation" .

U12AD AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITH BOSE]

U12AD AV CONTROL UNIT

DTC Logic

INFOID:0000000010244462

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
ECU Temperature too High [U12AD]	AV control unit temperature has exceeded maximum temperature.	Replace AV control unit if malfunction occurs constantly. Refer to AV-376, "Removal and Installation" .

A

B

C

D

E

F

G

H

I

J

K

L

M

AV

O

P

U12AE AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITH BOSE]

U12AE AV CONTROL UNIT

DTC Logic

INFOID:0000000010244463

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
Internal Amplifier temperature Warning [U12AE]	Internal amplifier temperature has exceeded maximum temperature.	Replace AV control unit if malfunction occurs constantly. Refer to AV-376, "Removal and Installation" .

U12AF AV CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITH BOSE]

U12AF AV CONTROL UNIT

DTC Logic

INFOID:0000000010244464

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
CD Mechanism Temperature Warning [U12AF]	CD drive temperature has exceeded maximum temperature. CD drive is switched OFF to avoid irreversible damage.	Replace AV control unit if malfunction occurs constantly. Refer to AV-376, "Removal and Installation" .

A

B

C

D

E

F

G

H

I

J

K

L

M

AV

O

P

U12B0 POWER SUPPLY VOLTAGE

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITH BOSE]

U12B0 POWER SUPPLY VOLTAGE

DTC Logic

INFOID:0000000010244465

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
Supply Voltage Goes below 9V > 20s [U12B0]	AV control unit supply voltage exceeds lower limits.	• Charging system malfunction. • AV control unit power supply or ground circuits.

Diagnosis Procedure

INFOID:0000000010244466

1.CHECK CHARGING SYSTEM

Check the vehicle charging system. Refer to [CHG-11, "Work Flow \(With EXP-800 NI or GR8-1200 NI\)"](#) or [CHG-14, "Work Flow \(Without EXP-800 NI or GR8-1200 NI\)"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning components.

2.CHECK AV CONTROL UNIT POWER SUPPLY AND GROUND CIRCUITS

Perform the AV control unit power supply and ground circuit diagnosis procedure. Refer to [AV-337, "AV CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> Replace the AV control unit. Refer to [AV-376, "Removal and Installation"](#).

NO >> Repair or replace harness or connectors.

U12B1 POWER SUPPLY VOLTAGE

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITH BOSE]

U12B1 POWER SUPPLY VOLTAGE

DTC Logic

INFOID:0000000010244467

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
Supply Voltage Goes High > 16V for 20s [U12B1]	AV control unit supply voltage exceeds upper limits.	Charging system malfunction.

Diagnosis Procedure

INFOID:0000000010244468

1.CHECK CHARGING SYSTEM

Check the vehicle charging system. Refer to [CHG-11, "Work Flow \(With EXP-800 NI or GR8-1200 NI\)"](#) or [CHG-14, "Work Flow \(Without EXP-800 NI or GR8-1200 NI\)"](#).

Is the inspection result normal?

- YES >> Replace the AV control unit. Refer to [AV-376, "Removal and Installation"](#).
NO >> Repair or replace the malfunctioning components.

A
B
C
D
E
F
G
H
I
J
K
L
M
O
P

AV

U1300 AV COMM CIRCUIT

DTC Logic

INFOID:0000000010365336

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
AV COMM CIRCUIT [U1300]	AV communication circuit malfunction (MCAN) between AV control unit and combination meter.	AV communication circuits between AV control unit and combination meter.

Diagnosis Procedure

INFOID:0000000010365337

1.PERFORM SELF DIAGNOSTIC RESULT FOR METER M&A

1. Turn ignition switch ON and wait for 2 seconds or more.
2. Perform "Self Diagnostic Result" for "METER M&A".

Are any DTCs displayed?

- YES >> Refer to [MWI-30, "DTC Index"](#).
- NO >> GO TO 2.

2.CHECK AV COMMUNICATION CIRCUIT (MCAN L) CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect AV control unit connector M109 and combination meter connector M77.
3. Check continuity between AV control unit connector M109 and combination meter connector M77.

AV control unit		Combination meter		Continuity
Connector	Terminal	Connector	Terminal	
M109	32	M77	48	Yes
	39			

4. Check continuity between AV control unit connector M109 and ground.

AV control unit		Ground	Continuity
Connector	Terminal		
M109	32	—	No
	39		

Is the inspection result normal?

- YES >> GO TO 3.
- NO >> Repair or replace harness or connectors.

3.CHECK AV COMMUNICATION CIRCUIT (MCAN H) CONTINUITY

1. Check continuity between AV control unit connector M109 and combination meter connector M77.

AV control unit		Combination meter		Continuity
Connector	Terminal	Connector	Terminal	
M109	31	M77	47	Yes
	38			

2. Check continuity between AV control unit connector M109 and ground.

AV control unit		Ground	Continuity
Connector	Terminal		
M109	31	—	No
	38		

U1300 AV COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITH BOSE]

Is the inspection result normal?

- YES >> Replace the AV control unit. Refer to [AV-376, "Removal and Installation"](#).
- NO >> Repair or replace harness or connectors.

A
B
C
D
E
F
G
H
I
J
K
L
M
O
P

AV

U1304 CAMERA IMAGE CALIBRATION

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITH BOSE]

U1304 CAMERA IMAGE CALIBRATION

DTC Logic

INFOID:0000000010244469

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
Non-completion of the calibration [U1304]	Camera image calibration is incomplete.	Perform calibration of camera image.

Diagnosis Procedure

INFOID:0000000010244470

1.PERFORM CALIBRATION

When U1304 is detected, perform calibration of camera image.

>> Refer to [AV-292, "CALIBRATING CAMERA IMAGE \(AROUND VIEW MONITOR\) : Work Procedure"](#).

U1305 CONFIG UNFINISH

DTC Logic

INFOID:0000000010244471

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
Non-completion of the configuration [U1305]	Configuration of around view monitor control unit is incomplete.	Perform configuration of around view monitor control unit.

Diagnosis Procedure

INFOID:0000000010244472

1.PERFORM CONFIGURATION

When U1305 is detected, perform configuration of around view monitor control unit.

>> Refer to [AV-290, "CONFIGURATION \(AROUND VIEW MONITOR CONTROL UNIT\) : Work Procedure"](#).

A
B
C
D
E
F
G
H
I
J
K
L
M
AV
O
P

U1310 CONTROL UNIT (AV)

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITH BOSE]

U1310 CONTROL UNIT (AV)

DTC Logic

INFOID:0000000010244488

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
CONTROL UNIT (AV) [U1310]	Error during CAN controller hardware initialization (MCAN).	Replace AV control unit if malfunction occurs constantly. Refer to AV-376, "Removal and Installation" .

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITH BOSE]

POWER SUPPLY AND GROUND CIRCUIT

AV CONTROL UNIT

AV CONTROL UNIT : Diagnosis Procedure

INFOID:000000010244473

Regarding Wiring Diagram information, refer to [AV-262, "Wiring Diagram"](#).

1.CHECK FUSE

Check that the following fuses are not blown.

Terminal No.	Signal name	Fuse No.
19	Battery power supply	15 (20A)
40	Ignition power supply	30 (10A)

Are the fuses blown?

YES >> Replace the blown fuse after repairing the affected circuit.

NO >> GO TO 2.

2.CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect AV control unit connectors M108 and M109.
3. Check voltage between AV control unit connectors M108 and M109 and ground.

AV control unit		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
M108	19	—	Ignition switch: OFF	Battery voltage
M109	40		Ignition switch: ON	

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

3.CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check continuity between AV control unit connector M108 and ground.

AV control unit		Ground	Continuity
Connector	Terminal		
M108	20	—	Yes

Is the inspection result normal?

YES >> Inspection End.

NO >> Repair or replace harness or connectors.

BOSE SPEAKER AMP

BOSE SPEAKER AMP : Diagnosis Procedure

INFOID:000000010271304

Regarding Wiring Diagram information, refer to [AV-262, "Wiring Diagram"](#).

1.CHECK FUSE

Check that the following fuses are not blown.

A
B
C
D
E
F
G
H
I
J
K
L
M
AV
O
P

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITH BOSE]

Terminal No.	Signal name	Fuse No.
11	Battery power supply	11 (20A)

Are the fuses blown?

YES >> Replace the blown fuse after repairing the affected circuit.

NO >> GO TO 2.

2.CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect Bose speaker amp. connector B137.
3. Check voltage between Bose speaker amp. connector B137 and ground.

Bose speaker amp.		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
B137	11	—	Ignition switch: OFF	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

3.CHECK GROUND CIRCUIT

Check continuity between Bose speaker amp. connector B137 and ground.

Bose speaker amp.		Ground	Continuity
Connector	Terminal		
B137	12	—	Yes

Is the inspection result normal?

YES >> Inspection End.

NO >> Repair or replace harness or connectors.

AROUND VIEW MONITOR CONTROL UNIT

AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure

INFOID:0000000010244474

Regarding Wiring Diagram information, refer to [AV-262, "Wiring Diagram"](#).

WITHOUT DRIVER ASSISTANCE SYSTEM

1.CHECK FUSE

Check that the following fuses are not blown.

Terminal No.	Signal name	Fuse No.
2	Battery power supply	15 (20A)

Are the fuses blown?

YES >> Replace the blown fuse after repairing the affected circuit.

NO >> GO TO 2.

2.CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit connector M103.
3. Check voltage between around view monitor control unit connector M103 and ground.

Around view monitor control unit		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
M103	2	—	Ignition switch: OFF	Battery voltage

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITH BOSE]

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

3.CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check continuity between around view monitor control unit connector M103 and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M103	1	—	Yes

Is the inspection result normal?

YES >> Inspection End.

NO >> Repair or replace harness or connectors.

WITH DRIVER ASSISTANCE SYSTEM

1.CHECK FUSE

Check that the following fuses are not blown.

Terminal No.	Signal name	Fuse No.
2	Battery power supply	15 (20A)

Are the fuses blown?

YES >> Replace the blown fuse after repairing the affected circuit.

NO >> GO TO 2.

2.CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit connector M113.
3. Check voltage between around view monitor control unit connector M113 and ground.

Around view monitor control unit		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
M113	2	—	Ignition switch: OFF	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

3.CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check continuity between around view monitor control unit connector M113 and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M113	1	—	Yes

Is the inspection result normal?

YES >> Inspection End.

NO >> Repair or replace harness or connectors.

FRONT TWEETER

Diagnosis Procedure

INFOID:0000000010244489

Regarding Wiring Diagram information, refer to [AV-262, "Wiring Diagram"](#).

1.CONNECTOR CHECK

Check the AV control unit, Bose speaker amp. and speaker connectors for the following:

- Proper connection
- Damage
- Disconnected or loose terminals

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminals or connectors.

2.CHECK FRONT TWEETER SIGNAL CIRCUIT CONTINUITY (BOSE SPEAKER AMP.)

1. Disconnect Bose speaker amp. connectors and suspect front tweeter connector.
2. Check continuity between Bose speaker amp. connectors and suspect front tweeter connector.

Bose speaker amp.		Front tweeter		Continuity
Connector	Terminal	Connector	Terminal	
B137	6	M80 (LH)	1	Yes
	7		2	
B138	37	M23 (RH)	1	
	27		2	

3. Check continuity between Bose speaker amp. connectors and ground.

Bose speaker amp.		Ground	Continuity
Connector	Terminal		
B137	6	—	No
	7		
B138	37		
	27		

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

3.CHECK FRONT TWEETER SIGNAL (BOSE SPEAKER AMP.)

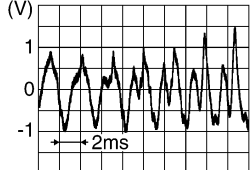
1. Connect Bose speaker amp. connectors and suspect front tweeter connector.
2. Turn ignition switch to ON.
3. Push AV control unit POWER switch.
4. Check signal between the terminals of Bose speaker amp. connectors.

Bose speaker amp.			Condition	Reference value
Connector	(+)	(-)		
	Terminal	Terminal		

FRONT TWEETER

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITH BOSE]

B137	6	7	Audio signal output	
B138	37	27		

Is the inspection result normal?

YES >> Replace front tweeter. Refer to [AV-380. "Removal and Installation"](#).

NO >> GO TO 4.

4.CHECK FRONT TWEETER SIGNAL CIRCUIT CONTINUITY (AV CONTROL UNIT)

1. Turn ignition switch to OFF.
2. Disconnect Bose speaker amp. connector B138 and AV control unit connector M108.
3. Check continuity between Bose speaker amp. connector B138 and AV control unit connector M108.

Bose speaker amp.		AV control unit		Continuity
Connector	Terminal	Connector	Terminal	
B138	18	M108	2	Yes
	32		3	
	19		11	
	20		12	

4. Check continuity between Bose speaker amp. connector B138 and ground.

Bose speaker amp.		Ground	Continuity
Connector	Terminal		
B138	18	—	No
	32		
	19		
	20		

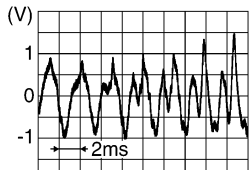
Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace harness or connectors.

5.CHECK FRONT TWEETER SIGNAL (AV CONTROL UNIT)

1. Connect Bose speaker amp. connector B138 and AV control unit connector M108.
2. Turn ignition switch to ON.
3. Push AV control unit POWER switch.
4. Check signal between AV control unit connector M108 and ground.

AV control unit connector M108		Condition	Reference value
(+)	(-)		
Terminal	Terminal		
2	3	Audio signal output	
11	12		

Is the inspection result normal?

FRONT TWEETER

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITH BOSE]

-
- YES >> Replace Bose speaker amp. Refer to [AV-379, "Removal and Installation"](#).
NO >> Replace AV control unit. Refer to [AV-376, "Removal and Installation"](#).

CENTER SPEAKER

Diagnosis Procedure

INFOID:000000010244495

Regarding Wiring Diagram information, refer to [AV-262. "Wiring Diagram"](#).

1.CONNECTOR CHECK

Check the AV control unit, Bose speaker amp. and speaker connectors for the following:

- Proper connection
- Damage
- Disconnected or loose terminals

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminals or connectors.

2.CHECK CENTER SPEAKER SIGNAL CIRCUIT CONTINUITY (BOSE SPEAKER AMP.)

1. Disconnect Bose speaker amp. connector B138 and center speaker connector M70.
2. Check continuity between Bose speaker amp. connector B138 and center speaker connector M70.

Bose speaker amp.		Center speaker		Continuity
Connector	Terminal	Connector	Terminal	
B138	15	M70	1	Yes
	28		2	

3. Check continuity between Bose speaker amp. connector B138 and ground.

Bose speaker amp.		Ground	Continuity
Connector	Terminal		
B138	15	—	No
	28		

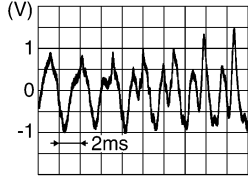
Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

3.CHECK CENTER SPEAKER SIGNAL (BOSE SPEAKER AMP.)

1. Connect Bose speaker amp. connector B138 and center speaker connector M70.
2. Turn ignition switch to ON.
3. Push AV control unit POWER switch.
4. Check signal between Bose speaker amp. connector B138 and ground.

Bose speaker amp. connector B138		Condition	Reference value
(+)	(-)		
Terminal	Terminal		
15	28	Audio signal output	 SKIB3609E

Is the inspection result normal?

CENTER SPEAKER

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITH BOSE]

- YES >> Replace center speaker. Refer to [AV-382. "Removal and Installation"](#).
 NO >> GO TO 4.

4.CHECK CENTER SPEAKER SIGNAL CIRCUIT CONTINUITY (AV CONTROL UNIT)

- Turn ignition switch to OFF.
- Disconnect Bose speaker amp. connector B138 and AV control unit connector M108.
- Check continuity between Bose speaker amp. connector B138 and AV control unit connector M108.

Bose speaker amp.		AV control unit		Continuity
Connector	Terminal	Connector	Terminal	
B138	18	M108	2	Yes
	32		3	
	19		11	
	20		12	

- Check continuity between Bose speaker amp. connector B138 and ground.

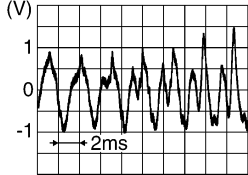
Bose speaker amp.		Ground	Continuity
Connector	Terminal		
B138	18	—	No
	32		
	19		
	20		

Is the inspection result normal?

- YES >> GO TO 5.
 NO >> Repair or replace harness or connectors.

5.CHECK CENTER SPEAKER SIGNAL (AV CONTROL UNIT)

- Connect Bose speaker amp. connector B138 and AV control unit connector M108.
- Turn ignition switch to ON.
- Push AV control unit POWER switch.
- Check signal between AV control unit connector M108 and ground.

AV control unit connector M108		Condition	Reference value
(+)	(-)		
Terminal	Terminal		
2	3	Audio signal output	
11	12		

Is the inspection result normal?

- YES >> Replace Bose speaker amp. Refer to [AV-379. "Removal and Installation"](#).
 NO >> Replace AV control unit. Refer to [AV-376. "Removal and Installation"](#).

FRONT DOOR SPEAKER

Diagnosis Procedure

INFOID:000000010244475

Regarding Wiring Diagram information, refer to [AV-262. "Wiring Diagram"](#).

1.CONNECTOR CHECK

Check the AV control unit, Bose speaker amp. and speaker connectors for the following:

- Proper connection
- Damage
- Disconnected or loose terminals

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminals or connectors.

2.CHECK FRONT DOOR SPEAKER SIGNAL CIRCUIT CONTINUITY (BOSE SPEAKER AMP.)

1. Disconnect Bose speaker amp. connectors and suspect front door speaker connector.
2. Check continuity between Bose speaker amp. connectors and suspect front door speaker connector.

Bose speaker amp.		Front door speaker		Continuity
Connector	Terminal	Connector	Terminal	
B137	4	D9 (LH)	1	Yes
	5		2	
	8	D114 (RH)	1	
	13		2	

3. Check continuity between Bose speaker amp. connectors and ground.

Bose speaker amp.		Ground	Continuity
Connector	Terminal		
B137	4	—	No
	5		
	8		
	13		

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

3.CHECK FRONT DOOR SPEAKER SIGNAL (BOSE SPEAKER AMP.)

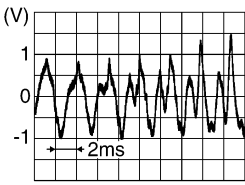
1. Connect Bose speaker amp. connectors and suspect front door speaker connector.
2. Turn ignition switch to ON.
3. Push AV control unit POWER switch.
4. Check signal between the terminals of Bose speaker amp. connectors.

Bose speaker amp. connector B137		Condition	Reference value
(+)	(-)		
Terminal	Terminal		

FRONT DOOR SPEAKER

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITH BOSE]

4	5	Audio signal output	
8	13		

SKIB3609E

Is the inspection result normal?

YES >> Replace front door speaker. Refer to [AV-381, "Removal and Installation"](#).

NO >> GO TO 4.

4. CHECK FRONT DOOR SPEAKER SIGNAL CIRCUIT CONTINUITY (AV CONTROL UNIT)

1. Turn ignition switch to OFF.
2. Disconnect Bose speaker amp. connector B138 and AV control unit connector M108.
3. Check continuity between Bose speaker amp. connector B138 and AV control unit connector M108.

Bose speaker amp.		AV control unit		Continuity
Connector	Terminal	Connector	Terminal	
B138	18	M108	2	Yes
	32		3	
	19		11	
	20		12	

4. Check continuity between Bose speaker amp. connector B138 and ground.

Bose speaker amp.		Ground	Continuity
Connector	Terminal		
B138	18	—	No
	32		
	19		
	20		

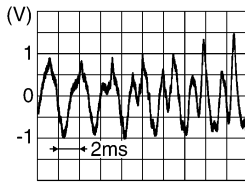
Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace harness or connectors.

5. CHECK FRONT DOOR SPEAKER SIGNAL (AV CONTROL UNIT)

1. Connect Bose speaker amp. connector B138 and AV control unit connector M108.
2. Turn ignition switch to ON.
3. Push AV control unit POWER switch.
4. Check signal between AV control unit connector M108 and ground.

AV control unit connector M108		Condition	Reference value
(+)	(-)		
Terminal	Terminal		
2	3	Audio signal output	
11	12		

SKIB3609E

Is the inspection result normal?

FRONT DOOR SPEAKER

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITH BOSE]

YES >> Replace Bose speaker amp. Refer to [AV-379, "Removal and Installation"](#).
NO >> Replace AV control unit. Refer to [AV-376, "Removal and Installation"](#).

A

B

C

D

E

F

G

H

I

J

K

L

M

AV

O

P

REAR DOOR SPEAKER

Diagnosis Procedure

INFOID:000000010244476

Regarding Wiring Diagram information, refer to [AV-262. "Wiring Diagram"](#).

1.CONNECTOR CHECK

Check the AV control unit, Bose speaker amp. and speaker connectors for the following:

- Proper connection
- Damage
- Disconnected or loose terminals

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminals or connectors.

2.CHECK REAR DOOR SPEAKER SIGNAL CIRCUIT CONTINUITY (BOSE SPEAKER AMP.)

1. Disconnect Bose speaker amp. connectors and suspect rear door speaker connector.
2. Check continuity between Bose speaker amp. connectors and suspect rear door speaker connector.

Bose speaker amp.		Rear door speaker		Continuity
Connector	Terminal	Connector	Terminal	
B137	1	D203 (LH)	1	Yes
	10		2	
	2	D303 (RH)	1	
	3		2	

3. Check continuity between Bose speaker amp. connectors and ground.

Bose speaker amp.		Ground	Continuity
Connector	Terminal		
B137	1	—	No
	10		
	2		
	3		

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

3.CHECK REAR DOOR SPEAKER SIGNAL (BOSE SPEAKER AMP.)

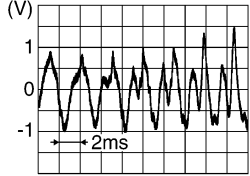
1. Connect Bose speaker amp. connectors and suspect rear door speaker connector.
2. Turn ignition switch to ON.
3. Push AV control unit POWER switch.
4. Check signal between the terminals of Bose speaker amp. connectors.

Bose speaker amp. connector B137		Condition	Reference value
(+)	(-)		
Terminal	Terminal		

REAR DOOR SPEAKER

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITH BOSE]

1	10	Audio signal output	 SKIB3609E
2	3		

Is the inspection result normal?

- YES >> Replace rear door speaker. Refer to [AV-383. "Removal and Installation"](#).
 NO >> GO TO 4.

4.CHECK REAR DOOR SPEAKER SIGNAL CIRCUIT CONTINUITY (AV CONTROL UNIT)

- Turn ignition switch to OFF.
- Disconnect Bose speaker amp. connector B138 and AV control unit connector M108.
- Check continuity between Bose speaker amp. connector B138 and AV control unit connector M108.

Bose speaker amp.		AV control unit		Continuity
Connector	Terminal	Connector	Terminal	
B138	21	M108	4	Yes
	22		5	
	23		13	
	33		14	

- Check continuity between Bose speaker amp. connector B138 and ground.

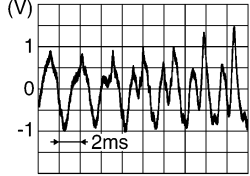
Bose speaker amp.		Ground	Continuity
Connector	Terminal		
B138	21	—	No
	22		
	23		
	33		

Is the inspection result normal?

- YES >> GO TO 5.
 NO >> Repair or replace harness or connectors.

5.CHECK REAR DOOR SPEAKER SIGNAL (AV CONTROL UNIT)

- Connect Bose speaker amp. connector B138 and AV control unit connector M108.
- Turn ignition switch to ON.
- Push AV control unit POWER switch.
- Check signal between AV control unit connector M108 and ground.

AV control unit connector M108		Condition	Reference value
(+)	(-)		
Terminal	Terminal	Audio signal output	 SKIB3609E
4	5		
13	14		

Is the inspection result normal?

REAR DOOR SPEAKER

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITH BOSE]

-
- YES >> Replace Bose speaker amp. Refer to [AV-379, "Removal and Installation"](#).
NO >> Replace AV control unit. Refer to [AV-376, "Removal and Installation"](#).

SUBWOOFER

Diagnosis Procedure

INFOID:000000010244490

Regarding Wiring Diagram information, refer to [AV-262, "Wiring Diagram"](#).

1.CONNECTOR CHECK

Check the AV control unit, BOSE speaker amp. and subwoofer connectors for the following:

- Proper connection
- Damage
- Disconnected or loose terminals

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK SUBWOOFER AMP ON CIRCUIT CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect Bose speaker amp. connector B138 and subwoofer connector.
3. Check continuity between Bose speaker amp. connector B138 and subwoofer connector B116.

Bose speaker amp.		Subwoofer		Continuity
Connector	Terminal	Connector	Terminal	
B138	25	B116	4	Yes

4. Check continuity between Bose speaker amp. connector B138 and ground.

Bose speaker amp.		Ground	Continuity
Connector	Terminal		
B138	25	—	No

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

3.CHECK SUBWOOFER AMP ON CIRCUIT VOLTAGE

1. Connect Bose speaker amp. connector B138.
2. Turn ignition switch ON.
3. Check voltage between Bose speaker amp. connector B138 and ground.

Bose speaker amp.		Ground	Voltage (Approx.)
(+)		(−)	
Connector	Terminal		
B138	25	—	Battery voltage

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace Bose speaker amp. Refer to [AV-379, "Removal and Installation"](#).

4.CHECK SUBWOOFER SIGNAL CIRCUIT CONTINUITY

1. Disconnect BOSE speaker amp. connector B137 and subwoofer connector.
2. Check continuity between BOSE speaker amp. connector B137 and subwoofer connector.

SUBWOOFER

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITH BOSE]

BOSE speaker amp.		Subwoofer		Continuity
Connector	Terminal	Connector	Terminal	
B137	9	B116	2	Yes
	14		1	

3. Check continuity between BOSE speaker amp. connector B137 and ground.

BOSE speaker amp.		Ground	Continuity
Connector	Terminal		
B137	9	—	No
	14		

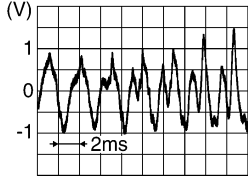
Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace harness or connectors.

5.CHECK SUBWOOFER SIGNAL

1. Connect BOSE speaker amp. connector B137 and subwoofer connector.
2. Turn ignition switch to ON.
3. Push AV control unit POWER switch.
4. Check the signal between the terminals of BOSE speaker amp. connector B137.

BOSE speaker amp. connector B137		Condition	Reference value
(+)	(-)		
Terminal	Terminal		
9	14	Audio signal output	 SKIB3609E

Is the inspection result normal?

YES >> Replace subwoofer. Refer to [AV-384, "Removal and Installation"](#).

NO >> GO TO 6.

6.CHECK PRE-AMP SIGNAL CIRCUIT CONTINUITY

1. Disconnect AV control unit connector M108 and BOSE speaker amp. connector B138.
2. Check continuity between AV control unit connector M108 and BOSE speaker amp. connector B138.

AV control unit		BOSE speaker amp.		Continuity
Connector	Terminal	Connector	Terminal	
M108	4	B138	21	Yes
	5		22	
	13		23	
	14		33	

3. Check continuity between AV control unit connector M108 and ground.

SUBWOOFER

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITH BOSE]

AV control unit		Ground	Continuity
Connector	Terminal		
M108	4	—	No
	5		
	13		
	14		

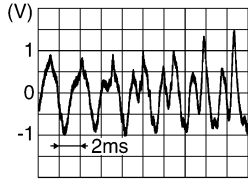
Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace harness or connectors.

7. CHECK PRE-AMP SIGNAL

1. Connect AV control unit connector M108 and BOSE speaker amp. connector B138.
2. Turn ignition switch to ON.
3. Push AV control unit POWER switch.
4. Check signal between the terminals of AV control unit connector M108.

AV control unit connector M108		Condition	Reference value
(+)	(-)		
Terminal	Terminal		
4	5	Audio signal output	
13	14		

Is the inspection result normal?

YES >> Replace BOSE speaker amp. Refer to [AV-379, "Removal and Installation"](#).

NO >> Replace AV control unit. Refer to [AV-376, "Removal and Installation"](#).

AV

AMP ON SIGNAL CIRCUIT

Diagnosis Procedure

INFOID:000000010244491

Regarding Wiring Diagram information, refer to [AV-262, "Wiring Diagram"](#).

1. CHECK CONTINUITY BETWEEN AV CONTROL UNIT AND BOSE SPEAKER AMP.

1. Turn ignition switch OFF.
2. Disconnect AV control unit connector M108 and Bose speaker amp. connector B138.
3. Check continuity between audio unit connector M108 and Bose speaker amp. connector B138

AV control unit		Bose speaker amp.		Continuity
Connector	Terminal	Connector	Terminal	
M108	1	B138	31	Yes

4. Check continuity between AV control unit connector M108 and ground.

AV control unit		Ground	Continuity
Connector	Terminal		
M108	1	—	No

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness or connectors.

2. CHECK AV CONTROL UNIT VOLTAGE

1. Connect AV control unit connector M108.
2. Turn ignition switch ON.
3. Check voltage between AV control unit connector M108 and ground.

AV control unit		Ground	Voltage (Approx.)
(+) (V)		(–)	
Connector	Terminal		
M108	1	—	Battery voltage

Is the inspection result normal?

YES >> Replace Bose speaker amp. Refer to [AV-379, "Removal and Installation"](#).

NO >> Replace AV control unit. Refer to [AV-376, "Removal and Installation"](#).

MICROPHONE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITH BOSE]

MICROPHONE SIGNAL CIRCUIT

Diagnosis Procedure

INFOID:000000010244477

Regarding Wiring Diagram information, refer to [AV-262. "Wiring Diagram"](#).

1.CHECK HARNESS BETWEEN AV CONTROL UNIT AND MICROPHONE

1. Turn ignition switch OFF.
2. Disconnect AV control unit connector M109 and microphone connector R8.
3. Check continuity between AV control unit connector M109 and microphone connector R8.

AV control unit		Microphone		Continuity
Connector	Terminal	Connector	Terminal	
M109	34	R8	1	Yes
	35		4	
	36		2	

4. Check continuity between AV control unit connector M109 and ground.

AV control unit		Ground	Continuity
Connector	Terminal		
M109	34	—	No
	35		

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connectors.

2.CHECK MICROPHONE POWER SUPPLY

1. Connect AV control unit connector M109 and microphone connector R8.
2. Turn ignition switch ON.
3. Check voltage between microphone connector R8 and ground.

Microphone		Ground	Voltage (Approx.)
(+) (V)		(-)	
Connector	Terminal		
R8	4	—	5V

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace AV control unit. Refer to [AV-376. "Removal and Installation"](#).

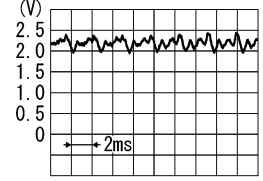
3.CHECK MICROPHONE SIGNAL

Check signal between terminals of AV control unit connector M109.

MICROPHONE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITH BOSE]

AV control unit connector M109		Condition	Reference value
(+)	(-)		
Terminal	Terminal		
34	36	Speak into microphone.	 PKIB5037J

Is the inspection result normal?

- YES >> Replace AV control unit. Refer to [AV-376. "Removal and Installation"](#).
 NO >> Replace microphone. Refer to [AV-386. "Removal and Installation"](#).

STEERING SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[NAVIGATION WITH BOSE]

STEERING SWITCH

Diagnosis Procedure

INFOID:000000010244478

Regarding Wiring Diagram information, refer to [AV-262. "Wiring Diagram"](#).

1. CHECK STEERING WHEEL AUDIO CONTROL SWITCH RESISTANCE

1. Turn ignition switch OFF.
2. Disconnect combination switch connector M90.
3. Check resistance between the terminals of combination switch connector M90.

Combination switch connector M90		Condition	Resistance Ω (Approx.)
Terminal	Terminal		
25	19	Depress SOURCE switch.	1
		Depress Δ switch.	121
		Depress ∇ switch.	321
		Depress ⤵↙ switch.	723
		Depress ENTER switch.	2023
18		Depress − 🔊 switch.	1
		Depress 🔊+ switch.	121
		Depress 🔌 switch.	321
		Depress ↶ switch.	723
		Depress DISPLAY switch.	2023

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace steering switches. Refer to [AV-378. "Removal and Installation"](#).

2. CHECK HARNESS BETWEEN COMBINATION METER AND COMBINATION SWITCH

1. Disconnect combination meter connector M76 and combination switch connector M30.
2. Check continuity between combination meter connector M76 and combination switch connector M30.

Combination meter		Combination switch		Continuity
Connector	Terminal	Connector	Terminal	
M76	22	M30	8	Yes
	23		15	
	21		14	

3. Check continuity between combination meter connector M76 and ground.

Combination meter		Ground	Continuity
Connector	Terminal		
M76	22	—	No
	23		
	21		

Is the inspection result normal?

STEERING SWITCH

[NAVIGATION WITH BOSE]

< DTC/CIRCUIT DIAGNOSIS >

- YES >> GO TO 3.
NO >> Repair or replace harness or connectors.

3.CHECK COMBINATION SWITCH

Check continuity between combination switch connectors M90 and M30.

Combination switch				Continuity
Connector	Terminal	Connector	Terminal	
M90	25	M30	8	Yes
	18		15	
	19		14	

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Replace spiral cable. Refer to [SR-15. "Removal and Installation"](#).

4.CHECK HARNESS BETWEEN COMBINATION METER AND AV CONTROL UNIT

1. Disconnect combination meter connector M77 and AV control unit connector M109.
2. Check continuity between combination meter connector M77 and AV control unit connector M109.

Combination meter		AV control unit		Continuity
Connector	Terminal	Connector	Terminal	
M77	47	M109	31	Yes
	48		32	

3. Check continuity between combination meter connector M77 and ground.

Combination meter		Ground	Continuity
Connector	Terminal		
M77	47	—	No
	48		

Is the inspection result normal?

- YES >> Replace AV control unit. Refer to [AV-376. "Removal and Installation"](#).
NO >> Repair or replace harness or connectors.

USB CONNECTOR

Diagnosis Procedure

INFOID:0000000010244479

Regarding Wiring Diagram information, refer to [AV-262, "Wiring Diagram"](#).

1. CHECK USB INTERFACE HARNESS CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect AV control unit connector M138 and USB interface connector M89.
3. Check continuity between AV control unit connector M138 and USB interface connector M89.

AV control unit		USB interface		Continuity
Connector	Terminal	Connector	Terminal	
M138	45	M89	1	Yes
	46		2	
	47		3	
	49		5	
	50		6	

4. Check continuity between AV control unit connector M138 and ground.

AV control unit		—	Continuity
Connector	Terminal		
M138	45	Ground	No
	47		

Is the inspection result normal?

- YES >> Replace the USB interface. Refer to [AV-385, "Removal and Installation"](#).
 NO >> Repair or replace harness or connectors.

AUXILIARY INPUT JACK

Diagnosis Procedure

INFOID:000000010244480

Regarding Wiring Diagram information, refer to [AV-262, "Wiring Diagram"](#).

1. CHECK AUX IN JACK HARNESS CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect AV control unit connector M109 and AUX in jack connector M104.
3. Check continuity between AV control unit connector M109 and AUX in jack connector M104.

AV control unit		AUX in jack		Continuity
Connector	Terminal	Connector	Terminal	
M109	21	M104	4	Yes
	22		3	
	23		1	

4. Check continuity between AV control unit connector M109 and ground.

AV control unit		—	Continuity
Connector	Terminal		
M109	21	Ground	No
	23		

Is the inspection result normal?

- YES >> Replace the AUX in jack. Refer to [AV-385, "Removal and Installation"](#).
- NO >> Repair or replace harness or connectors.

SYMPTOM DIAGNOSIS

MULTI AV SYSTEM

Symptom Table

INFOID:0000000010244481

RELATED TO AUDIO

Symptoms	Check items	Probable malfunction location
The disk cannot be removed.	AV control unit	Malfunction in AV control unit. Refer to AV-242. "On Board Diagnosis Function" .

A

B

C

D

E

F

G

H

I

J

K

L

M

AV

O

P

MULTI AV SYSTEM

< SYMPTOM DIAGNOSIS >

[NAVIGATION WITH BOSE]

Symptoms	Check items	Probable malfunction location
No sound comes out or the level of the sound is low.	No sound from all speakers.	• Speaker circuit shorted to ground. Refer to AV-262, "Wiring Diagram". • Bose amp. ON signal circuit malfunction. Refer to AV-323, "Diagnosis Procedure". • Bose speaker amp. power supply and ground circuits malfunction. Refer to AV-337, "BOSE SPEAKER AMP : Diagnosis Procedure".
	Only a certain speaker (front tweeter LH, front tweeter RH, center speaker, front door speaker LH, front door speaker RH, rear door speaker LH, rear door speaker RH, subwoofer) does not output sound.	• Poor connector connection of speaker. • Sound signal circuit malfunction between AV control unit and Bose speaker amp. Refer to: - AV-340, "Diagnosis Procedure" (front tweeter). - AV-343, "Diagnosis Procedure" (center speaker). - AV-345, "Diagnosis Procedure" (front door speaker). - AV-348, "Diagnosis Procedure" (rear door speaker). - AV-351, "Diagnosis Procedure" (sub-woofer). • Sound signal circuit malfunction between Bose speaker amp. and speaker. Refer to: - AV-340, "Diagnosis Procedure" (front tweeter). - AV-343, "Diagnosis Procedure" (center speaker). - AV-345, "Diagnosis Procedure" (front door speaker). - AV-348, "Diagnosis Procedure" (rear door speaker). - AV-351, "Diagnosis Procedure" (sub-woofer). • Malfunction in speaker. Refer to: - AV-380, "Removal and Installation" (front tweeter). - AV-382, "Removal and Installation" (center speaker). - AV-381, "Removal and Installation" (front door speaker). - AV-383, "Removal and Installation" (rear door speaker). - AV-384, "Removal and Installation" (sub-woofer). • Malfunction in AV control unit. Refer to AV-242, "On Board Diagnosis Function". • Malfunction in Bose speaker amp. Replace Bose speaker amp. Refer to AV-379, "Removal and Installation".

MULTI AV SYSTEM

< SYMPTOM DIAGNOSIS >

[NAVIGATION WITH BOSE]

Symptoms	Check items	Probable malfunction location	
Noise is mixed with audio.	Noise comes out from all speakers.	• Malfunction in AV control unit. Refer to AV-242. "On Board Diagnosis Function". • Malfunction in Bose speaker amp. Replace Bose speaker amp. Refer to AV-379. "Removal and Installation".	A B
	Noise comes out only from a certain speaker (front tweeter LH, front tweeter RH, center speaker, front door speaker LH, front door speaker RH, rear door speaker LH, rear door speaker RH, subwoofer).	• Poor connector connection of speaker. • Sound signal circuit malfunction between AV control unit and Bose speaker amp. Refer to: - AV-340. "Diagnosis Procedure" (front tweeter). - AV-343. "Diagnosis Procedure" (center speaker). - AV-345. "Diagnosis Procedure" (front door speaker). - AV-348. "Diagnosis Procedure" (rear door speaker). - AV-351. "Diagnosis Procedure" (subwoofer). • Sound signal circuit malfunction between Bose speaker amp. and speaker. Refer to: - AV-340. "Diagnosis Procedure" (front tweeter). - AV-343. "Diagnosis Procedure" (center speaker). - AV-345. "Diagnosis Procedure" (front door speaker). - AV-348. "Diagnosis Procedure" (rear door speaker). - AV-351. "Diagnosis Procedure" (subwoofer). • Malfunction in speaker. Refer to: - AV-380. "Removal and Installation" (front tweeter). - AV-382. "Removal and Installation" (center speaker). - AV-381. "Removal and Installation" (front door speaker). - AV-383. "Removal and Installation" (rear door speaker). - AV-384. "Removal and Installation" (subwoofer). • Malfunction in AV control unit. Refer to AV-242. "On Board Diagnosis Function". • Malfunction in Bose speaker amp. Replace Bose speaker amp. Refer to AV-379. "Removal and Installation".	C D E F G H I J K L M
	Noise is mixed with radio only (when the vehicle hits a bump or while driving over bad roads)	• Poor connector connection of antenna or antenna feeder. Refer to AV-393. "Feeder Layout".	O
No radio reception or poor reception.	• Other audio sounds are normal. • Any radio station cannot be received or poor reception is caused even after moving to a service area with good reception (e.g. a place with clear view and no obstacles generating external noises).	• Antenna amp. ON signal circuit malfunction. Refer to AV-325. "Diagnosis Procedure". • Poor connector connection of antenna or antenna feeder. Refer to AV-393. "Feeder Layout".	P

AV

MULTI AV SYSTEM

< SYMPTOM DIAGNOSIS >

[NAVIGATION WITH BOSE]

Symptoms	Check items	Probable malfunction location
No satellite radio reception.	There is malfunction in the CONSULT self diagnosis result. Refer to AV-243. "CONSULT Function" .	- Malfunction in antenna, antenna feeder or AV control unit. Perform DTC diagnosis. - Refer to AV-321. "Diagnosis Procedure". - Poor continuity in antenna feeder. - Poor connector connection of antenna or antenna feeder. - Refer to AV-393. "Feeder Layout".
	There is no malfunction in the CONSULT self diagnosis result. Refer to AV-243. "CONSULT Function" .	- Poor continuity in antenna feeder. - Poor connector connection of antenna or antenna feeder. - Loose satellite radio antenna mounting nut. - Refer to AV-393. "Feeder Layout".
Buzz/rattle sound from speaker	The majority of buzz/rattle sounds are not indicative of an issue with the speaker, usually something nearby the speaker is causing the buzz/rattle.	Refer to "SQUEAK AND RATTLE TROUBLE DIAGNOSIS" in the appropriate interior trim section.

RELATED TO HANDS-FREE PHONE

- Before performing diagnosis, confirm that the cellular phone being used by the customer is compatible with the vehicle.
- It is possible that a malfunction is occurring due to a version change of the phone even though the phone is a compatible type. This can be confirmed by changing the cellular phone to another compatible type, and check that it operates normally. It is important to determine whether the cause of the malfunction is the vehicle or the cellular phone.

Check Compatibility

- Make sure the customer's Bluetooth® related concern is understood.
- Verify the customer's concern.
NOTE:
The customer's phone may be required, depending upon their concern.
- Write down the customer's phone brand, model and service provider.
NOTE:
It is necessary to know the service provider. On occasion, a given phone may be on the approved list with one provider, but may not be on the approved list with other providers.
- Go to "www.nissanusa.com/bluetooth/".
 - Using the website's search engine, find out if the customer's phone is on the approved list.
 - If the customer's phone is NOT on the approved list:
Stop diagnosis here. The customer needs to obtain a Bluetooth® phone that is on the approved list before any further action.
 - If the feature related to the customer's concern shows as "N" (not compatible):
Stop diagnosis here. If the customer still wants the feature to function, they will need to get an approved phone showing the feature as "Y" (compatible) in the "Basic Features".
 - If the feature related to the customer's concern shows as "Y" (compatible):
Perform diagnosis as per the following table.

MULTI AV SYSTEM

< SYMPTOM DIAGNOSIS >

[NAVIGATION WITH BOSE]

Symptoms	Check items	Probable malfunction location
Does not recognize cellular phone connection (no connection is displayed on the display at the guide).	Repeat the registration of cellular phone.	Malfunction in AV control unit. Replace AV control unit. Refer to AV-376, "Removal and Installation" .
Hands-free phone cannot be established.	- Hands-free phone operation can be made, but the communication cannot be established. - Hands-free phone operation can be performed, however, voice between each other cannot be heard during the conversation.	
The other party's voice cannot be heard by hands-free phone.	Check the "microphone speaker" in Inspection & Adjustment Mode if sound is heard.	
Originating sound is not heard by the other party with hands-free phone communication.	Sound operation function is normal.	
The system cannot be operated.	Sound operation function does not work.	Microphone signal circuit malfunction. Refer to AV-355, "Diagnosis Procedure" .
	- The voice recognition can be controlled. - Steering switch's , , and  switch works, but  does not work.	Steering switch malfunction. Replace steering switch. Refer to AV-378, "Removal and Installation" .
	Steering switch's  ,  ,  , and  switches do not work.	Steering switch signal circuit malfunction. Refer to AV-357, "Diagnosis Procedure" .
	All steering switches do not work.	Steering switch ground circuit malfunction. Refer to AV-357, "Diagnosis Procedure" .

RELATED TO NAVIGATION

Symptoms	Check items	Probable malfunction location
Navigation system is inoperative.	Navigation malfunction.	- Malfunction in SD card. - Malfunction in AV control unit. Refer to AV-242, "On Board Diagnosis Function".
	Steering switches malfunction.	Steering switch signal circuit malfunction. Refer to AV-357, "Diagnosis Procedure" .
	Voice activated control malfunction.	Microphone signal circuit malfunction. Refer to AV-355, "Diagnosis Procedure" . Steering switch signal circuit malfunction. Refer to AV-357, "Diagnosis Procedure" .

RELATED TO AROUND VIEW MONITOR

Symptoms	Check items	Probable malfunction location
Display does not switch to camera image when CAMERA switch is pressed or selector lever is in R (reverse).	Around view monitor control unit malfunction.	Around view monitor control unit power supply and ground circuits malfunction. Refer to AV-338, "AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure" .
	Camera image signal circuit (output) malfunction.	Camera image signal circuit (output) malfunction between around view monitor control unit and display unit. Refer to AV-255, "WITHOUT DRIVER ASSISTANCE SYSTEM : Reference Value" .
Display switches to camera image when CAMERA switch is pressed or selector lever is in R (reverse), but all views are not displayed.	Camera image signal circuit (input) malfunction.	Camera image signal circuit (input) malfunction between camera and around view monitor control unit. Refer to: AV-308, "Diagnosis Procedure" (front camera). AV-300, "Diagnosis Procedure" (rear camera). AV-312, "Diagnosis Procedure" (side camera LH). AV-304, "Diagnosis Procedure" (side camera RH).

MULTI AV SYSTEM

< SYMPTOM DIAGNOSIS >

[NAVIGATION WITH BOSE]

Symptoms	Check items	Probable malfunction location
Camera image is rolling.	Camera image signal circuit (output) malfunction.	Camera image signal circuit (output) malfunction between around view monitor control unit and display unit. Refer to AV-255, "WITHOUT DRIVER ASSISTANCE SYSTEM : Reference Value" .
Display does not switch to rear view monitor even when selector lever is in R (reverse).	Reverse signal circuit malfunction.	Reverse signal circuit between BCM and around view monitor control unit. Refer to AV-255, "WITHOUT DRIVER ASSISTANCE SYSTEM : Reference Value" .
Predicted course line display in front view and rear view is malfunctioning.	Steering angle sensor malfunction.	Predicted course line center position is malfunctioning. Refer to AV-291, "PREDICTED COURSE LINE CENTER POSITION ADJUSTMENT : Work Procedure" .
Front view and front of birds-eye view is not displayed.	- Front camera malfunction. - Front camera image signal circuit malfunction.	- Front camera power supply and ground circuits malfunction. - Front camera image signal circuit malfunction between front camera and around view monitor control unit. Refer to AV-308, "Diagnosis Procedure" .
Rear view and rear of birds-eye view is not displayed.	- Rear view camera malfunction. - Rear view camera image signal circuit malfunction.	- Rear view camera power supply and ground circuits malfunction. - Rear view camera image signal circuit malfunction between rear view camera and around view monitor control unit. Refer to AV-300, "Diagnosis Procedure" .
Driver side of birds-eye view is not displayed.	- Side camera LH malfunction. - Side camera LH image signal circuit malfunction.	- Side camera LH power supply and ground circuits malfunction. - Side camera LH image signal circuit malfunction between side camera LH and around view monitor control unit. Refer to AV-312, "Diagnosis Procedure" .
Front-side and passenger side of birds-eye view is not displayed.	- Side camera RH malfunction. - Side camera RH image signal circuit malfunction.	- Side camera RH power supply and ground circuits malfunction. - Side camera RH image signal circuit malfunction between side camera RH and around view monitor control unit. Refer to AV-304, "Diagnosis Procedure" .
Selector lever is in a position other than R (reverse) and front, rear, front-side and Birds-Eye views are displayed even as vehicle speed increases.	Vehicle speed signal malfunction.	Vehicle speed signal malfunction between ABS actuator and electric unit (control unit) and around view monitor control unit. Refer to AV-255, "WITHOUT DRIVER ASSISTANCE SYSTEM : Reference Value" .

NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

[NAVIGATION WITH BOSE]

NORMAL OPERATING CONDITION

Description

INFOID:000000010244482

RELATED TO NOISE

The majority of the audio concerns are the result of outside causes (bad CD, electromagnetic interference, etc.).

The following noise results from variations in field strength, such as fading noise and multi-path noise, or external noise from trains and other sources. It is not a malfunction.

- Fading noise: This noise occurs because of variations in the field strength in a narrow range due to mountains or buildings blocking the signal.
- Multi-path noise: This noise results from the waves sent directly from the broadcast station arriving at the antenna at a different time from the waves which reflect off mountains or buildings.

The vehicle itself can be a source of noise if noise prevention parts or electrical equipment is malfunctioning. Check if noise is caused and/or changed by engine speed, ignition switch turned to each position, and operation of each piece of electrical equipment, and determine the cause.

NOTE:

The source of the noise can be found easily by listening to the noise while removing the fuses of electrical components, one by one.

Type of Noise and Possible Cause

Occurrence condition		Possible cause
Occurs only when engine is ON.	A continuous growling noise occurs. The speed of the noise varies with changes in the engine speed.	• Ignition components
The occurrence of the noise is linked with the operation of the fuel pump.		• Fuel pump condenser
Noise only occurs when various electrical components are operating.	A cracking or snapping sound occurs with the operation of various switches.	• Relay malfunction, AV control unit malfunction
	The noise occurs when various motors are operating.	• Motor case ground • Motor
The noise occurs constantly, not just under certain conditions.		• Rear defogger coil malfunction • Open circuit in printed heater • Poor ground of antenna feeder line
A cracking or snapping sound occurs while the vehicle is being driven, especially when it is vibrating excessively.		• Ground wire of body parts • Ground due to improper part installation • Wiring connections or a short circuit

RELATED TO HANDS-FREE PHONE

Symptom	Cause and Counter measure
Does not recognize cellular phone connection (No connection is displayed on the display at the guide).	Some Bluetooth® enabled cellular phones may not be recognized by the in-vehicle phone module. Refer to "RELATED TO HANDS-FREE PHONE (Check Compatibility)" in AV-361, "Symptom Table" .
Cannot use hands-free phone.	Customer will not be able to use a hands-free phone under the following conditions: • The vehicle is outside of the telephone service area. • The vehicle is in an area where it is difficult to receive radio waves; such as in a tunnel, in an underground parking garage, near a tall building or in a mountainous area. • The cellular phone is locked to prevent it from being dialed. NOTE: While a cellular phone is connected through the Bluetooth® wireless connection, the battery power of the cellular phone may discharge quicker than usual. The Bluetooth® Hands-Free Phone System cannot charge cellular phones.

NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

[NAVIGATION WITH BOSE]

Symptom	Cause and Counter measure
The other party's voice cannot be heard by hands-free phone.	When the radio wave condition is not ideal or ambient sound is too loud, it may be difficult to hear the other person's voice during a call.
Poor sound quality.	Do not place the cellular phone in an area surrounded by metal or far away from the in-vehicle phone module to prevent tone quality degradation and wireless connection disruption.

RELATED TO NAVIGATION

Basic Operation

Symptom	Cause	Remedy
No image is shown.	Display brightness adjustment is set fully to DARK side.	Adjust the display brightness.
No guide sound is heard. Audio guide volume is too low or too high.	Volume control is set to OFF, MIN or MAX. Audio guidance is not available while the vehicle is driving on a dark pink route.	Adjust the audio guide volume. System is not malfunctioning.
Screen is too dark. Motion of the image is too slow.	Temperature inside the vehicle is low.	Wait until the temperature inside the vehicle reaches the proper temperature.
Small black or bright spots appear on the screen.	Symptom peculiar to a liquid crystal display (display unit).	System is not malfunction.

Vehicle Mark

Symptom	Cause	Remedy
Map screen and BIRDVIEW™ Name of the place vary with the screen.	Some thinning of the character data is done to prevent the display becoming to complex. In some cases and in some locations, the display contents may differ. The same place name, street name, etc. may not be displayed every time on account of the data processing.	System is not malfunctioning.
Vehicle mark is not positioned correctly.	Vehicle is transferred by ferry or by towing after its ignition switch is turned to OFF.	Drive the vehicle for a while in the GPS satellite signal receiving condition.
Screen will not switch to nighttime mode after the lighting switch is turned ON.	The daytime screen is selected by the "SWITCH SCREENS" when the last time the screen dimming setting is done. Switching between daytime/nighttime screen may be inhibited by the automatic illumination adjustment function.	Perform screen dimming and select the nighttime screen by "SWITCH SCREENS".
Map screen will not scroll in accordance with the vehicle travel.	Current location is not displayed.	Press "MAP" button to display the current location.
Vehicle mark will not be shown.	Current location is not displayed.	Press "MAP" button to display the current location.
Accuracy indicator (GPS satellite mark) on the map screen stays gray.	GPS satellite signal is intercepted because the vehicle is in or behind a building.	Move the vehicle out to an open space.
	GPS satellite signal cannot be received because an obstacle is placed on top of the instrument panel.	Do not place anything on top of the meter display (instrument panel).
	GPS satellites are not visible from current location.	Wait until GPS satellites are visible by moving the vehicle.

NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

[NAVIGATION WITH BOSE]

Symptom	Cause	Remedy
Vehicle location accuracy is low.	Accuracy indicator (GPS satellite mark) on the map screen stays gray.	Current location is not determined.
	Vehicle speed setting by the vehicle speed pulse has been deviated (advanced or retarded) from the actual vehicle speed because tire chain is fitted or the system has been used on another vehicle.	Drive the vehicle for a while [for approx. 30 minutes at approx. 30 km/h (19 MPH)] and the deviation will be automatically adjusted. If advancement or retard still occur, perform the distance adjustment by CONFIRMATION/ADJUSTMENT mode of diagnosis function.
	Map data has error or omission. (Vehicle mark is always deviated to the same position.)	As a rule, an updated map DVD-ROM will be released once a year.

Destination, Passing Points and Menu Items Cannot be Selected/Set

Symptom	Cause	Remedy
Destination cannot be set.	Destination to be set is on an expressway.	Set the destination on an ordinary road.
Passing point is not searched when re-searching the route.	The vehicle has already passed the passing point, or the system judged so.	To include the passing points that have been passed into the route again, set the route again.
Route information will not be displayed.	Route searching has not been done.	Set the destination and perform route searching.
	Vehicle mark is not on the recommended route.	Drive on the recommended route.
	Route guide is turned OFF.	Turn route guide ON.
	Route information is not available on the dark pink route.	System is not malfunctioning.
After the route searching, no guide sign will appear as the vehicle goes near the entrance/exit to the toll road.	Vehicle mark is not on the recommended route. (On the display, only guide signs related to the recommended route will be shown.)	Drive on the recommended route.
Automatic route searching is not possible.	Vehicle is driving on a highway (gray route), or no recommended route is available.	Drive on a road to be searched. Or re-search the route manually. In this case, however, the whole route will be searched.
Performed automatic detour search (or detour search). However, the result is the same as that of the previous search.	Performed search with every conditions considered. However, the result is the same as that of the previous search.	System is not malfunctioning.
Passing points cannot be set.	More than five passing points were set.	Passing points can be set up to five. To stop at more than five points, perform sharing in several steps.
When setting the route, the starting point cannot be selected.	The current vehicle location is always set as the starting point of a route.	System is not malfunctioning.
Some menu items cannot be selected.	The vehicle is being driven.	Stop the vehicle at a safe place and then operate the system.

Voice Guide

NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

[NAVIGATION WITH BOSE]

Symptom	Cause	Remedy
Voice guide will not operate.	Note: Voice guide is only available at intersections that satisfy certain conditions (indicated by ● on the map). Therefore, guidance may not be given even when the route on the map changes direction.	System is not malfunctioning.
	The vehicle is not on the recommended route.	Return to the recommended route or re-search the route.
	Voice guide is turned OFF.	Turn voice guide ON.
	Route guide is turned OFF.	Turn route guide ON.
Voice guide does not match the actual road pattern.	Voice guide may vary with the direction to which the vehicle is turn and the connection of the road to other roads.	Drive in conformity to the actual traffic rules.

Route Search

Symptom	Cause	Remedy
No route is shown.	No road to be searched is found around the destination.	Find wider road (orange road or wider) nearby and reset the destination and passing points onto it. Take care of the traveling direction when there are separate up and down roads.
	Starting point and the destination are too close.	Set the destination at more distant point.
	Conditional traffic regulation (day of the week/ time of the day) is set at the area around the current location or the destination.	Turn the time-regulating search conditions OFF. Turn "Avoid regulation time" in the search conditions OFF.
Indicated route is intermittent.	In some areas, highways (gray routes) are not used for the search ^(Note) Therefore, the route to the current location or the passing points may be intermittent.	System is not malfunctioning.
When the vehicle has passed the recommended route, it is deleted from the screen.	A recommended route is controlled by each section. When the vehicle has passed the passing point 1, then the map data from the starting point up to the passing point 1 will be deleted. (The data may remain undeleted in some area.)	System is not malfunctioning.
Detouring route is recommended.	In some areas, highways (gray routes) are not used for the search. (Note). Therefore, detour route may be recommended.	Set the route closer to the basic route (gray route).
	A detour route may be shown when some traffic regulation (one-way traffic, etc.) is set at the area around the starting point or the destination.	Slightly move the starting point or the destination, or set the passing point on the route of your choice.
	In the area where highways (gray routes) are used for the search, left turn has priority around the current location and the destination (passing points). For this reason, the recommended route may be detouring.	System is not malfunctioning.
Landmarks on the map do not match the actual ones.	This can be happen due to omission or error in the map data.	As a rule, an updated map DVD-ROM will be released once a year. Wait until the latest map has become available.
Recommended route is far from the starting point, passing points, and destination.	Starting point, passing points, and destination of the route guide were set far from the desired points because route searching data around these area were not stored.	Reset the destination onto the road nearby. If this road is one of the highways (gray routes), an ordinary road nearby may be displayed as the recommended route.

NOTE:

Except for the ordinance-designated cities. (Malfunctioning areas may be changed in the updated map disc.)

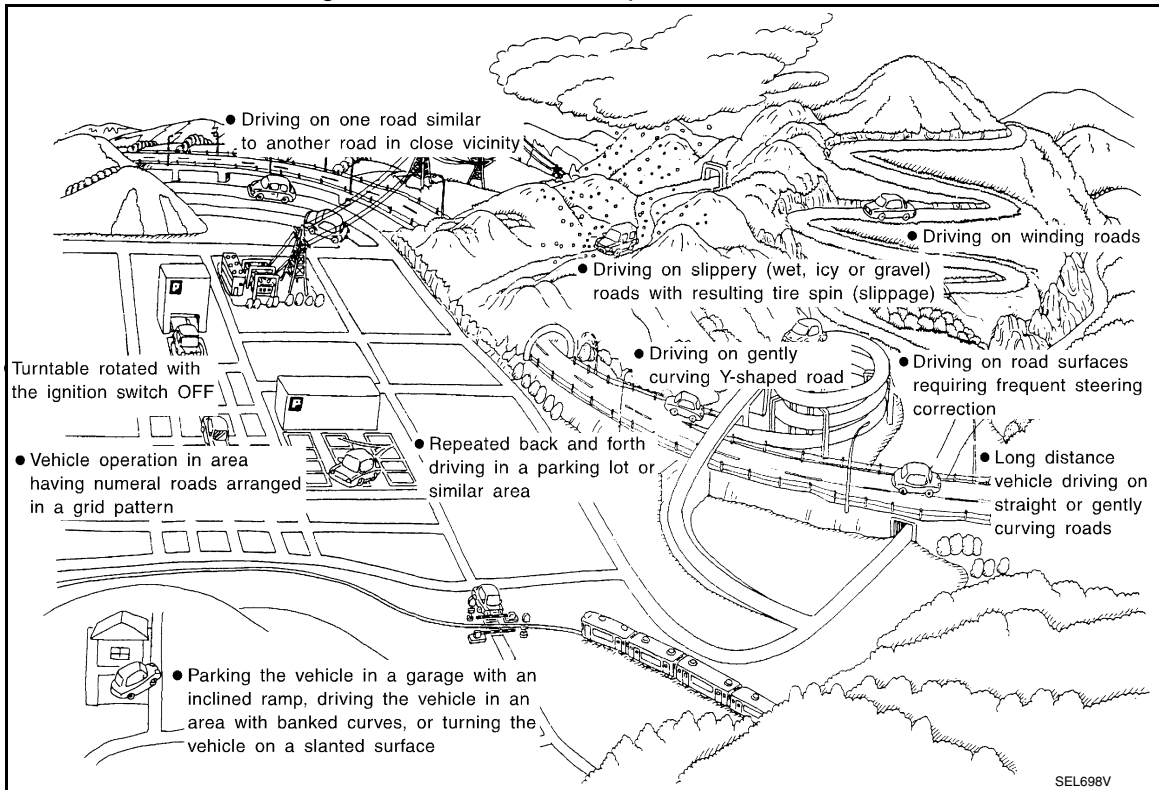
Examples of Current-Location Mark Displacement

NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

[NAVIGATION WITH BOSE]

Vehicle's travel amount is calculated by reading its travel distance and turning angle. Therefore, if the vehicle is driven in the following manner, an error will occur in the vehicle's current location display. If correct location has not been restored after driving the vehicle for a while, perform location correction.

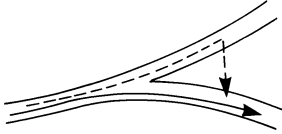
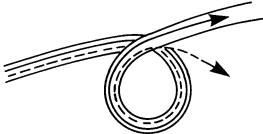
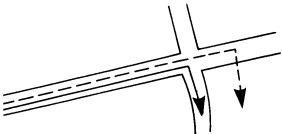
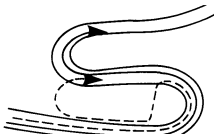
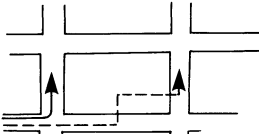
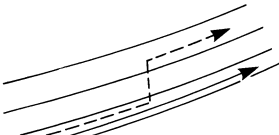


A
B
C
D
E
F
G
H
I
J
K
L
M
AV
O
P

NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

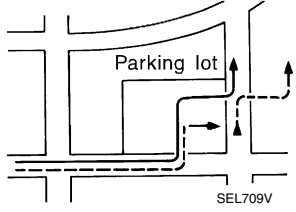
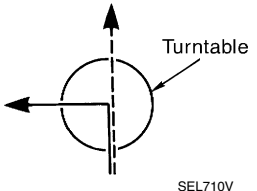
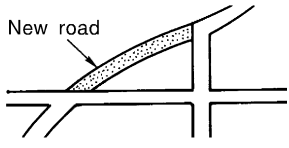
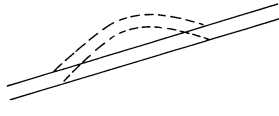
[NAVIGATION WITH BOSE]

Cause (condition) -: While driving ooo: Display		Driving condition	Remarks (correction, etc.)
Road configuration	Y-intersections  ELK0192D	At a Y intersection or similar gradual division of roads, an error in the direction of travel deduced by the sensor may result in the current-location mark appearing on the wrong road.	If after travelling about 10 km (6 miles) the correct location has not been restored, perform location correction and, if necessary, direction correction.
	Spiral roads  ELK0193D	When driving on a large, continuous spiral road (such as loop bridge), turning angle error is accumulated and the vehicle mark may deviate from the correct location.	
	Straight roads  ELK0194D	When driving on a long, straight road and slow curve without stopping, map-matching does not work effectively enough and distance errors may accumulate. As a result, the vehicle mark may deviate from the correct location when the vehicle is turned at a corner.	
	Zigzag roads  ELK0195D	When driving on a zigzag road, the map may be matched to other roads in the similar direction nearby at every turn, and the vehicle mark may deviate from the correct location.	
	Roads laid out in a grid pattern  ELK0196D	When driving where roads are laid out in a grid pattern, or where many roads are running in the similar direction nearby, the map may be matched to them by mistake and the vehicle mark may deviate from the correct location.	
	Parallel roads  ELK0197D	When two roads are running in parallel (such as highway and sideways), the map may be matched to the other road by mistake and the vehicle mark may deviate from the correct location.	

NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

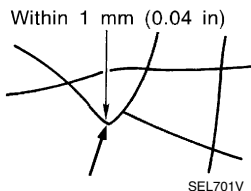
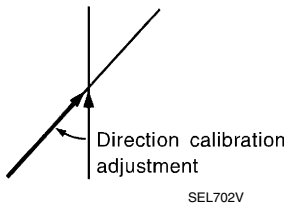
[NAVIGATION WITH BOSE]

Cause (condition) -: While driving ooo: Display		Driving condition	Remarks (correction, etc.)
Place	In a parking lot  SEL709V	When driving in a parking lot, or other location where there are no roads on the map, matching may place the vehicle mark on a nearby road. When the vehicle returns to the road, the vehicle mark may have deviated from the correct location. When driving in circle or turning the steering wheel repeatedly, direction errors accumulate, and the vehicle mark may deviate from the correct location.	
	Turntable  SEL710V	When the ignition switch is OFF, the navigation system cannot get the signal from the gyroscope (angular speed sensor). Therefore, the displayed direction may be wrong and the correct road may not be easily returned to after rotating the vehicle on a turntable with the ignition OFF.	
	Slippery roads	On snow, wet roads, gravel, or other roads where tires may slip easily, accumulated mileage errors may cause the vehicle mark to deviate from the correct road.	
	Slopes	When parking in sloped garages, when travelling on banked roads, or in other cases where the vehicle turns when tilted, an error in the turning angle will occur, and the vehicle mark may deviate from the road.	
Map data	Road not displayed on the map screen  SEL699V	When driving on new roads or other roads not displayed on the map screen, map matching does not function correctly and matches the location to a nearby road. When the vehicle returns to a road which is on the map, the vehicle mark may deviate from the correct road.	
	Different road pattern (Changed due to repair)  ELK0201D	If the road pattern stored in the map data and the actual road pattern are different, map matching does not function correctly and matches the location to a nearby road. The vehicle mark may deviate from the correct road.	
Vehicle	Use of tire chains	When tire chains are used, the mileage is not correctly detected, and the vehicle mark may deviate from the correct road.	Drive the vehicle for a while. If the distance still deviates, adjust it by using the distance adjustment function. (If the tire chain is removed, recover the original value.)

NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

[NAVIGATION WITH BOSE]

Cause (condition) -: While driving ooo: Display		Driving condition	Remarks (correction, etc.)
Precautions for driving	Just after the engine is started	If the vehicle is driven just after the engine is started when the gyroscope (angular speed sensor) correction is not completed, the vehicle can lose its direction and may have deviated from the correct location.	Wait for a short while before driving after starting the engine.
	Continuous driving without stopping	When driving long distances without stopping, direction errors may accumulate, and the current-location mark may deviate from the correct road.	Stop and adjust the orientation.
	Abusive driving	Spinning the wheels or engaging in other kinds of abusive driving may result in the system being unable perform correct detection, and may cause the vehicle mark to deviate from the correct road.	If after travelling about 10 km (6 miles) the correct location has not been restored, perform location correction and, if necessary, direction correction.
How to correct location	Position correction accuracy 	If the accuracy of location settings is poor, accuracy may be reduced when the correct road cannot be found, particularly in places where there are many roads.	Enter in the road displayed on the screen with an accuracy of approx. 1mm. Caution: Whenever possible, use detailed map for the correction.
	Direction when location is corrected 	If the accuracy of location settings during correction is poor, accuracy may be reduced afterwards.	Perform direction correction.

Location Correction by Map-Matching is Slow

- The map-matching function needs to refer to the data of the surrounding area. It is necessary to drive some distance for the function to work.
- Because map-matching operates on this principle, when there are many roads running in similar directions in the surrounding area, no matching determination may be made. The location may not be corrected until some special feature is found.

Name of Road is Not Displayed

The current road name may not be displayed if there are no road names displayed on the map screen.

Contents of Display Differ for Birdview™ and the (Flat) Map Screen

Difference of the BIRDVIEW™ screen from the flat map screen are as follows.

- The current place name displays names which are primarily in the direction of vehicle travel.
- The amount of time before the vehicle travel or turn angle is updated on the screen is longer than for the (flat) map display.
- The conditions for display of place names, roads, and other data are different for nearby areas and for more distant areas.
- Some thinning of the character data is done to prevent the display becoming too complex. In some cases and in some locations, the display contents may differ.
- The same place name, street name, etc. may be displayed multiple times.

Vehicle Mark Shows a Position Which is Completely Wrong

In the following cases, the vehicle mark may appear on completely different position in the map depending on the GPS satellite signal receiving conditions. In this case, perform location correction and direction correction.

- When location correction has not been done
- If the receiving conditions of the GPS satellite signal is poor, if the vehicle mark becomes out of place, it may move to a completely different location and not come back if location correction is not done. The position will be corrected if the GPS signal can be received.
- When the vehicle has traveled by ferry, or when the vehicle has been being towed

NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

[NAVIGATION WITH BOSE]

- Because calculation of the current location cannot be done when traveling with the ignition off, for example when traveling by ferry or when being towed, the location before travel is displayed. If the precise location can be detected with GPS, the location will be corrected.

A

Vehicle Mark Jumps

In the following cases, the vehicle mark may appear to jump as a result of automatic correction of the current location.

B

- When map matching has been done
- If the current location and the vehicle mark are different when map matching is done, the vehicle mark may seem to jump. At this time, the location may be “corrected” to the wrong road or to a location which is not on a road.
- When GPS location correction has been done
- If the current location and the vehicle mark are different when the location is corrected using GPS measurements, the vehicle mark may seem to jump. At this time, the location may be “corrected” to a location which is not on a road.

C

D

Vehicle Mark is in a River or Sea

The navigation system moves the vehicle mark with no distinction between land and rivers or sea. If the vehicle mark is somehow out of place, it may appear that the vehicle is driving in a river or the sea.

E

Vehicle Mark Automatically Rotates

The system wrongly memorizes the rotating status as stopping when the ignition switch is turned ON with the turntable rotating. That causes the vehicle mark to rotate when the vehicle is stopped.

F

When Driving on Same Road, Sometimes Vehicle Mark is in Right Place and Sometimes it is in Wrong Place

The conditions of the GPS antenna (GPS data) and gyroscope (angular speed sensor) change gradually. Depending on the road traveled and the operation of the steering wheel, the location detection results will be different. Therefore, even on a road on which the location has never been wrong, conditions may cause the vehicle mark to deviate.

G

H

I

J

K

L

M

AV

O

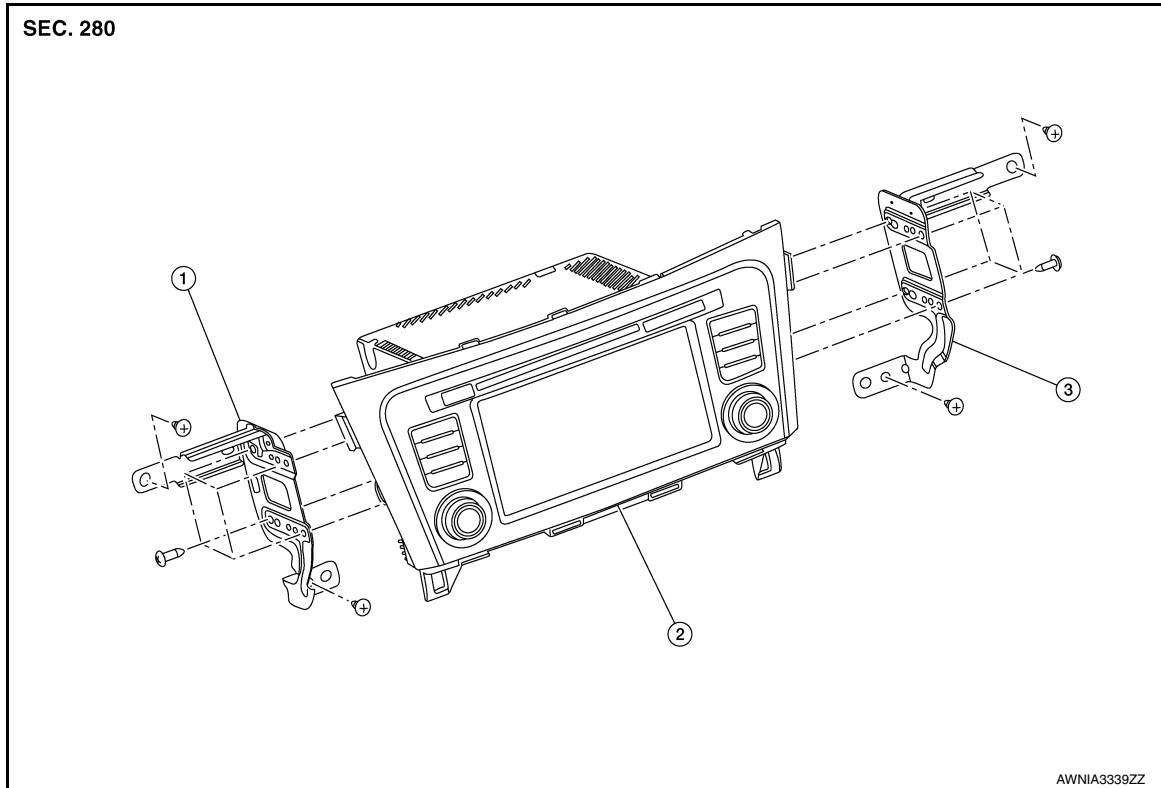
P

REMOVAL AND INSTALLATION

AV CONTROL UNIT

Exploded View

INFOID:000000010199205



1. AV control unit bracket (LH) 2. AV control unit 3. AV control unit bracket (RH)

Removal and Installation

INFOID:000000010199206

REMOVAL

CAUTION:

- Before disconnecting the AV control unit and battery terminals, turn the ignition switch OFF and wait at least 30 seconds.
- Before replacing AV control unit, perform "READ CONFIGURATION" to save current vehicle specification. Refer to [AV-134. "CONFIGURATION \(AV CONTROL UNIT\) : Configuration List"](#).

NOTE:

After the ignition switch is turned OFF, the AV control unit continues operating for approximately 30 seconds. Therefore, data corruption may occur if battery voltage is cut off within 30 seconds.

1. Disconnect the negative battery terminal. Refer to [PG-75. "Removal and Installation \(Battery\)"](#).
2. Remove A/C switch. Refer to [HAC-102. "Removal and Installation"](#).
3. Remove instrument finisher B. Refer to [IP-16. "INSTRUMENT FINISHER B : Removal and Installation"](#).
4. Remove instrument finisher E. Refer to [IP-16. "INSTRUMENT FINISHER E : Removal and Installation"](#).
5. Remove the AV control unit screws, then pull out the AV control unit.
6. Disconnect the harness connectors from the AV control unit and remove.
7. Remove the AV control unit bracket (LH/RH) screws and the AV control unit brackets (LH/RH) (if necessary).

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

AV CONTROL UNIT

< REMOVAL AND INSTALLATION >

[NAVIGATION WITH BOSE]

When replacing AV control unit, perform "WRITE CONFIGURATION". Refer to [AV-134. "CONFIGURATION \(AV CONTROL UNIT\) : Configuration List"](#).

A

B

C

D

E

F

G

H

I

J

K

L

M

AV

O

P

STEERING SWITCH

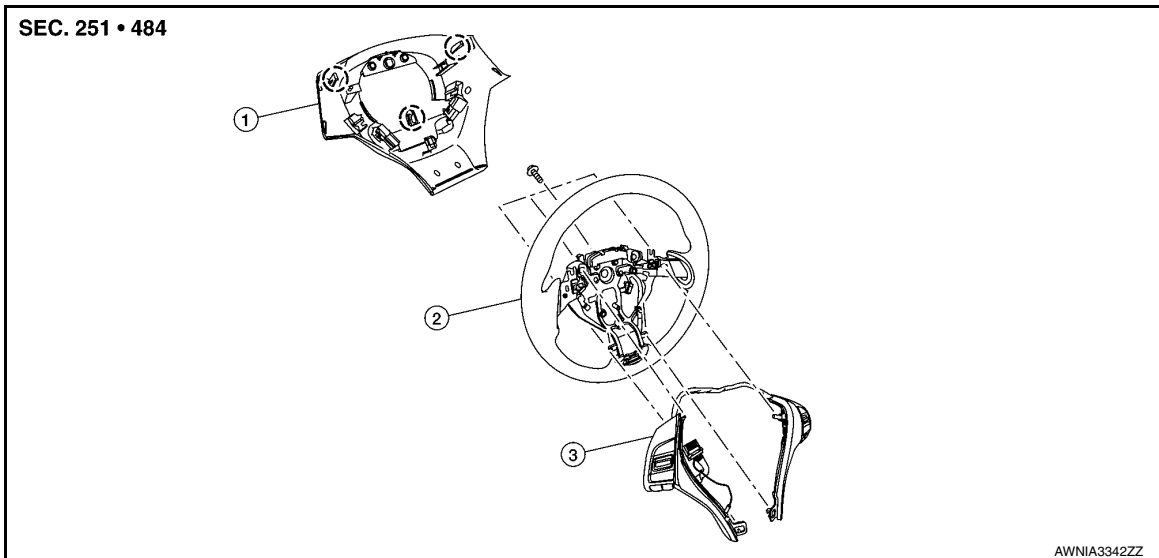
< REMOVAL AND INSTALLATION >

[NAVIGATION WITH BOSE]

STEERING SWITCH

Exploded View

INFOID:0000000010199209



Removal and Installation

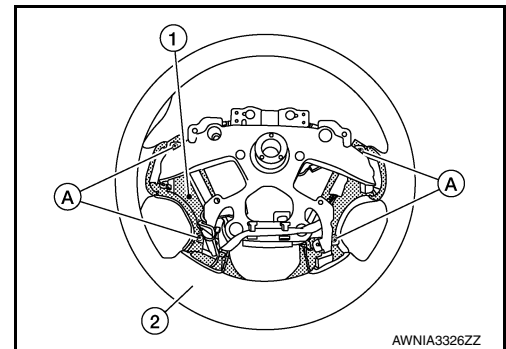
INFOID:0000000010199210

REMOVAL

NOTE:

The steering switches are serviced as an assembly.

1. Remove steering wheel. Refer to [ST-11, "Removal and Installation"](#).
2. Release pawls on the steering wheel rear finisher and remove.
3. Remove screws (A) and steering switches (1) from steering wheel (2).



INSTALLATION

Installation is in the reverse order of removal.

BOSE SPEAKER AMP

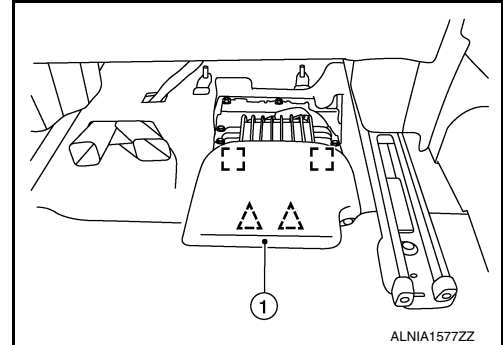
Removal and Installation

INFOID:0000000010199218

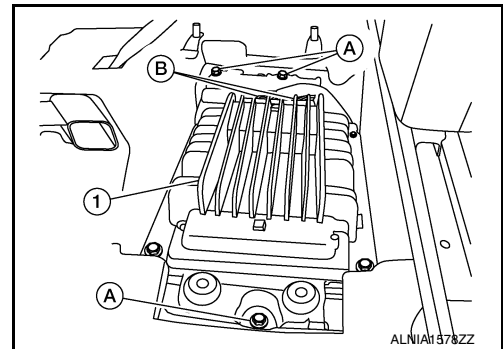
REMOVAL

1. Slide the passenger seat to the full forward position.
2. Release the clips using a suitable tool and remove Bose speaker amp cover (1).

- []: Metal clip
- △: Clip



3. Remove Bose speaker amp bolts (A).
4. Disconnect the harness connectors (B) from the Bose speaker amp (1).



5. Remove the Bose speaker amp. and bracket as an assembly.
6. Remove the bolts and the Bose speaker amp. from the Bose speaker amp. bracket (if necessary).

INSTALLATION

Installation is in the reverse order of removal.

FRONT TWEETER**Removal and Installation**

INFOID:0000000010258512

REMOVAL

1. Remove defroster grille. Refer to [VTL-12. "DEFROSTER GRILLE : Removal and Installation"](#).
2. Remove bolts and pull out the front tweeter.
3. Disconnect the harness connector from the front tweeter and remove.

INSTALLATION

Installation is in the reverse order of removal.

FRONT DOOR SPEAKER

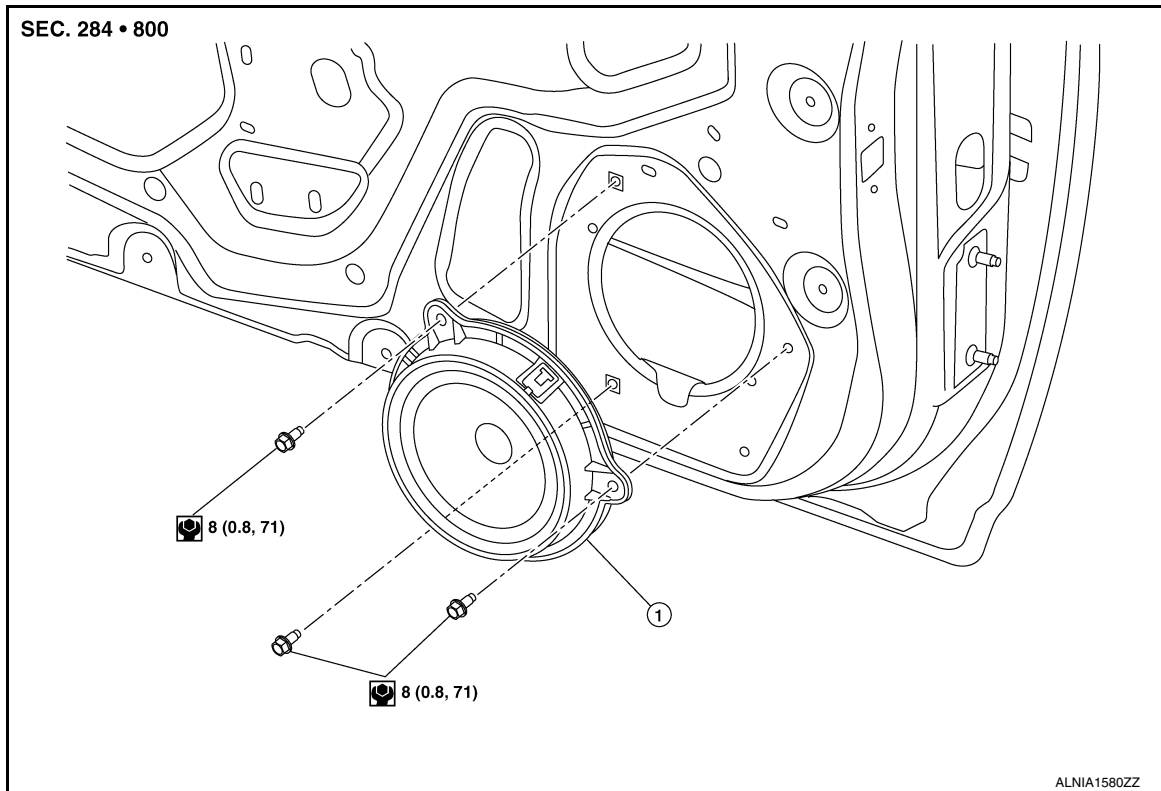
< REMOVAL AND INSTALLATION >

[NAVIGATION WITH BOSE]

FRONT DOOR SPEAKER

Exploded View

INFOID:000000010199220



1. Front door speaker

Removal and Installation

INFOID:000000010199221

REMOVAL

1. Remove front door finisher. Refer to [INT-15. "Removal and Installation"](#).
2. Remove front door speaker bolts, then pull out front door speaker.
3. Disconnect the harness connector from front door speaker and remove.

INSTALLATION

Installation is in the reverse order of removal.

A
B
C
D
E
F
G
H
I
J
K
L
M
O
P

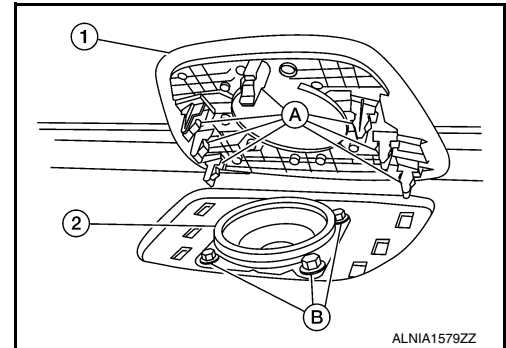
AV

CENTER SPEAKER**Removal and Installation**

INFOID:0000000010199224

REMOVAL

1. Release the metal clips (A) using a suitable tool and remove center speaker grille (1).
2. Remove the center speaker bolts (B).
3. Pull out the center speaker (2).



4. Disconnect the harness connector from the center speaker and remove.

INSTALLATION

Installation is in the reverse order of removal.

REAR DOOR SPEAKER

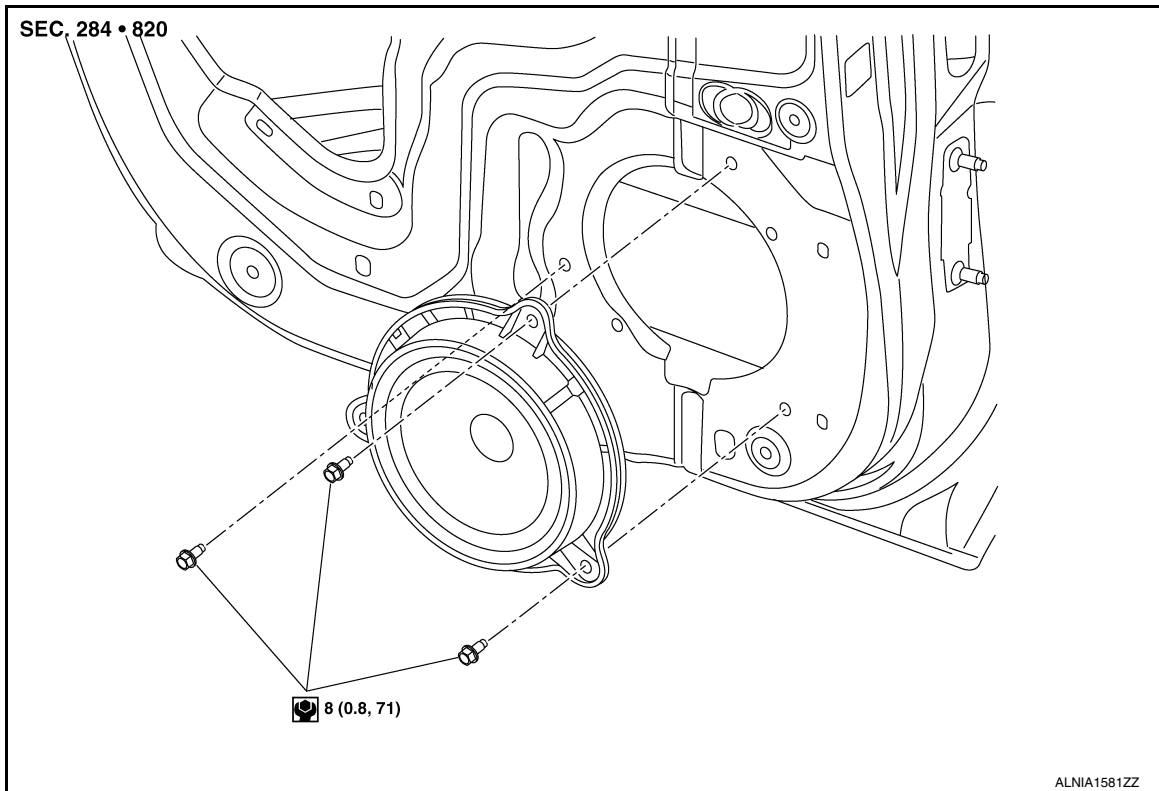
< REMOVAL AND INSTALLATION >

[NAVIGATION WITH BOSE]

REAR DOOR SPEAKER

Exploded View

INFOID:0000000010199225



1. Rear door speaker

Removal and Installation

INFOID:0000000010199226

REMOVAL

1. Remove rear door finisher. Refer to [INT-18, "Removal and Installation"](#).
2. Remove rear door speaker bolts, then pull out rear door speaker.
3. Disconnect the harness connector from the rear door speaker and remove.

INSTALLATION

Installation is in the reverse order of removal.

A
B
C
D
E
F
G
H
I
J
K
L
M
O
P

AV

SUBWOOFER

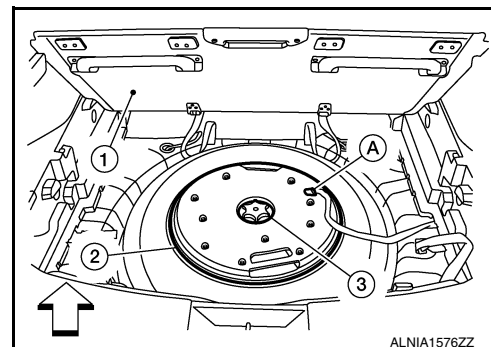
Removal and Installation

INFOID:0000000010199260

REMOVAL

1. Open the rear luggage floor finisher (1).
2. Remove the spare tire clamp (3) by rotating counterclockwise.
3. Disconnect the harness connector (A) from the subwoofer (2) and remove.

↶: Front



INSTALLATION

Installation is in the reverse order of removal.

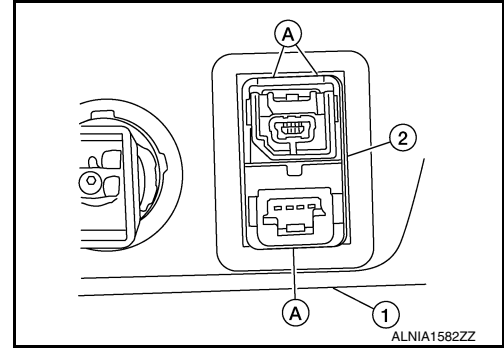
USB INTERFACE AND AUX IN JACK

Removal and Installation

INFOID:0000000010199270

REMOVAL

1. Remove cluster lid C. Refer to [IP-21. "Removal and Installation"](#).
2. Release the pawls (A) on the back of USB interface and AUX in jack (2), then remove from the front of cluster lid C (1).



INSTALLATION

Installation is in the reverse order of removal.

A
B
C
D
E
F
G
H
I
J
K
L
M
O
P

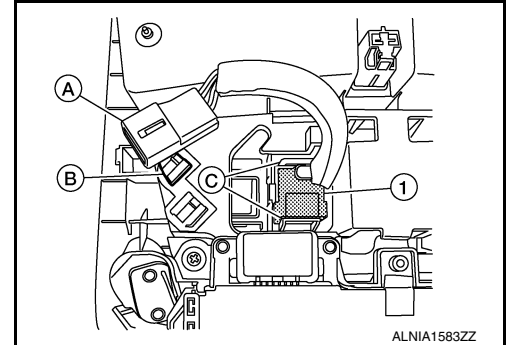
AV

MICROPHONE**Removal and Installation**

INFOID:000000010199231

REMOVAL

1. Remove the map lamp assembly. Refer to [INL-55, "Removal and Installation"](#).
2. Release harness connector (A) by sliding rearward to remove from the pawl (B).
3. Release pawls (C) and remove the microphone (1) from the front room/map lamp assembly.

**INSTALLATION**

Installation is in the reverse order of removal.

AROUND VIEW MONITOR CONTROL UNIT

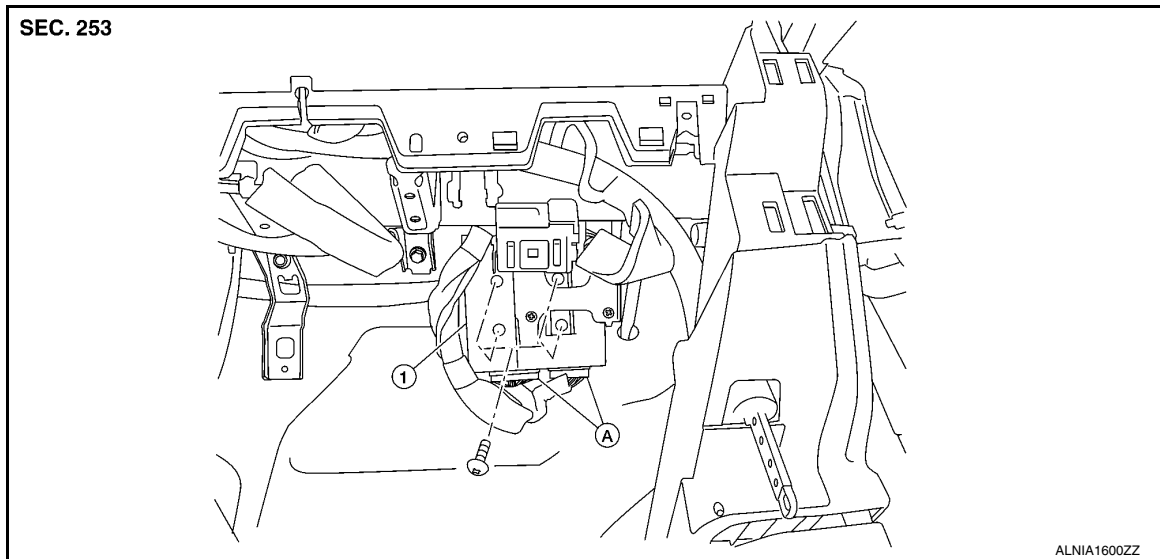
< REMOVAL AND INSTALLATION >

[NAVIGATION WITH BOSE]

AROUND VIEW MONITOR CONTROL UNIT

Exploded View

INFOID:0000000010199232



1. Around view monitor control unit A. Harness connector

Removal and Installation

INFOID:0000000010199261

REMOVAL

CAUTION:

Before replacing around view monitor control unit, save or print current vehicle specification with CONSULT configuration before replacement. Refer to [AV-288, "ADDITIONAL SERVICE WHEN REPLACING AROUND VIEW MONITOR CONTROL UNIT : Work Procedure"](#).

1. Remove glove box assembly. Refer to [IP-23, "Removal and Installation"](#).
2. Remove around view monitor control unit screws.
3. Disconnect the harness connector from the around view monitor control unit and remove.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Replace the around view monitor control unit if it has been dropped or sustained an impact.
- When replacing around view monitor control unit, you must perform "After Replace ECU" with CONSULT. Refer to [AV-288, "ADDITIONAL SERVICE WHEN REPLACING AROUND VIEW MONITOR CONTROL UNIT : Work Procedure"](#).

NOTE:

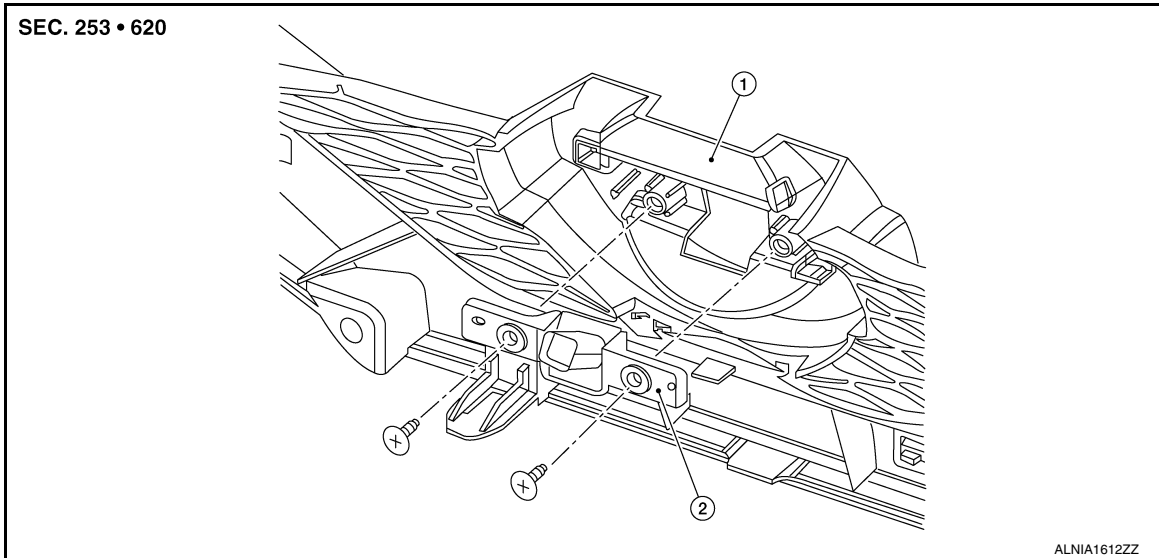
Perform camera image calibration. Refer to [AV-292, "CALIBRATING CAMERA IMAGE \(AROUND VIEW MONITOR\) : Work Procedure"](#).

A
B
C
D
E
F
G
H
I
J
K
L
M
AV
O
P

FRONT CAMERA

Exploded View

INFOID:000000010259085



1. Front grille

2. Front camera

Removal and Installation

INFOID:000000010199235

REMOVAL

1. Remove the front grille. Refer to [EXT-23, "Removal and Installation"](#).
2. Remove screws and front camera.

INSTALLATION

Installation is in the reverse order of removal.

NOTE:

Perform camera image calibration. Refer to [AV-292, "CALIBRATING CAMERA IMAGE \(AROUND VIEW MONITOR\) : Work Procedure"](#).

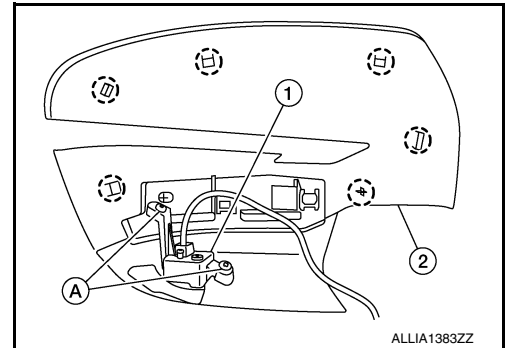
SIDE CAMERA

Removal and Installation

INFOID:0000000010199238

REMOVAL

1. Remove door mirror rear finisher (2). Refer to [MIR-25. "Removal and Installation"](#).
2. Remove screws (A) and side camera (1).
○: Pawl



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

Perform camera image calibration (if equipped with around view camera). Refer to [AV-135. "CALIBRATING CAMERA IMAGE \(AROUND VIEW MONITOR\) : Description"](#).

A
B
C
D
E
F
G
H
I
J
K
L
M
O
P

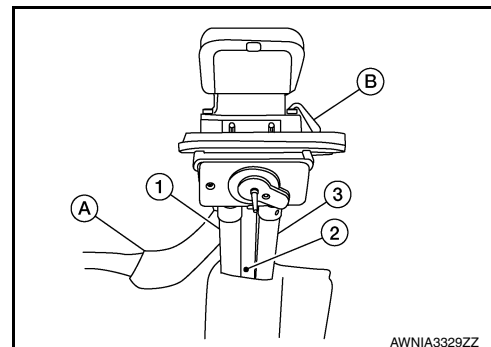
AV

REAR VIEW CAMERA**Removal and Installation**

INFOID:0000000010199272

REMOVAL

1. Remove the back door outer finisher. Refer to [EXT-50. "Removal and Installation"](#).
2. Disconnect washer tubes (1,3) and air tube (2) (if equipped).
3. Release pawl (B), disconnect harness connector (A) from rear view camera and remove.

**INSTALLATION**

Installation is in the reverse order of removal.

GPS ANTENNA

Removal and Installation

INFOID:000000010272255

REMOVAL

1. Remove instrument panel. Refer to [IP-14, "INSTRUMENT PANEL ASSEMBLY : Removal and Installation"](#).
2. Remove screw and the GPS antenna.

INSTALLATION

Installation is in the reverse order of removal.

A

B

C

D

E

F

G

H

I

J

K

L

M

AV

O

P

AUDIO ANTENNA

Removal and Installation

INFOID:0000000010199280

REMOVAL

1. Remove the luggage side upper finisher (RH). Refer to [INT-36. "LUGGAGE SIDE UPPER FINISHER : Removal and Installation"](#).
2. Partially lower headlining (rear). Refer to [INT-30. "Removal and Installation"](#).
3. Disconnect harness connectors from antenna feeder.
4. Remove nut from audio antenna and remove.

INSTALLATION

Installation is in the reverse order of removal.

Audio antenna nut : 6.5 N·m (0.66 kg-m, 58 in-lb)

CAUTION:

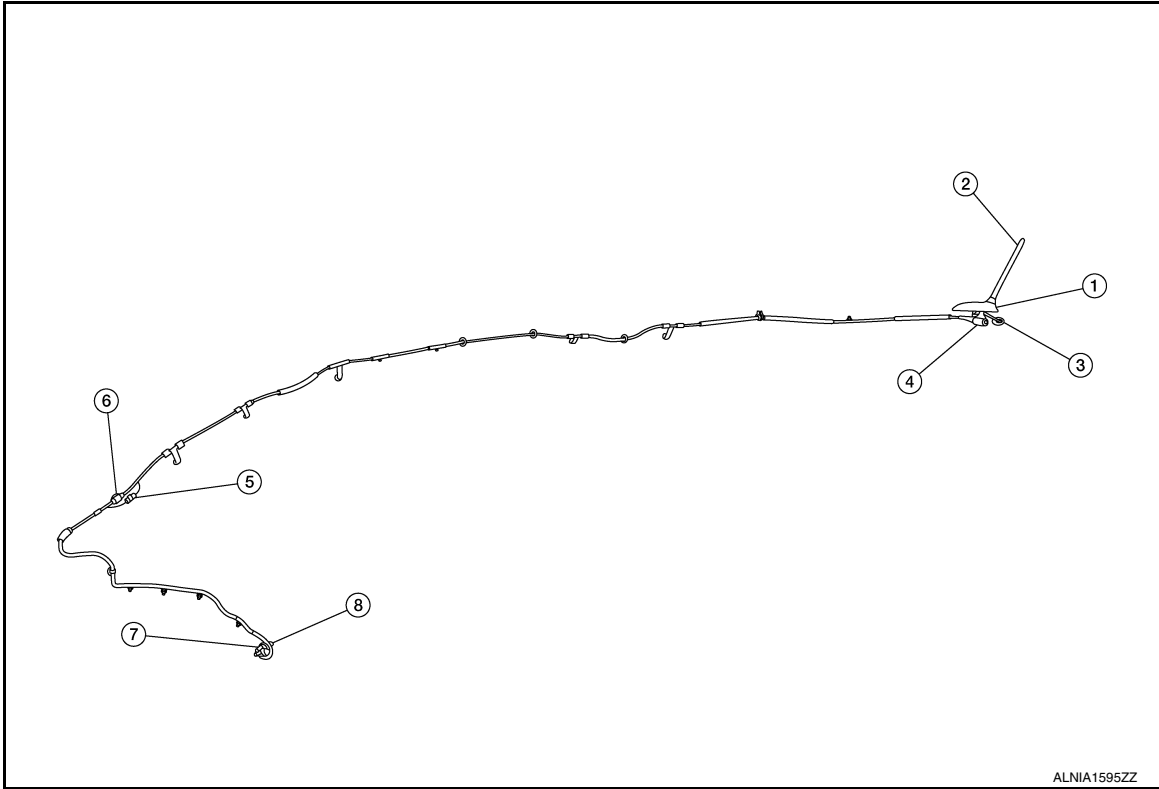
If the audio antenna nut is not properly tightened, lower sensitivity of the antenna may be experienced. If the nut is over tightened, this will deform the roof panel.

ANTENNA FEEDER

Feeder Layout

INFOID:0000000010270718

ANTENNA FEEDER LAYOUT



- | | | |
|--|----------------|---------------|
| 1. Antenna base (antenna amp. and satellite antenna) | 2. Rod Antenna | 3. M503 |
| 4. M502 | 5. M130, M501 | 6. M129, M500 |
| 7. M142 | 8. M139 | |

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P

AV

BCS

SECTION

BODY CONTROL SYSTEM

CONTENTS

WITH INTELLIGENT KEY SYSTEM	SHIPPING MODE CONTROL SYSTEM : System Description	15
PRECAUTION	5	
PRECAUTIONS	5	
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	5	
PREPARATION	6	
PREPARATION	6	
Special Service Tool	6	
SYSTEM DESCRIPTION	7	
COMPONENT PARTS	7	
BODY CONTROL SYSTEM	7	
BODY CONTROL SYSTEM : Component Parts Location	7	
POWER CONSUMPTION CONTROL SYSTEM	7	
POWER CONSUMPTION CONTROL SYSTEM : Component Parts Location	7	
SYSTEM	8	
BODY CONTROL SYSTEM	8	
BODY CONTROL SYSTEM : System Description.....	8	
COMBINATION SWITCH READING SYSTEM	9	
COMBINATION SWITCH READING SYSTEM : System Description	9	
SIGNAL BUFFER SYSTEM	12	
SIGNAL BUFFER SYSTEM : System Description...	12	
POWER CONSUMPTION CONTROL SYSTEM	13	
POWER CONSUMPTION CONTROL SYSTEM : System Description	13	
SHIPPING MODE CONTROL SYSTEM	14	
	DIAGNOSIS SYSTEM (BCM)	16
	COMMON ITEM	16
	COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)	16
	DOOR LOCK	16
	DOOR LOCK : CONSULT Function (BCM - DOOR LOCK)	17
	REAR DEFOGGER	17
	REAR DEFOGGER : CONSULT Function (BCM - REAR DEFOGGER)	17
	BUZZER	18
	BUZZER : CONSULT Function (BCM - BUZZER).....	18
	INT LAMP	18
	INT LAMP : CONSULT Function (BCM - INT LAMP)	18
	HEADLAMP	19
	HEADLAMP : CONSULT Function (BCM - HEADLAMP)	19
	WIPER	20
	WIPER : CONSULT Function (BCM - WIPER)	20
	FLASHER	21
	FLASHER : CONSULT Function (BCM - FLASHER)	21
	INTELLIGENT KEY	21
	INTELLIGENT KEY : CONSULT Function (BCM - INTELLIGENT KEY)	21
	COMB SW	23
	COMB SW : CONSULT Function (BCM - COMB SW)	23
	BCM	23

BCM : CONSULT Function (BCM - BCM)	24	DTC Logic	64
IMMU	24	Diagnosis Procedure	64
IMMU : CONSULT Function (BCM - IMMU)	24	U1010 CONTROL UNIT (CAN)	65
BATTERY SAVER	24	DTC Logic	65
BATTERY SAVER : CONSULT Function (BCM - BATTERY SAVER)	24	Diagnosis Procedure	65
TRUNK	25	U0415 VEHICLE SPEED SIG	66
TRUNK : CONSULT Function (BCM - TRUNK)	25	Description	66
THEFT ALM	25	DTC Logic	66
THEFT ALM : CONSULT Function (BCM - THEFT ALM)	25	Diagnosis Procedure	66
RETAINED PWR	26	B2562 LOW VOLTAGE	67
RETAINED PWR : CONSULT Function (BCM - RETAINED PWR)	26	DTC Logic	67
SIGNAL BUFFER	26	Diagnosis Procedure	67
SIGNAL BUFFER : CONSULT Function (BCM - SIGNAL BUFFER)	26	POWER SUPPLY AND GROUND CIRCUIT	68
AIR PRESSURE MONITOR	26	Diagnosis Procedure	68
AIR PRESSURE MONITOR : CONSULT Function (BCM-AIR PRESSURE MONITOR)	26	COMBINATION SWITCH INPUT CIRCUIT	69
ECU DIAGNOSIS INFORMATION	28	Diagnosis Procedure	69
BCM	28	COMBINATION SWITCH OUTPUT CIRCUIT ...	71
Reference Value	28	Diagnosis Procedure	71
Fail Safe	47	SYMPTOM DIAGNOSIS	73
DTC Inspection Priority Chart	47	COMBINATION SWITCH SYSTEM SYMP- TOMS	73
DTC Index	48	Symptom Table	73
WIRING DIAGRAM	50	NORMAL OPERATING CONDITION	74
BCM	50	Description	74
Wiring Diagram	50	REMOVAL AND INSTALLATION	75
BASIC INSPECTION	60	BCM (BODY CONTROL MODULE)	75
INSPECTION AND ADJUSTMENT	60	Removal and Installation	75
ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT (BCM)	60	COMBINATION SWITCH	76
ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT (BCM) : Description	60	Exploded View	76
ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT (BCM) : Work Procedure	60	Removal and Installation	76
CONFIGURATION (BCM)	61	WITHOUT INTELLIGENT KEY SYSTEM	
CONFIGURATION (BCM) : Description	61	PRECAUTION	77
CONFIGURATION (BCM) : Work Procedure	61	PRECAUTIONS	77
CONFIGURATION (BCM) : Configuration List	62	Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TEN- SIONER"	77
SHIPPING MODE CANCEL OPERATION	63	PREPARATION	78
Work Procedure	63	PREPARATION	78
DTC/CIRCUIT DIAGNOSIS	64	Special Service Tool	78
U1000 CAN COMM CIRCUIT	64	SYSTEM DESCRIPTION	79
Description	64	COMPONENT PARTS	79
		BODY CONTROL SYSTEM	79
		BODY CONTROL SYSTEM : Component Parts	
		Location	79

POWER CONSUMPTION CONTROL SYSTEM	79	BCM : CONSULT Function (BCM - BCM)	92
POWER CONSUMPTION CONTROL SYSTEM :		IMMU	92
Component Parts Location	79	IMMU : CONSULT Function (BCM - IMMU)	92
SYSTEM	80	BATTERY SAVER	93
BODY CONTROL SYSTEM	80	BATTERY SAVER : CONSULT Function (BCM -	
BODY CONTROL SYSTEM : System Description...	80	BATTERY SAVER)	93
COMBINATION SWITCH READING SYSTEM	81	TRUNK	93
COMBINATION SWITCH READING SYSTEM :		TRUNK : CONSULT Function (BCM - TRUNK)	93
System Description	81	THEFT ALM	93
SIGNAL BUFFER SYSTEM	83	THEFT ALM : CONSULT Function (BCM - THEFT	
SIGNAL BUFFER SYSTEM : System Description...	84	ALM)	93
POWER CONSUMPTION CONTROL SYSTEM	84	RETAINED PWR	94
POWER CONSUMPTION CONTROL SYSTEM :		RETAINED PWR : CONSULT Function (BCM -	
System Description	84	RETAINED PWR)	94
SHIPPING MODE CONTROL SYSTEM	86	AIR PRESSURE MONITOR	94
SHIPPING MODE CONTROL SYSTEM : System		AIR PRESSURE MONITOR : CONSULT Function	
Description	86	(BCM-AIR PRESSURE MONITOR)	94
DIAGNOSIS SYSTEM (BCM)	87	ECU DIAGNOSIS INFORMATION	96
COMMON ITEM	87	BCM	96
COMMON ITEM : CONSULT Function (BCM -		Reference Value	96
COMMON ITEM)	87	Fail Safe	107
DOOR LOCK	87	DTC Inspection Priority Chart	107
DOOR LOCK : CONSULT Function (BCM -		DTC Index	108
DOOR LOCK)	87	WIRING DIAGRAM	110
REAR DEFOGGER	88	BCM	110
REAR DEFOGGER : CONSULT Function (BCM -		Wiring Diagram	110
REAR DEFOGGER)	88	BASIC INSPECTION	120
BUZZER	89	INSPECTION AND ADJUSTMENT	120
BUZZER : CONSULT Function (BCM - BUZZER)...	89	ADDITIONAL SERVICE WHEN REPLACING	
INT LAMP	89	CONTROL UNIT (BCM)	120
INT LAMP : CONSULT Function (BCM - INT		ADDITIONAL SERVICE WHEN REPLACING	
LAMP)	89	CONTROL UNIT (BCM) : Description	120
MULTI REMOTE ENT	90	ADDITIONAL SERVICE WHEN REPLACING	
MULTI REMOTE ENT : CONSULT Function		CONTROL UNIT (BCM) : Work Procedure	120
(BCM - MULTI REMOTE ENT)	90	CONFIGURATION (BCM)	121
HEADLAMP	90	CONFIGURATION (BCM) : Description	121
HEADLAMP : CONSULT Function (BCM - HEAD-		CONFIGURATION (BCM) : Work Procedure	121
LAMP)	90	CONFIGURATION (BCM) : Configuration List	122
WIPER	90	SHIPPING MODE CANCEL OPERATION	123
WIPER : CONSULT Function (BCM - WIPER)	90	Work Procedure	123
FLASHER	91	DTC/CIRCUIT DIAGNOSIS	124
FLASHER : CONSULT Function (BCM - FLASH-		U1000 CAN COMM CIRCUIT	124
ER)	91	Description	124
COMB SW	91	DTC Logic	124
COMB SW : CONSULT Function (BCM - COMB		Diagnosis Procedure	124
SW)	91	U1010 CONTROL UNIT (CAN)	125
BCM	92		

DTC Logic	125	Diagnosis Procedure	131
Diagnosis Procedure	125		
U0415 VEHICLE SPEED SIG	126	SYMPTOM DIAGNOSIS	133
Description	126	COMBINATION SWITCH SYSTEM SYMP-	
DTC Logic	126	TOMS	133
Diagnosis Procedure	126	Symptom Table	133
B2562 LOW VOLTAGE	127	NORMAL OPERATING CONDITION	134
DTC Logic	127	Description	134
Diagnosis Procedure	127	REMOVAL AND INSTALLATION	135
POWER SUPPLY AND GROUND CIRCUIT ..	128	BCM (BODY CONTROL MODULE)	135
Diagnosis Procedure	128	Removal and Installation	135
COMBINATION SWITCH INPUT CIRCUIT	129	COMBINATION SWITCH	136
Diagnosis Procedure	129	Exploded View	136
COMBINATION SWITCH OUTPUT CIRCUIT .	131	Removal and Installation	136

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010262863

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

BCS

PREPARATION

< PREPARATION >

[WITH INTELLIGENT KEY SYSTEM]

PREPARATION

PREPARATION

Special Service Tool

INFOID:0000000010338179

The actual shape of the tools may differ from those tools illustrated here.

Tool number (TechMate No.) Tool name	Description
— (J-50190) Signal Tech II  ALEIA0131ZZ	• Activate and display TPMS transmitter IDs • Display tire pressure reported by the TPMS transmitter • Read TPMS DTCs • Register TPMS transmitter IDs • Check Intelligent Key relative signal strength • Confirm vehicle Intelligent Key antenna signal strength • Compatible with future sensors • Equipped with a display

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

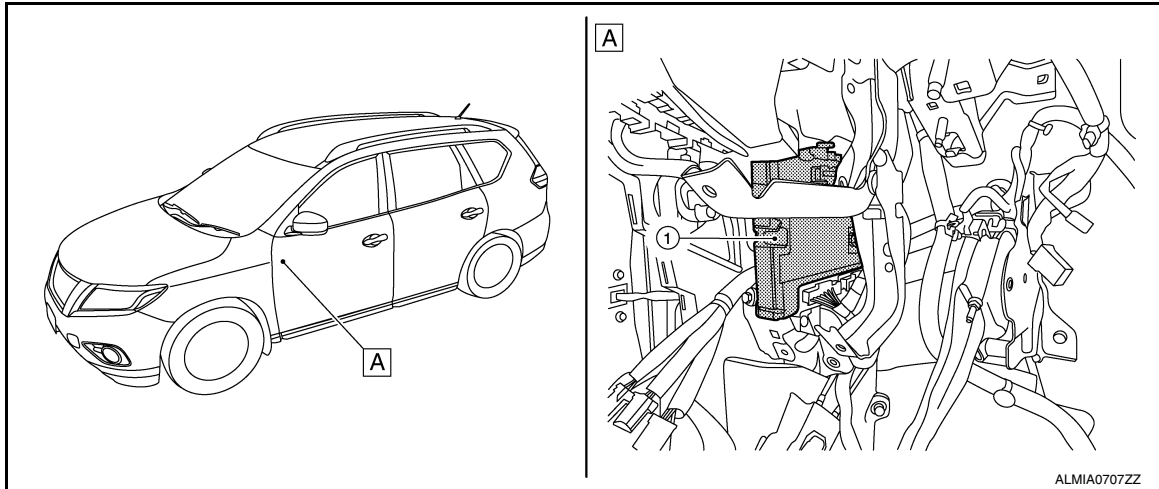
SYSTEM DESCRIPTION

COMPONENT PARTS

BODY CONTROL SYSTEM

BODY CONTROL SYSTEM : Component Parts Location

INFOID:0000000010195899



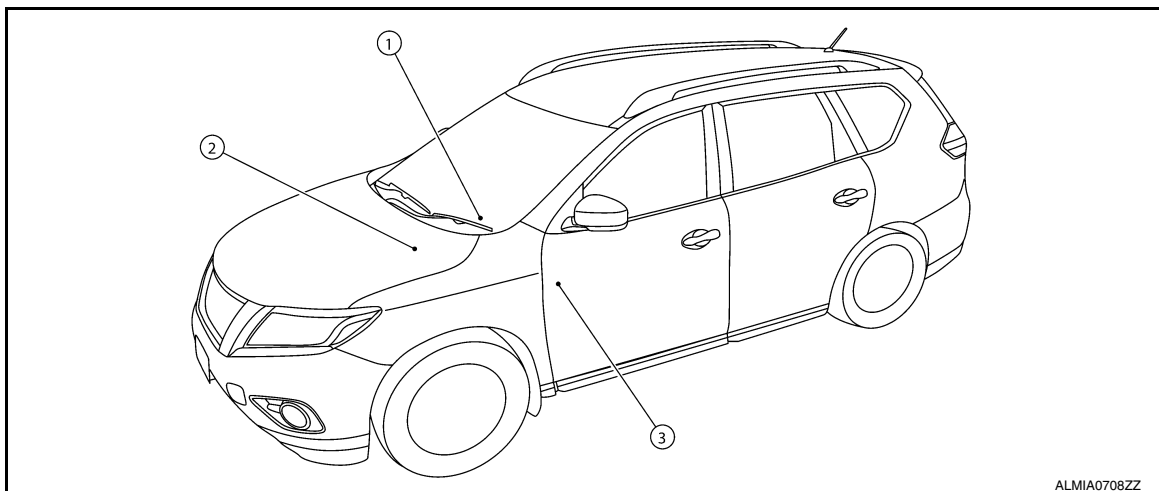
1. BCM

A. Behind instrument panel (LH)

POWER CONSUMPTION CONTROL SYSTEM

POWER CONSUMPTION CONTROL SYSTEM : Component Parts Location

INFOID:0000000010195901



1. Combination meter

Refer to [MWI-6. "METER SYSTEM : Component Parts Location"](#).

2. IPDM E/R

Refer to [PCS-4. "Component Parts Location"](#).

3. BCM

Refer to [BCS-7. "BODY CONTROL SYSTEM : Component Parts Location"](#).

SYSTEM

BODY CONTROL SYSTEM

BODY CONTROL SYSTEM : System Description

INFOID:0000000010195902

OUTLINE

- BCM (body control module) controls various electrical components. It receives the information required from CAN communication and the signals received from each switch and sensor.
- BCM has a combination switch reading function for reading the status of combination switches (light, turn signal, wiper and washer) in addition to functions for controlling the operation of various electrical components. It also has a signal transmission function for other systems, and a power consumption control function that reduces the power consumption with the ignition switch OFF.
- BCM is equipped with a diagnosis function that operates with CONSULT and allows for various settings to be changed.

BCM FUNCTION LIST

System	Refer to
Combination switch reading system	BCS-9, "COMBINATION SWITCH READING SYSTEM : System Description"
Signal buffer system	BCS-12, "SIGNAL BUFFER SYSTEM : System Description"
Power consumption control system	BCS-13, "POWER CONSUMPTION CONTROL SYSTEM : System Description"
Headlamp system	• EXL-12, "HEADLAMP SYSTEM : System Description" (halogen headlamp) • EXL-142, "HEADLAMP SYSTEM : System Description" (LED headlamp)
Auto light system	• EXL-13, "AUTO LIGHT SYSTEM : System Description" (halogen headlamp) • EXL-143, "AUTO LIGHT SYSTEM : System Description" (LED headlamp)
Daytime light system	• EXL-14, "DAYTIME RUNNING LIGHT SYSTEM : System Description" (halogen headlamp) • EXL-144, "DAYTIME RUNNING LIGHT SYSTEM : System Description" (LED headlamp)
Turn signal and hazard warning lamps system	• EXL-15, "TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM : System Description" (halogen headlamp) • EXL-146, "TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM : System Description" (LED headlamp)
Parking, license plate and tail lamps system	• EXL-15, "PARKING, LICENSE PLATE, SIDE MARKER AND TAIL LAMP SYSTEM : System Description" (halogen headlamp) • EXL-146, "PARKING, LICENSE PLATE, SIDE MARKER AND TAIL LAMP SYSTEM : System Description" (LED headlamp)
Front fog lamp system	• EXL-17, "FRONT FOG LAMP SYSTEM : System Description" (halogen headlamp) • EXL-148, "FRONT FOG LAMP SYSTEM : System Description" (LED headlamp)
Exterior lamp battery saver system	• EXL-18, "EXTERIOR LAMP BATTERY SAVER SYSTEM : System Description" (halogen headlamp) • EXL-149, "EXTERIOR LAMP BATTERY SAVER SYSTEM : System Description" (LED headlamp)
Interior room lamp control system	INL-7, "INTERIOR ROOM LAMP CONTROL SYSTEM : System Description"
Interior room lamp battery saver system	INL-9, "INTERIOR ROOM LAMP BATTERY SAVER SYSTEM : System Description"
Front wiper and washer system	WW-8, "FRONT WIPER AND WASHER SYSTEM : System Description"

SYSTEM

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

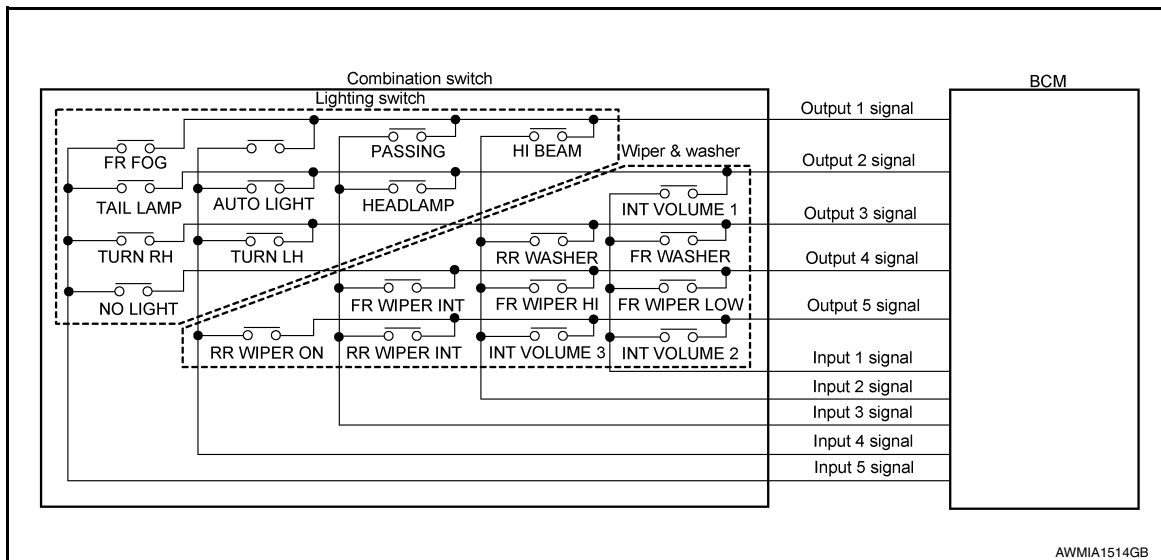
System	Refer to
Rear wiper and washer system	WW-10. "REAR WIPER AND WASHER SYSTEM : System Description"
Warning chime system	WCS-6. "WARNING CHIME SYSTEM : System Description"
Door lock system	DLK-26. "System Description"
Back door open system	DLK-39. "System Description"
Nissan vehicle immobilizer system (NVIS)	SEC-12. "NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS : System Description"
Vehicle security system	SEC-14. "VEHICLE SECURITY SYSTEM : System Description"
Panic alarm	DEF-6. "System Description"
Rear window defogger system	DEF-6. "System Description"
Intelligent Key system/engine start system	Door lock function DLK-29. "DOOR LOCK FUNCTION : System Description"
	Back door open function DLK-31. "BACK DOOR OPEN FUNCTION : System Description"
	Warning function DLK-35. "WARNING FUNCTION : System Description"
	Engine start function SEC-9. "INTELLIGENT KEY SYSTEM/ENGINE START FUNCTION : System Description"
Power window system	PWC-8. "System Description"
RAP (retained accessory power) system	BCS-26. "RETAINED PWR : CONSULT Function (BCM - RETAINED PWR)"
TPMS (tire pressure monitoring system)	WT-8. "System Description"

COMBINATION SWITCH READING SYSTEM

COMBINATION SWITCH READING SYSTEM : System Description

INFOID:0000000010195904

SYSTEM DIAGRAM



OUTLINE

- BCM reads the status of the combination switch (light, turn signal, wiper and washer) and recognizes the status of each switch.
- BCM has a combination of 5 output terminals (OUTPUT 1 - 5) and 5 input terminals (INPUT 1 - 5) and reads a maximum of 20 switch states.

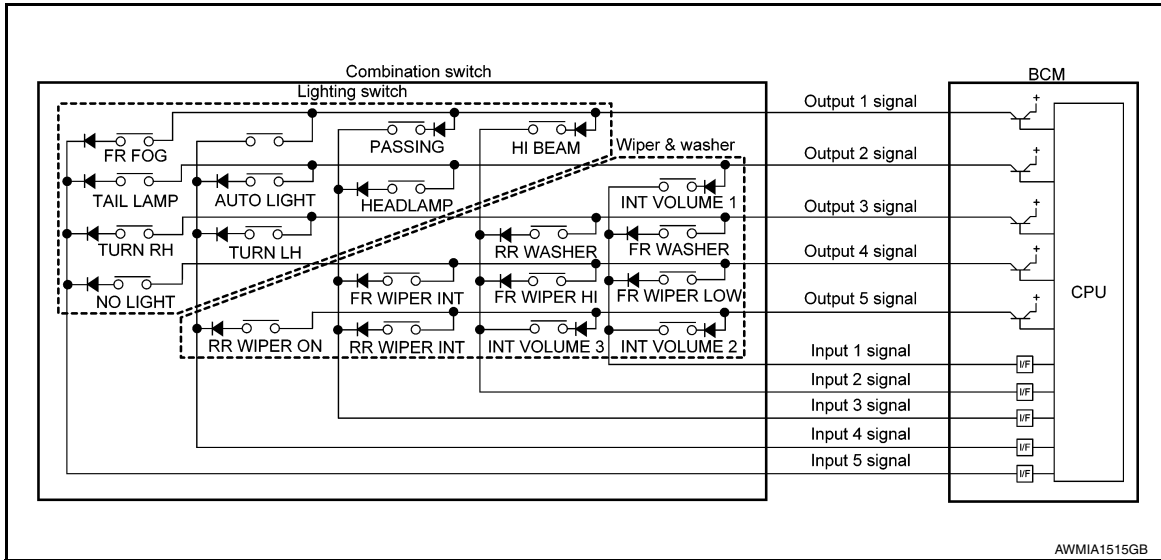
COMBINATION SWITCH MATRIX

SYSTEM

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

Combination switch circuit



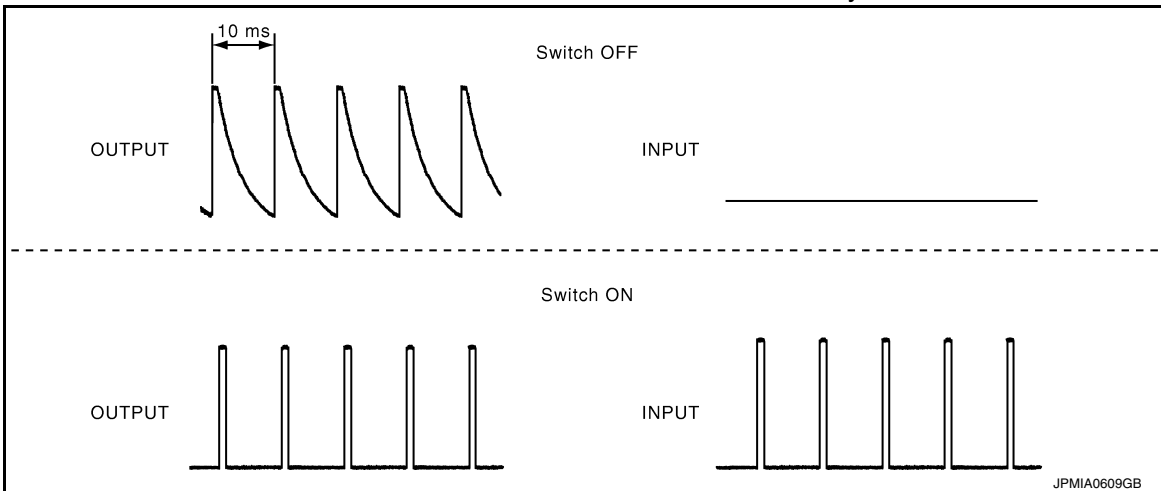
Combination switch INPUT-OUTPUT system list

System	INPUT 1	INPUT 2	INPUT 3	INPUT 4	INPUT 5
OUTPUT 1	—	HI BEAM	PASSING	—	FR FOG
OUTPUT 2	INT VOLUME 1	—	HEADLAMP	AUTO LIGHT	TAIL LAMP
OUTPUT 3	FR WASHER	RR WASHER	—	TURN LH	TURN RH
OUTPUT 4	FR WIPER LOW	FR WIPER HI	FR WIPER INT	—	NO LIGHT
OUTPUT 5	INT VOLUME 2	INT VOLUME 3	RR WIPER INT	RR WIPER ON	—

COMBINATION SWITCH READING FUNCTION

Description

- BCM reads the status of the combination switch at 10 ms intervals normally.



NOTE:

BCM reads the status of the combination switch at 60 ms intervals when BCM is controlled at low power consumption control mode.

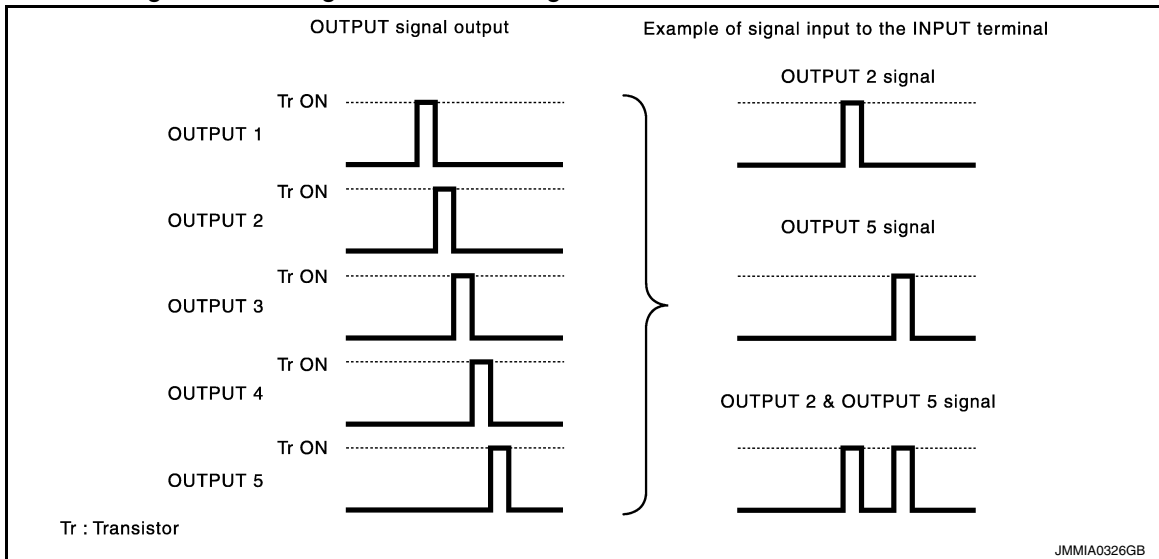
- BCM operates as follows and judges the status of the combination switch.
 - It operates the transistor on OUTPUT side in the following order: OUTPUT 1 → 2 → 3 → 4 → 5, and outputs voltage waveform.
 - The voltage waveform of OUTPUT corresponding to the formed circuit is input into the interface on INPUT side if any (1 or more) switches are ON.

SYSTEM

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

- It reads this change of the voltage as the status signal of the combination switch.

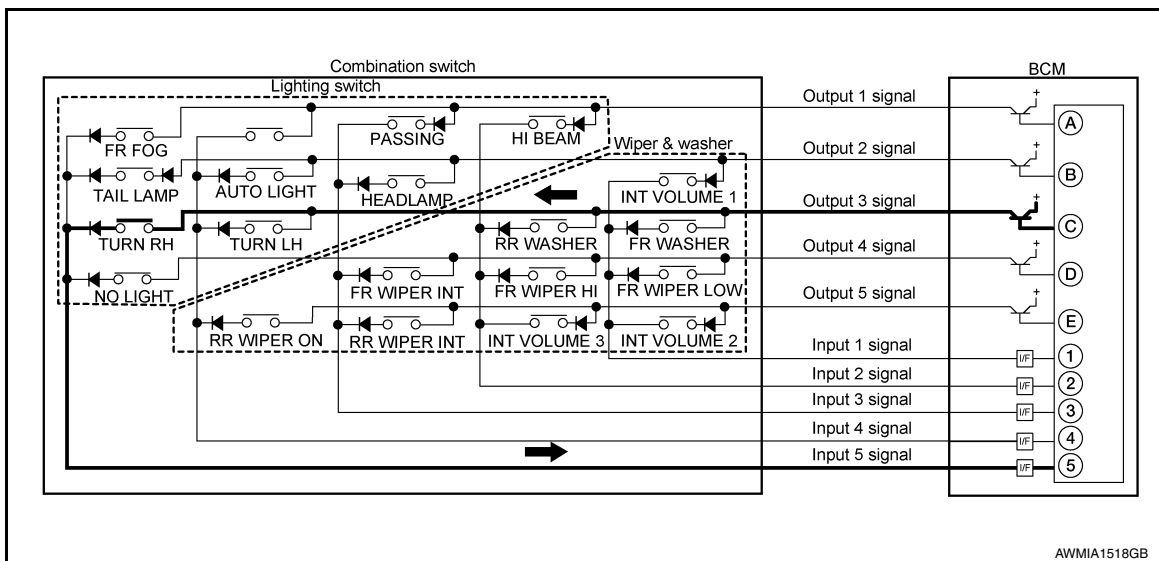


Operation Example

In the following operation example, the combination of the status signals of the combination switch is replaced as follows: INPUT 1 - 5 to "1 - 5" and OUTPUT 1 - 5 to "A - E".

Example 1: When a switch (TURN RH) is turned ON

- The circuit between OUTPUT 3 and INPUT 5 is formed when the TURN RH switch is turned ON.



- BCM detects the combination switch status signal "5C" when the signal of OUTPUT 3 is input to INPUT 5.
- BCM judges that the TURN RH switch is ON when the signal "5C" is detected.

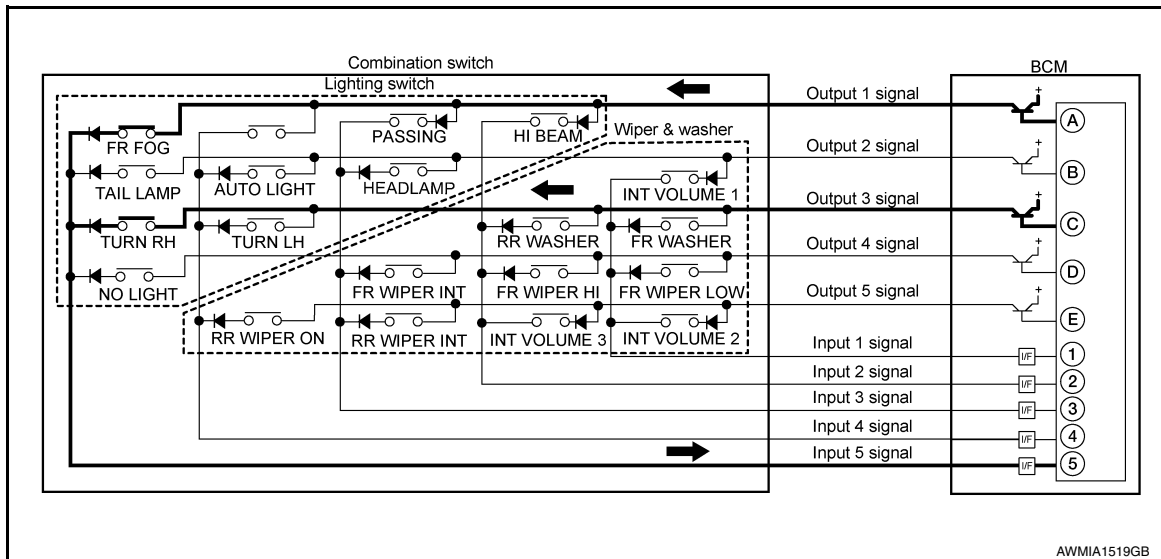
Example 2: When some switches (FR FOG, TURN RH) are turned ON

SYSTEM

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

- The circuits between OUTPUT 1 and INPUT 5 and between OUTPUT 3 and INPUT 5 are formed when the FR FOG switch and TURN RH switch are turned ON.



- BCM detects the combination switch status signal "5AC" when the signals of OUTPUT 1 and OUTPUT 3 are input to INPUT 5.
- BCM judges that the FR FOG switch and TURN RH switch are ON when the signal "5AC" is detected.

WIPER INTERMITTENT DIAL POSITION SETTING (FRONT WIPER INTERMITTENT OPERATION)

BCM judges the wiper intermittent dial 1 - 4 by the status of INT VOLUME 1, 2, and 3 switches.

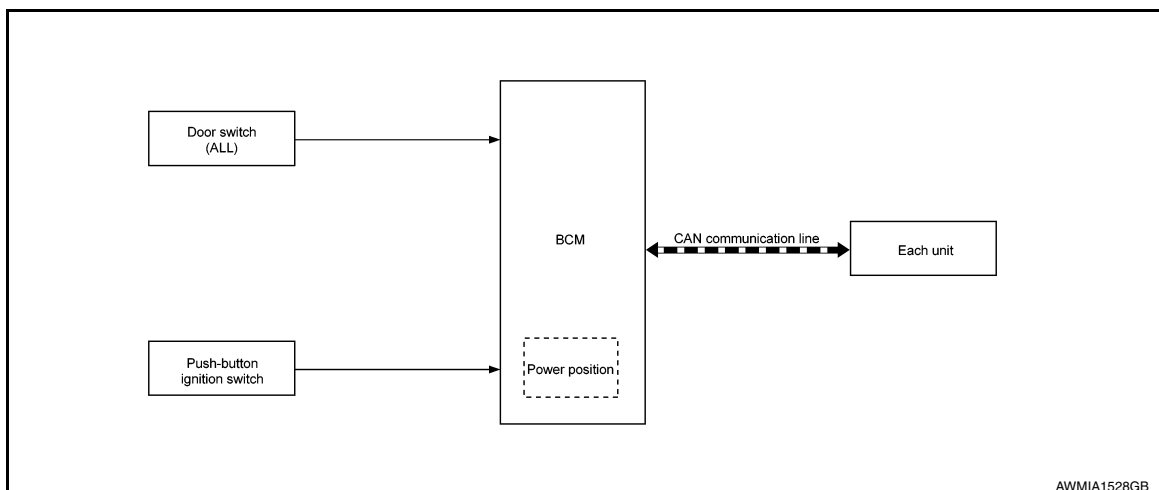
Wiper intermittent dial position	Switch status		
	INT VOLUME 1	INT VOLUME 2	INT VOLUME 3
1	OFF	OFF	OFF
2	ON	OFF	OFF
3	OFF	ON	OFF
4	OFF	OFF	ON

SIGNAL BUFFER SYSTEM

SIGNAL BUFFER SYSTEM : System Description

INFOID:0000000010195906

SYSTEM DIAGRAM



OUTLINE

BCM has the signal transmission function that outputs/transmits each input/received signal to each unit.

SYSTEM

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

SIGNAL TRANSMISSION FUNCTION LIST

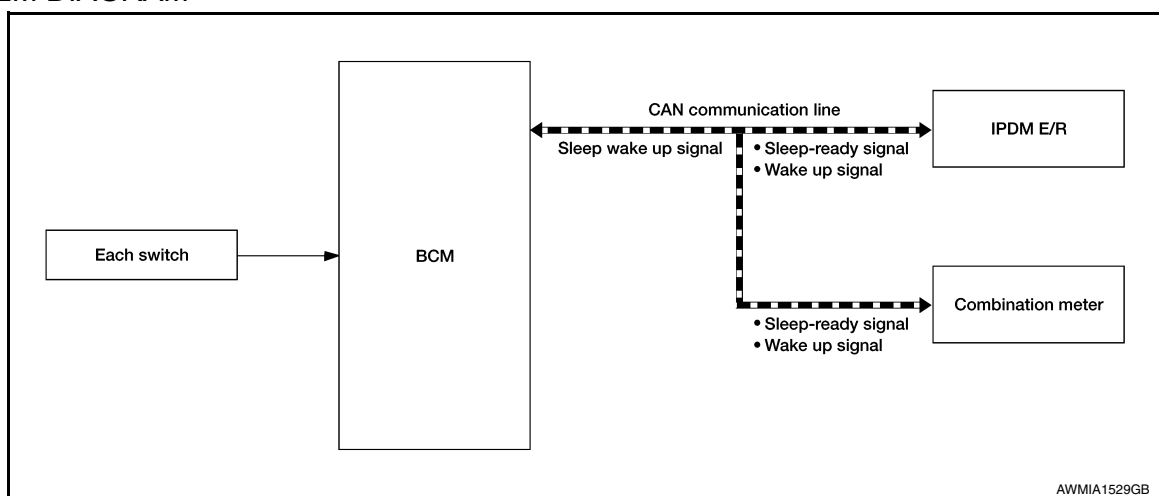
Signal name	Input	Output	Description
- Ignition switch ON signal - Ignition switch signal	Engine switch (push switch)	IPDM E/R (CAN)	Inputs the push-button ignition switch (push switch) signal and transmits the ignition switch status judged with BCM via CAN communication.
Door switch signal	Any door switch	- Combination meter (CAN) - IPDM E/R (CAN)	Inputs the door switch signal and transmits it via CAN communication.

POWER CONSUMPTION CONTROL SYSTEM

POWER CONSUMPTION CONTROL SYSTEM : System Description

INFOID:0000000010195908

SYSTEM DIAGRAM



OUTLINE

- BCM incorporates a power saving control function that reduces the power consumption according to the vehicle status.
- BCM switches the status (control mode) by itself with the power saving control function. It performs the sleep request to each unit (IPDM E/R and combination meter) that operates with the ignition switch OFF.

Normal mode (wake-up)

- CAN communication is normally performed with other units
- Each control with BCM is operating properly

CAN communication sleep mode (CAN sleep)

- CAN transmission is stopped
- Control with BCM only is operating

Low power consumption mode (BCM sleep)

- Low power consumption control is active
- CAN transmission is stopped

LOW POWER CONSUMPTION CONTROL WITH BCM

BCM reduces the power consumption with the following operation in the low power consumption mode.

- The reading interval of each switch changes from 10 ms interval to 60 ms interval.

SLEEP MODE ACTIVATION

- BCM receives the sleep-ready signal (ready) from IPDM E/R and combination meter via CAN communication.
- BCM transmits the sleep wake up signal (sleep) to each unit when all of the CAN sleep conditions are fulfilled.
- Each unit stops the transmission of CAN communication with the sleep wake-up signal. BCM is in CAN communication sleep mode.

SYSTEM

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

- BCM is in the low power consumption mode and performs the low power consumption control when all of the BCM sleep conditions are fulfilled with CAN sleep condition.

Sleep condition

CAN sleep condition	BCM sleep condition
• Receiving the sleep-ready signal (ready) from all units • Ignition switch: OFF • Vehicle security system alarm and panic alarm: No operation • Warning lamp: No operation • Intelligent Key system buzzer: No operation • Brake switch: OFF • Turn signal indicator lamp: No operation • Exterior lamp: OFF • Door lock status: No change • CONSULT communication status: No communication • Meter display signal: Non-transmission • Door switch status: No change • Rear window defogger: OFF	• Interior room lamp battery saver: Time out • RAP system: OFF • Push-button ignition switch (push switch) illumination: OFF • NATS: No operation • Tire pressure monitoring system: Stop

WAKE-UP OPERATION

- BCM changes from the low power consumption mode to the CAN communication sleep mode when the any of the BCM wake-up conditions are fulfilled. Only the control with BCM is activated.
- BCM transmits the sleep wake-up signal (wake up) to each unit when any of the CAN wake-up conditions are fulfilled. It changes from the low power consumption mode or the CAN communication sleep mode to the normal mode.
- Each unit starts the transmission of CAN communication with the sleep wake-up signal. In addition, the combination meter transmits the wake-up signal to BCM via CAN communication to report the CAN communication start.

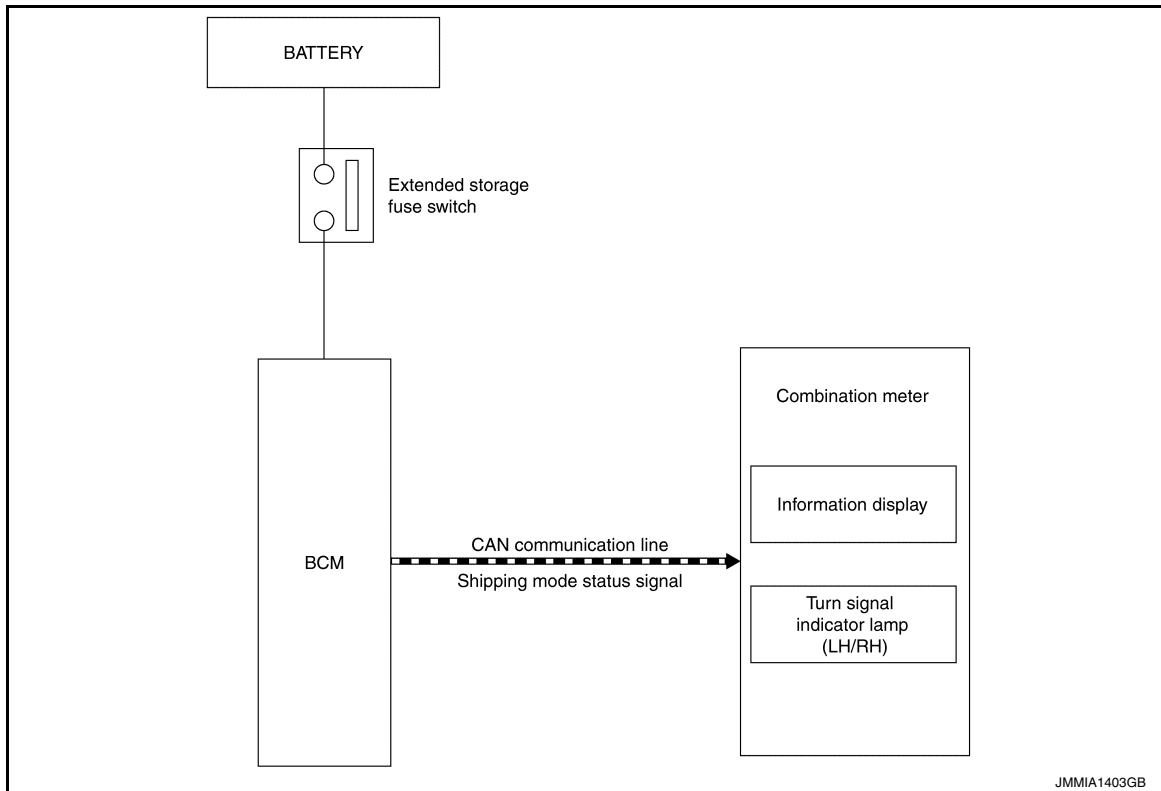
BCM wake-up condition	CAN wake-up condition
• Door lock assembly LH (key cylinder switch): Lock or unlock • Door lock switch: OFF→ON • Door unlock switch: OFF→ON • Back door opener switch: OFF→ON	• Receiving the sleep-ready signal (Not-ready) from any units • Push-button ignition switch (push switch): OFF→ON • Hazard switch: OFF→ON • PASSING switch: OFF→ON, ON→OFF • TAIL LAMP switch: OFF→ON • Driver door switch: OFF→ON, ON→OFF • Passenger door switch: OFF → ON, ON → OFF • Back door switch: OFF→ON, ON→OFF • Driver door request switch: OFF→ON • Passenger door request switch: OFF→ON • Back door request switch: OFF→ON • Stop lamp switch signal: ON

SHIPPING MODE CONTROL SYSTEM

SHIPPING MODE CONTROL SYSTEM : System Description

INFOID:000000010195971

SYSTEM DIAGRAM



DESCRIPTION

- BCM switches the status (shipping mode or normal mode) by itself according to the extended storage fuse switch condition, and transmits shipping mode status signal to combination meter and each unit via CAN communication.
 - When shipping mode function operates, each control unit does not detect DTCs.
 - BCM control functions are limited in shipping mode. Refer to [BCS-74, "Description"](#).
 - The combination meter displays extended storage fuse warning message* on the information display, and turns the turn signal indicator lamp (LH/RH) ON, when BCM is in shipping mode.
- *: When shipping mode function operates, "SHIPPING MODE ON PUSH STORAGE FUSE" is displayed.

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

DIAGNOSIS SYSTEM (BCM)

COMMON ITEM

COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)

INFOID:0000000010195909

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with BCM.

Direct Diagnostic Mode	Description
Ecu Identification	The BCM part number is displayed.
Self Diagnostic Result	The BCM self diagnostic results are displayed.
Data Monitor	The BCM input/output data is displayed in real time.
Active Test	The BCM activates outputs to test components.
Work support	The settings for BCM functions can be changed.
Configuration	- The vehicle specification can be read and saved. - The vehicle specification can be written when replacing BCM.
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.

SYSTEM APPLICATION

BCM can perform the following functions.

System	Sub System	Direct Diagnostic Mode						
		Ecu Identification	Self Diagnostic Result	Data Monitor	Active Test	Work support	Configuration	CAN Diag Support Mntr
Door lock	DOOR LOCK		×	×	×	×		
Rear window defogger	REAR DEFOGGER			×	×	×		
Warning chime	BUZZER			×	×			
Interior room lamp timer	INT LAMP			×	×	×		
Exterior lamp	HEADLAMP			×	×	×		
Wiper and washer	WIPER			×	×	×		
Turn signal and hazard warning lamps	FLASHER			×	×			
Intelligent Key system	INTELLIGENT KEY		×	×	×	×		
Combination switch	COMB SW			×				
BCM	BCM	×	×			×	×	×
Immobilizer	IMMU		×	×	×			
Interior room lamp battery saver	BATTERY SAVER			×	×			
Back door open	TRUNK			×				
Vehicle security system	THEFT ALM			×	×	×		
RAP system	RETAINED PWR			×				
Signal buffer system	SIGNAL BUFFER			×				
TPMS	AIR PRESSURE MONITOR		×	×	×	×		

DOOR LOCK

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

DOOR LOCK : CONSULT Function (BCM - DOOR LOCK)

INFOID:0000000010195910

SELF DIAGNOSTIC RESULT

Refer to [BCS-48, "DTC Index"](#).

DATA MONITOR

Monitor Item [Unit]	Description
REQ SW-DR [On/Off]	Indicates condition of door request switch LH.
REQ SW-AS [On/Off]	Indicates condition of door request switch RH.
REQ SW-BD/TR [On/Off]	Indicates condition of back door request switch.
DOOR SW-DR [On/Off]	Indicates condition of front door switch LH.
DOOR SW-AS [On/Off]	Indicates condition of front door switch RH.
DOOR SW-RR [On/Off]	Indicates condition of rear door switch RH.
DOOR SW-RL [On/Off]	Indicates condition of rear door switch LH.
DOOR SW-BK [On/Off]	Indicates condition of back door switch.
CDL LOCK SW [On/Off]	Indicates condition of lock signal from door lock and unlock switch.
CDL UNLOCK SW [On/Off]	Indicates condition of unlock signal from door lock and unlock switch.
KEY CYL LK-SW [On/Off]	Indicates condition of lock signal from door key cylinder switch.
KEY CYL UN-SW [On/Off]	Indicates condition of unlock signal from door key cylinder switch.

ACTIVE TEST

Test Item	Description
DOOR LOCK	This test is able to check door lock operation [ALL LOCK/ALL UNLK].

WORK SUPPORT

Support Item	Setting	Description
DOOR LOCK-UNLOCK SET	On*	Automatic door locks function ON.
	Off	Automatic door locks function OFF.
AUTO UNLOCK TYPE	MODE2	Driver door only unlocks automatically.
	MODE1*	All doors unlock automatically.
AUTO LOCK FUNCTION	MODE3	This mode is not used.
	MODE2	Doors lock automatically when shifted out of P (park).
	MODE1*	Doors lock automatically when vehicle speed reaches 24 km/h (15 mph).
	Off	—
AUTO UNLOCK FUNCTION	MODE3	This mode is not used.
	MODE2	Doors unlock automatically when shifted into P (park).
	MODE1*	Doors unlock automatically when ignition is switched from ON to OFF.
	Off	—

* : Initial setting

REAR DEFOGGER

REAR DEFOGGER : CONSULT Function (BCM - REAR DEFOGGER)

INFOID:0000000010195911

DATA MONITOR

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

Monitor Item [Unit]	Description
PUSH SW [On/Off]	Indicates condition of push-button ignition switch.
REAR DEF SW [On/Off]	Indicates condition of rear window defogger switch.

ACTIVE TEST

Test Item	Description
REAR DEFOGGER	This test is able to check rear window defogger operation [Off/On].

WORK SUPPORT

Support Item	Setting	Description
SET R-DEF TIMER	MODE3	Rear defogger turns OFF after 1 minute.
	MODE2	Rear defogger remains ON until turned OFF.
	MODE1*	Rear defogger turns OFF after 15 minutes.

* : Initial setting

BUZZER

BUZZER : CONSULT Function (BCM - BUZZER)

INFOID:0000000010195912

DATA MONITOR

Monitor Item [Unit]	Description
PUSH -SW [On/Off]	Indicates condition of push-button ignition switch.
VEH SPEED 1 [km/h]	Indicates vehicle speed signal received from ABS on CAN communication line.
TAIL LAMP SW [On/Off]	Indicates condition of combination switch.
FR FOG SW [On/Off]	Indicates condition of front fog lamp switch.
DOOR SW-DR [On/Off]	Indicates condition of front door switch LH.
CDL LOCK SW [On/Off]	Indicates condition of lock signal from door lock and unlock switch.

ACTIVE TEST

Test Item	Description
SEAT BELT WARN TEST	This test is able to check seat belt warning chime operation [On/Off].
LIGHT WARN ALM	This test is able to check light warning chime operation [On/Off].
REVERSE WARNING	This test is able to check reverse warning chime operation [On/Off].
ID REGIST WARNING	This test is able to check TPMS sensor ID regist warning chime operation [On/Off].

INT LAMP

INT LAMP : CONSULT Function (BCM - INT LAMP)

INFOID:0000000010195913

DATA MONITOR

Monitor Item [Unit]	Description
REQ SW -DR [On/Off]	Indicates condition of door request switch LH.
REQ SW -AS [On/Off]	Indicates condition of door request switch RH.
PUSH -SW [On/Off]	Indicates condition of push-button ignition switch.
DOOR SW-DR [On/Off]	Indicates condition of front door switch LH.
DOOR SW-AS [On/Off]	Indicates condition of front door switch RH.
DOOR SW-RR [On/Off]	Indicates condition of rear door switch RH.

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

Monitor Item [Unit]	Description
DOOR SW-RL [On/Off]	Indicates condition of rear door switch LH.
DOOR SW-BK [On/Off]	Indicates condition of back door switch.
CDL LOCK SW [On/Off]	Indicates condition of lock signal from door lock and unlock switch.
CDL UNLOCK SW [On/Off]	Indicates condition of unlock signal from door lock and unlock switch.
KEY CYL LK-SW [On/Off]	Indicates condition of lock signal from door key cylinder switch.
KEY CYL UN-SW [On/Off]	Indicates condition of unlock signal from door key cylinder switch.
RKE-LOCK [On/Off]	Indicates condition of lock signal from Intelligent Key.
RKE-UNLOCK [On/Off]	Indicates condition of unlock signal from Intelligent Key.

ACTIVE TEST

Test Item	Description
INT LAMP	This test is able to check interior room lamp operation [On/Off].

WORK SUPPORT

Support Item	Setting	Description
SET I/L D-UNLCK INTCON	On	Interior room lamp timer function ON.
	Off*	Interior room lamp timer function OFF.

*: Initial setting

HEADLAMP

HEADLAMP : CONSULT Function (BCM - HEADLAMP)

INFOID:0000000010195914

DATA MONITOR

Monitor Item [Unit]	Description
PUSH SW [On/Off]	Indicates condition of push-button ignition switch.
ENGINE STATE [STOP/STALL/CRANK/ RUN]	Indicates engine status received from ECM on CAN communication line.
VEH SPEED 1 [km/h]	Indicates vehicle speed signal received from ABS on CAN communication line.
TURN SIGNAL R [On/Off]	Indicates condition of combination switch.
TURN SIGNAL L [On/Off]	
TAIL LAMP SW [On/Off]	
HI BEAM SW [On/Off]	
HEAD LAMP SW [On/Off]	
LIGHT OFF SW [On/Off]	
PASSING SW [On/Off]	
AUTO LIGHT SW [On/Off]	
FR FOG SW [On/Off]	
DOOR SW-DR [On/Off]	
DOOR SW-AS [On/Off]	Indicates condition of front door switch RH.
DOOR SW-RR [On/Off]	Indicates condition of rear door switch RH.
DOOR SW-RL [On/Off]	Indicates condition of rear door switch LH.
DOOR SW-BK [On/Off]	Indicates condition of back door switch.
OPTI SEN (DTCT) [V]	Indicates outside brightness voltage signal from optical sensor.
OPTI SEN (FILT) [V]	Indicates outside brightness voltage signal from optical sensor filtered by BCM.

ACTIVE TEST

A

B

C

D

E

F

G

H

I

J

K

L

BCS

N

O

P

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

Test Item	Description
FR FOG LAMP	This test is able to check front fog lamp operation [On/Off].
STOP LAMP 1	This test is able to check rear combination lamp stop lamp operation [On/Off].
STOP LAMP 3	This test is able to check high-mounted stop lamp operation [On/Off].

WORK SUPPORT

Support Item	Setting	Description
TWILIGHT ON	MODE2*	Autolamp function ON.
	MODE1	Autolamp function OFF.
CUSTOM A/LIGHT SETTING	MODE4	Less sensitive than normal setting (turns ON later).
	MODE3	More sensitive than MODE2.
	MODE2	More sensitive than normal setting (turns ON earlier).
	MODE1*	Normal setting.
ILL DELAY SET	MODE 8	Autolamp delay timer.
	MODE 7	
	MODE 6	
	MODE 4	
	MODE 5	
	MODE 3	
	MODE 2	
	MODE 1*	

*: Initial setting

WIPER

WIPER : CONSULT Function (BCM - WIPER)

INFOID:0000000010195915

DATA MONITOR

Monitor Item [Unit]	Description
PUSH SW [On/Off]	Indicates condition of push-button ignition switch.
VEH SPEED 1 [km/h]	Indicates vehicle speed signal received from ABS on CAN communication line.
FR WIPER HI [On/Off]	Indicates condition of wiper operation of combination switch.
FR WIPER LOW [On/Off]	
FR WASHER SW [On/Off]	
FR WIPER INT [On/Off]	
FR WIPER STOP [On/Off]	Indicates front wiper auto stop signal received from IPDM E/R on CAN communication line.
INT VOLUME [1 – 7]	Indicates condition of intermittent wiper operation of combination switch.
RR WIPER ON [On/Off]	Indicates condition of rear wiper operation of combination switch.
RR WIPER INT [On/Off]	
RR WASHER SW [On/Off]	
RR WIPER STOP [On/Off]	Indicates rear wiper motor auto stop input from rear wiper motor.

ACTIVE TEST

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

Test Item	Description
FR WIPER	This test is able to check front wiper operation [Hi/Lo/INT/Off].
RR WIPER	This test is able to check rear wiper operation [On/Off].

WORK SUPPORT

Support Item	Setting	Description
WIPER SPEED SETTING	On	Front wiper intermittent time linked with vehicle speed and wiper intermittent dial position.
	Off*	Front wiper intermittent time is not linked with vehicle speed and wiper intermittent dial position.

*: Initial Setting

FLASHER

FLASHER : CONSULT Function (BCM - FLASHER)

INFOID:0000000010195916

DATA MONITOR

Monitor Item [Unit]	Description
REQ SW -DR [On/Off]	Indicates condition of door request switch LH.
REQ SW -AS [On/Off]	Indicates condition of door request switch RH.
PUSH SW [On/Off]	Indicates condition of push-button ignition switch.
TURN SIGNAL R [On/Off]	Indicates condition of turn signal function of combination switch.
TURN SIGNAL L [On/Off]	
HAZARD SW [On/Off]	Indicates condition of hazard switch.
RKE-LOCK [On/Off]	Indicates condition of lock signal from Intelligent Key.
RKE-UNLOCK [On/Off]	Indicates condition of unlock signal from Intelligent Key.
RKE-PANIC [On/Off]	Indicates condition of panic alarm signal from Intelligent Key.

ACTIVE TEST

Test Item	Description
FLASHER	This test is able to check turn signal lamp operation [Off/LH/RH].

INTELLIGENT KEY

INTELLIGENT KEY : CONSULT Function (BCM - INTELLIGENT KEY)

INFOID:0000000010195918

SELF DIAGNOSTIC RESULT

Refer to [BCS-48, "DTC Index"](#).

DATA MONITOR

Monitor Item [Unit]	Main	Description
REQ SW -DR [On/Off]	×	Indicates condition of door request switch LH.
REQ SW -AS [On/Off]	×	Indicates condition of door request switch RH.
REQ SW -BD/TR [On/Off]	×	Indicates condition of back door request switch.
PUSH SW [On/Off]		Indicates condition of push-button ignition switch.
BRAKE SW 1 [On/Off]	×	Indicates condition of brake pedal position switch.
BRAKE SW 2 [On/Off]		Indicates condition of stop lamp switch.
DETE/CANCL SW [On/Off]	×	Indicates condition of park position switch.

A

B

C

D

E

F

G

H

I

J

K

L

BCS

N

O

P

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

Monitor Item [Unit]	Main	Description
PUSH SW -IPDM [On/Off]		Indicates condition of push-button ignition switch received from IPDM E/R on CAN communication line.
IGN RLY1 -F/B [On/Off]		Indicates condition of ignition relay 1 received from IPDM E/R on CAN communication line.
NEUTRAL SW -IPDM [On/Off]		Indicates condition of transmission range switch received from IPDM E/R on CAN communication line.
SFT PN -IPDM [On/Off]		Indicates condition of P (park) or N (neutral) position from TCM on CAN communication line.
STARTER RELAY -IPDM [On/Off]		Indicates condition of starter relay received from IPDM E/R on CAN communication line.
ENGINE STATE [STOP/START/CRANK/RUN]	×	Indicates condition of engine state from ECM on CAN communication line.
REVERSE SIGNAL -IPDM [On/Off]		Indicates condition of transmission range switch received from IPDM E/R on CAN communication line.
CRANKING PERMIT -ECM [PERMIT]		Indicates condition of engine start possibility from ECM on CAN communication line.
IS STATUS -ECM [On/Off]		Indicates IS status from ECM on CAN communication line.
STARTER CUT RELAY -ECM [On/Off]		Indicates condition of starter cut relay from ECM on CAN communication line.
VEH SPEED 1 [mph/km/h]	×	Indicates condition of vehicle speed signal received from ABS on CAN communication line.
VEH SPEED 2 [mph/km/h]	×	Indicates condition of vehicle speed signal received from combination meter on CAN communication line.
IGN REQ -IPDM [On/Off]		Indicates condition of ignition request from IPDM E/R on CAN communication line.
STARTER REQ -IPDM [On/Off]		Indicates condition of starter request received from IPDM E/R on CAN communication line.
DOOR STAT -DR [LOCK/READY/UNLK]	×	Indicates condition of driver side door status.
DOOR STAT -AS [LOCK/READY/UNLK]	×	Indicates condition of passenger side door status.
DOOR STAT -RR [LOCK/READY/UNLK]	×	Indicates condition of rear right side door status.
DOOR STAT -RL [LOCK/READY/UNLK]	×	Indicates condition of rear left side door status.
BK DOOR STATE [LOCK/READY/UNLK]	×	Indicates condition of back door status.
ID OK FLAG [Set/Reset]		Indicates condition of Intelligent Key ID.
PRMT ENG STRT [Set/Reset]		Indicates condition of engine start possibility.
PRMT RKE STRT [Set/Reset]		Indicates condition of engine start possibility from Intelligent Key.
I-KEY OK FLAG [Key ON/Key OFF]	×	Indicates condition of Intelligent Key OK flag.
PRBT ENG STRT [Set/Reset]		Indicates condition of engine start prohibit.
ID AUTHENT CANCEL TIMER [STOP]		Indicates condition of Intelligent Key ID authentication.
ACC BATTERY SAVER [STOP]		Indicates condition of battery saver.
CRNK PRBT TMR [On/Off]		Indicates condition of crank prohibit timer.
AUT CRNK TMR [On/Off]		Indicates condition of automatic engine crank timer from Intelligent Key.
CRNK PRBT TME [sec]		Indicates condition of engine crank prohibit time.
AUTO CRNK TME [sec]		Indicates condition of automatic engine crank time from Intelligent Key.
CRANKING TME [sec]		Indicates condition of engine cranking time from Intelligent Key.
RKE OPE COUN1 [0-19]	×	When remote keyless entry receiver receives the signal transmitted while operating on Intelligent Key, the numerical value start changing.
RKE OPE COUN2 [0-19]	×	When remote keyless entry receiver receives the signal transmitted while operating on Intelligent Key, the numerical value start changing.
RKE-LOCK [On/Off]		Indicates condition of lock signal from Intelligent Key.
RKE-UNLOCK [On/Off]		Indicates condition of unlock signal from Intelligent Key.

DIAGNOSIS SYSTEM (BCM)

[WITH INTELLIGENT KEY SYSTEM]

< SYSTEM DESCRIPTION >

Monitor Item [Unit]	Main	Description
RKE-TR/BD [On/Off]		Indicates condition of back door open signal from Intelligent Key.
RKE-PANIC [On/Off]		Indicates condition of panic signal from Intelligent Key.
RKE-MODE CHG [On/Off]		Indicates condition of mode change signal from Intelligent Key.
RKE PBD [On/Off]		Indicates condition of automatic back door signal from Intelligent Key.

ACTIVE TEST

Test Item	Description
OUTSIDE BUZZER	This test is able to check Intelligent Key warning buzzer operation [On/Off].
INSIDE BUZZER	This test is able to check combination meter warning chime operation [Take Out/Knob/Key/Off].
INDICATOR	This test is able to check combination meter warning lamp operation [KEY ON/KEY IND/Off].
ENGINE SW ILLUMI	This test is able to check push-button ignition switch START indicator operation [On/Off].
IGNITION RELAY	This test is able to check ignition relay operation [On/Off].

WORK SUPPORT

Support Item	Setting	Description
SHORT CRANKING OUTPUT	Start	70 msec
		100 msec
		200 msec
	End	—
INSIDE ANT DIAGNOSIS	—	This function allows inside key antenna self-diagnosis.

COMB SW

COMB SW : CONSULT Function (BCM - COMB SW)

INFOID:000000010195919

DATA MONITOR

Monitor Item [Unit]	Description
FR WIPER HI [On/Off]	Indicates condition of wiper operation of combination switch.
FR WIPER LOW [On/Off]	
FR WASHER SW [On/Off]	
FR WIPER INT [On/Off]	
INT VOLUME [1 - 7]	Indicates condition of intermittent wiper operation of combination switch.
RR WIPER ON [On/Off]	Indicates condition of rear wiper operation of combination switch.
RR WIPER INT [On/Off]	
RR WASHER SW [On/Off]	
TURN SIGNAL R [On/Off]	Indicates condition of right turn signal operation of combination switch.
TURN SIGNAL L [On/Off]	Indicates condition of left turn signal operation of combination switch.
TAIL LAMP SW [On/Off]	Indicates condition of tail lamp switch operation of combination switch.
HI BEAM SW [On/Off]	Indicates condition of Hi beam switch operation of combination switch.
HEAD LAMP SW [On/Off]	Indicates condition of head lamp switch operation of combination switch.
LIGHT OFF SW [On/Off]	Indicates condition of no light switch operation of combination switch.
PASSING SW [On/Off]	Indicates condition of passing switch operation of combination switch.
AUTO LIGHT SW [On/Off]	Indicates condition of auto light switch operation of combination switch.
FR FOG SW [On/Off]	Indicates condition of front fog lamp switch operation of combination switch.

BCM

A

B

C

D

E

F

G

H

I

J

K

L

BCS

N

O

P

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

BCM : CONSULT Function (BCM - BCM)

INFOID:0000000010195920

ECU IDENTIFICATION

The BCM part number is displayed.

SELF DIAGNOSTIC RESULT

Refer to [BCS-48, "DTC Index"](#).

WORK SUPPORT

Support Item	Setting	Description
RESET SETTING VALUE	Reset	Returns BCM to initial value in factory shipment.
	Cancel	Cancels the reset function.

CONFIGURATION

Refer to [BCS-61, "CONFIGURATION \(BCM\) : Description"](#).

CAN DIAG SUPPORT MNTR

Refer to [LAN-14, "CAN Diagnostic Support Monitor"](#).

IMMU

IMMU : CONSULT Function (BCM - IMMU)

INFOID:0000000010195921

SELF DIAGNOSTIC RESULT

Refer to [BCS-48, "DTC Index"](#).

DATA MONITOR

Monitor Item [Unit]	Description
PUSH SW [On/Off]	Indicates condition of push-button ignition switch.

ACTIVE TEST

Test Item	Description
THEFT IND	This test is able to check security indicator operation [On/Off].

WORK SUPPORT

Support Item	Setting	Description
CONFIRM DONGLE ID	—	Dongle ID can be checked.

BATTERY SAVER

BATTERY SAVER : CONSULT Function (BCM - BATTERY SAVER)

INFOID:0000000010195922

DATA MONITOR

Monitor Item [Unit]	Description
REQ SW -DR [On/Off]	Indicates condition of door request switch LH.
REQ SW -AS [On/Off]	Indicates condition of door request switch RH.
PUSH SW [On/Off]	Indicates condition push-button ignition switch.
DOOR SW-DR [On/Off]	Indicates condition of front door switch LH.
DOOR SW-AS [On/Off]	Indicates condition of front door switch RH.
DOOR SW-RR [On/Off]	Indicates condition of rear door switch RH.
DOOR SW-RL [On/Off]	Indicates condition of rear door switch LH.
DOOR SW-BK [On/Off]	Indicates condition of back door switch.

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

Monitor Item [Unit]	Description
CDL LOCK SW [On/Off]	Indicates condition of lock signal from door lock and unlock switch.
CDL UNLOCK SW [On/Off]	Indicates condition of unlock signal from door lock and unlock switch.
KEY CYL LK-SW [On/Off]	Indicates condition of lock signal from door key cylinder switch.
KEY CYL UN-SW [On/Off]	Indicates condition of unlock signal from door key cylinder switch.
RKE-LOCK [On/Off]	Indicates condition of lock signal from Intelligent Key.
RKE-UNLOCK [On/Off]	Indicates condition of unlock signal from Intelligent Key.

ACTIVE TEST

Test item	Description
BATTERY SAVER	This test is able to check battery saver operation [On/Off].

TRUNK

TRUNK : CONSULT Function (BCM - TRUNK)

INFOID:0000000010195923

DATA MONITOR

Monitor Item [Unit]	Description
PUSH SW [On/Off]	Indicates condition of push-button ignition switch.
DETECTION SENSOR (BK) [On/Off]	NOTE: This item is displayed, but cannot be monitored.
VEH SPEED 1 [km/h]	Indicates vehicle speed signal received from ABS on CAN communication line.
BACK DOOR OPENER SW [On/Off]	Indicates condition of back door opener switch.
RKE-TR/BD [On/Off]	Indicates condition of back door open signal from Intelligent Key.

THEFT ALM

THEFT ALM : CONSULT Function (BCM - THEFT ALM)

INFOID:0000000010195924

DATA MONITOR

Monitored Item	Description
REQ SW -DR [On/Off]	Indicates condition of door request switch LH.
REQ SW -AS [On/Off]	Indicates condition of door request switch RH.
REQ SW-BD/TR [On/Off]	Indicates condition of back door request switch.
PUSH SW [On/Off]	Indicates condition of push-button ignition switch.
DOOR SW-DR [On/Off]	Indicates condition of front door switch LH.
DOOR SW-AS [On/Off]	Indicates condition of front door switch RH.
DOOR SW-RR [On/Off]	Indicates condition of rear door switch RH.
DOOR SW-RL [On/Off]	Indicates condition of rear door switch LH.
DOOR SW-BK [On/Off]	Indicates condition of back door switch.
CDL LOCK SW [On/Off]	Indicates condition of lock signal from door lock and unlock switch.
CDL UNLOCK SW [On/Off]	Indicates condition of unlock signal from door lock and unlock switch.
KEY CYL LK-SW [On/Off]	Indicates condition of lock signal from door key cylinder switch.
KEY CYL UN-SW [On/Off]	Indicates condition of unlock signal from door key cylinder switch.
RKE-LOCK [On/Off]	Indicates condition of lock signal from Intelligent Key.
RKE-UNLOCK [On/Off]	Indicates condition of unlock signal from Intelligent Key.
RKE-TR/BD [On/Off]	Indicates condition of back door open signal from Intelligent Key.

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

ACTIVE TEST

Test Item	Description
FLASHER	This test is able to check turn signal lamp operation [LH/RH/Off].
THEFT IND	This test is able to check security indicator lamp operation [On/Off].
VEHICLE SECURITY HORN	This test is able to check vehicle security horn operation [On].
HEADLAMP(HI)	This test is able to check vehicle security lamp operation [On].

WORK SUPPORT

Support Item	Setting	Description
SECURITY ALARM SET	On	Security alarm ON.
	Off	Security alarm OFF.

RETAINED PWR

RETAINED PWR : CONSULT Function (BCM - RETAINED PWR)

INFOID:0000000010195925

DATA MONITOR

Monitor Item [Unit]	Description
DOOR SW-DR [On/Off]	Indicates condition of front door switch LH.
DOOR SW-AS [On/Off]	Indicates condition of front door switch RH.

SIGNAL BUFFER

SIGNAL BUFFER : CONSULT Function (BCM - SIGNAL BUFFER)

INFOID:0000000010195926

DATA MONITOR

Monitor Item [Unit]	Description
PUSH SW [On/Off]	Indicates condition of the push-button ignition switch.

AIR PRESSURE MONITOR

AIR PRESSURE MONITOR : CONSULT Function (BCM-AIR PRESSURE MONITOR)

INFOID:0000000010195927

NOTE:

The Signal Tech II Tool (J-50190) can be used to perform the following functions. Refer to the Signal Tech II User Guide for additional information.

- Activate and display TPMS sensor IDs
- Display tire pressure reported by the TPMS sensor
- Read TPMS DTCs
- Register TPMS sensor IDs
- Check Intelligent Key relative signal strength
- Confirm vehicle Intelligent Key antenna signal strength

SELF DIAGNOSTIC RESULT

NOTE:

Before performing Self Diagnostic Result, be sure to register the sensor ID or the actual malfunction may be different from that displayed on CONSULT.

Refer to [BCS-48. "DTC Index"](#).

DATA MONITOR

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

Monitor Item [Unit]	Description
AIR PRESS FL [kPa, kg/cm ² or Psi]	Indicates air pressure of front LH tire.
AIR PRESS FR [kPa, kg/cm ² or Psi]	Indicates air pressure of front RH tire.
AIR PRESS RR [kPa, kg/cm ² or Psi]	Indicates air pressure of rear RH tire.
AIR PRESS RL [kPa, kg/cm ² or Psi]	Indicates air pressure of rear LH tire.
ID REGST FL1 [Done/Yet]	Indicates ID registration status of front LH sensor.
ID REGST FR1 [Done/Yet]	Indicates ID registration status of front RH sensor.
ID REGST RR1 [Done/Yet]	Indicates ID registration status of rear RH sensor.
ID REGST RL1 [Done/Yet]	Indicates ID registration status of rear LH sensor.
WARNING LAMP [Off/On]	Indicates condition of low tire pressure warning lamp in combination meter.
BUZZER [Off/On]	Indicates condition of buzzer in combination meter.

ACTIVE TEST

Test Item	Description
FLASHER	This test is able to check turn signal lamp operation [Off/LH/RH].
HORN	This test is able to check horn operation [On].
WARNING LAMP	This test is able to check tire pressure warning lamp operation [On/Off].
ID REGIST WARNING	This test is able to check ID regist warning chime operation [On/Off].

WORK SUPPORT

Support Item	Description
ID READ	The registered ID number is displayed.
ID REGIST	Refer to WT-21. "Description" .

BCS

ECU DIAGNOSIS INFORMATION

BCM

Reference Value

INFOID:0000000010195928

NOTE:

The Signal Tech II Tool (J-50190) can be used to perform the following functions. Refer to the Signal Tech II User Guide for additional information.

- Activate and display TPMS sensor IDs
- Display tire pressure reported by the TPMS sensor
- Read TPMS DTCs
- Register TPMS sensor IDs
- Check Intelligent Key relative signal strength
- Confirm vehicle Intelligent Key antenna signal strength

VALUES ON THE DIAGNOSIS TOOL

Monitor Item	Condition	Value/Status
ACC BATTERY SAVER	When battery saver is OFF.	STOP
AIR PRESS FL	Front left tire air pressure value	kPa, kg/cm ² , psi
AIR PRESS FR	Front right tire air pressure value	kPa, kg/cm ² , psi
AIR PRESS RL	Rear left tire air pressure value	kPa, kg/cm ² , psi
AIR PRESS RR	Rear right tire air pressure value	kPa, kg/cm ² , psi
AUT CRNK TMR	When the remote engine start timer is OFF.	Off
	When the remote engine start timer is ON.	On
AUTO CRNK TME	Remote engine start timer duration.	sec
AUTO LIGHT SW	Lighting switch OFF	Off
	Lighting switch AUTO	On
BACK DOOR OPENER SW	Back door opener switch OFF	Off
	Back door opener switch pressed	On
BK DOOR STATE	Back door LOCK status	LOCK
	Back door UNLOCK status	UNLK
	Wait with selective UNLOCK operation (5 seconds)	READY
BRAKE SW 1	Brake pedal released	On
	Brake pedal depressed	Off
BRAKE SW 2	Brake pedal released	Off
	Brake pedal depressed	On
BUZZER	Buzzer in combination meter OFF	Off
	Buzzer in combination meter ON	On
CDL LOCK SW	Door lock/unlock switch does not operate	Off
	Press door lock/unlock switch to the LOCK side	On
CDL UNLOCK SW	Door lock/unlock switch does not operate	Off
	Press door lock/unlock switch to the UNLOCK side	On
CRANKING PERMIT - ECM	When engine start is permitted	PERMIT
CRANKING TME	Engine start timer duration.	sec
CRNK PRBT TME	Engine start prohibit timer duration.	sec
CRNK PRBT TMR	When the engine start prohibit timer is OFF.	Off
	When the engine start prohibit timer is ON.	On

BCM

< ECU DIAGNOSIS INFORMATION >

[WITH INTELLIGENT KEY SYSTEM]

Monitor Item	Condition	Value/Status
DETE/CANCL SW	When selector lever is in P position	Off
	When selector lever is in any position other than P	On
DOOR STAT-AS	Passenger door LOCK status	LOCK
	Passenger door UNLOCK status	UNLK
	Wait with selective UNLOCK operation (5 seconds)	READY
DOOR STAT-DR	Driver door LOCK status	LOCK
	Driver door UNLOCK status	UNLK
	Wait with selective UNLOCK operation (5 seconds)	READY
DOOR STAT-RL	Rear left door LOCK status	LOCK
	Rear left door UNLOCK status	UNLK
	Wait with selective UNLOCK operation (5 seconds)	READY
DOOR STAT-RR	Rear right door LOCK status	LOCK
	Rear right door UNLOCK status	UNLK
	Wait with selective UNLOCK operation (5 seconds)	READY
DOOR SW-AS	Front door RH closed	Off
	Front door RH opened	On
DOOR SW-BK	Back door closed	Off
	Back door opened	On
DOOR SW-DR	Front door LH closed	Off
	Front door LH opened	On
DOOR SW-RL	Rear door LH closed	Off
	Rear door LH opened	On
DOOR SW-RR	Rear door RH closed	Off
	Rear door RH opened	On
ENGINE STATE	Engine stopped	STOP
	While the engine stalls	STALL
	At engine cranking	CRANK
	Engine running	RUN
FAN ON SIG	Blower motor fan switch OFF	Off
	Blower motor fan switch ON	On
FR FOG SW	Front fog lamp switch OFF	Off
	Front fog lamp switch ON	On
FR WASHER SW	Front washer switch OFF	Off
	Front washer switch ON	On
FR WIPER LOW	Front wiper switch OFF	Off
	Front wiper switch LO	On
FR WIPER HI	Front wiper switch OFF	Off
	Front wiper switch HI	On
FR WIPER INT	Front wiper switch OFF	Off
	Front wiper switch INT	On
FR WIPER STOP	Any position other than front wiper stop position	Off
	Front wiper stop position	On
HAZARD SW	When hazard switch is not pressed	Off
	When hazard switch is pressed	On

A

B

C

D

E

F

G

H

I

J

K

L

BCS

N

O

P

BCM

< ECU DIAGNOSIS INFORMATION >

[WITH INTELLIGENT KEY SYSTEM]

Monitor Item	Condition	Value/Status
HEAD LAMP SW	Headlamp switch OFF	Off
	Headlamp switch ON	On
HI BEAM SW	High beam switch OFF	Off
	High beam switch HI	On
ID AUTHENT CANCEL TIMER	When I-Key authentication is OFF.	STOP
ID OK FLAG	Ignition switch ON	Reset
	Ignition switch OFF	Set
ID REGST FL1	ID registration of front left tire incomplete	YET
	ID registration of front left tire complete	DONE
ID REGST FR1	ID registration of front right tire incomplete	YET
	ID registration of front right tire complete	DONE
ID REGST RL1	ID registration of rear left tire incomplete	YET
	ID registration of rear left tire complete	DONE
ID REGST RR1	ID registration of rear right tire incomplete	YET
	ID registration of rear right tire complete	DONE
IGN REQ -IPDM	Ignition switch OFF	Off
	Ignition switch ON	On
IGN RLY1 F/B	Ignition switch OFF	Off
	Ignition switch ON	On
INT VOLUME	Wiper intermittent dial is in a dial position 1 - 7	1 - 7
IS STATUS -ECM	IS status OFF	Off
	IS status ON	On
I-KEY OK FLAG	I-Key OFF	Key OFF
	I-Key ON	Key ON
KEY CYL LK-SW	Door key cylinder LOCK position	Off
	Door key cylinder other than LOCK position	On
KEY CYL UN-SW	Door key cylinder UNLOCK position	Off
	Door key cylinder other than UNLOCK position	On
LIGHT OFF SW	Headlamp switch ON	Off
	Headlamp switch OFF	On
NEUTRAL SW-IPDM	Selector lever N (Neutral) position	Off
	Selector lever any position except N (Neutral)	On
OPTI SEN (DTCT)	Bright outside of the vehicle	Close to 5V
	Dark outside of the vehicle	Close to 0V
OPTI SEN (FILT)	Bright outside of the vehicle	Close to 5V
	Dark outside of the vehicle	Close to 0V
PASSING SW	Other than lighting switch PASS	Off
	Lighting switch PASS	On
PRBT ENG STRT	When the engine start is prohibited	Reset
	When the engine start is permitted	Set
PRMT ENG STRT	When the engine start is prohibited	Reset
	When the engine start is permitted	Set
PRMT RKE STRT	When the engine start is prohibited	Reset
	When the engine start is permitted	Set

BCM

< ECU DIAGNOSIS INFORMATION >

[WITH INTELLIGENT KEY SYSTEM]

Monitor Item	Condition	Value/Status
PUSH SW	Return ignition switch to LOCK position	Off
	Press ignition switch	On
PUSH SW-IPDM	When engine switch (push switch) is not pressed	Off
	When engine switch (push switch) is pressed	On
REAR DEF SW	Rear window defogger switch OFF	Off
	Rear window defogger switch ON	On
REQ SW-AS	When passenger door request switch is not pressed	Off
	When passenger door request switch is pressed	On
REQ SW-BD/TR	When back door request switch is not pressed	Off
	When back door request switch is pressed	On
REQ SW-DR	When driver door request switch is not pressed	Off
	When driver door request switch is pressed	On
REVERSE SIGNAL - IPDM	Selector lever R (Reverse) position	Off
	Selector lever any position except R (Reverse)	On
RKE-LOCK	When LOCK button of Intelligent Key is not pressed	Off
	When LOCK button of Intelligent Key is pressed	On
RKE-MODE CHG	When LOCK/UNLOCK button of Intelligent Key is not pressed and held simultaneously	Off
	When LOCK/UNLOCK button of Intelligent Key is pressed and held simultaneously	On
RKE OPE COUN1	Operation frequency of Intelligent Key	0-19
RKE OPE COUN2	Operation frequency of Intelligent Key	0-19
RKE-PANIC	When PANIC button of Intelligent Key is not pressed	Off
	When PANIC button of Intelligent Key is pressed	On
RKE PBD	I-Key automatic back door button not pressed	Off
	I-Key automatic back door button pressed	On
RKE-TR/BD	When BACK DOOR OPEN button of Intelligent Key is not pressed	Off
	When BACK DOOR OPEN button of Intelligent Key is pressed	On
RKE-UNLOCK	When UNLOCK button of Intelligent Key is not pressed	Off
	When UNLOCK button of Intelligent Key is pressed	On
RR WASHER SW	Rear washer switch OFF	Off
	Rear washer switch ON	On
RR WIPER INT	Rear wiper switch OFF	Off
	Rear wiper switch INT	On
RR WIPER ON	Rear wiper switch OFF	Off
	Rear wiper switch ON	On
RR WIPER STOP	Any position other than rear wiper stop position	Off
	Rear wiper stop position	On
SFT PN -IPDM	When selector lever is in any position other than P or N	Off
	When selector lever is in P or N position	On
STARTER CUT RELAY - ECM	Starter cut relay OFF	Off
	Starter cut relay ON	On
STARTER RELAY -IPDM	Starter relay OFF	Off
	Starter relay ON	On

A

B

C

D

E

F

G

H

I

J

K

L

BCS

N

O

P

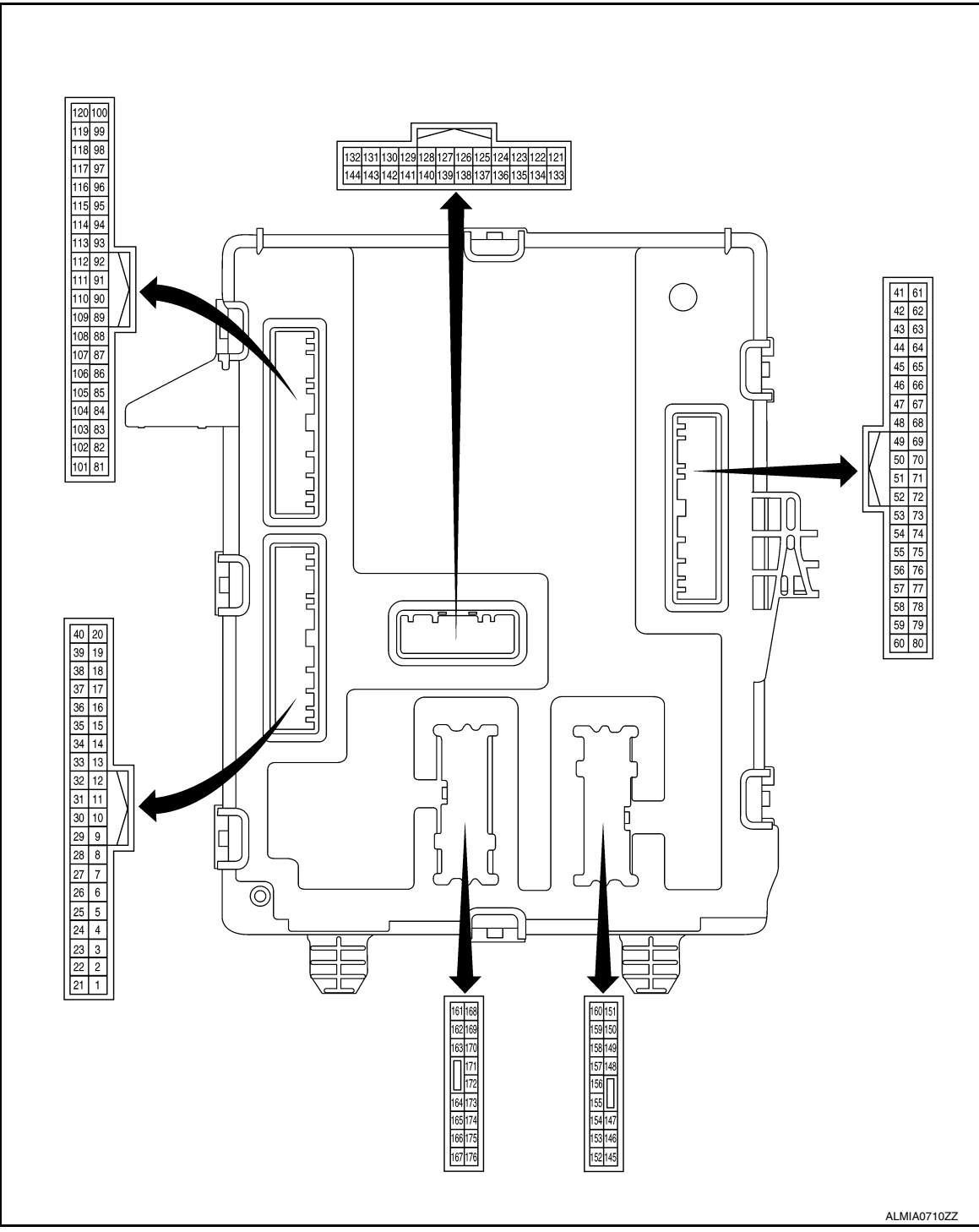
BCM

< ECU DIAGNOSIS INFORMATION >

[WITH INTELLIGENT KEY SYSTEM]

Monitor Item	Condition	Value/Status
STARTER REQ -IPDM	Starter OFF	Off
	Starter ON	On
TAIL LAMP SW	Lighting switch OFF	Off
	Lighting switch ON	On
TURN SIGNAL L	Turn signal switch OFF	Off
	Turn signal switch LH	On
TURN SIGNAL R	Turn signal switch OFF	Off
	Turn signal switch RH	On
VEH SPEED 1	While driving, equivalent to speedometer reading	mph, km/h
VEH SPEED 2	While driving, equivalent to speedometer reading	mph, km/h
WARNING LAMP	Low tire pressure warning lamp in combination meter OFF	Off
	Low tire pressure warning lamp in combination meter ON	On

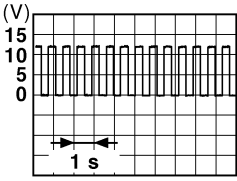
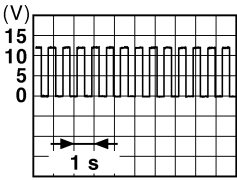
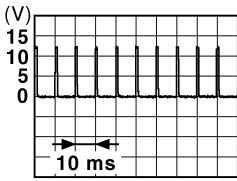
TERMINAL LAYOUT



PHYSICAL VALUES

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

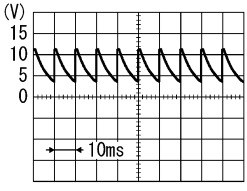
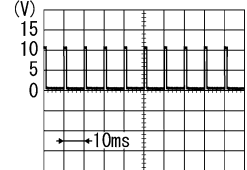
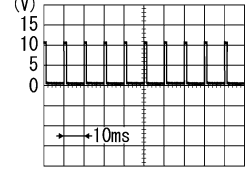
BCS

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
(+)	(-)	Signal name	Input/ Output			
2 (LA/G)	Ground	Door mirror LH turn signal lamp output	Output		Turn signal switch OFF	0V
				Push-button ignition switch ON	Turn signal switch LH	 PKID0926E 6.5 V
3 (LA/Y)	Ground	Door mirror RH turn signal lamp output	Output		Turn signal switch OFF	0V
				Push-button ignition switch ON	Turn signal switch RH	 PKID0926E 6.5 V
4 (P)	Ground	Room lamp relay control	Output	Push-button ignition switch OFF	Interior room lamp battery saver opera- tion timed out	Battery voltage
					Any time prior to inte- rior room lamp bat- tery saver operation timed out	0V
5 (R)	Ground	CAN L	Input/ Output	—		—
6 (L)	Ground	CAN H	Input/ Output	—		—
8 (L)	Ground	CAN H	Input/ Output	—		—
9 (R)	Ground	CAN L	Input/ Output	—		—
10 (BG)	Ground	Main power window and door lock/unlock switch lock signal	Input	Main power window and door lock/un- lock switch (door lock/un- lock switch)	Lock	Battery voltage
					Unlock	0V
11 (Y)	Ground	Hazard switch	Input	Hazard switch	Pressed	0 V
					Released	 JPMIA0012GB 1.1V

BCM

< ECU DIAGNOSIS INFORMATION >

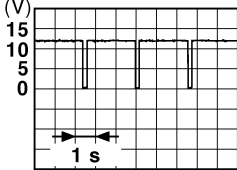
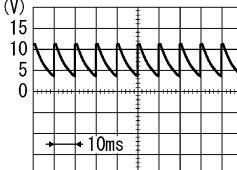
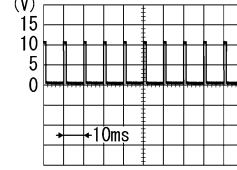
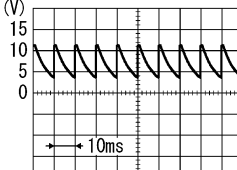
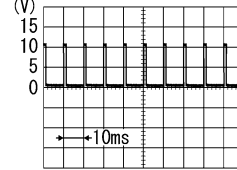
[WITH INTELLIGENT KEY SYSTEM]

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
(+)	(-)	Signal name	Input/ Output			
12 (W)	Ground	Auto light power supply 5V	Output	Push-button ignition switch	OFF	0V
					ON	5V
16 (P)	Ground	Audio dongle	Input/ Output	Push-button ignition switch	OFF	5V
17 (L)	Ground	CVT shift selector park po- sition switch power	Output	Selector lever	P position	0V
					Except P position	Battery voltage
19 (LG)	Ground	Auto light signal	Input	Push-button ignition switch ON	Outside of vehicle is bright	Close to 5V
					Outside of vehicle is dark	Close to 0V
23 (G)	Ground	Power window relay control	Output	Push-button ignition switch	OFF	Battery voltage
					ON	0V
24 (LA/R)	Ground	Rear window defogger re- lay control	Output	Rear window defogger	Not activated	Battery voltage
					Activated	0V
25 (BR)	Ground	Accessory relay-1 control	Output	Push-button ignition switch	OFF	Battery voltage
					ON	0V
27 (Y)	Ground	Ignition relay-1 control	Output	Push-button ignition switch	OFF	Battery voltage
					ON	0V
28 (LA/W)	Ground	Front blower motor relay control	Output	Push-button ignition switch	OFF	Battery voltage
					ON	0V
30 (V)	Ground	Auto light reference ground	Output	Push-button ignition switch	ON	0V
33 (LG)	Ground	Combination switch output 5	Output	Combination switch (Wiper inter- mittent dial 1)	OFF	 PKIB4960J 7.0 – 8.0V
					INT VOLUME 2	 PKIB4958J 1.2V
					INT VOLUME 3	
					RR WIPER INT	
					RR WIPER ON	
34 (Y)	Ground	Combination switch input 5	Input	Combination switch (Wiper inter- mittent dial 1)	OFF	 PKIB4958J 1.0V
					FR FOG	
					TAIL LAMP	
					TURN RH	
					NO LIGHT	

BCM

< ECU DIAGNOSIS INFORMATION >

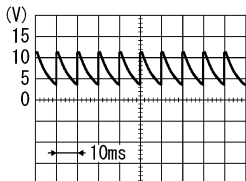
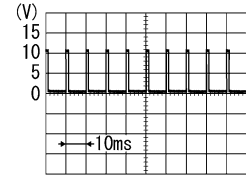
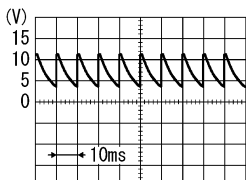
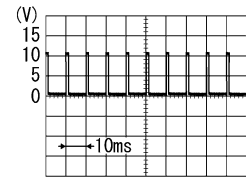
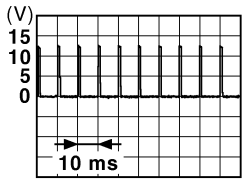
[WITH INTELLIGENT KEY SYSTEM]

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
(+)	(-)	Signal name	Input/ Output			
35 (BG)	Ground	Security indicator	Output	Security indicator	ON	0V
					Blinking	 JPMIA0014GB 11.3V
36 (G)	Ground	Combination switch output 3	Output	Combination switch (Wiper intermittent dial 1)	OFF	 PKIB4960J 7.0 – 8.0V
					FR WASHER	 PKIB4958J 1.2V
					RR WASHER	
					TURN LH	
					TURN RH	
37 (GR)	Ground	Combination switch output 4	Output	Combination switch (Wiper intermittent dial 1)	OFF	 PKIB4960J 7.0 – 8.0V
					FR WIPER LOW	 PKIB4958J 1.2V
					FR WIPER HI	
					FR WIPER INT	
					NO LIGHT	

BCM

< ECU DIAGNOSIS INFORMATION >

[WITH INTELLIGENT KEY SYSTEM]

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
(+)	(-)	Signal name	Input/ Output			
38 (V)	Ground	Combination switch output 1	Output	Combination switch (Wiper inter- mittent dial 1)	OFF	 PKIB4960J 7.0 – 8.0V
					HI BEAM	 PKIB4958J 1.2V
					PASSING	
					FR FOG	
39 (W)	Ground	Combination switch output 2	Output	Combination switch (Wiper inter- mittent dial 4)	OFF	 PKIB4960J 7.0 – 8.0V
					INT VOLUME 1	 PKIB4958J 1.2V
					HEADLAMP	
					AUTO LIGHT	
40 (SB)	Ground	Main power window and door lock/unlock switch un- lock signal	Input	Main power window and door lock/un- lock switch (door lock/un- lock switch)	Unlock	Battery voltage
				Lock	0V	
46 (R)	Ground	Back door request switch	Input	Back door opener switch (request switch)	ON (pressed)	0V
					OFF (released)	 JPMIA0016GB 1.0V

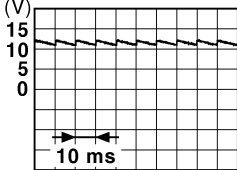
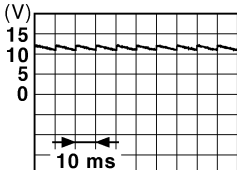
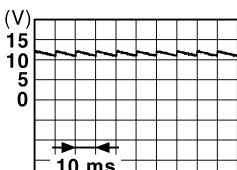
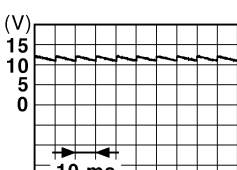
A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

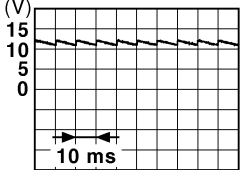
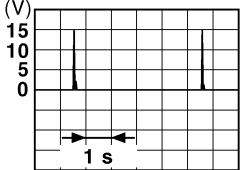
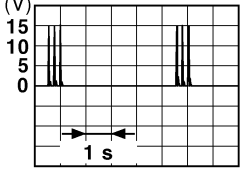
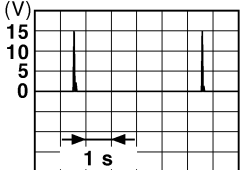
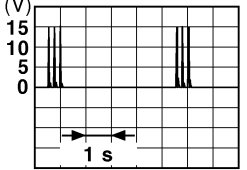
BCS

BCM

< ECU DIAGNOSIS INFORMATION >

[WITH INTELLIGENT KEY SYSTEM]

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
(+)	(-)	Signal name	Input/ Output			
50 (W)	Ground	Right rear door switch	Input	Rear door switch RH	OFF (door closed)	 11.8V
					ON (door open)	0V
51 (LG)	Ground	Back door switch	Input	Back door lock assembly (door ajar switch)	OFF (door closed)	 11.8V
					ON (door open)	0V
52 (R)	Ground	Left rear door switch	Input	Rear door switch LH	OFF (door closed)	 11.8V
					ON (door open)	0V
53 (SB)	Ground	Passenger door switch	Input	Front door switch RH	OFF (door closed)	 11.8 V
					ON (door open)	0V
55 (LA/G)	Ground	Rear wiper autostop switch	Input	Push-button ignition switch ON	Rear wiper stop position	Battery voltage
					Any position other than rear wiper stop	0V
56 (Y)	Ground	Back door open switch	Input	Back door opener switch	Switch released	Battery voltage
					Switch pressed	0V

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
(+)	(-)	Signal name	Input/ Output			
57 (SB)	Ground	Driver door switch	Input	Front door switch LH	OFF (door closed)	 JPMIA0011GB 11.8V
				Front door switch LH	ON (door open)	0V
60 (L)	Ground	CAN H	Input/ Output	—		—
61 (BR)	Ground	Outside key antenna (rear bumper) B	Output	Back door request switch operated with push-button ignition switch OFF	Intelligent Key in antenna detection area	 JMKIA0062GB
				Back door request switch operated with push-button ignition switch OFF	Intelligent Key not in antenna detection area	 JMKIA0063GB
62 (Y)	Ground	Inside key antenna (console) B	Output	Push-button ignition switch OFF	Intelligent Key in antenna detection area	 JMKIA0062GB
				Push-button ignition switch OFF	Intelligent Key not in antenna detection area	 JMKIA0063GB

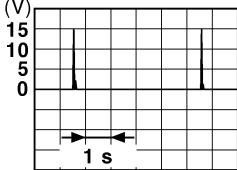
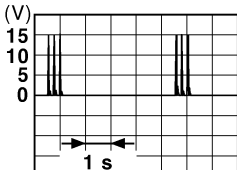
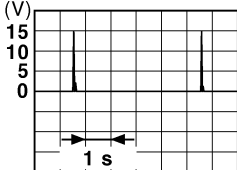
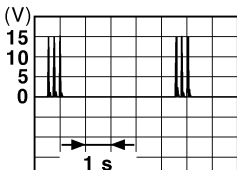
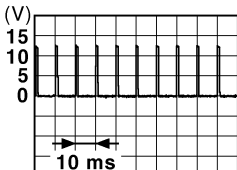
A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

BCS

BCM

< ECU DIAGNOSIS INFORMATION >

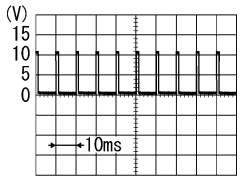
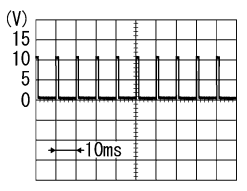
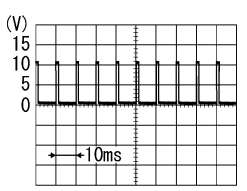
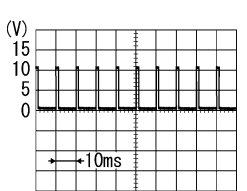
[WITH INTELLIGENT KEY SYSTEM]

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
(+)	(-)	Signal name	Input/ Output			
63 (L)	Ground	Inside key antenna (con- sole) A	Output	Push-button ignition switch OFF	Intelligent Key in an- tenna detection area	 JMKIA0062GB
					Intelligent Key not in antenna detection area	 JMKIA0063GB
64 (G)	Ground	Outside key antenna (rear bumper) A	Output	Back door re- quest switch operated with push-button ignition switch OFF	Intelligent Key in an- tenna detection area	 JMKIA0062GB
					Intelligent Key not in antenna detection area	 JMKIA0063GB
79 (LA/W)	Ground	High-mounted stop lamp output	Output	Brake pedal	Released	0V
					Depressed	Battery voltage
80 (P)	Ground	CAN L	Input/ Output	—		—
82 (W)	Ground	Passenger request switch	Input	Front outside handle as- sembly RH request switch	ON (pressed)	0V
					OFF (released)	 JPMIA0016GB 1.0V

BCM

< ECU DIAGNOSIS INFORMATION >

[WITH INTELLIGENT KEY SYSTEM]

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
(+)	(-)	Signal name	Input/ Output			
84 (BR)	Ground	Combination switch input 2	Input	Combination switch (Wiper intermittent dial 1)	OFF	0V
					HI BEAM	
					RR WASHER	
					FR WIPER HI	
					INT VOLUME 3	
85 (SB)	Ground	Combination switch input 1	Input	Combination switch (Wiper intermittent dial 1)	OFF	0V
					INT VOLUME 1	
					FR WASHER	
					FR WIPER LOW	
					INT VOLUME 2	
86 (P)	Ground	Combination switch input 3	Input	Combination switch (Wiper intermittent dial 1)	OFF	0V
					PASSING	
					HEADLAMP	
					FR WIPER INT	
					RR WIPER INT	
87 (BG)	Ground	Combination switch input 4	Input	Combination switch (Wiper intermittent dial 1)	OFF	0V
					AUTO LIGHT	
					TURN LH	
					RR WIPER ON	
88 (W)	Ground	Start switch backlight LED	Output	Push-button ignition switch illumination	ON	5.5V
					OFF	0V
92 (BR)	Ground	Front door lock assembly LH key cylinder switch lock signal	Input	Key cylinder switch	OFF (neutral)	Battery voltage
					ON (lock)	0V
93 (P)	Ground	Front door lock assembly LH key cylinder switch unlock signal	Input	Key cylinder switch	OFF (neutral)	Battery voltage
					ON (unlock)	0V
94 (G)	Ground	CVT shift selector park position switch signal	Input	Selector lever	P position	0V
					Except P position	Battery voltage
95 (V)	Ground	Shorting input	Input	Push-button ignition switch	OFF	Battery voltage

A

B

C

D

E

F

G

H

I

J

K

L

BCS

N

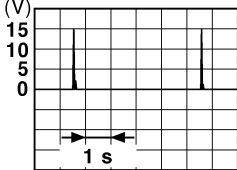
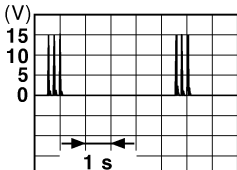
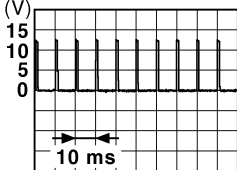
O

P

BCM

< ECU DIAGNOSIS INFORMATION >

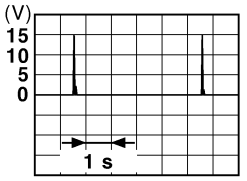
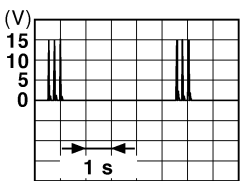
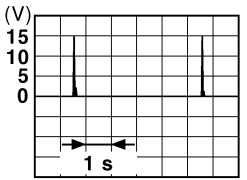
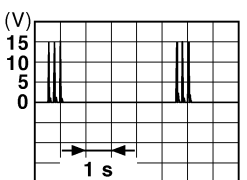
[WITH INTELLIGENT KEY SYSTEM]

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
(+)	(-)	Signal name	Input/ Output			
100 (V)	Ground	Outside key antenna (driver side) A	Output	Front outside handle assembly LH request switch operated with push-button ignition switch OFF	Intelligent Key in antenna detection area	 JMKIA0062GB
					Intelligent Key not in antenna detection area	 JMKIA0063GB
101 (Y)	Ground	Push-button ignition switch	Input	Push-button ignition switch	Pressed	0V
					Not pressed	Battery voltage
104 (R)	Ground	Front door lock assembly LH knob switch unlock signal	Input	Door lock knob	OFF (lock)	Battery voltage
					ON (unlock)	0V
105 (Y)	Ground	Driver request switch	Input	Front outside handle assembly LH request switch	ON (pressed)	0V
					OFF (released)	 JPMIA0016GB 1.0V
106 (W)	Ground	Audio unit/AV control unit accessory power supply	Input	Push-button ignition switch	ON	Battery voltage
110 (BG)	Ground	Dimmer signal output (MR output)	Output	Push-button ignition switch ON	Either of the following conditions • Lighting switch OFF • The area around the vehicle is bright (Shine a light on the optical sensor)	0V
					The area around the vehicle is dark (Block the light from the optical sensor)	Battery voltage
114 (Y)	Ground	NATS antenna amp. B	Output	During waiting	Intelligent Key back-side is contacted to push-button ignition switch, turn ignition switch ON.	Just after pressing push-button ignition switch. Pointer of analog volt meter should move.

BCM

< ECU DIAGNOSIS INFORMATION >

[WITH INTELLIGENT KEY SYSTEM]

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
(+)	(-)	Signal name	Input/ Output			
115 (W)	Ground	NATS antenna amp. A	Output	During wait- ing	Intelligent Key back- side is contacted to push-button ignition switch, turn ignition switch ON.	Just after pressing push-button ignition switch. Pointer of analog volt meter should move.
116 (BG)	Ground	Inside key antenna (instru- ment center) B	Output	Push-button ignition switch OFF	Intelligent Key in an- tenna detection area	 JMKIA0062GB
					Intelligent Key not in antenna detection area	 JMKIA0063GB
117 (GR)	Ground	Inside key antenna (instru- ment center) A	Output	Push-button ignition switch OFF	Intelligent Key in an- tenna detection area	 JMKIA0062GB
					Intelligent Key not in antenna detection area	 JMKIA0063GB

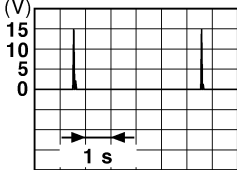
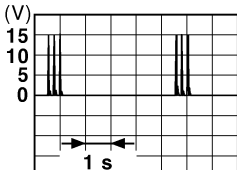
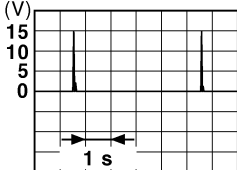
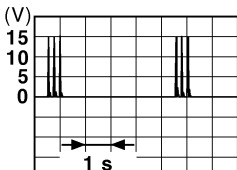
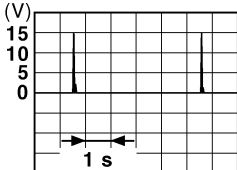
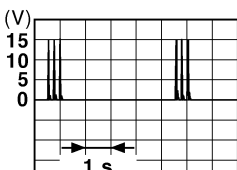
A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

BCS

BCM

< ECU DIAGNOSIS INFORMATION >

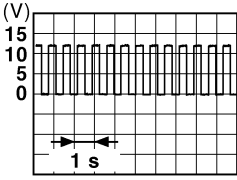
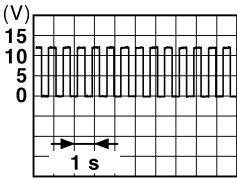
[WITH INTELLIGENT KEY SYSTEM]

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
(+)	(-)	Signal name	Input/ Output			
118 (SB)	Ground	Outside key antenna (pas- senger side) B	Output	Front outside handle as- sembly RH request switch operat- ed with push- button ignition switch OFF	Intelligent Key in an- tenna detection area	 JMKIA0062GB
				Front outside handle as- sembly RH request switch operat- ed with push- button ignition switch OFF	Intelligent Key not in antenna detection area	 JMKIA0063GB
119 (P)	Ground	Outside key antenna (pas- senger side) A	Output	Front outside handle as- sembly RH request switch operat- ed with push- button ignition switch OFF	Intelligent Key in an- tenna detection area	 JMKIA0062GB
				Front outside handle as- sembly RH request switch operat- ed with push- button ignition switch OFF	Intelligent Key not in antenna detection area	 JMKIA0063GB
120 (BR)	Ground	Outside key antenna (driv- er side) B	Output	Front outside handle as- sembly LH re- quest switch operated with push-button ignition switch OFF	Intelligent Key in an- tenna detection area	 JMKIA0062GB
				Front outside handle as- sembly LH re- quest switch operated with push-button ignition switch OFF	Intelligent Key not in antenna detection area	 JMKIA0063GB
125 (LG)	Ground	Stop lamp switch signal	Input	Brake pedal	Released	0V
				Brake pedal	Depressed	Battery voltage

BCM

< ECU DIAGNOSIS INFORMATION >

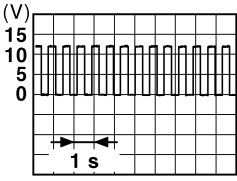
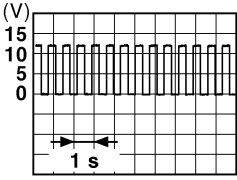
[WITH INTELLIGENT KEY SYSTEM]

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
(+)	(-)	Signal name	Input/ Output			
126 (W)	Ground	Brake pedal position switch signal	Input	Brake pedal	Released	0V
					Depressed	Battery voltage
132 (Y)	Ground	Intelligent Key warning buzzer output	Output	Intelligent Key warning buzzer	Sounding	0V
					Not sounding	Battery voltage
135 (BR)	Ground	Front combination lamp LH turn signal lamp output	Output	Push-button ignition switch ON	Turn signal switch OFF	0V
					Turn signal switch LH	 6.5 V
136 (GR)	Ground	Front combination lamp RH turn signal lamp output	Output	Push-button ignition switch ON	Turn signal switch OFF	0V
					Turn signal switch RH	 6.5 V
139 (G)	Ground	Starter cut relay control	Output	Push-button ignition switch	OFF	Battery voltage
					ON	0V
145 (LA/V)	Ground	Back door lock assembly opener motor open	Output	Back door opener switch pressed	Open (motor activat- ed)	Battery voltage
				Back door opener switch released	Closed (motor not ac- tivated)	0V
147 (LA/R)	Ground	Rear wiper output	Output	Rear wiper	OFF	0V
					ON	Battery voltage
148 (W)	Ground	Rear door lock actuator LH and RH actuator unlock	Output	Main power window and door lock/un- lock switch (door lock/un- lock switch)	Unlock (actuator acti- vated)	Battery voltage
					Lock (actuator not ac- tivated)	0V
149 (L)	Ground	Rear door lock actuator LH and RH actuator lock	Output	Main power window and door lock/un- lock switch (door lock/un- lock switch)	Lock (actuator acti- vated)	Battery voltage
					Unlock (actuator not activated)	0V
151 (R)	Ground	Luggage lamp control (pwm)	Output	Room lamp relay	OFF	Battery voltage
					ON	0V
153 (LA/W)	Ground	Rear combination lamp RH stop lamp output	Output	Brake pedal	Released	0V
					Depressed	Battery voltage

BCM

< ECU DIAGNOSIS INFORMATION >

[WITH INTELLIGENT KEY SYSTEM]

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
(+)	(-)	Signal name	Input/ Output			
157 (GR)	Ground	Rear combination lamp LH turn signal/hazard lamp output	Output	Push-button ignition switch ON	Turn signal switch OFF	0V
					Turn signal switch LH	 6.5 V
158 (LA/Y)	Ground	Rear combination lamp LH stop lamp output	Output	Brake pedal	Released	0V
					Depressed	Battery voltage
160 (P)	Ground	Rear combination lamp RH turn signal/hazard lamp output	Output	Push-button ignition switch ON	Turn signal switch OFF	0V
					Turn signal switch RH	 6.5 V
161 (W)	Ground	BCM power supply	Input	Push-button ignition switch	OFF	Battery voltage
162 (SB)	Ground	Interior lamp control (pwm)	Output	Map lamp and/or per- sonal lamp 2nd row	OFF	Battery voltage
					DOOR	0V
163 (L)	Ground	Front door lock actuator RH actuator unlock	Output	Main power window and door lock/un- lock switch (door lock/un- lock switch)	Unlock (actuator acti- vated)	Battery voltage
					Lock (actuator not ac- tivated)	0V
165 (V)	Ground	Front door lock actuator LH and RH actuator lock	Output	Main power window and door lock/un- lock switch (door lock/un- lock switch)	Lock (actuator acti- vated)	Battery voltage
					Unlock (actuator not activated)	0V
167 (LA/V)	Ground	Power door lock battery power supply	Input	Push-button ignition switch	OFF	Battery voltage
168 (BG)	Ground	Turn signal/hazard battery power supply	Input	Push-button ignition switch	OFF	Battery voltage
169 (GR)	Ground	Stop lamp battery power supply	Input	Push-button ignition switch	OFF	Battery voltage
170 (B)	Ground	Ground1	Input	Push-button ignition switch	ON	0V
171 (B)	Ground	Ground2	Input	Push-button ignition switch	ON	0V

BCM

< ECU DIAGNOSIS INFORMATION >

[WITH INTELLIGENT KEY SYSTEM]

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
(+)	(-)	Signal name	Input/ Output			
172 (G)	Ground	Front door lock assembly LH actuator unlock	Output	Main power window and door lock/un- lock switch (door lock/un- lock switch)	Unlock (actuator acti- vated)	Battery voltage
					Lock (actuator not ac- tivated)	0V
175 (R)	Ground	Power door lock2 battery power supply	Input	Push-button ignition switch	OFF	Battery voltage
176 (LG)	Ground	Rear wiper battery power supply	Input	Push-button ignition switch	OFF	Battery voltage

Fail Safe

INFOID:0000000010195929

CONSULT Display	Fail-safe	Cancellation
B2192: ID DISCORD BCM-ECM	Inhibit engine cranking	Erase DTC
B2193: CHAIN OF BCM-ECM	Inhibit engine cranking	Erase DTC
B2562: LOW VOLTAGE	Inhibit engine cranking	100 ms after the power supply voltage increases to more than 8.8 V
B260F: ECM CAN COMM	Inhibit engine cranking	When any of the following conditions are fulfilled: • Ignition switch changes to ON • Receives engine status signal (CAN)
B261E: FUEL MIS CONFIG	Inhibit engine cranking	BCM initialization

DTC Inspection Priority Chart

INFOID:0000000010195930

If some DTCs are displayed at the same time, perform inspections one by one based on the following priority chart.

Priority	DTC
1	• B2562: LOW VOLTAGE
2	• U1000: CAN COMM CIRCUIT • U1010: CONTROL UNIT (CAN)
3	• B2192: ID DISCORD BCM-ECM • B2193: CHAIN OF BCM-ECM • B2196: DONGLE NG • B2198: NATS ANTENNA AMP
4	• B2556: ENG START SW • B2557: VEHICLE SPEED • B2602: SHIFT P DIAG • B260F: ECM CAN COMM • B2614: ACC RELAY REQ F/B • B2615: BLOWER RELAY CIRC • B2616: IGN RELAY2 REQ F/B • B261A: ENGINE SW • B261E: FUEL MIS CONFIG • B26FC: KEYFOB MISS REGISTRATION • B27D1: ST CUT RELAY OFF STUCK FAIL • B27D2: ST CUT RELAY ON STUCK FAIL • C1729: VHCL SPEED SIG ERR • U0415: VEHICLE SPEED SIG

BCS

Priority	DTC
5	• C1704: LOW PRESSURE FL • C1705: LOW PRESSURE FR • C1706: LOW PRESSURE RR • C1707: LOW PRESSURE RL • C1708: [NO DATA] FL • C1709: [NO DATA] FR • C1710: [NO DATA] RR • C1711: [NO DATA] RL • C1716: [PRESSDATA ERR] FL • C1717: [PRESSDATA ERR] FR • C1718: [PRESSDATA ERR] RR • C1719: [PRESSDATA ERR] RL • C1730: FLAT TIRE FL • C1731: FLAT TIRE FR • C1732: FLAT TIRE RR • C1733: FLAT TIRE RL • C1734: CONTROL UNIT • C1735: IGN CIRCUIT OPEN • C1765: WSSP DATA FAIL FL • C1766: WSSP DATA FAIL FR • C1767: WSSP DATA FAIL RL • C1768: WSSP DATA FAIL RR • C1769: CONFIG SETTING • C1770: G SENSOR FAIL FL • C1771: G SENSOR FAIL FR • C1772: G SENSOR FAIL RR • C1773: G SENSOR FAIL RL
6	• B2621: INSIDE ANTENNA 1 • B2622: INSIDE ANTENNA 2

DTC Index

INFOID:000000010195931

NOTE:

- Details of time display
- CRNT: Displays when there is a malfunction now or after returning to the normal condition until turning ignition switch OFF → ON again.
- 1 - 39: Displayed if any previous malfunction is present when current condition is normal. It increases like 1 → 2 → 3...38 → 39 after returning to the normal condition whenever ignition switch OFF → ON. The counter remains at 39 even if the number of cycles exceeds it. It is counted from 1 again when turning ignition switch OFF → ON after returning to the normal condition if the malfunction is detected again.

CONSULT display	Fail-safe	Intelligent Key warning lamp ON	Tire pressure monitor warning lamp ON	Reference page
No DTC is detected. Further testing may be required.	—	—	—	—
U1000: CAN COMM CIRCUIT	—	—	—	BCS-64, "Description"
U1010: CONTROL UNIT (CAN)	—	—	—	BCS-65, "DTC Logic"
U0415: VEHICLE SPEED SIG	—	—	—	BCS-66, "Description"
B2192: ID DISCORD BCM-ECM	×	—	—	SEC-73, "DTC Logic"
B2193: CHAIN OF BCM-ECM	×	—	—	SEC-74, "DTC Logic"
B2196: DONGLE NG	—	—	—	SEC-75, "Description"
B2198: NATS ANTENNA AMP.	—	—	—	SEC-77, "DTC Logic"
B2556: ENG START SW	—	×	—	SEC-79, "DTC Logic"
B2557: VEHICLE SPEED	—	×	—	SEC-81, "DTC Logic"
B2562: LOW VOLTAGE	×	—	—	BCS-67, "DTC Logic"
B2602: SHIFT P DIAG	—	×	—	SEC-82, "DTC Logic"

BCM

< ECU DIAGNOSIS INFORMATION >

[WITH INTELLIGENT KEY SYSTEM]

CONSULT display	Fail-safe	Intelligent Key warning lamp ON	Tire pressure monitor warning lamp ON	Reference page
B260F: ECM CAN COMM	×	×	—	SEC-85, "Description"
B2614: ACC RELAY REQ F/B	—	×	—	PCS-64, "DTC Logic"
B2615: BLOWER RELAY CIRC	—	×	—	PCS-66, "DTC Logic"
B2616: IGN RELAY2 REQ F/B	—	×	—	PCS-68, "DTC Logic"
B261A: PUSH-BTN IGN SW	—	×	—	PCS-70, "DTC Logic"
B261E: FUEL MIS CONFIG	×	× (Turn ON for 15 seconds)	—	SEC-87, "Description"
B2621: INSIDE ANTENNA 1	—	—	—	DLK-137, "DTC Logic"
B2622: INSIDE ANTENNA 2	—	—	—	DLK-139, "DTC Logic"
B26FC: KEYFOB MISS REGISTRATION	—	—	—	SEC-89, "DTC Logic"
B27D1: ST CUT RELAY OFF STUCK FAIL	—	—	—	SEC-90, "DTC Logic"
B27D2: ST CUT RELAY ON STUCK FAIL	—	—	—	SEC-93, "DTC Logic"
C1704: LOW PRESSURE FL	—	—	×	WT-24, "DTC Logic"
C1705: LOW PRESSURE FR	—	—	×	
C1706: LOW PRESSURE RR	—	—	×	
C1707: LOW PRESSURE RL	—	—	×	
C1708: [NO DATA] FL	—	—	×	WT-26, "DTC Logic"
C1709: [NO DATA] FR	—	—	×	
C1710: [NO DATA] RR	—	—	×	
C1711: [NO DATA] RL	—	—	×	
C1716: [PRESSDATA ERR] FL	—	—	×	WT-29, "DTC Logic"
C1717: [PRESSDATA ERR] FR	—	—	×	
C1718: [PRESSDATA ERR] RR	—	—	×	
C1719: [PRESSDATA ERR] RL	—	—	×	
C1729: VHCL SPEED SIG ERR	—	—	×	WT-31, "DTC Logic"
C1730: FLAT TIRE FL	—	—	×	WT-32, "DTC Logic"
C1731: FLAT TIRE FR	—	—	×	
C1732: FLAT TIRE RR	—	—	×	
C1733: FLAT TIRE RL	—	—	×	
C1734: CONTROL UNIT	—	—	×	WT-34, "DTC Logic"
C1735: IGN CIRCUIT OPEN	—	—	×	WT-36, "DTC Logic"
C1765: WSSP DATA FAIL FL	—	—	×	WT-38, "DTC Description"
C1766: WSSP DATA FAIL FR	—	—	×	
C1767: WSSP DATA FAIL RL	—	—	×	
C1768: WSSP DATA FAIL RR	—	—	×	
C1769: CONFIG SETTING	—	—	×	WT-39, "DTC Description"
C1770: G SENSOR FAIL FL	—	—	×	WT-40, "DTC Description"
C1771: G SENSOR FAIL FR	—	—	×	
C1772: G SENSOR FAIL RR	—	—	×	
C1773: G SENSOR FAIL RL	—	—	×	

A

B

C

D

E

F

G

H

I

J

K

L

BCS

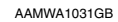
N

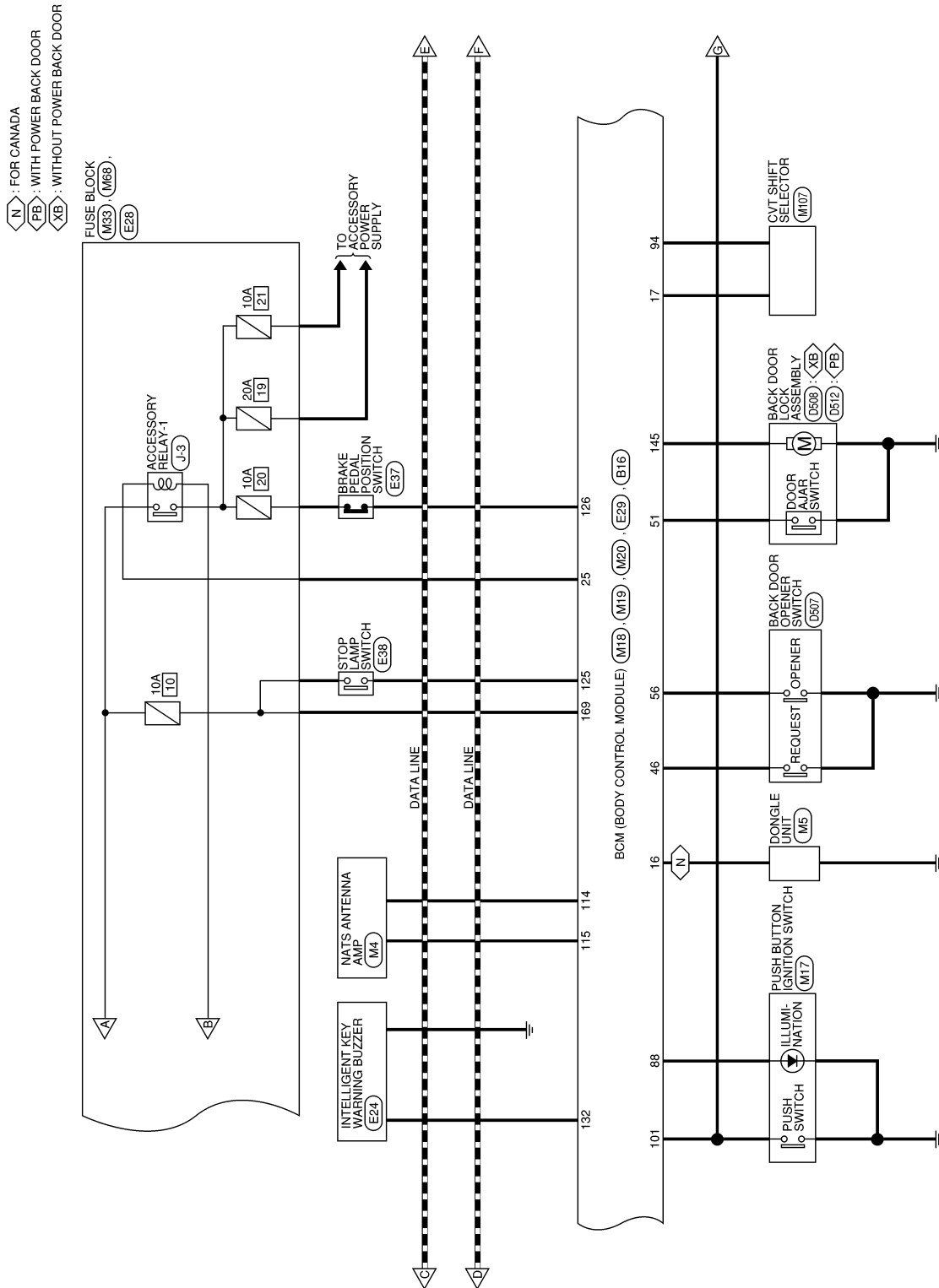
O

P

Wiring Diagram

BCM (BODY CONTROL MODULE) - WITH INTELLIGENT KEY SYSTEM

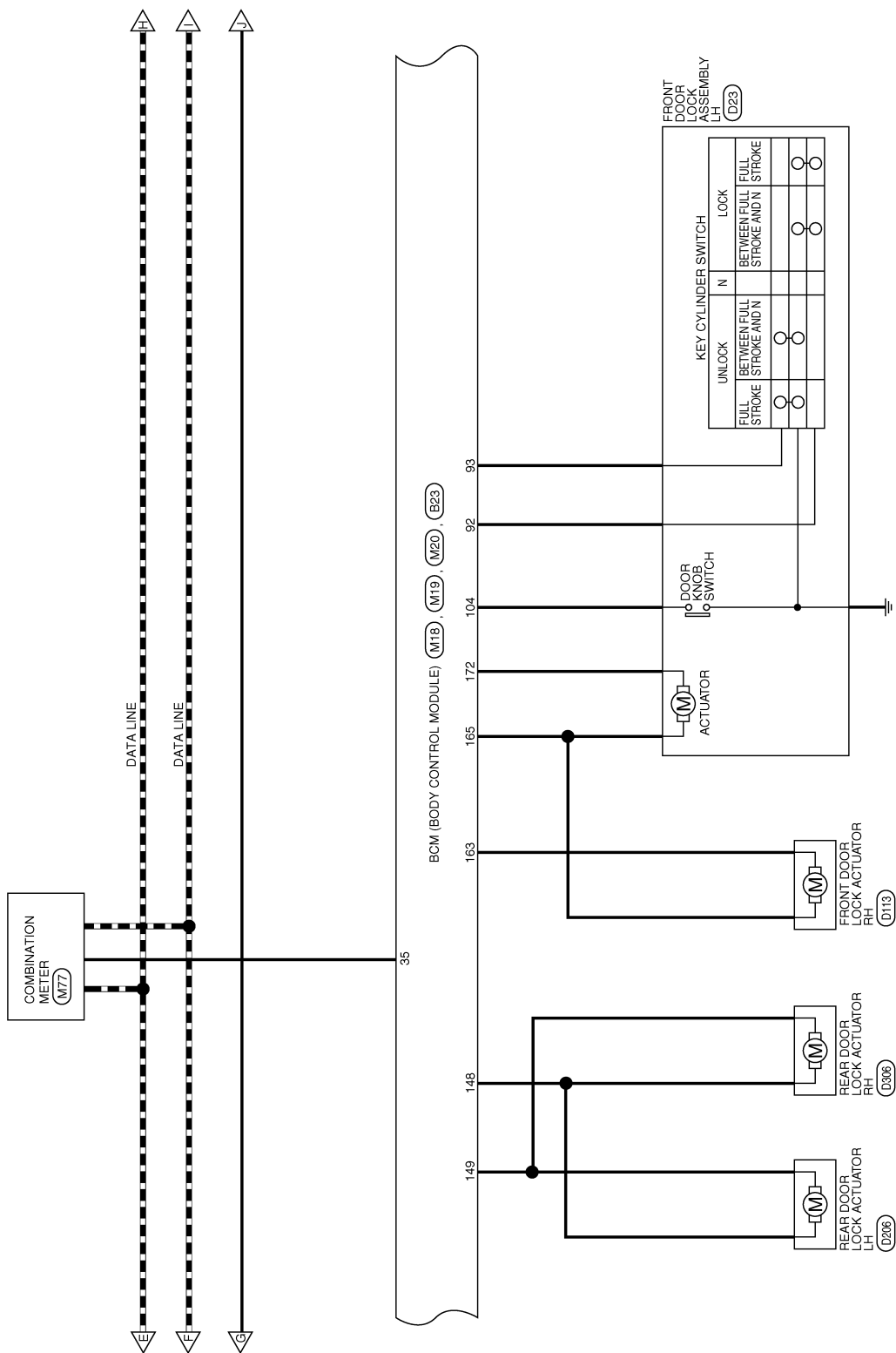




AAMWA1032GB

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

BCS

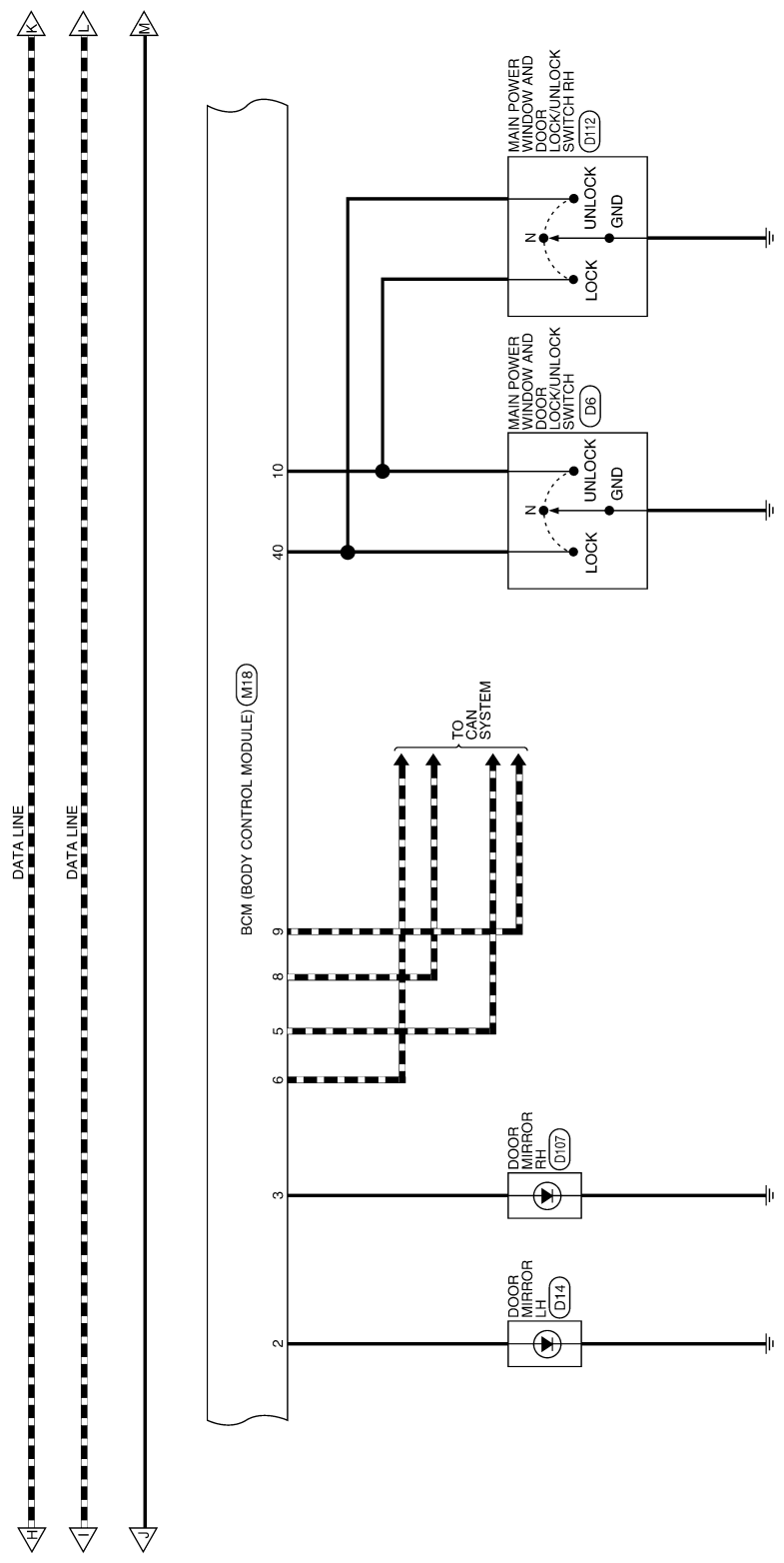


AAMWA1033GB

BCM

< WIRING DIAGRAM >

[WITH INTELLIGENT KEY SYSTEM]



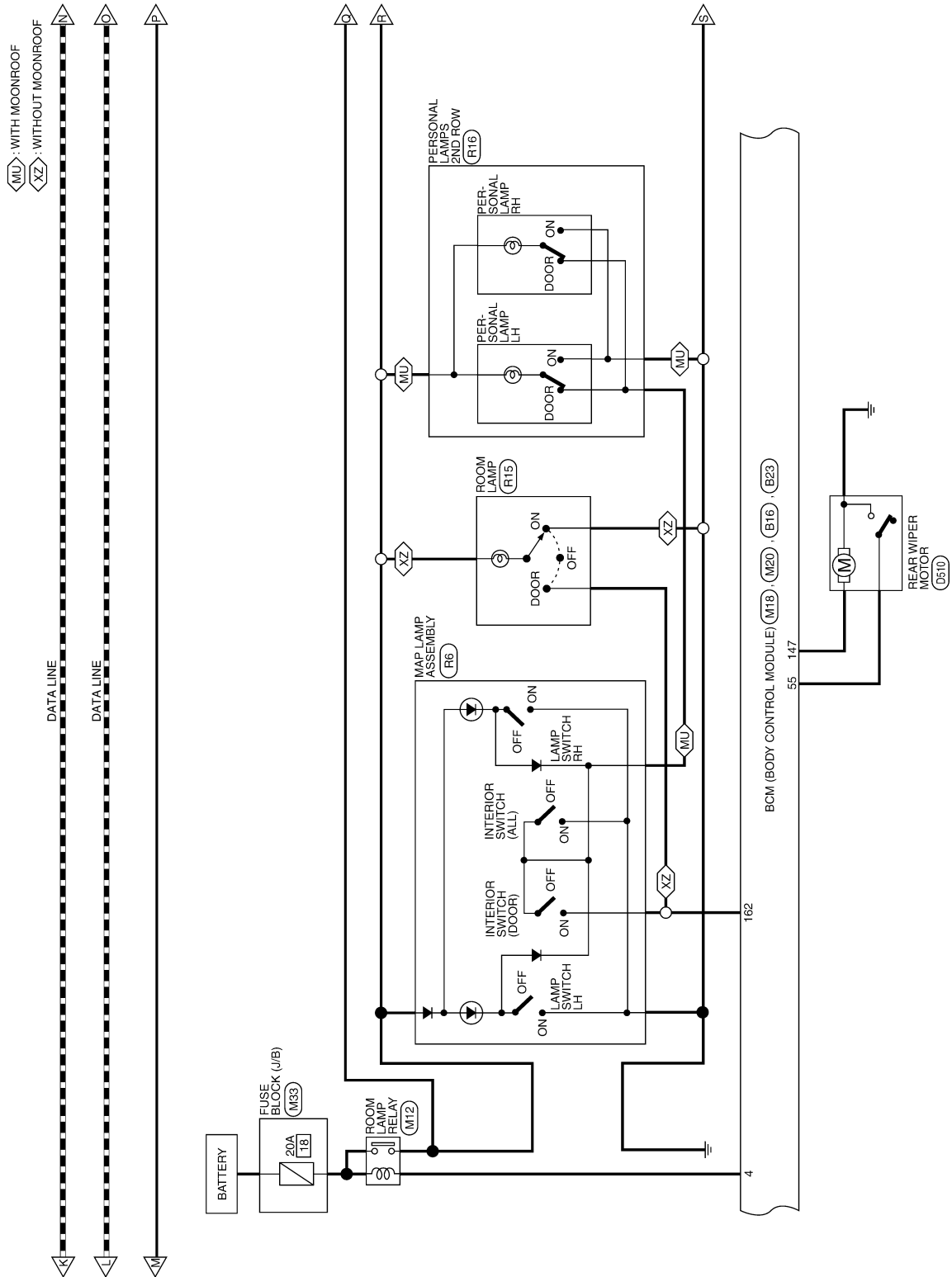
A
B
C
D
E
F
G
H
I
J
K
L
BCS
N
O
P

AAMWA1045GB

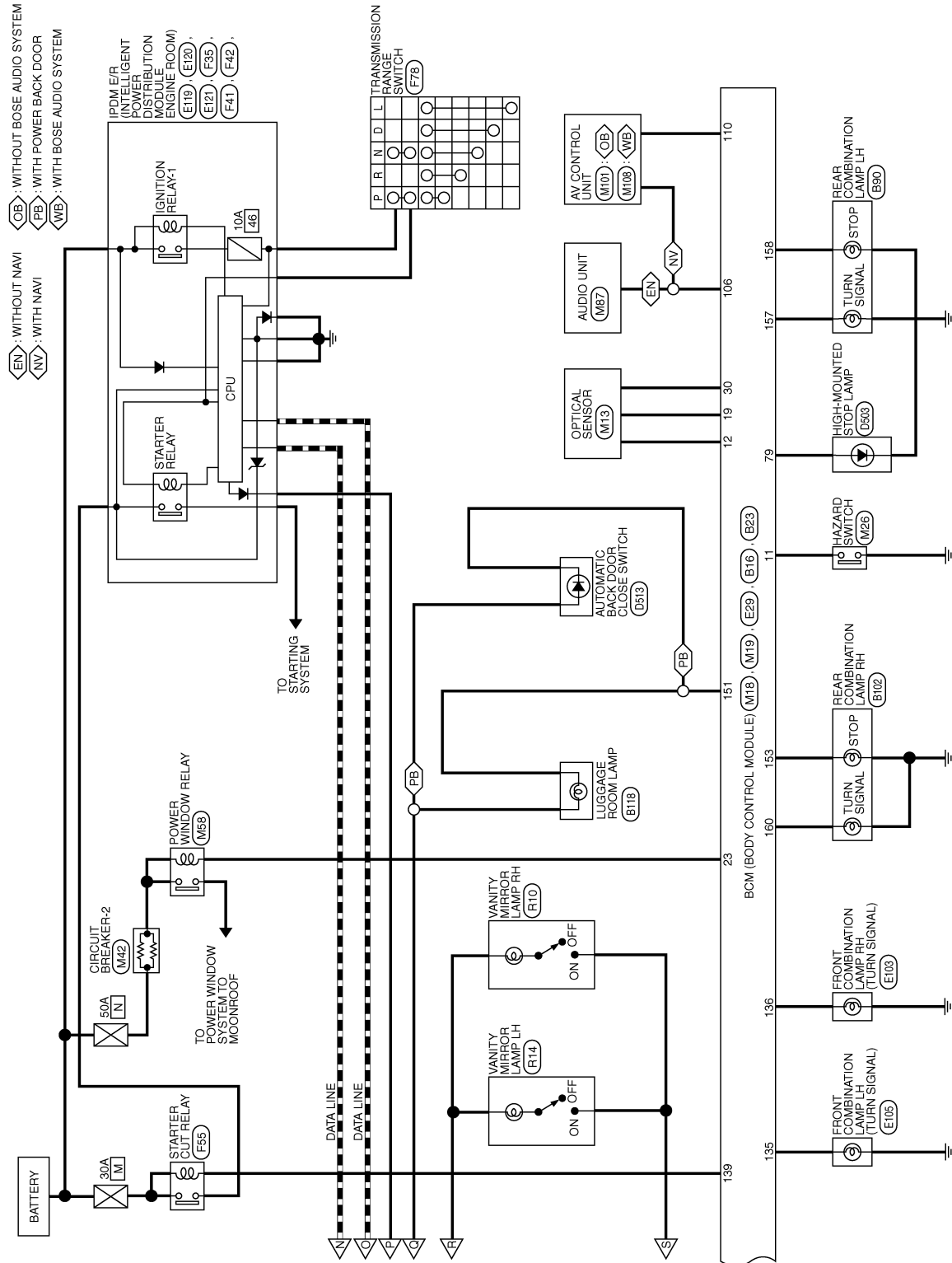
BCM

< WIRING DIAGRAM >

[WITH INTELLIGENT KEY SYSTEM]



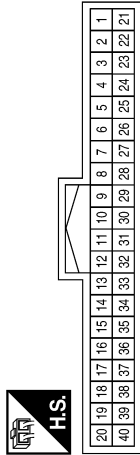
AAMWA1034GB



AAMWA1035GB

BCM (BODY CONTROL MODULE) - WITH INTELLIGENT KEY SYSTEM CONNECTORS

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
1	-	-
2	LG/G	O DI FR LEFT D
3	LA/Y	O DI FR RIGHT D
4	P	O SPARE4 RL N
5	R	CAN-L
6	L	CAN-H
7	-	-
8	L	CAN-H
9	R	CAN-L
10	BG	I DOORLOCK SW
11	Y	I HAZARD SW D
12	W	O PWR AUTOLIGHT SENSOR
13	-	-
14	-	-
15	-	-
16	P	DONGLE UART
17	L	O PWR ATDVC
18	-	-
19	LG	I AUTOLIGHT SENSOR

Terminal No.	Color of Wire	Signal Name
20	-	-
21	-	-
22	-	-
23	G	O WL AUTHORIZATION RL
24	LA/R	O DEFROSTER RL D
25	BR	O BAT TEMP1 RL
26	-	-
27	Y	O IGN1 RL
28	LA/W	O IGN2 RL
29	-	-
30	V	O GND AUTOLIGHT SENSOR
31	-	-
32	-	-
33	LG	I CSW 5
34	Y	O CSW 5
35	BG	O SECURITY LED
36	G	I CSW 3
37	GR	I CSW 4
38	V	I CSW 1
39	W	I CSW 2
40	SB	I DOORUNLOCK SW

AAMIA2133GB

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BROWN



167	168	169	164	163	162	161
176	175	174	173	172	171	170

Terminal No.	Color of Wire	Signal Name
161	W	I PWR ECU
162	SB	O PWM ROOMLAMP 1
163	L	O AS LOCK OR UNLOCK D
164	-	-
165	V	O DR OR FR LOCK D
166	-	-
167	LAV	I PWR DOORLOCK1
168	BG	I PWR FLASHERS
169	GR	I PWR STOP LAMP
170	B	I GND1
171	B	I GND2
172	G	O FR OR DR UNLOCK D
173	-	-
174	-	-
175	R	I PWR DOORLOCK2
176	LG	I PWR WIPER

Terminal No.	Color of Wire	Signal Name
100	V	SES EXT DR ANTENNA A
101	Y	I START SW
102	-	-
103	-	-
104	R	I DR KNOB SW
105	Y	I SES DR HANDLE BUTTON SW
106	W	O AUTO ACC2
107	-	-
108	-	-
109	-	-
110	BG	O MR OUTPUT
111	-	-
112	-	-
113	-	-
114	Y	O IMMOBILIZER KAZASHI A (WITH IKEY)
115	W	O IMMOBILIZER KAZASHI A (WITH IKEY)
116	BG	SES INT FRONT ANTENNA B (WITH IKEY)
117	GR	SES INT FRONT ANTENNA A (WITH IKEY)
118	SB	SES EXT AS ANTENNA B (WITH IKEY)
119	P	SES EXT AS ANTENNA A (WITH IKEY)
120	BR	SES EXT DR ANTENNA B (WITH IKEY)

Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



100	99	98	97	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81
120	119	118	117	116	115	114	113	112	111	110	109	108	107	106	105	104	103	102	101

Terminal No.	Color of Wire	Signal Name
81	-	-
82	W	I SES FR HANDLE BUTTON SW (WITH IKEY)
83	-	-
84	BR	O CSW 2
85	SB	O CSW 1
86	P	O CSW 3
87	BG	O CSW 4
88	W	O START SW BACKLIGHT LED
89	-	-
90	-	-
91	-	-
92	BR	I KEY CYLINDER LOCK SW
93	P	I KEY CYLINDER UNLOCK SW
94	G	I AT LOCKED IN PARK SW
95	V	I SHORTING PIN
96	-	-
97	-	-
98	-	-
99	-	-

AAMIA2134GB

Connector No.	E29
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



132	131	130	129	128	127	126	125	124	123	122	121
144	143	142	141	140	139	138	137	136	135	134	133

Terminal No.	Color of Wire	Signal Name
121	-	-
122	-	-
123	-	-
124	-	-
125	LG	I BRAKE SW2
126	W	I BRAKE SW1
127	-	-
128	-	-
129	-	-
130	-	-
131	-	-
132	Y	O BUZZER
133	-	-
134	-	-
135	BR	O DI FR LEFT E
136	GR	O DI FR RIGHT E
137	-	-
138	-	-
139	G	O STCUT RL
140	-	-
141	-	-
142	-	-
143	-	-
144	-	-

Connector No.	M28
Connector Name	COMBINATION SWITCH
Connector Color	WHITE



8	7	6	5	4	3	2	1
16	15	14	13	12	11	10	9

Terminal No.	Color of Wire	Signal Name
1	LG	-
2	SB	-
3	GR	-
4	BG	-
5	G	-
6	W	-
7	Y	-
8	V	-
9	G	-
10	BR	-
11	Y	-
12	-	-
13	-	-
14	LG	-
15	P	-
16	GR	-

AAMIA2135GB

Connector No.	B23
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY

151	150	149	148		147	146	145	
160	159	158	157	156	155	154	153	152



Terminal No.	Color of Wire	Signal Name
145	LA/V	O TGATE OPENER
146	—	—
147	LA/R	O RR WIPER
148	W	O RR UNLOCK B
149	L	O RR LOCK B
150	—	—
151	R	O PWM ROOMLAMP 5
152	—	—
153	LA/W	O STOP LAMP1
154	—	—
155	—	—
156	—	—
157	GR	O DI RR LEFT B
158	LA/Y	O STOP LAMP2 NISSAN EUR
159	—	—
160	P	O DI RR RIGHT B

Terminal No.	Color of Wire	Signal Name
57	SB	I DR DOOR2 SW
58	—	—
59	—	—
60	L	CAN-H
61	BR	SES EXT REAR ANTENNA B
62	Y	SES INT MIDDLE ANTENNA B
63	L	SES INT MIDDLE ANTENNA A
64	G	SES EXT REAR ANTENNA A
65	—	—
66	—	—
67	—	—
68	—	—
69	—	—
70	—	—
71	—	—
72	—	—
73	—	—
74	—	—
75	—	—
76	—	—
77	—	—
78	—	—
79	LA/W	O STOP LAMP3
80	P	CAN-L

Connector No.	B16
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GREEN



60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41
80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61

Terminal No.	Color of Wire	Signal Name
41	—	—
42	—	—
43	—	—
44	—	—
45	—	—
46	R	I SES BACKDOOR BUTTON SW
47	—	—
48	—	—
49	—	—
50	W	I RR DOOR SW
51	LG	I TGATE SW
52	R	I RL DOOR SW
53	SB	I AS DOOR2 SW
54	—	—
55	LA/G	I RR AUTOSTOP SW
56	Y	I TGATE OPENER SW

AAMIA2136GB

BASIC INSPECTION

INSPECTION AND ADJUSTMENT

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT (BCM)

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT (BCM) : Description

INFOID:0000000010195933

BEFORE REPLACEMENT

When replacing BCM, save or print current vehicle specification with CONSULT configuration before replacement.

NOTE:

If "Before Replace ECU" cannot be used, use the "After Replace ECU" or "Manual Configuration" after replacing BCM.

AFTER REPLACEMENT

CAUTION:

- When replacing BCM, you must perform "After Replace ECU" with CONSULT.
- Complete the procedure of "After Replace ECU" in order.
- If you set incorrect "After Replace ECU", incidents might occur.
- Configuration is different for each vehicle model. Confirm configuration of each vehicle model.
- When replacing BCM, perform the system initialization (NATS).
- When replacing BCM, perform "Configuration" of CAN gateway.

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT (BCM) : Work Procedure

INFOID:0000000010195934

1. SAVING VEHICLE SPECIFICATION (BCM)

CONSULT

Enter "Re/Programming, Configuration" and perform "Before Replace ECU" to save or print current vehicle specification.

NOTE:

If "Before Replace ECU" cannot be used, use the "After Replace ECU" or "Manual Configuration" after replacing BCM.

>> GO TO 2.

2. SAVING VEHICLE SPECIFICATION (CAN GATEWAY)

CONSULT

Perform "READ CONFIGURATION" to save or print current vehicle specification. Refer to [LAN-75, "CONSULT Function"](#).

NOTE:

If "READ CONFIGURATION" cannot be used, use the "WRITE CONFIGURATION - Manual selection" after replacing BCM.

>> GO TO 3.

3. REPLACE BCM

Replace BCM. Refer to [BCS-75, "Removal and Installation"](#).

>> GO TO 4.

4. WRITING VEHICLE SPECIFICATION (BCM)

CONSULT

1. Enter "Re/Programming, Configuration".
2. If "Before Replace ECU" operation was performed, automatically an "Operation Log Selection" screen will be displayed. Select the applicable file from the "Saved Data List" and press "Confirm" to write vehicle specification. Refer to [BCS-61, "CONFIGURATION \(BCM\) : Work Procedure"](#).

INSPECTION AND ADJUSTMENT

< BASIC INSPECTION >

[WITH INTELLIGENT KEY SYSTEM]

3. If "Before Replace ECU" operation was not performed, select "After Replace ECU" or "Manual Configuration" to write vehicle specification. Refer to [BCS-61, "CONFIGURATION \(BCM\) : Work Procedure"](#).

>> GO TO 5.

5. INITIALIZE BCM (NATS)

Perform BCM initialization. (NATS)

>> GO TO 6.

6. WRITING VEHICLE SPECIFICATION (CAN GATEWAY FUNCTION)

CONSULT

Perform "WRITE CONFIGURATION – Config file" or "WRITE CONFIGURATION – Manual selection" to write vehicle specification. Refer to [LAN-77, "Work Procedure"](#).

>> Work End.

CONFIGURATION (BCM)

CONFIGURATION (BCM) : Description

INFOID:0000000010195935

Vehicle specification needs to be written with CONSULT because it is not written after replacing BCM. Configuration has three functions as follows:

Function	Description
"Before Replace ECU"	• Reads the vehicle configuration of current BCM. • Saves the read vehicle configuration.
"After Replace ECU"	Writes the vehicle configuration with manual selection.
"Select Saved Data List"	Writes the vehicle configuration with saved data.

CAUTION:

- When replacing BCM, you must perform "Select Saved Data List" or "After Replace ECU" with CONSULT.
- Complete the procedure of "Select Saved Data List" or "After Replace ECU" in order.
- If you set incorrect "Select Saved Data List" or "After Replace ECU", incidents might occur.
- Configuration is different for each vehicle model. Confirm configuration of each vehicle model.
- Never perform "Select Saved Data List" or "After Replace ECU" except for new BCM.

CONFIGURATION (BCM) : Work Procedure

INFOID:0000000010195936

1. WRITING MODE SELECTION

CONSULT

Select "Reprogramming, Configuration" of BCM.

When writing saved data>>GO TO 2.

When writing manually>>GO TO 3.

2. PERFORM "SAVED DATA LIST"

CONSULT

Automatically "Operation Log Selection" window will display if "Before Replace ECU" was performed. Select applicable file from the "Save Data List" and press "Confirm".

>> Work End.

3. PERFORM "AFTER REPLACE ECU" OR "MANUAL CONFIGURATION"

CONSULT

1. Select "After Replace ECU" or "Manual Configuration".

INSPECTION AND ADJUSTMENT

< BASIC INSPECTION >

[WITH INTELLIGENT KEY SYSTEM]

2. Identify the correct model and configuration list. Refer to [BCS-62. "CONFIGURATION \(BCM\) : Configuration List"](#).
3. Confirm and/or change setting value for each item.
CAUTION:
Thoroughly read and understand the vehicle specification. ECU control may not operate normally if the setting is not correct.
4. Select "Next".
CAUTION:
Make sure to select "Next", confirm each setting value and press "OK" even if the indicated configuration of brand new BCM is same as the desirable configuration. If not, configuration which is set automatically by selecting vehicle model cannot be memorized.
5. When "Completed", select "End".

>> GO TO 4.

4. OPERATION CHECK

Confirm that each function controlled by BCM operates normally.

>> Work End.

CONFIGURATION (BCM) : Configuration List

INFOID:0000000010195937

CAUTION:

Thoroughly read and understand the vehicle specification. Incorrect settings may result in abnormal control of ECU.

MANUAL SETTING ITEM	
Items	Setting value
I-KEY	WITH ⇔ WITHOUT
DTRL	WITH ⇔ WITHOUT
AUTO DOOR UNLOCK TIMING	WITH I-KEY ⇔ W/O I-KEY

⇔: Items which confirm vehicle specifications

SHIPPING MODE CANCEL OPERATION

< BASIC INSPECTION >

[WITH INTELLIGENT KEY SYSTEM]

SHIPPING MODE CANCEL OPERATION

Work Procedure

INFOID:0000000010338484

1.SHIPPING MODE CANCEL OPERATION

1. Turn ignition switch OFF.
2. Push in (switch on) the extended storage fuse switch. Refer to [PG-73. "How To Check"](#).
3. Turn ignition switch ON.
4. Turn ignition switch OFF and wait at least 2 seconds.

>> GO TO 2.

2.SHIPPING MODE CANCEL CHECK

1. Turn ignition switch ON.
2. Check that extended storage fuse warning message is not displayed on information display.

>> Work End.

A

B

C

D

E

F

G

H

I

J

K

L

BCS

N

O

P

U1000 CAN COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

DTC/CIRCUIT DIAGNOSIS

U1000 CAN COMM CIRCUIT

Description

INFOID:0000000010195940

Refer to [LAN-8, "System Description"](#).

DTC Logic

INFOID:0000000010195941

DTC DETECTION LOGIC

NOTE:

U1000 can be set if a module harness was disconnected and reconnected, perhaps during a repair. Confirm that there are actual CAN diagnostic symptoms and a present DTC by performing the Self Diagnostic Result procedure.

CONSULT Display	DTC Detection Condition	Possible cause
CAN COMM CIRCUIT [U1000]	When any listed module cannot communicate with CAN communication signal continuously for 2 seconds or more with ignition switch ON.	In CAN communication system, any item (or items) of the following listed below is malfunctioning. • Transmission • Receiving (ECM) • Receiving (VDC/TCS/ABS) • Receiving (METER/M&A) • Receiving (TCM) • Receiving (IPDM E/R)

Diagnosis Procedure

INFOID:0000000010195942

1. PERFORM SELF DIAGNOSTIC

1. Turn ignition switch ON and wait for 2 second or more.
2. Check "SELF- DIAG RESULTS".

Is "CAN COMM CIRCUIT" displayed?

- YES >> Perform CAN Diagnosis as described in DIAGNOSIS section of CONSULT Operation Manual.
NO >> Refer to [GI-41, "Intermittent Incident"](#).

U1010 CONTROL UNIT (CAN)

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

U1010 CONTROL UNIT (CAN)

DTC Logic

INFOID:0000000010195943

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
CAN COMM CIRCUIT [U1010]	BCM detected internal CAN communication circuit malfunction.	BCM

Diagnosis Procedure

INFOID:0000000010195944

1. REPLACE BCM

When DTC U1010 is detected, replace BCM.

>> Replace BCM. Refer to [BCS-75. "Removal and Installation"](#).

BCS

U0415 VEHICLE SPEED SIG

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

U0415 VEHICLE SPEED SIG

Description

INFOID:0000000010195945

U0415 is displayed if any unusual condition is present in the reception status of the vehicle speed signal from the ABS actuator and electric unit (control unit).

DTC Logic

INFOID:0000000010195946

DTC DETECTION LOGIC

NOTE:

- If DTC U0415 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [BCS-64, "DTC Logic"](#).
- If DTC U0415 is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [BCS-65, "DTC Logic"](#).

CONSULT Display	DTC Detection Condition	Possible Cause
VEHICLE SPEED SIG [U0415]	When the vehicle speed signal received from the ABS actuator and electric unit (control unit) remains abnormal for 2 seconds or more.	• ABS system • Combination meter system • CAN bus harness

DTC CONFIRMATION PROCEDURE

1. DTC CONFIRMATION

1. Erase the DTC.
2. Turn ignition switch OFF.
3. Perform Self Diagnostic Result of BCM with CONSULT, after the ignition switch has been turned ON for 2 seconds or more.

Is any DTC detected?

YES >> Refer to [BCS-48, "DTC Index"](#).

NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010195947

1. ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF DIAGNOSTIC RESULT

Perform Self Diagnostic Result of ABS with CONSULT. Refer to [BRC-44, "CONSULT Function"](#).

Is any DTC detected?

YES >> Perform the trouble diagnosis related to the detected DTC. Refer to [BRC-55, "DTC Index"](#).

NO >> GO TO 2.

2. CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) POWER SUPPLY AND GROUND CIRCUIT

Check ABS actuator and electric unit (control unit) power and ground. Refer to [BRC-80, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

3. COMBINATION METER SELF DIAGNOSTIC RESULT

Perform Self Diagnostic Result of METER M&A with CONSULT. Refer to [MWI-21, "CONSULT Function \(METER/M&A\)"](#).

Is any DTC detected?

YES >> Perform the trouble diagnosis related to the detected DTC. Refer to [MWI-30, "DTC Index"](#).

NO >> Refer to [GI-41, "Intermittent Incident"](#).

B2562 LOW VOLTAGE

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

B2562 LOW VOLTAGE

DTC Logic

INFOID:0000000010195948

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible cause
LOW VOLTAGE [B2562]	When the power supply voltage to BCM remains less than 8.8V for 120 seconds or more.	• Harness or connector (power supply circuit) • Vehicle battery

DTC CONFIRMATION PROCEDURE

1. DTC CONFIRMATION

1. Erase DTC.
2. Turn ignition switch OFF.
3. Perform the Self Diagnostic Result of BCM with CONSULT, after the ignition switch has been turned ON for 120 seconds or more.

Is any DTC detected?

- YES >> Refer to [BCS-67, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010195949

1. CHECK BATTERY VOLTAGE

Check battery voltage.

Is battery voltage less than 8.8V?

- YES >> Charge battery and retest. Refer to [CHG-11, "Work Flow \(With EXP-800 NI or GR8-1200 NI\)"](#) or [CHG-14, "Work Flow \(Without EXP-800 NI or GR8-1200 NI\)"](#).
NO >> GO TO 2.

2. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check BCM power supply and ground circuit. Refer to [BCS-68, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace harness or connectors.

3. BCM SELF DIAGNOSTIC RESULT

Perform Self Diagnostic Result of BCM with CONSULT. Refer to [BCS-24, "BCM : CONSULT Function \(BCM - BCM\)"](#).

Is DTC B2562 CRNT?

- YES >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#).
NO >> Refer to [GI-41, "Intermittent Incident"](#).

BCS

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

POWER SUPPLY AND GROUND CIRCUIT

Diagnosis Procedure

INFOID:0000000010195952

Regarding Wiring Diagram information, refer to [BCS-50. "Wiring Diagram"](#).

1. CHECK FUSE

Check that the following fuse is not blown.

Terminal No.	Signal name	Fuse No.
161	BCM power supply	7 (10A)

Is the fuse blown?

YES >> Replace the blown fuse after repairing the affected circuit.
NO >> GO TO 2.

2. CHECK POWER SUPPLY CIRCUIT

1. Disconnect BCM connector M20.
2. Check voltage between BCM connector M20 and ground.

BCM		Ground	Voltage (Approx.)
Connector	Terminal		
M20	161	—	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace harness or connectors.

3. CHECK GROUND CIRCUIT

Check continuity between BCM connector M20 and ground.

BCM		Ground	Continuity
Connector	Terminal		
M20	170	—	Yes
	171		

Is the inspection result normal?

YES >> Inspection End.
NO >> Repair or replace harness or connectors.

COMBINATION SWITCH INPUT CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

COMBINATION SWITCH INPUT CIRCUIT

Diagnosis Procedure

INFOID:000000010195953

Regarding Wiring Diagram information, refer to [BCS-50, "Wiring Diagram"](#).

1. CHECK INPUT 1 - 5 SYSTEM CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect BCM connector M18 and combination switch connector.
3. Check continuity between BCM connector M18 and combination switch connector M28.

Signal	BCM		Combination switch		Continuity
	Connector	Terminal	Connector	Terminal	
INPUT 1	M18	38	M28	8	Yes
INPUT 2		39		6	
INPUT 3		36		5	
INPUT 4		37		3	
INPUT 5		33		1	

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness or connectors.

2. CHECK INPUT 1 - 5 SYSTEM CIRCUIT FOR SHORT

Check continuity between BCM connector M18 and ground.

Signal	BCM			Continuity
	Connector	Terminal		
INPUT 1	M18	38	Ground	No
INPUT 2		39		
INPUT 3		36		
INPUT 4		37		
INPUT 5		33		

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

3. CHECK BCM OUTPUT VOLTAGE

1. Connect BCM connector M18 and combination switch connector.
2. Turn ignition switch ON.
3. Check voltage between BCM connector M18 and ground.

Signal	BCM		Ground	Voltage
	Connector	Terminal		
INPUT 1	M18	38	—	Refer to BCS-28, "Reference Value" .
INPUT 2		39		
INPUT 3		36		
INPUT 4		37		
INPUT 5		33		

COMBINATION SWITCH INPUT CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

Is the inspection result normal?

- YES >> Replace the combination switch. Refer to [BCS-76, "Removal and Installation"](#).
NO >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#).

COMBINATION SWITCH OUTPUT CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

COMBINATION SWITCH OUTPUT CIRCUIT

Diagnosis Procedure

INFOID:000000010195954

Regarding Wiring Diagram information, refer to [BCS-50, "Wiring Diagram"](#).

1. CHECK OUTPUT 1 - 5 SYSTEM CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect BCM connector M19 and combination switch connector.
3. Check continuity between BCM connector M19 and combination switch connector M28.

Signal	BCM		Combination switch		Continuity
	Connector	Terminal	Connector	Terminal	
OUTPUT 1	M19	85	M28	2	Yes
OUTPUT 2		84		10	
OUTPUT 3		86		15	
OUTPUT 4		87		4	
OUTPUT 5		34		7	

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness or connectors.

2. CHECK OUTPUT 1 - 5 SYSTEM CIRCUIT FOR SHORT

Check continuity between BCM connector M19 and ground.

Signal	BCM			Continuity
	Connector	Terminal		
OUTPUT 1	M19	85	Ground	No
OUTPUT 2		84		
OUTPUT 3		86		
OUTPUT 4		87		
OUTPUT 5		34		

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

3. CHECK BCM INPUT VOLTAGE

1. Connect BCM connector M19 and combination switch connector.
2. Turn ignition switch ON.
3. Check voltage between BCM connector M19 and ground.

Signal	BCM		Ground	Voltage
	Connector	Terminal		
OUTPUT 1	M19	85	—	Refer to BCS-28, "Reference Value" .
OUTPUT 2		84		
OUTPUT 3		86		
OUTPUT 4		87		
OUTPUT 5		34		

COMBINATION SWITCH OUTPUT CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

Is the inspection result normal?

YES >> Replace BCM. Refer to [BCS-75. "Removal and Installation"](#).

NO >> Replace the combination switch. Refer to [BCS-76. "Removal and Installation"](#).

COMBINATION SWITCH SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

SYMPTOM DIAGNOSIS

COMBINATION SWITCH SYSTEM SYMPTOMS

Symptom Table

INFOID:0000000010195955

1. Perform the data monitor of CONSULT to check for any malfunctioning item.
2. Check the malfunction combinations.

Malfunction item: x

Malfunction combination	Data monitor item																
	FR WIPER HI	FR WIPER LOW	FR WASHER SW	FR WIPER INT	INT VOLUME	RR WIPER ON	RR WIPER INT	RR WASHER SW	TURN SIGNAL R	TURN SIGNAL L	TAIL LAMP SW	HI BEAM SW	HEAD LAMP SW	LIGHT OFF SW	PASSING SW	AUTO LIGHT SW	FR FOG SW
A												x			x		x
B					x						x		x			x	
C			x					x	x	x							
D	x	x		x										x			
E					x	x	x										
F		x	x		x												
G	x				x			x				x					
H				x			x						x		x		
I						x				x						x	
J									x		x			x			x
K	All Items																
L	If only one item is detected or the item is not applicable to the combinations A to K																

3. Identify the malfunctioning part from the agreed combination and repair or replace the part.

Malfunction combination	Malfunctioning part	Repair or replace
A	Combination switch INPUT 1 circuit	Inspect the combination switch input circuit applicable to the malfunctioning part. Refer to BCS-69, "Diagnosis Procedure" .
B	Combination switch INPUT 2 circuit	
C	Combination switch INPUT 3 circuit	
D	Combination switch INPUT 4 circuit	
E	Combination switch INPUT 5 circuit	
F	Combination switch OUTPUT 1 circuit	Inspect the combination switch output circuit applicable to the malfunctioning part. Refer to BCS-71, "Diagnosis Procedure" .
G	Combination switch OUTPUT 2 circuit	
H	Combination switch OUTPUT 3 circuit	
I	Combination switch OUTPUT 4 circuit	
J	Combination switch OUTPUT 5 circuit	
K	BCM	Replace BCM. Refer to BCS-75, "Removal and Installation" .
L	Combination switch	Replace the combination switch. Refer to BCS-76, "Removal and Installation" .

NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

NORMAL OPERATING CONDITION

Description

INFOID:0000000010337002

SHIPPING MODE

- Shipping mode inhibits battery power consumption during transportation or storage of the vehicle. Vehicle is set to shipping mode before being shipped from the factory.
- When ignition switch is OFF, BCM operates shipping mode.
- BCM control function is limited in shipping mode. Remote keyless entry function is not operated during the shipping mode.
- For shipping mode cancel operation, refer to [BCS-63. "Work Procedure"](#).

NOTE:

Do not cancel shipping mode during storage of the vehicle. Always cancel shipping mode before delivery of the vehicle to customer.

REMOVAL AND INSTALLATION

BCM (BODY CONTROL MODULE)

Removal and Installation

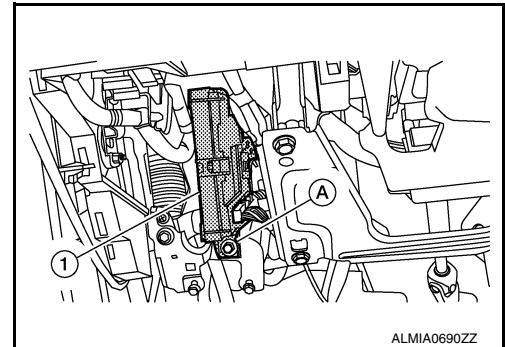
INFOID:0000000010195956

CAUTION:

Before replacing the BCM, perform "READ CONFIGURATION" to save or print current vehicle specification. Refer to [BCS-60, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT \(BCM\) : Work Procedure"](#).

REMOVAL

1. Disconnect the negative battery terminal. Refer to [PG-77, "Removal and Installation"](#).
2. Remove the instrument lower panel LH. Refer to [IP-22, "Removal and Installation"](#).
3. Remove the bolt (A), then pull out the BCM (1).



4. Disconnect the harness connectors from the BCM and remove.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- When replacing BCM, perform "WRITE CONFIGURATION" Refer to [BCS-61, "CONFIGURATION \(BCM\) : Work Procedure"](#).
- When replacing BCM, perform the system initialization (NATS). Refer to the CONSULT immobilizer mode and follow the on-screen instructions.
- When replacing BCM, if new BCM does not come with keyfobs attached, all existing keyfobs must be re-registered. Refer to the CONSULT immobilizer mode and follow the on screen instructions.

BCS

COMBINATION SWITCH

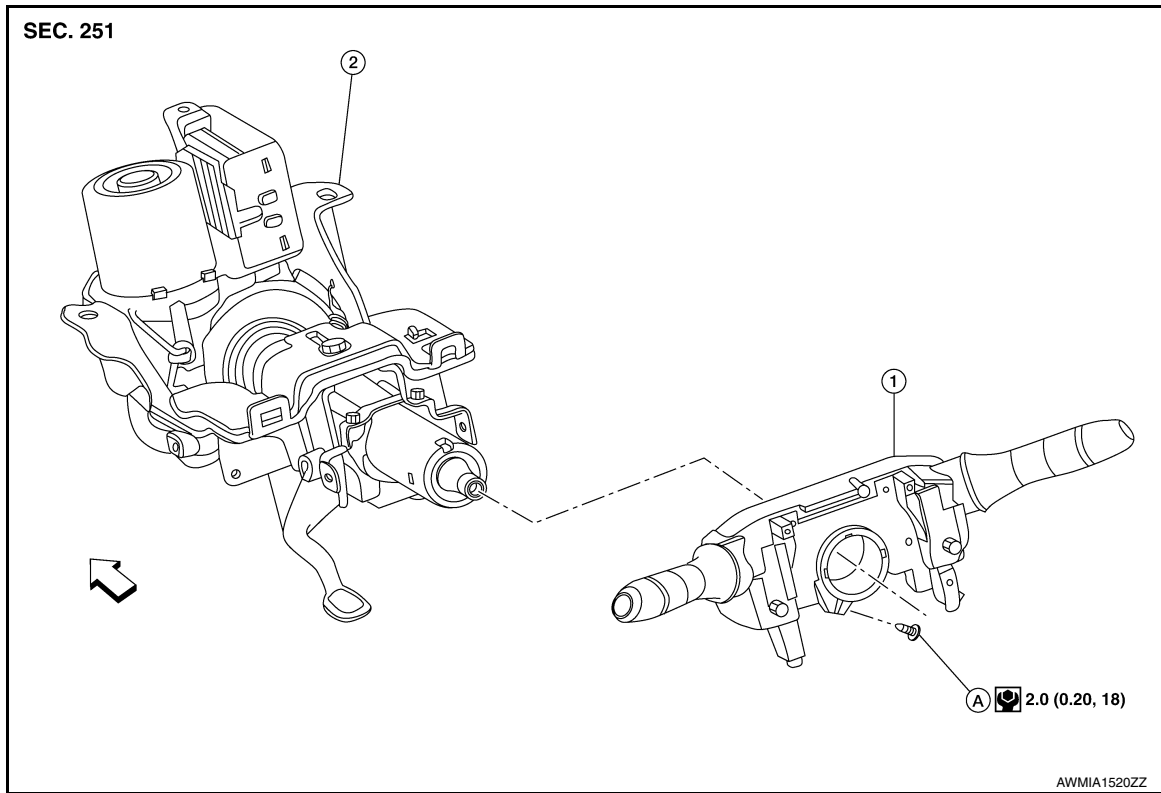
< REMOVAL AND INSTALLATION >

[WITH INTELLIGENT KEY SYSTEM]

COMBINATION SWITCH

Exploded View

INFOID:000000010195957



1. Combination switch

2. Steering column

A. Screw

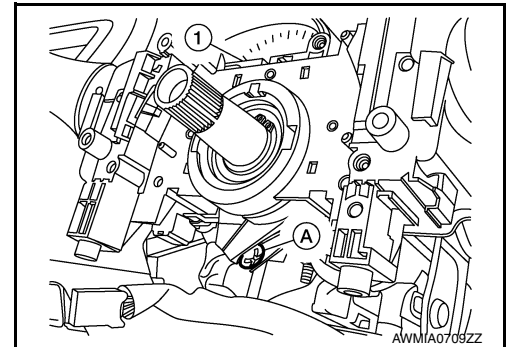
⇐ Front

Removal and Installation

INFOID:000000010195958

REMOVAL

1. Remove the steering angle sensor. Refer to [BRC-139, "Removal and Installation"](#).
2. Disconnect harness connector from combination switch.
3. Remove screw (A) and combination switch (1).



INSTALLATION

Installation is in the reverse order of removal.

PRECAUTIONS

< PRECAUTION >

[WITHOUT INTELLIGENT KEY SYSTEM]

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010262864

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

BCS

PREPARATION

< PREPARATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

PREPARATION

PREPARATION

Special Service Tool

INFOID:0000000010430555

The actual shape of the tools may differ from those tools illustrated here.

Tool number (TechMate No.) Tool name	Description
— (J-50190) Signal Tech II  ALEIA0131ZZ	• Activate and display TPMS transmitter IDs • Display tire pressure reported by the TPMS transmitter • Read TPMS DTCs • Register TPMS transmitter IDs • Check Intelligent Key relative signal strength • Confirm vehicle Intelligent Key antenna signal strength • Compatible with future sensors • Equipped with a display

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[WITHOUT INTELLIGENT KEY SYSTEM]

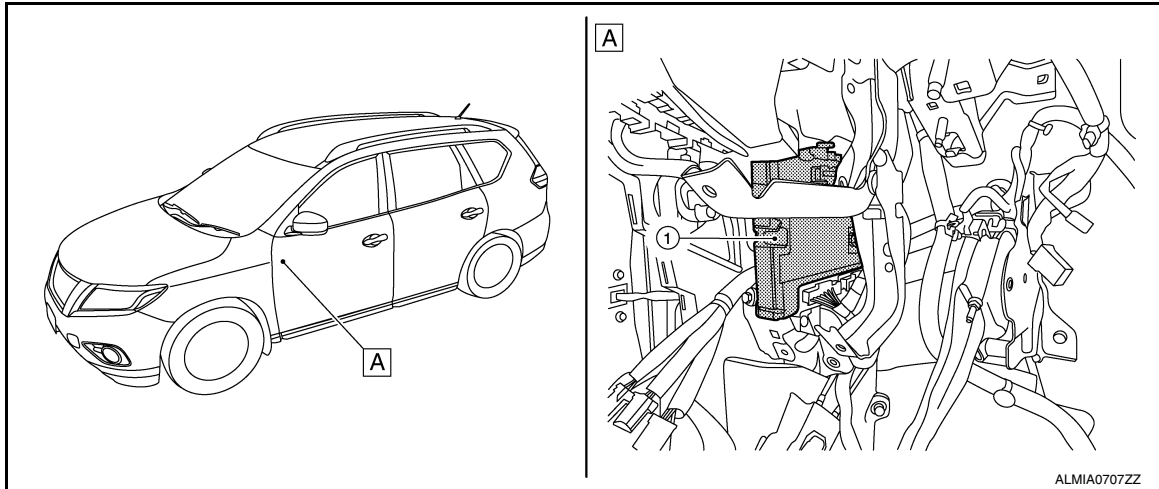
SYSTEM DESCRIPTION

COMPONENT PARTS

BODY CONTROL SYSTEM

BODY CONTROL SYSTEM : Component Parts Location

INFOID:0000000010256046



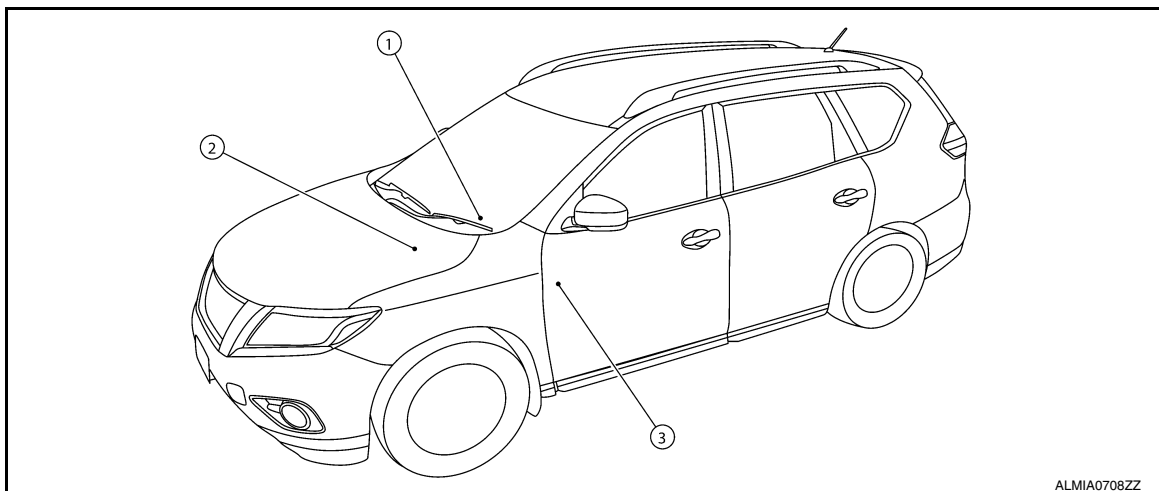
1. BCM

A. Behind instrument panel (LH)

POWER CONSUMPTION CONTROL SYSTEM

POWER CONSUMPTION CONTROL SYSTEM : Component Parts Location

INFOID:0000000010256048



1. Combination meter

Refer to [MWI-6. "METER SYSTEM : Component Parts Location"](#).

2. IPDM E/R

Refer to [PCS-4. "Component Parts Location"](#).

3. BCM

Refer to [BCS-79. "BODY CONTROL SYSTEM : Component Parts Location"](#).

SYSTEM

BODY CONTROL SYSTEM

BODY CONTROL SYSTEM : System Description

INFOID:0000000010256049

OUTLINE

- BCM (body control module) controls various electrical components. It receives the information required from CAN communication and the signals received from each switch and sensor.
- BCM has a combination switch reading function for reading the status of combination switches (light, turn signal, wiper and washer) in addition to functions for controlling the operation of various electrical components. It also has a signal transmission function for other systems, and a power consumption control function that reduces the power consumption with the ignition switch OFF.
- BCM is equipped with a diagnosis function that operates with CONSULT and allows for various settings to be changed.

BCM FUNCTION LIST

System	Refer to
Combination switch reading system	BCS-81. "COMBINATION SWITCH READING SYSTEM : System Description"
Signal buffer system	BCS-84. "SIGNAL BUFFER SYSTEM : System Description"
Power consumption control system	BCS-84. "POWER CONSUMPTION CONTROL SYSTEM : System Description"
Headlamp system	EXL-12. "HEADLAMP SYSTEM : System Description" (halogen headlamp)
Daytime light system	EXL-14. "DAYTIME RUNNING LIGHT SYSTEM : System Description" (halogen headlamp)
Turn signal and hazard warning lamps system	EXL-15. "TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM : System Description" (halogen headlamp)
Parking, license plate and tail lamps system	EXL-15. "PARKING, LICENSE PLATE, SIDE MARKER AND TAIL LAMP SYSTEM : System Description" (halogen headlamp)
Exterior lamp battery saver system	EXL-18. "EXTERIOR LAMP BATTERY SAVER SYSTEM : System Description" (halogen headlamp)
Interior room lamp control system	INL-7. "INTERIOR ROOM LAMP CONTROL SYSTEM : System Description"
Interior room lamp battery saver system	INL-9. "INTERIOR ROOM LAMP BATTERY SAVER SYSTEM : System Description"
Front wiper and washer system	WW-8. "FRONT WIPER AND WASHER SYSTEM : System Description"
Rear wiper and washer system	WW-10. "REAR WIPER AND WASHER SYSTEM : System Description"
Warning chime system	WCS-6. "WARNING CHIME SYSTEM : System Description"
Door lock system	DLK-287. "POWER DOOR LOCK SYSTEM : System Description"
Back door open system	
Nissan vehicle immobilizer system (NVIS)	SEC-117. "NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS : System Description"
Vehicle security system	SEC-118. "VEHICLE SECURITY SYSTEM : System Description"
Panic alarm	
Rear window defogger system	DEF-6. "System Description"
Power window system	PWC-8. "System Description"
RAP (retained accessory power) system	BCS-94. "RETAINED PWR : CONSULT Function (BCM - RETAINED PWR)"
TPMS (tire pressure monitoring system)	WT-8. "System Description"

SYSTEM

< SYSTEM DESCRIPTION >

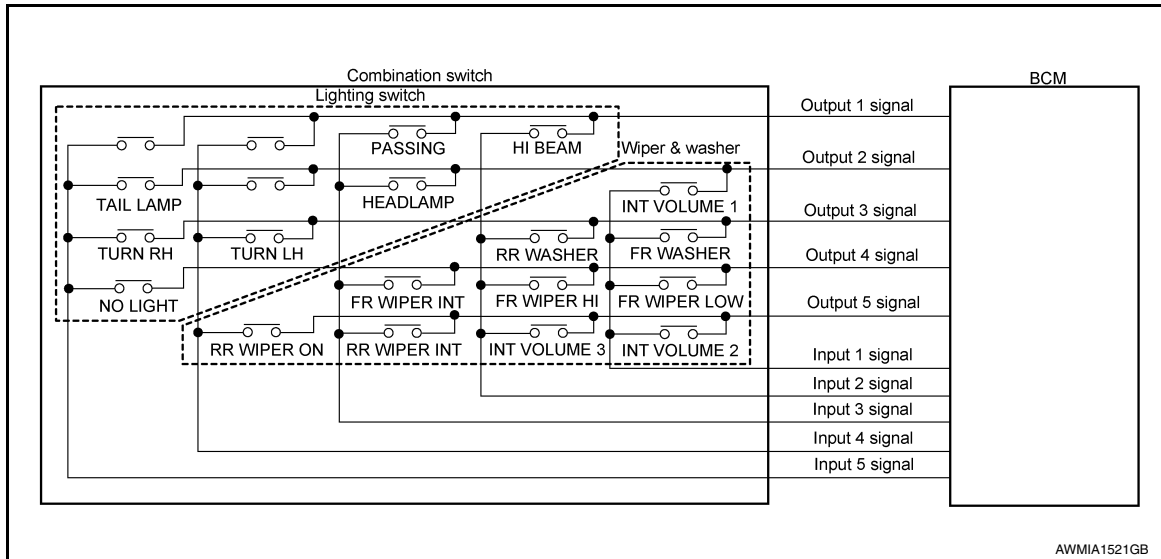
[WITHOUT INTELLIGENT KEY SYSTEM]

COMBINATION SWITCH READING SYSTEM

COMBINATION SWITCH READING SYSTEM : System Description

INFOID:000000010256051

SYSTEM DIAGRAM

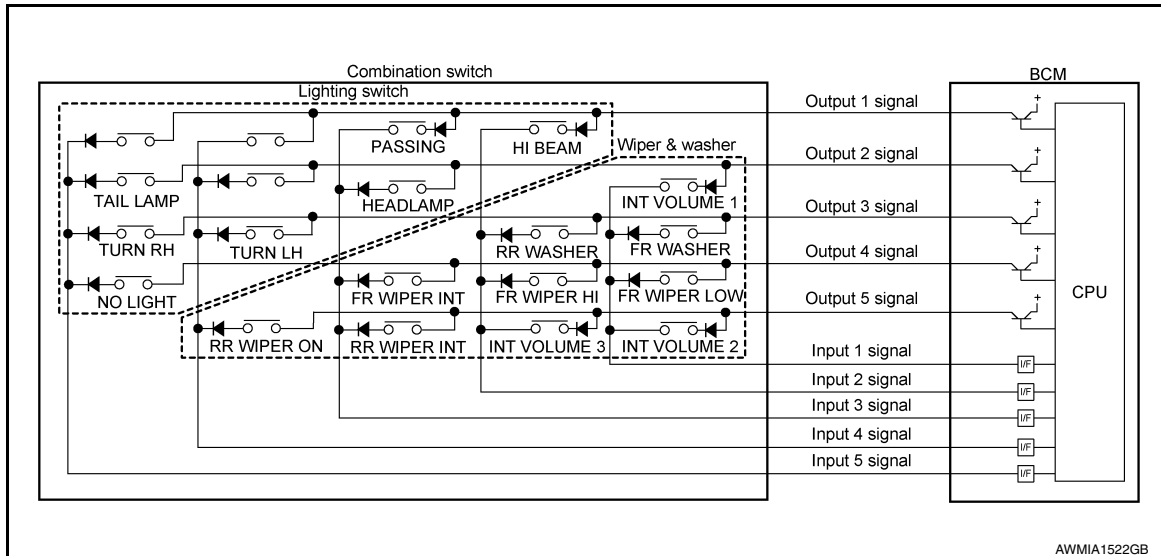


OUTLINE

- BCM reads the status of the combination switch (light, turn signal, wiper and washer) and recognizes the status of each switch.
- BCM has a combination of 5 output terminals (OUTPUT 1 - 5) and 5 input terminals (INPUT 1 - 5) and reads a maximum of 20 switch states.

COMBINATION SWITCH MATRIX

Combination switch circuit



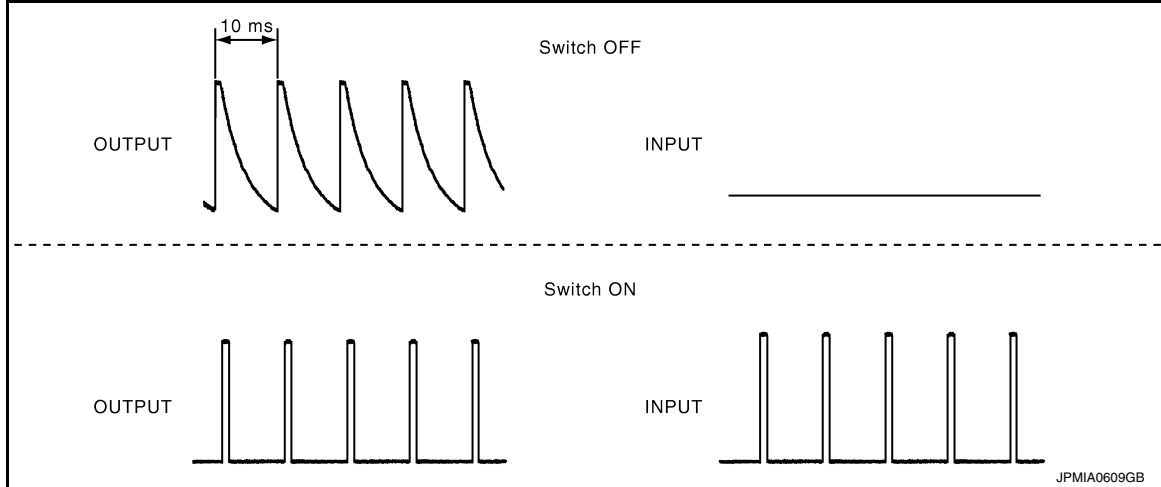
Combination switch INPUT-OUTPUT system list

System	INPUT 1	INPUT 2	INPUT 3	INPUT 4	INPUT 5
OUTPUT 1	—	HI BEAM	PASSING	—	—
OUTPUT 2	INT VOLUME 1	—	HEADLAMP	—	TAIL LAMP
OUTPUT 3	FR WASHER	RR WASHER	—	TURN LH	TURN RH
OUTPUT 4	FR WIPER LOW	FR WIPER HI	FR WIPER INT	—	NO LIGHT
OUTPUT 5	INT VOLUME 2	INT VOLUME 3	RR WIPER INT	RR WIPER ON	—

COMBINATION SWITCH READING FUNCTION

Description

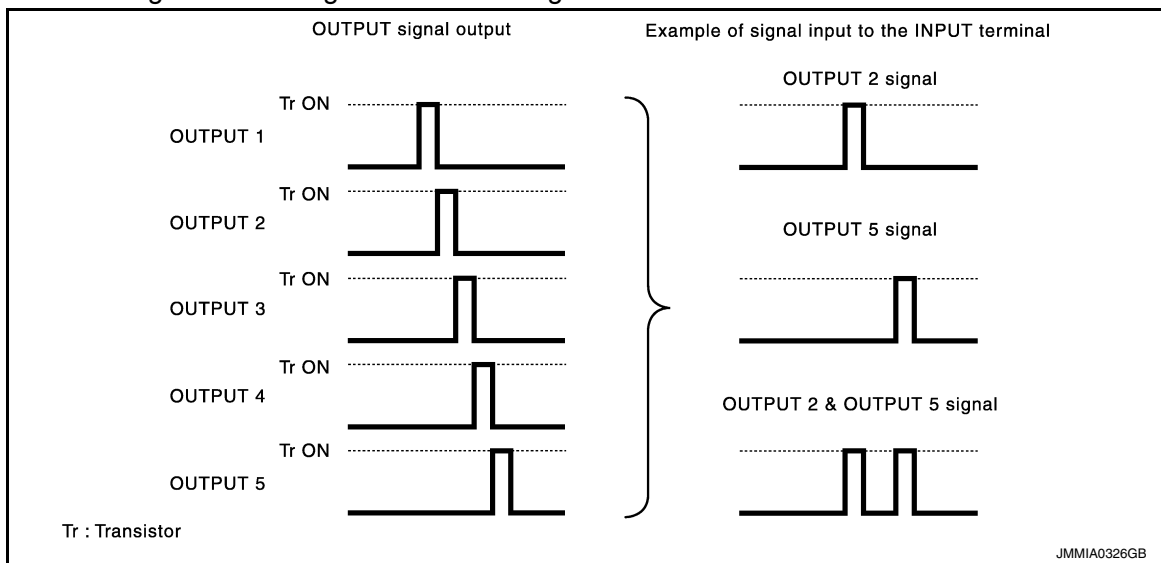
- BCM reads the status of the combination switch at 10 ms intervals normally.



NOTE:

BCM reads the status of the combination switch at 60 ms intervals when BCM is controlled at low power consumption control mode.

- BCM operates as follows and judges the status of the combination switch.
 - It operates the transistor on OUTPUT side in the following order: OUTPUT 1 → 2 → 3 → 4 → 5, and outputs voltage waveform.
 - The voltage waveform of OUTPUT corresponding to the formed circuit is input into the interface on INPUT side if any (1 or more) switches are ON.
 - It reads this change of the voltage as the status signal of the combination switch.



Operation Example

In the following operation example, the combination of the status signals of the combination switch is replaced as follows: INPUT 1 - 5 to "1 - 5" and OUTPUT 1 - 5 to "A - E".

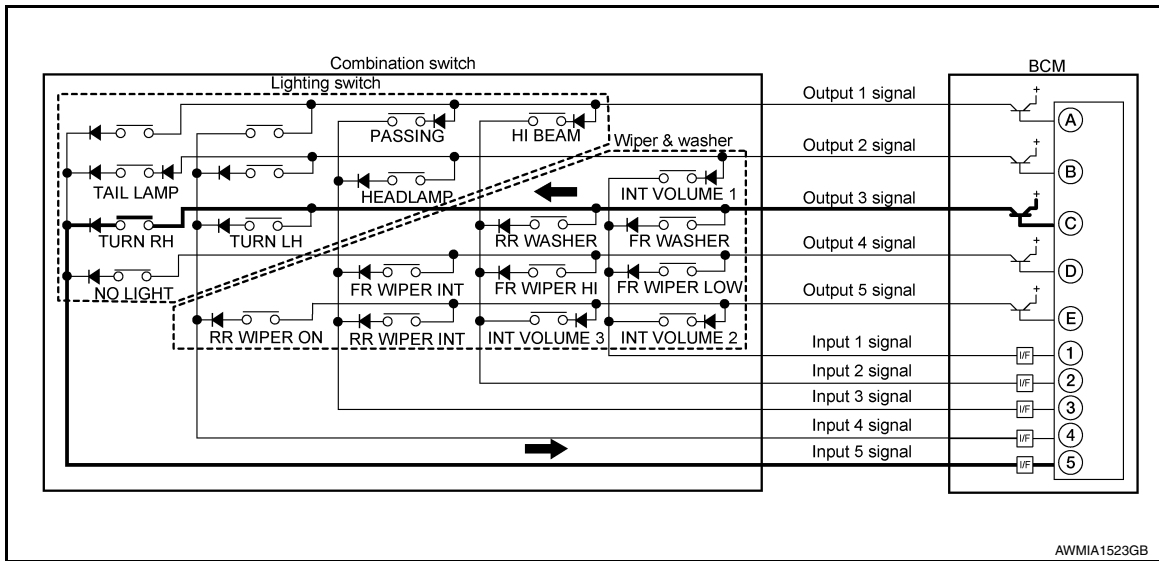
Example 1: When a switch (TURN RH) is turned ON

SYSTEM

< SYSTEM DESCRIPTION >

[WITHOUT INTELLIGENT KEY SYSTEM]

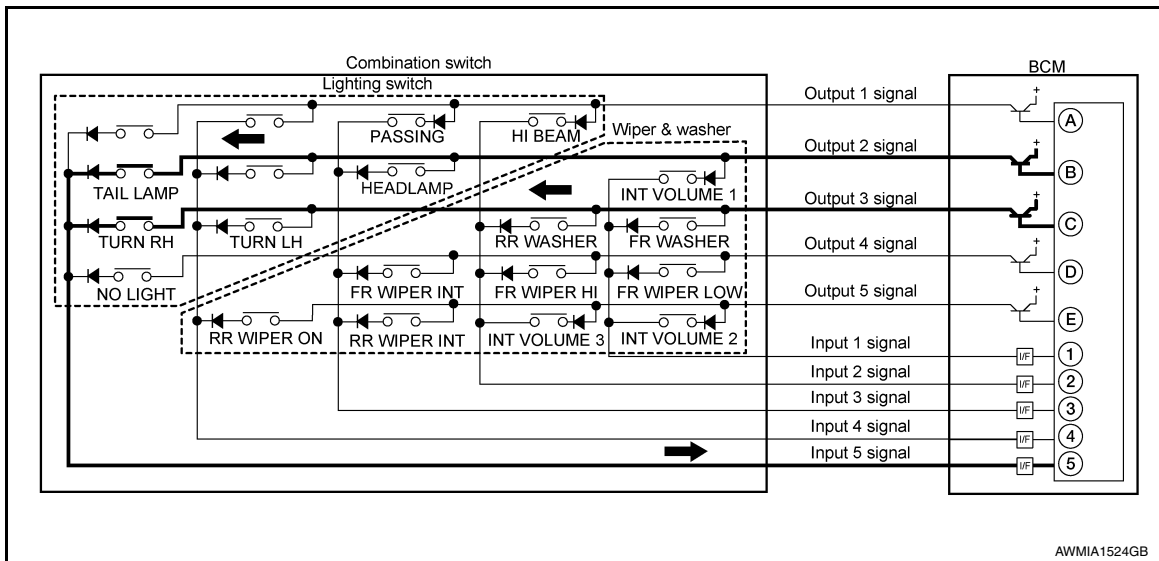
- The circuit between OUTPUT 3 and INPUT 5 is formed when the TURN RH switch is turned ON.



- BCM detects the combination switch status signal “5C” when the signal of OUTPUT 3 is input to INPUT 5.
- BCM judges that the TURN RH switch is ON when the signal “5C” is detected.

Example 2: When some switches (TAIL LAMP, TURN RH) are turned ON

- The circuits between OUTPUT 2 and INPUT 5 and between OUTPUT 3 and INPUT 5 are formed when the TAIL LAMP switch and TURN RH switch are turned ON.



- BCM detects the combination switch status signal “5BC” when the signals of OUTPUT 2 and OUTPUT 3 are input to INPUT 5.
- BCM judges that the TAIL LAMP switch and TURN RH switch are ON when the signal “5BC” is detected.

WIPER INTERMITTENT DIAL POSITION SETTING (FRONT WIPER INTERMITTENT OPERATION)

BCM judges the wiper intermittent dial 1 - 4 by the status of INT VOLUME 1, 2, and 3 switches.

Wiper intermittent dial position	Switch status		
	INT VOLUME 1	INT VOLUME 2	INT VOLUME 3
1	OFF	OFF	OFF
2	ON	OFF	OFF
3	OFF	ON	OFF
4	OFF	OFF	ON

SIGNAL BUFFER SYSTEM

SYSTEM

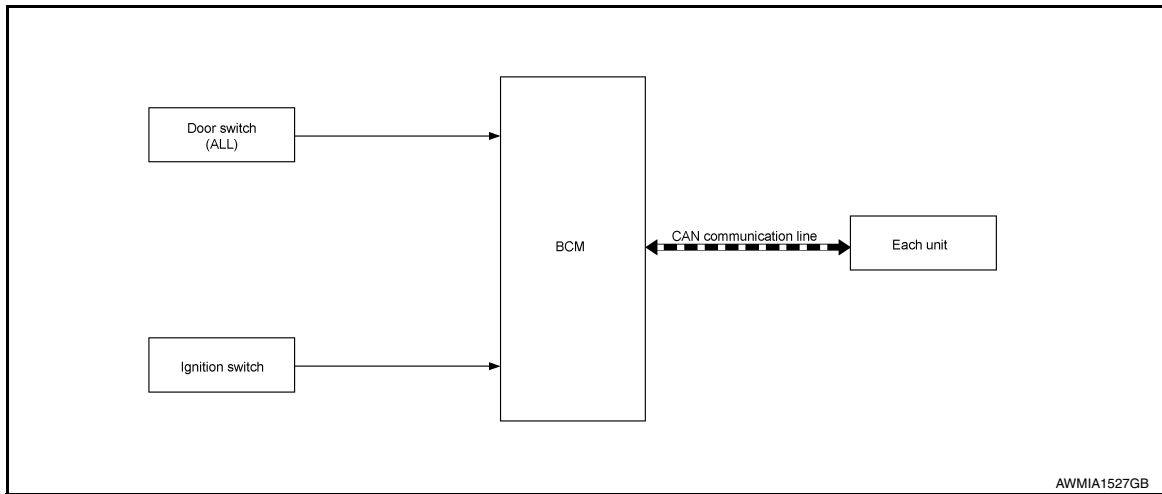
< SYSTEM DESCRIPTION >

[WITHOUT INTELLIGENT KEY SYSTEM]

SIGNAL BUFFER SYSTEM : System Description

INFOID:0000000010256053

SYSTEM DIAGRAM



OUTLINE

BCM has the signal transmission function that outputs/transmits each input/received signal to each unit.

SIGNAL TRANSMISSION FUNCTION LIST

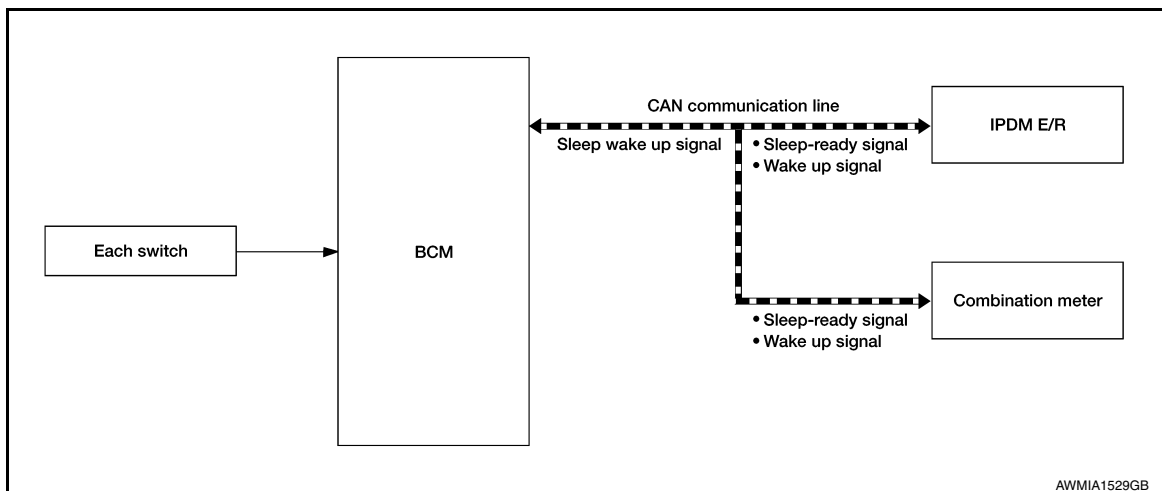
Signal name	Input	Output	Description
- Ignition switch ON signal - Ignition switch signal	Ignition switch	IPDM E/R (CAN)	Inputs the ignition switch signal and transmits the ignition switch status judged with BCM via CAN communication.
Door switch signal	Any door switch	- Combination meter (CAN) - IPDM E/R (CAN)	Inputs the door switch signal and transmits it via CAN communication.

POWER CONSUMPTION CONTROL SYSTEM

POWER CONSUMPTION CONTROL SYSTEM : System Description

INFOID:0000000010256055

SYSTEM DIAGRAM



OUTLINE

- BCM incorporates a power saving control function that reduces the power consumption according to the vehicle status.
- BCM switches the status (control mode) by itself with the power saving control function. It performs the sleep request to each unit (IPDM E/R and combination meter) that operates with the ignition switch OFF.

SYSTEM

< SYSTEM DESCRIPTION >

[WITHOUT INTELLIGENT KEY SYSTEM]

Normal mode (wake-up)

- CAN communication is normally performed with other units
- Each control with BCM is operating properly

CAN communication sleep mode (CAN sleep)

- CAN transmission is stopped
- Control with BCM only is operating

Low power consumption mode (BCM sleep)

- Low power consumption control is active
- CAN transmission is stopped

LOW POWER CONSUMPTION CONTROL WITH BCM

BCM reduces the power consumption with the following operation in the low power consumption mode.

- The reading interval of each switch changes from 10 ms interval to 60 ms interval.

SLEEP MODE ACTIVATION

- BCM receives the sleep-ready signal (ready) from IPDM E/R and combination meter via CAN communication.
- BCM transmits the sleep wake up signal (sleep) to each unit when all of the CAN sleep conditions are fulfilled.
- Each unit stops the transmission of CAN communication with the sleep wake-up signal. BCM is in CAN communication sleep mode.
- BCM is in the low power consumption mode and performs the low power consumption control when all of the BCM sleep conditions are fulfilled with CAN sleep condition.

Sleep condition

CAN sleep condition	BCM sleep condition
• Receiving the sleep-ready signal (ready) from all units • Ignition switch: OFF • Vehicle security system alarm and panic alarm: No operation • Warning lamp: No operation • Brake switch: OFF • Turn signal indicator lamp: No operation • Exterior lamp: OFF • Door lock status: No change • CONSULT communication status: No communication • Meter display signal: Non-transmission • Door switch status: No change • Rear window defogger: OFF	• Interior room lamp battery saver: Time out • RAP system: OFF • NATS: No operation • Tire pressure monitoring system: Stop

WAKE-UP OPERATION

- BCM changes from the low power consumption mode to the CAN communication sleep mode when the any of the BCM wake-up conditions are fulfilled. Only the control with BCM is activated.
- BCM transmits the sleep wake-up signal (wake up) to each unit when any of the CAN wake-up conditions are fulfilled. It changes from the low power consumption mode or the CAN communication sleep mode to the normal mode.
- Each unit starts the transmission of CAN communication with the sleep wake-up signal. In addition, the combination meter transmits the wake-up signal to BCM via CAN communication to report the CAN communication start.

BCM wake-up condition	CAN wake-up condition
• Door lock assembly LH (key cylinder switch): Lock or unlock • Door lock switch: OFF→ON • Door unlock switch: OFF→ON • Back door opener switch: OFF→ON	• Receiving the sleep-ready signal (Not-ready) from any units • Ignition switch: OFF→ON • Hazard switch: OFF→ON • PASSING switch: OFF→ON, ON→OFF • TAIL LAMP switch: OFF→ON • Driver door switch: OFF→ON, ON→OFF • Passenger door switch: OFF → ON, ON → OFF • Back door switch: OFF→ON, ON→OFF • Stop lamp switch signal: ON

A
B
C
D
E
F
G
H
I
J
K
L

BCS

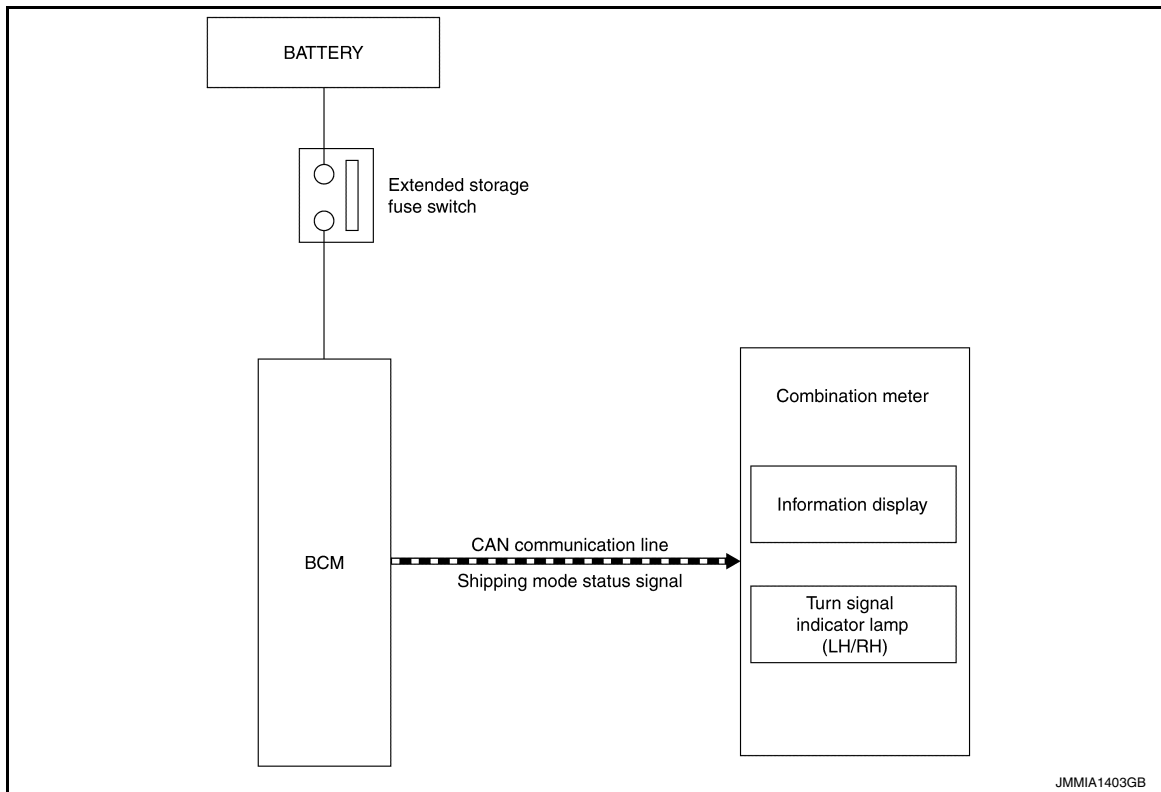
N
O
P

SHIPPING MODE CONTROL SYSTEM

SHIPPING MODE CONTROL SYSTEM : System Description

INFOID:0000000010256056

SYSTEM DIAGRAM



DESCRIPTION

- BCM switches the status (shipping mode or normal mode) by itself according to the extended storage fuse switch condition, and transmits shipping mode status signal to combination meter and each unit via CAN communication.
- When shipping mode function operates, each control unit does not detect DTCs.
- BCM control functions are limited in shipping mode. Refer to [BCS-134, "Description"](#).
- The combination meter displays extended storage fuse warning message* on the information display, and turns the turn signal indicator lamp (LH/RH) ON, when BCM is in shipping mode.

*: When shipping mode function operates, "SHIPPING MODE ON PUSH STORAGE FUSE" is displayed.

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[WITHOUT INTELLIGENT KEY SYSTEM]

DIAGNOSIS SYSTEM (BCM)

COMMON ITEM

COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)

INFOID:0000000010256057

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with BCM.

Direct Diagnostic Mode	Description
Ecu Identification	The BCM part number is displayed.
Self Diagnostic Result	The BCM self diagnostic results are displayed.
Data Monitor	The BCM input/output data is displayed in real time.
Active Test	The BCM activates outputs to test components.
Work support	The settings for BCM functions can be changed.
Configuration	- The vehicle specification can be read and saved. - The vehicle specification can be written when replacing BCM.
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.

SYSTEM APPLICATION

BCM can perform the following functions.

System	Sub System	Direct Diagnostic Mode						
		Ecu Identification	Self Diagnostic Result	Data Monitor	Active Test	Work support	Configuration	CAN Diag Support Mntr
Door lock	DOOR LOCK			x	x	x		
Rear window defogger	REAR DEFOGGER			x	x	x		
Warning chime	BUZZER			x	x			
Interior room lamp timer	INT LAMP			x	x	x		
Remote keyless entry system	MULTI REMOTE ENT					x		
Exterior lamp	HEADLAMP			x	x			
Wiper and washer	WIPER			x	x	x		
Turn signal and hazard warning lamps	FLASHER			x	x			
Combination switch	COMB SW			x				
BCM	BCM	x	x			x	x	x
Immobilizer	IMMU		x		x			
Interior room lamp battery saver	BATTERY SAVER			x	x			
Back door open	TRUNK			x				
Vehicle security system	THEFT ALM			x	x	x		
RAP system	RETAINED PWR			x				
TPMS	AIR PRESSURE MONITOR		x	x	x	x		

DOOR LOCK

DOOR LOCK : CONSULT Function (BCM - DOOR LOCK)

INFOID:0000000010256058

SELF DIAGNOSTIC RESULT

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[WITHOUT INTELLIGENT KEY SYSTEM]

Refer to [BCS-108, "DTC Index"](#).

DATA MONITOR

Monitor Item [Unit]	Description
DOOR SW-DR [On/Off]	Indicates condition of front door switch LH.
DOOR SW-AS [On/Off]	Indicates condition of front door switch RH.
DOOR SW-RR [On/Off]	Indicates condition of rear door switch RH.
DOOR SW-RL [On/Off]	Indicates condition of rear door switch LH.
DOOR SW-BK [On/Off]	Indicates condition of back door switch.
CDL LOCK SW [On/Off]	Indicates condition of lock signal from door lock and unlock switch.
CDL UNLOCK SW [On/Off]	Indicates condition of unlock signal from door lock and unlock switch.
KEY CYL LK-SW [On/Off]	Indicates condition of lock signal from door key cylinder switch.
KEY CYL UN-SW [On/Off]	Indicates condition of unlock signal from door key cylinder switch.

ACTIVE TEST

Test Item	Description
DOOR LOCK	This test is able to check door lock operation [ALL LOCK/ALL UNLK].

WORK SUPPORT

Support Item	Setting	Description
DOOR LOCK-UNLOCK SET	On*	Automatic door locks function ON.
	Off	Automatic door locks function OFF.
AUTO UNLOCK TYPE	MODE2	Driver door only unlocks automatically.
	MODE1*	All doors unlock automatically.
AUTO LOCK FUNCTION	MODE3	This mode is not used.
	MODE2	Doors lock automatically when shifted out of P (park).
	MODE1*	Doors lock automatically when vehicle speed reaches 24 km/h (15 mph).
	Off	—
AUTO UNLOCK FUNCTION	MODE3	This mode is not used.
	MODE2	Doors unlock automatically when shifted into P (park).
	MODE1*	Doors unlock automatically when ignition is switched from ON to OFF.
	Off	—

* : Initial setting

REAR DEFOGGER

REAR DEFOGGER : CONSULT Function (BCM - REAR DEFOGGER)

INFOID:0000000010256059

DATA MONITOR

Monitor Item [Unit]	Description
REAR DEF SW [On/Off]	Indicates condition of rear window defogger switch.

ACTIVE TEST

Test Item	Description
REAR DEFOGGER	This test is able to check rear window defogger operation [Off/On].

WORK SUPPORT

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[WITHOUT INTELLIGENT KEY SYSTEM]

Support Item	Setting	Description
SET R-DEF TIMER	MODE3	Rear defogger turns OFF after 1 minute.
	MODE2	Rear defogger remains ON until turned OFF.
	MODE1*	Rear defogger turns OFF after 15 minutes.

* : Initial setting

BUZZER

BUZZER : CONSULT Function (BCM - BUZZER)

INFOID:0000000010256060

DATA MONITOR

Monitor Item [Unit]	Description
TAIL LAMP SW [On/Off]	Indicates condition of combination switch.
DOOR SW-DR [On/Off]	Indicates condition of front door switch LH.
CDL LOCK SW [On/Off]	Indicates condition of lock signal from door lock and unlock switch.

ACTIVE TEST

Test Item	Description
SEAT BELT WARN TEST	This test is able to check seat belt warning chime operation [On/Off].
LIGHT WARN ALM	This test is able to check light warning chime operation [On/Off].
REVERSE WARNING	This test is able to check reverse warning chime operation [On/Off].
ID REGIST WARNING	This test is able to check TPMS sensor ID regist warning chime operation [On/Off].

INT LAMP

INT LAMP : CONSULT Function (BCM - INT LAMP)

INFOID:0000000010256061

DATA MONITOR

Monitor Item [Unit]	Description
DOOR SW-DR [On/Off]	Indicates condition of front door switch LH.
DOOR SW-AS [On/Off]	Indicates condition of front door switch RH.
DOOR SW-RR [On/Off]	Indicates condition of rear door switch RH.
DOOR SW-RL [On/Off]	Indicates condition of rear door switch LH.
DOOR SW-BK [On/Off]	Indicates condition of back door switch.
CDL LOCK SW [On/Off]	Indicates condition of lock signal from door lock and unlock switch.
CDL UNLOCK SW [On/Off]	Indicates condition of unlock signal from door lock and unlock switch.
KEY CYL LK-SW [On/Off]	Indicates condition of lock signal from door key cylinder switch.
KEY CYL UN-SW [On/Off]	Indicates condition of unlock signal from door key cylinder switch.
RKE-LOCK [On/Off]	Indicates condition of lock signal from Intelligent Key.
RKE-UNLOCK [On/Off]	Indicates condition of unlock signal from Intelligent Key.

ACTIVE TEST

Test Item	Description
INT LAMP	This test is able to check interior room lamp operation [On/Off].

WORK SUPPORT

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[WITHOUT INTELLIGENT KEY SYSTEM]

Support Item	Setting	Description
SET I/L D-UNLCK INTCON	On	Interior room lamp timer function ON.
	Off*	Interior room lamp timer function OFF.

*: Initial setting

MULTI REMOTE ENT

MULTI REMOTE ENT : CONSULT Function (BCM - MULTI REMOTE ENT)

INFOID:0000000010256113

WORK SUPPORT

Support Item	Setting	Description
REMO CONT ID CONFIR	—	Keyfob ID code registration is displayed.

HEADLAMP

HEADLAMP : CONSULT Function (BCM - HEADLAMP)

INFOID:0000000010256062

DATA MONITOR

Monitor Item [Unit]	Description
TURN SIGNAL R [On/Off]	Indicates condition of combination switch.
TURN SIGNAL L [On/Off]	
TAIL LAMP SW [On/Off]	
HI BEAM SW [On/Off]	
HEAD LAMP SW [On/Off]	
LIGHT OFF SW [On/Off]	
PASSING SW [On/Off]	Indicates condition of front door switch LH.
DOOR SW-DR [On/Off]	
DOOR SW-AS [On/Off]	
DOOR SW-RR [On/Off]	
DOOR SW-RL [On/Off]	
DOOR SW-BK [On/Off]	

ACTIVE TEST

Test Item	Description
DAYTIME RUNNING LIGHT	This test is able to check daytime running lamp operation [On/Off].
ILL DIM SIGNAL	This test is able to check head lamp illumination dimming operation [On/Off].

WIPER

WIPER : CONSULT Function (BCM - WIPER)

INFOID:0000000010256063

DATA MONITOR

Monitor Item [Unit]	Description
FR WIPER HI [On/Off]	Indicates condition of wiper operation of combination switch.
FR WIPER LOW [On/Off]	
FR WASHER SW [On/Off]	
FR WIPER INT [On/Off]	

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[WITHOUT INTELLIGENT KEY SYSTEM]

Monitor Item [Unit]	Description
FR WIPER STOP [On/Off]	Indicates front wiper auto stop signal received from IPDM E/R on CAN communication line.
INT VOLUME [1 - 4]	Indicates condition of intermittent wiper operation of combination switch.
RR WIPER ON [On/Off]	Indicates condition of rear wiper operation of combination switch.
RR WIPER INT [On/Off]	
RR WASHER SW [On/Off]	
RR WIPER STOP [On/Off]	Indicates rear wiper motor auto stop input from rear wiper motor.

ACTIVE TEST

Test Item	Description
FR WIPER	This test is able to check front wiper operation [Hi/Lo/INT/Off].
RR WIPER	This test is able to check rear wiper operation [On/Off].

WORK SUPPORT

Support Item	Setting	Description
WIPER SPEED SETTING	On	Front wiper intermittent time linked with vehicle speed and wiper intermittent dial position.
	Off*	Front wiper intermittent time is not linked with vehicle speed and wiper intermittent dial position.

*: Initial Setting

FLASHER

FLASHER : CONSULT Function (BCM - FLASHER)

INFOID:0000000010256064

DATA MONITOR

Monitor Item [Unit]	Description
TURN SIGNAL R [On/Off]	Indicates condition of turn signal function of combination switch.
TURN SIGNAL L [On/Off]	
HAZARD SW [On/Off]	Indicates condition of hazard switch.
RKE-LOCK [On/Off]	Indicates condition of lock signal from Intelligent Key.
RKE-UNLOCK [On/Off]	Indicates condition of unlock signal from Intelligent Key.
RKE-PANIC [On/Off]	Indicates condition of panic alarm signal from Intelligent Key.

ACTIVE TEST

Test Item	Description
FLASHER	This test is able to check turn signal lamp operation [Off/LH/RH].

COMB SW

COMB SW : CONSULT Function (BCM - COMB SW)

INFOID:0000000010256067

DATA MONITOR

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[WITHOUT INTELLIGENT KEY SYSTEM]

Monitor Item [Unit]	Description
FR WIPER HI [On/Off]	Indicates condition of wiper operation of combination switch.
FR WIPER LOW [On/Off]	
FR WASHER SW [On/Off]	
FR WIPER INT [On/Off]	
INT VOLUME [1 - 4]	Indicates condition of intermittent wiper operation of combination switch.
RR WIPER ON [On/Off]	Indicates condition of rear wiper operation of combination switch.
RR WIPER INT [On/Off]	
RR WASHER SW [On/Off]	
TURN SIGNAL R [On/Off]	Indicates condition of right turn signal operation of combination switch.
TURN SIGNAL L [On/Off]	Indicates condition of left turn signal operation of combination switch.
TAIL LAMP SW [On/Off]	Indicates condition of tail lamp switch operation of combination switch.
HI BEAM SW [On/Off]	Indicates condition of Hi beam switch operation of combination switch.
HEAD LAMP SW [On/Off]	Indicates condition of head lamp switch operation of combination switch.
LIGHT OFF SW [On/Off]	Indicates condition of no light switch operation of combination switch.
PASSING SW [On/Off]	Indicates condition of passing switch operation of combination switch.

BCM

BCM : CONSULT Function (BCM - BCM)

INFOID:0000000010256068

ECU IDENTIFICATION

The BCM part number is displayed.

SELF DIAGNOSTIC RESULT

Refer to [BCS-108, "DTC Index"](#).

WORK SUPPORT

Support Item	Setting	Description
RESET SETTING VALUE	Reset	Returns BCM to initial value in factory shipment.
	Cancel	Cancels the reset function.

CONFIGURATION

Refer to [BCS-121, "CONFIGURATION \(BCM\) : Description"](#).

CAN DIAG SUPPORT MNTR

Refer to [LAN-14, "CAN Diagnostic Support Monitor"](#).

IMMU

IMMU : CONSULT Function (BCM - IMMU)

INFOID:0000000010256069

SELF DIAGNOSTIC RESULT

Refer to [BCS-108, "DTC Index"](#).

ACTIVE TEST

Test Item	Description
THEFT IND	This test is able to check security indicator operation [On/Off].

WORK SUPPORT

Support Item	Setting	Description
CONFIRM DONGLE ID	—	Dongle ID can be checked.

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[WITHOUT INTELLIGENT KEY SYSTEM]

BATTERY SAVER

BATTERY SAVER : CONSULT Function (BCM - BATTERY SAVER)

INFOID:0000000010256070

DATA MONITOR

Monitor Item [Unit]	Description
DOOR SW-DR [On/Off]	Indicates condition of front door switch LH.
DOOR SW-AS [On/Off]	Indicates condition of front door switch RH.
DOOR SW-RR [On/Off]	Indicates condition of rear door switch RH.
DOOR SW-RL [On/Off]	Indicates condition of rear door switch LH.
DOOR SW-BK [On/Off]	Indicates condition of back door switch.
CDL LOCK SW [On/Off]	Indicates condition of lock signal from door lock and unlock switch.
CDL UNLOCK SW [On/Off]	Indicates condition of unlock signal from door lock and unlock switch.
KEY CYL LK-SW [On/Off]	Indicates condition of lock signal from door key cylinder switch.
KEY CYL UN-SW [On/Off]	Indicates condition of unlock signal from door key cylinder switch.
RKE-LOCK [On/Off]	Indicates condition of lock signal from Intelligent Key.
RKE-UNLOCK [On/Off]	Indicates condition of unlock signal from Intelligent Key.

ACTIVE TEST

Test item	Description
BATTERY SAVER	This test is able to check battery saver operation [On/Off].

TRUNK

TRUNK : CONSULT Function (BCM - TRUNK)

INFOID:0000000010256071

DATA MONITOR

Monitor Item [Unit]	Description
BACK DOOR OPENER SW [On/Off]	Indicates condition of back door opener switch.

THEFT ALM

THEFT ALM : CONSULT Function (BCM - THEFT ALM)

INFOID:0000000010256072

DATA MONITOR

Monitored Item	Description
DOOR SW-DR [On/Off]	Indicates condition of front door switch LH.
DOOR SW-AS [On/Off]	Indicates condition of front door switch RH.
DOOR SW-RR [On/Off]	Indicates condition of rear door switch RH.
DOOR SW-RL [On/Off]	Indicates condition of rear door switch LH.
DOOR SW-BK [On/Off]	Indicates condition of back door switch.
CDL LOCK SW [On/Off]	Indicates condition of lock signal from door lock and unlock switch.
CDL UNLOCK SW [On/Off]	Indicates condition of unlock signal from door lock and unlock switch.
KEY CYL LK-SW [On/Off]	Indicates condition of lock signal from door key cylinder switch.
KEY CYL UN-SW [On/Off]	Indicates condition of unlock signal from door key cylinder switch.
RKE-LOCK [On/Off]	Indicates condition of lock signal from Intelligent Key.
RKE-UNLOCK [On/Off]	Indicates condition of unlock signal from Intelligent Key.

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[WITHOUT INTELLIGENT KEY SYSTEM]

ACTIVE TEST

Test Item	Description
FLASHER	This test is able to check turn signal lamp operation [LH/RH/Off].
THEFT IND	This test is able to check security indicator lamp operation [On/Off].
VEHICLE SECURITY HORN	This test is able to check vehicle security horn operation [On].
HEADLAMP(HI)	This test is able to check vehicle security lamp operation [On].

WORK SUPPORT

Support Item	Setting	Description
SECURITY ALARM SET	On	Security alarm ON.
	Off	Security alarm OFF.

RETAINED PWR

RETAINED PWR : CONSULT Function (BCM - RETAINED PWR)

INFOID:0000000010256073

DATA MONITOR

Monitor Item [Unit]	Description
DOOR SW-DR [On/Off]	Indicates condition of front door switch LH.
DOOR SW-AS [On/Off]	Indicates condition of front door switch RH.

AIR PRESSURE MONITOR

AIR PRESSURE MONITOR : CONSULT Function (BCM-AIR PRESSURE MONITOR)

INFOID:0000000010256075

NOTE:

The Signal Tech II Tool (J-50190) can be used to perform the following functions. Refer to the Signal Tech II User Guide for additional information.

- Activate and display TPMS sensor IDs
- Display tire pressure reported by the TPMS sensor
- Read TPMS DTCs
- Register TPMS sensor IDs

SELF DIAGNOSTIC RESULT

NOTE:

Before performing Self Diagnostic Result, be sure to register the sensor ID or the actual malfunction may be different from that displayed on CONSULT.

Refer to [BCS-108, "DTC Index"](#).

DATA MONITOR

Monitor Item [Unit]	Description
AIR PRESS FL [kPa, kg/cm ² or Psi]	Indicates air pressure of front LH tire.
AIR PRESS FR [kPa, kg/cm ² or Psi]	Indicates air pressure of front RH tire.
AIR PRESS RR [kPa, kg/cm ² or Psi]	Indicates air pressure of rear RH tire.
AIR PRESS RL [kPa, kg/cm ² or Psi]	Indicates air pressure of rear LH tire.
ID REGST FL1 [Done/Yet]	Indicates ID registration status of front LH sensor.
ID REGST FR1 [Done/Yet]	Indicates ID registration status of front RH sensor.
ID REGST RR1 [Done/Yet]	Indicates ID registration status of rear RH sensor.
ID REGST RL1 [Done/Yet]	Indicates ID registration status of rear LH sensor.

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[WITHOUT INTELLIGENT KEY SYSTEM]

Monitor Item [Unit]	Description
WARNING LAMP [Off/On]	Indicates condition of low tire pressure warning lamp in combination meter.
BUZZER [Off/On]	Indicates condition of buzzer in combination meter.

ACTIVE TEST

Test Item	Description
FLASHER	This test is able to check turn signal lamp operation [Off/LH/RH].
HORN	This test is able to check horn operation [On].
WARNING LAMP	This test is able to check tire pressure warning lamp operation [On/Off].
ID REGIST WARNING	This test is able to check ID regist warning chime operation [On/Off].

WORK SUPPORT

Support Item	Description
ID READ	The registered ID number is displayed.
ID REGIST	Refer to WT-21, "Description" .

BCS

ECU DIAGNOSIS INFORMATION

BCM

Reference Value

INFOID:0000000010256076

NOTE:

The Signal Tech II Tool (J-50190) can be used to perform the following functions. Refer to the Signal Tech II User Guide for additional information.

- Activate and display TPMS sensor IDs
- Display tire pressure reported by the TPMS sensor
- Read TPMS DTCs
- Register TPMS sensor IDs

VALUES ON THE DIAGNOSIS TOOL

Monitor Item	Condition	Value/Status
AIR PRESS FL	Front left tire air pressure value	kPa, kg/cm ² , psi
AIR PRESS FR	Front right tire air pressure value	kPa, kg/cm ² , psi
AIR PRESS RL	Rear left tire air pressure value	kPa, kg/cm ² , psi
AIR PRESS RR	Rear right tire air pressure value	kPa, kg/cm ² , psi
BUZZER	Buzzer in combination meter OFF	Off
	Buzzer in combination meter ON	On
CDL LOCK SW	Door lock/unlock switch does not operate	Off
	Press door lock/unlock switch to the LOCK side	On
CDL UNLOCK SW	Door lock/unlock switch does not operate	Off
	Press door lock/unlock switch to the UNLOCK side	On
DOOR SW-AS	Front door RH closed	Off
	Front door RH opened	On
DOOR SW-BK	Back door closed	Off
	Back door opened	On
DOOR SW-DR	Front door LH closed	Off
	Front door LH opened	On
DOOR SW-RL	Rear door LH closed	Off
	Rear door LH opened	On
DOOR SW-RR	Rear door RH closed	Off
	Rear door RH opened	On
FR WASHER SW	Front washer switch OFF	Off
	Front washer switch ON	On
FR WIPER LOW	Front wiper switch OFF	Off
	Front wiper switch LO	On
FR WIPER HI	Front wiper switch OFF	Off
	Front wiper switch HI	On
FR WIPER INT	Front wiper switch OFF	Off
	Front wiper switch INT	On
FR WIPER STOP	Any position other than front wiper stop position	Off
	Front wiper stop position	On
HAZARD SW	When hazard switch is not pressed	Off
	When hazard switch is pressed	On

BCM

< ECU DIAGNOSIS INFORMATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

Monitor Item	Condition	Value/Status
HEAD LAMP SW	Headlamp switch OFF	Off
	Headlamp switch ON	On
HI BEAM SW	High beam switch OFF	Off
	High beam switch HI	On
INT VOLUME	Wiper intermittent dial is in a dial position 1 - 4	1 - 4
KEY CYL LK-SW	Door key cylinder LOCK position	Off
	Door key cylinder other than LOCK position	On
KEY CYL UN-SW	Door key cylinder UNLOCK position	Off
	Door key cylinder other than UNLOCK position	On
LIGHT OFF SW	Headlamp switch ON	Off
	Headlamp switch OFF	On
PASSING SW	Other than lighting switch PASS	Off
	Lighting switch PASS	On
REAR DEF SW	Rear window defogger switch OFF	Off
	Rear window defogger switch ON	On
RR WASHER SW	Rear washer switch OFF	Off
	Rear washer switch ON	On
RR WIPER INT	Rear wiper switch OFF	Off
	Rear wiper switch INT	On
RR WIPER ON	Rear wiper switch OFF	Off
	Rear wiper switch ON	On
RR WIPER STOP	Any position other than rear wiper stop position	Off
	Rear wiper stop position	On
RKE-LOCK	When LOCK button of keyfob is not pressed	Off
	When LOCK button of keyfob is pressed	On
RKE-PANIC	When PANIC button of keyfob is not pressed	Off
	When PANIC button of keyfob is pressed	On
RKE-UNLOCK	When UNLOCK button of keyfob is not pressed	Off
	When UNLOCK button of keyfob is pressed	On
TAIL LAMP SW	Lighting switch OFF	Off
	Lighting switch ON	On
TURN SIGNAL L	Turn signal switch OFF	Off
	Turn signal switch LH	On
TURN SIGNAL R	Turn signal switch OFF	Off
	Turn signal switch RH	On
WARNING LAMP	Low tire pressure warning lamp in combination meter OFF	Off
	Low tire pressure warning lamp in combination meter ON	On

A

B

C

D

E

F

G

H

I

J

K

L

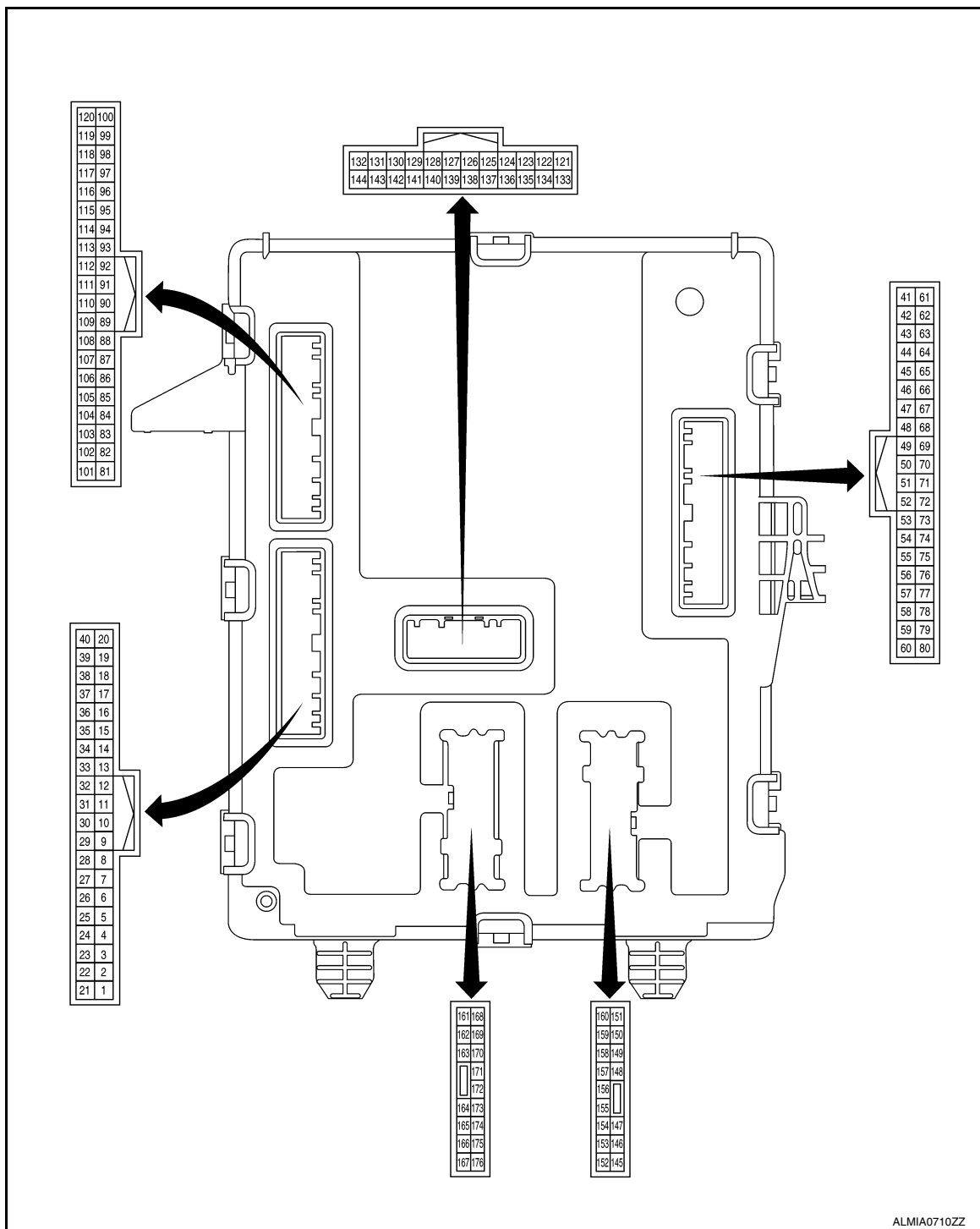
BCS

N

O

P

TERMINAL LAYOUT



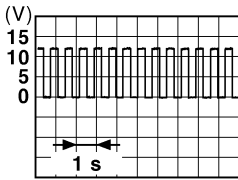
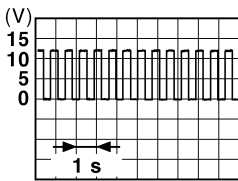
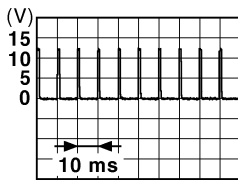
ALMIA0710ZZ

PHYSICAL VALUES

BCM

< ECU DIAGNOSIS INFORMATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
(+)	(-)	Signal name	Input/ Output			
2 (LA/G)	Ground	Door mirror LH turn signal lamp output	Output	Ignition switch ON	Turn signal switch OFF	0V
					Turn signal switch LH	 PKID0926E 6.5 V
3 (LA/Y)	Ground	Door mirror RH turn signal lamp output	Output	Ignition switch ON	Turn signal switch OFF	0V
					Turn signal switch RH	 PKID0926E 6.5 V
4 (P)	Ground	Room lamp relay control	Output	Ignition switch OFF	Interior room lamp battery saver opera- tion timed out	Battery voltage
					Any time prior to inter- ior room lamp bat- tery saver operation timed out	0V
5 (R)	Ground	CAN L	Input/ Output	—		—
6 (L)	Ground	CAN H	Input/ Output	—		—
8 (L)	Ground	CAN H	Input/ Output	—		—
9 (R)	Ground	CAN L	Input/ Output	—		—
10 (BG)	Ground	Main power window and door lock/unlock switch lock signal	Input	Main power window and door lock/un- lock switch (door lock/un- lock switch)	Lock	Battery voltage
					Unlock	0V
11 (Y)	Ground	Hazard switch	Input	Hazard switch	Pressed	0 V
					Released	 JPMIA0012GB 1.1V

A

B

C

D

E

F

G

H

I

J

K

L

BCS

N

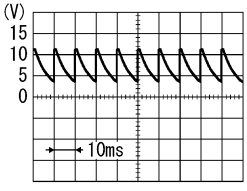
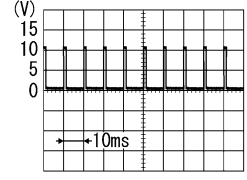
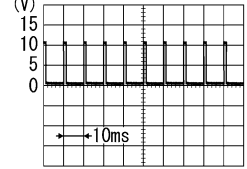
O

P

BCM

< ECU DIAGNOSIS INFORMATION >

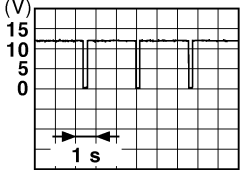
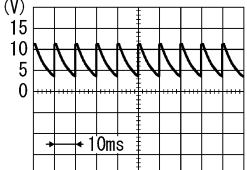
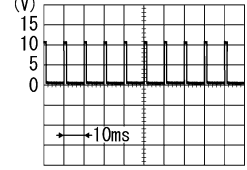
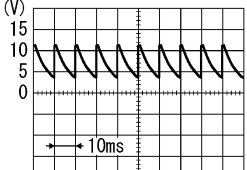
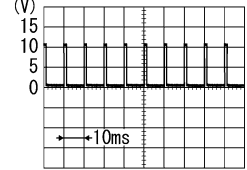
[WITHOUT INTELLIGENT KEY SYSTEM]

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
(+)	(-)	Signal name	Input/ Output			
12 (W)	Ground	Auto light power supply 5V	Output	Ignition switch	OFF	0V
					ON	5V
16 (P)	Ground	Audio dongle	Input/ Output	Ignition switch	OFF	5V
17 (L)	Ground	CVT shift selector park position switch power	Output	Selector lever	P position	0V
					Except P position	Battery voltage
19 (LG)	Ground	Auto light signal	Input	Ignition switch ON	Outside of vehicle is bright	Close to 5V
					Outside of vehicle is dark	Close to 0V
23 (G)	Ground	Power window relay control	Output	Ignition switch	OFF	Battery voltage
					ON	0V
24 (LA/R)	Ground	Rear window defogger relay control	Output	Rear window defogger	Not activated	Battery voltage
					Activated	0V
25 (BR)	Ground	Accessory relay-1 control	Output	Ignition switch	OFF	Battery voltage
					ON	0V
27 (Y)	Ground	Ignition relay-1 control	Output	Ignition switch	OFF	Battery voltage
					ON	0V
28 (LA/W)	Ground	Front blower motor relay control	Output	Ignition switch	OFF	Battery voltage
					ON	0V
30 (V)	Ground	Auto light reference ground	Output	Ignition switch	ON	0V
33 (LG)	Ground	Combination switch output 5	Output	Combination switch (Wiper intermittent dial 1)	OFF	 PKIB4960J
					INT VOLUME 2	 PKIB4958J
					INT VOLUME 3	
					RR WIPER INT	
					RR WIPER ON	
34 (Y)	Ground	Combination switch input 5	Input	Combination switch (Wiper intermittent dial 1)	OFF	 PKIB4958J
					TAIL LAMP	
					TURN RH	
					NO LIGHT	

BCM

< ECU DIAGNOSIS INFORMATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

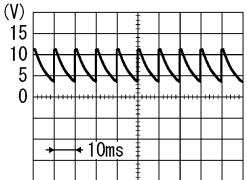
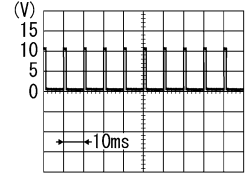
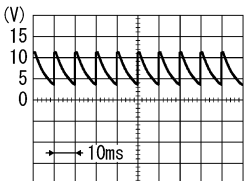
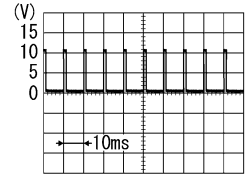
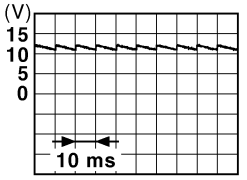
Terminal No. (Wire color)		Description		Condition		Value (Approx.)
(+)	(-)	Signal name	Input/ Output			
35 (BG)	Ground	Security indicator	Output	Security indicator	ON	0V
					Blinking	 JPMA0014GB 11.3V
36 (G)	Ground	Combination switch output 3	Output	Combination switch (Wiper intermittent dial 1)	OFF	 PKIB4960J 7.0 – 8.0V
					FR WASHER	 PKIB4958J 1.2V
					RR WASHER	
					TURN LH	
					TURN RH	
37 (GR)	Ground	Combination switch output 4	Output	Combination switch (Wiper intermittent dial 1)	OFF	 PKIB4960J 7.0 – 8.0V
					FR WIPER LOW	 PKIB4958J 1.2V
					FR WIPER HI	
					FR WIPER INT	
					NO LIGHT	

A
B
C
D
E
F
G
H
I
J
K
L
BCS
N
O
P

BCM

< ECU DIAGNOSIS INFORMATION >

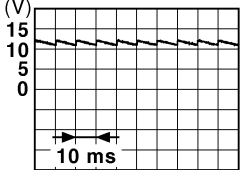
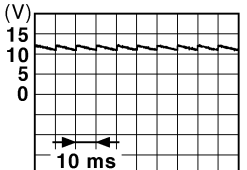
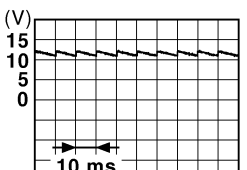
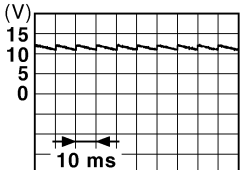
[WITHOUT INTELLIGENT KEY SYSTEM]

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
(+)	(-)	Signal name	Input/ Output			
38 (V)	Ground	Combination switch output 1	Output	Combination switch (Wiper inter- mittent dial 1)	OFF	 PKIB4960J 7.0 – 8.0V
					HI BEAM	 PKIB4958J 1.2V
					PASSING	
					FR FOG	
39 (W)	Ground	Combination switch output 2	Output	Combination switch (Wiper inter- mittent dial 4)	OFF	 PKIB4960J 7.0 – 8.0V
					INT VOLUME 1	 PKIB4958J 1.2V
					HEADLAMP	
					TAIL LAMP	
40 (SB)	Ground	Main power window and door lock/unlock switch un- lock signal	Input	Main power window and door lock/un- lock switch (door lock/un- lock switch)	Unlock	Battery voltage
					Lock	0V
50 (W)	Ground	Right rear door switch	Input	Rear door switch RH	OFF (door closed)	 JPMIA0011GB 11.8V
					ON (door open)	0V

BCM

< ECU DIAGNOSIS INFORMATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
(+)	(-)	Signal name	Input/ Output			
51 (LG)	Ground	Back door switch	Input	Back door lock assembly (door ajar switch)	OFF (door closed)	 JPMIA0011GB 11.8V
					ON (door open)	0V
52 (R)	Ground	Left rear door switch	Input	Rear door switch LH	OFF (door closed)	 JPMIA0011GB 11.8V
					ON (door open)	0V
53 (SB)	Ground	Passenger door switch	Input	Front door switch RH	OFF (door closed)	 JPMIA0011GB 11.8 V
					ON (door open)	0V
55 (LA/G)	Ground	Rear wiper autostop switch	Input	Ignition switch ON	Rear wiper stop position	Battery voltage
					Any position other than rear wiper stop	0V
56 (Y)	Ground	Back door open switch	Input	Back door opener switch	Switch released	Battery voltage
					Switch pressed	0V
57 (SB)	Ground	Driver door switch	Input	Front door switch LH	OFF (door closed)	 JPMIA0011GB 11.8V
					ON (door open)	0V
60 (L)	Ground	CAN H	Input/ Output	—		—
79 (LA/W)	Ground	High-mounted stop lamp output	Output	Brake pedal	Released	0V
					Depressed	Battery voltage
80 (P)	Ground	CAN L	Input/ Output	—		—

A

B

C

D

E

F

G

H

I

J

K

L

BCS

N

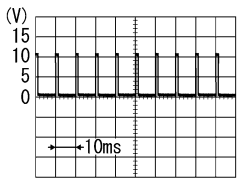
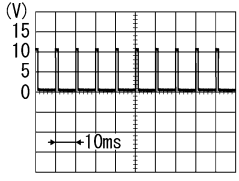
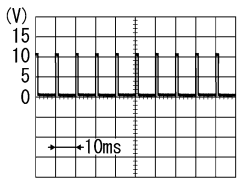
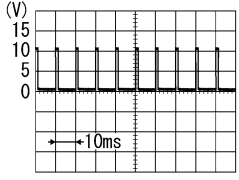
O

P

BCM

< ECU DIAGNOSIS INFORMATION >

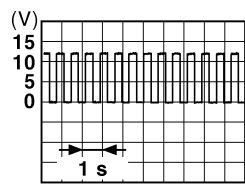
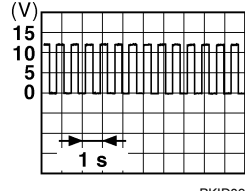
[WITHOUT INTELLIGENT KEY SYSTEM]

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
(+)	(-)	Signal name	Input/ Output			
81 (L)	Ground	Key switch signal	Input	Ignition switch	Ignition key inserted into ignition key cylinder	Battery voltage
					Ignition key removed from ignition key cylinder	0 V
82 (LA/R)	Ground	Ignition switch start signal	Input	Ignition switch	OFF	0 V
					START	Battery voltage
84 (BR)	Ground	Combination switch input 2	Input	Combination switch (Wiper intermittent dial 1)	OFF	0V
					HI BEAM	
					RR WASHER	
					FR WIPER HI	
					INT VOLUME 3	
85 (SB)	Ground	Combination switch input 1	Input	Combination switch (Wiper intermittent dial 1)	OFF	0V
					INT VOLUME 1	
					FR WASHER	
					FR WIPER LOW	
					INT VOLUME 2	
86 (P)	Ground	Combination switch input 3	Input	Combination switch (Wiper intermittent dial 1)	OFF	0V
					PASSING	
					HEADLAMP	
					FR WIPER INT	
					RR WIPER INT	
87 (BG)	Ground	Combination switch input 4	Input	Combination switch (Wiper intermittent dial 1)	OFF	0V
					TURN LH	
					RR WIPER ON	
92 (BR)	Ground	Front door lock assembly LH key cylinder switch lock signal	Input	Key cylinder switch	OFF (neutral)	Battery voltage
					ON (lock)	0V
93 (P)	Ground	Front door lock assembly LH key cylinder switch unlock signal	Input	Key cylinder switch	OFF (neutral)	Battery voltage
					ON (unlock)	0V

BCM

< ECU DIAGNOSIS INFORMATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
(+)	(-)	Signal name	Input/ Output			
94 (G)	Ground	CVT shift selector park position switch signal	Input	Selector lever	P position	0V
					Except P position	Battery voltage
95 (V)	Ground	Shorting input	Input	Ignition switch	OFF	Battery voltage
104 (R)	Ground	Front door lock assembly LH knob switch unlock signal	Input	Door lock knob	OFF (lock)	Battery voltage
					ON (unlock)	0V
105 (Y)	Ground	Ignition switch ON signal	Input	Ignition switch	OFF	0 V
					ON	Battery voltage
106 (W)	Ground	Audio unit/AV control unit accessory power supply	Input	Ignition switch	ON	Battery voltage
109 (P)	Ground	Immobilizer one way communication (clock) signal	Input/ Output	Ignition switch ON	While waiting	Ignition switch ON: pointer of tester should move.
113 (LG)	Ground	Immobilizer two way communication signal	Input/ Output	Ignition switch ON	While waiting	Ignition switch ON: pointer of tester should move.
125 (LG)	Ground	Stop lamp switch signal	Input	Brake pedal	Released	0V
					Depressed	Battery voltage
126 (W)	Ground	Brake pedal position switch signal	Input	Brake pedal	Released	0V
					Depressed	Battery voltage
135 (BR)	Ground	Front combination lamp LH turn signal lamp output	Output	Ignition switch ON	Turn signal switch OFF	0V
					Turn signal switch LH	 6.5 V
136 (GR)	Ground	Front combination lamp RH turn signal lamp output	Output	Ignition switch ON	Turn signal switch OFF	0V
					Turn signal switch RH	 6.5 V
139 (G)	Ground	Starter cut relay control	Output	Ignition switch	OFF	Battery voltage
					ON	0V
145 (LA/V)	Ground	Back door lock assembly opener motor open	Output	Back door opener switch pressed	Open (motor activated)	Battery voltage
				Back door opener switch released	Closed (motor not activated)	0V
147 (LA/R)	Ground	Rear wiper output	Output	Rear wiper	OFF	0V
					ON	Battery voltage

A

B

C

D

E

F

G

H

I

J

K

L

BCS

N

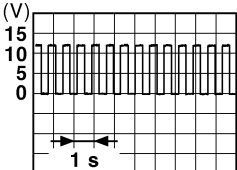
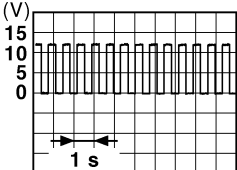
O

P

BCM

< ECU DIAGNOSIS INFORMATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
(+)	(-)	Signal name	Input/ Output			
148 (W)	Ground	Rear door lock actuator LH and RH actuator unlock	Output	Main power window and door lock/un- lock switch (door lock/un- lock switch)	Unlock (actuator acti- vated)	Battery voltage
					Lock (actuator not ac- tivated)	0V
149 (L)	Ground	Rear door lock actuator LH and RH actuator lock	Output	Main power window and door lock/un- lock switch (door lock/un- lock switch)	Lock (actuator acti- vated)	Battery voltage
					Unlock (actuator not activated)	0V
151 (R)	Ground	Luggage lamp control (pwm)	Output	Room lamp relay	OFF	Battery voltage
					ON	0V
153 (LA/W)	Ground	Rear combination lamp RH stop lamp output	Output	Brake pedal	Released	0V
					Depressed	Battery voltage
157 (GR)	Ground	Rear combination lamp LH turn signal/hazard lamp output	Output	Ignition switch ON	Turn signal switch OFF	0V
					Turn signal switch LH	 6.5 V
158 (LA/Y)	Ground	Rear combination lamp LH stop lamp output	Output	Brake pedal	Released	0V
					Depressed	Battery voltage
160 (P)	Ground	Rear combination lamp RH turn signal/hazard lamp output	Output	Ignition switch ON	Turn signal switch OFF	0V
					Turn signal switch RH	 6.5 V
161 (W)	Ground	BCM power supply	Input	Ignition switch	OFF	Battery voltage
162 (SB)	Ground	Interior lamp control (pwm)	Output	Map lamp and/or per- sonal lamp 2nd row	OFF	Battery voltage
					DOOR	0V
163 (L)	Ground	Front door lock actuator RH actuator unlock	Output	Main power window and door lock/un- lock switch (door lock/un- lock switch)	Unlock (actuator acti- vated)	Battery voltage
					Lock (actuator not ac- tivated)	0V

BCM

< ECU DIAGNOSIS INFORMATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
(+)	(-)	Signal name	Input/ Output			
165 (V)	Ground	Front door lock actuator LH and RH actuator lock	Output	Main power window and door lock/un- lock switch (door lock/un- lock switch)	Lock (actuator acti- vated)	Battery voltage
					Unlock (actuator not activated)	0V
167 (LA/V)	Ground	Power door lock battery power supply	Input	Ignition switch	OFF	Battery voltage
168 (BG)	Ground	Turn signal/hazard battery power supply	Input	Ignition switch	OFF	Battery voltage
169 (GR)	Ground	Stop lamp battery power supply	Input	Ignition switch	OFF	Battery voltage
170 (B)	Ground	Ground1	Input	Ignition switch	ON	0V
171 (B)	Ground	Ground2	Input	Ignition switch	ON	0V
172 (G)	Ground	Front door lock assembly LH actuator unlock	Output	Main power window and door lock/un- lock switch (door lock/un- lock switch)	Unlock (actuator acti- vated)	Battery voltage
					Lock (actuator not ac- tivated)	0V
175 (R)	Ground	Power door lock2 battery power supply	Input	Ignition switch	OFF	Battery voltage
176 (LG)	Ground	Rear wiper battery power supply	Input	Ignition switch	OFF	Battery voltage

Fail Safe

INFOID:0000000010256077

CONSULT Display	Fail-safe	Cancellation
B2192: ID DISCORD BCM-ECM	Inhibit engine cranking	Erase DTC
B2193: CHAIN OF BCM-ECM	Inhibit engine cranking	Erase DTC
B2562: LOW VOLTAGE	Inhibit engine cranking	100 ms after the power supply voltage increases to more than 8.8 V
B260F: ECM CAN COMM	Inhibit engine cranking	When any of the following conditions are fulfilled - Ignition switch changes to ON - Receives engine status signal (CAN)
B261E: FUEL MIS CONFIG	Inhibit engine cranking	BCM initialization

DTC Inspection Priority Chart

INFOID:0000000010256078

If some DTCs are displayed at the same time, perform inspections one by one based on the following priority chart.

Priority	DTC
1	B2562: LOW VOLTAGE
2	- U1000: CAN COMM CIRCUIT - U1010: CONTROL UNIT (CAN)
3	- B2192: ID DISCORD BCM-ECM - B2193: CHAIN OF BCM-ECM - B2196: DONGLE NG - B2198: NATS ANTENNA AMP

Priority	DTC
4	• B2557: VEHICLE SPEED • B2602: SHIFT P DIAG • B260F: ECM CAN COMM • B2614: ACC RELAY REQ F/B • B2615: BLOWER RELAY CIRC • B2616: IGN RELAY2 REQ F/B • B261A: ENGINE SW • B261E: FUEL MIS CONFIG • B27D1: ST CUT RELAY OFF STUCK FAIL • B27D2: ST CUT RELAY ON STUCK FAIL • C1729: VHCL SPEED SIG ERR • U0415: VEHICLE SPEED SIG
5	• C1704: LOW PRESSURE FL • C1705: LOW PRESSURE FR • C1706: LOW PRESSURE RR • C1707: LOW PRESSURE RL • C1708: [NO DATA] FL • C1709: [NO DATA] FR • C1710: [NO DATA] RR • C1711: [NO DATA] RL • C1716: [PRESSDATA ERR] FL • C1717: [PRESSDATA ERR] FR • C1718: [PRESSDATA ERR] RR • C1719: [PRESSDATA ERR] RL • C1730: FLAT TIRE FL • C1731: FLAT TIRE FR • C1732: FLAT TIRE RR • C1733: FLAT TIRE RL • C1734: CONTROL UNIT • C1735: IGN CIRCUIT OPEN • C1765: WSSP DATA FAIL FL • C1766: WSSP DATA FAIL FR • C1767: WSSP DATA FAIL RL • C1768: WSSP DATA FAIL RR • C1769: CONFIG SETTING • C1770: G SENSOR FAIL FL • C1771: G SENSOR FAIL FR • C1772: G SENSOR FAIL RR • C1773: G SENSOR FAIL RL

DTC Index

INFOID:0000000010256079

NOTE:

- Details of time display
- CRNT: Displays when there is a malfunction now or after returning to the normal condition until turning ignition switch OFF → ON again.
 - 1 - 39: Displayed if any previous malfunction is present when current condition is normal. It increases like 1 → 2 → 3...38 → 39 after returning to the normal condition whenever ignition switch OFF → ON. The counter remains at 39 even if the number of cycles exceeds it. It is counted from 1 again when turning ignition switch OFF → ON after returning to the normal condition if the malfunction is detected again.

CONSULT display	Fail-safe	Intelligent Key warning lamp ON	Tire pressure monitor warning lamp ON	Reference page
No DTC is detected. Further testing may be required.	—	—	—	—
U1000: CAN COMM CIRCUIT	—	—	—	BCS-124, "Description"
U1010: CONTROL UNIT (CAN)	—	—	—	BCS-125, "DTC Logic"
U0415: VEHICLE SPEED SIG	—	—	—	BCS-126, "Description"
B2192: ID DISCORD BCM-ECM	×	—	—	SEC-163, "DTC Logic"

BCM

< ECU DIAGNOSIS INFORMATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

CONSULT display	Fail-safe	Intelligent Key warning lamp ON	Tire pressure monitor warning lamp ON	Reference page
B2193: CHAIN OF BCM-ECM	×	—	—	SEC-164, "DTC Logic"
B2196: DONGLE NG	—	—	—	SEC-165, "Description"
B2198: NATS ANTENNA AMP.	—	—	—	SEC-167, "DTC Logic"
B2557: VEHICLE SPEED	—	×	—	SEC-170, "DTC Logic"
B2562: LOW VOLTAGE	×	—	—	BCS-127, "DTC Logic"
B2602: SHIFT P DIAG	—	×	—	SEC-171, "DTC Logic"
B260F: ECM CAN COMM	×	×	—	SEC-174, "Description"
B2614: ACC RELAY REQ F/B	—	×	—	PCS-64, "DTC Logic"
B2615: BLOWER RELAY CIRC	—	×	—	PCS-66, "DTC Logic"
B2616: IGN RELAY2 REQ F/B	—	×	—	PCS-68, "DTC Logic"
B261A: PUSH-BTN IGN SW	—	×	—	PCS-70, "DTC Logic"
B261E: FUEL MIS CONFIG	×	× (Turn ON for 15 seconds)	—	SEC-176, "Description"
B27D1: ST CUT RELAY OFF STUCK FAIL	—	—	—	SEC-178, "DTC Logic"
B27D2: ST CUT RELAY ON STUCK FAIL	—	—	—	SEC-181, "DTC Logic"
C1704: LOW PRESSURE FL	—	—	×	WT-24, "DTC Logic"
C1705: LOW PRESSURE FR	—	—	×	
C1706: LOW PRESSURE RR	—	—	×	
C1707: LOW PRESSURE RL	—	—	×	
C1708: [NO DATA] FL	—	—	×	WT-26, "DTC Logic"
C1709: [NO DATA] FR	—	—	×	
C1710: [NO DATA] RR	—	—	×	
C1711: [NO DATA] RL	—	—	×	
C1716: [PRESSDATA ERR] FL	—	—	×	WT-29, "DTC Logic"
C1717: [PRESSDATA ERR] FR	—	—	×	
C1718: [PRESSDATA ERR] RR	—	—	×	
C1719: [PRESSDATA ERR] RL	—	—	×	
C1729: VHCL SPEED SIG ERR	—	—	×	WT-31, "DTC Logic"
C1730: FLAT TIRE FL	—	—	×	WT-32, "DTC Logic"
C1731: FLAT TIRE FR	—	—	×	
C1732: FLAT TIRE RR	—	—	×	
C1733: FLAT TIRE RL	—	—	×	
C1734: CONTROL UNIT	—	—	×	WT-34, "DTC Logic"
C1735: IGN CIRCUIT OPEN	—	—	×	WT-36, "DTC Logic"
C1765: WSSP DATA FAIL FL	—	—	×	WT-38, "DTC Description"
C1766: WSSP DATA FAIL FR	—	—	×	
C1767: WSSP DATA FAIL RL	—	—	×	
C1768: WSSP DATA FAIL RR	—	—	×	
C1769: CONFIG SETTING	—	—	×	WT-39, "DTC Description"
C1770: G SENSOR FAIL FL	—	—	×	WT-40, "DTC Description"
C1771: G SENSOR FAIL FR	—	—	×	
C1772: G SENSOR FAIL RR	—	—	×	
C1773: G SENSOR FAIL RL	—	—	×	

A

B

C

D

E

F

G

H

I

J

K

L

BCS

N

O

P

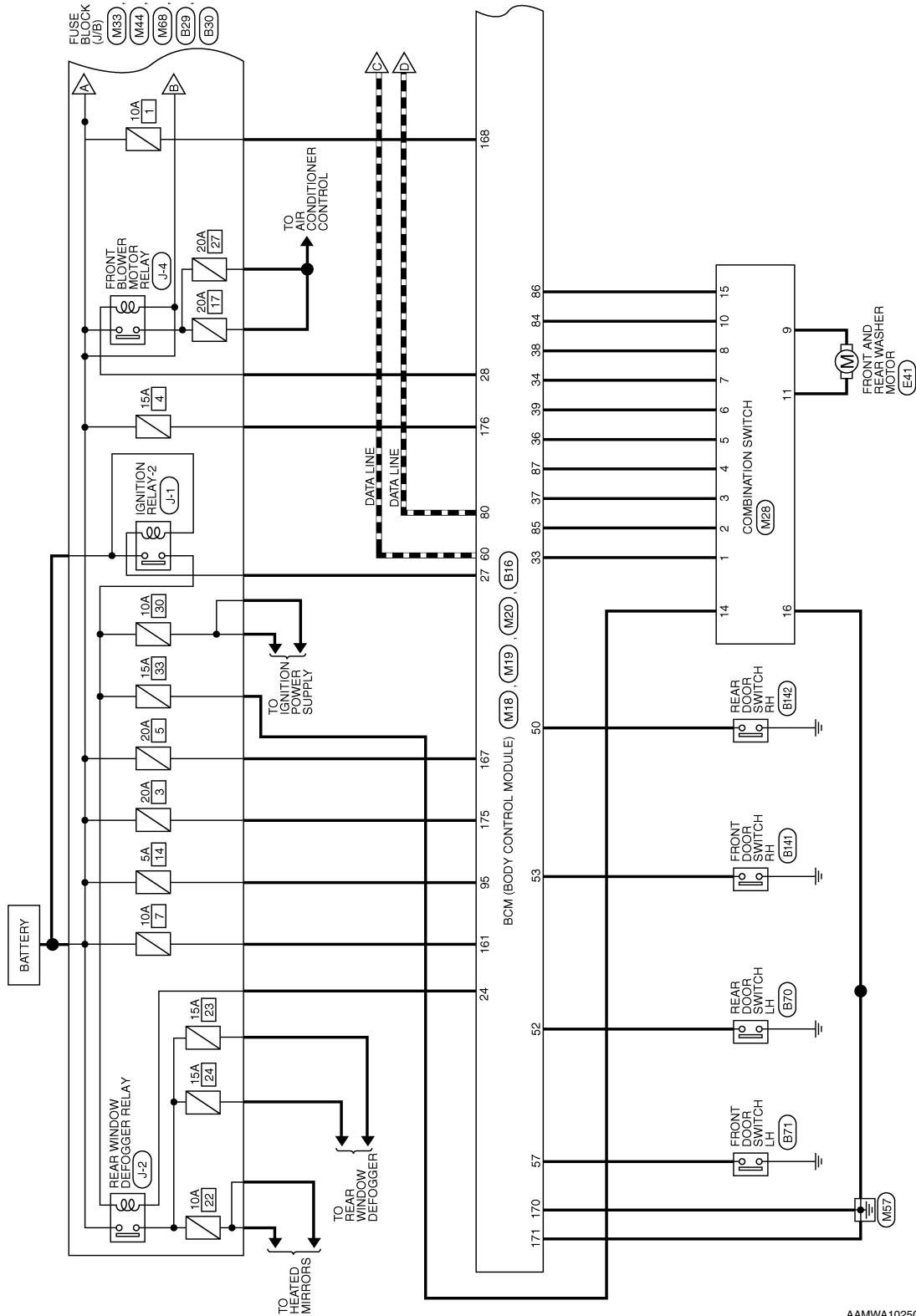
WIRING DIAGRAM

BCM

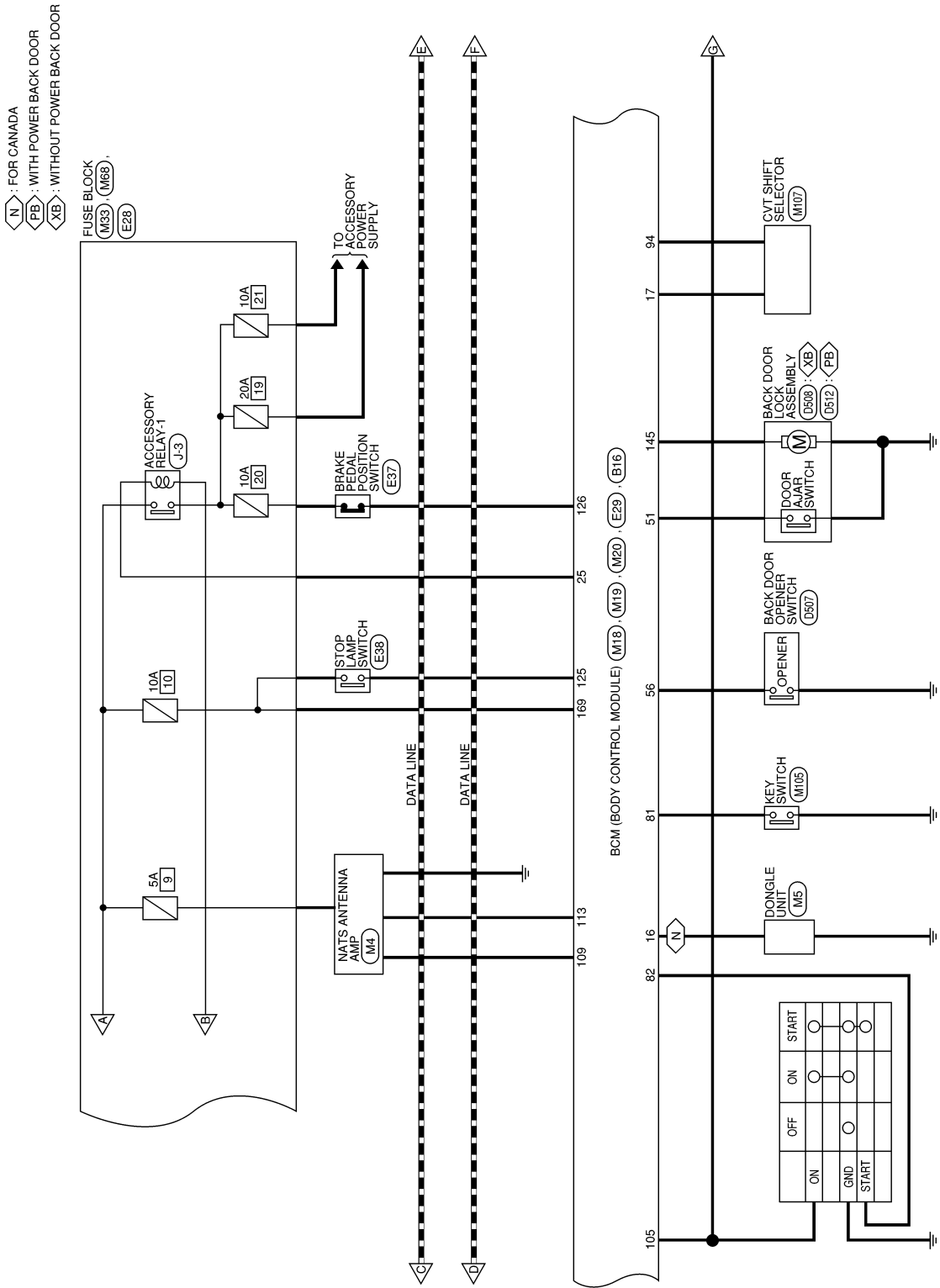
Wiring Diagram

INFOID:0000000010256080

BCM (BODY CONTROL MODULE) - WITHOUT INTELLIGENT KEY SYSTEM



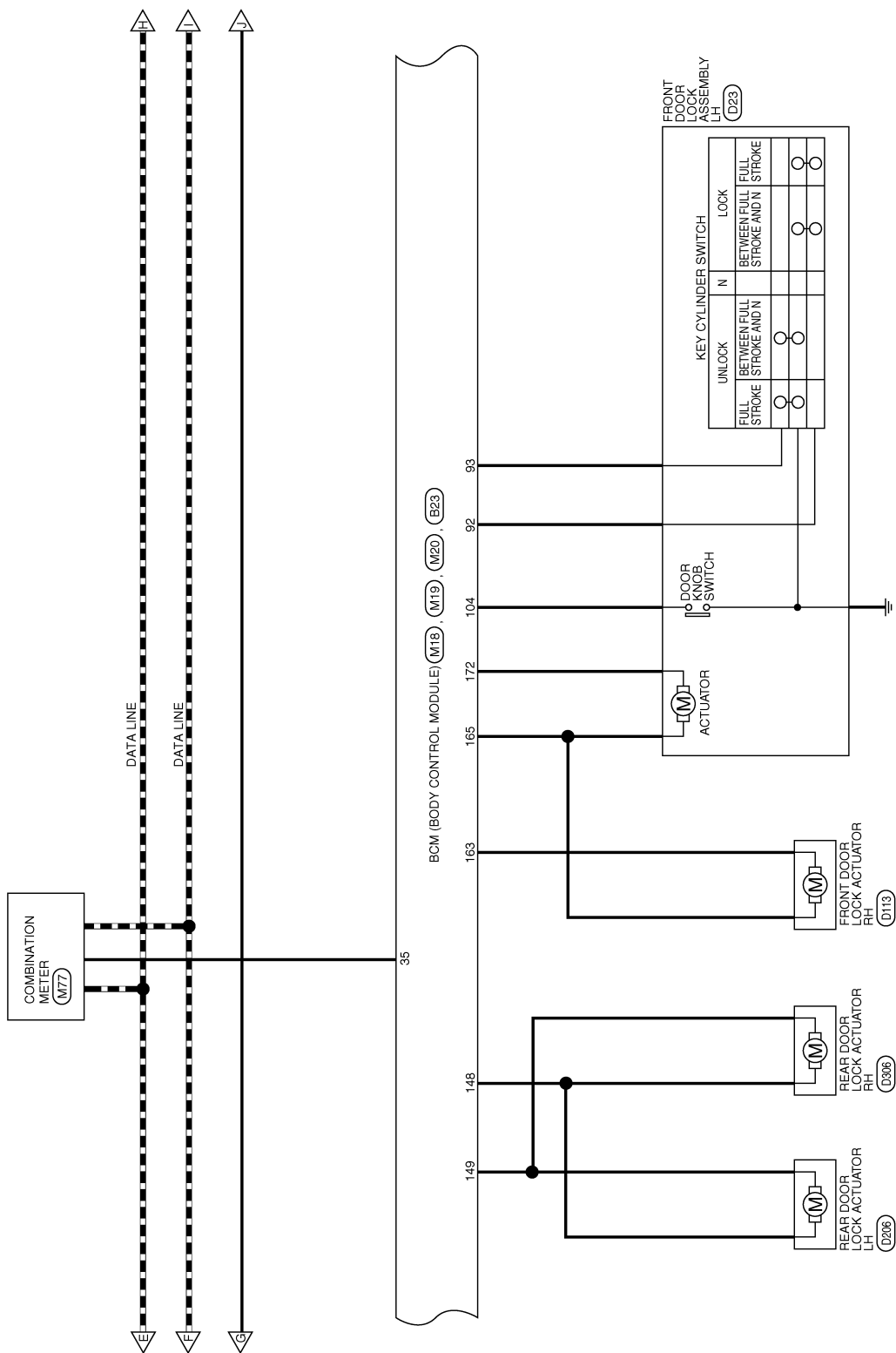
AAMWA1025GB



AAMWA1026GB

BCS

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

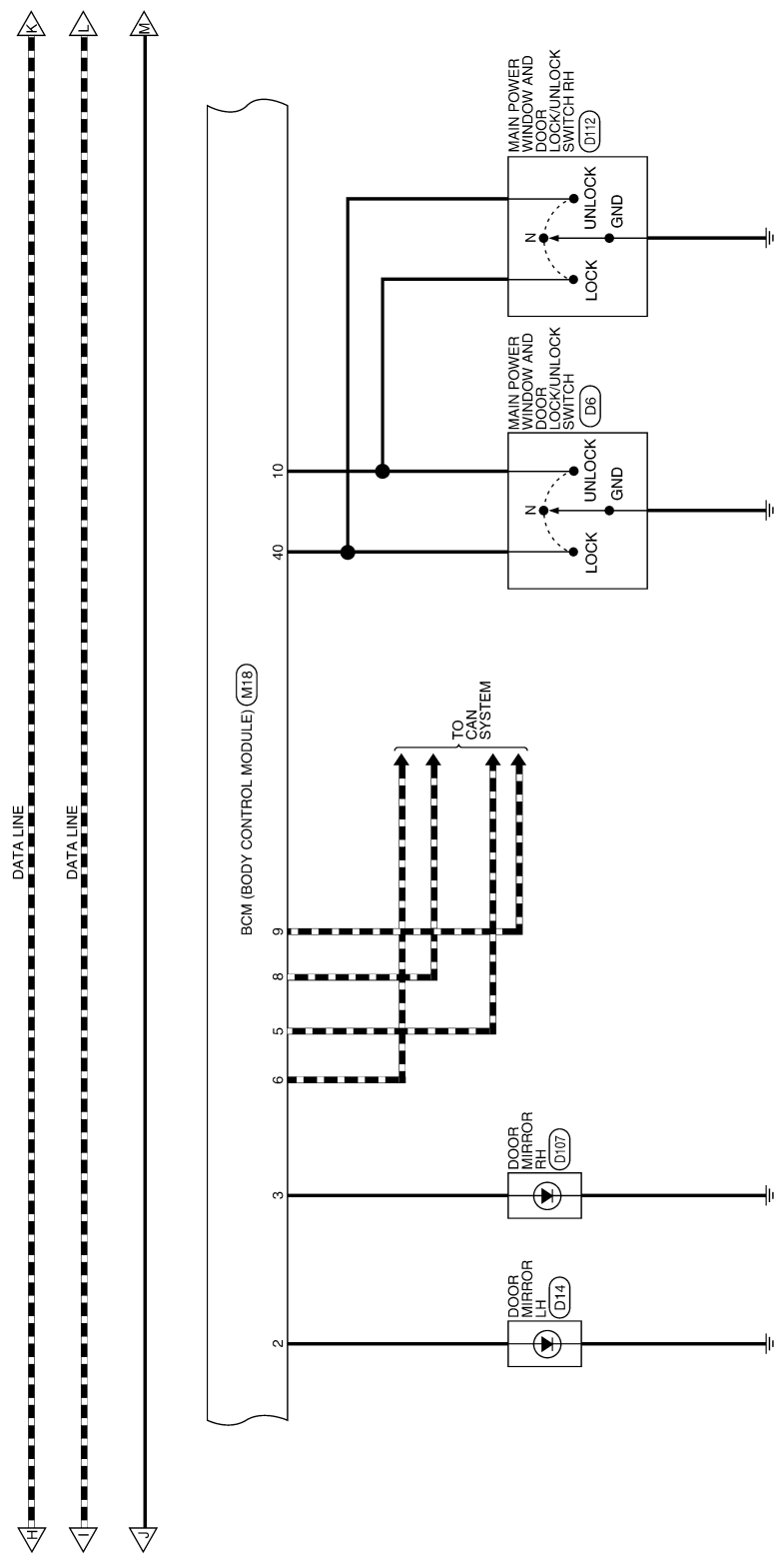


AAMWA1027GB

BCM

< WIRING DIAGRAM >

[WITHOUT INTELLIGENT KEY SYSTEM]



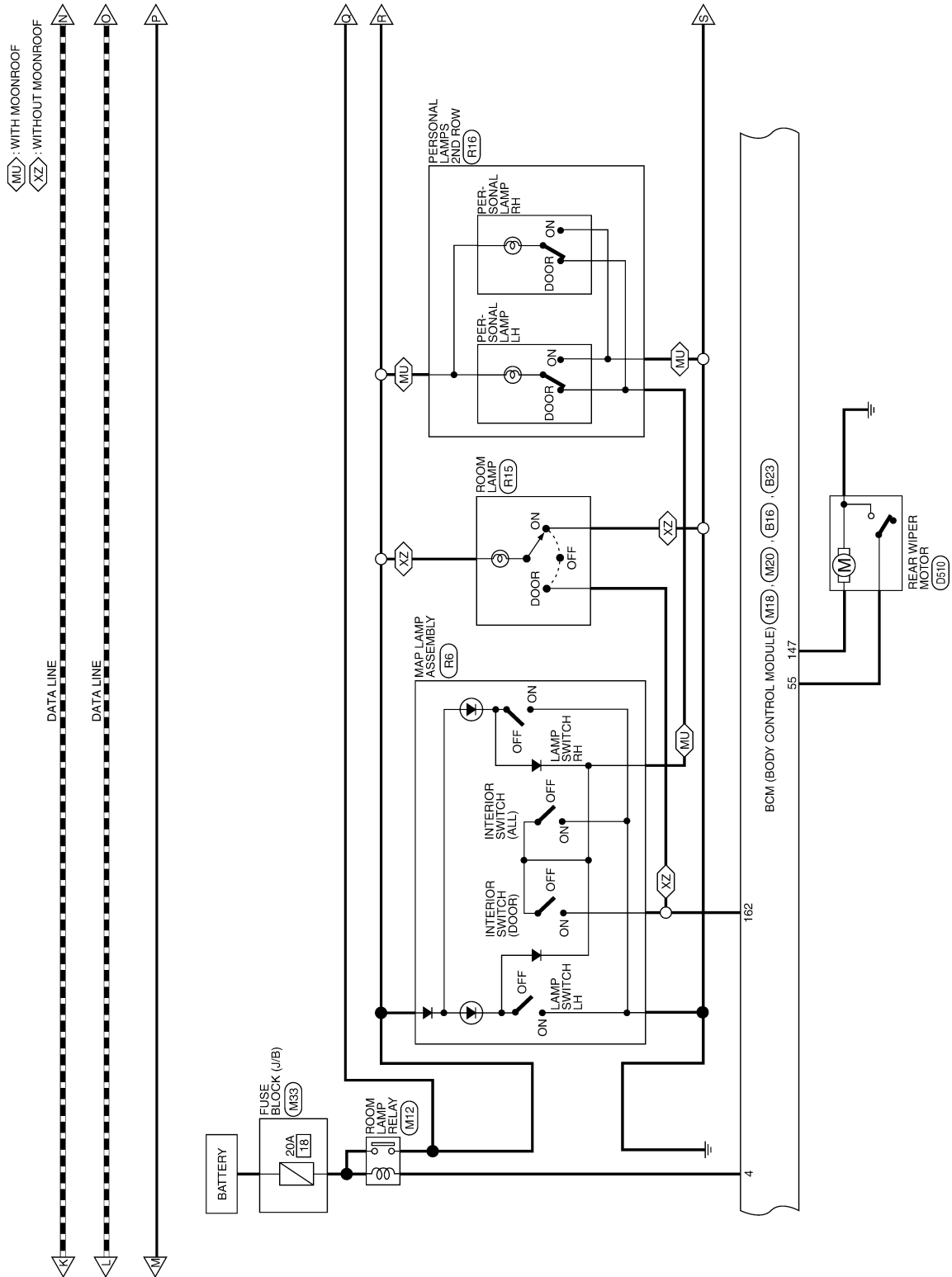
A
B
C
D
E
F
G
H
I
J
K
L
BCS
N
O
P

AAMWA1046GB

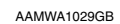
BCM

[WITHOUT INTELLIGENT KEY SYSTEM]

< WIRING DIAGRAM >



AAMWA1028GB



BCM (BODY CONTROL MODULE) - WITHOUT INTELLIGENT KEY SYSTEM CONNECTORS

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY



20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21

Terminal No.	Color of Wire	Signal Name
20	-	-
21	-	-
22	-	-
23	G	O WL AUTHORIZATION RL
24	LA/R	O DEFROSTER RL D
25	BR	O BAT TEMP1 RL
26	-	-
27	Y	O IGN1 RL
28	LA/W	O IGN2 RL
29	-	-
30	V	O GND AUTOLIGHT SENSOR
31	-	-
32	-	-
33	LG	I CSW 5
34	Y	O CSW 5
35	BG	O SECURITY LED
36	G	I CSW 3
37	GR	I CSW 4
38	V	I CSW 1
39	W	I CSW 2
40	SB	I DOORUNLOCK SW

Terminal No.	Color of Wire	Signal Name
1	-	-
2	LG/G	O DI FR LEFT D
3	LA/Y	O DI FR RIGHT D
4	P	O SPARE4 RL N
5	R	CAN-L
6	L	CAN-H
7	-	-
8	L	CAN-H
9	R	CAN-L
10	BG	I DOORLOCK SW
11	Y	I HAZARD SW D
12	W	O PWR AUTOLIGHT SENSOR
13	-	-
14	-	-
15	-	-
16	P	DONGLE UART
17	L	O PWR ATDVC
18	-	-
19	LG	I AUTOLIGHT SENSOR

AAMIA2127GB

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BROWN



167	168	169	164	163	162	161
176	175	174	173	172	171	170

Terminal No.	Color of Wire	Signal Name
96	-	-
97	-	-
98	-	-
99	-	-
100	-	-
101	-	-
102	-	-
103	-	-
104	R	I DR KNOB SW
105	Y	I SES DR HANDLE BUTTON SW
106	W	O AUTO ACC2
107	-	-
108	-	-
109	P	CLK IMMOBILIZER
110	BG	O MR OUTPUT
111	-	-
112	-	-
113	LG	O DATA IMMOBILIZER
114	-	-
115	-	-
116	-	-
117	-	-
118	-	-
119	-	-
120	-	-

Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



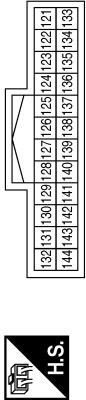
100	99	98	97	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81
120	119	118	117	116	115	114	113	112	111	110	109	108	107	106	105	104	103	102	101

Terminal No.	Color of Wire	Signal Name
81	L	I KEY SW
82	LA/R	I STARTER SW (WO IKEY)
83	-	-
84	BR	O CSW 2
85	SB	O CSW 1
86	P	O CSW 3
87	BG	O CSW 4
88	-	-
89	-	-
90	-	-
91	-	-
92	BR	I KEY CYLINDER LOCK SW
93	P	I KEY CYLINDER UNLOCK SW
94	G	I AT LOCKED IN PARK SW
95	V	I SHORTING PIN

Terminal No.	Color of Wire	Signal Name
161	W	I PWR ECU
162	SB	O PWM ROOMLAMP 1
163	L	O AS LOCK OR UNLOCK D
164	-	-
165	V	O DR OR FR LOCK D
166	-	-
167	LAV	I PWR DOORLOCK1
168	BG	I PWR FLASHERS
169	GR	I PWR STOP LAMP
170	B	I GND1
171	B	I GND2
172	G	O FR OR DR UNLOCK D
173	-	-
174	-	-
175	R	I PWR DOORLOCK2
176	LG	I PWR WIPER

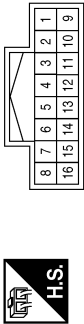
AAMIA2128GB

Connector No.	E29
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
121	-	-
122	-	-
123	-	-
124	-	-
125	LG	I BRAKE SW2
126	W	I BRAKE SW1
127	-	-
128	-	-
129	-	-
130	-	-
131	-	-
132	-	-
133	-	-
134	-	-
135	BR	O DI FR LEFT E
136	GR	O DI FR RIGHT E
137	-	-
138	-	-
139	G	O STCUT RL
140	-	-
141	-	-
142	-	-
143	-	-
144	-	-

Connector No.	M28
Connector Name	COMBINATION SWITCH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	LG	-
2	SB	-
3	GR	-
4	BG	-
5	G	-
6	W	-
7	Y	-
8	V	-
9	G	-
10	BR	-
11	Y	-
12	-	-
13	-	-
14	LG	-
15	P	-
16	GR	-

AAMIA2129GB

Connector No.	B23
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY

151	150	149	148		147	146	145	
160	159	158	157	156	155	154	153	152



Terminal No.	Color of Wire	Signal Name
145	LA/V	O TGATE OPENER
146	—	—
147	LA/R	O RR WIPER
148	W	O RR UNLOCK B
149	L	O RR LOCK B
150	—	—
151	R	O PWM ROOMLAMP 5
152	—	—
153	LA/W	O STOP LAMP1
154	—	—
155	—	—
156	—	—
157	GR	O DI RR LEFT B
158	LA/Y	O STOP LAMP2 NISSAN EUR
159	—	—
160	P	O DI RR RIGHT B

Terminal No.	Color of Wire	Signal Name
57	SB	I DR DOOR2 SW
58	—	—
59	—	—
60	L	CAN-H
61	—	—
62	—	—
63	—	—
64	—	—
65	—	—
66	—	—
67	—	—
68	—	—
69	—	—
70	—	—
71	—	—
72	—	—
73	—	—
74	—	—
75	—	—
76	—	—
77	—	—
78	—	—
79	LA/W	O STOP LAMP3
80	P	CAN-L

Connector No.	B16
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GREEN

60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41
80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61



Terminal No.	Color of Wire	Signal Name
41	—	—
42	—	—
43	—	—
44	—	—
45	—	—
46	—	—
47	—	—
48	—	—
49	—	—
50	W	I RR DOOR SW
51	LG	I TGATE SW
52	R	I RL DOOR SW
53	SB	I AS DOOR2 SW
54	—	—
55	LA/G	I RR AUTOSTOP SW
56	Y	I TGATE OPENER SW

AAMIA2130GB

BASIC INSPECTION

INSPECTION AND ADJUSTMENT

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT (BCM)

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT (BCM) : Description

INFOID:0000000010256081

BEFORE REPLACEMENT

When replacing BCM, save or print current vehicle specification with CONSULT configuration before replacement.

NOTE:

If "Before Replace ECU" cannot be used, use the "After Replace ECU" or "Manual Configuration" after replacing BCM.

AFTER REPLACEMENT

CAUTION:

- When replacing BCM, you must perform "After Replace ECU" with CONSULT.
- Complete the procedure of "After Replace ECU" in order.
- If you set incorrect "After Replace ECU", incidents might occur.
- Configuration is different for each vehicle model. Confirm configuration of each vehicle model.
- When replacing BCM, perform the system initialization (NATS).
- When replacing BCM, perform "Configuration" of CAN gateway.

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT (BCM) : Work Procedure

INFOID:0000000010256082

1. SAVING VEHICLE SPECIFICATION (BCM)

CONSULT

Enter "Re/Programming, Configuration" and perform "Before Replace ECU" to save or print current vehicle specification.

NOTE:

If "Before Replace ECU" cannot be used, use the "After Replace ECU" or "Manual Configuration" after replacing BCM.

>> GO TO 2.

2. SAVING VEHICLE SPECIFICATION (CAN GATEWAY)

CONSULT

Perform "READ CONFIGURATION" to save or print current vehicle specification. Refer to [LAN-75, "CONSULT Function"](#).

NOTE:

If "READ CONFIGURATION" cannot be used, use the "WRITE CONFIGURATION - Manual selection" after replacing BCM.

>> GO TO 3.

3. REPLACE BCM

Replace BCM. Refer to [BCS-135, "Removal and Installation"](#).

>> GO TO 4.

4. WRITING VEHICLE SPECIFICATION (BCM)

CONSULT

1. Enter "Re/Programming, Configuration".
2. If "Before Replace ECU" operation was performed, automatically an "Operation Log Selection" screen will be displayed. Select the applicable file from the "Saved Data List" and press "Confirm" to write vehicle specification. Refer to [BCS-121, "CONFIGURATION \(BCM\) : Work Procedure"](#).

INSPECTION AND ADJUSTMENT

< BASIC INSPECTION >

[WITHOUT INTELLIGENT KEY SYSTEM]

3. If "Before Replace ECU" operation was not performed, select "After Replace ECU" or "Manual Configuration" to write vehicle specification. Refer to [BCS-121, "CONFIGURATION \(BCM\) : Work Procedure"](#).

>> GO TO 5.

5. INITIALIZE BCM (NATS)

Perform BCM initialization. (NATS)

>> GO TO 6.

6. WRITING VEHICLE SPECIFICATION (CAN GATEWAY FUNCTION)

CONSULT

Perform "WRITE CONFIGURATION – Config file" or "WRITE CONFIGURATION – Manual selection" to write vehicle specification. Refer to [LAN-77, "Work Procedure"](#).

>> Work End.

CONFIGURATION (BCM)

CONFIGURATION (BCM) : Description

INFOID:0000000010256083

Vehicle specification needs to be written with CONSULT because it is not written after replacing BCM. Configuration has three functions as follows:

Function	Description
"Before Replace ECU"	• Reads the vehicle configuration of current BCM. • Saves the read vehicle configuration.
"After Replace ECU"	Writes the vehicle configuration with manual selection.
"Select Saved Data List"	Writes the vehicle configuration with saved data.

CAUTION:

- When replacing BCM, you must perform "Select Saved Data List" or "After Replace ECU" with CONSULT.
- Complete the procedure of "Select Saved Data List" or "After Replace ECU" in order.
- If you set incorrect "Select Saved Data List" or "After Replace ECU", incidents might occur.
- Configuration is different for each vehicle model. Confirm configuration of each vehicle model.
- Never perform "Select Saved Data List" or "After Replace ECU" except for new BCM.

CONFIGURATION (BCM) : Work Procedure

INFOID:0000000010256084

1. WRITING MODE SELECTION

CONSULT

Select "Reprogramming, Configuration" of BCM.

When writing saved data>>GO TO 2.

When writing manually>>GO TO 3.

2. PERFORM "SAVED DATA LIST"

CONSULT

Automatically "Operation Log Selection" window will display if "Before Replace ECU" was performed. Select applicable file from the "Save Data List" and press "Confirm".

>> Work End.

3. PERFORM "AFTER REPLACE ECU" OR "MANUAL CONFIGURATION"

CONSULT

1. Select "After Replace ECU" or "Manual Configuration".

INSPECTION AND ADJUSTMENT

< BASIC INSPECTION >

[WITHOUT INTELLIGENT KEY SYSTEM]

2. Identify the correct model and configuration list. Refer to [BCS-122. "CONFIGURATION \(BCM\) : Configuration List"](#).
3. Confirm and/or change setting value for each item.
CAUTION:
Thoroughly read and understand the vehicle specification. ECU control may not operate normally if the setting is not correct.
4. Select "Next".
CAUTION:
Make sure to select "Next", confirm each setting value and press "OK" even if the indicated configuration of brand new BCM is same as the desirable configuration. If not, configuration which is set automatically by selecting vehicle model cannot be memorized.
5. When "Completed", select "End".

>> GO TO 4.

4. OPERATION CHECK

Confirm that each function controlled by BCM operates normally.

>> Work End.

CONFIGURATION (BCM) : Configuration List

INFOID:0000000010256085

CAUTION:

Thoroughly read and understand the vehicle specification. Incorrect settings may result in abnormal control of ECU.

MANUAL SETTING ITEM	
Items	Setting value
I-KEY	WITH ⇔ WITHOUT
DTRL	WITH ⇔ WITHOUT
AUTO DOOR UNLOCK TIMING	WITH I-KEY ⇔ W/O I-KEY

⇔: Items which confirm vehicle specifications

SHIPPING MODE CANCEL OPERATION

< BASIC INSPECTION >

[WITHOUT INTELLIGENT KEY SYSTEM]

SHIPPING MODE CANCEL OPERATION

Work Procedure

INFOID:0000000010341545

1.SHIPPING MODE CANCEL OPERATION

1. Turn ignition switch OFF.
2. Push in (switch on) the extended storage fuse switch. Refer to [PG-73. "How To Check"](#).
3. Turn ignition switch ON.
4. Turn ignition switch OFF and wait at least 2 seconds.

>> GO TO 2.

2.SHIPPING MODE CANCEL CHECK

1. Turn ignition switch ON.
2. Check that extended storage fuse warning message is not displayed on information display.

>> Work End.

A

B

C

D

E

F

G

H

I

J

K

L

BCS

N

O

P

U1000 CAN COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

DTC/CIRCUIT DIAGNOSIS

U1000 CAN COMM CIRCUIT

Description

INFOID:0000000010256088

Refer to [LAN-8, "System Description"](#).

DTC Logic

INFOID:0000000010256089

DTC DETECTION LOGIC

NOTE:

U1000 can be set if a module harness was disconnected and reconnected, perhaps during a repair. Confirm that there are actual CAN diagnostic symptoms and a present DTC by performing the Self Diagnostic Result procedure.

CONSULT Display	DTC Detection Condition	Possible cause
CAN COMM CIRCUIT [U1000]	When any listed module cannot communicate with CAN communication signal continuously for 2 seconds or more with ignition switch ON.	In CAN communication system, any item (or items) of the following listed below is malfunctioning. • Transmission • Receiving (ECM) • Receiving (VDC/TCS/ABS) • Receiving (METER/M&A) • Receiving (TCM) • Receiving (IPDM E/R)

Diagnosis Procedure

INFOID:0000000010256090

1. PERFORM SELF DIAGNOSTIC

1. Turn ignition switch ON and wait for 2 second or more.
2. Check "SELF- DIAG RESULTS".

Is "CAN COMM CIRCUIT" displayed?

- YES >> Perform CAN Diagnosis as described in DIAGNOSIS section of CONSULT Operation Manual.
NO >> Refer to [GI-41, "Intermittent Incident"](#).

U1010 CONTROL UNIT (CAN)

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

U1010 CONTROL UNIT (CAN)

DTC Logic

INFOID:0000000010256091

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
CAN COMM CIRCUIT [U1010]	BCM detected internal CAN communication circuit mal-function.	BCM

Diagnosis Procedure

INFOID:0000000010256092

1. REPLACE BCM

When DTC U1010 is detected, replace BCM.

>> Replace BCM. Refer to [BCS-135. "Removal and Installation"](#).

BCS

U0415 VEHICLE SPEED SIG

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

U0415 VEHICLE SPEED SIG

Description

INFOID:0000000010256093

U0415 is displayed if any unusual condition is present in the reception status of the vehicle speed signal from the ABS actuator and electric unit (control unit).

DTC Logic

INFOID:0000000010256094

DTC DETECTION LOGIC

NOTE:

- If DTC U0415 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [BCS-124, "DTC Logic"](#).
- If DTC U0415 is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [BCS-125, "DTC Logic"](#).

CONSULT Display	DTC Detection Condition	Possible Cause
VEHICLE SPEED SIG [U0415]	When the vehicle speed signal received from the ABS actuator and electric unit (control unit) remains abnormal for 2 seconds or more.	• ABS system • Combination meter system • CAN bus harness

DTC CONFIRMATION PROCEDURE

1. DTC CONFIRMATION

1. Erase the DTC.
2. Turn ignition switch OFF.
3. Perform Self Diagnostic Result of BCM with CONSULT, after the ignition switch has been turned ON for 2 seconds or more.

Is any DTC detected?

YES >> Refer to [BCS-108, "DTC Index"](#).

NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010256095

1. ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF DIAGNOSTIC RESULT

Perform Self Diagnostic Result of ABS with CONSULT. Refer to [BRC-44, "CONSULT Function"](#).

Is any DTC detected?

YES >> Perform the trouble diagnosis related to the detected DTC. Refer to [BRC-55, "DTC Index"](#).

NO >> GO TO 2.

2. CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) POWER SUPPLY AND GROUND CIRCUIT

Check ABS actuator and electric unit (control unit) power and ground. Refer to [BRC-80, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

3. COMBINATION METER SELF DIAGNOSTIC RESULT

Perform Self Diagnostic Result of METER M&A with CONSULT. Refer to [MWI-21, "CONSULT Function \(METER/M&A\)"](#).

Is any DTC detected?

YES >> Perform the trouble diagnosis related to the detected DTC. Refer to [MWI-30, "DTC Index"](#).

NO >> Refer to [GI-41, "Intermittent Incident"](#).

B2562 LOW VOLTAGE

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

B2562 LOW VOLTAGE

DTC Logic

INFOID:0000000010256096

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible cause
LOW VOLTAGE [B2562]	When the power supply voltage to BCM remains less than 8.8V for 120 seconds or more.	• Harness or connector (power supply circuit) • Vehicle battery

DTC CONFIRMATION PROCEDURE

1. DTC CONFIRMATION

1. Erase DTC.
2. Turn ignition switch OFF.
3. Perform the Self Diagnostic Result of BCM with CONSULT, after the ignition switch has been turned ON for 120 seconds or more.

Is any DTC detected?

- YES >> Refer to [BCS-127, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010256097

1. CHECK BATTERY VOLTAGE

Check battery voltage.

Is battery voltage less than 8.8V?

- YES >> Charge battery and retest. Refer to [CHG-11, "Work Flow \(With EXP-800 NI or GR8-1200 NI\)"](#) or [CHG-14, "Work Flow \(Without EXP-800 NI or GR8-1200 NI\)"](#).
NO >> GO TO 2.

2. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check BCM power supply and ground circuit. Refer to [BCS-128, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace harness or connectors.

3. BCM SELF DIAGNOSTIC RESULT

Perform Self Diagnostic Result of BCM with CONSULT. Refer to [BCS-92, "BCM : CONSULT Function \(BCM - BCM\)"](#).

Is DTC B2562 CRNT?

- YES >> Replace BCM. Refer to [BCS-135, "Removal and Installation"](#).
NO >> Refer to [GI-41, "Intermittent Incident"](#).

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

BCS

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

POWER SUPPLY AND GROUND CIRCUIT

Diagnosis Procedure

INFOID:0000000010256100

Regarding Wiring Diagram information, refer to [BCS-110, "Wiring Diagram"](#).

1. CHECK FUSE

Check that the following fuse is not blown.

Terminal No.	Signal name	Fuse No.
161	BCM power supply	7 (10A)

Is the fuse blown?

YES >> Replace the blown fuse after repairing the affected circuit.

NO >> GO TO 2.

2. CHECK POWER SUPPLY CIRCUIT

1. Disconnect BCM connector M20.

2. Check voltage between BCM connector M20 and ground.

BCM		Ground	Voltage (Approx.)
Connector	Terminal		
M20	161	—	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

3. CHECK GROUND CIRCUIT

Check continuity between BCM connector M20 and ground.

BCM		Ground	Continuity
Connector	Terminal		
M20	170	—	Yes
	171		

Is the inspection result normal?

YES >> Inspection End.

NO >> Repair or replace harness or connectors.

COMBINATION SWITCH INPUT CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

COMBINATION SWITCH INPUT CIRCUIT

Diagnosis Procedure

INFOID:000000010256101

Regarding Wiring Diagram information, refer to [BCS-110, "Wiring Diagram"](#).

1. CHECK INPUT 1 - 5 SYSTEM CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect BCM connector M18 and combination switch connector.
3. Check continuity between BCM connector M18 and combination switch connector M28.

Signal	BCM		Combination switch		Continuity
	Connector	Terminal	Connector	Terminal	
INPUT 1	M18	38	M28	8	Yes
INPUT 2		39		6	
INPUT 3		36		5	
INPUT 4		37		3	
INPUT 5		33		1	

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness or connectors.

2. CHECK INPUT 1 - 5 SYSTEM CIRCUIT FOR SHORT

Check continuity between BCM connector M18 and ground.

Signal	BCM			Continuity
	Connector	Terminal		
INPUT 1	M18	38	Ground	No
INPUT 2		39		
INPUT 3		36		
INPUT 4		37		
INPUT 5		33		

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

3. CHECK BCM OUTPUT VOLTAGE

1. Connect BCM connector M18 and combination switch connector.
2. Turn ignition switch ON.
3. Check voltage between BCM connector M18 and ground.

Signal	BCM		Ground	Voltage
	Connector	Terminal		
INPUT 1	M18	38	—	Refer to BCS-96, "Reference Value" .
INPUT 2		39		
INPUT 3		36		
INPUT 4		37		
INPUT 5		33		

COMBINATION SWITCH INPUT CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

Is the inspection result normal?

- YES >> Replace the combination switch. Refer to [BCS-136, "Removal and Installation"](#).
NO >> Replace BCM. Refer to [BCS-135, "Removal and Installation"](#).

COMBINATION SWITCH OUTPUT CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

COMBINATION SWITCH OUTPUT CIRCUIT

Diagnosis Procedure

INFOID:000000010256102

Regarding Wiring Diagram information, refer to [BCS-110, "Wiring Diagram"](#).

1. CHECK OUTPUT 1 - 5 SYSTEM CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect BCM connector M19 and combination switch connector.
3. Check continuity between BCM connector M19 and combination switch connector M28.

Signal	BCM		Combination switch		Continuity
	Connector	Terminal	Connector	Terminal	
OUTPUT 1	M19	85	M28	2	Yes
OUTPUT 2		84		10	
OUTPUT 3		86		15	
OUTPUT 4		87		4	
OUTPUT 5		34		7	

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness or connectors.

2. CHECK OUTPUT 1 - 5 SYSTEM CIRCUIT FOR SHORT

Check continuity between BCM connector M19 and ground.

Signal	BCM			Continuity
	Connector	Terminal		
OUTPUT 1	M19	85	Ground	No
OUTPUT 2		84		
OUTPUT 3		86		
OUTPUT 4		87		
OUTPUT 5		34		

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

3. CHECK BCM INPUT VOLTAGE

1. Connect BCM connector M19 and combination switch connector.
2. Turn ignition switch ON.
3. Check voltage between BCM connector M19 and ground.

Signal	BCM		Ground	Voltage
	Connector	Terminal		
OUTPUT 1	M19	85	—	Refer to BCS-96, "Reference Value" .
OUTPUT 2		84		
OUTPUT 3		86		
OUTPUT 4		87		
OUTPUT 5		34		

COMBINATION SWITCH OUTPUT CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

Is the inspection result normal?

YES >> Replace BCM. Refer to [BCS-135. "Removal and Installation"](#).

NO >> Replace the combination switch. Refer to [BCS-136. "Removal and Installation"](#).

COMBINATION SWITCH SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

SYMPTOM DIAGNOSIS

COMBINATION SWITCH SYSTEM SYMPTOMS

Symptom Table

INFOID:0000000010256103

1. Perform the data monitor of CONSULT to check for any malfunctioning item.
2. Check the malfunction combinations.

Malfunction item: x

Malfunction combination	Data monitor item														
	FR WIPER HI	FR WIPER LOW	FR WASHER SW	FR WIPER INT	INT VOLUME	RR WIPER ON	RR WIPER INT	RR WASHER SW	TURN SIGNAL R	TURN SIGNAL L	TAIL LAMP SW	HI BEAM SW	HEAD LAMP SW	LIGHT OFF SW	PASSING SW
A												x			x
B					x						x		x		
C			x					x	x	x					
D	x	x		x										x	
E					x	x	x								
F		x	x		x										
G	x				x			x				x			
H				x			x						x		x
I						x				x					
J									x		x			x	
K	All Items														
L	If only one item is detected or the item is not applicable to the combinations A to K														

3. Identify the malfunctioning part from the agreed combination and repair or replace the part.

Malfunction combination	Malfunctioning part	Repair or replace
A	Combination switch INPUT 1 circuit	Inspect the combination switch input circuit applicable to the malfunctioning part. Refer to BCS-129, "Diagnosis Procedure" .
B	Combination switch INPUT 2 circuit	
C	Combination switch INPUT 3 circuit	
D	Combination switch INPUT 4 circuit	
E	Combination switch INPUT 5 circuit	
F	Combination switch OUTPUT 1 circuit	Inspect the combination switch output circuit applicable to the malfunctioning part. Refer to BCS-131, "Diagnosis Procedure" .
G	Combination switch OUTPUT 2 circuit	
H	Combination switch OUTPUT 3 circuit	
I	Combination switch OUTPUT 4 circuit	
J	Combination switch OUTPUT 5 circuit	
K	BCM	Replace BCM. Refer to BCS-135, "Removal and Installation" .
L	Combination switch	Replace the combination switch. Refer to BCS-136, "Removal and Installation" .

NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

NORMAL OPERATING CONDITION

Description

INFOID:0000000010337003

SHIPPING MODE

- Shipping mode inhibits battery power consumption during transportation or storage of the vehicle. Vehicle is set to shipping mode before being shipped from the factory.
- When ignition switch is OFF, BCM operates shipping mode.
- BCM control function is limited in shipping mode. Remote keyless entry function is not operated during the shipping mode.
- For shipping mode cancel operation, refer to [BCS-123. "Work Procedure"](#).

NOTE:

Do not cancel shipping mode during storage of the vehicle. Always cancel shipping mode before delivery of the vehicle to customer.

REMOVAL AND INSTALLATION

BCM (BODY CONTROL MODULE)

Removal and Installation

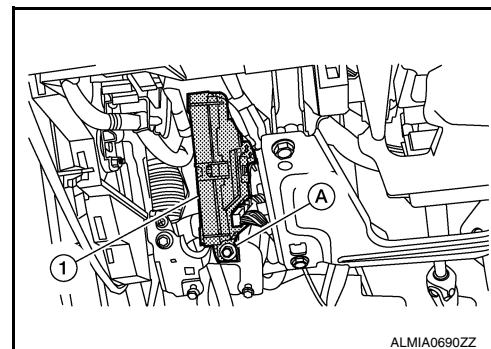
INFOID:0000000010256104

CAUTION:

Before replacing the BCM, perform "READ CONFIGURATION" to save or print current vehicle specification. Refer to [BCS-120, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT \(BCM\) : Work Procedure"](#).

REMOVAL

1. Disconnect the negative battery terminal. Refer to [PG-77, "Removal and Installation"](#).
2. Remove the instrument lower panel LH. Refer to [IP-22, "Removal and Installation"](#).
3. Remove the bolt (A), then pull out the BCM (1).



4. Disconnect the harness connectors from the BCM and remove.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- When replacing BCM, perform "WRITE CONFIGURATION" Refer to [BCS-121, "CONFIGURATION \(BCM\) : Work Procedure"](#).
- When replacing BCM, perform the system initialization (NATS). Refer to the CONSULT immobilizer mode and follow the on-screen instructions.
- When replacing BCM, if new BCM does not come with keyfobs attached, all existing keyfobs must be re-registered. Refer to the CONSULT immobilizer mode and follow the on screen instructions.

BCS

COMBINATION SWITCH

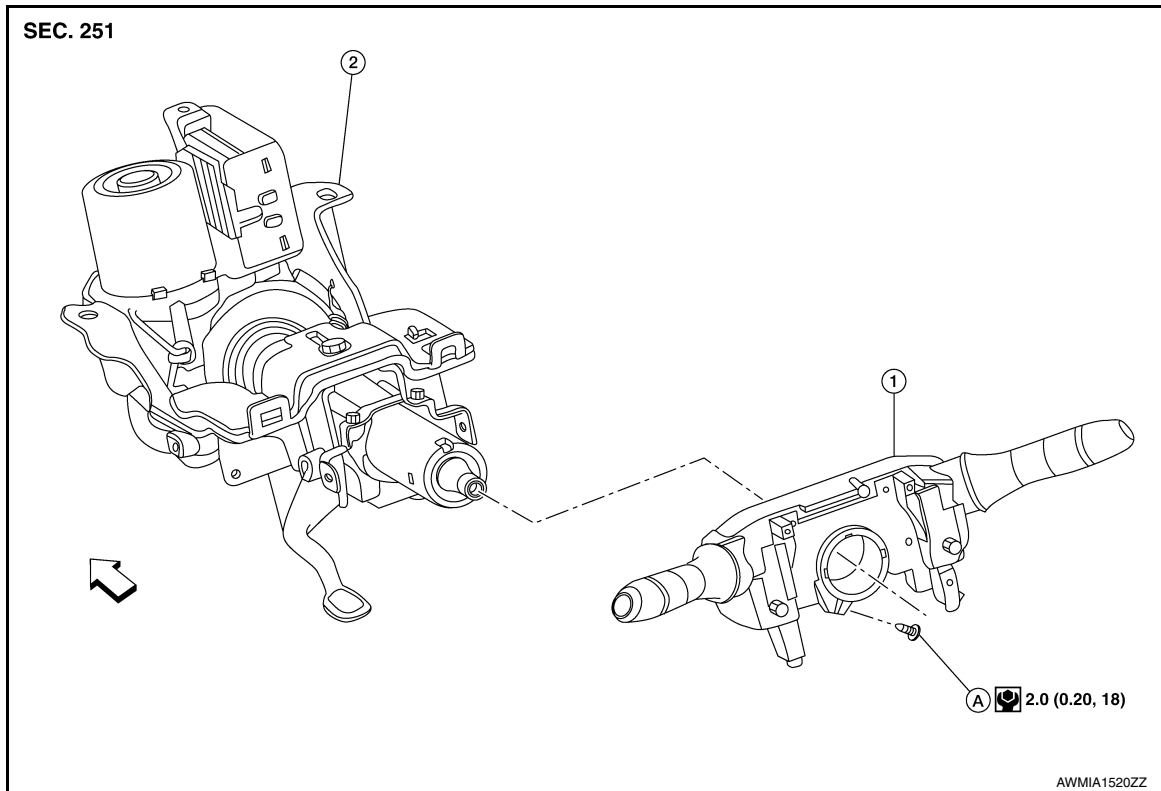
< REMOVAL AND INSTALLATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

COMBINATION SWITCH

Exploded View

INFOID:0000000010256105



1. Combination switch

2. Steering column

A. Screw

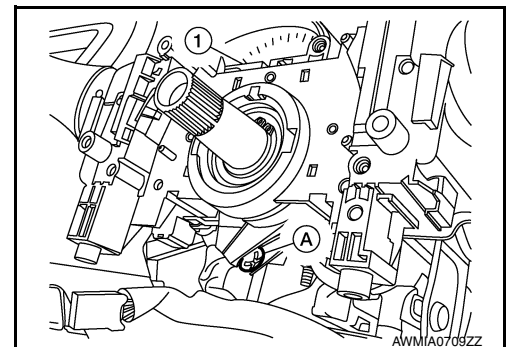
⇐ Front

Removal and Installation

INFOID:0000000010256106

REMOVAL

1. Remove the steering angle sensor. Refer to [BRC-139, "Removal and Installation"](#).
2. Disconnect harness connector from combination switch.
3. Remove screw (A) and combination switch (1).



INSTALLATION

Installation is in the reverse order of removal.

SECTION **BR**

BRAKE SYSTEM

CONTENTS

PRECAUTION	3	BRAKE PAD	13
PRECAUTIONS	3	BRAKE PAD : Inspection	13
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	3	DISC BRAKE ROTOR	13
Precaution for Procedure without Cowl Top Cover.....	3	DISC BRAKE ROTOR : Inspection	13
Precaution for Brake System	3	PERIODIC MAINTENANCE	15
PREPARATION	5	BRAKE PEDAL	15
PREPARATION	5	Adjustment	15
Special Service Tool	5	BRAKE FLUID	16
Commercial Service Tool	5	Drain and Refill	16
SYMPTOM DIAGNOSIS	6	Bleeding Brake System	16
NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING	6	FRONT DISC BRAKE	18
NVH Troubleshooting Chart	6	Brake Burnishing	18
BASIC INSPECTION	7	REAR DISC BRAKE	19
BRAKE PEDAL	7	Brake Burnishing	19
Inspection	7	REMOVAL AND INSTALLATION	20
BRAKE FLUID	8	BRAKE PEDAL	20
Inspection	8	Exploded View	20
BRAKE MASTER CYLINDER	9	Removal and Installation	20
Inspection	9	BRAKE PIPING	22
BRAKE BOOSTER	10	FRONT	22
Inspection	10	FRONT : Exploded View	22
FRONT DISC BRAKE	11	FRONT : Hydraulic Piping	23
BRAKE PAD	11	FRONT : Removal and Installation	23
BRAKE PAD : Inspection	11	REAR	24
DISC BRAKE ROTOR	11	REAR : Exploded View	24
DISC BRAKE ROTOR : Inspection	11	REAR : Hydraulic Piping	25
REAR DISC BRAKE	13	REAR : Removal and Installation	25
		BRAKE MASTER CYLINDER	27
		Exploded View	27
		Removal and Installation	27
		Disassembly and Assembly	28

BRAKE BOOSTER	30	BRAKE CALIPER ASSEMBLY	42
Exploded View	30	BRAKE CALIPER ASSEMBLY : Exploded View ...	42
Removal and installation	30	BRAKE CALIPER ASSEMBLY : Removal and In-	
VACUUM LINES	32	stallation	43
Exploded View	32	UNIT DISASSEMBLY AND ASSEMBLY ...	45
Removal and Installation	32	FRONT DISC BRAKE	45
FRONT DISC BRAKE	33	BRAKE CALIPER ASSEMBLY (1 PISTON TYPE)...	45
BRAKE PAD (1 PISTON TYPE)	33	BRAKE CALIPER ASSEMBLY (1 PISTON TYPE)	
BRAKE PAD (1 PISTON TYPE) : Exploded View...	33	: Exploded View	45
BRAKE PAD (1 PISTON TYPE) : Removal and In-		BRAKE CALIPER ASSEMBLY (1 PISTON TYPE)	
stallation	33	: Disassembly and Assembly	45
BRAKE CALIPER ASSEMBLY (1 PISTON TYPE)...	34	BRAKE CALIPER ASSEMBLY (2 PISTON TYPE)...	47
BRAKE CALIPER ASSEMBLY (1 PISTON TYPE)		BRAKE CALIPER ASSEMBLY (2 PISTON TYPE)	
: Exploded View	35	: Exploded View	47
BRAKE CALIPER ASSEMBLY (1 PISTON TYPE)		BRAKE CALIPER ASSEMBLY (2 PISTON TYPE)	
: Removal and Installation	35	: Disassembly and Assembly	48
BRAKE PAD (2 PISTON TYPE)	36	REAR DISC BRAKE	51
BRAKE PAD (2 PISTON TYPE) : Exploded View...	37	Exploded View	51
BRAKE PAD (2 PISTON TYPE) : Removal and In-		Disassembly and Assembly	51
stallation	37	SERVICE DATA AND SPECIFICATIONS	
BRAKE CALIPER ASSEMBLY (2 PISTON TYPE)...	38	(SDS)	54
BRAKE CALIPER ASSEMBLY (2 PISTON TYPE)		SERVICE DATA AND SPECIFICATIONS	
: Exploded View	39	(SDS)	54
BRAKE CALIPER ASSEMBLY (2 PISTON TYPE)		General Specifications	54
: Removal and Installation	39	Brake Pedal	54
REAR DISC BRAKE	41	Brake Booster	55
BRAKE PAD	41	Front Disc Brake	55
BRAKE PAD : Exploded View	41	Rear Disc Brake	55
BRAKE PAD : Removal and Installation	41		

PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010310344

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

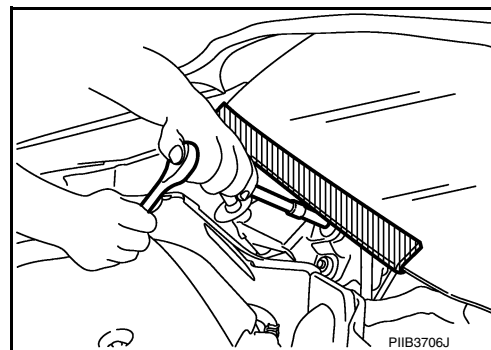
WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Precaution for Procedure without Cowl Top Cover

INFOID:0000000010310342

When performing the procedure after removing cowl top cover, cover the lower end of windshield with urethane, etc. to prevent damage to windshield.



Precaution for Brake System

INFOID:0000000010310343

WARNING:

Clean any dust from the front brake and rear brake with a vacuum dust collector. Do not blow with compressed air.

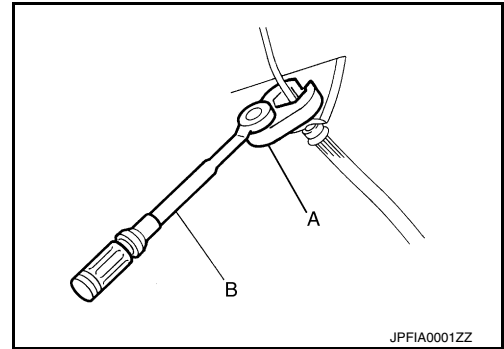
CAUTION:

- Brake fluid use refer to [MA-11, "Fluids and Lubricants"](#).
- Do not reuse drained brake fluid.
- Do not spill or splash brake fluid on painted surfaces. Brake fluid may seriously damage paint. Wipe it off immediately and wash with water if it gets on a painted surface.
- Always clean with new brake fluid when cleaning the master cylinder, brake caliper and other components.
- Do not use mineral oils such as gasoline or light oil to clean. They may damage rubber parts and cause improper operation.
- Always loosen the brake tube flare nut with a flare nut wrench.

PRECAUTIONS

< PRECAUTION >

- Tighten the brake tube flare nut to the specified torque with flare nut crowfoot (A) and torque wrench (B).
- Always confirm the specified tightening torque when installing the brake pipes.
- Turn the ignition switch OFF and disconnect the ABS actuator and electric unit (control unit) connector or the battery negative terminal before performing the work.
- Always connect the battery terminal when moving the vehicle.
- Check that no brake fluid leakage is present after replacing the parts.
- Check for bends, cracks and damage to the brake pedal. Adjust brake pedal if it is outside the standard value.
- Burnish the brake contact surfaces after refinishing or replacing rotors, after replacing pads, or if a soft pedal occurs at very low mileage.
- Front brake: refer to [BR-18, "Brake Burnishing"](#).
- Rear brake: refer to [BR-19, "Brake Burnishing"](#).



PREPARATION

< PREPARATION >

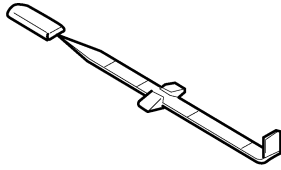
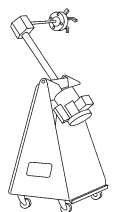
PREPARATION

PREPARATION

Special Service Tool

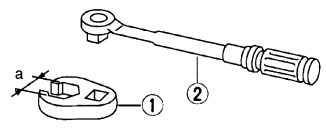
INFOID:0000000010330251

The actual shape of the tools may differ from those illustrated here.

Tool number (TechMate No.) Tool name	Description
— (J-46532) Brake height tool	Measuring brake pedal height
 LFIA0227E	
38-PFM92 (—) ProCut™ PFM Series Lathe	Refinishing rotors
 ALFIA0092ZZ	

Commercial Service Tool

INFOID:0000000010330252

Tool name	Description
1. Flare nut crowfoot 2. Torque wrench	Installing brake piping a: 10 mm (0.39 in)/12 mm (0.47 in)
 S-NT360	
Power tool	Loosening nuts, screws and bolts
 PIIB1407E	

< SYMPTOM DIAGNOSIS >

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

INFOID:0000000009795721

Symptom	BRAKE	Noise	Possible cause and SUSPECTED PARTS			Reference page
		Shake				
		Shimmy, Shudder				
			×		Brake pad - damaged	
			×		Brake pad - uneven wear	BR-11 , BR-13
			×		Shims damaged	
		×			Disc brake rotor imbalance	BR-11 , BR-13
		×			Disc brake rotor damage	BR-11 , BR-13
		×			Disc brake rotor runoff	BR-11 , BR-13
		×			Disc brake rotor deformation	BR-11 , BR-13
		×			Disc brake rotor deflection	BR-11 , BR-13
		×			Disc brake rotor rust	BR-11 , BR-13
		×			Disc brake rotor thickness variation	BR-11 , BR-13
			×		PROPELLER SHAFT	DLN-97
			×		DIFFERENTIAL	DLN-110
		×			SUSPENSION	FAX-6 , FAX-37 RAX-5 , RAX-13 FSU-5 RSU-4
		×	×		TIRE	WT-55
		×	×		WHEEL	WT-55
			×		DRIVE SHAFT	FAX-6 , FAX-37 RAX-5 , RAX-13
		×	×		STEERING	ST-6

×: Applicable

BRAKE PEDAL

< BASIC INSPECTION >

BASIC INSPECTION

BRAKE PEDAL

Inspection

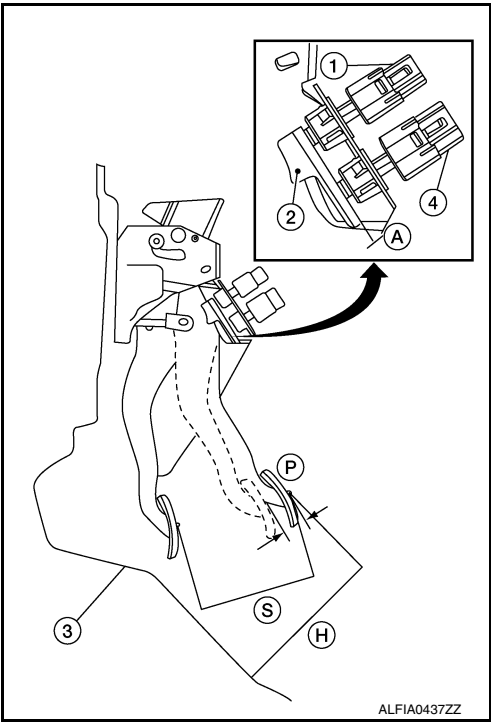
INFOID:0000000010310330

BRAKE PEDAL HEIGHT

Check the brake pedal height (H) between the dash lower panel (3) and the brake pedal upper surface.

CAUTION:

Check the brake pedal height with the floor trim removed.



Brake pedal height (H) from dash lower panel (3)	Refer to BR-54, "Brake Pedal" .
Clearance (A) between brake pedal stopper bracket (2), stop lamp switch (4) and brake pedal position switch (1) contact ends	Refer to BR-54, "Brake Pedal" .
Brake pedal full stroke (S)	Refer to BR-54, "Brake Pedal" .
Brake pedal play (P)	Refer to BR-54, "Brake Pedal" .

BRAKE FLUID

< BASIC INSPECTION >

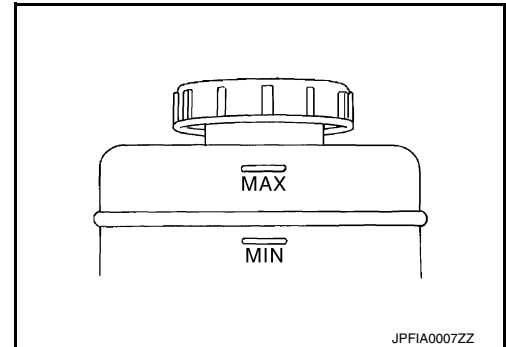
BRAKE FLUID

Inspection

INFOID:000000009795730

BRAKE FLUID LEVEL

- Make sure that the brake fluid level in the reservoir tank is between the MAX and MIN lines.
- Visually check around the reservoir tank for brake fluid leakage.
- If the brake fluid level is excessively low, check the brake system for leakage.
- If brake warning lamp remains illuminated after parking brake pedal is released, check the brake system for brake fluid leakage.

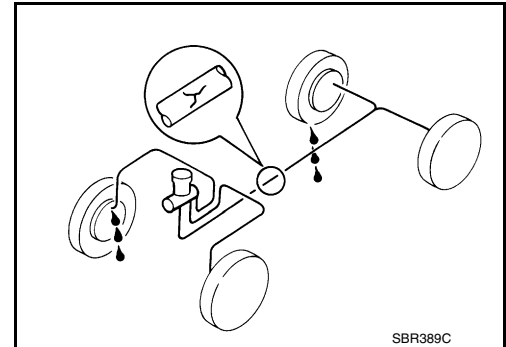


BRAKE LINE

1. Check brake line (tubes and hoses) for cracks, deterioration or other damage. Replace any damaged parts.
2. Check for brake fluid leakage by fully depressing brake pedal while engine is running.

CAUTION:

If brake fluid leakage occurs around joints, retighten or replace damaged parts as necessary.



BRAKE MASTER CYLINDER

< BASIC INSPECTION >

BRAKE MASTER CYLINDER

Inspection

INFOID:000000009795734

Check for brake fluid leakage at the following areas:

- Master cylinder mounting face
- Reservoir tank mounting face
- Brake tube and brake tube connections
- Brake hose and brake hose connections

If any brake fluid leakage is found, repair as necessary.

A
B
C
D
E
BR
G
H
I
J
K
L
M
N
O
P

BR

BRAKE BOOSTER

< BASIC INSPECTION >

BRAKE BOOSTER

Inspection

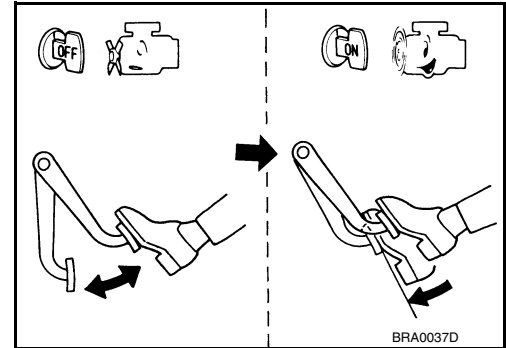
INFOID:000000009795735

Operation

Depress the brake pedal several times at five second intervals with the engine stopped. Start the engine with the brake pedal fully depressed. Check that the clearance between brake pedal and dash lower panel decreases.

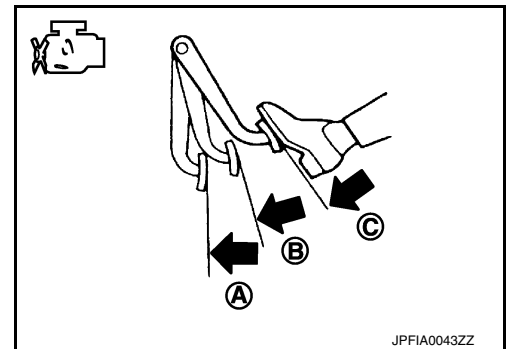
NOTE:

A slight impact with a small click may be felt on the pedal when the brake pedal is fully depressed. This is normal brake system operation.



Vacuum Inspection

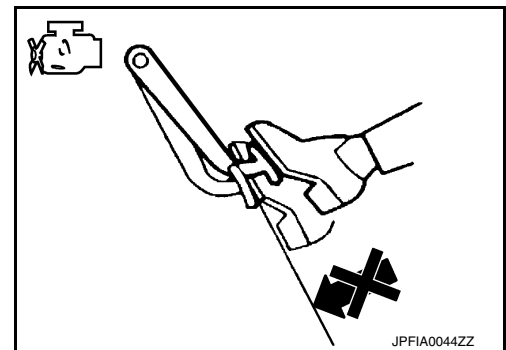
Idle the engine for one minute to apply vacuum to the brake booster. Stop the engine. Depress the brake pedal several times at five second intervals until the accumulated vacuum is released to atmospheric pressure. Check that the clearance between brake pedal and dash lower panel gradually increases (A → B → C) each time the brake pedal is depressed during this operation.



Depress the brake pedal with the engine running. Then stop the engine while holding down the brake pedal. Check that the brake pedal stroke does not change after holding down the brake pedal for 30 seconds or more.

NOTE:

A slight impact with a small click may be felt on the pedal when the brake pedal is fully depressed. This is normal brake system operation.



FRONT DISC BRAKE

< BASIC INSPECTION >

FRONT DISC BRAKE

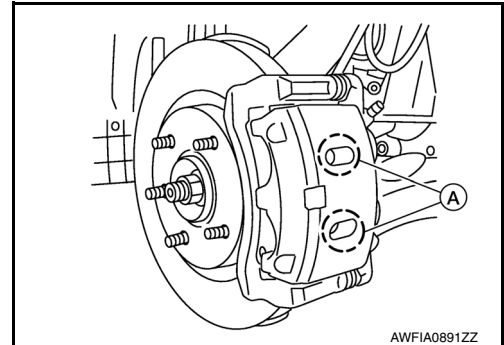
BRAKE PAD

BRAKE PAD : Inspection

INFOID:000000009795736

Check brake pad wear thickness from an inspection hole (A) on cylinder body. Check using a scale if necessary.

Wear thickness : Refer to [BR-55, "Front Disc Brake"](#).



DISC BRAKE ROTOR

DISC BRAKE ROTOR : Inspection

INFOID:000000009795737

APPEARANCE

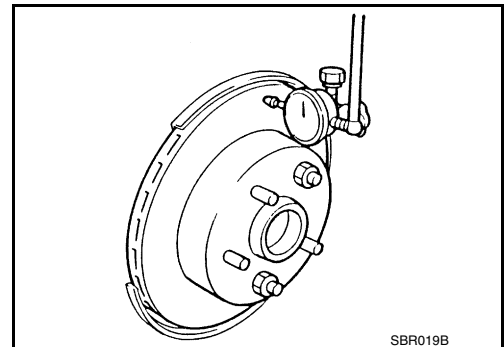
Check surface of disc brake rotor for uneven wear, cracks or damage. Replace if any abnormal conditions exist.

RUNOUT

1. Check the wheel bearing axial end play before the inspection. Refer to [FAX-7, "Inspection"](#)(FWD) or [FAX-38, "Inspection"](#)(AWD).
2. Secure the disc brake rotor to the wheel hub and bearing with wheel nuts at two wheel nut locations.
3. Inspect the runout with a dial gauge, measured at 10 mm (0.39 in) inside the disc brake rotor edge.

Runout : Refer to [BR-55, "Front Disc Brake"](#).

4. Find the installation position with a minimum runout by shifting the disc brake rotor-to-wheel hub and bearing installation position by one hole at a time if the runout exceeds the limit value.
5. Refinish the disc brake rotor if the runout is outside the limit even after performing the above operation. When refinishing, use Tool.



Tool number : 38-PFM92

CAUTION:

- Check in advance that the thickness of the disc brake rotor is wear thickness + 0.3 mm (0.012 in) or more.
- If the thickness is less than wear thickness + 0.3 mm (0.012 in), replace the disc brake rotor.

Wear thickness : Refer to [BR-55, "Front Disc Brake"](#).

THICKNESS

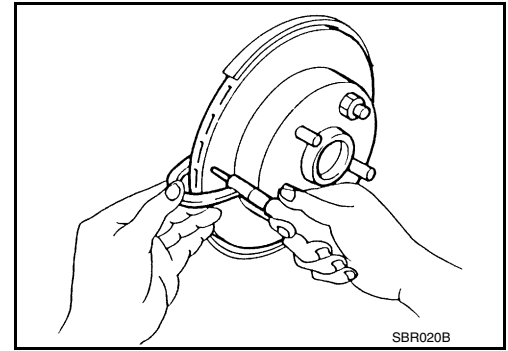
FRONT DISC BRAKE

< BASIC INSPECTION >

Check the thickness of the disc brake rotor using a micrometer.
Replace the disc brake rotor if the thickness is below the wear limit.

Wear thickness : Refer to [BR-55, "Front Disc Brake"](#).

Thickness variation : Refer to [BR-55, "Front Disc Brake"](#).



REAR DISC BRAKE

< BASIC INSPECTION >

REAR DISC BRAKE BRAKE PAD

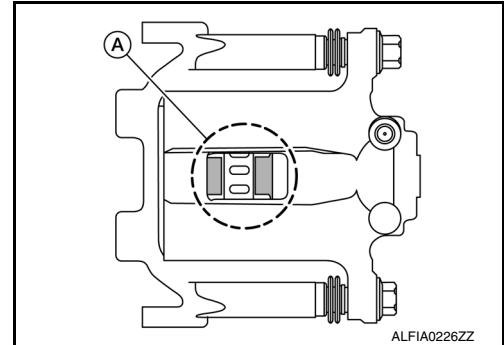
BRAKE PAD : Inspection

INFOID:000000009795738

INSPECTION

Check brake pad wear thickness from an inspection hole (A) on cylinder body. Check using a scale if necessary.

Wear thickness : Refer to [BR-55, "Rear Disc Brake"](#).



DISC BRAKE ROTOR

DISC BRAKE ROTOR : Inspection

INFOID:000000009795739

Appearance

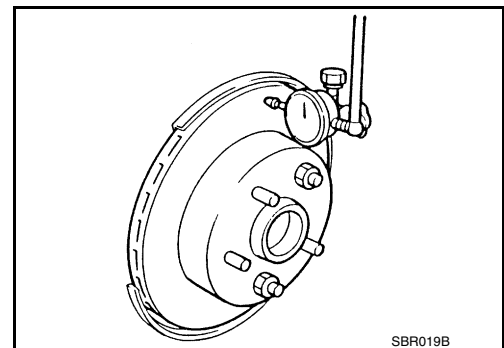
Check surface of disc brake rotor for uneven wear, cracks or damage. Replace if any abnormal conditions exist.

Runout

1. Check the wheel bearing axial end play before the inspection. Refer to [RAX-6, "Inspection"](#)(FWD) or [RAX-14, "Inspection"](#)(AWD).
2. Secure the disc brake rotor to the wheel hub and bearing with wheel nuts at two wheel nut locations.
3. Measure the runout with a dial gauge 10 mm (0.39 in) from the disc brake rotor edge.

Runout : Refer to [BR-55, "Rear Disc Brake"](#).

4. Find the installation position with a minimum runout by shifting the disc brake rotor-to-wheel hub and bearing installation position by one hole at a time if the runout exceeds the limit value.
5. Refinish the disc brake rotor if the runout is outside the limit even after performing the above operation. When refinishing, use Tool.



Tool number : 38-PFM92

CAUTION:

- Check in advance that the thickness of the disc brake rotor is wear thickness + 0.3 mm (0.012 in) or more.
- If the thickness is less than wear thickness + 0.3 mm (0.012 in), replace the disc brake rotor.

Wear thickness : Refer to [BR-55, "Rear Disc Brake"](#).

Thickness

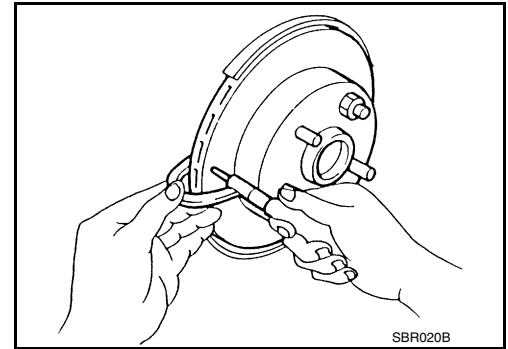
REAR DISC BRAKE

< BASIC INSPECTION >

Check the thickness of the disc brake rotor using a micrometer. Replace the disc brake rotor if the thickness is below the minimum thickness.

Minimum thickness : Refer to [BR-55, "Rear Disc Brake"](#).

Thickness variation : Refer to [BR-55, "Rear Disc Brake"](#).



BRAKE PEDAL

< PERIODIC MAINTENANCE >

PERIODIC MAINTENANCE

BRAKE PEDAL

Adjustment

INFOID:000000009795729

BRAKE PEDAL HEIGHT

1. Remove instrument lower panel LH. Refer to [IP-22, "Removal and Installation"](#).
2. Disconnect the harness connectors from the stop lamp switch and brake pedal position switch.
3. Turn the stop lamp switch and brake pedal position switch 45° counterclockwise.
4. Check that the brake pedal height meets the specification by checking the brake pedal and brake booster for damage and replace parts as necessary. Refer to [BR-54, "Brake Pedal"](#).
5. Turn the stop lamp switch and brake pedal position switch 45° clockwise.
6. Connect the harness connectors to the stop lamp switch and brake pedal position switch.
7. Check the brake pedal for smooth operation.

CAUTION:

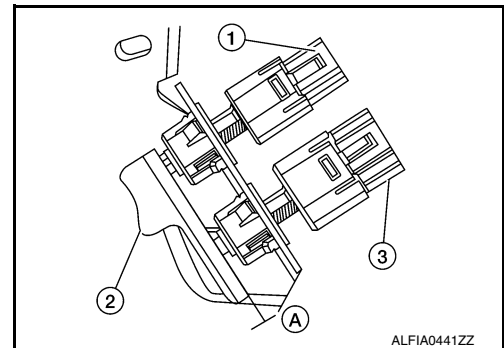
The stop lamp must turn off when the brake pedal is released.

STOP LAMP SWITCH AND BRAKE PEDAL POSITION SWITCH

1. Remove instrument lower panel LH. Refer to [IP-22, "Removal and Installation"](#).
2. Disconnect the harness connectors from the stop lamp switch and brake pedal position switch.
3. Turn the stop lamp switch and brake pedal position switch 45° counterclockwise.
4. With the threaded ends of the stop lamp switch (3) and brake pedal position switch (1) contacting the brake pedal stopper bracket (2), turn the switches 45° clockwise to lock in place. Check that both the stop lamp switch (3) and brake pedal position switch (1) contact ends to brake pedal stopper bracket (2) clearance (A) are within specification.

CAUTION:

- Make sure that the clearance (A) between the brake pedal stopper bracket (2), stop lamp switch (3) and the brake pedal position switch (1) contact ends are within specification.
- The stop lamp must turn off when the brake pedal is released.



Clearance (A) : Refer to [BR-54, "Brake Pedal"](#).

BRAKE FLUID

< PERIODIC MAINTENANCE >

BRAKE FLUID

Drain and Refill

INFOID:000000009795732

CAUTION:

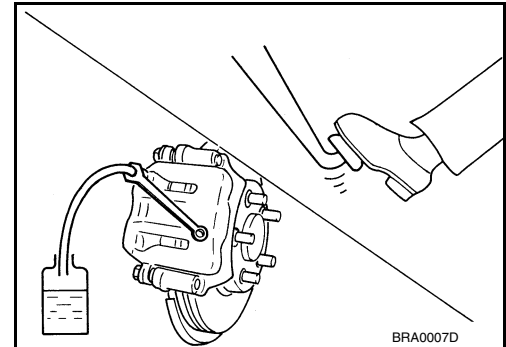
- Do not spill or splash brake fluid on painted surfaces. Brake fluid may damage paint. If brake fluid is splashed on painted areas, wash it away with water immediately.
- Prior to repair, turn the ignition switch OFF, disconnect the ABS actuator and electric unit (control unit) connector or negative battery terminal. Refer to [PG-75, "Removal and Installation \(Battery\)"](#).
- Refill brake system with new brake fluid. Refer to [MA-11, "Fluids and Lubricants"](#).
- Do not reuse drained brake fluid.

DRAINING

1. Turn ignition switch OFF and disconnect ABS actuator and electric unit (control unit) connector or negative battery terminal. Refer to [PG-75, "Removal and Installation \(Battery\)"](#).
2. Connect a vinyl tube to bleeder valve.
3. Depress brake pedal, loosen bleeder valve, and gradually remove brake fluid.

CAUTION:

Do not allow master cylinder reservoir tank to empty as this may cause damage to master cylinder internal components.



REFILLING

1. Make sure no foreign material is in the reservoir tank, and refill with new brake fluid.

CAUTION:

Do not reuse drained brake fluid.

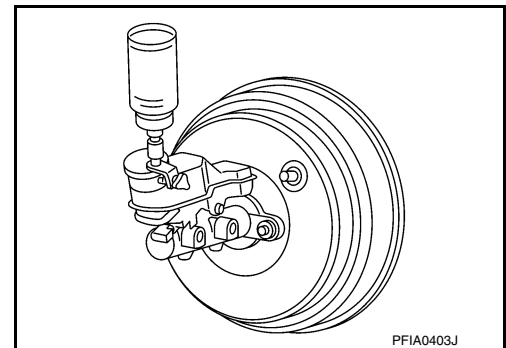
2. Refill the brake system as follows:
 - Depress the brake pedal.
 - Loosen bleeder valve.
 - Slowly depress brake pedal to 2/3 of the brake pedal full stroke.
 - Tighten bleeder valve.
 - Release brake pedal.

Repeat this operation at intervals of two or three seconds until all old brake fluid is discharged. Add new brake fluid frequently.

CAUTION:

Do not allow master cylinder reservoir tank to empty as this may cause damage to master cylinder internal components.

3. Bleed the air out of the brake hydraulic system. Refer to [BR-16, "Bleeding Brake System"](#).



Bleeding Brake System

INFOID:000000009795733

CAUTION:

- While bleeding, pay attention to the brake fluid level.
- Do not allow master cylinder reservoir tank to empty as this may cause damage to master cylinder internal components.
- Before working, disconnect ABS actuator and electric unit (control unit) connectors or negative battery terminal. Refer to [PG-75, "Removal and Installation \(Battery\)"](#).

1. Turn ignition switch OFF and disconnect ABS actuator and electric unit (control unit) connector or negative battery terminal. Refer to [PG-75, "Removal and Installation \(Battery\)"](#).
2. Connect a vinyl tube to front (RH) brake caliper bleeder valve.
3. Fully depress brake pedal 4 or 5 times.

BRAKE FLUID

< PERIODIC MAINTENANCE >

4. With brake pedal depressed, loosen bleeder valve to bleed air in brake line, and then tighten it immediately.
5. Repeat steps 3 and 4 until all of the air is out of the brake line.
6. Tighten the bleeder valve to the specified torque. Refer to [BR-45. "BRAKE CALIPER ASSEMBLY \(1 PISTON TYPE\) : Exploded View"](#) (front disc brake), [BR-51. "Exploded View"](#) (rear disc brake).
7. Repeat steps 2 through 6, with the reservoir tank filled at least halfway. Bleed the air in the following order: front (RH), front (LH), rear (RH), rear (LH).

A

B

C

D

E

BR

G

H

I

J

K

L

M

N

O

P

FRONT DISC BRAKE

< PERIODIC MAINTENANCE >

FRONT DISC BRAKE

Brake Burnishing

INFOID:000000009795742

CAUTION:

- **Burnish contact surfaces between brake pads and disc brake rotor according to the following procedure after refinishing the disc brake rotor, replacing brake pads or if a soft pedal occurs at very low mileage.**
 - **Be careful of vehicle speed. Brakes do not operate firmly/securely until pads and disc brake rotor are securely seated.**
 - **Only perform this procedure under safe road and traffic conditions. Use extreme caution.**
1. Drive the vehicle on straight, flat road.
 2. Depress the brake pedal until the vehicle stops.
 3. Release the brake pedal for a few minutes to allow the brake components to cool.
 4. Repeat steps 1 to 3 until pad and disc brake rotor are securely seated.

REAR DISC BRAKE

< PERIODIC MAINTENANCE >

REAR DISC BRAKE

Brake Burnishing

INFOID:000000009795770

CAUTION:

- Burnish contact surfaces between brake pads and disc brake rotor according to the following procedure after refinishing the disc brake rotor, replacing brake pads or if a soft pedal occurs at very low mileage.
 - Be careful of vehicle speed. Brakes do not operate firmly/securely until pads and disc brake rotor are securely seated.
 - Only perform this procedure under safe road and traffic conditions. Use extreme caution.
1. Drive the vehicle on straight, flat road.
 2. Depress the brake pedal until the vehicle stops.
 3. Release the brake pedal for a few minutes to allow the brake components to cool.
 4. Repeat steps 1 to 3 until pad and disc brake rotor are securely seated.

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P

BR

BRAKE PEDAL

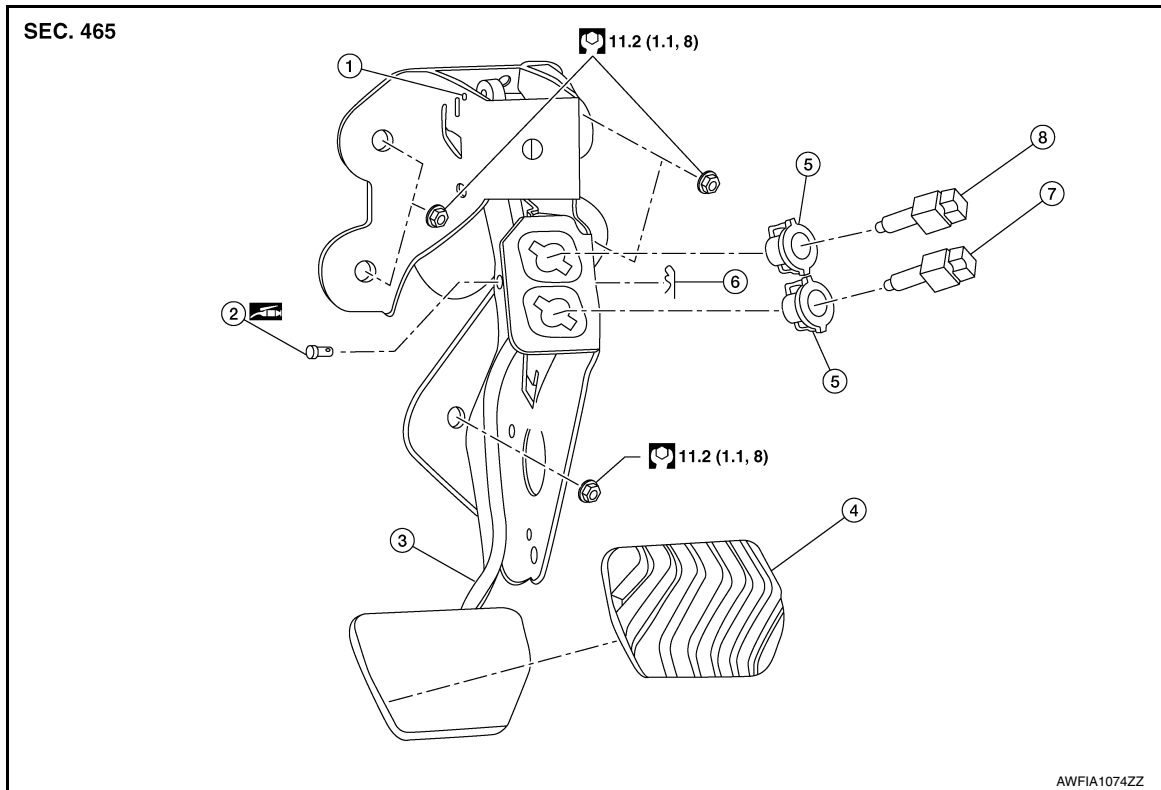
< REMOVAL AND INSTALLATION >

REMOVAL AND INSTALLATION

BRAKE PEDAL

Exploded View

INFOID:000000009795740



- | | | |
|---------------------|--------------------------------|----------------|
| 1. Rivet | 2. Clevis pin | 3. Brake pedal |
| 4. Brake pedal pad | 5. Clip | 6. Snap pin |
| 7. Stop lamp switch | 8. Brake pedal position switch | |

Removal and Installation

INFOID:000000009795741

REMOVAL

1. Remove instrument lower panel LH. Refer to [IP-22, "Removal and Installation"](#).
2. Remove the knee protector. Refer to [IP-14, "Exploded View"](#).
3. Remove snap pin and clevis pin from clevis of brake booster.
4. Disconnect the harness connectors from the stop lamp switch and brake pedal position switch.
5. Remove the accelerator pedal. Refer to [ACC-3, "Removal and Installation"](#).
6. Remove the brake pedal.

CAUTION:

Support the brake booster and master cylinder to prevent contact with other components.

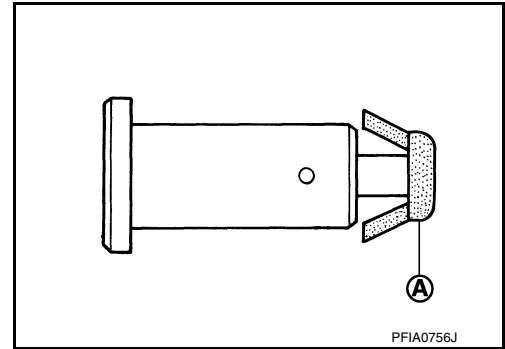
INSPECTION AFTER REMOVAL

- Check the following items and replace the brake pedal assembly if necessary.
 - Check the brake pedal rivet for deformation or damage.
 - Check the brake pedal for bend, damage, and cracks on the welded parts.

BRAKE PEDAL

< REMOVAL AND INSTALLATION >

- Check clevis pin and plastic stopper (A) for damage and deformation. If any damage is found, replace clevis pin.



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

Replace the brake pedal if it has been dropped or sustained an impact.

- Check that the brake pedal height and brake pedal play meet the specifications by checking the brake pedal and brake booster for damage and replace parts as necessary. Refer to [BR-54, "Brake Pedal"](#).

BRAKE PIPING

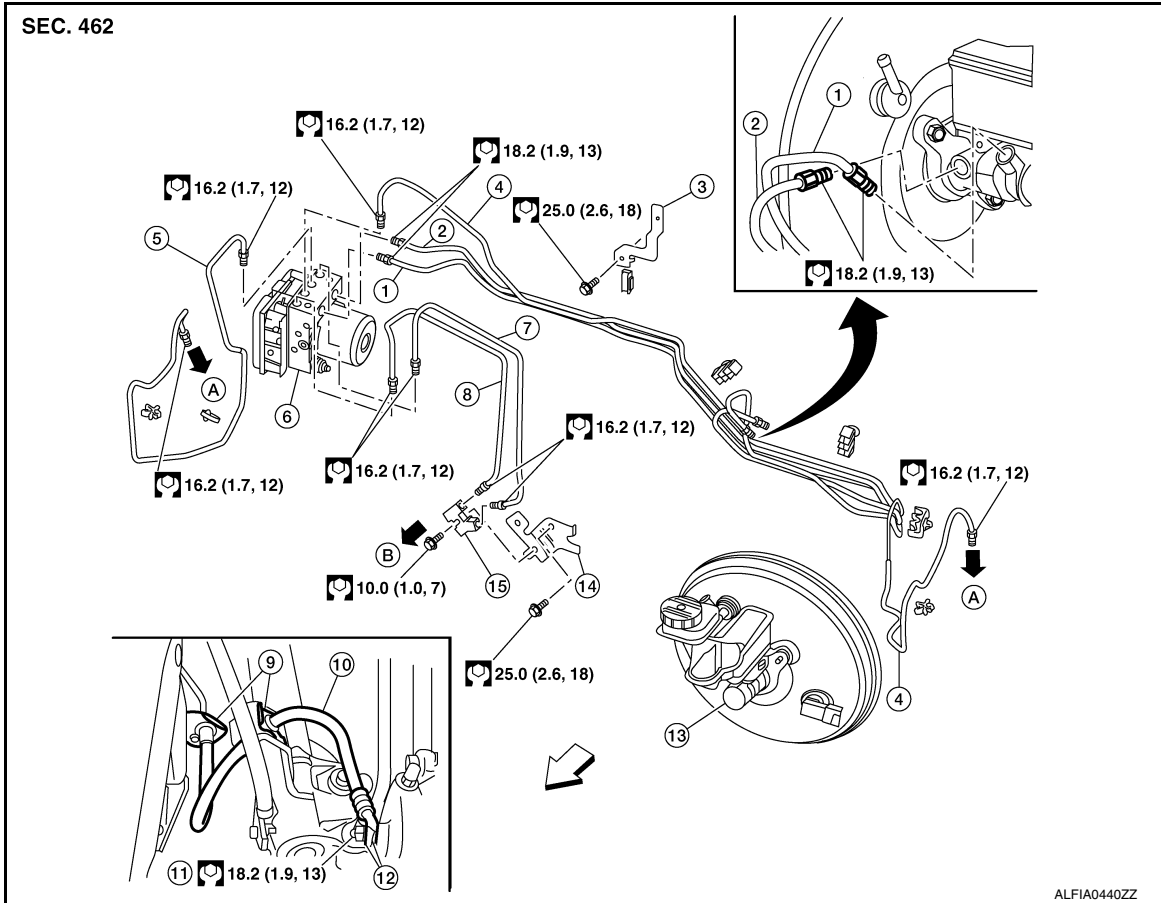
< REMOVAL AND INSTALLATION >

BRAKE PIPING

FRONT

FRONT : Exploded View

INFOID:000000009795743



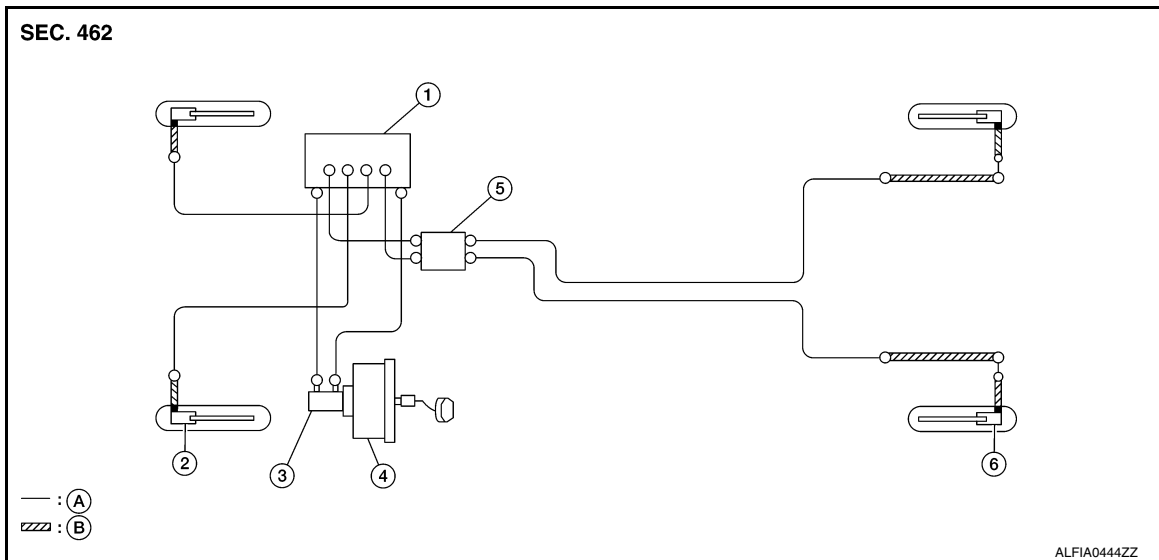
- | | | |
|---|---|--|
| 1. Master cylinder secondary to ABS actuator brake tube | 2. Master cylinder primary to ABS actuator brake tube | 3. Brake tube bracket |
| 4. Brake tube (LH) | 5. Brake tube (RH) | 6. ABS actuator and electric unit (control unit) |
| 7. ABS actuator to connector brake tube (LH) | 8. ABS actuator to connector brake tube (RH) | 9. Lock plate |
| 10. Front brake hose | 11. Union bolt | 12. Copper sealing washers |
| 13. Master cylinder | 14. Connector bracket | 15. Connector |
| A. To front brake hose | B. To rear brake tube | ⇐ Front |

BRAKE PIPING

< REMOVAL AND INSTALLATION >

FRONT : Hydraulic Piping

INFOID:000000009795744



- | | | |
|--|---------------------|-----------------------------|
| 1. ABS actuator and electric unit (control unit) | 2. Front disc brake | 3. Master cylinder assembly |
| 4. Brake booster | 5. Connector | 6. Rear disc brake |
| A. Brake tube | B. Brake hose | |

○ : Flare nut

■ : Union bolt

FRONT : Removal and Installation

INFOID:000000009795745

CAUTION:

- Do not spill or splash brake fluid on painted surfaces. Brake fluid may seriously damage paint. Wipe it off immediately and wash with water if it gets on a painted surface.
- Do not allow foreign matter (e.g. dust) and oils other than brake fluid to enter the reservoir tank.

NOTE:

When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid from spilling.

REMOVAL

1. Remove wheels and tires using power tool.
2. Loosen the flare nut with a flare nut wrench and separate the brake tube from the hose.

CAUTION:

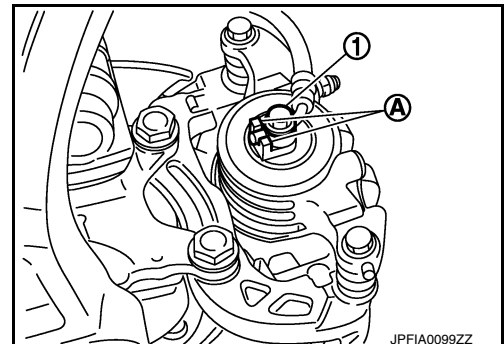
- Do not scratch the flare nut and the brake pipe.
- All brake hoses and pipes must be free from excessive bending, twisting and pulling.

3. Remove the union bolt (1) and the brake hose from the brake caliper. Remove and discard the copper sealing washers.

CAUTION:

Do not reuse copper sealing washers.

4. Remove the lock plate and remove the brake hose.



INSTALLATION

CAUTION:

BRAKE PIPING

< REMOVAL AND INSTALLATION >

Do not allow foreign matter (e.g. dust) and oils other than brake fluid to enter the reservoir tank.

1. Assemble the union bolt (1) and the copper washers to the brake hose and install it as an assembly to the brake caliper. Align the brake hose pin to the projection (A) by aligning it with the brake caliper hole, and tighten the union bolt (1) to the specified torque.

CAUTION:

Do not reuse copper sealing washers.

2. Install the brake pipe to the brake hose, temporarily tighten the flare nut by hand until it does not rotate further, and attach the brake hose to the bracket with the lock plate.

CAUTION:

Check that the brake hoses and pipes are not bent or twisted.

3. Tighten the flare nut to the specified torque with a flare nut crowfoot and a torque wrench.

CAUTION:

Do not scratch the flare nut and the brake pipe.

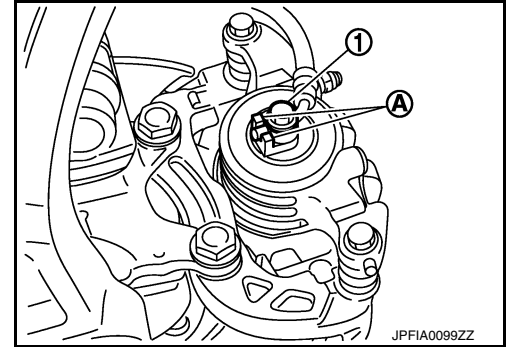
4. Refill with new brake fluid and perform the air bleeding. Refer to [BR-16, "Bleeding Brake System"](#).

CAUTION:

Do not reuse drained brake fluid.

5. Install the wheels and tires. Refer to [WT-60, "Removal and Installation"](#).

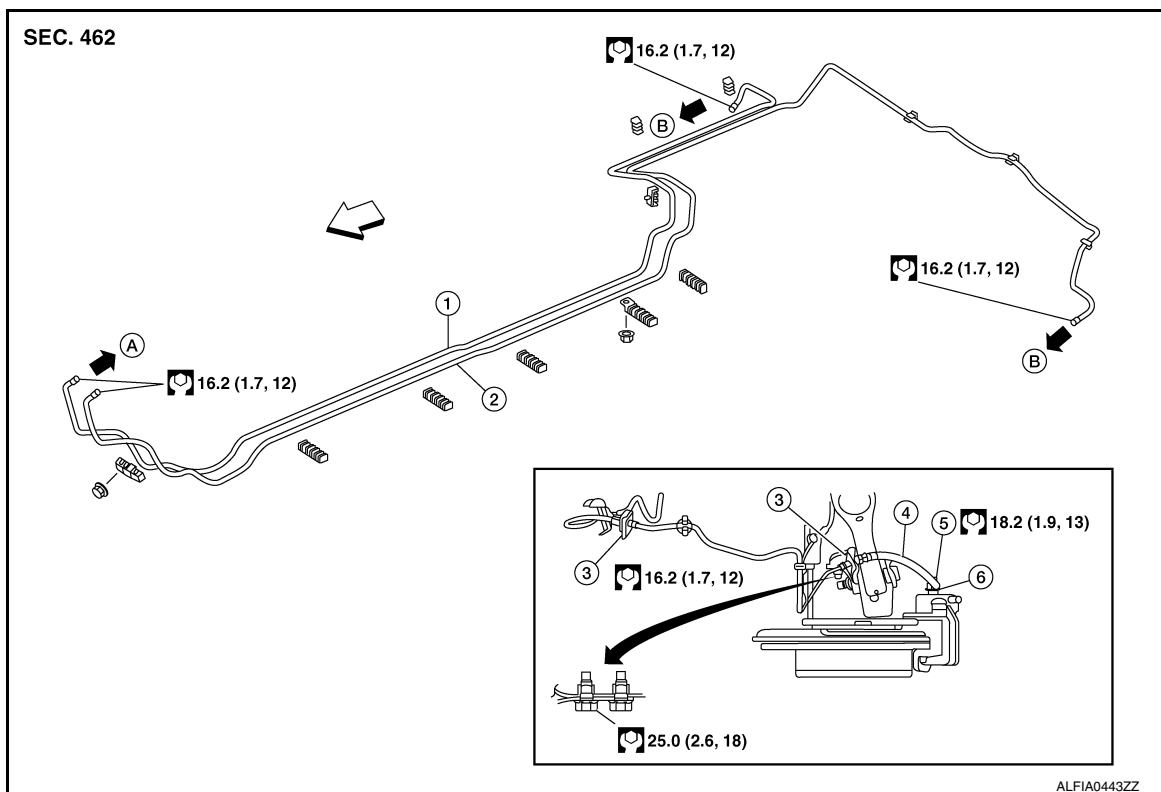
6. Perform inspection after installation. Refer to [BR-8, "Inspection"](#).



REAR

REAR : Exploded View

INFOID:000000009795747



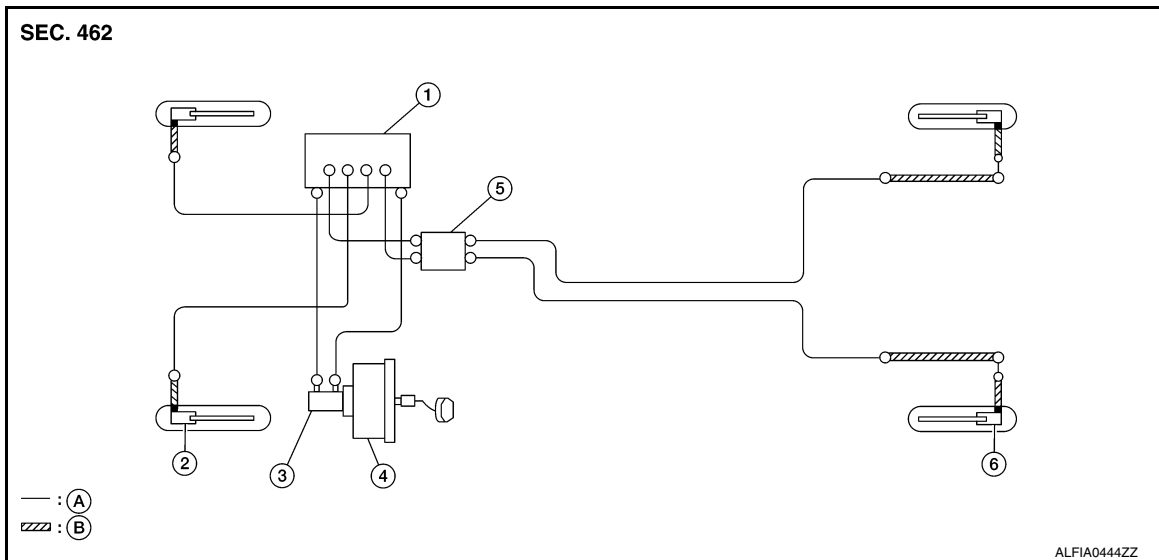
- | | | |
|----------------------------------|----------------------------------|---------------------------|
| 1. Rear brake pipe assembly (RH) | 2. Rear brake pipe assembly (LH) | 3. Lock plate |
| 4. Rear brake hose | 5. Union bolt | 6. Copper sealing washers |
| A. To brake pipe connector | B. To rear brake hose | ⇐ Front |

BRAKE PIPING

< REMOVAL AND INSTALLATION >

REAR : Hydraulic Piping

INFOID:000000009795748



- | | | |
|--|---------------------|-----------------------------|
| 1. ABS actuator and electric unit (control unit) | 2. Front disc brake | 3. Master cylinder assembly |
| 4. Brake booster | 5. Connector | 6. Rear disc brake |
| A. Brake tube | B. Brake hose | |

○ : Flare nut

■ : Union bolt

REAR : Removal and Installation

INFOID:000000009795749

CAUTION:

- Do not spill or splash brake fluid on painted surfaces. Brake fluid may seriously damage paint. Wipe it off immediately and wash with water if it gets on a painted surface.
- Do not allow foreign matter (e.g. dust) and oils other than brake fluid to enter the reservoir tank.

NOTE:

When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid from spilling.

REMOVAL

1. Remove wheels and tires using power tool.
2. Loosen the flare nut with a flare nut wrench and separate the brake tube from the hose.

CAUTION:

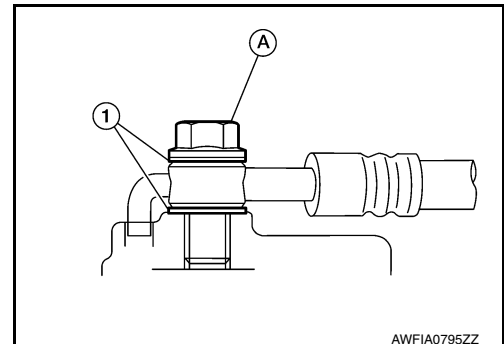
- Do not scratch the flare nut and the brake pipe.
- All brake hoses and pipes must be free from excessive bending, twisting and pulling.

3. Remove the union bolt (A) and the brake hose from the brake caliper. Remove and discard the copper sealing washers (1).

CAUTION:

Do not reuse copper sealing washers.

4. Remove the lock plate and remove the brake hose.



INSTALLATION

CAUTION:

BRAKE PIPING

< REMOVAL AND INSTALLATION >

Do not allow foreign matter (e.g. dust) and oils other than brake fluid to enter the reservoir tank.

1. Assemble the union bolt (A) and the copper sealing washers (1) to the brake hose and install it as an assembly to the brake caliper. Align the brake hose L-pin by aligning it with the brake caliper hole, and tighten the union bolt (A) to the specified torque.

CAUTION:

Do not reuse copper sealing washers.

2. Install the brake pipe to the brake hose, temporarily tighten the flare nut by hand until it does not rotate further, and attach the brake hose to the bracket with the lock plate.

CAUTION:

Check that the brake hoses and pipes are not bent or twisted.

3. Tighten the flare nut to the specified torque with a flare nut crowfoot and a torque wrench.

CAUTION:

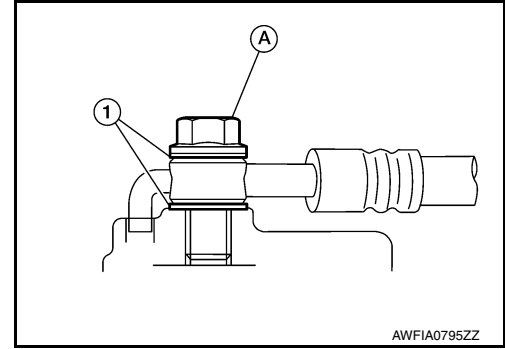
Do not scratch the flare nut and the brake pipe.

4. Refill with new brake fluid and perform the air bleeding. Refer to [BR-16, "Bleeding Brake System"](#).

CAUTION:

Do not reuse drained brake fluid.

5. Install the wheels and tires. Refer to [WT-60, "Removal and Installation"](#).
6. Perform inspection after installation. Refer to [BR-8, "Inspection"](#).



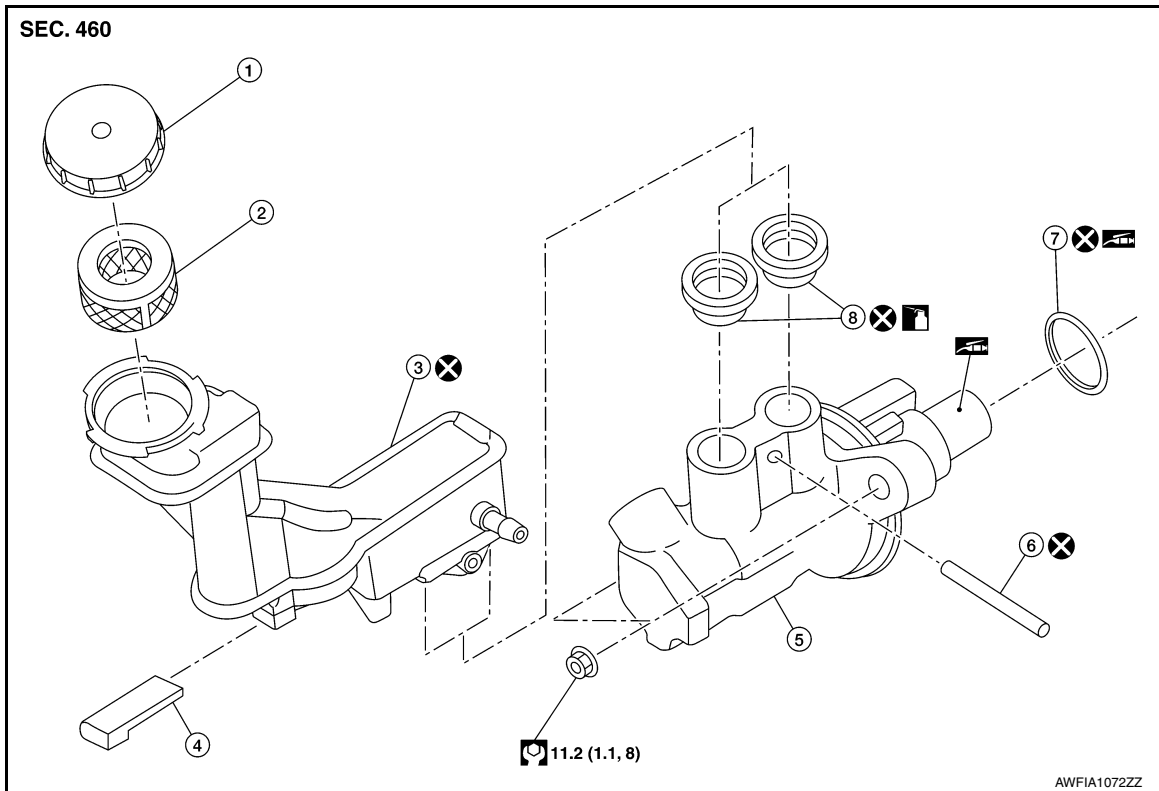
BRAKE MASTER CYLINDER

< REMOVAL AND INSTALLATION >

BRAKE MASTER CYLINDER

Exploded View

INFOID:000000009795751



- | | | |
|-----------------------------|------------------|-------------------|
| 1. Reservoir cap | 2. Oil strainer | 3. Reservoir tank |
| 4. Brake fluid level sensor | 5. Cylinder body | 6. Pin |
| 7. O-ring | 8. Grommet | |

: Apply PBC (Poly Butyl Cuprysil) grease or silicone-based grease.

: Apply brake fluid.

Removal and Installation

INFOID:000000009795752

REMOVAL

CAUTION:

- Do not spill or splash brake fluid on painted areas; it may cause paint damage. If brake fluid is splashed on painted areas, wash it away with water immediately.
- Do not reuse master cylinder O-rings.
- Do not reuse drained brake fluid.

NOTE:

When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid from spilling.

1. Remove air duct assembly to the electronic throttle control actuator and air cleaner case (upper). Refer to [EM-24, "Removal and Installation"](#).
2. Disconnect the harness connector from the brake fluid level sensor.
3. Disconnect the hose from the reservoir tank.
4. Disconnect the brake pipes from the master cylinder assembly with a flare nut wrench.

CAUTION:

Do not scratch the flare nut or the brake pipe.

5. Remove the master cylinder assembly.

CAUTION:

BRAKE MASTER CYLINDER

< REMOVAL AND INSTALLATION >

Do not depress the brake pedal after the master cylinder assembly is removed.

INSTALLATION

CAUTION:

- Do not spill or splash brake fluid on painted areas; it may cause paint damage. If brake fluid is splashed on painted areas, wash it away with water immediately.
- Do not reuse O-ring.

Installation is in the reverse order of removal.

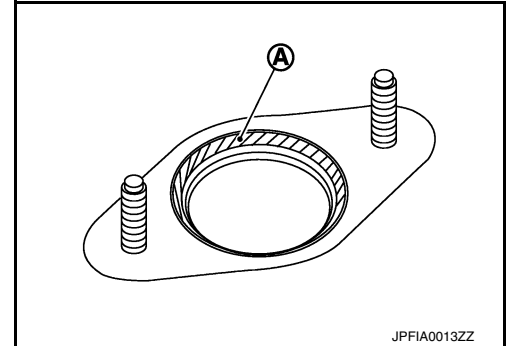
- Apply PBC (Poly Butyl Cuprysil) silicone-based grease to the brake booster (A) when installing the master cylinder assembly to the brake booster.

- Temporarily tighten the brake tube flare nut to the master cylinder assembly by hand. Then tighten it to the specified torque with a flare nut crowfoot and torque wrench. Refer to [BR-27, "Exploded View"](#).

CAUTION:

Do not scratch the flare nut or the brake pipe.

- After installation, perform the air bleeding. Refer to [BR-16, "Bleeding Brake System"](#).



INFOID:000000009795753

Disassembly and Assembly

DISASSEMBLY

CAUTION:

- Do not disassemble the cylinder body.
- Remove the reservoir tank only when necessary.
- Do not drop removed parts. The parts must not be reused if they are dropped.

1. Secure the master cylinder assembly in a vise.

CAUTION:

Always use copper plates or cloth between vise and cylinder body. Do not overtighten the vise.

2. Remove the reservoir tank pin using suitable tools.

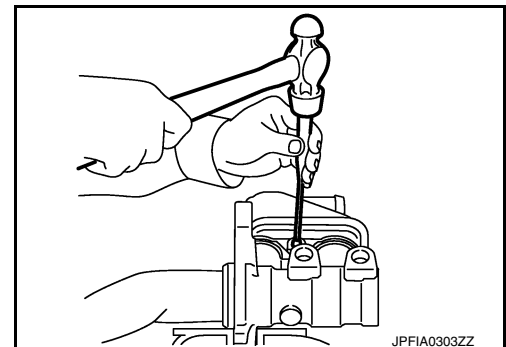
CAUTION:

Do not reuse the pin.

3. Remove the reservoir tank and grommets from the cylinder body. Discard the grommets.

CAUTION:

- Do not drop parts. Dropped parts must not be reused.
- Do not reuse the grommets.



ASSEMBLY

1. Apply new brake fluid to the grommets and install them to the cylinder body.

CAUTION:

Do not use mineral oil such as gasoline or light oil.

2. Install the reservoir tank to the cylinder body.

CAUTION:

Do not drop the parts during installation. The parts must not be reused if they are dropped.

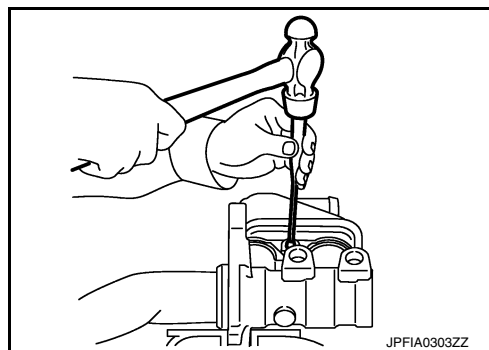
BRAKE MASTER CYLINDER

< REMOVAL AND INSTALLATION >

3. Tilt the reservoir tank so that the pin can be inserted. Insert a pin using suitable tools.

CAUTION:

Do not reuse the pin.



A

B

C

D

E

BR

G

H

I

J

K

L

M

N

O

P

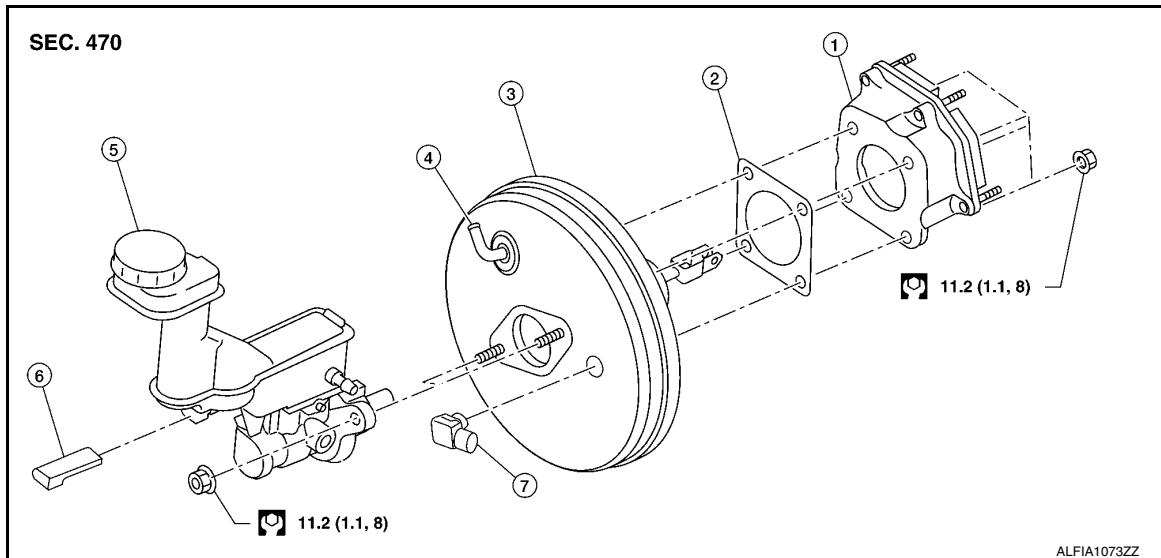
BRAKE BOOSTER

< REMOVAL AND INSTALLATION >

BRAKE BOOSTER

Exploded View

INFOID:000000009795755



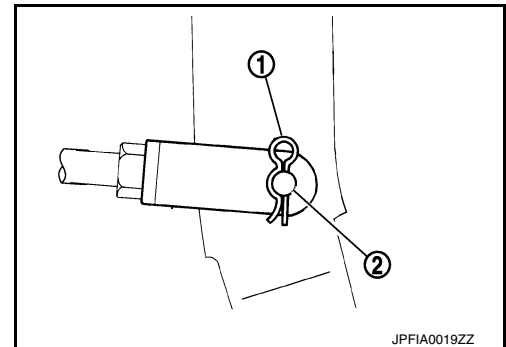
- | | | |
|----------------------------------|-------------------|-----------------------------|
| 1. Spacer | 2. Gasket | 3. Brake booster |
| 4. Check valve | 5. Reservoir tank | 6. Brake fluid level sensor |
| 7. Brake booster pressure sensor | | |

Removal and installation

INFOID:000000009795756

REMOVAL

1. Remove the cowl top. Refer to [EXT-25, "Removal and Installation"](#).
2. Remove the instrument lower panel LH. Refer to [IP-22, "Removal and Installation"](#).
3. Remove the knee protector. Refer to [IP-14, "Exploded View"](#).
4. Remove the snap pin (1) and clevis pin (2) from the brake pedal.



5. Disconnect vacuum hose from brake booster. Refer to [BR-32, "Exploded View"](#).
6. Remove master cylinder assembly. Refer to [BR-27, "Removal and Installation"](#).
7. Disconnect the harness connector from the brake booster pressure sensor.
8. Remove the brake booster pressure sensor.
9. Remove the nuts on the brake booster and brake pedal.
CAUTION:
Secure the brake booster to avoid damage to components.
10. Remove the brake booster.
CAUTION:
Do not deform or bend the brake pipes.

INSTALLATION

BRAKE BOOSTER

< REMOVAL AND INSTALLATION >

1. Install a new gasket between the brake booster and dash panel.
CAUTION:
Do not reuse the gasket.
2. Install the brake booster to the dash panel from the engine room side.
CAUTION:
Do not damage brake booster stud bolt threads during installation.
3. Install the nuts to the brake booster and brake pedal. Refer to [BR-30, "Exploded View"](#).
4. Install the brake booster pressure sensor.
5. Connect the harness connector to the brake booster pressure sensor.
6. Install master cylinder assembly. Refer to [BR-27, "Removal and Installation"](#).
7. Connect vacuum hose to brake booster. Refer to [BR-32, "Exploded View"](#).
8. Install the clevis pin and snap pin to the brake pedal.
9. Adjust the brake pedal. Refer to [BR-15, "Adjustment"](#).
10. Install the knee protector. Refer to [IP-14, "Exploded View"](#).
11. Install instrument lower panel LH. Refer to [IP-22, "Removal and Installation"](#).
12. Bleed the brake system. Refer to [BR-16, "Bleeding Brake System"](#).
13. Inspect the brake booster. Refer to [BR-10, "Inspection"](#).

A

B

C

D

E

BR

G

H

I

J

K

L

M

N

O

P

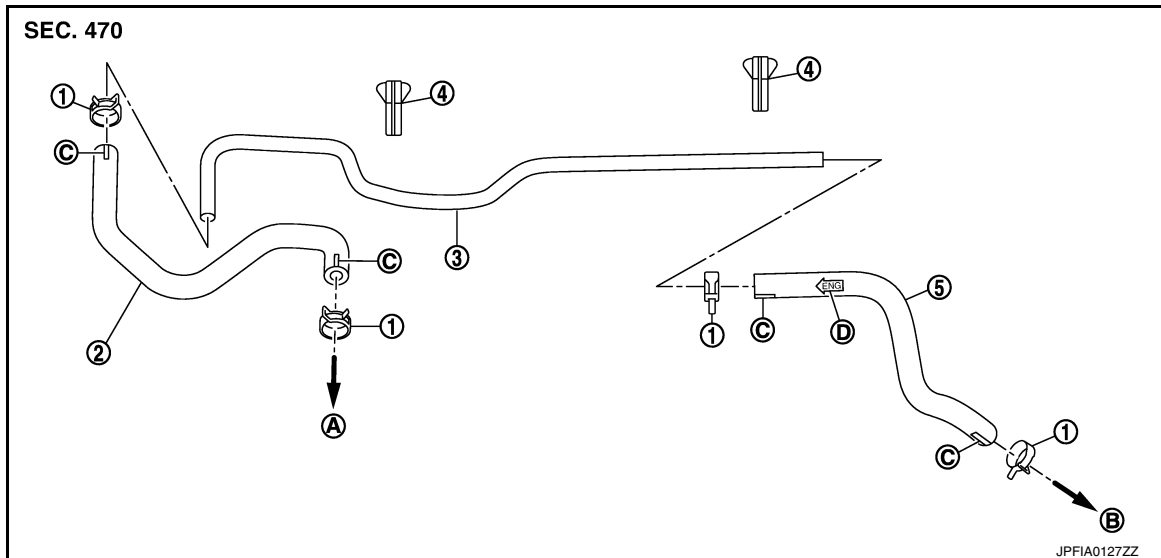
VACUUM LINES

< REMOVAL AND INSTALLATION >

VACUUM LINES

Exploded View

INFOID:000000009795758



- | | | |
|--------------------------------------|---------------------|----------------|
| 1. Clamp | 2. Vacuum hose | 3. Vacuum tube |
| 4. Clip | 5. Vacuum hose | |
| A. To intake manifold | B. To brake booster | C. Paint mark |
| D. Stamp indicating engine direction | | |

Removal and Installation

INFOID:000000009795759

REMOVAL

1. Remove the cowl top. Refer to [EXT-25, "Removal and Installation"](#).
2. Remove the air duct assembly to the electric throttle control actuator. Refer to [EM-24, "Exploded View"](#).
3. Disconnect the vacuum hose from the engine intake manifold.
4. Disconnect the vacuum hose from the brake booster.
5. Disconnect the vacuum hose from the clip.
6. Remove the vacuum hoses.

INSPECTION AFTER REMOVAL

Visual Inspection

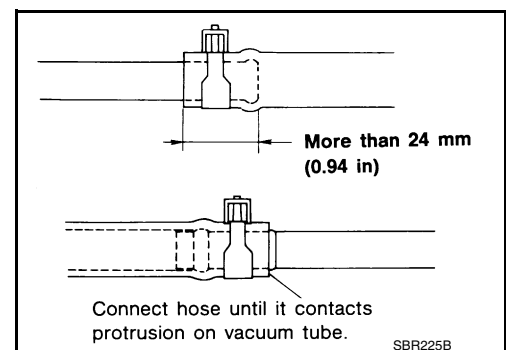
Check for correct installation, damage and deterioration of the vacuum hoses and pipe.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Insert the vacuum pipe into the vacuum hose at least 24 mm (0.94 in) as shown.
- Do not use lubricating oil during installation.



FRONT DISC BRAKE

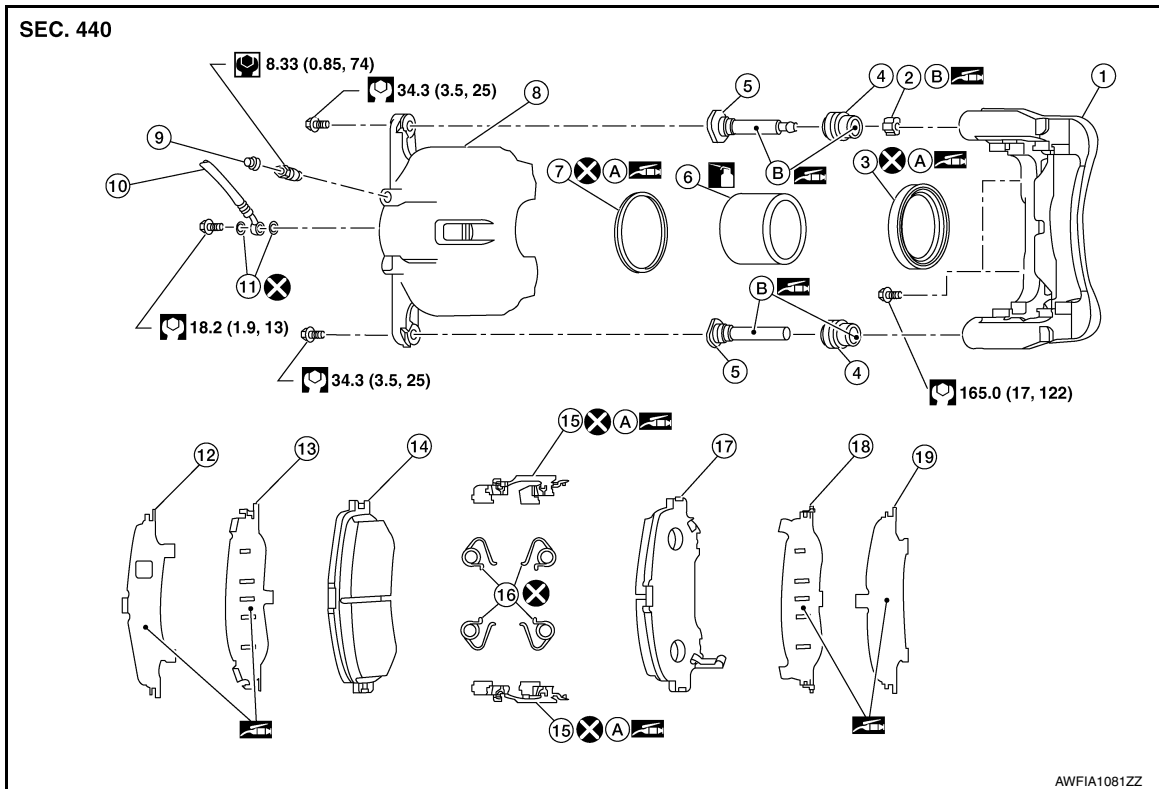
< REMOVAL AND INSTALLATION >

FRONT DISC BRAKE

BRAKE PAD (1 PISTON TYPE)

BRAKE PAD (1 PISTON TYPE) : Exploded View

INFOID:000000009795761



- | | | |
|----------------------|----------------------------|----------------------|
| 1. Torque member | 2. Bushing | 3. Piston boot |
| 4. Slide pin boot | 5. Slide pin | 6. Piston |
| 7. Piston seal | 8. Brake caliper body | 9. Bleeder cap |
| 10. Brake hose | 11. Copper sealing washers | 12. Inner shim cover |
| 13. Inner shim | 14. Inner pad | 15. Pad retainer |
| 16. Anti-rattle clip | 17. Outer pad | 18. Outer shim |
| 19. Outer shim cover | A. Molykote AS-880N | B. Niglube Rx-2 |

 Apply brake fluid.

BRAKE PAD (1 PISTON TYPE) : Removal and Installation

INFOID:000000009795762

REMOVAL

WARNING:

Clean dust on brake caliper and brake pad with a vacuum dust collector to minimize the hazards of airborne particles or other material.

CAUTION:

- Do not depress the brake pedal while removing the brake pads because the pistons may pop out.
- It is not necessary to remove bolts on torque member and brake hose except for disassembly or replacement of brake caliper. For brake pad removal, hang brake caliper with a wire so as not to stretch brake hose.
- If brake fluid or grease adheres to the brake caliper or disc brake rotor, quickly wipe it off.

1. Partially drain brake fluid. Refer to [BR-16. "Drain and Refill"](#).
2. Remove the front wheels and tires using power tool.
3. Remove sliding pin bolts.

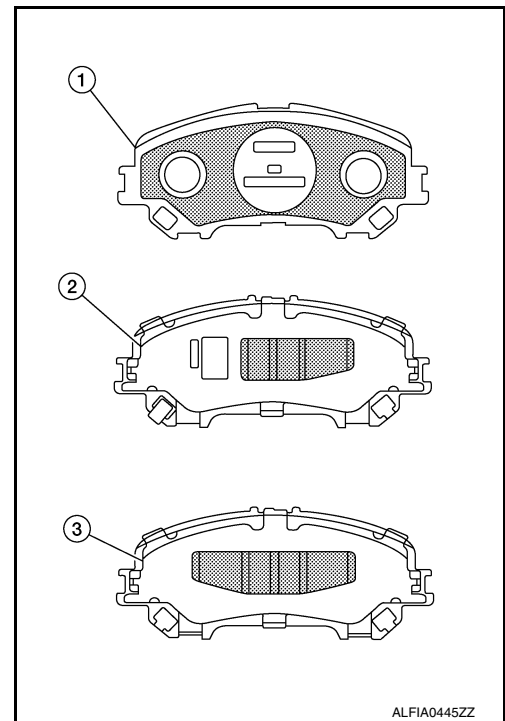
FRONT DISC BRAKE

< REMOVAL AND INSTALLATION >

4. Remove the front brake caliper from the torque member. Leaving brake hose attached, reposition the brake caliper aside with wire.
5. Remove the brake pads, shims, shim covers, pad retainers, and anti-rattle clips from the torque member.
CAUTION:
 - Do not reuse the pad retainers and anti-rattle clips.
 - Do not damage the piston boot.
 - Do not drop the brake pads, shims, or the shim covers.
 - Note the position of components during removal to aid with installation.
6. Compress the front caliper piston.

INSTALLATION

1. Install the new pad retainers and anti-rattle clips to the torque member.
CAUTION:
 - Do not reuse the pad retainers and anti-rattle clips.
 - Do not deform the pad retainers.
 - Verify that the pad retainers are secured properly to the torque member.
2. Apply Rubber grease or equivalent to the mating faces between the brake pads and pad retainers. Refer to [BR-33. "BRAKE PAD \(1 PISTON TYPE\) : Exploded View"](#).
3. Apply Molykote AS-880N grease or equivalent to the mating faces between the brake pads, shims and shim covers, and install them to the brake pad. Refer to [BR-33. "BRAKE PAD \(1 PISTON TYPE\) : Exploded View"](#).
CAUTION:
When installing new brake pads, replace the shims and shim covers.
4. Install the brake pads to the torque member.
5. Using a suitable tool, press the pistons into the brake caliper.
CAUTION:
Do not damage the piston boot.
6. Install the brake caliper to the torque member.
7. Install the sliding pin bolts and tighten to specification. Refer to [BR-33. "BRAKE PAD \(1 PISTON TYPE\) : Exploded View"](#).
8. Depress the brake pedal several times and verify that drag does not exist.
9. Install the front wheels and tires. Refer to [WT-60. "Removal and Installation"](#).
10. Check brake fluid level and refill as necessary. Refer to [BR-8. "Inspection"](#).



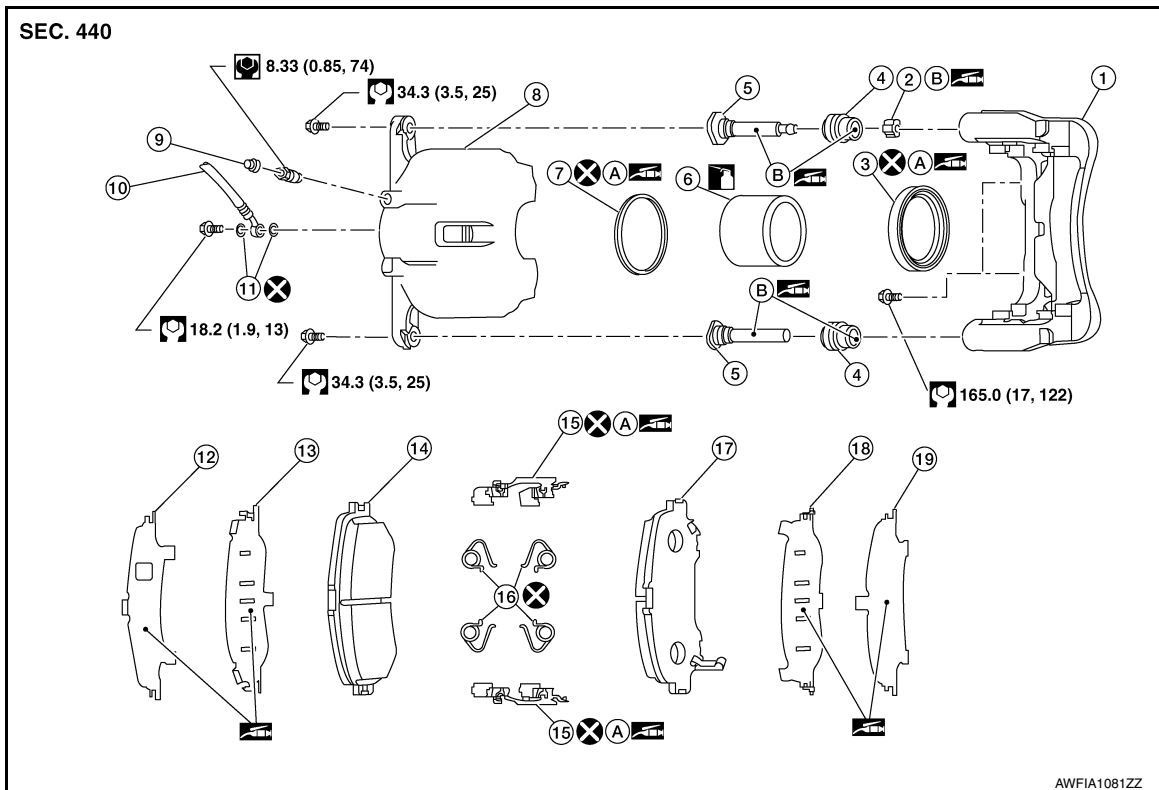
BRAKE CALIPER ASSEMBLY (1 PISTON TYPE)

FRONT DISC BRAKE

< REMOVAL AND INSTALLATION >

BRAKE CALIPER ASSEMBLY (1 PISTON TYPE) : Exploded View

INFOID:000000009795764



- | | | |
|----------------------|----------------------------|----------------------|
| 1. Torque member | 2. Bushing | 3. Piston boot |
| 4. Slide pin boot | 5. Slide pin | 6. Piston |
| 7. Piston seal | 8. Brake caliper body | 9. Bleeder cap |
| 10. Brake hose | 11. Copper sealing washers | 12. Inner shim cover |
| 13. Inner shim | 14. Inner pad | 15. Pad retainer |
| 16. Anti-rattle clip | 17. Outer pad | 18. Outer shim |
| 19. Outer shim cover | A. Molykote AS-880N | B. Niglube Rx-2 |

: Apply brake fluid.

BRAKE CALIPER ASSEMBLY (1 PISTON TYPE) : Removal and Installation

INFOID:000000009795765

WARNING:

Clean dust on brake caliper and brake pad with a vacuum dust collector to minimize the hazard of airborne particles or other materials.

CAUTION:

- Do not depress the brake pedal.
- Do not spill or splash brake fluid on painted areas; it may cause paint damage. If brake fluid is splashed on painted areas, wash it away with water immediately.
- Do not bend, twist or pull the brake hoses and piping.
- Do not reuse drained brake fluid.

NOTE:

When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid from spilling.

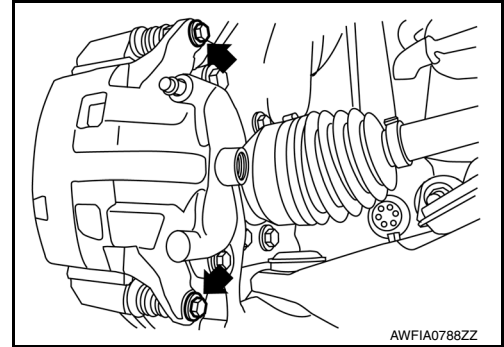
REMOVAL

1. Remove front wheels and tires using power tool.
2. Secure the disc brake rotor using wheel nuts.

FRONT DISC BRAKE

< REMOVAL AND INSTALLATION >

3. Remove union bolt, copper sealing washers, and disconnect brake hose from brake caliper. Discard the copper sealing washers.
CAUTION:
Do not reuse copper sealing washers.
4. Remove sliding pin bolts and the brake caliper.
CAUTION:
Do not drop brake pads or caliper.



INSTALLATION

1. Position the brake caliper to torque member and install the sliding pin bolts. Tighten to specification.
2. Assemble the union bolt (1) and the copper washers to the brake hose and install it as an assembly to the brake caliper. Align the brake hose pin to the projection (A) by aligning it with the brake caliper hole, and tighten the union bolt (1) to the specified torque.

CAUTION:

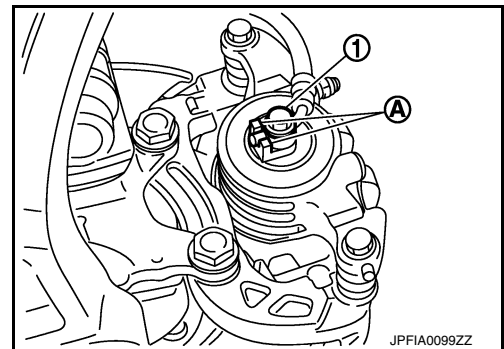
Do not reuse copper sealing washers.

3. Refill with new brake fluid and perform the air bleeding. Refer to [BR-16, "Bleeding Brake System"](#).

CAUTION:

- Do not reuse drained brake fluid.
- Do not spill or splash brake fluid on the disc brake rotor.

4. Check the front disc brakes for drag.
5. Install the front wheels and tires. Refer to [WT-60, "Removal and Installation"](#).



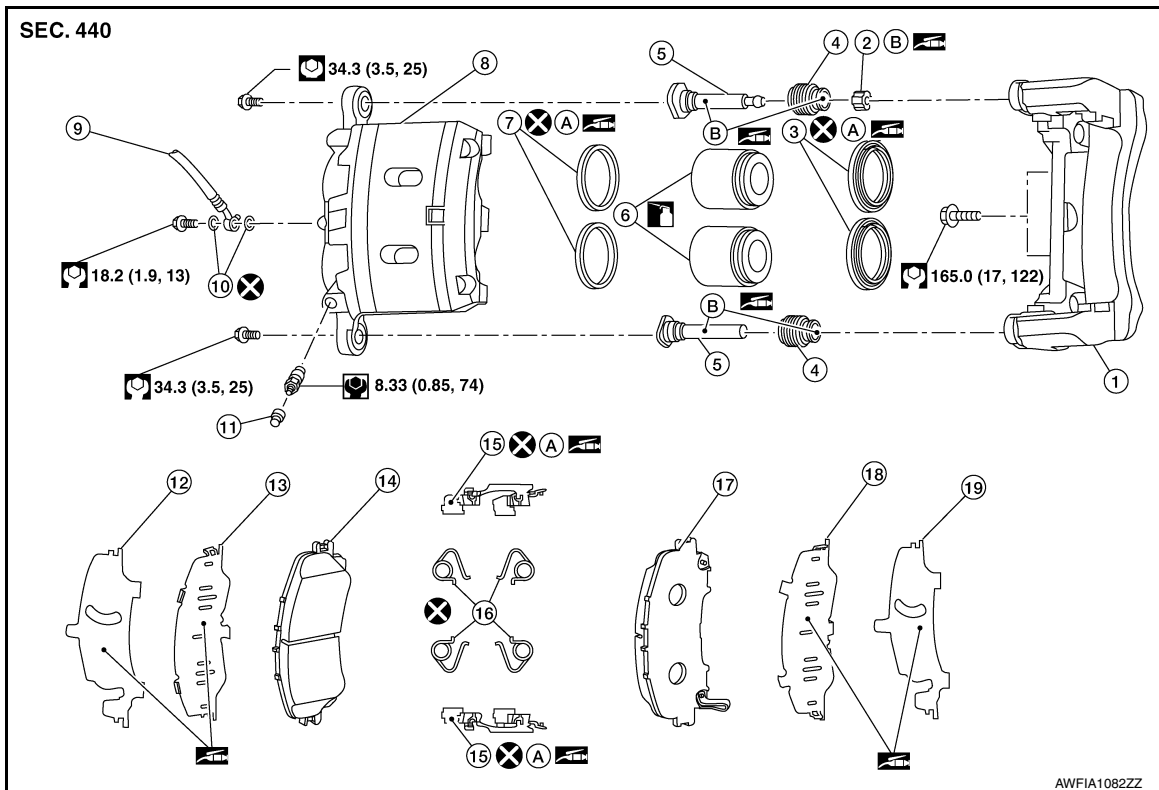
BRAKE PAD (2 PISTON TYPE)

FRONT DISC BRAKE

< REMOVAL AND INSTALLATION >

BRAKE PAD (2 PISTON TYPE) : Exploded View

INFOID:000000010336167



- | | | |
|----------------------|----------------------------|----------------------|
| 1. Torque member | 2. Bushing | 3. Piston boot |
| 4. Slide pin boot | 5. Slide pin | 6. Piston |
| 7. Piston seal | 8. Brake caliper body | 9. Bleeder cap |
| 10. Brake hose | 11. Copper sealing washers | 12. Inner shim cover |
| 13. Inner shim | 14. Inner pad | 15. Pad retainer |
| 16. Anti-rattle clip | 17. Outer pad | 18. Outer shim |
| 19. Outer shim cover | A. Molykote AS-880N | B. Niglube Rx-2 |

: Apply brake fluid.

BRAKE PAD (2 PISTON TYPE) : Removal and Installation

INFOID:000000010336168

REMOVAL

WARNING:

Clean dust on brake caliper and brake pad with a vacuum dust collector to minimize the hazards of airborne particles or other material.

CAUTION:

- Do not depress the brake pedal while removing the brake pads because the pistons may pop out.
- It is not necessary to remove bolts on torque member and brake hose except for disassembly or replacement of brake caliper. For brake pad removal, hang brake caliper with a wire so as not to stretch brake hose.
- If brake fluid or grease adheres to the brake caliper or disc brake rotor, quickly wipe it off.

1. Partially drain brake fluid. Refer to [BR-16, "Drain and Refill"](#).
2. Remove the front wheels and tires using power tool.
3. Remove sliding pin bolts.
4. Remove the brake caliper from the torque member. Leaving brake hose attached, reposition the brake caliper aside with wire.
5. Remove the brake pads, shims, shim covers, pad retainers, and anti-rattle clips from the torque member.

CAUTION:

FRONT DISC BRAKE

< REMOVAL AND INSTALLATION >

- Do not reuse the pad retainers and anti-rattle clips.
- Do not damage the piston boot.
- Do not drop the brake pads, shims, or the shim covers.
- Note the position of components during removal to aid with installation.

6. Compress the front caliper pistons.

INSTALLATION

1. Install the new pad retainers and anti-rattle clips to the torque member.

CAUTION:

- Do not reuse the pad retainers and anti-rattle clips.
- Do not deform the pad retainers.
- Verify that the pad retainers are secured properly to the torque member.

2. Apply Rubber grease or equivalent to the mating faces between the brake pads and pad retainers. Refer to [BR-37. "BRAKE PAD \(2 PISTON TYPE\) : Exploded View"](#).

3. Apply Molykote AS-880N grease or equivalent to the mating faces between the brake pads, shims and shim covers, and install them to the brake pad. Refer to [BR-37. "BRAKE PAD \(2 PISTON TYPE\) : Exploded View"](#).

CAUTION:

When installing new brake pads, replace the shims and shim covers.

4. Install the brake pads to the torque member.

5. Using a suitable tool, press the pistons into the brake caliper.

CAUTION:

Do not damage the piston boot.

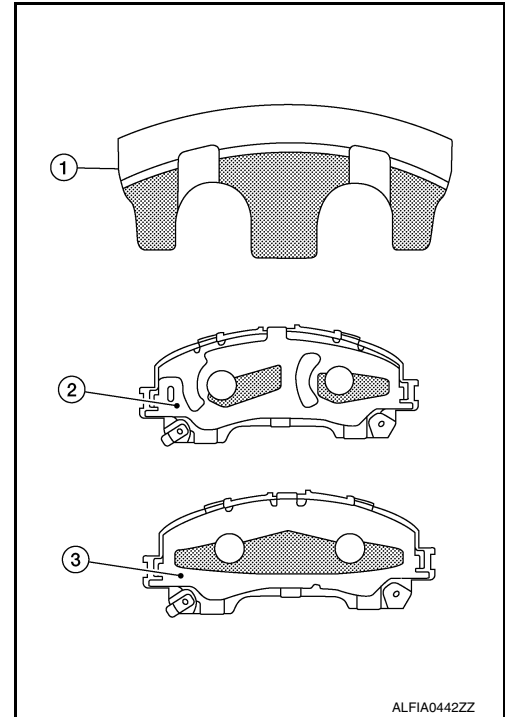
6. Install the brake caliper to the torque member.

7. Install the sliding pin bolts and tighten to specification. Refer to [BR-37. "BRAKE PAD \(2 PISTON TYPE\) : Exploded View"](#).

8. Depress the brake pedal several times and verify that drag does not exist.

9. Install the front wheels and tires. Refer to [WT-60. "Removal and Installation"](#).

10. Check brake fluid level and refill as necessary. Refer to [BR-8. "Inspection"](#).



ALFIA0442ZZ

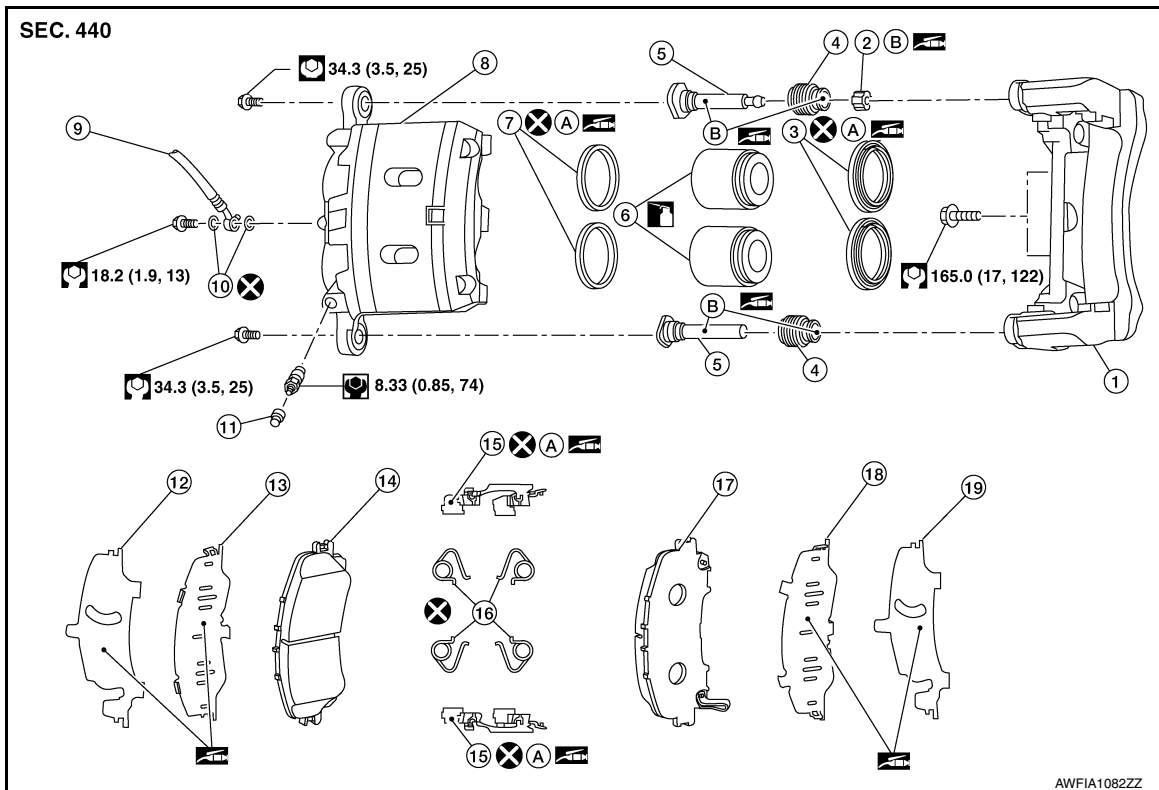
BRAKE CALIPER ASSEMBLY (2 PISTON TYPE)

FRONT DISC BRAKE

< REMOVAL AND INSTALLATION >

BRAKE CALIPER ASSEMBLY (2 PISTON TYPE) : Exploded View

INFOID:0000000010336170



- | | | |
|----------------------|----------------------------|----------------------|
| 1. Torque member | 2. Bushing | 3. Piston boot |
| 4. Slide pin boot | 5. Slide pin | 6. Piston |
| 7. Piston seal | 8. Brake caliper body | 9. Bleeder cap |
| 10. Brake hose | 11. Copper sealing washers | 12. Inner shim cover |
| 13. Inner shim | 14. Inner pad | 15. Pad retainer |
| 16. Anti-rattle clip | 17. Outer pad | 18. Outer shim |
| 19. Outer shim cover | A. Molykote AS-880N | B. Niglube Rx-2 |

: Apply brake fluid.

BRAKE CALIPER ASSEMBLY (2 PISTON TYPE) : Removal and Installation

INFOID:0000000010336171

WARNING:

Clean dust on brake caliper and brake pad with a vacuum dust collector to minimize the hazard of airborne particles or other materials.

CAUTION:

- Do not depress the brake pedal.
- Do not spill or splash brake fluid on painted areas; it may cause paint damage. If brake fluid is splashed on painted areas, wash it away with water immediately.
- Do not bend, twist or pull the brake hoses and piping.
- Do not reuse drained brake fluid.

NOTE:

When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid from spilling.

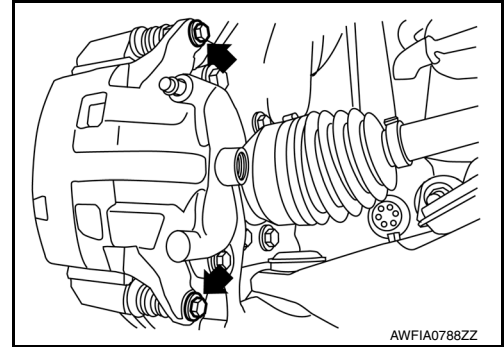
REMOVAL

1. Remove front wheels and tires using power tool.
2. Secure the disc brake rotor using wheel nuts.

FRONT DISC BRAKE

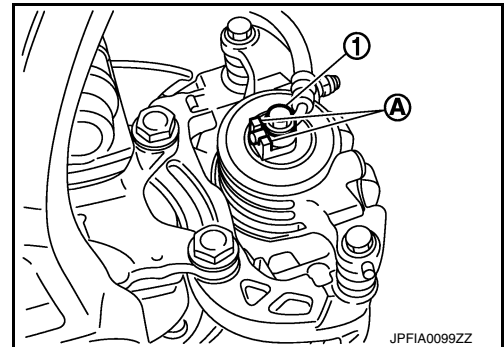
< REMOVAL AND INSTALLATION >

3. Remove union bolt, copper sealing washers, and disconnect brake hose from brake caliper. Discard the copper sealing washers.
CAUTION:
Do not reuse copper sealing washers.
4. Remove sliding pin bolts and the brake caliper.
CAUTION:
Do not drop brake pads or caliper.



INSTALLATION

1. Position the brake caliper to torque member and install the sliding pin bolts. Tighten to specification.
2. Assemble the union bolt (1) and the copper washers to the brake hose and install it as an assembly to the brake caliper. Align the brake hose pin to the projection (A) by aligning it with the brake caliper hole, and tighten the union bolt (1) to the specified torque.
CAUTION:
Do not reuse copper sealing washers.
3. Refill with new brake fluid and perform the air bleeding. Refer to [BR-16, "Bleeding Brake System"](#).
CAUTION:
 - Do not reuse drained brake fluid.
 - Do not spill or splash brake fluid on the disc brake rotor.
4. Check the front disc brakes for drag.
5. Install the front wheels and tires. Refer to [WT-60, "Removal and Installation"](#).



REAR DISC BRAKE

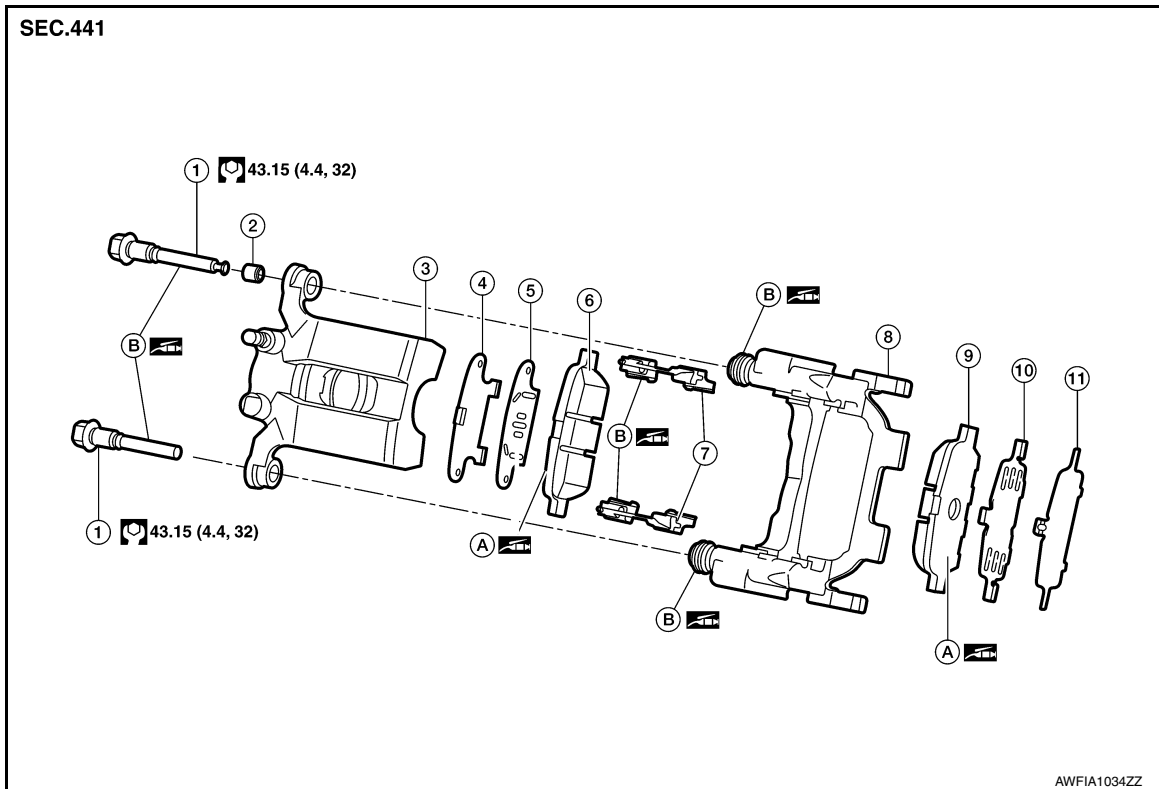
< REMOVAL AND INSTALLATION >

REAR DISC BRAKE

BRAKE PAD

BRAKE PAD : Exploded View

INFOID:000000009795768



- | | | |
|---------------------|------------------------|------------------|
| 1. Sliding pin bolt | 2. Sliding pin bushing | 3. Cylinder body |
| 4. Inner shim cover | 5. Inner shim | 6. Inner pad |
| 7. Pad retainer | 8. Torque member | 9. Outer pad |
| 10. Outer shim | 11. Outer shim cover | |
| A. Molykote AS-880N | B. Niglube Rx-2 | |

BRAKE PAD : Removal and Installation

INFOID:000000009795769

REMOVAL

WARNING:

Clean dust on brake caliper and brake pad with a vacuum dust collector to minimize the hazards of airborne particles or other material.

CAUTION:

- Do not depress the brake pedal while removing the brake pads because the pistons may pop out.
- It is not necessary to remove bolts on torque member and brake hose except for disassembly or replacement of brake caliper. For brake pad removal, hang brake caliper with a wire so as not to stretch brake hose.
- If brake fluid or grease adheres to the brake caliper or disc brake rotor, quickly wipe it off.

1. Partially drain brake fluid from the reservoir tank. Refer to [BR-16. "Drain and Refill"](#).
2. Remove the rear wheels and tires using power tool.
3. Loosen the upper sliding pin bolt and remove the lower sliding pin bolt.
4. Using the upper sliding pin bolt as a pivot, swing the brake caliper down from the torque member. Leaving the brake hose attached, support the brake caliper with wire.
5. Remove the brake pads, shims, shim covers, pad retainers, and anti-rattle clips from the torque member.

CAUTION:

REAR DISC BRAKE

< REMOVAL AND INSTALLATION >

- Do not reuse the pad retainers and anti-rattle clips.
- Do not damage the piston boot.
- Do not drop the brake pads, shims, or the shim covers.
- Note the position of components during removal to aid with installation.

INSTALLATION

1. Install the new pad retainers anti-rattle clips to the torque member.

CAUTION:

- Do not reuse the pad retainers and anti-rattle clips.
- Do not deform the pad retainers.
- Verify that the pad retainers are secured properly to the torque member.

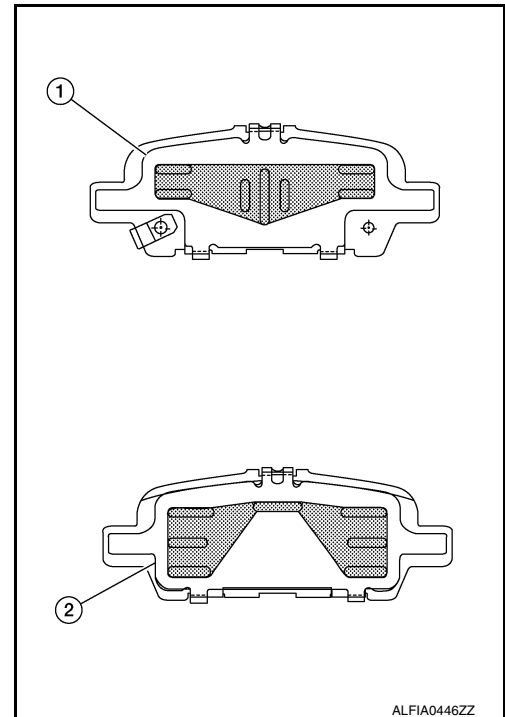
2. Apply rubber grease or equivalent to the mating faces between the brake pads and pad retainers. Refer to [BR-41, "BRAKE PAD : Exploded View"](#).

3. Apply Molykote AS-880N grease or equivalent to the mating faces between the brake pads, shims and shim covers. Install components to the brake pad. Refer to [BR-41, "BRAKE PAD : Exploded View"](#).

CAUTION:

When installing new brake pads, replace the shims and shim covers.

4. Install the brake pads to the torque member.
5. Using a suitable tool, press the pistons into the brake caliper.
CAUTION:
Do not damage the piston boot.
6. Using the upper sliding pin bolt as a pivot, swing the brake caliper up to the torque member.
7. Install the lower sliding pin bolts. Tighten all sliding pin bolts to specification. Refer to [BR-41, "BRAKE PAD : Exploded View"](#).
8. Depress the brake pedal several times and verify that drag does not exist.
9. Install the front wheels and tires. Refer to [WT-60, "Removal and Installation"](#).
10. Check brake fluid level and refill as necessary. Refer to [BR-8, "Inspection"](#).



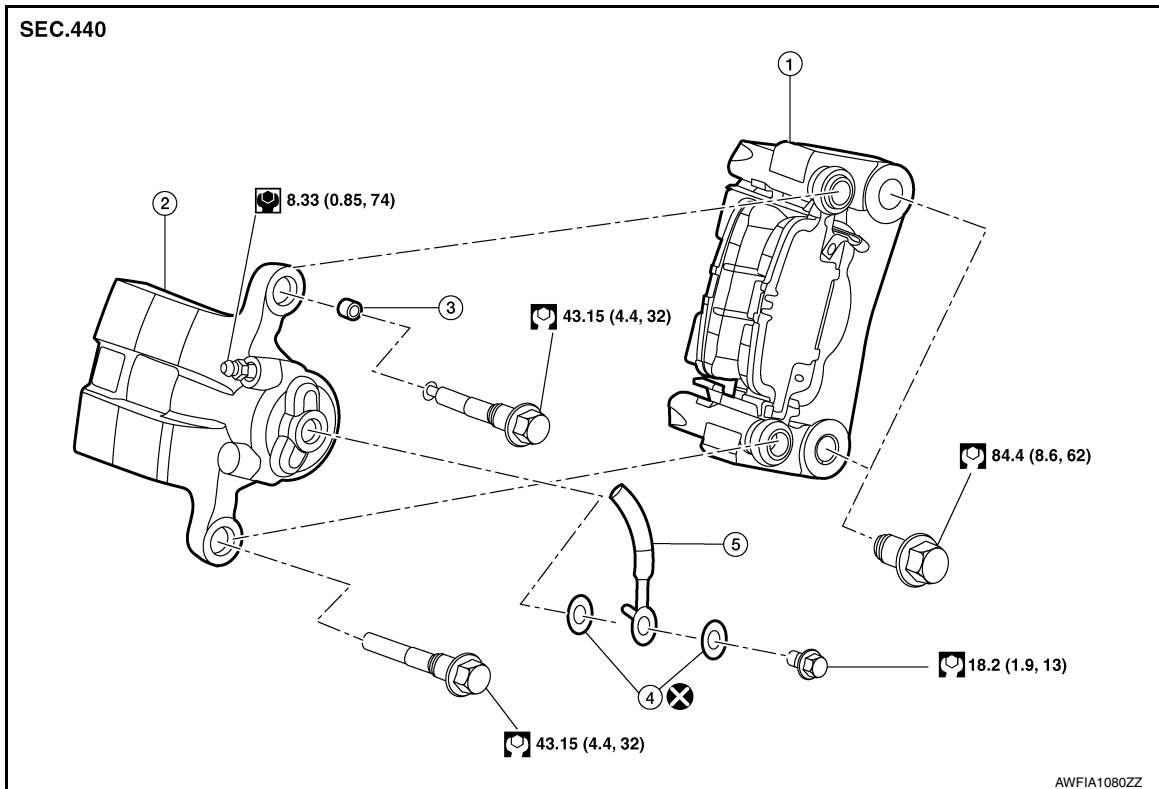
BRAKE CALIPER ASSEMBLY

BRAKE CALIPER ASSEMBLY : Exploded View

INFOID:000000009795771

REAR DISC BRAKE

< REMOVAL AND INSTALLATION >



- | | | |
|---------------------------|-----------------------|------------------------|
| 1. Torque member | 2. Brake caliper body | 3. Sliding pin bushing |
| 4. Copper sealing washers | 5. Brake hose | |

BRAKE CALIPER ASSEMBLY : Removal and Installation

INFOID:000000009795772

WARNING:

Clean dust on brake caliper and brake pad with a vacuum dust collector to minimize the hazard of airborne particles or other materials.

CAUTION:

- Do not depress the brake pedal.
- Do not spill or splash brake fluid on painted areas; it may cause paint damage. If brake fluid is splashed on painted areas, wash it away with water immediately.
- Do not bend, twist or pull the brake hoses and piping.
- Do not reuse drained brake fluid.

NOTE:

When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid from spilling.

REMOVAL

1. Remove rear wheels and tires using power tool.
2. Secure the disc brake rotor using wheel nuts.
3. Remove union bolt, copper sealing washers, and disconnect brake hose from brake caliper. Discard the copper sealing washers.

CAUTION:

Do not reuse copper sealing washers.

4. Remove the torque member bolts. Remove the brake caliper and torque member from the vehicle as an assembly.
5. Remove sliding pin bolts and the brake caliper from torque member.

CAUTION:

Do not drop brake pads or brake caliper.

INSTALLATION

REAR DISC BRAKE

< REMOVAL AND INSTALLATION >

1. Install the brake caliper to torque member and install the sliding pin bolts. Tighten to specification.
2. Install the brake caliper and torque member to the vehicle as an assembly. Install the torque member bolts.
3. Assemble the union bolt (A) and the copper sealing washers (1) to the brake hose and install it as an assembly to the brake caliper. Align the brake hose L-pin by aligning it with the brake caliper hole, and tighten the union bolt (A) to the specified torque.

CAUTION:

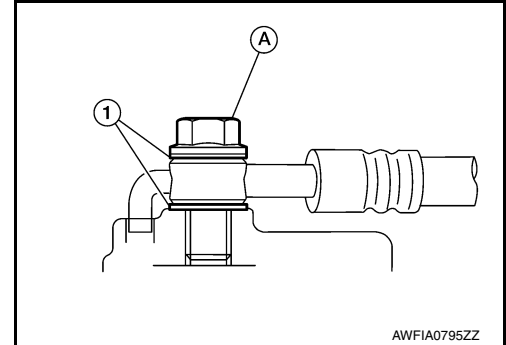
Do not reuse copper sealing washers.

4. Refill with new brake fluid and perform the air bleeding. Refer to [BR-16, "Bleeding Brake System"](#).

CAUTION:

- Do not reuse drained brake fluid.
- Do not spill or splash brake fluid on the disc brake rotor.

5. Check the rear disc brakes for drag.
6. Install the rear wheels and tires. Refer to [WT-60, "Removal and Installation"](#).



FRONT DISC BRAKE

< UNIT DISASSEMBLY AND ASSEMBLY >

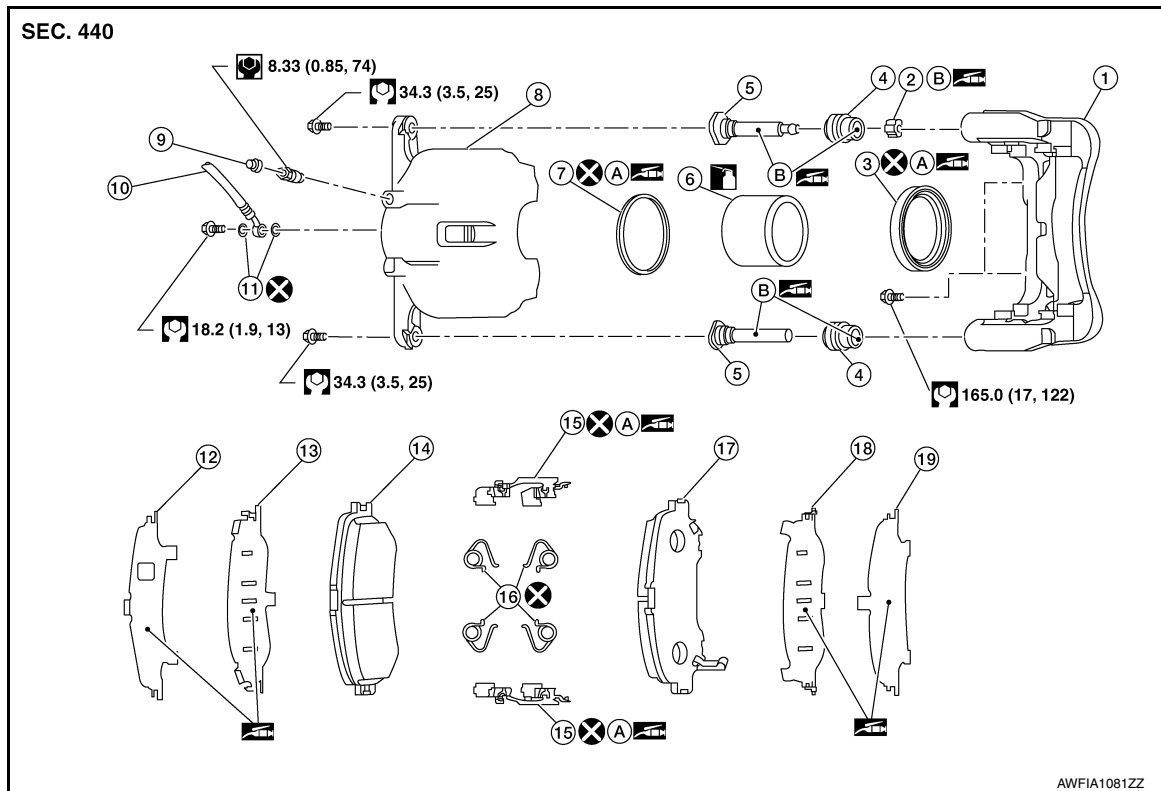
UNIT DISASSEMBLY AND ASSEMBLY

FRONT DISC BRAKE

BRAKE CALIPER ASSEMBLY (1 PISTON TYPE)

BRAKE CALIPER ASSEMBLY (1 PISTON TYPE) : Exploded View

INFOID:0000000010310338



- | | | |
|----------------------|----------------------------|----------------------|
| 1. Torque member | 2. Bushing | 3. Piston boot |
| 4. Slide pin boot | 5. Slide pin | 6. Piston |
| 7. Piston seal | 8. Brake caliper body | 9. Bleeder cap |
| 10. Brake hose | 11. Copper sealing washers | 12. Inner shim cover |
| 13. Inner shim | 14. Inner pad | 15. Pad retainer |
| 16. Anti-rattle clip | 17. Outer pad | 18. Outer shim |
| 19. Outer shim cover | A. Molykote AS-880N | B. Niglube Rx-2 |

: Apply brake fluid.

BRAKE CALIPER ASSEMBLY (1 PISTON TYPE) : Disassembly and Assembly

INFOID:0000000009795766

DISASSEMBLY

1. Remove the brake caliper from the vehicle. Refer to [BR-35. "BRAKE CALIPER ASSEMBLY \(1 PISTON TYPE\) : Removal and Installation"](#).
2. Remove sliding pins and sliding pin boots from torque member.

FRONT DISC BRAKE

< UNIT DISASSEMBLY AND ASSEMBLY >

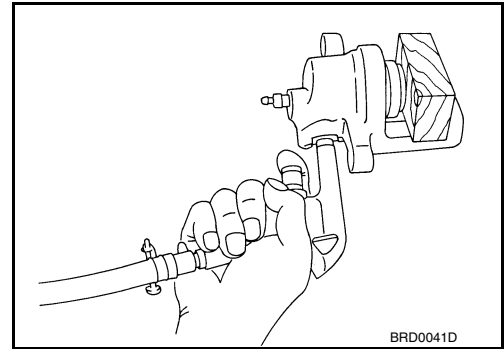
3. Place a wooden block in brake caliper body and blow air from union bolt hole to remove piston and piston boots.

WARNING:

Do not get fingers caught between piston and brake caliper body.

CAUTION:

Do not reuse piston boots.

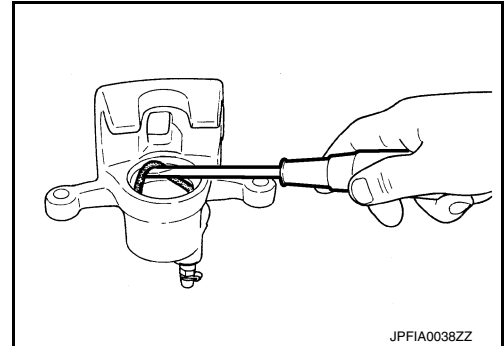


4. Remove piston seals from brake caliper body using suitable tool.

CAUTION:

- Do not damage cylinder inner wall.
- Do not reuse piston seals.

5. Remove bleeder valve and cap.



INSPECTION AFTER DISASSEMBLY

Brake Caliper Body

Check the inner wall of the brake caliper body for rust, wear, cracks or damage. Replace the brake caliper body if any abnormal condition is detected.

CAUTION:

Always clean with new brake fluid. Do not clean with mineral oil such as gasoline and light oil.

Torque Member

Check the torque member for rust, wear, cracks or damage. Replace the torque member if any abnormal condition is detected.

Piston

Check the surface of the piston for rust, wear, cracks or damage. Replace the piston if any abnormal condition is detected.

CAUTION:

Piston sliding surface is plated. Do not polish with sandpaper.

Sliding Pin and Sliding Pin Boot

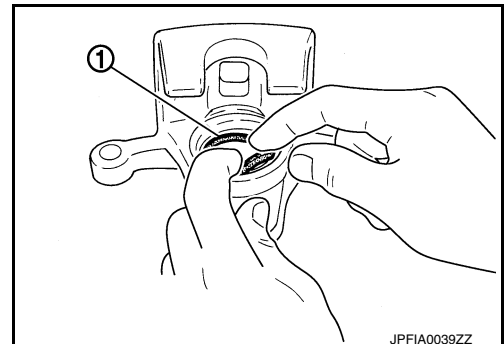
Check the sliding pins and sliding pin boots for rust, wear, cracks or damage. Replace the parts if any abnormal condition is detected.

ASSEMBLY

1. Install bleeder valve and cap.
2. Apply rubber grease to each piston seal (1), and install them to the brake caliper body.

CAUTION:

Do not reuse piston seal.



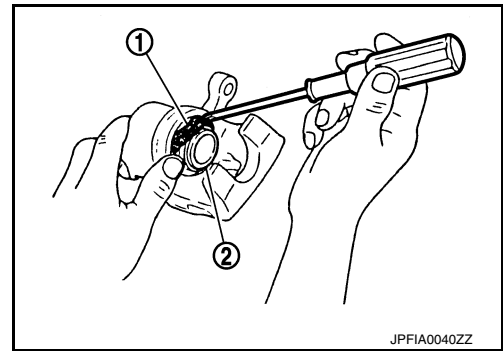
FRONT DISC BRAKE

< UNIT DISASSEMBLY AND ASSEMBLY >

3. Apply rubber grease to the piston boots. Cover each piston end with a piston boot, and then install cylinder side lip on piston boot securely into a groove on brake caliper body.

CAUTION:

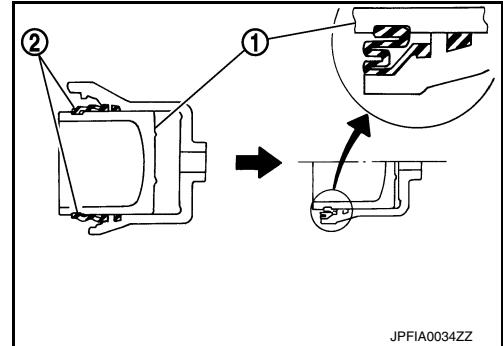
Do not reuse piston boots.



4. Apply brake fluid to each piston (1). Push each piston into cylinder body by hand and push piston boot (2) piston-side lip into the piston groove.

CAUTION:

Press the piston evenly and vary the pressing point to prevent cylinder inner wall from being rubbed.



5. Apply rubber grease to bushing; install bushing to sliding pin.
6. Apply rubber grease to sliding pins and sliding pin boots, install sliding pins and sliding pin boots to torque member.
7. Install the brake caliper to the vehicle. Refer to [BR-35, "BRAKE CALIPER ASSEMBLY \(1 PISTON TYPE\) : Removal and Installation"](#).

INSPECTION AFTER INSTALLATION

1. Check the drag of front disc brake. If any drag is found, follow the procedure described below.
2. Remove brake pads.
3. Using a suitable tool, press the piston into the brake caliper body.
CAUTION:
Do not damage the piston boots.
4. Install brake pads.
5. Depress the brake pedal several times.
6. Check the drag of front disc brake again. If any drag is found, disassemble the brake caliper body.
7. Burnish contact surfaces after refinishing or replacing disc rotors or if a soft pedal occurs at very low mileage. Refer to [BR-18, "Brake Burnishing"](#).

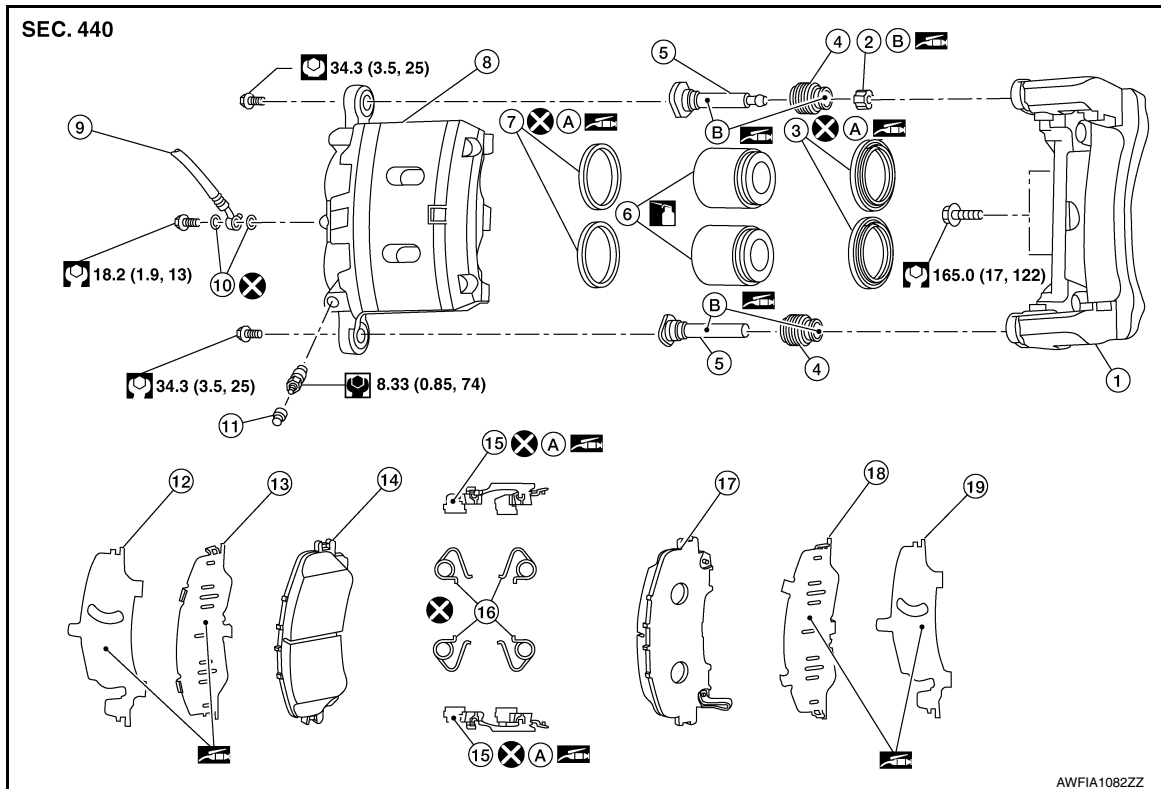
BRAKE CALIPER ASSEMBLY (2 PISTON TYPE)

BRAKE CALIPER ASSEMBLY (2 PISTON TYPE) : Exploded View

INFOID:000000010336449

FRONT DISC BRAKE

< UNIT DISASSEMBLY AND ASSEMBLY >



- | | | |
|----------------------|----------------------------|----------------------|
| 1. Torque member | 2. Bushing | 3. Piston boot |
| 4. Slide pin boot | 5. Slide pin | 6. Piston |
| 7. Piston seal | 8. Brake caliper body | 9. Bleeder cap |
| 10. Brake hose | 11. Copper sealing washers | 12. Inner shim cover |
| 13. Inner shim | 14. Inner pad | 15. Pad retainer |
| 16. Anti-rattle clip | 17. Outer pad | 18. Outer shim |
| 19. Outer shim cover | A. Molykote AS-880N | B. Niglube Rx-2 |

: Apply brake fluid.

BRAKE CALIPER ASSEMBLY (2 PISTON TYPE) : Disassembly and Assembly

INFOID:000000010336448

DISASSEMBLY

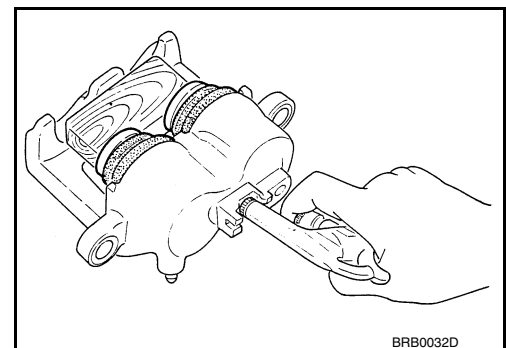
1. Remove the brake caliper from the vehicle. Refer to [BR-39. "BRAKE CALIPER ASSEMBLY \(2 PISTON TYPE\) : Removal and Installation"](#).
2. Remove sliding pins and sliding pin boots from torque member.
3. Place a wooden block in brake caliper body and blow air from union bolt hole to remove pistons and piston boots.

WARNING:

Do not get fingers caught between pistons and brake caliper body.

CAUTION:

Do not reuse piston boots.



FRONT DISC BRAKE

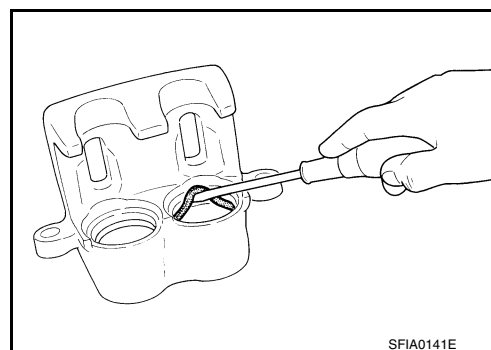
< UNIT DISASSEMBLY AND ASSEMBLY >

4. Remove piston seals from brake caliper body using suitable tool.

CAUTION:

- Do not damage cylinder inner wall.
- Do not reuse piston seals.

5. Remove bleeder valve and cap.



INSPECTION AFTER DISASSEMBLY

Brake Caliper Body

Check the inner wall of the brake caliper body for rust, wear, cracks or damage. Replace the brake caliper body if any abnormal condition is detected.

CAUTION:

Always clean with new brake fluid. Do not clean with mineral oil such as gasoline and light oil.

Torque Member

Check the torque member for rust, wear, cracks or damage. Replace the torque member if any abnormal condition is detected.

Piston

Check the surface of the piston for rust, wear, cracks or damage. Replace the piston if any abnormal condition is detected.

CAUTION:

Piston sliding surface is plated. Do not polish with sandpaper.

Sliding Pin and Sliding Pin Boot

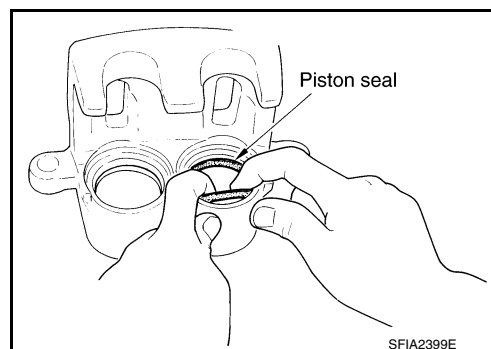
Check the sliding pins and sliding pin boots for rust, wear, cracks or damage. Replace the parts if any abnormal condition is detected.

ASSEMBLY

1. Install bleeder valve and cap.
2. Apply rubber grease to each piston seal (1), and install them to the brake caliper body.

CAUTION:

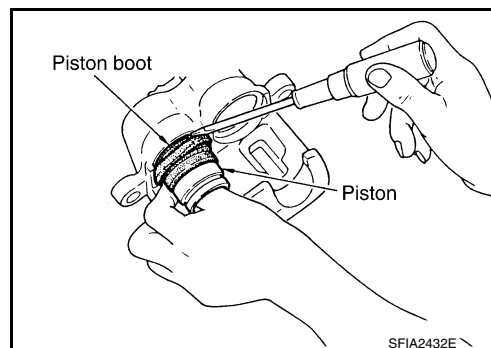
Do not reuse piston seal.



3. Apply rubber grease to the piston boots. Cover each piston end with a piston boot, and then install cylinder side lip on piston boot securely into a groove on brake caliper body.

CAUTION:

Do not reuse piston boots.



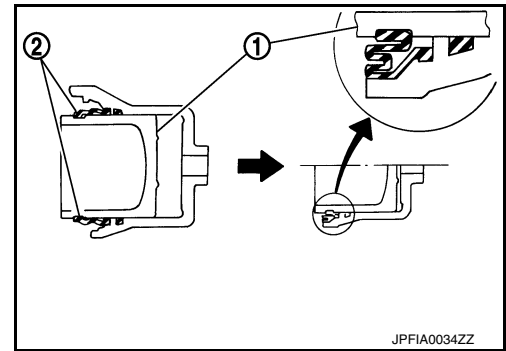
FRONT DISC BRAKE

< UNIT DISASSEMBLY AND ASSEMBLY >

4. Apply brake fluid to each piston (1). Push each piston into cylinder body by hand and push piston boot (2) piston-side lip into the piston groove.

CAUTION:

Press the piston evenly and vary the pressing point to prevent cylinder inner wall from being rubbed.



5. Apply rubber grease to bushing; install bushing to sliding pin.
6. Apply rubber grease to sliding pins and sliding pin boots, install sliding pins and sliding pin boots to torque member.
7. Install the brake caliper to the vehicle. Refer to [BR-39, "BRAKE CALIPER ASSEMBLY \(2 PISTON TYPE\) : Removal and Installation"](#).

INSPECTION AFTER INSTALLATION

1. Check the drag of front disc brake. If any drag is found, follow the procedure described below.
2. Remove brake pads.
3. Using a suitable tool, press the pistons into the brake caliper body.
CAUTION:
Do not damage the piston boots.
4. Install brake pads.
5. Depress the brake pedal several times.
6. Check the drag of front disc brake again. If any drag is found, disassemble the brake caliper body.
7. Burnish contact surfaces after refinishing or replacing disc rotors or if a soft pedal occurs at very low mileage. Refer to [BR-18, "Brake Burnishing"](#).

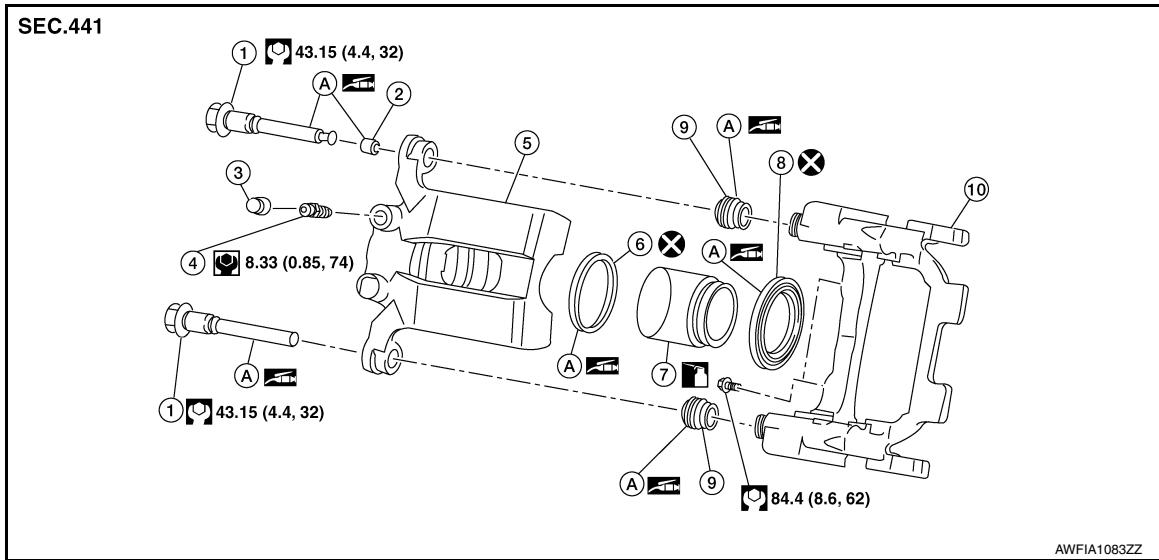
REAR DISC BRAKE

< UNIT DISASSEMBLY AND ASSEMBLY >

REAR DISC BRAKE

Exploded View

INFOID:000000010310340



- | | | |
|---------------------|-----------------------------|---------------------|
| 1. Sliding pin bolt | 2. Sliding pin bolt bushing | 3. Cap |
| 4. Bleeder valve | 5. Brake caliper body | 6. Piston seal |
| 7. Piston | 8. Piston boot | 9. Sliding pin boot |
| 10. Torque member | | |
| A. Rubber grease | | |
| Apply brake fluid | | |

Disassembly and Assembly

INFOID:000000009795773

DISASSEMBLY

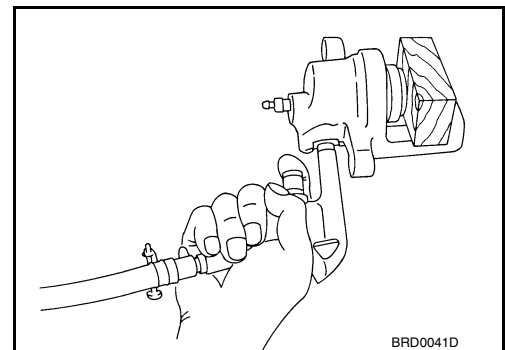
1. Remove the brake caliper from the vehicle. Refer to [BR-43, "BRAKE CALIPER ASSEMBLY : Removal and Installation"](#).
2. Remove sliding pin boots from torque member.
3. Remove sliding pin bolt bushing from sliding pin bolt.
4. Place a wooden block in the cylinder body and blow air from union bolt hole to remove piston and piston boot.

WARNING:

Do not get fingers caught between pistons and brake caliper body.

CAUTION:

Do not reuse piston boot.



REAR DISC BRAKE

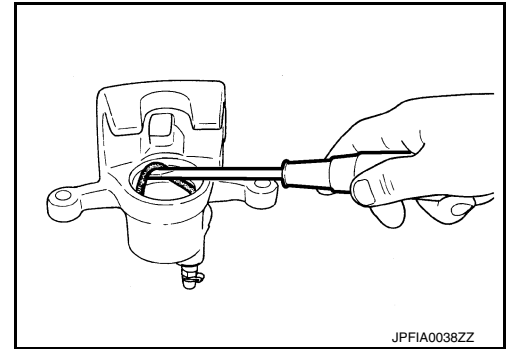
< UNIT DISASSEMBLY AND ASSEMBLY >

5. Remove piston seal from brake caliper body using suitable tool.

CAUTION:

- Do not damage cylinder inner wall.
- Do not reuse piston seal.

6. Remove bleeder valve and cap.



INSPECTION AFTER DISASSEMBLY

Brake Caliper Body

Check the inner wall of the brake caliper body for rust, wear, cracks or damage. Replace the brake caliper body if any abnormal condition is detected.

CAUTION:

Always clean with new brake fluid. Do not clean with mineral oil such as gasoline and light oil.

Torque Member

Check the torque member for rust, wear, cracks or damage. Replace the torque member if any abnormal condition is detected.

Piston

Check the surface of the piston for rust, wear, cracks or damage. Replace the piston if any abnormal condition is detected.

CAUTION:

Piston sliding surface is plated. Do not polish with sandpaper.

Sliding Pin and Sliding Pin Bolt Boot

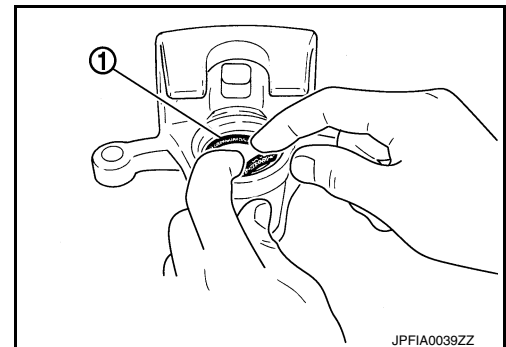
Check the sliding pins and sliding pin bolt boots for rust, wear, cracks or damage. Replace the parts if any abnormal condition is detected.

ASSEMBLY

1. Install bleeder valve and cap.
2. Apply rubber grease to piston seal (1), and install it to the brake caliper body.

CAUTION:

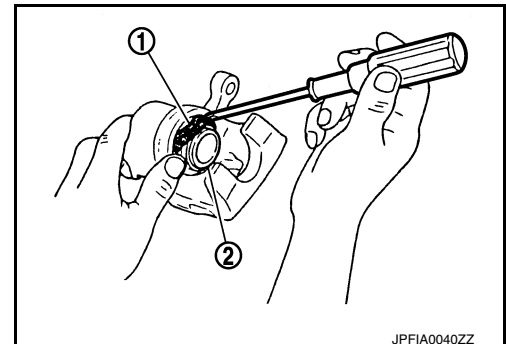
Do not reuse piston seal.



3. Apply rubber grease to piston boot (1). Cover the piston (2) end with the piston boot, and then install cylinder side lip on the piston boot securely into the groove on brake caliper body.

CAUTION:

Do not reuse piston boot.



REAR DISC BRAKE

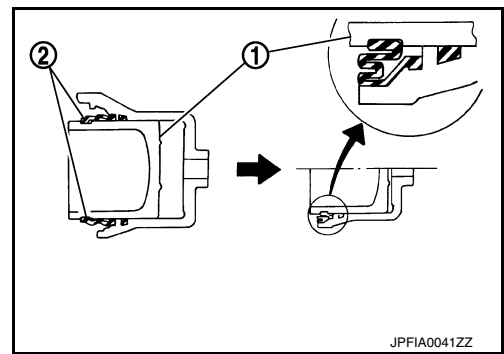
< UNIT DISASSEMBLY AND ASSEMBLY >

4. Apply brake fluid to piston (1). Push piston into brake caliper body by hand and push piston boot (2) piston side lip into the piston groove.

CAUTION:

Press the piston evenly and vary the pressing point to prevent cylinder inner wall from contact.

5. Apply rubber grease to bushing; install bushing to sliding pin bolt.
6. Install sliding pin boots to torque member.
7. Install the brake caliper to the vehicle. Refer to [BR-43. "BRAKE CALIPER ASSEMBLY : Removal and Installation"](#).



INSPECTION AFTER INSTALLATION

1. Check the drag of rear disc brake. If any drag is found, follow the procedure described below.
2. Remove brake pads.
3. Using a suitable tool, press the pistons into the brake caliper body.

CAUTION:
Do not damage the piston boots.
4. Install brake pads.
5. Depress the brake pedal several times.
6. Check the drag of rear disc brake again. If any drag is found, disassemble the brake caliper body.
7. Burnish contact surfaces after refinishing or replacing disc rotors or if a soft pedal occurs at very low mileage. Refer to [BR-19. "Brake Burnishing"](#).

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

General Specifications

INFOID:000000009795775

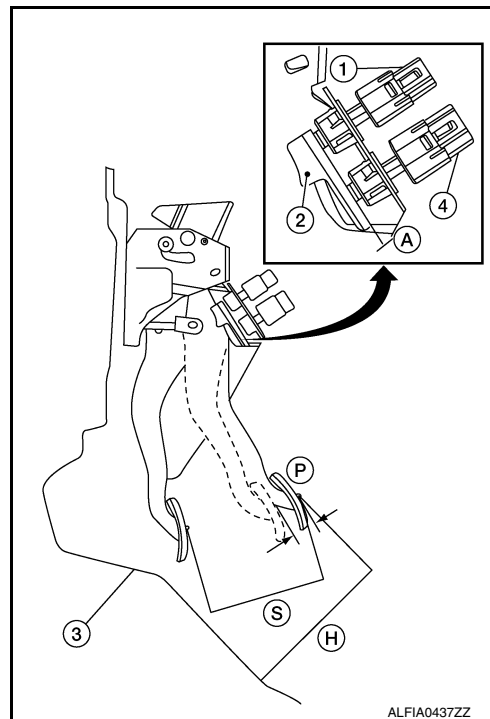
Unit: mm (in)

Front disc brake (One piston caliper)	Cylinder bore diameter	60.33 (2.375)
	Pad length × width × thickness	123.6 × 46.5 × 11.0 (4.87 × 1.870 × 0.433)
	Disc brake rotor outer diameter × thickness	296 × 26.0 (11.65 × 1.024)
Front disc brake (Two piston caliper)	Cylinder bore diameter	60.33 (2.375)
	Pad length × width × thickness	133.6 × 47.5 × 11.0 (5.26 × 1.909 × 0.433)
	Disc brake rotor outer diameter × thickness	320 × 28.0 (12.60 × 1.102)
Rear disc brake	Cylinder bore diameter	38.1 (1.5)
	Pad length × width × thickness	83.0 × 31.9 × 8.5 (3.268 × 1.256 × 0.335)
	Disc brake rotor outer diameter × thickness	292 × 16.0 (11.50 × 0.630)
Master cylinder	Cylinder bore diameter	23.8 (15/16)
Control valve	Valve type	Electric brake force distribution
Recommended brake fluid		Refer to MA-11. "Fluids and Lubricants"

Brake Pedal

INFOID:000000009795776

Unit: mm (in)



Item	Standard
Brake pedal height (H)	175.9 – 185.9 (9.63 – 7.32)
Clearance (A) between brake pedal stopper bracket (2), stop lamp switch (4) and brake pedal position switch (1) contact ends	0.20 – 1.96 (0.0079 – 0.0772)
Brake pedal full stroke (S)	135.1 (5.32)
Brake pedal play	—

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

Brake Booster

INFOID:0000000009795777

Unit: mm (in)

Item	Standard
Input rod length	Pre-adjusted by supplier

Front Disc Brake

INFOID:0000000009795778

Unit: mm (in)

Item		Limit
Brake pad	Wear limit thickness	2.0 (0.079)
	Wear limit thickness	24.0 (0.945)
Disc brake rotor	Thickness variation (measured at 8 positions)	0.020 (0.0008)
	Runout limit (with it attached to the vehicle)	0.035 (0.0014)

Rear Disc Brake

INFOID:0000000009795779

Unit: mm (in)

Item		Limit
Brake pad	Wear limit thickness	1.5 (0.059)
	Wear limit thickness	14.0 (0.551)
Disc brake rotor	Thickness variation (measured at 8 positions)	0.020 (0.0008)
	Runout limit (with it attached to the vehicle)	0.070 (0.0028)

BRC

SECTION

BRAKE CONTROL SYSTEM

CONTENTS

VDC/TCS/ABS	ABS FUNCTION	29
PRECAUTION	ABS FUNCTION : System Description	30
PRECAUTIONS	EBD FUNCTION	31
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	EBD FUNCTION : System Description	31
Precaution for Procedure without Cowl Top Cover.....	BRAKE LIMITED SLIP DIFFERENTIAL (BLSD) FUNCTION	32
Precaution for Brake System	BRAKE LIMITED SLIP DIFFERENTIAL (BLSD) FUNCTION : System Description	32
Precaution for Brake Control System	BRAKE ASSIST FUNCTION	33
Precaution for Harness Repair	BRAKE ASSIST FUNCTION : System Description	34
PREPARATION	HILL DESCENT CONTROL (DOWNHILL DRIVE SUPPORT) FUNCTION	35
PREPARATION	hill descent control (Downhill Drive Support) FUNCTION : System Diagram	35
Special Service Tool	hill descent control (Downhill Drive Support) FUNCTION : System Description	35
Commercial Service Tools	HILL START ASSIST FUNCTION	36
SYSTEM DESCRIPTION	hill start assist FUNCTION : System Description	36
COMPONENT PARTS	BRAKE FORCE DISTRIBUTION FUNCTION	37
Component Parts Location	BRAKE FORCE DISTRIBUTION FUNCTION : System Description	37
Wheel Sensor and Sensor Rotor	ACTIVE TRACE CONTROL FUNCTION	39
ABS Actuator and Electric Unit (Control Unit)	ACTIVE TRACE CONTROL FUNCTION : System Description	39
Stop Lamp Switch	WARNING/INDICATOR/CHIME LIST	42
Steering Angle Sensor	WARNING/INDICATOR/CHIME LIST : Warning Lamp/Indicator Lamp	42
Brake Fluid Level Switch	DIAGNOSIS SYSTEM [ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)]	44
Vacuum Sensor	CONSULT Function	44
Parking Brake Switch	ECU DIAGNOSIS INFORMATION	49
VDC OFF Switch		
Hill Descent Control Switch		
SYSTEM		
System Description		
Fail-Safe		
VDC FUNCTION		
VDC FUNCTION : System Description		
TCS FUNCTION		
TCS FUNCTION : System Description		

ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)	49	C1120, C1122, C1124, C1126 ABS IN VALVE SYSTEM	87
Reference Value	49	DTC Logic	87
Fail-Safe	51	Diagnosis Procedure	87
DTC Inspection Priority Chart	54	C1121, C1123, C1125, C1127 ABS OUT VALVE SYSTEM	89
DTC Index	55	DTC Logic	89
WIRING DIAGRAM	57	Diagnosis Procedure	89
BRAKE CONTROL SYSTEM	57	C1130 ENGINE SIGNAL	91
Wiring Diagram	57	DTC Logic	91
BASIC INSPECTION	66	Diagnosis Procedure	91
DIAGNOSIS AND REPAIR WORK FLOW	66	C1140 ACTUATOR RELAY SYSTEM	92
Work Flow	66	DTC Logic	92
Diagnostic Work Sheet	67	Diagnosis Procedure	92
ADDITIONAL SERVICE WHEN REPLACING ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)	69	C1142 PRESS SENSOR	94
Description	69	DTC Logic	94
ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION	70	Diagnosis Procedure	94
Description	70	C1143 STEERING ANGLE SENSOR	96
Work Procedure	70	DTC Logic	96
CALIBRATION OF DECEL G SENSOR	72	Diagnosis Procedure	96
Description	72	C1144 INCOMPLETE STEERING ANGLE SENSOR ADJUSTMENT	98
Work Procedure	72	DTC Logic	98
DTC/CIRCUIT DIAGNOSIS	74	Diagnosis Procedure	98
C1101, C1102, C1103, C1104 WHEEL SENSOR	74	C1155 BRAKE FLUID LEVEL SWITCH	99
DTC Logic	74	DTC Logic	99
Diagnosis Procedure	74	Diagnosis Procedure	99
C1105, C1106, C1107, C1108 WHEEL SENSOR	78	Component Inspection	100
DTC Logic	78	C1160 DECEL G SEN SET	101
Diagnosis Procedure	78	DTC Logic	101
C1109 POWER AND GROUND SYSTEM	80	Diagnosis Procedure	101
DTC Logic	80	C1164, C1165 CV SYSTEM	102
Diagnosis Procedure	80	DTC Logic	102
C1111 PUMP MOTOR	82	Diagnosis Procedure	102
DTC Logic	82	C1170 VARIANT CODING	104
Diagnosis Procedure	82	DTC Logic	104
C1113, C1145, C1146 YAW RATE/SIDE/DECEL G SENSOR	84	Diagnosis Procedure	104
DTC Logic	84	C1197 VACUUM SENSOR	105
Diagnosis Procedure	84	DTC Logic	105
C1115 ABS SENSOR [ABNORMAL SIGNAL] ..	85	Diagnosis Procedure	105
DTC Logic	85	C1198 VACUUM SENSOR	107
Diagnosis Procedure	85	DTC Logic	107
		Diagnosis Procedure	107
		C1199 BRAKE BOOSTER	109
		DTC Logic	109
		Diagnosis Procedure	109
		C119A VACUUM SENSOR	111
		DTC Logic	111

Diagnosis Procedure	111	Description	128	
U1000 CAN COMM CIRCUIT	113	Diagnosis Procedure	128	A
Description	113	BRAKE PEDAL VIBRATION OR OPERA-		
DTC Logic	113	TION SOUND OCCURS	129	B
Diagnosis Procedure	113	Description	129	
POWER SUPPLY AND GROUND CIRCUIT ...	114	Diagnosis Procedure	129	
Diagnosis Procedure	114	VEHICLE JERKS DURING	130	C
PARKING BRAKE SWITCH	115	Description	130	
Component Function Check	115	Diagnosis Procedure	130	
Diagnosis Procedure	115	NORMAL OPERATING CONDITION	131	D
Component Inspection	116	Description	131	
VDC OFF SWITCH	117	REMOVAL AND INSTALLATION	132	E
Component Function Check	117	WHEEL SENSOR	132	
Diagnosis Procedure	117	FRONT WHEEL SENSOR	132	BRC
Component Inspection	118	FRONT WHEEL SENSOR : Exploded View	132	
ABS WARNING LAMP	119	FRONT WHEEL SENSOR : Removal and Instal-	132	G
Component Function Check	119	lation		
Diagnosis Procedure	119	REAR WHEEL SENSOR	133	
BRAKE WARNING LAMP	120	REAR WHEEL SENSOR : Exploded View	133	H
Component Function Check	120	REAR WHEEL SENSOR : Removal and Installa-	134	
Diagnosis Procedure	120	tion		
VDC WARNING LAMP	122	SENSOR ROTOR	135	I
Component Function Check	122	FRONT SENSOR ROTOR	135	
Diagnosis Procedure	122	FRONT SENSOR ROTOR : Removal and Instal-	135	J
VDC OFF INDICATOR LAMP	123	lation - Front Sensor Rotor		
Component Function Check	123	REAR SENSOR ROTOR	135	
Diagnosis Procedure	123	REAR SENSOR ROTOR : Removal and Installa-	135	K
SYMPTOM DIAGNOSIS	124	tion - Rear Sensor Rotor		
EXCESSIVE OPERATION FREQUENCY	124	ABS ACTUATOR AND ELECTRIC UNIT		
Description	124	(CONTROL UNIT)	136	L
Diagnosis Procedure	124	Exploded View	136	
UNEXPECTED BRAKE PEDAL REACTION ..	126	Removal and Installation	136	
Description	126	VDC OFF SWITCH	138	M
Diagnosis Procedure	126	Removal and Installation	138	
THE BRAKING DISTANCE IS LONG	127	STEERING ANGLE SENSOR	139	N
Description	127	Exploded View	139	
Diagnosis Procedure	127	Removal and Installation	139	
DOES NOT OPERATE	128			O
				P

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:000000010351382

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

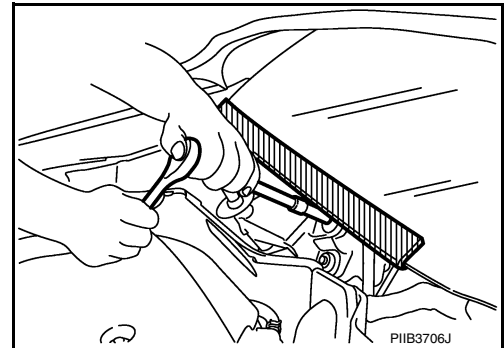
WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Precaution for Procedure without Cowl Top Cover

INFOID:000000010351430

When performing the procedure after removing cowl top cover, cover the lower end of windshield with urethane, etc. to prevent damage to windshield.



Precaution for Brake System

INFOID:000000010351383

WARNING:

Clean any dust from the front brake and rear brake using a vacuum dust collector. Do not blow by compressed air.

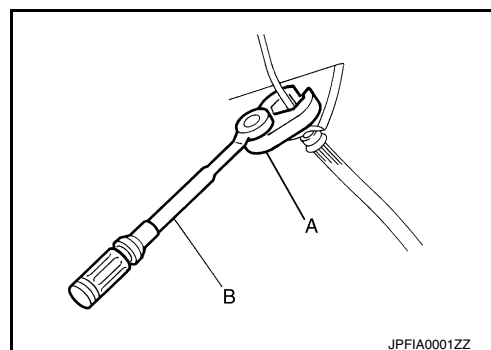
- Brake fluid use refer to [MA-11. "Fluids and Lubricants"](#).
- Do not reuse drained brake fluid.
- Do not spill or splash brake fluid on painted surfaces. Brake fluid may seriously damage paint. Wipe it off immediately and wash with water if it gets on a painted surface.
- Always confirm the specified tightening torque when installing the brake pipes.
- After pressing the brake pedal more deeply or harder than normal driving, such as air bleeding, check each item of brake pedal. Adjust brake pedal if it is outside the standard value.
- Do not use mineral oils such as gasoline or light oil to clean. They may damage rubber parts and cause improper operation.
- Always loosen the brake tube flare nut with a flare nut wrench.

PRECAUTIONS

[VDC/TCS/ABS]

< PRECAUTION >

- Tighten the brake tube flare nut to the specified torque with a crow-foot (A) and torque wrench (B).
- Always connect the battery terminal when moving the vehicle.
- Turn the ignition switch OFF and disconnect the ABS actuator and electric unit (control unit) harness connector or the battery negative terminal before performing the work.
- Check that no brake fluid leakage is present after replacing the parts.



Precaution for Brake Control System

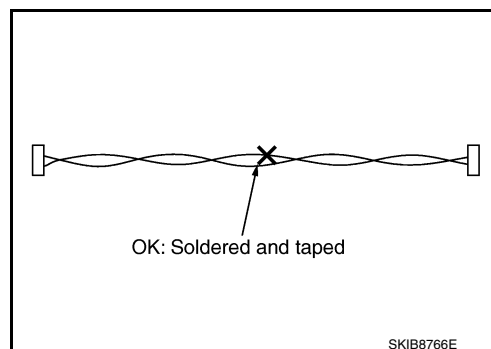
INFOID:0000000010351384

- Just after starting vehicle after ignition switch is ON, brake pedal may vibrate or motor operating noise may be heard from engine compartment. This is a normal condition.
- When an error is indicated by ABS or another warning lamp, collect all necessary information from customer (what symptoms are present under what conditions) and check for simple causes before starting diagnostic servicing. Besides electrical system inspection, check brake booster operation, brake fluid level and oil leaks.
- If tire size and type are used in an improper combination or brake pads are not Genuine NISSAN parts, stopping distance or steering stability may deteriorate.
- ABS might be out of order or malfunctions by putting a radio (wiring inclusive), an antenna and a lead-in wire near the control unit.
- If aftermarket parts (car stereo, CD player, etc.) have been installed, check for incidents such as harness pinches, open circuits, and improper wiring.
- VDC system may not operate normally or a VDC OFF indicator lamp or SLIP indicator lamp may light.
- When replacing the following parts with parts other than genuine parts or making modifications: Suspension-related parts (shock absorber, spring, bushing, etc.), tires, wheels (other than specified sizes), brake-related parts (pad, rotor, caliper, etc.), engine-related parts (muffler, ECM, etc.) and body reinforcement-related parts (roll bar, tower bar, etc.).
- When driving with worn or deteriorated suspension, tires and brake-related parts.

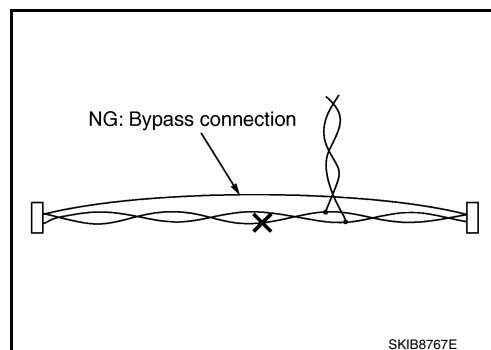
Precaution for Harness Repair

INFOID:0000000010351385

- Solder the repair part, and wrap it with tape. [Twisted wire fray must be 110 mm (4.33 in) or less.]



- Do not bypass the repair point with wire. (If it is bypassed, the turn-out point cannot be separated and the twisted wire characteristics are lost.)



PREPARATION

< PREPARATION >

[VDC/TCS/ABS]

PREPARATION

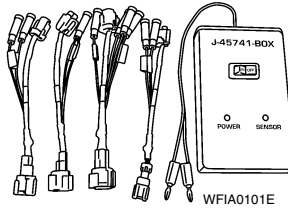
PREPARATION

Special Service Tool

INFOID:0000000010256111

The actual shape of the tool may differ from those illustrated here.

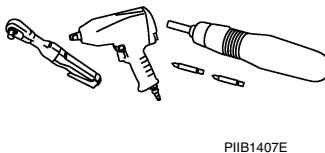
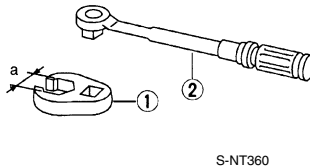
Tool number (TechMate No.) Tool name	Description
KV991J0080 (J-45741) ABS active wheel sensor tester	Checking operation of ABS active wheel sensors



Commercial Service Tools

INFOID:0000000010256112

Tool name	Description
1. Flare nut crowfoot 2. Torque wrench	Removing and installing brake piping a: 10 mm (0.39 in)/12 mm (0.47 in)
Power tool	Loosening nuts, screws and bolts



SYSTEM DESCRIPTION

COMPONENT PARTS

- A
- B
- C
- D
- E
- BRC
- G
- H
- I
- J
- K
- L
- M
- N
- O
- P

BRC

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[VDC/TCS/ABS]

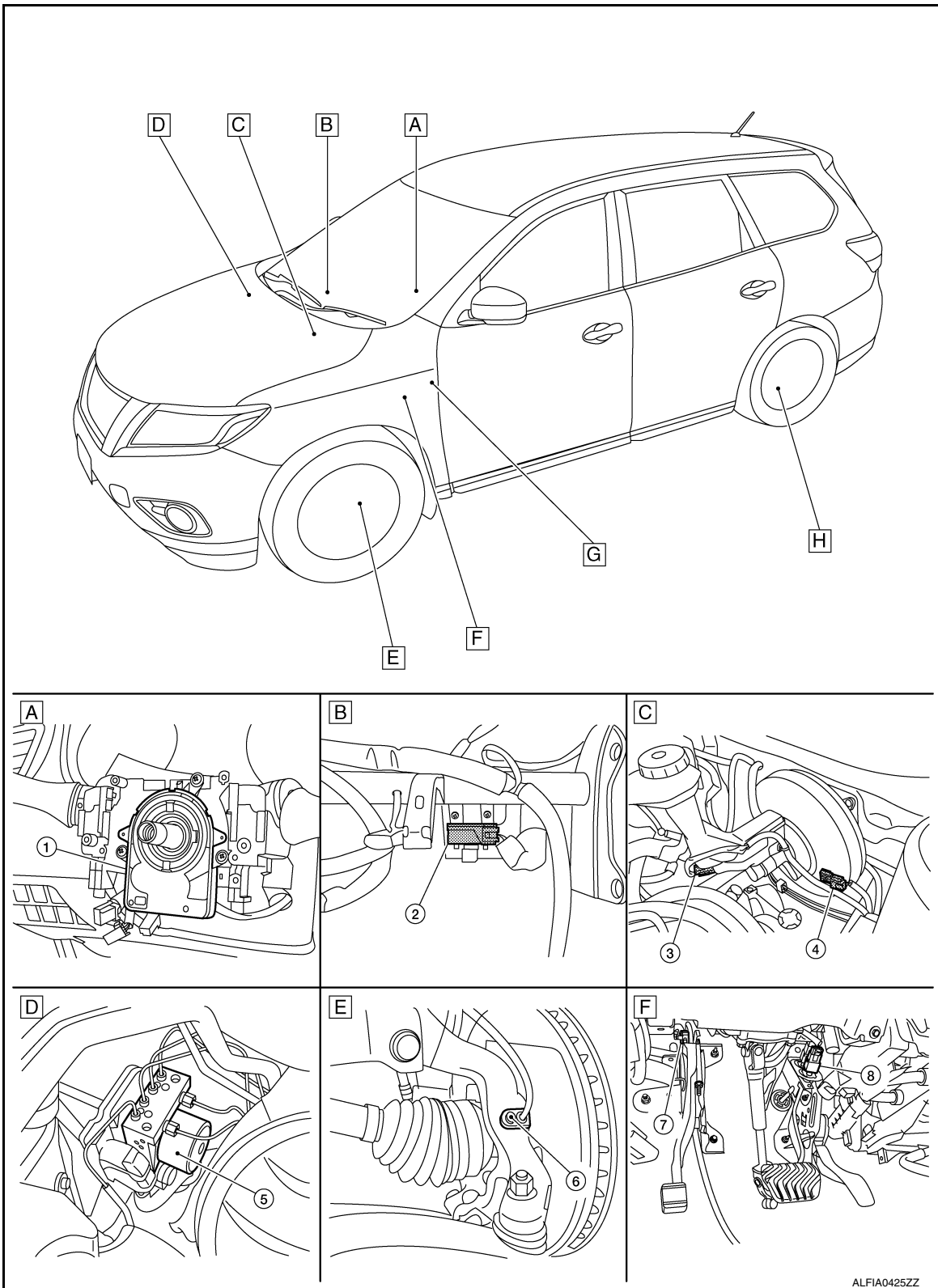
Component Parts Location

INFOID:0000000010227749

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[VDC/TCS/ABS]

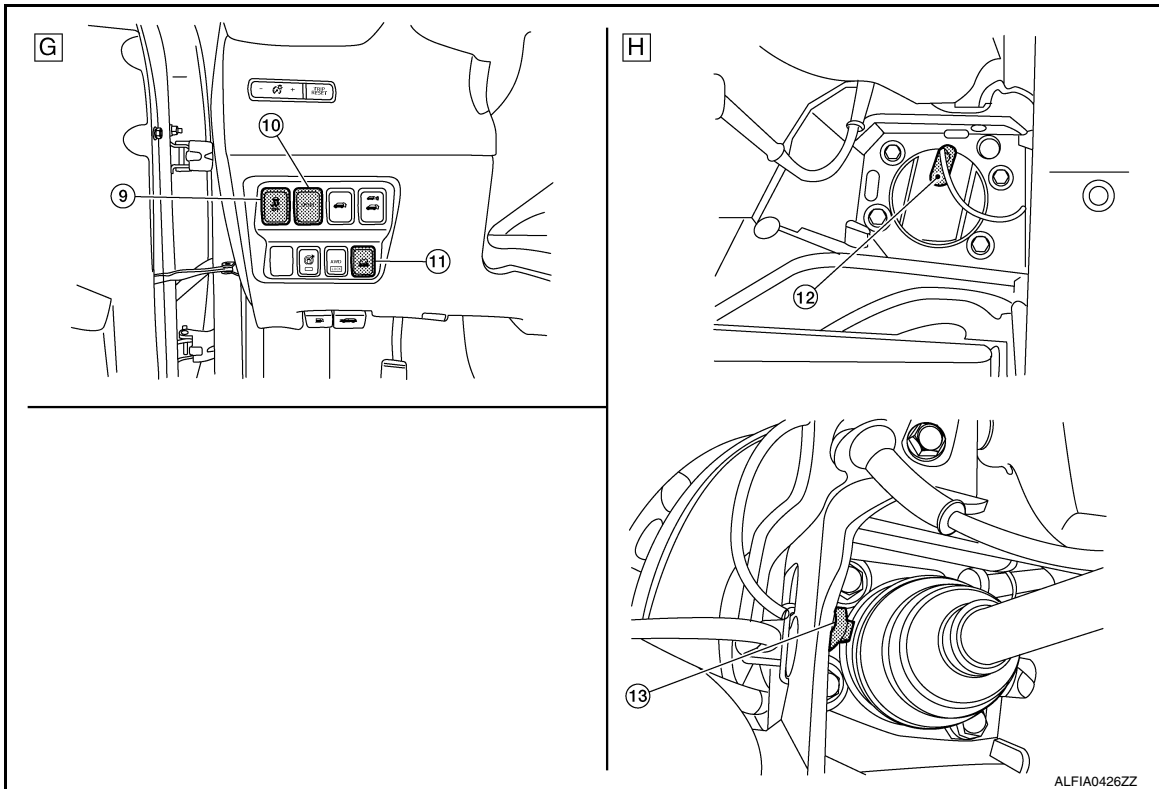


A
B
C
D
E
BRC
G
H
I
J
K
L
M
N
O
P

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[VDC/TCS/ABS]



- A. Steering column (view with steering wheel removed) B. RH side of instrument panel (view with instrument panel removed) C. LH side of engine compartment
D. RH side of engine compartment E. Left front wheel area F. Brake pedal area
G. Left side of instrument panel H. Left rear wheel area

No.	Component parts	Function
1.	Steering angle sensor	BRC-12. "Steering Angle Sensor"
2.	Chassis control module	Mainly transmits the following signals to ABS actuator and electric unit (control unit) via CAN communication. • Drive mode signal • Active Trace Control signal • Brake hold status signal • Brake hold request signal Refer to DAS-173. "Component Parts Location" for detailed installation location.
3.	Brake fluid level switch	BRC-12. "Brake Fluid Level Switch"
4.	Vacuum sensor	BRC-13. "Vacuum Sensor"
5.	ABS actuator and electric unit (control unit)	BRC-11. "ABS Actuator and Electric Unit (Control Unit)"
6.	Front LH wheel sensor	BRC-10. "Wheel Sensor and Sensor Rotor"
7.	Parking brake switch	BRC-13. "Parking Brake Switch"
8.	Stop lamp switch	BRC-13. "Parking Brake Switch"
9.	VDC OFF switch	BRC-13. "VDC OFF Switch"
10.	Drive mode switch	DMS-4. "SPORT Mode Switch"
11.	Hill decent switch	BRC-13. "Hill Descent Control Switch"
12.	Rear LH wheel sensor	BRC-10. "Wheel Sensor and Sensor Rotor"
13.	Rear LH wheel sensor (with AWD)	BRC-10. "Wheel Sensor and Sensor Rotor"

Wheel Sensor and Sensor Rotor

INFOID:0000000010227750

NOTE:

Revision: November 2013

BRC-10

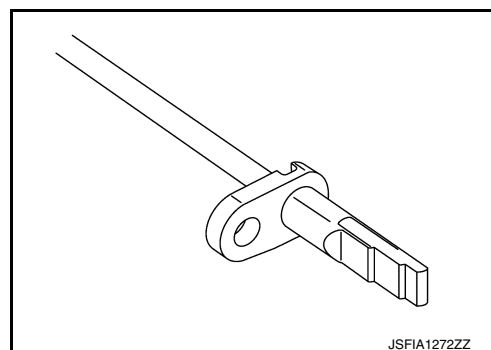
2014 Rogue NAM

COMPONENT PARTS

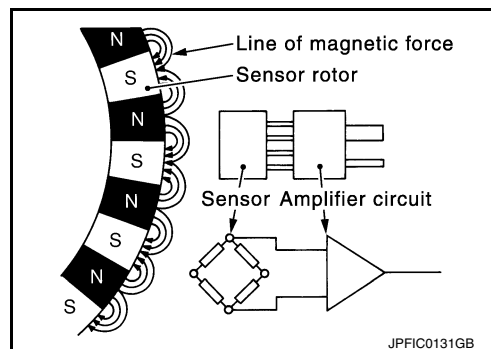
< SYSTEM DESCRIPTION >

[VDC/TCS/ABS]

- Wheel sensor of front wheel is installed on steering knuckle.
- Sensor rotor of front wheel is integrated in wheel hub assembly.
- Wheel sensor of rear wheel is installed on rear final drive.
- Sensor rotor of rear wheel is installed on drive shaft (rear final drive side).
- Never measure resistance and voltage value using a tester because sensor is active sensor.



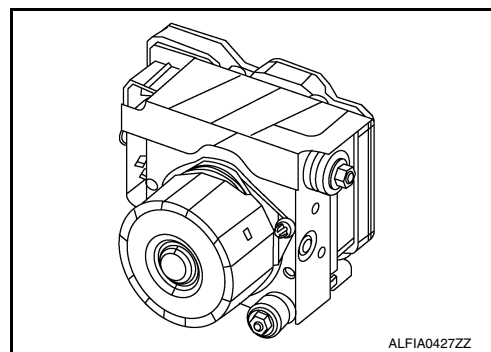
- Power supply is supplied to detection portion so that magnetic field line is read. Magnetic field that is detected is converted to current signal.
- When sensor rotor rotates, magnetic field changes. Magnetic field change is converted to current signals (rectangular wave) and is transmitted to ABS actuator and electric unit (control unit). Change of magnetic field is proportional to wheel speed.



ABS Actuator and Electric Unit (Control Unit)

INFOID:000000010227751

Electric unit (control unit) is integrated with actuator and comprehensively controls VDC function, TCS function, ABS function, EBD function, Brake limited slip differential (BLSD) function, Brake assist function, hill start assist function and Brake force distribution function.



ELECTRIC UNIT (CONTROL UNIT)

- Brake fluid pressure, engine and transmission are controlled according to signals from each sensor.
- If malfunction is detected, the system enters fail-safe mode.

ACTUATOR

The following components are integrated with ABS actuator.

Pump

Returns the brake fluid reserved in reservoir to master cylinder by reducing pressure.

Motor

Activates the pump according to signals from ABS actuator and electric unit (control unit).

Motor Relay

Operates the motor ON/OFF according to signals from ABS actuator and electric unit (control unit).

Actuator Relay

Operates each valve ON/OFF according to signals from ABS actuator and electric unit (control unit).

ABS IN Valve and ABS OUT Valve

Increases, holds or decreases the fluid pressure of each caliper according to signals from ABS actuator and electric unit (control unit).

Pressure Sensor

Detects the brake fluid pressure and transmits signal to ABS actuator and electric unit (control unit).

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[VDC/TCS/ABS]

Cut Valve 1 (Primary Line), Cut Valve 2 (Secondary Line)

Shuts off the ordinary brake line from master cylinder, when VDC function, TCS function, Brake limited slip differential (BLSD) function, Brake assist function, hill start assist function and Brake force distribution function are activated.

Yaw Rate/Side/Decel G Sensor

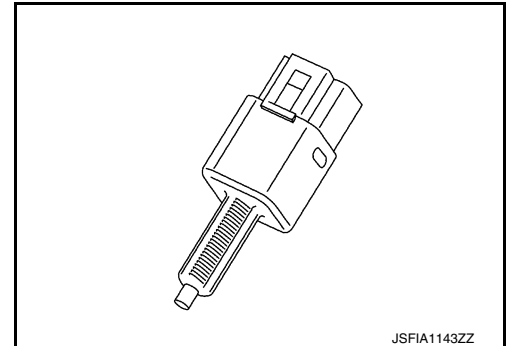
Calculates the following information that affects the vehicle, and transmits a signal to ABS actuator and electric unit (control unit). [Yaw rate/side/decel G sensor is integrated in ABS actuator and electric unit (control unit).]

- Vehicle rotation angular velocity (yaw rate signal)
- Vehicle lateral acceleration (side G signal)
- Vehicle longitudinal acceleration (decel G signal)

Stop Lamp Switch

INFOID:0000000010227752

Detects the operation status of brake pedal and transmits converted electric signal to ABS actuator and electric unit (control unit).

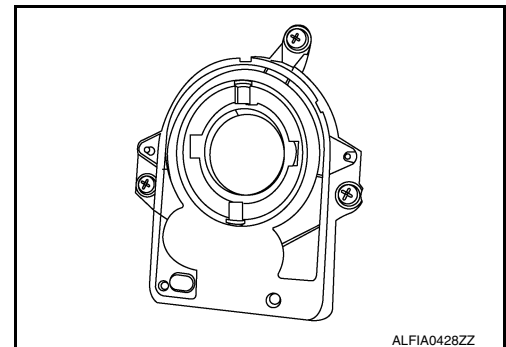


Steering Angle Sensor

INFOID:0000000010227753

Detects the following information and transmits steering angle signal to ABS actuator and electric unit (control unit) via CAN communication.

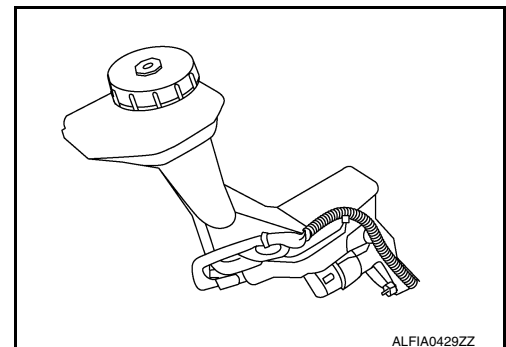
- Steering angle sensor malfunction signal
- Steering wheel rotation amount
- Steering wheel rotation angular velocity
- Steering wheel rotation direction



Brake Fluid Level Switch

INFOID:0000000010227754

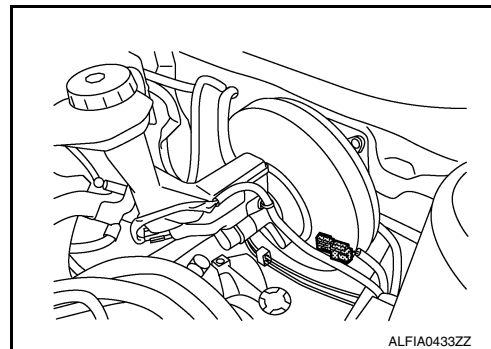
Detects the brake fluid level in reservoir tank and transmits converted electric signal from combination meter to ABS actuator and electric unit (control unit) via CAN communication, when brake fluid level is the specified level or less.



Vacuum Sensor

INFOID:0000000010227755

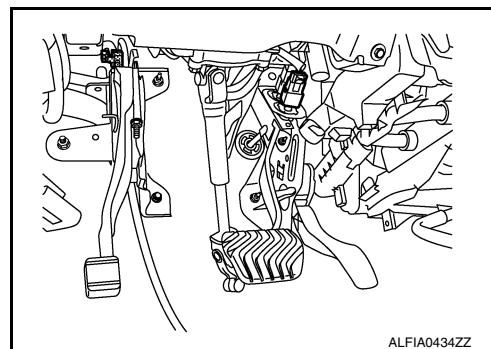
Detects the vacuum in brake booster and transmits converted electric signal to ABS actuator and electric unit (control unit).



Parking Brake Switch

INFOID:0000000010227756

Detects the operation status of parking brake switch and transmits converted electric signal from combination meter to ABS actuator and electric unit (control unit).



VDC OFF Switch

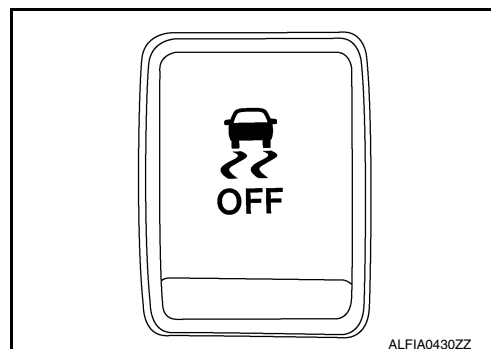
INFOID:0000000010227757

- This is an integrated switch with switches for other functions.
- Non-operational status or standby status of the following functions can be selected using VDC OFF switch. VDC OFF indicator lamp indicates the operation status of function. (ON: Non-operational status, OFF: Standby status)
 - VDC function
 - TCS function
 - Active trace control function

NOTE:

ABS function, EBD function and Brake limited slip differential (BLSD) function control operates.

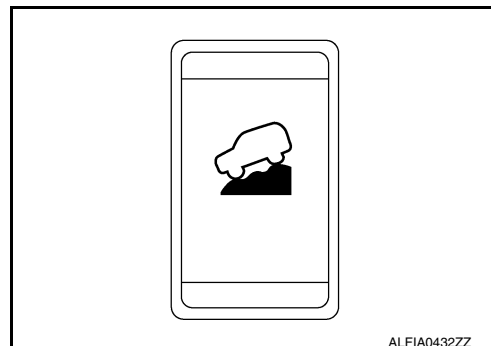
- VDC OFF indicator lamp turns OFF (standby status) when the engine is started again after it is stopped once while VDC OFF indicator lamp is ON (non-operational status).



Hill Descent Control Switch

INFOID:0000000010256024

- The hill descent control system will help maintain vehicle speed on steeper downhill grades. Hill descent control will provide braking allowing the driver to concentrate on steering while reducing the burden and accelerator operation.



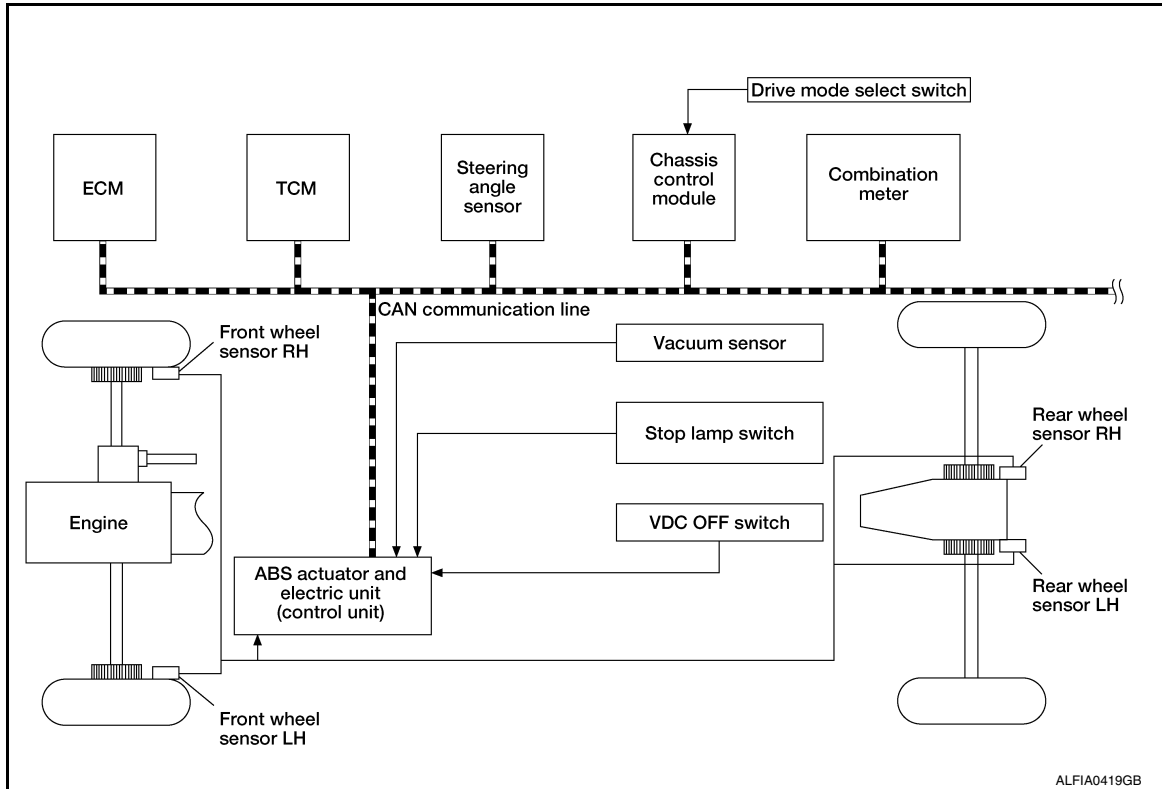
SYSTEM

System Description

INFOID:000000010227758

- The system switches fluid pressure of each brake caliper to increase, to hold or to decrease according to signals from control unit in ABS actuator and electric unit (control unit). This control system is applied to VDC function, TCS function, ABS function, EBD function, brake limited slip differential (BLSD) function, brake assist function, hill start assist function and Brake force distribution function.
- Fail-safe function is available for each function and is activated by each function when system malfunction occurs.

SYSTEM DIAGRAM



INPUT SIGNAL AND OUTPUT SIGNAL

Major signal transmission between each unit via communication lines is shown in the following table.

Component	Signal description
ECM	Mainly transmits the following signals to ABS actuator and electric unit (control unit) via CAN communication. • Accelerator pedal position signal • Engine speed signal • Engine torque signal Mainly receives the following signals from ABS actuator and electric unit (control unit) via CAN communication. • Engine torque request signal
TCM	Mainly transmits the following signals to ABS actuator and electric unit (control unit) via CAN communication. • Current gear position signal
Chassis control module	Mainly transmits the following signals to ABS actuator and electric unit (control unit) via CAN communication. • Active trace control signal

SYSTEM

< SYSTEM DESCRIPTION >

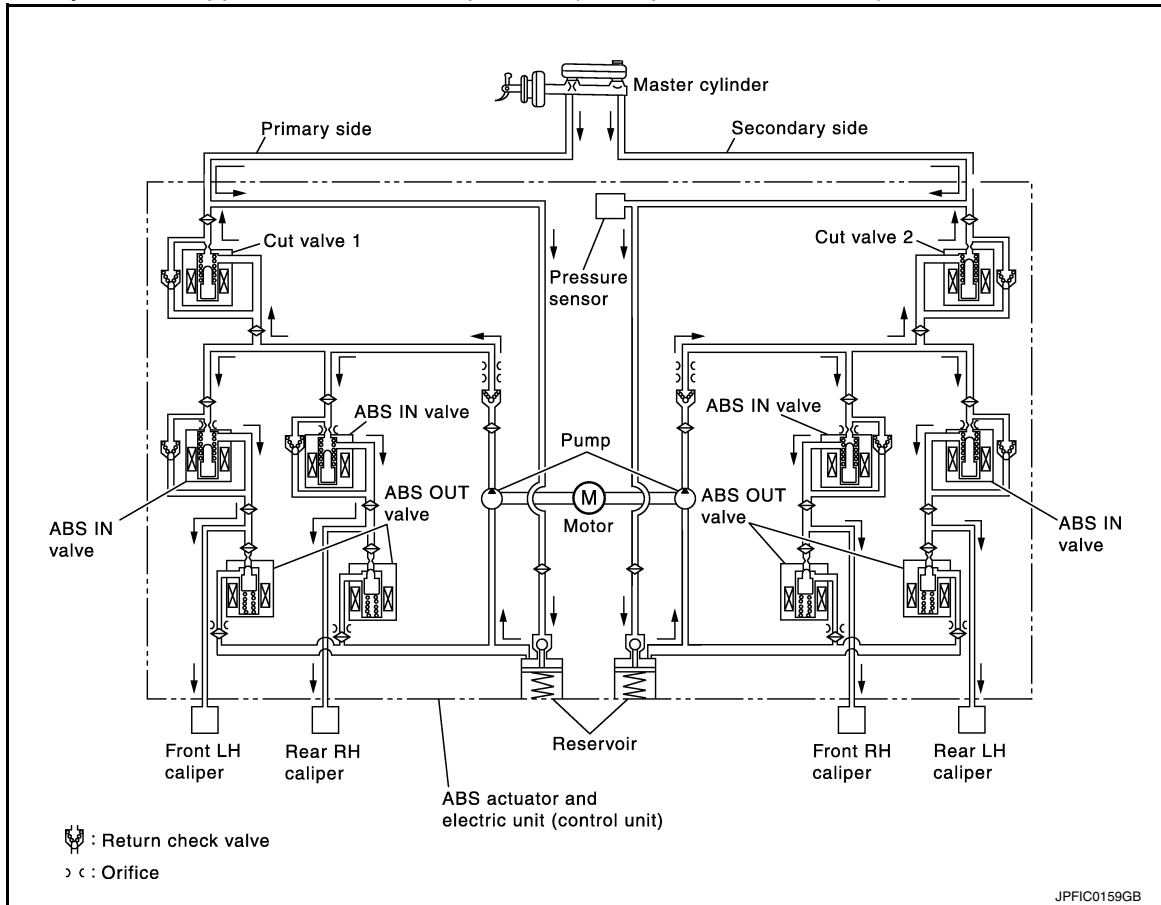
[VDC/TCS/ABS]

Component	Signal description
Combination meter	Mainly receives the following signals from ABS actuator and electric unit (control unit) via CAN communication. • Brake fluid level switch signal • Parking brake switch signal Mainly receives the following signals from ABS actuator and electric unit (control unit) via CAN communication. • Brake warning lamp signal • ABS warning lamp signal • VDC warning lamp signal • VDC OFF indicator lamp signal
Steering angle sensor	Mainly transmits the following signals to ABS actuator and electric unit (control unit) via CAN communication. • Steering angle sensor signal • Steering angle sensor malfunction signal

VALVE OPERATION (ABS AND EBD)

Each valve is operated and fluid pressure of brake caliper is controlled.

When ordinary brake is applied and ABS is in operation (when pressure increases).



Name	Not activated	When Pressure Increases
Cut valve 1	Power supply is not supplied (open)	Power supply is not supplied (open)
Cut valve 2	Power supply is not supplied (open)	Power supply is not supplied (open)
ABS IN valve	Power supply is not supplied (open)	Power supply is not supplied (open)
ABS OUT valve	Power supply is not supplied (close)	Power supply is not supplied (close)
Each caliper (fluid pressure)	—	Pressure increases

When front RH wheel caliper pressure increases

SYSTEM

< SYSTEM DESCRIPTION >

[VDC/TCS/ABS]

- Motor is activated. Brake fluid is pressurized by pump and is sent to secondary line through cut valve 2. At the same time, pressurized brake fluid is supplied to front RH caliper through ABS IN valve.

When front LH wheel caliper pressure increases

- Motor is activated. Brake fluid is pressurized by pump and is sent to primary line through cut valve 1. At the same time, pressurized brake fluid is supplied to front LH wheel caliper through ABS IN valve.

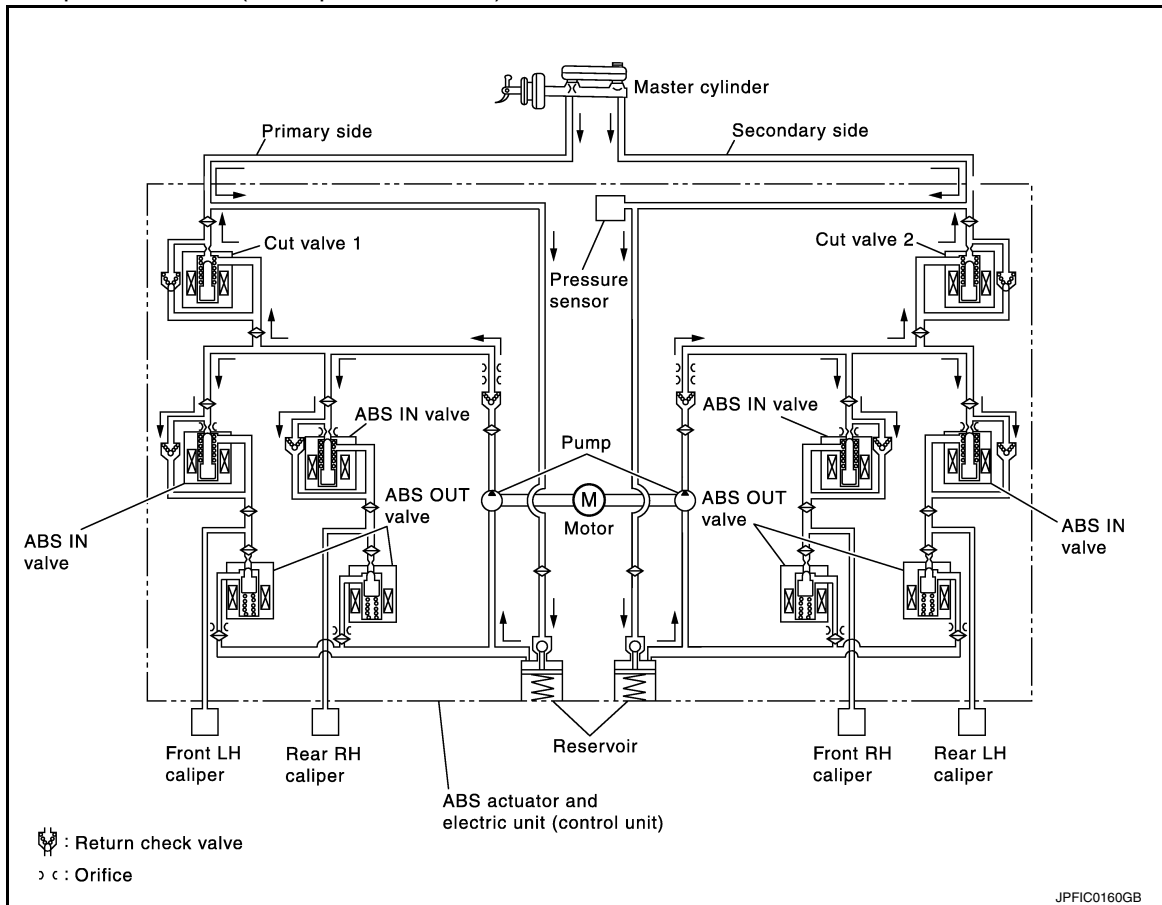
When rear RH wheel caliper pressure increases

- Motor is activated. Brake fluid is pressurized by pump and is sent to primary line through cut valve 1. At the same time, pressurized brake fluid is supplied to rear RH wheel caliper through ABS IN valve.

When rear LH wheel caliper pressure increases

- Motor is activated. Brake fluid is pressurized by pump and is sent to secondary line through cut valve 2. At the same time, pressurized brake fluid is supplied to rear LH wheel caliper through ABS IN valve.

When ABS operation starts (when pressure holds)



Name	Not activated	When pressure holds
Cut valve 1	Power supply is not supplied (open)	Power supply is not supplied (open)
Cut valve 2	Power supply is not supplied (open)	Power supply is not supplied (open)
ABS IN valve	Power supply is not supplied (open)	Power supply is supplied (close)
ABS OUT valve	Power supply is not supplied (close)	Power supply is not supplied (close)
Each caliper (fluid pressure)	—	Pressure holds

When front RH wheel caliper pressure holds

- Motor is activated. Brake fluid is pressurized by pump and is sent to secondary line through cut valve 2. At the same time, because ABS IN valve and ABS OUT valve are closed, fluid pressure holds.

When front LH wheel caliper pressure holds

- Motor is activated. Brake fluid is pressurized by pump and is sent to primary line through cut valve 1. At the same time, because ABS IN valve and ABS OUT valve are closed, fluid pressure holds.

SYSTEM

< SYSTEM DESCRIPTION >

[VDC/TCS/ABS]

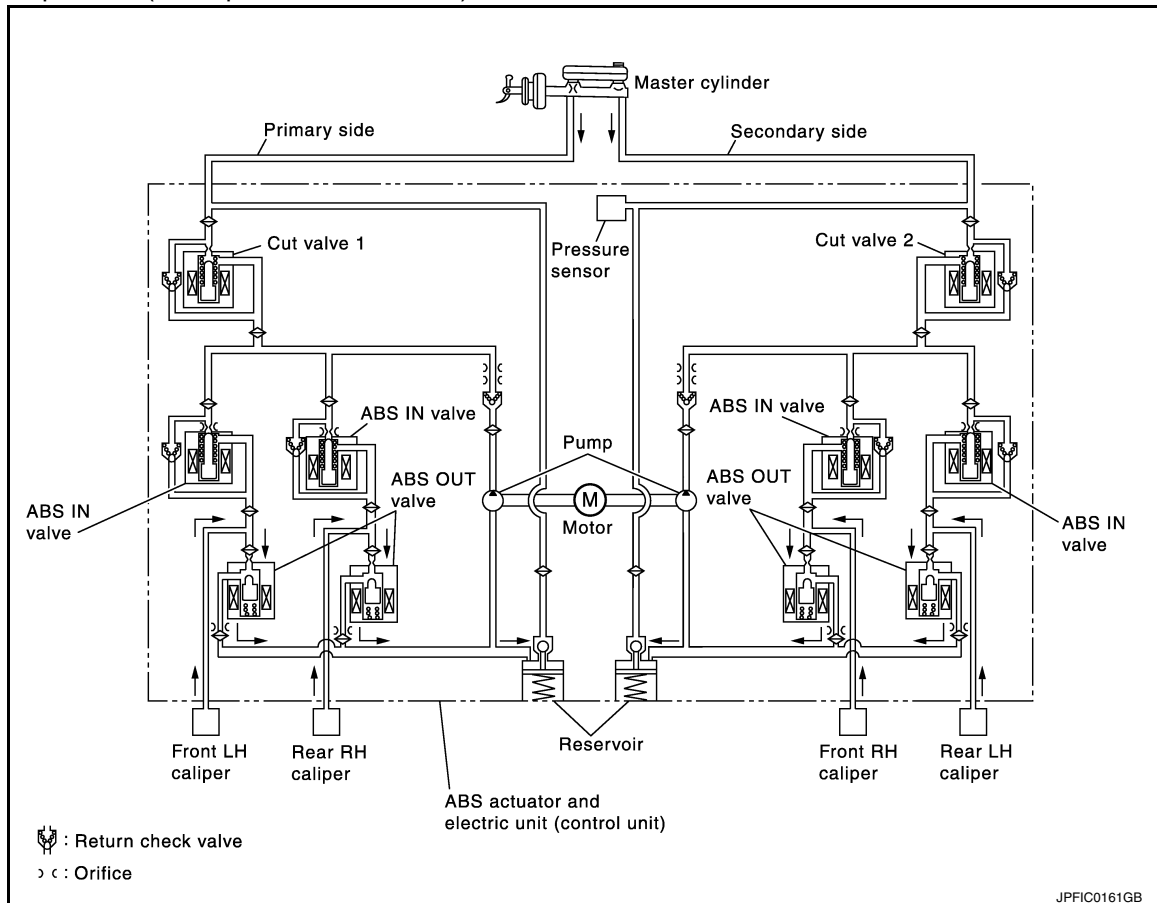
When rear RH wheel caliper pressure holds

- Motor is activated. Brake fluid is pressurized by pump and is sent to primary line through cut valve 1. At the same time, because ABS IN valve and ABS OUT valve are closed, fluid pressure holds.

When rear LH wheel caliper pressure holds

- Motor is activated. Brake fluid is pressurized by pump and is sent to secondary line through cut valve 2. At the same time, because ABS IN valve and ABS OUT valve are closed, fluid pressure holds.

ABS is in operation (when pressure decreases)



Name	Not activated	When pressure decreases
Cut valve 1	Power supply is not supplied (open)	Power supply is not supplied (open)
Cut valve 2	Power supply is not supplied (open)	Power supply is not supplied (open)
ABS IN valve	Power supply is not supplied (open)	Power supply is supplied (close)
ABS OUT valve	Power supply is not supplied (close)	Power supply is supplied (open)
Each caliper (fluid pressure)	—	Pressure decreases

When front RH wheel caliper pressure decreases

- Being supplied to reservoir through ABS OUT valve, the fluid pressure of brake caliper is decreased.

When front LH wheel caliper pressure decreases

- Being supplied to reservoir through ABS OUT valve, the fluid pressure of brake caliper is decreased.

When rear RH wheel caliper pressure decreases

- Being supplied to reservoir through ABS OUT valve, the fluid pressure of brake caliper is decreased.

When rear LH wheel caliper pressure decreases

- Being supplied to reservoir through ABS OUT valve, the fluid pressure of brake caliper is decreased.

Component Parts and Function

SYSTEM

< SYSTEM DESCRIPTION >

[VDC/TCS/ABS]

Component	FUNCTION
Reservoir	Temporarily reserves the brake fluid drained from brake caliper, so that pressure efficiently decreases when decreasing pressure of brake caliper.
Pump	Returns the brake fluid reserved in reservoir to master cylinder by reducing pressure.
Motor	Drives the pump according to signals from control unit.
ABS IN valve	Switches the fluid pressure line to increase or hold according to signals from control unit.
ABS OUT valve	Switches the fluid pressure line to increase, hold or decrease according to signals from control unit.
Return check valve	Returns the brake fluid from brake caliper to master cylinder by bypassing orifice of each valve when brake is released.
Cut valve 1 Cut valve 2	Performs the duty control of fluid pressure increased by pump according to signals from control unit.
Pressure Sensor	Detects the brake pedal operation amount.

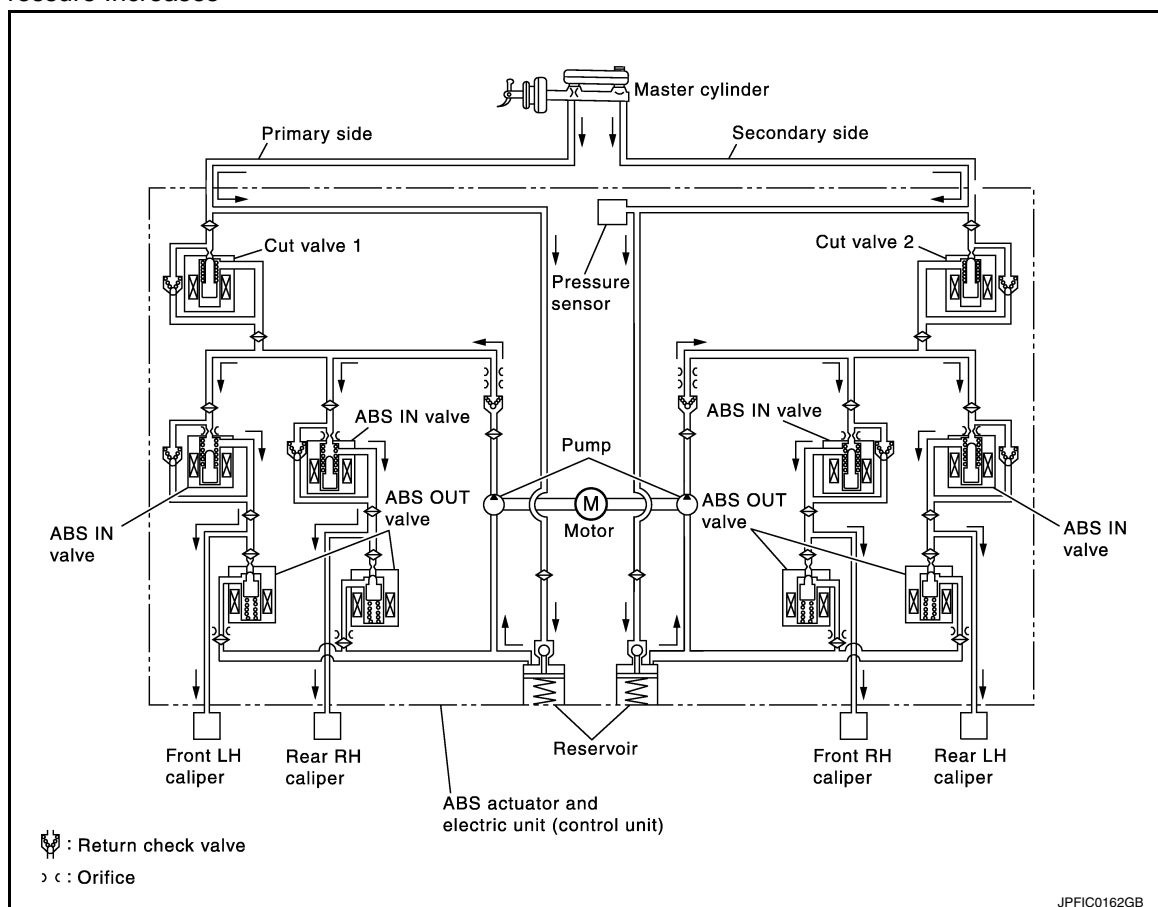
VALVE OPERATION (OTHER THAN ABS AND EBD)

Each valve is operated and fluid pressure of brake caliper is controlled.

NOTE:

There is no operation to hold and increase pressure for functions other than ABS and EBD.

When Pressure Increases



SYSTEM

< SYSTEM DESCRIPTION >

[VDC/TCS/ABS]

Name	Not activated	When Pressure Increases
Cut valve 1	Power supply is not supplied (open)	Wheel other than the one that the pressure is to be increased: Power supply is not supplied (open) Only wheel that the pressure is to be increased: Power supply is supplied (close)
Cut valve 2	Power supply is not supplied (open)	Wheel other than the one that the pressure is to be increased: Power supply is not supplied (open) Only wheel that the pressure is to be increased: Power supply is supplied (close)
ABS IN valve	Power supply is not supplied (open)	Only wheel that the pressure is to be increased: Power supply is not supplied (open) Wheel other than the one that the pressure is to be increased: Power supply is supplied (close)
ABS OUT valve	Power supply is not supplied (close)	Power supply is not supplied (close)
Each caliper (fluid pressure)	—	Pressure increases

When front RH wheel caliper pressure increases

- Motor is activated. Brake fluid from pump is supplied to front RH wheel caliper through ABS IN valve. For other wheel, ABS IN valve is closed and brakes fluid is not supplied to caliper.

When front LH wheel caliper pressure increases

- Motor is activated. Brake fluid from pump is supplied to front LH wheel caliper through ABS IN valve. For other wheel, ABS IN valve is closed and brakes fluid is not supplied to caliper.

When rear RH wheel caliper pressure increases

- Motor is activated. Brake fluid from pump is supplied to rear RH wheel caliper through ABS IN valve. For other wheel, ABS IN valve is closed and brakes fluid is not supplied to caliper.

When rear LH wheel caliper pressure increases

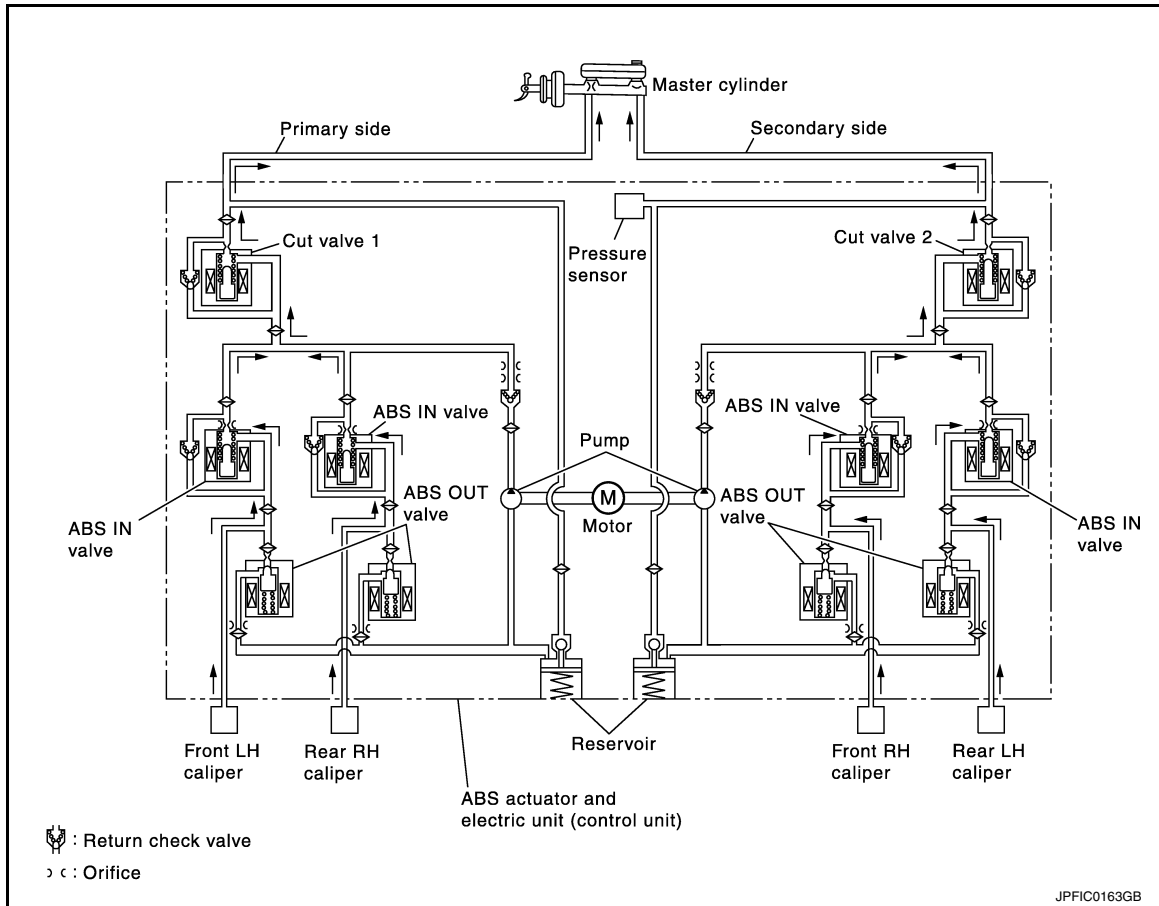
- Motor is activated. Brake fluid from pump is supplied to rear LH wheel caliper through ABS IN valve. For other wheel, ABS IN valve is closed and brakes fluid is not supplied to caliper.

SYSTEM

< SYSTEM DESCRIPTION >

[VDC/TCS/ABS]

Released



Name	Not activated	When pressure decreases
Cut valve 1	Power supply is not supplied (open)	Power supply is not supplied (open)
Cut valve 2	Power supply is not supplied (open)	Power supply is not supplied (open)
ABS IN valve	Power supply is not supplied (open)	Power supply is not supplied (open)
ABS OUT valve	Power supply is not supplied (close)	Power supply is supplied (open)
Each caliper (fluid pressure)	—	Pressure decreases

When front RH wheel caliper pressure decreases

- Being returned to master cylinder through ABS IN valve, fluid pressure of brake caliper is decreased.

When front LH wheel caliper pressure decreases

- Being returned to master cylinder through ABS IN valve, fluid pressure of brake caliper is decreased.

When rear RH wheel caliper pressure decreases

- Being returned to master cylinder through ABS IN valve, fluid pressure of brake caliper is decreased.

When rear LH wheel caliper pressure decreases

- Being returned to master cylinder through ABS IN valve, fluid pressure of brake caliper is decreased.

Component Parts and Function

Component	Function
Reservoir	Temporarily reserves the brake fluid drained from brake caliper, so that pressure efficiently decreases when decreasing pressure of brake caliper.
Pump	Returns the brake fluid reserved in reservoir to master cylinder by reducing pressure.
Motor	Drives the pump according to signals from control unit.
ABS IN valve	Switches the fluid pressure line to increase or hold according to signals from control unit.

SYSTEM

< SYSTEM DESCRIPTION >

[VDC/TCS/ABS]

Component	Function
ABS OUT valve	Switches the fluid pressure line to increase, hold or decrease according to signals from control unit.
Return check valve	Returns the brake fluid from brake caliper to master cylinder by bypassing orifice of each valve when brake is released.
Cut valve 1 Cut valve 2	Performs the duty control of fluid pressure increased by pump according to signals from control unit.
Pressure Sensor	Detects the brake pedal operation amount.

CONDITION FOR TURN ON THE WARNING LAMP

Turns ON when ignition switch turns ON and turns OFF when the system is normal, for bulb check purposes.

Condition (status)	ABS warning lamp	Brake warning lamp	VDC warning lamp
Ignition switch OFF.	OFF	OFF	OFF
For approx. 1 seconds after the ignition switch is turned ON	ON	ON	ON
Approx. 1 seconds after ignition switch is turned ON (when the system is in normal operation).	OFF	OFF	OFF
After engine starts	OFF	OFF	OFF
When brake fluid is less than the specified level (brake fluid level switch ON)	OFF	ON	OFF
When parking brake operates (parking brake switch ON)	OFF	ON	OFF
VDC function is malfunctioning	OFF	OFF	ON
TCS function is malfunctioning	OFF	OFF	ON
ABS function is malfunctioning	ON	OFF	ON
EBD function is malfunctioning	ON	ON	ON
Brake limited slip differential (BLSD) function is malfunctioning	OFF	OFF	ON
Brake assist function is malfunctioning	OFF	OFF	ON
hill start assist function is malfunctioning	OFF	OFF	ON
hill descent function is malfunctioning	ON	ON	OFF
Brake force distribution function is malfunctioning	OFF	OFF	ON
When brake booster vacuum decreases	OFF	ON	OFF
When vacuum sensor is malfunctioning	OFF	ON	OFF
VDC function is operating	OFF	OFF	Blinking
TCS function is operating	OFF	OFF	Blinking
ABS function is operating	OFF	OFF	OFF
EBD function is operating	OFF	OFF	OFF
Brake limited slip differential (BLSD) function is operating	OFF	OFF	Blinking
Brake assist function is operating	OFF	OFF	OFF
hill start assist function is operating	OFF	OFF	OFF
hill descent function is operating	OFF	OFF	OFF

CONDITION FOR TURN ON THE INDICATOR LAMP

VDC OFF indicator lamp

- Turns ON when VDC function and TCS function are switched to non-operational status (OFF) by VDC OFF switch.
- Turns ON when ignition switch turns ON and turns OFF when the system is normal, for bulb check purposes.

Condition (status)	VDC OFF indicator lamp
Ignition switch OFF.	OFF
For approx. 1 seconds after the ignition switch is turned ON.	ON

SYSTEM

< SYSTEM DESCRIPTION >

[VDC/TCS/ABS]

Condition (status)	VDC OFF indicator lamp
Approx. 1 seconds after ignition switch is turned ON (when the system is in normal operation).	OFF
When VDC OFF switch is ON (VDC function, TCS function and Active trace control function are OFF).	ON

CONDITION FOR TURN ON THE INDICATOR LAMP

Hill descent indicator lamp

- Turns ON by the hill descent switch.
- Turns ON when ignition switch turns ON and turns OFF when the system is normal, for bulb check purposes.

Condition (status)	Hill Descent indicator lamp
Ignition switch OFF.	OFF
For approx. 1 seconds after the ignition switch is turned ON.	ON
Approx. 1 seconds after ignition switch is turned ON (when the system is in normal operation).	OFF
When hill descent switch is ON.	ON
When hill descent control switch is on, but the system is not engaged.	Blinking

Fail-Safe

INFOID:0000000010227760

VDC FUNCTION, TCS FUNCTION, BRAKE LIMITED SLIP DIFFERENTIAL FUNCTION, BRAKE ASSIST FUNCTION, hill start assist FUNCTION, hill descent FUNCTION AND BRAKE FORCE DISTRIBUTION FUNCTION

VDC warning lamp in combination meter turn ON when a malfunction occurs in system [ABS actuator and electric unit (control unit)]. The control is suspended for VDC function, TCS function, Brake limited slip differential (BLSD) function, Brake assist function, hill start assist function and Brake force distribution function. The vehicle status becomes the same as models without VDC function, TCS function, Brake limited slip differential (BLSD) function, Brake assist function, hill start assist function and Brake force distribution function. However, ABS function and EBD function are operated normally.

ABS FUNCTION

ABS warning lamp and VDC warning lamp in combination meter turn ON when a malfunction occurs in system [ABS actuator and electric unit (control unit)]. The control is suspended for VDC function, TCS function, ABS function, Brake limited slip differential (BLSD) function, Brake assist function, hill start assist function and Brake force distribution function. The vehicle status becomes the same as models without VDC function, TCS function, ABS function, Brake limited slip differential (BLSD) function, Brake assist function, hill start assist function and Brake force distribution function. However, EBD function is operated normally.

NOTE:

ABS self-diagnosis sound may be heard the same as in the normal condition, because self-diagnosis is performed when ignition switch turns ON and when vehicle initially starts.

EBD FUNCTION

ABS warning lamp, brake warning lamp and VDC warning lamp in combination meter turn ON when a malfunction occurs in system [ABS actuator and electric unit (control unit)]. The control is suspended for VDC function, TCS function, ABS function, EBD function, Brake limited slip differential (BLSD) function, Brake assist function, hill start assist function and Brake force distribution function. The vehicle status becomes the same as models without VDC function, TCS function, ABS function, EBD function, Brake limited slip differential (BLSD) function, Brake assist function, hill start assist function and Brake force distribution function.

SYSTEM

< SYSTEM DESCRIPTION >

[VDC/TCS/ABS]

DTC	Fail-safe condition	
C1101	The following functions are suspended. • VDC function • TCS function • ABS function	A
C1102		
C1103		B
C1104		
C1105	The following functions are suspended. • EBD function (only when both 2 rear wheels are malfunctioning) • Brake limited slip differential (BLSD) function • Brake assist function	C
C1106		
C1107		
C1108	The following functions are suspended. • hill start assist function • hill descent function • Brake force distribution function • Active trace control function (control of chassis control module)	D
C1109		
C1111	The following functions are suspended. • VDC function • TCS function • ABS function • EBD function • Brake limited slip differential (BLSD) function • Brake assist function • hill start assist function • hill descent function • Brake force distribution function • Active trace control function (control of chassis control module)	E BRC G
C1113	The following functions are suspended. • VDC function • TCS function • ABS function • EBD function • Brake limited slip differential (BLSD) function • Brake assist function • hill start assist function • hill descent function • Brake force distribution function • Active trace control function (control of chassis control module)	H I J
C1115	The following functions are suspended. • VDC function • TCS function • ABS function • Brake limited slip differential (BLSD) function • Brake assist function • hill start assist function • hill descent function • Brake force distribution function • Active trace control function (control of chassis control module)	K L M
C1120	The following functions are suspended. • VDC function • TCS function • ABS function • EBD function • Brake limited slip differential (BLSD) function • Brake assist function • hill start assist function • hill descent function • Brake force distribution function • Active trace control function (control of chassis control module)	
C1121		N
C1122		
C1123		
C1124		O
C1125		
C1126		
C1127		P

SYSTEM

< SYSTEM DESCRIPTION >

[VDC/TCS/ABS]

DTC	Fail-safe condition
C1130	The following functions are suspended. • VDC function • TCS function • Brake limited slip differential (BLSD) function • hill start assist function • hill descent function • Brake force distribution function • Active trace control function (control of chassis control module)
C1138	
C1140	The following functions are suspended. • VDC function • TCS function • ABS function • EBD function • Brake limited slip differential (BLSD) function • Brake assist function • hill start assist function • Brake force distribution function • Active trace control function (control of chassis control module)
C1142	The following functions are suspended. • VDC function • TCS function • Brake limited slip differential (BLSD) function • Brake assist function • hill start assist function • hill descent function • Brake force distribution function • Active trace control function (control of chassis control module)
C1143	The following functions are suspended. • VDC function • TCS function • Brake limited slip differential (BLSD) function • hill start assist function • hill descent function • Brake force distribution function • Active trace control function (control of chassis control module)
C1144	
C1145	The following functions are suspended. • VDC function • TCS function • ABS function • Brake limited slip differential (BLSD) function • Brake assist function • hill start assist function • hill descent function • Brake force distribution function • Active trace control function (control of chassis control module)
C1146	
C1155	The following functions are suspended. • VDC function • TCS function • Brake limited slip differential (BLSD) function • Brake assist function • hill start assist function • hill descent function • Brake force distribution function • Active trace control function (control of chassis control module)

SYSTEM

< SYSTEM DESCRIPTION >

[VDC/TCS/ABS]

DTC	Fail-safe condition
C1160	The following functions are suspended. • VDC function • TCS function • ABS function • Brake limited slip differential (BLSD) function • Brake assist function • hill start assist function • hill descent function • Brake force distribution function • Active trace control function (control of chassis control module)
C1164	The following functions are suspended. • VDC function • TCS function • ABS function • EBD function • Brake limited slip differential (BLSD) function • Brake assist function • hill start assist function • hill descent function • Brake force distribution function • Active trace control function (control of chassis control module)
C1165	The following functions are suspended. • VDC function • TCS function • ABS function • EBD function • Brake limited slip differential (BLSD) function • Brake assist function • hill start assist function • hill descent function • Brake force distribution function • Active trace control function (control of chassis control module)
C1170	The following functions are suspended. • VDC function • TCS function • ABS function • Brake limited slip differential (BLSD) function • Brake assist function • hill start assist function • hill descent function • Brake force distribution function • Active trace control function (control of chassis control module)
C1197	Electrical vacuum assistance of brake booster is suspended.
C1198	
C1199	
C1199	—
C119A	Electrical vacuum assistance of brake booster is suspended.
U1000	The following functions are suspended. • VDC function • TCS function • Brake limited slip differential (BLSD) function • hill start assist function • hill descent function • Brake force distribution function • Active trace control function (control of chassis control module)

VDC FUNCTION

VDC FUNCTION : System Description

INFOID:0000000010227761

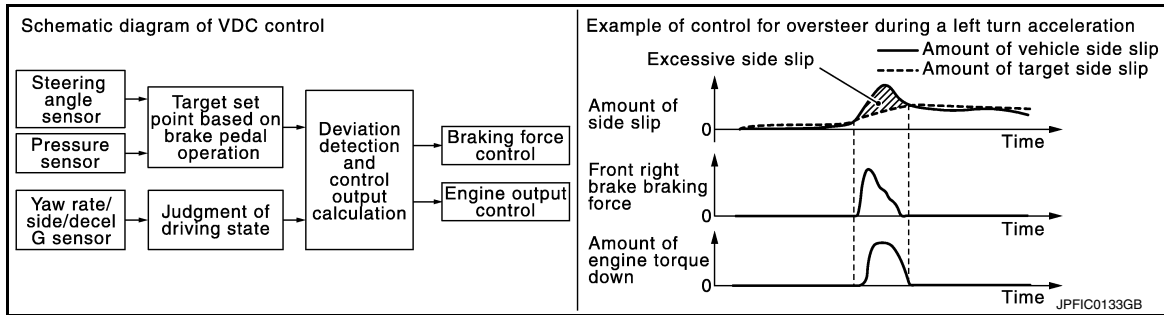
- Side slip or tail slip may occur while driving on a slippery road or intending an urgent evasive driving. VDC function detects side slip status using each sensor when side slip or tail slip is about to occur and improves vehicle stability by brake control and engine output control during driving.
- In addition to ABS function, EBD function and TCS function, target side slip amount is calculated according to steering operation amount from steering angle sensor and brake operation amount from brake pressure sensor. By comparing this information with vehicle side slip amount that is calculated from information from yaw rate/side/decel G sensor and wheel sensor, vehicle driving conditions (conditions of understeer or over-

SYSTEM

< SYSTEM DESCRIPTION >

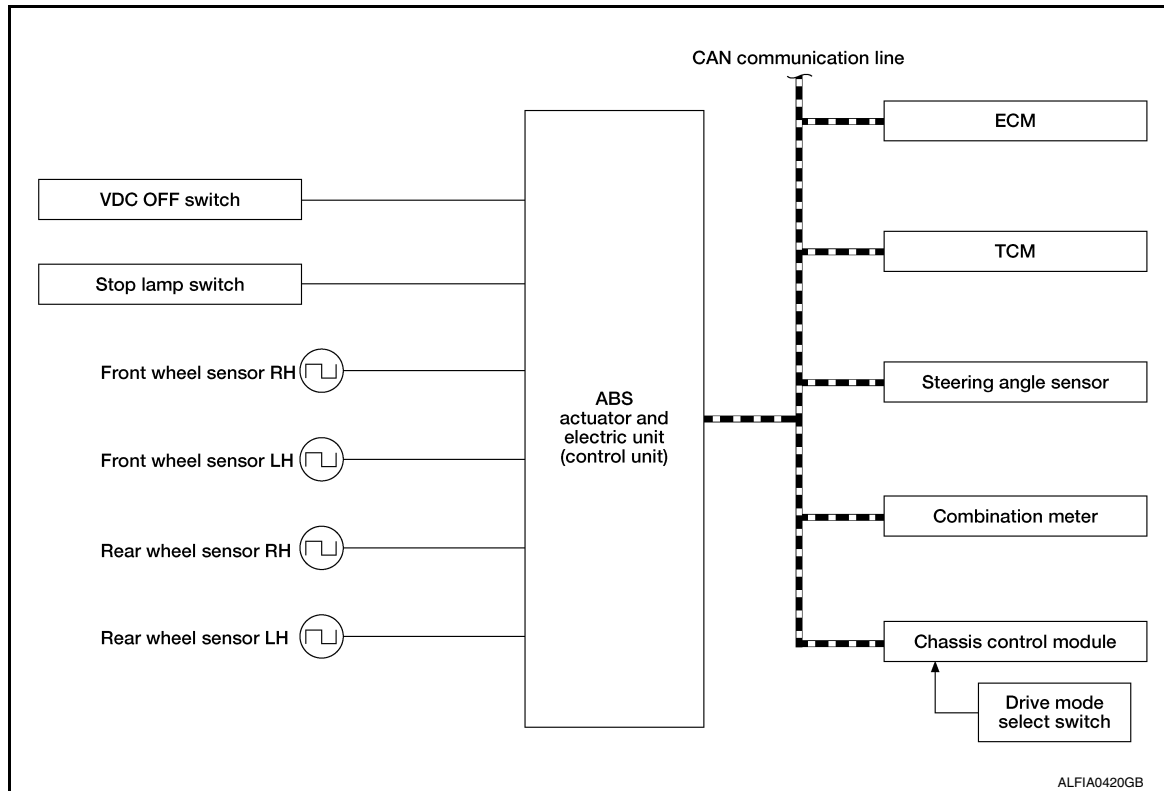
[VDC/TCS/ABS]

steer) are judged and vehicle stability is improved by brake force control on all 4 wheels and engine output control.



- VDC function can be switched to non-operational status (OFF) by operating VDC OFF switch. In this case, VDC OFF indicator lamp turns ON.
- Control unit portion automatically improves driving stability by performing brake force control as well as engine output control, by transmitting drive signal to actuator portion according to difference between target side slip amount and vehicle side slip amount
- VDC warning lamp blinks while VDC function is in operation and indicates to the driver that the function is in operation.
- CONSULT can be used to diagnose the system diagnosis.
- Fail-safe function is adopted. When a malfunction occurs in VDC function, the control is suspended for VDC function, TCS function, Brake limited slip differential (BLSD) function, Brake assist function, hill start assist function and Brake force distribution function. The vehicle status becomes the same as models without VDC function, TCS function, Brake limited slip differential (BLSD) function, Brake assist function, hill start assist function and Brake force distribution function. However, ABS function and EBD function are operated normally. Refer to [BRC-22, "Fail-Safe"](#).

SYSTEM DIAGRAM



INPUT SIGNAL AND OUTPUT SIGNAL

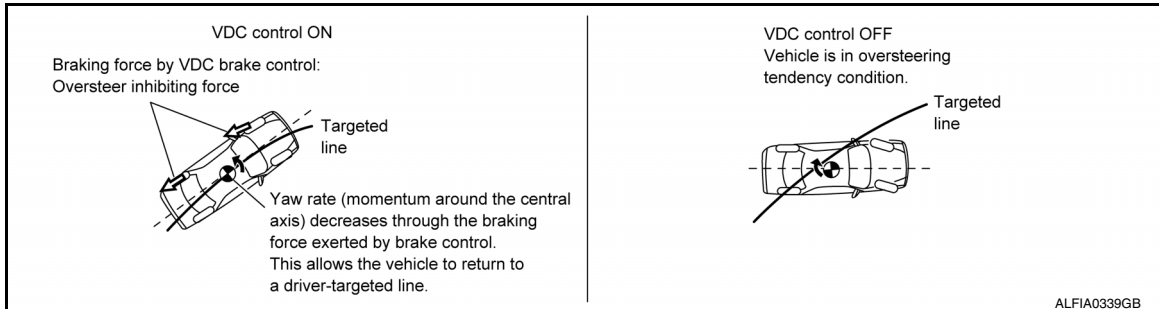
Major signal transmission between each unit via communication lines is shown in the following table.

Component	Signal description
ECM	Mainly transmits the following signals to ABS actuator and electric unit (control unit) via CAN communication: • Accelerator pedal position signal • Engine speed signal • Engine torque signal Mainly receives the following signal from ABS actuator and electric unit (control unit) via CAN communication: • Engine torque request signal
TCM	Mainly transmits the following signal to ABS actuator and electric unit (control unit) via CAN communication: • Current gear position signal
Chassis control module	Mainly transmits the following signal to ABS actuator and electric unit (control unit) via CAN communication: • Active trace control signal
Combination meter	Mainly receives the following signals from ABS actuator and electric unit (control unit) via CAN communication: • Brake fluid level switch signal • Parking brake switch signal Mainly receives the following signals from ABS actuator and electric unit (control unit) via CAN communication: • VDC warning lamp signal • VDC OFF indicator lamp signal
Steering angle sensor	Mainly transmits the following signals to ABS actuator and electric unit (control unit) via CAN communication: • Steering angle sensor signal • Steering angle sensor malfunction signal

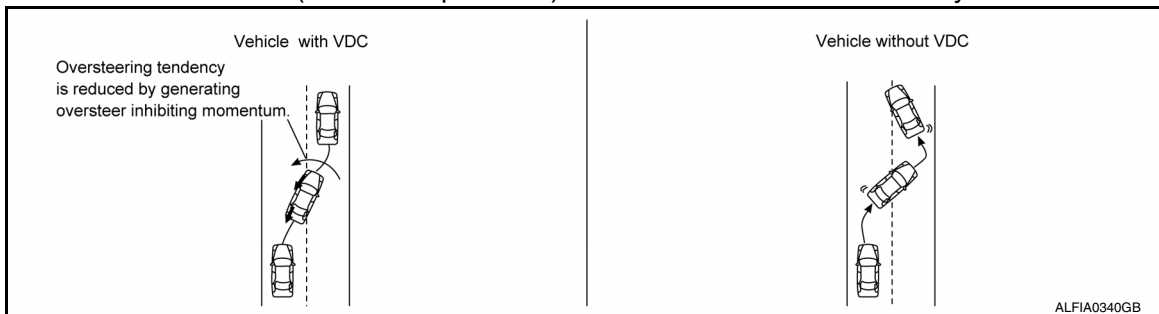
OPERATION CHARACTERISTICS

VDC Function That Prevents Oversteer Tendency

- During a cornering, brake force (brake fluid pressure) is applied on front wheel and rear wheel on the outer side of turn. Momentum directing towards the outer side of turn is generated. Oversteer is prevented.



- Changing driving lane on a slippery road, when oversteer tendency is judged large, engine output is controlled as well as brake force (brake fluid pressure) of 4 wheels. Oversteer tendency decreases.



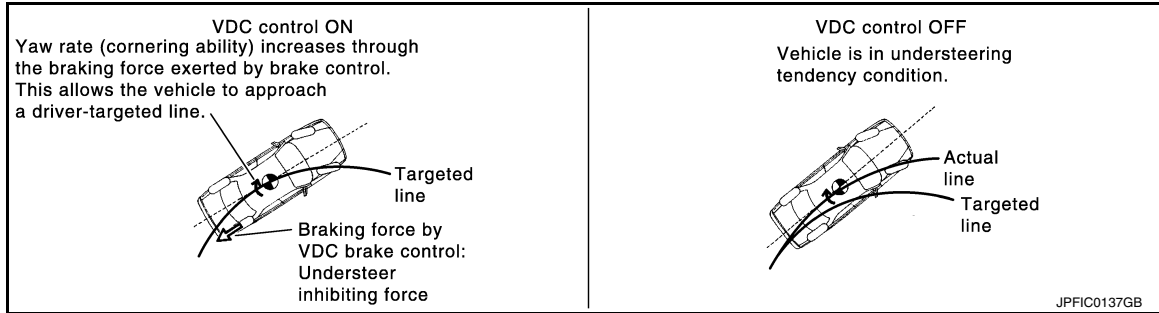
VDC Function That Prevents Understeer Tendency

SYSTEM

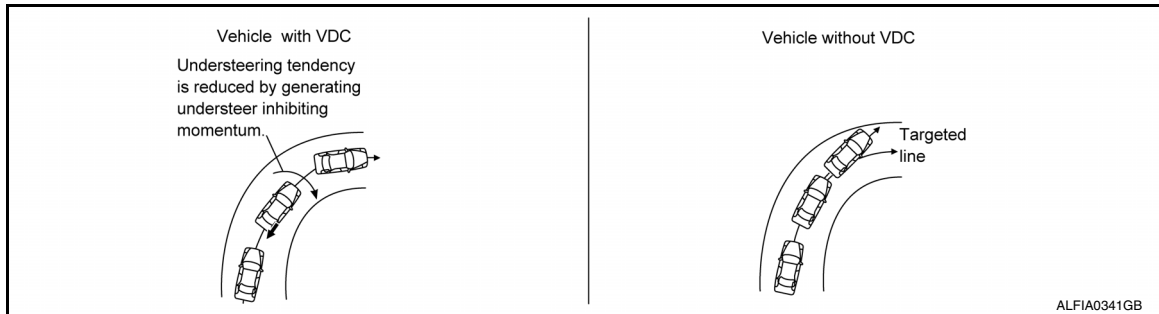
< SYSTEM DESCRIPTION >

[VDC/TCS/ABS]

- During a cornering, brake force (brake fluid pressure) is applied on front wheel and rear wheel on the inner side of turn. Momentum directing towards the inner side of turn is generated. Understeer is prevented.



- Applying braking during a cornering on a slippery road, when understeer tendency is judged large, engine output is controlled as well as brake force (brake fluid pressure) of four wheels. Understeer tendency decreases.

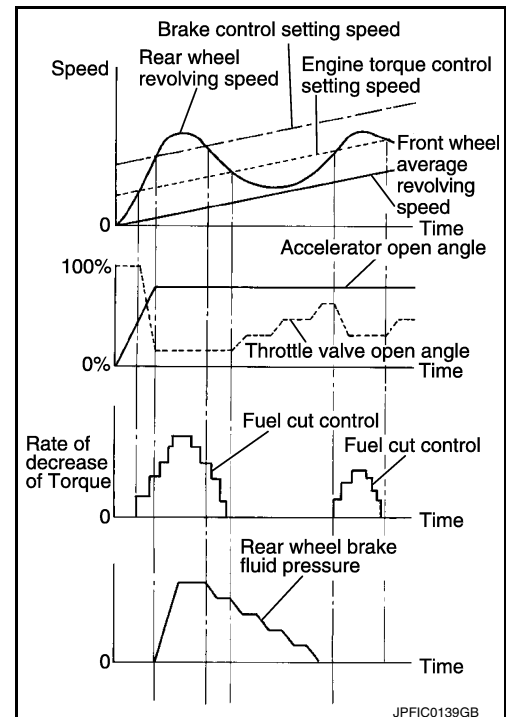


TCS FUNCTION

TCS FUNCTION : System Description

INFOID:000000010227762

- Wheel spin status of drive wheel is detected by wheel sensor of 4 wheels. Engine output and transmission shift status is controlled so that slip rate of drive wheels is in appropriate level. When wheel spin occurs on drive wheel, ABS actuator and electric unit (control unit) perform brake force control of LH and RH drive wheels (apply brake force by increasing brake fluid pressure of drive wheel) and decrease engine torque by engine torque control. Wheel spin amount decreases. Engine torque is controlled to appropriate level.
- TCS function can be switched to non-operational status (OFF) by operating VDC OFF switch. In this case, VDC OFF indicator lamp turns ON.
- VDC warning lamp blinks while TCS function is in operation and indicates to the driver that the function is in operation.
- CONSULT can be used to diagnose the system diagnosis.
- Fail-safe function is adopted. When a malfunction occurs in TCS function, the control is suspended for VDC function, TCS function, Brake limited slip differential (BLSD) function, Brake assist function, hill start assist function and Brake force distribution function. The vehicle status becomes the same as models without VDC function, TCS function, Brake limited slip differential (BLSD) function, Brake assist function, hill start assist function and Brake force distribution function. However, ABS function and EBD function are operated normally. Refer to [BRC-22, "Fail-Safe"](#).

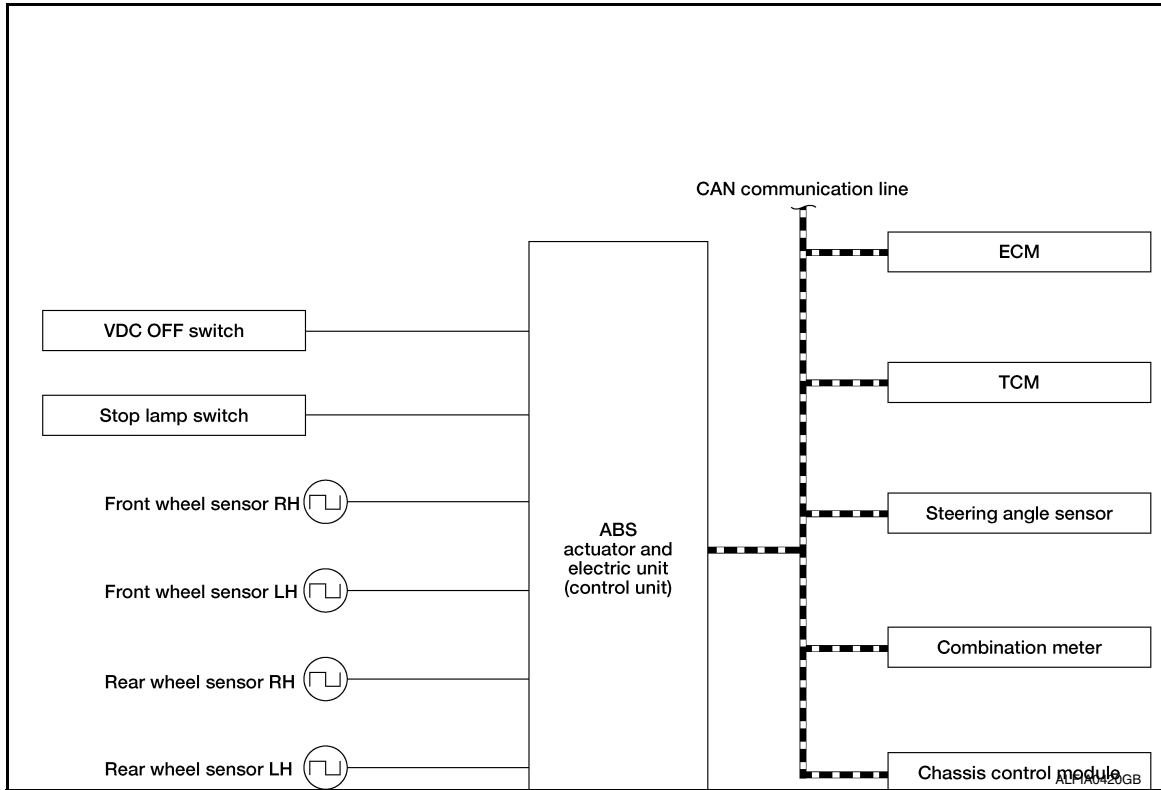


SYSTEM

< SYSTEM DESCRIPTION >

[VDC/TCS/ABS]

SYSTEM DIAGRAM



INPUT SIGNAL AND OUTPUT SIGNAL

Major signal transmission between each unit via communication lines is shown in the following table.

Component	Signal description
ECM	Mainly transmits the following signals to ABS actuator and electric unit (control unit) via CAN communication: • Accelerator pedal position signal • Engine speed signal • Engine torque signal Mainly receives the following signal from ABS actuator and electric unit (control unit) via CAN communication: • Engine torque request signal
TCM	Mainly transmits the following signal to ABS actuator and electric unit (control unit) via CAN communication: • Current gear position signal
Chassis control module	Mainly transmits the following signal to ABS actuator and electric unit (control unit) via CAN communication: • Active trace control signal
Combination meter	Mainly receives the following signals from ABS actuator and electric unit (control unit) via CAN communication: • Brake fluid level switch signal • Parking brake switch signal Mainly receives the following signals from ABS actuator and electric unit (control unit) via CAN communication: • VDC warning lamp signal • VDC OFF indicator lamp signal
Steering angle sensor	Mainly transmits the following signals to ABS actuator and electric unit (control unit) via CAN communication: • Steering angle sensor signal • Steering angle sensor malfunction signal

ABS FUNCTION

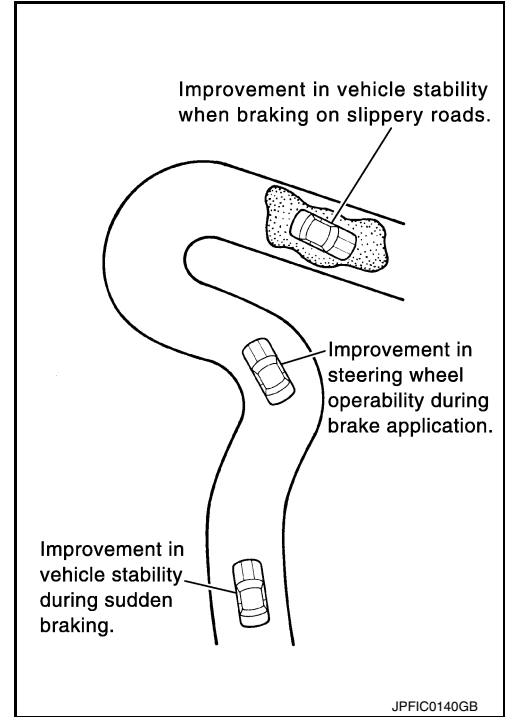
ABS FUNCTION : System Description

INFOID:000000010227763

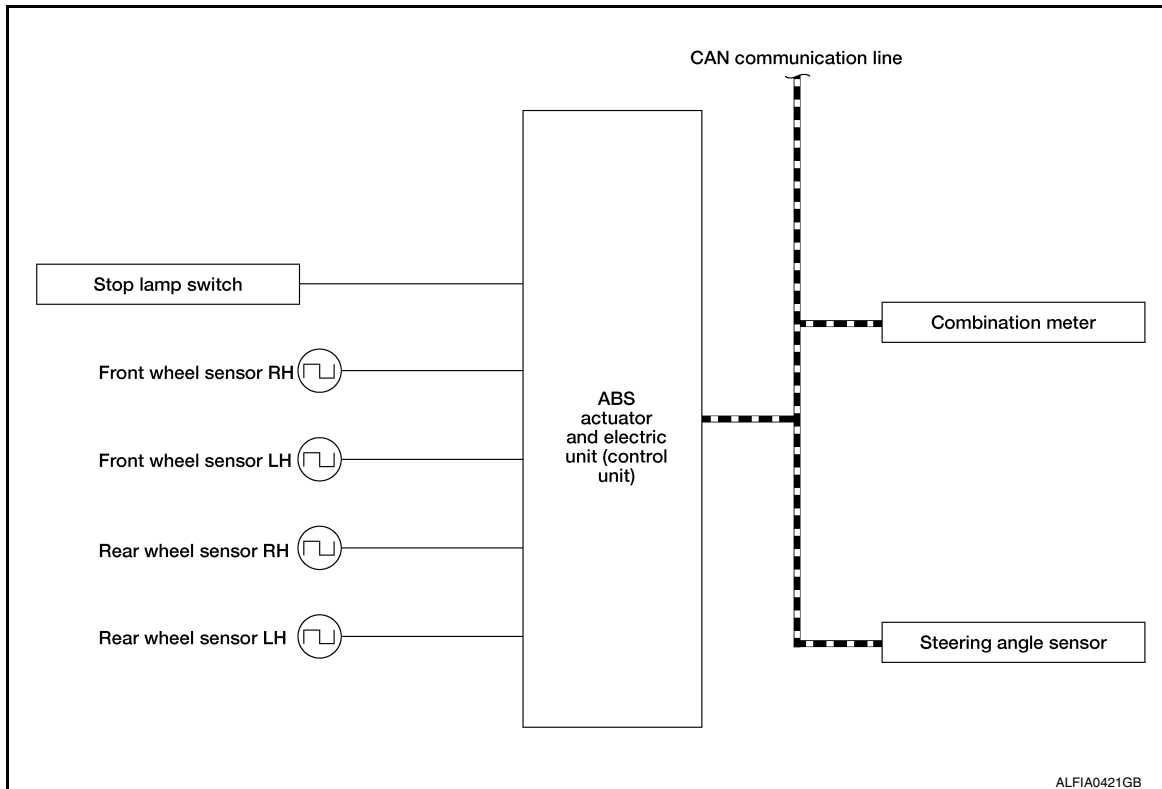
- By preventing wheel lock through brake force (brake fluid pressure) control that is electronically controlled by detecting wheel speed during braking, stability during emergency braking is improved so that obstacles can be easily bypassed by steering operation.
- During braking, control units calculates wheel speed and pseudo-vehicle speed, and transmits pressure increase, hold or decrease signals to actuator portion according to wheel slip status.
- The following effects are obtained by preventing wheel lock during braking.
 - Vehicle tail slip is prevented during braking when driving straight.
 - Understeer and oversteer tendencies are moderated during braking driving on a corner.
 - Obstacles may be easily bypassed by steering operation during braking.
- CONSULT can be used to diagnose the system diagnosis.
- Fail-safe function is adopted. When a malfunction occurs in ABS function, the control is suspended for VDC function, TCS function, ABS function, Brake limited slip differential (BLSD) function, Brake assist function, hill start assist function and Brake force distribution function. The vehicle status becomes the same as models without VDC function, TCS function, ABS function, Brake limited slip differential (BLSD) function, Brake assist function, hill start assist function and Brake force distribution function. However, EBD function is operated normally. Refer to [BRC-22. "Fail-Safe"](#).

NOTE:

- ABS has the characteristic as described here, This is not the device that helps reckless driving.
- To stop vehicle efficiently, ABS does not operate and ordinary brake operates at low speed [approx. 10 km/h (6 MPH) or less, but differs subject to road conditions).
- Self-diagnosis is performed immediately after when engine starts and when vehicle initially is driven [by vehicle speed approx. 15 km/h (9 MPH)]. Motor sounds are generated during self-diagnosis. In addition, brake pedal may be felt heavy when depressing brake pedal lightly. These symptoms are not malfunctions.



SYSTEM DIAGRAM



INPUT SIGNAL AND OUTPUT SIGNAL

Major signal transmission between each unit via communication lines is shown in the following table.

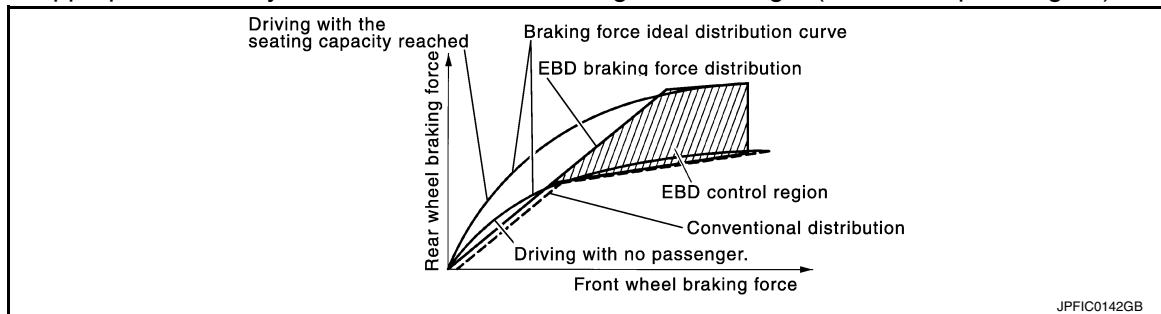
Component	Signal description
Combination meter	Mainly receives the following signals from ABS actuator and electric unit (control unit) via CAN communication: • Brake fluid level switch signal • Parking brake switch signal Mainly receives the following signals from ABS actuator and electric unit (control unit) via CAN communication: • ABS warning lamp signal • VDC warning lamp signal • VDC OFF indicator lamp signal
Steering angle sensor	Mainly transmits the following signals to ABS actuator and electric unit (control unit) via CAN communication: • Steering angle sensor signal • Steering angle sensor malfunction signal

EBD FUNCTION

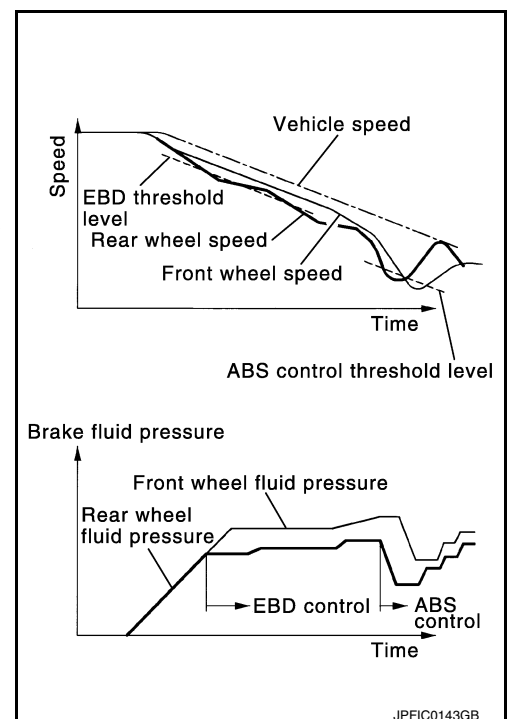
EBD FUNCTION : System Description

INFOID:000000010227764

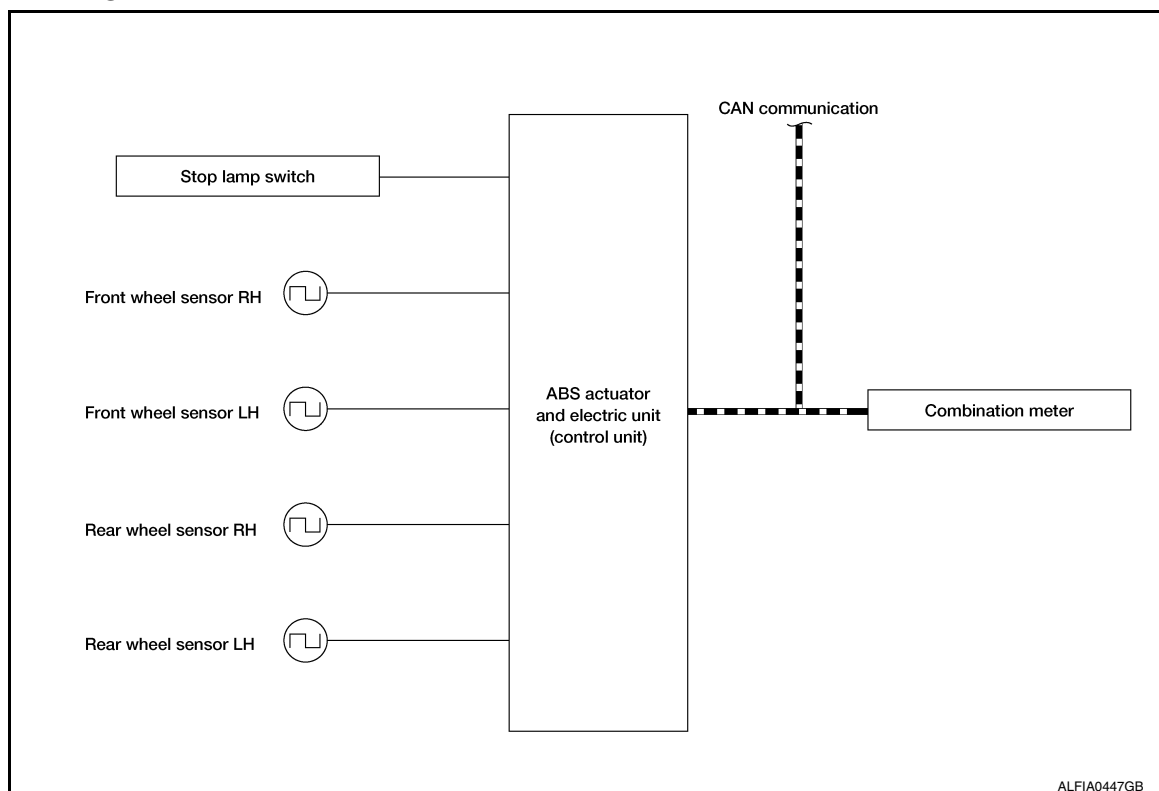
- By preventing rear wheel slip increase through rear wheel brake force (brake fluid pressure) control that is electronically controlled when slight skip on front and rear wheels are detected during braking, stability during braking is improved.
- EBD function is expanded and developed from conventional ABS function and corrects rear wheel brake force to appropriate level by electronic control according to load weight (number of passengers).



- During braking, control unit portion compares slight slip on front and rear wheels by wheel speed sensor signal, transmits drive signal to actuator portion when rear wheel slip exceeds front wheel slip for the specified value or more, and controls rear wheel brake force (brake fluid pressure) so that increase of rear wheel slip is prevented and slips on front wheel and rear wheel are nearly equalized. ABS control is applied when slip on each wheel increases and wheel speed is the threshold value of ABS control or less.
- CONSULT can be used to diagnose the system diagnosis.
- Fail-safe function is adopted. When a malfunction occurs in EBD function, the control is suspended for VDC function, TCS function, ABS function, EBD function, Brake limited slip differential (BLSD) function, Brake assist function, hill start assist function and Brake force distribution function. The vehicle status becomes the same as models without VDC function, TCS function, ABS function, EBD function, Brake limited slip differential (BLSD) function, Brake assist function, hill start assist function and Brake force distribution function. Refer to [BRC-22, "Fail-Safe"](#).



SYSTEM DIAGRAM



INPUT SIGNAL AND OUTPUT SIGNAL

Major signal transmission between each unit via communication lines is shown in the following table.

Component	Signal description
Combination meter	Mainly receives the following signals from ABS actuator and electric unit (control unit) via CAN communication: • VDC warning lamp signal • ABS warning lamp signal • Brake warning lamp signal

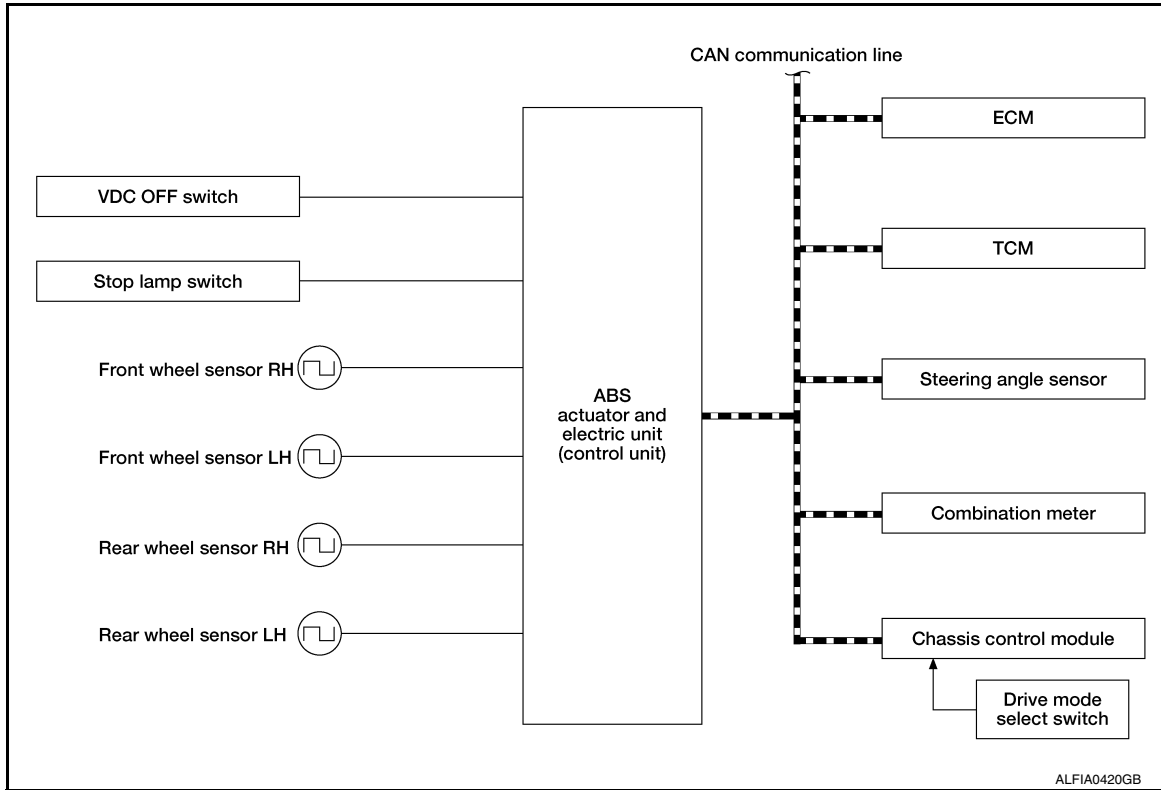
BRAKE LIMITED SLIP DIFFERENTIAL (BLSD) FUNCTION

BRAKE LIMITED SLIP DIFFERENTIAL (BLSD) FUNCTION : System Description

INFOID:0000000010227765

- LH and RH driving wheel spin is always monitored. If necessary, appropriate brake force is independently applied to LH or RH driving wheel so that one-sided wheel spin is avoided and traction is maintained. Mainly starting ability is improved.
- Brake limited slip differential (BLSD) function operates while VDC function is in non-operational status (OFF) by VDC OFF switch.
- VDC warning lamp blinking while Brake limited slip differential (BLSD) function is in operation and indicates to the driver that the function is in operation.
- Slight vibrations are felt on the Brake pedal and the operation noises occur, when Brake limited slip differential (BLSD) function operates. This is not a malfunction because it is caused by Brake limited slip differential (BLSD) function that is normally operated.
- Fail-safe function is adopted. When a malfunction occurs in brake limited slip differential (BLSD) function, the control is suspended for VDC function, TCS function, Brake limited slip differential (BLSD) function, Brake assist function, hill start assist function and Brake force distribution function. The vehicle status becomes the same as models without VDC function, TCS function, Brake limited slip differential (BLSD) function, Brake assist function, hill start assist function and Brake force distribution function. However, ABS function and EBD function are operated normally. Refer to [BRC-22. "Fail-Safe"](#).

SYSTEM DIAGRAM



INPUT SIGNAL AND OUTPUT SIGNAL

Major signal transmission between each unit via communication lines is shown in the following table.

Component	Signal description
ECM	Mainly transmits the following signals to ABS actuator and electric unit (control unit) via CAN communication: • Accelerator pedal position signal • Engine speed signal • Engine torque signal Mainly receives the following signal from ABS actuator and electric unit (control unit) via CAN communication: • Engine torque request signal
TCM	Mainly transmits the following signal to ABS actuator and electric unit (control unit) via CAN communication: • Current gear position signal
Chassis control module	Mainly transmits the following signal to ABS actuator and electric unit (control unit) via CAN communication: • Active trace control signal
Combination meter	Mainly receives the following signals from ABS actuator and electric unit (control unit) via CAN communication: • Brake fluid level switch signal • Parking brake switch signal Mainly receives the following signals from ABS actuator and electric unit (control unit) via CAN communication: • VDC warning lamp signal • VDC OFF indicator lamp signal
Steering angle sensor	Mainly transmits the following signals to ABS actuator and electric unit (control unit) via CAN communication: • Steering angle sensor signal • Steering angle sensor malfunction signal

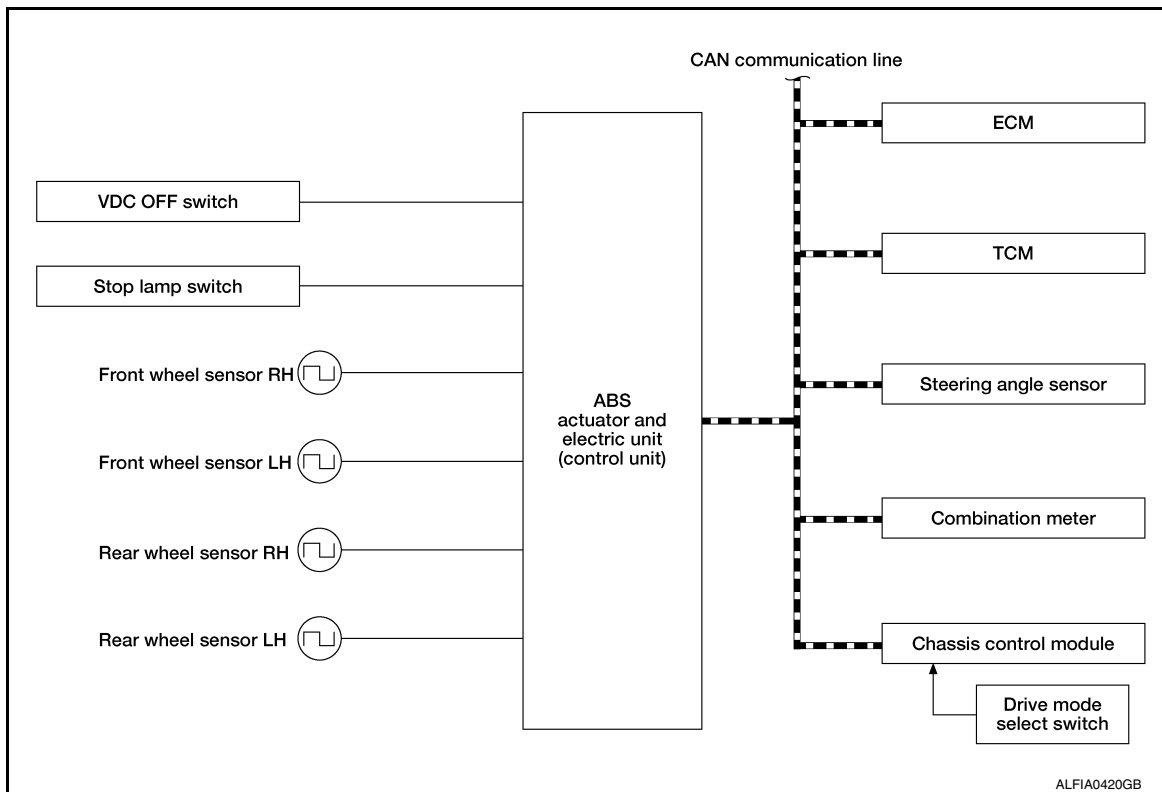
BRAKE ASSIST FUNCTION

BRAKE ASSIST FUNCTION : System Description

INFOID:000000010227766

- When the driver brakes hard in an emergency, the stopping distance is reduced by increasing brake fluid pressure.
- Fail-safe function is adopted. When a malfunction occurs in Brake assist function, the control is suspended for VDC function, TCS function, Brake limited slip differential (BLSD) function, Brake assist function, hill start assist function and Brake force distribution function. The vehicle status becomes the same as models without VDC function, TCS function, Brake limited slip differential (BLSD) function, Brake assist function, hill start assist function and Brake force distribution function. However, ABS function and EBD function are operated normally. Refer to [BRC-22. "Fail-Safe"](#).

SYSTEM DIAGRAM



INPUT SIGNAL AND OUTPUT SIGNAL

Major signal transmission between each unit via communication lines is shown in the following table.

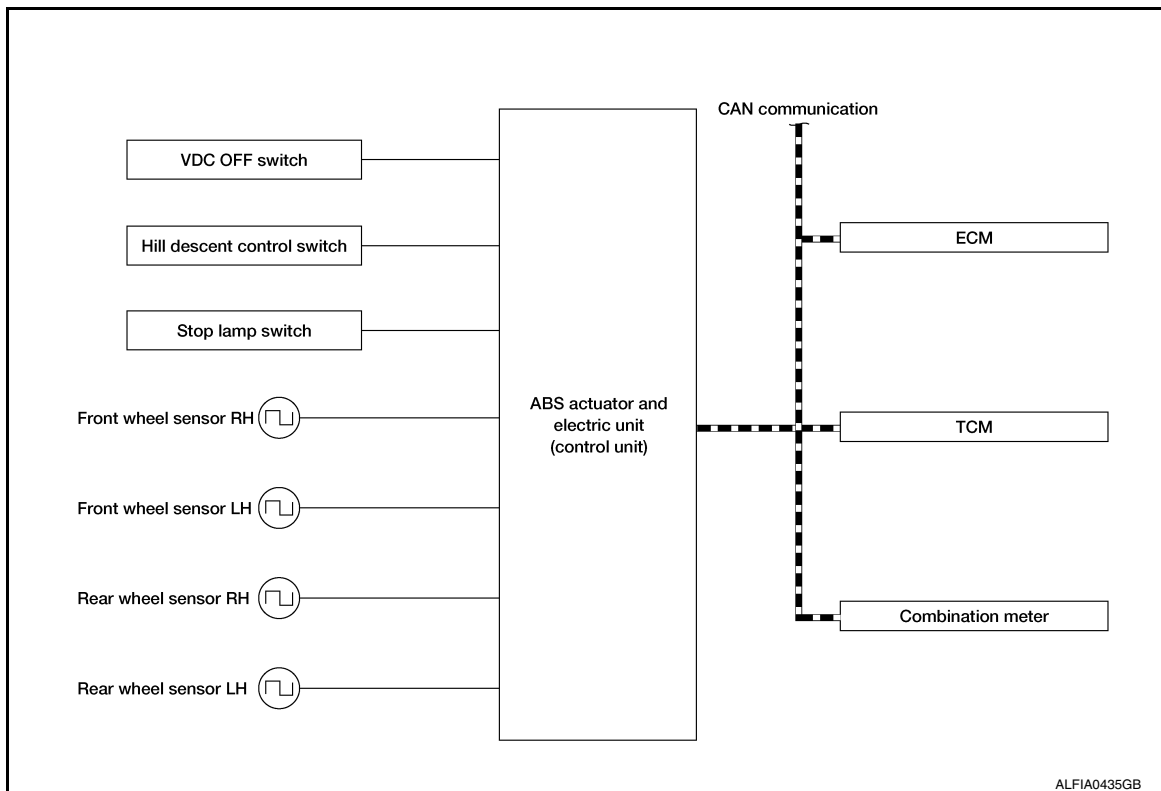
Component	Signal description
ECM	Mainly transmits the following signal to ABS actuator and electric unit (control unit) via CAN communication: • Accelerator pedal position signal • Engine speed signal • Engine torque signal Mainly receives the following signal from ABS actuator and electric unit (control unit) via CAN communication: • Engine torque request signal
TCM	Mainly transmits the following signal to ABS actuator and electric unit (control unit) via CAN communication: • Current gear position signal
Chassis control module	Mainly transmits the following signal to ABS actuator and electric unit (control unit) via CAN communication: • Active trace control signal

Component	Signal description
Combination meter	Mainly receives the following signals from ABS actuator and electric unit (control unit) via CAN communication: • Brake fluid level switch signal • Parking brake switch signal Mainly receives the following signals from ABS actuator and electric unit (control unit) via CAN communication: • VDC warning lamp signal • VDC OFF indicator lamp signal
Steering angle sensor	Mainly transmits the following signals to ABS actuator and electric unit (control unit) via CAN communication: • Steering angle sensor signal • Steering angle sensor malfunction signal

hill descent control (Downhill Drive Support) FUNCTION

hill descent control (Downhill Drive Support) FUNCTION : System Diagram

INFOID:0000000010256026



hill descent control (Downhill Drive Support) FUNCTION : System Description

INFOID:0000000010256027

- The hill descent control system will help maintain vehicle speed when driving on steeper downhill grades. Hill descent control will provide braking allowing the driver to concentrate on steering while reducing the burden of brake and accelerator operation.
- To operate the system, push the hill descent control switch. the hill descent control indicator in the combination meter will turn on
- Hill start assist function is only for the start aid. It maintains the brake fluid pressure for approx. 2 seconds after releasing the brake pedal, and then decreases the pressure gradually. If the vehicle starts by the accelerator operation, the brake is released automatically and a smooth start can be performed.
- Fail-safe function is adopted. When a malfunction occurs in hill start assist function, the control is suspended for VDC function, TCS function, hill start assist function, Brake force distribution function and Active trace control function. The vehicle status becomes the same as models without VDC function, TCS function, hill start assist function, Brake force distribution function and Active trace control function. However, ABS function and EBD function are operated normally. Refer to [BRC-51, "Fail-Safe"](#).

< SYSTEM DESCRIPTION >

INPUT SIGNAL AND OUTPUT SIGNAL

Major signal transmission between each unit via communication lines is shown in the following table.

Component	Signal description
Yaw rate/side/decel G sensor	Mainly transmits the following signals to ABS actuator and electric unit (control unit) via communication line *: • Yaw rate signal • Side G sensor signal • Decel G sensor signal
ECM	Mainly transmits the following signals to ABS actuator and electric unit (control unit) via CAN communication: • Accelerator pedal position signal • Engine speed signal Mainly receives the following signal from ABS actuator and electric unit (control unit) via CAN communication: • Target throttle position signal
TCM	Mainly transmits the following signal to ABS actuator and electric unit (control unit) via CAN communication: • Shift position signal
Combination meter	Mainly transmits the following signals to ABS actuator and electric unit (control unit) via CAN communication: • Brake fluid level switch signal • Parking brake switch signal Mainly receives the following signals from ABS actuator and electric unit (control unit) via CAN communication: • VDC warning lamp signal • VDC OFF indicator lamp signal

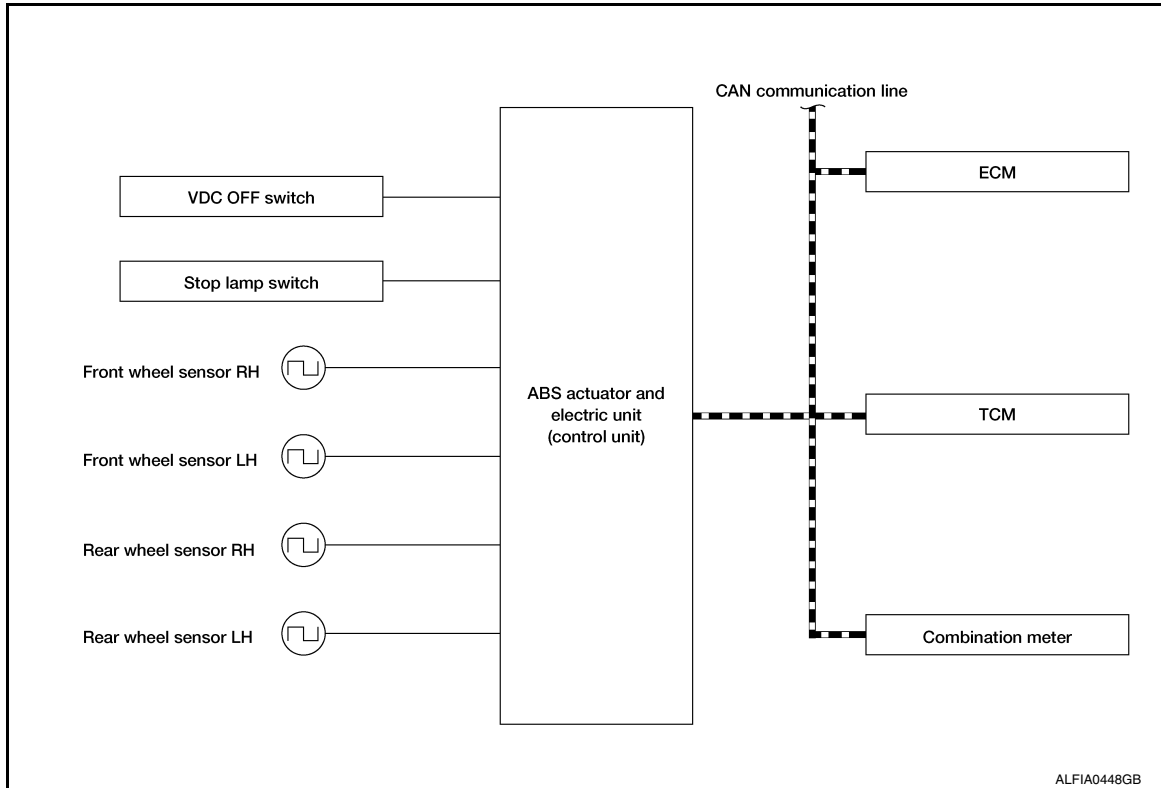
*: Communication line between yaw rate/side/decel G sensor and ABS actuator and electric unit (control unit)
hill start assist FUNCTION

hill start assist FUNCTION : System Description

INFOID:0000000010227767

- This function maintains brake fluid pressure so that the vehicle does not move backwards even if brake pedal is released to depress accelerator pedal to start the vehicle while it is stopped on an uphill slope by depressing brake pedal.
- This function operates when the vehicle is in stop status on a uphill slope of slope ratio 10% or more and selector lever is in the position other than P or N.
- hill start assist function is only for the start aid. It maintains the brake fluid pressure for approx. 2 seconds after releasing the brake pedal, and then decreases the pressure gradually. If the vehicle can start by the accelerator operation, the brake is released automatically and a smooth start can be performed.
- Fail-safe function is adopted. When a malfunction occurs in hill start assist function, the control is suspended for VDC function, TCS function, Brake limited slip differential (BLSD) function, Brake assist function, hill start assist function and Brake force distribution function. The vehicle status becomes the same as models without VDC function, TCS function, Brake limited slip differential (BLSD) function, Brake assist function, hill start assist function and Brake force distribution function. However, ABS function and EBD function are operated normally. Refer to [BRC-22. "Fail-Safe"](#).

SYSTEM DIAGRAM



INPUT SIGNAL AND OUTPUT SIGNAL

Major signal transmission between each unit via communication lines is shown in the following table.

Component	Signal description
ECM	Mainly transmits the following signals to ABS actuator and electric unit (control unit) via CAN communication: • Accelerator pedal position signal • Engine speed signal • Engine torque signal Mainly receive: the following signal from ABS actuator and electric unit (control unit) via CAN communication: • Engine torque request signal
TCM	Mainly transmits the following signal to ABS actuator and electric unit (control unit) via CAN communication: • Current gear position signal
Combination meter	Mainly receives the following signals from ABS actuator and electric unit (control unit) via CAN communication: • Brake fluid level switch signal • Parking brake switch signal Mainly receives the following signals from ABS actuator and electric unit (control unit) via CAN communication: • VDC warning lamp signal • VDC OFF indicator lamp signal

BRAKE FORCE DISTRIBUTION FUNCTION

BRAKE FORCE DISTRIBUTION FUNCTION : System Description

INFOID:0000000010227768

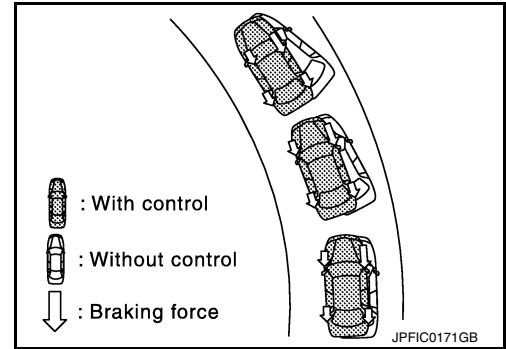
- Brake force distribution function is controlled by ABS actuator and electric unit (control unit).

SYSTEM

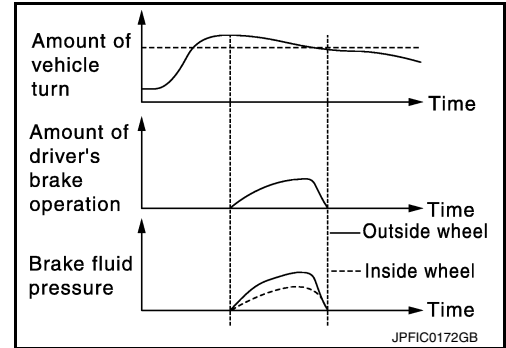
< SYSTEM DESCRIPTION >

[VDC/TCS/ABS]

- Brake force distribution function helps provide a more stable and secure feeling.



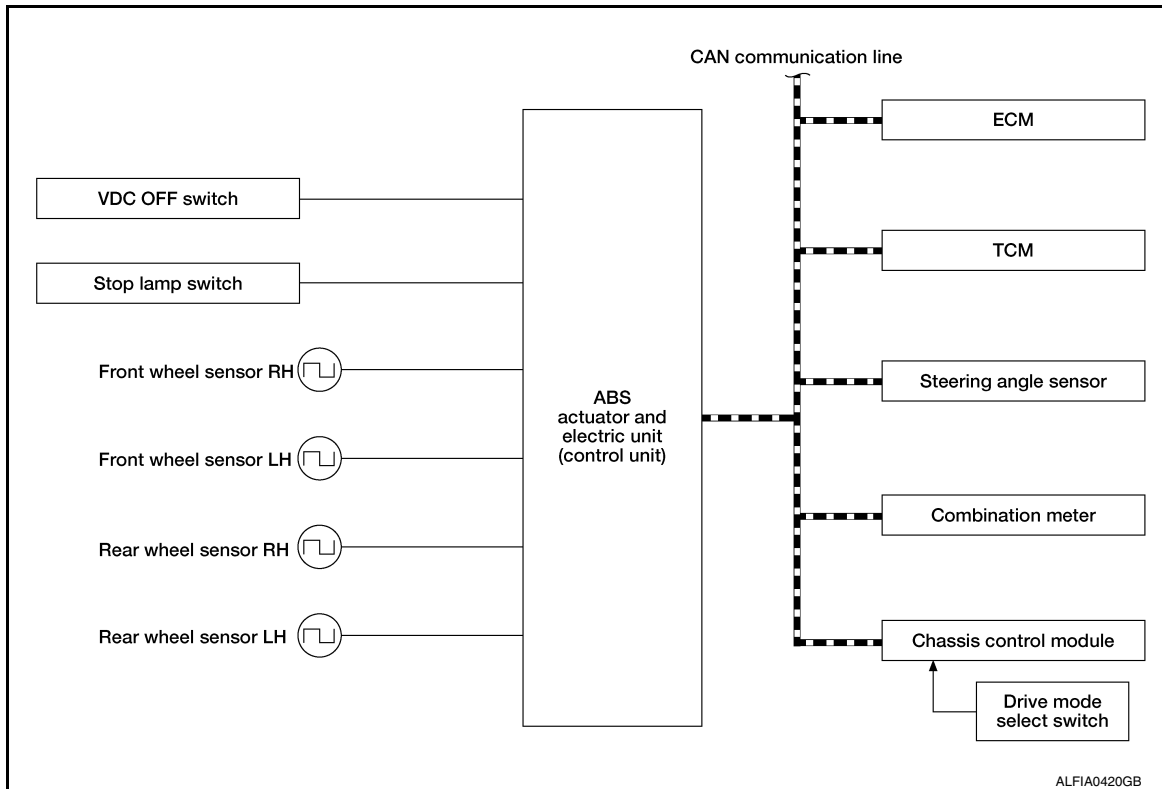
- During cornering, when brake operation is performed brake fluid pressure of each wheel is controlled based on steering operation amount by the driver and vehicle cornering status amount detected by each sensor.
- Fail-safe function is adopted. When a malfunction occurs in Brake force distribution function, the control is suspended for VDC function, TCS function, Brake limited slip differential (BLSD) function, Brake assist function, hill start assist function and Brake force distribution function. The vehicle status becomes the same as models without VDC function, TCS function, Brake limited slip differential (BLSD) function, Brake assist function, hill start assist function and Brake force distribution function. However, ABS function and EBD function are operated normally. Refer to [BRC-22. "Fail-Safe"](#).



NOTE:

Brake force distribution function may not always be operates in all driving conditions.

SYSTEM DIAGRAM



INPUT SIGNAL AND OUTPUT SIGNAL

Major signal transmission between each unit via communication lines is shown in the following table.

SYSTEM

< SYSTEM DESCRIPTION >

[VDC/TCS/ABS]

Component	Signal description
ECM	Mainly transmits the following signals to ABS actuator and electric unit (control unit) via CAN communication: • Accelerator pedal position signal • Engine speed signal • Engine torque signal Mainly receives the following signals from ABS actuator and electric unit (control unit) via CAN communication. • Engine torque request signal
TCM	Mainly transmits the following signal to ABS actuator and electric unit (control unit) via CAN communication: • Current gear position signal
Chassis control module	Mainly transmits the following signal to ABS actuator and electric unit (control unit) via CAN communication: • Active trace control signal
Combination meter	Mainly receives the following signals from ABS actuator and electric unit (control unit) via CAN communication: • Brake fluid level switch signal • Parking brake switch signal Mainly receives the following signals from ABS actuator and electric unit (control unit) via CAN communication: • Brake warning lamp signal • ABS warning lamp signal • VDC warning lamp signal • VDC OFF indicator lamp signal
Steering angle sensor	Mainly transmits the following signals to ABS actuator and electric unit (control unit) via CAN communication: • Steering angle sensor signal • Steering angle sensor malfunction signal

ACTIVE TRACE CONTROL FUNCTION

ACTIVE TRACE CONTROL FUNCTION : System Description

INFOID:0000000010227769

- Active trace control function controls the braking utilizing the ABS actuator and electric unit (control unit), depending on cornering condition calculated from driver's steering input and plural sensors.
- Active trace control function is aimed to enhance traceability at corners and smooth the vehicle movement to provide confident driving.
- When the drive mode select switch is set to the "SPORT" mode, the amount of brake control provided by active trace control is reduced.
- For "PERSONAL" mode, the active trace control can be selected ON or OFF. Refer to [BRC-39. "ACTIVE TRACE CONTROL FUNCTION : System Description"](#).
- When the VDC OFF switch is used to turn OFF the VDC system, the active trace control system is also turned OFF.
- When the active trace control is operated, active trace control graphics are shown on the information display of combination meter. These are shown only when "Chassis control" is selected on the information display. Refer to [DAS-175. "System Description - Chassis Control"](#).
- When the active trace control is not functioning properly, the master warning lamp illuminates. Warning message "Chassis control" will also appear on information display.

NOTE:

- The active trace control may not be effective depending on the driving condition. Always driving carefully and attentively.
- Brake pedal may vibrate and brake pedal feel may change during active trace control operation. Also operation noise may be noticeable during operation. These are not abnormal conditions.
- When the active trace control is selected OFF, some functions will be kept ON to assist driver. (For example, avoidance condition.)

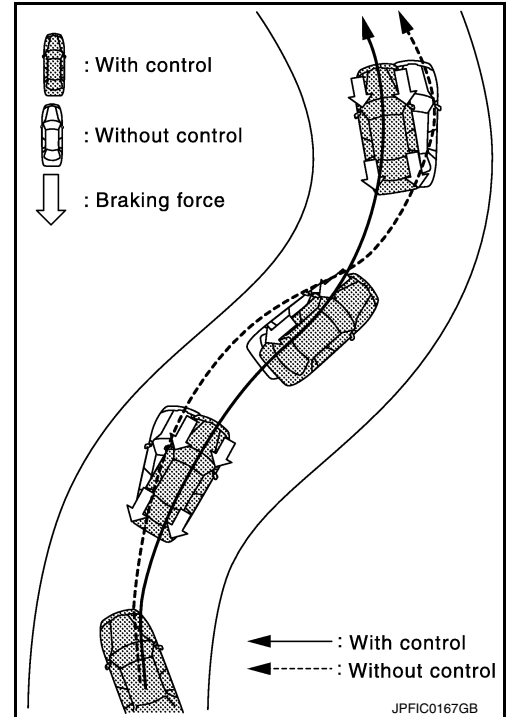
OPERATION CHARACTERISTICS

SYSTEM

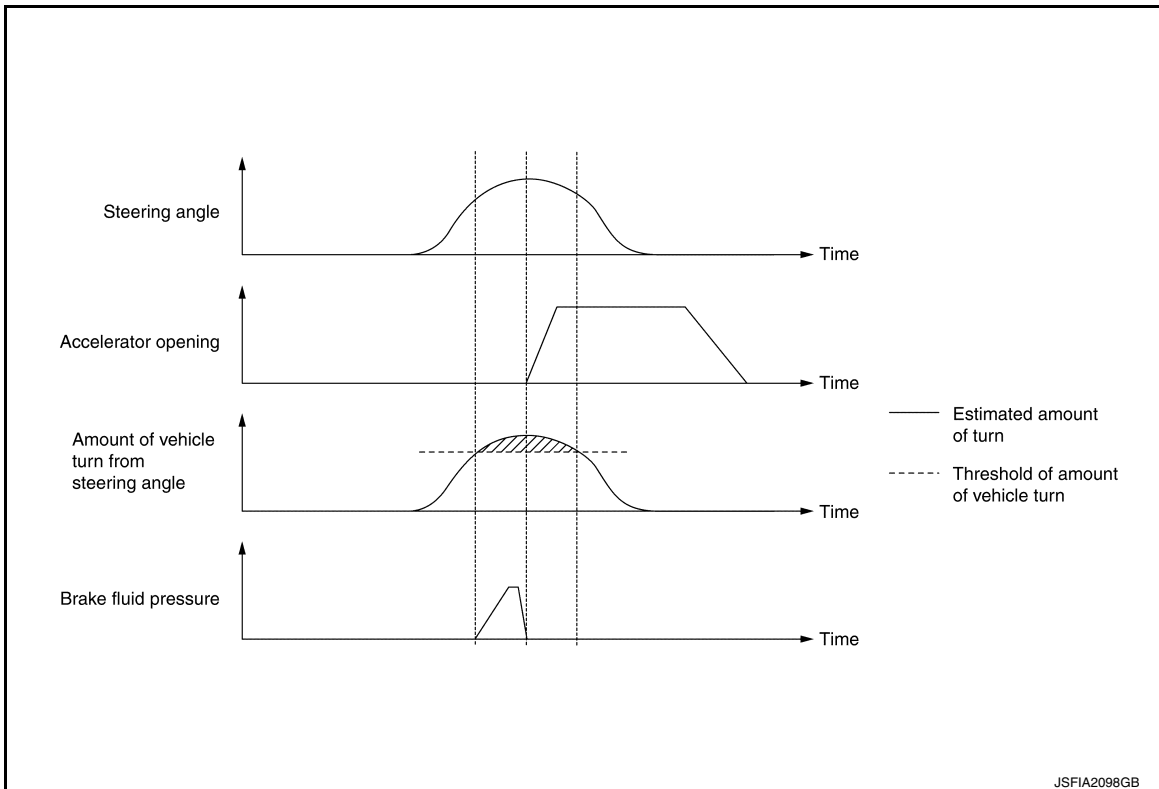
< SYSTEM DESCRIPTION >

[VDC/TCS/ABS]

Active trace control helps enhance the transition from braking into and then accelerating out of corners. Active trace control utilizes the vehicle's electrically-driven intelligent brake system to help improve cornering feel by automatically applying brakes. Furthermore, Active trace control will apply selective braking to help create increased steering response in S-turns. For example, if driving through an S-turn that starts with steering to the right, the right-side brakes are engaged to create a yaw momentum and help turn the vehicle.



- Brake control amount is controlled according to steering operation status by the driver and vehicle cornering status.

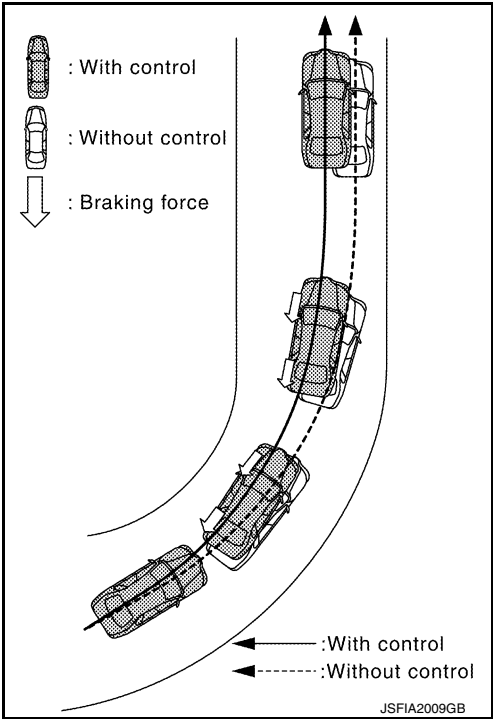


SYSTEM

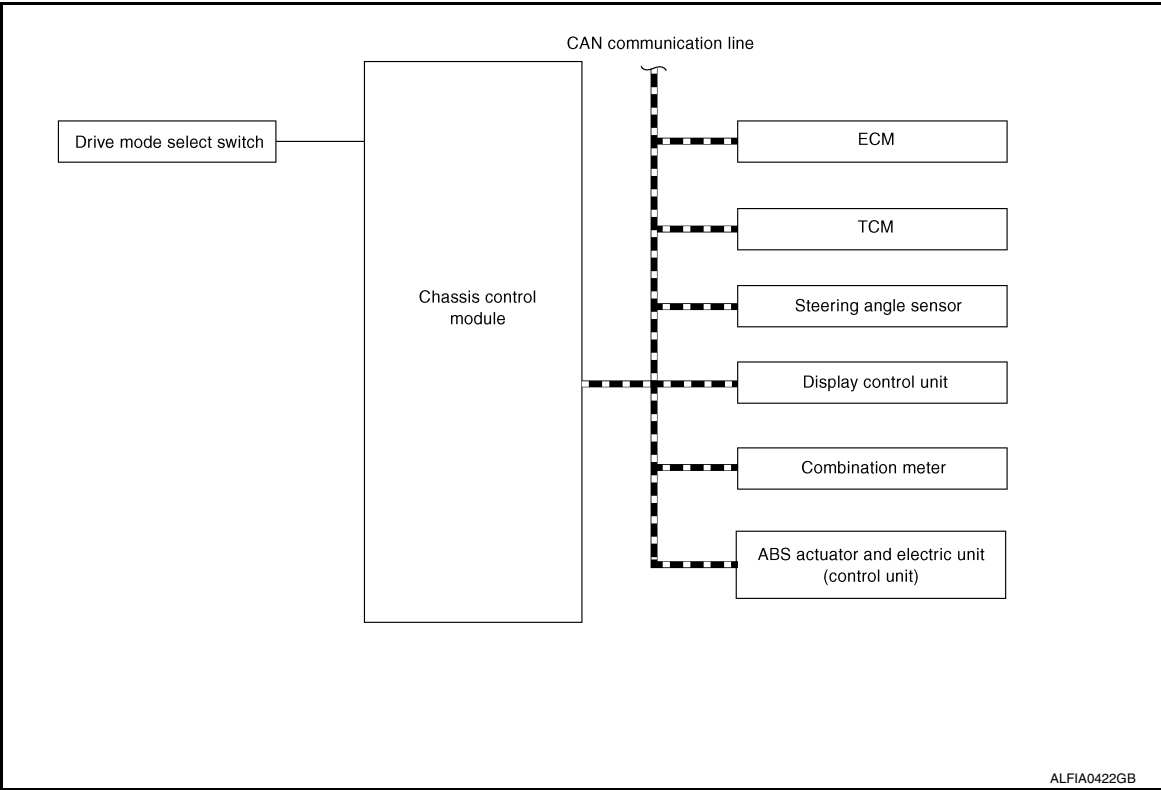
< SYSTEM DESCRIPTION >

[VDC/TCS/ABS]

- During cornering, the brake control system limits changes in steering angle by controlling the inner ring brakes according to accelerator pedal operation and allows smooth movement of the vehicle to achieve stable cornering.



SYSTEM DIAGRAM



INPUT SIGNAL AND OUTPUT SIGNAL

Major signal transmission between each unit via communication lines is shown in the following table.

SYSTEM

< SYSTEM DESCRIPTION >

[VDC/TCS/ABS]

Component	Signal description
ECM	Mainly transmits the following signals to chassis control module via CAN communication: • Accelerator pedal position signal • Engine torque signal • Engine speed signal
TCM	Mainly transmits the following signal to chassis control module via CAN communication: • Current gear position signal
ABS actuator and electric unit (control unit)	Mainly transmits the following signals to chassis control module via CAN communication: • Front LH wheel speed signal • Front RH wheel speed signal • Rear LH wheel speed signal • Rear RH wheel speed signal • ABS operation signal • TCS operation signal • VDC operation signal • Stop lamp switch signal • Vehicle speed signal (ABS) • Yaw rate signal • Side G signal • Decel G signal • VDC OFF switch signal • Brake fluid pressure signal • Steering angle sensor signal Mainly receives the following signal from chassis control module via CAN communication: • Active trace control signal
Steering angle sensor	Mainly transmits the following signal to chassis control module via CAN communication: • Steering angle sensor signal
Chassis control module	Mainly transmits the following signals to ABS actuator and electric unit (control unit) via CAN communication: • Active Trace Control signal • Drive mode signal
Display control unit	Mainly transmits the following signal to chassis control module via CAN communication line: • System selection signal
Combination meter	Mainly receives the following signals from chassis control module via CAN communication. • Chassis control malfunction signal • Active trace control display signal
Drive mode select switch	Mainly transmits the following signal to chassis control module: • Drive mode signal

WARNING/INDICATOR/CHIME LIST

WARNING/INDICATOR/CHIME LIST : Warning Lamp/Indicator Lamp

INFOID:0000000010227770

SYSTEM

< SYSTEM DESCRIPTION >

[VDC/TCS/ABS]

Name	Design	Layout/Function
ABS warning lamp	ABS or 	For function: Refer to BRC-119, "Component Function Check" .
Brake warning lamp	BRAKE or 	For function: Refer to BRC-120, "Component Function Check" .
VDC OFF indicator lamp		For function: Refer to BRC-123, "Component Function Check" .
VDC warning lamp		For function: Refer to BRC-122, "Component Function Check" .

A
B
C
D
E
G
H
I
J
K
L
M
N
O
P

BRC

DIAGNOSIS SYSTEM [ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)]

< SYSTEM DESCRIPTION >

[VDC/TCS/ABS]

DIAGNOSIS SYSTEM [ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)]

CONSULT Function

INFOID:0000000010227771

APPLICATION ITEMS

CONSULT can display each diagnostic item using the diagnostic test modes as follows.

Mode	Function description
ECU identification	Parts number of ABS actuator and electric unit (control unit) can be read.
Self Diagnostic Result	Self-diagnostic results and freeze frame data can be read and erased quickly.*
DATA MONITOR	Input/Output data in the ABS actuator and electric unit (control unit) can be read.
ACTIVE TEST	Diagnostic Test Mode in which CONSULT drives some actuators apart from the ABS actuator and electric unit (control unit) and also shifts some parameters in a specified range.
WORK SUPPORT	Components can be quickly and accurately adjusted.
Re/programming, Configuration	• Read and save the vehicle specification (TYPE ID). • Write the vehicle specification (TYPE ID) when replacing ABS actuator and electric unit (control unit).

*: The following diagnosis information is erased by erasing.

- DTC
- Freeze frame data (FFD)

ECU IDENTIFICATION

ABS actuator and electric unit (control unit) part number can be read.

SELF DIAGNOSTIC RESULT

Refer to [BRC-55, "DTC Index"](#).

When "CRNT" is displayed on self-diagnosis result,

- The system is presently malfunctioning.

When "PAST" is displayed on self-diagnosis result,

- System malfunction in the past is detected, but the system is presently normal.

Freeze frame data (FFD)

The following vehicle status is recorded when DTC is detected and is displayed on CONSULT.

Item name	Display item
IGN counter (0 – 39)	The number of times that ignition switch is turned ON after the DTC is detected is displayed. • When "0" is displayed: It indicates that the system is presently malfunctioning. • When except "0" is displayed: It indicates that system malfunction in the past is detected, but the system is presently normal. NOTE: Each time when ignition switch is turned OFF to ON, numerical number increases in 1 → 2 → 3...38 → 39. When the operation number of times exceeds 39, the number do not increase and "39" is displayed until self-diagnosis is erased.

ACTIVE TEST

The active test is used to determine and identify details of a malfunction, based on self-diagnosis test results and data obtained in the DATA MONITOR. In response to instructions from CONSULT, instead of those from ABS actuator and electric unit (control unit) on the vehicle, a drive signal is sent to the actuator to check its operation.

CAUTION:

- **Never perform ACTIVE TEST while driving the vehicle.**
- **Always bleed air from brake system before active test.**
- **Never perform active test when system is malfunctioning.**

NOTE:

- When active test is performed while depressing the pedal, the pedal depressing stroke may change. This is not a malfunction.
- "TEST IS STOPPED" is displayed approx. 10 seconds after operation start.

DIAGNOSIS SYSTEM [ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)]

< SYSTEM DESCRIPTION >

[VDC/TCS/ABS]

- When performing active test again after “TEST IS STOPPED” is displayed, select “BACK”.
- ABS warning lamp, brake warning lamp and VDC warning lamp may turn ON during active test. This is not a malfunction.

ABS IN Valve and ABS OUT Valve

When “Up”, “Keep” or “Down” is selected on display screen, the following items are displayed when system is normal.

Test item	Display Item	Display		
		Up	Keep	Down
FR RH SOL	FR RH IN SOL	Off	On*	On*
	FR RH OUT SOL	Off	Off	On*
	CV2	Off	Off	Off
FR LH SPL	FR LH IN SOL	Off	On*	On*
	FR LH OUT SOL	Off	Off	On*
	CV1	Off	Off	Off
RR RH SOL	RR RH IN SOL	Off	On*	On*
	RR RH OUT SOL	Off	Off	On*
	CV1	Off	Off	Off
RR LH SOL	RR LH IN SOL	Off	On*	On*
	RR LH OUT SOL	Off	Off	On*
	CV2	Off	Off	Off

*: Immediately after being selected, status is “On”. Status changes to “Off” after approx. 2 seconds.

ABS IN Valve (ACT) and ABS OUT Valve (ACT)

When “Up”, “ACT UP” or “ACT KEEP” is selected on display screen, the following items are displayed when system is normal.

Test item	Display Item	Display		
		Up	ACT UP	ACT KEEP
FR RH SOL (ACT)	FR RH IN SOL	Off	Off	Off
	FR RH OUT SOL	Off	Off	Off
	CV2	Off	On*	On*
FR LH SOL (ACT)	FR LH IN SOL	Off	Off	Off
	FR LH OUT SOL	Off	Off	Off
	CV1	Off	On*	On*
RR RH SOL (ACT)	RR RH IN SOL	Off	Off	Off
	RR RH OUT SOL	Off	Off	Off
	CV1	Off	On*	On*
RR LH SOL (ACT)	RR LH IN SOL	Off	Off	Off
	RR LH OUT SOL	Off	Off	Off
	CV2	Off	On*	On*

*: Immediately after being selected, status is “On”. Status changes to “Off” after approx. 10 seconds.

ABS MOTOR

When “On” or “Off” is selected on display screen, the following items are displayed when system is normal.

Test item	Display Item	Display	
		On	Off
ABS MOTOR	MOTOR RELAY	On	Off
	ACTUATOR RLY ^(Note)	On	On

DIAGNOSIS SYSTEM [ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)]

< SYSTEM DESCRIPTION >

[VDC/TCS/ABS]

NOTE:

Display occasionally changes On/Off for a moment after ignition switch is turned ON. This is operation for checking purposes and is not a malfunction.

DATA MONITOR

NOTE:

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

×: Applicable

Item (Unit)	Monitor item selection		Note
	INPUT SIGNALS	MAIN SIGNALS	
FR LH SENSOR [km/h (MPH)]	×	×	Wheel speed calculated by front LH wheel sensor is displayed.
FR RH SENSOR [km/h (MPH)]	×	×	Wheel speed calculated by front RH wheel sensor is displayed.
RR LH SENSOR [km/h (MPH)]	×	×	Wheel speed calculated by rear LH wheel sensor is displayed.
RR RH SENSOR [km/h (MPH)]	×	×	Wheel speed calculated by rear RH wheel sensor is displayed.
DECEL G-SEN (m/s ²)	×		Decel G detected by decel G sensor is displayed.
FR RH IN SOL (On/Off)		×	Operation status of front RH wheel ABS IN valve is displayed.
FR RH OUT SOL (On/Off)		×	Operation status of front RH wheel ABS OUT valve is displayed.
FR LH IN SOL (On/Off)		×	Operation status of front LH wheel ABS IN valve is displayed.
FR LH OUT SOL (On/Off)		×	Operation status of front LH wheel ABS OUT valve is displayed.
RR RH IN SOL (On/Off)		×	Operation status of rear RH wheel ABS IN valve is displayed.
RR RH OUT SOL (On/Off)		×	Operation status of rear RH wheel ABS OUT valve is displayed.
RR LH IN SOL (On/Off)		×	Operation status of rear LH wheel ABS IN valve is displayed.
RR LH OUT SOL (On/Off)		×	Operation status of rear LH wheel ABS OUT valve is displayed.
EBD WARN LAMP (On/Off)			Brake warning lamp ON/OFF status is displayed. (Note 1)
STOP LAMP SW (On/Off)	×	×	Stop lamp switch signal input status is displayed.
MOTOR RELAY (On/Off)		×	ABS motor and motor relay status is displayed.
ACTUATOR RLY (On/Off)		×	ABS actuator relay status is displayed.
ABS WARN LAMP (On/Off)		×	ABS warning lamp ON/OFF status is displayed. (Note 1)
OFF LAMP (On/Off)		×	VDC OFF indicator lamp ON/OFF status is displayed. (Note 1)
SLIP/VDC LAMP (On/Off)		×	VDC warning lamp ON/OFF status is displayed. (Note 1)
BATTERY VOLT (V)	×	×	Voltage supplied to ABS actuator and electric unit (control unit) is displayed.
GEAR	×	×	Current gear position judged from current gear position signal is displayed.

DIAGNOSIS SYSTEM [ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)]

< SYSTEM DESCRIPTION >

[VDC/TCS/ABS]

Item (Unit)	Monitor item selection		Note
	INPUT SIGNALS	MAIN SIGNALS	
SLCT LVR POSI	×	×	Current gear position judged from current gear position signal is displayed.
YAW RATE SEN (d/s)	×	×	Yaw rate detected by yaw rate sensor is displayed.
R POSI SIG (On/Off)			R range signal input status judged from R range signal is displayed.
4WD MODE MON ^(Note 2) (AUTO/LOCK/2WD)	×	×	AWD control status is displayed.
N POSI SIG (On/Off)			N range signal input status judged from N range signal is displayed.
P POSI SIG (On/Off)			P range signal input status judged from P range signal is displayed.
ACCEL POS SIG (%)	×		Displays the Accelerator pedal position
SIDE G-SENSOR (m/s ²)	×		Side G detected by side G sensor is displayed.
STR ANGLE SIG	×		Steering angle detected by steering angle sensor is displayed.
PRESS SENSOR (bar)	×		Brake fluid pressure detected by pressure sensor is displayed.
EBD SIGNAL (On/Off)			EBD operation status is displayed.
ABS SIGNAL (On/Off)			ABS operation status is displayed.
TCS SIGNAL (On/Off)			TCS operation status is displayed.
VDC SIGNAL (On/Off)			VDC operation status is displayed.
EBD FAIL SIG (On/Off)			EBD fail-safe signal status is displayed.
ABS FAIL SIG (On/Off)			ABS fail-safe signal status is displayed.
TCS FAIL SIG (On/Off)			TCS fail-safe signal status is displayed.
VDC FAIL SIG (On/Off)			VDC fail-safe signal status is displayed.
CRANKING SIG (On/Off)			Cranking status is displayed.
FLUID LEV SW (On/Off)	×		Brake fluid level signal input status via CAN communication is displayed.
PARK BRAKE SW (On/Off)	×		Parking brake switch signal input status via CAN communication is displayed.
USV[FL-RR] (On/Off)			Primary side USV solenoid valve (On/Off) status is displayed.
USV[FR-RL] (On/Off)			Secondary side USV solenoid valve (On/Off) status is displayed.
HSV[FL-RR] (On/Off)			Primary side HSV solenoid valve (On/Off) status is displayed.
HSV[FR-RL] (On/Off)			Secondary side HSV solenoid valve (On/Off) status is displayed.

A

B

C

D

E

BRC

G

H

I

J

K

L

M

N

O

P

DIAGNOSIS SYSTEM [ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)]

< SYSTEM DESCRIPTION >

[VDC/TCS/ABS]

Item (Unit)	Monitor item selection		Note
	INPUT SIGNALS	MAIN SIGNALS	
V/R OUTPUT (On/Off)			Valve relay operation signal (On/Off) status is displayed.
M/R OUTPUT (On/Off)			Motor relay operation signal (On/Off) status is displayed.
ENGINE RPM (tr/min)	×		Engine speed status is displayed.
DDS SW ^(Note 3)			Downhill Drive Support switch status is displayed.
DDS SIG ^(Note 3)			Downhill Drive Support operation status is displayed.
USS SIG ^(Note 4) (On/Off)			hill start assist operation status is displayed.

Note 1: Refer to [BRC-14. "System Description"](#) for ON/OFF conditions of each warning lamp and indicator lamp.

Note 2: AWD models

Note 3: DDS" (Downhill Drive Support)

Note 4: USS (Hill Start Assist)

WORK SUPPORT

Conditions	Description
ST ANGLE SENSOR ADJUSTMENT	Perform neutral position adjustment of steering angle sensor.
DECEL G SEN CALIBRATION	Perform decel G sensor calibration.

ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

< ECU DIAGNOSIS INFORMATION >

[VDC/TCS/ABS]

ECU DIAGNOSIS INFORMATION

ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

Reference Value

INFOID:0000000010227772

CONSULT DATA MONITOR STANDARD VALUE

NOTE:

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

Monitor item	Condition	Reference values in normal operation
FR LH SENSOR	Vehicle stopped	0.00 km/h (MPH)
	When driving ^(Note 1)	Nearly matches the speedometer display (within $\pm 10\%$)
FR RH SENSOR	Vehicle stopped	0.00 km/h (MPH)
	When driving ^(Note 1)	Nearly matches the speedometer display (within $\pm 10\%$)
RR LH SENSOR	Vehicle stopped	0.00 km/h (MPH)
	When driving ^(Note 1)	Nearly matches the speedometer display (within $\pm 10\%$)
RR RH SENSOR	Vehicle stopped	0.00 km/h (MPH)
	When driving ^(Note 1)	Nearly matches the speedometer display (within $\pm 10\%$)
BATTERY VOLT	Ignition switch ON	10 – 16 V
STOP LAMP SW	Brake pedal depressed	On
	Brake pedal not depressed	Off
OFF SW	VDC OFF switch ON	On
	VDC OFF switch OFF	Off
YAW RATE SEN	Vehicle stopped	Approx. 0 d/s
	Turning right	Negative value
	Turning left	Positive value
FR RH IN SOL	Active	On
	Not activated	Off
FR RH OUT SOL	Active	On
	Not activated	Off
FR LH IN SOL	Active	On
	Not activated	Off
FR LH OUT SOL	Active	On
	Not activated	Off
RR RH IN SOL	Active	On
	Not activated	Off
RR RH OUT SOL	Active	On
	Not activated	Off
RR LH IN SOL	Active	On
	Not activated	Off
RR LH OUT SOL	Active	On
	Not activated	Off

ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

< ECU DIAGNOSIS INFORMATION >

[VDC/TCS/ABS]

Monitor item	Condition	Reference values in normal operation
MOTOR RELAY	Active	On
	Not activated	Off
ACTUATOR RLY	Active	On
	When not operating (in fail-safe mode)	Off
ABS WARN LAMP	When ABS warning lamp is ON ^(Note 2)	On
	When ABS warning lamp is OFF ^(Note 2)	Off
OFF LAMP	When VDC OFF indicator lamp is ON ^(Note 2)	On
	When VDC OFF indicator lamp is OFF ^(Note 2)	Off
SLIP/VDC LAMP	When VDC warning lamp is ON ^(Note 2)	On
	When VDC warning lamp is OFF ^(Note 2)	Off
ACCEL POS SIG	Never depress accelerator pedal (with ignition switch ON)	0%
	Depress accelerator pedal (with ignition switch ON)	0 – 100%
SIDE G-SENSOR	Vehicle stopped	Approx. 0 m/s ²
	Right turn	Negative value
	Left turn	Positive value
DECEL G-SEN	When stopped	Approx. ±0.01 G
	During acceleration	Positive value
	During deceleration	Negative value
STR ANGLE SIG	When driving straight	0±3.5°
	When steering wheel is steered to RH by 90°	Approx. +90°
	When steering wheel is steered to LH by 90°	Approx. -90°
ENGINE SPEED	Engine stopped	0 tr/min
	Engine running	Almost same reading as tachometer
PRESS SENSOR	Brake pedal not depressed	Approx. 0 bar
	Brake pedal depressed	(-40) – (+300 bar)
FLUID LEV SW	When brake fluid level switch is ON (brake fluid level is less than the specified level)	On
	When brake fluid level switch is OFF	Off
PARK BRAKE SW	When parking brake is active	On
	Parking brake is released	Off
CV1	Active	On
	Not activated	Off
CV2	Active	On
	Not activated	Off
EBD SIGNAL	EBD activated	On
	EBD not activated	Off
ABS SIGNAL	ABS is activated	On
	ABS is not activated	Off
TCS SIGNAL	TCS activated	On
	TCS not activated	Off
VDC SIGNAL	VDC activated	On
	VDC not activated	Off

ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

< ECU DIAGNOSIS INFORMATION >

[VDC/TCS/ABS]

Monitor item	Condition	Reference values in normal operation
EBD FAIL SIG	In EBD fail-safe	On
	EBD is normal	Off
ABS FAIL SIG	In ABS fail-safe	On
	ABS is normal	Off
TCS FAIL SIG	In TCS fail-safe	On
	TCS is normal	Off
VDC FAIL SIG	In VDC fail-safe	On
	VDC is normal	Off
CRANKING SIG	At cranking	On
	Other than at cranking	Off
EBD WARN LAMP	When brake warning lamp is ON ^(Note 2)	On
	When brake warning lamp is OFF ^(Note 2)	Off
GEAR	Driving	1 – 7 Depending on shift status
N POSI SIG	When selector lever is in the N position	On
	When selector lever is in the other position than N	Off
R POSI SIG	When selector lever is in the R position	On
	When selector lever is in the other position than R	Off
4WD MODE MON ^(Note 3)	Always	AUTO, LOCK, 2WD (depending on AWD control status)
DDS SW ^(Note 4) (On/Off)	Hill descent switch ON	On
	Hill Descent switch OFF	Off
DDS SIG ^(Note 4) (On/Off)	When hill descent control is active	On
	When hill descent control is inactive	Off
USS SIG ^(Note 5)	When hill start assist is active	On
	When hill start assist is not active	Off

Note 1: Confirm tire pressure is standard value.

Note 2: Refer to [BRC-14. "System Description"](#) for ON/OFF conditions of each warning lamp and indicator lamp.

Note 3: AWD models

Note 4: DDS (Downhill Drive Support)

Note 5: USS (Hill Start Assist)

Fail-Safe

INFOID:0000000010227773

VDC FUNCTION, TCS FUNCTION, BRAKE LIMITED SLIP DIFFERENTIAL FUNCTION, BRAKE ASSIST FUNCTION, hill start assist FUNCTION AND BRAKE FORCE DISTRIBUTION FUNCTION

VDC warning lamp in combination meter turn ON when a malfunction occurs in system [ABS actuator and electric unit (control unit)]. The control is suspended for VDC function, TCS function, Brake limited slip differential (BLSD) function, Brake assist function, hill start assist function and Brake force distribution function. The vehicle status becomes the same as models without VDC function, TCS function, Brake limited slip differential (BLSD) function, Brake assist function, hill start assist function and Brake force distribution function. However, ABS function and EBD function are operated normally.

ABS FUNCTION

ABS warning lamp and VDC warning lamp in combination meter turn ON when a malfunction occurs in system [ABS actuator and electric unit (control unit)]. The control is suspended for VDC function, TCS function, ABS function, Brake limited slip differential (BLSD) function, Brake assist function, hill start assist function and Brake force distribution function. The vehicle status becomes the same as models without VDC function, TCS function, ABS function, Brake limited slip differential (BLSD) function, Brake assist function, hill start assist function and Brake force distribution function. However, EBD function is operated normally.

ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

< ECU DIAGNOSIS INFORMATION >

[VDC/TCS/ABS]

NOTE:

ABS self-diagnosis sound may be heard the same as in the normal condition, because self-diagnosis is performed when ignition switch turns ON and when vehicle initially starts.

EBD FUNCTION

ABS warning lamp, brake warning lamp and VDC warning lamp in combination meter turn ON when a malfunction occurs in system [ABS actuator and electric unit (control unit)]. The control is suspended for VDC function, TCS function, ABS function, EBD function, Brake limited slip differential (BLSD) function, Brake assist function, hill start assist function and Brake force distribution function. The vehicle status becomes the same as models without VDC function, TCS function, ABS function, EBD function, Brake limited slip differential (BLSD) function, Brake assist function, hill start assist function and Brake force distribution function.

DTC	Fail-safe condition
C1101	The following functions are suspended: • VDC function • TCS function • ABS function • EBD function (only when both 2 rear wheels are malfunctioning) • Brake limited slip differential (BLSD) function • Brake assist function • hill start assist function • hill descent function • Brake force distribution function • Active trace control function (control of chassis control module)
C1102	
C1103	
C1104	
C1105	
C1106	
C1107	
C1108	
C1109	The following functions are suspended: • VDC function • TCS function • ABS function • EBD function • Brake limited slip differential (BLSD) function • Brake assist function • hill start assist function • hill descent function • Brake force distribution function • Active trace control function (control of chassis control module)
C1111	
C1113	The following functions are suspended: • VDC function • TCS function • ABS function • EBD function • Brake limited slip differential (BLSD) function • Brake assist function • hill start assist function • hill descent function • Brake force distribution function • Active trace control function (control of chassis control module)
C1115	The following functions are suspended: • VDC function • TCS function • ABS function • Brake limited slip differential (BLSD) function • Brake assist function • hill start assist function • hill descent function • Brake force distribution function • Active trace control function (control of chassis control module)
C1120	The following functions are suspended: • VDC function • TCS function • ABS function • EBD function • Brake limited slip differential (BLSD) function • Brake assist function • hill start assist function • Brake force distribution function • Active trace control function (control of chassis control module)
C1121	
C1122	
C1123	
C1124	
C1125	
C1126	
C1127	

ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

< ECU DIAGNOSIS INFORMATION >

[VDC/TCS/ABS]

DTC	Fail-safe condition	
C1130	The following functions are suspended:	A
C1138	• VDC function • TCS function • Brake limited slip differential (BLSD) function • hill start assist function • Brake force distribution function • Active trace control function (control of chassis control module)	B
C1140	The following functions are suspended: • VDC function • TCS function • ABS function • EBD function • Brake limited slip differential (BLSD) function • Brake assist function • hill start assist function • hill descent function • Brake force distribution function • Active trace control function (control of chassis control module)	C D E
C1142	The following functions are suspended: • VDC function • TCS function • Brake limited slip differential (BLSD) function • Brake assist function • hill start assist function • Brake force distribution function • Active trace control function (control of chassis control module)	BRC G H
C1143	The following functions are suspended:	
C1144	• VDC function • TCS function • Brake limited slip differential (BLSD) function • hill start assist function • hill descent function • Brake force distribution function • Active trace control function (control of chassis control module)	I J
C1145	The following functions are suspended:	
C1146	• VDC function • TCS function • ABS function • Brake limited slip differential (BLSD) function • Brake assist function • hill start assist function • hill descent function • Brake force distribution function • Active trace control function (control of chassis control module)	K L M
C1155	The following functions are suspended: • VDC function • TCS function • Brake limited slip differential (BLSD) function • Brake assist function • hill start assist function • hill descent function • Brake force distribution function • Active trace control function (control of chassis control module)	N O P

ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

< ECU DIAGNOSIS INFORMATION >

[VDC/TCS/ABS]

DTC	Fail-safe condition
C1160	The following functions are suspended: • VDC function • TCS function • ABS function • Brake limited slip differential (BLSD) function • Brake assist function • hill start assist function • hill descent function • Brake force distribution function • Active trace control function (control of chassis control module)
C1164	The following functions are suspended: • VDC function • TCS function • ABS function • EBD function • Brake limited slip differential (BLSD) function • Brake assist function • hill start assist function • hill descent function • Brake force distribution function • Active trace control function (control of chassis control module)
C1165	The following functions are suspended: • VDC function • TCS function • ABS function • Brake limited slip differential (BLSD) function • Brake assist function • hill start assist function • hill descent function • Brake force distribution function • Active trace control function (control of chassis control module)
C1170	The following functions are suspended: • VDC function • TCS function • ABS function • Brake limited slip differential (BLSD) function • Brake assist function • hill start assist function • hill descent function • Brake force distribution function • Active trace control function (control of chassis control module)
C1197	Electrical vacuum assistance of brake booster is suspended.
C1198	
C1199	
C1199	—
C119A	Electrical vacuum assistance of brake booster is suspended.
U1000	The following functions are suspended: • VDC function • TCS function • Brake limited slip differential (BLSD) function • hill start assist function • Brake force distribution function • Active trace control function (control of chassis control module)

DTC Inspection Priority Chart

INFOID:0000000010227774

When multiple DTCs are displayed simultaneously, check one by one depending on the following priority list.

Priority	Detected item (DTC)
1	• U1000 CAN COMM CIRCUIT
2	• C1170 VARIANT CODING
3	• C1130 ENGINE SIGNAL 1 • C1144 ST ANG SEN SIGNAL • C1138 4WAS CIRCUIT
4	• C1109 BATTERY VOLTAGE [ABNOMAL] • C1111 PUMP MOTOR • C1140 ACTUATOR RLY

ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

< ECU DIAGNOSIS INFORMATION >

[VDC/TCS/ABS]

Priority	Detected item (DTC)
5	• C1101 RR RH SENSOR-1 • C1102 RR LH SENSOR-1 • C1103 FR RH SENSOR-1 • C1104 FR LH SENSOR-1 • C1105 RR RH SENSOR-2 • C1106 RR LH SENSOR-2 • C1107 FR RH SENSOR-2 • C1108 FR LH SENSOR-2 • C1108 FR LH SENSOR-2 • C1113 G SENSOR • C1120 FR LH IN ABS SOL • C1121 FR LH OUT ABS SOL • C1122 FR RH IN ABS SOL • C1123 FR RH OUT ABS SOL • C1124 RR LH IN ABS SOL • C1125 RR LH OUT ABS SOL • C1126 RR RH IN ABS SOL • C1127 RR RH OUT ABS SOL • C1142 PRESS SEN CIRCUIT • C1143 ST ANG SEN CIRCUIT • C1145 YAW RATE SENSOR • C1146 SIDE G SEN CIRCUIT • C1160 DECEL G SEN SET • C1164 CV 1 • C1165 CV 2 • C1197 VACUUM SENSOR • C1198 VACUUM SEN CIR • C1199 BRAKE BOOSTER • C119A VACUUM SEN VOLT
6	• C1155 BR FLUID LEVEL LOW

DTC Index

INFOID:0000000010227775

DTC	Display Item	VDC warning lamp	ABS warning lamp	Brake warning lamp	Refer to
C1101	RR RH SENSOR-1	ON	ON	OFF	BRC-74, "DTC Logic"
C1102	RR LH SENSOR-1	ON	ON	OFF	
C1103	FR RH SENSOR-1	ON	ON	OFF	
C1104	FR LH SENSOR-1	ON	ON	OFF	
C1105	RR RH SENSOR-2	ON	ON	OFF	BRC-78, "DTC Logic"
C1106	RR LH SENSOR-2	ON	ON	OFF	
C1107	FR RH SENSOR-2	ON	ON	OFF	
C1108	FR LH SENSOR-2	ON	ON	OFF	
C1109	BATTERY VOLTAGE [ABNOMAL]	ON	ON	ON	BRC-80, "DTC Logic"
C1111	PUMP MOTOR	ON	ON	ON	BRC-82, "DTC Logic"
C1113	G SENSOR	ON	ON	OFF	BRC-84, "DTC Logic"
C1115	ABS SENSOR [ABNORMAL SIGNAL]	ON	ON	OFF	BRC-85, "DTC Logic"
C1120	FR LH IN ABS SOL	ON	ON	ON	BRC-87, "DTC Logic"
C1121	FR LH OUT ABS SOL	ON	ON	ON	BRC-89, "DTC Logic"
C1122	FR RH IN ABS SOL	ON	ON	ON	BRC-87, "DTC Logic"
C1123	FR RH OUT ABS SOL	ON	ON	ON	BRC-89, "DTC Logic"
C1124	RR LH IN ABS SOL	ON	ON	ON	BRC-87, "DTC Logic"
C1125	RR LH OUT ABS SOL	ON	ON	ON	BRC-89, "DTC Logic"
C1126	RR RH IN ABS SOL	ON	ON	ON	BRC-87, "DTC Logic"

ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

< ECU DIAGNOSIS INFORMATION >

[VDC/TCS/ABS]

DTC	Display Item	VDC warning lamp	ABS warning lamp	Brake warning lamp	Refer to
C1127	RR RH OUT ABS SOL	ON	ON	ON	BRC-89, "DTC Logic"
C1130	ENGINE SIGNAL 1	ON	OFF	OFF	BRC-91, "DTC Logic"
C1140	ACTUATOR RLY	ON	ON	ON	BRC-92, "DTC Logic"
C1142	PRESS SEN CIRCUIT	ON	OFF	OFF	BRC-94, "DTC Logic"
C1143	ST ANG SEN CIRCUIT	ON	OFF	OFF	BRC-96, "DTC Logic"
C1144	ST ANG SEN SIGNAL	ON	OFF	OFF	BRC-98, "DTC Logic"
C1145	YAW RATE SENSOR	ON	ON	OFF	BRC-84, "DTC Logic"
C1146	SIDE G SEN CIRCUIT	ON	ON	OFF	
C1155	BR FLUID LEVEL LOW	ON	OFF	OFF	BRC-99, "DTC Logic"
C1160	DECEL G SEN SET	ON	ON	OFF	BRC-101, "DTC Logic"
C1164	CV 1	ON	ON	ON	BRC-102, "DTC Logic"
C1165	CV 2	ON	ON	ON	
C1170	VARIANT CODING	ON	ON	OFF	BRC-104, "DTC Logic"
C1197	VACUUM SENSOR	OFF	OFF	ON	BRC-105, "DTC Logic"
C1198	VACUUM SEN CIR	OFF	OFF	ON	BRC-107, "DTC Logic"
C1199	BRAKE BOOSTER	OFF	OFF	ON	BRC-109, "DTC Logic"
C119A	VACUUM SEN VOLT	OFF	OFF	ON	BRC-111, "DTC Logic"
U1000	CAN COMM CIRCUIT	ON	OFF	OFF	BRC-113, "DTC Logic"

BRAKE CONTROL SYSTEM

< WIRING DIAGRAM >

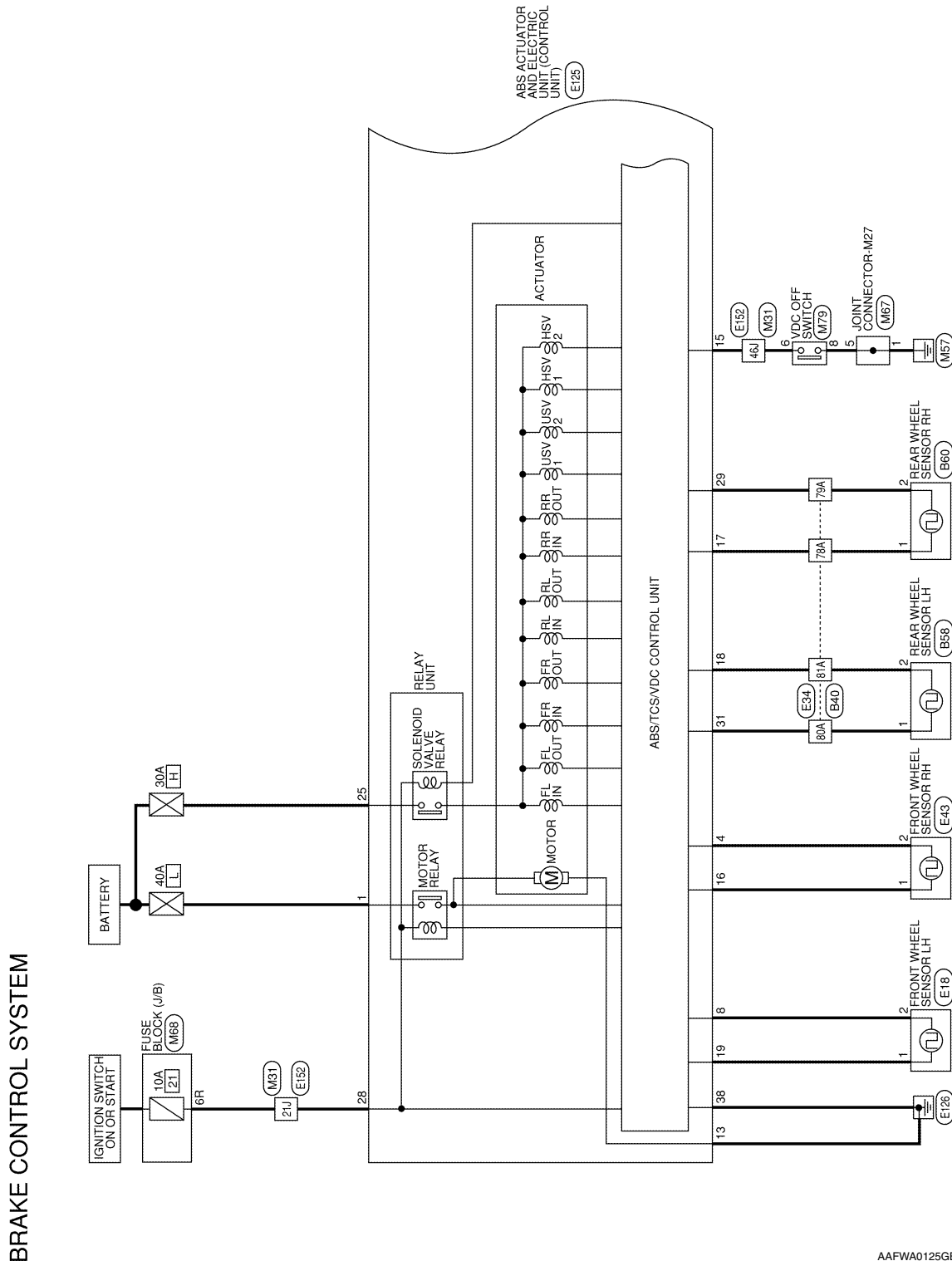
[VDC/TCS/ABS]

WIRING DIAGRAM

BRAKE CONTROL SYSTEM

Wiring Diagram

INFOID:0000000010227776



AAFWA0125GB

[VDC/TCS/ABS]

[illegible]

2014 Rogue NAM

BRAKE CONTROL SYSTEM

< WIRING DIAGRAM >

[VDC/TCS/ABS]

Connector No.	M67
Connector Name	JOINT CONNECTOR-M27
Connector Color	WHITE

8	7	6	5	4	3	2	1
---	---	---	---	---	---	---	---



Terminal No.	Color of Wire	Signal Name
1	B	-
5	B	-
6	B	-

Connector No.	M56
Connector Name	STEERING ANGLE SENSOR
Connector Color	GRAY

1	2	3	4
5	6	7	8



Terminal No.	Color of Wire	Signal Name
1	B	-
2	P	-
4	G	-
5	L	-

Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE

7P	6P	5P	4P	3P	2P	1P
16P	15P	14P	13P	12P	11P	10P
9P	8P					



Terminal No.	Color of Wire	Signal Name
7P	Y	-
13P	LA/G	-

Connector No.	M77
Connector Name	COMBINATION METER
Connector Color	WHITE

41	42	43	44	45	46
47	48	49	50	51	52



Terminal No.	Color of Wire	Signal Name
41	L	CAN-H
42	P	CAN-L
45	LA/G	BAT
52	B	GND2

Connector No.	M76
Connector Name	COMBINATION METER
Connector Color	WHITE

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40



Terminal No.	Color of Wire	Signal Name
1	B	GND1
25	V	BRAKE OIL SW
26	G	PKB SW

Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN

7R	6R	5R	4R	3R	2R	1R
16R	15R	14R	13R	12R	11R	10R
9R	8R					



Terminal No.	Color of Wire	Signal Name
6R	LA/L	-

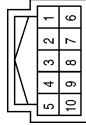
AAFI00227GB

BRAKE CONTROL SYSTEM

< WIRING DIAGRAM >

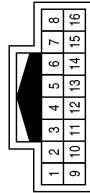
[VDC/TCS/ABS]

Connector No.	M254
Connector Name	HILL DESCENT CONTROL SWITCH
Connector Color	GRAY



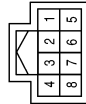
Terminal No.	Color of Wire	Signal Name
6	B	-
9	L	-

Connector No.	M251
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
7	LA/L	-
8	B	-

Connector No.	M79
Connector Name	VDC OFF SWITCH
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
6	BR	-
8	B	-

Connector No.	E28
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



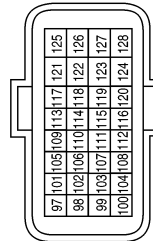
Terminal No.	Color of Wire	Signal Name
5M	V	-

Connector No.	E18
Connector Name	FRONT WHEEL SENSOR LH
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
1	W	-
2	P	-

Connector No.	E16
Connector Name	ECM
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
99	P	CAN-L
100	L	CAN-H
115	V	STOP LAMP SWITCH

AAFA0228GB

A
B
C
D
E
BRC
G
H
I
J
K
L
M
N
O
P

BRAKE CONTROL SYSTEM

< WIRING DIAGRAM >

[VDC/TCS/ABS]

Connector No.	E38
Connector Name	STOP LAMP SWITCH
Connector Color	WHITE

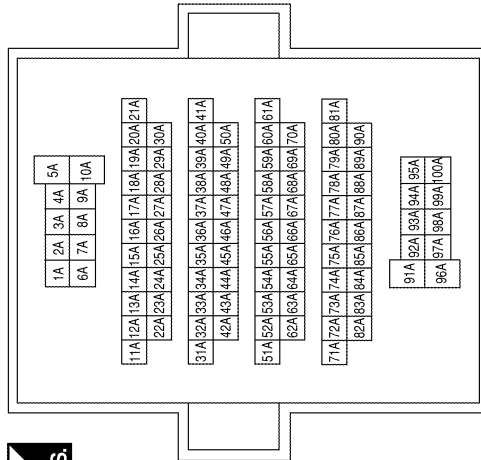
3	4
1	2



Terminal No.	Color of Wire	Signal Name
1	V	—
2	LG	—

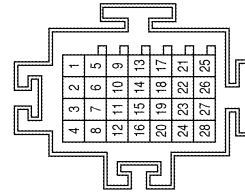
Terminal No.	Color of Wire	Signal Name
78A	Y	—
79A	LG	—
80A	BR	—
81A	G	—

Connector No.	E34
Connector Name	WIRE TO WIRE
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
1	L	—
2	P	—
5	L	—
6	P	—
13	L	—
14	P	—
17	L	—
18	P	—
19	V	—
23	LG	—

Connector No.	E44
Connector Name	JOINT CONNECTOR-E01
Connector Color	WHITE



Connector No.	E43
Connector Name	FRONT WHEEL SENSOR RH
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
1	R	—
2	SB	—

AAFI00229GB

BRAKE CONTROL SYSTEM

< WIRING DIAGRAM >

[VDC/TCS/ABS]

Connector No.	E120
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



30	29	28	27	26	25	24	23	22	21	20	19
42	41	40	39	38	37	36	35	34	33	32	31

Terminal No.	Color of Wire	Signal Name
39	L	CAN-H
40	P	CAN-L

Connector No.	E63
Connector Name	BRAKE FLUID LEVEL SWITCH
Connector Color	BLACK



1	2
---	---

Terminal No.	Color of Wire	Signal Name
1	V	-
2	BR	-

Connector No.	E52
Connector Name	PARKING BRAKE SWITCH
Connector Color	BLACK

1



Terminal No.	Color of Wire	Signal Name
1	G	-

Connector No.	E125
Connector Name	ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)
Connector Color	BLACK



38	37	36	35	34	33	32	31	30	29	28	27	26	25
24	23	22	21	20	19	18	17	16	15	14	13	12	11
10	9	8	7	6	5	4	3	2	1				

Terminal No.	Color of Wire	Signal Name
1	Y	UB MR
2	-	-
3	-	-
4	SB	WSS FR
5	V	U5V EXT
6	-	-
7	-	-

Terminal No.	Color of Wire	Signal Name
8	P	WSS FL
9	Y	HDC
10	-	-
11	-	-
12	LG	VAC
13	B	GND MR
14	P	CAN-L
15	BR	VDC OFF
16	R	WSP FR
17	Y	WSP RR
18	G	WSS RL
19	W	WSP FL
20	-	-
21	-	-
22	-	-
23	-	-

Terminal No.	Color of Wire	Signal Name
24	SHIELD	GND EXT
25	BR	UB VR
26	L	CAN-H
27	-	-
28	GR	WU
29	LG	WSS RR
30	-	-
31	BR	WSP RL
32	-	-
33	-	-
34	-	-
35	-	-
36	-	-
37	-	-
38	B	GND ECU

AAFIA0230GB

A
B
C
D
E
BRC
G
H
I
J
K
L
M
N
O
P

BRAKE CONTROL SYSTEM

< WIRING DIAGRAM >

[VDC/TCS/ABS]

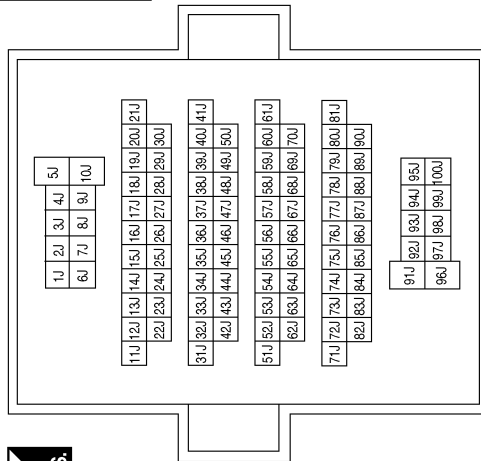
Connector No.	E167
Connector Name	VACUUM SENSOR
Connector Color	BLACK



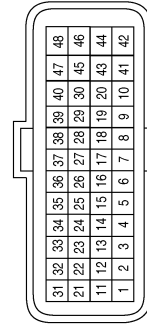
Terminal No.	Color of Wire	Signal Name
1	LG	-
2	SHIELD	-
3	V	-

Terminal No.	Color of Wire	Signal Name
21J	GR	-
27J	G	-
30J	V	-
46J	BR	-
47J	Y	-
61J	L	-
62J	P	-

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE

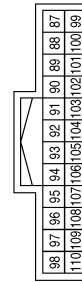


Connector No.	F75
Connector Name	TCM (TRANSMISSION CONTROL MODULE)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
23	P	CAN-L
33	L	CAN-H

Connector No.	F42
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
87	L	CAN-H
88	P	CAN-L

AAFI0231GB

BRAKE CONTROL SYSTEM

< WIRING DIAGRAM >

[VDC/TCS/ABS]

Connector No.	B60
Connector Name	REAR WHEEL SENSOR RH
Connector Color	BLACK

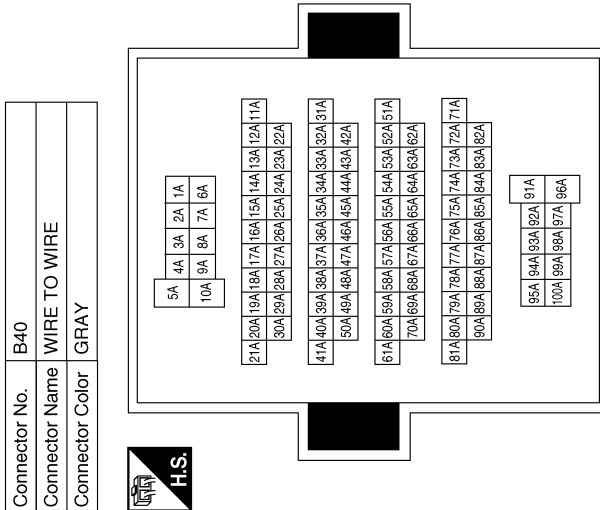


Terminal No.	Color of Wire	Signal Name
1	BG	-
2	Y	-

Connector No.	B58
Connector Name	REAR WHEEL SENSOR LH
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	BR	-
2	R	-



Terminal No.	Color of Wire	Signal Name
78A	BG	-
79A	Y	-
80A	BR	-
81A	R	-

AAFIA0232GB

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P

BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

INFOID:0000000010227777

DETAILED FLOW

1. INTERVIEW FROM THE CUSTOMER

Clarify customer complaints before inspection. First of all, perform an interview utilizing [BRC-67, "Diagnostic Work Sheet"](#) and reproduce the symptom as well as fully understand it. Ask customer about his/her complaints carefully. Check symptoms by driving vehicle with customer, if necessary.

CAUTION:

Customers are not professional. Never guess easily like "maybe the customer means that..." or "maybe the customer mentions this symptom".

>> GO TO 2.

2. CHECK SYMPTOM

Reproduce the symptom that is indicated by the customer, based on the information from the customer obtained by interview. Also check that the symptom is not caused by fail-safe mode. Refer to [BRC-51, "Fail-Safe"](#).

CAUTION:

When the symptom is caused by normal operation, fully inspect each portion and obtain the understanding of customer that the symptom is not caused by a malfunction.

>> GO TO 3.

3. PERFORM THE SELF-DIAGNOSIS

Ⓟ With CONSULT

1. Turn the ignition switch OFF → ON.

CAUTION:

Be sure to wait of 10 seconds after turning ignition switch OFF or ON.

2. Repeat step 1 two or more times.
3. Perform self-diagnosis for "ABS".

Is DTC detected?

- YES >> Record or print self-diagnosis results and freeze frame data (FFD). GO TO 4.
NO >> GO TO 6.

4. RECHECK THE SYMPTOM

Ⓟ With CONSULT

1. Erase self-diagnostic results for "ABS".
2. Turn the ignition switch OFF → ON → OFF.

CAUTION:

Be sure to wait of 10 seconds after turning ignition switch OFF or ON.

3. Perform DTC confirmation procedures for the error-detected system.

NOTE:

If some DTCs are detected at the same time, determine the order for performing the diagnosis based on [BRC-54, "DTC Inspection Priority Chart"](#).

Is any DTC detected?

- YES >> GO TO 5.
NO >> Check harness and connectors based on the information obtained by interview. Refer to [GI-41, "Intermittent Incident"](#).

5. REPAIR OR REPLACE ERROR-DETECTED PART

1. Repair or replace error-detected parts.
2. Reconnect part or connector after repairing or replacing.
3. When DTC is detected, erase self-diagnostic result for "ABS".

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[VDC/TCS/ABS]

CAUTION:

- Turn the ignition switch OFF → ON → OFF after erase self-diagnosis result.
- Be sure to wait of 10 seconds after turning ignition switch OFF or ON.

>> GO TO 7.

6. IDENTIFY ERROR-DETECTED SYSTEM BY SYMPTOM DIAGNOSIS

Estimate error-detected system based on symptom diagnosis and perform inspection.

Can the error-detected system be identified?

YES >> GO TO 7.

NO >> Check harness and connectors based on the information obtained by interview. Refer to [GI-41](#).
["Intermittent Incident"](#).

7. FINAL CHECK

 With CONSULT

1. Check the reference value for "ABS".
2. Recheck the symptom and check that the symptom is not reproduced on the same conditions.

Is the symptom reproduced?

YES >> GO TO 3.

NO >> Inspection End.

Diagnostic Work Sheet

INFOID:0000000010227778

Description

- In general, customers have their own criteria for a problem. Therefore, it is important to understand the symptom and status well enough by asking the customer about his/her concerns carefully. To systemize all the information for the diagnosis, prepare the interview sheet referring to the interview points.
- In some cases, multiple conditions that appear simultaneously may cause a DTC to be detected.

INTERVIEW SHEET SAMPLE

Interview sheet					
Customer name	MR/MS	Registration number		Initial year registration	
		Vehicle type		VIN	
Storage date		Engine		Mileage	km (Mile)
Symptom		☐ Does not operate () function			
		☐ Warning lamp for () turns ON.			
		☐ Noise ☐ Vibration			
		☐ Other ()			
First occurrence		☐ Recently ☐ Other ()			
Frequency of occurrence		☐ Always ☐ Under a certain conditions of ☐ Sometimes (time(s)/day)			
Climate conditions		☐ Irrelevant			
	Weather	☐ Fine ☐ Cloud ☐ Rain ☐ Snow ☐ Others ()			
	Temperature	☐ Hot ☐ Warm ☐ Cool ☐ Cold ☐ Temperature [Approx. °C (°F)]			
	Relative humidity	☐ High ☐ Moderate ☐ Low			
Road conditions		☐ Urban area ☐ Suburb area ☐ Highway ☐ Mountainous road (uphill or downhill) ☐ Rough road			
Operating condition, etc.		☐ Irrelevant ☐ When engine starts ☐ During idling ☐ During driving ☐ During acceleration ☐ At constant speed driving ☐ During deceleration ☐ During cornering (right curve or left curve) ☐ When steering wheel is steered (to right or to left)			

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[VDC/TCS/ABS]

Interview sheet

Customer name	MR/MS	Registration number		Initial year registration	
		Vehicle type		VIN	
Storage date		Engine		Mileage	km (Mile)
Other conditions					

Memo

ADDITIONAL SERVICE WHEN REPLACING ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

< BASIC INSPECTION >

[VDC/TCS/ABS]

ADDITIONAL SERVICE WHEN REPLACING ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

Description

INFOID:0000000010227779

- When replaced the ABS actuator and electric unit (control unit), perform adjust the neutral position of steering angle sensor. Refer to [BRC-72. "Work Procedure"](#).
- When replaced the ABS actuator and electric unit (control unit), perform calibration of the decel G sensor. Refer to [BRC-72. "Work Procedure"](#).

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P

BRC

ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION

< BASIC INSPECTION >

[VDC/TCS/ABS]

ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION

Description

INFOID:0000000010269544

Refer to the table below to determine if adjustment of steering angle sensor neutral position is required.

×: Required —: Not required

Situation	Adjustment of steering angle sensor neutral position
Removing/Installing ABS actuator and electric unit (control unit)	—
Replacing ABS actuator and electric unit (control unit)	×
Removing/Installing steering angle sensor	×
Replacing steering angle sensor	×
Removing/Installing steering components	×
Replacing steering components	×
Removing/Installing suspension components	×
Replacing suspension components	×
Change tires to new ones	—
Tire rotation	—
Adjusting wheel alignment	×

Work Procedure

INFOID:0000000010269545

ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION

CAUTION:

**To adjust neutral position of steering angle sensor, make sure to use CONSULT.
(Adjustment cannot be done without CONSULT).**

1. ALIGN THE VEHICLE STATUS

Stop vehicle with front wheels in straight-ahead position.

>> GO TO 2.

2. PERFORM THE NEUTRAL POSITION ADJUSTMENT FOR THE STEERING ANGLE SENSOR

1. On the CONSULT screen, touch "WORK SUPPORT" and "ST ANG SENSOR ADJUSTMENT" in order.
2. Touch "START".

CAUTION:

Do not touch steering wheel while adjusting steering angle sensor.

3. After approximately 10 seconds, touch "END".

NOTE:

After approximately 60 seconds, it ends automatically.

4. Turn ignition switch OFF, then turn it ON again.

CAUTION:

Be sure to perform above operation.

>> GO TO 3.

3. CHECK DATA MONITOR

1. Run vehicle with front wheels in straight-ahead position, then stop.
2. Select "DATA MONITOR". Then make sure "STR ANGLE SIG" is within $0 \pm 3.5^\circ$.

Is the steering angle within the specified range?

YES >> GO TO 4.

NO >> Perform the neutral position adjustment for the steering angle sensor again, GO TO 1.

4. ERASE THE SELF-DIAGNOSIS MEMORY

Erase the self-diagnosis memory of the ABS actuator and electric unit (control unit) and ECM.

- ABS actuator and electric unit (control unit): Refer to [BRC-44, "CONSULT Function"](#).

ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION

< BASIC INSPECTION >

[VDC/TCS/ABS]

- ECM: Refer to [EC-67. "CONSULT Function"](#).

Are the memories erased?

- YES >> Inspection End.
NO >> Check the items indicated by the self-diagnosis.

A
B
C
D
E
BRC
G
H
I
J
K
L
M
N
O
P

BRC

CALIBRATION OF DECEL G SENSOR

< BASIC INSPECTION >

[VDC/TCS/ABS]

CALIBRATION OF DECEL G SENSOR

Description

INFOID:0000000010227782

CAUTION:

Always perform the decel G sensor calibration before driving when the following operation is performed.

NOTE:

Yaw rate/side/decel G sensor calibration is performed when performing the decel G sensor calibration.

×: Required —: Not required

Procedure	Decel G sensor calibration
Removing/ installing ABS actuator and electric unit (control unit)	—
Replacing ABS actuator and electric unit (control unit)	×
Removing/installing steering components	—
Replacing steering components	—
Removing/installing suspension components	—
Replacing suspension components	—
Removing/installing tire	—
Replacing tire	—
Tire rotation	—
Adjusting wheel alignment.	—

Work Procedure

INFOID:0000000010227783

Decel G sensor calibration

CAUTION:

Always use CONSULT for the decel G sensor calibration. (It cannot be adjusted other than with CONSULT.)

NOTE:

Yaw rate/side/decel G sensor calibration is performed when performing the decel G sensor calibration.

1.CHECK THE VEHICLE STATUS

1. Steer the steering wheel to the straight-ahead position. Stop the vehicle on level surface.
2. Stop the engine.
3. Turn the ignition switch OFF.

Is the vehicle stopped in the straight-ahead position on level surface?

YES >> GO TO 2.

NO >> Steer the steering wheel to the straight-ahead position. Stop the vehicle on level surface.

2.PERFORM DECEL G SENSOR CALIBRATION

CAUTION:

- Never allow passenger or load on the vehicle.
- Never apply vibration to the vehicle body when opening or closing door during calibration.

④With CONSULT

1. Turn the ignition switch ON.

CAUTION:

Never start engine.

2. Select "ABS", "WORK SUPPORT", "DECEL G SEN CALIBRATION" in this order.
3. Select "START".
4. After approx. 10 seconds, select "END".
5. Turn ignition switch OFF and then turn it ON again.

CAUTION:

Be sure to perform the operation above.

>> GO TO 3.

CALIBRATION OF DECEL G SENSOR

< BASIC INSPECTION >

[VDC/TCS/ABS]

3.CHECK DATA MONITOR

With CONSULT

- 1. Drive the vehicle. Steer the steering wheel to the straight-ahead position. Stop the vehicle on level surface.
- 2. Select “ABS”, “DATA MONITOR”, “ECU INPUT SIGNALS” and “DECEL G SENSOR” in this order. Check that the signal is within the specified value.

DECEL G SENSOR : Approx. ± 0.01 G

Is the inspection result normal?

- YES >> GO TO 4.
- NO >> GO TO 1.

4.ERASE SELF-DIAGNOSIS MEMORY

With CONSULT

Erase self-diagnosis result of “ABS”.

Are the memories erased?

- YES >> Inspection End.
- NO >> Check the items indicated by the self-diagnosis.

A
B
C
D
E
G
H
I
J
K
L
M
N
O
P

BRC

C1101, C1102, C1103, C1104 WHEEL SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[VDC/TCS/ABS]

DTC/CIRCUIT DIAGNOSIS

C1101, C1102, C1103, C1104 WHEEL SENSOR

DTC Logic

INFOID:0000000010269550

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
C1101	RR RH SENSOR-1	- When power supply voltage of rear wheel sensor RH is low. - When an open or shorted circuit is detected in rear wheel sensor RH circuit.	- Harness or connector - Wheel sensor - ABS actuator and electric unit (control unit)
C1102	RR LH SENSOR-1	- When power supply voltage of rear wheel sensor LH is low. - When an open or shorted circuit is detected in rear wheel sensor LH circuit.	
C1103	FR RH SENSOR-1	- When power supply voltage of front wheel sensor RH is low. - When an open or shorted circuit is detected in front wheel sensor RH circuit.	
C1104	FR LH SENSOR-1	- When power supply voltage of front wheel sensor LH is low. - When an open or shorted circuit is detected in front wheel sensor LH circuit.	

DTC CONFIRMATION PROCEDURE

1.CHECK SELF-DIAGNOSTIC RESULT

④ With CONSULT.

- Start engine and drive vehicle at approximately 21 km/h (13 MPH) or more for approximately 5 minutes.
- Perform self-diagnostic result.

Is DTC C1101, C1102, C1103 or C1104 detected?

- YES >> Proceed to diagnosis procedure. Refer to [BRC-74, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010269551

Regarding Wiring Diagram information, refer to [BRC-57, "Wiring Diagram"](#).

1.CONFIRM DTC

④ With CONSULT

- Perform self-diagnostic result of "ABS" and record all active DTCs.
- Clear all DTCs.
- Perform DTC confirmation procedure. Refer to [BRC-74, "DTC Logic"](#).

Does DTC C1101, C1102, C1103 or C1104 reset?

- YES >> GO TO 2.
NO >> Refer to [GI-41, "Intermittent Incident"](#).

2.INSPECT WHEEL SENSOR

Inspect the suspect wheel sensor for damage or deformation.

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace as necessary.

3.HARNESS AND CONNECTOR INSPECTION

C1101, C1102, C1103, C1104 WHEEL SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[VDC/TCS/ABS]

1. Disconnect ABS actuator and electric unit (control unit) connector E125 and wheel sensor connector of suspect wheel.
2. Check harness, connectors and terminals for corrosion, deformation, disconnection, looseness or damage.

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace as necessary.

4.CHECK WHEEL SENSOR OUTPUT SIGNAL

1. Connect ABS active wheel sensor tester (J-45741) to wheel sensor using appropriate adapter.
2. Turn on the ABS active wheel sensor tester power switch.

NOTE:

The green POWER indicator should illuminate. If the POWER indicator does not illuminate, replace the battery in the ABS active wheel sensor tester before proceeding.

3. Spin the wheel of the vehicle by hand and observe the red SENSOR indicator on the ABS active wheel sensor tester. The red SENSOR indicator should flash ON and OFF to indicate an output signal.

NOTE:

If the red SENSOR indicator illuminates but does not flash, reverse the polarity of the tester leads and retest.

Does the ABS active wheel sensor tester detect a signal?

YES >> GO TO 5.

NO >> Replace the wheel sensor. Refer to [BRC-132, "FRONT WHEEL SENSOR : Removal and Installation"](#) or [BRC-134, "REAR WHEEL SENSOR : Removal and Installation"](#).

5.CHECK WIRING HARNESS FOR SHORT TO VOLTAGE

1. Turn ignition switch ON.
2. Check voltage between wheel sensor harness connector terminals of suspect wheel and ground.

Wheel Sensor			Ground	Voltage
Wheel	Connector	Terminal		
Front LH	E18	1	—	0V
		2		
Front RH	E43	1		
		2		
Rear LH	B58	1		
		2		
Rear RH	B60	1		
		2		

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair the circuit.

6.CHECK WIRING HARNESS FOR SHORT TO GROUND

1. Turn ignition switch OFF.
2. Check continuity between wheel sensor harness connector terminals of suspect wheel and ground.

Wheel Sensor			Ground	Continuity
Wheel	Connector	Terminal		

C1101, C1102, C1103, C1104 WHEEL SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[VDC/TCS/ABS]

Front LH	E18	1	—	No
		2		
Front RH	E43	1		
		2		
Rear LH	B58	1		
		2		
Rear RH	B60	1		
		2		

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair the circuit.

7.CHECK WIRING HARNESS FOR SHORT BETWEEN CIRCUITS

Check continuity between wheel sensor harness connector terminals of suspect wheel.

Wheel Sensor		(+)	(-)	Continuity
Wheel	Connector	Terminal	Terminal	
Front LH	E18	1	2	No
Front RH	E43			
Rear LH	B58			
Rear RH	B60			

Is the inspection result normal?

YES >> GO TO 8.

NO >> Repair the circuit.

8.CHECK WIRING HARNESS FOR OPEN CIRCUIT

Check continuity between ABS actuator and electric unit (control unit) harness connector E125 and harness connector of suspect wheel sensor.

Wheel sensor	ABS actuator and electric unit (control unit)		Wheel sensor		Continuity
	Connector	Terminal	Connector	Terminal	Yes
Front LH	E125	19	E18	1	
		8		2	
Front RH		16	E43	1	
		4		2	
Rear LH		31	B58	1	
		18		2	
Rear RH		17	B60	1	
		29		2	

Is the inspection result normal?

YES >> GO TO 9.

NO >> Repair the circuit.

9.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) POWER SUPPLY CIRCUIT

1. Turn ignition switch ON.
2. Check voltage between ABS actuator and electric unit (control unit) harness connector E125 terminal and ground.

C1101, C1102, C1103, C1104 WHEEL SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[VDC/TCS/ABS]

ABS actuator and electric unit (control unit)		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
E125	28	—	Ignition switch ON	Battery voltage
			Ignition switch OFF	0V

Is the inspection result normal?

YES >> GO TO 10.

NO >> Check the following:

- 10A fuse No. 21 located in the FUSE BLOCK (J/B)
- Harness between ABS actuator and electric unit (control unit) and IPDM E/R

10.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check continuity between ABS actuator and electric unit (control unit) connector E125 terminals and ground.

ABS actuator and electric unit (control unit)		—	Continuity
Connector	Terminal		
E125	13	Ground	Yes
	38		

Is the inspection result normal?

YES >> GO TO 11.

NO >> Repair or replace malfunctioning components.

11.CHECK WHEEL SENSOR INPUT VOLTAGE

1. Connect ABS actuator and electric unit (control unit) connector E125.
2. Turn ignition switch ON.
3. Check voltage between suspect wheel sensor harness connector terminals.

Wheel Sensor		(+)	(-)	Voltage (Approx.)
Wheel	Connector	Terminal	Terminal	
Front LH	E18	1	2	Battery voltage
Front RH	E43			
Rear LH	B58			
Rear RH	B60			

Is the inspection result normal?

YES >> Replace wheel sensor. Refer to [BRC-132, "FRONT WHEEL SENSOR : Removal and Installation"](#) or [BRC-134, "REAR WHEEL SENSOR : Removal and Installation"](#). Then, GO TO 12.

NO >> Replace ABS actuator and electric unit (control unit). Refer to [BRC-136, "Removal and Installation"](#).

12.CONFIRM REPAIR

④ With CONSULT

1. Clear all DTCs.
2. Perform DTC confirmation procedure. Refer to [BRC-74, "DTC Logic"](#).

Does DTC C1105, C1106, C1107 or C1108 reset?

YES >> Replace ABS actuator and electric unit (control unit). Refer to [BRC-136, "Removal and Installation"](#).

NO >> Inspection End.

C1105, C1106, C1107, C1108 WHEEL SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[VDC/TCS/ABS]

C1105, C1106, C1107, C1108 WHEEL SENSOR

DTC Logic

INFOID:0000000010269552

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
C1105	RR RH SENSOR-2	- When distance between rear wheel sensor RH and rear wheel sensor RH rotor is large. - When installation of rear wheel sensor RH or rear wheel sensor RH rotor is not normal.	- Wheel sensor - ABS actuator and electric unit (control unit) - Sensor rotor
C1106	RR LH SENSOR-2	- When distance between rear wheel sensor LH and rear wheel sensor LH rotor is large. - When installation of rear wheel sensor LH or rear wheel sensor LH rotor is not normal.	
C1107	FR RH SENSOR-2	- When distance between front wheel sensor RH and front wheel sensor RH rotor is large. - When installation of front wheel sensor RH or front wheel sensor RH rotor is not normal.	
C1108	FR LH SENSOR-2	- When distance between front wheel sensor LH and front wheel sensor LH rotor is large. - When installation of front wheel sensor LH or front wheel sensor LH rotor is not normal.	

DTC CONFIRMATION PROCEDURE

1.CHECK SELF-DIAGNOSTIC RESULT

④ With CONSULT.

- Start engine and drive vehicle at approximately 21 km/h (13 MPH) or more for approximately 5 minutes.
- Perform self-diagnostic result.

Is DTC C1105, C1106, C1107 or C1108 detected?

- YES >> Proceed to diagnosis procedure. Refer to [BRC-78, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010269553

Regarding Wiring Diagram information, refer to [BRC-57, "Wiring Diagram"](#).

1.CONFIRM DTC

④ With CONSULT

- Perform self-diagnostic result of "ABS" and record all active DTCs.
- Clear all DTCs.
- Perform DTC confirmation procedure. Refer to [BRC-74, "DTC Logic"](#).

Does DTC C1105, C1106, C1107 or C1108 reset?

- YES >> GO TO 2.
NO >> Refer to [GI-41, "Intermittent Incident"](#).

2.CHECK TIRE PRESSURE AND TIRE WEAR

Check tires for excessive wear and proper inflation. Refer to [WT-57, "Adjustment"](#).

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace as necessary.

3.CHECK WHEEL SENSOR

Check wheel sensor for the following:

- Proper installation

C1105, C1106, C1107, C1108 WHEEL SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[VDC/TCS/ABS]

- Physical damage
- Contamination

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace as necessary.

4.CHECK SENSOR ROTOR

Check sensor rotor for the following:

- Contamination
- Physical damage (missing teeth, cracks, etc.)
- Foreign material
- Looseness

Is the inspection result normal?

YES >> Replace the wheel sensor. Refer to [BRC-132. "FRONT WHEEL SENSOR : Removal and Installation"](#) or [BRC-134. "REAR WHEEL SENSOR : Removal and Installation"](#). Then, GO TO 5.

NO >> Repair or replace as necessary.

5.CONFIRM REPAIR

 With CONSULT

1. Clear all DTCs.
2. Perform DTC confirmation procedure. Refer to [BRC-78. "DTC Logic"](#).

Does DTC C1105, C1106, C1107 or C1108 reset?

YES >> Replace ABS actuator and electric unit (control unit). Refer to [BRC-136. "Removal and Installation"](#).

NO >> Inspection End.

A

B

C

D

E

BRC

G

H

I

J

K

L

M

N

O

P

C1109 POWER AND GROUND SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

[VDC/TCS/ABS]

C1109 POWER AND GROUND SYSTEM

DTC Logic

INFOID:0000000010269556

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
C1109	BATTERY VOLTAGE [ABNORMAL]	- When ignition voltage is 10 V or less. - When ignition voltage is 16 V or more.	- Harness or connector - ABS actuator and electric unit (control unit) - Fuse - Ignition power supply system - Battery

DTC CONFIRMATION PROCEDURE

1.CHECK SELF-DIAGNOSTIC RESULT

④ With CONSULT.

- Turn the ignition switch OFF to ON.
- Perform self-diagnostic result.

Is DTC C1109 detected?

- YES >> Proceed to diagnosis procedure. Refer to [BRC-80, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010269557

Regarding Wiring Diagram information, refer to [BRC-57, "Wiring Diagram"](#).

1.CONNECTOR INSPECTION

- Turn ignition switch OFF.
- Disconnect ABS actuator and electric unit (control unit) connectors.
- Check connectors and terminals for deformation, disconnection, looseness or damage.

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace as necessary.

2.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) IGNITION POWER SUPPLY CIRCUIT

Check voltage between ABS actuator and electric unit (control unit) connector E125 terminal 28 and ground.

ABS actuator and electric unit (control unit)		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
E125	28	—	Ignition switch ON	Battery voltage
			Ignition switch OFF	0V

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace malfunctioning components.

3.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) BATTERY POWER SUPPLY CIRCUIT

Check voltage between ABS actuator and electric unit (control unit) connector E125 terminals 1, 25 and ground.

ABS actuator and electric unit (control unit)		Ground	Voltage (Approx.)
Connector	Terminal		

C1109 POWER AND GROUND SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

[VDC/TCS/ABS]

E125	1	—	Battery voltage
	25		

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace malfunctioning components.

4.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check continuity between ABS actuator and electric unit (control unit) connector E125 terminals 13, 38 and ground.

ABS actuator and electric unit (control unit)		—	Continuity
Connector	Terminal		
E125	13	Ground	Yes
	38		

Is the inspection result normal?

YES >> Replace ABS actuator and electric unit (control unit). Refer to [BRC-136. "Removal and Installation"](#).

NO >> Repair or replace malfunctioning components.

C1111 PUMP MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[VDC/TCS/ABS]

C1111 PUMP MOTOR

DTC Logic

INFOID:0000000010269558

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
C1111	PUMP MOTOR	When a malfunction is detected in motor or motor relay.	• Harness or connector • ABS actuator and electric unit (control unit) • Fusible link • Battery power supply system

DTC CONFIRMATION PROCEDURE

1.CHECK SELF-DIAGNOSTIC RESULT

④With CONSULT.

1. Turn ignition switch OFF.
2. Depress brake pedal 20 times or more.
3. Start the engine and wait for 3 minutes or more.
4. Perform self-diagnostic result.

Is DTC C1111 detected?

- YES >> Proceed to diagnosis procedure. Refer to [BRC-82. "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010269559

Regarding Wiring Diagram information, refer to [BRC-57. "Wiring Diagram"](#).

1.CONNECTOR INSPECTION

1. Turn ignition switch OFF.
2. Disconnect ABS actuator and electric unit (control unit) connectors.
3. Check connectors and terminals for deformation, disconnection, looseness or damage.

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace as necessary.

2.CHECK ABS MOTOR AND MOTOR RELAY BATTERY POWER SUPPLY

Check voltage between ABS actuator and electric unit (control unit) connector E125 terminal 1 and ground.

ABS actuator and electric unit (control unit)		—	Voltage (Approx.)
Connector	Terminal		
E125	1	Ground	Battery voltage

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace malfunctioning components.

3.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) GROUND CIRCUIT

Check continuity between ABS actuator and electric unit (control unit) connector E125 terminals 13, 38 and ground.

C1111 PUMP MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[VDC/TCS/ABS]

ABS actuator and electric unit (control unit)		—	Continuity
Connector	Terminal		
E125	13	Ground	Yes
	38		

Is the inspection result normal?

- YES >> Replace ABS actuator and electric unit (control unit). Refer to [BRC-136, "Removal and Installation"](#)
- NO >> Repair or replace harness.

BRC

A
B
C
D
E
G
H
I
J
K
L
M
N
O
P

C1113, C1145, C1146 YAW RATE/SIDE/DECEL G SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[VDC/TCS/ABS]

C1113, C1145, C1146 YAW RATE/SIDE/DECEL G SENSOR

DTC Logic

INFOID:0000000010275772

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
C1113	G SENSOR	When a malfunction is detected in longitudinal G sensor signal.	• Harness or connector • Yaw rate/side/decel G sensor • ABS actuator and electric unit (control unit) • Ignition power supply system • Fuse
C1145	YAW RATE SENSOR	• When a malfunction is detected in yaw rate signal. • When yaw rate signal is not continuously received for 2 seconds or more. • When side G signal is not continuously received for 2 seconds or more. • When decel G signal is not continuously received for 2 seconds or more.	
C1146	SIDE G-SEN CIRCUIT	When a malfunction is detected in side/decel G signal.	

DTC CONFIRMATION PROCEDURE

1. CHECK SELF DIAGNOSTIC RESULT

Ⓔ With CONSULT.

1. Turn ignition switch OFF to ON.
2. Perform self diagnostic result.

Is DTC C1113, C1145 or C1146 detected?

YES >> Proceed to diagnosis procedure. Refer to [BRC-84, "Diagnosis Procedure"](#).

NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010275773

1. REPLACE ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

Replace ABS actuator and electric unit (control unit).

>> Replace ABS actuator and electric unit (control unit). Refer to [BRC-136, "Removal and Installation"](#).

C1115 ABS SENSOR [ABNORMAL SIGNAL]

< DTC/CIRCUIT DIAGNOSIS >

[VDC/TCS/ABS]

C1115 ABS SENSOR [ABNORMAL SIGNAL]

DTC Logic

INFOID:0000000010269560

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
C1115	ABS SENSOR [ABNORMAL SIGNAL]	When difference in wheel speed between any wheel and others is detected while the vehicle is driven because of installation of tires other than specified.	• Harness or connector • Wheel sensor • Sensor rotor • ABS actuator and electric unit (control unit)

DTC CONFIRMATION PROCEDURE

1.CHECK SELF-DIAGNOSTIC RESULT

☞With CONSULT.

1. Start engine and drive vehicle at approximately 30 km/h (19 MPH) or more for approximately 1 minute.
2. Perform self-diagnostic result.

Is DTC C1115 detected?

- YES >> Proceed to diagnosis procedure. Refer to [BRC-85, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010269561

Regarding Wiring Diagram information, refer to [BRC-57, "Wiring Diagram"](#).

CAUTION:

Do not check between wheel sensor terminals.

1.CONNECTOR INSPECTION

1. Disconnect ABS actuator and electric unit (control unit) connector E125 and wheel sensor connector of wheel with DTC.
2. Check terminals for deformation, disconnection, looseness or damage.

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace as necessary.

2.CHECK WHEEL SENSOR OUTPUT SIGNAL

1. Connect ABS active wheel sensor tester (J-45741) to wheel sensor using appropriate adapter.
2. Turn on the ABS active wheel sensor tester power switch.

NOTE:

The green POWER indicator should illuminate. If the POWER indicator does not illuminate, replace the battery in the ABS active wheel sensor tester before proceeding.

3. Spin the wheel of the vehicle by hand and observe the red SENSOR indicator on the ABS active wheel sensor tester. The red SENSOR indicator should flash on and off to indicate an output signal.

NOTE:

If the red SENSOR indicator illuminates but does not flash, reverse the polarity of the tester leads and retest.

Does the ABS active wheel sensor tester detect a signal?

- YES >> GO TO 3.
NO >> Replace the wheel sensor. Refer to [BRC-132, "FRONT WHEEL SENSOR : Removal and Installation"](#) or [BRC-134, "REAR WHEEL SENSOR : Removal and Installation"](#).

3.CHECK TIRES

Check the inflation pressure, wear and size of each tire.

Is the inspection result normal?

C1115 ABS SENSOR [ABNORMAL SIGNAL]

< DTC/CIRCUIT DIAGNOSIS >

[VDC/TCS/ABS]

YES >> GO TO 4.

NO >> Adjust tire pressure, or replace tire(s).

4.CHECK WIRING HARNESS FOR SHORT CIRCUIT

Check continuity between wheel sensor connector terminals and ground of wheel with DTC.

Wheel Sensor			Ground	Continuity
Wheel	Connector	Terminal		
Front LH	E18	1	—	No
		2		
Front RH	E43	1		
		2		
Rear LH	B58	1		
		2		
Rear RH	B60	1		
		2		

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair the circuit.

5.CHECK WIRING HARNESS FOR OPEN CIRCUIT

Check continuity between ABS actuator and electric unit (control unit) connector E125 and wheel sensor connector of wheel with DTC.

Wheel sensor	ABS actuator and electric unit (control unit)		Wheel sensor		Continuity
	Connector	Terminal	Connector	Terminal	Yes
Front LH	E125	19	E18	1	
		8		2	
Front RH		16	E43	1	
4		2			
Rear LH		31	B58	1	
		18		2	
Rear RH		17	B60	1	
		29		2	

Is the inspection result normal?

YES >> Replace the ABS actuator and electric unit (control unit). Refer to [BRC-136, "Removal and Installation"](#).

NO >> Repair the circuit.

C1120, C1122, C1124, C1126 ABS IN VALVE SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

[VDC/TCS/ABS]

C1120, C1122, C1124, C1126 ABS IN VALVE SYSTEM

DTC Logic

INFOID:0000000010269565

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
C1120	FR LH IN ABS SOL	When a malfunction is detected in front LH ABS IN valve.	• Harness or connector • ABS actuator and electric unit (control unit) • Fusible link • Battery power supply system
C1122	FR RH IN ABS SOL	When a malfunction is detected in front RH ABS IN valve.	
C1124	RR LH IN ABS SOL	When a malfunction is detected in rear LH ABS IN valve.	
C1126	RR RH IN ABS SOL	When a malfunction is detected in rear RH ABS IN valve.	

DTC CONFIRMATION PROCEDURE

1.CHECK SELF-DIAGNOSTIC RESULT

 With CONSULT.

1. Turn ignition switch OFF to ON.
2. Perform self-diagnostic result.

Is DTC C1120, C1122, C1124 or C1126 detected?

- YES >> Proceed to diagnosis procedure. Refer to [BRC-87, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010269566

Regarding Wiring Diagram information, refer to [BRC-57, "Wiring Diagram"](#).

1.CONNECTOR INSPECTION

1. Turn ignition switch OFF.
2. Disconnect ABS actuator and electric unit (control unit) connectors.
3. Check connectors and terminals for deformation, disconnection, looseness or damage.

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace as necessary.

2.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) BATTERY POWER SUPPLY

Check voltage between ABS actuator and electric unit (control unit) connector E125 terminal 25 and ground.

ABS actuator and electric unit (control unit)		—	Voltage (Approx.)
Connector	Terminal		
E125	25	Ground	Battery voltage

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace malfunctioning components.

3.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) GROUND CIRCUIT

Check continuity between ABS actuator and electric unit (control unit) connector E125 terminals 13, 38 and ground.

C1120, C1122, C1124, C1126 ABS IN VALVE SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

[VDC/TCS/ABS]

ABS actuator and electric unit (control unit)		—	Continuity
Connector	Terminal		
E125	13	Ground	Yes
	38		

Is the inspection result normal?

YES >> Replace ABS actuator and electric unit (control unit). Refer to [BRC-136, "Removal and Installation"](#).

NO >> Repair or replace malfunctioning components.

C1121, C1123, C1125, C1127 ABS OUT VALVE SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

[VDC/TCS/ABS]

C1121, C1123, C1125, C1127 ABS OUT VALVE SYSTEM

DTC Logic

INFOID:0000000010269567

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
C1121	FR LH OUT ABS SOL	When a malfunction is detected in front LH ABS OUT valve.	• Harness or connector • ABS actuator and electric unit (control unit) • Fusible link • Battery power supply system
C1123	FR RH OUT ABS SOL	When a malfunction is detected in front RH ABS OUT valve.	
C1125	RR LH OUT ABS SOL	When a malfunction is detected in rear LH ABS OUT valve.	
C1127	RR RH OUT ABS SOL	When a malfunction is detected in rear RH ABS OUT valve.	

DTC CONFIRMATION PROCEDURE

1.CHECK SELF-DIAGNOSTIC RESULT

 With CONSULT.

1. Turn ignition switch OFF to ON.
2. Perform self-diagnostic result.

Is DTC C1121, C1123, C1125 or C1127 detected?

- YES >> Proceed to diagnosis procedure. Refer to [BRC-89, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010269568

Regarding Wiring Diagram information, refer to [BRC-57, "Wiring Diagram"](#).

1.CONNECTOR INSPECTION

1. Turn ignition switch OFF.
2. Disconnect ABS actuator and electric unit (control unit) connectors.
3. Check connectors and terminals for deformation, disconnection, looseness or damage.

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace as necessary.

2.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) BATTERY POWER SUPPLY

Check voltage between ABS actuator and electric unit (control unit) connector E125 terminal 25 and ground.

ABS actuator and electric unit (control unit)		—	Voltage (Approx.)
Connector	Terminal		
E125	25	Ground	Battery voltage

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace malfunctioning components.

3.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) GROUND CIRCUIT

Check continuity between ABS actuator and electric unit (control unit) connector E125 terminals 13, 38 and ground.

C1121, C1123, C1125, C1127 ABS OUT VALVE SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

[VDC/TCS/ABS]

ABS actuator and electric unit (control unit)		—	Continuity
Connector	Terminal		
E125	13	Ground	Yes
	38		

Is the inspection result normal?

YES >> Replace ABS actuator and electric unit (control unit). Refer to [BRC-136, "Removal and Installation"](#).

NO >> Repair or replace malfunctioning components.

C1130 ENGINE SIGNAL

DTC Logic

INFOID:000000010269569

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
C1130	ENGINE SIGNAL 1	When a malfunction is detected in ECM system.	- ECM - ABS actuator and electric unit (control unit) - CAN communication line

DTC CONFIRMATION PROCEDURE

1.CHECK SELF-DIAGNOSTIC RESULT

Ⓜ With CONSULT.

- Turn ignition switch OFF to ON.
- Perform self-diagnostic result.

Is DTC C1130 detected?

- YES >> Proceed to diagnosis procedure. Refer to [BRC-91, "Diagnosis Procedure"](#).
 NO >> Inspection End.

Diagnosis Procedure

INFOID:000000010269570

1.CHECK SELF-DIAGNOSTIC RESULT FOR ENGINE SYSTEM

Ⓜ With CONSULT.

Perform self-diagnostic result. Refer to [EC-67, "CONSULT Function"](#).

Are any ECM DTCs detected?

- YES >> Refer to [EC-93, "DTC Index"](#).
 NO >> GO TO 2.

2.CHECK SELF-DIAGNOSTIC RESULT FOR ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

Ⓜ With CONSULT.

- Perform self-diagnostic result and erase DTCs.
- Turn ignition switch OFF.
- Start engine and drive vehicle for a short period of time.
- Check that malfunction indicator lamp (MIL) turns OFF.
- Stop vehicle and perform self-diagnostic result.

Is DTC C1130 detected?

- YES >> Replace ABS actuator and electric unit (control unit). Refer to [BRC-136, "Removal and Installation"](#).
 NO >> Check pin terminals and connection of connectors for abnormal conditions. Repair or replace malfunctioning components.

C1140 ACTUATOR RELAY SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

[VDC/TCS/ABS]

C1140 ACTUATOR RELAY SYSTEM

DTC Logic

INFOID:0000000010269571

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
C1140	ACTUATOR RLY	When a malfunction is detected in actuator relay.	• Harness or connector • ABS actuator and electric unit (control unit) • Fusible link • Battery power supply system

DTC CONFIRMATION PROCEDURE

1.CHECK SELF-DIAGNOSTIC RESULT

④With CONSULT.

1. Turn ignition switch OFF to ON.
2. Perform self-diagnostic result.

Is DTC C1140 detected?

- YES >> Proceed to diagnosis procedure. Refer to [BRC-92, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010269572

Regarding Wiring Diagram information, refer to [BRC-57, "Wiring Diagram"](#).

1.CONNECTOR INSPECTION

1. Turn ignition switch OFF.
2. Disconnect ABS actuator and electric unit (control unit) connectors.
3. Check connectors and terminals for deformation, disconnection, looseness or damage.

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace as necessary.

2.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) BATTERY POWER SUPPLY

Check voltage between ABS actuator and electric unit (control unit) connector E125 terminals 1, 25 and ground.

ABS actuator and electric unit (control unit)		—	Voltage (Approx.)
Connector	Terminal		
E125	1	Ground	Battery voltage
	25		

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace malfunctioning components.

3.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) GROUND CIRCUIT

Check continuity between ABS actuator and electric unit (control unit) connector E125 terminals 13, 38 and ground.

C1140 ACTUATOR RELAY SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

[VDC/TCS/ABS]

ABS actuator and electric unit (control unit)		—	Continuity
Connector	Terminal		
E125	13	Ground	Yes
	38		

Is the inspection result normal?

- YES >> Replace ABS actuator and electric unit (control unit). Refer to [BRC-136, "Removal and Installation"](#).
- NO >> Repair or replace malfunctioning components.

BRC

C1142 PRESS SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[VDC/TCS/ABS]

C1142 PRESS SENSOR

DTC Logic

INFOID:0000000010269573

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
C1142	PRESS SEN CIRCUIT	When a malfunction is detected in master cylinder pressure sensor.	• Stop lamp switch system • ABS actuator and electric unit (control unit) • Brake system

DTC CONFIRMATION PROCEDURE

1.CHECK SELF-DIAGNOSTIC RESULT

Ⓔ With CONSULT.

1. Turn ignition switch OFF to ON.
2. Perform self-diagnostic result.

Is DTC C1142 detected?

- YES >> Proceed to diagnosis procedure. Refer to [BRC-94, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010269574

1.CHECK STOP LAMP SWITCH SYSTEM

Check stop lamp switch system. Refer to [BR-7, "Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace malfunctioning components.

2.CHECK BRAKE FLUID LEAKAGE

Check brake fluid leakage. Refer to [BR-8, "Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace malfunctioning components.

3.CHECK BRAKE PEDAL

Check brake pedal. Refer to [BR-7, "Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Repair or replace malfunctioning components.

4.CHECK HYDRAULIC BOOSTER ASSEMBLY

Check hydraulic booster assembly. Refer to [BR-10, "Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 5.
NO >> Repair or replace malfunctioning components.

5.CHECK SELF DIAGNOSTIC RESULT

Ⓔ With CONSULT.

1. Turn ignition switch OFF to ON.
2. Perform self-diagnostic result.
3. Erase DTCs.
4. Start engine and drive vehicle for a short period of time.
5. Turn ignition switch OFF to ON.

C1142 PRESS SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[VDC/TCS/ABS]

6. Perform self-diagnostic result.

Is DTC C1142 detected?

- YES >> Replace ABS actuator and electric unit (control unit). Refer to [BRC-136. "Removal and Installation"](#).
- NO >> Inspection End.

- A
- B
- C
- D
- E
- BRC**
- G
- H
- I
- J
- K
- L
- M
- N
- O
- P

C1143 STEERING ANGLE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[VDC/TCS/ABS]

C1143 STEERING ANGLE SENSOR

DTC Logic

INFOID:0000000010269575

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
C1143	ST ANG SEN CIRCUIT	When a malfunction is detected in steering angle sensor.	• Harness or connector • Steering angle sensor • ABS actuator and electric unit (control unit) • Fuse • Ignition power supply system • CAN communication line

DTC CONFIRMATION PROCEDURE

1.CHECK SELF-DIAGNOSTIC RESULT

① With CONSULT.

1. Turn ignition switch OFF to ON.
2. Perform self-diagnostic result.

Is DTC C1143 detected?

- YES >> Proceed to diagnosis procedure. Refer to [BRC-96, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010269576

Regarding Wiring Diagram information, refer to [BRC-57, "Wiring Diagram"](#).

1.CONNECTOR INSPECTION

1. Turn ignition switch OFF.
2. Disconnect ABS actuator and electric unit (control unit) and steering angle sensor connectors.
3. Check connectors and terminals for deformation, disconnection, looseness or damage.

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace as necessary.

2.CHECK STEERING ANGLE SENSOR MOUNTING CONDITION

Check steering angle sensor mounting condition.

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace malfunctioning components.

3.CHECK STEERING ANGLE SENSOR POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect steering angle sensor connector.
3. Turn ignition switch ON.
4. Check voltage between steering angle sensor connector M56 terminal 4 and ground.

Steering angle sensor		—	Voltage (Approx.)
Connector	Terminal		
M56	4	Ground	Battery voltage

Is the inspection result normal?

- YES >> GO TO 5.

C1143 STEERING ANGLE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[VDC/TCS/ABS]

NO >> GO TO 4.

4.CHECK STEERING ANGLE SENSOR POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect fuse block (J/B) connector M44.
3. Check continuity between steering angle sensor connector M56 terminal 4 and Fuse block (J/B) connector M44 terminal 7P.

Steering angle sensor		Fuse block (J/B)		Continuity
Connector	Terminal	Connector	Terminal	
M56	4	M44	7P	Yes

4. Check continuity between steering angle sensor connector M54 terminal 4 and ground.

Steering angle sensor		—	Continuity
Connector	Terminal		
M56	4	Ground	No

Is the inspection result normal?

- YES >> Perform trouble diagnosis for ignition power supply.
NO >> Repair or replace malfunctioning components.

5.CHECK STEERING ANGLE SENSOR GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check continuity between steering angle sensor connector M56 terminal 1 and ground.

Steering angle sensor		—	Continuity
Connector	Terminal		
M56	1	Ground	Yes

Is the inspection result normal?

- YES >> GO TO 6.
NO >> Repair or replace malfunctioning components.

6.CHECK CAN COMMUNICATION LINE

Check "STRG BRANCH LINE CIRCUIT". Refer to [LAN-90, "Diagnosis Procedure"](#) (Type 1) or [LAN-111, "Diagnosis Procedure"](#) (Type 2).

Is the inspection result normal?

- YES >> Replace ABS actuator and electric unit (control unit). Refer to [BRC-136, "Removal and Installation"](#).
NO >> Repair or replace malfunctioning components.

C1144 INCOMPLETE STEERING ANGLE SENSOR ADJUSTMENT

< DTC/CIRCUIT DIAGNOSIS >

[VDC/TCS/ABS]

C1144 INCOMPLETE STEERING ANGLE SENSOR ADJUSTMENT

DTC Logic

INFOID:0000000010269577

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
C1144	ST ANG SEN SIGNAL	When neutral position adjustment of steering angle sensor is not complete.	• Harness or connector • Steering angle sensor • ABS actuator and electric unit (control unit) • Incomplete neutral position adjustment of steering angle sensor

DTC CONFIRMATION PROCEDURE

1.CHECK SELF-DIAGNOSTIC RESULT

④With CONSULT.

1. Turn ignition switch OFF to ON.
2. Perform self-diagnostic result.

Is DTC C1144 detected?

- YES >> Proceed to diagnosis procedure. Refer to [BRC-98, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010269578

1.ADJUST THE NEUTRAL POSITION OF STEERING ANGLE SENSOR

Perform neutral position adjustment of steering angle sensor. Refer to [BRC-98, "Diagnosis Procedure"](#).

>> GO TO 2.

2.CHECK SELF-DIAGNOSTIC RESULT

④With CONSULT.

Perform self-diagnostic result.

Is DTC C1144 detected?

- YES >> GO TO 3.
NO >> Inspection End.

3.CHECK STEERING ANGLE SENSOR SYSTEM

Check steering angle sensor system. Refer to [BRC-96, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> Replace ABS actuator and electric unit (control unit). Refer to [BRC-136, "Removal and Installation"](#).
NO >> Repair or replace malfunctioning components.

C1155 BRAKE FLUID LEVEL SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[VDC/TCS/ABS]

C1155 BRAKE FLUID LEVEL SWITCH

DTC Logic

INFOID:0000000010269581

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
C1155	BR FLUID LEVEL LOW	When brake fluid level low signal is detected.	• Harness or connector • ABS actuator and electric unit (control unit) • Brake fluid level switch • Combination meter

DTC CONFIRMATION PROCEDURE

1.CHECK SELF-DIAGNOSTIC RESULT

 With CONSULT.

1. Turn ignition switch OFF to ON and wait 1 minute or more.
2. Perform self-diagnostic result.

Is DTC C1155 detected?

- YES >> Proceed to diagnosis procedure. Refer to [BRC-99. "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010269582

Regarding Wiring Diagram information, refer to [BRC-57. "Wiring Diagram"](#).

1.CHECK BRAKE FLUID LEVEL

1. Turn the ignition switch OFF.
2. Check brake fluid level. Refer to [BR-8. "Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Refill brake fluid. Refer to [BR-16. "Drain and Refill"](#).

2.CONNECTOR INSPECTION

1. Turn ignition switch OFF.
2. Disconnect combination meter connector M76 and brake fluid level switch connector E63.
3. Check connectors and terminals for deformation, disconnection, looseness or damage.

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace as necessary.

3.CHECK BRAKE FLUID LEVEL SWITCH

Check brake fluid level switch. Refer to [BRC-100. "Component Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Replace reservoir tank. Refer to [BR-28. "Disassembly and Assembly"](#).

4.CHECK BRAKE FLUID LEVEL SWITCH CIRCUIT

1. Turn the ignition switch OFF.
2. Disconnect brake fluid level switch harness connector.
3. Disconnect combination meter harness connector.
4. Check continuity between brake fluid level switch harness connector and combination meter harness connector.

C1155 BRAKE FLUID LEVEL SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[VDC/TCS/ABS]

Brake fluid level switch		Combination meter		Continuity
Connector	Terminal	Connector	Terminal	
E63	1	M76	25	Yes

5. Check continuity between brake fluid level switch harness connector and ground.

Brake fluid level switch		—	Continuity
Connector	Terminal		
E63	1	Ground	No

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace malfunctioning components.

5.CHECK BRAKE FLUID LEVEL SWITCH GROUND CIRCUIT

Check continuity between brake fluid level switch harness connector and ground.

Brake fluid level switch		—	Continuity
Connector	Terminal		
E63	2	Ground	Yes

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace malfunctioning components.

6.CHECK COMBINATION METER

Check if indication and operation of combination meter are normal. Refer to [MWI-8, "METER SYSTEM : System Description"](#).

Is the inspection result normal?

YES >> Replace ABS actuator and electric unit (control unit). Refer to [BRC-136, "Removal and Installation"](#).

NO >> Replace combination meter. Refer to [MWI-82, "Removal and Installation"](#).

Component Inspection

INFOID:0000000010269583

1.CHECK BRAKE FLUID LEVEL SWITCH

1. Turn the ignition switch OFF.
2. Disconnect brake fluid level switch harness connector.
3. Check continuity between terminals of brake fluid level switch.

Brake fluid level switch	Condition	Continuity
Terminal		
1 – 2	When brake fluid level in reservoir tank is within the specified level.	No
	When brake fluid level in reservoir tank is less than the specified level.	Yes

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace reservoir tank. Refer to [BR-28, "Disassembly and Assembly"](#).

C1160 DECEL G SEN SET

< DTC/CIRCUIT DIAGNOSIS >

[VDC/TCS/ABS]

C1160 DECEL G SEN SET

DTC Logic

INFOID:0000000010269584

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
C1160	DECEL G SEN SET	When calibration of yaw rate/side/decel G sensor is not complete.	• Yaw rate/side/decel G sensor • Harness or connector • ABS actuator and electric unit (control unit) • Decel G sensor calibration is not performed

DTC CONFIRMATION PROCEDURE

1.CHECK SELF-DIAGNOSTIC RESULT

④With CONSULT.

1. Turn ignition switch OFF to ON.
2. Perform self-diagnostic result.

Is DTC C1160 detected?

- YES >> Proceed to diagnosis procedure. Refer to [BRC-101, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010269585

1.DECEL G SENSOR CALIBRATION

Perform decel G sensor calibration. Refer to [BRC-72, "Work Procedure"](#).

>> GO TO 2.

2.CHECK SELF-DIAGNOSTIC RESULT

④With CONSULT.

Perform self-diagnostic result.

Is DTC C1160 detected?

- YES >> GO TO 3.
NO >> Inspection End.

3.CHECK YAW RATE/SIDE/DECEL G SENSOR SYSTEM

Check yaw rate/side/decel G sensor system. Refer to [BRC-84, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> Replace ABS actuator and electric unit (control unit). Refer to [BRC-136, "Removal and Installation"](#).
NO >> Repair or replace malfunctioning components.

C1164, C1165 CV SYSTEM

DTC Logic

INFOID:0000000010269586

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
C1164	CV 1	When a malfunction is detected in cut valve 1.	• Harness or connector • ABS actuator and electric unit (control unit) • Fusible link • Battery power supply system
C1165	CV 2	When a malfunction is detected in cut valve 2.	

DTC CONFIRMATION PROCEDURE

1.CHECK SELF-DIAGNOSTIC RESULT

Ⓜ With CONSULT.

1. Turn ignition switch ON.
2. Perform self-diagnostic result.

Is DTC "C1164" or "C1165" detected?

- YES >> Proceed to diagnosis procedure. Refer to [BRC-102, "Diagnosis Procedure"](#).
 NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010269587

Regarding Wiring Diagram information, refer to [BRC-57, "Wiring Diagram"](#).

1.CONNECTOR INSPECTION

1. Turn ignition switch OFF.
2. Disconnect ABS actuator and electric unit (control unit) connectors.
3. Check connectors and terminals for deformation, disconnection, looseness or damage.

Is the inspection result normal?

- YES >> GO TO 2.
 NO >> Repair or replace as necessary.

2.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) BATTERY POWER SUPPLY

Check voltage between ABS actuator and electric unit (control unit) connector E125 terminals 1, 25 and ground.

ABS actuator and electric unit (control unit)		—	Voltage (Approx.)
Connector	Terminal		
E125	1	Ground	Battery voltage
	25		

Is the inspection result normal?

- YES >> GO TO 3.
 NO >> Repair or replace malfunctioning components.

3.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) GROUND CIRCUIT

Check continuity between ABS actuator and electric unit (control unit) connector E125 terminals 13, 38 and ground.

C1164, C1165 CV SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

[VDC/TCS/ABS]

ABS actuator and electric unit (control unit)		—	Continuity
Connector	Terminal		
E125	13	Ground	Yes
	38		

Is the inspection result normal?

- YES >> Replace ABS actuator and electric unit (control unit). Refer to [BRC-136, "Removal and Installation"](#).
- NO >> Repair or replace malfunctioning components.

BRC

A
B
C
D
E
G
H
I
J
K
L
M
N
O
P

C1170 VARIANT CODING

< DTC/CIRCUIT DIAGNOSIS >

[VDC/TCS/ABS]

C1170 VARIANT CODING

DTC Logic

INFOID:0000000010269588

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
C1170	VARIANT CODING	When the information in ABS actuator and electric unit (control unit) is not the same.	ABS actuator and electric unit (control unit)

DTC CONFIRMATION PROCEDURE

1.CHECK SELF-DIAGNOSTIC RESULT

 With CONSULT.

1. Turn ignition switch ON.
2. Perform self-diagnostic result.

Is DTC C1170 detected?

- YES >> Proceed to diagnosis procedure. Refer to [BRC-104, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010269589

1.REPLACE ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

Replace ABS actuator and electric unit (control unit) even if other DTCs are displayed with "VARIANT CODING" in self diagnostic result.

- >> Replace ABS actuator and electric unit (control unit). Refer to [BRC-136, "Removal and Installation"](#).

C1197 VACUUM SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[VDC/TCS/ABS]

C1197 VACUUM SENSOR

DTC Logic

INFOID:0000000010269620

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
C1197	VACUUM SENSOR	When a malfunction is detected in vacuum sensor.	• Harness or connector • Vacuum sensor (brake booster) • Vacuum piping • ABS actuator and electric unit (control unit)

DTC CONFIRMATION PROCEDURE

1.CHECK SELF-DIAGNOSTIC RESULT

 With CONSULT.

1. Turn the ignition switch ON.
2. Perform self-diagnostic result.

Is DTC C1197 detected?

- YES >> Proceed to diagnosis procedure. Refer to [BRC-105, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010269621

Regarding Wiring Diagram information, refer to [BRC-57, "Wiring Diagram"](#).

1.CHECK BRAKE BOOSTER

1. Turn the ignition switch OFF.
2. Check brake booster. Refer to [BR-10, "Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Replace brake booster. Refer to [BR-30, "Removal and installation"](#).

2.CHECK VACUUM PIPING

Check vacuum piping. Refer to [BR-32, "Exploded View"](#).

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Replace vacuum piping. Refer to [BR-32, "Removal and Installation"](#).

3.CHECK VACUUM SENSOR CIRCUIT

1. Disconnect vacuum sensor harness connector.
2. Disconnect ABS actuator and electric unit (control unit) harness connector.
3. Check continuity between vacuum sensor harness connector and ABS actuator and electric unit (control unit) harness connector.

Vacuum sensor		ABS actuator and electric unit (control unit)		Continuity
Connector	Terminal	Connector	Terminal	
E167	1	E125	12	Yes
	2		24	
	3		5	

4. Check continuity between vacuum sensor harness connector and ground.

C1197 VACUUM SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[VDC/TCS/ABS]

Vacuum sensor		—	Continuity
Connector	Terminal		
E167	1	Ground	No
	2		
	3		

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace malfunctioning components.

4.CHECK TERMINAL

- Check vacuum sensor pin terminals for damage or loose connection with harness connector.
- Check ABS actuator and electric unit (control unit) pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace malfunctioning components.

5.REPLACE VACUUM SENSOR

Ⓔ With CONSULT

1. Connect ABS actuator and electric unit (control unit) harness connector.
2. Replace vacuum sensor. Refer to [BR-30, "Exploded View"](#).

CAUTION:

Always replace brake booster because vacuum sensor cannot be disassembled.

3. Erase self-diagnosis result for "ABS".
4. Turn the ignition switch OFF.
5. Start engine.
6. Perform self-diagnosis for "ABS".

Is DTC "C1197" detected?

YES >> Replace ABS actuator and electric unit (control unit). Refer to [BRC-136, "Removal and Installation"](#).

NO >> Inspection End.

C1198 VACUUM SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[VDC/TCS/ABS]

C1198 VACUUM SENSOR

DTC Logic

INFOID:0000000010269618

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
C1198	VACUUM SEN CIR	- When an open circuit is detected in vacuum sensor circuit. - When a short circuit is detected in vacuum sensor circuit. - When a malfunction is detected in vacuum sensor noise.	- Harness or connector - Vacuum sensor (brake booster) - ABS actuator and electric unit (control unit)

DTC CONFIRMATION PROCEDURE

1.CHECK SELF-DIAGNOSTIC RESULT

 With CONSULT.

- Turn the ignition switch ON.
- Perform self-diagnostic result.

Is DTC C1198 detected?

- YES >> Proceed to diagnosis procedure. Refer to [BRC-107, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010269619

Regarding Wiring Diagram information, refer to [BRC-57, "Wiring Diagram"](#).

1.CHECK VACUUM SENSOR CIRCUIT

- Turn the ignition switch OFF.
- Disconnect vacuum sensor harness connector.
- Disconnect ABS actuator and electric unit (control unit) harness connector.
- Check continuity between vacuum sensor harness connector and ABS actuator and electric unit (control unit) harness connector.

Vacuum sensor		ABS actuator and electric unit (control unit)		Continuity
Connector	Terminal	Connector	Terminal	
E167	1	E125	12	Yes
	2		24	
	3		5	

- Check continuity between vacuum sensor harness connector and ground.

Vacuum sensor		—	Continuity
Connector	Terminal		
E167	1	Ground	No
	2		
	3		

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace malfunctioning components.

2.CHECK TERMINAL

C1198 VACUUM SENSOR

[VDC/TCS/ABS]

< DTC/CIRCUIT DIAGNOSIS >

- Check vacuum sensor pin terminals for damage or loose connection with harness connector.
- Check ABS actuator and electric unit (control unit) pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace malfunctioning components.

3. REPLACE VACUUM SENSOR

With CONSULT

1. Connect ABS actuator and electric unit (control unit) harness connector.
2. Replace vacuum sensor. Refer to [BR-30, "Exploded View"](#).

CAUTION:

Always replace brake booster because vacuum sensor cannot be disassembled.

3. Erase self-diagnosis result for "ABS".
4. Turn the ignition switch OFF.
5. Start engine.
6. Perform self-diagnosis for "ABS".

Is DTC "C1198" detected?

YES >> Replace ABS actuator and electric unit (control unit). Refer to [BRC-136, "Removal and Installation"](#).

NO >> Inspection End.

C1199 BRAKE BOOSTER

< DTC/CIRCUIT DIAGNOSIS >

[VDC/TCS/ABS]

C1199 BRAKE BOOSTER

DTC Logic

INFOID:0000000010269616

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
C1199	BRAKE BOOSTER	When brake booster vacuum is approx. 0 kPa (0 mm-Hg) during engine running.	• Harness or connector • Vacuum sensor (brake booster) • Vacuum piping • ABS actuator and electric unit (control unit)

DTC CONFIRMATION PROCEDURE

1.CHECK SELF-DIAGNOSTIC RESULT

 With CONSULT.

1. Turn the ignition switch ON.
2. Perform self-diagnostic result.

Is DTC C1199 detected?

- YES >> Proceed to diagnosis procedure. Refer to [BRC-109, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010269617

Regarding Wiring Diagram information, refer to [BRC-57, "Wiring Diagram"](#).

1.CHECK BRAKE BOOSTER

1. Turn the ignition switch OFF.
2. Check brake booster. Refer to [BR-10, "Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Replace brake booster. Refer to [BR-30, "Removal and installation"](#).

2.CHECK VACUUM PIPING

Check vacuum piping. Refer to [BR-32, "Exploded View"](#).

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Replace vacuum piping. Refer to [BR-32, "Removal and Installation"](#).

3.CHECK VACUUM SENSOR CIRCUIT

1. Disconnect vacuum sensor harness connector.
2. Disconnect ABS actuator and electric unit (control unit) harness connector.
3. Check continuity between vacuum sensor harness connector and ABS actuator and electric unit (control unit) harness connector.

Vacuum sensor		ABS actuator and electric unit (control unit)		Continuity
Connector	Terminal	Connector	Terminal	
E167	1	E125	12	Yes
	2		24	
	3		5	

4. Check continuity between vacuum sensor harness connector and ground.

C1199 BRAKE BOOSTER

< DTC/CIRCUIT DIAGNOSIS >

[VDC/TCS/ABS]

Vacuum sensor		—	Continuity
Connector	Terminal		
E167	1	Ground	No
	2		
	3		

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace malfunctioning components.

4.CHECK TERMINAL

- Check vacuum sensor pin terminals for damage or loose connection with harness connector.
- Check ABS actuator and electric unit (control unit) pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace malfunctioning components.

5.REPLACE VACUUM SENSOR

Ⓔ With CONSULT

1. Connect ABS actuator and electric unit (control unit) harness connector.
2. Replace vacuum sensor. Refer to [BR-30, "Exploded View"](#).

CAUTION:

Always replace brake booster because vacuum sensor cannot be disassembled.

3. Erase self-diagnosis result for "ABS".
4. Turn the ignition switch OFF.
5. Start engine.
6. Perform self-diagnosis for "ABS".

Is DTC "C1199" detected?

YES >> Replace ABS actuator and electric unit (control unit). Refer to [BRC-136, "Removal and Installation"](#).

NO >> Inspection End.

C119A VACUUM SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[VDC/TCS/ABS]

C119A VACUUM SENSOR

DTC Logic

INFOID:000000010269609

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
C119A	VACUUM SEN VOLT	When a malfunction is detected in supply power voltage of vacuum sensor.	• Harness or connector • Vacuum sensor (brake booster) • ABS actuator and electric unit (control unit)

DTC CONFIRMATION PROCEDURE

1.CHECK SELF-DIAGNOSTIC RESULT

Ⓐ With CONSULT.

1. Turn the ignition switch ON.
2. Perform self-diagnostic result.

Is DTC C119A detected?

- YES >> Proceed to diagnosis procedure. Refer to [BRC-111, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:000000010269610

Regarding Wiring Diagram information, refer to [BRC-57, "Wiring Diagram"](#).

1.CHECK VACUUM SENSOR POWER SUPPLY

1. Turn the ignition switch OFF.
2. Disconnect vacuum sensor harness connector.
3. Check voltage between vacuum sensor harness connector and ground.

Vacuum sensor		—	Voltage (Approx.)
Connector	Terminal		
E167	3	Ground	0 V

4. Turn the ignition switch ON.

CAUTION:

Never start engine.

5. Check voltage between vacuum sensor harness connector and ground.

Vacuum sensor		—	Voltage (Approx.)
Connector	Terminal		
E167	3	Ground	4.75 V – 5.25 V

Is the inspection result normal?

- YES >> GO TO 3.
NO >> GO TO 2.

2.CHECK VACUUM SENSOR POWER SUPPLY CIRCUIT

1. Turn the ignition switch OFF.
2. Disconnect ABS actuator and electric unit (control unit) harness connector.
3. Check continuity between vacuum sensor harness connector and ABS actuator and electric unit (control unit) harness connector.

C119A VACUUM SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[VDC/TCS/ABS]

Vacuum sensor		ABS actuator and electric unit (control unit)		Continuity
Connector	Terminal	Connector	Terminal	
E167	3	E125	5	Yes

4. Check continuity between vacuum sensor harness connector and ground.

Vacuum sensor		—	Continuity
Connector	Terminal		
E167	3	Ground	No

Is the inspection result normal?

YES >> Perform diagnosis of ABS actuator and electric unit (control unit) power supply and ground circuit.
Refer to [BRC-111, "Diagnosis Procedure"](#).

NO >> Repair or replace malfunctioning components.

3.CHECK VACUUM SENSOR GROUND CIRCUIT

1. Turn the ignition switch OFF.
2. Check continuity between vacuum sensor harness connector and ground.

Vacuum sensor		—	Continuity
Connector	Terminal		
E167	2	Ground	Yes

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace malfunctioning components.

4.CHECK TERMINAL

- Check vacuum sensor pin terminals for damage or loose connection with harness connector.
- Check ABS actuator and electric unit (control unit) pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace ABS actuator and electric unit (control unit). Refer to [BRC-136, "Removal and Installation"](#).

NO >> Repair or replace malfunctioning components.

U1000 CAN COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[VDC/TCS/ABS]

U1000 CAN COMM CIRCUIT

Description

INFOID:0000000010269611

CAN communication allows a high rate of information transmission through the two communication lines (CAN-H line and CAN-L line) connecting various control units in the system. Each control unit transmits/receives data but selectively reads required data only.

DTC Logic

INFOID:0000000010269612

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
U1000	CAN COMM CIRCUIT	When CAN communication signal is not continuously received for 2 seconds or more	CAN communication system malfunction

Diagnosis Procedure

INFOID:0000000010269613

1. CHECK SELF-DIAGNOSTIC RESULT

BRC

Ⓔ With CONSULT.

1. Turn ignition switch ON.
2. Perform self-diagnostic result.

Is DTC U1000 detected?

- YES >> Proceed to diagnosis procedure. Refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).
NO >> Refer to [GI-41, "Intermittent Incident"](#).

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[VDC/TCS/ABS]

POWER SUPPLY AND GROUND CIRCUIT

Diagnosis Procedure

INFOID:0000000010245922

Regarding Wiring Diagram information, refer to [PCS-24, "Wiring Diagram"](#).

1. CHECK FUSE AND FUSIBLE LINKS

Check that the following IPDM E/R fuse or fusible links are not blown.

Terminal No.	Signal name	Fuse and fusible link Nos.
1	Battery power supply	D (80A)
2		C (100A)

Is the fuse blown?

YES >> Replace the blown fuse or fusible link after repairing the affected circuit.
NO >> GO TO 2.

2. CHECK BATTERY POWER SUPPLY CIRCUIT

1. Disconnect IPDM E/R connector E118.
2. Check voltage between IPDM E/R connector E118 and ground.

IPDM E/R		Ground	Voltage (Approx.)
Connector	Terminal		
E118	1	—	Battery voltage
	2		

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace harness or connectors.

3. CHECK GROUND CIRCUIT

1. Disconnect IPDM E/R connectors E119, E120 and E121.
2. Check continuity between IPDM E/R connectors and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		
E119	12	Ground	Yes
E120	31		
E121	47		

Is the inspection result normal?

YES >> Inspection End.
NO >> Repair or replace harness or connectors.

PARKING BRAKE SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[VDC/TCS/ABS]

PARKING BRAKE SWITCH

Component Function Check

INFOID:0000000010227836

1.CHECK PARKING BRAKE SWITCH OPERATION

Check that brake warning lamp in combination meter turns ON/OFF when parking brake is operated.

Is the inspection result normal?

- YES >> Inspection End.
NO >> Proceed to [BRC-115, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010227837

1.CHECK PARKING BRAKE SWITCH CIRCUIT

1. Turn the ignition switch OFF.
2. Disconnect parking brake switch harness connector.
3. Disconnect combination meter harness connector.
4. Check the continuity between parking brake switch harness connector and combination meter harness connector.

Parking brake switch		Combination meter		Continuity
Connector	Terminal	Connector	Terminal	
E52	1	M76	26	Yes

5. Check the continuity between parking brake switch harness connector and ground.

Parking brake switch		—	Continuity
Connector	Terminal		
E52	1	Ground	No

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace error-detected parts.

2.CHECK PARKING BRAKE SWITCH

Check the parking brake switch. Refer to [PB-4, "Inspection and Adjustment"](#).

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Replace the parking brake switch. Refer to [PB-7, "Exploded View"](#).

3.CHECK PARKING BRAKE SWITCH SIGNAL

Ⓜ With CONSULT

1. Connect parking brake switch harness connector.
2. Connect combination meter harness connector.
3. Select "ABS", "DATA MONITOR" and "PARK BRAKE SW" according to this order. Check the parking brake switch signal.

Condition	DATA MONITOR
Operate parking brake	On
Release the parking brake	Off

Is the inspection result normal?

- YES >> Inspection End.
NO >> GO TO 4.

4.CHECK COMBINATION METER

Check the combination meter. Refer to [MWI-21, "CONSULT Function \(METER/M&A\)"](#).

PARKING BRAKE SWITCH

[VDC/TCS/ABS]

< DTC/CIRCUIT DIAGNOSIS >

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace combination meter. Refer to [MWI-82, "Removal and Installation"](#).

5.CHECK TERMINAL

1. Check the combination meter pin terminals for damage or loose connection with harness connector.
2. Check the parking brake switch pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace the ABS actuator and electric unit (control unit). Refer to [BRC-136, "Removal and Installation"](#).

NO >> Repair or replace error-detected parts.

Component Inspection

INFOID:0000000010227838

1.CHECK PARKING BRAKE SWITCH

1. Turn the ignition switch OFF.
2. Disconnect parking brake switch harness connector.
3. Check the continuity between parking brake switch terminal and ground.

Parking brake switch Terminal	—	Condition	Continuity
1	Ground	When parking brake switch is pressed	Yes
		When parking brake switch is released	No

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace the parking brake switch. Refer to [PB-7, "Exploded View"](#).

VDC OFF SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[VDC/TCS/ABS]

VDC OFF SWITCH

Component Function Check

INFOID:0000000010227839

1.CHECK VDC OFF SWITCH OPERATION

Check that VDC OFF indicator lamp in combination meter turns ON/OFF when VDC OFF switch is operated.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Proceed to [BRC-117, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010227840

1.CHECK VDC OFF SWITCH CIRCUIT

1. Turn the ignition switch OFF.
2. Disconnect ABS actuator and electric unit (control unit) harness connector.
3. Disconnect VDC OFF switch harness connector.
4. Check the continuity between ABS actuator and electric unit (control unit) harness connector and VDC OFF switch harness connector.

ABS actuator and electric unit (control unit)		VDC OFF switch		Continuity
Connector	Terminal	Connector	Terminal	
E125	15	M79	6	Yes

5. Check the continuity between ABS actuator and electric unit (control unit) harness connector and ground.

ABS actuator and electric unit (control unit)		—	Continuity
Connector	Terminal		
E125	15	Ground	No

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace error-detected parts.

2.CHECK VDC OFF SWITCH GROUND CIRCUIT

Check the continuity between VDC OFF switch harness connector and ground.

VDC OFF switch		—	Continuity
Connector	Terminal		
M80	5	Ground	Yes

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace error-detected parts.

3.CHECK VDC OFF SWITCH

Check the VDC OFF switch. Refer to [BRC-118, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace the VDC OFF switch. Refer to [BRC-138, "Removal and Installation"](#).

4.CHECK VDC OFF SWITCH SIGNAL

 With CONSULT

1. Connect ABS actuator and electric unit (control unit) harness connector.
2. Connect VDC OFF switch harness connector.
3. Select "ABS", "DATA MONITOR" and "OFF SW" according to this order. Check the VDC OFF switch signal.

VDC OFF SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[VDC/TCS/ABS]

Condition	DATA MONITOR
When VDC OFF switch is pressed and VDC OFF indicator lamp in combination meter is in ON status	On
When VDC OFF switch is pressed and VDC OFF indicator lamp in combination meter is in OFF status	Off

Is the inspection result normal?

YES >> Inspection End.

NO >> GO TO 5.

5.CHECK TERMINAL

1. Check the ABS actuator and electric unit (control unit) pin terminals for damage or loose connection with harness connector.
2. Check the VDC OFF switch pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace the ABS actuator and electric unit (control unit). Refer to [BRC-136, "Removal and Installation"](#).

NO >> Repair or replace error-detected parts.

Component Inspection

INFOID:0000000010227841

1.CHECK VDC OFF SWITCH

1. Turn the ignition switch OFF.
2. Disconnect VDC OFF switch harness connector.
3. Check the continuity between terminals of VDC OFF switch connector.

VDC OFF switch	Condition	Continuity
Terminal		
6-8	When VDC OFF switch is pressed	Yes
	When VDC OFF switch is not pressed	No

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace the VDC OFF switch. Refer to [BRC-138, "Removal and Installation"](#).

ABS WARNING LAMP

Component Function Check

INFOID:0000000010227842

1. CHECK ABS WARNING LAMP FUNCTION

Check that ABS warning lamp in combination meter turns ON for 1 second after ignition switch is turned ON.

CAUTION:

Never start the engine.

Is the inspection result normal?

- YES >> Inspection End.
NO >> Proceed to [BRC-119, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010227843

1. CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) POWER SUPPLY AND GROUND CIRCUIT

Perform the trouble diagnosis for ABS actuator and electric unit (control unit) power supply and ground circuit. Refer to [BRC-119, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace error-detected parts.

2. PERFORM SELF-DIAGNOSIS

 With CONSULT

1. Turn the ignition switch OFF → ON.

CAUTION:

- Be sure to wait of 10 seconds after turning ignition switch OFF or ON.
- Start the engine.

2. Repeat step 1 two or more times.
3. Perform self-diagnosis for "ABS".

Is any DTC detected?

- YES >> Check the DTC. Refer to [BRC-55, "DTC Index"](#).
NO >> GO TO 3.

3. CHECK ABS WARNING LAMP SIGNAL

 With CONSULT

1. Select "ABS", "DATA MONITOR" and "ABS WARN LAMP" according to this order.
2. Turn the ignition switch OFF.
3. Check that data monitor displays "On" for 1 second after ignition switch is turned ON and then changes to "Off".

CAUTION:

Never start the engine.

Is the inspection result normal?

- YES >> Replace the combination meter. Refer to [MWI-82, "Removal and Installation"](#).
NO >> Replace the ABS actuator and electric unit (control unit). Refer to [BRC-136, "Removal and Installation"](#).

BRAKE WARNING LAMP

Component Function Check

INFOID:0000000010227844

1. CHECK BRAKE WARNING LAMP FUNCTION

Check that brake warning lamp in combination meter turns ON for 1 second after ignition switch is turned ON.

CAUTION:

Never start the engine.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Proceed to [BRC-120, "Diagnosis Procedure"](#).

2. CHECK BRAKE WARNING LAMP FUNCTION

Check that brake warning lamp turns ON/OFF when parking brake is operated.

NOTE:

Brake warning lamp turns ON when parking brake is operated (when parking brake switch is ON).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the parking brake switch system. Refer to [BRC-115, "Diagnosis Procedure"](#).

3. CHECK BRAKE WARNING LAMP FUNCTION

Check that brake warning lamp in combination meter turns ON/OFF when brake fluid level switch is operated while brake fluid level in reservoir tank is with the specified level.

NOTE:

Brake warning lamp turns ON when brake fluid is less than the specified level (when brake fluid level switch is ON).

Is the inspection result normal?

YES >> Inspection End.

NO >> Check the brake fluid level switch system. Refer to [BR-27, "Exploded View"](#).

Diagnosis Procedure

INFOID:0000000010227845

1. CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) POWER SUPPLY AND GROUND CIRCUIT

Perform the trouble diagnosis for ABS actuator and electric unit (control unit) power supply and ground circuit. Refer to [BRC-120, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace error-detected parts.

2. PERFORM THE SELF-DIAGNOSIS

 With CONSULT

1. Turn the ignition switch OFF → ON.

CAUTION:

• **Be sure to wait of 10 seconds after turning ignition switch OFF or ON.**

• **Start the engine.**

2. Repeat step 1 two or more times.

3. Perform self-diagnosis for "ABS".

Is any DTC detected?

YES >> Check the DTC. Refer to [BRC-55, "DTC Index"](#).

NO >> GO TO 3.

3. CHECK BRAKE WARNING LAMP SIGNAL

 With CONSULT

1. Select "ABS", "DATA MONITOR" and "EBD WARN LAMP" according to this order.

2. Turn the ignition switch OFF.

BRAKE WARNING LAMP

< DTC/CIRCUIT DIAGNOSIS >

[VDC/TCS/ABS]

3. Check that data monitor displays “On” for 1 second after ignition switch is turned ON and then changes to “Off”.

CAUTION:

Never start the engine.

Is the inspection result normal?

- YES >> Replace the combination meter. Refer to [MWI-82, "Removal and Installation"](#).
NO >> Replace the ABS actuator and electric unit (control unit). Refer to [BRC-136, "Removal and Installation"](#).

A
B
C
D
E
G
H
I
J
K
L
M
N
O
P

BRC

VDC WARNING LAMP

Component Function Check

INFOID:0000000010227846

1. CHECK VDC WARNING LAMP FUNCTION

Check that VDC warning lamp in combination meter turns ON for 1 second after ignition switch is turned ON.

CAUTION:

Never start the engine.

Is the inspection result normal?

YES >> Inspection End.

NO >> Proceed to [BRC-122. "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010227847

1. CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) POWER SUPPLY AND GROUND CIRCUIT

Perform the trouble diagnosis for ABS actuator and electric unit (control unit) power supply and ground circuit. Refer to [BRC-122. "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace error-detected parts.

2. PERFORM THE SELF-DIAGNOSIS

 With CONSULT

1. Turn the ignition switch OFF → ON.

CAUTION:

- Be sure to wait of 10 seconds after turning ignition switch OFF or ON.
- Start the engine.

2. Repeat step 1 two or more times.

3. Perform self-diagnosis for "ABS".

Is any DTC detected?

YES >> Check the DTC. Refer to [BRC-55. "DTC Index"](#).

NO >> GO TO 3.

3. CHECK VDC WARNING LAMP SIGNAL

 With CONSULT

1. Select "ABS", "DATA MONITOR" and "SLIP/VDC LAMP" according to this order.

2. Turn the ignition switch OFF.

3. Check that data monitor displays "On" for approx. 1 second after ignition switch is turned ON, and then changes to "Off".

CAUTION:

Never start the engine.

Is the inspection result normal?

YES >> Replace the combination meter. Refer to [MWI-82. "Removal and Installation"](#).

NO >> Replace the ABS actuator and electric unit (control unit). Refer to [BRC-136. "Removal and Installation"](#).

VDC OFF INDICATOR LAMP

Component Function Check

INFOID:000000010227848

1. CHECK VDC OFF INDICATOR LAMP FUNCTION (1)

Check that VDC OFF indicator lamp in combination meter turns ON for 1 second after ignition switch is turned ON.

CAUTION:

Never start the engine.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Proceed to [BRC-123, "Diagnosis Procedure"](#).

2. CHECK VDC OFF INDICATOR LAMP FUNCTION (2)

Check that VDC OFF indicator lamp in combination meter turns ON/OFF when VDC OFF switch is operated.

Is the inspection result normal?

YES >> Inspection End.

NO >> Check the VDC OFF switch system. Refer to [BRC-117, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000010227849

1. CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) POWER SUPPLY AND GROUND CIRCUIT

Perform the trouble diagnosis for ABS actuator and electric unit (control unit) power supply and ground circuit. Refer to [BRC-123, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace error-detected parts.

2. CHECK VDC OFF INDICATOR LAMP SIGNAL

Ⓜ With CONSULT

1. Select "ABS", "DATA MONITOR" and "OFF LAMP" according to this order.
2. Turn the ignition switch OFF.
3. Check that data monitor displays "On" for 1 second after ignition switch is turned ON, and then changes to "Off".

CAUTION:

Never start the engine.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace the ABS actuator and electric unit (control unit). Refer to [BRC-136, "Removal and Installation"](#).

3. CHECK VDC OFF INDICATOR LAMP SIGNAL

Ⓜ With CONSULT

1. Select "ABS", "DATA MONITOR" and "OFF LAMP" according to this order.
2. Check that data monitor displays "On" or "Off" each time when VDC OFF switch is operated.

Is the inspection result normal?

YES >> Replace the combination meter. Refer to [MWI-82, "Removal and Installation"](#).

NO >> Check the VDC OFF switch system. Refer to [BRC-117, "Diagnosis Procedure"](#).

SYMPTOM DIAGNOSIS

EXCESSIVE OPERATION FREQUENCY

Description

INFOID:0000000010227850

VDC function, TCS function, ABS function, EBD function, Brake limited slip differential (BLSD) function, Brake assist function, hill start assist function or Brake force distribution function operates in excessive operation frequency.

Diagnosis Procedure

INFOID:0000000010227851

1. CHECK BRAKING FORCE

Check brake force using a brake tester.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Check brake system.

2. CHECK FRONT AND REAR AXLE

Check that there is no excessive looseness in front and rear axle.

- 2WD: Refer to [FAX-7, "Inspection"](#) (front) or [RAX-6, "Inspection"](#) (rear).
- AWD: Refer to [FAX-38, "Inspection"](#) (front) or [RAX-14, "Inspection"](#) (rear).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace error-detected parts.

3. CHECK WHEEL SENSOR

Check wheel sensor.

- Check installation and damage of wheel sensor.
- Check connection of wheel sensor harness connector.
- Check terminal of wheel sensor harness connector.

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair installation or replace wheel sensor.

- Front wheel sensor: Refer to [BRC-132, "FRONT WHEEL SENSOR : Removal and Installation"](#).
- Rear wheel sensor: Refer to [BRC-134, "REAR WHEEL SENSOR : Removal and Installation"](#).

4. CHECK SENSOR ROTOR

Check that there is no looseness, damage or foreign material on sensor rotor.

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair installation or replace sensor rotor.

- Front sensor rotor: Refer to [BRC-135, "FRONT SENSOR ROTOR : Removal and Installation - Front Sensor Rotor"](#).
- Rear sensor rotor: Refer to [BRC-135, "REAR SENSOR ROTOR : Removal and Installation - Rear Sensor Rotor"](#).

5. CHECK WARNING LAMP TURNS OFF

Check that ABS warning lamp, brake warning lamp and VDC warning lamp turn OFF approx. 1 second after key switch is turned ON and stay in OFF status during driving.

CAUTION:

Brake warning lamp turns ON when parking brake is operated (parking brake switch is ON) or brake fluid is less than the specified level (brake fluid level switch is ON).

Is the inspection result normal?

YES >> Normal

NO >> GO TO 6.

6. PERFORM THE SELF-DIAGNOSIS

EXCESSIVE OPERATION FREQUENCY

< SYMPTOM DIAGNOSIS >

[VDC/TCS/ABS]

④ With CONSULT

1. Turn the ignition switch OFF → ON.

CAUTION:

- Be sure to wait of 10 seconds after turning ignition switch OFF or ON.
- Set the vehicle to READY/Start the engine.

2. Repeat step 1 two or more times.
3. Perform self-diagnosis for "ABS".

Is any DTC detected?

- YES >> Check the DTC. Refer to [BRC-55, "DTC Index"](#).
NO >> Inspection End.

A

B

C

D

E

BRC

G

H

I

J

K

L

M

N

O

P

UNEXPECTED BRAKE PEDAL REACTION

< SYMPTOM DIAGNOSIS >

[VDC/TCS/ABS]

UNEXPECTED BRAKE PEDAL REACTION

Description

INFOID:0000000010227852

A malfunction of brake pedal feel (height or others) is detected when brake pedal is depressed.

Diagnosis Procedure

INFOID:0000000010227853

1.CHECK FRONT AND REAR AXLE

Check that there is no excessive looseness in front and rear axle.

- 2WD: Refer to [FAX-7. "Inspection"](#) (front) or [RAX-6. "Inspection"](#) (rear).
- AWD: Refer to [FAX-38. "Inspection"](#) (front) or [RAX-14. "Inspection"](#) (rear).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace error-detected parts.

2.CHECK DISC ROTOR

Check disc rotor runout.

- Front: Refer to [BR-11. "DISC BRAKE ROTOR : Inspection"](#).
- Rear: Refer to [BR-13. "DISC BRAKE ROTOR : Inspection"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Refinish the disc rotor.

3.CHECK BRAKE FLUID LEAKAGE

Check fluid leakage.

Refer to [BR-8. "Inspection"](#)

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace error-detected parts.

4.CHECK BRAKE PEDAL

Check each item of brake pedal. Refer to [BR-15. "Adjustment"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> Adjust each item of brake pedal. Refer to [BR-15. "Adjustment"](#).

5.CHECK BRAKING FORCE

Check brake force using a brake tester.

Is the inspection result normal?

YES >> GO TO 6.

NO >> Check each components of brake system.

6.CHECK BRAKE PERFORMANCE

Disconnect ABS actuator and electric unit (control unit) connector so that ABS does not operate. Check that brake force is normal in this condition. Connect harness connectors after checking.

Is the inspection result normal?

YES >> Normal

NO >> Check each components of brake system.

THE BRAKING DISTANCE IS LONG

< SYMPTOM DIAGNOSIS >

[VDC/TCS/ABS]

THE BRAKING DISTANCE IS LONG

Description

INFOID:0000000010227854

Brake stopping distance is long when ABS function is operated.

Diagnosis Procedure

INFOID:0000000010227855

CAUTION:

Brake stopping distance on slippery road like rough road, gravel road or snowy road may become longer when ABS is operated than when ABS is not operated.

1.CHECK BRAKING FORCE

Check brake force using a brake tester.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Check each components of brake system.

2.CHECK BRAKE PERFORMANCE

Disconnect ABS actuator and electric unit (control unit) connector so that ABS does not operate. Check brake stopping distance in this condition. Connect harness connectors after checking.

Is the inspection result normal?

YES >> Normal

NO >> Check each components of brake system.

A

B

C

D

E

BRC

G

H

I

J

K

L

M

N

O

P

DOES NOT OPERATE

Description

INFOID:0000000010227856

VDC function, TCS function, ABS function, EBD function, Brake limited slip differential (BLSD) function, Brake assist function, hill start assist function or Brake force distribution function does not operate.

Diagnosis Procedure

INFOID:0000000010227857

CAUTION:

- VDC function, TCS function, ABS function, EBD function, Brake limited slip differential (BLSD) function, Brake assist function, hill start assist function and Brake force distribution function never operate when the vehicle speed is 10 km/h (6.2 MPH) or less. However, TCS function, Brake limited slip differential (BLSD) function and hill start assist function operates when the vehicle speed is 0 km/h (0 MPH) (the vehicle is in stop status).
- VDC function and TCS function never operate when VDC OFF switch is operated (when VDC OFF indicator lamp turns ON).

1.CHECK ABS WARNING LAMP

Check that ABS warning lamp, brake warning lamp and VDC warning lamp turn ON and turn OFF approx. 1 second after key switch is turned ON. Check that ABS warning lamp, brake warning lamp and VDC warning lamp and stay in OFF status during driving.

CAUTION:

Brake warning lamp turns ON when parking brake is operated (parking brake switch is ON) or brake fluid is less than the specified level (brake fluid level switch is ON).

Is the inspection result normal?

- YES >> Normal
NO >> GO TO 2.

2.PERFORM SELF-DIAGNOSIS

 With CONSULT

1. Turn the ignition switch OFF → ON.

CAUTION:

- Be sure to wait of 10 seconds after turning ignition switch OFF or ON.
- Start the engine.

2. Repeat step 1 two or more times.
3. Perform self-diagnosis for "ABS" with CONSULT.

Is any DTC detected?

- YES >> Check the DTC. Refer to [BRC-55, "DTC Index"](#).
NO >> Inspection End.

BRAKE PEDAL VIBRATION OR OPERATION SOUND OCCURS

< SYMPTOM DIAGNOSIS >

[VDC/TCS/ABS]

BRAKE PEDAL VIBRATION OR OPERATION SOUND OCCURS

Description

INFOID:0000000010227858

- Brake pedal vibrates and motor sound from ABS actuator and electric unit (control unit) occurs, when the engine starts.
- Brake pedal vibrates during braking.

CAUTION:

Vibration may be felt during brake pedal is lightly depressed (just placing a foot on it) in the following conditions. This is normal.

- When shifting gears
- When driving on slippery road
- During cornering at high speed
- When passing over bumps or grooves [Approx. 50 mm (1.97 in) or more]
- When pulling away just after starting engine [at approx. 10 km/h (6.2 MPH) or higher]

Diagnosis Procedure

INFOID:0000000010227859

1. SYMPTOM CHECK 1

Check that there are pedal vibrations when the engine is started.

Do vibrations occur?

YES >> GO TO 2.

NO >> Check brake pedal. Refer to [BR-15. "Adjustment"](#).

2. SYMPTOM CHECK 2

Check that motor sound from ABS actuator occurs when the engine starts.

Does the operation sound occur?

YES >> GO TO 3.

NO >> Perform self-diagnosis for "ABS" with CONSULT.

3. SYMPTOM CHECK 3

Check symptoms when electrical component (headlamps, etc.) switches are operated.

Does the symptom occur?

YES >> Check that radio (including wiring), antenna and antenna lead-in wires are not located near ABS actuator and electric unit (control unit). Move them if they are located near ABS actuator and electric unit (control unit).

NO >> GO TO 4.

4. PERFORM SELF-DIAGNOSIS

 With CONSULT

1. Turn the ignition switch OFF → ON.

CAUTION:

- Be sure to wait of 10 seconds after turning ignition switch OFF or ON.
- Start the engine.

2. Repeat step 1 two or more times.
3. Perform self-diagnosis for "ABS".

Is any DTC detected?

YES >> Check the DTC. Refer to [BRC-55. "DTC Index"](#).

NO >> Inspection End.

VEHICLE JERKS DURING

Description

INFOID:0000000010227860

The vehicle jerks when VDC function, TCS function, ABS function, EBD function, Brake limited slip differential (BLSD) function, Brake assist function, hill start assist function or Brake force distribution function operates.

Diagnosis Procedure

INFOID:0000000010227861

1. CHECK SYMPTOM

Check that the vehicle jerks when VDC function, TCS function, ABS function, EBD function, Brake limited slip differential (BLSD) function, Brake assist function, hill start assist function or Brake force distribution function operates.

Is the inspection result normal?

- YES >> Normal
NO >> GO TO 2.

2. PERFORM THE SELF-DIAGNOSIS

 With CONSULT

1. Turn the ignition switch OFF → ON.

CAUTION:

- Be sure to wait of 10 seconds after turning ignition switch OFF or ON.
- Start the engine.

2. Repeat step 1 two or more times.
3. Perform self-diagnosis for "ABS".

Is any DTC detected?

- YES >> Check the DTC. Refer to [BRC-55, "DTC Index"](#).
NO >> GO TO 3.

3. CHECK CONNECTOR

 With CONSULT

1. Turn the ignition switch OFF.
2. Disconnect ABS actuator and electric unit (control unit) harness connector.
3. Check connector terminal for deformation, disconnection and looseness.

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Poor connection of connector terminal. Repair or replace connector terminal.

4. PERFORM THE SELF-DIAGNOSIS

 With CONSULT

1. Connect harness connector.
2. Turn the ignition switch OFF → ON.

CAUTION:

- Be sure to wait of 10 seconds after turning ignition switch OFF or ON.
- Start the engine.

3. Repeat step 2 two or more times.
4. Perform self-diagnosis for "ABS".

Is any DTC detected?

- YES >> Check the DTC. Refer to [BRC-55, "DTC Index"](#).
NO >> GO TO 5.

5. PERFORM THE SELF-DIAGNOSIS

 With CONSULT

Perform self-diagnosis for "ENGINE", "TRANSMISSION".

Is any DTC detected?

- YES >> Check the DTC.
NO >> Replace ABS actuator and electric unit (control unit). Refer to [BRC-136, "Removal and Installation"](#).

NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

[VDC/TCS/ABS]

NORMAL OPERATING CONDITION

Description

INFOID:000000010227862

Symptom	Result
Brake pedal slightly vibrates and operation sound (motor sound and sound from suspension) occurs when VDC function, TCS function, ABS function, EBD function, Brake limited slip differential (BLSD) function, Brake assist function, hill start assist function or Brake force distribution function operates.	This is not a malfunction, because it is caused by VDC function, TCS function, ABS function, EBD function, Brake limited slip differential (BLSD) function, Brake assist function, hill start assist function and Brake force distribution function that are normally operated.
Brake stopping distance may become longer than models without ABS function depending on the road conditions, when ABS function is operated on slippery road like rough road, gravel road or snowy road.	
Brake pedal vibrates and operation sound occurs during sudden acceleration and cornering, when VDC function, TCS function, Brake assist function or Brake force distribution function is operated.	
Brake pedal vibrates and motor sound from the engine room occurs, when the engine starts or the vehicle starts just after starting the engine.	This is not a malfunction, because it is caused by operation check of ABS actuator and electric unit (control unit).
Acceleration may be felt insufficient depending on the road conditions.	This is not a malfunction, because it is caused by TCS function that puts the highest priority to obtain the optimum traction (stability).
TCS function may operate momentarily, while driving on a road where friction coefficient varies, or when downshifting, or fully depressing accelerator pedal.	
ABS warning lamp and VDC OFF indicator lamp may turn ON, when the vehicle is on a rotating turntable or is given a strong shaking or large vibrations on a ship while the engine is running.	In this case, restart the engine on a normal road. If the normal condition is restored, there is no malfunction. In that case, erase "ABS" self-diagnosis result memory with CONSULT.
VDC warning lamp may turn ON and VDC function, TCS function, Brake assist function, and Brake force distribution function may not normally operate, when driving on a special road the is extremely slanted (bank in a circuit course).	
A malfunction in yaw rate/side/decel G sensor system may be detected when the vehicle sharply turns during a spin turn, acceleration turn or drift driving while VDC function, TCS function, are OFF (VDC OFF switch is pressed and VDC OFF indicator lamp is in ON status).	
The vehicle speed does not increase, when the accelerator pedal is depressed while the vehicle is on a 2-wheel chassis dynamometer for speedometer check.	This is normal. (When checking the vehicle on a chassis dynamometer, operate VDC OFF switch so that TCS function is OFF.)

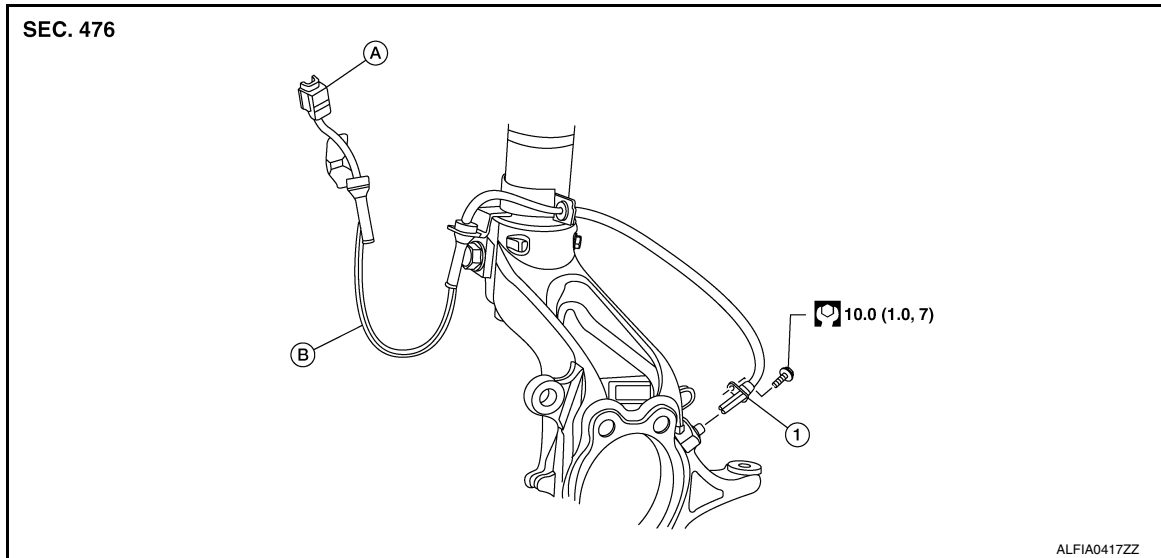
REMOVAL AND INSTALLATION

WHEEL SENSOR

FRONT WHEEL SENSOR

FRONT WHEEL SENSOR : Exploded View

INFOID:000000009798654



1. Front LH wheel sensor

A. Harness connector

B. Slant line

FRONT WHEEL SENSOR : Removal and Installation

INFOID:000000009798655

CAUTION:

- Be careful not to damage front wheel sensor edge and sensor rotor teeth.
- When removing the front wheel hub and bearing, first remove the front wheel sensor from the steering knuckle. Failure to do so may result in damage to the front wheel sensor wires making the front wheel sensor inoperative.
- Pull out the front wheel sensor, being careful to turn it as little as possible. Do not pull on the front wheel sensor harness.
- Before installation, check if foreign objects such as iron fragments are adhered to the pick-up part of the front wheel sensor or to the inside of the hole in the steering knuckle for the front wheel sensor, or if a foreign object is caught in the surface of the sensor rotor. Fix as necessary and then install the front wheel sensor.

REMOVAL

1. Remove the front wheel and tire using power tool. Refer to [WT-57, "Adjustment"](#).
2. Partially remove the fender protector to gain access to the wheel sensor harness connector. Refer to [EXT-28, "FENDER PROTECTOR : Exploded View"](#).
3. Disconnect the harness connector from the front wheel sensor.
4. Remove the front wheel sensor bolt from the wheel hub and bearing.
5. Remove the front wheel sensor from the strut bracket.
6. Remove the front wheel sensor from the steering knuckle.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

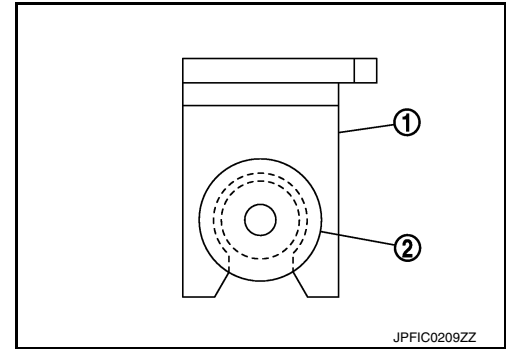
- When installing, make sure there is no foreign material such as iron chips on and in the hole in the steering knuckle for the front wheel sensor. Make sure no foreign material has been caught in the sensor rotor. Remove any foreign material and clean the mount.

WHEEL SENSOR

< REMOVAL AND INSTALLATION >

[VDC/TCS/ABS]

- Do not twist front wheel sensor harness when installing front wheel sensor. Check that grommet (2) is fully inserted to bracket (1). Check that front wheel sensor harness is not twisted after installation.

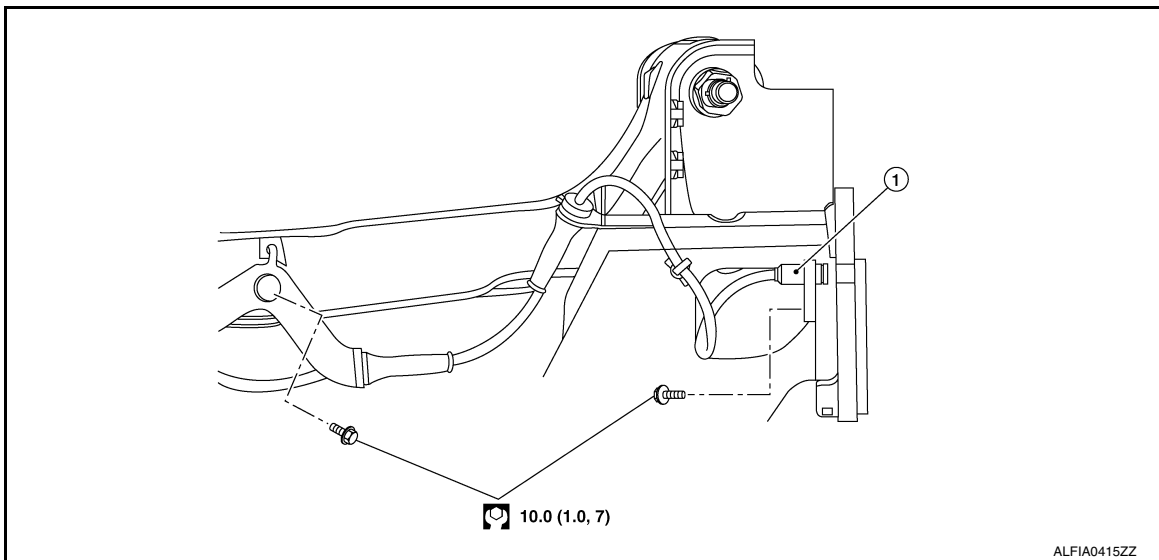


REAR WHEEL SENSOR

REAR WHEEL SENSOR : Exploded View

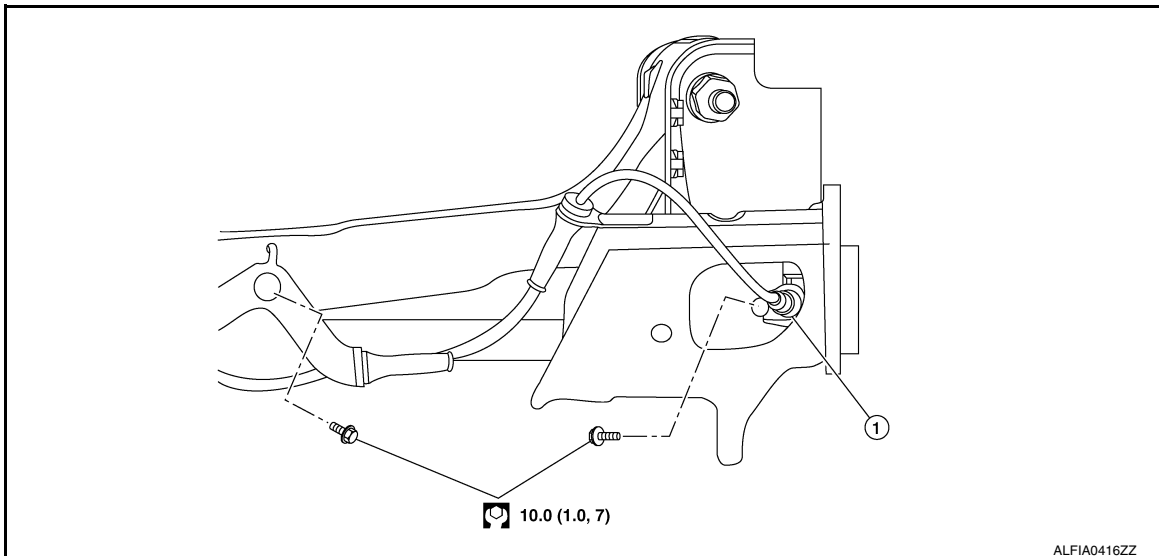
INFOID:000000009798656

FWD



1. Rear LH wheel sensor

AWD



1. Rear LH wheel sensor

WHEEL SENSOR

< REMOVAL AND INSTALLATION >

[VDC/TCS/ABS]

REAR WHEEL SENSOR : Removal and Installation

INFOID:000000009798657

CAUTION:

- Be careful not to damage rear wheel sensor edge and sensor rotor teeth.
- When removing the rear wheel hub and bearing, first remove the rear wheel sensor from the rear wheel hub and bearing (FWD) or the rear axle housing (AWD). Failure to do so may result in damage to the rear wheel sensor making the rear wheel sensor inoperative.
- Pull out the rear wheel sensor, being careful to turn it as little as possible. Do not pull on the rear wheel sensor harness.
- Before installation, check if foreign objects such as iron fragments are adhered to the pick-up part of the rear wheel sensor or to the inside of the hole in the rear wheel hub and bearing (FWD) or the rear axle housing (AWD) for the rear wheel sensor, or if a foreign object is caught in the surface of the sensor rotor. Fix as necessary and then install the rear wheel sensor.

REMOVAL

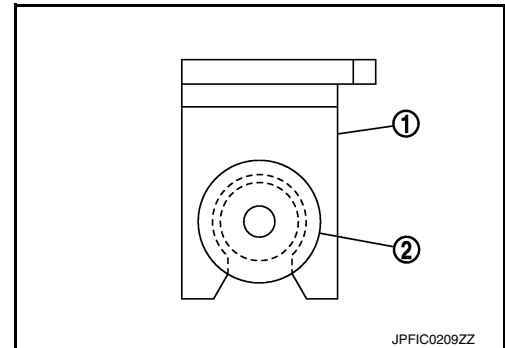
1. Remove the rear wheel and tire using power tool. Refer to [WT-57, "Adjustment"](#).
2. Remove the rear wheel sensor bolt.
3. Disconnect the harness connector from the rear wheel sensor.
4. Remove the rear wheel sensor from the wheel hub and bearing (FWD) or the rear axle housing (AWD).
5. Remove the rear wheel sensor harness grommet from the bracket.
6. Remove the bolt, the rear wheel sensor harness, and the rear wheel sensor from the bracket.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- When installing, make sure there is no foreign material such as iron chips on and in the hole in the rear wheel hub and bearing (FWD) or the rear axle housing (AWD) for the rear wheel sensor. Make sure no foreign material has been caught in the sensor rotor. Remove any foreign material and clean the mount.
- Do not twist rear wheel sensor harness when installing rear wheel sensor. Check that grommet (2) is fully inserted to bracket (1). Check that rear wheel sensor harness is not twisted after installation.



SENSOR ROTOR

FRONT SENSOR ROTOR

FRONT SENSOR ROTOR : Removal and Installation - Front Sensor Rotor INFOID:0000000010246020

The front wheel sensor rotor is an integral part of the wheel hub and bearing and cannot be disassembled. Refer to [FAX-9. "Removal and Installation"](#) (FWD) or [FAX-40. "Removal and Installation"](#) (AWD).

REAR SENSOR ROTOR

REAR SENSOR ROTOR : Removal and Installation - Rear Sensor Rotor INFOID:0000000010246021

For FWD vehicles, the rear wheel sensor rotor is an integral part of the wheel hub and bearing and cannot be disassembled. Refer to [RAX-7. "Removal and Installation"](#) (FWD).

For AWD vehicles, the rear wheel sensor rotor is pressed on the rear drive shaft and can be disassembled. Refer to [RAX-21. "Disassembly and Assembly"](#) (AWD).

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P

BRC

ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

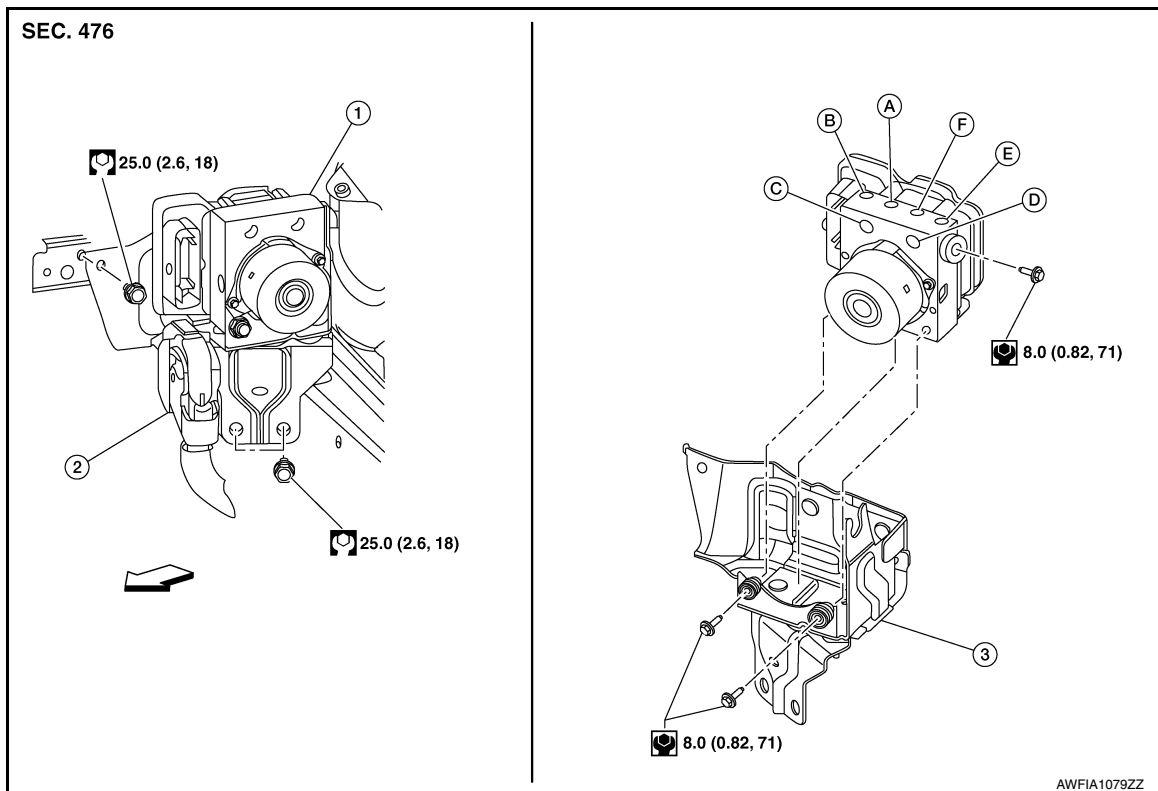
< REMOVAL AND INSTALLATION >

[VDC/TCS/ABS]

ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

Exploded View

INFOID:000000009798662



- | | | |
|--|-----------------------------|--|
| 1. ABS actuator and electric unit (control unit) | 2. Connector | 3. Bracket |
| A. To front LH brake caliper | B. To rear RH brake caliper | C. From master cylinder secondary side |
| D. From master cylinder primary side | E. To rear LH brake caliper | F. To front RH brake caliper |

Removal and Installation

INFOID:000000009798663

REMOVAL

CAUTION:

- To remove brake tube, use a flare nut wrench to prevent flare nuts and brake tube from being damaged.
- Do not remove actuator by holding harness.

NOTE:

When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid from spilling.

1. Disconnect negative battery terminal. Refer to [PG-75, "Exploded View"](#).
2. Remove the cowl top cover and cowl top extension. Refer to [EXT-25, "Removal and Installation"](#).
3. Separate brake tubes from ABS actuator and electric unit (control unit). Refer to [BR-22, "FRONT : Exploded View"](#).
4. Remove the brake booster vacuum hose. Refer to [BR-32, "Removal and Installation"](#).
5. Separate the brake booster vacuum tube and place aside. Refer to [BR-23, "FRONT : Removal and Installation"](#).
6. Disconnect the harness connector from the ABS actuator and electric unit (control unit).
7. Remove ABS actuator and electric unit (control unit) bracket bolts and bushings.
8. Remove ABS actuator and electric unit (control unit) from vehicle.

INSTALLATION

Installation is in the reverse order of removal.

ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

< REMOVAL AND INSTALLATION >

[VDC/TCS/ABS]

- After work is completed, bleed air from brake tube. Refer to [BR-16. "Bleeding Brake System"](#).
- Adjust the neutral position of steering angle sensor. Refer to [BRC-70, "Work Procedure"](#).
- Perform calibration of the decel G sensor. Refer to [BRC-72. "Work Procedure"](#).

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P

CAUTION:

- To install, use flare nut crowfoot and torque wrench.
- Do not reuse the bushings.
- Replace the ABS actuator if it has been dropped or sustained an impact.
- Do not install actuator by holding harness.
- After installing harness connector in the ABS actuator and electric unit (control unit), make sure connector is securely locked.

BRC

VDC OFF SWITCH

< REMOVAL AND INSTALLATION >

[VDC/TCS/ABS]

VDC OFF SWITCH

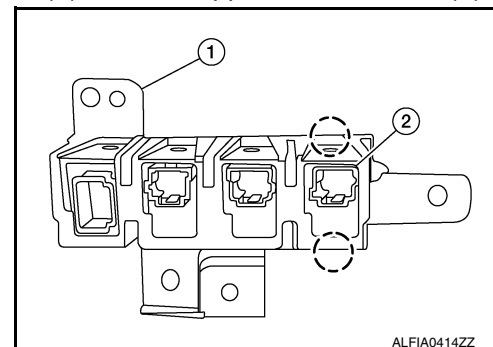
Removal and Installation

INFOID:0000000010246019

REMOVAL

1. Remove the instrument lower panel LH. Refer to [IP-14. "INSTRUMENT PANEL ASSEMBLY : Removal and Installation"](#).
2. Release pawls using suitable tool and remove the VDC OFF switch (2) from the upper switch carrier (1).

(○): Pawl



INSTALLATION

Installation is in the reverse order of removal.

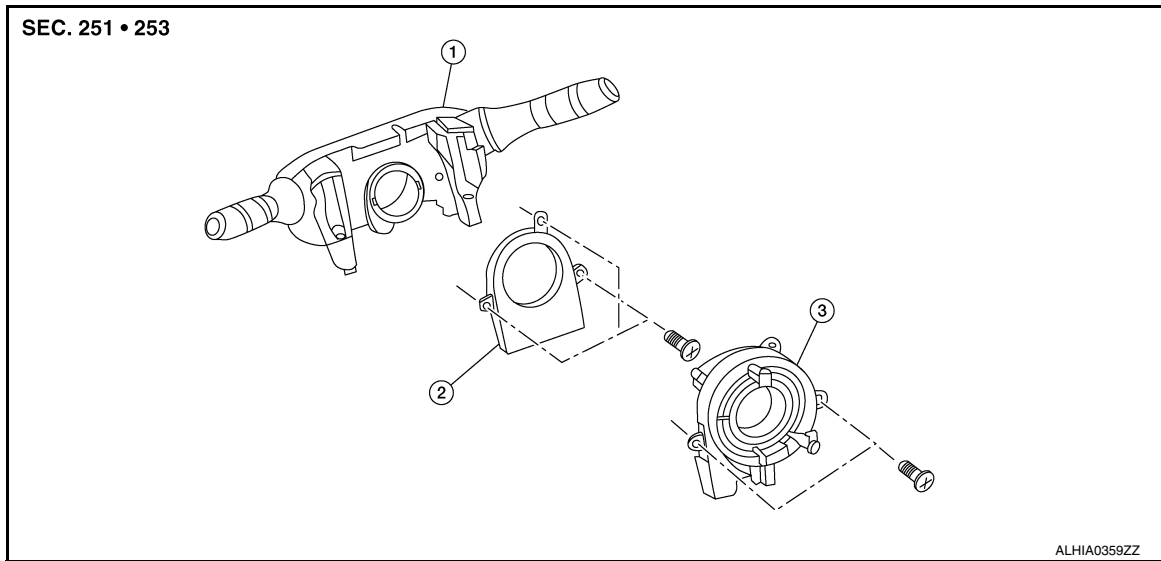
STEERING ANGLE SENSOR

< REMOVAL AND INSTALLATION >

[VDC/TCS/ABS]

STEERING ANGLE SENSOR

Exploded View



1. Combination switch

2. Steering angle sensor

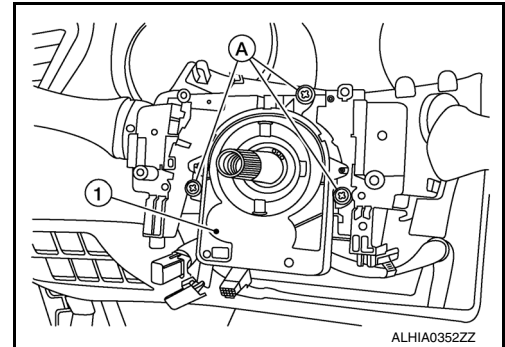
3. Spiral cable

Removal and Installation

INFOID:000000009798667

Removal and Installation

1. Remove the spiral cable. Refer to [SR-15, "Exploded View"](#).
2. Remove screws (A) and then remove steering angle sensor (1).



INSTALLATION

Installation is in the reverse order of removal.

SECTION

BRM

BODY REPAIR

A

B

C

CONTENTS

E

VEHICLE INFORMATION	2	Stone Guard Coat	18	F
BODY EXTERIOR PAINT COLOR	2	Body Sealing	19	
Body Exterior Paint Color	2	BODY CONSTRUCTION	23	G
PRECAUTION	3	Body Construction	23	
PRECAUTIONS	3	Rear Fender Hemming Process	24	
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	3	REPLACEMENT OPERATIONS	26	H
REPAIRING HIGH STRENGTH STEEL	4	Description	26	
High Strength Steel (HSS)	4	Hoodledge	27	
Handling of Ultra High Strength Steel Plate Parts.....	6	Hoodledge Reinforcement	28	I
LOCATION OF PLASTIC PARTS	7	Radiator Core Support Side	30	
Precautions for Plastics	7	Strut Housing	31	J
Location of Plastic Parts	8	Front Side Member Outer	31	
PREPARATION	10	Front Side Member Inner	32	
REPAIRING MATERIAL	10	Front Side Member (Partial Replacement)	34	
Foam Repair	10	Front Pillar	34	
BODY COMPONENT PARTS	11	Center Pillar	36	BRM
Underbody Component Parts	11	Rear Fender	39	
Body Component Parts	13	Rear Panel	40	
REMOVAL AND INSTALLATION	16	Rear Floor Rear	40	L
CORROSION PROTECTION	16	Rear Side Member Extension	41	
Description	16	SERVICE DATA AND SPECIFICATIONS (SDS)	43	M
Anti-corrosive Wax	16	BODY ALIGNMENT	43	N
Undercoating	17	Body Center Marks	43	
		Description	44	
		Engine Compartment	44	
		Underbody	46	O
		Passenger Compartment	49	
		Rear Body	51	P

BODY EXTERIOR PAINT COLOR

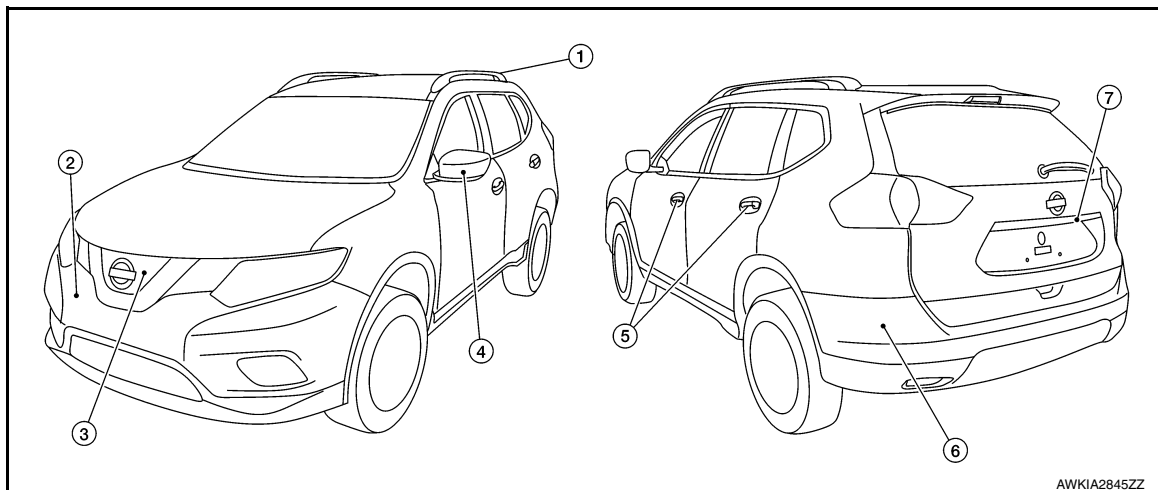
< VEHICLE INFORMATION >

VEHICLE INFORMATION

BODY EXTERIOR PAINT COLOR

Body Exterior Paint Color

INFOID:000000009798684



Component		Color code	EAN	K23	KAD	KH3	EAP	NAH	QAA	RAQ
		Description	Green	Silver	Gray	Black	Gold	Red	White	Dark Blue
		Paint type	M	M	M	2S	M	M	3P	M
		Hard clear coat	t	t	t	t	t	t	t	t
1.	Roof rack	Silver	K23	K23	K23	K23	K23	K23	K23	K23
2.	Front bumper fascia	Body color	EAN	K23	KAD	KH3	EAP	NAH	QAA	RAQ
3.	Front grille	Black/Chromium plate	KH3/Cr2P	KH3/Cr2P	KH3/Cr2P	KH3/Cr2P	KH3/Cr2P	KH3/Cr2P	KH3/Cr2P	KH3/Cr2P
4.	Door mirror finisher	Body color	EAN	K23	KAD	KH3	EAP	NAH	QAA	RAQ
5.	Door outside handle	Chromium plate	Cr2P	Cr2P	Cr2P	Cr2P	Cr2P	Cr2P	Cr2P	Cr2P
6.	Rear bumper fascia	Body color	EAN	K23	KAD	KH3	EAP	NAH	QAA	RAQ
7.	Back door finisher	Chromium plate	Cr2P	Cr2P	Cr2P	Cr2P	Cr2P	Cr2P	Cr2P	Cr2P

M = Metallic, 2S = Solid and Clear, 3P = 3-coat pearl, t = TMAC clear coat

PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010275700

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

BRM

REPAIRING HIGH STRENGTH STEEL

< PRECAUTION >

REPAIRING HIGH STRENGTH STEEL

High Strength Steel (HSS)

INFOID:000000009798685

High strength steel is used for body panels in order to reduce vehicle weight.

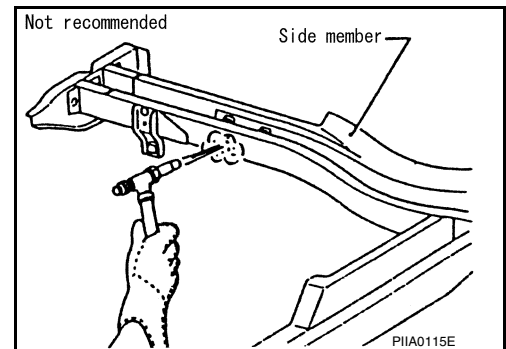
Accordingly, precautions in repairing automotive bodies made of high strength steel are described below:

Tensile strength	Major applicable parts
440 - 780 MPa	• Side dash • Front suspension mounting bracket • Rear side member assembly • Other reinforcements • Inner center front bumper reinforcement
980 - 1350 MPa	• Front side member • Front side member closing plate assembly • Lower dash crossmember reinforcement • Lower dash crossmember assembly • Front side member rear extension (Front floor component part) • Inner sill • Center pillar reinforcement (Lower center pillar brace component part) • Inner center pillar

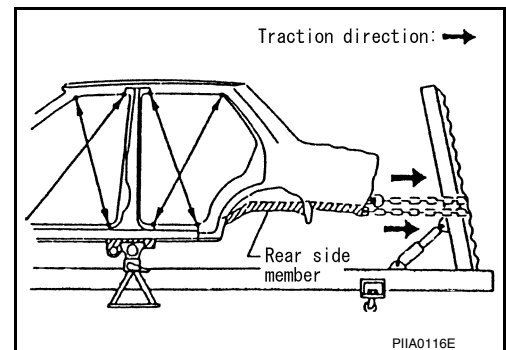
Read the following precautions when repairing HSS:

1. Additional points to consider

- The repair of reinforcements (such as side members) by heating is not recommended since it may weaken the component. When heating is unavoidable, do not heat HSS parts above 550°C (1,022°F). Verify heating temperature with a thermometer. (Crayon-type and other similar type thermometer are appropriate.)



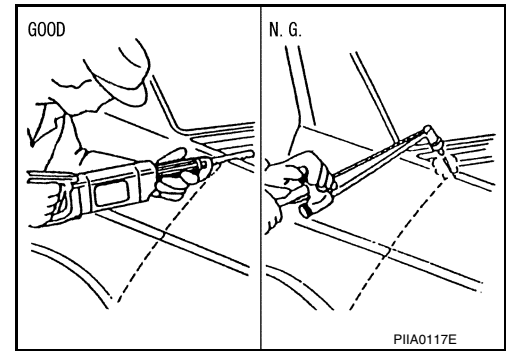
- When straightening body panels, use caution in pulling any HSS panel. Because HSS is very strong, pulling may cause deformation in adjacent portions of the body. In this case, increase the number of measuring points, and carefully pull the HSS panel.



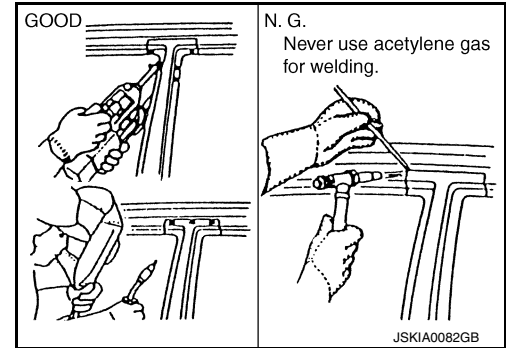
REPAIRING HIGH STRENGTH STEEL

< PRECAUTION >

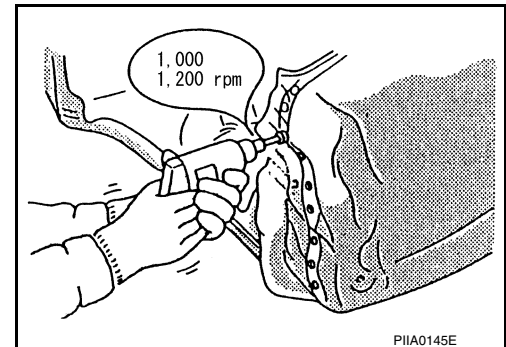
- When cutting HSS panels, avoid gas (torch) cutting if possible. Instead, use a saw to avoid weakening surrounding areas due to heat. If gas (torch) cutting is unavoidable, allow a minimum margin of 50 mm (1.97 in).



- When welding HSS panels, use spot welding whenever possible in order to minimize weakening surrounding areas due to heat. If spot welding is impossible, use MIG. welding. Do not use gas (torch) for welding because it is inferior in welding strength.



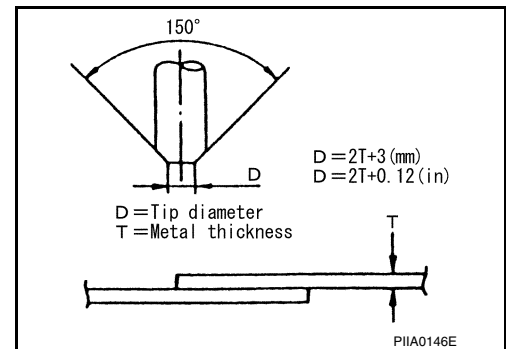
- The spot weld on HSS panels is harder than that of an ordinary steel panel. Therefore, when cutting spot welds on a HSS panel, use a low speed high torque drill (1,000 to 1,200 rpm) to increase drill bit durability and facilitate the operation.



2. Precautions in spot welding HSS

This work should be performed under standard working conditions. Always note the following when spot welding HSS:

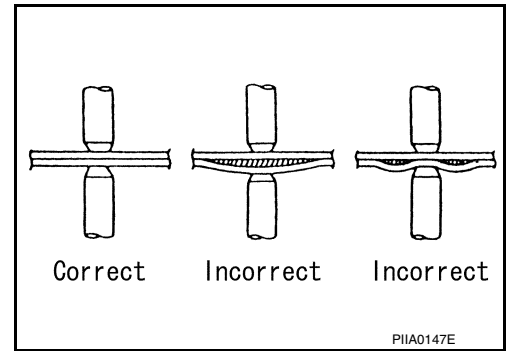
- The electrode tip diameter must be sized properly according to the metal thickness.



REPAIRING HIGH STRENGTH STEEL

< PRECAUTION >

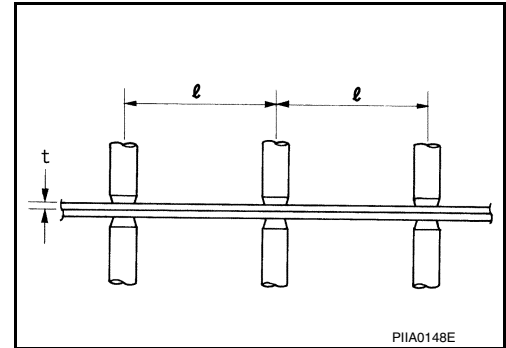
- The panel surfaces must fit flush to each other, leaving no gaps.



- Follow the specifications for the proper welding pitch.

Unit: mm (in)

Thickness (t)	Minimum pitch (l)
0.6 (0.024)	10 (0.39) or over
0.8 (0.031)	12 (0.47) or over
1.0 (0.039)	18 (0.71) or over
1.2 (0.047)	20 (0.79) or over
1.6 (0.063)	27 (1.06) or over
1.8 (0.071)	31 (1.22) or over



Handling of Ultra High Strength Steel Plate Parts

INFOID:000000009798686

PROHIBITION OF CUT AND CONNECTION

Never cut and Joint the stiffener front side member (front floor inside frame parts) because its material is high strength steel plate (ultra high strength steel plate).

The front floor assembly must be replaced if this part is damaged.

LOCATION OF PLASTIC PARTS

< PRECAUTION >

LOCATION OF PLASTIC PARTS

Precautions for Plastics

INFOID:000000009798715

Abbreviation	Material name	Heatresisting temperature °C (°F)	Resistance to gasoline and solvents	Other cautions
PE	Polyethylene	60 (140)	Gasoline and most solvents are harmless if applied for a very short time (wipe out quickly).	Flammable
ABS	Acrylonitrile Butadiene Styrene	80 (176)	Avoid gasoline and solvents.	—
AES	Acrylonitrile Ethylene Styrene	80 (176)	↑	—
EPM/EPDM	Ethylene Propylene (Diene) copolymer	80 (176)	Gasoline and most solvents are harmless if applied for a very short time (wipe out quickly).	Flammable
PS	Polystyrene	80 (176)	Avoid solvents.	Flammable
PVC	Poly Vinyl Chloride	80 (176)	Gasoline and most solvents are harmless if applied for a very short time (wipe out quickly).	Poisonous gas is emitted when burned.
TPO	Thermoplastic Olefine	80 (176)	↑	Flammable
AAS	Acrylonitrile Acrylic Styrene	85 (185)	Avoid gasoline and solvents.	—
PMMA	Poly Methyl Methacrylate	85 (185)	↑	—
EVAC	Ethylene Vinyl Acetate	90 (194)	↑	—
PP	Polypropylene	90 (194)	Gasoline and most solvents are harmless if applied for a very short time (wipe out quickly).	Flammable, avoid battery acid.
PUR	Polyurethane	90 (194)	Avoid gasoline and solvents.	—
UP	Unsaturated Polyester	90 (194)	↑	Flammable
ASA	Acrylonitrile Styrene Acrylate	100 (212)	↑	Flammable
PPE	Poly Phenylene Ether	110 (230)	↑	—
TPU	Thermoplastic Urethane	110 (230)	↑	—
PBT+PC	Poly Butylene Terephthalate + Polycarbonate	120 (248)	↑	Flammable
PC	Polycarbonate	120 (248)	↑	—
POM	Poly Oxymethylene	120 (248)	↑	Avoid battery acid.
PA	Polyamide	140 (284)	↑	Avoid immersing in water.
PBT	Poly Butylene Terephthalate	140 (284)	↑	—
PAR	Polyarylate	180 (356)	↑	—
PET	Polyethylene terephthalate	180 (356)	↑	—
PEI	Polyetherimide	200 (392)	↑	—

CAUTION:

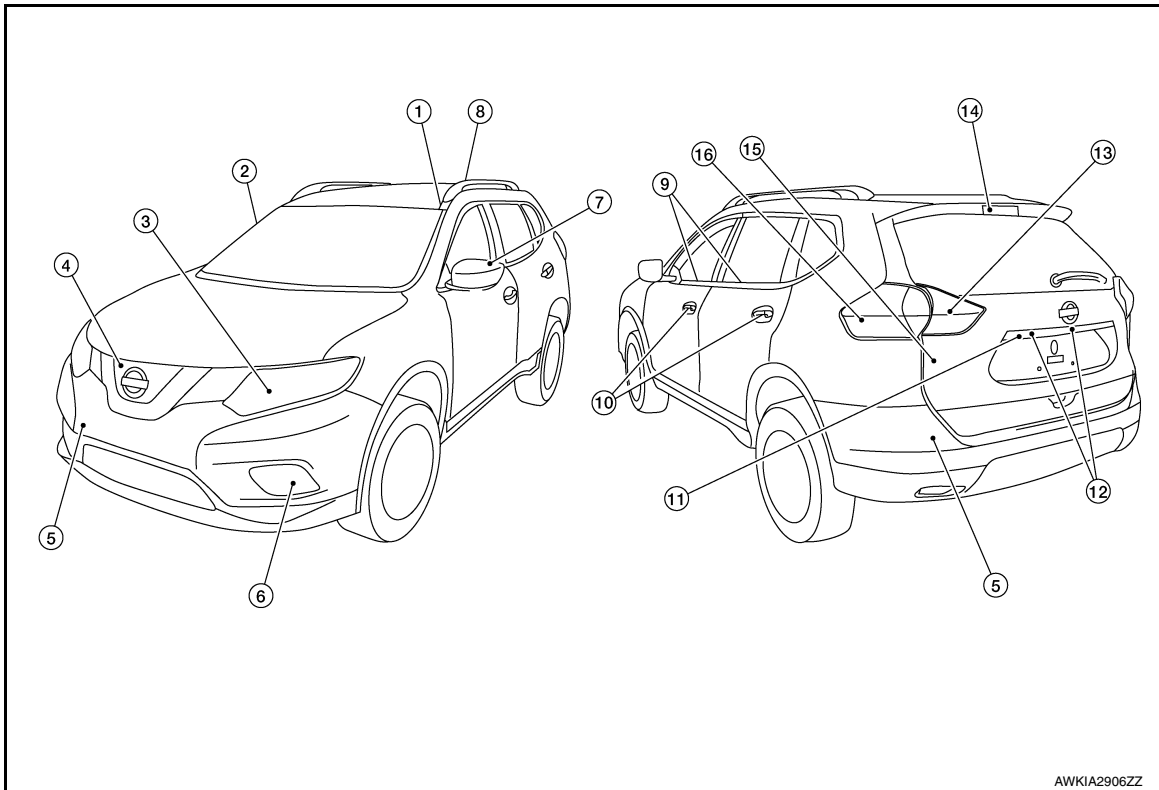
- When repairing and painting a portion of the body adjacent to plastic parts, consider their characteristics (influence of heat and solvent) and remove them if necessary or take suitable measures to protect them.
- Plastic parts should be repaired and painted using methods suiting the materials' characteristics.

LOCATION OF PLASTIC PARTS

< PRECAUTION >

Location of Plastic Parts

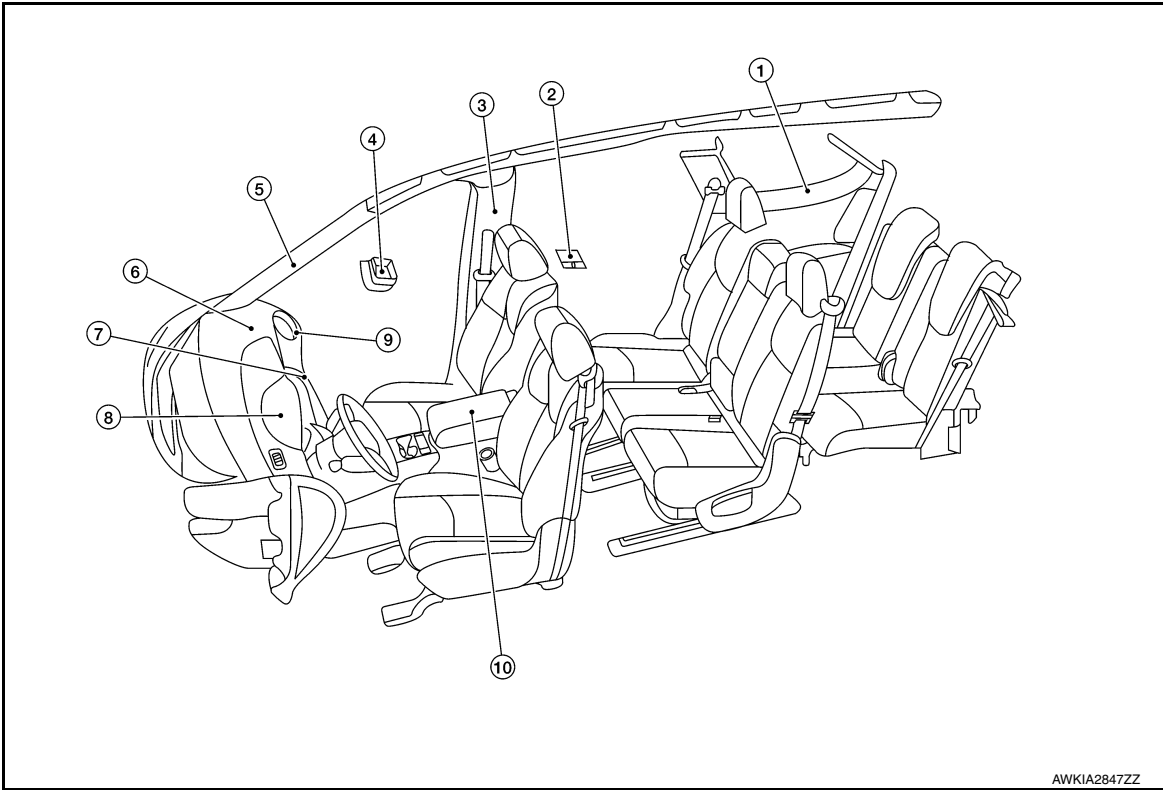
INFOID:000000009798716



Component			Material	Component			Material
1.	Roof side molding		PVC + Stainless	9.	Door outside molding		PVC + Stainless
2.	Windshield molding		PVC	10.	Door outside handle		PC + PET
3.	Front combination lamp	Lens	PC	11.	Back door finisher		ABS
		Housing	PP				
4.	Front grille		ABS	12.	License plate lamp	Lens	PC
5.	Front bumper fascia		PP + EPM			Housing	PC
6.	Front fog lamp	Lens	Glass	13.	Back up lamp	Lens	PMMA
		Housing	PBT + ASA + Glass fiber			Housing	ASA
7.	Door mirror	Finisher	ABS	14.	High-mounted stop lamp	Lens	PMMA
		Housing	PP			Housing	ABS
		Base	PA	15.	Back door		PP
8.	Roof rack finisher		ABS	16.	Rear combination lamp	Lens	PMMA
						Housing	ASA

LOCATION OF PLASTIC PARTS

< PRECAUTION >



Component			Material	Component			Material
1.	Luggage side finisher		PP	6.	Instrument panel	Skin	TPO
2.	Room lamp	Lens	PC			Pad	PUR
		Housing	PA			Core	PP
3.	Center pillar finisher		PP	7.	Cluster lid C		PC + ABS
4.	Map lamp	Lens	PC	8.	Cluster lid A		PP
		Housing	PP	9.	Glove box		PP
5.	Front pillar finisher		PP	10.	Center console		PP

BRM

REPAIRING MATERIAL

< PREPARATION >

PREPARATION

REPAIRING MATERIAL

Foam Repair

INFOID:000000009798687

During factory body assembly, foam insulators are installed in certain body panels and locations around the vehicle. Use the following procedure(s) to replace any factory-installed foam insulators.

URETHANE FOAM APPLICATIONS

Use commercially available Urethane foam for sealant (foam material) repair of material used on vehicle.

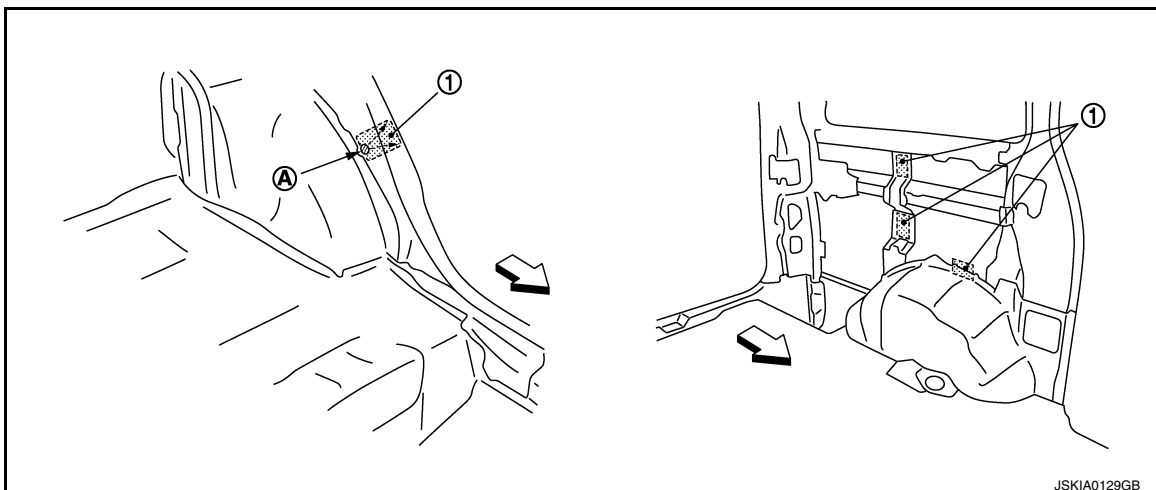
<Urethane foam for foaming agent>

3M™ Automix™ Flexible Foam 08463 or equivalent

Read instructions on product for fill procedures.

Example of foaming agent filling operation procedure

1. Fill procedures after installation of service part.
 - a. Eliminate foam material remaining on vehicle side.
 - b. Clean area after eliminating form insulator and foam material.
 - c. Install service part.
 - d. Insert nozzle into hole near fill area and fill foam material or fill enough to close gap with the service part.



1. Urethane foam

A. Nozzle insert hole

← Front

2. Fill procedures before installation of service part.
 - a. Eliminate foam material remaining on vehicle side.
 - b. Clean area after eliminating foam insulator and foam material.
 - c. Fill foam material on wheelhouse outer side.

1. Urethane foam

A. Fill while avoiding flange area

← Front

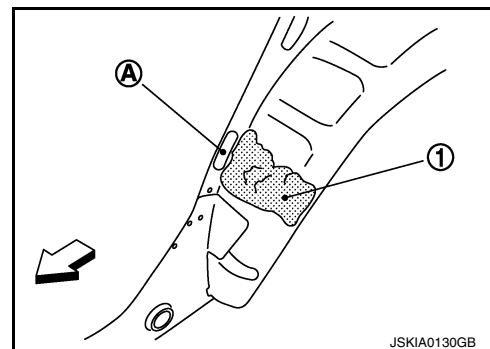
NOTE:

Fill enough to close gap with service part while avoiding flange area.

- d. Install service part.

NOTE:

Refer to label for information on working times.



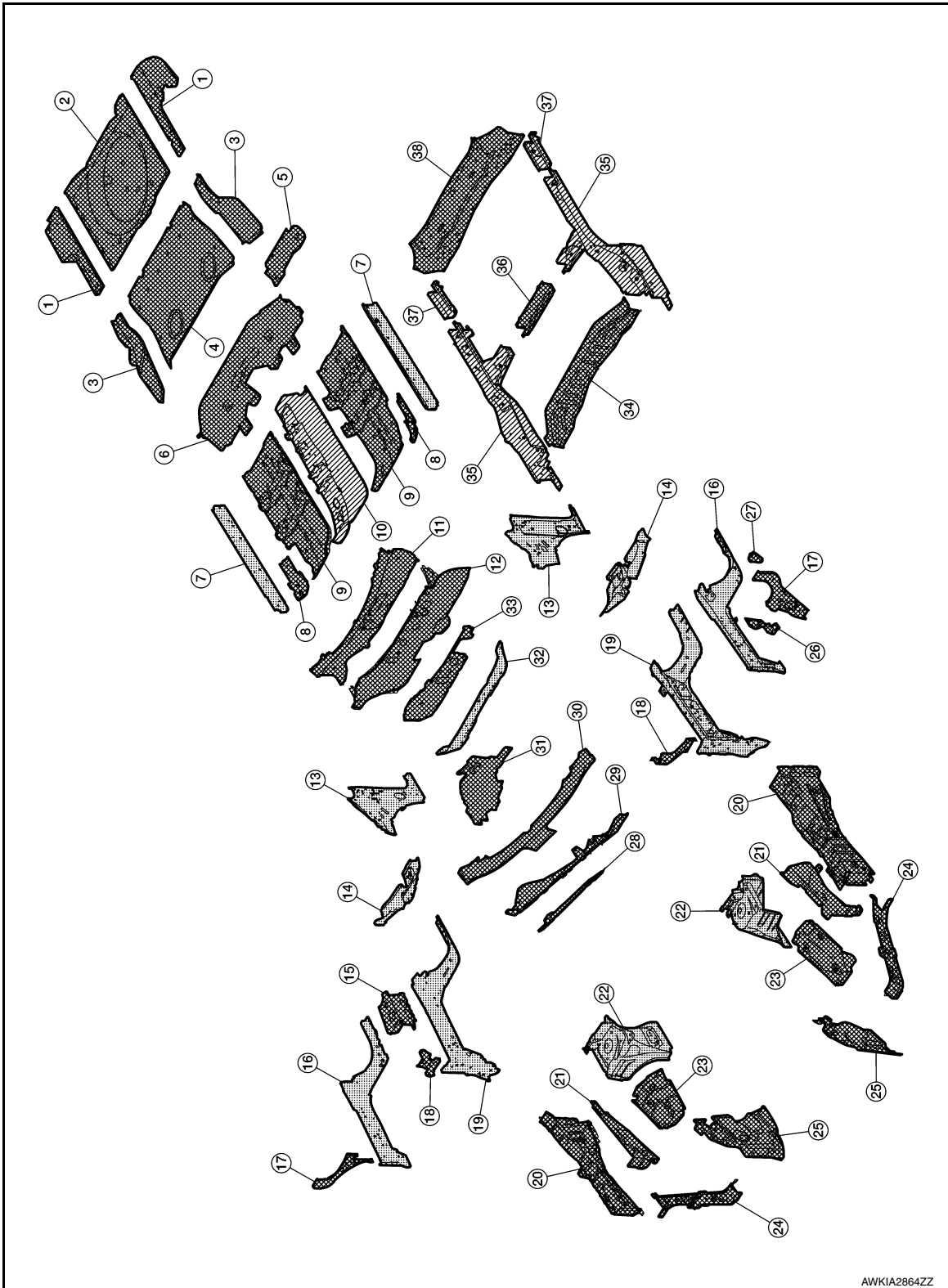
BODY COMPONENT PARTS

< PREPARATION >

BODY COMPONENT PARTS

Underbody Component Parts

INFOID:000000009798688



A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P

BRM

 Both sided anti-corrosive precoated steel portions

BODY COMPONENT PARTS

< PREPARATION >

-  High strength steel (HSS) portions: 440 MPa
-  Both sided anti-corrosive steel and HSS portions: 440 MPa

No.	Parts name	Tensile strength (MPa)	Both sided anti-corrosive precoated steel sections	Aluminum portion
1.	Rear floor rear side (LH/RH)	Under 440	x	—
2.	Rear floor rear	Under 440	x	—
3.	Rear floor front sides (LH/RH)	Under 440	x	—
4.	Rear floor front	Under 440	x	—
5.	Rear floor exhaust reinforcement	Under 440	x	—
6.	Rear floor front extension	440	x	—
7.	Inner sill (LH/RH)	1180MPa	x	—
8.	Inner sill front extension (LH/RH)	1180MPa	x	—
9.	Front floor (LH/RH)	440	x	—
10.	Center front floor	590	x	—
11.	Upper dash	Under 440	x	—
12.	Lower dash	Under 440	x	—
13.	Side dash (LH/RH)	1180MPa	x	—
14.	Front suspension mounting bracket (LH/RH)	1180MPa	x	—
15.	Battery tray	440	x	—
16.	Front side member closing plate assembly (LH/RH)	1180MPa	x	—
17.	Radiator upper side panel (LH/RH)	Under 440	x	—
18.	Radiator lower bracket (LH/RH)	Under 440	x	—
19.	Front side member (LH/RH)	1180MPa	x	—
20.	Upper hoodledge (LH/RH)	440	x	—
21.	Hoodledge reinforcement (LH/RH)	440	x	—
22.	Front strut housing (LH/RH)	1180MPa	x	—
23.	Front strut housing extension (LH/RH)	Under 440	x	—
24.	Headlight panel (LH/RH)	Under 440	x	—
25.	Lower radiator lower assembly (LH/RH)	Under 440	x	—
26.	Front side member extension (LH/RH)	440	x	—
27.	Front side member bracket (LH/RH)	Under 440	x	—
28.	Front of dash brace (LH/RH)	Under 440	x	—
29.	Upper dash crossmember assembly	440	x	—
30.	Cowl top reinforcement	440	x	—
31.	Engine mounting member bracket	440	x	—
32.	Cowl top	Under 440	x	—
33.	Dash panel reinforcement	1180MPa	x	—
34.	Rear seat crossmember	590	x	—
35.	Rear side member assembly (LH/RH)	440	x	—
36.	Center rear crossmember	440	x	—
37.	Rear side member extension (LH/RH)	440	x	—
38.	Rear end panel inner	Under 440	x	—

CAUTION:

If the high strength steel (ultra high strength steel) of this is broken, replace by assembly for the supply part.

BODY COMPONENT PARTS

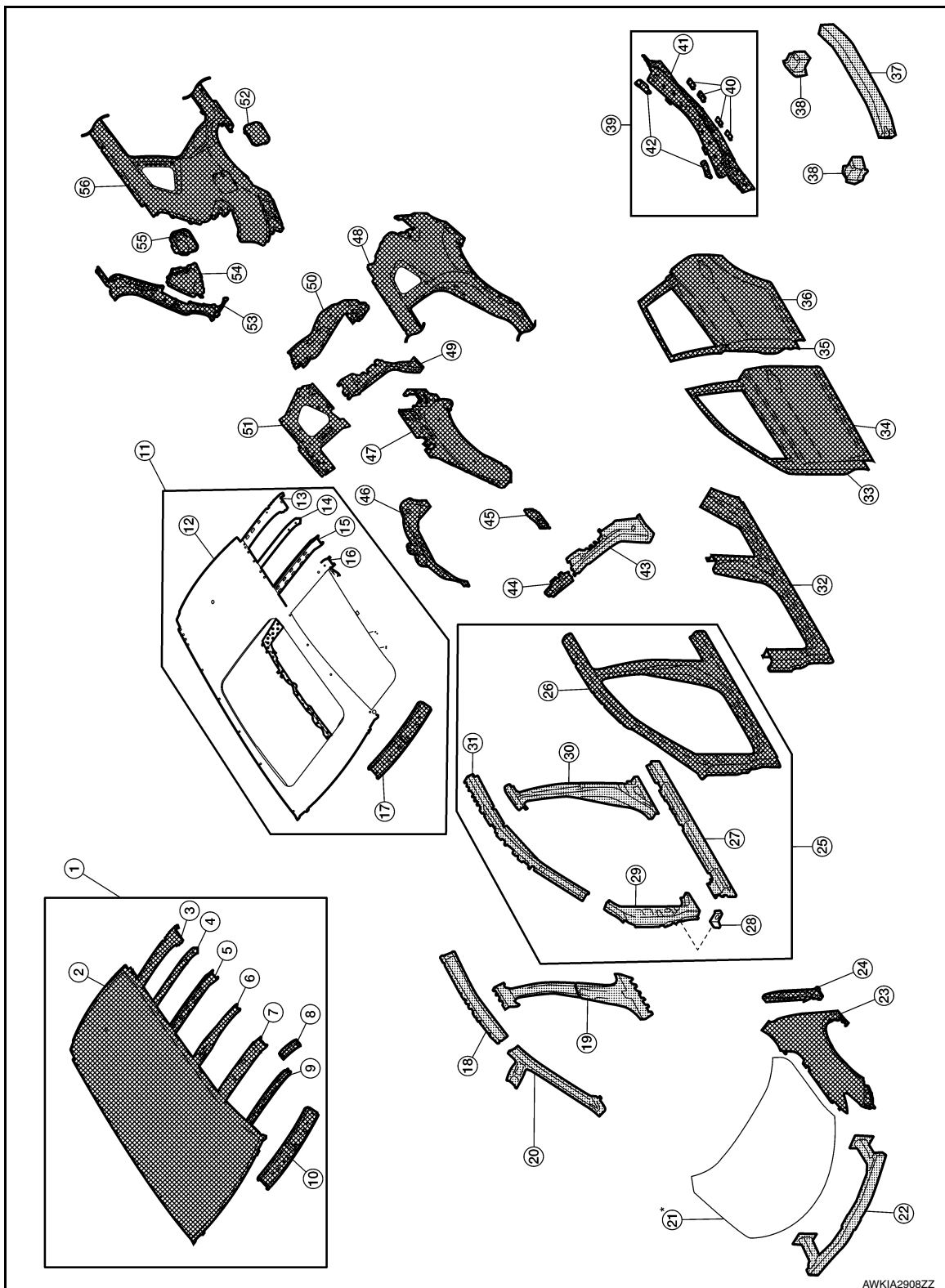
< PREPARATION >

NOTE:

- For the parts without a number described in the figure, it is supplied only with the assembly part that the part is included with.
- Tensile strength column shows the largest strength value of a part in the component part.

Body Component Parts

INFOID:000000009798689



AWKIA2908ZZ

BODY COMPONENT PARTS

< PREPARATION >

 Both sided anti-corrosive precoated steel portions

 High strength steel (HSS) portions

 Both sided anti-corrosive steel and HSS portions

* Aluminum portion

No.	Parts name	Tensile strength (MPa)	Both sided anti-corrosive precoated steel sections	Aluminum portion
1.	Standard roof assembly	590	X	—
2.	Standard roof	Under 440	X	—
3.	Rear roof rail	590	X	—
4.	Roof bow No. 5	Under 440	X	—
5.	Roof bow No. 4	Under 440	X	—
6.	Roof bow No. 3	Under 440	X	—
7.	Roof bow No. 2	Under 440	X	—
8.	Roof bow No.1 reinforcement (LH/RH)	590	X	—
9.	Roof bow No. 1	Under 440	X	—
10.	Front roof rail	590	X	—
11.	Moonroof panel (with moonroof) assembly	Under 440	×	—
12.	Moonroof	Under 440	X	—
13.	Rear roof rail	590	X	—
14.	Roof bow No. 2	590	×	—
15.	Roof bow No. 1	590	×	—
16.	Moonroof reinforcement	590	×	—
17.	Front roof rail	590	×	—
18.	Inner side roof rail (LH/RH)	1180MPa	×	—
19.	Inner center pillar (LH/RH)	1180MPa	×	—
20.	Upper inner front pillar (LH/RH)	1180MPa	×	—
21.	Hood	—	×	×
22.	Front bumper reinforcement assembly	Under 440	×	—
23.	Front fender (LH/RH)	Under 440	×	—
24.	Front fender brace (LH/RH)	Under 440	—	—
25.	Side body assembly (LH/RH)	440	—	—
26.	Front side body (LH/RH)	590	—	—
27.	Outer sill reinforcement (LH/RH)	1180MPa	—	—
28.	Front fender bracket (LH/RH)	Under 440	—	—
29.	Lower front pillar hinge brace (LH/RH)	1180MPa	—	—
30.	Center pillar reinforcement (LH/RH)	1180MPa	—	—
31.	Outer front pillar reinforcement (LH/RH)	1180MPa	×	—
32.	Outer sill (LH/RH)	Under 440	×	—
33.	Front door assembly (LH/RH)	Under 440	×	—
34.	Outer front door panel (LH/RH)	440	×	—
35.	Rear door assembly (LH/RH)	Under 440	×	—
36.	Outer rear door panel (LH/RH)	440	×	—
37.	Inner center rear bumper reinforcement	1180MPa	×	—

BODY COMPONENT PARTS

< PREPARATION >

No.	Parts name	Tensile strength (MPa)	Both sided anti-corrosive precoated steel sections	Aluminum portion
38.	Rear bumper stay (LH/RH)	1180MPa	×	—
39.	Rear panel assembly	440	×	—
40.	Upper rear bumper retainer	440	×	—
41.	Rear panel	440	×	—
42.	Rear panel reinforcement	440	×	—
43.	Inner rear pillar reinforcement (LH/RH)	1180MPa	—	—
44.	Inner rear pillar upper reinforcement (LH/RH)	1180MPa	—	—
45.	Outer rear wheelhouse extension (LH/RH)	440	×	—
46.	Inner rear wheelhouse (LH/RH)	Under 440	×	—
47.	Outer rear wheelhouse (LH/RH)	Under 440	×	—
48.	Rear fender (LH)	440	×	—
49.	Back pillar main assembly (LH/RH)	1180MPa	—	—
50.	Back pillar reinforcement (LH/RH)	1180MPa	—	—
51.	Inner rear pillar (LH/RH)	440	×	—
52.	Fuel filler lid	Under 440	×	—
53.	Back pillar reinforcement assembly (LH/RH)	590	×	—
54.	Rear combination lamp base (LH/RH)	Under 440	×	—
55.	Fuel filler base	Under 440	×	—
56.	Rear fender (RH)	440	×	—

CAUTION:

If the high strength steel (ultra high strength steel) is bent or broken, replace by assembly for the supply part.

NOTE:

- For the parts without a number described in the figure, it is supplied only with the assembly part that the part is included with.
- Tensile strength column shows the largest strength value of a part in the component part.

BRM

CORROSION PROTECTION

< REMOVAL AND INSTALLATION >

REMOVAL AND INSTALLATION

CORROSION PROTECTION

Description

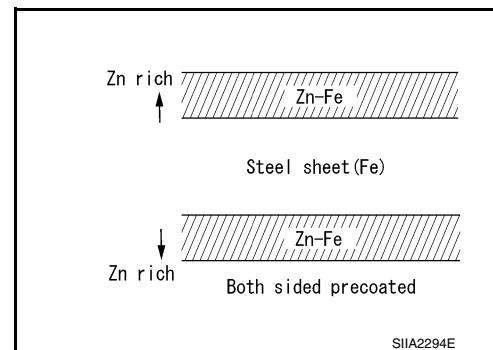
INFOID:000000009798690

To provide improved corrosion prevention, the following anti-corrosive measures have been implemented in NISSAN production plants. When repairing or replacing body panels, it is necessary to use the same anti-corrosive measures.

ANTI-CORROSIVE PRECOATED STEEL (GALVANNEALED STEEL)

To improve repairability and corrosion resistance, a new type of anti-corrosive precoated steel sheet has been adopted replacing conventional zinc-coated steel sheet.

Galvannealed steel is electroplated and heated to form Zinc-iron alloy, which provides excellent and long term corrosion resistance with cationic electrodeposition primer.



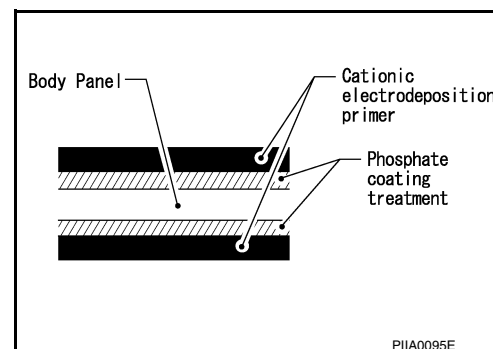
NISSAN Genuine Service Parts are fabricated from galvannealed steel. Therefore, it is recommended that GENUINE NISSAN PARTS or equivalent be used for panel replacement to maintain the anti-corrosive performance built into the vehicle at the factory.

PHOSPHATE COATING TREATMENT AND CATIONIC ELECTRODEPOSITION PRIMER

A phosphate coating treatment and a cationic electrodeposition primer, which provide excellent corrosion protection, are employed on all body components.

CAUTION:

Confine paint removal during welding operations to an absolute minimum.



NISSAN Genuine Service Parts are also treated in the same manner. Therefore, it is recommended that GENUINE NISSAN PARTS or an equivalent be used for panel replacement to maintain anti-corrosive performance built into the vehicle at the factory.

Anti-corrosive Wax

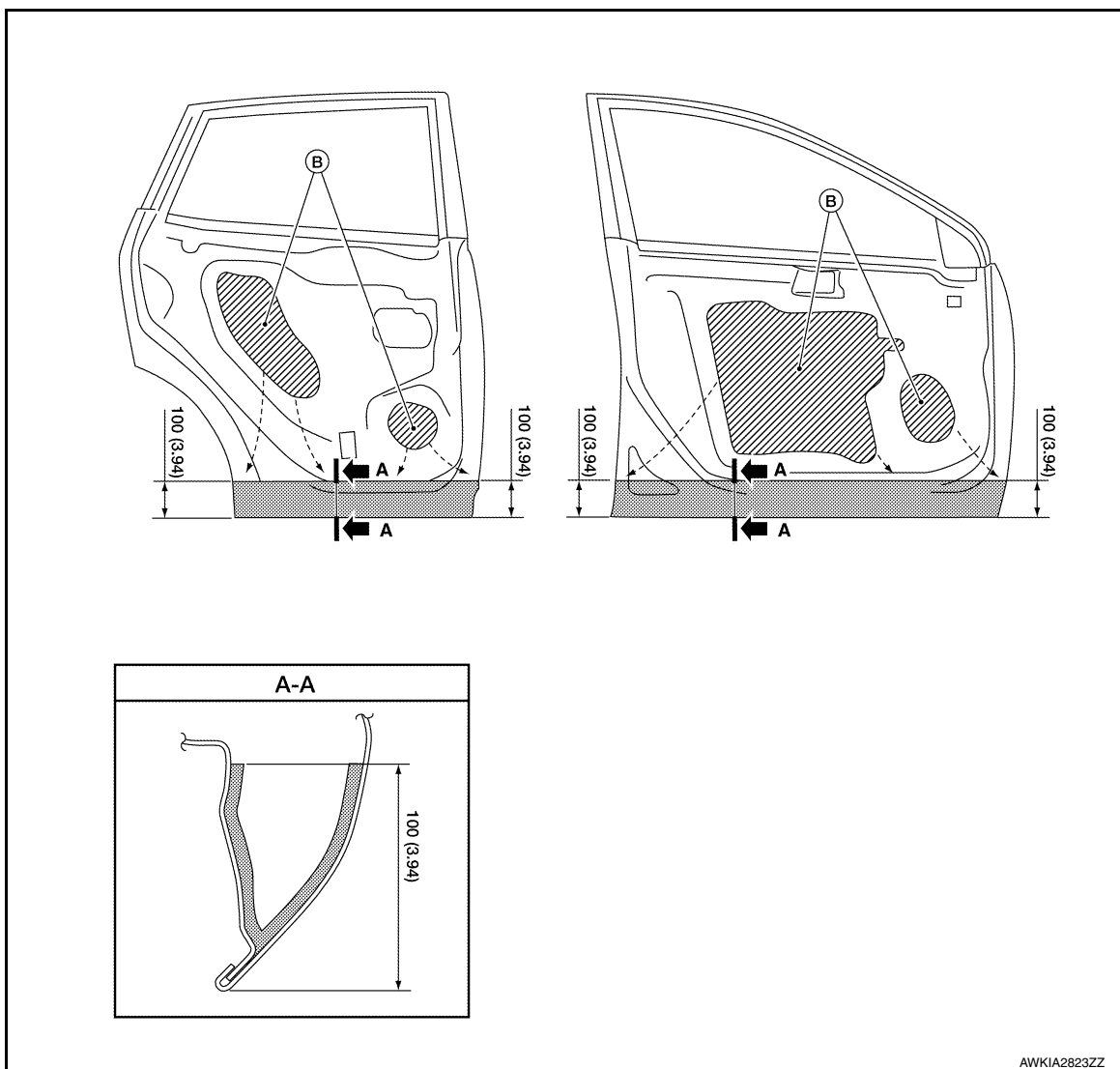
INFOID:000000009798691

To improve corrosion resistance, anti-corrosive wax is applied inside the body sill and inside other closed sections. Accordingly, when replacing these parts, be sure to apply anti-corrosive wax to the appropriate areas of the new parts. Select an excellent anti-corrosive wax which will penetrate after application and has a long shelf life.

DOOR

CORROSION PROTECTION

< REMOVAL AND INSTALLATION >



A. Nozzle insert hole

Anti-corrosive wax coated portions

Undercoating

INFOID:000000009798692

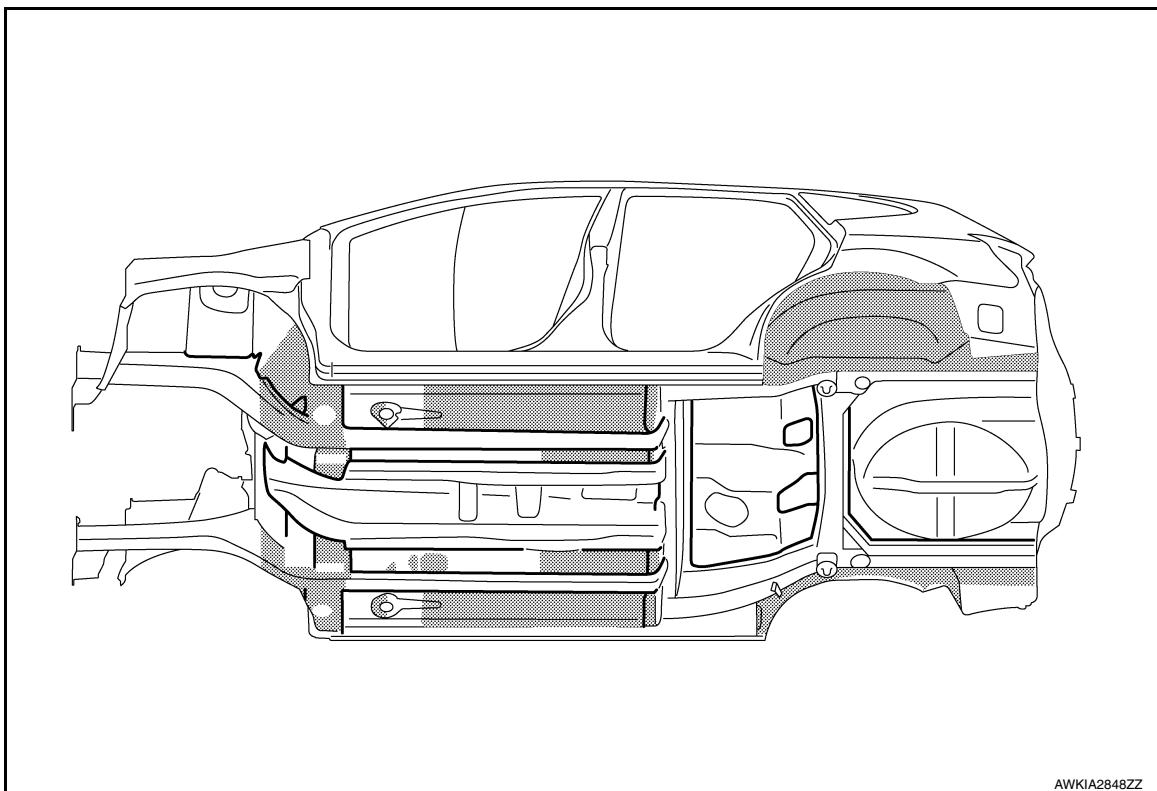
The underside of the floor and wheelhouse are undercoated to prevent rust, vibration, noise and stone chipping. Therefore, when such a panel is replaced or repaired, apply undercoating to that part. Use an undercoating which is rust preventive, soundproof, vibration-proof, shock-resistant, adhesive, and durable.

PRECAUTIONS IN UNDERCOATING

1. Never apply undercoating to any place unless specified (such as the areas above the muffler and three way catalyst which are subjected to heat).
2. Never undercoat the exhaust pipe or other parts which become hot.
3. Never undercoat rotating parts.
4. Apply bitumen wax after applying undercoating.
5. After putting seal on the vehicle, put undercoating on it.

CORROSION PROTECTION

< REMOVAL AND INSTALLATION >



 Undercoated portions (for all destination)

 Sealed portions

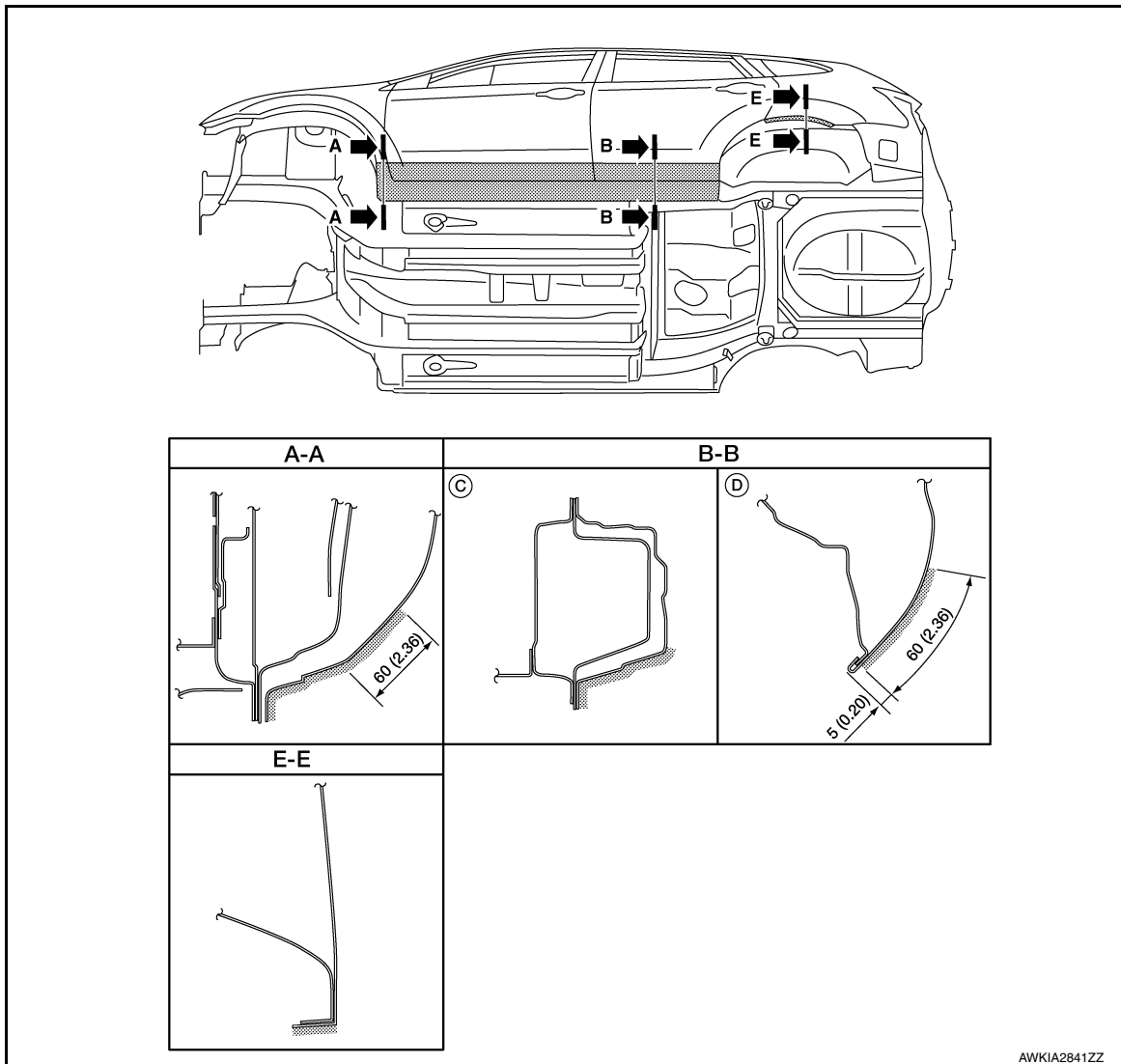
Stone Guard Coat

INFOID:000000009798693

To prevent damage caused by stones, the lower outer body panel (fender, door, etc.) have an additional layer of Stone Guard Coating over the ED primer coating. When replacing or repairing these panels, apply Stone Guard coating to the same portions as before. Use a coating which is rust preventive, durable, shock-resistant and has a long shelf life.

CORROSION PROTECTION

< REMOVAL AND INSTALLATION >



Unit: mm (in)

C. Outer sill portion

D. Door outer portion

Stone guard coated portions

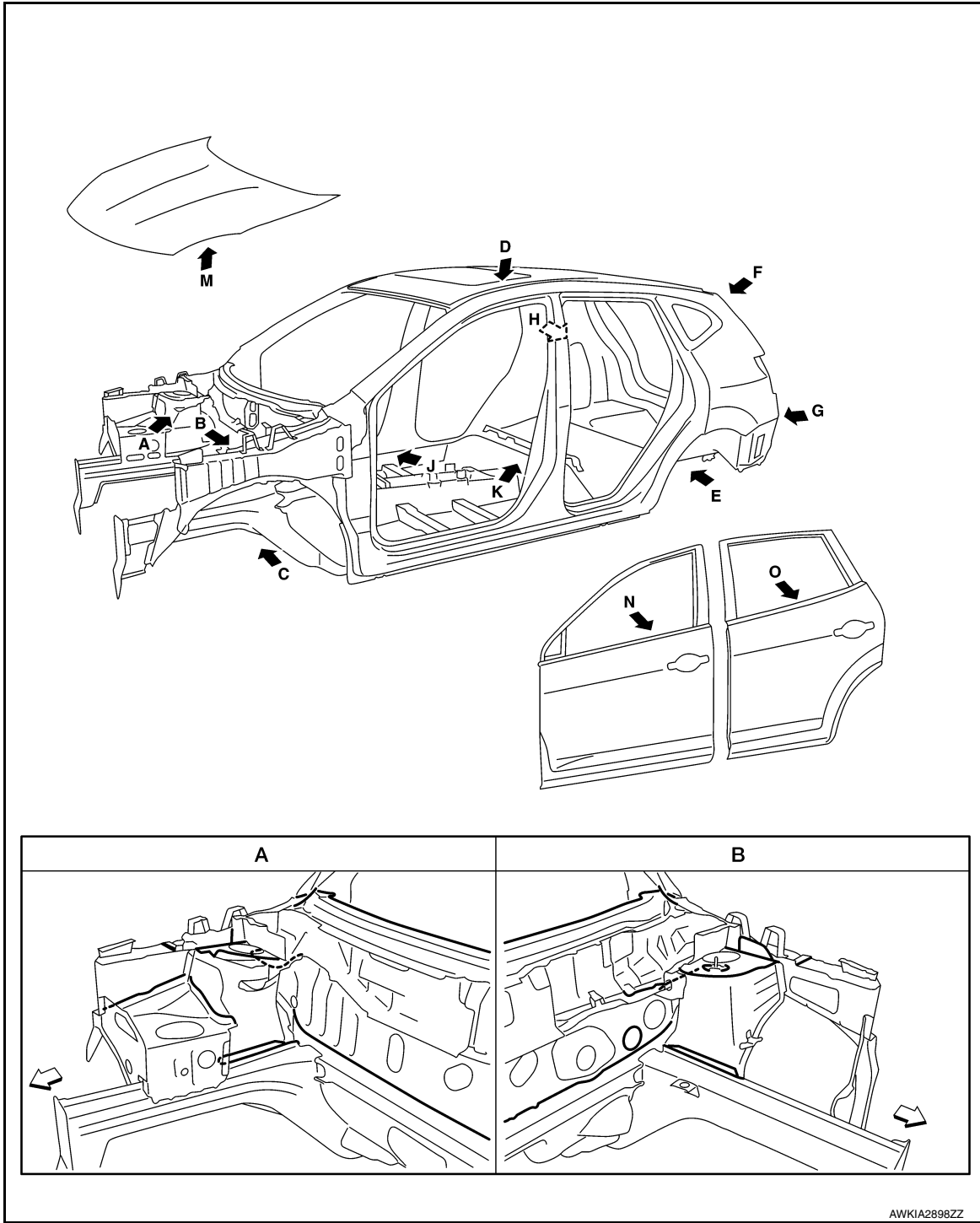
Body Sealing

INFOID:000000009798694

The following figure shows the areas which are sealed at the factory. Sealant which has been applied to these areas should be smooth and free from cuts or gaps. Care should be taken not to apply an excess amount of sealant and not to allow other unaffected parts to come into contact with the sealant.

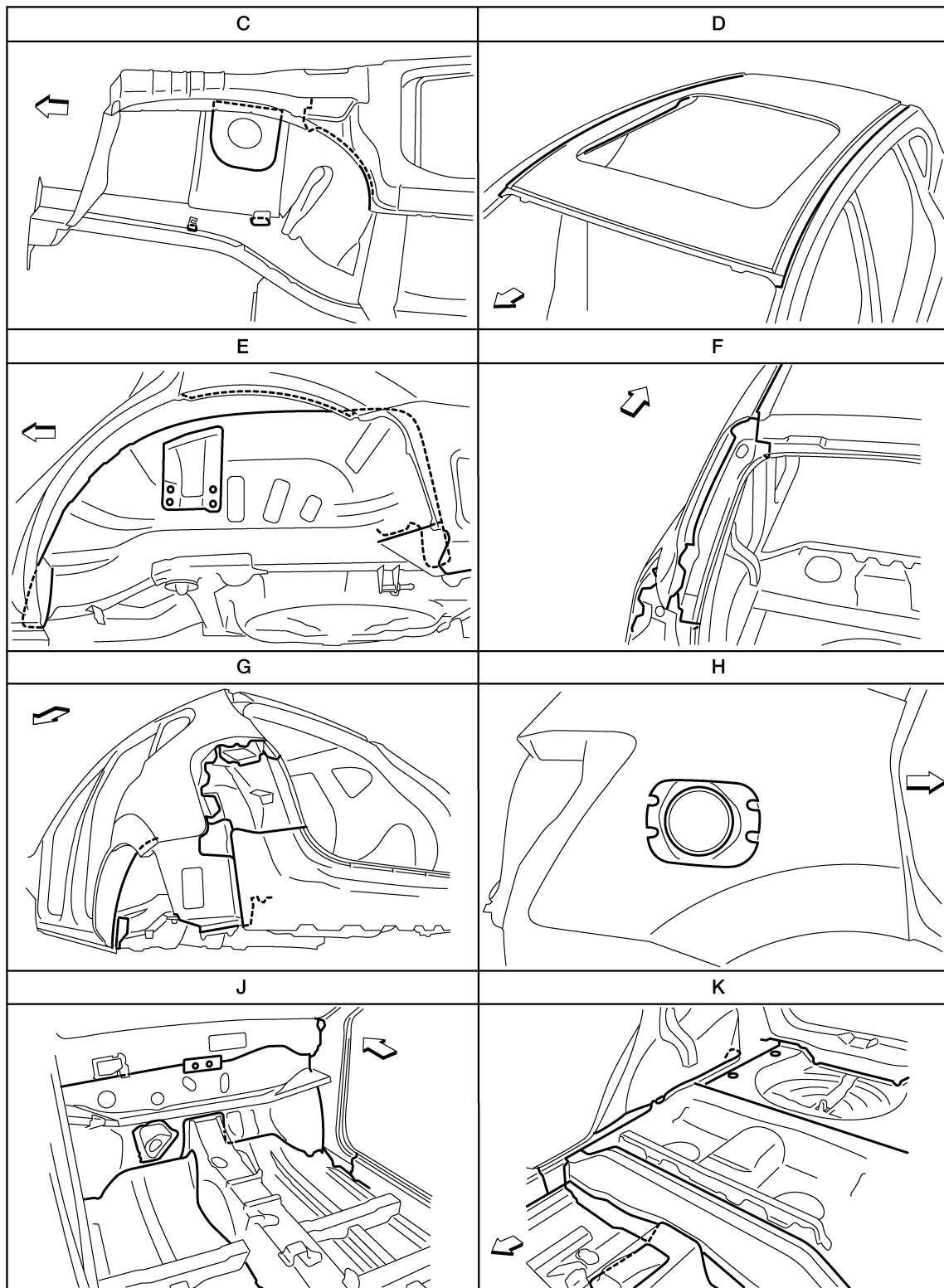
CORROSION PROTECTION

< REMOVAL AND INSTALLATION >



CORROSION PROTECTION

< REMOVAL AND INSTALLATION >

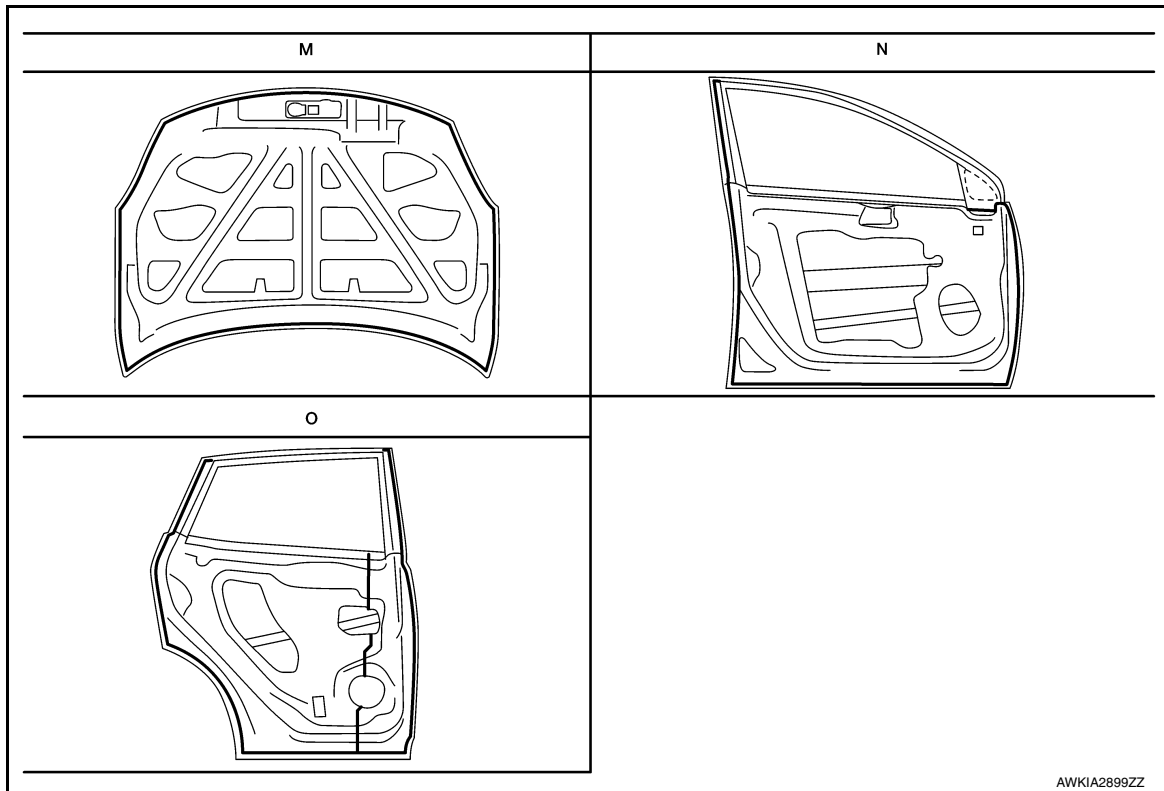


A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

BRM

CORROSION PROTECTION

< REMOVAL AND INSTALLATION >



↩ Front

■ Sealed portions

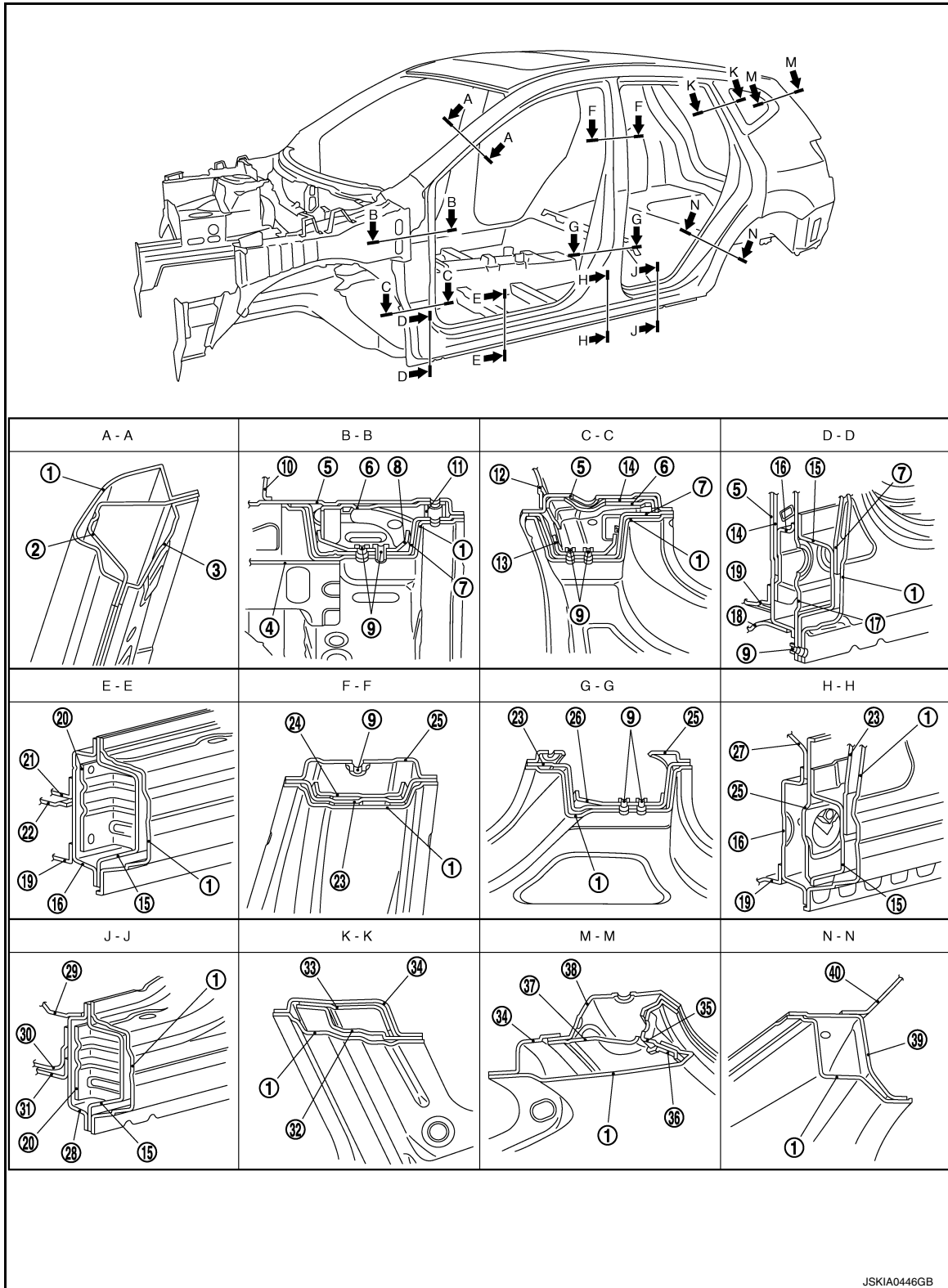
BODY CONSTRUCTION

< REMOVAL AND INSTALLATION >

BODY CONSTRUCTION

Body Construction

INFOID:000000009798695



- | | | |
|-----------------------------------|-------------------------------------|-------------------------------------|
| 1. Outer body side | 2. Outer front pillar reinforcement | 3. Upper inner front pillar |
| 4. Rear hoodledge reinforcement | 5. Side dash | 6. Inner front pillar reinforcement |
| 7. Lower front pillar hinge brace | 8. Upper hinge plate | 9. Weld nut |

BODY CONSTRUCTION

< REMOVAL AND INSTALLATION >

- | | | |
|-------------------------------------|--------------------------------------|----------------------------------|
| 10. Upper dash | 11. Upper steering member bracket | 12. Lower dash |
| 13. Lower hinge plate | 14. Side dash reinforcement | 15. Outer sill reinforcement |
| 16. Inner sill | 17. Lower front pillar reinforcement | 18. Front outrigger |
| 19. Front floor | 20. Outer sill brace | 21. 2nd crossmember |
| 22. 2nd crossmember reinforcement | 23. Center pillar hinge brace | 24. Center pillar reinforcement |
| 25. Inner center pillar | 26. Lower center pillar hinge brace | 27. Seat belt anchor |
| 28. Inner sill extension | 29. Rear seat crossmember | 30. Rear floor front extension |
| 31. Rear side member | 32. Inner rear pillar reinforcement | 33. Rear pillar seat belt anchor |
| 34. Inner rear pillar | 35. Back pillar main | 36. Back door stay reinforcement |
| 37. Upper back pillar reinforcement | 38. Rear roof rail brace | 39. Outer rear wheelhouse |
| 40. Inner rear wheelhouse | | |

Rear Fender Hemming Process

INFOID:000000009798696

1. A wheel arch is to be installed and hemmed over the left and right outer wheel houses.
2. In order to hem the wheel arch, it is necessary to repair any damaged or defaced parts around outer wheel house.

CAUTION:

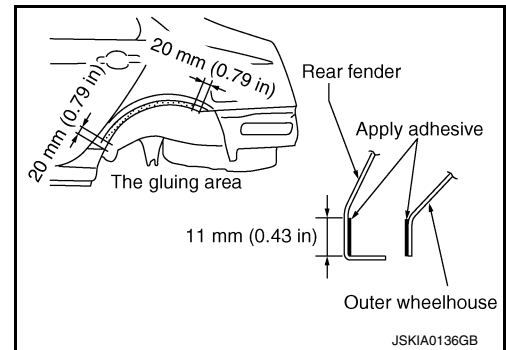
Ensure that the area that is to be glued around the outer wheelhouse is undamaged or defaced.

PROCEDURE OF THE HEMMING PROCESS

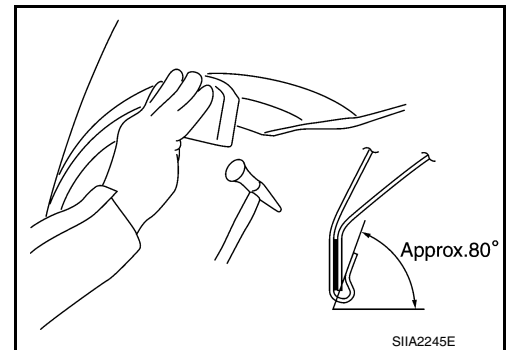
- Peel off old bonding material on the surface of the outer wheelhouse and clean thoroughly.
- Peel off a primer coat in the specified area where new adhesive is to be applied on rear fender (the replacing part).
- Apply new adhesive to both specified areas of the outer wheelhouse and rear fender.

<Adhesive> 3M™ Automix™ Panel Bonding Adhesive 08115 or equivalent

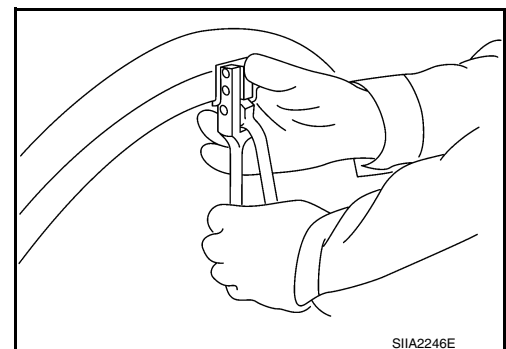
- Attach rear fender to the body of the car, and weld the required part except the hemming part.



- Bend the welded part starting from the center of the wheel arch gradually with a hammer and a dolly. (Also hem the end of the flange.)
- Hemming with a hammer is conducted to an approximate angle of 80 degrees.



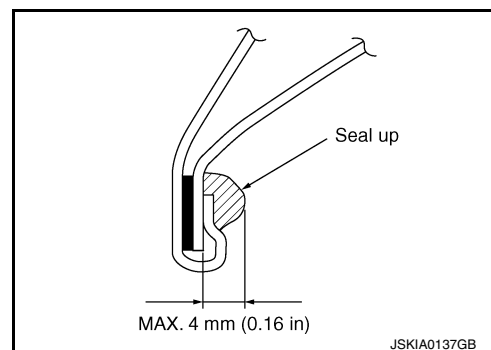
- Starting from the center, hem the wheel arch gradually, using slight back and forth motion with a hemming tool.



BODY CONSTRUCTION

< REMOVAL AND INSTALLATION >

- Seal up the area around the hemmed end of the flange.



A

B

C

D

E

F

G

H

I

J

BRM

L

M

N

O

P

REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >

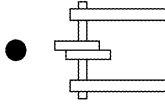
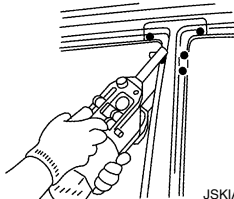
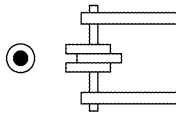
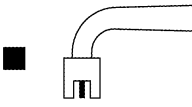
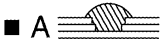
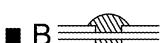
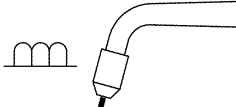
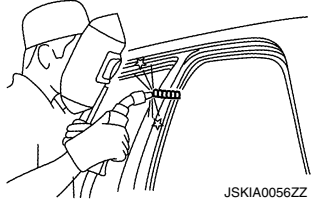
REPLACEMENT OPERATIONS

Description

INFOID:000000009798697

- This section is prepared for technicians who have attained a high level of skill and experience in repairing collision-damaged vehicles and also use modern service tools and equipment. Persons unfamiliar with body repair techniques should not attempt to repair collision-damaged vehicles by using this section.
- Technicians are also encouraged to read Body Repair Manual (Fundamentals) in order to ensure that the original functions and quality of the vehicle can be maintained. The Body Repair Manual (Fundamentals) contains additional information, including cautions and warning, that are not including in this manual. Technicians should refer to both manuals to ensure proper repairs.
- Please note that these information are prepared for worldwide usage, and as such, certain procedures might not apply in some regions or countries.

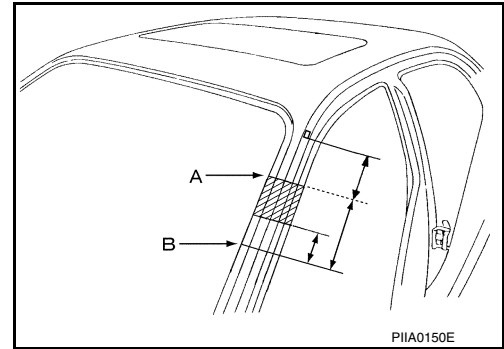
The symbols used in this section for welding operations are shown below.

Symbol marks	Description	
 JSKIA0049ZZ	2-spot welds	 JSKIA0053ZZ
 JSKIA0050ZZ	3-spot welds	
 JSKIA0051ZZ	MIG plug weld	 JSKIA0054ZZ For 3 panels plug weld method  ■ A  ■ B JSKIA0055ZZ
 JSKIA0052ZZ	MIG seam weld / Point weld	 JSKIA0056ZZ

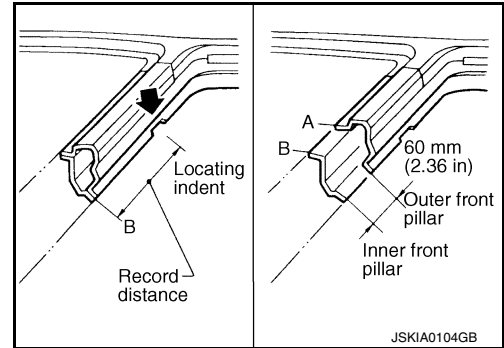
REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >

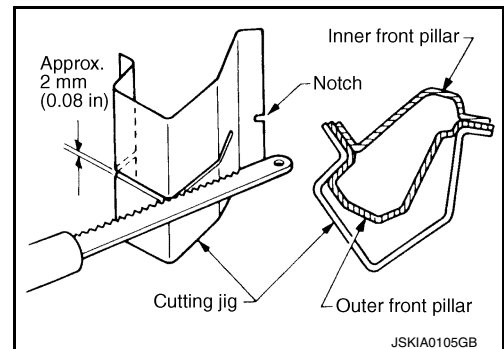
- Front pillar butt joint can be determined anywhere within shaded area as shown in the figure. The best location for the butt joint is at position A due to the construction of the vehicle. Refer to the front pillar section.



- Determine cutting position and record distance from the locating indent. Use this distance when cutting the service part. Cut outer front pillar over 60 mm (2.36 in) above inner front pillar cut position.

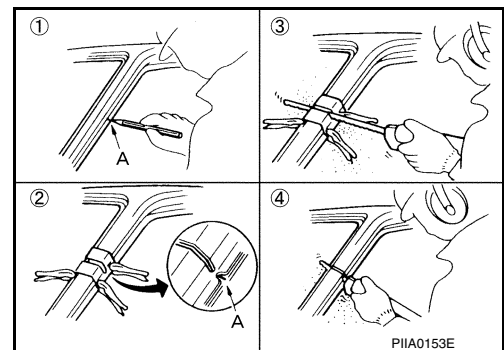


- Prepare a cutting jig to make outer pillar easier to cut. Also, this will permit service part to be accurately cut at joint position.



- An example of cutting operation using a cutting jig is as follows.

- Mark cutting lines.
A: Cut position of outer pillar
B: Cut position of inner pillar
- Align cutting line with notch on jig. Clamp jig to pillar.
- Cut outer pillar along groove of jig (at position A).
- Remove jig and cut remaining portions.
- Cut inner pillar at position B in same manner.

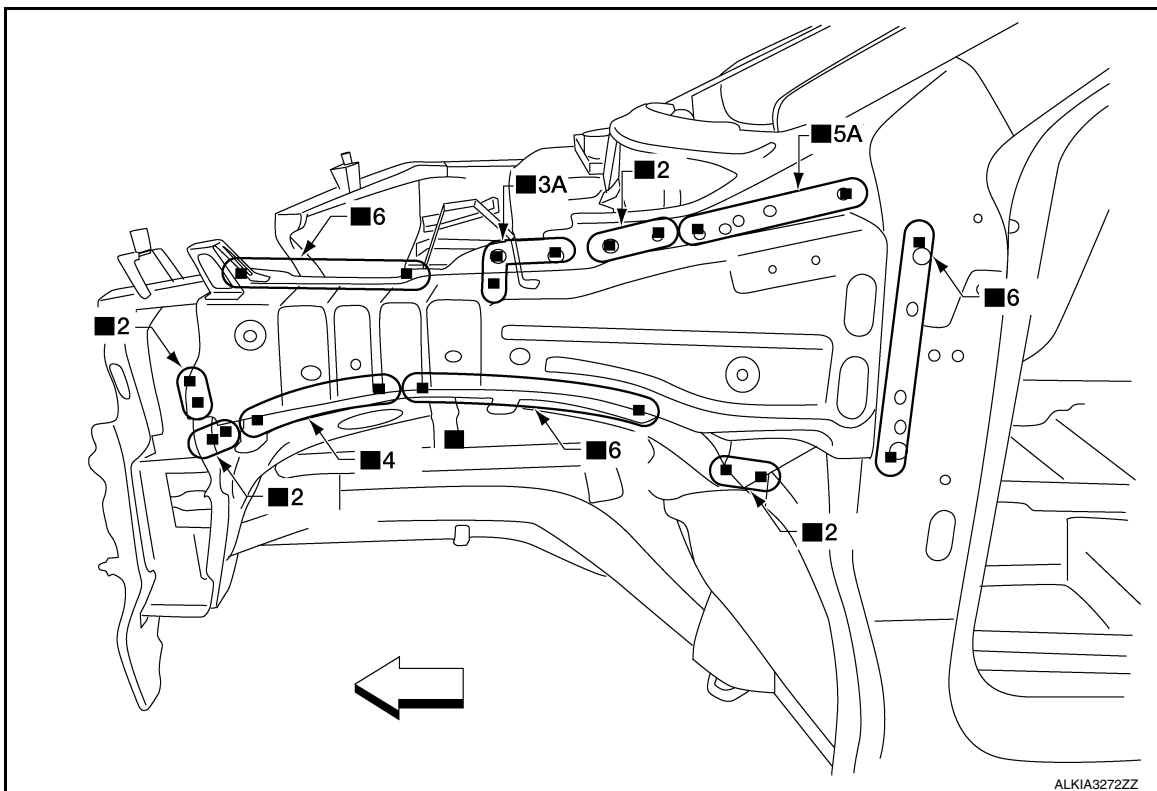


Hoodledge

INFOID:000000009798698

REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >



Replacement parts

- Upper hoodledge (LH)

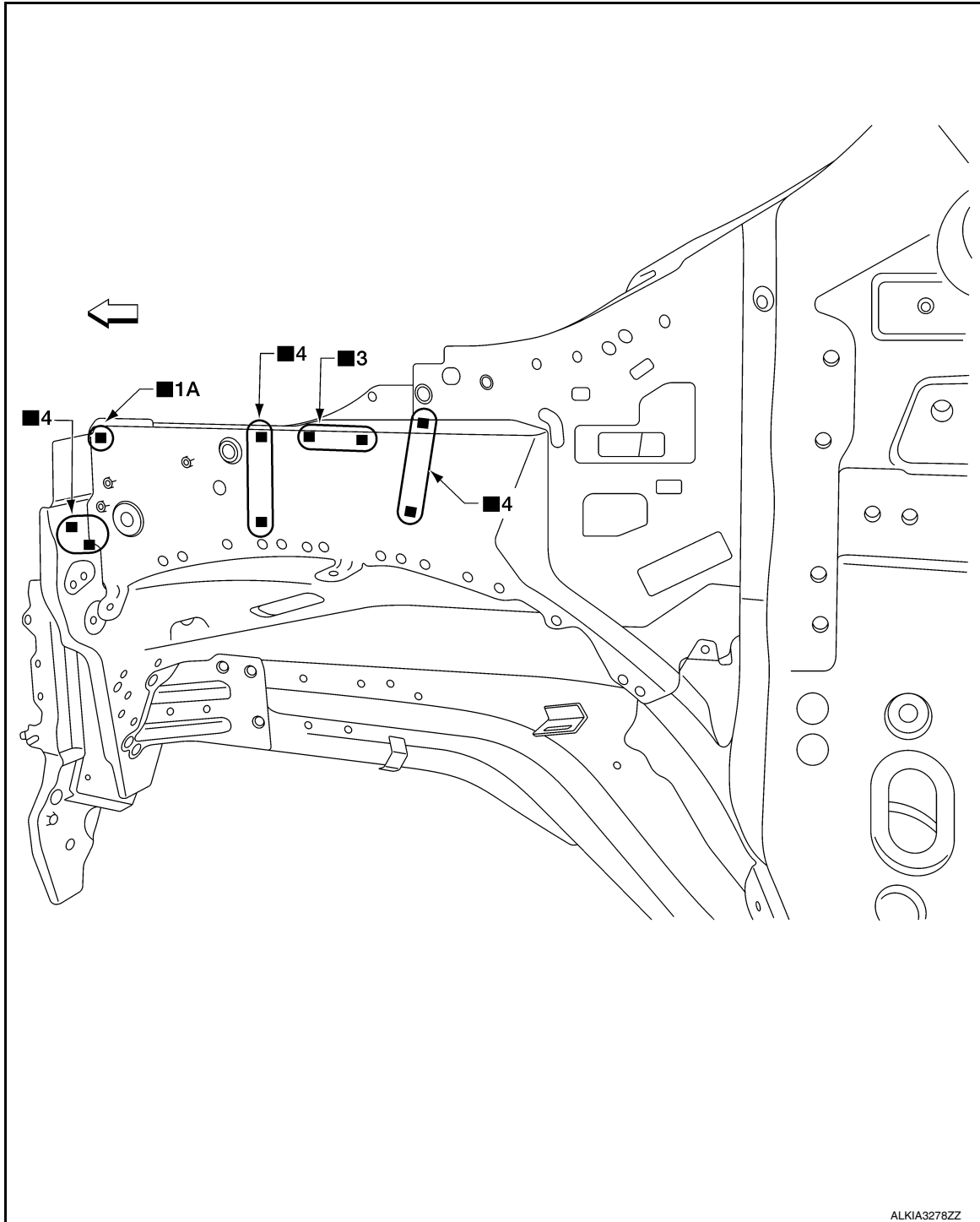
⇐ Front

Hoodledge Reinforcement

INFOID:000000009798699

REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >



Replacement parts

- LH Hoodedge reinforcement

⇐ Front

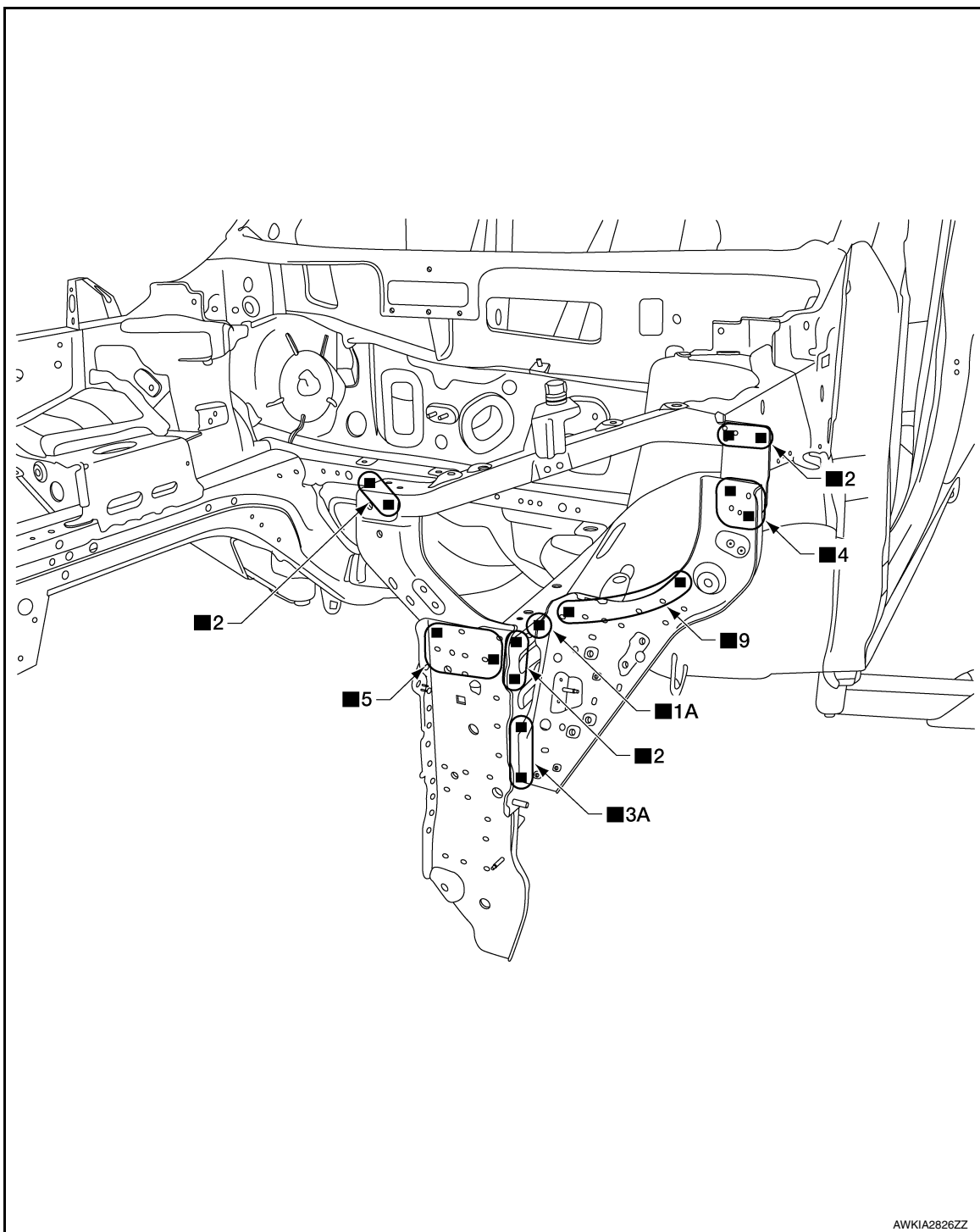
A
B
C
D
E
F
G
H
I
J
BRM
L
M
N
O
P

REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >

Radiator Core Support Side

INFOID:000000010129410



AWKIA2826ZZ

Replacement parts

- Radiator core support side

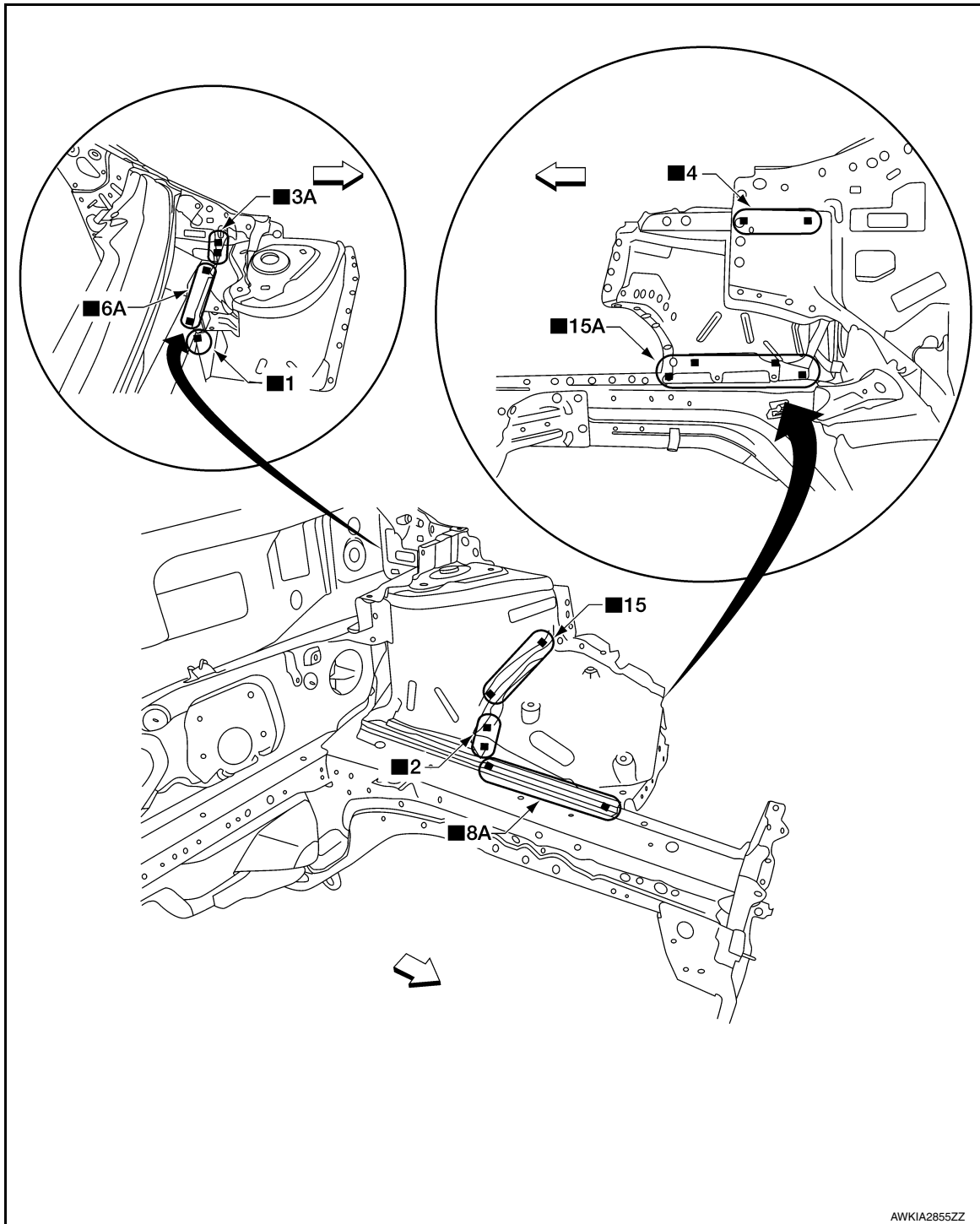
↔ Front

REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >

Strut Housing

INFOID:000000010129409



Replacement parts

● Strut housing

● Strut housing extension

← Front

Front Side Member Outer

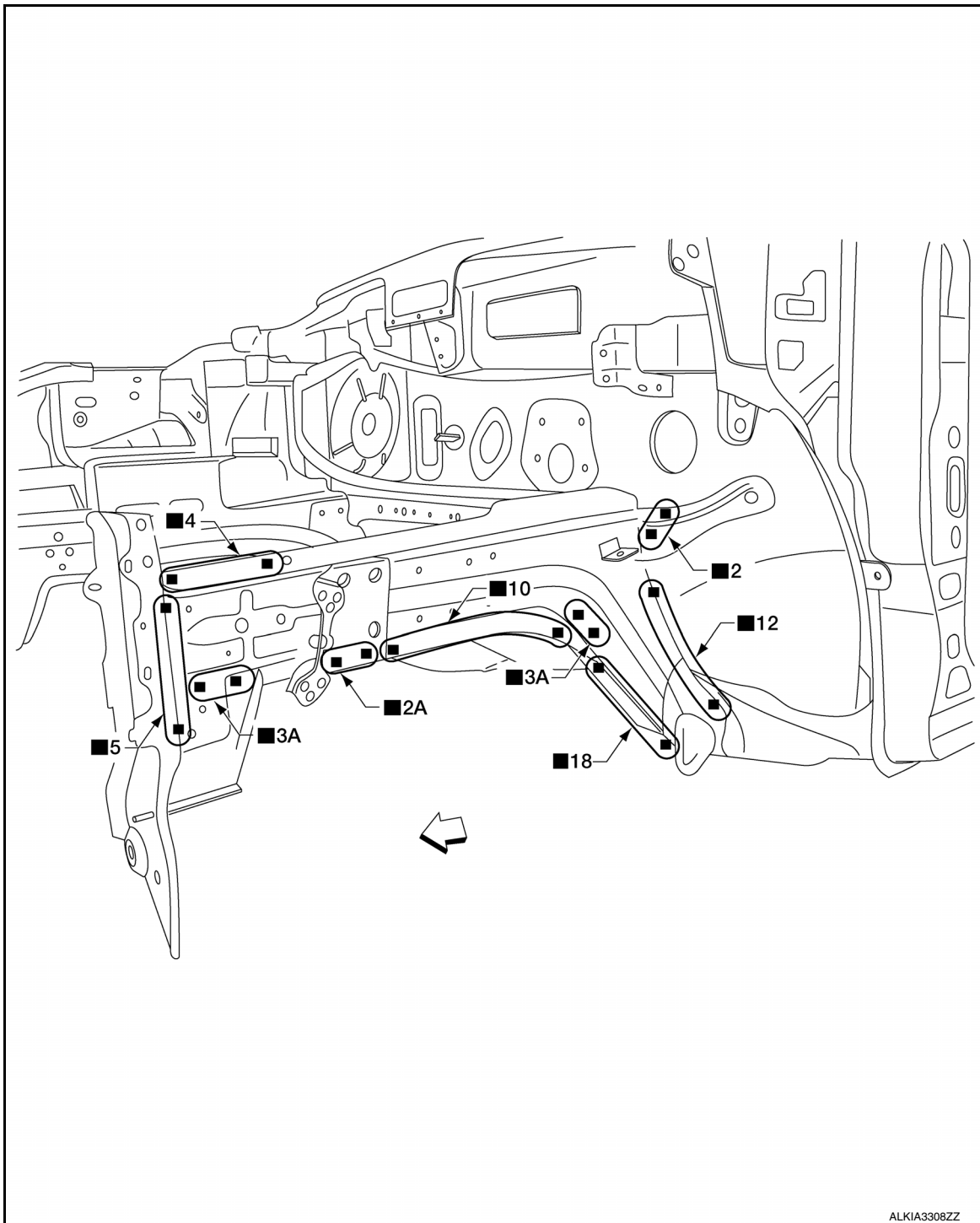
INFOID:000000009798700

Work after hoodledge has been removed.

A
B
C
D
E
F
G
H
I
J
BRM
L
M
N
O
P

REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >



Replacement parts

- Front side member closing plate assembly (LH) ⇄ Front

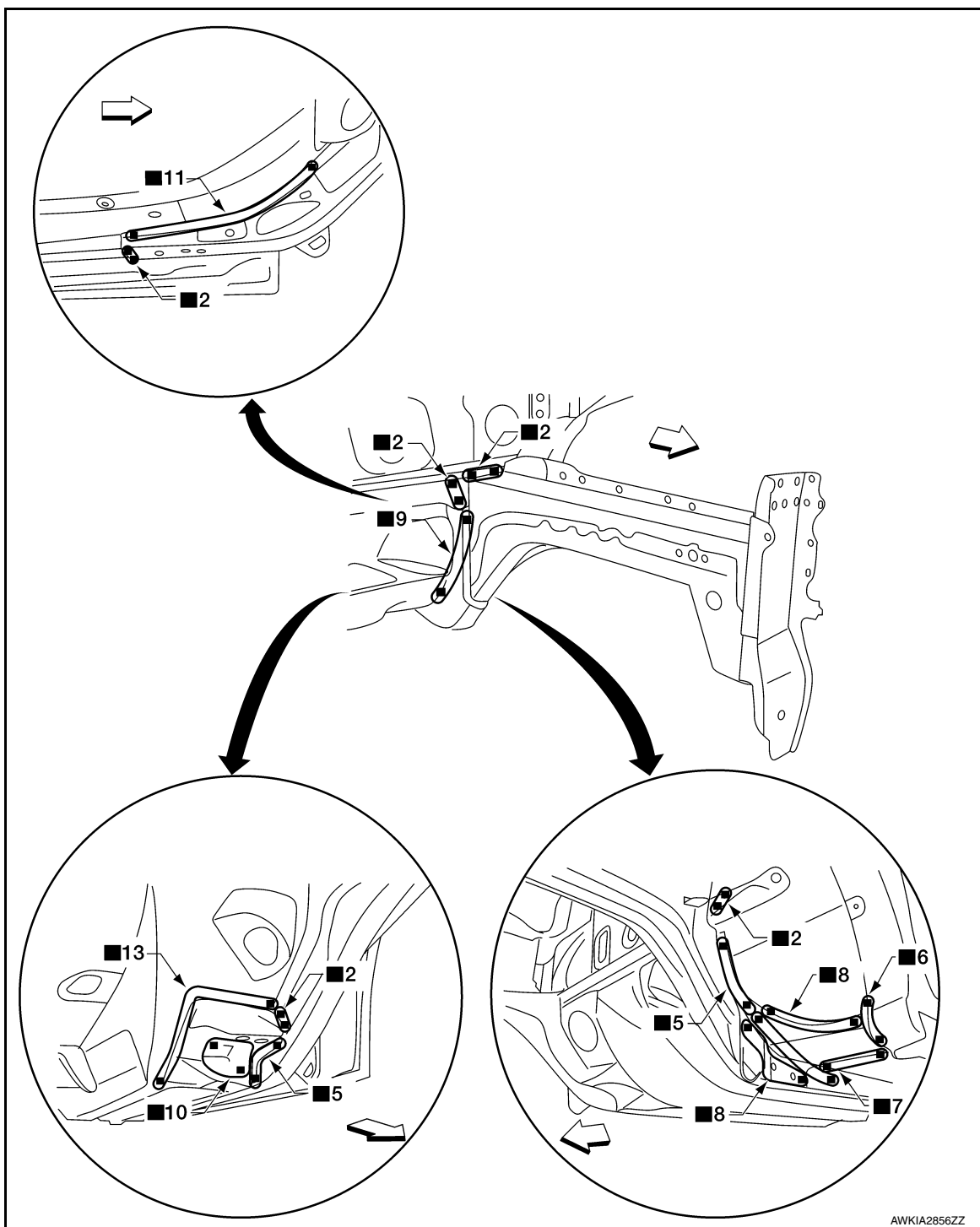
Front Side Member Inner

INFOID:0000000010196943

Work after hoodledge and strut housing has been removed.

REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >



Replacement parts

- Front side member inner assembly (LH)

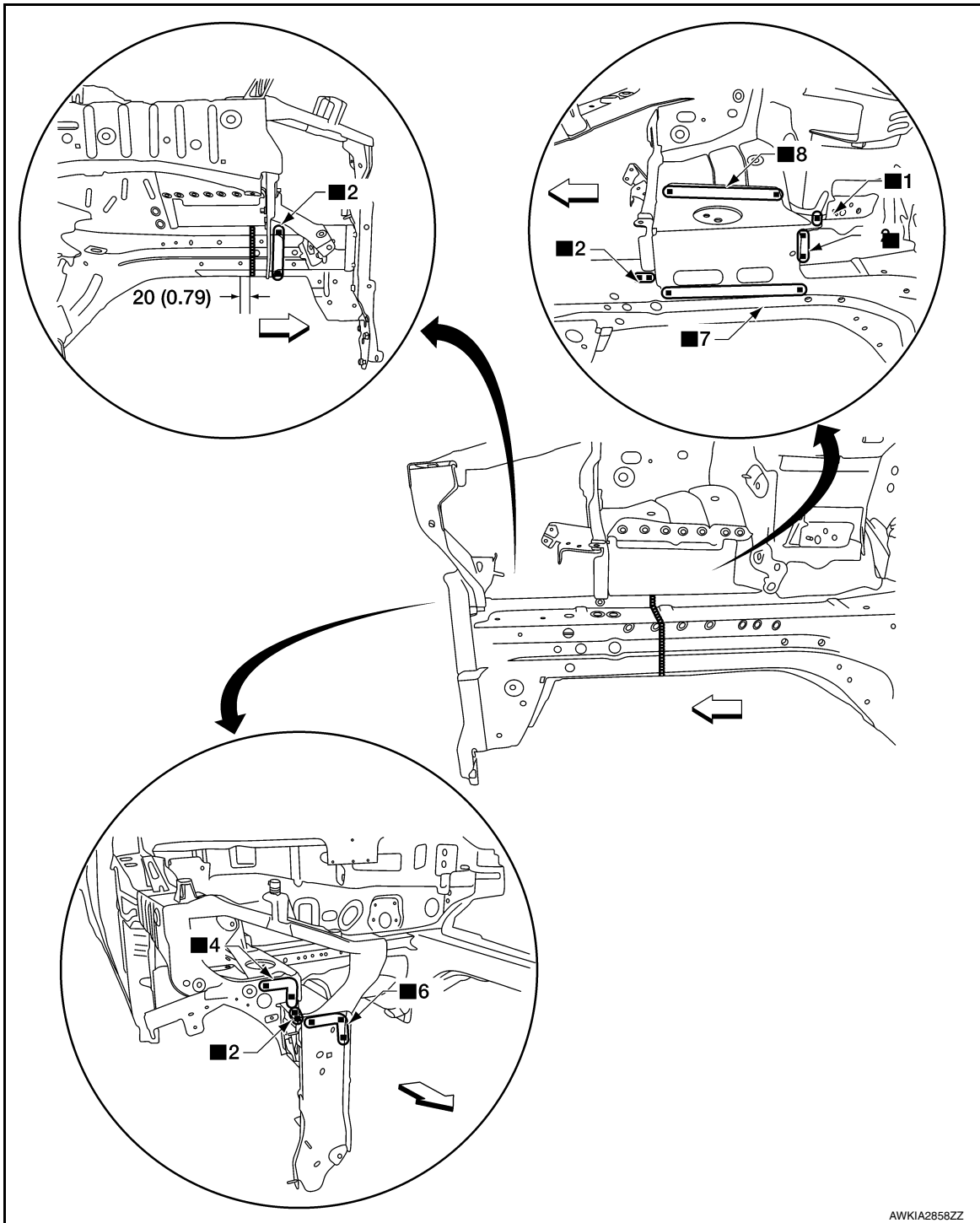
⇐Front

REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >

Front Side Member (Partial Replacement)

INFOID:000000009798701



AWKIA2858ZZ

Unit: mm (in)

Replacement parts

● Front side member (RH)

● Front side member closing plate assembly (RH)

⇐ Front

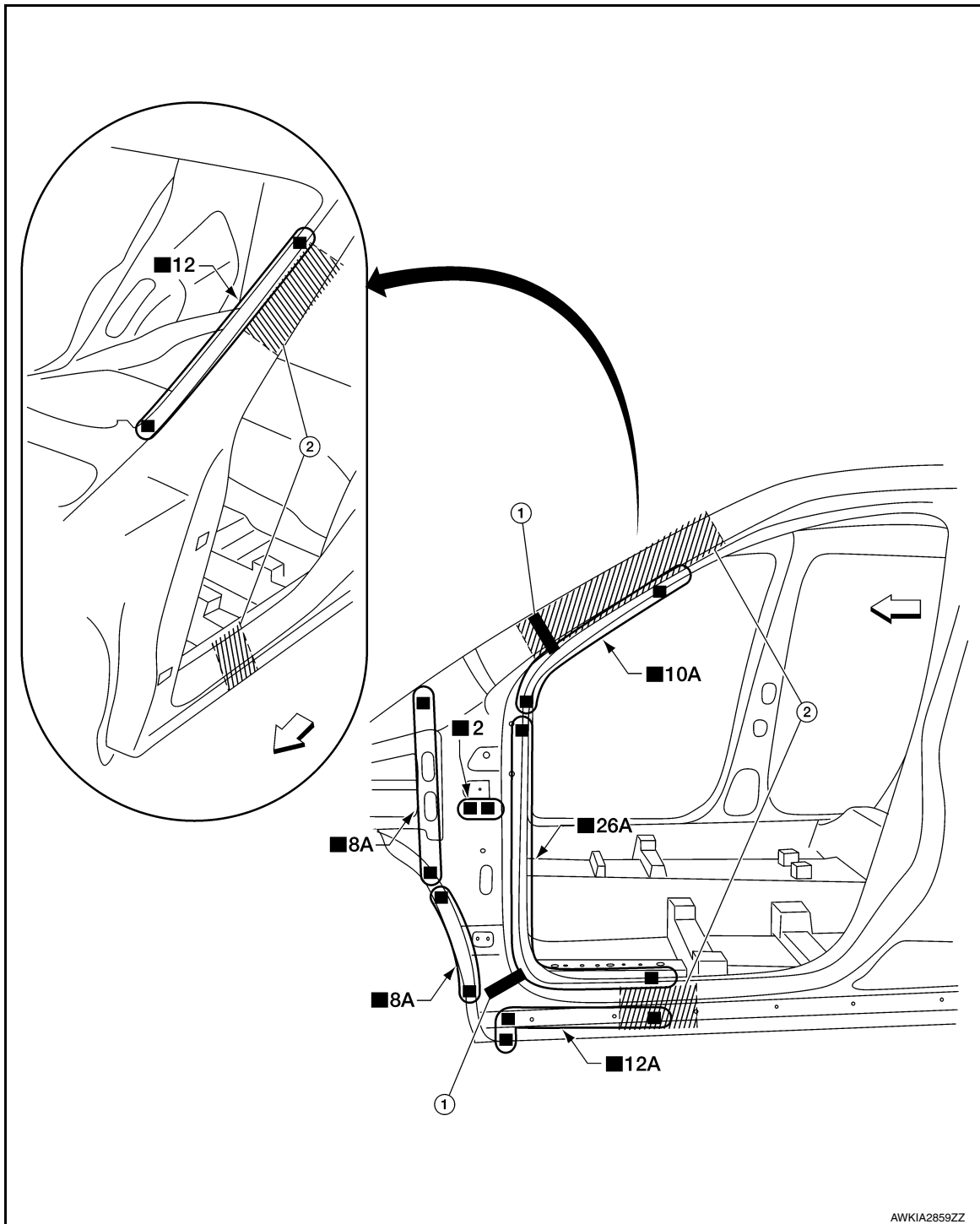
Front Pillar

INFOID:000000009798702

Work after hoodledge reinforcement has been removed.

REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >



Replacement parts

● Front side body (LH)

1. Urethane foam

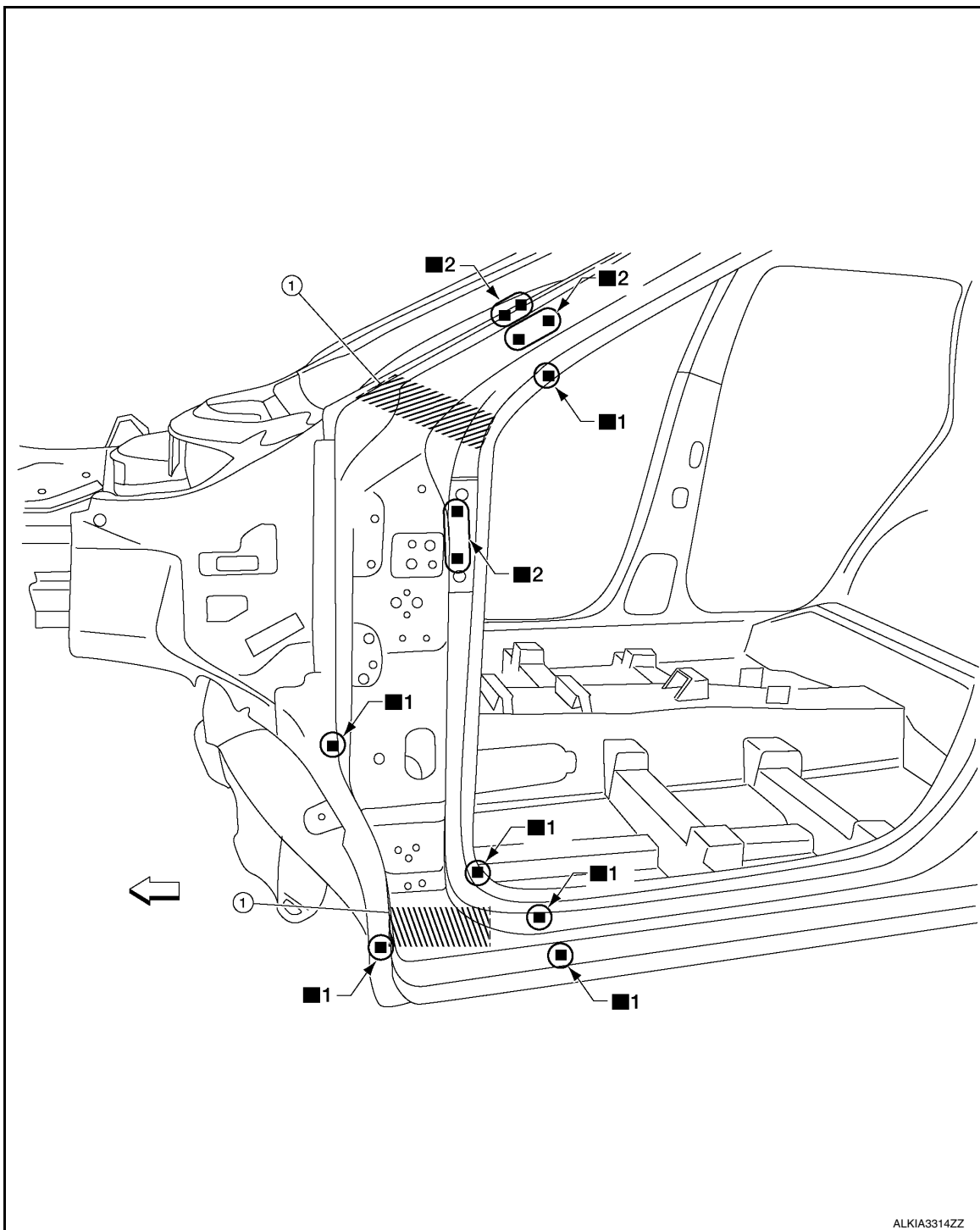
2. Sectioning location

⇐ Front

View B: Before installing outer front side body

REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >



Replacement parts

● Inner front pillar reinforcement

1. Urethane foam

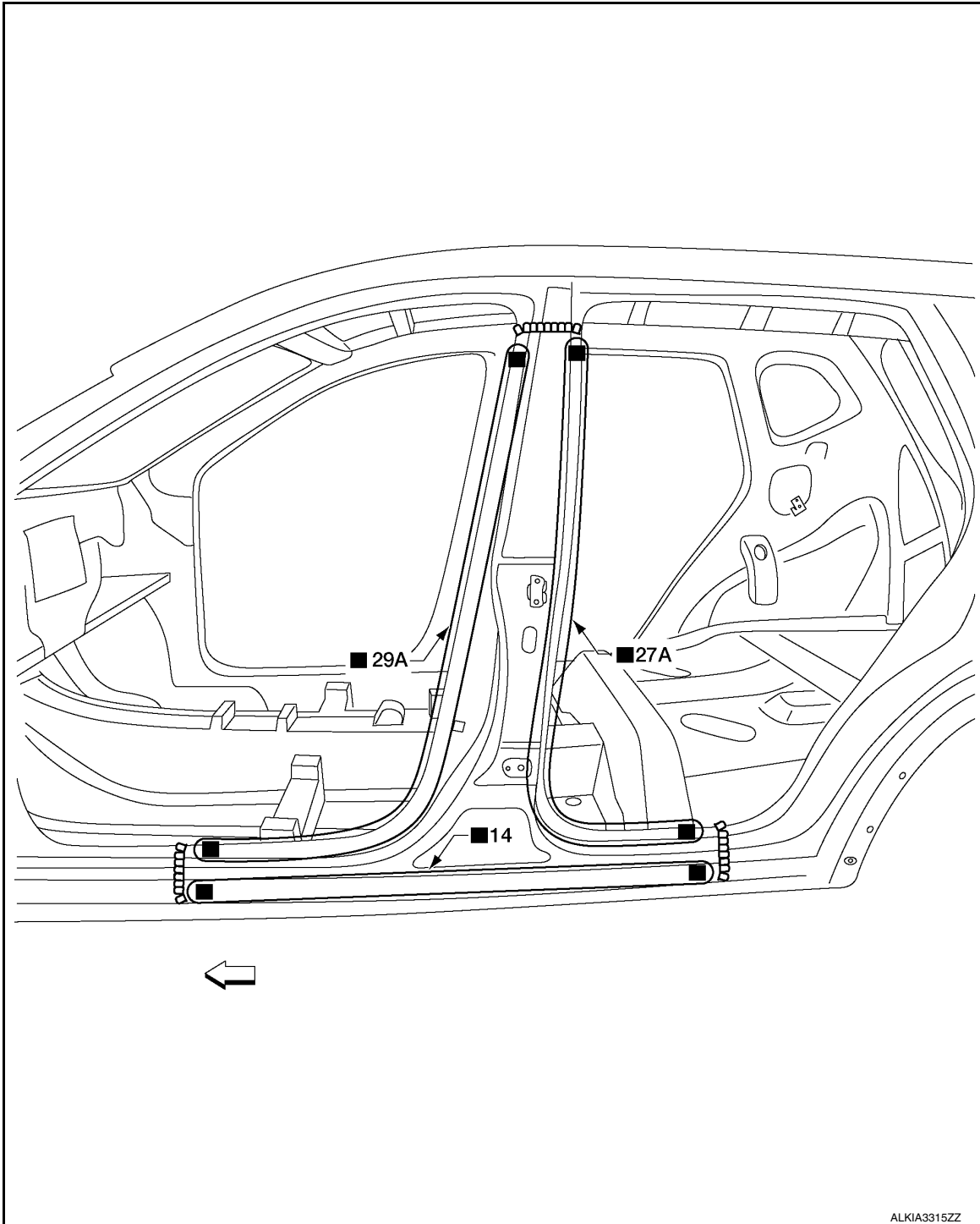
⇐ Front

Center Pillar

INFOID:000000009798703

REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >



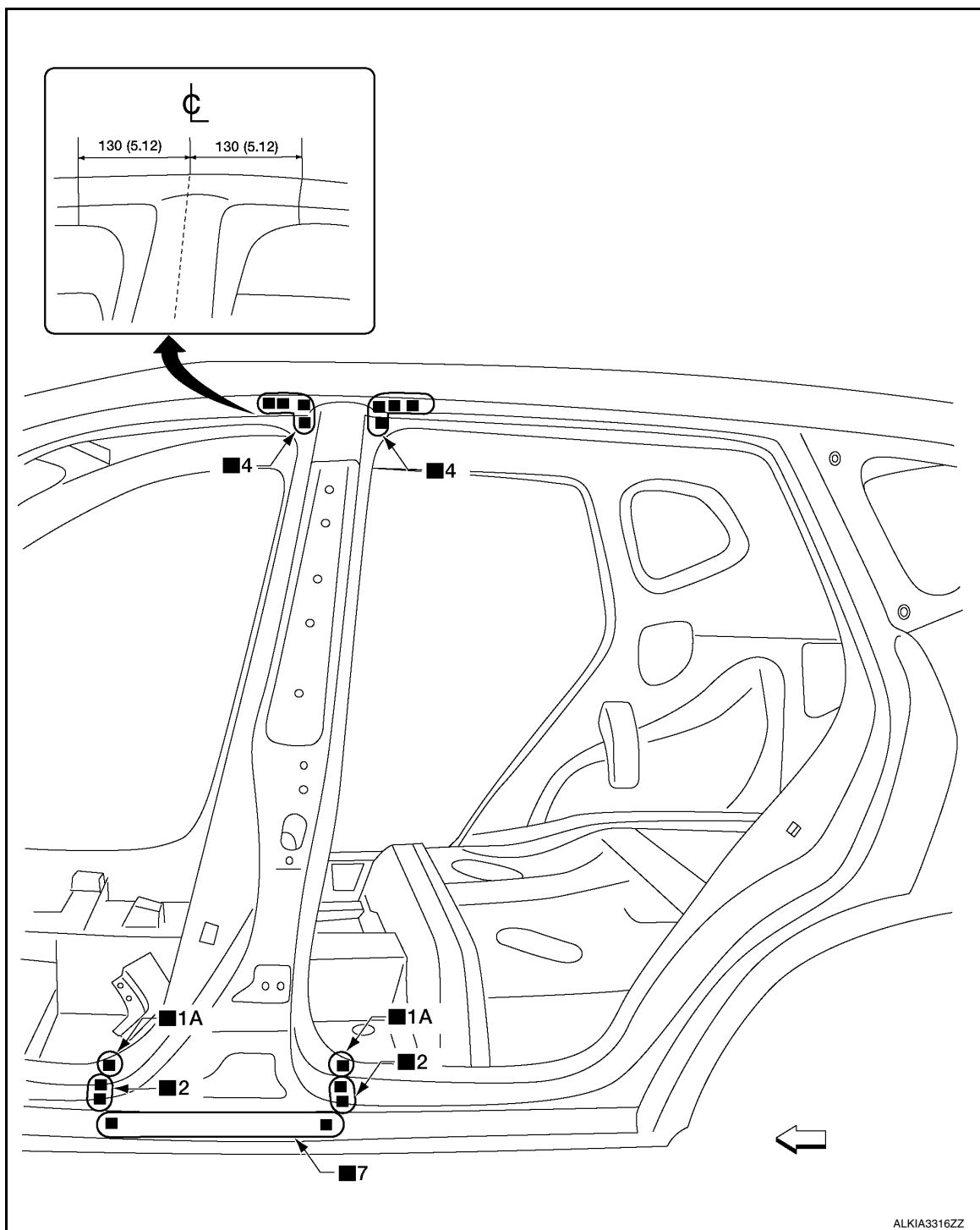
Replacement part

- Outer center pillar

⇐ Front

REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >



Replacement part

- Center pillar reinforcement

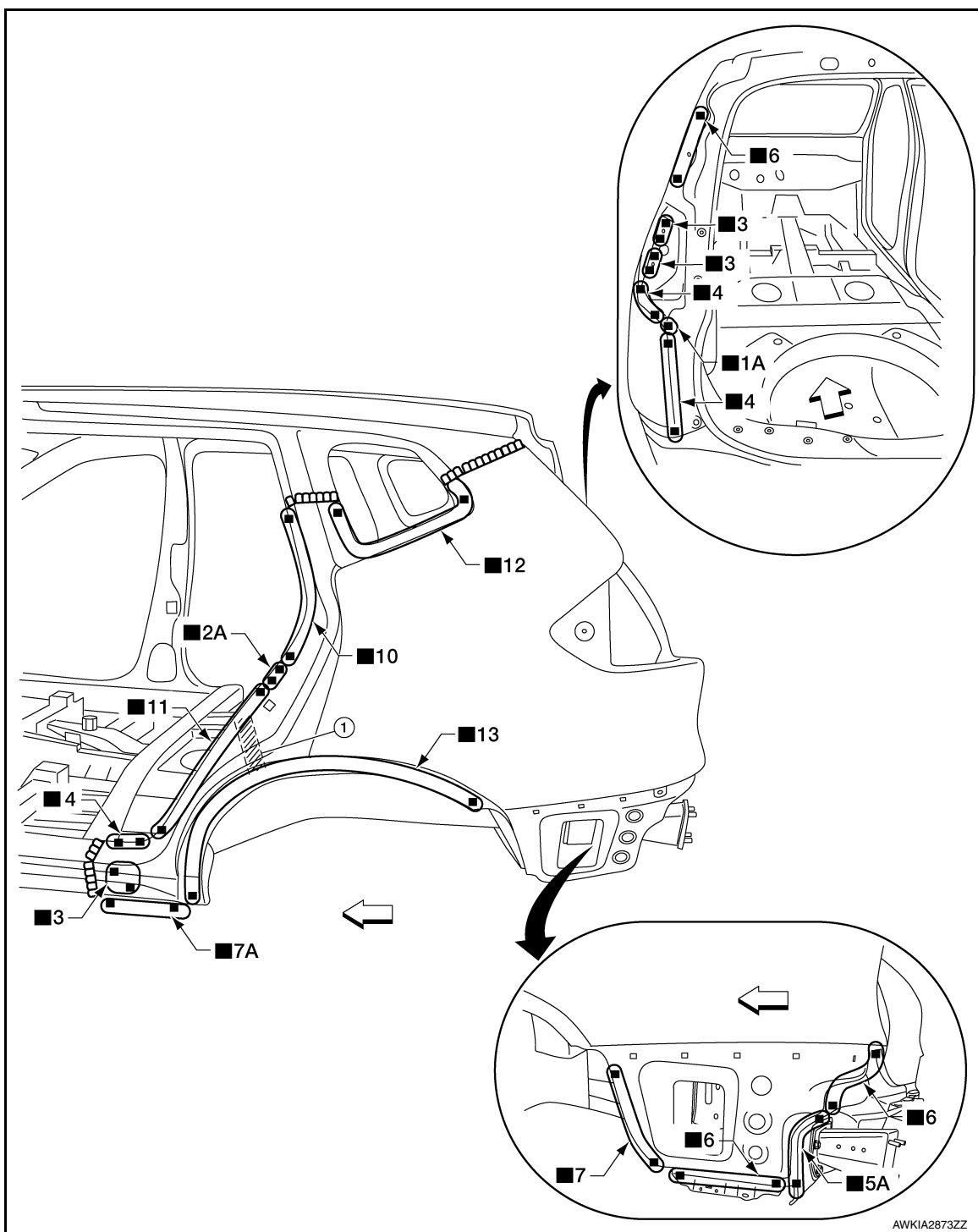
↔ Front

REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >

Rear Fender

INFOID:000000009798705



Replacement parts

- Rear fender assembly (LH)

1. Urethane foam

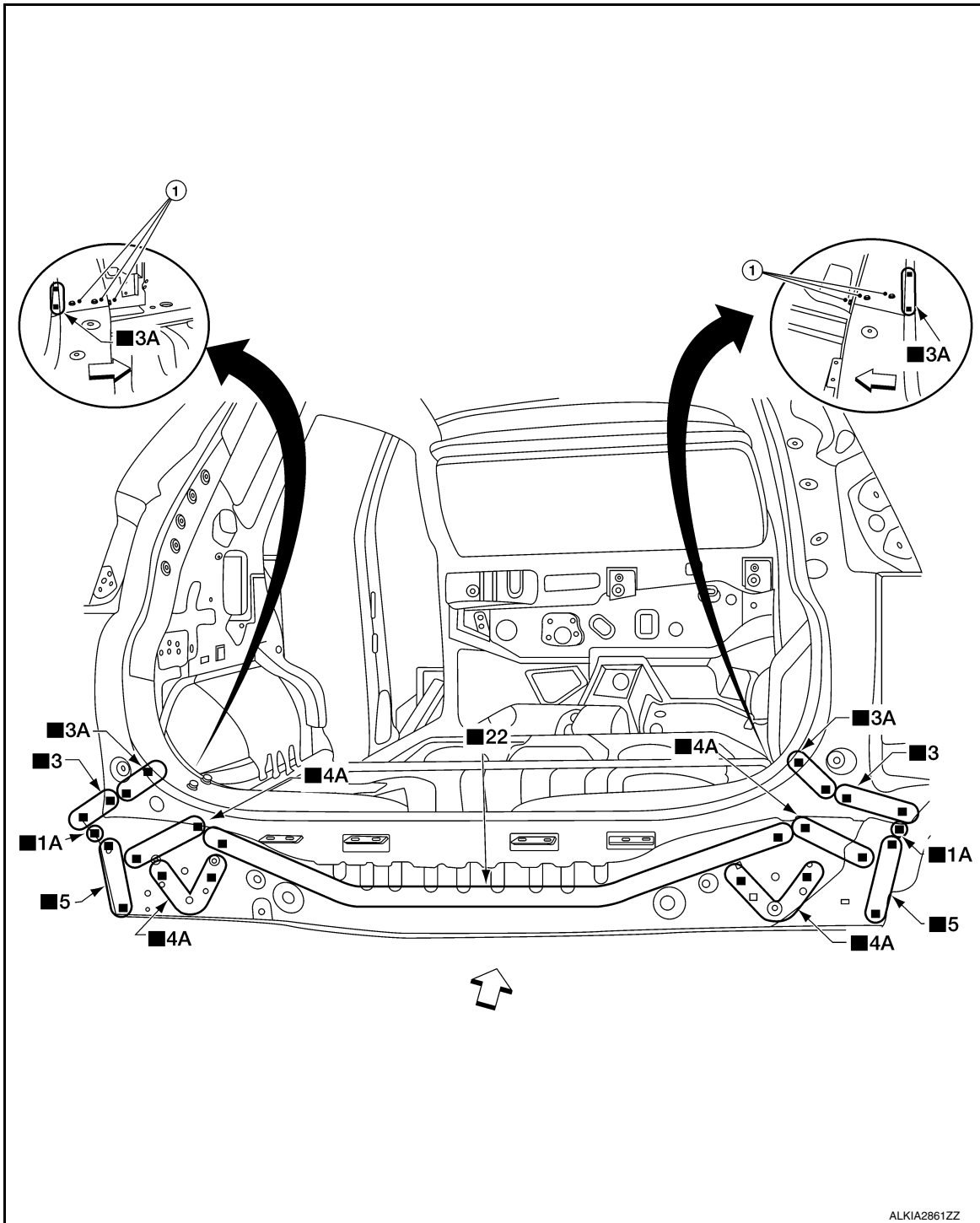
← Front

REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >

Rear Panel

INFOID:000000009798706



Replacement parts

- Rear panel assembly

1. Bolt

← Front

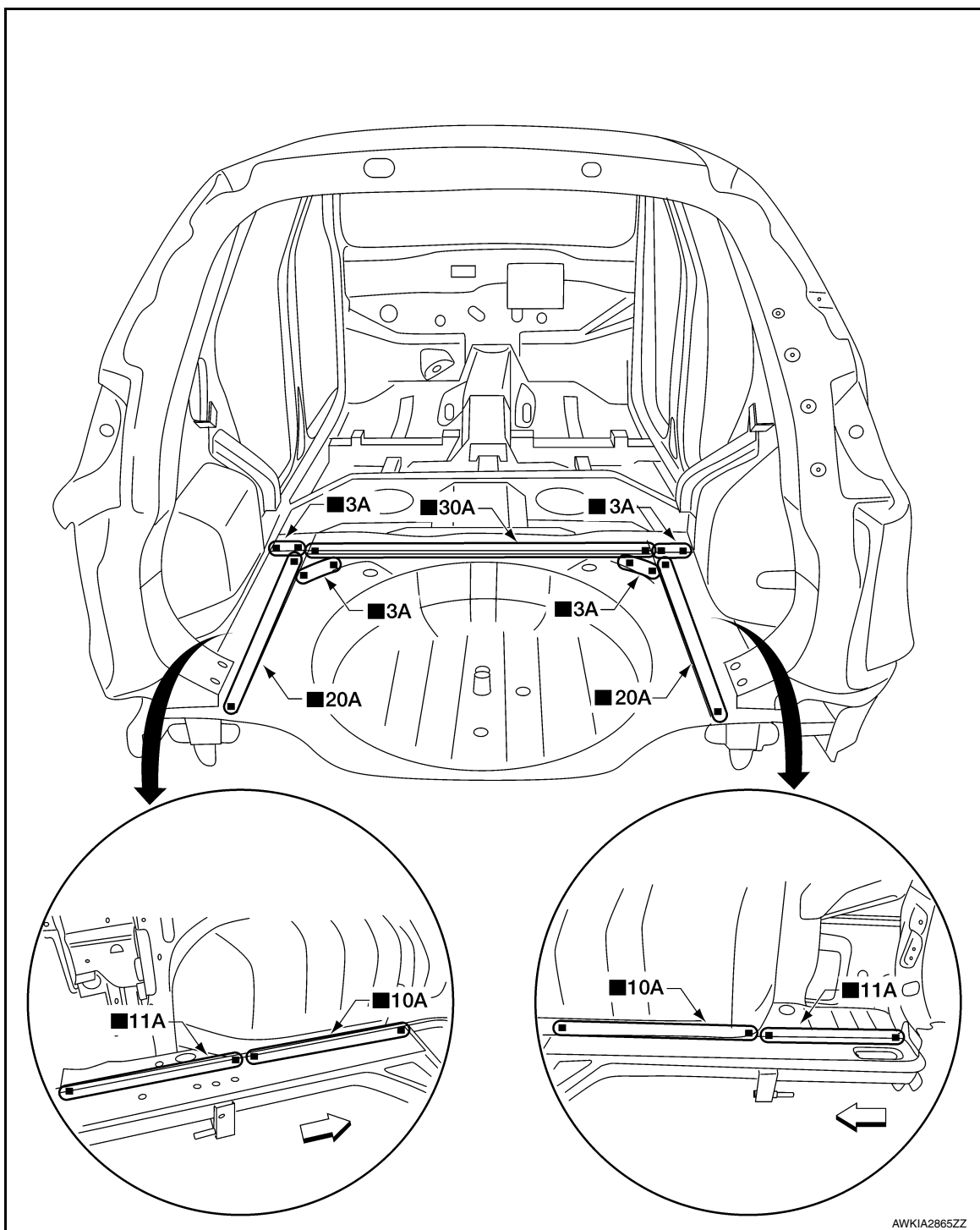
Rear Floor Rear

INFOID:000000009798707

Work after rear panel has been removed.

REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >



Replacement parts

● Rear floor rear

● Rear floor rear side

↔ Front

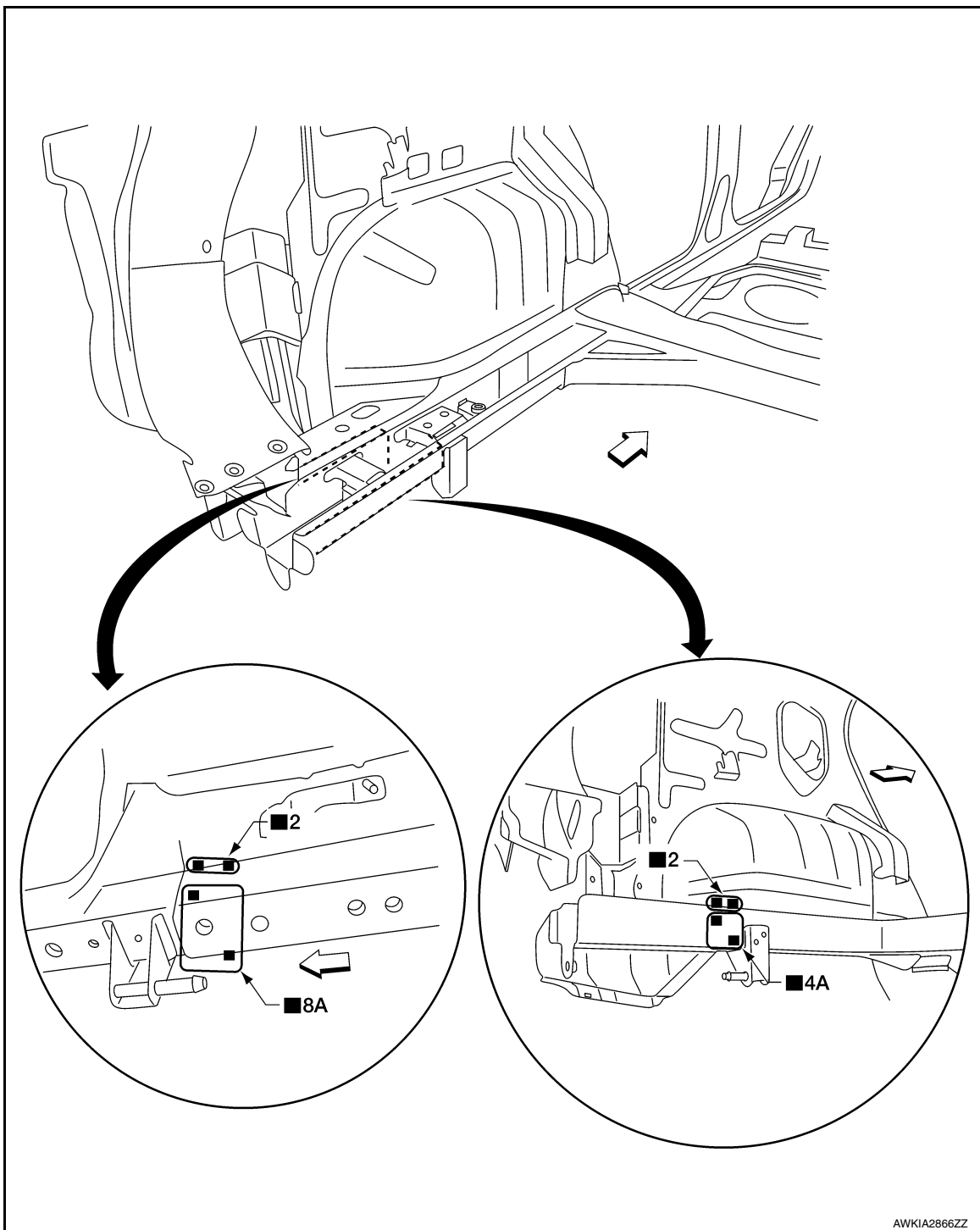
Rear Side Member Extension

INFOID:000000009798708

Work after rear panel has been removed.

REPLACEMENT OPERATIONS

< REMOVAL AND INSTALLATION >



Replacement parts

- Rear side member extension (LH) ⇐ Front

BODY ALIGNMENT

< SERVICE DATA AND SPECIFICATIONS (SDS)

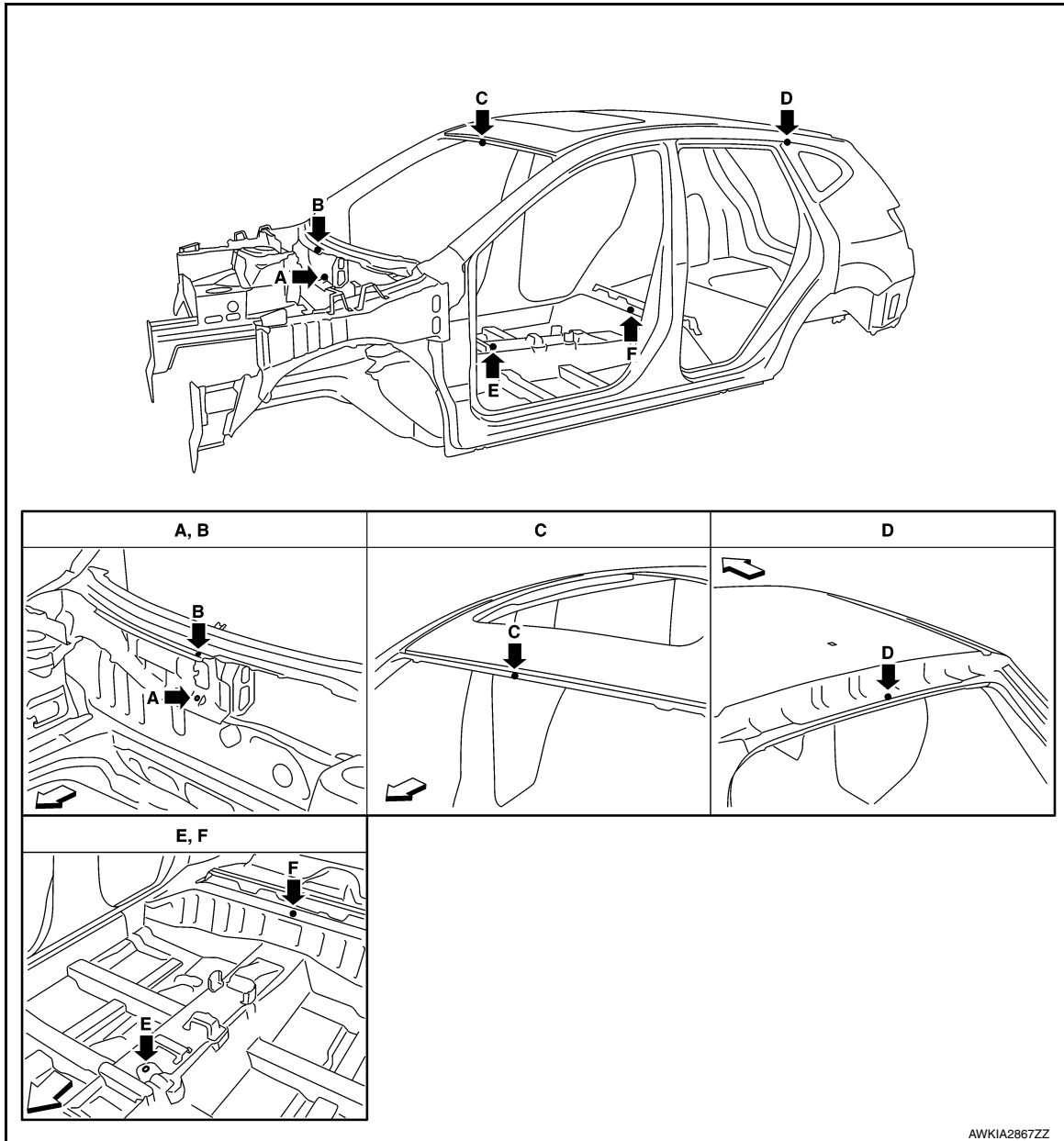
SERVICE DATA AND SPECIFICATIONS (SDS)

BODY ALIGNMENT

Body Center Marks

INFOID:000000009798709

A mark has been placed on each part of the body to indicate the vehicle center. When repairing parts damaged by an accident which might affect the vehicle frame (members, pillars, etc.), more accurate and effective repair will be possible by using these marks together with body alignment specifications.



← Front

Unit: mm (in)

Points	Portion	Marks
A	Cowl top extension	Hole $\phi 7$ (0.28)
B	Center cowl top	Embossment
C	Front roof	Embossment
D	Rear roof	Embossment

BODY ALIGNMENT

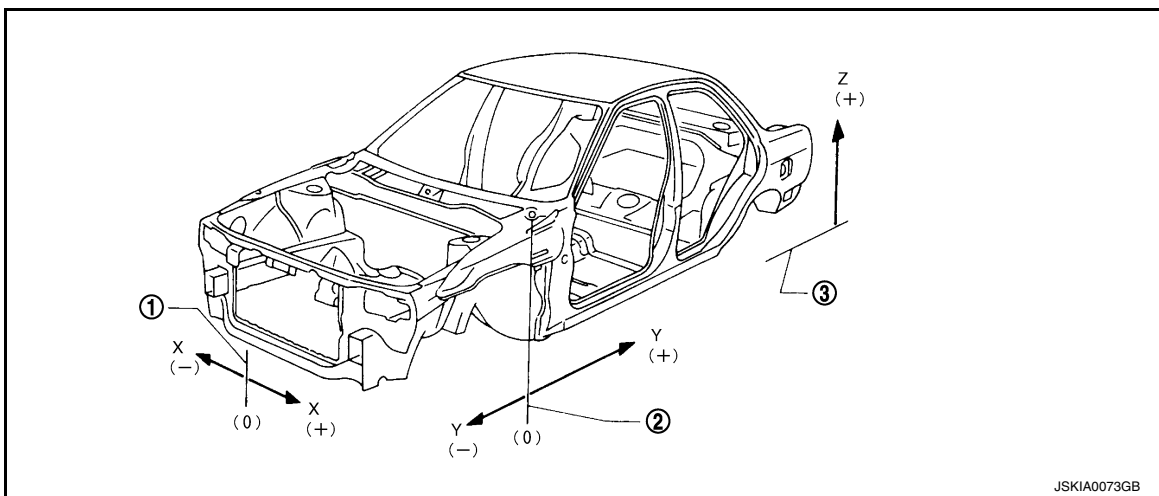
< SERVICE DATA AND SPECIFICATIONS (SDS)

Points	Portion	Marks
E	Trans control reinforcement	Hole 14×12 (0.55×0.47)
F	Rear seat crossmember	Embossment

Description

INFOID:000000009798710

- All dimensions indicated in the figures are actual.
- When using a tracking gauge, adjust both pointers to equal length. Then check the pointers and gauge itself to make sure there is no free play.
- When a measuring tape is used, check to be sure there is no elongation, twisting or bending.
- Measurements should be taken at the center of the mounting holes.
- An asterisk (*) following the value at the measuring point indicates that the measuring point on the other side is symmetrically the same value.
- The coordinates of the measurement points are the distances measured from the standard line of "X", "Y" and "Z".
- "Z": Imaginary base line [200 mm (7.87 in) below datum line ("0Z" at design plan)]



1. Vehicle center

2. Front axle center

3. Imaginary base line

Engine Compartment

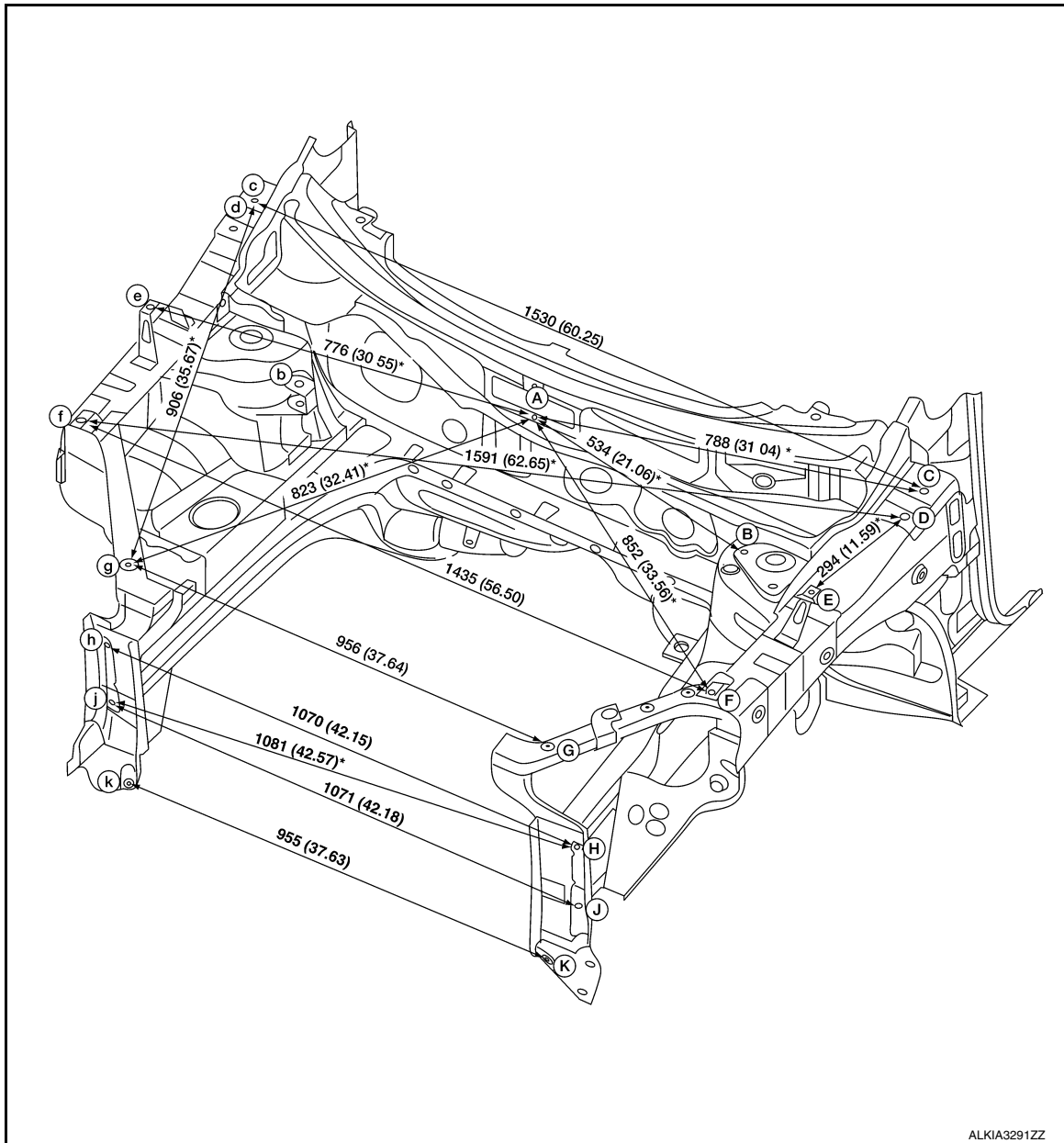
INFOID:000000009798711

MEASUREMENT

BODY ALIGNMENT

< SERVICE DATA AND SPECIFICATIONS (SDS)

Dimensions marked with "*" indicate symmetrically identical dimensions on both the right and left hand of the vehicle.



«The others»

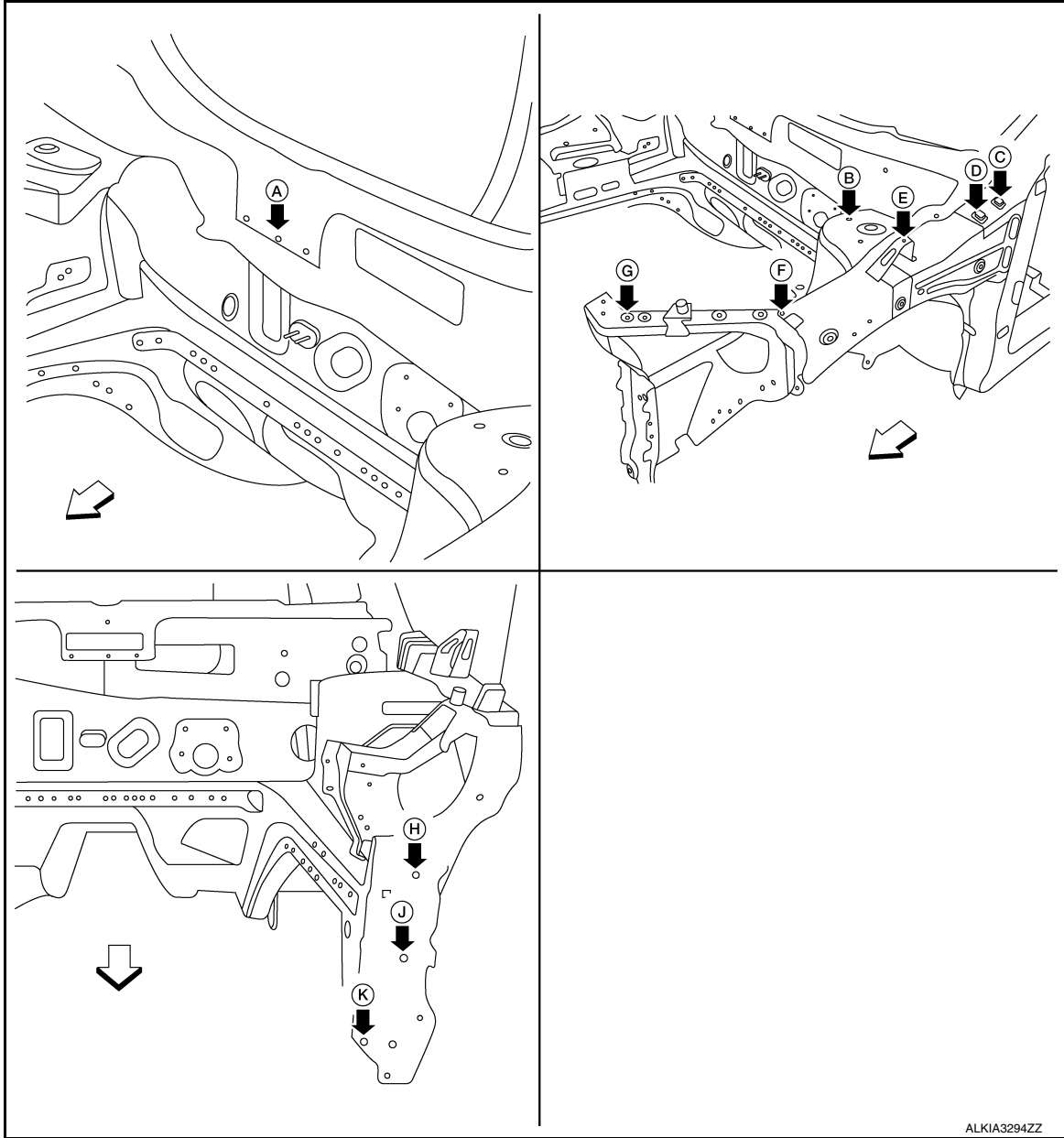
Unit: mm (in)

Point	Dimension	Point	Dimension	Point	Dimension
A - D	774 (30.49)*	B - F	432 (17.04)*	C - G	906 (35.67)*
A - E	776 (30.49)*	B - f	1305 (51.41)*	C - g	1511 (59.50)*
A - G	832 (32.41)*	B - G	596 (23.48)*	D - g	1472 (57.98)*
B - b	1057 (41.64)	B - g	1189 (46.83)*	F - f	1435 (56.50)*
B - C	357 (14.06)*	C - D	70.0 (2.76)*	F - g	1216 (47.91)*
B - c	1321 (52.02)*	C - d	1520 (59.84)*	E - e	1509 (59.43)
B - D	308 (12.13)*	C - E	361 (14.22)*	E - f	1500 (59.07)*
B - d	1309 (51.54)*	C - e	1562 (61.50)*	G - e	1334 (52.54)*
B - E	263 (10.37)*	C - F	648 (25.53)*	H - J	152 (6.01)*
B - e	1290 (50.81)*	C - f	1617 (63.68)*	H - k	1081 (42.59)*

BODY ALIGNMENT

< SERVICE DATA AND SPECIFICATIONS (SDS)

MEASUREMENT POINTS



ALKIA3294ZZ

↩ Front

Unit: mm (in)

Point	Material	Point	Material
A	Cowl top extension hole center of center positioning mark $\phi 8$ (0.31)	G, g	Hole for headlight bracket $\phi 7$ (0.28)
B, b	Front strut installing hole center 16×10 (0.63×0.39)	H, h	Front side member hole center front bumper $\phi 11$ (0.43)
C, c D, d	Hood hinge installing hole center $\phi 12$ (0.47)	J, j	Front side member hole center front bumper $\phi 13$ (0.51)
E, e, F, f	Upper front fender bracket hole center $\phi 7$ (0.28)	K, k	Radiator lower bracket hole $\phi 11$ (0.43)

Underbody

INFOID:000000009798712

MEASUREMENT

Revision: November 2013

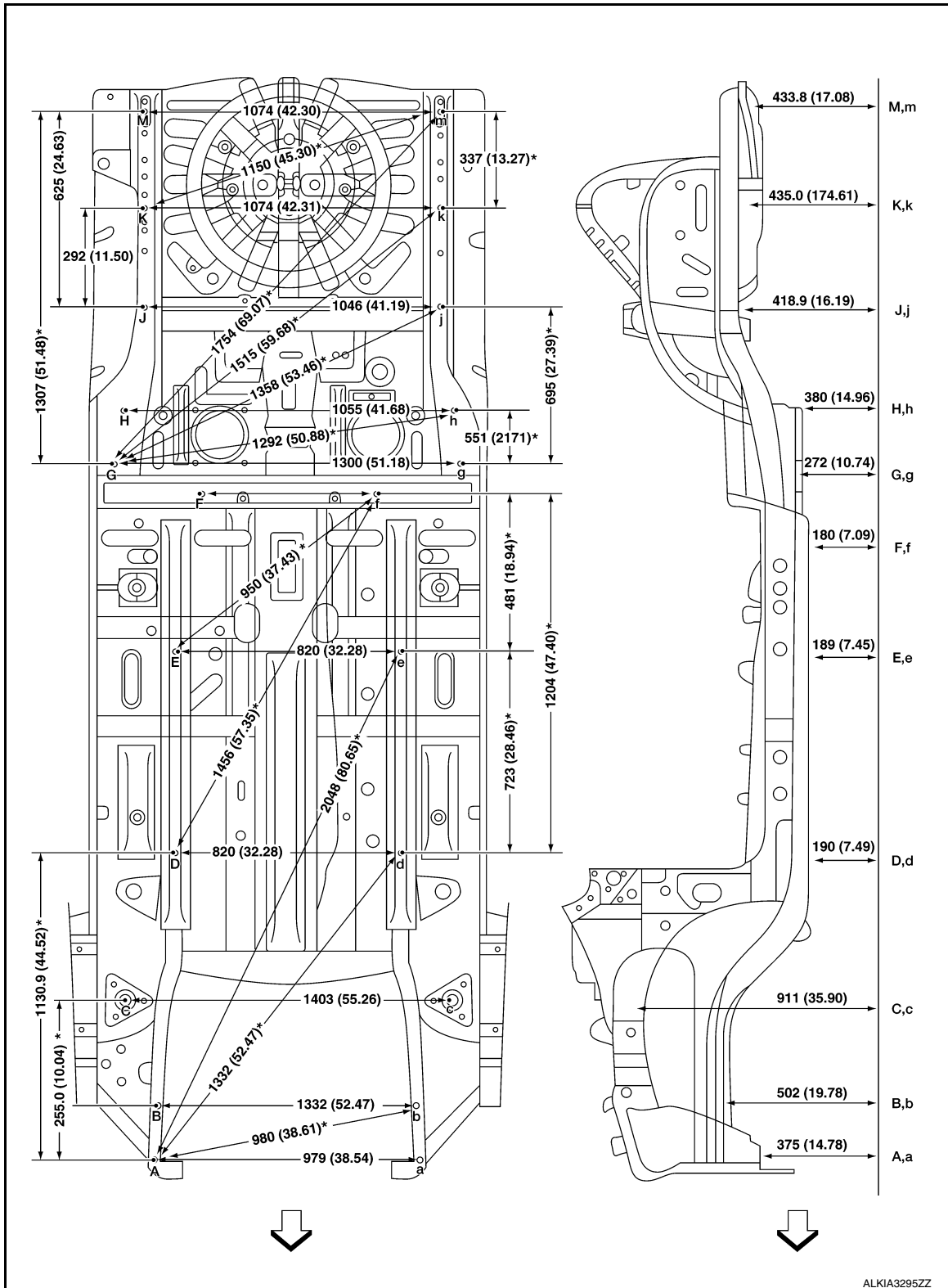
BRM-46

2014 Rogue NAM

BODY ALIGNMENT

< SERVICE DATA AND SPECIFICATIONS (SDS)

Dimensions marked with "*" indicate symmetrically identical dimensions on both the right and left hand of the vehicle.



← Front

BODY ALIGNMENT

< SERVICE DATA AND SPECIFICATIONS (SDS)

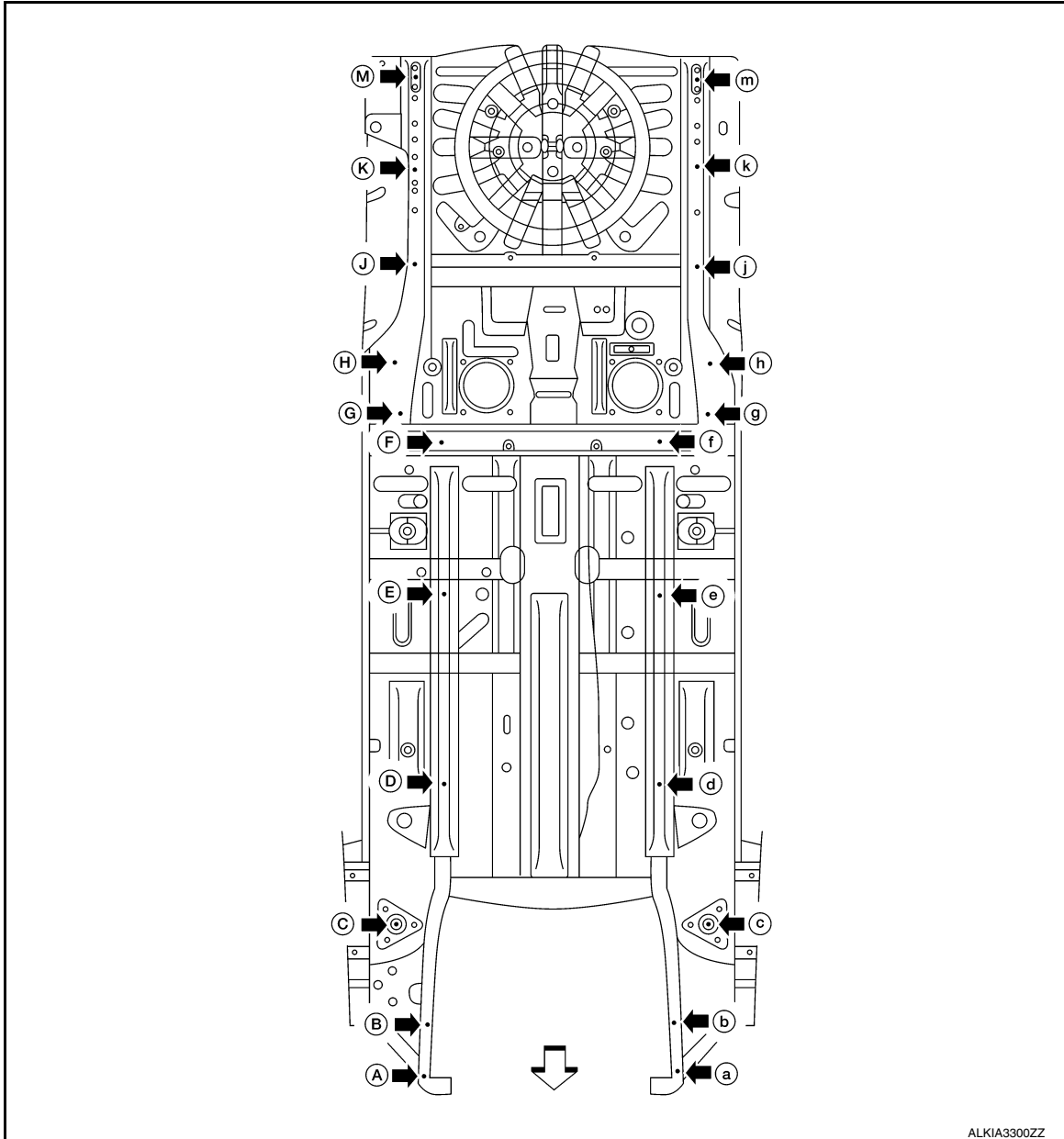
Unit: mm (in)

Point	Dimension	Point	Dimension	Point	Dimension
A - B	255 (10.04)	G - J	1358 (53.46)	J - k	1084 (42.68)
A - E	1847 (72.73)	g - k	975 (38.42)	K - M	337 (13.27)
D - e	1093 (43.04)				

MEASUREMENT Points

Dimensions marked with "*" indicate symmetrically identical dimensions on both the right and left hand of the vehicle.

MEASUREMENT POINTS



↩ Front

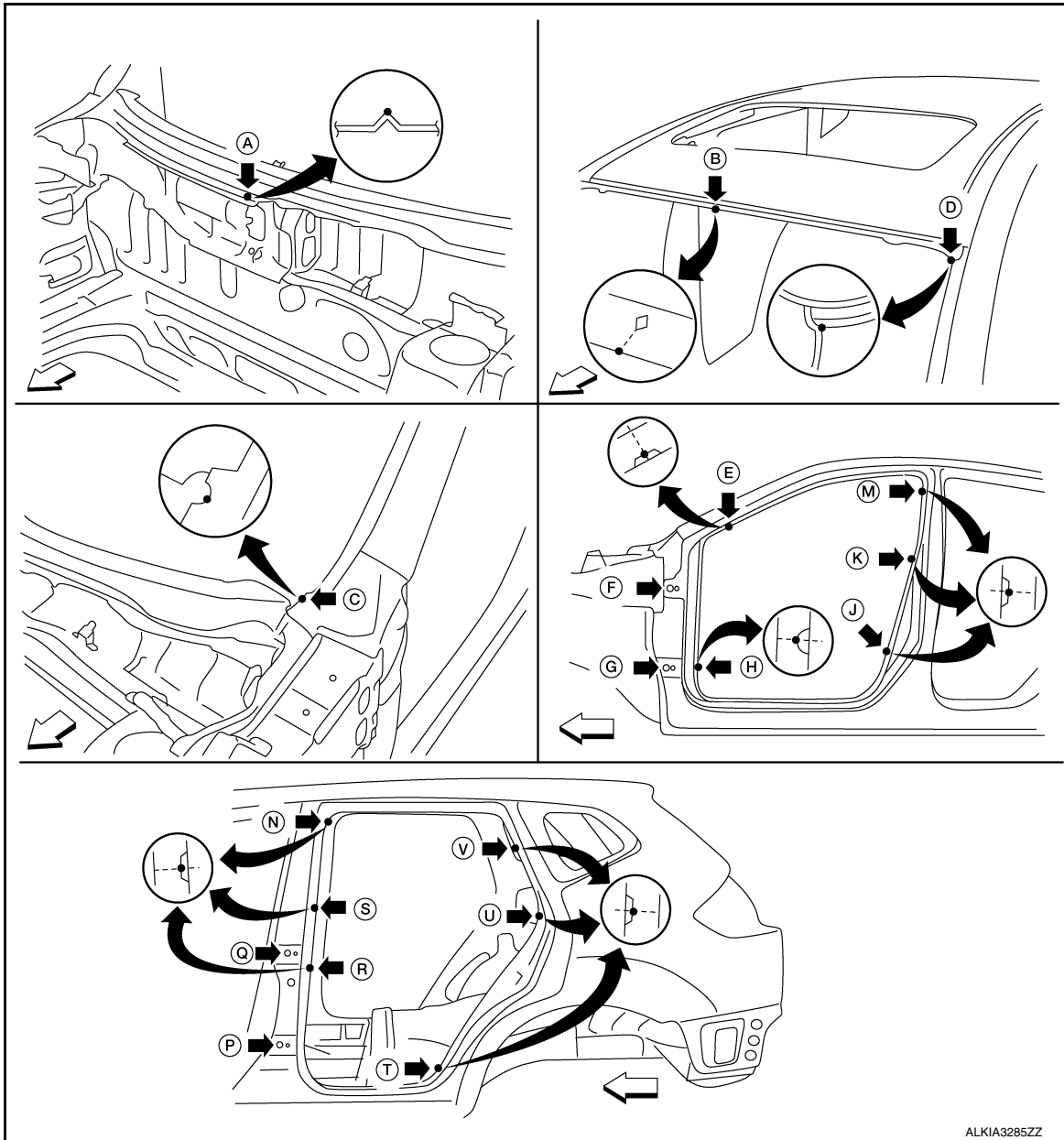
BODY ALIGNMENT

< SERVICE DATA AND SPECIFICATIONS (SDS)

Unit: mm (in)

Point	Dimension	Point	Dimension	Point	Dimension	Point	Dimension
A - C	700 (27.56)*	F - Q	1172 (46.15)*	K - M	285 (11.25)*	S - U	847 (33.36)*
B - D	582 922.94)*	G - P	1137 (44.77)*	M - F	1229 (48.40)*	U - N	863 (33.99)*
E - J	849 (33.44)*	G - Q	1235 (48.63)*	N - S	281 (11.08)*	U - V	297 (11.70)*
E - K	669 (26.37)*	J - E	849 (33.44)*	N - U	863 (33.99)*	V - S	820 (32.30)*
E - M	678 (26.72)	J - F	850 (33.46)*	S - N	281 (11.08)*	V - N	738 (29.06)*
F - P	1175 (46.28)*	K - J	443 (17.44)*	S - T	712 (28.06)*		

MEASUREMENT POINTS



↩ Front

BODY ALIGNMENT

< SERVICE DATA AND SPECIFICATIONS (SDS)

Unit: mm (in)

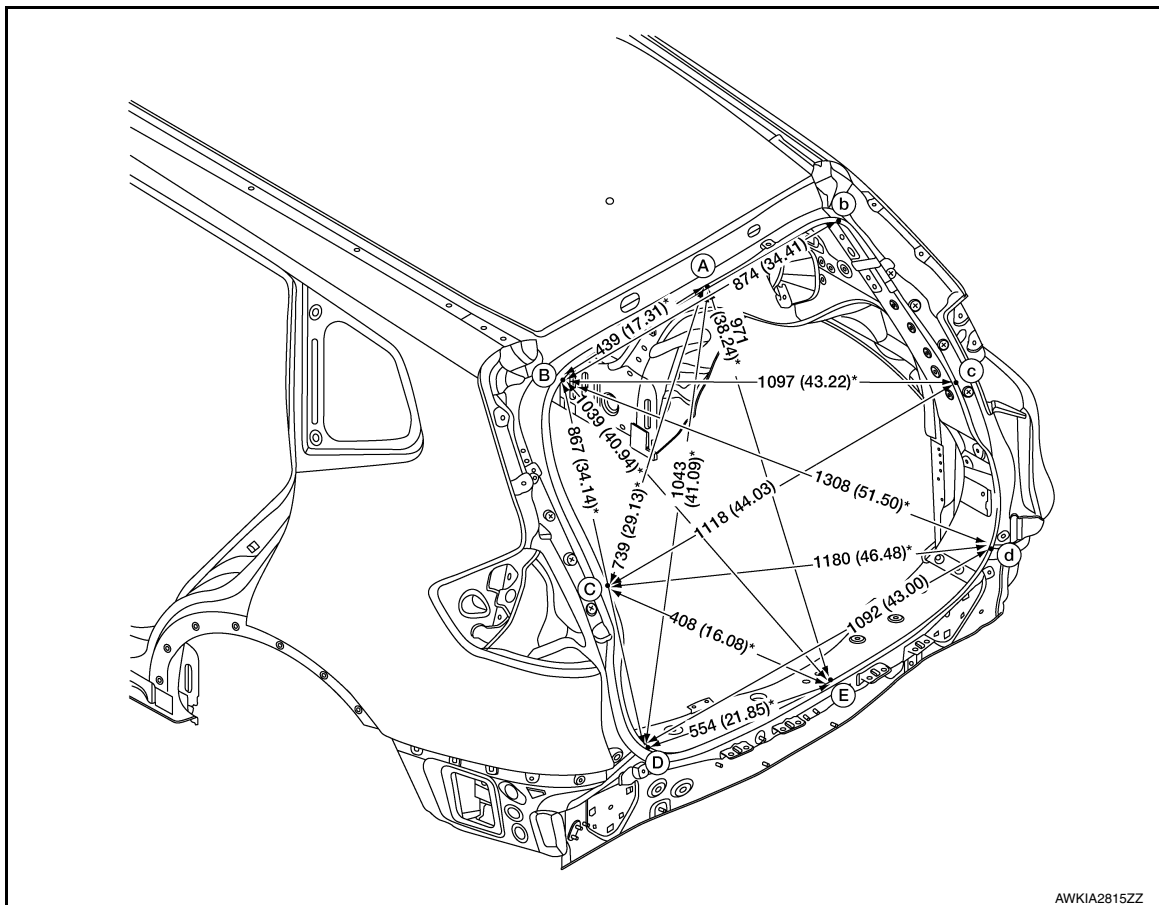
Point	Material	Point	Material
A	Center cowl top positioning mark of center positioning mark	J,,j, K,k, M,m, N,n, S,s, R,r	Center pillar indent
B	Roof flange end of center positioning mark	T,t U,u V,v	Rear fender indent
C, c	Front pillar joggle	F,f, G,g, Q, q, P, P	Door hinge installing hole center φ12 (0.47) W, w: φ9 (0.35)
E, e, H, h, G, g	Front pillar indent		

Rear Body

INFOID:000000009798714

MEASUREMENT

Dimensions marked with "*" indicate symmetrically identical dimensions on both the right and left hand of the vehicle.

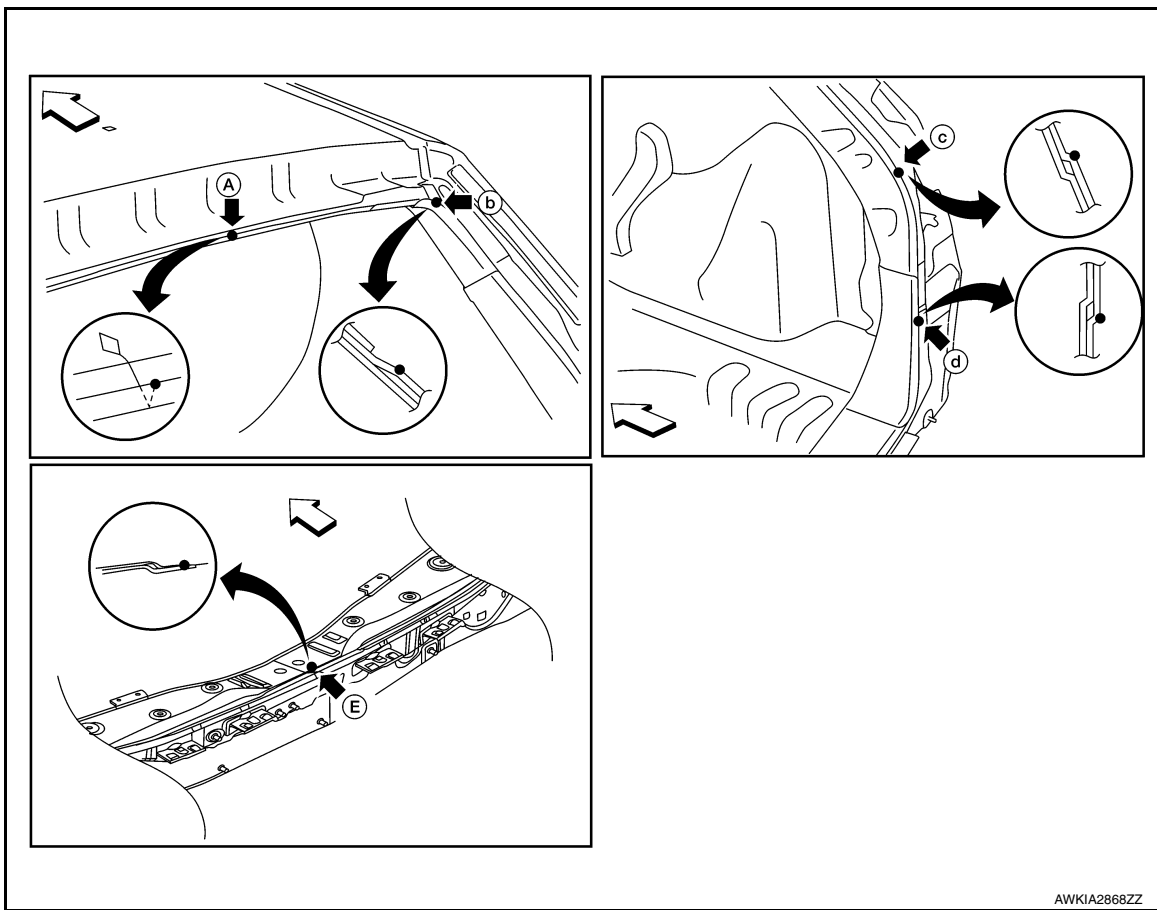


Unit: mm (in)

MEASUREMENT POINTS

BODY ALIGNMENT

< SERVICE DATA AND SPECIFICATIONS (SDS)



AWKIA2868ZZ

↩ Front

Unit: mm (in)

Point	Material	Point	Material
A	Roof flange end of center positioning mark	C, c, D, d	Rear flange jog corner
B, b	Rear flange jog corner	E	Rear panel upper flange end

SECTION

CCS

CRUISE CONTROL SYSTEM

CONTENTS

ASCD	SYSTEM DESCRIPTION	3
PRECAUTION	AUTOMATIC SPEED CONTROL DEVICE	
	(ASCD)	3
PRECAUTIONS	Information	3
Precaution for Supplemental Restraint System		
(SRS) "AIR BAG" and "SEAT BELT PRE-TEN-		
SIONER"		2

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010246769

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

SYSTEM DESCRIPTION

AUTOMATIC SPEED CONTROL DEVICE (ASCD)

Information

INFOID:000000009794813

Automatic Speed Control Device (ASCD) system is controlled by ECM.

Regarding the information for ASCD system, refer to [EC-47, "AUTOMATIC SPEED CONTROL DEVICE \(ASCD\) : System Description"](#)

A

B

C

D

E

F

G

H

I

J

K

L

M

N

CCS

P

CHG

SECTION CHARGING SYSTEM

CONTENTS

PRECAUTION	2	Work Flow (Without EXP-800 NI or GR8-1200 NI)...	14
PRECAUTIONS	2	DTC/CIRCUIT DIAGNOSIS	16
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	2	CHARGING SYSTEM PRELIMINARY INSPECTION	16
PREPARATION	3	Diagnosis Procedure	16
PREPARATION	3	POWER GENERATION VOLTAGE VARIABLE CONTROL SYSTEM OPERATION INSPECTION	17
Special Service Tools	3	Diagnosis Procedure	17
Commercial Service Tools	3	B TERMINAL CIRCUIT	18
SYSTEM DESCRIPTION	4	Description	18
COMPONENT PARTS	4	Diagnosis Procedure	18
Component Parts Location	4	SYMPTOM DIAGNOSIS	19
SYSTEM	5	CHARGING SYSTEM	19
CHARGING SYSTEM	5	Symptom Table	19
CHARGING SYSTEM : System Description	5	REMOVAL AND INSTALLATION	20
POWER GENERATION VOLTAGE VARIABLE CONTROL SYSTEM	5	GENERATOR	20
POWER GENERATION VOLTAGE VARIABLE CONTROL SYSTEM : System Description	5	Exploded View	20
WIRING DIAGRAM	7	Removal and Installation	20
CHARGING SYSTEM	7	Inspection	21
Wiring Diagram	7	SERVICE DATA AND SPECIFICATIONS (SDS)	22
BASIC INSPECTION	11	SERVICE DATA AND SPECIFICATIONS (SDS)	22
DIAGNOSIS AND REPAIR WORKFLOW	11	Generator	22
Work Flow (With EXP-800 NI or GR8-1200 NI)	11		

A

B

C

D

E

F

G

H

I

J

K

L

CHG

N

O

P

PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010193994

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

PREPARATION

< PREPARATION >

PREPARATION

PREPARATION

Special Service Tools

INFOID:000000009796134

The actual shape of the tools may differ from those illustrated here.

Tool number (TechMate No.) Tool name	Description
— (165-GR8-1200KIT-NI) Multitasking battery and electrical diagnostic station	Testing batteries, starting and charging systems and charges batteries. For operating instructions, refer to diagnostic station instruction manual.
— (165-EXP-800 NI) Battery and electrical diagnostic analyzer	Testing batteries and charging systems. For operating instructions, refer to diagnostic analyzer instruction manual.

Commercial Service Tools

INFOID:000000009796135

Tool name	Description
Power tool	Loosening bolts, nuts and screws

CHG

COMPONENT PARTS

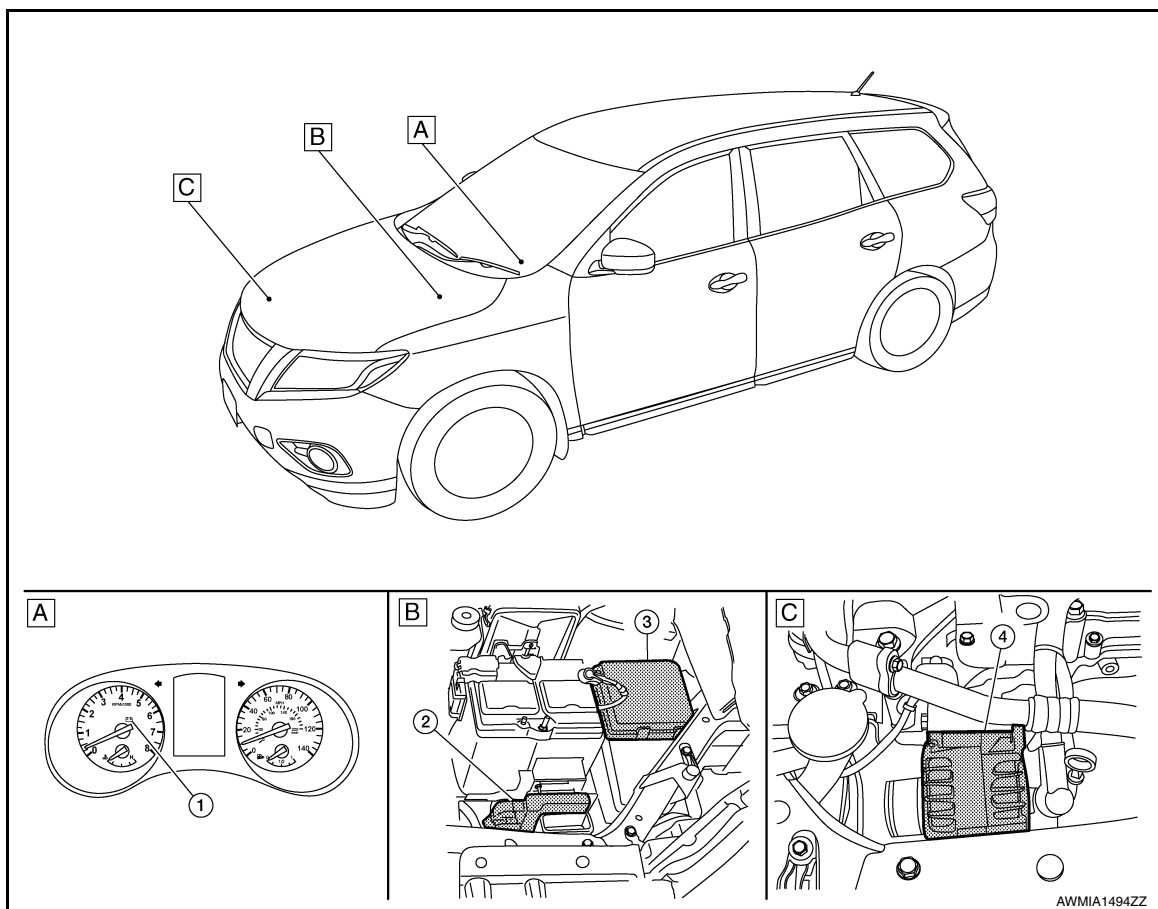
< SYSTEM DESCRIPTION >

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:000000010244377



A. Combination meter

B. Engine room right side

C. Engine room left side

No.	Component part	Description
1.	Combination meter (Charge warning lamp)	The IC regulator warning function activates to illuminate the charge warning lamp if any of the following symptoms occur while generator is operating: - Excessive voltage is produced - No voltage is produced
2.	ECM	ECM transmits a target power generation voltage signal received from IPDM E/R to the generator via LIN communication. In addition, the ECM controls the charge warning lamp via CAN communication to the combination meter.
3.	IPDM E/R	The IPDM E/R receives the generator signals via CAN communication from ECM.
4.	Generator (IC voltage regulator)	IC voltage regulator controls the power generation voltage by the target power generation voltage based on the received signal. When there is no power generation command signal, the generator performs the normal power generation according to the characteristic of the IC voltage regulator.

SYSTEM

< SYSTEM DESCRIPTION >

SYSTEM

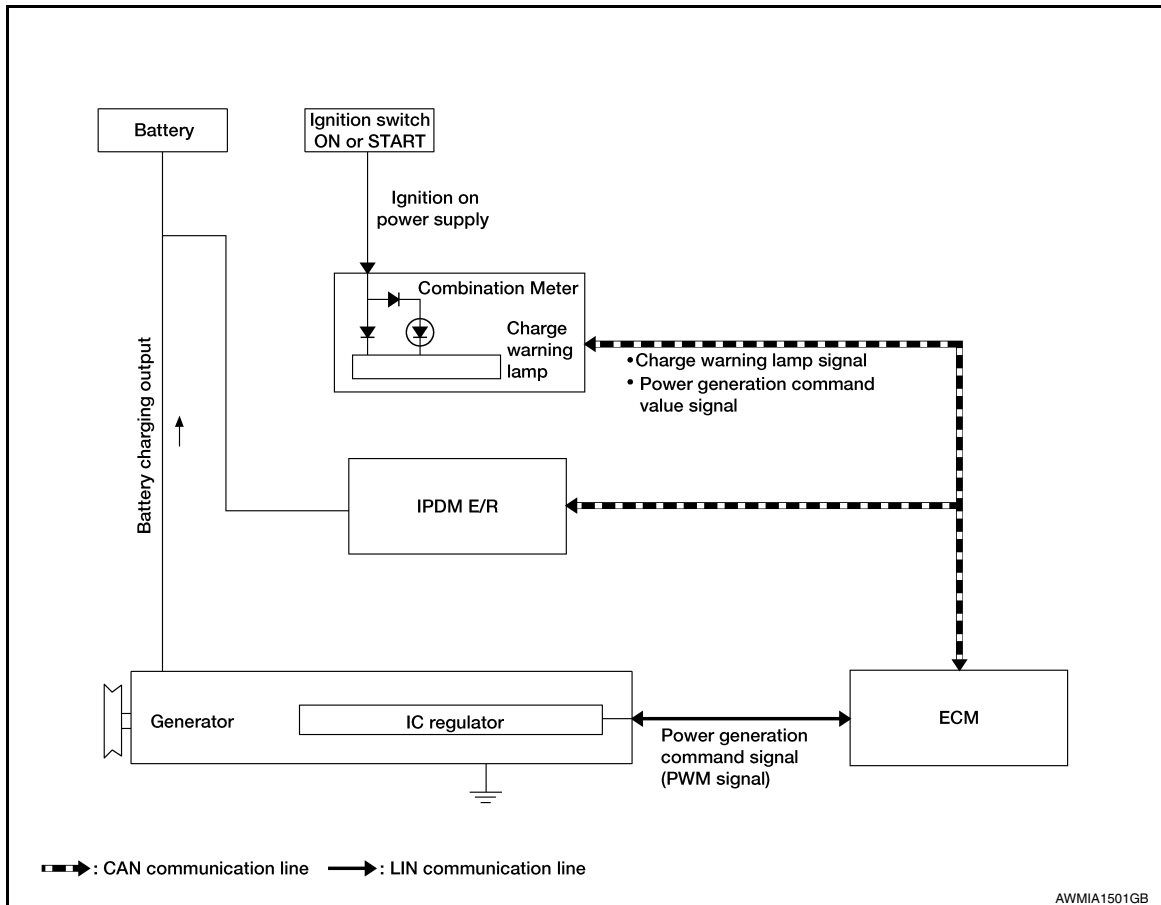
CHARGING SYSTEM

CHARGING SYSTEM : System Description

INFOID:0000000010223699

The generator provides DC voltage to operate the vehicle's electrical system and to keep the battery charged. The voltage output is controlled by the IC regulator.

SYSTEM DIAGRAM



POWER GENERATION VOLTAGE VARIABLE CONTROL SYSTEM

POWER GENERATION VOLTAGE VARIABLE CONTROL SYSTEM : System Description

INFOID:0000000010341544

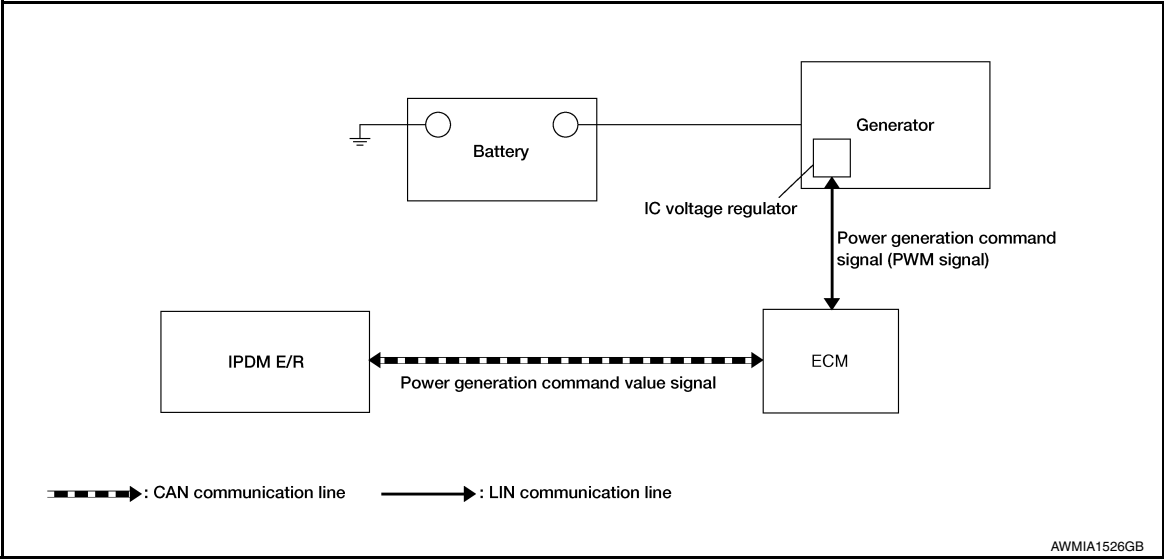
ECM transmits a target power generation voltage signal received from IPDM E/R to the generator via LIN communication.

The generator includes a self-diagnosis function and transmits a diagnosis signal to ECM via LIN communication when detecting a malfunction. When ECM receives a diagnosis signal, ECM detects DTC and transmits a charge warning lamp request signal to the combination meter to turn ON the charge warning lamp.

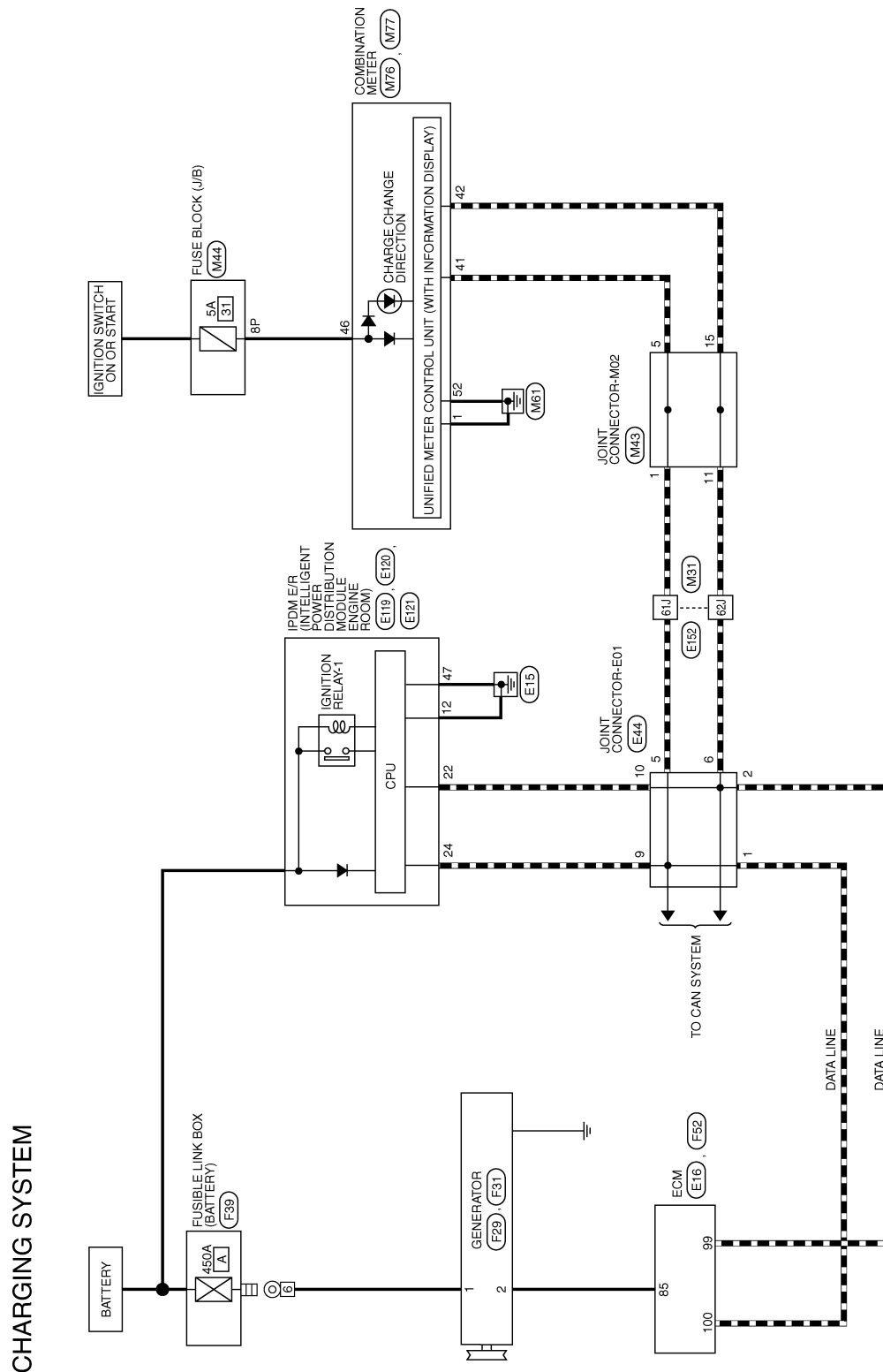
SYSTEM

< SYSTEM DESCRIPTION >

SYSTEM DIAGRAM



INFOID:0000000010223703



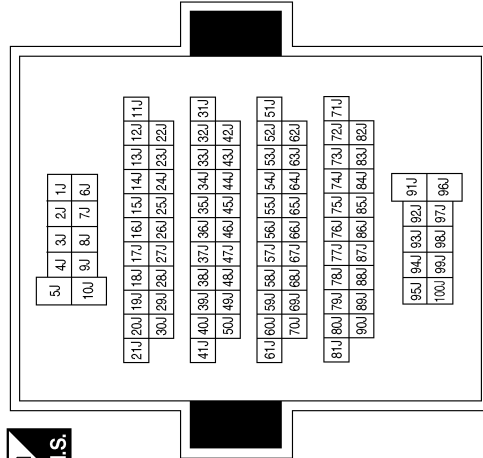
AAMWA1019GB

CHARGING SYSTEM

< WIRING DIAGRAM >

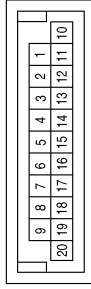
CHARGING SYSTEM CONNECTORS

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
61J	L	-
62J	P	-

Connector No.	M43
Connector Name	JOINT CONNECTOR-M02
Connector Color	BLUE

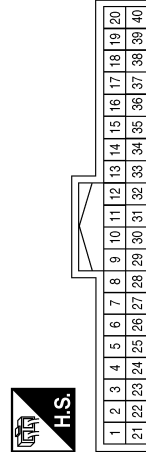


Terminal No.	Color of Wire	Signal Name
1	L	-
5	L	-
11	P	-
15	P	-

Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE

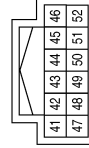


Connector No.	M76
Connector Name	COMBINATION METER
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
8P	LA/BR	-

Connector No.	M77
Connector Name	COMBINATION METER
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
41	L	CAN-H
42	P	CAN-L
46	LA/BR	IGN
52	B	GND 2

AAMIA2105GB

CHARGING SYSTEM

< WIRING DIAGRAM >

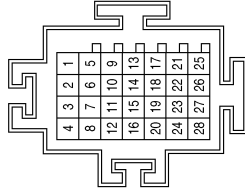
Connector No.	E119
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



9	8	7	6	5	4	3
18	17	16	15	14	13	12
11	10	9	8	7	6	5

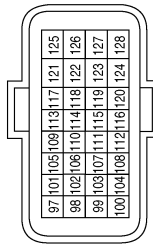
Terminal No.	Color of Wire	Signal Name
12	B	SIGNAL GROUND

Connector No.	E44
Connector Name	JOINT CONNECTOR-E01
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	L	-
2	P	-
5	L	-
6	P	-
9	L	-
10	P	-

Connector No.	E16
Connector Name	ECM
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
99	P	CAN-L
100	L	CAN-H

Connector No.	E121
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	RED



45	44	43
48	47	46

Terminal No.	Color of Wire	Signal Name
47	B	POWER GROUND

Connector No.	E120
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
22	P	CAN-L
24	L	CAN-H

AAMIA2106GB

A B C D E F G H I J K L N O P

CHG

CHARGING SYSTEM

< WIRING DIAGRAM >

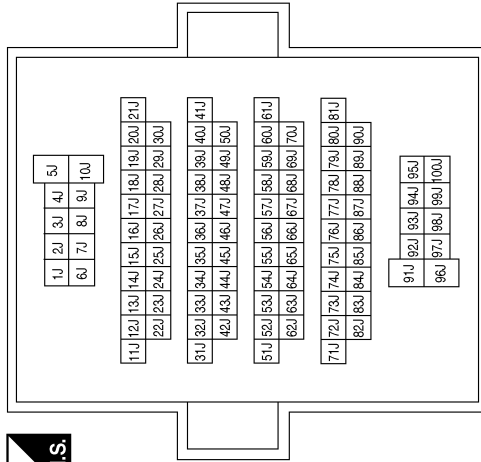
Connector No.	F29
Connector Name	GENERATOR
Connector Color	—



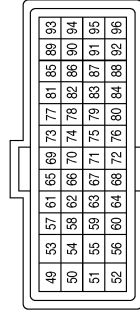
Terminal No.	Color of Wire	Signal Name
1	B/R	—

Terminal No.	Color of Wire	Signal Name
61J	L	—
62J	P	—

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	F52
Connector Name	ECM
Connector Color	BROWN



Connector No.	F39
Connector Name	FUSIBLE LINK BOX (BATTERY)
Connector Color	—

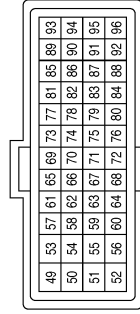


Terminal No.	Color of Wire	Signal Name
6	B/R	—

Connector No.	F31
Connector Name	GENERATOR
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
2	G	—



AAMIA2118GB

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow (With EXP-800 NI or GR8-1200 NI)

INFOID:0000000010223704

CHARGING SYSTEM DIAGNOSIS WITH EXP-800 NI OR GR8-1200 NI

To test the charging system, use the following special service tools:

- EXP-800 NI Battery and electrical diagnostic analyzer
- GR8-1200 NI Multitasking battery and electrical diagnostic station

NOTE:

Refer to the applicable Instruction Manual for proper charging system diagnosis procedures.

A

B

C

D

E

F

G

H

I

J

K

L

CHG

N

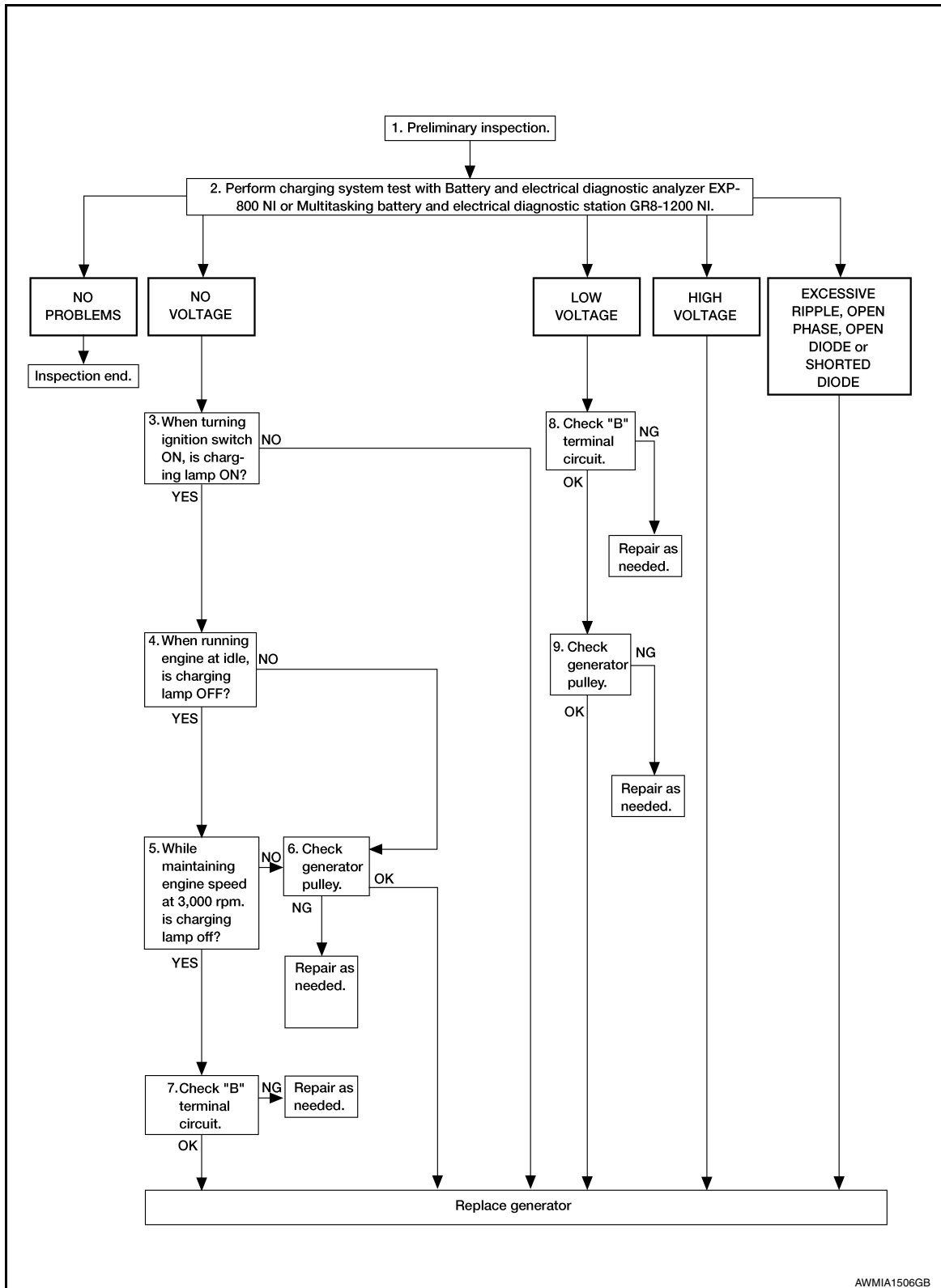
O

P

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

OVERALL SEQUENCE



DETAILED FLOW

NOTE:

To ensure a complete and thorough diagnosis, the battery, stator and generator test segments must be done as a set from start to finish.

1. PRELIMINARY INSPECTION

Perform the preliminary inspection. Refer to [CHG-16, "Diagnosis Procedure"](#).

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

>> GO TO 2.

2. DIAGNOSIS WITH EXP-800 NI OR GR8-1200 NI

Perform the charging system test using Multitasking battery and electrical diagnostic station GR8-1200 NI or Battery and electrical diagnostic analyzer EXP-800 NI. Refer to the applicable Instruction Manual for proper testing procedures.

Test result

NO PROBLEMS>>Charging system is normal and will also show "DIODE RIPPLE" test result.

NO VOLTAGE>>GO TO 3.

LOW VOLTAGE>>GO TO 10.

HIGH VOLTAGE>>Replace generator. Refer to [CHG-20. "Removal and Installation"](#).

EXCESSIVE RIPPLE, OPEN PHASE, OPEN DIODE or SHORTED DIODE>>Replace the generator. Refer to [CHG-20. "Removal and Installation"](#). Perform "DIODE RIPPLE" test again using Multitasking battery and electrical diagnostic station GR8-1200 NI or Battery and electrical diagnostic analyzer EXP-800 NI to confirm repair.

3. INSPECTION WITH CHARGE WARNING LAMP (IGNITION SWITCH IS ON)

Turn the ignition switch ON.

Does the charge warning lamp illuminate?

YES >> GO TO 4.

NO >> Replace generator. Refer to [CHG-20. "Removal and Installation"](#).

4. INSPECTION WITH CHARGE WARNING LAMP (IDLING)

Start the engine and run it at idle.

Does the charge warning lamp turn OFF?

YES >> GO TO 5.

NO >> GO TO 6.

5. INSPECTION WITH CHARGE WARNING LAMP (ENGINE AT 3,000 RPM)

Increase and maintain the engine speed at 3,000 rpm.

Does the charge warning lamp remain off?

YES >> GO TO 7.

NO >> GO TO 6.

6. INSPECTION OF GENERATOR PULLEY

Check generator pulley. Refer to [EM-13. "Checking"](#).

Is generator pulley normal?

YES >> Replace generator. Refer to [CHG-20. "Removal and Installation"](#).

NO >> Repair as needed.

7. "B" TERMINAL CIRCUIT INSPECTION

Check "B" terminal circuit. Refer to [CHG-18. "Diagnosis Procedure"](#).

Is "B" terminal circuit normal?

YES >> Replace generator. Refer to [CHG-20. "Removal and Installation"](#).

NO >> Repair as needed.

8. "B" TERMINAL CIRCUIT INSPECTION

Check "B" terminal circuit. Refer to [CHG-18. "Diagnosis Procedure"](#).

Is "B" terminal circuit normal?

YES >> GO TO 9.

NO >> Repair as needed.

9. INSPECTION OF GENERATOR PULLEY

Check generator pulley. Refer to [CHG-20. "Removal and Installation"](#).

Is generator pulley normal?

YES >> Replace generator. Refer to [CHG-20. "Removal and Installation"](#).

A

B

C

D

E

F

G

H

I

J

K

L

CHG

N

O

P

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

NO >> Repair as needed.

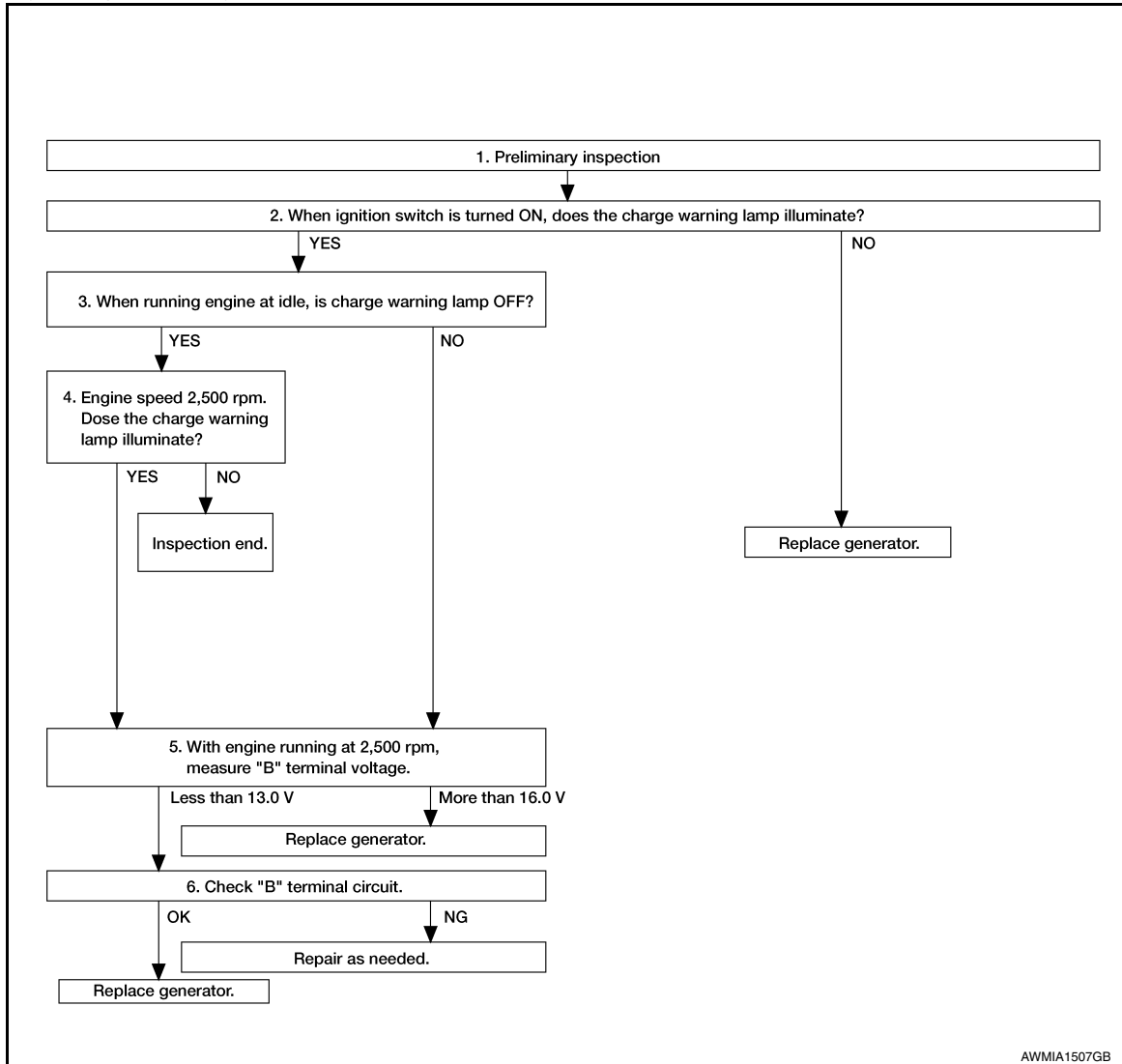
Work Flow (Without EXP-800 NI or GR8-1200 NI)

INFOID:0000000010223705

OVERALL SEQUENCE

Before performing a generator test, make sure that the battery is fully charged. A 30-volt voltmeter and suitable test probes are necessary for the test.

- Before starting, inspect the fusible link.
- Use fully charged battery.



DETAILED FLOW

1. PRELIMINARY INSPECTION

Perform the preliminary inspection. Refer to [CHG-16, "Diagnosis Procedure"](#).

>> GO TO 2.

2. INSPECTION WITH CHARGE WARNING LAMP (IGNITION SWITCH IS TURNED ON)

When ignition switch is turned ON.

Does the charge warning lamp illuminate?

YES >> GO TO 3.

NO >> Replace generator. Refer to [CHG-20, "Removal and Installation"](#).

3. INSPECTION WITH CHARGE WARNING LAMP (IDLING)

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

Start the engine and run it at idle

Does the charge warning lamp turn OFF?

YES >> GO TO 4.

NO >> GO TO 5.

4.INSPECTION WITH CHARGE WARNING LAMP (ENGINE AT 2,500 RPM)

Increase and maintain the engine speed at 2,500 rpm.

Does the charge warning lamp illuminate?

YES >> GO TO 5.

NO >> Inspection End.

5.MEASURE "B" TERMINAL VOLTAGE

Start engine. With engine running at 2,500 rpm, measure "B" terminal voltage.

What voltage does the measurement result show?

Less than 13.0 V>>GO TO 6.

More than 16.0 V>>Replace generator. Refer to [CHG-20. "Removal and Installation"](#).

6."B" TERMINAL CIRCUIT INSPECTION

Check "B" terminal circuit. Refer to [CHG-18. "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> Replace generator. Refer to [CHG-20. "Removal and Installation"](#).

NO >> Repair as needed.

A

B

C

D

E

F

G

H

I

J

K

L

CHG

N

O

P

CHARGING SYSTEM PRELIMINARY INSPECTION

< DTC/CIRCUIT DIAGNOSIS >

DTC/CIRCUIT DIAGNOSIS

CHARGING SYSTEM PRELIMINARY INSPECTION

Diagnosis Procedure

INFOID:0000000010223706

1.CHECK BATTERY TERMINALS CONNECTION

Check if battery terminals are clean and tight.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair battery terminal connection. Confirm repair by performing complete Charging system test using EXP-800 NI or GR8-1200 NI (if available). Refer to the applicable Instruction Manual for proper testing procedures.

2.CHECK FUSE

Check for blown fuse and fusible link.

Unit	Power source (Power supply terminals)	Fuse or Fusible Link
Generator	Battery (terminal 1)	Fusible Link A
Combination meter	Ignition switch ON	Fuse 31

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace the blown fuse or fusible link after repairing the affected circuit.

3.CHECK DRIVE BELT TENSION

Check drive belt tension. Refer to [MA-13, "DRIVE BELTS : Tension Adjustment"](#).

Is the inspection result normal?

YES >> Inspection End.

NO >> Repair as needed.

POWER GENERATION VOLTAGE VARIABLE CONTROL SYSTEM OPERATION INSPECTION

< DTC/CIRCUIT DIAGNOSIS >

POWER GENERATION VOLTAGE VARIABLE CONTROL SYSTEM OPERATION INSPECTION

Diagnosis Procedure

INFOID:0000000010351308

Regarding Wiring Diagram information. Refer to [CHG-7, "Wiring Diagram"](#).

CAUTION:

When performing this inspection, always use a charged battery that has completed the battery inspection. (When the charging rate of the battery is low, the response speed of the voltage change will become slow. This can cause an incorrect inspection.)

1. CHECK ECM (CONSULT)

Perform ECM self-diagnosis with CONSULT. Refer to [EC-67, "CONSULT Function"](#).

Self-diagnostic results content

No malfunction detected>> GO TO 2.

Malfunction detected>> Check applicable parts, and repair or replace corresponding parts.

2. CHECK HARNESS BETWEEN GENERATOR AND ECM

1. Turn ignition switch OFF.
2. Disconnect generator connector and ECM connector.
3. Check continuity between generator harness connector and ECM harness connector.

Generator		ECM		Continuity
Connector	Terminal	Connector	Terminal	
F31	2	F52	85	Yes

4. Check continuity between generator harness connector and ground.

Generator		—	Continuity
Connector	Terminal		
F31	2	Ground	No

Is the inspection result normal?

YES >> Replace ECM. Refer to [EC-499, "Removal and Installation"](#).

NO >> Repair harness or connectors between ECM and generator.

CHG

B TERMINAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

B TERMINAL CIRCUIT

Description

INFOID:0000000010223708

"B" terminal circuit supplies power to charge the battery and to operate the vehicles electrical system.

Diagnosis Procedure

INFOID:0000000010223709

Regarding Wiring Diagram information. Refer to [CHG-7, "Wiring Diagram"](#).

1.CHECK "B" TERMINAL CONNECTION

1. Turn ignition switch OFF.
2. Check if "B" terminal is clean and tight.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair terminal "B" connection. Confirm repair by performing complete Charging system test using the EXP-800 NI or GR8-1200 NI (if available). Refer to applicable Instruction Manual for proper testing procedures.

2.CHECK "B" TERMINAL CIRCUIT

Check voltage between generator "B" terminal and ground.

(+)		(-)	Voltage (Approx.)
Generator			
Connector	Terminal		
F29	1	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check harness for open between generator and fusible link.

3.CHECK "B" TERMINAL CONNECTION (VOLTAGE DROP TEST)

1. Start engine, then engine running at idle and warm.
2. Check voltage between battery positive terminal and generator connector "B" terminal.

(+)		(-)	Voltage (Approx.)
Generator			
Connector	Terminal		
F29	1	Battery positive terminal	Less than 0.2V

Is the inspection result normal?

YES >> "B" terminal circuit is normal. Refer to [CHG-11, "Work Flow \(With EXP-800 NI or GR8-1200 NI\)"](#) or [CHG-14, "Work Flow \(Without EXP-800 NI or GR8-1200 NI\)"](#).

NO >> Check harness between battery and generator for continuity.

< SYMPTOM DIAGNOSIS >

SYMPTOM DIAGNOSIS

CHARGING SYSTEM

Symptom Table

INFOID:0000000010223716

Symptom	Reference
Battery discharged	Refer to CHG-11, "Work Flow (With EXP-800 NI or GR8-1200 NI)" or CHG-14, "Work Flow (Without EXP-800 NI or GR8-1200 NI)" .
The charge warning lamp does not illuminate when the ignition switch is set to ON.	
The charge warning lamp does not turn OFF after the engine starts.	
The charging warning lamp turns ON when increasing the engine speed.	

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

CHG

GENERATOR

< REMOVAL AND INSTALLATION >

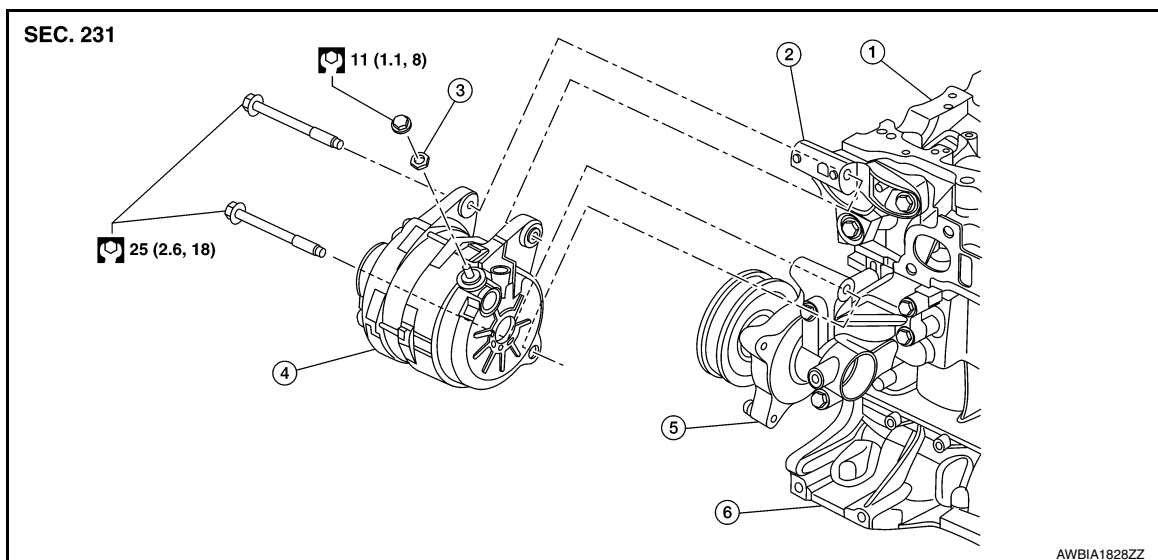
REMOVAL AND INSTALLATION

GENERATOR

Exploded View

INFOID:000000009796137

REMOVAL



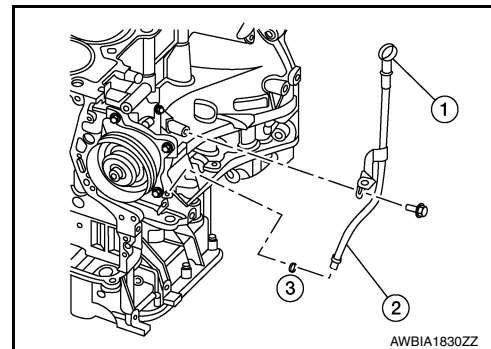
- | | | |
|------------------|----------------------|-------------------|
| 1. Cylinder head | 2. Generator bracket | 3. Washer |
| 4. Generator | 5. Water pump | 6. Cylinder block |

Removal and Installation

INFOID:000000009796138

REMOVAL

1. Disconnect negative terminal from battery. Refer to [PG-75, "Exploded View"](#).
2. Remove wheel and tire (RH) using a power tool. Refer to [WT-60, "Removal and Installation"](#).
3. Remove fender protector side cover. Refer to [EXT-28, "FENDER PROTECTOR : Exploded View"](#)
4. Remove front air spoiler. Refer to [EXT-16, "Exploded View"](#).
5. Remove engine under cover. Refer to [EXT-37, "ENGINE UNDER COVER : Removal and Installation"](#).
6. Remove drive belt. Refer to [EM-13, "Removal and Installation"](#).
7. Remove oil level gauge (1).
8. Remove oil level gauge guide (2).
9. Remove oil level gauge guide O-ring (3).



GENERATOR

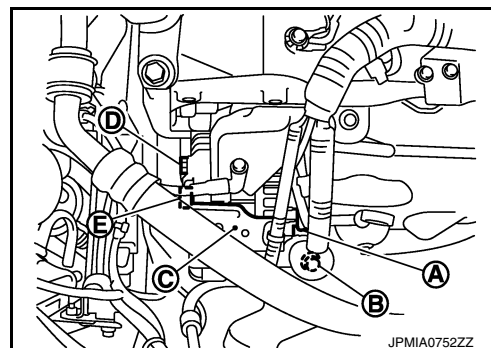
< REMOVAL AND INSTALLATION >

10. Disconnect generator connector (A).
11. Remove "B" terminal nut (B) and "B" terminal harness.
12. Remove harness bracket (C).

NOTE:

Harness ground does not have to be removed during bracket removal.

13. Remove upper generator mounting bolt (D), using suitable tool.
14. Remove lower generator mounting bolt (E), using suitable tool.



15. Remove generator upward from the vehicle.

INSTALLATION

Installation is in the reverse order of removal.

1. Tighten oil level gauge guide bolt to specification.

Oil level gauge guide bolt : 21.6 N·m (2.2 kg-m, 16 ft-lb)

CAUTION:

- Be careful to tighten "B" terminal nut carefully.
- Install generator and check tension of belt. Refer to [EM-13, "Checking"](#).
- Do not reuse oil level gauge guide O-ring.
- Prior to installation, apply clean engine oil to oil level gauge guide O-ring.
- Ensure O-ring sealing surface is free from dust or imperfections.
- Allow engine to run for 5 minutes and inspect for engine oil leaks.

Inspection

INFOID:000000009796139

GENERATOR PULLEY INSPECTION

Perform the following.

- Make sure that the generator pulley does not bind or rattle.
- Make sure that the generator pulley is tight. Refer to [CHG-20, "Exploded View"](#).

CHG

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

Generator

INFOID:000000009796140

Type		2617232
		VALEO
Nominal rating	[V - A]	14 - 120
Ground polarity		Negative
Working speed	[rpm]	1500 - 18,000
Hot output current (When 14 V is applied)	[A/rpm]	46/1,500
		69/1,800
		82/2,000
		96/2,500
		104/3,000
		110/4,000
		117/5,000
		120/6,000
Regulated output voltage	[V]	14.3V at 20°C
Minimum length of brush	[mm (in)]	—
Brush spring pressure	[N (g, oz)]	—
Slip ring minimum outer diameter	[mm (in)]	—
Rotor (Field coil) resistance	[Ω]	—

DAS

SECTION

DRIVER ASSISTANCE SYSTEM

CONTENTS

DRIVER ASSISTANCE SYSTEM	MOD : System Description	26
PRECAUTION	FCW	28
PRECAUTIONS	FCW : System Description	29
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	OPERATION	31
Precaution for Work	BSW	31
Precautions For Harness Repair	BSW : Switch Name and Function	31
Precautions for Driver Assistance Systems	BSW : System Display and Warning	31
PREPARATION	LDW	32
PREPARATION	LDW : Switch Name and Function	32
Special Service Tool	LDW : Menu Displayed by Pressing Each Switch.....	33
SYSTEM DESCRIPTION	MOD	33
COMPONENT PARTS	MOD : System Display and Warning	33
Component Parts Location	FCW	34
Distance Sensor	FCW : Switch Name and Function	34
Steering Switch	FCW : Menu Displayed by Pressing Each Switch.....	35
Around View Monitor Control Unit	HANDLING PRECAUTION	36
Rear View Camera Air Pump Motor	Precautions for Forward Collision Warning	36
Combination Meter	Precautions for Lane Departure Warning	36
Rear View Camera	Precautions for Blind Spot Warning	37
Front Camera	Precautions for Moving Objects Detection	37
Rear View Camera Washer Control Unit	DIAGNOSIS SYSTEM (AROUND VIEW MONITOR CONTROL UNIT)	39
Warning System Buzzer	CONSULT Function	39
Side Cameras	DIAGNOSIS SYSTEM (DISTANCE SENSOR)...	42
Blind Spot Warning Indicator LH/RH	CONSULT Function (LASER/RADAR)	42
Warning System Switch	ECU DIAGNOSIS INFORMATION	44
SYSTEM	AROUND VIEW MONITOR CONTROL UNIT ...	44
LDW	Reference Value	44
LDW : System Description	DTC Index	47
BSW	DISTANCE SENSOR	48
BSW : System Description	Reference Value	48
MOD	Fail-safe (Distance Sensor)	49

DTC Inspection Priority Chart	49
DTC Index	49
REAR VIEW CAMERA WASHER CONTROL UNIT	51
Reference Value	51
WIRING DIAGRAM	53
DRIVER ASSISTANCE SYSTEMS	53
Wiring Diagram	53
BASIC INSPECTION	64
DIAGNOSIS AND REPAIR WORK FLOW	64
Work Flow	64
PRE-INSPECTION FOR DIAGNOSIS	67
Inspection Procedure	67
REAR VIEW CAMERA WASHER/AIR BLOWER FUNCTION INSPECTION	68
Inspection Procedure	68
ADDITIONAL SERVICE WHEN REPLACING DISTANCE SENSOR	69
Description	69
Work Procedure	69
DISTANCE SENSOR INITIAL VERTICAL ALIGNMENT	70
Description	70
Required Tools	70
Preparation	70
Distance Sensor Initial Vertical Alignment	71
DISTANCE SENSOR ALIGNMENT	72
Description	72
Required Tools	72
Preparation	74
Vehicle Set Up	74
Setting The Distance Sensor Target Board	76
Distance Sensor Adjustment	77
ACTION TEST	80
LDW	80
LDW : Description	80
LDW : Inspection Procedure	80
BSW	81
BSW : Description	81
BSW : Inspection Procedure	81
MOD	82
MOD : Description	82
MOD : Inspection Procedure	83
ADDITIONAL SERVICE WHEN REPLACING AROUND VIEW MONITOR CONTROL UNIT ...	84
Description	84
Work Procedure	84

CONFIGURATION (AROUND VIEW MONITOR CONTROL UNIT)	86
Description	86
Work Procedure	86
Configuration List	87
PREDICTIVE COURSE LINE CENTER POSITION ADJUSTMENT	88
Description	88
Work Procedure	88
REAR VIEW CAMERA CALIBRATION	89
Description	89
Work Procedure (Preparation)	89
Work Procedure (Target Setting)	90
Work Procedure (Rear View Camera Calibration)... ..	91
CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR)	93
Description	93
Work Procedure	93
DTC/CIRCUIT DIAGNOSIS	99
U0121 VDC CAN 2	99
DTC Logic	99
Diagnosis Procedure	99
U0122 VDC P-RUN DIAG	100
DTC Logic	100
Diagnosis Procedure	100
U0126 STRG SEN CAN 1	101
DTC Logic	101
Diagnosis Procedure	101
U0401 ECM CAN 1	102
DTC Logic	102
Diagnosis Procedure	102
U0415 VDC CAN 1	103
DTC Logic	103
Diagnosis Procedure	103
U0416 VDC CHECKSUM DIAG	104
DTC Logic	104
Diagnosis Procedure	104
U0428 STEERING ANGLE SENSOR	105
AROUND VIEW MONITOR CONTROL UNIT	105
AROUND VIEW MONITOR CONTROL UNIT :	
DTC Logic	105
AROUND VIEW MONITOR CONTROL UNIT : Di-	
agnosis Procedure	105
DISTANCE SENSOR	105
DISTANCE SENSOR : DTC Logic	105
DISTANCE SENSOR : Diagnosis Procedure	105
U1000 CAN COMM CIRCUIT	106

AROUND VIEW MONITOR CONTROL UNIT	106	U1309 PUMP UNIT CURRENT	125
AROUND VIEW MONITOR CONTROL UNIT :		DTC Logic	125
DTC Logic	106	Diagnosis Procedure	125
AROUND VIEW MONITOR CONTROL UNIT : Di-		U130A PUMP CONTROL UNIT	127
agnosis Procedure	106	DTC Logic	127
DISTANCE SENSOR	106	Diagnosis Procedure	127
DISTANCE SENSOR : DTC Logic	106	U130B REAR CAMERA COMM ERROR	128
DISTANCE SENSOR : Diagnosis Procedure	106	DTC Logic	128
U1010 CONTROL UNIT (CAN)	107	Diagnosis Procedure	128
AROUND VIEW MONITOR CONTROL UNIT	107	C10B7 YAW RATE SENSOR	129
AROUND VIEW MONITOR CONTROL UNIT :		DTC Logic	129
DTC Logic	107	Diagnosis Procedure	129
DISTANCE SENSOR	107	C1A01 POWER SUPPLY CIRCUIT 1, C1A02	
DISTANCE SENSOR : DTC Logic	107	POWER SUPPLY CIRCUIT 2	130
U111A REAR CAMERA IMAGE SIGNAL CIR-		DTC Logic	130
CUIT	108	Diagnosis Procedure	130
DTC Logic	108	C1A03 VEHICLE SPEED SENSOR	131
Diagnosis Procedure	108	AROUND VIEW MONITOR CONTROL UNIT	131
U111B SIDE CAMERA RH IMAGE SIGNAL		AROUND VIEW MONITOR CONTROL UNIT :	
CIRCUIT	110	DTC Logic	131
DTC Logic	110	AROUND VIEW MONITOR CONTROL UNIT : Di-	
Diagnosis Procedure	110	agnosis Procedure	131
U111C FRONT CAMERA IMAGE SIGNAL		DISTANCE SENSOR	131
CIRCUIT	112	DISTANCE SENSOR : DTC Logic	131
DTC Logic	112	DISTANCE SENSOR : Diagnosis Procedure	131
Diagnosis Procedure	112	C1A04 ABS/TCS/VDC SYSTEM	132
U111D SIDE CAMERA LH IMAGE SIGNAL		AROUND VIEW MONITOR CONTROL UNIT	132
CIRCUIT	114	AROUND VIEW MONITOR CONTROL UNIT :	
DTC Logic	114	DTC Logic	132
Diagnosis Procedure	114	AROUND VIEW MONITOR CONTROL UNIT : Di-	
U1232 STEERING ANGLE SENSOR	116	agnosis Procedure	132
DTC Logic	116	DISTANCE SENSOR	132
Diagnosis Procedure	116	DISTANCE SENSOR : DTC Logic	132
U1302 CAMERA POWER VOLT	117	DISTANCE SENSOR : Diagnosis Procedure	132
DTC Logic	117	C1A05 BRAKE SW/STOP LAMP SW	133
Diagnosis Procedure	117	DTC Logic	133
U1303 LED POWER SUPPLY VOLT	121	Diagnosis Procedure	133
DTC Logic	121	C1A12 LASER BEAM OFF CENTER	134
Diagnosis Procedure	121	DTC Logic	134
U1304 CAMERA IMAGE CALIBRATION	122	Diagnosis Procedure	134
DTC Logic	122	C1A14 ECM	135
Diagnosis Procedure	122	DTC Logic	135
U1305 CONFIG UNFINISH	123	Diagnosis Procedure	135
DTC Logic	123	C1A15 GEAR POSITION	136
Diagnosis Procedure	123	DTC Logic	136
U1308 CAMERA CONFIG	124	Diagnosis Procedure	136
DTC Logic	124	C1A16 RADAR BLOCKED	137
Diagnosis Procedure	124	DTC Logic	137

Diagnosis Procedure	137
C1A17 DISTANCE SENSOR	138
DTC Logic	138
Diagnosis Procedure	138
C1A18 RADAR AIMING INCOMP	139
DTC Logic	139
Diagnosis Procedure	139
C1A21 UNIT HIGH TEMP	140
DTC Logic	140
C1A24 NP RANGE	141
DTC Logic	141
Diagnosis Procedure	141
C1A39 STEERING ANGLE SENSOR	142
AROUND VIEW MONITOR CONTROL UNIT	142
AROUND VIEW MONITOR CONTROL UNIT :	
DTC Logic	142
AROUND VIEW MONITOR CONTROL UNIT : Di-	
agnosis Procedure	142
DISTANCE SENSOR	142
DISTANCE SENSOR : DTC Logic	142
DISTANCE SENSOR : Diagnosis Procedure	142
POWER SUPPLY AND GROUND CIRCUIT ..	143
AROUND VIEW MONITOR CONTROL UNIT	143
AROUND VIEW MONITOR CONTROL UNIT : Di-	
agnosis Procedure	143
DISTANCE SENSOR	144
DISTANCE SENSOR : Diagnosis Procedure	144
WARNING SYSTEMS SWITCH CIRCUIT	146
Diagnosis Procedure	146
Component Inspection	147
WARNING SYSTEMS ON INDICATOR CIR-	
CUIT	148
Diagnosis Procedure	148
Component Inspection	149
WARNING BUZZER CIRCUIT	150
Component Function Check	150
Diagnosis Procedure	150
REAR VIEW CAMERA WASHER MOTOR	
CIRCUIT	151
Component Function Check	151
Diagnosis Procedure	151
SYMPTOM DIAGNOSIS	152
DRIVER ASSISTANCE SYSTEM SYMP-	
TOMS	152
Symptom Table	152

SYSTEM SETTINGS CANNOT BE TURNED	
ON/OFF IN VEHICLE INFORMATION DIS-	
PLAY	155
Description	155
Diagnosis Procedure	155
SWITCH DOES NOT TURN ON / SWITCH	
DOES NOT TURN OFF	156
Description	156
Diagnosis Procedure	156
NORMAL OPERATING CONDITION	157
Description	157
REMOVAL AND INSTALLATION	159
FRONT CAMERA	159
Exploded View	159
Removal and Installation	159
DISTANCE SENSOR	160
Exploded View	160
Removal and Installation	160
SIDE CAMERA	161
Removal and Installation	161
BSW INDICATOR	162
Removal and Installation	162
AROUND VIEW MONITOR CONTROL UNIT ..	163
Exploded View	163
Removal and Installation	163
WARNING SYSTEMS SWITCH	164
Removal and Installation	164
WARNING SYSTEMS BUZZER	165
Exploded View	165
Removal and Installation	165
REAR VIEW CAMERA	166
Removal and Installation	166
REAR VIEW CAMERA WASHER MOTOR	167
Exploded View	167
Removal and Installation	167
REAR VIEW CAMERA AIR PUMP MOTOR ...	168
Exploded View	168
Removal and Installation	168
REAR VIEW CAMERA WASHER CONTROL	
UNIT	169
Exploded View	169
Removal and Installation	169
CHASSIS CONTROL	
PRECAUTION	170
PRECAUTIONS	170

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	170	CONFIGURATION (CHASSIS CONTROL MODULE)	205	A
Precaution for Work	170	Work Procedure	205	
Precautions for Harness Repair	171	DTC/CIRCUIT DIAGNOSIS	207	B
Precautions for Chassis control	171	C1B92-00 BRAKE CONTROL SYSTEM	207	
PREPARATION	172	DTC Description	207	C
PREPARATION	172	Diagnosis Procedure	207	
Special Service Tool	172	C1B93-00 ENGINE/HEV SYSTEM	209	D
SYSTEM DESCRIPTION	173	DTC Description	209	
COMPONENT PARTS	173	Diagnosis Procedure	209	
Component Parts Location	173	C1B94-00 TRANSMISSION SYSTEM	211	E
Chassis Control Module	174	DTC Description	211	
SYSTEM	175	Diagnosis Procedure	211	
System Description - Chassis Control	175	C1B95-00 CONTROL MODULE	213	F
System Description - Active Engine Brake	175	DTC Description	213	
System Description - Active Ride Control	176	Diagnosis Procedure	213	
System Description - Active Trace Control	176	C1B99-00 CONTROL MODULE	214	G
Fail-Safe (Chassis Control Module)	177	DTC Description	214	
INFORMATION DISPLAY (COMBINATION METER)	179	Diagnosis Procedure	214	
INFORMATION DISPLAY (COMBINATION METER) : Chassis Control Display	179	C1BA0-00 ADAS/CHASSIS CONTROL BRAKE SYSTEM	215	H
HANDLING PRECAUTION	181	DTC Description	215	
Precautions for Chassis Control (Engine Brake, Active Ride, and Active Trace)	181	Diagnosis Procedure	215	I
DIAGNOSIS SYSTEM (CHASSIS CONTROL MODULE)	182	C1BA2-00 STEERING ANGLE SENSOR	217	J
CONSULT Function	182	DTC Description	217	
ECU DIAGNOSIS INFORMATION	187	Diagnosis Procedure	217	
CHASSIS CONTROL MODULE	187	C1BA5-00 ADAS/CHASSIS CONTROL ENGINE SYSTEM	219	K
Reference Value	187	DTC Description	219	
Fail-Safe (Chassis Control Module)	191	Diagnosis Procedure	219	
DTC Inspection Priority Chart	193	C1BAB-00 STOP LAMP SWITCH	220	L
DTC Index	194	DTC Description	220	
WIRING DIAGRAM	195	Diagnosis Procedure	220	M
CHASSIS CONTROL	195	C1BB2-00 CONTROL MODULE	222	
Wiring Diagram	195	DTC Description	222	N
BASIC INSPECTION	201	Diagnosis Procedure	222	
DIAGNOSIS AND REPAIR WORK FLOW	201	C1BB3-00 CONTROL MODULE	223	
Work Flow	201	DTC Description	223	
Diagnostic Work Sheet	202	Diagnosis Procedure	223	
ADDITIONAL SERVICE WHEN REPLACING CHASSIS CONTROL MODULE	204	C1BB4-00 CONTROL MODULE	224	P
Description	204	DTC Description	224	
		Diagnosis Procedure	224	
		C1BB5-00 IGNITION POWER SUPPLY	225	
		DTC Description	225	
		Diagnosis Procedure	225	
		C1BB6-00 IGNITION POWER SUPPLY	228	
		DTC Description	228	

Diagnosis Procedure	228	U1A34-00 BRAKE CONTROL COMMUNICA-	TION	252
C1BB7-00 CONTROL MODULE	230	DTC Description	252	
DTC Description	230	Diagnosis Procedure	252	
Diagnosis Procedure	230	U1A35-00 BRAKE CONTROL COMMUNICA-	TION	254
C1BB8-00 CONTROL MODULE	231	DTC Description	254	
DTC Description	231	Diagnosis Procedure	254	
Diagnosis Procedure	231	U1A36-00 BCM/IPDM COMMUNICATION	256	
C1BB9-00 CONTROL MODULE	232	DTC Description	256	
DTC Description	232	Diagnosis Procedure	256	
Diagnosis Procedure	232	U1A39-00 COMBINATION METER COMMU-	NICATION	258
C1BBA-00 CONTROL MODULE	233	DTC Description	258	
DTC Description	233	Diagnosis Procedure	258	
Diagnosis Procedure	233	U1A3B-00 TCM COMMUNICATION	260	
C1BBB-00 CONTROL MODULE	234	DTC Description	260	
DTC Description	234	Diagnosis Procedure	260	
Diagnosis Procedure	234	U1A42-00 STEERING ANGLE SENSOR	COMMUNICATION	262
C1BBC-00 CONTROL MODULE	235	DTC Description	262	
DTC Description	235	Diagnosis Procedure	262	
Diagnosis Procedure	235	U1A43-00 STEERING ANGLE SENSOR	COMMUNICATION	264
C1BBD-00 VARIANT CODING	236	DTC Description	264	
DTC Description	236	Diagnosis Procedure	264	
Diagnosis Procedure	236	U1A48-00 ECM/HPCM COMMUNICATION	266	
C1BC0-00 FRONT RIGHT WHEEL SENSOR	237	DTC Description	266	
DTC Description	237	Diagnosis Procedure	266	
Diagnosis Procedure	237	U1A4A-00 CONTROL MODULE (CAN)	268	
C1BC1-00 FRONT LEFT WHEEL SENSOR ..	239	DTC Description	268	
DTC Description	239	Diagnosis Procedure	268	
Diagnosis Procedure	239	U1A4B-00 CONTROL MODULE (CAN)	269	
C1BC2-00 REAR RIGHT WHEEL SENSOR ..	241	DTC Description	269	
DTC Description	241	Diagnosis Procedure	269	
Diagnosis Procedure	241	U1A4E-00 ECM/HPCM COMMUNICATION ...	270	
C1BC3-00 REAR LEFT WHEEL SENSOR	243	DTC Description	270	
DTC Description	243	Diagnosis Procedure	270	
Diagnosis Procedure	243	POWER SUPPLY AND GROUND CIRCUIT ...	272	
C1BC4-00 DECEL G SENSOR	245	Diagnosis Procedure	272	
DTC Description	245	SYMPTOM DIAGNOSIS	273	
Diagnosis Procedure	245	CHASSIS CONTROL	273	
C1BC5-00 SIDE G SENSOR	247	Active Engine Brake	273	
DTC Description	247	Active Ride Control	273	
Diagnosis Procedure	247	Active Trace Control	274	
C1BC6-00 PRESSURE SENSOR	249	NORMAL OPERATING CONDITION	276	
DTC Description	249	Description	276	
Diagnosis Procedure	249			
U1000-00 CAN COMM CIRCUIT	251			
DTC Logic	251			
Diagnosis Procedure	251			

REMOVAL AND INSTALLATION	277	Exploded View	277
CHASSIS CONTROL MODULE	277	Removal and Installation	277

A
B
C
D
E
F
G
H
I
J
K
L
M
N
P

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010284553

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Precaution for Work

INFOID:0000000010287283

- When removing or disassembling each component, be careful not to damage or deform it. If a component may be subject to interference, be sure to protect it with a shop cloth.
- When removing (disengaging) components with a screwdriver or similar tool, be sure to wrap the component with a shop cloth or vinyl tape to protect it.
- Protect the removed parts with a shop cloth and prevent them from being dropped.
- Replace a deformed or damaged clip.
- If a part is specified as a non-reusable part, always replace it with a new one.
- Be sure to tighten bolts and nuts securely to the specified torque.
- After installation is complete, be sure to check that each part works properly.
- Follow the steps below to clean components:
 - Water soluble dirt:
 - Dip a soft cloth into lukewarm water, wring the water out of the cloth and wipe the dirty area.
 - Then rub with a soft, dry cloth.
 - Oily dirt:
 - Dip a soft cloth into lukewarm water with mild detergent (concentration: within 2 to 3%) and wipe the dirty area.
 - Then dip a cloth into fresh water, wring the water out of the cloth and wipe the detergent off.
 - Then rub with a soft, dry cloth.
 - Do not use organic solvent such as thinner, benzene, alcohol or gasoline.
 - For genuine leather seats, use a genuine leather seat cleaner.

Precautions For Harness Repair

INFOID:0000000010227164

ITS communication uses a twisted pair line. Be careful when repairing it.

PRECAUTIONS

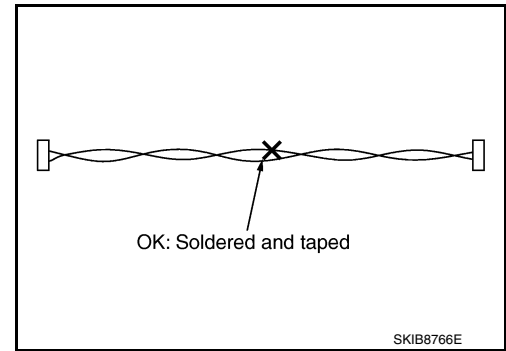
< PRECAUTION >

[DRIVER ASSISTANCE SYSTEM]

- Solder the repaired area and wrap tape around the soldered area.

NOTE:

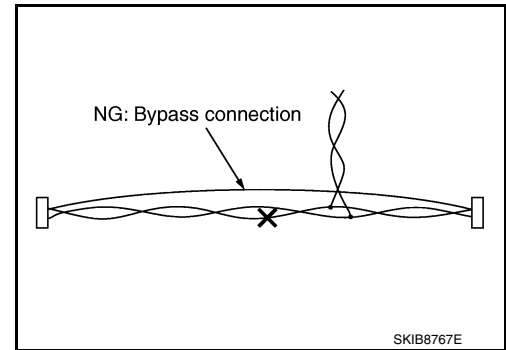
A fray of twisted lines must be within 110 mm (4.33 in).



- Bypass connection is never allowed at the repaired area.

NOTE:

Bypass connection may cause ITS communication error. The spliced wire becomes separated and the characteristics of twisted line are lost.



Precautions for Driver Assistance Systems

INFOID:000000010227165

CAUTION:

- Do not use or disassemble the distance sensor removed from the vehicle.
- Erase DTC when replacing parts of FCW system, then check the operation of FCW system after alignment, if necessary.

WARNING:

Be cautious of traffic conditions and other vehicles when performing a road test.

CAUTION:

- Do not use the DAS system when driving with free rollers or on a chassis dynamometer.
- Do not disassemble or alter the rear view camera.
- Do not disable the DAS system without the consent of the customer.

OBSERVE THE FOLLOWING ITEMS IN ORDER TO KEEP THE DAS SYSTEM OPERATING PROPERLY:

Rear view Camera Maintenance

The rear view camera for the DAS system is located in the back door. To keep the DAS system operating properly and prevent a malfunction, be sure to observe the following:

- Always keep the camera lens area clean.
- Do not attach bumper stickers (including transparent materials) or install an accessory near the rear view-camera.
- Do not strike or damage the areas around the rear view camera.
- Do not touch the camera lens (except for cleaning) or remove the rear view camera.

DAS

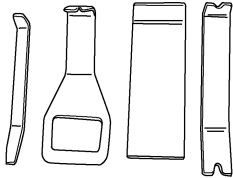
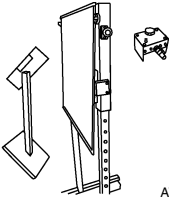
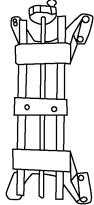
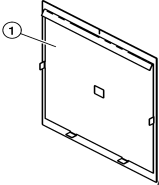
PREPARATION

PREPARATION

Special Service Tool

INFOID:0000000010246047

The actual shape of the tools may differ from those illustrated here.

Tool number (TechMate No.) Tool name		Description
— (J-46534) Trim Tool Set	 AWJIA0483ZZ	Removing trim components
— (1-20-2721-1-IF) Distance Sensor Alignment Kit	 AWOIA0016ZZ	Adjusting distance sensor
— (1-20-2722-1-IF) Wheel Adapter	 AWOIA0017ZZ	Adjusting distance sensor
— (J-50808) Distance Sensor Alignment Attachment Board	 ALOIA0218ZZ	Adjusting distance sensor

COMPONENT PARTS

< SYSTEM DESCRIPTION >

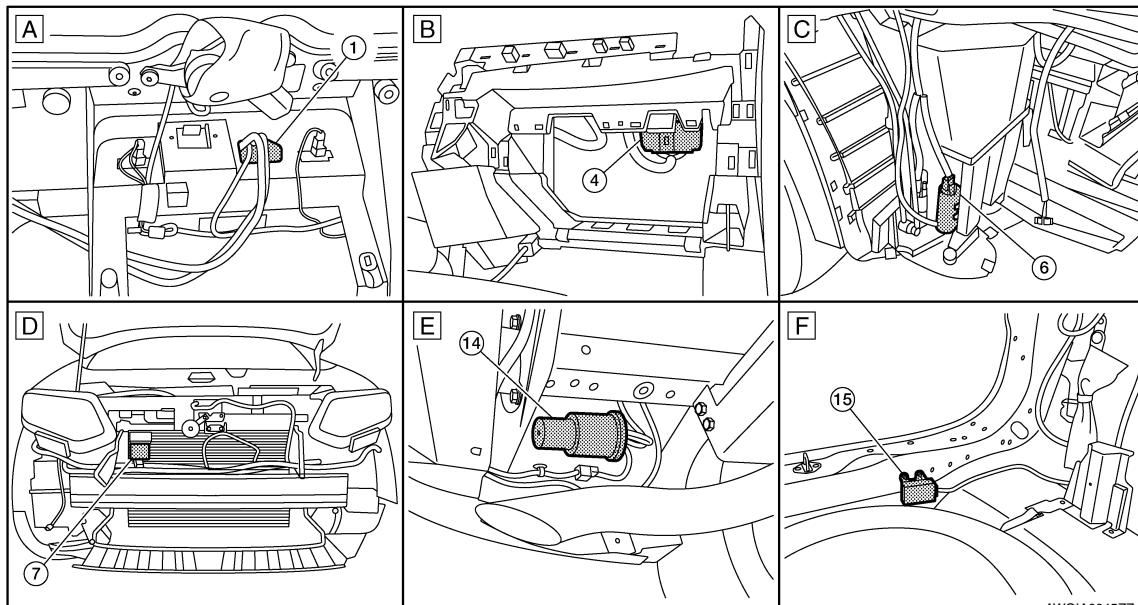
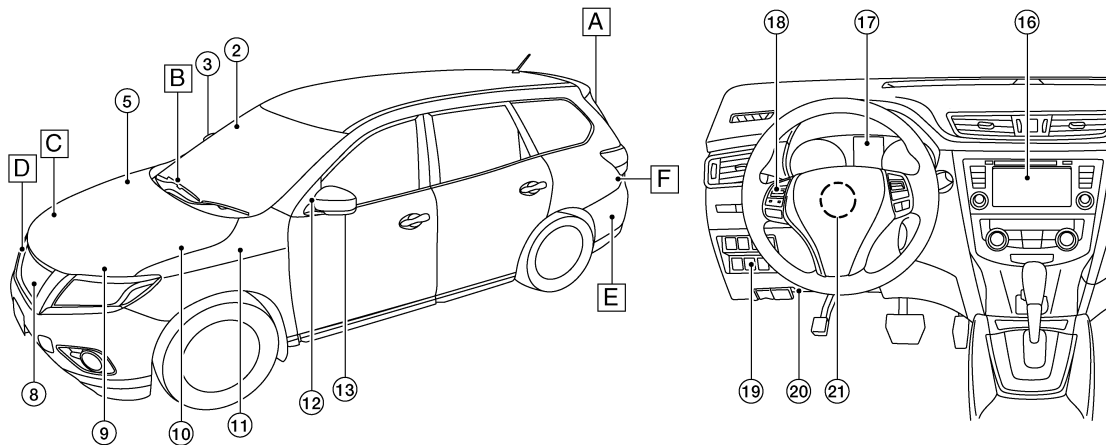
[DRIVER ASSISTANCE SYSTEM]

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:0000000010227170



- A. View with back door finisher removed
 B. View with glove box assembly removed
 C. View with front bumper removed
 D. View with front bumper removed
 E. Rear under body LH
 F. View with luggage rear plate removed

No.	Component	Function
1.	Rear view camera	Refer to DAS-13, "Rear View Camera" .
2.	Side camera RH	Refer to DAS-14, "Side Cameras" .
3.	Blind spot warning indicator RH	Refer to DAS-14, "Blind Spot Warning Indicator LH/RH" .
4.	Around View® Monitor control unit	Refer to DAS-13, "Around View Monitor Control Unit" .

COMPONENT PARTS

< SYSTEM DESCRIPTION >

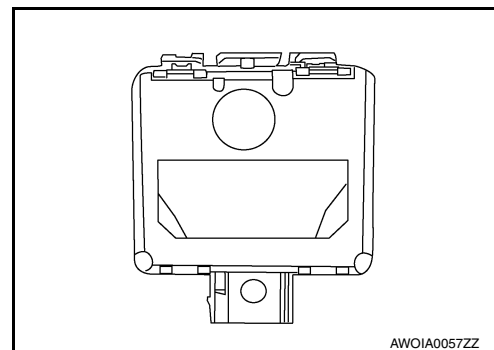
[DRIVER ASSISTANCE SYSTEM]

No.	Component	Function
5.	ABS actuator and electric unit (control unit)	Transmits the vehicle speed signal (wheel speed) to around view monitor via CAN communication Refer to BRC-8, "Component Parts Location" for detailed installation location.
6.	Rear washer motor	Pumps washer fluid to the rear view camera.
7.	Distance sensor	Refer to DAS-12, "Distance Sensor" .
8.	Front camera	Refer to DAS-14, "Front Camera" .
9.	ECM	- Transmits engine speed signal to around view monitor control unit via CAN communication. - Refer to EC-14, "Component Parts Location" for detailed installation location.
10.	TCM	Refer to TM-12, "CVT CONTROL SYSTEM : Component Parts Location" for detailed installation location.
11.	BCM	Transmits the turn indicator signal, dimmer signal, and back door switch signal to around view monitor via CAN communication. Refer to the following for detailed installation location: - With Intelligent Key system: BCS-7, "BODY CONTROL SYSTEM : Component Parts Location". - Without Intelligent Key system: BCS-79, "BODY CONTROL SYSTEM : Component Parts Location".
12.	Blind spot warning indicator LH	Refer to DAS-14, "Blind Spot Warning Indicator LH/RH" .
13.	Side camera LH	Refer to DAS-14, "Side Cameras" .
14.	Rear view camera air pump motor	Refer to DAS-13, "Rear View Camera Air Pump Motor" .
15.	Rear view camera washer control unit	Refer to DAS-14, "Rear View Camera Washer Control Unit" .
16.	AV control unit	Receives the various systems and camera signals via CAN communication and routes them to the AV control unit display. Refer to AV-77, "Component Parts Location" for detailed installation location.
17.	Combination meter	- Description: DAS-13, "Combination Meter". - Refer to MWI-6, "METER SYSTEM : Component Parts Location" for detailed installation location.
18.	Steering switch	Refer to DAS-13, "Steering Switch" .
19.	Warning system switch	Refer to DAS-15, "Warning System Switch" .
20.	Warning system buzzer	Refer to DAS-14, "Warning System Buzzer" .
21.	Steering angle sensor	Transmits the steering angle sensor signal to around view monitor via CAN communication. Refer to BRC-8, "Component Parts Location" for detailed installation location.

Distance Sensor

INFOID:0000000010227171

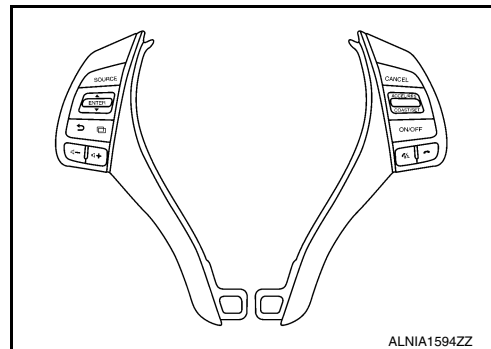
- Distance sensor is installed to the back of the front bumper and detects a vehicle ahead by using millimeter waves.
- Distance sensor detects radar reflected from a vehicle ahead by irradiating radar forward and calculates a distance from the vehicle ahead and relative speed, based on the detected signal.
- Distance sensor transmits the presence/absence of vehicle ahead and the distance from the vehicle to around view monitor control unit via CAN communication.



Steering Switch

INFOID:000000010227172

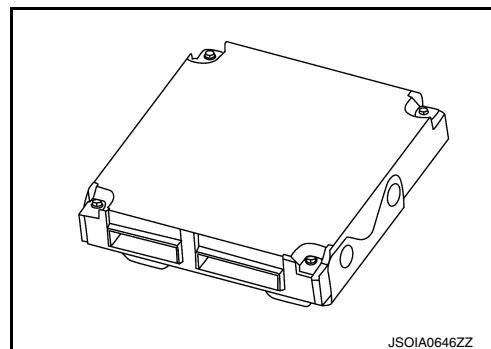
- Steering switches are installed in the steering wheel.
- Settings for driver assistance systems are possible.
- Switch is connected to the combination meter and signals are transmitted to the around view monitor via CAN communication.



Around View Monitor Control Unit

INFOID:000000010227173

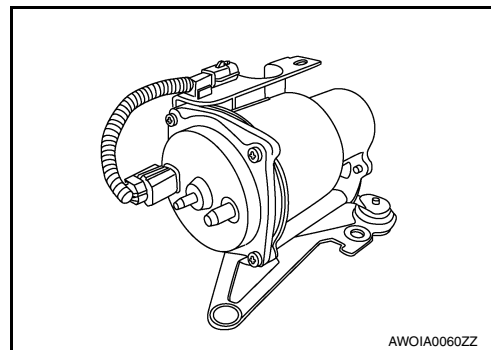
- The around view monitor control unit is installed behind the glove box.
- Vehicle width guide lines, predicted course line, vehicle front guiding line and vehicle side line, and vehicle icon are displayed and combined with camera images.



Rear View Camera Air Pump Motor

INFOID:000000010227174

- Rear view camera air pump motor is installed to the rear left underbody.
- Air pump is activated and generates compressed air when power is supplied from the rear view camera washer control unit.
- Compressed air jets out from the air nozzle of rear view camera via air tube.



Combination Meter

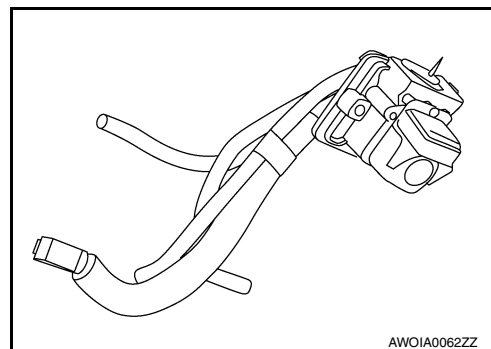
INFOID:000000010227175

- Displays the system status according to a signal received.
- Operates the buzzer according to the signal from the distance sensor.

Rear View Camera

INFOID:000000010227176

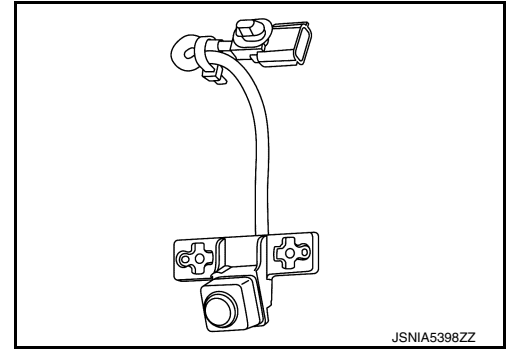
- The rear view camera is installed in the back door finisher.
- With the mirror processing function, a mirror image is sent as if it is viewed by a rear view mirror.
- Power for the camera is supplied from the around view monitor control unit, and the image at the rear of the vehicle is sent to the around view monitor control unit.
- The rear view camera is equipped with a washer nozzle and air nozzle for cleaning camera. A check valve is installed to the tube connected to the washer nozzle.



Front Camera

INFOID:0000000010227177

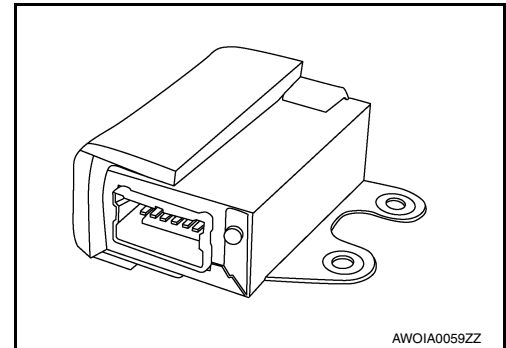
- The front camera is installed in the front grille.
- Power is supplied from the around view monitor control unit.



Rear View Camera Washer Control Unit

INFOID:0000000010227178

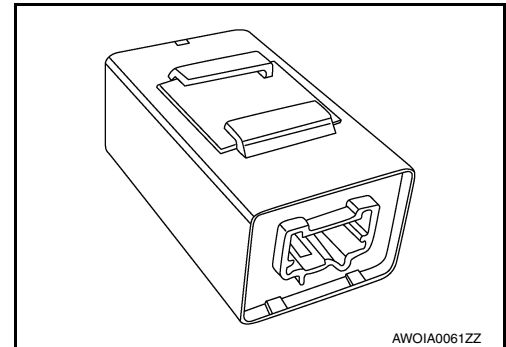
- Rear view camera washer control unit is installed under the luggage rear plate.
- Communicates with around view monitor control unit via serial communication line.
- Activates air pump and washer pump according to the signal from around view monitor control unit.



Warning System Buzzer

INFOID:0000000010227179

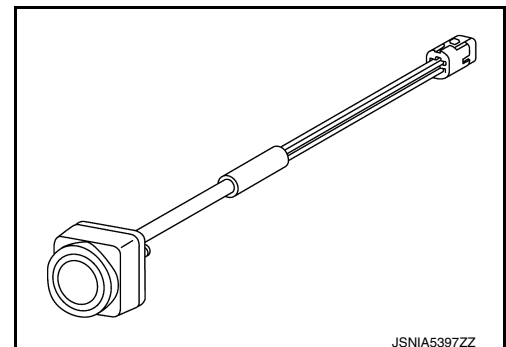
- Warning system buzzer is installed to the back of the instrument lower panel LH.
- When a warning buzzer signal is received from the around view monitor, the buzzer sounds.



Side Cameras

INFOID:0000000010227180

- The side cameras are installed in the door mirrors.
- Power is supplied from the around view monitor control unit.



Blind Spot Warning Indicator LH/RH

INFOID:0000000010227181

- Installed on the front door corner finisher, the blind spot warning indicator warns the driver by lighting/blinking.
- Receives a blind spot warning indicator operation signal from the around view monitor control unit.

Warning System Switch

INFOID:0000000010227182

- Installed to the back of the instrument lower panel LH, the warning system switch is used to activate/deactivate the driver assistance system.
- Transmits a warning system switch signal to the around view monitor control unit.

A
B
C
D
E
F
G
H
I
J
K
L
M
N
P

DAS

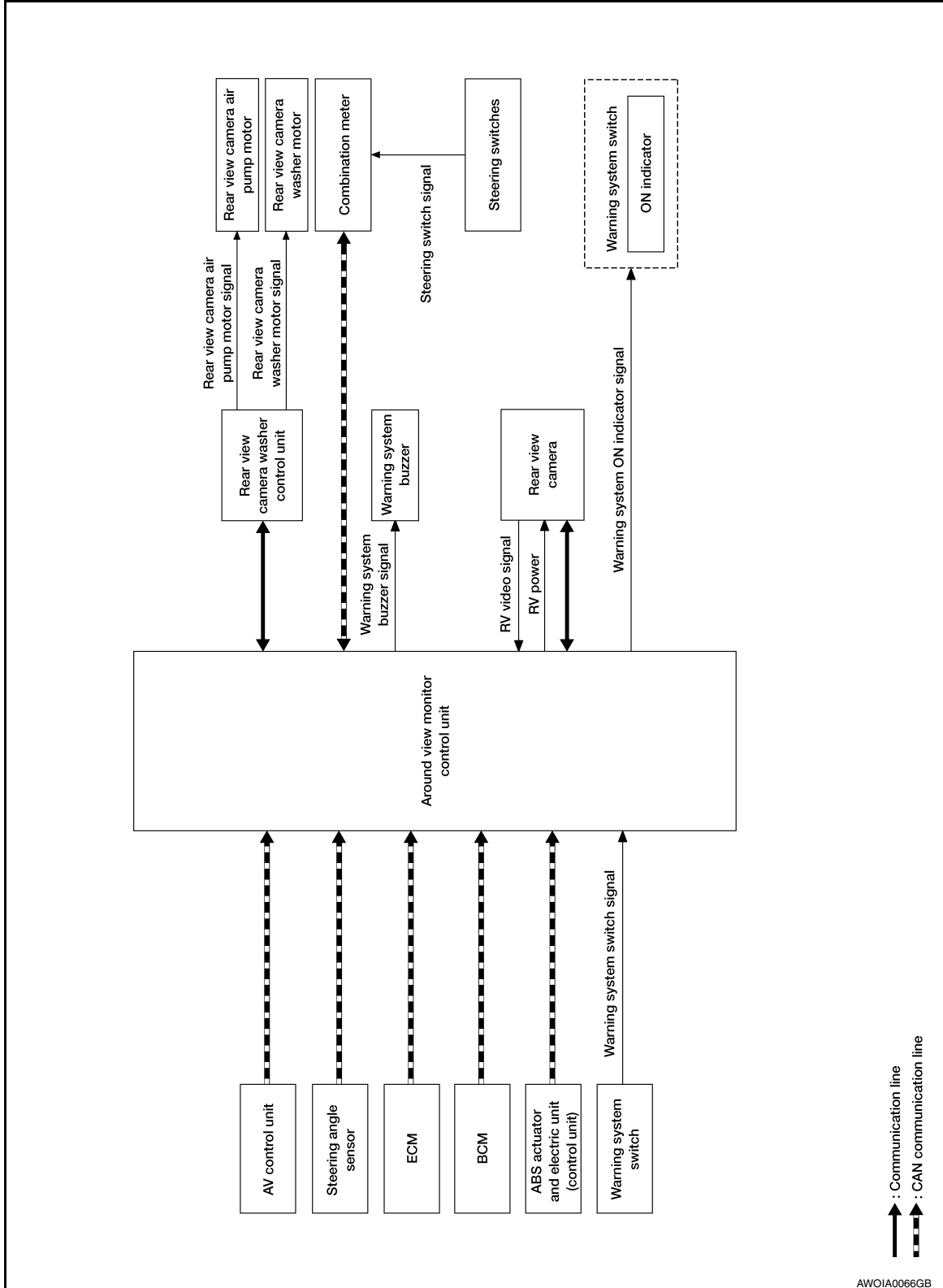
SYSTEM

LDW

LDW : System Description

INFOID:0000000010227185

SYSTEM DIAGRAM



AROUND VIEW MONITOR CONTROL UNIT INPUT/OUTPUT SIGNAL ITEM

SYSTEM

< SYSTEM DESCRIPTION >

[DRIVER ASSISTANCE SYSTEM]

Input Signal Item

Transmit unit	Signal name		Description
BCM	CAN communication	Turn indicator signal	Receives an operational state of the turn signal lamp and the hazard lamp
Combination meter	CAN communication	System selection signal	Receives a selection state of each item in "Driver assistance" selected with the information display
Steering angle sensor	CAN communication	Steering angle sensor signal	Receives the number of revolutions, turning direction of the steering wheel
ECM	CAN communication	Engine status signal	Receives the engine status
Rear view camera	Communication line	Detected lane condition signal	Receives detection results of lane marker
Warning system switch	Warning system switch signal		Receives an ON/OFF state of the warning system switch

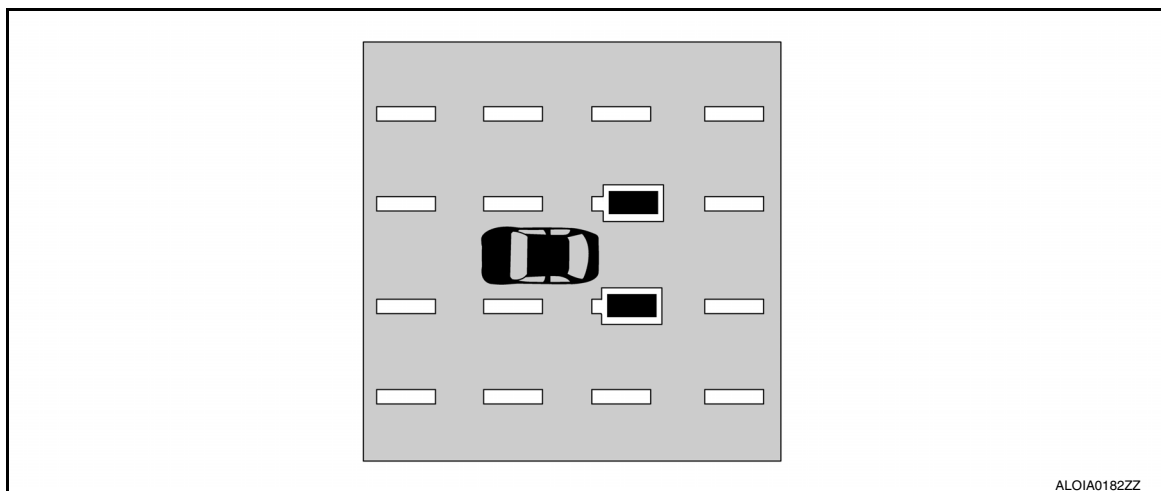
Output Signal Item

Reception unit	Signal name		Description
Combination meter	CAN communication	Meter display signal	LDW warning signal
			LDW ON indicator signal
		Buzzer output signal	
Rear view camera washer control unit	Communication line	Rear view camera washer signal	
		Rear view camera air blow signal	
Warning buzzer	Warning buzzer signal		Activates the warning buzzer
Warning system ON indicator	Warning systems ON indicator signal		Turns ON the warning systems ON indicator

FUNCTION DESCRIPTION

- Lane Departure Warning (LDW) system provides a lane departure warning function when the vehicle is driven at speeds of approximately 45 MPH (70 km/h) or more.
- When the vehicle approaches either the left or the right side of the traveling lane, a warning will sound and the lane departure warning lamp (orange) on the combination meter will blink to alert the driver.
- The warning does not occur during turn signal operation (Lane change side).
- The warning function will stop when the vehicle returns inside of the lane markers.

EXAMPLE



When the vehicle approaches the right lane marker, the driver is alerted by the buzzer and the blinking of lane departure warning lamp (orange).

SYSTEM

< SYSTEM DESCRIPTION >

[DRIVER ASSISTANCE SYSTEM]

OPERATION DESCRIPTION

- When the system is turned ON by operating the warning systems switch, around view monitor control unit turns ON the LDW ON indicator and the warning systems ON indicator.
- Rear view camera monitors the traveling lane. It transmits the camera image signal to around view monitor control unit.
- When judging from a camera image signal that the vehicle is approaching the lane marker, the around view monitor control unit controls the following item to alert the driver.
 - Activates warning buzzer in the combination meter.
 - Around view monitor control unit transmits a meter display signal to combination meter via CAN communication and turns ON/OFF the LDW warning.

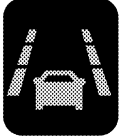
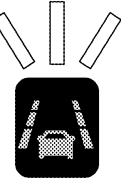
Operating Condition

- LDW ON indicator: ON
- Warning systems ON indicator: ON
- Vehicle speed: approximately 45 MPH (70 km/h) or more
- Turn indicator signal: After 2 seconds or more from turned OFF
- Back door: Close
- Low washer fluid warning: OFF

NOTE:

- When the LDW system setting on the combination meter is ON.
- After the operating conditions of warning are satisfied, the warning continues until the vehicle speed reaches approximately 40 MPH (60 km/h)
- The LDW system may not function properly, depending on the situation. Refer to [DAS-36, "Precautions for Lane Departure Warning"](#).

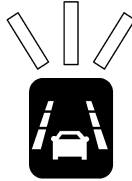
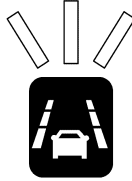
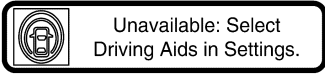
Fail-safe Indication

Vehicle condition/ Driver's operation	Warning systems ON indicator	Indication on the combination meter
When DTC is detected (Except "U1308")	ON	 JSOIA0736ZZ
Camera calibration is not completed ("U1308" is detected) NOTE: This is detected while driving the vehicle and the indication remains ON until the ignition switch is turned OFF	ON	
When lane markers cannot be detected due to dirt on the camera.	ON	 JSOIA0737ZZ
		Unavailable: Clean Rear Camera JSOIA0738ZZ

SYSTEM

< SYSTEM DESCRIPTION >

[DRIVER ASSISTANCE SYSTEM]

Vehicle condition/ Driver's operation	Warning systems ON indicator	Indication on the combination meter
When the washer fluid level is low (Low washer fluid warning ON)	ON	Blinks at intervals of two seconds.  JSOIA0739ZZ
When the back door is open (Back door open warning ON)	ON	Blinks at intervals of two seconds.  JSOIA0739ZZ
Blinks when the setting of LDW and BSW are "OFF" and the warning systems switch is pressed	OFF	 JSOIA0780ZZ

REAR VIEW CAMERA WASHER OPERATION

- When judging that the rear view camera has water droplets, the around view monitor control unit transmits a rear view camera washer activation signal or rear view camera air blow signal to the rear view camera washer control unit via serial communication.
- When receiving a rear view camera washer signal, the rear view camera washer control unit simultaneously activates the rear view camera washer motor to clean the rear view camera by spraying washer fluid from the nozzle installed to the rear view camera bracket.
- When receiving a rear view camera air blow signal, the rear view camera washer control unit activates the air pump to clean the rear view camera by blowing air from the nozzle installed to the rear view camera bracket.

OPERATION CONDITION

- Approximately 20 MPH (30 km/h) or more
- When the around view monitor control unit judges that the rear view camera has water droplets.
- When the low washer fluid warning is OFF.

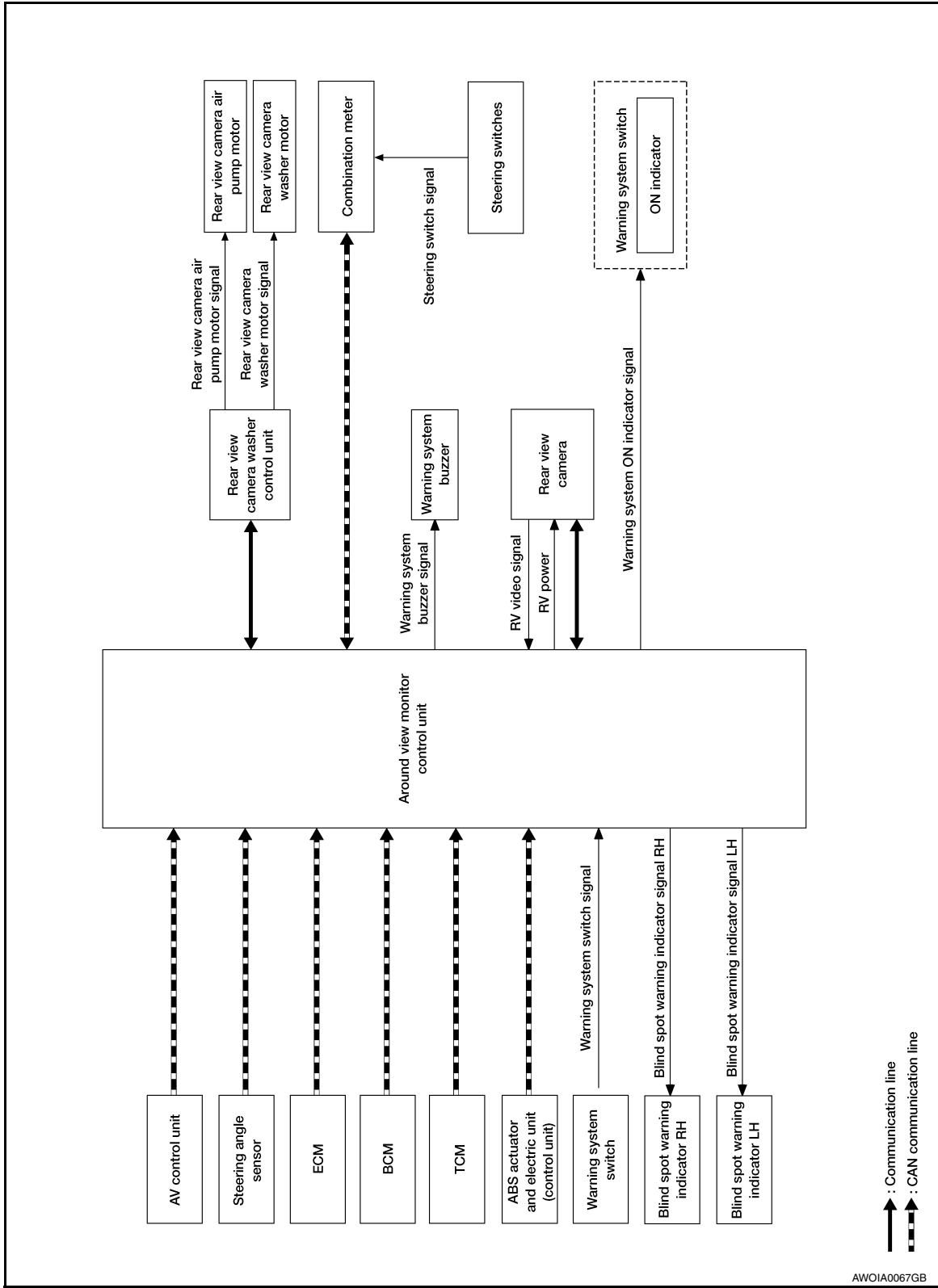
NOTE:

The camera is cleaned intermittently by spraying washer fluid and blowing air. When the around view monitor control unit judges that dirt on the camera cannot be removed even after approximately 5 minutes from the first detection of dirt, the activation of LDW is canceled.

BSW

DAS

SYSTEM DIAGRAM



CONTROL UNIT INPUT/OUTPUT SIGNAL ITEM

Control unit receives signals via CAN communication. It also detects vehicle conditions that are necessary for BSW control.

Input Signal Item

SYSTEM

< SYSTEM DESCRIPTION >

[DRIVER ASSISTANCE SYSTEM]

Transmit unit	Signal name		Description
BCM	CAN communication	Turn indicator signal	Receives an operational state of the turn signal lamp and the hazard lamp.
		Back door switch signal	Receives a state of the back door switch.
Combination meter	CAN communication	System selection signal	Receives a selection state of each item in "Driver assistance" selected with the combination meter.
Steering angle sensor	CAN communication	Steering angle sensor signal	Receives the number of revolutions, turning direction of the steering wheel.
ECM	CAN communication	Engine status signal	Receives the engine status.
ABS actuator and electric unit (control unit)	CAN communication	Wheel speed signal	Receives wheel speed.
Rear view camera	Communication line	Camera image signal	Receives the camera image signal.
Warning system switch	Warning system switch signal		Receives an ON/OFF state of the warning system switch.

Output Signal Item

Reception unit	Signal name		Description
Combination meter	CAN communication	Meter display signal	BSW warning signal
		BSW ON indicator signal	Transmits a meter display signal to turn ON the BSW warning.
			Transmits a meter display signal to turn ON the BSW ON indicator.
Rear view camera washer control unit	Communication line	Buzzer output signal	
		Transmits a buzzer output signal to activates the warning buzzer.	
		Rear view camera washer signal	Transmits a rear view camera washer motor signal to activate the rear view camera washer motor.
Warning system ON indicator	Warning systems ON indicator signal	Rear view camera air blow signal	
		Transmits a rear view camera air blow signal to activate the air pump	
Warning buzzer	Warning buzzer operation signal		Turns ON the warning system ON indicator.
BSW indicator LH, RH	Indicator operation signal		Activates the warning buzzer.
			Turns ON the BSW indicator LH, RH.

FUNCTION DESCRIPTION

- The BSW system can help alert the driver of other vehicles in adjacent lanes when changing lanes.
- The BSW system uses rear view camera near the rear bumper to detect vehicles in an adjacent lane.
- The rear view camera can detect vehicles on either side of vehicle within the detection zone shown as illustrated.
- This detection zone starts from the back of the vehicle and extends approximately 10 ft. (3.0 m) behind the rear bumper, and approximately 10 ft. (13.0 m) sideways.
- The BSW system operates above approximately 20 MPH (32 km/h).

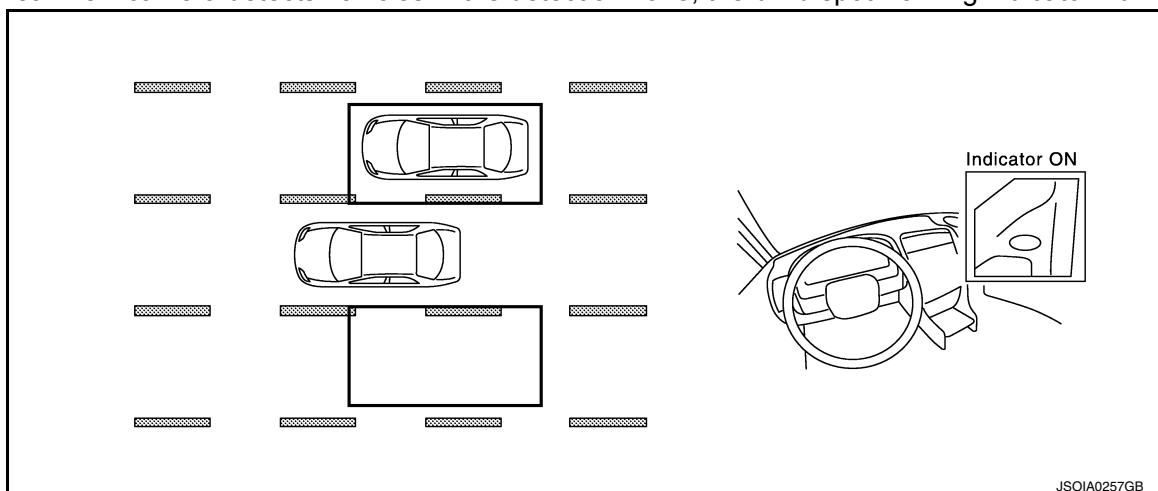
DAS

SYSTEM

< SYSTEM DESCRIPTION >

[DRIVER ASSISTANCE SYSTEM]

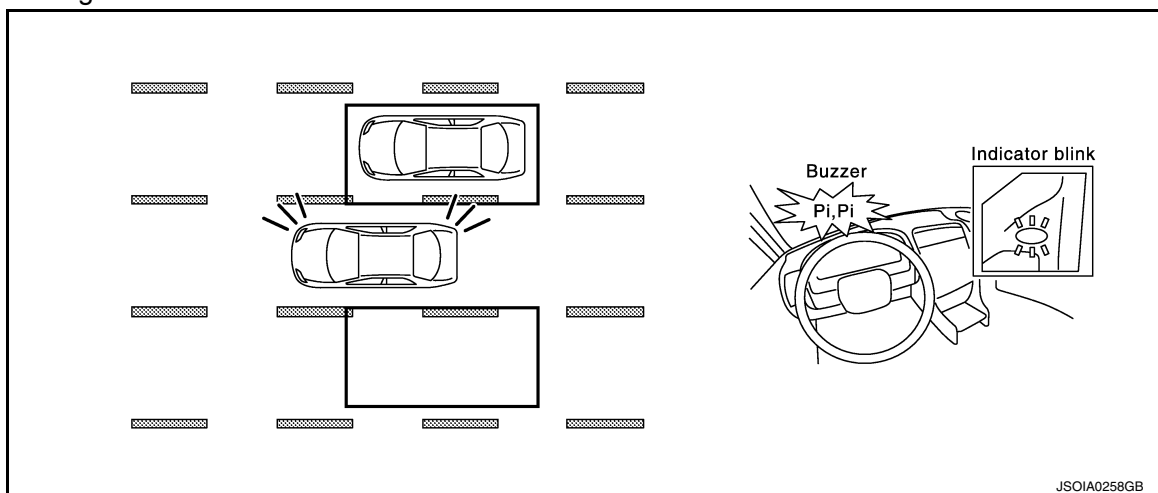
- If the rear view camera detects vehicles in the detection zone, the blind spot warning indicator illuminates.



- If the driver then activates the turn signal, a buzzer will sound twice and the blind spot warning indicator will blink.

NOTE:

A buzzer sounds if the rear view camera has already detected vehicles when the driver activates the turn signal. If a vehicle comes into the detection zone after the driver activates the turn signal, then only the blind spot warning indicator blinks and no buzzer sounds.



BSW SYSTEM OPERATION DESCRIPTION

- Control unit enables BSW system.
- The control unit turns on the BSW system when the warning systems switch is turned ON.
- Rear view camera detects a vehicle in the adjacent lane, and transmits the vehicle detection signal to control unit.
- Control unit starts the control as follows, based on a vehicle detection signal and turn signal transmitted from BCM via CAN communication:
 - Buzzer signal transmission to warning buzzer.
- Around view monitor transmits a blind spot warning indicator signal LH or RH to the blind spot warning indicator LH or RH.

Operation Condition of BSW System

control unit performs the control when the following conditions are satisfied:

- When the warning system switch is turned ON*.
- When the vehicle drives at 20 MPH (32 km/h) or more in the forward direction.

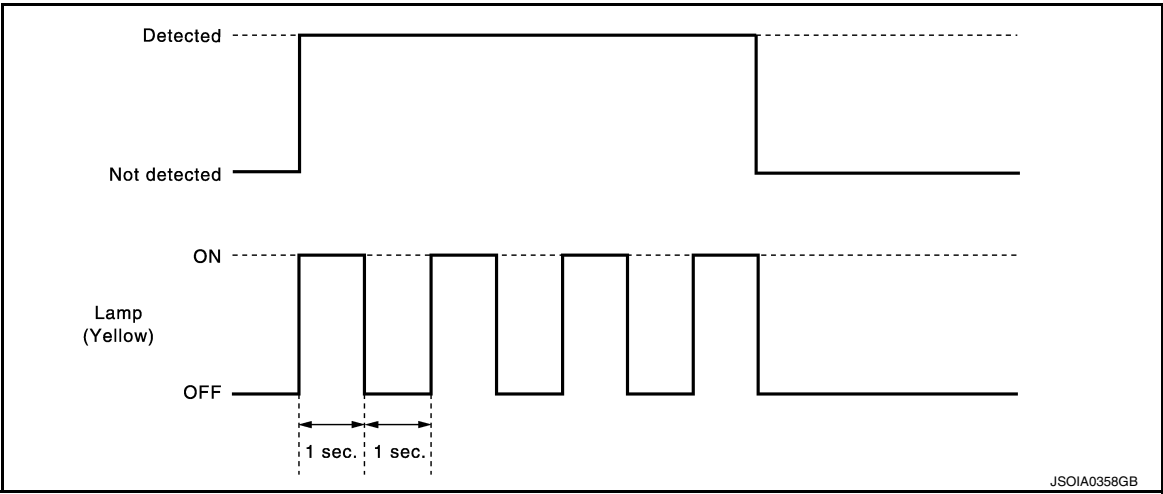
NOTE:

- *: When the BSW system setting on the vehicle information display screen is ON.
- After the operating conditions of warning are satisfied, the warning continues until the vehicle speed is reduced below approximately 18 MPH (29 km/h)
- The BSW system may not function properly, depending on the situation.

BULB CHECK ACTION AND FAIL-SAFE INDICATION

Vehicle condition/Driver's operation	Blind Spot Warning/ Blind Spot Intervention indicator	Warning systems ON indicator	Indication on the combination meter
When DTC is detected.	OFF	ON	OFF → Orange Malfunction BSW See Owner's Manual ALOIA0172GB
Temporary disabled status.	OFF	ON	BSW light (white) will blink
When rear view camera needs cleaning.	OFF	ON	Unavailable: Clean Rear Camera
When the warning system switch is pressed. (When the settings of LDW system and BSW system on the combination meter information screen are "OFF").	OFF	Blink	—

*: Blinking cycle when there is a rear view camera blockage condition or lane camera unit high temperature condition



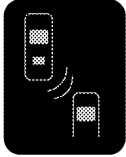
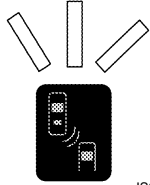
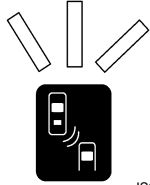
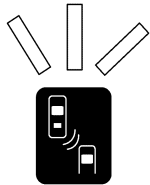
NOTE:
Time shown in the figure is approximate.

FAIL-SAFE INDICATION

SYSTEM

< SYSTEM DESCRIPTION >

[DRIVER ASSISTANCE SYSTEM]

Vehicle condition/Driver's operation	BSW indicator	Warning systems ON indicator	Indication on the combination meter
When DTC is detected	OFF	ON	 JSOIA0749ZZ
When vehicles cannot be detected due to dirt on the rear view camera	OFF	ON	 JSOIA0750ZZ
			Unavailable: Clean Rear Camera JSOIA0738ZZ
When the washer fluid level is low (Low washer warning ON)	OFF	ON	Blinks at intervals of two seconds.  JSOIA0751ZZ
When the back door is open (Back door open warning ON)	OFF	ON	Blinks at intervals of two seconds.  JSOIA0751ZZ
Blinks when the setting of LDW and BSW are "OFF" and the warning systems switch is pressed	OFF	OFF	 Unavailable: Select Driving Aids in Settings. JSOIA0780ZZ

REAR VIEW CAMERA WASHER OPERATION

- When judging that the rear view camera has water droplets, the around view monitor control unit transmits a rear view camera washer activation signal or rear view camera air blow signal to the pump control unit via serial communication.
- When receiving a rear view camera washer activation signal, the pump control unit simultaneously activates the washer pump to clean the rear view camera by spraying washer fluid from the nozzle installed to the rear view camera bracket.

- When receiving a rear view camera air blow signal, the pump control unit activates the air pump to clean the rear view camera by blowing air from the nozzle installed to the rear view camera bracket.

A

OPERATION CONDITION

- Approximately 20 MPH (30 km/h) or more
- When the around view monitor control unit judges that the rear view camera has water droplets.
- When the low washer fluid warning is OFF.

B

NOTE:

The camera is cleaned intermittently by spraying washer fluid and blowing air. When the around view monitor control unit judges that dirt on the camera cannot be removed even after approximately 5 minutes from the first detection of dirt, the activation of BSW is canceled.

C

MOD

D

E

F

G

H

I

J

K

L

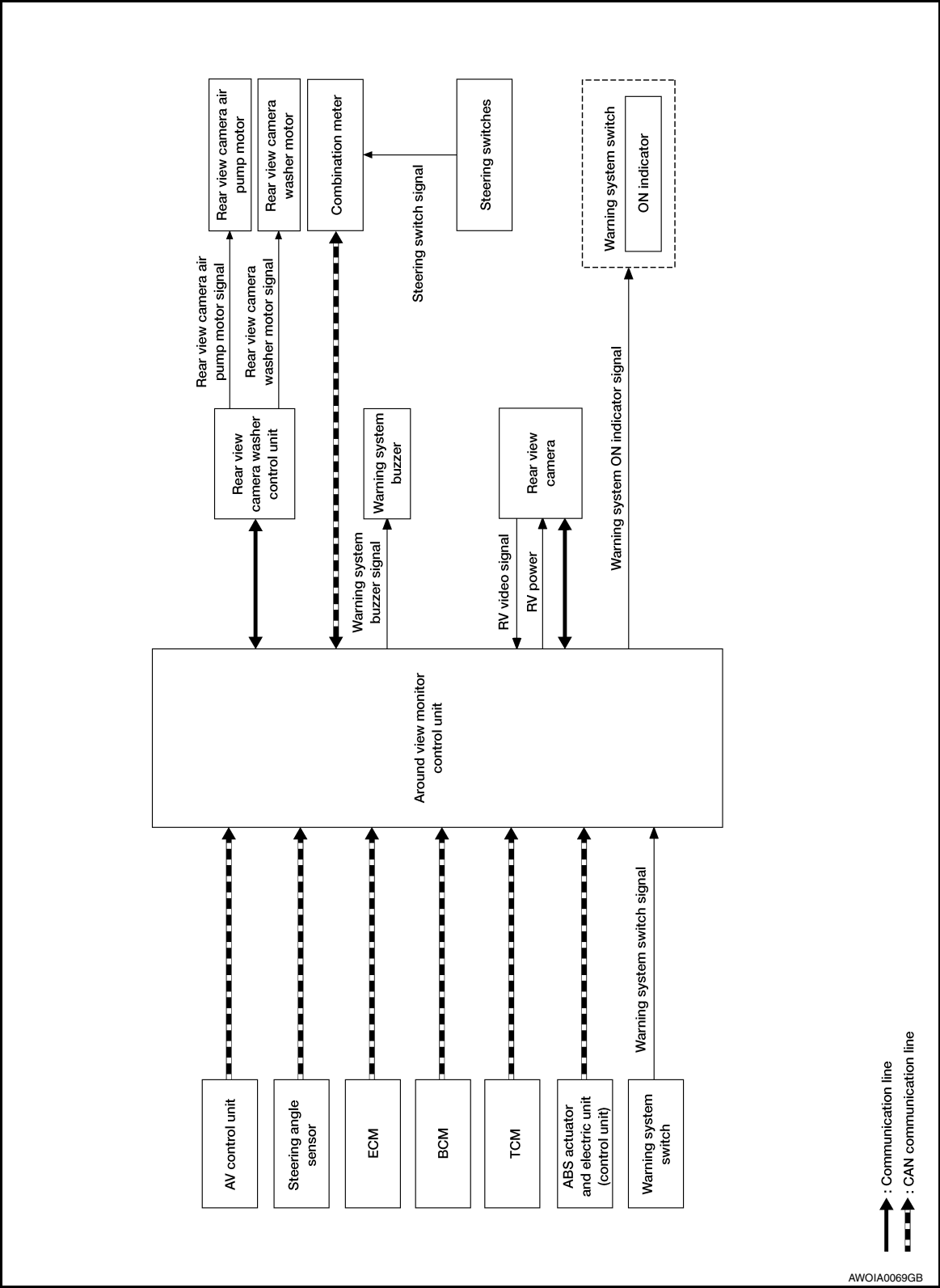
M

N

DAS

P

SYSTEM DIAGRAM



AROUND VIEW MONITOR CONTROL UNIT INPUT/OUTPUT SIGNAL ITEM

Input Signal Item

SYSTEM

< SYSTEM DESCRIPTION >

[DRIVER ASSISTANCE SYSTEM]

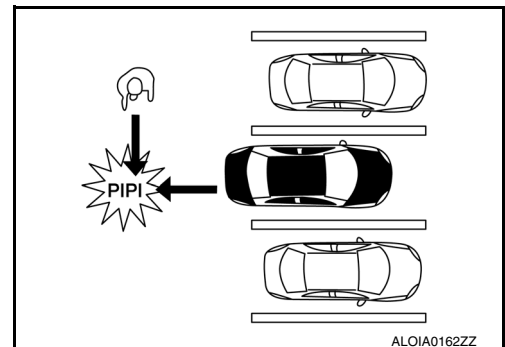
Transmit unit	Signal name		Description
ECM	CAN communication	Engine speed signal	Receives engine status
BCM	CAN communication	Back door open status signal	Receives back door open status
		Light status signal	Receives light status
		Turn signal	Receives turn signal status
ABS actuator and electric unit (control unit)	CAN communication	Wheel speed signal	Receives wheel speed
TCM	CAN communication	Shift selector position signal	Receives shift selector position
Combination meter	CAN communication	Moving Object Detection ON/OFF signal	Receives the ON/OFF status for Moving Object Detection function
Rear view camera	Communication line	Video signal	Receives the Rear View Camera image from camera for Moving Object Detection function in around view monitor control unit

Output Signal Item

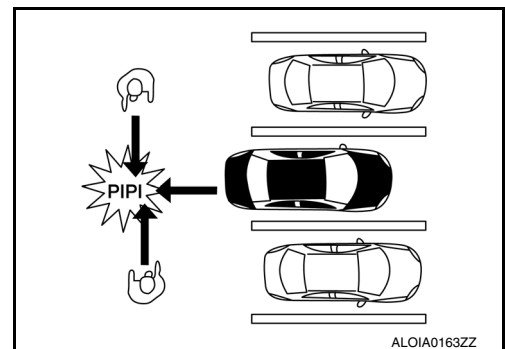
Reception unit	Signal name		Description
Warning system buzzer	Warning buzzer signal		Activates the warning buzzer
AV control unit display	CAN communication	Visual signal request	Transmits a visual signal request from the around view monitor control unit to display Rear View while the shift selector is in R (reverse).

FUNCTION DESCRIPTION

- The Moving Object Detection (MOD) system can help alert the driver of approaching vehicles or rear objects when the driver is backing out of a parking space.
- The MOD system comprises of the rear view camera as the main detection system, which is located on the back door as illustrated.
- The MOD system operates at speeds below 5 MPH (8 km/h) whenever the vehicle is in R (reverse).



- The MOD system uses the rear view camera to detect approaching moving objects from either side.

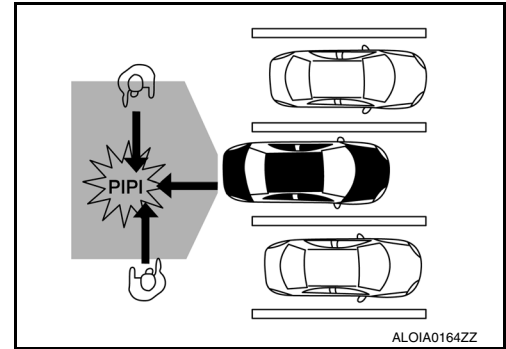


SYSTEM

< SYSTEM DESCRIPTION >

[DRIVER ASSISTANCE SYSTEM]

- The MOD system can detect moving objects on either side as close as rear obstacles of up to approximately 10 feet (3 m).



MOVING OBJECT DETECTION SYSTEM OPERATION DESCRIPTION

- Around view monitor control unit enables Moving Object Detection system.
- Combination meter turns Moving Object Detection ON indicator lamp ON/OFF according to the signals from around view monitor control unit via CAN communication.
- Around view monitor control unit starts the control as follows, based on a vehicle detection signal.

Operation Condition of Moving Object Detection System

Around view monitor control unit performs the control when the following conditions are satisfied:

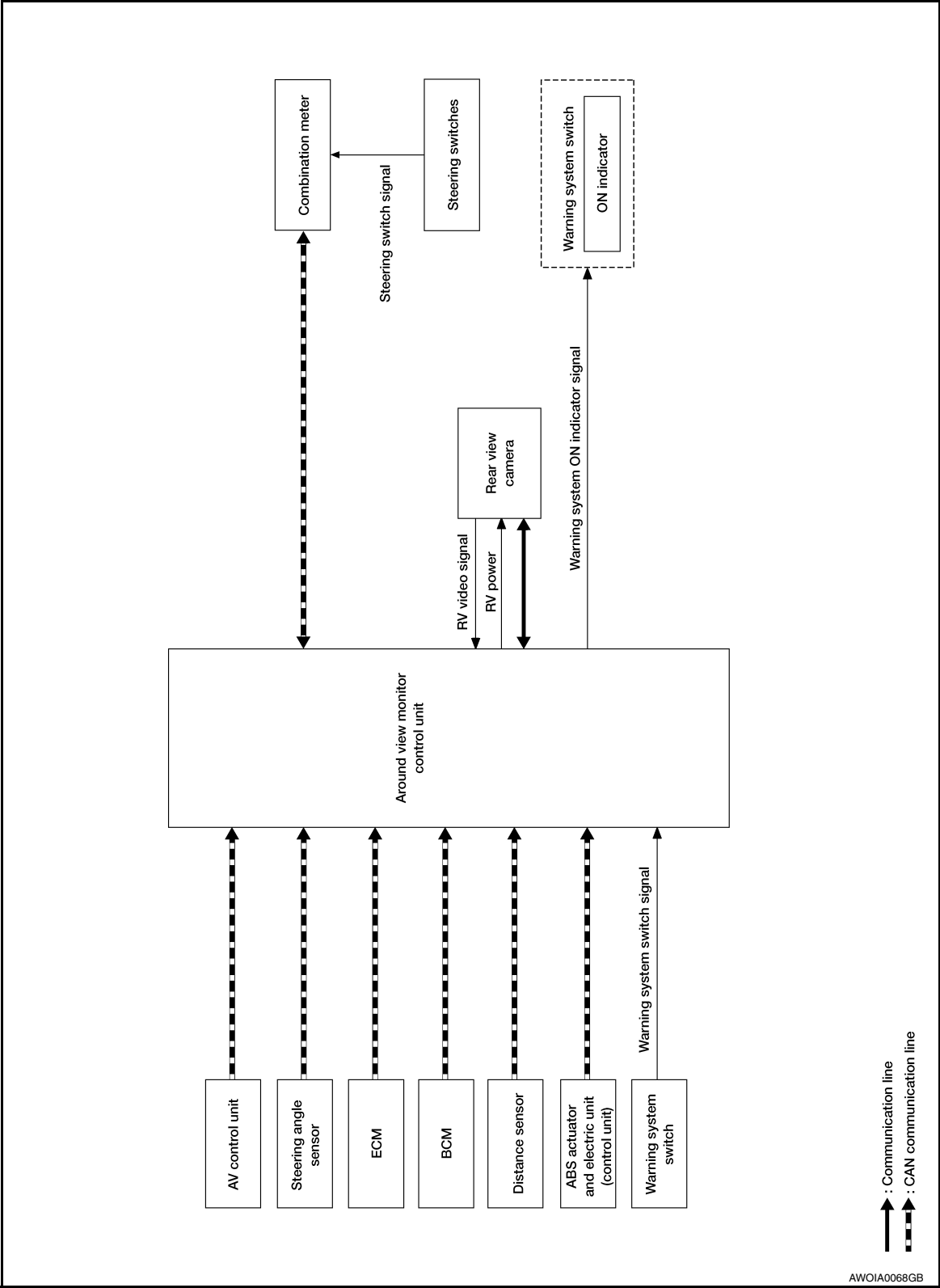
- Moving Object Detection ON indicator: ON
- When the vehicle is moving in R (reverse) at 5 MPH (8 km/h) or less.

NOTE:

- When the Moving Object Detection system setting on the Vehicle Information Display is ON.
- Moving Object Detection braking will not operate or will stop operating and only a warning chime will sound under the following conditions:
 - When driving with a tire that is not within normal tire conditions (pressure, wear, chain, spare, etc.)
 - When the vehicle is equipped with non-original brake parts or suspension parts.
- Do not use the MOD system when towing a trailer.
- Excessive noise such as the audio system will interfere with the chime sound, and it may not be heard.

FCW

SYSTEM DIAGRAM



AROUND VIEW MONITOR CONTROL UNIT INPUT/OUTPUT SIGNAL ITEM

Input Signal Item

A
B
C
D
E
F
G
H
I
J
K
L
M
N
P

DAS

SYSTEM

< SYSTEM DESCRIPTION >

[DRIVER ASSISTANCE SYSTEM]

Transmit unit	Signal name		Description
ABS actuator and electric unit (control unit)	CAN communication	Wheel speed signal	Receives wheel speed
Combination meter	CAN communication	System selection signal	Receives a selection state each item in "Driver Aids" selected with the steering switch
Distance sensor	CAN communication	Distance sensor signal	Receives detection results, such as the presence or absence of a leading vehicle and distance from the vehicle
Warning system switch	Warning system switch signal		Receives an ON/OFF state of the warning system switch

Output Signal Item

Reception unit	Signal name		Description
Combination meter	CAN communication	Meter display signal	Transmits a signal to display a state of the system on the information display
		Buzzer signal	Transmits a output signal to activate the buzzer
Distance sensor	CAN communication	Vehicle speed signal	Transmits a vehicle speed calculated by the distance sensor

DESCRIPTION

- The Forward Collision Warning (FCW) System alerts the driver by a warning lamp (vehicle ahead detection indicator) and chime when own vehicle is getting close to the vehicle ahead in the traveling lane.
- The FCW system will function when own vehicle is driven at speeds of approximately 10 MPH (15 km/h) and above.

FUNCTION DESCRIPTION

The distance from the vehicle ahead and a relative speed are calculated by using the distance sensor signal transmitted to the combination meter via CAN communication. When judging the necessity of warning from the received distance sensor signal, the distance sensor transmits a buzzer signal and warning signal to the combination meter via CAN communication.

FCW Operating Condition

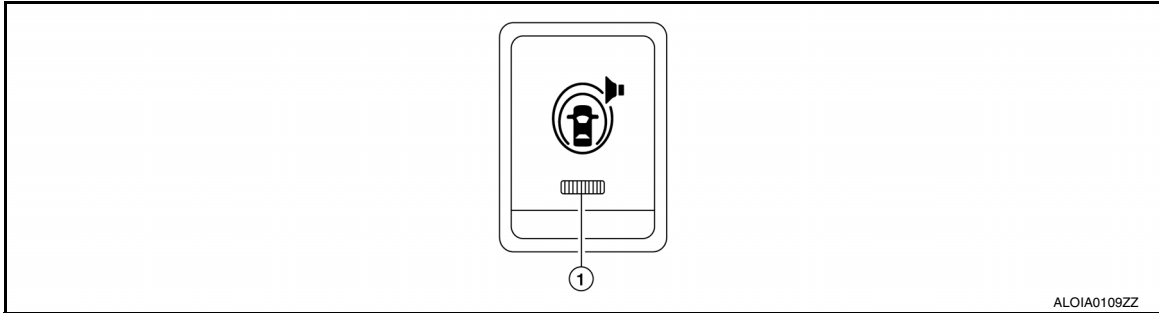
- Warning system switch ON)
- Vehicle speed: Approximately 10 MPH (15 km/h) and above.

OPERATION

BSW

BSW : Switch Name and Function

INFOID:0000000010287276

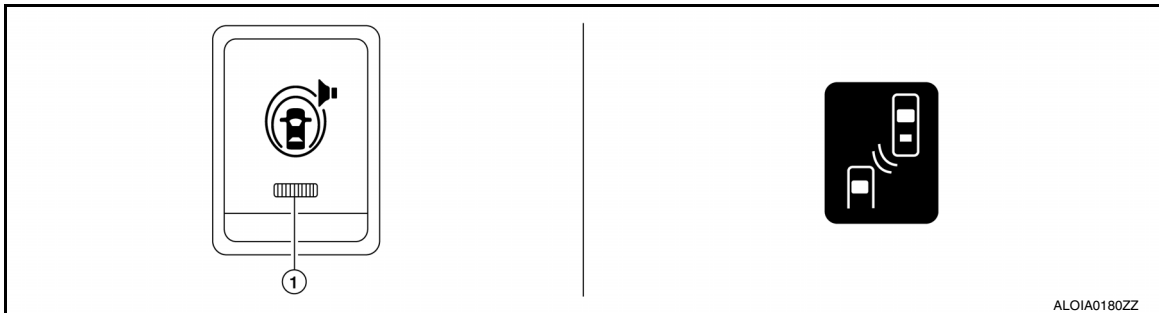


No.	Name	Function
1.	Warning systems switch	Turns BSW system ON/OFF (When the setting of BSW system on the vehicle information display setting screen is ON)

BSW : System Display and Warning

INFOID:0000000010287277

INDICATOR AND WARNING LAMP



No.	Name	Description
1.	Warning systems ON indicator	Indicates that the LDW system is ON.
2.	Blind Spot Warning lamp (orange)	• Turns ON when Blind Spot Warning system is malfunctioning. • Blinks during the following conditions: - DTC is detected or system is temporarily disabled. - When rear view camera blockage is detected.

DISPLAY AND WARNING OPERATION

Vehicle condition/ Driver's operation				Action	
Warning systems ON indicator	Vehicle speed (Approx.) [km/h (MPH)]	Turn signal condition	Status of vehicle detection within detection area	Indication on the Blind Spot Warning indicator	Buzzer
OFF	—	—	—	OFF	OFF

OPERATION

< SYSTEM DESCRIPTION >

[DRIVER ASSISTANCE SYSTEM]

Vehicle condition/ Driver's operation				Action	
Warning systems ON indicator	Vehicle speed (Approx.) [km/h (MPH)]	Turn signal condition	Status of vehicle detection within detection area	Indication on the Blind Spot Warning indicator	Buzzer
ON	Less than approx. 29km/h (18MPH)	—	—	OFF	OFF
	Approx. 32 km/h (20 MPH) or more	—	Vehicle is absent	OFF	OFF
		OFF	Vehicle is detected	ON	OFF
		ON (vehicle detected direction)	Before turn signal operates Vehicle is detected	Blink 	Short continuous beep
			Vehicle is detected after turn signal operates	Blink 	OFF

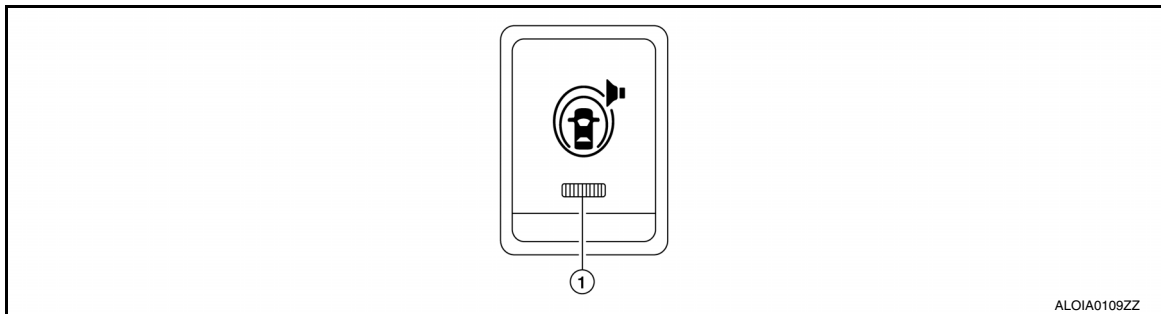
NOTE:

- If vehicle speed exceeds approximately 32 km/h (20 MPH), BSW function operates until the vehicle speed becomes lower than approximately 29 km/h (18 MPH).
- Time shown in the figure is approximate.
- Whenever Blind Spot Warning system is turned off, the warning systems ON indicator remains OFF.

LDW

LDW : Switch Name and Function

INFOID:000000010287278



No.	Switch name	Description
1.	Warning systems switch	Turns LDW system ON/OFF (When the setting of LDW system on the vehicle information display setting screen is ON)

OPERATION

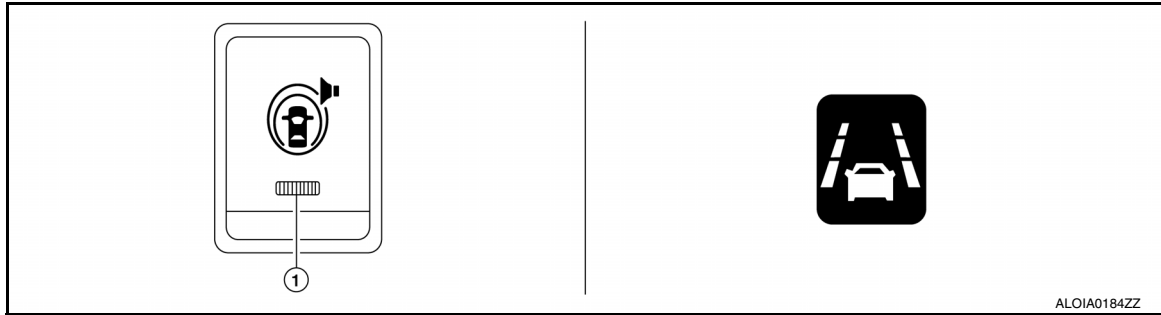
< SYSTEM DESCRIPTION >

[DRIVER ASSISTANCE SYSTEM]

LDW : Menu Displayed by Pressing Each Switch

INFOID:0000000010287279

INDICATOR LAMP AND WARNING LAMP



No.	Display item	Description
1.	Warning systems ON indicator	Indicates that the LDW system is ON
2.	Lane departure warning lamp	• Blinks when LDW system is activated • Turns ON when LDW system has a malfunction • Blinks when DTC is detected or system is temporarily disabled • Blinks when rear view camera blockage is detected

DISPLAY AND WARNING

Vehicle condition/ Driver's operation		Action	Warning systems ON indicator	Indication on the combination meter	Buzzer
Less than Approx. 60 km/h (40 MPH)	Close to lane marker	No action	ON	White	—
Approx. 70 km/h (45 MPH) or more	Close to lane marker	Warning • Buzzer sounds • Warning lamp blinks (orange)	ON	OFF (orange) Blink  ALOIA0185ZZ	Short continuous beeps
	• Close to lane marker • Turn signal ON (Deviate side)	No action	ON	White	—

NOTE:

After the operating conditions of warning are satisfied, the warning continues until the vehicle speed reaches approximately 60 km/h (40 MPH). Refer to [DAS-16, "LDW : System Description"](#).

MOD

MOD : System Display and Warning

INFOID:0000000010287280

DAS

INDICATOR AND WARNING LAMP

The MOD system can be turned ON or OFF for the current ignition cycle using the warning system switch. When toggled between ON and OFF, the indicator will appear on the right side of the rear view camera screen.

OPERATION

< SYSTEM DESCRIPTION >

[DRIVER ASSISTANCE SYSTEM]

No.	Name	Description
1.	MOD indicator (blue)	• Turns ON while MOD system is ON. • Under the following conditions, the MOD indicator (blue) will blink. - When the VDC system (except TCS function) or ABS operates. - When the VDC system is turned off.
	MOD warning lamp (orange)	• Turns ON when MOD system is malfunctioning. • Blinks under the following conditions: - When the component temperature reaches high level. - When rear view camera blockage is detected.

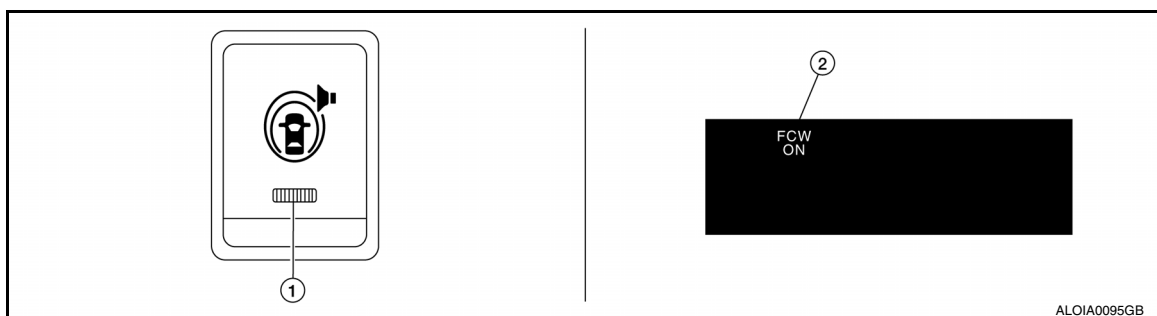
DISPLAY AND WARNING OPERATION

Vehicle condition/Driver's operation				
Moving Object Detection ON indicator	Vehicle speed (Approx.) [km/h (MPH)]	Status of vehicle detection within detection area	Indication on the Moving Object Detection indicator	Buzzer
OFF	—	—	OFF	OFF
Blue	Less than approx. 8 km/h (5 MPH)	Vehicle is detected	ON	ON
	Approx. 8 km/h (5 MPH) or more	Vehicle is absent	ON	OFF
		Vehicle is detected	ON	OFF
		Vehicle is not detected	ON	OFF

FCW

FCW : Switch Name and Function

INFOID:0000000010287281

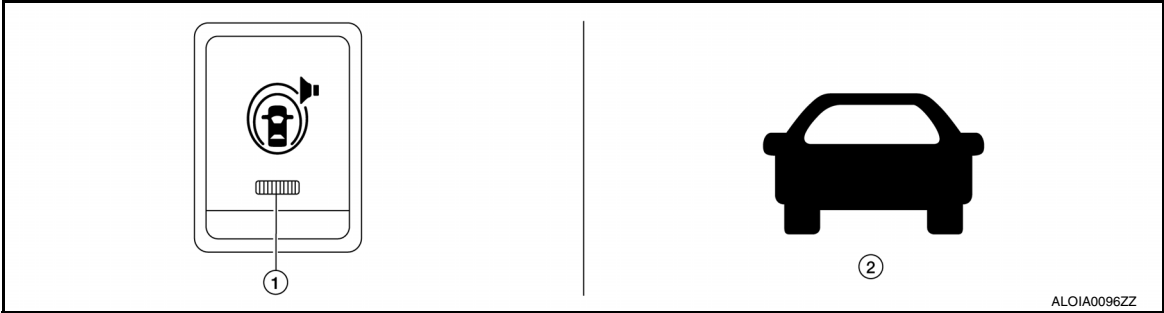


No.	Switch name	Description
1.	Warning systems switch	Turns FCW system ON/OFF (When the setting of FCW system in the vehicle information display is ON)
2.	FCW system setting screen (the vehicle information display)	The setting of FCW system can be switched between ON and OFF

FCW : Menu Displayed by Pressing Each Switch

INFOID:0000000010287282

DISPLAY AND WARNING LAMP



No.	Display item	Description
1.	Warning systems ON indicator	Indicates that the FCW system is ON.
2.	Vehicle ahead detection indicator	Vehicle ahead detection indicator blinks when the FCW system is activated.

SYSTEM CONTROL CONDITION DISPLAY

Condition	Warning systems ON indicator	Vehicle ahead detection indicator (In the combination meter)	Buzzer
Set condition	ON	OFF	—
When the warning systems switch is turned ON with settings of FCW system OFF.	Blink	OFF	—
When own vehicle comes close to the vehicle ahead and it is judged that the distance between the vehicles is not sufficient.	ON	ALOIA0126ZZ	Beep

HANDLING PRECAUTION

Precautions for Forward Collision Warning

INFOID:0000000010227204

- The forward collision warning system is designed to warn the driver before a collision but will not avoid a collision. It is the driver's responsibility to stay alert, drive safely and be in control of the vehicle at all times.
- The distance sensor does not detect the following objects.
 - Pedestrians, animals, or obstacles in the roadway.
 - Oncoming vehicles
 - Crossing vehicles
- The forward collision warning system does not function when a vehicle ahead is a narrow vehicle, such as a motorcycle.
- The distance sensor may not detect a vehicle ahead in the following conditions:
 - Snow or heavy rain
 - Dirt, ice, snow or other material covering the radar sensor
 - Interference by other radar sources
 - Snow or road spray from traveling vehicles is splashed
 - Driving in a tunnel
- When the distance to the vehicle ahead is too close, the beam of the radar sensor is obstructed.
- The distance sensor may not detect a second vehicle when driving on a steep downhill slope or on roads with sharp curves.
- Excessive noise will interfere with the warning tone sound, and it may not be heard.

Precautions for Lane Departure Warning

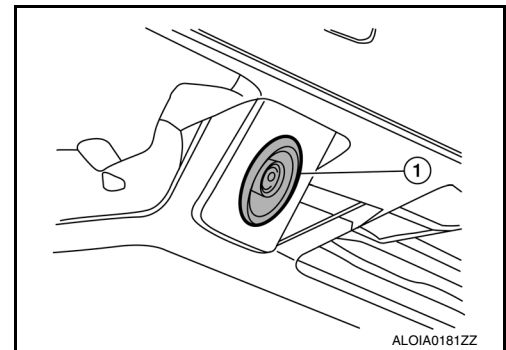
INFOID:0000000010227205

REAR VIEW CAMERA HANDLING

The rear camera unit "1" for the LDW/BSW systems is located above the rear license plate.

To keep the proper operation of the LDW systems and prevent a system malfunction, be sure to observe the following:

- Always keep the camera lens clean. Be careful not to damage the nozzle of the automatic washer and blower.
- Do not attach "license plate accessories" that reflect light.
- Do not strike or damage the areas around the camera unit.



LANE DEPARTURE WARNING (LDW)

- LDW system is only a warning device to inform the driver of a potential unintended lane departure. It will not steer the vehicle or prevent loss of control. It is the driver's responsibility to stay alert, drive safely, keep the vehicle in the traveling lane, and be in control of the vehicle at all times.
- The camera unit may not detect properly under the following conditions:
 - When towing a trailer.
 - When strong light enters the camera unit. (For example, direct sunlight or headlight from the rear.)
 - When ambient light changes instantly. (For example, when the vehicle enters or exits a tunnel or passes under a bridge.)
- Automatic washer and blower may not be able to secure detection capability when excessive dirt adheres on the camera lens.
- Excessive noise (e.g. audio system volume, open vehicle window) will interfere with the chime sound, and it may not be heard.
- The camera unit may not be able to detect properly under the following conditions:
 - On roads where there are multiple parallel lane markers; lane markers that are faded or not painted clearly; yellow painted lane markers; non-standard lane markers; or lane markers covered with water, dirt or snow, etc.

HANDLING PRECAUTION

< SYSTEM DESCRIPTION >

[DRIVER ASSISTANCE SYSTEM]

- On roads where the discontinued lane markers are still detectable.
- On roads where there are sharp curves.
- On roads where there are sharply contrasting objects, such as shadows, snow, water, wheel ruts, seams or lines remaining after road repairs. (The LDW system could detect these items as lane markers.)
- On roads where the traveling lane merges or separates.
- When the vehicle's traveling direction does not align with the lane marker.
- When the road surface is very dark due to scarce ambient light or impaired tail lamp.
- When driving on a curved road, warning will be late on the outside of the curve due to the nature of the system.

Precautions for Blind Spot Warning

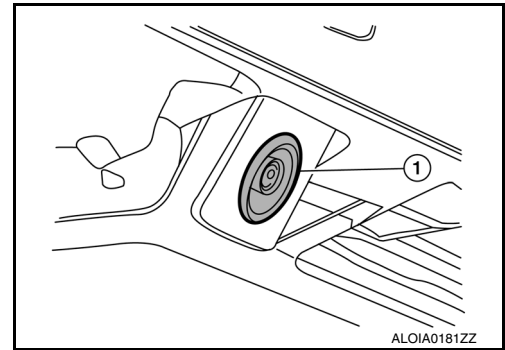
INFOID:000000010227206

REAR VIEW CAMERA HANDLING

The rear camera unit (1) for the LDW/BSW systems is located above the rear license plate.

To keep the proper operation of the LDW systems and prevent a system malfunction, be sure to observe the following:

- Always keep the camera lens clean. Be careful not to damage the nozzle of the automatic washer and blower.
- Do not attach "license plate accessories" that reflect light.
- Do not strike or damage the areas around the camera unit.



BLIND SPOT WARNING (BSW)

- BSW system is not a replacement for proper driving procedure and is not designed to prevent contact with vehicles or objects. When changing lanes, always use the side and rear mirrors and turn and look in the direction you will move to ensure it is safe to change lanes. Never rely solely on the BSW system.
- The camera unit may not detect properly under the following conditions:
 - When towing a trailer.
 - When strong light enters the camera unit. (For example, direct sunlight or headlight from the rear.)
 - When ambient light changes instantly. (For example, when the vehicle enters or exits a tunnel or passes under a bridge.)
- Automatic washer and blower may not be able to secure detection capability when excessive dirt adheres on the camera lens.
- Excessive noise (e.g. audio system volume, open vehicle window) will interfere with the chime sound, and it may not be heard.
- The camera unit may not be able to detect when certain objects are present such as:
 - Pedestrians, bicycles, animals.
 - Several types of vehicles such as motorcycles.
 - Oncoming vehicles.
 - A vehicle approaching rapidly from behind
 - A vehicle which your vehicle overtakes rapidly.
- The camera unit may not be able to detect properly when your vehicle travels beside the middle section of a vehicle with a long wheelbase (e.g., trailer truck, semi-trailer, tractor).
- The camera unit is designed to ignore most stationary objects, however objects such as guardrails, walls, foliage and parked vehicles may occasionally be detected. This is a normal operating condition.
- The camera unit may detect reflection image of vehicles or roadside objects that are not actually in the detection zone, especially when the road is wet.

Precautions for Moving Objects Detection

INFOID:000000010425175

REAR VIEW CAMERA HANDLING

- The rear view camera is located on the back door.

HANDLING PRECAUTION

< SYSTEM DESCRIPTION >

[DRIVER ASSISTANCE SYSTEM]

- Always keep the rear view camera lens clean.
- Do not attach a sticker (including transparent material), install an accessory or paint work over the camera lens.
- Do not strike or scratch the lens causing physical damage to the camera or the surrounding area.

MOVING OBJECT DETECTION

- The Moving Object Detection system is not a replacement for proper driving procedure and is not designed to prevent contact with vehicles or objects. When backing up, always look in the direction driver will move to ensure it is safe to proceed. Never rely solely on the Moving Object Detection system.
- Using the Moving Object Detection system under some road or weather conditions could lead to improper system operation. Always rely on driver's own steering and braking operation to avoid accidents.
- The Moving Object Detection system may not provide a warning for vehicles that pass through the detection zone quickly.
- Do not use the Moving Object Detection system when towing a trailer.
- Excessive noise (e.g., audio system volume, open vehicle window) will interfere with the chime sound, and it may not be heard.
- The rear view camera may not be able to detect and activate Moving Object Detection when certain objects are present such as:
 - Pedestrians, bicycles, animals.
 - A vehicle passing at a speed greater than approximately 15 MPH (24km/h).
 - Severe weather or road spray conditions may reduce the ability of the radar to detect other vehicles.
- Do not use the MOD system under the following conditions because the system may not function properly:
 - When driving with a tire that is not within normal tire condition (example: tire wear, low pressure, spare tire, chain, non-standard wheels).
 - When the vehicle is equipped with non-original brake parts or suspension parts.

DIAGNOSIS SYSTEM (AROUND VIEW MONITOR CONTROL UNIT)

< SYSTEM DESCRIPTION >

[DRIVER ASSISTANCE SYSTEM]

DIAGNOSIS SYSTEM (AROUND VIEW MONITOR CONTROL UNIT)

CONSULT Function

INFOID:0000000010284113

CONSULT FUNCTIONS

CONSULT performs the following functions via communication with the around view monitor control unit.

Direct Diagnostic Mode	Description
Ecu Identification	The around view monitor control unit part number is displayed.
Self Diagnostic Result	The around view monitor control unit self diagnostic results are displayed.
Data Monitor	The around view monitor control unit input/output data is displayed in real time.
Work support	The settings for around view monitor control unit functions can be changed.
Configuration	- The vehicle specification can be read and saved. - The vehicle specification can be written when replacing around view monitor control unit.
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.

ECU IDENTIFICATION

The part number of around view monitor control unit is displayed.

SELF DIAGNOSTIC RESULT

Refer to [DAS-47, "DTC Index"](#).

DATA MONITOR

Monitor Item	Description
ST ANGLE SENSOR SIGNAL [On/Off]	Indicates condition of steering angle sensor signal.
REVERSE SIGNAL [On/Off]	Indicates selector lever position.
VEHICLE SPEED SIGNAL [mph/km/h]	Indicates condition of vehicle speed signal.
CAMERA SWITCH SIGNAL [On/Off]	Indicates condition of camera switch signal.
CAMERA OFF SIGNAL [On/Off]	Indicates condition of camera OFF signal.
ST ANGLE SENSOR TYPE [Absolute]	Indicates steering angle sensor type.
ST GEAR RATIO TYPE [Type O]	Indicates steering gear ratio type.
STEERING POSITION [LHD/RHD]	Indicates LH or RH drive type.
REAR CAMERA IMAGE SIGNAL [OK/NG]	Indicates condition of camera image signal.
WASH SW [On/Off]	Indicates state of wash switch indicator output.
R-CAMERA COMM STATUS [OK/Not]	Indicates status of rear camera communication.
R-CAMERA COMM LINE [OK/Not]	Indicates condition of rear camera communication line.
F-CAMERA IMAGE SIGNAL [OK/NG]	Indicates condition of camera image signal.
DR-SIDE CAMERA IMAGE SIG [OK/NG]	Indicates condition of camera image signal.
PA-SIDE CAMERA IMAGE SIG [OK/NG]	Indicates condition of camera image signal.
PUMP COMM STATUS [OK/Not]	Indicates state of communication signal from pump control unit.
ILL [On/Off]	Indicates status of illumination signal.
ITS SW 1 [On/Off]	Indicates state of warning system switch.
ITS SW 1 IND [On/Off]	Indicates state of warning system switch indicator output.
TURN SIGNAL [Left/N/Right]	Indicates status of turn signal output.
ITS SW 2 [ON/OFF/No setting]	Indicates state of warning system secondary switch.
ITS SW 2 IND [ON/OFF/No setting]	Indicates state of warning system secondary switch indicator output.

ACTIVE TEST

DIAGNOSIS SYSTEM (AROUND VIEW MONITOR CONTROL UNIT)

< SYSTEM DESCRIPTION >

[DRIVER ASSISTANCE SYSTEM]

Test item	Description
LED RH INDICATOR	This test is able to check RH LED indicator operation [LED Off/LED On].
LED LH INDICATOR	This test is able to check LH LED indicator operation [LED Off/LED On].
WASH ACTIVE	This test is able to check rear camera wash operation [WASH Off/WASH On].
AIR ACTIVE	This test is able to check rear camera air operation [AIR Off/AIR On].
AIR & WASH ACTIVE	This test is able to check rear camera air and wash operation [Off/On].
AVM BUZZER CONTROL	This test is able to check AVM buzzer operation [Off/On].

WORK SUPPORT

Support Item	Setting	Description
REAR CAMERA ITS	—	Displays and sets camera image calibration values.
CAUSE OF LDW CANCEL	—	Displays the information about reason of LDW cancellation.
CAUSE OF BSW CANCEL	—	Displays the information about reason of BSW cancellation.
CALIBRATING CAMERA IMAGE (FRONT CAMERA)	STATUS	Performs calibration of front camera.
	AXIS X	
	AXIS Y	
	ROTATE	
CALIBRATING CAMERA IMAGE (PASS-SIDE CAMERA)	STATUS	Performs calibration of passenger side camera.
	AXIS X	
	AXIS Y	
	ROTATE	
CALIBRATING CAMERA IMAGE (DR-SIDE CAMERA)	STATUS	Performs calibration of driver side camera.
	AXIS X	
	AXIS Y	
	ROTATE	
CALIBRATING CAMERA IMAGE (REAR CAMERA)	STATUS	Performs calibration of rear camera.
	AXIS X	
	AXIS Y	
	ROTATE	
FINE TUNING OF BIRDS-EYE VIEW	STATUS	Confirmation and adjustment of difference between each camera can be performed.
	SELECT	
	AXIS X	
	AXIS Y	
	ROTATE	
REAR WIDE-VIEW FIXED GUIDE LINE CORRECTION	STATUS	Adjusts position of fixed guide line on rear wide view
	AXIS X	
	AXIS Y	
	Pattern	
FRONT WIDE-VIEW FIXED GUIDE LINE CORRECTION	STATUS	Adjusts position of fixed guide line on front wide view
	AXIS X	
	AXIS Y	
	Pattern	
NON-VIEWABLE AREA REMINDER	ON	ON/OFF setting of non-viewable area can be performed.
	OFF	

DIAGNOSIS SYSTEM (AROUND VIEW MONITOR CONTROL UNIT)

< SYSTEM DESCRIPTION >

[DRIVER ASSISTANCE SYSTEM]

Support Item	Setting	Description
PREDICTIVE COURSE LINE DISPLAY	ON	ON/OFF setting of predictive course line display can be performed.
	OFF	
INITIALIZE CAMERA IMAGE CALIBRATION	—	Factory image calibration restoration can be performed.
STEERING ANGLE SENSOR ADJUSTMENT	—	Steering angle sensor neutral position adjustment can be performed.

CONFIGURATION

Refer to [AV-289, "CONFIGURATION \(AV CONTROL UNIT\) : Description"](#).

CAN DIAG SUPPORT MNTR

Refer to [LAN-14, "CAN Diagnostic Support Monitor"](#).

A
B
C
D
E
F
G
H
I
J
K
L
M
N
P

DAS

DIAGNOSIS SYSTEM (DISTANCE SENSOR)

< SYSTEM DESCRIPTION >

[DRIVER ASSISTANCE SYSTEM]

DIAGNOSIS SYSTEM (DISTANCE SENSOR)

CONSULT Function (LASER/RADAR)

INFOID:0000000010227210

APPLICATION ITEMS

CONSULT performs the following functions via CAN communication with Distance sensor.

Diagnosis mode	Description
Self Diagnostic Result	Displays malfunctioning system memorized in Distance sensor.
Data Monitor	Displays real-time input/output data of Distance sensor.
Active Test	Distance sensor activates outputs to components.
Work Support	It can monitor the adjustment direction indication in order to perform the radar alignment operation smoothly.
ECU Identification	Displays Distance sensor part number.
CAN Diag Support Monitor	Monitor the reception status of CAN communication viewed from Distance sensor.

SELF DIAGNOSTIC RESULT

Refer to [DAS-49. "DTC Index"](#).

DATA MONITOR

NOTE:

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

Monitored item [Unit]	Description
VHCL SPEED SE [mph] or [km/h]	Vehicle speed signal received from ABS actuator and electric unit (control unit) via CAN communication.
YAW RATE [deg/s]	Yaw rate signal received from ABS actuator and electric unit (control unit) via CAN communication.
PWR SUP MONI [V]	Indicates IGN voltage input by Distance sensor.
DISTANCE [feet]	Indicates the distance from the vehicle ahead.
RELATIVE SPD [fps]	Indicates the relative speed of the vehicle ahead.
LASER OFFSET [deg]	NOTE: The item is indicated, but not used.
LASER HEIGHT [deg]	NOTE: The item is indicated, but not used.
STEERING ANGLE [deg]	The steering angle is displayed.
STRG ANGLE SPEED [deg/s]	The steering angle speed is displayed.
L/R ADJUST [deg]	Indicates a horizontal correction value of the radar.
U/D ADJUST [deg]	Indicates a vertical correction value of the radar.

WORK SUPPORT

Work support items	Description
MILLIWAVE RADAR ADJUST	Outputs millimeter waves, calculates dislocation of the millimeter waves, and indicates adjustment direction.

Distance sensor alignment

DIAGNOSIS SYSTEM (DISTANCE SENSOR)

< SYSTEM DESCRIPTION >

[DRIVER ASSISTANCE SYSTEM]

Refer to [DAS-72, "Description"](#).

ACTIVE TEST

Test item	Description
ICC BUZZER	This test is able to check FCW warning chime operation [On/Off] in the combination meter.
METER LAMP	This test is able to check FCW warning indicator operation [On/Off] in the combination meter information display.

A

B

C

D

E

F

G

H

I

J

K

L

M

N

DAS

P

AROUND VIEW MONITOR CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[DRIVER ASSISTANCE SYSTEM]

ECU DIAGNOSIS INFORMATION

AROUND VIEW MONITOR CONTROL UNIT

Reference Value

INFOID:0000000010284114

VALUES ON THE DIAGNOSIS TOOL

Monitor Item	Condition	Value/Status
CAMERA OFF SIGNAL	CAMERA switch ON.	Off
	CAMERA switch OFF.	On
CAMERA SWITCH SIGNAL	CAMERA switch OFF.	Off
	CAMERA switch ON.	On
DR-SIDE CAMERA IMAGE SIG	Side camera LH inoperative.	NG
	Side camera LH operative.	OK
ILL	Illumination is ON	On
	Illumination is OFF	Off
ITS SW 1	ITS switch is pressed	On
	ITS switch is not pressed	Off
ITS SW 1 IND	Indicator of ITS switch 1 is lighting	On
	Indicator of ITS switch 1 is not lighting	Off
ITS SW 2	For this vehicle, the displaying is fixed	No SET
ITS SW 2 IND	For this vehicle, the displaying is fixed	No SET
F-CAMERA IMAGE SIG	Front camera inoperative.	NG
	Front camera operative.	OK
PA-SIDE CAMERA IMAGE SIG	Side camera RH inoperative.	NG
	Side camera RH operative.	OK
PUMP COMM STATUS	Pump communication signal is received	On
	Pump communication signal is not received	Off
R-CAMERA COMM STATUS	Rear camera serial status is OK	OK
	Rear camera serial status is not OK	NG
R-CAMERA COMM LINE	Rear camera serial communication signal is received	OK
	Rear camera serial communication signal is not received	NG
REAR CAMERA IMAGE SIGNAL	Rear camera LH inoperative.	NG
	Rear camera LH operative.	OK
REVERSE SIGNAL	When selector lever is in any position other than R (reverse).	Off
	When selector lever in R (reverse).	On
ST ANGLE SENSOR SIGNAL	Around view monitor control unit is not receiving steering angle sensor signal.	Off
	Around view monitor control unit is receiving steering angle sensor signal.	On
ST ANGLE SENSOR TYPE	Steering angle sensor type.	Absolute
ST GEAR RATIO TYPE	Steering gear ratio type.	Type O
STEERING POSITION	Left hand drive vehicle.	LHD
	Right hand drive vehicle.	RHD
TURN SIGNAL	Turn signal left is received	Left
	Turn signal neutral is received	N
	Turn signal right is received	Right

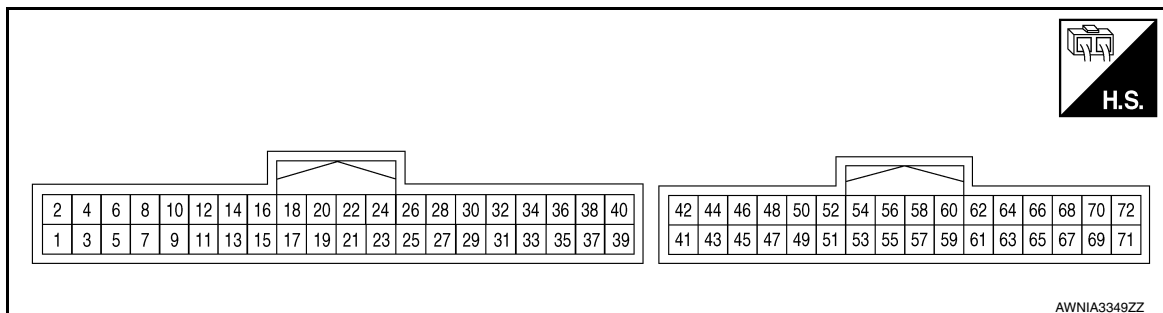
AROUND VIEW MONITOR CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[DRIVER ASSISTANCE SYSTEM]

Monitor Item	Condition	Value/Status
VEHICLE SPEED SIGNAL	While driving, equivalent to speedometer reading	mph, km/h
WASH SW	Wash switch signal is pressed	On
	Wash switch signal is not pressed	Off

TERMINAL LAYOUT



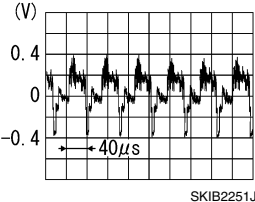
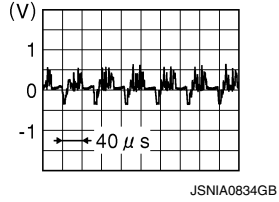
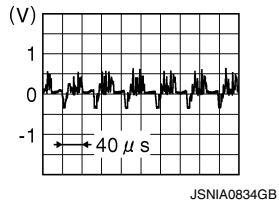
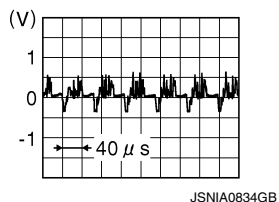
PHYSICAL VALUES

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	-	Signal name	Input/ Output	Ignition switch	Operation	
1 (B)	Ground	Ground	—	ON	—	0 V
2 (Y)	Ground	Battery power supply	Input	OFF	—	Battery voltage
3 (SB)	Ground	Ignition signal	Input	ON	—	Battery voltage
7 (R)	Ground	SOW LED signal L	Output	—	LDW/BSW detected (while driving)	12 V
					LDW/BSW is not detected (while driving)	0 V
8 (G)	Ground	SOW LED signal R	Output	—	LDW/BSW detected (while driving)	12 V
					LDW/BSW is not detected (while driving)	0 V
15 (BR)	Ground	ITS sw indicator	Output	ON	Warning system is ON	12 V
					Warning system is OFF	0 V
16 (Y)	Ground	Warning buzzer control	Output	—	—	—
17 (W)	Ground	ITS OFF sw	Input	ON	Cancel switch pressed	0 V
					Cancel switch released	12 V
27 (L)	—	CAN (H)	Input/ Output	—	—	—
28 (R)	—	CAN (L)	Input/ Output	—	—	—
36 (Y)	Ground	Washer signal AVM to pump	Output	ON	Rear view camera washer motor operated	5 V
37 (V)	Ground	Pump signal ground	Input	ON	—	0 V
38 (SB)	Ground	Washer signal pump to AVM	Input	ON	Rear view camera washer motor operated	5 V

AROUND VIEW MONITOR CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

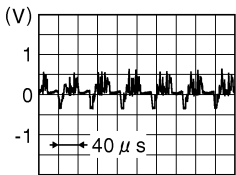
[DRIVER ASSISTANCE SYSTEM]

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	—	Signal name	Input/ Output	Ignition switch	Operation	
47 (G)	Ground	Camera image signal	Output	ON	When camera image display	
48 (Shield)	—	Camera image signal shield	—	—	—	—
49 (LG)	—	Rear view serial signal	Input/ Output	—	—	—
50 (R)	Ground	Rear camera power supply	Output	ON	CAMERA selected or Shift selector in R (reverse) position.	6.0 V
52 (B)	Ground	Rear camera ground	—	ON	—	0 V
53 (W)	54 (Shield)	Rear camera image signal	Input	ON	CAMERA selected or Shift selector in R (reverse) position.	
56 (L)	Ground	Side camera LH power supply	Output	ON	CAMERA selected or Shift selector in R (reverse) position.	6.0 V
58 (Y)	Ground	Side camera LH ground	—	ON	—	0 V
59 (G)	60 (Shield)	Side camera LH image signal	Input	ON	CAMERA selected or Shift selector in R (reverse) position.	
62 (B)	Ground	Side camera RH power supply	Output	ON	CAMERA selected or Shift selector in R (reverse) position.	6.0 V
64 (L)	Ground	Side camera RH ground	—	ON	—	0 V
65 (Y)	66 (Shield)	Side camera RH image signal	Input	ON	CAMERA selected or Shift selector in R (reverse) position.	

AROUND VIEW MONITOR CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[DRIVER ASSISTANCE SYSTEM]

Terminal (Wire color)		Description		Condition		Reference value (Approx.)
+	—	Signal name	Input/ Output	Ignition switch	Operation	
68 (L)	Ground	Front camera power supply	Output	ON	CAMERA selected or Shift selector in R (reverse) position.	6.0 V
70 (V)	Ground	Front camera ground	—	ON	—	0 V
71 (LG)	72 (Shield)	Front camera image signal	Input	ON	CAMERA selected or Shift selector in R (reverse) position.	 (V) 40 μs JSNIA0834GB

DTC Index

INFOID:0000000010284115

CONSULT Display	Reference Page
U0428: ST ANG SEN CALIB	AV-141. "DTC Logic"
U1000: CAN COMM CIRCUIT	AV-142. "AROUND VIEW MONITOR CONTROL UNIT : DTC Logic"
U1010: CONTROL UNIT (CAN)	AV-143. "AROUND VIEW MONITOR CONTROL UNIT : DTC Logic"
U111A: Rear display output signal diagnosis (Harness disconnection)	AV-144. "DTC Logic"
U111B: Right side display output signal diagnosis (Harness disconnection)	AV-148. "DTC Logic"
U111C: Front display output signal diagnosis (Harness disconnection)	AV-152. "DTC Logic"
U111D: Left side display output signal diagnosis (Harness disconnection)	AV-156. "DTC Logic"
U1232: ST ANG SEN CALIB	AV-163. "DTC Logic"
U1302: Camera supply power supply voltage abnormality	DAS-117. "DTC Logic"
U1303: LED supply power supply voltage abnormality	DAS-121. "DTC Logic"
U1304: Non-completion of the calibration	AV-177. "DTC Logic"
U1305: Non-completion of the configuration	AV-178. "DTC Logic"
U1308: Rear camera judgment	DAS-124. "DTC Logic"
U1309 PUMP UNIT CURRENT	DAS-125. "DTC Logic"
U130A: PUMP ECU JUDGE	DAS-127. "DTC Logic"
U0122: VDC CAN CIR1 (LDP)	DAS-100. "DTC Logic"
U0416: VDC CAN CIR2 (LDP)	DAS-104. "DTC Logic"
U1232: ST ANG SEN CALIB	DAS-116. "DTC Logic"
C1A03: VHCL SPEED SE CIRC	DAS-131. "AROUND VIEW MONITOR CONTROL UNIT : DTC Logic"
C1A39: STRG SEN CIR	DAS-142. "AROUND VIEW MONITOR CONTROL UNIT : DTC Logic"
C1A04: ABS/TCS/VDC CIRC	DAS-132. "AROUND VIEW MONITOR CONTROL UNIT : DTC Logic"
U130B: Rear camera serial communication err	DAS-128. "DTC Logic"

DISTANCE SENSOR

< ECU DIAGNOSIS INFORMATION >

[DRIVER ASSISTANCE SYSTEM]

DISTANCE SENSOR

Reference Value

INFOID:0000000010227221

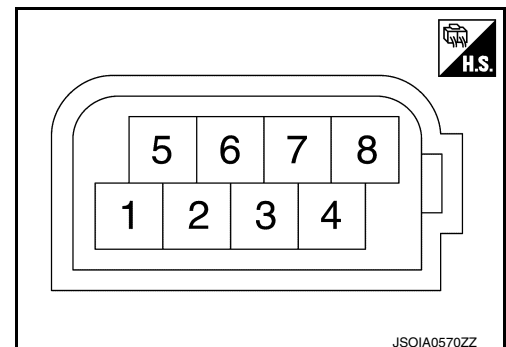
VALUES ON THE DIAGNOSIS TOOL

NOTE:

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

Monitor item	Condition		Value/Status
VHCL SPEED SE	While driving		Value of vehicle speed signal (wheel speed)
YAW RATE	While driving	Vehicle stopped	0.0
		Vehicle turning right	Positive value
		Vehicle turning left	Negative value
PWR SUP MONI	Ignition switch ON		Power supply voltage value of Distance sensor
DISTANCE	Drive the vehicle and activate the vehicle-to-vehicle distance control mode	When a vehicle ahead is detected	Displays the distance from the preceding vehicle
		When a vehicle ahead is not detected	0.0
RELATIVE SPD	Drive the vehicle and activate the vehicle-to-vehicle distance control mode	When a vehicle ahead is detected	Displays the relative speed
		When a vehicle ahead is not detected	0.0
RADAR OFFSET	NOTE: The item is indicated, but not used		—
RADAR HEIGHT	NOTE: The item is indicated, but not used		—
STEERING ANGLE	Ignition switch ON	When setting the steering wheel in straight-ahead position	0.0
		When turning the steering wheel 90° rightward	+90
		When turning the steering wheel 90° leftward	-90
STRG ANGLE SPEED	Ignition switch ON	At the time of turning the steering wheel	Steering wheel turning speed is displayed
L/R ADJUST	Ignition switch ON	At the completion of radar alignment adjustment	Horizontal correction value is displayed
U/D ADJUST	Ignition switch ON	At the completion of radar alignment adjustment	Vertical correction value is displayed

TERMINAL LAYOUT



DISTANCE SENSOR

< ECU DIAGNOSIS INFORMATION >

[DRIVER ASSISTANCE SYSTEM]

PHYSICAL VALUES

Terminal No. (Wire color)		Description		Condition	Standard value	Reference value
+	—	Signal name	Input/ Output			
1 (P)	Ground	Ignition power supply	Input	Ignition switch ON	10 - 16 V	Battery voltage
6 (R)		CAN communication-L	—	—	—	—
7 (L)		CAN communication-H	—	—	—	—
8 (B)		Ground	—	Ignition switch ON	0 - 0.1 V	Approx. 0 V

Fail-safe (Distance Sensor)

INFOID:0000000010227222

If a malfunction occurs in the distance sensor, around view monitor control unit cancels control, sounds a beep, and turns ON the FCW system warning in the information display.

DTC Inspection Priority Chart

INFOID:0000000010227223

If multiple DTCs are detected simultaneously, check them one by one depending on the following DTC inspection priority chart.

Priority	Detected items (DTC)
1	- U1000: CAN COMM CIRCUIT - U1010: CONTROL UNIT (CAN)
2	C1A50: ADAS MALFUNCTION
3	- C1A01: POWER SUPPLY CIR - C1A02: POWER SUPPLY CIR 2 - C1A12: RADAR OFF-CENTER - C1A16: RADAR BLOCKED - C1A21: UNIT HIGH TEMP - C1A23: UNIT LOW TEMP - C1A39: STRG SEN CIR - U0104: ADAS CAN CIR1 - U0121: VDC CAN CIR2 - U0126: STRG SEN CAN CIR1 - U0405: ADAS CAN CIR2 - U0415: VDC CAN CIR1 - U0428: STRG SEN CAN CIR2
4	C1A00: CONTROL UNIT

DTC Index

INFOID:0000000010227224

×: Applicable

DTC	CONSULT display	Reference
CONSULT		
C1A01	POWER SUPPLY CIR	DAS-130
C1A02	POWER SUPPLY CIR2	DAS-130
C1A12	RADAR OFF-CENTER	DAS-134
C1A16	RADAR BLOCKED	DAS-137
C1A18	RADAR ALIGNMENT INCMP	DAS-139
C1A21	UNIT HIGH TEMP	DAS-140
C1A39	STRG SEN CIR	DAS-142

DISTANCE SENSOR

< ECU DIAGNOSIS INFORMATION >

[DRIVER ASSISTANCE SYSTEM]

DTC	CONSULT display	Reference
CONSULT		
U1000	CAN COMM CIRCUIT	DAS-106
U1010	CONTROL UNIT (CAN)	DAS-107
U0121	VDC CAN CIR2	DAS-99
U0126	STRG MSG COUNTER	DAS-101
U0415	VDC CAN CIR1	DAS-103
U0428	STRG SEN CAN CIR2	DAS-105
U0401	ECM MSG COUNTER	DAS-102
C1A03	VHCL SPEED SE CIRC	DAS-131
C1A04	ABS/TCS/VDC CIRC	DAS-132
C1A05	BRAKE SW/STOP L SW	DAS-133
C10B7	YAW RATE SENSOR	DAS-129
C1A14	ECM CIRCUIT	DAS-135
C1A15	GEAR POSITION	DAS-136
C1A24	NP RANGE	DAS-141
C1A17	RADAR SENSOR FAIL	DAS-141

REAR VIEW CAMERA WASHER CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

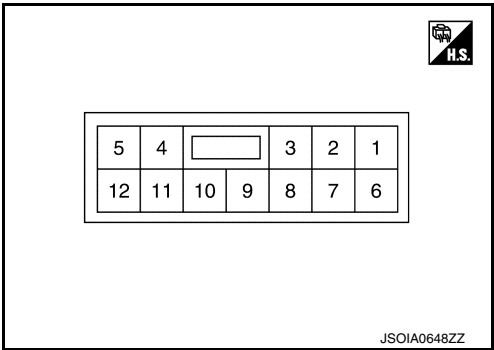
[DRIVER ASSISTANCE SYSTEM]

REAR VIEW CAMERA WASHER CONTROL UNIT

Reference Value

INFOID:0000000010275762

TERMINAL LAYOUT



PHYSICAL VALUES

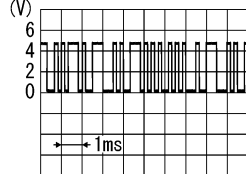
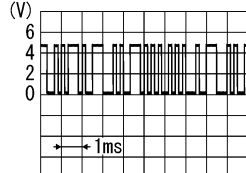
A
B
C
D
E
F
G
H
I
J
K
L
M
N
P

DAS

REAR VIEW CAMERA WASHER CONTROL UNIT

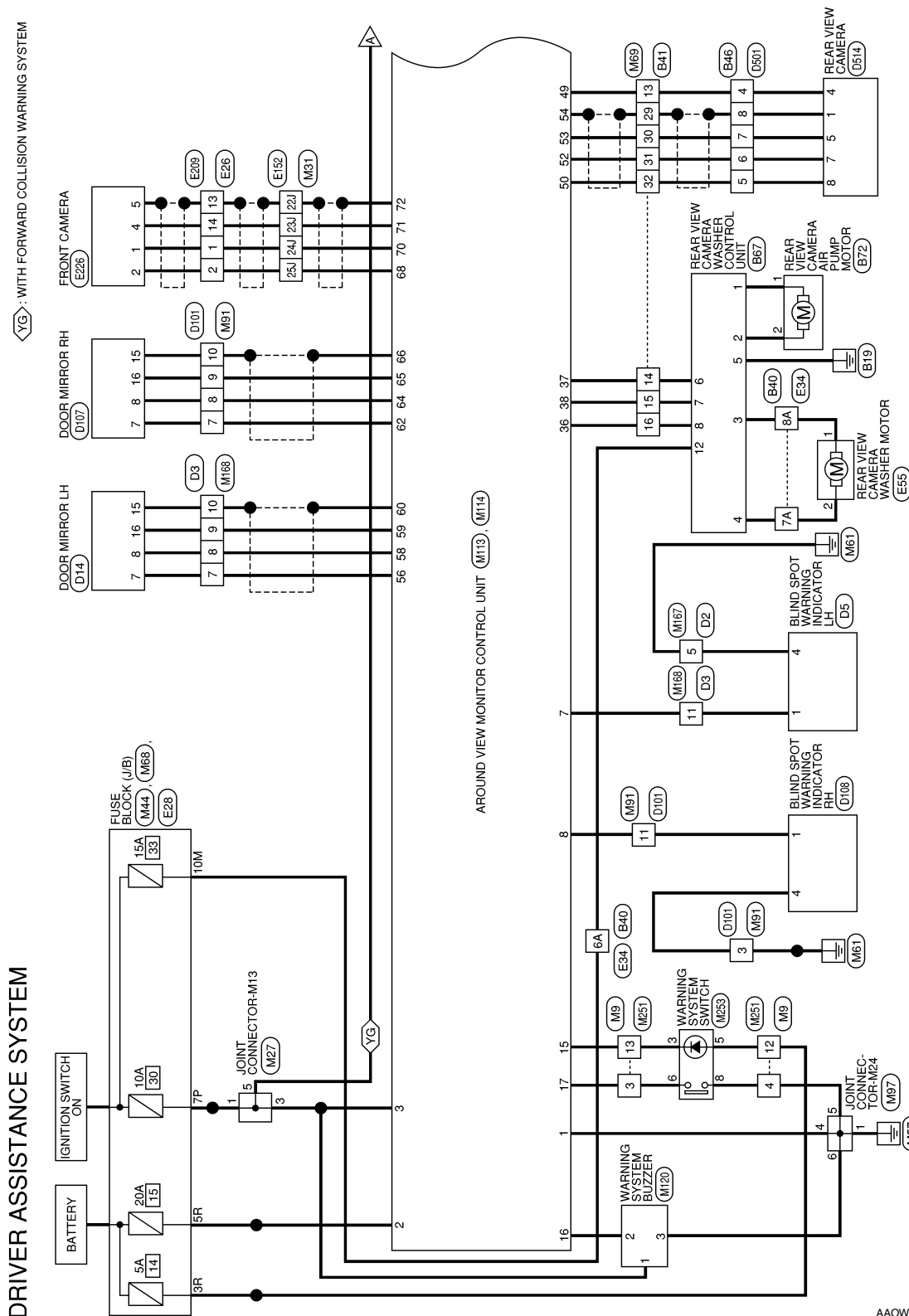
< ECU DIAGNOSIS INFORMATION >

[DRIVER ASSISTANCE SYSTEM]

Terminal (Wire color)		Description		Condition		Standard value	Reference value (Approx.)
+	—	Signal name	Input/ Output				
1 (SB)	Ground	Air pump power supply	Output	Ignition switch ON	Air pump operated	9.5 - 16 V	Battery voltage
					Air pump not operated	0 - 0.1 V	0 V
2 (LG)		Air pump ground	—	Ignition switch ON	—	0 - 0.1 V	0 V
3 (GR)		Washer motor ground		—	—	0 - 0.1 V	0 V
4 (Y)		Washer motor power supply	Output	Ignition switch ON	Rear view camera washer motor operated	0 - 0.1 V	0 V
					Rear view camera washer motor not operated	9.5 - 16 V	Battery voltage
5 (B)		Ground	—	Ignition switch ON	—	0 - 0.1 V	0 V
6 (V)		Communication line ground	—	Ignition switch ON	—	0 - 0.1 V	0 V
7 (L)		Communication line (PUMP → CAMERA)	Output	Ignition switch ON	—	Input the waveform synchronized with the communication status.  PKIB5039J	
8 (BR)	Communication line (CAMERA → PUMP)	Input	Ignition switch ON	—	Input the waveform synchronized with the communication status.  PKIB5039J		
12 (LG)	Ignition power supply	Input	Ignition switch ON	—	9.5 - 16 V	Battery voltage	

Wiring Diagram

INFOID:0000000010227247



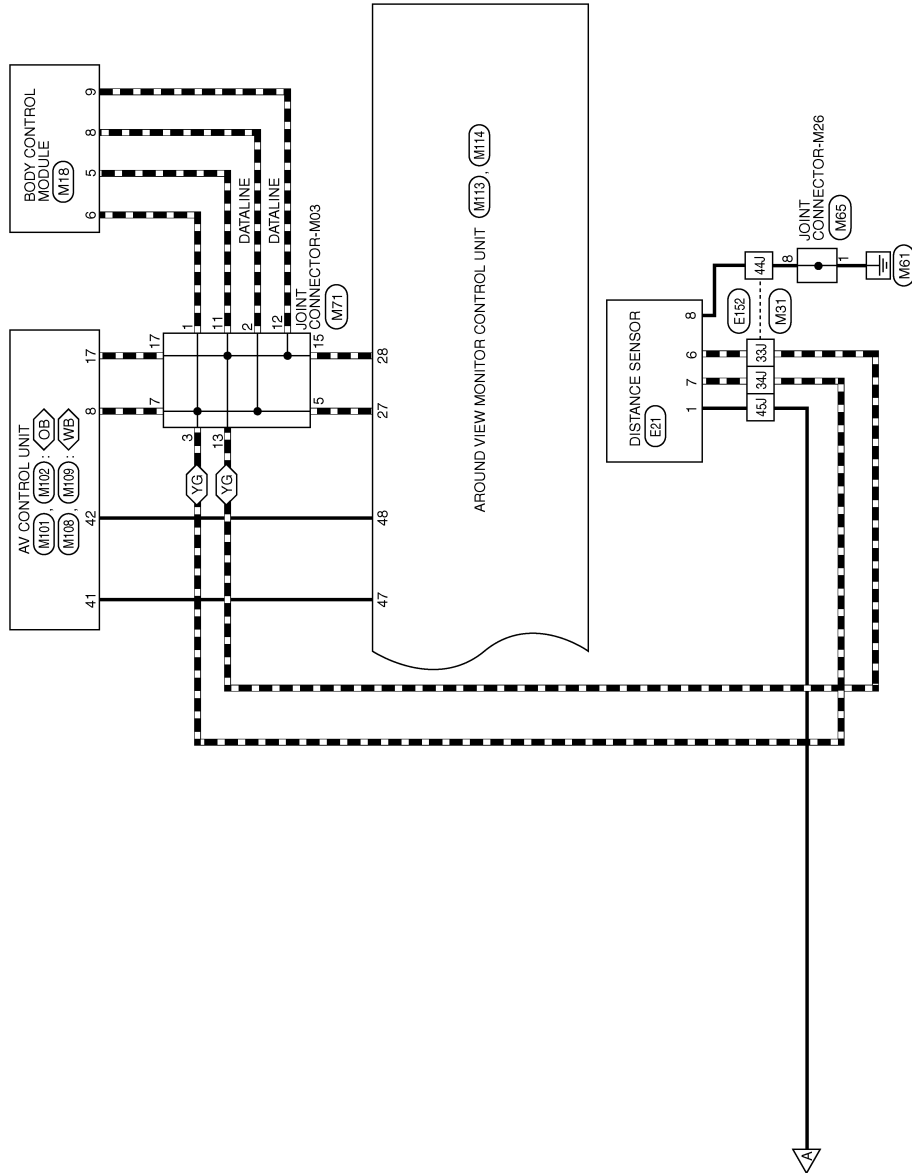
AAOWA0029GB

DRIVER ASSISTANCE SYSTEMS

< WIRING DIAGRAM >

[DRIVER ASSISTANCE SYSTEM]

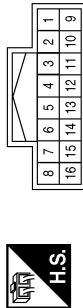
○B< : WITHOUT BOSE AUDIO SYSTEM
 ○WB< : WITH BOSE AUDIO SYSTEM
 ○YG< : WITH FORWARD COLLISION WARNING SYSTEM



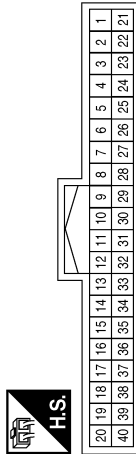
AAOWA0030GB

DRIVER ASSISTANCE SYSTEM CONNECTORS

Connector No.	M9
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	M18
Connector Name	BODY CONTROL MODULE
Connector Color	GRAY



Connector No.	M27
Connector Name	JOINT CONNECTOR-M13
Connector Color	WHITE

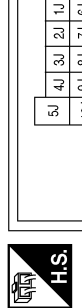


Terminal No.	Color of Wire	Signal Name
3	W	-
4	B	-
12	SB	-
13	BR	-

Terminal No.	Color of Wire	Signal Name
5	R	CAN-L
6	L	CAN-H
8	L	CAN-L
9	R	CAN-H

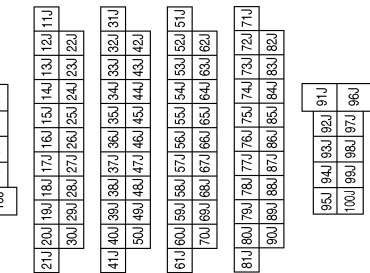
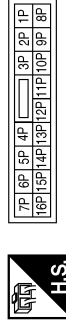
Terminal No.	Color of Wire	Signal Name
1	SB	-
3	SB	-
5	P	-

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
22J	SHIELD	-
23J	LG	-
24J	V	-
25J	L	-
33J	R	-
34J	L	-
44J	B	-
45J	P	-

Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



AAOIA0129GB

DRIVER ASSISTANCE SYSTEMS

< WIRING DIAGRAM >

[DRIVER ASSISTANCE SYSTEM]

Connector No.	M69
Connector Name	WIRE TO WIRE
Connector Color	WHITE



16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17

Terminal No.	Color of Wire	Signal Name
13	LG	-
14	V	-
15	SB	-
16	Y	-
29	SHIELD	-
30	W	-
31	B	-
32	R	-

Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN



7R	6R	5R	4R	3R	2R	1R
16R	15R	14R	13R	12R	11R	10R
9R	8R	7R	6R	5R	4R	3R

Terminal No.	Color of Wire	Signal Name
3R	V	-
5R	L	-

Connector No.	M65
Connector Name	JOINT CONNECTOR-M26
Connector Color	WHITE



8	7	6	5	4	3	2	1
---	---	---	---	---	---	---	---

Terminal No.	Color of Wire	Signal Name
1	B	-
8	B	-

Connector No.	M97
Connector Name	JOINT CONNECTOR-M24
Connector Color	WHITE



8	7	6	5	4	3	2	1
---	---	---	---	---	---	---	---

Connector No.	M91
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12
13	14	15	16	17	18	19	20	21	22	23	24

Terminal No.	Color of Wire	Signal Name
1	B	-
4	B	-
5	B	-
6	B	-

Terminal No.	Color of Wire	Signal Name
3	GR	-
7	B	-
8	L	-
9	Y	-
10	SHIELD	-
11	G	-

Connector No.	M71
Connector Name	JOINT CONNECTOR-M03
Connector Color	BLUE



9	8	7	6	5	4	3	2	1
20	19	18	17	16	15	14	13	12
11	10	9	8	7	6	5	4	3

Terminal No.	Color of Wire	Signal Name
1	L	-
2	L	-
3	L	-
5	L	-
7	L	-
11	R	-
12	R	-
13	R	-
15	R	-
17	R	-

AAOIA0130GB

DRIVER ASSISTANCE SYSTEMS

< WIRING DIAGRAM >

[DRIVER ASSISTANCE SYSTEM]

Connector No.	M108
Connector Name	AV CONTROL UNIT (WITH BOSE AUDIO SYSTEM)
Connector Color	WHITE



1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	18
19								20

Terminal No.	Color of Wire	Signal Name
8	L	CAN-H
17	R	CAN-L

Connector No.	M102
Connector Name	AV CONTROL UNIT (WITHOUT BOSE AUDIO SYSTEM)
Connector Color	WHITE



21	22	23	24	25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40	41	42	43	44

Terminal No.	Color of Wire	Signal Name
41	G	CAMERA+
42	SHIELD	CAMERA-(SHIELD)

Connector No.	M101
Connector Name	AV CONTROL UNIT (WITHOUT BOSE AUDIO SYSTEM)
Connector Color	WHITE



1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	18
19								20

Terminal No.	Color of Wire	Signal Name
8	L	CAN-H
17	R	CAN-L

Terminal No.	Color of Wire	Signal Name
17	W	ITS SW
27	L	CAN-H
28	R	CAN-L
36	Y	FROM C/U TO PUMP
37	V	SIGNAL GND
38	SB	FROM PUMP TO C/U

Connector No.	M113
Connector Name	AROUND VIEW MONITOR CONTROL UNIT (WITH DRIVER ASSISTANCE SYSTEM)
Connector Color	WHITE



2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40
1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	35	37	39

Terminal No.	Color of Wire	Signal Name
1	B	GND
2	Y	+B
3	SB	IGN
7	R	INDICATOR L
8	G	INDICATOR R
15	BR	ITS SW INDICATOR
16	Y	BUZZER CONT

Connector No.	M109
Connector Name	AV CONTROL UNIT (WITH BOSE AUDIO SYSTEM)
Connector Color	WHITE



21	22	23	24	25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40	41	42	43	44

Terminal No.	Color of Wire	Signal Name
41	G	CAMERA+
42	SHIELD	CAMERA-(SHIELD)

AA0IA0131GB

A
B
C
D
E
F
G
H
I
J
K
L
M
N
P

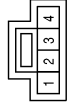
DAS

DRIVER ASSISTANCE SYSTEMS

< WIRING DIAGRAM >

[DRIVER ASSISTANCE SYSTEM]

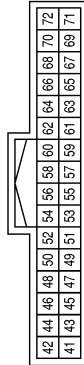
Connector No.	M120
Connector Name	WARNING SYSTEM BUZZER
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
1	SB	-
2	Y	-
3	B	-

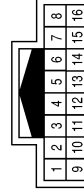
Terminal No.	Color of Wire	Signal Name
59	G	SV2 VIDEO SIGNAL
60	SHIELD	SV2 VIDEO GND
62	B	SV1 POWER 6.2V
64	L	SV1 POWER GND
65	Y	SV1 VIDEO SIGNAL
66	SHIELD	SV1 VIDEO GND
68	L	FV POWER 6.2V
70	V	FV POWER GND
71	LG	FV VIDEO SIGNAL
72	SHIELD	FV VIDEO GND

Connector No.	M114
Connector Name	AROUND VIEW MONITOR CONTROL UNIT (WITH DRIVER ASSISTANCE SYSTEM)
Connector Color	WHITE

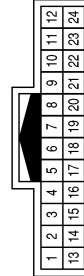


Terminal No.	Color of Wire	Signal Name
47	G	VIDEO OUTPUT SIGNAL
48	SHIELD	VIDEO OUTPUT GND
49	LG	RV SERIAL SIGNAL
50	R	RV POWER 6.2V
52	B	RV POWER GND
53	W	RV VIDEO SIGNAL
54	SHIELD	RV VIDEO GND
56	L	SV2 POWER 6.2V
58	Y	SV2 POWER GND

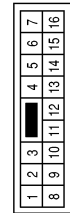
Connector No.	M251
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	M168
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	M167
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
3	W	-
4	B	-
12	BG	-
13	BR	-

Terminal No.	Color of Wire	Signal Name
7	L	-
8	Y	-
9	G	-
10	SHIELD	-
11	R	-

Terminal No.	5
Color of Wire	B
Signal Name	-

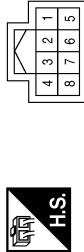
AAOIA0132GB

DRIVER ASSISTANCE SYSTEMS

< WIRING DIAGRAM >

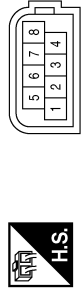
[DRIVER ASSISTANCE SYSTEM]

Connector No.	M253
Connector Name	WARNING SYSTEM SWITCH
Connector Color	WHITE



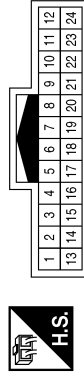
Terminal No.	Color of Wire	Signal Name
3	BR	-
5	BG	-
6	W	-
8	B	-

Connector No.	E21
Connector Name	DISTANCE SENSOR
Connector Color	BLACK



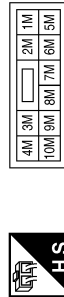
Terminal No.	Color of Wire	Signal Name
1	P	IGN
6	R	CAN-L
7	L	CAN-H
8	B	GND

Connector No.	E26
Connector Name	WIRE TO WIRE
Connector Color	WHITE



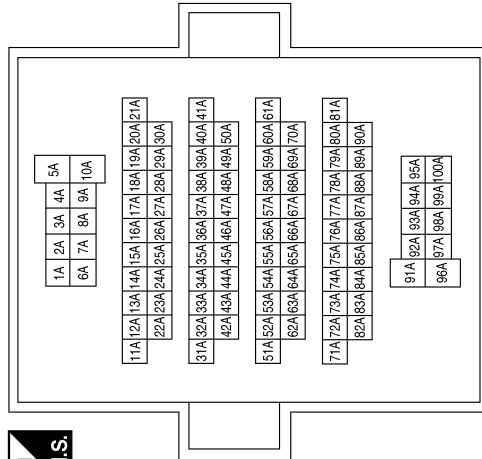
Terminal No.	Color of Wire	Signal Name
1	V	-
2	L	-
13	SHIELD	-
14	LG	-

Connector No.	E28
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
10M	L	-

Connector No.	E34
Connector Name	WIRE TO WIRE
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
6A	L	-
7A	R	-
8A	GR	-

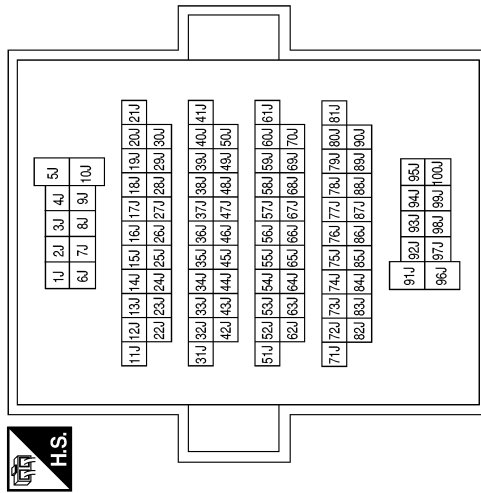
DRIVER ASSISTANCE SYSTEMS

< WIRING DIAGRAM >

[DRIVER ASSISTANCE SYSTEM]

Terminal No.	Color of Wire	Signal Name
22J	SHIELD	—
23J	LG	—
24J	V	—
25J	L	—
33J	R	—
34J	L	—
44J	B	—
45J	P	—

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	E55
Connector Name	REAR VIEW CAMERA WASHER MOTOR
Connector Color	BLACK



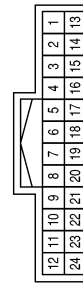
Terminal No.	Color of Wire	Signal Name
1	GR	—
2	R	—

Connector No.	E226
Connector Name	FRONT CAMERA
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	V	—
2	L	—
4	LG	—
5	SHIELD	—

Connector No.	E209
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	V	—
2	L	—
13	SHIELD	—
14	LG	—

AAOIA0134GB

DRIVER ASSISTANCE SYSTEMS

< WIRING DIAGRAM >

[DRIVER ASSISTANCE SYSTEM]

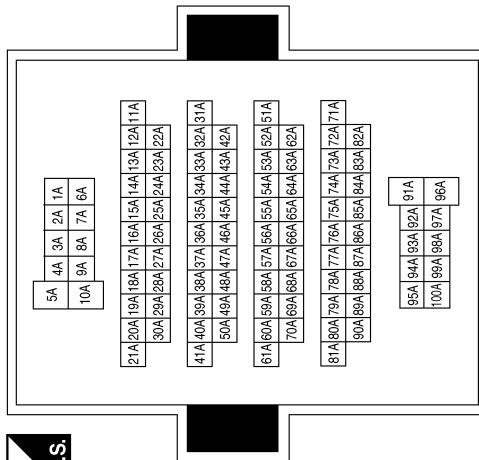
Connector No.	B41
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Terminal No.	Color of Wire	Signal Name
6A	LG	-
7A	Y	-
8A	GR	-

Connector No.	B40
Connector Name	WIRE TO WIRE
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
4	Y	CAMERA -
5	B	GND
6	V	SIGNAL GND
7	L	FROM PUMP TO CAMERA C/U
8	BR	FRONT CAMERA C/U TO PUMP
12	LG	IGN

Connector No.	B67
Connector Name	REAR VIEW CAMERA WASHER CONTROL UNIT
Connector Color	WHITE



5	4			3	2	1
12	11	10	9	8	7	6

Terminal No.	Color of Wire	Signal Name
1	SB	PUMP MOTOR +
2	LG	PUMP MOTOR -
3	GR	CAMERA WASHER +

Connector No.	B46
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Terminal No.	Color of Wire	Signal Name
4	W	-
5	R	-
6	B	-
7	W	-
8	SHIELD	-

AAOIA0135GB

A B C D E F G H I J K L M N P

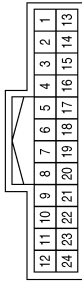
DAS

DRIVER ASSISTANCE SYSTEMS

< WIRING DIAGRAM >

[DRIVER ASSISTANCE SYSTEM]

Connector No.	D3
Connector Name	WIRE TO WIRE
Connector Color	WHITE

Terminal No.	Color of Wire	Signal Name
7	GR	-
8	G	-
9	Y	-
10	B	-
11	R	-

Connector No.	D2
Connector Name	WIRE TO WIRE
Connector Color	WHITE



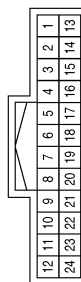

Terminal No.	Color of Wire	Signal Name
5	B	-

Connector No.	B72
Connector Name	REAR VIEW CAMERA AIR PUMP MOTOR
Connector Color	BLACK



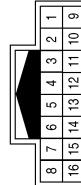

Terminal No.	Color of Wire	Signal Name
1	SB	-
2	LG	-

Connector No.	D101
Connector Name	WIRE TO WIRE
Connector Color	WHITE

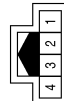
Terminal No.	Color of Wire	Signal Name
3	B	-
7	L	-
8	V	-
9	Y	-
10	B	-
11	G	-

Connector No.	D14
Connector Name	DOOR MIRROR LH
Connector Color	WHITE

Terminal No.	Color of Wire	Signal Name
7	GR	-
8	G	-
15	B	-
16	Y	-

Connector No.	D5
Connector Name	BLIND SPOT WARNING INDICATOR LH/BLIND SPOT INTERVENTION
Connector Color	WHITE

Terminal No.	Color of Wire	Signal Name
1	R	-
4	B	-

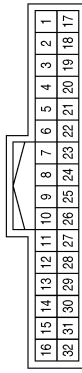
AAOIA0136GB

DRIVER ASSISTANCE SYSTEMS

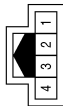
< WIRING DIAGRAM >

[DRIVER ASSISTANCE SYSTEM]

Connector No.	D501
Connector Name	WIRE TO WIRE
Connector Color	WHITE

Connector No.	D108
Connector Name	BLIND SPOT WARNING/BLIND SPOT INTERVENTION INDICATOR RH
Connector Color	WHITE

Connector No.	D107
Connector Name	DOOR MIRROR RH
Connector Color	WHITE

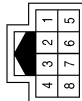



Terminal No.	Color of Wire	Signal Name
4	L	-
5	R	-
6	B	-
7	W	-
8	V	-

Terminal No.	Color of Wire	Signal Name
1	G	-
4	B	-

Terminal No.	Color of Wire	Signal Name
7	L	-
8	V	-
15	B	-
16	Y	-

Connector No.	D514
Connector Name	REAR VIEW CAMERA
Connector Color	WHITE

Terminal No.	Color of Wire	Signal Name
1	V	-
4	L	-
5	W	-
7	B	-
8	R	-

AAOIA0137GB

A
B
C
D
E
F
G
H
I
J
K
L
M
N
P

DAS

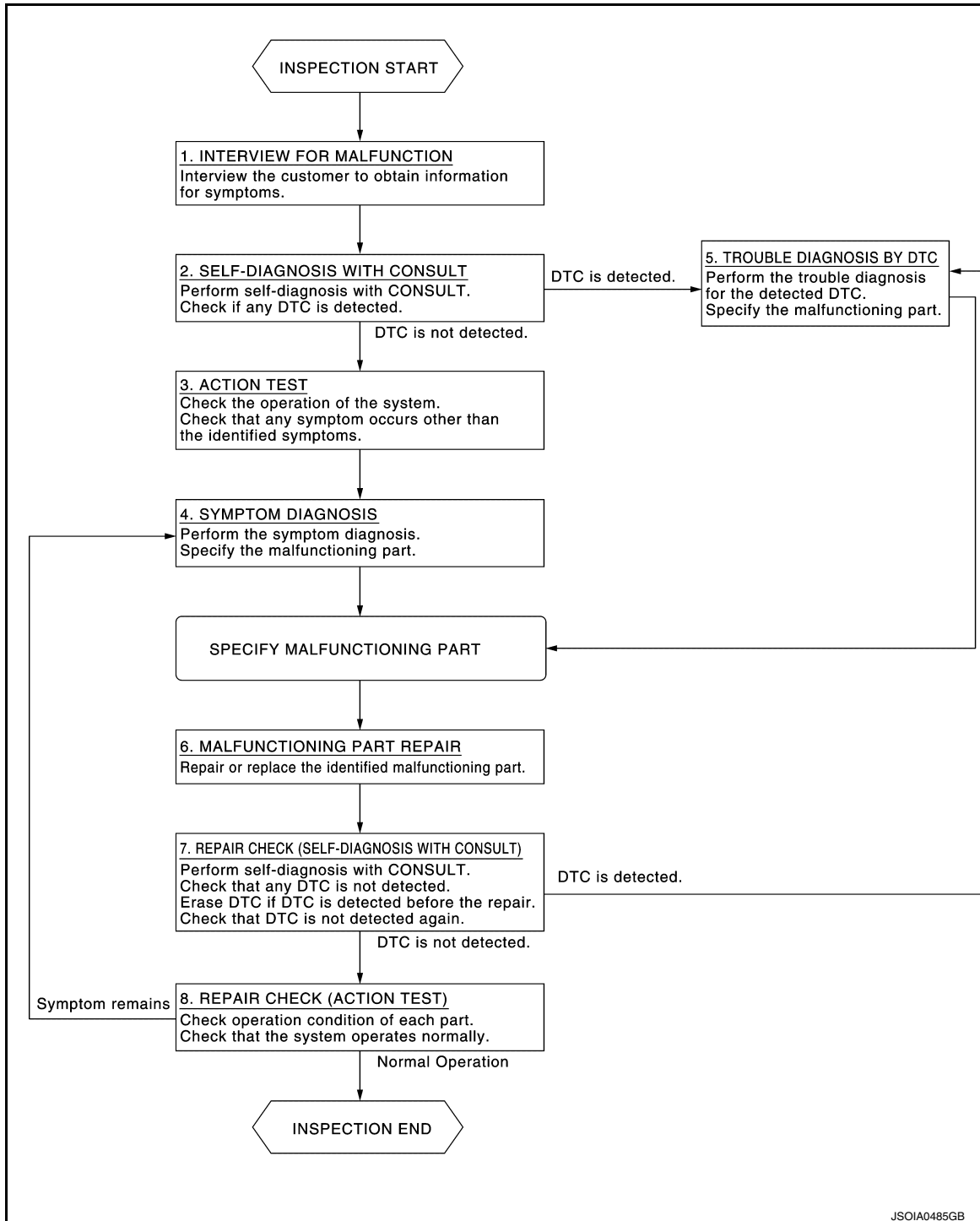
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

INFOID:0000000010227248

OVERALL SEQUENCE



DETAILED FLOW

1. INTERVIEW FOR MALFUNCTION

It is also important to clarify the customer concerns before starting the inspection. Interview the customer about the concerns carefully and understand the symptoms fully.

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[DRIVER ASSISTANCE SYSTEM]

NOTE:

The customers are not professionals. Never assume that “maybe the customer means…” or “maybe the customer mentioned this symptom”.

>> GO TO 2.

2.SELF-DIAGNOSIS WITH CONSULT

1. Perform “All DTC Reading” with CONSULT.
2. Check if the DTC is detected on the “Self-Diagnostic Results” of following:
 - “DISTANCE SENSOR”
 - “AROUND VIEW MONITOR”

Is any DTC detected?

YES >> GO TO 5.

NO >> GO TO 3.

3.ACTION TEST

Perform the following system action test to check the system operation:

- LDW refer to [DAS-80. "LDW : Description"](#).
- BSW refer to [DAS-81. "BSW : Description"](#).
- MOD refer to [DAS-82. "MOD : Description"](#).

Check if any other malfunctions occur.

>> GO TO 4.

4.SYMPTOM DIAGNOSIS

Perform the applicable diagnosis according to the diagnosis chart by symptom. Refer to [DAS-152. "Symptom Table"](#).

>> GO TO 6.

5.TROUBLE DIAGNOSIS BY DTC

1. Check the DTC in the “Self-Diagnostic Results”.
2. Perform trouble diagnosis for the detected DTC following:
 - “DISTANCE SENSOR”: Refer to [DAS-49. "DTC Index"](#).
 - “AROUND VIEW MONITOR”: Refer to [DAS-47. "DTC Index"](#).

>> GO TO 6.

6.MALFUNCTIONING PART REPAIR

Repair or replace the identified malfunctioning parts.

>> GO TO 7.

7.REPAIR CHECK (SELF-DIAGNOSIS WITH CONSULT)

1. Erases self-diagnosis results.
2. Perform “All DTC Reading” again after repairing or replacing the specific items.
3. Check if any DTC is detected in self-diagnosis results of following:
 - “DISTANCE SENSOR”
 - “AROUND VIEW MONITOR”

Is any DTC detected?

YES >> GO TO 5.

NO >> GO TO 8.

8.REPAIR CHECK (ACTION TEST)

Perform the following system action test. Check that the malfunction symptom is solved or no other symptoms occur.

Is there a malfunction symptom?

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[DRIVER ASSISTANCE SYSTEM]

YES >> GO TO 4.

NO >> Inspection End.

PRE-INSPECTION FOR DIAGNOSIS

< BASIC INSPECTION >

[DRIVER ASSISTANCE SYSTEM]

PRE-INSPECTION FOR DIAGNOSIS

Inspection Procedure

INFOID:0000000010284235

1.CHECK REAR VIEW CAMERA LENS

Is the rear view camera lens contaminated with foreign materials?

YES >> Clean rear view camera lens.

NO >> GO TO 2.

2.CHECK REAR VIEW CAMERA INSTALLATION CONDITION

Check rear view camera installation condition (e.g. position, looseness, bent in back door).

Is it properly installed?

YES >> Inspection End.

NO >> Install rear view camera properly, and perform rear view camera calibration. Refer to [DAS-89](#).
["Description"](#).

A
B
C
D
E
F
G
H
I
J
K
L
M
N
P

DAS

REAR VIEW CAMERA WASHER/AIR BLOWER FUNCTION INSPECTION

< BASIC INSPECTION >

[DRIVER ASSISTANCE SYSTEM]

REAR VIEW CAMERA WASHER/AIR BLOWER FUNCTION INSPECTION

Inspection Procedure

INFOID:0000000010284236

1. CHECK REAR VIEW CAMERA WASHER/AIR BLOWER FUNCTION

1. Start the engine.
2. Select the "Active Test" item "AIR&WASH ACTIVE" of "AVM" with CONSULT.

NOTE:

Before function check, perform the following items:

- Fill with washer fluid.
- Perform "Active Test" item "WASH ACTIVE" of "AVM" with CONSULT for 4 seconds.

3. While operating the test item, check the operation.

Is it properly operated?

Washer fluid ejects 4 - 6 times. (Normal function)>>Inspection End.

Washer fluid ejects 7 times or more.>>Properly install or replace air tube.

Washer fluid ejects only once>> Properly install or replace air tube.

Washer fluid does not eject>>Properly install washer tube or replace washer tube and check valve.

ADDITIONAL SERVICE WHEN REPLACING DISTANCE SENSOR

< BASIC INSPECTION >

[DRIVER ASSISTANCE SYSTEM]

ADDITIONAL SERVICE WHEN REPLACING DISTANCE SENSOR

Description

INFOID:0000000010227249

Always perform the following after removing and installing or replacing the Distance sensor:

- Distance sensor initial vertical alignment
- Distance sensor alignment

- **CAUTION:**

The system does not operate normally unless the Distance sensor is aligned properly.

Work Procedure

INFOID:0000000010227250

1.DISTANCE SENSOR INITIAL VERTICAL ALIGNMENT

Perform the distance sensor initial vertical alignment. Refer to [DAS-70, "Description"](#).

>> GO TO 2.

2.DISTANCE SENSOR ALIGNMENT

Perform the distance sensor alignment. Refer to [DAS-72, "Description"](#).

>> Work End.

DAS

DISTANCE SENSOR INITIAL VERTICAL ALIGNMENT

< BASIC INSPECTION >

[DRIVER ASSISTANCE SYSTEM]

DISTANCE SENSOR INITIAL VERTICAL ALIGNMENT

Description

INFOID:0000000010250289

WARNING:

Radio waves could adversely affect electric medical equipment. Those who use a pacemaker should contact the electric medical equipment manufacturer for the possible influences before use.

OUTLINE OF DISTANCE SENSOR INITIAL ALIGNMENT PROCEDURE

- Always perform the Distance sensor initial vertical alignment after removing and installing or replacing the Distance sensor.

CAUTION:

The system does not operate normally unless the Distance sensor is aligned properly.

1. Required tools, refer to [DAS-70, "Required Tools"](#).
2. Preparation, refer to [DAS-70, "Preparation"](#).
3. Distance sensor initial vertical alignment, refer to [DAS-71, "Distance Sensor Initial Vertical Alignment"](#).

CAUTIONARY POINT FOR DISTANCE SENSOR ALIGNMENT PROCEDURE

CAUTION:

- For Distance sensor alignment procedure, choose a level location with a few feet of working space in front and surrounding the vehicle.
- Vehicle must be stationary and unoccupied during the whole alignment procedure.
- Never enter the vehicle during distance sensor alignment.
- For proper system operation and adjustment, all vehicle wheels must be the original factory size.

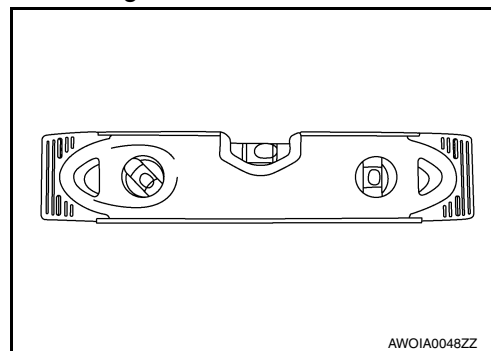
The Distance sensor requires alignment whenever the Distance sensor is removed and reinstalled and whenever front end structural repairs are performed. Distance sensor alignment consists of performing the mechanical vertical alignment (Distance sensor initial vertical alignment) described in the following procedure, followed by the electronic horizontal alignment (Distance sensor alignment) that is performed using CONSULT and the appropriate special service tools.

Required Tools

INFOID:0000000010250290

The following tool is necessary to perform the Distance sensor initial vertical alignment:

- Carpenters level.



Preparation

INFOID:0000000010250291

1. PREPARATION FOR DISTANCE SENSOR INITIAL VERTICAL ALIGNMENT PROCEDURE

1. Verify correct vehicle suspension height. Refer to [WT-65, "Wheel"](#).
2. Repair or replace any damaged body components.
3. Verify proper tire inflation pressures. Refer to [WT-65, "Tire Air Pressure"](#).
4. Remove any accumulations of mud, snow or ice from the vehicle underbody.
5. Verify that there is no load in the vehicle (cargo or passenger).
6. Place the vehicle on a known level horizontal surface such as a wheel or frame alignment rack to achieve satisfactory sensor vertical alignment results.
7. Remove front fascia. Refer to [EXT-17, "Removal and Installation"](#).

DISTANCE SENSOR INITIAL VERTICAL ALIGNMENT

< BASIC INSPECTION >

[DRIVER ASSISTANCE SYSTEM]

>> Refer to [DAS-71, "Distance Sensor Initial Vertical Alignment"](#).

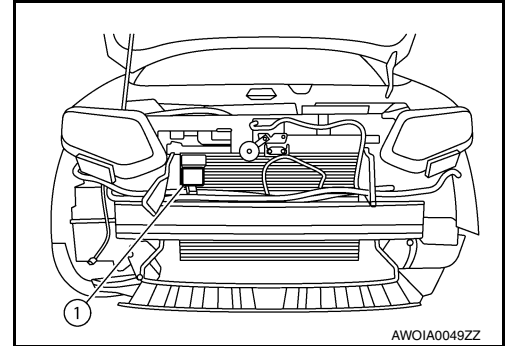
Distance Sensor Initial Vertical Alignment

INFOID:000000010250292

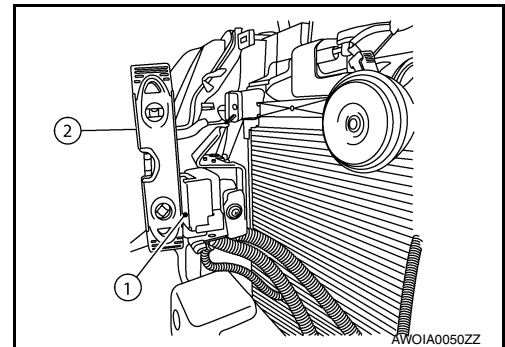
NOTE:

The Distance sensor initial vertical alignment procedure must be performed anytime the Distance sensor is removed and reinstalled.

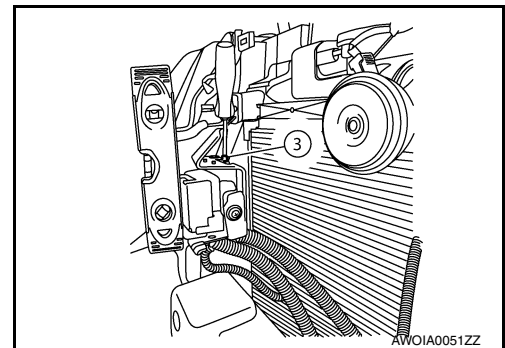
1. The Distance sensor (1) is located near the right front head lamp behind the front bumper fascia.



2. Place the carpenter's level (2) against the face of the Distance sensor (1).



3. Turn the Distance sensor adjustment screw (3) to level the sensor.



4. Insure the Distance sensor electrical connector located on the bottom of the sensor is connected.
5. Reinstall the front bumper fascia.
6. Perform the Distance sensor alignment procedure. Refer to [DAS-72, "Description"](#).

A
B
C
D
E
F
G
H
I
J
K
L
M
N
P

DAS

DISTANCE SENSOR ALIGNMENT

Description

INFOID:0000000010250293

WARNING:

Radio waves could adversely affect electric medical equipment. Those who use a pacemaker should contact the electric medical equipment manufacturer for the possible influences before use.

OUTLINE OF RADAR ALIGNMENT PROCEDURE

- A 4-wheel vehicle alignment must be performed before proceeding with radar alignment procedure.
- Always perform the radar alignment after removing and installing or replacing the Distance sensor.
- If the Distance sensor was removed and installed or replaced, first perform Distance Sensor Initial Vertical Alignment, refer to [DAS-70, "Description"](#).

CAUTION:

The system does not operate normally unless the Distance sensor is aligned properly.

1. Required tools, refer to [DAS-72, "Required Tools"](#).
2. Preparation, refer to [DAS-74, "Preparation"](#).
3. Vehicle set up, refer to [DAS-74, "Vehicle Set Up"](#).
4. Setting the Distance sensor target board, refer to [DAS-76, "Setting The Distance Sensor Target Board"](#).
5. Distance sensor adjustment, refer to [DAS-77, "Distance Sensor Adjustment"](#).

CAUTIONARY POINT FOR RADAR ALIGNMENT PROCEDURE

CAUTION:

- For radar alignment procedure, choose a level location with a few feet of working space in front and surrounding the vehicle.
- Vehicle must be stationary and unoccupied during the whole alignment procedure.
- Any slight vibration during the alignment procedure can cause the test to fail. If this happens, you will have to restart the alignment process.
- The ignition switch must be in the ON position.
- The battery voltage must not fall below 12 volts during the whole alignment procedure. Failure to maintain adequate battery voltage will cause the test to fail. If this happens, you will have to restart the alignment process.
- The Distance sensor target board must be set in front of the vehicle facing the sensor.
- Adjust the radar alignment with CONSULT. (The radar alignment procedure cannot be adjusted without CONSULT.)
- Never enter the vehicle during radar alignment.
- Never block the area between the radar and the Distance sensor target board at any time during the alignment process.
- Never break the laser beam between the laser assembly and front Distance sensor target board or rear reflector at any time during alignment.
- Accurate steering wheel setting is crucial. Once set, do not disturb the steering wheel for the remainder of the alignment procedure.
- To avoid physical damage, the Distance sensor adjustment screw must not be forced to either clockwise or counter-clockwise limit. For proper adjustment procedure, follow the directions of the CONSULT exactly as instructed.
- For proper system operation and adjustment, all vehicle wheels must be of the same size.

Required Tools

INFOID:0000000010250294

- Distance sensor alignment kit 1-20-2721-1-IF in addition to one of the following:
 - a) Hunter self-centering wheel adapter (Hunter wheel alignment tool)
 - b) Special Service Tool kit 1-20-2722-1-IF (kit SCA W/Tire Clamp-ICC Aiming)
- Distance sensor alignment kit attachment board J-50808

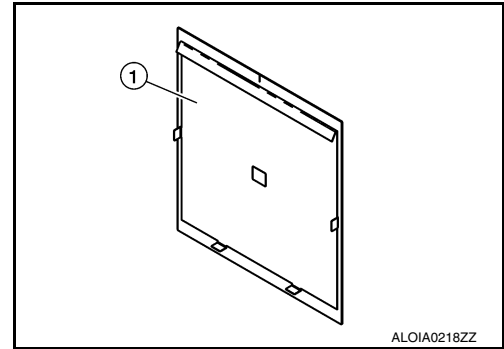
The following Distance sensor alignment kit (1-20-2721-1-IF) and Distance sensor alignment kit attachment board (target board) (J-50808) are necessary to perform the Distance sensor alignment:

DISTANCE SENSOR ALIGNMENT

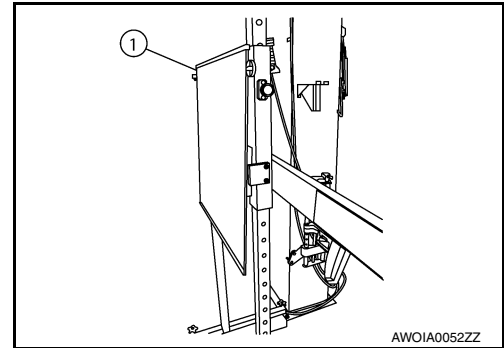
[DRIVER ASSISTANCE SYSTEM]

< BASIC INSPECTION >

- Distance sensor alignment kit attachment board (target board) (1).



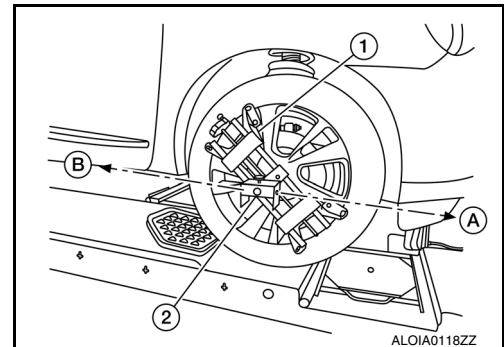
- Distance sensor target board (1).



- Hunter self-centering wheel adapter (1) [shown with laser assembly (2) installed] (Hunter alignment rack head may be substituted).

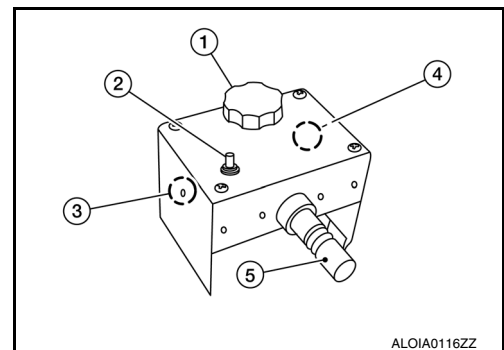
NOTE:

Dealers that are not equipped with a Hunter self-centering wheel adapter will require the following kit:
Part No. 1-20-2722-1-IF (kit SCA W/Tire Clamp-Distance Sensor Aiming)



- Laser assembly (with bi-directional laser beam) as shown in the illustration.

- Tightening knob (1)
- Power ON/OFF button (2)
- Front laser beam opening (3)
- Rear laser beam opening (4)
- Attaching shaft (5)

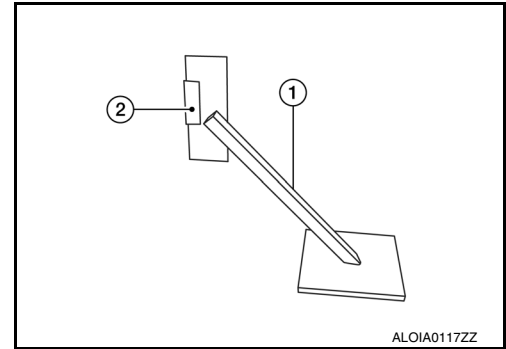


DISTANCE SENSOR ALIGNMENT

[DRIVER ASSISTANCE SYSTEM]

< BASIC INSPECTION >

- Stationary target as shown in the illustration.
- Stationary target (1)
- Laser signal reception plate (2)



- Distance chain (not shown).

Preparation

INFOID:0000000010250295

1. ADVANCE PREPARATION FOR RADAR ALIGNMENT PROCEDURE

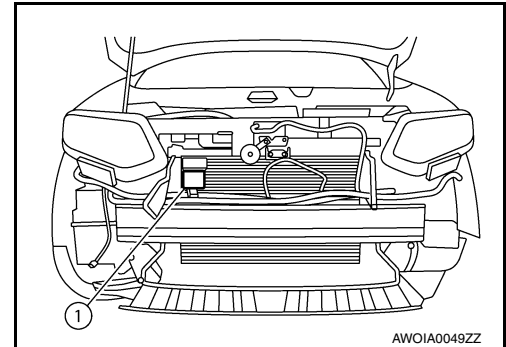
1. Adjust all tire pressures to the specified value.
2. Empty the vehicle. (Remove any luggage from the passenger compartment, luggage room, etc.)
3. Shift the selector lever to "P" position, and release the parking brake.
4. Fully fill the fuel tank, and then check that the coolant and oils are filled up to correct level.
5. Clean off the right front side of the fascia in front of the Distance sensor.

NOTE:

The Distance sensor is located behind the fascia and it is not exposed to the elements. Therefore it should not require any cleaning.

1 : Distance sensor

>> Refer to [DAS-74, "Vehicle Set Up"](#).



Vehicle Set Up

INFOID:0000000010250296

DESCRIPTION

Accurate adjustment of the radar alignment requires that the Distance sensor target board, wheel adapter, laser assembly, and stationary target be properly positioned.

CAUTION:

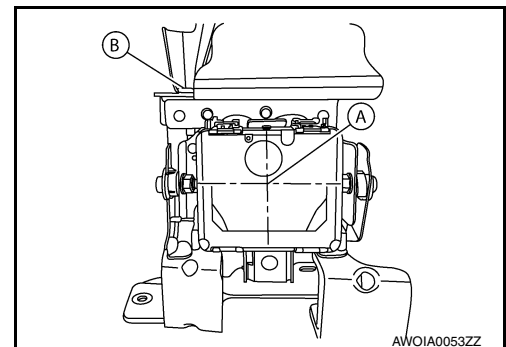
If the radar alignment is adjusted with the Distance sensor target board, wheel adapter, laser assembly, or stationary target in the incorrect position, the Distance system will not function properly or the alignment procedure may not be completed successfully.

1. PREPOSITION TARGET BOARD

NOTE:

- The center of the distance sensor (A).

B : Up-down direction adjusting screw

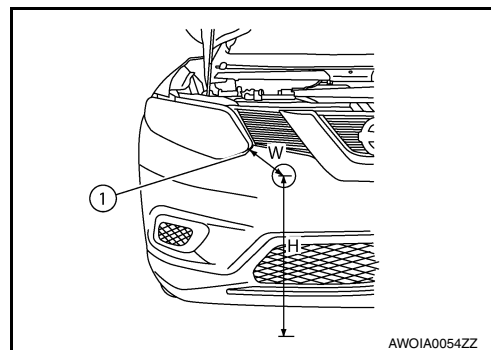


DISTANCE SENSOR ALIGNMENT

< BASIC INSPECTION >

[DRIVER ASSISTANCE SYSTEM]

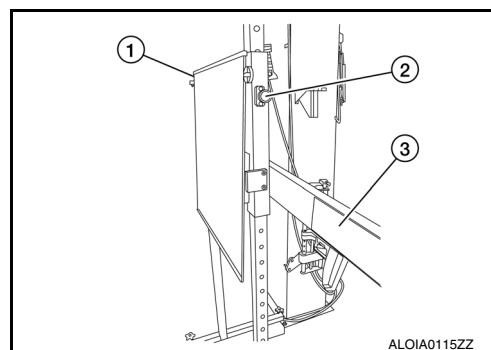
- To locate the center of the distance sensor (A) easily, on a flat level surface measure 27 in (685 mm) (H) up from the floor, and 7 in (178 mm) (W) to the right from the point of the right front head lamp (1) when viewed from the front of the vehicle.



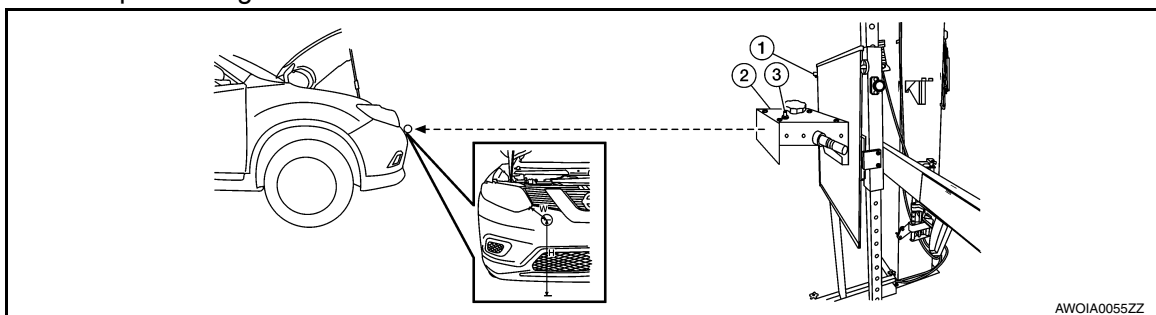
- Initial distance sensor target board setting must be in the center position.

- Position the distance sensor target board in front facing the right front side of the vehicle:

- Using the full length of the supplied chain for distance, place the marked center of the distance sensor target board (1) 1375 mm (54.1 in.) $\pm$ 625 mm (24.6 in) facing the distance sensor.
- Adjust the height of the distance sensor target board using the adjustable nut (2) to achieve the proper height. The up/down tolerance is $\pm$ 80 mm (3.15 in).
- Adjust the distance sensor target board lateral position aligning the marked center of the board horizontally with the center of the distance sensor front. The right/left tolerance is $\pm$ 80 mm (3.15 in).



- Extend the machined arm of the distance sensor target board exposing the reflective surface (3) to the right front side of the vehicle.
- Place one side of the laser assembly (2) flush against the center of the distance sensor target board (1) to assist in the positioning.



- Turn the laser assembly ON (3) allowing the laser beam to emit through the opening of the laser assembly toward the center of the distance sensor.
- Move the distance sensor target board (1) as necessary so that center of distance sensor target board aligns with center of distance sensor.
- Turn the laser assembly OFF when done.

Are you using Hunter alignment equipment?

YES >> Refer to Hunter's equipment instructions for complete vehicle set up and distance sensor target board setting. Then, refer to [DAS-77, "Distance Sensor Adjustment"](#).

NO >> GO TO 2.

2. INSTALLING LASER ASSEMBLY

NOTE:

- Insure the steering wheel is positioned in the center straight forward position.
- Insure all 4 vehicle wheels do not contain any physical damage.

DISTANCE SENSOR ALIGNMENT

< BASIC INSPECTION >

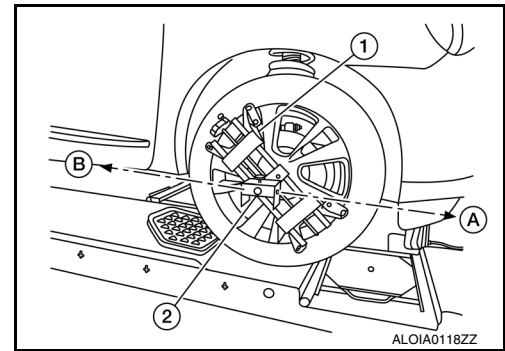
[DRIVER ASSISTANCE SYSTEM]

1. Install the wheel adapter (1) on the right front wheel.
2. Mount the laser assembly (2) to the wheel adapter (1) as shown in the figure.

NOTE:

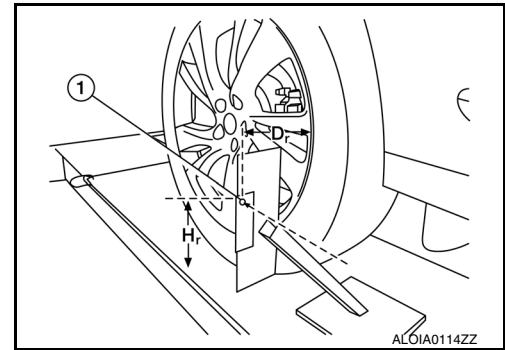
When the power switch is turned ON, the front laser signal (A) will be emitted toward the front distance sensor target board, and the rear laser signal (B) will be emitted toward the rear of the vehicle.

>> GO TO 3.



3.SETTING UP STATIONARY TARGET

1. Place the stationary target next to the right rear tire as shown in the figure.
2. Turn the laser assembly ON allowing the laser beam to be emitted through the front and rear laser assembly openings.
3. Measure and record the distance (D_r) between the edge of the right rear wheel and the laser beam (1) on the stationary target (horizontal line).
4. Measure and record the height (H_r) between the laser beam (1) on the stationary target and ground level (vertical line).



5. Measure and record the distance (D_f) between the edge of the right front wheel and the laser beam signal/opening (1) on the laser assembly (horizontal line).
6. Measure and record the height (H_f) between the laser beam signal/opening (1) on the laser assembly and ground level (vertical line).

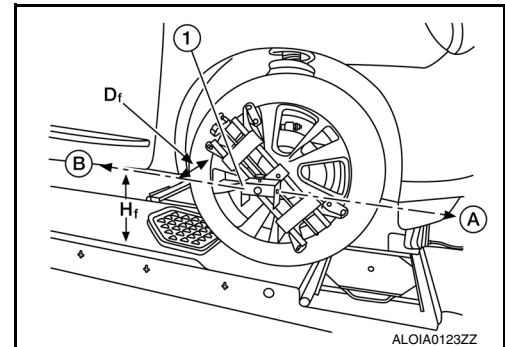
NOTE:

- Horizontal adjustment [front distance (D_f) and rear distance (D_r)] is accomplished by slowly turning the steering wheel until the 2 distances are the same.
- Vertical adjustment [front height (H_f) and rear height (H_r)] is accomplished by rotating the laser assembly around its axis until the two heights are the same.
- Directional arrows (A) and (B) are shown to illustrate the direction of the laser assembly beams.

7. Adjust laser beam as necessary until the two distances match and the two heights match.

NOTE:

You will have to verify both horizontal and vertical adjustments anytime one adjustment is made.



>> Refer to [DAS-76, "Setting The Distance Sensor Target Board"](#).

Setting The Distance Sensor Target Board

INFOID:0000000010250297

DESCRIPTION

Accurate adjustment of the radar alignment requires that the distance sensor target board be accurately positioned.

CAUTION:

If the radar alignment is adjusted with the distance sensor target board in the incorrect position, the distance system will not function properly or the alignment procedure may not be completed successfully.

1.DISTANCE SENSOR TARGET BOARD FINAL SETTING

DISTANCE SENSOR ALIGNMENT

< BASIC INSPECTION >

[DRIVER ASSISTANCE SYSTEM]

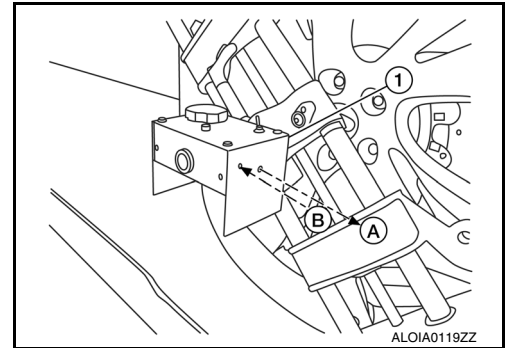
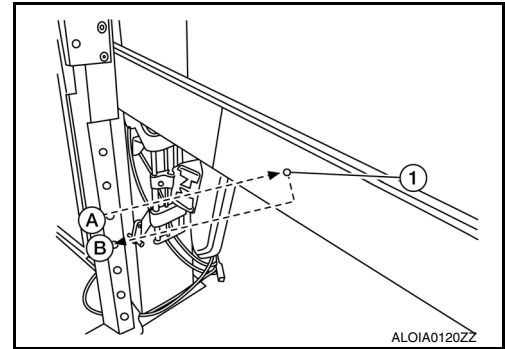
1. With the distance sensor target board arm extended, the laser beam (1) emitted by the laser assembly (A) will be reflected back (B) toward the laser assembly.

NOTE:

When adjusted properly, reflected laser beam (B) must align with emitted laser beam (A) and the two laser beams will be seen as one.

2. Rotate the distance sensor target board to achieve the necessary horizontal adjustment.
3. Adjust the distance sensor target board leveling screws to achieve the necessary vertical adjustment.

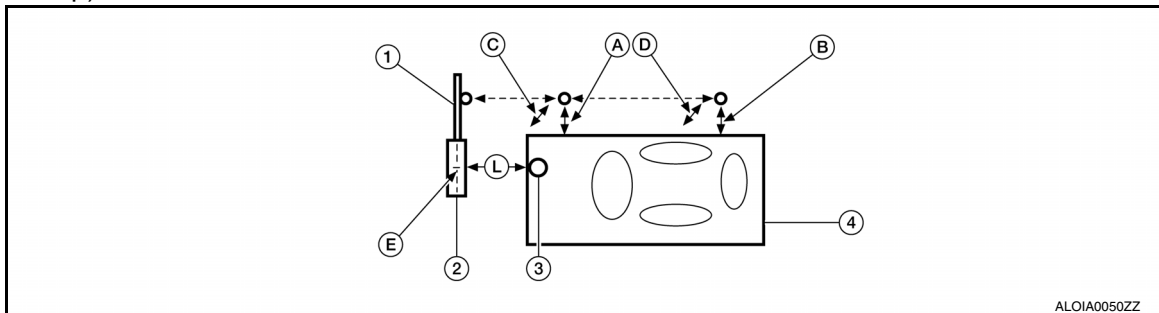
4. The figure shown illustrates the laser beam (A) emitted by the laser assembly (1) and its reflection (B) off of the distance sensor target board arm.



>> GO TO 2.

2.CHECK THE POSITION OF THE DISTANCE SENSOR TARGET BOARD

Do not place anything other than the distance sensor target board in the space shown in front of the vehicle (view from top).



- | | | |
|---|--|--|
| 1. Distance sensor target board arm | 2. Distance sensor target board | 3. Distance sensor |
| 4. Vehicle | A. Distance between front wheel and laser beam (D_f) | B. Distance between rear wheel and laser beam (D_r) |
| C. Height between front laser beam and ground (H_f) | D. Height between rear laser beam and ground (H_r) | E. Distance sensor target board center position (Position 2) |
| L. 750 - 2000 mm (29.5 - 78.7 in) | | |

>> Refer to [DAS-77, "Distance Sensor Adjustment"](#).

Distance Sensor Adjustment

INFOID:0000000010250298

DESCRIPTION

The radar alignment is performed automatically with CONSULT.

CAUTION:

Perform all necessary work for radar alignment until the adjustment completes as shown in the procedure. If the procedure does not complete, the FCW system is inoperable.

DISTANCE SENSOR ALIGNMENT

< BASIC INSPECTION >

[DRIVER ASSISTANCE SYSTEM]

1. PERFORM RADAR ALIGNMENT

1. Start the engine.
2. Connect CONSULT and select "Work support" of "LASER/RADAR".
3. Select "MILLIWAVE RADAR ADJUST" after the "Work support" screen is displayed.

NOTE:

Confirm the following items;

- The target should be accurately placed.
- The vehicle should be stopped.

4. Select "Start" after the "MILLIWAVE RADAR ADJUST" screen is displayed.

CAUTION:

Never select "Start" when the target is not accurately placed.

5. Select "Start" after the preparation information is displayed.
6. Select "Next" after the "Starting alignment." screen is displayed.

NOTE:

If the radar is in alignment at this time, "Alignment in progress" is displayed. It may take several 10s of seconds until the result is displayed.

7. Confirm the displayed item.
 - "Alignment completed.": Go to 8.
 - Except "Alignment completed.": Perform the following services.

Displayed item	Possible cause	Service procedure
Alignment condition is not ready.	• DTC is detected (Except C1A12). • The position of the Distance sensor target board is not correct. • Vehicle is moving.	Check the vehicle condition and perform radar alignment again.
Alignment condition is not ready. (Stop the vehicle.)	Vehicle is moving.	Stop the vehicle and perform radar alignment again.
Target is not detected.	• A target is not-yet-placed. (The Distance sensor cannot detect target) • The position of the Distance sensor target board is not correct. • The position of the Distance sensor is not correct.	Check the target board condition and perform radar alignment again.
Sensor malfunction.	Distance sensor malfunction.	Check the vehicle condition and perform radar alignment again.

NOTE:

Replace Distance sensor if "Sensor malfunction." is repeatedly indicated.

8. Confirm displayed value.

Displayed item	Monitor item	Reference value
Alignment completed.	FACTORY AIM L/R	Less than 3.00 deg
	FACTORY AIM U/D	Less than 3.00 deg
	AIMING VALUE L/R	Less than 3.00 deg
	AIMING VALUE U/D	Less than 3.00 deg

- Within reference value: Go to 9.
- Outside of reference value: Check the target board condition and perform radar alignment again.

NOTE:

- Check the condition of the Distance sensor installation.
- Check the vehicle for damage.
- Replace Distance sensor if it is outside the reference value, even when Distance sensor installation is installed normally and the vehicle is not damaged.

9. Select "OK" after the "No error detected." is displayed.
10. Select "OK" after the "End of alignment." is displayed.

CAUTION:

Once "MILLIWAVE RADAR ADJUST" is started with CONSULT, always continue the work until the horizontal radar alignment is completed successfully. If the job is stopped midway, the radar alignment is not adjusted and the FCW system cannot operate.

DISTANCE SENSOR ALIGNMENT

< BASIC INSPECTION >

[DRIVER ASSISTANCE SYSTEM]

>> RADAR ALIGNMENT END

A
B
C
D
E
F
G
H
I
J
K
L
M
N
P

DAS

ACTION TEST

LDW

LDW : Description

INFOID:0000000010282430

- Perform action test to verify the customer's concern.
- Perform action test and check the system operation after system diagnosis.

WARNING:

Be careful of traffic conditions and safety around the vehicle when performing road test.

CAUTION:

- Fully understand the following items well before the road test;
- Precautions: Refer to [DAS-9, "Precautions for Driver Assistance Systems"](#).
- System description for LDW: Refer to [DAS-16, "LDW : System Description"](#).
- System description for BSW: Refer to [DAS-20, "BSW : System Description"](#).
- System description for MOD: Refer to [DAS-26, "MOD : System Description"](#).
- Handling precaution: Refer to [DAS-36, "Precautions for Lane Departure Warning"](#).

LDW : Inspection Procedure

INFOID:0000000010282431

WARNING:

Be careful of traffic conditions and safety around the vehicle when performing road test.

CAUTION:

- Fully understand the following items well before the road test;
- Precautions: Refer to [DAS-9, "Precautions for Driver Assistance Systems"](#).
- System description for LDW: Refer to [DAS-16, "LDW : System Description"](#).
- System description for BSW: Refer to [DAS-20, "BSW : System Description"](#).
- System description for MOD: Refer to [DAS-26, "MOD : System Description"](#).
- Handling precaution: Refer to [DAS-36, "Precautions for Lane Departure Warning"](#).

1. CHECK LDW SYSTEM SETTING

1. Start the engine.
2. Check that the LDW system setting can be enabled/disabled on the vehicle information display.
3. Turn OFF the ignition switch and wait for 30 seconds or more.
4. Check that the previous setting is saved when the engine starts again.

>> GO TO 2.

2. ACTION TEST FOR LDW

1. Enable the setting of the LDW system on the vehicle information display.
2. Turn warning systems switch ON (warning systems ON indicator is ON).
3. Check the LDW operation according to the following table.

ACTION TEST

< BASIC INSPECTION >

[DRIVER ASSISTANCE SYSTEM]

Vehicle condition/ Driver's operation		Action	Warning systems ON indicator	Indication on the combination meter	Buzzer
Less than Approx. 60 km/h (40 MPH)	Close to lane marker	No action	ON	 White ALOIA0191GB	—
Approx. 70 km/h (45 MPH) or more	Close to lane marker	Warning • Buzzer sounds • Warning lamp blinks	ON	 →  →  White (Orange) Blink ALOIA0190GB	Short continuous beeps
	• Close to lane marker • Turn signal ON (Deviate side)	No action	ON	 White ALOIA0191GB	—

NOTE:

After the operating conditions of warning are satisfied, the warning continues until the vehicle speed reaches approximately 60 km/h (40 MPH). Refer to [DAS-16, "LDW : System Description"](#).

>> Inspection End.

BSW

BSW : Description

INFOID:0000000010282432

- Perform action test to verify the customer's concern.
- Perform action test and check the system operation after system diagnosis.

WARNING:

Be careful of traffic conditions and safety around the vehicle when performing road test.

CAUTION:

- Fully understand the following items well before the road test;
 - Precautions: Refer to [DAS-9, "Precautions for Driver Assistance Systems"](#).
 - System description for LDW: Refer to [DAS-20, "BSW : System Description"](#).
 - System description for BSW: Refer to [DAS-20, "BSW : System Description"](#).
 - System description for MOD: Refer to [DAS-26, "MOD : System Description"](#).
 - Handling precaution: Refer to [DAS-37, "Precautions for Blind Spot Warning"](#).

BSW : Inspection Procedure

INFOID:0000000010282433

WARNING:

Be careful of traffic conditions and safety around the vehicle when performing road test.

CAUTION:

- Fully understand the following items well before the road test;
 - Precautions: Refer to [DAS-9, "Precautions for Driver Assistance Systems"](#).
 - System description for LDW: Refer to [DAS-16, "LDW : System Description"](#).
 - System description for BSW: Refer to [DAS-20, "BSW : System Description"](#).
 - System description for MOD: Refer to [DAS-26, "MOD : System Description"](#).

A
B
C
D
E
F
G
H
I
J
K
L
M
N
P

DAS

ACTION TEST

< BASIC INSPECTION >

[DRIVER ASSISTANCE SYSTEM]

- Handling precaution: Refer to [DAS-37, "Precautions for Blind Spot Warning"](#).

1. CHECK BSW SYSTEM SETTING

1. Start the engine.
2. Check that the BSW system setting can be enabled/disabled on the vehicle information display.
3. Turn OFF the ignition switch and wait for 30 seconds or more.
4. Check that the previous setting is saved when the engine starts again.

>> GO TO 2.

2. ACTION TEST FOR BSW

1. Enable the setting of the BSW system on the vehicle information display.
2. Turn warning systems switch ON (warning systems ON indicator is ON).
3. Check the BSW operation according to the following table.

Vehicle condition/Driver's operation

Warning systems ON indicator	Vehicle speed (Approx.) [km/h (MPH)]	Turn signal condition	Status of vehicle detection within detection area	Indication on the combination meter	Buzzer
ON	Less than Approx. 29 km/h (18 MPH)	—	—	OFF	OFF
	Approx. 32 km/h (20 MPH) or more	—	Vehicle is absent	OFF	OFF
		OFF	Vehicle is detected	ON	OFF
		ON (vehicle detected direction)	Before turn signal operates vehicle is detected	Blink Indicator ON Indicator OFF 200 ms 200 ms JSOIA0251GB	Short continuous beeps Buzzer ON Buzzer OFF 80 ms 550 ms JSOIA0252GB
			Vehicle is detected after turn signal operates	Blink Indicator ON Indicator OFF 200 ms 200 ms JSOIA0251GB	OFF

NOTE:

After the operating conditions of warning are satisfied, the warning continues until the vehicle speed reaches approximately 60 km/h (40 MPH). Refer to [DAS-20, "BSW : System Description"](#).

>> Inspection End.

MOD

MOD : Description

INFOID:0000000010282434

- Perform action test to verify the customer's concern.
- Perform action test and check the system operation after system diagnosis.

WARNING:

Be careful of traffic conditions and safety around the vehicle when performing road test.

CAUTION:

- Fully understand the following items well before the road test;
- Precautions: Refer to [DAS-9, "Precautions for Driver Assistance Systems"](#).

ACTION TEST

< BASIC INSPECTION >

[DRIVER ASSISTANCE SYSTEM]

- System description for LDW: Refer to [DAS-16, "LDW : System Description"](#).
- System description for BSW: Refer to [DAS-20, "BSW : System Description"](#).
- System description for MOD: Refer to [DAS-26, "MOD : System Description"](#).
- Handling precaution: Refer to [DAS-37, "Precautions for Moving Objects Detection"](#).

MOD : Inspection Procedure

INFOID:000000010282435

WARNING:

Be careful of traffic conditions and safety around the vehicle when performing road test.

CAUTION:

- Fully understand the following items well before the road test;
- Precautions: Refer to [DAS-9, "Precautions for Driver Assistance Systems"](#).
- System description for LDW: Refer to [DAS-16, "LDW : System Description"](#).
- System description for BSW: Refer to [DAS-20, "BSW : System Description"](#).
- System description for MOD: Refer to [DAS-26, "MOD : System Description"](#).
- Handling precaution: Refer to [DAS-37, "Precautions for Moving Objects Detection"](#).

1. CHECK MOD SYSTEM SETTING

1. Start the engine.
2. Check that the MOD system setting can be enabled/disabled on the vehicle information display.
3. Turn OFF the ignition switch and wait for 30 seconds or more.
4. Check that the previous setting is saved when the engine starts again.

>> GO TO 2.

2. ACTION TEST FOR MOD

1. Enable the setting of the MOD system on the vehicle information display.
2. Turn warning systems switch ON (warning systems ON indicator is ON).
3. Check the MOD operation according to the following table.

Vehicle condition/ Driver's operation			Vehicle response	
Moving Object Detection ON indicator	Vehicle speed (Approx.) [km/h (MPH)]	Status of vehicle detection within detection area	Indication on the Moving Object Detection indicator	Buzzer
OFF	—	—	OFF	OFF
Blue	Less than approx. 8 km/h (5 MPH)	Vehicle is detected	ON	ON
		Vehicle is absent	ON	OFF
	Approx. 8 km/h (5 MPH) or more	Vehicle is detected	ON	OFF
		Vehicle is not detected	ON	OFF

NOTE:

After the operating conditions of warning are satisfied, the warning continues until the vehicle reaches a higher speed. Refer to [DAS-26, "MOD : System Description"](#).

>> Inspection End.

DAS

ADDITIONAL SERVICE WHEN REPLACING AROUND VIEW MONITOR CONTROL UNIT

< BASIC INSPECTION >

[DRIVER ASSISTANCE SYSTEM]

ADDITIONAL SERVICE WHEN REPLACING AROUND VIEW MONITOR CONTROL UNIT

Description

INFOID:0000000010284132

BEFORE REPLACEMENT

When replacing around view monitor control unit, save or print current vehicle specification with CONSULT configuration before replacement.

NOTE:

If "Before Replace ECU" cannot be used, use the "After Replace ECU" or "Manual Configuration" after replacing around view monitor control unit.

AFTER REPLACEMENT

CAUTION:

When replacing around view monitor control unit, you must perform "After Replace ECU" with CONSULT.

- Complete the procedure of "After Replace ECU" in order.
- If you set incorrect "After Replace ECU", incidents might occur.
- Configuration is different for each vehicle model. Confirm configuration of each vehicle model.

Work Procedure

INFOID:0000000010284133

1. SAVING VEHICLE SPECIFICATION

CONSULT

Enter "Re/Programming, Configuration" and perform "Before Replace ECU" to save or print current vehicle specification.

NOTE:

If "Before Replace ECU" cannot be used, use the "After Replace ECU" or "Manual Configuration" after replacing around view monitor control unit.

>> GO TO 2.

2. REPLACE AROUND VIEW MONITOR CONTROL UNIT

Replace around view monitor control unit. Refer to [DAS-163. "Removal and Installation"](#).

>> GO TO 3.

3. WRITING VEHICLE SPECIFICATION

CONSULT

1. Enter "Re/Programming, Configuration".
2. If "Before Replace ECU" operation was performed, automatically an "Operation Log Selection" screen will be displayed. Select the applicable file from the "Saved Data List" and press "Confirm" to write vehicle specification. Refer to [DAS-86. "Work Procedure"](#).
3. If "Before Replace ECU" operation was not performed, select "After Replace ECU" or "Manual Configuration" to write vehicle specification. Refer to [DAS-86. "Work Procedure"](#).

>> GO TO 4.

4. REAR VIEW CAMERA CALIBRATION

Perform rear view camera calibration. Refer to [DAS-89. "Description"](#).

>> GO TO 5.

5. AROUND VIEW MONITOR CALIBRATION

Perform around view monitor calibration. Refer to [DAS-93. "Description"](#).

>> GO TO 6.

ADDITIONAL SERVICE WHEN REPLACING AROUND VIEW MONITOR CONTROL UNIT

< BASIC INSPECTION >

[DRIVER ASSISTANCE SYSTEM]

6. OPERATION CHECK

Check that the operation of the around view monitor control unit and camera images (fixed guide lines and predictive course lines) are normal.

>> Work End.

A
B
C
D
E
F
G
H
I
J
K
L
M
N
P

DAS

CONFIGURATION (AROUND VIEW MONITOR CONTROL UNIT)

Description

INFOID:0000000010284129

Vehicle specification needs to be written with CONSULT because it is not written after replacing around view monitor control unit.

Configuration has three functions as follows:

Function	Description
"Before Replace ECU"	- Reads the vehicle configuration of current around view monitor control unit. - Saves the read vehicle configuration.
"After Replace ECU"	Writes the vehicle configuration with manual selection.
"Select Saved Data List"	Writes the vehicle configuration with saved data.

CAUTION:

- When replacing around view monitor control unit, you must perform "Select Saved Data List" or "After Replace ECU" with CONSULT.
- Complete the procedure of "Select Saved Data List" or "After Replace ECU" in order.
- If you set incorrect "Select Saved Data List" or "After Replace ECU", incidents might occur.
- Configuration is different for each vehicle model. Confirm configuration of each vehicle model.
- Never perform "Select Saved Data List" or "After Replace ECU" except for new around view monitor control unit.

Work Procedure

INFOID:0000000010284130

1. WRITING MODE SELECTION

CONSULT

Select "Reprogramming, Configuration" of around view monitor control unit.

When writing saved data>>GO TO 2.

When writing manually>>GO TO 3.

2. PERFORM "SAVED DATA LIST"

CONSULT

Automatically "Operation Log Selection" window will display if "Before Replace ECU" was performed. Select applicable file from the "Save Data List" and press "Confirm".

>> Work End.

3. PERFORM "AFTER REPLACE ECU" OR "MANUAL CONFIGURATION"

CONSULT

- Select "After Replace ECU" or "Manual Configuration".
- Identify the correct model and configuration list. Refer to [DAS-87, "Configuration List"](#).
- Confirm and/or change setting value for each item.

CAUTION:

Thoroughly read and understand the vehicle specification. ECU control may not operate normally if the setting is not correct.

- Select "Next".

CAUTION:

Make sure to select "Next", confirm each setting value and press "OK" even if the indicated configuration of brand new around view monitor control unit is same as the desirable configuration. If not, configuration which is set automatically by selecting vehicle model can not be memorized.

- When "Completed", select "End".

>> GO TO 4.

4. OPERATION CHECK

CONFIGURATION (AROUND VIEW MONITOR CONTROL UNIT)

< BASIC INSPECTION >

[DRIVER ASSISTANCE SYSTEM]

Confirm that each function controlled by around view monitor control unit operates normally.

>> Work End.

Configuration List

INFOID:0000000010284131

CAUTION:

Thoroughly read and understand the vehicle specification. Incorrect settings may result in abnormal control of ECU.

MANUAL SETTING ITEM	
Items	Setting value
BCI FUNCTION	WITH ⇔ WITHOUT

⇔: Items which confirm vehicle specifications

DAS

PREDICTIVE COURSE LINE CENTER POSITION ADJUSTMENT

< BASIC INSPECTION >

[DRIVER ASSISTANCE SYSTEM]

PREDICTIVE COURSE LINE CENTER POSITION ADJUSTMENT

Description

INFOID:0000000010286877

Adjust the center position of the predictive course line of the rear view monitor if it is shifted.

Work Procedure

INFOID:0000000010286878

1.DRIVING

Drive the vehicle straight ahead 100 m (328.1 ft) or more at a speed of 30 km/h (18.6 MPH) or more.

>> END

REAR VIEW CAMERA CALIBRATION

Description

INFOID:0000000010351316

Always perform the calibration after removing and installing or replacing the rear view camera:

- AVM control unit
- Rear view camera

CAUTION:

- Place the vehicle on level ground when the calibration is performed.
- Follow the CONSULT when performing the calibration. (Rear view camera calibration cannot be operated without CONSULT).

Work Procedure (Preparation)

INFOID:0000000010351317

1.PERFORM SELF-DIAGNOSIS

Perform "Self-Diagnosis" of the "AVM" control unit.

Is any DTC detected?

Except "U1308">> Perform diagnosis on the detected DTC and repair or replace the applicable item. Refer to [DAS-47, "DTC Index"](#).

"U1308" or no DTC>>GO TO 2.

2.PREPARATION BEFORE REAR VIEW CAMERA CALIBRATION

NOTE:

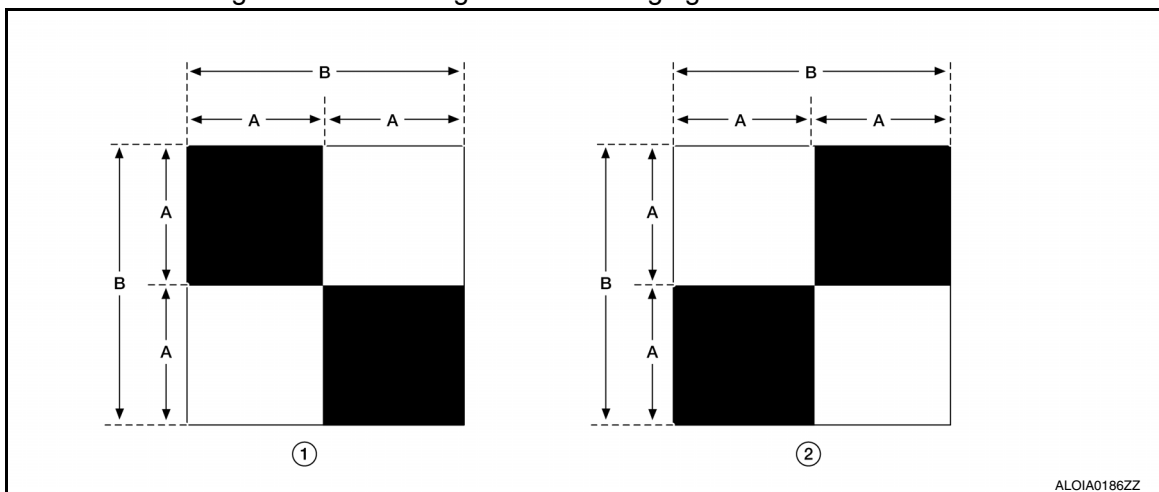
Select the "AVM" to diagnose the AVM control unit by CONSULT.

1. Perform pre-inspection for diagnosis. Refer to [DAS-67, "Inspection Procedure"](#).
2. Adjust the tire pressure to the specified pressure value.
3. Maintain no-load in vehicle.
4. Check if coolant and engine oil are filled up to correct level and fuel tank is full.
5. Situate vehicle where the camera is exposed at an atmosphere temperature between 0°C (32°F) and 30°C (86°F)
6. Move the shift selector to P (Park) and release the parking brake.
7. Clean the rear view camera.

>> GO TO 3.

3.PREPARATION OF CALIBRATION TARGET MARK

Prepare the calibration target mark according to the following figure:



ALOIA0186ZZ

(1) : Left and right targets

(2) : Center target

REAR VIEW CAMERA CALIBRATION

< BASIC INSPECTION >

[DRIVER ASSISTANCE SYSTEM]

(A) : Side of the black or white area = 200 mm (7.87 in)

(B) : Side of the square target = 400 mm (15.75 in)

>> Refer to [DAS-90, "Work Procedure \(Target Setting\)"](#).

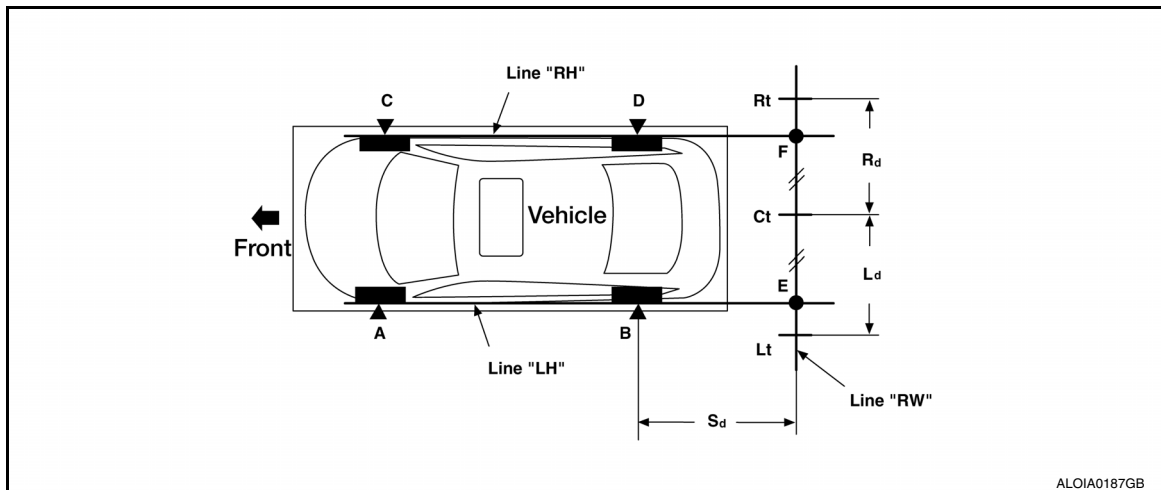
Work Procedure (Target Setting)

INFOID:0000000010351318

CAUTION:

- Perform this operation in a horizontal position where there is a clear view for 3 m (9.84 ft) backward and 4 m (13.12 ft) wide.
- Place the target in a well-lighted location. (Poor lighting may make it hard to adjust.)
- The target may not be detected when it shines by the reflected light of the sun or lighting.
- The target may not be detected when there is the same pattern of black and white as the target when the pattern is within 0.5 m (1.64 ft) from either side and upward/downward position from the target. (It is desirable that the vehicle is positioned on a single-color floor.)

1.TARGET SETTING



Side distance (Sd): "B"–"E" ("D"–"F") : 2125 mm (83.66 in)

Left distance (Ld): "Ct"–"Lt" : 1500 mm (59.06 in)

Right distance (Rd): "Ct"–"Rt" : 1500 mm (59.06 in)

1. Mark points "A", "B", "C" and "D" at the center of the lateral surface of each wheel.

NOTE:

Hang a string with a cone from the fender so as to pass through the center of wheel, and then mark a point at the center of the lateral surface of the wheel.

2. Draw line "LH" passing through points "A" and "B" on the left side of vehicle.

NOTE:

Approximately 2.2 m (7.22 ft) or more at the rear from the rear axle.

3. Mark point "E" on the line "LH" at the positions 2125 mm (83.66 in) from point "B".

4. Draw line "RH" passing through points "C" and "D" on the right side of vehicle in the same way as step 2.

5. Mark point "F" on the line "RH" at the positions 2125 mm (83.66 in) from point "D".

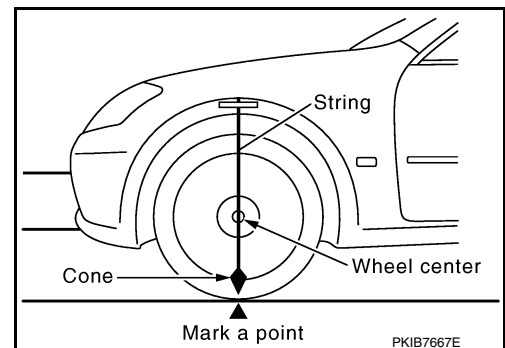
6. Draw line "RW" passing through the points "E" and "F" on the rear of the vehicle.

NOTE:

Approximately 1.8 m (5.91 ft) or more at both left and right sides from vehicle center.

7. Mark point "Ct" at the center of point "E" and "F" on the line "RW".

CAUTION:



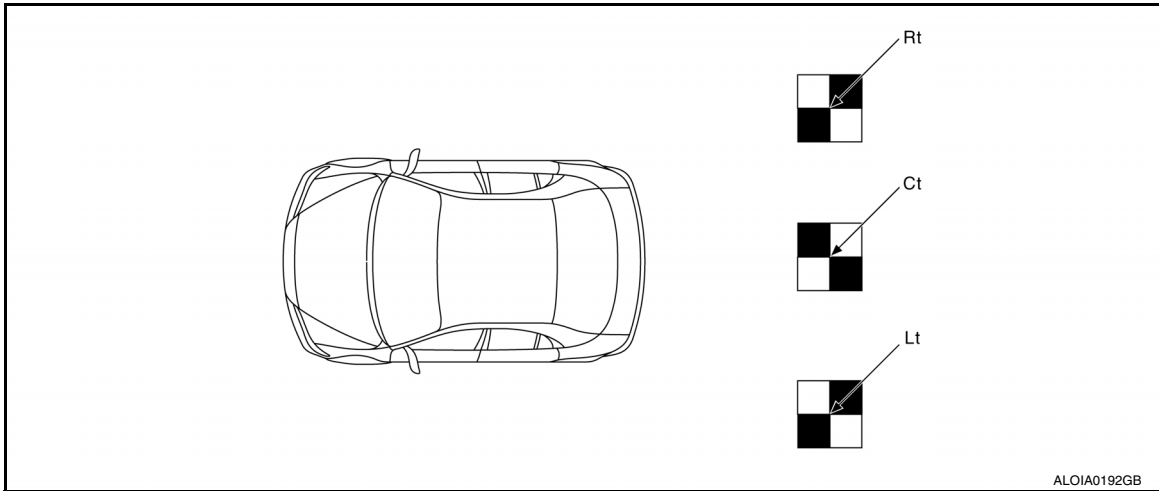
REAR VIEW CAMERA CALIBRATION

< BASIC INSPECTION >

[DRIVER ASSISTANCE SYSTEM]

Make sure that "E" to "Ct" is equal to "F" to "Ct".

8. Mark point "Lt" and "Rt" on the line "RW" at the positions 1500 mm (59.06 in) from point "Ct".
9. Position the center of the target mark to point of "Ct".



CAUTION:

Make sure that the black/white pattern of the center target is rotated as compared with the left and right targets.

>> Go to [DAS-91, "Work Procedure \(Rear View Camera Calibration\)"](#).

Work Procedure (Rear View Camera Calibration)

INFOID:0000000010351319

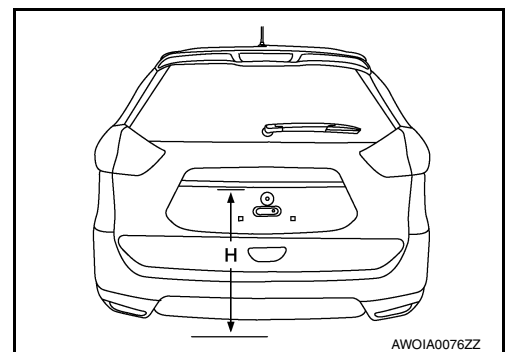
CAUTION:

Perform the calibration under the specified vehicle condition (fuel full, no-load, specified tire pressure, etc.). Refer to [DAS-89, "Work Procedure \(Preparation\)"](#).

1. CHECK REAR VIEW CAMERA HEIGHT

Measure the rear view camera height "H".

>> GO TO 2.



2. REAR VIEW CAMERA CALIBRATION

1. Select "Work Support" on "AVM" with CONSULT.
2. Select "REAR CAMERA ITS".
3. Select "OK".

CAUTION:

- Perform the calibration after the ignition or engine has been kept on for at least 10 minutes to stabilize camera.
 - Operate CONSULT outside the vehicle, and close all doors to retain appropriate vehicle altitude.
4. Input the rear view camera height "H", and then touch "APPLY".
 5. Confirm that the same value is displayed on the center display.
 6. Confirm the following items:
 - The target should be accurately placed.
 - The vehicle should be stopped.
 - The vehicle should be under the specified vehicle condition.
 7. Select "Start" to perform calibration.

A
B
C
D
E
F
G
H
I
J
K
L
M
N

DAS

P

REAR VIEW CAMERA CALIBRATION

< BASIC INSPECTION >

[DRIVER ASSISTANCE SYSTEM]

8. Confirm the displayed item.
 - “Completed”: Select “Completion”.
 - Otherwise, perform the following services:

Displayed item		Possible cause	Service procedure
SUSPENSION	—	Temporary malfunction in internal processing of the rear view camera.	Go back to Step 1
	00H Routine not activated	Rear view camera unit malfunction.	Position the target appropriately again. Perform the aiming again. Refer to DAS-90, "Work Procedure (Target Setting)" .
	10H Writing error	• Temporary malfunction in internal processing of the rear view camera. • Rear view camera malfunction.	
X AIMING NG Y (X: 0 - 7, Y: 1 - 8)	—	• A target is not-yet-placed. (The rear view camera cannot detect a target.) • The position of the rear view camera is not correct.	Position the target appropriately again. Perform the aiming again. Refer to DAS-89, "Work Procedure (Preparation)" .
ABNORMALLY COMPLETED	—	• Inappropriate work environment. • Inappropriate vehicle condition.	

NOTE:

Replace camera unit if “00H Routine not activated” or “10H Writing error” are repeatedly indicated during the above two services are performed.

9. Confirm that “Completed” is displayed and then select “End” to close the calibration procedure.

>> GO TO 3.

3.PERFORM SELF-DIAGNOSIS

Perform “Self-diagnosis” of “AVM” control unit with CONSULT.

Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the applicable item. Refer to [DAS-47, "DTC Index"](#).

NO >> GO TO 4.

4.ACTION TEST

Test the system operation by action test. Refer to [DAS-80, "LDW : Description"](#).

>> Work End.

CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR)

< BASIC INSPECTION >

[DRIVER ASSISTANCE SYSTEM]

CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR)

Description

INFOID:000000010284127

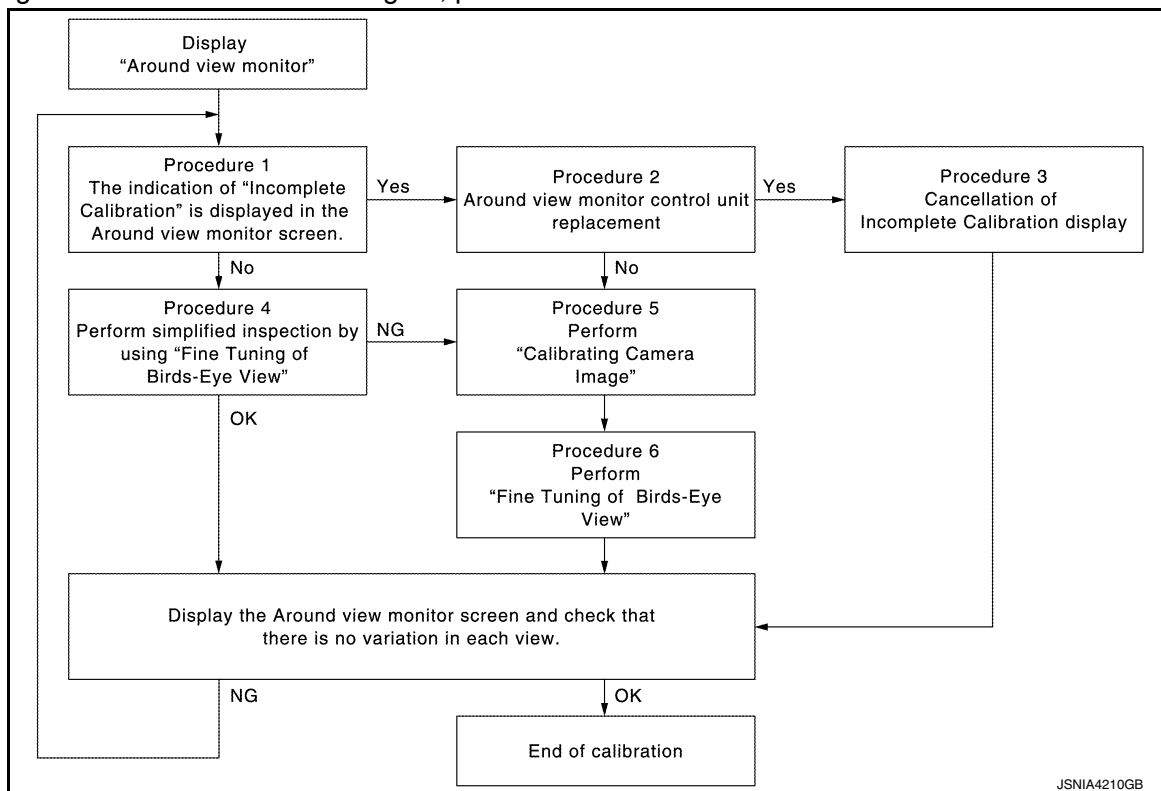
- Calibration must be performed after removing/replacing the cameras, removing parts (e.g. front grille, door mirror, and others) mounted on the cameras, or replacing the Around view monitor control unit.
- The use of CONSULT is required to perform calibration or writing of calibration results to the Around view monitor control unit.
- Align the white lines on the road near the vehicle at the boundary of each camera image by this camera calibration. The white lines far from the vehicle may not be aligned at the boundary of each camera image. The farther the line, the greater the difference is.

Work Procedure

INFOID:000000010284128

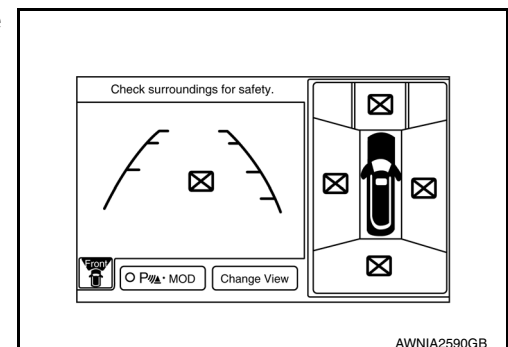
CALIBRATION FLOWCHART

Following the flowchart shown in the figure, perform the calibration.



NOTE:

View in the incomplete calibration state is indicated by "⊠" on the around view monitor.



CALIBRATION PROCEDURE

1. AROUND VIEW MONITOR SCREEN CONFIRMATION

CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR)

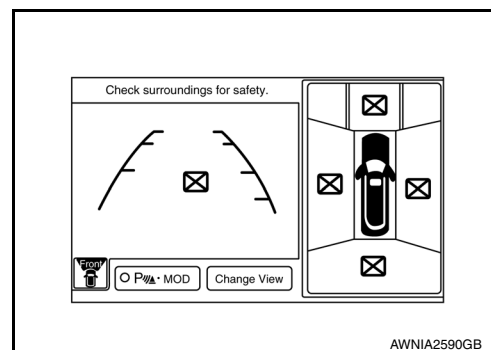
[DRIVER ASSISTANCE SYSTEM]

< BASIC INSPECTION >

Check that there is no indication of "Incomplete calibration".

Is the "Incomplete calibration" display visible?

- YES >> GO TO 2.
NO >> GO TO 4.



2. CHECK THAT AROUND VIEW MONITOR CONTROL UNIT IS REPLACED

Check that the around view monitor control unit is replaced.

Is the around view monitor control unit replaced?

- YES >> GO TO 3.
NO >> GO TO 5.

3. CANCEL THE INDICATION OF INCOMPLETE CALIBRATION (PERFORM THIS ONLY AFTER REPLACING AROUND VIEW MONITOR CONTROL UNIT.)

CONSULT work support

1. On the CONSULT screen, touch "CALIBRATING CAMERA IMAGE (FRONT CAMERA)", "CALIBRATING CAMERA IMAGE (PASS-SIDE CAMERA)", "CALIBRATING CAMERA IMAGE (DR-SIDE CAMERA)", or "CALIBRATING CAMERA IMAGE (REAR CAMERA)" to accept the selection.

NOTE:

To cancel the indication of Incomplete calibration, select items based on the target camera.

2. On the adjustment screen of each camera, touch "APPLY" button. After this, touch "OK" button.

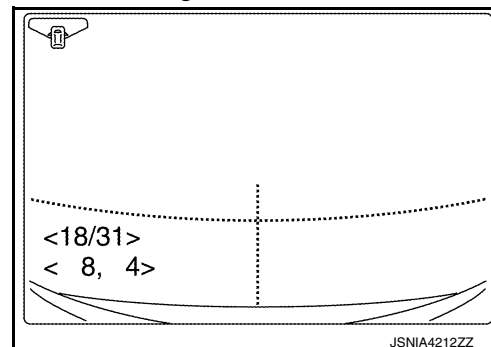
CAUTION:

- Never perform operations other than those mentioned above.
- Never perform "Initialize Camera Image Calibration".

3. Display the around view monitor screen to check that there is no errors, such as deviations among the camera images.

Is there a malfunction?

- YES >> Calibration End.
NO >> GO TO 1.



4. PERFORM SIMPLIFIED CONFIRMATION/ADJUSTMENT BY "FINE TUNING OF BIRDS-EYE VIEW"

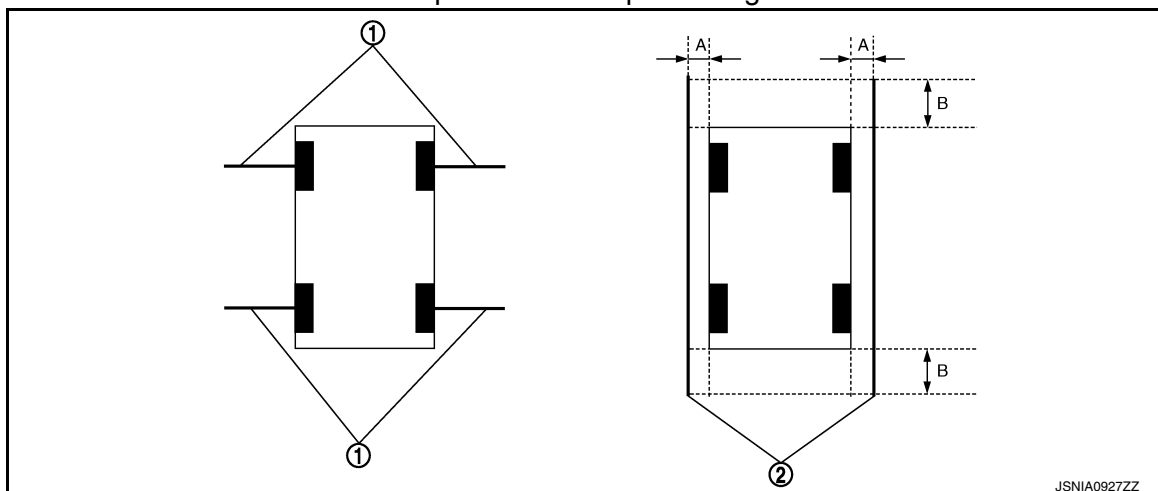
1. Put target line 1 on the ground beside each axle using packing tape, etc.
2. Put target lines 2 equal to the vehicle total length + approximately 1.0 m (39.3 in) from the vehicle side (right and left) at approximately 30 cm (11.8 in) away from the vehicle (make the line as parallel with the vehicle as possible)

CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR)

< BASIC INSPECTION >

[DRIVER ASSISTANCE SYSTEM]

Preparation of simplified target line



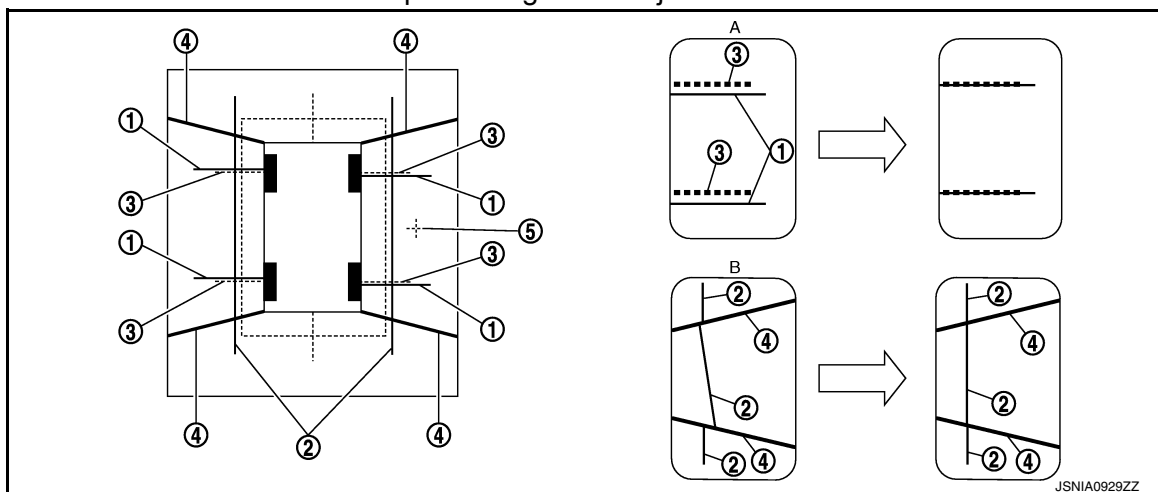
- | | |
|----------------------------|----------------------------|
| 1. Target lines 1 | 2. Target lines 2 |
| A. Approx. 30 cm (11.8 in) | B. Approx. 1.0 m (39.3 in) |

3. CONSULT work support
Touch "FINE TUNING OF BIRDS-EYE VIEW" on the CONSULT screen.
4. On the CONSULT screen, touch "SELECT" button to select right or left camera and perform camera calibration as instructed below:
 - If the marker on the screen deviates from Target line 1, touch "AXIS X" button and "AXIS Y" button to adjust so that the marker is placed on the Target line 1.
 - If Target line 2 is misaligned among the cameras, adjust each camera image to bring Target line 2 into a straight line.

CAUTION:

Never adjust the front camera and rear camera. Only adjust the right and left cameras.

Simplified target line adjustment method



- | | | |
|---|---|-----------------------------|
| 1. Target lines 1 | 2. Target lines 2 | 3. Marker for target line 1 |
| 4. Boundary between cameras | 5. Crosshairs cursor (mark indicated the selected camera) | |
| A. Adjustment method for target lines 1 (right) | B. Adjustment method for target lines 2 (right) | |

5. Adjust right and left cameras. Touch "APPLY" on the CONSULT screen to display adjustment results.
6. After adjusting right and left cameras, check that the marker is properly placed on the screen and there is no deviation in Target line 1.

NOTE:

- It can be initialized to the NISSAN factory default condition with "Initialize Camera Image Calibration".
- The adjustment value is cancelled on this mode by performing "Initialize Camera Image Calibration".

CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR)

< BASIC INSPECTION >

[DRIVER ASSISTANCE SYSTEM]

Is the difference corrected?

YES >> On the CONSULT screen, touch "OK" button to complete writing to the around view monitor control unit.

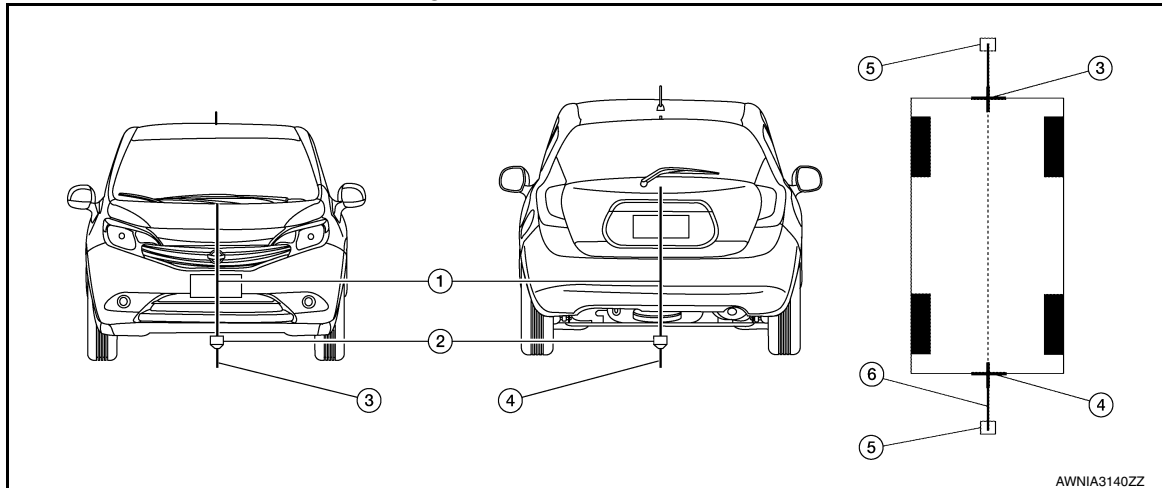
NO >> GO TO 5.

5.PERFORM "CALIBRATING CAMERA IMAGE"

Preparation of target line

1. Hang a string with a weight as shown in the figure. Put the points FM0, RM0 (mark) on the ground at the center of the vehicle front end and rear end with white packing tape or a pen.
2. Route the vinyl string under the vehicle, and then pull and fix it on the point approximately 1.0 m (39.9 in) to the front and rear of the vehicle through the points FM0 and RM0 using packing tape.

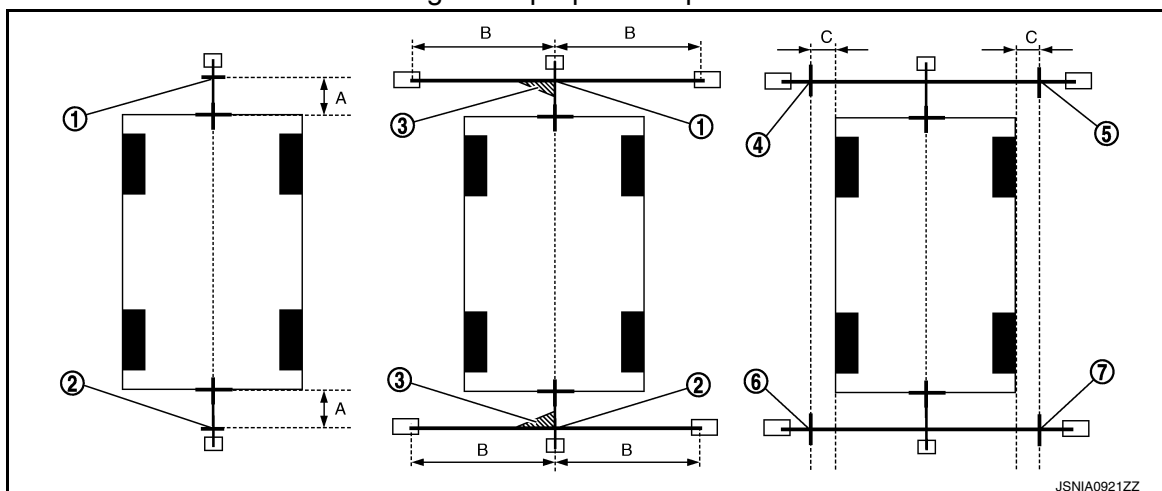
Target line preparation procedure 1



- | | | |
|---------------------|---|---------------------|
| 1. Thread | 2. Weight | 3. Point FM0 (mark) |
| 4. Point RM0 (mark) | 5. Packing tape (to fix the vinyl string) | 6. Vinyl string |

3. Put the points FM and RM (mark) 75 cm (29.5 in) from the points FM0 and RM0 individually.
4. Route the vinyl string through the points FM and RM using a triangle scale, and then fix it at approximately 1.5 m (59 in) on both sides with packing tape.
5. Put the points FL, FR, RL, and RR (mark) to both right and left [vehicle width / 2 + 30 cm (11.8 in)] from the points FM and RM.

Target line preparation procedure 2



- | | | |
|--------------------|--------------------|--------------------|
| 1. Point FM | 2. Point RM | 3. Triangle scale |
| 4. Point FL (mark) | 5. Point FR (mark) | 6. Point RL (mark) |

CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR)

< BASIC INSPECTION >

[DRIVER ASSISTANCE SYSTEM]

7. Point RR (mark)

A. 75 cm (29.5 in)

B. Approx. 1.5 m (59 in)

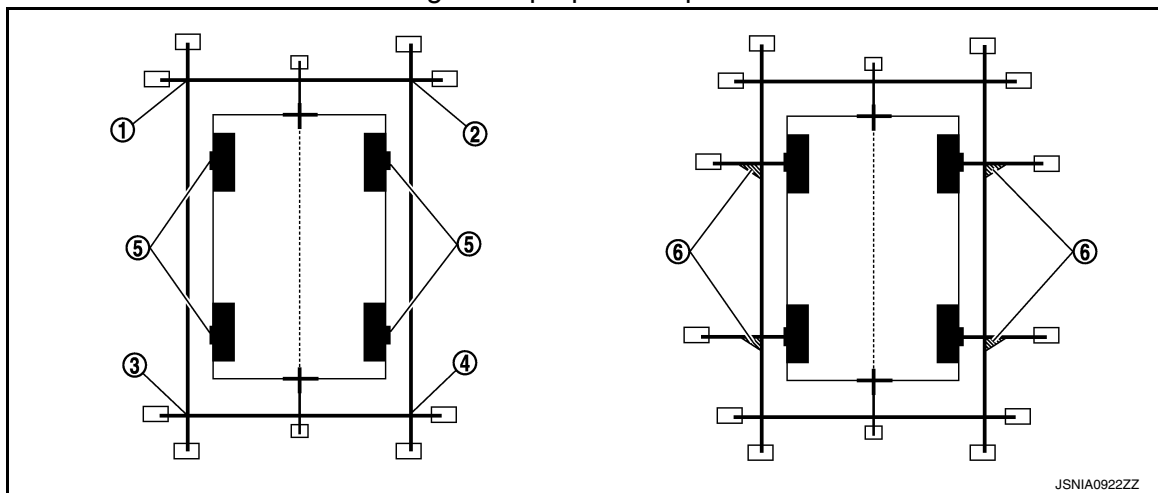
30 cm (11.8 in)

C. [Vehicle width/ 2 + 30 cm (11.8 in)
from the points FM and RM]

6. Draw the lines of the points FL – RL and FR – RR with vinyl string, and fix it with packing tape.

7. Put a mark on the center of each axle, draw vertical lines to the lines of the points FL – RL and FR – RR from the marks on the center of the axle using a triangle scale, and then fix the lines using packing tape.

Target line preparation procedure 3



1. Point FL

2. Point FR

3. Point RL

4. Point RR

5. Center position of axle

6. Triangle scale

Perform “Calibrating Camera Image”

CONSULT work support

1. On the CONSULT screen, touch “CALIBRATING CAMERA IMAGE (FRONT CAMERA)”, “CALIBRATING CAMERA IMAGE (PASS-SIDE CAMERA)”, “CALIBRATING CAMERA IMAGE (DR-SIDE CAMERA)”, or “CALIBRATING CAMERA IMAGE (REAR CAMERA)” to accept the selection.

NOTE:

To cancel the indication of Incomplete calibration, select items based on the target camera.

2. On the adjustment screen of each camera, adjust the parameter by touching the “AXIS X” button, “AXIS Y” button, and “ROTATE” button to place the calibration marker shown on the camera screen on the target line drawn on the ground.

Adjustment range

Rotation direction (Center dial) : 31 patterns (16 on the center)

Upper/lower direction (upper/lower switch) : -22 – 22

Left/right direction (left/right switch) : -22 – 22

3. Touch “APPLY” button on the CONSULT screen. “PRCSNG” is displayed and adjustment results are shown on the camera screen.

CAUTION:

Check that “PRCSNG” is displayed. Never perform other operations while “PRCSNG” is displayed.

4. Touch “OK” button on the CONSULT screen. “PRCSNG” is displayed and adjustment results are written to the around view monitor control unit.

CAUTION:

Check that “PRCSNG” is displayed. Never perform other operations while “PRCSNG” is displayed.

>> GO TO 6.

6.PERFORM “FINE TUNING OF BIRDS-EYE VIEW”

CALIBRATING CAMERA IMAGE (AROUND VIEW MONITOR)

< BASIC INSPECTION >

[DRIVER ASSISTANCE SYSTEM]

This mode is designed to align the boundary between each camera image that could not be aligned in the "Calibrating Camera Image" mode.

CONSULT work support

1. Select "FINE TUNING OF BIRDS-EYE VIEW" by touching CONSULT screen.
2. On the adjustment screen of each camera, adjust the parameter by touching the "AXIS X" button, "AXIS Y" button, and "ROTATE" button to place the calibration marker shown on the camera screen on the target line drawn on the ground.

NOTE:

Touch "SELECT" button on the CONSULT screen to select the target camera.

3. Touch "APPLY" button on the CONSULT screen. "PRCSNG" is displayed and adjustment results are shown on the camera screen.

CAUTION:

Check that "PRCSNG" is displayed. Never perform other operations while "PRCSNG" is displayed.

4. Touch "OK" button on the CONSULT screen. "PRCSNG" is displayed and adjustment results are written to the around view monitor control unit.

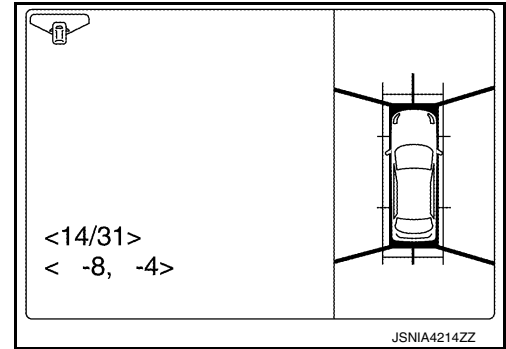
CAUTION:

• **Check that "PRCSNG" is displayed. Never perform other operations while "PRCSNG" is displayed.**

• **After pressing the "OK" button, never press buttons other than the "BACK" button.**

NOTE:

- It can be initialized to the NISSAN factory default condition with "Initialize Camera Image Calibration".
- The adjustment value is cancelled in this mode by performing "Initialize Camera Image Calibration".



>> Calibration End.

DTC/CIRCUIT DIAGNOSIS

U0121 VDC CAN 2

DTC Logic

INFOID:0000000010275633

DTC DETECTION LOGIC

NOTE:

If DTC U0121 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [DAS-106, "DISTANCE SENSOR : DTC Logic"](#).

CONSULT Display	DTC Detection Condition	Possible Cause
VDC CAN CIR1 [U0121]	Distance sensor receives an error signal from ABS actuator and electric unit (control unit) via CAN communication.	• ABS actuator and electric unit (control unit). • Distance sensor.

DTC CONFIRMATION PROCEDURE

1.PERFORM SELF DIAGNOSTIC RESULT

1. Start the engine.
2. Perform "Self Diagnostic Result" of "LASER/RADAR" using CONSULT.

Is display history of DTC U0121 CRNT?

- YES >> Refer to [DAS-99, "Diagnosis Procedure"](#).
NO >> Refer to [GI-41, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010275634

1.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF DIAGNOSTIC RESULT

Perform "Self Diagnostic Result" of "ABS" using CONSULT.

Are any DTCs detected?

- YES >> Refer to [BRC-55, "DTC Index"](#).
NO >> Replace the distance sensor. Refer to [DAS-160, "Removal and Installation"](#).

U0122 VDC P-RUN DIAG

< DTC/CIRCUIT DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

U0122 VDC P-RUN DIAG

DTC Logic

INFOID:0000000010275600

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
VDC CAN CIR1(LDP) [U0122]	Around view monitor control unit receives incorrect signal (P-RUN) from ABS actuator and electric unit (control Unit) via CAN communication.	• ABS actuator and electric unit (control unit). • Around view monitor control unit.

DTC CONFIRMATION PROCEDURE

1.PERFORM SELF DIAGNOSTIC RESULT

1. Turn ignition ON.
2. Perform "Self Diagnostic Result" of "AVM" using CONSULT.

Is DTC detected?

- YES >> Refer to [DAS-100, "Diagnosis Procedure"](#).
NO >> Refer to [GI-41, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010275601

1.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF DIAGNOSTIC RESULT

Perform "Self Diagnostic Result" of "ABS" using CONSULT.

Are any DTCs detected?

- YES >> Refer to [BRC-55, "DTC Index"](#).
NO >> Replace the around view monitor control unit. Refer to [DAS-163, "Removal and Installation"](#).

U0126 STRG SEN CAN 1

DTC Logic

INFOID:0000000010275635

DTC DETECTION LOGIC

NOTE:

If DTC U0126 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [DAS-106, "DISTANCE SENSOR : DTC Logic"](#).

CONSULT Display	DTC Detection Condition	Possible Cause
ST ANG SEN SIG [U0126]	Distance sensor receives an error signal from steering angle sensor via CAN communication.	- Steering angle sensor. - Distance sensor.

DTC CONFIRMATION PROCEDURE

1.PERFORM SELF DIAGNOSTIC RESULT

1. Start the engine.
2. Perform "Self Diagnostic Result" of "LASER/RADAR" using CONSULT.

Is DTC detected?

- YES >> Refer to [DAS-101, "Diagnosis Procedure"](#).
NO >> Refer to [GI-41, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010275636

1.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF DIAGNOSTIC RESULT

Perform "Self Diagnostic Result" of "ABS" using CONSULT.

Are any DTCs detected?

- YES >> Refer to [BRC-55, "DTC Index"](#).
NO >> Replace the distance sensor. Refer to [DAS-160, "Removal and Installation"](#).

U0401 ECM CAN 1

DTC Logic

INFOID:0000000010275637

DTC DETECTION LOGIC

NOTE:

If DTC U0401 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [DAS-106, "DISTANCE SENSOR : DTC Logic"](#).

CONSULT Display	DTC Detection Condition	Possible Cause
ECM CAN CIR2 [U0401]	Distance sensor receives an error signal from ECM via CAN communication.	• ECM. • Distance sensor.

DTC CONFIRMATION PROCEDURE

1.PERFORM SELF DIAGNOSTIC RESULT

1. Start the engine.
2. Perform "Self Diagnostic Result" of "LASER/RADAR" using CONSULT.

Is DTC detected?

- YES >> Refer to [DAS-102, "Diagnosis Procedure"](#).
NO >> Refer to [GI-41, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010275638

1.CHECK ECM SELF DIAGNOSTIC RESULT

Perform "Self Diagnostic Result" of "ENGINE" using CONSULT.

Are any DTCs detected?

- YES >> Refer to [EC-93, "DTC Index"](#).
NO >> Replace the distance sensor. Refer to [DAS-160, "Removal and Installation"](#).

U0415 VDC CAN 1

DTC Logic

INFOID:0000000010275639

DTC DETECTION LOGIC

NOTE:

If DTC U0415 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [DAS-106, "DISTANCE SENSOR : DTC Logic"](#).

CONSULT Display	DTC Detection Condition	Possible Cause
VDC CAN CIR2 [U0415]	Distance sensor receives an error signal from ABS actuator and electric unit (control unit) via CAN communication.	• ABS actuator and electric unit (control unit). • Distance sensor.

DTC CONFIRMATION PROCEDURE

1. PERFORM SELF DIAGNOSTIC RESULT

1. Start the engine.
2. Perform "Self Diagnostic Result" of "LASER/RADAR" using CONSULT.

Is display history of DTC U0415 CRNT?

- YES >> Refer to [DAS-103, "Diagnosis Procedure"](#).
NO >> Refer to [GI-41, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010275640

1. CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF DIAGNOSTIC RESULT

Perform "Self Diagnostic Result" of "ABS" using CONSULT.

Are any DTCs detected?

- YES >> Refer to [BRC-55, "DTC Index"](#).
NO >> Replace the distance sensor. Refer to [DAS-160, "Removal and Installation"](#).

U0416 VDC CHECKSUM DIAG

< DTC/CIRCUIT DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

U0416 VDC CHECKSUM DIAG

DTC Logic

INFOID:0000000010275602

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
VDC CAN CIR2(LDP) [U0416]	Around view monitor control unit receives incorrect signal (P-RUN) from ABS actuator and electric unit (control unit) via CAN communication.	• ABS actuator and electric unit (control unit). • Around view monitor control unit.

DTC CONFIRMATION PROCEDURE

1.PERFORM SELF DIAGNOSTIC RESULT

1. Turn ignition ON.
2. Perform "Self Diagnostic Result" of "AVM" using CONSULT.

Are any DTCs displayed?

- YES >> Refer to [DAS-104, "Diagnosis Procedure"](#).
NO >> Refer to [GI-41, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010275603

1.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF DIAGNOSTIC RESULT

Perform "Self Diagnostic Result" of "ABS" using CONSULT.

Are any DTCs detected?

- YES >> Refer to [BRC-55, "DTC Index"](#).
NO >> Replace the around view monitor control unit. Refer to [DAS-163, "Removal and Installation"](#).

U0428 STEERING ANGLE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

U0428 STEERING ANGLE SENSOR AROUND VIEW MONITOR CONTROL UNIT

AROUND VIEW MONITOR CONTROL UNIT : DTC Logic

INFOID:0000000010284257

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
ST ANG SEN CALIB [U0428]	Predictive course line center position adjustment of steering angle sensor is incomplete.	Adjust predictive course line center position adjustment of steering angle sensor.

AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure

INFOID:0000000010284258

1. ADJUST PREDICTIVE COURSE LINE CENTER POSITION ADJUSTMENT OF STEERING ANGLE SENSOR

When U0428 is detected, the predictive course line center position of steering angle sensor needs to be adjusted.

>> Adjust the predictive course line center position of steering angle sensor. Refer to [AV-291, "PREDICTED COURSE LINE CENTER POSITION ADJUSTMENT : Work Procedure"](#).

DISTANCE SENSOR

DISTANCE SENSOR : DTC Logic

INFOID:0000000010284279

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
ST ANG SEN CALIB [U0428]	Predictive course line center position adjustment of steering angle sensor is incomplete.	Adjust predictive course line center position adjustment of steering angle sensor.

DISTANCE SENSOR : Diagnosis Procedure

INFOID:0000000010284280

1. ADJUST PREDICTIVE COURSE LINE CENTER POSITION ADJUSTMENT OF STEERING ANGLE SENSOR

When U0428 is detected, the predictive course line center position of steering angle sensor needs to be adjusted.

>> Adjust the predictive course line center position of steering angle sensor. Refer to [DAS-88, "Work Procedure"](#).

DAS

U1000 CAN COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

U1000 CAN COMM CIRCUIT

AROUND VIEW MONITOR CONTROL UNIT

AROUND VIEW MONITOR CONTROL UNIT : DTC Logic

INFOID:0000000010284261

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
CAN COMM CIRCUIT [U1000]	Around view monitor control unit is not transmitting or receiving CAN communication signal for 2 seconds or more.	CAN communication system.

AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure

INFOID:0000000010284262

1.PERFORM SELF DIAGNOSTIC RESULT

1. Turn ignition switch ON and wait for 2 seconds or more.
2. Perform "Self Diagnostic Result" for "AVM".

Is CAN COMM CIRCUIT displayed?

- YES >> Refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).
NO >> Refer to [GI-41, "Intermittent Incident"](#).

DISTANCE SENSOR

DISTANCE SENSOR : DTC Logic

INFOID:0000000010284259

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
CAN COMM CIRCUIT [U1000]	Distance sensor is not transmitting or receiving CAN communication signal for 2 seconds or more.	CAN communication system.

DISTANCE SENSOR : Diagnosis Procedure

INFOID:0000000010284260

1.PERFORM SELF DIAGNOSTIC RESULT

1. Turn ignition switch ON and wait for 2 seconds or more.
2. Perform "Self Diagnostic Result" for "LASER/RADAR"

Is CAN COMM CIRCUIT displayed?

- YES >> Refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).
NO >> Refer to [GI-41, "Intermittent Incident"](#).

U1010 CONTROL UNIT (CAN)

< DTC/CIRCUIT DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

U1010 CONTROL UNIT (CAN)

AROUND VIEW MONITOR CONTROL UNIT

AROUND VIEW MONITOR CONTROL UNIT : DTC Logic

INFOID:0000000010284264

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
CONTROL UNIT (CAN) [U1010]	Error during CAN controller hardware initialization (VCAN).	Replace the Around view monitor control unit if the malfunction occurs constantly. Refer to AV-387 . "Removal and Installation".

DISTANCE SENSOR

DISTANCE SENSOR : DTC Logic

INFOID:0000000010284263

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
CONTROL UNIT (CAN) [U1010]	Error during CAN controller hardware initialization (VCAN).	Replace the distance sensor if the malfunction occurs constantly. Refer to DAS-160 . "Removal and Installation".

U111A REAR CAMERA IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

U111A REAR CAMERA IMAGE SIGNAL CIRCUIT

DTC Logic

INFOID:0000000010284265

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
Rear display output signal diagnosis (Harness disconnection) [U111A]	Rear view camera image signal circuit open or short.	Check rear view camera image signal circuit.

Diagnosis Procedure

INFOID:0000000010284266

Regarding Wiring Diagram information, refer to [DAS-53, "Wiring Diagram"](#).

1. CHECK REAR VIEW CAMERA POWER SUPPLY AND GROUND CIRCUIT CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit and rear view camera connectors.
3. Check continuity between around view monitor control unit connector M114 and rear view camera connector D514.

Around view monitor control unit		Rear view camera		Continuity
Connector	Terminals	Connector	Terminals	
M114	50	D514	8	Yes
	52		7	

4. Check continuity between around view monitor control unit connector M114 and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M114	50		No

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace harness or connectors.

2. CHECK REAR VIEW CAMERA POWER SUPPLY VOLTAGE

1. Connect around view monitor control unit and rear view camera connectors.
2. Turn ignition switch ON.
3. Check voltage between around view monitor control unit connector M114 and ground.

Around view monitor control unit		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
M114	50	—	CAMERA switch is ON or selector lever in R (reverse).	6.0 V

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Replace around view monitor control unit. Refer to [DAS-163, "Removal and Installation"](#).

3. CHECK REAR VIEW CAMERA IMAGE SIGNAL AND IMAGE SIGNAL GROUND CIRCUIT CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit and rear view camera connectors.

U111A REAR CAMERA IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

3. Check continuity between around view monitor control unit connector M114 and rear view camera connector D514.

Around view monitor control unit		Rear view camera		Continuity
Connector	Terminals	Connector	Terminals	
M114	53	D514	5	Yes
	54		1	

4. Check continuity between around view monitor control unit connector M114 and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M114	53		No

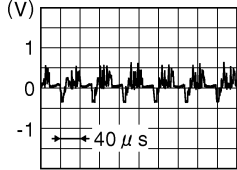
Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness or connectors.

4.CHECK REAR VIEW CAMERA IMAGE SIGNAL

1. Connect around view monitor control unit and rear view camera connectors.
2. Turn ignition switch ON.
3. Check signal between the terminals of around view monitor control unit connector M114.

Around view monitor control unit connector M114		Condition	Reference value
(+)	(-)		
Terminal	Terminal		
53	54	CAMERA switch is ON or selector lever in R (reverse).	

Is the inspection result normal?

YES >> Replace around view monitor control unit. Refer to [DAS-163, "Removal and Installation"](#).

NO >> Replace rear view camera. Refer to [DAS-166, "Removal and Installation"](#).

U111B SIDE CAMERA RH IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

U111B SIDE CAMERA RH IMAGE SIGNAL CIRCUIT

DTC Logic

INFOID:0000000010284267

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
Right side display output signal diagnosis (Harness disconnection) [U111B]	Right side camera image signal circuit open or short.	Check right side camera image signal circuit.

Diagnosis Procedure

INFOID:0000000010284268

Regarding Wiring Diagram information, refer to [DAS-53, "Wiring Diagram"](#).

1.CHECK RH SIDE CAMERA POWER SUPPLY AND GROUND CIRCUIT CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit and RH side camera connectors.
3. Check continuity between around view monitor control unit connector M114 and RH side camera connector D107.

Around view monitor control unit		RH side camera		Continuity
Connector	Terminals	Connector	Terminals	
M114	62	D107	7	Yes
	64		8	

4. Check continuity between around view monitor control unit connector M114 and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M114	62		No

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness or connectors.

2.CHECK RH SIDE CAMERA POWER SUPPLY VOLTAGE

1. Connect around view monitor control unit and RH side camera connectors.
2. Turn ignition switch ON.
3. Check voltage between around view monitor control unit connector M114 and ground.

Around view monitor control unit		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
M114	62	—	CAMERA switch is ON or selector lever in R (reverse).	6.0 V

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace around view monitor control unit. Refer to [DAS-163, "Removal and Installation"](#).

3.CHECK RH SIDE CAMERA IMAGE SIGNAL AND IMAGE SIGNAL GROUND CIRCUIT CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit and RH side camera connectors.

U111B SIDE CAMERA RH IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

3. Check continuity between around view monitor control unit connector M114 and RH side camera connector D107.

Around view monitor control unit		RH side camera		Continuity
Connector	Terminals	Connector	Terminals	
M114	65	D107	16	Yes
	66		15	

4. Check continuity between around view monitor control unit connector M114 and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M114	65		No

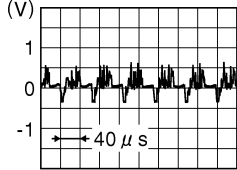
Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness or connectors.

4.CHECK RH SIDE CAMERA IMAGE SIGNAL

- Connect around view monitor control unit and RH side camera connectors.
- Turn ignition switch ON.
- Check signal between the terminals of around view monitor control unit connector M114.

Around view monitor control unit connector M114		Condition	Reference value
(+)	(-)		
Terminal	Terminal		
65	66	CAMERA switch is ON or selector lever in R (reverse).	

Is the inspection result normal?

YES >> Replace around view monitor control unit. Refer to [DAS-163. "Removal and Installation"](#).

NO >> Replace RH side camera. Refer to [DAS-161. "Removal and Installation"](#).

U111C FRONT CAMERA IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

U111C FRONT CAMERA IMAGE SIGNAL CIRCUIT

DTC Logic

INFOID:0000000010284269

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
Front display output signal diagnosis (Harness disconnection) [U111C]	Front camera image signal circuit open or short.	Check front camera image signal circuit.

Diagnosis Procedure

INFOID:0000000010284270

Regarding Wiring Diagram information, refer to [DAS-53, "Wiring Diagram"](#).

1.CHECK FRONT CAMERA POWER SUPPLY AND GROUND CIRCUIT CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit and front camera connectors.
3. Check continuity between around view monitor control unit connector M114 and front camera connector E226.

Around view monitor control unit		Front camera		Continuity
Connector	Terminals	Connector	Terminals	
M114	68	E226	2	Yes
	70		1	

4. Check continuity between around view monitor control unit connector M114 and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M114	68		No

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace harness or connectors.

2.CHECK FRONT CAMERA POWER SUPPLY VOLTAGE

1. Connect around view monitor control unit and front camera connectors.
2. Turn ignition switch ON.
3. Check voltage between around view monitor control unit connector M114 and ground.

Around view monitor control unit		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
M114	68	—	CAMERA switch is ON or selector lever in R (reverse).	6.0 V

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Replace around view monitor control unit. Refer to [DAS-163, "Removal and Installation"](#).

3.CHECK FRONT CAMERA IMAGE SIGNAL AND IMAGE SIGNAL GROUND CIRCUIT CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit and front camera connectors.

U111C FRONT CAMERA IMAGE SIGNAL CIRCUIT

[DRIVER ASSISTANCE SYSTEM]

< DTC/CIRCUIT DIAGNOSIS >

3. Check continuity between around view monitor control unit connector M114 and front camera connector E226.

Around view monitor control unit		Front camera		Continuity
Connector	Terminals	Connector	Terminals	
M114	71	E226	4	Yes
	72		5	

4. Check continuity between around view monitor control unit connector M114 and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M114	71		No

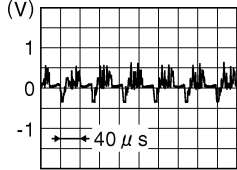
Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness or connectors.

4.CHECK FRONT CAMERA IMAGE SIGNAL

1. Connect around view monitor control unit and front camera connectors.
2. Turn ignition switch ON.
3. Check signal between the terminals of around view monitor control unit connector M114.

Around view monitor control unit connector M114		Condition	Reference value
(+)	(-)		
Terminal	Terminal		
71	72	CAMERA switch is ON or selector lever in R (reverse).	

Is the inspection result normal?

YES >> Replace around view monitor control unit. Refer to [DAS-163. "Removal and Installation"](#).

NO >> Replace front camera. Refer to [DAS-159. "Removal and Installation"](#).

U111D SIDE CAMERA LH IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

U111D SIDE CAMERA LH IMAGE SIGNAL CIRCUIT

DTC Logic

INFOID:0000000010284271

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
Left side display output signal diagnosis (Harness disconnection) [U111D]	Left side camera image signal circuit open or short.	Check left side camera image signal circuit.

Diagnosis Procedure

INFOID:0000000010284272

Regarding Wiring Diagram information, refer to [DAS-53, "Wiring Diagram"](#).

1.CHECK LH SIDE CAMERA POWER SUPPLY AND GROUND CIRCUIT CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit and LH side camera connectors.
3. Check continuity between around view monitor control unit connector M114 and LH side camera connector D4.

Around view monitor control unit		LH side camera		Continuity
Connector	Terminals	Connector	Terminals	
M114	56	D4	7	Yes
	58		8	

4. Check continuity between around view monitor control unit connector M114 and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M114	56		No

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness or connectors.

2.CHECK LH SIDE CAMERA POWER SUPPLY VOLTAGE

1. Connect around view monitor control unit and LH side camera connectors.
2. Turn ignition switch ON.
3. Check voltage between around view monitor control unit connector M114 and ground.

Around view monitor control unit		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
M114	56	—	CAMERA switch is ON or selector lever in R (reverse).	6.0 V

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace around view monitor control unit. Refer to [DAS-163, "Removal and Installation"](#).

3.CHECK LH SIDE CAMERA IMAGE SIGNAL AND IMAGE SIGNAL GROUND CIRCUIT CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit and LH side camera connectors.

U111D SIDE CAMERA LH IMAGE SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

3. Check continuity between around view monitor control unit connector M114 and LH side camera connector D4.

Around view monitor control unit		LH side camera		Continuity
Connector	Terminals	Connector	Terminals	
M114	59	D4	16	Yes
	60		15	

4. Check continuity between around view monitor control unit connector M114 and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M114	59		No

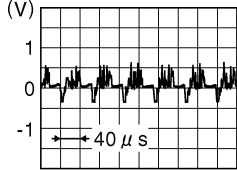
Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness or connectors.

4.CHECK LH SIDE CAMERA IMAGE SIGNAL

- Connect around view monitor control unit and LH side camera connectors.
- Turn ignition switch ON.
- Check signal between the terminals of around view monitor control unit connector M114.

Around view monitor control unit connector M114		Condition	Reference value
(+)	(-)		
Terminal	Terminal		
59	60	CAMERA switch is ON or selector lever in R (reverse).	

Is the inspection result normal?

YES >> Replace around view monitor control unit. Refer to [DAS-163, "Removal and Installation"](#).

NO >> Replace LH side camera. Refer to [DAS-161, "Removal and Installation"](#).

U1232 STEERING ANGLE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

U1232 STEERING ANGLE SENSOR

DTC Logic

INFOID:0000000010285557

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
ST ANG SEN CALIB [U1232]	Predictive course line center position adjustment of steering angle sensor is incomplete.	Adjust predictive course line center position adjustment of steering angle sensor.

Diagnosis Procedure

INFOID:0000000010285558

1. ADJUST PREDICTIVE COURSE LINE CENTER POSITION ADJUSTMENT OF STEERING ANGLE SENSOR

When U1232 is detected, the predictive course line center position of steering angle sensor needs to be adjusted.

>> Adjust the predictive course line center position of steering angle sensor. Refer to [AV-291, "PREDICTED COURSE LINE CENTER POSITION ADJUSTMENT : Work Procedure"](#).

U1302 CAMERA POWER VOLT

< DTC/CIRCUIT DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

U1302 CAMERA POWER VOLT

DTC Logic

INFOID:0000000010275656

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
Camera supply power supply voltage abnormality [U1302]	Short in camera power supply circuit.	• Harness or connectors. • Camera. • Around view monitor control unit.

Diagnosis Procedure

INFOID:0000000010275657

Regarding Wiring Diagram information, refer to [DAS-53. "Wiring Diagram"](#).

1.CHECK AVM CAMERA DATA MONITOR ITEMS

Check "F-CAMERA IMAGE SIGNAL", "REAR CAMERA IMAGE SIGNAL", "DR-SIDE CAMERA IMAGE SIG" and "PA-SIDE CAMERA IMAGE SIG" in "DATA MONITOR" of "AVM" using CONSULT.

Is "OK" displayed for all cameras?

YES >> Refer to [GI-41. "Intermittent Incident"](#).

NO-1 (Front camera)>>GO TO 2.

NO-2 (Rear camera)>>GO TO 5.

NO-3 (LH side camera)>>GO TO 8.

NO-4 (RH side camera)>>GO TO 11.

2.CHECK FRONT CAMERA POWER SUPPLY (CAMERA)

1. Turn ignition switch ON.
2. Check voltage between front camera connector E226 and ground.

Front camera		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
E226	2	—	CAMERA switch is ON.	6.0 V

Is the inspection result normal?

YES >> Replace front camera. Refer to [DAS-159. "Removal and Installation"](#).

NO >> GO TO 3.

3.CHECK FRONT CAMERA POWER SUPPLY (AROUND VIEW MONITOR CONTROL UNIT)

Check voltage between around view monitor control unit connector M114 and ground.

Around view monitor control unit		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
M114	68	—	CAMERA switch is ON.	6.0 V

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace around view monitor control unit. Refer to [DAS-163. "Removal and Installation"](#).

4.CHECK FRONT CAMERA POWER SUPPLY CIRCUIT CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit connector M114 and front camera connector.
3. Check continuity between around view monitor control unit connector M114 and front camera connector E226.

U1302 CAMERA POWER VOLT

< DTC/CIRCUIT DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

Around view monitor control unit		Front camera		Continuity
Connector	Terminal	Connector	Terminal	
M114	68	E226	2	Yes

4. Check continuity between around view monitor control unit connector M114 and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M114	68	—	No

Is the inspection result normal?

YES >> Replace front camera. Refer to [DAS-159. "Removal and Installation"](#).

NO >> Repair or replace harness or connectors.

5. CHECK REAR CAMERA POWER SUPPLY (CAMERA)

1. Turn ignition switch ON.
2. Check voltage between rear camera connector D514 and ground.

Rear camera		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
D514	8	—	CAMERA switch is ON.	6.0 V

Is the inspection result normal?

YES >> Replace rear camera. Refer to [DAS-166. "Removal and Installation"](#).

NO >> GO TO 6.

6. CHECK REAR CAMERA POWER SUPPLY (AROUND VIEW MONITOR CONTROL UNIT)

Check voltage between around view monitor control unit connector M114 and ground.

Around view monitor control unit		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
M114	50	—	CAMERA switch is ON.	6.0 V

Is the inspection result normal?

YES >> GO TO 7.

NO >> Replace around view monitor control unit. Refer to [DAS-163. "Removal and Installation"](#).

7. CHECK REAR CAMERA POWER SUPPLY CIRCUIT CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit connector M114 and rear camera connector.
3. Check continuity between around view monitor control unit connector M114 and rear camera connector D514.

Around view monitor control unit		Rear camera		Continuity
Connector	Terminal	Connector	Terminal	
M114	50	D514	8	Yes

4. Check continuity between around view monitor control unit connector M114 and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M114	50	—	No

Is the inspection result normal?

YES >> Replace rear camera. Refer to [DAS-166. "Removal and Installation"](#).

NO >> Repair or replace harness or connectors.

U1302 CAMERA POWER VOLT

< DTC/CIRCUIT DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

8.CHECK SIDE CAMERA LH POWER SUPPLY (CAMERA)

1. Turn ignition switch ON.
2. Check voltage between side camera LH connector D14 and ground.

Side camera LH		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
D14	7	—	CAMERA switch is ON.	6.0 V

Is the inspection result normal?

- YES >> Replace side camera LH. Refer to [DAS-161, "Removal and Installation"](#).
NO >> GO TO 9.

9.CHECK SIDE CAMERA LH POWER SUPPLY (AROUND VIEW MONITOR CONTROL UNIT)

Check voltage between around view monitor control unit connector M114 and ground.

Around view monitor control unit		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
M114	56	—	CAMERA switch is ON.	6.0 V

Is the inspection result normal?

- YES >> GO TO 10.
NO >> Replace around view monitor control unit. Refer to [DAS-163, "Removal and Installation"](#).

10.CHECK SIDE CAMERA LH POWER SUPPLY CIRCUIT CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit connector M114 and side camera LH connector.
3. Check continuity between around view monitor control unit connector M114 and side camera LH connector D14.

Around view monitor control unit		Side camera LH		Continuity
Connector	Terminal	Connector	Terminal	
M114	56	D14	7	Yes

4. Check continuity between around view monitor control unit connector M114 and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M114	56	—	No

Is the inspection result normal?

- YES >> Replace side camera LH. Refer to [DAS-161, "Removal and Installation"](#).
NO >> Repair or replace harness or connectors.

11.CHECK SIDE CAMERA RH POWER SUPPLY (CAMERA)

1. Turn ignition switch ON.
2. Check voltage between side camera RH connector D107 and ground.

Side camera RH		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
D107	7	—	CAMERA switch is ON.	6.0 V

Is the inspection result normal?

- YES >> Replace side camera RH. Refer to [DAS-161, "Removal and Installation"](#).
NO >> GO TO 12.

12.CHECK SIDE CAMERA RH POWER SUPPLY (AROUND VIEW MONITOR CONTROL UNIT)

U1302 CAMERA POWER VOLT

< DTC/CIRCUIT DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

Check voltage between around view monitor control unit connector M114 and ground.

Around view monitor control unit		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
M114	62	—	CAMERA switch is ON.	6.0 V

Is the inspection result normal?

YES >> GO TO 13.

NO >> Replace around view monitor control unit. Refer to [DAS-163. "Removal and Installation"](#).

13. CHECK SIDE CAMERA RH POWER SUPPLY CIRCUIT CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit connector M114 and side camera RH connector.
3. Check continuity between around view monitor control unit connector M114 and side camera RH connector D107.

Around view monitor control unit		Side camera RH		Continuity
Connector	Terminal	Connector	Terminal	
M114	62	D107	7	Yes

4. Check continuity between around view monitor control unit connector M114 and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M114	62	—	No

Is the inspection result normal?

YES >> Replace side camera RH. Refer to [DAS-161. "Removal and Installation"](#).

NO >> Repair or replace harness or connectors.

U1303 LED POWER SUPPLY VOLT

< DTC/CIRCUIT DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

U1303 LED POWER SUPPLY VOLT

DTC Logic

INFOID:0000000010275658

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
LED supply power supply voltage abnormality [U1303]	Open or short in blind spot warning indicator power supply circuit.	• Harness or connectors. • Around view monitor control unit.

Diagnosis Procedure

INFOID:0000000010275659

Regarding Wiring Diagram information, refer to [DAS-53, "Wiring Diagram"](#).

1. CHECK BLIND SPOT WARNING POWER SUPPLY CIRCUIT CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit connector M113 and blind spot warning indicators connectors.
3. Check continuity between around view monitor control unit connector M113 and blind spot warning indicators connectors.

Around view monitor control unit		Blind spot warning indicator		Continuity
Connector	Terminal	Connector	Terminal	
M113	7	D5 (LH)	1	Yes
	8	D108 (RH)	1	

4. Check continuity between around view monitor control unit connector M113 and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M113	7	—	No
	8		

Is the inspection result normal?

- YES >> Replace around view monitor control unit. Refer to [DAS-163, "Removal and Installation"](#).
NO >> Repair or replace harness or connectors.

U1304 CAMERA IMAGE CALIBRATION

< DTC/CIRCUIT DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

U1304 CAMERA IMAGE CALIBRATION

DTC Logic

INFOID:0000000010284275

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
Non-completion of the calibration [U1304]	Camera image calibration is incomplete.	Perform calibration of camera image.

Diagnosis Procedure

INFOID:0000000010284276

1.PERFORM CALIBRATION

When U1304 is detected, perform calibration of camera image.

>> Refer to [AV-292, "CALIBRATING CAMERA IMAGE \(AROUND VIEW MONITOR\) : Work Procedure"](#).

U1305 CONFIG UNFINISH

< DTC/CIRCUIT DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

U1305 CONFIG UNFINISH

DTC Logic

INFOID:0000000010284277

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
Non-completion of the configuration [U1305]	Configuration of around view monitor control unit is incomplete.	Perform configuration of around view monitor control unit.

Diagnosis Procedure

INFOID:0000000010284278

1.PERFORM CONFIGURATION

When U1305 is detected, perform configuration of around view monitor control unit.

>> Refer to [AV-290, "CONFIGURATION \(AROUND VIEW MONITOR CONTROL UNIT\) : Work Procedure"](#).

DAS

U1308 CAMERA CONFIG

< DTC/CIRCUIT DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

U1308 CAMERA CONFIG

DTC Logic

INFOID:0000000010275598

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
Rear camera judgement [U1308]	Around view monitor control unit camera calibration is incomplete.	Perform Around view monitor control unit camera calibration.

Diagnosis Procedure

INFOID:0000000010275599

1.PERFORM AROUND VIEW MONITOR CAMERA CALIBRATION

When U1308 is detected, the rear view camera needs to be calibrated.

>> Calibrate the rear view camera. Refer to [DAS-89. "Description"](#).

U1309 PUMP UNIT CURRENT

< DTC/CIRCUIT DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

U1309 PUMP UNIT CURRENT

DTC Logic

INFOID:0000000010275604

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
PUMP UNIT CURRENT [U1309]	Around view monitor control unit detects incorrect pump current from rear view camera washer control unit.	• Harness • Rear view camera washer control unit • Around view monitor control unit

DTC CONFIRMATION PROCEDURE

1.PERFORM SELF DIAGNOSTIC RESULT

1. Turn ignition switch ON.
2. Perform "Self Diagnostic Result" of "AVM" using CONSULT.

Is DTC detected?

- YES >> Refer to [DAS-125, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010275605

Regarding Wiring Diagram information, refer to [DAS-53, "Wiring Diagram"](#).

1.CHECK REAR VIEW CAMERA WASHER CONTROL UNIT POWER SUPPLY CIRCUIT

1. Turn ignition switch ON.
2. Check voltage between rear view camera washer control unit connector B67 and ground.

Rear view camera washer control unit		Ground	Voltage
Connector	Terminal		
B67	12	—	Battery voltage

Is inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace harness or connectors.

2.CHECK REAR VIEW CAMERA WASHER CONTROL UNIT GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect rear view camera washer control unit connector.
3. Check continuity between rear view camera washer control unit connector B67 and ground.

Rear view camera washer control unit		Ground	Continuity
Connector	Terminal		
B67	5	—	Yes

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace harness or connectors.

3.CHECK REAR VIEW CAMERA WASHER CONTROL UNIT CIRCUITS CONTINUITY

1. Disconnect around view monitor control unit connector M113.
2. Check continuity between around view monitor control unit connector M113 and rear view camera washer control unit connector B67.

U1309 PUMP UNIT CURRENT

< DTC/CIRCUIT DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

Around view monitor control unit		Rear view camera washer control unit		Continuity
Connector	Terminal	Connector	Terminal	
M113	36	B67	8	Yes
	37		6	
	38		7	

3. Check continuity between around view monitor control unit connector M113 and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M113	36	—	No
	38		

Is inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness or connectors.

4. CHECK CONTINUITY REAR VIEW CAMERA WASHER CONTROL UNIT TO PUMP

1. Disconnect rear view camera air pump motor connector.
2. Check continuity between rear view camera washer control unit connector B67 and rear view camera air pump motor connector B72.

Rear view camera washer control unit		Rear view camera air pump motor		Continuity
Connector	Terminal	Connector	Terminal	
B67	1	B72	1	Yes
	2		2	

3. Check for continuity between rear view camera washer control unit connector and ground.

Rear view camera washer control unit		Ground	Continuity
Connector	Terminal		
B67	1	—	No
	2		

Is inspection result normal?

YES >> Replace the rear view camera air pump motor. Refer to [DAS-168, "Removal and Installation"](#).

NO >> Repair or replace harness or connectors.

U130A PUMP CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

U130A PUMP CONTROL UNIT

DTC Logic

INFOID:000000010275763

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
PUMP ECU JUDGE [U130A]	Rear view camera washer control unit malfunction.	Rear view camera washer control unit.

DTC CONFIRMATION PROCEDURE

1.PERFORM SELF DIAGNOSTIC RESULT

1. Start the engine.
2. Perform "Self Diagnostic Result" of "AVM" using CONSULT.

Is DTC detected?

- YES >> Refer to [DAS-127, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:000000010275764

1.CHECK REAR VIEW CAMERA WASHER CONTROL UNIT POWER SUPPLY CIRCUIT

1. Turn ignition switch ON.
2. Check voltage between rear view camera washer control unit connector B67 and ground.

Rear view camera washer control unit		Ground	Voltage
Connector	Terminal		
B67	12	—	Battery voltage

Is inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace harness or connectors.

2.CHECK REAR VIEW CAMERA WASHER CONTROL UNIT GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect rear view camera washer control unit connector.
3. Check continuity between rear view camera washer control unit connector B67 and ground.

Rear view camera washer control unit		Ground	Continuity
Connector	Terminal		
B67	5	—	Yes

Is the inspection result normal?

- YES >> Replace rear view camera washer control unit. Refer to [DAS-169, "Removal and Installation"](#).
NO >> Repair or replace harness or connectors.

DAS

U130B REAR CAMERA COMM ERROR

< DTC/CIRCUIT DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

U130B REAR CAMERA COMM ERROR

DTC Logic

INFOID:0000000010275606

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
Rear Camera Serial Communication [U130B]	Around view monitor control unit receives incorrect communication signal from rear view camera.	• Rear view camera. • Harness. • Around view monitor control unit.

DTC CONFIRMATION PROCEDURE

1.PERFORM SELF DIAGNOSTIC RESULT

1. Turn ignition switch ON.
2. Perform "Self Diagnostic Result" of "AVM" using CONSULT.

Is DTC detected?

- YES >> Refer to [DAS-128. "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010275607

Regarding Wiring Diagram information, refer to [DAS-53. "Wiring Diagram"](#).

1.CHECK REAR VIEW CAMERA SERIAL SIGNAL CIRCUIT CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit connector M114 and rear camera connector.
3. Check continuity between around view monitor control unit connector M114 and rear camera connector D514.

Around view monitor control unit		Rear camera		Continuity
Connector	Terminal	Connector	Terminal	
M114	49	D514	4	Yes

4. Check continuity between around view monitor control unit connector M114 and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M114	49	—	No

Is the inspection result normal?

- YES >> Replace around view monitor control unit. Refer to [DAS-163. "Removal and Installation"](#).
NO >> Repair or replace harness or connectors.

C10B7 YAW RATE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

C10B7 YAW RATE SENSOR

DTC Logic

INFOID:0000000010275660

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
YAW RATE SENSOR [C10B7]	Yaw rate/side/decel G sensor calibration incor- rect.	- Calibration of yaw rate/side/decel G sensor not performed. - Interruption in yaw rate/side/decel G sensor calibration.

DTC CONFIRMATION PROCEDURE

1.PERFORM SELF DIAGNOSTIC RESULT

1. Start the engine.
2. Perform "Self Diagnostic Result" of "LASER/RADAR" using CONSULT.

Is DTC detected?

- YES >> Refer to [DAS-129, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010275661

1.PERFORM YAW RATE/SIDE/DECEL G SENSOR CALIBRATION

1. Perform calibration of yaw rate/side/decel G sensor. Refer to [BRC-72, "Work Procedure"](#).
2. Erase DTCs using CONSULT.
3. Perform "Self Diagnostic Result" of "LASER/RADAR" using CONSULT.

Is DTC detected?

- YES >> Replace the distance sensor. Refer to [DAS-160, "Removal and Installation"](#).
NO >> Inspection End.

A
B
C
D
E
F
G
H
I
J
K
L
M
N
P

DAS

C1A01 POWER SUPPLY CIRCUIT 1, C1A02 POWER SUPPLY CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

C1A01 POWER SUPPLY CIRCUIT 1, C1A02 POWER SUPPLY CIRCUIT 2

DTC Logic

INFOID:0000000010275621

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
POWER SUPPLY CIR [C1A01]	Distance sensor battery voltage is less than 7.9 V for 5 seconds.	• Harness • Distance sensor
POWER SUPPLY CIR 2 [C1A02]	Distance sensor battery voltage is greater than 19.3 V for 5 seconds.	

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Perform "Self Diagnostic Result" of "LASER/RADAR" using CONSULT.

Is DTC detected?

- YES >> Refer to [DAS-130, "Diagnosis Procedure"](#).
NO >> Refer to [GI-41, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010275622

1.CHECK DISTANCE SENSOR POWER SUPPLY AND GROUND CIRCUIT

Check power supply and ground circuit of distance sensor. Refer to [DAS-144, "DISTANCE SENSOR : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> Replace the distance sensor. Refer to [DAS-160, "Removal and Installation"](#).
NO >> Repair or replace harness or connectors.

C1A03 VEHICLE SPEED SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

C1A03 VEHICLE SPEED SENSOR

AROUND VIEW MONITOR CONTROL UNIT

AROUND VIEW MONITOR CONTROL UNIT : DTC Logic

INFOID:0000000010275610

DTC DETECTION LOGIC

CONSULT Display	DTC detecting condition	Possible causes
VHCL SPEED SE CIRC [C1A03]	Around view monitor control unit detects a velocity calculation error.	• ABS actuator and electric unit (control unit). • Around view monitor control unit.

DTC CONFIRMATION PROCEDURE

1.PERFORM SELF DIAGNOSTIC RESULT

1. Turn ignition ON.
2. Perform "Self Diagnostic Result" of "AVM" using CONSULT.

Is DTC detected?

- YES >> Refer to [DAS-131, "AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure"](#).
NO >> Refer to [GI-41, "Intermittent Incident"](#).

AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure

INFOID:0000000010275611

1.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF DIAGNOSTIC RESULT

Perform "Self Diagnostic Result" of "ABS" using CONSULT.

Are any DTCs detected?

- YES >> Refer to [BRC-55, "DTC Index"](#).
NO >> Replace around view monitor control unit. Refer to [DAS-163, "Removal and Installation"](#).

DISTANCE SENSOR

DISTANCE SENSOR : DTC Logic

INFOID:0000000010284470

DTC DETECTION LOGIC

CONSULT Display	DTC detecting condition	Possible causes
VHCL SPEED SE CIRC [C1A03]	Distance sensor detects a velocity calculation error.	• ABS actuator and electric unit (control unit). • Distance sensor.

DTC CONFIRMATION PROCEDURE

1.PERFORM SELF DIAGNOSTIC RESULT

1. Turn ignition ON.
2. Perform "Self Diagnostic Result" of "LASER/RADAR" using CONSULT.

Is DTC detected?

- YES >> Refer to [DAS-131, "DISTANCE SENSOR : Diagnosis Procedure"](#).
NO >> Refer to [GI-41, "Intermittent Incident"](#).

DISTANCE SENSOR : Diagnosis Procedure

INFOID:0000000010284471

1.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF DIAGNOSTIC RESULT

Perform "Self Diagnostic Result" of "ABS" using CONSULT.

Are any DTCs detected?

- YES >> Refer to [BRC-55, "DTC Index"](#).
NO >> Replace distance sensor. Refer to [DAS-160, "Removal and Installation"](#).

C1A04 ABS/TCS/VDC SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

C1A04 ABS/TCS/VDC SYSTEM

AROUND VIEW MONITOR CONTROL UNIT

AROUND VIEW MONITOR CONTROL UNIT : DTC Logic

INFOID:0000000010275614

DTC DETECTION LOGIC

CONSULT Display	DTC detecting condition	Possible causes
ABS/TCS/VDC CIRC [C1A04]	Around view monitor control unit receives VDC failed message from ABS actuator and electric unit (control unit).	• ABS actuator and electric unit (control unit). • Around view monitor control unit.

DTC CONFIRMATION PROCEDURE

1.PERFORM SELF DIAGNOSTIC RESULT

1. Turn ignition ON.
2. Perform "Self Diagnostic Result" of "AVM" using CONSULT.

Is DTC detected?

- YES >> Refer to [DAS-132, "AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure"](#).
NO >> Inspection End.

AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure

INFOID:0000000010275615

1.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF DIAGNOSTIC RESULT

Perform "Self Diagnostic Result" of "ABS" using CONSULT.

Are any DTCs detected?

- YES >> Refer to [BRC-55, "DTC Index"](#).
NO >> Replace around view monitor control unit. Refer to [DAS-163, "Removal and Installation"](#).

DISTANCE SENSOR

DISTANCE SENSOR : DTC Logic

INFOID:0000000010284472

DTC DETECTION LOGIC

CONSULT Display	DTC detecting condition	Possible causes
ABS/TCS/VDC CIRC [C1A04]	Distance sensor receives VDC failed message from ABS actuator and electric unit (control unit).	• ABS actuator and electric unit (control unit). • Distance sensor.

DTC CONFIRMATION PROCEDURE

1.PERFORM SELF DIAGNOSTIC RESULT

1. Turn ignition ON.
2. Perform "Self Diagnostic Result" of "LASER/RADAR" using CONSULT.

Is DTC detected?

- YES >> Refer to [DAS-132, "DISTANCE SENSOR : Diagnosis Procedure"](#).
NO >> Inspection End.

DISTANCE SENSOR : Diagnosis Procedure

INFOID:0000000010284473

1.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF DIAGNOSTIC RESULT

Perform "Self Diagnostic Result" of "ABS" using CONSULT.

Are any DTCs detected?

- YES >> Refer to [BRC-55, "DTC Index"](#).
NO >> Replace distance sensor. Refer to [DAS-160, "Removal and Installation"](#).

C1A05 BRAKE SW/STOP LAMP SW

< DTC/CIRCUIT DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

C1A05 BRAKE SW/STOP LAMP SW

DTC Logic

INFOID:0000000010275641

DTC DETECTION LOGIC

NOTE:

If DTC C1A05 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [DAS-106, "DISTANCE SENSOR : DTC Logic"](#).

CONSULT Display	DTC Detection Condition	Possible Cause
BRAKE SW/STOP L SW [C1A05]	Mismatch between stop lamp switch signal and ICC brake switch signal received from ECM and stop lamp switch signal received from ABS actuator and electric unit (control unit) that continues for 10 seconds or more with vehicle speeds at approximately 40 km/h or more.	• ECM. • ABS actuator and electric unit (control unit). • Distance sensor.

Diagnosis Procedure

INFOID:0000000010275642

1.CHECK SELF DIAGNOSTIC RESULT OF ECM

1. Perform "Self Diagnostic Result" of "ENGINE" using CONSULT.

Are any DTCs detected?

YES >> Refer to [EC-93, "DTC Index"](#).

NO >> GO TO 2.

2.CHECK SELF DIAGNOSTIC RESULT OF ABS

1. Perform "Self Diagnostic Result" of "ABS" using CONSULT.

Are any DTCs detected?

YES >> Refer to [BRC-55, "DTC Index"](#).

NO >> Replace distance sensor. Refer to [DAS-160, "Removal and Installation"](#).

DAS

C1A12 LASER BEAM OFF CENTER

< DTC/CIRCUIT DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

C1A12 LASER BEAM OFF CENTER

DTC Logic

INFOID:0000000010275623

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
LASER BEAM OFFCNTR [C1A12]	Distance sensor is off the aiming point.	Distance sensor.

Diagnosis Procedure

INFOID:0000000010275624

1.PERFORM DISTANCE SENSOR SELF DIAGNOSTIC RESULT

Perform "Self Diagnostic Result" of "LASER/RADAR" using CONSULT.

Is DTC detected?

- YES >> Replace distance sensor. Refer to [DAS-160. "Removal and Installation"](#).
NO >> Inspection End.

C1A14 ECM

DTC Logic

INFOID:0000000010275645

DTC DETECTION LOGIC

NOTE:

If DTC C1A14 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [DAS-106, "DISTANCE SENSOR : DTC Logic"](#).

CONSULT Display	DTC detecting condition	Possible causes
ECM CIRCUIT [C1A14]	ECM is malfunctioning.	• Accelerator pedal position sensor. • ECM. • Distance sensor.

1.PERFORM SELF DIAGNOSTIC RESULT

1. Start the engine.
2. Drive the vehicle.
3. Stop the vehicle.
4. Perform "Self Diagnostic Result" of "LASER/RADAR" using CONSULT.

Is DTC detected?

- YES >> Refer to [DAS-135, "Diagnosis Procedure"](#).
NO >> Refer to [GI-41, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010275646

1.PERFORM SELF DIAGNOSTIC RESULT OF ECM

Perform "Self Diagnostic Result" of "ENGINE" using CONSULT.

Are any DTCs detected?

- YES >> Refer to [EC-93, "DTC Index"](#).
NO >> Replace distance sensor. Refer to [DAS-160, "Removal and Installation"](#).

C1A15 GEAR POSITION

DTC Logic

INFOID:0000000010275648

DTC DETECTION LOGIC

NOTE:

If DTC C1A15 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [DAS-106, "DISTANCE SENSOR : DTC Logic"](#).

If DTC C1A15 is displayed with DTC C1A03, first perform the trouble diagnosis for DTC U1000. Refer to [DAS-131, "DISTANCE SENSOR : DTC Logic"](#).

If DTC C1A15 is displayed with DTC C1A04, first perform the trouble diagnosis for DTC U1000. Refer to [DAS-132, "DISTANCE SENSOR : DTC Logic"](#).

CONSULT Display	DTC detecting condition	Possible causes
GEAR POSITION [C1A15]	A mismatch between current gear position signal transmitted from TCM via CAN communication and gear position calculated by distance sensor continues for approximately 11 minutes or more.	• Input speed sensor. • Vehicle speed sensor CVT (output speed sensor). • TCM.

DTC CONFIRMATION PROCEDURE

1. PERFORM SELF DIAGNOSTIC RESULT

1. Start the engine.
2. Drive the vehicle at 10 km/h (6 MPH) or faster for approximately 15 minutes or more.
3. Stop the vehicle.
4. Perform "Self Diagnostic Result" of "LASER/RADAR" using CONSULT.

Is DTC detected?

YES >> Refer to [DAS-136, "Diagnosis Procedure"](#).

NO >> Refer to [GI-41, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010275649

1. CHECK SELF DIAGNOSTIC RESULT OF TCM

Perform "Self Diagnostic Result" of "TRANSMISSION" using CONSULT.

Are any DTCs detected?

YES >> Refer to [TM-63, "DTC Index"](#).

NO >> Replace distance sensor. Refer to [DAS-160, "Removal and Installation"](#).

C1A16 RADAR BLOCKED

< DTC/CIRCUIT DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

C1A16 RADAR BLOCKED

DTC Logic

INFOID:0000000010275625

DTC DETECTION LOGIC

CONSULT Display	DTC detecting condition	Possible causes
RADAR STAIN [C1A16]	If any stain occurs to distance sensor body win- dow.	• Stain or foreign materials deposited. • Cracks or scratches exist.

NOTE:

DTC C1A16 may be detected under the following conditions. (Explain to the customer about the difference between the contamination detection function and the indication when the malfunction is detected and tell them this is not a malfunction.)

- When contamination or foreign materials adhere to the ICC sensor area of the front bumper
- When driving while it is snowing or when frost forms on the ICC sensor area of the front bumper
- When ICC sensor area of the front bumper is temporarily fogged

Diagnosis Procedure

INFOID:0000000010275626

1. VISUAL CHECK

1. Check for contamination and foreign material on the distance sensor area of the front bumper.
2. Check distance sensor for contamination and foreign materials.
3. Check distance sensor for cracks and scratches.

Is the inspection result normal?

- YES >> Replace the distance sensor. Refer to [DAS-160, "Removal and Installation"](#).
- NO >> Repair as necessary.

C1A17 DISTANCE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

C1A17 DISTANCE SENSOR

DTC Logic

INFOID:0000000010275650

DTC DETECTION LOGIC

NOTE:

If DTC C1A17 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [DAS-106. "DISTANCE SENSOR : DTC Logic"](#).

CONSULT Display	DTC detecting condition	Possible causes
LASER SENSOR FAIL [C1A17]	Distance sensor is malfunctioning.	Distance sensor.

Diagnosis Procedure

INFOID:0000000010275651

1.REPLACE DISTANCE SENSOR

>> Replace distance sensor. Refer to [DAS-160. "Removal and Installation"](#).

C1A18 RADAR AIMING INCMP

< DTC/CIRCUIT DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

C1A18 RADAR AIMING INCMP

DTC Logic

INFOID:0000000010275629

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
LASER AIMING INCMP [C1A18]	Distance sensor not adjusted.	- Distance sensor aiming adjustment not performed. - Distance sensor aiming adjustment interrupted.

DTC CONFIRMATION PROCEDURE

1.PERFORM SELF DIAGNOSTIC RESULT

1. Start the engine.
2. Perform "Self Diagnostic Result" of "LASER/RADAR" using CONSULT.

Is DTC detected?

- YES >> Refer to [DAS-139, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010275630

1.AJUST DISTANCE SENSOR

Perform Distance Sensor Initial Vertical Alignment and Distance Sensor Alignment.

>> Refer to [DAS-70, "Description"](#) and [DAS-72, "Description"](#).

A
B
C
D
E
F
G
H
I
J
K
L
M
N
P

DAS

C1A21 UNIT HIGH TEMP

< DTC/CIRCUIT DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

C1A21 UNIT HIGH TEMP

DTC Logic

INFOID:0000000010275627

DTC DETECTION LOGIC

CONSULT Display	DTC detecting condition	Possible causes
UNIT HIGH TEMP [C1A21]	Distance sensor judges high temperature abnormality.	Temperature around distance sensor high.

1.PERFORM SELF DIAGNOSTIC RESULT

1. Turn ignition switch OFF.
2. Wait for 10 minutes or more to cool the distance sensor.
3. Start the engine.
4. Perform "Self Diagnostic Result" of "LASER/RADAR" using CONSULT.

Is DTC detected?

- YES >> Replace distance sensor. Refer to [DAS-160, "Removal and Installation"](#).
- NO >> Refer to [GI-41, "Intermittent Incident"](#).

C1A24 NP RANGE

< DTC/CIRCUIT DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

C1A24 NP RANGE

DTC Logic

INFOID:0000000010275652

DTC DETECTION LOGIC

NOTE:

If DTC C1A24 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [DAS-106, "DISTANCE SENSOR : DTC Logic"](#).

CONSULT Display	DTC Detection Condition	Possible Cause
NP RANGE [C1A24]	A mismatch between shift position signal and a current gear position signal transmitted from TCM via CAN communication that continues for 60 seconds or more.	• TCM. • Transmission range switch.

DTC CONFIRMATION PROCEDURE

1.CHECK SELF DIAGNOSTIC RESULT (1)

1. Start the engine.
2. Shift selector lever to P position and wait for approximately 5 minutes or more.
3. Perform "Self Diagnostic Result" of "LASER/RADAR" using CONSULT.

Is DTC detected?

- YES >> Refer to [DAS-141, "Diagnosis Procedure"](#).
NO >> GO TO 2.

2.CHECK SELF DIAGNOSTIC RESULT (2)

1. Shift selector lever to N position and wait for approximately 5 minutes or more.
2. Perform "Self Diagnostic Result" of "LASER/RADAR" using CONSULT.

Is DTC detected?

- YES >> Refer to [DAS-141, "Diagnosis Procedure"](#).
NO >> Refer to [GI-41, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010275653

1.CHECK SELF DIAGNOSTIC RESULT OF TCM

Perform "Self Diagnostic Result" of "TRANSMISSION" using CONSULT.

Are any DTCs detected?

- YES >> Refer to [TM-63, "DTC Index"](#).
NO >> Replace distance sensor. Refer to [DAS-160, "Removal and Installation"](#).

A
B
C
D
E
F
G
H
I
J
K
L
M
N
P

DAS

C1A39 STEERING ANGLE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

C1A39 STEERING ANGLE SENSOR

AROUND VIEW MONITOR CONTROL UNIT

AROUND VIEW MONITOR CONTROL UNIT : DTC Logic

INFOID:0000000010275612

DTC DETECTION LOGIC

CONSULT Display	DTC detecting condition	Possible causes
STRG SEN CIR [C1A39]	control unit receives steering angle sensor failed message from steering angle sensor.	- Steering angle sensor. - Around view monitor control unit.

DTC CONFIRMATION PROCEDURE

1.PERFORM SELF DIAGNOSTIC RESULT

- Turn ignition ON.
- Perform "Self Diagnostic Result" of "AVM" using CONSULT.

Is DTC detected?

- YES >> Refer to [DAS-142, "AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure"](#).
NO >> Refer to [GI-41, "Intermittent Incident"](#).

AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure

INFOID:0000000010275613

1.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF DIAGNOSTIC RESULT

Perform "Self Diagnostic Result" of "ABS" using CONSULT.

Are any DTCs detected?

- YES >> Refer to [BRC-55, "DTC Index"](#).
NO >> Replace around view monitor control unit. Refer to [DAS-163, "Removal and Installation"](#).

DISTANCE SENSOR

DISTANCE SENSOR : DTC Logic

INFOID:0000000010284474

DTC DETECTION LOGIC

CONSULT Display	DTC detecting condition	Possible causes
STRG SEN CIR [C1A39]	Distance sensor receives steering angle sensor failed message from steering angle sensor.	- Steering angle sensor. - Distance sensor.

DTC CONFIRMATION PROCEDURE

1.PERFORM SELF DIAGNOSTIC RESULT

- Turn ignition ON.
- Perform "Self Diagnostic Result" of "LASER/RADAR" using CONSULT.

Is DTC detected?

- YES >> Refer to [DAS-142, "DISTANCE SENSOR : Diagnosis Procedure"](#).
NO >> Refer to [GI-41, "Intermittent Incident"](#).

DISTANCE SENSOR : Diagnosis Procedure

INFOID:0000000010284475

1.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF DIAGNOSTIC RESULT

Perform "Self Diagnostic Result" of "ABS" using CONSULT.

Are any DTCs detected?

- YES >> Refer to [BRC-55, "DTC Index"](#).
NO >> Replace distance sensor. Refer to [DAS-160, "Removal and Installation"](#).

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

POWER SUPPLY AND GROUND CIRCUIT AROUND VIEW MONITOR CONTROL UNIT

AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure

INFOID:0000000010408908

Regarding Wiring Diagram information, refer to [AV-262. "Wiring Diagram"](#).

WITHOUT DRIVER ASSISTANCE SYSTEM

1.CHECK FUSE

Check that the following fuses are not blown.

Terminal No.	Signal name	Fuse No.
2	Battery power supply	15 (20A)

Are the fuses blown?

YES >> Replace the blown fuse after repairing the affected circuit.

NO >> GO TO 2.

2.CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit connector M103.
3. Check voltage between around view monitor control unit connector M103 and ground.

Around view monitor control unit		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
M103	2	—	Ignition switch: OFF	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

3.CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check continuity between around view monitor control unit connector M103 and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M103	1	—	Yes

Is the inspection result normal?

YES >> Inspection End.

NO >> Repair or replace harness or connectors.

WITH DRIVER ASSISTANCE SYSTEM

1.CHECK FUSE

Check that the following fuses are not blown.

Terminal No.	Signal name	Fuse No.
2	Battery power supply	15 (20A)

Are the fuses blown?

YES >> Replace the blown fuse after repairing the affected circuit.

NO >> GO TO 2.

2.CHECK POWER SUPPLY CIRCUIT

A

B

C

D

E

F

G

H

I

J

K

L

M

N

DAS

P

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

1. Turn ignition switch OFF.
2. Disconnect around view monitor control unit connector M113.
3. Check voltage between around view monitor control unit connector M113 and ground.

Around view monitor control unit		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
M113	2	—	Ignition switch: OFF	Battery voltage

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace harness or connectors.

3.CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check continuity between around view monitor control unit connector M113 and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M113	1	—	Yes

Is the inspection result normal?

- YES >> Inspection End.
NO >> Repair or replace harness or connectors.

DISTANCE SENSOR

DISTANCE SENSOR : Diagnosis Procedure

INFOID:0000000010284476

Regarding Wiring Diagram information, refer to [DAS-53, "Wiring Diagram"](#).

1.CHECK FUSE

Check that the following fuse is not blown.

Terminal No.	Signal name	Fuse No.
1	Ignition power supply	30 (10A)

Is the fuse blown?

- YES >> Replace the blown fuse after repairing the affected circuit.
NO >> GO TO 2.

2.CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect distance sensor connector E21.
3. Check voltage between distance sensor connector E21 and ground.

Distance sensor		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
E21	1	—	Ignition switch: ON	Battery voltage

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace harness or connectors.

3.CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check continuity between distance sensor connector E21 and ground.

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

Distance sensor		Ground	Continuity
Connector	Terminal		
E21	8	—	Yes

Is the inspection result normal?

- YES >> Inspection End.
- NO >> Repair or replace harness or connectors.

A

B

C

D

E

F

G

H

I

J

K

L

M

N

DAS

P

WARNING SYSTEMS SWITCH CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

WARNING SYSTEMS SWITCH CIRCUIT

Diagnosis Procedure

INFOID:0000000010275681

Regarding Wiring Diagram information, refer to [DAS-53, "Wiring Diagram"](#).

1. CHECK WARNING SYSTEMS SWITCH SIGNAL INPUT

1. Turn the ignition switch ON.
2. Check voltage between around view monitor control unit harness connector and ground.

Terminals		Condition	Voltage (Approx.)
(+)	(-)		
AVM control unit		Warning systems switch	
Connector	Terminal		
M113	17	Ground	
		Pressed	0 V
		Released	Battery voltage

Is the inspection result normal?

- YES >> Replace the around view monitor control unit. Refer to [DAS-163, "Removal and Installation"](#).
NO >> GO TO 2.

2. CHECK WARNING SYSTEMS SWITCH

1. Turn ignition switch OFF.
2. Remove warning system switch.
3. Check warning system switch. Refer to [DAS-147, "Component Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Replace the warning system switch. Refer to [DAS-164, "Removal and Installation"](#).

3. CHECK WARNING SYSTEM SWITCH GROUND CIRCUIT

Check continuity between warning system switch harness connector terminal and ground.

Warning system switch		Ground	Continuity
Connector	Terminal		
M253	8		Yes

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Repair harness or connector.

4. CHECK WARNING SYSTEM SWITCH SIGNAL INPUT CIRCUIT FOR OPEN

1. Disconnect the around view monitor control unit control unit connector.
2. Check continuity between the around view monitor control unit harness connector and warning system switch harness connector.

Around view monitor control unit		Warning system switch		Continuity
Connector	Terminal	Connector	Terminal	
M113	17	M253	6	Yes

Is the inspection result normal?

- YES >> GO TO 5.
NO >> Repair the harnesses or connectors.

5. CHECK WARNING SYSTEM SWITCH SIGNAL INPUT CIRCUIT FOR SHORT

WARNING SYSTEMS SWITCH CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

Check continuity between the around view monitor control unit harness connector and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M113	17		No

Is the inspection result normal?

- YES >> Replace the around view monitor control unit. Refer to [DAS-163. "Removal and Installation"](#).
NO >> Repair the harnesses or connectors.

Component Inspection

INFOID:0000000010275682

1.CHECK WARNING SYSTEMS SWITCH

Check continuity of warning system switch.

Terminal		Condition	Continuity
6	8	When warning system switch is pressed	Yes
		When warning system switch is released	No

Is the inspection result normal?

- YES >> Inspection End.
NO >> Replace the warning system switch. Refer to [DAS-164. "Removal and Installation"](#).

DAS

WARNING SYSTEMS ON INDICATOR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

WARNING SYSTEMS ON INDICATOR CIRCUIT

Diagnosis Procedure

INFOID:000000010275684

Regarding Wiring Diagram information, refer to [DAS-53. "Wiring Diagram"](#).

1. CHECK WARNING SYSTEM ON INDICATOR POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect warning system switch connector.
3. Turn ignition switch ON.
4. Check voltage between warning system switch harness connector and ground.

Terminals			Voltage (Approx.)
(+)		(-)	
Warning system switch		Ground	
Connector	Terminal		
M253	5		
			Battery voltage

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the harness or connector.

2. CHECK WARNING SYSTEMS ON INDICATOR SIGNAL FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect the around view monitor control unit harness connector.
3. Check continuity between the around view monitor control unit harness connector and warning system switch harness connector.

Around view monitor control unit		Warning system switch		Continuity
Connector	Terminal	Connector	Terminal	
M113	15	M253	3	Yes

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the harnesses or connectors.

3. CHECK WARNING SYSTEMS ON INDICATOR SIGNAL CIRCUIT FOR SHORT

Check continuity between the around view monitor control unit harness connector and ground.

Around view monitor control unit		Ground	Continuity
Connector	Terminal		
M113	15		No

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the harnesses or connectors.

4. CHECK WARNING SYSTEMS ON INDICATOR

Check the warning systems ON indicator. Refer to [DAS-149. "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace the around view monitor control unit. Refer to [DAS-163. "Removal and Installation"](#).

NO >> Replace warning systems switch. [DAS-164. "Removal and Installation"](#).

WARNING SYSTEMS ON INDICATOR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

Component Inspection

INFOID:0000000010275685

1.CHECK WARNING SYSTEMS ON INDICATOR

Apply battery voltage to warning system switch terminals 3 and 5, and then check if the warning systems ON indicator illuminates.

Terminals		Condition	Warning system switch ON indicator
(+)	(-)		
5	3	When the battery voltage is applied	On
		When the battery voltage is not applied	Off

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace the warning systems switch. Refer to [DAS-164, "Removal and Installation"](#).

A
B
C
D
E
F
G
H
I
J
K
L
M
N
P

DAS

WARNING BUZZER CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

WARNING BUZZER CIRCUIT

Component Function Check

INFOID:0000000010275686

1.CHECK WARNING BUZZER

1. Turn the ignition switch ON.
2. Select the "Active Test" item "BUZZER" of "BCM" with CONSULT.
3. While operating the test item, check the operation.

On : Warning buzzer is activated.

Off : Warning buzzer is not activated.

Is the inspection result normal?

YES >> Inspection End.

NO >> Refer to [DAS-150, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010275687

1.CHECK WARNING BUZZER OPERATION

While activating the buzzer with CONSULT, listen for the buzzer sound.

Does warning buzzer sound?

YES >> Replace the around view monitor control unit. Refer to [DAS-163, "Removal and Installation"](#).

NO >> Replace the combination meter (buzzer).

REAR VIEW CAMERA WASHER MOTOR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

REAR VIEW CAMERA WASHER MOTOR CIRCUIT

Component Function Check

INFOID:0000000010275765

1.CHECK REAR VIEW CAMERA WASHER MOTOR CIRCUIT

1. Turn ignition switch ON.
2. Select "WASH ACTIVE" of "AVM" with CONSULT.
3. Check operation while operating the test item.

On : Rear view camera washer motor is activated.

Off : Rear view camera washer motor is not activated.

Is the inspection result normal?

YES >> Rear view camera washer motor circuit is normal.

NO >> Refer to [DAS-151, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010275766

1.CHECK REAR VIEW CAMERA WASHER MOTOR POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect rear view camera washer motor connector.
3. Turn ignition switch ON.
4. Select "WASH ACTIVE" of "AVM" with CONSULT.
5. Check voltage between rear view camera washer motor connector E55 and ground.

Rear view camera washer motor		Ground	Voltage
Connector	Terminal		
E55	2	—	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connector.

2.CHECK REAR VIEW CAMERA WASHER MOTOR GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect rear view camera washer control unit connector.
3. Check continuity between rear view camera washer motor connector E55 and rear view camera washer control unit connector B67.

Rear view camera washer motor		Rear view camera washer control unit		Continuity
Connector	Terminal	Connector	Terminal	
E55	1	B67	3	Yes

Is the inspection result normal?

YES >> Replace rear view camera washer motor. Refer to [DAS-167, "Removal and Installation"](#).

NO >> Repair or replace harness or connector.

DAS

SYMPTOM DIAGNOSIS

DRIVER ASSISTANCE SYSTEM SYMPTOMS

Symptom Table

INFOID:0000000010227323

LANE DEPARTURE WARNING SYSTEM SYMPTOMS

NOTE:

Refer to the following the operation condition of the Lane Departure Warning system.

- Lane Departure Warning system: [DAS-16, "LDW : System Description"](#).

Symptom		Possible cause	Inspection item/Reference page
Indicator/warning lamps do not illuminate when ignition switch OFF ⇒ ON	LDW warning does not illuminate.	• Combination meter • Around view monitor control unit	Combination meter. Refer to MWI-21, "CONSULT Function (METER/M&A)" .
	LDW ON indicator does not illuminate.	• Combination meter • Around view monitor control unit	Around view monitor control unit. Refer to DAS-39, "CONSULT Function" .
	Warning systems ON indicator does not illuminate.	• Harness between around view monitor control unit and warning systems switch • Warning systems switch • Around view monitor control unit	Warning systems ON indicator circuit. Refer to DAS-149, "Component Inspection" .
	LDW warning or LDW ON indicator does not illuminate.	• Combination meter	Combination meter. Refer to MWI-19, "Description" .
	All of indicator/warning lamps does not illuminate; • LDW warning • LDW ON indicator • Warning systems ON indicator	• Power supply and ground circuit of around view monitor control unit • Around view monitor control unit	Power supply and ground circuit of around view monitor control unit. Refer to DAS-143, "AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure" .
LDW system is not activated. (Indicator/warning lamps illuminate when ignition switch OFF ⇒ ON)	LDW ON indicator is not turned ON ⇔ OFF when operating warning systems switch	• Harness between around view monitor control unit and warning systems switch • Harness between warning systems switch and ground • Warning systems switch • Around view monitor control unit	• Warning systems switch circuit. Refer to DAS-146, "Diagnosis Procedure". • LDW system setting can not be turned ON/OFF on the information display. Refer to DAS-155, "Diagnosis Procedure".
	Warning buzzer is not sounding. (LDW warning is activated.)	• Around view monitor control unit	Meter buzzer circuit. Refer to DAS-150, "Component Function Check" .
Warning functions are not timely (Example) • Does not function when driving on lane markers • Functions when driving in a lane • Functions in a different position from the actual position		• Camera calibration • Rear camera • Around view monitor control unit	Camera calibration. Refer to DAS-89, "Description" .
Rear view camera washer is not activated		Rear view camera washer motor	Rear view camera washer motor circuit. Refer to DAS-151, "Diagnosis Procedure" .
Rear view camera wash is insufficient		• Washer tube (include check valve) • Air tube • Washer/Air nozzle (Rear view camera)	Rear view camera washer/air blower function. Refer to DAS-68, "Inspection Procedure" .

DRIVER ASSISTANCE SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

BLIND SPOT WARNING SYSTEM SYMPTOMS

NOTE:

Refer to the following the operation condition of the Blind Spot Warning system.

- Blind Spot Warning system: [DAS-20, "BSW : System Description"](#).

Symptom		Possible cause	Inspection item/Reference page
Indicator/warning lamps do not illuminate when ignition switch OFF ⇒ ON.	BSW warning does not illuminate	• Combination meter • Around view monitor control unit	Combination meter. Refer to MWI-21, "CONSULT Function (METER/M&A)" .
	BSW ON indicator does not illuminate	• Combination meter • Around view monitor control unit	Around view monitor control unit. Refer to DAS-39, "CONSULT Function" .
	Warning systems ON indicator (on the warning systems switch) does not illuminate	• Harness between around view monitor control unit and warning systems switch • Warning systems switch • Around view monitor control unit	Warning systems ON indicator circuit. Refer to DAS-148, "Diagnosis Procedure" .
	BSW ON indicator or BSW warning do not illuminate	• Combination meter • Around view monitor control unit	Combination meter. Refer to MWI-19, "Description" .
	All of indicator/warning lamps do not illuminate; • BSW warning • BSW ON indicator • Warning systems ON indicator	• Power supply and ground circuit of around view monitor control unit • Around view monitor control unit • Combination meter	Power supply and ground circuit of around view monitor control unit. Refer to DAS-143, "AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure" .
	BSW indicator does not turn ON	• Harness between around view monitor control unit and BSW indicator • Around view monitor control unit • BSW indicator	Around view monitor control unit. Refer to DAS-39, "CONSULT Function" .
BSW system is not activated. (Indicator/warning lamps illuminate when ignition switch OFF ⇒ ON.)	Warning systems ON indicator is not turned ON ⇔ OFF when operating warning systems switch	• Harness between around view monitor control unit and warning systems switch • Harness between warning systems switch and ground • Around view monitor control unit • Warning systems switch	• Warning systems switch circuit. Refer to DAS-146, "Diagnosis Procedure". • BSW system setting cannot be turned ON/OFF on the information display. Refer to DAS-155, "Diagnosis Procedure".
	Buzzer is not sounding	• Warning system buzzer • Around view monitor control unit	Buzzer circuit. Refer to DAS-150, "Component Function Check" .
BSW functions are not are not timely (Example) • Does not function when approaching a adjacent vehicle while BSW ON indicator lamp is illuminated		• Rear camera calibration • Rear camera • Around view monitor control unit	Rear camera calibration. Refer to DAS-89, "Description" .
Rear view camera washer is not activated		Rear view camera washer motor	Rear view camera washer motor circuit. Refer to DAS-151, "Component Function Check" .
Rear camera wash is insufficient		• Washer tube (include check valve) • Air tube • Washer/Air nozzle (Rear camera)	Refer to DAS-68, "Inspection Procedure" . Rear view camera washer/air blower function.

MOVING OBJECT DETECTION SYSTEM SYMPTOMS

DRIVER ASSISTANCE SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

NOTE:

Refer to the following the operation condition of the Moving Object Detection system.

- Moving Object Detection system: [DAS-26, "MOD : System Description"](#).

Symptom		Possible cause	Inspection item/Reference page
Indicator/warning lamps do not illuminate when ignition switch OFF ⇒ ON.	All of indicator/warning lamps do not illuminate; • Moving Object Detection warning lamp • Moving Object Detection ON indicator • Warning systems ON indicator	• Power supply and ground circuit of around view monitor control unit • Around view monitor control unit • Combination meter	Power supply and ground circuit of around view monitor control unit. Refer to DAS-143, "AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure" .
	Buzzer is not sounding	• Warning system buzzer	Buzzer circuit. Refer to DAS-150, "Component Function Check" .

FORWARD COLLISION WARNING SYSTEM SYMPTOMS

NOTE:

Refer to the following the operation condition of the Forward Collision Warning system.

- Forward Collision Warning system: [DAS-29, "FCW : System Description"](#).

Symptom		Possible cause	Inspection item/Reference page
Operation	FCW system is not activated	Warning system switch	Warning system switch. Refer to DAS-146, "Diagnosis Procedure" .
	FCW system setting cannot be turned ON/OFF on the information display	Steering switch	Steering switch. Refer to DAS-155, "Description" .

SYSTEM SETTINGS CANNOT BE TURNED ON/OFF IN VEHICLE INFORMATION DISPLAY

< SYMPTOM DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

SYSTEM SETTINGS CANNOT BE TURNED ON/OFF IN VEHICLE INFORMATION DISPLAY

Description

INFOID:0000000010227324

The system setting cannot be turned ON/OFF in the combination meter information display using the steering switch.

Diagnosis Procedure

INFOID:0000000010227325

1.CHECK DRIVER ASSISTNCE SYSTEM SETTING

1. Ignition On.
2. Check that the driver assistance system setting can be turned ON/OFF in the combination meter information display using the steering switch.

Is the inspection result normal?

- YES >> Inspection End.
NO >> GO TO 2.

2.CHECK STEERING SWITCH CIRCUIT

Check the steering switch. Refer to [MWI-69. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace harness or connector.

3.CHECK STEERING SWITCH RESISTANCE

Check the steering switch resistance. Refer to [MWI-69. "Component Inspection"](#).

Is the inspection result normal?

- YES >> Replace combination meter. Refer to [MWI-82. "Removal and Installation"](#).
NO >> Replace steering switch. Refer to [AV-211. "Removal and Installation"](#).

DAS

SWITCH DOES NOT TURN ON / SWITCH DOES NOT TURN OFF

< SYMPTOM DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

SWITCH DOES NOT TURN ON / SWITCH DOES NOT TURN OFF

Description

INFOID:0000000010227328

The switch does not turn ON

- The driver assistance system does not turn On when the warning system switch is pressed.

The switch does not turn OFF

- The driver assistance system does not turn Off when the warning system switch is pressed.

Diagnosis Procedure

INFOID:0000000010227329

1.CHECK WARNING SYSTEM SWITCH CIRCUIT

Check the warning system switch circuit. Refer to [DAS-146, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness or connector.

2.CHECK WARNING SYSTEM SWITCH

Check the warning system switch. Refer to [DAS-147, "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace the around view monitor control unit. Refer to [DAS-163, "Removal and Installation"](#).

NO >> Replace the warning system switch. Refer to [DAS-164, "Removal and Installation"](#).

NORMAL OPERATING CONDITION

Description

INFOID:0000000010227338

PRECAUTIONS FOR FORWARD COLLISION WARNING (FCW)

- The forward collision warning system is designed to warn driver before a collision but will not avoid a collision. It is the driver's responsibility to stay alert, drive safely and be in control of the vehicle at all times.
- The radar sensor does not detect the following objects.
 - Pedestrians, animals, or obstacles in the roadway.
 - Oncoming vehicles
 - Crossing vehicles
- The forward collision warning system does not function when a vehicle ahead is a narrow vehicle, such as a motorcycle.
- The radar sensor may not detect a vehicle ahead in the following conditions:
 - Snow or heavy rain
 - Dirt, ice, snow or other material covering the radar sensor
 - Interference by other radar sources
 - Snow or road spray from traveling vehicles is splashed
 - Driving in a tunnel
- The radar sensor may not detect a vehicle when the vehicle ahead is being towed.
- When the distance to the vehicle ahead is too close, the beam of the radar sensor is obstructed.
- The radar sensor may not detect a vehicle when driving on a steep downhill slope or on roads with sharp curves.
- Excessive noise will interfere with the warning tone sound, and it may not be heard.

PRECAUTIONS FOR LANE DEPARTURE WARNING (LDW)

- The LDW system is only a warning device to inform the driver of a potential unintended lane departure. It will not steer the vehicle or prevent loss of control. It is the driver's responsibility to stay alert, drive safely, keep the vehicle in the traveling lane, and be in control of the vehicle at all times.
- The rear view camera may not detect properly under the following conditions:
 - When towing a trailer.
 - When strong light enters the rear view camera. (For example, direct sunlight or headlight from the rear)
 - When ambient brightness changes instantly. (For example, when the vehicle enters or exits a tunnel or passes under a bridge.)
- Automatic washer and blower may not be able to secure detection capability when excessive dirt adheres on the camera lens.
- LDW system may not function properly under the following conditions:
- Excessive noise (e.g. audio system volume, open vehicle window) will interfere with the chime sound, and it may not be heard.
- The rear view camera may not be able to detect properly under the following conditions:
 - On roads where there are multiple parallel lane markers; lane markers that are faded or not painted clearly; yellow painted lane markers; non-standard lane markers; or lane markers covered with water, dirt, snow, etc.
 - On roads where the discontinued lane markers are still detectable.
 - On roads where there are sharply contrasting objects, such as shadows, snow, water, wheel ruts, seams or lines remaining after road repairs. (The LDW system could detect these items as lane markers.)
 - On roads where the traveling lane merges or separates.
 - When the vehicle's traveling direction does not align with the lane marker.
 - When the road surface is very dark due to scarce ambient light or impaired tail lamp.
- When driving on curved road, warning will be late on the outside of the curve due to the nature of the system.

PRECAUTIONS FOR BLIND SPOT WARNING (BSW)

- The BSW system is not a replacement for proper driving procedure and is not designed to prevent contact with vehicles or objects. When changing lanes, always use the side and rear mirrors and turn and look in the direction you will move to ensure it is safe to change lanes. Never rely solely on the BSW system.
- The rear camera may not detect properly under the following conditions:
 - When towing a trailer.
 - When strong light enters the rear camera. (For example, direct sunlight or headlight from the rear)
 - When ambient brightness changes instantly. (For example, when the vehicle enters or exits a tunnel or passes under a bridge.)

A
B
C
D
E
F
G
H
I
J
K
L
M
N
P

NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

[DRIVER ASSISTANCE SYSTEM]

- Automatic washer and blower may not be able to secure detection capability when excessive dirt adheres on the camera lens.
- The camera unit may not be able to detect when certain objects are present such as:
 - Pedestrians, bicycles, animals
 - Several types of vehicles such as motorcycles
 - Oncoming vehicles
 - A vehicle approaching rapidly from behind.
 - A vehicle which your vehicle overtakes rapidly.
- The rear camera may not be able to detect properly when your vehicle travels beside the middle section of a vehicle with long wheelbase(e.g. trailer truck, semi-trailer, tractor).
- The rear camera detection zone is designed based on a standard lane width. When driving in a wider lane, the camera unit may not detect vehicles in an adjacent lane. When driving in a narrow lane, the camera unit may detect vehicles driving two lanes away.
- The rear camera is designed to ignore most stationary objects, however objects such as guardrails, walls, foliage and parked vehicles may occasionally be detected. This is a normal operating condition.
- The rear camera may detect reflection image of vehicles or roadside objects that are not actually in the detection zone, especially when the road is wet.

MOVING OBJECT DETECTION

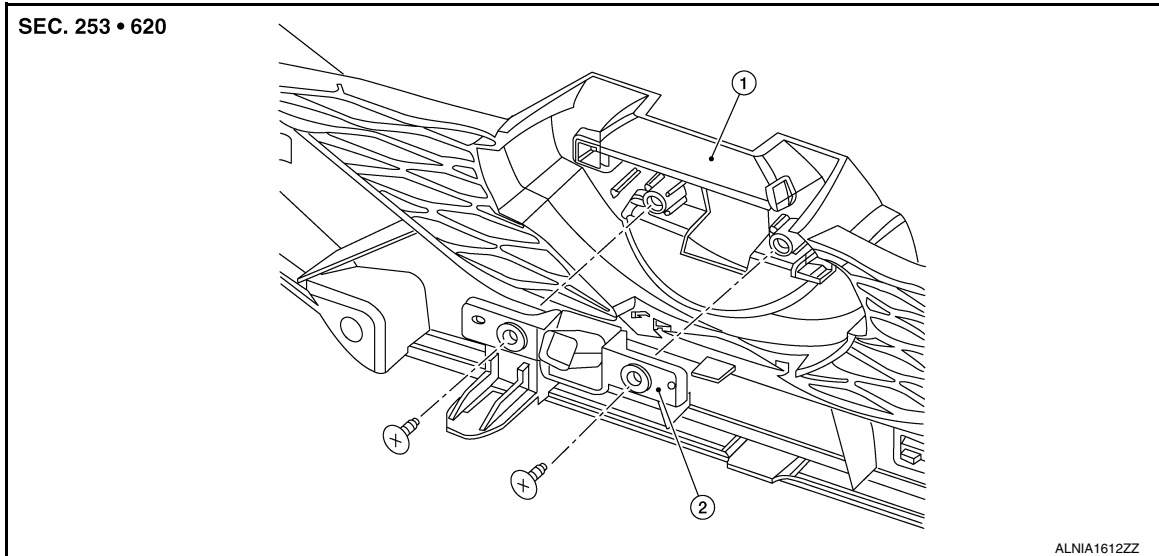
- The Moving Object Detection system is not a replacement for proper driving procedure and is not designed to prevent contact with vehicles or objects. When backing up, always look in the direction the driver will move to ensure it is safe to proceed. Never rely solely on the Moving Object Detection system.
- Using the Moving Object Detection system under some road or weather condition could lead to improper system operation. Always rely on driver's own steering and braking operation to avoid accidents.
- The Moving Object Detection system may not provide a warning for vehicles that pass through the detection zone quickly.
- Do not use the Moving Object Detection system when towing a trailer.
- Excessive noise (e.g., audio system volume, open vehicle window) will interfere with the chime sound, and it may not be heard.
- A rear view camera may not detect approaching vehicles in certain situations:
 - When a vehicle parked alongside obstructs the beam of the rear view camera.
 - When the vehicle is parked in an angled parking space.
 - When the vehicle is parked on an incline.
 - When a vehicle turns into your vehicle's aisle.
 - When the angle formed by your vehicle and approaching vehicle is small.
- Severe weather or road spray conditions may reduce the ability of the radar to detect other vehicles.
- The rear view camera system may not detect:
 - Small or moving object.
 - Wedge-shaped objects.
 - Object closer to the bumper than 30 cm (10 inch).
 - Thin objects such as rope, wire, chain, etc.
- Do not use the MOD system under the following conditions because the system may not function properly:
 - When driving with a tire that is not the within normal tire condition (example: tire wear, low pressure, spare tire, chain, non-standard wheels).
 - When the vehicle is equipped with non-original brake parts or suspension parts.

REMOVAL AND INSTALLATION

FRONT CAMERA

Exploded View

INFOID:0000000010283553



1. Front grille

2. Front camera

Removal and Installation

INFOID:0000000010283554

REMOVAL

1. Remove the front grille. Refer to [EXT-23, "Removal and Installation"](#).
2. Remove screws and front camera.

INSTALLATION

Installation is in the reverse order of removal.

NOTE:

Perform camera image calibration. Refer to [AV-292, "CALIBRATING CAMERA IMAGE \(AROUND VIEW MONITOR\) : Work Procedure"](#).

DISTANCE SENSOR

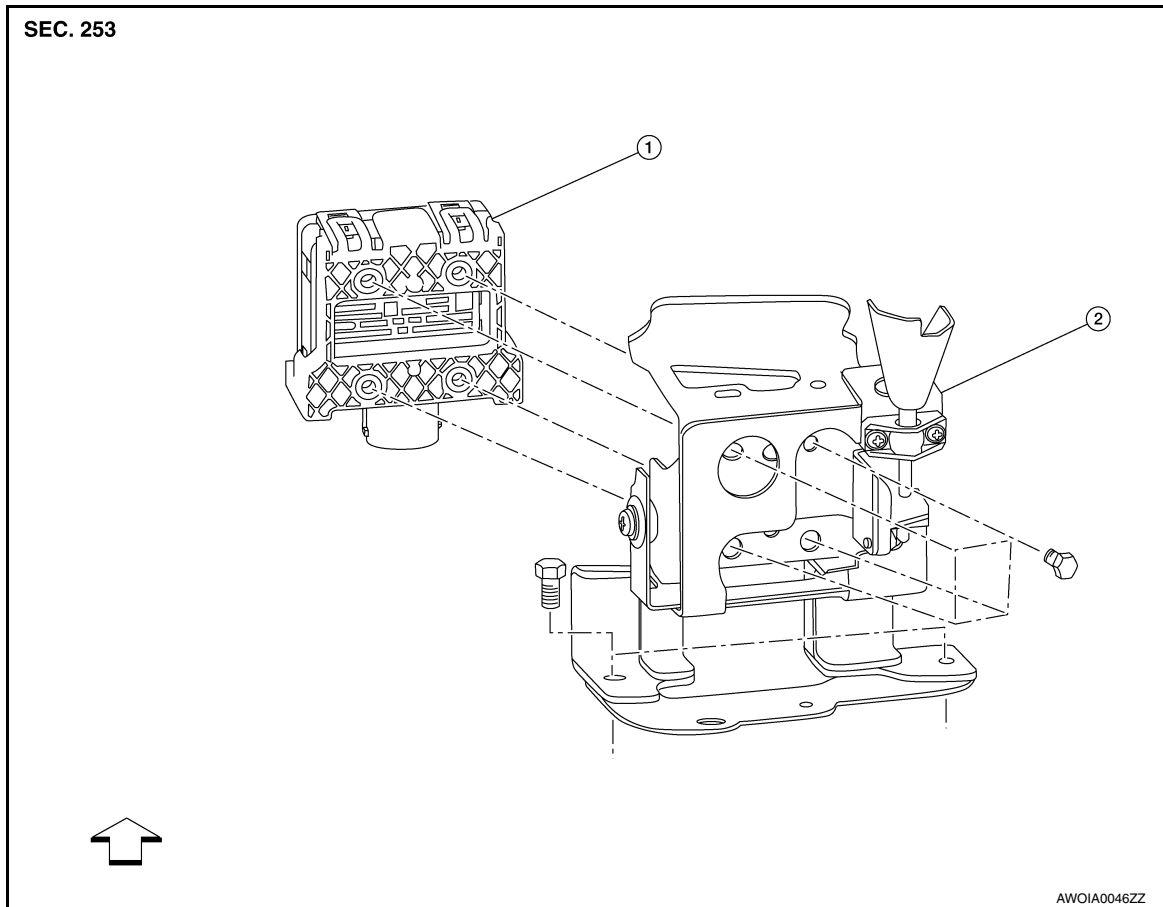
< REMOVAL AND INSTALLATION >

[DRIVER ASSISTANCE SYSTEM]

DISTANCE SENSOR

Exploded View

INFOID:0000000010283578



Removal and Installation

INFOID:0000000010227341

REMOVAL

1. Remove the front bumper fascia. Refer to [EXT-20, "Removal and Installation"](#).
2. Remove distance sensor bolts and the distance sensor.
CAUTION:
Do not drop or shock distance sensor.
3. Remove bolts and distance sensor bracket (if necessary).

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

Perform additional service when replacing distance sensor. Refer to [DAS-69, "Work Procedure"](#).

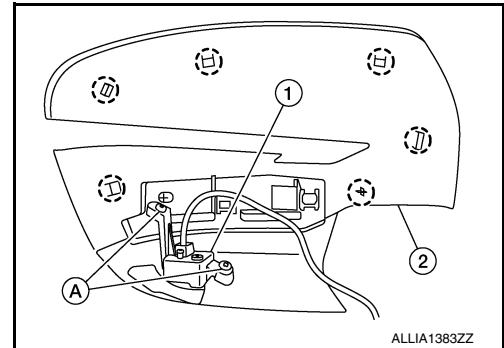
SIDE CAMERA

Removal and Installation

INFOID:000000010283555

REMOVAL

1. Remove door mirror rear finisher (2). Refer to [MIR-25. "Removal and Installation"](#).
2. Remove screws (A) and side camera (1).
○: Pawl



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

Perform camera image calibration (if equipped with around view camera). Refer to [AV-135. "CALIBRATING CAMERA IMAGE \(AROUND VIEW MONITOR\) : Description"](#).

A
B
C
D
E
F
G
H
I
J
K
L
M
N
P

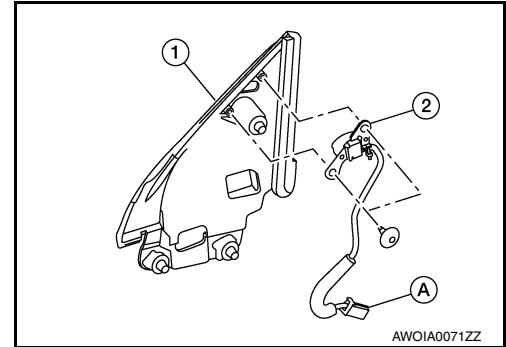
DAS

BSW INDICATOR**Removal and Installation**

INFOID:0000000010227342

REMOVAL

1. Remove the front door finisher. Refer to [INT-15, "Removal and Installation"](#).
2. Release the door mirror corner finisher using a suitable tool. Refer to [MIR-22, "Exploded View"](#).
3. Disconnect the harness connector (A), release the harness clip and remove the door mirror corner finisher (1).
4. Remove screws and blind spot warning indicator (2).

**INSTALLATION**

Installation is in the reverse order of removal.

AROUND VIEW MONITOR CONTROL UNIT

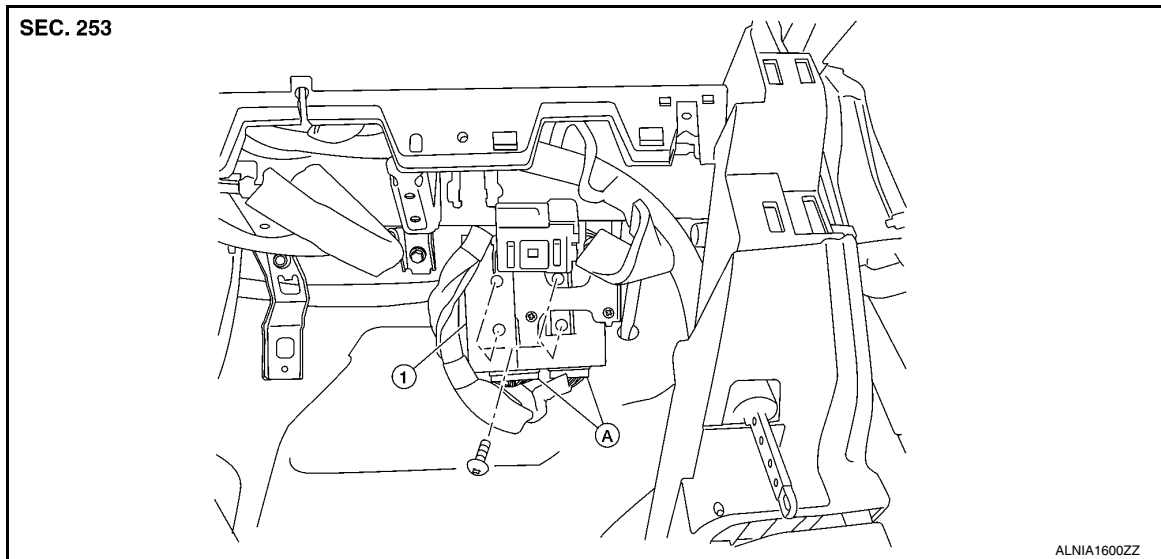
< REMOVAL AND INSTALLATION >

[DRIVER ASSISTANCE SYSTEM]

AROUND VIEW MONITOR CONTROL UNIT

Exploded View

INFOID:0000000010283558



1. Around view monitor control unit A. Harness connector

Removal and Installation

INFOID:0000000010283559

REMOVAL

CAUTION:

Before replacing around view monitor control unit, save or print current vehicle specification with CONSULT configuration before replacement. Refer to [AV-288, "ADDITIONAL SERVICE WHEN REPLACING AROUND VIEW MONITOR CONTROL UNIT : Work Procedure"](#).

1. Remove glove box assembly. Refer to [IP-23, "Removal and Installation"](#).
2. Remove around view monitor control unit screws.
3. Disconnect the harness connector from the around view monitor control unit and remove.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Replace the around view monitor control unit if it has been dropped or sustained an impact.
- When replacing around view monitor control unit, you must perform "After Replace ECU" with CONSULT. Refer to [AV-288, "ADDITIONAL SERVICE WHEN REPLACING AROUND VIEW MONITOR CONTROL UNIT : Work Procedure"](#).

NOTE:

Perform camera image calibration. Refer to [AV-292, "CALIBRATING CAMERA IMAGE \(AROUND VIEW MONITOR\) : Work Procedure"](#).

A
B
C
D
E
F
G
H
I
J
K
L
M
N
P

DAS

WARNING SYSTEMS SWITCH

< REMOVAL AND INSTALLATION >

[DRIVER ASSISTANCE SYSTEM]

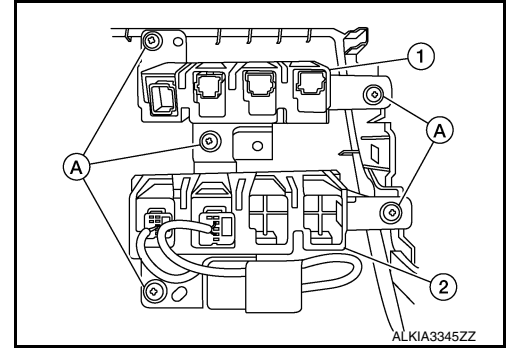
WARNING SYSTEMS SWITCH

Removal and Installation

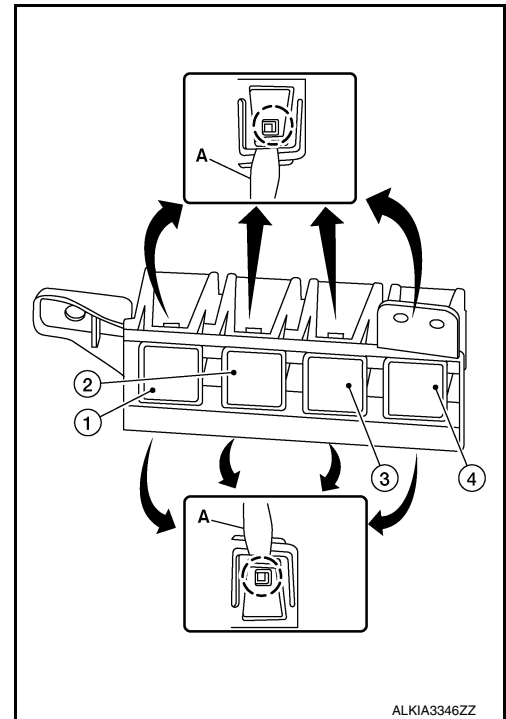
INFOID:0000000010269651

REMOVAL

1. Remove the instrument lower panel LH. Refer to [IP-14. "Exploded View"](#).
2. Remove the screws (A) that retain the upper (1) and lower (2) switch carriers.



3. Release pawls using a suitable tool (A), then remove the warning systems switch (2) from the lower switch carrier.
(1): Blank
(3): AWD LOCK switch (if equipped)
(4): Hill descent control switch (if equipped)



INSTALLATION

Installation is in the reverse order of removal.

WARNING SYSTEMS BUZZER

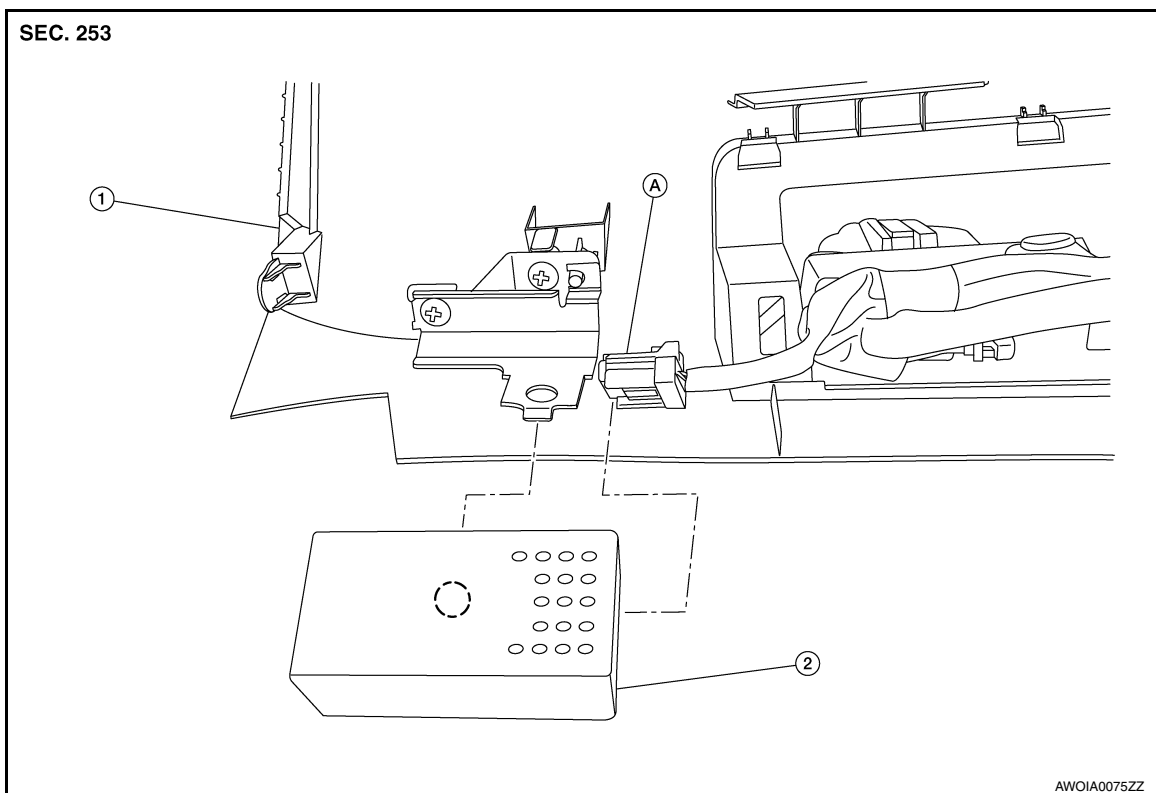
< REMOVAL AND INSTALLATION >

[DRIVER ASSISTANCE SYSTEM]

WARNING SYSTEMS BUZZER

Exploded View

INFOID:0000000010288646



1. Instrument lower panel LH

2. Warning systems buzzer

A. Harness connector

○ Pawl

Removal and Installation

INFOID:0000000010227344

REMOVAL

1. Remove instrument lower panel LH. Refer to [IP-14, "Exploded View"](#).
2. Remove warning systems buzzer from bracket on the back of the instrument lower panel LH.

INSTALLATION

Installation is in the reverse order of removal.

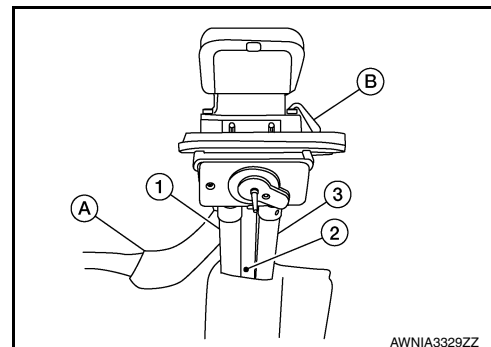
DAS

REAR VIEW CAMERA**Removal and Installation**

INFOID:000000010283557

REMOVAL

1. Remove the back door outer finisher. Refer to [EXT-50. "Removal and Installation"](#).
2. Disconnect washer tubes (1,3) and air tube (2) (if equipped).
3. Release pawl (B), disconnect harness connector (A) from rear view camera and remove.

**INSTALLATION**

Installation is in the reverse order of removal.

REAR VIEW CAMERA WASHER MOTOR

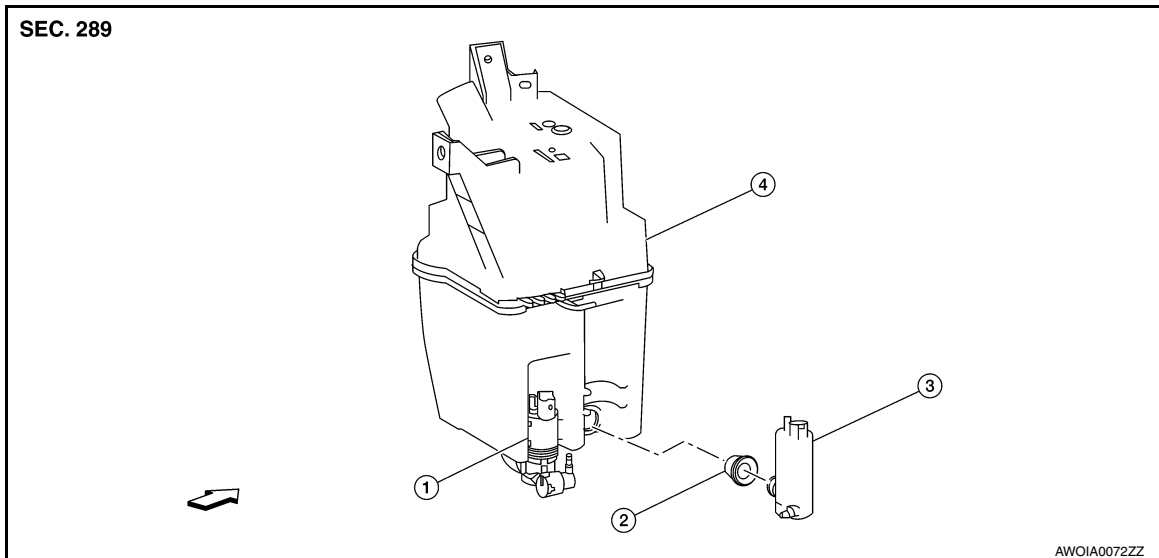
< REMOVAL AND INSTALLATION >

[DRIVER ASSISTANCE SYSTEM]

REAR VIEW CAMERA WASHER MOTOR

Exploded View

INFOID:0000000010290336



1. Front and rear wiper motor

2. Seal

3. Rear view camera
washer motor

4. Washer tank

← Front

Removal and Installation

INFOID:0000000010283566

REMOVAL

1. Drain the washer fluid.
2. Remove the front under cover. Refer to [EXT-16, "Exploded View"](#).
3. Remove engine side cover. Refer to [EXT-28, "FENDER PROTECTOR : Exploded View"](#).
4. Disconnect the harness connector from the rear view camera washer motor.
5. Disconnect the washer tube from the rear view camera washer motor.
6. Remove the rear view camera washer motor.
7. Remove the washer tank seal (if necessary).

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

Add water to the top of washer tank inlet after installing. Check that no leaks exist.

A

B

C

D

E

F

G

H

I

J

K

L

M

N

DAS

P

REAR VIEW CAMERA AIR PUMP MOTOR

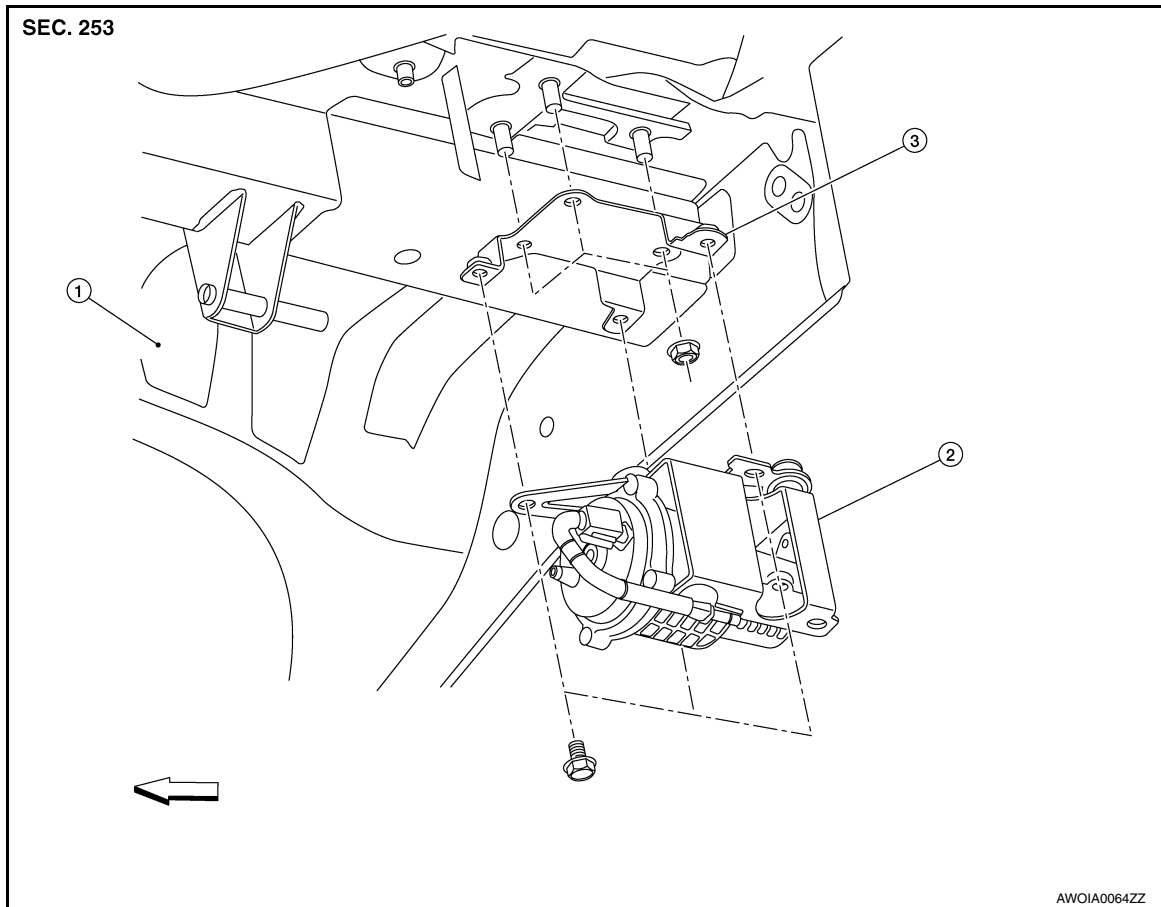
< REMOVAL AND INSTALLATION >

[DRIVER ASSISTANCE SYSTEM]

REAR VIEW CAMERA AIR PUMP MOTOR

Exploded View

INFOID:0000000010269645



1. Rear floor

2. Rear view camera air pump motor

3. Bracket

Front

Removal and Installation

INFOID:0000000010269646

REMOVAL

1. Remove the rear bumper fascia under cover (LH). Refer to [EXT-20. "Exploded View"](#).
2. Disconnect the air tubes from the rear view camera air pump motor.
3. Disconnect the harness connector from the rear view camera air pump motor.
4. Remove bolts and rear view camera air pump motor.
5. Remove nuts and remove bracket (if necessary).

INSTALLATION

Installation is in the reverse order of removal.

REAR VIEW CAMERA WASHER CONTROL UNIT

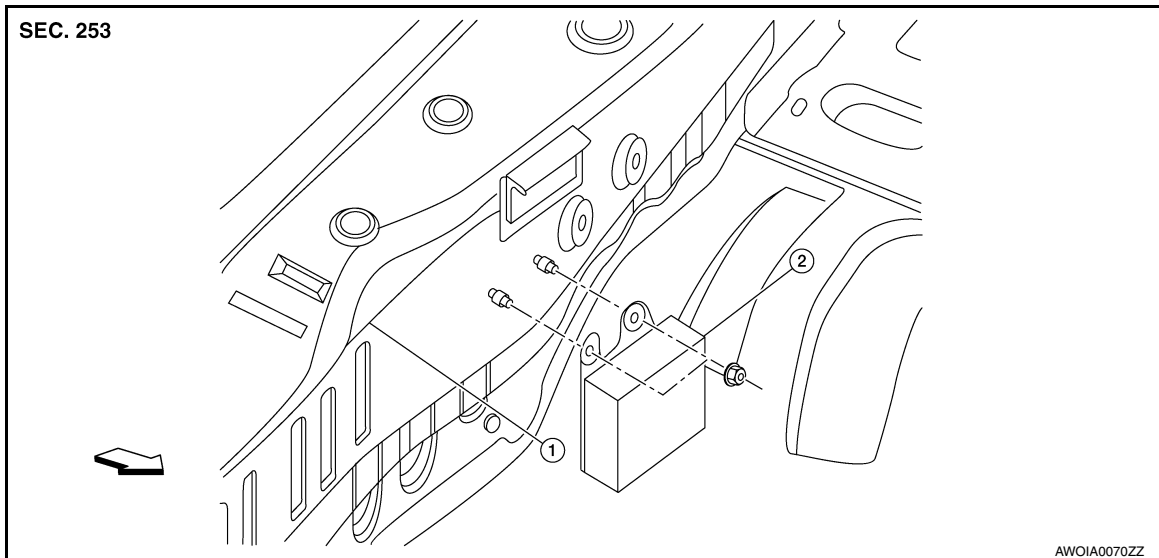
< REMOVAL AND INSTALLATION >

[DRIVER ASSISTANCE SYSTEM]

REAR VIEW CAMERA WASHER CONTROL UNIT

Exploded View

INFOID:000000010269647



1. Body panel

2. Rear view camera washer control unit

Removal and Installation

INFOID:000000010269648

REMOVAL

1. Remove the luggage rear plate. Refer to [INT-37, "LUGGAGE REAR PLATE : Removal and Installation"](#).
2. Disconnect the harness connector from the rear view camera washer control unit.
3. Remove the rear view camera washer control unit nuts.
4. Remove the rear view camera washer control unit.

INSTALLATION

Installation is in the reverse order of removal.

A
B
C
D
E
F
G
H
I
J
K
L
M
N
P

DAS

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010246043

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Precaution for Work

INFOID:0000000010287284

- When removing or disassembling each component, be careful not to damage or deform it. If a component may be subject to interference, be sure to protect it with a shop cloth.
- When removing (disengaging) components with a screwdriver or similar tool, be sure to wrap the component with a shop cloth or vinyl tape to protect it.
- Protect the removed parts with a shop cloth and prevent them from being dropped.
- Replace a deformed or damaged clip.
- If a part is specified as a non-reusable part, always replace it with a new one.
- Be sure to tighten bolts and nuts securely to the specified torque.
- After installation is complete, be sure to check that each part works properly.
- Follow the steps below to clean components:
 - Water soluble dirt:
 - Dip a soft cloth into lukewarm water, wring the water out of the cloth and wipe the dirty area.
 - Then rub with a soft, dry cloth.
 - Oily dirt:
 - Dip a soft cloth into lukewarm water with mild detergent (concentration: within 2 to 3%) and wipe the dirty area.
 - Then dip a cloth into fresh water, wring the water out of the cloth and wipe the detergent off.
 - Then rub with a soft, dry cloth.
 - Do not use organic solvent such as thinner, benzene, alcohol or gasoline.
 - For genuine leather seats, use a genuine leather seat cleaner.

PRECAUTIONS

< PRECAUTION >

[CHASSIS CONTROL]

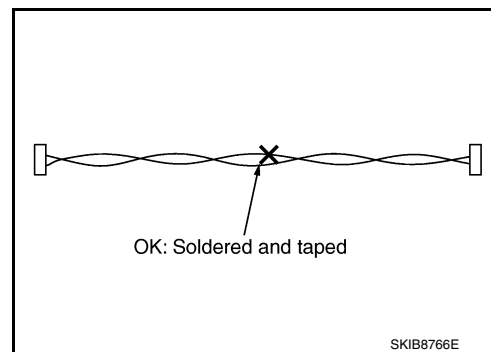
Precautions for Harness Repair

INFOID:000000010227346

- Solder the repaired area and wrap tape around the soldered area.

NOTE:

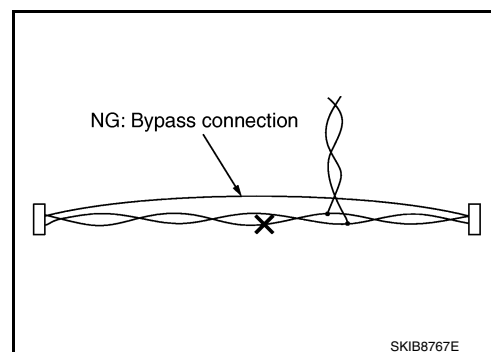
A fray of twisted lines must be within 110 mm (4.33 in).



- Bypass connection is never allowed at the repaired area.

NOTE:

Bypass connection may cause CAN communication error. The spliced wire becomes separated and the characteristics of twisted line are lost.



- Replace the applicable harness as an assembly if error is detected on the shield lines of CAN communication line.

Precautions for Chassis control

INFOID:000000010227347

- Do not disassemble the chassis control module.
- Do not reuse if the chassis control module has been dropped.
- Do not perform ACTIVE TEST while driving the vehicle.
- Slight vibrations are felt on the brake pedal and the operation noises occur, when Active Trace Control and Active Ride Control function operates. This is not a malfunction because it is caused by the functions that are normally operated.
- Tachometer will rise and engine noise may be noticeable during Active Engine Brake function operation. This is not a malfunction because it is caused by the function that is normally operated.
- Active Trace Control, Active Ride Control and Active Engine Brake are not always activated in any driving conditions.

DAS

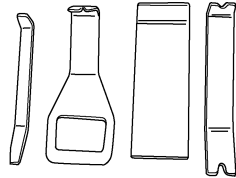
PREPARATION

PREPARATION

Special Service Tool

INFOID:0000000010246044

The actual shape of the tools may differ from those illustrated here.

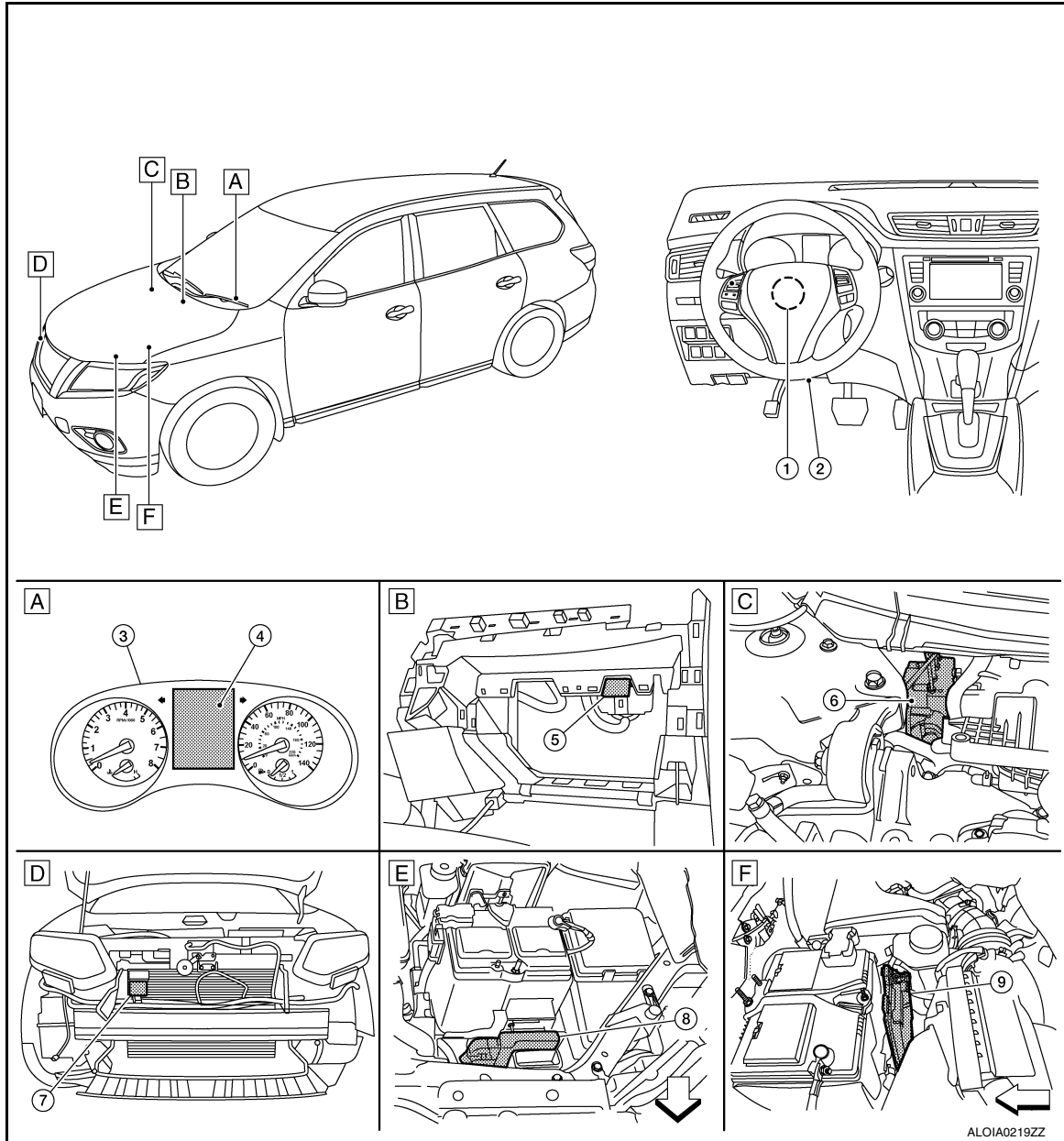
Tool number (TechMate No.) Tool name	Description
— (J-46534) Trim Tool Set  AWJIA0483ZZ	Removing trim components

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:0000000010227348



↔ Front of vehicle

A Instrument panel LH

B View with glove box removed

C Rear of engine compartment RH

D RH front of vehicle

E Front of engine compartment LH

F Rear of battery

No.	Component parts	Function
①	Steering angle sensor	BRC-14, "System Description"
②	Data link connector	LAN-26, "CAN COMMUNICATION SYSTEM : System Description"
③	Combination meter	MWI-8, "METER SYSTEM : System Description"

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[CHASSIS CONTROL]

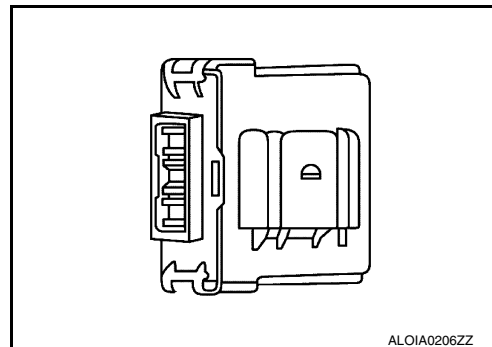
No.	Component parts	Function
④	Vehicle information display	MWI-15, "INFORMATION DISPLAY : System Description"
⑤	Chassis control module	DAS-174, "Chassis Control Module"
⑥	ABS actuator and electric unit (control unit)	BRC-14, "System Description"
⑦	Distance sensor	DAS-16, "LDW : System Description"
⑧	Engine control module	EC-31, "ENGINE CONTROL SYSTEM : System Description"
⑨	Transmission control module	TM-31, "CVT CONTROL SYSTEM : System Description"

Chassis Control Module

INFOID:0000000010227349

Chassis control module controls the following systems based on the signals from each sensor, switch, and control unit.

- Active engine brake
- Active ride control
- Active trace control



ALOIA0206ZZ

SYSTEM

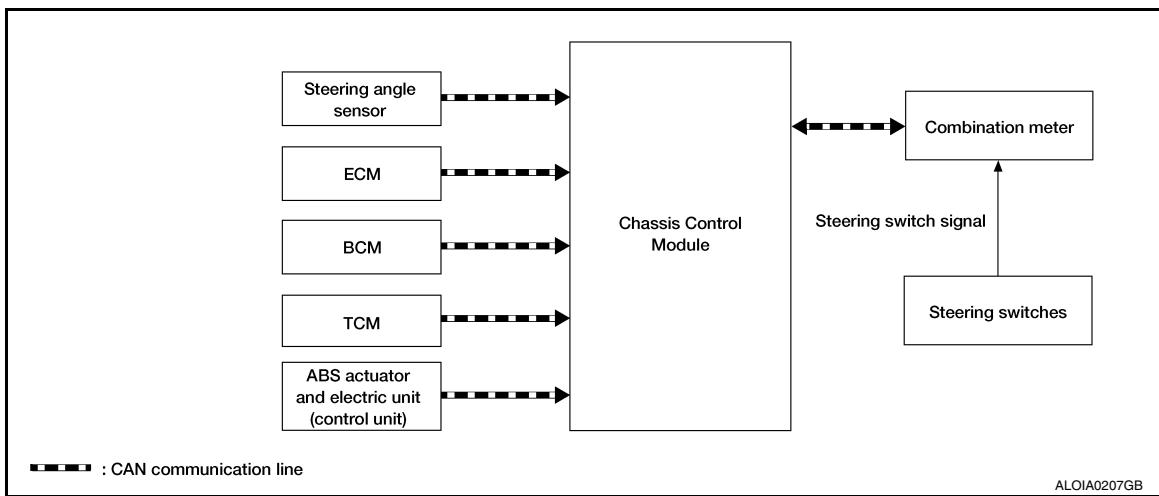
System Description - Chassis Control

INFOID:000000010227350

- Chassis control to integrally control the driving system was adopted.
- Chassis control module inputs the necessary information for control from CAN communication and each switch and integrally controls each system. Refer to the following table for systems controlled and input/output signals.

System	Reference page
Active Engine Brake	DAS-175. "System Description - Active Engine Brake"
Active Ride Control	DAS-176. "System Description - Active Ride Control"
Active Trace Control	DAS-176. "System Description - Active Trace Control"

SYSTEM DIAGRAM

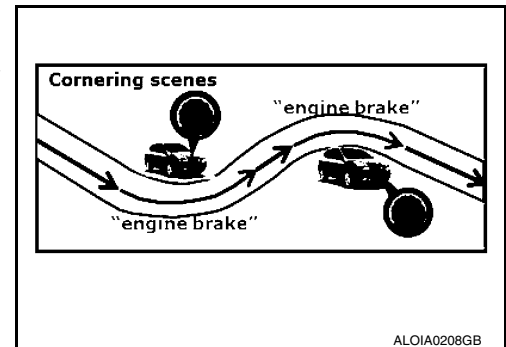


System Description - Active Engine Brake

INFOID:000000010287268

Active Engine Brake function can be switched ON/OFF through the "Chassis Control" settings on the vehicle information display.

- Assist at corners - to lessen the workload of adjusting speed with brake pedal operations at corners. Active Engine Brake function adds small amount of deceleration by controlling the CVT gear ratio depending on the steering input and various sensors. This benefits to easier traceability at corners.

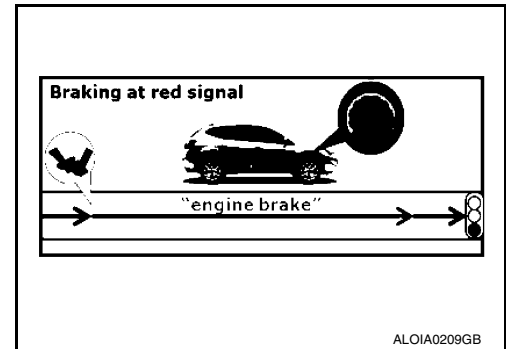


SYSTEM

< SYSTEM DESCRIPTION >

[CHASSIS CONTROL]

- Assist at breaking - To enhance braking feel, Active Engine Brake adds deceleration by shifting the CVT gear ratio to lower side depending on the driver's brake pedal operation.

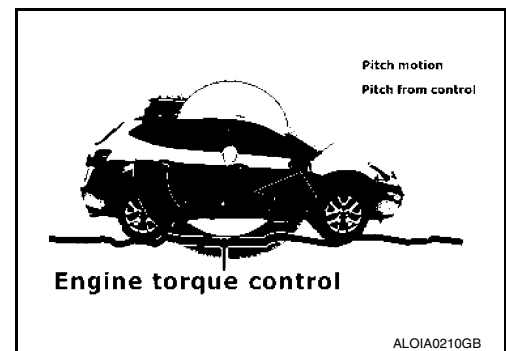


System Description - Active Ride Control

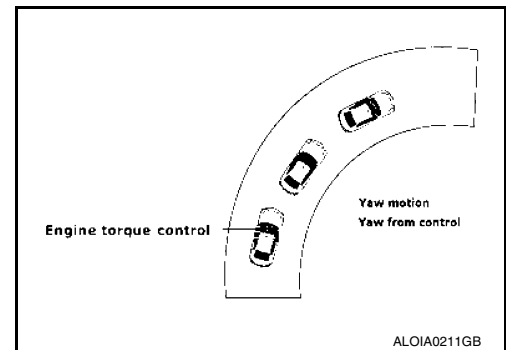
INFOID:0000000010287270

The Active Ride Control function can be turned ON/OFF by turning the VDC OFF switch ON/OFF.

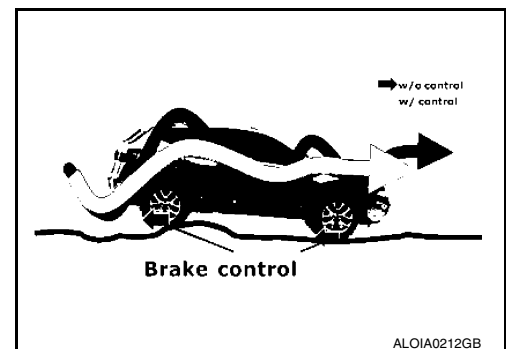
- Engine control - Enhances ride comfort by adding/subtracting engine torque in an effort to control the front and rear wheel load balance.



- Engine control - Enhances handling by adding/subtracting engine torque in an effort to control the front and rear wheel load balance.



- Brake control - Enhances ride comfort by restraining upper body movement with small amount of brake control when driving on bumpy roads.



System Description - Active Trace Control

INFOID:0000000010287269

Active Trace Control function controls the braking utilizing the ABS actuator and electric unit (control unit), depending on cornering condition calculated from driver's steering input and plural sensors. Active Trace Control function is aimed to enhance traceability at corners and smooth the vehicle movement to provide confident driving.

SYSTEM

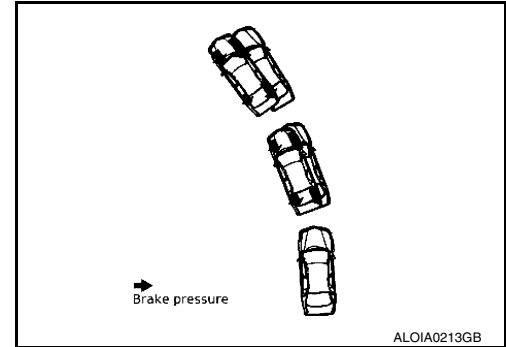
< SYSTEM DESCRIPTION >

[CHASSIS CONTROL]

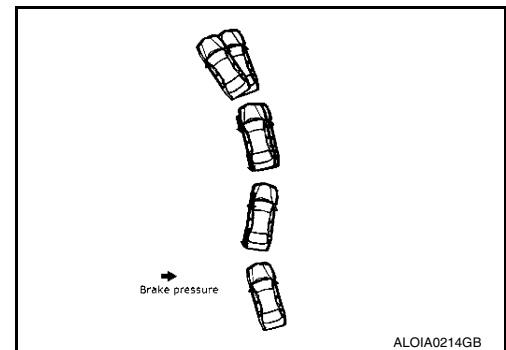
Active Trace Control function can be switched ON/OFF through the "Chassis Control" settings on the vehicle information display. When the Active Trace Control is selected OFF, some functions will be kept ON to assist driver (for example, avoidance condition).

When the VDC OFF switch is used to turn OFF the VDC system, the Active Trace Control system is also completely turned OFF.

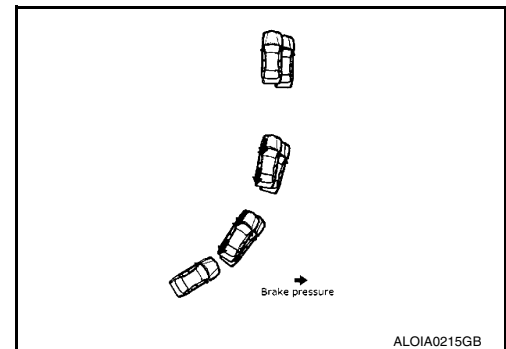
- Steady cornering - The change of forward and lateral acceleration is smoothened by applying the necessary amount of brake pressure.



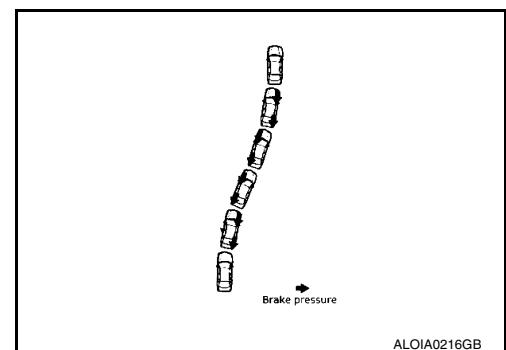
- Transient steering input - Reduces lag of yaw rate against steering operation.



- Acceleration at corners - Restrains understeer by applying the necessary amount of brake pressure to the inner wheels.



- Quick lane change - achieves stable vehicle behavior at quick steering operation by applying the necessary amount of brake pressure to the appropriate wheels.



Fail-Safe (Chassis Control Module)

INFOID:000000010227352

- When chassis control module detects an error in the chassis control system architecture (including other system components), the master warning lamp turns ON and an interrupt is displayed on the information display of the combination meter. Please check the DTCs and investigate the cause of error.

SYSTEM

< SYSTEM DESCRIPTION >

[CHASSIS CONTROL]

DTC	Vehicle condition
C1B92-00	The following functions are suspended. • Active Trace Control • Active Ride Control • Active Engine Brake
C1B93-00	The following functions are suspended. • Active Trace Control • Active Ride Control (engine) • Active Engine Brake
C1B94-00	The following functions are suspended. • Active Trace Control • Active Ride Control (engine)
C1B95-00	The following functions are suspended. • Active Trace Control • Active Ride Control (brake)
C1B99-00	The following functions are suspended. • Active Trace Control • Active Ride Control • Active Engine Brake
C1BA0-00	The following functions are suspended. • Active Trace Control • Active Ride Control (brake)
C1BA2-00	The following functions are suspended. • Active Trace Control • Active Ride Control (engine)
C1BA5-00	Normal control
C1BAB-00	The following functions are suspended. • Active Trace Control • Active Ride Control (engine)
C1BB2-00	The following functions are suspended. • Active Trace Control • Active Ride Control • Active Engine Brake
C1BB3-00	
C1BB4-00	
C1BB5-00	
C1BB6-00	Normal control
C1BB7-00	The following functions are suspended. • Active Trace Control • Active Ride Control • Active Engine Brake
C1BB8-00	
C1BB9-00	
C1BBA-00	
C1BBB-00	Normal control
C1BBC-00	
C1BBD-00	The following functions are suspended. • Active Trace Control • Active Ride Control • Active Engine Brake
C1BC0-00	The following functions are suspended. • Active Trace Control • Active Ride Control
C1BC1-00	
C1BC2-00	
C1BC3-00	
C1BC4-00	The following function is suspended. • Active Ride Control (brake)
C1BC5-00	The following function is suspended. • Active Trace Control

SYSTEM

< SYSTEM DESCRIPTION >

[CHASSIS CONTROL]

DTC	Vehicle condition
C1BC6-00	The following functions are suspended. • Active Trace Control • Active Ride Control (brake)
U1A34-00	The following functions are suspended. • Active Trace Control • Active Ride Control • Active Engine Brake
U1A35-00	
U1A36-00	
U1A39-00	Normal control
U1A3B-00	The following functions are suspended. • Active Trace Control • Active Ride Control (brake) • Active Engine Brake
U1A42-00	The following functions are suspended. • Active Trace Control • Active Ride Control (engine)
U1A43-00	
U1A48-00	The following functions are suspended. • Active Trace Control • Active Ride Control • Active Engine Brake
U1A4A-00	
U1A4B-00	
U1A4E-00	The following function is suspended. • Active Ride Control

INFORMATION DISPLAY (COMBINATION METER)

INFORMATION DISPLAY (COMBINATION METER) : Chassis Control Display

INFOID:0000000010227353

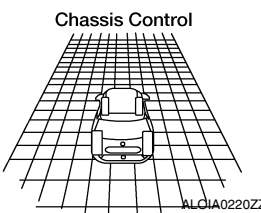
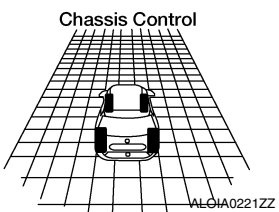
DESIGN/PURPOSE

- The warning message is displayed on the vehicle information display when chassis control module detects an error in the chassis control system architecture. Please check the DTCs and investigate the cause of error.
- Each chassis control system information is displayed on the vehicle information display.

Warning Message

Design	Warning Message
—	Chassis Control System Error See Owner's Manual

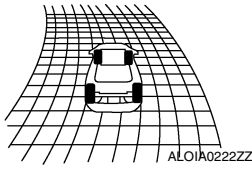
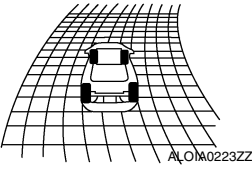
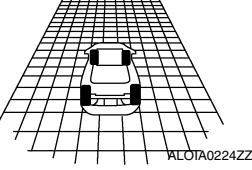
System Information

Design	Description
 ALG1A0220ZZ	Active Engine Brake inactive Active Ride Control inactive Active Trace Control inactive
 ALG1A0221ZZ	Active Engine Brake (assist at corners). Active Trace Control is active. (Steering angle is less than the specified angle)

SYSTEM

< SYSTEM DESCRIPTION >

[CHASSIS CONTROL]

Design	Description
Chassis Control  AL01A0222ZZ	Active Engine Brake (assist at corner). Active Trace Control assist is active. (Steering angle is the specified angle or more in the leftward direction)
Chassis Control  AL01A0223ZZ	Active Engine Brake (assist at corner). Active Trace Control assist is active. (Steering angle is the specified angle or more in the rightward direction)
Chassis Control  AL01A0224ZZ	Active Ride Control is active (assist).

Indicator operating

- Active Engine Brake: Refer to [DAS-175, "System Description - Active Engine Brake"](#).
- Active Ride Control: Refer to [DAS-176, "System Description - Active Ride Control"](#).
- Active Trace Control: Refer to [DAS-176, "System Description - Active Trace Control"](#).

HANDLING PRECAUTION

Precautions for Chassis Control (Engine Brake, Active Ride, and Active Trace)

INFOID:0000000010385678

CHASSIS CONTROL

- Chassis Control will not provide all the necessary controls to replace driver intervention. It is not designed to prevent loss of control. It is the driver's responsibility to stay alert, drive safely, keep the vehicle in the traveling lane, and be in control of vehicle at all times.
- Chassis Control is primarily intended for use on well-developed freeways or highways. It may not perform satisfactorily in certain roads, weather or driving conditions.
- Using Chassis Control under some conditions of road, corner or severe weather could lead to an unexpected system operation. In such conditions, driver needs to correct the vehicle's direction with driver's steering operation to avoid accidents.
- When Chassis Control is operating, avoid excessive or sudden steering maneuvers. Otherwise, you could lose control of the vehicle.
- Engine Brake Control is designed to enhance braking feel and traceability at corners.
- Active Ride Control is designed to enhance handling and drive comfort.
- Active Trace Control is designed to enhance traceability at corners and smooth vehicle movement for more confident driving.
- Chassis Control may not function properly under the following conditions:
 - During bad weather (rain, fog, snow, wind, etc.).
 - When driving on slippery roads, such as on ice or snow, etc.
 - When driving on winding or uneven roads.
 - When driving with a tire that is not within normal tire conditions (for example, tire wear, low tire pressure, installation of spare tire, tire chains, non-standard wheels).
 - When the vehicle is equipped with non-original steering parts or suspension parts.
- The functions of Chassis Control may or may not operate properly under the following conditions:
 - On roads covered with water, dirt or snow, etc.
 - On roads where there are sharp curves.

A

B

C

D

E

F

G

H

I

J

K

L

M

N

DAS

P

DIAGNOSIS SYSTEM (CHASSIS CONTROL MODULE)

< SYSTEM DESCRIPTION >

[CHASSIS CONTROL]

DIAGNOSIS SYSTEM (CHASSIS CONTROL MODULE)

CONSULT Function

INFOID:0000000010227354

APPLICATION ITEM

CONSULT can display each diagnostic item using the diagnostic test modes as follows.

Mode	Function description
ECU identification	Parts number of chassis control module can be read.
Self Diagnostic Result	Self-diagnostic results and freeze frame data can be read and erased quickly.*1
Data Monitor	Input/Output data in chassis control module can be read.
Active Test	Send the drive signal from CONSULT to the actuator. The operation check can be performed.
Re/programming, Configuration	• Read and save the vehicle specification (TYPE ID). • Write the vehicle specification (TYPE ID) when replacing Chassis Control Module.

*1: The following diagnosis information is erased by erasing.

- DTC
- Freeze frame data (FFD)

ECU IDENTIFICATION

Chassis control module part number can be read.

SELF DIAGNOSTIC RESULT

Refer to [DAS-194, "DTC Index"](#).

When "CRNT" is displayed on "self-diagnosis result"

- The system is presently malfunctioning.

When "PAST" is displayed on "self-diagnosis result"

- System malfunction in the past is detected, but the system is presently normal.

Freeze frame data (FFD)

When DTC is detected, a vehicle state shown below is recorded and displayed on CONSULT.

Item name	Indication/Unit	Display item
Odometer/Trip meter	km	Total mileage (Odometer value) of the moment a particular.
DTC LOCAL CODE	—	DTC code is displayed but not used.
CAN DIAG PERMIS CONDITION	Off / On	Displays CAN network diagnosis status.
BRAKE SWITCH 1	Off / On	Displays brake switch operating status (Off: close / On: open).
BRAKE SWITCH 2	Off / On	Displays brake switch operating status (Off: open / On: close).
ABS	NORMAL / ABNOR	Displays ABS function status.
TCS	NORMAL / ABNOR	Displays TCS function status.
VDC	NORMAL / ABNOR	Displays VDC function status.
VEHICLE SPEED	km	Displays the vehicle speed.
FR WHEEL SPEED	rpm	Displays the rotational speed of front RH tire.
FL WHEEL SPEED	rpm	Displays the rotational speed of front LH tire.
RR WHEEL SPEED	rpm	Displays the rotational speed of rear RH tire.
RL WHEEL SPEED	rpm	Displays the rotational speed of rear LH tire.
STEERING ANG SENSOR	deg	Displays the steering angle from the steering angle sensor.
SIDE G SENSOR	G	Displays the side G.
DECEL G SENSOR	G	Displays the decel G.
YAW RATE SENSOR	deg/s	Displays the yaw rate.
THRTL OPENING	%	Displays the electric throttle position.

DIAGNOSIS SYSTEM (CHASSIS CONTROL MODULE)

< SYSTEM DESCRIPTION >

[CHASSIS CONTROL]

Item name	Indication/Unit	Display item
SHIFT POSITION	Off / P / R / N / D (A) / S / L / B / 1 – 6 / M 1 – M 8 / A 1 – A 6	Displayed but not used.
PRESS SENSOR	bar	Displays the brake fluid pressure.

DATA MONITOR

NOTE:

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

Item [Unit]	Description
IGN VOLT [V]	Displays the ignition power supply voltage.
CONTROL MODULE MALF [Off / On]	Displays chassis control module malfunction.
CAN DIAG STATUS [Off / On]	Displays CAN network diagnosis status.
VEHICLE SPEED [km/m]	Displays the vehicle speed.
FR WHEEL SPEED [rpm]	Displays the rotational speed of front RH tire.
FL WHEEL SPEED [rpm]	Displays the rotational speed of front LH tire.
RR WHEEL SPEED [rpm]	Displays the rotational speed of rear RH tire.
RL WHEEL SPEED [rpm]	Displays the rotational speed of rear LH tire.
STEERING ANG SENSOR [deg]	Displays the steering angle from the steering angle sensor.
DECEL G SENSOR [G]	Displays the decel G.
SIDE G SENSOR [G]	Displays the side G.
YAW RATE SENSOR [deg/s]	Displays the yaw rate.
ACCELE PEDAL POSITION [%]	Displays the accelerator pedal position.
THROTTLE CONTROL [NORMAL / INCORR / PREV / IN-POSSI]	Displays the electric throttle status.
SHIFT POSITION [Off / P / R / N / D (A) / S / L / B / 1 – 6 / M 1 – M 8 / A 1 – A 6]	Displayed but not used.
BRAKE SWITCH 2 [Off / On]	Displays brake switch operating status (Off: close / On: open).
BRAKE SWITCH 1 [Off / On]	Displays brake switch operating status (Off: open / On: close).
PRESS SENSOR [bar]	Displays the brake fluid pressure.
ABS [NORMAL / ABNOR]	Displays ABS function status.
ABS MALF [NORMAL / ABNOR]	Displays ABS function status.
EBD [NORMAL / ABNOR]	Displays EBD function status.
ACCELE PEDAL MALF [NORMAL / ABNOR]	Displays the accelerator pedal status.
TCS [NORMAL / ABNOR]	Displays TCS function status.
TCS MALF [NORMAL / ABNOR]	Displays TCS function status.
VDC [NORMAL / ABNOR]	Displays VDC function status.
VDC MALF [NORMAL / ABNOR]	Displays VDC function status.
VDC OFF SWITCH [Off / On]	Displays VDC OFF switch status.
PARKING BRAKE [Off / On]	Displayed but not used.
DRV TRQ CTRL MODE [INITIAL / NORMAL / STOP 1 / STOP 2 / LIMIT 1 / PROHIBI]	Displays the status of correction to slightly increase/decrease the drive torque.
DRV TRQ CTRL PERMIS 1 [NO PER / PERMIS]	Displays the permission status (basic requirement) of correction to slightly increase/decrease drive torque.
DRV TRQ CTRL PERMIS 2 [NO PER / PERMIS]	Displays the permission status (system requirement) of correction to slightly increase/decrease drive torque.

DIAGNOSIS SYSTEM (CHASSIS CONTROL MODULE)

< SYSTEM DESCRIPTION >

[CHASSIS CONTROL]

Item [Unit]	Description
DRV TRQ CTRL STOP [REQ / NO REQ]	Displays the stop request status of correction to slightly increase/decrease drive torque.
DRV TRQ CTRL PROHIBIT [REQ / NO REQ]	Displays the prohibition request status of correction to slightly increase/decrease drive torque.
AEB [Off / On]	Displays the Active Engine Brake (corner) function operating status
ATC 1 [Off / On]	Displays active trace control function operating status.
ATC 2 [Off / On]	Displays active trace control function operating status.
ATC 3 [Off / On]	Displays active trace control function operating status.
ATC 4 [Off / On]	Displays active trace control function operating status.
ATC 5 [Off / On]	Displays active trace control function operating status.
BRAKE HOLD [INACT / ACT / RELEA]	Displays the status of Hill Start Assist function.
ARC BRAKE [Off / On]	Displays the brake control effect of Active Trace Control function on the information display in the combination meter.
FL TIRE DISP [DEF / 1]	Displays tire status.
FR TIRE DISP [DEF / 1]	Displays tire status.
RL TIRE DISP [DEF / 1]	Displays tire status.
RR TIRE DISP [DEF / 1]	Displays tire status.
VEHICLE DISP [Off / On]	Displays Active Ride Control (brake) activation status.
INTERRUPT DISP [NOREQ / HOLD1 / HOLD2 / HDC]	Displays the interruption status.
TURN DISP [NSTEER / LEFT / RIGHT]	Displays the turn status.
ALC LEVEL [0]	Displayed but not used.
ALC STATUS [ACTIVE / INACT]	Displayed but not used.
BRAKE HOLD DISP [INACT / ACT / RELEA]	Displays the brake hold status.
ATC DISP [Off / On]	Displays Active Trace Control status.
ARC BRAKE DISP [Off / On]	Displays the status of Active Ride Control (brake).
HDC DISP [Off / On]	Displays the Hill Descent Control.
CVT ENABLE [Off / On]	Displays the CVT authorized state for Active Engine Brake.
ADA SW [Off / On]	Displays the Active Engine Brake status.
COMMAND(REL) [0.0000]	Displays the relative command value of Active Engine Brake.
COMMAND(ABS) [0.0000]	Displays absolute command value of Active Engine Brake.
SLIP RATE [%]	Displays slip ratio of Active Engine Brake.
ASA CHARACTERISTIC [Off / On]	Displays Active Trace Control state on METER.
ADA CHARACTERISTIC [Off / On]	Displays Active Engine Brake state on METER.

ACTIVE TEST

The active test is used to determine and identify details of a malfunction, based on self-diagnosis test results and data obtained in the DATA MONITOR. In response to instructions from CONSULT, instead of those from chassis control module on the vehicle, a drive signal is sent to the actuator to check its operation.

CAUTION:

- **Never perform ACTIVE TEST while driving the vehicle.**
- **Always bleed air from brake system before active test.**
- **Never perform active test when system is malfunctioning.**

NOTE:

- When active test is performed while depressing the brake pedal, the brake pedal depressing stroke may change. This is not a malfunction.
- During an active test, sometimes a chassis control warning is displayed and the master warning lamp illuminates on the information display in the combination meter; however, this is not a malfunction.

DIAGNOSIS SYSTEM (CHASSIS CONTROL MODULE)

< SYSTEM DESCRIPTION >

[CHASSIS CONTROL]

Test item	Operation	Description
BRAKE ACTUATOR 1 MODE 1	Start	Controls brake fluid pressure.
BRAKE ACTUATOR 1 MODE 2	Start	Controls brake fluid pressure.
BRAKE ACTUATOR 1 MODE 3	Start	Controls brake fluid pressure.
BRAKE ACTUATOR 2 MODE 1	Start	Controls brake fluid pressure.
BRAKE ACTUATOR 2 MODE 2	Start	Controls brake fluid pressure.
BRAKE ACTUATOR 2 MODE 3	Start	Controls brake fluid pressure.
BRAKE ACTUATOR 3 MODE 1	Start	Controls brake fluid pressure.
BRAKE ACTUATOR 3 MODE 2	Start	Controls brake fluid pressure.
BRAKE ACTUATOR 3 MODE 3	Start	Controls brake fluid pressure.
MASTER WARNING ACTIVE	On	If touching "On" with the master warning lamp not illuminated, the master warning lamp illuminates. Stops in approximately 1 minute.
	Off	The master warning lamp turns OFF. (vehicle in normal state)
FL TIRE DISP	On	Displays the front LH tire on the information display in the combination meter.
	Off	Does not display the front LH tire on the information display in the combination meter.
FR TIRE DISP	On	Displays the front RH tire on the information display in the combination meter.
	Off	Does not display the front RH tire on the information display in the combination meter.
RL TIRE DISP	On	Displays the rear LH tire on the information display in the combination meter.
	Off	Does not display the rear LH tire on the information display in the combination meter.
RR TIRE DISP	On	Displays the rear RH tire on the information display in the combination meter.
	Off	Does not display the rear RH tire on the information display in the combination meter.
TURN DISP	NO DISP	Does not display the turning status on the information display in the combination meter.
	LH	Displays the LH turning status on the information display in the combination meter.
	RH	Displays the RH turning status on the information display in the combination meter.
	ROUND	Displayed but not used.
ATC 1 DISP	On	Displays active trace control function active status on the information display in the combination meter.
	Off	Displays active trace control function inactive status on the information display in the combination meter.
ATC 2 DISP	On	Displays active trace control function active status on the information display in the combination meter.
	Off	Displays active trace control function inactive status on the information display in the combination meter.
HDC DISP	On	Displays Hill Descent Control active status on the information display on the combination meter.
	Off	Displays Hill Descent Control inactive status on the information display on the combination meter.

A

B

C

D

E

F

G

H

I

J

K

L

M

N

DAS

P

DIAGNOSIS SYSTEM (CHASSIS CONTROL MODULE)

< SYSTEM DESCRIPTION >

[CHASSIS CONTROL]

Test item	Operation	Description
BRAKE HOLD DISP	INACT	Displays inactive status of controls on the information display on the combination meter.
	READY	Displays ready status of Hill Start Assist on the information display on the combination meter.
	ACTIVE	Displays active status of Hill Start Assist on the information display on the combination meter.
	ERROR	Displays inactive status of controls on the information display on the combination meter.
AEB DISP	On	Displays Active Engine Brake (corner) active status on the information display in the combination meter.
	Off	Displays Active Engine Brake (corner) inactive status on the information display in the combination meter.
VEHICLE DISP	On	Displays Active Ride Control (brake) active status on the information display in the combination meter.
	Off	Displays Active Ride Control (brake) inactive status on the information display in the combination meter.
INTERRUPT DISP	NO REQ	Displays inactive status of controls on the information display in the combination meter.
	READY	Displays ready status of Hill Start Assist on the information display in the combination meter.
	ACTIVE	Displays active status of Hill Start Assist on the information display in the combination meter.
	HDC	Displays Hill Descent Control active status on the information display in the combination meter.
ATC 3 DISP	On	Displays active trace control function active status on the information display in the combination meter.
	Off	Displays active trace control function inactive status on the information display in the combination meter.

RE/PROGRAMMING, CONFIGURATION

Configuration includes the following functions.

Function		Description
Read/Write Configuration	Before replacing ECU	Allows the reading of vehicle specification (Type ID) written in Chassis Control Module to store the specification in CONSULT.
	After replacing ECU	Allows the writing of vehicle information (Type ID) stored in CONSULT into the Chassis Control Module.
Manual Configuration		Allows the writing of vehicle specification (Type ID) into the Chassis Control Module by hand.

CAUTION:

Use “Manual Configuration” only when “TYPE ID” of Chassis Control Module cannot be read.

ECU DIAGNOSIS INFORMATION

CHASSIS CONTROL MODULE

Reference Value

INFOID:0000000010227355

CONSULT DATA MONITOR STANDARD VALUE

NOTE:

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

Monitor item	Condition	Reference values in normal operation
IGN VOLT	Ignition switch ON	10 – 16 V
CONTROL MODULE MALF	When chassis control module is normal	Off
	When chassis control module malfunction is detected	On
CAN DIAG STATUS	When diagnosis of CAN communication malfunction is detected	Off
	When diagnosis of CAN communication is normal	On
STP LAMP OFF RELAY 1	Displayed but not used.	—
STP LAMP OFF RELAY 2	Displayed but not used.	—
ESS RELAY	Displayed but not used.	—
VEHICLE SPEED	Vehicle Stopped	0 km/h (0 MPH)
	Driving*	Almost same reading as speedometer (within $\pm 10\%$)
FR WHEEL SPEED	Vehicle stopped	0 rpm
	Driving*	Increases according to vehicle speed
FL WHEEL SPEED	Vehicle stopped	0 rpm
	Driving*	Increases according to vehicle speed
RR WHEEL SPEED	Vehicle stopped	0 rpm
	Driving*	Increases according to vehicle speed
RL WHEEL SPEED	Vehicle stopped	0 rpm
	Driving*	Increases according to vehicle speed
STEERING ANG SENSOR	When driving straight	0 $\pm$ 3.5 deg
	When steering wheel is steered to RH by 90°	Approx. +90 deg
	When steering wheel is steered to LH by 90°	Approx. -90 deg
DECEL G SENSOR	Vehicle stopped	Approx. 0 G
	When during acceleration	Positive value
	When during deceleration	Negative value
SIDE G SENSOR	Vehicle stopped	Approx. 0 G
	When right turn	Negative value
	When left turn	Positive value
YAW RATE SENSOR	Vehicle stopped	Approx. 0 deg/s
	When right turn	Negative value
	When left turn	Positive value
ACCELE PEDAL POSITION	When accelerator pedal is released	0%
	When accelerator pedal is depressed	0 – 100%

CHASSIS CONTROL MODULE

< ECU DIAGNOSIS INFORMATION >

[CHASSIS CONTROL]

Monitor item	Condition	Reference values in normal operation
THROTTLE CONTROL	When electric throttle control actuator is normal	NORMAL
	When the electric throttle control actuator does not achieve the requirement (measured value is inaccurate)	INCORR
	When the electric throttle control actuator does not achieve the requirement (temporary prevention)	PREV
	When the electric throttle control actuator does not achieve the requirement (impossible)	IMPOSSI
SHIFT POSITION	Selector lever in any position	Displayed but not used
BRAKE SWITCH 2	When brake pedal is not depressed	Off
	When brake pedal is depressed	On
BRAKE SWITCH 1	When brake pedal is depressed	Off
	When brake pedal is not depressed	On
PRESS SENSOR	When brake pedal is not depressed	Approx. 0 bar
	When brake pedal is depressed	0 – 255 bar
ABS	When ABS function is normal	NORMAL
	When ABS function malfunction is detected	ABNOR
ABS MALF	When ABS function is normal	NORMAL
	When ABS function malfunction is detected	ABNOR
EBD	When EBD function is normal	NORMAL
	When EBD function malfunction is detected	ABNOR
ACCELE PEDAL MALF	When accelerator pedal is normal	NORMAL
	When accelerator pedal malfunction is detected	ABNOR
TCS	When TCS function is normal	NORMAL
	When TCS function malfunction is detected	ABNOR
TCS MALF	When TCS function is normal	NORMAL
	When TCS function malfunction is detected	ABNOR
VDC	When VDC function is normal	NORMAL
	When VDC function malfunction is detected	ABNOR
VDC MALF	When VDC function is normal	NORMAL
	When VDC function malfunction is detected	ABNOR
VDC OFF SWITCH	When VDC OFF switch is OFF	Off
	When VDC OFF switch is ON	On
PARKING BRAKE	When parking brake is inactive	Displayed but not used
	When parking brake is active	Displayed but not used
DRV TRQ CTRL MODE	When correction coefficients are initialized	INITIAL
	When correction is executed	NORMAL
	When correction is stopped (computing is impossible)	STOP 1
	When correction is stopped (computing is possible)	STOP 2
	When correction is limited	LIMIT 1
	When correction is prohibited	PROHIBI

CHASSIS CONTROL MODULE

< ECU DIAGNOSIS INFORMATION >

[CHASSIS CONTROL]

Monitor item	Condition	Reference values in normal operation	
DRV TRQ CTRL PERMIS 1	When correction is permitted (basic requirement)	PERMIS	A
	When correction is not permitted (basic requirement)	NO PER	B
DRV TRQ CTRL PERMIS 2	When correction is permitted (system requirement)	PERMIS	C
	When correction is not permitted (system requirement)	NO PER	
DRV TRQ CTRL STOP	When correction is requested to stop	REQ	D
	When correction is not requested to stop	NO REQ	
DRV TRQ CTRL PROHIBIT	When prohibition of correction is requested	REQ	E
	When prohibition of correction is not requested	NO REQ	
AEB	When Active Engine Brake (corner) function is active	On	F
	When Active Engine Brake (corner) function is inactive	Off	
ATC 1	When active trace control function is inactive	Off	G
	When active trace control function is active	On	
ATC 2	When active trace control function is inactive	Off	H
	When active trace control function is active	On	
ATC 3	When active trace control function is inactive	Off	I
	When active trace control function is active	On	
ATC 4	When active trace control function is inactive	Off	J
	When active trace control function is active	On	
ATC 5	When active trace control function is inactive	Off	K
	When active trace control function is active	On	
BRAKE HOLD	When Hill Start Assist function is inactive.	INACT	L
	When Hill Start Assist function is ready.	ACT	
	When Hill Start Assist function is active.	RELEA	
FL TIRE DISP	When the front LH tire is not displayed on the information display in the combination meter	DEF	M
	When the front LH tire is displayed on the information display in the combination meter	1	
FR TIRE DISP	When the front RH tire is not displayed on the information display in the combination meter	DEF	N
	When the front RH tire is displayed on the information display in the combination meter	1	
RL TIRE DISP	When the rear LH tire is not displayed on the information display in the combination meter	DEF	
	When the rear LH tire is displayed on the information display in the combination meter	1	DAS
RR TIRE DISP	When the rear RH tire is not displayed on the information display in the combination meter	DEF	P
	When the rear RH tire is displayed on the information display in the combination meter	1	

CHASSIS CONTROL MODULE

< ECU DIAGNOSIS INFORMATION >

[CHASSIS CONTROL]

Monitor item	Condition	Reference values in normal operation
VEHICLE DISP	When active ride control (brake) effect is not displayed on the information display in the combination meter	Off
	When active ride control (brake) effect is displayed on the information display in the combination meter	On
INTERRUPT DISP	When interrupt display is not displayed on the information display in the combination meter	NOREQ
	When Hill Start Assist function (ready) is displayed on the information display in the combination meter	HOLD1
	When Hill Start Assist function (active) is displayed on the information display in the combination meter	HOLD2
	When Hill Descent Control function is displayed on the information display in the combination meter	HDC
TURN DISP	When the straight-ahead status is displayed on the information display in the combination meter	N STEER
	When the left turning status is displayed on the information display in the combination meter	LEFT
	When the right turning status is displayed on the information display in the combination meter	RIGHT
ALC LEVEL	When Active Lane Control is turned ON.	Displayed but not used
	When Active Lane Control is operational or is operating.	Displayed but not used
ALC STATUS	When Active Lane Control is OFF	Displayed but not used
	When Active Lane Control is ON	Displayed but not used
BRAKE HOLD DISP	When Hill Start Assist function is not displayed on the information display in the combination meter	INACT
	When Hill Start Assist function (ready) is displayed on the information display in the combination meter	ACT
	When Hill Start Assist function (active) is displayed on the information display in the combination meter	RELEA
ATC DISP	When the activation of Active Trace Control is not displayed on the information display on the combination meter	Off
	When the activation of Active Trace Control is displayed on the information display on the combination meter	On
ARC BRAKE DISP	When Active Ride Control (Brake) function is not displayed on the information display in the combination meter	Off
	When Active Ride Control (Brake) function is displayed on the information display in the combination meter	On

CHASSIS CONTROL MODULE

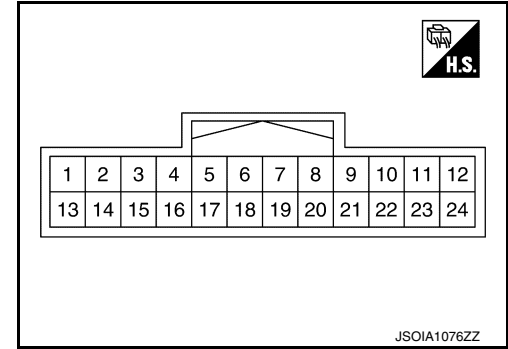
< ECU DIAGNOSIS INFORMATION >

[CHASSIS CONTROL]

Monitor item	Condition	Reference values in normal operation
HDC DISP	When Hill Descent Control function is not displayed on the information display in the combination meter	Off
	When Hill Descent Control function is displayed on the information display in the combination meter	On

*: Check tire pressure under normal conditions.

TERMINAL LAYOUT



PHYSICAL VALUES

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	-	Signal name	Input/ Output			
3 (P)	Ground	CAN-L	—	—	—	—
4 (L)		CAN-H	—	—	—	—
10 (SB)		IGN	Input	Ignition switch ON		6.4 – 16 V
12 (B)		GROUND	—	Ignition switch ON	—	0 V

Fail-Safe (Chassis Control Module)

INFOID:0000000010227356

When a malfunction occurs in the chassis control module, the master warning lamp turns ON and an interrupt is displayed on the information display of the combination meter.

DTC	Vehicle condition
C1B92-00	The following functions are suspended. • Active Trace Control • Active Ride Control • Active Engine Brake
C1B93-00	The following functions are suspended. • Active Trace Control • Active Ride Control (engine) • Active Engine Brake
C1B94-00	The following functions are suspended. • Active Trace Control • Active Ride Control (engine)
C1B95-00	The following functions are suspended. • Active Trace Control • Active Ride Control (brake)

A
B
C
D
E
F
G
H
I
J
K
L
M
N

DAS

P

CHASSIS CONTROL MODULE

< ECU DIAGNOSIS INFORMATION >

[CHASSIS CONTROL]

DTC	Vehicle condition
C1B99-00	The following functions are suspended. • Active Trace Control • Active Ride Control • Active Engine Brake
C1BA0-00	The following functions are suspended. • Active Trace Control • Active Ride Control (brake)
C1BA2-00	The following functions are suspended. • Active Trace Control • Active Ride Control (engine)
C1BA5-00	Normal control
C1BAB-00	The following functions are suspended. • Active Trace Control • Active Ride Control (engine)
C1BB2-00	The following functions are suspended. • Active Trace Control • Active Ride Control • Active Engine Brake
C1BB3-00	
C1BB4-00	
C1BB5-00	
C1BB6-00	Normal control
C1BB7-00	The following functions are suspended. • Active Trace Control • Active Ride Control • Active Engine Brake
C1BB8-00	
C1BB9-00	
C1BBA-00	
C1BBB-00	The following functions are suspended. • Active Trace Control • Active Ride Control • Active Engine Brake
C1BBC-00	
C1BBD-00	
C1BC0-00	
C1BC1-00	The following functions are suspended. • Active Trace Control • Active Ride Control
C1BC2-00	
C1BC3-00	
C1BC4-00	The following functions are suspended. • Active Ride Control (brake)
C1BC5-00	The following functions are suspended. • Active Trace Control
C1BC6-00	The following functions are suspended. • Active Trace Control • Active Ride Control (brake)
U1A34-00	The following functions are suspended. • Active Trace Control • Active Ride Control • Active Engine Brake
U1A35-00	
U1A36-00	
U1A39-00	Normal control
U1A3B-00	The following functions are suspended. • Active Trace Control • Active Ride Control (brake) • Active Engine Brake
U1A42-00	The following functions are suspended. • Active Trace Control • Active Ride Control (engine)
U1A43-00	

CHASSIS CONTROL MODULE

< ECU DIAGNOSIS INFORMATION >

[CHASSIS CONTROL]

DTC	Vehicle condition
U1A48-00	The following functions are suspended. • Active Trace Control • Active Ride Control • Active Engine Brake
U1A4A-00	
U1A4B-00	
U1A4E-00	The following functions are suspended. • Active Ride Control

DTC Inspection Priority Chart

INFOID:000000010227357

When multiple DTCs are displayed simultaneously, check them one by one according to the following priority list.

Priority	Detected item (DTC)
1	• U1000-00 CAN COMM CIRCUIT
2	• U1A34-00 BRAKE CONTROL COMM • U1A35-00 BRAKE CONTROL COMM • U1A36-00 BCM/IPDM COMM • U1A39-00 COMBINATION METER COMM • U1A3B-00 TCM COMM • U1A3F-00 AV COMM • U1A42-00 STEERING ANGLE SENSOR COMM • U1A43-00 STEERING ANGLE SENSOR COMM • U1A48-00 ECM/HPCM COMM • U1A4A-00 CONTROL MODULE (CAN) • U1A4B-00 CONTROL MODULE (CAN) • U1A4E-00 ECM/HPCM COMM
3	• C1BBD-00 VARIANT CODING
4	• C1B92-00 BRAKE CONTROL SYSTEM • C1B93-00 ENGINE/HEV SYSTEM • C1B94-00 TM SYSTEM • C1BA0-00 ADAS/CHASSIS CTRL BRAKE SYS • C1BA2-00 STEERING ANGLE SENSOR • C1BA5-00 ADAS/CHASSIS CTRL ENGINE SYS • C1BAB-00 STOP LAMP SW • C1BC0-00 FR WHEEL SENSOR • C1BC1-00 FL WHEEL SENSOR • C1BC2-00 RR WHEEL SENSOR • C1BC3-00 RL WHEEL SENSOR • C1BC4-00 DECEL G SENSOR • C1BC5-00 SIDE G SENSOR • C1BC6-00 PRESSURE SENSOR
5	• C1BB5-00 IGN POWER SUPPLY • C1BB6-00 IGN POWER SUPPLY
6	• C1B95-00 CONTROL MODULE • C1B99-00 CONTROL MODULE • C1BB2-00 CONTROL MODULE • C1BB3-00 CONTROL MODULE • C1BB4-00 CONTROL MODULE • C1BB7-00 CONTROL MODULE • C1BB8-00 CONTROL MODULE • C1BB9-00 CONTROL MODULE • C1BBA-00 CONTROL MODULE • C1BBB-00 CONTROL MODULE • C1BBC-00 CONTROL MODULE

A
B
C
D
E
F
G
H
I
J
K
L
M
N
P

DAS

CHASSIS CONTROL MODULE

< ECU DIAGNOSIS INFORMATION >

[CHASSIS CONTROL]

DTC Index

INFOID:0000000010227358

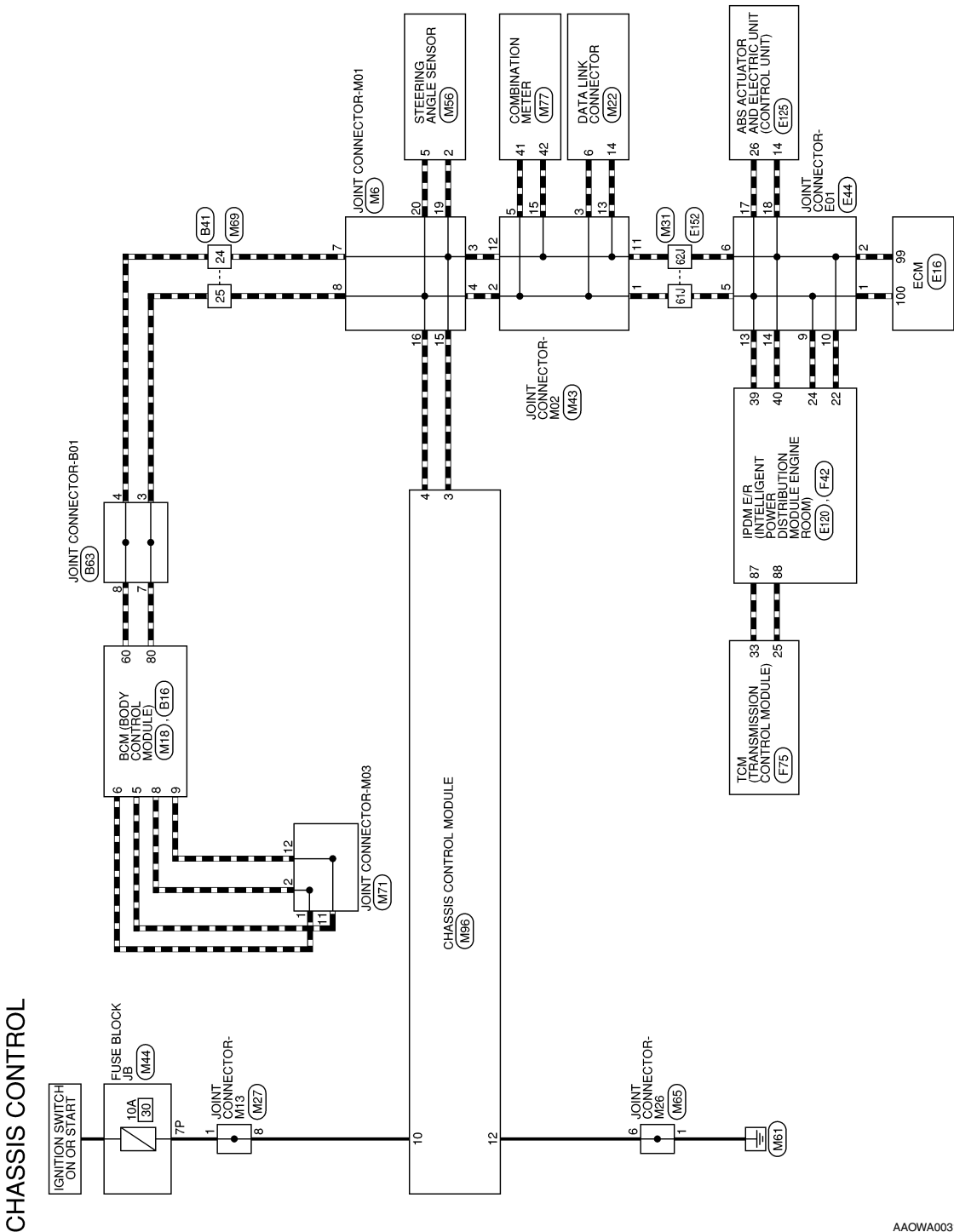
DTC	Display item	Refer to
C1B92-00	BRAKE CONTROL SYSTEM	DAS-207, "DTC Description"
C1B93-00	ENGINE/HEV SYSTEM	DAS-209, "DTC Description"
C1B94-00	TM SYSTEM	DAS-211, "DTC Description"
C1B95-00	CONTROL MODULE	DAS-213, "DTC Description"
C1B99-00	CONTROL NODULE	DAS-214, "DTC Description"
C1BA0-00	ADAS/CHASSIS CTRL BRAKE SYS	DAS-215, "DTC Description"
C1BA2-00	STEERING ANGLE SENSOR	DAS-217, "DTC Description"
C1BA5-00	ADAS/CHASSIS CTRL ENGINE SYS	DAS-219, "DTC Description"
C1BAB-00	STOP LAMP SW	DAS-220, "DTC Description"
C1BB2-00	CONTROL MODULE	DAS-222, "DTC Description"
C1BB3-00	CONTROL MODULE	DAS-223, "DTC Description"
C1BB4-00	CONTROL MODULE	DAS-224, "DTC Description"
C1BB5-00	IGN POWER SUPPLY	DAS-225, "DTC Description"
C1BB6-00	IGN POWER SUPPLY	DAS-228, "DTC Description"
C1BB7-00	CONTROL MODULE	DAS-230, "DTC Description"
C1BB8-00	CONTROL MODULE	DAS-231, "DTC Description"
C1BB9-00	CONTROL MODULE	DAS-232, "DTC Description"
C1BBA-00	CONTROL MODULE	DAS-233, "DTC Description"
C1BBB-00	CONTROL MODULE	DAS-234, "DTC Description"
C1BBC-00	CONTROL MODULE	DAS-235, "DTC Description"
C1BBD-00	VARIANT CODING	DAS-236, "DTC Description"
C1BC0-00	FR WHEEL SENSOR	DAS-237, "DTC Description"
C1BC1-00	FL WHEEL SENSOR	DAS-239, "DTC Description"
C1BC2-00	RR WHEEL SENSOR	DAS-241, "DTC Description"
C1BC3-00	RL WHEEL SENSOR	DAS-243, "DTC Description"
C1BC4-00	DECEL G SENSOR	DAS-245, "DTC Description"
C1BC5-00	SIDE G SENSOR	DAS-247, "DTC Description"
C1BC6-00	PRESSURE SENSOR	DAS-249, "DTC Description"
U1000-00	CAN COMMUNICATION	DAS-252, "DTC Description"
U1A34-00	BRAKE CONTROL COMM	DAS-252, "DTC Description"
U1A35-00	BRAKE CONTROL COMM	DAS-254, "DTC Description"
U1A36-00	BCM/IPDM COMM	DAS-256, "DTC Description"
U1A39-00	COMBINATION METER COMM	DAS-258, "DTC Description"
U1A3B-00	TCM COMM	DAS-260, "DTC Description"
U1A42-00	STEERING ANGLE SENSOR COMM	DAS-262, "DTC Description"
U1A43-00	STEERING ANGLE SENSOR COMM	DAS-264, "DTC Description"
U1A48-00	ECM/HPCM COMM	DAS-266, "DTC Description"
U1A4A-00	CONTROL MODULE (CAN)	DAS-268, "DTC Description"
U1A4B-00	CONTROL MODULE (CAN)	DAS-269, "DTC Description"
U1A4E-00	ECM/HPCM COMM	DAS-270, "DTC Description"

WIRING DIAGRAM

CHASSIS CONTROL

Wiring Diagram

INFOID:0000000010227359



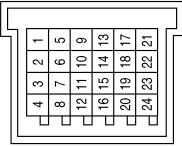
AAOWA0031GB

A
B
C
D
E
F
G
H
I
J
K
L
M
N
P

DAS

CHASSIS CONTROL CONNECTORS

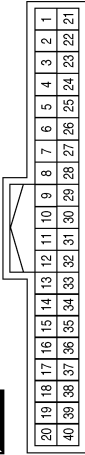
Connector No.	M6
Connector Name	JOINT CONNECTOR-M01
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

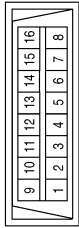
Terminal No.	Color of Wire	Signal Name
15	P	-
16	L	-
19	P	-
20	L	-

Connector No.	M18
Connector Name	BODY CONTROL MODULE
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
5	R	CAN-L
6	L	CAN-H
8	L	CAN-H
9	R	CAN-L

Connector No.	M22
Connector Name	DATA LINK CONNECTOR
Connector Color	WHITE



Connector No.	M27
Connector Name	JOINT CONNECTOR-M13
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
6	L	-
14	P	-

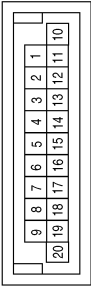
Terminal No.	Color of Wire	Signal Name
1	SB	-
8	SB	-

CHASSIS CONTROL

< WIRING DIAGRAM >

[CHASSIS CONTROL]

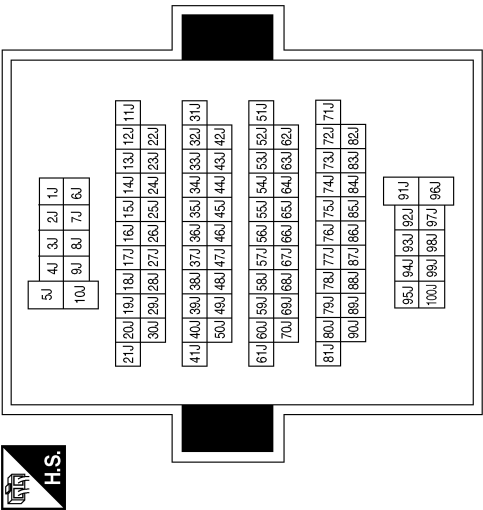
Connector No.	M43
Connector Name	JOINT CONNECTOR-M02
Connector Color	BLUE



Terminal No.	Color of Wire	Signal Name
1	L	-
2	L	-
3	L	-
5	L	-
11	P	-
12	P	-
13	P	-
15	P	-

Terminal No.	Color of Wire	Signal Name
61J	L	-
62J	P	-

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE

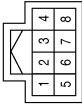


Connector No.	M65
Connector Name	JOINT CONNECTOR-M26
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	B	-
6	B	-

Connector No.	M56
Connector Name	STEERING ANGLE SENSOR
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
2	P	-
5	L	-

Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



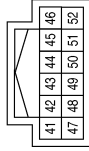
Terminal No.	Color of Wire	Signal Name
7P	Y	-

AAOIA0126GB

A
B
C
D
E
F
G
H
I
J
K
L
M
N
P

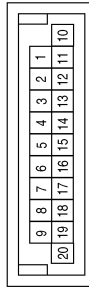
DAS

Connector No.	M77
Connector Name	COMBINATION METER
Connector Color	WHITE



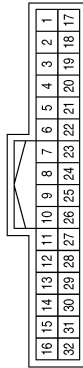
Terminal No.	Color of Wire	Signal Name
41	L	CAN-H
42	P	CAN-L

Connector No.	M71
Connector Name	JOINT CONNECTOR-M03
Connector Color	BLUE



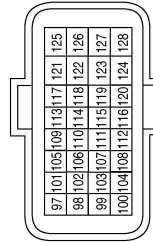
Terminal No.	Color of Wire	Signal Name
1	L	-
2	L	-
11	R	-
12	R	-

Connector No.	M69
Connector Name	WIRE TO WIRE
Connector Color	WHITE



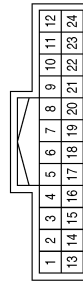
Terminal No.	Color of Wire	Signal Name
24	P	-
25	L	-

Connector No.	E16
Connector Name	ECM
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
99	P	CAN-L
100	L	CAN-H

Connector No.	M96
Connector Name	CHASSIS CONTROL UNIT
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
3	P	CAN-L
4	L	CAN-H
10	SB	IGN
12	B	GND

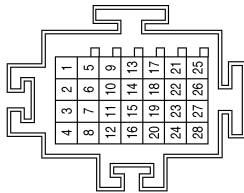
AAOIA0127GB

CHASSIS CONTROL

< WIRING DIAGRAM >

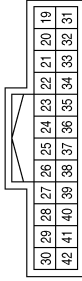
[CHASSIS CONTROL]

Connector No.	E44
Connector Name	JOINT CONNECTOR-E01
Connector Color	WHITE



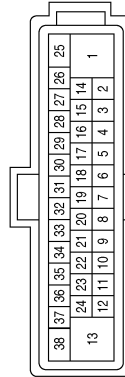
Terminal No.	Color of Wire	Signal Name
1	L	-
2	P	-
5	L	-
6	P	-
9	L	-
10	P	-
13	L	-
14	P	-
17	L	-
18	P	-

Connector No.	E120
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



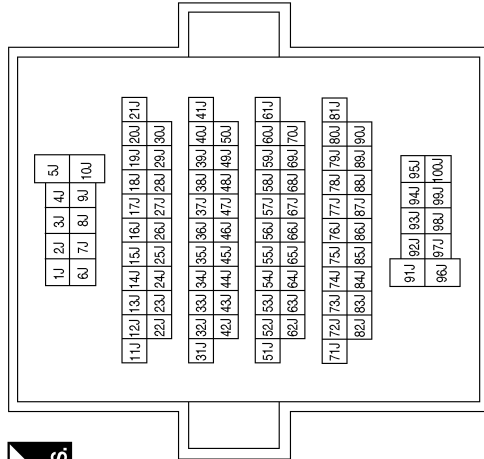
Terminal No.	Color of Wire	Signal Name
22	P	CAN-L
24	L	CAN-H
39	L	CAN-H
40	P	CAN-L

Connector No.	E125
Connector Name	ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
14	P	CAN-L
26	L	CAN-H

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
61J	L	-
62J	P	-

CHASSIS CONTROL

< WIRING DIAGRAM >

[CHASSIS CONTROL]

Connector No.	F42	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)	Connector No.	F75	TCM (TRANSMISSION CONTROL MODULE)	Connector No.	B16	BCM (BODY CONTROL MODULE)
Connector Name			Connector Name			Connector Name		
Connector Color	BLACK		Connector Color	BLACK		Connector Color	GREEN	

Terminal No.	Color of Wire	Signal Name
87	L	CAN-H
88	P	CAN-L

Terminal No.	Color of Wire	Signal Name
23	P	CAN-L
33	L	CAN-H

Terminal No.	Color of Wire	Signal Name
60	L	CAN-H
80	P	CAN-L

Connector No.	B41	WIRE TO WIRE	Connector No.	B63	JOINT CONNECTOR-B01	Connector No.	B16	BCM (BODY CONTROL MODULE)
Connector Name			Connector Name			Connector Name		
Connector Color	WHITE		Connector Color	GRAY		Connector Color	GREEN	

Terminal No.	Color of Wire	Signal Name
24	P	-
25	L	-

Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

AAOIA0141GB

BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

INFOID:0000000010227360

DETAILED FLOW

1. INTERVIEW FROM THE CUSTOMER

Clarify customer complaints before inspection. First of all, perform an interview utilizing [DAS-202. "Diagnostic Work Sheet"](#) and reproduce the symptom as well as fully understand it. Ask customer about his/her complaints carefully. Check symptoms by driving vehicle with customer, if necessary.

CAUTION:

Customers are not professional. Never guess easily like "maybe the customer means that..." or "maybe the customer mentions this symptom".

>> GO TO 2.

2. CHECK SYMPTOM

Reproduce the symptom that is indicated by the customer, based on the information from the customer obtained by the interview. Also check that the symptom is not caused by fail-safe mode. Refer to [DAS-191. "Fail-Safe \(Chassis Control Module\)"](#).

CAUTION:

When the symptom is caused by normal operation, fully inspect each portion and obtain the understanding of customer that the symptom is not caused by a malfunction.

>> GO TO 3.

3. PERFORM SELF-DIAGNOSIS

 With CONSULT

1. Perform "Self Diagnostic Result" for "CHASSIS CONTROL".

Is DTC detected?

YES >> Record or print self-diagnosis results and freeze frame data (FFD). GO TO 4.

NO >> Inspection End.

4. RECHECK THE SYMPTOM

 With CONSULT

Perform DTC confirmation procedures for the malfunctioning system.

NOTE:

If some DTCs are detected at the same time, determine the order for performing the diagnosis based on [DAS-193. "DTC Inspection Priority Chart"](#).

Is DTC detected?

YES >> GO TO 5.

NO >> Check harness and connectors based on the information obtained by the interview. Refer to [DAS-171. "Precautions for Harness Repair"](#).

5. REPAIR OR REPLACE MALFUNCTIONING PARTS

1. Repair or replace malfunctioning parts.
2. Reconnect part or connector after repairing or replacing.
3. When DTC is detected, erase "Self Diagnostic Result" for "CHASSIS CONTROL".

>> GO TO 6.

6. FINAL CHECK

 With CONSULT

1. Check the reference value for "CHASSIS CONTROL".
2. Recheck the symptom and check that the symptom is not reproduced on the same conditions.

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[CHASSIS CONTROL]

Is the symptom reproduced?

YES >> GO TO 3.

NO >> Inspection End.

Diagnostic Work Sheet

INFOID:0000000010227361

Description

- In general, customers have their own criteria for a symptom. Therefore, it is important to understand the symptom and status well enough by interviewing the customer about the symptom carefully. To systemize all the information for the diagnosis, prepare the interview sheet referring to the interview points.
- In some cases, multiple conditions that appear simultaneously may cause a DTC to be detected.

INTERVIEW SHEET SAMPLE

Interview sheet					
Customer name	MR/MS	Registration number		Initial year registration	
		Vehicle type		VIN	
Storage date		Engine, Traction motor		Mileage	km (Mile)
Symptom	☐ Does not operate () function				
	☐ Warning lamp for () turns ON.				
	☐ Noise ☐ Vibration				
	☐ Other ()				
First occurrence	☐ Recently ☐ Other ()				
Frequency of occurrence	☐ Always ☐ Under a certain conditions of ☐ Sometimes (time(s)/day)				
Climate conditions		☐ Irrelevant			
	Weather	☐ Fine ☐ Cloud ☐ Rain ☐ Snow ☐ Others ()			
	Temperature	☐ Hot ☐ Warm ☐ Cool ☐ Cold ☐ Temperature [Approx. °C (°F)]			
	Relative humidity	☐ High ☐ Moderate ☐ Low			
Road conditions	☐ Urban area ☐ Suburb area ☐ Highway ☐ Mountainous road (uphill or downhill) ☐ Rough road				
Operating condition, etc.	☐ Irrelevant ☐ When traction motor starts ☐ During idling ☐ During driving ☐ During acceleration ☐ At constant speed driving ☐ During deceleration ☐ During cornering (right curve or left curve) ☐ When steering wheel is steered (to right or to left)				
Other conditions					

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[CHASSIS CONTROL]

Interview sheet					
Customer name	MR/MS	Registration number		Initial year registration	
		Vehicle type		VIN	
Storage date		Engine, Trac-tion motor		Mileage	km (Mile)

Vehicle equipment

Memo

A
B
C
D
E
F
G
H
I
J
K
L
M
N
P

DAS

ADDITIONAL SERVICE WHEN REPLACING CHASSIS CONTROL MODULE

< BASIC INSPECTION >

[CHASSIS CONTROL]

ADDITIONAL SERVICE WHEN REPLACING CHASSIS CONTROL MODULE

Description

INFOID:0000000010227362

When replaced the chassis control module, configuration of the chassis control module is required. Refer to [DAS-205. "Work Procedure"](#).

CONFIGURATION (CHASSIS CONTROL MODULE)

< BASIC INSPECTION >

[CHASSIS CONTROL]

CONFIGURATION (CHASSIS CONTROL MODULE)

Work Procedure

INFOID:000000010227363

CAUTION:

- Use "Manual Configuration" only when "TYPE ID" of the chassis control module cannot be read.
- After configuration, turn the ignition switch from OFF to ON and check that the chassis control warning to information display of combination meter displays OFF after staying illuminated for approximately two seconds.
- If an error occurs during configuration, start over from the beginning.

1.CHECKING TYPE ID (1)

Use FAST (service parts catalogue) to search the chassis control module of the applicable vehicle and find "Type ID".

Is "Type ID" displayed?

YES >> Print out "Type ID" and GO TO 2.

NO >> "Configuration" is not required for the chassis control module. Replace in the usual manner. Refer to [DAS-277, "Removal and Installation"](#).

2.CHECKING TYPE ID (2)

CONSULT Configuration

1. Select "Before Replace ECU" of "Read/Write Configuration".
2. Check that "Type ID" is displayed on the CONSULT screen.

Is "Type ID" displayed?

YES >> GO TO 3.

NO >> GO TO 7.

3.VERIFYING TYPE ID (1)

CONSULT Configuration

Compare a "Type ID" displayed on the CONSULT screen with the one searched by using FAST (service parts catalogue) to check that these "Type ID" agree with each other.

NOTE:

For the "Type ID" searched by using FAST (service parts catalog), use the last five digits of the "Type ID".

>> GO TO 4.

4.SAVING TYPE ID

CONSULT Configuration

Save "Type ID" on CONSULT.

>> GO TO 5.

5.REPLACING CHASSIS CONTROL MODULE (1)

Replace the chassis control module. Refer to [DAS-277, "Removal and Installation"](#).

>> GO TO 6.

6.WRITING (AUTOMATIC WRITING)

CONSULT Configuration

1. Select "After Replace ECU" of "Re/programming, Configuration" or that of "Read / Write Configuration".
2. Select the "Type ID" agreeing with the one stored on CONSULT and the one searched by using FAST (service parts catalogue) to write the "Type ID" into the chassis control module.

NOTE:

For the "Type ID" searched by using FAST (service parts catalog), use the last five digits of the "Type ID".

>> GO TO 9.

7.REPLACING CHASSIS CONTROL MODULE (2)

CONFIGURATION (CHASSIS CONTROL MODULE)

< BASIC INSPECTION >

[CHASSIS CONTROL]

Replace the chassis control module. Refer to [DAS-277. "Removal and Installation"](#).

>> GO TO 8.

8. WRITING (MANUAL WRITING)

 CONSULT Configuration

1. Select "Manual Configuration".
2. Select the "Type ID" searched by using FAST (service parts catalogue) to write the "Type ID" into the chassis control module.

NOTE:

For the "Type ID" searched by using FAST (service parts catalog), use the last five digits of the "Type ID".

>> GO TO 9.

9. VERIFYING TYPE ID (2)

Compare "Type ID" written into the chassis control module with the one searched by using FAST (service parts catalogue) to check that these "Type ID" agree with each other.

NOTE:

For the "Type ID" searched by using FAST (service parts catalog), use the last five digits of the "Type ID".

>> GO TO 10.

10. CHECKING CHASSIS CONTROL WARNING

1. Turn the ignition switch OFF.
2. Turn the ignition switch ON and check that the chassis control warning to information display of combination meter displays OFF after staying illuminated for approximately two seconds.

CAUTION:

Never start the engine.

Is the inspection result normal?

YES >> GO TO 11.

NO >> Perform the "Self Diagnostic Result" of "CHASSIS CONTROL". Refer to [DAS-182. "CONSULT Function"](#).

11. PERFORMING SUPPLEMENTARY WORK

1. Perform the self-diagnosis of all systems.
2. Erase self-diagnosis results.

>> End of work.

C1B92-00 BRAKE CONTROL SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

[CHASSIS CONTROL]

DTC/CIRCUIT DIAGNOSIS

C1B92-00 BRAKE CONTROL SYSTEM

DTC Description

INFOID:0000000010227368

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1B92-00	BRAKE CONTROL SYSTEM (Brake control system)	When a malfunction is detected in ABS actuator and electric unit (control unit) system.

POSSIBLE CAUSE

- ABS actuator and electric unit (control unit) system
- Chassis control module

FAIL-SAFE

The following functions are suspended.

- Active Ride Control function
- Active Trace Control function
- Active Engine Brake function

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2.CHECK DTC DETECTION

 With CONSULT

1. Turn the ignition switch OFF to ON.

CAUTION:

Be sure to wait of 10 seconds after turning ignition switch OFF or ON.

2. Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "C1B92-01" detected?

YES >> Proceed to [DAS-207, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010227369

1.CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

 With CONSULT

Perform self-diagnosis for "ABS".

Is DTC detected?

YES >> Check the DTC. Refer to [BRC-55, "DTC Index"](#).

NO >> GO TO 2.

2.PERFORM SELF-DIAGNOSIS

 With CONSULT

1. Erase self-diagnosis result for "CHASSIS CONTROL".
2. Turn the ignition switch OFF and wait for 10 seconds or more.
3. Turn the ignition switch ON.
4. Perform "All DTC Reading".

Is DTC "C1B92", "U1000" or other DTC detected?

A

B

C

D

E

F

G

H

I

J

K

L

M

N

DAS

P

C1B92-00 BRAKE CONTROL SYSTEM

[CHASSIS CONTROL]

< DTC/CIRCUIT DIAGNOSIS >

YES ("C1B92-00")>>Replace the chassis control module. Refer to [DAS-277, "Removal and Installation"](#).
YES ("U1000-00")>>Refer to [DAS-251, "Diagnosis Procedure"](#).
YES (other DTC)>>Check the DTC.
NO >> INSPECTION END

C1B93-00 ENGINE/HEV SYSTEM

DTC Description

INFOID:0000000010227370

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1B93-00	ENGINE/HEV SYSTEM (Engine/HEV system)	When a malfunction is detected in ECM system.

POSSIBLE CAUSE

- Engine system
- ECM
- Chassis control module

FAIL-SAFE

The following functions are suspended.

- Active Ride Control (engine) function
- Active Trace Control function
- Active Engine Brake function

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2. CHECK DTC DETECTION

 With CONSULT

1. Turn the ignition switch OFF to ON.

CAUTION:

Be sure to wait of 10 seconds after turning ignition switch OFF or ON.

2. Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "C1B93-00" detected?

YES >> Proceed to [DAS-209, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010227371

1. CHECK ECM SYSTEM

 With CONSULT

Perform self-diagnosis for "ENGINE".

Is DTC detected?

YES >> Check the DTC. Refer to [EC-93, "DTC Index"](#).

NO >> GO TO 2.

2. PERFORM SELF-DIAGNOSIS

 With CONSULT

1. Erase self-diagnosis result for "CHASSIS CONTROL".
2. Turn the ignition switch OFF and wait for 10 seconds or more.
3. Turn the ignition switch ON.
4. Perform "All DTC Reading".

Is DTC "C1B93", "U1000" or other DTC detected?

YES ("C1B93-00") >> Replace the chassis control module. Refer to [DAS-277, "Removal and Installation"](#).

C1B93-00 ENGINE/HEV SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

[CHASSIS CONTROL]

YES ("U1000-00")>>Refer to [DAS-251, "Diagnosis Procedure"](#).

YES (other DTC)>>Check the DTC.

NO >> INSPECTION END

C1B94-00 TRANSMISSION SYSTEM

DTC Description

INFOID:000000010227372

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1B94-00	TM SYSTEM (Transmission system)	When a malfunction is detected in transmission system.

POSSIBLE CAUSE

- Transmission system
- TCM
- Chassis control module

FAIL-SAFE

The following functions are suspended.

- Active Ride Control (engine) function
- Active Trace Control function

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2. CHECK DTC DETECTION

 With CONSULT

1. Turn the ignition switch OFF to ON.

CAUTION:

Be sure to wait of 10 seconds after turning ignition switch OFF or ON.

2. Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "C1B94-00" detected?

YES >> Proceed to [DAS-211, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:000000010227373

1. CHECK TRANSMISSION SYSTEM

 With CONSULT

Perform self-diagnosis for "TRANSMISSION".

Is DTC detected?

YES >> Check the DTC. Refer to [TM-63, "DTC Index"](#).

NO >> GO TO 2.

2. PERFORM SELF-DIAGNOSIS

 With CONSULT

1. Erase self-diagnosis result for "CHASSIS CONTROL".
2. Turn the ignition switch OFF and wait for 10 seconds or more.
3. Turn the ignition switch ON.
4. Perform "All DTC Reading".

Is DTC "C1B94-00", "U1000-00" or other DTC detected?

YES ("C1B94-00") >> Replace the chassis control module. Refer to [DAS-277, "Removal and Installation"](#).

YES ("U1000-00") >> Refer to [DAS-251, "Diagnosis Procedure"](#).

C1B94-00 TRANSMISSION SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

[CHASSIS CONTROL]

YES (other DTC)>>Check the DTC.

NO >> INSPECTION END

C1B95-00 CONTROL MODULE

< DTC/CIRCUIT DIAGNOSIS >

[CHASSIS CONTROL]

C1B95-00 CONTROL MODULE

DTC Description

INFOID:0000000010227374

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1B95-00	CONTROL MODULE (Control module)	When a malfunction is detected in chassis control module.

POSSIBLE CAUSE

- Chassis control module

FAIL-SAFE

The following functions are suspended.

- Active Trace Control function
- Active Ride Control (brake) function

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2.CHECK DTC DETECTION

 With CONSULT

1. Turn the ignition switch OFF to ON.

CAUTION:

Be sure to wait of 10 seconds after turning ignition switch OFF or ON.

2. Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "C1B95-00" detected?

YES >> Proceed to [DAS-213. "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41. "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010227375

1.PERFORM SELF-DIAGNOSIS

 With CONSULT

1. Erase self-diagnosis result for "CHASSIS CONTROL".
2. Turn the ignition switch OFF and wait for 10 seconds or more.
3. Turn the ignition switch ON.
4. Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "C1B95" detected?

YES >> Replace the chassis control module. Refer to [DAS-277. "Removal and Installation"](#).

NO >> INSPECTION END

A
B
C
D
E
F
G
H
I
J
K
L
M
N
P

DAS

C1B99-00 CONTROL MODULE

DTC Description

INFOID:0000000010227380

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1B99-00	CONTROL MODULE (Control module)	When a malfunction is detected in chassis control module.

POSSIBLE CAUSE

- Chassis control module

FAIL-SAFE

The following functions are suspended.

- Active Ride Control function
- Active Trace Control function
- Active Engine Brake function

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2. CHECK DTC DETECTION

 With CONSULT

1. Turn the ignition switch OFF to ON.

CAUTION:

Be sure to wait of 10 seconds after turning ignition switch OFF or ON.

2. Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "C1B99-00" detected?

YES >> Proceed to [DAS-214, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010227381

1. PERFORM SELF-DIAGNOSIS

 With CONSULT

1. Erase self-diagnosis result for "CHASSIS CONTROL".
2. Turn the ignition switch OFF and wait for 10 seconds or more.
3. Turn the ignition switch ON.
4. Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "C1B99" detected?

YES >> Replace the chassis control module. Refer to [DAS-277, "Removal and Installation"](#).

NO >> INSPECTION END

C1BA0-00 ADAS/CHASSIS CONTROL BRAKE SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

[CHASSIS CONTROL]

C1BA0-00 ADAS/CHASSIS CONTROL BRAKE SYSTEM

DTC Description

INFOID:0000000010227382

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1BA0-00	ADAS/CHASSIS CTRL BRAKE SYS (ADAS/Chassis Control brake system)	When receiving from ABS actuator and electric unit (control unit) that the value of the brake system signal transmitted from the chassis control module to ABS actuator and electric unit (control unit) is malfunctioning.

POSSIBLE CAUSE

- ABS actuator and electric unit (control unit)
- Chassis control module

FAIL-SAFE

The following functions are suspended.

- Active Trace Control function
- Active Ride Control (brake) function

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2. CHECK DTC DETECTION

 With CONSULT

1. Turn the ignition switch OFF to ON.

CAUTION:

Be sure to wait of 10 seconds after turning ignition switch OFF or ON.

2. Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "C1BA0-00" and/or "C1BA7-00" detected?

YES ("C1BA0-00") >> Proceed to [DAS-215, "Diagnosis Procedure"](#).

YES ("C1BA0-00" and "C1BA7-00") >> Perform self-diagnosis for "ICC/ADAS".

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010227383

1. CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SYSTEM

 With CONSULT

Perform self-diagnosis for "ABS".

Is DTC detected?

YES >> Check the DTC. Refer to [BRC-55, "DTC Index"](#).

NO >> GO TO 2.

2. PERFORM SELF-DIAGNOSIS

 With CONSULT

1. Erase self-diagnosis result for "CHASSIS CONTROL".
2. Turn the ignition switch OFF and wait for 10 seconds or more.
3. Turn the ignition switch ON.
4. Perform "All DTC Reading".

Is DTC "C1BA0-00", "U1000-00" or other DTC detected?

C1BA0-00 ADAS/CHASSIS CONTROL BRAKE SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

[CHASSIS CONTROL]

YES ("C1BA0-00")>>Replace the chassis control module. Refer to [DAS-277, "Removal and Installation"](#).

YES ("U1000-00")>>Refer to [DAS-251, "Diagnosis Procedure"](#).

YES (other DTC)>>Check the DTC.

NO >> INSPECTION END

C1BA2-00 STEERING ANGLE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[CHASSIS CONTROL]

C1BA2-00 STEERING ANGLE SENSOR

DTC Description

INFOID:0000000010227384

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1BA2-00	STEERING ANGLE SENSOR (Steering angle sensor)	When a malfunction is detected in steering angle sensor system.

POSSIBLE CAUSE

- Steering angle sensor
- Chassis control module

FAIL-SAFE

The following functions are suspended.

- Active Ride Control (engine) function
- Active Trace Control function

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2.CHECK DTC DETECTION

① With CONSULT

1. Turn the ignition switch OFF to ON.

CAUTION:

Be sure to wait of 10 seconds after turning ignition switch OFF or ON.

2. Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "C1BA2-00" detected?

YES >> Proceed to [DAS-217, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010227385

1.CHECK STEERING ANGLE SENSOR SYSTEM

① With CONSULT

Perform self-diagnosis for "ABS".

Is DTC detected?

YES >> Check the DTC. Refer to [BRC-55, "DTC Index"](#).

NO >> GO TO 2.

2.PERFORM SELF-DIAGNOSIS

① With CONSULT

1. Erase self-diagnosis result for "CHASSIS CONTROL".
2. Turn the ignition switch OFF and wait for 10 seconds or more.
3. Turn the ignition switch ON.
4. Perform "All DTC Reading".

Is DTC "C1BA2-00", "U1000-00" or other DTC detected?

YES ("C1BA2-00")>>Replace the chassis control module. Refer to [DAS-277, "Removal and Installation"](#).

YES ("U1000-00")>>Refer to [DAS-251, "Diagnosis Procedure"](#).

YES (other DTC)>>Check the DTC.

C1BA2-00 STEERING ANGLE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[CHASSIS CONTROL]

NO >> INSPECTION END

C1BA5-00 ADAS/CHASSIS CONTROL ENGINE SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

[CHASSIS CONTROL]

C1BA5-00 ADAS/CHASSIS CONTROL ENGINE SYSTEM

DTC Description

INFOID:0000000010227386

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1BA5-00	ADAS/CHASSIS CTRL ENGINE SYS (ADAS/Chassis control engine system)	When receiving from ECM that the value of the engine system signal transmitted from the chassis control module to ECM is malfunctioning.

POSSIBLE CAUSE

- Chassis Control Module

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2.CHECK DTC DETECTION

 With CONSULT

- Turn the ignition switch OFF to ON.

CAUTION:

Be sure to wait of 10 seconds after turning ignition switch OFF or ON.

- Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "C1BA5-00" detected?

YES >> Proceed to [DAS-219, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010227387

1.CHECK ADAS CONTROL UNIT SYSTEM

 With CONSULT

Perform self-diagnosis for "ECM".

Is DTC detected?

YES >> Check the DTC. Refer to [EC-93, "DTC Index"](#).

NO >> GO TO 2.

2.PERFORM SELF-DIAGNOSIS

 With CONSULT

- Erase self-diagnosis result for "CHASSIS CONTROL".
- Turn the ignition switch OFF and wait for 10 seconds or more.
- Turn the ignition switch ON.
- Perform "All DTC Reading".

Is DTC "C1BA5-00", "U1000-00" or other DTC detected?

YES ("C1BA5-00")>>Replace the chassis control module. Refer to [DAS-277, "Removal and Installation"](#).

YES ("U1000-00")>>Refer to [DAS-251, "Diagnosis Procedure"](#).

YES (other DTC)>>Check the DTC.

NO >> INSPECTION END

C1BAB-00 STOP LAMP SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[CHASSIS CONTROL]

C1BAB-00 STOP LAMP SWITCH

DTC Description

INFOID:0000000010227396

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1BAB-00	STOP LAMP SW (Stop lamp switch)	When a malfunction is detected in stop lamp switch system.

POSSIBLE CAUSE

- Stop lamp switch
- BCM
- Chassis Control Module

FAIL-SAFE

The following functions are suspended.

- Active Ride Control (engine) function
- Active Trace Control function

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If “DTC CONFIRMATION PROCEDURE” has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2.CHECK DTC DETECTION

 With CONSULT

1. Turn the ignition switch OFF to ON.

CAUTION:

Be sure to wait of 10 seconds after turning ignition switch OFF or ON.

2. Perform self-diagnosis for “CHASSIS CONTROL”.

Is DTC “C1BAB-00” detected?

YES >> Proceed to [DAS-220, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010227397

1.CHECK STOP LAMP SWITCH SYSTEM

 With CONSULT

Perform self-diagnosis for “BCM”.

Is DTC detected?

YES >> Check the DTC. Refer to [BCS-48, "DTC Index"](#) (with Intelligent Key) or [BCS-108, "DTC Index"](#) (without Intelligent Key).

NO >> GO TO 2.

2.PERFORM SELF-DIAGNOSIS

 With CONSULT

1. Erase self-diagnosis result for “CHASSIS CONTROL”.
2. Turn the ignition switch OFF and wait for 10 seconds or more.
3. Turn the ignition switch ON.
4. Perform “All DTC Reading”.

Is DTC “C1BAB”, “U1000-00” or other DTC detected?

YES (“C1BAB-00”)>>Replace the chassis control module. Refer to [DAS-277, "Removal and Installation"](#).

C1BAB-00 STOP LAMP SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[CHASSIS CONTROL]

YES ("U1000-00")>>Refer to [DAS-251, "Diagnosis Procedure"](#).
YES (other DTC)>>Check the DTC.
NO >> INSPECTION END

A
B
C
D
E
F
G
H
I
J
K
L
M
N
P

DAS

C1BB2-00 CONTROL MODULE

DTC Description

INFOID:0000000010227408

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1BB2-00	CONTROL MODULE (Control module)	When a malfunction is detected in chassis control module.

POSSIBLE CAUSE

- Chassis control module

FAIL-SAFE

The following functions are suspended.

- Active Trace Control function
- Active Ride Control function
- Active Engine Brake function

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2. CHECK DTC DETECTION

 With CONSULT

1. Turn the ignition switch OFF to ON.

CAUTION:

Be sure to wait of 10 seconds after turning ignition switch OFF or ON.

2. Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "C1BB2-00" detected?

YES >> Proceed to [DAS-222, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010227409

1. PERFORM SELF-DIAGNOSIS

 With CONSULT

1. Erase self-diagnosis result for "CHASSIS CONTROL".
2. Turn the ignition switch OFF and wait for 10 seconds or more.
3. Turn the ignition switch ON.
4. Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "C1BB2-00" detected?

YES >> Replace the chassis control module. Refer to [DAS-277, "Removal and Installation"](#).

NO >> INSPECTION END

C1BB3-00 CONTROL MODULE

DTC Description

INFOID:0000000010227410

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1BB3-00	CONTROL MODULE (Control module)	When a malfunction is detected in chassis control module.

POSSIBLE CAUSE

- Chassis control module

FAIL-SAFE

The following functions are suspended.

- Active Trace Control function
- Active Ride Control function
- Active Engine Brake function

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2. CHECK DTC DETECTION

 With CONSULT

1. Turn the ignition switch OFF to ON.

CAUTION:

Be sure to wait of 10 seconds after turning ignition switch OFF or ON.

2. Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "C1BB3-00" detected?

YES >> Proceed to [DAS-223, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010227411

1. PERFORM SELF-DIAGNOSIS

 With CONSULT

1. Erase self-diagnosis result for "CHASSIS CONTROL".
2. Turn the ignition switch OFF and wait for 10 seconds or more.
3. Turn the ignition switch ON.
4. Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "C1BB3-00" detected?

YES >> Replace the chassis control module. Refer to [DAS-277, "Removal and Installation"](#).

NO >> INSPECTION END

C1BB4-00 CONTROL MODULE

DTC Description

INFOID:0000000010227412

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1BB4-00	CONTROL MODULE (Control module)	When a malfunction is detected in chassis control module.

POSSIBLE CAUSE

- Chassis control module

FAIL-SAFE

The following functions are suspended.

- Active Trace Control function
- Active Ride Control function
- Active Engine Brake function

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2. CHECK DTC DETECTION

 With CONSULT

1. Turn the ignition switch OFF to ON.

CAUTION:

Be sure to wait of 10 seconds after turning ignition switch OFF or ON.

2. Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "C1BB4-00" detected?

YES >> Proceed to [DAS-224, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010227413

1. PERFORM SELF-DIAGNOSIS

 With CONSULT

1. Erase self-diagnosis result for "CHASSIS CONTROL".
2. Turn the ignition switch OFF and wait for 10 seconds or more.
3. Turn the ignition switch ON.
4. Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "C1BB4-00" detected?

YES >> Replace the chassis control module. Refer to [DAS-277, "Removal and Installation"](#).

NO >> INSPECTION END

C1BB5-00 IGNITION POWER SUPPLY

< DTC/CIRCUIT DIAGNOSIS >

[CHASSIS CONTROL]

C1BB5-00 IGNITION POWER SUPPLY

DTC Description

INFOID:0000000010227414

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1BB5-00	IGN POWER SUPPLY (Ignition power supply)	Ignition power supply voltage of chassis control module is as shown below. Ignition power supply voltage: $6.4\text{ V} \geq \text{Ignition power supply voltage}$

POSSIBLE CAUSE

- Harness or connector
- Fuse
- Ignition power supply system
- Battery
- Chassis control module

FAIL-SAFE

The following functions are suspended.

- Active Trace Control function
- Active Ride Control function
- Active Engine Brake function

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2. CHECK DTC DETECTION

 With CONSULT

1. Turn the ignition switch OFF to ON.

CAUTION:

Be sure to wait of 10 seconds after turning ignition switch OFF or ON.

2. Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "C1BB5-00" detected?

YES >> Proceed to [DAS-225, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000010227415

Regarding Wiring Diagram information, refer to [DAS-195, "Wiring Diagram"](#).

1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect chassis control module harness connector
3. Check the connector for disconnection or looseness.
4. Check the pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace error-detected parts, securely lock the harness connector, and GO TO 2.

2. PERFORM DELF-DIAGNOSIS (1)

C1BB5-00 IGNITION POWER SUPPLY

< DTC/CIRCUIT DIAGNOSIS >

[CHASSIS CONTROL]

1. Connect chassis control module harness connector.
2. Perform "Self Diagnostic Result" for "CHASSIS CONTROL".

Is DTC "C1BB5-00" detected?

YES >> GO TO 3.
NO >> Inspection End.

3.CHECK CHASSIS CONTROL MODULE IGNITION POWER SUPPLY (1)

1. Turn the ignition switch OFF.
2. Disconnect chassis control module harness connector.
3. Check the voltage between chassis control module harness connector and ground.

Chassis control module		—	Voltage (Approx.)
Connector	Terminal		
M96	10	Ground	0 V

4. Turn the ignition switch ON.
CAUTION:
Never start engine.
5. Check the voltage between chassis control module harness connector and ground.

Chassis control module		—	Voltage (Approx.)
Connector	Terminal		
M96	10	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 5.
NO >> GO TO 4.

4.CHECK CHASSIS CONTROL MODULE IGNITION POWER SUPPLY CIRCUIT

1. Turn the ignition switch OFF.
2. Check the 10A fuse (#30).
3. Check the continuity and for short circuit between chassis control module harness connector terminal (10) and 10A fuse (#30).
4. Check the continuity between chassis control module harness connector and the ground.

Chassis control module		—	Continuity
Connector	Terminal		
M96	10	Ground	No

Is the inspection result normal?

YES >> Perform trouble diagnosis for ignition power supply.
NO >> Repair or replace malfunctioning parts.

5.CHECK CHASSIS CONTROL MODULE GROUND CIRCUIT

1. Turn the ignition switch OFF.
2. Check the continuity between chassis control module harness connector and ground.

Chassis control module		—	Continuity
Connector	Terminal		
M96	12	Ground	Yes

Is the inspection result normal?

YES >> GO TO 6.
NO >> Repair or replace malfunctioning parts.

6.PERFORM SELF-DIAGNOSIS (2)

1. Connect chassis control module harness connector.
2. Perform "Self Diagnostic Result" for "CHASSIS CONTROL".

C1BB5-00 IGNITION POWER SUPPLY

< DTC/CIRCUIT DIAGNOSIS >

[CHASSIS CONTROL]

Is DTC "C1BB5-00" detected?

- YES >> Replace the chassis control module. Refer to [DAS-277, "Removal and Installation"](#).
- NO >> Inspection End.

A
B
C
D
E
F
G
H
I
J
K
L
M
N
P

DAS

C1BB6-00 IGNITION POWER SUPPLY

< DTC/CIRCUIT DIAGNOSIS >

[CHASSIS CONTROL]

C1BB6-00 IGNITION POWER SUPPLY

DTC Description

INFOID:0000000010227416

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1BB6-00	IGNITION POWER SUPPLY (ignition power supply)	Ignition power supply voltage of chassis control module is as shown below. Ignition power supply voltage: $16\text{ V} \leq \text{Ignition power supply voltage}$

POSSIBLE CAUSE

- Harness or connector
- Fuse
- Ignition power supply system
- Battery
- Chassis control module

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2. CHECK DTC DETECTION

 With CONSULT

1. Turn the ignition switch OFF to ON.

CAUTION:

Be sure to wait of 10 seconds after turning ignition switch OFF or ON.

2. Perform "Self Diagnostic Result" for "CHASSIS CONTROL".

Is DTC "C1BB6-00" detected?

- YES >> Proceed to [DAS-228, "Diagnosis Procedure"](#).
NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).
NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000010227417

Regarding Wiring Diagram information, refer to [DAS-195, "Wiring Diagram"](#).

1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect chassis control module harness connector
3. Check the connector for disconnection or looseness.
4. Check the pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace the malfunctioning parts, securely lock the harness connector, and GO TO 2.

2. PERFORM SELF-DIAGNOSIS (1)

1. Connect chassis control module harness connector.
2. Perform "Self Diagnostic Result" for "CHASSIS CONTROL".

Is DTC "C1BB6-00" detected?

- YES >> GO TO 3.
NO >> Inspection End.

C1BB6-00 IGNITION POWER SUPPLY

< DTC/CIRCUIT DIAGNOSIS >

[CHASSIS CONTROL]

3.CHECK CHASSIS CONTROL MODULE IGNITION POWER SUPPLY (1)

1. Turn the ignition switch OFF.
2. Disconnect chassis control module harness connector.
3. Check the voltage between chassis control module harness connector and ground.

Chassis control module		—	Voltage (Approx.)
Connector	Terminal		
M96	10	Ground	0 V

4. Turn the ignition switch ON.
CAUTION:
Never start engine.
5. Check the voltage between chassis control module harness connector and ground.

Chassis control module		—	Voltage (Approx.)
Connector	Terminal		
M96	10	Ground	Battery voltage

Is the inspection result normal?

- YES >> GO TO 5.
NO >> GO TO 4.

4.CHECK CHASSIS CONTROL MODULE IGNITION POWER SUPPLY CIRCUIT

1. Turn the ignition switch OFF.
2. Check the 10A fuse (#30).
3. Check the continuity and for short circuit between chassis control module harness connector terminal (10) and 10A fuse (#30).
4. Check the continuity between chassis control module harness connector and the ground.

Chassis control module		—	Continuity
Connector	Terminal		
M96	10	Ground	No

Is the inspection result normal?

- YES >> Perform trouble diagnosis for ignition power supply.
NO >> Repair or replace the malfunctioning parts.

5.CHECK CHASSIS CONTROL MODULE GROUND CIRCUIT

1. Turn the ignition switch OFF.
2. Check the continuity between chassis control module harness connector and ground.

Chassis control module		—	Continuity
Connector	Terminal		
M96	12	Ground	Yes

Is the inspection result normal?

- YES >> GO TO 6.
NO >> Repair or replace the malfunctioning parts.

6.PERFORM DELF-DIAGNOSIS (1)

1. Connect chassis control module harness connector.
2. Perform "Self Diagnostic Result" for "CHASSIS CONTROL".

Is DTC "C1BB6-00" detected?

- YES >> Replace the chassis control module. Refer to [DAS-277, "Removal and Installation"](#).
NO >> Inspection End.

C1BB7-00 CONTROL MODULE

DTC Description

INFOID:0000000010227418

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1BB7-00	CONTROL MODULE (Control module)	When a malfunction is detected in chassis control module.

POSSIBLE CAUSE

- Chassis control module

FAIL-SAFE

The following functions are suspended.

- Active Trace Control function
- Active Ride Control function
- Active Engine Brake function

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2. CHECK DTC DETECTION

 With CONSULT

1. Turn the ignition switch OFF to ON.

CAUTION:

Be sure to wait of 10 seconds after turning ignition switch OFF or ON.

2. Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "C1BB7-00" detected?

YES >> Proceed to [DAS-230, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010227419

1. PERFORM SELF-DIAGNOSIS

 With CONSULT

1. Erase self-diagnosis result for "CHASSIS CONTROL".
2. Turn the ignition switch OFF and wait for 10 seconds or more.
3. Turn the ignition switch ON.
4. Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "C1BB7-00" detected?

YES >> Replace the chassis control module. Refer to [DAS-277, "Removal and Installation"](#).

NO >> INSPECTION END

C1BB8-00 CONTROL MODULE

DTC Description

INFOID:000000010227420

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1BB8-00	CONTROL MODULE (Control module)	When a malfunction is detected in chassis control module.

POSSIBLE CAUSE

- Chassis control module

FAIL-SAFE

The following functions are suspended.

- Active Trace Control function
- Active Ride Control function
- Active Engine Brake function

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2. CHECK DTC DETECTION

 With CONSULT

1. Turn the ignition switch OFF to ON.

CAUTION:

Be sure to wait of 10 seconds after turning ignition switch OFF or ON.

2. Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "C1BB8-00" detected?

YES >> Proceed to [DAS-231, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:000000010227421

1. PERFORM SELF-DIAGNOSIS

 With CONSULT

1. Erase self-diagnosis result for "CHASSIS CONTROL".
2. Turn the ignition switch OFF and wait for 10 seconds or more.
3. Turn the ignition switch ON.
4. Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "C1BB8-00" detected?

YES >> Replace the chassis control module. Refer to [DAS-277, "Removal and Installation"](#).

NO >> INSPECTION END

C1BB9-00 CONTROL MODULE

DTC Description

INFOID:0000000010227422

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1BB9-00	CONTROL MODULE (Control module)	When a malfunction is detected in chassis control module.

POSSIBLE CAUSE

- Chassis control module

FAIL-SAFE

The following functions are suspended.

- Active Trace Control function
- Active Ride Control function
- Active Engine Brake function

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2. CHECK DTC DETECTION

 With CONSULT

1. Turn the ignition switch OFF to ON.

CAUTION:

Be sure to wait of 10 seconds after turning ignition switch OFF or ON.

2. Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "C1BB9-00" detected?

YES >> Proceed to [DAS-232, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010227423

1. PERFORM SELF-DIAGNOSIS

 With CONSULT

1. Erase self-diagnosis result for "CHASSIS CONTROL".
2. Turn the ignition switch OFF and wait for 10 seconds or more.
3. Turn the ignition switch ON.
4. Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "C1BB9-00" detected?

YES >> Replace the chassis control module. Refer to [DAS-277, "Removal and Installation"](#).

NO >> INSPECTION END

C1BBA-00 CONTROL MODULE

DTC Description

INFOID:000000010227424

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1BBA-00	CONTROL MODULE (Control module)	When a malfunction is detected in chassis control module.

POSSIBLE CAUSE

- Chassis control module

FAIL-SAFE

The following functions are suspended.

- Active Trace Control function
- Active Ride Control function
- Active Engine Brake function

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2. CHECK DTC DETECTION

 With CONSULT

1. Turn the ignition switch OFF to ON.

CAUTION:

Be sure to wait of 10 seconds after turning ignition switch OFF or ON.

2. Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "C1BBA-00" detected?

YES >> Proceed to [DAS-233, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:000000010227425

1. PERFORM SELF-DIAGNOSIS

 With CONSULT

1. Erase self-diagnosis result for "CHASSIS CONTROL".
2. Turn the ignition switch OFF and wait for 10 seconds or more.
3. Turn the ignition switch ON.
4. Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "C1BBA-00" detected?

YES >> Replace the chassis control module. Refer to [DAS-277, "Removal and Installation"](#).

NO >> INSPECTION END

C1BBB-00 CONTROL MODULE

DTC Description

INFOID:0000000010227426

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1BBB-00	CONTROL MODULE (Control module)	When a malfunction is detected in chassis control module.

POSSIBLE CAUSE

- Chassis control module

FAIL-SAFE

The following functions are suspended.

- Active Trace Control function
- Active Ride Control function
- Active Engine Brake function

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2. CHECK DTC DETECTION

 With CONSULT

1. Turn the ignition switch OFF to ON.

CAUTION:

Be sure to wait of 10 seconds after turning ignition switch OFF or ON.

2. Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "C1BBB-00" detected?

YES >> Proceed to [DAS-234, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010227427

1. PERFORM SELF-DIAGNOSIS

 With CONSULT

1. Erase self-diagnosis result for "CHASSIS CONTROL".
2. Turn the ignition switch OFF and wait for 10 seconds or more.
3. Turn the ignition switch ON.
4. Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "C1BBB-00" detected?

YES >> Replace the chassis control module. Refer to [DAS-277, "Removal and Installation"](#).

NO >> INSPECTION END

C1BBC-00 CONTROL MODULE

DTC Description

INFOID:0000000010227428

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1BBC-00	CONTROL MODULE (Control module)	When a malfunction is detected in chassis control module.

POSSIBLE CAUSE

- Chassis control module

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2. CHECK DTC DETECTION

 With CONSULT

1. Turn the ignition switch OFF to ON.

CAUTION:

Be sure to wait of 10 seconds after turning ignition switch OFF or ON.

2. Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "C1BBC-00" detected?

YES >> Proceed to [DAS-235, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010227429

1. PERFORM SELF-DIAGNOSIS

 With CONSULT

1. Erase self-diagnosis result for "CHASSIS CONTROL".
2. Turn the ignition switch OFF and wait for 10 seconds or more.
3. Turn the ignition switch ON.
4. Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "C1BBC-00" detected?

YES >> Replace the chassis control module. Refer to [DAS-277, "Removal and Installation"](#).

NO >> INSPECTION END

C1BBD-00 VARIANT CODING

DTC Description

INFOID:0000000010227430

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1BBD-00	VARIANT CODING (Variant coding)	When variant coding is incomplete.

POSSIBLE CAUSE

- Chassis control module

FAIL-SAFE

The following functions are suspended.

- Active Trace Control function
- Active Ride Control function
- Active Engine Brake function

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2. CHECK DTC DETECTION

 With CONSULT

1. Turn the ignition switch OFF to ON.

CAUTION:

Be sure to wait of 10 seconds after turning ignition switch OFF or ON.

2. Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "C1BBD-00" detected?

YES >> Proceed to [DAS-236, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010227431

1. PERFORM SELF-DIAGNOSIS

 With CONSULT

1. Erase self-diagnosis result for "CHASSIS CONTROL".
2. Turn the ignition switch OFF and wait for 10 seconds or more.
3. Turn the ignition switch ON.
4. Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "C1BBD-00" detected?

YES >> Perform configuration. Refer to [DAS-205, "Work Procedure"](#).

NO >> INSPECTION END

C1BC0-00 FRONT RIGHT WHEEL SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[CHASSIS CONTROL]

C1BC0-00 FRONT RIGHT WHEEL SENSOR

DTC Description

INFOID:0000000010227432

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1BC0-00	FR WHEEL SENSOR (Front right wheel sensor)	When a malfunction is detected in front right wheel sensor system.

POSSIBLE CAUSE

- Front right wheel sensor
- Front right sensor rotor
- ABS actuator and electric unit (control unit)
- Chassis control module

FAIL-SAFE

The following functions are suspended.

- Active Trace Control function
- Active Ride Control function

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2.CHECK DTC DETECTION

 With CONSULT

1. Start the engine.
2. Drive the vehicle at approx. 30 km/h (19 MPH) or more for approx. 1 minute.
3. Stop the vehicle.
4. Turn the ignition switch OFF to ON.

CAUTION:

Be sure to wait of 10 seconds after turning ignition switch OFF or ON.

5. Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "C1BC0-00" detected?

YES >> Proceed to [DAS-237, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010227433

1.CHECK FRONT RH WHEEL SENSOR SYSTEM

 With CONSULT

Perform self-diagnosis for "ABS".

Is DTC detected?

YES >> Check the DTC. Refer to [BRC-55, "DTC Index"](#).

NO >> GO TO 2.

2.PERFORM SELF-DIAGNOSIS

 With CONSULT

1. Erase self-diagnosis result for "CHASSIS CONTROL".
2. Turn the ignition switch OFF and wait for 10 seconds or more.
3. Turn the ignition switch ON.

C1BC0-00 FRONT RIGHT WHEEL SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[CHASSIS CONTROL]

4. Perform "All DTC Reading".

Is DTC "C1BC0-00", "U1000-00" or other DTC detected?

YES ("C1BC0-00")>>Replace the chassis control module. Refer to [DAS-277. "Removal and Installation"](#).

YES ("U1000-00")>>Refer to [DAS-251. "Diagnosis Procedure"](#).

YES (other DTC)>>Check the DTC.

NO >> INSPECTION END

C1BC1-00 FRONT LEFT WHEEL SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[CHASSIS CONTROL]

C1BC1-00 FRONT LEFT WHEEL SENSOR

DTC Description

INFOID:0000000010227434

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1BC1-00	FL WHEEL SENSOR (Front left wheel sensor)	When a malfunction is detected in front left wheel sensor system.

POSSIBLE CAUSE

- Front left wheel sensor
- Front left sensor rotor
- ABS actuator and electric unit (control unit)
- Chassis control module

FAIL-SAFE

The following functions are suspended.

- Active Trace Control function
- Active Ride Control function

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2.CHECK DTC DETECTION

 With CONSULT

1. Start the engine.
2. Drive the vehicle at approx. 30 km/h (19 MPH) or more for approx. 1 minute.
3. Stop the vehicle.
4. Turn the ignition switch OFF to ON.

CAUTION:

Be sure to wait of 10 seconds after turning ignition switch OFF or ON.

5. Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "C1BC1-00" detected?

- YES >> Proceed to [DAS-239, "Diagnosis Procedure"](#).
NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010227435

1.CHECK FRONT LH WHEEL SENSOR SYSTEM

 With CONSULT

Perform self-diagnosis for "ABS".

Is DTC detected?

- YES >> Check the DTC. Refer to [BRC-55, "DTC Index"](#).
NO >> GO TO 2.

2.PERFORM SELF-DIAGNOSIS

 With CONSULT

1. Erase self-diagnosis result for "CHASSIS CONTROL".
2. Turn the ignition switch OFF and wait for 10 seconds or more.
3. Turn the ignition switch ON.

A

B

C

D

E

F

G

H

I

J

K

L

M

N

DAS

P

C1BC1-00 FRONT LEFT WHEEL SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[CHASSIS CONTROL]

4. Perform "All DTC Reading".

Is DTC "C1BC1-00", "U1000-00" or other DTC detected?

YES ("C1BC1-00")>>Replace the chassis control module. Refer to [DAS-277. "Removal and Installation"](#).

YES ("U1000-00")>>Refer to [DAS-251. "Diagnosis Procedure"](#).

YES (other DTC)>>Check the DTC.

NO >> INSPECTION END

C1BC2-00 REAR RIGHT WHEEL SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[CHASSIS CONTROL]

C1BC2-00 REAR RIGHT WHEEL SENSOR

DTC Description

INFOID:0000000010227436

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1BC2-00	RR WHEEL SENSOR (Rear right wheel sensor)	When a malfunction is detected in rear right wheel sensor system.

POSSIBLE CAUSE

- Rear right wheel sensor
- Rear right sensor rotor
- ABS actuator and electric unit (control unit)
- Chassis control module

FAIL-SAFE

The following functions are suspended.

- Active Trace Control function
- Active Ride Control function

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2.CHECK DTC DETECTION

 With CONSULT

1. Start the engine.
2. Drive the vehicle at approx. 30 km/h (19 MPH) or more for approx. 1 minute.
3. Stop the vehicle.
4. Turn the ignition switch OFF to ON.

CAUTION:

Be sure to wait of 10 seconds after turning ignition switch OFF or ON.

5. Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "C1BC2-00" detected?

- YES >> Proceed to [DAS-241, "Diagnosis Procedure"](#).
NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010227437

1.CHECK REAR RH WHEEL SENSOR SYSTEM

 With CONSULT

Perform self-diagnosis for "ABS".

Is DTC detected?

- YES >> Check the DTC. Refer to [BRC-55, "DTC Index"](#).
NO >> GO TO 2.

2.PERFORM SELF-DIAGNOSIS

 With CONSULT

1. Erase self-diagnosis result for "CHASSIS CONTROL".
2. Turn the ignition switch OFF and wait for 10 seconds or more.
3. Turn the ignition switch ON.

A

B

C

D

E

F

G

H

I

J

K

L

M

N

DAS

P

C1BC2-00 REAR RIGHT WHEEL SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[CHASSIS CONTROL]

4. Perform "All DTC Reading".

Is DTC "C1BC2-00", "U1000-00" or other DTC detected?

YES ("C1BC2-00")>>Replace the chassis control module. Refer to [DAS-277. "Removal and Installation"](#).

YES ("U1000-00")>>Refer to [DAS-251. "Diagnosis Procedure"](#).

YES (other DTC)>>Check the DTC.

NO >> INSPECTION END

C1BC3-00 REAR LEFT WHEEL SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[CHASSIS CONTROL]

C1BC3-00 REAR LEFT WHEEL SENSOR

DTC Description

INFOID:0000000010227438

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1BC3-00	RL WHEEL SENSOR (Rear left wheel sensor)	When a malfunction is detected in rear left wheel sensor system.

POSSIBLE CAUSE

- Rear left wheel sensor
- Rear left sensor rotor
- ABS actuator and electric unit (control unit)
- Chassis control module

FAIL-SAFE

The following functions are suspended.

- Active Trace Control function
- Active Ride Control function

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2.CHECK DTC DETECTION

 With CONSULT

1. Start the engine.
2. Drive the vehicle at approx. 30 km/h (19 MPH) or more for approx. 1 minute.
3. Stop the vehicle.
4. Turn the ignition switch OFF to ON.

CAUTION:

Be sure to wait of 10 seconds after turning ignition switch OFF or ON.

5. Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "C1BC3-00" detected?

- YES >> Proceed to [DAS-243, "Diagnosis Procedure"](#).
NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010227439

1.CHECK REAR LH WHEEL SENSOR SYSTEM

 With CONSULT

Perform self-diagnosis for "ABS".

Is DTC detected?

- YES >> Check the DTC. Refer to [BRC-55, "DTC Index"](#).
NO >> GO TO 2.

2.PERFORM SELF-DIAGNOSIS

 With CONSULT

1. Erase self-diagnosis result for "CHASSIS CONTROL".
2. Turn the ignition switch OFF and wait for 10 seconds or more.
3. Turn the ignition switch ON.

A

B

C

D

E

F

G

H

I

J

K

L

M

N

DAS

P

C1BC3-00 REAR LEFT WHEEL SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[CHASSIS CONTROL]

4. Perform "All DTC Reading".

Is DTC "C1BC3-00", "U1000-00" or other DTC detected?

YES ("C1BC3-00")>>Replace the chassis control module. Refer to [DAS-277, "Removal and Installation"](#).

YES ("U1000-00")>>Refer to [DAS-251, "Diagnosis Procedure"](#).

YES (other DTC)>>Check the DTC.

NO >> INSPECTION END

C1BC4-00 DECEL G SENSOR

DTC Description

INFOID:000000010227440

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1BC4-00	DECEL G SENSOR (Decel G sensor)	When a malfunction is detected in decel G sensor system.

POSSIBLE CAUSE

- Yaw rate/side/decel G sensor [integrated in ABS actuator and electric unit (control unit)]
- ABS actuator and electric unit (control unit)
- Chassis control module

FAIL-SAFE

The following functions are suspended.

- Active Ride Control (brake) function

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2. CHECK DTC DETECTION

 With CONSULT

1. Turn the ignition switch OFF to ON.

CAUTION:

Be sure to wait of 10 seconds after turning ignition switch OFF or ON.

2. Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "C1BC4-00" detected?

YES >> Proceed to [DAS-245, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:000000010227441

1. CHECK DECEL G SENSOR SYSTEM

 With CONSULT

Perform self-diagnosis for "ABS".

Is DTC detected?

YES >> Check the DTC. Refer to [BRC-55, "DTC Index"](#).

NO >> GO TO 2.

2. PERFORM SELF-DIAGNOSIS

 With CONSULT

1. Erase self-diagnosis result for "CHASSIS CONTROL".
2. Turn the ignition switch OFF and wait for 10 seconds or more.
3. Turn the ignition switch ON.
4. Perform "All DTC Reading".

Is DTC "C1BC4-00", "U1000-00" or other DTC detected?

YES ("C1BC4-00") >> Replace the chassis control module. Refer to [DAS-277, "Removal and Installation"](#).

YES ("U1000-00") >> Refer to [DAS-251, "Diagnosis Procedure"](#).

YES (other DTC) >> Check the DTC.

C1BC4-00 DECEL G SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[CHASSIS CONTROL]

NO >> INSPECTION END

C1BC5-00 SIDE G SENSOR

DTC Description

INFOID:0000000010227442

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1BC5-00	SIDE G SENSOR (Side G sensor)	When a malfunction is detected in side G sensor system.

POSSIBLE CAUSE

- Yaw rate/side/decel G sensor [integrated in ABS actuator and electric unit (control unit)]
- ABS actuator and electric unit (control unit)
- Chassis control module

FAIL-SAFE

The following functions are suspended.

- Active Trace Control function

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2. CHECK DTC DETECTION

 With CONSULT

1. Turn the ignition switch OFF to ON.

CAUTION:

Be sure to wait of 10 seconds after turning ignition switch OFF or ON.

2. Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "C1BC5-00" detected?

YES >> Proceed to [DAS-247, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010227443

1. CHECK SIDE G SENSOR SYSTEM

 With CONSULT

Perform self-diagnosis for "ABS".

Is DTC detected?

YES >> Check the DTC. Refer to [BRC-55, "DTC Index"](#).

NO >> GO TO 2.

2. PERFORM SELF-DIAGNOSIS

 With CONSULT

1. Erase self-diagnosis result for "CHASSIS CONTROL".
2. Turn the ignition switch OFF and wait for 10 seconds or more.
3. Turn the ignition switch ON.
4. Perform "All DTC Reading".

Is DTC "C1BC5-00", "U1000-00" or other DTC detected?

YES ("C1BC5-00") >> Replace the chassis control module. Refer to [DAS-277, "Removal and Installation"](#).

YES ("U1000-00") >> Refer to [DAS-251, "Diagnosis Procedure"](#).

YES (other DTC) >> Check the DTC.

C1BC5-00 SIDE G SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[CHASSIS CONTROL]

NO >> INSPECTION END

C1BC6-00 PRESSURE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[CHASSIS CONTROL]

C1BC6-00 PRESSURE SENSOR

DTC Description

INFOID:000000010227444

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
C1BC6-00	PRESSURE SENSOR (Pressure sensor)	When a malfunction is detected in brake fluid pressure system.

POSSIBLE CAUSE

- ABS actuator and electric unit (control unit)
- Chassis control module

FAIL-SAFE

The following functions are suspended.

- Active Trace Control function
- Active Ride Control (brake) function

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2.CHECK DTC DETECTION

 With CONSULT

1. Turn the ignition switch OFF to ON.

CAUTION:

Be sure to wait of 10 seconds after turning ignition switch OFF or ON.

2. Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "C1BC6-00" detected?

YES >> Proceed to [DAS-249, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:000000010227445

1.CHECK BRAKE FLUID PRESSURE SYSTEM

 With CONSULT

Perform self-diagnosis for "ABS".

Is DTC detected?

YES >> Check the DTC. Refer to [BRC-55, "DTC Index"](#).

NO >> GO TO 2.

2.PERFORM SELF-DIAGNOSIS

 With CONSULT

1. Erase self-diagnosis result for "CHASSIS CONTROL".
2. Turn the ignition switch OFF and wait for 10 seconds or more.
3. Turn the ignition switch ON.
4. Perform "All DTC Reading".

Is DTC "C1BC6-00", "U1000-00" or other DTC detected?

YES ("C1BC6-00")>>Replace the chassis control module. Refer to [DAS-277, "Removal and Installation"](#).

YES ("U1000-00")>>Refer to [DAS-251, "Diagnosis Procedure"](#).

YES (other DTC)>>Check the DTC.

C1BC6-00 PRESSURE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[CHASSIS CONTROL]

NO >> INSPECTION END

U1000-00 CAN COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CHASSIS CONTROL]

U1000-00 CAN COMM CIRCUIT

DTC Logic

INFOID:0000000010355424

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
CAN COMM CIRCUIT [U1000-00]	Chassis Control module is not transmitting or receiving CAN communication signal for 2 seconds or more.	CAN communication system.

Diagnosis Procedure

INFOID:0000000010355425

1.PERFORM SELF DIAGNOSTIC RESULT

1. Turn ignition switch ON and wait for 2 seconds or more.
2. Perform Self Diagnostic Result for CHASSIS CONTROL.

Is CAN COMM CIRCUIT displayed?

- YES >> Refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).
NO >> Refer to [GI-41, "Intermittent Incident"](#).

U1A34-00 BRAKE CONTROL COMMUNICATION

< DTC/CIRCUIT DIAGNOSIS >

[CHASSIS CONTROL]

U1A34-00 BRAKE CONTROL COMMUNICATION

DTC Description

INFOID:0000000010227456

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
U1A34-00	BRAKE CONTROL COMM (Brake control communication)	When chassis control module is not receiving CAN communication signal [between chassis control module and ABS actuator and electric unit (control unit)] for 2 seconds or more.

POSSIBLE CAUSE

- ABS actuator and electric unit (control unit)
- Chassis control module
- CAN communication line

FAIL-SAFE

The following functions are suspended.

- Active Trace Control Function
- Active Ride Control Function
- Active Engine Brake Function

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2.CHECK DTC DETECTION

 With CONSULT

1. Turn the ignition switch OFF to ON.

CAUTION:

Be sure to wait of 10 seconds after turning ignition switch OFF or ON.

2. Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "U1A34-00" detected?

- YES >> Proceed to [DAS-252, "Diagnosis Procedure"](#).
NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010227457

Regarding Wiring Diagram information, refer to [DAS-195, "Wiring Diagram"](#).

1.CHECK CAN DIAGNOSIS SUPPORT MONITOR

 With CONSULT

1. Select "CAN Diagnosis Support Monitor". of "CHASSIS CONTROL".
2. Check malfunction between each control unit connected to chassis control module.

Check the result of "PRESENT"?

- Refer to>> [LAN-9, "CAN Communication Control Circuit"](#).
"TRANSMIT DIAG" is other than "OK">>GO TO 2.
"ABS" other than "OK">>GO TO 3.

2.CHECK TRANSMITTING SIDE UNIT

U1A34-00 BRAKE CONTROL COMMUNICATION

< DTC/CIRCUIT DIAGNOSIS >

[CHASSIS CONTROL]

1. Turn the ignition switch OFF.
2. Disconnect chassis control module harness connector.
3. Check the chassis control module harness connector terminals No. 3 and 4 for damage or loose connection.

Is the inspection result normal?

YES >> GO TO 5.

NO >> Recheck terminals for damage or loose connection. Refer to [LAN-7. "Precautions for Harness Repair"](#), and GO TO 5.

3. CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

1. Turn the ignition switch OFF.
2. Disconnect ABS actuator and electric unit (control unit) harness connector.
3. Check ABS actuator and electric unit (control unit) harness connector terminals (CAN communication line) or damage or loose connection.

Is the inspection result normal?

YES >> GO TO 4.

NO >> Recheck terminals for damage or loose connection. Refer to [LAN-7. "Precautions for Harness Repair"](#), and GO TO 4.

4. PFEFORM SELF-DIAGNOSIS [ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)]

 With CONSULT

1. Connect ABS actuator and electric unit (control unit) harness connector.
2. Erase self-diagnosis result for "ABS".
3. Turn the ignition switch OFF and wait for 10 seconds or more.
4. Turn the ignition switch ON.
5. Perform self-diagnosis for "ABS".

Is DTC detected?

YES >> Check the DTC. Refer to [BRC-55. "DTC Index"](#).

NO >> GO TO 5.

5. PERFORM SELF-DIAGNOSIS

 With CONSULT

1. Connect chassis control module harness connector.
2. Erase self-diagnosis result for "CHASSIS CONTROL".
3. Turn the ignition switch OFF and wait for 10 seconds or more.
4. Turn the ignition switch ON.
5. Perform "All DTC Reading".

Is DTC "U1000-00", "U1A34-00" or other DTC detected?

YES ("U1000-00")>>Refer to [DAS-251. "Diagnosis Procedure"](#).

YES ("U1A34-00")>>Replace the chassis control module. Refer to [DAS-277. "Removal and Installation"](#).

YES (other DTC)>>Check the DTC.

NO >> INSPECTION END

DAS

U1A35-00 BRAKE CONTROL COMMUNICATION

< DTC/CIRCUIT DIAGNOSIS >

[CHASSIS CONTROL]

U1A35-00 BRAKE CONTROL COMMUNICATION

DTC Description

INFOID:0000000010227458

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
U1A35-00	BRAKE CONTROL COMM (Brake control communication)	A calculated signal value differs between a signal transmitted from the ABS actuator and electric unit (control unit) and a signal received from chassis control module via CAN communication.

POSSIBLE CAUSE

- ABS actuator and electric unit (control unit)
- Chassis control module
- CAN communication line

FAIL-SAFE

The following functions are suspended.

- Active Trace Control function
- Active Ride Control function
- Active Engine Brake function

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2.CHECK DTC DETECTION

 With CONSULT

1. Turn the ignition switch OFF to ON.

CAUTION:

Be sure to wait of 10 seconds after turning ignition switch OFF or ON.

2. Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "U1A35-00" detected?

YES >> Proceed to [DAS-254, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010227459

Regarding Wiring Diagram information, refer to [DAS-195, "Wiring Diagram"](#).

1.CHECK CAN DIAGNOSIS SUPPORT MONITOR

 With CONSULT

1. Select "CAN Diagnosis Support Monitor" of "CHASSIS CONTROL".
2. Check malfunction between each control unit connected to chassis control module.

Check the result of "PRESENT"?

>> Refer to [LAN-9, "CAN Communication Control Circuit"](#).

"TRANSMIT DIAG" is other than "OK">>GO TO 2.

"ABS" other than "OK">>GO TO 3.

2.CHECK TRANSMITTING SIDE UNIT

U1A35-00 BRAKE CONTROL COMMUNICATION

< DTC/CIRCUIT DIAGNOSIS >

[CHASSIS CONTROL]

1. Turn the ignition switch OFF.
2. Disconnect chassis control module harness connector.
3. Check the chassis control module harness connector terminals No. 3 and 4 for damage or loose connection.

Is the inspection result normal?

YES >> GO TO 5.

NO >> Recheck terminals for damage or loose connection. Refer to [DAS-171. "Precautions for Harness Repair"](#), and GO TO 5.

3. CHECK ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

1. Turn the ignition switch OFF.
2. Disconnect ABS actuator and electric unit (control unit) harness connector.
3. Check ABS actuator and electric unit (control unit) harness connector terminals (CAN communication line) or damage or loose connection.

Is the inspection result normal?

YES >> GO TO 4.

NO >> Recheck terminals for damage or loose connection. Refer to [DAS-171. "Precautions for Harness Repair"](#), and GO TO 4.

4. PFEFORM SELF-DIAGNOSIS [ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)]

 With CONSULT

1. Connect ABS actuator and electric unit (control unit) harness connector.
2. Erase self-diagnosis result for "ABS".
3. Turn the ignition switch OFF and wait for 10 seconds or more.
4. Turn the ignition switch ON.
5. Perform self-diagnosis for "ABS".

Is DTC detected?

YES >> Check the DTC. Refer to [BRC-55. "DTC Index"](#).

NO >> GO TO 5.

5. PERFORM SELF-DIAGNOSIS

 With CONSULT

1. Connect chassis control module harness connector.
2. Erase self-diagnosis result for "CHASSIS CONTROL".
3. Turn the ignition switch OFF and wait for 10 seconds or more.
4. Turn the ignition switch ON.
5. Perform "All DTC Reading".

Is DTC "U1000-00", "U1A35-00" or other DTC detected?

YES ("U1000-00")>>Refer to [DAS-251. "Diagnosis Procedure"](#).

YES ("U1A35-00")>>Replace the chassis control module. Refer to [DAS-277. "Removal and Installation"](#).

YES (other DTC)>>Check the DTC.

NO >> INSPECTION END

A
B
C
D
E
F
G
H
I
J
K
L
M
N
P

DAS

U1A36-00 BCM/IPDM COMMUNICATION

DTC Description

INFOID:0000000010227460

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
U1A36-00	BCM/IPDM COMM (BCM/IPDM communication)	When chassis control module is not receiving CAN communication signal (between chassis control module and BCM) for 2 seconds or more.

POSSIBLE CAUSE

- BCM
- Chassis control module
- CAN communication line

FAIL-SAFE

The following functions are suspended.

- Active Trace Control function
- Active Ride Control function
- Active Engine Brake function

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2. CHECK DTC DETECTION

 With CONSULT

1. Turn the ignition switch OFF to ON.

CAUTION:

Be sure to wait of 10 seconds after turning ignition switch OFF or ON.

2. Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "U1A36-00" detected?

YES >> Proceed to [DAS-256, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010227461

Regarding Wiring Diagram information, refer to [DAS-195, "Wiring Diagram"](#).

1. CHECK CAN DIAGNOSIS SUPPORT MONITOR

 With CONSULT

1. Select "CAN Diagnosis Support Monitor" of "CHASSIS CONTROL".
2. Check malfunction between each control unit connected to chassis control module.

Check the result of "PRESENT"?

>> Refer to [LAN-9, "CAN Communication Control Circuit"](#).

"TRANSMIT DIAG" is other than "OK">>GO TO 2.

"BCM" other than "OK">>GO TO 3.

2. CHECK TRANSMITTING SIDE UNIT

1. Turn the ignition switch OFF.

U1A36-00 BCM/IPDM COMMUNICATION

< DTC/CIRCUIT DIAGNOSIS >

[CHASSIS CONTROL]

2. Disconnect chassis control module harness connector.
3. Check the chassis control module harness connector terminals No. 3 and 4 for damage or loose connection.

Is the inspection result normal?

YES >> GO TO 5.

NO >> Recheck terminals for damage or loose connection. Refer to [LAN-7, "Precautions for Harness Repair"](#), and GO TO 5.

3.CHECK BCM

1. Turn the ignition switch OFF.
2. Disconnect BCM harness connector.
3. Check BCM harness connector terminals (CAN communication line) or damage or loose connection.

Is the inspection result normal?

YES >> GO TO 4.

NO >> Recheck terminals for damage or loose connection. Refer to [LAN-7, "Precautions for Harness Repair"](#), and GO TO 4.

4.PFEFORM SELF-DIAGNOSIS (BCM)

With CONSULT

1. Connect BCM harness connector.
2. Erase self-diagnosis result for "BCM".
3. Turn the ignition switch OFF and wait for 10 seconds or more.
4. Turn the ignition switch ON.
5. Perform self-diagnosis for "BCM".

Is DTC detected?

YES >> Check the DTC. Refer to [BCS-108, "DTC Index"](#).

NO >> GO TO 5.

5.PERFORM SELF-DIAGNOSIS

With CONSULT

1. Connect chassis control module harness connector.
2. Erase self-diagnosis result for "CHASSIS CONTROL".
3. Turn the ignition switch OFF and wait for 10 seconds or more.
4. Turn the ignition switch ON.
5. Perform "All DTC Reading".

Is DTC "U1000-00", "U1A36-00" or other DTC detected?

YES ("U1000-00")>>Refer to [DAS-251, "Diagnosis Procedure"](#).

YES ("U1A36-00")>>Replace the chassis control module. Refer to [DAS-277, "Removal and Installation"](#).

YES (other DTC)>>Check the DTC.

NO >> INSPECTION END

A
B
C
D
E
F
G
H
I
J
K
L
M
N
P

DAS

U1A39-00 COMBINATION METER COMMUNICATION

< DTC/CIRCUIT DIAGNOSIS >

[CHASSIS CONTROL]

U1A39-00 COMBINATION METER COMMUNICATION

DTC Description

INFOID:0000000010227462

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
U1A39-00	COMBINATION METER COMM (Combination meter communication)	When chassis control module is not receiving CAN communication signal (between chassis control module and combination meter) for 2 seconds or more.

POSSIBLE CAUSE

- Combination meter
- Chassis control module
- CAN communication line

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2. CHECK DTC DETECTION

 With CONSULT

1. Turn the ignition switch OFF to ON.

CAUTION:

Be sure to wait of 10 seconds after turning ignition switch OFF or ON.

2. Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "U1A39-00" detected?

- YES >> Proceed to [DAS-258, "Diagnosis Procedure"](#).
NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010227463

Regarding Wiring Diagram information, refer to [DAS-195, "Wiring Diagram"](#).

1. CHECK CAN DIAGNOSIS SUPPORT MONITOR

 With CONSULT

1. Select "CAN Diagnosis Support Monitor" of "CHASSIS CONTROL".
2. Check malfunction between each control unit connected to chassis control module.

Check the result of "PRESENT"?

>> Refer to [LAN-9, "CAN Communication Control Circuit"](#).

"TRANSMIT DIAG" is other than "OK">>GO TO 2.

"METER/M&A" other than "OK">>GO TO 3.

2. CHECK TRANSMITTING SIDE UNIT

1. Turn the ignition switch OFF.
2. Disconnect chassis control module harness connector.
3. Check the chassis control module harness connector terminals No. 3 and 4 for damage or loose connection.

Is the inspection result normal?

YES >> GO TO 5.

U1A39-00 COMBINATION METER COMMUNICATION

< DTC/CIRCUIT DIAGNOSIS >

[CHASSIS CONTROL]

NO >> Recheck terminals for damage or loose connection. Refer to [LAN-7, "Precautions for Harness Repair"](#), and GO TO 5.

3.CHECK COMBINATION METER

1. Turn the ignition switch OFF.
2. Disconnect combination meter harness connector.
3. Check combination meter harness connector terminals (CAN communication line) or damage or loose connection.

Is the inspection result normal?

YES >> GO TO 4.

NO >> Recheck terminals for damage or loose connection. Refer to [LAN-7, "Precautions for Harness Repair"](#), and GO TO 4.

4.PFEFORM SELF-DIAGNOSIS (COMBINATION METER)

 With CONSULT

1. Connect combination meter harness connector.
2. Erase self-diagnosis result for "MATER/M&A".
3. Turn the ignition switch OFF and wait for 10 seconds or more.
4. Turn the ignition switch ON.
5. Perform self-diagnosis for "METER/M&A".

Is DTC detected?

YES >> Check the DTC. Refer to [MWI-30, "DTC Index"](#).

NO >> GO TO 5.

5.PERFORM SELF-DIAGNOSIS

 With CONSULT

1. Connect chassis control module harness connector.
2. Erase self-diagnosis result for "CHASSIS CONTROL".
3. Turn the ignition switch OFF and wait for 10 seconds or more.
4. Turn the ignition switch ON.
5. Perform "All DTC Reading".

Is DTC "U1000-00", "U1A39-00" or other DTC detected?

YES ("U1000-00")>>Refer to [DAS-251, "Diagnosis Procedure"](#).

YES ("U1A39-00")>>Replace the chassis control module. Refer to [DAS-277, "Removal and Installation"](#).

YES (other DTC)>>Check the DTC.

NO >> INSPECTION END

DAS

U1A3B-00 TCM COMMUNICATION

DTC Description

INFOID:000000010227464

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
U1A3B-00	TCM COMM (TCM communication)	When chassis control module is not receiving CAN communication signal (between chassis control module and TCM) for 2 seconds or more.

POSSIBLE CAUSE

- TCM
- Chassis control module
- CAN communication line

FAIL-SAFE

The following functions are suspended.

- Active Trace Control function
- Active Ride Control (engine) function
- Active Engine Brake

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2. CHECK DTC DETECTION

 With CONSULT

1. Turn the ignition switch OFF to ON.

CAUTION:

Be sure to wait of 10 seconds after turning ignition switch OFF or ON.

2. Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "U1A3B-00" detected?

YES >> Proceed to [DAS-260, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:000000010227465

Regarding Wiring Diagram information, refer to [DAS-195, "Wiring Diagram"](#).

1. CHECK CAN DIAGNOSIS SUPPORT MONITOR

 With CONSULT

1. Select "CAN Diagnosis Support Monitor" of "CHASSIS CONTROL".
2. Check malfunction between each control unit connected to chassis control module.

Check the result of "PRESENT"?

>> Refer to [LAN-9, "CAN Communication Control Circuit"](#).

"TRANSMIT DIAG" is other than "OK">>GO TO 2.

"TRANSMISSION" other than "OK">>GO TO 3.

2. CHECK TRANSMITTING SIDE UNIT

1. Turn the ignition switch OFF.

U1A3B-00 TCM COMMUNICATION

< DTC/CIRCUIT DIAGNOSIS >

[CHASSIS CONTROL]

2. Disconnect chassis control module harness connector.
3. Check the chassis control module harness connector terminals No. 3 and 4 for damage or loose connection.

Is the inspection result normal?

YES >> GO TO 5.

NO >> Recheck terminals for damage or loose connection. Refer to [LAN-7, "Precautions for Harness Repair"](#), and GO TO 5.

3.CHECK TCM

1. Turn the ignition switch OFF.
2. Disconnect TCM harness connector.
3. Check TCM harness connector terminals (CAN communication line) or damage or loose connection.

Is the inspection result normal?

YES >> GO TO 4.

NO >> Recheck terminals for damage or loose connection. Refer to [LAN-7, "Precautions for Harness Repair"](#), and GO TO 4.

4.PFEFORM SELF-DIAGNOSIS (TCM)

With CONSULT

1. Connect TCM harness connector.
2. Erase self-diagnosis result for "TRANSMISSION".
3. Turn the ignition switch OFF and wait for 10 seconds or more.
4. Turn the ignition switch ON.
5. Perform self-diagnosis for "TRANSMISSION".

Is DTC detected?

YES >> Check the DTC. Refer to [TM-63, "DTC Index"](#).

NO >> GO TO 5.

5.PERFORM SELF-DIAGNOSIS

With CONSULT

1. Connect chassis control module harness connector.
2. Erase self-diagnosis result for "CHASSIS CONTROL".
3. Turn the ignition switch OFF and wait for 10 seconds or more.
4. Turn the ignition switch ON.
5. Perform "All DTC Reading".

Is DTC "U1000-00", "U1A3B-00" or other DTC detected?

YES ("U1000-00")>>Refer to [DAS-251, "Diagnosis Procedure"](#).

YES ("U1A3B-00")>>Replace the chassis control module. Refer to [DAS-277, "Removal and Installation"](#).

YES (other DTC)>>Check the DTC.

NO >> INSPECTION END

A
B
C
D
E
F
G
H
I
J
K
L
M
N
P

DAS

U1A42-00 STEERING ANGLE SENSOR COMMUNICATION

< DTC/CIRCUIT DIAGNOSIS >

[CHASSIS CONTROL]

U1A42-00 STEERING ANGLE SENSOR COMMUNICATION

DTC Description

INFOID:0000000010227472

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
U1A42-00	STEERING ANGLE SENSOR COMM (Steering angle sensor communi- cation)	When chassis control module is not receiving CAN communication signal (be- tween chassis control module and steering angle sensor) for 2 seconds or more.

POSSIBLE CAUSE

- Steering angle sensor
- Chassis control module
- CAN communication line

FAIL-SAFE

The following functions are suspended.

- Active Trace Control function
- Active Ride Control (engine) function

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2.CHECK DTC DETECTION

 With CONSULT

1. Turn the ignition switch OFF to ON.

CAUTION:

Be sure to wait of 10 seconds after turning ignition switch OFF or ON.

2. Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "U1A42-00" detected?

- YES >> Proceed to [DAS-262. "Diagnosis Procedure"](#).
NO-1 >> To check malfunction symptom before repair: Refer to [GI-41. "Intermittent Incident"](#).
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010227473

Regarding Wiring Diagram information, refer to [DAS-195. "Wiring Diagram"](#).

1.CHECK CAN DIAGNOSIS SUPPORT MONITOR

 With CONSULT

1. Select "CAN Diagnosis Support Monitor" of "CHASSIS CONTROL".
2. Check malfunction between each control unit connected to chassis control module.

Check the result of "PRESENT"?

>> Refer to [LAN-9. "CAN Communication Control Circuit"](#).

"TRANSMIT DIAG" is other than "OK">>GO TO 2.

"STRG" other than "OK">>GO TO 3.

2.CHECK TRANSMITTING SIDE UNIT

U1A42-00 STEERING ANGLE SENSOR COMMUNICATION

< DTC/CIRCUIT DIAGNOSIS >

[CHASSIS CONTROL]

1. Turn the ignition switch OFF.
2. Disconnect chassis control module harness connector.
3. Check the chassis control module harness connector terminals No. 3 and 4 for damage or loose connection.

Is the inspection result normal?

YES >> GO TO 5.

NO >> Recheck terminals for damage or loose connection. Refer to [LAN-7, "Precautions for Harness Repair"](#), and GO TO 5.

3.CHECK STEERING ANGLE SENSOR

1. Turn the ignition switch OFF.
2. Disconnect steering angle sensor harness connector.
3. Check steering angle sensor harness connector terminals (CAN communication line) or damage or loose connection.

Is the inspection result normal?

YES >> GO TO 4.

NO >> Recheck terminals for damage or loose connection. Refer to [LAN-7, "Precautions for Harness Repair"](#), and GO TO 4.

4.PFEFORM SELF-DIAGNOSIS [ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)]

 With CONSULT

1. Connect steering angle sensor harness connector.
2. Erase self-diagnosis result for "ABS".
3. Turn the ignition switch OFF and wait for 10 seconds or more.
4. Turn the ignition switch ON.
5. Perform self-diagnosis for "ABS".

Is DTC detected?

YES >> Check the DTC. Refer to [BRC-55, "DTC Index"](#).

NO >> GO TO 5.

5.PERFORM SELF-DIAGNOSIS

 With CONSULT

1. Connect chassis control module harness connector.
2. Erase self-diagnosis result for "CHASSIS CONTROL".
3. Turn the ignition switch OFF and wait for 10 seconds or more.
4. Turn the ignition switch ON.
5. Perform "All DTC Reading".

Is DTC "U1000-00", "U1A42-00" other DTC detected?

YES ("U1000-00")>>Refer to [DAS-251, "Diagnosis Procedure"](#).

YES ("U1A42-00")>>Replace the chassis control module. Refer to [DAS-277, "Removal and Installation"](#).

YES (other DTC)>>Check the DTC.

NO >> INSPECTION END

A
B
C
D
E
F
G
H
I
J
K
L
M
N
P

DAS

U1A43-00 STEERING ANGLE SENSOR COMMUNICATION

< DTC/CIRCUIT DIAGNOSIS >

[CHASSIS CONTROL]

U1A43-00 STEERING ANGLE SENSOR COMMUNICATION

DTC Description

INFOID:0000000010227474

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
U1A43-00	STEERING ANGLE SENSOR COMM (Steering angle sensor communication)	A calculated signal value differs between a signal transmitted from the steering angle sensor and a signal received from chassis control module via CAN communication.

POSSIBLE CAUSE

- Steering angle sensor
- Chassis control module
- CAN communication line

FAIL-SAFE

The following functions are suspended.

- Active Trace Control function
- Active Ride Control (engine) function

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2.CHECK DTC DETECTION

 With CONSULT

1. Turn the ignition switch OFF to ON.

CAUTION:

Be sure to wait of 10 seconds after turning ignition switch OFF or ON.

2. Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "U1A43-00" detected?

YES >> Proceed to [DAS-264. "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41. "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010227475

Regarding Wiring Diagram information, refer to [DAS-195. "Wiring Diagram"](#).

1.CHECK CAN DIAGNOSIS SUPPORT MONITOR

 With CONSULT

1. Select "CAN Diagnosis Support Monitor" of "CHASSIS CONTROL".
2. Check malfunction between each control unit connected to chassis control module.

Check the result of "PRESENT"?

>> Refer to [LAN-9. "CAN Communication Control Circuit"](#).

"TRANSMIT DIAG" is other than "OK">>GO TO 2.

"STRG" other than "OK">>GO TO 3.

2.CHECK TRANSMITTING SIDE UNIT

U1A43-00 STEERING ANGLE SENSOR COMMUNICATION

< DTC/CIRCUIT DIAGNOSIS >

[CHASSIS CONTROL]

1. Turn the ignition switch OFF.
2. Disconnect chassis control module harness connector.
3. Check the chassis control module harness connector terminals No. 3 and 4 for damage or loose connection.

Is the inspection result normal?

YES >> GO TO 5.

NO >> Recheck terminals for damage or loose connection. Refer to [LAN-7, "Precautions for Harness Repair"](#), and GO TO 5.

3.CHECK STEERING ANGLE SENSOR

1. Turn the ignition switch OFF.
2. Disconnect steering angle sensor harness connector.
3. Check steering angle sensor harness connector terminals (CAN communication line) or damage or loose connection.

Is the inspection result normal?

YES >> GO TO 4.

NO >> Recheck terminals for damage or loose connection. Refer to [LAN-7, "Precautions for Harness Repair"](#), and GO TO 4.

4.PFEFORM SELF-DIAGNOSIS [ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)]

 With CONSULT

1. Connect steering angle sensor harness connector.
2. Erase self-diagnosis result for "ABS".
3. Turn the ignition switch OFF and wait for 10 seconds or more.
4. Turn the ignition switch ON.
5. Perform self-diagnosis for "ABS".

Is DTC detected?

YES >> Check the DTC. Refer to [BRC-55, "DTC Index"](#).

NO >> GO TO 5.

5.PERFORM SELF-DIAGNOSIS

 With CONSULT

1. Connect chassis control module harness connector.
2. Erase self-diagnosis result for "CHASSIS CONTROL".
3. Turn the ignition switch OFF and wait for 10 seconds or more.
4. Turn the ignition switch ON.
5. Perform "All DTC Reading".

Is DTC "U1000-00", "U1A43-00" or other DTC detected?

YES ("U1000-00")>>Refer to [DAS-251, "Diagnosis Procedure"](#).

YES ("U1A43-00")>>Replace the chassis control module. Refer to [DAS-277, "Removal and Installation"](#).

YES (other DTC)>>Check the DTC.

NO >> INSPECTION END

A
B
C
D
E
F
G
H
I
J
K
L
M
N
P

DAS

U1A48-00 ECM/HPCM COMMUNICATION

DTC Description

INFOID:0000000010227478

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
U1A48-00	ECM/HPCM COMM (ECM/HPCM communication)	When chassis control module is not receiving CAN communication signal (between chassis control module and ECM) for 2 seconds or more.

POSSIBLE CAUSE

- ECM
- Chassis control module
- CAN communication line

FAIL-SAFE

The following functions are suspended.

- Active Trace Control function
- Active Ride Control function
- Active Engine Brake function

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2. CHECK DTC DETECTION

 With CONSULT

1. Turn the ignition switch OFF to ON.

CAUTION:

Be sure to wait of 10 seconds after turning ignition switch OFF or ON.

2. Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "U1A48-00" detected?

YES >> Proceed to [DAS-266, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010227479

Regarding Wiring Diagram information, refer to [DAS-195, "Wiring Diagram"](#).

1. CHECK CAN DIAGNOSIS SUPPORT MONITOR

 With CONSULT

1. Select and "CAN Diagnosis Support Monitor" of "CHASSIS CONTROL".
2. Check malfunction between each control unit connected to chassis control module.

Check the result of "PRESENT"?

>> Refer to [LAN-9, "CAN Communication Control Circuit"](#).

"TRANSMIT DIAG" is other than "OK">>GO TO 2.

"ENGINE" other than "OK">>GO TO 3.

2. CHECK TRANSMITTING SIDE UNIT

1. Turn the ignition switch OFF.

U1A48-00 ECM/HPCM COMMUNICATION

< DTC/CIRCUIT DIAGNOSIS >

[CHASSIS CONTROL]

2. Disconnect chassis control module harness connector.
3. Check the chassis control module harness connector terminals No. 3 and 4 for damage or loose connection.

Is the inspection result normal?

YES >> GO TO 5.

NO >> Recheck terminals for damage or loose connection. Refer to [LAN-7, "Precautions for Harness Repair"](#), and GO TO 5.

3.CHECK ECM

1. Turn the ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check ECM harness connector terminals (CAN communication line) or damage or loose connection.

Is the inspection result normal?

YES >> GO TO 4.

NO >> Recheck terminals for damage or loose connection. Refer to [LAN-7, "Precautions for Harness Repair"](#), and GO TO 4.

4.PFEFORM SELF-DIAGNOSIS (ECM)

 With CONSULT

1. Connect ECM harness connector.
2. Erase self-diagnosis result for "ENGINE".
3. Turn the ignition switch OFF and wait for 10 seconds or more.
4. Turn the ignition switch ON.
5. Perform self-diagnosis for "ENGINE".

Is DTC detected?

YES >> Check the DTC. Refer to [EC-93, "DTC Index"](#).

NO >> GO TO 5.

5.PERFORM SELF-DIAGNOSIS

 With CONSULT

1. Connect chassis control module harness connector.
2. Erase self-diagnosis result for "CHASSIS CONTROL".
3. Turn the ignition switch OFF and wait for 10 seconds or more.
4. Turn the ignition switch ON.
5. Perform "All DTC Reading".

Is DTC "U1000-00", "U1A48-00" or other DTC detected?

YES ("U1000-00")>>Refer to [DAS-251, "Diagnosis Procedure"](#).

YES ("U1A48-00")>>Replace the chassis control module. Refer to [DAS-277, "Removal and Installation"](#).

YES (other DTC)>>Check the DTC.

NO >> INSPECTION END

DAS

U1A4A-00 CONTROL MODULE (CAN)

DTC Description

INFOID:0000000010227480

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
U1A4A-00	CONTROL MODULE (CAN) [Control module (CAN)]	When a malfunction is detected in chassis control module (transmission via CAN communication is impossible)

POSSIBLE CAUSE

- Chassis control module

FAIL-SAFE

The following functions are suspended.

- Active Trace Control function
- Active Ride Control function
- Active Engine Brake function

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2. CHECK DTC DETECTION

 With CONSULT

- Turn the ignition switch OFF to ON.

CAUTION:

Be sure to wait of 10 seconds after turning ignition switch OFF or ON.

- Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "U1A4A-00" detected?

YES >> Proceed to [DAS-268, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010227481

1. PERFORM SELF-DIAGNOSIS

 With CONSULT

- Erase self-diagnosis result for "CHASSIS CONTROL".
- Turn the ignition switch OFF and wait for 10 seconds or more.
- Turn the ignition switch ON.
- Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "U1A4A-00" detected?

YES >> Replace the chassis control module. Refer to [DAS-277, "Removal and Installation"](#).

NO >> INSPECTION END

U1A4B-00 CONTROL MODULE (CAN)

< DTC/CIRCUIT DIAGNOSIS >

[CHASSIS CONTROL]

U1A4B-00 CONTROL MODULE (CAN)

DTC Description

INFOID:0000000010227482

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
U1A4B-00	CONTROL MODULE (CAN) [Control module (CAN)]	When a malfunction is detected in chassis control module.

POSSIBLE CAUSE

- Chassis control module

FAIL-SAFE

The following functions are suspended.

- Active Trace Control function
- Active Ride Control function
- Active Engine Brake function

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2.CHECK DTC DETECTION

 With CONSULT

1. Turn the ignition switch OFF to ON.

CAUTION:

Be sure to wait of 10 seconds after turning ignition switch OFF or ON.

2. Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "U1A4B-00" detected?

YES >> Proceed to [DAS-269, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010227483

1.PERFORM SELF-DIAGNOSIS

 With CONSULT

1. Erase self-diagnosis result for "CHASSIS CONTROL".
2. Turn the ignition switch OFF and wait for 10 seconds or more.
3. Turn the ignition switch ON.
4. Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "U1A4B-00" detected?

YES >> Replace the chassis control module. Refer to [DAS-277, "Removal and Installation"](#).

NO >> INSPECTION END

U1A4E-00 ECM/HPCM COMMUNICATION

DTC Description

INFOID:0000000010227486

DTC DETECTION LOGIC

DTC	Display Item (Trouble diagnosis content)	Malfunction detected condition
U1A4E-00	ECM/HPCM COMM (ECM/HPCM communication)	A calculated signal value differs between a signal transmitted from the ECM and a signal received from chassis control module via CAN communication.

POSSIBLE CAUSE

- ECM
- Chassis control module
- CAN communication line

FAIL-SAFE

The following functions are suspended.

- Active Ride Control (engine) function

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn the ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2. CHECK DTC DETECTION

 With CONSULT

1. Turn the ignition switch OFF to ON.

CAUTION:

Be sure to wait of 10 seconds after turning ignition switch OFF or ON.

2. Perform self-diagnosis for "CHASSIS CONTROL".

Is DTC "U1A4E-00" detected?

YES >> Proceed to [DAS-270, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010227487

Regarding Wiring Diagram information, refer to [DAS-195, "Wiring Diagram"](#).

1. CHECK CAN DIAGNOSIS SUPPORT MONITOR

 With CONSULT

1. Select "CAN Diagnosis Support Monitor" of "CHASSIS CONTROL".
2. Check malfunction history between each control unit connected to chassis control module.

Check the result of "PAST"?

All items are "OK">>Refer to [GI-41, "Intermittent Incident"](#).

"TRANSMIT DIAG" is other than "OK">>GO TO 2.

"ENGINE" other than "OK">>GO TO 3.

2. CHECK TRANSMITTING SIDE UNIT

1. Turn the ignition switch OFF.
2. Disconnect chassis control module harness connector.

U1A4E-00 ECM/HPCM COMMUNICATION

< DTC/CIRCUIT DIAGNOSIS >

[CHASSIS CONTROL]

3. Check the chassis control module harness connector terminals No. 3 and 4 for damage or loose connection.

Is the inspection result normal?

YES >> GO TO 5.

NO >> Recheck terminals for damage or loose connection. Refer to [LAN-7, "Precautions for Harness Repair"](#), and GO TO 5.

3.CHECK ECM

1. Turn the ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check ECM harness connector terminals (CAN communication line) or damage or loose connection.

Is the inspection result normal?

YES >> GO TO 4.

NO >> Recheck terminals for damage or loose connection. Refer to [LAN-7, "Precautions for Harness Repair"](#), and GO TO 4.

4.PFEFORM SELF-DIAGNOSIS (ECM)

 With CONSULT

1. Connect ECM harness connector.
2. Erase self-diagnosis result for "ENGINE".
3. Turn the ignition switch OFF and wait for 10 seconds or more.
4. Turn the ignition switch ON.
5. Perform self-diagnosis for "ENGINE".

Is DTC detected?

YES >> Check the DTC. Refer to [EC-93, "DTC Index"](#).

NO >> GO TO 5.

5.PERFORM SELF-DIAGNOSIS

 With CONSULT

1. Connect chassis control module harness connector.
2. Erase self-diagnosis result for "CHASSIS CONTROL".
3. Turn the ignition switch OFF and wait for 10 seconds or more.
4. Turn the ignition switch ON.
5. Perform "All DTC Reading".

Is DTC "U1000-00", "U1A4E-00" or other DTC detected?

YES ("U1000-00")>>Refer to [DAS-251, "Diagnosis Procedure"](#).

YES ("U1A4E-00")>>Replace the chassis control module. Refer to [DAS-277, "Removal and Installation"](#).

YES (other DTC)>>Check the DTC.

NO >> INSPECTION END

A
B
C
D
E
F
G
H
I
J
K
L
M
N
P

DAS

POWER SUPPLY AND GROUND CIRCUIT

Diagnosis Procedure

INFOID:000000010227488

Regarding Wiring Diagram information, refer to [DAS-195. "Wiring Diagram"](#).

1. CHECK CHASSIS CONTROL MODULE IGNITION POWER SUPPLY

1. Turn the ignition switch OFF.
2. Disconnect chassis control module harness connector.
3. Check the voltage between chassis control module harness connector and ground.

Chassis control module		—	Voltage
Connector	Terminal		
M96	10	Ground	Approx. 0 V

4. Turn the ignition switch ON
CAUTION:
Never start the engine.
5. Check the voltage between chassis control module harness connector and ground.

Chassis control module		—	Voltage
Connector	Terminal		
M96	10	Ground	6.4–16 V

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 2.

2. CHECK CHASSIS CONTROL MODULE IGNITION POWER SUPPLY CIRCUIT

1. Turn the ignition switch OFF.
2. Check the 10A fuse (#30).
3. Check the continuity and short circuit between chassis control module harness connector terminal (10) and 10A fuse (#30).

Is the inspection result normal?

YES >> Perform trouble diagnosis for ignition power supply.

3. CHECK CHASSIS CONTROL MODULE GROUND CIRCUIT

Check the continuity between chassis control module harness connector and ground.

Chassis control module		—	Continuity
Connector	Terminal		
M96	12	Ground	Yes

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace the malfunctioning parts.

4. CHECK TERMINAL

Check the chassis control module pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Inspection End.

NO >> Repair or replace the malfunctioning parts.

SYMPTOM DIAGNOSIS

CHASSIS CONTROL

Active Engine Brake

INFOID:0000000010385726

NOTE:

- For the operational conditions of Active Engine Brake, refer to [DAS-175, "System Description - Active Engine Brake"](#).
- Perform the self-diagnosis with CONSULT before the symptom diagnosis. Perform the trouble diagnosis if any DTC is detected.

Symptom			Possible cause	Inspection item
Active Engine Brake inoperative/ineffective.	No CVT gear ratio assist.		Active Engine Brake selected OFF in the vehicle information display.	Change Active Engine Brake selection in the vehicle information display to ON.
			Certain roads, inclement weather or driving conditions.	System is functioning normally. Confirm the condition with the customer. Refer to DAS-181, "Precautions for Chassis Control (Engine Brake, Active Ride, and Active Trace)" .
			- Road wheel tire condition is abnormal - Road wheel tire size is abnormal.	Check the road wheel tire.
	Lower CVT gear ratio not achieved.	Continuously	Active Engine Brake selected OFF in the vehicle information display.	Change Active Engine Brake selection in the vehicle information display to ON.
		At cornering	- Wheel alignment - Steering malfunction	Refer to "STEERING WHEEL TURNING FORCE IS HEAVY OR LIGHT" STC-31, "Description" .
		While coming to a complete stop	Certain roads, inclement weather or driving conditions.	System is functioning normally. Confirm the condition with the customer. Refer to DAS-181, "Precautions for Chassis Control (Engine Brake, Active Ride, and Active Trace)" .

Active Ride Control

INFOID:0000000010405793

NOTE:

- For the operational conditions of Active Ride Control, refer to [DAS-176, "System Description - Active Ride Control"](#).
- Perform the self-diagnosis with CONSULT before the symptom diagnosis. Perform the trouble diagnosis if any DTC is detected.

DAS

CHASSIS CONTROL

< SYMPTOM DIAGNOSIS >

[CHASSIS CONTROL]

Symptom		Possible cause	Inspection item
Active Ride Control in-operative/ineffective.	No Active Ride Control assist.	VDC OFF switch is engaged.	Turn VDC OFF switch to the OFF position.
		Engine or transmission DTCs present.	Refer to EC DTCs EC-93, "DTC Index" , or TM DTCs TM-63, "DTC Index" as necessary.
	Bumpy ride on bumpy road.	Certain roads, inclement weather or driving conditions.	System is functioning normally. Confirm the condition with the customer. Refer to DAS-181, "Precautions for Chassis Control (Engine Brake, Active Ride, and Active Trace)" .
		- Road wheel tire condition is abnormal - Road wheel tire size is abnormal.	Check the road wheel tire.
	High vehicle pitch on bumps.	- Wheel alignment - Steering malfunction	Change Active Engine Brake selection in the vehicle information display to ON.
		No pitch control	Refer to BRC-54, "DTC Inspection Priority Chart" .
		No engine torque control on curves	System is functioning normally. Confirm the condition with the customer. Refer to DAS-181, "Precautions for Chassis Control (Engine Brake, Active Ride, and Active Trace)" .

Active Trace Control

INFOID:0000000010405794

NOTE:

- For the operational conditions of Active Trace Control, refer to [DAS-176, "System Description - Active Trace Control"](#).
- Perform the self-diagnosis with CONSULT before the symptom diagnosis. Perform the trouble diagnosis if any DTC is detected.

CHASSIS CONTROL

< SYMPTOM DIAGNOSIS >

[CHASSIS CONTROL]

Symptom			Possible cause	Inspection item
Active Trace Control inoperative/ineffective.	No Active Trace Control assist.		Active Trace Control selected OFF in the vehicle information display.	Change Active Trace Control selection in the vehicle information display to ON.
			VDC OFF switch is engaged.	Turn VDC OFF switch to the OFF position.
			Certain roads, inclement weather or driving conditions.	System is functioning normally. Confirm the condition with the customer. Refer to DAS-181, "Precautions for Chassis Control (Engine Brake, Active Ride, and Active Trace)" .
			- Road wheel tire condition is abnormal - Road wheel tire size is abnormal.	Check the road wheel tire.
	Excessive lag on turns.	On turns	Wheel alignment	Repair alignment malfunction.
		While zigzagging	Steering malfunction	"STEERING WHEEL TURNING FORCE IS HEAVY OR LIGHT" STC-31, "Description" .
		With quick lane change	Certain roads, inclement weather or driving conditions.	System is functioning normally. Confirm the condition with the customer. Refer to DAS-181, "Precautions for Chassis Control (Engine Brake, Active Ride, and Active Trace)" .

A
B
C
D
E
F
G
H
I
J
K
L
M
N
P

DAS

NORMAL OPERATING CONDITION**Description**

INFOID:0000000010406112

CHASSIS CONTROL

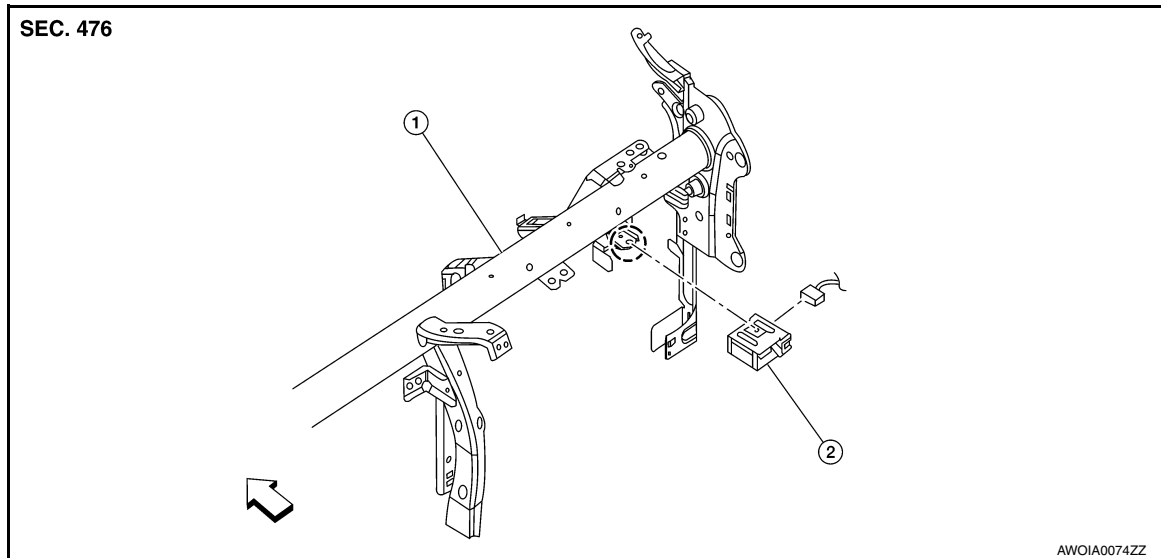
- Chassis Control will not provide all the necessary controls to replace driver intervention. It is not designed to prevent loss of control. It is the driver's responsibility to stay alert, drive safely, keep the vehicle in the traveling lane, and be in control of vehicle at all times.
- Chassis Control is primarily intended for use on well-developed freeways or highways. It may not perform satisfactorily in certain roads, weather or driving conditions.
- Using Chassis Control under some conditions of road, corner or severe weather could lead to an unexpected system operation. In such conditions, driver needs to correct the vehicle's direction with driver's steering operation to avoid accidents.
- When Chassis Control is operating, avoid excessive or sudden steering maneuvers. Otherwise, you could lose control of the vehicle.
- Engine Brake Control is designed to enhance braking feel and traceability at corners.
- Active Ride Control is designed to enhance handling and drive comfort.
- Active Trace Control is designed to enhance traceability at corners and smooth vehicle movement for more confident driving.
- Chassis Control may not function properly under the following conditions:
 - During bad weather (rain, fog, snow, wind, etc.).
 - When driving on slippery roads, such as on ice or snow, etc.
 - When driving on winding or uneven roads.
 - When driving with a tire that is not within normal tire conditions (for example, tire wear, low tire pressure, installation of spare tire, tire chains, non-standard wheels).
 - When the vehicle is equipped with non-original steering parts or suspension parts.
- The functions of Chassis Control may or may not operate properly under the following conditions:
 - On roads covered with water, dirt or snow, etc.
 - On roads where there are sharp curves.

REMOVAL AND INSTALLATION

CHASSIS CONTROL MODULE

Exploded View

INFOID:0000000010227489



1. Steering member

2. Chassis control module

⇐ Front

Removal and Installation

INFOID:0000000010227490

CAUTION:

When replacing chassis control module, configuration of chassis control module is required. Refer to [DAS-205, "Work Procedure"](#).

REMOVAL

NOTE:

If the chassis control module is replaced, user registration information is erased, and all setting items for Nissan InTuition related parts are erased.

1. Remove the glove box assembly. Refer to [IP-23, "Removal and Installation"](#).
2. Release the pawl and remove the chassis control module.

CAUTION:

Do not drop the chassis control module.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

When replacing the chassis control module, perform the configuration of chassis control module. Refer to [DAS-205, "Work Procedure"](#).

DAS

SECTION DEF

DEFOGGER

CONTENTS

PRECAUTION	3	List of ECU Reference	11
PRECAUTIONS	3	WIRING DIAGRAM	12
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	3	REAR WINDOW DEFOGGER SYSTEM	12
Handling for Adhesive and Primer	3	Wiring Diagram	12
SYSTEM DESCRIPTION	4	BASIC INSPECTION	19
COMPONENT PARTS	4	DIAGNOSIS AND REPAIR WORKFLOW	19
Component Parts Location	4	Work Flow	19
Rear window defogger	5	DTC/CIRCUIT DIAGNOSIS	22
Door mirror defogger	5	REAR WINDOW DEFOGGER SWITCH	22
SYSTEM	6	WITH MANUAL A/C	22
System Description	6	WITH MANUAL A/C : Description	22
DIAGNOSIS SYSTEM (BCM) (WITH INTELLIGENT KEY SYSTEM)	7	WITH MANUAL A/C : Component Function Check	22
COMMON ITEM	7	WITH MANUAL A/C : Diagnosis Procedure	22
COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)	7	WITH AUTO A/C	22
REAR DEFOGGER	7	WITH AUTO A/C : Description	22
REAR DEFOGGER : CONSULT Function (BCM - REAR DEFOGGER)	8	WITH AUTO A/C : Component Function Check	22
DIAGNOSIS SYSTEM (BCM) (WITHOUT INTELLIGENT KEY SYSTEM)	9	WITH AUTO A/C : Diagnosis Procedure	22
COMMON ITEM	9	REAR WINDOW DEFOGGER RELAY	24
COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)	9	Description	24
REAR DEFOGGER	9	Component Function Check	24
REAR DEFOGGER : CONSULT Function (BCM - REAR DEFOGGER)	9	Diagnosis Procedure	24
ECU DIAGNOSIS INFORMATION	11	Component Inspection	25
BCM (BODY CONTROL MODULE)	11	REAR WINDOW DEFOGGER POWER SUPPLY AND GROUND CIRCUIT	26
		Description	26
		Component Function Check	26
		Diagnosis Procedure	26
		Component Inspection	27
		DRIVER SIDE DOOR MIRROR DEFOGGER ...	28
		Description	28
		Component Function Check	28

Diagnosis Procedure	28
Component Inspection	29
PASSENGER SIDE DOOR MIRROR DEFOGGER	30
Description	30
Component Function Check	30
Diagnosis Procedure	30
Component Inspection	31
SYMPTOM DIAGNOSIS	32
DEFOGGER SYSTEM SYMPTOMS	32
Symptom Table	32
REAR WINDOW DEFOGGER AND DOOR MIRROR DEFOGGER DO NOT OPERATE.	33
Diagnosis Procedure	33
REAR WINDOW DEFOGGER DOES NOT OPERATE BUT BOTH OF DOOR MIRROR DEFOGGER OPERATE.	34
Diagnosis Procedure	34

BOTH DOORS MIRROR DEFOGGER DON'T OPERATE BUT REAR WINDOW DEFOGGER OPERATES	35
Diagnosis Procedure	35
DRIVER SIDE DOOR MIRROR DEFOGGER DOES NOT OPERATE.	36
Diagnosis Procedure	36
PASSENGER SIDE DOOR MIRROR DEFOGGER DOES NOT OPERATE.	37
Diagnosis Procedure	37
REAR WINDOW DEFOGGER SWITCH DOES NOT LIGHT, BUT REAR WINDOW DEFOGGER OPERATES	38
Diagnosis Procedure	38
REMOVAL AND INSTALLATION	39
FILAMENT	39
Inspection and Repair	39
CONDENSER	41
Removal and Installation	41

PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010247431

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Handling for Adhesive and Primer

INFOID:0000000010247855

- Do not use an adhesive which is past its usable date. Shelf life of this product is limited to six months after the date of manufacture. Carefully adhere to the expiration or manufacture date printed on the box.
- Keep primers and adhesive in a cool, dry place. Ideally, they should be stored in a refrigerator.
- Open the seal of the primer and adhesive just before application. Discard the remainder.
- Before application, be sure to shake the primer container to stir the contents. If any floating material is found, do not use it.
- If any primer or adhesive contacts the skin, wipe it off with gasoline or equivalent and wash the skin with soap.
- When using primer and adhesive, always observe the precautions in the instruction manual.

COMPONENT PARTS

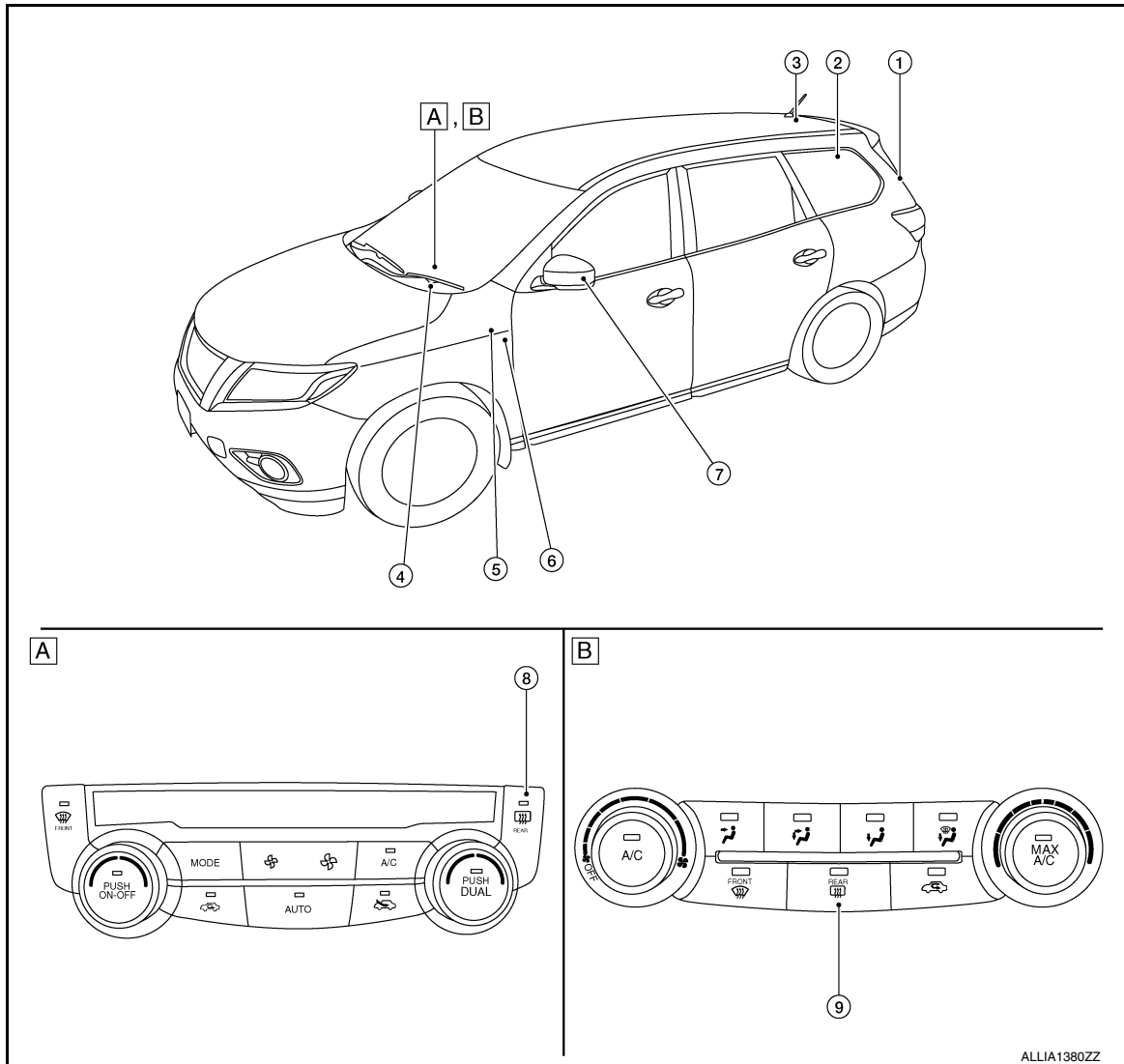
< SYSTEM DESCRIPTION >

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:0000000010002209



A. A/C switch (auto A/C)

A. Front air control (manual A/C)

No.	Component	Description
1.	Rear window defogger connector (Rear window defogger)	Refer to DEF-5, "Rear window defogger" .
2.		
3.	Rear window defogger condenser	Removes the noise that is generated when rear window defogger turns ON/OFF.
4.	A/C auto amp. ¹	Displays the rear window defogger ON to the display when detecting the operation of the rear window defogger.
5.	BCM	- Operates the rear window defogger with the operation of rear window defogger switch. - Performs the timer control of rear window defogger.
6.	Rear window defogger relay	Operates the rear window defogger and the door mirror defogger with the control signal from BCM.

COMPONENT PARTS

< SYSTEM DESCRIPTION >

No.	Component	Description
7.	Door mirror defogger ³	Refer to DEF-5, "Door mirror defogger" .
8.	A/C switch ¹ (rear window defogger switch)	- The rear window defogger switch is turned ON. - Turns the indicator lamp ON when detecting the operation of rear window defogger.
9.	Front air control ² (rear window defogger switch)	- The rear window defogger switch is turned ON. - Turns the indicator lamp ON when detecting the operation of rear window defogger.

¹: With auto A/C

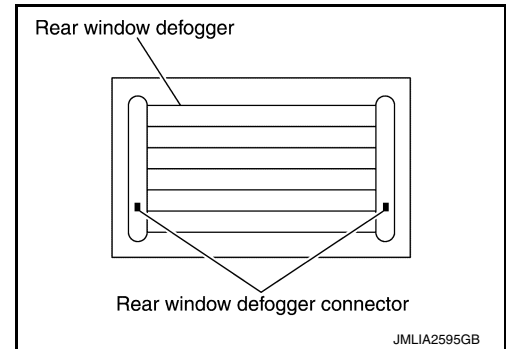
²: With manual A/C

³: With heated mirrors

Rear window defogger

INFOID:0000000010284255

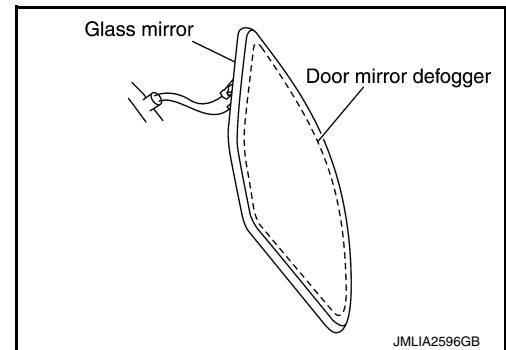
Heats the heating wire with the power supply from the rear window defogger relay to prevent the rear window from fogging up.



Door mirror defogger

INFOID:0000000010284256

Heats the heating wire with the power supply from the rear window defogger relay to prevent the door mirror from fogging up.



SYSTEM

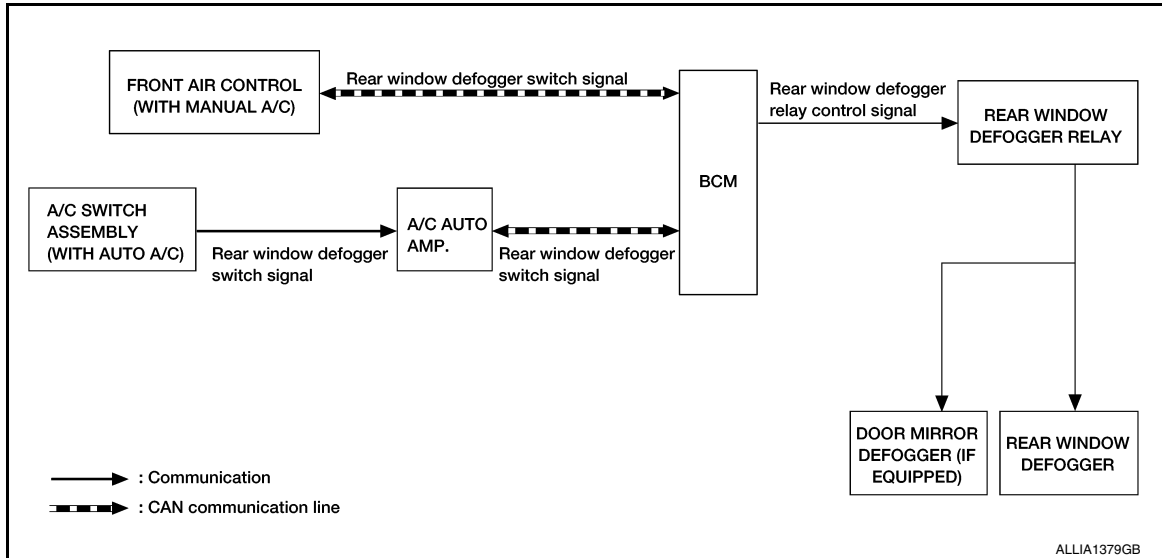
< SYSTEM DESCRIPTION >

SYSTEM

System Description

INFOID:0000000010002212

SYSTEM DIAGRAM



OPERATION DESCRIPTION

- When rear window defogger switch is turned ON while ignition switch is ON, the rear window defogger switch transmits rear window defogger switch signal to BCM.
- BCM turns rear window defogger relay ON when rear window defogger switch signal is received.
- Rear window defogger and door mirror defogger (with door mirror defogger) are supplied with power and operate when rear window defogger relay turns ON.
- Rear window defogger ON is displayed when front air control (manual A/C) or A/C switch (auto A/C) receives signals.

TIMER FUNCTION

- BCM turns rear window defogger relay ON for approximately 15 minutes when rear window defogger switch is turned ON while ignition switch is ON. It makes rear window defogger and door mirror defogger (with door mirror defogger) operate.
- Timer is canceled after pressing rear window defogger switch again during timer operation. Then BCM turns rear window defogger relay OFF. The same reaction also occurs during timer operation, if the ignition switch is turned OFF.

INPUT/OUTPUT SIGNAL CHART

Switch	Input signal to BCM	BCM function	Actuator
Rear window defogger switch	Defogger switch signal	Rear window defogger and door mirror defogger* control	Rear window defogger Door mirror defogger *

*: With door mirror defogger

DIAGNOSIS SYSTEM (BCM) (WITH INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (BCM) (WITH INTELLIGENT KEY SYSTEM) COMMON ITEM

COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)

INFOID:0000000010284246

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with BCM.

Direct Diagnostic Mode	Description
Ecu Identification	The BCM part number is displayed.
Self Diagnostic Result	The BCM self diagnostic results are displayed.
Data Monitor	The BCM input/output data is displayed in real time.
Active Test	The BCM activates outputs to test components.
Work support	The settings for BCM functions can be changed.
Configuration	- The vehicle specification can be read and saved. - The vehicle specification can be written when replacing BCM.
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.

SYSTEM APPLICATION

BCM can perform the following functions.

System	Sub System	Direct Diagnostic Mode						
		Ecu Identification	Self Diagnostic Result	Data Monitor	Active Test	Work support	Configuration	CAN Diag Support Mntr
Door lock	DOOR LOCK		×	×	×	×		
Rear window defogger	REAR DEFOGGER			×	×	×		
Warning chime	BUZZER			×	×			
Interior room lamp timer	INT LAMP			×	×	×		
Exterior lamp	HEADLAMP			×	×	×		
Wiper and washer	WIPER			×	×	×		
Turn signal and hazard warning lamps	FLASHER			×	×			
Intelligent Key system	INTELLIGENT KEY		×	×	×	×		
Combination switch	COMB SW			×				
BCM	BCM	×	×			×	×	×
Immobilizer	IMMU		×	×	×			
Interior room lamp battery saver	BATTERY SAVER			×	×			
Back door open	TRUNK			×				
Vehicle security system	THEFT ALM			×	×	×		
RAP system	RETAINED PWR			×				
Signal buffer system	SIGNAL BUFFER			×				
TPMS	AIR PRESSURE MONITOR		×	×	×	×		

REAR DEFOGGER

DIAGNOSIS SYSTEM (BCM) (WITH INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

REAR DEFOGGER : CONSULT Function (BCM - REAR DEFOGGER)

INFOID:0000000010284250

DATA MONITOR

Monitor Item [Unit]	Description
PUSH SW [On/Off]	Indicates condition of push-button ignition switch.
REAR DEF SW [On/Off]	Indicates condition of rear window defogger switch.

ACTIVE TEST

Test Item	Description
REAR DEFOGGER	This test is able to check rear window defogger operation [Off/On].

WORK SUPPORT

Support Item	Setting	Description
SET R-DEF TIMER	MODE3	Rear defogger turns OFF after 1 minute.
	MODE2	Rear defogger remains ON until turned OFF.
	MODE1*	Rear defogger turns OFF after 15 minutes.

* : Initial setting

DIAGNOSIS SYSTEM (BCM) (WITHOUT INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (BCM) (WITHOUT INTELLIGENT KEY SYSTEM) COMMON ITEM

COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)

INFOID:0000000010284248

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with BCM.

Direct Diagnostic Mode	Description
Ecu Identification	The BCM part number is displayed.
Self Diagnostic Result	The BCM self diagnostic results are displayed.
Data Monitor	The BCM input/output data is displayed in real time.
Active Test	The BCM activates outputs to test components.
Work support	The settings for BCM functions can be changed.
Configuration	- The vehicle specification can be read and saved. - The vehicle specification can be written when replacing BCM.
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.

SYSTEM APPLICATION

BCM can perform the following functions.

System	Sub System	Direct Diagnostic Mode						
		Ecu Identification	Self Diagnostic Result	Data Monitor	Active Test	Work support	Configuration	CAN Diag Support Mntr
Door lock	DOOR LOCK			x	x	x		
Rear window defogger	REAR DEFOGGER			x	x	x		
Warning chime	BUZZER			x	x			
Interior room lamp timer	INT LAMP			x	x	x		
Remote keyless entry system	MULTI REMOTE ENT					x		
Exterior lamp	HEADLAMP			x	x			
Wiper and washer	WIPER			x	x	x		
Turn signal and hazard warning lamps	FLASHER			x	x			
Combination switch	COMB SW			x				
BCM	BCM	x	x			x	x	x
Immobilizer	IMMU		x		x			
Interior room lamp battery saver	BATTERY SAVER			x	x			
Back door open	TRUNK			x				
Vehicle security system	THEFT ALM			x	x	x		
RAP system	RETAINED PWR			x				
TPMS	AIR PRESSURE MONITOR		x	x	x	x		

REAR DEFOGGER

REAR DEFOGGER : CONSULT Function (BCM - REAR DEFOGGER)

INFOID:0000000010284253

DATA MONITOR

DIAGNOSIS SYSTEM (BCM) (WITHOUT INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

Monitor Item [Unit]	Description
REAR DEF SW [On/Off]	Indicates condition of rear window defogger switch.

ACTIVE TEST

Test Item	Description
REAR DEFOGGER	This test is able to check rear window defogger operation [Off/On].

WORK SUPPORT

Support Item	Setting	Description
SET R-DEF TIMER	MODE3	Rear defogger turns OFF after 1 minute.
	MODE2	Rear defogger remains ON until turned OFF.
	MODE1*	Rear defogger turns OFF after 15 minutes.

* : Initial setting

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

ECU DIAGNOSIS INFORMATION

BCM (BODY CONTROL MODULE)

List of ECU Reference

INFOID:0000000010002215

ECU	Reference
BCM (with Intelligent Key system)	BCS-28, "Reference Value"
	BCS-47, "Fail Safe"
	BCS-47, "DTC Inspection Priority Chart"
	BCS-48, "DTC Index"
BCM (without Intelligent Key system)	BCS-96, "Reference Value"
	BCS-107, "Fail Safe"
	BCS-107, "DTC Inspection Priority Chart"
	BCS-108, "DTC Index"

A
B
C
D
E
F
G
H
I
J
K
DEF
M
N
O
P

DEF

REAR WINDOW DEFOGGER SYSTEM

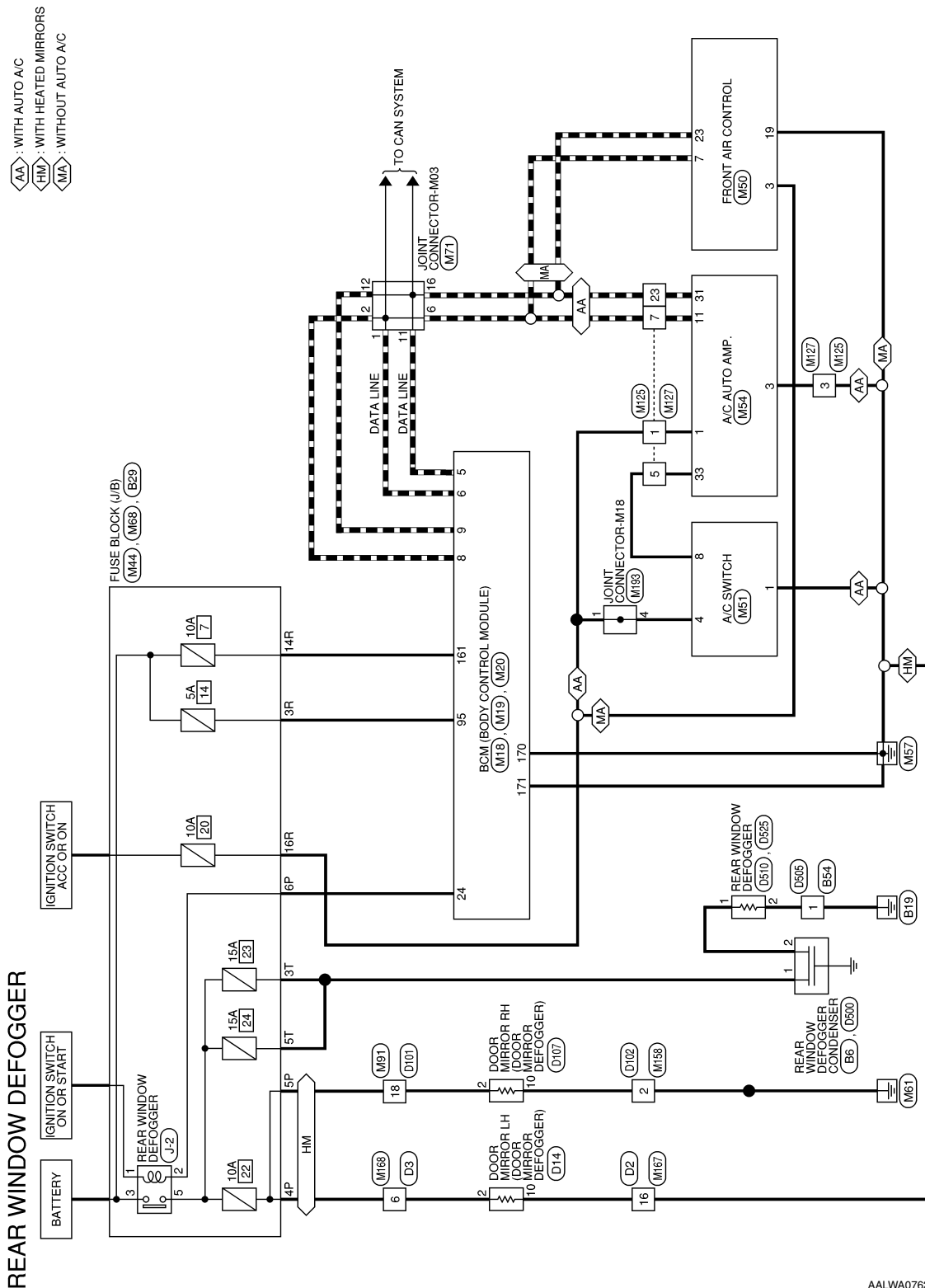
< WIRING DIAGRAM >

WIRING DIAGRAM

REAR WINDOW DEFOGGER SYSTEM

Wiring Diagram

INFOID:000000010002216



AALWA0762GB

REAR WINDOW DEFOGGER SYSTEM

< WIRING DIAGRAM >

REAR WINDOW DEFOGGER CONNECTORS

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY



20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21

Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



100	99	98	97	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81
120	119	118	117	116	115	114	113	112	111	110	109	108	107	106	105	104	103	102	101

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BROWN



167	166	165	164	163	162	161
176	175	174	173	172	171	170
169	168					

Terminal No.	Color of Wire	Signal Name
5	R	CAN-L
6	L	CAN-H
8	L	CAN-H
9	R	CAN-L
24	LA/R	O DEFROSTER RL D

Terminal No.	Color of Wire	Signal Name
95	V	I SHORTING PIN

Terminal No.	Color of Wire	Signal Name
161	W	I PWR ECU
170	B	I GND1
171	B	I GND2

Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



7P	6P	5P	4P	3P	2P	1P
16P	15P	14P	13P	12P	11P	10P
9P	8P					

Connector No.	M50
Connector Name	FRONT AIR CONTROL
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Connector No.	M51
Connector Name	A/C SWITCH
Connector Color	BLACK



1	2	3	4	5
6	7	8	9	10

Terminal No.	Color of Wire	Signal Name
4P	LG	-
5P	GR	-
6P	LA/R	-

Terminal No.	Color of Wire	Signal Name
3	SB	IGN TEMPO
7	L	CAN-H
19	B	GND
23	R	CAN-L

Terminal No.	Color of Wire	Signal Name
1	B	-
4	GR	-
8	LG	-

AALIA2107GB

A
B
C
D
E
F
G
H
I
J
K
DEF
M
N
O
P

REAR WINDOW DEFOGGER SYSTEM

< WIRING DIAGRAM >

Connector No.	M54
Connector Name	A/C AUTO AMP.
Connector Color	BLACK



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

Terminal No.	Color of Wire	Signal Name
1	SB	AUTO ACC
3	B	GND
11	L	CAN-H
31	R	CAN-L
33	LG	LIN SW AMP

Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN



7R	6R	5R	4R	3R	2R	1R
16R	15R	14R	13R	12R	11R	10R
9R	8R					

Terminal No.	Color of Wire	Signal Name
3R	V	-
14R	W	-
16R	GR	-

Connector No.	M71
Connector Name	JOINT CONNECTOR-M03
Connector Color	BLUE



9	8	7	6	5	4	3	2	1
20	19	18	17	16	15	14	13	12
11	10							

Terminal No.	Color of Wire	Signal Name
1	L	-
2	L	-
6	L	-
11	R	-
12	R	-
16	R	-

Connector No.	M91
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12
13	14	15	16	17	18	19	20	21	22	23	24

Terminal No.	Color of Wire	Signal Name
18	GR	-

Connector No.	M125
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Terminal No.	Color of Wire	Signal Name
1	SB	-
3	B	-
5	LG	-
7	L	-
23	R	-

Connector No.	M127
Connector Name	WIRE TO WIRE
Connector Color	WHITE



16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17

Terminal No.	Color of Wire	Signal Name
1	SB	-
3	B	-
5	LG	-
7	L	-
23	R	-

AALIA2108GB

REAR WINDOW DEFOGGER SYSTEM

< WIRING DIAGRAM >

Connector No.	M158
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4		5	6	7	
8	9	10	11	12	13	14	15	16

Connector No.	M167
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7		
8	9	10	11	12	13	14	15	16

Connector No.	M168
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12
13	14	15	16	17	18	19	20	21	22	23	24

Terminal No.	2
Color of Wire	GR
Signal Name	—

Terminal No.	16
Color of Wire	B
Signal Name	—

Terminal No.	6
Color of Wire	LG
Signal Name	—

Connector No.	M193
Connector Name	WIRE TO WIRE
Connector Color	WHITE



8	7	6	5	4	3	2	1
---	---	---	---	---	---	---	---

Connector No.	B6
Connector Name	REAR WINDOW DEFOGGER CONDENSER
Connector Color	BLACK



1

Connector No.	B29
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



2T		1T	
6T	5T	4T	3T

Terminal No.	1	4
Color of Wire	GR	GR
Signal Name	—	—

Terminal No.	1
Color of Wire	G
Signal Name	—

Terminal No.	3T	5T
Color of Wire	G	G
Signal Name	—	—

AALIA2109GB

REAR WINDOW DEFOGGER SYSTEM

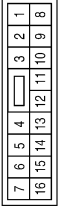
< WIRING DIAGRAM >

Connector No.	B54
Connector Name	WIRE TO WIRE
Connector Color	WHITE



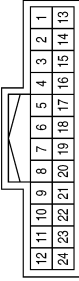

Terminal No.	1
Color of Wire	B
Signal Name	–

Connector No.	D2
Connector Name	WIRE TO WIRE
Connector Color	WHITE

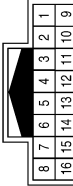
Terminal No.	16
Color of Wire	B
Signal Name	–

Connector No.	D3
Connector Name	WIRE TO WIRE
Connector Color	WHITE

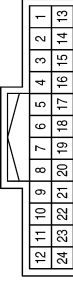
Terminal No.	6
Color of Wire	LG
Signal Name	–

Connector No.	D14
Connector Name	DOOR MIRROR LH
Connector Color	WHITE

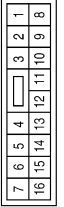
Terminal No.	Color of Wire	Signal Name
2	LG	-
10	B	-

Connector No.	D101
Connector Name	WIRE TO WIRE
Connector Color	WHITE

Terminal No.	18
Color of Wire	GR
Signal Name	–

Connector No.	D102
Connector Name	WIRE TO WIRE
Connector Color	WHITE

Terminal No.	2
Color of Wire	LA/G
Signal Name	–

AALIA2110GB

REAR WINDOW DEFOGGER SYSTEM

< WIRING DIAGRAM >

Connector No.	D505
Connector Name	WIRE TO WIRE
Connector Color	WHITE



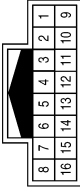
Terminal No.	1	Color of Wire	B	Signal Name	—
--------------	---	---------------	---	-------------	---

Connector No.	D500
Connector Name	REAR WINDOW DEFOGGER CONDENSER
Connector Color	BLACK



Terminal No.	2	Color of Wire	G	Signal Name	—
--------------	---	---------------	---	-------------	---

Connector No.	D107
Connector Name	DOOR MIRROR RH
Connector Color	WHITE



Terminal No.	2	Color of Wire	GR	Signal Name	—
10	LA/G				—

Connector No.	D525
Connector Name	REAR WINDOW DEFOGGER
Connector Color	BLACK



Terminal No.	2	Color of Wire	B	Signal Name	—
--------------	---	---------------	---	-------------	---

Connector No.	D510
Connector Name	REAR WINDOW DEFOGGER
Connector Color	BLACK



Terminal No.	1	Color of Wire	G	Signal Name	—
--------------	---	---------------	---	-------------	---

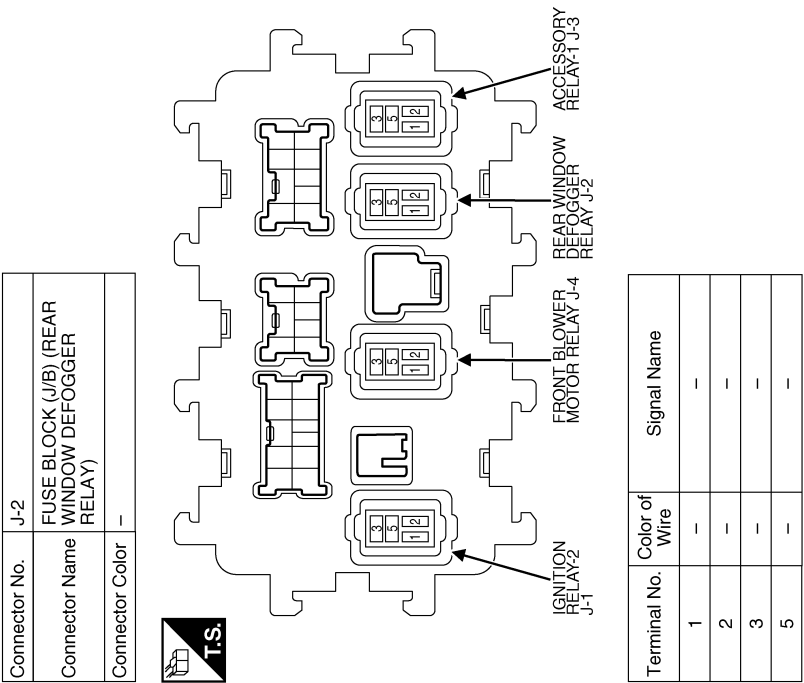
AALIA2111GB

A	
B	
C	
D	
E	
F	
G	
H	
I	
J	
K	
DEF	

M	
N	
O	
P	

REAR WINDOW DEFOGGER SYSTEM

< WIRING DIAGRAM >



AALIA2238GB

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

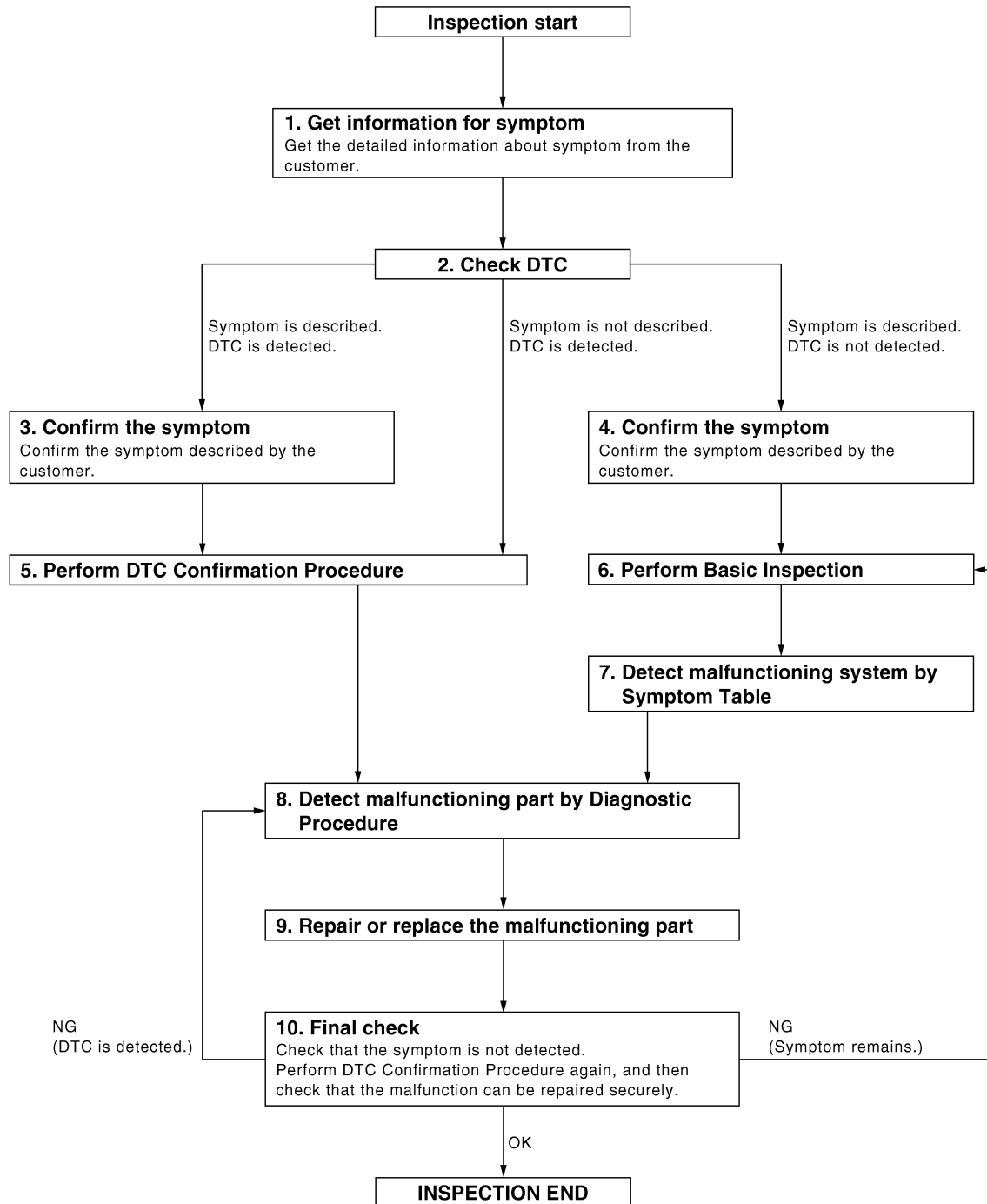
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:0000000010002217

OVERALL SEQUENCE



DETAILED FLOW

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

1. GET INFORMATION FOR SYMPTOM

Get the detailed information from the customer about the symptom (the condition and the environment when the incident/malfunction occurred).

>> GO TO 2.

2. CHECK DTC

1. Check DTC.
2. Perform the following procedure if DTC is displayed.
 - Record DTC and freeze frame data (Print them out with CONSULT.)
 - Erase DTC.
 - Study the relationship between the cause detected by DTC and the symptom described by the customer.
3. Check related service bulletins for information.

Is any symptom described and any DTC detected?

Symptom is described, DTC is displayed>>GO TO 3.

Symptom is described, DTC is not displayed>>GO TO 4.

Symptom is not described, DTC is displayed>>GO TO 5.

3. CONFIRM THE SYMPTOM

Confirm the symptom described by the customer.

Connect CONSULT to the vehicle in "DATA MONITOR" mode and check real time diagnosis results.

Verify relation between the symptom and the condition when the symptom is detected.

>> GO TO 5.

4. CONFIRM THE SYMPTOM

Confirm the symptom described by the customer.

Connect CONSULT to the vehicle in "DATA MONITOR" mode and check real time diagnosis results.

Verify relation between the symptom and the condition when the symptom is detected.

>> GO TO 6.

5. PERFORM DTC CONFIRMATION PROCEDURE

Perform DTC Confirmation Procedure for the displayed DTC, and then check that DTC is detected again.

At this time, always connect CONSULT to the vehicle, and check diagnostic results in real time.

If two or more DTCs are detected, refer to [BCS-47, "DTC Inspection Priority Chart"](#) (with Intelligent Key system) or [BCS-107, "DTC Inspection Priority Chart"](#) (without Intelligent Key system) and determine trouble diagnosis order.

NOTE:

- Freeze frame data is useful if the DTC is not detected.
- Perform Component Function Check if DTC Confirmation Procedure is not included in Service Manual. This simplified check procedure is an effective alternative though DTC cannot be detected during this check. If the result of Component Function Check is NG, it is the same as the detection of DTC by DTC Confirmation Procedure.

Is DTC detected?

YES >> GO TO 8.

NO >> Refer to [GI-41, "Intermittent Incident"](#).

6. PERFORM BASIC INSPECTION

Perform [DEF-19, "Work Flow"](#).

>> GO TO 7

7. DETECT MALFUNCTIONING SYSTEM BY SYMPTOM TABLE

Detect malfunctioning system according to [DEF-6, "System Description"](#) based on the confirmed symptom in step 4, and determine the trouble diagnosis order based on possible causes and symptom.

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

>> GO TO 8.

8. DETECT MALFUNCTIONING PART BY DIAGNOSTIC PROCEDURE

Inspect according to Diagnostic Procedure of the system.

NOTE:

The Diagnostic Procedure described based on open circuit inspection. A short circuit inspection is also required for the circuit check in the Diagnostic Procedure.

Is malfunctioning part detected?

YES >> GO TO 9.

NO >> Check voltage of related BCM terminals using CONSULT.

9. REPAIR OR REPLACE THE MALFUNCTIONING PART

1. Repair or replace the malfunctioning part.
2. Reconnect parts or connectors disconnected during Diagnostic Procedure again after repair and replacement.
3. Check DTC. If DTC is displayed, erase it.

>> GO TO 10.

10. FINAL CHECK

When DTC was detected in step 2, perform DTC Confirmation Procedure or Component Function Check again, and then check that the malfunction have been repaired securely.

When symptom was described from the customer, refer to confirmed symptom in step 3 or 4, and check that the symptom is not detected.

Does the symptom reappear?

YES (DTC is detected)>>GO TO 8.

YES (Symptom remains)>>GO TO 6.

NO >> Inspection End.

A

B

C

D

E

F

G

H

I

J

K

DEF

M

N

O

P

REAR WINDOW DEFOGGER SWITCH

< DTC/CIRCUIT DIAGNOSIS >

DTC/CIRCUIT DIAGNOSIS

REAR WINDOW DEFOGGER SWITCH WITH MANUAL A/C

WITH MANUAL A/C : Description

INFOID:0000000010002218

- The rear window defogger is operated by pressing the rear window defogger switch ON.
- The indicator lamp in the rear window defogger switch illuminates while the rear window defogger is ON.

WITH MANUAL A/C : Component Function Check

INFOID:0000000010002219

1. CHECK REAR WINDOW DEFOGGER SWITCH FUNCTION

Check that the indicator lamp of the rear window defogger switch illuminates when rear window defogger switch is ON.

Is the inspection result normal?

- YES >> Rear window defogger switch function is OK.
NO >> Refer to [DEF-22, "WITH MANUAL A/C : Diagnosis Procedure"](#).

WITH MANUAL A/C : Diagnosis Procedure

INFOID:0000000010002220

Regarding Wiring Diagram information, refer to [DEF-12, "Wiring Diagram"](#).

1. CHECK REAR WINDOW DEFOGGER SWITCH OPERATION

④ With CONSULT

1. Select "REAR DEFOGGER" of "BCM" using CONSULT.
2. Select "REAR DEF SW" in "Data Monitor" mode.
3. Check "REAR DEF SW" indication under the following conditions.

Monitor item	Condition		Status
REAR DEF SW	Rear window defogger switch	Pressed	On
		Not Pressed	Off

Is the inspection result normal?

- YES >> Rear window defogger switch is OK.
NO >> Replace front air control. Refer to [HAC-181, "Removal and Installation"](#).

WITH AUTO A/C

WITH AUTO A/C : Description

INFOID:0000000010002221

- The rear window defogger is operated by pressing the rear window defogger switch ON.
- The indicator lamp in the rear window defogger switch illuminates while the rear window defogger is ON.

WITH AUTO A/C : Component Function Check

INFOID:0000000010002222

1. CHECK REAR WINDOW DEFOGGER SWITCH FUNCTION

Check that the indicator lamp of the rear window defogger switch illuminates when rear window defogger switch is ON.

Is the inspection result normal?

- YES >> Rear window defogger switch function is OK.
NO >> Refer to [DEF-22, "WITH MANUAL A/C : Diagnosis Procedure"](#).

WITH AUTO A/C : Diagnosis Procedure

INFOID:0000000010002223

REAR WINDOW DEFOGGER SWITCH

< DTC/CIRCUIT DIAGNOSIS >

Regarding Wiring Diagram information, refer to [DEF-12. "Wiring Diagram"](#).

1. CHECK REAR WINDOW DEFOGGER SWITCH OPERATION

④ With CONSULT

1. Select "REAR DEFOGGER" of "BCM" using CONSULT.
2. Select "REAR DEF SW" in "Data Monitor" mode.
3. Check "REAR DEF SW" indication under the following conditions.

Monitor item	Condition		Status
REAR DEF SW	Rear window defogger switch	Pressed	On
		Not Pressed	Off

Is the inspection result normal?

YES >> Rear window defogger switch is OK.

NO >> Replace A/C switch. Refer to [HAC-102. "Removal and Installation"](#).

A
B
C
D
E
F
G
H
I
J
K
DEF
M
N
O
P

REAR WINDOW DEFOGGER RELAY

< DTC/CIRCUIT DIAGNOSIS >

REAR WINDOW DEFOGGER RELAY

Description

INFOID:0000000010002224

Power is supplied to the rear window defogger with BCM control.

Component Function Check

INFOID:0000000010002225

1. CHECK REAR WINDOW DEFOGGER RELAY POWER SUPPLY CIRCUIT

Check that an operation noise of rear window defogger relay [located in fuse block (J/B)] can be heard when turning the rear window defogger switch ON.

Is the inspection result normal?

YES >> Rear window defogger relay power supply circuit is OK.

NO >> Refer to [DEF-24, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010002226

Regarding Wiring Diagram information, refer to [DEF-12, "Wiring Diagram"](#).

1. CHECK REAR WINDOW DEFOGGER RELAY GROUND CIRCUIT

1. Turn ignition switch ON.
2. Check voltage between BCM connector and ground.

(+) BCM		(-)	Condition	Voltage (V) (Approx.)
Connector	Terminal			
M18	24	Ground	Rear window de-fogger switch	ON
				OFF
				0
				Battery voltage

Is the inspection result normal?

YES >> Rear window defogger power supply circuit is OK.

NO >> GO TO 2.

2. CHECK HARNESS CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect BCM and fuse block (J/B).
3. Check continuity between BCM connector and fuse block (J/B) connector.

BCM		Fuse block (J/B)		Continuity
Connector	Terminal	Connector	Terminal	
M18	24	M44	6P	Yes

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness.

3. CHECK REAR WINDOW DEFOGGER RELAY

Check rear window defogger relay.

Refer to [DEF-25, "Component Inspection"](#).

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

NO >> Replace rear window defogger relay.

REAR WINDOW DEFOGGER RELAY

< DTC/CIRCUIT DIAGNOSIS >

Component Inspection

INFOID:0000000010002227

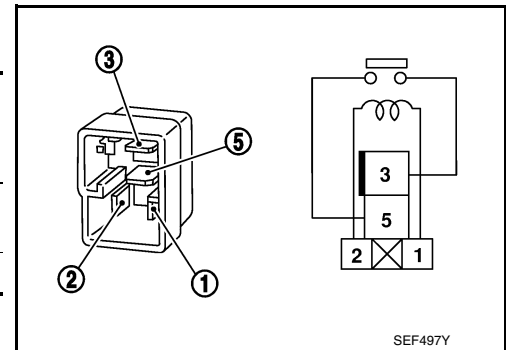
1. CHECK REAR WINDOW DEFOGGER RELAY

Check rear window defogger relay.

Terminal		Condition	Continuity
Rear window defogger relay			
3	5	12V direct current supply between terminals 1 and 2.	Yes
		No current supply	No

Is the inspection result normal?

YES >> Inspection End.
NO >> Replace rear window defogger relay.



A
B
C
D
E
F
G
H
I
J
K
DEF
M
N
O
P

REAR WINDOW DEFOGGER POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

REAR WINDOW DEFOGGER POWER SUPPLY AND GROUND CIRCUIT

Description

INFOID:0000000010002228

Heats the heating wire with the power supply from the rear window defogger relay to prevent the rear window from fogging up.

Component Function Check

INFOID:0000000010002229

1. CHECK REAR WINDOW DEFOGGER

Check that the heating wire of rear window defogger is heated when turning the rear window defogger switch ON.

Is the inspection result normal?

- YES >> Rear window defogger is OK.
NO >> Refer to [DEF-26, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010002230

Regarding Wiring Diagram information, refer to [DEF-12, "Wiring Diagram"](#).

1. CHECK FUSES

Check if any of the following fuses in fuse block (J/B) are blown.

COMPONENT PARTS	AMPERE	FUSE NO.
Fuse block (J/B)	15A	23
	15A	24

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Replace the blown fuse after repairing the affected circuit.

2. CHECK REAR WINDOW DEFOGGER POWER SUPPLY CIRCUIT

- Turn ignition switch ON.
- Check voltage between fuse block (J/B) connector and ground.

(+)Fuse block (J/B)		(-)	Condition	Voltage (V) (Approx.)
Connector	Terminal			
B29	3T, 5T	Ground	Rear window de-fogger switch	Battery voltage
			ON	
			OFF	0

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Perform rear window defogger relay diagnosis. Refer to [DEF-24, "Diagnosis Procedure"](#).

3. CHECK POWER SUPPLY CIRCUIT

- Turn ignition switch ON.
- Check voltage between rear window defogger connector and ground.

REAR WINDOW DEFOGGER POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

(+)		(-)	Condition		Voltage (V) (Approx.)
Rear window defogger					
Connector	Terminal				
D510	1	Ground	Rear window de- fogger switch	ON	Battery voltage
				OFF	0

Is the inspection result normal?

YES >> GO TO 4.

NO >> GO TO 5.

4. CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect rear window defogger.
3. Check continuity between rear window defogger connector and ground.

Rear window defogger		Ground	Continuity
Connector	Terminal		
D525	2		Yes

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace harness.

5. CHECK HARNESS CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect fuse block (J/B).
3. Check continuity between fuse block (J/B) connector and rear window defogger condenser connector.

Fuse block (J/B)		Rear window defogger condenser		Continuity
Connector	Terminal	Connector	Terminal	
B29	3T	B6	1	Yes
	5T			

Is the inspection result normal?

YES >> Replace rear window defogger condenser. Refer to [DEF-41, "Removal and Installation"](#).

NO >> Replace or repair harness.

6. CHECK FILAMENT

Check filament.

Refer to [DEF-27, "Component Inspection"](#).

Is the inspection result normal?

YES >> Refer to [GI-41, "Intermittent Incident"](#).

NO >> Repair filament. Refer to [DEF-39, "Inspection and Repair"](#).

Component Inspection

INFOID:0000000010002231

1. CHECK FILAMENT

Check the filament for damage or open circuits.

Refer to [DEF-39, "Inspection and Repair"](#).

Is the inspection result normal?

YES >> Inspection End.

NO >> Repair filament. Refer to [DEF-39, "Inspection and Repair"](#).

DRIVER SIDE DOOR MIRROR DEFOGGER

< DTC/CIRCUIT DIAGNOSIS >

DRIVER SIDE DOOR MIRROR DEFOGGER

Description

INFOID:0000000010002232

Heats the heating wire with the power supply from the rear window defogger relay to prevent the door mirror from fogging up.

Component Function Check

INFOID:0000000010002233

1. CHECK DOOR MIRROR DEFOGGER LH

Check that heating wire of door mirror defogger LH is heated when turning the rear window defogger switch ON.

Is the inspection result normal?

- YES >> Door mirror defogger is OK.
NO >> Refer to [DEF-28, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010002234

Regarding Wiring Diagram information, refer to [DEF-12, "Wiring Diagram"](#).

1. CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect door mirror LH.
3. Turn ignition switch ON.
4. Check voltage between door mirror LH connector and ground.

(+)		(–)	Condition	Voltage (V) (Approx.)	
Door mirror LH					
Connector	Terminal				
D14	2	Ground	Rear window de-fogger switch	ON	Battery voltage
				OFF	0

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace harness.

2. CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check continuity between door mirror LH connector and ground.

Door mirror LH		Ground	Continuity
Connector	Terminal		
D14	10		Yes

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace harness.

3. CHECK DOOR MIRROR DEFOGGER LH

Check door mirror defogger LH.
Refer to [DEF-29, "Component Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Replace door mirror. Refer to [MIR-22, "Removal and Installation"](#).

DRIVER SIDE DOOR MIRROR DEFOGGER

< DTC/CIRCUIT DIAGNOSIS >

4. CHECK INTERMITTENT INCIDENT

Check intermittent incident.

Refer to [GI-41, "Intermittent Incident"](#).

Is the inspection result normal?

- YES >> Check the following.
- Battery power supply circuit.
 - Fuse block (J/B).
- NO >> Repair or replace the malfunctioning parts.

Component Inspection

INFOID:0000000010002235

1. CHECK DOOR MIRROR DEFOGGER LH

1. Turn ignition switch OFF.
2. Disconnect door mirror LH.
3. Check continuity between door mirror terminals.

Terminal		Continuity
2	10	Yes

Is the inspection result normal?

- YES >> Inspection End.
- NO >> Replace door mirror LH. Refer to [MIR-22, "Removal and Installation"](#).

A
B
C
D
E
F
G
H
I
J
K
DEF
M
N
O
P

PASSENGER SIDE DOOR MIRROR DEFOGGER

< DTC/CIRCUIT DIAGNOSIS >

PASSENGER SIDE DOOR MIRROR DEFOGGER

Description

INFOID:0000000010002236

Heats the heating wire with the power supply from the rear window defogger relay to prevent the door mirror from fogging up.

Component Function Check

INFOID:0000000010002237

1. CHECK DOOR MIRROR DEFOGGER RH

Check that the heating wire of door mirror defogger RH is heated when turning the rear window defogger switch ON.

Is the inspection result normal?

- YES >> Door mirror defogger RH is OK.
NO >> Refer to [DEF-30, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010002238

Regarding Wiring Diagram information, refer to [DEF-12, "Wiring Diagram"](#).

1. CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect door mirror RH.
3. Turn ignition switch ON.
4. Check voltage between door mirror RH connector and ground.

(+)Door mirror RH		(-)	Condition	Voltage (V) (Approx.)
Connector	Terminal			
D107	2	Ground	Rear window de-fogger switch	ON
				OFF
				Battery voltage
				0

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace harness.

2. CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check continuity between door mirror RH connector and ground.

Door mirror RH		Ground	Continuity
Connector	Terminal		
D107	10		Yes

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace harness.

3. CHECK PASSENGER SIDE DOOR MIRROR DEFOGGER

Check door mirror defogger RH.
Refer to [DEF-31, "Component Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Replace door mirror RH. Refer to [MIR-22, "Removal and Installation"](#).

PASSENGER SIDE DOOR MIRROR DEFOGGER

< DTC/CIRCUIT DIAGNOSIS >

4. CHECK INTERMITTENT INCIDENT

Check intermittent incident.
Refer to [GI-41, "Intermittent Incident"](#).

Is the inspection result normal?

- YES >> Check the following.
 - Battery power supply circuit.
 - Fuse block (J/B).
- NO >> Repair or replace the malfunctioning parts.

Component Inspection

INFOID:0000000010002239

1. CHECK DOOR MIRROR DEFOGGER RH

1. Turn ignition switch OFF.
2. Disconnect door mirror RH.
3. Check continuity between door mirror terminals.

Terminal		Continuity
2	10	Yes

Is the inspection result normal?

- YES >> Inspection End.
- NO >> Replace door mirror RH. Refer to [MIR-22, "Removal and Installation"](#).

DEF

DEFOGGER SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

SYMPTOM DIAGNOSIS

DEFOGGER SYSTEM SYMPTOMS

Symptom Table

INFOID:0000000010002240

Symptom	Reference page
Rear window defoggers and door mirror defoggers* do not operate.	Refer to DEF-33, "Diagnosis Procedure" .
Rear window defoggers do not operate but both of the door mirror defoggers* operate.	Refer to DEF-34, "Diagnosis Procedure" .
Both door mirror defoggers* don't operate but rear window defoggers operate.	Refer to DEF-35, "Diagnosis Procedure" .
Driver side door mirror defogger* does not operate.	Refer to DEF-36, "Diagnosis Procedure" .
Passenger side door mirror defogger* does not operate.	Refer to DEF-37, "Diagnosis Procedure" .
Rear window defogger switch does not light, but rear window defogger operates.	Refer to DEF-38, "Diagnosis Procedure" .

*:if equipped

REAR WINDOW DEFOGGER AND DOOR MIRROR DEFOGGER DO NOT OPERATE.

< SYMPTOM DIAGNOSIS >

REAR WINDOW DEFOGGER AND DOOR MIRROR DEFOGGER DO NOT OPERATE.

Diagnosis Procedure

INFOID:0000000010002241

Regarding Wiring Diagram information, refer to [DEF-12. "Wiring Diagram"](#).

1. CHECK REAR WINDOW DEFOGGER SWITCH

Check rear window defogger switch.

Refer to [DEF-22. "WITH MANUAL A/C : Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning parts.

2. CHECK REAR WINDOW DEFOGGER RELAY

Check rear window defogger relay.

Refer to [DEF-24. "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace the malfunctioning parts.

3. CHECK REAR WINDOW DEFOGGER POWER SUPPLY AND GROUND CIRCUIT

Check rear window defogger power supply and ground circuit.

Refer to [DEF-26. "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace the malfunctioning parts.

4. CHECK DOOR MIRROR DEFOGGER POWER SUPPLY

1. Turn ignition switch ON.

2. Check voltage between fuse block (J/B) connector and ground.

(+)		(-)	Condition		Voltage (V) (Approx.)
Fuse block (J/B)					
Connector	Terminal				
M44	4P, 5P	Ground	Rear window de-fogger switch	ON	Battery voltage
				OFF	0

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace fuse block (J/B).

5. CHECK BOTH DOOR MIRROR DEFOGGER

1. Check door mirror LH. Refer to [DEF-28. "Component Function Check"](#).

2. Check door mirror RH. Refer to [DEF-30. "Component Function Check"](#).

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-41. "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning parts.

REAR WINDOW DEFOGGER DOES NOT OPERATE BUT BOTH OF DOOR MIRROR DEFOGGER OPERATE.

< SYMPTOM DIAGNOSIS >

REAR WINDOW DEFOGGER DOES NOT OPERATE BUT BOTH OF DOOR MIRROR DEFOGGER OPERATE.

Diagnosis Procedure

INFOID:0000000010002242

1. CHECK REAR WINDOW DEFOGGER POWER SUPPLY AND GROUND CIRCUIT

Check rear window defogger power supply and ground circuit.

Refer to [DEF-26, "Component Function Check"](#).

Is the inspection result normal?

YES >> Refer to [GI-41, "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning parts.

BOTH DOORS MIRROR DEFOGGER DON'T OPERATE BUT REAR WINDOW DEFOGGER OPERATES

< SYMPTOM DIAGNOSIS >

BOTH DOORS MIRROR DEFOGGER DON'T OPERATE BUT REAR WINDOW DEFOGGER OPERATES

Diagnosis Procedure

INFOID:0000000010002243

Regarding Wiring Diagram information, refer to [DEF-12, "Wiring Diagram"](#).

1. CHECK DOOR MIRROR DEFOGGER FUSE

Check if the following fuse in fuse block (J/B) is blown.

COMPONENT PARTS	AMPERE	FUSE NO.
Fuse block (J/B)	10A	22

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the blown fuse after repairing the affected circuit.

2. CHECK DOOR MIRROR DEFOGGER POWER SUPPLY CIRCUIT

1. Turn ignition switch ON.
2. Check voltage between fuse block (J/B) harness connector and ground.

(+)		(-)	Condition	Voltage (V) (Approx.)	
Fuse block (J/B)					
Connector	Terminal				
M44	4P, 5P	Ground	Rear window de-fogger switch	ON	Battery voltage
				OFF	0

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace fuse block (J/B).

3. CHECK BOTH DOOR MIRROR DEFOGGER

1. Check door mirror LH. Refer to [DEF-28, "Component Function Check"](#).
2. Check door mirror RH. Refer to [DEF-30, "Component Function Check"](#).

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning parts.

DRIVER SIDE DOOR MIRROR DEFOGGER DOES NOT OPERATE.

< SYMPTOM DIAGNOSIS >

DRIVER SIDE DOOR MIRROR DEFOGGER DOES NOT OPERATE.

Diagnosis Procedure

INFOID:0000000010002244

1. CHECK DOOR MIRROR DEFOGGER LH

Check door mirror defogger LH.

Refer to [DEF-28, "Component Function Check"](#).

Is the inspection result normal?

YES >> Refer to [GI-41, "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning parts.

PASSENGER SIDE DOOR MIRROR DEFOGGER DOES NOT OPERATE.

< SYMPTOM DIAGNOSIS >

PASSENGER SIDE DOOR MIRROR DEFOGGER DOES NOT OPERATE.

Diagnosis Procedure

INFOID:0000000010002245

1. CHECK DOOR MIRROR DEFOGGER RH

Check door mirror defogger RH.

Refer to [DEF-30, "Component Function Check"](#).

Is the inspection result normal?

YES >> Refer to [GI-41, "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning parts.

A
B
C
D
E
F
G
H
I
J
K
DEF
M
N
O
P

REAR WINDOW DEFOGGER SWITCH DOES NOT LIGHT, BUT REAR WINDOW DEFOGGER OPERATES

< SYMPTOM DIAGNOSIS >

REAR WINDOW DEFOGGER SWITCH DOES NOT LIGHT, BUT REAR WINDOW DEFOGGER OPERATES

Diagnosis Procedure

INFOID:0000000010002246

1. CHECK REAR WINDOW DEFOGGER SWITCH

Check that the rear window defogger switch is operating normally.

Is the inspection result normal?

YES >> Refer to [GI-41, "Intermittent Incident"](#).

NO >> Refer to [DEF-22, "WITH MANUAL A/C : Diagnosis Procedure"](#) or [DEF-22, "WITH AUTO A/C : Diagnosis Procedure"](#).

FILAMENT

< REMOVAL AND INSTALLATION >

REMOVAL AND INSTALLATION

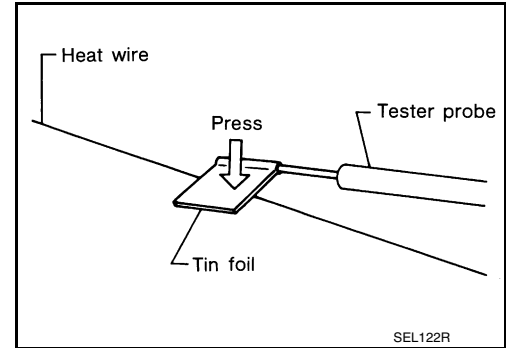
FILAMENT

Inspection and Repair

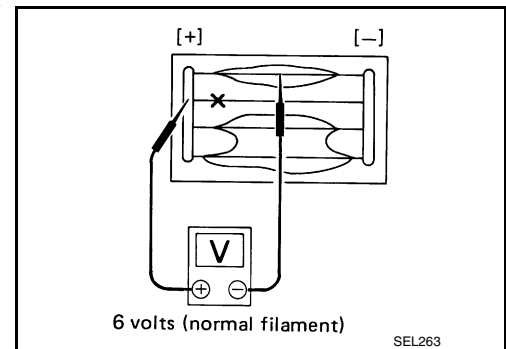
INFOID:000000009796646

INSPECTION

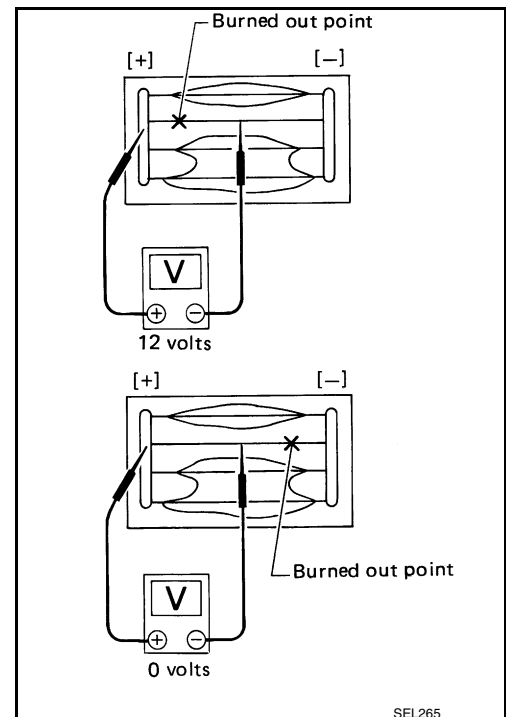
1. When measuring voltage, wrap tin foil around the top of the negative probe. Then press the foil against the wire with your finger.



2. Attach probe circuit tester (in Volt range) to middle portion of each filament.



3. If a filament is burned out, circuit tester registers 0 or battery voltage.
4. To locate burned out point, move probe to left and right along filament. Test needle will swing abruptly when probe passes the point.



REPAIR

REPAIR EQUIPMENT

- Conductive silver composition (Dupont No. 4817 or equivalent)

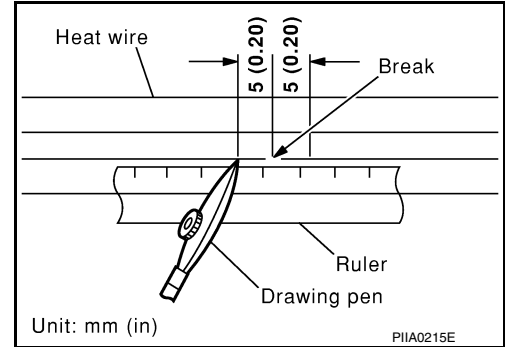
FILAMENT

< REMOVAL AND INSTALLATION >

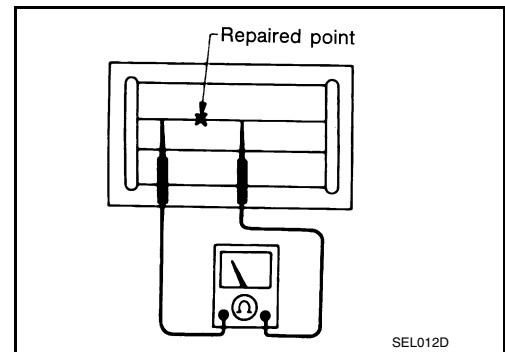
- Ruler 30 cm (11.8 in) long
- Drawing pen
- Heat gun
- Alcohol
- Cloth

REPAIRING PROCEDURE

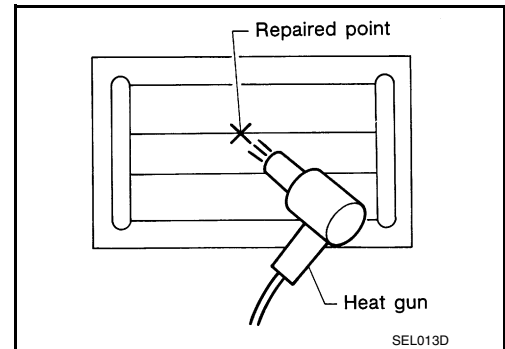
1. Wipe broken heat wire and its surrounding area clean with a cloth dampened in alcohol.
2. Apply a small amount of conductive silver composition to tip of drawing pen. Shake silver composition container before use.
3. Place ruler on glass along broken line. Deposit conductive silver composition on break with drawing pen. Slightly overlap existing heat wire on both sides [preferably 5 mm (0.20 in)] of the break.



4. After repair has been completed, check repaired wire for continuity. This check should be conducted 10 minutes after silver composition is deposited.
Do not touch repaired area while test is being conducted.



5. Apply a constant stream of hot air directly to the repaired area for approximately 20 minutes with a heat gun. A minimum distance of 3 cm (1.2 in) should be kept between repaired area and hot air outlet.
If a heat gun is not available, let the repaired area dry for 24 hours.



CONDENSER

< REMOVAL AND INSTALLATION >

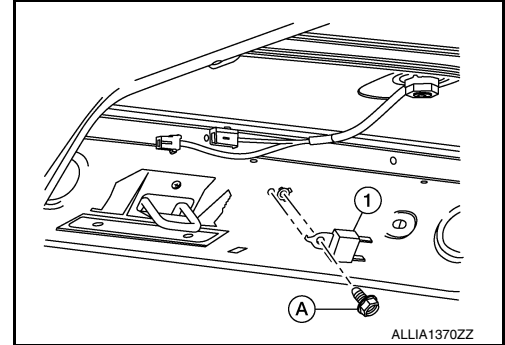
CONDENSER

Removal and Installation

INFOID:000000010247854

REMOVAL

1. Partially lower headlining (rear). Refer to [INT-30. "Removal and Installation"](#).
2. Disconnect the harness connectors from the condenser.
3. Remove the bolt (A) and the condenser (1).



INSTALLATION

Installation is in the reverse order of removal.

A
B
C
D
E
F
G
H
I
J
K
DEF
M
N
O
P

SECTION **DLK** DOOR & LOCK

CONTENTS

WITH INTELLIGENT KEY SYSTEM

PRECAUTION11

PRECAUTIONS11

- Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER" 11
- Precaution for Servicing Doors and Locks 11

PREPARATION12

PREPARATION12

- Special Service Tool 12
- Commercial Service Tool 13

SYSTEM DESCRIPTION14

COMPONENT PARTS14

POWER DOOR LOCK SYSTEM14

- POWER DOOR LOCK SYSTEM : Component Parts Location 14

INTELLIGENT KEY SYSTEM16

- INTELLIGENT KEY SYSTEM : Component Parts Location 17

INTEGRATED HOMELINK TRANSMITTER19

- INTEGRATED HOMELINK TRANSMITTER : Component Parts Location 19

AUTOMATIC BACK DOOR SYSTEM19

- AUTOMATIC BACK DOOR SYSTEM : Component Parts Location 20
- Automatic Back Door Control Module 21
- Automatic Back Door Switch 21
- Automatic Door Main Switch 21
- Automatic Back Door Warning Buzzer 21
- Automatic Back Door Close Switch 21
- Back Door Lock Assembly 21
- Automatic Back Door Opener Switch 21
- Back Door Touch Sensor 21

- Back Door Opener Switch22
- Back Door Request Switch22
- Door Lock and Unlock Switch (Driver Side)22
- Door Lock and Unlock Switch (Passenger Side)22
- Inside Key Antenna (Instrument Center)22
- Inside Key Antenna (Console)23
- Outside Key Antenna (Rear Bumper)23
- Outside Key Antenna (LH)23
- Outside Key Antenna (RH)23
- Intelligent Key Warning Buzzer24
- Front Door Request Switch (LH)24
- Front Door Request Switch (RH)24
- Front Door Switch24
- Rear Door Switch25
- Front Door Lock Assembly (LH)25
- Spindle Unit25
- Integrated Homelink Transmitter25

SYSTEM (POWER DOOR LOCK SYSTEM)26

- System Diagram26
- System Description26

SYSTEM (INTELLIGENT KEY SYSTEM)28

INTELLIGENT KEY SYSTEM28

- INTELLIGENT KEY SYSTEM : System Diagram....28
- INTELLIGENT KEY SYSTEM : System Description28

DOOR LOCK FUNCTION29

- DOOR LOCK FUNCTION : System Diagram29
- DOOR LOCK FUNCTION : System Description29

BACK DOOR OPEN FUNCTION31

- BACK DOOR OPEN FUNCTION : System Diagram31
- BACK DOOR OPEN FUNCTION : System Description31

REMOTE KEYLESS ENTRY FUNCTION32

- REMOTE KEYLESS ENTRY FUNCTION : System Diagram33

REMOTE KEYLESS ENTRY FUNCTION : System Description	33	DIAGNOSIS AND REPAIR WORK FLOW	97
		Work Flow	97
WARNING FUNCTION	35	ADDITIONAL SERVICE WHEN REMOVING BATTERY NEGATIVE TERMINAL	100
WARNING FUNCTION : System Description	35	Description	100
		Work Procedure	100
SYSTEM (AUTOMATIC BACK DOOR SYSTEM)	39	ADDITIONAL SERVICE WHEN REPLACING BCM	101
System Diagram	39	Description	101
System Description	39	Work Procedure	101
SYSTEM (INTEGRATED HOMELINK TRANSMITTER)	46	ADDITIONAL SERVICE WHEN REPLACING AUTOMATIC BACK DOOR CONTROL UNIT..	102
System Description	46	Description	102
		Work Procedure	102
DIAGNOSIS SYSTEM (BCM)	47	CALIBRATION OF AUTOMATIC BACK DOOR POSITION INFORMATION	103
COMMON ITEM	47	Description	103
COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)	47	Work Procedure	103
DOOR LOCK	47	DTC/CIRCUIT DIAGNOSIS	104
DOOR LOCK : CONSULT Function (BCM - DOOR LOCK)	48	U1000 CAN COMM CIRCUIT	104
INTELLIGENT KEY	48	Description	104
INTELLIGENT KEY : CONSULT Function (BCM - INTELLIGENT KEY)	48	DTC Logic	104
TRUNK	50	Diagnosis Procedure	104
TRUNK : CONSULT Function (BCM - TRUNK)	50	U1010 CONTROL UNIT (CAN)	105
DIAGNOSIS SYSTEM (AUTOMATIC BACK DOOR CONTROL UNIT)	51	Description	105
CONSULT Function	51	DTC Logic	105
		Diagnosis Procedure	105
ECU DIAGNOSIS INFORMATION	53	B2401 IGNITION POWER SUPPLY CIRCUIT..	106
AUTOMATIC BACK DOOR CONTROL UNIT... 53		DTC Logic	106
Reference Value	53	Diagnosis Procedure	106
Fail Safe	56	B2409 HALF LATCH SWITCH	107
DTC Inspection Priority Chart	57	DTC Logic	107
DTC Index	57	Diagnosis Procedure	107
		Component Inspection	108
BCM	59	B2416 TOUCH SENSOR RH	110
List of ECU Reference	59	DTC Logic	110
WIRING DIAGRAM	60	Diagnosis Procedure	110
		Component Inspection	112
POWER DOOR LOCK SYSTEM	60	B2417 TOUCH SENSOR LH	113
Wiring Diagram	60	DTC Logic	113
INTELLIGENT KEY SYSTEM	69	Diagnosis Procedure	113
Wiring Diagram	69	Component Inspection	115
AUTOMATIC BACK DOOR SYSTEM	86	B2419 OPEN SWITCH	116
Wiring Diagram	86	DTC Logic	116
HOMELINK UNIVERSAL TRANSCEIVER	94	Diagnosis Procedure	116
Wiring Diagram	94	Component Inspection	117
BASIC INSPECTION	97	B2420 CLOSE SWITCH	119
		DTC Logic	119

Diagnosis Procedure	119	Diagnosis Procedure	149		
Component Inspection	120	Component Inspection	150		A
B2422 BACK DOOR STATE	122	BACK DOOR SWITCH	151		
DTC Logic	122	Component Function Check	151		B
Diagnosis Procedure	122	Diagnosis Procedure (With Automatic Back Door)	151		
B2423 AUTOMATIC BACK DOOR MOTOR OPERATION TIME	125	Diagnosis Procedure (Without Automatic Back Door)	152		C
DTC Logic	125	Component Inspection (With Automatic Back Door)	153		
Diagnosis Procedure	125	Component Inspection (Without Automatic Back Door)	154		D
B2426 ENCODER	127	DOOR LOCK AND UNLOCK SWITCH	155		
DTC Logic	127	DRIVER SIDE	155		E
Diagnosis Procedure	127	DRIVER SIDE : Description	155		
B2427 ENCODER	130	DRIVER SIDE : Component Function Check	155		F
DTC Logic	130	DRIVER SIDE : Diagnosis Procedure	155		
Diagnosis Procedure	130	PASSENGER SIDE	156		G
B2428 AUTOMATIC BACK DOOR CONTROL UNIT	133	PASSENGER SIDE : Description	156		
DTC Logic	133	PASSENGER SIDE :			H
Diagnosis Procedure	133	Component Function Check	156		
B242A CLOSURE CONDITION	134	PASSENGER SIDE : Diagnosis Procedure	157		
DTC Logic	134	DOOR LOCK ACTUATOR	159		I
Diagnosis Procedure	134	DRIVER SIDE	159		
Component Inspection	136	DRIVER SIDE : Component Function Check	159		J
B2621 INSIDE ANTENNA	137	DRIVER SIDE : Diagnosis Procedure	159		
DTC Logic	137	PASSENGER SIDE	160		
Diagnosis Procedure	137	PASSENGER SIDE :			
B2622 INSIDE ANTENNA	139	Component Function Check	160		
DTC Logic	139	PASSENGER SIDE : Diagnosis Procedure	160		
Diagnosis Procedure	139	REAR LH	161		DLK
POWER SUPPLY AND GROUND CIRCUIT ...	141	REAR LH : Component Function Check	161		
AUTOMATIC BACK DOOR CONTROL UNIT	141	REAR LH : Diagnosis Procedure	161		L
AUTOMATIC BACK DOOR CONTROL UNIT : Diagnosis Procedure	141	REAR RH	162		
BCM	141	REAR RH : Component Function Check	162		M
BCM : Diagnosis Procedure	141	REAR RH : Diagnosis Procedure	162		
OUTSIDE KEY ANTENNA (PASSENGER SIDE)	143	UNLOCK SENSOR	164		N
Component Function Check	143	Component Function Check	164		
Diagnosis Procedure	143	Diagnosis Procedure	164		
OUTSIDE KEY ANTENNA (DRIVER SIDE) ...	145	Component Inspection	165		O
Component Function Check	145	DOOR KEY CYLINDER SWITCH	166		
Diagnosis Procedure	145	Component Function Check	166		P
OUTSIDE KEY ANTENNA (REAR BUMPER) ..	147	Diagnosis Procedure	166		
Component Function Check	147	Component Inspection	167		
Diagnosis Procedure	147	DOOR REQUEST SWITCH	168		
DOOR SWITCH	149	Component Function Check	168		
Component Function Check	149	Diagnosis Procedure	168		
		Component Inspection	169		
		BACK DOOR REQUEST SWITCH	170		
		Component Function Check	170		

Diagnosis Procedure	170	SPINDLE MOTOR	193
Component Inspection	171	RH	193
BACK DOOR OPENER SWITCH	172	RH : Diagnosis Procedure	193
Component Function Check	172	LH	193
Diagnosis Procedure	172	LH : Diagnosis Procedure	193
Component Inspection	173	BACK DOOR CLOSURE MOTOR	195
INTELLIGENT KEY WARNING BUZZER	174	Diagnosis Procedure	195
Component Function Check	174	AUTOMATIC BACK DOOR WARNING BUZZ- ER	196
Diagnosis Procedure	174	Diagnosis Procedure	196
Component Inspection	174	Component Inspection	197
INTELLIGENT KEY	176	INTEGRATED HOMELINK TRANSMITTER ...	198
Component Function Check	176	Component Function Check	198
Diagnosis Procedure	176	Diagnosis Procedure	198
METER BUZZER CIRCUIT	177	SYMPTOM DIAGNOSIS	200
Description	177	INTELLIGENT KEY SYSTEM SYMPTOMS	200
Component Function Check	177	Symptom Table	200
Diagnosis Procedure	177	DOOR DOES NOT LOCK/UNLOCK WITH DOOR LOCK AND UNLOCK SWITCH	201
KEY WARNING LAMP	178	ALL DOOR	201
Component Function Check	178	ALL DOOR : Description	201
Diagnosis Procedure	178	ALL DOOR : Diagnosis Procedure	201
HAZARD FUNCTION	179	DRIVER SIDE	201
Component Function Check	179	DRIVER SIDE : Description	201
Diagnosis Procedure	179	DRIVER SIDE : Diagnosis Procedure	201
AUTOMATIC BACK DOOR CLOSE SWITCH.	180	PASSENGER SIDE	201
Component Function Check	180	PASSENGER SIDE : Description	202
Diagnosis Procedure	180	PASSENGER SIDE : Diagnosis Procedure	202
Component Inspection	181	REAR LH	202
AUTOMATIC BACK DOOR MAIN SWITCH ..	182	REAR LH : Description	202
Component Function Check	182	REAR LH : Diagnosis Procedure	202
Diagnosis Procedure	182	REAR RH	202
Component Inspection	183	REAR RH : Description	202
AUTOMATIC BACK DOOR SWITCH	184	REAR RH : Diagnosis Procedure	202
Component Function Check	184	DOOR DOES NOT LOCK/UNLOCK WITH DOOR KEY CYLINDER OPERATION	204
Diagnosis Procedure	184	Diagnosis Procedure	204
Component Inspection	185	DOOR DOES NOT LOCK/UNLOCK WITH DOOR REQUEST SWITCH	205
HALF LATCH SWITCH	186	ALL DOOR REQUEST SWITCHES	205
Component Function Check	186	ALL DOOR REQUEST SWITCHES : Description.	205
Diagnosis Procedure	186	ALL DOOR REQUEST SWITCHES : Diagnosis Procedure	205
Component Inspection	187	DRIVER SIDE DOOR REQUEST SWITCH	205
TOUCH SENSOR	188	DRIVER SIDE DOOR REQUEST SWITCH : De- scription	205
RH	188		
RH : Component Function Check	188		
RH : Diagnosis Procedure	188		
RH : Component Inspection	189		
LH	190		
LH : Component Function Check	190		
LH : Diagnosis Procedure	190		
LH : Component Inspection	192		

DRIVER SIDE DOOR REQUEST SWITCH : Diag- nosis Procedure	206	INTELLIGENT KEY	218
PASSENGER SIDE DOOR REQUEST SWITCH ...	206	INTELLIGENT KEY : Description	218
PASSENGER SIDE DOOR REQUEST SWITCH : Description	206	INTELLIGENT KEY : Diagnosis Procedure	218
PASSENGER SIDE DOOR REQUEST SWITCH : Diagnosis Procedure	206	BACK DOOR OPENER SWITCH	218
BACK DOOR REQUEST SWITCH	206	BACK DOOR OPENER SWITCH : Description	218
BACK DOOR REQUEST SWITCH : Description ..	206	BACK DOOR OPENER SWITCH : Diagnosis Pro- cedure	218
BACK DOOR REQUEST SWITCH : Diagnosis Procedure	206	OPEN/CLOSURE FUNCTION	219
DOOR DOES NOT LOCK/UNLOCK WITH IN- TELLIGENT KEY	208	OPEN/CLOSURE FUNCTION : Description	219
Diagnosis Procedure	208	OPEN/CLOSURE FUNCTION : Diagnosis Proce- dure	219
IGNITION POSITION WARNING FUNCTION DOES NOT OPERATE	209	OPEN FUNCTION	220
Diagnosis Procedure	209	OPEN FUNCTION : Description	220
OFF POSITION WARNING DOES NOT OP- ERATE	210	OPEN FUNCTION : Diagnosis Procedure	220
Diagnosis Procedure	210	CLOSURE FUNCTION	220
TAKE AWAY WARNING DOES NOT OPER- ATE	211	CLOSURE FUNCTION : Description	220
Description	211	CLOSURE FUNCTION : Diagnosis Procedure	221
Diagnosis Procedure	211	AUTOMATIC BACK DOOR WARNING DOES NOT OPERATE	222
KEY ID WARNING DOES NOT OPERATE	213	BUZZER	222
Description	213	BUZZER : Description	222
Diagnosis Procedure	213	BUZZER : Diagnosis Procedure	222
INTELLIGENT KEY LOW BATTERY WARN- ING DOES NOT OPERATE	214	HAZARD WARNING LAMP	222
Description	214	HAZARD WARNING LAMP : Description	222
Diagnosis Procedure	214	HAZARD WARNING LAMP : Diagnosis Proce- dure	222
DOOR LOCK OPERATION WARNING DOES NOT OPERATE	215	AUTOMATIC BACK DOOR FUNCTIONS DO NOT CANCEL	224
Diagnosis Procedure	215	Diagnosis Procedure	224
AUTOMATIC BACK DOOR OPERATION DOES NOT OPERATE	216	AUTOMATIC BACK DOOR ANTI-PINCH FUNCTION DOES NOT OPERATE	225
ALL SWITCHES	216	Diagnosis Procedure	225
ALL SWITCHES : Description	216	INTEGRATED HOMELINK TRANSMITTER DOES NOT OPERATE	226
ALL SWITCHES : Diagnosis Procedure	216	Diagnosis Procedure	226
AUTOMATIC BACK DOOR SWITCH	217	SQUEAK AND RATTLE TROUBLE DIAG- NOSES	227
AUTOMATIC BACK DOOR SWITCH : Descrip- tion	217	Work Flow	227
AUTOMATIC BACK DOOR SWITCH : Diagnosis Procedure	217	Generic Squeak and Rattle Troubleshooting	228
AUTOMATIC BACK DOOR CLOSE SWITCH	217	Diagnostic Worksheet	231
AUTOMATIC BACK DOOR CLOSE SWITCH : Description	217	REMOVAL AND INSTALLATION	233
AUTOMATIC BACK DOOR CLOSE SWITCH : Di- agnosis Procedure	217	HOOD	233
		Exploded View	233
		HOOD ASSEMBLY	233
		HOOD ASSEMBLY : Removal and Installation	233
		HOOD ASSEMBLY : Adjustment	234
		HOOD HINGE	235
		HOOD HINGE : Removal and Installation	235

RADIATOR CORE SUPPORT	237	HOOD LOCK	253
Exploded View	237	HOOD LOCK : Removal and Installation	253
Removal and Installation	237	HOOD LOCK : Inspection	253
FRONT FENDER	238	SECONDARY LATCH	254
Exploded View	238	SECONDARY LATCH : Removal and Installation	254
Removal and Installation	238	HOOD LOCK RELEASE CABLE	254
FRONT DOOR	240	HOOD LOCK RELEASE CABLE : Removal and	
Exploded View	240	Installation	254
DOOR ASSEMBLY	240	HOOD LOCK RELEASE HANDLE	254
DOOR ASSEMBLY : Removal and Installation	240	HOOD LOCK RELEASE HANDLE : Removal and	
DOOR ASSEMBLY : Adjustment	241	Installation	255
DOOR STRIKER	242	FRONT DOOR LOCK	256
DOOR STRIKER : Removal and Installation	242	Exploded View	256
DOOR STRIKER : Adjustment	242	DOOR LOCK	256
DOOR HINGE	242	DOOR LOCK : Removal and Installation	256
DOOR HINGE : Removal and Installation	243	INSIDE HANDLE	257
DOOR CHECK LINK	243	INSIDE HANDLE : Removal and Installation	257
DOOR CHECK LINK : Removal and Installation ..	243	OUTSIDE HANDLE	257
REAR DOOR	244	OUTSIDE HANDLE : Removal and Installation ...	257
Exploded View	244	REAR DOOR LOCK	260
DOOR ASSEMBLY	244	Exploded View	260
DOOR ASSEMBLY : Removal and Installation	244	DOOR LOCK	260
DOOR ASSEMBLY : Adjustment	245	DOOR LOCK : Removal and Installation	260
DOOR STRIKER	246	INSIDE HANDLE	260
DOOR STRIKER : Removal and Installation	246	INSIDE HANDLE : Removal and Installation	260
DOOR STRIKER : Adjustment	246	OUTSIDE HANDLE	261
DOOR HINGE	247	OUTSIDE HANDLE : Removal and Installation ...	261
DOOR HINGE : Removal and Installation	247	BACK DOOR LOCK	263
DOOR CHECK LINK	247	Exploded View	263
DOOR CHECK LINK : Removal and Installation ..	247	DOOR LOCK	263
BACK DOOR	248	DOOR LOCK : Removal and Installation	263
Exploded View	248	SPINDLE UNIT	263
BACK DOOR ASSEMBLY	248	SPINDLE UNIT : Removal and Installation	263
BACK DOOR ASSEMBLY : Removal and Installa-		BACK DOOR STAY	264
tion	248	BACK DOOR STAY : Removal and Installation ...	264
BACK DOOR ASSEMBLY : Adjustment	250	TOUCH SENSOR	264
BACK DOOR STRIKER	251	TOUCH SENSOR : Removal and Installation	264
BACK DOOR STRIKER : Removal and Installa-		EMERGENCY LEVER	265
tion	251	EMERGENCY LEVER : Unlock procedures	265
BACK DOOR STRIKER : Adjustment	251	FUEL FILLER LID OPENER	266
BACK DOOR HINGE	252	Exploded View	266
BACK DOOR HINGE : Removal and Installation ..	252	FUEL FILLER LID	266
BACK DOOR WEATHER-STRIP	252	FUEL FILLER LID : Removal and Installation	266
BACK DOOR WEATHER-STRIP : Removal and		FUEL FILLER LID LOCK	267
Installation	252		
HOOD LOCK	253		
Exploded View	253		

FUEL FILLER LID LOCK : Removal and Installation	267	Removal and Installation	279
FUEL FILLER LID RELEASE CABLE	267	WITHOUT INTELLIGENT KEY SYSTEM	A
FUEL FILLER LID RELEASE CABLE : Removal and Installation	267	PRECAUTION	280
FUEL FILLER LID RELEASE HANDLE	268	PRECAUTIONS	280
FUEL FILLER LID RELEASE HANDLE : Removal and Installation	268	Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	280
DOOR SWITCH	269	Precaution for Servicing Doors and Locks	280
Removal and Installation	269	PREPARATION	281
DOOR REQUEST SWITCH	270	PREPARATION	281
DRIVER SIDE	270	Special Service Tool	281
DRIVER SIDE : Removal and Installation	270	Commercial Service Tool	282
PASSENGER SIDE	270	SYSTEM DESCRIPTION	283
PASSENGER SIDE : Removal and Installation ...	270	COMPONENT PARTS	283
BACK DOOR	270	POWER DOOR LOCK SYSTEM	283
BACK DOOR : Removal and Installation	270	POWER DOOR LOCK SYSTEM : Component Parts Location	283
INSIDE KEY ANTENNA	271	Front Door Lock Assembly (Driver Side)	285
INSTRUMENT CENTER	271	Back Door Lock Assembly	285
INSTRUMENT CENTER : Removal and Installation	271	Rear Door Switch	285
CONSOLE	271	Front Door Switch	286
CONSOLE : Removal and Installation	271	Door Lock and Unlock Switch	286
OUTSIDE KEY ANTENNA	272	SYSTEM	287
DRIVER SIDE	272	POWER DOOR LOCK SYSTEM	287
DRIVER SIDE : Removal and Installation	272	POWER DOOR LOCK SYSTEM : System Diagram	287
PASSENGER SIDE	272	POWER DOOR LOCK SYSTEM : System Description	287
PASSENGER SIDE : Removal and Installation ...	272	REMOTE KEYLESS ENTRY SYSTEM	287
REAR BUMPER	272	REMOTE KEYLESS ENTRY SYSTEM : System Diagram	288
REAR BUMPER : Removal and Installation	272	REMOTE KEYLESS ENTRY SYSTEM : System Description	288
INTELLIGENT KEY WARNING BUZZER	273	DIAGNOSIS SYSTEM (BCM)	290
Removal and Installation	273	COMMON ITEM	290
BACK DOOR WARNING CHIME	274	COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)	290
Removal and Installation	274	DOOR LOCK	290
INTELLIGENT KEY BATTERY	275	DOOR LOCK : CONSULT Function (BCM - DOOR LOCK)	290
Removal and Installation	275	MULTI REMOTE ENT	291
AUTOMATIC BACK DOOR CONTROL MODULE	276	MULTI REMOTE ENT : CONSULT Function (BCM - MULTI REMOTE ENT)	291
Removal and Installation	276	ECU DIAGNOSIS INFORMATION	292
AUTOMATIC BACK DOOR MAIN SWITCH ...	277	BCM, IPDM E/R	292
Removal and Installation	277	List of ECU Reference	292
AUTOMATIC BACK DOOR SWITCH	278		
Removal and Installation	278		
AUTOMATIC BACK DOOR CLOSE SWITCH.	279		

WIRING DIAGRAM	293	KEY SWITCH (BCM INPUT)	327
POWER DOOR LOCK SYSTEM	293	Diagnosis Procedure	327
Wiring Diagram	293	DOOR LOCK ACTUATOR	328
REMOTE KEYLESS ENTRY SYSTEM	302	DRIVER SIDE	328
Wiring Diagram	302	DRIVER SIDE : Component Function Check	328
BASIC INSPECTION	312	DRIVER SIDE : Diagnosis Procedure	328
DIAGNOSIS AND REPAIR WORKFLOW	312	PASSENGER SIDE	329
Work Flow	312	PASSENGER SIDE :	
INSPECTION AND ADJUSTMENT	315	Component Function Check	329
ADDITIONAL SERVICE WHEN REPLACING		PASSENGER SIDE : Diagnosis Procedure	329
CONTROL UNIT	315	REAR LH	330
ADDITIONAL SERVICE WHEN REPLACING		REAR LH : Component Function Check	330
CONTROL UNIT : Description	315	REAR LH : Diagnosis Procedure	330
ADDITIONAL SERVICE WHEN REPLACING		REAR RH	331
CONTROL UNIT : Special Repair Requirement ...	315	REAR RH : Component Function Check	331
DTC/CIRCUIT DIAGNOSIS	316	REAR RH : Diagnosis Procedure	331
U1000 CAN COMM CIRCUIT	316	KEYFOB BATTERY AND FUNCTION	333
Description	316	Description	333
DTC Logic	316	Component Function Check	333
Diagnosis Procedure	316	Diagnosis Procedure	333
U1010 CONTROL UNIT (CAN)	317	HORN FUNCTION	335
DTC Logic	317	Component Function Check	335
Diagnosis Procedure	317	Component Inspection	335
POWER SUPPLY AND GROUND CIRCUIT ..	318	WARNING CHIME FUNCTION	336
BCM	318	Description	336
BCM : Diagnosis Procedure	318	Component Function Check	336
DOOR SWITCH	319	Diagnosis Procedure	336
Description	319	HAZARD FUNCTION	337
Component Function Check	319	Description	337
Diagnosis Procedure	319	Component Function Check	337
Component Inspection	320	Diagnosis Procedure	337
DOOR LOCK AND UNLOCK SWITCH	321	KEYFOB ID SET UP WITH CONSULT	338
DRIVER SIDE	321	ID Code Entry Procedure	338
DRIVER SIDE : Description	321	KEYFOB ID SET UP WITHOUT CONSULT ...	339
DRIVER SIDE : Component Function Check	321	ID Code Entry Procedure	339
DRIVER SIDE : Diagnosis Procedure	321	SYMPTOM DIAGNOSIS	341
PASSENGER SIDE	322	POWER DOOR LOCK SYSTEM SYMPTOMS.	341
PASSENGER SIDE : Description	322	Symptom Table	341
PASSENGER SIDE :		REMOTE KEYLESS ENTRY SYSTEM SYMP-	
Component Function Check	322	TOMS	342
PASSENGER SIDE : Diagnosis Procedure	323	Symptom Table	342
DOOR KEY CYLINDER SWITCH	325	SQUEAK AND RATTLE TROUBLE DIAG-	
Description	325	NOSES	344
Component Function Check	325	Work Flow	344
Diagnosis Procedure	325	Generic Squeak and Rattle Troubleshooting	345
Component Inspection	326	Diagnostic Worksheet	348
		REMOVAL AND INSTALLATION	350

HOOD	350	BACK DOOR HINGE	369	
Exploded View	350	BACK DOOR HINGE : Removal and Installation ..	369	A
HOOD ASSEMBLY	350	BACK DOOR WEATHER-STRIP	369	
HOOD ASSEMBLY : Removal and Installation	350	BACK DOOR WEATHER-STRIP : Removal and		B
HOOD ASSEMBLY : Adjustment	351	Installation	369	
HOOD HINGE	352	HOOD LOCK	370	
HOOD HINGE : Removal and Installation	352	Exploded View	370	C
RADIATOR CORE SUPPORT	354	HOOD LOCK	370	
Exploded View	354	HOOD LOCK : Removal and Installation	370	D
Removal and Installation	354	HOOD LOCK : Inspection	370	
FRONT FENDER	355	SECONDARY LATCH	371	
Exploded View	355	SECONDARY LATCH : Removal and Installation.	371	E
Removal and Installation	355	HOOD LOCK RELEASE CABLE	371	
FRONT DOOR	357	HOOD LOCK RELEASE CABLE : Removal and		F
Exploded View	357	Installation	371	
DOOR ASSEMBLY	357	HOOD LOCK RELEASE HANDLE	371	
DOOR ASSEMBLY : Removal and Installation	357	HOOD LOCK RELEASE HANDLE : Removal and		G
DOOR ASSEMBLY : Adjustment	358	Installation	372	
DOOR STRIKER	359	FRONT DOOR LOCK	373	
DOOR STRIKER : Removal and Installation	359	Exploded View	373	H
DOOR STRIKER : Adjustment	359	DOOR LOCK	373	
DOOR HINGE	359	DOOR LOCK : Removal and Installation	373	I
DOOR HINGE : Removal and Installation	360	INSIDE HANDLE	374	
DOOR CHECK LINK	360	INSIDE HANDLE : Removal and Installation	374	J
DOOR CHECK LINK : Removal and Installation ..	360	OUTSIDE HANDLE	374	
REAR DOOR	361	OUTSIDE HANDLE : Removal and Installation	374	
Exploded View	361	REAR DOOR LOCK	377	DLK
DOOR ASSEMBLY	361	Exploded View	377	
DOOR ASSEMBLY : Removal and Installation	361	DOOR LOCK	377	
DOOR ASSEMBLY : Adjustment	362	DOOR LOCK : Removal and Installation	377	L
DOOR STRIKER	363	INSIDE HANDLE	377	
DOOR STRIKER : Removal and Installation	363	INSIDE HANDLE : Removal and Installation	377	M
DOOR STRIKER : Adjustment	363	OUTSIDE HANDLE	378	
DOOR HINGE	364	OUTSIDE HANDLE : Removal and Installation	378	N
DOOR HINGE : Removal and Installation	364	BACK DOOR LOCK	380	
DOOR CHECK LINK	364	Exploded View	380	
DOOR CHECK LINK : Removal and Installation ..	364	DOOR LOCK	380	O
BACK DOOR	248	DOOR LOCK : Removal and Installation	380	
Exploded View	365	BACK DOOR STAY	380	P
BACK DOOR ASSEMBLY	365	BACK DOOR STAY : Removal and Installation ...	380	
BACK DOOR ASSEMBLY : Removal and Installa-		EMERGENCY LEVER	381	
tion	365	EMERGENCY LEVER : Unlock procedures	381	
BACK DOOR ASSEMBLY : Adjustment	367	FUEL FILLER LID OPENER	382	
BACK DOOR STRIKER	368	Exploded View	382	
BACK DOOR STRIKER : Removal and Installa-		FUEL FILLER LID	382	
tion	368			
BACK DOOR STRIKER : Adjustment	368			

FUEL FILLER LID : Removal and Installation	382	FUEL FILLER LID RELEASE HANDLE : Removal and Installation	384
FUEL FILLER LID LOCK	383	DOOR SWITCH	385
FUEL FILLER LID LOCK : Removal and Installa- tion	383	Removal and Installation	385
FUEL FILLER LID RELEASE CABLE	383	BACK DOOR WARNING CHIME	386
FUEL FILLER LID RELEASE CABLE : Removal and Installation	383	Removal and Installation	386
FUEL FILLER LID RELEASE HANDLE	384	KEYFOB BATTERY	387
		Removal and Installation	387

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010247899

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Precaution for Servicing Doors and Locks

INFOID:0000000010247359

WARNING:

Radio waves could adversely affect electric medical equipment. Those who use a pacemaker should contact the electric medical equipment manufacturer for the possible influences before use.

- After removing and installing the opening/closing parts, be sure to carry out fitting adjustments to check their operation.
- Check the lubrication level, damage, and wear of each part. If necessary, grease or replace it.
- When removing or disassembling each component, be careful not to damage or deform it. If a component may be subject to interference, be sure to protect it with a shop cloth.
- When removing (disengaging) components with a screwdriver or similar tool, be sure to wrap the component with a shop cloth or vinyl tape to protect it.
- Protect the removed parts with a shop cloth and prevent them from being dropped.
- Replace a deformed or damaged clip.
- If a part is specified as a non-reusable part, always replace it with a new one.
- Be sure to tighten bolts and nuts securely to the specified torque.
- After installation is complete, be sure to check that each part works properly.
- Follow the steps below to clean components:
 - Water soluble dirt:
 - Dip a soft cloth into lukewarm water, wring the water out of the cloth and wipe the dirty area.
 - Then rub with a soft, dry cloth.
 - Oily dirt:
 - Dip a soft cloth into lukewarm water with mild detergent (concentration: within 2 to 3%) and wipe the dirty area.
 - Then dip a cloth into fresh water, wring the water out of the cloth and wipe the detergent off.
 - Then rub with a soft, dry cloth.
 - Do not use organic solvent such as thinner, benzene, alcohol or gasoline.
 - For genuine leather seats, use a genuine leather seat cleaner.

PREPARATION

< PREPARATION >

[WITH INTELLIGENT KEY SYSTEM]

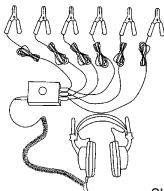
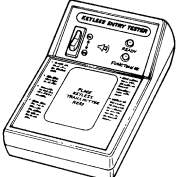
PREPARATION

PREPARATION

Special Service Tool

INFOID:000000010247360

The actual shapes of the tools may differ from those illustrated here.

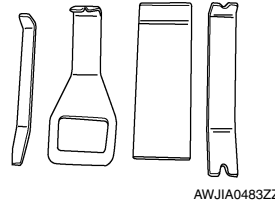
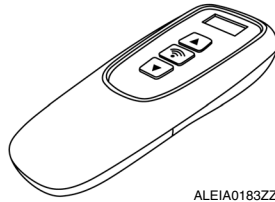
Tool number (TechMate No.) Tool name		Description
— (J-39570) Chassis Ear	 SIIA0993E	Locating the noise
— (J-50397) NISSAN Squeak and Rattle Kit	 ALJIA1232ZZ	Repairing the cause of noise
— (J-43241) Remote Keyless Entry Tester		Used to test keyfobs
— (J-50190) Signal Tech II	 ALEIA0131ZZ	• Activate and display TPMS transmitter IDs • Display tire pressure reported by the TPMS transmitter • Read TPMS DTCs • Register TPMS transmitter IDs • Check Intelligent Key relative signal strength • Confirm vehicle Intelligent Key antenna signal strength • Compatible with future sensors • Equipped with a display

PREPARATION

< PREPARATION >

[WITH INTELLIGENT KEY SYSTEM]

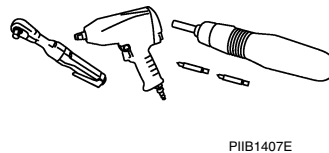
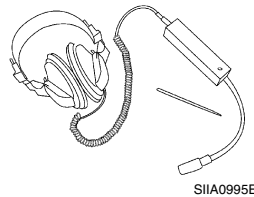
Tool number (TechMate No.) Tool name	Description
KV48105501 (J-45295-A) Transmitter Activation Tool	• Activate TPMS transmitter IDs • Compatible with future sensors • Equipped with a display (KV48105501 only)
— (J-46534) Trim Tool Set	Removing trim components



Commercial Service Tool

INFOID:0000000010247361

(TechMate No.) Tool name	Description
(J-39565) Engine Ear	Locating the noise
(—) Power Tool	Loosening nuts, screws and bolts



A
B
C
D
E
F
G
H
I
J
DLK
L
M
N
O
P

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

SYSTEM DESCRIPTION

COMPONENT PARTS

POWER DOOR LOCK SYSTEM

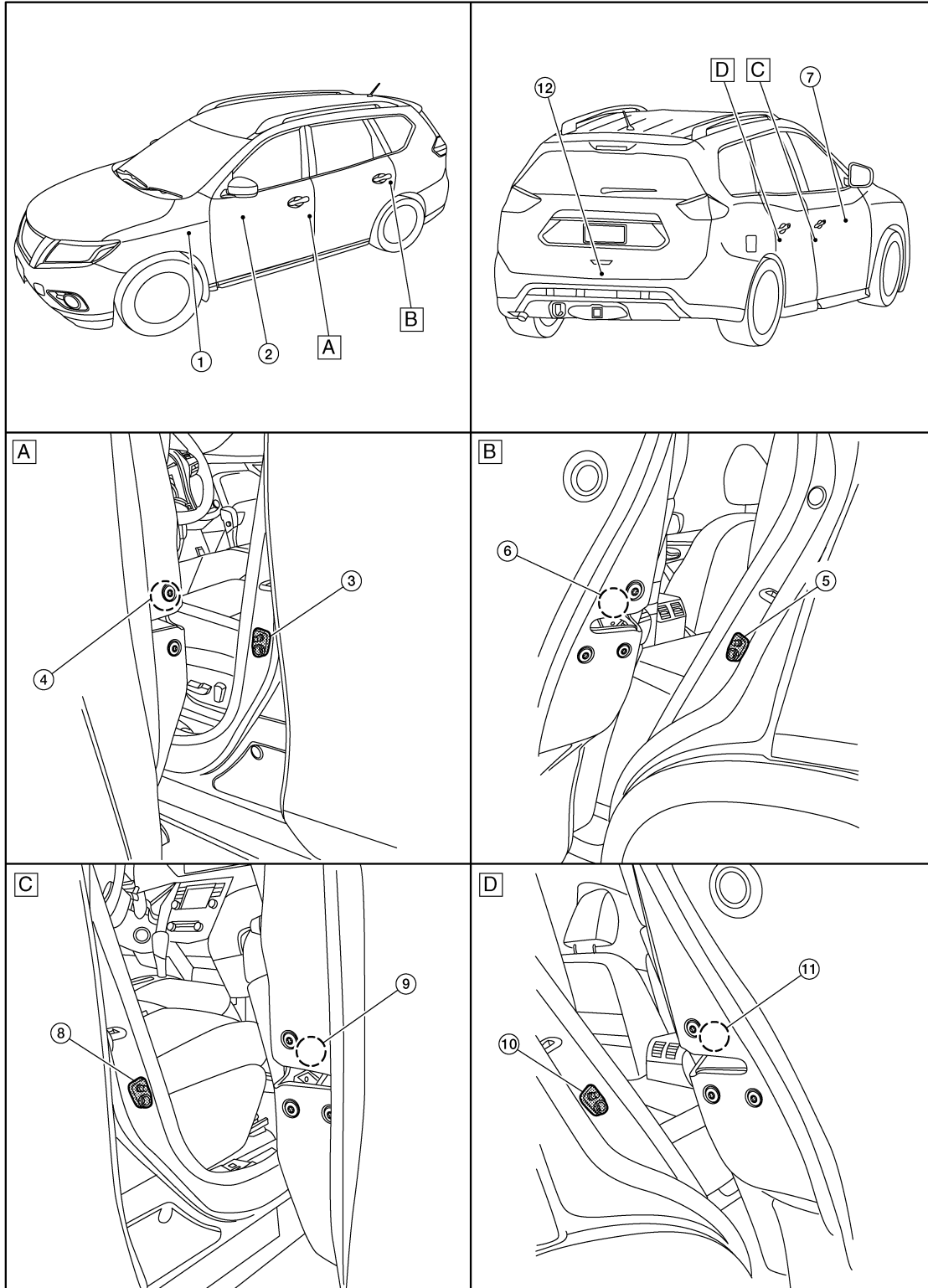
POWER DOOR LOCK SYSTEM : Component Parts Location

INFOID:0000000010286947

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]



ALKIA3430ZZ

No.	Component	Function
1.	BCM	Controls the door lock system. Refer to BCS-7, "BODY CONTROL SYSTEM : Component Parts Location" for detailed installation location
2.	Main power window and door lock/unlock switch	DLK-22, "Door Lock and Unlock Switch (Driver Side)"

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

No.	Component	Function
3.	Front door switch LH	DLK-24. "Front Door Switch"
4.	Front door lock assembly LH	DLK-25. "Front Door Lock Assembly (LH)"
5.	Rear door switch LH	DLK-25. "Rear Door Switch"
6.	Rear door lock actuator LH	Rear door lock actuator locks/unlocks the rear door latch assembly.
7.	Front power window and door lock/unlock switch RH	DLK-22. "Door Lock and Unlock Switch (Passenger Side)"
8.	Front door switch RH	DLK-24. "Front Door Switch"
9.	Front door lock actuator RH	Rear door lock actuator locks/unlocks the rear door latch assembly.
10.	Rear door switch RH	DLK-25. "Rear Door Switch"
11.	Rear door lock actuator RH	Rear door lock actuator locks/unlocks the rear door latch assembly.
12.	Back door lock assembly (door ajar switch)	DLK-21. "Back Door Lock Assembly"

INTELLIGENT KEY SYSTEM

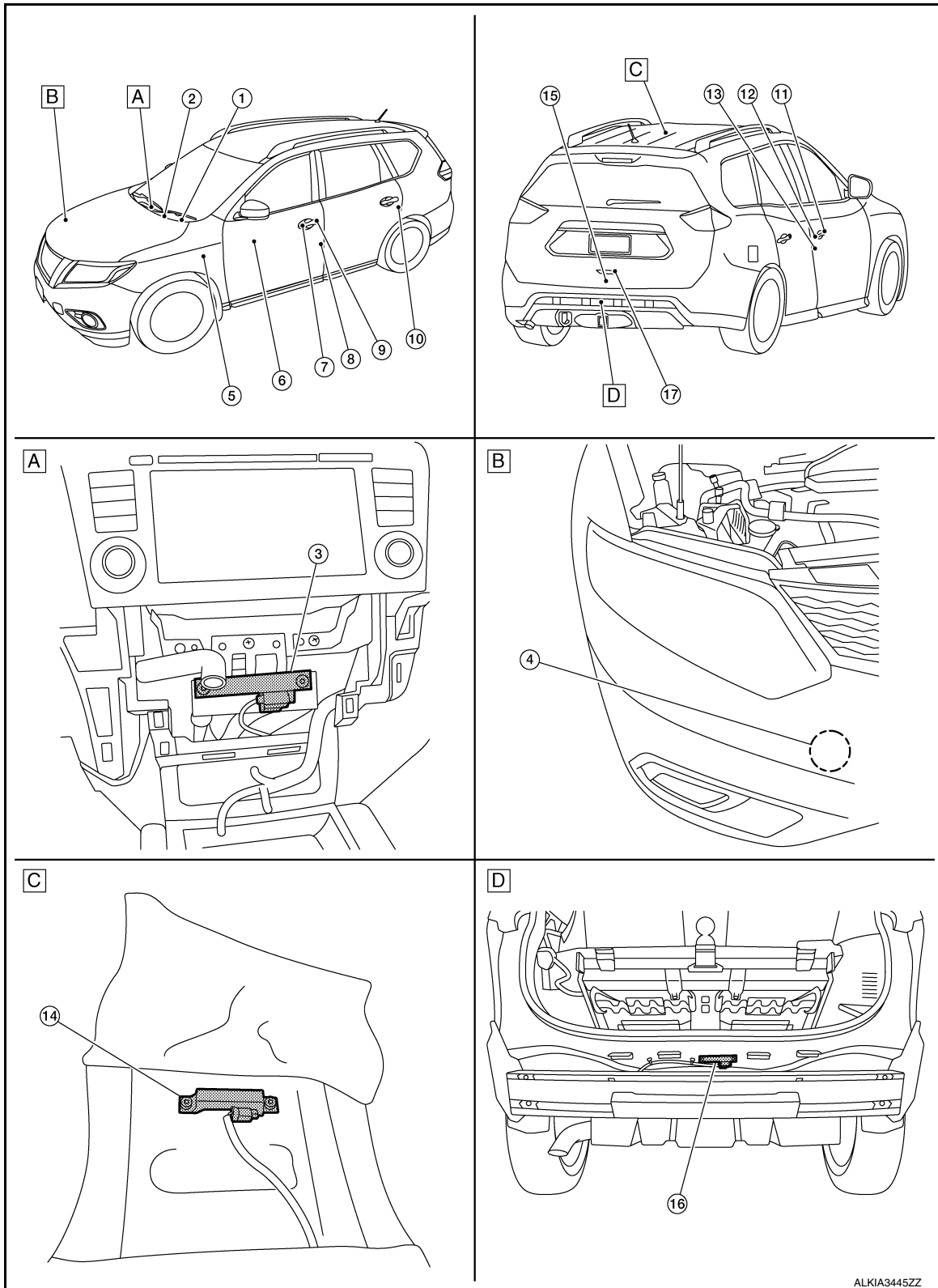
COMPONENT PARTS

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

INTELLIGENT KEY SYSTEM : Component Parts Location

INFOID:000000010288549



A. View with A/C Switch (auto A/C) or front air control (manual A/C) assembly removed

B. View of center of rear floor behind console

C. View with rear bumper fascia removed

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

No.	Component	Function
1.	Combination meter	Combination meter transmits the vehicle speed signal to BCM via CAN communication. BCM also receives the vehicle speed signal from ABS actuator and electric unit (control unit) via CAN communication. BCM compares both signals to detect the vehicle speed. Security indicator lamp is located on combination meter. Security indicator lamp blinks when ignition switch is in any position other than ON to warn that NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS [NVIS (NATS)] is on board. Refer to MWI-6, "METER SYSTEM : Component Parts Location" .
2.	Push-button ignition switch	Push-button ignition switch has push switch inside which detects that push-button ignition switch is pressed, and then transmits ON/OFF signal to BCM. BCM changes the ignition switch position with the operation of push-button ignition switch. BCM maintains the ignition switch position status while push-button ignition switch is not operated.
3.	Inside key antenna (instrument center)	Inside key antenna (instrument center) detects whether Intelligent Key is inside the vehicle or not, and then transmits the signal to the BCM. Refer to DLK-22, "Inside Key Antenna (Instrument Center)" .
4.	Intelligent Key warning buzzer	Intelligent Key warning buzzer warns the user, who is outside the vehicle, of operation confirmation according to Intelligent Key operation and door request switch operation, or of an inappropriate operation.
5.	BCM	BCM controls INTELLIGENT KEY SYSTEM (ENGINE START FUNCTION), NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS [NVIS (NATS)] and VEHICLE SECURITY SYSTEM. BCM performs the ID verification between BCM and Intelligent Key when the Intelligent Key is carried into the detection area of inside key antenna, and push-button ignition switch is pressed. If the ID verification result is OK, ignition switch operation is available. Then, when the ignition switch is turned ON, BCM performs ID verification between BCM and ECM. If the ID verification result is OK, ECM can start engine. Refer to BCS-7, "BODY CONTROL SYSTEM : Component Parts Location" for detailed installation location.
6.	Main power window and door lock/unlock switch	Door lock and unlock switch is integrated into the power window main switch. Door lock and unlock switch transmits door lock/unlock operation signal to BCM. Refer to PWC-7, "Power Window Main Switch" .
7.	Outside key antenna LH	Outside key antenna (LH) detects whether Intelligent Key is outside the vehicle or not, and then transmits the signal to the BCM. Refer to DLK-23, "Outside Key Antenna (LH)" .
8.	Front door lock assembly LH	Door key cylinder switch is integrated into front door lock assembly (driver side). Door key cylinder switch detects door LOCK/UNLOCK operation using mechanical key, and then transmits the operation signal to BCM. Refer to DLK-25, "Front Door Lock Assembly (LH)" .
9.	Door request switch LH	Door request switch transmits door lock/unlock request signal to the BCM.
10.	Rear door lock actuator LH	Rear door lock actuator locks/unlocks the rear door latch assembly.
11.	Outside key antenna RH	Outside key antenna (RH) detects whether Intelligent Key is outside the vehicle or not, and then transmits the signal to the BCM. Refer to DLK-23, "Outside Key Antenna (RH)" .
12.	Door request switch RH	Door request switch transmits door lock/unlock request signal to the BCM.
13.	Door switch RH	Door switch detects door open/close condition and then transmits ON/OFF signal to BCM.
14.	Inside key antenna (console)	Inside key antenna (console) detects whether Intelligent Key is inside the vehicle or not, and then transmits the signal to the BCM. Refer to DLK-23, "Inside Key Antenna (Console)" .
15.	Back door lock assembly	Back door lock actuator locks/unlocks the back door latch assembly.

COMPONENT PARTS

< SYSTEM DESCRIPTION >

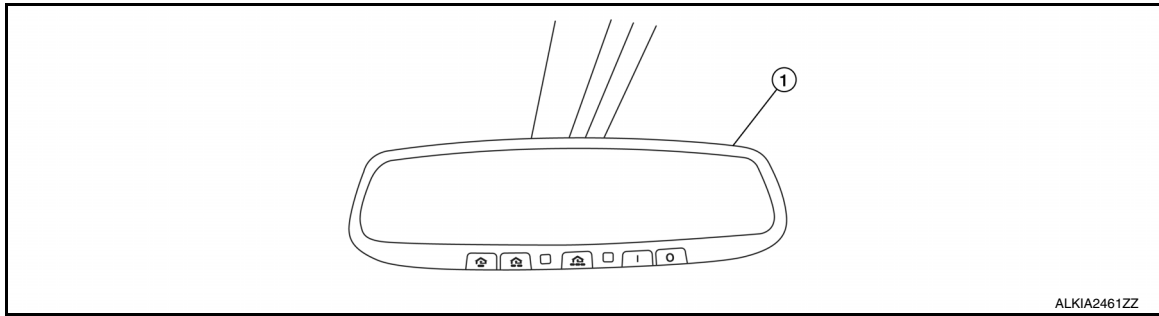
[WITH INTELLIGENT KEY SYSTEM]

No.	Component	Function
16.	Outside key antenna (rear bumper)	Outside key antenna (Rear bumper) detects whether Intelligent Key is outside the vehicle or not, and then transmits the signal to the BCM. Refer to DLK-23. "Outside Key Antenna (Rear Bumper)" .
17.	Back door opener switch	Back door request switch transmits door lock/unlock request signal to the BCM.

INTEGRATED HOMELINK TRANSMITTER

INTEGRATED HOMELINK TRANSMITTER : Component Parts Location

INFOID:000000010283002



No.	Component	Function
1.	Auto anti-dazzling inside mirror	DLK-25. "Integrated Homelink Transmitter"

AUTOMATIC BACK DOOR SYSTEM

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

DLK

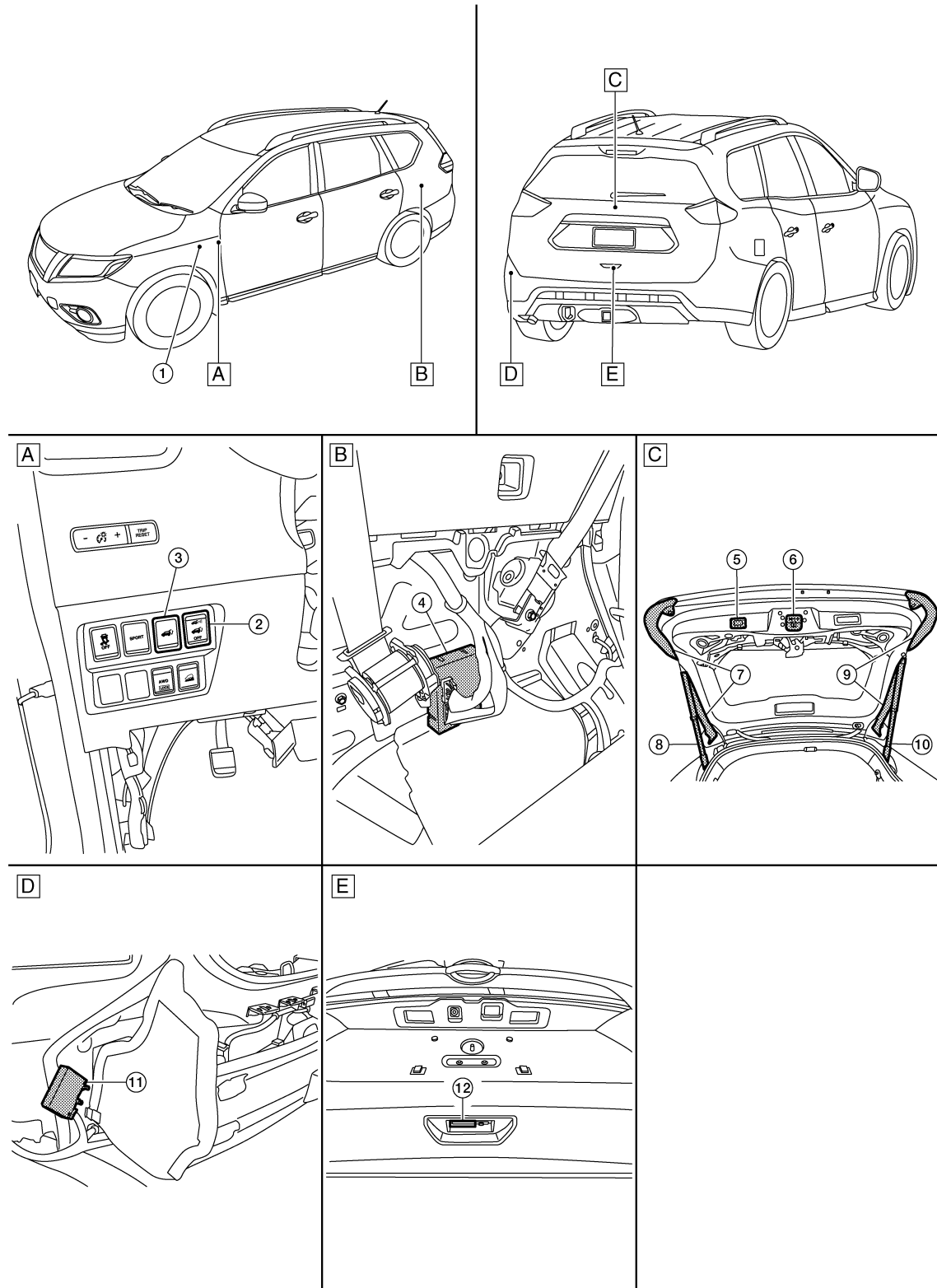
COMPONENT PARTS

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

AUTOMATIC BACK DOOR SYSTEM : Component Parts Location

INFOID:000000010284460



ALKIA3427ZZ

- A. View of LH side of instrument panel B. View with luggage side lower finisher removed C. View of back door open
- D. View with rear fascia removed E. View of back door

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

No.	Component	Function
1.	BCM	Transmits and receives signal to the automatic back door control module Refer to BCS-7, "BODY CONTROL SYSTEM : Component Parts Location" for detailed installation location
2.	Automatic back door main switch	DLK-21, "Automatic Door Main Switch"
3.	Automatic back door switch	DLK-21, "Automatic Back Door Switch"
4.	Automatic back door control module	DLK-21, "Automatic Back Door Control Module"
5.	Automatic back door close switch	DLK-21, "Automatic Back Door Close Switch"
6.	Back door lock assembly	DLK-21, "Back Door Lock Assembly"
7.	Touch sensor LH	DLK-21, "Back Door Touch Sensor"
8.	Spindle unit LH	DLK-25, "Spindle Unit"
9.	Touch sensor RH	DLK-21, "Back Door Touch Sensor"
10.	Spindle unit RH	DLK-25, "Spindle Unit"
11.	Automatic back door warning buzzer	DLK-21, "Automatic Back Door Warning Buzzer"
12.	Back door opener switch	DLK-21, "Automatic Back Door Opener Switch"

Automatic Back Door Control Module

INFOID:0000000010284286

Automatic back door control unit: Controls the automatic back door system.

Automatic Back Door Switch

INFOID:0000000010284287

Detects open/close operation of automatic back door

Automatic Door Main Switch

INFOID:0000000010284288

- Controls automatic open/close operation of each switches.
- Transmits automatic door main switch signal to automatic back door control module.

Automatic Back Door Warning Buzzer

INFOID:0000000010284298

Warns the user of the automatic back door condition and inappropriate operations with the buzzer sounds

Automatic Back Door Close Switch

INFOID:0000000010284299

- Detects close operation of automatic back door.
- Transmits automatic back door close switch signal to automatic back door control module.

Back Door Lock Assembly

INFOID:0000000010284300

Back door closure motor, half latch switch, open switch, close switch and back door switch are installed.

- Closure motor: Inputs open/close signal from automatic back door control module and activates the back door auto closure operation.
- Half latch switch: Starts the closure motor close operation.
- Open switch: Stops the closure motor open operation.
- Close switch: Stops the closure motor close operation.
- Back door switch: Inputs back door open/ close condition to BCM.

Automatic Back Door Opener Switch

INFOID:0000000010284301

Door switch detects open/close status of door and transmits door switch signal to BCM.

- Detects open operation of automatic back door.
- Transmits automatic back door opener switch signal to automatic back door control module.

Back Door Touch Sensor

INFOID:0000000010284302

During back door close operation, the touch sensor detects any trapped foreign material.

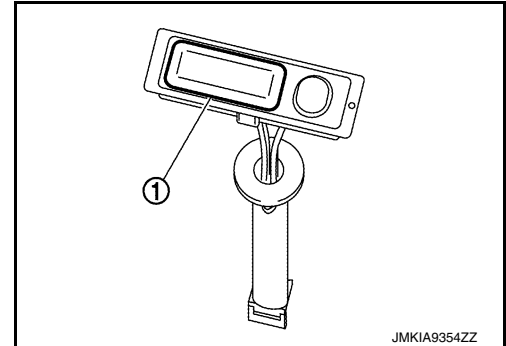
A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

DLK

Back Door Opener Switch

INFOID:0000000010284303

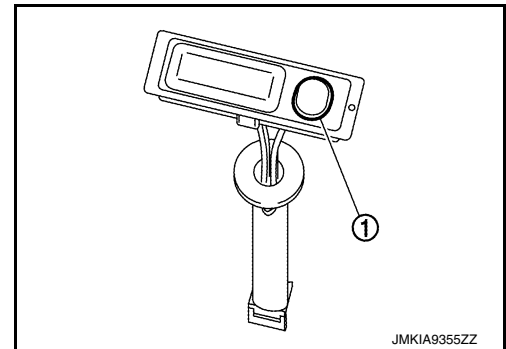
- Back door opener switch (1) transmits back door opener switch signal to BCM.
- Back door opener switch (1) is integrated in outside handle (back door).



Back Door Request Switch

INFOID:0000000010284304

- Back door request switch (1) transmits back door request switch signal to BCM.
- Back door request switch (1) is integrated in outside handle (back door).



Door Lock and Unlock Switch (Driver Side)

INFOID:0000000010288429

- Door lock and unlock switch transmits door lock/unlock signal operation to BCM.
- Door lock and unlock switch is Integrated in the power window main switch.

Door Lock and Unlock Switch (Passenger Side)

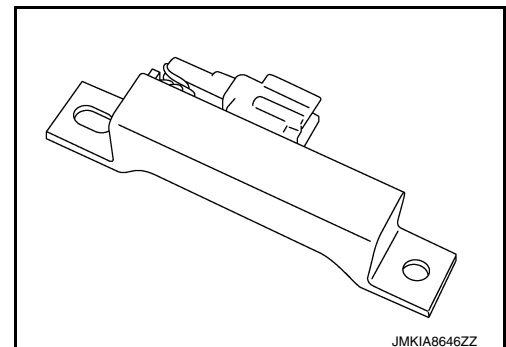
INFOID:0000000010288430

- Door lock and unlock switch transmits door lock/unlock signal operation to BCM.
- Door lock and unlock switch is Integrated in the front power window switch (passenger side).

Inside Key Antenna (Instrument Center)

INFOID:0000000010288657

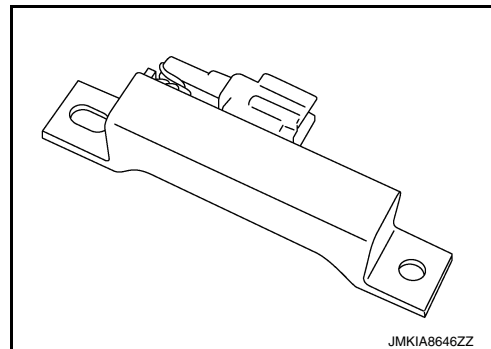
- Inside key antenna (instrument center) detects that Intelligent Key is within the inside detection area, and then transmits detection status to BCM.



Inside Key Antenna (Console)

INFOID:000000010288658

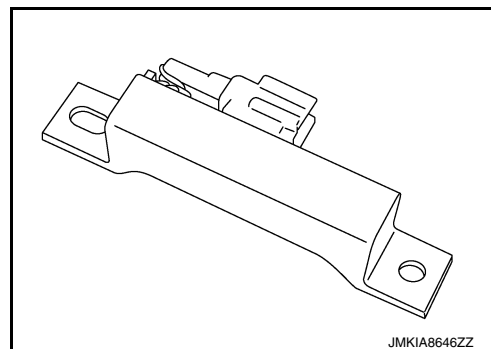
- Inside key antenna (console) detects that Intelligent Key is within the inside detection area, and then transmits detection status to BCM.



Outside Key Antenna (Rear Bumper)

INFOID:000000010288659

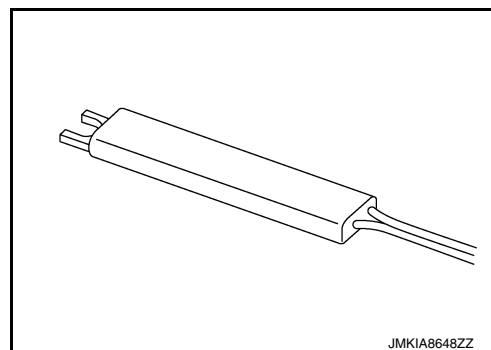
- Outside key antenna (rear bumper) detects that Intelligent Key is within the outside detection area, and then transmits detection status to BCM. Request signal is transmitted simultaneously to Intelligent Key.
- Outside key antenna (rear bumper) is installed in the rear of rear bumper.



Outside Key Antenna (LH)

INFOID:000000010288660

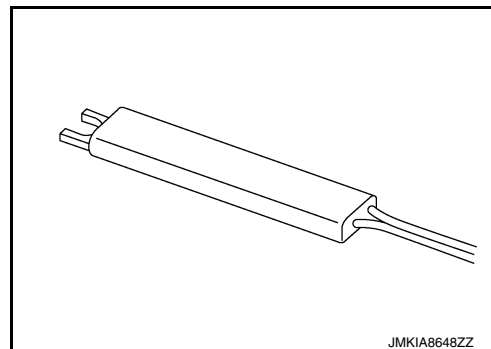
- Outside key antenna (LH) detects that Intelligent Key is within the outside detection area, and then transmits detection status to BCM. Request signal is transmitted simultaneously to Intelligent Key.
- Outside key antenna (LH) is installed in driver side outside handle.



Outside Key Antenna (RH)

INFOID:000000010288661

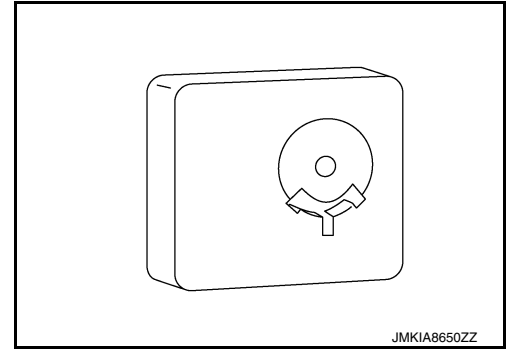
- Outside key antenna (RH) detects that Intelligent Key is within the outside detection area, and then transmits detection status to BCM. Request signal is transmitted simultaneously to Intelligent Key.
- Outside key antenna (RH) is installed in passenger side outside handle.



Intelligent Key Warning Buzzer

INFOID:000000010288662

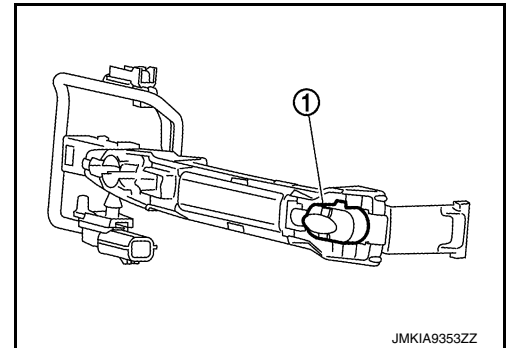
- Intelligent Key warning buzzer warns the user, who is outside vehicle, of operation confirmation according to Intelligent Key operation and door request switch operation, or of an inappropriate operation.
- Intelligent Key warning buzzer is installed in the rear of front bumper and behind RH headlight.



Front Door Request Switch (LH)

INFOID:000000010288663

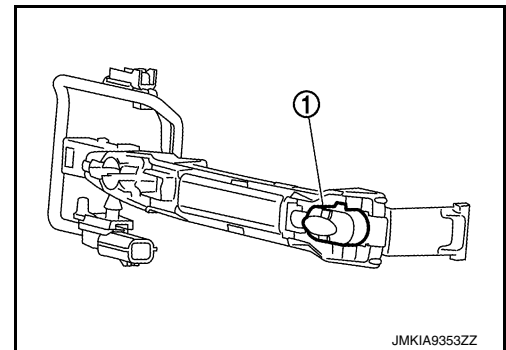
- Front door request switch (LH) transmits door request switch signal to BCM.
- Front door request switch (LH) (1) is integrated in driver side outside handle.



Front Door Request Switch (RH)

INFOID:000000010288664

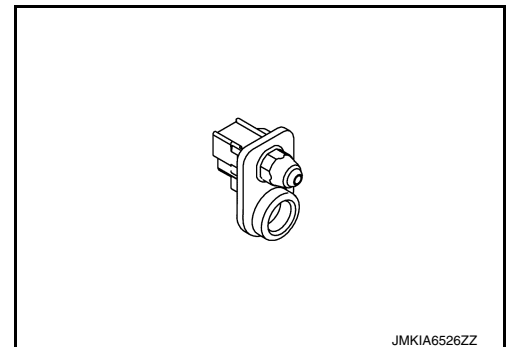
- Front door request switch (RH) transmits door request switch signal to BCM.
- Front door request switch (RH) (1) is integrated in passenger side outside handle.



Front Door Switch

INFOID:000000010288433

Door switch detects open/close status of door and transmits door switch signal to BCM.



COMPONENT PARTS

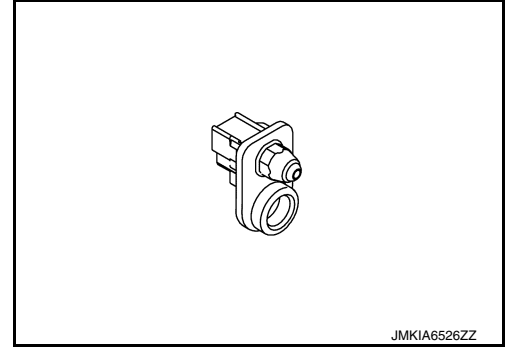
< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

Rear Door Switch

INFOID:0000000010288431

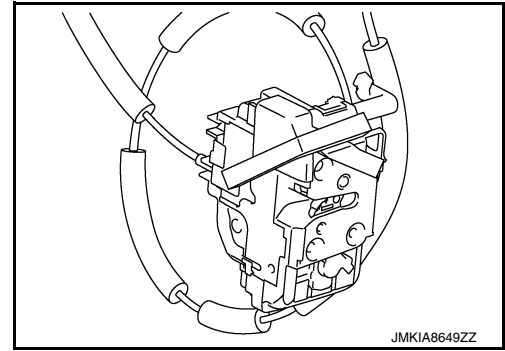
Door switch detects open/close status of door and transmits door switch signal to BCM.



Front Door Lock Assembly (LH)

INFOID:0000000010288432

- Door lock actuator and unlock sensor are Integrated in driver door lock assembly.
- Door lock actuator receives lock/unlock signal from BCM, and then locks/unlocks driver door.
- Only front door lock assembly (driver side) integrates unlock sensor. Unlock sensor transmits lock/unlock status of driver seat to BCM.



Spindle Unit

INFOID:0000000010284469

Encoder and spindle motor are installed:

- Encoder: Automatic back door control module receives the pulse signals from encoders A and B that occurred due to synchronization with the back door operation. The automatic back door control module calculates the back door position, operation direction, and operation speed according to the received pulse signals.
- Spindle motor: Inputs open/close signal from automatic back door control module and activates the automatic back door open/close operation.

Integrated Homelink Transmitter

INFOID:0000000010284538

Within the Homelink transmitter a maximum of 3 radio signals can be stored and transmitted to operate the garage door, etc.

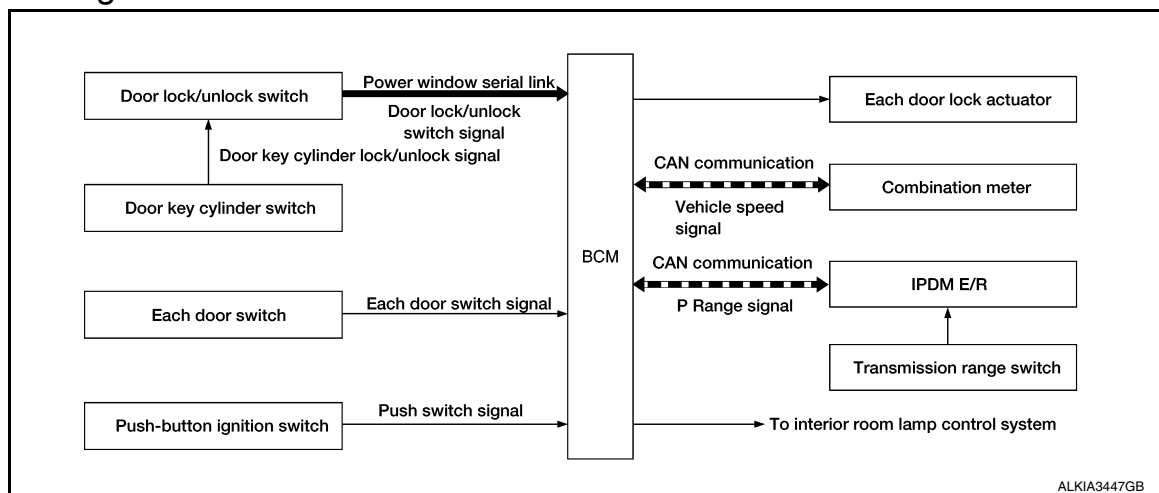
SYSTEM (POWER DOOR LOCK SYSTEM)

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

SYSTEM (POWER DOOR LOCK SYSTEM)

System Diagram



System Description

INFOID:000000010283007

DOOR LOCK FUNCTION

Door Lock and Unlock Switch

- The door lock and unlock switch (driver side) is built into power window main switch.
- The door lock and unlock switch (passenger side) is built into front power window switch (passenger side).
- Interlocked with the locking operation of door lock and unlock switch, door lock actuators of all doors are locked.
- Interlocked with the unlocking operation of door lock and unlock switch, door lock actuators of all doors actuator are unlocked.

Door Key Cylinder Switch

- With the mechanical key inserted in the door key cylinder on driver side, turning it to lock position locks door lock actuator of all doors.
- With the mechanical key inserted in the door key cylinder on driver side, turning it to unlock position once unlocks the driver side door, turning it to unlock position again within 60 seconds after the first unlock operation unlocks all of the other doors. (SELECTIVE UNLOCK OPERATION)

Selective unlock operation mode can be changed using CONSULT.

Refer to [BCS-17. "DOOR LOCK : CONSULT Function \(BCM - DOOR LOCK\)".](#)

IGNITION POSITION WARNING FUNCTION

When door lock and unlock switch are operated while driver side door is open and ignition position is ACC or ON, door locks once but immediately unlocks.

INTERIOR ROOM LAMP CONTROL FUNCTION

Interior room lamp is controlled according to door lock/unlock state, refer to [INL-7. "INTERIOR ROOM LAMP CONTROL SYSTEM : System Description".](#)

AUTOMATIC DOOR LOCK/UNLOCK FUNCTION (LOCK OPERATION)

The interlock door lock function is the function that locks all doors linked with the vehicle speed or shift position. It has 2 types as per the following items.

Vehicle Speed Sensing Auto Door Lock

All doors are locked when the vehicle speed reaches 24 km/h (15 MPH) or more.

BCM outputs the lock signal to all door lock actuators when it detects that the ignition switch is turned ON, all doors are closed and the vehicle speed received from the combination meter via CAN communication becomes 24 km/h (15 MPH) or more.

P Range Interlock Door Lock

All doors are locked when shifting the selector lever from the P (Park) position to any position other than P (Park).

SYSTEM (POWER DOOR LOCK SYSTEM)

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

BCM outputs the lock signal to all door lock actuators when it detects that the ignition switch is in the ON position, all doors are closed and the shift signal received from the park position switch when shifted from the P (Park) position to any position other than P (Park).

Setting change of Automatic Door Lock/Unlock Function

The lock operation setting of the automatic door lock/unlock function can be changed.

With CONSULT

The ON/OFF switching of the automatic door lock function and the type selection of the automatic door lock/unlock function can be performed at the WORK SUPPORT setting of CONSULT.

Without CONSULT

The automatic door lock function ON/OFF can be switched by performing the following operation.

1. Close all doors (door switch OFF)
2. Ignition switch: OFF→ON
3. Press and hold the door lock and unlock switch for 5 seconds or more in the lock direction within 20 seconds after turning the ignition switch ON.
4. The switching complete when the hazard lamp blinks.

OFF → ON : 2 blinks

ON → OFF : 1 blink

AUTOMATIC DOOR LOCK/UNLOCK FUNCTION (UNLOCK OPERATION)

The automatic door lock/unlock function is the function that unlocks all doors linked with the key position or shift position. It has 2 types as per the following items.

IGN OFF Interlock Door Unlock

All doors are unlocked when the power supply position is changed from ON to OFF.

BCM outputs the unlock signal to all door lock actuators when it detects that the power supply position is changed from ignition switch ON to OFF.

P Range Interlock Door Unlock

All doors are unlocked when shifting the selector lever from any position other than P to the P position.

BCM outputs the unlock signal to all door lock actuators when it detects that the ignition switch is in the ON position and the shift signal received from park position switch when shifted from any position other than P to the P position.

Setting change of Automatic Door Lock/Unlock Function

The unlock operation setting of the automatic door lock/unlock function can be changed.

With CONSULT

The ON/OFF switching of the automatic door lock/unlock function and the type selection of the automatic door lock/unlock function can be performed at the WORK SUPPORT setting of CONSULT.

Without CONSULT

The automatic door lock/unlock function ON/OFF can be switched by performing the following operation.

1. Close all doors (door switch OFF)
2. Ignition switch: OFF→ON
3. Press and hold the door lock and unlock switch for 5 seconds or more in the unlock direction within 20 seconds after turning the power supply position ON.
4. The switching is complete when the hazard lamp blinks.

OFF → ON : 2 blinks

ON → OFF : 1 blink

SYSTEM (INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

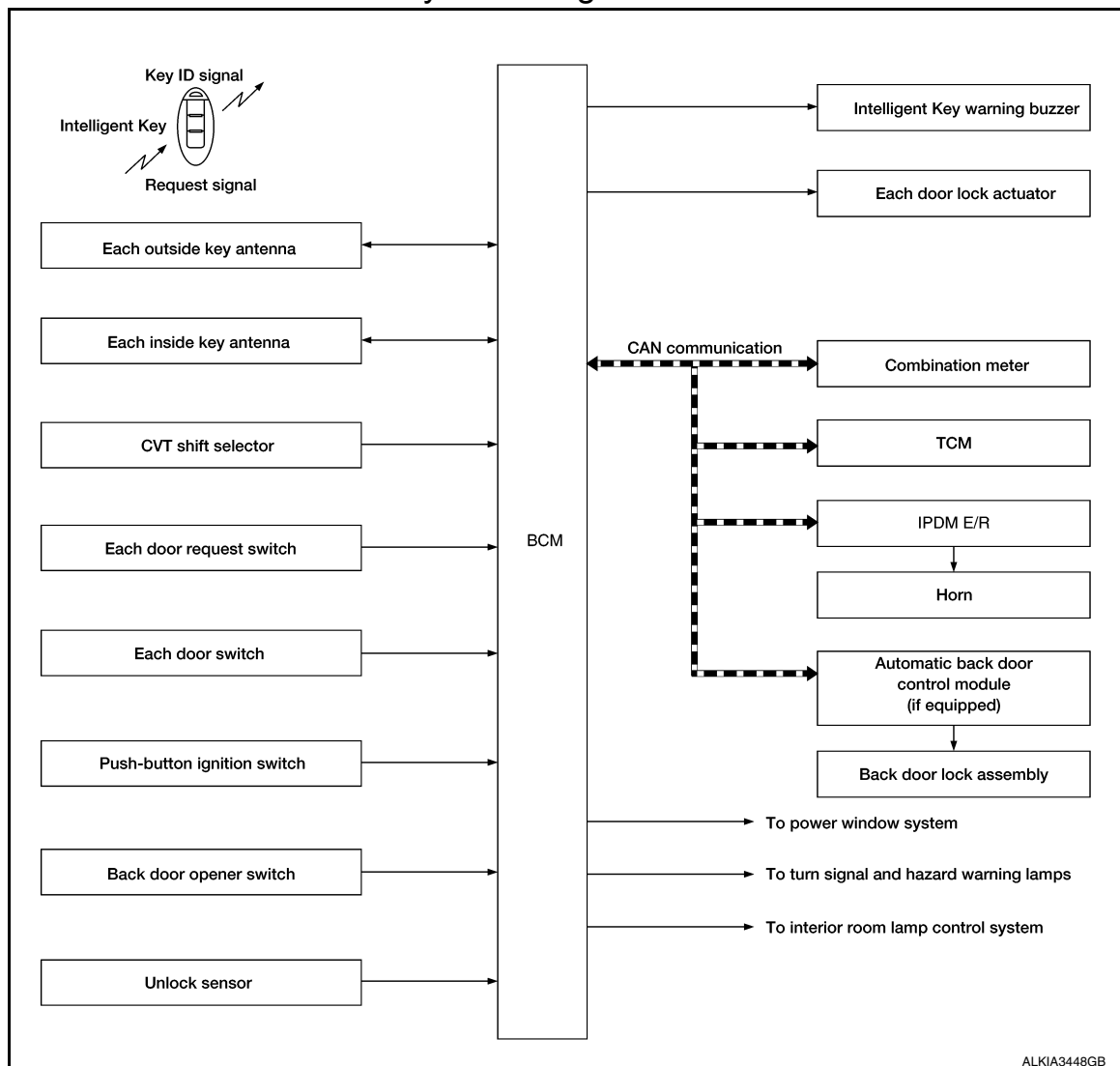
[WITH INTELLIGENT KEY SYSTEM]

SYSTEM (INTELLIGENT KEY SYSTEM)

INTELLIGENT KEY SYSTEM

INTELLIGENT KEY SYSTEM : System Diagram

INFOID:0000000010283008



ALKIA3448GB

INTELLIGENT KEY SYSTEM : System Description

INFOID:0000000010283009

- The Intelligent Key system is a system that makes it possible to lock and unlock the door locks (door lock/unlock function) by carrying the Intelligent Key, which operates based on the results of electronic ID verification using two-way communication between the Intelligent Key and the vehicle (BCM).

CAUTION:

The driver should always carry the Intelligent Key.

- The settings for each function can be changed with CONSULT.
- If an Intelligent Key is lost, a new Intelligent Key can be registered. A maximum of 4 Intelligent Keys can be registered.
- It is possible to perform a diagnosis on the system and register an Intelligent Key with CONSULT.

Function	Description	Refer
Door lock	Lock/unlock can be performed by pressing the request switch.	DLK-28
Back door opener	The back door can be opened by carrying the Intelligent Key and pressing the back door opener switch.	DLK-31
Remote keyless entry	Lock/unlock can be performed by pressing the remote controller button of the Intelligent Key.	DLK-29

SYSTEM (INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

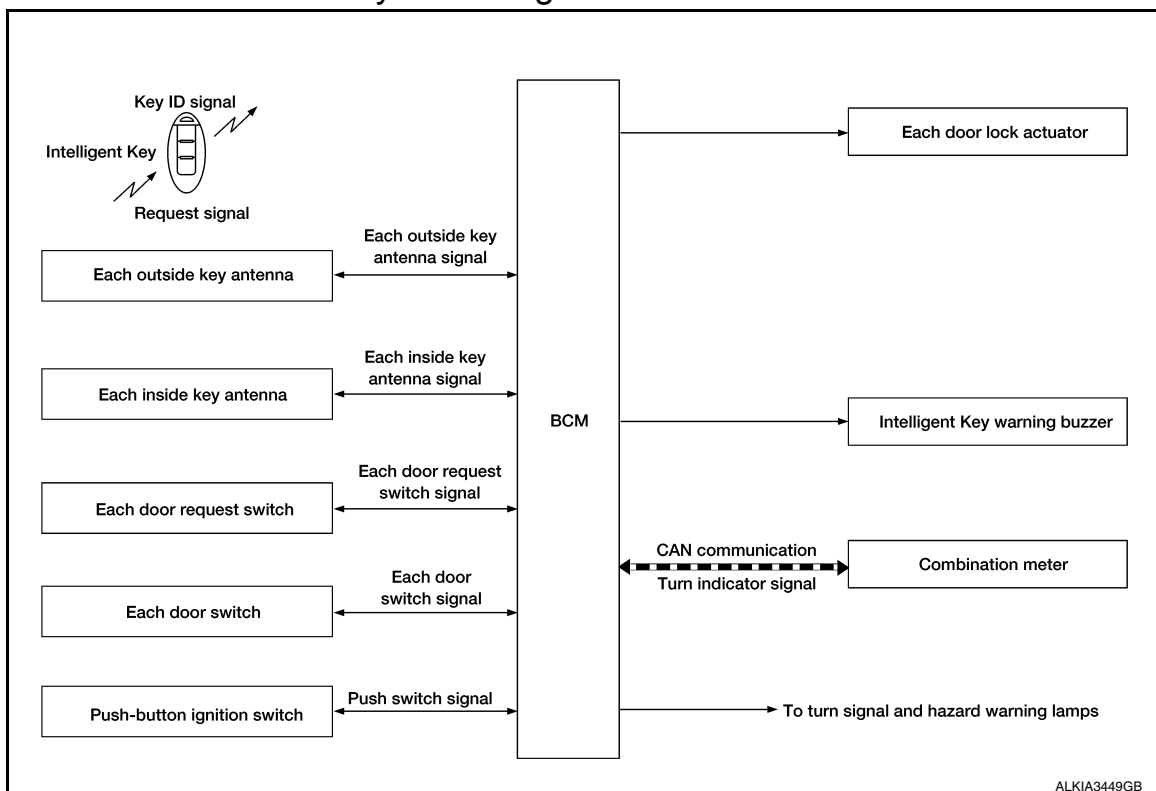
[WITH INTELLIGENT KEY SYSTEM]

Function	Description	Refer
Key reminder	The key reminder buzzer sounds a warning if the door is locked with the key left inside the vehicle.	DLK-35
Warning	If an action that does not meet the operating condition of the Intelligent Key system is taken, the buzzer sounds to inform the driver.	DLK-35
Interior room lamp control	Interior room lamp is controlled according to door lock/unlock state.	DLK-28
Panic alarm	When Intelligent Key panic alarm button is pressed, horn sounds.	DLK-35

DOOR LOCK FUNCTION

DOOR LOCK FUNCTION : System Diagram

INFOID:0000000010283010



DOOR LOCK FUNCTION : System Description

INFOID:0000000010283011

Only when pressing the door request switch it is possible to lock and unlock the door by carrying the Intelligent Key.

OPERATION DESCRIPTION

- When the BCM detects that each door request switch is pressed, it activates the outside key antenna and inside key antenna corresponding to the pressed door request switch and transmits the request signal to the Intelligent Key. Then check that the Intelligent Key is near the door.
- If the Intelligent Key is within the outside key antenna detection area, it receives the request signal and transmits the key ID signal to the BCM.
- BCM receives the key ID signal and compares it with the registered key ID.
- BCM locks/unlocks each doors (except back door).
- BCM sounds Intelligent Key warning buzzer (lock: 2 times, unlock: 1 time) and blinks hazard warning lamps (lock: 2 times, unlock: 1 time) at the same time as a reminder.

OPERATION CONDITION

If the following conditions are satisfied, door lock/unlock operation is performed if the door request switch is operated.

SYSTEM (INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

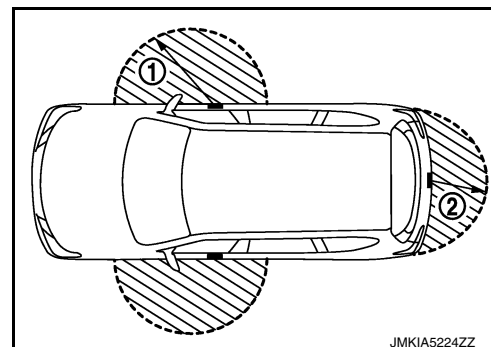
[WITH INTELLIGENT KEY SYSTEM]

Each door request switch operation	Operation condition
Lock	• All doors are closed. • Panic alarm is not activated. • P (Park) position warning is not activated. • Intelligent Key is outside the vehicle. • Intelligent Key is within outside key antenna detection area*.
Unlock	• Panic alarm is not activated. • Intelligent Key is outside the vehicle. • Intelligent Key is within outside key antenna detection area*.

*: Even with a registered Intelligent Key remaining inside the vehicle, door locks can be locked/unlocked from outside of the vehicle with a spare Intelligent Key as long as key IDs are different.

OUTSIDE KEY ANTENNA DETECTION AREA

The outside key antenna detection area of door lock/unlock function is in the range of approximately 80 cm (31.50 in) surrounding the driver, passenger door handles (1) and back door handle (2). However, this operating range depends on the ambient conditions.



SELECTIVE UNLOCK FUNCTION

Lock Operation

When a LOCK signal is sent from door request switch (driver side, passenger side, back door), all doors are locked.

Unlock Operation

- When an UNLOCK signal from driver side door request switch is transmitted, driver side door are unlocked. When another UNLOCK signal is transmitted within 60 seconds, all other doors (except back door) are unlocked.
- When an UNLOCK signal from passenger side door request switch is transmitted, passenger side door is unlocked. When another UNLOCK signal is transmitted within 60 seconds, all other doors (except back door) are unlocked.
- When an UNLOCK signal from back door request switch is transmitted, back door open permission is set. When another UNLOCK signal is transmitted within 60 seconds, all doors (except back door) are unlocked.

How To Change Selective Unlock Operation Mode

Selective unlock operation mode can be changed using CONSULT.

Refer to [BCS-21, "INTELLIGENT KEY : CONSULT Function \(BCM - INTELLIGENT KEY\)"](#).

HAZARD AND BUZZER REMINDER FUNCTION

During lock or unlock operation by each door request switch, the hazard warning lamps and Intelligent Key warning buzzer blinks or honks as a reminder.

Operating Function Of Hazard And buzzer Reminder

Operation	Hazard warning lamp blinks	Intelligent Key warning buzzer honks
Unlock	Once	Once
Lock	Twice	Twice

Hazard and buzzer reminder does not operate in the following conditions.

- Ignition switch position is ON.
- Door is open (only lock operation).

How To Change Hazard And Buzzer Reminder Mode

Hazard and buzzer reminder mode can be changed using CONSULT.

Refer to [BCS-21, "INTELLIGENT KEY : CONSULT Function \(BCM - INTELLIGENT KEY\)"](#).

SYSTEM (INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

AUTO DOOR LOCK FUNCTION

After door is unlocked by door request switch operation and if 60 seconds or more passes without performing the following operation, all doors are automatically locked. However, operation check function does not activate.

Operating condition	• Door switch is ON (door is open). • Door is locked. • Push switch is pressed.
---------------------	---

How To Change Auto Door Lock Operation Mode

Auto door lock operation mode can be changed using CONSULT.

Refer to [BCS-21, "INTELLIGENT KEY : CONSULT Function \(BCM - INTELLIGENT KEY\)"](#).

LIST OF OPERATION RELATED PARTS

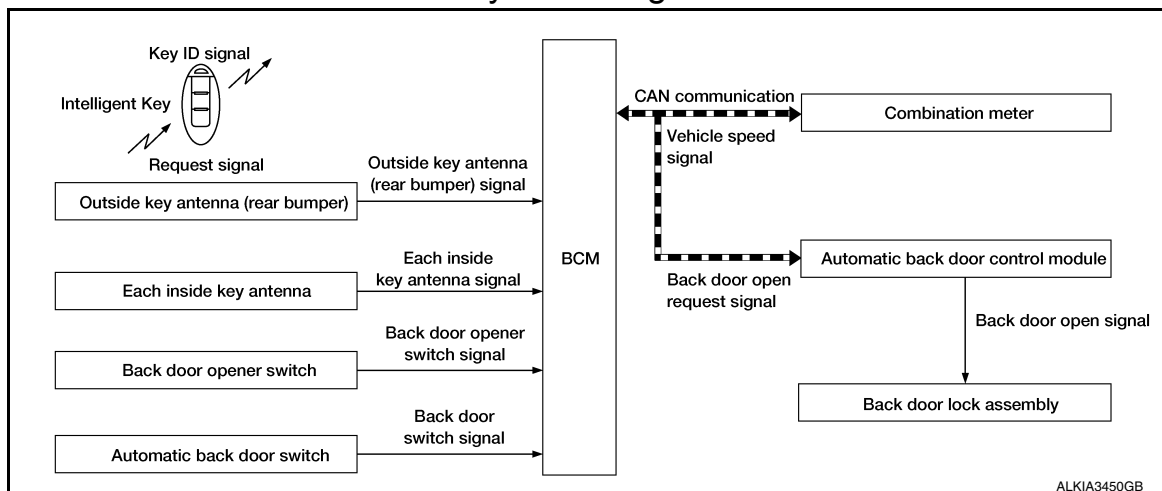
Parts marked with × are the parts related to operation.

Function	Intelligent Key	Door switch	Door request switch	Door lock actuator	Inside key antenna	Outside key antenna	CAN communication system	BCM	Hazard warning lamp	Intelligent Key warning buzzer	Push-button ignition switch
Door lock/unlock function	×	×	×	×	×	×		×			
Hazard reminder function							×	×	×	×	
Selective unlock function	×		×	×	×	×		×			
Auto door lock function	×			×				×			×

BACK DOOR OPEN FUNCTION

BACK DOOR OPEN FUNCTION : System Diagram

INFOID:0000000010283012



BACK DOOR OPEN FUNCTION : System Description

INFOID:0000000010283013

This section describes the operation of the back door opener switch.

- The back door open function can open the back door by pressing the back door opener switch while carrying the Intelligent Key and all doors (except back door) are locked.
- The back door open function enables the back door to be opened by pressing back door opener switch after BCM transmits UNLOCK signal to each door.

BACK DOOR OPEN

SYSTEM (INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

While back door open in the permitted state, back door opens when back door opener switch is pressed after back door request switch is operated. Back door open also can be operated according to the following procedure.

- When the BCM detects that back door opener switch is pressed, it activates the outside key antenna (rear bumper) and inside key antenna and transmits the request signal to the Intelligent Key and then, checks that the Intelligent Key is near the back door.
- If the Intelligent Key is within the outside key antenna detection area, it receives the request signal and transmits the key ID signal to the BCM.
- BCM receives the key ID signal and compares it with the registered key ID.
- If the verification result is OK, BCM transmits the back door open request signal to automatic back door control module via CAN communication.
- Automatic back door control module transmits back door open request signal to back door lock assembly and back door is open.
- When the back door is open, automatic back door system performs waiting operation for next back door close operation.

The operation of then back door open is the same as the automatic back door system, refer to [DLK-39, "System Description"](#).

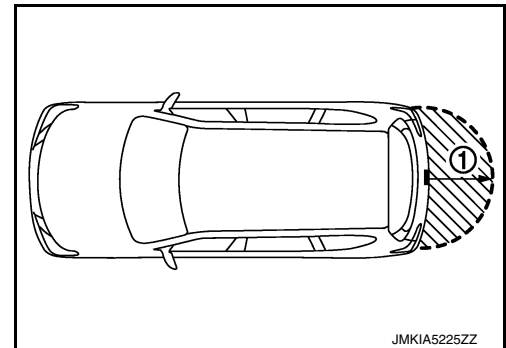
OPERATION CONDITION

If the following conditions are not satisfied, back door open operation is not performed even if the back door opener switch is operated.

Back door opener switch operation	Operation condition
Back door open	• Vehicle speed is less than 5 km/h (3 MPH). • Intelligent Key is within outside key antenna (rear bumper) detection area. • Back door is closed. • Panic alarm is not activated.

OUTSIDE KEY ANTENNA DETECTION AREA

The outside key antenna detection area of back door open function is in the range of approximately 80 cm (31.50 in) surrounding the outside key antenna (rear bumper) (1). However, this operating range depends on the ambient conditions.



JMKIA5225ZZ

LIST OF OPERATION RELATED PARTS

Parts marked with × are the parts related to operation.

Function	Intelligent Key	Back door opener switch	Back door lock assembly	Inside key antenna	Outside key antenna (rear bumper)	CAN communication system	BCM	Automatic back door control module
Back door open function	×	×	×	×	×	×	×	×

REMOTE KEYLESS ENTRY FUNCTION

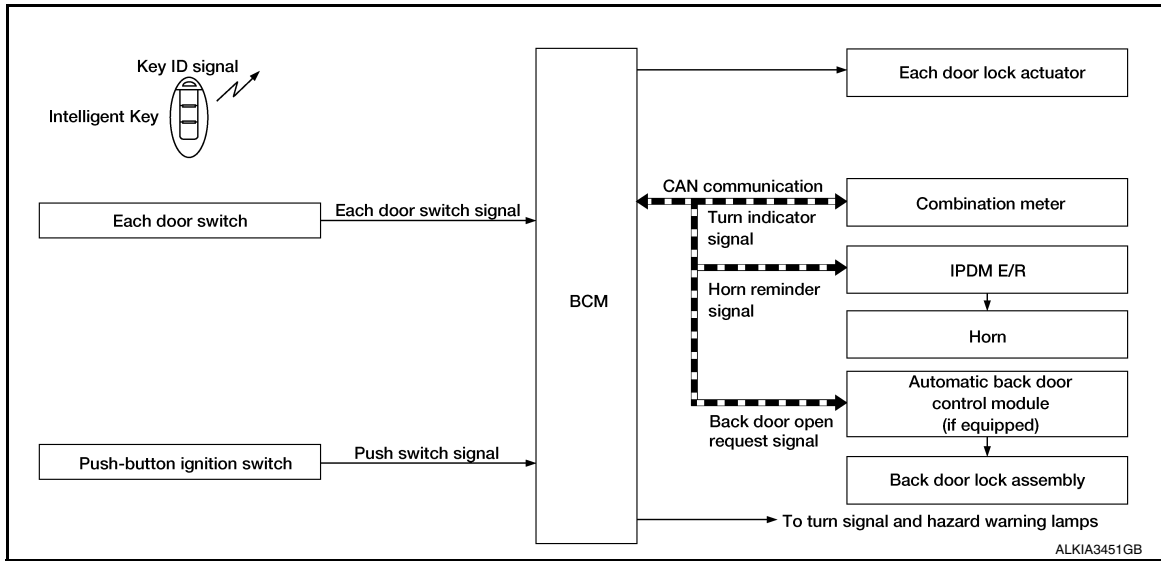
SYSTEM (INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

REMOTE KEYLESS ENTRY FUNCTION : System Diagram

INFOID:000000010283014



REMOTE KEYLESS ENTRY FUNCTION : System Description

INFOID:000000010283015

The Intelligent Key has the same functions as the remote control entry system. Therefore, it can be used in the same manner as the remote controller by operating the door lock/unlock button.

OPERATION

Remote keyless entry system controls operation of the following items.

- Door lock/unlock function
- Selective unlock function
- Auto door lock function
- Hazard and horn reminder function
- Automatic back door open/close function

OPERATION AREA

The remote engine start operating range is approximately 60 m (197 ft) from the vehicle.

DOOR LOCK/UNLOCK FUNCTION

- When door lock/unlock button of the Intelligent Key is pressed, lock signal or unlock signal transmitted from Intelligent Key to BCM.
- When BCM receives the door lock/unlock signal, it operates all door lock actuators, blinks the hazard lamp (lock: 2 time, unlock: 1 times) and horn chirp signal to IPDM E/R at the same time as a reminder.
- IPDM E/R honks horn (lock: 1 time) as a reminder.

OPERATION CONDITION

If the following condition are satisfied, remote keyless entry operation is performed when the Intelligent Key is operated.

Remote controller operation	Operation condition
Lock	• Panic alarm is not activated. • P (Park) position warning is not activated.
Unlock	Panic alarm is not activated.

SELECTIVE UNLOCK FUNCTION

- When a LOCK signal is transmitted from Intelligent Key, all doors are locked.
- When an UNLOCK signal is transmitted from Intelligent Key once, driver side door are unlocked.
- Then, if an UNLOCK signal is transmitted from Intelligent Key again within 60 seconds, all other doors (except for back door) are unlocked.

How to change selective unlock operation mode.

Selective unlock operation mode can be changed using CONSULT.

Refer to [BCS-17, "DOOR LOCK : CONSULT Function \(BCM - DOOR LOCK\)".](#)

SYSTEM (INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

AUTO DOOR LOCK FUNCTION

After door is unlocked by Intelligent Key button operation and if 60 seconds or more passes without performing the following operation, all doors are locked. However, operation check function does not activate.

Operating condition	• Door switch is ON (door is open) • Door is locked • Push switch is pressed
---------------------	--

How to change auto door lock operation mode.

Auto door lock mode can be changed using CONSULT.

Refer to [BCS-21, "INTELLIGENT KEY : CONSULT Function \(BCM - INTELLIGENT KEY\)"](#).

HAZARD AND HORN REMINDER FUNCTION

When doors are locked or unlocked by Intelligent Key, BCM blinks hazard warning lamps as a reminder. The hazard and horn reminder has a horn chirp mode (C mode) and a non-horn chirp mode (S mode).

Operating Function of Hazard and Horn Reminder

	C mode		S mode	
Intelligent Key operation	Lock	Unlock	Lock	Unlock
Hazard warning lamp blinks	Twice	Once	Twice	—
Horn sound	Once	—	—	—

Hazard and horn reminder does not operate in the following conditions.

- Ignition switch position is ON.
- Door is open (only lock operation).

How to Change Hazard and Horn Reminder Mode

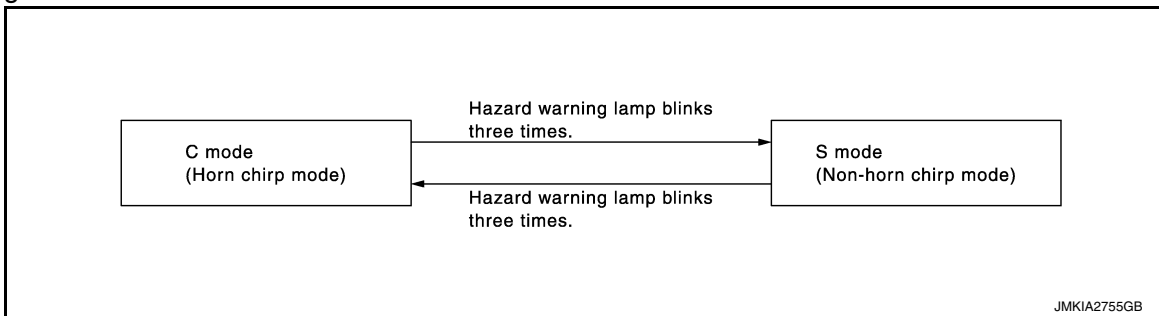
📖 With CONSULT

Hazard and horn reminder operation mode can be changed using CONSULT.

Refer to [BCS-21, "INTELLIGENT KEY : CONSULT Function \(BCM - INTELLIGENT KEY\)"](#).

⊗ Without CONSULT

When LOCK and UNLOCK signals are sent from the Intelligent Key for more than 2 seconds at the same time, the hazard and horn reminder mode is changed and hazard warning lamp blinks and horn sounds as per the following items:



AUTOMATIC BACK DOOR OPEN/CLOSE FUNCTION

When back door button of Intelligent Key is pressed for 0.4 second or more, back door open automatically for detailed description, refer to [DLK-39, "System Description"](#).

LIST OF OPERATION RELATED PARTS

Parts marked with × are the parts related to operation.

SYSTEM (INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

Function	Intelligent Key	Door switch	Door lock actuator	Push-button ignition switch	CAN communication system	BCM	IPDM E/R	Horn	Combination meter	Hazard warning lamp	Automatic back door control module	Back door lock assembly
Door lock/unlock function	x	x	x			x						
Selective unlock function	x	x	x			x						
Auto door lock function	x	x	x	x		x						
Hazard and horn reminder function					x	x	x	x	x	x		
Automatic back door open/close function	x				x	x					x	x

WARNING FUNCTION

WARNING FUNCTION : System Description

INFOID:0000000010283022

OPERATION DESCRIPTION

The warning function are as per the following items and are given to the user as warning information and warnings using combinations of Intelligent Key warning buzzer, combination meter buzzer, KEY warning lamp and information display in combination meter.

- Intelligent Key system malfunction
- OFF position warning
- P position warning
- Take away warning
- Door lock operation warning
- Engine start information
- Intelligent Key low battery warning
- Key ID warning
- Key ID verification information

OPERATION CONDITION

Once the following condition from below is established, alert or warning is executed.

Warning/Information functions		Operation procedure
Intelligent Key system malfunction		When a malfunction is detected on BCM, "KEY" warning lamp illuminates.
OFF position warning	For internal	When condition A, B or condition C is satisfied • Condition A - Ignition switch: ACC position - Door switch (driver side): ON (Door is open) • Condition B - Turn ignition switch from ON to OFF while door is open • Condition C - Intelligent Key backside is contacted to ignition switch while brake pedal is depressed and ignition switch is LOCK or OFF (When the Intelligent Key battery is discharged) - Door switch (driver side): ON (Door is open)
	For external	OFF position warning (For internal) is in active mode, driver side door is closed. NOTE: OFF position (For external) active only when each of the sequence occurs as below: P position warning → ACC warning → OFF position warning (For internal) → OFF position warning (For internal)

SYSTEM (INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

Warning/Information functions		Operation procedure
P position warning	For internal	- Shift position: Except P (Park) position - Engine is running to stopped (ignition switch is ON to OFF)
	For external	Warning is activated when driver door is closed from the open position while the P (Park) position warning (for inside vehicle) is ON.
ACC warning		- When P (Park) position warning is in active mode, shift position changes P (Park) position - Ignition switch: ACC position
Take away warning	Door is open to close	- Ignition switch: Except Lock position - Door switch: ON to OFF (Door is open to close) - Intelligent Key cannot be detected inside the vehicle
	Door is open	- Ignition switch: Except Lock position - Door switch: ON (Door is open) - Key ID verification every 5 seconds when registered Intelligent Key cannot be detected inside the vehicle
	Push-button ignition switch operation	- Ignition switch: Except Lock position - Press push-button ignition switch - Intelligent Key cannot be detected inside the vehicle
Door lock operation warning		When door lock operation is requested while door lock operating condition of door request switch or Intelligent Key are not satisfied
Engine start information	Ignition switch is ON position	- Ignition switch: ON position - Shift position: P (Park) position* - Engine is stopped
	Ignition switch is except ON position	- Ignition switch: Except ON position - Shift position: P (Park) position* - Intelligent Key is inserted in key slot or Intelligent Key can be detected inside the vehicle
Intelligent Key low battery warning		When Intelligent Key is low battery, BCM is detected after ignition switch is turned ON
Key ID warning		When registered Intelligent Key cannot be detected inside the vehicle after ignition switch is turned ON
Key ID verification information		- When registered Intelligent Key cannot be detected inside the vehicle - Intelligent Key battery is discharged - When NATS antenna amp cannot be detected NATS ID

WARNING METHOD

The following table shows the alarm or warning methods with chime.

Warning/Information functions		"KEY" warning lamp	Information display (combination meter)	Warning chime	
				Combination meter buzzer	Intelligent Key warning buzzer
Intelligent Key system malfunction		Indicate	—	—	—
OFF position warning	For internal	—	—	Activate	—
	For external	—	—	—	Activate
P position warning	For internal	—	 Shift to Park	Activate	—
	For external			—	Active

ALKIA2515GB

SYSTEM (INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

Warning/Information functions		“KEY” warning lamp	Information display (combination meter)	Warning chime	
				Combination meter buzzer	Intelligent Key warning buzzer
Take away warning	Door is open to close	—	 No Key Detected ALKIA2517GB	Activate	Activate
	Door is open			—	—
	Push-button igni- tion switch opera- tion			Activate	—
Door lock op- eration warn- ing	Request switch operation	—	—	—	Activate
	Intelligent Key	—	—	—	Activate
Key ID warning		—	 Key ID Incorrect ALKIA2518GB	—	—
Intelligent Key low battery warning		—	 Key low battery ALKIA2520GB	—	—
Key ID verification information		—	 ALKIA2521ZZ	—	—

LIST OF OPERATION RELATED PARTS

Parts marked with × are the parts related to operation.

Warning function		Intelligent Key	Ignition switch	Door switch	Door request switch	Inside key antenna	Outside key antenna	Intelligent Key warning buzzer	Combination meter buzzer	CAN communication system	BCM	Information display	“KEY” warning lamp
Intelligent Key system malfunction										×	×		×
OFF position warning	For internal			×					×	×	×		
	For external			×				×			×		
P (Park) position warning			×						×	×	×	×	×

SYSTEM (INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

Warning function		Intelligent Key	Ignition switch	Door switch	Door request switch	Inside key antenna	Outside key antenna	Intelligent Key warning buzzer	Combination meter buzzer	CAN communication system	BCM	Information display	"KEY" warning lamp
Take away warning	Door is open or close	×		×		×		×	×	×	×	×	×
	Door is open	×		×		×				×	×	×	×
	Push-button ignition switch operation	×	×			×			×	×	×	×	×
Door lock operation warning		×		×	×	×	×	×			×		
Key ID warning			×			×				×	×	×	×
Engine start information	Ignition switch is ON position	×	×			×				×	×	×	
	Ignition switch is except ON position	×	×			×				×	×	×	
Intelligent Key low battery warning		×				×				×	×	×	×
Key ID verification information		×				×				×	×	×	

SYSTEM (AUTOMATIC BACK DOOR SYSTEM)

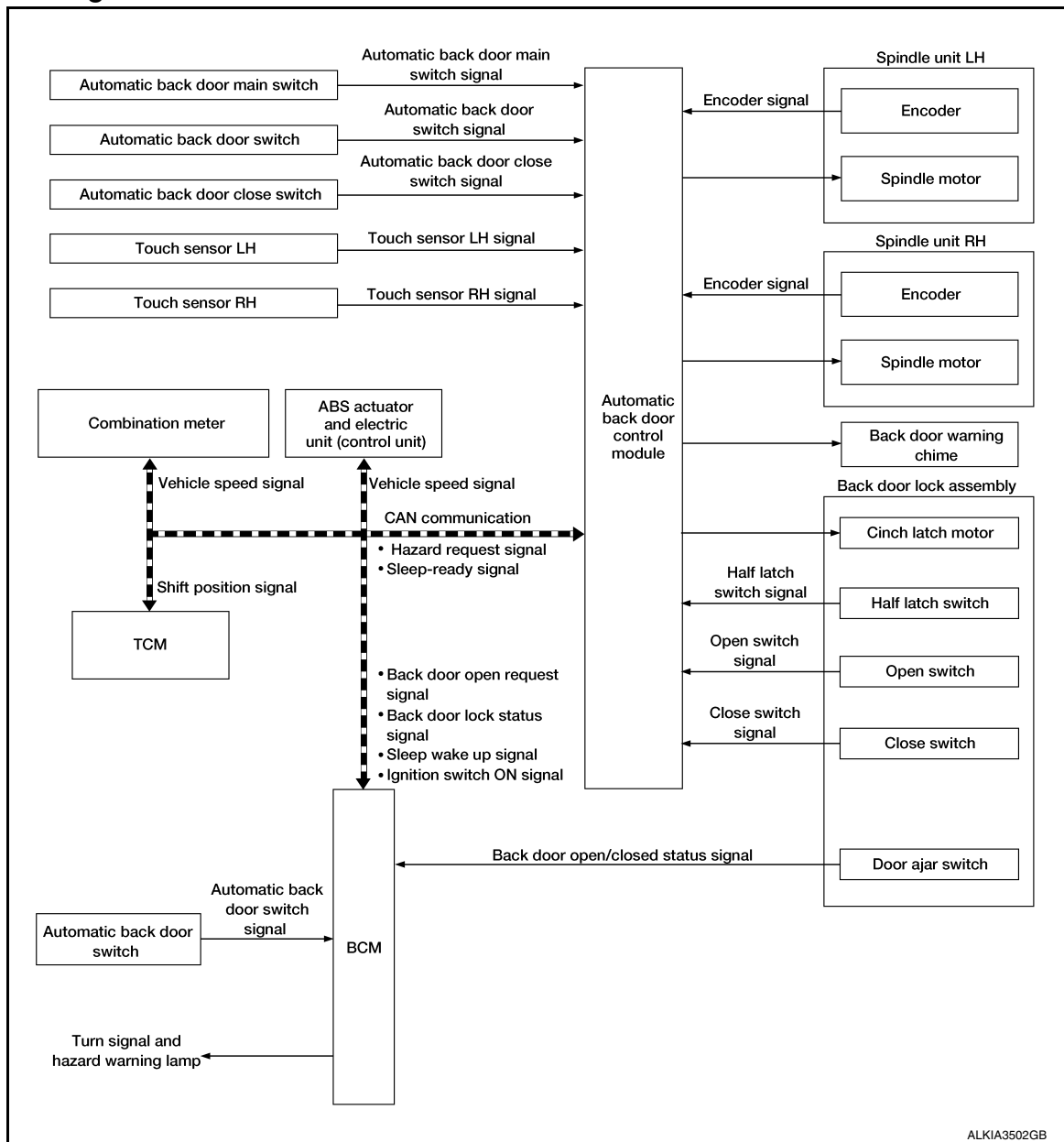
< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

SYSTEM (AUTOMATIC BACK DOOR SYSTEM)

System Diagram

INFOID:0000000010283023



System Description

INFOID:0000000010283024

The automatic back door system performs the automatic open/close operation of the back door by operating the automatic back door switch, the automatic back door close switch, the back door opener switch, and Intelligent Key.

AUTOMATIC BACK DOOR OPEN/CLOSE FUNCTION

- In the case of the back door fully closed, operate the automatic back door switch, Intelligent Key or back door opener switch with the back door unlock. The back door closure motor releases the latch, then the spindle motor opens the back door to the fully open position. The closure motor reverses to the neutral position simultaneously.
- In the case of the back door fully open, operate the automatic back door switch, Intelligent Key or automatic back door close switch. The spindle motor closes the back door to the half-latch position, then the back door closure motor to the full latch position. Then, the closure motor reverses to the neutral position.

AUTOMATIC OPEN/CLOSE TEMPORARY STOP FUNCTION

SYSTEM (AUTOMATIC BACK DOOR SYSTEM)

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

Automatic open/close temporary stop function temporarily stops the open/close operation by operating back door opener switch during automatic open/close operation or by turning automatic back door main switch OFF.

Back Door Opener Switch Operation

- Automatic open/close operation stops when back door opener switch is operated during automatic open/close operation.
- Back door performs automatic open operation in an open direction when back door opener switch is operated again during automatic open/close temporary stop function operation.
- Back door performs automatic close operation in a close direction when automatic back door close switch is operated during automatic open/close temporary stop function operation.
- Automatic operation is performed again, in the direction that automatic back door switch operated before stopping, when automatic back door switch or Intelligent Key button is operated during automatic open/close temporary stop function operation.

Automatic Back Door Main Switch Operation

- While automatic back door main switch is ON, automatic open/close operation stops when automatic back door main switch is turned OFF during automatic open/close operation.
- While automatic back door main switch is OFF, automatic open/close operation stops when automatic back door main switch is turned ON then turned OFF during automatic open/close operation.
- Back door performs automatic open operation in an open direction when back door opener switch is operated again during auto open/close temporary stop function operation.
- Back door performs automatic close operation in a close direction when automatic back door close switch is operated during automatic open/close temporary stop function operation.
- Automatic operation is performed again, in the direction that automatic back door switch operated before stopping, when automatic back door switch or Intelligent Key button is operated during automatic open/close temporary stop function operation.

BACK DOOR OPEN POSITION SETTING FUNCTION

Back door open position setting function enables a user to set stop position for automatic open operation.

Setting Procedure

Stop position for back door open position setting function can be set by the following procedure.

1. Manually move the back door to a stop setting position.
2. Press and hold the automatic back door close switch for 3 seconds while maintaining the back door position.
3. The switching is complete when the buzzer sounds (pattern E).
4. Fully close the back door.

Cancellation Procedure

Setting of back door open position setting function can be cancelled by the following procedure.

1. Manually move the back door to a fully open position.
2. Press and hold the automatic back door close switch for 3 seconds.
3. The switching is complete when the buzzer sounds (pattern E).
4. Fully close the back door.

BACK DOOR AUTO CLOSURE FUNCTION

Open Function

When back door opener switch is pressed and automatic back door main switch in the OFF position, BCM transmits the back door open request signal to automatic back door control module via CAN communication, and automatic back door control module opens back door lock assembly.

Closure Function

When the back door is closed to the half-latch position, the motor drives to rotate the latch lever and pulls it in from half latched to fully latched and automatically closes the door. Then, the closure motor reverses to the neutral position.

WARNING FUNCTION

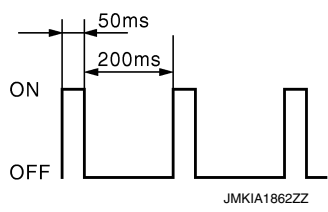
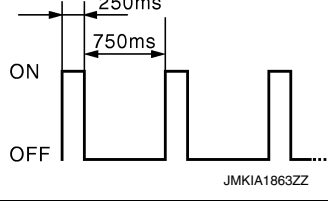
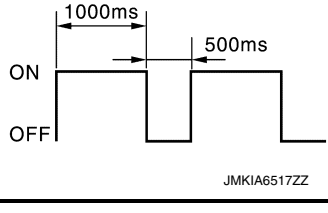
The warning function is as follows and gives the user warning information using automatic back door warning chime and hazard warning lamps.

Chime Operation Condition

SYSTEM (AUTOMATIC BACK DOOR SYSTEM)

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

Pattern	Time	Description
A 	0.75 sec.	Operation start announcement
		Anti-pinch operation start announcement
B	Pi---	2.0 sec.
C	Pi-----.....	Back door fully closed or vehicle is stopped
D 	During open/close operation	During operation announcement
E		2.5 sec.
E 		- Calibration of automatic back door position information is complete - Back door open position setting procedure is complete

ANTI-PINCH FUNCTION

During auto open operation, if an object is detected by encoder pulse in the door's path, a warning chime sounds and the back door operates in the reverse direction to prevent pinching.

During auto close operation, if an object is detected by the touch sensors and encoder pulse in the door's path, a warning chime sounds and the back door operates in the open direction until it is fully open.

Operation Condition

Detection method	Encoder pulse	Touch sensor
Applicable operation	Open/close operation	Close operation
Operation when any trapped foreign material is detected	Stop the vehicle	- Buzzer sounds (pattern A) and the back door stops in the fully-open position after reverse operation - During closure (close) operation (at main switch OFF): Closure [open (neutral position return)] operation
	Running the vehicle	- The back door reverses a certain amount, and then it reverses automatically to perform the auto close operation - During closure (close) operation (at main switch ON): Closure (open) operation
Non-reverse area	- Just after starting the motor operation - Full range of closure operation - Driving	- Back door open operation - Closure [open (return the latch to the neutral position)]

SYSTEM (AUTOMATIC BACK DOOR SYSTEM)

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

Detection method	Encoder pulse	Touch sensor
Switch operation during reverse operation	Receive	
Number of allowable reverse operations	Perform the automatic open/close temporary stop function after 2 reverse operations regardless of the operation direction	

AUTOMATIC BACK DOOR OPEN/CLOSE OPERATION CONDITION

	Automatic back door switch			Intelligent Key		Automatic back door close switch	Back door opener switch	
Operating direction	Fully closed → Open		Fully open →Closed	Fully closed → Open	Fully open → Closed	Fully open → Closed	Fully closed → Open	
Main switch	—		—	—	—	ON	ON	
Ignition position	ON/ACC/ LOCK	OFF	—	—		—	ON/ACC/ LOCK	OFF
Shift selector lever	P position	—	—	—	—	—	P position	—
Vehicle speed	0 km/h							
Back door lock condition	—		—	—	—	—	Unlock*	
Touch sensor	Normal							
Power supply (Automatic power back door control module)	Approx. 11 V or more							

*: If the registered Intelligent Key is used, the operation can be performed even if the back door is in the LOCK position.

CONTROL IF NOT WITHIN THE OPERATION CONDITIONS DURING THE OPERATION

If the back door is not within the operation conditions during the operation, the automatic back door control module performs the control as follows.

Item (Condition)	Back door condition	
Vehicle stop condition (open operation) • IGN ON and shift P (Park) position → IGN ON and other than P (Park) position	The operation is continued	
Operation condition release during the operation start announcement condition	Automatic back door function does not operate	
Vehicle speed (0 km/h → More than 0 km/h)	Open operation	Operation stop [Back door fully closed or chime sounds until the vehicle stops (pattern C)]
	Close operation	The operation is continued [chime sounds (pattern C) until back door fully closed]
Touch sensor (Normal → Open)	Open operation	The operation is continued (If the pinch is detected after that, the system switches to the automatic open/close temporary stop function)
	Close operation	Automatic open/close temporary stop function
	Closure (close) operation	Closure (open) operation and chime sounds (pattern B)
	Closure [open (return the latch to the neutral position)]	The operation is continued
Operation time (More than approx. 180 sec.)	Inhibit automatic back door operation	

SYSTEM (AUTOMATIC BACK DOOR SYSTEM)

< SYSTEM DESCRIPTION >

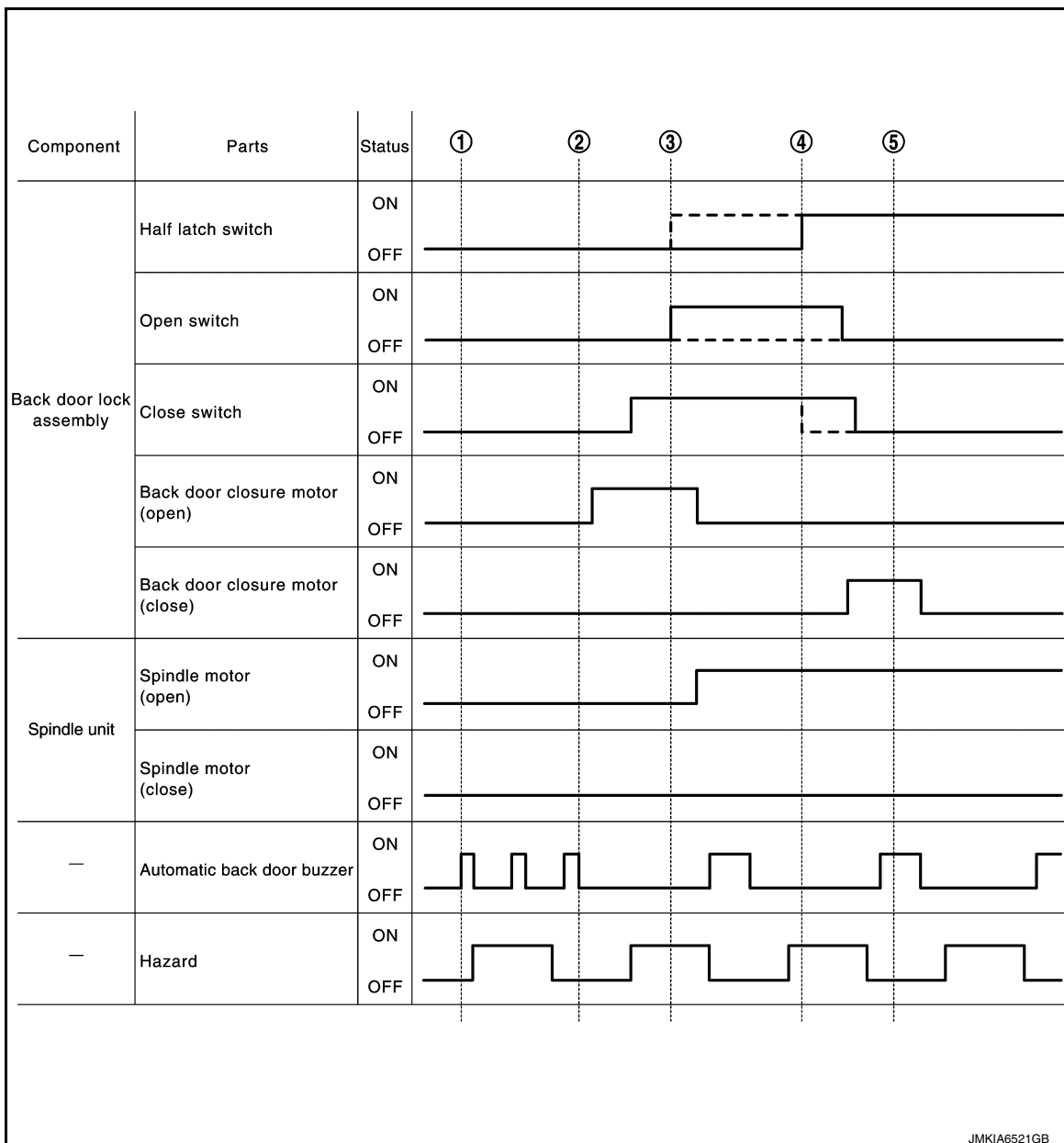
[WITH INTELLIGENT KEY SYSTEM]

Item (Condition)	Back door condition	
Back door opener switch (OFF → ON)	Closure (close) operation	Closure (open) operation and back door open
	Closure [open (return the latch to the neutral position)]	Back door open
Malfunction detected	IGN circuit	Automatic open/close temporary stop function
	Half latch switch	Operation is possible up to 3 times

TIME CHART FOR AUTOMATIC BACK DOOR SYSTEM

Fully Closed to Fully Open Operation

When operating the automatic back door switch, automatic back door opener switch and Intelligent Key in the fully closed position, the system operates as follows.



- Operates the chime and hazard after the operation enable conditions are established.
- The back door closure motor performs the open operation after the chime (pattern A) stops sounding.
- Stops the back door closure motor open operation after turning the open switch to ON

SYSTEM (AUTOMATIC BACK DOOR SYSTEM)

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

Then, operate the spindle motor to perform the back door open operation.

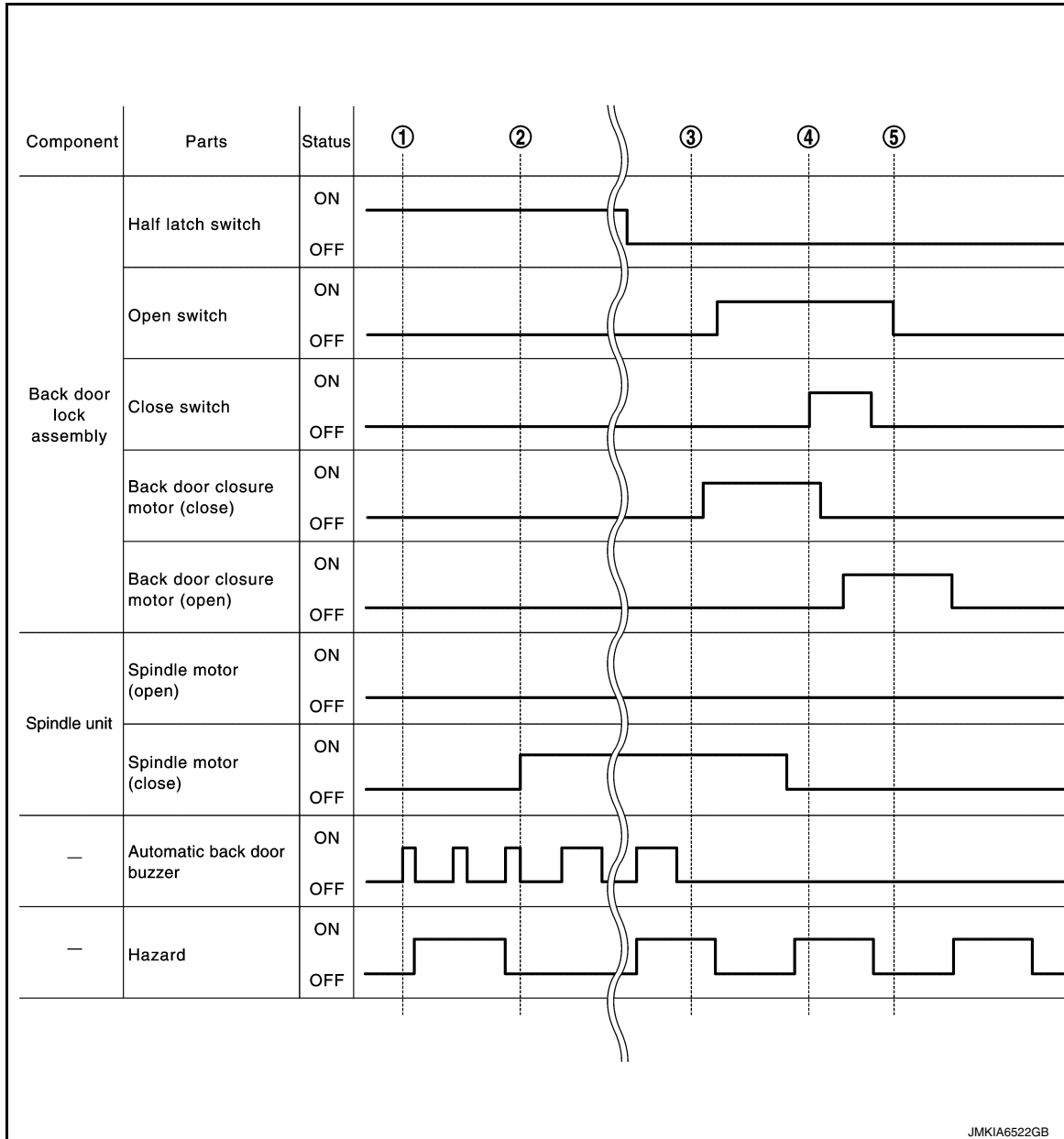
4. The back door closure motor performs the close operation after turning the half latch switch to ON.
5. Stop the back door closure motor close operation and return the latch to the neutral position after turning the close switch to OFF.

NOTE:

In the operation of steps 3 and 4, the inputs of half latch switch, open switch, and close switch may be different according to the reaction force of the back door weatherstrip. Refer to the area encircled by a broken line in the Time chart (fully closed to fully open operation).

Fully Open to Fully Closed Operation

When operating the automatic back door switch, automatic back door close switch and Intelligent Key, the automatic back door system operates as follows.



1. Operates the chime and hazard after the operation enable conditions are established.
2. After the chime (pattern A) stops sounding, operates the spindle motor to perform the back door close operation.
3. The back door closure motor performs the close operation in 300 msec. or more after turning the half latch switch to OFF.
4. The back door closure motor performs the open operation after turning the close switch to ON.

SYSTEM (AUTOMATIC BACK DOOR SYSTEM)

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

5. Stop the back door closure motor open operation and return the latch to the neutral position after turning the close switch to OFF.

A

B

C

D

E

F

G

H

I

J

DLK

L

M

N

O

P

SYSTEM (INTEGRATED HOMELINK TRANSMITTER)

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

SYSTEM (INTEGRATED HOMELINK TRANSMITTER)

System Description

INFOID:0000000010283025

Item	Function
Integrated Homelink [®] transmitter	A maximum of 3 radio signals can be stored and transmitted to operate the garage door, etc.

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

DIAGNOSIS SYSTEM (BCM)

COMMON ITEM

COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)

INFOID:0000000010290343

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with BCM.

Direct Diagnostic Mode	Description
Ecu Identification	The BCM part number is displayed.
Self Diagnostic Result	The BCM self diagnostic results are displayed.
Data Monitor	The BCM input/output data is displayed in real time.
Active Test	The BCM activates outputs to test components.
Work support	The settings for BCM functions can be changed.
Configuration	- The vehicle specification can be read and saved. - The vehicle specification can be written when replacing BCM.
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.

SYSTEM APPLICATION

BCM can perform the following functions.

System	Sub System	Direct Diagnostic Mode						
		Ecu Identification	Self Diagnostic Result	Data Monitor	Active Test	Work support	Configuration	CAN Diag Support Mntr
Door lock	DOOR LOCK		×	×	×	×		
Rear window defogger	REAR DEFOGGER			×	×	×		
Warning chime	BUZZER			×	×			
Interior room lamp timer	INT LAMP			×	×	×		
Exterior lamp	HEADLAMP			×	×	×		
Wiper and washer	WIPER			×	×	×		
Turn signal and hazard warning lamps	FLASHER			×	×			
Intelligent Key system	INTELLIGENT KEY		×	×	×	×		
Combination switch	COMB SW			×				
BCM	BCM	×	×			×	×	×
Immobilizer	IMMU		×	×	×			
Interior room lamp battery saver	BATTERY SAVER			×	×			
Back door open	TRUNK			×				
Vehicle security system	THEFT ALM			×	×	×		
RAP system	RETAINED PWR			×				
Signal buffer system	SIGNAL BUFFER			×				
TPMS	AIR PRESSURE MONITOR		×	×	×	×		

DOOR LOCK

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

DOOR LOCK : CONSULT Function (BCM - DOOR LOCK)

INFOID:0000000010290344

SELF DIAGNOSTIC RESULT

Refer to [BCS-48, "DTC Index"](#).

DATA MONITOR

Monitor Item [Unit]	Description
REQ SW-DR [On/Off]	Indicates condition of door request switch LH.
REQ SW-AS [On/Off]	Indicates condition of door request switch RH.
REQ SW-BD/TR [On/Off]	Indicates condition of back door request switch.
DOOR SW-DR [On/Off]	Indicates condition of front door switch LH.
DOOR SW-AS [On/Off]	Indicates condition of front door switch RH.
DOOR SW-RR [On/Off]	Indicates condition of rear door switch RH.
DOOR SW-RL [On/Off]	Indicates condition of rear door switch LH.
DOOR SW-BK [On/Off]	Indicates condition of back door switch.
CDL LOCK SW [On/Off]	Indicates condition of lock signal from door lock and unlock switch.
CDL UNLOCK SW [On/Off]	Indicates condition of unlock signal from door lock and unlock switch.
KEY CYL LK-SW [On/Off]	Indicates condition of lock signal from door key cylinder switch.
KEY CYL UN-SW [On/Off]	Indicates condition of unlock signal from door key cylinder switch.

ACTIVE TEST

Test Item	Description
DOOR LOCK	This test is able to check door lock operation [ALL LOCK/ALL UNLK].

WORK SUPPORT

Support Item	Setting	Description
DOOR LOCK-UNLOCK SET	On*	Automatic door locks function ON.
	Off	Automatic door locks function OFF.
AUTO UNLOCK TYPE	MODE2	Driver door only unlocks automatically.
	MODE1*	All doors unlock automatically.
AUTO LOCK FUNCTION	MODE3	This mode is not used.
	MODE2	Doors lock automatically when shifted out of P (park).
	MODE1*	Doors lock automatically when vehicle speed reaches 24 km/h (15 mph).
	Off	—
AUTO UNLOCK FUNCTION	MODE3	This mode is not used.
	MODE2	Doors unlock automatically when shifted into P (park).
	MODE1*	Doors unlock automatically when ignition is switched from ON to OFF.
	Off	—

* : Initial setting

INTELLIGENT KEY

INTELLIGENT KEY : CONSULT Function (BCM - INTELLIGENT KEY)

INFOID:0000000010290345

SELF DIAGNOSTIC RESULT

Refer to [BCS-48, "DTC Index"](#).

DATA MONITOR

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

Monitor Item [Unit]	Main	Description
REQ SW -DR [On/Off]	×	Indicates condition of door request switch LH.
REQ SW -AS [On/Off]	×	Indicates condition of door request switch RH.
REQ SW -BD/TR [On/Off]	×	Indicates condition of back door request switch.
PUSH SW [On/Off]		Indicates condition of push-button ignition switch.
BRAKE SW 1 [On/Off]	×	Indicates condition of brake pedal position switch.
BRAKE SW 2 [On/Off]		Indicates condition of stop lamp switch.
DETE/CANCL SW [On/Off]	×	Indicates condition of park position switch.
PUSH SW -IPDM [On/Off]		Indicates condition of push-button ignition switch received from IPDM E/R on CAN communication line.
IGN RLY1 -F/B [On/Off]		Indicates condition of ignition relay 1 received from IPDM E/R on CAN communication line.
NEUTRAL SW -IPDM [On/Off]		Indicates condition of transmission range switch received from IPDM E/R on CAN communication line.
SFT PN -IPDM [On/Off]		Indicates condition of P (park) or N (neutral) position from TCM on CAN communication line.
STARTER RELAY -IPDM [On/Off]		Indicates condition of starter relay received from IPDM E/R on CAN communication line.
ENGINE STATE [STOP/START/CRANK/RUN]	×	Indicates condition of engine state from ECM on CAN communication line.
REVERSE SIGNAL -IPDM [On/Off]		Indicates condition of transmission range switch received from IPDM E/R on CAN communication line.
CRANKING PERMIT -ECM [PERMIT]		Indicates condition of engine start possibility from ECM on CAN communication line.
IS STATUS -ECM [On/Off]		Indicates IS status from ECM on CAN communication line.
STARTER CUT RELAY -ECM [On/Off]		Indicates condition of starter cut relay from ECM on CAN communication line.
VEH SPEED 1 [mph/km/h]	×	Indicates condition of vehicle speed signal received from ABS on CAN communication line.
VEH SPEED 2 [mph/km/h]	×	Indicates condition of vehicle speed signal received from combination meter on CAN communication line.
IGN REQ -IPDM [On/Off]		Indicates condition of ignition request from IPDM E/R on CAN communication line.
STARTER REQ -IPDM [On/Off]		Indicates condition of starter request received from IPDM E/R on CAN communication line.
DOOR STAT -DR [LOCK/READY/UNLK]	×	Indicates condition of driver side door status.
DOOR STAT -AS [LOCK/READY/UNLK]	×	Indicates condition of passenger side door status.
DOOR STAT -RR [LOCK/READY/UNLK]	×	Indicates condition of rear right side door status.
DOOR STAT -RL [LOCK/READY/UNLK]	×	Indicates condition of rear left side door status.
BK DOOR STATE [LOCK/READY/UNLK]	×	Indicates condition of back door status.
ID OK FLAG [Set/Reset]		Indicates condition of Intelligent Key ID.
PRMT ENG STRT [Set/Reset]		Indicates condition of engine start possibility.
PRMT RKE STRT [Set/Reset]		Indicates condition of engine start possibility from Intelligent Key.
I-KEY OK FLAG [Key ON/Key OFF]	×	Indicates condition of Intelligent Key OK flag.
PRBT ENG STRT [Set/Reset]		Indicates condition of engine start prohibit.
ID AUTHENT CANCEL TIMER [STOP]		Indicates condition of Intelligent Key ID authentication.
ACC BATTERY SAVER [STOP]		Indicates condition of battery saver.
CRNK PRBT TMR [On/Off]		Indicates condition of crank prohibit timer.
AUT CRNK TMR [On/Off]		Indicates condition of automatic engine crank timer from Intelligent Key.
CRNK PRBT TME [sec]		Indicates condition of engine crank prohibit time.

A

B

C

D

E

F

G

H

I

J

DLK

L

M

N

O

P

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

Monitor Item [Unit]	Main	Description
AUTO CRNK TME [sec]		Indicates condition of automatic engine crank time from Intelligent Key.
CRANKING TME [sec]		Indicates condition of engine cranking time from Intelligent Key.
RKE OPE COUN1 [0-19]	×	When remote keyless entry receiver receives the signal transmitted while operating on Intelligent Key, the numerical value start changing.
RKE OPE COUN2 [0-19]	×	When remote keyless entry receiver receives the signal transmitted while operating on Intelligent Key, the numerical value start changing.
RKE-LOCK [On/Off]		Indicates condition of lock signal from Intelligent Key.
RKE-UNLOCK [On/Off]		Indicates condition of unlock signal from Intelligent Key.
RKE-TR/BD [On/Off]		Indicates condition of back door open signal from Intelligent Key.
RKE-PANIC [On/Off]		Indicates condition of panic signal from Intelligent Key.
RKE-MODE CHG [On/Off]		Indicates condition of mode change signal from Intelligent Key.
RKE PBD [On/Off]		Indicates condition of automatic back door signal from Intelligent Key.

ACTIVE TEST

Test Item	Description
OUTSIDE BUZZER	This test is able to check Intelligent Key warning buzzer operation [On/Off].
INSIDE BUZZER	This test is able to check combination meter warning chime operation [Take Out/Knob/Key/Off].
INDICATOR	This test is able to check combination meter warning lamp operation [KEY ON/KEY IND/Off].
ENGINE SW ILLUMI	This test is able to check push-button ignition switch START indicator operation [On/Off].
IGNITION RELAY	This test is able to check ignition relay operation [On/Off].

WORK SUPPORT

Support Item	Setting	Description
SHORT CRANKING OUTPUT	Start	70 msec
		100 msec
		200 msec
	End	—
INSIDE ANT DIAGNOSIS	—	This function allows inside key antenna self-diagnosis.

TRUNK

TRUNK : CONSULT Function (BCM - TRUNK)

INFOID:0000000010290346

DATA MONITOR

Monitor Item [Unit]	Description
PUSH SW [On/Off]	Indicates condition of push-button ignition switch.
DETECTION SENSOR (BK) [On/Off]	NOTE: This item is displayed, but cannot be monitored.
VEH SPEED 1 [km/h]	Indicates vehicle speed signal received from ABS on CAN communication line.
BACK DOOR OPENER SW [On/Off]	Indicates condition of back door opener switch.
RKE-TR/BD [On/Off]	Indicates condition of back door open signal from Intelligent Key.

DIAGNOSIS SYSTEM (AUTOMATIC BACK DOOR CONTROL UNIT)

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

DIAGNOSIS SYSTEM (AUTOMATIC BACK DOOR CONTROL UNIT)

CONSULT Function

INFOID:0000000010283030

APPLICATION ITEMS

CONSULT performs the following functions via CAN communication with automatic back door control module.

Diagnosis mode	Function Description
Self diagnostic result	Displays the diagnosis results judged by automatic back door control module
Data monitor	The automatic back door control module input/output signals are displayed
Work support	Changes the setting for each setting function.
ECU identification	The automatic back door control module part number is displayed

SELF DIAGNOSTIC RESULTS

Refer to [DLK-57, "DTC Index"](#).

DATA MONITOR

Monitor Item	Unit	Description
SPINDLE SENSOR LH	[Pulse]	Displays the condition of the LH encoder
SPINDLE LH SPEED	[mm/s]	Displays the LH spindle operation speed
SPINDLE MOTOR LH DUTY	[%]	Displays the condition of the spindle motor LH duty
VHCL SPEED MTR	[km/h]	Displays the vehicle speed signal received from combination meter by numerical value
VHCL SPEED ABS	[km/h]	Displays the vehicle speed signal received from ABS actuator and electrical unit by numerical value
MAIN SW	[ON/OFF]	Indicates condition of automatic back door main switch
AUTO BD SW	[ON/OFF]	Indicates condition of automatic back door switch
BK DOOR CL SW	[ON/OFF]	Indicates condition of automatic back door close switch
BACK DOOR LOCK STATUS	[ON/OFF]	Indicates condition of back door lock status
PKB SW	[ON/OFF]	Indicates condition of park brake switch
OPEN SW	[ON/OFF]	Indicates condition of open switch
CLOSE SW	[ON/OFF]	Indicates condition of close switch
HALF LATCH SW	[ON/OFF]	Indicates condition of half latch switch
TOUCH SEN RH	[ON/OFF/OPEN]	Indicates condition of touch sensor RH
TOUCH SEN LH	[ON/OFF/OPEN]	Indicates condition of touch sensor LH
P RANGE IND	[ON/OFF]	Indicates condition of P range signal from combination meter
RKE REQ	[OFF/MOVE/REV]	Indicates condition of remote keyless entry signal from BCM
IGN SW	[ON/OFF]	Indicates condition of IGN power supply
SPINDLE LH ENCODER A	[LO/HI]	Indicates condition of encoder signal from encoder A
SPINDLE LH ENCODER B	[LO/HI]	Indicates condition of encoder signal from encoder B
UNLOCK SEN BD	[LOCK/UNLK]	Indicates condition of back door unlock sensor
DESTINATION	[JPN/NAM]	Indicates specification of destination of the automatic back door system
AUTO BCK DR POS INITIAL	[YET/DONE]	Indicates condition of calibration of automatic back door position information
AUTO BCK DR POS LEARN	[YET/DONE]	Indicates condition of additional service when removing battery negative cable
SPINDLE SENSOR RH	[Pulse]	Displays the condition of the RH encoder
SPINDLE RH SPEED	[mm/s]	Displays the RH spindle operation speed

DIAGNOSIS SYSTEM (AUTOMATIC BACK DOOR CONTROL UNIT)

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

Monitor Item	Unit	Description
SPINDLE MOTOR RH DUTY	[%]	Displays the condition of the spindle motor RH duty
SPINDLE RH ENCODER A	[LO/HI]	Indicates condition of encoder signal from encoder A
SPINDLE RH ENCODER B	[LO/HI]	Indicates condition of encoder signal from encoder B
TRANSMISSION TYPE	[AT/CVT]	Indicates type of transmission the vehicle is equipped with

WORK SUPPORT

Work item	Description	Refer to
RESET AUTO BACK DOOR STATUS	This item is for calibration of automatic back door position information.	DLK-103, "Work Procedure"

AUTOMATIC BACK DOOR CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[WITH INTELLIGENT KEY SYSTEM]

ECU DIAGNOSIS INFORMATION

AUTOMATIC BACK DOOR CONTROL UNIT

Reference Value

INFOID:0000000010283034

VALUES ON THE DIAGNOSIS TOOL

CONSULT MONITOR ITEM

Monitor Item	Condition		Value/Status
SPINDLE SENSOR LH	Back door: Moving		0 – 65535
SPINDLE LH SPEED	Back door: Moving		0 – 6553.5
SPINDLE MOTOR LH DUTY	Back door: Moving		0 – 255
VHCL SPEED MTR	While driving		Equivalent to speedometer reading
VHCL SPEED ABS	While driving		Equivalent to speedometer reading
MAIN SW	Automatic back door main switch	OFF	OFF
		ON	ON
AUTO BD SW	Automatic back door switch	Release	OFF
		Press	ON
BK DOOR CL SW	Automatic back door close switch	Release	OFF
		Press	ON
BACK DOOR LOCK STATUS	Back door lock	Lock	OFF
		Unlock	ON
PKB SW	Parking brake	Not applied	OFF
		Applied	ON
OPEN SW	Back door	Half latch/fully closed	OFF
		Applied	ON
CLOSE SW	Back door	Open/half latch	OFF
		Fully closed	ON
HALF LATCH SW	Back door	Half latch/fully closed	OFF
		Open	ON
TOUCH SEN RH	Touch sensor RH	Other than below	OFF
		Detect obstruction	ON
TOUCH SEN LH	Touch sensor LH	Other than below	OFF
		Detect obstruction	ON
P RANGE IND	Selector lever	Other than P position	OFF
		P position	ON
RKE REQ	Intelligent Key button (back door)	Release	OFF
		Press (more than 0.5 second)	MOVE
		Press (just after)	REV
IGN SW	Ignition switch	Other than ON position	OFF
		ON position	ON
SPINDLE LH ENCODER A	Automatic back door	Not operate	No change HI or LO
		Operate	Change HI or LO
SPINDLE LH ENCODER B	Automatic back door	Not operate	No change HI or LO
		Operate	Change HI or LO

A

B

C

D

E

F

G

H

I

J

DLK

L

M

N

O

P

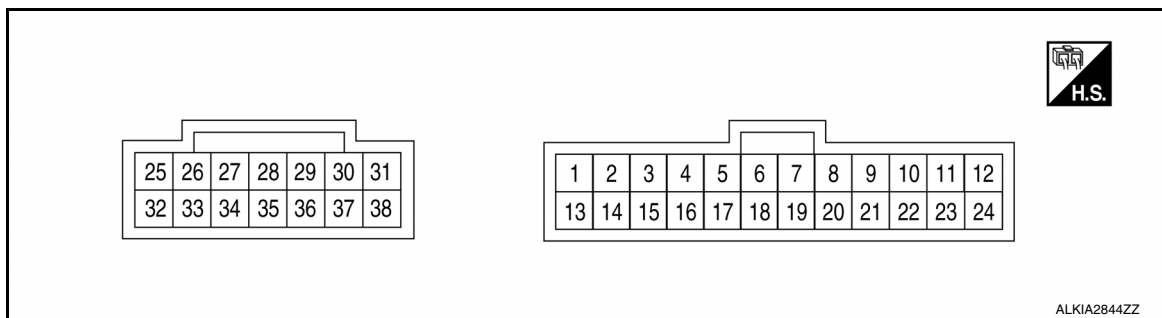
AUTOMATIC BACK DOOR CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[WITH INTELLIGENT KEY SYSTEM]

Monitor Item	Condition		Value/Status
UNLOCK SEN BD	Back door lock	Lock	LOCK
		Unlock	UNLK
DESTINATION	—		OTHER
AUTO BCK DR POS INITIAL	Calibration of automatic back door position information	Not complete	YET
		Complete	DONE
AUTO BCK DR POS LEARN	Additional service when removing battery negative terminal	Not complete	YET
		Complete	DONE
SPINDLE SENSOR RH	Back door: Moving		0 – 65535
SPINDLE RH SPEED	Back door: Moving		0 – 6553.5
SPINDLE MOTOR RH DUTY	Back door: Moving		0 – 255
SPINDLE RH ENCODER A	Automatic back door	Not operate	No change HI or LO
		Operate	Change HI or LO
SPINDLE RH ENCODER B	Automatic back door	Not operate	No change HI or LO
		Operate	Change HI or LO
TRANSMISSION TYPE	—		AT/CVT

TERMINAL LAYOUT



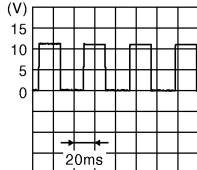
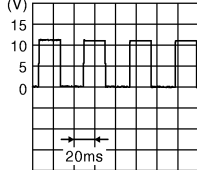
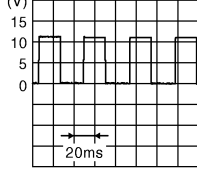
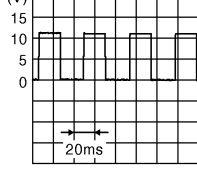
PHYSICAL VALUES

Terminal No. (Wire color)		Description		Condition		Voltage (Approx.)
(+)	(–)	Signal name	Input/ Output			
1 (LG)	13 (SB)	Touch sensor RH signal	Input	Touch sensor RH	Detect obstruction	1.8 – 5 V
					Other than above	2.72 – 7.27 V
2 (G)	13 (SB)	Touch sensor LH signal	Input	Touch sensor LH	Detect obstruction	1.8 – 2.72 V
					Other than above	5.0 – 7.27 V
3 (SB)	Ground	Half latch switch signal	Input	Back door	Open	0 V
					Fully closed/half latch	Battery voltage
4 (B)	Ground	Ground	—	—		0 V
5 (BR)	Ground	Close switch signal	Input	Back door	Fully closed	0 V
					Open/half latch	Battery voltage

AUTOMATIC BACK DOOR CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[WITH INTELLIGENT KEY SYSTEM]

Terminal No. (Wire color)		Description		Condition		Voltage (Approx.)
(+)	(-)	Signal name	Input/ Output			
6 (W)	Ground	Encoder LH A signal	Input	Back door	Moving (auto or manual)	 JMKIA1864ZZ NOTE: Waveform width changes according to back door open/close speed
					When stopped	0 V or Battery voltage
7 (L)	Ground	Encoder LH B signal	Input	Back door	Moving (auto or manual)	 JMKIA1864ZZ NOTE: Waveform width changes according to back door open/close speed
					When stopped	0 V or 12 V
8 (R)	Ground	Encoder RH A signal	Input	Back door	Moving (auto or manual)	 JMKIA1864ZZ NOTE: Waveform width changes according to back door open/close speed
					When stopped	0 V or 12 V
9 (SB)	Ground	Encoder RH B signal	Input	Back door	Moving (auto or manual)	 JMKIA1864ZZ NOTE: Waveform width changes according to back door open/close speed
					When stopped	0 V or 12 V
10 (BG)	Ground	Automatic back door main switch	Input	Automatic back door main switch	ON	Battery voltage
					OFF	0 V
11 (V)	Ground	Open switch signal	Input	Back door	Open	0 V
					Half latch/fully closed	Battery voltage
12 (P)	Ground	CAN - L	Input/ Output	—	—	—

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

DLK

AUTOMATIC BACK DOOR CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[WITH INTELLIGENT KEY SYSTEM]

Terminal No. (Wire color)		Description		Condition		Voltage (Approx.)
(+)	(-)	Signal name	Input/ Output			
13 (GR)	Ground	Touch sensor ground	Input	—		0.01 – 0 V
16 (B)	Ground	Ground	—	—		0.01 – 0 V
19 (V)	Ground	Encoder LH power supply	Output	—		Battery voltage
20 (P)	Ground	Encoder RH power supply	Output	—		Battery voltage
21 (G)	Ground	Encoder ground	—	—		0 V
22 (LG)	Ground	Automatic back door switch	Input	Automatic back door switch	Pressed	Battery voltage
					Released	0 V
23 (W)	Ground	Automatic back door close switch	Input	Automatic back door close switch	Pressed	Battery voltage
					Released	0 V
24 (L)	Ground	CAN - H	Input/ Output	—		—
25 (W)	Ground	Power supply (BAT)	Input	—		Battery voltage
27 (BR)	Ground	Spindle motor LH (open)	Output	Back door	Auto open operation	Battery voltage
29 (BR)	Ground	Spindle motor RH (open)	Output	Back door	Auto open operation	Battery voltage
31 (L)	Ground	Back door closure motor (open)	Output	Back door	Open operation	Battery voltage
					Other than above	0 V
32 (B)	Ground	Ground	—	—		0 V
34 (G)	Ground	Spindle motor LH (close)	Output	Back door	Auto close operation	Battery voltage
35 (B)	Ground	Ground (noise shield spindle)	—	—		0.01 – 0 V
36 (G)	Ground	Spindle motor RH (close)	Output	Back door	Auto close operation	Battery voltage
37 (Y)	Ground	Back door warning chime	Output	Automatic back door warning chime	Sounding	0 V
					Not sounding	Battery voltage
38 (SB)	Ground	Back door closure motor (close)	Output	Back door	Close operation	Battery voltage
					Other than above	0 V

Fail Safe

INFOID:0000000010283035

Display contents of CONSULT	Fail-safe	Cancellation
U1000 CAN COMM	Inhibit automatic back door operation	Return to normal status.
U1010 CONTROL UNIT (CAN)	Inhibit automatic back door operation	Return to normal status.
B2401 IGN OPEN	Inhibit automatic back door operation	Automatic back door control module detects ignition switch ON signal via CAN communication.

AUTOMATIC BACK DOOR CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[WITH INTELLIGENT KEY SYSTEM]

Display contents of CONSULT	Fail-safe	Cancellation
B2409 HALF LATCH SW	Inhibit automatic back door operation	Automatic back door control module detects that half latch switch changes from ON to OFF when back door fully closes.
B2416 TOUCH SEN R OPEN	Inhibit automatic back door operation	Return to normal status.
B2417 TOUCH SEN L OPEN	Inhibit automatic back door operation	Return to normal status.
B2419 OPEN SW	Inhibit automatic back door operation	Reconnect battery.
B2420 CLOSE SW	Inhibit automatic back door operation	Reconnect battery.
B2422 BACK DOOR STATE	Inhibit automatic back door operation	Half latch switch is ON from OFF.
B2423 ABD MTR TIME OUT	Inhibit automatic back door operation	At least 180 seconds are passed after automatic back door operation is inhibited.
B2426 SPINDLE SENSOR LH	Inhibit automatic back door operation	Return to normal status.
B2427 SPINDLE SENSOR RH	Inhibit automatic back door operation	Return to normal status.
B2428 AUTO BACK DR CNT MODULE	Inhibit automatic back door operation	Return to normal status.
B242A CLSR CONDITION	Inhibit automatic back door operation	Reconnect battery.

DTC Inspection Priority Chart

INFOID:0000000010283036

If some DTCs are displayed at the same time, perform inspections one by one based on the following priority chart.

Priority	DTC
1	- B2428 AUTO BK DR CNT UNIT - U1000 CAN COMM - U1010 CONTROL UNIT (CAN) - B2401 IGN OPEN
2	- B2409 HALF LATCH SW - B2416 TOUCH SEN R OPEN - B2417 TOUCH SEN L OPEN - B2419 OPEN SW - B2420 CLOSE SW - B2422 BACK DOOR STATE - B2423 ABD MTR TIME OUT - B2426 SPINDLE SENSOR LH - B2427 SPINDLE SENSOR RH - B242A CLSR CONDITION

DLK

DTC Index

INFOID:0000000010283037

NOTE:

Details of time display

- 1 - 39: Displayed if any previous malfunction is present when current condition is normal. It increases 1 → 2 → 3...38 → 39 after returning to the normal condition whenever ignition switch OFF → ON. The counter remains at 39 even if the number of cycles exceeds it. It is counted from 1 again when turning ignition switch OFF → ON after returning to the normal condition if the malfunction is detected again.

CONSULT display	Fail-safe	Reference page
U1000: CAN COMM	×	DLK-104, "DTC Logic"
U1010: CONTROL UNIT(CAN)	×	DLK-105, "DTC Logic"
B2401: IGN OPEN	×	DLK-106, "DTC Logic"
B2409: HALF LATCH SW	×	DLK-107, "DTC Logic"
B2416: TOUCH SEN R OPEN	×	DLK-110, "DTC Logic"
B2417: TOUCH SEN L OPEN	×	DLK-113, "DTC Logic"

AUTOMATIC BACK DOOR CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[WITH INTELLIGENT KEY SYSTEM]

CONSULT display	Fail-safe	Reference page
B2419: OPEN SW	×	DLK-116, "DTC Logic"
B2420: CLOSE SW	×	DLK-119, "DTC Logic"
B2422: BACK DOOR STATE	×	DLK-122, "DTC Logic"
B2423: ABD MTR TIME OUT	×	DLK-125, "DTC Logic"
B2426: SPINDLE SENSOR LH	×	DLK-127, "DTC Logic"
B2427: SPINDLE SENSOR RH	×	DLK-130, "DTC Logic"
B2428: AUTO BACK DR CNT UNIT	×	DLK-133, "DTC Logic"
B242A: CLSR CONDITION	×	DLK-134, "DTC Logic"

BCM

List of ECU Reference

INFOID:0000000010283038

ECU	Reference
BCM	BCS-28. "Reference Value"
	BCS-47. "Fail Safe"
	BCS-47. "DTC Inspection Priority Chart"
	BCS-48. "DTC Index"

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

POWER DOOR LOCK SYSTEM

< WIRING DIAGRAM >

[WITH INTELLIGENT KEY SYSTEM]

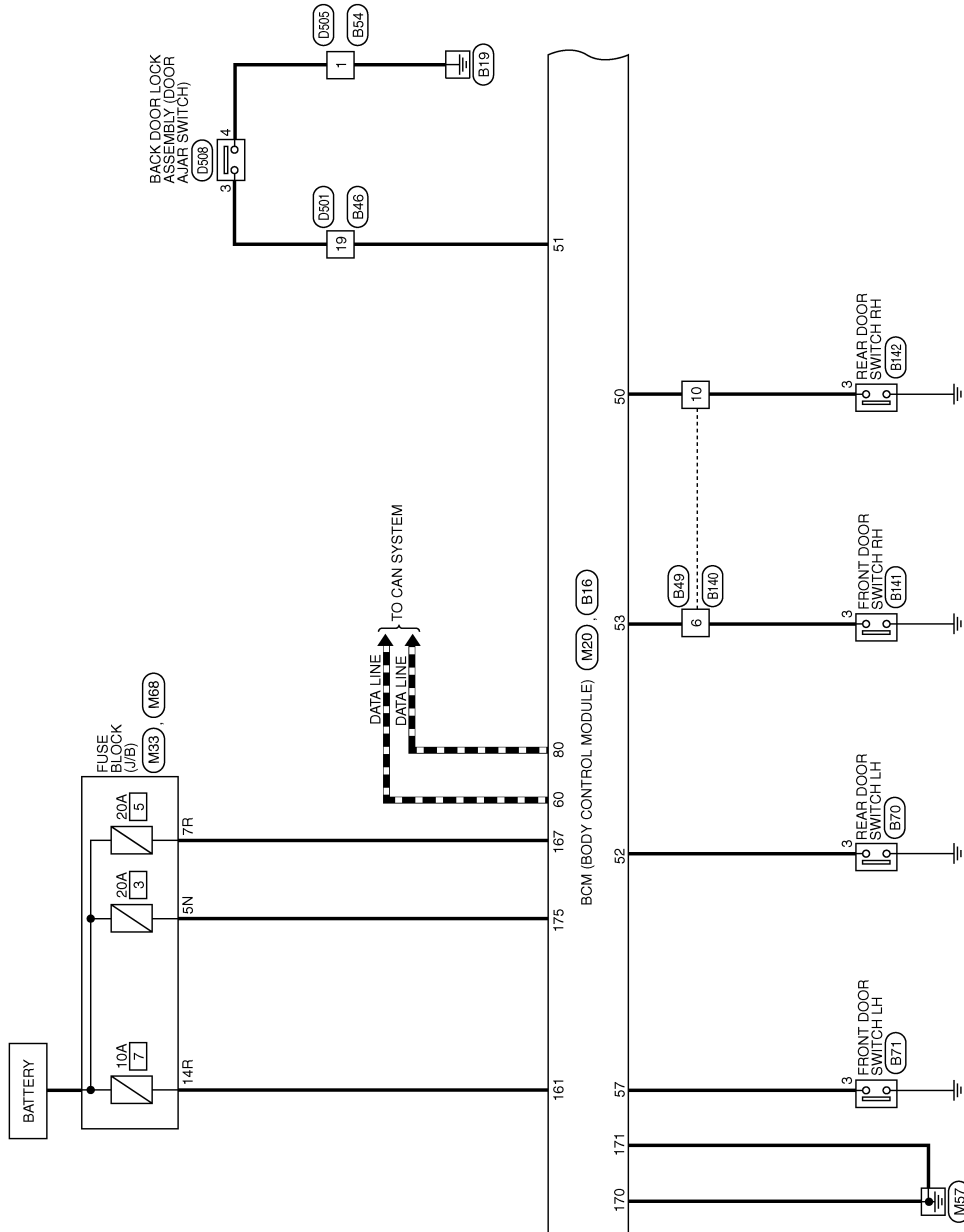
WIRING DIAGRAM

POWER DOOR LOCK SYSTEM

Wiring Diagram

INFOID:0000000010283198

POWER DOOR LOCK SYSTEM - WITH INTELLIGENT KEY SYSTEM

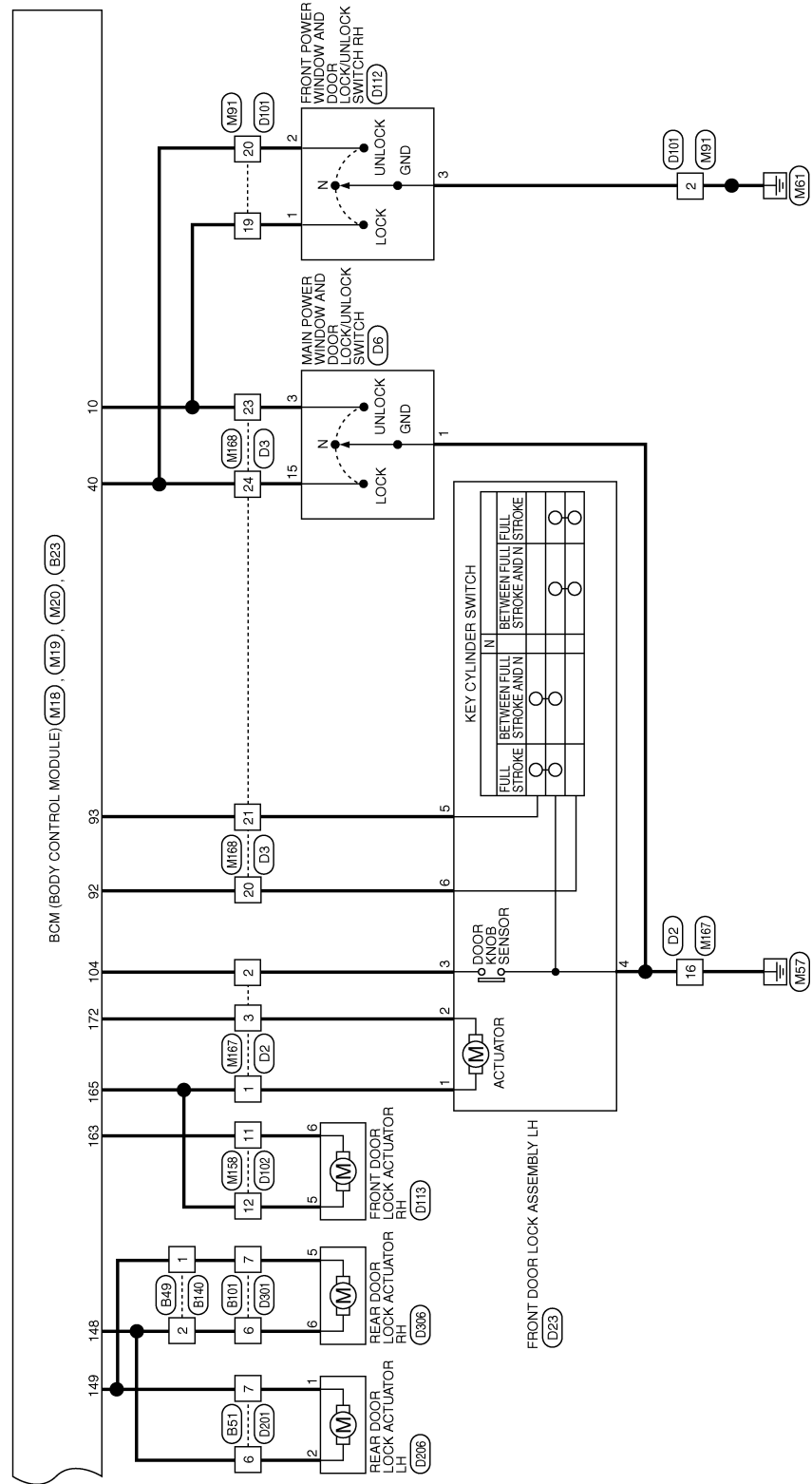


AAKWA0759GB

POWER DOOR LOCK SYSTEM

[WITH INTELLIGENT KEY SYSTEM]

< WIRING DIAGRAM >



AAKWA0760GB

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P

DLK

POWER DOOR LOCK SYSTEM

< WIRING DIAGRAM >

[WITH INTELLIGENT KEY SYSTEM]

POWER DOOR LOCK SYSTEM - WITH INTELLIGENT KEY SYSTEM CONNECTORS

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY



20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21

Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



100	99	98	97	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81
120	119	118	117	116	115	114	113	112	111	110	109	108	107	106	105	104	103	102	101

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BROWN



167	166	165	164	163	162	161
176	175	174	173	172	171	170
169	168					

Terminal No.	Color of Wire	Signal Name
10	BG	I DOORLOCK SW
40	SB	I DOORUNLOCK SW

Terminal No.	Color of Wire	Signal Name
92	BR	I KEY CYLINDER LOCK SW
93	P	I KEY CYLINDER UNLOCK SW
104	R	I DR KNOB SW

Terminal No.	Color of Wire	Signal Name
161	W	I PWR ECU
163	L	O AS LOCK OR UNLOCK D
165	V	O DR OR FR LOCK D
167	LA/V	I PWR DOORLOCK1
170	B	I GND1
171	B	I GND2
172	G	O FR OR DR UNLOCK D
175	R	I PWR DOORLOCK2

Connector No.	M33
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



3N	2N	1N
8N	7N	6N
5N	4N	

Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN



7R	6R	5R	4R	3R	2R	1R
16R	15R	14R	13R	12R	11R	10R
9R	8R					

Connector No.	M91
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12
13	14	15	16	17	18	19	20	21	22	23	24

Terminal No.	Color of Wire	Signal Name
5N	R	-

Terminal No.	Color of Wire	Signal Name
7R	LA/V	-
14R	W	-

Terminal No.	Color of Wire	Signal Name
2	GR	-
19	LG	-
20	BR	-

AAKIA1771GB

POWER DOOR LOCK SYSTEM

< WIRING DIAGRAM >

[WITH INTELLIGENT KEY SYSTEM]

Connector No.	M168
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12
13	14	15	16	17	18	19	20	21	22	23	24

Terminal No.	Color of Wire	Signal Name
20	BR	-
21	P	-
23	BG	-
24	SB	-

Connector No.	B46
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Terminal No.	Color of Wire	Signal Name
19	LG	-

Connector No.	M167
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7		
8	9	10	11	12	13	14	15	16

Terminal No.	Color of Wire	Signal Name
1	V	-
2	R	-
3	G	-
16	B	-

Connector No.	B23
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY



151	150	149	148		147	146	145	
160	159	158	157	156	155	154	153	152

Terminal No.	Color of Wire	Signal Name
148	W	O RR UNLOCK B
149	L	O RR LOCK B

Connector No.	M158
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7		
8	9	10	11	12	13	14	15	16

Terminal No.	Color of Wire	Signal Name
11	L	-
12	Y	-

Connector No.	B16
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GREEN



60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41
60	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61

Terminal No.	Color of Wire	Signal Name
50	W	I RR DOOR SW
51	LG	I TGATE SW
52	R	I RL DOOR SW
53	SB	I AS DOOR2 SW
57	SB	I DR DOOR2 SW
60	L	CAN-H
80	P	CAN-L

AAKIA1772GB

POWER DOOR LOCK SYSTEM

< WIRING DIAGRAM >

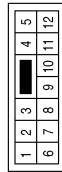
[WITH INTELLIGENT KEY SYSTEM]

Connector No.	B54
Connector Name	WIRE TO WIRE
Connector Color	WHITE



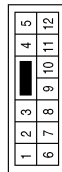
Terminal No.	Color of Wire	Signal Name
1	B	-

Connector No.	B51
Connector Name	WIRE TO WIRE
Connector Color	WHITE



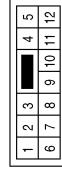
Terminal No.	Color of Wire	Signal Name
6	W	-
7	L	-

Connector No.	B49
Connector Name	WIRE TO WIRE
Connector Color	WHITE



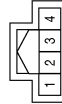
Terminal No.	Color of Wire	Signal Name
1	V	-
2	G	-
6	SB	-
10	W	-

Connector No.	B101
Connector Name	WIRE TO WIRE
Connector Color	WHITE



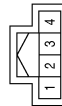
Terminal No.	Color of Wire	Signal Name
6	LA/GR	-
7	LA/LG	-

Connector No.	B71
Connector Name	FRONT DOOR SWITCH LH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
3	SB	-

Connector No.	B70
Connector Name	REAR DOOR SWITCH LH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
3	R	-

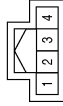
AAKIA1773GB

POWER DOOR LOCK SYSTEM

< WIRING DIAGRAM >

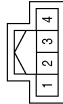
[WITH INTELLIGENT KEY SYSTEM]

Connector No.	B142
Connector Name	REAR DOOR SWITCH RH
Connector Color	WHITE



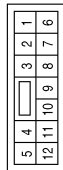
Terminal No.	Color of Wire	Signal Name
3	W	-

Connector No.	B141
Connector Name	FRONT DOOR SWITCH RH
Connector Color	WHITE



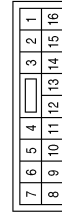
Terminal No.	Color of Wire	Signal Name
3	GR	-

Connector No.	B140
Connector Name	WIRE TO WIRE
Connector Color	WHITE



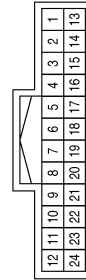
Terminal No.	Color of Wire	Signal Name
1	LA/LG	-
2	LA/GR	-
6	GR	-
10	W	-

Connector No.	D6
Connector Name	MAIN POWER WINDOW AND DOOR LOCK/UNLOCK SWITCH
Connector Color	WHITE



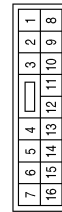
Terminal No.	Color of Wire	Signal Name
1	B	-
3	L	-
15	BG	-

Connector No.	D3
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
20	BR	-
21	P	-
23	L	-
24	BG	-

Connector No.	D2
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	LA/V	-
2	R	-
3	LA/G	-
16	B	-

AAKIA1774GB

POWER DOOR LOCK SYSTEM

< WIRING DIAGRAM >

[WITH INTELLIGENT KEY SYSTEM]

Connector No.	D102
Connector Name	WIRE TO WIRE
Connector Color	WHITE



7	6	5	4		3	2	1	
16	15	14	13	12	11	10	9	8

Terminal No.	Color of Wire	Signal Name
11	LA/L	-
12	LA/V	-

Connector No.	D101
Connector Name	WIRE TO WIRE
Connector Color	WHITE



12	11	10	9	8	7	6	5	4	3	2	1
24	23	22	21	20	19	18	17	16	15	14	13

Terminal No.	Color of Wire	Signal Name
2	B	-
19	LG	-
20	BR	-

Connector No.	D23
Connector Name	FRONT DOOR LOCK ASSEMBLY LH
Connector Color	GRAY



1	2	3	4	5	6
---	---	---	---	---	---

Terminal No.	Color of Wire	Signal Name
1	LA/V	-
2	LA/G	-
3	R	-
4	B	-
5	P	-
6	BR	-

Connector No.	D201
Connector Name	WIRE TO WIRE
Connector Color	WHITE



5	4		3	2	1	
12	11	10	9	8	7	6

Connector No.	D113
Connector Name	FRONT DOOR LOCK ACTUATOR RH
Connector Color	GRAY



1	2	3	4	5	6
---	---	---	---	---	---

Connector No.	D112
Connector Name	FRONT DOOR WINDOW SWITCH RH
Connector Color	WHITE



1	2	3		4	5
6	7	8	9	10	11
				12	

Terminal No.	Color of Wire	Signal Name
6	LA/V	-
7	LA/G	-

Terminal No.	Color of Wire	Signal Name
5	LA/V	-
6	LA/L	-

Terminal No.	Color of Wire	Signal Name
1	LG	-
2	BR	-
3	B	-

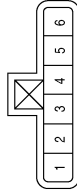
AAKIA1775GB

POWER DOOR LOCK SYSTEM

< WIRING DIAGRAM >

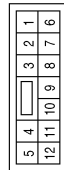
[WITH INTELLIGENT KEY SYSTEM]

Connector No.	D306
Connector Name	REAR DOOR LOCK ACTUATOR RH
Connector Color	GRAY



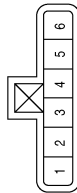
Terminal No.	Color of Wire	Signal Name
5	LA/L	-
6	LA/W	-

Connector No.	D301
Connector Name	WIRE TO WIRE
Connector Color	WHITE



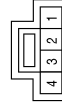
Terminal No.	Color of Wire	Signal Name
6	LA/W	-
7	LA/L	-

Connector No.	D206
Connector Name	REAR DOOR LOCK ACTUATOR LH
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
1	LA/G	-
2	LA/V	-

Connector No.	D508
Connector Name	BACK DOOR LOCK ASSEMBLY (WITHOUT POWER BACK DOOR SYSTEM)
Connector Color	WHITE



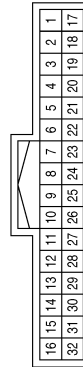
Terminal No.	Color of Wire	Signal Name
3	W	-
4	GR	-

Connector No.	D505
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	B	-

Connector No.	D501
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
19	W	-

AAKIA1776GB

POWER DOOR LOCK SYSTEM

< WIRING DIAGRAM >

[WITH INTELLIGENT KEY SYSTEM]

Connector No.	D512
Connector Name	BACK DOOR LOCK ASSEMBLY (WITH POWER BACK DOOR SYSTEM)
Connector Color	WHITE

1	2	3
4	5	6
7	8	



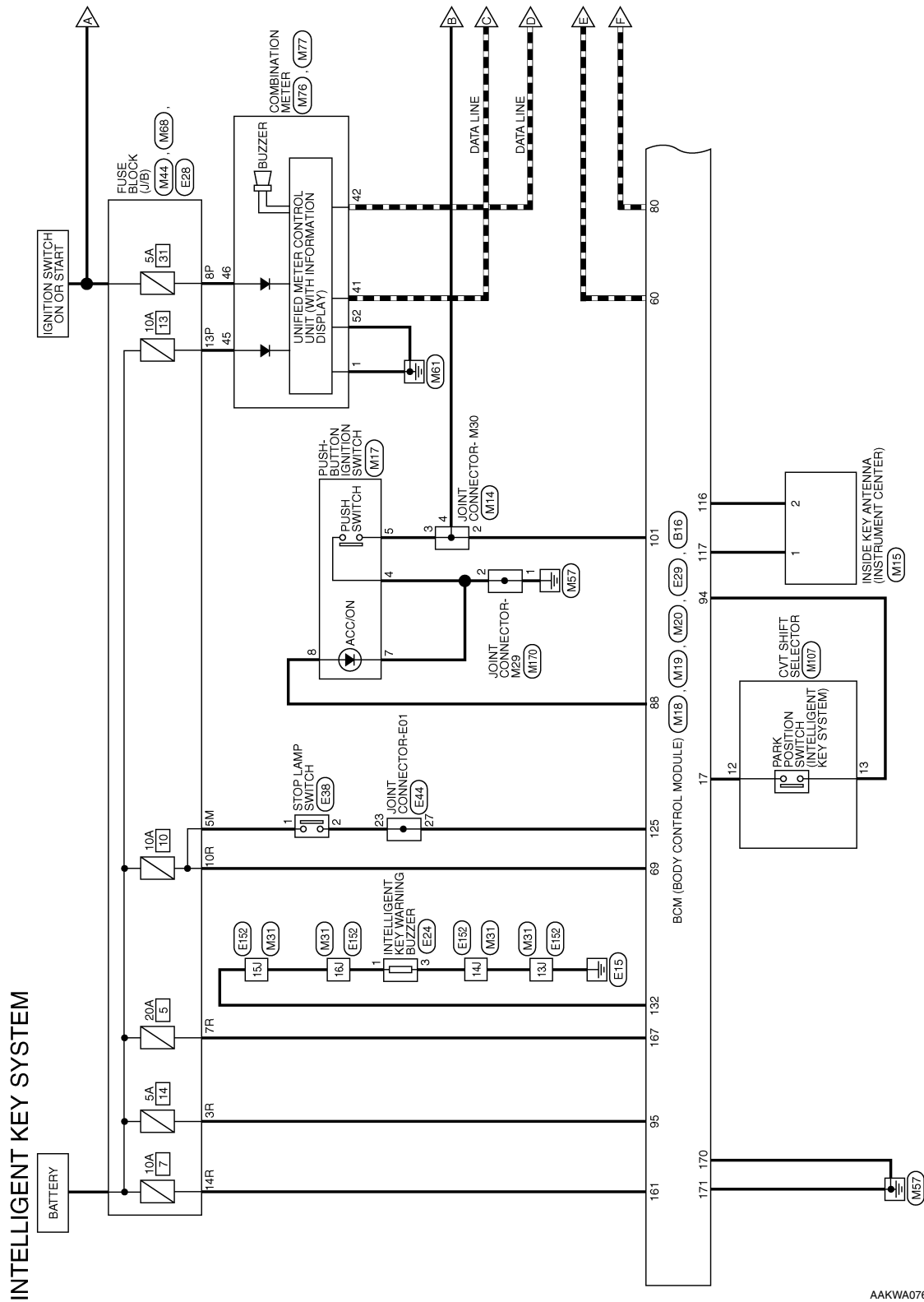
Terminal No.	Color of Wire	Signal Name
7	W	-
8	B	-

AAKIA1800GB

[WITH INTELLIGENT KEY SYSTEM]

INTELLIGENT KEY SYSTEM

INFOID:0000000010283199



AAKWA0767GB

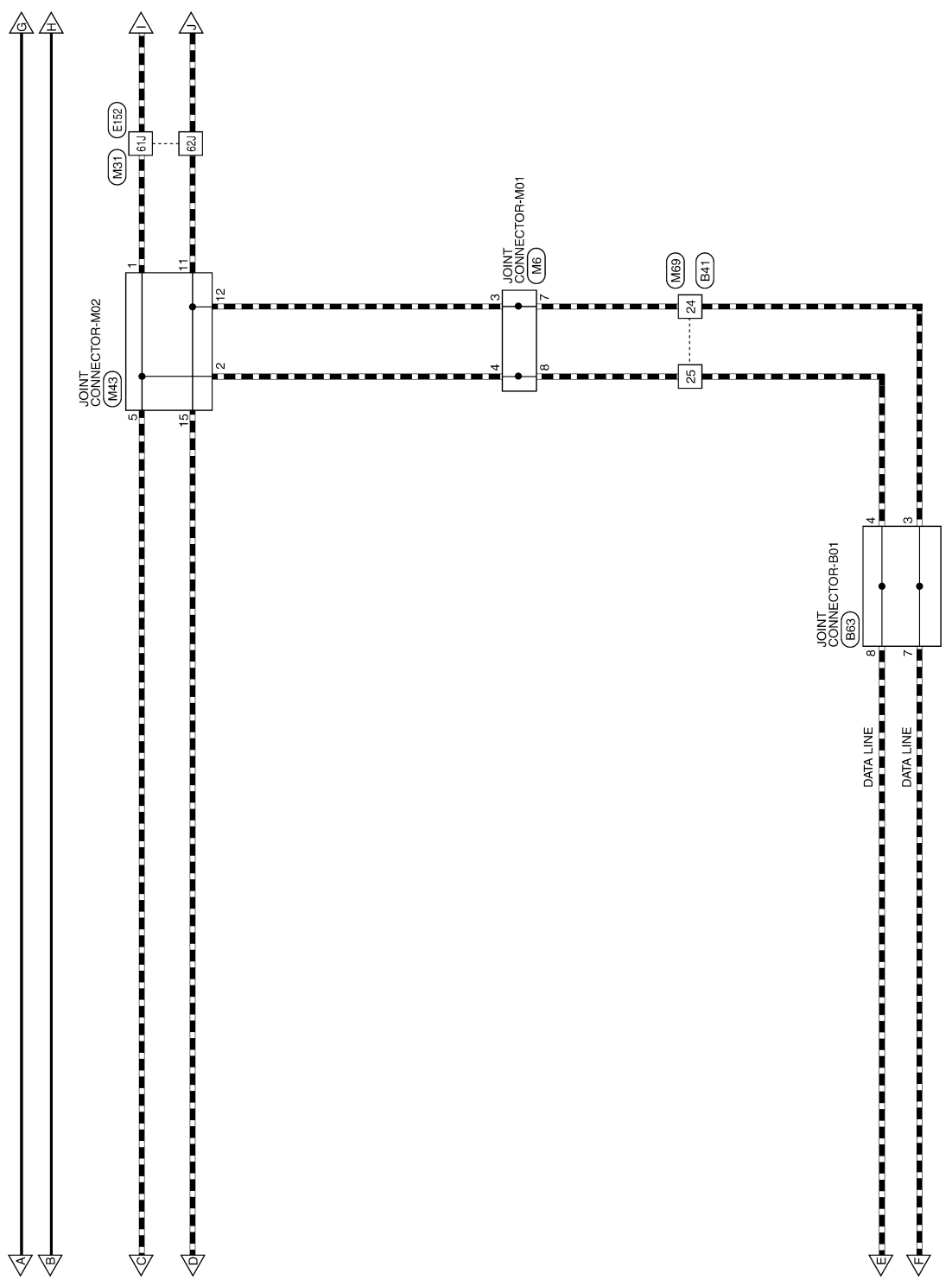
A
B
C
D
E
F
G
H
I
J
DLK
L
M
N
O
P

DLK

INTELLIGENT KEY SYSTEM

< WIRING DIAGRAM >

[WITH INTELLIGENT KEY SYSTEM]

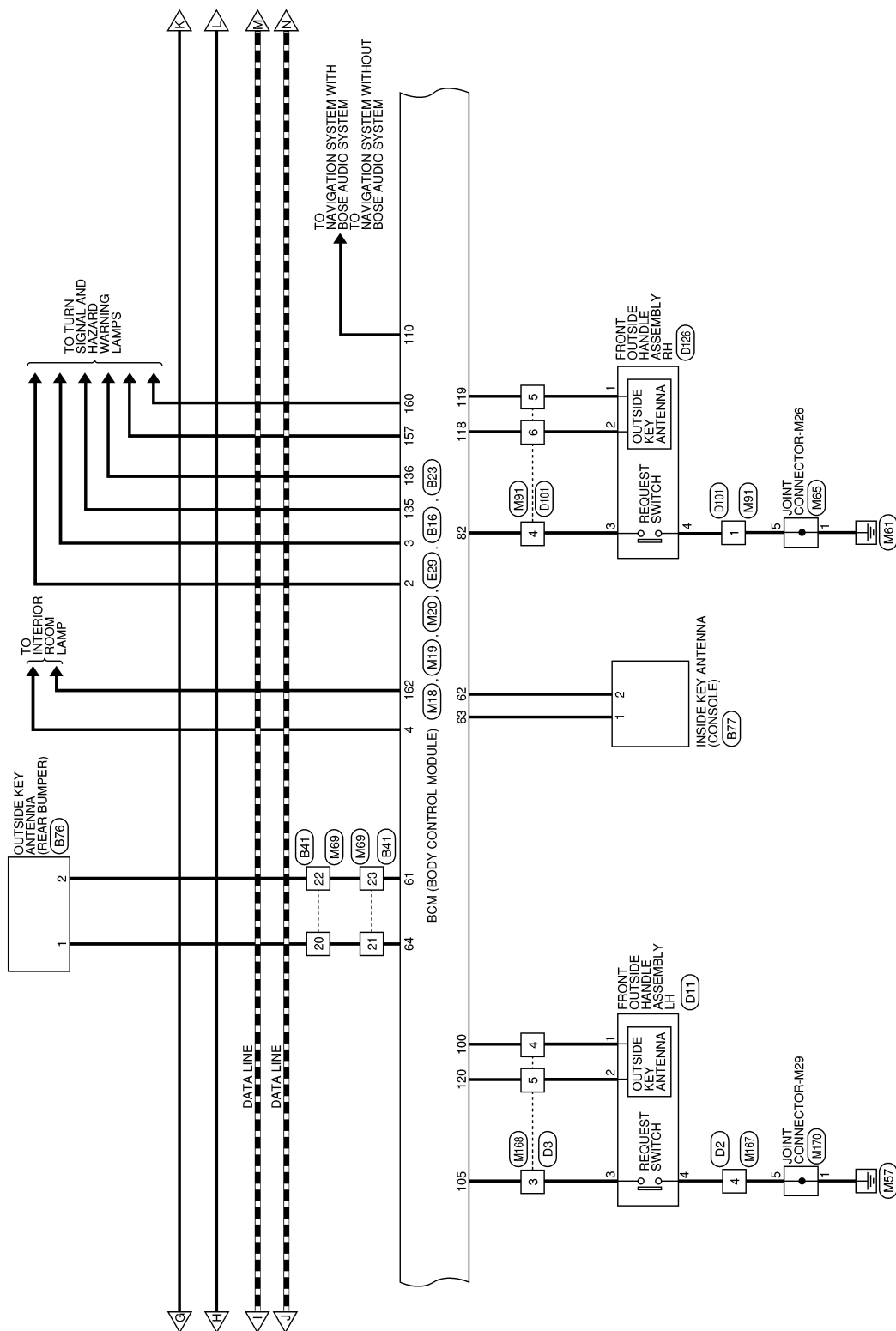


AAKWA0768GB

INTELLIGENT KEY SYSTEM

< WIRING DIAGRAM >

[WITH INTELLIGENT KEY SYSTEM]

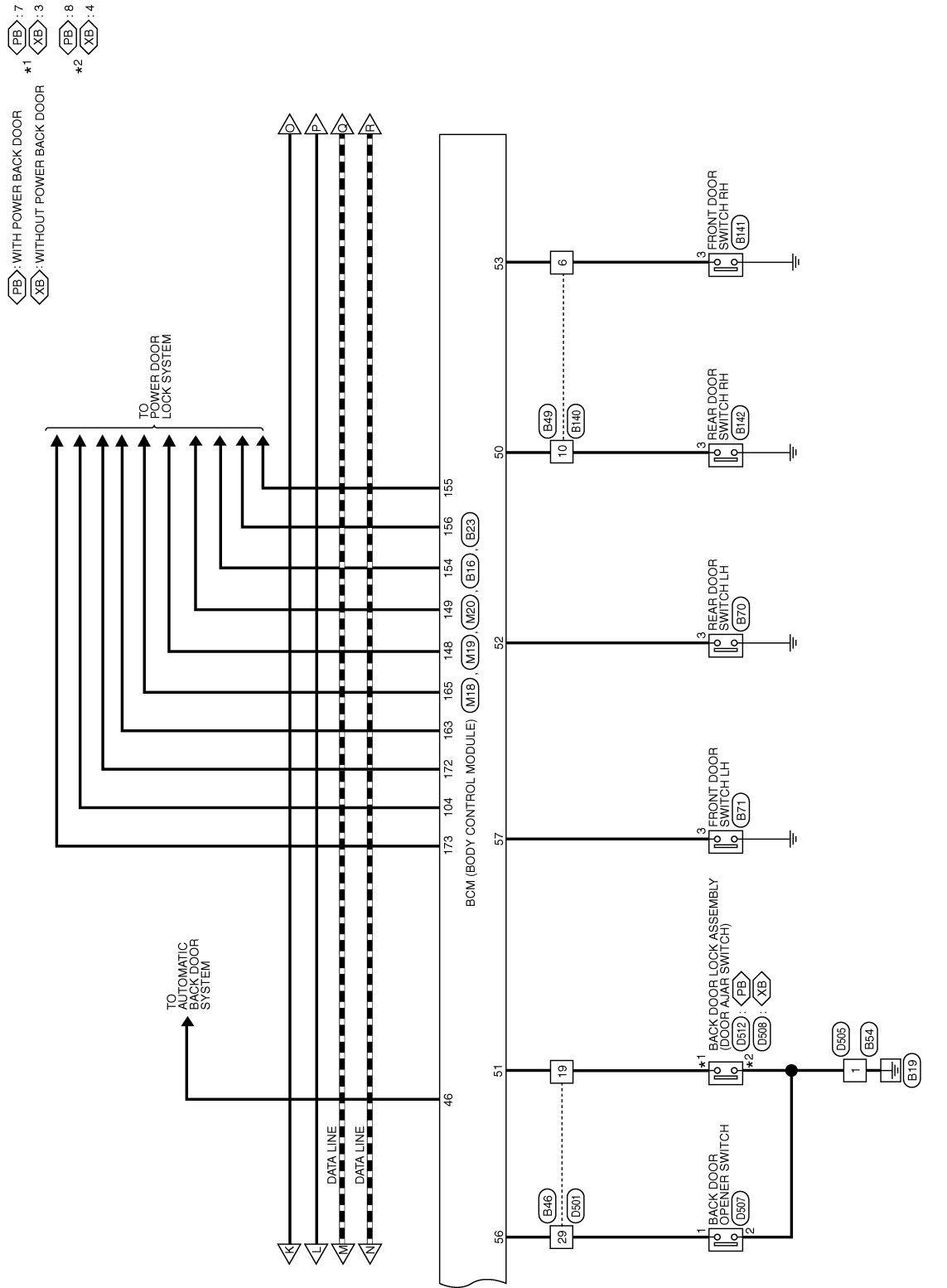


AAKWA0769GB

INTELLIGENT KEY SYSTEM

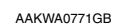
< WIRING DIAGRAM >

[WITH INTELLIGENT KEY SYSTEM]



[WITH INTELLIGENT KEY SYSTEM]

A
B
C
D
E
F
G
H
I
J
CLK
L
M
N
O
P



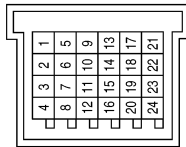
INTELLIGENT KEY SYSTEM

< WIRING DIAGRAM >

[WITH INTELLIGENT KEY SYSTEM]

INTELLIGENT KEY SYSTEM CONNECTORS

Connector No.	M6
Connector Name	JOINT CONNECTOR-M01
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

Connector No.	M14
Connector Name	JOINT CONNECTOR-M30
Connector Color	WHITE



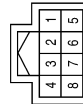
Terminal No.	Color of Wire	Signal Name
2	Y	-
3	Y	-
4	Y	-

Connector No.	M15
Connector Name	INSIDE KEY ANTENNA (INSTRUMENT CENTER)
Connector Color	GRAY

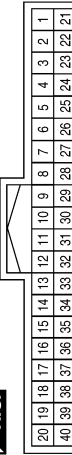


Terminal No.	Color of Wire	Signal Name
1	GR	-
2	BG	-

Connector No.	M17
Connector Name	PUSH-BUTTON IGNITION SWITCH
Connector Color	WHITE



Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
4	B	-
5	Y	-
7	B	-
8	W	-

Terminal No.	Color of Wire	Signal Name
2	LA/G	O DI FR LEFT D
3	LAY	O DI FR RIGHT D
4	P	O SPARE4 RL N
17	L	O PWR ATDVC

INTELLIGENT KEY SYSTEM

< WIRING DIAGRAM >

[WITH INTELLIGENT KEY SYSTEM]

Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



100	99	98	97	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81
120	119	118	117	116	115	114	113	112	111	110	109	108	107	106	105	104	103	102	101

Terminal No.	Color of Wire	Signal Name
82	W	I SES FR HANDLE BUTTON SW (WITH IKEY)
88	W	O START SW BACKLIGHT LED
94	G	I AT LOCKED IN PARK SW
95	V	I SHORTING PIN

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BROWN

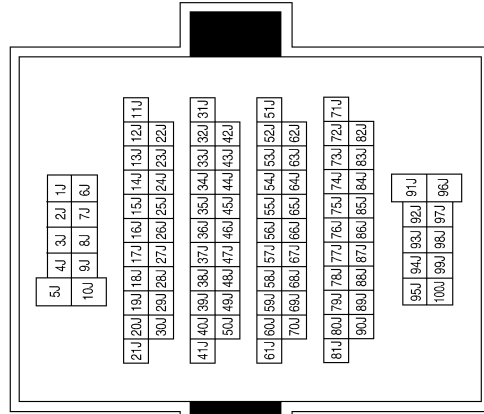


167	166	165	164	163	162	161
176	175	174	173	172	171	170
169	168	167	166	165	164	163

Terminal No.	Color of Wire	Signal Name
161	W	I PWR ECU
162	SB	O PWM ROOMLAMP 1
163	L	O AS LOCK OR UNLOCK D
165	V	O DR OR FR LOCK D
167	LAV	I PWR DOORLOCK1
169	GR	I PWR STOP LAMP
170	B	I GND1
171	B	I GND2
172	G	O FR OR DR UNLOCK D
173	W	O RR SUPERLOCK D

Terminal No.	Color of Wire	Signal Name
100	V	SES EXT DR ANTENNA A
101	Y	I START SW
104	R	I DR KNOB SW
105	Y	I IGN SW (WITHOUT IKEY)
110	BG	O GND AUTOLIGHT SENSOR
116	BG	SES INT FRONT ANTENNA B
117	GR	SES INT FRONT ANTENNA A
118	SB	SES EXT AS ANTENNA B
119	P	SES EXT AS ANTENNA A
120	BR	SES EXT DR ANTENNA B

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
13J	B	-
14J	B	-
15J	G	-
16J	G	-
37J	Y	-
61J	L	-
62J	P	-

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P

DLK

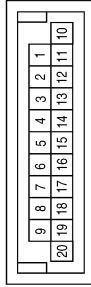
AAKIA1778GB

INTELLIGENT KEY SYSTEM

< WIRING DIAGRAM >

[WITH INTELLIGENT KEY SYSTEM]

Connector No.	M43
Connector Name	JOINT CONNECTOR-M02
Connector Color	BLUE



Terminal No.	Color of Wire	Signal Name
1	L	-
2	L	-
5	L	-
11	P	-
12	P	-
15	P	-

Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
8P	LA/BR	-
13P	LA/G	-

Connector No.	M65
Connector Name	JOINT CONNECTOR-M26
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	B	-
5	B	-

Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN



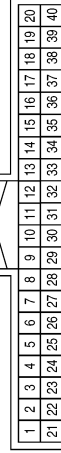
Terminal No.	Color of Wire	Signal Name
3R	V	-
7R	LA/V	-
10R	GR	-
14R	W	-

Connector No.	M69
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
20	BG	-
21	BG	-
22	GR	-
23	GR	-
24	P	-
25	L	-

Connector No.	M76
Connector Name	COMBINATION METER
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	B	GND1

INTELLIGENT KEY SYSTEM

< WIRING DIAGRAM >

[WITH INTELLIGENT KEY SYSTEM]

Connector No.	M107
Connector Name	CVT SHIFT SELECTOR
Connector Color	WHITE



8	7	6	5	4	3	2	1
16	15	14	13	12	11	10	9

Terminal No.	Color of Wire	Signal Name
12	L	—
13	G	—

Connector No.	M91
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12
13	14	15	16	17	18	19	20	21	22	23	24

Terminal No.	Color of Wire	Signal Name
1	B	—
4	W	—
5	P	—
6	SB	—

Connector No.	M77
Connector Name	COMBINATION METER
Connector Color	WHITE



41	42	43	44	45	46
47	48	49	50	51	52

Terminal No.	Color of Wire	Signal Name
41	SB	CAN-H
42	LG	CAN-L
45	LA/G	BAT
46	LA/BR	IGN
52	B	GND2

Connector No.	M170
Connector Name	JOINT CONNECTOR-M29
Connector Color	WHITE



8	7	6	5	4	3	2	1
---	---	---	---	---	---	---	---

Terminal No.	Color of Wire	Signal Name
1	B	—
2	B	—
5	B	—

Connector No.	M168
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12
13	14	15	16	17	18	19	20	21	22	23	24

Terminal No.	Color of Wire	Signal Name
3	Y	—
4	V	—
5	BR	—

Connector No.	M167
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16					

Terminal No.	Color of Wire	Signal Name
4	B	—

AAKIA1780GB

A
B
C
D
E
F
G
H
I
J
DLK
L
M
N
O
P

INTELLIGENT KEY SYSTEM

< WIRING DIAGRAM >

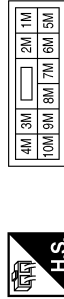
[WITH INTELLIGENT KEY SYSTEM]

Connector No.	E24
Connector Name	INTELLIGENT KEY WARNING BUZZER
Connector Color	BROWN



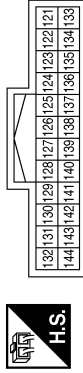
Terminal No.	Color of Wire	Signal Name
1	G	-
3	B	-

Connector No.	E28
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
5M	V	-

Connector No.	E29
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
125	LG	I BRAKE SW2
132	Y	O BUZZER
135	BR	O DI FR LEFT E
136	GR	O DI FR RIGHT E

Connector No.	E38
Connector Name	STOP LAMP SWITCH
Connector Color	WHITE



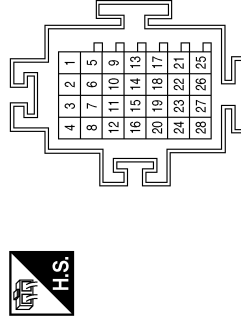
Terminal No.	Color of Wire	Signal Name
1	V	-
2	LG	-

Connector No.	E40
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
3	B	-

Connector No.	E44
Connector Name	JOINT CONNECTOR-E01
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
5	L	-
6	P	-
9	L	-
10	P	-
23	LG	-
27	LG	-

INTELLIGENT KEY SYSTEM

< WIRING DIAGRAM >

[WITH INTELLIGENT KEY SYSTEM]

Connector No.	E50
Connector Name	HORN (HIGH)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
2	B	—

Connector No.	E49
Connector Name	HORN (LOW)
Connector Color	BLACK



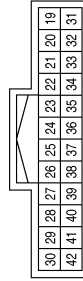
Terminal No.	Color of Wire	Signal Name
1	R	—

Connector No.	E48
Connector Name	HORN (LOW)
Connector Color	BLACK



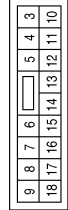
Terminal No.	Color of Wire	Signal Name
2	B	—

Connector No.	E120
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
22	P	CAN-L
24	L	CAN-H
31	B	MOTOR CABIN 5
32	GR	MOTOR CABIN 6

Connector No.	E119
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
9	L	LO HORN RLY
12	B	SIGNAL GROUND

Connector No.	E69
Connector Name	HORN (HIGH)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	R	—

AAKIA1782GB

A B C D E F G H I J L M N O P

DLK

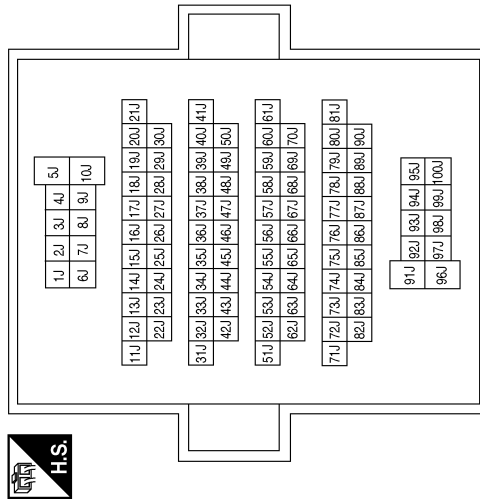
INTELLIGENT KEY SYSTEM

< WIRING DIAGRAM >

[WITH INTELLIGENT KEY SYSTEM]

Terminal No.	Color of Wire	Signal Name
13J	B	—
14J	B	—
15J	Y	—
16J	G	—
37J	GR	—
61J	L	—
62J	P	—

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE

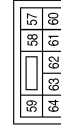


Connector No.	E121
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	RED

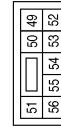


Terminal No.	Color of Wire	Signal Name
47	B	POWER GROUND

Connector No.	E218
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE



Connector No.	E217
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BROWN



Connector No.	E201
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
59	G	O LIGHT HBEAM LH

Terminal No.	Color of Wire	Signal Name
52	W	LI LED DETECTION 2
54	LG	O IGN REVERSE SW AC VALVE 1

Terminal No.	Color of Wire	Signal Name
3	B	—

AAKIA1783GB

INTELLIGENT KEY SYSTEM

< WIRING DIAGRAM >

[WITH INTELLIGENT KEY SYSTEM]

Connector No.	B23
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
148	W	O RR UNLOCK B
149	L	O RR LOCK B
154	GR	O DR OR FR LOCK B
155	R	O RR SUPERLOCK B
156	LG	O FR OR DR UNLOCK B
157	GR	O DI RR LEFT B
160	P	O DI RR RIGHT B

Terminal No.	Color of Wire	Signal Name
52	R	I RL DOOR SW
53	SB	I AS DOOR2 SW
56	Y	I TGATE OPENER SW
57	SB	I DR DOOR2 SW
60	L	CAN-H
61	BR	SES EXT REAR ANTENNA B
62	Y	SES INT MIDDLE ANTENNA B
63	L	SES INT MIDDLE ANTENNA A
64	G	SES EXT REAR ANTENNA A
80	P	CAN-L

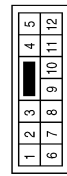
Connector No.	B16
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GREEN



60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41
80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61

Terminal No.	Color of Wire	Signal Name
46	R	I SES BACKDOOR BUTTON SW
50	W	I RR DOOR SW
51	LG	I TGATE SW

Connector No.	B49
Connector Name	WIRE TO WIRE
Connector Color	WHITE



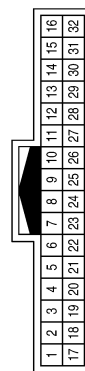
Terminal No.	Color of Wire	Signal Name
6	SB	—
10	W	—

Connector No.	B46
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
19	LG	—
29	Y	—

Connector No.	B41
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
20	LG	—
21	G	—
22	V	—
23	BR	—
24	P	—
25	L	—

AAKIA1784GB

A B C D E F G H I J L M N O P

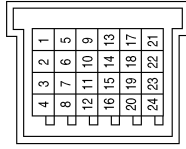
DLK

INTELLIGENT KEY SYSTEM

< WIRING DIAGRAM >

[WITH INTELLIGENT KEY SYSTEM]

Connector No.	B63
Connector Name	JOINT CONNECTOR-B01
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

Connector No.	B54
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	B	-

Connector No.	E223
Connector Name	HOOD SWITCH
Connector Color	GRAY



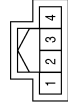
Terminal No.	Color of Wire	Signal Name
1	B	-
2	W	-

Connector No.	B76
Connector Name	OUTSIDE KEY ANTENNA (REAR BUMPER)
Connector Color	GRAY



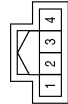
Terminal No.	Color of Wire	Signal Name
1	LG	-
2	V	-

Connector No.	B71
Connector Name	FRONT DOOR SWITCH LH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
3	SB	-

Connector No.	B70
Connector Name	REAR DOOR SWITCH LH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
3	R	-

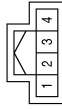
AAKIA1785GB

INTELLIGENT KEY SYSTEM

< WIRING DIAGRAM >

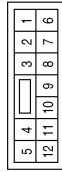
[WITH INTELLIGENT KEY SYSTEM]

Connector No.	B141
Connector Name	FRONT DOOR SWITCH RH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
3	GR	-

Connector No.	B140
Connector Name	WIRE TO WIRE
Connector Color	WHITE



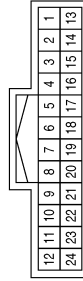
Terminal No.	Color of Wire	Signal Name
6	GR	-
10	W	-

Connector No.	B77
Connector Name	INSIDE KEY ANTENNA (CONSOLE)
Connector Color	GRAY



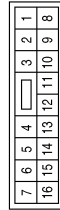
Terminal No.	Color of Wire	Signal Name
1	L	-
2	Y	-

Connector No.	D3
Connector Name	WIRE TO WIRE
Connector Color	WHITE



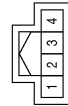
Terminal No.	Color of Wire	Signal Name
3	W	-
4	V	-
5	SB	-

Connector No.	D2
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
4	B	-

Connector No.	B142
Connector Name	REAR DOOR SWITCH RH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
3	W	-

AAKIA1786GB

A B C D E F G H I J L M N O P

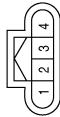
DLK

INTELLIGENT KEY SYSTEM

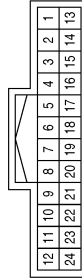
< WIRING DIAGRAM >

[WITH INTELLIGENT KEY SYSTEM]

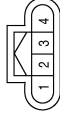
Connector No.	D11
Connector Name	FRONT OUTSIDE HANDLE ASSEMBLY LH
Connector Color	BLACK



Connector No.	D101
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	D126
Connector Name	FRONT OUTSIDE HANDLE ASSEMBLY RH
Connector Color	BLACK

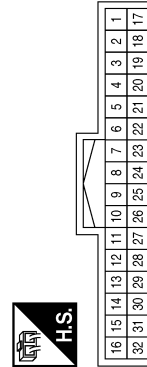


Terminal No.	Color of Wire	Signal Name
1	V	-
2	SB	-
3	W	-
4	B	-

Terminal No.	Color of Wire	Signal Name
1	B	-
4	P	-
5	R	-
6	SB	-

Terminal No.	Color of Wire	Signal Name
1	R	-
2	SB	-
3	P	-
4	B	-

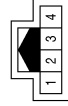
Connector No.	D501
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	D505
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	D507
Connector Name	BACK DOOR OPENER SWITCH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
19	W	-
29	V	-

Terminal No.	Color of Wire	Signal Name
1	B	-

Terminal No.	Color of Wire	Signal Name
1	V	-
2	GR	-

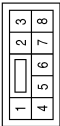
AAKIA1799GB

INTELLIGENT KEY SYSTEM

< WIRING DIAGRAM >

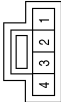
[WITH INTELLIGENT KEY SYSTEM]

Connector No.	D512
Connector Name	BACK DOOR LOCK ASSEMBLY (WITH POWER BACK DOOR SYSTEM)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
7	W	-
8	B	-

Connector No.	D508
Connector Name	BACK DOOR LOCK ASSEMBLY (WITHOUT POWER BACK DOOR SYSTEM)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
3	W	-
4	GR	-

AAKIA1801GB

A
B
C
D
E
F
G
H
I
J
DLK
L
M
N
O
P

DLK

AUTOMATIC BACK DOOR SYSTEM

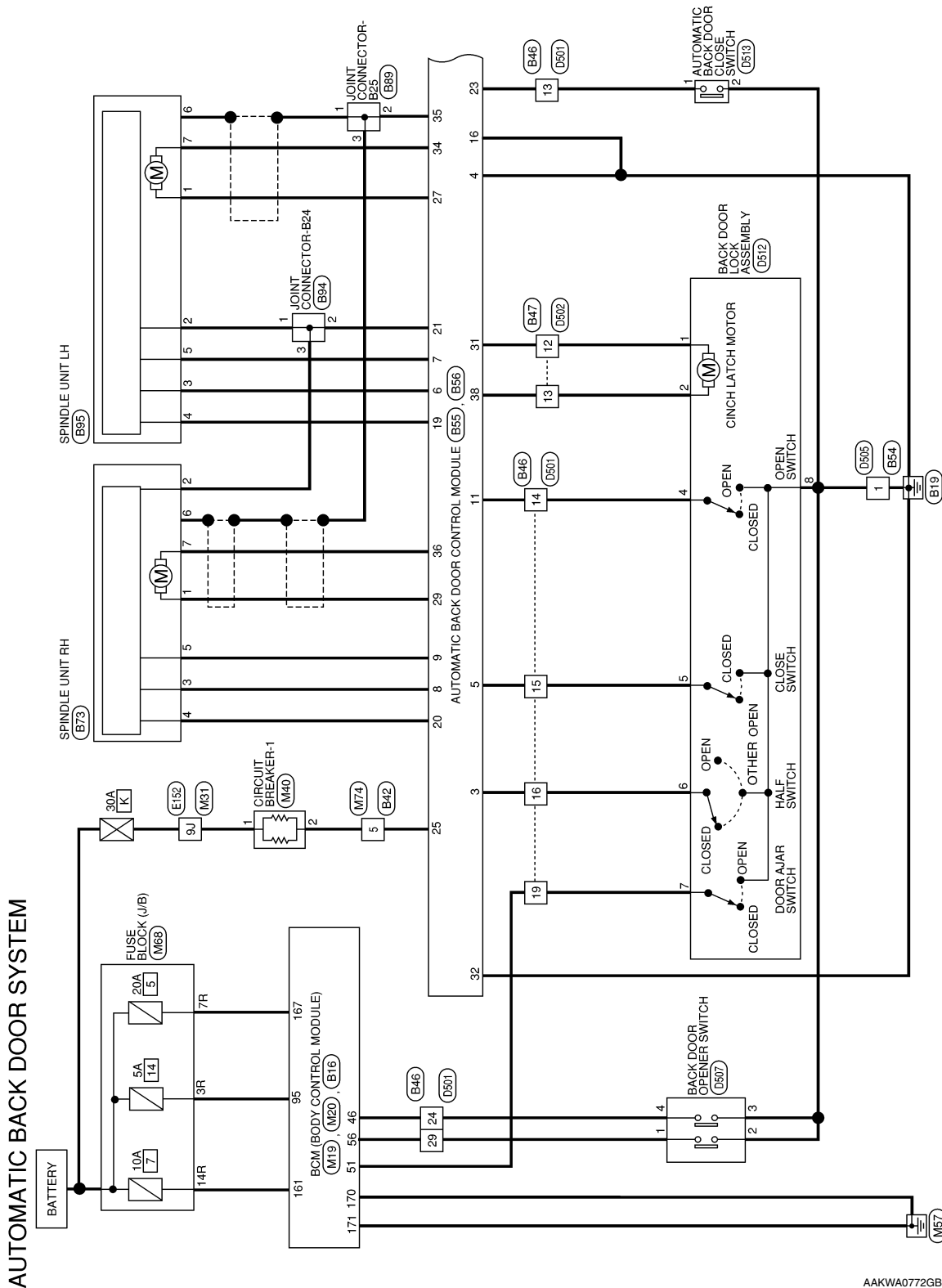
< WIRING DIAGRAM >

[WITH INTELLIGENT KEY SYSTEM]

AUTOMATIC BACK DOOR SYSTEM

Wiring Diagram

INFOID:0000000010283200



AAKWA0772GB

[WITH INTELLIGENT KEY SYSTEM]

A
B
C
D
E
F
G
H
I
J
OLK
L
M
N
O
P



P

AUTOMATIC BACK DOOR SYSTEM

[WITH INTELLIGENT KEY SYSTEM]

< WIRING DIAGRAM >

AUTOMATIC BACK DOOR SYSTEM CONNECTORS

Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



100	99	98	97	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
-----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----



167	166	165	164	163	162	161	178	175	174	173	172	171	170	169	168
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BROWN



4	3	2	1
---	---	---	---

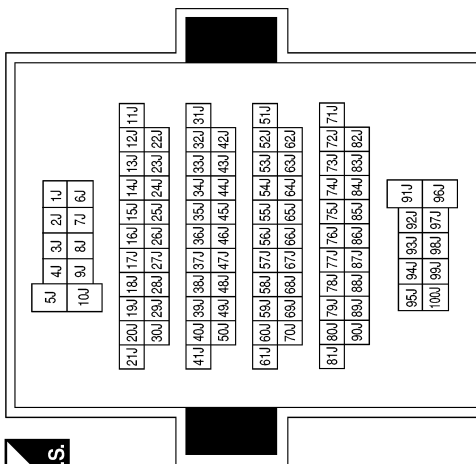
Connector No.	M24
Connector Name	AUTOMATIC BACK DOOR SWITCH
Connector Color	GREEN

Terminal No.	Color of Wire	Signal Name
95	V	I SHORTING PIN

Terminal No.	Color of Wire	Signal Name
161	W	I PWR ECU
167	LA/V	I PWR DOORLOCK1
170	B	I GND1
171	B	I GND2

Terminal No.	Color of Wire	Signal Name
1	LG	-
2	B	-

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	M40
Connector Name	CIRCUIT BREAKER-1
Connector Color	WHITE



1	2
---	---

Terminal No.	Color of Wire	Signal Name
1	W	-
2	W	-

AUTOMATIC BACK DOOR SYSTEM

[WITH INTELLIGENT KEY SYSTEM]

< WIRING DIAGRAM >

Connector No.	M67
Connector Name	JOINT CONNECTOR-M27
Connector Color	WHITE



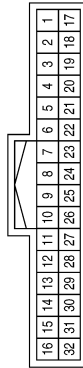
Terminal No.	Color of Wire	Signal Name
1	B	-
3	B	-
4	B	-

Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
3R	V	-
7R	LA/V	-
14R	W	-

Connector No.	M69
Connector Name	WIRE TO WIRE
Connector Color	WHITE



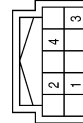
Terminal No.	Color of Wire	Signal Name
7	LG	-
8	BG	-

Connector No.	M74
Connector Name	WIRE TO WIRE
Connector Color	WHITE



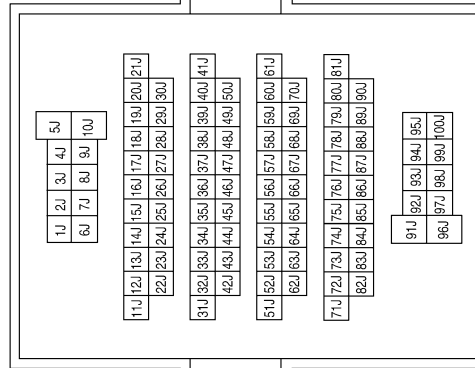
Terminal No.	Color of Wire	Signal Name
5	W	-

Connector No.	M178
Connector Name	AUTOMATIC BACK DOOR MAIN SWITCH
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	BG	-
3	B	-

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE



AAKIA1788GB

A
B
C
D
E
F
G
H
I
J
DLK
L
M
N
O
P

AUTOMATIC BACK DOOR SYSTEM

[WITH INTELLIGENT KEY SYSTEM]

< WIRING DIAGRAM >

Connector No.	B42
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7		
8	9	10	11	12	13	14	15	16

Connector No.	B41
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Terminal No.	Color of Wire	Signal Name
5	W	—

Terminal No.	Color of Wire	Signal Name
7	LG	—
8	BG	—

Connector No.	B16
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GREEN



60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41
80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61

Terminal No.	Color of Wire	Signal Name
46	R	I SES BACKDOOR BUTTON SW
51	LG	I TGATE SW
56	Y	I TGATE OPENER SW

Connector No.	B54
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2
---	---

Connector No.	B47
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7		
8	9	10	11	12	13	14	15	16

Connector No.	B46
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Terminal No.	Color of Wire	Signal Name
1	B	—

Terminal No.	Color of Wire	Signal Name
12	L	—
13	SB	—

Terminal No.	Color of Wire	Signal Name
13	W	—
14	V	—
15	BR	—
16	SB	—
19	LG	—
24	R	—
29	Y	—
30	G	—
31	GR	—
32	LG	—

AAKIA1789GB

AUTOMATIC BACK DOOR SYSTEM

[WITH INTELLIGENT KEY SYSTEM]

< WIRING DIAGRAM >

Connector No.	B56
Connector Name	AUTOMATIC BACK DOOR CONTROL MODULE
Connector Color	GRAY



25	26	27	28	29	30	31
32	33	34	35	36	37	38

Terminal No.	Color of Wire	Signal Name
25	W	BATTERY
27	BR	P B/D LH MTR OPEN
29	BR	P B/D RH MTR OPEN
31	L	LATCH MTR OPEN
32	B	POWER GND
34	G	P B/D LH MTR CLOSE
35	B	SPINDLE NOISE
36	G	P B/D RH MTR CLOSE
37	Y	BUZZER
38	SB	LATCH MTR CLOSE

Terminal No.	Color of Wire	Signal Name
8	R	A SIGN RH
9	SB	B SIGN RH
10	BG	MAIN SW
11	V	OPEN SW
12	P	CAN-L
13	GR	TOUCH SENS GND
16	B	HZD LMP OFF REQ
19	V	POWER LH
20	P	POWER RH
21	G	GND
22	LG	DRIVER SW
23	W	INSIDE CLOSE SW
24	L	CAN-H

Connector No.	B55
Connector Name	AUTOMATIC BACK DOOR CONTROL MODULE
Connector Color	BLACK



1	2	3	4	5	6	7	8	9	10	11	12
13	14	15	16	17	18	19	20	21	22	23	24

Terminal No.	Color of Wire	Signal Name
1	LG	TOUCH SENS RH
2	G	TOUCH SENS LH
3	SB	HALF LATCH SW
4	B	AUT UNLK REG
5	BR	CLOSE SW
6	W	A SIGN LH
7	L	B SIGN LH

Connector No.	B89
Connector Name	JOINT CONNECTOR-B25
Connector Color	WHITE



4	3	2	1
---	---	---	---

Connector No.	B73
Connector Name	SPINDLE UNIT RH
Connector Color	WHITE



3	2	1
8	7	6
5	4	

Terminal No.	Color of Wire	Signal Name
1	SHIELD	-
2	B	-
3	SHIELD	-

Terminal No.	Color of Wire	Signal Name
1	BR	-
2	G	-
3	R	-
4	P	-
5	SB	-
6	SHIELD	-
7	G	-

Connector No.	B61
Connector Name	AUTOMATIC BACK DOOR WARNING BUZZER
Connector Color	BROWN



2	1
---	---

Terminal No.	Color of Wire	Signal Name
1	Y	-
2	B	-

AAKIA1790GB

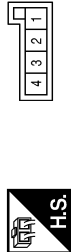
A
B
C
D
E
F
G
H
I
J
DLK
L
M
N
O
P

AUTOMATIC BACK DOOR SYSTEM

[WITH INTELLIGENT KEY SYSTEM]

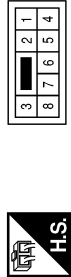
< WIRING DIAGRAM >

Connector No.	B94
Connector Name	JOINT CONNECTOR-B24
Connector Color	WHITE



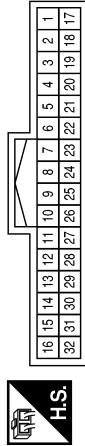
Terminal No.	Color of Wire	Signal Name
1	G	-
2	G	-
3	G	-

Connector No.	B95
Connector Name	SPINDLE UNIT LH
Connector Color	WHITE



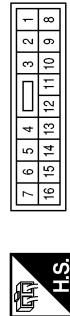
Terminal No.	Color of Wire	Signal Name
1	BR	-
2	G	-
3	W	-
4	V	-
5	L	-
6	SHIELD	-
7	G	-

Connector No.	D501
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
13	G	-
14	LA/GR	-
15	LA/W	-
16	LA/LG	-
19	W	-
24	BR	-
29	V	-
30	G	-
31	BG	-
32	LG	-

Connector No.	D502
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
12	LA/L	-
13	LA/G	-

Connector No.	D505
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	B	-

Connector No.	D507
Connector Name	BACK DOOR OPENER SWITCH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	V	-
2	GR	-
3	GR	-
4	BR	-

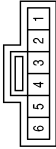
AAKIA1791GB

AUTOMATIC BACK DOOR SYSTEM

< WIRING DIAGRAM >

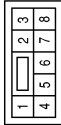
[WITH INTELLIGENT KEY SYSTEM]

Connector No.	D513
Connector Name	AUTOMATIC BACK DOOR CLOSE SWITCH
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
1	G	-
2	B	-

Connector No.	D512
Connector Name	BACK DOOR LOCK ASSEMBLY (WITH POWER BACK DOOR SYSTEM)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	LA/L	-
2	LA/G	-
4	LA/GR	-
5	LA/W	-
6	LA/LG	-
7	W	-
8	B	-

Connector No.	D511
Connector Name	TOUCH SENSOR LH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	G	-
2	BG	-

Connector No.	D515
Connector Name	TOUCH SENSOR RH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	W	-
2	LG	-

AAKIA1792GB

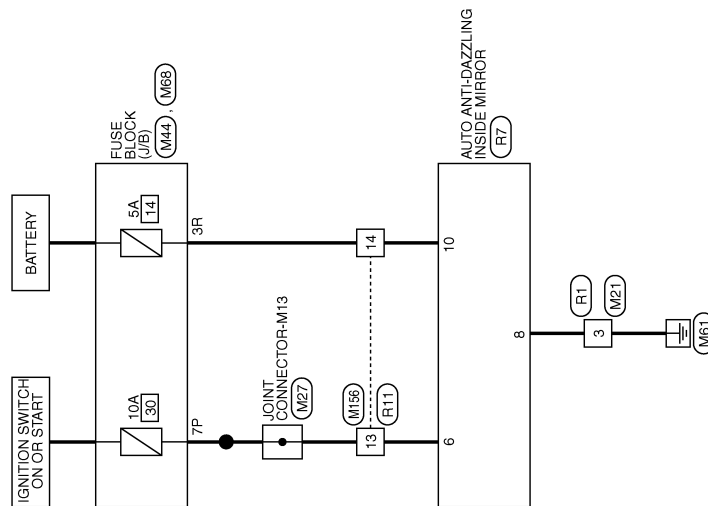
A
B
C
D
E
F
G
H
I
J
DLK
L
M
N
O
P

DLK

[WITH INTELLIGENT KEY SYSTEM]

HOMELINK UNIVERSAL TRANSCEIVER

INFOID:0000000010283201



HOMELINK UNIVERSAL TRANSCIEVER

AAKWA0774GB

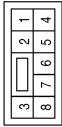
HOMELINK UNIVERSAL TRANSCEIVER

[WITH INTELLIGENT KEY SYSTEM]

< WIRING DIAGRAM >

HOMELINK UNIVERSAL TRANSCEIVER CONNECTORS

Connector No.	M21
Connector Name	WIRE TO WIRE
Connector Color	WHITE

Terminal No.	3
Color of Wire	B
Signal Name	—

Connector No.	M27
Connector Name	JOINT CONNECTOR-M13
Connector Color	WHITE




Terminal No.	1
Color of Wire	SB
Signal Name	—
Terminal No.	6
Color of Wire	SB
Signal Name	—

Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



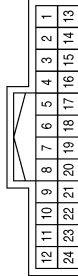

Terminal No.	7P
Color of Wire	Y
Signal Name	—

Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN



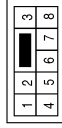

Terminal No.	3R
Color of Wire	V
Signal Name	—

Connector No.	M156
Connector Name	WIRE TO WIRE
Connector Color	WHITE

Terminal No.	13
Color of Wire	SB
Signal Name	—
Terminal No.	14
Color of Wire	GR
Signal Name	—

Connector No.	R1
Connector Name	WIRE TO WIRE
Connector Color	WHITE

Terminal No.	3
Color of Wire	B
Signal Name	—

AAKIA1765GB

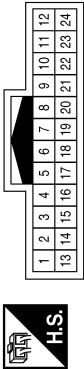
A
B
C
D
E
F
G
H
I
J
DLK
L
M
N
O
P

HOMELINK UNIVERSAL TRANSCEIVER

< WIRING DIAGRAM >

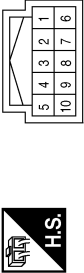
[WITH INTELLIGENT KEY SYSTEM]

Connector No.	R11
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
13	SB	-
14	P	-

Connector No.	R7
Connector Name	AUTO ANTI-DAZZLING INSIDE MIRROR (WITH HOMELINK UNIVERSAL TRANSCEIVER)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
6	SB	-
8	B	-
10	P	-

AAKIA1766GB

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[WITH INTELLIGENT KEY SYSTEM]

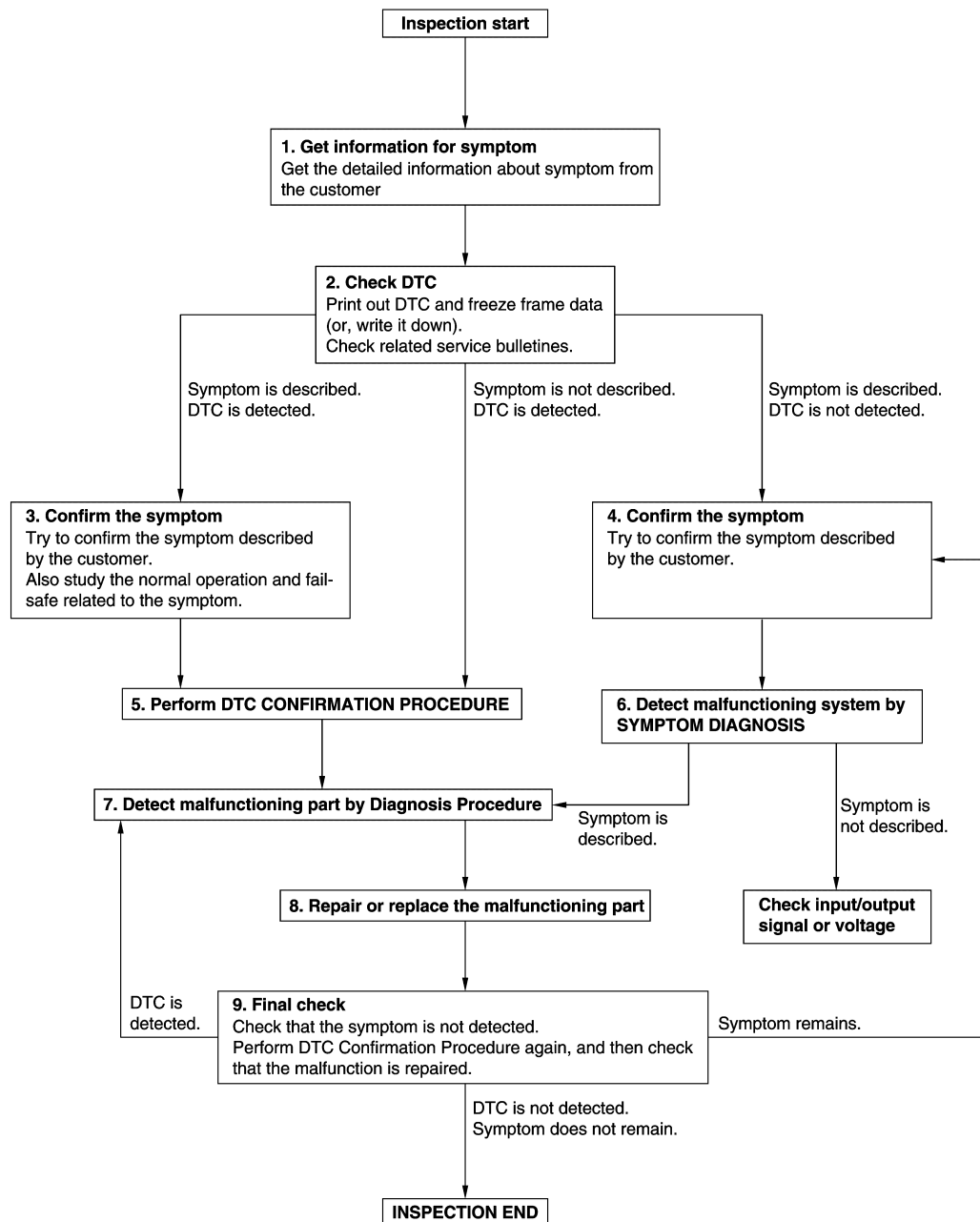
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

INFOID:0000000010283189

OVERALL SEQUENCE



DETAILED FLOW

Revision: November 2013

DLK-97

2014 Rogue NAM

JMKIA8652GB

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[WITH INTELLIGENT KEY SYSTEM]

1.GET INFORMATION FOR SYMPTOM

1. Get detailed information from the customer about the symptom (the condition and the environment when the incident/malfunction occurs).
2. Check operation condition of the function that is malfunctioning.

>> GO TO 2.

2.CHECK DTC

1. Check DTC.
2. Perform the following procedure if DTC is detected.
 - Record DTC and freeze frame data. (Print them out using CONSULT.)
 - Erase DTC.
 - Study the relationship between the cause detected by DTC and the symptom described by the customer.
3. Check related service bulletins for information.

Are any symptoms described and any DTC detected?

Symptom is described, DTC is detected.>>GO TO 3.

Symptom is described, DTC is not detected.>>GO TO 4.

Symptom is not described, DTC is detected.>>GO TO 5.

3.CONFIRM THE SYMPTOM

Try to confirm the symptom described by the customer.

Also study the normal operation and fail-safe related to the symptom.

Verify relation between the symptom and the condition when the symptom is detected.

>> GO TO 5.

4.CONFIRM THE SYMPTOM

Try to confirm the symptom described by the customer.

Verify relation between the symptom and the condition when the symptom is detected.

>> GO TO 6.

5.PERFORM DTC CONFIRMATION PROCEDURE

Perform DTC CONFIRMATION PROCEDURE for the detected DTC and then check that DTC is detected again. At this time, always connect CONSULT to the vehicle and check self diagnostic results in real time.

If two or more DTCs are detected, refer to [BCS-47. "DTC Inspection Priority Chart"](#) (BCM) and determine trouble diagnosis order.

NOTE:

- Freeze frame data is useful if the DTC is not detected.
- Perform Component Function Check if DTC CONFIRMATION PROCEDURE is not included on Service Manual. This simplified check procedure is an effective alternative though DTC cannot be detected during this check.

If the result of Component Function Check is NG, it is the same as the detection of DTC by DTC CONFIRMATION PROCEDURE.

Is DTC detected?

YES >> GO TO 7.

NO >> Check according to [GI-41. "Intermittent Incident"](#).

6.DETECT MALFUNCTIONING SYSTEM BY SYMPTOM DIAGNOSIS

Detect malfunctioning system according to SYMPTOM DIAGNOSIS based on the confirmed symptom in step 4, and determine the trouble diagnosis order based on possible causes and symptom.

Is the symptom described?

YES >> GO TO 7.

NO >> Monitor input data from related sensors or check voltage of related module terminals using CONSULT.

7.DETECT MALFUNCTIONING PART BY DIAGNOSIS PROCEDURE

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[WITH INTELLIGENT KEY SYSTEM]

Inspect according to Diagnosis Procedure of the system.

Is malfunctioning part detected?

YES >> GO TO 8.

NO >> Check according to [GI-41. "Intermittent Incident"](#).

8. REPAIR OR REPLACE THE MALFUNCTIONING PART

1. Repair or replace the malfunctioning part.
2. Reconnect parts or connectors disconnected during Diagnosis Procedure again after repair and replacement.
3. Check DTC. If DTC is detected, erase it.

>> GO TO 9.

9. FINAL CHECK

When DTC is detected in step 2, perform DTC CONFIRMATION PROCEDURE again, and then check that the malfunction is repaired securely.

When symptom is described by the customer, refer to confirmed symptom in step 3 or 4, and check that the symptom is not detected.

Is DTC detected and does symptom remain?

YES-1 >> DTC is detected: GO TO 7.

YES-2 >> Symptom remains: GO TO 4.

NO >> Before returning the vehicle to the customer, always erase DTC.

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

DLK

ADDITIONAL SERVICE WHEN REMOVING BATTERY NEGATIVE TERMINAL

< BASIC INSPECTION >

[WITH INTELLIGENT KEY SYSTEM]

ADDITIONAL SERVICE WHEN REMOVING BATTERY NEGATIVE TERMINAL

Description

INFOID:0000000010283190

When the battery is disconnected from the negative terminal, it is necessary to perform initial setting to operate automatic back door control system normally.

NOTE:

The following specified operations are not performed under the non-initialized condition.

- Automatic back door open/close function
- Anti-pinch function

Work Procedure

INFOID:0000000010283191

1. INITIALIZATION

1. Fully close the back door manually. (When back door is already fully closed, this operation is not necessary).
2. Perform automatic back door open/close operation of back door.
3. Check for noise or malfunctioning during operation.
4. Check that hazard lamp blinks and that warning buzzer operates.

NOTE:

Never touch back door or allow foreign materials to be pinched in door when performing automatic back door open/close operation of back door until it is in the fully closed or fully open position.

>> Inspection End.

ADDITIONAL SERVICE WHEN REPLACING BCM

< BASIC INSPECTION >

[WITH INTELLIGENT KEY SYSTEM]

ADDITIONAL SERVICE WHEN REPLACING BCM

Description

INFOID:0000000010283192

Perform the system initialization when replacing BCM, replacing Intelligent Key or registering an additional Intelligent Key.

Work Procedure

INFOID:0000000010283193

Refer to the CONSULT Immobilizer mode and follow the on-screen instructions.

A

B

C

D

E

F

G

H

I

J

DLK

L

M

N

O

P

ADDITIONAL SERVICE WHEN REPLACING AUTOMATIC BACK DOOR CONTROL UNIT

< BASIC INSPECTION >

[WITH INTELLIGENT KEY SYSTEM]

ADDITIONAL SERVICE WHEN REPLACING AUTOMATIC BACK DOOR CONTROL UNIT

Description

INFOID:0000000010283194

When replacing control module or removing connector terminal, it is necessary to perform initial setting to operate automatic back door system normally.

NOTE:

The following specified operations are not performed under the non-initialized condition.

- Automatic back door open/close function
- Anti-pinch function

Work Procedure

INFOID:0000000010283195

1. INITIALIZATION

1. Fully close the back door manually. (When back door is already fully closed, this operation is not necessary.)
2. Perform automatic back door open/close operation of back door.
3. Check for noise or malfunctioning during operation.
4. Check that hazard lamp blinks and that warning buzzer operates.

NOTE:

Never touch back door or allow foreign materials to be pinched in door when performing automatic back door open/close operation of back door until it is in the fully closed or fully open position.

>> Inspection End.

CALIBRATION OF AUTOMATIC BACK DOOR POSITION INFORMATION

< BASIC INSPECTION >

[WITH INTELLIGENT KEY SYSTEM]

CALIBRATION OF AUTOMATIC BACK DOOR POSITION INFORMATION

Description

INFOID:0000000010283196

When the following work is performed, it is necessary to perform initial setting of automatic back door position information to operate automatic back door system.

- After removing and installing or replacing back door assembly
- After removing and installing or replacing spindle unit
- After adjustment or position change of the back door hinges or striker

Work Procedure

INFOID:0000000010283197

1.STEP 1

Fully close the back door manually.

>> GO TO 2.

2.STEP 2

1. Select "AUTO BACK DOOR" using CONSULT.
2. Select "RESET AUTO BACK DOOR STATUS" of "WORK SUPPORT" mode.
3. Touch "START" to erase automatic back door position information.

>> GO TO 3.

3.STEP 3

Operate back door opener switch and perform automatic open operation.

NOTE:

At this time, automatic operation of back door is performed at half speed.

>> GO TO 4.

4.STEP 4

1. The back door fully opens.
2. Check that hazard warning lamp blinks and automatic back door warning buzzer sounds normally.

Does hazard warning lamp blink and automatic back door warning buzzer sound normally?

YES >> GO TO 5.

NO >> GO TO 1.

5.STEP 5

Fully close the back door.

>> Inspection End.

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

DLK

U1000 CAN COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

DTC/CIRCUIT DIAGNOSIS

U1000 CAN COMM CIRCUIT

Description

INFOID:0000000010283039

Refer to [LAN-8, "System Description"](#).

DTC Logic

INFOID:0000000010283040

DTC DETECTION LOGIC

NOTE:

U1000 can be set if a module harness was disconnected and reconnected, perhaps during a repair. Confirm that there are actual CAN diagnostic symptoms and a present DTC by performing the Self Diagnostic Result procedure.

CONSULT Display	DTC Detection Condition	Possible cause
CAN COMM CIRCUIT [U1000]	When any listed module cannot communicate with CAN communication signal continuously for 2 seconds or more with ignition switch ON	In CAN communication system, any item (or items) of the following listed below is malfunctioning. • Transmission • Receiving (ECM) • Receiving (VDC/TCS/ABS) • Receiving (METER/M&A) • Receiving (TCM) • Receiving (IPDM E/R)

Diagnosis Procedure

INFOID:0000000010283041

1. PERFORM SELF DIAGNOSTIC

1. Turn ignition switch ON and wait for 2 second or more.
2. Check "SELF- DIAG RESULTS".

Is "CAN COMM CIRCUIT" displayed?

- YES >> Perform CAN Diagnosis as described in DIAGNOSIS section of CONSULT Operation Manual.
NO >> Refer to [GI-41, "Intermittent Incident"](#).

U1010 CONTROL UNIT (CAN)

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

U1010 CONTROL UNIT (CAN)

Description

INFOID:0000000010283042

CAN (Controller Area Network) is a serial communication line for real time applications. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Modern vehicle is equipped with many electronic control unit, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with two communication lines (CAN-H and CAN-L) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.

CAN Communication Signal Chart. Refer to [LAN-32, "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart"](#).

DTC Logic

INFOID:0000000010283043

DTC DETECTION LOGIC

DTC	CONSULT display description	DTC Detection Condition	Possible cause
U1010	CONTROL UNIT(CAN)	Automatic back door control unit detected internal CAN communication circuit malfunction.	Automatic back door control module

Diagnosis Procedure

INFOID:0000000010283044

1.REPLACE AUTOMATIC BACK DOOR CONTROL MODULE

When DTC "U1010: CONTROL UNIT(CAN)" is detected, replace automatic back door control module.

>> Replace automatic back door control module. Refer to [DLK-276, "Removal and Installation"](#).

DLK

B2401 IGNITION POWER SUPPLY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

B2401 IGNITION POWER SUPPLY CIRCUIT

DTC Logic

INFOID:0000000010283045

DTC DETECTION LOGIC

DTC	CONSULT display description	DTC detecting condition	Possible cause
B2401	IGN OPEN	Automatic back door control module cannot detect ignition switch ON signal via CAN communication with BCM.	• BCM • Automatic back door control module • CAN communication system

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Operate automatic back door.
3. Check "Self Diagnostic Result" mode of "AUTO BACK DOOR" using CONSULT.

Is DTC detected?

- YES >> Refer to [DLK-106, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010283046

1.CHECK BCM OUTPUT SIGNAL

1. Select "IPDM E/R" using CONSULT.
2. Select "PUSH SW" in "Data Monitor" mode.
3. Check that the function operates normally according to the following conditions.

Monitor item	Condition		Status
PUSH SW	Ignition switch	Pressed	Close
		Not pressed	Open

Is the inspection result normal?

- YES >> Replace automatic back door control module. Refer to [DLK-276, "Removal and Installation"](#).
NO >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#).

B2409 HALF LATCH SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

B2409 HALF LATCH SWITCH

DTC Logic

INFOID:0000000010283047

DTC DETECTION LOGIC

DTC	CONSULT display description	DTC detecting condition	Possible cause
B2409	HALF LATCH SW	Automatic back door control module detects a malfunction of half latch switch during automatic operation of back door.	• Entry of foreign materials to back door lock assembly • Back door mechanism • Automatic back door control module • Half latch switch • Harness or connectors

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Operate automatic back door.
3. Check "Self Diagnostic Result" mode of "AUTO BACK DOOR" using CONSULT.

Is DTC detected?

- YES >> Refer to [DLK-107, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010283048

Regarding Wiring Diagram information, refer to [DLK-86, "Wiring Diagram"](#).

1.CHECK FOR FOREIGN MATERIALS IN BACK DOOR LOCK ASSEMBLY

Check for entry of foreign materials in back door lock assembly.

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Remove foreign materials.

2.CHECK BACK DOOR OPEN/CLOSE OPERATION

Manually check open and close operation of back door.

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace the malfunction parts.

3.CHECK HALF LATCH SWITCH MONITOR ITEM

1. Select "AUTO BACK DOOR" using CONSULT.
2. Select "HALF LATCH SW" in "Data Monitor" mode.
3. Check that the function operates normally according to the following conditions.

Monitor item	Condition		Status
HALF LATCH SW	Back door	Fully closed/Half latch	OFF
		Open	ON

Is the inspection result normal?

- YES >> GO TO 8.
NO >> GO TO 4.

4.CHECK HALF LATCH SWITCH INPUT SIGNAL

A

B

C

D

E

F

G

H

I

J

DLK

L

M

N

O

P

B2409 HALF LATCH SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

1. Turn ignition switch OFF.
2. Disconnect back door lock assembly connector.
3. Check voltage between back door lock assembly harness connector and ground.

(+) Back door lock assembly		(-)	Voltage (Approx.)
Connector	Terminal		
D512	6	Ground	Battery voltage

Is the inspection result normal?

- YES >> GO TO 6.
NO >> GO TO 5.

5.CHECK HALF LATCH SWITCH CIRCUIT

1. Disconnect automatic back door control module connector.
2. Check continuity between automatic back door control module harness connector and back door lock assembly harness connector.

Automatic back door control module		Back door lock assembly		Continuity
Connector	Terminal	Connector	Terminal	
B55	3	D512	6	Yes

3. Check continuity between automatic back door control module harness connector and ground.

Automatic back door control module		Ground	Continuity
Connector	Terminal		
B55	3		No

Is the inspection result normal?

- YES >> Replace automatic back door control module. Refer to [DLK-276, "Removal and Installation"](#).
NO >> Repair or replace harness.

6.CHECK HALF LATCH SWITCH GROUND CIRCUIT

Check continuity between back door lock assembly harness connector and ground.

Back door lock assembly		Ground	Continuity
Connector	Terminal		
D512	8		Yes

Is the inspection result normal?

- YES >> GO TO 7.
NO >> Repair or replace harness or connector.

7.CHECK HALF LATCH SWITCH

Refer to [DLK-108, "Component Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 8.
NO >> Replace back door lock assembly. Refer to [DLK-263, "DOOR LOCK : Removal and Installation"](#).

8.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> Inspection End.

Component Inspection

INFOID:0000000010283049

COMPONENT INSPECTION

B2409 HALF LATCH SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

1.CHECK SWITCH

1. Turn ignition switch OFF.
2. Disconnect back door lock assembly connector.
3. Check continuity between back door lock assembly terminals.

Back door lock assembly		Condition		Continuity
Terminal				
4	8	Back door lock	Open	Yes
			Fully closed/Half latch	No
5			Fully close	Yes
			Open/Half latch	No
6			Open	Yes
			Fully closed/Half latch	No
7		Back door switch	On	Yes
			Off	No

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace back door lock assembly. Refer to [DLK-263, "DOOR LOCK : Removal and Installation"](#).

DLK

B2416 TOUCH SENSOR RH

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

B2416 TOUCH SENSOR RH

DTC Logic

INFOID:0000000010283050

DTC DETECTION LOGIC

DTC	CONSULT display description	DTC detecting condition	Possible cause
B2416	TOUCH SEN R OPEN	Automatic back door control module detects a malfunction of touch sensor RH during automatic operation of back door.	- Improper installation of touch sensor - Touch sensor RH - Harness or connectors - Automatic back door control module

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

- Turn ignition switch ON.
- Check "Self-Diagnostic Result" mode of "AUTO BACK DOOR" using CONSULT.

Is DTC detected?

- YES >> Refer to [DLK-110. "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010283051

Regarding Wiring Diagram information, refer to [DLK-86. "Wiring Diagram"](#).

1.CHECK INSTALLATION OF TOUCH SENSOR RH

Check that touch sensor RH is installed normally.

Refer to [DLK-264. "TOUCH SENSOR : Removal and Installation"](#).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Refer to [DLK-264. "TOUCH SENSOR : Removal and Installation"](#).

2.CHECK TOUCH SENSOR MONITOR ITEM

- Select "AUTO BACK DOOR" using CONSULT.
- Select "TOUCH SEN RH" in "Data Monitor" mode.
- Check that the function operates normally according to the following conditions.

Monitor item	Condition		Status
TOUCH SEN RH	Touch sensor RH	Other than below	OFF
		Detect obstruction	ON

Is the inspection result normal?

- YES >> GO TO 8.
NO >> GO TO 3.

3.CHECK TOUCH SENSOR INPUT SIGNAL

- Turn ignition switch OFF.
- Check voltage between touch sensor RH harness connector and automatic back door control module harness connector.

B2416 TOUCH SENSOR RH

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

(+)		(-)		Condition		Voltage (Approx.)
Touch sensor RH		Automatic back door control module				
Connector	Terminal	Connector	Terminal			
D515	1	B55	13	Touch sensor RH	Detect obstruction	1.8 – 5 V
					Other than above	2.72 – 7.27 V

Is the inspection result normal?

YES >> GO TO 5.

NO >> GO TO 4.

4.CHECK TOUCH SENSOR RH CIRCUIT

1. Disconnect automatic back door control module and touch sensor RH connector.
2. Check continuity between automatic back door control module harness connector and touch sensor RH harness connector.

Automatic back door control module		Touch sensor RH		Continuity
Connector	Terminal	Connector	Terminal	
B55	1	D515	2	Yes

3. Check continuity between automatic back door control module harness connector and ground.

Automatic back door control module		Ground	Continuity
Connector	Terminal		
B55	1		No

Is the inspection result normal?

YES >> Replace automatic back door control module. Refer to [DLK-276. "Removal and Installation"](#).

NO >> Repair or replace harness.

5.CHECK TOUCH SENSOR RH GROUND CIRCUIT

1. Disconnect automatic back door control module and touch sensor RH connector.
2. Check continuity between automatic back door control module harness connector and touch sensor RH harness connector.

Automatic back door control module		Touch sensor RH		Continuity
Connector	Terminal	Connector	Terminal	
B55	13	D515	1	Yes

3. Check continuity between automatic back door control module harness connector and ground.

Automatic back door control module		Ground	Continuity
Connector	Terminal		
B55	13		No

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace harness.

6.CHECK TOUCH SENSOR RH GROUND CIRCUIT 2

1. Connect automatic back door control module and touch sensor RH connector.
2. Check voltage between automatic back door control module harness connector and ground.

B2416 TOUCH SENSOR RH

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

(+)		(-)	Voltage (Approx.)
Automatic back door control module			
Connector	Terminal		
B55	13	Ground	0.01 – 0 V

Is the inspection result normal?

YES >> GO TO 7.

NO >> Replace automatic back door control module. Refer to [DLK-276, "Removal and Installation"](#).

7.CHECK TOUCH SENSOR RH

Refer to [DLK-112, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 8.

NO >> Replace touch sensor RH. Refer to [DLK-264, "TOUCH SENSOR : Removal and Installation"](#).

8.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> Inspection End.

Component Inspection

INFOID:0000000010283052

1.CHECK TOUCH SENSOR RH

1. Turn ignition switch OFF.
2. Disconnect touch sensor RH connector.
3. Check resistance between touch sensor RH terminals.

Touch sensor RH		Condition		Resistance (Approx.)
Terminal				
1	2	Touch sensor RH	Detect obstruction	380 – 420 kΩ
			Other than above	0.95 – 1.05 kΩ

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace touch sensor RH. Refer to [DLK-264, "TOUCH SENSOR : Removal and Installation"](#).

B2417 TOUCH SENSOR LH

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

B2417 TOUCH SENSOR LH

DTC Logic

INFOID:0000000010283053

DTC DETECTION LOGIC

DTC	CONSULT display description	DTC detecting condition	Possible cause
B2417	TOUCH SEN L OPEN	Automatic back door control module detects a malfunction of touch sensor LH during automatic operation of back door.	- Improper installation of touch sensor - Touch sensor LH - Harness or connectors - Automatic back door control module

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

- Turn ignition switch ON.
- Check "Self-Diagnostic Result" mode of "AUTO BACK DOOR" using CONSULT.

Is DTC detected?

- YES >> Refer to [DLK-113. "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010283054

Regarding Wiring Diagram information, refer to [DLK-86. "Wiring Diagram"](#).

1.CHECK INSTALLATION OF TOUCH SENSOR LH

Check that touch sensor LH is installed normally.

Refer to [DLK-264. "TOUCH SENSOR : Removal and Installation"](#).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Refer to [DLK-264. "TOUCH SENSOR : Removal and Installation"](#).

2.CHECK TOUCH SENSOR MONITOR ITEM

- Select "AUTO BACK DOOR" using CONSULT.
- Select "TOUCH SEN LH" in "Data Monitor" mode.
- Check that the function operates normally according to the following conditions.

Monitor item	Condition		Status
TOUCH SEN LH	Touch sensor LH	Other than below	OFF
		Detect obstruction	ON

Is the inspection result normal?

- YES >> GO TO 8.
NO >> GO TO 3.

3.CHECK TOUCH SENSOR INPUT SIGNAL

- Turn ignition switch OFF.
- Check voltage between touch sensor LH harness connector and automatic back door control module harness connector.

B2417 TOUCH SENSOR LH

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

(+) Touch sensor LH		(-) Automatic back door control module		Condition		Voltage (Approx.)
Connector	Terminal	Connector	Terminal			
D511	2	B55	13	Touch sensor LH	Detect obstruction	1.8 – 5 V
					Other than above	2.72 – 7.27 V

Is the inspection result normal?

YES >> GO TO 5.

NO >> GO TO 4.

4. CHECK TOUCH SENSOR LH CIRCUIT

1. Disconnect automatic back door control module and touch sensor LH connector.
2. Check continuity between automatic back door control module harness connector and touch sensor LH harness connector.

Automatic back door control module		Touch sensor LH		Continuity
Connector	Terminal	Connector	Terminal	
B55	2	D511	1	Yes

3. Check continuity between automatic back door control module harness connector and ground.

Automatic back door control module		Ground	Continuity
Connector	Terminal		
B55	2		No

Is the inspection result normal?

YES >> Replace automatic back door control module. Refer to [DLK-276, "Removal and Installation"](#).

NO >> Repair or replace harness.

5. CHECK TOUCH SENSOR LH GROUND CIRCUIT

1. Disconnect automatic back door control module and touch sensor LH connector.
2. Check continuity between automatic back door control module harness connector and touch sensor LH harness connector.

Automatic back door control module		Touch sensor LH		Continuity
Connector	Terminal	Connector	Terminal	
B55	13	D511	2	Yes

3. Check continuity between automatic back door control module harness connector and ground.

Automatic back door control module		Ground	Continuity
Connector	Terminal		
B55	13		No

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace harness.

6. CHECK TOUCH SENSOR LH GROUND CIRCUIT 2

1. Connect automatic back door control module and touch sensor LH connector.
2. Check voltage between automatic back door control module harness connector and ground.

B2417 TOUCH SENSOR LH

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

(+)		(-)	Voltage (Approx.)
Automatic back door control module			
Connector	Terminal		
B55	13	Ground	0.01 – 0 V

Is the inspection result normal?

YES >> GO TO 7.

NO >> Replace automatic back door control module. Refer to [DLK-276, "Removal and Installation"](#).

7.CHECK TOUCH SENSOR LH

Refer to [DLK-112, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 8.

NO >> Replace touch sensor LH. Refer to [DLK-264, "TOUCH SENSOR : Removal and Installation"](#)

8.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> Inspection End.

Component Inspection

INFOID:0000000010283055

1.CHECK TOUCH SENSOR LH

1. Turn ignition switch OFF.
2. Disconnect touch sensor LH connector.
3. Check resistance between touch sensor LH terminals.

Touch sensor LH		Condition		Resistance (Approx.)
Terminal				
1	2	Touch sensor LH	Detect obstruction	380 – 420 kΩ
			Other than above	0.95 – 1.05 kΩ

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace touch sensor LH. Refer to [DLK-264, "TOUCH SENSOR : Removal and Installation"](#).

B2419 OPEN SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

B2419 OPEN SWITCH

DTC Logic

INFOID:0000000010283056

DTC DETECTION LOGIC

DTC	CONSULT display description	DTC detecting condition	Possible cause
B2419	OPEN SW	Automatic back door control module detects a malfunction of open switch during automatic operation of back door.	• Entry of foreign materials to back door lock assembly • Back door mechanism • Automatic back door control module • Open switch • Harness or connectors

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Operate automatic back door.
3. Check "Self-Diagnostic Result" mode of "AUTO BACK DOOR" using CONSULT.

Is DTC detected?

- YES >> Refer to [DLK-116, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010283057

Regarding Wiring Diagram information, refer to [DLK-86, "Wiring Diagram"](#).

1.CHECK FOR FOREIGN MATERIALS IN BACK DOOR LOCK ASSEMBLY

Check for entry of foreign materials in back door lock assembly.

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Remove foreign materials.

2.CHECK BACK DOOR OPEN/CLOSE OPERATION

Manually check open and close operation of back door.

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace the malfunctioning parts.

3.CHECK OPEN SWITCH SIGNAL

1. Select "AUTO BACK DOOR" using CONSULT.
2. Select "OPEN SW" in "Data Monitor" mode.
3. Check that the function operates normally according to the following conditions.

Monitor item	Condition		Status
OPEN SW	Back door	Fully closed/Half latch	OFF
		Open	ON

Is the inspection result normal?

- YES >> GO TO 8.
NO >> GO TO 4.

4.CHECK OPEN SWITCH INPUT SIGNAL

B2419 OPEN SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

1. Turn ignition switch OFF.
2. Disconnect back door lock assembly connector.
3. Check voltage between back door lock assembly harness connector and ground.

(+)		(-)	Voltage (Approx.)
Back door lock assembly			
Connector	Terminal		
D512	4	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 6.

NO >> GO TO 5.

5.CHECK OPEN SWITCH CIRCUIT

1. Disconnect automatic back door control module connector.
2. Check continuity between automatic back door control module harness connector and back door lock assembly harness connector.

Automatic back door control module		Back door lock assembly		Continuity
Connector	Terminal	Connector	Terminal	
B55	11	D512	4	Yes

3. Check continuity between automatic back door control module harness connector and ground.

Automatic back door control module		Ground	Continuity
Connector	Terminal		
B55	11		No

Is the inspection result normal?

YES >> Replace automatic back door control module. Refer to [DLK-276, "Removal and Installation"](#).

NO >> Repair or replace harness.

6.CHECK OPEN SWITCH GROUND CIRCUIT

Check continuity between back door lock assembly harness connector and ground.

Back door lock assembly		Ground	Continuity
Connector	Terminal		
D512	8		Yes

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace harness.

7.CHECK OPEN SWITCH

Refer to [DLK-108, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 8.

NO >> Replace back door lock assembly. Refer to [DLK-263, "DOOR LOCK : Removal and Installation"](#).

8.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> Inspection End.

Component Inspection

INFOID:0000000010283058

COMPONENT INSPECTION

B2419 OPEN SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

1. CHECK SWITCH

1. Turn ignition switch OFF.
2. Disconnect back door lock assembly connector.
3. Check continuity between back door lock assembly terminals.

Back door lock assembly		Condition		Continuity
Terminal				
4	8	Back door lock	Open	Yes
			Fully closed/Half latch	No
5			Fully close	Yes
			Open/Half latch	No
6			Open	Yes
			Fully closed/Half latch	No
7		Back door switch	On	Yes
			Off	No

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace back door lock assembly. Refer to [DLK-263, "DOOR LOCK : Removal and Installation"](#).

B2420 CLOSE SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

B2420 CLOSE SWITCH

DTC Logic

INFOID:0000000010283059

DTC DETECTION LOGIC

DTC	CONSULT display description	DTC detecting condition	Possible cause
B2420	CLOSE SW	Automatic back door control module detects a malfunction of close switch during automatic operation of back door.	• Entry of foreign materials to back door lock assembly • Back door mechanism • Automatic back door control module • Close switch • Harness or connectors

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Check "Self-Diagnostic Result" mode of "AUTO BACK DOOR" using CONSULT.

Is DTC detected?

- YES >> Refer to [DLK-119, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010283060

Regarding Wiring Diagram information, refer to [DLK-86, "Wiring Diagram"](#).

1.CHECK FOR FOREIGN MATERIALS IN BACK DOOR LOCK ASSEMBLY

Check for entry of foreign materials in back door lock assembly.

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Remove foreign materials.

2.CHECK BACK DOOR OPEN/CLOSE OPERATION

Manually check open and close operation of back door.

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace the malfunctioning parts.

3.CHECK CLOSE SWITCH SIGNAL

1. Select "AUTO BACK DOOR" using CONSULT.
2. Select "CLOSE SW" in "Data Monitor" mode.
3. Check that the function operates normally according to the following conditions.

Monitor item	Condition		Status
CLOSE SW	Back door	Open/Half latch	OFF
		Fully closed	ON

Is the inspection result normal?

- YES >> GO TO 8.
NO >> GO TO 4.

4.CHECK CLOSE SWITCH INPUT SIGNAL

1. Turn ignition switch OFF.

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

DLK

B2420 CLOSE SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

2. Disconnect back door lock assembly connector.
3. Check voltage between back door lock assembly harness connector and ground.

(+)		(-)	Voltage (Approx.)
Back door lock assembly			
Connector	Terminal		
D512	5	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 6.

NO >> GO TO 5.

5.CHECK CLOSE SWITCH CIRCUIT

1. Disconnect automatic back door control module connector.
2. Check continuity between automatic back door control module harness connector and back door lock assembly harness connector.

Automatic back door control module		Back door lock assembly		Continuity
Connector	Terminal	Connector	Terminal	
B55	5	D512	5	Yes

3. Check continuity between automatic back door control module harness connector and ground.

Automatic back door control module		Ground	Continuity
Connector	Terminal		
B55	5		No

Is the inspection result normal?

YES >> Replace automatic back door control module. Refer to [DLK-276. "Removal and Installation"](#).

NO >> Repair or replace harness.

6.CHECK CLOSE SWITCH GROUND CIRCUIT

Check continuity between back door lock assembly harness connector and ground.

Back door lock assembly		Ground	Continuity
Connector	Terminal		
D512	8		Yes

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace harness.

7.CHECK CLOSE SWITCH

Refer to [DLK-108. "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 8.

NO >> Replace back door lock assembly. Refer to [DLK-263. "DOOR LOCK : Removal and Installation"](#).

8.CHECK INTERMITTENT INCIDENT

Refer to [GI-41. "Intermittent Incident"](#).

>> Inspection End.

Component Inspection

INFOID:000000010283061

COMPONENT INSPECTION

B2420 CLOSE SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

1.CHECK SWITCH

1. Turn ignition switch OFF.
2. Disconnect back door lock assembly.
3. Check continuity between back door lock assembly terminals.

Back door lock assembly		Condition		Continuity
Terminal				
4	8	Back door lock	Open	Yes
			Fully closed/Half latch	No
5			Fully close	Yes
			Open/Half latch	No
6			Open	Yes
			Fully closed/Half latch	No
7		Back door switch	On	Yes
			Off	No

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace back door lock assembly. Refer to [DLK-263, "DOOR LOCK : Removal and Installation"](#).

DLK

B2422 BACK DOOR STATE

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

B2422 BACK DOOR STATE

DTC Logic

INFOID:0000000010283062

DTC DETECTION LOGIC

DTC	CONSULT display description	DTC detecting condition	Possible cause
B2422	BACK DOOR STATE	When the automatic back door control module detects back door position malfunction according to the pulse signal.	• Improper installation of back door assembly • [CALIBRATION OF AUTOMATIC BACK DOOR POSITION INFORMATION]: not complete • Back door mechanism • Encoder • Automatic back door control module • Harness or connectors

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Operate automatic back door.
3. Check "Self Diagnostic Result" mode of "AUTO BACK DOOR" using CONSULT.

Is DTC detected?

- YES >> Refer to [DLK-122, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010283063

Regarding Wiring Diagram information, refer to [DLK-86, "Wiring Diagram"](#).

1.CALIBRATION OF AUTOMATIC BACK DOOR POSITION INFORMATION

1. Perform initialization setting of automatic back door position information.
Refer to [DLK-102, "Work Procedure"](#).
2. Erase DTC, and then repeat "PERFORM DTC CONFIRMATION PROCEDURE".

Is DTC detected?

- YES >> GO TO 2.
NO >> Inspection End.

2.CHECK INSTALLATION OF BACK DOOR ASSEMBLY

1. Check that back door assembly is installed normally.
Refer to [DLK-250, "BACK DOOR ASSEMBLY : Adjustment"](#).
2. Check back door assembly mechanism deformation, looseness, rattle, interference with other parts and pinched foreign materials.

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace the malfunctioning parts.

3.CHECK ENCODER SIGNAL

1. Select "AUTOMATIC BACK DOOR" using CONSULT.
2. Select "SPINDLE SENSOR LH" and "SPINDLE SENSOR RH" in "Data Monitor" mode.
3. Check that the function operates normally according to the following conditions.

B2422 BACK DOOR STATE

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

Monitor item	Status
SPINDLE SENSOR LH	0 – 65535
SPINDLE SENSOR RH	0 – 65535

Is the difference between the 2 monitor items 10 or more?

YES >> GO TO 4.

NO >> Replace automatic back door control module. Refer to [DLK-276. "Removal and Installation"](#).

4.CHECK ENCODER POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect spindle unit connector.
3. Check voltage between spindle unit harness connector and ground.

(+)		Terminal	(−)	Voltage (Approx.)
Spindle unit				
Connector				
LH	B95	4	Ground	Battery voltage
RH	B73			

Is the inspection result normal?

YES >> GO TO 6.

NO >> GO TO 5.

5.CHECK ENCODER CIRCUIT

1. Disconnect automatic back door control module connector.
2. Check continuity between automatic back door control module harness connector and spindle unit harness connector.

Automatic back door control module		Spindle unit		Continuity
Connector	Terminal	Connector	Terminal	
B55	19	LH	B95	Yes
	20	RH	B73	

3. Check continuity between automatic back door control module harness connector and ground.

Automatic back door control module		Ground	Continuity
Connector	Terminal		
B55	19		No
	20		

Is the inspection result normal?

YES >> Replace automatic back door control module. Refer to [DLK-276. "Removal and Installation"](#).

NO >> Repair or replace harness.

6.CHECK ENCODER CIRCUIT 2

1. Disconnect automatic back door control module connector.
2. Check continuity between automatic back door control module harness connector and spindle unit harness connector.

B2422 BACK DOOR STATE

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

Automatic back door control module		Spindle unit		Continuity
Connector	Terminal	Connector	Terminal	
B55	6	LH	B95	3
	7			5
	8	RH	B73	3
	9			5

3. Check continuity between automatic back door control module harness connector and ground.

Automatic back door control module		Ground	Continuity
Connector	Terminal		
B55	6		No
	7		
	8		
	9		

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace harness.

7.CHECK ENCODER CIRCUIT 3

1. Connect automatic back door control module and spindle unit connector
2. Check continuity between automatic back door control module harness connector and ground.

Automatic back door control module		Ground	Voltage (Approx.)
Connector	Terminal		
B55	21		0 V

Is the inspection result normal?

YES >> GO TO 8.

NO >> Replace automatic back door control module. Refer to [DLK-276, "Removal and Installation"](#).

8.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

Is the inspection result normal?

YES >> Replace automatic back door control module. Refer to [DLK-276, "Removal and Installation"](#).

NO >> Repair or replace the malfunctioning parts.

B2423 AUTOMATIC BACK DOOR MOTOR OPERATION TIME

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

B2423 AUTOMATIC BACK DOOR MOTOR OPERATION TIME

DTC Logic

INFOID:0000000010283064

DTC DETECTION LOGIC

DTC	CONSULT display description	DTC detecting condition	Possible cause
B2423	ABD MTR TIME OUT	When the automatic back door control module and spindle motor operate in the same direction for 180 seconds or more continuously.	• Spindle motor • Automatic back door control module • Harness or connector

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Operate automatic back door.
3. Check "Self-Diagnostic Result" mode of "AUTO BACK DOOR" using CONSULT.

Is DTC detected?

- YES >> Refer to [DLK-125, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010283065

Regarding Wiring Diagram information, refer to [DLK-86, "Wiring Diagram"](#).

1.ERASE DTC

1. At least 180 seconds are passed after automatic back door operation is inhibited.
2. Erase DTC, and then repeat "PERFORM DTC CONFIRMATION PROCEDURE".

Is DTC detected?

- YES >> GO TO 2.
NO >> Inspection End.

2.CHECK SPINDLE MOTOR CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect automatic back door control module and spindle unit connector.
3. Check continuity between automatic back door control module harness connector and spindle unit harness connector.

Automatic back door control module		Spindle unit			Continuity
Connector	Terminal	Connector		Terminal	
B56	27	LH	B95	1	Yes
	34			7	
	29	RH	B73	1	
	36			7	

4. Check continuity between automatic back door control module harness connector and ground.

B2423 AUTOMATIC BACK DOOR MOTOR OPERATION TIME

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

Automatic back door control module		Ground	Continuity
Connector	Terminal		
B56	27		No
	29		
	34		
	36		

Is the inspection result normal?

YES >> Replace automatic back door control module. Refer to [DLK-276, "Removal and Installation"](#).
NO >> Repair or replace harness.

B2426 ENCODER

DTC Logic

INFOID:0000000010283066

DTC DETECTION LOGIC

DTC	CONSULT display description	DTC detecting condition	Possible cause
B2426	SPINDLE SENSOR LH	When the automatic back door control module can not receive the pulse signal from the encoder just after starting the open/close operation.	• Improper installation of back door assembly • [CALIBRATION OF AUTOMATIC BACK DOOR POSITION INFORMATION]: not complete • Back door mechanism • Automatic back door control module • Encoder • Harness or connectors

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Operate automatic back door.
3. Check "Self-Diagnostic Result" mode of "AUTO BACK DOOR" using CONSULT.

Is DTC detected?

- YES >> Refer to [DLK-127, "Diagnosis Procedure"](#).
 NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010283067

Regarding Wiring Diagram information, refer to [DLK-86, "Wiring Diagram"](#).

1.CALIBRATION OF AUTOMATIC BACK DOOR POSITION INFORMATION

1. Perform initialization setting of automatic back door position information.
Refer to [DLK-102, "Work Procedure"](#).
2. Erase DTC, and then repeat "PERFORM DTC CONFIRMATION PROCEDURE".

Is DTC detected?

- YES >> GO TO 2.
 NO >> Inspection End.

2.CHECK INSTALLATION OF BACK DOOR ASSEMBLY

1. Check that back door assembly is installed normally.
Refer to [DLK-250, "BACK DOOR ASSEMBLY : Adjustment"](#).
2. Check back door assembly mechanism deformation, looseness, rattle, interference with other parts, and pinched foreign materials.

Is the inspection result normal?

- YES >> GO TO 3.
 NO >> Repair or replace the malfunctioning parts.

3.CHECK ENCODER SIGNAL

1. Select "AUTO BACK DOOR" using CONSULT.
2. Select "SPINDLE LH ENCODER A" and "SPINDLE LH ENCODER B" in "Data Monitor" mode.
3. Check that the function operates normally according to the following conditions.

B2426 ENCODER

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

Monitor item	Condition		Status
SPINDLE LH ENCODER A	Back door	Moving (auto or manual)	HI ⇔ LO
		When stopped	HI or LO
SPINDLE LH ENCODER B		Moving (auto or manual)	HI ⇔ LO
		When stopped	HI or LO

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace automatic back door control module. Refer to [DLK-276, "Removal and Installation"](#).

4. CHECK ENCODER POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect spindle unit LH connector.
3. Check voltage between spindle unit LH harness connector and ground.

(+)		(-)	Voltage (Approx.)
Spindle unit LH			
Connector	Terminal		
B95	4	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 6.

NO >> GO TO 5.

5. CHECK ENCODER CIRCUIT

1. Disconnect automatic back door control module connector.
2. Check continuity between automatic back door control module harness connector and spindle unit LH harness connector.

Automatic back door control module		Spindle unit LH		Continuity
Connector	Terminal	Connector	Terminal	
B55	19	B95	4	Yes

3. Check continuity between automatic back door control module harness connector and ground.

Automatic back door control module		Ground	Continuity
Connector	Terminal		
B55	19		No

Is the inspection result normal?

YES >> Replace automatic back door control module. Refer to [DLK-276, "Removal and Installation"](#).

NO >> Repair or replace harness.

6. CHECK ENCODER CIRCUIT 2

1. Disconnect automatic back door control module connector.
2. Check continuity between automatic back door control module harness connector and spindle unit LH harness connector.

Automatic back door control module		Spindle unit LH		Continuity
Connector	Terminal	Connector	Terminal	
B55	6	B95	3	Yes
	7		5	

3. Check continuity between automatic back door control module harness connector and ground.

B2426 ENCODER

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

Automatic back door control module		Ground	Continuity
Connector	Terminal		
B55	6		No
	7		

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace harness.

7.CHECK ENCODER CIRCUIT 3

1. Connect automatic back door control module and spindle unit LH connector.
2. Check continuity between automatic back door control module harness connector and ground.

Automatic back door control module		Ground	Voltage (Approx.)
Connector	Terminal		
B55	21		0 V

Is the inspection result normal?

YES >> GO TO 8.

NO >> Replace automatic back door control module. Refer to [DLK-276, "Removal and Installation"](#).

8.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

Is the inspection result normal?

YES >> Replace automatic back door control module. Refer to [DLK-276, "Removal and Installation"](#).

NO >> Repair or replace the malfunctioning parts.

DLK

B2427 ENCODER

DTC Logic

INFOID:0000000010283068

DTC DETECTION LOGIC

DTC	CONSULT display description	DTC detecting condition	Possible cause
B2427	SPINDLE SENSOR RH	When the automatic back door control module can not receive the pulse signal from the encoder just after starting the open/close operation.	• Improper installation of back door assembly • [CALIBRATION OF AUTOMATIC BACK DOOR POSITION INFORMATION]: not complete • Back door mechanism • Automatic back door control module • Encoder • Harness or connectors

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Operate automatic back door.
3. Check "Self-Diagnostic Result" mode of "AUTO BACK DOOR" using CONSULT.

Is DTC detected?

- YES >> Refer to [DLK-130, "Diagnosis Procedure"](#).
- NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010283069

Regarding Wiring Diagram information, refer to [DLK-86, "Wiring Diagram"](#).

1.CALIBRATION OF AUTOMATIC BACK DOOR POSITION INFORMATION

1. Perform initialization setting of automatic back door position information.
Refer to [DLK-102, "Work Procedure"](#).
2. Erase DTC, and then repeat "PERFORM DTC CONFIRMATION PROCEDURE".

Is DTC detected?

- YES >> GO TO 2.
- NO >> Inspection End.

2.CHECK INSTALLATION OF BACK DOOR ASSEMBLY

1. Check that back door assembly is installed normally.
Refer to [DLK-250, "BACK DOOR ASSEMBLY : Adjustment"](#).
2. Check back door assembly mechanism deformation, looseness, rattle, interference with other parts, and pinched foreign materials.

Is the inspection result normal?

- YES >> GO TO 3.
- NO >> Repair or replace the malfunctioning parts.

3.CHECK ENCODER SIGNAL

1. Select "AUTO BACK DOOR" using CONSULT.
2. Select "SPINDLE RH ENCODER A" and "SPINDLE RH ENCODER B" in "Data Monitor" mode.
3. Check that the function operates normally according to the following conditions.

B2427 ENCODER

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

Monitor item	Condition		Status
SPINDLE RH ENCODER A	Back door	Moving (auto or manual)	HI ⇔ LO
		When stopped	HI or LO
SPINDLE RH ENCODER B		Moving (auto or manual)	HI ⇔ LO
		When stopped	HI or LO

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace automatic back door control module. Refer to [DLK-276, "Removal and Installation"](#).

4.CHECK ENCODER POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect spindle unit RH connector.
3. Check voltage between spindle unit RH harness connector and ground.

(+) Spindle unit RH		(-)	Voltage (Approx.)
Connector	Terminal		
B73	4	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 6.

NO >> GO TO 5.

5.CHECK ENCODER CIRCUIT

1. Disconnect automatic back door control module connector.
2. Check continuity between automatic back door control module harness connector and spindle unit RH harness connector.

Automatic back door control module		Spindle unit RH		Continuity
Connector	Terminal	Connector	Terminal	
B55	20	B73	4	Yes

3. Check continuity between automatic back door control module harness connector and ground.

Automatic back door control module		Ground	Continuity
Connector	Terminal		
B55	20		No

Is the inspection result normal?

YES >> Replace automatic back door control module. Refer to [DLK-276, "Removal and Installation"](#).

NO >> Repair or replace harness.

6.CHECK ENCODER CIRCUIT 2

1. Disconnect automatic back door control module connector.
2. Check continuity between automatic back door control module harness connector and spindle unit RH harness connector.

Automatic back door control module		Spindle unit RH		Continuity
Connector	Terminal	Connector	Terminal	
B55	8	B73	3	Yes
	9		5	

3. Check continuity between automatic back door control module harness connector and ground.

B2427 ENCODER

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

Automatic back door control module		Ground	Continuity
Connector	Terminal		
B55	8		No
	9		

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace harness.

7. CHECK ENCODER CIRCUIT 3

1. Connect automatic back door control module spindle unit RH connector.
2. Check continuity between automatic back door control module harness connector and ground.

Automatic back door control module		Ground	Voltage (Approx.)
Connector	Terminal		
B55	21		0 V

Is the inspection result normal?

YES >> GO TO 8.

NO >> Replace automatic back door control module. Refer to [DLK-276, "Removal and Installation"](#).

8. CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

Is the inspection result normal?

YES >> Replace automatic back door control module. Refer to [DLK-276, "Removal and Installation"](#).

NO >> Repair or replace the malfunctioning parts.

B2428 AUTOMATIC BACK DOOR CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

B2428 AUTOMATIC BACK DOOR CONTROL UNIT

DTC Logic

INFOID:0000000010283070

DTC DETECTION LOGIC

DTC	CONSULT display description	DTC detecting condition	Possible cause
B2428	AUTO BACK DR CNT UNIT	Automatic back door control module detected CPU malfunction	Automatic back door control module

Diagnosis Procedure

INFOID:0000000010283071

1. REPLACE AUTOMATIC BACK DOOR CONTROL MODULE

When DTC [B2428] is detected, replace automatic back door control module.

>> Replace automatic back door control module. Refer to [DLK-276, "Removal and Installation"](#).

DLK

B242A CLOSURE CONDITION

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

B242A CLOSURE CONDITION

DTC Logic

INFOID:0000000010283072

DTC DETECTION LOGIC

DTC	CONSULT display description	DTC detecting condition	Possible cause
B242A	CLSR CONDITION	Automatic back door control module detects malfunctions of open switch, close switch and half latch switch when auto closure of back door operates.	• Entry of foreign materials to back door lock assembly • Back door mechanism • Automatic back door control module • Open switch • Close switch • Half latch switch • Harness or connectors

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Operate back door auto closure operation.
3. Check "Self-Diagnostic Result" mode of "AUTO BACK DOOR" using CONSULT.

Is DTC detected?

- YES >> Refer to [DLK-134, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010283073

Regarding Wiring Diagram information, refer to [DLK-86, "Wiring Diagram"](#).

1.CHECK FOR FOREIGN MATERIALS IN BACK DOOR LOCK ASSEMBLY

Check for entry of foreign materials in back door lock assembly.

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Remove foreign materials.

2.CHECK BACK DOOR OPEN/CLOSE OPERATION

Manually check open and close operation of back door.

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace the malfunctioning parts.

3.CHECK MONITOR ITEM

1. Select "AUTO BACK DOOR" using CONSULT.
2. Select "HALF LATCH SW", "OPEN SW" and "CLOSE SW" in "Data Monitor" mode.
3. Check that the function operates normally according to the following conditions.

B242A CLOSURE CONDITION

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

Monitor item	Condition		Status
HALF LATCH SW	Back door	Fully closed/Half latch	OFF
		Open	ON
OPEN SW		Fully closed/Half latch	OFF
		Open	ON
CLOSE SW		Open/Half latch	OFF
		Fully closed	ON

Is the inspection result normal?

YES >> GO TO 8.

NO >> GO TO 4.

4.CHECK SWITCH INPUT SIGNAL

1. Turn ignition switch OFF.
2. Disconnect back door lock assembly connector.
3. Check voltage between back door lock assembly harness connector and ground.

(+)		(-)	Voltage (Approx.)
Back door lock assembly			
Connector	Terminal		
D512	4	Ground	Battery voltage
	5		
	6		

Is the inspection result normal?

YES >> GO TO 6.

NO >> GO TO 5.

5.CHECK SWITCH CIRCUIT

1. Disconnect automatic back door control module connector.
2. Check continuity between automatic back door control module harness connector and back door lock assembly harness connector.

Automatic back door control module		Back door lock assembly		Continuity
Connector	Terminal	Connector	Terminal	
B55	3	D512	6	Yes
	5		5	
	11		4	

3. Check continuity between automatic back door control module harness connector and ground.

Automatic back door control module		Ground	Continuity
Connector	Terminal		
B55	3		No
	5		
	11		

Is the inspection result normal?

YES >> Replace automatic back door control module. Refer to [DLK-276. "Removal and Installation"](#).

NO >> Repair or replace harness.

6.CHECK SWITCH GROUND CIRCUIT

Check continuity between back door lock assembly harness connector and ground.

B242A CLOSURE CONDITION

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

Back door lock assembly		Ground	Continuity
Connector	Terminal		
D512	8		Yes

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace harness or connector.

7.CHECK SWITCH

Refer to [DLK-108, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 8.

NO >> Replace back door lock assembly. Refer to [DLK-263, "DOOR LOCK : Removal and Installation"](#).

8.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> Inspection End.

Component Inspection

INFOID:0000000010283074

COMPONENT INSPECTION

1.CHECK SWITCH

1. Turn ignition switch OFF.
2. Disconnect back door lock assembly connector.
3. Check continuity between back door lock assembly terminals.

Back door lock assembly		Condition		Continuity
Terminal				
4	8	Back door lock	Open	Yes
			Fully closed/Half latch	No
5			Fully close	Yes
			Open/Half latch	No
6			Open	Yes
			Fully closed/Half latch	No
7		Back door switch	On	Yes
		Off	No	

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace back door lock assembly. Refer to [DLK-263, "DOOR LOCK : Removal and Installation"](#).

B2621 INSIDE ANTENNA

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

B2621 INSIDE ANTENNA

DTC Logic

INFOID:0000000010283077

DTC DETECTION LOGIC

DTC	CONSULT display description	DTC detecting condition	Possible cause
B2621	INSIDE ANTENNA	An excessive high or low voltage from inside antenna (instrument center) is sent to BCM.	- Inside key antenna (instrument center) - Harness or connector [Inside key antenna (instrument center) circuit is open or shorted]

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Select "INTELLIGENT KEY" of "BCM" using CONSULT.
2. Select "INSIDE ANT DIAGNOSIS" in "WORK SUPPORT" mode.
3. Perform inside key antenna ("INSIDE ANT DIAGNOSIS") on "Work support" of "INTELLIGENT KEY".
4. Check BCM for DTC.

Is inside key antenna DTC detected?

- YES >> Refer to [DLK-137. "Diagnosis Procedure"](#).
NO >> Inside key antenna (instrument center) is OK.

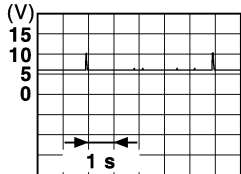
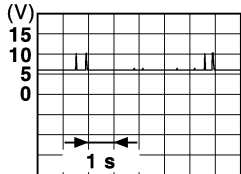
Diagnosis Procedure

INFOID:0000000010283078

Regarding Wiring Diagram information, refer to [DLK-69. "Wiring Diagram"](#).

1.CHECK INSIDE KEY ANTENNA INPUT SIGNAL 1

1. Turn ignition switch OFF.
2. Check signal between BCM harness connector and ground using oscilloscope.

(+) BCM		(-)	Condition	Signal (Reference value)
Connector	Terminal			
M19	116, 117	Ground	When Intelligent Key is in the antenna detection area	 JMKIA3839GB
			When Intelligent Key is not in the antenna detection area	 JMKIA5951GB

Is the inspection result normal?

- YES >> Replace BCM. Refer to [BCS-75. "Removal and Installation"](#).
NO >> GO TO 2.

B2621 INSIDE ANTENNA

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

2. CHECK INSIDE KEY ANTENNA CIRCUIT

1. Disconnect BCM connector and inside key antenna (instrument center) connector.
2. Check continuity between BCM harness connector and inside key antenna (instrument center) harness connector.

BCM		Inside key antenna (instrument center)		Continuity
Connector	Terminal	Connector	Terminal	
M19	117	M15	1	Yes
	116		2	

3. Check continuity between BCM harness connector and ground.

BCM		Ground	Continuity
Connector	Terminal		
M19	117		No
	116		

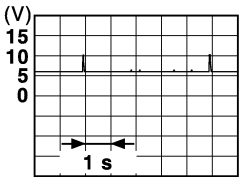
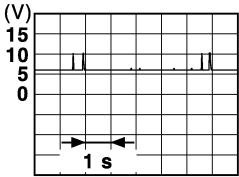
Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness.

3. CHECK INSIDE KEY ANTENNA INPUT SIGNAL 2

1. Replace inside key antenna (instrument center). (New antenna or other antenna)
2. Connect BCM connector and inside key antenna (instrument center) connector.
3. Check signal between BCM harness connector and ground using oscilloscope.

(+) BCM		(-)	Condition	Signal (Reference value)
Connector	Terminal			
M19	116, 117	Ground	When Intelligent Key is in the antenna detection area	 JMKIA3839GB
			When Intelligent Key is not in the antenna detection area	 JMKIA5951GB

Is the inspection result normal?

YES >> Replace inside key antenna (instrument center).

NO >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#).

B2622 INSIDE ANTENNA

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

B2622 INSIDE ANTENNA

DTC Logic

INFOID:0000000010283079

DTC DETECTION LOGIC

DTC	CONSULT display description	DTC detecting condition	Possible cause
B2622	INSIDE ANTENNA	An excessive high or low voltage from inside antenna (console) is sent to BCM.	- Inside key antenna (console) - Harness or connector [Inside key antenna (console) circuit is open or shorted]

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Select "INTELLIGENT KEY" of "BCM" using CONSULT.
2. Select "INSIDE ANT DIAGNOSIS" in "Work support" mode.
3. Perform inside key antenna ("INSIDE ANT DIAGNOSIS") on "Work support" of INTELLIGENT KEY.
4. Check BCM for DTC.

Is inside key antenna DTC detected?

YES >> Refer to [DLK-139, "Diagnosis Procedure"](#).

NO >> Inside key antenna (console) is OK.

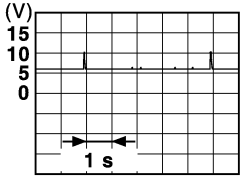
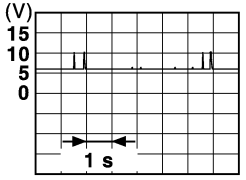
Diagnosis Procedure

INFOID:0000000010283080

Regarding Wiring Diagram information, refer to [DLK-69, "Wiring Diagram"](#).

1.CHECK INSIDE KEY ANTENNA INPUT SIGNAL 1

1. Turn ignition switch OFF.
2. Check signal between BCM harness connector and ground using oscilloscope.

(+) BCM		(-)	Condition	Signal (Reference value)
Connector	Terminal			
B16	62, 63	Ground	When Intelligent Key is in the antenna detection area	 JMKIA3839GB
			When Intelligent Key is not in the antenna detection area	 JMKIA5951GB

Is the inspection result normal?

YES >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#).

NO >> GO TO 2.

B2622 INSIDE ANTENNA

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

2. CHECK INSIDE KEY ANTENNA CIRCUIT

1. Disconnect BCM connector and inside key antenna (console) connector.
2. Check continuity between BCM harness connector and inside key antenna (console) harness connector.

BCM		Inside key antenna (console)		Continuity
Connector	Terminal	Connector	Terminal	
B16	63	B77	1	Yes
	62		2	

3. Check continuity between BCM harness connector and ground.

BCM		Ground	Continuity
Connector	Terminal		
B16	63		No
	62		

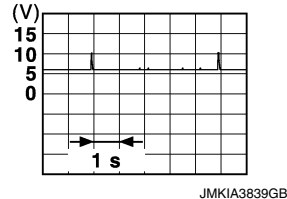
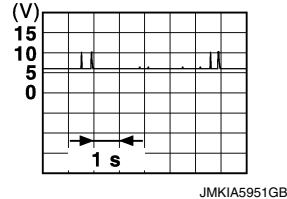
Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness.

3. CHECK INSIDE KEY ANTENNA INPUT SIGNAL 2

1. Replace inside key antenna (console). (New antenna or other antenna)
2. Connect BCM connector and inside key antenna (console) connector.
3. Check signal between BCM harness connector and ground using oscilloscope.

(+) BCM		(-)	Condition	Signal (Reference value)
Connector	Terminal			
B16	62, 63	Ground	When Intelligent Key is in the antenna detection area	
			When Intelligent Key is not in the antenna detection area	

Is the inspection result normal?

YES >> Replace inside key antenna (console). Refer to [DLK-271, "CONSOLE : Removal and Installation"](#).

NO >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#).

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

POWER SUPPLY AND GROUND CIRCUIT

AUTOMATIC BACK DOOR CONTROL UNIT

AUTOMATIC BACK DOOR CONTROL UNIT : Diagnosis Procedure

INFOID:0000000010283090

Regarding Wiring Diagram information, refer to [DLK-69, "Wiring Diagram"](#).

1. CHECK FUSIBLE LINK

Check that the following fusible link is not open.

Fusible link No.	Signal name
K (30A)	Battery power supply

Is the fusible link open?

YES >> Replace the open fusible link after repairing the affected circuit.

NO >> GO TO 2.

2. CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect automatic back door control module connector.
3. Check voltage between automatic back door control module harness connector and ground.

(+)		(-)	Voltage
Automatic back door control module			
Connector	Terminal		
B56	25	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness.

3. CHECK GROUND CIRCUIT

Check continuity between automatic back door control module harness connector and ground.

Automatic back door control module		Ground	Continuity
Connector	Terminal		
B56	32		Yes
B55	4		
B55	16		

Does continuity exist?

YES >> Inspection End.

NO >> Repair or replace harness.

BCM

BCM : Diagnosis Procedure

INFOID:0000000010291444

Regarding Wiring Diagram information, refer to [BCS-50, "Wiring Diagram"](#).

1. CHECK FUSE

Check that the following fuse is not blown.

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

Terminal No.	Signal name	Fuse No.
161	BCM power supply	7 (10A)

Is the fuse blown?

YES >> Replace the blown fuse after repairing the affected circuit.

NO >> GO TO 2.

2. CHECK POWER SUPPLY CIRCUIT

1. Disconnect BCM connector M20.
2. Check voltage between BCM connector M20 and ground.

BCM		Ground	Voltage (Approx.)
Connector	Terminal		
M20	161	—	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

3. CHECK GROUND CIRCUIT

Check continuity between BCM connector M20 and ground.

BCM		Ground	Continuity
Connector	Terminal		
M20	170	—	Yes
	171		

Is the inspection result normal?

YES >> Inspection End.

NO >> Repair or replace harness or connectors.

OUTSIDE KEY ANTENNA (PASSENGER SIDE)

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

OUTSIDE KEY ANTENNA (PASSENGER SIDE)

Component Function Check

INFOID:0000000010283092

1.CHECK OUTSIDE KEY ANTENNA (RH)

1. Place the Intelligent Key into the detection area of the outside key antenna (RH).
2. Press the door request switch (RH).

Does the door unlock?

- YES >> Inspection End.
NO >> Refer to [DLK-143. "Diagnosis Procedure"](#).

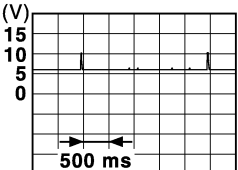
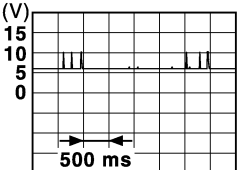
Diagnosis Procedure

INFOID:0000000010283093

Regarding Wiring Diagram information, refer to [DLK-69. "Wiring Diagram"](#).

1.CHECK OUTSIDE KEY ANTENNA INPUT SIGNAL 1

1. Turn ignition switch OFF.
2. Check signal between BCM harness connector and ground using oscilloscope.

(+) BCM		(-)	Condition	Signal (Reference value)
Connector	Terminal			
M19	118, 119	Ground	When Intelligent Key is in the antenna detection area (The distance between Intelligent Key and antenna: 80 cm or less)	 JMKIA5955GB
			When Intelligent Key is not in the antenna detection area (The distance between Intelligent Key and antenna: Approx. 2 m)	 JMKIA5954GB

Is the inspection result normal?

- YES >> Replace BCM. Refer to [BCS-75. "Removal and Installation"](#).
NO >> GO TO 2.

2.CHECK OUTSIDE KEY ANTENNA CIRCUIT

1. Disconnect BCM connector and outside key antenna (RH) connector.
2. Check continuity between BCM harness connector and outside key antenna (RH) harness connector.

BCM		Outside key antenna (RH)		Continuity
Connector	Terminal	Connector	Terminal	
M19	119	D126	1	Yes
	118		2	

3. Check continuity between BCM harness connector and ground.

OUTSIDE KEY ANTENNA (PASSENGER SIDE)

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

BCM		Ground	Continuity
Connector	Terminal		
M19	119		No
	118		

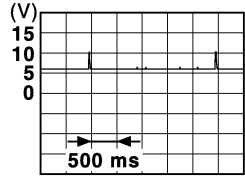
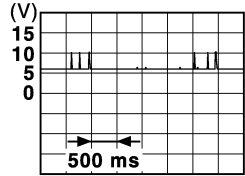
Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness.

3.CHECK OUTSIDE KEY ANTENNA INPUT SIGNAL 2

1. Replace outside key antenna (RH). (New antenna or other antenna)
2. Connect BCM connector and outside key antenna (RH) connector.
3. Check signal between BCM harness connector and ground using oscilloscope.

(+) BCM		(-)	Condition	Signal (Reference value)
Connector	Terminal			
M19	118, 119	Ground	When the driver door request switch is operated with ignition switch OFF	 JMKIA5955GB
			When Intelligent Key is not in the antenna detection area (The distance between Intelligent Key and antenna: Approx. 2 m)	 JMKIA5954GB

Is the inspection result normal?

YES >> Replace outside key antenna (RH). Refer to [DLK-272, "PASSENGER SIDE : Removal and Installation"](#).

NO >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#).

OUTSIDE KEY ANTENNA (DRIVER SIDE)

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

OUTSIDE KEY ANTENNA (DRIVER SIDE)

Component Function Check

INFOID:0000000010283094

1.CHECK OUTSIDE KEY ANTENNA (LH)

1. Place the Intelligent Key into the detection area of the outside key antenna (LH).
2. Press the door request switch (LH).

Does the door unlock?

- YES >> Inspection End.
NO >> Refer to [DLK-145. "Diagnosis Procedure"](#).

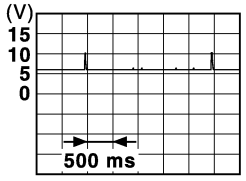
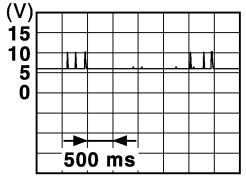
Diagnosis Procedure

INFOID:0000000010283095

Regarding Wiring Diagram information, refer to [DLK-69. "Wiring Diagram"](#).

1.CHECK OUTSIDE KEY ANTENNA INPUT SIGNAL 1

1. Turn ignition switch OFF.
2. Check signal between BCM harness connector and ground using oscilloscope.

(+) BCM		(-)	Condition	Signal (Reference value)
Connector	Terminal			
M19	100, 120	Ground	When Intelligent Key is in the antenna detection area (The distance between Intelligent Key and antenna: 80 cm or less)	 JMKIA5955GB
			When Intelligent Key is not in the antenna detection area (The distance between Intelligent Key and antenna: Approx. 2 m)	 JMKIA5954GB

Is the inspection result normal?

- YES >> Replace BCM. Refer to [DLK-276. "Removal and Installation"](#).
NO >> GO TO 2.

2.CHECK OUTSIDE KEY ANTENNA CIRCUIT

1. Disconnect BCM connector and outside key antenna (LH) connector.
2. Check continuity between BCM harness connector and outside key antenna (LH) harness connector.

BCM		Outside key antenna (LH)		Continuity
Connector	Terminal	Connector	Terminal	
M19	100	D11	1	Yes
	120		2	

3. Check continuity between BCM harness connector and ground.

OUTSIDE KEY ANTENNA (DRIVER SIDE)

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

BCM		Ground	Continuity
Connector	Terminal		
M19	100		No
	120		

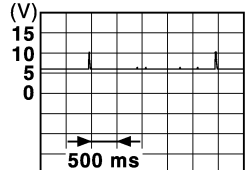
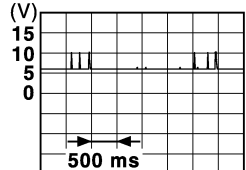
Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness.

3.CHECK OUTSIDE KEY ANTENNA INPUT SIGNAL 2

1. Replace outside key antenna (LH). (New antenna or other antenna)
2. Connect BCM connector and outside key antenna (LH) connector.
3. Check signal between BCM harness connector and ground using oscilloscope.

(+) BCM		(-)	Condition	Signal (Reference value)
Connector	Terminal			
M19	100, 120	Ground	When the driver door request switch is operated with ignition switch OFF	 JMKIA5955GB
			When Intelligent Key is not in the antenna detection area (The distance between Intelligent Key and antenna: Approx. 2 m)	 JMKIA5954GB

Is the inspection result normal?

YES >> Replace outside key antenna (LH). Refer to [DLK-272, "DRIVER SIDE : Removal and Installation"](#).

NO >> Replace BCM. Refer to [DLK-276, "Removal and Installation"](#).

OUTSIDE KEY ANTENNA (REAR BUMPER)

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

OUTSIDE KEY ANTENNA (REAR BUMPER)

Component Function Check

INFOID:0000000010283096

1.CHECK OUTSIDE KEY ANTENNA (REAR BUMPER)

1. Place the Intelligent Key into the detection area of the outside key antenna (rear bumper).
2. Press the door request switch (back door).

Does the door unlock?

- YES >> Inspection End.
NO >> Refer to [DLK-147. "Diagnosis Procedure"](#).

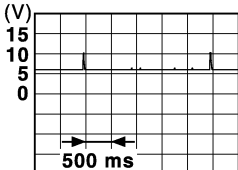
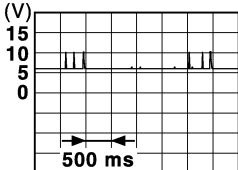
Diagnosis Procedure

INFOID:0000000010283097

Regarding Wiring Diagram information, refer to [DLK-69. "Wiring Diagram"](#).

1.CHECK OUTSIDE KEY ANTENNA INPUT SIGNAL 1

1. Turn ignition switch OFF.
2. Check signal between BCM harness connector and ground using oscilloscope.

(+) BCM		(-)	Condition	Signal (Reference value)
Connector	Terminal			
B16	61, 64	Ground	When Intelligent Key is in the antenna detection area (The distance between Intelligent Key and antenna: 80 cm or less)	 JMkia5955GB
			When the driver door request switch is operated with ignition switch OFF	 JMkia5954GB

Is the inspection result normal?

- YES >> Replace BCM. Refer to [BCS-75. "Removal and Installation"](#).
NO >> GO TO 2.

2.CHECK OUTSIDE KEY ANTENNA CIRCUIT

1. Disconnect BCM connector and outside key antenna (rear bumper) connector.
2. Check continuity between BCM harness connector and outside key antenna (rear bumper) harness connector.

BCM		Outside key antenna (rear bumper)		Continuity
Connector	Terminal	Connector	Terminal	
B16	64	B76	1	Yes
	61		2	

3. Check continuity between BCM harness connector and ground.

OUTSIDE KEY ANTENNA (REAR BUMPER)

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

BCM		Ground	Continuity
Connector	Terminal		
B16	64		No
	61		

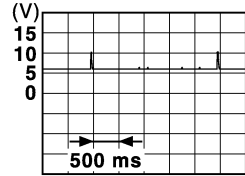
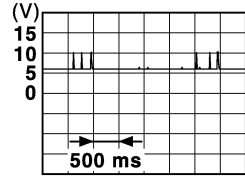
Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness.

3.CHECK OUTSIDE KEY ANTENNA INPUT SIGNAL 2

1. Replace outside key antenna (rear bumper). (New antenna or other antenna)
2. Connect BCM and outside key antenna (rear bumper) connector.
3. Check signal between BCM harness connector and ground using oscilloscope.

(+) BCM		(-)	Condition	Signal (Reference value)
Connector	Terminal			
B16	61, 64	Ground	When the driver door request switch is operated with ignition switch OFF	 JMK1A5955GB
			When Intelligent Key is not in the antenna detection area (The distance between Intelligent Key and antenna: Approx. 2 m)	 JMK1A5954GB

Is the inspection result normal?

YES >> Replace outside key antenna (rear bumper). Refer to [DLK-272, "REAR BUMPER : Removal and Installation"](#).

NO >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#).

DOOR SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

DOOR SWITCH

Component Function Check

INFOID:0000000010283098

1.CHECK FUNCTION

1. Select "DOOR LOCK" of "BCM" using CONSULT.
2. Select "DOOR SW-DR", "DOOR SW-AS", "DOOR SW-RL", "DOOR SW-RR", in "Data Monitor" mode.
3. Check that the function operates normally according to the following conditions.

Monitor item	Condition		Status
DOOR SW-DR	Driver side door	Open	On
		Closed	Off
DOOR SW-AS	Passenger side door	Open	On
		Closed	Off
DOOR SW-RL	Rear door LH	Open	On
		Closed	Off
DOOR SW-RR	Rear door RH	Open	On
		Closed	Off

Is the inspection result normal?

YES >> Door switch is OK.

NO >> Refer to [DLK-149. "Diagnosis Procedure"](#).

Diagnosis Procedure

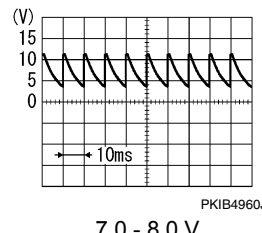
INFOID:0000000010283099

Regarding Wiring Diagram information, refer to [DLK-69. "Wiring Diagram"](#).

1.CHECK DOOR SWITCH INPUT SIGNAL

1. Turn ignition switch OFF.
2. Disconnect malfunctioning door switch connector.
3. Check signal between malfunctioning door switch harness connector and ground using oscilloscope.

DLK

(+)		Terminal	(-)	Signal (Reference value)
Door switch				
Connector				
Driver side	B71	3	Ground	
Passenger side	B141			
Rear LH	B70			
Rear RH	B142			

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 2.

2.CHECK DOOR SWITCH CIRCUIT

1. Disconnect BCM connector.
2. Check continuity between door switch harness connector and BCM harness connector.

DOOR SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

Door switch		BCM		Continuity
Connector	Terminal	Connector	Terminal	
Front LH	B71	B16	57	Yes
Front RH	B141		53	
Rear LH	B70		52	
Rear RH	B142		50	

3. Check continuity between door switch harness connector and ground.

Door switch		Ground	Continuity
Connector	Terminal		
Front LH	B71	3	No
Front RH	B141		
Rear LH	B70		
Rear RH	B142		

Is the inspection result normal?

YES >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#).

NO >> Repair or replace harness.

3.CHECK DOOR SWITCH

Refer to [DLK-150, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace malfunctioning door switch. Refer to [DLK-269, "Removal and Installation"](#).

4.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> Inspection End.

Component Inspection

INFOID:0000000010283100

1.CHECK DOOR SWITCH

1. Turn ignition switch OFF.
2. Disconnect malfunctioning door switch connector.
3. Check continuity between door switch terminals.

Door switch		Condition		Continuity
Terminal				
3	Ground contact is part of the switch.	Door switch	Pressed	No
			Released	Yes

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace malfunctioning door switch. Refer to [DLK-269, "Removal and Installation"](#).

BACK DOOR SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

BACK DOOR SWITCH

Component Function Check

INFOID:0000000010283101

1.CHECK FUNCTION

1. Select "DOOR LOCK" of "BCM" using CONSULT.
2. Select "DOOR SW-BK" in "Data Monitor" mode.
3. Check that the function operates normally according to the following conditions.

Monitor item	Condition		Status
DOOR SW-BK	Back door	Open	On
		Closed	Off

Is the inspection result normal?

YES >> Door switch is OK.

NO >> Refer to [DLK-151, "Diagnosis Procedure \(With Automatic Back Door\)"](#).

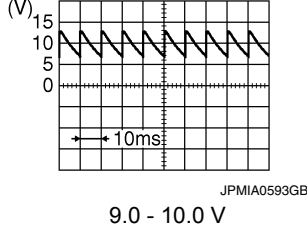
Diagnosis Procedure (With Automatic Back Door)

INFOID:0000000010283102

Regarding Wiring Diagram information, refer to [DLK-86, "Wiring Diagram"](#).

1.CHECK BACK DOOR SWITCH INPUT SIGNAL

1. Turn ignition switch OFF.
2. Disconnect back door lock assembly connector.
3. Check signal between back door lock assembly harness connector and ground using oscilloscope.

(+) Back door lock assembly		(-)	Signal (Reference value)
Connector	Terminal		
D512	7	Ground	

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 2.

2.CHECK BACK DOOR SWITCH CIRCUIT

1. Disconnect BCM connector.
2. Check continuity between back door lock assembly harness connector and BCM harness connector.

Back door lock assembly		BCM		Continuity
Connector	Terminal	Connector	Terminal	
D512	7	B16	51	Yes

3. Check continuity between back door lock assembly harness connector and ground.

BACK DOOR SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

Back door lock assembly		Ground	Continuity
Connector	Terminal		
D512	7		No

Is the inspection result normal?

YES >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#).

NO >> Repair or replace harness.

3.CHECK BACK DOOR SWITCH GROUND CIRCUIT

Check continuity between back door lock assembly harness connector and ground.

Back door lock assembly		Ground	Continuity
Connector	Terminal		
D512	8		Yes

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness.

4.CHECK BACK DOOR SWITCH

Refer to [DLK-153, "Component Inspection \(With Automatic Back Door\)"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace back door lock assembly. Refer to [DLK-263, "DOOR LOCK : Removal and Installation"](#).

5.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> Inspection End.

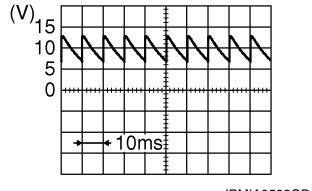
Diagnosis Procedure (Without Automatic Back Door)

INFOID:0000000010283103

Regarding Wiring Diagram information, refer to [DLK-69, "Wiring Diagram"](#).

1.CHECK BACK DOOR SWITCH INPUT SIGNAL

1. Turn ignition switch OFF.
2. Disconnect back door lock assembly connector.
3. Check signal between back door lock assembly harness connector and ground using oscilloscope.

(+) Back door lock assembly		(-)	Signal (Reference value)
Connector	Terminal		
D508	3	Ground	

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 2.

BACK DOOR SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

2.CHECK BACK DOOR SWITCH CIRCUIT

1. Disconnect BCM connector.
2. Check continuity between back door lock assembly harness connector and BCM harness connector.

Back door lock assembly		BCM		Continuity
Connector	Terminal	Connector	Terminal	
D508	3	B16	51	Yes

3. Check continuity between back door lock assembly harness connector and ground.

Back door lock assembly		Ground	Continuity
Connector	Terminal		
D508	3		No

Is the inspection result normal?

YES >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#).

NO >> Repair or replace harness.

3.CHECK BACK DOOR SWITCH GROUND CIRCUIT

Check continuity between back door lock assembly harness connector and ground.

Back door lock assembly		Ground	Continuity
Connector	Terminal		
D508	4		Yes

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness.

4.CHECK BACK DOOR SWITCH

Refer to [DLK-154, "Component Inspection \(Without Automatic Back Door\)"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace back door lock assembly. Refer to [DLK-263, "DOOR LOCK : Removal and Installation"](#).

5.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> Inspection End.

Component Inspection (With Automatic Back Door)

INFOID:000000010283104

1.CHECK BACK DOOR SWITCH

1. Turn ignition switch OFF.
2. Disconnect back door lock assembly connector.
3. Check continuity between back door lock assembly terminals.

Back door lock assembly		Condition		Continuity
Terminal				
7	8	Door switch	Pressed	No
			Released	Yes

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace back door lock assembly. Refer to [DLK-263, "DOOR LOCK : Removal and Installation"](#).

BACK DOOR SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

Component Inspection (Without Automatic Back Door)

INFOID:0000000010283105

1. CHECK BACK DOOR SWITCH

1. Turn ignition switch OFF.
2. Disconnect back door lock assembly connector.
3. Check continuity between back door lock assembly terminals.

Back door lock assembly		Condition		Continuity
Terminal				
3	4	Door switch	Pressed	No
			Released	Yes

Is the inspection result normal?

- YES >> Inspection End.
NO >> Replace back door lock assembly. Refer to [DLK-263, "DOOR LOCK : Removal and Installation"](#).

DOOR LOCK AND UNLOCK SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

DOOR LOCK AND UNLOCK SWITCH

DRIVER SIDE

DRIVER SIDE : Description

INFOID:0000000010283106

Transmits door lock/unlock operation to BCM.

DRIVER SIDE : Component Function Check

INFOID:0000000010283107

1.CHECK FUNCTION

With CONSULT

Check "CDL LOCK SW", "CDL UNLOCK SW" in "Data Monitor" mode with CONSULT.

Monitor item	Condition
CDL LOCK SW	LOCK : ON
	UNLOCK : OFF
CDL UNLOCK SW	LOCK : OFF
	UNLOCK : ON

Is the inspection result normal?

YES >> Door lock and unlock switch is OK.

NO >> Refer to [DLK-155, "DRIVER SIDE : Diagnosis Procedure"](#).

DRIVER SIDE : Diagnosis Procedure

INFOID:0000000010283109

Regarding Wiring Diagram information, refer to [DLK-60, "Wiring Diagram"](#).

1.CHECK POWER WINDOW SWITCH OUTPUT SIGNAL

1. Turn ignition switch ON.
2. Check voltage at the main power window and door lock/unlock switch connector when the switch (driver side) is turned to "LOCK" or "UNLOCK".

Connector	Main power window and door lock/unlock switch state	Terminal	Voltage
D6	Neutral → Unlock	15	Ground Battery voltage → 0
	Neutral → Lock	3	

Is the inspection result normal?

YES >> GO TO 5.

NO >> GO TO 2.

2.CHECK POWER WINDOW SWITCH GROUND

1. Turn ignition switch OFF.
2. Disconnect main power window and door lock/unlock switch connector.
3. Check continuity between main power window and door lock/unlock switch connector and ground.

Main power window and door lock/unlock switch connector	Terminal	Continuity
D6	1	Ground Yes

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness.

DOOR LOCK AND UNLOCK SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

3.CHECK POWER WINDOW SWITCH

Check continuity between main power window and door lock/unlock switch terminals.

Main power window and door lock/unlock switch state	Terminals	Continuity
Unlock	1 - 3	Yes
Lock	1 - 15	
Neutral/Unlock	1 - 15	No
Neutral/Lock	1 - 3	

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace main power window and door lock/unlock switch. Refer to [PWC-64, "Removal and Installation"](#).

4.CHECK POWER WINDOW SWITCH CIRCUITS

1. Disconnect BCM connector.
2. Check continuity between BCM connector and main power window and door lock/unlock switch connector.

BCM connector	Terminal	Main power window and door lock/unlock switch connector	Terminal	Continuity
M18	40	D6	15	Yes
	10		3	

3. Check continuity between BCM connector and ground.

BCM connector	Terminal		Continuity
M18	40	Ground	No
	10		

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace harness.

5.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> Inspection End.

PASSENGER SIDE

PASSENGER SIDE : Description

INFOID:0000000010283110

Transmits door lock/unlock operation to BCM.

PASSENGER SIDE : Component Function Check

INFOID:0000000010283111

1.CHECK FUNCTION

With CONSULT

Check "CDL LOCK SW", "CDL UNLOCK SW" in "Data Monitor" mode with CONSULT.

DOOR LOCK AND UNLOCK SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

Monitor item	Condition	
CDL LOCK SW	LOCK	: ON
	UNLOCK	: OFF
CDL UNLOCK SW	LOCK	: OFF
	UNLOCK	: ON

Is the inspection result normal?

YES >> Door lock and unlock switch is OK.

NO >> Refer to [DLK-157, "PASSENGER SIDE : Diagnosis Procedure"](#).

PASSENGER SIDE : Diagnosis Procedure

INFOID:0000000010283113

Regarding Wiring Diagram information, refer to [DLK-60, "Wiring Diagram"](#).

1.CHECK POWER WINDOW SWITCH OUTPUT SIGNAL

1. Turn ignition switch ON.
2. Check voltage at the front power window and door lock/unlock switch RH connector when the switch (passenger side) is changed to "LOCK" or "UNLOCK".

Connector	Front power window and door lock/unlock switch RH state	Terminal		Voltage
D112	Neutral → Lock	1	Ground	Battery voltage → 0
	Neutral → Unlock	2		

Is the inspection result normal?

YES >> GO TO 5.

NO >> GO TO 2.

2.CHECK POWER WINDOW SWITCH GROUND

1. Turn ignition switch OFF.
2. Disconnect front power window and door lock/unlock switch RH connector.
3. Check continuity between front power window and door lock/unlock switch RH connector and ground.

Front power window and door lock/unlock switch RH connector	Terminal		Continuity
D112	3	Ground	Yes

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness.

3.CHECK POWER WINDOW SWITCH

Check continuity between front power window and door lock/unlock switch RH terminals.

Front power window and door lock/unlock switch RH state	Terminals	Continuity
Lock	1 - 3	Yes
Unlock	2 - 3	
Neutral/Unlock	1 - 3	No
Neutral/Lock	2 - 3	

Is the inspection result normal?

DOOR LOCK AND UNLOCK SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

YES >> GO TO 4.

NO >> Replace front power window and door lock/unlock switch RH. Refer to [PWC-65, "Removal and Installation"](#).

4.CHECK POWER WINDOW SWITCH CIRCUITS

1. Disconnect BCM connector.
2. Check continuity between BCM connector and front power window and door lock/unlock switch RH connector.

BCM connector	Terminal	Front power window and door lock/unlock switch RH connector	Terminal	Continuity
M18	10	D112	1	Yes
	40		2	

3. Check continuity between BCM connector and ground.

BCM connector	Terminal		Continuity
M18	19	Ground	No
	34		

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace harness.

5.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> Inspection End.

DOOR LOCK ACTUATOR

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

DOOR LOCK ACTUATOR

DRIVER SIDE

DRIVER SIDE : Component Function Check

INFOID:0000000010283114

1.CHECK FUNCTION

1. Select "DOOR LOCK" of "BCM" using CONSULT.
2. Select "DOOR LOCK" in "Active Test" mode.
3. Touch "ALL LOCK" or "ALL UNLK" to check that it works normally.

Is the inspection result normal?

YES >> Door lock actuator is OK.

NO >> Refer to [DLK-159, "DRIVER SIDE : Diagnosis Procedure"](#).

DRIVER SIDE : Diagnosis Procedure

INFOID:0000000010283115

Regarding Wiring Diagram information, refer to [DLK-60, "Wiring Diagram"](#).

1.CHECK DOOR LOCK ACTUATOR INPUT SIGNAL

1. Turn ignition switch OFF.
2. Disconnect front door lock assembly LH connector.
3. Check voltage between front door lock assembly LH harness connector and ground.

(+) Front door lock assembly LH		(-)	Condition		Voltage (Approx.)
Connector	Terminal				
D23	1	Ground	Door lock and unlock switch	Lock	Battery voltage
	2			Unlock	

Is the inspection result normal?

YES >> Replace front door lock assembly LH. Refer to [DLK-256, "DOOR LOCK : Removal and Installation"](#).

NO >> GO TO 2.

2.CHECK DOOR LOCK ACTUATOR CIRCUIT

1. Disconnect BCM, all door lock actuator connectors.
2. Check continuity between BCM harness connector and front door lock assembly LH harness connector.

BCM		Front door lock assembly LH		Continuity
Connector	Terminal	Connector	Terminal	
M20	165	D23	1	Yes
	172		2	

3. Check continuity between BCM harness connector and ground.

BCM		Ground	Continuity
Connector	Terminal		
M20	165		No
	172		

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness.

3.CHECK BCM OUTPUT SIGNAL

A
B
C
D
E
F
G
H
I
J
DLK
L
M
N
O
P

DOOR LOCK ACTUATOR

[WITH INTELLIGENT KEY SYSTEM]

< DTC/CIRCUIT DIAGNOSIS >

1. Connect BCM connector.
2. Check voltage between BCM harness connector and ground.

(+) BCM		(-)	Condition		Voltage (Approx.)
Connector	Terminal				
M20	165	Ground	Door lock and unlock switch	Lock	Battery voltage
	172			Unlock	

Is the inspection result normal?

YES >> Replace front door lock assembly LH. Refer to [DLK-256, "DOOR LOCK : Removal and Installation"](#).

NO >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#).

PASSENGER SIDE

PASSENGER SIDE : Component Function Check

INFOID:0000000010283116

1.CHECK FUNCTION

1. Select "DOOR LOCK" of "BCM" using CONSULT.
2. Select "DOOR LOCK" in "Active Test" mode.
3. Touch "ALL LOCK" or "ALL UNLK" to check that it works normally.

Is the inspection result normal?

YES >> Door lock actuator is OK.

NO >> Refer to [DLK-160, "PASSENGER SIDE : Diagnosis Procedure"](#).

PASSENGER SIDE : Diagnosis Procedure

INFOID:0000000010283117

Regarding Wiring Diagram information, refer to [DLK-60, "Wiring Diagram"](#).

1.CHECK DOOR LOCK ACTUATOR INPUT SIGNAL

1. Turn ignition switch OFF.
2. Disconnect front door lock actuator RH connector.
3. Check voltage between front door lock actuator RH harness connector and ground.

(+) Front door lock actuator RH		(-)	Condition		Voltage (Approx.)
Connector	Terminal				
D113	5	Ground	Door lock and unlock switch	Unlock	Battery voltage
	6			Lock	

Is the inspection result normal?

YES >> Replace front door lock actuator RH. Refer to [DLK-256, "DOOR LOCK : Removal and Installation"](#).

NO >> GO TO 2.

2.CHECK DOOR LOCK ACTUATOR CIRCUIT

1. Disconnect BCM, all door lock actuator connectors.
2. Check continuity between BCM harness connector and front door lock actuator RH harness connector.

BCM		Front door lock actuator RH		Continuity
Connector	Terminal	Connector	Terminal	
M20	165	D113	5	Yes
	163		6	

DOOR LOCK ACTUATOR

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

3. Check continuity between BCM harness connector and ground.

BCM		Ground	Continuity
Connector	Terminal		No
M20	165		
	163		

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness.

3.CHECK BCM OUTPUT SIGNAL

1. Connect BCM connector.
2. Check voltage between BCM harness connector and ground.

(+) BCM		(-)	Condition		Voltage (Approx.)
Connector	Terminal				Battery voltage
M20	165	Ground	Door lock and unlock switch	Unlock	
	163			Lock	

Is the inspection result normal?

YES >> Replace front door lock actuator RH. Refer to [DLK-256, "DOOR LOCK : Removal and Installation"](#).

NO >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#).

REAR LH

REAR LH : Component Function Check

INFOID:0000000010283118

1.CHECK FUNCTION

1. Select "DOOR LOCK" of "BCM" using CONSULT.
2. Select "DOOR LOCK" in "Active Test" mode.
3. Touch "ALL LOCK" or "ALL UNLK" to check that it works normally.

Is the inspection result normal?

YES >> Door lock actuator is OK.

NO >> Refer to [DLK-161, "REAR LH : Diagnosis Procedure"](#).

REAR LH : Diagnosis Procedure

INFOID:0000000010283119

Regarding Wiring Diagram information, refer to [DLK-60, "Wiring Diagram"](#).

1.CHECK DOOR LOCK ACTUATOR INPUT SIGNAL

1. Turn ignition switch OFF.
2. Disconnect rear door lock actuator LH connector.
3. Check voltage between rear door lock actuator LH harness connector and ground.

(+) Rear door lock actuator LH		(-)	Condition		Voltage (Approx.)
Connector	Terminal				Battery voltage
D206	1	Ground	Door lock and unlock switch	Lock	
	2			Unlock	

Is the inspection result normal?

YES >> Replace rear door lock actuator LH. Refer to [DLK-260, "DOOR LOCK : Removal and Installation"](#).

A

B

C

D

E

F

G

H

I

J

DLK

L

M

N

O

P

DOOR LOCK ACTUATOR

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

NO >> GO TO 2.

2.CHECK DOOR LOCK ACTUATOR CIRCUIT

1. Disconnect BCM, all door lock actuator connectors.
2. Check continuity between BCM harness connector and rear door lock actuator LH harness connector.

BCM		Rear door lock actuator LH		Continuity
Connector	Terminal	Connector	Terminal	
B23	148	D206	2	Yes
	149		1	

3. Check continuity between BCM harness connector and ground.

BCM		Ground	Continuity
Connector	Terminal		
B23	148		No
	149		

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness.

3.CHECK BCM OUTPUT SIGNAL

1. Connect BCM connector.
2. Check voltage between BCM harness connector and ground.

(+) BCM		(-)	Condition		Voltage (Approx.)
Connector	Terminal				
B23	148	Ground	Door lock and unlock switch	Unlock	Battery voltage
	149			Lock	

Is the inspection result normal?

YES >> Replace rear door lock actuator LH. Refer to [DLK-260. "DOOR LOCK : Removal and Installation"](#).

NO >> Replace BCM. Refer to [BCS-75. "Removal and Installation"](#).

REAR RH

REAR RH : Component Function Check

INFOID:0000000010283120

1.CHECK FUNCTION

1. Select "DOOR LOCK" of "BCM" using CONSULT.
2. Select "DOOR LOCK" in "Active Test" mode.
3. Touch "ALL LOCK" or "ALL UNLK" to check that it works normally.

Is the inspection result normal?

YES >> Door lock actuator is OK.

NO >> Refer to [DLK-162. "REAR RH : Diagnosis Procedure"](#).

REAR RH : Diagnosis Procedure

INFOID:0000000010283121

Regarding Wiring Diagram information, refer to [DLK-60. "Wiring Diagram"](#).

1.CHECK DOOR LOCK ACTUATOR INPUT SIGNAL

1. Turn ignition switch OFF.
2. Disconnect rear door lock actuator RH connector.

DOOR LOCK ACTUATOR

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

3. Check voltage between rear door lock actuator RH harness connector and ground.

(+) Rear door lock actuator RH		(-)	Condition		Voltage (Approx.)
Connector	Terminal				
D306	5	Ground	Door lock and unlock switch	Unlock	Battery voltage
	6			Lock	

Is the inspection result normal?

- YES >> Replace rear door lock actuator RH. Refer to [DLK-260, "DOOR LOCK : Removal and Installation"](#).
NO >> GO TO 2.

2.CHECK DOOR LOCK ACTUATOR CIRCUIT

1. Disconnect BCM, all door lock actuator connectors.
2. Check continuity between BCM harness connector and rear door lock actuator RH harness connector.

BCM		Rear door lock actuator RH		Continuity
Connector	Terminal	Connector	Terminal	
B23	148	D306	6	Yes
	149		5	

3. Check continuity between BCM harness connector and ground.

BCM		Ground	Continuity
Connector	Terminal		
B23	148		No
	149		

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace harness.

3.CHECK BCM OUTPUT SIGNAL

1. Connect BCM connector.
2. Check voltage between BCM harness connector and ground.

(+) BCM		(-)	Condition		Voltage (Approx.)
Connector	Terminal				
B23	148	Ground	Door lock and unlock switch	Unlock	Battery voltage
	149			Lock	

Is the inspection result normal?

- YES >> Replace rear door lock actuator RH. Refer to [DLK-260, "DOOR LOCK : Removal and Installation"](#).
NO >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#).

UNLOCK SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

UNLOCK SENSOR

Component Function Check

INFOID:0000000010283124

1.CHECK FUNCTION

1. Select "INTELLIGENT KEY" of "BCM" using CONSULT.
2. Select "UNLK SEN-DR" in "Data Monitor" mode.
3. Check that the function operates normally according to the following conditions.

Monitor item	Condition		Status
UNLK SEN -DR	Driver side door	Lock	OFF
		Unlock	ON

Is the inspection result normal?

YES >> Unlock sensor is OK.

NO >> Refer to [DLK-164, "Diagnosis Procedure"](#).

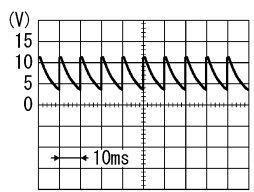
Diagnosis Procedure

INFOID:0000000010283125

Regarding Wiring Diagram information, refer to [DLK-60, "Wiring Diagram"](#).

1.CHECK UNLOCK SENSOR INPUT SIGNAL

1. Turn ignition switch OFF.
2. Disconnect front door lock assembly LH connector.
3. Check signal between front door lock assembly LH harness connector and ground with oscilloscope.

(+) Front door lock assembly LH		(-)	Signal (Reference value)
Connector	Terminal		
D23	3	Ground	

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 2.

2.CHECK UNLOCK SENSOR CIRCUIT

1. Disconnect BCM connector.
2. Check continuity between BCM harness connector and front door lock assembly LH harness connector.

BCM		Front door lock assembly LH		Continuity
Connector	Terminal	Connector	Terminal	
M19	104	D23	3	Yes

3. Check continuity between BCM harness connector and ground.

BCM		Ground	Continuity
Connector	Terminal		
M19	104		No

UNLOCK SENSOR

[WITH INTELLIGENT KEY SYSTEM]

< DTC/CIRCUIT DIAGNOSIS >

Is the inspection result normal?

YES >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#).

NO >> Repair or replace harness.

3.CHECK UNLOCK SENSOR GROUND CIRCUIT

Check continuity between front door lock assembly LH harness connector and ground.

Front door lock assembly LH		Ground	Continuity
Connector	Terminal		
D23	4		Yes

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness.

4.CHECK UNLOCK SENSOR

Refer to [DLK-165, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace front door lock assembly LH. Refer to [DLK-256, "DOOR LOCK : Removal and Installation"](#).

5.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> Inspection End.

Component Inspection

INFOID:0000000010283126

1.CHECK UNLOCK SENSOR

1. Turn ignition switch OFF.
2. Disconnect front door lock assembly LH connector.
3. Check continuity between front door lock assembly LH terminals.

Front door lock assembly LH		Condition		Continuity
Terminal				
3	4	Driver side door	Unlock	Yes
			Lock	No

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace front door lock assembly LH. Refer to [DLK-256, "DOOR LOCK : Removal and Installation"](#).

DOOR KEY CYLINDER SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

DOOR KEY CYLINDER SWITCH

Component Function Check

INFOID:0000000010283127

1.CHECK FUNCTION

1. Select "DOOR LOCK" of "BCM" using CONSULT.
2. Select "KEY CYL LK-SW", "KEY CYL UN-SW" in "Data Monitor" mode.
3. Check that the function operates normally according to the following conditions.

Monitor item	Condition		Status
KEY CYL LK-SW	Driver side door key cylinder	Lock	ON
		Neutral / Unlock	OFF
KEY CYL UN-SW		Unlock	ON
		Neutral / Lock	OFF

Is the inspection result normal?

- YES >> Door key cylinder switch is OK.
NO >> Refer to [DLK-166, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010283128

Regarding Wiring Diagram information, refer to [DLK-60, "Wiring Diagram"](#).

1.CHECK DOOR KEY CYLINDER SWITCH INPUT SIGNAL

1. Turn ignition switch OFF.
2. Disconnect front door lock assembly LH connector.
3. Check voltage between front door lock assembly LH harness connector and ground.

(+) Front door lock assembly LH		(-)	Voltage (Approx.)
Connector	Terminal		
D23	5	Ground	5 V
	6		

Is the inspection result normal?

- YES >> GO TO 3.
NO >> GO TO 2.

2.CHECK DOOR KEY CYLINDER SWITCH SIGNAL CIRCUIT

1. Disconnect the BCM connector.
2. Check continuity between BCM harness connector and front door lock assembly LH harness connector.

BCM		Front door lock assembly LH		Continuity
Connector	Terminal	Connector	Terminal	
M19	92	D23	6	Yes
	93		5	

3. Check continuity between BCM harness connector and ground.

DOOR KEY CYLINDER SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

BCM		Ground	Continuity
Connector	Terminal		
M19	92		No
	93		

Is the inspection result normal?

YES >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#).

NO >> Repair or replace harness.

3.CHECK DOOR KEY CYLINDER SWITCH GROUND CIRCUIT

Check continuity between front door lock assembly LH harness connector and ground.

Front door lock assembly LH		Ground	Continuity
Connector	Terminal		
D23	4		Yes

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness.

4.CHECK DOOR KEY CYLINDER SWITCH

Refer to [DLK-167, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace front door lock assembly LH. Refer to [DLK-256, "DOOR LOCK : Removal and Installation"](#).

5.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> Inspection End.

Component Inspection

INFOID:0000000010283129

DLK

1.CHECK DOOR KEY CYLINDER SWITCH

1. Turn ignition switch OFF.
2. Disconnect front door lock assembly LH connector.
3. Check continuity between front door lock assembly LH terminals.

Front door lock assembly LH		Condition		Continuity
Terminal				
5	4	Driver side door key cylinder	Unlock	Yes
			Neutral / Lock	No
6			Lock	Yes
			Neutral / Unlock	No

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace front door lock assembly LH. Refer to [DLK-256, "DOOR LOCK : Removal and Installation"](#).

DOOR REQUEST SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

DOOR REQUEST SWITCH

Component Function Check

INFOID:0000000010283132

1.CHECK FUNCTION

1. Select "INTELLIGENT KEY" of "BCM" using CONSULT.
2. Select "REQ SW-DR", "REQ SW-AS" in "Data Monitor" mode.
3. Check that the function operates normally according to the following conditions.

Monitor item	Condition		Status
REQ SW -DR	LH door request switch	Pressed	ON
		Released	OFF
REQ SW -AS	RH door request switch	Pressed	ON
		Released	OFF

Is the inspection result normal?

- YES >> Front door request switch is OK.
NO >> Refer to [DLK-168, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010283133

Regarding Wiring Diagram information, refer to [DLK-60, "Wiring Diagram"](#).

1.CHECK DOOR REQUEST SWITCH INPUT SIGNAL

1. Turn ignition switch OFF.
2. Disconnect malfunctioning front door request switch connector.
3. Check voltage between malfunctioning front door request switch harness connector and ground.

(+) Front door request switch		Terminal	(-)	Voltage (Approx.)
Connector				
LH	D11	3	Ground	Battery voltage
RH	D126			

Is the inspection result normal?

- YES >> GO TO 3.
NO >> GO TO 2.

2.CHECK DOOR REQUEST SWITCH CIRCUIT

1. Disconnect BCM connector.
2. Check continuity between malfunctioning front door request switch harness connector and BCM harness connector.

Front door request switch		BCM		Continuity
Connector	Terminal	Connector	Terminal	
LH	D11	M19	105	Yes
RH	D126		82	

3. Check continuity between malfunctioning front door request switch harness connector and ground.

DOOR REQUEST SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

Front door request switch			Ground	Continuity
Connector		Terminal		
LH	D11	3		
RH	D126			No

Is the inspection result normal?

YES >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#).

NO >> Repair or replace harness.

3.CHECK DOOR REQUEST SWITCH GROUND CIRCUIT

Check continuity between malfunctioning front door request switch harness connector and ground.

Front door request switch			Ground	Continuity
Connector		Terminal		
LH	D11	4		
RH	D126			Yes

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness.

4.CHECK DOOR REQUEST SWITCH

Refer to [DLK-169, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace malfunctioning front outside handle assembly. Refer to [DLK-270, "DRIVER SIDE : Removal and Installation"](#) or [DLK-270, "PASSENGER SIDE : Removal and Installation"](#).

5.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> Inspection End.

Component Inspection

INFOID:0000000010283134

DLK

1.CHECK DOOR REQUEST SWITCH

1. Turn ignition switch OFF.
2. Disconnect malfunctioning front door request switch connector.
3. Check continuity between malfunctioning front door request switch terminals.

Front door request switch		Condition		Continuity
Terminal				
3	4	Door request switch	Pressed	Yes
			Released	No

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace malfunctioning front door request switch. Refer to [DLK-270, "DRIVER SIDE : Removal and Installation"](#) or [DLK-270, "PASSENGER SIDE : Removal and Installation"](#).

BACK DOOR REQUEST SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

BACK DOOR REQUEST SWITCH

Component Function Check

INFOID:0000000010283135

1.CHECK FUNCTION

1. Select "INTELLIGENT KEY" of "BCM" using CONSULT.
2. Select "REQ SW-BD/TR" in "Data Monitor" mode.
3. Check that the function operates normally according to the following conditions.

Monitor item	Condition		Status
REQ SW-BD/TR	Back door request switch	Pressed	On
		Released	Off

Is the inspection result normal?

YES >> Back door request switch is OK.

NO >> Refer to [DLK-170, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010283136

Regarding Wiring Diagram information, refer to [DLK-86, "Wiring Diagram"](#).

1.CHECK BACK DOOR REQUEST SWITCH INPUT SIGNAL

1. Turn ignition switch OFF.
2. Disconnect back door opener switch connector.
3. Check voltage between back door opener switch harness connector and ground.

(+)		(-)	Voltage (Approx.)
Back door opener switch			
Connector	Terminal		
D509	4	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 2.

2.CHECK BACK DOOR REQUEST SWITCH CIRCUIT

1. Disconnect BCM connector.
2. Check continuity between BCM harness connector and back door opener switch harness connector.

BCM		Back door opener switch		Continuity
Connector	Terminal	Connector	Terminal	
B16	46	D509	4	Yes

3. Check continuity between BCM harness connector and ground.

BCM		Ground	Continuity
Connector	Terminal		
B16	46		No

Is the inspection result normal?

YES >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#).

NO >> Repair or replace harness.

3.CHECK BACK DOOR REQUEST SWITCH GROUND CIRCUIT

Check continuity between back door opener switch harness connector and ground.

BACK DOOR REQUEST SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

Back door opener switch		Ground	Continuity
Connector	Terminal		
D509	3		Yes

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness.

4.CHECK BACK DOOR REQUEST SWITCH

Refer to [DLK-171, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace back door opener switch. Refer to [DLK-278, "Removal and Installation"](#).

5.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> Inspection End.

Component Inspection

INFOID:0000000010283137

1.CHECK BACK DOOR REQUEST SWITCH

1. Turn ignition switch OFF.
2. Disconnect back door opener switch assembly connector.
3. Check continuity between back door opener switch assembly terminals.

Back door opener switch assembly		Condition		Continuity
Terminal				
3	4	Back door request switch	Pressed	Yes
			Released	No

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace back door opener switch assembly. Refer to [DLK-278, "Removal and Installation"](#).

BACK DOOR OPENER SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

BACK DOOR OPENER SWITCH

Component Function Check

INFOID:0000000010283138

1.CHECK FUNCTION

1. Select "TRUNK" of "BCM" using CONSULT.
2. Select "TR/BD OPEN SW" in "Data Monitor" mode.
3. Check that the function operates normally according to the following conditions.

Monitor item	Condition		Status
TR/BD OPEN SW	Back door opener switch	Pressed	ON
		Released	OFF

Is the inspection result normal?

- YES >> Back door opener switch is OK.
NO >> Refer to [DLK-172, "Diagnosis Procedure"](#).

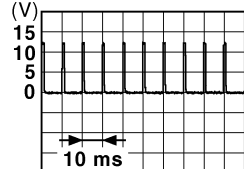
Diagnosis Procedure

INFOID:0000000010283139

Regarding Wiring Diagram information, refer to [DLK-86, "Wiring Diagram"](#).

1.CHECK BACK DOOR OPEN INPUT SIGNAL

1. Turn ignition switch OFF.
2. Disconnect back door opener switch connector.
3. Check signal between back door opener switch harness connector and ground.

(+)		(-)	Signal (Reference value)
Back door opener switch			
Connector	Terminal		
D507 (with power back door) D509 (without power back door)	1	Ground	

JPMIA0012GB

JPMIA0012GB

Is the inspection result normal?

- YES >> GO TO 3.
NO >> GO TO 2.

2.CHECK BACK DOOR OPENER SWITCH CIRCUIT

1. Disconnect BCM connector.
2. Check continuity between BCM harness connector and back door opener switch harness connector.

BCM		Back door opener switch		Continuity
Connector	Terminal	Connector	Terminal	
B16	56	D507 (with power back door) D509 (without power back door)	1	Yes

3. Check continuity between BCM harness connector and ground.

BACK DOOR OPENER SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

BCM		Ground	Continuity
Connector	Terminal		
B16	56		No

Is the inspection result normal?

YES >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#).

NO >> Repair or replace harness.

3.CHECK BACK DOOR OPENER SWITCH GROUND CIRCUIT

Check continuity between back door opener switch harness connector and ground.

Back door opener switch		Ground	Continuity
Connector	Terminal		
D507 (with power back door) D509 (without power back door)	2		Yes

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness.

4.CHECK BACK DOOR OPENER SWITCH

Refer to [DLK-173, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace back door opener switch. Refer to [DLK-278, "Removal and Installation"](#).

5.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> Inspection End.

Component Inspection

INFOID:0000000010283140

DLK

1.CHECK BACK DOOR OPENER SWITCH

1. Turn ignition switch OFF.
2. Disconnect back door opener switch connector.
3. Check continuity between back door opener switch terminals.

Back door opener switch assembly		Condition		Continuity
Terminal				
1	2	Back door opener switch	Pressed	Yes
			Released	No

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace back door opener switch. Refer to [DLK-278, "Removal and Installation"](#).

INTELLIGENT KEY WARNING BUZZER

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

INTELLIGENT KEY WARNING BUZZER

Component Function Check

INFOID:0000000010283141

1.CHECK FUNCTION

1. Select "INTELLIGENT KEY" of "BCM" using CONSULT.
2. Select "OUTSIDE BUZZER" in "Active Test" mode.
3. Touch "On" or "Off" to check that it works normally.

Is the inspection result normal?

- YES >> Intelligent Key warning buzzer is OK.
NO >> Refer to [DLK-174, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010283142

Regarding Wiring Diagram information, refer to [DLK-69, "Wiring Diagram"](#).

1.CHECK INTELLIGENT KEY WARNING BUZZER CIRCUIT

1. Disconnect BCM connector.
2. Check continuity between BCM harness connector and Intelligent Key warning buzzer harness connector.

BCM		Intelligent Key warning buzzer		Continuity
Connector	Terminal	Connector	Terminal	
E29	132	E24	1	Yes

3. Check continuity between BCM harness connector and ground.

BCM		Ground	Continuity
Connector	Terminal		
E29	132		No

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace harness.

2.CHECK INTELLIGENT KEY WARNING BUZZER

Refer to [DLK-174, "Component Inspection"](#).

Is the inspection result normal?

- YES >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#).
NO >> Replace Intelligent Key warning buzzer. Refer to [DLK-273, "Removal and Installation"](#).

Component Inspection

INFOID:0000000010283143

1.CHECK INTELLIGENT KEY WARNING BUZZER

1. Turn ignition switch OFF.
2. Disconnect Intelligent Key warning buzzer connector.
3. Connect battery power supply directly to Intelligent Key warning buzzer terminals and check the operation.

Intelligent Key warning buzzer		Operation
Terminal		
(+)	(-)	
1	3	Buzzer sounds

Is the inspection result normal?

INTELLIGENT KEY WARNING BUZZER

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

YES >> Inspection End.

NO >> Replace Intelligent Key warning buzzer. Refer to [DLK-273, "Removal and Installation"](#).

A

B

C

D

E

F

G

H

I

J

DLK

L

M

N

O

P

INTELLIGENT KEY

Component Function Check

INFOID:000000010283144

NOTE:

The Signal Tech II Tool [- (J-50190)] can be used to perform the following functions. Refer to the Signal Tech II User Guide for additional information.

- Check Intelligent Key relative signal strength.
- Confirm vehicle Intelligent Key antenna signal strength.

1.CHECK FUNCTION

1. Select "INTELLIGENT KEY" of "BCM" using CONSULT.
2. Select "RKE OPE COUN1" in "Data Monitor" mode.
3. Check that the function operates normally according to the following conditions.

Monitor item	Condition
RKE OPE COUN1	Check that the numerical value is changing while operating on the Intelligent Key.

Is the inspection result normal?

- YES >> Intelligent Key is OK.
 NO >> Refer to [DLK-176, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000010283145

NOTE:

The Signal Tech II Tool [- (J-50190)] can be used to perform the following functions. Refer to the Signal Tech II User Guide for additional information.

- Check Intelligent Key relative signal strength.
- Confirm vehicle Intelligent Key antenna signal strength.

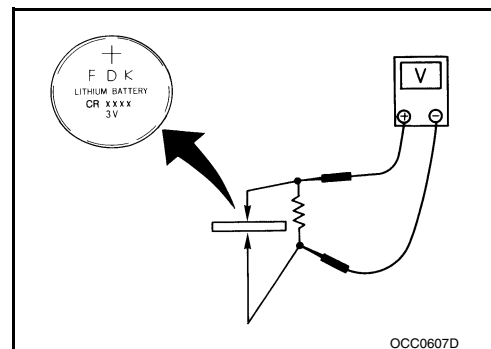
1.CHECK INTELLIGENT KEY BATTERY

Check by connecting a resistance (approximately 300Ω) so that the current value becomes about 10 mA. Refer to [DLK-275, "Removal and Installation"](#).

Standard : Approx. 2.5 - 3.0V

Is the measurement value within the specification?

- YES >> Replace Intelligent Key.
 NO >> Replace Intelligent Key battery.



METER BUZZER CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

METER BUZZER CIRCUIT

Description

INFOID:0000000010283146

- The buzzer for the warning chime system is installed in the combination meter.
- The combination meter sounds the buzzer based on the signals transmitted from various units.

Component Function Check

INFOID:0000000010283147

1. CHECK OPERATION OF METER BUZZER

1. Select "BUZZER" of "BCM" on CONSULT.
2. Perform "LIGHT WARN ALM" or "SEAT BELT WARN TEST" of "Active Test".

Does meter buzzer activate?

- YES >> Inspection End.
NO >> Refer to [DLK-177. "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010283148

1. CHECK COMBINATION METER INPUT SIGNAL

Select the "Data Monitor" for the "METER/M&A" and check the "BUZZER" monitor value.

BUZZER
Under the condition of buzzer input : On
Except above : Off

Is the inspection result normal?

- YES >> Replace combination meter. Refer to [MWI-82. "Removal and Installation"](#).
NO >> Replace BCM. Refer to [BCS-75. "Removal and Installation"](#).

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

DLK

KEY WARNING LAMP

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

KEY WARNING LAMP

Component Function Check

INFOID:0000000010283149

1.CHECK FUNCTION

1. Select "INTELLIGENT KEY" of "BCM" using CONSULT.
2. Select "INDICATOR" in "Active Test" mode.
3. Touch "KEY IND" or "KEY ON" to check that it works normally.

Is the inspection result normal?

- YES >> Key warning lamp is OK.
NO >> Refer to [DLK-178. "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010283150

1.CHECK KEY WARNING LAMP

Refer to [MWI-21. "CONSULT Function \(METER/M&A\)"](#).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace the malfunctioning parts.

2.CHECK INTERMITTENT INCIDENT

Refer to [GI-41. "Intermittent Incident"](#).

>> Inspection End.

HAZARD FUNCTION

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

HAZARD FUNCTION

Component Function Check

INFOID:0000000010283151

1.CHECK FUNCTION

1. Select "INTELLIGENT KEY" of "BCM" using CONSULT.
2. Select "FLASHER" in "Active Test" mode.
3. Touch "LH" or "RH" to check that it works normally.

Is the inspection result normal?

YES >> Hazard warning lamp circuit is OK.

NO >> Refer to [DLK-179. "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010283152

1.CHECK HAZARD SWITCH CIRCUIT

Refer to [EXL-229. "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning parts.

2.CHECK INTERMITTENT INCIDENT

Refer to [GI-41. "Intermittent Incident"](#).

>> Inspection End.

A

B

C

D

E

F

G

H

I

J

DLK

L

M

N

O

P

AUTOMATIC BACK DOOR CLOSE SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

AUTOMATIC BACK DOOR CLOSE SWITCH

Component Function Check

INFOID:0000000010283153

1.CHECK FUNCTION

1. Select "AUTO BACK DOOR" using CONSULT.
2. Select "BK DOOR CL SW" in "Data Monitor" mode.
3. Check that the function operates normally according to the following conditions.

Monitor item	Condition		Status
BK DOOR CL SW	Automatic back door close switch	Pressed	ON
		Released	OFF

Is the inspection result normal?

- YES >> Automatic back door close switch is OK.
NO >> Refer to [DLK-180, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010283154

Regarding Wiring Diagram information, refer to [DLK-86, "Wiring Diagram"](#).

1.CHECK AUTOMATIC BACK DOOR CLOSE SWITCH INPUT SIGNAL

1. Turn ignition switch OFF.
2. Disconnect automatic back door close switch connector.
3. Check voltage between automatic back door close switch harness connector and ground.

(+)		(-)	Voltage (Approx.)
Automatic back door close switch			
Connector	Terminal		
D513	1	Ground	Battery voltage

Is the inspection result normal?

- YES >> GO TO 3.
NO >> GO TO 2.

2.CHECK AUTOMATIC BACK DOOR CLOSE SWITCH CIRCUIT

1. Disconnect automatic back door control module connector.
2. Check continuity between automatic back door control module harness connector and automatic back door close switch harness connector.

Automatic back door control module		Automatic back door close switch		Continuity
Connector	Terminal	Connector	Terminal	
B55	23	D513	1	Yes

3. Check continuity between automatic back door control module harness connector and ground.

Automatic back door control module		Ground	Continuity
Connector	Terminal		
B55	23	Ground	No

Is the inspection result normal?

- YES >> Replace automatic back door control module. Refer to [DLK-276, "Removal and Installation"](#).
NO >> Repair or replace harness.

3.CHECK AUTOMATIC BACK DOOR CLOSE SWITCH GROUND CIRCUIT

AUTOMATIC BACK DOOR CLOSE SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

Check continuity between automatic back door close switch harness connector and ground.

Automatic back door close switch		Ground	Continuity
Connector	Terminal		
D513	2		Yes

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness.

4.CHECK AUTOMATIC BACK DOOR CLOSE SWITCH

Refer to [DLK-181, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace automatic back door close switch. Refer to [DLK-279, "Removal and Installation"](#).

5.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> Inspection End.

Component Inspection

INFOID:0000000010283155

1.CHECK AUTOMATIC BACK DOOR CLOSE SWITCH

1. Turn ignition switch OFF.
2. Disconnect automatic back door close switch connector.
3. Check continuity between automatic back door close switch terminals.

Automatic back door close switch		Condition		Continuity
Terminal				
1	2	Automatic back door close switch	Pressed	Yes
			Released	No

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace automatic back door close switch. Refer to [DLK-279, "Removal and Installation"](#).

AUTOMATIC BACK DOOR MAIN SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

AUTOMATIC BACK DOOR MAIN SWITCH

Component Function Check

INFOID:0000000010283156

1.CHECK FUNCTION

1. Select "AUTO BACK DOOR" using CONSULT.
2. Select "MAIN SW" in "Data Monitor" mode.
3. Check that the function operates normally according to the following conditions.

Monitor item	Condition		Status
MAIN SW	Automatic back door main switch	ON	ON
		OFF	OFF

Is the inspection result normal?

- YES >> Automatic back door main switch is OK.
NO >> Refer to [DLK-182, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010283157

Regarding Wiring Diagram information, refer to [DLK-86, "Wiring Diagram"](#).

1.CHECK AUTOMATIC BACK DOOR MAIN SWITCH INPUT SIGNAL

1. Turn ignition switch OFF.
2. Disconnect automatic back door main switch connector.
3. Check voltage between automatic back door main switch harness connector and ground.

(+)		(-)	Voltage (Approx.)
Automatic back door main switch			
Connector	Terminal		
M178	1	Ground	Battery voltage

Is the inspection result normal?

- YES >> GO TO 3.
NO >> GO TO 2.

2.CHECK AUTOMATIC BACK DOOR MAIN SWITCH CIRCUIT

1. Disconnect automatic back door control module connector.
2. Check continuity between automatic back door control module harness connector and automatic back door main switch harness connector.

Automatic back door control module		Automatic back door main switch		Continuity
Connector	Terminal	Connector	Terminal	
B55	10	M178	1	Yes

3. Check continuity between automatic back door control module connector and ground.

Automatic back door control module		Ground	Continuity
Connector	Terminal		
B55	10		No

Is the inspection result normal?

- YES >> Replace automatic back door control module. Refer to [DLK-276, "Removal and Installation"](#).
NO >> Repair or replace harness.

3.CHECK AUTOMATIC BACK DOOR MAIN SWITCH GROUND CIRCUIT

AUTOMATIC BACK DOOR MAIN SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

Check continuity between automatic back door main switch connector and ground.

Automatic back door main switch		Ground	Continuity
Connector	Terminal		
M178	3		Yes

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness.

4.CHECK AUTOMATIC BACK DOOR MAIN SWITCH

Refer to [DLK-183, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace automatic back door main switch. Refer to [DLK-277, "Removal and Installation"](#).

5.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> Inspection End.

Component Inspection

INFOID:0000000010283158

1.CHECK AUTOMATIC BACK DOOR MAIN SWITCH

1. Turn ignition switch OFF.
2. Disconnect automatic back door switch connector.
3. Check continuity between automatic back door main switch terminals.

Automatic back door main switch		Condition		Continuity
Terminal				
1	3	Automatic back door main switch	ON	Yes
			OFF	No

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace automatic back door main switch. Refer to [DLK-277, "Removal and Installation"](#).

AUTOMATIC BACK DOOR SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

AUTOMATIC BACK DOOR SWITCH

Component Function Check

INFOID:0000000010283159

1.CHECK FUNCTION

1. Select "AUTO BACK DOOR" using CONSULT.
2. Select "AUTO BD SW" in "Data Monitor" mode.
3. Check that the function operates normally according to the following conditions.

Monitor item	Condition		Status
AUTO BD SW	Automatic back door switch	Pressed	ON
		Released	OFF

Is the inspection result normal?

- YES >> Automatic back door switch is OK.
NO >> Refer to [DLK-184, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010283160

Regarding Wiring Diagram information, refer to [DLK-86, "Wiring Diagram"](#).

1.CHECK AUTOMATIC BACK DOOR SWITCH INPUT SIGNAL

1. Turn ignition switch OFF.
2. Disconnect automatic back door switch connector.
3. Check voltage between automatic back door switch harness connector and ground.

(+)		(-)	Voltage (Approx.)
Automatic back door switch			
Connector	Terminal		
M24	1	Ground	Battery voltage

Is the inspection result normal?

- YES >> GO TO 3.
NO >> GO TO 2.

2.CHECK AUTOMATIC BACK DOOR SWITCH CIRCUIT

1. Disconnect automatic back door control module connector.
2. Check continuity between automatic back door control module harness connector and automatic back door switch harness connector.

Automatic back door control module		Automatic back door switch		Continuity
Connector	Terminal	Connector	Terminal	
B55	22	M24	1	Yes

3. Check continuity between automatic back door control module harness connector and ground.

Automatic back door control module		Ground	Continuity
Connector	Terminal		
B55	22		No

Is the inspection result normal?

- YES >> Replace automatic back door control module. Refer to [DLK-276, "Removal and Installation"](#).
NO >> Repair or replace harness.

3.CHECK AUTOMATIC BACK DOOR SWITCH GROUND CIRCUIT

AUTOMATIC BACK DOOR SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

Check continuity between automatic back door switch harness connector and ground.

Automatic back door switch		Ground	Continuity
Connector	Terminal		
M24	2		Yes

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness.

4.CHECK AUTOMATIC BACK DOOR SWITCH

Refer to [DLK-185, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace automatic back door switch. Refer to [DLK-278, "Removal and Installation"](#).

5.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> Inspection End.

Component Inspection

INFOID:0000000010283161

1.CHECK AUTOMATIC BACK DOOR SWITCH

1. Turn ignition switch OFF.
2. Disconnect automatic back door switch connector.
3. Check continuity between automatic back door switch terminals.

Automatic back door switch		Condition		Continuity
Terminal				
1	2	Automatic back door switch	Pressed	Yes
			Released	No

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace automatic back door switch. Refer to [DLK-278, "Removal and Installation"](#).

HALF LATCH SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

HALF LATCH SWITCH

Component Function Check

INFOID:0000000010283162

1.CHECK FUNCTION

1. Select "AUTO BACK DOOR" using CONSULT.
2. Select "HALF LATCH SW" in "Data Monitor" mode.
3. Check that the function operates normally according to the following conditions.

Monitor item	Condition		Status
HALF LATCH SW	Back door	Fully closed/Half latch	OFF
		Open	ON

Is the inspection result normal?

YES >> Half latch switch is OK.

NO >> Refer to [DLK-186, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010283163

Regarding Wiring Diagram information, refer to [DLK-86, "Wiring Diagram"](#).

1.CHECK HALF LATCH SWITCH INPUT SIGNAL

1. Turn ignition switch OFF.
2. Disconnect back door lock assembly connector.
3. Check voltage between back door lock assembly harness connector and ground.

(-)		(-)	Voltage (Approx.)
Back door lock assembly			
Connector	Terminal		
D512	6	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 2.

2.CHECK HALF LATCH SWITCH CIRCUIT

1. Disconnect automatic back door control module connector.
2. Check continuity between automatic back door control module harness connector.

Automatic back door control module		Back door lock assembly		Continuity
Connector	Terminal	Connector	Terminal	
B55	3	D512	6	Yes

3. Check continuity between automatic back door control module harness connector and ground.

Automatic back door control module		Ground	Continuity
Connector	Terminal		
B55	3		No

Is the inspection result normal?

YES >> Replace automatic back door control module. Refer to [DLK-276, "Removal and Installation"](#).

NO >> Repair or replace harness.

3.CHECK HALF LATCH SWITCH GROUND CIRCUIT

Check continuity between back door lock assembly harness connector and ground.

HALF LATCH SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

Back door lock assembly		Ground	Continuity
Connector	Terminal		
D512	3		Yes

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness.

4.CHECK HALF LATCH SWITCH

Refer to [DLK-187, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace back door lock assembly. Refer to [DLK-263, "DOOR LOCK : Removal and Installation"](#).

5.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> Inspection End.

Component Inspection

INFOID:0000000010283164

COMPONENT INSPECTION

1.CHECK HALF LATCH SWITCH

1. Turn ignition switch OFF.
2. Disconnect back door lock assembly connector.
3. Check continuity between back door lock assembly terminals.

Back door lock assembly		Condition		Continuity
Terminal				
6	8	Back door	Open	Yes
			Fully closed/Half latch	No

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace back door lock assembly. Refer to [DLK-263, "DOOR LOCK : Removal and Installation"](#).

TOUCH SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

TOUCH SENSOR

RH

RH : Component Function Check

INFOID:0000000010283165

1.CHECK FUNCTION

1. Select "AUTOMATIC BACK DOOR" using CONSULT.
2. Select "TOUCH SEN RH" in "Data Monitor" mode.
3. Check that the function operates normally according to the following conditions.

Monitor item		Condition	Status
TOUCH SEN RH	Touch sensor RH	Other than below	OFF
		Detect obstruction	ON

Is the inspection result normal?

YES >> Touch sensor RH is OK.

NO >> Refer to [DLK-188, "RH : Diagnosis Procedure"](#).

RH : Diagnosis Procedure

INFOID:0000000010283166

Regarding Wiring Diagram information, refer to [DLK-86, "Wiring Diagram"](#).

1.CHECK TOUCH SENSOR INPUT SIGNAL

1. Turn ignition switch OFF.
2. Check voltage between touch sensor RH harness connector and automatic back door control module harness connector.

(+)		(−)		Condition		Voltage (Approx.)
Touch sensor RH		Automatic back door control module				
Connector	Terminal	Connector	Terminal			
D515	1	B55	13	Touch sensor RH	Detect obstruction	1.8 – 5 V
					Other than above	2.72 – 7.27 V

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 2.

2.CHECK TOUCH SENSOR RH CIRCUIT

1. Disconnect automatic back door control module and touch sensor RH connector.
2. Check continuity between automatic back door control module harness connector and touch sensor RH harness connector.

Automatic back door control module		Touch sensor RH		Continuity
Connector	Terminal	Connector	Terminal	
B55	1	D515	2	Yes

3. Check continuity between automatic back door control module harness connector and ground.

Automatic back door control module		Ground	Continuity
Connector	Terminal		
B55	2		No

TOUCH SENSOR

[WITH INTELLIGENT KEY SYSTEM]

< DTC/CIRCUIT DIAGNOSIS >

Is the inspection result normal?

- YES >> Replace automatic back door control module. Refer to [DLK-276, "Removal and Installation"](#).
NO >> Repair or replace harness.

3.CHECK TOUCH SENSOR RH GROND CIRCUIT

1. Disconnect automatic back door control module and touch sensor RH connector.
2. Check continuity between automatic back door control module harness connector and touch sensor RH harness connector.

Automatic back door control module		Touch sensor RH		Continuity
Connector	Terminal	Connector	Terminal	
B55	13	D515	2	Yes

3. Check continuity between automatic back door control module harness connector and ground.

Automatic back door control module		Ground	Continuity
Connector	Terminal		
B55	13		No

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Repair or replace harness.

4.CHECK TOUCH SENSOR RH GROND CIRCUIT 2

1. Connect automatic back door control module and touch sensor RH connector.
2. Check voltage between automatic back door control module harness connector and ground.

Automatic back door control module		Ground	Voltage (Approx.)
Connector	Terminal		
B55	13	Ground	0.01 – 0 V

Is the inspection result normal?

- YES >> GO TO 5.
NO >> Repair or replace harness.

5.CHECK TOUCH SENSOR RH

Refer to [DLK-189, "RH : Component Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 6.
NO >> Replace touch sensor RH. Refer to [DLK-264, "TOUCH SENSOR : Removal and Installation"](#).

6.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> Inspection End.

RH : Component Inspection

INFOID:0000000010283167

1.CHECK TOUCH SENSOR RH

1. Turn ignition switch OFF.
2. Disconnect touch sensor RH connector.
3. Check resistance between touch sensor RH terminals.

TOUCH SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

Touch sensor RH		Condition		Resistance (Approx.)
Terminal				
1	2	Touch sensor RH	Detect obstruction	380 – 420 kΩ
			Other than above	0.95 – 1.05 kΩ

Is the inspection result normal?

YES >> Inspection End.
 NO >> Replace touch sensor RH. Refer to [DLK-264, "TOUCH SENSOR : Removal and Installation"](#).
 LH

LH : Component Function Check

INFOID:0000000010283168

1.CHECK FUNCTION

1. Select "AUTOMATIC BACK DOOR" using CONSULT.
2. Select "TOUCH SEN LH" in "Data Monitor" mode.
3. Check that the function operates normally according to the following conditions.

Monitor item	Condition		Status
TOUCH SEN LH	Touch sensor LH	Other than below	OFF
		Detect obstruction	ON

Is the inspection result normal?

YES >> Touch sensor LH is OK.
 NO >> Refer to [DLK-190, "LH : Diagnosis Procedure"](#).

LH : Diagnosis Procedure

INFOID:0000000010283169

Regarding Wiring Diagram information, refer to [DLK-86, "Wiring Diagram"](#).

1.CHECK TOUCH SENSOR INPUT SIGNAL

1. Turn ignition switch OFF.
2. Check voltage between touch sensor LH harness connector and automatic back door control module harness connector.

(+)		(-)		Condition		Voltage (Approx.)
Touch sensor LH		Automatic back door control module				
Connector	Terminal	Connector	Terminal			
D511	2	B55	13	Touch sensor LH	Detect obstruction	1.8 – 5 V
					Other than above	2.72 – 7.27 V

Is the inspection result normal?

YES >> GO TO 3.
 NO >> GO TO 2.

2.CHECK TOUCH SENSOR LH CIRCUIT

1. Disconnect automatic back door control module and touch sensor LH connector.
2. Check continuity between automatic back door control module harness connector and touch sensor LH harness connector.

TOUCH SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

Automatic back door control module		Touch sensor LH		Continuity
Connector	Terminal	Connector	Terminal	
B55	2	D511	1	Yes

3. Check continuity between automatic back door control module harness connector and ground.

Automatic back door control module		Ground	Continuity
Connector	Terminal		
B55	2		No

Is the inspection result normal?

YES >> Replace automatic back door control module. Refer to [DLK-276, "Removal and Installation"](#).

NO >> Repair or replace harness.

3.CHECK TOUCH SENSOR LH GROND CIRCUIT

- Disconnect automatic back door control module and touch sensor LH connector.
- Check continuity between automatic back door control module harness connector and touch sensor LH harness connector.

Automatic back door control module		Touch sensor LH		Continuity
Connector	Terminal	Connector	Terminal	
B55	13	D511	2	Yes

3. Check continuity between automatic back door control module harness connector and ground.

Automatic back door control module		Ground	Continuity
Connector	Terminal		
B55	13		No

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness.

4.CHECK TOUCH SENSOR LH GROND CIRCUIT 2

- Connect automatic back door control module and touch sensor LH connector.
- Check voltage between automatic back door control module harness connector and ground.

Automatic back door control module		Ground	Voltage (Approx.)
Connector	Terminal		
B55	13	Ground	0.01 – 0 V

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace harness.

5.CHECK TOUCH SENSOR LH

Refer to [DLK-192, "LH : Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 6.

NO >> Replace touch sensor LH. Refer to [DLK-264, "TOUCH SENSOR : Removal and Installation"](#).

6.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> Inspection End.

TOUCH SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

LH : Component Inspection

INFOID:0000000010283170

1. CHECK TOUCH SENSOR LH

1. Turn ignition switch OFF.
2. Disconnect touch sensor LH connector.
3. Check resistance between touch sensor LH terminals.

Touch sensor LH		Condition		Resistance (Approx.)
Terminal				
1	2	Touch sensor LH	Detect obstruction	380 – 420 kΩ
			Other than above	0.95 – 1.05 kΩ

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace touch sensor LH. Refer to [DLK-264, "TOUCH SENSOR : Removal and Installation"](#).

SPINDLE MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

SPINDLE MOTOR

RH

RH : Diagnosis Procedure

INFOID:0000000010283171

Regarding Wiring Diagram information, refer to [DLK-86. "Wiring Diagram"](#).

1.CHECK SPINDLE MOTOR INPUT SIGNAL

1. Turn ignition switch OFF.
2. Disconnect spindle unit RH connector.
3. Check voltage between spindle unit RH harness connector and ground.

(+) Spindle unit RH		(-)	Condition		Voltage (Approx.)
Connector	Terminal				
B73	1	Ground	Back door	Auto open operation	Battery voltage
	7			Auto close operation	

Is the inspection result normal?

- YES >> Replace spindle unit RH. Refer to [DLK-263. "SPINDLE UNIT : Removal and Installation"](#).
NO >> GO TO 2.

2.CHECK SPINDLE MOTOR CIRCUIT

1. Disconnect automatic back door control module connector.
2. Check continuity between automatic back door control module harness connector and spindle unit harness connector.

Automatic back door control module		Spindle unit RH		Continuity
Connector	Terminal	Connector	Terminal	
B56	29	B73	1	Yes
	36		7	

3. Check continuity between automatic back door control module harness connector and ground.

Automatic back door control module		Ground	Continuity
Connector	Terminal		
B56	29		No
	36		

Is the inspection result normal?

- YES >> Replace automatic back door control module. Refer to [DLK-276. "Removal and Installation"](#).
NO >> Repair or replace harness.

LH

LH : Diagnosis Procedure

INFOID:0000000010283172

Regarding Wiring Diagram information, refer to [DLK-86. "Wiring Diagram"](#).

1.CHECK SPINDLE MOTOR INPUT SIGNAL

1. Turn ignition switch OFF.

SPINDLE MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

2. Disconnect spindle unit LH connector.
3. Check voltage between spindle unit LH harness connector and ground.

(+) Spindle unit LH		(-)	Condition		Voltage (Approx.)
Connector	Terminal				
B95	1	Ground	Back door	Auto open operation	Battery voltage
	7			Auto close operation	

Is the inspection result normal?

- YES >> Replace spindle unit LH. Refer to [DLK-263, "SPINDLE UNIT : Removal and Installation"](#).
 NO >> GO TO 2.

2.CHECK SPINDLE MOTOR CIRCUIT

1. Disconnect automatic back door control module connector.
2. Check continuity between automatic back door control module harness connector and spindle unit LH harness connector.

Automatic back door control module		Spindle unit LH		Continuity
Connector	Terminal	Connector	Terminal	
B56	27	B95	1	Yes
	34		7	

3. Check continuity between automatic back door control module harness connector and ground.

Automatic back door control module		Ground	Continuity
Connector	Terminal		
B56	27		No
	34		

Is the inspection result normal?

- YES >> Replace automatic back door control module. Refer to [DLK-276, "Removal and Installation"](#).
 NO >> Repair or replace harness.

BACK DOOR CLOSURE MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

BACK DOOR CLOSURE MOTOR

Diagnosis Procedure

INFOID:000000010283173

Regarding Wiring Diagram information, refer to [DLK-86. "Wiring Diagram"](#).

1. CHECK BACK DOOR CLOSURE MOTOR INPUT SIGNAL

1. Turn ignition switch OFF.
2. Disconnect back door lock assembly connector.
3. Check voltage between back door lock assembly harness connector and ground.

(+) Back door lock assembly		(-)	Condition		Voltage (Approx.)
Connector	Terminal				
D512	1	Ground	Back door opener switch	Pressed	Battery voltage
	2			Released	0 V

Is the inspection result normal?

- YES >> Replace back door lock assembly. Refer to [DLK-263. "DOOR LOCK : Removal and Installation"](#).
NO >> GO TO 2.

2. CHECK BACK DOOR CLOSURE MOTOR CIRCUIT

1. Disconnect automatic back door control module connector.
2. Check continuity between automatic back door control module harness connector and back door lock assembly harness connector.

Automatic back door control module		Back door lock assembly		Continuity
Connector	Terminal	Connector	Terminal	
B56	31	D512	1	Yes
	38		2	

3. Check continuity between automatic back door control module harness connector and ground.

Automatic back door control module		Ground	Continuity
Connector	Terminal		
B56	31		No
	38		

Is the inspection result normal?

- YES >> Replace automatic back door control module. Refer to [DLK-276. "Removal and Installation"](#).
NO >> Repair or replace harness.

AUTOMATIC BACK DOOR WARNING BUZZER

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

AUTOMATIC BACK DOOR WARNING BUZZER

Diagnosis Procedure

INFOID:0000000010283174

Regarding Wiring Diagram information, refer to [DLK-86, "Wiring Diagram"](#).

1. CHECK BACK DOOR WARNING CHIME POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect back door warning chime connector.
3. Check voltage between back door warning chime harness connector and ground.

(+)		(-)	Voltage (Approx.)
Back door warning chime			
Connector	Terminal		
B61	1	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 2.

2. CHECK BACK DOOR WARNING CHIME OUTPUT SIGNAL CIRCUIT

1. Disconnect automatic back door control module connector.
2. Check continuity between automatic back door control module harness connector and back door warning chime harness connector.

Automatic back door control module		Back door warning chime		Continuity
Connector	Terminal	Connector	Terminal	
B56	37	B61	1	Yes

3. Check continuity between automatic back door control module harness connector and ground.

Automatic back door control module		Ground	Continuity
Connector	Terminal		
B56	37		No

Is the inspection result normal?

YES >> Replace automatic back door control module. Refer to [DLK-276, "Removal and Installation"](#).

NO >> Repair or replace harness.

3. CHECK BACK DOOR WARNING CHIME GROUND CIRCUIT

Check continuity between back door warning chime harness connector and ground.

Back door warning chime		Ground	Continuity
Connector	Terminal		
B61	2		Yes

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness.

4. CHECK BACK DOOR WARNING CHIME

Refer to [DLK-197, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace back door warning chime. Refer to [DLK-274, "Removal and Installation"](#).

AUTOMATIC BACK DOOR WARNING BUZZER

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

5.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> Inspection End.

Component Inspection

INFOID:0000000010283175

1.CHECK BACK DOOR WARNING CHIME

1. Turn ignition switch OFF.
2. Disconnect back door warning chime connector.
3. Check battery power supply directly to back door warning chime terminals and check the operation.

back door warning chime		Operation
Terminal		
(+)	(-)	
1	2	Chime sounds

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace back door warning chime. Refer to [DLK-274, "Removal and Installation"](#).

DLK

INTEGRATED HOMELINK TRANSMITTER

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

INTEGRATED HOMELINK TRANSMITTER

Component Function Check

INFOID:0000000010283180

1.CHECK FUNCTION

Check that system receiver (garage door opener, etc.) operates with original hand-held transmitter.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Receiver or hand-held transmitter is malfunctioning.

2.CHECK ILLUMINATE

1. Turn ignition switch OFF.

2. Does red light of transmitter illuminate when any transmitter button is pressed?

Is the inspection result normal?

YES >> GO TO 3.

NO >> Refer to [DLK-198. "Diagnosis Procedure"](#).

3.CHECK TRANSMITTER

Check transmitter with Tool*.

*:For details, refer to Technical Service Bulletin.

Is the inspection result normal?

YES >> Receiver or hand-held transmitter malfunction, not vehicle related.

NO >> Replace auto anti-dazzling inside mirror (homelink® universal transceiver). Refer to [MIR-20. "Removal and Installation"](#).

Diagnosis Procedure

INFOID:0000000010283181

Regarding Wiring Diagram information, refer to [DLK-94. "Wiring Diagram"](#).

1.CHECK POWER SUPPLY

1. Turn ignition switch OFF.

2. Disconnect auto anti-dazzling inside mirror (homelink® universal transceiver) connector.

3. Check voltage between auto anti-dazzling inside mirror (homelink® universal transceiver) harness connector and ground.

Auto anti-dazzling inside mirror (Homelink® universal transceiver) connector	Terminal		Condition	Voltage (V) (Approx.)
R7	10	Ground	Ignition switch position: OFF	Battery voltage
	6		Ignition switch position: ON	

Is the inspection result normal?

YES >> GO TO 2.

NO >> Check the following items.

- 5A fuse 14 located in the fuse block (J/B).
- 10A fuse 30 located in the fuse block (J/B).

- Harness for open or short between fuse and auto anti-dazzling inside mirror (homelink® universal transceiver).

2.CHECK GROUND CIRCUIT

Check continuity between auto anti-dazzling inside mirror (homelink® universal transceiver) harness connector and ground.

INTEGRATED HOMELINK TRANSMITTER

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

Auto anti-dazzling inside mirror (Homelink® universal transceiver) connector	Terminal	Ground	Continuity
R7	8		Yes

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness.

3.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> Inspection End.

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

DLK

INTELLIGENT KEY SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

SYMPTOM DIAGNOSIS

INTELLIGENT KEY SYSTEM SYMPTOMS

Symptom Table

INFOID:0000000010283202

CAUTION:

Perform the self-diagnosis with CONSULT before the symptom diagnosis. Perform the trouble diagnosis if any DTC is detected.

Symptom	Inspection item
Door does not lock/unlock with door lock and unlock switch.	• All doors inoperative. Refer to DLK-201. • Drivers side door inoperative. Refer to DLK-201. • Passenger side door inoperative. Refer to DLK-202. • Rear LH door inoperative. Refer to DLK-202. • Rear RH door inoperative. Refer to DLK-202.
Door does not lock/unlock with door key cylinder operation.	Refer to DLK-204 .
Door does not lock/unlock with door request switch.	• All door request switches. Refer to DLK-205. • Drivers side door request switch. Refer to DLK-206. • Passenger side door request switch. Refer to DLK-206. • Back door request switch. Refer to DLK-206.
Door does not lock/unlock with Intelligent Key.	Refer to DLK-208 .
Ignition position warning function does not operate.	Refer to DLK-209 .
OFF position warning does not operate.	Refer to DLK-210 .
Take away warning does not operate.	Refer to DLK-211 .
Key ID warning does not operate.	Refer to DLK-213 .
Intelligent Key low battery warning does not operate.	Refer to DLK-214 .
Door lock operation warning does not operate.	Refer to DLK-215 .
Automatic back door operation does not operate.	• All switches. Refer to DLK-216. • Automatic back door switch. Refer to DLK-217. • Automatic back door close switch. Refer to DLK-217. • Intelligent Key. Refer to DLK-218. • Back door opener switch. Refer to DLK-218. • Open/closure function. Refer to DLK-219. • Open function. Refer to DLK-220. • Closure function. Refer to DLK-221.
Automatic back door warning does not operate.	Refer to DLK-222 .
Automatic back door functions do not cancel.	Refer to DLK-224 .
Automatic back door anti-pinch functions do not operate.	Refer to DLK-225 .
Integrated homelink transmitter does not operate.	Refer to DLK-226 .
Squeak and rattle trouble diagnosis.	Refer to DLK-228 .

DOOR DOES NOT LOCK/UNLOCK WITH DOOR LOCK AND UNLOCK SWITCH

< SYMPTOM DIAGNOSIS > [WITH INTELLIGENT KEY SYSTEM]

DOOR DOES NOT LOCK/UNLOCK WITH DOOR LOCK AND UNLOCK SWITCH

ALL DOOR

ALL DOOR : Description

INFOID:0000000010283203

All doors do not lock/unlock using door lock and unlock switch.

ALL DOOR : Diagnosis Procedure

INFOID:0000000010283204

1.CHECK DOOR LOCK AND UNLOCK SWITCH

Check door lock and unlock switch.

- Driver side: Refer to [DLK-155, "DRIVER SIDE : Component Function Check"](#).
- Passenger side: Refer to [DLK-156, "PASSENGER SIDE : Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning parts.

2.CHECK DOOR LOCK ACTUATOR

Check front door lock assembly LH.

Refer to [DLK-159, "DRIVER SIDE : Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace the malfunctioning parts.

3.REPLACE BCM

- Replace BCM. Refer to [BCS-75, "Removal and Installation"](#).
- Confirm the operation after replacement.

Is the result normal?

YES >> Inspection End.

NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

DRIVER SIDE

DRIVER SIDE : Description

INFOID:0000000010283205

Driver side door does not lock/unlock using door lock and unlock switch.

DRIVER SIDE : Diagnosis Procedure

INFOID:0000000010283206

1.CHECK DOOR LOCK ACTUATOR

Check front door lock assembly LH.

Refer to [DLK-159, "DRIVER SIDE : Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning parts.

2.REPLACE BCM

- Replace BCM. Refer to [BCS-75, "Removal and Installation"](#).
- Confirm the operation after replacement.

Is the result normal?

YES >> Inspection End.

NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

PASSENGER SIDE

DOOR DOES NOT LOCK/UNLOCK WITH DOOR LOCK AND UNLOCK SWITCH [WITH INTELLIGENT KEY SYSTEM]

< SYMPTOM DIAGNOSIS >

PASSENGER SIDE : Description

INFOID:0000000010283207

Passenger side door does not lock/unlock using door lock and unlock switch.

PASSENGER SIDE : Diagnosis Procedure

INFOID:0000000010283208

1.CHECK DOOR LOCK ACTUATOR

Check front door lock actuator RH.

Refer to [DLK-160, "PASSENGER SIDE : Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning parts.

2.REPLACE BCM

- Replace BCM. Refer to [BCS-75, "Removal and Installation"](#).
- Confirm the operation after replacement.

Is the result normal?

YES >> Inspection End.

NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

REAR LH

REAR LH : Description

INFOID:0000000010283209

Rear LH side door does not lock/unlock using door lock and unlock switch.

REAR LH : Diagnosis Procedure

INFOID:0000000010283210

1.CHECK DOOR LOCK ACTUATOR

Check rear door lock actuator LH.

Refer to [DLK-161, "REAR LH : Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning parts.

2.REPLACE BCM

- Replace BCM. Refer to [BCS-75, "Removal and Installation"](#).
- Confirm the operation after replacement.

Is the result normal?

YES >> Inspection End.

NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

REAR RH

REAR RH : Description

INFOID:0000000010283211

Rear RH side door does not lock/unlock using door lock and unlock switch.

REAR RH : Diagnosis Procedure

INFOID:0000000010283212

1.CHECK DOOR LOCK ACTUATOR

Check rear door lock actuator RH.

Refer to [DLK-162, "REAR RH : Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning parts.

2.REPLACE BCM

- Replace BCM. Refer to [BCS-75, "Removal and Installation"](#).

DOOR DOES NOT LOCK/UNLOCK WITH DOOR LOCK AND UNLOCK SWITCH

< SYMPTOM DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

- Confirm the operation after replacement.

Is the result normal?

YES >> Inspection End.
NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

A
B
C
D
E
F
G
H
I
J
DLK
L
M
N
O
P

DOOR DOES NOT LOCK/UNLOCK WITH DOOR KEY CYLINDER OPERATION
< SYMPTOM DIAGNOSIS > **[WITH INTELLIGENT KEY SYSTEM]**

DOOR DOES NOT LOCK/UNLOCK WITH DOOR KEY CYLINDER OPERATION

Diagnosis Procedure

INFOID:0000000010283213

1.CHECK POWER DOOR LOCK OPERATION

Check power door lock operation.

Does door lock/unlock with door lock and unlock switch?

YES >> GO TO 2.

NO >> Refer to [DLK-201, "ALL DOOR : Diagnosis Procedure"](#).

2.CHECK DOOR KEY CYLINDER SWITCH

Check door key cylinder switch.

Refer to [DLK-166, "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace the malfunctioning parts.

3.REPLACE BCM

- Replace BCM. Refer to [BCS-75, "Removal and Installation"](#).
- Confirm the operation after replacement.

Is the result normal?

YES >> Inspection End.

NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

DOOR DOES NOT LOCK/UNLOCK WITH DOOR REQUEST SWITCH

< SYMPTOM DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

DOOR DOES NOT LOCK/UNLOCK WITH DOOR REQUEST SWITCH ALL DOOR REQUEST SWITCHES

ALL DOOR REQUEST SWITCHES : Description

INFOID:0000000010283214

All doors do not lock/unlock using all door request switches.

ALL DOOR REQUEST SWITCHES : Diagnosis Procedure

INFOID:0000000010283215

1.CHECK REMOTE KEYLESS ENTRY FUNCTION

Check remote keyless entry function.

Does door lock/unlock with Intelligent Key button?

YES >> GO TO 2.

NO >> Refer to [DLK-176, "Component Function Check"](#).

2.CHECK DOOR SWITCH

Check door switch.

Refer to [DLK-149, "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace the malfunctioning parts.

3.CHECK INSIDE KEY ANTENNA

Check inside key antenna.

• Instrument center: Refer to [DLK-137, "DTC Logic"](#).

• Console: Refer to [DLK-139, "DTC Logic"](#).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace the malfunctioning parts.

4.CHECK OUTSIDE KEY ANTENNA

Check outside key antenna.

• Driver side: Refer to [DLK-145, "Component Function Check"](#).

• Passenger side: Refer to [DLK-143, "Component Function Check"](#).

• Rear bumper: Refer to [DLK-147, "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace the malfunctioning parts.

5.CHECK BACK DOOR SWITCH

Check back door switch.

Refer to [DLK-151, "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace the malfunctioning parts.

6.REPLACE BCM

• Replace BCM. Refer to [BCS-75, "Removal and Installation"](#).

• Confirm the operation after replacement.

Is the result normal?

YES >> Inspection End.

NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

DRIVER SIDE DOOR REQUEST SWITCH

DRIVER SIDE DOOR REQUEST SWITCH : Description

INFOID:0000000010283216

All doors do not lock/unlock using driver side door request switch.

A

B

C

D

E

F

G

H

I

J

DLK

L

M

N

O

P

DOOR DOES NOT LOCK/UNLOCK WITH DOOR REQUEST SWITCH

< SYMPTOM DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

DRIVER SIDE DOOR REQUEST SWITCH : Diagnosis Procedure

INFOID:0000000010283217

1.CHECK DOOR REQUEST SWITCH

Check front door request switch (driver side).

Refer to [DLK-168, "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning parts.

2.REPLACE BCM

• Replace BCM. Refer to [BCS-75, "Removal and Installation"](#).

• Confirm the operation after replacement.

Is the result normal?

YES >> Inspection End.

NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

PASSENGER SIDE DOOR REQUEST SWITCH

PASSENGER SIDE DOOR REQUEST SWITCH : Description

INFOID:0000000010283218

All doors do not lock/unlock using passenger side door request switch.

PASSENGER SIDE DOOR REQUEST SWITCH : Diagnosis Procedure

INFOID:0000000010283219

1.CHECK DOOR REQUEST SWITCH

Check front door request switch (passenger side).

Refer to [DLK-168, "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning parts.

2.REPLACE BCM

• Replace BCM. Refer to [BCS-75, "Removal and Installation"](#).

• Confirm the operation after replacement.

Is the result normal?

YES >> Inspection End.

NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

BACK DOOR REQUEST SWITCH

BACK DOOR REQUEST SWITCH : Description

INFOID:0000000010283220

All doors do not lock/unlock using back door request switch.

BACK DOOR REQUEST SWITCH : Diagnosis Procedure

INFOID:0000000010283221

1.CHECK BACK DOOR REQUEST SWITCH

Check back door request switch.

Refer to [DLK-170, "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning parts.

2.REPLACE BCM

• Replace BCM. Refer to [BCS-75, "Removal and Installation"](#).

• Confirm the operation after replacement.

Is the result normal?

YES >> Inspection End.

DOOR DOES NOT LOCK/UNLOCK WITH DOOR REQUEST SWITCH

< SYMPTOM DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

NO >> Check intermittent incident. Refer to [GI-41. "Intermittent Incident"](#).

A
B
C
D
E
F
G
H
I
J
DLK
L
M
N
O
P

DLK

DOOR DOES NOT LOCK/UNLOCK WITH INTELLIGENT KEY

< SYMPTOM DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

DOOR DOES NOT LOCK/UNLOCK WITH INTELLIGENT KEY

Diagnosis Procedure

INFOID:0000000010283222

1.CHECK POWER DOOR LOCK OPERATION

Check power door lock operation.

Does door lock/unlock with door lock and unlock switch?

YES >> GO TO 2.

NO >> Refer to [DLK-201, "ALL DOOR : Diagnosis Procedure"](#).

2.CHECK INTELLIGENT KEY

Check Intelligent Key.

Refer to [DLK-176, "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace the malfunctioning parts.

3.REPLACE BCM

• Replace BCM. Refer to [BCS-75, "Removal and Installation"](#).

• Confirm the operation after replacement.

Is the result normal?

YES >> Inspection End.

NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

IGNITION POSITION WARNING FUNCTION DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

IGNITION POSITION WARNING FUNCTION DOES NOT OPERATE

Diagnosis Procedure

INFOID:0000000010283224

1.CHECK POWER DOOR LOCK OPERATION

Check power door lock operation.

Does door lock/unlock with door lock and unlock switch?

YES >> GO TO 2.

NO >> Refer to [DLK-201, "ALL DOOR : Diagnosis Procedure"](#).

2.CHECK DOOR SWITCH

Check door switch

Refer to [DLK-149, "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace the malfunctioning parts.

3.CHECK BACK DOOR SWITCH

Check door switch

Refer to [DLK-151, "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace the malfunctioning parts.

4.REPLACE BCM

- Replace BCM. Refer to [BCS-75, "Removal and Installation"](#).

- Confirm the operation after replacement.

Is the result normal?

YES >> Inspection End.

NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

A

B

C

D

E

F

G

H

I

J

DLK

L

M

N

O

P

OFF POSITION WARNING DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

OFF POSITION WARNING DOES NOT OPERATE

Diagnosis Procedure

INFOID:0000000010283234

1.CHECK DTC WITH BCM

Check that DTC is not detected with BCM.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Perform trouble diagnosis relevant to DTC indicated.

2.CHECK DTC WITH COMBINATION METER

Check that DTC is not detected with combination meter.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Perform trouble diagnosis relevant to DTC indicated.

3.CHECK DOOR SWITCH

Check front door switch LH.

Refer to [DLK-149, "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace the malfunctioning parts.

4.CHECK COMBINATION METER BUZZER

Check combination meter buzzer.

Refer to [DLK-177, "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace the malfunctioning parts.

5.CHECK INTELLIGENT KEY WARNING BUZZER

Check Intelligent Key warning buzzer.

Refer to [DLK-174, "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace the malfunctioning parts.

6.REPLACE BCM

• Replace BCM. Refer to [BCS-75, "Removal and Installation"](#).

• Confirm the operation after replacement.

Is the result normal?

YES >> Inspection End.

NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

TAKE AWAY WARNING DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

TAKE AWAY WARNING DOES NOT OPERATE

Description

INFOID:0000000010283237

Take away warning function does not operate for vehicle with information display models.

NOTE:

Warning functions operating condition is extremely complicated. During operating confirmations, reconfirm the list above twice in order to ensure proper operation. Refer to [DLK-35, "WARNING FUNCTION : System Description"](#).

Diagnosis Procedure

INFOID:0000000010283238

1.CHECK DTC WITH BCM

Check that DTC is not detected with BCM.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Perform trouble diagnosis relevant to DTC indicated.

2.CHECK DTC WITH COMBINATION METER

Check that DTC is not detected with combination meter.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Perform trouble diagnosis relevant to DTC indicated.

3.CHECK INSIDE KEY ANTENNA

Check inside key antenna.

- Instrument center: Refer to [DLK-137, "DTC Logic"](#).

- Console: Refer to [DLK-139, "DTC Logic"](#).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace the malfunctioning parts.

4.CHECK DOOR SWITCH

Check front door switch LH.

Refer to [DLK-149, "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace the malfunctioning parts.

5.CHECK COMBINATION METER BUZZER

Check combination meter buzzer.

Refer to [DLK-177, "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace the malfunctioning parts.

6.CHECK INTELLIGENT KEY WARNING BUZZER

Check Intelligent Key warning buzzer.

Refer to [DLK-174, "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace the malfunctioning parts.

7.REPLACE BCM

- Replace BCM. Refer to [BCS-75, "Removal and Installation"](#).

- Confirm the operation after replacement.

Is the result normal?

TAKE AWAY WARNING DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

YES >> Inspection End.

NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

KEY ID WARNING DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

KEY ID WARNING DOES NOT OPERATE

Description

INFOID:0000000010283239

Key ID warning function does not operate for vehicle with information display models.

NOTE:

Warning functions operating condition is extremely complicated. During operating confirmations, reconfirm the list above twice in order to ensure proper operation. Refer to [DLK-35, "WARNING FUNCTION : System Description"](#).

Diagnosis Procedure

INFOID:0000000010283240

1.CHECK DTC WITH BCM

Check that DTC is not detected with BCM.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Perform trouble diagnosis relevant to DTC indicated.

2.CHECK DTC WITH COMBINATION METER

Check that DTC is not detected with combination meter.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Perform trouble diagnosis relevant to DTC indicated.

3.CHECK INTELLIGENT KEY

Check Intelligent Key.

Refer to [DLK-176, "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace the malfunctioning parts.

4.CHECK INSIDE KEY ANTENNA

Check inside key antenna.

• Instrument center: Refer to [DLK-137, "DTC Logic"](#).

• Console: Refer to [DLK-139, "DTC Logic"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace the malfunctioning parts.

5.REPLACE BCM

• Replace BCM. Refer to [BCS-75, "Removal and Installation"](#).

• Confirm the operation after replacement.

Is the result normal?

YES >> Inspection End.

NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

INTELLIGENT KEY LOW BATTERY WARNING DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

INTELLIGENT KEY LOW BATTERY WARNING DOES NOT OPERATE

Description

INFOID:0000000010283241

Intelligent Key low battery warning does not operate for vehicle with information display models.

NOTE:

Warning functions operating condition is extremely complicated. During operating confirmations, reconfirm the list above twice in order to ensure proper operation. Refer to [DLK-35, "WARNING FUNCTION : System Description"](#).

Diagnosis Procedure

INFOID:0000000010283242

1.CHECK DTC WITH BCM

Check that DTC is not detected with BCM.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Perform trouble diagnosis relevant to DTC indicated.

2.CHECK DTC WITH COMBINATION METER

Check that DTC is not detected with combination meter.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Perform trouble diagnosis relevant to DTC indicated.

3.CHECK "LO- BATT OF KEY FOB WARN" SETTING IN "WORK SUPPORT"

1. Select "INTELLIGENT KEY" of "BCM".

2. Select "LO- BATT OF KEY FOB WARN" in "Work support" mode.

3. Check "LO- BATT OF KEY FOB WARN" setting in "Work support".

Refer to [BCS-21, "INTELLIGENT KEY : CONSULT Function \(BCM - INTELLIGENT KEY\)"](#).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Set "ON" in "LO- BATT OF KEY FOB WARN".

4.CHECK INTELLIGENT KEY

Check Intelligent Key.

Refer to [DLK-176, "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace the malfunctioning parts.

5.CHECK INSIDE KEY ANTENNA

Check inside key antenna.

• Instrument center: Refer to [DLK-137, "DTC Logic"](#).

• Console: Refer to [DLK-139, "DTC Logic"](#).

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace the malfunctioning parts.

6.REPLACE BCM

• Replace BCM. Refer to [BCS-75, "Removal and Installation"](#).

• Confirm the operation after replacement.

Is the result normal?

YES >> Inspection End.

NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

DOOR LOCK OPERATION WARNING DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

DOOR LOCK OPERATION WARNING DOES NOT OPERATE

Diagnosis Procedure

INFOID:0000000010283243

1.CHECK DOOR LOCK FUNCTION

Check door lock function.

Does door lock/unlock using door request switch?

YES >> GO TO 2.

NO >> Refer to [DLK-205, "ALL DOOR REQUEST SWITCHES : Diagnosis Procedure"](#).

2.CHECK INTELLIGENT KEY WARNING BUZZER

Check Intelligent Key warning buzzer.

Refer to [DLK-174, "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace the malfunctioning parts.

3.REPLACE BCM

• Replace BCM. Refer to [BCS-75, "Removal and Installation"](#).

• Confirm the operation after replacement.

Is the result normal?

YES >> Inspection End.

NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

DLK

AUTOMATIC BACK DOOR OPERATION DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

AUTOMATIC BACK DOOR OPERATION DOES NOT OPERATE

ALL SWITCHES

ALL SWITCHES : Description

INFOID:0000000010283244

Automatic back door open/close function does not operate using all switches.

NOTE:

Automatic back door open/close operation condition is extremely complicated. During operating confirmations, reconfirm the list above twice in order to ensure proper operation. Refer to [DLK-39, "System Description"](#).

ALL SWITCHES : Diagnosis Procedure

INFOID:0000000010283245

1.CHECK DTC WITH AUTOMATIC BACK DOOR CONTROL MODULE

Check that DTC is not detected with automatic back door control module.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Perform trouble diagnosis relevant to DTC indicated.

2.CHECK BACK DOOR AUTO CLOSURE FUNCTION

Check back door auto closure function.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Refer to [DLK-219, "OPEN/CLOSURE FUNCTION : Diagnosis Procedure"](#).

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check automatic back door control module power supply and ground circuit.

Refer to [DLK-106, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace the malfunctioning parts.

4.CHECK GROUND CIRCUIT

Check automatic back door control module ground circuit.

Refer to [DLK-133, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace the malfunctioning parts.

5.CHECK TOUCH SENSOR LH

Check touch sensor LH.

Refer to [DLK-115, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace the malfunctioning parts.

6.CHECK TOUCH SENSOR RH

Check touch sensor RH.

Refer to [DLK-112, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace the malfunctioning parts.

7.REPLACE AUTOMATIC BACK DOOR CONTROL MODULE

1. Replace automatic back door control module. Refer to [DLK-276, "Removal and Installation"](#).

2. Confirm the operation after replacement.

Is the result normal?

YES >> Inspection End.

AUTOMATIC BACK DOOR OPERATION DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

NO >> Check intermittent incident. Refer to [GI-41. "Intermittent Incident"](#).

AUTOMATIC BACK DOOR SWITCH

AUTOMATIC BACK DOOR SWITCH : Description

INFOID:0000000010283246

Automatic back door open/close function does not operate using automatic back door switch.

NOTE:

Automatic back door open/close operation condition is extremely complicated. During operating confirmations, reconfirm the list above twice in order to ensure proper operation. Refer to [DLK-39. "System Description"](#).

AUTOMATIC BACK DOOR SWITCH : Diagnosis Procedure

INFOID:0000000010283247

1.CHECK AUTOMATIC BACK DOOR SWITCH

Check automatic back door switch.

Refer to [DLK-184. "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning parts.

2.REPLACE AUTOMATIC BACK DOOR CONTROL MODULE

1. Replace automatic back door control module. Refer to [DLK-276. "Removal and Installation"](#).

2. Confirm the operation after replacement.

Is the result normal?

YES >> Inspection End.

NO >> Check intermittent incident. Refer to [GI-41. "Intermittent Incident"](#).

AUTOMATIC BACK DOOR CLOSE SWITCH

AUTOMATIC BACK DOOR CLOSE SWITCH : Description

INFOID:0000000010283248

Automatic back door open/close function does not operate using automatic back door close switch.

NOTE:

Automatic back door open/close operation condition is extremely complicated. During operating confirmations, reconfirm the list above twice in order to ensure proper operation. Refer to [DLK-39. "System Description"](#).

AUTOMATIC BACK DOOR CLOSE SWITCH : Diagnosis Procedure

INFOID:0000000010283249

1.CONFIRM THE OPERATION

1. Turn ON automatic back door main switch.

2. Confirm the operation.

Is the result normal?

YES >> Automatic back door system is normal.

NO >> GO TO 2.

2.CHECK AUTOMATIC BACK DOOR CLOSE SWITCH

Check automatic back door close switch.

Refer to [DLK-180. "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace the malfunctioning parts.

3.CHECK AUTOMATIC BACK DOOR MAIN SWITCH

Check automatic back door main switch.

Refer to [DLK-182. "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace the malfunctioning parts.

4.REPLACE AUTOMATIC BACK DOOR CONTROL MODULE

A

B

C

D

E

F

G

H

I

J

DLK

L

M

N

O

P

AUTOMATIC BACK DOOR OPERATION DOES NOT OPERATE

[WITH INTELLIGENT KEY SYSTEM]

< SYMPTOM DIAGNOSIS >

1. Replace automatic back door control module. Refer to [DLK-276. "Removal and Installation"](#).
2. Confirm the operation after replacement.

Is the result normal?

- YES >> Inspection End.
NO >> Check intermittent incident. Refer to [GI-41. "Intermittent Incident"](#).

INTELLIGENT KEY

INTELLIGENT KEY : Description

INFOID:0000000010283250

Automatic back door open/close function does not operate using Intelligent Key.

NOTE:

Automatic back door open/close operation condition is extremely complicated. During operating confirmations, reconfirm the list above twice in order to ensure proper operation. Refer to [DLK-39. "System Description"](#).

INTELLIGENT KEY : Diagnosis Procedure

INFOID:0000000010283251

1.CHECK DTC WITH AUTOMATIC BACK DOOR CONTROL MODULE

Check that DTC is not detected with automatic back door control module.

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Perform trouble diagnosis relevant to DTC indicated.

2.CHECK DTC WITH BCM

Check that DTC is not detected with BCM

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Perform trouble diagnosis relevant to DTC indicated.

3.CHECK REMOTE KEYLESS ENTRY FUNCTION

Check remote keyless entry function.

Does door lock/unlock with Intelligent Key button?

- YES >> GO TO 4.
NO >> Refer to [DLK-208. "Diagnosis Procedure"](#).

4.REPLACE AUTOMATIC BACK DOOR CONTROL MODULE

1. Replace automatic back door control module. Refer to [DLK-276. "Removal and Installation"](#).
2. Confirm the operation after replacement.

Is the result normal?

- YES >> Inspection End.
NO >> Check intermittent incident. Refer to [GI-41. "Intermittent Incident"](#).

BACK DOOR OPENER SWITCH

BACK DOOR OPENER SWITCH : Description

INFOID:0000000010283252

Automatic back door open/close function does not operate using back door opener switch.

NOTE:

Automatic back door open/close operation condition is extremely complicated. During operating confirmations, reconfirm the list above twice in order to ensure proper operation. Refer to [DLK-39. "System Description"](#).

BACK DOOR OPENER SWITCH : Diagnosis Procedure

INFOID:0000000010283253

1.CONFIRM THE OPERATION

1. Turn ON automatic back door main switch.
2. Confirm the operation.

Is the result normal?

- YES >> Automatic back door system is normal.
NO >> GO TO 2.

AUTOMATIC BACK DOOR OPERATION DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

2.CHECK AUTOMATIC BACK DOOR MAIN SWITCH

Check automatic back door main switch.

Refer to [DLK-182, "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace the malfunctioning parts.

3.CHECK BACK DOOR OPENER SWITCH

Check back door opener switch.

Refer to [DLK-172, "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace the malfunctioning parts.

4.REPLACE AUTOMATIC BACK DOOR CONTROL MODULE

1. Replace automatic back door control module. Refer to [DLK-276, "Removal and Installation"](#).

2. Confirm the operation after replacement.

Is the result normal?

YES >> Inspection End.

NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

OPEN/CLOSURE FUNCTION

OPEN/CLOSURE FUNCTION : Description

INFOID:0000000010283254

Back door auto closure function does not operate when back door opening and closing operations are performed.

OPEN/CLOSURE FUNCTION : Diagnosis Procedure

INFOID:0000000010283255

1.CONFIRM THE OPERATION

1. Turn ON automatic back door main switch.

2. Confirm the operation.

Is the result normal?

YES >> Automatic back door system is normal.

NO >> GO TO 2.

2.CHECK DTC WITH AUTOMATIC BACK DOOR CONTROL MODULE

Check that DTC is not detected with automatic back door control module.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Perform trouble diagnosis relevant to DTC indicated.

3.CHECK AUTOMATIC BACK DOOR MAIN SWITCH

Check automatic back door main switch.

Refer to [DLK-182, "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace the malfunctioning parts.

4.CHECK BACK DOOR OPENER SWITCH

Check back door opener switch.

Refer to [DLK-172, "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace the malfunctioning parts.

AUTOMATIC BACK DOOR OPERATION DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

5. CHECK BACK DOOR CLOSURE MOTOR

Check back door closure motor.

Refer to [DLK-195, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace the malfunctioning parts.

6. REPLACE AUTOMATIC BACK DOOR CONTROL MODULE

1. Replace automatic back door control module. Refer to [DLK-276, "Removal and Installation"](#).

2. Confirm the operation after replacement.

Is the result normal?

YES >> Inspection End.

NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

OPEN FUNCTION

OPEN FUNCTION : Description

INFOID:0000000010283256

Back door auto closure function does not operate when back door opening operations are performed.

OPEN FUNCTION : Diagnosis Procedure

INFOID:0000000010283257

1. CONFIRM THE OPERATION

1. Turn ON automatic back door main switch.

2. Confirm the operation.

Is the result normal?

YES >> Automatic back door system is normal.

NO >> GO TO 2.

2. CHECK AUTOMATIC BACK DOOR MAIN SWITCH

Check automatic back door main switch.

Refer to [DLK-182, "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace the malfunctioning parts.

3. CHECK BACK DOOR OPENER SWITCH

Check back door opener switch.

Refer to [DLK-172, "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace the malfunctioning parts.

4. REPLACE AUTOMATIC BACK DOOR CONTROL MODULE

1. Replace automatic back door control module. Refer to [DLK-276, "Removal and Installation"](#).

2. Confirm the operation after replacement.

Is the result normal?

YES >> Inspection End.

NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

CLOSURE FUNCTION

CLOSURE FUNCTION : Description

INFOID:0000000010283258

Back door auto closure function does not operate when back door closing operations are performed.

AUTOMATIC BACK DOOR OPERATION DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

CLOSURE FUNCTION : Diagnosis Procedure

INFOID:0000000010283259

1.CHECK HALF LATCH SWITCH

Check half latch switch.

Refer to [DLK-186. "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning parts.

2.CHECK BACK DOOR CLOSURE MOTOR

Check back door closure motor.

Refer to [DLK-195. "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace the malfunctioning parts.

3.REPLACE AUTOMATIC BACK DOOR CONTROL MODULE

1. Replace automatic back door control module. Refer to [DLK-276. "Removal and Installation"](#).

2. Confirm the operation after replacement.

Is the result normal?

YES >> Inspection End.

NO >> Check intermittent incident. Refer to [GI-41. "Intermittent Incident"](#).

A

B

C

D

E

F

G

H

I

J

DLK

L

M

N

O

P

AUTOMATIC BACK DOOR WARNING DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

AUTOMATIC BACK DOOR WARNING DOES NOT OPERATE

BUZZER

BUZZER : Description

INFOID:0000000010283260

Automatic back door warning chime does not operate when automatic back door warning function are performed.

BUZZER : Diagnosis Procedure

INFOID:0000000010283261

1.CHECK DTC WITH AUTOMATIC BACK DOOR CONTROL MODULE

Check that DTC is not detected with automatic back door control module.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Perform trouble diagnosis relevant to DTC indicated.

2.CHECK BACK DOOR WARNING CHIME

Check back door warning chime.

Refer to [DLK-196, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace the malfunctioning parts.

3.REPLACE AUTOMATIC BACK DOOR CONTROL MODULE

1. Replace automatic back door control module. Refer to [DLK-276, "Removal and Installation"](#).

2. Confirm the operation after replacement.

Is the result normal?

YES >> Inspection End.

NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

HAZARD WARNING LAMP

HAZARD WARNING LAMP : Description

INFOID:0000000010283262

Hazard warning lamp does not operate when automatic back door warning function are performed.

HAZARD WARNING LAMP : Diagnosis Procedure

INFOID:0000000010283263

1.CHECK DTC WITH AUTOMATIC BACK DOOR CONTROL MODULE

Check that DTC is not detected with automatic back door control module.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Perform trouble diagnosis relevant to DTC indicated.

2.CHECK DTC WITH BCM

Check that DTC is not detected with BCM.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Perform trouble diagnosis relevant to DTC indicated.

3.CHECK GROUND CIRCUIT

Check automatic back door control module ground circuit.

Refer to [DLK-141, "AUTOMATIC BACK DOOR CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace the malfunctioning parts

4.CHECK HAZARD AND HORN REMINDER FUNCTION

AUTOMATIC BACK DOOR WARNING DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

Check hazard and horn reminder function.

Is the inspection result normal?

YES >> GO TO 5.

NO >> Refer to [DLK-179, "Diagnosis Procedure"](#).

5.REPLACE AUTOMATIC BACK DOOR CONTROL MODULE

1. Replace automatic back door control module. Refer to [DLK-276, "Removal and Installation"](#).

2. Confirm the operation after replacement.

Is the result normal?

YES >> Inspection End.

NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

A

B

C

D

E

F

G

H

I

J

DLK

L

M

N

O

P

AUTOMATIC BACK DOOR FUNCTIONS DO NOT CANCEL

< SYMPTOM DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

AUTOMATIC BACK DOOR FUNCTIONS DO NOT CANCEL

Diagnosis Procedure

INFOID:0000000010283264

1.CHECK THE OPERATION

Check automatic back door main switch function.

NOTE:

When the main switch is OFF, the automatic back door operation is not available by back door opener switch and automatic back door close switch.

Is the inspection result normal?

- YES >> Automatic back door system is normal.
- NO >> GO TO 2.

2.CHECK AUTOMATIC BACK DOOR MAIN SWITCH

Check automatic back door main switch.

Refer to [DLK-182, "Component Function Check"](#).

Is the inspection result normal?

- YES >> GO TO 3.
- NO >> Repair or replace the malfunctioning parts.

3.REPLACE AUTOMATIC BACK DOOR CONTROL MODULE

1. Replace automatic back door control module. Refer to [DLK-276, "Removal and Installation"](#).
2. Confirm the operation after replacement.

Is the result normal?

- YES >> Inspection End.
- NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

AUTOMATIC BACK DOOR ANTI-PINCH FUNCTION DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

AUTOMATIC BACK DOOR ANTI-PINCH FUNCTION DOES NOT OPERATE

Diagnosis Procedure

INFOID:000000010283265

1.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check automatic back door control module power supply and ground circuit.

Refer to [DLK-106, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning parts.

2.CHECK TOUCH SENSOR LH

Check touch sensor LH.

Refer to [DLK-190, "LH : Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace the malfunctioning parts.

3.CHECK TOUCH SENSOR RH

Check touch sensor RH.

Refer to [DLK-188, "RH : Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace the malfunctioning parts.

4.REPLACE AUTOMATIC BACK DOOR CONTROL MODULE

1. Replace automatic back door control module. Refer to [DLK-276, "Removal and Installation"](#).

2. Confirm the operation after replacement.

Is the result normal?

YES >> Inspection End.

NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

DLK

INTEGRATED HOMELINK TRANSMITTER DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

INTEGRATED HOMELINK TRANSMITTER DOES NOT OPERATE

Diagnosis Procedure

INFOID:0000000010283266

1. CHECK INTEGRATED HOMELINK® TRANSMITTER

Check integrated homelink® transmitter.

Refer to [DLK-198. "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning parts.

2. REPLACE AUTO ANTI-DAZZLING INSIDE MIRROR

Replace auto anti-dazzling inside mirror.

Refer to [MIR-20. "Removal and Installation"](#).

Is the result normal?

YES >> Inspection End.

NO >> Check intermittent incident. Refer to [GI-41. "Intermittent Incident"](#).

SQUEAK AND RATTLE TROUBLE DIAGNOSES

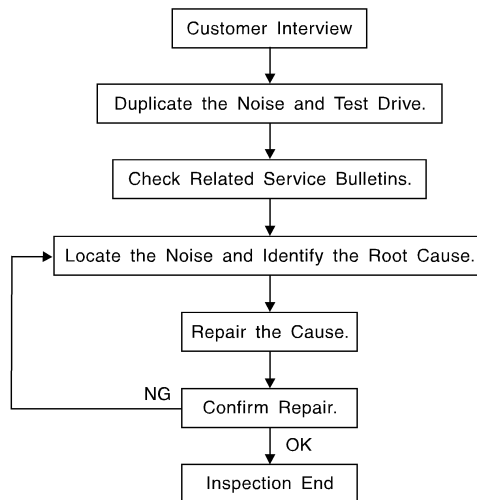
< SYMPTOM DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

SQUEAK AND RATTLE TROUBLE DIAGNOSES

Work Flow

INFOID:000000010283267



SBT842

CUSTOMER INTERVIEW

Interview the customer if possible, to determine the conditions that exist when the noise occurs. Use the Diagnostic Worksheet during the interview to document the facts and conditions when the noise occurs and any customer's comments; refer to [DLK-231, "Diagnostic Worksheet"](#). This information is necessary to duplicate the conditions that exist when the noise occurs.

- The customer may not be able to provide a detailed description or the location of the noise. Attempt to obtain all the facts and conditions that exist when the noise occurs (or does not occur).
- If there is more than one noise in the vehicle, be sure to diagnose and repair the noise that the customer is concerned about. This can be accomplished by test driving the vehicle with the customer.
- After identifying the type of noise, isolate the noise in terms of its characteristics. The noise characteristics are provided so the customer, service adviser and technician are all speaking the same language when defining the noise.
- Squeak —(Like tennis shoes on a clean floor)
Squeak characteristics include the light contact/fast movement/brought on by road conditions/hard surfaces = higher pitch noise/softer surfaces = lower pitch noises/edge to surface = chirping.
- Creak—(Like walking on an old wooden floor)
Creak characteristics include firm contact/slow movement/twisting with a rotational movement/pitch dependent on materials/often brought on by activity.
- Rattle—(Like shaking a baby rattle)
Rattle characteristics include the fast repeated contact/vibration or similar movement/loose parts/missing clip or fastener/incorrect clearance.
- Knock —(Like a knock on a door)
Knock characteristics include hollow sounding/sometimes repeating/often brought on by driver action.
- Tick—(Like a clock second hand)
Tick characteristics include gentle contacting of light materials/loose components/can be caused by driver action or road conditions.
- Thump—(Heavy, muffled knock noise)
Thump characteristics include softer knock/dead sound often brought on by activity.
- Buzz—(Like a bumble bee)
Buzz characteristics include high frequency rattle/firm contact.
- Often the degree of acceptable noise level will vary depending upon the person. A noise that you may judge as acceptable may be very irritating to the customer.
- Weather conditions, especially humidity and temperature, may have a great effect on noise level.

DUPLICATE THE NOISE AND TEST DRIVE

If possible, drive the vehicle with the customer until the noise is duplicated. Note any additional information on the Diagnostic Worksheet regarding the conditions or location of the noise. This information can be used to duplicate the same conditions when you confirm the repair.

SQUEAK AND RATTLE TROUBLE DIAGNOSES

< SYMPTOM DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

If the noise can be duplicated easily during the test drive, to help identify the source of the noise, try to duplicate the noise with the vehicle stopped by doing one or all of the following:

- 1) Close a door.
 - 2) Tap or push/pull around the area where the noise appears to be coming from.
 - 3) Rev the engine.
 - 4) Use a floor jack to recreate vehicle "twist".
 - 5) At idle, apply engine load (electrical load, half-clutch on M/T model, drive position on CVT and A/T models).
 - 6) Raise the vehicle on a hoist and hit a tire with a rubber hammer.
- Drive the vehicle and attempt to duplicate the conditions the customer states exist when the noise occurs.
 - If it is difficult to duplicate the noise, drive the vehicle slowly on an undulating or rough road to stress the vehicle body.

CHECK RELATED SERVICE BULLETINS

After verifying the customer concern or symptom, check ASIST for Technical Service Bulletins (TSBs) related to that concern or symptom.

If a TSB relates to the symptom, follow the procedure to repair the noise.

LOCATE THE NOISE AND IDENTIFY THE ROOT CAUSE

1. Narrow down the noise to a general area. To help pinpoint the source of the noise, use a listening tool (Chassis Ear: J-39570, Engine Ear: J-39565 and mechanic's stethoscope).
2. Narrow down the noise to a more specific area and identify the cause of the noise by:
 - removing the components in the area that you suspect the noise is coming from.
Do not use too much force when removing clips and fasteners, otherwise clips and fasteners can be broken or lost during the repair, resulting in the creation of new noise.
 - tapping or pushing/pulling the component that you suspect is causing the noise.
Do not tap or push/pull the component with excessive force, otherwise the noise will be eliminated only temporarily.
 - feeling for a vibration with your hand by touching the component(s) that you suspect is (are) causing the noise.
 - placing a piece of paper between components that you suspect are causing the noise.
 - looking for loose components and contact marks.Refer to [DLK-228, "Generic Squeak and Rattle Troubleshooting"](#).

REPAIR THE CAUSE

- If the cause is a loose component, tighten the component securely.
- If the cause is insufficient clearance between components:
 - separate components by repositioning or loosening and retightening the component, if possible.
 - insulate components with a suitable insulator such as urethane pads, foam blocks, felt cloth tape or urethane tape. A NISSAN Squeak and Rattle Kit (J-50397) is available through your authorized NISSAN Parts Department.

CAUTION:

Do not use excessive force as many components are constructed of plastic and may be damaged.

NOTE:

- Always check with the Parts Department for the latest parts information.
- The materials contained in the NISSAN Squeak and Rattle Kit (J-50397) are listed on the inside cover of the kit; and can each be ordered separately as needed.
- The following materials not found in the kit can also be used to repair squeaks and rattles.
 - SILICONE GREASE: Use instead of UHMW tape that will be visible or does not fit. The silicone grease will only last a few months.
 - SILICONE SPRAY: Use when grease cannot be applied.
 - DUCT TAPE: Use to eliminate movement.

CONFIRM THE REPAIR

Confirm that the cause of a noise is repaired by test driving the vehicle. Operate the vehicle under the same conditions as when the noise originally occurred. Refer to the notes on the Diagnostic Worksheet.

Generic Squeak and Rattle Troubleshooting

INFOID:0000000010283268

Refer to Table of Contents for specific component removal and installation information.

INSTRUMENT PANEL

Most incidents are caused by contact and movement between:

SQUEAK AND RATTLE TROUBLE DIAGNOSES

< SYMPTOM DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

1. Cluster lid A and the instrument panel
2. Acrylic lens and combination meter housing
3. Instrument panel to front pillar finisher
4. Instrument panel to windshield
5. Instrument panel pins
6. Wiring harnesses behind the combination meter
7. A/C defroster duct and duct joint

A
B
C

These incidents can usually be located by tapping or moving the components to duplicate the noise or by pressing on the components while driving to stop the noise. Most of these incidents can be repaired by applying felt cloth tape or silicone spray (in hard to reach areas). Urethane pads can be used to insulate wiring harness.

CAUTION:

Do not use silicone spray to isolate a squeak or rattle. If you saturate the area with silicone, you will not be able to recheck the repair.

D
E

CENTER CONSOLE

Components to pay attention to include:

1. Shift selector assembly cover to finisher
2. A/C control unit and cluster lid C
3. Wiring harnesses behind audio and A/C control unit

F
G

The instrument panel repair and isolation procedures also apply to the center console.

DOORS

Pay attention to the:

1. Finisher and inner panel making a slapping noise
2. Inside handle escutcheon to door finisher
3. Wiring harnesses tapping
4. Door striker out of alignment causing a popping noise on starts and stops

H
I

Tapping or moving the components or pressing on them while driving to duplicate the conditions can isolate many of these incidents. You can usually insulate the areas with felt cloth tape or insulator foam blocks from the NISSAN Squeak and Rattle Kit (J-50397) to repair the noise.

J

TRUNK

Trunk noises are often caused by a loose jack or loose items put into the trunk by the owner.

In addition look for:

1. Trunk lid bumpers out of adjustment
2. Trunk lid striker out of adjustment
3. The trunk lid torsion bars knocking together
4. A loose license plate or bracket

DLK
L
M

Most of these incidents can be repaired by adjusting, securing or insulating the item(s) or component(s) causing the noise.

SUNROOF/HEADLINING

N

Noises in the sunroof/headlining area can often be traced to one of the following:

1. Sunroof lid, rail, linkage or seals making a rattle or light knocking noise
2. Sun visor shaft shaking in the holder
3. Front or rear windshield touching headlining and squeaking

O
P

Again, pressing on the components to stop the noise while duplicating the conditions can isolate most of these incidents. Repairs usually consist of insulating with felt cloth tape.

OVERHEAD CONSOLE (FRONT AND REAR)

Overhead console noises are often caused by the console panel clips not being engaged correctly. Most of these incidents are repaired by pushing up on the console at the clip locations until the clips engage.

In addition look for:

1. Loose harness or harness connectors.
2. Front console map/reading lamp lens loose.

SQUEAK AND RATTLE TROUBLE DIAGNOSES

< SYMPTOM DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

3. Loose screws at console attachment points.

SEATS

When isolating seat noise it's important to note the position the seat is in and the load placed on the seat when the noise is present. These conditions should be duplicated when verifying and isolating the cause of the noise.

Cause of seat noise include:

1. Headrest rods and holder
2. A squeak between the seat pad cushion and frame
3. The rear seatback lock and bracket

These noises can be isolated by moving or pressing on the suspected components while duplicating the conditions under which the noise occurs. Most of these incidents can be repaired by repositioning the component or applying urethane tape to the contact area.

UNDERHOOD

Some interior noise may be caused by components under the hood or on the engine wall. The noise is then transmitted into the passenger compartment.

Causes of transmitted underhood noise include:

1. Any component installed to the engine wall
2. Components that pass through the engine wall
3. Engine wall mounts and connectors
4. Loose radiator installation pins
5. Hood bumpers out of adjustment
6. Hood striker out of adjustment

These noises can be difficult to isolate since they cannot be reached from the interior of the vehicle. The best method is to secure, move or insulate one component at a time and test drive the vehicle. Also, engine rpm or load can be changed to isolate the noise. Repairs can usually be made by moving, adjusting, securing, or insulating the component causing the noise.

SQUEAK AND RATTLE TROUBLE DIAGNOSES

< SYMPTOM DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

Diagnostic Worksheet

INFOID:000000010283269

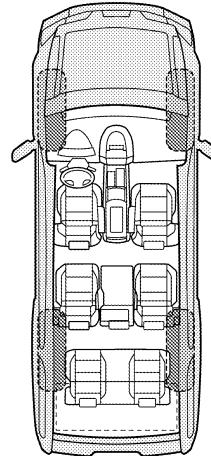
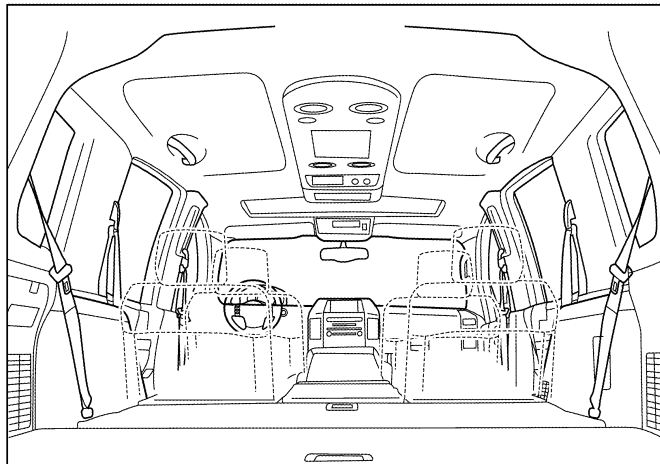
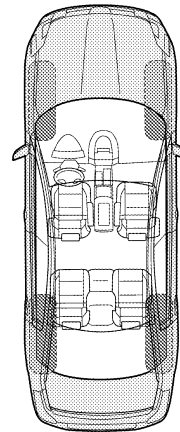
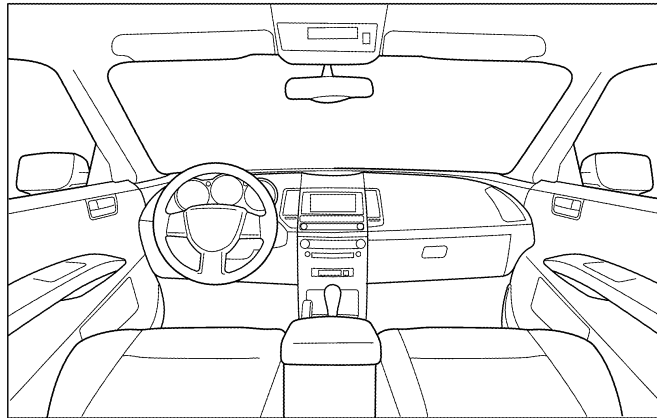
Dear Customer:

We are concerned about your satisfaction with your vehicle. Repairing a squeak or rattle sometimes can be very difficult. To help us fix your vehicle right the first time, please take a moment to note the area of the vehicle where the squeak or rattle occurs and under what conditions. You may be asked to take a test drive with a service advisor or technician to ensure we confirm the noise you are hearing.

SQUEAK & RATTLE DIAGNOSTIC WORKSHEET

I. WHERE DOES THE NOISE COME FROM? (circle the area of the vehicle)

The illustrations are for reference only, and may not reflect the actual configuration of your vehicle.



Continue to page 2 of the worksheet and briefly describe the location of the noise or rattle. In addition, please indicate the conditions which are present when the noise occurs.

SQUEAK AND RATTLE TROUBLE DIAGNOSES

< SYMPTOM DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

SQUEAK & RATTLE DIAGNOSTIC WORKSHEET - page 2

Briefly describe the location where the noise occurs:

II. WHEN DOES IT OCCUR? (please check the boxes that apply)

- | | |
|---|--|
| ☐ Anytime | ☐ After sitting out in the rain |
| ☐ 1st time in the morning | ☐ When it is raining or wet |
| ☐ Only when it is cold outside | ☐ Dry or dusty conditions |
| ☐ Only when it is hot outside | ☐ Other: |

III. WHEN DRIVING:

- ☐ Through driveways
- ☐ Over rough roads
- ☐ Over speed bumps
- ☐ Only about ____ mph
- ☐ On acceleration
- ☐ Coming to a stop
- ☐ On turns: left, right or either (circle)
- ☐ With passengers or cargo
- ☐ Other: _____
- ☐ After driving ____ miles or ____ minutes

IV. WHAT TYPE OF NOISE

- ☐ Squeak (like tennis shoes on a clean floor)
- ☐ Creak (like walking on an old wooden floor)
- ☐ Rattle (like shaking a baby rattle)
- ☐ Knock (like a knock at the door)
- ☐ Tick (like a clock second hand)
- ☐ Thump (heavy muffled knock noise)
- ☐ Buzz (like a bumble bee)

TO BE COMPLETED BY DEALERSHIP PERSONNEL

Test Drive Notes:

	YES	NO	Initials of person performing
Vehicle test driven with customer	☐	☐	_____
- Noise verified on test drive	☐	☐	_____
- Noise source located and repaired	☐	☐	_____
- Follow up test drive performed to confirm repair	☐	☐	_____

VIN: _____ Customer Name _____
W.O.# _____ Date: _____

This form must be attached to Work Order

LAIA0071E

HOOD

< REMOVAL AND INSTALLATION >

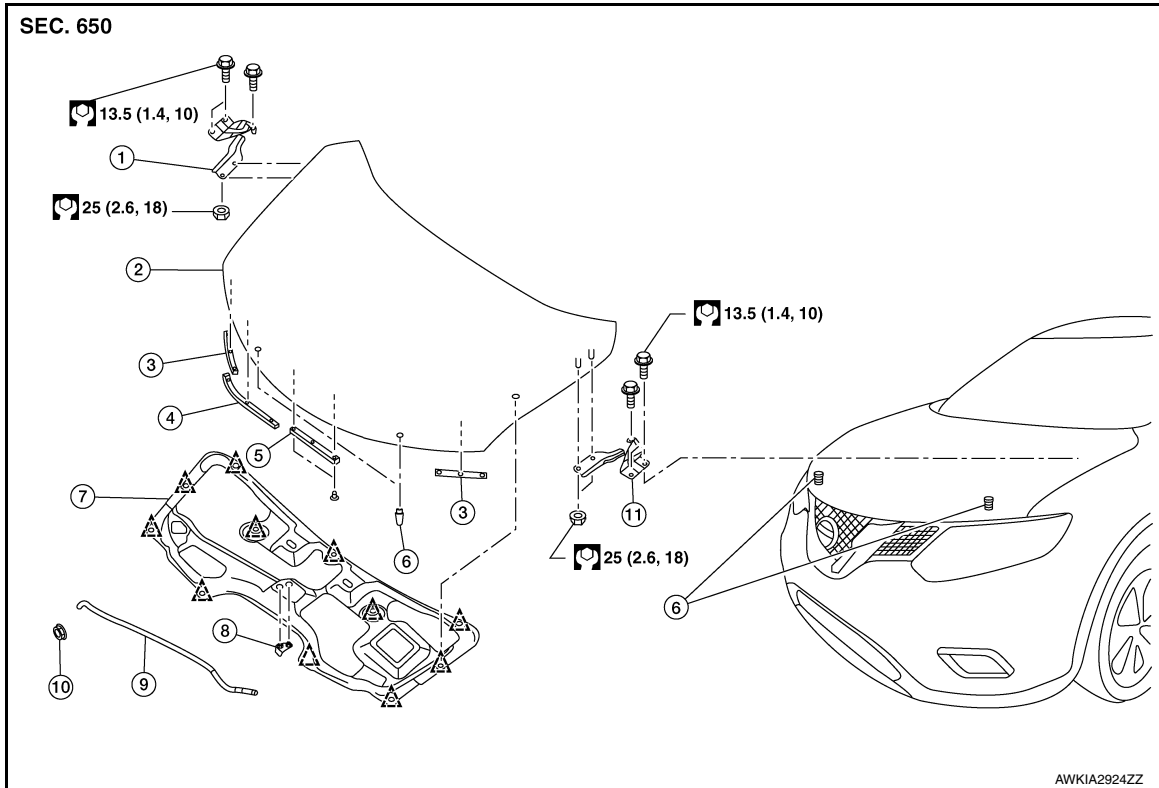
[WITH INTELLIGENT KEY SYSTEM]

REMOVAL AND INSTALLATION

HOOD

Exploded View

INFOID:0000000010247362



- | | | |
|----------------------|---------------------|---------------------|
| 1. Hood hinge (RH) | 2. Hood | 3. Hood side seal |
| 4. Hood front seal | 5. Hood center seal | 6. Bumper rubber |
| 7. Hood insulator | 8. Hood rod clamp | 9. Hood support rod |
| 10. Hood rod grommet | 11. Hood hinge (LH) | |

HOOD ASSEMBLY

HOOD ASSEMBLY : Removal and Installation

INFOID:0000000010247363

CAUTION:

- Use two people when removing or installing hood assembly due to its heavy weight.
- Use protective tape or shop cloths to protect surrounding components from damage during removal and installation of hood assembly.

REMOVAL

1. Support the hood assembly using a suitable tool.

WARNING:

Bodily injury may occur if hood assembly is not supported properly when removing hood assembly.

HOOD

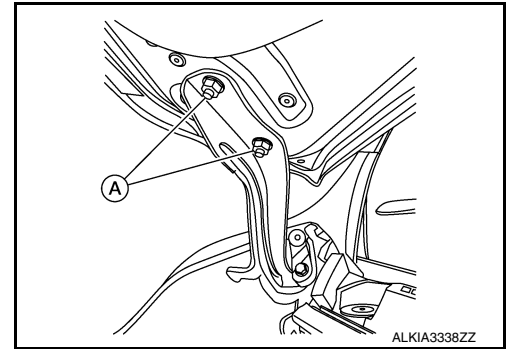
< REMOVAL AND INSTALLATION >

[WITH INTELLIGENT KEY SYSTEM]

- Remove hood hinge to hood nuts (A) and hood assembly.

NOTE:

RH side shown; LH similar.



INSTALLATION

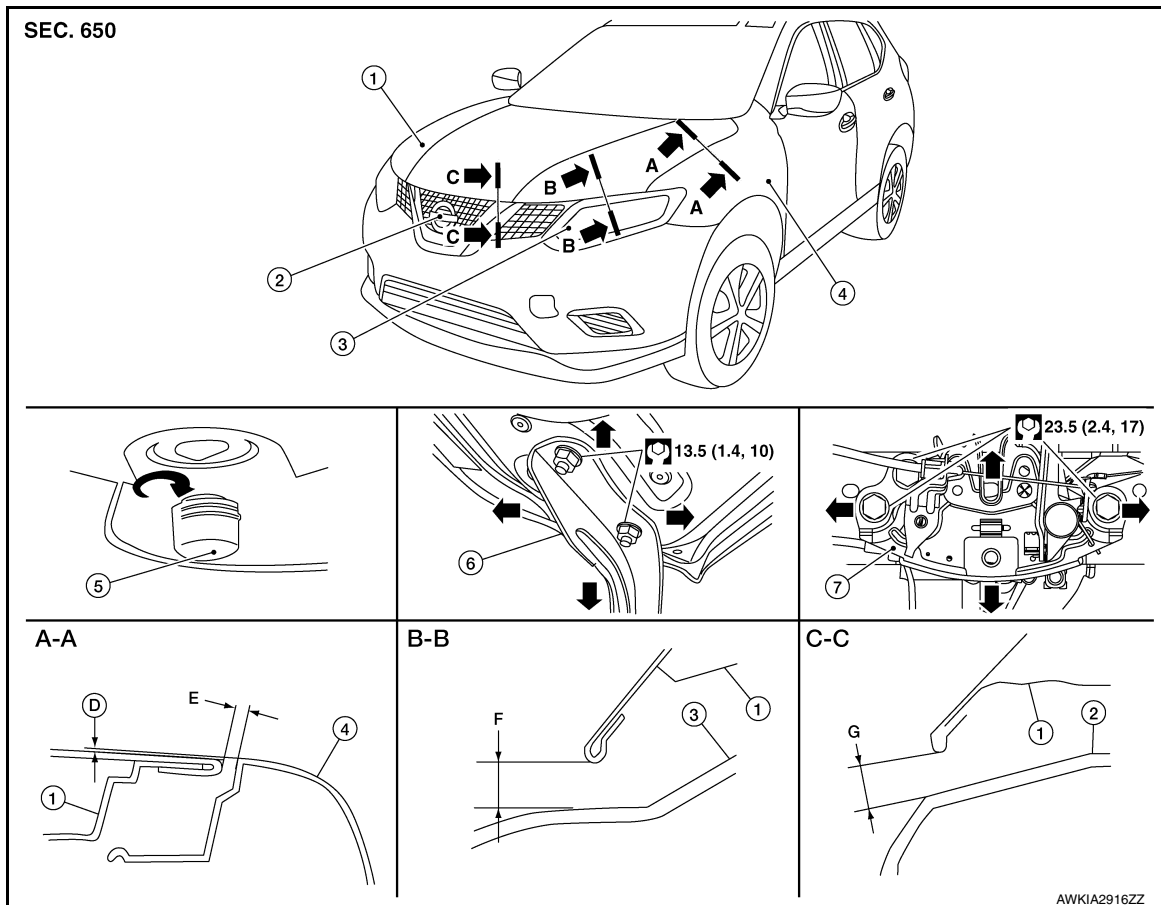
Installation is in the reverse order of removal.

CAUTION:

- Before installing the hood hinge, apply anticorrosive agent onto the surface of the vehicle.
- After installation, perform the hood assembly adjustment procedure. Refer to [DLK-234, "HOOD ASSEMBLY : Adjustment"](#).

HOOD ASSEMBLY : Adjustment

INFOID:000000010247364



- Hood assembly
- Front grille
- Front combination lamp
- Fender
- Bumper rubber
- Hood hinge
- Hood lock

Check the clearance and the surface height between hood and each part by visual inspection and tactile feel. If the clearance and the surface height are out of specification, adjust them according to the adjustment procedures.

HOOD

< REMOVAL AND INSTALLATION >

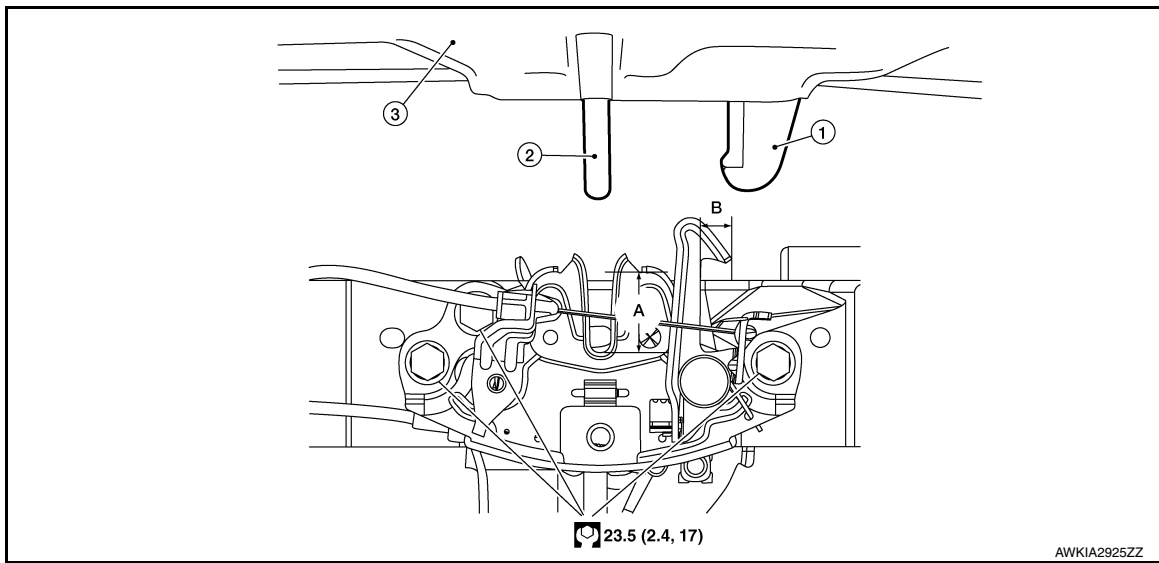
[WITH INTELLIGENT KEY SYSTEM]

Unit: mm (in)

Portion	Section	Item	Measurement	Standard	Parallelism
Hood - Fender	A - A	D	Surface height	0.0 ± 1.0 (0.0 ± 0.04)	1.4 (0.06)
		E	Clearance	3.5 ± 1.5 (0.14 ± 0.04)	1.4 (0.06)
Fender - Front combination lamp	B - B	F	Clearance	9.0 ± 2.0 (0.35 ± 0.08)	2.0 (0.08)
Hood - Front combination lamp	C - C	G	Clearance	1.9 ± 1.1 (0.07 ± 0.04)	1.5 (0.06)

HEIGHT ADJUSTMENT

- Loosen the hood lock assembly bolts.
- Adjust the surface height of hood assembly to front grille and front fender according to the specified values by rotating hood bumper rubber.
- Temporarily tighten hood lock assembly bolts.
- Adjust (A) and (B) as shown to the following value with hood's own weight by dropping it from approximately 200 mm (7.87 in) height or by pressing hood lightly [approximately 29 N (3.0 kg, 6.5 lb)].



- | | | |
|----------------------|---------------------|------------------|
| 1. Secondary striker | 2. Primary striker | 3. Hood assembly |
| A. 20 mm (0.79 in) | B. 6.8 mm (0.27 in) | |

- After adjustment, tighten hood hinge nuts and bolts to the specified torque.

CAUTION:

- Check hood hinge rotating part for poor lubrication. If necessary, apply a suitable multi-purpose grease.
- After adjusting, apply touch-up paint (body color) to the head of hood hinge bolts and nuts.

CLEARANCE ADJUSTMENT

- Loosen hood hinge nuts and bolts.
- Loosen the hood lock assembly bolts.
- Adjust the hood assembly so the clearance measurements are within specifications.
- Tighten the hood hinge nuts and bolts to specified torque.
- Tighten the hood lock assembly bolts to specified torque.

HOOD HINGE

HOOD HINGE : Removal and Installation

INFOID:0000000010247365

REMOVAL

- Remove hood assembly. Refer to [DLK-233, "HOOD ASSEMBLY : Removal and Installation"](#).

HOOD

< REMOVAL AND INSTALLATION >

[WITH INTELLIGENT KEY SYSTEM]

2. Remove front fender. Refer to [DLK-238, "Removal and Installation"](#).
3. Remove hood hinge bolts, and then remove hood hinge.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Before installing the hood hinge, apply anticorrosive agent onto the surface of the vehicle.
- After installation, perform hood assembly adjustment procedure. Refer to [DLK-234, "HOOD ASSEMBLY : Adjustment"](#).

RADIATOR CORE SUPPORT

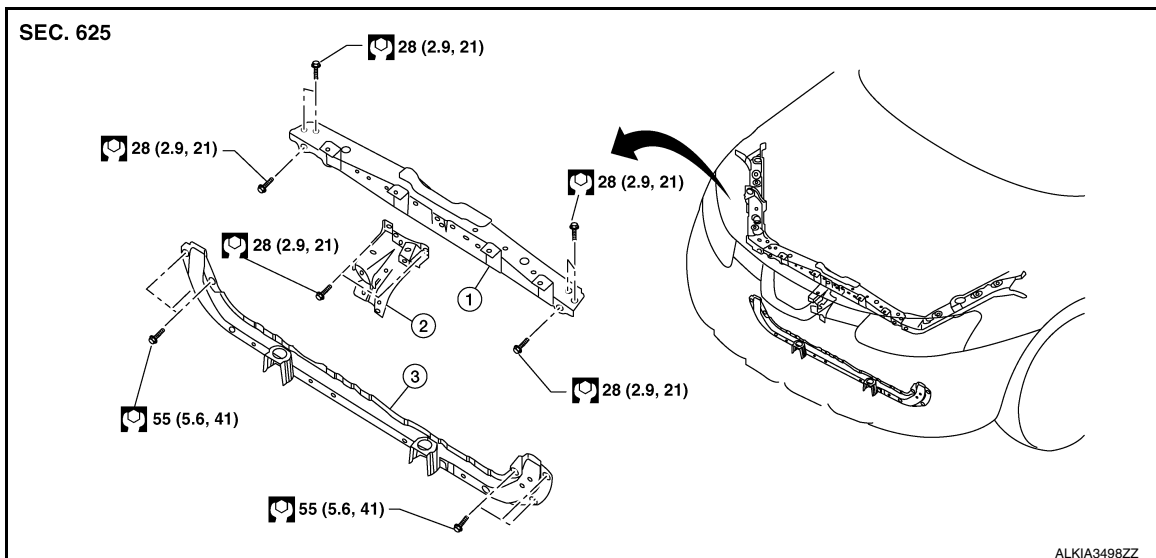
< REMOVAL AND INSTALLATION >

[WITH INTELLIGENT KEY SYSTEM]

RADIATOR CORE SUPPORT

Exploded View

INFOID:000000010247366



1. Radiator core upper support 2. Secondary latch bracket 3. Radiator core lower support

Removal and Installation

INFOID:000000010247367

CAUTION:

When removing radiator core support upper, be careful not to damage the painted surface.

REMOVAL

Radiator Core Upper Support

1. Remove front combination lamp (LH). Refer to [EXL-119, "Removal and Installation"](#).
2. Remove front air duct. Refer to [EM-24, "Exploded View"](#).
3. Remove hood lock. Refer to [DLK-253, "HOOD LOCK : Removal and Installation"](#).
4. Remove secondary latch. Refer to [DLK-254, "SECONDARY LATCH : Removal and Installation"](#).
5. Remove crash zone sensor. Refer to [SR-22, "Removal and Installation"](#).
6. Remove bolts and radiator core upper support.

Radiator Core Lower Support

1. Remove front bumper fascia. Refer to [EXT-17, "Removal and Installation"](#).
2. Support the radiator using a suitable tool.
3. Remove bolts and radiator core lower support.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

Tighten bolts to specified torque. Refer to [DLK-237, "Exploded View"](#).

FRONT FENDER

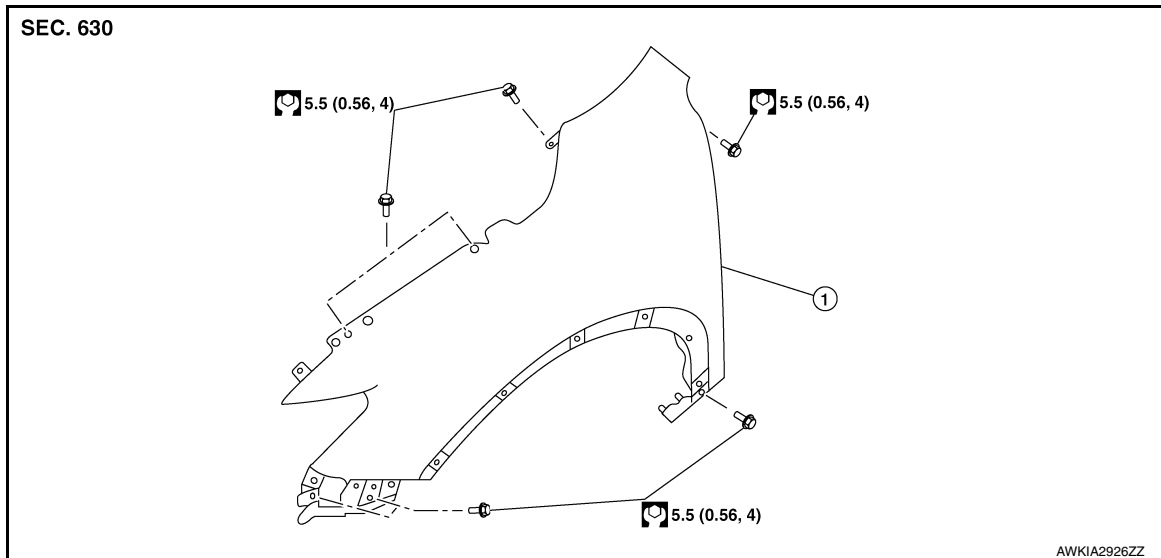
< REMOVAL AND INSTALLATION >

[WITH INTELLIGENT KEY SYSTEM]

FRONT FENDER

Exploded View

INFOID:000000010351314



1. Front fender

Removal and Installation

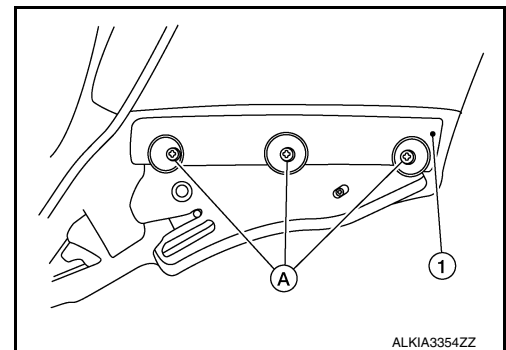
INFOID:000000010247369

CAUTION:

Use a shop cloths to protect the body from being damaged during removal and installation.

REMOVAL

1. Remove front bumper fascia. Refer to [EXT-17, "Removal and Installation"](#).
2. Remove front combination lamp. Refer to [EXL-119, "Removal and Installation"](#) (HALOGEN HEADLAMP) or [EXL-268, "Removal and Installation"](#) (LED HEADLAMP).
3. Remove center mudguard. Refer to [EXT-35, "Removal and Installation - Center Mudguard"](#).
4. Remove screws (A) and front fender bracket (1).



5. Remove bolts and front fender.

CAUTION:

Use care when removing the front fender. The front fender baffle foam adheres the front fender to the body side outer. Carefully release the baffle foam or damage to the front fender may occur.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- After installation apply touch up paint (body color) to the head of front fender bolts.
- After installation, adjust the following components as necessary:
 - Hood assembly: Refer to [DLK-234, "HOOD ASSEMBLY : Adjustment"](#).
 - Front door: Refer to [DLK-241, "DOOR ASSEMBLY : Adjustment"](#).

FRONT FENDER

< REMOVAL AND INSTALLATION >

[WITH INTELLIGENT KEY SYSTEM]

- Tighten bolts to specification. Refer to [DLK-238, "Exploded View"](#).

A
B
C
D
E
F
G
H
I
J
DLK
L
M
N
O
P

DLK

FRONT DOOR

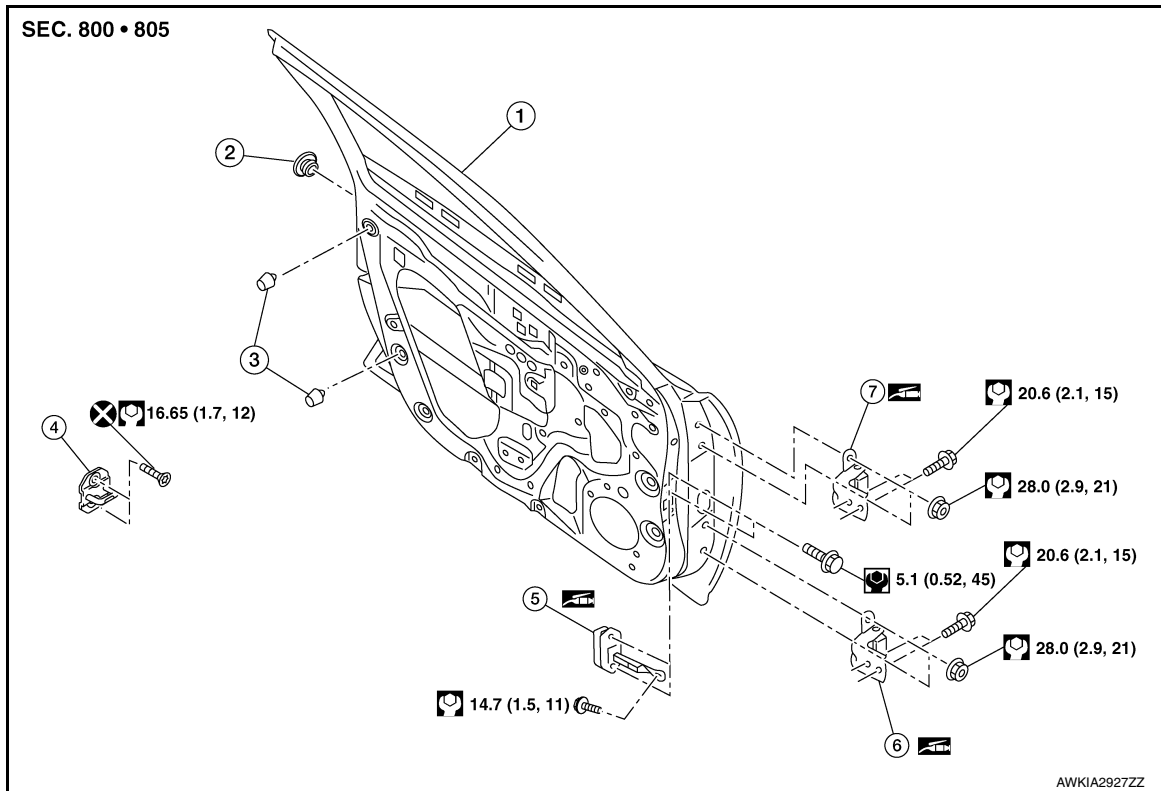
< REMOVAL AND INSTALLATION >

[WITH INTELLIGENT KEY SYSTEM]

FRONT DOOR

Exploded View

INFOID:0000000010247370



- | | | |
|---------------------------|--------------------|---------------------------|
| 1. Front door panel | 2. Grommet | 3. Bumper rubber |
| 4. Door striker | 5. Door check link | 6. Front door lower hinge |
| 7. Front door upper hinge | | |

DOOR ASSEMBLY

DOOR ASSEMBLY : Removal and Installation

INFOID:0000000010247371

CAUTION:

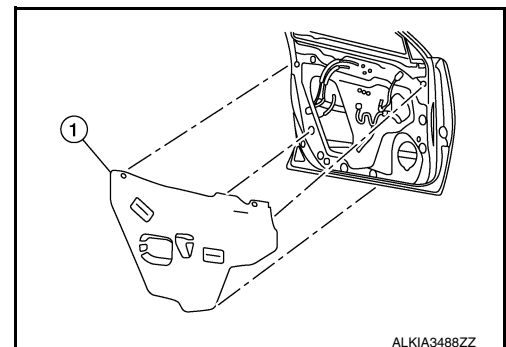
- Use two people when removing or installing the front door due to its heavy weight.
- When removing and installing front door assembly, support front door with a suitable tool.

REMOVAL

1. Remove front door finisher. Refer to [INT-15. "Removal and Installation"](#).
2. Remove front door vapor barrier (1).

NOTE:

LH side shown; RH similar.



3. Disconnect the harness connectors from the front door.
4. Remove front door harness grommet, then harness from the front door.

FRONT DOOR

< REMOVAL AND INSTALLATION >

[WITH INTELLIGENT KEY SYSTEM]

5. Remove front door check link bolt (body side).
6. Remove front door hinge nuts (door side) and front door assembly.

INSTALLATION

Installation is in the reverse order of removal.

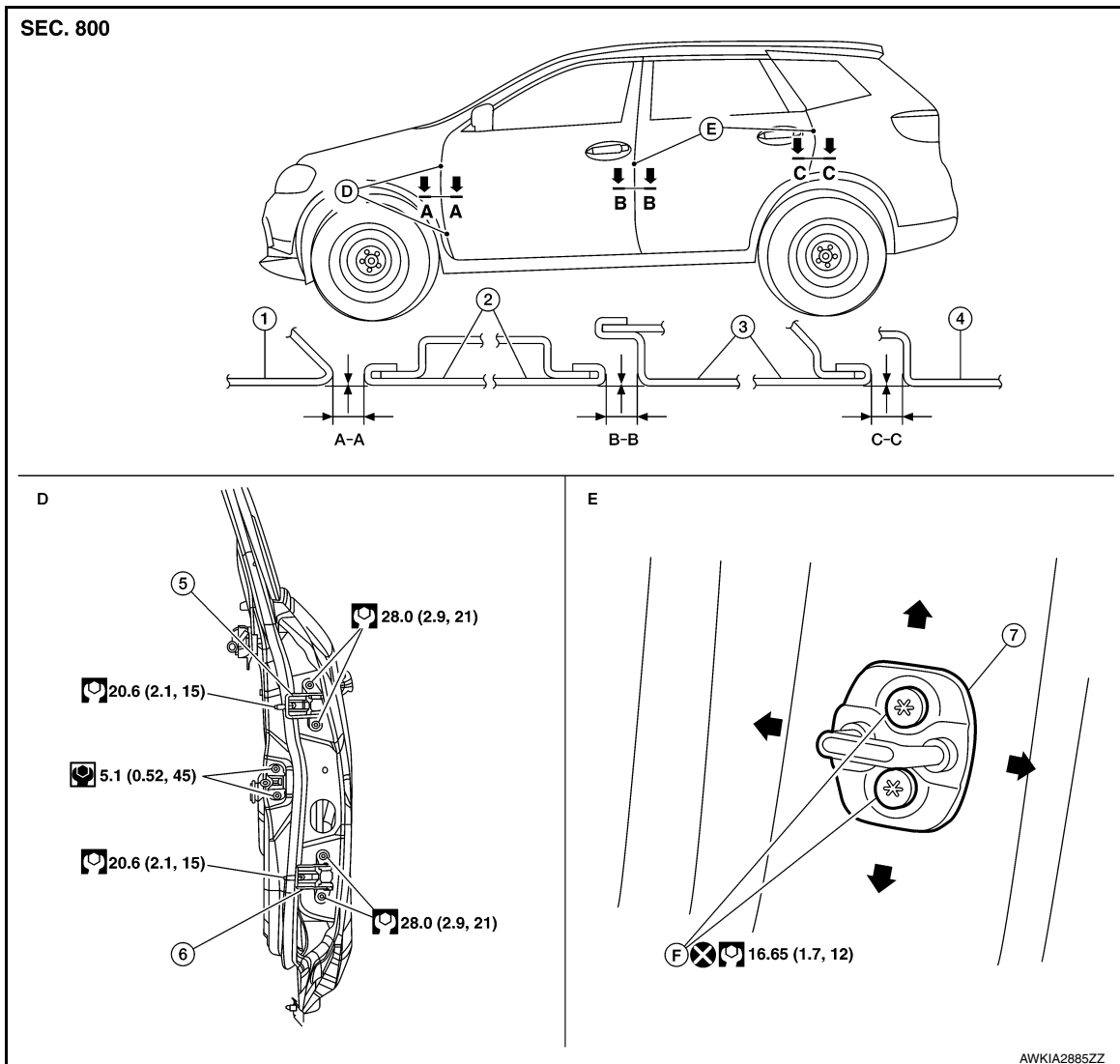
CAUTION:

- Tighten nuts/bolts to specified torque. Refer to [DLK-240, "Exploded View"](#).
- Apply anticorrosive agent where necessary.
- After installation, check front door open/close and lock/unlock operation.
- After installation, perform the front door adjustment procedure. Refer to [DLK-241, "DOOR ASSEMBLY : Adjustment"](#).

DOOR ASSEMBLY : Adjustment

INFOID:000000010247372

ADJUSTMENT



- | | | |
|--------------------|-----------------------------|---------------------------|
| 1. Front fender | 2. Front door | 3. Rear door |
| 4. Body side outer | 5. Front door upper hinge | 6. Front door lower hinge |
| 7. Door striker | F. Front door striker bolts | |

Check the clearance and surface height between front door and each part by visual inspection and tactile feel. If the clearance and the surface height are out of specification, adjust them according to the adjustment procedure.

FRONT DOOR

< REMOVAL AND INSTALLATION >

[WITH INTELLIGENT KEY SYSTEM]

Unit: mm (in)

Portion	Section	Measurement	Standard
Front fender - Front door	A – A	Clearance	4.2 ± 1.0 (0.17 ± 0.04)
		Surface height	± 1.0 (± 0.04)
Front door - Rear door	B – B	Clearance	4.5 ± 1.0 (0.18 ± 0.04)
		Surface height	± 1.0 (± 0.04)
Rear door - Body side outer	C – C	Clearance	4.0 ± 1.0 (0.16 ± 0.04)
		Surface height	± 1.0 (± 0.04)

1. Remove front fender. Refer to [DLK-238, "Removal and Installation"](#).
2. Loosen front door hinge nuts (door side).
3. Adjust the surface height of front door according to the specifications provided.
4. Temporarily tighten front door hinge nuts (door side).
5. Loosen front door hinge bolts (body side).
6. Raise front door at rear end to adjust clearance of the front door according to the specifications provided.
7. After adjustment tighten bolts and nuts to the specified torque.

CAUTION:

- Check door hinge rotating point for poor lubrication. If necessary, apply a suitable multi-purpose grease.
- After adjusting, apply touch-up paint (body color) to the head of front door hinge bolts and nuts.

8. Install front fender. Refer to refer to [DLK-238, "Removal and Installation"](#).

DOOR STRIKER

DOOR STRIKER : Removal and Installation

INFOID:0000000010247373

REMOVAL

Remove bolts and front door striker.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

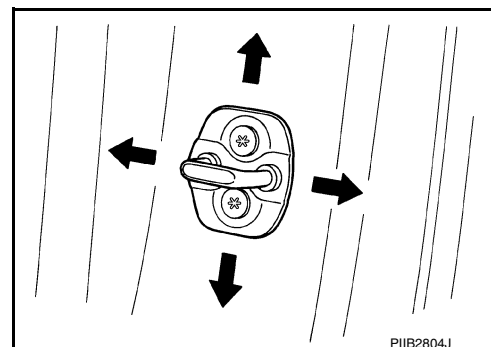
- Do not reuse front door striker bolts.
- After installation, check front door open/close operation. If necessary, adjust the front door striker. Refer to [DLK-242, "DOOR STRIKER : Adjustment"](#).
- Tighten bolts to specified torque. Refer to [DLK-240, "Exploded View"](#).

DOOR STRIKER : Adjustment

INFOID:0000000010247374

DOOR STRIKER ADJUSTMENT

1. Loosen door striker bolts
2. Adjust door striker so that it becomes parallel with front door lock insertion direction.



PIIB2804J

3. Tighten door striker bolts to specification. Refer to [DLK-240, "Exploded View"](#).

DOOR HINGE

DOOR HINGE : Removal and Installation

INFOID:0000000010247375

REMOVAL

1. Remove front fender. Refer to [DLK-238, "Removal and Installation"](#).
2. Remove front door assembly. Refer to [DLK-240, "DOOR ASSEMBLY : Removal and Installation"](#).
3. Remove front door hinge bolts (body side) and front door hinge.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Tighten nuts/bolts to specified torque. Refer to [DLK-240, "Exploded View"](#).
- Apply anticorrosive agent to the hinge mating surface.
- After installation, check front door open/close and lock/unlock operation.
- Check door hinge rotating point for poor lubrication. If necessary, apply a suitable multi-purpose grease.
- After installation, perform the front door adjustment procedure. Refer to [DLK-241, "DOOR ASSEMBLY : Adjustment"](#).

DOOR CHECK LINK

DOOR CHECK LINK : Removal and Installation

INFOID:0000000010247376

REMOVAL

1. Fully close the front door window.
2. Remove front door speaker. Refer to [AV-67, "Removal and Installation"](#) (DISPLAY AUDIO), [AV-213, "Removal and Installation"](#) (NAVIGATION WITHOUT BOSE) or [AV-381, "Removal and Installation"](#) (NAVIGATION WITH BOSE).
3. Remove door check link bolt (body side).
4. Remove door check link bolts (door side).
5. Remove door check link through the hole in door assembly.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Tighten nuts/bolts to specified torque. Refer to [DLK-240, "Exploded View"](#).
- After installation, check front door open/close and lock/unlock operation.
- Check door check link rotating point for poor lubrication. If necessary, apply a suitable multi-purpose grease.

REAR DOOR

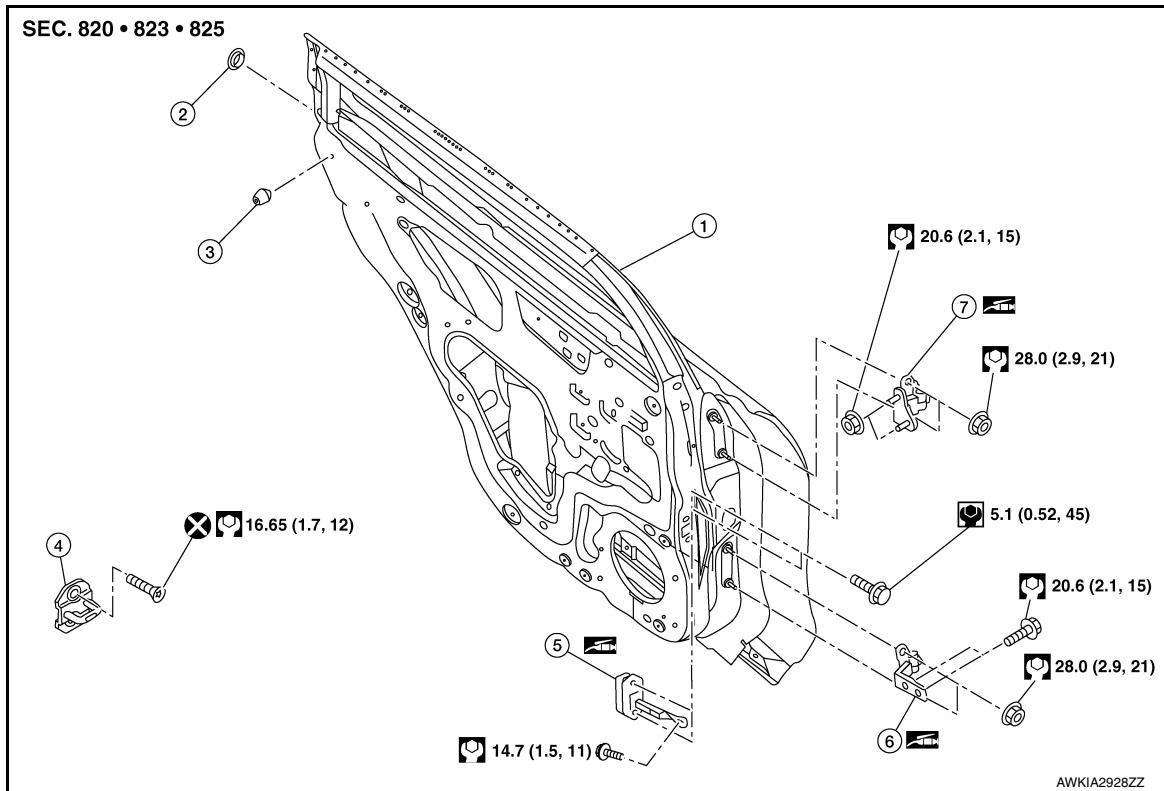
< REMOVAL AND INSTALLATION >

[WITH INTELLIGENT KEY SYSTEM]

REAR DOOR

Exploded View

INFOID:0000000010247377



- | | | |
|--------------------------|--------------------|--------------------------|
| 1. Rear door panel | 2. Grommet | 3. Bumper rubber |
| 4. Door striker | 5. Door check link | 6. Rear door lower hinge |
| 7. Rear door upper hinge | | |

DOOR ASSEMBLY

DOOR ASSEMBLY : Removal and Installation

INFOID:0000000010247378

CAUTION:

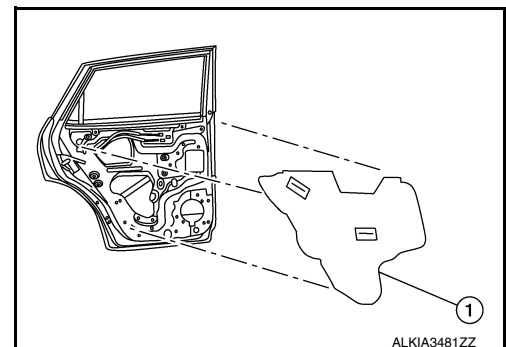
- Use two people when removing or installing the rear door due to its heavy weight.
- When removing and installing rear door assembly, support rear door using a suitable tool.

REMOVAL

1. Remove rear door finisher. Refer to [DLK-244. "DOOR ASSEMBLY : Removal and Installation"](#).
2. Remove rear door vapor barrier (1).

NOTE:

LH side shown; RH similar.



3. Disconnect the harness connectors from rear door.
4. Remove harness grommet from rear door, then pull out rear door harness from the rear door.

REAR DOOR

< REMOVAL AND INSTALLATION >

[WITH INTELLIGENT KEY SYSTEM]

5. Remove rear door check link bolt (body side).
6. Remove rear door hinge nuts (door side) and rear door assembly.

INSTALLATION

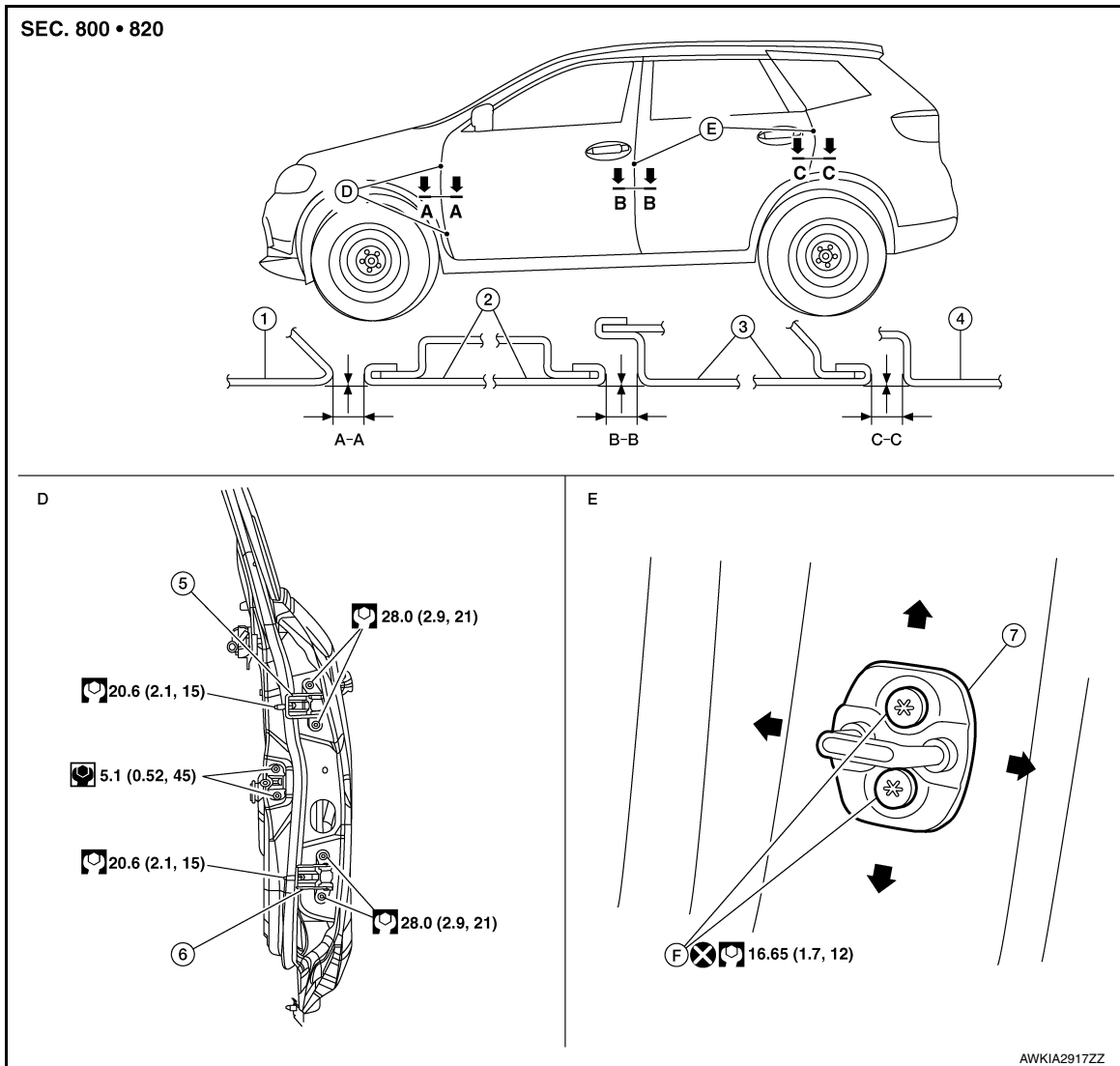
Installation is in the reverse order of removal.

CAUTION:

- Tighten nuts/bolts to specification. Refer to [DLK-244, "Exploded View"](#).
- Apply anticorrosive agent where necessary.
- After installation, check rear door open/close and lock/unlock operation.
- After installation, perform the rear door adjustment procedure. Refer to [DLK-245, "DOOR ASSEMBLY : Adjustment"](#).

DOOR ASSEMBLY : Adjustment

INFOID:000000010247379



- | | | |
|--------------------------|-----------------------|--------------------------|
| 1. Front fender | 2. Front door | 3. Rear door |
| 4. Body side outer | 5. Door striker | 6. Rear door upper hinge |
| 7. Rear door lower hinge | F. Door striker bolts | |

Check the clearance and surface height between rear door and each part by visual inspection and tactile feel. If the clearance and the surface height are out of specification, adjust them according to the adjustment procedures.

REAR DOOR

< REMOVAL AND INSTALLATION >

[WITH INTELLIGENT KEY SYSTEM]

Unit: mm (in)

Portion	Section	Measurement	Standard
Front fender - Front door	A – A	Clearance	4.0 ± 1.0 (0.16 ± 0.04)
		Surface height	± 1.0 (± 0.04)
Front door - Rear door	B – B	Clearance	4.3 ± 1.0 (0.17 ± 0.04)
		Surface height	± 1.0 (± 0.04)
Rear door - Body side outer	C – C	Clearance	3.7 ± 1.0 (0.15 ± 0.04)
		Surface height	± 1.0 (± 0.04)

1. Remove center pillar lower finisher. Refer to [INT-22, "CENTER PILLAR LOWER FINISHER : Removal and Installation"](#).
2. Loosen rear door hinge nuts (door side).
3. Adjust the surface height of rear door according to specifications provided.
4. Temporarily tighten rear door hinge nuts (door side).
5. Loosen rear door hinge nuts and bolts (body side).
6. Raise rear door at rear end to adjust clearance of rear door according to the specifications provided.
7. After adjustment tighten bolts and nuts to the specified torque.

CAUTION:

- Check rear door hinge rotating point for poor lubrication. If necessary, apply a suitable multi-purpose grease.
 - After adjusting, apply touch-up paint (body color) to the head of rear door hinge bolts and nuts.
8. Install center pillar lower finisher. Refer to [INT-22, "CENTER PILLAR LOWER FINISHER : Removal and Installation"](#).

DOOR STRIKER

DOOR STRIKER : Removal and Installation

INFOID:0000000010247380

REMOVAL

Remove bolts and rear door striker.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

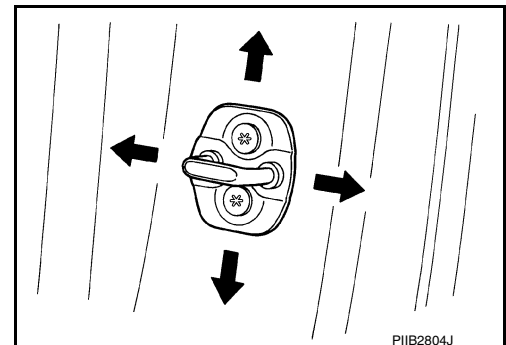
- Do not reuse rear door striker bolts.
- Tighten bolts to specification. Refer to [DLK-244, "Exploded View"](#).
- After installation, check rear door open/close operation. If necessary, adjust the door striker. Refer to [DLK-246, "DOOR STRIKER : Adjustment"](#).

DOOR STRIKER : Adjustment

INFOID:0000000010247381

DOOR STRIKER ADJUSTMENT

1. Loosen door striker bolts
2. Adjust door striker so that it becomes parallel with front door lock insertion direction.



3. Tighten door striker bolts to specification. Refer to [DLK-244, "Exploded View"](#).

DOOR HINGE

DOOR HINGE : Removal and Installation

INFOID:0000000010247382

REMOVAL

1. Remove rear door assembly. Refer to [DLK-244, "DOOR ASSEMBLY : Removal and Installation"](#).
2. Remove center pillar lower finisher (rear door lower hinge only). Refer to [INT-22, "CENTER PILLAR LOWER FINISHER : Removal and Installation"](#).
3. Remove rear door hinge bolts and nuts and rear door hinge.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Tighten nuts/bolts to specification. Refer to [DLK-244, "Exploded View"](#).
- Apply anticorrosive agent onto the hinge mating surface.
- After installation, check rear door open/close and lock/unlock operation.
- After installation, perform the rear door adjustment procedure. Refer to [DLK-245, "DOOR ASSEMBLY : Adjustment"](#).

DOOR CHECK LINK

DOOR CHECK LINK : Removal and Installation

INFOID:0000000010247383

REMOVAL

1. Fully close the rear door window.
2. Remove rear door speaker. Refer to [AV-68, "Removal and Installation"](#) (DISPLAY AUDIO), [AV-214, "Removal and Installation"](#) (NAVIGATION WITHOUT BOSE) or [AV-383, "Removal and Installation"](#) (NAVIGATION WITH BOSE).
3. Remove rear door check link bolt (body side).
4. Remove rear door check link bolts (door side).
5. Remove rear door check link through the hole in rear door panel.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Tighten bolts to specification. Refer to [DLK-244, "Exploded View"](#).
- After installation, check rear door open/close and lock/unlock operation.
- Check rear door check link rotating point for poor lubrication. If necessary, apply a suitable multi-purpose grease.

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

DLK

BACK DOOR

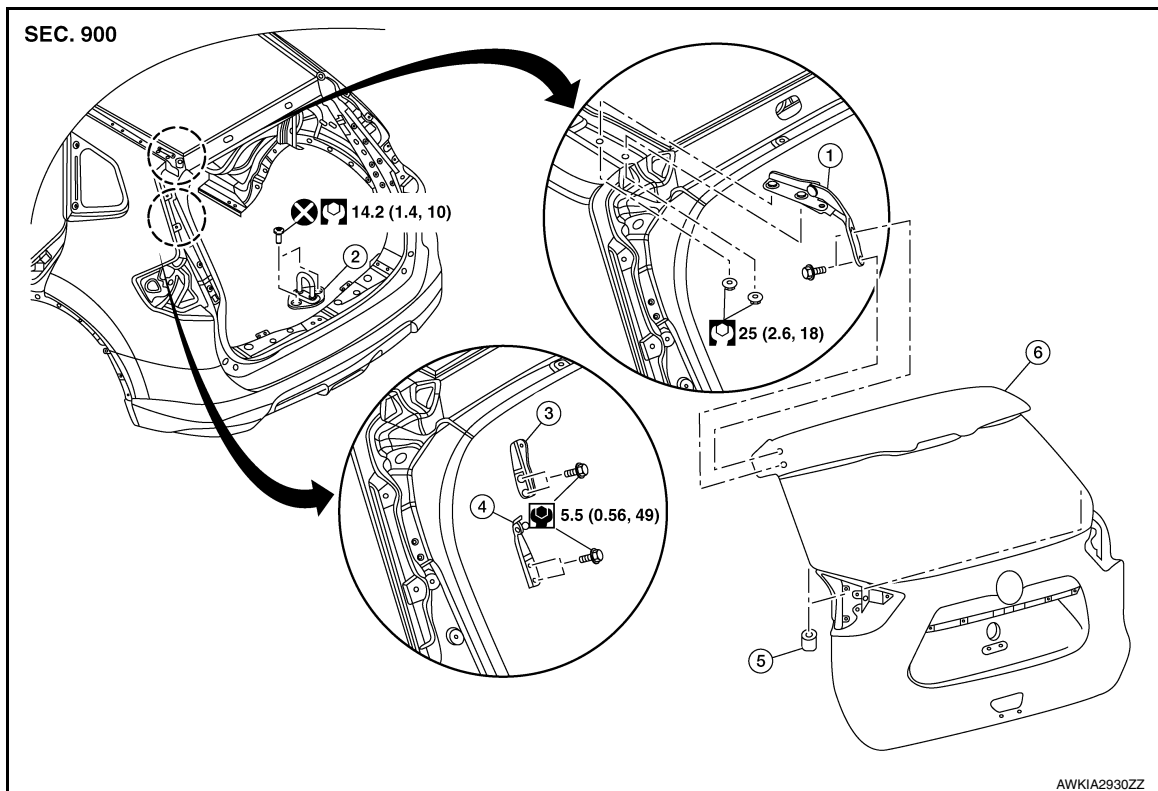
< REMOVAL AND INSTALLATION >

[WITH INTELLIGENT KEY SYSTEM]

BACK DOOR

Exploded View

INFOID:0000000010247384



- | | | |
|-------------------------|----------------------|--|
| 1. Back door hinge | 2. Back door striker | 3. Spindle unit hinge (with automatic back door) |
| 4. Back door stay hinge | 5. Bumper rubber | 6. Back door |

BACK DOOR ASSEMBLY

BACK DOOR ASSEMBLY : Removal and Installation

INFOID:0000000010247385

CAUTION:

- Use two people when removing or installing the back door due to its heavy weight.
- Use shop cloths to protect surrounding components from damage during removal and installation of back door.

REMOVAL

1. Support the back door assembly using a suitable tool.

WARNING:

Bodily injury may occur if back door assembly is not supported properly when removing the back door spindle unit.

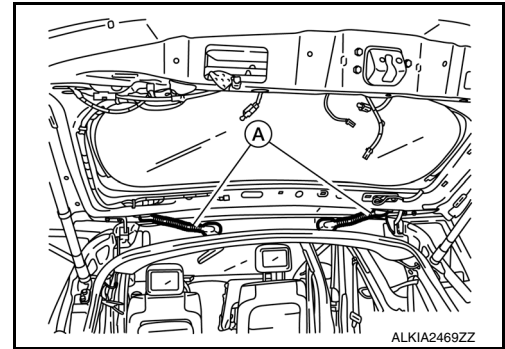
2. Remove spindle units (LH/RH) or back door stays (LH/RH). Refer to [DLK-263. "SPINDLE UNIT : Removal and Installation"](#) (WITH AUTOMATIC BACK DOOR) or [DLK-264. "BACK DOOR STAY : Removal and Installation"](#) (WITHOUT AUTOMATIC BACK DOOR).
3. Remove roof side moldings (LH/RH). Refer to [EXT-39. "Removal and Installation"](#).

BACK DOOR

< REMOVAL AND INSTALLATION >

[WITH INTELLIGENT KEY SYSTEM]

4. Disconnect harness connectors (A) from back door.



5. Remove back door harness grommet, then pull harness from the back door.
6. Disconnect washer tube.
7. Remove washer tube grommet and washer tube from the back door.
8. Remove back door hinge bolts (door side) and back door assembly.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Tighten bolts to specification. Refer to [DLK-248, "Exploded View"](#).
- Apply anticorrosive agent onto the surface between hinge and door side.
- When reusing stud ball, always apply locking sealant before installing stud ball to back door.
- After installation, perform the back door assembly adjustment procedure. Refer to [DLK-250, "BACK DOOR ASSEMBLY : Adjustment"](#).
- Perform calibration of automatic back door position information. Refer to [DLK-103, "Work Procedure"](#).

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

DLK

BACK DOOR

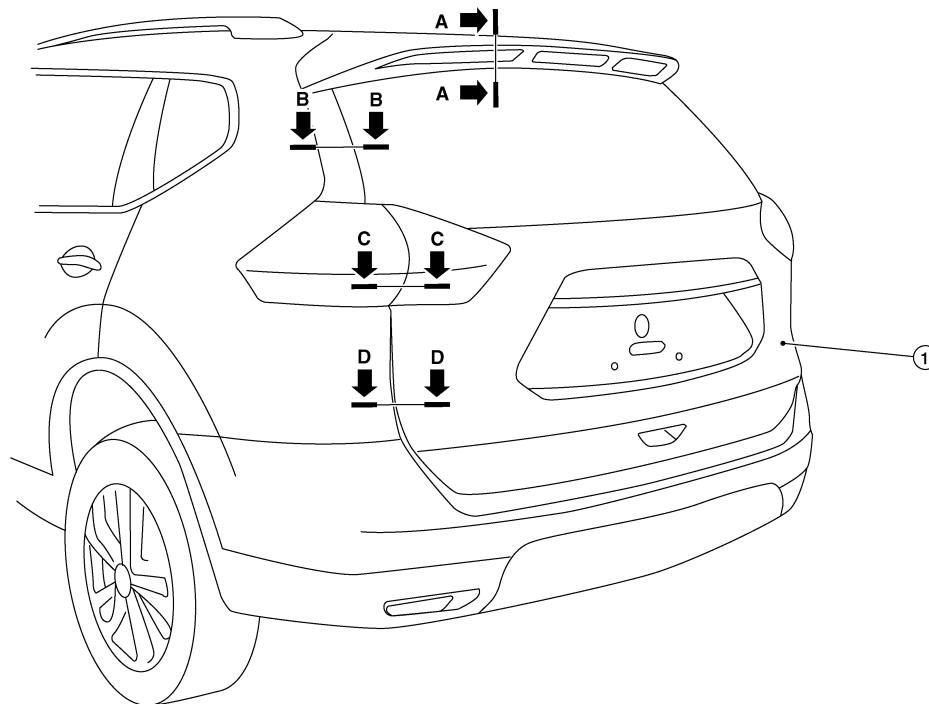
< REMOVAL AND INSTALLATION >

[WITH INTELLIGENT KEY SYSTEM]

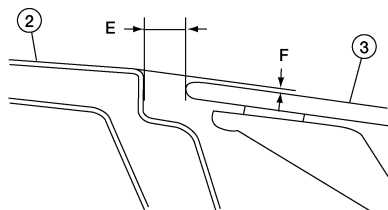
BACK DOOR ASSEMBLY : Adjustment

INFOID:000000010247386

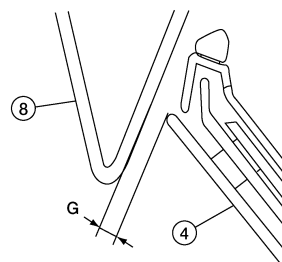
SEC. 900



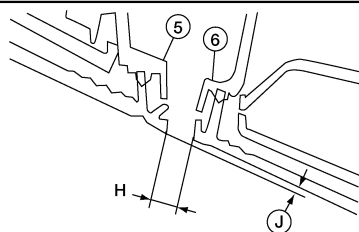
A-A



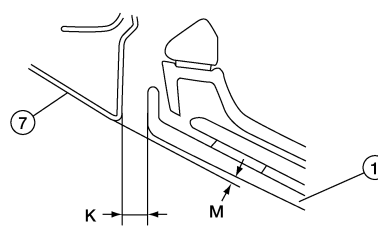
B-B



C-C



D-D



AWKIA2918ZZ

- | | | |
|-----------------------|--------------------------|-----------------|
| 1. Back door assembly | 2. Roof panel | 3. Rear spoiler |
| 4. Back door glass | 5. Rear combination lamp | 6. Back-up lamp |
| 7. Rear fender | 8. Side spoiler | |

Check the clearance and the surface height between back door and each part by visual inspection and tactile feel. If the clearance and the surface height are out of specification, adjust them according to the adjustment procedure.

BACK DOOR

< REMOVAL AND INSTALLATION >

[WITH INTELLIGENT KEY SYSTEM]

Unit: mm (in)

Portion	Section	Item	Measurement	Standard	Paralleism
Roof panel – Rear spoiler	A – A	E	Clearance	7.0 ± 2.0 (0.28 $\pm$ 0.08)	2.0 (0.08)
		F	Surface height	1.7 ± 2.0 (0.07 $\pm$ 0.08)	2.0 (0.08)
Side spoiler – Back door glass	B – B	G	Clearance	5.5 ± 2.0 (0.22 $\pm$ 0.08)	2.0 (0.08)
		H	Surface height	—	—
Rear combination lamp – Back-up lamp	C – C	J	Clearance	4.5 ± 2.0 (0.18 $\pm$ 0.08)	2.0 (0.08)
		K	Surface height	2.2 ± 2.0 (0.09 $\pm$ 0.08)	2.0 (0.08)
Rear fender – Back door	D – D	M	Clearance	4.7 ± 2.0 (0.19 $\pm$ 0.08)	2.0 (0.08)
		N	Surface height	2.5 ± 2.0 (0.10 $\pm$ 0.08)	2.0 (0.08)

- Loosen back door hinge nuts (door side).
- Lift up back door approximately 100 – 150 mm (3.94 – 5.91 in) height then close it lightly and check that it is engaged firmly with back door closed.
- Check the clearance and surface height according to the specifications provided.
- Tighten back door hinge nuts to specified torque.

CAUTION:

- After installation, check back door open/close, lock/unlock operation.
- Check back door hinge rotating point for poor lubrication. If necessary, apply a suitable multi-purpose grease.
- After adjusting, apply touch-up paint (body color) to the head of rear door hinge bolts and nuts.

BACK DOOR STRIKER

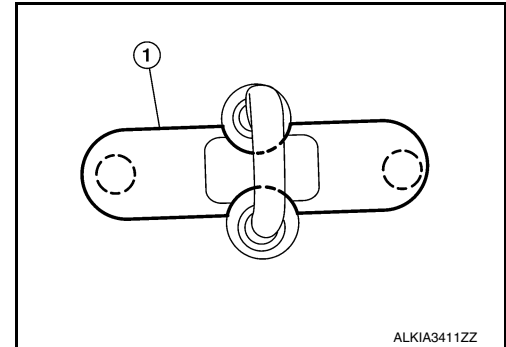
BACK DOOR STRIKER : Removal and Installation

INFOID:0000000010247387

REMOVAL

- Release back door striker cover (1) pawls using a suitable tool and remove.

(1): Pawl



- Remove bolts and back door striker.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Do not reuse back door striker bolts.
- Tighten bolts to specification. Refer to [DLK-248, "Exploded View"](#).
- After installation, check back door open/close operation. If necessary, adjust the door striker. Refer to [DLK-251, "BACK DOOR STRIKER : Adjustment"](#).

BACK DOOR STRIKER : Adjustment

INFOID:0000000010247388

DOOR STRIKER ADJUSTMENT

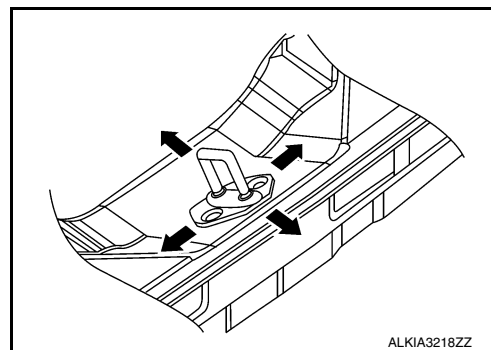
- Loosen door striker bolts

BACK DOOR

< REMOVAL AND INSTALLATION >

[WITH INTELLIGENT KEY SYSTEM]

2. Adjust door striker so that it becomes parallel with front door lock insertion direction.



3. Tighten door striker bolts to specification. Refer to [DLK-248, "Exploded View"](#).

BACK DOOR HINGE

BACK DOOR HINGE : Removal and Installation

INFOID:0000000010247389

REMOVAL

1. Remove back door assembly. Refer to [DLK-248, "BACK DOOR ASSEMBLY : Removal and Installation"](#).
2. Partially remove the rear of the headlining. Refer to [INT-30, "Removal and Installation"](#).
3. Remove nuts and back door hinge.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Tighten nuts to specification. Refer to [DLK-248, "Exploded View"](#).
- Apply anticorrosive agent onto the surface between hinge and body side.
- After installation, perform the back door assembly adjustment procedure. Refer to [DLK-250, "BACK DOOR ASSEMBLY : Adjustment"](#).

BACK DOOR WEATHER-STRIP

BACK DOOR WEATHER-STRIP : Removal and Installation

INFOID:0000000010247392

REMOVAL

Carefully remove back door weather-strip from opening door joint.

INSTALLATION

1. Beginning with upper section, align weather-strip mark with vehicle center position mark and install weather strip to the vehicle.
2. For the lower section, align weather-strip seam with center of back door striker.

NOTE:

Pull weather-strip gently to ensure that there are no loose sections.

HOOD LOCK

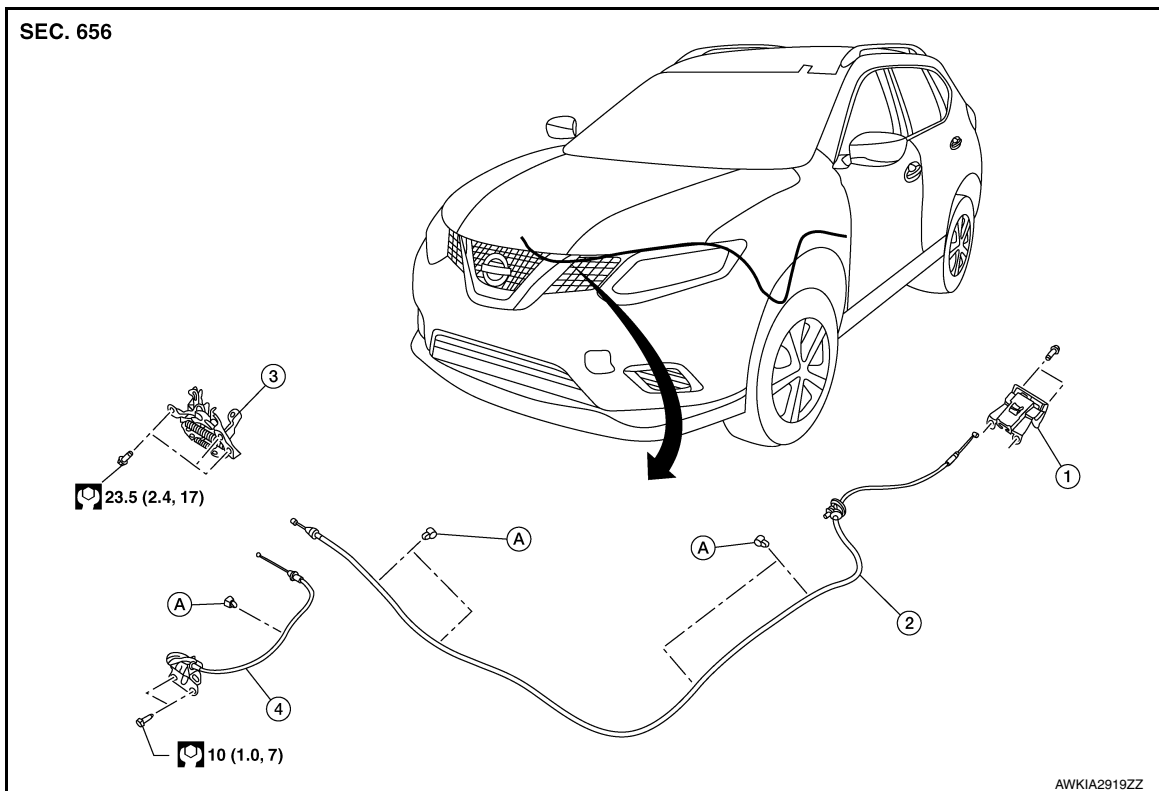
< REMOVAL AND INSTALLATION >

[WITH INTELLIGENT KEY SYSTEM]

HOOD LOCK

Exploded View

INFOID:0000000010247393



1. Hood lock release handle
4. Secondary latch

2. Hood lock release cable
A. Clip

3. Hood lock

HOOD LOCK

HOOD LOCK : Removal and Installation

INFOID:0000000010247394

REMOVAL

1. Disconnect hood lock release cable and secondary latch cable from hood lock.
2. Remove bolts and hood lock.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Tighten bolts to specified torque. Refer to [DLK-253, "Exploded View"](#).
- Check that hood lock release cable and secondary latch cable are properly engaged with hood lock.
- After installation, perform hood assembly adjustment procedure. Refer to [DLK-234, "HOOD ASSEMBLY : Adjustment"](#).
- After adjusting, perform hood lock inspection. Refer to [DLK-253, "HOOD LOCK : Inspection"](#).

HOOD LOCK : Inspection

INFOID:0000000010247395

NOTE:

If the hood lock cable is bent or deformed, replace it.

1. Check that secondary latch is properly engaged with secondary striker with hoods own weight.
2. While operating hood lock release handle, carefully check that the front end of hood assembly is raised by approximately 20.0 mm (0.79 in). Also check that hood lock release handle returns to the original position.
3. Check that hood lock release handle operates at 49 N (5.0 kg-m, 11.0 ft-lb) or below.

HOOD LOCK

< REMOVAL AND INSTALLATION >

[WITH INTELLIGENT KEY SYSTEM]

4. Install so that static closing force of hood is 315-490 N (32.1-50.0 kg-m, 70.8-110.2 ft-lb).

NOTE:

- Do not exert vertical force on right side and left side of hood lock.
- Do not press simultaneously on both sides.

5. Check the hood lock lubrication condition. If necessary, apply a suitable multi-purpose grease to hood lock assembly.

SECONDARY LATCH

SECONDARY LATCH : Removal and Installation

INFOID:0000000010247396

REMOVAL

1. Remove front grille. Refer to [EXT-23, "Removal and Installation"](#).
2. Disconnect secondary latch cable from hood lock assembly.
3. Remove bolts and secondary latch.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Tighten bolts to specified torque. Refer to [DLK-253, "Exploded View"](#).
- Check that secondary latch cable is properly engaged with hood lock.

HOOD LOCK RELEASE CABLE

HOOD LOCK RELEASE CABLE : Removal and Installation

INFOID:0000000010247397

REMOVAL

1. Remove fender protector (LH). Refer to [EXT-28, "FENDER PROTECTOR : Removal and Installation"](#).
2. Remove front grille. Refer to [EXT-23, "Removal and Installation"](#).
3. Disconnect hood lock release cable from hood lock release handle and hood lock.
4. Release hood lock release cable clips using a suitable tool.
5. Remove grommet on the lower dash and carefully pull the hood lock release cable into the passenger compartment.

CAUTION:

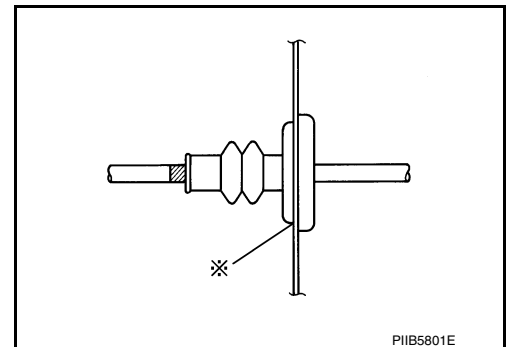
While pulling, be careful not to damage (peel) the outside of hood lock release cable.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Be careful not to bend cable too much, keep the radius 100 mm (3.94 in) or more.
- Check that cable is not offset from the positioning grommet, and apply the sealant to the grommet (at * mark) properly.



- Check that hood lock release cable is properly engaged with hood lock assembly.
- After installation, perform hood assembly adjustment procedure. Refer to [DLK-234, "HOOD ASSEMBLY : Adjustment"](#).
- After adjusting, perform hood lock inspection. Refer to [DLK-253, "HOOD LOCK : Inspection"](#).

HOOD LOCK RELEASE HANDLE

HOOD LOCK

< REMOVAL AND INSTALLATION >

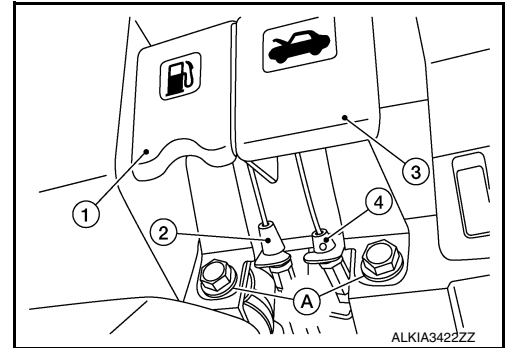
[WITH INTELLIGENT KEY SYSTEM]

HOOD LOCK RELEASE HANDLE : Removal and Installation

INFOID:0000000010282400

REMOVAL

1. Remove fuel filler lid/hood lock release handle bolts (A).
2. Disconnect fuel filler lid release cable (2) from fuel filler lid release handle (1).
3. Disconnect hood lock release cable (4) from hood lock release handle (3).
4. Remove hood lock release handle.



INSTALLATION

Installation is in the reverse order of removal.

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

DLK

FRONT DOOR LOCK

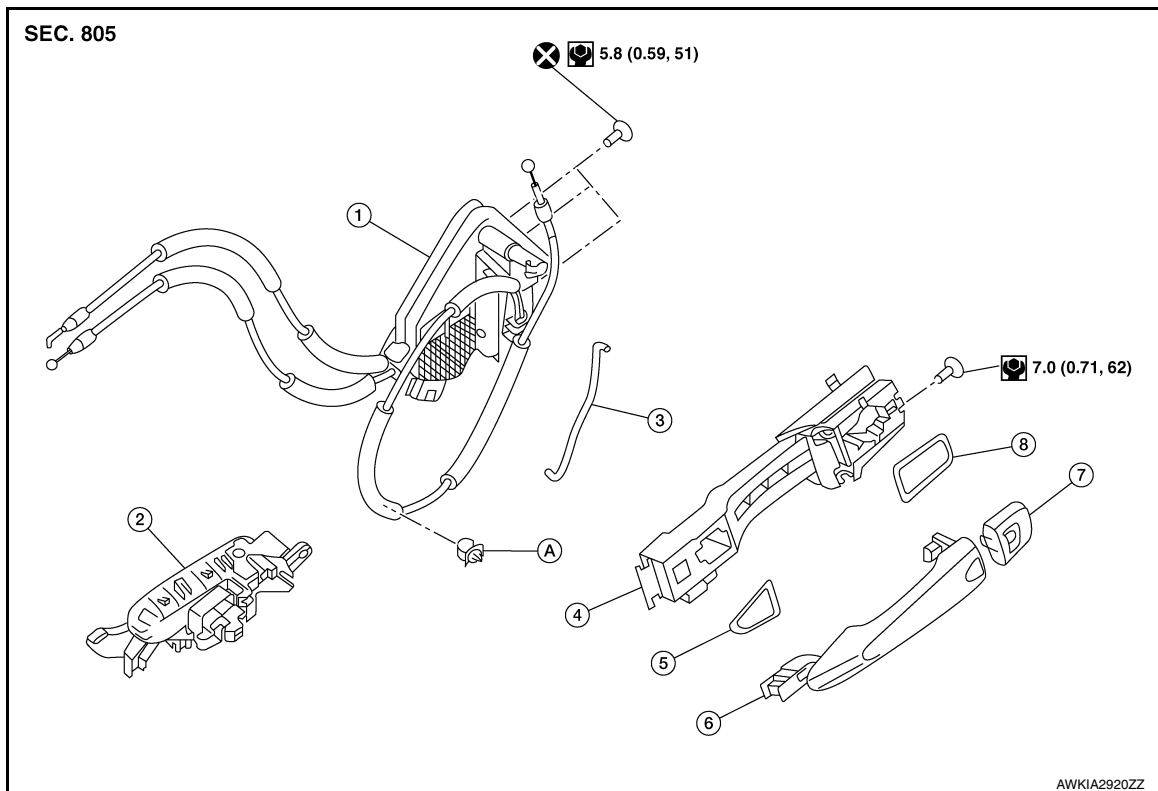
< REMOVAL AND INSTALLATION >

[WITH INTELLIGENT KEY SYSTEM]

FRONT DOOR LOCK

Exploded View

INFOID:0000000010247398



- | | | |
|--|------------------|------------------------------------|
| 1. Front door lock | 2. Inside handle | 3. Door key cylinder rod (LH only) |
| 4. Outside handle bracket | 5. Front gasket | 6. Outside handle |
| 7. Outside handle escutcheon / door key cylinder (LH only) | 8. Rear gasket | A. Clip |

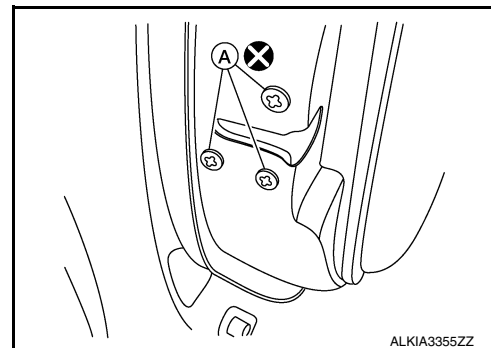
DOOR LOCK

DOOR LOCK : Removal and Installation

INFOID:0000000010247399

REMOVAL

1. Remove front door finisher. Refer to [INT-15. "Removal and Installation"](#).
2. Remove vapor barrier.
3. Remove front door lock bolts (A).

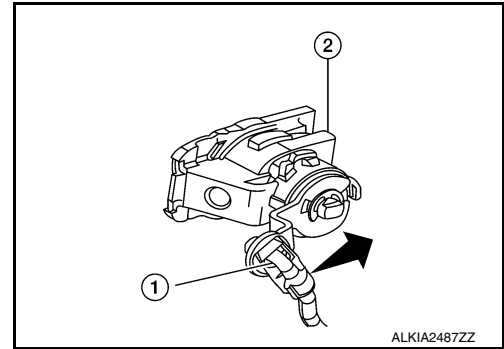


FRONT DOOR LOCK

< REMOVAL AND INSTALLATION >

[WITH INTELLIGENT KEY SYSTEM]

4. Disconnect door key cylinder rod (LH only) (1) from front door lock (2) (LH only).



5. Disconnect door lock cables from inside handle and outside handle..
6. Disconnect the harness connector from the front door lock and remove.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Do not reuse front door lock bolts.
- Tighten bolts to specification. Refer to [DLK-256, "Exploded View"](#).
- After installation, check door lock cables are properly engaged to inside handle and outside handle bracket.
- When installing door key cylinder rod (LH only), be sure to rotate door key cylinder rod holder until a click is felt.
- After installation, check door open/close and lock/unlock operation.
- Check door lock assembly for poor lubrication. If necessary apply a suitable multi-purpose grease.

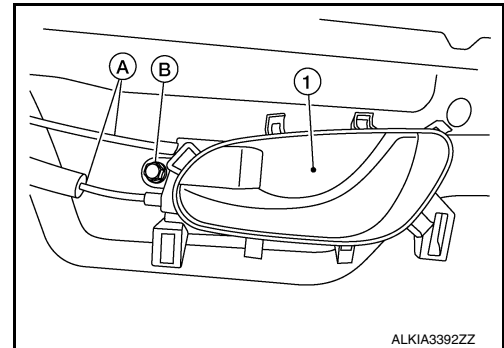
INSIDE HANDLE

INSIDE HANDLE : Removal and Installation

INFOID:0000000010247400

REMOVAL

1. Remove front door finisher. Refer to [INT-15, "Removal and Installation"](#).
2. Remove inside handle bolt (B).
3. Disconnect the door lock cables (A) and remove inside handle (1).



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- After installation, check door lock cables are properly engaged to inside handle.
- After installation, check door open/close and lock/unlock operation.

OUTSIDE HANDLE

OUTSIDE HANDLE : Removal and Installation

INFOID:0000000010247401

REMOVAL

1. Fully close front door glass.
2. Remove front door finisher. Refer to [INT-15, "Removal and Installation"](#).

FRONT DOOR LOCK

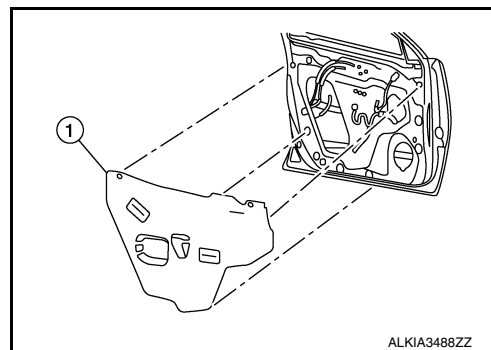
< REMOVAL AND INSTALLATION >

[WITH INTELLIGENT KEY SYSTEM]

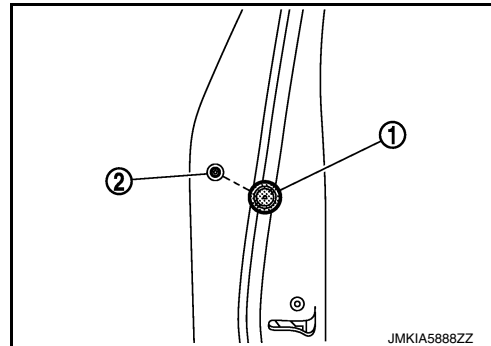
3. Remove front door vapor barrier (1).

NOTE:

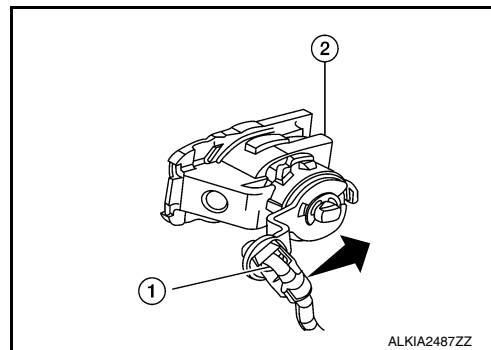
LH side shown; RH similar.



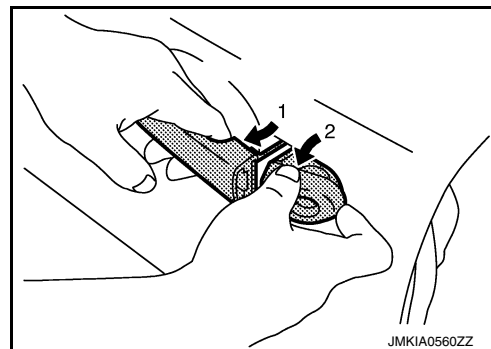
4. Remove door side grommet (1), and remove bolt from grommet hole (2).



5. Separate door key cylinder rod (LH only) (1) from door key cylinder assembly (LH only) (2).



6. While pulling (1) outside handle, remove (2) door key cylinder assembly (LH side) or outside handle escutcheon (RH side).

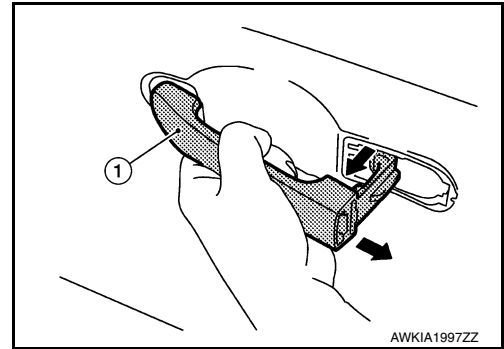


FRONT DOOR LOCK

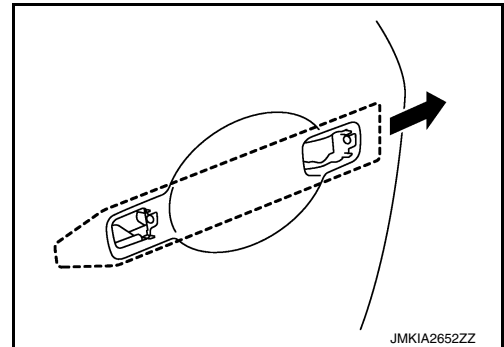
< REMOVAL AND INSTALLATION >

[WITH INTELLIGENT KEY SYSTEM]

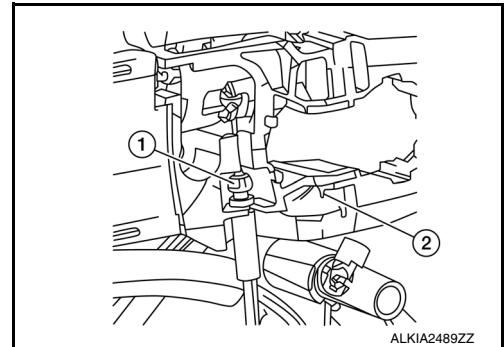
7. While pulling outside handle (1), slide toward rear of vehicle to remove outside handle.



8. Remove front gasket and rear gasket.
9. Slide outside handle bracket toward rear of vehicle to remove.



10. Disconnect outside handle cable (1) from outside handle bracket (2) as shown.



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- When installing door key cylinder rod (LH only), be sure to rotate door key cylinder rod holder until a click is felt.
- After installation, check door lock cable is properly engaged to outside handle bracket.
- After installation, check door open/close and lock/unlock operation.

REAR DOOR LOCK

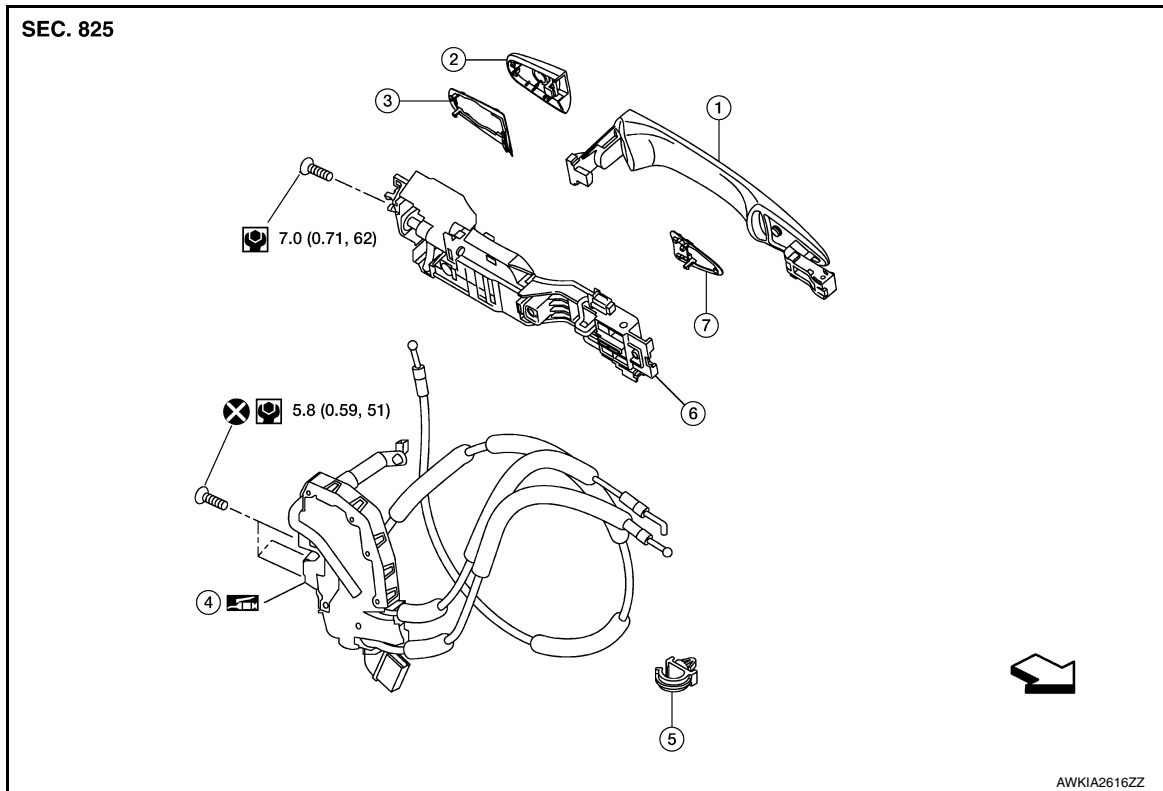
< REMOVAL AND INSTALLATION >

[WITH INTELLIGENT KEY SYSTEM]

REAR DOOR LOCK

Exploded View

INFOID:0000000010247402



- | | | |
|-------------------|------------------------------|---------------------------|
| 1. Outside handle | 2. Outside handle escutcheon | 3. Rear gasket |
| 4. Rear door lock | 5. Cable clip | 6. Outside handle bracket |
| 7. Front gasket | ↔ Front | |

DOOR LOCK

DOOR LOCK : Removal and Installation

INFOID:0000000010247403

REMOVAL

1. Remove rear door finisher. Refer to [INT-18, "Removal and Installation"](#).
2. Remove vapor barrier.
3. Remove rear door lock bolts.
4. Disconnect the door lock cables.
5. Disconnect the harness connector from the rear door lock and remove.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Do not reuse rear door lock bolts.
- Tighten bolts to specification. Refer to [DLK-260, "Exploded View"](#).
- After installation, check door lock cables are properly engaged to inside handle and outside handle.
- After installation, check door open/close and lock/unlock operation.

INSIDE HANDLE

INSIDE HANDLE : Removal and Installation

INFOID:0000000010247404

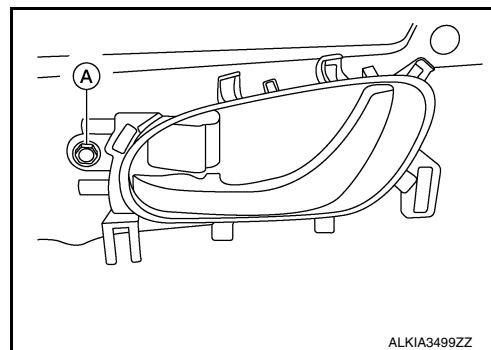
REMOVAL

REAR DOOR LOCK

< REMOVAL AND INSTALLATION >

[WITH INTELLIGENT KEY SYSTEM]

1. Remove rear door finisher. Refer to [INT-18, "Removal and Installation"](#).
2. Remove inside handle bolt (A).



3. Disconnect door lock cables from inside handle and remove.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- After installation, check door lock cables are properly engaged to inside handle.
- After installation, check door open/close and lock/unlock operation.

OUTSIDE HANDLE

OUTSIDE HANDLE : Removal and Installation

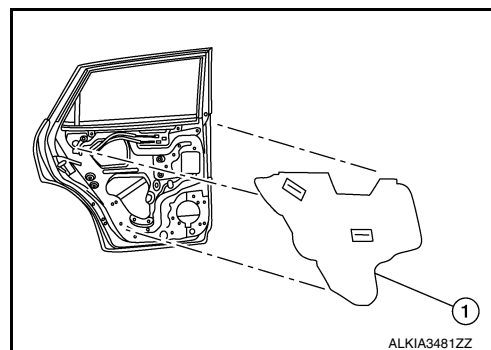
INFOID:0000000010247405

REMOVAL

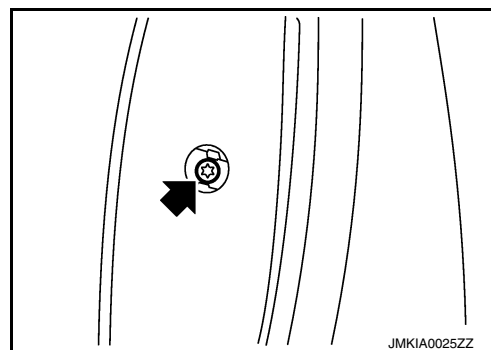
1. Fully close rear door glass.
2. Remove rear door finisher. Refer to [INT-18, "Removal and Installation"](#).
3. Remove rear door vapor barrier (1).

NOTE:

LH side shown; RH similar.



4. Remove door side grommet and bolt from grommet hole.

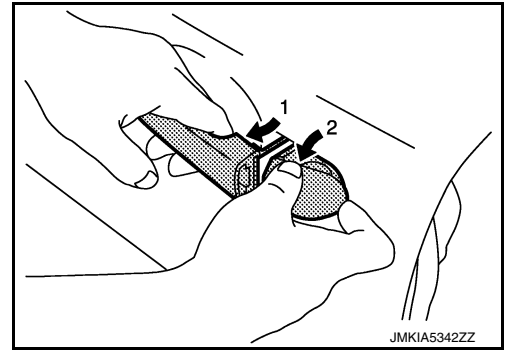


REAR DOOR LOCK

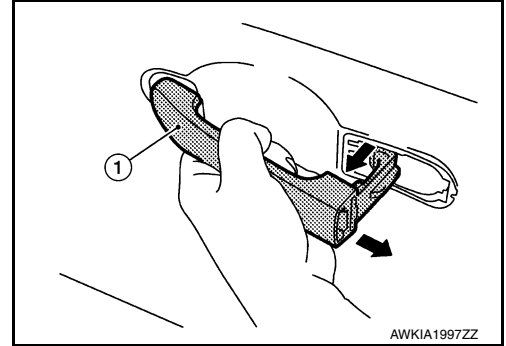
< REMOVAL AND INSTALLATION >

[WITH INTELLIGENT KEY SYSTEM]

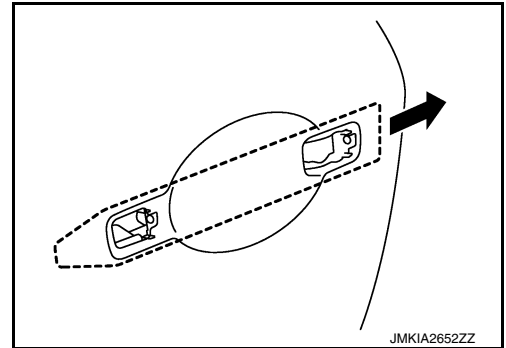
5. While pulling (1) outside handle, remove (2) outside handle escutcheon.



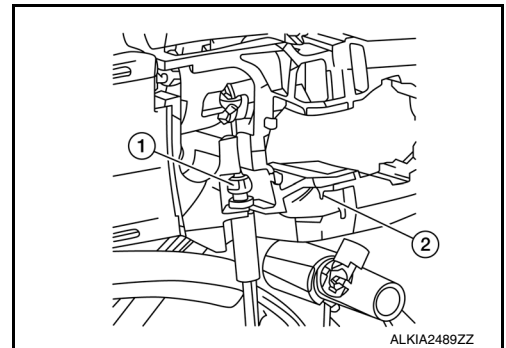
6. While pulling outside handle (1), slide toward rear of vehicle to remove outside handle.



7. Remove front gasket and rear gasket.
8. Slide outside handle bracket toward rear of vehicle to remove.



9. Disconnect outside handle cable (1) from outside handle bracket (2) as shown.



INSTALLATION

Installation in the reverse order of removal.

CAUTION:

- After installation, check door lock cable is properly engaged to outside handle bracket.
- After installation, check door open/close and lock/unlock operation.

BACK DOOR LOCK

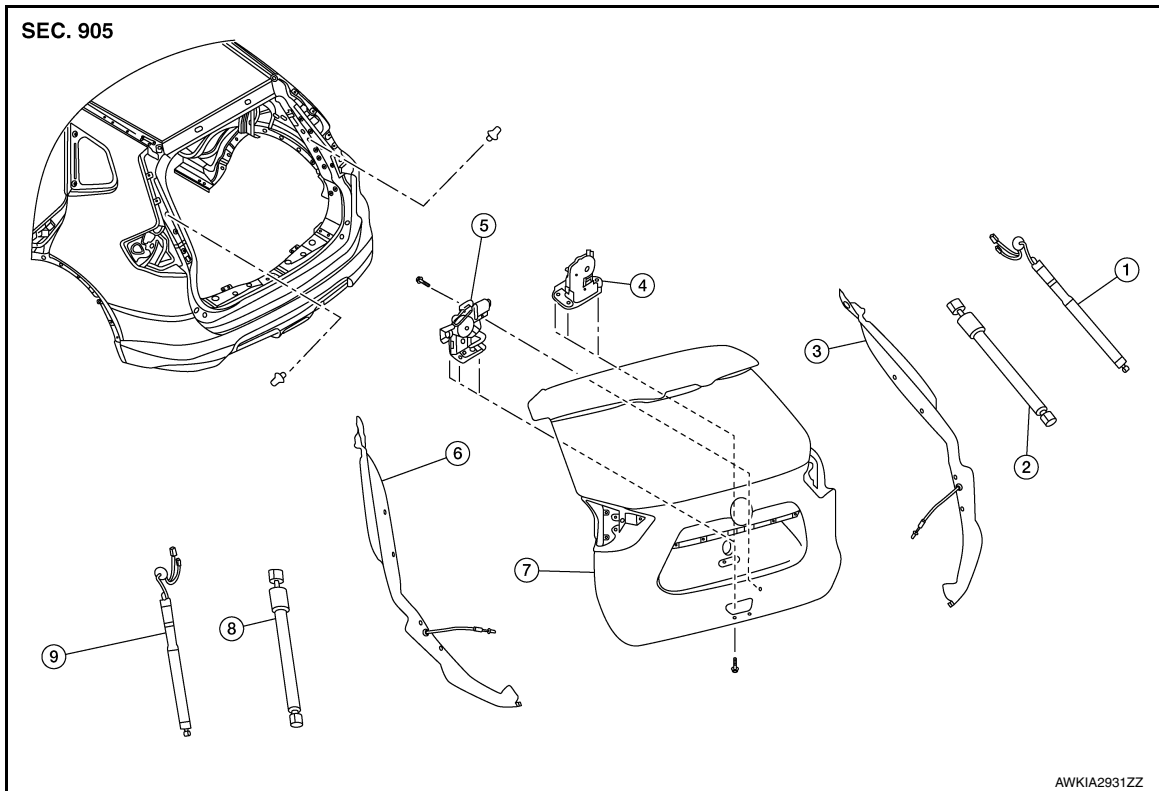
< REMOVAL AND INSTALLATION >

[WITH INTELLIGENT KEY SYSTEM]

BACK DOOR LOCK

Exploded View

INFOID:0000000010247406



- | | | |
|---|--|---|
| 1. Spindle unit (RH) (with automatic back door) | 2. Back door stay (RH) | 3. Back door touch sensor (RH) (with automatic back door) |
| 4. Back door lock | 5. Back door lock (with automatic back door) | 6. Back door touch sensor (LH) (with automatic back door) |
| 7. Back door | 8. Back door stay (LH) | 9. Spindle unit (LH) (with automatic back door) |

DOOR LOCK

DOOR LOCK : Removal and Installation

INFOID:0000000010247407

REMOVAL

1. Remove back door finisher. Refer to [INT-38, "Removal and Installation"](#).
2. Disconnect the harness connector from the back door lock.
3. Remove bolts and back door lock.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Tighten bolts to specification. Refer to [DLK-263, "Exploded View"](#).
- After installation, check back door open/close and lock/unlock operation.

SPINDLE UNIT

SPINDLE UNIT : Removal and Installation

INFOID:0000000010247390

REMOVAL

1. Support back door using a suitable tool.

BACK DOOR LOCK

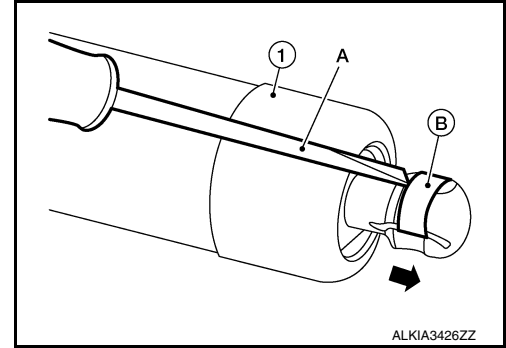
< REMOVAL AND INSTALLATION >

[WITH INTELLIGENT KEY SYSTEM]

WARNING:

Bodily injury may occur if the back door is not supported properly when removing the back door spindle unit.

- Partially remove headlining (rear edge). Refer to [INT-29, "Exploded View"](#).
- Remove ball socket spring (B) from spindle unit (1) using a suitable tool (A).



- Disconnect the harness connector from the spindle unit and remove.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- When reusing stud ball, always apply locking sealant before installing stud ball to back door.
- After installation, check back door open/close, lock/unlock operation.
- Perform calibration of automatic back door position information. Refer to [DLK-103, "Work Procedure"](#).

BACK DOOR STAY

BACK DOOR STAY : Removal and Installation

INFOID:0000000010247391

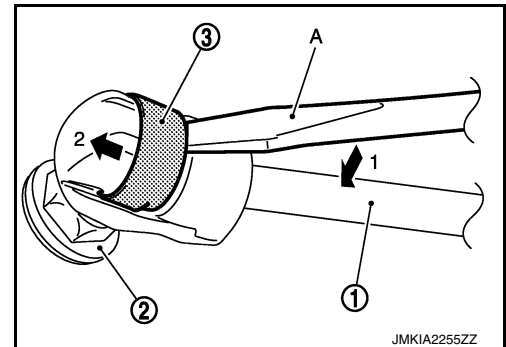
REMOVAL

- Support the back door using a suitable tool.

WARNING:

Body injury may occur if no supporting rod is holding the back door open when removing the back door stay.

- Release the metal clip (3) located on the connection between the back door stay (1) and the stud ball (2) (back door side) using a suitable tool (A).
- Remove the back door stay (back door side).



- Repeat procedure for removing back door stay from body side.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

After installation, check the back door open/close operation.

TOUCH SENSOR

TOUCH SENSOR : Removal and Installation

INFOID:0000000010247408

CAUTION:

Use care not to bend touch sensor.

BACK DOOR LOCK

< REMOVAL AND INSTALLATION >

[WITH INTELLIGENT KEY SYSTEM]

REMOVAL

1. Release the spindle unit from the stud ball (with power back door).
2. Release the back door stay from the stud ball (without power back door).
3. Release touch sensor clips using a suitable tool.
4. Disconnect the harness connector from the touch sensor and remove.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

After installation, check back door open/close and lock/unlock operation.

EMERGENCY LEVER

EMERGENCY LEVER : Unlock procedures

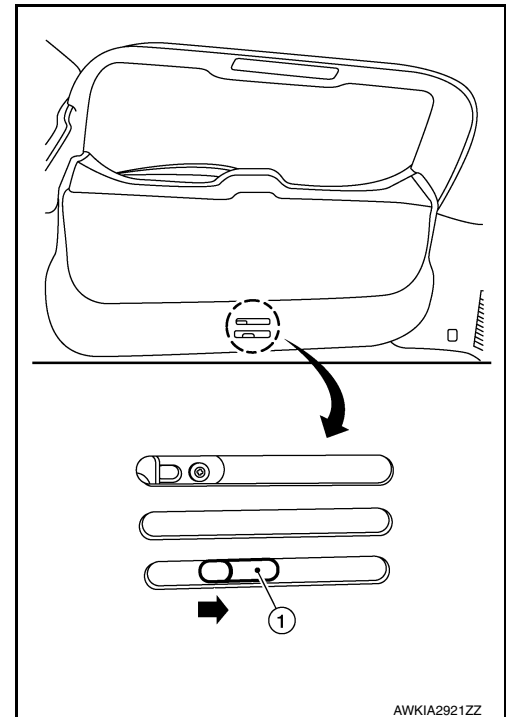
INFOID:000000010247409

UNLOCK PROCEDURES

NOTE:

If back door lock cannot be unlocked due to a malfunction or battery discharge, perform the following procedures to unlock back door assembly.

1. From inside the vehicle, rotate emergency lever (1) in the direction shown to unlock.



FUEL FILLER LID OPENER

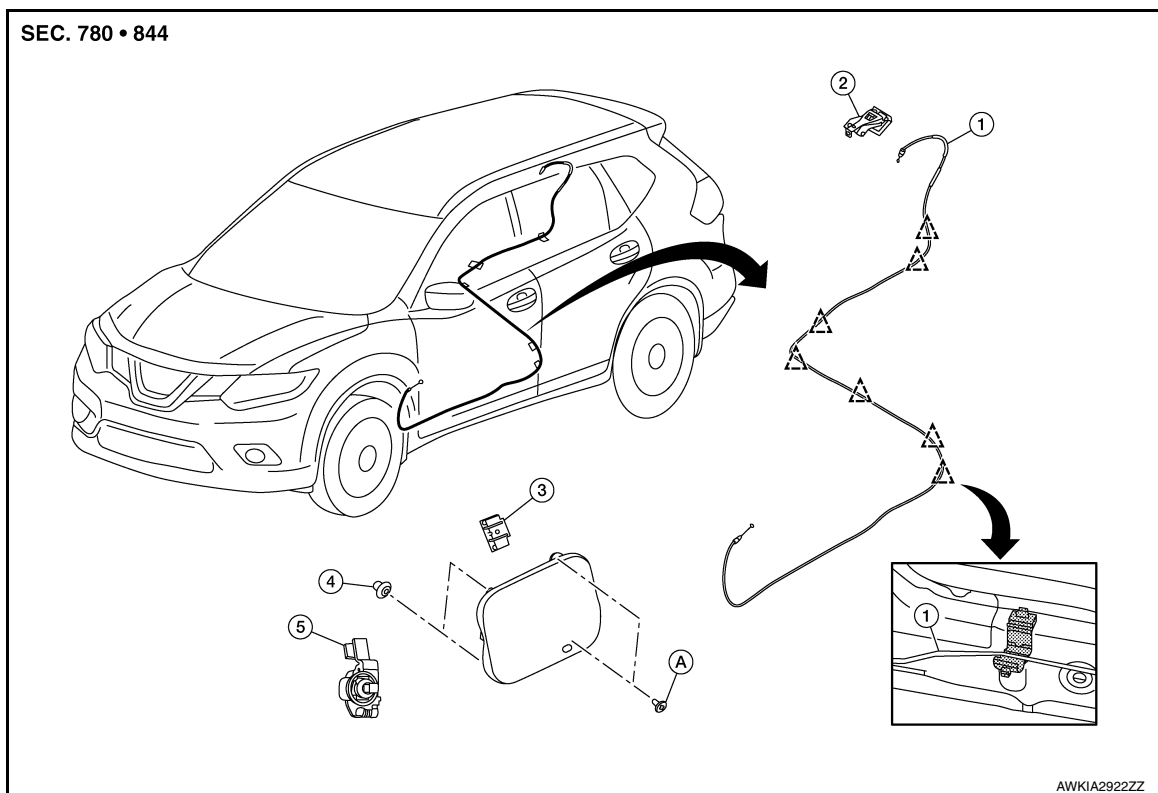
< REMOVAL AND INSTALLATION >

[WITH INTELLIGENT KEY SYSTEM]

FUEL FILLER LID OPENER

Exploded View

INFOID:0000000010247410



1. Fuel filler lid release cable

2. Fuel filler lid release handle

3. Spring

4. Bumper rubber

5. Fuel filler lid lock

A. Screw

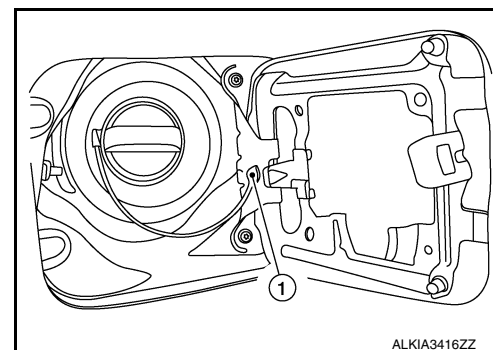
FUEL FILLER LID

FUEL FILLER LID : Removal and Installation

INFOID:0000000010247411

REMOVAL

1. Remove fuel cap pin (1).

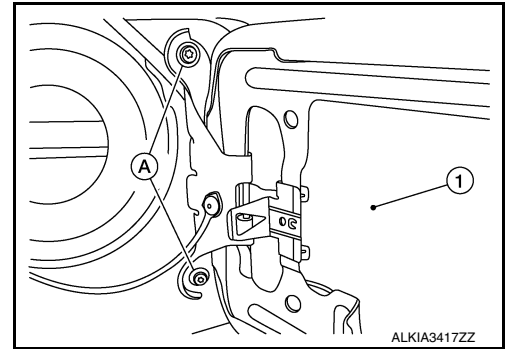


FUEL FILLER LID OPENER

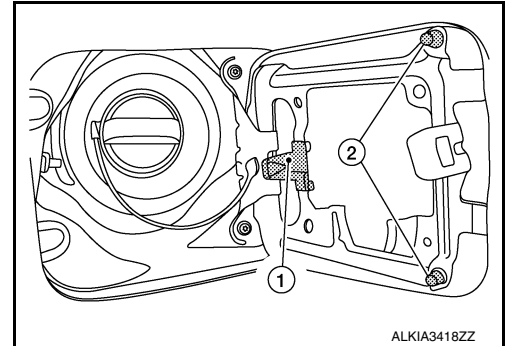
< REMOVAL AND INSTALLATION >

[WITH INTELLIGENT KEY SYSTEM]

2. Remove screws(2) and fuel filler lid (1).



3. Remove fuel filler lid spring (1) and bumper rubber (2) from fuel filler lid (if necessary).



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

After installation, check fuel filler lid open/close, lock/unlock operation.

FUEL FILLER LID LOCK

FUEL FILLER LID LOCK : Removal and Installation

INFOID:0000000010282265

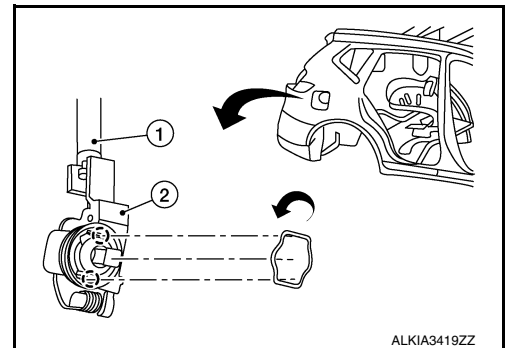
REMOVAL

1. Remove luggage side lower finisher (RH). Refer to [INT-34, "LUGGAGE SIDE LOWER FINISHER : Removal and Installation - With Third Row Seat"](#) (With Third Row Seat) or [INT-35, "LUGGAGE SIDE LOWER FINISHER : Removal and Installation - Without Third Row Seat"](#) (Without Third Row Seat).

2. Disconnect the fuel filler lid release cable (1) from the fuel filler lid lock (2).

3. Rotate fuel filler lid lock to release pawls and remove.

(○): Pawl



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

After installation, check fuel filler lid open/close, lock/unlock operation.

FUEL FILLER LID RELEASE CABLE

FUEL FILLER LID RELEASE CABLE : Removal and Installation

INFOID:0000000010282266

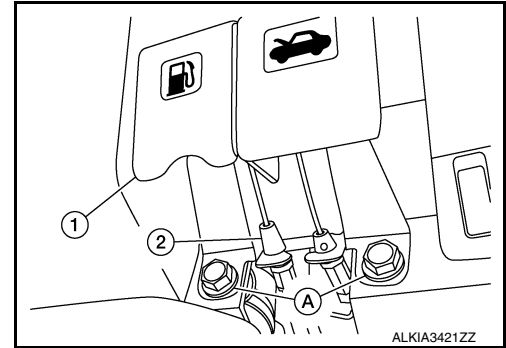
REMOVAL

FUEL FILLER LID OPENER

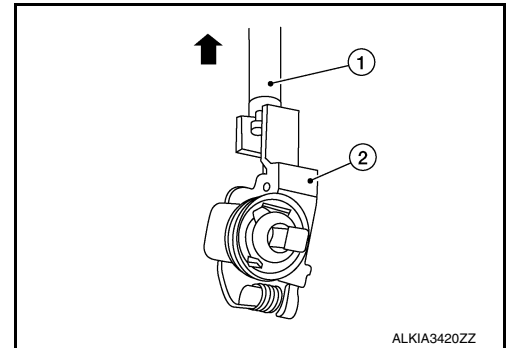
< REMOVAL AND INSTALLATION >

[WITH INTELLIGENT KEY SYSTEM]

1. Partially remove front floor trim. Refer to [INT-26, "Removal and Installation"](#).
2. Remove rear floor trim. Refer to [INT-26, "Removal and Installation"](#).
3. Remove the fuel filler lid/hood lock release handle bolts (A)
4. Disconnect the fuel filler lid release cable (2) from fuel filler lid release handle (1).



5. Disconnect the fuel filler lid release cable (1) from fuel filler lid lock (2).



6. Release the clips and remove fuel filler lid release cable.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

After installation, check fuel filler lid open/close, lock/unlock operation.

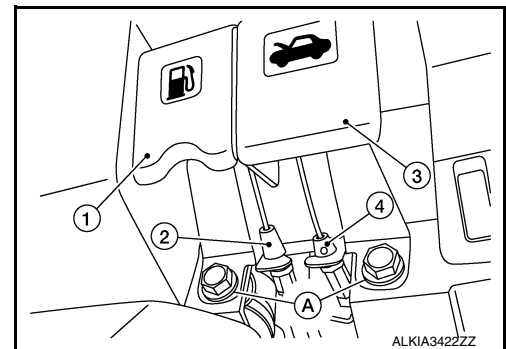
FUEL FILLER LID RELEASE HANDLE

FUEL FILLER LID RELEASE HANDLE : Removal and Installation

INFOID:000000010282267

REMOVAL

1. Remove fuel filler lid/hood lock release handle bolts (A).
2. Disconnect fuel filler lid release cable (2) from fuel filler lid release handle (1).
3. Disconnect hood lock release cable (4) from hood lock release handle (3).
4. Remove fuel filler lid release handle.



INSTALLATION

Installation is in the reverse order of removal.

DOOR SWITCH

< REMOVAL AND INSTALLATION >

[WITH INTELLIGENT KEY SYSTEM]

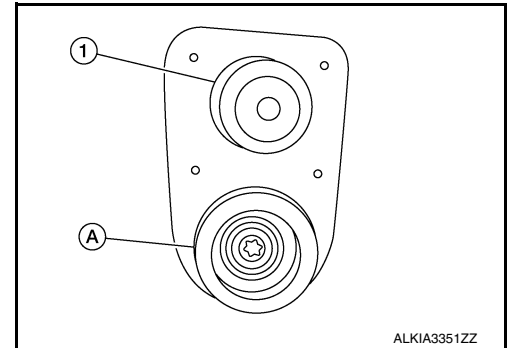
DOOR SWITCH

Removal and Installation

INFOID:000000010247413

REMOVAL

1. Remove the door switch bolt (A).
2. Disconnect the harness connector from the door switch (1) and remove.



INSTALLATION

Installation is in the reverse order of removal.

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

DLK

DOOR REQUEST SWITCH

< REMOVAL AND INSTALLATION >

[WITH INTELLIGENT KEY SYSTEM]

DOOR REQUEST SWITCH

DRIVER SIDE

DRIVER SIDE : Removal and Installation

INFOID:0000000010247414

The driver side door request switch and driver side outside handle are serviced as an assembly. Refer to [DLK-257, "OUTSIDE HANDLE : Removal and Installation"](#).

PASSENGER SIDE

PASSENGER SIDE : Removal and Installation

INFOID:0000000010247415

The passenger side door request switch and passenger side outside handle are serviced as an assembly. Refer to [DLK-257, "OUTSIDE HANDLE : Removal and Installation"](#).

BACK DOOR

BACK DOOR : Removal and Installation

INFOID:0000000010247416

REMOVAL

1. Remove back door finisher. Refer to [INT-38, "Removal and Installation"](#).
2. Disconnect the harness connector from the back door request switch.
3. Release pawls and remove back door request switch.

INSTALLATION

Installation is in the reverse order of removal.

INSIDE KEY ANTENNA

< REMOVAL AND INSTALLATION >

[WITH INTELLIGENT KEY SYSTEM]

INSIDE KEY ANTENNA INSTRUMENT CENTER

INSTRUMENT CENTER : Removal and Installation

INFOID:0000000010247417

REMOVAL

1. Remove front air control or A/C switch assembly. Refer to [HAC-181. "Removal and Installation"](#) (MANUAL AIR CONDITIONING) or [HAC-102. "Removal and Installation"](#) (AUTOMATIC AIR CONDITIONING).
2. Disconnect the harness connector from the inside key antenna (instrument center).
3. Release pawls and remove inside key antenna (instrument center).

INSTALLATION

Installation is in the reverse order of removal.

CONSOLE

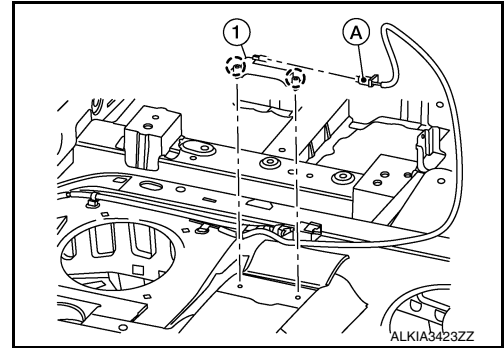
CONSOLE : Removal and Installation

INFOID:0000000010247419

REMOVAL

1. Remove rear floor trim. Refer to [INT-26. "Removal and Installation"](#).
2. Disconnect the harness connector (A) from the inside key antenna (console) (1).
3. Release pawls and remove inside key antenna (console).

○: Pawl



INSTALLATION

Installation is in the reverse order of removal.

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

DLK

OUTSIDE KEY ANTENNA

< REMOVAL AND INSTALLATION >

[WITH INTELLIGENT KEY SYSTEM]

OUTSIDE KEY ANTENNA

DRIVER SIDE

DRIVER SIDE : Removal and Installation

INFOID:0000000010247420

The driver side outside key antenna and driver side outside handle are serviced as an assembly. Refer to [DLK-257, "OUTSIDE HANDLE : Removal and Installation"](#).

PASSENGER SIDE

PASSENGER SIDE : Removal and Installation

INFOID:0000000010247421

The passenger side outside key antenna and passenger side outside handle are serviced as an assembly. Refer to [DLK-257, "OUTSIDE HANDLE : Removal and Installation"](#).

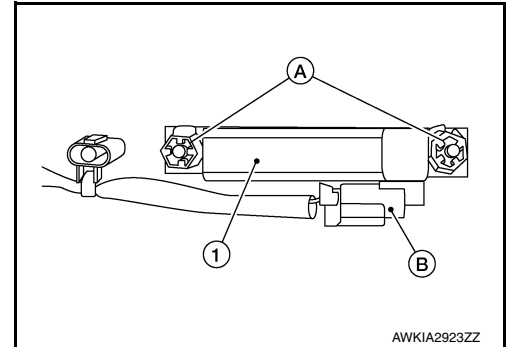
REAR BUMPER

REAR BUMPER : Removal and Installation

INFOID:0000000010247422

REMOVAL

1. Remove rear bumper fascia. Refer to [EXT-20, "Removal and Installation"](#).
2. Disconnect the harness connector (B) from the outside key antenna (rear bumper).
3. Release clips (A) and remove outside key antenna (1)



INSTALLATION

Installation is in the reverse order of removal.

INTELLIGENT KEY WARNING BUZZER

< REMOVAL AND INSTALLATION >

[WITH INTELLIGENT KEY SYSTEM]

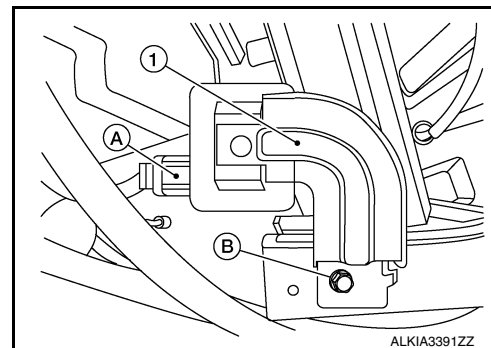
INTELLIGENT KEY WARNING BUZZER

Removal and Installation

INFOID:000000010247423

REMOVAL

1. Remove front combination lamp (RH). Refer to [EXL-119, "Removal and Installation"](#) (HALOGEN HEADLAMP) or [EXL-268, "Removal and Installation"](#) (LED HEADLAMP).
2. Disconnect the harness connector (A) from the Intelligent Key warning buzzer (1).
3. Remove bolt (B) and Intelligent Key warning buzzer.



INSTALLATION

Installation is in the reverse order of removal.

DLK

BACK DOOR WARNING CHIME

< REMOVAL AND INSTALLATION >

[WITH INTELLIGENT KEY SYSTEM]

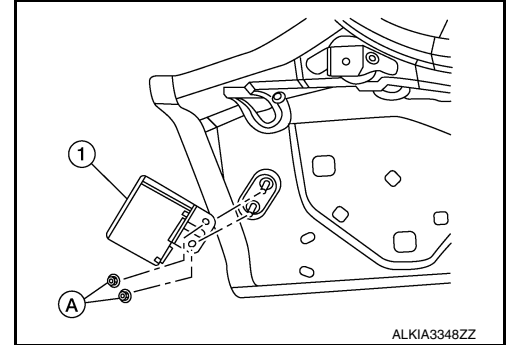
BACK DOOR WARNING CHIME

Removal and Installation

INFOID:0000000010247424

REMOVAL

1. Remove the rear bumper fascia. Refer to [EXT-20. "Removal and Installation"](#).
2. Disconnect the harness connector from the back door warning chime.
3. Remove nuts (A) and back door warning chime (1).



INSTALLATION

Installation is in the reverse order of removal.

INTELLIGENT KEY BATTERY

< REMOVAL AND INSTALLATION >

[WITH INTELLIGENT KEY SYSTEM]

INTELLIGENT KEY BATTERY

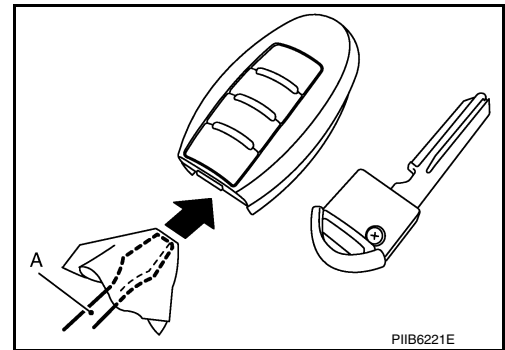
Removal and Installation

INFOID:000000010247426

1. Release the lock knob on the back of the Intelligent Key and remove the key.
2. Insert a suitable tool (A) wrapped with a cloth into the slit of the corner and twist it to separate the upper part from the lower part.

CAUTION:

- Do not insert a tool into the notches of the Intelligent Key to pry it open, as this may damage the circuit board.
- Do not use excessive force when opening the intelligent key, as this may result in damage to the internal components.
- Do not touch the circuit board or battery terminal.
- The key fob is water-resistant. However, if it does get wet, immediately wipe it dry.



3. Replace the battery with a new one.

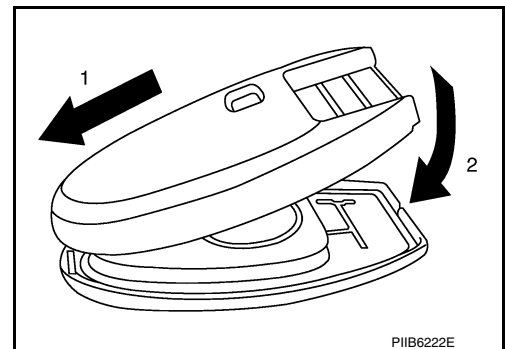
Battery replacement

**:Coin-type lithium battery
(CR2025)**

4. Align the tips of the upper and lower parts, and then push them together until unit is securely closed.

CAUTION:

- When replacing battery, keep dirt, grease, and other foreign materials off the electrode contact area.
- After replacing the battery, check that all Intelligent Key functions work normally.



A
B
C
D
E
F
G
H
I
J
DLK
L
M
N
O
P

AUTOMATIC BACK DOOR CONTROL MODULE

< REMOVAL AND INSTALLATION >

[WITH INTELLIGENT KEY SYSTEM]

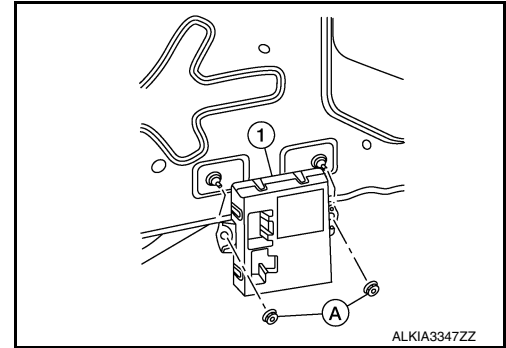
AUTOMATIC BACK DOOR CONTROL MODULE

Removal and Installation

INFOID:0000000010247427

REMOVAL

1. Remove the luggage side lower finisher (LH). Refer to [INT-34. "LUGGAGE SIDE LOWER FINISHER : Removal and Installation - With Third Row Seat"](#).
2. Disconnect the harness connectors from the automatic back door control module.
3. Remove nuts (A) and automatic back door control module (1).



INSTALLATION

Installation is in the reverse order of removal.

AUTOMATIC BACK DOOR MAIN SWITCH

< REMOVAL AND INSTALLATION >

[WITH INTELLIGENT KEY SYSTEM]

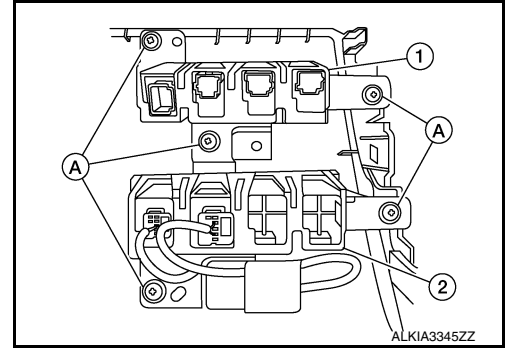
AUTOMATIC BACK DOOR MAIN SWITCH

Removal and Installation

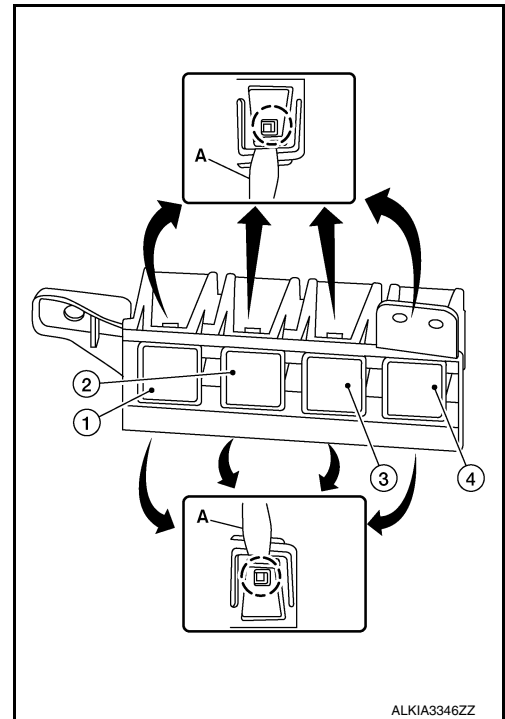
INFOID:000000010247428

REMOVAL

1. Remove the instrument lower panel LH. Refer to [IP-22. "Removal and Installation"](#).
2. Remove the screws (A) that retain the upper (1) and lower (2) switch carriers.



3. Release pawls using a suitable tool (A), then remove the automatic back door main switch (4) from the upper switch carrier.
(1): Traction control switch
(2): Sport mode switch
(3): Automatic back door switch
(4): Automatic back door main switch



INSTALLATION

Installation is in the reverse order of removal.

AUTOMATIC BACK DOOR SWITCH

< REMOVAL AND INSTALLATION >

[WITH INTELLIGENT KEY SYSTEM]

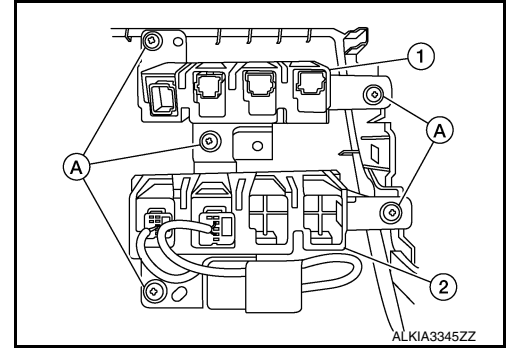
AUTOMATIC BACK DOOR SWITCH

Removal and Installation

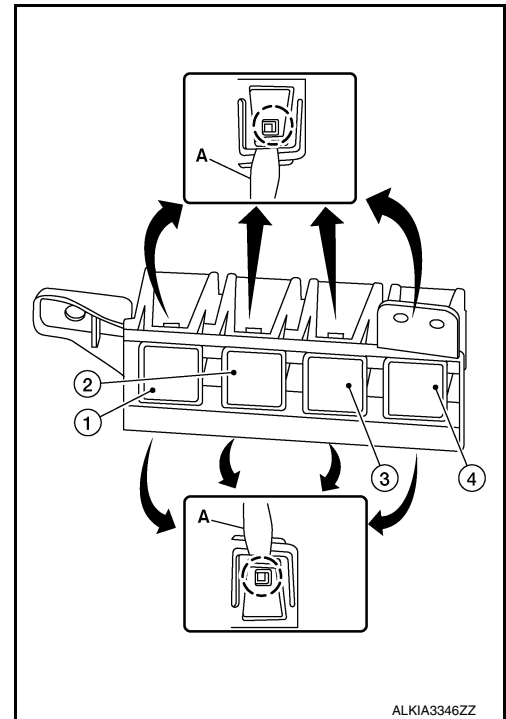
INFOID:0000000010247429

REMOVAL

1. Remove the instrument lower panel LH. Refer to [IP-22. "Removal and Installation"](#).
2. Remove the screws (A) that retain the upper (1) and lower (2) switch carriers.



3. Release pawls using a suitable tool (A), then remove the automatic back door switch (3) from the upper switch carrier.
- (1): Traction control switch
(2): Sport mode switch
(3): Automatic back door switch
(4): Automatic back door main switch



INSTALLATION

Installation is in the reverse order of removal.

AUTOMATIC BACK DOOR CLOSE SWITCH

< REMOVAL AND INSTALLATION >

[WITH INTELLIGENT KEY SYSTEM]

AUTOMATIC BACK DOOR CLOSE SWITCH

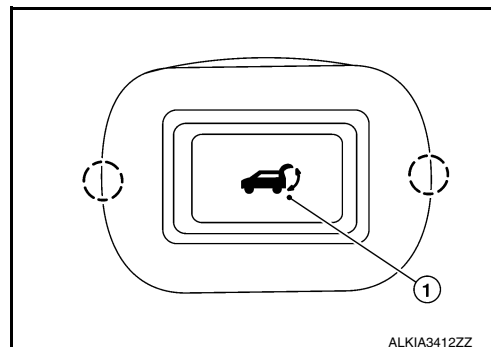
Removal and Installation

INFOID:000000010247430

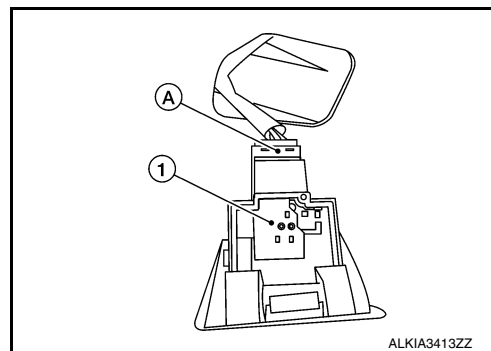
REMOVAL

1. Release the automatic back door close switch (1) pawls using a suitable tool.

(○): Pawl

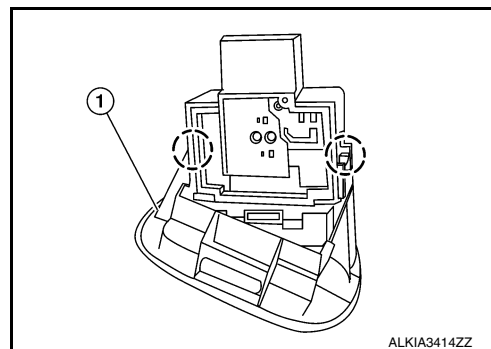


2. Disconnect the harness connector (A) from the automatic back door close switch (1) and remove.



3. Release pawls and remove automatic back door request switch finisher (1) (if necessary)

(○): Pawl



INSTALLATION

Installation is in the reverse order of removal.

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:000000010247900

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Precaution for Servicing Doors and Locks

INFOID:000000010247433

WARNING:

Radio waves could adversely affect electric medical equipment. Those who use a pacemaker should contact the electric medical equipment manufacturer for the possible influences before use.

- After removing and installing the opening/closing parts, be sure to carry out fitting adjustments to check their operation.
- Check the lubrication level, damage, and wear of each part. If necessary, grease or replace it.
- When removing or disassembling each component, be careful not to damage or deform it. If a component may be subject to interference, be sure to protect it with a shop cloth.
- When removing (disengaging) components with a screwdriver or similar tool, be sure to wrap the component with a shop cloth or vinyl tape to protect it.
- Protect the removed parts with a shop cloth and prevent them from being dropped.
- Replace a deformed or damaged clip.
- If a part is specified as a non-reusable part, always replace it with a new one.
- Be sure to tighten bolts and nuts securely to the specified torque.
- After installation is complete, be sure to check that each part works properly.
- Follow the steps below to clean components:
 - Water soluble dirt:
 - Dip a soft cloth into lukewarm water, wring the water out of the cloth and wipe the dirty area.
 - Then rub with a soft, dry cloth.
 - Oily dirt:
 - Dip a soft cloth into lukewarm water with mild detergent (concentration: within 2 to 3%) and wipe the dirty area.
 - Then dip a cloth into fresh water, wring the water out of the cloth and wipe the detergent off.
 - Then rub with a soft, dry cloth.
 - Do not use organic solvent such as thinner, benzene, alcohol or gasoline.
 - For genuine leather seats, use a genuine leather seat cleaner.

PREPARATION

< PREPARATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

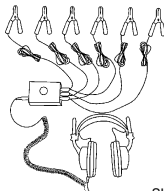
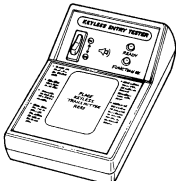
PREPARATION

PREPARATION

Special Service Tool

INFOID:0000000010430511

The actual shapes of the tools may differ from those illustrated here.

Tool number (TechMate No.) Tool name	Description
— (J-39570) Chassis Ear	Locating the noise
 SIIA0993E	
— (J-50397) NISSAN Squeak and Rattle Kit	Repairing the cause of noise
 ALJIA1232ZZ	
— (J-43241) Remote Keyless Entry Tester	Used to test keyfobs
	
— (J-50190) Signal Tech II	• Activate and display TPMS transmitter IDs • Display tire pressure reported by the TPMS transmitter • Read TPMS DTCs • Register TPMS transmitter IDs • Check Intelligent Key relative signal strength • Confirm vehicle Intelligent Key antenna signal strength • Compatible with future sensors • Equipped with a display
 ALEIA0131ZZ	

A

B

C

D

E

F

G

H

I

J

DLK

L

M

N

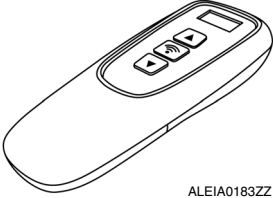
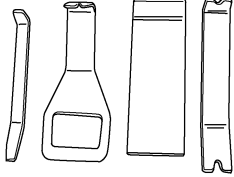
O

P

PREPARATION

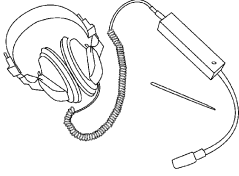
< PREPARATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

Tool number (TechMate No.) Tool name	Description
KV48105501 (J-45295-A) Transmitter Activation Tool  ALEIA0183ZZ	• Activate TPMS transmitter IDs • Compatible with future sensors • Equipped with a display (KV48105501 only)
— (J-46534) Trim Tool Set  AWJIA0483ZZ	Removing trim components

Commercial Service Tool

INFOID:0000000010247902

(TechMate No.) Tool name	Description
(J-39565) Engine Ear  SIIA0995E	Locating the noise
(—) Power Tool  PIIB1407E	Loosening nuts, screws and bolts

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[WITHOUT INTELLIGENT KEY SYSTEM]

SYSTEM DESCRIPTION

COMPONENT PARTS

POWER DOOR LOCK SYSTEM

POWER DOOR LOCK SYSTEM : Component Parts Location

INFOID:0000000010335218

A

B

C

D

E

F

G

H

I

J

DLK

L

M

N

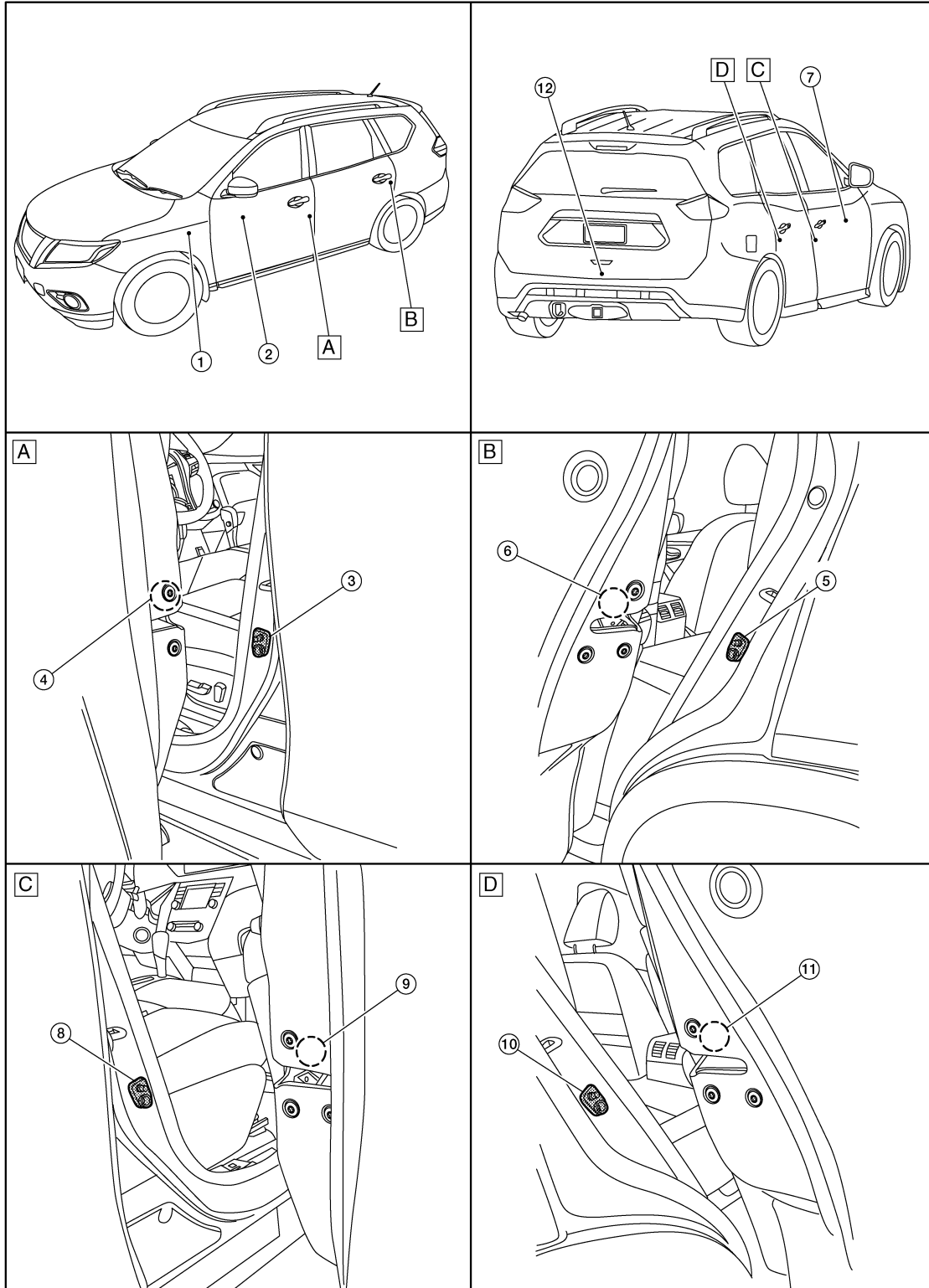
O

P

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[WITHOUT INTELLIGENT KEY SYSTEM]



ALKIA3430ZZ

No.	Component	Function
1.	BCM	Controls the door lock system. Refer to BCS-79, "BODY CONTROL SYSTEM : Component Parts Location" for detailed installation location
2.	Main power window and door lock/unlock switch	DLK-22, "Door Lock and Unlock Switch (Driver Side)"

COMPONENT PARTS

< SYSTEM DESCRIPTION >

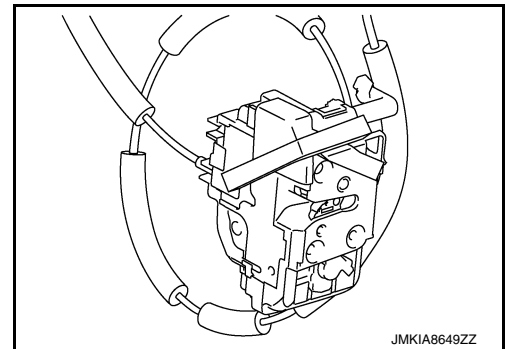
[WITHOUT INTELLIGENT KEY SYSTEM]

No.	Component	Function
3.	Front door switch LH	DLK-286, "Front Door Switch"
4.	Front door lock assembly LH	DLK-25, "Front Door Lock Assembly (LH)"
5.	Rear door switch LH	DLK-285, "Rear Door Switch"
6.	Rear door lock actuator LH	Rear door lock actuator locks/unlocks the rear door latch assembly.
7.	Front power window and door lock/unlock switch RH	DLK-22, "Door Lock and Unlock Switch (Passenger Side)"
8.	Front door switch RH	DLK-286, "Front Door Switch"
9.	Front door lock actuator RH	Rear door lock actuator locks/unlocks the rear door latch assembly.
10.	Rear door switch RH	DLK-285, "Rear Door Switch"
11.	Rear door lock actuator RH	Rear door lock actuator locks/unlocks the rear door latch assembly.
12.	Back door lock assembly (door ajar switch)	DLK-21, "Back Door Lock Assembly"

Front Door Lock Assembly (Driver Side)

INFOID:000000010283313

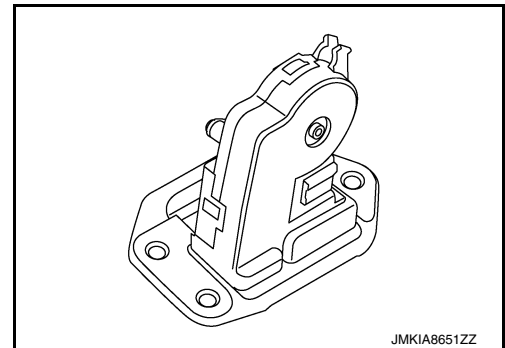
- Door lock actuator and unlock sensor are integrated in driver door lock assembly.
- Door lock actuator receives lock/unlock signal from BCM, and then locks/unlocks driver door.
- Only front door lock assembly (driver side) integrates unlock sensor. Unlock sensor transmits lock/unlock status of driver seat to BCM.



Back Door Lock Assembly

INFOID:000000010283315

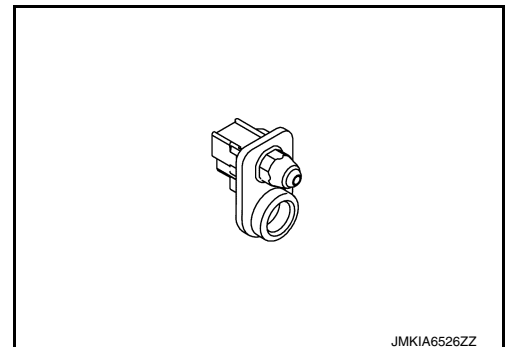
- Back door lock assembly lock assembly integrates door lock actuator and back door latch.
- Door lock actuator locks/unlocks the back door according to the door lock/unlock signal from BCM.



Rear Door Switch

INFOID:000000010335220

Door switch detects open/close status of door and transmits door switch signal to BCM.



COMPONENT PARTS

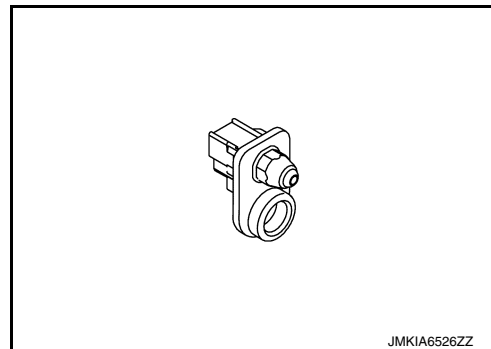
< SYSTEM DESCRIPTION >

[WITHOUT INTELLIGENT KEY SYSTEM]

Front Door Switch

INFOID:0000000010335219

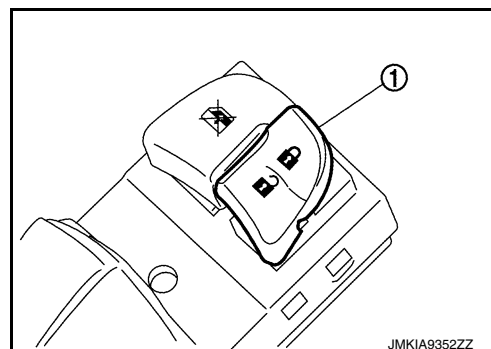
Door switch detects open/close status of door and transmits door switch signal to BCM.



Door Lock and Unlock Switch

INFOID:0000000010283316

- Door lock and unlock switch transmits door lock/unlock signal operation to BCM.
- Door lock and unlock switch (1) is integrated in the power window main switch and front power window switch (passenger side).



SYSTEM

< SYSTEM DESCRIPTION >

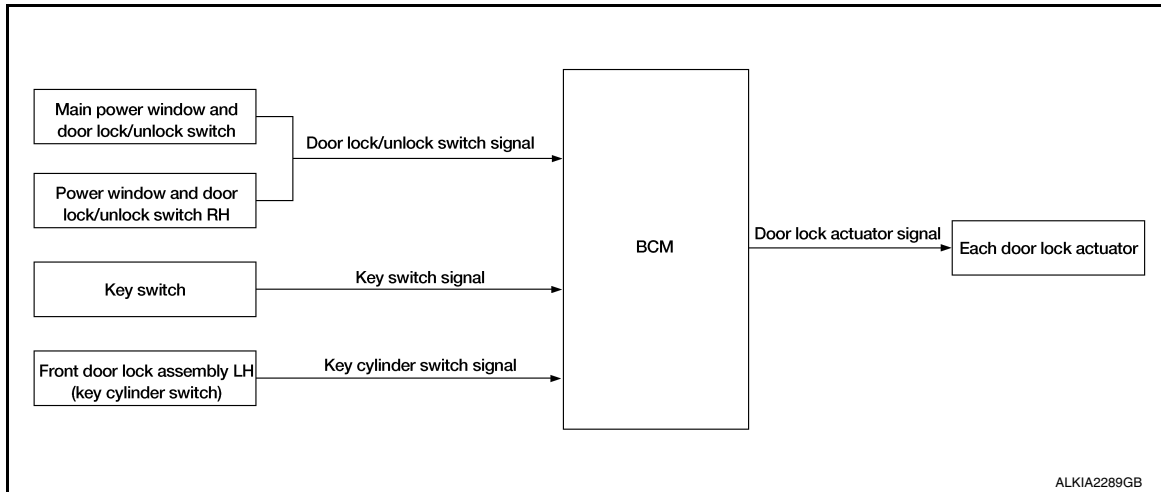
[WITHOUT INTELLIGENT KEY SYSTEM]

SYSTEM

POWER DOOR LOCK SYSTEM

POWER DOOR LOCK SYSTEM : System Diagram

INFOID:0000000010283320



POWER DOOR LOCK SYSTEM : System Description

INFOID:0000000010283321

Switch	Input/output signal to BCM	BCM function	Actuator
Main power window and door lock/unlock switch	Door lock/unlock signal	Door lock/unlock control	Door lock actuator
Power window and door lock/unlock switch RH			
Front door lock key cylinder switch LH			

DOOR LOCK FUNCTION

Functions Available by Operating the Door Lock and Unlock Switches on Driver Door and Passenger Door

- Interlocked with the locking operation of door lock and unlock switch, door lock actuators of all door lock actuators are locked.
- Interlocked with the unlocking operation of door lock and unlock switch, door lock actuators of all door lock actuators are unlocked.

Functions Available by Operating the Key Cylinder Switch on Driver Door

- Interlocked with the locking operation of door key cylinder, door lock actuators of all door lock actuators are locked.

Selective Unlock Operation

- When door key cylinder is unlocked, door lock actuator driver side is unlocked.
- When door key cylinder is unlocked for the second time within 5 seconds after the first operation, door lock actuators on all doors are unlocked.

Select unlock operation mode can be changed using DOOR LOCK-UNLOCK SET mode in "WORK SUPPORT". Refer to [BCS-87, "DOOR LOCK : CONSULT Function \(BCM - DOOR LOCK\)"](#).

REMOTE KEYLESS ENTRY SYSTEM

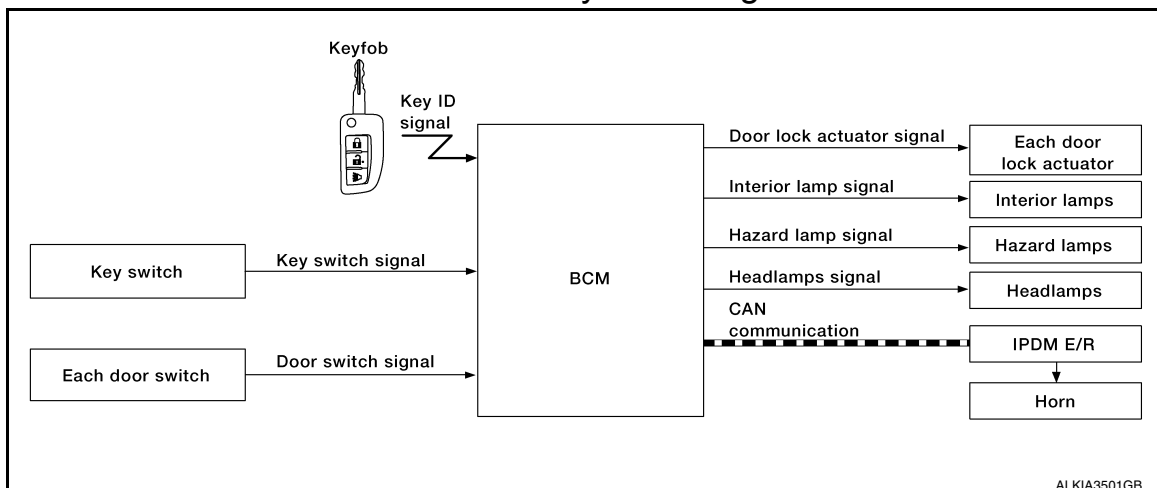
SYSTEM

< SYSTEM DESCRIPTION >

[WITHOUT INTELLIGENT KEY SYSTEM]

REMOTE KEYLESS ENTRY SYSTEM : System Diagram

INFOID:000000010283322



REMOTE KEYLESS ENTRY SYSTEM : System Description

INFOID:000000010283323

The remote keyless entry system can be locked and unlocked by pressing door lock and unlock button of keyfob.

DOOR LOCK AND UNLOCK OPERATION

- When door lock and unlock button of keyfob is pressed, door lock and unlock signal transmits from keyfob to BCM.
- When BCM receives the door lock and unlock signal, it operates door lock actuator, flashes the hazard lamp (lock: 2 times, unlock: 1 time) and horn chirp signal to IPDM E/R at the same time as a reminder.
- IPDM E/R honks horn (lock: 1 time) as a reminder.

OPERATION CONDITION

Remote controller operation	Operation condition
Lock/unlock	Key switch is OFF. Mechanical key is removed from the ignition cylinder.

OPERATION AREA

To ensure that the keyfob works effectively, use within 10 m (33ft) range of the vehicle, however the operable range may differ according to surroundings.

SELECTIVE UNLOCK OPERATION

When door lock is unlocked, pressing LOCK button on keyfob once will lock all doors. When door lock is locked, pressing UNLOCK button on keyfob will unlock driver side door. Pressing UNLOCK button on keyfob second time within 5 seconds from the first time will unlock all doors.

HAZARD AND HORN REMINDER

When the doors are locked or unlocked by keyfob, power is supplied to sound horn and flash hazard warning lamps as a reminder

The hazard and horn reminder has C mode (horn chirp mode) and S mode (non-horn chirp mode).

How to Change Hazard and Horn Reminder Modes

With CONSULT

Hazard and horn reminders can be changed using "WORK SUPPORT" mode in "MULTI REMOTE ENT".

Hazard reminder setting	Mode 1		Mode 2		Mode 3		Mode 4	
Keyfob operation	Lock	Unlock	Lock	Unlock	Lock	Unlock	Lock	Unlock
Hazard warning lamp blink	—	—	—	Once	Twice	—	Twice	Once

SYSTEM

< SYSTEM DESCRIPTION >

[WITHOUT INTELLIGENT KEY SYSTEM]

Horn reminder setting	ON		OFF	
Keyfob operation	Lock	Unlock	Lock	Unlock
Horns sound	Once	—	—	—

Hazard and horn reminders do not operate if any door switch is ON (any door is OPEN).

Hazard reminder can be changed using "HAZARD LAMP SET" mode in "WORK SUPPORT".

Horn reminder can be changed using "HORN CHIRP SET" mode in "WORK SUPPORT".

Refer to [BCS-90, "MULTI REMOTE ENT : CONSULT Function \(BCM - MULTI REMOTE ENT\)"](#).

Without CONSULT

Refer to Owner's Manual for instructions.

AUTO DOOR LOCK OPERATION

When all doors are locked, ignition switch is OFF and key switch is OFF (mechanical key is removed from the ignition cylinder), doors are unlocked with keyfob button. When BCM does not receive the following signals within 1 minute, all doors are locked.

- Door switch is ON (door is opened)
- Door is locked
- Ignition switch is ON
- Key switch is ON (mechanical key is inserted in the ignition cylinder)

Auto door lock mode can be changed by "AUTO LOCK SET" mode in "WORK SUPPORT". Refer to [BCS-90, "MULTI REMOTE ENT : CONSULT Function \(BCM - MULTI REMOTE ENT\)"](#).

PANIC ALARM OPERATION

When key switch is OFF (mechanical key is removed from the ignition cylinder), BCM turns ON and OFF horn and headlamp intermittently with input of PANIC ALARM signal from keyfob.

BCM outputs to headlamps and IPDM E/R for panic alarm signal (horn signal) via CAN communication lines.

The alarm automatically turns OFF after 25 seconds or when BCM receives any signal from keyfob.

Panic alarm operation mode can be changed using "PANIC ALARM SET" mode in "WORK SUPPORT".

Refer to [BCS-90, "MULTI REMOTE ENT : CONSULT Function \(BCM - MULTI REMOTE ENT\)"](#).

INTERIOR LAMP TIMER OPERATION

When the following conditions occur, remote keyless entry system turns on interior lamp for 15 seconds with input of UNLOCK signal from keyfob. For detailed description, refer to [INL-7, "INTERIOR ROOM LAMP CONTROL SYSTEM : System Description"](#).

- Interior room lamp switch is in the DOOR position
- Door switch OFF (when all the doors are closed).

DLK

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[WITHOUT INTELLIGENT KEY SYSTEM]

DIAGNOSIS SYSTEM (BCM)

COMMON ITEM

COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)

INFOID:0000000010346333

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with BCM.

Direct Diagnostic Mode	Description
Ecu Identification	The BCM part number is displayed.
Self Diagnostic Result	The BCM self diagnostic results are displayed.
Data Monitor	The BCM input/output data is displayed in real time.
Active Test	The BCM activates outputs to test components.
Work support	The settings for BCM functions can be changed.
Configuration	- The vehicle specification can be read and saved. - The vehicle specification can be written when replacing BCM.
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.

SYSTEM APPLICATION

BCM can perform the following functions.

System	Sub System	Direct Diagnostic Mode						
		Ecu Identification	Self Diagnostic Result	Data Monitor	Active Test	Work support	Configuration	CAN Diag Support Mntr
Door lock	DOOR LOCK			x	x	x		
Rear window defogger	REAR DEFOGGER			x	x	x		
Warning chime	BUZZER			x	x			
Interior room lamp timer	INT LAMP			x	x	x		
Remote keyless entry system	MULTI REMOTE ENT					x		
Exterior lamp	HEADLAMP			x	x			
Wiper and washer	WIPER			x	x	x		
Turn signal and hazard warning lamps	FLASHER			x	x			
Combination switch	COMB SW			x				
BCM	BCM	x	x			x	x	x
Immobilizer	IMMU		x		x			
Interior room lamp battery saver	BATTERY SAVER			x	x			
Back door open	TRUNK			x				
Vehicle security system	THEFT ALM			x	x	x		
RAP system	RETAINED PWR			x				
TPMS	AIR PRESSURE MONITOR		x	x	x	x		

DOOR LOCK

DOOR LOCK : CONSULT Function (BCM - DOOR LOCK)

INFOID:0000000010346334

SELF DIAGNOSTIC RESULT

DIAGNOSIS SYSTEM (BCM)

[WITHOUT INTELLIGENT KEY SYSTEM]

< SYSTEM DESCRIPTION >

Refer to [BCS-108, "DTC Index"](#).

DATA MONITOR

Monitor Item [Unit]	Description
DOOR SW-DR [On/Off]	Indicates condition of front door switch LH.
DOOR SW-AS [On/Off]	Indicates condition of front door switch RH.
DOOR SW-RR [On/Off]	Indicates condition of rear door switch RH.
DOOR SW-RL [On/Off]	Indicates condition of rear door switch LH.
DOOR SW-BK [On/Off]	Indicates condition of back door switch.
CDL LOCK SW [On/Off]	Indicates condition of lock signal from door lock and unlock switch.
CDL UNLOCK SW [On/Off]	Indicates condition of unlock signal from door lock and unlock switch.
KEY CYL LK-SW [On/Off]	Indicates condition of lock signal from door key cylinder switch.
KEY CYL UN-SW [On/Off]	Indicates condition of unlock signal from door key cylinder switch.

ACTIVE TEST

Test Item	Description
DOOR LOCK	This test is able to check door lock operation [ALL LOCK/ALL UNLK].

WORK SUPPORT

Support Item	Setting	Description
DOOR LOCK-UNLOCK SET	On*	Automatic door locks function ON.
	Off	Automatic door locks function OFF.
AUTO UNLOCK TYPE	MODE2	Driver door only unlocks automatically.
	MODE1*	All doors unlock automatically.
AUTO LOCK FUNCTION	MODE3	This mode is not used.
	MODE2	Doors lock automatically when shifted out of P (park).
	MODE1*	Doors lock automatically when vehicle speed reaches 24 km/h (15 mph).
	Off	—
AUTO UNLOCK FUNCTION	MODE3	This mode is not used.
	MODE2	Doors unlock automatically when shifted into P (park).
	MODE1*	Doors unlock automatically when ignition is switched from ON to OFF.
	Off	—

* : Initial setting

MULTI REMOTE ENT

MULTI REMOTE ENT : CONSULT Function (BCM - MULTI REMOTE ENT)

INFOID:000000010346335

WORK SUPPORT

Support Item	Setting	Description
REMO CONT ID CONFIR	—	Keyfob ID code registration is displayed.

ECU DIAGNOSIS INFORMATION

BCM, IPDM E/R

List of ECU Reference

INFOID:0000000010283327

ECU	Reference
BCM	BCS-96, "Reference Value"
	BCS-110, "Wiring Diagram"
	BCS-107, "Fail Safe"
	BCS-107, "DTC Inspection Priority Chart"
	BCS-108, "DTC Index"
IPDM E/R	PCS-12, "Reference Value"
	PCS-24, "Wiring Diagram"
	PCS-19, "Fail-safe"
	PCS-20, "DTC Index"

POWER DOOR LOCK SYSTEM

[WITHOUT INTELLIGENT KEY SYSTEM]

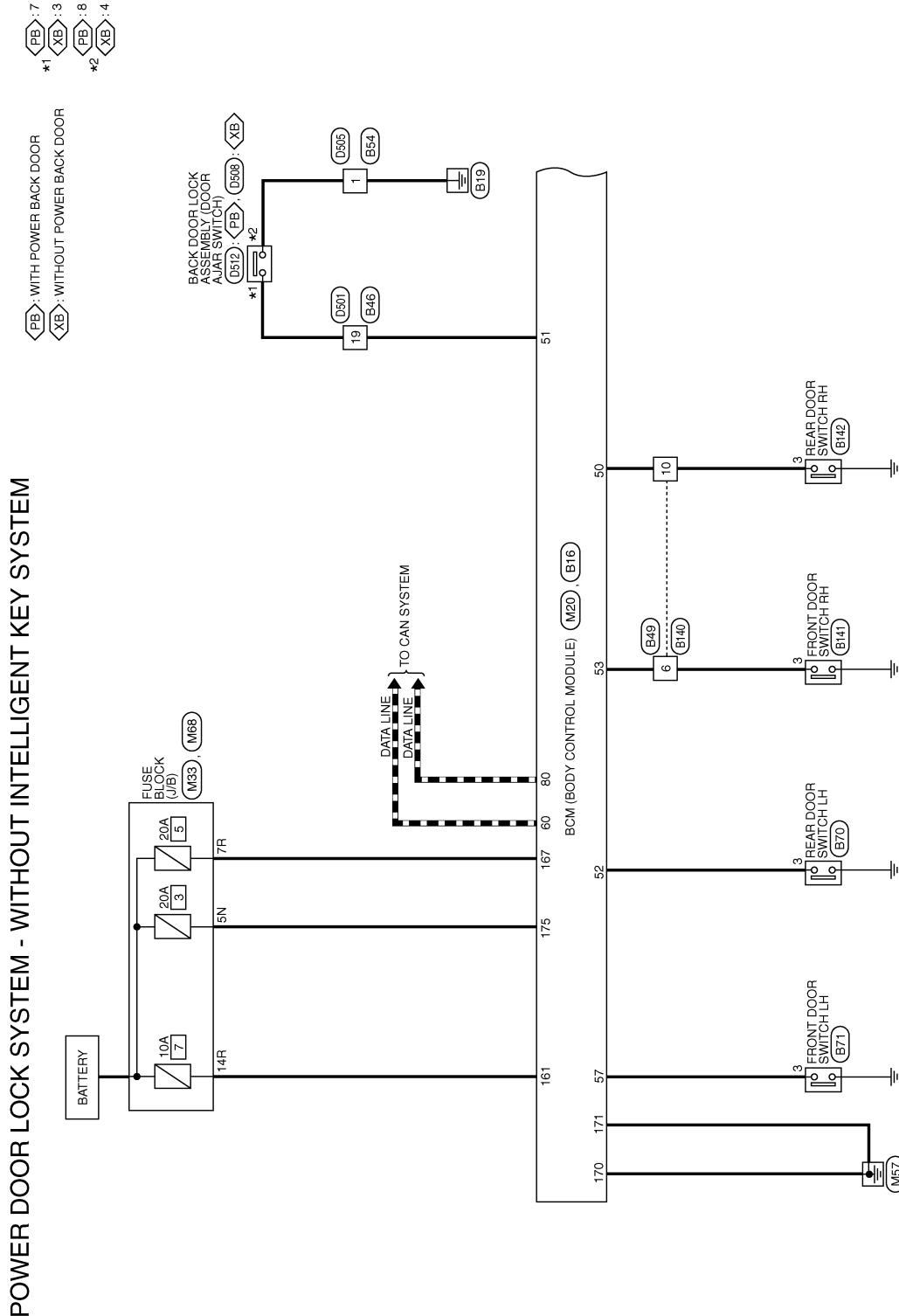
< WIRING DIAGRAM >

WIRING DIAGRAM

POWER DOOR LOCK SYSTEM

Wiring Diagram

INFOID:0000000010350463

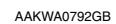


AAKWA0791GB

A
B
C
D
E
F
G
H
I
J
DLK
L
M
N
O
P

[WITHOUT INTELLIGENT KEY SYSTEM]

Revision: November 2013



POWER DOOR LOCK SYSTEM

[WITHOUT INTELLIGENT KEY SYSTEM]

< WIRING DIAGRAM >

POWER DOOR LOCK SYSTEM - WITHOUT INTELLIGENT KEY CONNECTORS

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY



20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21



100	99	98	97	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81
120	119	118	117	116	115	114	113	112	111	110	109	108	107	106	105	104	103	102	101

Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



167	166	165	164	163	162	161
176	175	174	173	172	171	170
169	168					

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BROWN

Terminal No.	Color of Wire	Signal Name
10	BG	I DOORLOCK SW
40	SB	I DOORUNLOCK SW

Terminal No.	Color of Wire	Signal Name
92	BR	I KEY CYLINDER LOCK SW
93	P	I KEY CYLINDER UNLOCK SW
104	R	I DR KNOB SW

Terminal No.	Color of Wire	Signal Name
161	W	I PWR ECU
163	L	O AS LOCK OR UNLOCK D
165	V	O DR OR FR LOCK D
167	LA/V	I PWR DOORLOCK1
170	B	I GND1
171	B	I GND2
172	G	O FR OR DR UNLOCK D
175	R	I PWR DOORLOCK2

Connector No.	M33
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



3N	2N	1N
8N	7N	6N
5N	4N	

Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN



7R	6R	5R	4R	3R	2R	1R
16R	15R	14R	13R	12R	11R	10R
9R						

Connector No.	M91
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12
13	14	15	16	17	18	19	20	21	22	23	24

Terminal No.	Color of Wire	Signal Name
5N	R	-

Terminal No.	Color of Wire	Signal Name
7R	LA/V	-
14R	W	-

Terminal No.	Color of Wire	Signal Name
2	GR	-
19	LG	-
20	BR	-

AAKWA0793GB

POWER DOOR LOCK SYSTEM

[WITHOUT INTELLIGENT KEY SYSTEM]

< WIRING DIAGRAM >

Connector No.	M168
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12
13	14	15	16	17	18	19	20	21	22	23	24

Connector No.	M167
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16					

Connector No.	M158
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16					

Terminal No.	Color of Wire	Signal Name
20	BR	-
21	P	-
23	BG	-
24	SB	-

Terminal No.	Color of Wire	Signal Name
1	V	-
2	R	-
3	G	-
16	B	-

Terminal No.	Color of Wire	Signal Name
11	L	-
12	Y	-

Connector No.	B46
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Connector No.	B23
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY



151	150	149	148	147	146	145
160	159	158	157	156	155	154
153	152					

Connector No.	B16
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GREEN



60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41
80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61

Terminal No.	Color of Wire	Signal Name
19	LG	-

Terminal No.	Color of Wire	Signal Name
148	W	O RR UNLOCK B
149	L	O RR LOCK B

Terminal No.	Color of Wire	Signal Name
50	W	I RR DOOR SW
51	LG	I TGATE SW
52	R	I RL DOOR SW
53	SB	I AS DOOR2 SW
57	SB	I DR DOOR2 SW
60	L	CAN-H
80	P	CAN-L

AAKIA1851GB

POWER DOOR LOCK SYSTEM

[WITHOUT INTELLIGENT KEY SYSTEM]

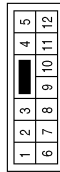
< WIRING DIAGRAM >

Connector No.	B54
Connector Name	WIRE TO WIRE
Connector Color	WHITE



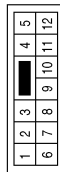
Terminal No.	Color of Wire	Signal Name
1	B	-

Connector No.	B51
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
6	W	-
7	L	-

Connector No.	B49
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	V	-
2	G	-
6	SB	-
10	W	-

Connector No.	B101
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
6	LA/GR	-
7	LAVLG	-

Connector No.	B71
Connector Name	FRONT DOOR SWITCH LH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
3	SB	-

Connector No.	B70
Connector Name	REAR DOOR SWITCH LH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
3	R	-

AAKIA1852GB

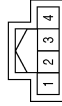
A
B
C
D
E
F
G
H
I
J
DLK
L
M
N
O
P

POWER DOOR LOCK SYSTEM

[WITHOUT INTELLIGENT KEY SYSTEM]

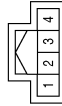
< WIRING DIAGRAM >

Connector No.	B142
Connector Name	REAR DOOR SWITCH RH
Connector Color	WHITE



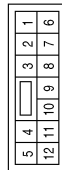
Terminal No.	Color of Wire	Signal Name
3	W	-

Connector No.	B141
Connector Name	FRONT DOOR SWITCH RH
Connector Color	WHITE



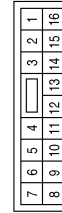
Terminal No.	Color of Wire	Signal Name
3	GR	-

Connector No.	B140
Connector Name	WIRE TO WIRE
Connector Color	WHITE



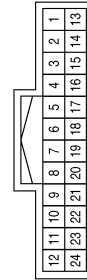
Terminal No.	Color of Wire	Signal Name
1	LA/LG	-
2	LA/GR	-
6	GR	-
10	W	-

Connector No.	D6
Connector Name	MAIN POWER WINDOW AND DOOR LOCK/UNLOCK SWITCH
Connector Color	WHITE



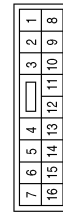
Terminal No.	Color of Wire	Signal Name
1	B	-
3	L	-
15	BG	-

Connector No.	D3
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
20	BR	-
21	P	-
23	L	-
24	BG	-

Connector No.	D2
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	LA/V	-
2	R	-
3	LA/G	-
16	B	-

AAKIA1853GB

POWER DOOR LOCK SYSTEM

[WITHOUT INTELLIGENT KEY SYSTEM]

< WIRING DIAGRAM >

Connector No.	D102
Connector Name	WIRE TO WIRE
Connector Color	WHITE



7	6	5	4	3	2	1		
16	15	14	13	12	11	10	9	8

Terminal No.	Color of Wire	Signal Name
11	LA/L	-
12	LA/V	-

Connector No.	D101
Connector Name	WIRE TO WIRE
Connector Color	WHITE



12	11	10	9	8	7	6	5	4	3	2	1
24	23	22	21	20	19	18	17	16	15	14	13

Terminal No.	Color of Wire	Signal Name
2	B	-
19	LG	-
20	BR	-

Connector No.	D23
Connector Name	FRONT DOOR LOCK ASSEMBLY LH
Connector Color	GRAY



1	2	3	4	5	6
---	---	---	---	---	---

Terminal No.	Color of Wire	Signal Name
1	LA/V	-
2	LA/G	-
3	R	-
4	B	-
5	P	-
6	BR	-

Connector No.	D201
Connector Name	WIRE TO WIRE
Connector Color	WHITE



5	4	3	2	1		
12	11	10	9	8	7	6

Connector No.	D113
Connector Name	FRONT DOOR LOCK ACTUATOR RH
Connector Color	GRAY



1	2	3	4	5	6
---	---	---	---	---	---

Connector No.	D112
Connector Name	FRONT DOOR WINDOW SWITCH RH
Connector Color	WHITE



1	2	3	4	5		
6	7	8	9	10	11	12

Terminal No.	Color of Wire	Signal Name
6	LA/V	-
7	LA/G	-

Terminal No.	Color of Wire	Signal Name
5	LA/V	-
6	LA/L	-

Terminal No.	Color of Wire	Signal Name
1	LG	-
2	BR	-
3	B	-

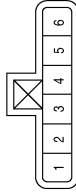
AAKIA1854GB

POWER DOOR LOCK SYSTEM

[WITHOUT INTELLIGENT KEY SYSTEM]

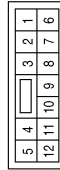
< WIRING DIAGRAM >

Connector No.	D306
Connector Name	REAR DOOR LOCK ACTUATOR RH
Connector Color	GRAY



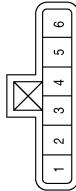
Terminal No.	Color of Wire	Signal Name
5	LA/L	-
6	LA/W	-

Connector No.	D301
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
6	LA/W	-
7	LA/L	-

Connector No.	D206
Connector Name	REAR DOOR LOCK ACTUATOR LH
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
1	LA/G	-
2	LA/V	-

Connector No.	D508
Connector Name	BACK DOOR LOCK ASSEMBLY (WITHOUT POWER BACK DOOR SYSTEM)
Connector Color	WHITE



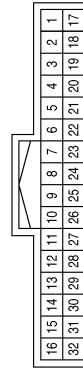
Terminal No.	Color of Wire	Signal Name
3	W	-
4	GR	-

Connector No.	D505
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	B	-

Connector No.	D501
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
19	W	-

AAKIA1855GB

POWER DOOR LOCK SYSTEM

[WITHOUT INTELLIGENT KEY SYSTEM]

< WIRING DIAGRAM >

A

B

C

D

E

F

G

H

I

J

L

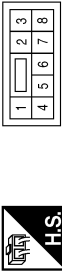
M

N

O

P

Connector No.	D512
Connector Name	BACK DOOR LOCK ASSEMBLY (WITH POWER BACK DOOR SYSTEM)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
7	W	-
8	B	-

DLK

AAKIA1856GB

REMOTE KEYLESS ENTRY SYSTEM

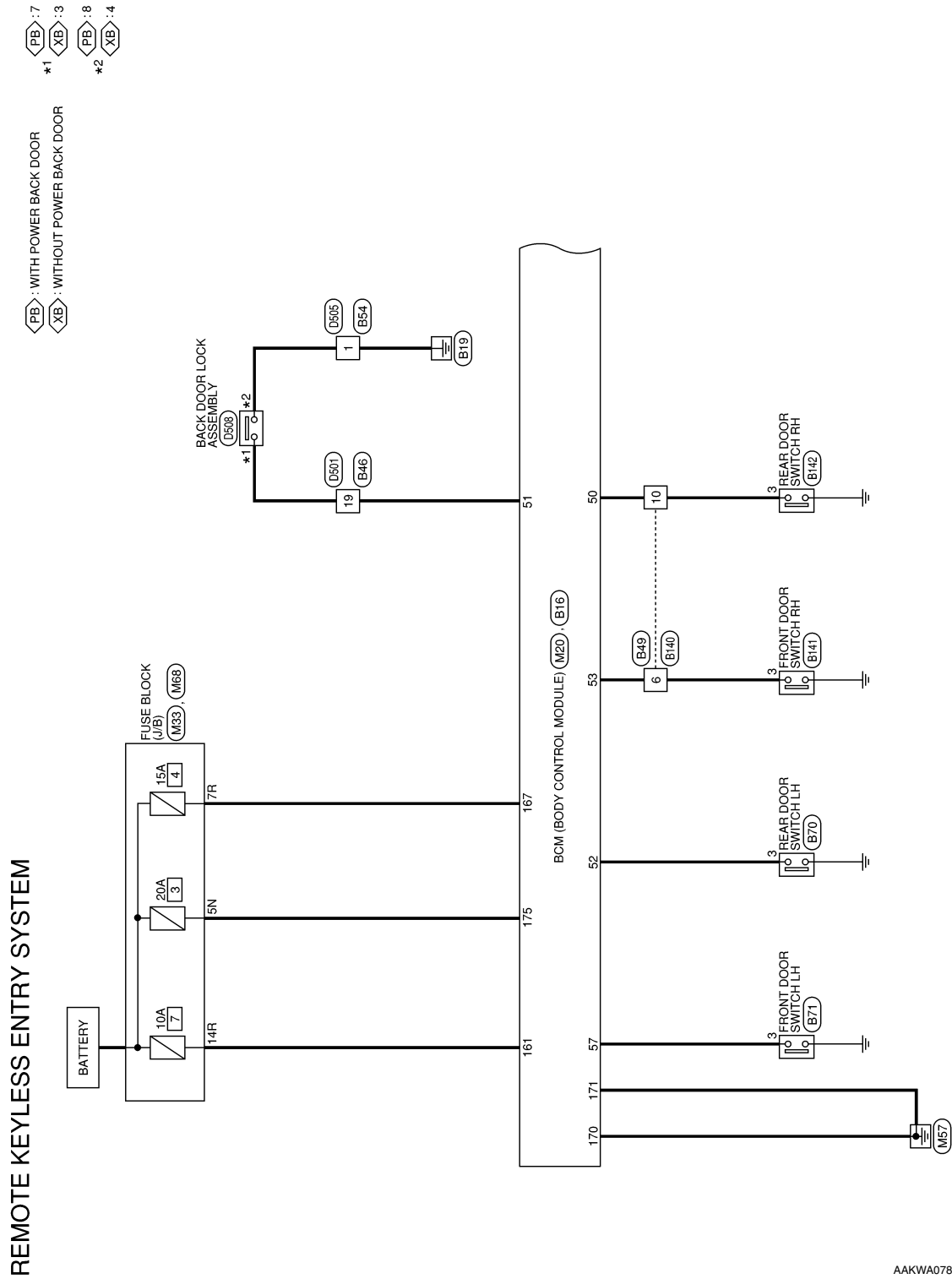
[WITHOUT INTELLIGENT KEY SYSTEM]

< WIRING DIAGRAM >

REMOTE KEYLESS ENTRY SYSTEM

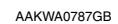
Wiring Diagram

INFOID:0000000010283329



[WITHOUT INTELLIGENT KEY SYSTEM]

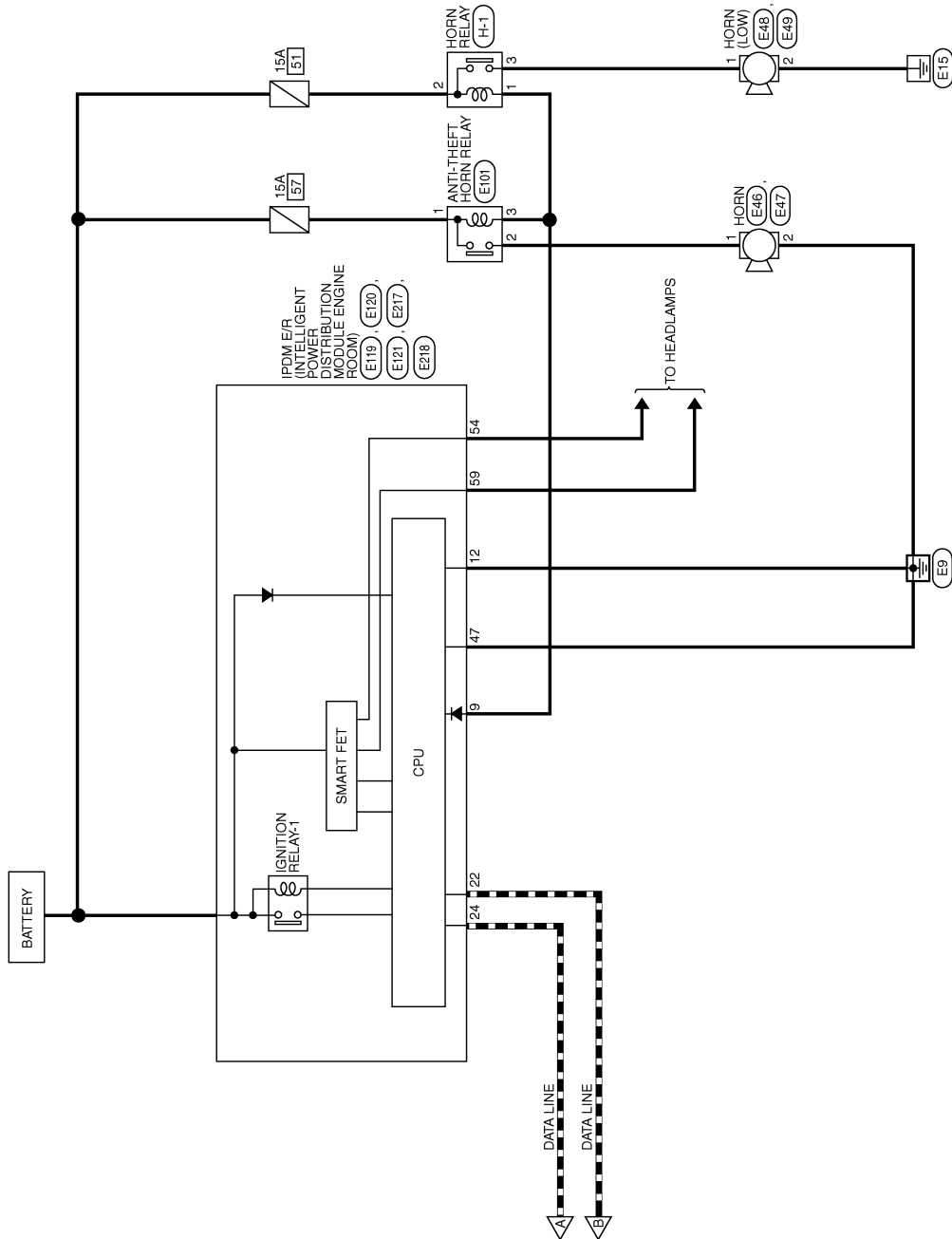
A
B
C
D
E
F
G
H
I
J
DLK
L
M
N
O
P



REMOTE KEYLESS ENTRY SYSTEM

< WIRING DIAGRAM >

[WITHOUT INTELLIGENT KEY SYSTEM]



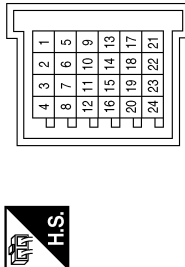
AAKWA0788GB

REMOTE KEYLESS ENTRY SYSTEM

[WITHOUT INTELLIGENT KEY SYSTEM]

< WIRING DIAGRAM >

Connector No.	M6
Connector Name	JOINT CONNECTOR-M01
Connector Color	GRAY



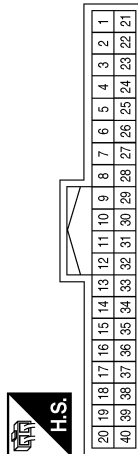
Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BROWN



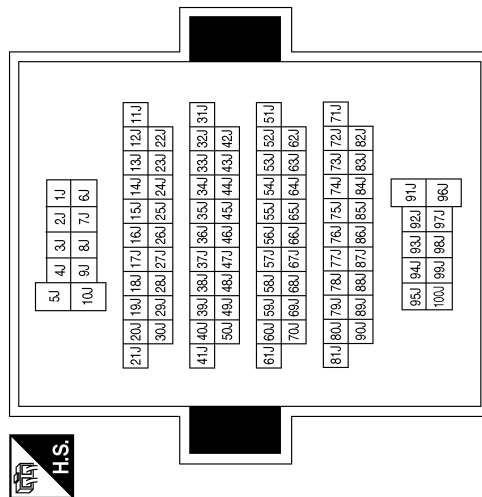
Terminal No.	Color of Wire	Signal Name
161	W	I PWR ECU
162	SB	O PWM ROOMLAMP 1
165	V	O DR OR FR LOCK
167	LAV	I PWR DOORLOCK1
170	B	I GND1
171	B	I GND2
172	G	O FR OR DR UNLOCK D
175	R	I PWR DOORLOCK2

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY

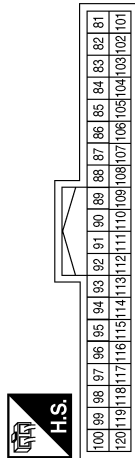


Terminal No.	Color of Wire	Signal Name
4	P	O SPARE4 RL N
5	R	CAN-L
6	L	CAN-H
8	L	CAN-H
9	R	CAN-L

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
92	BR	I KEY CYLINDER LOCK SW
93	P	I KEY CYLINDER UNLOCK SW
104	R	I DR KNOB SW

Terminal No.	61J
Color of Wire	L
Signal Name	-

AAKIA1837GB

A B C D E F G H I J L M N O P

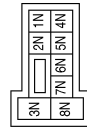
DLK

REMOTE KEYLESS ENTRY SYSTEM

[WITHOUT INTELLIGENT KEY SYSTEM]

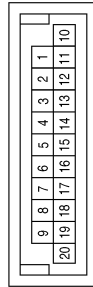
< WIRING DIAGRAM >

Connector No.	M33
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
5N	R	-

Connector No.	M43
Connector Name	JOINT CONNECTOR-M02
Connector Color	BLUE



Terminal No.	Color of Wire	Signal Name
1	L	-
2	L	-
11	P	-
12	P	-

Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
7R	LAV	-
14R	W	-

Connector No.	M69
Connector Name	WIRE TO WIRE
Connector Color	WHITE



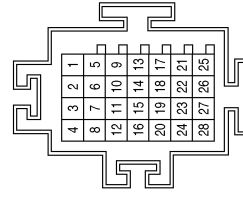
Terminal No.	Color of Wire	Signal Name
24	P	-
25	L	-

Connector No.	E29
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
135	BR	O DI FR LEFT
136	GR	O DI FR RIGHT E

Connector No.	E44
Connector Name	JOINT CONNECTOR-E01
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
5	L	-
6	P	-
9	L	-
10	P	-

AAKIA1838GB

REMOTE KEYLESS ENTRY SYSTEM

[WITHOUT INTELLIGENT KEY SYSTEM]

< WIRING DIAGRAM >

Connector No.	E119
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



9	8	7	6		5	4	3	
18	17	16	15	14	13	12	11	10

Terminal No.	Color of Wire	Signal Name
9	L	LO HORN RLY
12	B	SIGNAL GROUND

Connector No.	E47
Connector Name	HORN
Connector Color	BLACK



1

Terminal No.	Color of Wire	Signal Name
1	R	—

Connector No.	E46
Connector Name	HORN
Connector Color	BLACK



2

Terminal No.	Color of Wire	Signal Name
2	B	—

Connector No.	E121
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	RED



45	44	43
48	47	46

Terminal No.	Color of Wire	Signal Name
47	B	POWER GROUND

Connector No.	E120
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



30	29	28	27	26	25	24	23	22	21	20	19
42	41	40	39	38	37	36	35	34	33	32	31

Terminal No.	Color of Wire	Signal Name
22	P	CAN-L
24	L	CAN-H

AAKIA1839GB

A
B
C
D
E
F
G
H
I
J
DLK
L
M
N
O
P

REMOTE KEYLESS ENTRY SYSTEM

< WIRING DIAGRAM >

[WITHOUT INTELLIGENT KEY SYSTEM]

Connector No.	E217
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BROWN

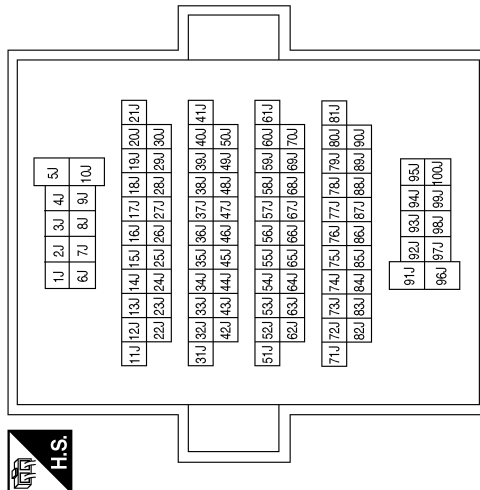


51	50	49
56	55	54
53	52	

Terminal No.	Color of Wire	Signal Name
54	LG	O LIGHT HBEAM RH

Terminal No.	Color of Wire	Signal Name
61J	L	—
62J	P	—

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
52	R	I RL DOOR SW
53	SB	I AS DOOR2 SW
57	SB	I DR DOOR2 SW
60	L	CAN-H
79	LAW	O STOP LAMP3
80	P	CAN-L

Connector No.	B16
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GREEN



60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41
80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61

Terminal No.	Color of Wire	Signal Name
50	W	I RR DOOR SW
51	LG	I TGATE SW

Connector No.	E218
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE



51	50	49
56	55	54
53	52	

Terminal No.	Color of Wire	Signal Name
59	G	O LIGHT HBEAM LH

AAKIA1840GB

REMOTE KEYLESS ENTRY SYSTEM

[WITHOUT INTELLIGENT KEY SYSTEM]

< WIRING DIAGRAM >

Connector No.	B23
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY



151 150 149 148	147 146 145
160 159 158 157 156 155 154 153 152	

Terminal No.	Color of Wire	Signal Name
148	W	O RR UNLOCK B
149	L	O RR LOCK B
151	R	O PWM ROOM LAMP 5
153	LAW	O STOP LAMP 1
157	GR	O DI RR LEFT B
158	LAY	O STOP LAMP 2 NISSAN EUR
160	P	O DI RR RIGHT B

Connector No.	B41
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32

Terminal No.	Color of Wire	Signal Name
24	P	-
25	L	-

Connector No.	B46
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32

Terminal No.	Color of Wire	Signal Name
19	LG	-

Connector No.	B49
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1 2 3 4 5
6 7 8 9 10 11 12

Terminal No.	Color of Wire	Signal Name
6	SB	-
10	W	-

Connector No.	B54
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1 2

Terminal No.	Color of Wire	Signal Name
1	B	-

Connector No.	B63
Connector Name	JOINT CONNECTOR-B01
Connector Color	GRAY



4 3 2 1
8 7 6 5
12 11 10 9
16 15 14 13
20 19 18 17
24 23 22 21

Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

AAKIA1841GB

A B C D E F G H I J L M N O P

DLK

REMOTE KEYLESS ENTRY SYSTEM

[WITHOUT INTELLIGENT KEY SYSTEM]

< WIRING DIAGRAM >

Connector No.	B140
Connector Name	WIRE TO WIRE
Connector Color	WHITE



5	4	3		2	1
12	11	10	9	8	7
					6

Terminal No.	Color of Wire	Signal Name
6	GR	—
10	W	—

Connector No.	B71
Connector Name	FRONT DOOR SWITCH LH
Connector Color	WHITE



1	2	3	4
---	---	---	---

Terminal No.	Color of Wire	Signal Name
3	SB	—

Connector No.	B70
Connector Name	REAR DOOR SWITCH LH
Connector Color	WHITE



1	2	3	4
---	---	---	---

Terminal No.	Color of Wire	Signal Name
3	R	—

Connector No.	D505
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2
---	---

Terminal No.	Color of Wire	Signal Name
1	B	—

Connector No.	D501
Connector Name	WIRE TO WIRE
Connector Color	WHITE



16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17

Terminal No.	Color of Wire	Signal Name
19	W	—

Connector No.	B142
Connector Name	REAR DOOR SWITCH RH
Connector Color	WHITE



1	2	3	4
---	---	---	---

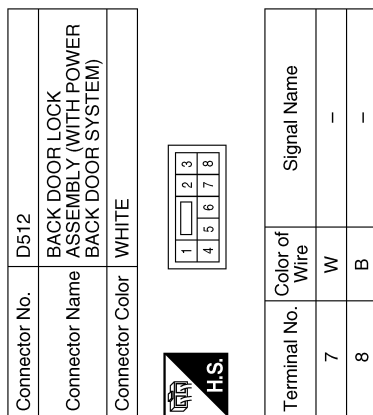
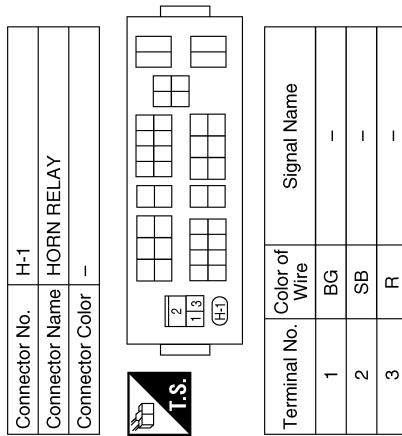
Terminal No.	Color of Wire	Signal Name
3	W	—

AAKIA1842GB

REMOTE KEYLESS ENTRY SYSTEM

< WIRING DIAGRAM >

[WITHOUT INTELLIGENT KEY SYSTEM]



AAKIA1843GB

A
B
C
D
E
F
G
H
I
J
DLK
L
M
N
O
P

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

[WITHOUT INTELLIGENT KEY SYSTEM]

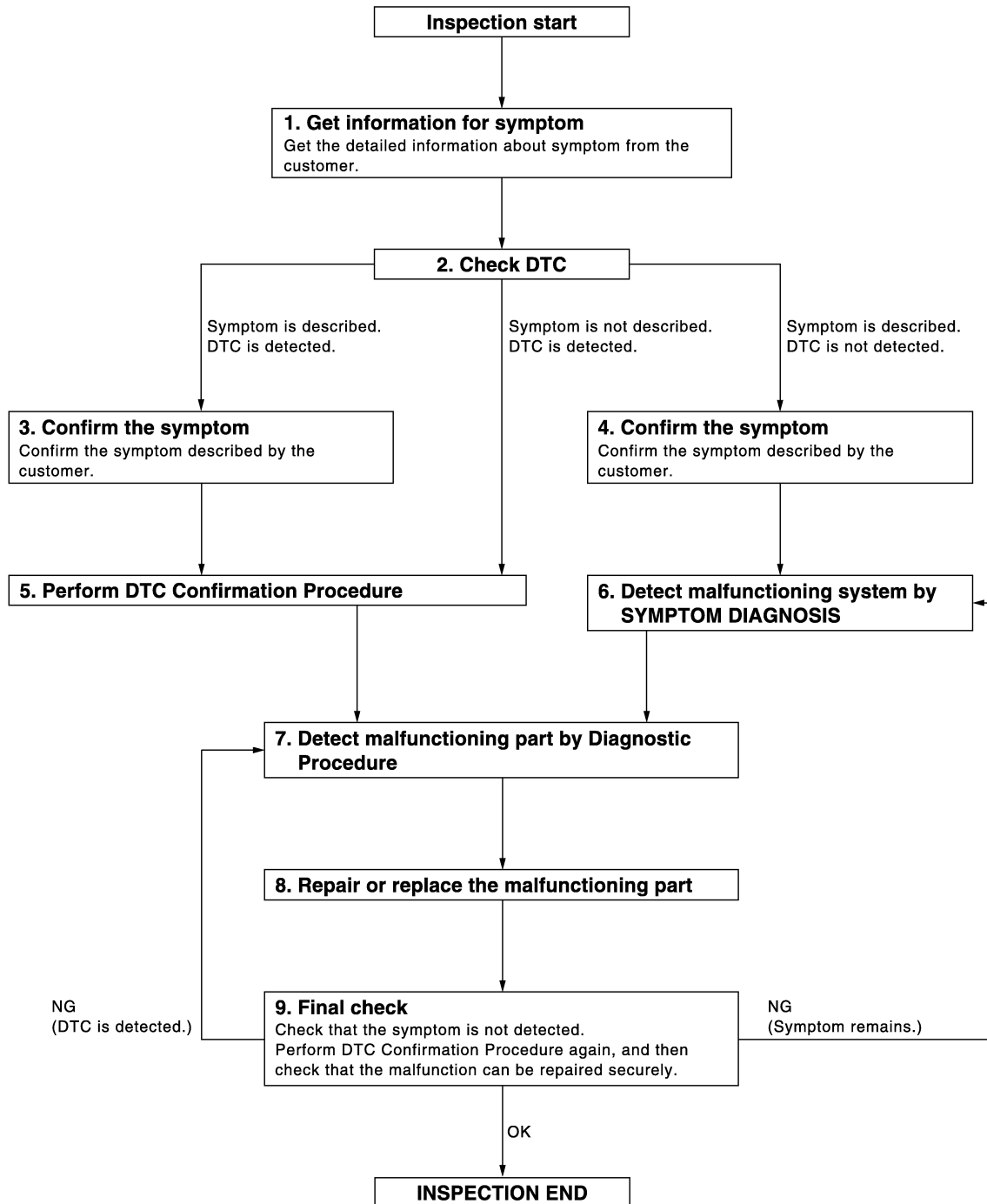
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:0000000010283330

OVERALL SEQUENCE



JMKIA2270GB

DETAILED FLOW

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

[WITHOUT INTELLIGENT KEY SYSTEM]

1.GET INFORMATION FOR SYMPTOM

Get the detailed information from the customer about the symptom (the condition and the environment when the incident/malfunction occurred).

>> GO TO 2.

2.CHECK DTC

1. Check DTC.
2. Perform the following procedure if DTC is displayed.
 - Record DTC and freeze frame data (Print them out with CONSULT.)
 - Erase DTC.
 - Study the relationship between the cause detected by DTC and the symptom described by the customer.
3. Check related service bulletins for information.

Is any symptom described and any DTC detected?

Symptom is described, DTC is displayed>>GO TO 3.

Symptom is described, DTC is not displayed>>GO TO 4.

Symptom is not described, DTC is displayed>>GO TO 5.

3.CONFIRM THE SYMPTOM

Confirm the symptom described by the customer.

Connect CONSULT to the vehicle in "DATA MONITOR" mode and check real time diagnosis results.

Verify relation between the symptom and the condition when the symptom is detected.

>> GO TO 5.

4.CONFIRM THE SYMPTOM

Confirm the symptom described by the customer.

Connect CONSULT to the vehicle in "DATA MONITOR " mode and check real time diagnosis results.

Verify relation between the symptom and the condition when the symptom is detected.

>> GO TO 6.

5.PERFORM DTC CONFIRMATION PROCEDURE

Perform DTC Confirmation Procedure for the displayed DTC, and then check that DTC is detected again.

At this time, always connect CONSULT to the vehicle, and check diagnostic results in real time.

If two or more DTCs are detected, refer to [BCS-107, "DTC Inspection Priority Chart"](#) and determine trouble diagnosis order.

NOTE:

- Freeze frame data is useful if the DTC is not detected.
- Perform Component Function Check if DTC Confirmation Procedure is not included in Service Manual. This simplified check procedure is an effective alternative though DTC cannot be detected during this check. If the result of Component Function Check is NG, it is the same as the detection of DTC by DTC Confirmation Procedure.

Is DTC detected?

Yes >> GO TO 7.

No >> Refer to [GI-41, "Intermittent Incident"](#).

6.DETECT MALFUNCTIONING SYSTEM BY SYMPTOM TABLE

Detect malfunctioning system according to SYMPTOM TABLE based on the confirmed symptom in step 4, and determine the trouble diagnosis order based on possible causes and symptom.

>> GO TO 7.

7.DETECT MALFUNCTIONING PART BY DIAGNOSTIC PROCEDURE

Inspect according to Diagnostic Procedure of the system.

NOTE:

A
B
C
D
E
F
G
H
I
J
DLK
L
M
N
O
P

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

[WITHOUT INTELLIGENT KEY SYSTEM]

The Diagnostic Procedure described based on open circuit inspection. A short circuit inspection is also required for the circuit check in the Diagnostic Procedure.

Is malfunctioning part detected?

YES >> GO TO 8.

NO >> Check voltage of related BCM terminals using CONSULT.

8. REPAIR OR REPLACE THE MALFUNCTIONING PART

1. Repair or replace the malfunctioning part.
2. Reconnect parts or connectors disconnected during Diagnostic Procedure again after repair and replacement.
3. Check DTC. If DTC is displayed, erase it.

>> GO TO 9.

9. FINAL CHECK

When DTC was detected in step 2, perform DTC Confirmation Procedure or Component Function Check again, and then check that the malfunction have been repaired securely.

When symptom was described from the customer, refer to confirmed symptom in step 3 or 4, and check that the symptom is not detected.

Is the inspection result normal?

NO (DTC is detected) >> GO TO 7.

NO (Symptom remains) >> GO TO 6.

YES >> Inspection End.

INSPECTION AND ADJUSTMENT

< BASIC INSPECTION >

[WITHOUT INTELLIGENT KEY SYSTEM]

INSPECTION AND ADJUSTMENT

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT

A

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Description

INFOID:0000000010283331

B

Perform the system initialization when replacing BCM, replacing keyfob or registering an additional keyfob.

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement

INFOID:0000000010283332

C

Refer to the CONSULT Immobilizer mode and follow the on-screen instructions.

D

E

F

G

H

I

J

DLK

L

M

N

O

P

U1000 CAN COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

DTC/CIRCUIT DIAGNOSIS

U1000 CAN COMM CIRCUIT

Description

INFOID:0000000010346336

Refer to [LAN-8, "System Description"](#).

DTC Logic

INFOID:0000000010346337

DTC DETECTION LOGIC

NOTE:

U1000 can be set if a module harness was disconnected and reconnected, perhaps during a repair. Confirm that there are actual CAN diagnostic symptoms and a present DTC by performing the Self Diagnostic Result procedure.

CONSULT Display	DTC Detection Condition	Possible cause
CAN COMM CIRCUIT [U1000]	When any listed module cannot communicate with CAN communication signal continuously for 2 seconds or more with ignition switch ON.	In CAN communication system, any item (or items) of the following listed below is malfunctioning. • Transmission • Receiving (ECM) • Receiving (VDC/TCS/ABS) • Receiving (METER/M&A) • Receiving (TCM) • Receiving (IPDM E/R)

Diagnosis Procedure

INFOID:0000000010346338

1. PERFORM SELF DIAGNOSTIC

1. Turn ignition switch ON and wait for 2 second or more.
2. Check "SELF- DIAG RESULTS".

Is "CAN COMM CIRCUIT" displayed?

- YES >> Perform CAN Diagnosis as described in DIAGNOSIS section of CONSULT Operation Manual.
NO >> Refer to [GI-41, "Intermittent Incident"](#).

U1010 CONTROL UNIT (CAN)

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

U1010 CONTROL UNIT (CAN)

DTC Logic

INFOID:0000000010346339

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
CAN COMM CIRCUIT [U1010]	BCM detected internal CAN communication circuit mal- function.	BCM

Diagnosis Procedure

INFOID:0000000010346340

1. REPLACE BCM

When DTC U1010 is detected, replace BCM.

>> Replace BCM. Refer to [BCS-135. "Removal and Installation"](#).

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

POWER SUPPLY AND GROUND CIRCUIT

BCM

BCM : Diagnosis Procedure

INFOID:0000000010346341

Regarding Wiring Diagram information, refer to [BCS-110, "Wiring Diagram"](#).

1. CHECK FUSE

Check that the following fuse is not blown.

Terminal No.	Signal name	Fuse No.
161	BCM power supply	7 (10A)

Is the fuse blown?

YES >> Replace the blown fuse after repairing the affected circuit.

NO >> GO TO 2.

2. CHECK POWER SUPPLY CIRCUIT

1. Disconnect BCM connector M20.
2. Check voltage between BCM connector M20 and ground.

BCM		Ground	Voltage (Approx.)
Connector	Terminal		
M20	161	—	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

3. CHECK GROUND CIRCUIT

Check continuity between BCM connector M20 and ground.

BCM		Ground	Continuity
Connector	Terminal		
M20	170	—	Yes
	171		

Is the inspection result normal?

YES >> Inspection End.

NO >> Repair or replace harness or connectors.

DOOR SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

DOOR SWITCH

Description

INFOID:0000000010283338

Detects door open/close condition.

Component Function Check

INFOID:0000000010283339

1.CHECK FUNCTION

1. Select "DOOR LOCK" of BCM using CONSULT.
2. Select "DOOR SW-DR", "DOOR SW-AS", "DOOR SW-RL", "DOOR SW-RR", in Data Monitor mode.
3. Check that the function operates normally according to the following conditions.

Monitor item	Condition		Status
DOOR SW-DR	Driver side door	Open	On
		Closed	Off
DOOR SW-AS	Passenger side door	Open	On
		Closed	Off
DOOR SW-RL	Rear door LH	Open	On
		Closed	Off
DOOR SW-RR	Rear door RH	Open	On
		Closed	Off

Is the inspection result normal?

YES >> Door switch is OK.

NO >> Refer to [DLK-319. "Diagnosis Procedure"](#).

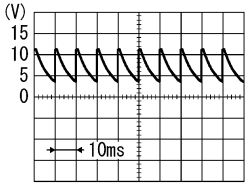
Diagnosis Procedure

INFOID:0000000010283340

Regarding Wiring Diagram information, refer to [DLK-293. "Wiring Diagram"](#).

1.CHECK DOOR SWITCH INPUT SIGNAL

1. Turn ignition switch OFF.
2. Disconnect malfunctioning door switch connector.
3. Check signal between malfunctioning door switch harness connector and ground using oscilloscope.

(+)		(-)	Signal (Reference value)
Door switch			
Connector	Terminal		
Front LH	B71	Ground	
Front RH	B141		
Rear LH	B70		
Rear RH	B142		

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 2.

2.CHECK DOOR SWITCH CIRCUIT

1. Disconnect BCM connector.

A

B

C

D

E

F

G

H

I

J

DLK

L

M

N

O

P

DOOR SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

2. Check continuity between door switch harness connector and BCM harness connector.

Door switch		BCM		Continuity
Connector	Terminal	Connector	Terminal	
Front LH	B71	B16	57	Yes
Front RH	B141		53	
Rear LH	B70		52	
Rear RH	B142		50	

3. Check continuity between door switch harness connector and ground.

Door switch		Ground	Continuity
Connector	Terminal		
Front LH	B71	3	No
Front RH	B141		
Rear LH	B70		
Rear RH	B142		

Is the inspection result normal?

YES >> Replace BCM. Refer to [BCS-135, "Removal and Installation"](#).

NO >> Repair or replace harness.

3.CHECK DOOR SWITCH

Refer to [DLK-150, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace malfunctioning door switch. Refer to [DLK-385, "Removal and Installation"](#).

4.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> Inspection End.

Component Inspection

INFOID:0000000010283341

1.CHECK DOOR SWITCH

1. Turn ignition switch OFF.
2. Disconnect door switch connector.
3. Check door switch.

Terminal		Door switch condition	Continuity
Door switch			
3	Ground part of door switch	Pressed	No
		Released	Yes

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace malfunctioning door switch. Refer to [DLK-385, "Removal and Installation"](#).

DOOR LOCK AND UNLOCK SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

DOOR LOCK AND UNLOCK SWITCH

DRIVER SIDE

DRIVER SIDE : Description

INFOID:0000000010283342

Transmits door lock/unlock operation to BCM.

DRIVER SIDE : Component Function Check

INFOID:0000000010283343

1.CHECK FUNCTION

With CONSULT

Check "CDL LOCK SW", "CDL UNLOCK SW" in Data Monitor mode with CONSULT.

Monitor item	Condition
CDL LOCK SW	LOCK : ON
	UNLOCK : OFF
CDL UNLOCK SW	LOCK : OFF
	UNLOCK : ON

Is the inspection result normal?

YES >> Door lock and unlock switch is OK.

NO >> Refer to [DLK-321, "DRIVER SIDE : Diagnosis Procedure"](#).

DRIVER SIDE : Diagnosis Procedure

INFOID:0000000010283344

Regarding Wiring Diagram information, refer to [DLK-293, "Wiring Diagram"](#).

1.CHECK POWER WINDOW SWITCH OUTPUT SIGNAL

1. Turn ignition switch ON.
2. Check voltage at the main power window and door lock/unlock switch connector when the switch (driver side) is turned to "LOCK" or "UNLOCK".

Connector	Main power window and door lock/unlock switch state	Terminal		Voltage
D6	Neutral → Unlock	15	Ground	Battery voltage → 0
	Neutral → Lock	3		

Is the inspection result normal?

YES >> GO TO 5.

NO >> GO TO 2.

2.CHECK POWER WINDOW SWITCH GROUND

1. Turn ignition switch OFF.
2. Disconnect main power window and door lock/unlock switch connector.
3. Check continuity between main power window and door lock/unlock switch connector and ground.

Main power window and door lock/unlock switch connector	Terminal		Continuity
D6	1	Ground	Yes

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness.

3.CHECK POWER WINDOW SWITCH

A

B

C

D

E

F

G

H

I

J

DLK

L

M

N

O

P

DOOR LOCK AND UNLOCK SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

Check continuity between main power window and door lock/unlock switch terminals.

Main power window and door lock/unlock switch state	Terminals	Continuity
Unlock	1 - 3	Yes
Lock	1 - 15	
Neutral/Unlock	1 - 15	No
Neutral/Lock	1 - 3	

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace main power window and door lock/unlock switch. Refer to [PWC-64, "Removal and Installation"](#).

4. CHECK POWER WINDOW SWITCH CIRCUITS

1. Disconnect BCM connector.
2. Check continuity between BCM connector and main power window and door lock/unlock switch connector.

BCM connector	Terminal	Main power window and door lock/unlock switch connector	Terminal	Continuity
M18	40	D6	15	Yes
	10		3	

3. Check continuity between BCM connector and ground.

BCM connector	Terminal		Continuity
M18	40	Ground	No
	10		

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace harness.

5. CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> Inspection End.

PASSENGER SIDE

PASSENGER SIDE : Description

INFOID:0000000010283345

Transmits door lock/unlock operation to BCM.

PASSENGER SIDE : Component Function Check

INFOID:0000000010283346

1. CHECK FUNCTION

With CONSULT

Check "CDL LOCK SW", "CDL UNLOCK SW" in Data Monitor mode with CONSULT.

Monitor item	Condition	
CDL LOCK SW	LOCK	: ON
	UNLOCK	: OFF

DOOR LOCK AND UNLOCK SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

Monitor item	Condition	
CDL UNLOCK SW	LOCK	: OFF
	UNLOCK	: ON

Is the inspection result normal?

YES >> Door lock and unlock switch is OK.

NO >> Refer to [DLK-323, "PASSENGER SIDE : Diagnosis Procedure"](#).

PASSENGER SIDE : Diagnosis Procedure

INFOID:0000000010283347

Regarding Wiring Diagram information, refer to [DLK-293, "Wiring Diagram"](#).

1.CHECK POWER WINDOW SWITCH OUTPUT SIGNAL

1. Turn ignition switch ON.
2. Check voltage at the front power window and door lock/unlock switch RH connector when the switch (passenger side) is changed to "LOCK" or "UNLOCK".

Connector	Front power window and door lock/unlock switch RH state	Terminal		Voltage
D112	Neutral → Lock	1	Ground	Battery voltage → 0
	Neutral → Unlock	2		

Is the inspection result normal?

YES >> GO TO 5.

NO >> GO TO 2.

2.CHECK POWER WINDOW SWITCH GROUND

1. Turn ignition switch OFF.
2. Disconnect front power window and door lock/unlock switch RH connector.
3. Check continuity between front power window and door lock/unlock switch RH connector and ground.

Front power window and door lock/unlock switch RH connector	Terminal		Continuity
D112	3	Ground	Yes

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness.

3.CHECK POWER WINDOW SWITCH

Check continuity between front power window and door lock/unlock switch RH terminals.

Front power window and door lock/unlock switch RH state	Terminals	Continuity
Lock	1 - 3	Yes
Unlock	2 - 3	
Neutral/Unlock	1 - 3	No
Neutral/Lock	2 - 3	

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace front power window and door lock/unlock switch RH. Refer to [PWC-65, "Removal and Installation"](#).

4.CHECK POWER WINDOW SWITCH CIRCUITS

1. Disconnect BCM connector.

DOOR LOCK AND UNLOCK SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

2. Check continuity between BCM connector and front power window and door lock/unlock switch RH connector.

BCM connector	Terminal	Front power window and door lock/unlock switch RH connector	Terminal	Continuity
M18	10	D112	1	Yes
	40		2	

3. Check continuity between BCM connector and ground.

BCM connector	Terminal		Continuity
M18	10	Ground	No
	40		

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace harness.

5.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> Inspection End.

DOOR KEY CYLINDER SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

DOOR KEY CYLINDER SWITCH

Description

INFOID:0000000010283348

When the mechanical key is inserted and turned into the front door lock key cylinder switch LH, the switch transmits the LOCK or UNLOCK signal directly to the BCM.

Component Function Check

INFOID:0000000010283349

1.CHECK FUNCTION

1. Select DOOR LOCK of BCM using CONSULT.
2. Select "KEY CYL LK-SW", "KEY CYL UN-SW" in Data Monitor mode.
3. Check that the function operates normally according to the following conditions.

Monitor item	Condition		Status
KEY CYL LK-SW	Driver side door key cylinder	Lock	ON
		Neutral / Unlock	OFF
KEY CYL UN-SW		Unlock	ON
		Neutral / Lock	OFF

Is the inspection result normal?

- YES >> Door key cylinder switch is OK.
NO >> Refer to [DLK-325. "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010283350

Regarding Wiring Diagram information, refer to [DLK-293. "Wiring Diagram"](#).

1.CHECK DOOR KEY CYLINDER SWITCH INPUT SIGNAL

1. Turn ignition switch ON.
2. Check voltage between BCM connector and ground.

Terminals			Key position	Voltage (V) (Approx.)
(+)		(−)		
BCM connector	Terminal			
M19	92	Ground	Lock	0
			Neutral / Unlock	8
	93		Unlock	0
			Neutral / Lock	8

Is the inspection result normal?

- YES >> Front door lock key cylinder switch LH is OK.
NO >> GO TO 2.

2.CHECK DOOR KEY CYLINDER SWITCH GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect front door lock key assembly LH connector.
3. Check continuity between front door lock assembly LH connector and ground.

Front door lock assembly LH connector	Terminal	Ground	Continuity
D23	4		Yes

Is the inspection result normal?

DOOR KEY CYLINDER SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

- YES >> GO TO 3.
NO >> Repair or replace harness.

3.CHECK DOOR KEY CYLINDER SIGNAL CIRCUIT

1. Disconnect BCM connector M18.
2. Check continuity between front door lock assembly LH connector and BCM connector M18.

Front door lock assembly LH connector	Terminal	BCM connector	Terminal	Continuity
D23	6	M19	92	Yes
	5		93	

3. Check continuity between front door lock assembly LH connector and ground.

Front door lock assembly LH connector	Terminal	Ground	Continuity
D23	6	Ground	No
	5		

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Repair or replace harness.

4.CHECK DOOR KEY CYLINDER SWITCH

Check door key cylinder switch.

Refer to [DLK-326, "Component Inspection"](#).

Is the inspection result normal?

- YES >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).
NO >> Replace front door lock assembly LH. Refer to [DLK-373, "DOOR LOCK : Removal and Installation"](#).

Component Inspection

INFOID:0000000010283351

COMPONENT INSPECTION

1.CHECK DOOR KEY CYLINDER SWITCH

Check front door lock key cylinder switch LH.

Terminal		Key position	Continuity
Front door lock key cylinder switch LH connector			
6	4	Lock	Yes
		Neutral / Unlock	No
5		Unlock	Yes
		Neutral / Lock	No

Is the inspection result normal?

- YES >> Key cylinder switch is OK.
NO >> Replace front door lock assembly LH. Refer to [DLK-373, "DOOR LOCK : Removal and Installation"](#).

KEY SWITCH (BCM INPUT)

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

KEY SWITCH (BCM INPUT)

Diagnosis Procedure

INFOID:0000000010283352

Regarding Wiring Diagram information, refer to [DLK-293. "Wiring Diagram"](#).

1. CHECK KEY SWITCH INPUT SIGNAL

 With CONSULT

Check key switch "KEY SW" in "Data Monitor" mode with CONSULT. Refer to [BCS-87. "DOOR LOCK : CONSULT Function \(BCM - DOOR LOCK\)"](#).

- When key is inserted to ignition key cylinder:

KEY SW : ON

- When key is removed from ignition key cylinder:

KEY SW : OFF

 Without CONSULT

Check voltage between BCM connector M18 terminal 37 and ground.

Connector	Terminal		Condition	Voltage (V)
	(+)	(-)		
M19	104	Ground	Key is inserted.	Battery voltage
			Key is removed.	0

Is the inspection result normal?

YES >> Key switch (insert) circuit is OK.

NO >> GO TO 2.

2. CHECK KEY SWITCH (INSERT)

- Turn ignition switch OFF.
- Disconnect key switch connector.
- Check continuity between key switch terminals.

Terminals	Condition	Continuity
3 - 4	Key is inserted.	Yes
	Key is removed.	No

Is the inspection result normal?

YES >> Repair or replace harness or fuse.

NO >> Replace key switch.

DOOR LOCK ACTUATOR

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

DOOR LOCK ACTUATOR DRIVER SIDE

DRIVER SIDE : Component Function Check

INFOID:0000000010346366

1.CHECK FUNCTION

1. Select "DOOR LOCK" of BCM using CONSULT.
2. Select "DOOR LOCK" in Active Test mode.
3. Touch ""ALL LOCK" or "ALL UNLK" to check that it works normally.

Is the inspection result normal?

YES >> Door lock actuator is OK.

NO >> Refer to [DLK-328, "DRIVER SIDE : Diagnosis Procedure"](#).

DRIVER SIDE : Diagnosis Procedure

INFOID:0000000010346367

Regarding Wiring Diagram information, refer to [DLK-293, "Wiring Diagram"](#).

1.CHECK DOOR LOCK ACTUATOR INPUT SIGNAL

1. Turn ignition switch OFF.
2. Disconnect front door lock assembly LH connector.
3. Check voltage between front door lock assembly LH harness connector and ground.

(+) Front door lock assembly LH		(-)	Condition		Voltage (Approx.)
Connector	Terminal				
D23	1	Ground	Door lock and unlock switch	Lock	Battery voltage
	2			Unlock	

Is the inspection result normal?

YES >> Replace front door lock assembly LH. Refer to [DLK-373, "DOOR LOCK : Removal and Installation"](#).

NO >> GO TO 2.

2.CHECK DOOR LOCK ACTUATOR CIRCUIT

1. Disconnect BCM, all door lock actuator connectors.
2. Check continuity between BCM harness connector and front door lock assembly LH harness connector.

BCM		Front door lock assembly LH		Continuity
Connector	Terminal	Connector	Terminal	
M20	165	D23	1	Yes
	172		2	

3. Check continuity between BCM harness connector and ground.

BCM		Ground	Continuity
Connector	Terminal		
M20	165		No
	172		

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness.

3.CHECK BCM OUTPUT SIGNAL

DOOR LOCK ACTUATOR

[WITHOUT INTELLIGENT KEY SYSTEM]

< DTC/CIRCUIT DIAGNOSIS >

1. Connect BCM connector.
2. Check voltage between BCM harness connector and ground.

(+) BCM		(-)	Condition		Voltage (Approx.)
Connector	Terminal				
M20	165	Ground	Door lock and unlock switch	Lock	Battery voltage
	172			Unlock	

Is the inspection result normal?

YES >> Replace front door lock assembly LH. Refer to [DLK-373, "DOOR LOCK : Removal and Installation"](#).

NO >> Replace BCM. Refer to [BCS-135, "Removal and Installation"](#).

PASSENGER SIDE

PASSENGER SIDE : Component Function Check

INFOID:0000000010346368

1.CHECK FUNCTION

1. Select "DOOR LOCK" of BCM using CONSULT.
2. Select "DOOR LOCK" in Active Test mode.
3. Touch "ALL LOCK" or "ALL UNLK" to check that it works normally.

Is the inspection result normal?

YES >> Door lock actuator is OK.

NO >> Refer to [DLK-329, "PASSENGER SIDE : Diagnosis Procedure"](#).

PASSENGER SIDE : Diagnosis Procedure

INFOID:0000000010346369

Regarding Wiring Diagram information, refer to [DLK-293, "Wiring Diagram"](#).

1.CHECK DOOR LOCK ACTUATOR INPUT SIGNAL

1. Turn ignition switch OFF.
2. Disconnect front door lock actuator RH connector.
3. Check voltage between front door lock actuator RH harness connector and ground.

(+) Front door lock actuator RH		(-)	Condition		Voltage (Approx.)
Connector	Terminal				
D113	5	Ground	Door lock and unlock switch	Unlock	Battery voltage
	6			Lock	

Is the inspection result normal?

YES >> Replace front door lock actuator RH. Refer to [DLK-373, "DOOR LOCK : Removal and Installation"](#).

NO >> GO TO 2.

2.CHECK DOOR LOCK ACTUATOR CIRCUIT

1. Disconnect BCM, all door lock actuator connectors.
2. Check continuity between BCM harness connector and front door lock actuator RH harness connector.

BCM		Front door lock actuator RH		Continuity
Connector	Terminal	Connector	Terminal	
M20	165	D113	5	Yes
	163		6	

DOOR LOCK ACTUATOR

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

3. Check continuity between BCM harness connector and ground.

BCM		Ground	Continuity
Connector	Terminal		
M20	165		No
	163		

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness.

3.CHECK BCM OUTPUT SIGNAL

1. Connect BCM connector.
2. Check voltage between BCM harness connector and ground.

(+) BCM		(-)	Condition		Voltage (Approx.)
Connector	Terminal				
M20	165	Ground	Door lock and unlock switch	Unlock	Battery voltage
	163			Lock	

Is the inspection result normal?

YES >> Replace front door lock actuator RH. Refer to [DLK-373, "DOOR LOCK : Removal and Installation"](#).

NO >> Replace BCM. Refer to [BCS-135, "Removal and Installation"](#).

REAR LH

REAR LH : Component Function Check

INFOID:0000000010346370

1.CHECK FUNCTION

1. Select "DOOR LOCK" of BCM using CONSULT.
2. Select "DOOR LOCK" in ACTIVE TEST mode.
3. Touch "ALL LOCK" or "ALL UNLK" to check that it works normally.

Is the inspection result normal?

YES >> Door lock actuator is OK.

NO >> Refer to [DLK-330, "REAR LH : Diagnosis Procedure"](#).

REAR LH : Diagnosis Procedure

INFOID:0000000010346371

Regarding Wiring Diagram information, refer to [DLK-293, "Wiring Diagram"](#).

1.CHECK DOOR LOCK ACTUATOR INPUT SIGNAL

1. Turn ignition switch OFF.
2. Disconnect rear door lock actuator LH connector.
3. Check voltage between rear door lock actuator LH harness connector and ground.

(+) Rear door lock actuator LH		(-)	Condition		Voltage (Approx.)
Connector	Terminal				
D206	1	Ground	Door lock and unlock switch	Lock	Battery voltage
	2			Unlock	

Is the inspection result normal?

YES >> Replace rear door lock actuator LH. Refer to [DLK-377, "DOOR LOCK : Removal and Installation"](#).

DOOR LOCK ACTUATOR

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

NO >> GO TO 2.

2.CHECK DOOR LOCK ACTUATOR CIRCUIT

1. Disconnect BCM, all door lock actuator connectors.
2. Check continuity between BCM harness connector and rear door lock actuator LH harness connector.

BCM		Rear door lock actuator LH		Continuity
Connector	Terminal	Connector	Terminal	
B23	148	D206	2	Yes
	149		1	

3. Check continuity between BCM harness connector and ground.

BCM		Ground	Continuity
Connector	Terminal		
B23	148		No
	149		

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness.

3.CHECK BCM OUTPUT SIGNAL

1. Connect BCM connector.
2. Check voltage between BCM harness connector and ground.

(+) BCM		(-)	Condition		Voltage (Approx.)
Connector	Terminal				
B23	148	Ground	Door lock and unlock switch	Unlock	Battery voltage
	149			Lock	

Is the inspection result normal?

YES >> Replace rear door lock actuator LH. Refer to [DLK-377. "DOOR LOCK : Removal and Installation"](#).

NO >> Replace BCM. Refer to [BCS-135. "Removal and Installation"](#).

REAR RH

REAR RH : Component Function Check

INFOID:0000000010346372

1.CHECK FUNCTION

1. Select "DOOR LOCK" of "BCM" using CONSULT.
2. Select "DOOR LOCK" in Active Test mode.
3. Touch "ALL LOCK" or "ALL UNLK" to check that it works normally.

Is the inspection result normal?

YES >> Door lock actuator is OK.

NO >> Refer to [DLK-331. "REAR RH : Diagnosis Procedure"](#).

REAR RH : Diagnosis Procedure

INFOID:0000000010346373

Regarding Wiring Diagram information, refer to [DLK-293. "Wiring Diagram"](#).

1.CHECK DOOR LOCK ACTUATOR INPUT SIGNAL

1. Turn ignition switch OFF.
2. Disconnect rear door lock actuator RH connector.

DOOR LOCK ACTUATOR

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

3. Check voltage between rear door lock actuator RH harness connector and ground.

(+) Rear door lock actuator RH		(-)	Condition		Voltage (Approx.)
Connector	Terminal				
D306	5	Ground	Door lock and unlock switch	Unlock	Battery voltage
	6			Lock	

Is the inspection result normal?

- YES >> Replace rear door lock actuator RH. Refer to [DLK-377, "DOOR LOCK : Removal and Installation"](#).
NO >> GO TO 2.

2.CHECK DOOR LOCK ACTUATOR CIRCUIT

1. Disconnect BCM, all door lock actuator connectors.
2. Check continuity between BCM harness connector and rear door lock actuator RH harness connector.

BCM		Rear door lock actuator RH		Continuity
Connector	Terminal	Connector	Terminal	
B23	148	D306	6	Yes
	149		5	

3. Check continuity between BCM harness connector and ground.

BCM		Ground	Continuity
Connector	Terminal		
B23	148		No
	149		

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace harness.

3.CHECK BCM OUTPUT SIGNAL

1. Connect BCM connector.
2. Check voltage between BCM harness connector and ground.

(+) BCM		(-)	Condition		Voltage (Approx.)
Connector	Terminal				
B23	148	Ground	Door lock and unlock switch	Unlock	Battery voltage
	149			Lock	

Is the inspection result normal?

- YES >> Replace rear door lock actuator RH. Refer to [DLK-377, "DOOR LOCK : Removal and Installation"](#).
NO >> Replace BCM. Refer to [BCS-135, "Removal and Installation"](#).

KEYFOB BATTERY AND FUNCTION

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

KEYFOB BATTERY AND FUNCTION

Description

INFOID:0000000010283368

The following functions are available when having and carrying the keyfob.

- Door lock/unlock
- Panic mode (horn and head-lamp operation)

Remote control entry function and panic alarm function are available when operating the remote buttons.

Component Function Check

INFOID:0000000010283369

NOTE:

The Signal Tech II Tool [- (J-50190)] can be used to perform the following functions. Refer to the Signal Tech II User Guide for additional information.

- Check keyfob relative signal strength
- Confirm vehicle antenna signal strength

1.CHECK FUNCTION

With CONSULT

Check remote keyless entry receiver KEYLESS LOCK, KEYLESS UNLOCK, and KEYLESS PANIC in Data Monitor mode with CONSULT.

Monitor item	Condition
KEYLESS LOCK	Checks whether value changes from "Off" to "On" when operating keyfob lock button.
KEYLESS UNLOCK	Checks whether value changes from "Off" to "On" when operating keyfob unlock button.
KEYLESS PANIC	Checks whether value changes from "Off" to "On" when operating keyfob panic button.

Is the inspection result normal?

YES >> Keyfob is OK.

NO >> Refer to [DLK-333, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010283370

NOTE:

The Signal Tech II Tool [- (J-50190)] can be used to perform the following functions. Refer to the Signal Tech II User Guide for additional information.

- Check keyfob relative signal strength
- Confirm vehicle antenna signal strength

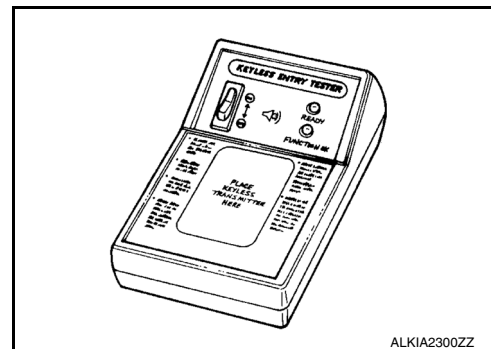
1.CHECK KEYFOB FUNCTION

Check keyfob function using Signal Tech II Tool J-50190 or Remote Keyless Entry Tester J-43241 (shown).

Does the test pass?

YES >> Keyfob is OK.

NO >> GO TO 2.



2.CHECK KEYFOB BATTERY

KEYFOB BATTERY AND FUNCTION

< DTC/CIRCUIT DIAGNOSIS >

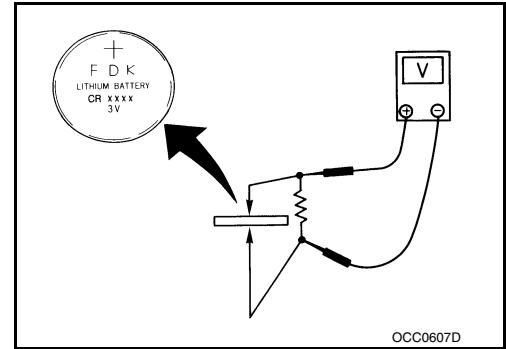
[WITHOUT INTELLIGENT KEY SYSTEM]

Check by connecting a resistance (approximately 300Ω) so that the current value becomes about 10 mA.

Standard : Approx. 2.5 - 3.0V

Is the measurement value within specification?

- YES >> Keyfob battery is OK.
NO >> GO TO 3.



3. REPLACE KEYFOB BATTERY

1. Replace the keyfob battery with a new one (CR2032 or equivalent).

CAUTION:

- When replacing battery, keep dirt, grease, and other foreign materials off the electrode contact area.
 - Make sure that the + side faces the bottom of the case.
2. Align the tips of the upper and lower parts, and then push them together until it is securely closed.
 3. After replacing the battery, check that all keyfob functions work properly.

Is the inspection result normal?

- YES >> Keyfob is OK.
NO >> Check BCM.

HORN FUNCTION

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

HORN FUNCTION

Component Function Check

INFOID:0000000010346374

1.CHECK FUNCTION 1

1. Perform "SIREN" in Active Test mode of "THEFT ALM" of BCM using CONSULT.
2. Check the horn operation.

Test item		Description	
HORN	ON	Horn	Sounds (for 0.5 sec)

Is the operation normal?

- YES >> Inspection End.
NO >> Go to [HRN-3. "Wiring Diagram"](#).

Component Inspection

INFOID:0000000010346375

1.CHECK ANTI-THEFT HORN RELAY

1. Turn ignition switch OFF.
2. Disconnect anti-theft horn relay.
3. Check voltage between anti-theft horn relay terminal and ground under the following conditions.

(+)	(-)	Condition	Voltage (V) (Approx.)
Anti-theft horn relay Terminal			
2	Ground	12 V direct current supply between terminals 1 and 2	12
		No current supply	0

Is the inspection result normal?

- YES >> Inspection End.
NO >> Replace anti-theft horn relay.

DLK

WARNING CHIME FUNCTION

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

WARNING CHIME FUNCTION

Description

INFOID:0000000010283374

Performs operation method guide and warning with buzzer.

Component Function Check

INFOID:0000000010283375

1.CHECK FUNCTION

With CONSULT

1. Check the operation with "BUZZER" in the "Active Test".
2. Touch "IGN KEY WARN ALM", "SEAT BELT WARN TEST" or "LIGHT WARN ALM" on screen.

Is the inspection result normal?

YES >> Warning buzzer into combination meter is OK.

NO >> Refer to [DLK-336, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010283376

1.CHECK METER BUZZER CIRCUIT

Operate the hazard lights by turning ON the hazard warning switch.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace combination meter. Refer to [MWI-82, "Removal and Installation"](#).

2.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> Inspection End.

HAZARD FUNCTION

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

HAZARD FUNCTION

Description

INFOID:0000000010283377

Perform answer-back for each operation with number of blinks.

Component Function Check

INFOID:0000000010283378

1.CHECK FUNCTION

Check hazard warning lamp "FLASHER" in "Active Test".

Is the inspection result normal?

YES >> Hazard warning lamp circuit is OK.

NO >> Refer to [DLK-337, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010283379

1.CHECK HAZARD SWITCH CIRCUIT

Operate the hazard lights by turning ON the hazard warning switch.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace hazard warning switch circuit. Refer to [EXL-125, "Removal and Installation"](#).

2.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> Inspection End.

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

DLK

KEYFOB ID SET UP WITH CONSULT

ID Code Entry Procedure

INFOID:0000000010283380

KEYFOB ID SET UP WITH CONSULT

NOTE:

- If a keyfob is lost, the ID code of the lost keyfob must be erased to prevent unauthorized use. A specific ID code can be erased with CONSULT. However, when the ID code of a lost keyfob is not known, all controller ID codes should be erased. After all ID codes are erased, the ID codes of all remaining and/or new keyfobs must be re-registered.
- When registering an additional keyfob, the existing ID codes in memory may or may not be erased. If five ID codes are stored in memory when an additional code is registered, only the oldest code is erased. If less than five codes are stored in memory when an additional code is registered, the new ID code is added and no ID codes are erased.
- Entry of a maximum of five ID codes is allowed. When more than five codes are entered, the oldest ID code will be erased.
- Even if the same ID code that is already in memory is input, the same ID code can be entered. The code is counted as an additional code.

1. Turn ignition switch ON.
2. Select BCM.
3. Select MULTI REMOTE ENT.
4. Select WORK SUPPORT.
5. You can register, erase or confirm a keyfob ID code. To register a new code, select the following option and follow CONSULT instructions:
 - REMO CONT ID REGIST
Use this mode to register a keyfob ID code.

NOTE:

Register the ID code when keyfob or BCM is replaced, or when additional keyfob is required.

- REMO CONT ID ERASUR
Use this mode to erase a keyfob ID code.
- REMO CONT ID CONFIR
Use this mode to confirm if a keyfob ID code is registered or not.

KEYFOB ID SET UP WITHOUT CONSULT

< DTC/CIRCUIT DIAGNOSIS >

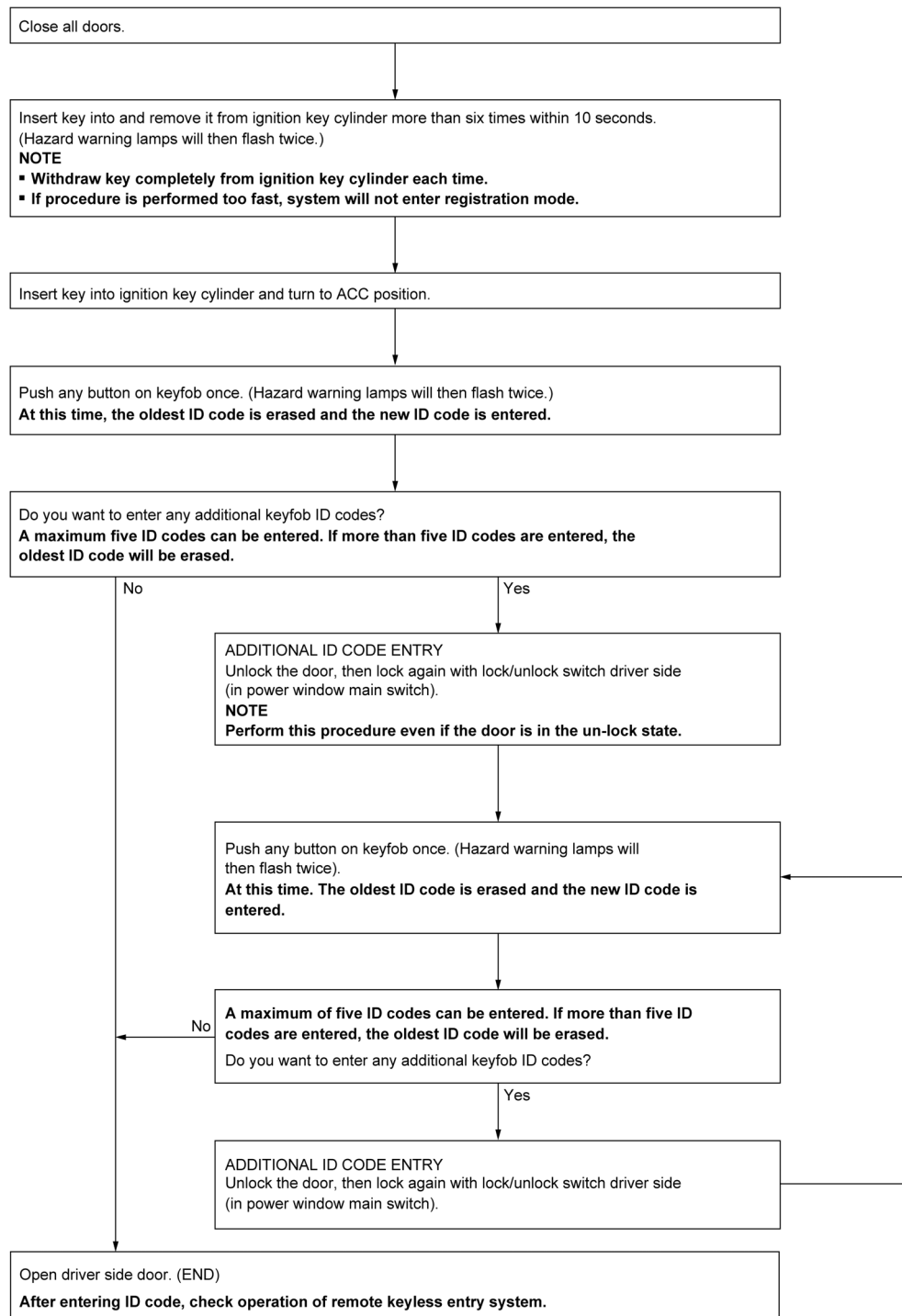
[WITHOUT INTELLIGENT KEY SYSTEM]

KEYFOB ID SET UP WITHOUT CONSULT

ID Code Entry Procedure

INFOID:000000010283381

KEYFOB ID SET UP WITHOUT CONSULT



NOTE:

- If a keyfob is lost, the ID code of the lost keyfob must be erased to prevent unauthorized use. A specific ID code can be erased with CONSULT. However, when the ID code of a lost keyfob is not known, all controller

KEYFOB ID SET UP WITHOUT CONSULT

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

ID codes should be erased. After all ID codes are erased, the ID codes of all remaining and/or new keyfobs must be re-registered.

To erase all ID codes in memory, register one ID code (keyfob) five times. After all ID codes are erased, the ID codes of all remaining and/or new keyfobs must be re-registered.

- When registering an additional keyfob, the existing ID codes in memory may or may not be erased. If five ID codes are stored in memory, when an additional code is registered, only the oldest code is erased. If less than five ID codes are stored in memory, when an additional ID code is registered, the new ID code is added and no ID codes are erased.
- If you need to activate more than two additional new keyfobs, repeat the procedure "Additional ID code entry" for each new keyfob [DLK-338. "ID Code Entry Procedure"](#) (with CONSULT), [DLK-339. "ID Code Entry Procedure"](#) (without CONSULT).
- A maximum amount of five ID codes is allowed. When more than five ID codes are entered, the oldest ID code will be erased.
- Even if same ID code that is already in the memory is input, the same ID code can be entered. The code is counted as an additional code.

POWER DOOR LOCK SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

SYMPTOM DIAGNOSIS

POWER DOOR LOCK SYSTEM SYMPTOMS

Symptom Table

INFOID:0000000010283382

DOOR LOCK/UNLOCK FUNCTION MALFUNCTION

NOTE:

- Before performing the diagnosis in the following table, check "WORK FLOW". Refer to [DLK-312. "Work Flow"](#).
- Check that vehicle is under the condition shown in "Conditions of vehicle" before starting diagnosis, and check each symptom.
- If the following symptoms are detected, check systems shown in the "Diagnosis/service procedure" column in this order.

Symptom	Diagnosis/service procedure		Reference page
Key reminder door function does not operate properly.	1.	Check door switch.	DLK-319
	2.	Check key switch.	DLK-327
	3.	Check Intermittent Incident.	GI-41
Power door lock does not operate with main power window and door lock/unlock switch or power window and door lock/unlock switch RH.	1.	Check BCM Power supply and ground circuit.	BCS-128
	2.	Check main power window and door lock and unlock switch.	DLK-321
	3.	Check power window and door lock and unlock switch RH.	DLK-322
	4.	Check Intermittent Incident.	GI-41
Specific door lock actuator does not operate.	1.	Driver side	DLK-328
		Passenger side	DLK-329
		Rear LH	DLK-330
		Rear RH	DLK-331
	2.	Check Intermittent Incident.	GI-41
Power door locks do not operate with front door lock key cylinder switch LH.	1.	Check key cylinder switch.	DLK-325
	2.	Replace BCM.	BCS-135
Vehicle speed sensing auto door LOCK operation does not operate.	1.	Ensure automatic door lock/unlock function (lock operation) is enabled.	DLK-287
	2.	Check combination meter vehicle speed signal.	SEC-170
	3.	Check intermittent incident.	GI-41
Ignition OFF interlock auto door UNLOCK function does not operate.	1.	Ensure automatic door lock/unlock function (unlock operation) is enabled.	DLK-287
	2.	Check BCM for DTCs.	BCS-108
	3.	Check intermittent incident.	GI-41

REMOTE KEYLESS ENTRY SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

REMOTE KEYLESS ENTRY SYSTEM SYMPTOMS

Symptom Table

INFOID:000000010283383

REMOTE KEYLESS ENTRY SYSTEM

Symptom	Diagnoses/service procedure	Reference page
All functions of remote keyless entry system do not operate.	1. Keyfob battery and function check (use Remote Keyless Entry Tester J-43241) NOTE: If the result of keyfob function check is OK, keyfob is not malfunctioning.	DLK-333
The new ID of keyfob cannot be entered.	1. Keyfob battery and function check (use Remote Keyless Entry Tester J-43241) NOTE: If the result of keyfob function check is OK, keyfob is not malfunctioning.	DLK-333
	2. Door switch check	DLK-319
	3. Replace BCM.	BCS-135
Door lock or unlock does not function. (If the power door lock system does not operate manually, check power door lock system)	1. Keyfob battery and function check (use Remote Keyless Entry Tester J-43241) NOTE: If the result of keyfob function check is OK, keyfob is not malfunctioning.	DLK-333
	2. Replace BCM.	BCS-135
Hazard and horn reminder does not activate properly when pressing lock or unlock button of keyfob.	1. Check hazard and horn reminder mode with CONSULT NOTE: Hazard and horn reminder mode can be changed. First check the hazard and horn reminder mode setting.	DLK-288
	2. Door switch check	DLK-319
	3. Replace BCM.	BCS-135
Hazard reminder does not activate properly when pressing lock or unlock button of keyfob. (Horn reminder OK)	1. Check hazard reminder mode with CONSULT NOTE: Hazard reminder mode can be changed. First check the hazard reminder mode setting.	DLK-288
	2. Check hazard function with hazard switch	—
	3. Replace BCM.	BCS-135
Horn reminder does not activate properly when pressing lock or unlock button of keyfob. (Hazard reminder OK)	1. Check horn reminder mode with CONSULT NOTE: Horn reminder mode can be changed. First check the horn reminder mode setting.	DLK-288
	2. Check horn function with horn switch	—
	3. IPDM E/R operation check	PCS-5
	4. Replace BCM.	BCS-135
Room lamp illumination does not operate properly.	1. Room lamp operation check	INL-7
	2. Door switch check	DLK-319
	3. Replace BCM.	BCS-135
Panic alarm (horn and headlamp) does not activate when panic alarm button is continuously pressed.	1. Keyfob battery and function check (use Remote Keyless Entry Tester J-43241) NOTE: If the result of keyfob function check is OK, keyfob is not malfunctioning.	DLK-333
	2. Replace BCM.	BCS-135

REMOTE KEYLESS ENTRY SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

Symptom	Diagnoses/service procedure	Reference page
Auto door lock operation does not activate properly. (All other remote keyless entry functions OK.)	1. Check auto door lock operation mode with CONSULT NOTE: Auto door lock operation mode can be changed. First check the auto door lock operation mode setting.	DLK-287
	2. Replace BCM.	BCS-135

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

DLK

SQUEAK AND RATTLE TROUBLE DIAGNOSES

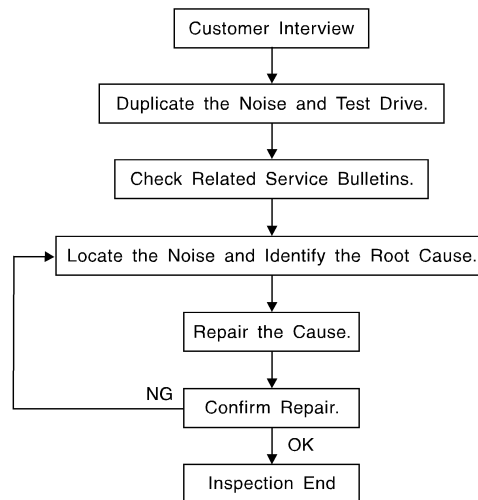
< SYMPTOM DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

SQUEAK AND RATTLE TROUBLE DIAGNOSES

Work Flow

INFOID:0000000010283384



SBT842

CUSTOMER INTERVIEW

Interview the customer if possible, to determine the conditions that exist when the noise occurs. Use the Diagnostic Worksheet during the interview to document the facts and conditions when the noise occurs and any customer's comments; refer to [DLK-348, "Diagnostic Worksheet"](#). This information is necessary to duplicate the conditions that exist when the noise occurs.

- The customer may not be able to provide a detailed description or the location of the noise. Attempt to obtain all the facts and conditions that exist when the noise occurs (or does not occur).
- If there is more than one noise in the vehicle, be sure to diagnose and repair the noise that the customer is concerned about. This can be accomplished by test driving the vehicle with the customer.
- After identifying the type of noise, isolate the noise in terms of its characteristics. The noise characteristics are provided so the customer, service adviser and technician are all speaking the same language when defining the noise.
- Squeak —(Like tennis shoes on a clean floor)
Squeak characteristics include the light contact/fast movement/brought on by road conditions/hard surfaces = higher pitch noise/softer surfaces = lower pitch noises/edge to surface = chirping.
- Creak—(Like walking on an old wooden floor)
Creak characteristics include firm contact/slow movement/twisting with a rotational movement/pitch dependent on materials/often brought on by activity.
- Rattle—(Like shaking a baby rattle)
Rattle characteristics include the fast repeated contact/vibration or similar movement/loose parts/missing clip or fastener/incorrect clearance.
- Knock —(Like a knock on a door)
Knock characteristics include hollow sounding/sometimes repeating/often brought on by driver action.
- Tick—(Like a clock second hand)
Tick characteristics include gentle contacting of light materials/loose components/can be caused by driver action or road conditions.
- Thump—(Heavy, muffled knock noise)
Thump characteristics include softer knock/dead sound often brought on by activity.
- Buzz—(Like a bumble bee)
Buzz characteristics include high frequency rattle/firm contact.
- Often the degree of acceptable noise level will vary depending upon the person. A noise that you may judge as acceptable may be very irritating to the customer.
- Weather conditions, especially humidity and temperature, may have a great effect on noise level.

DUPLICATE THE NOISE AND TEST DRIVE

If possible, drive the vehicle with the customer until the noise is duplicated. Note any additional information on the Diagnostic Worksheet regarding the conditions or location of the noise. This information can be used to duplicate the same conditions when you confirm the repair.

SQUEAK AND RATTLE TROUBLE DIAGNOSES

< SYMPTOM DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

If the noise can be duplicated easily during the test drive, to help identify the source of the noise, try to duplicate the noise with the vehicle stopped by doing one or all of the following:

- 1) Close a door.
 - 2) Tap or push/pull around the area where the noise appears to be coming from.
 - 3) Rev the engine.
 - 4) Use a floor jack to recreate vehicle "twist".
 - 5) At idle, apply engine load (electrical load, half-clutch on M/T model, drive position on CVT and A/T models).
 - 6) Raise the vehicle on a hoist and hit a tire with a rubber hammer.
- Drive the vehicle and attempt to duplicate the conditions the customer states exist when the noise occurs.
 - If it is difficult to duplicate the noise, drive the vehicle slowly on an undulating or rough road to stress the vehicle body.

CHECK RELATED SERVICE BULLETINS

After verifying the customer concern or symptom, check ASIST for Technical Service Bulletins (TSBs) related to that concern or symptom.

If a TSB relates to the symptom, follow the procedure to repair the noise.

LOCATE THE NOISE AND IDENTIFY THE ROOT CAUSE

1. Narrow down the noise to a general area. To help pinpoint the source of the noise, use a listening tool (Chassis Ear: J-39570, Engine Ear: J-39565 and mechanic's stethoscope).
2. Narrow down the noise to a more specific area and identify the cause of the noise by:
 - removing the components in the area that you suspect the noise is coming from.
Do not use too much force when removing clips and fasteners, otherwise clips and fasteners can be broken or lost during the repair, resulting in the creation of new noise.
 - tapping or pushing/pulling the component that you suspect is causing the noise.
Do not tap or push/pull the component with excessive force, otherwise the noise will be eliminated only temporarily.
 - feeling for a vibration with your hand by touching the component(s) that you suspect is (are) causing the noise.
 - placing a piece of paper between components that you suspect are causing the noise.
 - looking for loose components and contact marks.Refer to [DLK-345, "Generic Squeak and Rattle Troubleshooting"](#).

REPAIR THE CAUSE

- If the cause is a loose component, tighten the component securely.
- If the cause is insufficient clearance between components:
 - separate components by repositioning or loosening and retightening the component, if possible.
 - insulate components with a suitable insulator such as urethane pads, foam blocks, felt cloth tape or urethane tape. A NISSAN Squeak and Rattle Kit (J-50397) is available through your authorized NISSAN Parts Department.

CAUTION:

Do not use excessive force as many components are constructed of plastic and may be damaged.

NOTE:

- Always check with the Parts Department for the latest parts information.
- The materials contained in the NISSAN Squeak and Rattle Kit (J-50397) are listed on the inside cover of the kit; and can each be ordered separately as needed.
- The following materials not found in the kit can also be used to repair squeaks and rattles.
 - SILICONE GREASE: Use instead of UHMW tape that will be visible or does not fit. The silicone grease will only last a few months.
 - SILICONE SPRAY: Use when grease cannot be applied.
 - DUCT TAPE: Use to eliminate movement.

CONFIRM THE REPAIR

Confirm that the cause of a noise is repaired by test driving the vehicle. Operate the vehicle under the same conditions as when the noise originally occurred. Refer to the notes on the Diagnostic Worksheet.

Generic Squeak and Rattle Troubleshooting

INFOID:000000010283385

Refer to Table of Contents for specific component removal and installation information.

INSTRUMENT PANEL

Most incidents are caused by contact and movement between:

SQUEAK AND RATTLE TROUBLE DIAGNOSES

< SYMPTOM DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

1. Cluster lid A and the instrument panel
2. Acrylic lens and combination meter housing
3. Instrument panel to front pillar finisher
4. Instrument panel to windshield
5. Instrument panel pins
6. Wiring harnesses behind the combination meter
7. A/C defroster duct and duct joint

These incidents can usually be located by tapping or moving the components to duplicate the noise or by pressing on the components while driving to stop the noise. Most of these incidents can be repaired by applying felt cloth tape or silicone spray (in hard to reach areas). Urethane pads can be used to insulate wiring harness.

CAUTION:

Do not use silicone spray to isolate a squeak or rattle. If you saturate the area with silicone, you will not be able to recheck the repair.

CENTER CONSOLE

Components to pay attention to include:

1. Shift selector assembly cover to finisher
2. A/C control unit and cluster lid C
3. Wiring harnesses behind audio and A/C control unit

The instrument panel repair and isolation procedures also apply to the center console.

DOORS

Pay attention to the:

1. Finisher and inner panel making a slapping noise
2. Inside handle escutcheon to door finisher
3. Wiring harnesses tapping
4. Door striker out of alignment causing a popping noise on starts and stops

Tapping or moving the components or pressing on them while driving to duplicate the conditions can isolate many of these incidents. You can usually insulate the areas with felt cloth tape or insulator foam blocks from the NISSAN Squeak and Rattle Kit (J-50397) to repair the noise.

TRUNK

Trunk noises are often caused by a loose jack or loose items put into the trunk by the owner.

In addition look for:

1. Trunk lid bumpers out of adjustment
2. Trunk lid striker out of adjustment
3. The trunk lid torsion bars knocking together
4. A loose license plate or bracket

Most of these incidents can be repaired by adjusting, securing or insulating the item(s) or component(s) causing the noise.

SUNROOF/HEADLINING

Noises in the sunroof/headlining area can often be traced to one of the following:

1. Sunroof lid, rail, linkage or seals making a rattle or light knocking noise
2. Sun visor shaft shaking in the holder
3. Front or rear windshield touching headlining and squeaking

Again, pressing on the components to stop the noise while duplicating the conditions can isolate most of these incidents. Repairs usually consist of insulating with felt cloth tape.

OVERHEAD CONSOLE (FRONT AND REAR)

Overhead console noises are often caused by the console panel clips not being engaged correctly. Most of these incidents are repaired by pushing up on the console at the clip locations until the clips engage.

In addition look for:

1. Loose harness or harness connectors.
2. Front console map/reading lamp lens loose.

SQUEAK AND RATTLE TROUBLE DIAGNOSES

< SYMPTOM DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

3. Loose screws at console attachment points.

SEATS

When isolating seat noise it's important to note the position the seat is in and the load placed on the seat when the noise is present. These conditions should be duplicated when verifying and isolating the cause of the noise.

Cause of seat noise include:

1. Headrest rods and holder
2. A squeak between the seat pad cushion and frame
3. The rear seatback lock and bracket

These noises can be isolated by moving or pressing on the suspected components while duplicating the conditions under which the noise occurs. Most of these incidents can be repaired by repositioning the component or applying urethane tape to the contact area.

UNDERHOOD

Some interior noise may be caused by components under the hood or on the engine wall. The noise is then transmitted into the passenger compartment.

Causes of transmitted underhood noise include:

1. Any component installed to the engine wall
2. Components that pass through the engine wall
3. Engine wall mounts and connectors
4. Loose radiator installation pins
5. Hood bumpers out of adjustment
6. Hood striker out of adjustment

These noises can be difficult to isolate since they cannot be reached from the interior of the vehicle. The best method is to secure, move or insulate one component at a time and test drive the vehicle. Also, engine rpm or load can be changed to isolate the noise. Repairs can usually be made by moving, adjusting, securing, or insulating the component causing the noise.

A

B

C

D

E

F

G

H

I

J

DLK

L

M

N

O

P

SQUEAK AND RATTLE TROUBLE DIAGNOSES

< SYMPTOM DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

Diagnostic Worksheet

INFOID:000000010283386

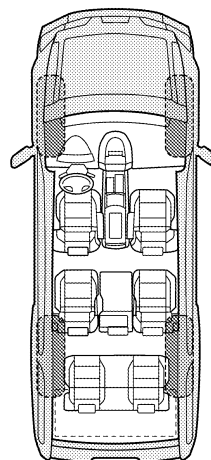
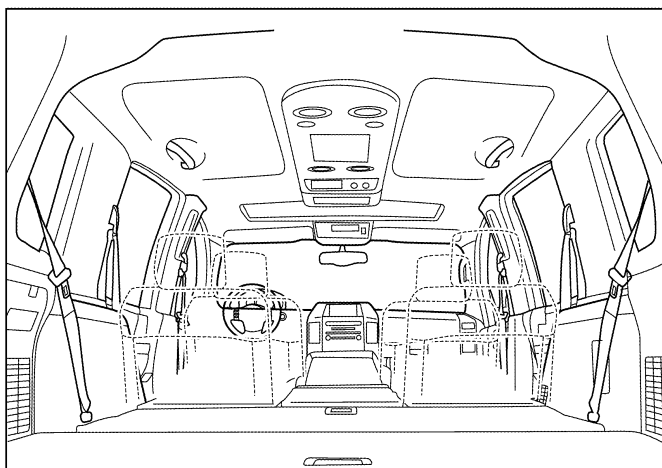
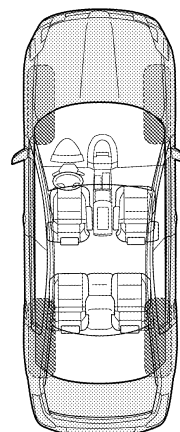
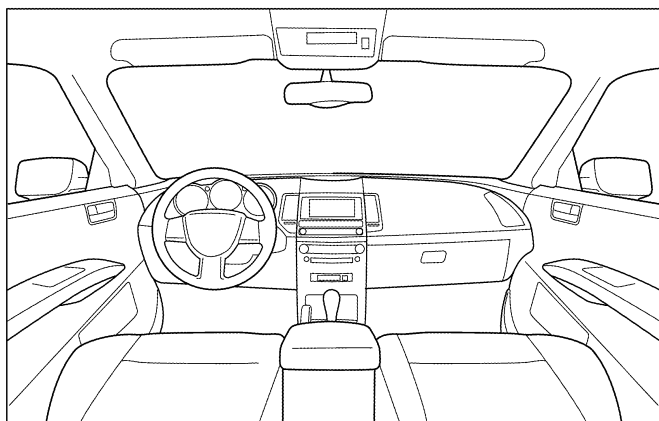
Dear Customer:

We are concerned about your satisfaction with your vehicle. Repairing a squeak or rattle sometimes can be very difficult. To help us fix your vehicle right the first time, please take a moment to note the area of the vehicle where the squeak or rattle occurs and under what conditions. You may be asked to take a test drive with a service advisor or technician to ensure we confirm the noise you are hearing.

SQUEAK & RATTLE DIAGNOSTIC WORKSHEET

I. WHERE DOES THE NOISE COME FROM? (circle the area of the vehicle)

The illustrations are for reference only, and may not reflect the actual configuration of your vehicle.



Continue to page 2 of the worksheet and briefly describe the location of the noise or rattle. In addition, please indicate the conditions which are present when the noise occurs.

SQUEAK AND RATTLE TROUBLE DIAGNOSES

< SYMPTOM DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

SQUEAK & RATTLE DIAGNOSTIC WORKSHEET - page 2

Briefly describe the location where the noise occurs:

II. WHEN DOES IT OCCUR? (please check the boxes that apply)

- | | |
|---|--|
| ☐ Anytime | ☐ After sitting out in the rain |
| ☐ 1st time in the morning | ☐ When it is raining or wet |
| ☐ Only when it is cold outside | ☐ Dry or dusty conditions |
| ☐ Only when it is hot outside | ☐ Other: |

III. WHEN DRIVING:

- ☐ Through driveways
- ☐ Over rough roads
- ☐ Over speed bumps
- ☐ Only about ____ mph
- ☐ On acceleration
- ☐ Coming to a stop
- ☐ On turns: left, right or either (circle)
- ☐ With passengers or cargo
- ☐ Other: _____
- ☐ After driving ____ miles or ____ minutes

IV. WHAT TYPE OF NOISE

- ☐ Squeak (like tennis shoes on a clean floor)
- ☐ Creak (like walking on an old wooden floor)
- ☐ Rattle (like shaking a baby rattle)
- ☐ Knock (like a knock at the door)
- ☐ Tick (like a clock second hand)
- ☐ Thump (heavy muffled knock noise)
- ☐ Buzz (like a bumble bee)

TO BE COMPLETED BY DEALERSHIP PERSONNEL

Test Drive Notes:

	YES	NO	Initials of person performing
Vehicle test driven with customer	☐	☐	_____
- Noise verified on test drive	☐	☐	_____
- Noise source located and repaired	☐	☐	_____
- Follow up test drive performed to confirm repair	☐	☐	_____

VIN: _____ Customer Name _____
W.O.# _____ Date: _____

This form must be attached to Work Order

LAIA0071E

HOOD

< REMOVAL AND INSTALLATION >

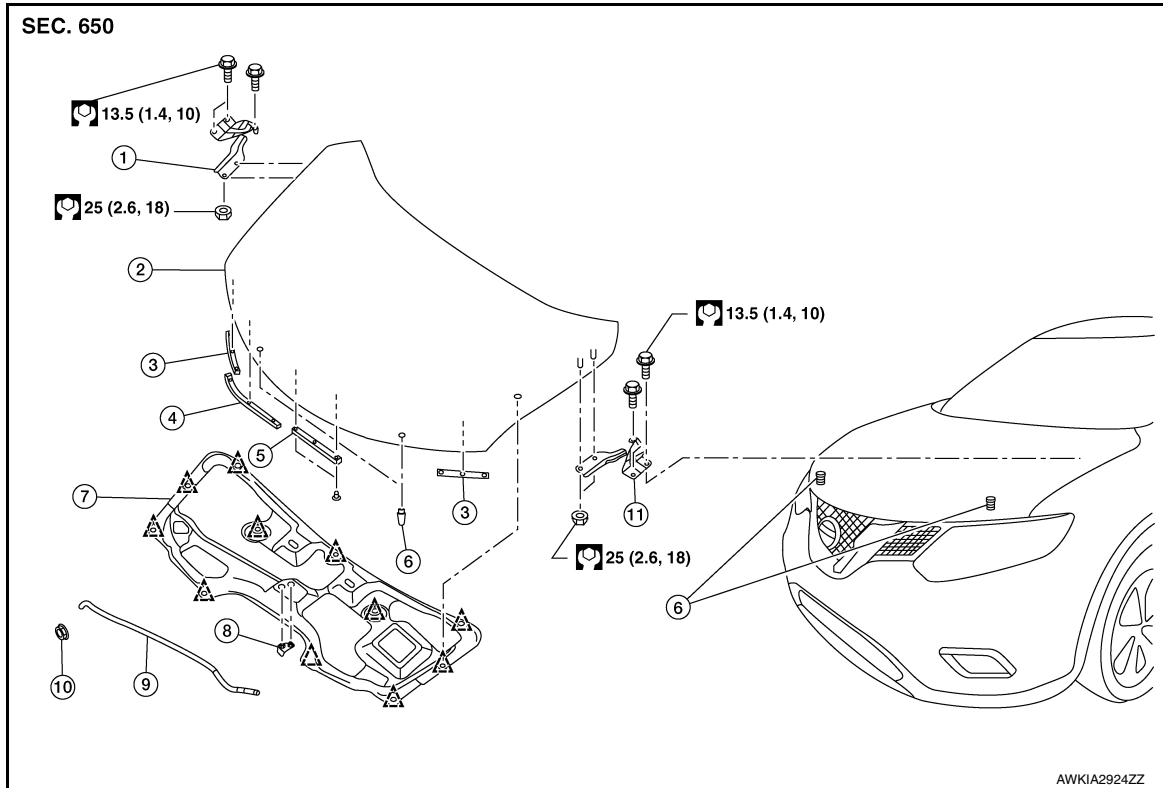
[WITHOUT INTELLIGENT KEY SYSTEM]

REMOVAL AND INSTALLATION

HOOD

Exploded View

INFOID:0000000010282921



- | | | |
|----------------------|---------------------|---------------------|
| 1. Hood hinge (RH) | 2. Hood | 3. Hood side seal |
| 4. Hood front seal | 5. Hood center seal | 6. Bumper rubber |
| 7. Hood insulator | 8. Hood rod clamp | 9. Hood support rod |
| 10. Hood rod grommet | 11. Hood hinge (LH) | |

HOOD ASSEMBLY

HOOD ASSEMBLY : Removal and Installation

INFOID:0000000010282922

CAUTION:

- Use two people when removing or installing hood assembly due to its heavy weight.
- Use protective tape or shop cloths to protect surrounding components from damage during removal and installation of hood assembly.

REMOVAL

1. Support the hood assembly using a suitable tool.

WARNING:

Bodily injury may occur if hood assembly is not supported properly when removing hood assembly.

HOOD

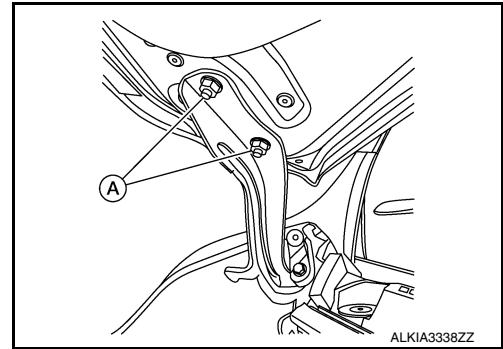
< REMOVAL AND INSTALLATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

- Remove hood hinge to hood nuts (A) and hood assembly.

NOTE:

RH side shown; LH similar.



INSTALLATION

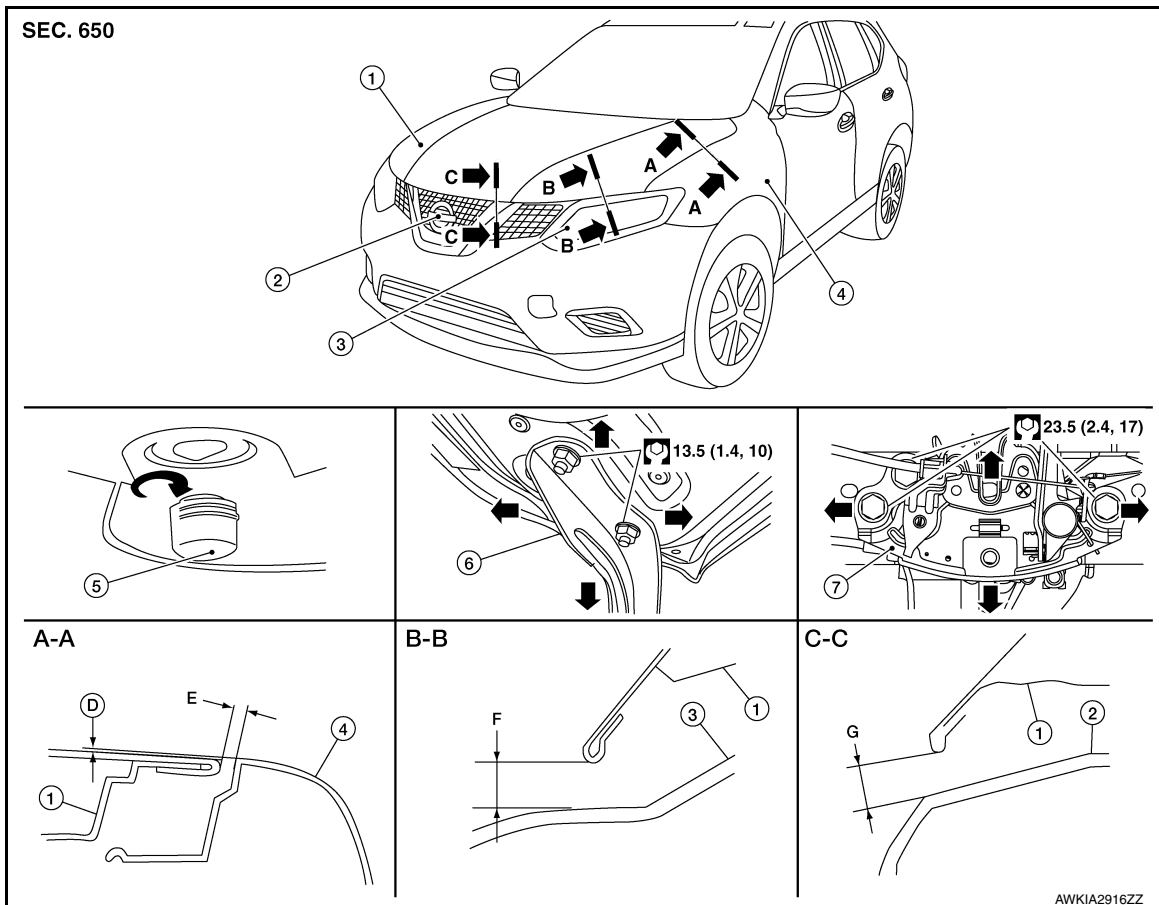
Installation is in the reverse order of removal.

CAUTION:

- Before installing the hood hinge, apply anticorrosive agent onto the surface of the vehicle.
- After installation, perform the hood assembly adjustment procedure. Refer to [DLK-351, "HOOD ASSEMBLY : Adjustment"](#).

HOOD ASSEMBLY : Adjustment

INFOID:000000010282923



- | | | |
|------------------|------------------|---------------------------|
| 1. Hood assembly | 2. Front grille | 3. Front combination lamp |
| 4. Fender | 5. Bumper rubber | 6. Hood hinge |
| 7. Hood lock | | |

Check the clearance and the surface height between hood and each part by visual inspection and tactile feel. If the clearance and the surface height are out of specification, adjust them according to the adjustment procedures.

HOOD

< REMOVAL AND INSTALLATION >

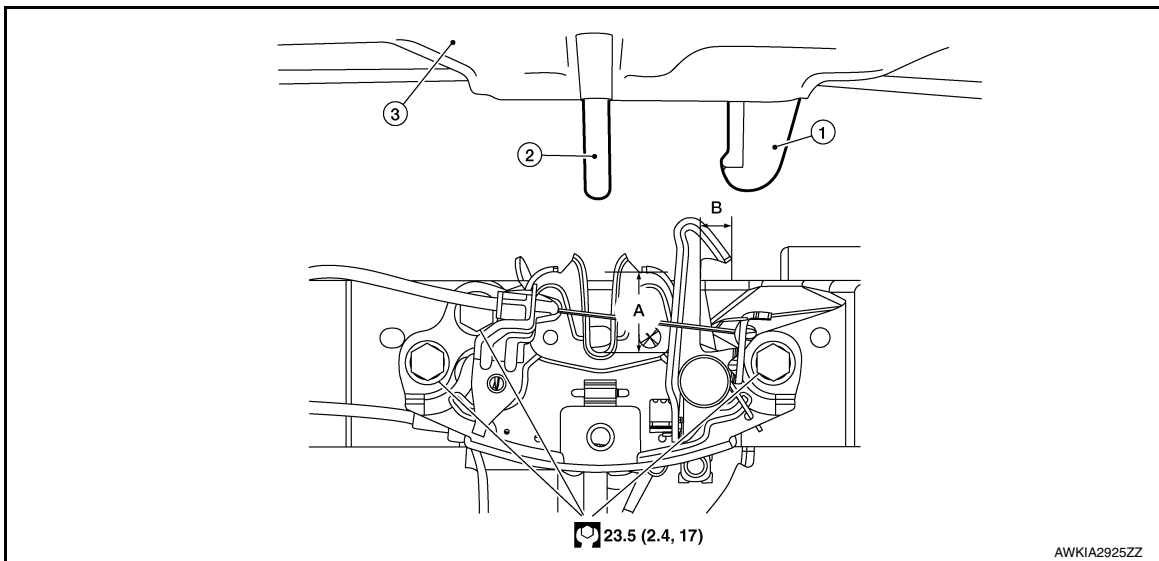
[WITHOUT INTELLIGENT KEY SYSTEM]

Unit: mm (in)

Portion	Section	Item	Measurement	Standard	Parallelism
Hood - Fender	A - A	D	Surface height	0.0 ± 1.0 (0.0 ± 0.04)	1.4 (0.06)
		E	Clearance	3.5 ± 1.5 (0.14 ± 0.04)	1.4 (0.06)
Fender - Front combination lamp	B - B	F	Clearance	9.0 ± 2.0 (0.35 ± 0.08)	2.0 (0.08)
Hood - Front combination lamp	C - C	G	Clearance	1.9 ± 1.1 (0.07 ± 0.04)	1.5 (0.06)

HEIGHT ADJUSTMENT

- Loosen the hood lock assembly bolts.
- Adjust the surface height of hood assembly to front grille and front fender according to the specified values by rotating hood bumper rubber.
- Temporarily tighten hood lock assembly bolts.
- Adjust (A) and (B) as shown to the following value with hood's own weight by dropping it from approximately 200 mm (7.87 in) height or by pressing hood lightly [approximately 29 N (3.0 kg, 6.5 lb)].



- | | | |
|----------------------|---------------------|------------------|
| 1. Secondary striker | 2. Primary striker | 3. Hood assembly |
| A. 20 mm (0.79 in) | B. 6.8 mm (0.27 in) | |

- After adjustment, tighten hood hinge nuts and bolts to the specified torque.

CAUTION:

- Check hood hinge rotating part for poor lubrication. If necessary, apply a suitable multi-purpose grease.
- After adjusting, apply touch-up paint (body color) to the head of hood hinge bolts and nuts.

CLEARANCE ADJUSTMENT

- Loosen hood hinge nuts and bolts.
- Loosen the hood lock assembly bolts.
- Adjust the hood assembly so the clearance measurements are within specifications.
- Tighten the hood hinge nuts and bolts to specified torque.
- Tighten the hood lock assembly bolts to specified torque.

HOOD HINGE

HOOD HINGE : Removal and Installation

INFOID:0000000010282924

REMOVAL

- Remove hood assembly. Refer to [DLK-350, "HOOD ASSEMBLY : Removal and Installation"](#).

HOOD

< REMOVAL AND INSTALLATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

2. Remove front fender. Refer to [DLK-355, "Removal and Installation"](#).
3. Remove hood hinge bolts, and then remove hood hinge.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Before installing the hood hinge, apply anticorrosive agent onto the surface of the vehicle.
- After installation, perform hood assembly adjustment procedure. Refer to [DLK-351, "HOOD ASSEMBLY : Adjustment"](#).

A

B

C

D

E

F

G

H

I

J

DLK

L

M

N

O

P

RADIATOR CORE SUPPORT

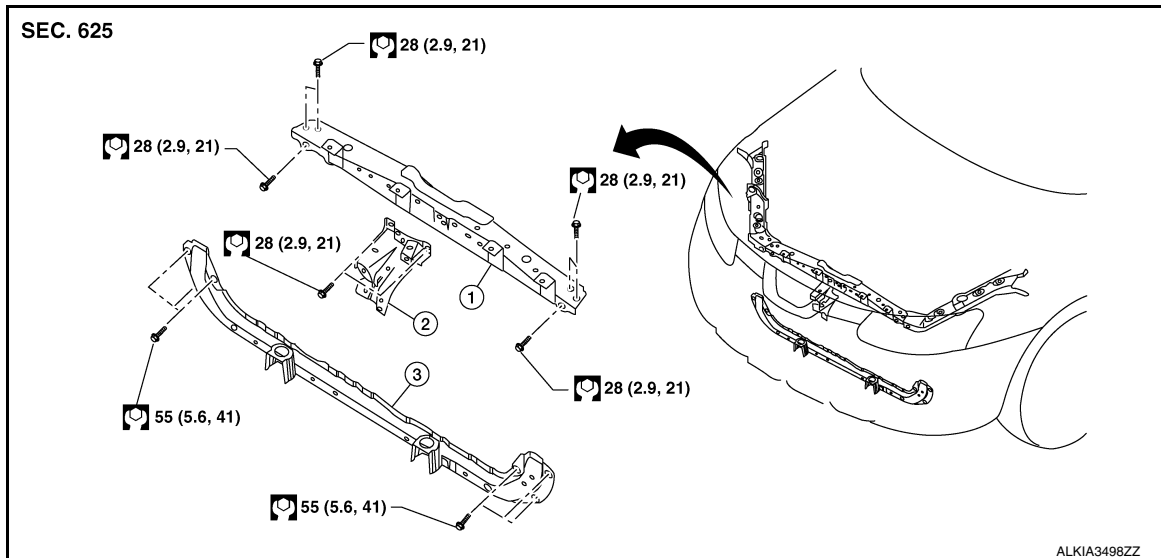
< REMOVAL AND INSTALLATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

RADIATOR CORE SUPPORT

Exploded View

INFOID:0000000010351298



1. Radiator core upper support 2. Secondary latch bracket 3. Radiator core lower support

Removal and Installation

INFOID:0000000010351299

CAUTION:

When removing radiator core support upper, be careful not to damage the painted surface.

REMOVAL

Radiator Core Upper Support

1. Remove front combination lamp (LH). Refer to [EXL-119, "Removal and Installation"](#).
2. Remove front air duct. Refer to [EM-24, "Exploded View"](#).
3. Remove hood lock. Refer to [DLK-253, "HOOD LOCK : Removal and Installation"](#).
4. Remove secondary latch. Refer to [DLK-254, "SECONDARY LATCH : Removal and Installation"](#).
5. Remove crash zone sensor. Refer to [SR-22, "Removal and Installation"](#).
6. Remove bolts and radiator core upper support.

Radiator Core Lower Support

1. Remove front bumper fascia. Refer to [EXT-17, "Removal and Installation"](#).
2. Support the radiator using a suitable tool.
3. Remove bolts and radiator core lower support.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

Tighten bolts to specified torque. Refer to [DLK-354, "Exploded View"](#).

FRONT FENDER

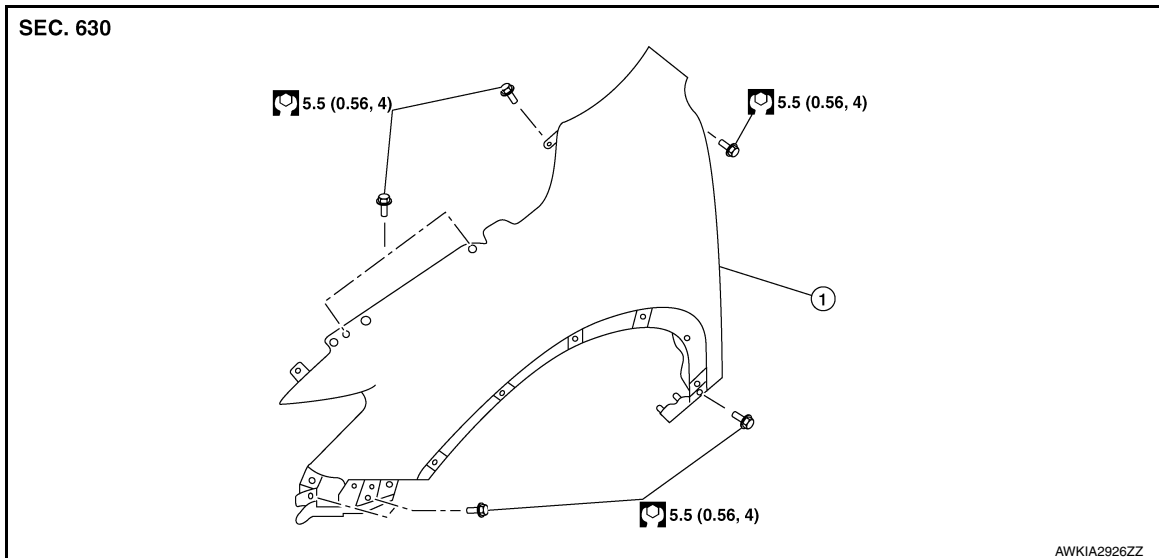
< REMOVAL AND INSTALLATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

FRONT FENDER

Exploded View

INFOID:000000010351315



1. Front fender

Removal and Installation

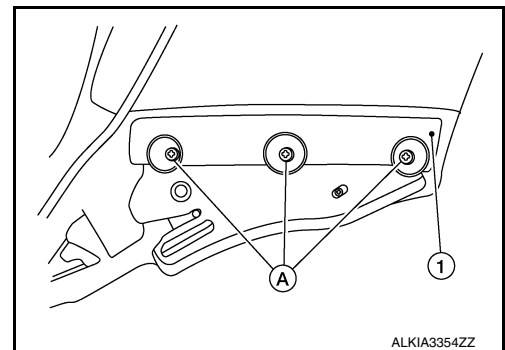
INFOID:000000010282928

CAUTION:

Use a shop cloths to protect the body from being damaged during removal and installation.

REMOVAL

1. Remove front bumper fascia. Refer to [EXT-17, "Removal and Installation"](#).
2. Remove front combination lamp. Refer to [EXL-119, "Removal and Installation"](#) (HALOGEN HEADLAMP) or [EXL-268, "Removal and Installation"](#) (LED HEADLAMP).
3. Remove center mudguard. Refer to [EXT-42, "Removal and Installation"](#).
4. Remove screws (A) and front fender bracket (1).



5. Remove bolts and front fender.

CAUTION:

Use care when removing the front fender. The front fender baffle foam adheres the front fender to the body side outer. Carefully release the baffle foam or damage to the front fender may occur.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- After installation apply touch up paint (body color) to the head of front fender bolts.
- After installation, adjust the following components as necessary:
 - Hood assembly: Refer to [DLK-351, "HOOD ASSEMBLY : Adjustment"](#).
 - Front door: Refer to [DLK-358, "DOOR ASSEMBLY : Adjustment"](#).

FRONT FENDER

< REMOVAL AND INSTALLATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

-
- Tighten bolts to specification. Refer to [DLK-355, "Exploded View"](#).

FRONT DOOR

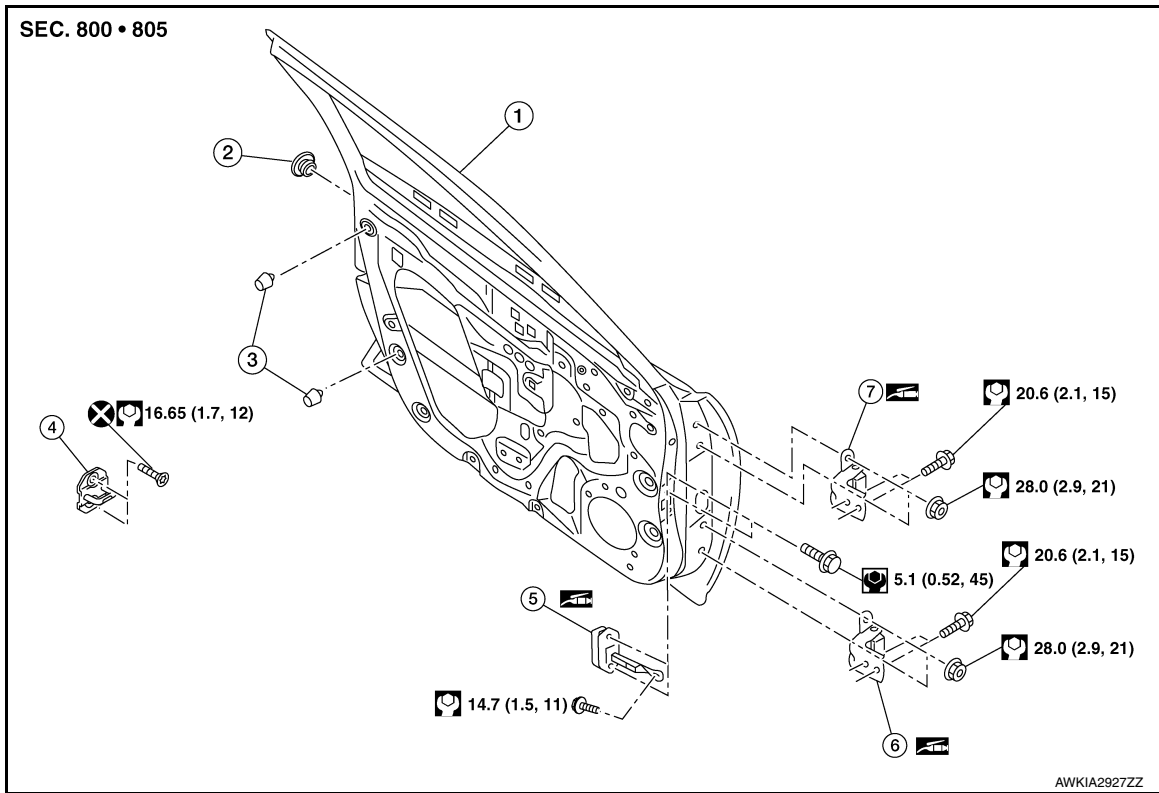
< REMOVAL AND INSTALLATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

FRONT DOOR

Exploded View

INFOID:0000000010282929



- | | | |
|---------------------------|--------------------|---------------------------|
| 1. Front door panel | 2. Grommet | 3. Bumper rubber |
| 4. Door striker | 5. Door check link | 6. Front door lower hinge |
| 7. Front door upper hinge | | |

DOOR ASSEMBLY

DOOR ASSEMBLY : Removal and Installation

INFOID:0000000010282930

CAUTION:

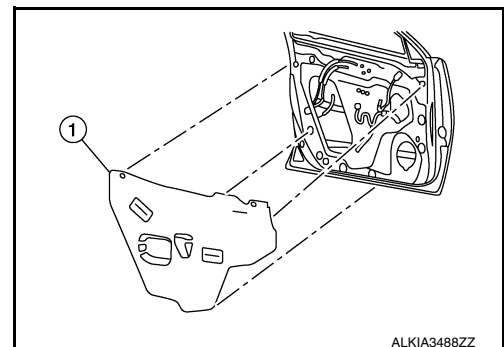
- Use two people when removing or installing the front door due to its heavy weight.
- When removing and installing front door assembly, support front door with a suitable tool.

REMOVAL

1. Remove front door finisher. Refer to [INT-15. "Removal and Installation"](#).
2. Remove front door vapor barrier (1).

NOTE:

LH side shown; RH similar.



3. Disconnect the harness connectors from the front door.
4. Remove front door harness grommet, then harness from the front door.

FRONT DOOR

< REMOVAL AND INSTALLATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

5. Remove front door check link bolt (body side).
6. Remove front door hinge nuts (door side) and front door assembly.

INSTALLATION

Installation is in the reverse order of removal.

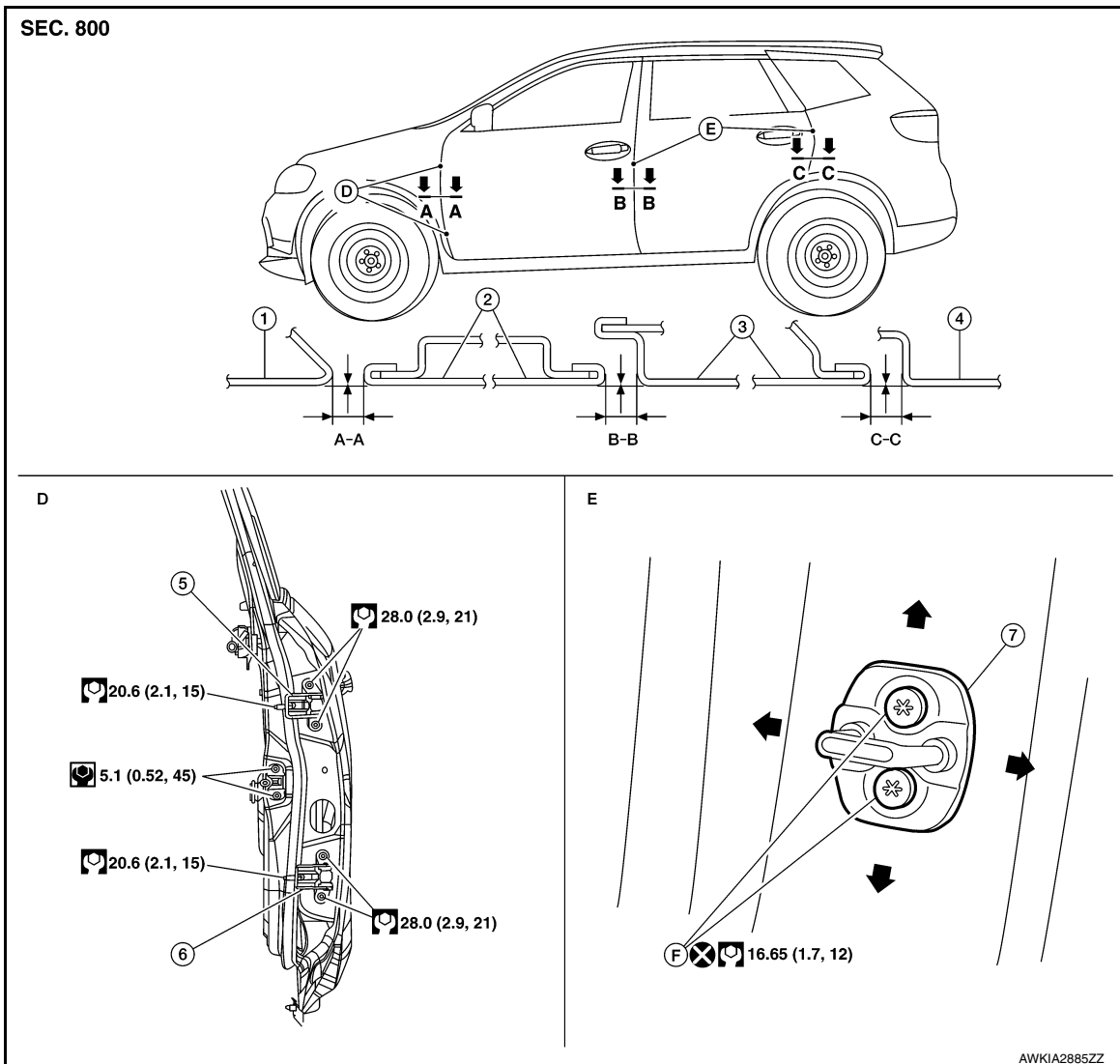
CAUTION:

- Tighten nuts/bolts to specified torque. Refer to [DLK-357, "Exploded View"](#).
- Apply anticorrosive agent where necessary.
- After installation, check front door open/close and lock/unlock operation.
- After installation, perform the front door adjustment procedure. Refer to [DLK-358, "DOOR ASSEMBLY : Adjustment"](#).

DOOR ASSEMBLY : Adjustment

INFOID:000000010282931

ADJUSTMENT



- | | | |
|--------------------|-----------------------------|---------------------------|
| 1. Front fender | 2. Front door | 3. Rear door |
| 4. Body side outer | 5. Front door upper hinge | 6. Front door lower hinge |
| 7. Door striker | F. Front door striker bolts | |

Check the clearance and surface height between front door and each part by visual inspection and tactile feel. If the clearance and the surface height are out of specification, adjust them according to the adjustment procedure.

FRONT DOOR

< REMOVAL AND INSTALLATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

Unit: mm (in)

Portion	Section	Measurement	Standard
Front fender - Front door	A – A	Clearance	4.2 ± 1.0 (0.17 ± 0.04)
		Surface height	± 1.0 (± 0.04)
Front door - Rear door	B – B	Clearance	4.5 ± 1.0 (0.18 ± 0.04)
		Surface height	± 1.0 (± 0.04)
Rear door - Body side outer	C – C	Clearance	4.0 ± 1.0 (0.16 ± 0.04)
		Surface height	± 1.0 (± 0.04)

1. Remove front fender. Refer to [DLK-355, "Removal and Installation"](#).
2. Loosen front door hinge nuts (door side).
3. Adjust the surface height of front door according to the specifications provided.
4. Temporarily tighten front door hinge nuts (door side).
5. Loosen front door hinge bolts (body side).
6. Raise front door at rear end to adjust clearance of the front door according to the specifications provided.
7. After adjustment tighten bolts and nuts to the specified torque.
 - CAUTION:**
 - Check door hinge rotating point for poor lubrication. If necessary, apply a suitable multi-purpose grease.
 - After adjusting, apply touch-up paint (body color) to the head of front door hinge bolts and nuts.
8. Install front fender. Refer to refer to [DLK-355, "Removal and Installation"](#).

DOOR STRIKER

DOOR STRIKER : Removal and Installation

INFOID:0000000010282932

REMOVAL

Remove bolts and front door striker.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

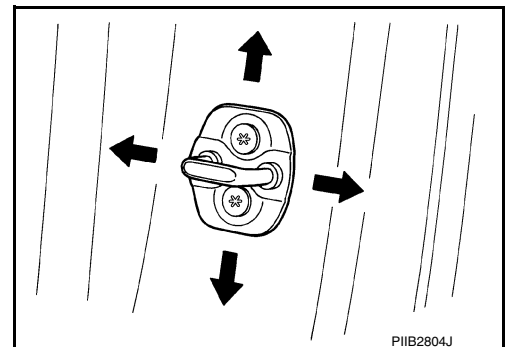
- Do not reuse front door striker bolts.
- After installation, check front door open/close operation. If necessary, adjust the front door striker. Refer to [DLK-359, "DOOR STRIKER : Adjustment"](#).
- Tighten bolts to specified torque. Refer to [DLK-357, "Exploded View"](#).

DOOR STRIKER : Adjustment

INFOID:0000000010282933

DOOR STRIKER ADJUSTMENT

1. Loosen door striker bolts
2. Adjust door striker so that it becomes parallel with front door lock insertion direction.



PIIB2804J

3. Tighten door striker bolts to specification. Refer to [DLK-357, "Exploded View"](#).

DOOR HINGE

FRONT DOOR

< REMOVAL AND INSTALLATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

DOOR HINGE : Removal and Installation

INFOID:0000000010282934

REMOVAL

1. Remove front fender. Refer to [DLK-355, "Removal and Installation"](#).
2. Remove front door assembly. Refer to [DLK-357, "DOOR ASSEMBLY : Removal and Installation"](#).
3. Remove front door hinge bolts (body side) and front door hinge.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Tighten nuts/bolts to specified torque. Refer to [DLK-357, "Exploded View"](#).
- Apply anticorrosive agent to the hinge mating surface.
- After installation, check front door open/close and lock/unlock operation.
- Check door hinge rotating point for poor lubrication. If necessary, apply a suitable multi-purpose grease.
- After installation, perform the front door adjustment procedure. Refer to [DLK-358, "DOOR ASSEMBLY : Adjustment"](#).

DOOR CHECK LINK

DOOR CHECK LINK : Removal and Installation

INFOID:0000000010282935

REMOVAL

1. Fully close the front door window.
2. Remove front door speaker. Refer to [AV-67, "Removal and Installation"](#) (DISPLAY AUDIO), [AV-213, "Removal and Installation"](#) (NAVIGATION WITHOUT BOSE) or [AV-381, "Removal and Installation"](#) (NAVIGATION WITH BOSE).
3. Remove door check link bolt (body side).
4. Remove door check link bolts (door side).
5. Remove door check link through the hole in door assembly.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Tighten nuts/bolts to specified torque. Refer to [DLK-357, "Exploded View"](#).
- After installation, check front door open/close and lock/unlock operation.
- Check door check link rotating point for poor lubrication. If necessary, apply a suitable multi-purpose grease.

REAR DOOR

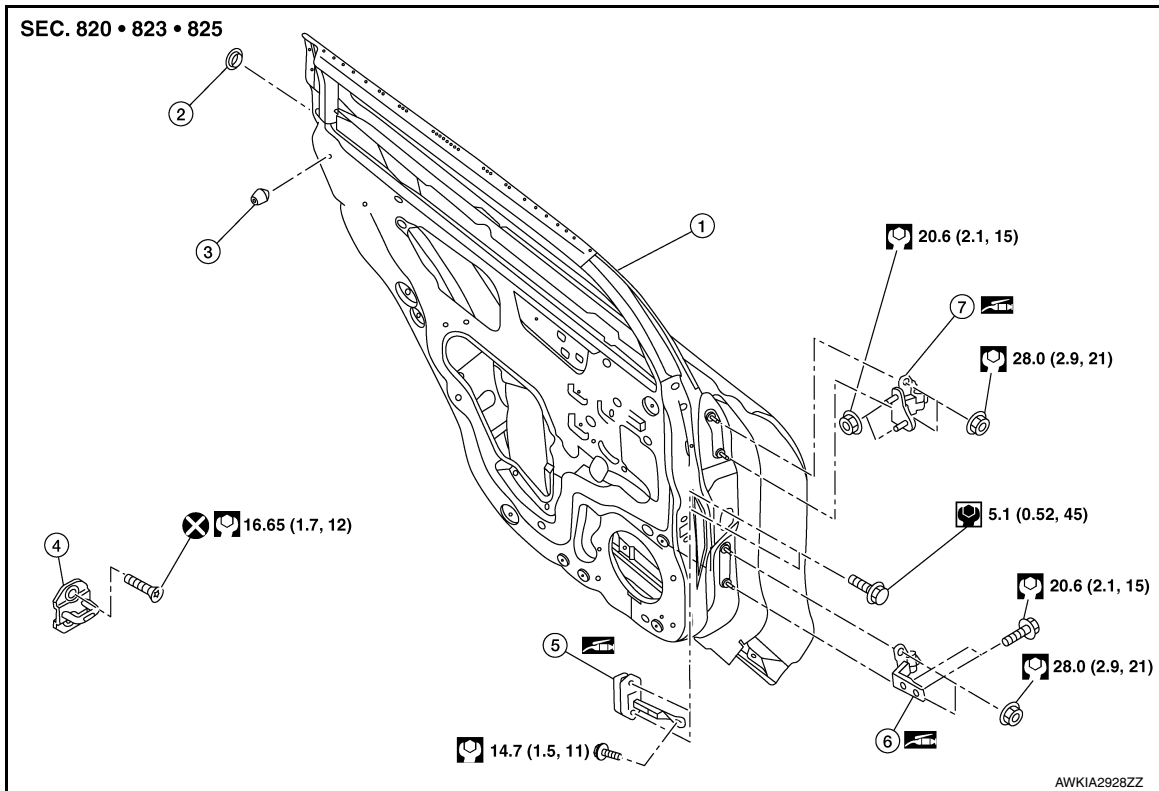
< REMOVAL AND INSTALLATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

REAR DOOR

Exploded View

INFOID:0000000010282936



- | | | |
|--------------------------|--------------------|--------------------------|
| 1. Rear door panel | 2. Grommet | 3. Bumper rubber |
| 4. Door striker | 5. Door check link | 6. Rear door lower hinge |
| 7. Rear door upper hinge | | |

DOOR ASSEMBLY

DOOR ASSEMBLY : Removal and Installation

INFOID:0000000010282937

CAUTION:

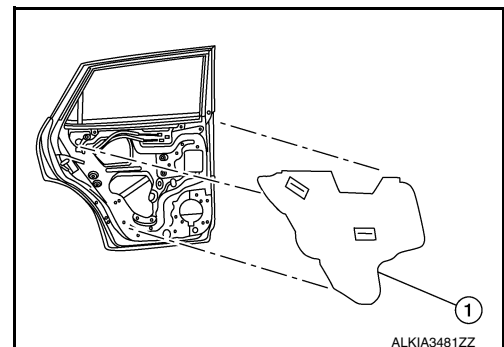
- Use two people when removing or installing the rear door due to its heavy weight.
- When removing and installing rear door assembly, support rear door using a suitable tool.

REMOVAL

1. Remove rear door finisher. Refer to [DLK-361, "DOOR ASSEMBLY : Removal and Installation"](#).
2. Remove rear door vapor barrier (1).

NOTE:

LH side shown; RH similar.



3. Disconnect the harness connectors from rear door.
4. Remove harness grommet from rear door, then pull out rear door harness from the rear door.

REAR DOOR

< REMOVAL AND INSTALLATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

5. Remove rear door check link bolt (body side).
6. Remove rear door hinge nuts (door side) and rear door assembly.

INSTALLATION

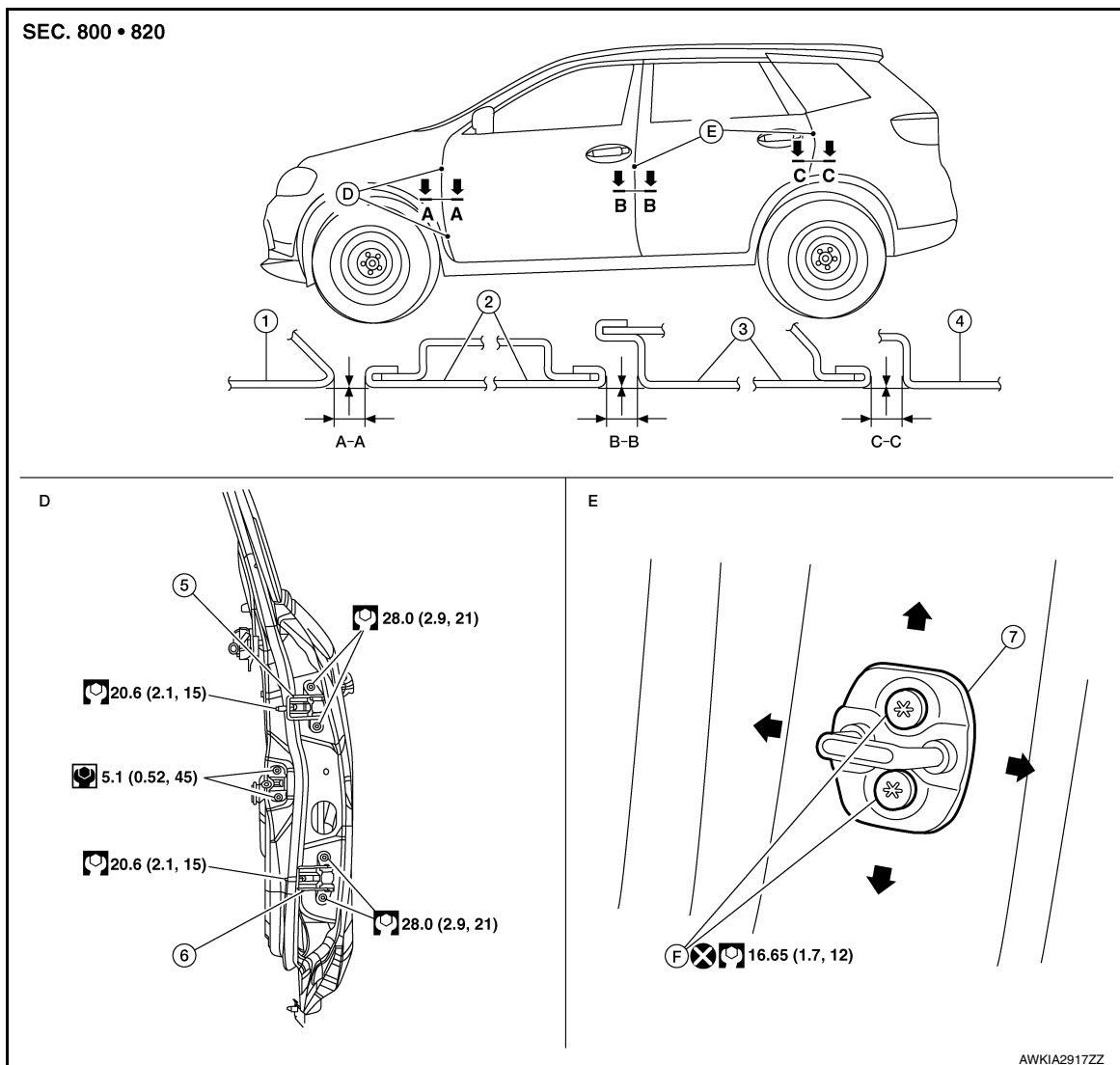
Installation is in the reverse order of removal.

CAUTION:

- Tighten nuts/bolts to specification. Refer to [DLK-361, "Exploded View"](#).
- Apply anticorrosive agent where necessary.
- After installation, check rear door open/close and lock/unlock operation.
- After installation, perform the rear door adjustment procedure. Refer to [DLK-362, "DOOR ASSEMBLY : Adjustment"](#).

DOOR ASSEMBLY : Adjustment

INFOID:000000010282938



- | | | |
|--------------------------|-----------------------|--------------------------|
| 1. Front fender | 2. Front door | 3. Rear door |
| 4. Body side outer | 5. Door striker | 6. Rear door upper hinge |
| 7. Rear door lower hinge | F. Door striker bolts | |

Check the clearance and surface height between rear door and each part by visual inspection and tactile feel. If the clearance and the surface height are out of specification, adjust them according to the adjustment procedures.

REAR DOOR

< REMOVAL AND INSTALLATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

Unit: mm (in)

Portion	Section	Measurement	Standard
Front fender - Front door	A – A	Clearance	4.0 ± 1.0 (0.16 ± 0.04)
		Surface height	± 1.0 (± 0.04)
Front door - Rear door	B – B	Clearance	4.3 ± 1.0 (0.17 ± 0.04)
		Surface height	± 1.0 (± 0.04)
Rear door - Body side outer	C – C	Clearance	3.7 ± 1.0 (0.15 ± 0.04)
		Surface height	± 1.0 (± 0.04)

1. Remove center pillar lower finisher. Refer to [INT-22, "CENTER PILLAR LOWER FINISHER : Removal and Installation"](#).
2. Loosen rear door hinge nuts (door side).
3. Adjust the surface height of rear door according to specifications provided.
4. Temporarily tighten rear door hinge nuts (door side).
5. Loosen rear door hinge nuts and bolts (body side).
6. Raise rear door at rear end to adjust clearance of rear door according to the specifications provided.
7. After adjustment tighten bolts and nuts to the specified torque.
CAUTION:
 - Check rear door hinge rotating point for poor lubrication. If necessary, apply a suitable multi-purpose grease.
 - After adjusting, apply touch-up paint (body color) to the head of rear door hinge bolts and nuts.
8. Install center pillar lower finisher. Refer to [INT-22, "CENTER PILLAR LOWER FINISHER : Removal and Installation"](#).

DOOR STRIKER

DOOR STRIKER : Removal and Installation

INFOID:0000000010282939

REMOVAL

Remove bolts and rear door striker.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

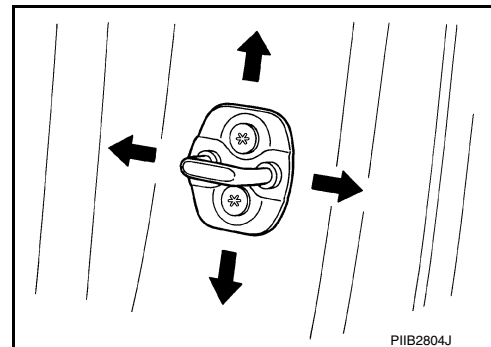
- Do not reuse rear door striker bolts.
- Tighten bolts to specification. Refer to [DLK-361, "Exploded View"](#).
- After installation, check rear door open/close operation. If necessary, adjust the door striker. Refer to [DLK-363, "DOOR STRIKER : Adjustment"](#).

DOOR STRIKER : Adjustment

INFOID:0000000010282940

DOOR STRIKER ADJUSTMENT

1. Loosen door striker bolts
2. Adjust door striker so that it becomes parallel with front door lock insertion direction.



3. Tighten door striker bolts to specification. Refer to [DLK-361, "Exploded View"](#).

REAR DOOR

< REMOVAL AND INSTALLATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

DOOR HINGE

DOOR HINGE : Removal and Installation

INFOID:0000000010282941

REMOVAL

1. Remove rear door assembly. Refer to [DLK-361, "DOOR ASSEMBLY : Removal and Installation"](#).
2. Remove center pillar lower finisher (rear door lower hinge only). Refer to [INT-22, "CENTER PILLAR LOWER FINISHER : Removal and Installation"](#).
3. Remove rear door hinge bolts and nuts and rear door hinge.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Tighten nuts/bolts to specification. Refer to [DLK-361, "Exploded View"](#).
- Apply anticorrosive agent onto the hinge mating surface.
- After installation, check rear door open/close and lock/unlock operation.
- After installation, perform the rear door adjustment procedure. Refer to [DLK-362, "DOOR ASSEMBLY : Adjustment"](#).

DOOR CHECK LINK

DOOR CHECK LINK : Removal and Installation

INFOID:0000000010282942

REMOVAL

1. Fully close the rear door window.
2. Remove rear door speaker. Refer to [AV-68, "Removal and Installation"](#) (DISPLAY AUDIO), [AV-214, "Removal and Installation"](#) (NAVIGATION WITHOUT BOSE) or [AV-383, "Removal and Installation"](#) (NAVIGATION WITH BOSE).
3. Remove rear door check link bolt (body side).
4. Remove rear door check link bolts (door side).
5. Remove rear door check link through the hole in rear door panel.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Tighten bolts to specification. Refer to [DLK-361, "Exploded View"](#).
- After installation, check rear door open/close and lock/unlock operation.
- Check rear door check link rotating point for poor lubrication. If necessary, apply a suitable multi-purpose grease.

BACK DOOR

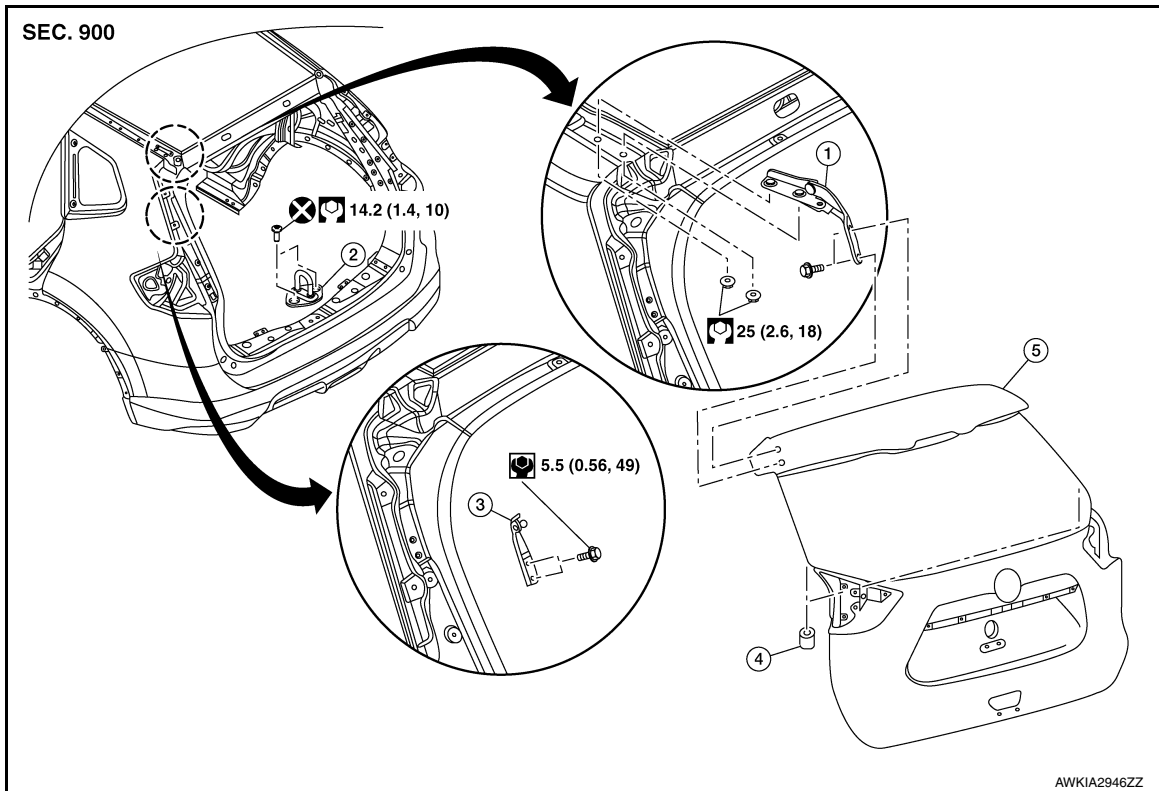
< REMOVAL AND INSTALLATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

BACK DOOR

Exploded View

INFOID:0000000010282943



1. Back door hinge

2. Back door striker

3. Back door stay hinge

4. Bumper rubber

5. Back door

BACK DOOR ASSEMBLY

BACK DOOR ASSEMBLY : Removal and Installation

INFOID:0000000010282944

CAUTION:

- Use two people when removing or installing the back door due to its heavy weight.
- Use shop cloths to protect surrounding components from damage during removal and installation of back door.

REMOVAL

1. Support the back door assembly using a suitable tool.

WARNING:

Bodily injury may occur if back door assembly is not supported properly when removing the back door spindle unit.

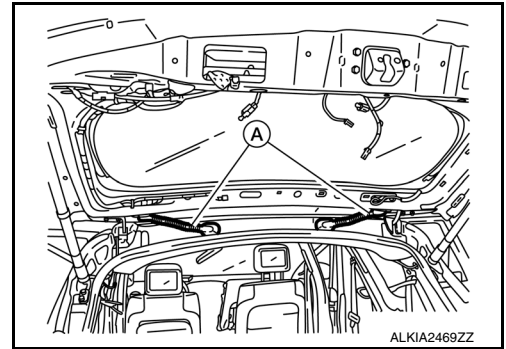
2. Remove back door stays (LH/RH). Refer to [DLK-264, "BACK DOOR STAY : Removal and Installation"](#).
3. Remove roof side moldings (LH/RH). Refer to [EXT-39, "Removal and Installation"](#).

BACK DOOR

< REMOVAL AND INSTALLATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

4. Disconnect harness connectors (A) from back door.



5. Remove back door harness grommet, then pull harness from the back door.
6. Disconnect washer tube.
7. Remove washer tube grommet and washer tube from the back door.
8. Remove back door hinge bolts (door side) and back door assembly.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Tighten bolts to specification. Refer to [DLK-365, "Exploded View"](#).
- Apply anticorrosive agent onto the surface between hinge and door side.
- When reusing stud ball, always apply locking sealant before installing stud ball to back door.
- After installation, perform the back door assembly adjustment procedure. Refer to [DLK-367, "BACK DOOR ASSEMBLY : Adjustment"](#).
- Perform calibration of automatic back door position information. Refer to [DLK-103, "Work Procedure"](#).

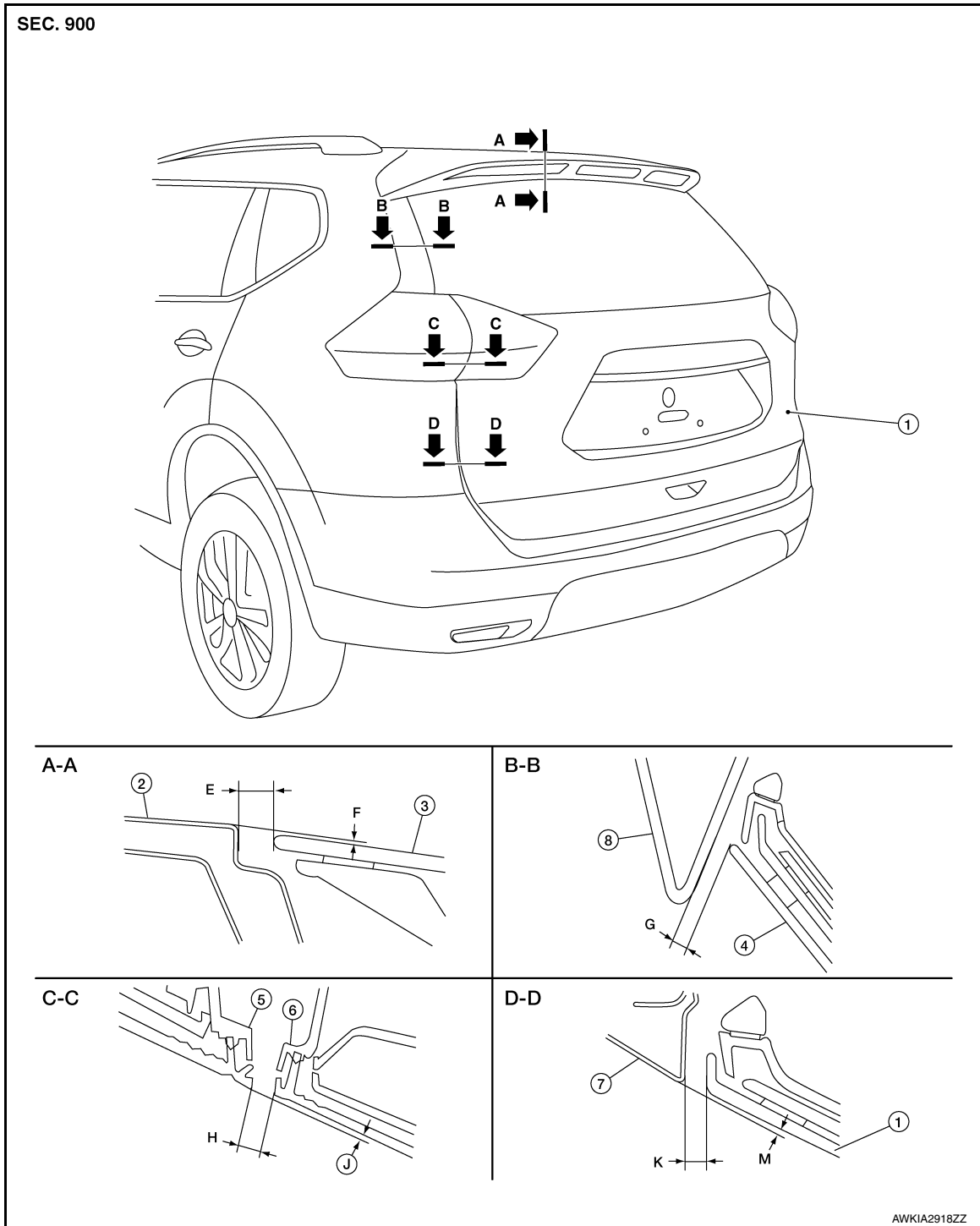
BACK DOOR

< REMOVAL AND INSTALLATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

BACK DOOR ASSEMBLY : Adjustment

INFOID:000000010282945



- | | | |
|-----------------------|--------------------------|-----------------|
| 1. Back door assembly | 2. Roof panel | 3. Rear spoiler |
| 4. Back door glass | 5. Rear combination lamp | 6. Back-up lamp |
| 7. Rear fender | 8. Side spoiler | |

Check the clearance and the surface height between back door and each part by visual inspection and tactile feel. If the clearance and the surface height are out of specification, adjust them according to the adjustment procedure.

BACK DOOR

< REMOVAL AND INSTALLATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

Unit: mm (in)

Portion	Section	Item	Measurement	Standard	Paralleism
Roof panel – Rear spoiler	A – A	E	Clearance	7.0 ± 2.0 (0.28 ± 0.08)	2.0 (0.08)
		F	Surface height	1.7 ± 2.0 (0.07 ± 0.08)	2.0 (0.08)
Side spoiler – Back door glass	B – B	G	Clearance	5.5 ± 2.0 (0.22 ± 0.08)	2.0 (0.08)
		H	Surface height	—	—
Rear combination lamp – Back-up lamp	C – C	J	Clearance	4.5 ± 2.0 (0.18 ± 0.08)	2.0 (0.08)
		K	Surface height	2.2 ± 2.0 (0.09 ± 0.08)	2.0 (0.08)
Rear fender – Back door	D – D	M	Clearance	4.7 ± 2.0 (0.19 ± 0.08)	2.0 (0.08)
		N	Surface height	2.5 ± 2.0 (0.10 ± 0.08)	2.0 (0.08)

- Loosen back door hinge nuts (door side).
- Lift up back door approximately 100 – 150 mm (3.94 – 5.91 in) height then close it lightly and check that it is engaged firmly with back door closed.
- Check the clearance and surface height according to the specifications provided.
- Tighten back door hinge nuts to specified torque.

CAUTION:

- After installation, check back door open/close, lock/unlock operation.
- Check back door hinge rotating point for poor lubrication. If necessary, apply a suitable multi-purpose grease.
- After adjusting, apply touch-up paint (body color) to the head of rear door hinge bolts and nuts.

BACK DOOR STRIKER

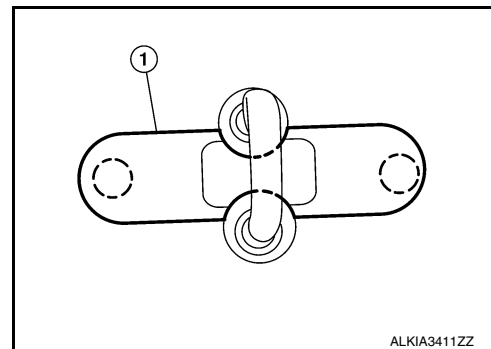
BACK DOOR STRIKER : Removal and Installation

INFOID:0000000010282946

REMOVAL

- Release back door striker cover (1) pawls using a suitable tool and remove.

○: Pawl



- Remove bolts and back door striker.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Do not reuse back door striker bolts.
- Tighten bolts to specification. Refer to [DLK-365, "Exploded View"](#).
- After installation, check back door open/close operation. If necessary, adjust the door striker. Refer to [DLK-368, "BACK DOOR STRIKER : Adjustment"](#).

BACK DOOR STRIKER : Adjustment

INFOID:0000000010282947

DOOR STRIKER ADJUSTMENT

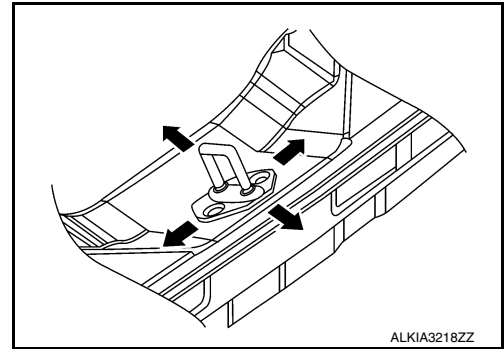
- Loosen door striker bolts

BACK DOOR

< REMOVAL AND INSTALLATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

2. Adjust door striker so that it becomes parallel with front door lock insertion direction.



3. Tighten door striker bolts to specification. Refer to [DLK-365, "Exploded View"](#).

BACK DOOR HINGE

BACK DOOR HINGE : Removal and Installation

INFOID:000000010282948

REMOVAL

1. Remove back door assembly. Refer to [DLK-365, "BACK DOOR ASSEMBLY : Removal and Installation"](#).
2. Partially remove the rear of the headlining. Refer to [INT-30, "Removal and Installation"](#).
3. Remove nuts and back door hinge.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Tighten nuts to specification. Refer to [DLK-365, "Exploded View"](#).
- Apply anticorrosive agent onto the surface between hinge and body side.
- After installation, perform the back door assembly adjustment procedure. Refer to [DLK-367, "BACK DOOR ASSEMBLY : Adjustment"](#).

BACK DOOR WEATHER-STRIP

BACK DOOR WEATHER-STRIP : Removal and Installation

INFOID:000000010282951

REMOVAL

Carefully remove back door weather-strip from opening door joint.

INSTALLATION

1. Beginning with upper section, align weather-strip mark with vehicle center position mark and install weather strip to the vehicle.
2. For the lower section, align weather-strip seam with center of back door striker.

NOTE:

Pull weather-strip gently to ensure that there are no loose sections.

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

DLK

HOOD LOCK

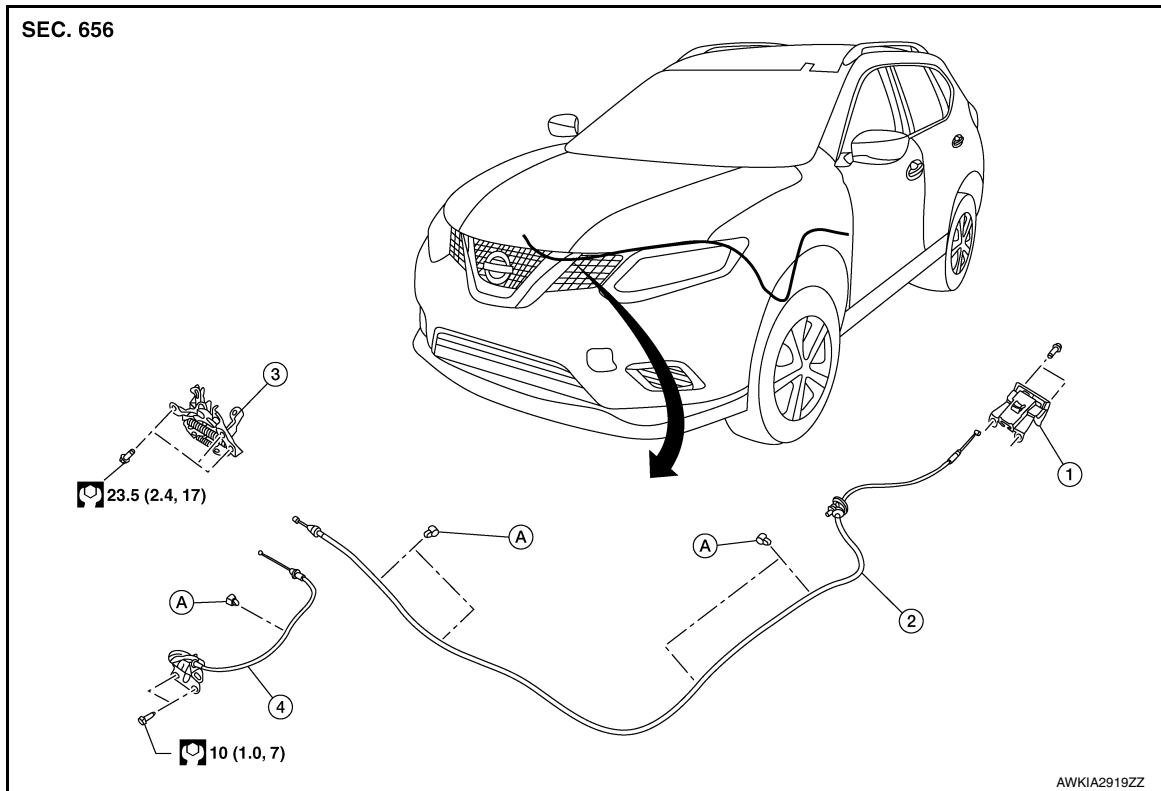
< REMOVAL AND INSTALLATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

HOOD LOCK

Exploded View

INFOID:0000000010282952



- | | | |
|-----------------------------|----------------------------|--------------|
| 1. Hood lock release handle | 2. Hood lock release cable | 3. Hood lock |
| 4. Secondary latch | A. Clip | |

HOOD LOCK

HOOD LOCK : Removal and Installation

INFOID:0000000010282953

REMOVAL

1. Disconnect hood lock release cable and secondary latch cable from hood lock.
2. Remove bolts and hood lock.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Tighten bolts to specified torque. Refer to [DLK-370, "Exploded View"](#).
- Check that hood lock release cable and secondary latch cable are properly engaged with hood lock.
- After installation, perform hood assembly adjustment procedure. Refer to [DLK-351, "HOOD ASSEMBLY : Adjustment"](#).
- After adjusting, perform hood lock inspection. Refer to [DLK-370, "HOOD LOCK : Inspection"](#).

HOOD LOCK : Inspection

INFOID:0000000010282954

NOTE:

If the hood lock cable is bent or deformed, replace it.

1. Check that secondary latch is properly engaged with secondary striker with hoods own weight.
2. While operating hood lock release handle, carefully check that the front end of hood assembly is raised by approximately 20.0 mm (0.79 in). Also check that hood lock release handle returns to the original position.
3. Check that hood lock release handle operates at 49 N (5.0 kg-m, 11.0 ft-lb) or below.

HOOD LOCK

< REMOVAL AND INSTALLATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

4. Install so that static closing force of hood is 315-490 N (32.1-50.0 kg-m, 70.8-110.2 ft-lb).

NOTE:

- Do not exert vertical force on right side and left side of hood lock.
- Do not press simultaneously on both sides.

5. Check the hood lock lubrication condition. If necessary, apply a suitable multi-purpose grease to hood lock assembly.

SECONDARY LATCH

SECONDARY LATCH : Removal and Installation

INFOID:000000010282955

REMOVAL

1. Remove front grille. Refer to [EXT-23, "Removal and Installation"](#).
2. Disconnect secondary latch cable from hood lock assembly.
3. Remove bolts and secondary latch.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Tighten bolts to specified torque. Refer to [DLK-370, "Exploded View"](#).
- Check that secondary latch cable is properly engaged with hood lock.

HOOD LOCK RELEASE CABLE

HOOD LOCK RELEASE CABLE : Removal and Installation

INFOID:000000010282956

REMOVAL

1. Remove fender protector (LH). Refer to [EXT-28, "FENDER PROTECTOR : Removal and Installation"](#).
2. Remove front grille. Refer to [EXT-23, "Removal and Installation"](#).
3. Disconnect hood lock release cable from hood lock release handle and hood lock.
4. Release hood lock release cable clips using a suitable tool.
5. Remove grommet on the lower dash and carefully pull the hood lock release cable into the passenger compartment.

CAUTION:

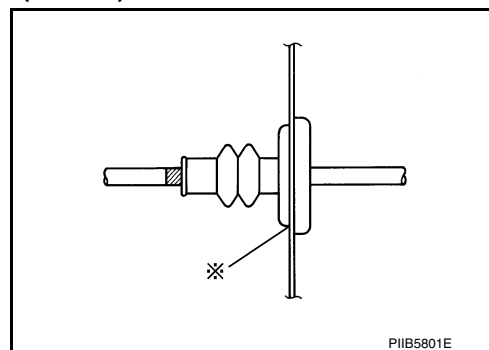
While pulling, be careful not to damage (peel) the outside of hood lock release cable.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Be careful not to bend cable too much, keep the radius 100 mm (3.94 in) or more.
- Check that cable is not offset from the positioning grommet, and apply the sealant to the grommet (at * mark) properly.



- Check that hood lock release cable is properly engaged with hood lock assembly.
- After installation, perform hood assembly adjustment procedure. Refer to [DLK-351, "HOOD ASSEMBLY : Adjustment"](#).
- After adjusting, perform hood lock inspection. Refer to [DLK-370, "HOOD LOCK : Inspection"](#).

HOOD LOCK RELEASE HANDLE

HOOD LOCK

< REMOVAL AND INSTALLATION >

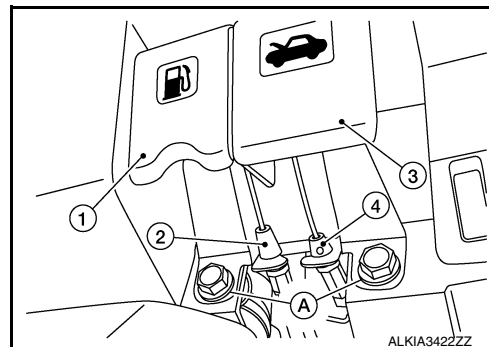
[WITHOUT INTELLIGENT KEY SYSTEM]

HOOD LOCK RELEASE HANDLE : Removal and Installation

INFOID:0000000010282957

REMOVAL

1. Remove fuel filler lid/hood lock release handle bolts (A).
2. Disconnect fuel filler lid release cable (2) from fuel filler lid release handle (1).
3. Disconnect hood lock release cable (4) from hood lock release handle (3).
4. Remove hood lock release handle.



INSTALLATION

Installation is in the reverse order of removal.

FRONT DOOR LOCK

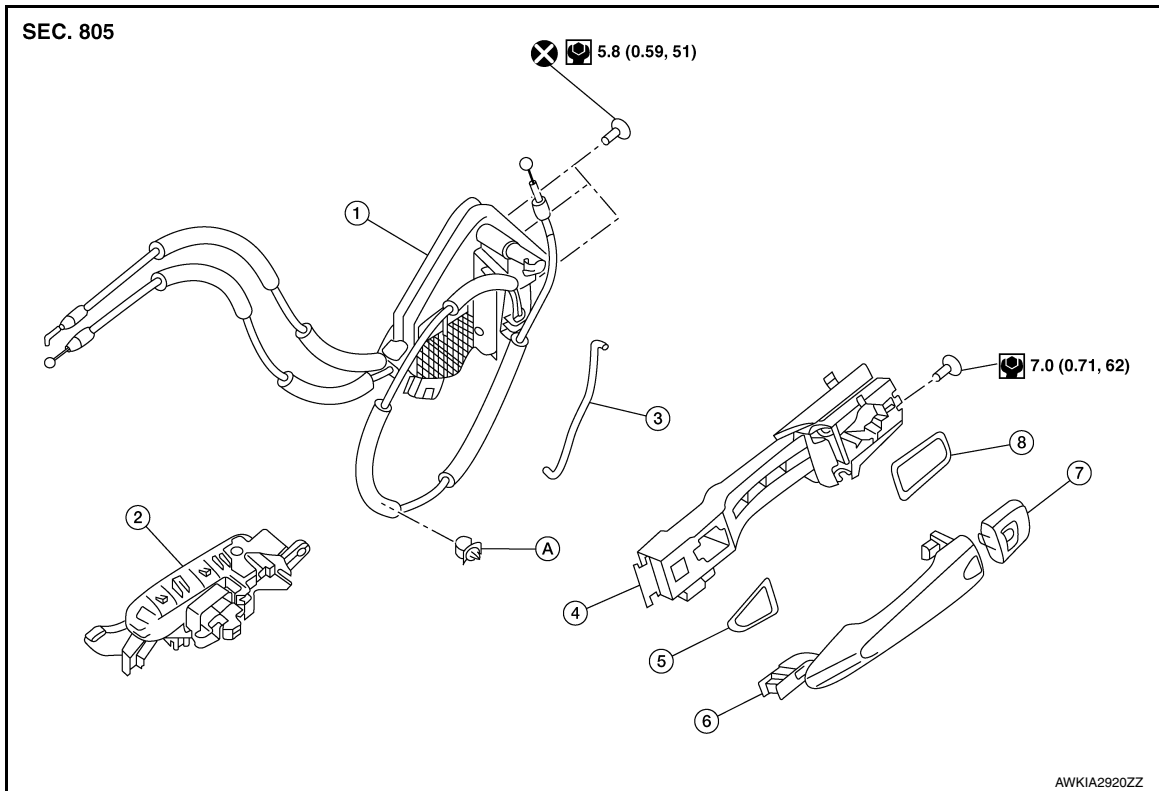
< REMOVAL AND INSTALLATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

FRONT DOOR LOCK

Exploded View

INFOID:000000010282958



- | | | |
|--|------------------|------------------------------------|
| 1. Front door lock | 2. Inside handle | 3. Door key cylinder rod (LH only) |
| 4. Outside handle bracket | 5. Front gasket | 6. Outside handle |
| 7. Outside handle escutcheon / door key cylinder (LH only) | 8. Rear gasket | A. Clip |

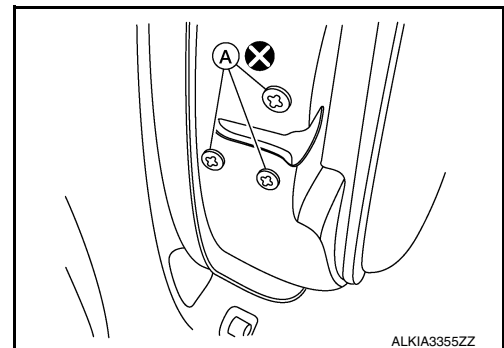
DOOR LOCK

DOOR LOCK : Removal and Installation

INFOID:000000010282959

REMOVAL

1. Remove front door finisher. Refer to [INT-15. "Removal and Installation"](#).
2. Remove vapor barrier.
3. Remove front door lock bolts (A).

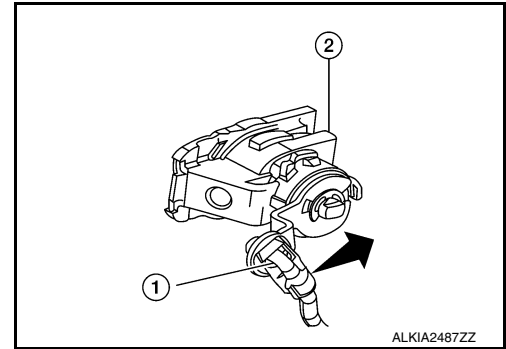


FRONT DOOR LOCK

< REMOVAL AND INSTALLATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

4. Disconnect door key cylinder rod (LH only) (1) from front door lock (2) (LH only).



5. Disconnect door lock cables from inside handle and outside handle..
6. Disconnect the harness connector from the front door lock and remove.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Do not reuse front door lock bolts.
- Tighten bolts to specification. Refer to [DLK-373, "Exploded View"](#).
- After installation, check door lock cables are properly engaged to inside handle and outside handle bracket.
- When installing door key cylinder rod (LH only), be sure to rotate door key cylinder rod holder until a click is felt.
- After installation, check door open/close and lock/unlock operation.
- Check door lock assembly for poor lubrication. If necessary apply a suitable multi-purpose grease.

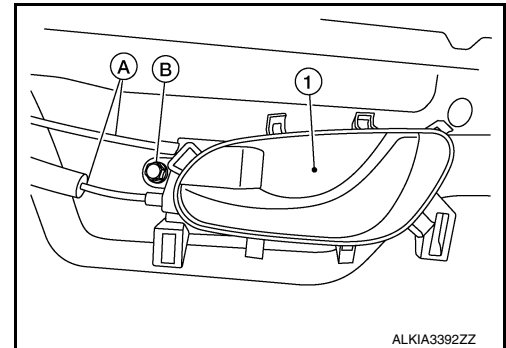
INSIDE HANDLE

INSIDE HANDLE : Removal and Installation

INFOID:0000000010282960

REMOVAL

1. Remove front door finisher. Refer to [INT-15, "Removal and Installation"](#).
2. Remove inside handle bolt (B).
3. Disconnect the door lock cables (A) and remove inside handle (1).



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- After installation, check door lock cables are properly engaged to inside handle.
- After installation, check door open/close and lock/unlock operation.

OUTSIDE HANDLE

OUTSIDE HANDLE : Removal and Installation

INFOID:0000000010282961

REMOVAL

1. Fully close front door glass.
2. Remove front door finisher. Refer to [INT-15, "Removal and Installation"](#).

FRONT DOOR LOCK

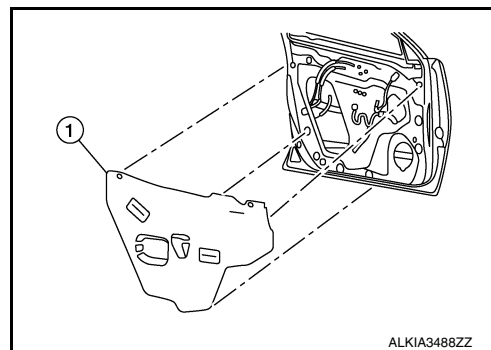
< REMOVAL AND INSTALLATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

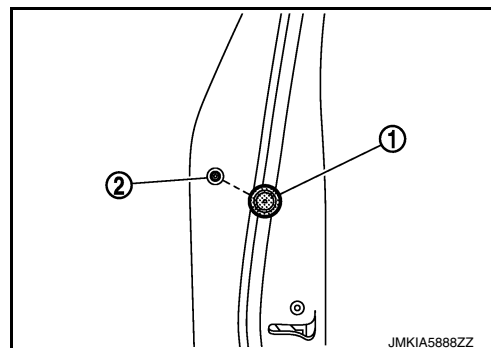
3. Remove front door vapor barrier (1).

NOTE:

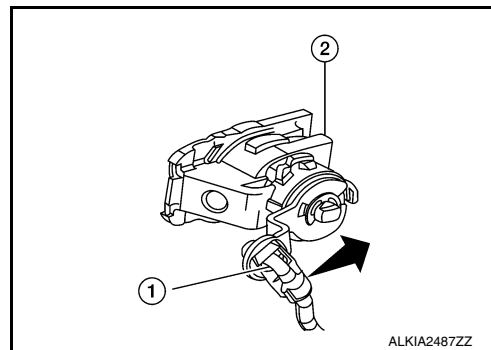
LH side shown; RH similar.



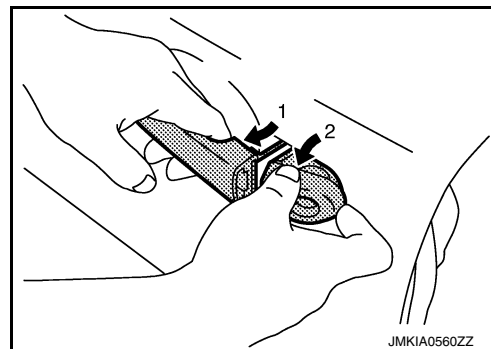
4. Remove door side grommet (1), and remove bolt from grommet hole (2).



5. Separate door key cylinder rod (LH only) (1) from door key cylinder assembly (LH only) (2).



6. While pulling (1) outside handle, remove (2) door key cylinder assembly (LH side) or outside handle escutcheon (RH side).

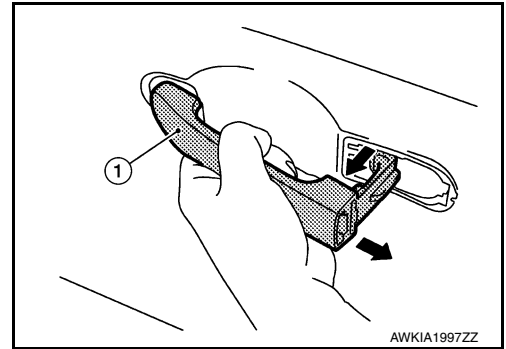


FRONT DOOR LOCK

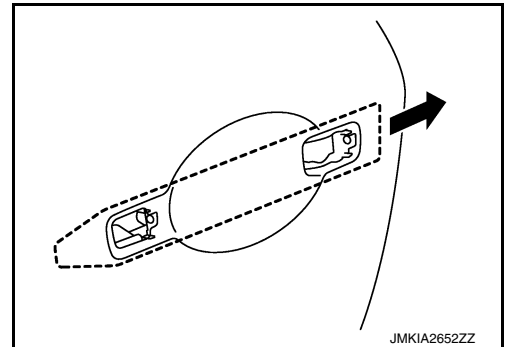
< REMOVAL AND INSTALLATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

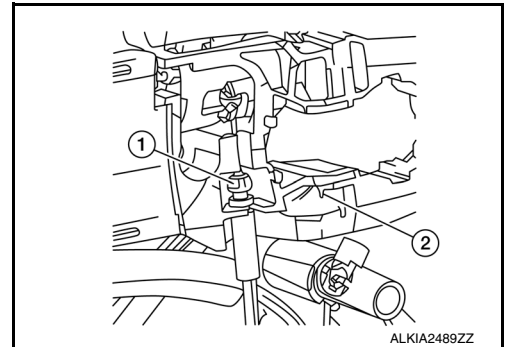
7. While pulling outside handle (1), slide toward rear of vehicle to remove outside handle.



8. Remove front gasket and rear gasket.
9. Slide outside handle bracket toward rear of vehicle to remove.



10. Disconnect outside handle cable (1) from outside handle bracket (2) as shown.



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- When installing door key cylinder rod (LH only), be sure to rotate door key cylinder rod holder until a click is felt.
- After installation, check door lock cable is properly engaged to outside handle bracket.
- After installation, check door open/close and lock/unlock operation.

REAR DOOR LOCK

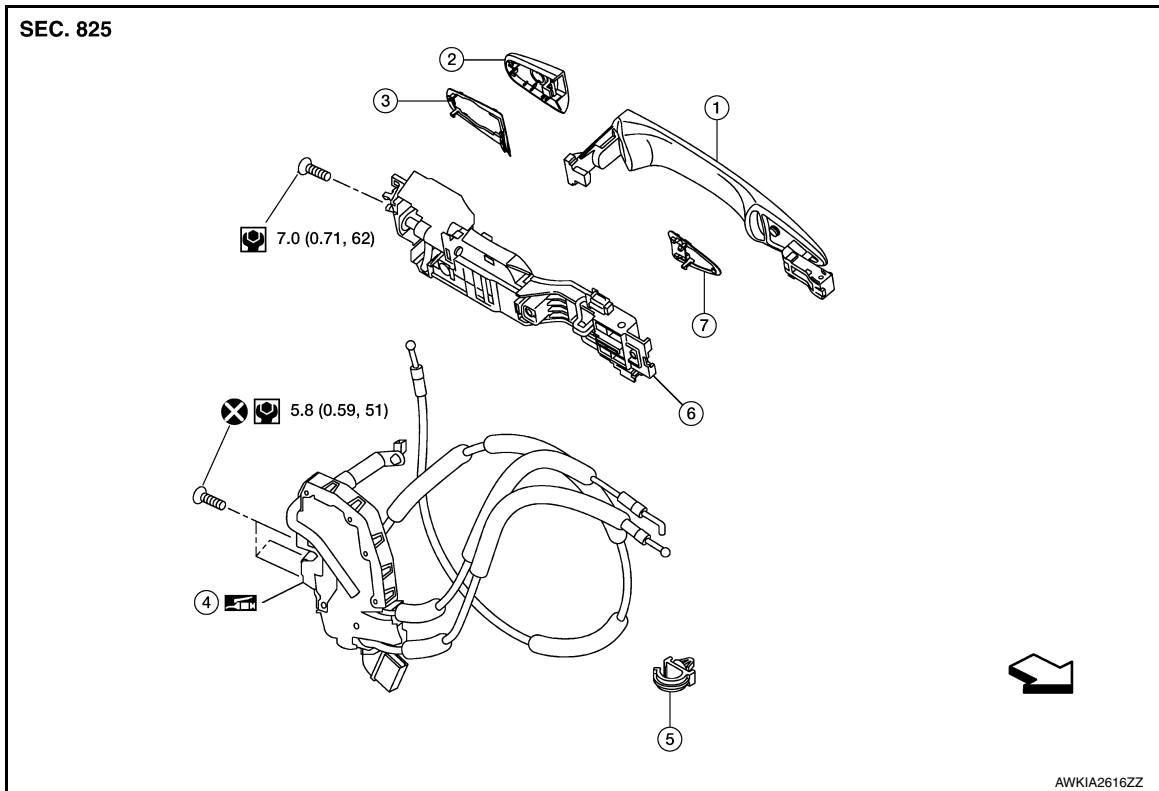
< REMOVAL AND INSTALLATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

REAR DOOR LOCK

Exploded View

INFOID:0000000010282962



- | | | |
|-------------------|------------------------------|---------------------------|
| 1. Outside handle | 2. Outside handle escutcheon | 3. Rear gasket |
| 4. Rear door lock | 5. Cable clip | 6. Outside handle bracket |
| 7. Front gasket | ↶ Front | |

DOOR LOCK

DOOR LOCK : Removal and Installation

INFOID:0000000010282963

REMOVAL

1. Remove rear door finisher. Refer to [INT-18, "Removal and Installation"](#).
2. Remove vapor barrier.
3. Remove rear door lock bolts.
4. Disconnect the door lock cables.
5. Disconnect the harness connector from the rear door lock and remove.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Do not reuse rear door lock bolts.
- Tighten bolts to specification. Refer to [DLK-377, "Exploded View"](#).
- After installation, check door lock cables are properly engaged to inside handle and outside handle.
- After installation, check door open/close and lock/unlock operation.

INSIDE HANDLE

INSIDE HANDLE : Removal and Installation

INFOID:0000000010282964

REMOVAL

A
B
C
D
E
F
G
H
I
J

DLK

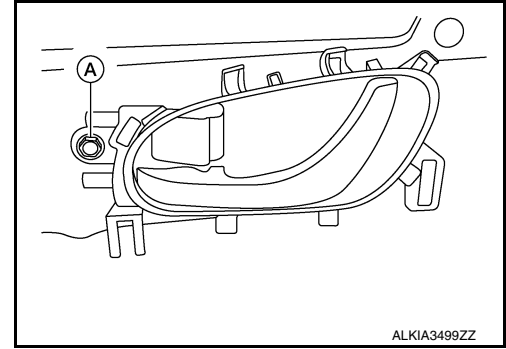
L
M
N
O
P

REAR DOOR LOCK

< REMOVAL AND INSTALLATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

1. Remove rear door finisher. Refer to [INT-18, "Removal and Installation"](#).
2. Remove inside handle bolt (A).



3. Disconnect door lock cables from inside handle and remove.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- After installation, check door lock cables are properly engaged to inside handle.
- After installation, check door open/close and lock/unlock operation.

OUTSIDE HANDLE

OUTSIDE HANDLE : Removal and Installation

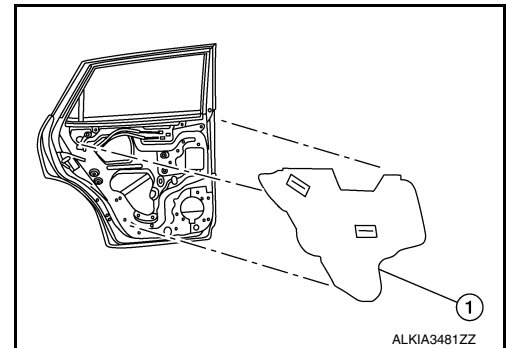
INFOID:0000000010282965

REMOVAL

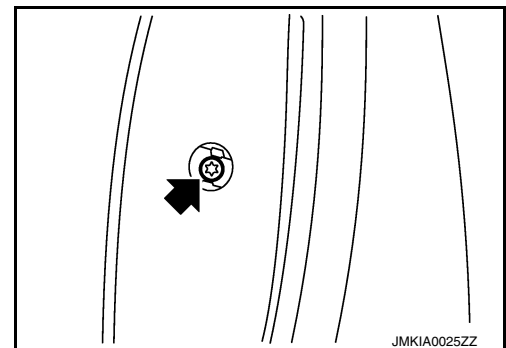
1. Fully close rear door glass.
2. Remove rear door finisher. Refer to [INT-18, "Removal and Installation"](#).
3. Remove rear door vapor barrier (1).

NOTE:

LH side shown; RH similar.



4. Remove door side grommet and bolt from grommet hole.

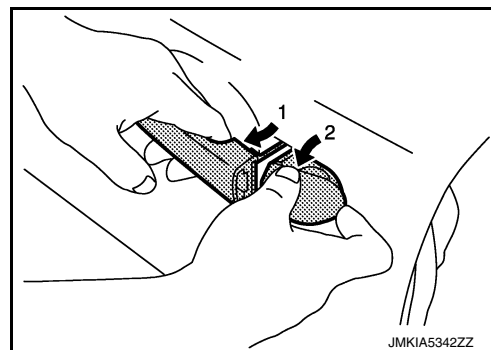


REAR DOOR LOCK

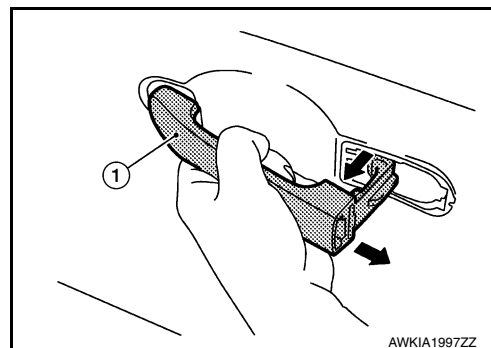
< REMOVAL AND INSTALLATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

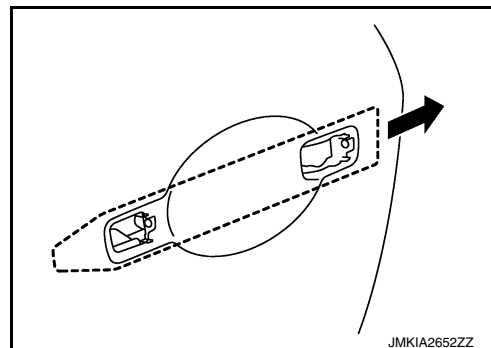
5. While pulling (1) outside handle, remove (2) outside handle escutcheon.



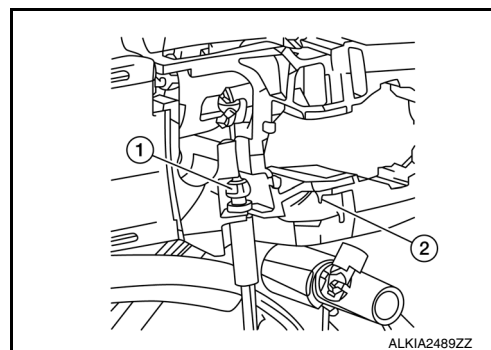
6. While pulling outside handle (1), slide toward rear of vehicle to remove outside handle.



7. Remove front gasket and rear gasket.
8. Slide outside handle bracket toward rear of vehicle to remove.



9. Disconnect outside handle cable (1) from outside handle bracket (2) as shown.



INSTALLATION

Installation in the reverse order of removal.

CAUTION:

- After installation, check door lock cable is properly engaged to outside handle bracket.
- After installation, check door open/close and lock/unlock operation.

BACK DOOR LOCK

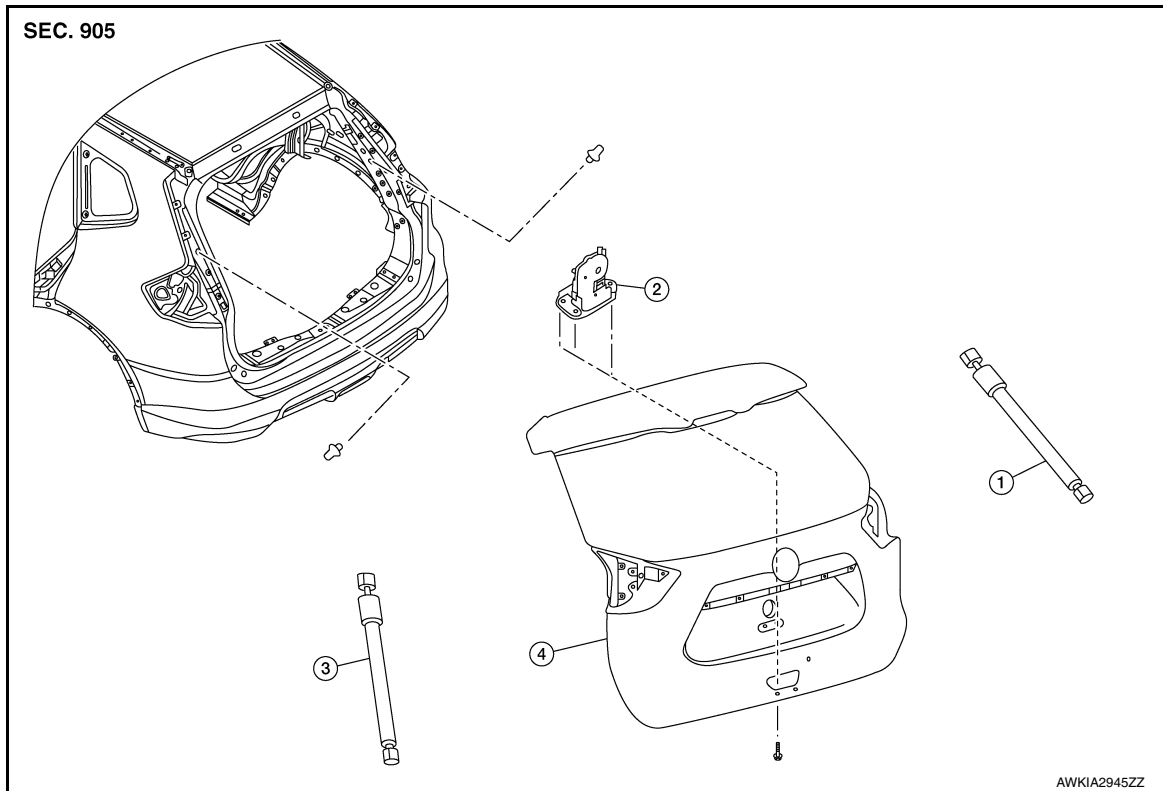
< REMOVAL AND INSTALLATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

BACK DOOR LOCK

Exploded View

INFOID:0000000010282966



1. Back door stay (RH)

2. Back door lock

3. Back door stay (LH)

4. Back door

DOOR LOCK

DOOR LOCK : Removal and Installation

INFOID:0000000010282967

REMOVAL

1. Remove back door finisher. Refer to [INT-38, "Removal and Installation"](#).
2. Disconnect the harness connector from the back door lock.
3. Remove bolts and back door lock.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Tighten bolts to specification. Refer to [DLK-380, "Exploded View"](#).
- After installation, check back door open/close and lock/unlock operation.

BACK DOOR STAY

BACK DOOR STAY : Removal and Installation

INFOID:0000000010283388

REMOVAL

1. Support the back door using a suitable tool.

WARNING:

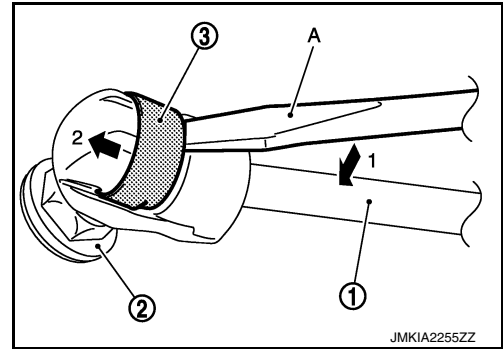
Body injury may occur if no supporting rod is holding the back door open when removing the back door stay.

BACK DOOR LOCK

< REMOVAL AND INSTALLATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

2. Release the metal clip (3) located on the connection between the back door stay (1) and the stud ball (2) (back door side) using a suitable tool (A).
3. Remove the back door stay (back door side).



4. Repeat procedure for removing back door stay from body side.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

After installation, check the back door open/close operation.

EMERGENCY LEVER

EMERGENCY LEVER : Unlock procedures

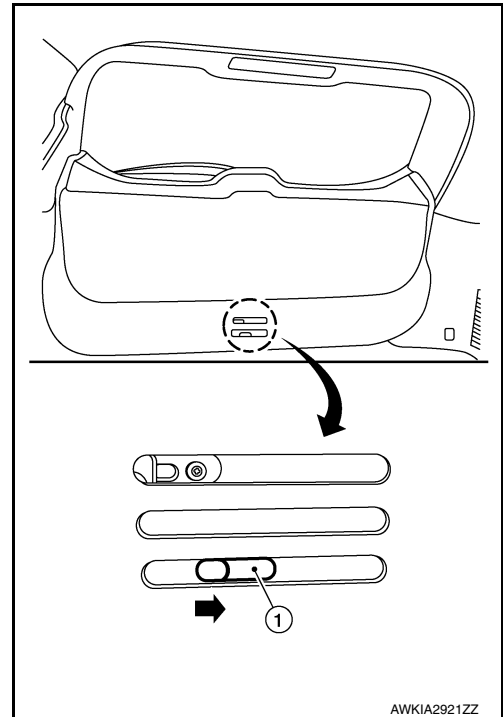
INFOID:0000000010282969

UNLOCK PROCEDURES

NOTE:

If back door lock cannot be unlocked due to a malfunction or battery discharge, perform the following procedures to unlock back door assembly.

1. From inside the vehicle, rotate emergency lever (1) in the direction shown to unlock.



FUEL FILLER LID OPENER

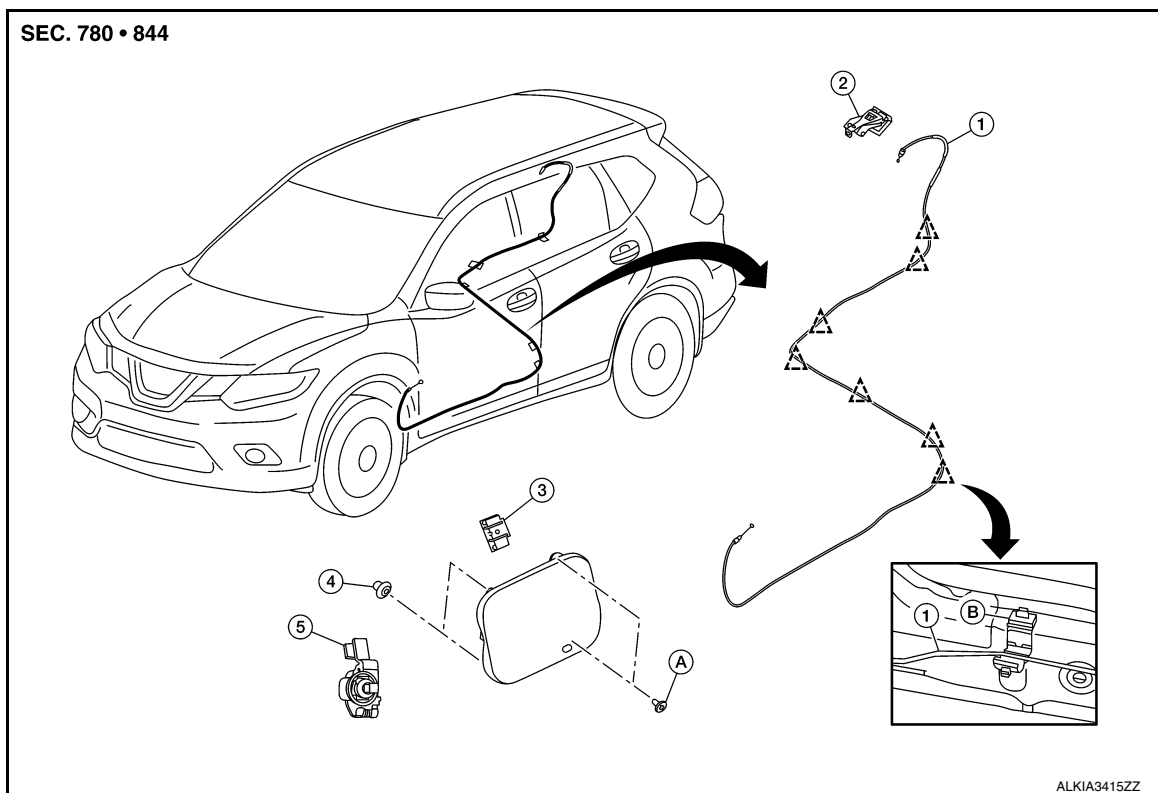
< REMOVAL AND INSTALLATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

FUEL FILLER LID OPENER

Exploded View

INFOID:0000000010282970



1. Fuel filler lid release cable

2. Fuel filler lid release handle

3. Spring

4. Bumper rubber

5. Fuel filler lid lock

A. Screw

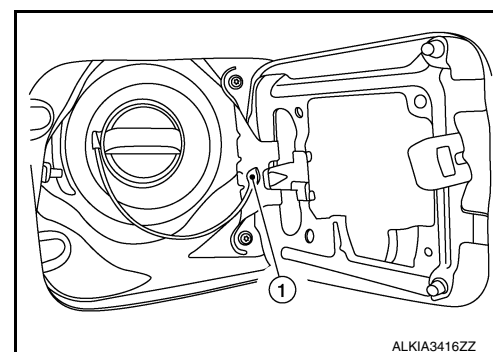
FUEL FILLER LID

FUEL FILLER LID : Removal and Installation

INFOID:0000000010282971

REMOVAL

1. Remove fuel cap pin (1).

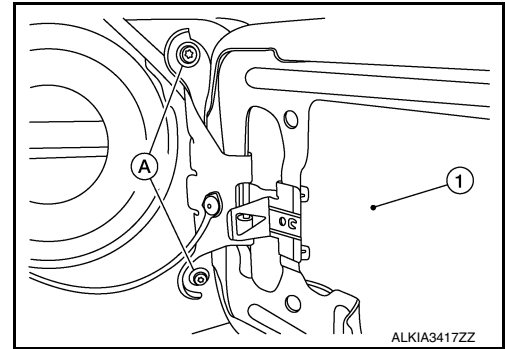


FUEL FILLER LID OPENER

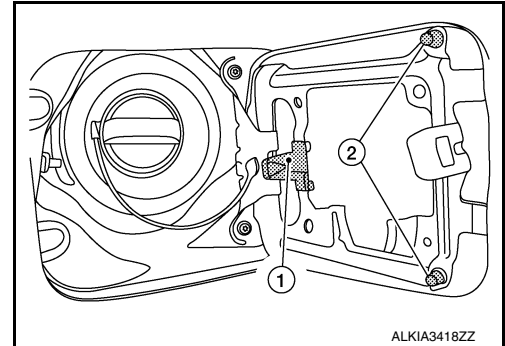
< REMOVAL AND INSTALLATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

2. Remove screws(2) and fuel filler lid (1).



3. Remove fuel filler lid spring (1) and bumper rubber (2) from fuel filler lid (if necessary).



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

After installation, check fuel filler lid open/close, lock/unlock operation.

FUEL FILLER LID LOCK

FUEL FILLER LID LOCK : Removal and Installation

INFOID:0000000010282972

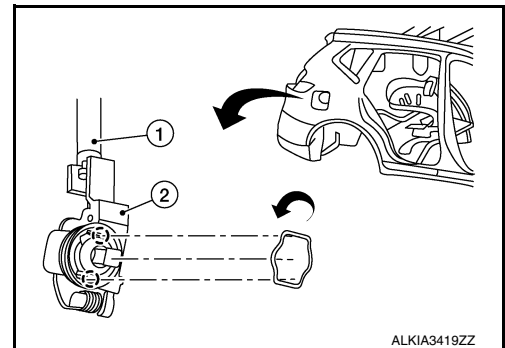
REMOVAL

1. Remove luggage side lower finisher (RH). Refer to [INT-34, "LUGGAGE SIDE LOWER FINISHER : Removal and Installation - With Third Row Seat"](#) (With Third Row Seat) or [INT-35, "LUGGAGE SIDE LOWER FINISHER : Removal and Installation - Without Third Row Seat"](#) (Without Third Row Seat).

2. Disconnect the fuel filler lid release cable (1) from the fuel filler lid lock (2).

3. Rotate fuel filler lid lock to release pawls and remove.

(○): Pawl



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

After installation, check fuel filler lid open/close, lock/unlock operation.

FUEL FILLER LID RELEASE CABLE

FUEL FILLER LID RELEASE CABLE : Removal and Installation

INFOID:0000000010282973

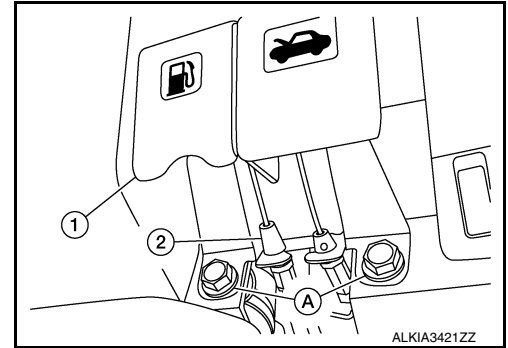
REMOVAL

FUEL FILLER LID OPENER

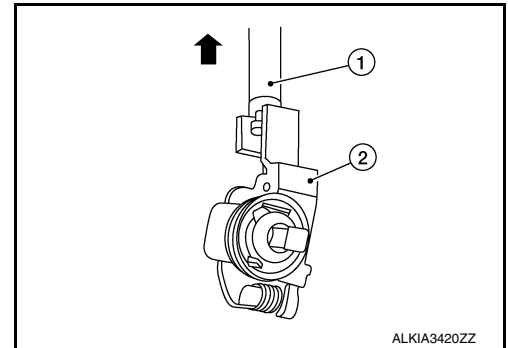
< REMOVAL AND INSTALLATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

1. Partially remove front floor trim. Refer to [INT-26, "Removal and Installation"](#).
2. Remove rear floor trim. Refer to [INT-26, "Removal and Installation"](#).
3. Remove the fuel filler lid/hood lock release handle bolts (A)
4. Disconnect the fuel filler lid release cable (2) from fuel filler lid release handle (1).



5. Disconnect the fuel filler lid release cable (1) from fuel filler lid lock (2).



6. Release the clips and remove fuel filler lid release cable.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

After installation, check fuel filler lid open/close, lock/unlock operation.

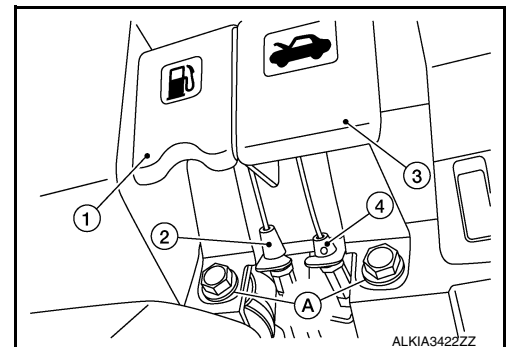
FUEL FILLER LID RELEASE HANDLE

FUEL FILLER LID RELEASE HANDLE : Removal and Installation

INFOID:000000010282974

REMOVAL

1. Remove fuel filler lid/hood lock release handle bolts (A).
2. Disconnect fuel filler lid release cable (2) from fuel filler lid release handle (1).
3. Disconnect hood lock release cable (4) from hood lock release handle (3).
4. Remove fuel filler lid release handle.



INSTALLATION

Installation is in the reverse order of removal.

DOOR SWITCH

< REMOVAL AND INSTALLATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

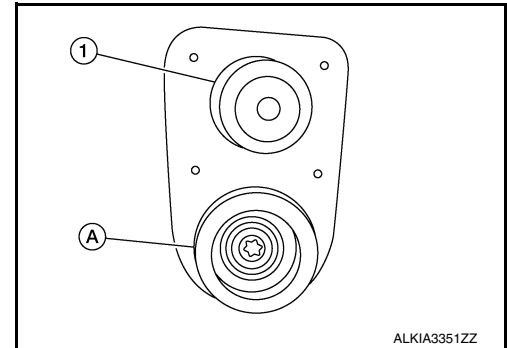
DOOR SWITCH

Removal and Installation

INFOID:000000010282976

REMOVAL

1. Remove the door switch bolt (A).
2. Disconnect the harness connector from the door switch (1) and remove.



INSTALLATION

Installation is in the reverse order of removal.

A

B

C

D

E

F

G

H

I

J

DLK

L

M

N

O

P

BACK DOOR WARNING CHIME

< REMOVAL AND INSTALLATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

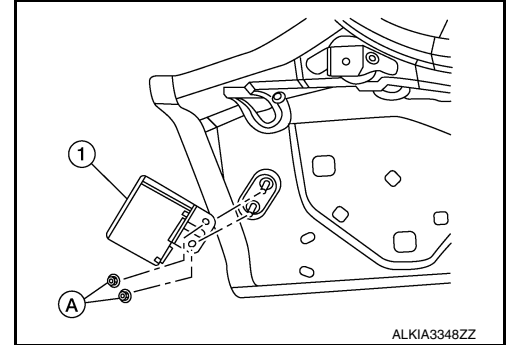
BACK DOOR WARNING CHIME

Removal and Installation

INFOID:0000000010282980

REMOVAL

1. Remove the rear bumper fascia. Refer to [EXT-20. "Removal and Installation"](#).
2. Disconnect the harness connector from the back door warning chime.
3. Remove nuts (A) and back door warning chime (1).



INSTALLATION

Installation is in the reverse order of removal.

KEYFOB BATTERY

< REMOVAL AND INSTALLATION >

[WITHOUT INTELLIGENT KEY SYSTEM]

KEYFOB BATTERY

Removal and Installation

INFOID:0000000010247492

REPLACEMENT

1. Remove screw from the rear of keyfob.
2. Place the key with the lower case facing up. Use a suitable tool wrapped with tape between upper case and lower case and separate the lower case from the upper case.

CAUTION:

- Do not touch the circuit board or battery terminal. Doing so could cause the keyfob to malfunction
- The keyfob is water-resistant. However, if it does get wet, immediately wipe it dry.

3. When replacing the circuit board assembly, remove circuit board assembly from the upper case.
[Circuit board assembly: Switch rubber + Board surface]

CAUTION:

Do not touch the printed circuits directly.

4. Remove the battery from the lower case and replace it.

Battery replacement : Coin-type lithium battery (CR1620)

CAUTION:

When replacing battery, keep dirt, grease, and other foreign materials off the electrode contact area.

5. After replacement, fit the lower and upper cases together and tighten with the screw.

CAUTION:

After replacing the battery, Be sure to check that door locking operates normally using the keyfob.
Refer to [DLK-333, "Component Function Check"](#).

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

DLK

SECTION DLN

DRIVELINE

A

B

C

DLN

CONTENTS

E

TRANSFER: TY21C

PRECAUTION	5	WARNING/INDICATOR/CHIME LIST	17	F
PRECAUTIONS	5	WARNING/INDICATOR/CHIME LIST : Warning/ Indicator (On Information Display)	17	
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TEN- SIONER"	5	DIAGNOSIS SYSTEM (AWD CONTROL UNIT)	18	G
Precaution for Procedure without Cowl Top Cover.....	5	CONSULT Function	18	H
Precaution for Battery Service	5	ECU DIAGNOSIS INFORMATION	20	
Service Notice or Precautions for Transfer	5	AWD CONTROL UNIT	20	I
PREPARATION	7	Reference Value	20	
PREPARATION	7	Fail-Safe	22	J
Special Service Tool	7	Protection Function	22	
Commercial Service Tool	7	DTC Inspection Priority Chart	22	
SYSTEM DESCRIPTION	10	DTC Index	23	K
COMPONENT PARTS	10	WIRING DIAGRAM	24	
Component Parts Location	10	AWD SYSTEM	24	L
AWD Control Unit	11	Wiring Diagram	24	
Electric Controlled Coupling	11	BASIC INSPECTION	31	
AWD Solenoid	11	DIAGNOSIS AND REPAIR WORK FLOW	31	M
AWD Lock Switch	11	Work Flow	31	
STRUCTURE AND OPERATION	12	Diagnostic Work Sheet	32	
Sectional View	12	ADDITIONAL SERVICE WHEN REPLACING AWD CONTROL UNIT	34	N
Operation Description	12	Description	34	
SYSTEM	14	Work Procedure	34	O
AWD SYSTEM	14	UNIT CHARACTERISTICS WRITING	35	
AWD SYSTEM : System Description	14	Description	35	P
AWD SYSTEM : Fail-Safe	15	Work Procedure	35	
AWD SYSTEM : Protection Function	15	DTC/CIRCUIT DIAGNOSIS	36	
INFORMATION DISPLAY (COMBINATION METER)	16	C1201 AWD CONTROL UNIT	36	
INFORMATION DISPLAY (COMBINATION METER) : AWD Warning	16	DTC Description	36	
		Diagnosis Procedure	36	

C1203 ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)	37	Description	60
DTC Description	37	Diagnosis Procedure	60
Diagnosis Procedure	37		
C1204 AWD SOLENOID	38	VEHICLE DOES NOT ENTER AWD MODE	61
DTC Description	38	Description	61
Diagnosis Procedure	38	Diagnosis Procedure	61
Component Inspection	40		
C1209 MODE SW	41	AWD HIGH TEMP IS DISPLAYED ON INFORMATION DISPLAY	62
DTC Description	41	Description	62
Diagnosis Procedure	41		
Component Inspection	42	TIRE SIZE INCORRECT IS DISPLAYED ON INFORMATION DISPLAY	63
C1210 ECM	43	Description	63
DTC Description	43	Diagnosis Procedure	63
Diagnosis Procedure	43		
P1804 AWD CONTROL UNIT	44	NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING	64
DTC Description	44	NVH Troubleshooting Chart	64
Diagnosis Procedure	44		
P1808 WHEEL SPEED SENSOR	45	PERIODIC MAINTENANCE	65
DTC Description	45		
Diagnosis Procedure	45	TRANSFER OIL	65
P1809 AWD CONTROL UNIT	46	Inspection	65
DTC Description	46	Draining	65
Diagnosis Procedure	46	Refilling	65
P1811 BATTERY VOLTAGE	47	REMOVAL AND INSTALLATION	67
DTC Description	47	AWD CONTROL UNIT	67
Diagnosis Procedure	47	Exploded View	67
P181B INCOMPLETE SELF SHUT	50	Removal and Installation	67
DTC Description	50	AWD LOCK SWITCH	68
Diagnosis Procedure	50	Exploded View	68
P181D ENGINE TORQUE SIGNAL	53	Removal and Installation	68
DTC Description	53	TRANSFER COVER OIL SEAL	69
Diagnosis Procedure	53	Removal and Installation	69
P181F INCOMPLETE CALIBRATION	54	UNIT REMOVAL AND INSTALLATION	70
DTC Description	54	TRANSFER ASSEMBLY	70
Diagnosis Procedure	54	Exploded View	70
U1000 CAN COMM CIRCUIT	55	Removal and Installation	70
DTC Description	55	UNIT DISASSEMBLY AND ASSEMBLY ...	72
Diagnosis Procedure	55	TRANSFER COVER	72
U1010 CONTROL UNIT (CAN)	56	Exploded View	72
DTC Description	56	Disassembly	73
Diagnosis Procedure	56	Assembly	74
POWER SUPPLY AND GROUND CIRCUIT	57	Inspection	75
Diagnosis Procedure	57	RING GEAR SHAFT	76
SYMPTOM DIAGNOSIS	60	Exploded View	76
HEAVY TIGHT-CORNER BRAKING SYMPTOM OCCURS	60	Disassembly	77
		Assembly	78
		Inspection	79
		DRIVE PINION	81
		Exploded View	81

Disassembly	82	SERVICE DATA AND SPECIFICATIONS	
Assembly	83	(SDS)	103
Adjustment	84	General Specifications	103
Inspection	88	Propeller Shaft Runout	103
TRANSFER CASE	89	Journal Axial Play	103
Exploded View	89	REAR FINAL DRIVE: R145	
Disassembly	90	PRECAUTION	104
Assembly	91	PRECAUTIONS	104
Inspection	92	Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	104
SERVICE DATA AND SPECIFICATIONS (SDS)	93	Service Notice or Precautions for Rear Final Drive	104
SERVICE DATA AND SPECIFICATIONS (SDS)	93	PREPARATION	105
General Specifications	93	PREPARATION	105
Preload Torque	93	Special Service Tools	105
Backlash	93	Commercial Service Tools	107
Companion Flange Runout	93	SYSTEM DESCRIPTION	109
REAR PROPELLER SHAFT: C-CVJ-C		STRUCTURE AND OPERATION	109
PRECAUTION	94	Sectional View	109
PRECAUTIONS	94	Electric Controlled Coupling	109
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	94	SYMPTOM DIAGNOSIS	110
Precaution for Propeller Shaft	94	NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING	110
PREPARATION	95	NVH Troubleshooting Chart	110
PREPARATION	95	PERIODIC MAINTENANCE	111
Commercial Service Tools	95	REAR DIFFERENTIAL GEAR OIL	111
SYSTEM DESCRIPTION	96	Inspection	111
STRUCTURE AND OPERATION	96	Draining	111
Sectional View	96	Refilling	111
SYMPTOM DIAGNOSIS	97	REMOVAL AND INSTALLATION	112
NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING	97	DRIVE PINION OIL SEAL	112
NVH Troubleshooting Chart	97	Exploded View	112
PERIODIC MAINTENANCE	98	Removal and Installation	112
REAR PROPELLER SHAFT	98	SIDE OIL SEAL	113
Inspection	98	Exploded View	113
REMOVAL AND INSTALLATION	99	Removal and Installation	113
REAR PROPELLER SHAFT	99	ELECTRIC CONTROLLED COUPLING	114
Exploded View	99	Exploded View	114
Removal and Installation	99	Removal and Installation	114
Inspection	101	AIR BREATHER	117
SERVICE DATA AND SPECIFICATIONS (SDS)	103	Exploded View	117
		Removal and Installation	117
		UNIT REMOVAL AND INSTALLATION ...	119
		REAR FINAL DRIVE ASSEMBLY	119
		Exploded View	119

Removal and Installation	119	Exploded View	135
UNIT DISASSEMBLY AND ASSEMBLY ..	120	Disassembly and Assembly	136
ELECTRIC CONTROLLED COUPLING	120	Inspection	140
Exploded View	120	SERVICE DATA AND SPECIFICATIONS	
Disassembly and Assembly	121	(SDS)	141
DIFFERENTIAL ASSEMBLY	124	SERVICE DATA AND SPECIFICATIONS	
Exploded View	124	(SDS)	141
Disassembly and Assembly	125	General Specifications	141
Adjustment	130	Preload Torque	141
Inspection	134	Drive Gear Runout	141
DRIVE PINION	135	Backlash	141
		Differential Side Gear Clearance	141

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010292457

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

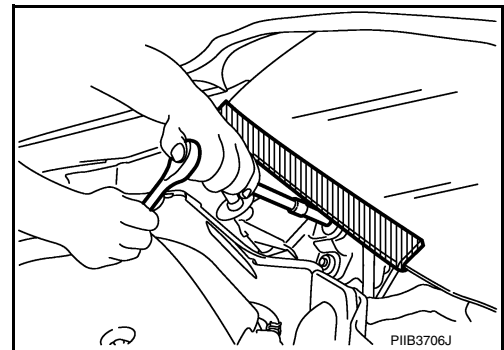
WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Precaution for Procedure without Cowl Top Cover

INFOID:0000000009991718

When performing the procedure after removing cowl top cover, cover the lower end of windshield with urethane, etc to prevent damage to windshield.



Precaution for Battery Service

INFOID:0000000009991719

Before disconnecting the battery, lower both the driver and passenger windows. This will prevent any interference between the window edge and the vehicle when the door is opened/closed. During normal operation, the window slightly raises and lowers automatically to prevent any window to vehicle interference. The automatic window function will not work with the battery disconnected.

Service Notice or Precautions for Transfer

INFOID:0000000010335787

- After overhaul refill the transfer with new transfer oil.
- Check the oil level or replace the oil only with the vehicle parked on level surface.
- During removal or installation, keep inside of transfer clear of dust or dirt.
- Replace all tires at the same time. Always use tires of the proper size and the same brand and pattern. Fitting improper size and unusual wear tires applies excessive force to vehicle mechanism and can cause longitudinal vibration.
- Disassembly should be done in a clean work area.

PRECAUTIONS

< PRECAUTION >

[TRANSFER: TY21C]

- Before proceeding with disassembly, thoroughly clean the transfer. It is important to prevent the internal parts from becoming contaminated by dirt or other foreign matter.
- Check for the correct installation status prior to removal or disassembly. If matching marks are required, be certain they do not interfere with the function of the parts when applied.
- All parts should be carefully cleaned with a general purpose, non-flammable solvent before inspection or reassembly.
- Check appearance of the disassembled parts for damage, deformation, and unusual wear. Replace them with a new one if necessary.
- Gaskets, seals, O-rings and lock nuts should be replaced any time when the transfer is disassembled.
- In principle, tighten bolts or nuts gradually in several steps working diagonally from inside to outside. If tightening sequence is specified, use it.
- Observe the specified torque when assembling.
- Clean and flush the parts sufficiently and blow-dry them.
- Be careful not to damage sliding surfaces and mating surfaces.
- Use lint-free cloth or towels for wiping parts clean. Common shop rags can leave fibers that could interfere with the operation of the transfer.

PREPARATION

< PREPARATION >

[TRANSFER: TY21C]

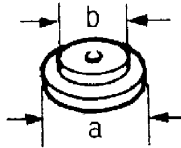
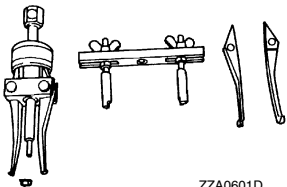
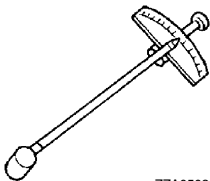
PREPARATION

PREPARATION

Special Service Tool

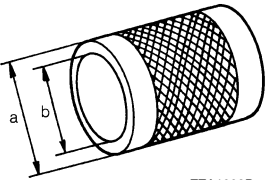
INFOID:0000000010337463

The actual shapes of TechMate tools may differ from those of special service tools illustrated here.

Tool number (TechMate No.) Tool name	Description
ST33061000 (J-8107-2) Drift a: 38 mm (1.50 in) dia. b: 28.5 mm (1.122 in) dia.  ZZA0810D	Removing gear ring bearing inner race (transfer case side)
KV381054S0 (J-34286) Puller  ZZA0601D	Removing ring gear shaft oil seal
ST3127S000 (J-25765-A) Preload gauge  ZZA0503D	Measuring preload torque

Commercial Service Tool

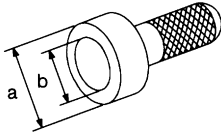
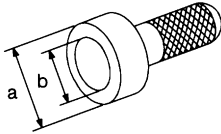
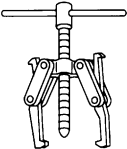
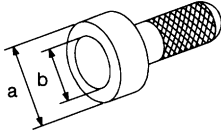
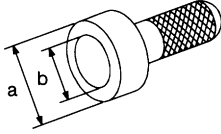
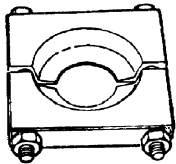
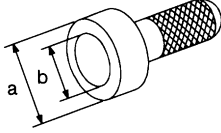
INFOID:0000000010337464

Tool name	Description
Power tool  PIIB1407E	Loosening nuts, screws and bolts
Drift a: 52 mm (2.05 in) dia. b: 44 mm (1.73 in) dia.  ZZA1002D	Removing gear ring bearing inner race (transfer cover side)

PREPARATION

< PREPARATION >

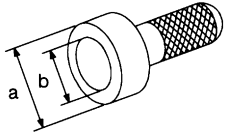
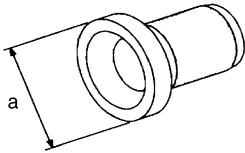
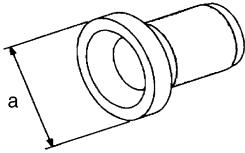
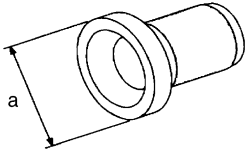
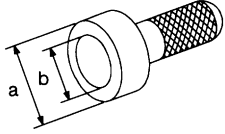
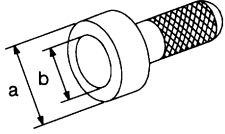
[TRANSFER: TY21C]

Tool name	Description
Drift a: 56.5 mm (2.224 in) dia. b: 48 mm (1.89 in) dia.  NT115	Installing side oil seal (installing transfer case oil seal)
Drift a: 44 mm (1.73 in) dia. b: 33 mm (1.3 in) dia.  NT115	Installing ring gear shaft oil seal
Puller  NT077	Removing ring gear bearing (left) inner race (transfer case side)
Drift a: 70 mm (2.76 in) dia. b: 60 mm (2.36 in) dia.  NT115	Installing oil seal (installing pinion bearing seal)
Drift a: 78 mm (3.07 in) dia. b: 68 mm (2.68 in) dia.  NT115	Installing side oil seal (installing transfer cover oil seal)
Replacer  ZZA0700D	- Removing drive pinion - Removing ring gear bearing (left) inner race (transfer cover side)
Drift a: 58 mm (2.28 in) dia. b: 55 mm (2.17 in) dia.  NT115	Installing ring gear bearing (left) inner race (transfer case side)

PREPARATION

< PREPARATION >

[TRANSFER: TY21C]

Tool name	Description
Drift a: 62 mm (2.44 in) dia. b: 58 mm (2.28 in) dia.  NT115	Installing ring gear bearing (right) inner race (transfer cover side)
Drift a: 73.5 mm (2.894 in) dia.  SCIA5338E	Installing ring gear bearing (left) outer race (transfer case side)
Drift a: 87 mm (3.43 in) dia.  SCIA5338E	Installing ring gear bearing (right) outer race (transfer cover side)
Drift a: 20 mm (0.79 in) dia.  SCIA5338E	Removing drive pinion
Drift a: 50 mm (1.97 in) dia. b: 41 mm (1.61 in) dia.  NT115	Installing pinion bearing assembly
Drift a: 40 mm (1.57 in) dia. b: 25 mm (0.98 in) dia.  NT115	Installing companion flange

A

B

C

DLN

E

F

G

H

I

J

K

L

M

N

O

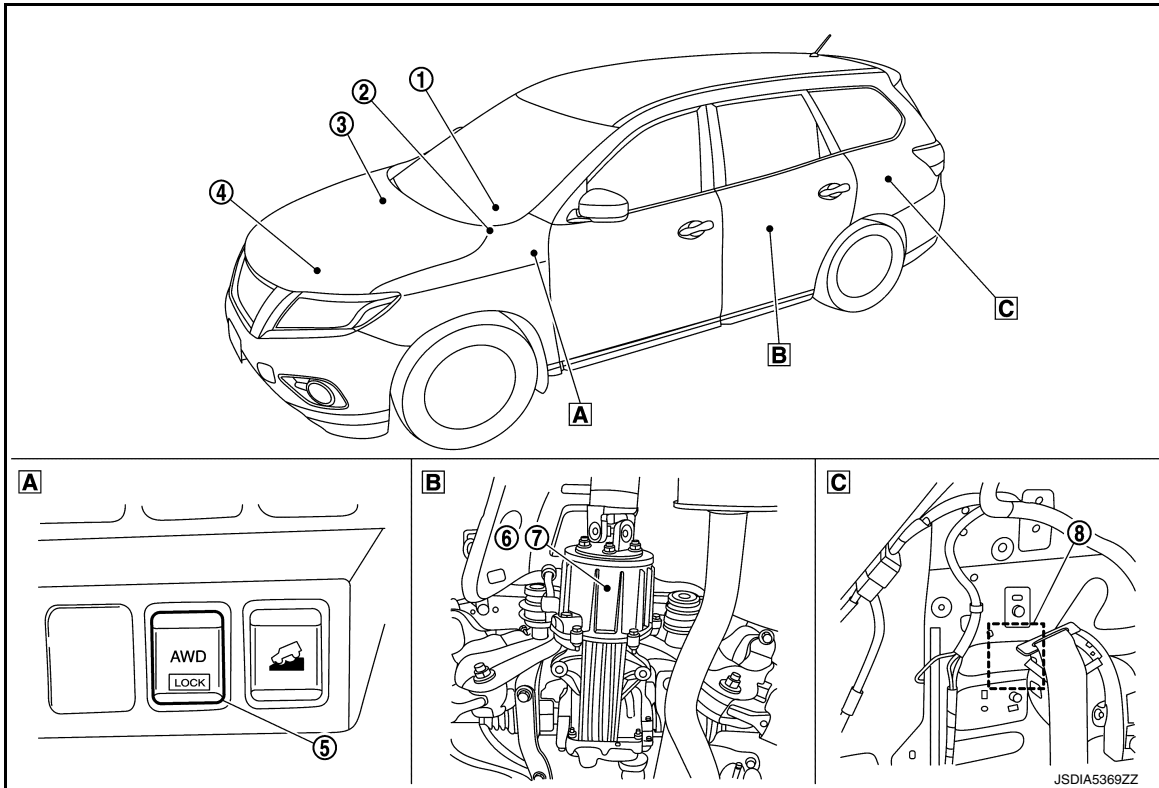
P

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:000000009991723



A Instrument lower panel LH

B Rear final drive assembly

C Rear wheel house outer panel in luggage room of left side

No.	Component	Function
①	Combination meter	Mainly transmits the following signals to AWD control unit via CAN communication. • Parking brake switch signal Mainly receives the following signals from AWD control unit via CAN communication. • AWD warning lamp signal • AWD LOCK indicator lamp signal For detailed installation location, refer to MWI-6. "METER SYSTEM : Component Parts Location".
②	Steering angle sensor	Mainly transmits the following signals to AWD control unit via CAN communication. • steering angle sensor signal For detailed installation location, refer to BRC-8. "Component Parts Location".
③	ABS actuator and electric unit (control unit)	Mainly transmits the following signals to AWD control unit via CAN communication. • Each wheel speed signal • Stop lamp switch signal (brake signal) • Yaw rate sensor signal • Side G sensor signal • Decel G sensor signal For detailed installation location, refer to BRC-8. "Component Parts Location".

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[TRANSFER: TY21C]

No.	Component	Function
④	ECM	Mainly transmits the following signals to AWD control unit via CAN communication. • Accelerator pedal position signal • Engine speed signal For detailed installation location, refer to EC-14, "Component Parts Location" .
⑤	AWD lock switch	Refer to DLN-11, "AWD Lock Switch" .
⑥	Electric controlled coupling	Refer to DLN-11, "Electric Controlled Coupling" .
⑦	AWD solenoid	Refer to DLN-11, "AWD Solenoid" .
⑧	AWD control unit • AWD actuator relay	Refer to DLN-11, "AWD Control Unit" .

AWD Control Unit

INFOID:0000000009991724

- Controls driving force distribution by signals from each sensor from front wheel driving mode (100:0) to 4-wheel driving mode (50:50).
- Front wheel driving conditions is available by fail-safe function if malfunction is detected in AWD system.
- AWD actuator relay is integrated with AWD control unit, and supplies AWD solenoid with voltage.

Electric Controlled Coupling

INFOID:0000000009991726

Electric controlled coupling is integrated with rear final drive and transmits driving force to rear final drive. For operation, refer to [DLN-12, "Operation Description"](#).

AWD Solenoid

INFOID:0000000009991725

Controls electric controlled coupling by command current from AWD control unit.

AWD Lock Switch

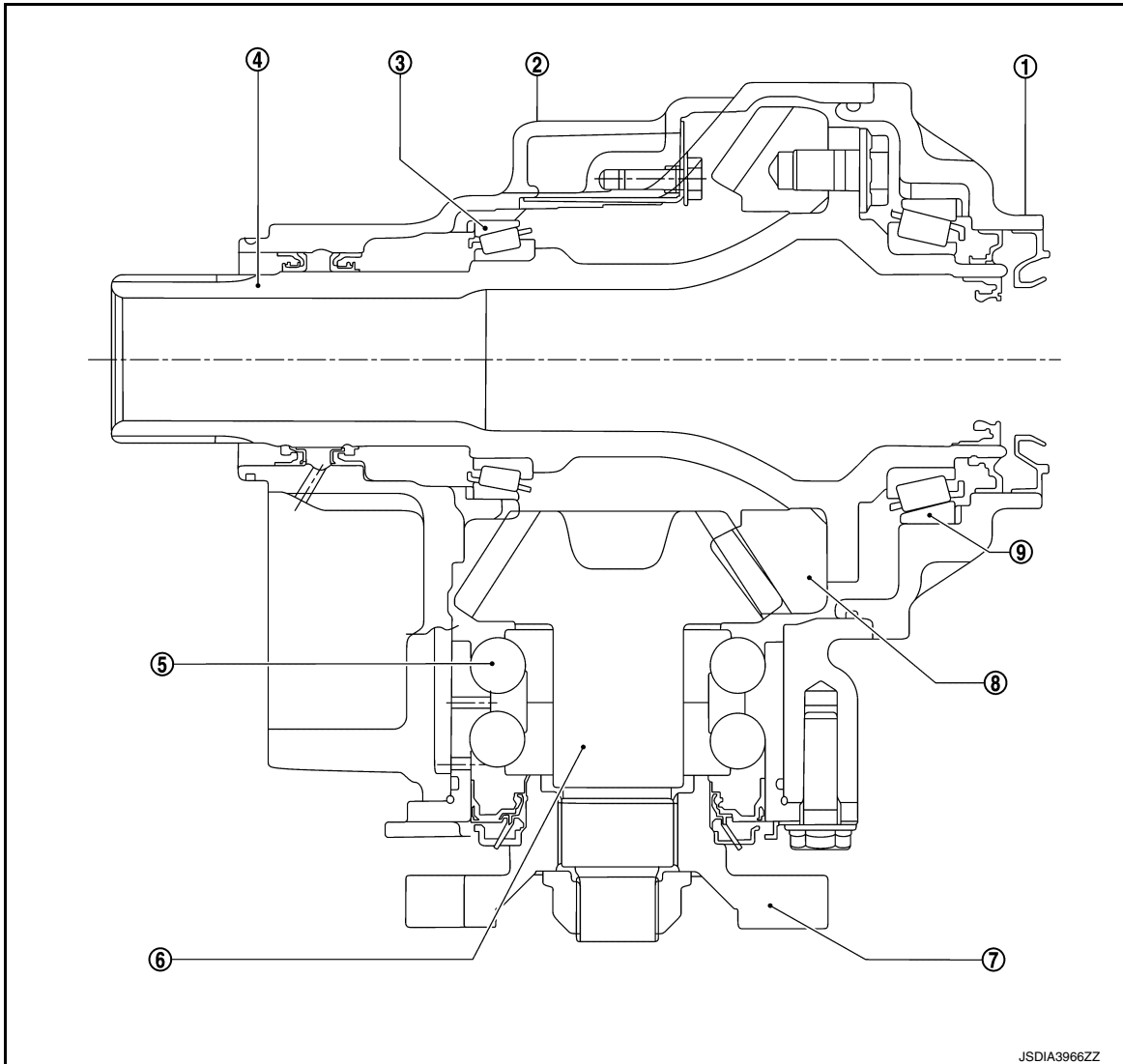
INFOID:0000000009995319

Every time AWD lock switch is pressed, AUTO mode and LOCK mode switch each other.

STRUCTURE AND OPERATION

Sectional View

INFOID:000000009991728



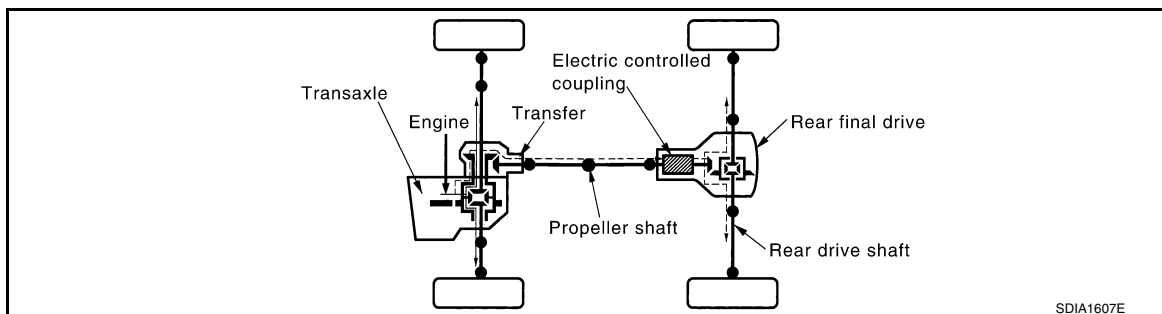
JSDIA3966ZZ

- | | | |
|---------------------|-------------------|--|
| 1. Transfer cover | 2. Transfer case | 3. Ring gear bearing (transfer case side) |
| 4. Ring gear shaft | 5. Pinion bearing | 6. Drive pinion |
| 7. Companion flange | 8. Ring gear | 9. Ring gear bearing (transfer cover side) |

Operation Description

INFOID:000000009991729

POWER TRANSFER DIAGRAM



SDIA1607E

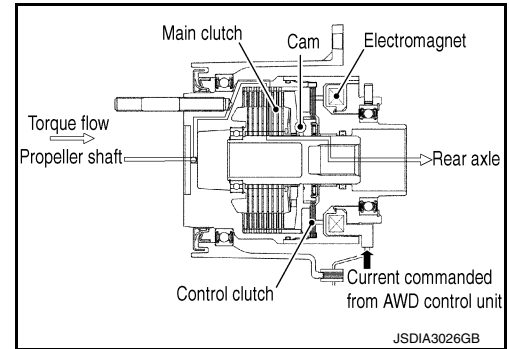
STRUCTURE AND OPERATION

< SYSTEM DESCRIPTION >

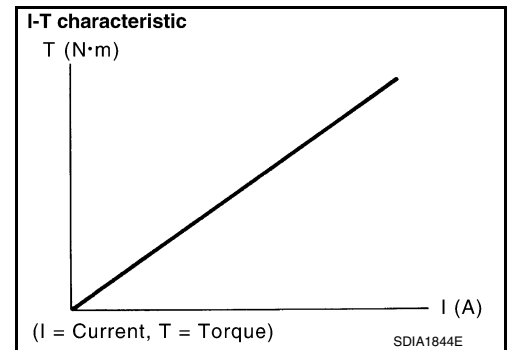
[TRANSFER: TY21C]

ELECTRIC CONTROLLED COUPLING

1. The AWD control unit supplies command current to electric controlled coupling (AWD solenoid).
2. The control clutch is engaged by electromagnet and torque is detected in control clutch.
3. The cam operates in response to control clutch torque and applies pressure to main clutch.
4. The main clutch transmits torque to front wheels according to pressing power.



- Transmission torque to the rear wheels is determined according to command current.



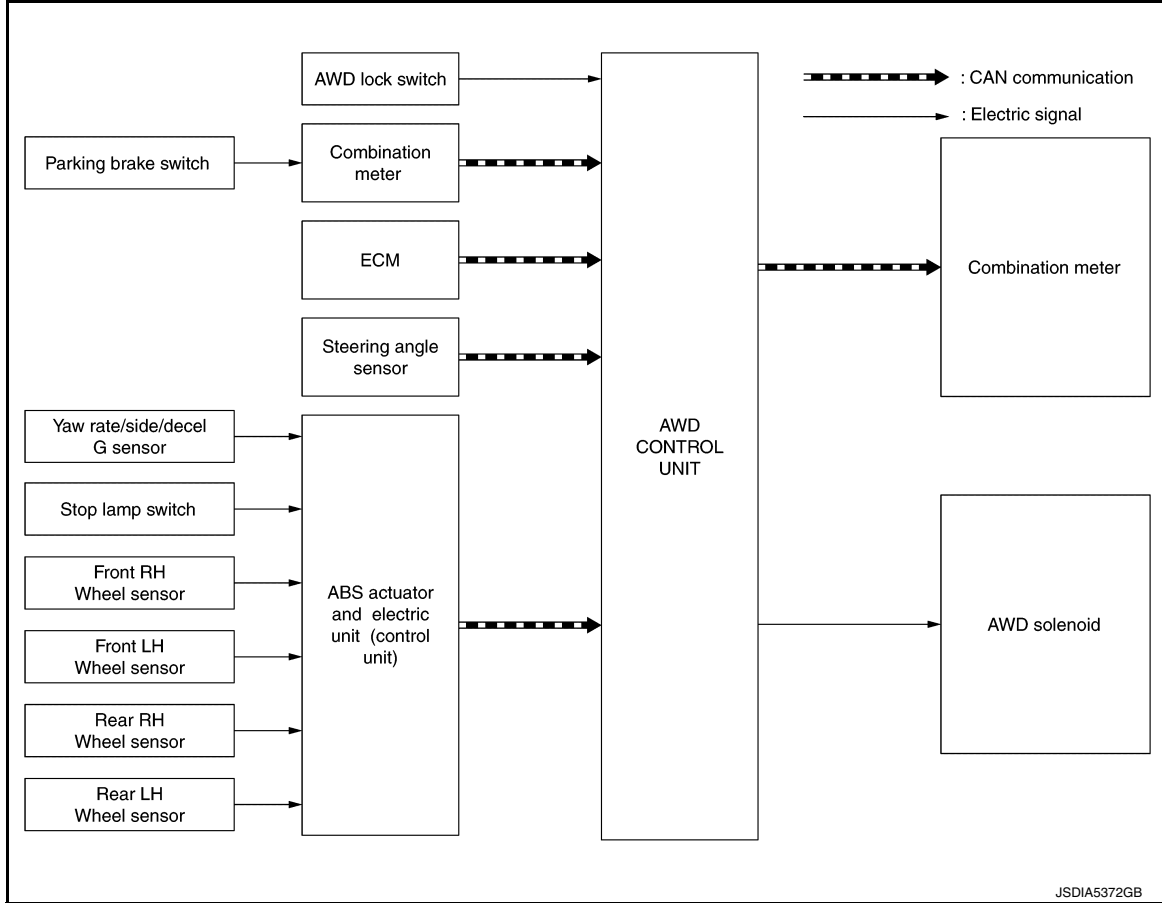
SYSTEM

AWD SYSTEM

AWD SYSTEM : System Description

INFOID:000000009991730

SYSTEM DIAGRAM



Signal with Communication Line

Major signal transmission between each unit via CAN communication lines are shown in the following table.

Component parts	Signal item
Combination meter	Mainly transmits the following signals to AWD control unit via CAN communication. • Parking brake switch signal Mainly receives the following signals from AWD control unit via CAN communication. • AWD warning lamp signal • AWD LOCK indicator lamp signal
Steering angle sensor	Mainly transmits the following signals to AWD control unit via CAN communication. • steering angle sensor signal

SYSTEM

< SYSTEM DESCRIPTION >

[TRANSFER: TY21C]

Component parts	Signal item
ABS actuator and electric unit (control unit)	Mainly transmits the following signals to AWD control unit via CAN communication. • Each wheel speed signal • Stop lamp switch signal (brake signal) • Yaw rate sensor signal • Side G sensor signal • Decel G sensor signal
ECM	Mainly transmits the following signals to AWD control unit via CAN communication. • Accelerator pedal position signal • Engine speed signal

DESCRIPTION

- AWD controls distribution of drive power between front-wheel drive (100:0) and 4-wheel drive (50:50) conditions according to signals from sensors.
- By receiving the steering angle sensor signal, yaw rate sensor signal, side G sensor signal and decel G sensor signal, vehicle with VDC corrects a torque distribution for front and rear wheels according to a driving operation and a behavior of the vehicle during cornering and improves drivability and safety on a slippery road surface.
- Electronic control allows optimal distribution of torque to front/rear wheels to match road conditions.
- AWD mode makes possible stable driving possible with no wheel spin, on snowy roads or other slippery surfaces.
- On roads which do not require 4-wheel drive, it contributes to improved fuel economy by driving in conditions close to front-wheel drive.
- Sensor inputs determine the vehicle's turning condition, and tight cornering/braking are controlled by distributing optimum torque to rear wheels.

NOTE:

Light tight-corner braking symptom may occur depending on driving condition. This is not malfunction.

AWD SYSTEM : Fail-Safe

INFOID:000000009991732

If any malfunction occurs in AWD electrical system, and control unit detects the malfunction, AWD warning on information display (combination meter) is displayed to indicate system malfunction. And then AWD control unit controls becomes the fail-safe mode depending on DTC.

DTC	Vehicle condition
•C1201 •C1204 •C1209 •P1804 •P1809 •P1811 •P181F	AWD control changes to front-wheel drive immediately, then AWD control stops, and the vehicle becomes front-wheel drive.
•C1203 •C1210 •P1808 •P181D •U1000 •U1010	AWD control changes to front-wheel drive gradually (rear-wheels still have some driving torque), then AWD control stops, and the vehicle becomes front-wheel drive.
•P181B	No impact to vehicle behavior.

AWD SYSTEM : Protection Function

INFOID:000000009991733

AWD system activates its protection function (shuts down AWD system temporarily) if AWD system detects high load continuously or the front wheel tire size differs from the rear tire size. (AWD system is automatically restored if AWD system no longer detects any overload or the tire size difference is eliminated.)

SYSTEM

< SYSTEM DESCRIPTION >

[TRANSFER: TY21C]

DTC	AWD warning (on information display)	Error area and root cause	Contents of protection function
—	Refer to DLN-16, "INFORMATION DISPLAY (COMBINATION METER) : AWD Warning" .	Rear final drive assembly in protection mode. It is not malfunction. (Internal temperature rise of electronic controlled coupling)	Shuts down AWD system temporarily (Front wheel drive)
—		Malfunction in each tire or different tire diameter	

NOTE:

- If the AWD warning displays during driving but remains not displayed after the engine is restarted, the system is normal. If it again displays after driving for some time, vehicle must be inspected.
- When there is a difference of revolution speed between the front and rear wheel the shift occasionally changes to direct 4-wheel driving conditions automatically. This is not a malfunction.

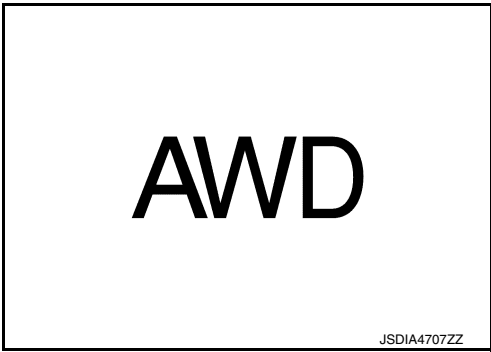
INFORMATION DISPLAY (COMBINATION METER)

INFORMATION DISPLAY (COMBINATION METER) : AWD Warning

INFOID:000000009992081

DESIGN/PURPOSE

AWD warning is displayed when the AWD system has a malfunction. AWD warning indicates that the vehicle is in fail-safe mode or protection function mode.

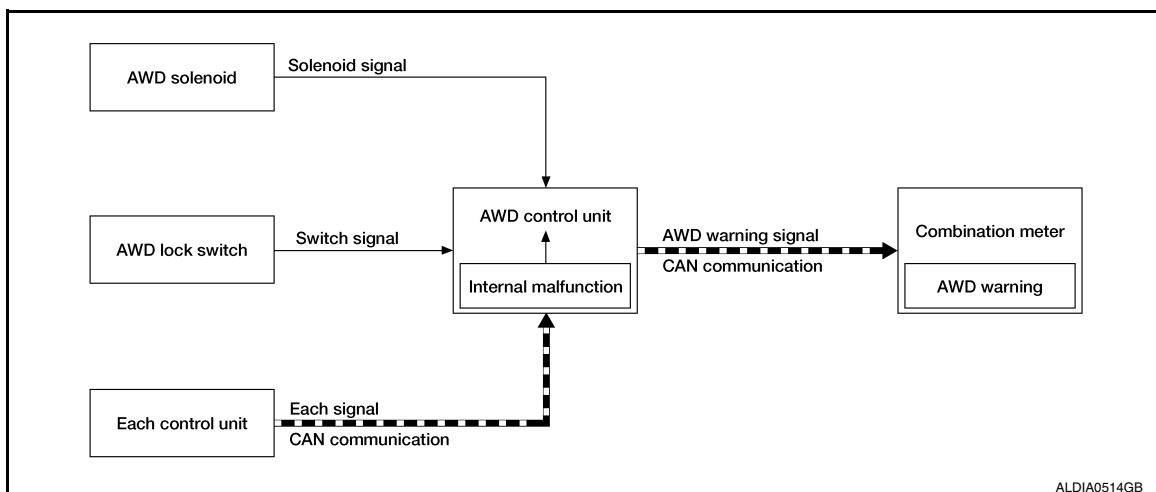
Symbol	Message	Condition
	AWD Error See Owner's Manual	AWD system malfunction.
	AWD High Temp. Stop vehicle	Protection function is activated due to heavy load to electric controlled coupling. (AWD system is not malfunctioning and AWD system changes to rear wheel drive.)
	Tire Size Incorrect See Owner's Manual	Large difference in diameter of front/rear tires.

SYNCHRONIZATION WITH MASTER WARNING LAMP

Applicable

For master warning lamp, refer to [DLN-17, "WARNING/INDICATOR/CHIME LIST : Warning/Indicator \(On Information Display\)"](#).

SYSTEM DIAGRAM



SIGNAL PATH

- The AWD control unit judges and decides a mode from among normal mode, fail-safe mode, and protection function mode, according to signals received from each switch, sensor, and control unit.

SYSTEM

< SYSTEM DESCRIPTION >

[TRANSFER: TY21C]

- The AWD control unit transmits AWD warning signal to the combination meter via CAN communication when judging fail-safe mode or protection function mode.
- The combination meter displays AWD warning on the information display when receiving AWD warning signal transmitted from the AWD control unit.

WARNING CONDITION

AWD warning is displayed when the AWD system goes into fail-safe mode or protection function mode.

WARNING CANCEL CONDITION

When any of the conditions listed below is satisfied:

- Ignition switch is in a position other than ON.
- AWD warning becomes invisible when the AWD system returns to normal.

WARNING/INDICATOR/CHIME LIST

WARNING/INDICATOR/CHIME LIST : Warning/Indicator (On Information Display)

INFOID:000000009992082

Name	Function
AWD warning	Refer to DLN-16, "INFORMATION DISPLAY (COMBINATION METER) : AWD Warning" .

DIAGNOSIS SYSTEM (AWD CONTROL UNIT)

< SYSTEM DESCRIPTION >

[TRANSFER: TY21C]

DIAGNOSIS SYSTEM (AWD CONTROL UNIT)

CONSULT Function

INFOID:000000009991734

APPLICATION ITEMS

CONSULT can display each diagnostic item using the diagnostic test modes as follows.

Diagnostic test mode	Function
ECU Identification	AWD control unit part number can be read.
Self Diagnostic Result	Self-diagnostic results and freeze frame data can be read and erased quickly.*
Data Monitor	Input/Output data in the AWD control unit can be read.
Active Test	Diagnostic Test Mode in which CONSULT drives some actuators apart from the AWD control unit and also shifts some parameters in a specified range.
Work support	This mode enable a technician to adjust some devices faster and more accurately by following the indication on the CONSULT.

*: The following diagnosis information is erased by erasing.

- DTC
- Freeze frame data (FFD)

ECU IDENTIFICATION

AWD control unit part number can be read.

SELF DIAGNOSTIC RESULT

Refer to [DLN-23. "DTC Index"](#).

When "PRSNT" is displayed on self-diagnosis result.

- The system is presently malfunctioning.

When "PAST" is displayed on self-diagnosis result.

- System malfunction in the past is detected, but the system is presently normal.

FREEZE FRAME DATA (FFD)

The following vehicle status is recorded when DTC is detected and is displayed.

Monitor item (Unit)	Remarks
ODO/TRIP METER [km/h] or [mph]	Odometer value via CAN communication line is displayed.
ABS OPERATION SIG [On/Off]	ABS operation status via CAN communication line is displayed.
VDC OPERATION SIG [On/Off]	VDC operation status via CAN communication line is displayed.
TCS OPERATION SIG [On/Off]	TCS operation status via CAN communication line is displayed.
HI COEF FRIC FLG 1 [LOW/HIGH]	Measured friction of load is displayed when vehicle starts.
HI COEF FRIC FLG 2 [LOW/HIGH]	Measured friction of load is displayed when vehicle during deceleration.
IGN VOLT [V]	Ignition voltage supplied to AWD control unit is displayed.
TARGET SOL CRNT [A]	AWD solenoid target current is displayed.
SOLENOID CRNT [A]	AWD solenoid control current is displayed.
QUASI VEHICLE SPEED [km/h] or [mph]	Vehicle speed calculated by AWD control unit is displayed.
FRONT WHEEL SPEED [km/h] or [mph]	Front wheel speed average calculated by AWD control unit is displayed.
REAR WHEEL SPEED [km/h] or [mph]	Rear wheel speed average calculated by AWD control unit is displayed.
SLCT LVR POSI	Current transmission gear via CAN communication line is displayed.
OPERATION MODE	Control status of AWD mode is displayed.
FRONT RH WHEEL SPEED [km/h] or [mph]	Wheel speed calculated by front RH wheel sensor signal is displayed.
FRONT LH WHEEL SPEED [km/h] or [mph]	Wheel speed calculated by front LH wheel sensor signal is displayed.
REAR RH WHEEL SPEED [km/h] or [mph]	Wheel speed calculated by rear RH wheel sensor signal is displayed.
REAR LH WHEEL SPEED [km/h] or [mph]	Wheel speed calculated by rear LH wheel sensor signal is displayed.

DIAGNOSIS SYSTEM (AWD CONTROL UNIT)

< SYSTEM DESCRIPTION >

[TRANSFER: TY21C]

DATA MONITOR

NOTE:

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

Monitor item (Unit)	Remarks
STOP LAMP SW [On/Off]	Stop lamp switch signal status via CAN communication line is displayed.
ENG SPEED SIG [Run/Stop]	Engine status is displayed.
ETS ACTUATOR [On/Off]	Operating condition of AWD actuator relay (integrated in AWD control unit) is displayed.
4WD WARN LAMP [On/Off]	Control status of AWD warning (on information display) is displayed.
4WD MODE SW [AUTO/LOCK]	AWD lock switch status is displayed.
4WD MODE MON [AUTO/LOCK]	Control status of AWD is displayed.
DIS-TIRE MONI [mm]	Improper size tire installed condition is displayed.
PARKING BRAKE SW SIG [On/Off]	Parking switch signal status via CAN communication line is displayed.
4WD MODE SW (2WD) [On/Off]	This item is not equipped, but displayed.
4WD MODE SW (AUTO) [On/Off]	This item is not equipped, but displayed.
4WD MODE SW (LOCK) [On/Off]	AWD lock switch signal is displayed.
READY [Off/Running]	This item is not equipped, but displayed.
BATTERY VOLT [V]	Power supply voltage value of AWD control unit is displayed.
THRTL POS SEN [%]	Throttle opening status is displayed.
ETS SOLENOID [A]	Monitored value of current at AWD solenoid is displayed.
FR RH SENSOR [km/h] or [mph]	Wheel speed calculated by front RH wheel sensor signal is displayed.
FR LH SENSOR [km/h] or [mph]	Wheel speed calculated by front LH wheel sensor signal is displayed.
RR RH SENSOR [km/h] or [mph]	Wheel speed calculated by rear RH wheel sensor signal is displayed.
RR LH SENSOR [km/h] or [mph]	Wheel speed calculated by rear LH wheel sensor signal is displayed.

ACTIVE TEST

Use this mode to determine and identify the details of a malfunction based on self-diagnostic results or data monitor. AWD control unit gives drive signal to actuator with receiving command from CONSULT to check operation of actuator.

Test item	Condition	Description
SOLENOID (Detects AWD solenoid)	- Vehicle stopped - Engine running - No DTC detected	Change command current value to AWD solenoid, and then change driving mode. (Monitor value is normal if it is within approx. $\pm 10\%$ of command value.) - Qu: Increase current value in increments of 0.2 A - Qd: Decrease current value in increments of 0.2 A - UP: Increase current value in increments of 0.02 A - DOWN: Decrease current value in increments of 0.02 A

CAUTION:

Never energize continuously for a long time.

WORK SUPPORT

Item	Usage
UNIT CHARACTERISTICS DATA	Display the unit characteristics of electric controlled coupling written to AWD control unit.
UNIT CHARACTERISTICS WRITE	Writes the unit characteristics of electric controlled coupling to AWD control unit.

ECU DIAGNOSIS INFORMATION

AWD CONTROL UNIT

Reference Value

INFOID:000000009991735

VALUES ON THE DIAGNOSIS TOOL

NOTE:

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

Monitor item	Condition		Value/Status
STOP LAMP SW	Brake pedal: Depressed		On
	Brake pedal: Released		Off
ENG SPEED SIG	Engine stopped (Engine speed: Less than 400 rpm)		Stop
	Engine running (Engine speed: 400 rpm or more)		Run
ETS ACTUATOR	Engine stopped (Ignition switch: ON)		Off
	Engine running		On
4WD WARN LAMP	AWD warning (on information display): Displayed		On
	AWD warning (on information display): Not displayed		Off
4WD MODE SW	Releasing AWD lock switch		AUTO
	AWD lock switch is hold pressed		LOCK
4WD MODE MON	AWD LOCK indicator lamp: OFF		AUTO
	AWD LOCK indicator lamp: ON	Vehicle speed below 10 km/h (6 mph)	LOCK
		Vehicle speed above 10 km/h (6 mph)	AUTO
DIS-TIRE MONI	Vehicle running with normal size tire installed		0 – 4 mm
	Vehicle running with improper size tire installed (Front/rear tire size difference, wear condition)		4 – 8 mm, 8 – mm
PARKING BRAKE SW SIG	Parking brake operated		On
	Parking brake not operated		Off
4WD MODE SW (2WD)	Always		Off
4WD MODE SW (AUTO)	Always		Off
4WD MODE SW (LOCK)	Releasing AWD lock switch		Off
	AWD lock switch is hold pressed		On
READY	Always		Off
BATTERY VOLT	Always		Battery voltage
THRTL POS SEN	When depressing accelerator pedal (Value rises gradually in response to throttle position.)		0 – 100%
ETS SOLENOID	Engine running • At idle speed	AUTO mode	Approx. 0.000 A
		LOCK mode	Approx. 0.000 A
	Engine running • 3,000 rpm or more constant	AUTO mode	Approx. 0.000 – 2.000 A*
		LOCK mode	Approx. 2.000 A
FR RH SENSOR	Vehicle stopped		0.00 km/h (0.00 mph)
	Vehicle running CAUTION: Check air pressure of tire under standard condition.		Nearly matches the speed meter display (±10% or less)

AWD CONTROL UNIT

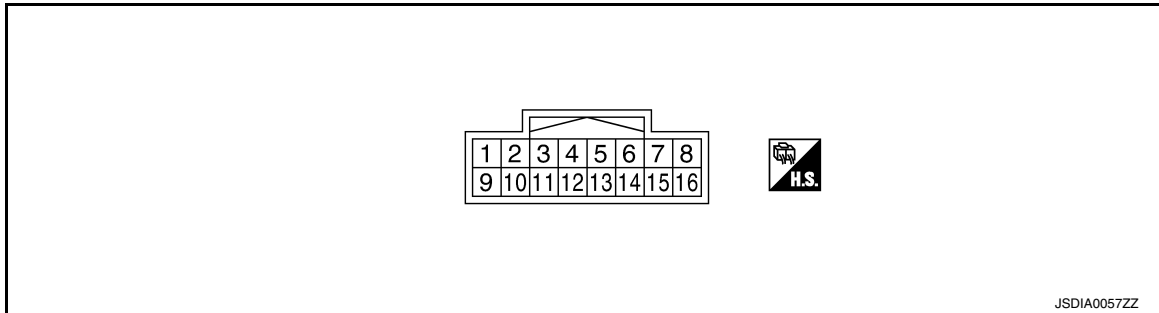
< ECU DIAGNOSIS INFORMATION >

[TRANSFER: TY21C]

Monitor item	Condition	Value/Status
FR LH SENSOR	Vehicle stopped	0.00 km/h (0.00 mph)
	Vehicle running CAUTION: Check air pressure of tire under standard condition.	Nearly matches the speed meter display ($\pm 10\%$ or less)
RR RH SENSOR	Vehicle stopped	0.00 km/h (0.00 mph)
	Vehicle running CAUTION: Check air pressure of tire under standard condition.	Nearly matches the speed meter display ($\pm 10\%$ or less)
RR LH SENSOR	Vehicle stopped	0.00 km/h (0.00 mph)
	Vehicle running CAUTION: Check air pressure of tire under standard condition.	Nearly matches the speed meter display ($\pm 10\%$)

*: The values are changed by throttle opening and engine speed.

TERMINAL LAYOUT



PHYSICAL VALUES

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	-	Signal name	Input/ Output			
1 (SB)	Ground	AWD solenoid power supply	Output	Engine speed: At idle		0 V
				Engine speed: 3,000 rpm or more constant	AUTO mode	2.5 V*
					LOCK mode	8 V
2 (Y)	Ground	AWD solenoid ground	Input	Engine speed: At idle		0 V
				Engine speed: 3,000 rpm or more constant		0 V
7 (LA/R)	Ground	Ignition switch	Input	Ignition switch: ON		Battery voltage
				Ignition switch: OFF		0 V
8 (L)	—	CAN-H	Input/ Output	—		—
9 (LA/G)	Ground	Power supply (AWD solenoid)	Input	Always		Battery voltage
10 (B)	Ground	Ground	—	Always		0 V
11 (B)	Ground	Ground	—	Always		0 V
14 (Y)	Ground	AWD lock switch	Input	Ignition switch: ON	Releasing AWD lock switch	Battery voltage
					AWD lock switch is hold pressed	0 V

AWD CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[TRANSFER: TY21C]

Terminal No. (Wire color)		Description		Condition	Value (Approx.)
+	-	Signal name	Input/ Output		
15 (LA/L)	Ground	Power supply (AWD control unit)	Input	Always	Battery voltage
16 (P)	—	CAN-L	Input/ Output	—	—

*: The values are changed by depressed accelerator pedal opening and engine speed.

CAUTION:

When using circuit tester to measure voltage for inspection, be sure not to extend forcibly any connector terminals.

Fail-Safe

INFOID:0000000010336553

If any malfunction occurs in AWD electrical system, and control unit detects the malfunction, AWD warning on information display (combination meter) is displayed to indicate system malfunction. And then AWD control unit controls becomes the fail-safe mode depending on DTC.

DTC	Vehicle condition
•C1201 •C1204 •C1209 •P1804 •P1809 •P1811 •P181F	AWD control changes to front-wheel drive immediately, then AWD control stops, and the vehicle becomes front-wheel drive.
•C1203 •C1210 •P1808 •P181D •U1000 •U1010	AWD control changes to front-wheel drive gradually (rear-wheels still have some driving torque), then AWD control stops, and the vehicle becomes front-wheel drive.
•P181B	No impact to vehicle behavior.

Protection Function

INFOID:0000000010336554

AWD system activates its protection function (shuts down AWD system temporarily) if AWD system detects high load continuously or the front wheel tire size differs from the rear tire size. (AWD system is automatically restored if AWD system no longer detects any overload or the tire size difference is eliminated.)

DTC	AWD warning (on information display)	Error area and root cause	Contents of protection function
—	Refer to DLN-16, "INFORMATION DISPLAY (COMBINATION METER) : AWD Warning" .	Rear final drive assembly in protection mode. It is not malfunction. (Internal temperature rise of electronic controlled coupling)	Shuts down AWD system temporarily (Front wheel drive)
—		Malfunction in each tire or different tire diameter	

NOTE:

- If the AWD warning displays during driving but remains not displayed after the engine is restarted, the system is normal. If it again displays after driving for some time, vehicle must be inspected.
- When there is a difference of revolution speed between the front and rear wheel the shift occasionally changes to direct 4-wheel driving conditions automatically. This is not a malfunction.

DTC Inspection Priority Chart

INFOID:0000000009991738

If some DTCs are displayed at the same time, perform inspections one by one based on the following priority chart.

AWD CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

[TRANSFER: TY21C]

Priority	Detected items (DTC)
1	- U1000 CAN COMM CIRCUIT - U1010 CONTROL UNIT (CAN)
2	P1809 CONTROL UNIT
3	- C1201 CONTROLLER FAILURE - P1804 CONTROL UNIT
4	C1204 4WD SOLENOID
5	P1811 BATTERY VOLTAGE
6	- C1203 ABS SYSTEM - P1808 VHCL SPEED SEN-ABS
7	- C1210 ENGINE SIGNAL 1 - P181D ENGINE SYSTEM
8	C1209 MODE SW
9	P181F INCOMP CALIBRATION
10	P181B INCOMP SELF SHUT

DTC Index

INFOID:000000009991739

DTC	Display Item	Reference
C1201	CONTROLLER FAILURE	DLN-36, "DTC Description"
C1203	ABS SYSTEM	DLN-37, "DTC Description"
C1204	4WD SOLENOID	DLN-38, "DTC Description"
C1209	MODE SW	DLN-41, "DTC Description"
C1210	ENGINE SIGNAL 1	DLN-43, "DTC Description"
P1804	CONTROL UNIT	DLN-44, "DTC Description"
P1808	VHCL SPEED SEN-ABS	DLN-45, "DTC Description"
P1809	CONTROL UNIT	DLN-46, "DTC Description"
P1811	BATTERY VOLTAGE	DLN-47, "DTC Description"
P181B	INCOMP SELF SHUT	DLN-50, "DTC Description"
P181D	ENGINE SYSTEM	DLN-53, "DTC Description"
P181F	INCOMP CALIBRATION	DLN-54, "DTC Description"
U1000	CAN COMM CIRCUIT	DLN-55, "DTC Description"
U1010	CONTROL UNIT (CAN)	DLN-56, "DTC Description"

NOTE:

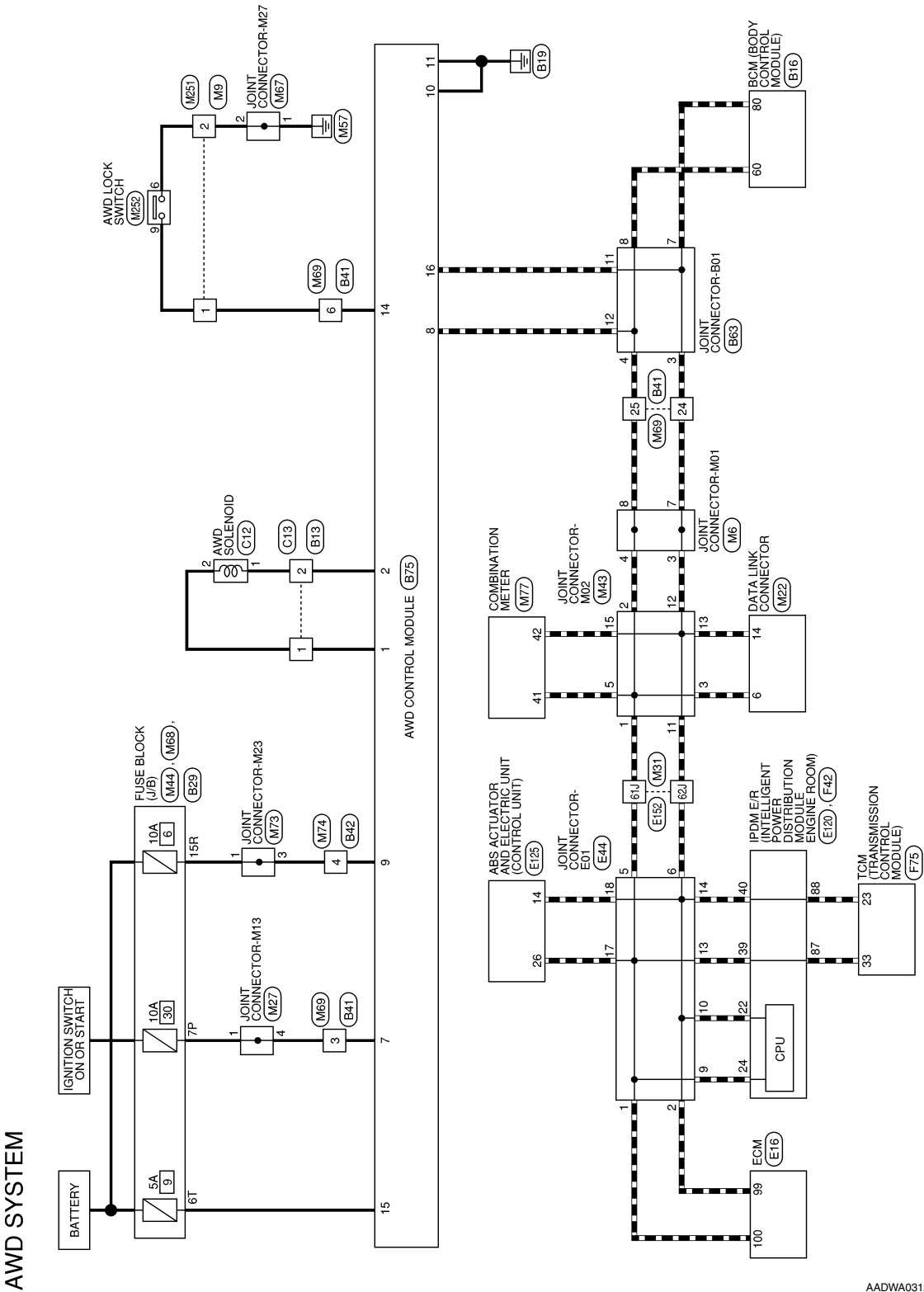
If some DTCs are displayed at the same time, refer to [DLN-22, "DTC Inspection Priority Chart"](#).

WIRING DIAGRAM

AWD SYSTEM

Wiring Diagram

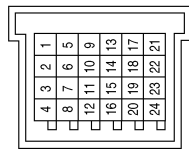
INFOID:000000009991740



AADWA0312GB

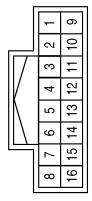
AWD SYSTEM CONNECTORS

Connector No.	M6
Connector Name	JOINT CONNECTOR-M01
Connector Color	GRAY



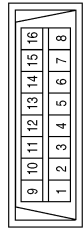
Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

Connector No.	M9
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	Y	-
2	B	-

Connector No.	M22
Connector Name	DATA LINK CONNECTOR
Connector Color	WHITE

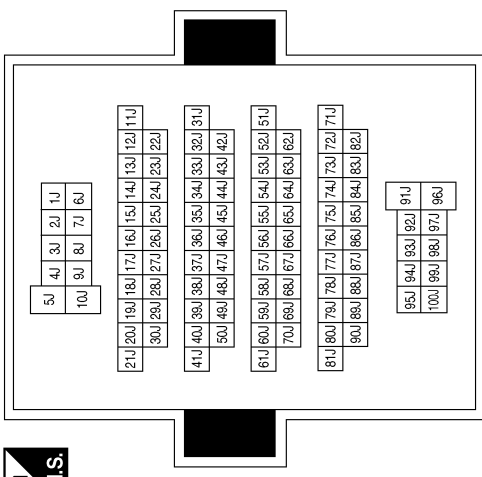


Terminal No.	Color of Wire	Signal Name
6	L	-
14	P	-

Connector No.	M27
Connector Name	JOINT CONNECTOR-M13
Connector Color	WHITE



Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
61J	L	-
62J	P	-

AADIA0642GB

A
B
C
DLN
E
F
G
H
I
J
K
L
M
N
O
P

Connector No.	M67
Connector Name	JOINT CONNECTOR-M27
Connector Color	WHITE

8	7	6	5	4	3	2	1
---	---	---	---	---	---	---	---



Terminal No.	Color of Wire	Signal Name
1	B	—
2	B	—

Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE

7P	6P	5P	4P	3P	2P	1P
16P	15P	14P	13P	12P	11P	10P
9P	8P	7P	6P	5P	4P	3P



Terminal No.	Color of Wire	Signal Name
7P	Y	—

Connector No.	M43
Connector Name	JOINT CONNECTOR-M02
Connector Color	BLUE

9	8	7	6	5	4	3	2	1
20	19	18	17	16	15	14	13	12
11	10	9	8	7	6	5	4	3



Terminal No.	Color of Wire	Signal Name
1	L	—
2	L	—
3	L	—
5	L	—
11	P	—
12	P	—
13	P	—
15	P	—

Connector No.	M73
Connector Name	JOINT CONNECTOR-M23
Connector Color	WHITE

8	7	6	5	4	3	2	1
---	---	---	---	---	---	---	---



Terminal No.	Color of Wire	Signal Name
1	W	—
3	Y	—

Connector No.	M69
Connector Name	WIRE TO WIRE
Connector Color	WHITE

16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17



Terminal No.	Color of Wire	Signal Name
3	SB	—
6	Y	—
24	P	—
25	L	—

Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN

7B	6B	5B	4B	3B	2B	1B
16B	15B	14B	13B	12B	11B	10B
9B	8B	7B	6B	5B	4B	3B



Terminal No.	Color of Wire	Signal Name
15R	W	—

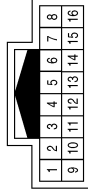
AADIA0643GB

AWD SYSTEM

< WIRING DIAGRAM >

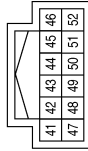
[TRANSFER: TY21C]

Connector No.	M251
Connector Name	WIRE TO WIRE
Connector Color	WHITE



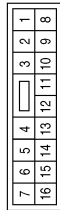
Terminal No.	Color of Wire	Signal Name
1	Y	-
2	B	-

Connector No.	M77
Connector Name	COMBINATION METER
Connector Color	WHITE



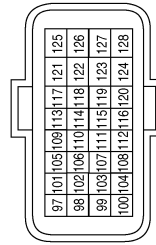
Terminal No.	Color of Wire	Signal Name
41	SB	CAN-H
42	LG	CAN-L

Connector No.	M74
Connector Name	WIRE TO WIRE
Connector Color	WHITE



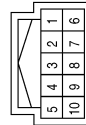
Terminal No.	Color of Wire	Signal Name
4	Y	-

Connector No.	E16
Connector Name	ECM
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
99	P	CAN-L
100	L	CAN-H

Connector No.	M252
Connector Name	AWD LOCK SWITCH
Connector Color	WHITE

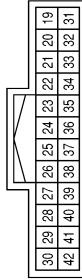


Terminal No.	Color of Wire	Signal Name
6	B	-
9	Y	-

AADIA0644GB

A
B
C
DLN
E
F
G
H
I
J
K
L
M
N
O
P

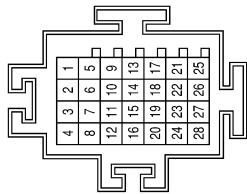
Connector No.	E120
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
22	P	CAN-L
24	L	CAN-H
39	L	CAN-H
40	P	CAN-L

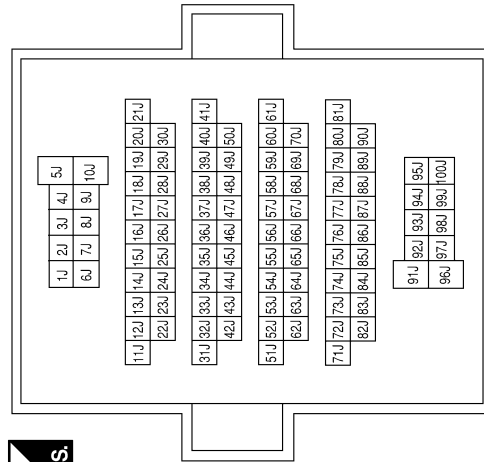
Terminal No.	Color of Wire	Signal Name
1	L	-
2	P	-
5	L	-
6	P	-
9	L	-
10	P	-
13	L	-
14	P	-
17	L	-
18	P	-

Connector No.	E44
Connector Name	JOINT CONNECTOR-E01
Connector Color	WHITE

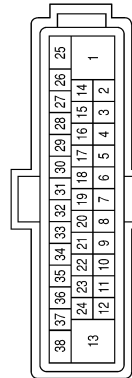


Terminal No.	Color of Wire	Signal Name
61J	L	-
62J	L	-

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	E125
Connector Name	ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
14	P	CAN-L
26	L	CAN-H

AADIA0645GB

Connector No.	C12
Connector Name	AWD SOLENOID
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	Y	–
2	SB	–

Connector No.	F75
Connector Name	TCM (TRANSMISSION CONTROL MODULE)
Connector Color	BLACK



31	32	33	34	35	36	37	38	39	40	47	48
21	22	23	24	25	26	27	28	29	30	45	46
11	12	13	14	15	16	17	18	19	20	43	44
1	2	3	4	5	6	7	8	9	10	41	42

Terminal No.	Color of Wire	Signal Name
23	P	CAN-L
33	L	CAN-H

Connector No.	F42
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK



98	97	96	95	94	93	92	91	90	89	88	87
110	109	108	107	106	105	104	103	102	101	100	99

Terminal No.	Color of Wire	Signal Name
87	L	CAN-H
88	P	CAN-L

Connector No.	B16
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GREEN



60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41
80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61

Terminal No.	Color of Wire	Signal Name
60	L	CAN-H
80	P	CAN-L

Connector No.	B13
Connector Name	WIRE TO WIRE
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	SB	–
2	Y	–

Connector No.	C13
Connector Name	WIRE TO WIRE
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	SB	–
2	Y	–

AADIA0646GB

Connector No.	B29
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE

2T	1T
6T	5T
4T	3T



Terminal No.	Color of Wire	Signal Name
6T	LA/L	—

Connector No.	B41
Connector Name	WIRE TO WIRE
Connector Color	WHITE

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32



Terminal No.	Color of Wire	Signal Name
3	LA/R	—
6	Y	—
24	P	—
25	L	—

Connector No.	B42
Connector Name	WIRE TO WIRE
Connector Color	WHITE

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16					



Terminal No.	Color of Wire	Signal Name
4	LA/G	—

Connector No.	B63
Connector Name	JOINT CONNECTOR-B01
Connector Color	GRAY

4	3	2	1
8	7	6	5
12	11	10	9
16	15	14	13
20	19	18	17
24	23	22	21



Terminal No.	Color of Wire	Signal Name
3	P	—
4	L	—
7	P	—
8	L	—
11	P	—
12	L	—

Connector No.	B75
Connector Name	AWD CONTROL MODULE
Connector Color	WHITE

1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16



Terminal No.	Color of Wire	Signal Name
1	SB	AWD SOL (+)
2	Y	AWD SOL (-)
3	—	—
4	—	—
5	V	AUTO

Terminal No.	Color of Wire	Signal Name
6	—	—
7	LA/R	IGN
8	L	CAN-H
9	LA/G	SOL BATT
10	B	GND
11	B	GND
12	GR	2WD
13	—	—
14	Y	LOCK SWITCH
15	LA/L	VB
16	P	CAN-L

BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

INFOID:000000009991741

DETAILED FLOW

1. INTERVIEW FROM THE CUSTOMER

Clarify customer complaints before inspection. First of all, perform an interview utilizing [DLN-32, "Diagnostic Work Sheet"](#) and reproduce symptoms as well as fully understand it. Ask customer about his/her complaints carefully. Check symptoms by driving vehicle with customer, if necessary.

CAUTION:

Customers are not professional. Never guess easily like "maybe the customer means that..." or "maybe the customer mentions this symptom".

>> GO TO 2.

2. CHECK SYMPTOM

Reproduce the symptom that is indicated by the customer, based on the information from the customer obtained by interview. Also check that the symptom is not caused by protection function. Refer to [DLN-22, "Protection Function"](#).

CAUTION:

When the symptom is caused by normal operation, fully inspect each portion and obtain the understanding of customer that the symptom is not caused by a malfunction.

>> GO TO 3.

3. PERFORM SELF-DIAGNOSIS

 With CONSULT

Perform self-diagnosis for "ALL MODE AWD/4WD".

Is any DTC detected?

YES >> Record or print self-diagnosis results. GO TO 4.

NO >> GO TO 6.

4. RECHECK SYMPTOM

 With CONSULT

1. Erase self-diagnostic results for "ALL MODE AWD/4WD".

2. Perform DTC confirmation procedures for the error detected system.

NOTE:

If some DTCs are detected at the same time, determine the order for performing the diagnosis based on [DLN-22, "DTC Inspection Priority Chart"](#).

Is any DTC detected?

YES >> GO TO 5.

NO >> Check harness and connectors based on the information obtained by interview. Refer to [GI-41, "Intermittent Incident"](#).

5. REPAIR OR REPLACE ERROR-DETECTED PARTS

- Repair or replace error-detected parts.
- Reconnect part or connector after repairing or replacing.
- When DTC is detected, erase self-diagnostic results for "ALL MODE AWD/4WD".

>> GO TO 7.

6. IDENTIFY ERROR-DETECTED SYSTEM BY SYMPTOM DIAGNOSIS

Estimate error-detected system based on symptom diagnosis and perform inspection.

Can the error-detected system be identified?

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[TRANSFER: TY21C]

YES >> GO TO 7.

NO >> Check harness and connectors based on the information obtained by interview. Refer to [GI-41](#),
"Intermittent Incident".

7.FINAL CHECK

With CONSULT

1. Check the reference value for AWD control module.

2. Recheck the symptom and check that symptom is not reproduced on the same conditions.

Is the symptom reproduced?

YES >> GO TO 3.

NO >> INSPECTION END

Diagnostic Work Sheet

INFOID:0000000009991742

Description

- In general, customers have their own criteria for a problem. Therefore, it is important to understand the symptom and status well enough by asking the customer about his/her concerns carefully. To systemize all the information for the diagnosis, prepare the interview sheet referring to the interview points.
- In some cases, multiple conditions that appear simultaneously may cause a DTC to be detected.

Interview sheet sample

Interview sheet					
Customer name	MR/MS	Registration number		Initial year registration	
		Vehicle type		VIN	
Storage date		Engine		Mileage	km (Mile)
Symptom		☐ Vehicle does not enter AWD mode.			
		☐ AWD warning (AWD Error) is displayed.			
		☐ Heavy tight-corner braking symptom occurs			
		☐ Noise ☐ Vibration			
		☐ Others ()			
First occurrence		☐ Recently ☐ Others ()			
Frequency of occurrence		☐ Always ☐ Under a certain conditions of ☐ Sometimes (time(s)/day)			
Climate conditions		☐ Irrelevant			
	Weather	☐ Fine ☐ Cloud ☐ Rain ☐ Snow ☐ Others ()			
	Temperature	☐ Hot ☐ Warm ☐ Cool ☐ Cold ☐ Temperature (Approx. °C)			
	Relative humidity	☐ High ☐ Moderate ☐ Low			
Road conditions		☐ Urban area ☐ Suburb area ☐ High way ☐ Mounting road (uphill or down hill) ☐ Rough road			
Operation conditions, etc.		☐ Irrelevant ☐ When engine starts ☐ During idling ☐ During driving ☐ During acceleration ☐ At constant speed driving ☐ During deceleration ☐ During cornering (right curve or left curve)			

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[TRANSFER: TY21C]

Interview sheet					
Customer name	MR/MS	Registration number		Initial year registration	
		Vehicle type		VIN	
Storage date		Engine		Mileage	km (Mile)
Other conditions					

Memo

A
B
C
DLN
E
F
G
H
I
J
K
L
M
N
O
P

ADDITIONAL SERVICE WHEN REPLACING AWD CONTROL UNIT

< BASIC INSPECTION >

[TRANSFER: TY21C]

ADDITIONAL SERVICE WHEN REPLACING AWD CONTROL UNIT

Description

INFOID:0000000009991743

When replacing AWD control unit, unit characteristics writing is required.

Work Procedure

INFOID:0000000009991744

1.PERFORM WRITING UNIT CHARACTERISTICS

Perform writing unit characteristics of electric controlled coupling.

>> Refer to [DLN-35, "Work Procedure"](#).

UNIT CHARACTERISTICS WRITING

Description

INFOID:000000009991745

When replacing AWD control unit, rear final drive assembly and/or electric controlled coupling, unit characteristics of electric controlled coupling writing is required.

Work Procedure

INFOID:000000009991746

1. UNIT CHARACTERISTICS WRITING

④ With CONSULT

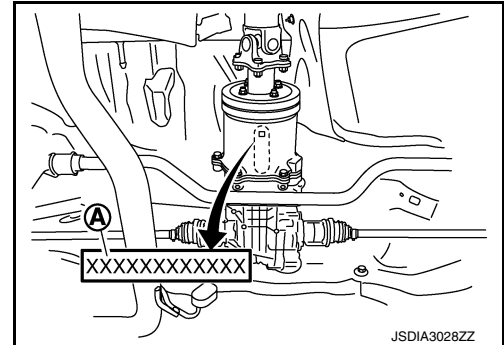
1. Confirm the unit characteristics ④ of electric controlled coupling.

NOTE:

Unit characteristics is 12-digit alphanumeric.

2. Turn the ignition switch OFF to ON.
3. Select "UNIT CHARACTERISTICS WRITE" in "WORK SUPPORT" for "ALL MODE AWD/4WD".
4. Input unit characteristics.
5. Select "Start".
6. Check that "UNIT CHARACTERISTICS WRITE COMPLETED" is displayed.

>> WORK END



DTC/CIRCUIT DIAGNOSIS**C1201 AWD CONTROL UNIT****DTC Description**

INFOID:000000009991747

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
C1201	CONTROLLER FAILURE (Control unit failure)	Malfunction has occurred inside AWD control unit.

POSSIBLE CAUSE

Internal malfunction of AWD control unit

FAIL-SAFE

AWD control changes to front-wheel drive immediately, then AWD control stops, and the vehicle becomes front-wheel drive.

DTC CONFIRMATION PROCEDURE**1. PRECONDITIONING**

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2. DTC REPRODUCTION PROCEDURE**Ⓔ With CONSULT**

1. Turn the ignition switch OFF to ON.
2. Perform self-diagnosis for "ALL MODE AWD/4WD".

Is DTC "C1201" detected?

- YES >> Proceed to diagnosis procedure. Refer to [DLN-36, "Diagnosis Procedure"](#).
 NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).
 NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:000000009991748

1. PERFORM SELF-DIAGNOSIS**Ⓔ With CONSULT**

1. Erase self-diagnostic results for "ALL MODE AWD/4WD".
2. Turn the ignition switch OFF, and then wait 10 seconds or more.
3. Perform self-diagnosis for "ALL MODE AWD/4WD".

Is DTC "C1201" detected?

- YES >> Replace AWD control unit. Refer to [DLN-67, "Removal and Installation"](#).
 NO >> Check AWD control unit pin terminals for damage or loose connection with harness connector. If any items are damaged, repair or replace error-detected parts.

C1203 ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

< DTC/CIRCUIT DIAGNOSIS >

[TRANSFER: TY21C]

C1203 ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

DTC Description

INFOID:000000009991749

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
C1203	ABS SYSTEM (ABS system)	Malfunction related to wheel sensor has been detected by ABS actuator and electric unit (control unit).

POSSIBLE CAUSE

ABS malfunction

- Vehicle speed signal error

FAIL-SAFE

AWD control changes to front-wheel drive gradually (rear-wheels still have some driving torque), then AWD control stops, and the vehicle becomes front-wheel drive.

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2.DTC REPRODUCTION PROCEDURE

With CONSULT

1. Drive at 30 km/h (19 MPH) or more for approximately 1 minute.
2. Perform self-diagnosis for "ALL MODE AWD/4WD".

Is DTC "C1203" detected?

- YES >> Proceed to diagnosis procedure. Refer to [DLN-37, "Diagnosis Procedure"](#).
NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:000000009991750

1.PERFORM ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS

With CONSULT

Perform self-diagnosis for "ABS".

Is any DTC detected?

- YES >> Check the DTC. Refer to [BRC-55, "DTC Index"](#).
NO >> GO TO 2.

2.CHECK TERMINALS AND HARNESS CONNECTORS

Check AWD control unit pin terminals for damage or loose connection with harness connector.

Is inspection result normal?

- YES >> After turning the ignition switch OFF, perform DTC confirmation procedure again. If DTC "C1203" is detected, Replace AWD control unit. Refer to [DLN-67, "Removal and Installation"](#).
NO >> Repair or replace error-detected parts.

C1204 AWD SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[TRANSFER: TY21C]

C1204 AWD SOLENOID

DTC Description

INFOID:000000009991751

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
C1204	4WD SOLENOID (4WD solenoid)	Malfunction related to AWD solenoid has been detected.

POSSIBLE CAUSE

- Internal malfunction of electronic controlled coupling
- Malfunction of AWD solenoid power supply circuit (open or short)
- Malfunction of AWD solenoid command current

FAIL-SAFE

AWD control changes to front-wheel drive immediately, then AWD control stops, and the vehicle becomes front-wheel drive.

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2.DTC REPRODUCTION PROCEDURE

With CONSULT

1. Turn the ignition switch OFF to ON.
2. Perform self-diagnosis for "ALL MODE AWD/4WD".

Is DTC "C1204" detected?

- YES >> Proceed to diagnosis procedure. Refer to [DLN-38, "Diagnosis Procedure"](#).
NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:000000009991752

1.CHECK AWD SOLENOID POWER SUPPLY (1)

1. Turn the ignition switch OFF.
2. Disconnect AWD control unit harness connector.
3. Check the voltage between AWD control unit harness connector and ground.

AWD control unit		—	Voltage
Connector	Terminal		
B75	9	Ground	Battery voltage

4. Turn the ignition switch ON.

CAUTION:

Never start the engine.

5. Check the voltage between AWD control unit harness connector and ground.

AWD control unit		—	Voltage
Connector	Terminal		
B75	9	Ground	Battery voltage

Is the inspection result normal?

C1204 AWD SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[TRANSFER: TY21C]

YES >> GO TO 3.
NO >> GO TO 2.

2.CHECK AWD SOLENOID POWER SUPPLY (2)

1. Turn the ignition switch OFF.
2. Check the 10A fuse (#16).
3. Disconnect fuse block (J/B) harness connector.
4. Check the continuity between AWD control unit harness connector and fuse block (J/B) harness connector.

AWD control unit		Fuse block (J/B)		Continuity
Connector	Terminal	Connector	Terminal	
B75	9	M68	15R	Existed

5. Check the continuity between AWD control unit harness connector and the ground.

AWD control unit		—	Continuity
Connector	Terminal		
B75	9	Ground	Not existed

Is the inspection result normal?

YES >> Perform the trouble diagnosis for power supply circuit. Refer to [PG-4, "Wiring Diagram — Battery Power Supply —"](#).
NO >> Repair or replace error-detected parts.

3.CHECK AWD SOLENOID GROUND

Check the continuity between AWD control unit harness connector and ground.

AWD control unit		—	Continuity
Connector	Terminal		
B75	10	Ground	Existed
	11		

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair or replace error-detected parts.

4.CHECK AWD SOLENOID CIRCUIT (1)

Check the resistance between AWD control unit harness connector.

AWD control unit			Resistance (Approx.)
Connector	Terminal		
B75	1	2	2.45 Ω

Is the inspection result normal?

YES >> GO TO 7.
NO >> GO TO 5.

5.CHECK AWD SOLENOID CIRCUIT (2)

1. Remove AWD solenoid harness connector.
2. Check the continuity between AWD control unit harness connector and AWD solenoid harness connector.

AWD control unit		AWD solenoid		Continuity
Connector	Terminal	Connector	Terminal	
B75	1	C12	2	Existed
	2		1	

C1204 AWD SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[TRANSFER: TY21C]

3. Check the continuity between AWD control unit harness connector and the ground.

AWD control unit		—	Continuity
Connector	Terminal		
B75	1	Ground	Not existed
	2		

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace error-detected parts.

6.CHECK AWD SOLENOID

Check AWD solenoid. Refer to [DLN-40, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 7.

NO >> AWD solenoid is malfunctioning. Replace electric controlled coupling. Refer to [DLN-114, "Removal and Installation"](#).

7.CHECK TERMINALS AND HARNESS CONNECTORS

- Check AWD control unit pin terminals for damage or loose connection with harness connector.
- Check AWD solenoid pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> Replace AWD control unit. Refer to [DLN-67, "Removal and Installation"](#).

NO >> Repair or replace error-detected parts.

Component Inspection

INFOID:0000000009991753

1.CHECK AWD SOLENOID

1. Turn the ignition switch OFF.
2. Disconnect AWD solenoid harness connector.
3. Check the resistance between AWD solenoid harness connector terminals.

AWD solenoid		Resistance (Approx.)
Terminal		
1	2	2.45 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO >> AWD solenoid is malfunctioning. Replace electric controlled coupling. Refer to [DLN-114, "Removal and Installation"](#).

C1209 MODE SW

DTC Description

INFOID:0000000010336730

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
C1209	MODE SW (Mode switch)	More than two switch inputs are simultaneously detected due to short circuit of AWD lock switch.

POSSIBLE CAUSE

Malfunction of AWD lock switch or AWD lock switch circuit.

FAIL-SAFE

AWD control changes to front-wheel drive immediately, then AWD control stops, and the vehicle becomes front-wheel drive.

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2. DTC REPRODUCTION PROCEDURE

 With CONSULT

- Turn the ignition switch OFF to ON.
- Perform self-diagnosis for "ALL MODE AWD/4WD".

Is DTC "C1209" detected?

- YES >> Proceed to diagnosis procedure. Refer to [DLN-41, "Diagnosis Procedure"](#).
 NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).
 NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010336731

1. CHECK AWD LOCK SWITCH

Check AWD lock switch. Refer to [DLN-42, "Component Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 2.
 NO >> Replace AWD lock switch. Refer to [DLN-68, "Removal and Installation"](#).

2. CHECK AWD LOCK SWITCH CIRCUIT (1)

Check the continuity between AWD lock switch harness connector and ground.

AWD lock switch		—	Continuity
Connector	Terminal		
M252	6	Ground	Existed

Is the inspection result normal?

- YES >> GO TO 3.
 NO >> Repair or replace damaged parts.

3. CHECK AWD LOCK SWITCH CIRCUIT (2)

- Disconnect AWD control unit harness connector.
- Check the continuity between AWD control unit harness connector and AWD lock switch harness connector.

AWD control unit		AWD lock switch		Continuity
Connector	Terminal	Connector	Terminal	
B75	14	M252	9	Existed

3. Check the continuity between AWD control unit harness connector and ground.

AWD control unit		—	Continuity
Connector	Terminal		
B75	14	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace damaged parts.

4. CHECK AWD CONTROL UNIT OUTPUT SIGNAL

1. Connect AWD control unit harness connector.

2. Turn the ignition switch ON.

CAUTION:

Never start the engine.

3. Check the voltage between AWD lock switch harness connector and ground.

AWD lock switch		—	Voltage (Approx.)
Connector	Terminal		
M252	9	Ground	Battery voltage

Is the inspection result normal?

YES >> Check each harness connector pin terminal for disconnection.

NO >> Replace AWD control unit. Refer to [DLN-67, "Removal and Installation"](#).

Component Inspection

INFOID:0000000010336732

1. CHECK AWD LOCK SWITCH

1. Turn the ignition switch OFF.

2. Remove AWD lock switch.

3. Check the continuity between AWD lock switch connector terminals.

AWD lock switch		Condition	Continuity
Terminal			
6	9	When releasing AWD lock switch.	Not existed
		When AWD lock switch is hold pressed.	Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace AWD lock switch. Refer to [DLN-68, "Removal and Installation"](#).

C1210 ECM

DTC Description

INFOID:0000000009991756

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
C1210	ENGINE SIGNAL 1 (Engine signal 1)	Malfunction related to engine signal has been detected.

POSSIBLE CAUSE

Malfunction of engine control system

FAIL-SAFE

AWD control changes to front-wheel drive gradually (rear-wheels still have some driving torque), then AWD control stops, and the vehicle becomes front-wheel drive.

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2. DTC REPRODUCTION PROCEDURE

 With CONSULT

1. Drive the vehicle for a while.
2. Perform self-diagnosis for "ALL MODE AWD/4WD".

Is DTC "C1210" detected?

- YES >> Proceed to diagnosis procedure. Refer to [DLN-43, "Diagnosis Procedure"](#).
 NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).
 NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000009991757

1. PERFORM ECM SELF-DIAGNOSIS

 With CONSULT

Perform self-diagnosis for "ENGINE".

Is any DTC detected?

- YES >> Check the DTC. Refer to [EC-93, "DTC Index"](#).
 NO >> GO TO 2.

2. CHECK TERMINALS AND HARNESS CONNECTORS

Check AWD control unit pin terminals for damage or loose connection with harness connector.

Is inspection result normal?

- YES >> After turning the ignition switch OFF, perform DTC confirmation procedure again. If DTC "C1210" is detected, Replace AWD control unit. Refer to [DLN-67, "Removal and Installation"](#).
 NO >> Repair or replace error-detected parts.

P1804 AWD CONTROL UNIT

DTC Description

INFOID:000000009991758

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P1804	CONTROL UNIT (Control unit)	Malfunction is detected in the memory (EEPROM) system of AWD control unit.

POSSIBLE CAUSE

Internal malfunction of AWD control unit.

FAIL-SAFE

AWD control changes to front-wheel drive immediately, then AWD control stops, and the vehicle becomes front-wheel drive.

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2. DTC REPRODUCTION PROCEDURE

With CONSULT

1. Turn the ignition switch ON.
2. Perform self-diagnosis for "ALL MODE AWD/4WD".

Is DTC "P1804" detected?

- YES >> Proceed to diagnosis procedure. Refer to [DLN-44, "Diagnosis Procedure"](#).
 NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).
 NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:000000009991759

1. REPLACE AWD CONTROL UNIT

CAUTION:

Replace AWD control unit when DTC "P1804" is detected simultaneously with other items.

>> Replace AWD control unit. Refer [DLN-67, "Removal and Installation"](#).

P1808 WHEEL SPEED SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[TRANSFER: TY21C]

P1808 WHEEL SPEED SENSOR

DTC Description

INFOID:0000000010336733

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P1808	VHCL SPEED SEN-ABS (Vehicle speed sensor-ABS)	- Malfunction is detected in vehicle speed signal that is output from ABS actuator and electric unit (control unit) through CAN communication. - Improper signal is input while driving.

POSSIBLE CAUSE

- ABS malfunction
- Internal malfunction of AWD control unit

FAIL-SAFE

AWD control changes to front-wheel drive gradually (rear-wheels still have some driving torque), then AWD control stops, and the vehicle becomes front-wheel drive.

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2.DTC REPRODUCTION PROCEDURE

With CONSULT

- Turn the ignition switch ON.
- Perform self-diagnosis for "ALL MODE AWD/4WD".

Is DTC "P1808" detected?

- YES >> Proceed to diagnosis procedure. Refer to [DLN-45. "Diagnosis Procedure"](#).
NO-1 >> To check malfunction symptom before repair: Refer to [GI-41. "Intermittent Incident"](#).
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010336734

1.PERFORM ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS

With CONSULT

Perform self-diagnosis for "ABS".

Is any DTC detected?

- YES >> Check the DTC. Refer to [BRC-55. "DTC Index"](#).
NO >> GO TO 2.

2.CHECK TERMINALS AND HARNESS CONNECTORS

Check AWD control unit pin terminals for damage or loose connection with harness connector.

Is inspection result normal?

- YES >> After turning the ignition switch OFF, perform DTC confirmation procedure again. If DTC "P1808" is detected, Replace AWD control unit. Refer to [DLN-67. "Removal and Installation"](#).
NO >> Repair or replace error-detected parts.

P1809 AWD CONTROL UNIT

DTC Description

INFOID:0000000010337095

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P1809	CONTROL UNIT (Control unit)	AD converter system of AWD control unit is malfunctioning.

POSSIBLE CAUSE

Internal malfunction of AWD control unit

FAIL-SAFE

AWD control changes to front-wheel drive immediately, then AWD control stops, and the vehicle becomes front-wheel drive.

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2. DTC REPRODUCTION PROCEDURE

With CONSULT

1. Turn the ignition switch ON.
2. Perform self-diagnosis for "ALL MODE AWD/4WD".

Is DTC "P1809" detected?

- YES >> Proceed to diagnosis procedure. Refer to [DLN-46, "Diagnosis Procedure"](#).
 NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).
 NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010337096

1. REPLACE AWD CONTROL UNIT

CAUTION:

Replace AWD control unit when DTC "P1809" is detected simultaneously with other items.

>> Replace AWD control unit. Refer [DLN-67, "Removal and Installation"](#).

P1811 BATTERY VOLTAGE

< DTC/CIRCUIT DIAGNOSIS >

[TRANSFER: TY21C]

P1811 BATTERY VOLTAGE

DTC Description

INFOID:0000000010336735

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P1811	BATTERY VOLTAGE (Battery voltage)	When engine is running and AWD control unit power supply is less than 9 V or higher than 16 V.

POSSIBLE CAUSE

- Malfunction of AWD control unit power supply circuit (open or short)
- Battery power supply
- Ignition power supply
- Internal malfunction of AWD control unit

FAIL-SAFE

AWD control changes to front-wheel drive immediately, then AWD control stops, and the vehicle becomes front-wheel drive.

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2.DTC REPRODUCTION PROCEDURE

With CONSULT

1. Turn the ignition switch ON.
2. Perform self-diagnosis for "ALL MODE AWD/4WD".

Is DTC "P1811" detected?

- YES >> Proceed to diagnosis procedure. Refer to [DLN-47, "Diagnosis Procedure"](#).
NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010336736

1.CHECK AWD CONTROL UNIT POWER SUPPLY (1)

1. Turn the ignition switch OFF.
2. Disconnect AWD control unit harness connector.
3. Check the voltage between AWD control unit harness connector and ground.

AWD control unit		—	Voltage (Approx.)
Connector	Terminal		
B75	7	Ground	0 V

4. Turn the ignition switch ON.

CAUTION:

Never start the engine.

5. Check the voltage between AWD control unit harness connector and ground.

AWD control unit		—	Voltage
Connector	Terminal		
B75	7	Ground	Battery voltage

P1811 BATTERY VOLTAGE

[TRANSFER: TY21C]

< DTC/CIRCUIT DIAGNOSIS >

Is the inspection result normal?

- YES >> GO TO 3.
NO >> GO TO 2.

2.CHECK AWD CONTROL UNIT POWER SUPPLY (2)

1. Turn the ignition switch OFF.
2. Check the 10A fuse (#30).
3. Disconnect fuse block (J/B) harness connector.
4. Check the continuity between AWD control unit harness connector and fuse block (J/B) harness connector.

AWD control unit		Fuse block (J/B)		Continuity
Connector	Terminal	Connector	Terminal	
B75	7	M44	7P	Existed

5. Check the continuity between AWD control unit harness connector and the ground.

AWD control unit		—	Continuity
Connector	Terminal		
B75	7	Ground	Not existed

Is the inspection result normal?

- YES >> Perform the trouble diagnosis for ignition power supply circuit. Refer to [PG-15, "Wiring Diagram — Ignition Power Supply —"](#).
NO >> Repair or replace error-detected parts.

3.CHECK AWD CONTROL UNIT POWER SUPPLY (3)

1. Turn the ignition switch OFF.
2. Check the voltage between AWD control unit harness connector and ground.

AWD control unit		—	Voltage (Approx.)
Connector	Terminal		
B75	15	Ground	Battery voltage

3. Turn the ignition switch ON.

CAUTION:

Never start the engine.

4. Check the voltage between AWD control unit harness connector and ground.

AWD control unit		—	Voltage
Connector	Terminal		
B75	15	Ground	Battery voltage

Is the inspection result normal?

- YES >> GO TO 5.
NO >> GO TO 4.

4.CHECK AWD CONTROL UNIT POWER SUPPLY (4)

1. Turn the ignition switch OFF.
2. Check the 5A fuse (#9).
3. Disconnect fuse block (J/B) harness connector.
4. Check the continuity between AWD control unit harness connector and fuse block (J/B) harness connector.

AWD control unit		Fuse block (J/B)		Continuity
Connector	Terminal	Connector	Terminal	
B75	15	B29	6T	Existed

P1811 BATTERY VOLTAGE

< DTC/CIRCUIT DIAGNOSIS >

[TRANSFER: TY21C]

5. Check the continuity between AWD control unit harness connector and the ground.

AWD control unit		—	Continuity
Connector	Terminal		
B75	15	Ground	Not existed

Is the inspection result normal?

YES >> Perform the trouble diagnosis for power supply circuit. Refer to [PG-4, "Wiring Diagram — Battery Power Supply —"](#).

NO >> Repair or replace error-detected parts.

5.CHECK AWD CONTROL UNIT GROUND

1. Turn the ignition switch OFF.
2. Check the continuity between AWD control unit harness connector and ground.

AWD control unit		—	Continuity
Connector	Terminal		
B75	10	Ground	Existed
	11		

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace error-detected parts.

6.CHECK TERMINALS AND HARNESS CONNECTORS

Check AWD control unit pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> After turning the ignition switch OFF, perform DTC confirmation procedure again. When DTC "P1811" is detected, Replace AWD control unit. Refer to [DLN-67, "Removal and Installation"](#).

NO >> Repair or replace error-detected parts.

P181B INCOMPLETE SELF SHUT

< DTC/CIRCUIT DIAGNOSIS >

[TRANSFER: TY21C]

P181B INCOMPLETE SELF SHUT

DTC Description

INFOID:0000000010336737

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P181B	INCOMP SELF SHUT (Incomplete self shut)	When ignition switch is ON, self-shut of AWD control unit was incomplete.

POSSIBLE CAUSE

- Malfunction of AWD control unit power supply circuit (open or short)
- Battery power supply
- Ignition power supply
- Internal malfunction of AWD control unit

FAIL-SAFE

No impact to vehicle behavior.

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2.DTC REPRODUCTION PROCEDURE

With CONSULT

1. Turn the ignition switch ON.
2. Perform self-diagnosis for "ALL MODE AWD/4WD".

Is DTC "P181B" detected?

- YES >> Proceed to diagnosis procedure. Refer to [DLN-50, "Diagnosis Procedure"](#).
NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010336738

1.CHECK AWD CONTROL UNIT POWER SUPPLY (1)

1. Turn the ignition switch OFF.
2. Disconnect AWD control unit harness connector.
3. Check the voltage between AWD control unit harness connector and ground.

AWD control unit		—	Voltage (Approx.)
Connector	Terminal		
B75	7	Ground	0 V

4. Turn the ignition switch ON.

CAUTION:

Never start the engine.

5. Check the voltage between AWD control unit harness connector and ground.

AWD control unit		—	Voltage
Connector	Terminal		
B75	7	Ground	Battery voltage

Is the inspection result normal?

P181B INCOMPLETE SELF SHUT

< DTC/CIRCUIT DIAGNOSIS >

[TRANSFER: TY21C]

- YES >> GO TO 3.
NO >> GO TO 2.

2.CHECK AWD CONTROL UNIT POWER SUPPLY (2)

1. Turn the ignition switch OFF.
2. Check the 10A fuse (#30).
3. Disconnect fuse block (J/B) harness connector.
4. Check the continuity between AWD control unit harness connector and fuse block (J/B) harness connector.

AWD control unit		Fuse block (J/B)		Continuity
Connector	Terminal	Connector	Terminal	
B75	7	M44	7P	Existed

5. Check the continuity between AWD control unit harness connector and the ground.

AWD control unit		—	Continuity
Connector	Terminal		
B75	7	Ground	Not existed

Is the inspection result normal?

- YES >> Perform the trouble diagnosis for ignition power supply circuit. Refer to [PG-15, "Wiring Diagram — Ignition Power Supply —"](#).
NO >> Repair or replace error-detected parts.

3.CHECK AWD CONTROL UNIT POWER SUPPLY (3)

1. Turn the ignition switch OFF.
2. Check the voltage between AWD control unit harness connector and ground.

AWD control unit		—	Voltage (Approx.)
Connector	Terminal		
B75	15	Ground	Battery voltage

3. Turn the ignition switch ON.
CAUTION:
Never start the engine.
4. Check the voltage between AWD control unit harness connector and ground.

AWD control unit		—	Voltage
Connector	Terminal		
B75	15	Ground	Battery voltage

Is the inspection result normal?

- YES >> GO TO 5.
NO >> GO TO 4.

4.CHECK AWD CONTROL UNIT POWER SUPPLY (4)

1. Turn the ignition switch OFF.
2. Check the 5A fuse (#9).
3. Disconnect fuse block (J/B) harness connector.
4. Check the continuity between AWD control unit harness connector and fuse block (J/B) harness connector.

AWD control unit		Fuse block (J/B)		Continuity
Connector	Terminal	Connector	Terminal	
B75	15	B29	6T	Existed

5. Check the continuity between AWD control unit harness connector and the ground.

P181B INCOMPLETE SELF SHUT

< DTC/CIRCUIT DIAGNOSIS >

[TRANSFER: TY21C]

AWD control unit		—	Continuity
Connector	Terminal		
B75	15	Ground	Not existed

Is the inspection result normal?

YES >> Perform the trouble diagnosis for power supply circuit. Refer to [PG-4, "Wiring Diagram — Battery Power Supply —"](#).

NO >> Repair or replace error-detected parts.

5. CHECK AWD CONTROL UNIT GROUND

1. Turn the ignition switch OFF.
2. Check the continuity between AWD control unit harness connector and ground.

AWD control unit		—	Continuity
Connector	Terminal		
B75	10	Ground	Existed
	11		

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace error-detected parts.

6. CHECK TERMINALS AND HARNESS CONNECTORS

Check AWD control unit pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> After turning the ignition switch OFF, perform DTC confirmation procedure again. When DTC "P181B" is detected, Replace AWD control unit. Refer to [DLN-67, "Removal and Installation"](#).

NO >> Repair or replace error-detected parts.

P181D ENGINE TORQUE SIGNAL

< DTC/CIRCUIT DIAGNOSIS >

[TRANSFER: TY21C]

P181D ENGINE TORQUE SIGNAL

DTC Description

INFOID:0000000010336739

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P181D	ENGINE SYSTEM (Engine system)	Malfunction related to engine signal has been detected.

POSSIBLE CAUSE

- Malfunction of engine control system
- Internal malfunction of AWD control unit

FAIL-SAFE

AWD control changes to front-wheel drive gradually (rear-wheels still have some driving torque), then AWD control stops, and the vehicle becomes front-wheel drive.

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2.DTC REPRODUCTION PROCEDURE

With CONSULT

1. Drive the vehicle for a while.
2. Stop the vehicle.
3. Perform self-diagnosis for "ALL MODE AWD/4WD".

Is DTC "P181D" detected?

- YES >> Proceed to diagnosis procedure. Refer to [DLN-53, "Diagnosis Procedure"](#).
NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010336740

1.PERFORM ECM SELF-DIAGNOSIS

With CONSULT

Perform self-diagnosis for "ENGINE".

Is any DTC detected?

- YES >> Check the DTC. Refer to [EC-93, "DTC Index"](#).
NO >> GO TO 2.

2.CHECK TERMINALS AND HARNESS CONNECTORS

Check AWD control unit pin terminals for damage or loose connection with harness connector.

Is inspection result normal?

- YES >> After turning the ignition switch OFF, perform DTC confirmation procedure again. If DTC "P181D" is detected, Replace AWD control unit. Refer to [DLN-67, "Removal and Installation"](#).
NO >> Repair or replace error-detected parts.

P181F INCOMPLETE CALIBRATION

< DTC/CIRCUIT DIAGNOSIS >

[TRANSFER: TY21C]

P181F INCOMPLETE CALIBRATION

DTC Description

INFOID:000000009991760

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P181F	INCOMP CALIBRATION (incomplete calibration)	When incomplete writing unit characteristics of electric controlled coupling are detected.

POSSIBLE CAUSE

Writing unit characteristics are incomplete.

FAIL-SAFE

AWD control changes to front-wheel drive immediately, then AWD control stops, and the vehicle becomes front-wheel drive.

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2. DTC REPRODUCTION PROCEDURE

With CONSULT

1. Turn the ignition switch OFF to ON.
2. Perform self-diagnosis for "ALL MODE AWD/4WD".

Is DTC "P181F" detected?

- YES >> Proceed to diagnosis procedure. Refer to [DLN-54, "Diagnosis Procedure"](#).
NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:000000009991761

1. PERFORM WRITING UNIT CHARACTERISTICS

1. Erase self-diagnostic result for "ALL MODE AWD/4WD".
2. Perform writing unit characteristics. Refer to [DLN-35, "Work Procedure"](#).
3. Turn the ignition switch OFF to ON.
4. Perform self-diagnosis for "ALL MODE AWD/4WD".

Is any DTC except "P181F" detected?

- YES >> Perform trouble diagnosis for detected DTC. Refer to [DLN-23, "DTC Index"](#).
NO >> GO TO 2.

2. PERFORM SELF-DIAGNOSIS AGAIN

With CONSULT

Perform "DTC CONFIRMATION PROCEDURE" (self-diagnosis) again. Refer to [DLN-54, "DTC Description"](#).

Is DTC "P181F" detected?

- YES >> Replace AWD control unit. Refer to [DLN-67, "Removal and Installation"](#).
NO >> Check AWD control unit pin terminals for damage or loose connection with harness connector. If any items are damaged, repair or replace error-detected parts.

U1000 CAN COMM CIRCUIT

DTC Description

INFOID:000000010336782

CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN-H line, CAN-L line) allowing a high rate of information transmission with less wiring. Each control unit communicate data but selectively reads required data only.

DTC DETECTION LOGIC

DLN

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
U1000	CAN COMM CIRCUIT (CAN communication circuit)	AWD control unit is not transmitting/receiving CAN communication signal for 2 seconds or more.

POSSIBLE CAUSE

- CAN communication error
- Internal malfunction of AWD control unit

FAIL-SAFE

AWD control changes to front-wheel drive gradually (rear-wheels still have some driving torque), then AWD control stops, and the vehicle becomes front-wheel drive.

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2. DTC REPRODUCTION PROCEDURE

ⓘ With CONSULT

1. Turn the ignition switch OFF to ON.
2. Perform self-diagnosis for "ALL MODE AWD/4WD".

Is DTC "U1000" detected?

- YES >> Proceed to diagnosis procedure. Refer to [DLN-55, "Diagnosis Procedure"](#).
 NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).
 NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:000000010336783

Proceed to [LAN-17, "Trouble Diagnosis Flow Chart"](#).

U1010 CONTROL UNIT (CAN)

DTC Description

INFOID:0000000010336784

CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN-H line, CAN-L line) allowing a high rate of information transmission with less wiring. Each control unit communicate data but selectively reads required data only.

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
U1010	CONTROL UNIT (CAN) [Control unit (CAN)]	Detecting error during the initial diagnosis of CAN controller of AWD control unit.

POSSIBLE CAUSE

Internal malfunction of AWD control unit

FAIL-SAFE

AWD control changes to front-wheel drive gradually (rear-wheels still have some driving torque), then AWD control stops, and the vehicle becomes front-wheel drive.

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2.DTC REPRODUCTION PROCEDURE

With CONSULT

1. Turn the ignition switch OFF to ON.
2. Perform self-diagnosis for "ALL MODE AWD/4WD".

Is DTC "U1010" detected?

- YES >> Proceed to diagnosis procedure. Refer to [DLN-56, "Diagnosis Procedure"](#).
 NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).
 NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010336785

1.CHECK AWD CONTROL UNIT

Check AWD control unit harness connector for disconnection and deformation.

Is the inspection result normal?

- YES >> Replace AWD control unit. Refer to [DLN-67, "Removal and Installation"](#).
 NO >> Repair or replace error-detected parts.

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[TRANSFER: TY21C]

POWER SUPPLY AND GROUND CIRCUIT

Diagnosis Procedure

INFOID:000000009991768

1.CHECK AWD CONTROL UNIT POWER SUPPLY (1)

1. Turn the ignition switch OFF.
2. Disconnect AWD control unit harness connector.
3. Check the voltage between AWD control unit harness connector and ground.

AWD control unit		—	Voltage (Approx.)
Connector	Terminal		
B75	7	Ground	0 V

4. Turn the ignition switch ON.
CAUTION:
Never start the engine.
5. Check the voltage between AWD control unit harness connector and ground.

AWD control unit		—	Voltage
Connector	Terminal		
B75	7	Ground	Battery voltage

Is the inspection result normal?

- YES >> GO TO 3.
NO >> GO TO 2.

2.CHECK AWD CONTROL UNIT POWER SUPPLY (2)

1. Turn the ignition switch OFF.
2. Check the 10A fuse (#30).
3. Disconnect fuse block (J/B) harness connector.
4. Check the continuity between AWD control unit harness connector and fuse block (J/B) harness connector.

AWD control unit		Fuse block (J/B)		Continuity
Connector	Terminal	Connector	Terminal	
B75	7	M44	7P	Existed

5. Check the continuity between AWD control unit harness connector and the ground.

AWD control unit		—	Continuity
Connector	Terminal		
B75	7	Ground	Not existed

Is the inspection result normal?

- YES >> Perform the trouble diagnosis for ignition power supply circuit. Refer to [PG-15, "Wiring Diagram — Ignition Power Supply —"](#).
- NO >> Repair or replace error-detected parts.

3.CHECK AWD CONTROL UNIT POWER SUPPLY (3)

1. Turn the ignition switch OFF.
2. Check the voltage between AWD control unit harness connector and ground.

AWD control unit		—	Voltage (Approx.)
Connector	Terminal		
B75	15	Ground	Battery voltage

3. Turn the ignition switch ON.

A

B

C

DLN

E

F

G

H

I

J

K

L

M

N

O

P

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[TRANSFER: TY21C]

CAUTION:

Never start the engine.

4. Check the voltage between AWD control unit harness connector and ground.

AWD control unit		—	Voltage
Connector	Terminal		
B75	15	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 5.

NO >> GO TO 4.

4.CHECK AWD CONTROL UNIT POWER SUPPLY (4)

1. Turn the ignition switch OFF.
2. Check the 5A fuse (#9).
3. Disconnect fuse block (J/B) harness connector.
4. Check the continuity between AWD control unit harness connector and fuse block (J/B) harness connector.

AWD control unit		Fuse block (J/B)		Continuity
Connector	Terminal	Connector	Terminal	
B75	15	B29	6T	Existed

5. Check the continuity between AWD control unit harness connector and the ground.

AWD control unit		—	Continuity
Connector	Terminal		
B75	15	Ground	Not existed

Is the inspection result normal?

YES >> Perform the trouble diagnosis for power supply circuit. Refer to [PG-4. "Wiring Diagram — Battery Power Supply —"](#).

NO >> Repair or replace error-detected parts.

5.CHECK AWD SOLENOID POWER SUPPLY (1)

1. Turn the ignition switch OFF.
2. Check the voltage between AWD control unit harness connector and ground.

AWD control unit		—	Voltage
Connector	Terminal		
B75	9	Ground	Battery voltage

3. Turn the ignition switch ON.

CAUTION:

Never start the engine.

4. Check the voltage between AWD control unit harness connector and ground.

AWD control unit		—	Voltage
Connector	Terminal		
B75	9	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 7.

NO >> GO TO 6.

6.CHECK AWD SOLENOID POWER SUPPLY (2)

1. Turn the ignition switch OFF.

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[TRANSFER: TY21C]

2. Check the 10A fuse (#16).
3. Disconnect fuse block (J/B) harness connector.
4. Check the continuity between AWD control unit harness connector and fuse block (J/B) harness connector.

AWD control unit		Fuse block (J/B)		Continuity
Connector	Terminal	Connector	Terminal	
B75	9	M68	15R	Existed

5. Check the continuity between AWD control unit harness connector and the ground.

AWD control unit		—	Continuity
Connector	Terminal		
B75	9	Ground	Not existed

Is the inspection result normal?

YES >> Perform the trouble diagnosis for power supply circuit. Refer to [PG-4, "Wiring Diagram — Battery Power Supply —"](#).

NO >> Repair or replace error-detected parts.

7. CHECK AWD CONTROL UNIT GROUND

1. Turn the ignition switch OFF.
2. Check the continuity between AWD control unit harness connector and ground.

AWD control unit		—	Continuity
Connector	Terminal		
B75	10	Ground	Existed
	11		

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair or replace error-detected parts.

HEAVY TIGHT-CORNER BRAKING SYMPTOM OCCURS

< SYMPTOM DIAGNOSIS >

[TRANSFER: TY21C]

SYMPTOM DIAGNOSIS

HEAVY TIGHT-CORNER BRAKING SYMPTOM OCCURS

Description

INFOID:000000009991772

Heavy tight-corner braking symptom occurs when the vehicle is driven and the steering wheel is turned fully to either side after the engine is started.

NOTE:

Light tight-corner braking symptom may occur depending on driving conditions. This is not malfunction.

Diagnosis Procedure

INFOID:000000009991773

1.PERFORM ECM SELF-DIAGNOSIS

With CONSULT

Perform self-diagnosis for "ENGINE".

Is any DTC detected?

- YES >> Check the DTC. Refer to [EC-93, "DTC Index"](#).
- NO >> GO TO 2.

2.PERFORM SELF-DIAGNOSIS

With CONSULT

Perform self-diagnosis for "ALL MODE AWD/4WD".

Is DTC "U1000" detected?

- YES >> Proceed to [DLN-55, "Diagnosis Procedure"](#).
- NO >> GO TO 3.

3.CHECK AWD SOLENOID

Perform the trouble diagnosis of the AWD solenoid. Refer to [DLN-38, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> GO TO 4.
- NO >> Repair or replace the error-detected parts.

4.CHECK ELECTRIC CONTROLLED COUPLING

1. Turn the ignition switch OFF.
2. Set the transaxle to neutral. Release the parking brake.
3. Lift up the vehicle.
4. Rotate the propeller shaft by hand.
5. Hold rear wheel of right and left lightly.

Does rear wheel rotate?

- YES >> Replace electric controlled coupling for mechanical malfunction (clutch sticking etc.). Refer to [DLN-114, "Removal and Installation"](#).
- NO >> Check each harness connector pin terminal for disconnection.

VEHICLE DOES NOT ENTER AWD MODE

< SYMPTOM DIAGNOSIS >

[TRANSFER: TY21C]

VEHICLE DOES NOT ENTER AWD MODE

Description

INFOID:0000000009991774

Vehicle does not enter 4-wheel drive mode even though AWD warning is not displayed.

Diagnosis Procedure

INFOID:0000000009991775

1.CHECK INFORMATION DISPLAY (COMBINATION METER)

Perform the trouble diagnosis of combination meter. Refer to [MWI-52, "Work flow"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the error-detected parts.

2.CHECK PARKING BRAKE SWITCH SIGNAL

With CONSULT

Check "PARKING BRAKE SW SIG" of CONSULT "DATA MONITOR" for "ALL MODE AWD/4WD".

Monitor Item	Condition	Status
PARKING BRAKE SW SIG	When the parking brake pedal is operation.	On
	When the parking brake pedal is not operation.	Off

Is the inspection result normal?

YES >> GO TO 3.

NO >> Proceed to [BRC-115, "Component Function Check"](#).

3.CRUISE TEST

Drive the vehicle for a period of time.

Does any symptom occur?

YES >> Replace electric controlled coupling for mechanical malfunction (mechanical engagement of clutch is not possible). Refer to [DLN-114, "Removal and Installation"](#).

NO >> Check each harness connector pin terminal for disconnection.

AWD HIGH TEMP IS DISPLAYED ON INFORMATION DISPLAY

< SYMPTOM DIAGNOSIS >

[TRANSFER: TY21C]

AWD HIGH TEMP IS DISPLAYED ON INFORMATION DISPLAY

Description

INFOID:000000009991776

While driving, AWD warning (AWD High Temp. Stop vehicle) is displayed on information display (combination meter).

- This symptom protects drivetrain parts when a heavy load is applied to the electric controlled coupling and multiple disc clutch temperature increases. Also, optional distribution of torque sometimes becomes rigid before AWD warning (AWD High Temp. Stop vehicle) is displayed. Both cases are not malfunction. Refer to [DLN-22, "Protection Function"](#).
- When this symptom occurs, stop vehicle and allow it to idle for some times. Displays will stop and system will be restored.

TIRE SIZE INCORRECT IS DISPLAYED ON INFORMATION DISPLAY

< SYMPTOM DIAGNOSIS >

[TRANSFER: TY21C]

TIRE SIZE INCORRECT IS DISPLAYED ON INFORMATION DISPLAY

Description

INFOID:0000000009991777

While driving, AWD warning (Tire Size Incorrect: See Owner's Manual) is displayed on information display (combination meter).

Diagnosis Procedure

INFOID:0000000009991778

1.CHECK TIRE

Check the following.

- Tire pressure
- Wear condition
- Front and rear tire size (There is no difference between front and rear tires.)

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace error-detected parts. And then, drive the vehicle at speed of 20 km/h (12 MPH) or more for 5 seconds or more. Improper size information is initialized accordingly.

2.CHECK INPUT SIGNAL OF TIRE DIAMETER

 **With CONSULT**

1. Start the engine.
2. Drive at 20 km/h (12 MPH) or more for approximately 4 minutes continually.
3. Check "DIS-TIRE MONI" of CONSULT "DATA MONITOR" for "ALL MODE AWD/4WD".

Does the item on "DATA MONITOR" indicate "0 - 4 mm"?

YES >> INSPECTION END

NO >> GO TO 3.

3.TERMINAL INSPECTION

Check AWD control unit harness connector for disconnection.

Is the inspection result normal?

YES >> Replace AWD control unit. Refer to [DLN-67, "Removal and Installation"](#).

NO >> Repair or replace the error-detected parts.

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

< SYMPTOM DIAGNOSIS >

[TRANSFER: TY21C]

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

NVH Troubleshooting Chart

INFOID:000000009991779

Use the chart below to find the cause of the symptom. The numbers indicate the order of the inspection. If necessary, repair or replace these parts.

Reference		DLN-65, "Inspection"			—	DLN-72, "Exploded View"	DLN-72, "Exploded View"	DLN-79, "Inspection", DLN-88, "Inspection"	DLN-79, "Inspection", DLN-88, "Inspection"
SUSPECTED PARTS (Possible cause)		TRANSFER OIL (Level low)	TRANSFER OIL (Wrong)	TRANSFER OIL (Level too high)	LIQUID GASKET (Damaged)	O-RING (Worn or damaged)	OIL SEAL (Worn or damaged)	GEAR (Worn or damaged)	BEARING (Worn or damaged)
Symptom	Noise	1	2				3	3	3
	Transfer oil leakage		3	1	2	2	2		

PERIODIC MAINTENANCE

TRANSFER OIL

Inspection

INFOID:000000009991780

TRANSFER OIL LEAKS

Check that transfer oil is not leaking from transfer assembly or around it.

TRANSFER OIL LEVEL

CAUTION:

Do not start engine while checking transfer oil level.

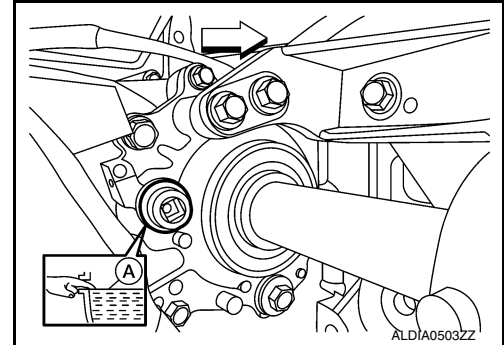
1. Remove filler plug (1) and gasket.

← : Front

2. Transfer oil level (A) should be level with bottom of filler plug hole. Add transfer oil if necessary. Refer to [MA-11, "Fluids and Lubricants"](#).
3. Set a new gasket onto filler plug, and install it in the transfer and tighten to specified torque. Refer to [DLN-89, "Exploded View"](#).

CAUTION:

Do not reuse gasket.



INFOID:000000009991781

Draining

CAUTION:

Do not start engine while working.

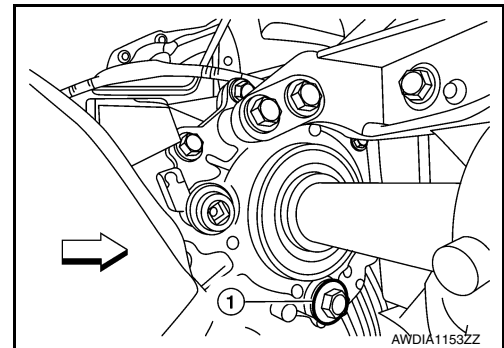
1. Run the vehicle to warm up the transfer unit sufficiently.
2. Stop the engine and remove drain plug (1) and gasket and drain the transfer oil.

← : Front

3. Set a new gasket onto drain plug, and install it in the transfer and tighten to specified torque. Refer to [DLN-89, "Exploded View"](#).

CAUTION:

Do not reuse gasket.



INFOID:000000009991782

Refilling

CAUTION:

Do not start engine while checking transfer oil level.

1. Remove filler plug (1).
2. Fill with new transfer oil to the specified level near the filler plug hole.

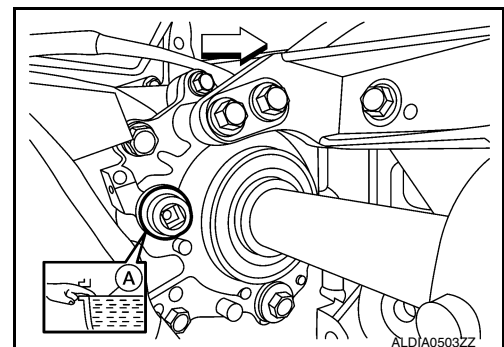
← : Front

Transfer oil grade and viscosity

: Refer to [MA-11, "Fluids and Lubricants"](#).

Transfer oil capacity

: Refer to [DLN-93, "General Specifications"](#).



3. Set a new gasket onto filler plug, and install it in the transfer and tighten to specified torque. Refer to [DLN-89, "Exploded View"](#).

TRANSFER OIL

< PERIODIC MAINTENANCE >

[TRANSFER: TY21C]

CAUTION:

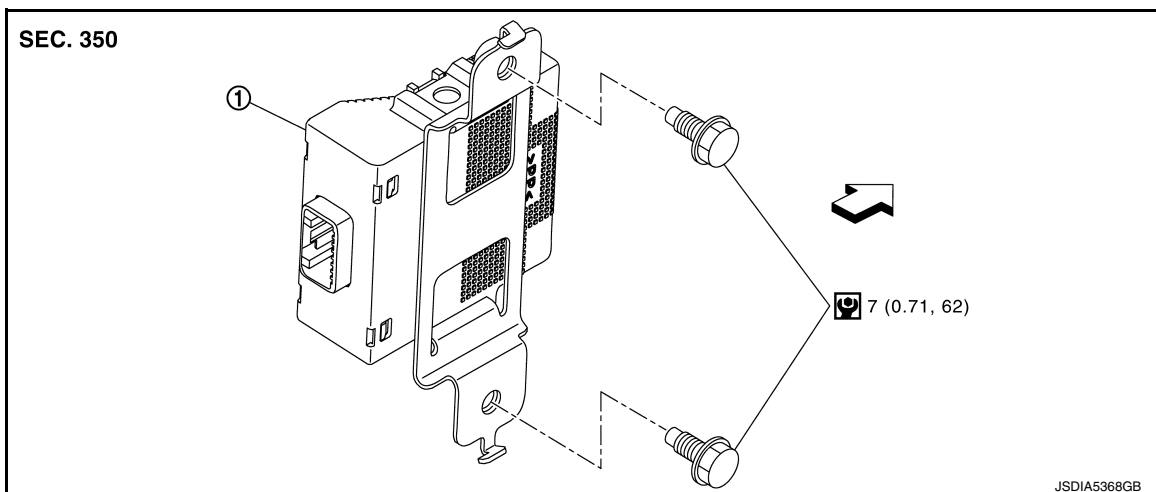
Do not reuse gasket.

REMOVAL AND INSTALLATION

AWD CONTROL UNIT

Exploded View

INFOID:000000009995320



① AWD control unit

↔ : Vehicle front

⊗ : N·m (kg·m, in·lb)

Removal and Installation

INFOID:000000009991783

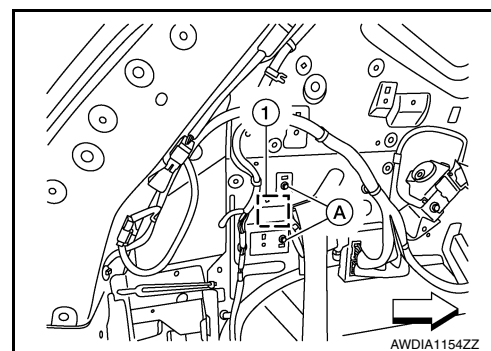
REMOVAL

1. Remove luggage side lower finisher (LH). Refer to [INT-33, "Exploded View"](#).
2. Disconnect AWD control unit harness connector.
3. Remove AWD control unit bolts (↔).

NOTE:

AWD control unit is located on the back side of body panel.

↔ : Front



4. Remove AWD control unit.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Do not drop or shock AWD control unit.
- When replacing AWD control unit, perform writing unit characteristic. Refer to [DLN-35, "Work Procedure"](#).

AWD LOCK SWITCH

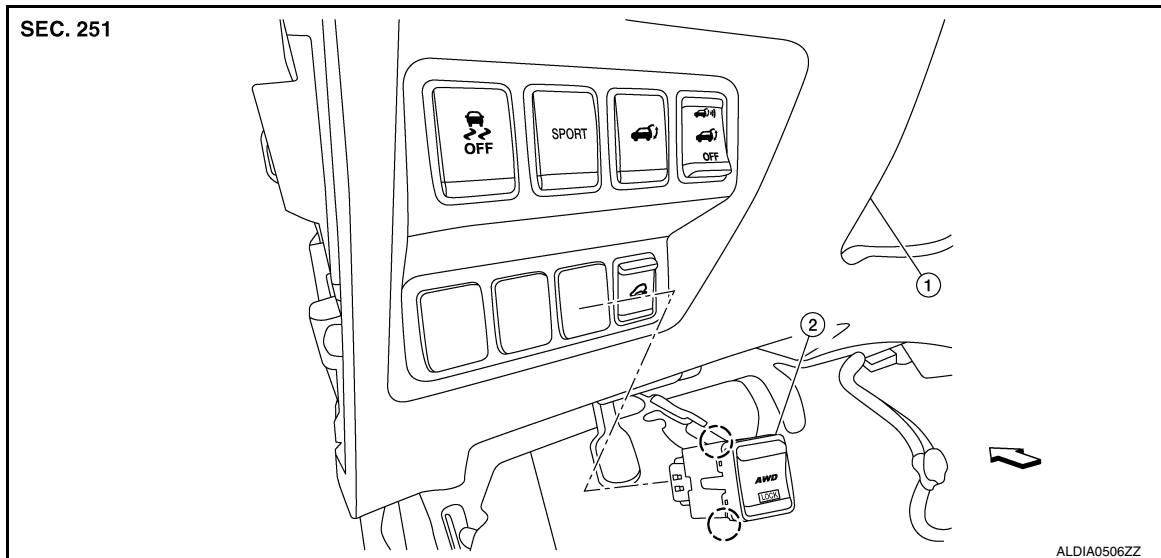
< REMOVAL AND INSTALLATION >

[TRANSFER: TY21C]

AWD LOCK SWITCH

Exploded View

INFOID:000000010297884



1. Instrument lower panel LH

2. AWD lock switch

← Front

○ : Pawl

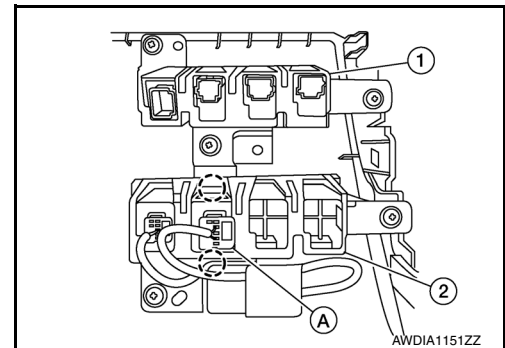
Removal and Installation

INFOID:000000010297885

REMOVAL

1. Remove instrument lower panel LH. Refer to [IP-22, "Removal and Installation"](#).
2. Disconnect AWD lock switch harness connector (A).
3. Remove AWD lock switch from lower switch bracket (2).

○ : Pawls



INSTALLATION

Install in the reverse order of removal.

TRANSFER COVER OIL SEAL

Removal and Installation

INFOID:0000000009991784

NOTE:

- Replacement on vehicle may cause damage to transfer cover, and may cause a transfer oil leak.
- If transfer cover oil seal requires replacement, remove the transfer assembly from the vehicle before replacing transfer cover oil seal. Refer to [DLN-73. "Disassembly"](#).

A
B
C
E
F
G
H
I
J
K
L
M
N
O
P

DLN

TRANSFER ASSEMBLY

< UNIT REMOVAL AND INSTALLATION >

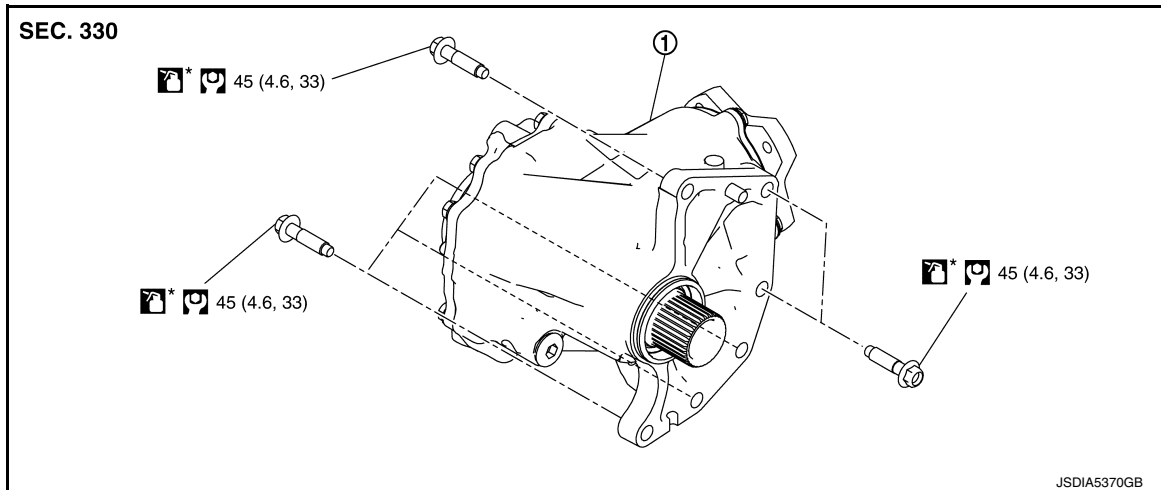
[TRANSFER: TY21C]

UNIT REMOVAL AND INSTALLATION

TRANSFER ASSEMBLY

Exploded View

INFOID:000000009991785



① Transfer assembly

: N·m (kg-m, ft-lb)

*: Apply anti-corrosion oil.

Removal and Installation

INFOID:000000009991786

NOTE:

When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid from spilling.

REMOVAL

1. Remove front drive shaft (RH). Refer to [FAX-20, "Removal and Installation \(RH\)"](#).
2. Remove front suspension member. Refer to [FSU-20, "Removal and Installation"](#).
3. Remove front exhaust tube. Refer to [EX-5, "Exploded View"](#).
4. Remove rear propeller shaft. Refer to [DLN-99, "Removal and Installation"](#).
5. Remove transaxle assembly to transfer assembly bolts.

CAUTION:

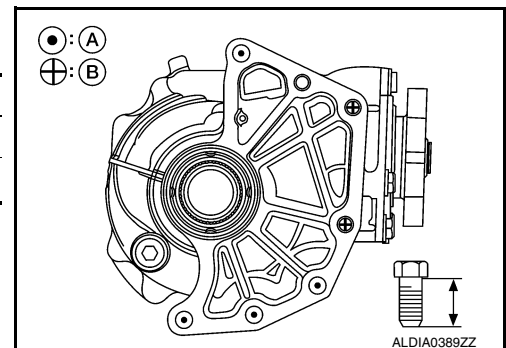
Be careful not to damage gear ring oil seal inside of CVT.

Bolt No.	(A)	(B)
Quantity	4	2
Bolt length "ℓ" mm (in)	40 (1.57)	40 (1.57)

6. Remove transfer assembly from the vehicle.

CAUTION:

- Do not damage air breather hose.
- After removing transfer from transaxle, always replace differential side oil seal of the transaxle side with new one. Refer to [TM-210, "Removal and Installation"](#).



INSTALLATION

Installation is in the reverse order of removal.

TRANSFER ASSEMBLY

< UNIT REMOVAL AND INSTALLATION >

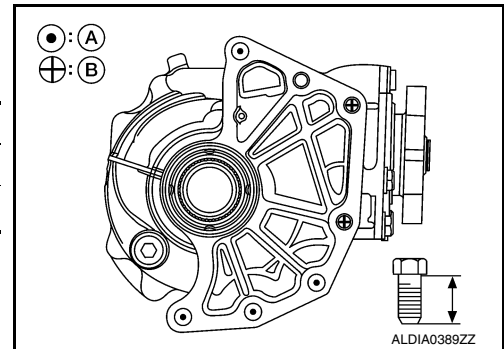
[TRANSFER: TY21C]

- When installing the transfer to the transaxle, install the bolts following the standard below.

Bolt No.	(A)	(B)
Quantity	4	2
Bolt length "ℓ" mm (in)	40 (1.57)	40 (1.57)

CAUTION:

- When installing transfer to transaxle, be careful not to damage oil seal of transaxle.
- Do not reuse differential side oil seal.
- Check transfer oil level and check for transfer oil leaks after installation. Refer to [DLN-65, "Refilling"](#).



A

B

C

DLN

E

F

G

H

I

J

K

L

M

N

O

P

TRANSFER COVER

< UNIT DISASSEMBLY AND ASSEMBLY >

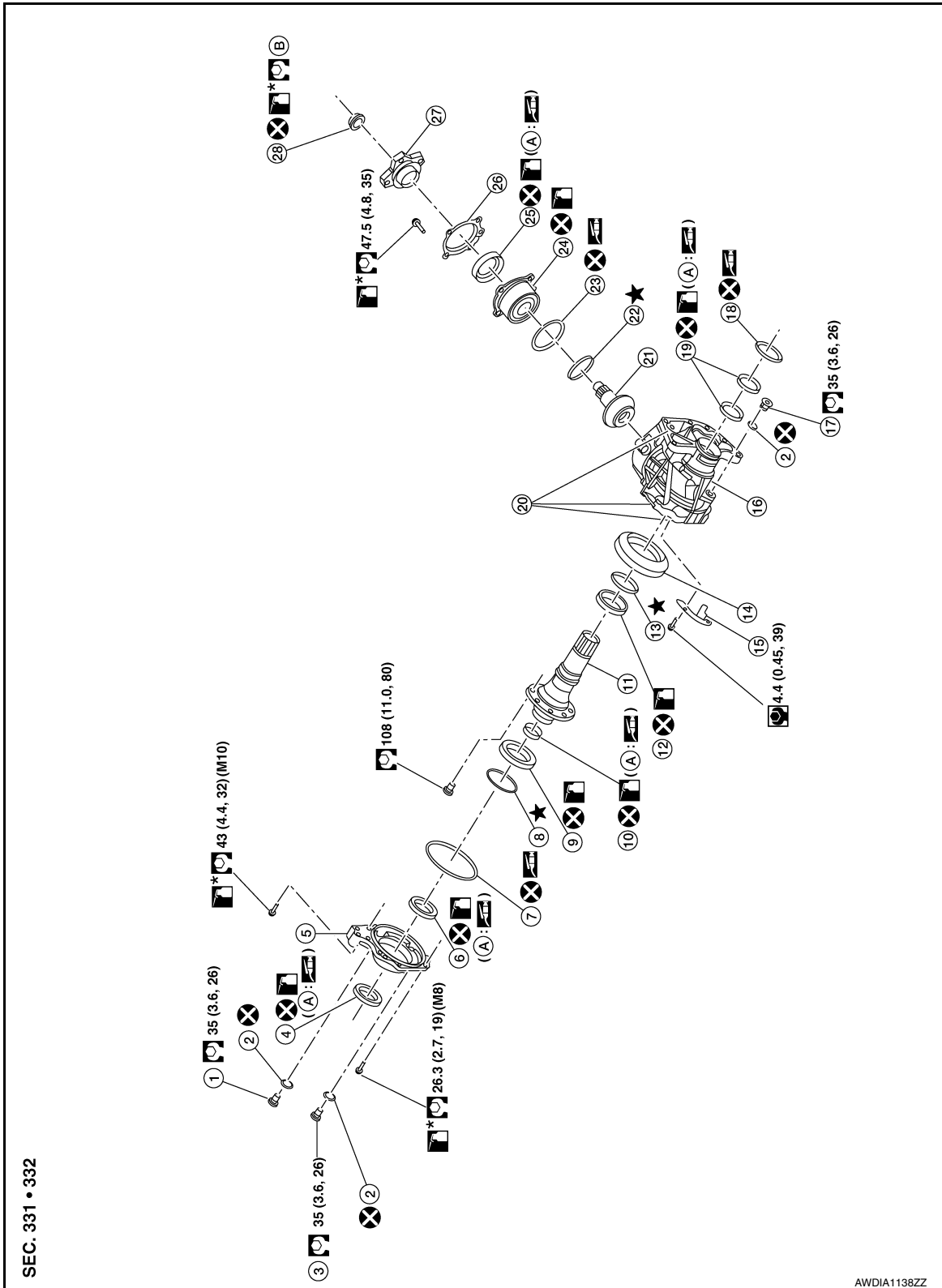
[TRANSFER: TY21C]

UNIT DISASSEMBLY AND ASSEMBLY

TRANSFER COVER

Exploded View

INFOID:0000000010337336



TRANSFER COVER

< UNIT DISASSEMBLY AND ASSEMBLY >

[TRANSFER: TY21C]

- | | | | |
|---|--|--|-----|
| 1. Filler plug | 2. Gasket | 3. Drain plug | A |
| 4. Oil seal | 5. Transfer cover | 6. Oil seal | B |
| 7. O-ring | 8. Ring gear bearing adjusting shim (transfer cover side) | 9. Ring gear bearing (transfer cover side) | B |
| 10. Ring gear shaft oil seal | 11. Ring gear shaft | 12. Ring gear bearing (transfer case side) | C |
| 13. Ring gear bearing adjusting shim (transfer case side) | 14. Ring gear | 15. Baffle plate | C |
| 16. Transfer case | 17. Plug | 18. O-ring | DLN |
| 19. Oil seal | 20. Dowel pin | 21. Drive pinion | DLN |
| 22. Drive pinion adjusting shim | 23. O-ring | 24. Pinion bearing assembly | DLN |
| 25. Oil seal | 26. Dust cover | 27. Companion flange | DLN |
| 28. Pinion lock nut | | | E |
| A. Oil seal lip | B. Comply with the assembly procedure when tightening. Refer to DLN-83. "Assembly" . | | F |

: N·m (kg-m, in-lb)

: N·m (kg-m, ft-lb)

: Always replace after every disassembly.

: Apply gear oil.

: Apply anti-corrosive oil.

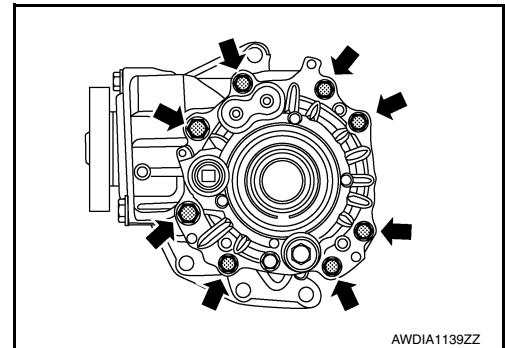
: Apply multi-purpose grease.

★: Select with proper thickness.

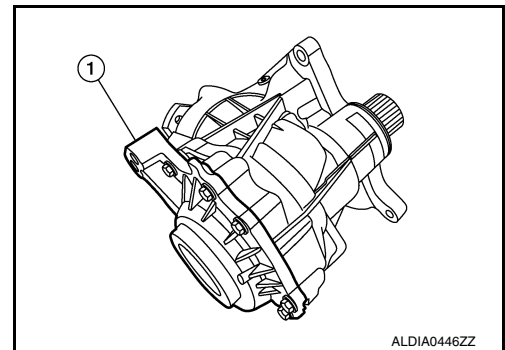
Disassembly

INFOID:000000010337337

1. Remove transfer cover mounting bolts (←).



2. Lightly tap transfer cover (1) with a plastic hammer to remove transfer cover.
3. Remove O-ring from transfer cover.
 - CAUTION:**
 - Do not use a suitable tool.
 - Do not damage transfer cover.



TRANSFER COVER

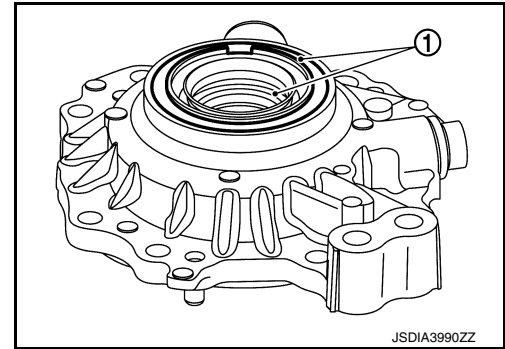
< UNIT DISASSEMBLY AND ASSEMBLY >

[TRANSFER: TY21C]

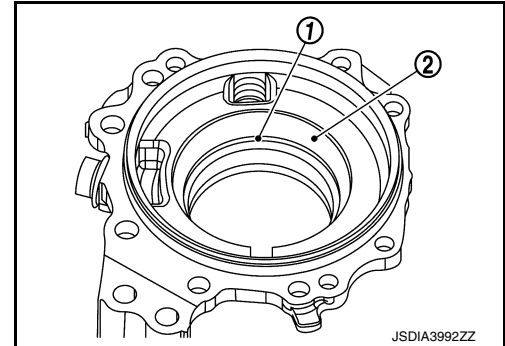
4. Lightly tap the metal part of oil seals (1) with punch from back side of transfer cover to remove oil seals.

CAUTION:

When removing, Do not damage the transfer cover by scooping it out with a suitable tool.



5. Remove the ring gear bearing adjusting shim (transfer cover side) (1) and ring gear bearing outer race (transfer cover side) (2) using suitable tool.
6. Remove drain plug and gasket.
7. Remove filler plug and gasket.
8. Perform inspection after disassembly. Refer to [DLN-75, "Inspection"](#).



INFOID:0000000010337338

Assembly

1. Select the ring gear bearing adjusting shim (transfer cover side). Refer to [DLN-84, "Adjustment"](#).
2. Install the selected ring gear bearing adjusting shim (transfer cover side) (1) and ring gear bearing outer race (transfer cover side) (2) using suitable tool.

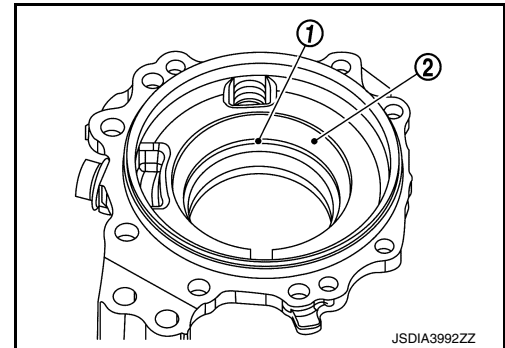
CAUTION:

- Do not reuse ring gear bearing.
- Apply gear oil to the ring gear bearing.

3. Install gasket onto drain plug and install them to transfer cover.

CAUTION:

Do not reuse gasket.



4. Install the transfer cover to the transfer case, and apply anti-corrosive oil onto thread and seats on the mounting bolts. Then tighten mounting bolts to the specified torque.

(A) : M10 bolt

(B) : M8 bolt

NOTE:

At this timing, O-ring installing to transfer cover is not necessary. Install O-ring after tooth contact is checked.

5. Check backlash, tooth contact, total preload and companion flange runout. Refer to [DLN-84, "Adjustment"](#).

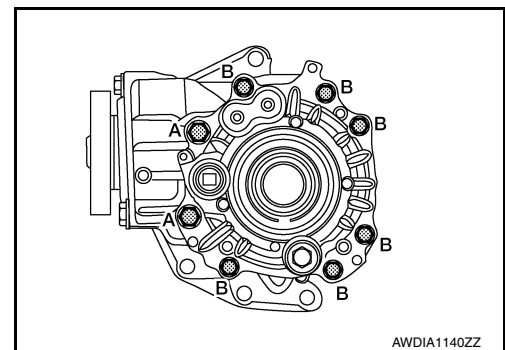
CAUTION:

Measure the total preload without oil seals of transfer cover and transfer case.

6. Remove transfer cover to install O-ring.
7. Apply multi-purpose grease lightly and evenly onto an O-ring, and install it to the transfer cover.

CAUTION:

- Do not reuse O-ring.
- When installing O-ring, do not use a suitable tool.
- Do not damage O-ring.



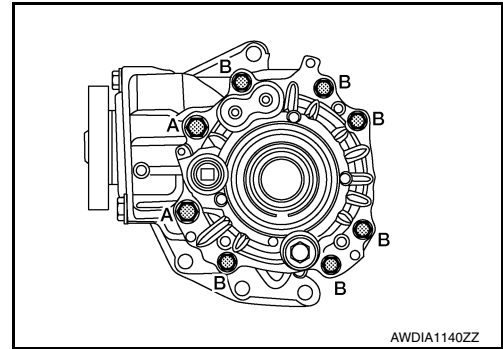
TRANSFER COVER

< UNIT DISASSEMBLY AND ASSEMBLY >

[TRANSFER: TY21C]

8. Install the transfer cover to the transfer case, and apply anti-corrosive oil onto thread and seats on the mounting bolts. Then tighten mounting bolts to the specified torque.

- (A) : M10 bolt
(B) : M8 bolt



9. Using suitable tool drive the transfer cover oil seals.

- (A) : $10.3 + 0.6/-0$ mm ($0.406 + 0.024/-0$ in)
(B) : $0 + 0.6/-0$ mm ($0 + 0.024/-0$ in)

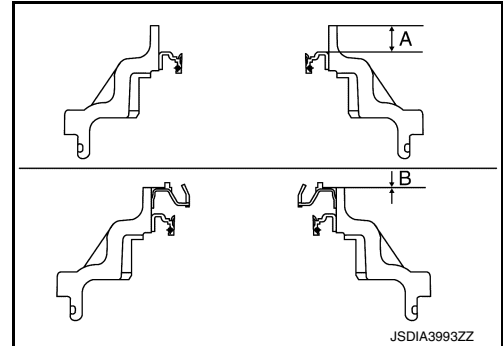
CAUTION:

- When checking the total preload torque, measure it without the oil seal, then install the oil seal.
- Do not reuse the oil seal.
- When installing, do not incline oil seal.
- Apply multi-purpose grease onto oil seal lips, and gear oil onto the circumference of the oil seal.

10. Install gasket onto filler plug and install them to transfer cover.

CAUTION:

- Do not reuse gasket.
- Install filler plug after oil is filled.



Inspection

INFOID:0000000010337339

INSPECTION AFTER DISASSEMBLY

Check items below. If necessary, replace them with new ones.

Transfer cover

Check the bearing mounting surface for wear, cracks and damages.

RING GEAR SHAFT

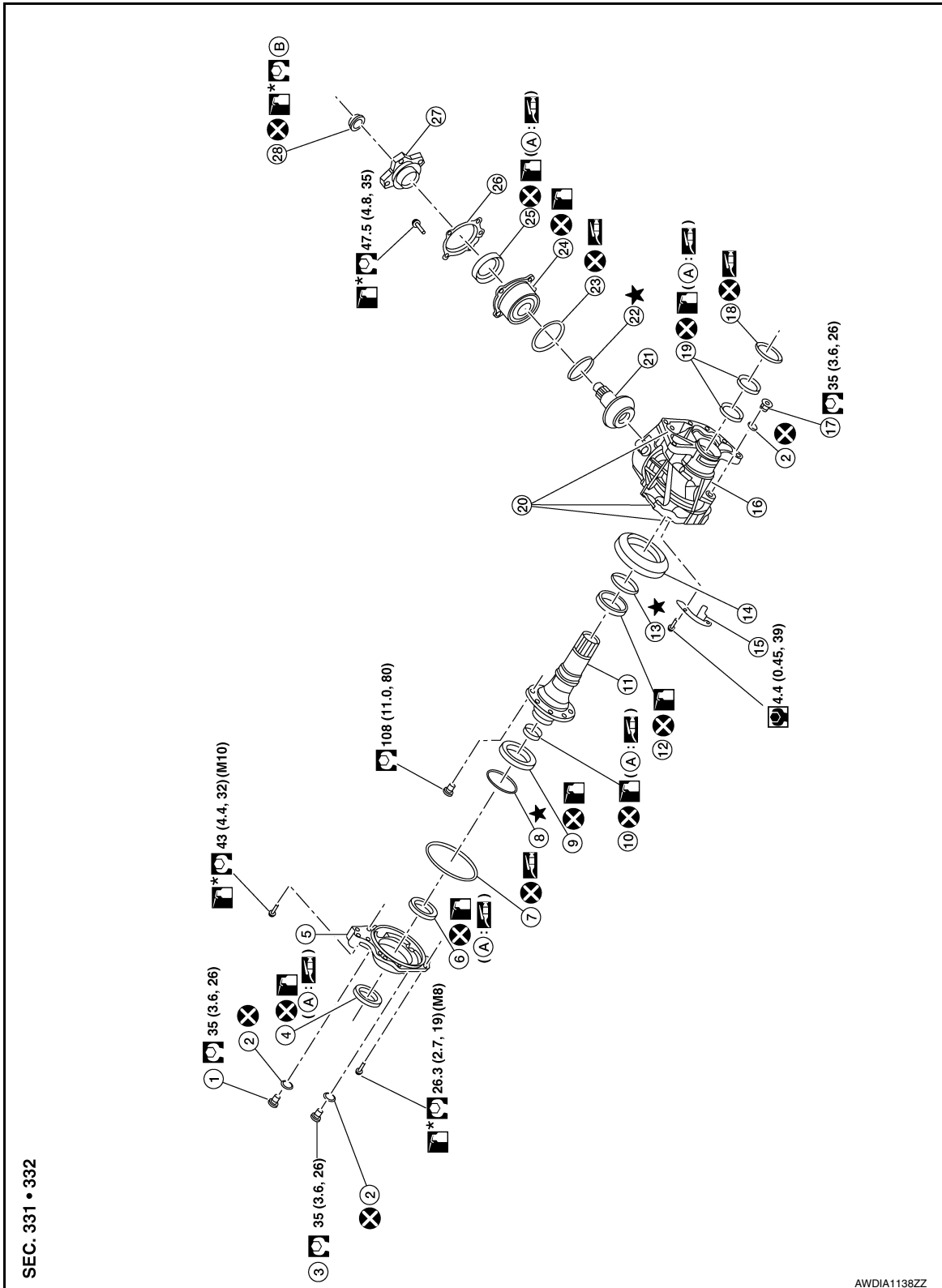
< UNIT DISASSEMBLY AND ASSEMBLY >

[TRANSFER: TY21C]

RING GEAR SHAFT

Exploded View

INFOID:000000010337357



- | | | |
|----------------|-------------------|---------------|
| 1. Filler plug | 2. Gasket | 3. Drain plug |
| 4. Oil seal | 5. Transfer cover | 6. Oil seal |

RING GEAR SHAFT

< UNIT DISASSEMBLY AND ASSEMBLY >

[TRANSFER: TY21C]

- | | | |
|---|--|--|
| 7. O-ring | 8. Ring gear bearing adjusting shim (transfer cover side) | 9. Ring gear bearing (transfer cover side) |
| 10. Ring gear shaft oil seal | 11. Ring gear shaft | 12. Ring gear bearing (transfer case side) |
| 13. Ring gear bearing adjusting shim (transfer case side) | 14. Ring gear | 15. Baffle plate |
| 16. Transfer case | 17. Plug | 18. O-ring |
| 19. Oil seal | 20. Dowel pin | 21. Drive pinion |
| 22. Drive pinion adjusting shim | 23. O-ring | 24. Pinion bearing assembly |
| 25. Oil seal | 26. Dust cover | 27. Companion flange |
| 28. Pinion lock nut | | |
| A. Oil seal lip | B. Comply with the assembly procedure when tightening. Refer to DLN-83, "Assembly" . | |

: N·m (kg-m, in-lb)

: N·m (kg-m, ft-lb)

: Always replace after every disassembly.

: Apply gear oil.

: Apply anti-corrosive oil.

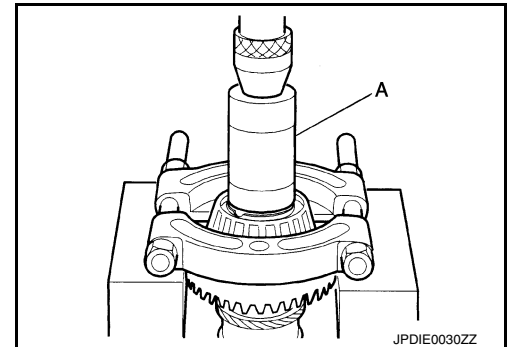
: Apply multi-purpose grease.

★: Select with proper thickness.

Disassembly

INFOID:000000010337341

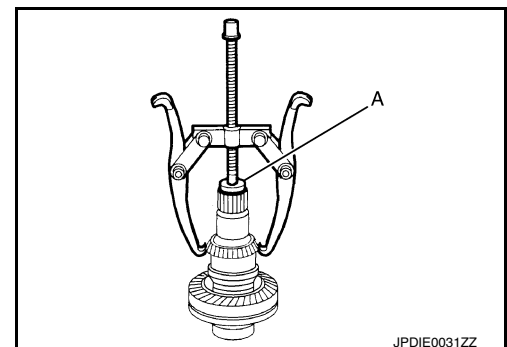
- Remove transfer cover assembly. Refer to [DLN-73, "Disassembly"](#).
- Remove ring gear bearing outer race (transfer cover side) and ring gear bearing adjusting shim (transfer cover side) from the transfer cover. Refer to [DLN-73, "Disassembly"](#).
- Remove ring gear shaft assembly from the transfer case.
- Remove ring gear bearing outer race (transfer case side) and ring gear bearing adjusting shim (transfer case side) from the transfer case. Refer to [DLN-90, "Disassembly"](#).
- Remove ring gear bearing inner race (transfer cover side) from ring gear shaft using suitable tool (A) and suitable tool.



- Remove ring gear bearing inner race (transfer case side) from ring gear shaft with suitable tool (A) and Tool.

Tool number : (KV381054S0) J-34286

- Remove the ring gear mounting bolts.

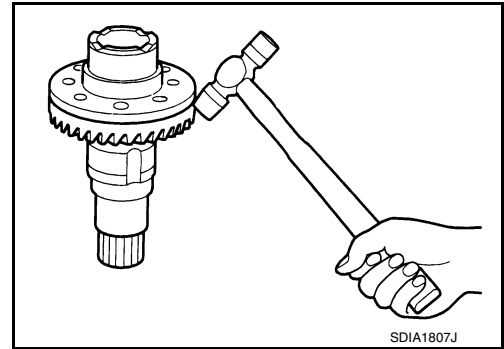


RING GEAR SHAFT

< UNIT DISASSEMBLY AND ASSEMBLY >

[TRANSFER: TY21C]

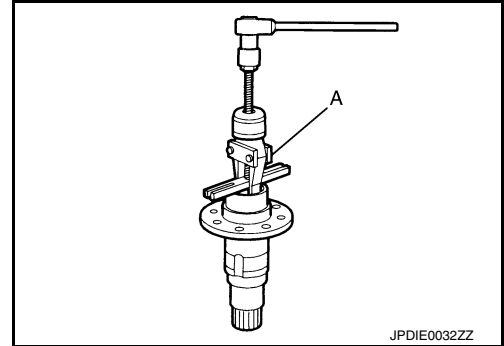
8. Lightly tap ring gear with a plastic hammer to remove ring gear from the ring gear shaft.



9. Remove ring gear shaft oil seal from the ring gear shaft with the Tool (A).

Tool number : (KV381054S0) J-34286

10. Perform inspection after disassembly. Refer to [DLN-79, "Inspection"](#).



INFOID:0000000010337342

Assembly

1. Using suitable tool (A), install ring gear shaft oil seal (1) within the dimension (L) shown as follows.

(L) : 2.0 +0.6/-0 mm (0.079 +0.024/-0 in)

CAUTION:

- Do not reuse the oil seal.
- When installing, do not incline oil seal.
- Apply multi-purpose grease onto oil seal lips, and gear oil onto the circumference of the oil seal.

2. Select ring gear bearing adjusting shim (transfer case side) and ring gear bearing adjusting shim (transfer cover side). Refer to [DLN-84, "Adjustment"](#).

3. Assemble the selected ring gear bearing adjusting shim (transfer case side) and ring gear bearing outer race (transfer case side) to transfer case. Refer to [DLN-91, "Assembly"](#).

CAUTION:

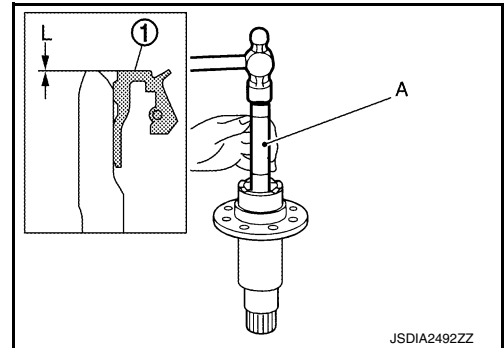
- Do not reuse ring gear bearing.
- Apply gear oil to the ring gear bearing.

4. Assemble the selected ring gear bearing adjusting shim (transfer cover side) and ring gear bearing outer race (transfer cover side) to transfer cover. Refer to [DLN-74, "Assembly"](#).

CAUTION:

- Do not reuse ring gear bearing.
- Apply gear oil to the ring gear bearing.

5. Install the ring gear to ring gear shaft, and tighten mounting bolts to the specified torque.



RING GEAR SHAFT

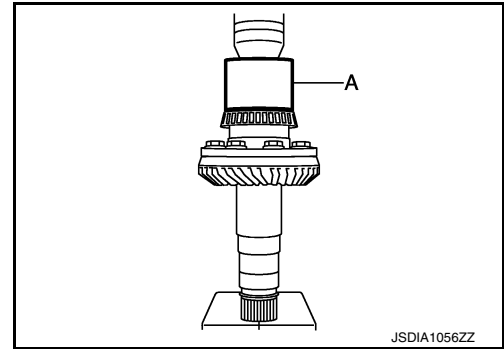
< UNIT DISASSEMBLY AND ASSEMBLY >

[TRANSFER: TY21C]

6. Install ring gear bearing inner race (transfer cover side) with drift (A) (commercial service tool).

CAUTION:

- Do not reuse ring gear bearing.
- Apply gear oil to the ring gear bearing.



7. Install the ring gear bearing inner race (transfer case side) to ring gear shaft with suitable tool (A).

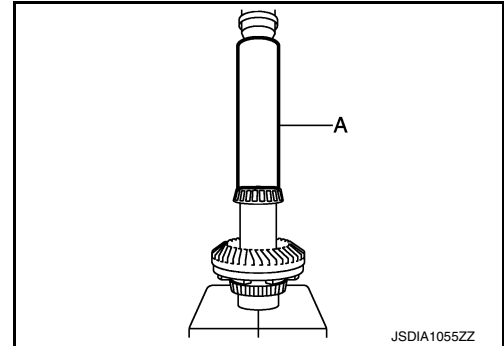
CAUTION:

- Do not reuse ring gear bearing.
- Apply gear oil to the ring gear bearing.

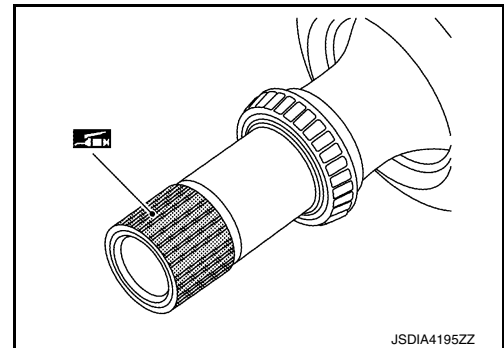
8. Install the ring gear shaft assembly to the transfer case.

CAUTION:

Protect transfer case oil seals beforehand from being damaged by the spline of ring gear shaft below method following.



- a. Apply multi-purpose grease to spline part indicated in the figure.



- b. Wrap piece of vinyl to spline part only indicated in the figure. [(A): limit line]

CAUTION:

Do not wrap sliding surfaces on oil seal.

9. Install transfer cover to check and adjust each part. Refer to [DLN-74, "Assembly"](#).

NOTE:

At this timing, O-ring installing to transfer cover is not necessary. Install O-ring after backlash and tooth contact are checked.

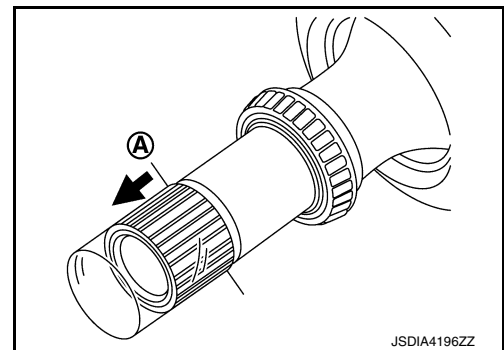
10. Check backlash, tooth contact, total preload and companion flange runout. Refer to [DLN-84, "Adjustment"](#).

CAUTION:

Measure the total preload without oil seals of transfer cover and transfer case.

11. Reinstall transfer cover for installing O-ring. Refer to [DLN-74, "Assembly"](#).

12. After installing transfer case oil seals, remove wrapped vinyl from the spline of ring gear shaft.



Inspection

INFOID:0000000010337343

INSPECTION AFTER DISASSEMBLY

Check items below. If necessary, replace them with new ones.

Gear and Shaft

Check gear face and shaft for wear, cracks, damage, and seizure.

RING GEAR SHAFT

< UNIT DISASSEMBLY AND ASSEMBLY >

[TRANSFER: TY21C]

CAUTION:

If malfunction is detected on the ring gear or drive pinion, replace the ring gear and drive pinion as a set.

Bearing

Check for seizure, peeling, wear, corrosion, sticking, unusual noise, roughness in hand turning, and other damage.

CAUTION:

When replacing the bearing, always replace the inner race and outer race as a pair.

Shim

Check for seizure, damage, and unusual wear.

DRIVE PINION

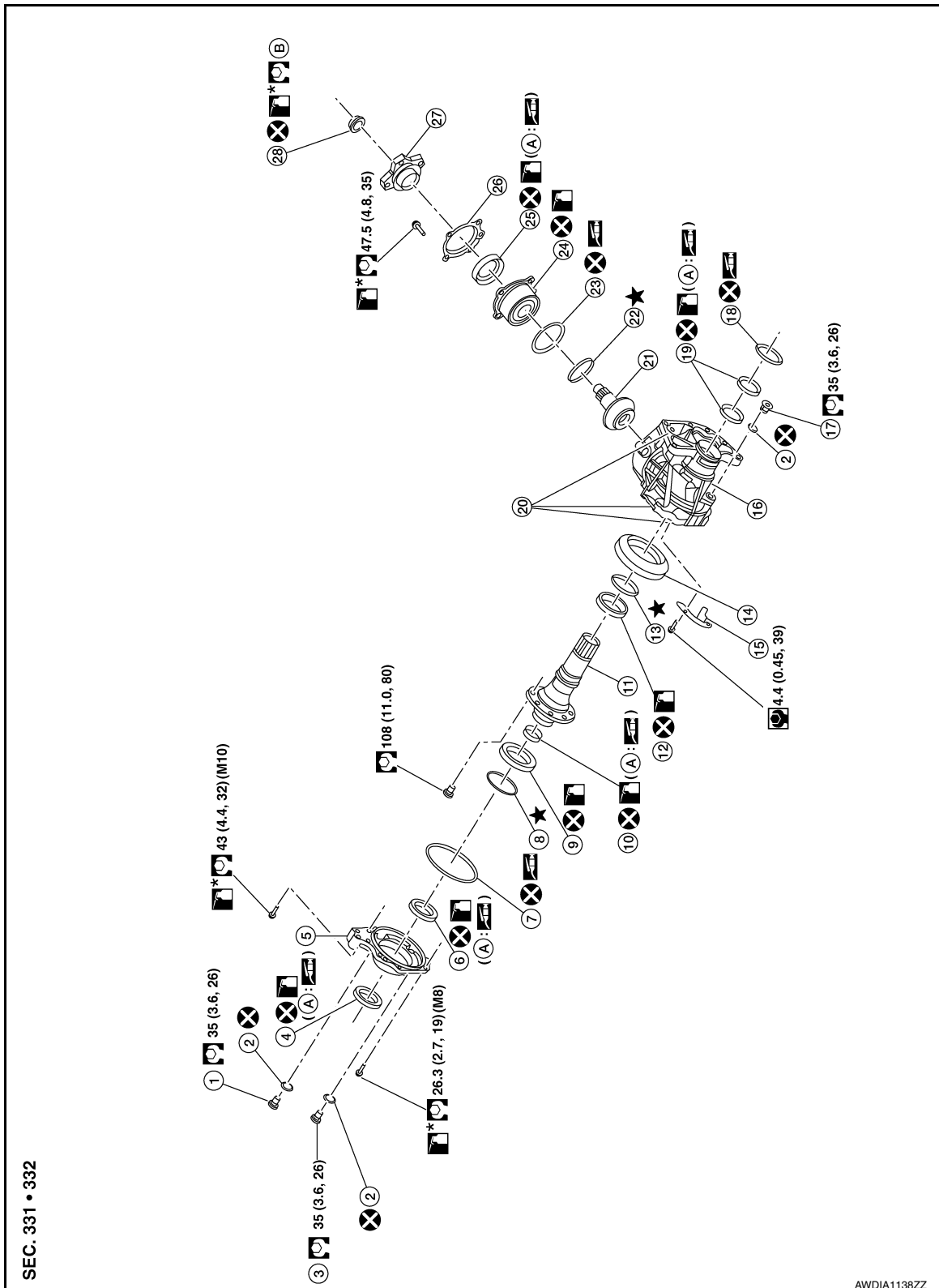
< UNIT DISASSEMBLY AND ASSEMBLY >

[TRANSFER: TY21C]

DRIVE PINION

Exploded View

INFOID:0000000010337358



- | | | |
|----------------|-------------------|---------------|
| 1. Filler plug | 2. Gasket | 3. Drain plug |
| 4. Oil seal | 5. Transfer cover | 6. Oil seal |

DRIVE PINION

< UNIT DISASSEMBLY AND ASSEMBLY >

[TRANSFER: TY21C]

- | | | |
|---|--|--|
| 7. O-ring | 8. Ring gear bearing adjusting shim (transfer cover side) | 9. Ring gear bearing (transfer cover side) |
| 10. Ring gear shaft oil seal | 11. Ring gear shaft | 12. Ring gear bearing (transfer case side) |
| 13. Ring gear bearing adjusting shim (transfer case side) | 14. Ring gear | 15. Baffle plate |
| 16. Transfer case | 17. Plug | 18. O-ring |
| 19. Oil seal | 20. Dowel pin | 21. Drive pinion |
| 22. Drive pinion adjusting shim | 23. O-ring | 24. Pinion bearing assembly |
| 25. Oil seal | 26. Dust cover | 27. Companion flange |
| 28. Pinion lock nut | | |
| A. Oil seal lip | B. Comply with the assembly procedure when tightening. Refer to DLN-83, "Assembly" . | |

: N·m (kg-m, in-lb)

: N·m (kg-m, ft-lb)

: Always replace after every disassembly.

: Apply gear oil.

: Apply anti-corrosive oil.

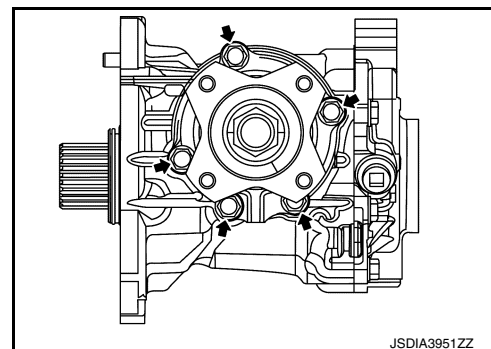
: Apply multi-purpose grease.

★: Select with proper thickness.

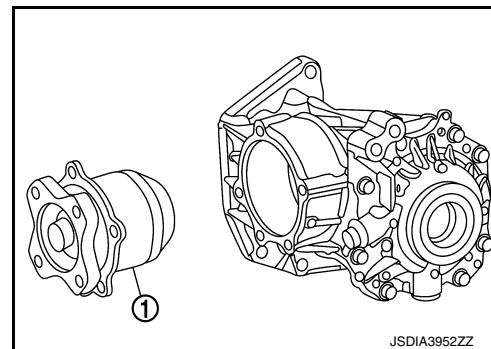
Disassembly

INFOID:000000010337345

1. Remove pinion bearing assembly mounting bolts.



2. Lightly tap companion flange with a plastic hammer to remove drive pinion assembly (1).
3. Remove the O-ring from pinion bearing.
4. Remove the pinion lock nut.

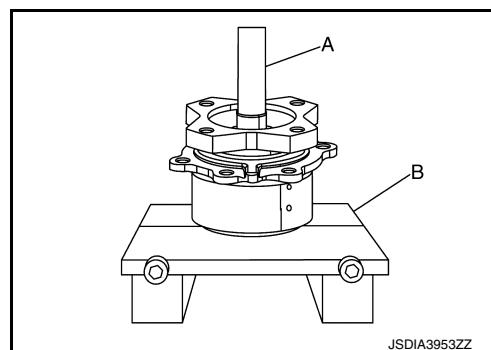


DRIVE PINION

< UNIT DISASSEMBLY AND ASSEMBLY >

[TRANSFER: TY21C]

5. Remove drive pinion from pinion bearing assembly using suitable tool (A) and suitable tool (B).
6. Remove adjusting shim.
7. Remove companion flange.
8. Remove the dust cover.
9. Remove the oil seal.
10. Perform inspection after disassembly. Refer to [DLN-88, "Inspection"](#).



INFOID:000000010337346

Assembly

1. Select drive pinion adjusting shim. Refer to [DLN-84, "Adjustment"](#).
2. Assemble the selected drive pinion adjusting shim to drive pinion.
3. Install the drive pinion to pinion bearing assembly using suitable tool.

CAUTION:

- Do not reuse pinion bearing assembly.
- Apply gear oil to pinion bearing part.

4. Install oil seal to pinion bearing assembly using suitable tool (A).

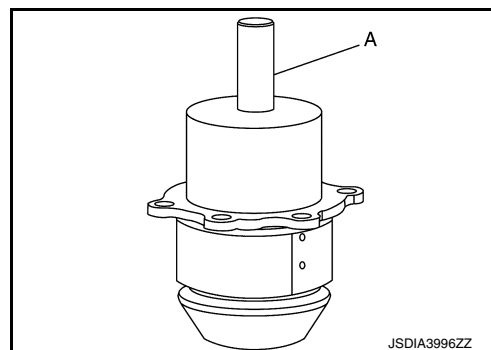
CAUTION:

- Do not reuse the oil seal.
- When installing, do not incline oil seal.
- Apply multi-purpose grease onto oil seal lips, and gear oil onto the circumference of the oil seal.

5. Install dust cover.

NOTE:

Tighten dust cover together with pinion bearing assembly.



6. Install companion flange (1) to pinion bearing using suitable tool (A).
7. Apply anti-corrosive oil to the thread and seat of the lock nut, and adjust the pinion lock nut tightening torque and pinion bearing preload torque, using a preload gauge.
- a. Install pinion lock nut, and then tighten to the specified torque.

Pinion lock nut tightening torque : 90 ± 9 N·m (9.2 ± 0.92 kg-m, 66 ± 7 ft-lb)

CAUTION:

- Do not reuse pinion lock nut.
- Check that pinion lock nut is seated on the companion flange.

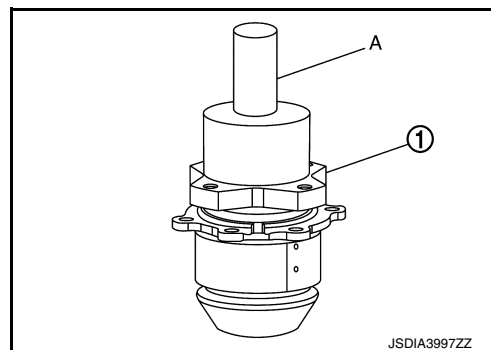
- b. After tightening pinion lock nut to the specified torque, retighten the pinion lock nut by 25 degrees.
- c. Measure the pinion bearing preload.

Pinion bearing preload : Refer to [DLN-93, "Preload Torque"](#).

8. Apply multi-purpose grease lightly and evenly onto an O-ring, and install it to the pinion bearing assembly.

CAUTION:

- Do not reuse O-ring.
- When installing O-ring, do not use a suitable tool.
- Do not damage O-ring.



DRIVE PINION

< UNIT DISASSEMBLY AND ASSEMBLY >

[TRANSFER: TY21C]

9. Install drive pinion assembly, and apply anti-corrosive oil onto thread and seats on the mounting bolts. Tighten to the specified torque.

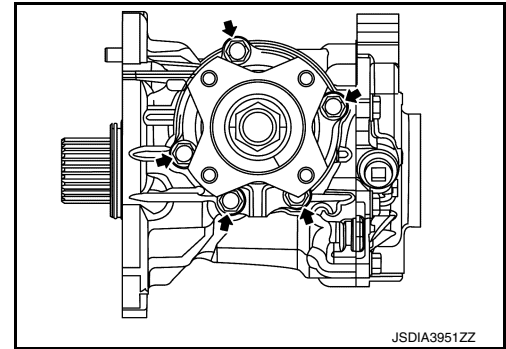
NOTE:

Tighten dust cover together with pinion bearing assembly.

10. Check backlash, tooth contact, total preload and companion flange runout. Refer to [DLN-84, "Adjustment"](#).

CAUTION:

Measure the total preload without oil seals of transfer cover and transfer case.

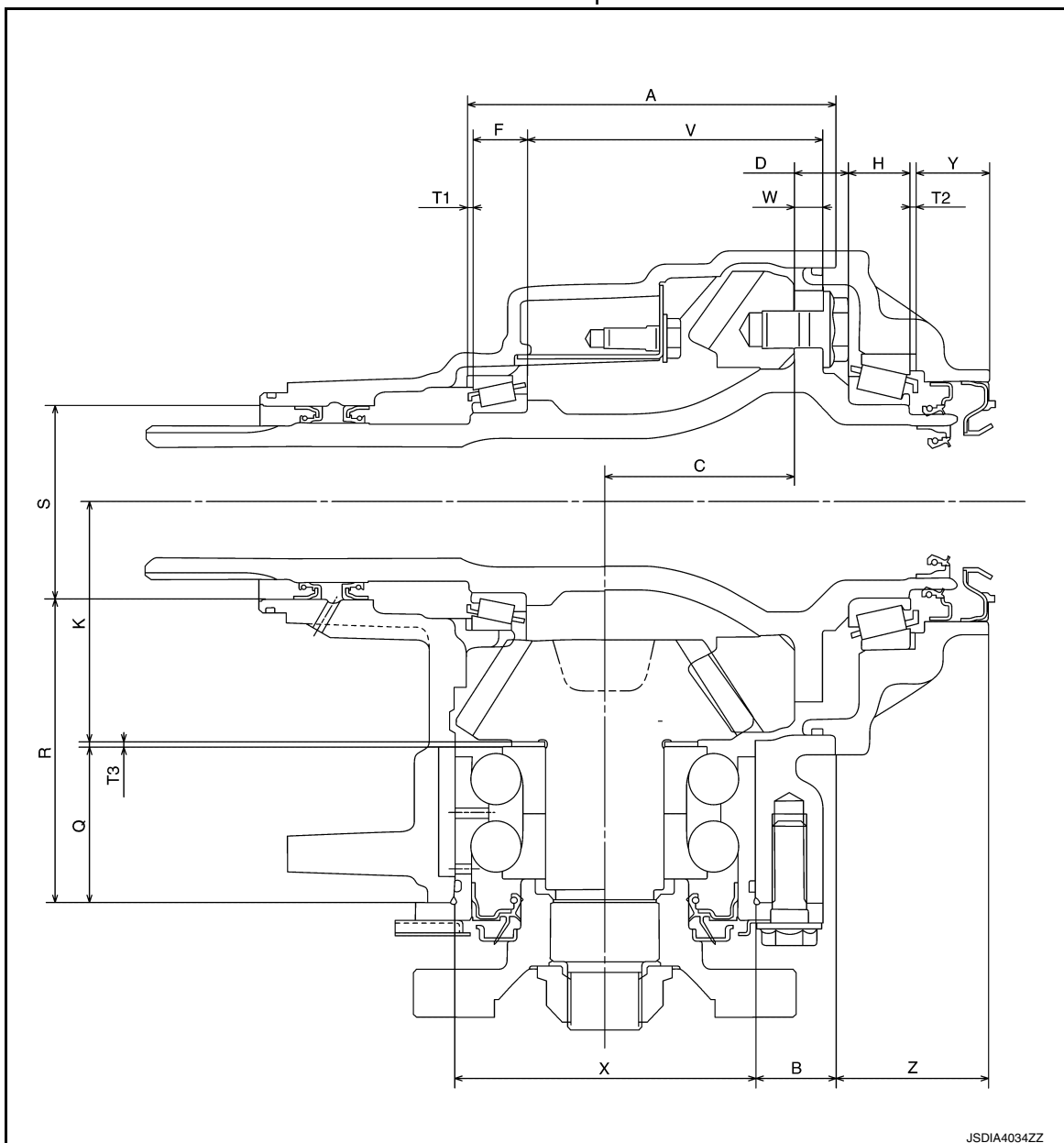


Adjustment

INFOID:000000010337347

ADJUSTING SHIM SELECTION

Measurement point



Select adjusting shim of T1, T2, and T3, respectively, by using the following equation.

T1 [Ring gear bearing adjusting shim (transfer case side)]

$$T1 = A - (B + X/2) + C + W - V - F - (M/100) + 0.071 \text{ mm (0.0028 in)}$$

DRIVE PINION

< UNIT DISASSEMBLY AND ASSEMBLY >

[TRANSFER: TY21C]

T2 [Ring gear bearing adjusting shim (transfer cover side)]

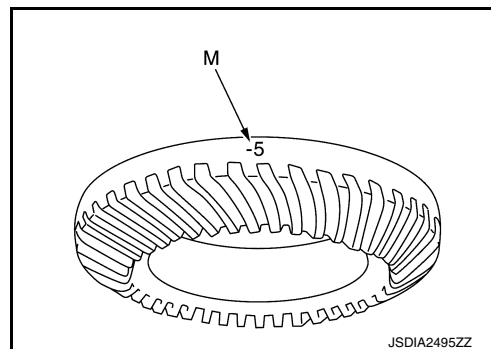
- $T2 = -Y + Z + (B + X/2) - C - D - H + (M/100) + 0.071 \text{ mm (0.0028 in)}$

T3 (Drive pinion adjusting shim)

- $T3 = -Q + (R + S/2) - K + (O/100)$
- Check dimension (M) on the ring gear side face.

NOTE:

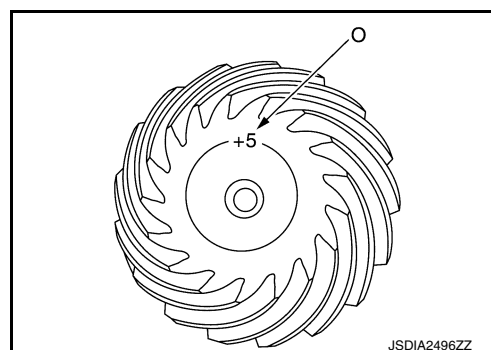
Dimension "M" indicates the difference between the optimum engagement and standard dimensions in increments of 0.01 mm (0.0004 in) written on the ring gear side face.



- Check dimension (O) on the gear end of drive pinion.

NOTE:

Dimension "O" indicates the difference between the optimum engagement and the standard dimensions in increments of 0.01 mm (0.0004 in) written on the gear end of drive pinion.



PINION BEARING PRELOAD

CAUTION:

When measuring preload, the rotating speed must be set to 30 rpm.

1. Remove ring gear shaft assembly from the transfer case. Refer to [DLN-77, "Disassembly"](#).
2. Rotate the companion flange back and forth from 2 to 3 times to check for unusual noise, binding, sticking, and so on.
3. Rotate the companion flange at least 20 times to check for smooth operation of the bearing.
4. Measure the pinion bearing preload using Tool A).

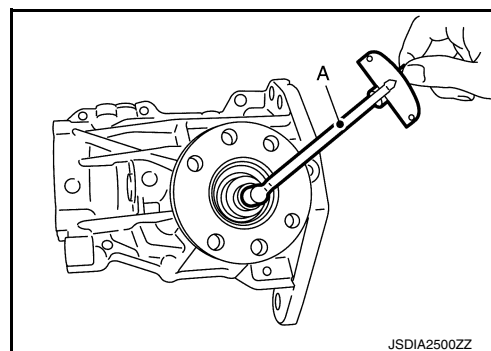
Pinion bearing preload : Refer to [DLN-93, "Preload Torque"](#).

Tool number : ST3127S000 (J-25765-A)

CAUTION:

Each rotational part should rotate smoothly with the specified gear oil.

- If outside the standard, disassemble the drive pinion assembly to check and adjust each part.



TOTAL PRELOAD

CAUTION:

When measuring preload, the rotating speed must be set to 30 rpm.

1. Measure pinion bearing preload.

CAUTION:

Check that the pinion bearing preload is within the standard.

2. Assemble the ring gear shaft assembly to the transfer case. Refer to [DLN-78, "Assembly"](#)
3. Install transfer cover to check and adjust each part. Refer to [DLN-74, "Assembly"](#).
4. Rotate the companion flange at least 20 times to check for smooth operation of the bearing.

DRIVE PINION

< UNIT DISASSEMBLY AND ASSEMBLY >

[TRANSFER: TY21C]

5. Measure the total preload using Tool (A).

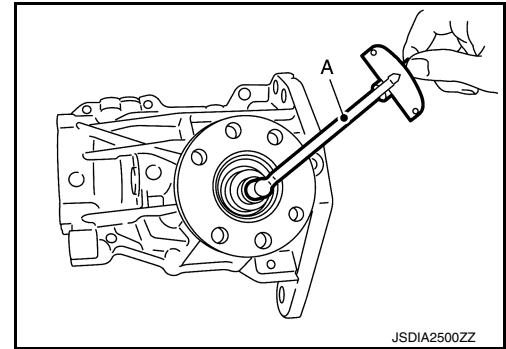
Total preload : Refer to [DLN-93, "Preload Torque"](#).

Tool number : ST3127S000 (J-25765-A)

CAUTION:

Each rotational part should rotate smoothly with the specified gear oil.

- If outside the standard, disassemble the transfer assembly to check and adjust each part. Measure it with the transfer case oil seal and transfer cover oil seal removed when measuring total preload after disassembly. Then install transfer case oil seals and transfer cover oil seal.

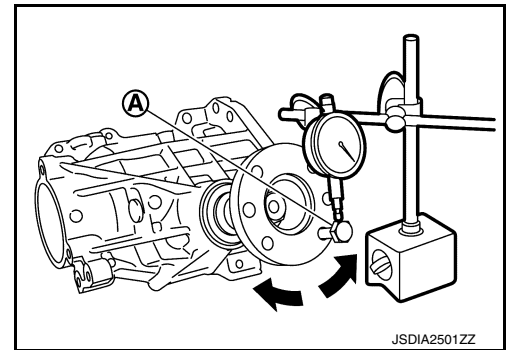


BACKLASH

1. Install the bolt to the companion flange.
2. Fit a dial indicator onto the bolt (A).
3. Measure the circumference backlash of the companion flange.

Backlash : Refer to [DLN-93, "Backlash"](#).

- If outside the standard, disassemble the transfer assembly to check and adjust each part.



TOOTH CONTACT

1. Remove transfer cover. Refer to [DLN-73, "Disassembly"](#).
2. Remove ring gear shaft assembly from transfer case. Refer to [DLN-77, "Disassembly"](#).
3. Apply red lead onto the ring gear.

CAUTION:

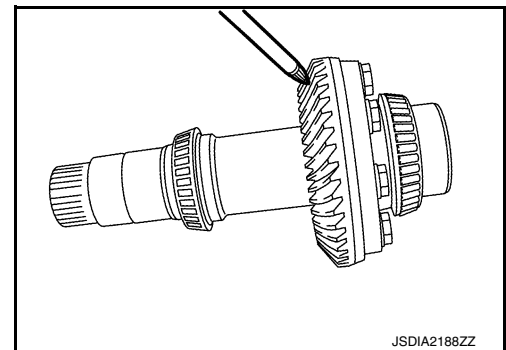
Apply red lead to both faces of 3 to 4 gears at 4 locations evenly spaced on the ring gear.

4. Assemble the ring gear shaft assembly to the transfer case. Refer to [DLN-78, "Assembly"](#).
5. Install transfer cover to check and adjust each part. Refer to [DLN-74, "Assembly"](#).

NOTE:

At this timing, O-ring installing to transfer cover is not necessary. Install O-ring after backlash and tooth contact are checked.

6. Remove the plug from the transfer case.
7. Rotate the companion flange back and forth several times, and check the drive pinion gear to ring gear tooth contact by viewing from the plug hole.



DRIVE PINION

< UNIT DISASSEMBLY AND ASSEMBLY >

[TRANSFER: TY21C]

Tooth Contact Judgment Guide

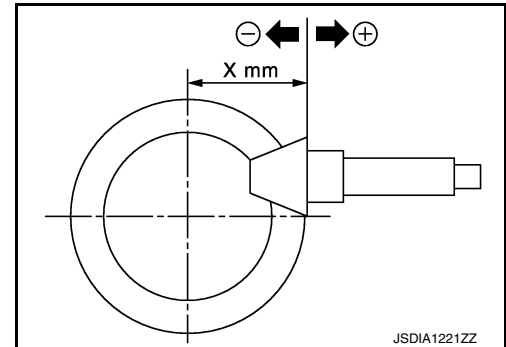
Drive pinion adjusting shim selection value mm(in)		Tooth contact condition		Need for adjustment
		Drive side	Back side	
Thinner ↑	-0.09 (-0.0035)	Heel side 	Toe side 	YES
	-0.06 (-0.0024)			
	-0.03 (-0.0012)			NO
	0			
Thicker ↓	+0.03 (+0.0012)			YES
	+0.06 (+0.0024)			
	+0.09 (+0.0035)			

JSDIA4035GB

8. Follow the procedure below to adjust pinion height (dimension X) if tooth contact is improper. For selecting adjusting shim, refer to the latest parts information.

CAUTION:

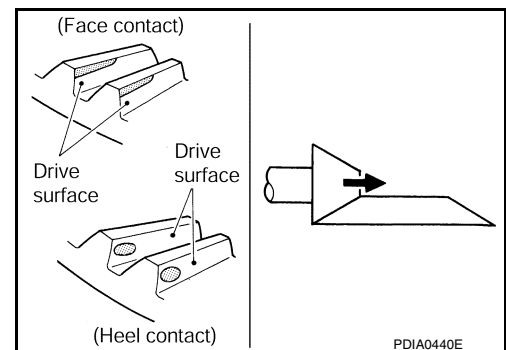
If no adjusting shim with the calculated value is available, select the thicker and closest one.



- Thicken the drive pinion adjusting shim to move the drive pinion closer to the ring gear in case of face contact or heel contact.

CAUTION:

Only one adjusting shim can be selected.



DRIVE PINION

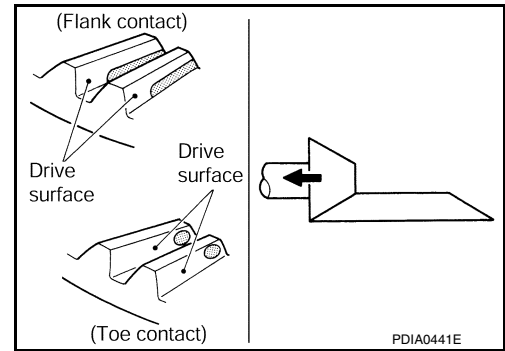
< UNIT DISASSEMBLY AND ASSEMBLY >

[TRANSFER: TY21C]

- Thin the drive pinion adjusting shim to move the drive pinion farther from the ring gear in case of flank contact or toe contact.

CAUTION:

Only one adjusting shim can be selected.



COMPANION FLANGE RUNOUT

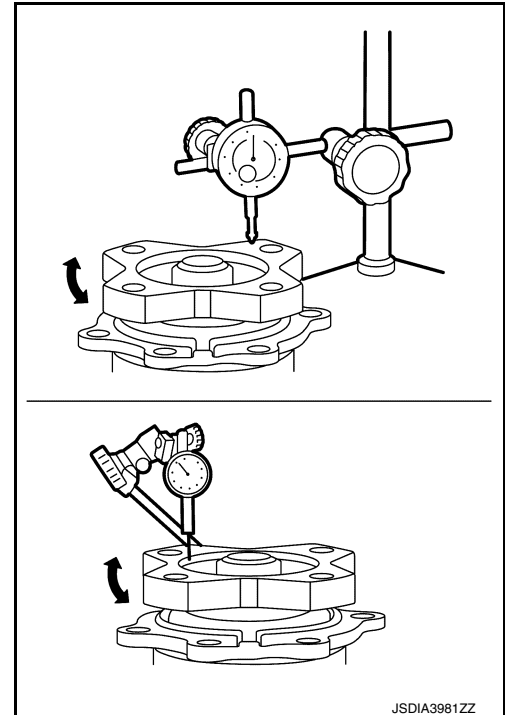
- Fit a dial indicator onto the companion flange face (inner side of the propeller shaft mounting bolt holes).
- Rotate the companion flange to check for runout.

Companion flange runout : Refer to [DLN-93, "Companion Flange Runout"](#).

- Fit suitable tool to the inner side of the companion flange (socket diameter).
- Rotate the companion flange to check for runout.

Companion flange runout : Refer to [DLN-93, "Companion Flange Runout"](#).

- Follow the procedure below to adjust if runout value is outside the repair limit.
 - Check for runout while changing the phase between companion flange and drive pinion in 90° steps. Then search for the minimum point.
 - Replace companion flange if runout value is still outside the limit after the phase has been changed.
 - Adjust assembly status of the pinion bearing and drive pinion, or replace pinion bearing assembly if runout is outside the standard after the companion flange is replaced.



Inspection

INFOID:0000000010337348

INSPECTION AFTER DISASSEMBLY

Check items below. If necessary, replace them with new ones.

Gear and Shaft

Check gear face and shaft for wear, cracks, damage, and seizure.

CAUTION:

Replace ring gear and drive pinion as a set (hypoid gear set) if any malfunction is detected on the ring gear or drive pinion.

Bearing

Check for seizure, peeling, wear, corrosion, sticking, unusual noise, roughness in hand turning, and other damage.

Shim

Check for seizure, damage, and unusual wear.

TRANSFER CASE

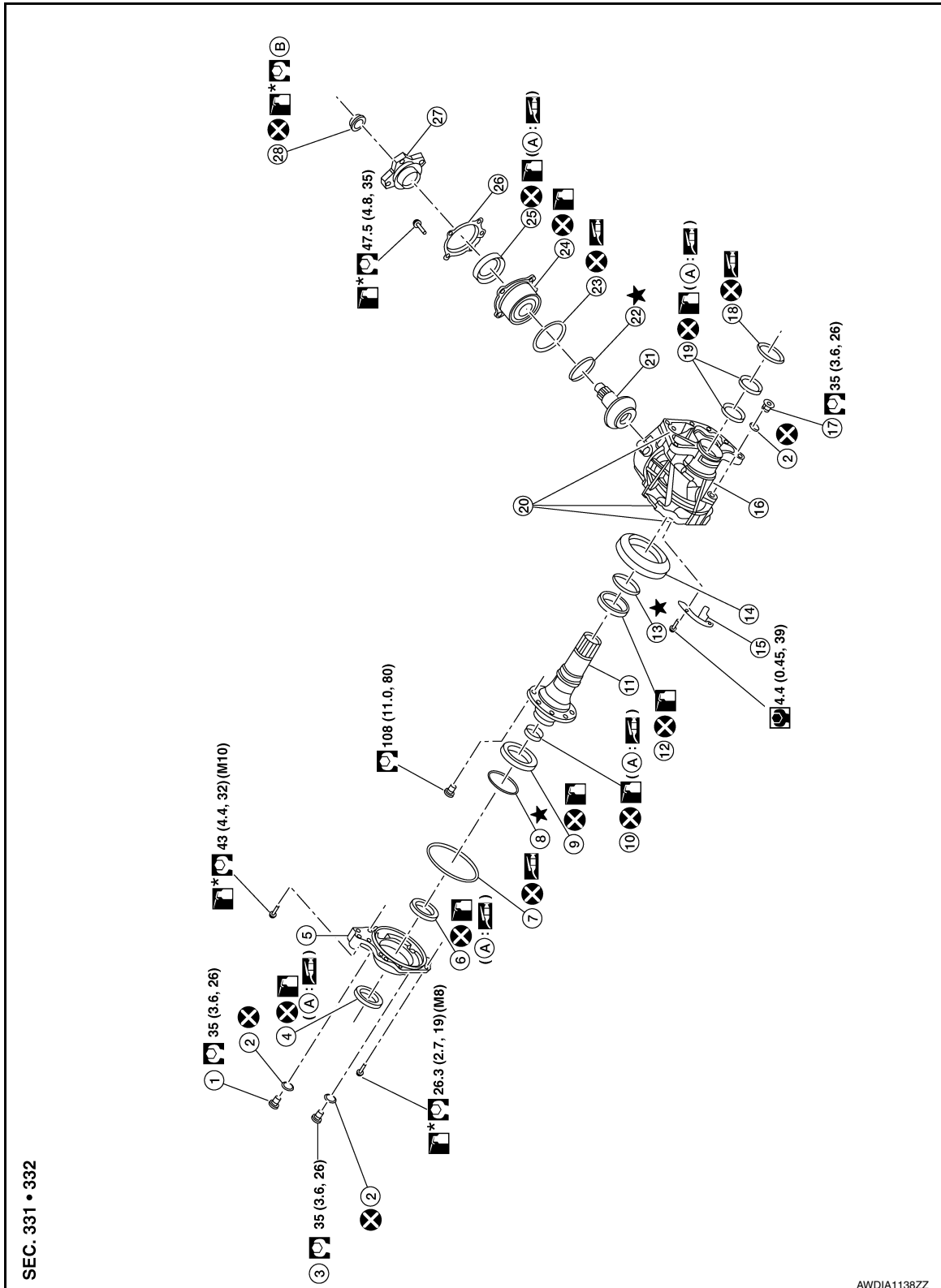
< UNIT DISASSEMBLY AND ASSEMBLY >

[TRANSFER: TY21C]

TRANSFER CASE

Exploded View

INFOID:0000000010337359



- | | | |
|----------------|-------------------|---------------|
| 1. Filler plug | 2. Gasket | 3. Drain plug |
| 4. Oil seal | 5. Transfer cover | 6. Oil seal |

TRANSFER CASE

< UNIT DISASSEMBLY AND ASSEMBLY >

[TRANSFER: TY21C]

- | | | |
|---|--|--|
| 7. O-ring | 8. Ring gear bearing adjusting shim (transfer cover side) | 9. Ring gear bearing (transfer cover side) |
| 10. Ring gear shaft oil seal | 11. Ring gear shaft | 12. Ring gear bearing (transfer case side) |
| 13. Ring gear bearing adjusting shim (transfer case side) | 14. Ring gear | 15. Baffle plate |
| 16. Transfer case | 17. Plug | 18. O-ring |
| 19. Oil seal | 20. Dowel pin | 21. Drive pinion |
| 22. Drive pinion adjusting shim | 23. O-ring | 24. Pinion bearing assembly |
| 25. Oil seal | 26. Dust cover | 27. Companion flange |
| 28. Pinion lock nut | | |
| A. Oil seal lip | B. Comply with the assembly procedure when tightening. Refer to DLN-83, "Assembly" . | |

: N·m (kg-m, in-lb)

: N·m (kg-m, ft-lb)

: Always replace after every disassembly.

: Apply gear oil.

: Apply anti-corrosive oil.

: Apply multi-purpose grease.

★: Select with proper thickness.

Disassembly

INFOID:000000010337350

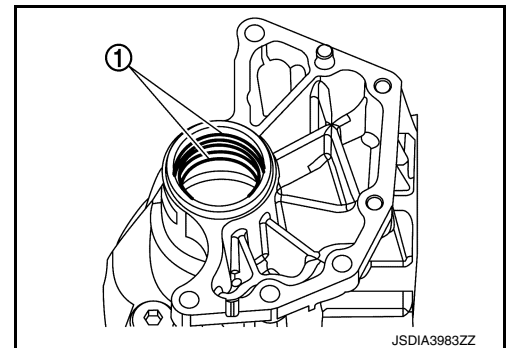
1. Remove transfer cover. Refer to [DLN-73, "Disassembly"](#).
2. Remove ring gear shaft assembly. Refer to [DLN-77, "Disassembly"](#).
3. Remove drive pinion assembly. Refer to [DLN-82, "Disassembly"](#).
4. Remove O-ring from transfer case.

CAUTION:

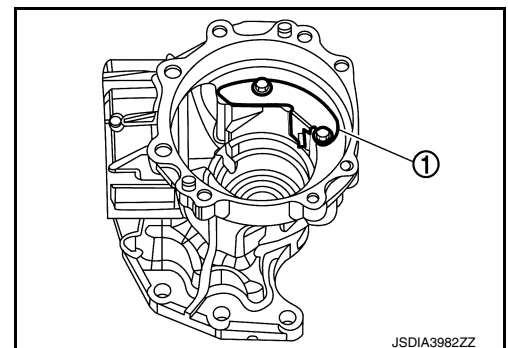
 - Do not use a suitable tool.
 - Do not damage transfer case.
5. Remove oil seals (1).

CAUTION:

Do not damage transfer case.



6. Remove baffle plate (1).



TRANSFER CASE

< UNIT DISASSEMBLY AND ASSEMBLY >

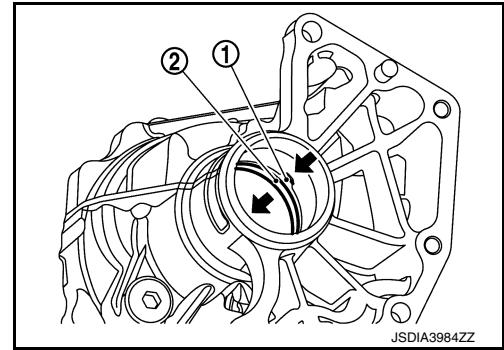
[TRANSFER: TY21C]

- Remove the ring gear bearing adjusting shim (transfer case side) (1) and ring gear bearing outer race (transfer case side) (2) by tapping from the 2 cutouts (◀) on the transfer case.

CAUTION:

Do not damage transfer case.

- Remove plug and gasket.
- Perform inspection after disassembly. Refer to [DLN-92, "Inspection"](#).



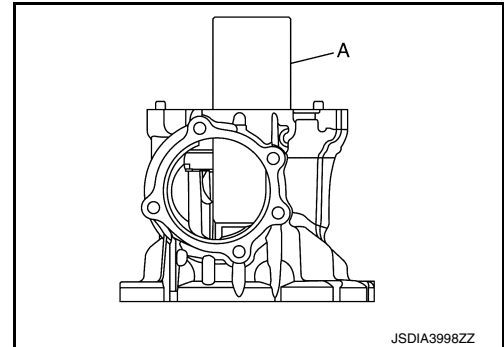
Assembly

INFOID:0000000010337351

- Select the ring gear bearing adjusting shim (transfer case side). Refer to [DLN-84, "Adjustment"](#).
- Install the selected ring gear bearing adjusting shim (transfer case side) and ring gear bearing outer race (transfer case side) using suitable tool (A).

CAUTION:

- Do not reuse ring gear bearing.
- Apply gear oil to the ring gear bearing.



- Install baffle plate (1).
- Install ring gear shaft assembly. Refer to [DLN-78, "Assembly"](#).
- Install drive pinion assembly. Refer to [DLN-83, "Assembly"](#).
- Install transfer cover to check and adjust each part. Refer to [DLN-74, "Assembly"](#).

NOTE:

At this timing, O-ring installing to transfer cover is not necessary. Install O-ring after backlash and tooth contact are checked.

- Check backlash, tooth contact, total preload and companion flange runout. Refer to [DLN-84, "Adjustment"](#).

CAUTION:

Measure the total preload without oil seals of transfer cover and transfer case.

- Reinstall transfer cover for installing O-ring. Refer to [DLN-74, "Assembly"](#).
- Install oil seals using suitable tool.

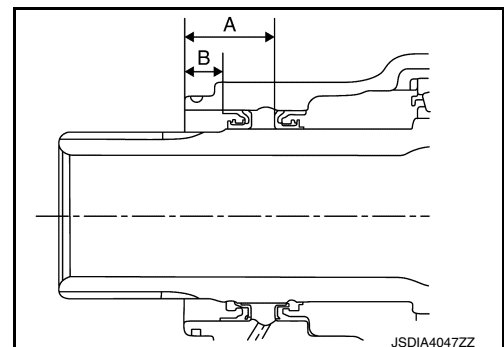
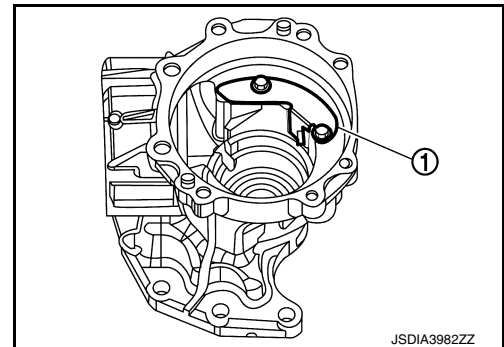
(A) : 24.8 mm (0.976 in)

(B) : 10.3 mm (0.406 in)

CAUTION:

- When checking the total preload torque, measure it without the oil seal, then install the oil seal.
- Do not reuse the oil seal.
- When installing, do not incline oil seal.
- Apply multi-purpose grease onto oil seal lips, and gear oil onto the circumference of the oil seal.
- Do not damage oil seals by spline of ring gear shaft.

- After installing oil seals to transfer case, remove wrapped vinyl from the spline of ring gear shaft.
- Apply multi-purpose grease lightly and evenly onto an O-ring, and install it to the transfer case.



TRANSFER CASE

< UNIT DISASSEMBLY AND ASSEMBLY >

[TRANSFER: TY21C]

CAUTION:

- Do not reuse O-ring.
- When installing O-ring, do not use a suitable tool.
- Do not damage O-ring.

Inspection

INFOID:0000000010337352

INSPECTION AFTER DISASSEMBLY

Check items below. If necessary, replace them with new ones.

Case

Check the bearing mounting surface for wear, cracks and damages.

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

[TRANSFER: TY21C]

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

General Specifications

INFOID:0000000009991804

ℓ (US pt, Imp pt)

Applied model	AWD	
	QR25DE	
	CVT	
Transfer model	TY21C	
Oil Type	MA-11, "Fluids and Lubricants"	
Oil capacity (Approx.)	0.31 (5/8 pt, 1/2 pt)	
Gear ratio	0.404	
Number of teeth	Ring gear	42
	Drive pinion	17

Preload Torque

INFOID:0000000010337353

Unit: N·m (kg·m, in·lb)

Item		Standard
Pinion bearing preload		0.25 – 1.15 (0.03 – 0.11, 3.0 – 10.0)
Total preload	With all oil seals	P1 + 0.7 – 1.0 (0.08 – 0.1, 7.0 – 8.0)
	Without oil seals (for transfer cover and transfer case)	P1 + 0.5 – 0.8 (0.06 – 0.08, 5.0 – 7.0)

Backlash

INFOID:0000000010337354

Unit: mm (in)

Item	Standard
Ring gear to drive pinion	0.16 – 0.21 (0.0063 – 0.0083)

Companion Flange Runout

INFOID:0000000010337355

Unit: mm (in)

Item	Limit
Companion flange face (inner side of the propeller shaft mounting bolt holes)	0.15 (0.0059)
Inside of companion flange (socket diameter)	0.1 (0.004)

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010292458

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Precaution for Propeller Shaft

INFOID:0000000010315567

- Replace the propeller shaft assembly if there is a breakage or deflection on tube.
- Never hit the tube or apply an impact on it during repair service. Never damage the tube as well.
- The joint cannot be disassembled. Never disassemble it.
- If constant velocity joint was bent during propeller shaft assembly removal, installation, or transportation, its boot may be damaged. Wrap boot interference area to metal part with shop cloth or rubber to protect boot from breakage.

PREPARATION

< PREPARATION >

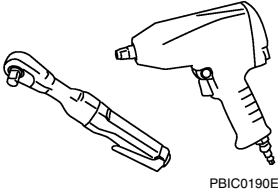
[REAR PROPELLER SHAFT: C-CVJ-C]

PREPARATION

PREPARATION

Commercial Service Tools

INFOID:0000000009995323

Tool name	Description
Power tool	Loosening bolts and nuts
 PBIC0190E	

A

B

C

DLN

E

F

G

H

I

J

K

L

M

N

O

P

SYSTEM DESCRIPTION

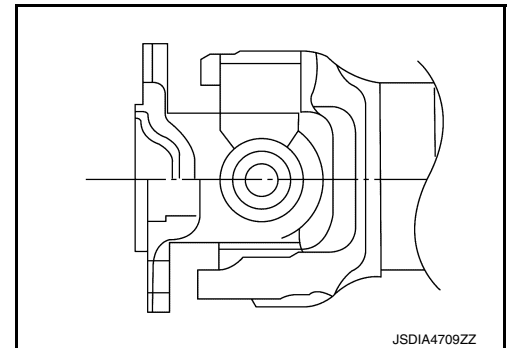
STRUCTURE AND OPERATION

Sectional View

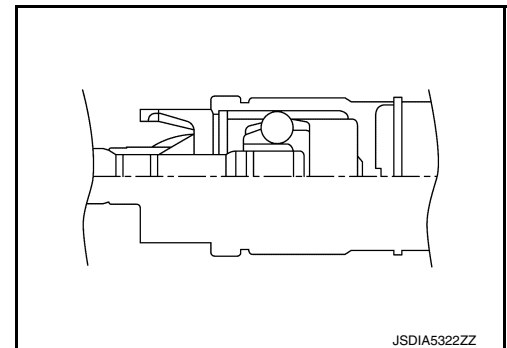
INFOID:000000009995324

PART OF JOINT

Universal Type (Shell Type)



CVJ Type



NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

< SYMPTOM DIAGNOSIS >

[REAR PROPELLER SHAFT: C-CVJ-C]

SYMPTOM DIAGNOSIS

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

NVH Troubleshooting Chart

INFOID:000000009797671

Use the chart below to find the cause of the symptom. If necessary, repair or replace these parts.

Reference		DLN-98, "Inspection"	DLN-99, "Exploded View"	—	DLN-101, "Inspection"	—	DLN-98, "Inspection"	DLN-98, "Inspection"	NVH of REAR FINAL DRIVE in this section.	NVH in FAX, RAX, FSU, and RSU section.	NVH in WT section.	NVH in WT section.	NVH in FAX and RAX section.	NVH in BR section.	NVH in ST section.
Possible cause and SUSPECTED PARTS		Uneven rotating torque	Center bearing improper installation	Excessive center bearing axial end play	Center bearing mounting (insulator) cracks, damage or deterioration	Excessive joint angle	Rotation imbalance	Excessive runout	DIFFERENTIAL	AXLE AND SUSPENSION	TIRE	ROAD WHEEL	DRIVE SHAFT	BRAKE	STEERING
Symptom	Noise	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	Shake		x			x				x	x	x	x	x	x
	Vibration	x	x	x	x	x	x	x		x	x		x		x

x: Applicable

PERIODIC MAINTENANCE

REAR PROPELLER SHAFT

Inspection

INFOID:000000009797673

APPEARANCE AND NOISE

- Check the propeller shaft tube surface for dents or cracks. If malfunction is detected, replace propeller shaft assembly.
- If center bearing is noisy or damaged, replace propeller shaft assembly.

VIBRATION

If vibration is present at high speed, adjust the propeller shaft phase first.

1. Check the propeller shaft for bend and damage. If damaged, replace propeller shaft assembly.
2. Perform a cruise test drive to check the propeller shaft for runout. If vibration occurs, separate propeller shaft at electric controlled coupling of final drive; then change the phase between electric controlled coupling stud bolt and propeller shaft by the one bolt hole at a time and install propeller shaft.
3. If vibration is still detected, measure propeller shaft runout after removing it. Refer to [DLN-101, "Inspection"](#).

REAR PROPELLER SHAFT

< REMOVAL AND INSTALLATION >

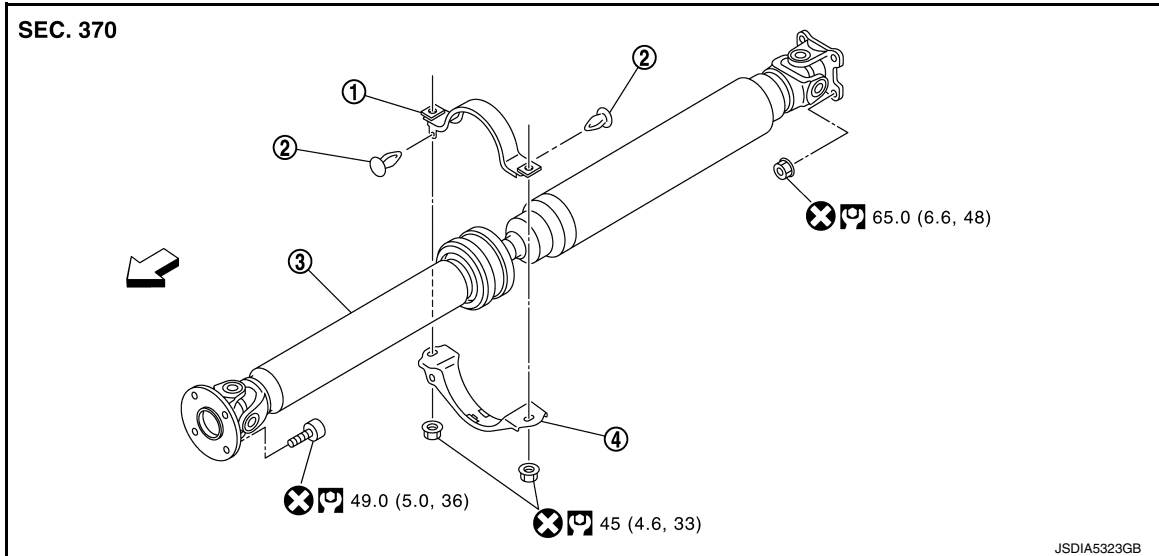
[REAR PROPELLER SHAFT: C-CVJ-C]

REMOVAL AND INSTALLATION

REAR PROPELLER SHAFT

Exploded View

INFOID:000000009797674



- ① Center bearing mounting bracket (upper) ② Clip ③ Propeller shaft assembly
- ④ Center bearing mounting bracket (lower)
- ⇐: Vehicle front
- : N·m (kg-m, ft-lb)
- : Always replace after every disassembly.

Removal and Installation

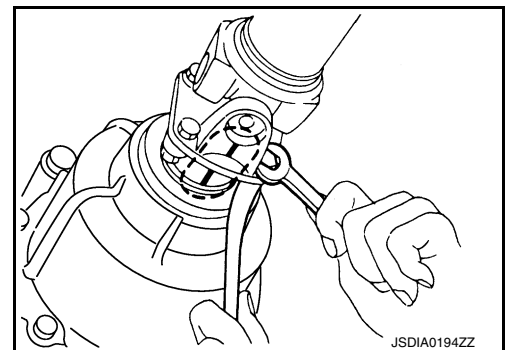
INFOID:000000009797675

REMOVAL

1. Shift the transaxle to the neutral position, and then release the parking brake.
2. Remove muffler assembly. Refer to [EX-5, "Removal and Installation"](#).
3. Put matching marks onto propeller shaft flange yoke and final drive and transfer companion flanges.

CAUTION:

For matching marks, use paint. Do not damage propeller shaft flange yoke and transfer companion flange.



REAR PROPELLER SHAFT

< REMOVAL AND INSTALLATION >

[REAR PROPELLER SHAFT: C-CVJ-C]

4. Loosen nuts of center bearing brackets (upper/lower).

↩ : Front

CAUTION:

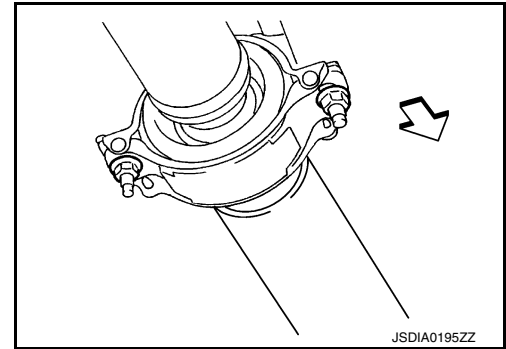
Tighten nuts temporarily.

5. Remove propeller shaft assembly bolts and nuts.
6. Remove center bearing bracket nuts.
7. Remove propeller shaft assembly.

CAUTION:

If constant velocity joint was bent during propeller shaft assembly removal, installation, or transportation, its boot may be damaged. Wrap boot interference area to metal part with shop cloth or rubber to protect boot from breakage.

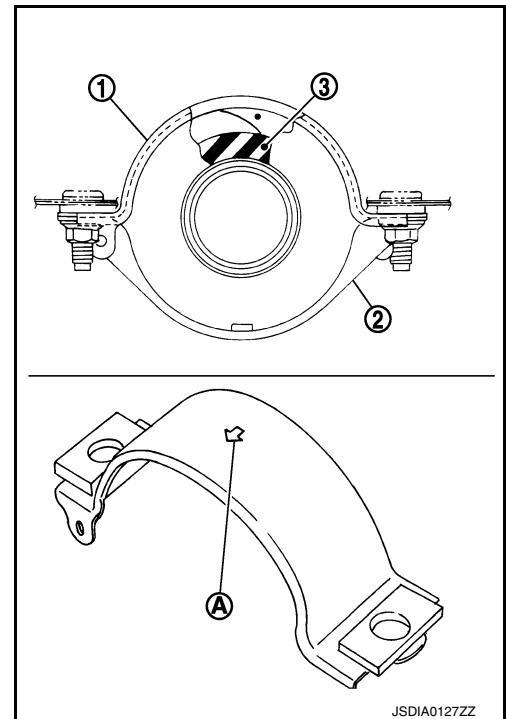
8. Remove clips and center bearing bracket (upper/lower).



INSTALLATION

Installation is in the reverse order of removal.

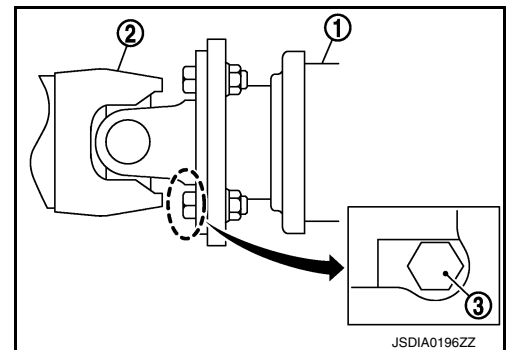
- When removing propeller shaft from final drive assembly (electric controlled coupling), replace stud bolts of electric controlled coupling.
- Install center bearing bracket (upper) (1) with its arrow mark (A) facing forward.
- Adjust position of center bearing bracket (upper), center bearing bracket (lower) (2) sliding back and forth to prevent play in thrust direction of center bearing insulator (3). Install center bearing bracket (upper/lower) to vehicle.
- Align matching marks to install propeller shaft assembly to final drive and transfer companion flanges.
- Perform inspection after installation. Refer to [DLN-101. "Inspection"](#).



- After tightening the bolts and nuts to the specified torque, make sure that the bolts (3) on the flange side is tightened as shown in the figure.

(1) : Final drive assembly

(2) : Propeller shaft assembly



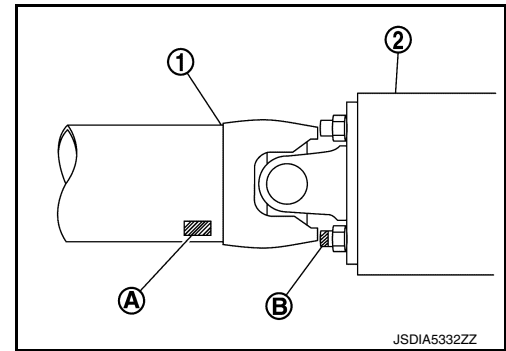
- If propeller shaft assembly or final drive assembly (electric controlled coupling) has been replaced, connect them as follows:

REAR PROPELLER SHAFT

< REMOVAL AND INSTALLATION >

[REAR PROPELLER SHAFT: C-CVJ-C]

- Install propeller shaft (1) while aligning its matching marks (A) on propeller shaft with matching mark (B) on electric controlled coupling and join them as close as possible.



INFOID:000000009797676

Inspection

INSPECTION AFTER REMOVAL

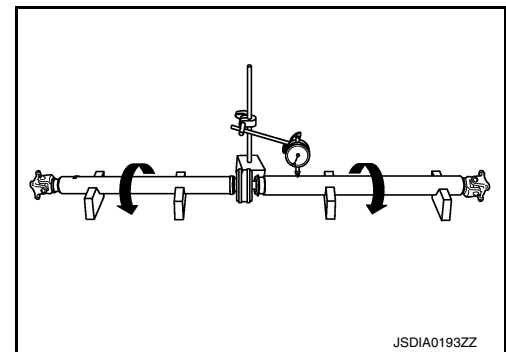
Appearance

Check propeller shaft tube surface for dents or cracks. If malfunction is detected, replace propeller shaft assembly.

Propeller Shaft Runout

Check propeller shaft runout at measuring points with a dial indicator. If runout exceeds specifications, replace propeller shaft assembly.

Propeller shaft runout : Refer to [DLN-103, "Propeller Shaft Runout"](#).

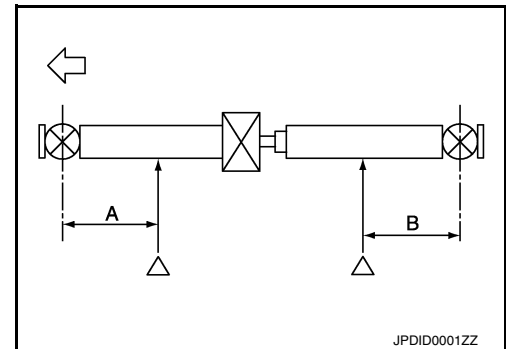


- Propeller shaft runout measuring point (Point "Δ").

← : Front side

Dimension

A : 541.5 mm (21.32 in)
B : 488.7 mm (19.24 in)

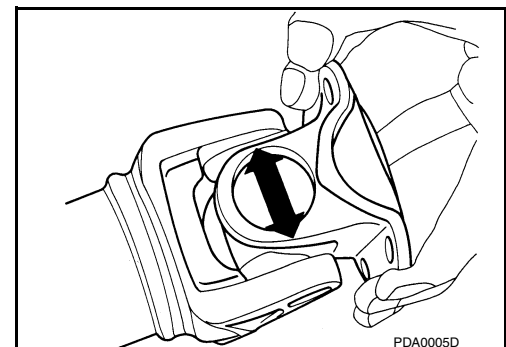


Journal Axial Play

As shown in the figure, while fixing yoke on one side, check axial play of joint. If it is outside the standard, replace propeller shaft assembly.

Journal axial play : Refer to [DLN-103, "Journal Axial Play"](#).

CAUTION:
Never disassemble joints.



Center Bearing

Check center bearing for noise and damage. If malfunction is detected, replace propeller shaft assembly.

CAUTION:

REAR PROPELLER SHAFT

< REMOVAL AND INSTALLATION >

[REAR PROPELLER SHAFT: C-CVJ-C]

Never disassemble center bearing.

INSPECTION AFTER INSTALLATION

After assembly, perform a driving test to check propeller shaft vibration. If vibration occurred, separate propeller shaft from final drive. Reinstall propeller shaft by changing the phase between electric controlled coupling stud bolt and propeller shaft by the one bolt hole at a time. Then perform driving test and check propeller shaft vibration again at each point.

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

[REAR PROPELLER SHAFT: C-CVJ-C]

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

General Specifications

INFOID:0000000009797677

Applied model	AWD	
	QR25DE	
	CVT	
Propeller shaft model	C-CVJ-C	
Number of joints	3	
Joint type	1st joint	Universal (Shell type)
	2nd joint	CVJ type
	3rd joint	Universal (Shell type)
Coupling method	Transfer side	Flange type
	Rear final drive side	Flange type
Shaft length	1st (Spider to CVJ joint center)	1196 mm (47.09 in)
	2nd (CVJ joint center to spider)	983 mm (38.70 in)
Shaft outer diameter	1st	63.5 mm (2.500 in)
	2nd	70.0 mm (2.756 in)

Propeller Shaft Runout

INFOID:0000000009797678

Unit: mm (in)	
Item	Standard
Propeller shaft runout	0.6 (0.024) or less

Journal Axial Play

INFOID:0000000009797679

Unit: mm (in)	
Item	Standard
Journal axial play	0 (0)

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:000000010292459

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Service Notice or Precautions for Rear Final Drive

INFOID:000000010337807

- Check for the correct installation status prior to removal or disassembly. If matching marks are required, be certain they never interfere with the function of the parts when applied.
- Overhaul should be done in a clean work area, it is preferable to work in dustproof area.
- Before disassembly, using steam or white gasoline, completely remove sand and mud from the exterior of the unit, preventing them from entering into the unit during disassembly or assembly.
- Check appearance of the disassembled parts for damage, deformation, and unusual wear. Replace them with a new ones if necessary.
- Gaskets, seals and O-rings should be replaced any time when the unit is disassembled.
- In principle, tighten bolts or nuts gradually in several steps working diagonally from inside to outside. If tightening sequence is specified, observe it.
- Clean and flush the parts sufficiently and blow-dry them.
- Be careful not to damage sliding surfaces and mating surfaces.
- When applying sealant, remove the old sealant from the mounting surface; then remove any moisture, oil, and foreign materials from the application and mounting surfaces.
- Always use shop paper for cleaning the inside of components.
- Never use cotton gloves or shop rags to prevent entering of lint.
- During assembly, observe the specified tightening torque, and apply new gear oil, petroleum jelly, or multi-purpose grease as specified for each vehicle, if necessary.

PREPARATION

< PREPARATION >

[REAR FINAL DRIVE: R145]

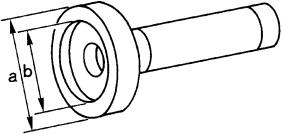
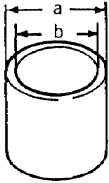
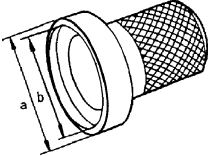
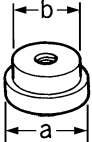
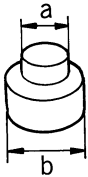
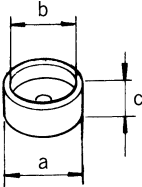
PREPARATION

PREPARATION

Special Service Tools

INFOID:0000000010339798

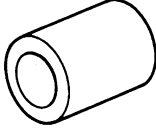
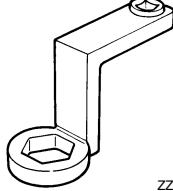
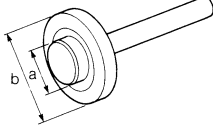
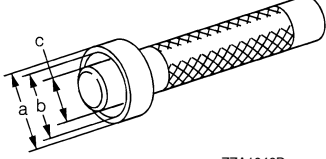
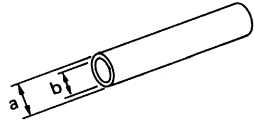
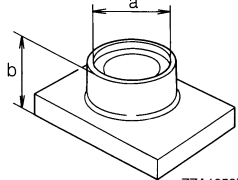
The actual shapes of TechMate tools may differ from those of special service tools illustrated here.

Tool number (TechMate No.) Tool name	Description
KV38100200 (J-26233) Drift a: 65 mm (2.56 in) dia. b: 49 mm (1.93 in) dia.  ZZA1143D	- Installing drive pinion oil seal - Installing side oil seal
ST27861000 (—) Drift a: 62 mm (2.44 in) dia. b: 52 mm (2.05 in) dia.  ZZA0832D	Installing drive pinion oil seal
ST35271000 (J-26091) Drift a: 72 mm (2.83 in) dia. b: 63 mm (2.48 in) dia.  ZZA0814D	Installing drive pinion oil seal
KV40100610 (J-26089) Drift a: 63 mm (2.48 in) dia. b: 54.3 mm (2.138 in) dia.  ZZA1000D	- Removing and installing gear carrier and rear cover (2 pieces are used) - Installing pinion front bearing inner race
ST33052000 (—) Adaptor a: 22 mm (0.87 in) dia. b: 28 mm (1.10 in) dia.  ZZA1023D	Removing side bearing inner race
KV40105020 (—) Drift a: 39.7 mm (1.563 in) dia. b: 35 mm (1.38 in) dia. c: 15 mm (0.59 in)  ZZA1133D	Installing side bearing inner race

PREPARATION

< PREPARATION >

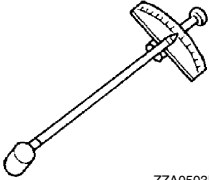
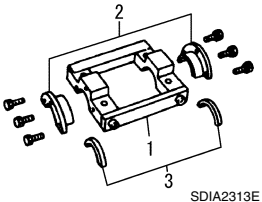
[REAR FINAL DRIVE: R145]

Tool number (TechMate No.) Tool name	Description
KV38109500 (—) Drive pinion socket	 ZZA1205D • Removing and installing drive pinion lock nut • Measuring preload torque
KV38109400 (—) Pinion nut wrench	 ZZA1206D Removing and installing drive pinion lock nut
ST17130000 (—) Drift a: 31.8 mm (1.252 in) dia. b: 58 mm (2.28 in) dia.	 ZZA0836D Installing pinion rear bearing outer race
ST33230000 (J-25805-01) Drift a: 51 mm (2.01 in) dia. b: 41 mm (1.61 in) dia. c: 28.5 mm (1.122 in) dia.	 ZZA1046D Installing pinion front bearing outer race
ST23860000 (—) Drift a: 38 mm (1.50 in) dia. b: 33 mm (1.30 in) dia.	 ZZA0534D • Installing pinion rear bearing inner race • Installing pinion front bearing inner race
ST38220000 (—) Press stand a: 63 mm (2.48 in) dia. b: 65 mm (2.56 in)	 ZZA1058D Installing pinion front bearing inner race

PREPARATION

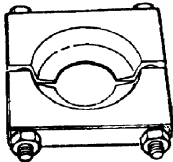
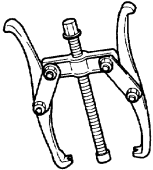
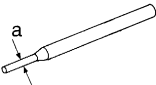
< PREPARATION >

[REAR FINAL DRIVE: R145]

Tool number (TechMate No.) Tool name	Description	
ST3127S000 (J-25765-A) Preload gauge	Measuring preload torque	A
 ZZA0503D		B
KV381086S1 (—) Dummy cover set 1. KV38108610 (—) Dummy cover 2. KV38108621 (—) Dummy cover spacer 3. KV38108630 (—) Dummy cover shim	• Checking backlash • Checking drive gear runout • Checking tooth contact	C
 SDIA2313E		DLN

Commercial Service Tools

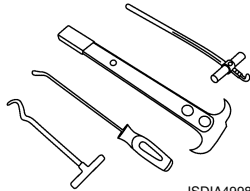
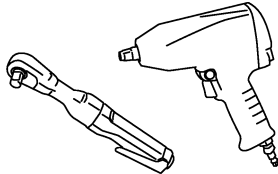
INFOID:0000000010339799

Tool name	Description	
Separator	• Removing side bearing inner race • Removing pinion rear bearing inner race	H
 ZZA0700D		I
Puller	• Removing side bearing inner race • Removing pinion rear bearing inner race	J
 ZZA0119D		K
Pin punch a: 4.5 mm (0.177 in) dia.	Removing and installing lock pin	L
 NT410		M

PREPARATION

< PREPARATION >

[REAR FINAL DRIVE: R145]

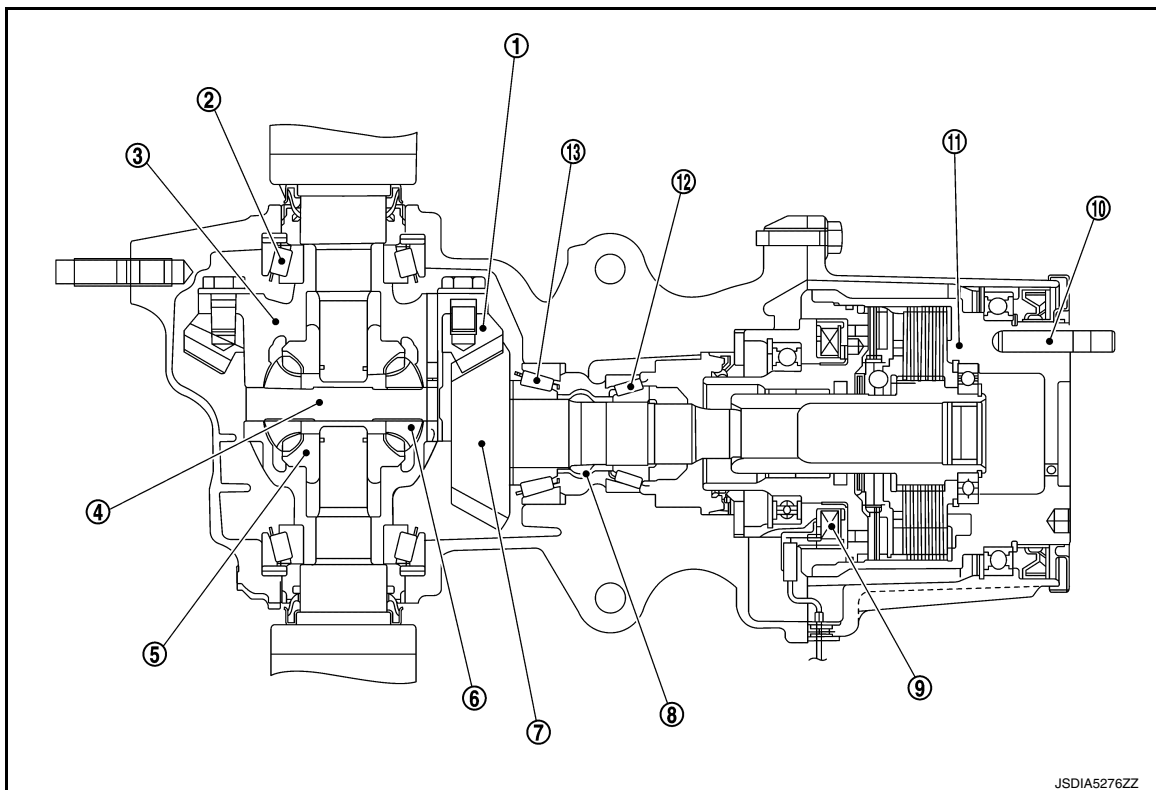
Tool name	Description
Oil seal remover  JSDIA4998ZZ	Removing drive pinion oil seal
Power tool  PBIC0190E	Loosening bolts and nuts

SYSTEM DESCRIPTION

STRUCTURE AND OPERATION

Sectional View

INFOID:0000000009995344



- | | | |
|-----------------------|--------------------------------|------------------------|
| ① Drive gear | ② Side bearing | ③ Differential case |
| ④ Pinion mate shaft | ⑤ Side gear | ⑥ Pinion mate gear |
| ⑦ Drive pinion | ⑧ Collapsible spacer | ⑨ AWD solenoid |
| ⑩ Stud bolt | ⑪ Electric controlled coupling | ⑫ Pinion front bearing |
| ⑬ Pinion rear bearing | | |

Electric Controlled Coupling

INFOID:0000000009995345

The electric controlled coupling operates as the AWD system. For the operation, refer to [DLN-12, "Operation Description"](#).

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

< SYMPTOM DIAGNOSIS >

[REAR FINAL DRIVE: R145]

SYMPTOM DIAGNOSIS

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

NVH Troubleshooting Chart

INFOID:000000009797681

Use the chart below to find the cause of the symptom. If necessary, repair or replace these parts.

Reference		DLN-134, "Inspection"	DLN-130, "Adjustment"	DLN-134, "Inspection"	DLN-130, "Adjustment"	—	DLN-111, "Inspection"	NVH of REAR PROPELLER SHAFT in this section.	NVH in FAX, RAX, FSU and RSU sections	NVH in WT section	NVH in WT section	NVH in FAX and RAX section	NVH in BR section	NVH in ST section
Possible cause and SUSPECTED PARTS		Gear tooth rough	Gear contact improper	Tooth surfaces worn	Backlash incorrect	Companion flange excessive runout	Gear oil improper	PROPELLER SHAFT	AXLE AND SUSPENSION	TIRE	ROAD WHEEL	DRIVE SHAFT	BRAKE	STEERING
Symptom	Noise	x	x	x	x	x	x	x	x	x	x	x	x	x

x: Applicable

REAR DIFFERENTIAL GEAR OIL

< PERIODIC MAINTENANCE >

[REAR FINAL DRIVE: R145]

PERIODIC MAINTENANCE

REAR DIFFERENTIAL GEAR OIL

Inspection

INFOID:000000009797685

OIL LEAKS

Make sure that oil is not leaking from final drive assembly or around it.

OIL LEVEL

- Remove filler plug (1) and check oil level from filler plug mounting hole as shown.

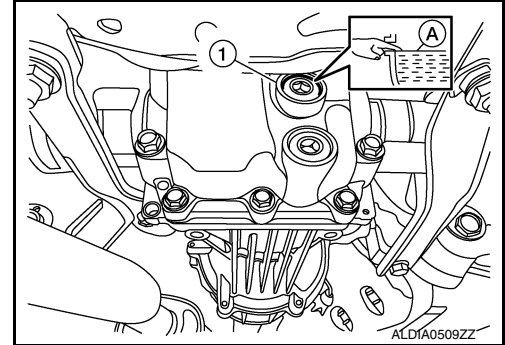
CAUTION:

Do not start engine while checking oil level.

- Set a new gasket on filler plug and install it on final drive assembly. Refer to [DLN-124, "Exploded View"](#).

CAUTION:

Do not reuse gasket.



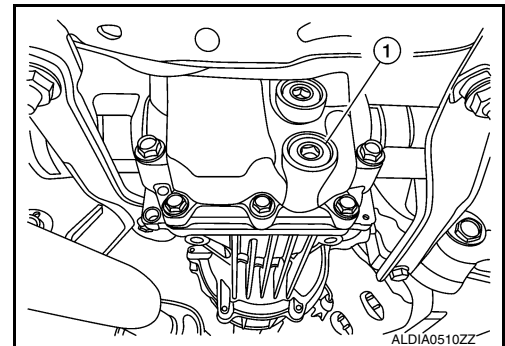
Draining

INFOID:000000009797686

- Stop engine.
- Remove drain plug (1) and drain gear oil.
- Set a new gasket on drain plug and install it to final drive assembly and tighten to the specified torque. Refer to [DLN-124, "Exploded View"](#).

CAUTION:

Do not reuse gasket.



Refilling

INFOID:000000009797687

- Remove filler plug (1). Fill with new gear oil until oil level reaches the specified level near filler plug hole.

Oil grade and viscosity

: Refer to [MA-11, "Fluids and Lubricants"](#).

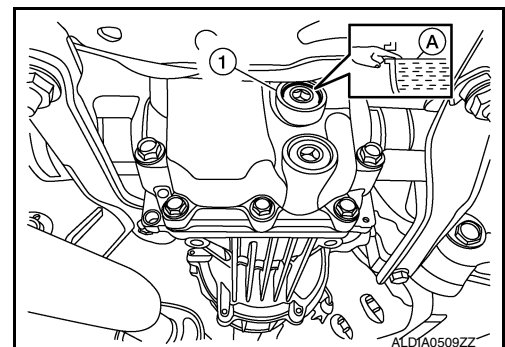
Oil capacity

: Refer to [DLN-141, "General Specifications"](#).

- After refilling oil, check oil level. Set a new gasket to filler plug, then install it to final drive assembly. Refer to [DLN-124, "Exploded View"](#).

CAUTION:

Do not reuse gasket.

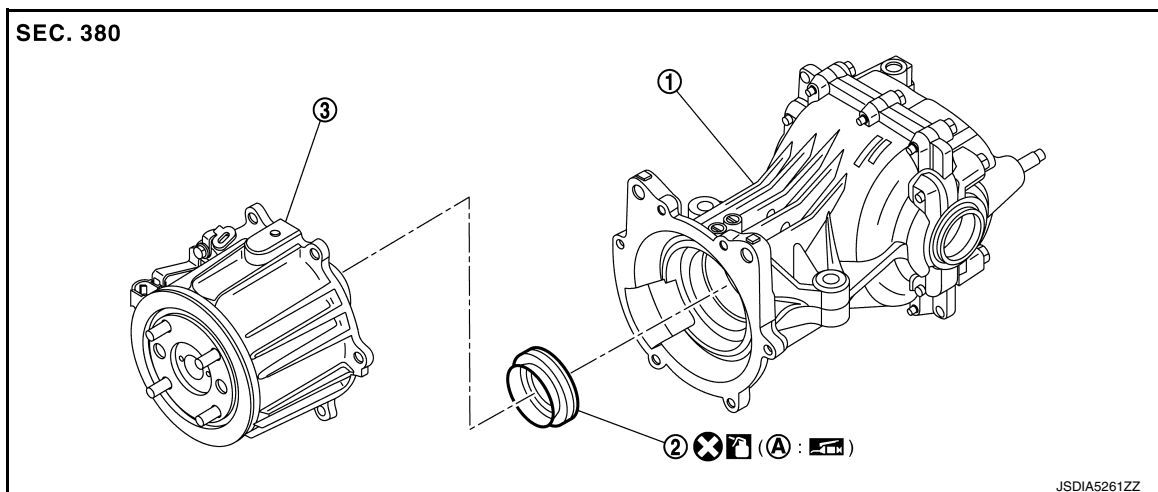


REMOVAL AND INSTALLATION

DRIVE PINION OIL SEAL

Exploded View

INFOID:000000009797688



- ① Rear final drive assembly ② Drive pinion oil seal ③ Electric controlled coupling assembly

(A) Oil seal lip

⊗: Always replace after every disassembly.

🔧: Apply gear oil.

🔧: Apply multi-purpose grease.

Removal and Installation

INFOID:000000009797689

REMOVAL

1. Remove electric controlled coupling. Refer to [DLN-114, "Removal and Installation"](#).
2. Using a suitable tool remove drive pinion oil seal.

CAUTION:

Do not damage rear final drive assembly.

INSTALLATION

1. Install drive pinion oil seal (1) using Tool (A).

Oil seal installation : 0.8 - 1.2 mm (0.031 - 0.047 in)

length (B)

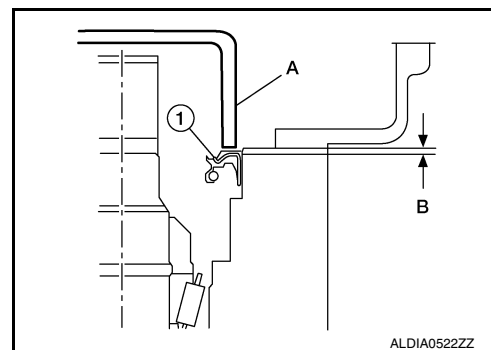
Tool number : KV38100200 (J-26233)

: ST27861000 (—)

CAUTION:

- Do not reuse oil seal.
- When installing, do not incline oil seal.
- Apply multi-purpose grease onto oil seal lips, and gear oil onto the circumference of oil seal.

2. Install rear propeller shaft. Refer to [DLN-99, "Exploded View"](#).
3. When oil leaks while removing, check oil level after the installation. Refer to [DLN-111, "Inspection"](#).



SIDE OIL SEAL

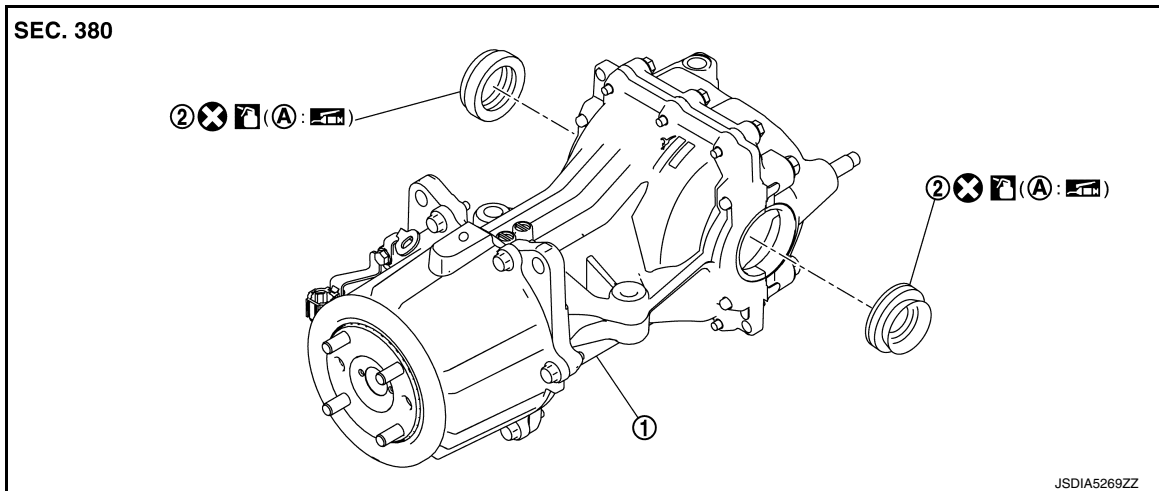
< REMOVAL AND INSTALLATION >

[REAR FINAL DRIVE: R145]

SIDE OIL SEAL

Exploded View

INFOID:000000009797690



- ① Rear final drive assembly ② Side oil seal

(A) Oil seal lip

⊗: Always replace after every disassembly.

🔧: Apply gear oil.

🛠️: Apply multi-purpose grease.

Removal and Installation

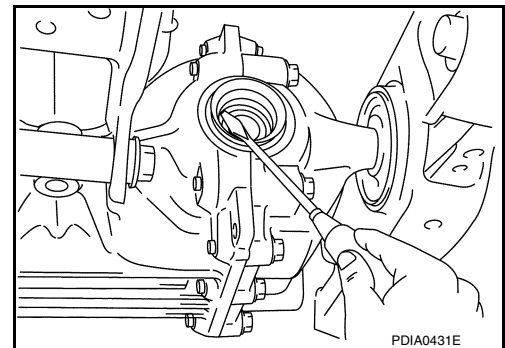
INFOID:000000009797691

REMOVAL

1. Remove rear drive shaft (LH/RH) with power tool. Refer to [RAX-19. "Exploded View"](#).
2. Remove side oil seal (LH/RH), using a suitable tool.

CAUTION:

Do not damage gear carrier and rear cover.



INSTALLATION

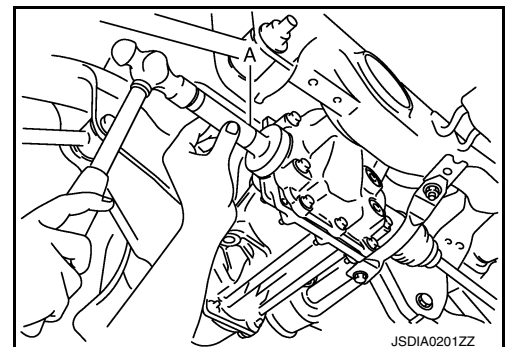
1. Install side oil seals until it becomes flush with the carrier end, using Tool (A).

Tool number : KV38100200 (J-26233)

CAUTION:

- Do not reuse oil seals.
- When installing, do not incline oil seals.
- Apply multi-purpose grease onto oil seal lips, and gear oil onto the circumference of oil seal.

2. Install rear drive shafts. Refer to [RAX-19. "Exploded View"](#).
3. When oil leaks while removing, check oil level after the installation. Refer to [DLN-111. "Inspection"](#).



ELECTRIC CONTROLLED COUPLING

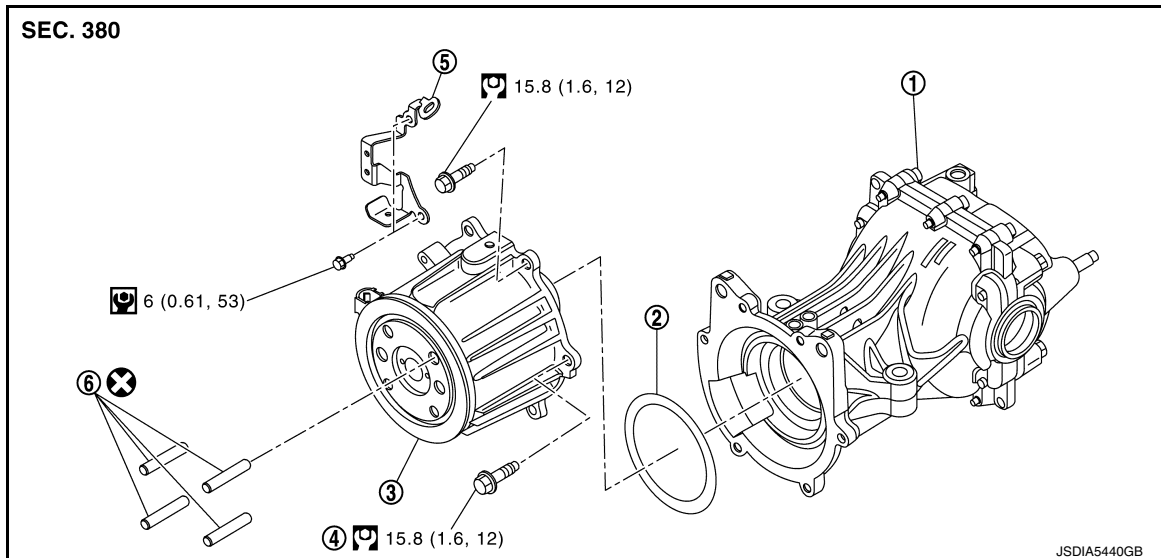
< REMOVAL AND INSTALLATION >

[REAR FINAL DRIVE: R145]

ELECTRIC CONTROLLED COUPLING

Exploded View

INFOID:000000009797692



- | | | |
|-----------------------------|---------------------|---|
| ① Rear final drive assembly | ② Wave spring | ③ Electric controlled coupling assembly |
| ④ Reamer bolt | ⑤ Connector bracket | ⑥ Stud bolt |

: N·m (kg-m, in-lb)

: N·m (kg-m, ft-lb)

: Always replace after every disassembly.

Removal and Installation

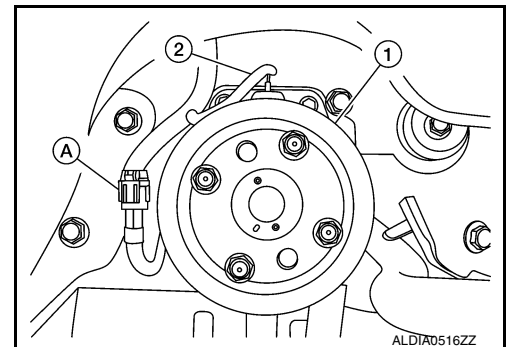
INFOID:000000009797693

NOTE:

When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid from spilling.

REMOVAL

1. Remove rear propeller shaft from the torsional damper, and support the end of the propeller shaft. Refer to [DLN-99, "Exploded View"](#).
2. Remove electric controlled coupling breather hose (2) from electric controlled coupling (1).
3. Disconnect the electric controlled coupling harness connector (A).



4. Remove harness connector bracket.
5. Remove bolts from electric controlled coupling.
6. Remove the electric controlled coupling.

CAUTION:

Be careful that the wave washer does not fall out or get damaged when removing the electric controlled coupling.

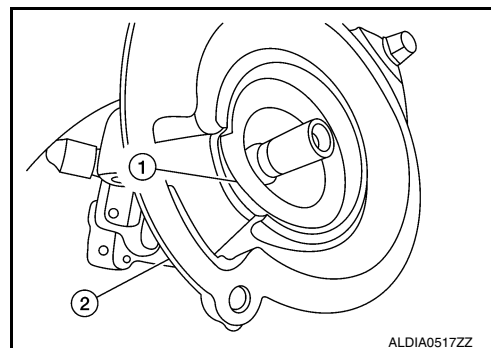
ELECTRIC CONTROLLED COUPLING

< REMOVAL AND INSTALLATION >

[REAR FINAL DRIVE: R145]

7. Remove wave washer (1).

(2) : Rear final drive assembly



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

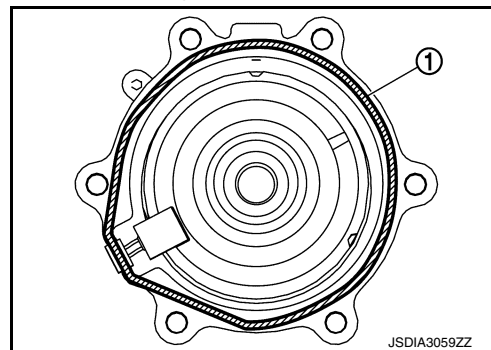
- Do not reuse hose clamp and breather connector.
- Make sure there are no pinched or restricted areas on the breather hose caused by bending or winding when installing it.
- Install the hose clamp at the final drive side, with the tab facing to the vehicle front.
- Install the hose clamp at the suspension member side, with the tab facing downward.
- Use Genuine Silicone RTV or an equivalent. Refer to [GI-22, "Recommended Chemical Products and Sealants"](#).

- Remove the old sealant from mating surfaces using a suitable tool before installing.

- Apply liquid gasket (1) to mating surface of coupling cover.
Use Genuine Silicone RTV or equivalent. Refer to [GI-22, "Recommended Chemical Products and Sealants"](#).

CAUTION:

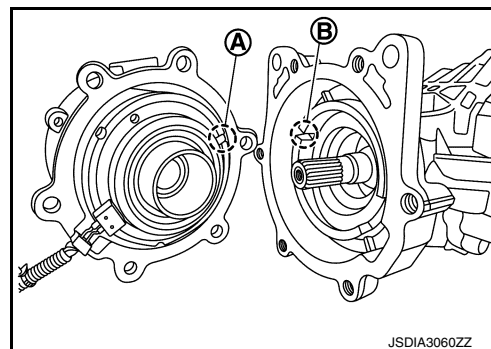
- The width of sealant bend is approximately 3 mm (0.012 in).
- Installation should be done within 5 minutes after applying liquid gasket.
- Do not fill the engine within engine oil for at least 30 minutes after the components are installed to allow the sealant to cure.



- Install electric controlled coupling to spline of drive pinion inside final drive assembly.

CAUTION:

- Align the pin (A) on electric controlled coupling with the groove (B) of final drive assembly.
- Be careful not to damage center oil seal.



ELECTRIC CONTROLLED COUPLING

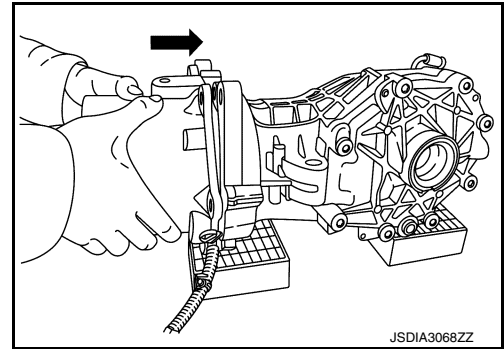
< REMOVAL AND INSTALLATION >

[REAR FINAL DRIVE: R145]

- Press the electric controlled coupling pin to check that it is positioned in the groove of the final drive assembly as shown.

NOTE:

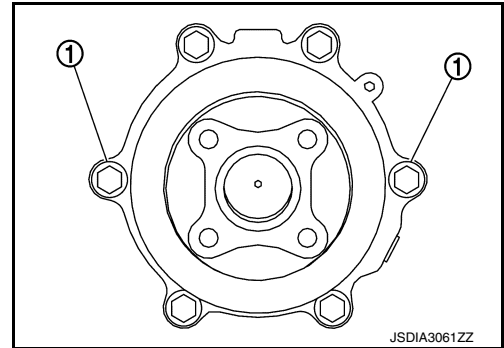
If the pin is properly positioned in the groove, then the electric controlled coupling can be pressed into position by the same amount of flexion of the wave washer.



- Temporarily tighten reamer bolts (1) to the positions shown.

CAUTION:

- Do not use tools. Always tighten by hand.
- If reamer bolts cannot be tightened all the way by hand, the electric controlled coupling pin may not be positioned in the groove of the final drive assembly. In this case, remove electric controlled coupling and reinstall it.



- When oil leaks while removing, check oil level after the installation. Refer to [DLN-111. "Inspection"](#).

AIR BREATHER

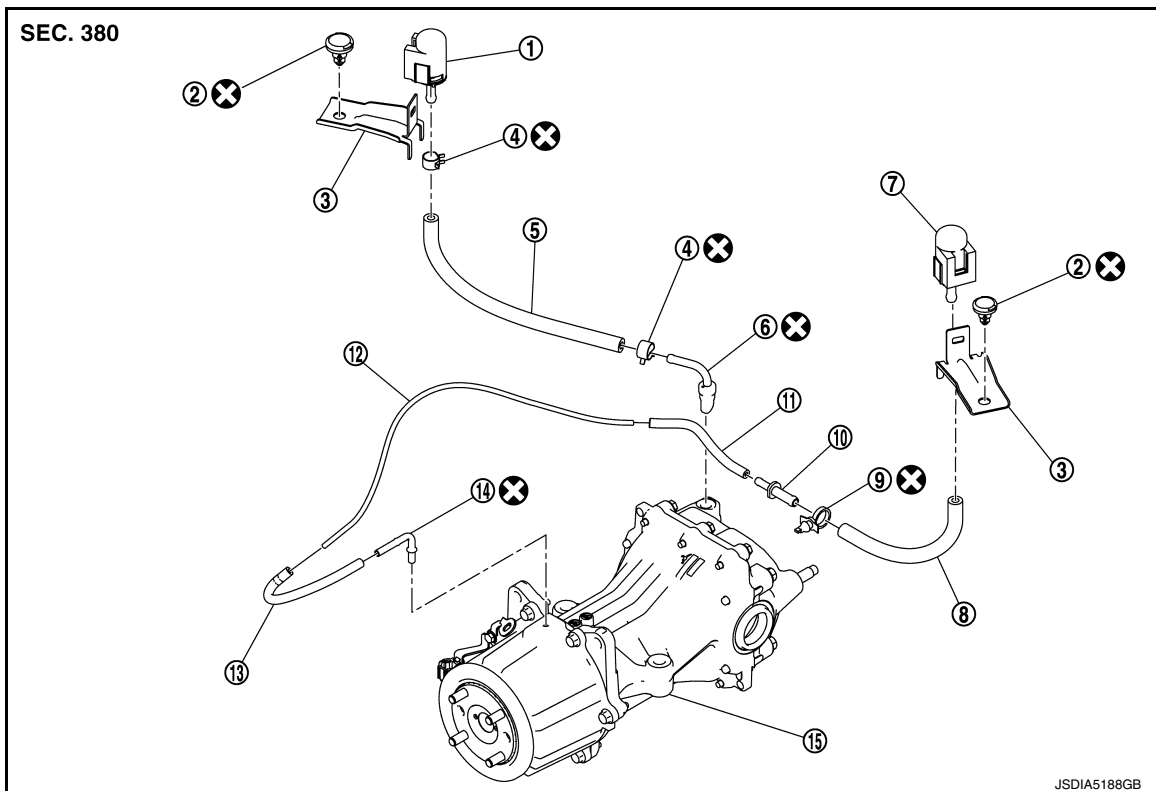
< REMOVAL AND INSTALLATION >

[REAR FINAL DRIVE: R145]

AIR BREATHER

Exploded View

INFOID:000000009995328



- | | | |
|------------------------------|------------------------------|------------------------------|
| ① Breather connector (resin) | ② Trim clip | ③ Bracket |
| ④ Hose clamp | ⑤ Air breather hose | ⑥ Breather connector (metal) |
| ⑦ Breather connector (resin) | ⑧ Air breather hose | ⑨ Clip |
| ⑩ Hose connector | ⑪ Air breather hose* | ⑫ Air breather tube* |
| ⑬ Air breather hose* | ⑭ Breather connector (metal) | ⑮ Rear final drive assembly |

⊗: Always replace after every disassembly.

*: These parts are adhered to each other. Therefore they are assembled parts.

Removal and Installation

INFOID:000000009995329

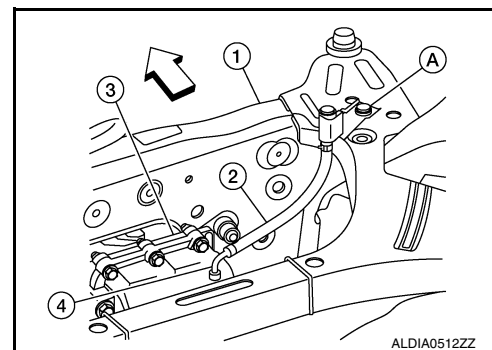
REMOVAL

1. Remove clip (A) from rear suspension member (1).

(3) : Rear final drive assembly

⇐ : Front

2. Remove air breather hose (2) and breather tube (4) together.



3. Loosen hose clamp and remove breather tube from air breather hose.

AIR BREATHER

< REMOVAL AND INSTALLATION >

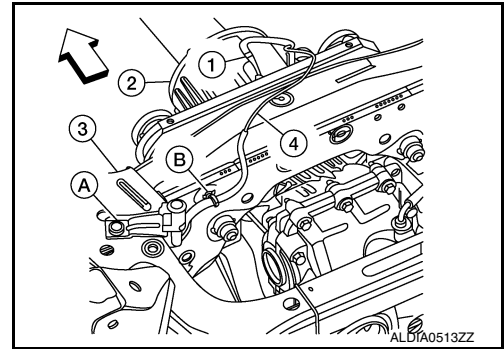
[REAR FINAL DRIVE: R145]

4. Remove clips (A) from rear suspension member (3).

(2) : Rear final drive assembly

⇐ : Front

5. Remove hose clamp (1) and clip (B) from air breather hose (4).



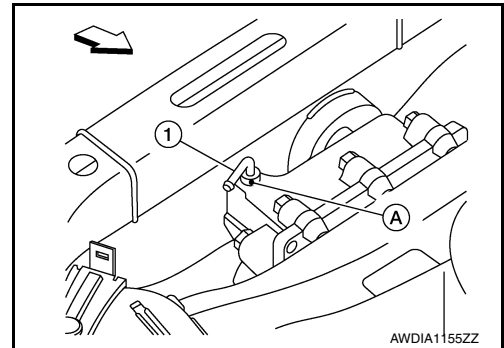
INSTALLATION

Installation is in the reverse order of removal.

- For non-reusable parts, refer to [DLN-117, "Exploded View"](#).
- Set breather connector (1) to rear final drive with the paint mark (A) facing front as shown.

⇐ : Front

- When installing air breather hose, make sure there are no pinched or restricted areas on air breather hose caused by bending or winding.



REAR FINAL DRIVE ASSEMBLY

< UNIT REMOVAL AND INSTALLATION >

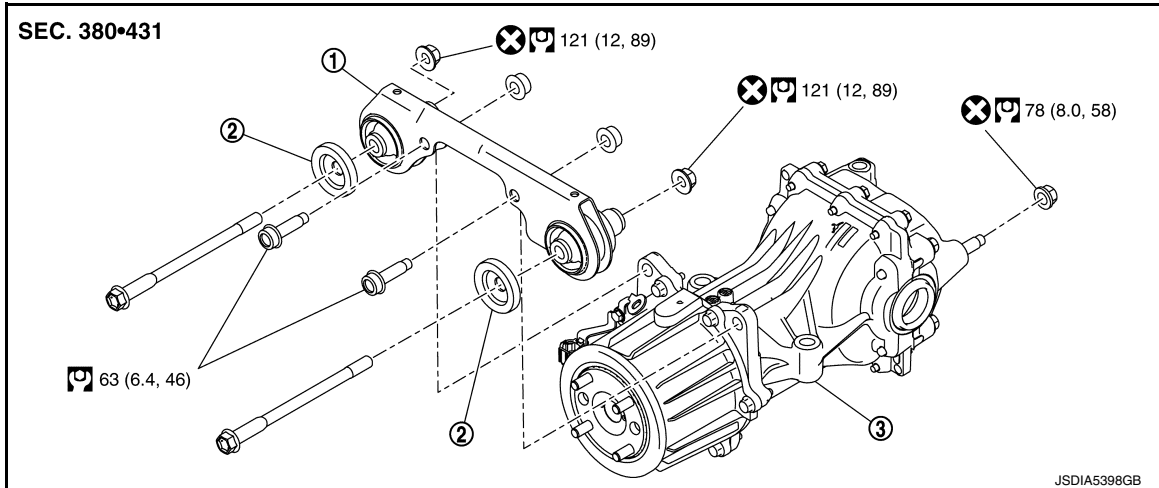
[REAR FINAL DRIVE: R145]

UNIT REMOVAL AND INSTALLATION

REAR FINAL DRIVE ASSEMBLY

Exploded View

INFOID:000000009797694



① Final drive mounting bracket

② Mounting stopper

③ Rear final drive assembly

 : N·m (kg-m, ft-lb)

: Always replace after every disassembly.

Removal and Installation

INFOID:000000009797695

REMOVAL

1. Remove rear propeller shaft. Refer to [DLN-99, "Exploded View"](#).
2. Remove rear drive shafts. Refer to [RAX-19, "Exploded View"](#).
3. Disconnect AWD solenoid harness connector.
4. Remove rear final drive breather hose and electric controlled coupling breather hose.
5. Support final drive assembly with a suitable jack.
6. Remove final drive nuts and final drive bolts with power tool.
If necessary, remove final drive bracket and washer with power tool.

CAUTION:

Secure final drive assembly to a suitable jack while removing it.

INSTALLATION

Installation is in the reverse order of removal.

- When oil leaks while removing final drive assembly, check oil level after the installation. Refer to [DLN-111, "Inspection"](#).
- When replacing rear final drive assembly, perform writing unit characteristics. Refer to [DLN-35, "Work Procedure"](#).

ELECTRIC CONTROLLED COUPLING

< UNIT DISASSEMBLY AND ASSEMBLY >

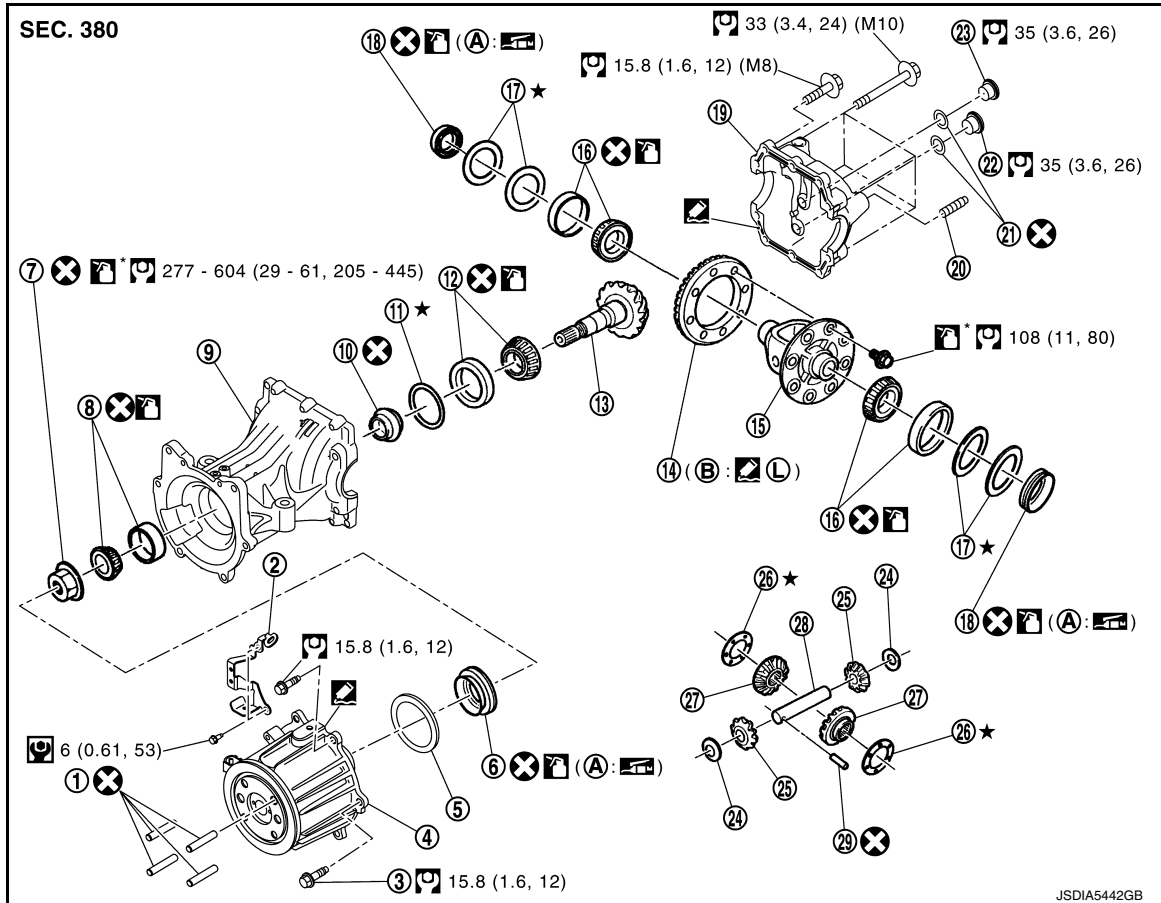
[REAR FINAL DRIVE: R145]

UNIT DISASSEMBLY AND ASSEMBLY

ELECTRIC CONTROLLED COUPLING

Exploded View

INFOID:000000010339803



- | | | |
|---|-------------------------------|-----------------------------|
| ① Stud bolt | ② Connector bracket | ③ Reamer bolt |
| ④ Electric controlled coupling assembly | ⑤ Wave spring | ⑥ Drive pinion oil seal |
| ⑦ Drive pinion lock nut | ⑧ Pinion front bearing | ⑨ Gear carrier |
| ⑩ Collapsible spacer | ⑪ Drive pinion adjusting shim | ⑫ Pinion rear bearing |
| ⑬ Drive pinion | ⑭ Drive gear | ⑮ Differential case |
| ⑯ Side bearing | ⑰ Side bearing adjusting shim | ⑱ Side oil seal |
| ⑲ Rear cover | ⑳ Stud bolt | ㉑ Gasket |
| ㉒ Drain plug | ㉓ Filler plug | ㉔ Pinion mate thrust washer |
| ㉕ Pinion mate gear | ㉖ Side gear thrust washer | ㉗ Side gear |
| ㉘ Pinion mate shaft | ㉙ Lock pin | |
| Ⓐ Oil seal lip | Ⓑ Screw hole | |

Ⓐ: N·m (kg-m, in-lb)

Ⓑ: N·m (kg-m, ft-lb)

⊗: Always replace after every disassembly.

★: Select with proper thickness.

Ⓐ: Apply gear oil.

ELECTRIC CONTROLLED COUPLING

< UNIT DISASSEMBLY AND ASSEMBLY >

[REAR FINAL DRIVE: R145]

*: Apply anti-corrosion oil.

: Apply multi purpose grease.

: Apply Genuine Silicone RTV or equivalent. Refer to [GI-22, "Recommended Chemical Products and Sealants"](#).

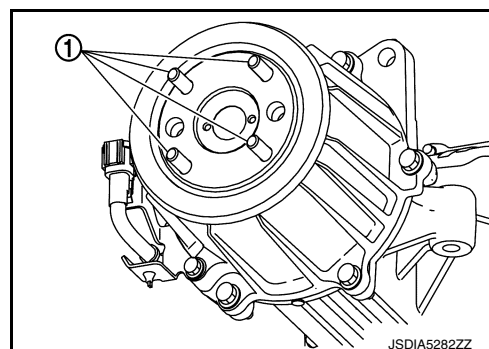
Ⓐ: Apply Genuine High Strength Thread Locking Sealant or equivalent. Refer to [GI-22, "Recommended Chemical Products and Sealants"](#).

Disassembly and Assembly

INFOID:0000000010339785

DISASSEMBLY

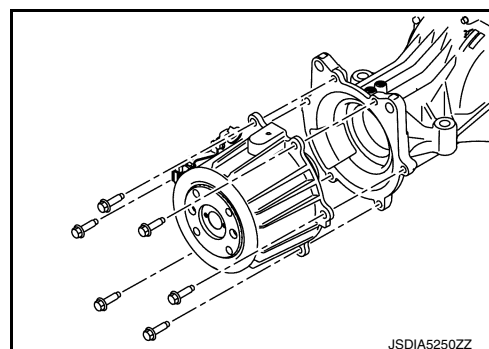
1. Remove stud bolts ①.



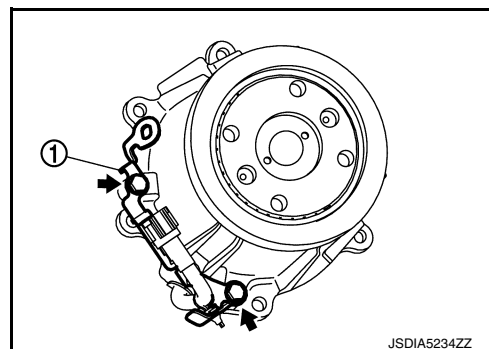
2. Remove electric controlled coupling assembly from final drive assembly.
3. Remove wave spring.
4. Remove drive pinion oil seal from the inside of gear carrier. Refer to [DLN-136, "Disassembly and Assembly"](#).

CAUTION:

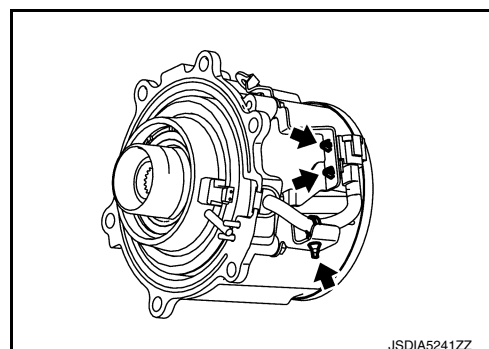
When removing electric controlled coupling, replace drive pinion oil seal.



5. Remove connector bracket ① from electric controlled coupling.



6. Separate band clip and connector clip from connector bracket.



ASSEMBLY

ELECTRIC CONTROLLED COUPLING

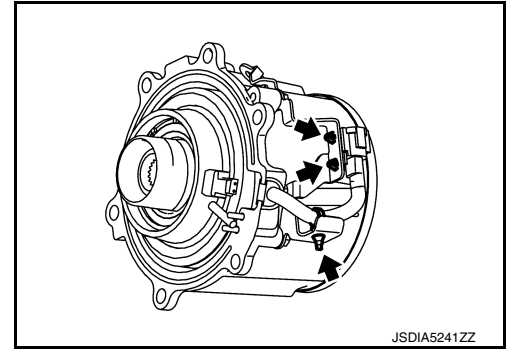
< UNIT DISASSEMBLY AND ASSEMBLY >

[REAR FINAL DRIVE: R145]

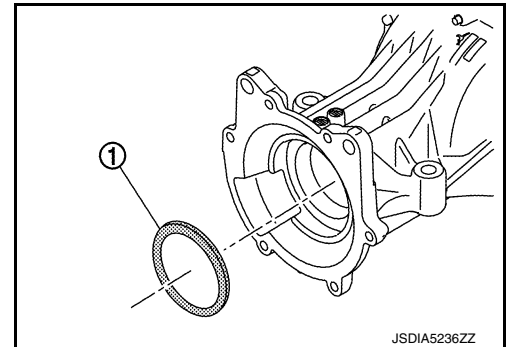
1. Install connector bracket to electric controlled coupling.
 - For tightening torque, refer to [DLN-120, "Exploded View"](#).
2. Fix AWD solenoid harness with band clip and connector clip.
3. Install drive pinion oil seal to the inside of gear carrier. Refer to [DLN-136, "Disassembly and Assembly"](#).

CAUTION:

When removing electric controlled coupling, replace drive pinion oil seal.



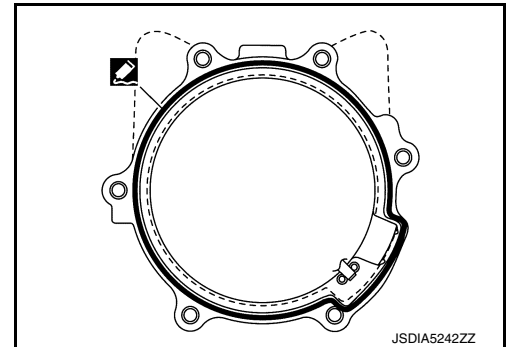
4. Install wave spring ① to the inside of gear carrier.



5. Apply liquid gasket to mating surface of electric controlled coupling assembly.

CAUTION:

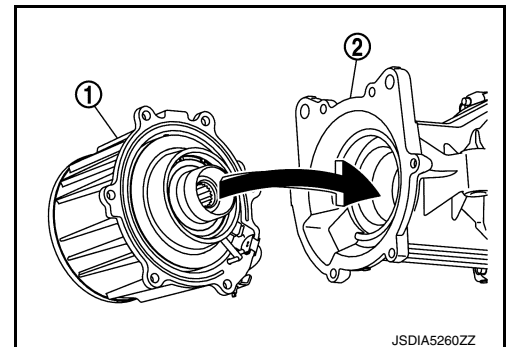
- Remove old gasket adhering to the mounting surfaces. Also remove any moisture, oil, or foreign material adhering to the mounting surfaces.
- The width of sealant bead is approximately 3 mm (0.12 in). Apply sealant evenly.



6. Match electric controlled coupling assembly ① to spline of drive pinion, then install it to final drive assembly ②.

CAUTION:

Be careful not to damage drive pinion oil seal.

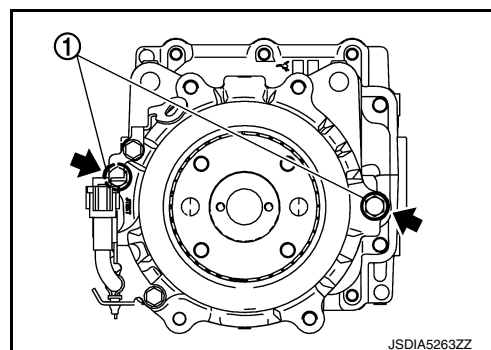


ELECTRIC CONTROLLED COUPLING

< UNIT DISASSEMBLY AND ASSEMBLY >

[REAR FINAL DRIVE: R145]

7. Temporarily tighten reamer bolts ① to the positions shown in the figure.
8. Tighten reamer bolts and electric controlled coupling assembly mounting bolts to the specified torque.
 - For tightening torque, refer to [DLN-120, "Exploded View"](#).



9. Install stud bolts ①.

← : Electric controlled coupling side

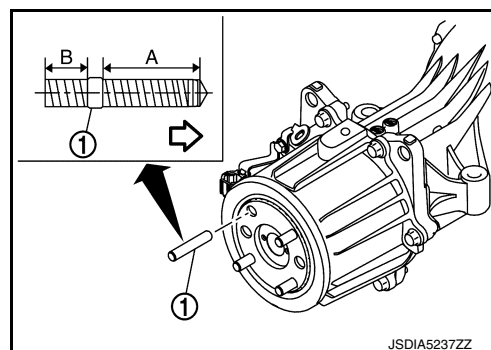
Thread length

A : Long

B : Short

CAUTION:

- Never reuse stud bolt.
- Screw long thread side of stud bolt to electric controlled coupling.
- Screw the stud bolt until the stop by applying a torque of 15 N·m (1.5 kg-m, 11 ft-lb) $\pm 20\%$.
- After installing stud bolt, the length of the protrusion from electric controlled coupling must be 19.8 mm (0.780 in) ± 1.4 mm (0.055 in).



DIFFERENTIAL ASSEMBLY

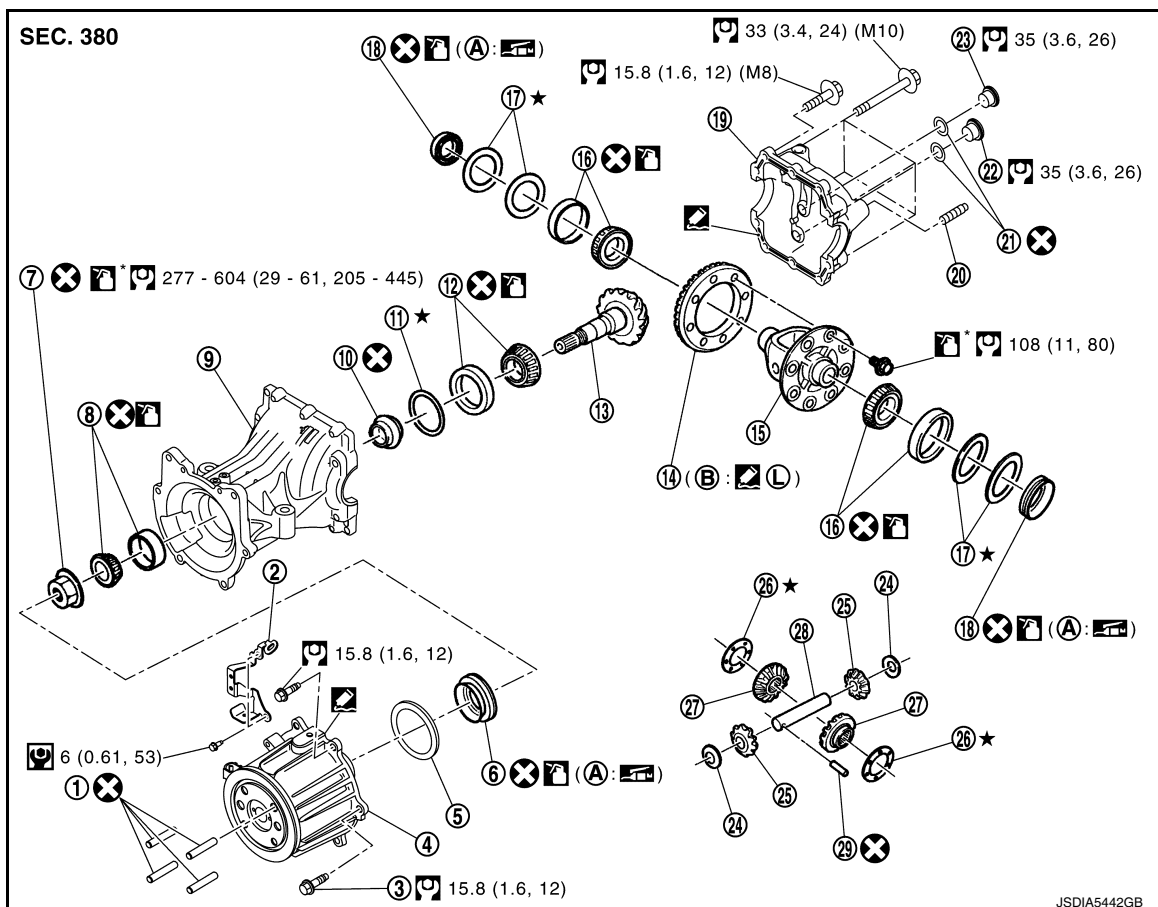
< UNIT DISASSEMBLY AND ASSEMBLY >

[REAR FINAL DRIVE: R145]

DIFFERENTIAL ASSEMBLY

Exploded View

INFOID:000000010339789



- | | | |
|---|-------------------------------|-----------------------------|
| ① Stud bolt | ② Connector bracket | ③ Reamer bolt |
| ④ Electric controlled coupling assembly | ⑤ Wave spring | ⑥ Drive pinion oil seal |
| ⑦ Drive pinion lock nut | ⑧ Pinion front bearing | ⑨ Gear carrier |
| ⑩ Collapsible spacer | ⑪ Drive pinion adjusting shim | ⑫ Pinion rear bearing |
| ⑬ Drive pinion | ⑭ Drive gear | ⑮ Differential case |
| ⑯ Side bearing | ⑰ Side bearing adjusting shim | ⑱ Side oil seal |
| ⑲ Rear cover | ⑳ Stud bolt | ㉑ Gasket |
| ㉒ Drain plug | ㉓ Filler plug | ㉔ Pinion mate thrust washer |
| ㉕ Pinion mate gear | ㉖ Side gear thrust washer | ㉗ Side gear |
| ㉘ Pinion mate shaft | ㉙ Lock pin | |
| (A) Oil seal lip | (B) Screw hole | |

: N·m (kg-m, in-lb)

: N·m (kg-m, ft-lb)

: Always replace after every disassembly.

★: Select with proper thickness.

: Apply gear oil.

: Apply anti-corrosion oil.

: Apply multi purpose grease.

DIFFERENTIAL ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[REAR FINAL DRIVE: R145]

: Apply Genuine Silicone RTV or equivalent. Refer to [GI-22, "Recommended Chemical Products and Sealants"](#).

: Apply Genuine High Strength Thread Locking Sealant or equivalent. Refer to [GI-22, "Recommended Chemical Products and Sealants"](#).

Disassembly and Assembly

INFOID:0000000010339790

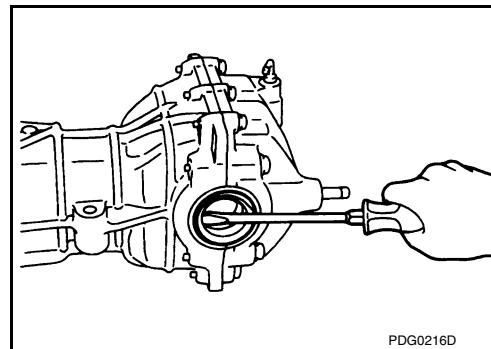
DISASSEMBLY

1. Remove drain plug, filler plug and gaskets.
2. Remove the side oil seal, using oil seal remover (commercial service tool).

CAUTION:

Never damage gear carrier and rear cover.

3. Remove rear cover mounting bolts.



4. Set drifts (A and B) to the right and left side bearing adjusting shims individually. Press differential assembly with side bearing to remove gear carrier assembly and rear cover assembly.

A : Drift [SST: KV40100610 (J-26089)]

B : Drift [SST: KV40100610 (J-26089)]

CAUTION:

The pressure shall be as low as possible to remove gear carrier assembly and rear cover assembly. The maximum pressure shall be 10 kN (1 ton, 1.0 Imp ton).

NOTE:

Differential assembly, side bearings, and adjusting washers are compressed and integrated in gear carrier and rear cover.

5. Remove stud bolt from rear cover.

NOTE:

It is not necessary to remove stud bolt except when it is replaced.

6. Remove side bearing adjusting shims and side bearing outer races.

CAUTION:

Mark the side bearing adjusting shims so that the original mounting positions (right/left) can be identified later.

7. Remove side bearing inner races, using adaptor (A), separator (B) and puller (C).

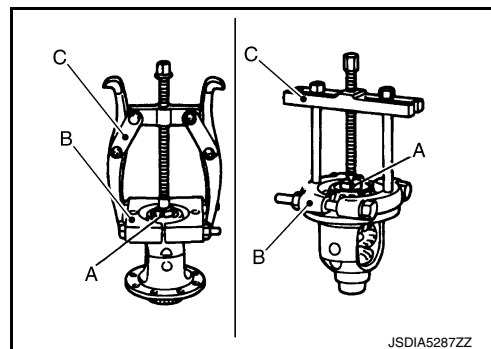
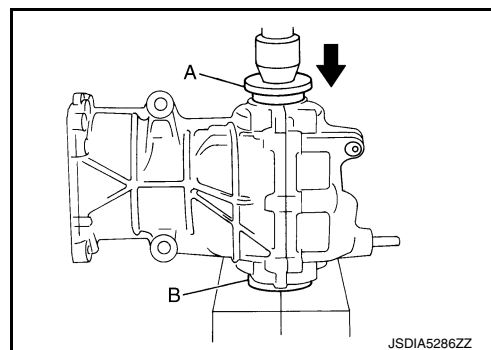
A : Adaptor [ST33052000 (—)]

B : Separator (commercial service tool)

C : Puller (commercial service tool)

CAUTION:

- To prevent damage to the side bearing and drive gear, place copper plates between these parts and vise.
- It is not necessary to remove side bearing inner race except when it is replaced.



DIFFERENTIAL ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

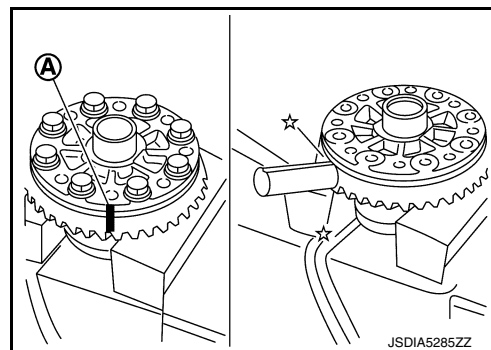
[REAR FINAL DRIVE: R145]

8. For proper reinstallation, paint matching marks ① on one differential assembly and drive gear.

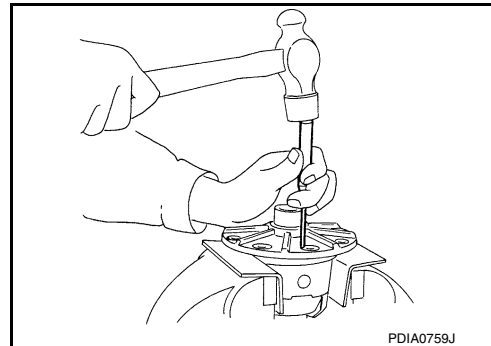
CAUTION:

For matching marks, use paint. Never damage differential assembly and drive gear.

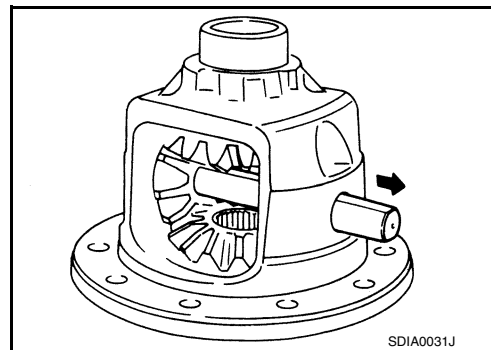
9. Remove drive gear mounting bolts and then remove drive gear from differential assembly.



10. Remove lock pin of pinion mate shaft, using the pin punch (commercial service tool).

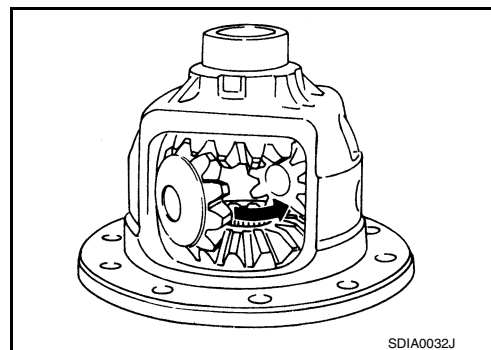


11. Remove pinion mate shaft.



12. Remove pinion mate gears, pinion mate thrust washers, side gears, side gear thrust washers from differential case.

13. Perform inspection after disassembly. Refer to [DLN-134, "Inspection"](#).



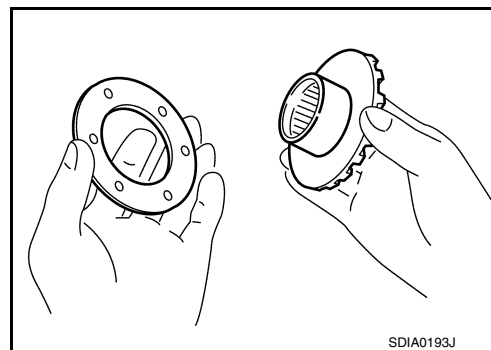
ASSEMBLY

DIFFERENTIAL ASSEMBLY

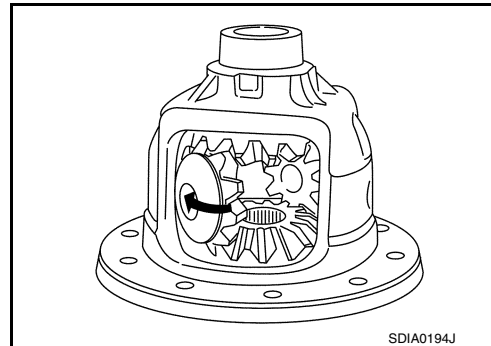
< UNIT DISASSEMBLY AND ASSEMBLY >

[REAR FINAL DRIVE: R145]

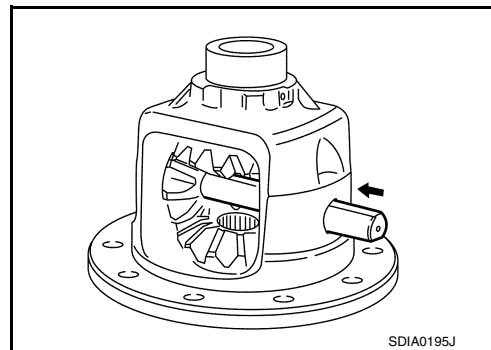
1. Install side gear thrust washers with the same thickness as the ones installed prior to disassembly or reinstall the old ones on the side gears.
2. Install side gears and side gear thrust washers into differential case.



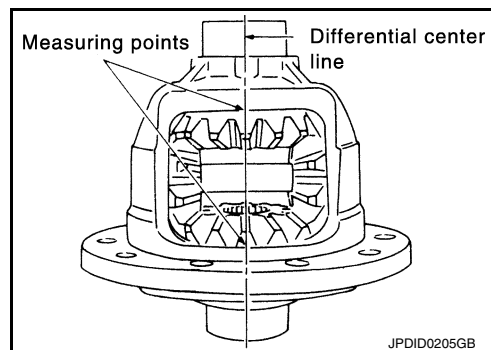
3. Align 2 pinion mate gears in diagonally opposite positions, then rotate and install them into differential case after installing thrust washer to pinion mate gear.



4. Align the lock pin holes on differential case with pinion mate shaft, and install pinion mate shaft.



5. Measure side gear end play. If necessary, select the appropriate side gear thrust washers.
 - a. Place differential assembly straight up so that side gear to be measured comes upward.



DIFFERENTIAL ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[REAR FINAL DRIVE: R145]

- b. Using feeler gauge, measure the clearance between side gear back and differential case at 3 different points, while rotating side gear. Average the 3 readings, and then measure the clearance of the other side as well.

Side gear back clearance

: Refer to [DLN-141, "Differential Side Gear Clearance"](#).

CAUTION:

To prevent side gear from tilting, insert feeler gauges with the same thickness from both sides.

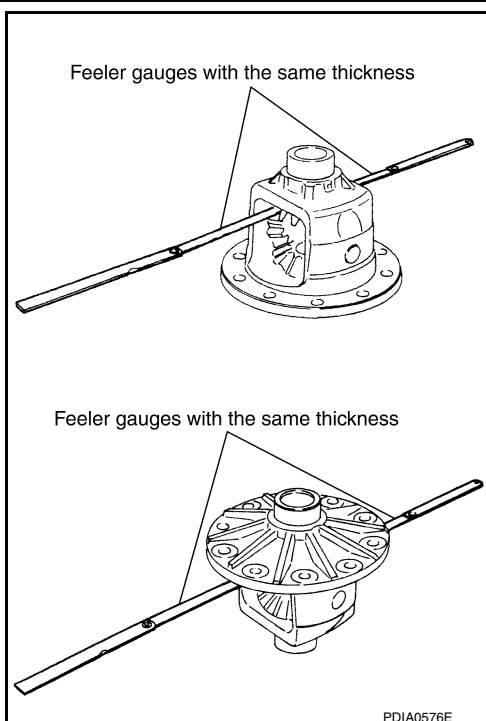
- If the back clearance is outside the specification, use a thicker/thinner side gear thrust washer to adjust. For selecting thrust washer, refer to the latest parts information.

When the back clearance is large : Use a thicker thrust washer.

When the back clearance is small : Use a thinner thrust washer.

CAUTION:

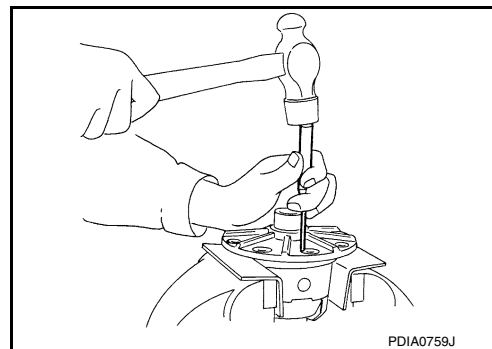
Select a side gear thrust washer for right and left individually.



6. Drive a lock pin into pinion mate shaft, using the pin punch (commercial service tool).

CAUTION:

Never reuse lock pin.



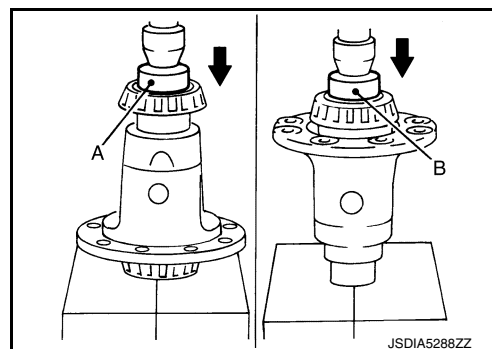
7. Press side bearing inner races to differential assembly, using the drifts (A and B).

A : Drift [SST: KV40105020 (—)]

B : Drift [SST: KV40105020 (—)]

CAUTION:

- Never reuse side bearing inner race.
- Apply gear oil to side bearing.



8. Apply thread locking sealant into the thread hole of drive gear.

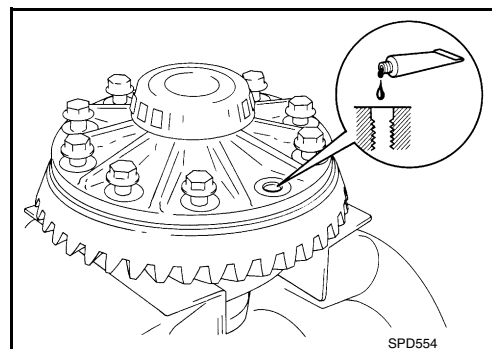
CAUTION:

Clean and degrease drive gear back and threaded holes sufficiently.

9. Install the drive gear to differential assembly.

CAUTION:

Align the matching mark of differential assembly and drive gear.



DIFFERENTIAL ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[REAR FINAL DRIVE: R145]

10. Tighten the bolts in a crisscross fashion to the specified torque.

- For tightening torque, refer to [DLN-124, "Exploded View"](#).

CAUTION:

Apply anti-corrosion oil to the thread and seat of mounting bolts.

11. Assemble side bearing outer races to inner races.

CAUTION:

- **Never reuse side bearing outer race.**
- **Apply gear oil to side bearing.**

12. Install new side bearing adjusting shims (2 pieces for one side) with the same thickness as the ones installed prior to disassembly or re-install the old ones, on side bearing outer race of differential assembly.

If side bearing adjusting shims have been already selected, use them.

13. Set the drifts (A and B) to the right and left side bearing adjusting shims individually. Compress differential assembly and side bearing to gear carrier assembly to install differential assembly.

A : Drift [KV40100610 (J-26089)]

B : Drift [KV40100610 (J-26089)]

CAUTION:

- **The drift shall be placed on the center of the adjusting shims.**
- **The pressure shall be as low as possible to install differential assembly into gear carrier assembly. The maximum pressure shall be 10 kN (1 ton, 1.1 US ton, 1.0 Imp ton).**
- **If the adjusting shims are installed by tapping, the gear carrier may be damaged. Avoid tapping.**

14. Install dummy cover set [SST: KV381086S1 (—)], check and adjust drive gear runout, tooth contact, backlash, and total preload torque. Refer to [DLN-130, "Adjustment"](#).

15. Remove dummy cover set.

16. Install stud bolt to rear cover.

CAUTION:

Screw the stud bolt until the thread becomes invisible by applying a torque of 20 N·m (2.0 kg-m, 15 ft-lb) or less.

17. Apply liquid gasket to mating surface of rear cover.

CAUTION:

- **Remove old gasket adhering to the mounting surfaces. Also remove any moisture, oil, or foreign material adhering to the mounting surfaces.**
- **The width of sealant bead is approximately 3 mm (0.12 in). Apply sealant evenly.**

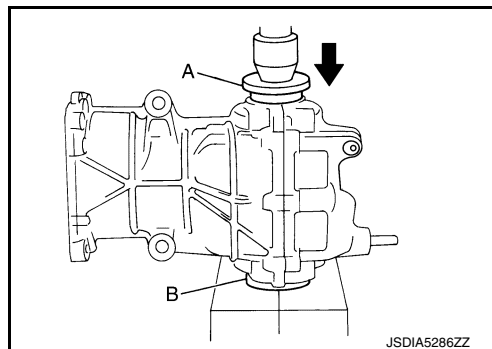
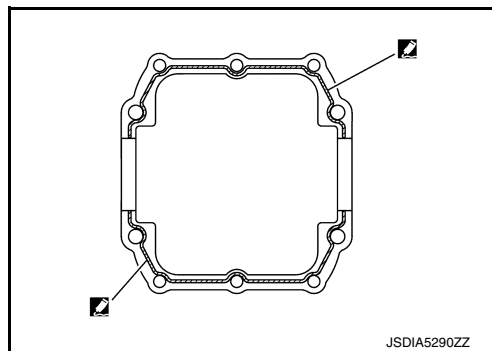
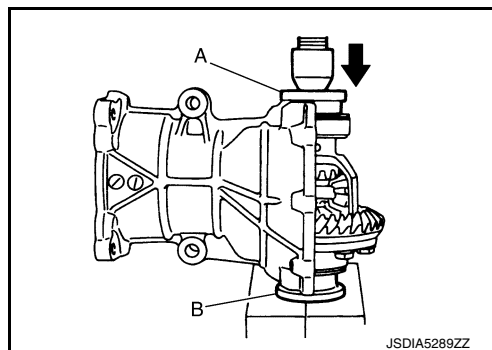
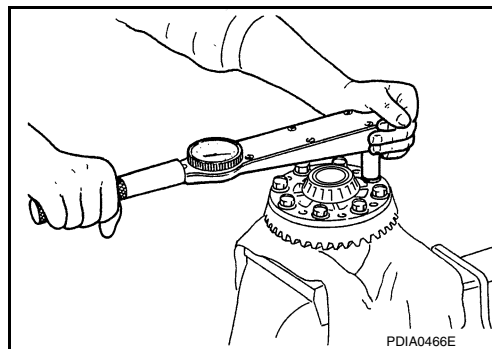
18. Set the drifts (A and B) to the right and left side bearing adjusting shims individually. Compress differential assembly and side bearing to install rear cover.

A : Drift [KV40100610 (J-26089)]

B : Drift [KV40100610 (J-26089)]

CAUTION:

- **The drift shall be placed on the center of the adjusting shims.**

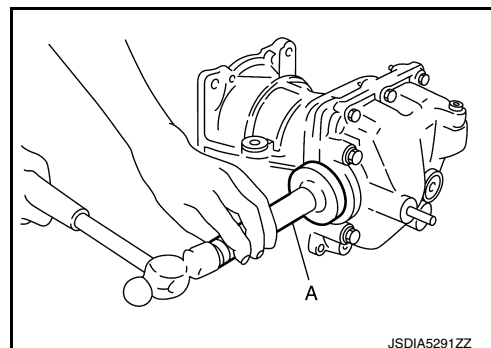


DIFFERENTIAL ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[REAR FINAL DRIVE: R145]

- The pressure shall be as low as possible to install differential assembly into gear carrier assembly. The maximum pressure shall be 10 kN (1 ton, 1.1 US ton, 1.0 Imp ton).
 - If the adjusting shims are installed by tapping, the gear carrier may be damaged. Avoid tapping.
19. Tighten rear cover mounting bolts to the specified torque.
 - For tightening torque, refer to [DLN-124, "Exploded View"](#).
 20. Using the drift (A) [SST: KV38100200 (J-26233)], drive side oil seals until it becomes flush with the gear carrier end.
CAUTION:
 - **Never reuse oil seals.**
 - **When installing, do not incline oil seals.**
 - **Apply multi-purpose grease onto oil seal lips, and gear oil onto the circumference of oil seal.**
 21. Check total preload torque. Refer to [DLN-130, "Adjustment"](#).



INFOID:000000010339796

Adjustment

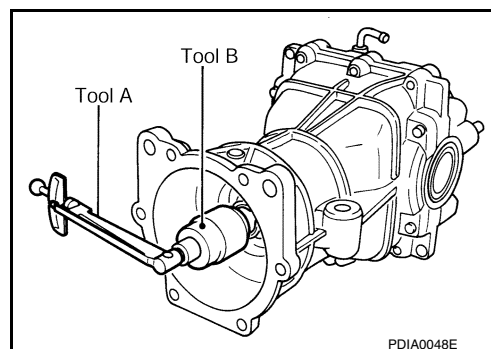
TOTAL PRELOAD TORQUE

1. Remove electric controlled coupling assembly. Refer to [DLN-121, "Disassembly and Assembly"](#).
2. Rotate drive pinion back and forth 2 to 3 times to check for unusual noise and rotation malfunction.
3. Rotate drive pinion at least 20 times to check for smooth operation of the bearing.
4. Fit drive pinion socket onto drive pinion spline. Measure the total preload, using the preload gauge and drive pinion socket.

- A : Preload gauge [SST: ST3127S000 (J-25765-A)]
B : Drive pinion socket [SST: KV38109500 (—)]

Standard

Total preload torque : Refer to [DLN-141, "Preload Torque"](#).



NOTE:

Total preload torque = Pinion bearing torque + Side bearing torque

- If measured value is out of the specification, disassemble it to check and adjust each part. Adjust the pinion bearing preload and side bearing preload.
Adjust the pinion bearing preload first, then adjust the side bearing preload.

When the preload torque is large

On pinion bearings: Replace the collapsible spacer.

On side bearings: Use thinner side bearing adjusting shims. For selecting adjusting shim, refer to the latest parts information.

When the preload is small

On pinion bearings: Tighten the drive pinion nut.

On side bearings: Use thicker side bearing adjusting shims. For selecting adjusting shim, refer to the latest parts information.

DRIVE GEAR RUNOUT

1. Remove rear cover. Refer to [DLN-125, "Disassembly and Assembly"](#).
2. Following the procedure below, install a dummy cover set [SST: KV381086S1 (—)] to gear carrier.

DIFFERENTIAL ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[REAR FINAL DRIVE: R145]

- a. Set dummy cover shims [SST: KV38108630 (—)] to the right and left side bearing adjusting shims.
- b. Temporarily tighten dummy cover [SST: KV38108610 (—)] to gear carrier.
- c. Position dummy cover spacers [SST: KV38108621 (—)] to dummy cover [SST: KV38108610 (—)].
- d. Tighten rear cover mounting bolts to the specified torque. Refer to [DLN-124, "Exploded View"](#).
- e. Tighten dummy cover spacer mounting bolts evenly to the specified torque.

 : 5.9 N·m (0.6 kg-m, 52 in-lb)

3. Fit a dial indicator to the drive gear back face.
4. Rotate the drive gear to measure runout.

Limit

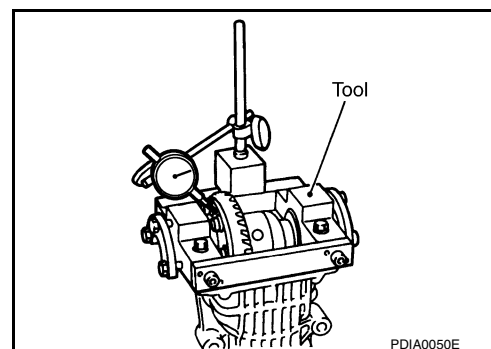
Drive gear back face
runout

: Refer to [DLN-141, "Drive
Gear Runout"](#).

- If the runout is outside of the repair limit, check drive gear assembly condition; foreign material may be caught between drive gear and differential case, or differential case or drive gear may be deformed, etc.

CAUTION:

Replace drive gear and drive pinion as a set.



TOOTH CONTACT

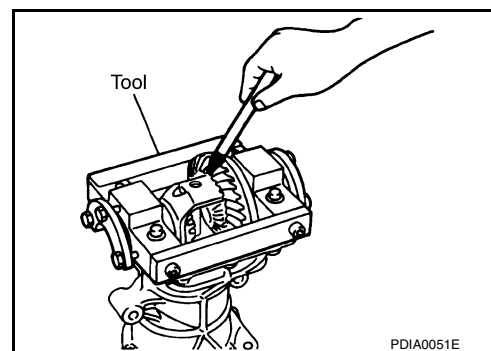
1. Remove rear cover. Refer to [DLN-125, "Disassembly and Assembly"](#).
2. Following the procedure below, install a dummy cover set [SST: KV381086S1 (—)] to gear carrier.
 - a. Set dummy cover shims [SST: KV38108630 (—)] to the right and left side bearing adjusting shims.
 - b. Temporarily tighten dummy cover [SST: KV38108610 (—)] to gear carrier.
 - c. Position dummy cover spacers [SST: KV38108621 (—)] to dummy cover [SST: KV38108610 (—)].
 - d. Tighten rear cover mounting bolts to the specified torque. Refer to [DLN-124, "Exploded View"](#).
 - e. Tighten dummy cover spacer mounting bolts evenly to the specified torque.

 : 5.9 N·m (0.6 kg-m, 52 in-lb)

3. Apply red lead to drive gear.

CAUTION:

Apply red lead to both the faces of 3 to 4 gears at 4 locations evenly spaced on drive gear.



DIFFERENTIAL ASSEMBLY

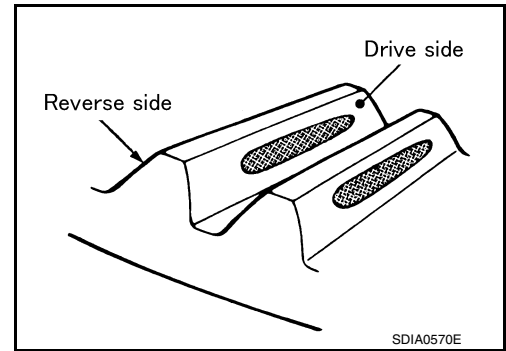
< UNIT DISASSEMBLY AND ASSEMBLY >

[REAR FINAL DRIVE: R145]

4. Rotate drive gear back and forth several times, check drive pinion gear to drive gear tooth contact.

CAUTION:

Check tooth contact on drive side and reverse side.

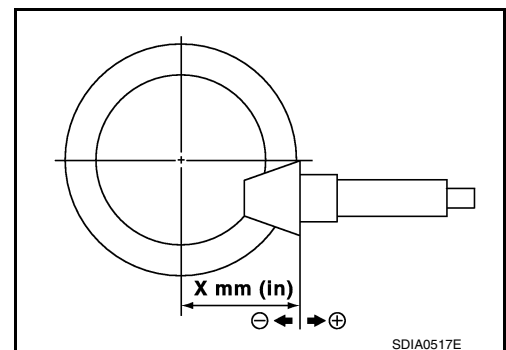


Tooth Contact Judgment Guide

Tooth contact condition		Drive pinion adjusting shim selection value [mm (in)]	Adjustment (Yes/No)	Possible cause
Drive side	Back side			
Heel side Toe side	Toe side Heel side	Thicker ↑	Yes	Occurrence of noise and scoring sound in all speed ranges.
				Occurrence of noise when accelerating.
		0	No	—
		Thinner ↓	Yes	Occurrence of noise at constant speed and decreasing speed.
				Occurrence of noise and scoring sound in all speed ranges.

SDIA2549E

5. If tooth contact is improperly adjusted, follow the procedure below to adjust the pinion height (dimension X).

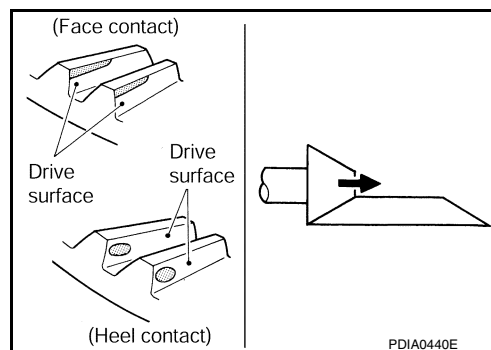


DIFFERENTIAL ASSEMBLY

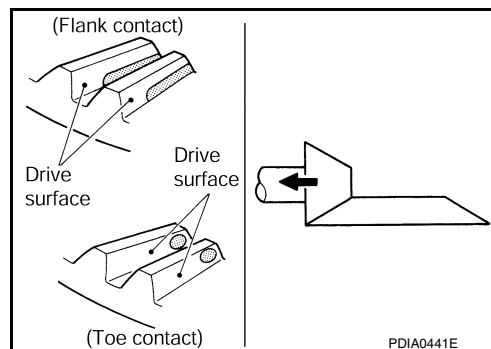
< UNIT DISASSEMBLY AND ASSEMBLY >

[REAR FINAL DRIVE: R145]

- If the tooth contact is near the face (face contact), or near the heel (heel contact), thicken drive pinion gear adjusting shim to move drive pinion closer to drive gear. For selecting adjusting shim, refer to the latest parts information.



- If the tooth contact is near the flank (flank contact), or near the toe (toe contact), thin drive pinion gear adjusting shim to move drive pinion farther from drive gear. For selecting adjusting shim, refer to the latest parts information.



BACKLASH

- Remove rear cover. Refer to [DLN-125, "Disassembly and Assembly"](#).
- Following the procedure below, install a dummy cover set [SST: KV381086S1 (—)] to gear carrier.
 - Set dummy cover shims [SST: KV38108630 (—)] to the right and left side bearing adjusting shims.
 - Temporarily tighten dummy cover [SST: KV38108610 (—)] to gear carrier.
 - Position dummy cover spacers [SST: KV38108621 (—)] to dummy cover [SST: KV38108610 (—)].
 - Tighten rear cover mounting bolts to the specified torque. Refer to [DLN-124, "Exploded View"](#).
 - Tighten dummy cover spacer mounting bolts evenly to the specified torque.

: 5.9 N·m (0.6 kg-m, 52 in-lb)

- Fit a dial indicator to the drive gear face to measure the backlash.

Standard

Backlash : Refer to [DLN-141, "Backlash"](#).

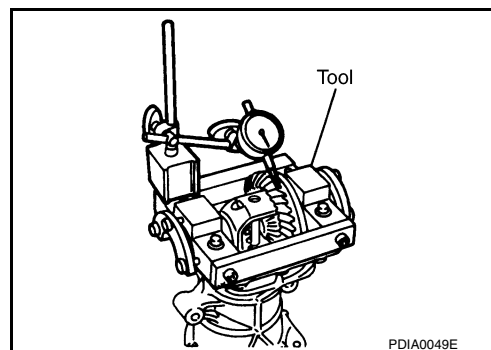
- If the backlash is outside of the specified value, change the thickness of side bearing adjusting shims.

When the backlash is large:

Make drive gear back adjusting shims thicker, and drive gear front adjusting shims thinner. For selecting adjusting shim, refer to the latest parts information.

When the backlash is small:

Make drive gear back adjusting shims thinner, and drive gear front adjusting shims thicker. For selecting adjusting shim, refer to the latest parts information.



DIFFERENTIAL ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[REAR FINAL DRIVE: R145]

Inspection

INFOID:0000000010339792

INSPECTION AFTER DISASSEMBLY

Drive Gear and Drive Pinion

- Clean up the disassembled parts.
- If the gear teeth never mesh or line-up correctly, determine the cause and adjust or replace as necessary.
- If the gears are worn, cracked, damaged, pitted or chipped (by friction) noticeably, replace with new drive gear and drive pinion as a set.

Bearing

- Clean up the disassembled parts.
- If any chipped (by friction), pitted, worn, rusted or scratched marks, or unusual noise from the bearing is observed, replace as a bearing assembly (as a new set).

Oil Seal

- Whenever disassembled, replace.
- If wear, deterioration of adherence (sealing force lips), or damage is detected on the lips, replace them.

Differential Assembly

DIFFERENTIAL CASE

- Clean up the disassembled parts.
- If any wear or crack on the contact sides of the differential case is found, replace.

SIDE GEAR AND PINION MATE GEAR

- Clean up the disassembled parts.
- If any cracks or damage on the surface of the tooth is found, replace.
- If any worn or chipped mark on the contact sides of the thrust washer is found, replace.

SIDE GEAR THRUST WASHER AND PINION MATE THRUST WASHER

- Clean up the disassembled parts.
- If it is chipped (by friction), damaged, or unusually worn, replace.

DRIVE PINION

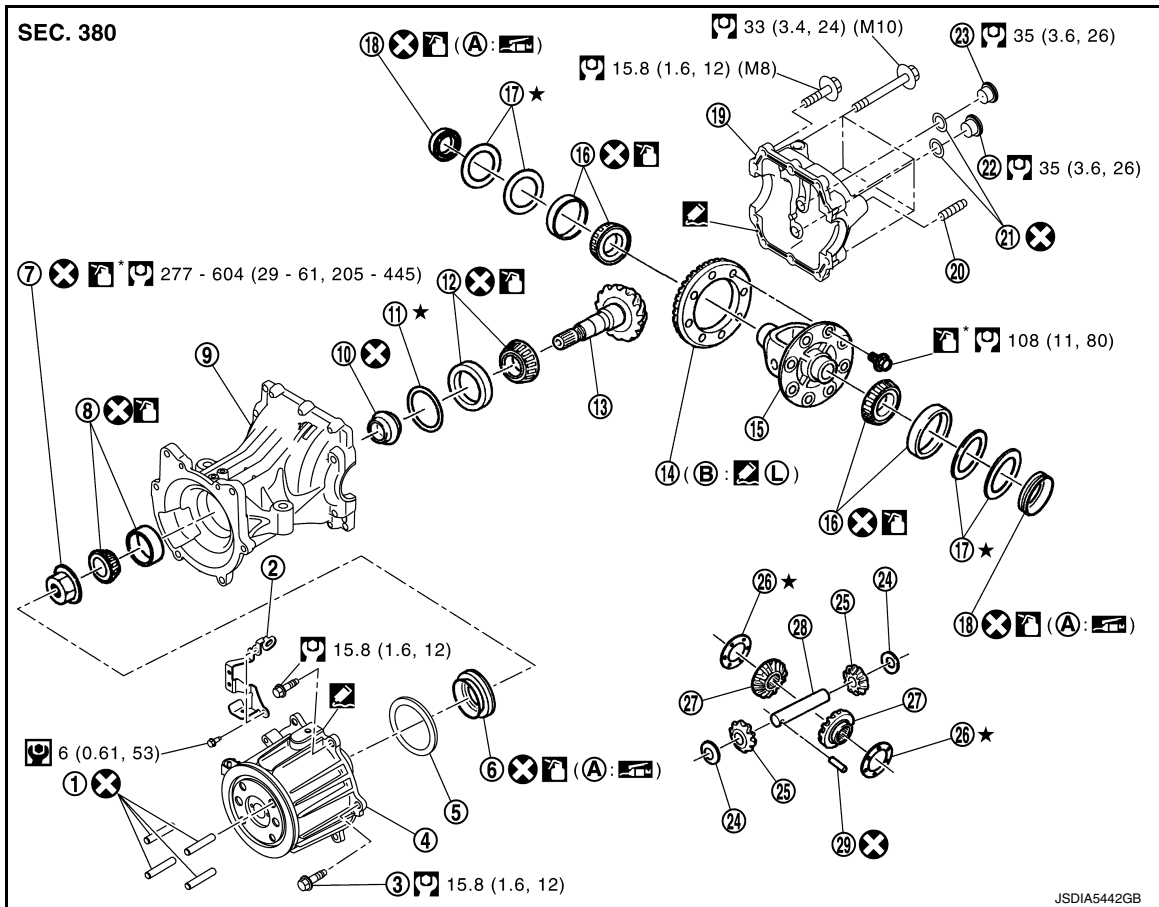
< UNIT DISASSEMBLY AND ASSEMBLY >

[REAR FINAL DRIVE: R145]

DRIVE PINION

Exploded View

INFOID:000000010339804



- | | | |
|---|-------------------------------|-----------------------------|
| ① Stud bolt | ② Connector bracket | ③ Reamer bolt |
| ④ Electric controlled coupling assembly | ⑤ Wave spring | ⑥ Drive pinion oil seal |
| ⑦ Drive pinion lock nut | ⑧ Pinion front bearing | ⑨ Gear carrier |
| ⑩ Collapsible spacer | ⑪ Drive pinion adjusting shim | ⑫ Pinion rear bearing |
| ⑬ Drive pinion | ⑭ Drive gear | ⑮ Differential case |
| ⑯ Side bearing | ⑰ Side bearing adjusting shim | ⑱ Side oil seal |
| ⑲ Rear cover | ⑳ Stud bolt | ㉑ Gasket |
| ㉒ Drain plug | ㉓ Filler plug | ㉔ Pinion mate thrust washer |
| ㉕ Pinion mate gear | ㉖ Side gear thrust washer | ㉗ Side gear |
| ㉘ Pinion mate shaft | ㉙ Lock pin | |
| (A) Oil seal lip | (B) Screw hole | |

: N·m (kg-m, in-lb)

: N·m (kg-m, ft-lb)

: Always replace after every disassembly.

★: Select with proper thickness.

: Apply gear oil.

: Apply anti-corrosion oil.

: Apply multi purpose grease.

DRIVE PINION

< UNIT DISASSEMBLY AND ASSEMBLY >

[REAR FINAL DRIVE: R145]

: Apply Genuine Silicone RTV or equivalent. Refer to [GI-22, "Recommended Chemical Products and Sealants"](#).

: Apply Genuine High Strength Thread Locking Sealant or equivalent. Refer to [GI-22, "Recommended Chemical Products and Sealants"](#).

Disassembly and Assembly

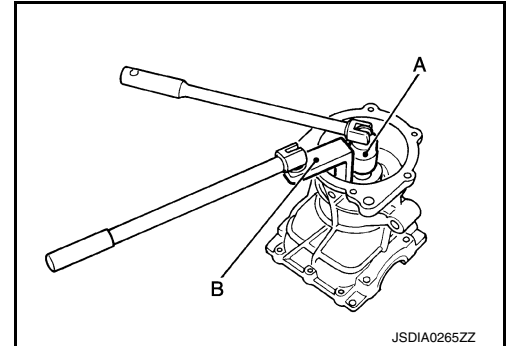
INFOID:000000010339794

DISASSEMBLY

1. Remove electric controlled coupling assembly. Refer to [DLN-121, "Disassembly and Assembly"](#).
2. Remove differential assembly. Refer to [DLN-125, "Disassembly and Assembly"](#).
3. Remove drive pinion oil seal, using oil seal remover (commercial service tool).
4. Fit drive pinion socket (A) onto drive pinion spline. Remove drive pinion lock nut, using the pinion nut wrench (B).

A : Drive pinion socket [SST: KV38109500 (—)]

B : Pinion nut wrench [SST: KV38109400 (—)]

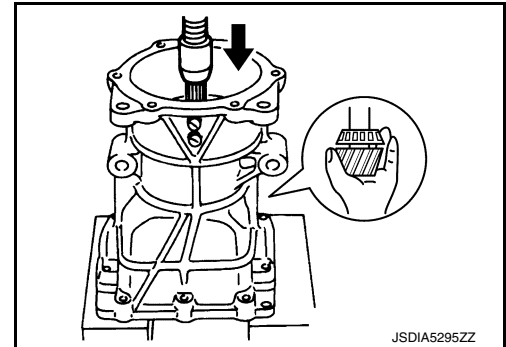


5. Press drive pinion assembly out of gear carrier.

CAUTION:

Never drop drive pinion assembly.

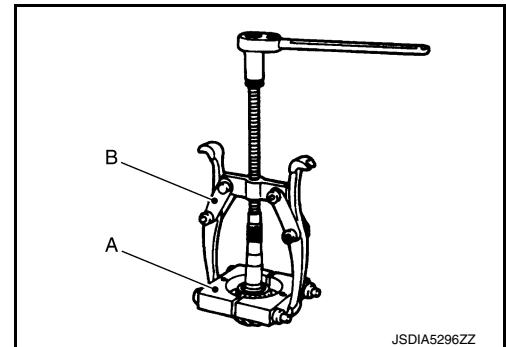
6. Remove pinion front bearing inner race.
7. Remove collapsible spacer.



8. Remove pinion rear bearing inner race from drive pinion, using the separator (A) and the puller (B).

A : Separator (commercial service tool)

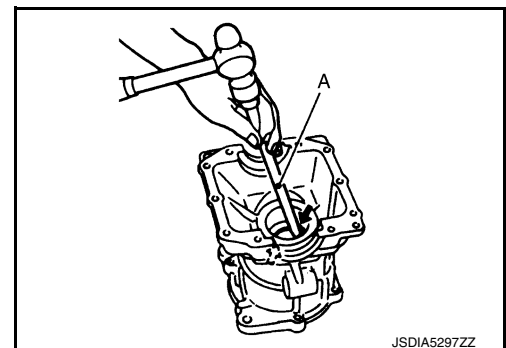
B : Puller (commercial service tool)



9. Using a brass rod or equivalent (A), tap pinion front bearing outer race evenly from the 2 cutouts on gear carrier and remove pinion front bearing outer race.

CAUTION:

Be careful not to damage gear carrier.



DRIVE PINION

< UNIT DISASSEMBLY AND ASSEMBLY >

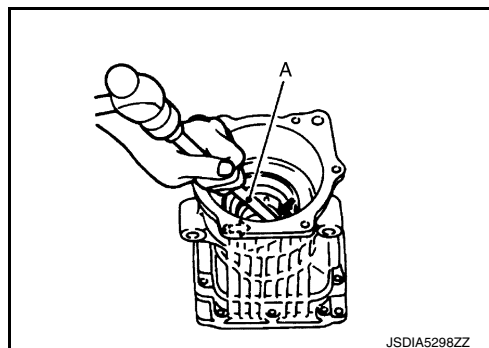
[REAR FINAL DRIVE: R145]

10. Using a brass rod or equivalent (A), tap drive pinion adjusting shim evenly from the 2 cutouts on gear carrier and remove drive pinion adjusting shim and pinion rear bearing outer race.

CAUTION:

Be careful not to damage gear carrier.

11. Perform inspection after disassembly. Refer to [DLN-140](#), "[Inspection](#)".

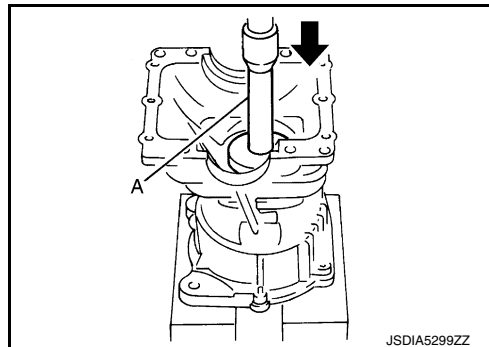


ASSEMBLY

1. Install a drive pinion adjusting shim of the same thickness as was installed prior to disassembly. Press pinion rear bearing outer race into gear carrier, using the drift (A) [SST: ST17130000 (—)].

CAUTION:

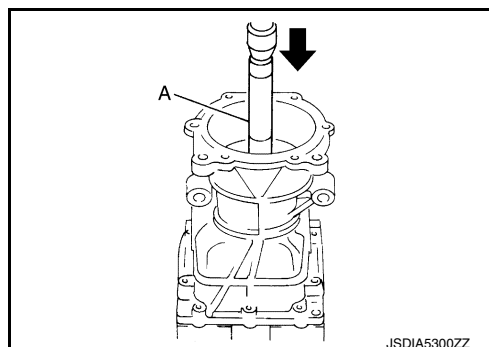
- At first, using a hammer, tap bearing outer race until it becomes flush to gear carrier.
- Never reuse pinion rear bearing outer race.



2. Press pinion front bearing outer race into gear carrier, using the drift (A) [SST: ST33230000 (J-25805-01)].

CAUTION:

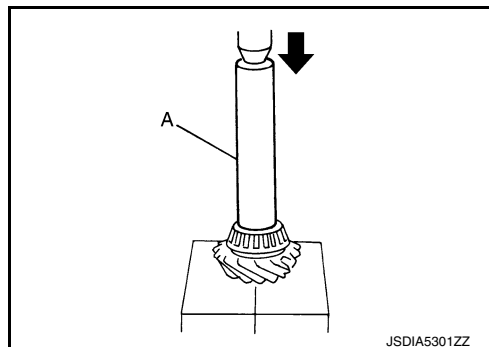
- At first, using a hammer, tap bearing outer race until it becomes flush to gear carrier.
- Never reuse pinion front bearing outer race.



3. Press pinion rear bearing inner race to drive pinion, using the drift (A) [SST: ST23860000 (—)].

CAUTION:

Never reuse pinion rear bearing inner race.



4. Check and adjust the tooth contact and back lash of drive gear and drive pinion following the procedure below.
- a. Assemble drive pinion into gear carrier.
- CAUTION:**
- Never assemble collapsible spacer.
 - Apply gear oil to pinion rear bearing.
- b. Assemble pinion front bearing inner race to drive pinion assembly.
- CAUTION:**
- Never reuse pinion front bearing inner race.
 - Apply gear oil to pinion front bearing.

DRIVE PINION

< UNIT DISASSEMBLY AND ASSEMBLY >

[REAR FINAL DRIVE: R145]

- c. Using the drifts (A and C) and press stand (B), press pinion front bearing inner race to drive pinion as far as drive pinion lock nut can be tightened.

A : Drift [SST: KV40100610 (J-26089)]
B : Press stand [SST: ST38220000 (—)]
C : Drift [SST: ST23860000 (—)]

- d. Temporarily tighten removed drive pinion lock nut to drive pinion.

NOTE:

Use removed drive pinion lock nut only for the preload measurement.

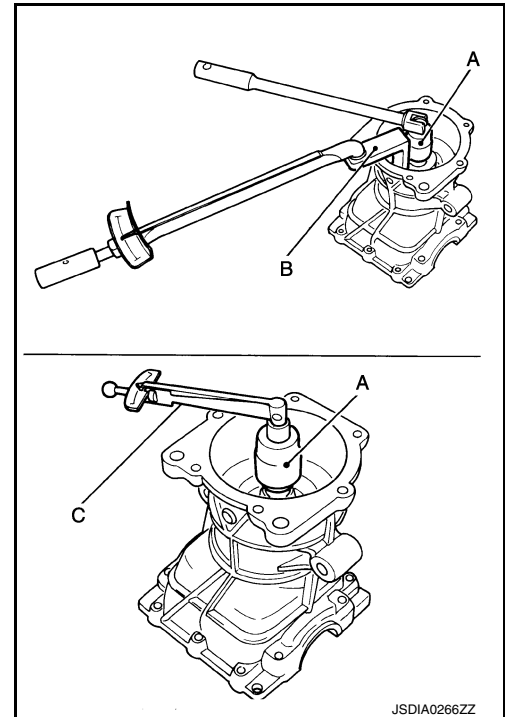
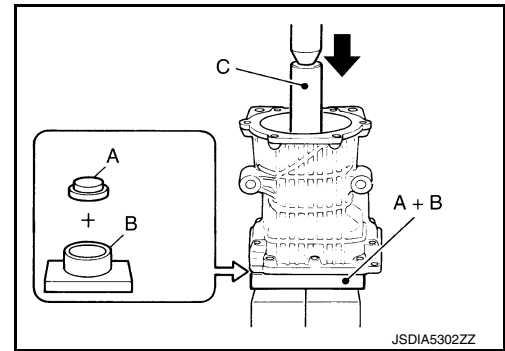
- e. Rotate drive pinion more than 20 times to adjust bearing.
f. Fit the drive pinion socket (A) onto the drive pinion. Using the pinion nut wrench (B), tighten drive pinion lock nut holding drive pinion, while adjusting pinion bearing preload torque using preload gauge (C).

A : Drive pinion socket [SST: KV38109500 (—)]
B : Pinion nut wrench [SST: KV38109400 (—)]
C : Preload gauge [SST: ST3127S000 (J-25765-A)]

Pinion bearing preload : Refer to [DLN-141, "Preload Torque"](#).

CAUTION:

Drive pinion lock nut is tightened with no collapsible spacer. Be careful not to overtighten it. While measuring the preload, tighten it by 5° to 10°.



- g. Install new side bearing adjusting shims (2 pieces for one side) with the same thickness or re-install the old ones to the same mounting position they were in prior to disassembly. Install differential assembly to gear carrier. Refer to [DLN-125, "Disassembly and Assembly"](#).

CAUTION:

Apply differential gear oil to the side bearings.

- h. Check and adjust tooth contact, drive gear to drive pinion backlash. Refer to [DLN-130, "Adjustment"](#).
i. Remove differential assembly.
j. Remove drive pinion assembly from gear carrier
k. Remove drive pinion nut and press drive pinion assembly out of gear carrier.
l. Remove pinion front bearing inner race.

DRIVE PINION

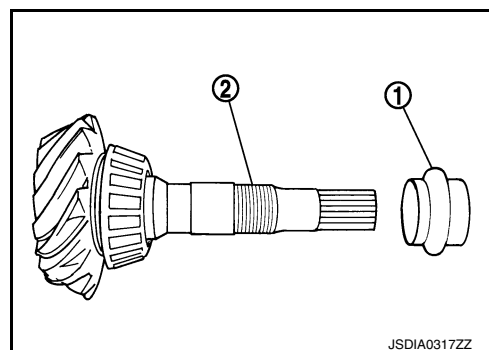
< UNIT DISASSEMBLY AND ASSEMBLY >

[REAR FINAL DRIVE: R145]

5. Assemble collapsible spacer ① to drive pinion ②.

CAUTION:

- Be careful of the mounting direction of collapsible spacer.
- Never reuse collapsible spacer.



6. Assemble drive pinion into gear carrier.

CAUTION:

Apply gear oil to pinion rear bearing.

7. Assemble pinion front bearing inner race to drive pinion assembly.

CAUTION:

- Never reuse pinion front bearing inner race.
- Apply gear oil to pinion front bearing.

8. Using the drifts (A and C) and press stand (B), press pinion front bearing inner race to drive pinion as far as drive pinion lock nut can be tightened.

A : Drift [SST: KV40100610 (J-26089)]

B : Press stand [SST: ST38220000 (—)]

C : Drift [SST: ST23860000 (—)]

9. Apply anti-corrosion oil to the thread and seat of drive pinion lock nut, and temporarily tighten drive pinion lock nut to drive pinion.

CAUTION:

Never reuse drive pinion lock nut.

10. Fit the drive pinion socket (A) onto the drive pinion. While holding drive pinion, tighten drive pinion lock nut within the limits of specified torque so as to keep the pinion bearing preload within a standard values, using the pinion nut wrench (B) and the preload gauge (C).

A : Drive pinion socket [SST: KV38109500 (—)]

B : Pinion nut wrench [SST: KV38109400 (—)]

C : Preload gauge [SST: ST3127S000 (J-25765-A)]

Drive pinion lock nut tightening torque : Refer to [DLN-135, "Exploded View"](#).

Pinion bearing preload : Refer to [DLN-141, "Preload Torque"](#).

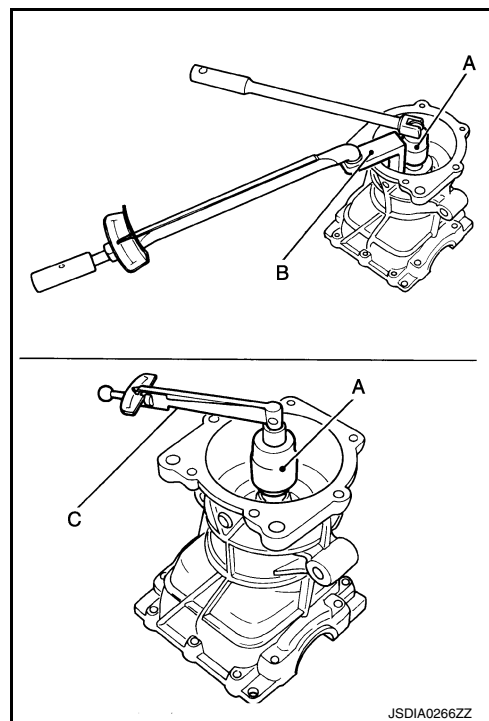
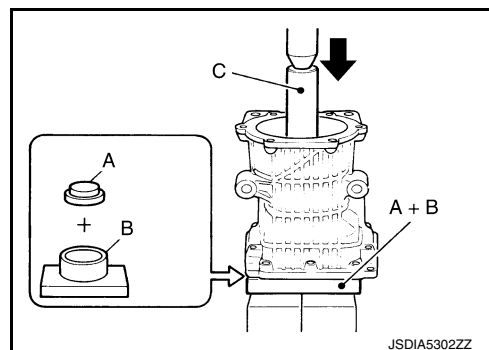
CAUTION:

- Adjust the lower limit of the drive pinion lock nut tightening torque first.
- If the preload torque exceeds the specified value, replace collapsible spacer and tighten it again to adjust. Never loose n drive pinion lock nut to adjust the preload torque.
- After adjustment, rotate drive pinion back and forth 2 to 3 times to check for unusual noise, rotation malfunction, and other malfunctions.

11. Install differential assembly. Refer to [DLN-125, "Disassembly and Assembly"](#).

CAUTION:

Never install rear cover at this timing.



DRIVE PINION

< UNIT DISASSEMBLY AND ASSEMBLY >

[REAR FINAL DRIVE: R145]

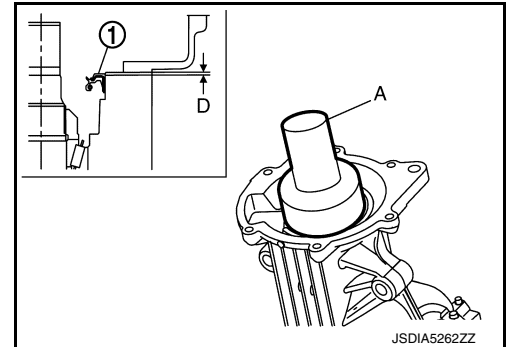
12. Check and adjust drive gear runout, tooth contact, and drive gear to drive pinion backlash. Refer to [DLN-130, "Adjustment"](#).
13. Remove dummy cover set [SST: KV381086S1 (—)], then install rear cover, and side oil seal. Refer to [DLN-125, "Disassembly and Assembly"](#).
14. Check total preload torque. Refer to [DLN-130, "Adjustment"](#).
15. Using the drift (A) [SST: ST35271000 (J-26091)], install drive pinion oil seal ① within the dimension (D) shown as follows.

D : 0.8 – 1.2 mm (0.031 – 0.047 in)

CAUTION:

- Never reuse oil seal.
- When installing, never incline oil seal.
- Apply multi-purpose grease onto oil seal lips, and gear oil onto the circumference of oil seal.

16. Install electric controlled coupling assembly. Refer to [DLN-121, "Disassembly and Assembly"](#).



Inspection

INFOID:0000000010339797

INSPECTION AFTER DISASSEMBLY

Drive Gear and Drive Pinion

- Clean up the disassembled parts.
- If the gear teeth never mesh or line-up correctly, determine the cause and adjust or replace as necessary.
- If the gears are worn, cracked, damaged, pitted or chipped (by friction) noticeably, replace with new drive gear and drive pinion as a set.

Bearing

- Clean up the disassembled parts.
- If any chipped (by friction), pitted, worn, rusted or scratched marks, or unusual noise from the bearing is observed, replace as a bearing assembly (as a new set).

Oil Seal

- Whenever disassembled, replace.
- If wear, deterioration of adherence (sealing force lips), or damage is detected on the lips, replace them.

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

[REAR FINAL DRIVE: R145]

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

General Specifications

INFOID:0000000010339737

Applied model	AWD	
	QR25DE	
	CVT	
Final drive model	R145	
Gear ratio	2.466	
Number of teeth (Drive gear/Drive pinion)	37/15	
Number of pinion gears	2	
Drive pinion adjustment spacer type	Collapsible	
Oil	Recommended oil	Refer to MA-11. "Fluids and Lubricants" .
	Oil capacity (Approx.) ℓ (US pt, Imp pt)	0.55 (1-1/8, 1)

Preload Torque

INFOID:0000000010339738

Unit: N·m (kg-m, in-lb)

Item	Standard
Pinion bearing (P1)	0.69 – 1.18 (0.07 – 0.12, 7 – 10)
Side bearing (P2)	0.66 – 1.00 (0.07 – 0.10, 6 – 8)
Side bearing to pinion bearing (Total preload) (Total preload = P1 + P2)	1.35 – 2.18 (0.14 – 0.22, 12 – 19)

Drive Gear Runout

INFOID:0000000010339739

Unit: mm (in)

Item	Standard
Drive gear back face runout	0.05 (0.0020) or less

Backlash

INFOID:0000000010339740

Unit: mm (in)

Item	Standard
Drive gear to drive pinion gear	0.10 – 0.15 (0.0039 – 0.0059)

Differential Side Gear Clearance

INFOID:0000000010339741

Unit: mm (in)

Item	Standard
Side gear backlash (Clearance between side gear and differential case)	0.10 (0.004) or less (Each gear should rotate smoothly without excessive resistance during differential motion.)

A

B

C

D

E

F

G

H

I

J

K

L

M

N

P

DMS

SECTION

DRIVE MODE SYSTEM

CONTENTS

SPORT MODE		
PRECAUTION	2	
PRECAUTIONS	2	
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	2	
SYSTEM DESCRIPTION	3	
COMPONENT PARTS	3	
Component Parts Location	3	
SPORT Mode Switch	4	
SPORT Mode Indicator Lamp	4	
SYSTEM	6	
SPORT MODE CONTROL	6	
SPORT MODE CONTROL : System Description.....	6	
ECU DIAGNOSIS INFORMATION	7	
SPORT MODE	7	
List of ECU Reference	7	
WIRING DIAGRAM	8	
SPORT MODE SYSTEM	8	
Wiring Diagram	8	
BASIC INSPECTION	12	
DIAGNOSIS AND REPAIR WORK FLOW	12	
Work Flow	12	
DTC/CIRCUIT DIAGNOSIS	13	
SPORT MODE SWITCH	13	
Component Function Check	13	
Diagnosis Procedure	13	
Component Inspection	14	
SYMPTOM DIAGNOSIS	15	
THE SPORT MODE INDICATOR LAMP DOES NOT TURN ON	15	
Description	15	
Diagnosis Procedure	15	
REMOVAL AND INSTALLATION	16	
SPORT MODE SWITCH	16	
Removal and Installation	16	

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010430570

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

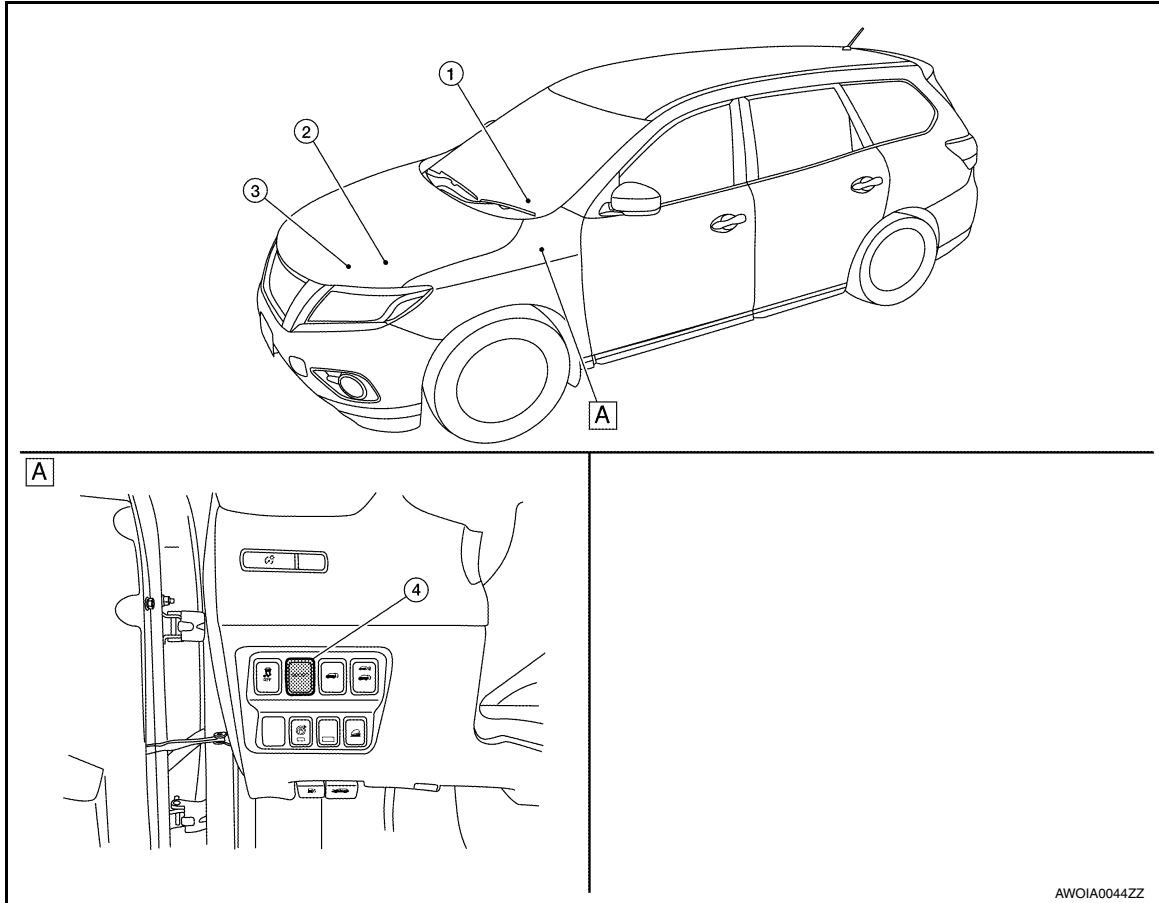
- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:0000000010103801



A Instrument lower panel LH

No.	Component	Function
①	Combination meter	- The combination meter transmits the following signal via CAN communications to the TCM. - SPORT mode switch signal - The combination meter receives the following signal via CAN communications from the ECM. - SPORT mode indicator signal Refer to MWI-6, "METER SYSTEM : Component Parts Location" for detailed installation location.
②	TCM	- The TCM receives the following signal via CAN communications from the combination meter. - SPORT mode switch signal - The TCM transmits the following signal via CAN communications to the ECM. - SPORT mode signal Refer to TM-12, "CVT CONTROL SYSTEM : Component Parts Location" for detailed installation location.

COMPONENT PARTS

< SYSTEM DESCRIPTION >

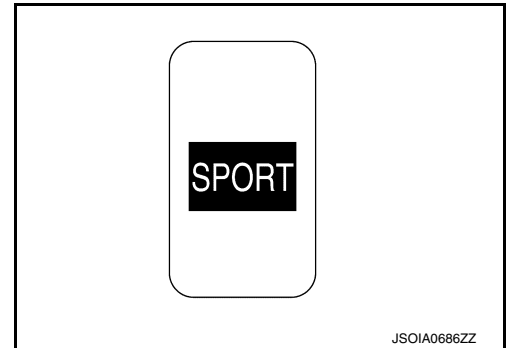
[SPORT MODE]

No.	Component	Function
③	ECM	- The ECM receives the following signal via CAN communications from the TCM. - SPORT mode signal - The ECM transmits the following signal via CAN communications to the combination meter. - SPORT mode indicator signal Refer to EC-14, "Component Parts Location" for detailed installation location.
④	SPORT mode switch	Refer to DMS-4, "SPORT Mode Switch" .

SPORT Mode Switch

INFOID:000000010103802

- The SPORT mode switch is installed to the instrument lower finisher.
- When the SPORT mode indicator lamp on the combination meter is OFF and the SPORT mode switch is pressed, the SPORT mode is active and the SPORT mode indicator lamp is ON.
- When the SPORT mode indicator lamp on the combination meter is ON and the SPORT mode switch is pressed, the SPORT mode is cancelled and the SPORT mode indicator lamp is OFF.

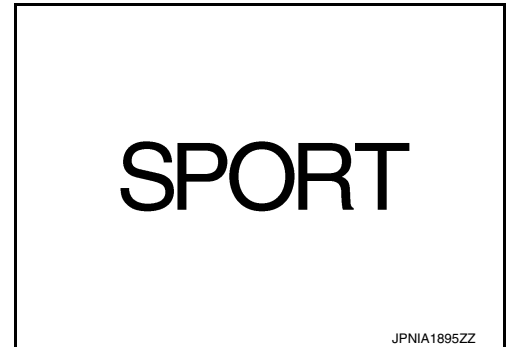


SPORT Mode Indicator Lamp

INFOID:000000010103803

DESIGN/PURPOSE

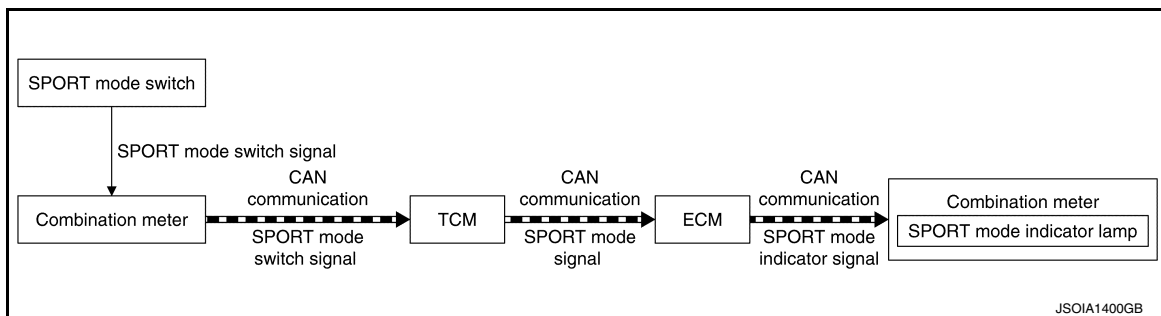
The SPORT mode indicator lamp inform the driver that the vehicle is in SPORT mode.



BULB CHECK

Not applicable

SYSTEM DIAGRAM



SIGNAL PATH

- TCM receives SPORT mode switch signal (ON/OFF) from combination meter via CAN communication. Based on the signal, TCM transmits SPORT mode signal to ECM via CAN communication.
- ECM transmits SPORT mode indicator signal to combination meter via CAN communication. Based on the signal, combination meter illuminates SPORT mode indicator lamp.

LIGHTING CONDITION

When all of the following conditions are satisfied.

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[SPORT MODE]

- Ignition switch: ON
- The SPORT mode switch is pressed when the SPORT mode indicator lamp is OFF

SHUTOFF CONDITION

When any of the condition listed below is satisfied.

- Ignition switch: Other than ON
- The SPORT mode switch is pressed when the SPORT mode indicator lamp is ON.

A

B

C

D

E

F

G

H

I

J

K

L

M

N

P

DMS

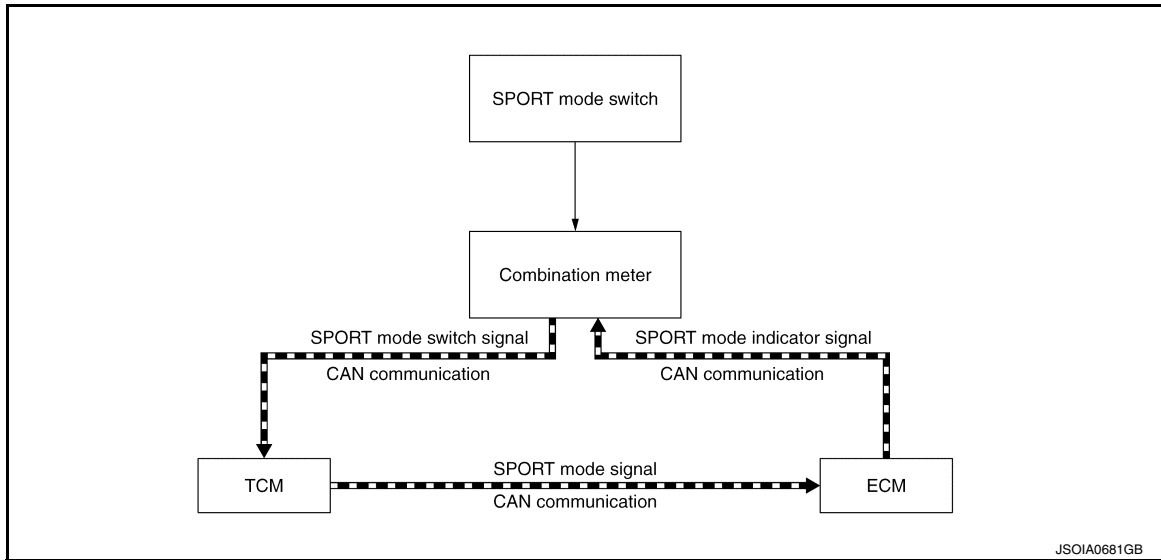
SYSTEM

SPORT MODE CONTROL

SPORT MODE CONTROL : System Description

INFOID:0000000010103804

SYSTEM DIAGRAM



SYSTEM DISCRIPTION

- TCM receives SPORT mode switch signal (ON/OFF) from combination meter via CAN communication. TCM transmit SPORT mode signal to ECM via CAN communication according to the signal.
- ECM transmits SPORT mode indicator signal to combination meter via CAN communication. Combination meter illuminates SPORT mode indicator lamp according to the signal.

Each ECU Control

- For TCM control, refer to [TM-41, "SPORT MODE CONTROL : System Description"](#).
- For ECM control, refer to [EC-54, "SPORT MODE CONTROL : System Description"](#).

ECU DIAGNOSIS INFORMATION

SPORT MODE

List of ECU Reference

INFOID:0000000010103805

ECU	Reference
TCM	TM-52, "Reference Value"
	TM-58, "Fail-safe"
	TM-62, "DTC Inspection Priority Chart"
	TM-63, "DTC Index"
ECM	EC-77, "Reference Value"
	EC-89, "Fail Safe"
	EC-92, "DTC Inspection Priority Chart"
	EC-93, "DTC Index"
Combination meter	MWI-24, "Reference Value"
	MWI-29, "Fail-safe"
	MWI-30, "DTC Index"

A

B

C

D

E

F

G

H

I

J

K

L

M

N

DMS

P

< WIRING DIAGRAM >

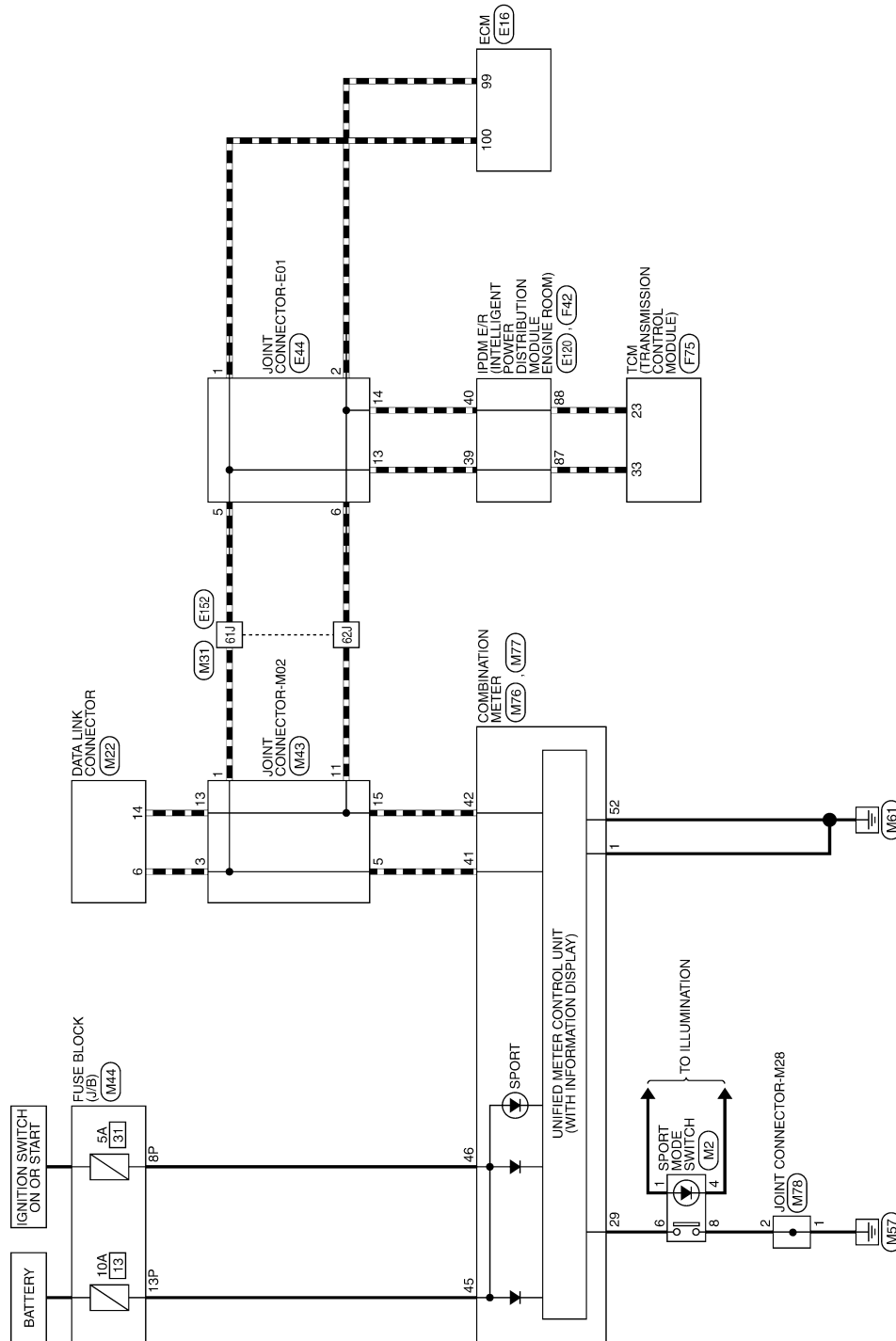
WIRING DIAGRAM

SPORT MODE SYSTEM

Wiring Diagram

INFOID:000000010103806

SPORT MODE SYSTEM



AAOWA0033GB

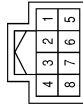
SPORT MODE SYSTEM

< WIRING DIAGRAM >

[SPORT MODE]

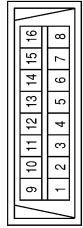
SPORT MODE SYSTEM CONNECTORS

Connector No.	M2
Connector Name	SPORT MODE SWITCH
Connector Color	BLUE



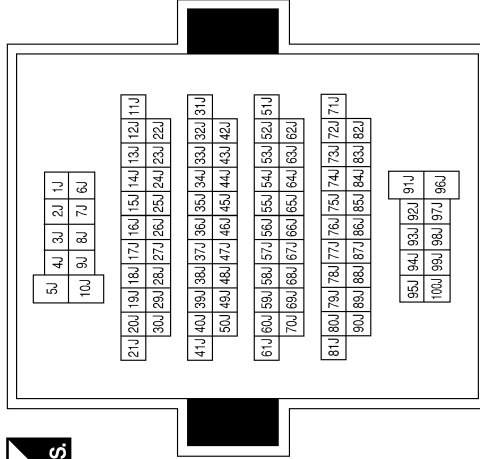
Terminal No.	Color of Wire	Signal Name
1	G	—
4	GR	—
6	R	—
8	GR	—

Connector No.	M22
Connector Name	DATA LINK CONNECTOR
Connector Color	WHITE



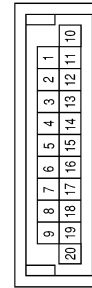
Terminal No.	Color of Wire	Signal Name
6	L	—
14	P	—

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
61J	L	—
62J	P	—

Connector No.	M43
Connector Name	JOINT CONNECTOR-M02
Connector Color	BLUE



Terminal No.	Color of Wire	Signal Name
1	L	—
3	L	—
5	L	—
11	P	—
13	P	—
15	P	—

Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
8P	LA/BR	—
13P	LA/G	—

AAOIA0138GB

SPORT MODE SYSTEM

< WIRING DIAGRAM >

[SPORT MODE]

Connector No.	M78
Connector Name	JOINT CONNECTOR-M28
Connector Color	WHITE



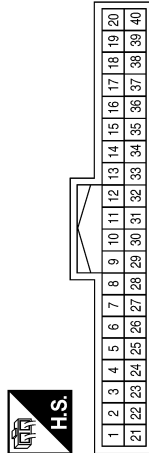
Terminal No.	Color of Wire	Signal Name
1	GR	-
2	GR	-

Connector No.	M77
Connector Name	COMBINATION METER
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
41	L	CAN-H
42	P	CAN-L
45	LA/G	ALVUSBAT
46	LA/BR	IGN
52	B	GND2

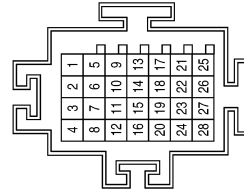
Connector No.	M76
Connector Name	COMBINATION METER
Connector Color	WHITE



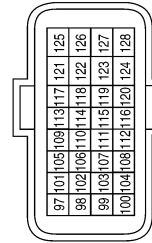
Terminal No.	Color of Wire	Signal Name
1	B	GND1
29	R	SPORT MODE SW

Terminal No.	Color of Wire	Signal Name
1	L	-
2	P	-
5	L	-
6	P	-
13	L	-
14	P	-

Connector No.	E44
Connector Name	JOINT CONNECTOR-E01
Connector Color	WHITE



Connector No.	E16
Connector Name	ECM
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
99	P	CAN-L
100	L	CAN-H

AAOIA0139GB

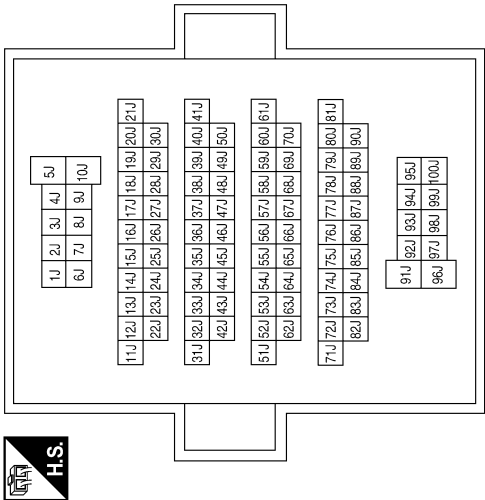
SPORT MODE SYSTEM

< WIRING DIAGRAM >

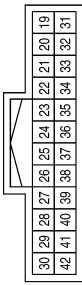
[SPORT MODE]

Terminal No.	Color of Wire	Signal Name
61J	L	-
62J	P	-

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE

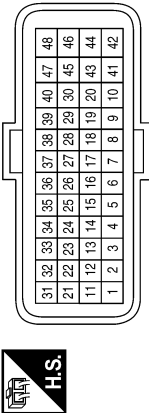


Connector No.	E120
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



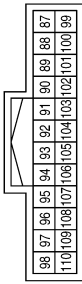
Terminal No.	Color of Wire	Signal Name
39	L	CAN-H
40	P	CAN-L

Connector No.	F75
Connector Name	TCM (TRANSMISSION CONTROL MODULE)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
23	P	CAN-L
33	L	CAN-H

Connector No.	F42
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
87	L	CAN-H
88	P	CAN-L

AAOIA0140GB

A
B
C
D
E
F
G
H
I
J
K
L
M
N
P

DMS

BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

INFOID:0000000010103807

DETAILED FLOW

1.OBTAIN INFORMATION ABOUT SYMPTOM

Interview the customer to obtain as much information as possible about the conditions and environment under which the malfunction occurs.

>> GO TO 2.

2.CHECK SYMPTOM

- Check the symptom based on the information obtained from the customer.
- Check if any other malfunctions are present.

>> GO TO 3.

3.DTC/SYSTEM DIGANOSIS

Perform a DTC/system diagnosis and repair or replace any malfunctioning part.

>> GO TO 4.

4.FINAL CHECK

Check that the SPORT mode functions normally.

Does it operation normally?

- YES >> End of trouble diagnosis
NO >> GO TO 2.

DTC/CIRCUIT DIAGNOSIS**SPORT MODE SWITCH****Component Function Check**

INFOID:0000000010103808

1. CHECK SPORT MODE SWITCH OPERATION

1. Turn ignition switch ON.
2. Check SPORT mode indicator lamp turns ON/OFF on combination meter when turn SPORT mode switch ON/OFF.

Is the inspection result normal?

- YES >> INSPECTION END
 NO >> Proceed to [DMS-13, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010103809

1. CHECK SPORT MODE SWITCH CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect SPORT mode switch harness connector.
3. Turn ignition switch ON.
4. Check voltage between SPORT mode switch harness connector terminals.

SPORT mode switch			Voltage (Ap- prox.)
Connector	+	−	
	Terminal		
M2	6	8	5 V

Is the inspection result normal?

- YES >> GO TO 6.
 NO >> GO TO 2.

2. CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check the continuity between SPORT mode switch harness connector and ground.

SPORT mode switch		—	Continuity
Connector	Terminal		
M2	8	Ground	Existed

Is the inspection result normal?

- YES >> GO TO 3.
 NO >> Repair or replace damaged parts.

3. CHECK CIRCUIT BETWEEN COMBINATION METER AND SPORT MODE SWITCH (1)

1. Disconnect combination meter harness connector M76.
2. Check continuity between combination meter harness connector terminal and SPORT mode switch harness connector terminal.

Combination meter		SPORT mode switch		Continuity
Connector	Terminal	Connector	Terminal	
M76	29	M2	6	Existed

Is the inspection result normal?

- YES >> GO TO 4.
 NO >> Repair or replace damaged parts.

4. CHECK CIRCUIT BETWEEN COMBINATION METER AND SPORT MODE SWITCH (2)

A

B

C

D

E

F

G

H

I

J

K

L

M

N

DMS

P

SPORT MODE SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[SPORT MODE]

Check continuity between combination meter harness connector terminal and SPORT mode switch harness connector terminal.

Combination meter		—	Continuity
Connector	Terminal		
M76	29	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace damaged parts.

5.CHECK COMBINATION METER INPUT/OUTPUT SIGNAL

1. Connect all of disconnected connectors.

2. Check input/output signal of combination meter. Refer to [MWI-24, "Reference Value"](#).

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

NO >> Replace combination meter. Refer to [MWI-82, "Removal and Installation"](#).

6.CHECK SPORT MODE SWITCH

Check SPORT mode switch. Refer to [DMS-14, "Component Inspection"](#).

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

NO >> Replace SPORT mode switch. Refer to [DMS-16, "Removal and Installation"](#).

Component Inspection

INFOID:0000000010103810

1.CHECK SPORT MODE SWITCH

Check continuity between SPORT mode switch connector terminals.

SPORT mode switch	Condition	Continuity
Terminal		
6 – 8	SPORT mode switch is depressed.	Existed
	SPORT mode switch is released.	Not existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace SPORT mode switch. Refer to [DMS-16, "Removal and Installation"](#).

THE SPORT MODE INDICATOR LAMP DOES NOT TURN ON

< SYMPTOM DIAGNOSIS >

[SPORT MODE]

SYMPTOM DIAGNOSIS

THE SPORT MODE INDICATOR LAMP DOES NOT TURN ON

Description

INFOID:0000000010103811

The SPORT mode indicator lamp does not turn ON when the SPORT mode switch is operated.

Diagnosis Procedure

INFOID:0000000010103812

1.CHECK SPORT MODE INDICATOR LAMP FUNCTION

Perform combination meter self-diagnosis mode and check test order 10. Refer to [MWI-19. "Description"](#).

Is the check result normal?

YES >> GO TO 2.

NO >> Replace combination meter. Refer to [MWI-82. "Removal and Installation"](#).

2.CHECK DTC (TCM)

With CONSULT

1. Start the engine.
2. Check "Self Diagnostic Results" in "TRANSMISSION".

Is any DTC detected?

YES >> Check DTC detected item. Refer to [TM-63. "DTC Index"](#).

NO >> GO TO 3.

3.CHECK DTC (ECM)

With CONSULT

Check "Self Diagnostic Results" in "ENGINE".

Is any DTC detected?

YES >> Check DTC detected item. Refer to [EC-93. "DTC Index"](#).

NO >> GO TO 4.

4.CHECK DTC (COMBINATION METER)

With CONSULT

Check "Self Diagnostic Results" in "METER/M&A".

Is any DTC detected?

YES >> Check DTC detected item. Refer to [MWI-30. "DTC Index"](#).

NO >> GO TO 5.

5.CHECK COMBINATION METER INPUT/OUTPUT SIGNAL

With CONSULT

1. Select "Data Monitor" in "METER/M&A".
2. Select "SPORT MODE IND".
3. Check that "SPORT MODE IND" turns ON/OFF when SPORT mode switch is operated. Refer to [MWI-24. "Reference Value"](#).

Is any DTC detected?

YES >> Replace combination meter. Refer to [MWI-82. "Removal and Installation"](#).

NO >> GO TO 6.

6.CHECK SPORT MODE SWITCH CIRCUIT

Check SPORT mode switch circuit. Refer to [DMS-13. "Diagnosis Procedure"](#).

Is any DTC detected?

YES >> INSPECTION END

NO >> Repair or replace malfunctioning parts.

REMOVAL AND INSTALLATION

SPORT MODE SWITCH

Removal and Installation

INFOID:0000000010103813

REMOVAL

1. Remove instrument lower panel LH. Refer to [JP-14, "Exploded View"](#).
2. Remove SPORT mode switch.

INSTALLATION

Installation is in the reverse order of removal.

SECTION **EC**

ENGINE CONTROL SYSTEM

CONTENTS

QR25DE

PRECAUTION	8	
PRECAUTIONS	8	
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	8	
Precaution for Procedure without Cowl Top Cover.....	8	
On Board Diagnostic (OBD) System of Engine and CVT	8	
General Precautions	9	
PREPARATION	12	
PREPARATION	12	
Special Service Tools	12	
Commercial Service Tools	12	
SYSTEM DESCRIPTION	14	
COMPONENT PARTS	14	
Component Parts Location	14	
ECM	18	
Accelerator Pedal Position Sensor	18	
Electric Throttle Control Actuator	19	
Ignition Coil With Power Transistor	19	
Fuel Injector	20	
Fuel Level Sensor Unit and Fuel Pump	20	
Fuel Tank Temperature Sensor	20	
Mass Air Flow Sensor (With Intake Air Temperature Sensor)	21	
Engine Coolant Temperature Sensor	21	
Crankshaft Position Sensor (POS)	22	
Camshaft Position Sensor (PHASE)	22	
Intake Valve Timing Control Solenoid Valve	23	
Intake Valve Timing Intermediate Lock Control Solenoid Valve	23	
Exhaust Valve Timing Control Position Sensor	23	
Exhaust Valve Timing Control Solenoid Valve	24	
Intake Manifold Runner Control Valve	24	
Air Fuel Ratio (A/F) Sensor 1	24	F
Heated Oxygen Sensor 2	25	
Knock Sensor	25	
Engine Oil Pressure Sensor	26	G
Engine Oil Temperature Sensor	26	
Cooling Fan	26	
EVAP Canister	27	H
EVAP Canister Purge Volume Control Solenoid Valve	27	
EVAP Canister Vent Control Valve	27	I
EVAP Control System Pressure Sensor	27	
Refrigerant Pressure Sensor	28	
Stop Lamp Switch & Brake Pedal Position Switch.....	28	J
ASCD Steering Switch	28	
Information Display	28	
STRUCTURE AND OPERATION	29	
Positive Crankcase Ventilation	29	K
On Board Refueling Vapor Recovery (ORVR)	30	
SYSTEM	31	L
ENGINE CONTROL SYSTEM	31	
ENGINE CONTROL SYSTEM : System Description	31	M
ENGINE CONTROL SYSTEM : Fail Safe	32	
MULTIPORT FUEL INJECTION SYSTEM	34	N
MULTIPORT FUEL INJECTION SYSTEM : System Description (with automatic air conditioner)	34	
MULTIPORT FUEL INJECTION SYSTEM : System Description (with manual air conditioner)	37	O
ELECTRIC IGNITION SYSTEM	39	
ELECTRIC IGNITION SYSTEM : System Description	39	P
INTAKE VALVE TIMING CONTROL	40	
INTAKE VALVE TIMING CONTROL : System Description	40	
EXHAUST VALVE TIMING CONTROL	42	

EXHAUST VALVE TIMING CONTROL : System Description	43
INTAKE MANIFOLD RUNNER CONTROL	43
INTAKE MANIFOLD RUNNER CONTROL : System Description	44
ENGINE PROTECTION CONTROL AT LOW ENGINE OIL PRESSURE	44
ENGINE PROTECTION CONTROL AT LOW ENGINE OIL PRESSURE : System Description	44
AIR CONDITIONING CUT CONTROL	44
AIR CONDITIONING CUT CONTROL : System Description	45
POWER GENERATION VOLTAGE VARIABLE CONTROL SYSTEM	45
POWER GENERATION VOLTAGE VARIABLE CONTROL SYSTEM : System Description	45
COOLING FAN CONTROL	45
COOLING FAN CONTROL : System Description...	46
AUTOMATIC SPEED CONTROL DEVICE (ASCD)..	47
AUTOMATIC SPEED CONTROL DEVICE (ASCD) : System Description	47
FUEL FILLER CAP WARNING SYSTEM	48
FUEL FILLER CAP WARNING SYSTEM : System Description	48
WARNING/INDICATOR/CHIME LIST	49
WARNING/INDICATOR/CHIME LIST : Warning lamps/Indicator lamps	49
WARNING/INDICATOR/CHIME LIST : Warning/Indicator (On Information Display)	49
WARNING/INDICATOR/CHIME LIST : Malfunction Indicator Lamp (MIL)	49
WARNING/INDICATOR/CHIME LIST : Engine Oil Pressure Warning	51
WARNING/INDICATOR/CHIME LIST : Fuel Filler Cap Warning	52
EVAPORATIVE EMISSION SYSTEM	52
EVAPORATIVE EMISSION SYSTEM : System Description	53
CAN COMMUNICATION	53
CAN COMMUNICATION : System Description	53
SPORT MODE CONTROL	54
SPORT MODE CONTROL : System Description...	54
OPERATION	55
AUTOMATIC SPEED CONTROL DEVICE (ASCD)..	55
AUTOMATIC SPEED CONTROL DEVICE (ASCD) : Switch Name and Function	55
ON BOARD DIAGNOSTIC (OBD) SYSTEM	56
Diagnosis Description	56
GST (Generic Scan Tool)	56

DIAGNOSIS SYSTEM (ECM)	57
DIAGNOSIS DESCRIPTION	57
DIAGNOSIS DESCRIPTION : 1st Trip Detection Logic and Two Trip Detection Logic	57
DIAGNOSIS DESCRIPTION : DTC and Freeze Frame Data	57
DIAGNOSIS DESCRIPTION : Counter System	58
DIAGNOSIS DESCRIPTION : Driving Pattern	61
DIAGNOSIS DESCRIPTION : System Readiness Test (SRT) Code	62
DIAGNOSIS DESCRIPTION : Permanent Diagnostic Trouble Code (Permanent DTC)	63
DIAGNOSIS DESCRIPTION : Malfunction Indicator Lamp (MIL)	64
On Board Diagnosis Function	64
CONSULT Function	67
ECU DIAGNOSIS INFORMATION	77
ECM	77
Reference Value	77
Fail Safe	89
DTC Inspection Priority Chart	92
DTC Index	93
Test Value and Test Limit	97
WIRING DIAGRAM	105
ENGINE CONTROL SYSTEM	105
Wiring Diagram	105
BASIC INSPECTION	127
DIAGNOSIS AND REPAIR WORKFLOW	127
Work Flow	127
Diagnostic Work Sheet	130
BASIC INSPECTION	132
Work Procedure	132
ADDITIONAL SERVICE WHEN REPLACING ECM	136
Description	136
Work Procedure	136
VIN REGISTRATION	138
Description	138
Work Procedure	138
ACCELERATOR PEDAL RELEASED POSITION LEARNING	139
Description	139
Work Procedure	139
THROTTLE VALVE CLOSED POSITION LEARNING	140
Description	140
Work Procedure	140
IDLE AIR VOLUME LEARNING	141

Description	141	Component Inspection	183
Work Procedure	141		
MIXTURE RATIO SELF-LEARNING VALUE		P0031, P0032 A/F SENSOR 1 HEATER	185
CLEAR	143	DTC Description	185
Description	143	Diagnosis Procedure	185
Work Procedure	143	Component Inspection	186
FUEL PRESSURE	144	P0037, P0038 HO2S2 HEATER	188
Work Procedure	144	DTC Description	188
HOW TO SET SRT CODE	145	Diagnosis Procedure	188
Description	145	Component Inspection	189
SRT Set Driving Pattern	146	P0075 INTAKE VALVE TIMING CONTROL ...	191
Work Procedure	148	DTC Description	191
HOW TO ERASE PERMANENT DTC	151	Diagnosis Procedure	191
Description	151	Component Inspection (IVT Control Solenoid	
Work Procedure (Group A)	152	Valve)	193
Work Procedure (Group B)	154	Component Inspection (IVT Intermediate Lock	
DTC/CIRCUIT DIAGNOSIS	157	Control Solenoid Valve)	194
TROUBLE DIAGNOSIS - SPECIFICATION		P0078 EVT CONTROL SOLENOID VALVE ...	195
VALUE	157	DTC Description	195
Description	157	Diagnosis Procedure	195
Component Function Check	157	Component Inspection	196
Diagnosis Procedure	158	P0101 MAF SENSOR	198
POWER SUPPLY AND GROUND CIRCUIT ...	165	DTC Description	198
Diagnosis Procedure	165	Diagnosis Procedure	199
U0101 CAN COMM CIRCUIT	169	Component Inspection	200
Description	169	P0102, P0103 MAF SENSOR	202
DTC Description	169	DTC Description	202
Diagnosis Procedure	169	Diagnosis Procedure	203
U1001 CAN COMM CIRCUIT	170	Component Inspection	204
Description	170	P0111 IAT SENSOR	206
DTC Description	170	DTC Description	206
Diagnosis Procedure	170	Diagnosis Procedure	207
U1040 ENG COMM CIRCUIT	171	Component Inspection	207
DTC Description	171	P0112, P0113 IAT SENSOR	208
Diagnosis Procedure	171	DTC Description	208
U1044 ENG COMM CIRCUIT	173	Diagnosis Procedure	208
DTC Description	173	Component Inspection	209
Diagnosis Procedure	173	P0116 ECT SENSOR	211
U1050, U1051 LIN COMMUNICATION	175	DTC Description	211
DTC Description	175	Diagnosis Procedure	212
Diagnosis Procedure	175	Component Inspection	212
P0011 IVT CONTROL	177	P0117, P0118 ECT SENSOR	213
DTC Description	177	DTC Description	213
Diagnosis Procedure	178	Diagnosis Procedure	213
Component Inspection	179	Component Inspection	214
P0014 EVT CONTROL	181	P0122, P0123 TP SENSOR	216
DTC Description	181	DTC Description	216
Diagnosis Procedure	182	Diagnosis Procedure	216
		Component Inspection	218
		P0125 ECT SENSOR	219
		DTC Description	219

Diagnosis Procedure	220	DTC Description	274
Component Inspection	220	Diagnosis Procedure	274
P0127 IAT SENSOR	221	Component Inspection	276
DTC Description	221	P0196 EOT SENSOR	277
Diagnosis Procedure	221	DTC Description	277
Component Inspection	222	Diagnosis Procedure	279
P0128 THERMOSTAT FUNCTION	223	Component Inspection	279
DTC Description	223	P0197, P0198 EOT SENSOR	281
Diagnosis Procedure	224	DTC Description	281
Component Inspection	225	Diagnosis Procedure	281
P0130 A/F SENSOR 1	226	Component Inspection	282
DTC Description	226	P0222, P0223 TP SENSOR	284
Diagnosis Procedure	227	DTC Description	284
P0131 A/F SENSOR 1	230	Diagnosis Procedure	284
DTC Description	230	Component Inspection	286
Diagnosis Procedure	231	P0300, P0301, P0302, P0303, P0304 MIS-	
P0132 A/F SENSOR 1	233	FIRE	287
DTC Description	233	DTC Description	287
Diagnosis Procedure	234	Diagnosis Procedure	288
P0137 HO2S2	236	P0327, P0328 KS	293
DTC Description	236	DTC Description	293
Diagnosis Procedure	238	Diagnosis Procedure	293
Component Inspection	239	Component Inspection	294
P0138 HO2S2	242	P0335 CKP SENSOR (POS)	295
DTC Description	242	DTC Description	295
Diagnosis Procedure	244	Diagnosis Procedure	295
Component Inspection	247	Component Inspection (Crankshaft Position sensor)	297
P0139 HO2S2	249	P0340 CMP SENSOR (PHASE)	298
DTC Description	249	DTC Description	298
Diagnosis Procedure	251	Diagnosis Procedure	298
Component Inspection	253	Component Inspection (Camshaft position sensor)	300
P014C, P014D, P015A, P015B, A/F SENSOR		P0420 THREE WAY CATALYST FUNCTION..	301
1	255	DTC Description	301
DTC Description	255	Diagnosis Procedure	302
Diagnosis Procedure	257	P0441 EVAP CONTROL SYSTEM	306
P0171 FUEL INJECTION SYSTEM FUNCTION	260	DTC Description	306
DTC Description	260	Diagnosis Procedure	308
Diagnosis Procedure	261	P0443 EVAP CANISTER PURGE VOLUME	
P0172 FUEL INJECTION SYSTEM FUNCTION	265	CONTROL SOLENOID VALVE	311
DTC Description	265	DTC Description	311
Diagnosis Procedure	266	Diagnosis Procedure	312
P0181 FTT SENSOR	270	Component Inspection	315
DTC Description	270	P0444, P0445 EVAP CANISTER PURGE	
Diagnosis Procedure	272	VOLUME CONTROL SOLENOID VALVE	316
Component Inspection	273	DTC Description	316
P0182, P0183 FTT SENSOR	274	Diagnosis Procedure	316
		Component Inspection	318

P0447 EVAP CANISTER VENT CONTROL VALVE	319	P050A, P050B, P050E COLD START CONTROL	356	A
DTC Description	319	Description	356	
Diagnosis Procedure	319	DTC Description	356	
Component Inspection	321	Diagnosis Procedure	357	EC
P0448 EVAP CANISTER VENT CONTROL VALVE	323	P0520 EOP SENSOR	358	
DTC Description	323	DTC Description	358	C
Diagnosis Procedure	324	Diagnosis Procedure	358	
Component Inspection	325	Component Inspection	360	
P0451 EVAP CONTROL SYSTEM PRESSURE SENSOR	327	P0524 ENGINE OIL PRESSURE	361	D
DTC Description	327	DTC Description	361	
Diagnosis Procedure	328	Diagnosis Procedure	362	E
Component Inspection	330	Component Inspection	363	
P0452 EVAP CONTROL SYSTEM PRESSURE SENSOR	331	P052A, P052B INTAKE VALVE TIMING CONTROL	364	F
DTC Description	331	DTC Description	364	
Diagnosis Procedure	332	Diagnosis Procedure	365	G
Component Inspection	333	Component Inspection (Intake Valve Timing Control Solenoid Valve)	366	
P0453 EVAP CONTROL SYSTEM PRESSURE SENSOR	334	Component Inspection (Intake Valve Timing Intermediate Lock Control Solenoid Valve)	367	H
DTC Description	334	Component Inspection (Crankshaft Position sensor)	368	
Diagnosis Procedure	335	Component Inspection (Camshaft position sensor)	368	I
Component Inspection	337	P0603, P062F ECM	370	J
P0456 EVAP CONTROL SYSTEM	338	DTC Description	370	
DTC Description	338	Diagnosis Procedure	371	
Diagnosis Procedure	339	P0604 ECM	372	K
Component Inspection	343	DTC Description	372	
P0460 FUEL LEVEL SENSOR	344	Diagnosis Procedure	372	
DTC Description	344	P0605 ECM	373	L
Diagnosis Procedure	344	DTC Description	373	
P0461 FUEL LEVEL SENSOR	346	Diagnosis Procedure	373	
DTC Description	346	P0606 ECM	374	M
Diagnosis Procedure	347	DTC Description	374	
P0462, P0463 FUEL LEVEL SENSOR	348	Diagnosis Procedure	374	
DTC Description	348	P0607 ECM	376	N
Diagnosis Procedure	348	DTC Description	376	
P0500 VSS	350	Diagnosis Procedure	376	
Description	350	P060A ECM	377	O
DTC Description	350	DTC Description	377	
Diagnosis Procedure	351	Diagnosis Procedure	377	
P0506 ISC SYSTEM	352	P060B ECM	378	P
Description	352	DTC Description	378	
DTC Description	352	Diagnosis Procedure	378	
Diagnosis Procedure	353	P0643 SENSOR POWER SUPPLY	379	
P0507 ISC SYSTEM	354	Description	379	
Description	354	DTC Description	379	
DTC Description	354	Diagnosis Procedure	380	
Diagnosis Procedure	355			

P0850 PNP SWITCH	382	DTC Description	416
Description	382	Diagnosis Procedure	416
DTC Description	382		
Diagnosis Procedure	383		
P1078 EVT CONTROL POSITION SENSOR ..	385	P1805 BRAKE SWITCH	418
DTC Description	385	DTC Description	418
Diagnosis Procedure	385	Diagnosis Procedure	418
Component Inspection	387	Component Inspection (Stop Lamp Switch)	419
P1148 CLOSED LOOP CONTROL	388	P2004 INTAKE MANIFOLD RUNNER CON-	
DTC Description	388	TROL VALVE	420
Diagnosis Procedure	388	DTC Description	420
		Diagnosis Procedure	420
		Component Inspection	421
P117A AIR FUEL RATIO	389	P2014, P2016, P2017, P2018 INTAKE MANI-	
DTC Description	389	FOLD RUNNER CONTROL VALVE POSI-	
Diagnosis Procedure	390	TION SENSOR	423
P1212 TCS COMMUNICATION LINE	395	DTC Description	423
Description	395	Diagnosis Procedure	424
DTC Description	395		
Diagnosis Procedure	395	P2096, P2097 A/F SENSOR 1	426
P1217 ENGINE OVER TEMPERATURE	397	DTC Description	426
DTC Description	397	Diagnosis Procedure	426
Diagnosis Procedure	398		
P1225 TP SENSOR	400	P2100, P2103 THROTTLE CONTROL MO-	
DTC Description	400	TOR RELAY	430
Diagnosis Procedure	400	DTC Description	430
		Diagnosis Procedure	431
P1226 TP SENSOR	401	P2101 ELECTRIC THROTTLE CONTROL	
DTC Description	401	FUNCTION	433
Diagnosis Procedure	401	DTC Description	433
		Diagnosis Procedure	433
		Component Inspection	435
P155D GENERATOR	402	P2118 THROTTLE CONTROL MOTOR	436
DTC Description	402	DTC Description	436
Diagnosis Procedure	402	Diagnosis Procedure	436
		Component Inspection	437
P1564 ASCD STEERING SWITCH	403	P2119 ELECTRIC THROTTLE CONTROL	
DTC Description	403	ACTUATOR	438
Diagnosis Procedure	403	DTC Description	438
Component Inspection	405	Diagnosis Procedure	438
P1568 SIGNAL INVALID	406	P2122, P2123 APP SENSOR	440
DTC Description	406	DTC Description	440
Diagnosis Procedure	406	Diagnosis Procedure	440
		Component Inspection	442
P1572 BRAKE PEDAL POSITION SWITCH ..	408	P2127, P2128 APP SENSOR	443
DTC Description	408	DTC Description	443
Diagnosis Procedure	409	Diagnosis Procedure	443
Component Inspection (Brake Pedal Position		Component Inspection	444
Switch)	411		
Component Inspection (Stop Lamp Switch)	412	P2135 TP SENSOR	446
P1574 ASCD VEHICLE SPEED SENSOR	414	DTC Description	446
Description	414	Diagnosis Procedure	446
DTC Description	414	Component Inspection	448
Diagnosis Procedure	415	P2138 APP SENSOR	449
P1715 INPUT SPEED SENSOR	416		
Description	416		

DTC Description	449	Component Function Check	477	
Diagnosis Procedure	449	Diagnosis Procedure	477	A
Component Inspection	451	Component Inspection	479	
P2610 ECM INTERNAL TIMER	453	REFRIGERANT PRESSURE SENSOR	482	EC
Description	453	Component Function Check	482	
DTC Description	453	Diagnosis Procedure	482	
Diagnosis Procedure	454	SENSOR POWER SUPPLY2 CIRCUIT	484	C
BRAKE PEDAL POSITION SWITCH	455	Description	484	
Component Function Check	455	Diagnosis Procedure	484	
Diagnosis Procedure	455	SYMPTOM DIAGNOSIS	486	D
Component Inspection (Brake Pedal Position Switch)	456	ENGINE CONTROL SYSTEM	486	E
COOLING FAN	458	Symptom Table	486	
Component Function Check	458	INFORMATION DISPLAY IS MALFUNCTION-ING	491	F
Diagnosis Procedure	458	Diagnosis Procedure	491	
Component Inspection (Cooling Fan Motor)	461	NORMAL OPERATING CONDITION	492	G
Component Inspection (Cooling Fan Relay)	461	Description	492	
ELECTRICAL LOAD SIGNAL	462	PERIODIC MAINTENANCE	493	H
Description	462	IDLE SPEED	493	
Component Function Check	462	Inspection	493	
Diagnosis Procedure	462	IGNITION TIMING	494	I
FUEL INJECTOR	464	Inspection	494	
Component Function Check	464	EVAPORATIVE EMISSION SYSTEM	495	J
Diagnosis Procedure	464	Inspection	495	
Component Inspection	465	EVAP LEAK CHECK	496	K
FUEL PUMP	467	Inspection	496	
Description	467	POSITIVE CRANKCASE VENTILATION	498	L
Component Function Check	467	Inspection	498	
Diagnosis Procedure	467	REMOVAL AND INSTALLATION	499	M
Component Inspection	469	ECM	499	
IGNITION SIGNAL	470	Removal and Installation	499	
Component Function Check	470	SERVICE DATA AND SPECIFICATIONS (SDS)	500	N
Diagnosis Procedure	470	SERVICE DATA AND SPECIFICATIONS (SDS)	500	O
Component Inspection (Ignition Coil with Power Transistor)	473	Idle Speed	500	
Component Inspection (Condenser)	474	Ignition Timing	500	
INFORMATION DISPLAY (ASCD)	475	Calculated Load Value	500	P
Component Function Check	475	Mass Air Flow Sensor	500	
Diagnosis Procedure	475			
MALFUNCTION INDICATOR LAMP	476			
Component Function Check	476			
Diagnosis Procedure	476			
ON BOARD REFUELING VAPOR RECOVERY (ORVR)	477			

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:000000010282602

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

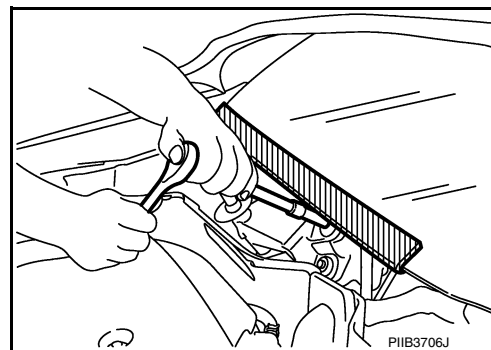
WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Precaution for Procedure without Cowl Top Cover

INFOID:000000009984877

When performing the procedure after removing cowl top cover, cover the lower end of windshield with urethane, etc to prevent damage to windshield.



On Board Diagnostic (OBD) System of Engine and CVT

INFOID:000000009984878

The ECM has an on board diagnostic system. It will light up the malfunction indicator lamp (MIL) to warn the driver of a malfunction causing emission deterioration.

CAUTION:

- Be sure to turn the ignition switch OFF and disconnect the negative battery cable before any repair or inspection work. The open/short circuit of related switches, sensors, solenoid valves, etc. will cause the MIL to light up.
- Be sure to connect and lock the connectors securely after work. A loose (unlocked) connector will cause the MIL to light up due to the open circuit. (Be sure the connector is free from water, grease, dirt, bent terminals, etc.)
- Certain systems and components, especially those related to OBD, may use a new style slide-locking type harness connector. For description and how to disconnect, refer to [PG-59, "Description"](#).
- Be sure to route and secure the harnesses properly after work. The interference of the harness with a bracket, etc. may cause the MIL to light up due to the short circuit.

PRECAUTIONS

[QR25DE]

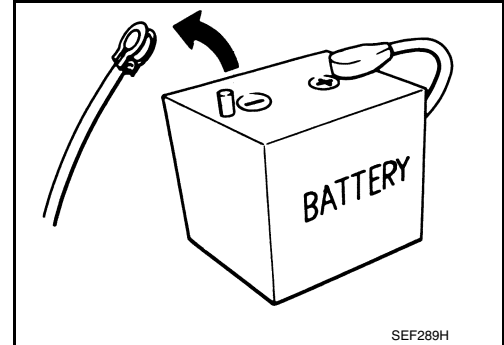
< PRECAUTION >

- Be sure to connect rubber tubes properly after work. A misconnected or disconnected rubber tube may cause the MIL to light up due to the malfunction of the EVAP system or fuel injection system, etc.
- Be sure to erase the unnecessary malfunction information (repairs completed) from the ECM and TCM (Transmission control module) before returning the vehicle to the customer.

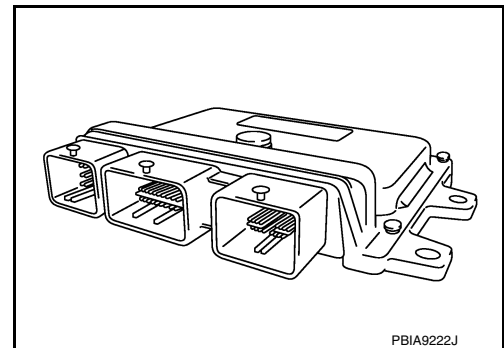
General Precautions

INFOID:000000009984879

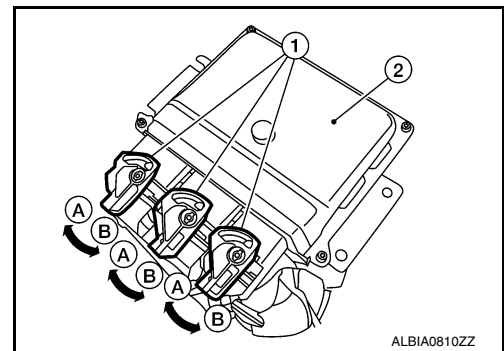
- Always use a 12 volt battery as power source.
- Do not attempt to disconnect battery cables while engine is running.
- Before connecting or disconnecting the ECM harness connector, turn ignition switch OFF and disconnect negative battery cable. Failure to do so may damage the ECM because battery voltage is applied to ECM even if ignition switch is turned OFF.
- Before removing parts, turn ignition switch OFF and then disconnect battery ground cable.



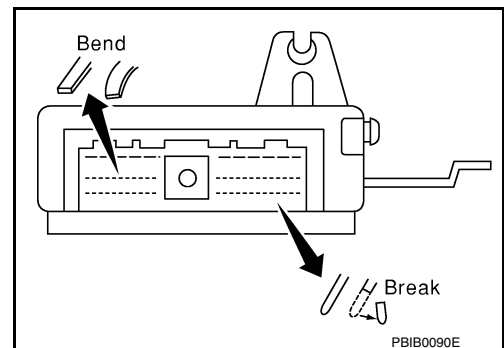
- Do not disassemble ECM.
- If a battery cable is disconnected, the memory will return to the ECM value.
The ECM will now start to self-control at its initial value. Engine operation can vary slightly when the terminal is disconnected. However, this is not an indication of a malfunction. Do not replace parts because of a slight variation.
- If the battery is disconnected, the following emission-related diagnostic information will be lost within 24 hours.
 - Diagnostic trouble codes
 - 1st trip diagnostic trouble codes
 - Freeze frame data
 - 1st trip freeze frame data
 - System readiness test (SRT) codes
 - Test values
- When connecting ECM harness connector①, fasten② it securely with a lever as far as it will go as shown in the figure.



- ② ECM
- ① Loosen



- When connecting or disconnecting pin connectors into or from ECM, take care not to damage pin terminals (bend or break).
Make sure that there are not any bends or breaks on ECM pin terminal, when connecting pin connectors.
- Securely connect ECM harness connectors.
A poor connection can cause an extremely high (surge) voltage to develop in coil and condenser, thus resulting in damage to ICs.
- Keep engine control system harness at least 10 cm (4 in) away from adjacent harness, to prevent engine control system malfunctions due to receiving external noise, degraded operation of ICs, etc.

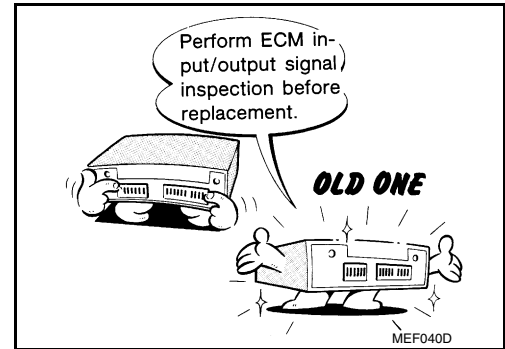


PRECAUTIONS

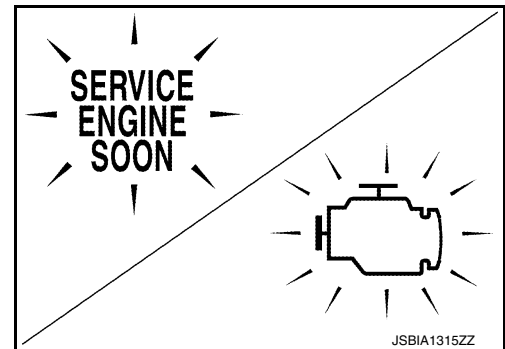
[QR25DE]

< PRECAUTION >

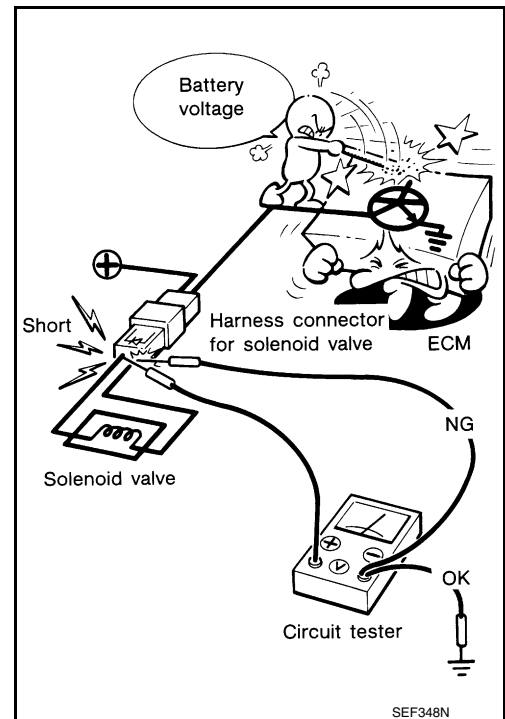
- Keep engine control system parts and harness dry.
- Before replacing ECM, perform ECM Terminals and Reference Value inspection and make sure ECM functions properly. Refer to [EC-77, "Reference Value"](#).
- Handle mass air flow sensor carefully to avoid damage.
- Do not clean mass air flow sensor with any type of detergent.
- Do not disassemble electric throttle control actuator.
- Even a slight leak in the air intake system can cause serious incidents.
- Do not shock or jar the camshaft position sensor (PHASE), crankshaft position sensor (POS).



- After performing each TROUBLE DIAGNOSIS, perform DTC CONFIRMATION PROCEDURE or Component Function Check. The DTC should not be displayed in the DTC Confirmation Procedure if the repair is completed. The Component Function Check should be a good result if the repair is completed.



- When measuring ECM signals with a circuit tester, never allow the two tester probes to contact. Accidental contact of probes will cause a short circuit and damage the ECM power transistor.



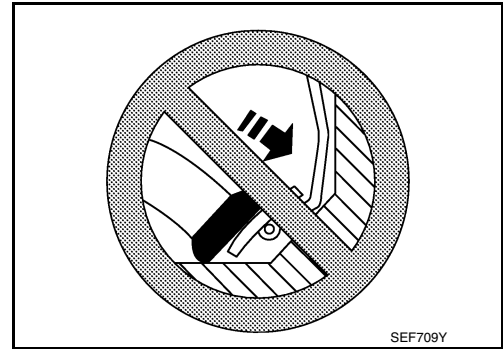
- Do not operate fuel pump when there is no fuel in lines.
- Tighten fuel hose clamps to the specified torque.

PRECAUTIONS

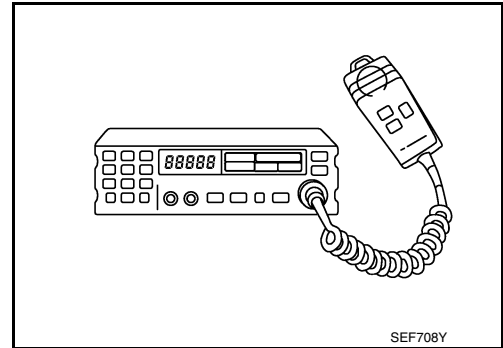
[QR25DE]

< PRECAUTION >

- Do not depress accelerator pedal when starting.
- Immediately after starting, do not rev up engine unnecessarily.
- Do not rev up engine just prior to shutdown.



- When installing C.B. ham radio or a mobile phone, be sure to observe the following as it may adversely affect electronic control systems depending on installation location.
- Keep the antenna as far as possible from the electronic control units.
- Keep the antenna feeder line more than 20 cm (8 in) away from the harness of electronic controls. Do not let them run parallel for a long distance.
- Adjust the antenna and feeder line so that the standing-wave ratio can be kept smaller.
- Be sure to ground the radio to vehicle body.



A

EC

C

D

E

F

G

H

I

J

K

L

M

N

O

P

PREPARATION

< PREPARATION >

[QR25DE]

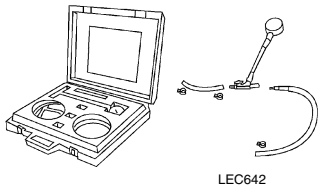
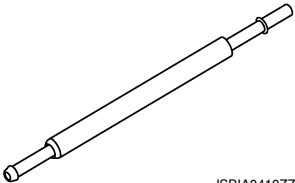
PREPARATION

PREPARATION

Special Service Tools

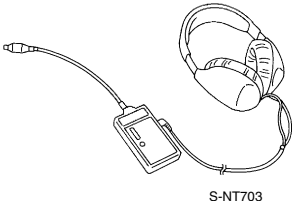
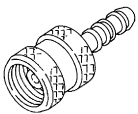
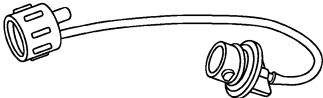
INFOID:000000009984880

The actual shape of the tools may differ from those illustrated here.

Tool number (Kent-Moore No.) Tool name	Description
(J-44321) Fuel pressure gauge kit  LEC642	Checks fuel pressure
KV10120000 Fuel tube adapter  JSBIA0410ZZ	Measures fuel pressure

Commercial Service Tools

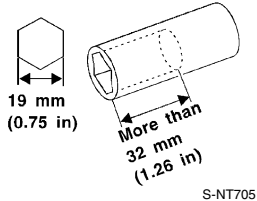
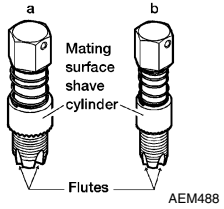
INFOID:000000009984881

Tool name (Kent-Moore No.)	Description
Leak detector i.e.: (J-41416)  S-NT703	Locates the EVAP leak
EVAP service port adapter i.e.: (J-41413-OBD)  S-NT704	Applies positive pressure through EVAP service port
Fuel filler cap adapter i.e.: (MLR-8382)  S-NT815	Checks fuel tank vacuum relief valve opening pressure

PREPARATION

< PREPARATION >

[QR25DE]

Tool name (Kent-Moore No.)	Description	
Socket wrench  S-NT705	Removes and installs engine coolant temperature sensor	A EC C
Oxygen sensor thread cleaner i.e.: (J-43897-18) (J-43897-12)  AEM488	Reconditions the exhaust system threads before installing a new oxygen sensor. Use with anti-seize lubricant shown below. a: 18 mm diameter with pitch 1.5 mm for Zirconia Oxygen Sensor b: 12 mm diameter with pitch 1.25 mm for Titanium Oxygen Sensor	D E F
Anti-seize lubricant i.e.: (Permatex™ 133AR or equivalent meeting MIL specification MIL-A-907)  S-NT779	Lubricates oxygen sensor thread cleaning tool when reconditioning exhaust system threads.	G H

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[QR25DE]

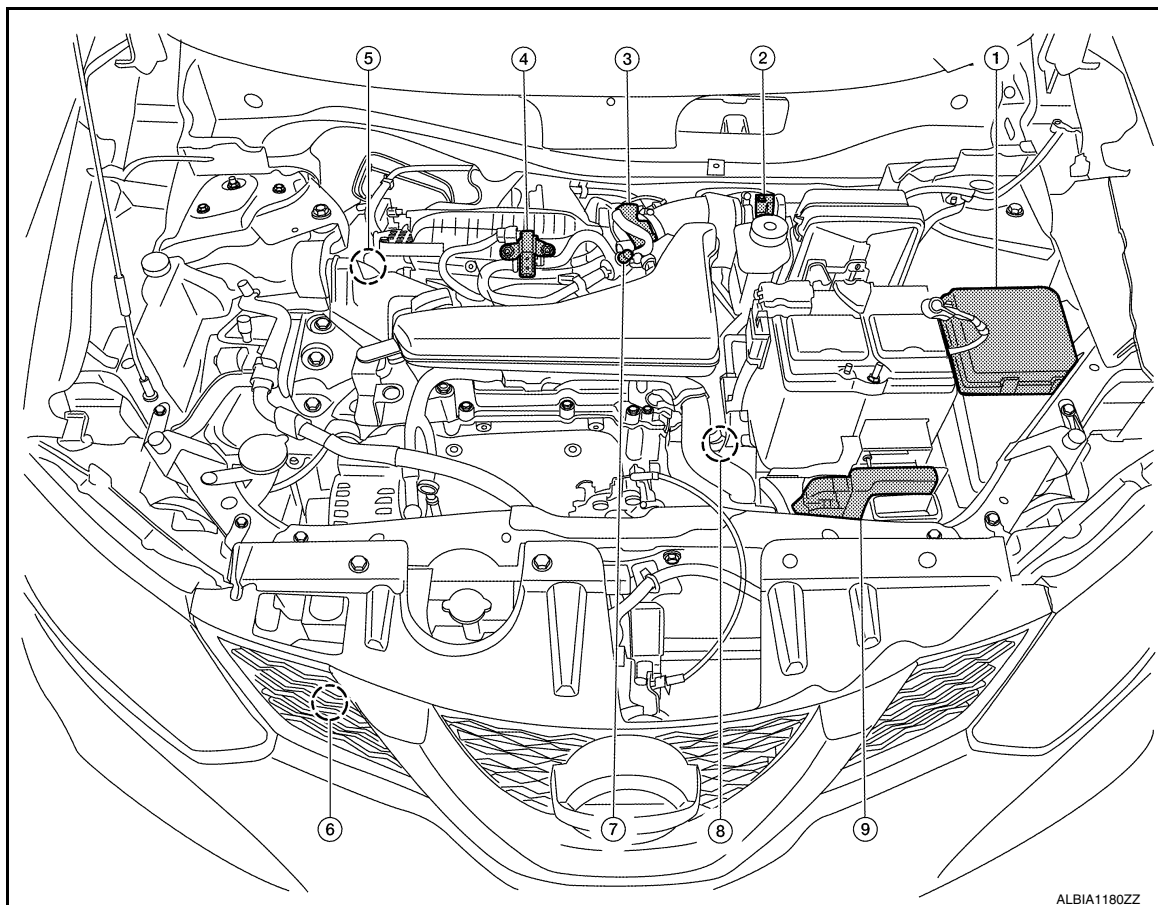
SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:000000009984882

ENGINE ROOM COMPARTMENT



ALBIA1180ZZ

No.	Component	Function
①	IPDM E/R	- IPDM E/R control the internal relays and the actuators. - Refer to PCS-5, "RELAY CONTROL SYSTEM : System Description". - When CAN communication with ECM is impossible, IPDM E/R performs fail-safe control. - Refer to PCS-6, "RELAY CONTROL SYSTEM : Fail-safe".
②	Mass air flow sensor (with intake air temperature sensor)	EC-21, "Mass Air Flow Sensor (With Intake Air Temperature Sensor)"
③	Electric throttle control actuator (with built in throttle position sensor and throttle control motor)	EC-19, "Electric Throttle Control Actuator"
④	EVAP canister purge volume control solenoid valve	EC-27, "EVAP Canister Purge Volume Control Solenoid Valve"
⑤	Intake manifold runner control valve actuator	EC-24, "Intake Manifold Runner Control Valve"
⑥	Refrigerant pressure sensor	EC-28, "Refrigerant Pressure Sensor"
⑦	EVAP service port	When perform the EVAP leak check, positive pressure is delivered to the EVAP system through the EVAP service port. Refer to EC-496, "Inspection".

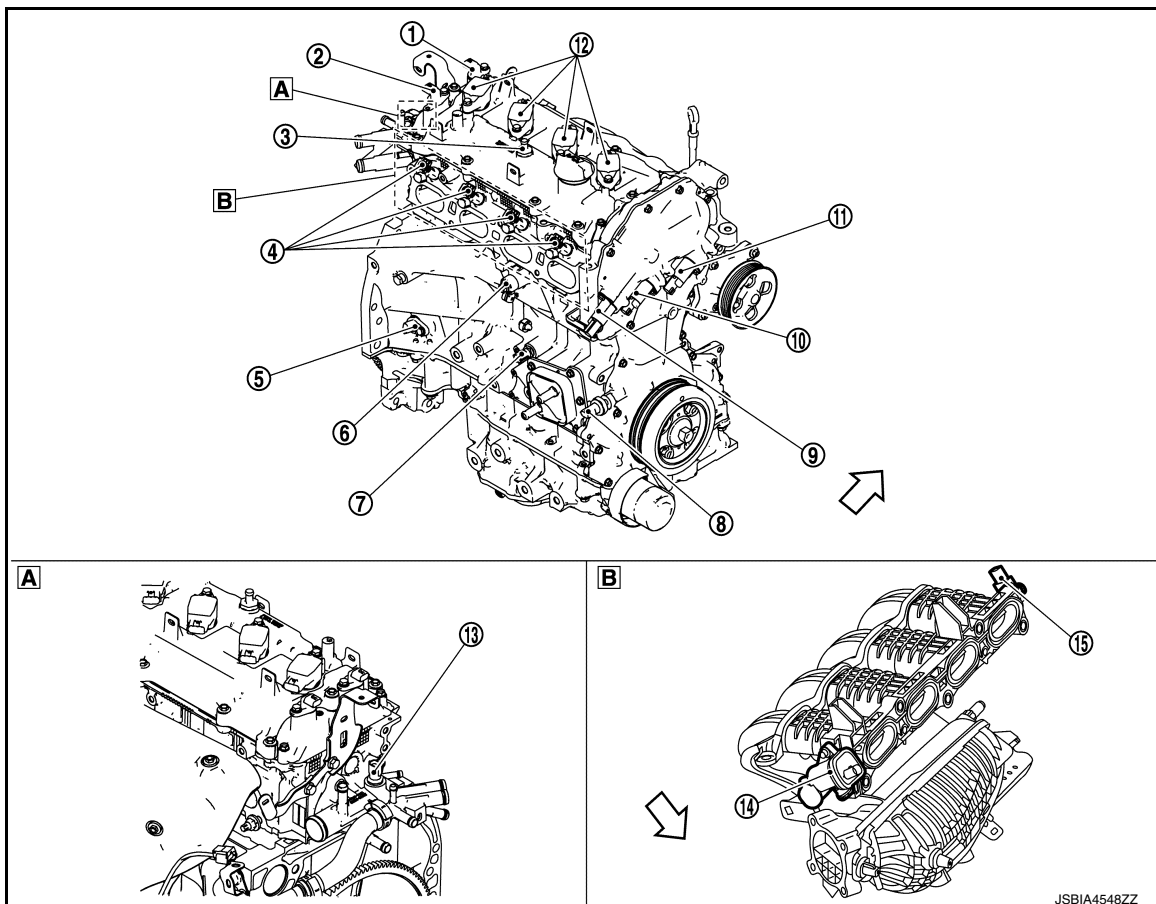
COMPONENT PARTS

< SYSTEM DESCRIPTION >

[QR25DE]

No.	Component	Function
⑧	Transmission range switch	- The transmission range switch is installed to upper part of transaxle case. - ECM detects the selector lever position because the continuity of the transmission range switch line (the ON) exists.
⑨	ECM	EC-18, "ECM"

ENGINE COMPARTMENT



A Engine rear side

B Intake side

← : Vehicle front

No.	Component	Function
①	Exhaust valve timing control position sensor	EC-23, "Exhaust Valve Timing Control Position Sensor"
②	Camshaft position sensor (PHASE)	EC-22, "Camshaft Position Sensor (PHASE)"
③	PCV valve	The positive crankcase ventilation (PCV) valve is provided to conduct crankcase blow-by gas to the intake manifold.
④	Fuel injector	EC-20, "Fuel Injector"
⑤	Crankshaft position sensor (POS)	EC-22, "Crankshaft Position Sensor (POS)"
⑥	Knock sensor	EC-25, "Knock Sensor"
⑦	Engine oil temperature sensor	EC-26, "Engine Oil Temperature Sensor"
⑧	Engine oil pressure sensor	EC-26, "Engine Oil Pressure Sensor"

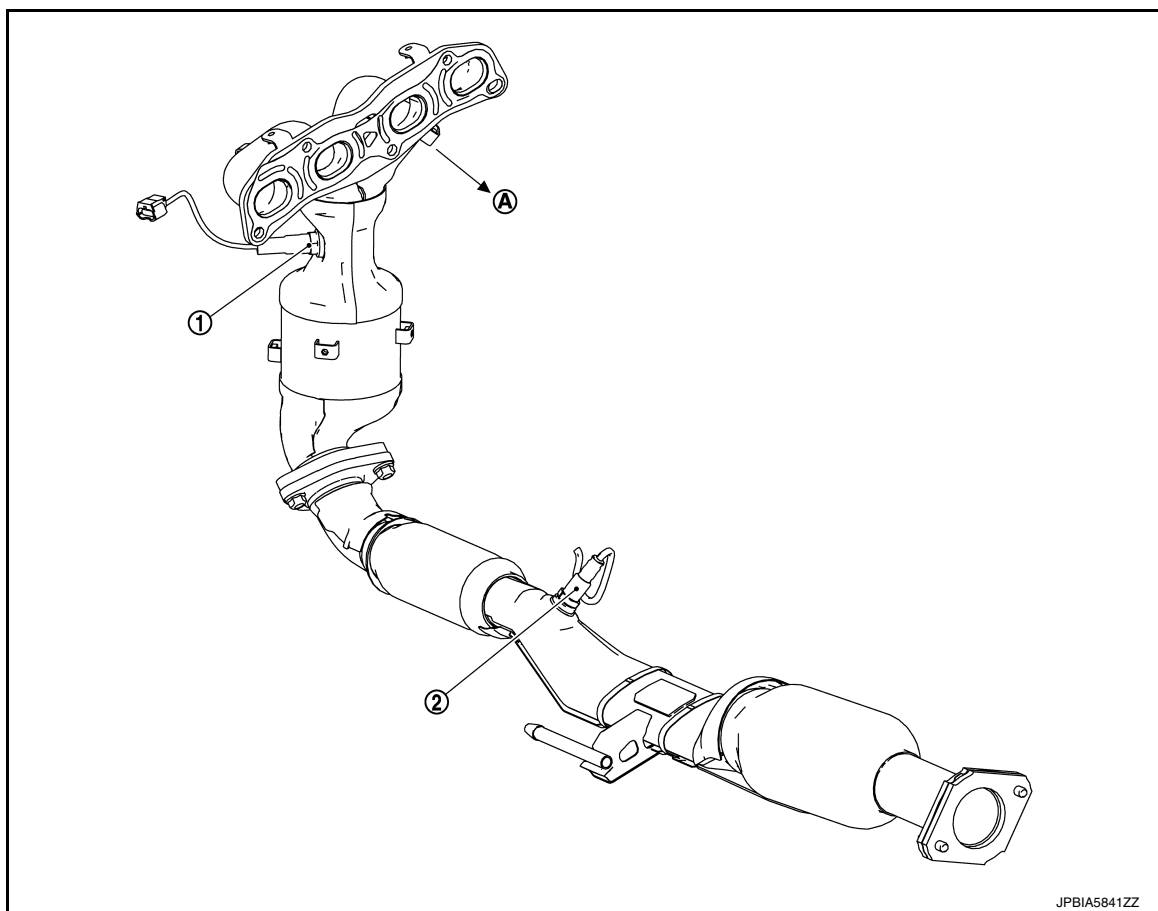
COMPONENT PARTS

< SYSTEM DESCRIPTION >

[QR25DE]

No.	Component	Function
⑨	Intake valve timing intermediate lock control solenoid valve	EC-23, "Intake Valve Timing Intermediate Lock Control Solenoid Valve"
⑩	Intake valve timing control solenoid valve	EC-23, "Intake Valve Timing Control Solenoid Valve"
⑪	Exhaust valve timing control solenoid valve	EC-24, "Exhaust Valve Timing Control Solenoid Valve"
⑫	Ignition coil (with power transistor)	EC-19, "Ignition Coil With Power Transistor"
⑬	Engine coolant temperature sensor	EC-21, "Engine Coolant Temperature Sensor"
⑭	Intake manifold runner control valve position sensor	EC-24, "Intake Manifold Runner Control Valve"
⑮	Intake manifold runner control valve actuator	

EXHAUST COMPARTMENT



(A) To engine assembly

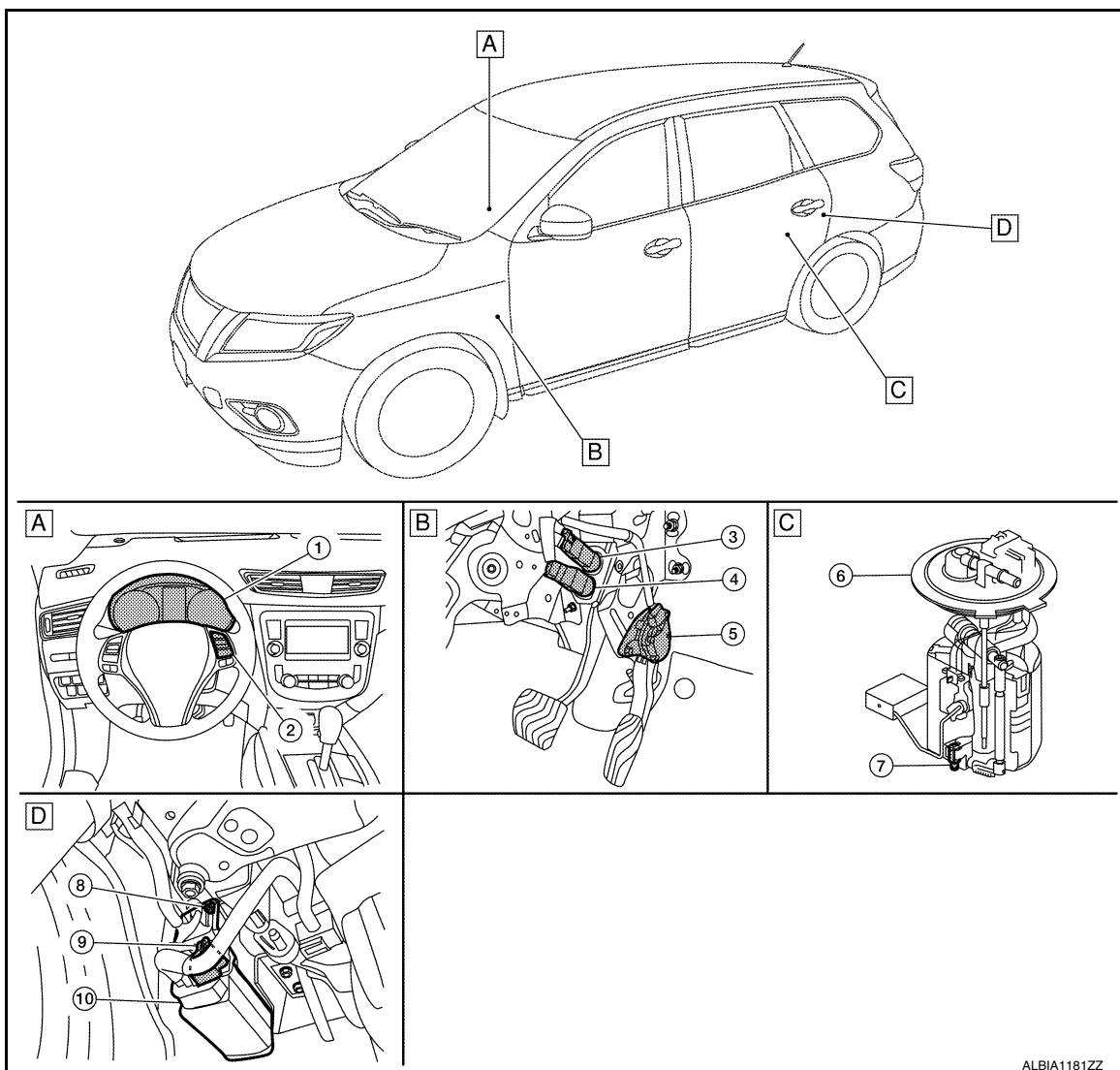
No.	Component	Function
①	Air fuel ratio (A/F) sensor 1	EC-24, "Air Fuel Ratio (A/F) Sensor 1"
②	Heated oxygen sensor 2	EC-25, "Heated Oxygen Sensor 2"

BODY COMPARTMENT

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[QR25DE]



A Instrument panel area

B Periphery of pedals

C Inside fuel tank area

D Behind fuel tank

↩ : Vehicle front

No.	Component		Function
①	Combination meter	Malfunction indicator lamp (MIL)	EC-49. "WARNING/INDICATOR/CHIME LIST : Malfunction Indicator Lamp (MIL)"
		Information display	EC-28. "Information Display"
②	ASCD steering switch		EC-28. "ASCD Steering Switch"
③	Stop lamp switch		EC-28. "Stop Lamp Switch & Brake Pedal Position Switch"
④	Brake pedal position switch		
⑤	Accelerator pedal position sensor		EC-18. "Accelerator Pedal Position Sensor"
⑥	Fuel level sensor unit and fuel pump		EC-20. "Fuel Level Sensor Unit and Fuel Pump"
⑦	Fuel tank temperature sensor		EC-20. "Fuel Tank Temperature Sensor"
⑧	EVAP control system pressure sensor		EC-27. "EVAP Control System Pressure Sensor"

COMPONENT PARTS

< SYSTEM DESCRIPTION >

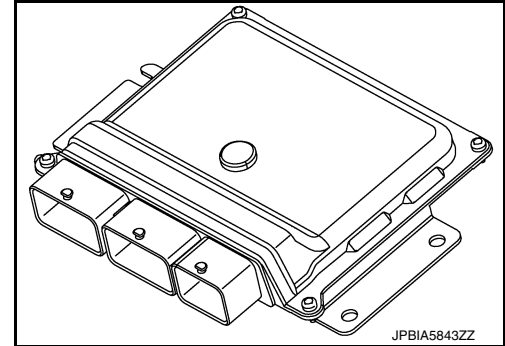
[QR25DE]

No.	Component	Function
⑨	EVAP canister vent control valve	EC-27, "EVAP Canister Vent Control Valve"
⑩	EVAP canister	EC-27, "EVAP Canister"

ECM

INFOID:000000009984883

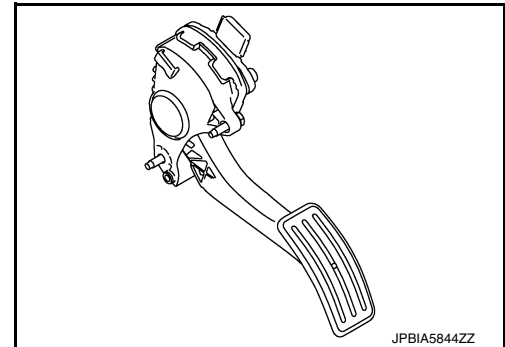
The ECM consists of a microcomputer and connectors for signal input and output and for power supply. The ECM controls the engine.



Accelerator Pedal Position Sensor

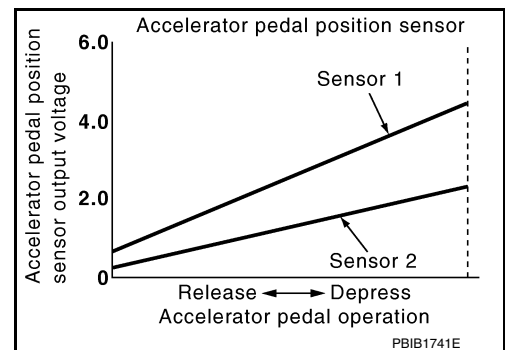
INFOID:000000009984884

The accelerator pedal position sensor is installed on the upper end of the accelerator pedal assembly. The sensor detects the accelerator position and sends a signal to the ECM.



Accelerator pedal position sensor has two sensors. These sensors are a kind of potentiometers which transform the accelerator pedal position into output voltage, and emit the voltage signal to the ECM. In addition, these sensors detect the opening and closing speed of the accelerator pedal and feed the voltage signals to the ECM. The ECM judges the current opening angle of the accelerator pedal from these signals and controls the throttle control motor based on these signals.

Idle position of the accelerator pedal is determined by the ECM receiving the signal from the accelerator pedal position sensor. The ECM uses this signal for the engine operation such as fuel cut.



INFOID:0000000009984886

COMPONENT PARTS

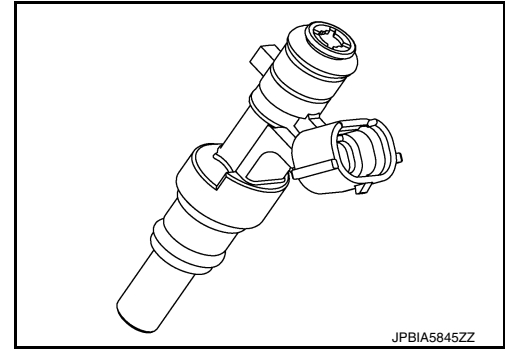
< SYSTEM DESCRIPTION >

[QR25DE]

Fuel Injector

INFOID:000000009984887

The fuel injector is a small, precise solenoid valve. When the ECM supplies a ground to the fuel injector circuit, the coil in the fuel injector is energized. The energized coil pulls the ball valve back and allows fuel to flow through the fuel injector into the intake manifold. The amount of fuel injected depends upon the injection pulse duration. Pulse duration is the length of time the fuel injector remains open. The ECM controls the injection pulse duration based on engine fuel needs.

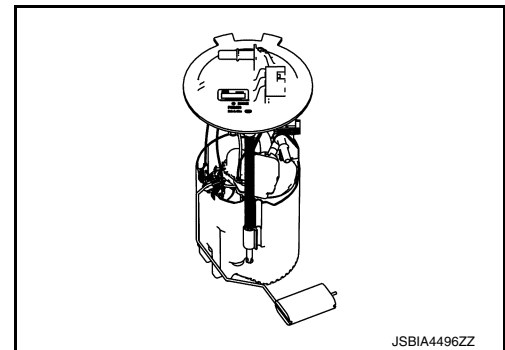


Fuel Level Sensor Unit and Fuel Pump

INFOID:000000009984888

FUEL PUMP

The ECM activates the fuel pump for 1 second after the ignition switch is turned ON to improve engine start ability. If the ECM receives a engine speed signal from the camshaft position sensor (PHASE), it knows that the engine is rotating, and causes the pump to operate. If the engine speed signal is not received when the ignition switch is ON, the engine stalls. The ECM stops pump operation and prevents battery discharging, thereby improving safety. The ECM does not directly drive the fuel pump. It sends the control signal to the fuel pump control module, which in turn controls the fuel pump.



Condition	Fuel pump operation
Ignition switch is turned to ON.	Operates for 1 second.
Engine running and cranking	Operates.
When engine is stopped	Stops in 1.5 seconds.
Except as shown above	Stops.

FUEL LEVEL SENSOR

The fuel level sensor is mounted in the fuel level sensor unit.

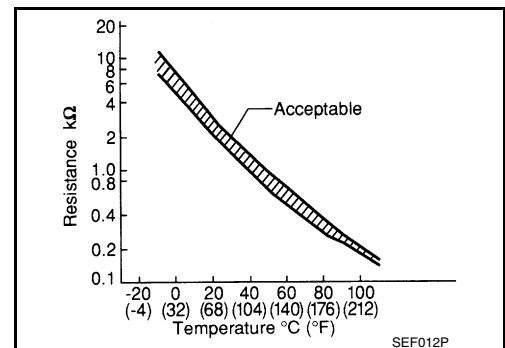
The sensor detects a fuel level in the fuel tank and transmits a signal to the combination meter. The combination meter sends the fuel level sensor signal to the ECM via the CAN communication line.

It consists of two parts, one is mechanical float and the other is variable resistor. Fuel level sensor output voltage changes depending on the movement of the fuel mechanical float.

Fuel Tank Temperature Sensor

INFOID:000000009984889

The fuel tank temperature sensor is used to detect the fuel temperature inside the fuel tank. The sensor modifies a voltage signal from the ECM. The modified signal returns to the ECM as the fuel temperature input. The sensor uses a thermistor which is sensitive to the change in temperature. The electrical resistance of the thermistor decreases as temperature increases.



<Reference data>

Fluid temperature [°C (°F)]	Voltage* (V)	Resistance (kΩ)
20 (68)	3.5	2.3 - 2.7
50 (122)	2.2	0.79 - 0.90

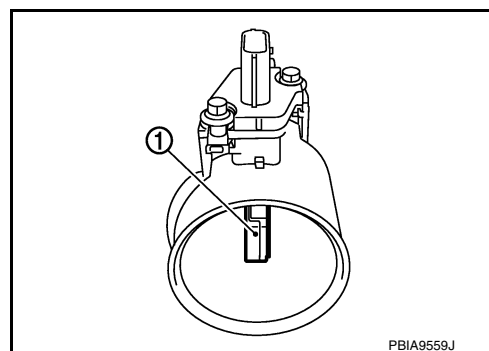
*: These data are reference values and are measured between ECM terminals.

Mass Air Flow Sensor (With Intake Air Temperature Sensor)

INFOID:000000009984890

MASS AIR FLOW SENSOR

The mass air flow sensor① is placed in the stream of intake air. It measures the intake flow rate by measuring a part of the entire intake flow. The MAF sensor controls the temperature of the heater in sensing element to a certain amount. The temperature distribution around the heater changes according to the increase in intake air volume. The change is detected by a thermistor and the air volume data is sent to ECM by the MAF sensor.



INTAKE AIR TEMPERATURE SENSOR

The intake air temperature sensor is built-into mass air flow sensor. The sensor detects intake air temperature and transmits a signal to the ECM.

The temperature sensing unit uses a thermistor which is sensitive to the change in temperature.

<Reference data>

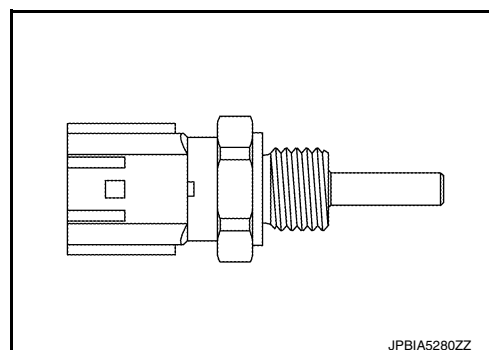
Intake air temperature [°C (°F)]	Voltage* (V)
25 (77)	1.9 - 2.1
80 (176)	3.2 - 3.4

*: These data are reference values on the diagnosis tool.

Engine Coolant Temperature Sensor

INFOID:000000009984892

The engine coolant temperature sensor is used to detect the engine coolant temperature. The sensor modifies a voltage signal from the ECM. The modified signal returns to the ECM as the engine coolant temperature input. The sensor uses a thermistor which is sensitive to the change in temperature. The electrical resistance of the thermistor decreases as temperature increases.



COMPONENT PARTS

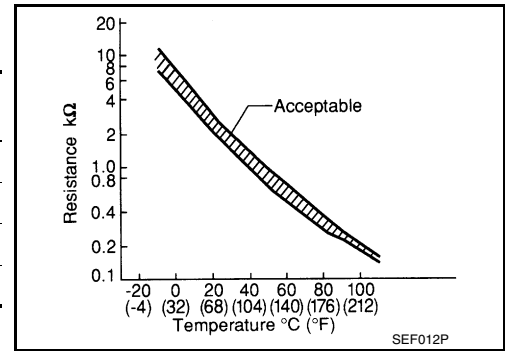
< SYSTEM DESCRIPTION >

[QR25DE]

<Reference data>

Engine coolant temperature [°C (°F)]	Voltage* (V)	Resistance (kΩ)
-10 (14)	4.4	7.0 - 11.4
20 (68)	3.5	2.37 - 2.63
50 (122)	2.2	0.68 - 1.00
90 (194)	1.0	0.236 - 0.260

*: These data are reference values and are measured between ECM terminals.



INFOID:000000009984893

Crankshaft Position Sensor (POS)

The crankshaft position sensor (POS) is located on the oil pan facing the gear teeth (cogs) of the signal plate. It detects the fluctuation of the engine revolution.

The sensor consists of a permanent magnet and Hall IC.

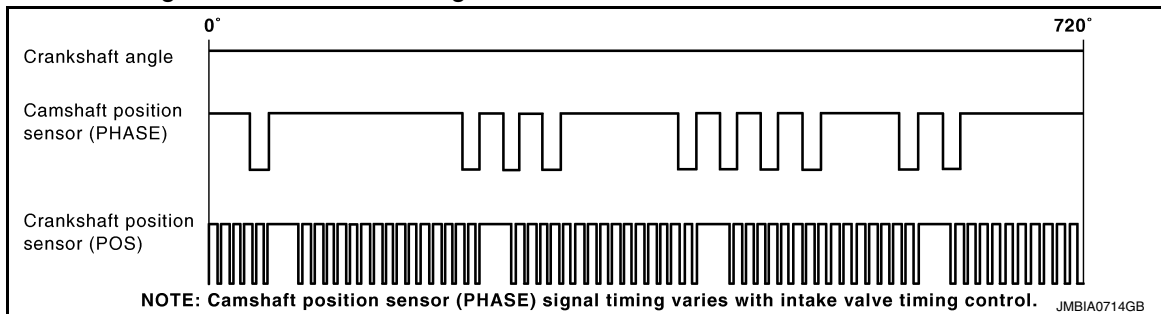
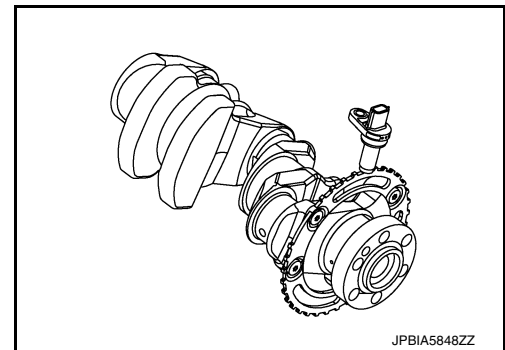
When the engine is running, the high and low parts of the teeth cause the gap with the sensor to change.

The changing gap causes the magnetic field near the sensor to change.

Due to the changing magnetic field, the voltage from the sensor changes.

The ECM receives the voltage signal and detects the fluctuation of the engine revolution.

ECM receives the signals as shown in the figure.



Camshaft Position Sensor (PHASE)

INFOID:000000009984894

The camshaft position sensor (PHASE) senses the retraction of intake camshaft to identify a particular cylinder. The camshaft position sensor (PHASE) senses the piston position.

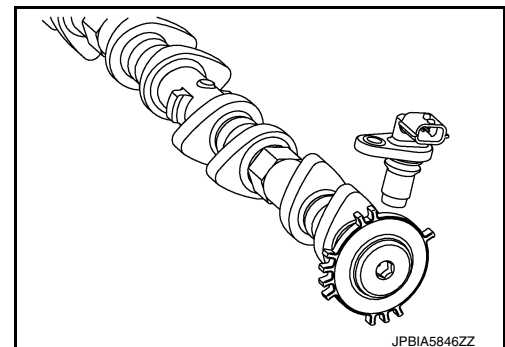
When the crankshaft position sensor (POS) system becomes inoperative, the camshaft position sensor (PHASE) provides various controls of engine parts instead, utilizing timing of cylinder identification signals.

The sensor consists of a permanent magnet and Hall IC.

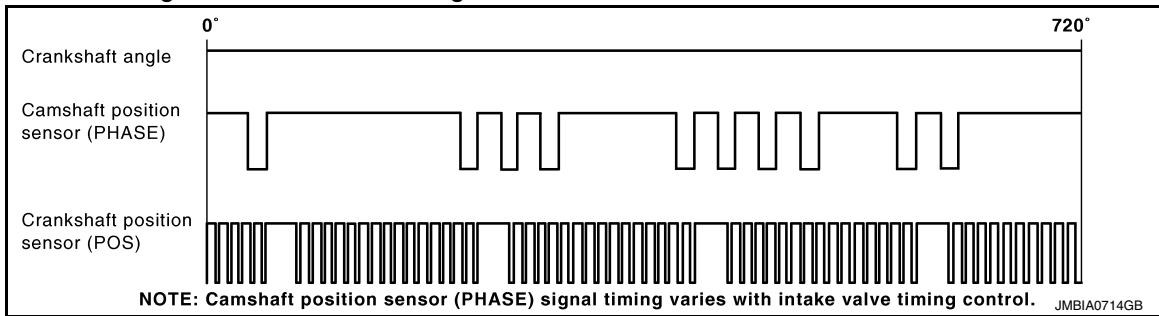
When engine is running, the high and low parts of the teeth cause the gap with the sensor to change.

The changing gap causes the magnetic field near the sensor to change.

Due to the changing magnetic field, the voltage from the sensor changes.



ECM receives the signals as shown in the figure.



Intake Valve Timing Control Solenoid Valve

INFOID:000000009984895

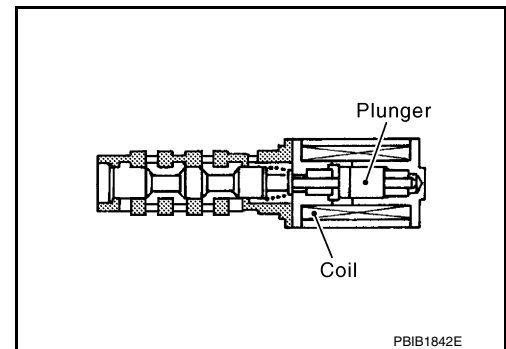
Intake valve timing control solenoid valve is activated by ON/OFF pulse duty (ratio) signals from the ECM.

The intake valve timing control solenoid valve changes the oil amount and direction of flow through intake valve timing control unit or stops oil flow.

The longer pulse width advances valve angle.

The shorter pulse width retards valve angle.

When ON and OFF pulse widths become equal, the solenoid valve stops oil pressure flow to fix the intake valve angle at the control position.



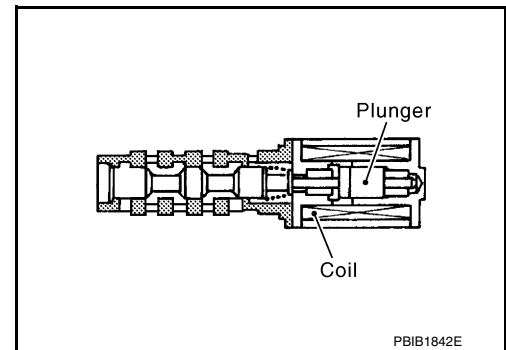
Intake Valve Timing Intermediate Lock Control Solenoid Valve

INFOID:000000009984896

Intake valve timing intermediate lock control solenoid valve is activated by ON/OFF signals from the ECM.

The intake valve timing intermediate lock control solenoid valve opens/closes the path of oil pressure acting on the lock key in the camshaft sprocket (INT).

- When the solenoid valve becomes ON, oil pressure to the lock key is trained to perform intermediate lock.
- When the solenoid valve becomes OFF, oil pressure is acted on the lock key to release the intermediate lock.



Exhaust Valve Timing Control Position Sensor

INFOID:000000009984897

Exhaust valve timing control position sensor detects the protrusion of the signal plate installed to the exhaust camshaft front end.

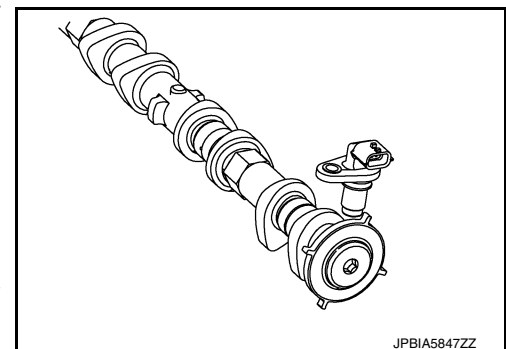
This sensor signal is used for sensing a position of the exhaust camshaft.

The sensor consists of a permanent magnet and Hall IC.

When engine is running, the high and low parts of the teeth cause the gap with the sensor to change.

The changing gap causes the magnetic field near the sensor to change.

Due to the changing magnetic field, the voltage from the sensor changes.



Exhaust Valve Timing Control Solenoid Valve

INFOID:000000009984898

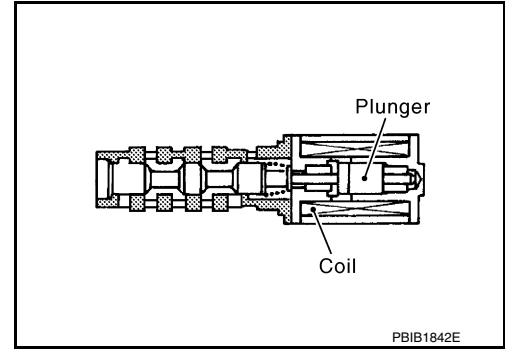
Exhaust valve timing control solenoid valve is activated by ON/OFF pulse duty (ratio) signals from the ECM.

The exhaust valve timing control solenoid valve changes the oil amount and direction of flow through exhaust valve timing control unit or stops oil flow.

The longer pulse width retards valve angle.

The shorter pulse width advances valve angle.

When ON and OFF pulse widths become equal, the solenoid valve stops oil pressure flow to fix the exhaust valve angle at the control position.



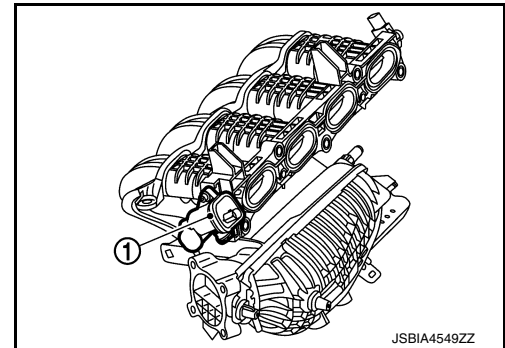
Intake Manifold Runner Control Valve

INFOID:000000009984899

Intake manifold runner control valve① is integrated to intake manifold.

Intake manifold runner control valve is mounted each port of the intake manifold and opened/closed by the intake manifold runner control valve motor.

ECM controls the intake manifold runner control valve motor, according to signals of engine speed, water temperature, etc. and stabilizes combustion by generating a strong tumble flow.



INTAKE MANIFOLD RUNNER CONTROL VALVE MOTOR

Intake manifold runner control valve motor is connected to the rear end of the valve shaft.

The motor opens or closes the valve by the output signal of the ECM.

INTAKE MANIFOLD RUNNER CONTROL VALVE POSITION SENSOR

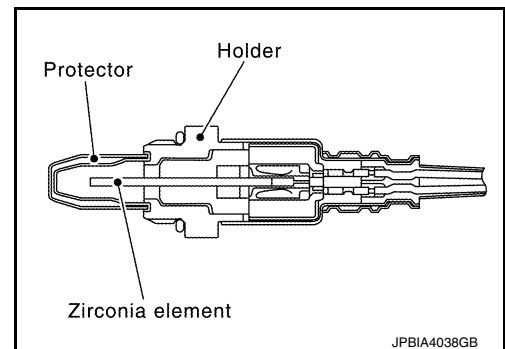
Intake manifold runner control valve position sensor is connected to the front end of the valve shaft.

The sensor consists of variable resistor. It senses the valve shaft movement and feeds the voltage signals to the ECM.

Air Fuel Ratio (A/F) Sensor 1

INFOID:000000009984901

The sensor element of the A/F sensor 1 is composed an electrode layer, which transports ions. It has a heater in the element.



The sensor is capable of precise measurement $\lambda = 1$, but also in the lean and rich range. Together with its control electronics, the sensor outputs a clear, continuous signal throughout a wide λ range.

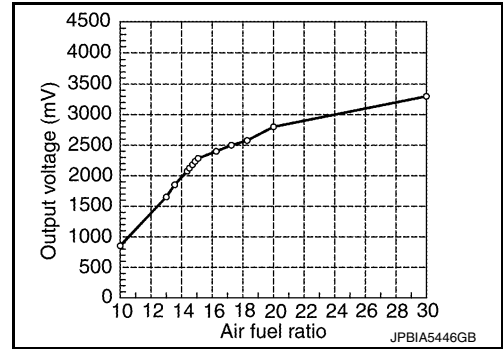
The exhaust gas components diffuse through the diffusion layer at the sensor cell. An electrode layer is applied voltage, and this current relative oxygen density in lean. Also this current relative hydrocarbon density in rich.

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[QR25DE]

Therefore, the A/F sensor 1 is able to indicate air fuel ratio by this electrode layer of current. In addition, a heater is integrated in the sensor to ensure the required operating temperature of approximately 760°C (1,400°F).



A/F SENSOR 1 HEATER

A/F sensor 1 heater is integrated in the sensor.

The ECM performs ON/OFF duty control of the A/F sensor 1 heater corresponding to the engine operating condition to keep the temperature of A/F sensor 1 element within the specified range.

Heated Oxygen Sensor 2

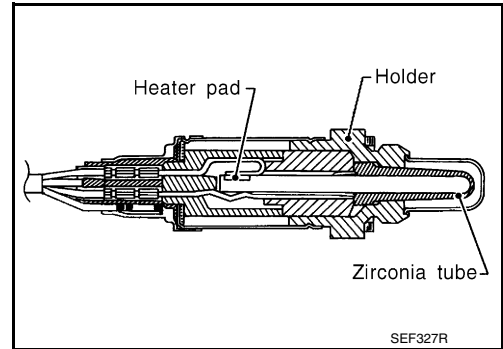
INFOID:000000009984902

The heated oxygen sensor 2, after three way catalyst (manifold), monitors the oxygen level in the exhaust gas.

Even if switching characteristics of the air fuel ratio (A/F) sensor 1 are shifted, the air fuel ratio is controlled to stoichiometric, by the signal from the heated oxygen sensor 2.

This sensor is made of ceramic zirconia. The zirconia generates voltage from approximately 1 V in richer conditions to 0 V in leaner conditions.

Under normal conditions the heated oxygen sensor 2 is not used for engine control operation.



HEATED OXYGEN SENSOR 2 HEATER

Heated oxygen sensor 2 heater is integrated in the sensor.

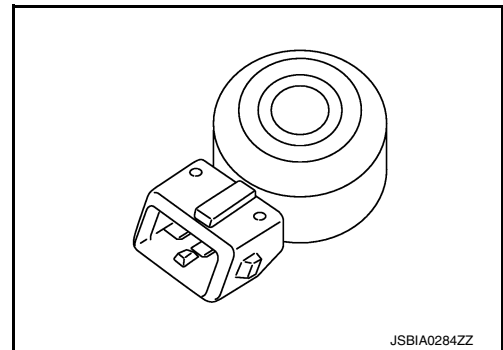
The ECM performs ON/OFF control of the heated oxygen sensor 2 heater corresponding to the engine speed, amount of intake air and engine coolant temperature.

Engine speed	Heated oxygen sensor 2 heater
Above 3,600 rpm	OFF
Below 3,600 rpm after the following conditions are met. • Engine: After warming up • Keeping the engine speed between 3,500 and 4,000 rpm for 1 minute and at idle for 1 minute under no load	ON

Knock Sensor

INFOID:000000009984903

The knock sensor is attached to the cylinder block. It senses engine knocking using a piezoelectric element. A knocking vibration from the cylinder block is sensed as vibrational pressure. This pressure is converted into a voltage signal and sent to the ECM.



COMPONENT PARTS

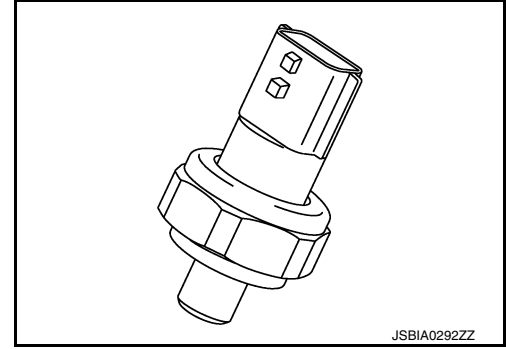
< SYSTEM DESCRIPTION >

[QR25DE]

Engine Oil Pressure Sensor

INFOID:000000009984904

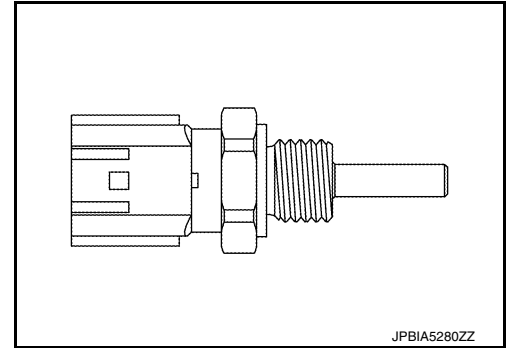
The engine oil pressure (EOP) sensor is detects engine oil pressure and transmits a voltage signal to the ECM.



Engine Oil Temperature Sensor

INFOID:000000009984905

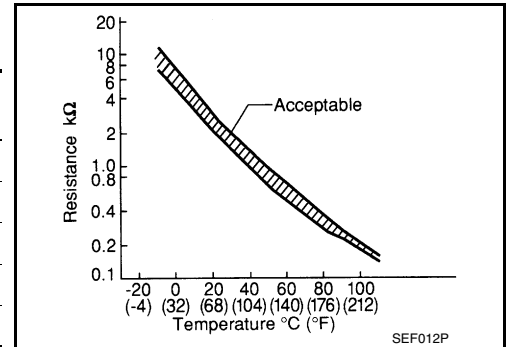
The engine oil temperature sensor is used to detect the engine oil temperature. The sensor modifies a voltage signal from the ECM. The modified signal returns to the ECM as the engine oil temperature input. The sensor uses a thermistor which is sensitive to the change in temperature. The electrical resistance of the thermistor decreases as temperature increases.



<Reference data>

Engine oil temperature [°C (°F)]	Voltage* (V)	Resistance (kΩ)
-10 (14)	4.4	7.0 - 11.4
20 (68)	3.5	2.37 - 2.63
50 (122)	2.2	0.68 - 1.00
90 (194)	1.0	0.236 - 0.260
110 (230)	0.6	0.143 - 0.153

*: These data are reference values and are measured between ECM terminals.



Cooling Fan

INFOID:000000009984906

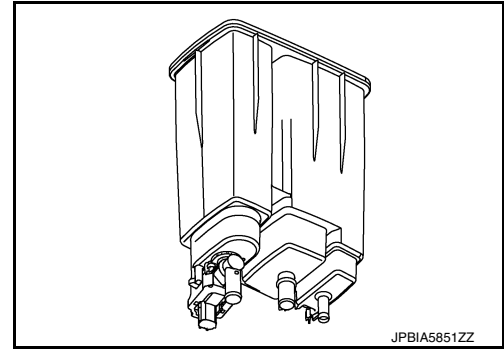
The ECM controls the cooling fan corresponding to the vehicle speed, engine coolant temperature, refrigerant pressure, and air conditioner ON signal. The control system has 4-step control [HIGH/MIDDLE/LOW/OFF]. Cooling fan operates at each speed when the current flows in the cooling fan motor.

Refer to [EC-46, "COOLING FAN CONTROL : System Description"](#) for cooling fan operation.

EVAP Canister

INFOID:000000009984907

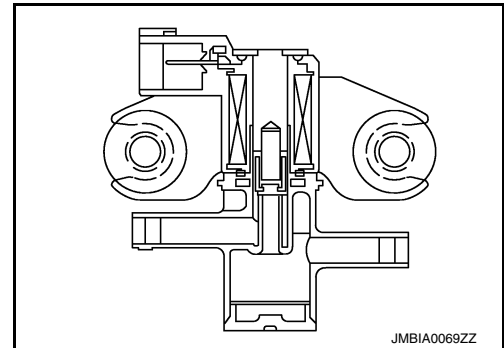
EVAP canister stores the generated fuel vapors in the sealed fuel tank to activated charcoals of EVAP canister when the engine is not operating or when refueling to the fuel tank.



EVAP Canister Purge Volume Control Solenoid Valve

INFOID:000000009984908

The EVAP canister purge volume control solenoid valve uses a ON/OFF duty to control the flow rate of fuel vapor from the EVAP canister. The EVAP canister purge volume control solenoid valve is moved by ON/OFF pulses from the ECM. The longer the ON pulse, the greater the amount of fuel vapor that will flow through the valve.



EVAP Canister Vent Control Valve

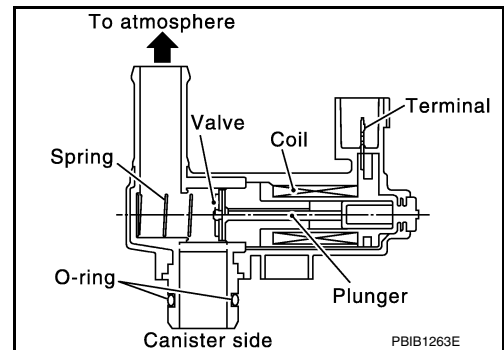
INFOID:000000009984909

The EVAP canister vent control valve is located on the EVAP canister and is used to seal the canister vent.

This solenoid valve responds to signals from the ECM. When the ECM sends an ON signal, the coil in the solenoid valve is energized. A plunger will then move to seal the canister vent. The ability to seal the vent is necessary for the on board diagnosis of other evaporative emission control system components.

This solenoid valve is used only for diagnosis, and usually remains opened.

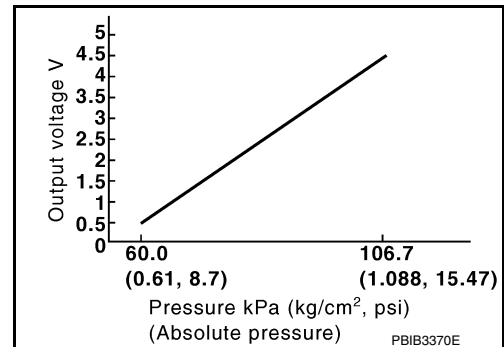
When the vent is closed, under normal purge conditions, the evaporative emission control system is depressurized and allows "EVAP Control System" diagnosis.



EVAP Control System Pressure Sensor

INFOID:000000009984910

The EVAP control system pressure sensor detects pressure in the purge line. The sensor output voltage to the ECM increases as pressure increases.



COMPONENT PARTS

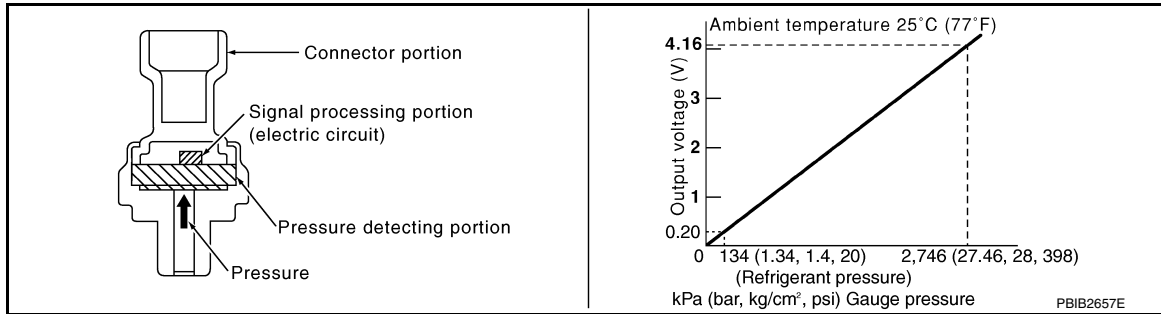
< SYSTEM DESCRIPTION >

[QR25DE]

Refrigerant Pressure Sensor

INFOID:000000009984914

The refrigerant pressure sensor is installed at the condenser of the air conditioner system. The sensor uses an electrostatic volume pressure transducer to convert refrigerant pressure to voltage. The voltage signal is sent to ECM, and ECM controls cooling fan system.



Stop Lamp Switch & Brake Pedal Position Switch

INFOID:000000009984915

Stop lamp switch and brake pedal position switch are installed to brake pedal bracket. ECM detects the state of the brake pedal by those two types of input (ON/OFF signal).

Brake pedal	Brake pedal position switch	Stop lamp switch
Released	ON	OFF
Depressed	OFF	ON

ASCD Steering Switch

INFOID:000000009984916

ASCD steering switch has variant values of electrical resistance for each button. ECM reads voltage variation of switch, and determines which button is operated.

Information Display

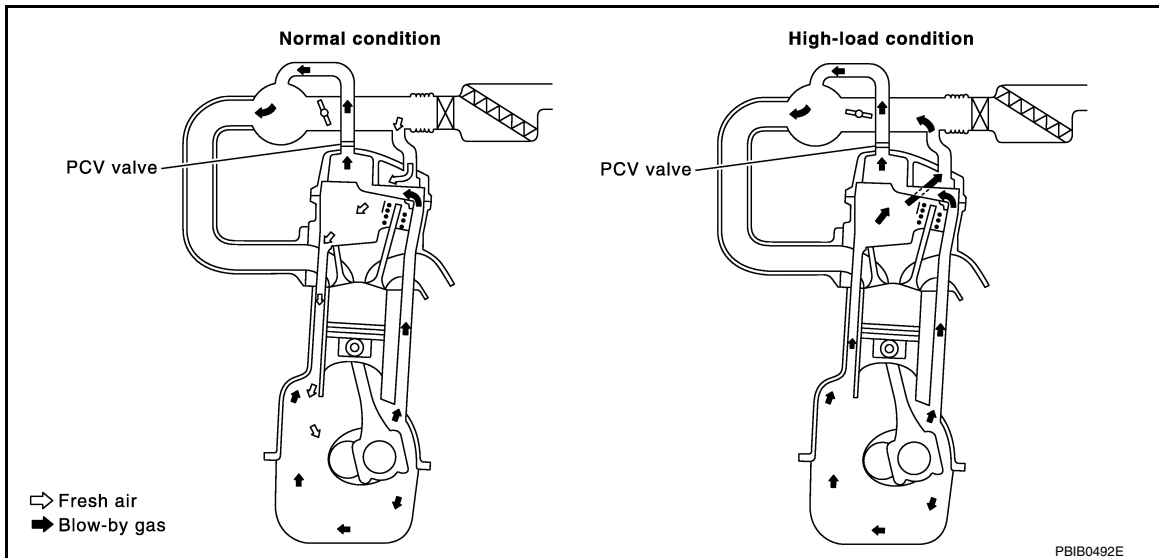
INFOID:000000009984917

The operation mode of the ASCD is indicated on the information display in the combination meter. ECM transmits the status signal to the combination meter via CAN communication according to ASCD operation.

STRUCTURE AND OPERATION

Positive Crankcase Ventilation

INFOID:000000009984918



This system returns blow-by gas to the intake manifold.

The positive crankcase ventilation (PCV) valve is provided to conduct crankcase blow-by gas to the intake manifold.

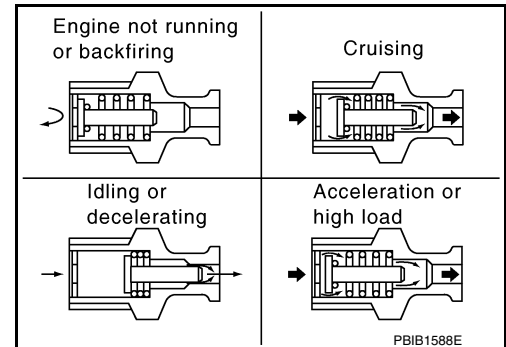
During partial throttle operation of the engine, the intake manifold sucks the blow-by gas through the PCV valve.

Normally, the capacity of the valve is sufficient to handle any blow-by and a small amount of ventilating air.

The ventilating air is then drawn from the air inlet tubes into the crankcase. In this process the air passes through the hose connecting air inlet tubes to rocker cover.

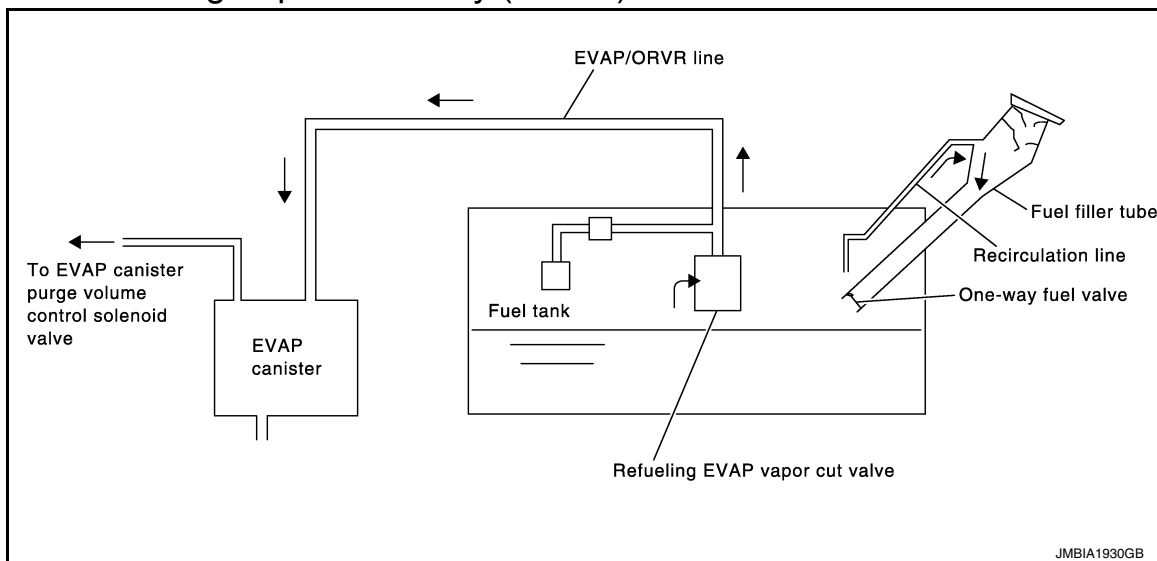
Under full-throttle condition, the manifold vacuum is insufficient to draw the blow-by flow through the valve. The flow goes through the hose connection in the reverse direction.

On vehicles with an excessively high blow-by, the valve does not meet the requirement. This is because some of the flow will go through the hose connection to the air inlet tubes under all conditions.



On Board Refueling Vapor Recovery (ORVR)

INFOID:000000009984919



From the beginning of refueling, the air and vapor inside the fuel tank go through refueling EVAP vapor cut valve and EVAP/ORVR line to the EVAP canister. The vapor is absorbed by the EVAP canister and the air is released to the atmosphere.

When the refueling has reached the full level of the fuel tank, the refueling EVAP vapor cut valve is closed and refueling is stopped because of auto shut-off. The vapor which was absorbed by the EVAP canister is purged during driving.

WARNING:

When conducting inspections below, be sure to observe the following:

- Put a “CAUTION: FLAMMABLE” sign in workshop.
- Do not smoke while servicing fuel system. Keep open flames and sparks away from work area.
- Be sure to furnish the workshop with a CO₂ fire extinguisher.

CAUTION:

- Before removing fuel line parts, carry out the following procedures:
 - Put drained fuel in an explosion-proof container and put lid on securely.
 - Release fuel pressure from fuel line. Refer to [EC-144, "Work Procedure"](#).
 - Disconnect battery ground cable.
- Always replace O-ring when the fuel gauge retainer is removed.
- Do not kink or twist hose and tube when they are installed.
- Do not tighten hose and clamps excessively to avoid damaging hoses.
- After installation, run engine and check for fuel leaks at connection.
- Do not attempt to top off the fuel tank after the fuel pump nozzle shuts off automatically. Continued refueling may cause fuel overflow, resulting in fuel spray and possibly a fire.

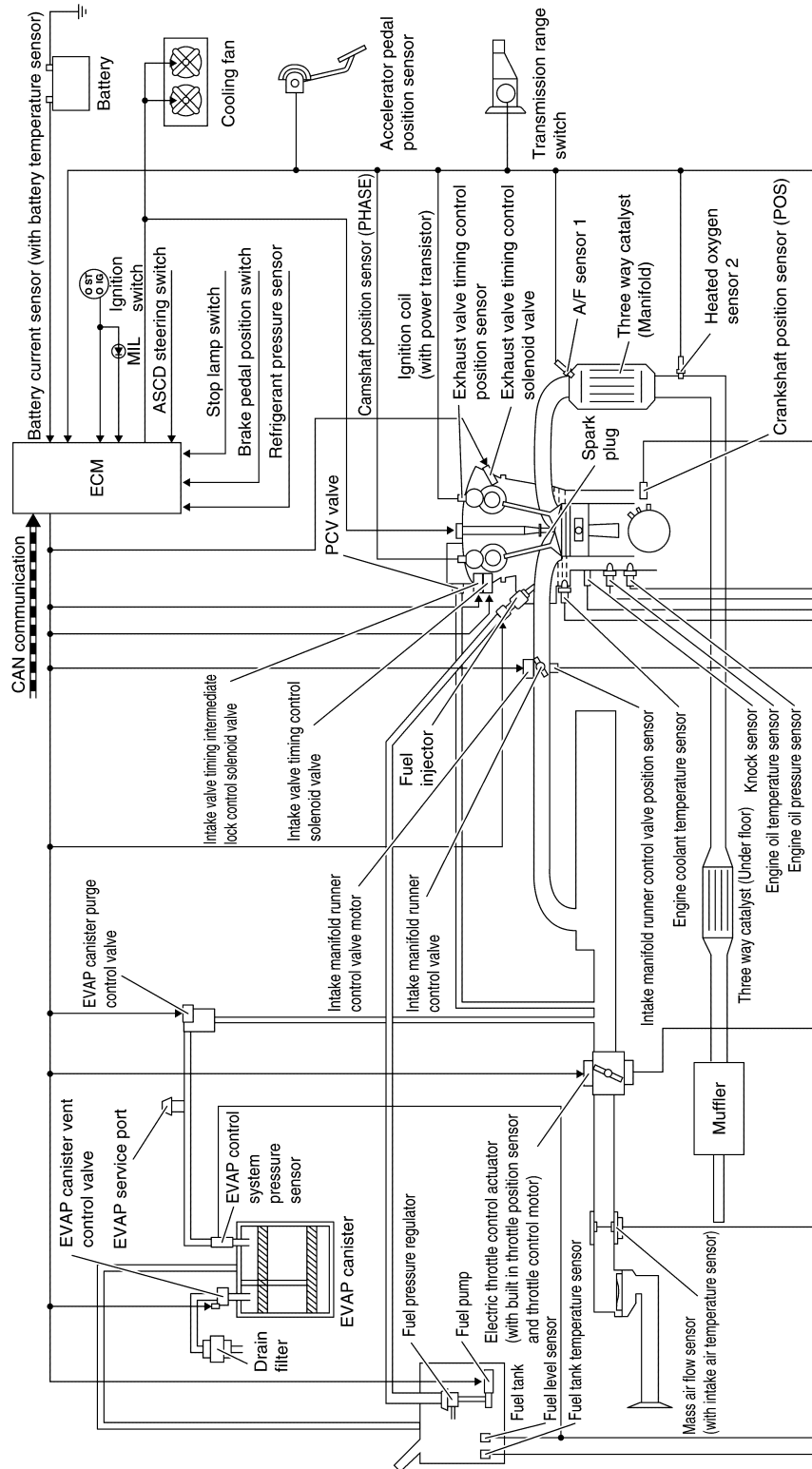
SYSTEM

ENGINE CONTROL SYSTEM

ENGINE CONTROL SYSTEM : System Description

INFOID:000000009984920

SYSTEM DIAGRAM



JSBIA4499GB

SYSTEM DESCRIPTION

SYSTEM

< SYSTEM DESCRIPTION >

[QR25DE]

ECM controls the engine by various functions.

Function	Reference
Multiport fuel injection system	EC-34. "MULTIPORT FUEL INJECTION SYSTEM : System Description (with automatic air conditioner)"
Electric ignition system	EC-39. "ELECTRIC IGNITION SYSTEM : System Description"
Intake valve timing control	EC-40. "INTAKE VALVE TIMING CONTROL : System Description"
Exhaust valve timing control	EC-43. "EXHAUST VALVE TIMING CONTROL : System Description"
Intake manifold runner control	EC-44. "INTAKE MANIFOLD RUNNER CONTROL : System Description"
Engine protection control	EC-44. "ENGINE PROTECTION CONTROL AT LOW ENGINE OIL PRESSURE : System Description"
Fuel filler cap warning system	EC-48. "FUEL FILLER CAP WARNING SYSTEM : System Description"
Air conditioning cut control	EC-45. "AIR CONDITIONING CUT CONTROL : System Description"
Power generation voltage variable control	EC-45. "POWER GENERATION VOLTAGE VARIABLE CONTROL SYSTEM : System Description"
Cooling fan control	EC-46. "COOLING FAN CONTROL : System Description"
Evaporative emission system	EC-53. "EVAPORATIVE EMISSION SYSTEM : System Description"
Automatic speed control device (ASCD)	EC-47. "AUTOMATIC SPEED CONTROL DEVICE (ASCD) : System Description"
CAN communication	EC-53. "CAN COMMUNICATION : System Description"
Sport mode	EC-54. "SPORT MODE CONTROL : System Description"

ENGINE CONTROL SYSTEM : Fail Safe

INFOID:000000009984921

NON DTC RELATED ITEM

Detected items	Engine operating condition in fail-safe mode	Remarks	Reference page
Malfunction indicator lamp circuit	Engine speed will not rise more than 2,500 rpm due to the fuel cut	When there is an open circuit on MIL circuit, the ECM cannot warn the driver by lighting up MIL when there is malfunction on engine control system. Therefore, when electrical controlled throttle and part of ECM related diagnoses are continuously detected as NG for 5 trips, ECM warns the driver that engine control system malfunctions and MIL circuit is open by means of operating fail safe function. The fail safe function also operates when above diagnoses except MIL circuit are detected and demands the driver to repair the malfunction.	EC-476. "Component Function Check"

DTC RELATED ITEM

Description

When a DTC is detected, ECM executes a mode (in the Fail-safe mode) applicable to the DTC. The fail-safe mode has the preset traveling control mode (accelerator angle variation and engine output limit) and device fix mode.

SYSTEM

< SYSTEM DESCRIPTION >

[QR25DE]

Fail safe mode		Vehicle behavior
Traveling control mode	Accelerator angle variation control	ECM controls the accelerator pedal depression speed to make it slower than actual speed. This causes a drop in accelerating performance and encourages the driver to repair malfunction. NOTE: ECM does not control the accelerator pedal releasing speed.
	Engine output control	ECM reduces the engine output, according to the rise in engine speed. This reduces the vehicle speed to encourage the driver to repair malfunction.
Device fix mode		- This mode fixes the IVT control solenoid valve and the EVT control solenoid valve in the reference position. - The intake manifold runner control valve motor is turned OFF (intake manifold runner control valve opens).

Fail Safe Pattern

Pattern	Fail safe mode	
A	Traveling control mode	Accelerator angle variation control
B		Engine output control
C	Device fix mode	

Fail Safe List

×:Applicable —: Not applicable

DTC No.	Detected items	Vehicle behavior			
		Pattern			Others
		A	B	C	
P0011	Intake valve timing control	—	—	×	ECM activates the IVT intermediate lock control solenoid valve to bring the cam sprocket into an intermediate lock condition.
P0014 P0078	Exhaust valve timing control	—	—	×	—
P0101 P0102 P0103	Mass air flow sensor circuit	×	×	×	—
P0122 P0123 P0222 P0223 P2135	Throttle position sensor	—	—	—	The ECM controls the electric throttle control actuator in regulating the throttle opening in order for the idle position to be within +10 degrees. The ECM regulates the opening speed of the throttle valve to be slower than the normal condition. So, the acceleration will be poor.
P0171 P0172	Fuel injection system	×	—	—	—
P0197 P0198	Engine oil temperature sensor	—	—	—	Exhaust valve timing control does not function.
P0300 P0301 P0302 P0303 P0304	Misfire	×	—	—	—
P0500	Vehicle speed sensor	×	—	—	—
P050A	Cold start control	—	—	—	—
P0524	Engine oil pressure	—	—	—	- ECM illuminates oil pressure warning lamp on the combination meter. - Engine speed will not rise more than 4,000rpm due to the fuel cut. - Fail-safe is canceled when ignition switch OFF → ON.

SYSTEM

< SYSTEM DESCRIPTION >

[QR25DE]

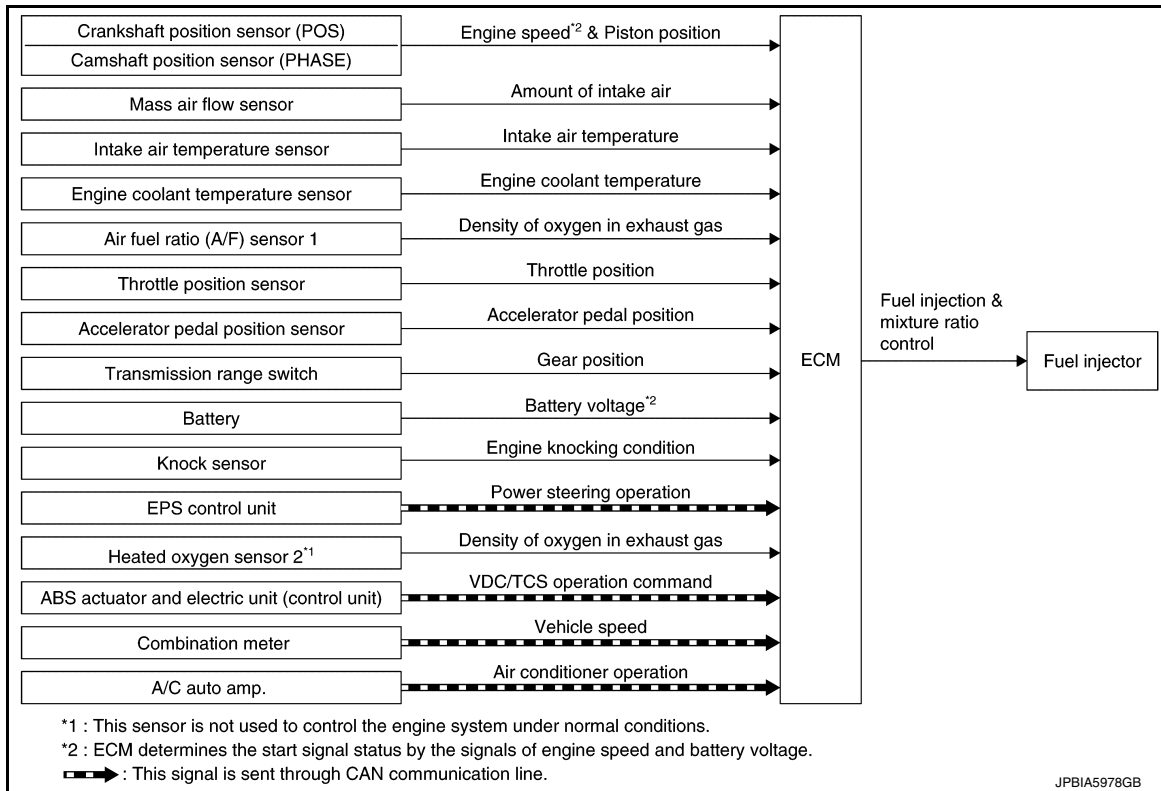
DTC No.	Detected items	Vehicle behavior			
		Pattern			Others
		A	B	C	
P052A P052B	Intake valve timing intermediate lock control	—	—	×	—
P0603	ECM power supply circuit	—	×	—	—
P0605	ECM	—	—	—	ECM stops the electric throttle control actuator control, throttle valve is maintained at a fixed opening (approx. 5 degrees) by the return spring.
P0643	Sensor power supply	—	—	—	ECM stops the electric throttle control actuator control, throttle valve is maintained at a fixed opening (approx. 5 degrees) by the return spring.
P1078	Exhaust valve timing control position sensor circuit	×	—	×	—
P1568	Signal invalid	—	—	—	Active trace control does not function.
P1805	Brake switch	—	—	—	ECM controls the electric throttle control actuator by regulating the throttle opening to a small range. Therefore, acceleration will be poor.
					Vehicle condition
					When engine is idling
					When accelerating
P2004	Intake manifold runner control valve	—	×	×	—
P2100 P2103	Throttle control motor relay	—	—	—	ECM stops the electric throttle control actuator control, throttle valve is maintained at a fixed opening (approx. 5 degrees) by the return spring.
P2101	Electric throttle control function	—	—	—	ECM stops the electric throttle control actuator control, throttle valve is maintained at a fixed opening (approx. 5 degrees) by the return spring.
P2118	Throttle control motor	—	—	—	ECM stops the electric throttle control actuator control, throttle valve is maintained at a fixed opening (approx. 5 degrees) by the return spring.
P2119	Electric throttle control actuator	—	×	—	—
P2122 P2123 P2127 P2128 P2138	Accelerator pedal position sensor	—	—	—	The ECM controls the electric throttle control actuator in regulating the throttle opening in order for the idle position to be within +10 degrees. The ECM regulates the opening speed of the throttle valve to be slower than the normal condition. So, the acceleration will be poor.

MULTIPOINT FUEL INJECTION SYSTEM

MULTIPOINT FUEL INJECTION SYSTEM : System Description (with automatic air

conditioner)

SYSTEM DIAGRAM



SYSTEM DESCRIPTION

The amount of fuel injected from the fuel injector is determined by the ECM. The ECM controls the length of time the valve remains open (injection pulse duration). The amount of fuel injected is a program value in the ECM memory. The program value is preset by engine operating conditions. These conditions are determined by input signals (for engine speed and intake air) from the crankshaft position sensor (POS), camshaft position sensor (PHASE) and the mass air flow sensor.

VARIOUS FUEL INJECTION INCREASE/DECREASE COMPENSATION

In addition, the amount of fuel injected is compensated to improve engine performance under various operating conditions as listed below.

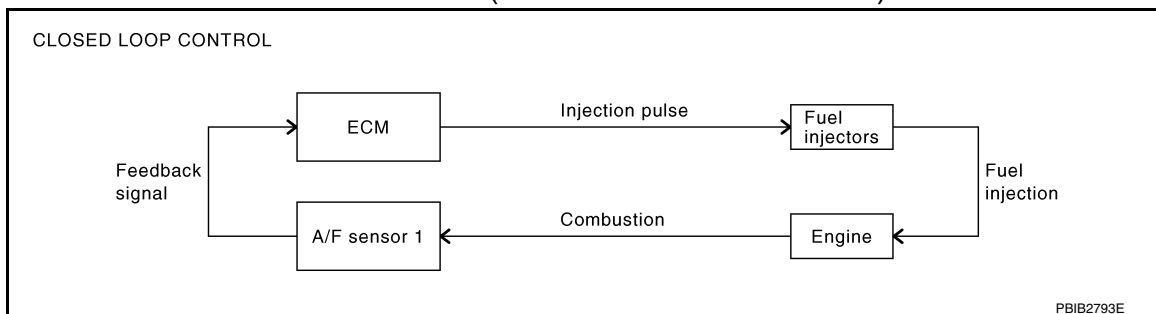
<Fuel increase>

- During warm-up
- When starting the engine
- During acceleration
- Hot-engine operation
- When selector lever is changed from N to D
- High-load, high-speed operation

<Fuel decrease>

- During deceleration
- During high engine speed operation

MIXTURE RATIO FEEDBACK CONTROL (CLOSED LOOP CONTROL)



The mixture ratio feedback system provides the best air-fuel mixture ratio for driveability and emission control. The three way catalyst (manifold) can then better reduce CO, HC and NOx emissions. This system uses A/F sensor 1 in the exhaust manifold to monitor whether the engine operation is rich or lean. The ECM adjusts the injection pulse width according to the sensor voltage signal. For more information about A/F sensor 1, refer to [EC-24. "Air Fuel Ratio \(A/F\) Sensor 1"](#). This maintains the mixture ratio within the range of stoichiometric (ideal air-fuel mixture).

This stage is referred to as the closed loop control condition.

Heated oxygen sensor 2 is located downstream of the three way catalyst (manifold). Even if the switching characteristics of A/F sensor 1 shift, the air-fuel ratio is controlled to stoichiometric by the signal from heated oxygen sensor 2.

• Open Loop Control

The open loop system condition refers to when the ECM detects any of the following conditions. Feedback control stops in order to maintain stabilized fuel combustion.

- Deceleration and acceleration
- High-load, high-speed operation
- Malfunction of A/F sensor 1 or its circuit
- Insufficient activation of A/F sensor 1 at low engine coolant temperature
- High engine coolant temperature
- During warm-up
- After shifting from N to D
- When starting the engine

MIXTURE RATIO SELF-LEARNING CONTROL

The mixture ratio feedback control system monitors the mixture ratio signal transmitted from A/F sensor 1. This feedback signal is then sent to the ECM. The ECM controls the basic mixture ratio as close to the theoretical mixture ratio as possible. However, the basic mixture ratio is not necessarily controlled as originally designed. Both manufacturing differences (i.e., mass air flow sensor hot wire) and characteristic changes during operation (i.e., fuel injector clogging) directly affect mixture ratio.

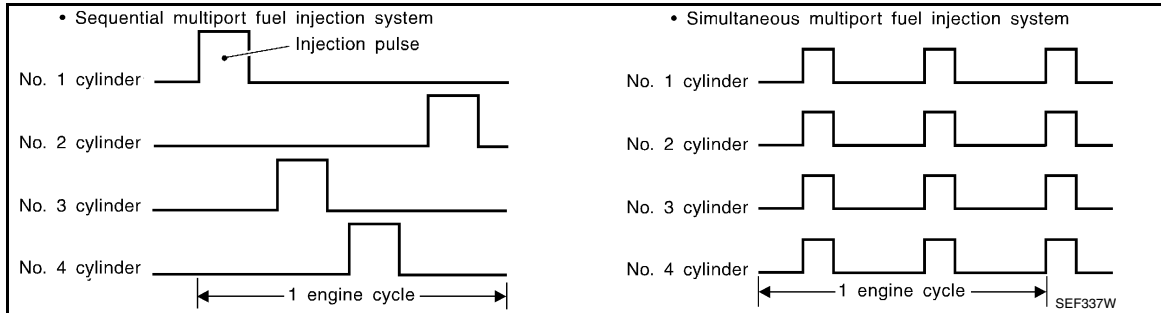
Accordingly, the difference between the basic and theoretical mixture ratios is monitored in this system. This is then computed in terms of "injection pulse duration" to automatically compensate for the difference between the two ratios.

"Fuel trim" refers to the feedback compensation value compared against the basic injection duration. Fuel trim includes short term fuel trim and long term fuel trim.

"Short term fuel trim" is the short-term fuel compensation used to maintain the mixture ratio at its theoretical value. The signal from A/F sensor 1 indicates whether the mixture ratio is RICH or LEAN compared to the theoretical value. The signal then triggers a reduction in fuel volume if the mixture ratio is rich, and an increase in fuel volume if it is lean.

"Long term fuel trim" is overall fuel compensation carried out long-term to compensate for continual deviation of the short term fuel trim from the central value. Such deviation will occur due to individual engine differences, wear over time and changes in the usage environment.

FUEL INJECTION TIMING



Two types of systems are used.

- **Sequential Multiport Fuel Injection System**
Fuel is injected into each cylinder during each engine cycle according to the firing order. This system is used when the engine is running.
- **Simultaneous Multiport Fuel Injection System**
Fuel is injected simultaneously into all four cylinders twice each engine cycle. In other words, pulse signals of the same width are simultaneously transmitted from the ECM.
The four injectors will then receive the signals two times for each engine cycle.
This system is used when the engine is being started and/or if the fail-safe system (CPU) is operating.

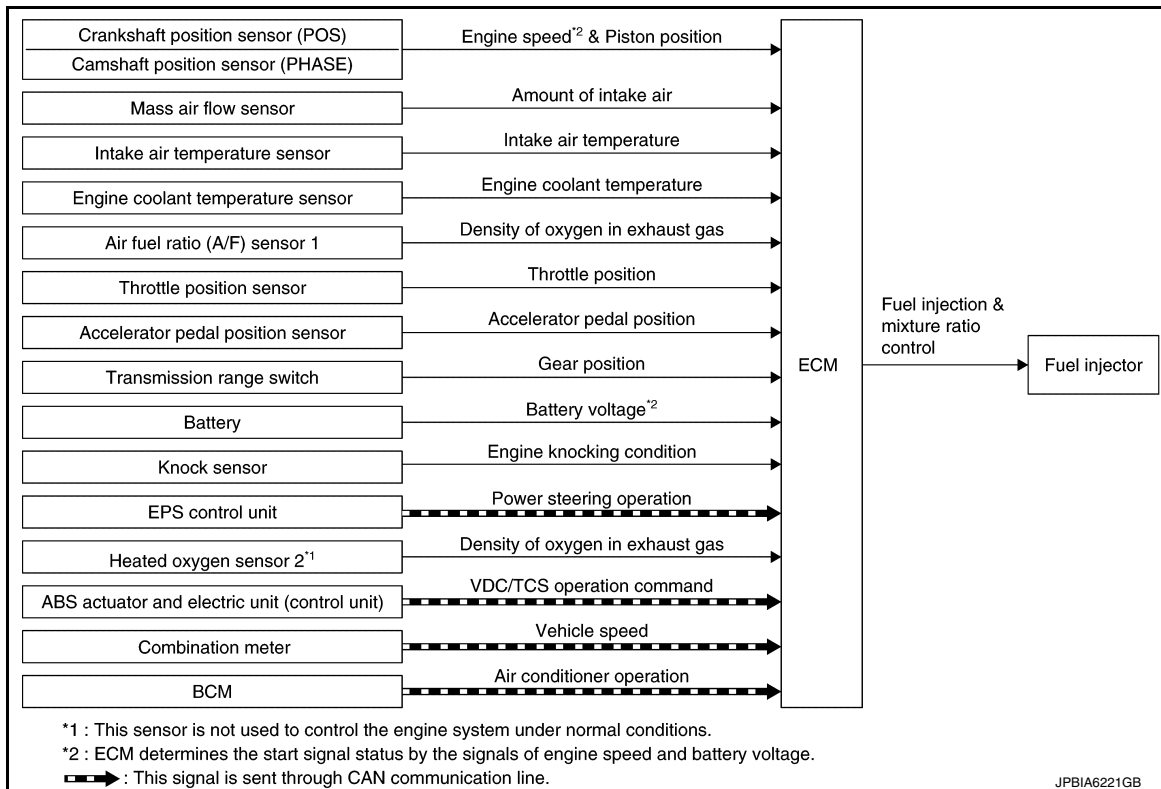
FUEL SHUT-OFF

Fuel to each cylinder is cut off during deceleration, operation of the engine at excessively high speeds or operation of the vehicle at excessively high speeds.

MULTIPOINT FUEL INJECTION SYSTEM : System Description (with manual air conditioner)

INFOID:000000009984923

SYSTEM DIAGRAM



SYSTEM DESCRIPTION

The amount of fuel injected from the fuel injector is determined by the ECM. The ECM controls the length of time the valve remains open (injection pulse duration). The amount of fuel injected is a program value in the ECM memory. The program value is preset by engine operating conditions. These conditions are determined

< SYSTEM DESCRIPTION >

by input signals (for engine speed and intake air) from the crankshaft position sensor (POS), camshaft position sensor (PHASE) and the mass air flow sensor.

VARIOUS FUEL INJECTION INCREASE/DECREASE COMPENSATION

In addition, the amount of fuel injected is compensated to improve engine performance under various operating conditions as listed below.

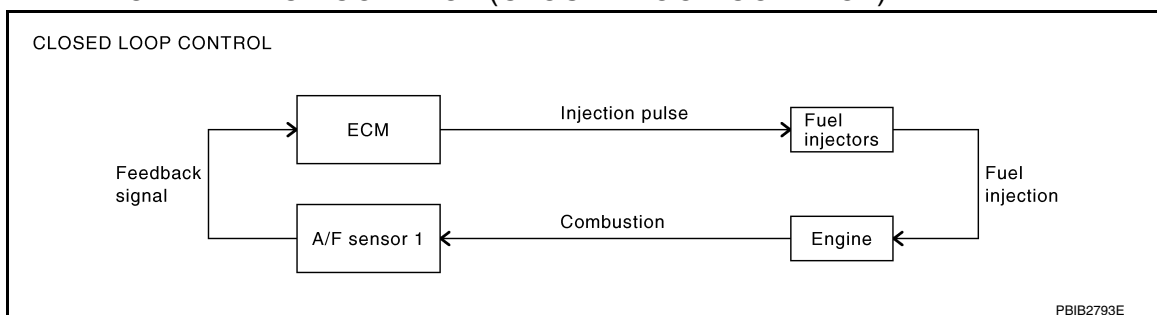
<Fuel increase>

- During warm-up
- When starting the engine
- During acceleration
- Hot-engine operation
- When selector lever is changed from N to D
- High-load, high-speed operation

<Fuel decrease>

- During deceleration
- During high engine speed operation

MIXTURE RATIO FEEDBACK CONTROL (CLOSED LOOP CONTROL)



The mixture ratio feedback system provides the best air-fuel mixture ratio for driveability and emission control. The three way catalyst (manifold) can then better reduce CO, HC and NOx emissions. This system uses A/F sensor 1 in the exhaust manifold to monitor whether the engine operation is rich or lean. The ECM adjusts the injection pulse width according to the sensor voltage signal. For more information about A/F sensor 1, refer to [EC-24, "Air Fuel Ratio \(A/F\) Sensor 1"](#). This maintains the mixture ratio within the range of stoichiometric (ideal air-fuel mixture).

This stage is referred to as the closed loop control condition.

Heated oxygen sensor 2 is located downstream of the three way catalyst (manifold). Even if the switching characteristics of A/F sensor 1 shift, the air-fuel ratio is controlled to stoichiometric by the signal from heated oxygen sensor 2.

• Open Loop Control

The open loop system condition refers to when the ECM detects any of the following conditions. Feedback control stops in order to maintain stabilized fuel combustion.

- Deceleration and acceleration
- High-load, high-speed operation
- Malfunction of A/F sensor 1 or its circuit
- Insufficient activation of A/F sensor 1 at low engine coolant temperature
- High engine coolant temperature
- During warm-up
- After shifting from N to D
- When starting the engine

MIXTURE RATIO SELF-LEARNING CONTROL

The mixture ratio feedback control system monitors the mixture ratio signal transmitted from A/F sensor 1. This feedback signal is then sent to the ECM. The ECM controls the basic mixture ratio as close to the theoretical mixture ratio as possible. However, the basic mixture ratio is not necessarily controlled as originally designed. Both manufacturing differences (i.e., mass air flow sensor hot wire) and characteristic changes during operation (i.e., fuel injector clogging) directly affect mixture ratio.

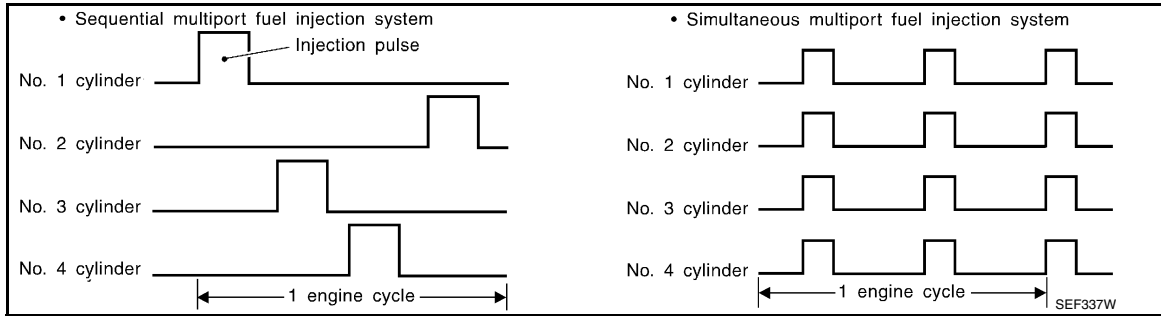
Accordingly, the difference between the basic and theoretical mixture ratios is monitored in this system. This is then computed in terms of "injection pulse duration" to automatically compensate for the difference between the two ratios.

"Fuel trim" refers to the feedback compensation value compared against the basic injection duration. Fuel trim includes short term fuel trim and long term fuel trim.

“Short term fuel trim” is the short-term fuel compensation used to maintain the mixture ratio at its theoretical value. The signal from A/F sensor 1 indicates whether the mixture ratio is RICH or LEAN compared to the theoretical value. The signal then triggers a reduction in fuel volume if the mixture ratio is rich, and an increase in fuel volume if it is lean.

“Long term fuel trim” is overall fuel compensation carried out long-term to compensate for continual deviation of the short term fuel trim from the central value. Such deviation will occur due to individual engine differences, wear over time and changes in the usage environment.

FUEL INJECTION TIMING



Two types of systems are used.

- Sequential Multiport Fuel Injection System**

Fuel is injected into each cylinder during each engine cycle according to the firing order. This system is used when the engine is running.

- Simultaneous Multiport Fuel Injection System**

Fuel is injected simultaneously into all four cylinders twice each engine cycle. In other words, pulse signals of the same width are simultaneously transmitted from the ECM.

The four injectors will then receive the signals two times for each engine cycle.

This system is used when the engine is being started and/or if the fail-safe system (CPU) is operating.

FUEL SHUT-OFF

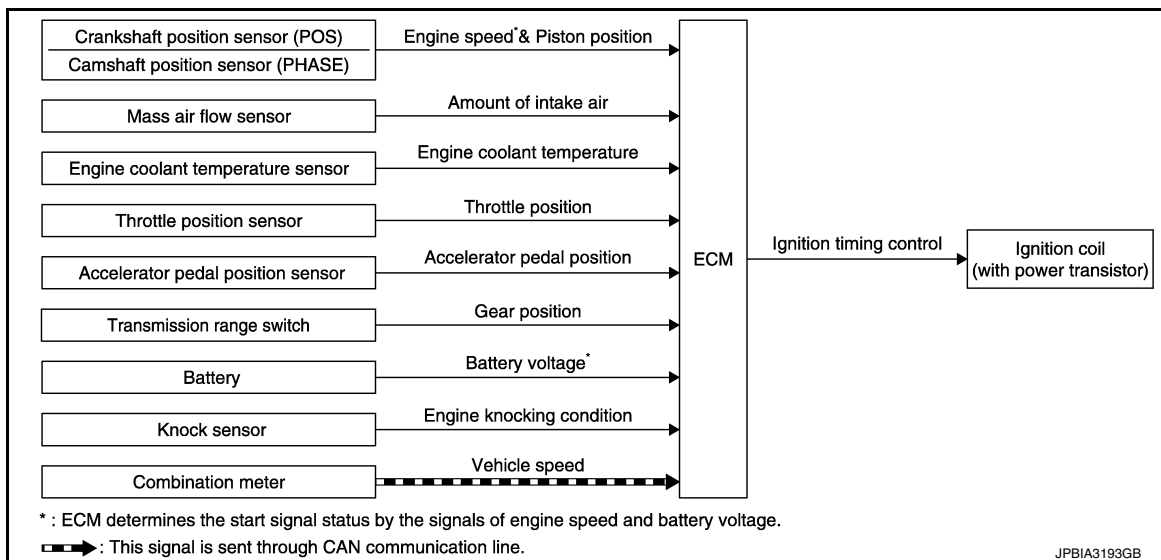
Fuel to each cylinder is cut off during deceleration, operation of the engine at excessively high speeds or operation of the vehicle at excessively high speeds.

ELECTRIC IGNITION SYSTEM

ELECTRIC IGNITION SYSTEM : System Description

INFOID:000000009984924

SYSTEM DIAGRAM



SYSTEM DESCRIPTION

Firing order: 1 - 3 - 4 - 2

The ignition timing is controlled by the ECM to maintain the best air-fuel ratio for every running condition of the engine. The ignition timing data is stored in the ECM.

SYSTEM

< SYSTEM DESCRIPTION >

[QR25DE]

The ECM receives information such as the injection pulse width and camshaft position sensor (PHASE) signal. Computing this information, ignition signals are transmitted to the power transistor. During the following conditions, the ignition timing is revised by the ECM according to the other data stored in the ECM.

- At starting
- During warm-up
- At idle
- At low battery voltage
- During acceleration

The knock sensor retard system is designed only for emergencies. The basic ignition timing is programmed within the anti-knocking zone, if recommended fuel is used under dry conditions. The retard system does not operate under normal driving conditions. If engine knocking occurs, the knock sensor monitors the condition. The signal is transmitted to the ECM. The ECM retards the ignition timing to eliminate the knocking condition.

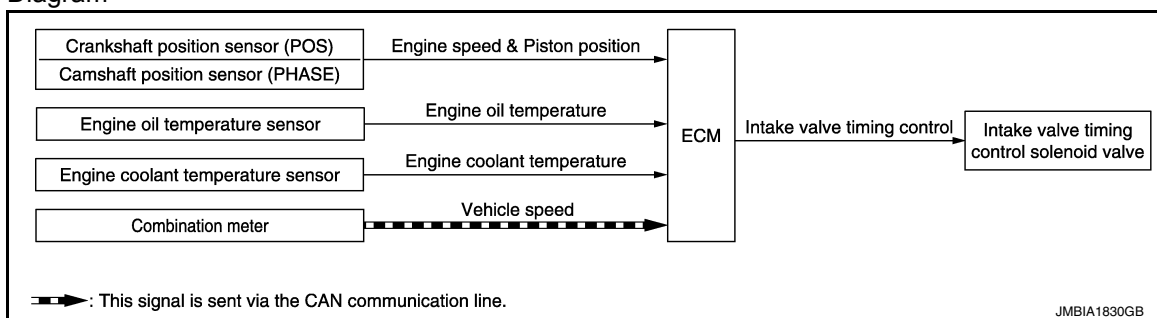
INTAKE VALVE TIMING CONTROL

INTAKE VALVE TIMING CONTROL : System Description

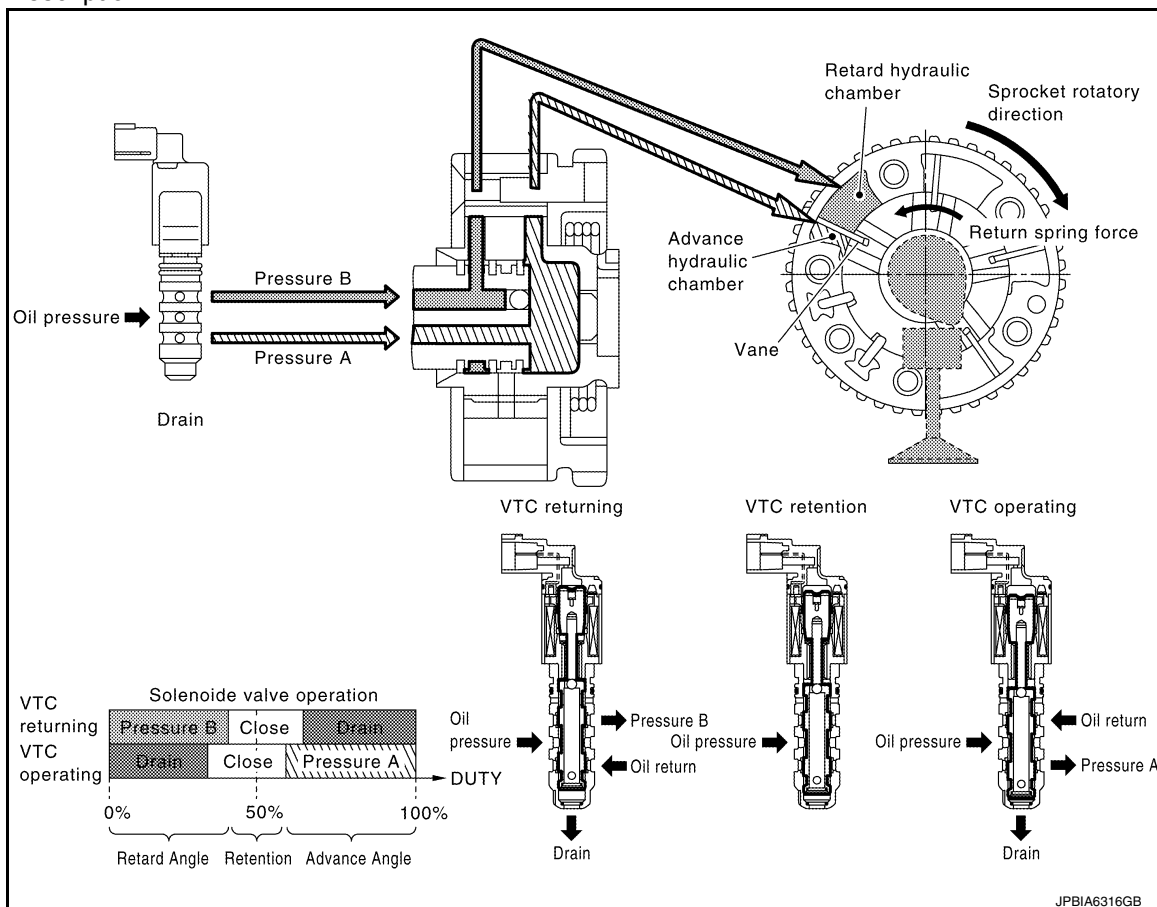
INFOID:000000009984925

INTAKE VALVE TIMING CONTROL

System Diagram



System Description

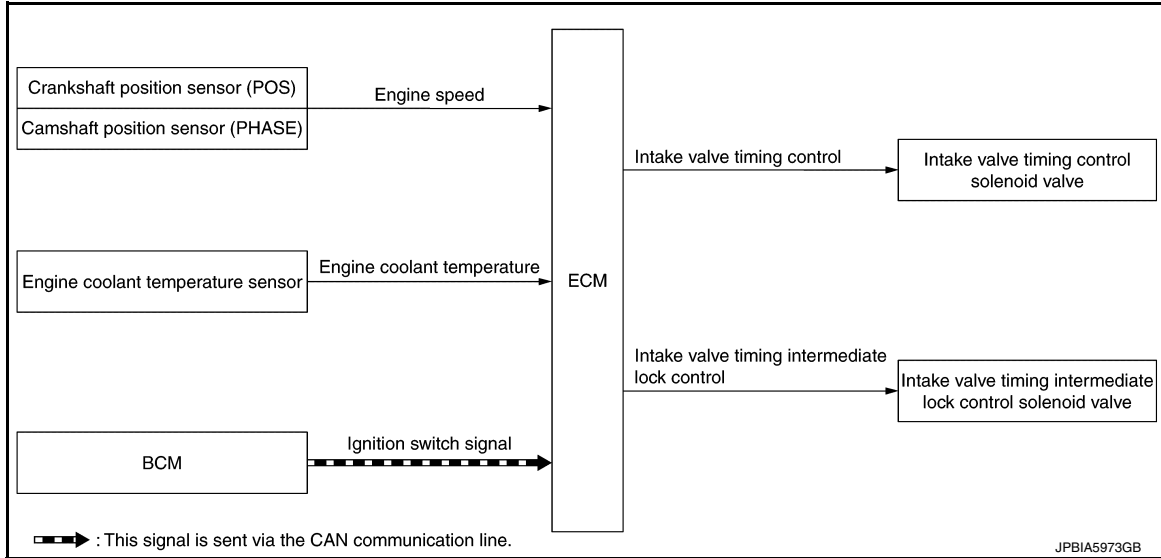


This mechanism hydraulically controls cam phases continuously with the fixed operating angle of the intake valve.

The ECM receives signals such as crankshaft position, camshaft position, engine speed, and engine coolant temperature. Then, the ECM sends ON/OFF pulse duty signals to the intake valve timing (IVT) control solenoid valve depending on driving status. This makes it possible to control the shut/open timing of the intake valve to increase engine torque in low/mid speed range and output in high-speed range.

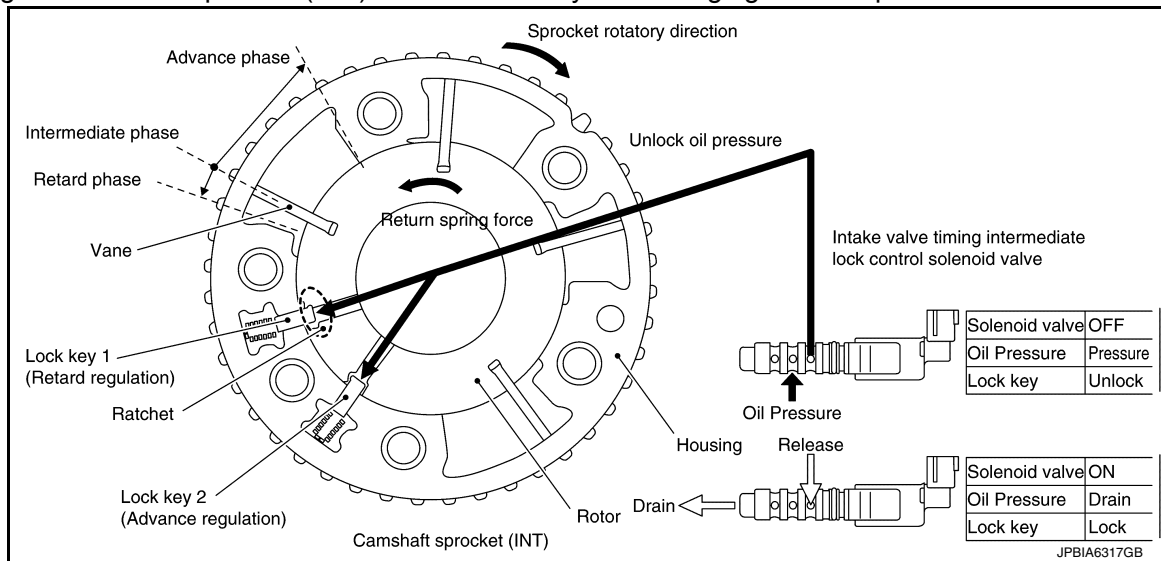
INTAKE VALVE TIMING INTERMEDIATE LOCK CONTROL

System Diagram



System Description

The intake valve timing intermediate lock control improves the cleaning ability of exhaust gas at cold starting by fixing the camshaft sprocket (INT) with two lock keys and bringing the cam phase into intermediate phase.



Cam phase is fixed at the intermediate phase by two lock keys in the camshaft sprocket (INT). Lock key 1 controls retard position and lock key 2 controls advance position.

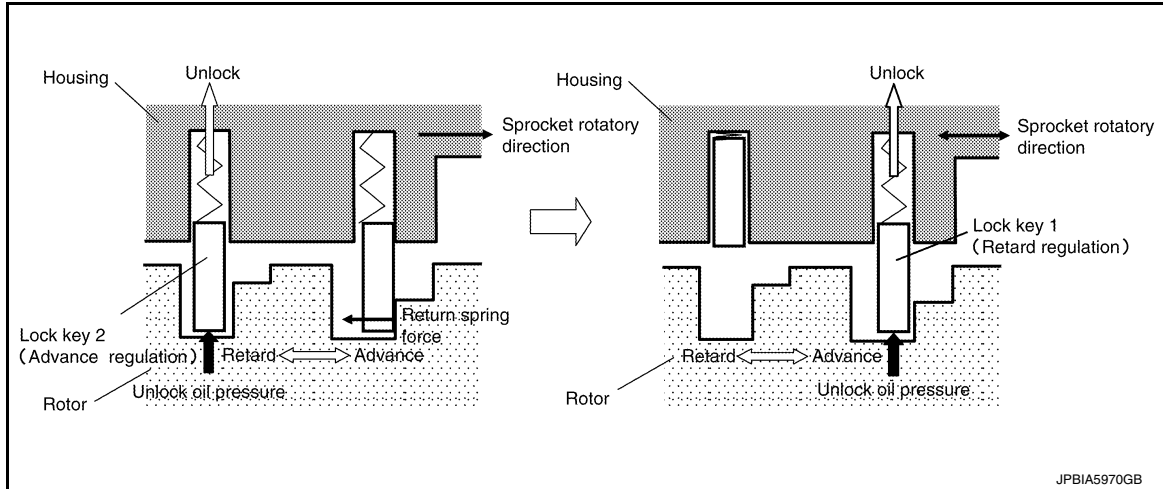
ECM controls the intermediate phase lock by opening/closing the intake valve timing intermediate lock control solenoid valve to control oil pressure acting on the lock key and locking/unlocking the lock key.

Lock/Unlock Activation

When ECM activates the intake valve timing intermediate lock control solenoid valve, oil pressure generated in the oil pump is drained through the oil pressure path in the control valve. Since oil pressure is not acted on the lock key, the lock key position is fixed by the spring tension and the cam phase is fixed at the intermediate phase.

When ECM deactivates the intake valve timing intermediate lock control solenoid valve, unlocking oil pressure acts on each lock key. Lock key 1 is not released because it is under load due to sprocket rotational force. For

this reason, lock key 2 is released first by being pushed up by unlocking oil pressure. When lock key 2 is released, some clearance is formed between lock key 1 and the rotor due to sprocket rotational force and return spring force. Accordingly, lock key 1 is pushed up by unlocking oil pressure and the intermediated phase lock is released.



When stopping the engine

When the ignition switch is turned from idle state to OFF, ECM receives an ignition switch signal from BCM via CAN communication and activates the intake valve timing intermediate lock control solenoid valve and drains oil pressure acting on the lock key before activating the intake valve timing control solenoid valve and operating the cam phase toward the advance position.

The cam phase is fixed by the lock key when shifting to the intermediated phase and ECM performs Lock judgment to stop the engine.

When starting the engine

When starting the engine by cold start, ECM judges the locked/unlocked state when ignition switch is turned ON. When judged as locked state (fixed at the intermediate phase), the intake valve timing intermediate lock control solenoid valve is activated. Since oil pressure does not act on the lock key even when the engine is started, the cam phase is fixed at the intermediate phase and the intake valve timing control is not performed. When the engine stops without locking the cam phase at the intermediate phase due to an engine stall and the state is not judged as locked, the intake valve timing intermediate lock control solenoid valve and the intake valve timing control solenoid valve are activated and the cam phase shifts to the advanced position to be locked at the intermediate phase. Even when not locked in the intermediate lock phase due to no oil pressure or low oil pressure, a ratchet structure of the camshaft sprocket (INT) rotor allows the conversion to the intermediate phase in stages by engine vibration.

When engine coolant temperature is more than 60°C, the intake valve timing is controlled by deactivating the intake valve timing intermediate lock control solenoid valve and releasing the intermediate phase lock.

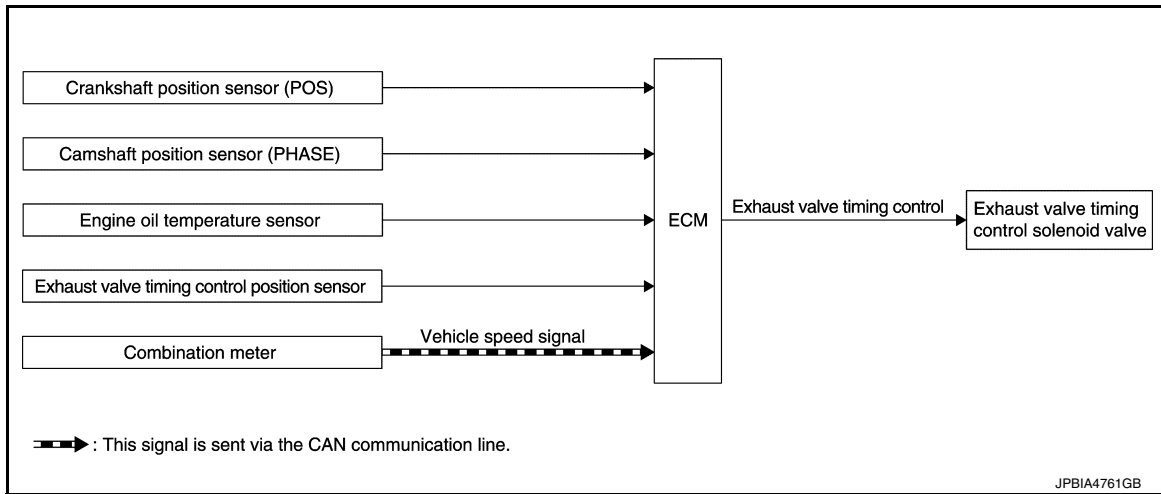
When the engine is started after warming up, ECM releases the intermediate phase lock immediately after the engine start and controls the intake valve timing.

EXHAUST VALVE TIMING CONTROL

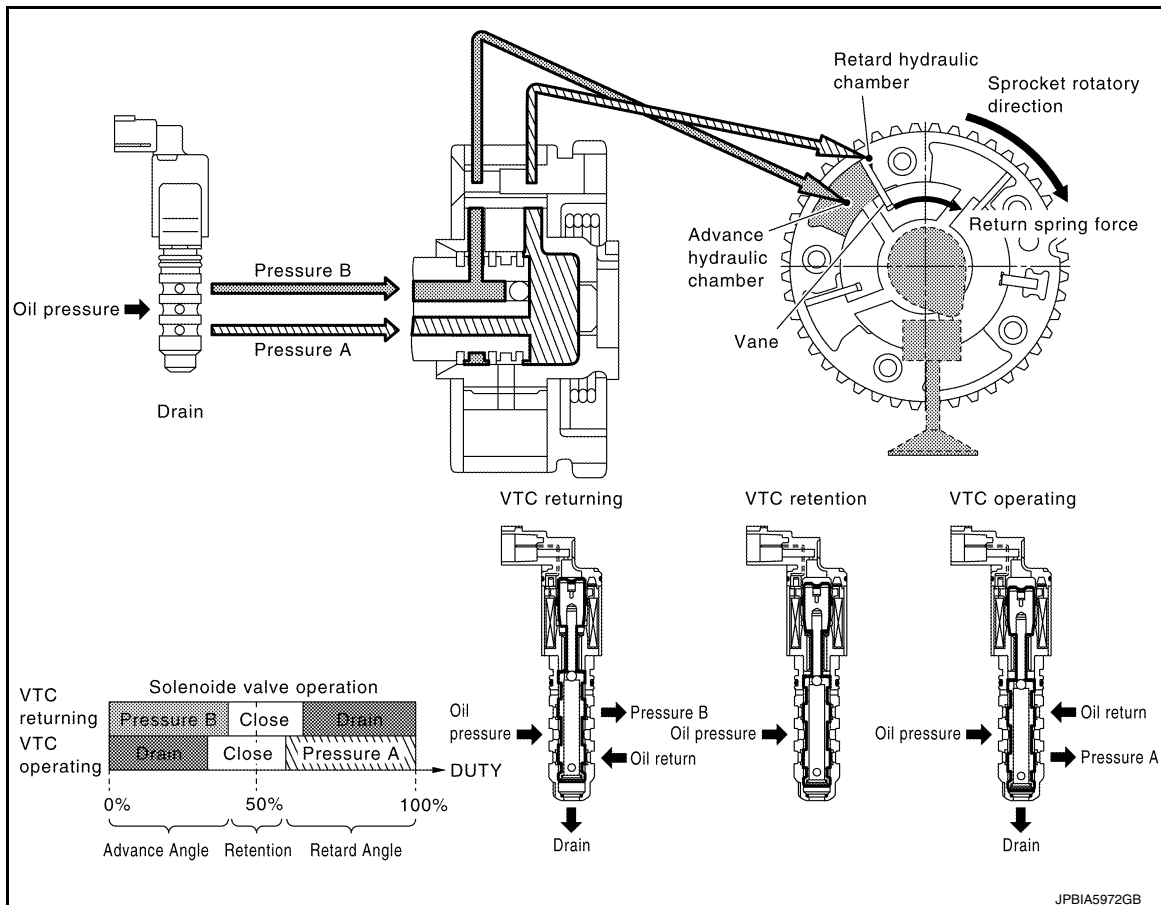
EXHAUST VALVE TIMING CONTROL : System Description

INFOID:000000009984926

SYSTEM DIAGRAM



SYSTEM DESCRIPTION



This mechanism hydraulically controls cam phases continuously with the fixed operating angle of the exhaust valve.

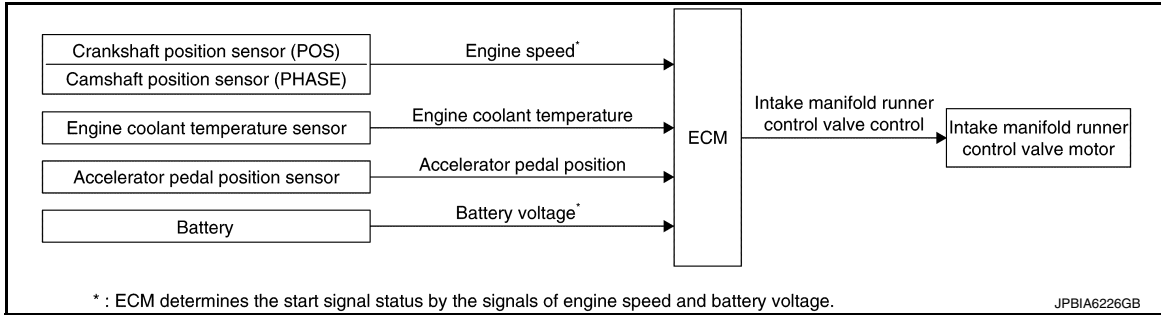
The ECM receives signals such as crankshaft position, camshaft position, engine speed, and engine oil temperature. Then, the ECM sends ON/OFF pulse duty signals to the exhaust valve timing (EVT) control solenoid valve depending on driving status. This makes it possible to control the shut/open timing of the exhaust valve to increase engine torque and output in a range of high engine speed.

INTAKE MANIFOLD RUNNER CONTROL

INTAKE MANIFOLD RUNNER CONTROL : System Description

INFOID:000000009984927

SYSTEM DIAGRAM



SYSTEM DESCRIPTION

Intake manifold runner control valve has a valve portion in the intake passage of each cylinder. While idling and during low engine coolant temperature, the intake manifold runner control valve closes. Thus the velocity of the air in the intake passage increases, promoting the vaporization of the fuel and producing an intake manifold runner in the combustion chamber.

Because of this operation, this system tends to increase the burning speed of the gas mixture, improve exhaust emission, and increase the stability in running conditions.

Also, except when idling and during low engine coolant temperature, this system opens the intake manifold runner control valve.

In this condition, this system tends to increase power by improving intake efficiency via reduction of intake flow resistance.

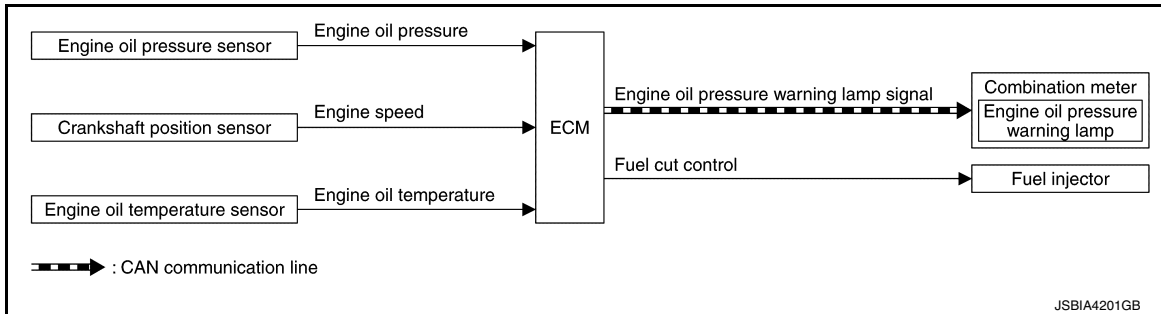
The intake manifold runner control valve is operated by the ECM.

ENGINE PROTECTION CONTROL AT LOW ENGINE OIL PRESSURE

ENGINE PROTECTION CONTROL AT LOW ENGINE OIL PRESSURE : System Description

INFOID:000000009984929

SYSTEM DIAGRAM



SYSTEM DESCRIPTION

- The engine protection control at low engine oil pressure warns the driver of a decrease in engine oil pressure by the engine oil pressure warning lamp a before the engine becomes damaged.
- When detecting a decrease in engine oil pressure at an engine speed less than 1,000 rpm, ECM transmits an engine oil pressure warning lamp signal to the combination meter. The combination meter turns ON the engine oil pressure warning lamp, according to the signal.

Decrease in engine oil pressure	Engine speed	Combination meter	Fuel cut
		Engine oil pressure warning lamp	
Detection	Less than 1,000 rpm	ON*	NO
	1,000 rpm or more	ON	YES

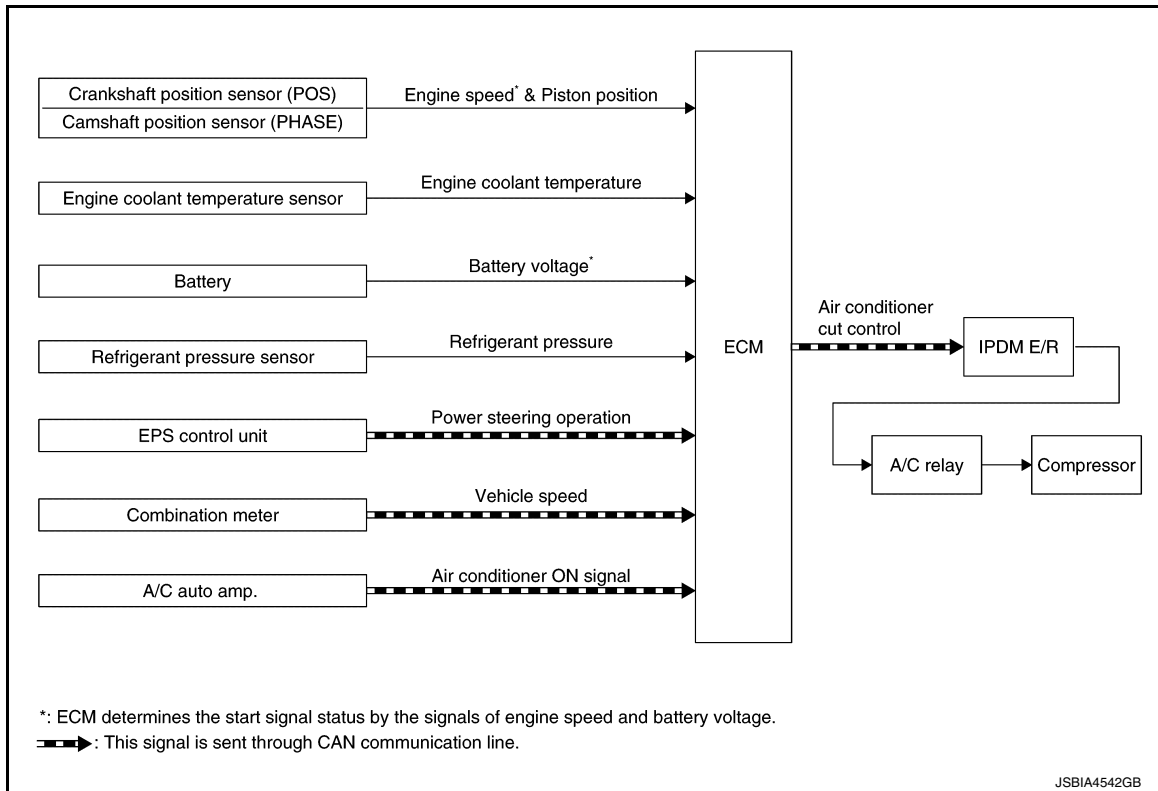
*: When detecting a normal engine oil pressure, ECM turns OFF the engine oil pressure warning lamp.

AIR CONDITIONING CUT CONTROL

AIR CONDITIONING CUT CONTROL : System Description

INFOID:000000009984931

SYSTEM DIAGRAM



SYSTEM DESCRIPTION

This system improves engine operation when the air conditioner is used.

Under the following conditions, the air conditioner is turned off.

- When cranking the engine.
- At high engine speeds.
- When the engine coolant temperature becomes excessively high.
- When operating power steering during low engine speed or low vehicle speed.
- When engine speed is excessively low.
- When refrigerant pressure is excessively low or high.

POWER GENERATION VOLTAGE VARIABLE CONTROL SYSTEM

POWER GENERATION VOLTAGE VARIABLE CONTROL SYSTEM : System Description

INFOID:0000000010285006

DESCRIPTION

ECM transmits a target power generation voltage signal received from IPDM E/R to the generator via LIN communication.

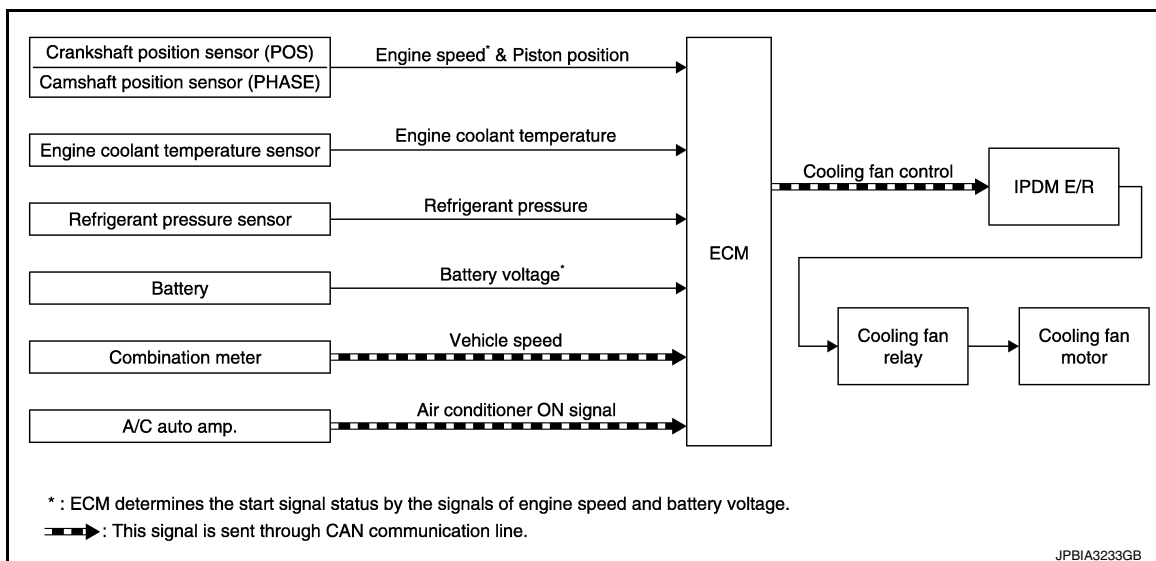
The generator includes a self-diagnosis function and transmits a diagnosis signal to ECM via LIN communication when detecting a malfunction. When ECM receives a diagnosis signal, ECM detects DTC and transmits a charge warning lamp request signal to the combination meter to turn ON the charge warning lamp.

COOLING FAN CONTROL

COOLING FAN CONTROL : System Description

INFOID:000000009984933

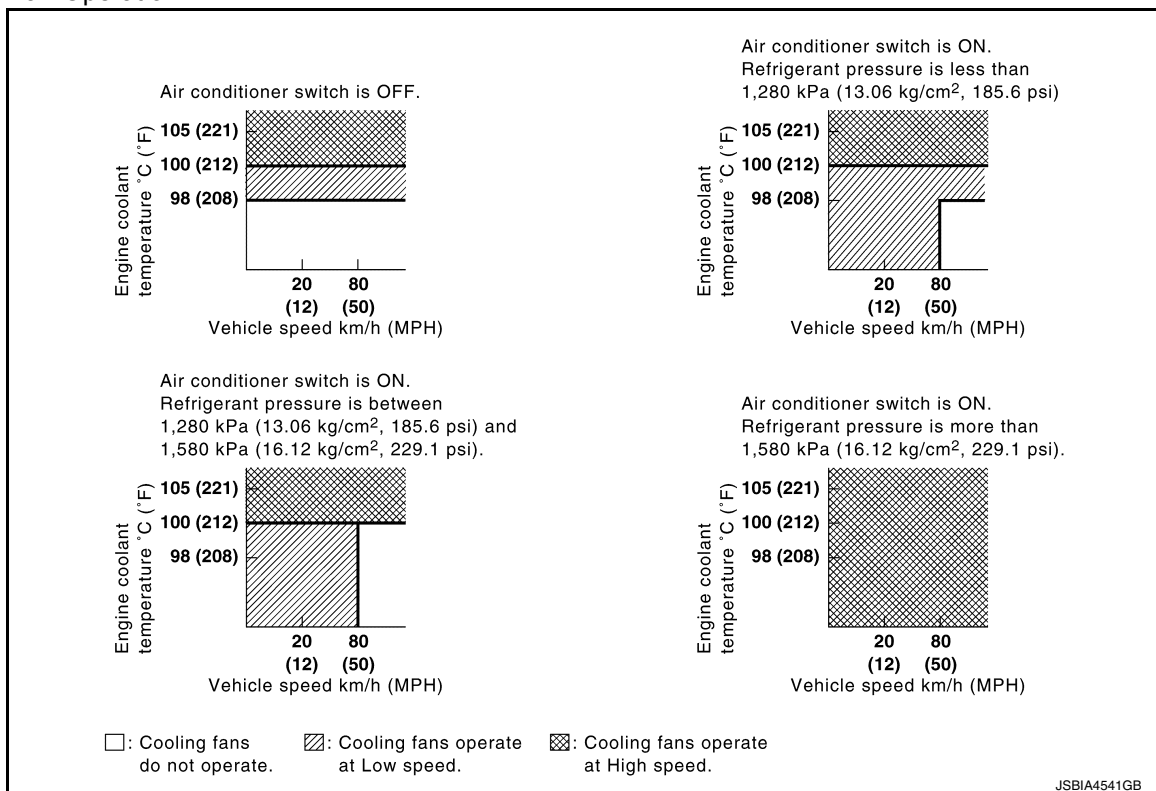
SYSTEM DIAGRAM



SYSTEM DESCRIPTION

ECM controls cooling fan speed corresponding to vehicle speed, engine coolant temperature, refrigerant pressure, air conditioner ON signal. Then control system has 3-step control [HIGH/LOW/OFF].

Cooling Fan Operation



Cooling Fan Relay Operation

The ECM controls cooling fan relays through CAN communication line.

Cooling fan speed	Cooling fan relay		
	1	2	3
Stop (OFF)	OFF	OFF	OFF

SYSTEM

< SYSTEM DESCRIPTION >

[QR25DE]

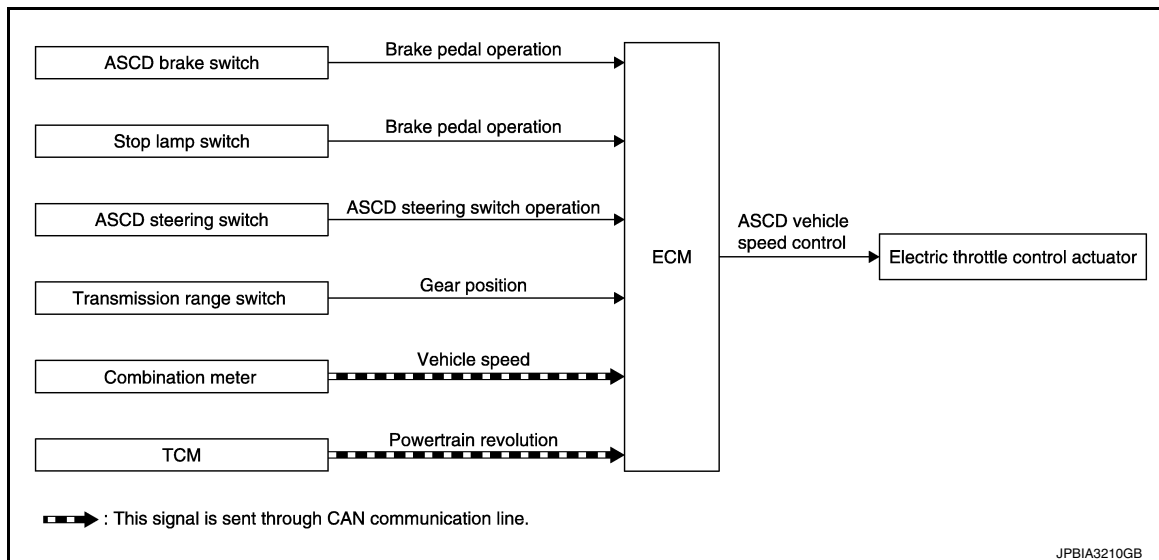
Cooling fan speed	Cooling fan relay		
	1	2	3
Low (LOW)	OFF	ON	OFF
High (HI)	ON	OFF	ON

AUTOMATIC SPEED CONTROL DEVICE (ASCD)

AUTOMATIC SPEED CONTROL DEVICE (ASCD) : System Description

INFOID:000000009984936

SYSTEM DIAGRAM



BASIC ASCD SYSTEM

Refer to Owner's Manual for ASCD operating instructions.

Automatic Speed Control Device (ASCD) allows a driver to keep vehicle at predetermined constant speed without depressing accelerator pedal. Driver can set vehicle speed in advance between approximately 40 km/h (25 MPH) and 144 km/h (89 MPH).

ECM controls throttle angle of electric throttle control actuator to regulate engine speed.

The ASCD operation status is indicated by two indicators (CRUISE and SET on the information display) on the combination meter. If any malfunction occurs in ASCD system, SET indicator blinks and ASCD control is deactivated.

NOTE:

Always drive vehicle in safe manner according to traffic conditions and obey all traffic laws.

SET OPERATION

Press MAIN switch. (CRUISE is indicated on the information display.)

When vehicle speed reaches a desired speed between approximately 40 km/h (25 MPH) and 144 km/h (89 MPH), press SET/COAST switch. (Then SET is indicated on the information display.)

ACCELERATE OPERATION

If the RESUME/ACCELERATE switch is pressed during cruise control driving, increase the vehicle speed until the switch is released or vehicle speed reaches maximum speed controlled by the system.

And then ASCD will keep the new set speed.

CANCEL OPERATION

When any of following conditions exist, cruise operation will be canceled.

- CANCEL switch is pressed
- More than 2 switches at ASCD steering switch are pressed at the same time (Set speed will be cleared)
- Brake pedal is depressed
- Selector lever is changed to N, P, R position
- Vehicle speed decreased to 13 km/h (8 MPH) lower than the set speed
- TCS system is operated

When the ECM detects any of the following conditions, the ECM will cancel the cruise operation and inform the driver by blinking indicators.

< SYSTEM DESCRIPTION >

- Engine coolant temperature is slightly higher than the normal operating temperature, CRUISE indicator may blink slowly.
When the engine coolant temperature decreases to the normal operating temperature, CRUISE indicator will stop blinking and the cruise operation will be able to work by pressing SET/COAST switch or RESUME/ACCELERATE switch.
- Malfunction for some self-diagnoses regarding ASCD control: SET indicator will blink quickly.
If MAIN switch is turned to OFF during ASCD is activated, all of ASCD operations will be canceled and vehicle speed memory will be erased.

COAST OPERATION

When the SET/COAST switch is pressed during cruise control driving, decrease vehicle set speed until the switch is released. And then ASCD will keep the new set speed.

RESUME OPERATION

When the RESUME/ACCELERATE switch is pressed after cancel operation other than pressing MAIN switch is performed, vehicle speed will return to last set speed. To resume vehicle set speed, vehicle condition must meet following conditions.

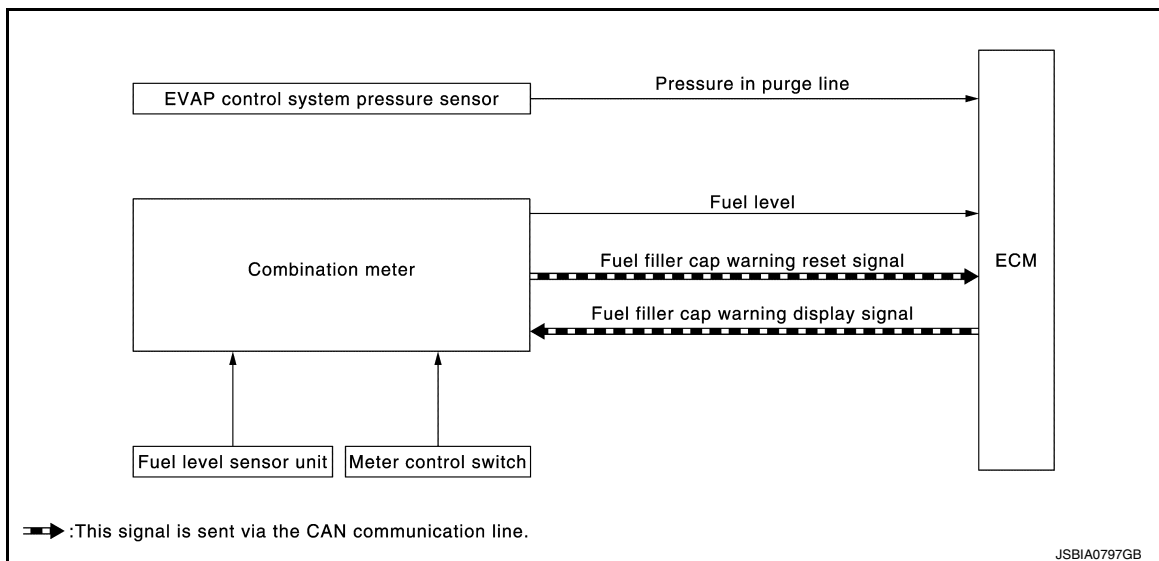
- Brake pedal is released
- Selector lever is in other than P and N positions
- Vehicle speed is greater than 40 km/h (25 MPH) and less than 144 km/h (89 MPH)

FUEL FILLER CAP WARNING SYSTEM

FUEL FILLER CAP WARNING SYSTEM : System Description

INFOID:000000009984930

SYSTEM DIAGRAM



SYSTEM DESCRIPTION

The fuel filler cap warning system alerts the driver to the prevention of the fuel filler being left uncapped and malfunction occurrences after refueling, by turning ON the fuel filler cap warning display on the combination meter.

ECM judges a refueled state, based on a fuel level signal transmitted from the combination meter.

When a very small leak is detected through the EVAP leak diagnosis performed after judging the refueled state, ECM transmits a fuel filler cap warning display signal (request for display ON) to the combination meter via CAN communication.

When receiving the signal, the combination meter turns ON the fuel filler cap warning display.

CAUTION:

Check fuel filler cap installation condition when the fuel filler cap warning display turns ON.

Reset Operation

The fuel filler cap warning lamp turns OFF, according to any condition listed below:

- Reset operation is performed by operating the meter control switch on the combination meter. Refer to [MWI-18, "Switch Name and Function"](#).
- When the reset operation is performed, the combination meter transmits a fuel filler cap warning reset signal to ECM via CAN communication. ECM transmits a fuel filler cap warning display signal (request for display

- OFF) to the combination meter via CAN communication. When receiving the signal, the combination meter turns OFF the fuel filler cap warning display.
- EVAP leak diagnosis result is normal.
 - Fuel refilled.
 - DTC erased by using CONSULT.

NOTE:

MIL turns ON if a malfunction is detected in leak diagnosis results again at the trip after the fuel filler cap warning display turns ON/OFF.

WARNING/INDICATOR/CHIME LIST

WARNING/INDICATOR/CHIME LIST : Warning lamps/Indicator lamps

INFOID:0000000009990049

Name	Arrangement/Function
Malfunction indicator lamp (MIL)	Regarding the function. Refer to EC-49, "WARNING/INDICATOR/CHIME LIST : Malfunction Indicator Lamp (MIL)" .

WARNING/INDICATOR/CHIME LIST : Warning/Indicator (On Information Display)

INFOID:0000000009990050

WARNING

Name	Arrangement/Function
Engine oil pressure warning	Regarding the function. Refer to EC-51, "WARNING/INDICATOR/CHIME LIST : Engine Oil Pressure Warning" .
Fuel filler cap warning	Regarding the function. Refer to EC-52, "WARNING/INDICATOR/CHIME LIST : Fuel Filler Cap Warning" .

INDICATOR/INFORMATION

Name	Design	Function
①CRUISE indicator ②SET indicator		EC-47, "AUTOMATIC SPEED CONTROL DEVICE (ASCD) : System Description"

JSBIA3459ZZ

WARNING/INDICATOR/CHIME LIST : Malfunction Indicator Lamp (MIL)

INFOID:0000000009990051

DESIGN/PURPOSE

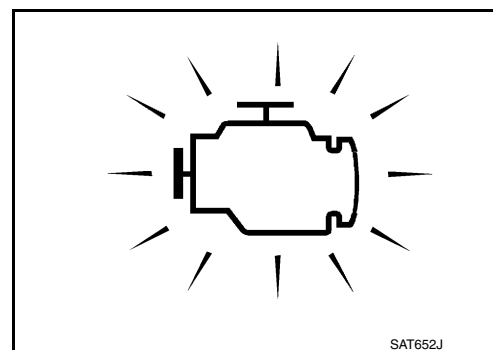
When a malfunction which increases exhaust gases is detected, ECM turns ON MIL and informs the driver of the necessity of inspection and repair.

SYSTEM

< SYSTEM DESCRIPTION >

[QR25DE]

When a malfunction which causes damage to the catalyst is detected, ECM immediately blinks MIL to alert the driver.



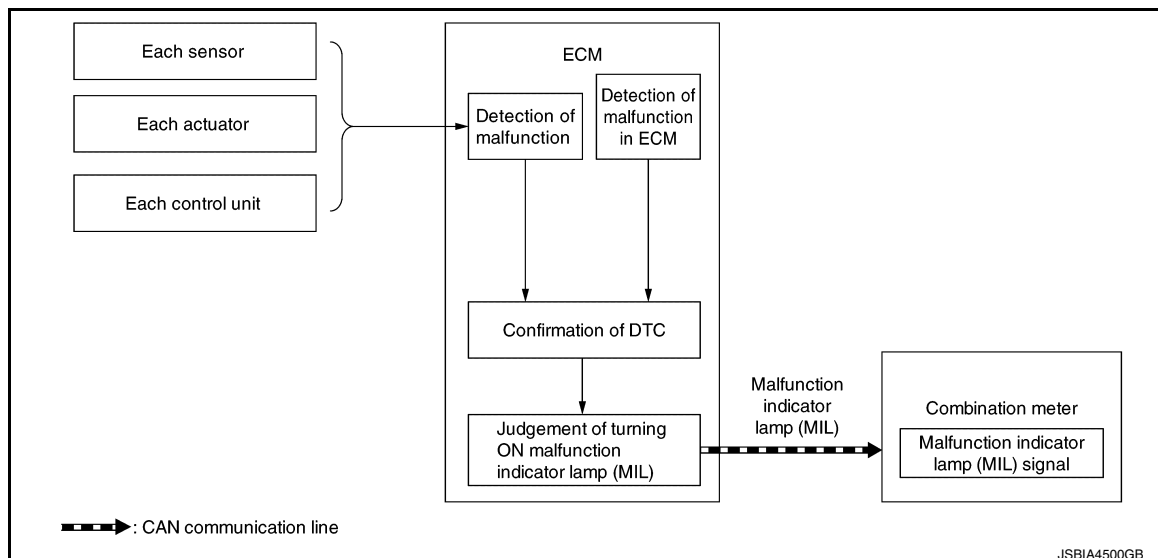
BULB CHECK

The bulb turns ON after turning ON the ignition switch (engine stop) and turns OFF after restarting the engine.

OPERATION AT COMBINATION METER CAN COMMUNICATION CUT-OFF OR UNUSUAL SIGNAL

For the operation for CAN communication blackout in the combination meter, refer to [MWI-29. "Fail-safe"](#).

SYSTEM DIAGRAM



SIGNAL PATH

- When the lighting conditions of the malfunction indicator lamp (MIL) are satisfied, ECM transmits a malfunction indicator lamp (MIL) signal to the combination meter via CAN communication.
- The combination meter turns ON or blinks the malfunction indicator lamp (MIL), according to a signal received from ECM.

LIGHTING CONDITION

When all of the following conditions are satisfied:

- Ignition switch: ON
- DTC which influences on exhaust gasses is judged.

For DTCs that the malfunction indicator lamp turns ON and the number of DTC diagnosis trips, refer to [EC-93. "DTC Index"](#).

SHUTOFF CONDITION

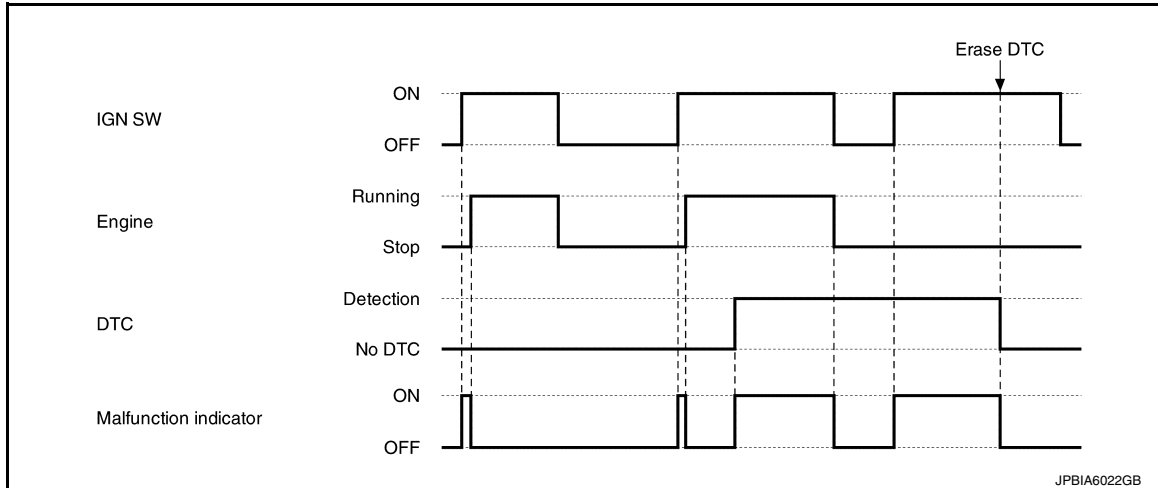
When any of the following conditions is satisfied:

- Ignition switch: OFF
- Erase DTC

NOTE:

For the conditions of erasing DTC, refer to [EC-57. "DIAGNOSIS DESCRIPTION : DTC and Freeze Frame Data"](#).

TIMING CHART



WARNING/INDICATOR/CHIME LIST : Engine Oil Pressure Warning

INFOID:000000009990052

DESIGN/PURPOSE

When engine oil pressure is low, the engine oil pressure warning informs the driver of low oil pressure to prevent damage to the engine.

Symbol	Message
JPNIA1881ZZ	Low oil pressure: See owner's Manual

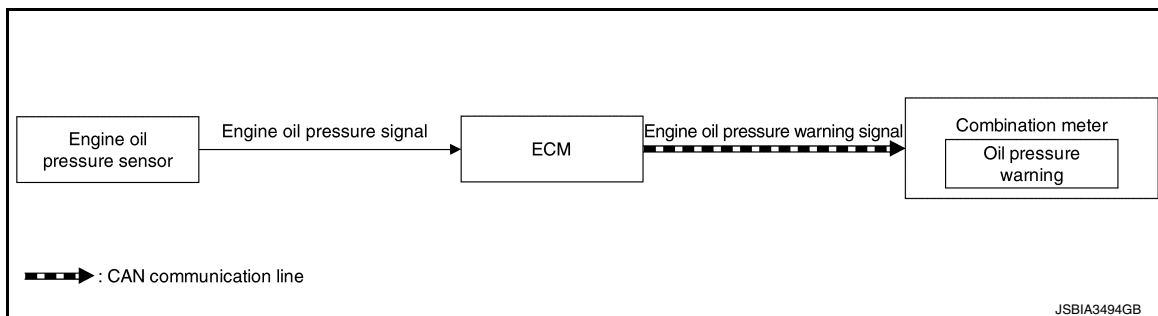
BULB CHECK

Not applicable

OPERATION AT COMBINATION METER CAN COMMUNICATION CUT-OFF OR UNUSUAL SIGNAL

For the operation for CAN communications blackout or abnormal signal reception, refer to [MWI-29. "Fail-safe"](#).

SYSTEM DIAGRAM



SIGNAL PATH

ECM calculates an engine oil pressure according to a signal transmitted from the engine oil pressure sensor. After engine running when the engine oil pressure is low and at least 5 seconds, ECM transmits the engine oil

SYSTEM

< SYSTEM DESCRIPTION >

[QR25DE]

pressure warning signal to combination meter via CAN communication. Then the engine oil pressure warning displays.

LIGHTING CONDITION

When all of the following conditions for at least 5 seconds are satisfied:

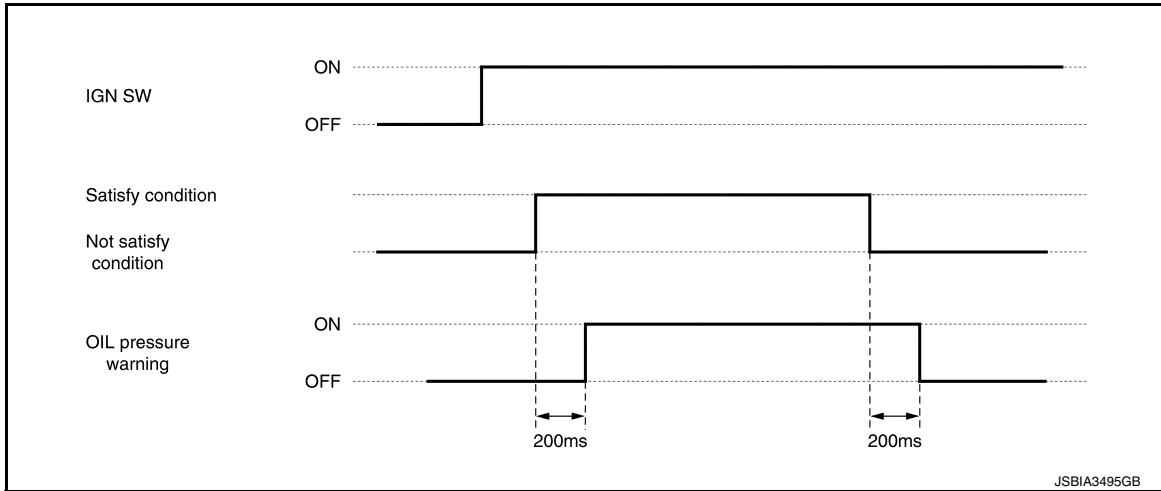
- Ignition switch: ON
- Engine oil pressure is less than specified value.
- Engine speed is more than 500 rpm.

SHUTOFF CONDITION

When any of the following conditions is satisfied:

- Ignition switch: OFF
- Engine oil pressure is the specified value or more.
- Engine speed is less than 500 rpm.

TIMING CHART

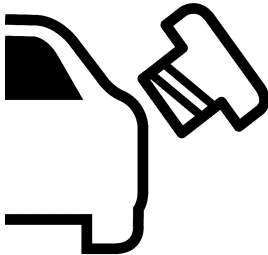


WARNING/INDICATOR/CHIME LIST : Fuel Filler Cap Warning

INFOID:0000000010283996

DESIGN/PURPOSE

Warn the driver that the fuel filler cap is left opened.

Symbol	Message
 JSBIA3176GB	Loose Fuel Cap

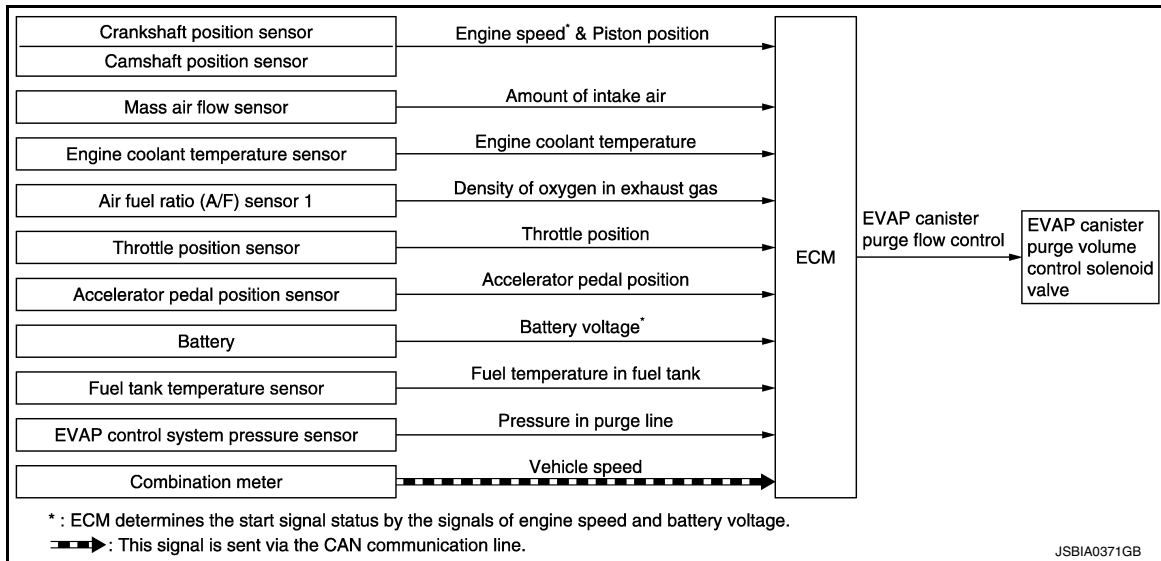
For details, refer to [EC-48. "FUEL FILLER CAP WARNING SYSTEM : System Description"](#).

EVAPORATIVE EMISSION SYSTEM

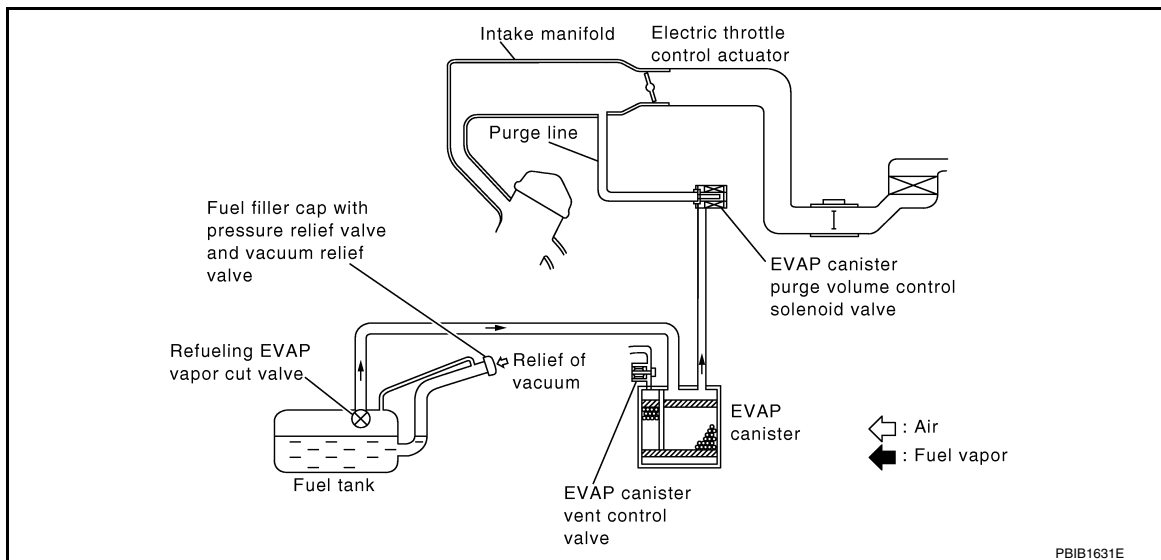
EVAPORATIVE EMISSION SYSTEM : System Description

INFOID:000000009984935

SYSTEM DIAGRAM



SYSTEM DESCRIPTION



The evaporative emission system is used to reduce hydrocarbons emitted into the atmosphere from the fuel system. This reduction of hydrocarbons is accomplished by activated charcoals in the EVAP canister. The fuel vapor in the sealed fuel tank is led into the EVAP canister which contains activated carbon and the vapor is stored there when the engine is not operating or when refueling to the fuel tank. The vapor in the EVAP canister is purged by the air through the purge line to the intake manifold when the engine is operating. EVAP canister purge volume control solenoid valve is controlled by ECM. When the engine operates, the flow rate of vapor controlled by EVAP canister purge volume control solenoid valve is proportionally regulated as the air flow increases. EVAP canister purge volume control solenoid valve also shuts off the vapor purge line during decelerating.

CAN COMMUNICATION

CAN COMMUNICATION : System Description

INFOID:000000009984937

CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN H line, CAN L line) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.

< SYSTEM DESCRIPTION >

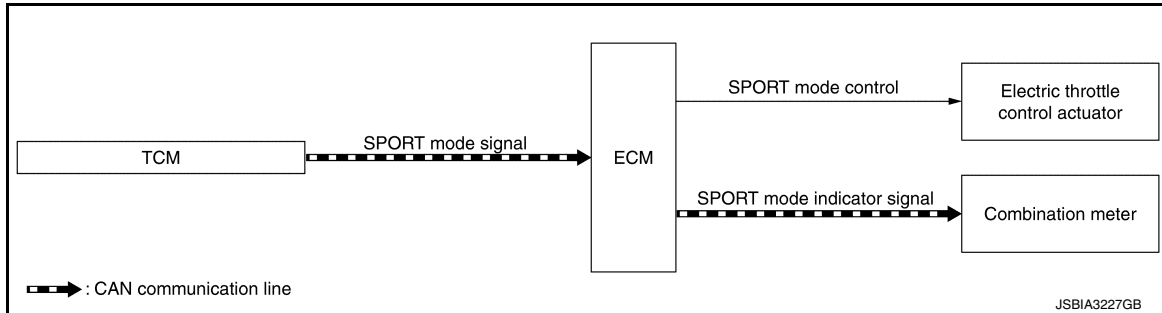
Refer to [LAN-32, "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart"](#), about CAN communication for detail.

SPORT MODE CONTROL

SPORT MODE CONTROL : System Description

INFOID:0000000010336520

SYSTEM DIAGRAM



SYSTEM DESCRIPTION

- SPORT mode that keeps high engine revolution and provides direct feel and acceleration performance suitable for driving on winding road.
- ECM receives an SPORT mode signal from TCM via CAN communication and improves drivability by controlling the throttle movement.
- ECM transmits an SPORT mode indicator lamp signal to the combination meter via CAN communication.

NOTE:

For the details of the SPORT mode, refer to [DMS-6, "SPORT MODE CONTROL : System Description"](#).

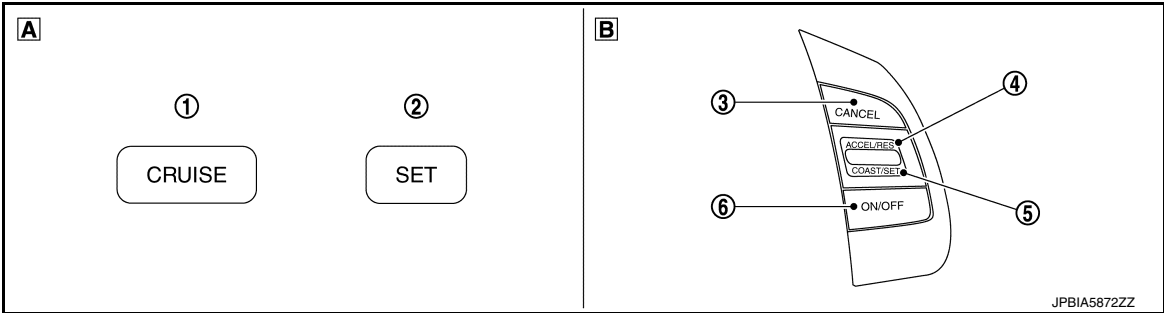
OPERATION

AUTOMATIC SPEED CONTROL DEVICE (ASCD)

AUTOMATIC SPEED CONTROL DEVICE (ASCD) : Switch Name and Function

INFOID:000000009984938

SWITCHES AND INDICATORS



A On the combination meter

B On the steering wheel

① CRUISE indicator

② SET indicator

③ CANCEL switch

④ ACCEL/RES switch

⑤ COAST/SET switch

⑥ ASCD MAIN switch

SET SPEED RANGE

ASCD system can be set the following vehicle speed.

Minimum speed (Approx.)	Maximum speed (Approx.)
40 km/h (25 MPH)	144 km/h (90 MPH)

SWITCH OPERATION

Item	Function
CANCEL switch	Cancels the cruise control driving.
ACCEL/RES switch	- Resumes the set speed. - Increases speed incrementally during cruise control driving.
COAST/SET switch	- Sets desired cruise speed. - Decreases speed incrementally during cruise control driving.
ASCD MAIN switch	Master switch to activate the ASCD system.

Refer to [EC-47. "AUTOMATIC SPEED CONTROL DEVICE \(ASCD\) : System Description"](#) for ASCD operating instructions.

ON BOARD DIAGNOSTIC (OBD) SYSTEM

< SYSTEM DESCRIPTION >

[QR25DE]

ON BOARD DIAGNOSTIC (OBD) SYSTEM

Diagnosis Description

INFOID:0000000009984939

This system is an on board diagnostic system that records exhaust emission-related diagnostic information and detects a sensors/actuator-related malfunction. A malfunction is indicated by the malfunction indicator lamp (MIL) and stored in control module memory as a DTC. The diagnostic information can be obtained with the diagnostic tool (GST: Generic Scan Tool).

GST (Generic Scan Tool)

INFOID:0000000009984940

When GST is connected with a data link connector equipped on the vehicle side, it will communicate with the control module equipped in the vehicle and then enable various kinds of diagnostic tests. Refer to [EC-56, "Diagnosis Description"](#).

NOTE:

Service \$0A is not applied for regions where it is not mandated.

DIAGNOSIS SYSTEM (ECM)

DIAGNOSIS DESCRIPTION

DIAGNOSIS DESCRIPTION : 1st Trip Detection Logic and Two Trip Detection Logic

INFOID:000000009984941

When a malfunction is detected for the first time, 1st trip DTC and 1st trip Freeze Frame data are stored in the ECM memory. The MIL will not illuminate at this stage. <1st trip>

If the same malfunction is detected again during the next drive, the DTC and Freeze Frame data are stored in the ECM memory, and the MIL illuminates. The MIL illuminates at the same time when the DTC is stored. <2nd trip> The "trip" in the "Two Trip Detection Logic" means a driving mode in which self-diagnosis is performed during vehicle operation. Specific on board diagnostic items will cause the ECM to illuminate or blink the MIL, and store DTC and Freeze Frame data, even in the 1st trip, as shown below.

x: Applicable —: Not applicable

Items	MIL				DTC		1st trip DTC	
	1st trip		2nd trip		1st trip displaying	2nd trip displaying	1st trip displaying	2nd trip displaying
	Blinking	Illuminated	Blinking	Illuminated				
Misfire (Possible three way catalyst damage) — DTC: P0300 – P0304 is being detected	x	—	—	—	—	—	x	—
Misfire (Possible three way catalyst damage) — DTC: P0300 – P0304 is being detected	—	—	x	—	—	x	—	—
One trip detection diagnoses (Refer to EC-93, "DTC Index" .)	—	x	—	—	x	—	—	—
Except above	—	—	—	x	—	x	x	—

DIAGNOSIS DESCRIPTION : DTC and Freeze Frame Data

INFOID:000000009984942

DTC AND 1ST TRIP DTC

The 1st trip DTC (whose number is the same as the DTC number) is displayed for the latest self-diagnostic result obtained. If the ECM memory was cleared previously, and the 1st trip DTC did not recur, the 1st trip DTC will not be displayed.

If a malfunction is detected during the 1st trip, the 1st trip DTC is saved in the ECM memory. The MIL will not light up (two trip detection logic). If the same malfunction is not detected in the 2nd trip (meeting the required driving pattern), the 1st trip DTC is cleared from the ECM memory. If the same malfunction is detected in the 2nd trip, both the 1st trip DTC and DTC are saved in the ECM memory and the MIL lights up. In other words, the DTC is stored in the ECM memory and the MIL lights up when the same malfunction occurs in two consecutive trips. If a 1st trip DTC is stored and a non-diagnostic operation is performed between the 1st and 2nd trips, only the 1st trip DTC will continue to be stored. For malfunctions that blink or light up the MIL during the 1st trip, the DTC and 1st trip DTC are stored in the ECM memory.

For malfunctions in which 1st trip DTCs are displayed, refer to [EC-93, "DTC Index"](#). These items are required by legal regulations to continuously monitor the system/component. In addition, the items monitored non-continuously are also displayed on CONSULT.

1st trip DTC is specified in Service \$07 of SAE J1979/ISO 15031-5. 1st trip DTC detection occurs without illuminating the MIL and therefore does not warn the driver of a malfunction.

When a 1st trip DTC is detected, check, print out or write down and erase (1st trip) DTC and Freeze Frame data as specified in Work Flow procedure Step 2, refer to [EC-127, "Work Flow"](#). Then perform DTC Confirmation Procedure or Component Function Check to try to duplicate the malfunction. If the malfunction is duplicated, the item requires repair.

FREEZE FRAME DATA AND 1ST TRIP FREEZE FRAME DATA

The ECM records the driving conditions such as fuel system status, calculated load value, engine coolant temperature, short term fuel trim, long term fuel trim, engine speed, vehicle speed, absolute throttle position, base fuel schedule and intake air temperature at the moment a malfunction is detected.

Data which are stored in the ECM memory, along with the 1st trip DTC, are called 1st trip freeze frame data. The data, stored together with the DTC data, are called freeze frame data and displayed on CONSULT or GST. The 1st trip freeze frame data can only be displayed on the CONSULT screen.

DIAGNOSIS SYSTEM (ECM)

[QR25DE]

< SYSTEM DESCRIPTION >

Only one set of freeze frame data (either 1st trip freeze frame data or freeze frame data) can be stored in the ECM. 1st trip freeze frame data is stored in the ECM memory along with the 1st trip DTC. There is no priority for 1st trip freeze frame data and it is updated each time a different 1st trip DTC is detected. However, once freeze frame data (2nd trip detection/MIL on) is stored in the ECM memory, 1st trip freeze frame data is no longer stored. Remember, only one set of freeze frame data can be stored in the ECM. The ECM has the following priorities to update the data.

Priority	Items	
1	Freeze frame data	Misfire — DTC: P0300 – P0304 Fuel Injection System Function — DTC: P0171, P0172
2		Except the above items
3	1st trip freeze frame data	

For example, the EGR malfunction (Priority: 2) was detected and the freeze frame data was saved in the 2nd trip. After that when the misfire (Priority: 1) is detected in another trip, the freeze frame data will be updated from the EGR malfunction to the misfire. The 1st trip freeze frame data is updated each time a different malfunction is detected. There is no priority for 1st trip freeze frame data. However, once freeze frame data is stored in the ECM memory, 1st trip freeze data is no longer stored (because only one freeze frame data or 1st trip freeze frame data can be stored in the ECM). If freeze frame data is stored in the ECM memory and freeze frame data with the same priority occurs later, the first (original) freeze frame data remains unchanged in the ECM memory.

Both 1st trip freeze frame data and freeze frame data (along with the DTCs) are cleared when the ECM memory is erased.

DIAGNOSIS DESCRIPTION : Counter System

INFOID:000000009984943

RELATIONSHIP BETWEEN MIL, 1ST TRIP DTC, DTC, AND DETECTABLE ITEMS

- When a malfunction is detected for the first time, the 1st trip DTC and the 1st trip freeze frame data are stored in the ECM memory.
- When the same malfunction is detected in two consecutive trips, the DTC and the freeze frame data are stored in the ECM memory, and the MIL will come on.
- The MIL will turn OFF after the vehicle is driven 3 times (driving pattern B) with no malfunction. The drive is counted only when the recorded driving pattern is met (as stored in the ECM). If another malfunction occurs while counting, the counter will reset.
- The DTC and the freeze frame data will be stored until the vehicle is driven 40 times (driving pattern A) without the same malfunction recurring (except for Misfire and Fuel Injection System). For Misfire and Fuel Injection System, the DTC and freeze frame data will be stored until the vehicle is driven 80 times (driving pattern C) without the same malfunction recurring. The “TIME” in “SELF-DIAGNOSTIC RESULTS” mode of CONSULT will count the number of times the vehicle is driven.
- The 1st trip DTC is not displayed when the self-diagnosis results in OK for the 2nd trip.

COUNTER SYSTEM CHART

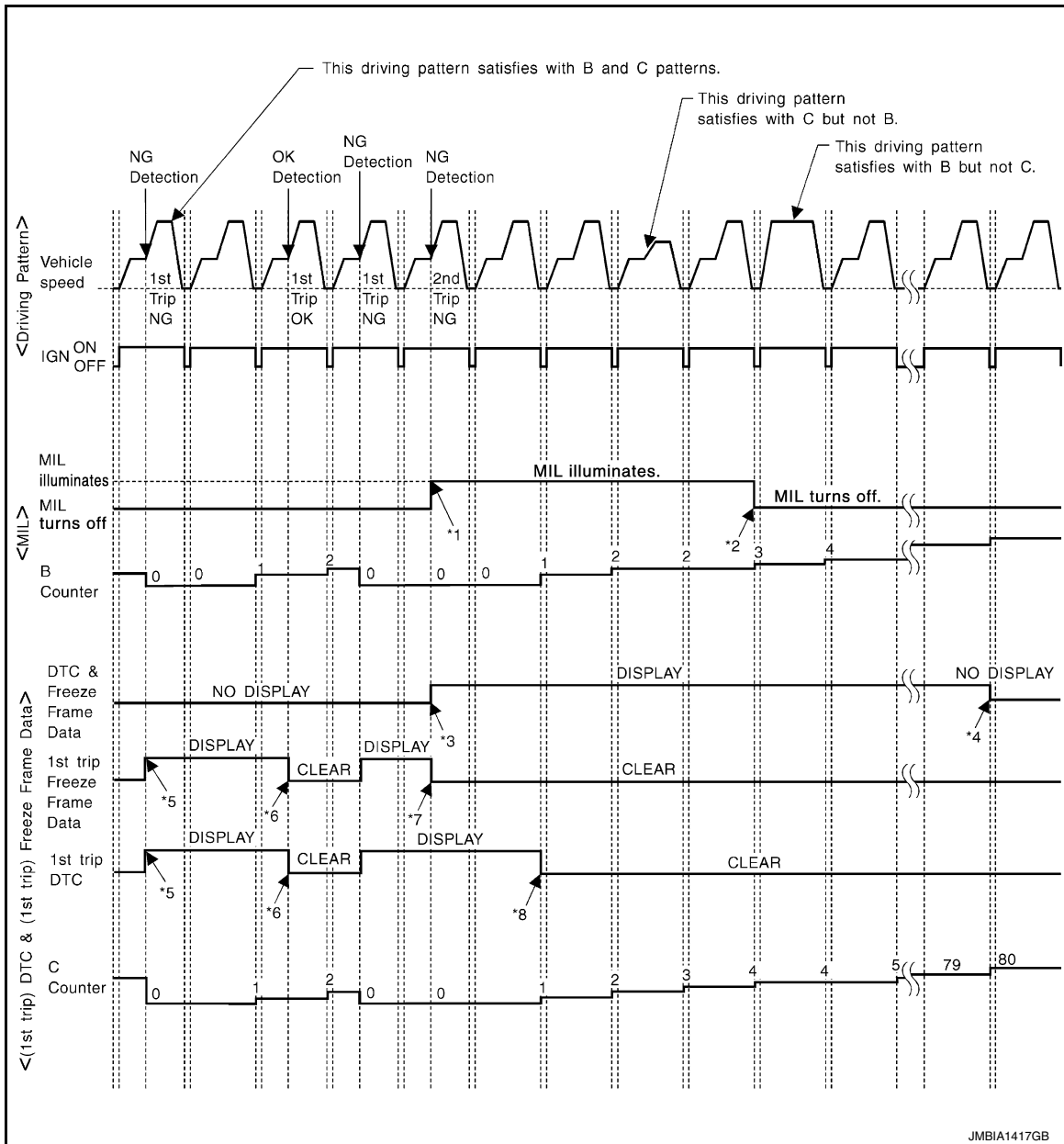
Items	Fuel Injection System	Misfire	Other
MIL (turns OFF)	3 (pattern B)	3 (pattern B)	3 (pattern B)
DTC, Freeze Frame Data (no display)	80 (pattern C)	80 (pattern C)	40 (pattern A)
1st Trip DTC (clear)	1 (pattern C), *1	1 (pattern C), *1	1 (pattern B)
1st Trip Freeze Frame Data (clear)	*1, *2	*1, *2	1 (pattern B)

For details about patterns B and C under “Fuel Injection System” and “Misfire”, see “EXPLANATION FOR DRIVING PATTERNS FOR “MISFIRE <EXHAUST QUALITY DETERIORATION>”, “FUEL INJECTION SYSTEM”.

For details about patterns A and B under Other, see “EXPLANATION FOR DRIVING PATTERNS FOR “MISFIRE <EXHAUST QUALITY DETERIORATION>”, “FUEL INJECTION SYSTEM”.

- *1: Clear timing is at the moment OK is detected.
- *2: Clear timing is when the same malfunction is detected in the 2nd trip.

Relationship Between MIL, DTC, 1st Trip DTC and Driving Patterns for “Misfire <Exhaust Quality Deterioration>”, “Fuel Injection System”



*1: When the same malfunction is detected in two consecutive trips, MIL will light up.

*2: MIL will turn OFF after vehicle is driven 3 times (pattern B) without any malfunctions.

*3: When the same malfunction is detected in two consecutive trips, the DTC and the freeze frame data will be stored in ECM.

*4: The DTC and the freeze frame data will not be displayed any longer after vehicle is driven 80 times (pattern C) without the same malfunction. (The DTC and the freeze frame data still remain in ECM.)

*5: When a malfunction is detected for the first time, the 1st trip DTC and the 1st trip freeze frame data will be stored in ECM.

*6: The 1st trip DTC and the 1st trip freeze frame data will be cleared at the moment OK is detected.

*7: When the same malfunction is detected in the 2nd trip, the 1st trip freeze frame data will be cleared.

*8: 1st trip DTC will be cleared when vehicle is driven once (pattern C) without the same malfunction after DTC is stored in ECM.

Explanation for Driving Patterns for "Misfire <Exhaust Quality Deterioration>", "Fuel Injection System"

Driving Pattern B

Refer to [EC-61, "DIAGNOSIS DESCRIPTION : Driving Pattern"](#).

DIAGNOSIS SYSTEM (ECM)

[QR25DE]

< SYSTEM DESCRIPTION >

Driving Pattern C

Refer to [EC-61. "DIAGNOSIS DESCRIPTION : Driving Pattern"](#).

Example:

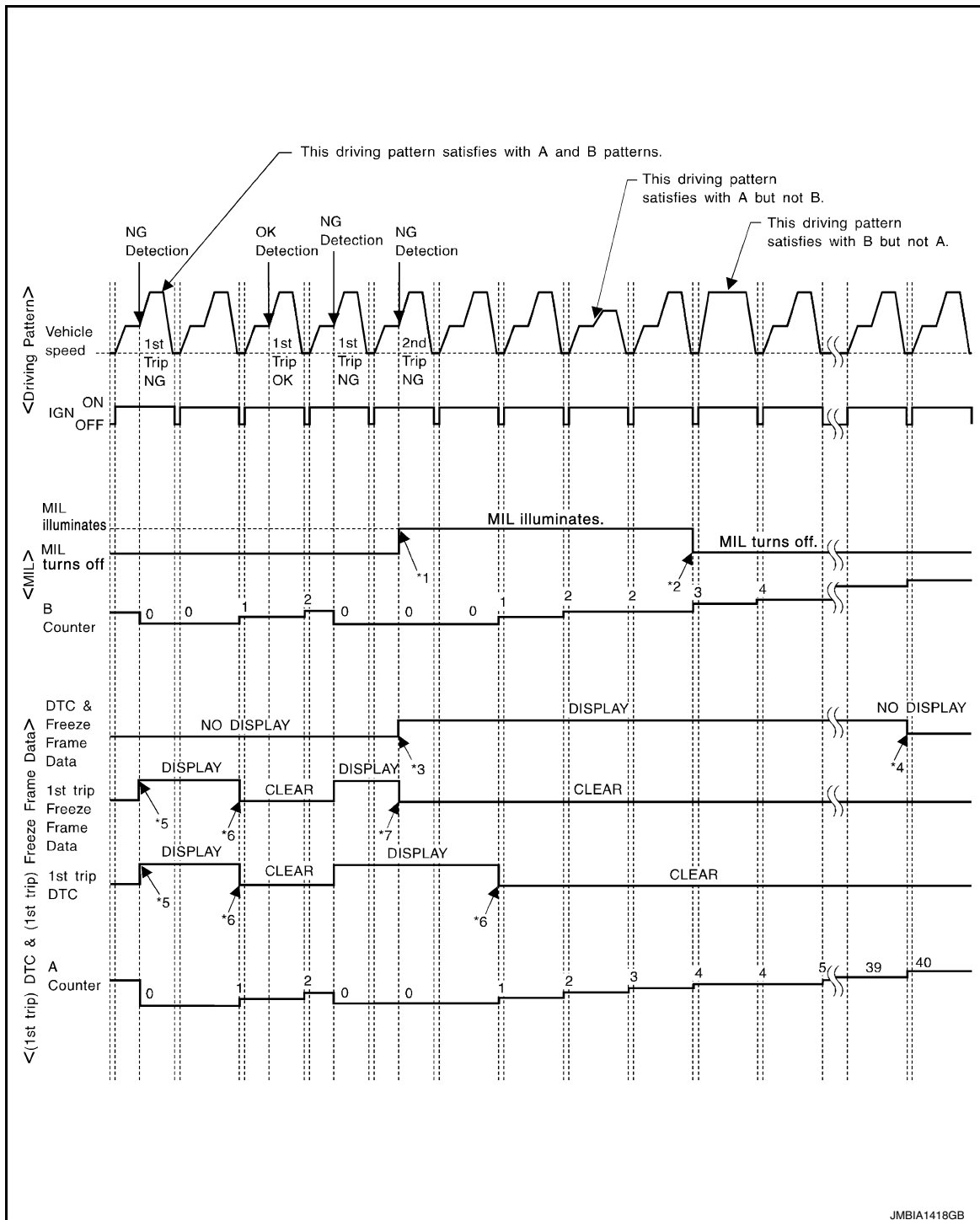
If the stored freeze frame data is as per the following:

Engine speed: 850 rpm, Calculated load value: 30%, Engine coolant temperature: 80°C (176°F)

To be satisfied with driving pattern C, the vehicle should run under the following conditions:

Engine speed: 475 – 1,225 rpm, Calculated load value: 27 – 33%, Engine coolant temperature: more than 70°C (158°F)

Relationship Between MIL, DTC, 1st Trip DTC and Driving Patterns Except For “Misfire <Exhaust Quality Deterioration>”, “Fuel Injection System”



- | | | |
|---|---|--|
| *1: When the same malfunction is detected in two consecutive trips, MIL will light up. | *2: MIL will turn OFF after vehicle is driven 3 times (pattern B) without any malfunctions. | *3: When the same malfunction is detected in two consecutive trips, the DTC and the freeze frame data will be stored in ECM. |
| *4: The DTC and the freeze frame data will not be displayed any longer after vehicle is driven 40 times (pattern A) without the same malfunction.
(The DTC and the freeze frame data still remain in ECM.) | *5: When a malfunction is detected for the first time, the 1st trip DTC and the 1st trip freeze frame data will be stored in ECM. | *6: 1st trip DTC will be cleared after vehicle is driven once (pattern B) without the same malfunction. |
| *7: When the same malfunction is detected in the 2nd trip, the 1st trip freeze frame data will be cleared. | | |

Explanation for Driving Patterns Except for “Misfire <Exhaust Quality Deterioration>”, “Fuel Injection System”

Driving Pattern A

Refer to [EC-61, "DIAGNOSIS DESCRIPTION : Driving Pattern"](#).

Driving Pattern B

Refer to [EC-61, "DIAGNOSIS DESCRIPTION : Driving Pattern"](#).

DIAGNOSIS DESCRIPTION : Driving Pattern

INFOID:000000009984944

CAUTION:

Always drive at a safe speed.

DRIVING PATTERN A

Driving pattern A means a trip satisfying the following conditions.

- Engine speed reaches 400 rpm or more.
- Engine coolant temperature rises by 20°C (36°F) or more after starting the engine.
- Engine coolant temperature reaches 70°C (158°F) or more.
- The ignition switch is turned from ON to OFF.

NOTE:

- When the same malfunction is detected regardless of driving conditions, reset the counter of driving pattern A.
- When the above conditions are satisfied without detecting the same malfunction, reset the counter of driving pattern A.

DRIVING PATTERN B

Driving pattern B means a trip satisfying the following conditions.

- Engine speed reaches 400 rpm or more.
- Engine coolant temperature reaches 70°C (158°F) or more.
- Vehicle speed of 70 – 120 km/h (44 – 75 MPH) is maintained for 60 seconds or more under the control of closed loop.
- Vehicle speed of 30 – 60 km/h (19 – 37 MPH) is maintained for 10 seconds or more under the control of closed loop.
- Under the closed loop control condition, the following state reaches 12 seconds or more in total: Vehicle speed of 4 km/h (2 MPH) or less with idling condition.
- The state of driving at 10 km/h (7 MPH) or more reaches 10 minutes or more in total.
- A lapse of 22 minutes or more after engine start.

NOTE:

- Drive the vehicle at a constant velocity.
- When the same malfunction is detected regardless of driving conditions, reset the counter of driving pattern B.
- When the above conditions are satisfied without detecting the same malfunction, reset the counter of driving pattern B.

DRIVING PATTERN C

Driving pattern C means operating vehicle as per the following:

The following conditions should be satisfied at the same time:

Engine speed: (Engine speed in the freeze frame data) ± 375 rpm

< SYSTEM DESCRIPTION >

Calculated load value: (Calculated load value in the freeze frame data) x (1±0.1) [%]

Engine coolant temperature condition:

- When the freeze frame data shows lower than 70°C (158°F), engine coolant temperature should be lower than 70°C (158°F).
- When the freeze frame data shows higher than or equal to 70°C (158°F), engine coolant temperature should be higher than or equal to 70°C (158°F).

NOTE:

- When the same malfunction is detected regardless of the above vehicle conditions, reset the counter of driving pattern C.
- When the above conditions are satisfied without detecting the same malfunction, reset the counter of driving pattern C.
- The 1st trip DTC will be cleared when C counter is counted once without the same malfunction after DTC is stored in ECM.

DRIVING PATTERN D

Driving pattern D means a trip satisfying the following conditions.

- The state of driving at 40 km/h (25 MPH) reaches 300 seconds or more in total.
- Idle speed lasts 30 seconds or more.
- A lapse of 600 seconds or more after engine start.

NOTE:

- When the same malfunction is detected regardless of driving conditions, reset the counter of driving pattern D.
- When the above conditions are satisfied without detecting the same malfunction, reset the counter of driving pattern D.

DIAGNOSIS DESCRIPTION : System Readiness Test (SRT) Code

INFOID:000000009984945

System Readiness Test (SRT) code is specified in Service \$01 of SAE J1979/ISO 15031-5.

As part of an enhanced emissions test for Inspection & Maintenance (I/M), certain states require the status of SRT be used to indicate whether the ECM has completed self-diagnosis of major emission systems and components. Completion must be verified in order for the emissions inspection to proceed.

If a vehicle is rejected for a State emissions inspection due to one or more SRT items indicating "INCMP", use the information in this Service Manual to set the SRT to "CMPLT".

In most cases the ECM will automatically complete its self-diagnosis cycle during normal usage, and the SRT status will indicate "CMPLT" for each application system. Once set as "CMPLT", the SRT status remains "CMPLT" until the self-diagnosis memory is erased.

Occasionally, certain portions of the self-diagnostic test may not be completed as a result of the customer's normal driving pattern; the SRT will indicate "INCMP" for these items.

NOTE:

The SRT will also indicate "INCMP" if the self-diagnosis memory is erased for any reason or if the ECM memory power supply is interrupted for several hours.

If, during the state emissions inspection, the SRT indicates "CMPLT" for all test items, the inspector will continue with the emissions test. However, if the SRT indicates "INCMP" for one or more of the SRT items the vehicle is returned to the customer untested.

NOTE:

If permanent DTC is stored or MIL illuminates during the state emissions inspection, the vehicle is also returned to the customer untested even though the SRT indicates "CMPLT" for all test items. therefore, it is important to check SRT ("CMPLT"), DTC (No DTCs) and permanent DTC (No permanent DTC) before the inspection.

SRT SET TIMING

SRT is set as "CMPLT" after self-diagnosis has been performed one or more times. Completion of SRT is done regardless of whether the result is OK or NG. The set timing is different between OK and NG results and is shown in the table below.

DIAGNOSIS SYSTEM (ECM)

< SYSTEM DESCRIPTION >

[QR25DE]

Self-diagnosis result		Example					
		Diagnosis	Ignition cycle				
			← ON →	OFF	← ON →	OFF	
All OK	Case 1	P0400	OK (1)	— (1)	OK (2)	— (2)	EC
		P0402	OK (1)	— (1)	— (1)	OK (2)	
		P1402	OK (1)	OK (2)	— (2)	— (2)	
		SRT of EGR	“CMPLT”	“CMPLT”	“CMPLT”	“CMPLT”	
	Case 2	P0400	OK (1)	— (1)	— (1)	— (1)	C
		P0402	— (0)	— (0)	OK (1)	— (1)	
		P1402	OK (1)	OK (2)	— (2)	— (2)	
		SRT of EGR	“INCMP”	“INCMP”	“CMPLT”	“CMPLT”	
NG exists	Case 3	P0400	OK	OK	—	—	D
		P0402	—	—	—	—	
		P1402	NG	—	NG	NG (Consecutive NG)	
		(1st trip) DTC	1st trip DTC	—	1st trip DTC	DTC (= MIL ON)	
		SRT of EGR	“INCMP”	“INCMP”	“INCMP”	“CMPLT”	

OK: Self-diagnosis is carried out and the result is OK.

NG: Self-diagnosis is carried out and the result is NG.

—: Self-diagnosis is not carried out.

When all SRT related self-diagnoses show OK results in a single cycle (Ignition OFF-ON-OFF), the SRT will indicate “CMPLT”. → Case 1 above

When all SRT related self-diagnoses show OK results through several different cycles, the SRT will indicate “CMPLT” at the time the respective self-diagnoses have at least one OK result. → Case 2 above

If one or more SRT related self-diagnoses show NG results in 2 consecutive cycles, the SRT will also indicate “CMPLT”. → Case 3 above

The table above shows that the minimum number of cycles for setting SRT as “INCMP” is the number one (1) for each self-diagnosis (Case 1 & 2) or the number two (2) for one of self-diagnoses (Case 3). However, in preparation for the state emissions inspection, it is unnecessary for each self-diagnosis to be executed twice (Case 3) for the following reasons:

- The SRT will indicate “CMPLT” at the time the respective self-diagnoses have one (1) OK result.
- The emissions inspection requires “CMPLT” of the SRT only with OK self-diagnosis results.
- During SRT driving pattern, the 1st trip DTC (NG) is detected prior to “CMPLT” of SRT and the self-diagnosis memory must be erased from the ECM after repair.
- If the 1st trip DTC is erased, all the SRT will indicate “INCMP”.

NOTE:

SRT can be set as “CMPLT” together with the DTC(s). Therefore, DTC check must always be carried out prior to the state emission inspection even though the SRT indicates “CMPLT”.

DIAGNOSIS DESCRIPTION : Permanent Diagnostic Trouble Code (Permanent DTC)

INFOID:000000009984946

Permanent DTC is defined in SAE J1979/ISO 15031-5 Service \$0A.

ECM stores a DTC issuing a command of turning on MIL as a permanent DTC and keeps storing the DTC as a permanent DTC until ECM judges that there is no presence of malfunction.

Permanent DTCs cannot be erased by using the erase function of CONSULT or Generic Scan Tool (GST) and by disconnecting the battery to shut off power to ECM. This prevents a vehicle from passing the in-use inspection without repairing a malfunctioning part.

When not passing the in-use inspection due to more than one permanent DTC, permanent DTCs should be erased, referring to this manual.

NOTE:

- The important items in in-use inspection are that MIL is not ON, SRT test items are set, and permanent DTCs are not included.
- Permanent DTCs do not apply for regions that permanent DTCs are not regulated by law.

< SYSTEM DESCRIPTION >

PERMANENT DTC SET TIMING

The setting timing of permanent DTC is stored in ECM with the lighting of MIL when a DTC is confirmed.

DIAGNOSIS DESCRIPTION : Malfunction Indicator Lamp (MIL)

INFOID:000000009984947

When emission-related ECU detects a malfunction in the emission control systems components and/or the powertrain control components (which affect vehicle emissions), it turns on/blinks MIL to inform the driver that a malfunction has been detected.

1. The MIL illuminates when ignition switch is turned ON (engine is not running).

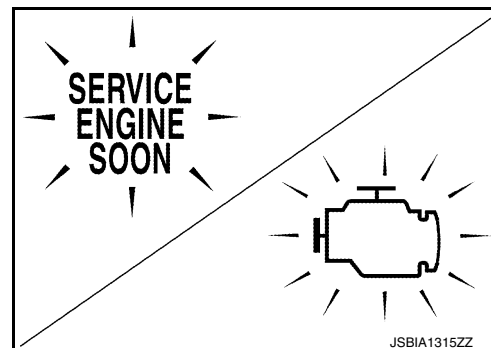
NOTE:

Check the MIL circuit if MIL does not illuminate. Refer to [EC-476, "Diagnosis Procedure"](#).

2. When the engine is started, the MIL should go off.

NOTE:

If MIL continues to illuminate/blink, perform self-diagnoses and inspect/repair accordingly because an emission-related ECU has detected a malfunction in the emission control systems components and/or the powertrain control components (which affect vehicle emissions).



On Board Diagnosis Function

INFOID:000000009984948

ON BOARD DIAGNOSIS ITEM

The on board diagnostic system has the following functions.

Diagnostic test mode	Function
Bulb check	MIL can be checked.
SRT status	ECM can read if SRT codes are set.
Malfunction warning	If ECM detects a malfunction, it illuminates or blinks MIL to inform the driver that a malfunction has been detected.
Self-diagnostic results	DTCs or 1st trip DTCs stored in ECM can be read.
Accelerator pedal released position learning	ECM can learn the accelerator pedal released position. Refer to EC-139, "Work Procedure" .
Throttle valve closed position learning	ECM can learn the throttle valve closed position. Refer to EC-140, "Work Procedure" .
Idle air volume learning	ECM can learn the idle air volume. Refer to EC-141, "Work Procedure" .
Mixture ratio self-learning value clear	Mixture ratio self-learning value can be erased. Refer to EC-143, "Work Procedure" .

BULB CHECK MODE

Description

This function allows damage inspection in the MIL bulb (blown, open circuit, etc.).

Operation Procedure

1. Turn ignition switch ON.
2. The MIL on the instrument panel should stay ON.
If it remains OFF, check MIL circuit. Refer to [EC-476, "Diagnosis Procedure"](#).

SRT STATUS MODE

Description

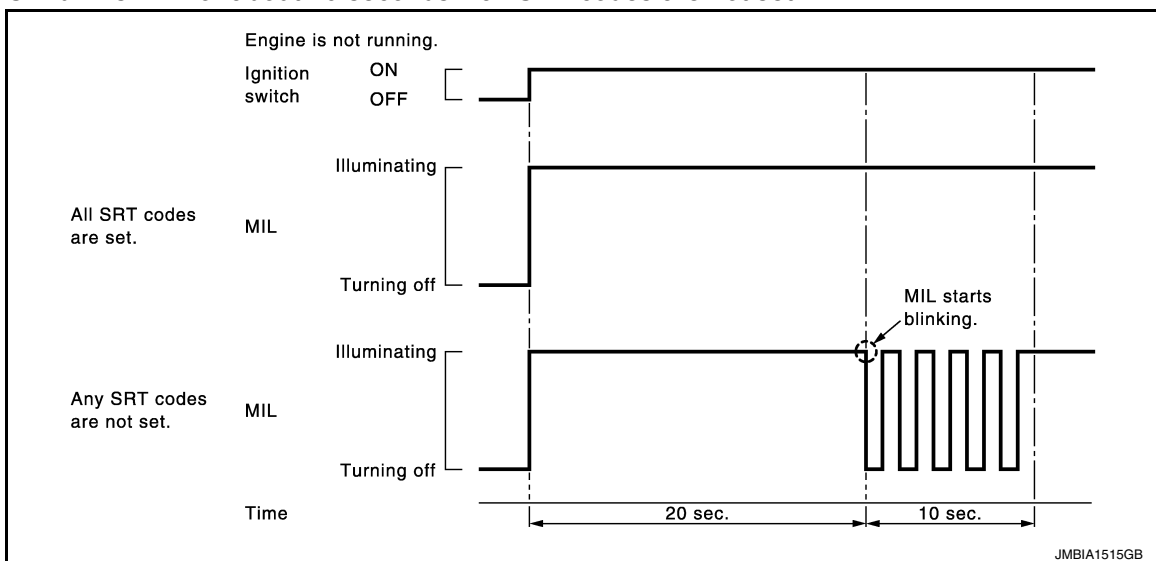
This function allows to read if ECM has completed the self-diagnoses of major emission control systems and components. For SRT, refer to [EC-62, "DIAGNOSIS DESCRIPTION : System Readiness Test \(SRT\) Code"](#).

Operation Procedure

1. Turn ignition switch ON and wait 20 seconds.
2. SRT status is indicated as shown blow.
 - ECM continues to illuminate MIL if all SRT codes are set.

< SYSTEM DESCRIPTION >

- ECM blinks MIL for about 10 seconds if all SRT codes are not set.



MALFUNCTION WARNING MODE

Description

In this function ECM turns on or blinks MIL when it detects a malfunction in the emission control system components and/or the powertrain control components (which affect vehicle emissions) to inform the driver that a malfunction has been detected.

Operation Procedure

- Turn ignition switch ON.
- Check that MIL illuminates.
If it remains OFF, check MIL circuit. Refer to [EC-476, "Diagnosis Procedure"](#).
- Start engine and let it idle.
 - For two trip detection logic diagnoses, ECM turns on MIL when it detects the same malfunction twice in the two consecutive driving cycles.
 - For 1st trip detection logic diagnoses, ECM turns on MIL when it detects a malfunction in one driving cycle.
 - ECM blinks MIL when it detects a malfunction that may damage the three way catalyst (misfire).

SELF-DIAGNOSTIC RESULTS MODE

Description

This function allows to indicate DTCs or 1st trip DTCs stored in ECM according to the number of times MIL is blinking.

How to Set Self-diagnostic Results Mode

NOTE:

- It is better to count the time accurately with a clock.
 - It is impossible to switch the diagnostic mode when an accelerator pedal position sensor circuit has a malfunction.
 - After ignition switch is turned off, ECM is always released from the "self-diagnostic results" mode.
- Confirm that accelerator pedal is fully released, turn ignition switch ON and wait 3 seconds.
 - Repeat the following procedure quickly five times within 5 seconds.
 - Fully depress the accelerator pedal.
 - Fully release the accelerator pedal.
 - Wait 7 seconds, fully depress the accelerator pedal and keep it depressed for approx. 10 seconds until the MIL starts blinking.

NOTE:

Do not release the accelerator pedal for 10 seconds if MIL starts blinking during this period. This blinking is displaying SRT status and is continued for another 10 seconds.

- Fully release the accelerator pedal.
ECM has entered to "Self-diagnostic results" mode.

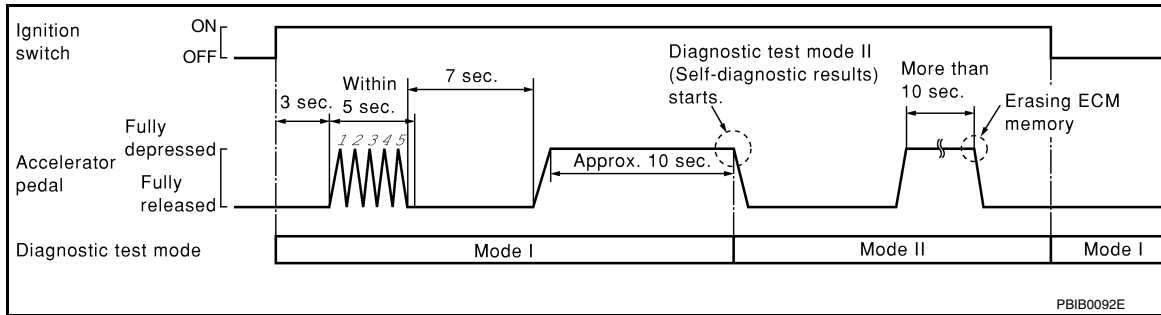
DIAGNOSIS SYSTEM (ECM)

< SYSTEM DESCRIPTION >

[QR25DE]

NOTE:

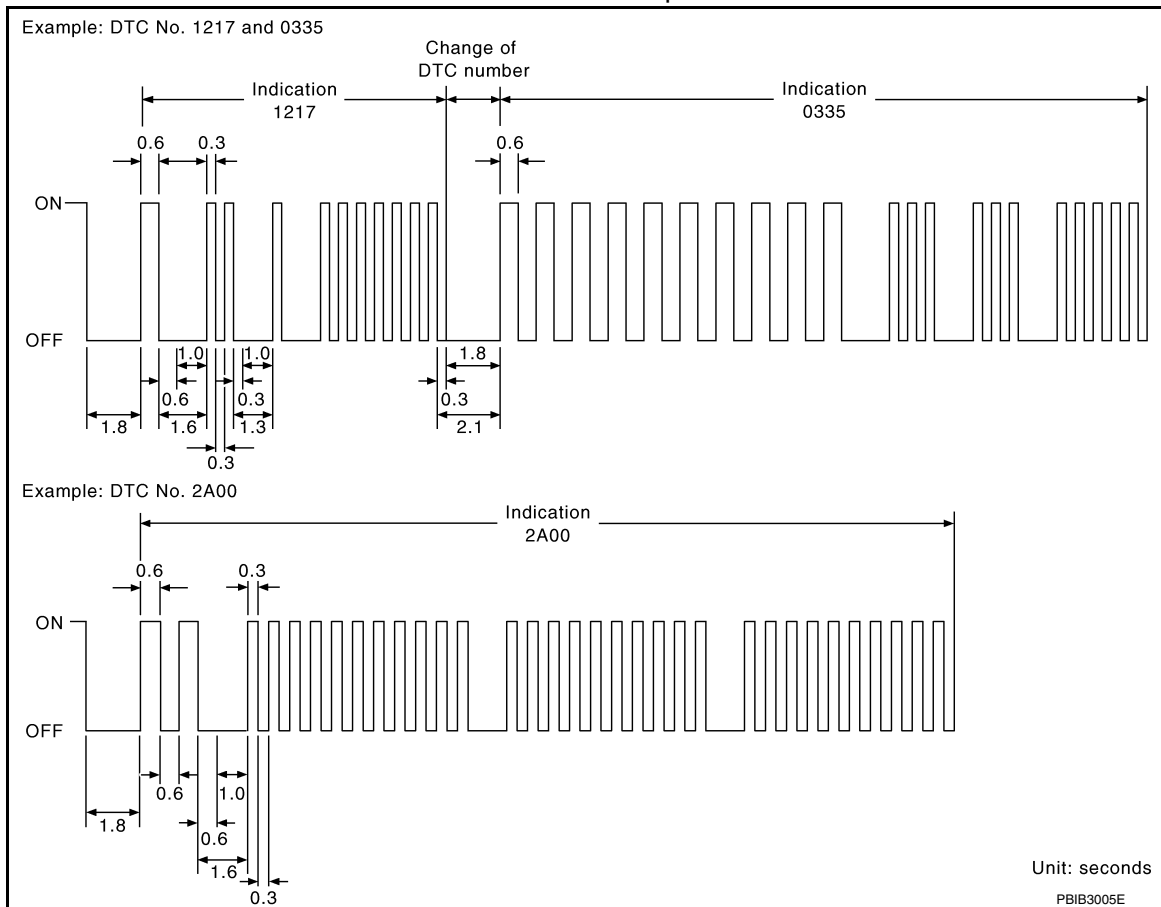
Wait until the same DTC (or 1st trip DTC) appears to completely confirm all DTCs.



How to Read Self-diagnostic Results

The DTC and 1st trip DTC are indicated by the number of blinks of the MIL as shown below.

The DTC and 1st trip DTC are displayed at the same time. If the MIL does not illuminate in diagnostic test mode I (Malfunction warning), all displayed items are 1st trip DTCs. If only one code is displayed when the MIL illuminates in "malfunction warning" mode, it is a DTC; if two or more codes are displayed, they may be either DTCs or 1st trip DTCs. DTC No. is same as that of 1st trip DTC. These unidentified codes can be identified by using the CONSULT or GST. A DTC will be used as an example for how to read a code.



A particular trouble code can be identified by the number of four-digit numeral flashes per the following.

Number	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Flashes	10	1	2	3	4	5	6	7	8	9	11	12	13	14	15	16

The length of time the 1,000th-digit numeral flashes on and off is 1.2 seconds consisting of an ON (0.6-seconds) - OFF (0.6-seconds) cycle.

The 100th-digit numeral and lower digit numerals consist of a 0.3-seconds ON and 0.3-seconds OFF cycle.

A change from one digit numeral to another occurs at an interval of 1.0-second OFF. In other words, the later numeral appears on the display 1.3 seconds after the former numeral has disappeared.

A change from one trouble code to another occurs at an interval of 1.8-seconds OFF.

DIAGNOSIS SYSTEM (ECM)

< SYSTEM DESCRIPTION >

[QR25DE]

In this way, all the detected malfunctions are classified by their DTC numbers. The DTC 0000 refers to no malfunction. Refer to [EC-93, "DTC Index"](#).

How to Erase Self-diagnostic Results

By performing this procedure, ECM memory is erased and the following diagnostic information is erased as well.

- Diagnostic trouble codes
- 1st trip diagnostic trouble codes
- Freeze frame data
- 1st trip freeze frame data
- System readiness test (SRT) codes
- Test values

NOTE:

Also, if a battery terminal is disconnected, ECM memory is erased and the diagnostic information as listed above is erased. (The amount of time required for erasing may vary from a few seconds to several hours.)

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.
4. Turn ignition switch ON.
5. Set ECM in "self-diagnostic results" mode.
6. The diagnostic information has been erased from the backup memory in the ECM.
Fully depress the accelerator pedal and keep it depressed for more than 10 seconds.
7. Fully release the accelerator pedal, and confirm the DTC 0000 is displayed.

CONSULT Function

INFOID:000000009984949

FUNCTION

Diagnostic test mode	Function
Self Diagnostic Result	Self-diagnostic results such as 1st trip DTC, DTC and 1st trip freeze frame data or freeze frame data can be read and erased quickly.*
Data Monitor	Input/Output data in the ECM can be read.
Work support	This mode enables a technician to adjust some devices faster and more accurately by following the indications on the CONSULT screen.
Active Test	Diagnostic Test Mode in which CONSULT drives some actuators apart from the ECMs and also shifts some parameters in a specified range.
ECU Identification	ECM part number can be read.
DTC Work Support	The status of system monitoring tests and the self-diagnosis status/results can be confirmed.

*: The following emission-related diagnostic information is cleared when the ECM memory is erased.

- Diagnostic trouble codes
- 1st trip diagnostic trouble codes
- Freeze frame data
- 1st trip freeze frame data
- System readiness test (SRT) codes
- Test values

SELF DIAGNOSTIC RESULT MODE

Self Diagnostic Item

Regarding items of DTC and 1st trip DTC, refer to [EC-93, "DTC Index"](#).)

How to Read DTC and 1st Trip DTC

DTCs and 1st trip DTCs related to the malfunction are displayed in "self-diag results".

- When ECM detects a 1st trip DTC, 1t is displayed for "TIME".
- When ECM has detected a current DTC, "0" is displayed for "TIME".
- If "TIME" is neither "0" nor "1t", the DTC occurred in the past and ECM shows the number of times the vehicle has been driven since the last detection of the DTC.

DIAGNOSIS SYSTEM (ECM)

[QR25DE]

< SYSTEM DESCRIPTION >

How to Erase DTC and 1st Trip DTC

NOTE:

If the ignition switch stays ON after repair work, be sure to turn ignition switch OFF once. Wait at least 10 seconds and then turn it ON (engine stopped) again.

Freeze Frame Data and 1st Trip Freeze Frame Data

Freeze frame data item*	Description
DIAG TROUBLE CODE [PXXXX]	The engine control component part/control system has a trouble code that is displayed as PXXXX. (Refer to EC-93, "DTC Index".)
FUEL SYS-B1	"Fuel injection system status" at the moment a malfunction is detected is displayed. - One of the following mode is displayed. - Mode2: Open loop due to detected system malfunction - Mode3: Open loop due to driving conditions (power enrichment, deceleration enrichment) - Mode4: Closed loop - using oxygen sensor(s) as feedback for fuel control - Mode5: Open loop - has not yet satisfied condition to go to closed loop
CAL/LD VALUE [%]	The calculated load value at the moment a malfunction is detected is displayed.
COOLANT TEMP [°C] or [°F]	The engine coolant temperature at the moment a malfunction is detected is displayed.
L-FUEL TRM-B1 [%]	"Long-term fuel trim" at the moment a malfunction is detected is displayed. - The long-term fuel trim indicates much more gradual feedback compensation to the base fuel schedule than short-term fuel trim.
S-FUEL TRM-B1 [%]	"Short-term fuel trim" at the moment a malfunction is detected is displayed. - The short-term fuel trim indicates dynamic or instantaneous feedback compensation to the base fuel schedule.
ENGINE SPEED [rpm]	The engine speed at the moment a malfunction is detected is displayed.
VEHICL SPEED [km/h] or [mph]	The vehicle speed at the moment a malfunction is detected is displayed.
ABSOL TH-P/S [%]	The throttle valve opening angle at the moment a malfunction is detected is displayed.
B/FUEL SCHDL [msec]	The base fuel schedule at the moment a malfunction is detected is displayed.
INT/A TEMP SE [°C] or [°F]	The intake air temperature at the moment a malfunction is detected is displayed.
FUEL SYS-B2	These items are displayed but are not applicable to this model.
L-FUEL TRM-B2 [%]	
S-FUEL TRM-B2 [%]	
INT MANI PRES [kPa]	
COMBUST CONDITION	

*: The items are the same as those of 1st trip freeze frame data.

DATA MONITOR MODE

NOTE:

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

Monitored Item

DIAGNOSIS SYSTEM (ECM)

< SYSTEM DESCRIPTION >

[QR25DE]

Monitored item	Unit	Monitor Item Selection		Description	Remarks
		ECU INPUT SIGNALS	MAIN SIGNALS		
ENG SPEED	rpm	×	×	Indicates the engine speed computed from the signal of the crankshaft position sensor (POS) and camshaft position sensor (PHASE).	- Accuracy becomes poor if engine speed drops below the idle rpm. - If the signal is interrupted while the engine is running, an abnormal value may be indicated.
B/FUEL SCHDL	msec	×	×	"Base fuel schedule" indicates the fuel injection pulse width programmed into ECM, prior to any learned on board correction.	When engine is running, specification range is indicated in "SPEC".
A/F ALPHA-B1	%			The mean value of the air-fuel ratio feedback correction factor per cycle is indicated.	- When the engine is stopped, a certain value is indicated. - When engine is running, specification range is indicated in "SPEC". - This data also includes the data for the air-fuel ratio learning control.
COOLAN TEMP/S	°C or °F	×	×	The engine coolant temperature (determined by the signal voltage of the engine coolant temperature sensor) is displayed.	When the engine coolant temperature sensor is open or short-circuited, ECM enters fail-safe mode. The engine coolant temperature determined by the ECM is displayed.
A/F SEN1 (B1)	V	×	×	The A/F signal computed from the input signal of the air fuel ratio (A/F) sensor 1 is displayed.	
HO2S2 (B1)	V	×	×	The signal voltage of the heated oxygen sensor 2 is displayed.	
HO2S2 MNTR(B1)	RICH/LEAN		×	- Display of heated oxygen sensor 2 signal. - RICH: means the amount of oxygen after three way catalyst is relatively small. - LEAN: means the amount of oxygen after three way catalyst is relatively large.	When the engine is stopped, a certain value is indicated.
VHCL SPEED SE	km/h or mph	×	×	The vehicle speed computed from the vehicle speed signal sent from combination meter is displayed.	
BATTERY VOLT	V			The power supply voltage of ECM is displayed.	
ACCEL SEN 1	V			The accelerator pedal position sensor signal voltage is displayed.	ACCEL SEN 2 signal is converted by ECM internally. Thus, it differs from ECM terminal voltage signal.
ACCEL SEN 2					
TP SEN 1-B1	V	×	×	The throttle position sensor signal voltage is displayed.	TP SEN 2-B1 signal is converted by ECM internally. Thus, it differs from ECM terminal voltage signal.
TP SEN 2-B1		×	×		
FUEL T/TMP SE	°C or °F			The fuel temperature (determined by the signal voltage of the fuel tank temperature sensor) is displayed.	

DIAGNOSIS SYSTEM (ECM)

< SYSTEM DESCRIPTION >

[QR25DE]

Monitored item	Unit	Monitor Item Selection		Description	Remarks
		ECU IN-PUT SIG-NALS	MAIN SIG-NALS		
EVAP SYS PRES	V			The signal voltage of EVAP control system pressure sensor is displayed.	
FUEL LEVEL SE	V	×		The signal voltage of the fuel level sensor is displayed.	
START SIGNAL	On/Off			Indicates start signal status [ON/OFF] computed by the ECM according to the signals of engine speed and battery voltage.	After starting the engine, [OFF] is displayed regardless of the starter signal.
CLSD THL POS	On/Off	×	×	Indicates idle position [ON/OFF] computed by ECM according to the accelerator pedal position sensor signal.	
AIR COND SIG	On/Off	×	×	Indicates [ON/OFF] condition of the air conditioner switch as determined by the air conditioner signal.	
PW/ST SIGNAL	On/Off	×	×	[ON/OFF] condition of the power steering system (determined by the signal sent from EPS control unit) is indicated.	
LOAD SIGNAL	On/Off	×	×	- Indicates [ON/OFF] condition from the electrical load signal. - On: Rear window defogger switch is ON and/or lighting switch is in 2nd position. - Off: Both rear window defogger switch and lighting switch are OFF.	
IGNITION SW	On/Off	×	×	Indicates [ON/OFF] condition from ignition switch signal.	
HEATER FAN SW	On/Off	×		Indicates [ON/OFF] condition from the heater fan switch signal.	
BRAKE SW	On/Off			Indicates [ON/OFF] condition from the stop lamp switch signal.	
INJ PULSE-B1	msec			Indicates the actual fuel injection pulse width compensated by ECM according to the input signals.	When the engine is stopped, a certain computed value is indicated.
IGN TIMING	BTDC		×	Indicates the ignition timing computed by ECM according to the input signals.	When the engine is stopped, a certain value is indicated.
CAL/LD VALUE	%			"Calculated load value" indicates the value of the current air flow divided by peak air flow.	
MASS AIRFLOW	g/s			Indicates the mass air flow computed by ECM according to the signal voltage of the mass air flow sensor.	
PURG VOL C/V	%			- Indicates the EVAP canister purge volume control solenoid valve control value computed by the ECM according to the input signals. - The opening becomes larger as the value increases.	
INT/V TIM(B1)	°CA			Indicates [°CA] of intake camshaft advance angle.	
EXH/V TIM B1	°CA			Indicates [°CA] of exhaust camshaft advance angle.	

DIAGNOSIS SYSTEM (ECM)

< SYSTEM DESCRIPTION >

[QR25DE]

Monitored item	Unit	Monitor Item Selection		Description	Remarks
		ECU IN-PUT SIGNALS	MAIN SIGNALS		
INT/V SOL(B1)	%			- The control value of the intake valve timing control solenoid valve (determined by ECM according to the input signals) is indicated. - The advance angle becomes larger as the value increases.	
SWRL CONT S/V	On/Off			- The control condition of the intake manifold runner control valve (determined by ECM according to the input signals) is indicated. - On: Closed - Off: Open	
AIR COND RLY	On/Off			The air conditioner relay control condition (determined by ECM according to the input signals) is indicated.	
FUEL PUMP RLY	On/Off			Indicates the fuel pump relay control condition determined by ECM according to the input signals.	
VENT CONT/V	On/Off			- The control condition of the EVAP canister vent control valve (determined by ECM according to the input signals) is indicated. - On: Closed - Off: Open	
THRTL RELAY	On/Off			Indicates the throttle control motor relay control condition determined by the ECM according to the input signals.	
COOLING FAN	Hi/Mid/Low/Off			- Indicates the condition of the cooling fan (determined by ECM according to the input signals). - Hi: High speed operation - Mid: Middle speed operation - Low: Low speed operation - Off: Stop	
HO2S2 HTR (B1)	On/Off			Indicates [ON/OFF] condition of heated oxygen sensor 2 heater determined by ECM according to the input signals.	
I/P PULLY SPD	rpm			Indicates the engine speed computed from the input speed sensor signal.	
VEHICLE SPEED	km/h or mph			The vehicle speed computed from the vehicle speed signal sent from TCM is displayed.	
IDL A/V LEARN	YET/CMPLT			- Displays the condition of Idle Air Volume Learning - YET: Idle air volume learning has not been performed yet. - CMPLT: Idle air volume learning has already been performed successfully.	
TRVL AFTER MIL	km or mile			Distance traveled while MIL is activated.	
ENG OIL TEMP	°C or °F			The engine oil temperature (determined by the signal voltage of the engine oil temperature sensor) is displayed.	

DIAGNOSIS SYSTEM (ECM)

< SYSTEM DESCRIPTION >

[QR25DE]

Monitored item	Unit	Monitor Item Selection		Description	Remarks
		ECU IN-PUT SIG-NALS	MAIN SIG-NALS		
A/F S1 HTR(B1)	%			- Air fuel ratio (A/F) sensor 1 heater control value computed by ECM according to the input signals. - The current flow to the heater becomes larger as the value increases.	
VHCL SPEED SE	km/h or mph			The vehicle speed computed from the vehicle speed signal sent from combination meter is displayed.	
SET VHCL SPD	km/h or mph			The preset vehicle speed is displayed.	
MAIN SW	On/Off			Indicates [ON/OFF] condition from MAIN switch signal.	
CANCEL SW	On/Off			Indicates [ON/OFF] condition from CANCEL switch signal.	
RESUME/ACC SW	On/Off			Indicates [ON/OFF] condition from RESUME/ACCELERATE switch signal.	
SET SW	On/Off			Indicates [ON/OFF] condition from SET/COAST switch signal.	
BRAKE SW1	On/Off			Indicates [ON/OFF] condition from brake pedal position switch signal.	
BRAKE SW2	On/Off			Indicates [ON/OFF] condition of stop lamp switch signal.	
VHCL SPD CUT	Non/Cut			- Indicates the vehicle cruise condition. - Non: Vehicle speed is maintained at the ASCD set speed. - Cut: Vehicle speed decreased to excessively low compared with the ASCD set speed, and ASCD operation is cut off.	
LO SPEED CUT	Non/Cut			- Indicates the vehicle cruise condition. - Non: Vehicle speed is maintained at the ASCD set speed. - Cut: Vehicle speed decreased to excessively low, and ASCD operation is cut off.	
AT OD MONITOR	On/Off			Indicates [ON/OFF] condition of CVT O/D according to the input signal from the TCM.	
AT OD CANCEL	On/Off			Indicates [ON/OFF] condition of CVT O/D cancel request signal.	
CRUISE LAMP	On/Off			Indicates [ON/OFF] condition of CRUISE lamp determined by the ECM according to the input signals.	
SET LAMP	On/Off			Indicates [ON/OFF] condition of SET lamp determined by the ECM according to the input signals.	
A/F ADJ-B1	—			Indicates the correction of factor stored in ECM. The factor is calculated from the difference between the target air-fuel ratio stored in ECM and the air-fuel ratio calculated from A/F sensor 1 signal.	
TUMBLE POS SEN	V			The intake manifold runner control valve position sensor signal voltage is displayed.	

DIAGNOSIS SYSTEM (ECM)

< SYSTEM DESCRIPTION >

[QR25DE]

Monitored item	Unit	Monitor Item Selection		Description	Remarks
		ECU IN-PUT SIG-NALS	MAIN SIG-NALS		
P/N POSI SW	On/Off	×	×	Indicates [ON/OFF] condition from the park/neutral position (PNP) signal.	
INT/A TEMP SE	°C or °F	×	×	The intake air temperature (determined by the signal voltage of the intake air temperature sensor) is indicated.	
AC PRESS SEN	V			The signal voltage from the refrigerant pressure sensor is displayed.	
VTC DTY EX B1	%			- The control value of the exhaust valve timing control solenoid valve (determined by ECM according to the input signals) is indicated. - The advance angle becomes larger as the value increases.	
EOP SENSOR	mV			The signal voltage of engine oil pressure sensor is displayed.	
EVAP LEAK DIAG	YET/CMPLT			- Indicates the condition of EVAP leak diagnosis. - YET: EVAP leak diagnosis has not been performed yet. - CMPLT: EVAP leak diagnosis has been performed successfully.	
EVAP DIAG READY	ON/OFF			- Indicates the ready condition of EVAP leak diagnosis. - ON: Diagnosis has been ready condition. - OFF: Diagnosis has not been ready condition.	
THRTL STK CNT B1*	—			—	
A/F SEN1 DIAG1(B1)	INCMP/CM-PLT			- Indicates DTC P015A or P015B self-diagnosis condition. - INCMP: Self-diagnosis is incomplete. - CMPLT: Self-diagnosis is complete.	
A/F SEN1 DIAG2(B1)	INCMP/CM-PLT			- Indicates DTC P014C or P014D self-diagnosis condition. - INCMP: Self-diagnosis is incomplete. - CMPLT: Self-diagnosis is complete.	
A/F SEN1 DIAG3(B1)	ABSNT/PRSNT			- Indicates DTC P014C, P014D, P015A or P015B self-diagnosis condition. - ABSNT: The vehicle condition is not within the diagnosis range. - PRSNT: The vehicle condition is within the diagnosis range.	
HO2 S2 DIAG1 (B1)	INCMP/CM-PLT			- Indicates DTC P0139 self-diagnosis (delayed response) condition. - INCMP: Self-diagnosis is incomplete. - CMPLT: Self-diagnosis is complete.	
HO2 S2 DIAG2 (B1)	INCMP/CM-PLT			- Indicates DTC P0139 self-diagnosis (slow response) condition. - INCMP: Self-diagnosis is incomplete. - CMPLT: Self-diagnosis is complete.	

DIAGNOSIS SYSTEM (ECM)

< SYSTEM DESCRIPTION >

[QR25DE]

Monitored item	Unit	Monitor Item Selection		Description	Remarks
		ECU IN-PUT SIG-NALS	MAIN SIG-NALS		
SYSTEM 1 DIAGNOSIS A B1	INCMP/CM-PLT			- Indicates DTC P117A self-diagnosis condition. - INCMP: Self-diagnosis is incomplete. - CMPLT: Self-diagnosis is complete.	
SYSTEM 1 DIAGNOSIS B B1	ABSNT/PRSNT			- Indicates DTC P117A self-diagnosis condition. - ABSNT: Self-diagnosis standby - PRSNT: Under self-diagnosis	
MASS AIR FLOW SENSOR (Hz)	Hz			The signal frequency of the mass air flow sensor is displayed.	- When the engine is stopped, a certain value is indicated. - When engine is running, specification range is indicated in "SPEC".

*: The item is indicated, but not used.

NOTE:

Any monitored item that does not match the vehicle being diagnosed is deleted from the display automatically.

WORK SUPPORT MODE

Work Item

Work item	Condition	Usage
IDLE AIR VOL LEARN	The idle air volume that keeps the engine within the specified range is memorized in ECM.	When learning the idle air volume
EVAP SYSTEM CLOSE	Close the EVAP canister vent control valve in order to make EVAP system close under the following conditions. - Ignition switch ON - Engine not running - Ambient temperature is above 0°C (32°F). - No vacuum and no high pressure in EVAP system - Fuel tank temp is more than 0°C (32°F). - Within 10 minutes after starting "EVAP SYSTEM CLOSE" - When trying to execute "EVAP SYSTEM CLOSE" under the condition except above, CONSULT will discontinue it and display appropriate instruction. NOTE: When starting engine, CONSULT may display "BATTERY VOLTAGE IS LOW. CHARGE BATTERY", even in when using a charged battery.	When detecting EVAP vapor leak in the EVAP system
FUEL PRESSURE RELEASE	Fuel pump will stop by touching "START" during idling. Crank a few times after engine stalls.	When releasing fuel pressure from fuel line
TARGET IGN TIM ADJ*	Idle condition	When adjusting target ignition timing
TARGET IDLE RPM ADJ*	Idle condition	When setting target idle speed
VIN REGISTRATION	In this mode, VIN is registered in ECM.	When registering VIN in ECM
SELF-LEARNING CONT	The coefficient of self-learning control mixture ratio returns to the original coefficient.	When clearing mixture ratio self-learning value
CLSD THL POS LEARN	Ignition on and engine stopped.	When learning the throttle valve closed position
SAVING DATA FOR REPLC CPU	In this mode, save data that is in ECM.	SAVING DATA FOR REPLC CPU
WRITING DATA FOR REPLC CPU	In this mode, write data stored by "SAVE DATA FOR CPU REPLC" in work support mode to ECM.	WRITING DATA FOR REPLC CPU

DIAGNOSIS SYSTEM (ECM)

[QR25DE]

< SYSTEM DESCRIPTION >

*: This function is not necessary in the usual service procedure.

ACTIVE TEST MODE

Test Item

Test item	Condition	Judgment	Check item (Remedy)
FUEL INJECTION	- Engine: Return to the original trouble condition - Change the amount of fuel injection using CONSULT.	If trouble symptom disappears, see CHECK ITEM.	- Harness and connectors - Fuel injector - Air fuel ratio (A/F) sensor 1
ENG COOLANT TEMP	- Engine: Return to the original trouble condition - Change the engine coolant temperature using CONSULT.	If trouble symptom disappears, see CHECK ITEM.	- Harness and connectors - Engine coolant temperature sensor - Fuel injector
PURG VOL CONT/V	- Engine: After warming up, run engine at 1,500 rpm. - Change the EVAP canister purge volume control solenoid valve opening percent using CONSULT.	Engine speed changes according to the opening percent.	- Harness and connectors - Solenoid valve
FUEL/T TEMP SEN	Change the fuel tank temperature using CONSULT.		
FUEL PUMP RELAY	- Ignition switch: ON (Engine stopped) - Turn the fuel pump relay "ON" and "OFF" using CONSULT and listen to operating sound.	Fuel pump relay makes the operating sound.	- Harness and connectors - Fuel pump relay
TUMBLE CONTROL VALVE	- Ignition switch: ON - Turn intake manifold runner control valve "ON" and "OFF" using CONSULT and listen to operating sound.	Intake Manifold Runner control valve motor makes an operating sound.	- Harness and connectors - Intake Manifold Runner control valve motor
IGNITION TIMING	- Engine: Return to the original trouble condition - Timing light: Set - Retard the ignition timing using CONSULT.	If trouble symptom disappears, see CHECK ITEM.	Perform Idle Air Volume Learning.
POWER BALANCE	- Engine: After warming up, idle the engine. - A/C switch OFF - Selector lever: P or N - Cut off each fuel injector signal one at a time using CONSULT.	Engine runs rough or stops.	- Harness and connectors - Compression - Fuel injector - Power transistor - Spark plug - Ignition coil
VENT CONTROL/V	- Ignition switch: ON (Engine stopped) - Turn solenoid valve "ON" and "OFF" using CONSULT and listen to operating sound.	Solenoid valve makes an operating sound.	- Harness and connectors - Solenoid valve
INT V/T ASSIGN ANGLE	- Engine: Return to the original trouble condition - Change intake valve timing using CONSULT.	If trouble symptom disappears, see CHECK ITEM.	- Harness and connectors - Intake valve timing control solenoid valve
EXH V/T ASSIGN ANGLE	- Engine: Return to the original trouble condition - Change exhaust valve timing using CONSULT.	If trouble symptom disappears, see CHECK ITEM.	- Harness and connectors - Exhaust valve timing control solenoid valve

DTC WORK SUPPORT MODE

Test Item

DIAGNOSIS SYSTEM (ECM)

< SYSTEM DESCRIPTION >

[QR25DE]

Test mode	Test item	Corresponding DTC No.	Reference page
A/F SEN1	A/F SEN1(B1) P1276	P0130	EC-226
EVAPORATIVE SYSTEM	PURG FLOW P0441	P0441	EC-306
	PURG VOL CN/V P1444	P0443	EC-311
HO2S2	HO2S2(B1) P1146	P0138	EC-242
	HO2S2(B1) P1147	P0137	EC-236
	HO2S2(B1) P0139	P0139	EC-249

SRT & P-DTC MODE

SRT STATUS Mode

- For items whose SRT codes are set, “CMPLT” is displayed on the CONSULT screen; for items whose SRT codes are not set, “INCMP” is displayed.
- “SRT STATUS” provides the presence or absence of permanent DTCs stored in ECM memory.

PERMANENT DTC STATUS Mode

How to display permanent DTC status

- Turn ignition switch OFF and wait at least 10 seconds.
- Turn ignition switch ON.
- Turn ignition switch OFF and wait at least 10 seconds.
- Turn ignition switch ON.
- Select “PERMANENT DTC STATUS” in “DTC & SRT CONFIRMATION” mode with CONSULT.

NOTE:

Permanent DTCs stored in ECM memory are displayed on the CONSULT screen to show if a driving pattern required for erasing permanent DTCs is complete (CMPLT) or incomplete (INCMP).

CAUTION:

Since the “PERMANENT DTC STATUS” screen displays the previous trip information, repeat the following twice to update the information: “Ignition switch OFF”, “Wait for more than 10 seconds” and “Ignition switch ON”.

PERMANENT DTC & SRT CONFIRMATION : PERMANENT DTC STATUS		
CAUTION: Turn ignition switch from ON to OFF twice to update the information on the status screen.		
PERMANENT DTC	DRIVING PATTERN B	DRIVING PATTERN D
XXXX	INCMP	INCMP
XXXX	CMPLT	INCMP
XXXX	INCMP	CMPLT
XXXX	CMPLT	INCMP
XXXX	INCMP	INCMP
XXXX	INCMP	INCMP
The previous trip information is displayed. 		

JSBIA0062GB

NOTE:

This mode is not used in regions that permanent DTCs are not regulated by law.

SRT WORK SUPPORT Mode

This mode enables a technician to drive a vehicle to set the SRT while monitoring the SRT status.

PERMANENT DTC WORK SUPPORT Mode

This mode enables a technician to drive a vehicle to complete the driving pattern that is required for erasing permanent DTC.

NOTE:

This mode is not used in regions that permanent DTCs are not regulated by law.

ECU DIAGNOSIS INFORMATION

ECM

Reference Value

INFOID:000000009984950

EC

VALUES ON THE DIAGNOSIS TOOL

NOTE:

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

● Numerical values in the following table are reference values.

● These values are input/output values that ECM receives/transmits and may differ from actual operations.

Example:

The ignition timing shown by the timing light may differ from the ignition timing displayed on the data monitor. This occurs because the timing light shows a value calculated by ECM according to signals received from the cam shaft position sensor and other sensors related to ignition timing.

Monitor Item	Condition		Values/Status
ENG SPEED	• Run engine and compare CONSULT value with the tachometer indication.		Almost the same speed as the tachometer indication.
B/FUEL SCHDL	See EC-158, "Diagnosis Procedure" .		
A/F ALPHA-B1	See EC-158, "Diagnosis Procedure" .		
COOLAN TEMP/S	• Engine: After warming up		More than 70°C (158°F)
A/F SEN1 (B1)	• Engine: After warming up	Maintaining engine speed at 2,000 rpm	Fluctuates around 2.2 V
HO2S2 (B1)	• Revving engine from idle up to 3,000 rpm quickly after the following conditions are met. - Engine: After warming up - After keeping engine speed between 3,500 and 4,000 rpm for 1 minute and at idle for 1 minute under no load		0 - 0.3 V ↔ Approx. 0.6 - 1.0 V
HO2S2 MNTR(B1)	• Revving engine from idle up to 3,000 rpm quickly after the following conditions are met. - Engine: After warming up - After keeping engine speed between 3,500 and 4,000 rpm for 1 minute and at idle for 1 minute under no load		LEAN ↔ RICH
VHCL SPEED SE	• Turn drive wheels and compare CONSULT value with the speedometer indication.		Almost the same speed as speedometer indication
BATTERY VOLT	• Ignition switch: ON (Engine stopped)		11 - 14 V
ACCEL SEN 1	• Ignition switch: ON (Engine stopped)	Accelerator pedal: Fully released	0.5 - 1.0 V
		Accelerator pedal: Fully depressed	4.2 - 4.8 V
ACCEL SEN 2*	• Ignition switch: ON (Engine stopped)	Accelerator pedal: Fully released	0.5 - 1.0 V
		Accelerator pedal: Fully depressed	4.2 - 4.8 V
TP SEN 1-B1	• Ignition switch: ON (Engine stopped) • Selector lever: D	Accelerator pedal: Fully released	More than 0.36 V
		Accelerator pedal: Fully depressed	Less than 4.75 V
TP SEN 2-B1*	• Ignition switch: ON (Engine stopped) • Selector lever: D	Accelerator pedal: Fully released	Less than 4.75 V
		Accelerator pedal: Fully depressed	More than 0.36 V
FUEL T/TMP SE	• Ignition switch: ON		Indicates fuel tank temperature
EVAP SYS PRES	• Ignition switch: ON		Approx. 1.8 - 4.8 V
FUEL LEVEL SE	• Ignition switch: ON		Depending on fuel level of fuel tank
START SIGNAL	• Ignition switch: ON → START → ON		Off → On → Off

ECM

< ECU DIAGNOSIS INFORMATION >

[QR25DE]

Monitor Item	Condition		Values/Status
CLSD THL POS	Ignition switch: ON (Engine stopped)	Accelerator pedal: Fully released	On
		Accelerator pedal: Slightly depressed	Off
AIR COND SIG	Engine: After warming up, idle the engine	Air conditioner switch: OFF	Off
		Air conditioner switch: ON (Compressor operates.)	On
PW/ST SIGNAL	Engine: After warming up, idle the engine	Steering wheel: Not being turned	Off
		Steering wheel: Being turned	On
LOAD SIGNAL	Ignition switch: ON	Rear window defogger switch: ON and/or Lighting switch: 2nd position	On
		Rear window defogger switch and lighting switch: OFF	Off
IGNITION SW	Ignition switch: ON → OFF → ON		On → Off → On
HEATER FAN SW	Engine: After warming up, idle the engine	Heater fan switch: ON	On
		Heater fan switch: OFF	Off
BRAKE SW	Ignition switch: ON	Brake pedal: Fully released	Off
		Brake pedal: Slightly depressed	On
INJ PULSE-B1	- Engine: After warming up - Selector lever: P or N - Air conditioner switch: OFF - No load	Idle	2.0 - 3.0 msec
		2,000 rpm	1.9 - 2.9 msec
IGN TIMING	- Engine: After warming up - Selector lever: P or N - Air conditioner switch: OFF - No load	Idle	5° - 15° BTDC
		2,000 rpm	25° - 45° BTDC
CAL/LD VALUE	- Engine: After warming up - Selector lever: P or N - Air conditioner switch: OFF - No load	Idle	10% - 35%
		2,500 rpm	10% - 35%
MASS AIRFLOW	- Engine: After warming up - Selector lever: P or N - Air conditioner switch: OFF - No load	Idle	1.0 - 4.0 g/s
		2,500 rpm	4.0 - 10.0 g/s
PURG VOL C/V	- Engine: After warming up - Selector lever: P or N - Air conditioner switch: OFF - No load	Idle (Accelerator pedal: Not depressed even slightly, after engine starting.)	0%
		2,000 rpm	20% - 90%
INT/V TIM(B1)	- Engine: After warming up - Selector lever: P or N - Air conditioner switch: OFF - No load	Idle	-5° - 5°C
		4,000 rpm	Approx. 0° - 30°C
EXH/V TIM B1	- Engine: After warming up - Selector lever: P or N - Air conditioner switch: OFF - No load	Idle	-5° - 5°C
		2,000 rpm	Approx. 0° - 40°C
INT/V SOL (B1)	- Engine: Idle speed - Selector lever: P or N - Air conditioner switch: OFF - No load	After warming up	0%
		Cold condition [Engine coolant temperature below 60°C (140°F)]	Approx. 50% - 100%
SWRL CONT S/V	- Ignition switch: ON - Engine coolant temperature: Between -7°C (19°F) and 60°C (140°F)	Accelerator pedal: Fully released	On
		Accelerator pedal: Fully depressed	Off

ECM

< ECU DIAGNOSIS INFORMATION >

[QR25DE]

Monitor Item	Condition		Values/Status
AIR COND RLY	• Engine: After warming up, idle the engine	Air conditioner switch: OFF	Off
		Air conditioner switch: ON (Compressor operates)	On
FUEL PUMP RLY	• For 1 second after turning ignition switch: ON • Engine running or cranking		On
	• Except above		Off
VENT CONT/V	• Ignition switch: ON		Off
THRTL RELAY	• Ignition switch: ON		On
COOLING FAN	• Engine: After warming up, idle the engine • Air conditioner switch: OFF	Engine coolant temperature is 97°C (207°F) or less	Off
		Engine coolant temperature between 98°C (208°F) and 99°C (210°F) or more	Low
		Engine coolant temperature between 100°C (212°F) or more	Hi
	• Engine: After warming up, idle the engine • Air conditioner switch: ON • Refrigerant pressure is less than 1,280 kPa (12.80 bar, 13.05 kg/cm ² , 185.6 psi)	Engine coolant temperature is 97°C (207°F) or less	Off
		Engine coolant temperature between 98°C (208°F) and 99°C (210°F) or more	Mid
		Engine coolant temperature between 100°C (212°F) or more	Hi
HO2S2 HTR (B1)	• Engine speed: Below 3,600 rpm after the following conditions are met. - Engine: After warming up - Keeping the engine speed between 3,500 and 4,000 rpm for 1 minute and at idle for 1 minute under no load		On
	• Engine speed: Above 3,600 rpm		Off
I/P PULLY SPD	• Vehicle speed: More than 20 km/h (12 MPH)		Almost the same speed as the tachometer indication
VEHICLE SPEED	• Turn drive wheels and compare CONSULT value with the speedometer indication.		Almost the same speed as the speedometer indication
IDL A/V LEARN	• Engine: running	Idle air volume learning has not been performed yet.	YET
		Idle air volume learning has already been performed successfully.	CMPLT
TRVL AFTER MIL	• Ignition switch: ON	Vehicle has traveled after MIL has turned ON.	0 - 65,535 km (0 - 40,723 miles)
ENG OIL TEMP	• Engine: After warming up		More than 70°C (158°F)
A/F S1 HTR(B1)	• Engine: After warming up, idle the engine (More than 140 seconds after starting engine.)		4 - 100%
VHCL SPEED SE	• Turn drive wheels and compare CONSULT value with the speedometer indication.		Almost the same speed as the speedometer indication
SET VHCL SPD	• Engine: Running	ASCD: Operating	The preset vehicle speed is displayed
MAIN SW	• Ignition switch: ON	MAIN switch: Pressed	On
		MAIN switch: Released	Off
CANCEL SW	• Ignition switch: ON	CANCEL switch: Pressed	On
		CANCEL switch: Released	Off
RESUME/ACC SW	• Ignition switch: ON	RESUME/ACCELERATE switch: Pressed	On
		RESUME/ACCELERATE switch: Released	Off

ECM

< ECU DIAGNOSIS INFORMATION >

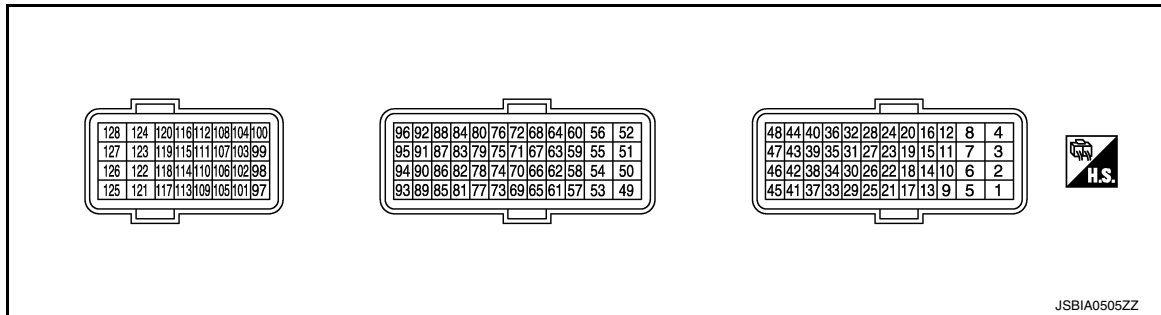
[QR25DE]

Monitor Item	Condition		Values/Status
SET SW	• Ignition switch: ON	SET/COAST switch: Pressed	On
		SET/COAST switch: Released	Off
BRAKE SW1 (Brake pedal position switch)	• Ignition switch: ON	Brake pedal: Fully released	On
		Brake pedal: Slightly depressed	Off
BRAKE SW2 (Stop lamp switch)	• Ignition switch: ON	Brake pedal: Fully released	Off
		Brake pedal: Slightly depressed	On
VHCL SPD CUT	• Ignition switch: ON		Non
LO SPEED CUT	• Ignition switch: ON		Non
AT OD MONITOR	• Ignition switch: ON		Off
AT OD CANCEL	• Ignition switch: ON		Off
CRUISE LAMP	• Ignition switch: ON	MAIN switch: Pressed at the 1st time → at the 2nd time	On → Off
SET LAMP	• MAIN switch: ON • When vehicle speed: Between 40 km/h (25 MPH) and 144 km/h (89 MPH)	ASCD: Operating	On
		ASCD: Not operating	Off
A/F ADJ-B1	• Engine: running		-0.330 - 0.330
TUMBLE POS SEN	• Ignition switch: ON • Engine coolant temperature: Between -7°C (19°F) and 60°C (140°F)	Accelerator pedal: Fully released	Less than 1.4 V
		Accelerator pedal: Fully depressed	More than 2.8 V
P/N POSI SW	• Ignition switch: ON	Selector lever: P or N	On
		Selector lever: Except above	Off
INT/A TEMP SE	• Ignition switch: ON		Indicates intake air temperature
AC PRESS SEN	• Engine speed: Idle • Both A/C switch and blower fan switch: ON (Compressor operates)		1.0 - 4.0 V
VTC DTY EX B1	• Engine: After warming up • Selector lever: P or N • Air conditioner switch: OFF • No load	Idle	0 - 2%
		2,000 rpm	Approx. 0- 90%
EOP SENSOR	• Engine: After warming up • Selector lever: P or N • Air conditioner switch: OFF • No load	Idle	1,000 - 2,000 mV
		2,000 rpm	1,500 - 3,500 mV
EVAP LEAK DIAG	• Ignition switch: ON		Indicates the condition of EVAP leak diagnosis.
EVAP DIAG READY	• Ignition switch: ON		Indicates the ready condition of EVAP leak diagnosis.
THRTL STK CNT B1	NOTE: The item is indicated, but not used.		—
A/F SEN1 DIAG1 (B1)	DTC P015A and P015B self-diagnosis is incomplete.		INCMP
	DTC P015A and P015B self-diagnosis is complete.		CMPLT
A/F SEN1 DIAG2 (B1)	DTC P014C and P014D self-diagnosis is incomplete.		INCMP
	DTC P014C and P014D self-diagnosis is complete.		CMPLT
A/F SEN1 DIAG3 (B1)	The vehicle condition is not within the diagnosis range of DTC P014C, P014D, P015A or P015B.		ABSNT
	The vehicle condition is within the diagnosis range of DTC P014C, P014D, P015A or P015B.		PRSNT

Monitor Item	Condition	Values/Status
HO2 S2 DIAG1 (B1)	DTC P0139 self-diagnosis (delayed response) is incomplete.	INCMP
	DTC P0139 self-diagnosis (delayed response) is complete.	CMPLT
HO2 S2 DIAG2 (B1)	DTC P0139 self-diagnosis (slow response) is incomplete.	INCMP
	DTC P0139 self-diagnosis (slow response) is complete.	CMPLT
SYSTEM 1 DIAG-NOSIS A B1	DTC P117A self-diagnosis is incomplete.	INCMP
	DTC P117A self-diagnosis is complete.	CMPLT
SYSTEM 1 DIAG-NOSIS B B1	DTC P117A self-diagnosis is on standby.	ABSENT
	DTC P117A self-diagnosis is under diagnosis.	PRSENT
MASS AIR FLOW SENSOR (Hz)	See EC-158, "Diagnosis Procedure" .	

*: Accelerator pedal position sensor 2 signal and throttle position sensor 2 signal are converted by ECM internally. Thus, they differ from ECM terminals voltage signal.

TERMINAL LAYOUT



PHYSICAL VALUES

NOTE:

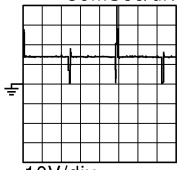
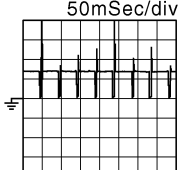
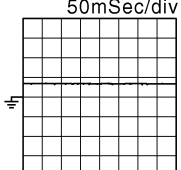
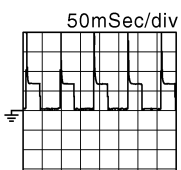
- ECM is located in the engine room left side near battery.
- Specification data are reference values and are measured between each terminal and ground.
- Pulse signal is measured by CONSULT.

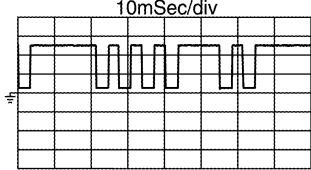
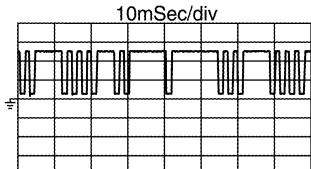
Terminal No. (Wire color)		Description		Condition	Value (Approx.)
+	-	Signal name	Input/ Output		
1 (G)	128 (BR)	Throttle control motor (Close)	Output	[Ignition switch: ON] • Engine stopped • Selector lever: D • Accelerator pedal: Fully released	1.8 V★ 5mSec/div 5V/div JMBIA0326GB
2 (GR)	128 (BR)	Throttle control motor power supply	Input	[Ignition switch: ON]	Battery voltage (11 - 14 V)
3 (L)	128 (BR)	Throttle control motor (Open)	Output	[Ignition switch: ON] • Engine stopped • Selector lever: D • Accelerator pedal: Fully depressed	3.2 V★ 1mSec/div 5V/div JMBIA0324GB

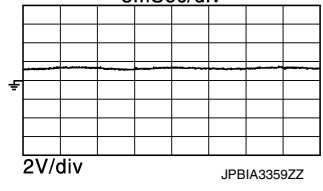
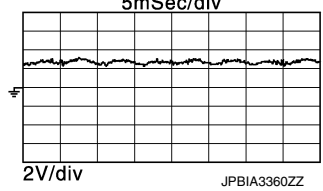
ECM

< ECU DIAGNOSIS INFORMATION >

[QR25DE]

Terminal No. (Wire color)		Description		Condition	Value (Approx.)
+	—	Signal name	Input/ Output		
4 (W)	8 (—)	Knock sensor	Input	[Engine is running] • Idle speed	2.5 V
8 (—)	—	Sensor ground (Knock sensor shield circuit)	—	—	—
9 (Y) 10 (P) 13 (L) 14 (G)	128 (BR)	Fuel injector No. 4 Fuel injector No. 3 Fuel injector No. 1 Fuel injector No. 2	Output	[Engine is running] • Warm-up condition • Idle speed NOTE: The pulse cycle changes depending on rpm at idle	Battery voltage (11 - 14 V)★ 50mSec/div  10V/div JMBIA0089GB
				[Engine is running] • Warm-up condition • Engine speed: 2,000 rpm	Battery voltage (11 - 14 V)★ 50mSec/div  10V/div JMBIA0090GB
16 (BR)	—	ECM ground	—	—	—
17 (BG)	128 (BR)	EVAP canister purge volume control solenoid valve	Output	[Engine is running] • Idle speed • Accelerator pedal: Not depressed even slightly, after engine starting	Battery voltage (11 - 14 V)★ 50mSec/div  20V/div JMBIA0087GB
				[Engine is running] • Engine speed: About 2,000 rpm (More than 100 seconds after starting engine.)	Battery voltage (11 - 14 V)★ 50mSec/div  10V/div JMBIA0088GB
18 (P)	128 (BR)	Fuel pump relay	Output	[Ignition switch: ON] • For 1 second after turning ignition switch ON	0 - 1.0 V
				[Engine is running] [Ignition switch: ON] • More than 1 second after turning ignition switch ON	Battery voltage (11 - 14 V)
21 (V)	128 (BR)	Throttle control motor relay	Output	[Ignition switch: OFF]	Battery voltage (11 - 14 V)
				[Ignition switch: ON]	0 - 1.0 V

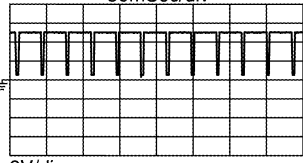
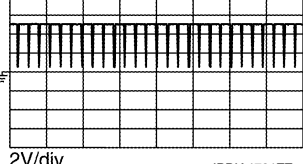
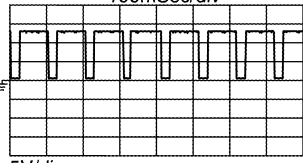
Terminal No. (Wire color)		Description		Condition	Value (Approx.)
+	-	Signal name	Input/ Output		
22 (Y)	23 (B)	Heated oxygen sensor 2	Input	[Engine is running] • Revving engine from idle to 3,000 rpm quickly after the following conditions are met - Engine: after warming up - Keeping the engine speed between 3,500 and 4,000 rpm for 1 minute and at idle for 1 minute under no load	0 - 1.0 V
23 (B)	—	Sensor ground (Heated oxygen sensor 2)	—	—	—
25 (P)	26 (BR)	Engine oil temperature sensor	Input	[Engine is running]	0 - 4.8 V Output voltage varies with engine oil temperature.
26 (BR)	—	Sensor ground (Engine oil temperature sensor)	—	—	—
27 (L)	—	Sensor ground (Engine coolant temperature sensor)	—	—	—
28 (G)	27 (L)	Engine coolant temperature sensor	Input	[Engine is running]	0 - 4.8 V Output voltage varies with engine coolant temperature.
30 (R)	—	Sensor ground [Camshaft position sensor (PHASE)]	—	—	—
31 (W)	30 (R)	Camshaft position sensor (PHASE)	Input	[Engine is running] • Warm-up condition • Idle speed NOTE: The pulse cycle changes depending on rpm at idle	1.0 - 2.0★ 10mSec/div  2V/div JP BIA4726ZZ
				[Engine is running] • Engine speed is 2,000 rpm	1.0 - 2.0★ 10mSec/div  2V/div JP BIA4727ZZ
32 (B)	—	Sensor power supply [Camshaft position sensor (PHASE)]	—	[Ignition switch: ON]	5.0 V
33 (V)	34 (GR)	Intake air temperature sensor	Input	[Engine is running]	0 - 4.8 V Output voltage varies with intake air temperature.
34 (GR)	—	Sensor ground (Mass air flow sensor, intake air temperature sensor)	—	—	—

Terminal No. (Wire color)		Description		Condition	Value (Approx.)
+	—	Signal name	Input/ Output		
35 (BR)	34 (GR)	Mass air flow sensor	Input	[Ignition switch: ON] • Engine stopped	1.3 V
				[Engine is running] • Warm-up condition • Idle speed	1.3 - 1.6 V
				[Engine is running] • Warm-up condition • Engine is revving from idle to about 4,000 rpm	1.3 - 1.6 to 2.5 V (Check for linear voltage rise in response to engine being increased to about 4,000 rpm.)
36 (L)	—	Sensor power supply (Mass air flow sensor, intake air temperature sensor)	—	[Ignition switch: ON]	5.0 V
37 (—)	—	Shield	—	—	—
38 (SB)	—	Sensor ground (Engine oil pressure sensor)	—	—	—
39 (P)	38 (SB)	Engine oil pressure sensor	Input	[Engine is running] • Warm-up condition • Idle speed	1.3 V★ 
				[Engine is running] • Warm-up condition • Engine speed is 2,000 rpm	2.7 V★ 
40 (W)	38 (SB)	Sensor power supply (Engine oil pressure sensor)	—	[Ignition switch: ON]	5.0 V
41 (Y)	128 (BR)	A/F sensor 1	Input	[Ignition switch: ON]	2.2 V
42 (B)	—	Sensor ground [Exhaust valve timing control position sensor]	—	—	—

ECM

< ECU DIAGNOSIS INFORMATION >

[QR25DE]

Terminal No. (Wire color)		Description		Condition	Value (Approx.)
+	-	Signal name	Input/ Output		
43 (LG)	42 (B)	Exhaust valve timing control position sensor	Input	[Engine is running] • Warm-up condition • Idle speed NOTE: The pulse cycle changes depending on rpm at idle	1.0 - 2.0★ 50mSec/div 
				[Engine is running] • Engine speed is 2,000 rpm	1.0 - 2.0★ 50mSec/div 
44 (Y)	—	Sensor power supply [Exhaust valve timing control position sensor]	—	[Ignition switch: ON]	5 V
45 (G)	128 (BR)	A/F sensor 1	Input	[Engine is running] • Engine speed is 2,000 rpm	1.8 V Output voltage varies with air fuel ratio.
49 (G)	128 (BR)	Intake manifold runner control valve motor (Close)	Output	[Ignition switch ON] • Engine coolant temperature: Between -7°C (19°F) and 60°C (140°F) • Accelerator pedal: Depressed → fully released	Battery voltage appears for about 1 second.
50 (V)	128 (BR)	Intake manifold runner control valve motor power supply	Input	[Ignition switch: ON]	Battery voltage (11 - 14 V)
51 (Y)	128 (BR)	Intake manifold runner control valve motor (Open)	Output	[Ignition switch ON] • Engine coolant temperature: Between -7°C (19°F) and 60°C (140°F) • Accelerator pedal: Fully released → depressed	Battery voltage appears for about 1 second.
52 (B)	—	ECM ground	—	—	—
53 (P)	128 (BR)	A/F sensor 1 heater	Input	[Engine is running] • Warm-up condition • Idle speed (More than 140 seconds after starting engine)	2.9 - 8.8 V★ 100mSec/div 

A

EC

C

D

E

F

G

H

I

J

K

L

M

N

O

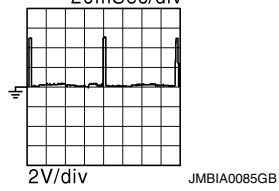
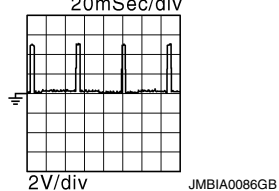
P

Terminal No. (Wire color)		Description		Condition	Value (Approx.)
+	—	Signal name	Input/ Output		
54 (V)	128 (BR)	Heated oxygen sensor 2 heater	Output	[Engine is running] - Engine speed: Below 3,600 rpm after the following conditions are met - Engine: after warming up - Keeping the engine speed between 3,500 and 4,000 rpm for 1 minute and at idle for 1 minute under no load	10 V★
				[Ignition switch: ON] - Engine stopped [Engine is running] - Engine speed: Above 3,600 rpm	Battery voltage (11 - 14 V)
56 (GR)	128 (BR)	Intake valve timing intermediate lock control solenoid valve	Output	[Engine is running] - Warm-up condition - Idle speed	0 V
				[Engine is running] - Cold condition [Engine coolant temperature: below 60°C (140°F)] - Idle speed	Battery voltage (11 - 14 V)
70 (BR)	—	Sensor ground [Crankshaft position sensor (POS)]	—	—	—
71 (GR)	70 (BR)	Crankshaft position sensor (POS)	Input	[Engine is running] - Warm-up condition - Idle speed NOTE: The pulse cycle changes depending on rpm at idle	4.0 V★
				[Engine is running] Engine speed: 2,000 rpm	4.0 V★
72 (L)	—	Sensor power supply [Crankshaft position sensor (POS)]	—	[Ignition switch: ON]	5.0 V
73 (—)	—	Shield	—	—	—
77 (W)	78 (B)	Throttle position sensor 2	Input	[Ignition switch: ON] - Engine stopped - Selector lever: D - Accelerator pedal: Fully released	Less than 4.75 V
				[Ignition switch: ON] - Engine stopped - Selector lever: D - Accelerator pedal: Fully depressed	More than 0.36 V
78 (B)	—	Sensor ground (Throttle position sensor 1, 2)	—	—	—

ECM

< ECU DIAGNOSIS INFORMATION >

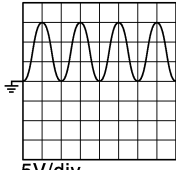
[QR25DE]

Terminal No. (Wire color)		Description		Condition	Value (Approx.)
+	-	Signal name	Input/ Output		
79 (G)	78 (B)	Throttle position sensor 1	Input	[Ignition switch: ON] • Engine stopped • Selector lever: D • Accelerator pedal: Fully released	More than 0.36 V
				[Ignition switch: ON] • Engine stopped • Selector lever: D • Accelerator pedal: Fully depressed	Less than 4.75 V
80 (R)	—	Sensor power supply (Throttle position sensor)	—	[Ignition switch: ON]	5.0 V
81 (R)	128 (BR)	Power supply for ECM (Backup)	Input	[Ignition switch: OFF]	Battery voltage (11 - 14 V)
83 (L)	92 (LG)	Intake manifold runner control valve position sensor	Input	[Ignition switch ON] • Engine coolant temperature: Between -7°C (19°F) and 60°C (140°F) • Accelerator pedal: Fully released	Less than 1.4 V
				[Ignition switch ON] • Engine coolant temperature: Between -7°C (19°F) and 60°C (140°F) • Accelerator pedal: Slightly depressed	More than 2.8 V
84 (V)	—	Sensor power supply (Intake manifold runner control valve position sensor)	—	[Ignition switch: ON]	5.0 V
85 (G)	—	Lin communication line	Input/ Output	—	—
86 (Y)	128 (BR)	Ignition signal No. 1	Output	[Engine is running] • Warm-up condition • Idle speed NOTE: The pulse cycle changes depending on rpm at idle	0 - 0.1 V★ 
87 (BR)		Ignition signal No. 2			
90 (W)		Ignition signal No. 3		[Engine is running] • Warm-up condition • Engine speed: 2,000 rpm	0 - 0.2 V★ 
91 (SB)		Ignition signal No. 4			
89 (P)	128 (BR)	ECM relay (Self shut-off)	Output	[Engine is running] [Ignition switch: OFF] • A few seconds after turning ignition switch OFF	0 - 1.0 V
				[Ignition switch: OFF] • More than a few seconds after turning ignition switch OFF	Battery voltage (11 - 14 V)
92 (LG)	—	Sensor ground (Intake manifold runner control valve position sensor)	—	—	—

ECM

< ECU DIAGNOSIS INFORMATION >

[QR25DE]

Terminal No. (Wire color)		Description		Condition	Value (Approx.)
+	—	Signal name	Input/ Output		
93 (L)	128 (BR)	Intake valve timing control solenoid valve	Output	[Engine is running] • Warm-up condition • Idle speed	0 V
				[Engine is running] • Warm-up condition • When revving engine up to 2,000rpm Quickly	Battery voltage (11 - 14 V) ★  5V/div JMBIA1638GB
94 (BR)	128 (BR)	Exhaust valve timing control solenoid valve	Output	[Engine is running] • Warm-up condition • Idle speed	0 V
				[Engine is running] • Warm-up condition • Engine speed: 2,000 rpm	Battery voltage (11 - 14 V)
97 (GR)	128 (BR)	EVAP canister vent control valve	Output	[Ignition switch: ON]	Battery voltage (11 - 14 V)
99 (P)	—	CAN communication line (CAN-L)	Input/ Output	—	—
100 (L)	—	CAN communication line (CAN-H)	Input/ Output	—	—
103 (Y)	124 (W)	Refrigerant pressure sensor	Input	[Engine is running] • Warm-up condition • Both A/C switch and blower fan motor switch: ON (Compressor operates)	1.0 - 4.0 V
104 (R)	—	Sensor power supply (Refrigerant pressure sensor)	—	[Ignition switch: ON]	5.0 V
109 (LG)	128 (BR)	Ignition switch	Input	[Ignition switch: OFF]	0 V
				[Ignition switch: ON]	Battery voltage (11 - 14 V)
110 (G)	111 (BR)	ASCD steering switch	Input	[Ignition switch: ON] • ASCD steering switch: OFF	4 V
				[Ignition switch: ON] • MAIN switch: Pressed	0 V
				[Ignition switch: ON] • CANCEL switch: Pressed	1 V
				[Ignition switch: ON] • ACCEL/RES switch: Pressed	3 V
				[Ignition switch: ON] • COAST/SET switch: Pressed	2 V
111 (BR)	—	Sensor ground (ASCD steering switch)	—	—	—
113 (R)	—	Sensor power supply (EVAP control system pressure sensor)	—	[Ignition switch: ON]	5.0 V
114 (BR)	124 (W)	EVAP control system pressure sensor	Input	[Ignition switch: ON]	0.5 - 4.6 V

ECM

< ECU DIAGNOSIS INFORMATION >

[QR25DE]

Terminal No. (Wire color)		Description		Condition	Value (Approx.)	
+	-	Signal name	Input/ Output			
115 (V)	128 (BR)	Stop lamp switch	Input	[Ignition switch: OFF] • Brake pedal: Fully released	0 V	EC
				[Ignition switch: OFF] • Brake pedal: Slightly depressed	Battery voltage (11 - 14 V)	
116 (GR)	128 (BR)	Brake pedal position switch	Input	[Ignition switch: OFF] • Brake pedal: Fully released	Battery voltage (11 - 14 V)	C
117 (W)	128 (BR)	PNP signal	Input	[Ignition switch: ON] • Selector lever: P or N	Battery voltage (11 - 14 V)	D
				[Ignition switch: ON] • Selector lever: Except above	0 V	E
118 (SB)	—	Sensor power supply (Accelerator pedal position sensor 2)	—	[Ignition switch: ON]	5.0 V	F
119 (Y)	120 (LG)	Accelerator pedal position sensor 2	Input	[Ignition switch: ON] • Engine stopped • Accelerator pedal: Fully released	0.25 - 0.5 V	G
				[Ignition switch: ON] • Engine stopped • Accelerator pedal: Fully depressed	2.0 - 2.5 V	
120 (LG)	—	Sensor ground (Accelerator pedal position sensor 2)	—	—	—	H
121 (BR)	128 (BR)	Power supply for ECM	Input	[Ignition switch: ON]	Battery voltage (11 - 14 V)	I
122 (V)	—	Sensor power supply (Accelerator pedal position sensor 1)	—	[Ignition switch: ON]	5.0 V	J
123 (BR)	—	ECM ground	—	—	—	K
124 (W)	—	Sensor ground (EVAP control system pressure sensor, refrigerant pressure sensor)	—	—	—	L
125 (BG)	128 (BR)	Fuel tank temperature sensor	Input	[Engine is running]	0 - 4.8 V Output voltage varies with fuel tank temperature	M
126 (GR)	127 (L)	Accelerator pedal position sensor 1	Input	[Ignition switch: ON] • Engine stopped • Accelerator pedal: Fully released	0.5 - 1.0 V	N
				[Ignition switch: ON] • Engine stopped • Accelerator pedal: Fully depressed	4.2 - 4.8 V	
127 (R)	—	Sensor ground (Accelerator pedal position sensor 1)	—	—	—	O
128 (BR)	—	ECM ground	—	—	—	P

★: Average voltage for pulse signal (Actual pulse signal can be confirmed by oscilloscope.)

Fail Safe

INFOID:000000009984951

NON DTC RELATED ITEM

Detected items	Engine operating condition in fail-safe mode	Remarks	Reference page
Malfunction indicator lamp circuit	Engine speed will not rise more than 2,500 rpm due to the fuel cut	When there is an open circuit on MIL circuit, the ECM cannot warn the driver by lighting up MIL when there is malfunction on engine control system. Therefore, when electrical controlled throttle and part of ECM related diagnoses are continuously detected as NG for 5 trips, ECM warns the driver that engine control system malfunctions and MIL circuit is open by means of operating fail safe function. The fail safe function also operates when above diagnoses except MIL circuit are detected and demands the driver to repair the malfunction.	EC-476, "Component Function Check"

DTC RELATED ITEM

Description

When a DTC is detected, ECM executes a mode (in the Fail-safe mode) applicable to the DTC. The fail-safe mode has the preset traveling control mode (accelerator angle variation and engine output limit) and device fix mode.

Fail safe mode		Vehicle behavior
Traveling control mode	Accelerator angle variation control	ECM controls the accelerator pedal depression speed to make it slower than actual speed. This causes a drop in accelerating performance and encourages the driver to repair malfunction. NOTE: ECM does not control the accelerator pedal releasing speed.
	Engine output control	ECM reduces the engine output, according to the rise in engine speed. This reduces the vehicle speed to encourage the driver to repair malfunction.
Device fix mode		- This mode fixes the IVT control solenoid valve and the EVT control solenoid valve in the reference position. - The intake manifold runner control valve motor is turned OFF (intake manifold runner control valve opens).

Fail Safe Pattern

Pattern	Fail safe mode	
A	Traveling control mode	Accelerator angle variation control
B		Engine output control
C	Device fix mode	

Fail Safe List

×:Applicable —: Not applicable

DTC No.	Detected items	Vehicle behavior			
		Pattern			Others
		A	B	C	
P0011	Intake valve timing control	—	—	×	ECM activates the IVT intermediate lock control solenoid valve to bring the cam sprocket into an intermediate lock condition.
P0014 P0078	Exhaust valve timing control	—	—	×	—
P0101 P0102 P0103	Mass air flow sensor circuit	×	×	×	—
P0122 P0123 P0222 P0223 P2135	Throttle position sensor	—	—	—	The ECM controls the electric throttle control actuator in regulating the throttle opening in order for the idle position to be within +10 degrees. The ECM regulates the opening speed of the throttle valve to be slower than the normal condition. So, the acceleration will be poor.

ECM

< ECU DIAGNOSIS INFORMATION >

[QR25DE]

DTC No.	Detected items	Vehicle behavior									
		Pattern			Others						
		A	B	C							
P0171 P0172	Fuel injection system	×	—	—	—						
P0197 P0198	Engine oil temperature sensor	—	—	—	Exhaust valve timing control does not function.						
P0300 P0301 P0302 P0303 P0304	Misfire	×	—	—	—						
P0500	Vehicle speed sensor	×	—	—	—						
P050A	Cold start control	—	—	—	—						
P0524	Engine oil pressure	—	—	—	• ECM illuminates oil pressure warning lamp on the combination meter. • Engine speed will not rise more than 4,000rpm due to the fuel cut. • Fail-safe is canceled when ignition switch OFF → ON.						
P052A P052B	Intake valve timing intermediate lock control	—	—	×	—						
P0603	ECM power supply circuit	—	×	—	—						
P0605	ECM	—	—	—	ECM stops the electric throttle control actuator control, throttle valve is maintained at a fixed opening (approx. 5 degrees) by the return spring.						
P0643	Sensor power supply	—	—	—	ECM stops the electric throttle control actuator control, throttle valve is maintained at a fixed opening (approx. 5 degrees) by the return spring.						
P1078	Exhaust valve timing control position sensor circuit	×	—	×	—						
P1568	Signal invalid	—	—	—	Active trace control does not function.						
P1805	Brake switch	—	—	—	ECM controls the electric throttle control actuator by regulating the throttle opening to a small range. Therefore, acceleration will be poor. <table><tr><td>Vehicle condition</td><td>Driving condition</td></tr><tr><td>When engine is idling</td><td>Normal</td></tr><tr><td>When accelerating</td><td>Poor acceleration</td></tr></table>	Vehicle condition	Driving condition	When engine is idling	Normal	When accelerating	Poor acceleration
Vehicle condition	Driving condition										
When engine is idling	Normal										
When accelerating	Poor acceleration										
P2004	Intake manifold runner control valve	—	×	×	—						
P2100 P2103	Throttle control motor relay	—	—	—	ECM stops the electric throttle control actuator control, throttle valve is maintained at a fixed opening (approx. 5 degrees) by the return spring.						
P2101	Electric throttle control function	—	—	—	ECM stops the electric throttle control actuator control, throttle valve is maintained at a fixed opening (approx. 5 degrees) by the return spring.						
P2118	Throttle control motor	—	—	—	ECM stops the electric throttle control actuator control, throttle valve is maintained at a fixed opening (approx. 5 degrees) by the return spring.						

DTC No.	Detected items	Vehicle behavior			
		Pattern			Others
		A	B	C	
P2119	Electric throttle control actuator	—	×	—	—
P2122 P2123 P2127 P2128 P2138	Accelerator pedal position sensor	—	—	—	The ECM controls the electric throttle control actuator in regulating the throttle opening in order for the idle position to be within +10 degrees. The ECM regulates the opening speed of the throttle valve to be slower than the normal condition. So, the acceleration will be poor.

DTC Inspection Priority Chart

INFOID:000000009984952

If some DTCs are displayed at the same time, perform inspections one by one based on the following priority chart.

Priority	DTC	Detected items
1	U0101, U1001	CAN communication line
	P0101, P0102, P0103	Mass air flow sensor
	P0111, P0112, P0113, P0127	Intake air temperature sensor
	P0116, P0117, P0118, P0125	Engine coolant temperature sensor
	P0122, P0123, P0222, P0223, P1225, P1226, P2135	Throttle position sensor
	P0128	Thermostat function
	P0181, P0182, P0183	Fuel tank temperature sensor
	P0196, P0197, P0198	Engine oil temperature sensor
	P0327, P0328	Knock sensor
	P0335	Crankshaft position sensor (POS)
	P0340	Camshaft position sensor (PHASE)
	P0460, P0461, P0462, P0463	Fuel level sensor
	P0500	Vehicle speed sensor
	P0520	Engine oil pressure sensor
	P0603, P0604, P0605, P0606, P0607, P060A, P060B, P2610	ECM
	P0643	Sensor power supply
	P0850	Transmission range switch
	P1078	Exhaust valve timing control position sensor
	P1610, P1611, P1612, P1615	NATS
	P2014, P2016, P2017, P2018	Intake manifold runner control valve position sensor
	P2122, P2123, P2127, P2128, P2138	Accelerator pedal position sensor

ECM

< ECU DIAGNOSIS INFORMATION >

[QR25DE]

Priority	DTC	Detected items
2	P0031, P0032	Air fuel ratio (A/F) sensor 1 heater
	P0037, P0038	Heated oxygen sensor 2 heater
	P0075	Intake valve timing control solenoid valve/Intake valve timing intermediate lock control solenoid valve
	P0078	Exhaust valve timing control solenoid valve
	P0130, P0131, P0132, P014C, P014D, P015A, P015B, P117A, P2096, P2097	Air fuel ratio (A/F) sensor 1
	P0137, P0138, P0139	Heated oxygen sensor 2
	P0441	EVAP control system purge flow monitoring
	P0443, P0444, P0445	EVAP canister purge volume control solenoid valve
	P0447, P0448	EVAP canister vent control valve
	P0451, P0452, P0453	EVAP control system pressure sensor
	P1217	Engine over temperature (OVERHEAT)
	P1805	Brake switch
	P2004	Intake manifold runner control valve
	P2100, P2103	Throttle control motor relay
	P2101	Electric throttle control function
	P2118	Throttle control motor
3	P0011, P052A, P052B	Intake valve timing control
	P0014	Exhaust valve timing control
	P0171, P0172	Fuel injection system function
	P0300, P0301, P0302, P0303, P0304	Misfire
	P0420	Three way catalyst function
	P0456	EVAP control system
	P0506, P0507	Idle speed control system
	P050A, P050B, P050E	Cold start control
	P0524	Engine oil pressure
	P1148	Closed loop control
	P1212	TCS communication line
	P1564	ASCD steering switch
	P1572	ASCD brake switch
	P1574	ASCD vehicle speed sensor
	P1715	Input speed sensor
	P2119	Electric throttle control actuator

DTC Index

INFOID:000000009984953

×:Applicable —: Not applicable

DTC*1		Items (CONSULT screen terms)	SRT code	Trip	MIL	Permanent DTC group*4	Reference page
CONSULT GST*2	ECM*3						
U0101	0101*5	LOST COMM (TCM)	—	1	×	B	EC-169
U1001	1001*5	CAN COMM CIRCUIT	—	2 or 1	—	—	EC-170
U1040	1040*5	ENG COMM CIRCUIT	—	2	—	—	EC-171
U1044	1044*5	ENG COMM CIRCUIT	—	2	—	—	EC-173

ECM

< ECU DIAGNOSIS INFORMATION >

[QR25DE]

DTC*1		Items (CONSULT screen terms)	SRT code	Trip	MIL	Permanent DTC group*4	Reference page
CONSULT GST*2	ECM*3						
U1050	1050*5	LIN COMMUNICATION	—	2	—	—	EC-175
U1051	1051*5	LIN COMMUNICATION	—	2	—	—	EC-175
P0000	0000	NO DTC IS DETECTED. FURTHER TESTING MAY BE REQUIRED.	—	—	Flashing*6	—	—
P0011	0011	INT/V TIM CONT-B1	×	2	×	B	EC-177
P0014	0014	EXH/V TIM CONT-B1	—	2	×	B	EC-181
P0031	0031	A/F SEN1 HTR (B1)	—	2	×	B	EC-185
P0032	0032	A/F SEN1 HTR (B1)	—	2	×	B	EC-185
P0037	0037	HO2S2 HTR (B1)	—	2	×	B	EC-188
P0038	0038	HO2S2 HTR (B1)	—	2	×	B	EC-188
P0075	0075	INT/V TIM V/CIR-B1	—	2	×	B	EC-191
P0078	0078	EX V/T ACT/CIRC-B1	—	2	×	B	EC-195
P0101	0101	MAF SEN/CIRCUIT-B1	—	2	×	B	EC-198
P0102	0102	MAF SEN/CIRCUIT-B1	—	1	×	B	EC-202
P0103	0103	MAF SEN/CIRCUIT-B1	—	1	×	B	EC-202
P0111	0111	IAT SENSOR 1 B1	—	2	×	A	EC-206
P0112	0112	IAT SEN/CIRCUIT-B1	—	2	×	B	EC-208
P0113	0113	IAT SEN/CIRCUIT-B1	—	2	×	B	EC-208
P0116	0116	ECT SENSOR	—	2	×	A	EC-211
P0117	0117	ECT SEN/CIRC	—	1	×	B	EC-213
P0118	0118	ECT SEN/CIRC	—	1	×	B	EC-213
P0122	0122	TP SEN 2/CIRC-B1	—	1	×	B	EC-216
P0123	0123	TP SEN 2/CIRC-B1	—	1	×	B	EC-216
P0125	0125	ECT SENSOR	—	2	×	B	EC-219
P0127	0127	IAT SENSOR-B1	—	2	×	B	EC-221
P0128	0128	THERMSTAT FNCTN	—	2	×	A	EC-223
P0130	0130	A/F SENSOR1 (B1)	—	2	×	A	EC-226
P0131	0131	A/F SENSOR1 (B1)	—	2	×	B	EC-230
P0132	0132	A/F SENSOR1 (B1)	—	2	×	B	EC-233
P0137	0137	HO2S2 (B1)	×	2	×	A	EC-236
P0138	0138	HO2S2 (B1)	×	2	×	A	EC-242
P0139	0139	HO2S2 (B1)	×	2	×	A	EC-249
P014C	014C	A/F SENSOR1 (B1)	×	2	×	A	EC-255
P014D	014D	A/F SENSOR1 (B1)	×	2	×	A	EC-255
P015A	015A	A/F SENSOR1 (B1)	×	2	×	A	EC-255
P015B	015B	A/F SENSOR1 (B1)	×	2	×	A	EC-255
P0171	0171	FUEL SYS-LEAN-B1	—	2	×	B	EC-260
P0172	0172	FUEL SYS-RICH-B1	—	2	×	B	EC-265
P0181	0181	FTT SENSOR	—	2	×	A and B	EC-270
P0182	0182	FTT SEN/CIRCUIT	—	2	×	B	EC-274
P0183	0183	FTT SEN/CIRCUIT	—	2	×	B	EC-274
P0196	0196	EOT SENSOR	—	2	×	A and B	EC-277

ECM

< ECU DIAGNOSIS INFORMATION >

[QR25DE]

DTC*1		Items (CONSULT screen terms)	SRT code	Trip	MIL	Permanent DTC group*4	Reference page	
CONSULT GST*2	ECM*3							
P0197	0197	EOT SEN/CIRC	—	2	×	B	EC-281	EC
P0198	0198	EOT SEN/CIRC	—	2	×	B	EC-281	
P0222	0222	TP SEN 1/CIRC-B1	—	1	×	B	EC-284	C
P0223	0223	TP SEN 1/CIRC-B1	—	1	×	B	EC-284	
P0300	0300	MULTI CYL MISFIRE	—	1 or 2	×	B	EC-287	D
P0301	0301	CYL 1 MISFIRE	—	1 or 2	×	B	EC-287	
P0302	0302	CYL 2 MISFIRE	—	1 or 2	×	B	EC-287	E
P0303	0303	CYL 3 MISFIRE	—	1 or 2	×	B	EC-287	
P0304	0304	CYL 4 MISFIRE	—	1 or 2	×	B	EC-287	F
P0327	0327	KNOCK SEN/CIRC-B1	—	2	—	—	EC-293	
P0328	0328	KNOCK SEN/CIRC-B1	—	2	—	—	EC-293	G
P0335	0335	CKP SEN/CIRCUIT	—	2	×	B	EC-295	
P0340	0340	CMP SEN/CIRC-B1	—	2	×	B	EC-298	H
P0420	0420	TW CATALYST SYS-B1	×	2	×	A	EC-301	
P0441	0441	EVAP PURG FLOW/MON	×	2	×	A	EC-306	I
P0443	0443	PURG VOLUME CONT/V	—	2	×	A	EC-311	
P0444	0444	PURG VOLUME CONT/V	—	2	×	B	EC-316	J
P0445	0445	PURG VOLUME CONT/V	—	2	×	B	EC-316	
P0447	0447	VENT CONTROL VALVE	—	2	×	B	EC-319	K
P0448	0448	VENT CONTROL VALVE	—	2	×	B	EC-323	
P0451	0451	EVAP SYS PRES SEN	—	2	×	A	EC-327	L
P0452	0452	EVAP SYS PRES SEN	—	2	×	B	EC-331	
P0453	0453	EVAP SYS PRES SEN	—	2	×	B	EC-334	M
P0456	0456	EVAP VERY SML LEAK	×*7	2	×	A	EC-338	
P0460	0460	FUEL LEV SEN SLOSH	—	2	×	A	EC-344	N
P0461	0461	FUEL LEVEL SENSOR	—	2	×	B	EC-346	
P0462	0462	FUEL LEVL SEN/CIRC	—	2	×	B	EC-348	O
P0463	0463	FUEL LEVL SEN/CIRC	—	2	×	B	EC-348	
P0500	0500	VEHICLE SPEED SENSOR A*8	—	2	×	B	EC-350	P
P0506	0506	ISC SYSTEM	—	2	×	B	EC-352	
P0507	0507	ISC SYSTEM	—	2	×	B	EC-354	
P050A	050A	COLD START CONTROL	—	2	×	A	EC-356	
P050B	050B	COLD START CONTROL	—	2	×	A	EC-356	
P050E	050E	COLD START CONTROL	—	2	×	A	EC-356	
P0520	0520	EOP SENSOR/SWITCH	—	2	—	—	EC-358	
P0524	0524	ENGINE OIL PRESSURE	—	1	—	—	EC-361	
P052A	052A	CAMSHAFT POSITION TIMING B1	—	2	×	B	EC-364	
P052B	052B	CAMSHAFT POSITION TIMING B1	—	2	×	B	EC-364	
P0603	0603	ECM BACK UP/CIRCUIT*9	—	2	× or —	B	EC-370	
P0604	0604	ECM	—	1	×	B	EC-372	
P0605	0605	ECM	—	1 or 2	× or —	B	EC-373	
P0606	0606	CONTROL MODULE	—	1	× or —	B	EC-374	

ECM

< ECU DIAGNOSIS INFORMATION >

[QR25DE]

DTC*1		Items (CONSULT screen terms)	SRT code	Trip	MIL	Permanent DTC group*4	Reference page
CONSULT GST*2	ECM*3						
P0607	0607	ECM	—	1 or 2	× or —	B	EC-376
P060A	060A	CONTROL MODULE	—	1 or 2	×	B	EC-377
P060B	060B	CONTROL MODULE	—	1	×	B	EC-378
P062F	062F	CONTROL MODULE	—	2	×	A	EC-370
P0643	0643	SENSOR POWER/CIRC	—	1	×	B	EC-379
P0850	0850	P-N POS SW/CIRCUIT	—	2	×	B	EC-382
P1078	1078	EXH TIM SEN/CIRC-B1	—	2	×	B	EC-385
P1148	1148	CLOSED LOOP-B1	—	1	×	A	EC-388
P117A	117A	AIR FUEL RATIO B1	—	2	×	A	EC-389
P1212	1212	TCS/CIRC	—	2	—	—	EC-395
P1217	1217	ENG OVER TEMP	—	1	×	B	EC-397
P1225	1225	CTP LEARNING-B1	—	2	—	—	EC-400
P1226	1226	CTP LEARNING-B1	—	2	—	—	EC-401
P155D	155D	GENERATOR	—	2	—	—	EC-402
P1564	1564	ASCD SW	—	1	—	—	EC-403
P1568	1568	ICC COMMAND VALUE	—	1	—	—	EC-406
P1572	1572	ASCD BRAKE SW	—	1	—	—	EC-408
P1574	1574	ASCD VHL SPD SEN	—	1	—	—	EC-414
P1610	1610	LOCK MODE	—	2	—	—	SEC-67, SEC-155
P1611	1611	ID DISCORD,IMMU-ECM	—	2	—	—	SEC-68, SEC-156
P1612	1612	CHAIN OF ECM-IMMU	—	2	—	—	SEC-69, SEC-157
P161D	161D	IMMOBILIZER	—	2	—	—	SEC-70, SEC-158
P161E	161E	IMMOBILIZER	—	2	—	—	SEC-71, SEC-159
P161F	161F	IMMOBILIZER	—	2	—	—	SEC-72, SEC-160
P1715	1715	IN PULY SPEED	—	2	—	—	EC-416
P1805	1805	BRAKE SW/CIRCUIT	—	2	—	—	EC-418
P2004	2004	TUMBLE CONT/V	—	2	×	B	EC-420
P2014	2014	IN/MANIFOLD RUNNER POS SEN B1	—	2	×	B	EC-423
P2016	2016	IN/MANIFOLD RUNNER POS SEN B1	—	2	×	B	EC-423
P2017	2017	IN/MANIFOLD RUNNER POS SEN B1	—	2	×	B	EC-423
P2018	2018	IN/MANIFOLD RUNNER POS SEN B1	—	2	×	B	EC-423
P2096	2096	POST CATALYST FUEL TRIM SYS B1	—	2	×	A	EC-426
P2097	2097	POST CATALYST FUEL TRIM SYS B1	—	2	×	A	EC-426
P2100	2100	ETC MOT PWR-B1	—	1	×	B	EC-430
P2101	2101	ETC FNCTN/CIRC-B1	—	1	×	B	EC-433
P2103	2103	ETC MOT PWR-B1	—	1	×	B	EC-430
P2118	2118	ETC MOT-B1	—	1	×	B	EC-436
P2119	2119	ETC ACTR-B1	—	1	×	B	EC-438

DTC*1		Items (CONSULT screen terms)	SRT code	Trip	MIL	Permanent DTC group*4	Reference page
CONSULT GST*2	ECM*3						
P2122	2122	APP SEN 1/CIRC	—	1	×	B	EC-440
P2123	2123	APP SEN 1/CIRC	—	1	×	B	EC-440
P2127	2127	APP SEN 2/CIRC	—	1	×	B	EC-443
P2128	2128	APP SEN 2/CIRC	—	1	×	B	EC-443
P2135	2135	TP SENSOR-B1	—	1	×	B	EC-446
P2138	2138	APP SENSOR	—	1	×	B	EC-449
P2610	2610	ECM/PCM INTERNAL ENG OFF TIMER	—	2	×	A and B	EC-453

*1: 1st trip DTC No. is the same as DTC No.

*2: This number is prescribed by SAE J1979/ ISO 15031-5.

*3: In Diagnostic Test Mode II (Self-diagnostic results), this number is controlled by NISSAN.

*4: Refer to [EC-151, "Description"](#).

*5: The troubleshooting for this DTC needs CONSULT.

*6: When the ECM is in the mode that displays SRT status, MIL may blink. For details, Refer to [EC-64, "On Board Diagnosis Function"](#).

*7: SRT code will not be set if the self-diagnostic result is NG.

*8: When the fail-safe operations for both self-diagnoses occur, the MIL illuminates.

*9: This self-diagnosis is not for ECM power supply circuit, even though "ECM BACK UP/CIRCUIT" is displayed on CONSULT screen.

Test Value and Test Limit

INFOID:0000000010284081

The following is the information specified in Service \$06 of SAE J1979/ISO 15031-5.

The test value is a parameter used to determine whether a system/circuit diagnostic test is OK or NG while being monitored by the ECM during self-diagnosis. The test limit is a reference value which is specified as the maximum or minimum value and is compared with the test value being monitored.

These data (test value and test limit) are specified by On Board Monitor ID (OBDMID), Test ID (TID), Unit and Scaling ID and can be displayed on the GST screen.

The items of the test value and test limit will be displayed with GST screen which items are provided by the ECM. (e.g., if bank 2 is not applied on this vehicle, only the items of bank 1 are displayed)

Item	OBD-MID	Self-diagnostic test item	DTC	Test value and Test limit (GST display)		Description
				TID	Unit and Scaling ID	
HO2S	01H	Air fuel ratio (A/F) sensor 1 (Bank 1)	P0131	83H	0BH	Minimum sensor output voltage for test cycle
			P0131	84H	0BH	Maximum sensor output voltage for test cycle
			P0130	85H	0BH	Minimum sensor output voltage for test cycle
			P0130	86H	0BH	Maximum sensor output voltage for test cycle
			P0133	87H	04H	Response rate: Response ratio (lean to rich)
			P0133	88H	04H	Response rate: Response ratio (rich to lean)
			P2A00 or P2096	89H	84H	The amount of shift in air fuel ratio (too lean)
			P2A00 or P2097	8AH	84H	The amount of shift in air fuel ratio (too rich)
			P0130	8BH	0BH	Difference in sensor output voltage
			P0133	8CH	83H	Response gain at the limited frequency
			P014C	8DH	04H	O2 sensor slow response - Rich to lean bank 1 sensor 1
			P014C	8EH	04H	O2 sensor slow response - Rich to lean bank 1 sensor 1
			P014D	8FH	84H	O2 sensor slow response - Lean to rich bank 1 sensor 1
			P014D	90H	84H	O2 sensor slow response - Lean to rich bank 1 sensor 1
			P015A	91H	01H	O2 sensor delayed response - Rich to lean bank 1 sensor 1
			P015A	92H	01H	O2 sensor delayed response - Rich to lean bank 1 sensor 1
			P015B	93H	01H	O2 sensor delayed response - Lean to rich bank 1 sensor 1
			P015B	94H	01H	O2 sensor delayed response - Lean to rich bank 1 sensor 1
			P0133	95H	04H	Response rate: Response ratio (lean to rich)
			P0133	96H	84H	Response rate: Response ratio (rich to lean)

ECM

< ECU DIAGNOSIS INFORMATION >

[QR25DE]

Item	OBD-MID	Self-diagnostic test item	DTC	Test value and Test limit (GST display)		Description
				TID	Unit and Scaling ID	
HO2S	02H	Heated oxygen sensor 2 (Bank 1)	P0138	07H	0CH	Minimum sensor output voltage for test cycle
			P0137	08H	0CH	Maximum sensor output voltage for test cycle
			P0138	80H	0CH	Sensor output voltage
			P0139	81H	0CH	Difference in sensor output voltage
			P0139	82H	11H	Rear O2 sensor delay response diagnosis
	03H	Heated oxygen sensor 3 (Bank 1)	P0143	07H	0CH	Minimum sensor output voltage for test cycle
			P0144	08H	0CH	Maximum sensor output voltage for test cycle
			P0146	80H	0CH	Sensor output voltage
			P0145	81H	0CH	Difference in sensor output voltage
	05H	Air fuel ratio (A/F) sensor 1 (Bank 2)	P0151	83H	0BH	Minimum sensor output voltage for test cycle
			P0151	84H	0BH	Maximum sensor output voltage for test cycle
			P0150	85H	0BH	Minimum sensor output voltage for test cycle
			P0150	86H	0BH	Maximum sensor output voltage for test cycle
			P0153	87H	04H	Response rate: Response ratio (lean to rich)
			P0153	88H	04H	Response rate: Response ratio (rich to lean)
			P2A03 or P2098	89H	84H	The amount of shift in air fuel ratio (too lean)
			P2A03 or P2099	8AH	84H	The amount of shift in air fuel ratio (too rich)
			P0150	8BH	0BH	Difference in sensor output voltage
			P0153	8CH	83H	Response gain at the limited frequency
			P014E	8DH	04H	O2 sensor slow response - Rich to lean bank 2 sensor 1
			P014E	8EH	04H	O2 sensor slow response - Rich to lean bank 2 sensor 1
			P014F	8FH	84H	O2 sensor slow response - Lean to rich bank 2 sensor 1
			P014F	90H	84H	O2 sensor slow response - Lean to rich bank 2 sensor 1
			P015C	91H	01H	O2 sensor delayed response - Rich to lean bank 2 sensor 1
			P015C	92H	01H	O2 sensor delayed response - Rich to lean bank 2 sensor 1
			P015D	93H	01H	O2 sensor delayed response - Lean to rich bank 2 sensor 1

Item	OBD-MID	Self-diagnostic test item	DTC	Test value and Test limit (GST display)		Description
				TID	Unit and Scaling ID	
HO2S	05H	Air fuel ratio (A/F) sensor 1 (Bank 2)	P015D	94H	01H	O2 sensor delayed response - Lean to rich bank 2 sensor 1
			P0153	95H	04H	Response rate: Response ratio (lean to rich)
			P0153	96H	84H	Response rate: Response ratio (rich to lean)
	06H	Heated oxygen sensor 2 (Bank 2)	P0158	07H	0CH	Minimum sensor output voltage for test cycle
			P0157	08H	0CH	Maximum sensor output voltage for test cycle
			P0158	80H	0CH	Sensor output voltage
			P0159	81H	0CH	Difference in sensor output voltage
			P0159	82H	11H	Rear O2 sensor delay response diagnosis
	07H	Heated oxygen sensor 3 (Bank2)	P0163	07H	0CH	Minimum sensor output voltage for test cycle
			P0164	08H	0CH	Maximum sensor output voltage for test cycle
			P0166	80H	0CH	Sensor output voltage
			P0165	81H	0CH	Difference in sensor output voltage
CATA- LYST	21H	Three way catalyst function (Bank1)	P0420	80H	01H	O2 storage index
			P0420	82H	01H	Switching time lag engine exhaust index value
			P2423	83H	0CH	Difference in 3rd O2 sensor output voltage
			P2423	84H	84H	O2 storage index in HC trap catalyst
	22H	Three way catalyst function (Bank2)	P0430	80H	01H	O2 storage index
			P0430	82H	01H	Switching time lag engine exhaust index value
			P2424	83H	0CH	Difference in 3rd O2 sensor output voltage
			P2424	84H	84H	O2 storage index in HC trap catalyst
EGR SYSTEM	31H	EGR function	P0400	80H	96H	Low flow faults: EGR temp change rate (short term)
			P0400	81H	96H	Low flow faults: EGR temp change rate (long term)
			P0400	82H	96H	Low flow faults: Difference between max EGR temp and EGR temp under idling condition
			P0400	83H	96H	Low flow faults: Max EGR temp
			P1402	84H	96H	High Flow Faults: EGR temp increase rate

Item	OBD-MID	Self-diagnostic test item	DTC	Test value and Test limit (GST display)		Description
				TID	Unit and Scaling ID	
VVT SYSTEM	35H	VVT Monitor (Bank1)	P0011	80H	9DH	VTC intake function diagnosis (VTC alignment check diagnosis)
			P0014	81H	9DH	VTC exhaust function diagnosis (VTC alignment check diagnosis)
			P0011	82H	9DH	VTC intake function diagnosis (VTC drive failure diagnosis)
			P0014	83H	9DH	VTC exhaust function diagnosis (VTC drive failure diagnosis)
			P100A	84H	10H	VEL slow response diagnosis
			P1090	85H	10H	VEL servo system diagnosis
			P0011	86H	9DH	VTC intake intermediate lock function diagnosis (VTC intermediate position alignment check diagnosis)
			Advanced: P052A Retarded: P052B	87H	9DH	VTC intake intermediate lock system diagnosis (VTC intermediate lock position check diagnosis)
	36H	VVT Monitor (Bank2)	P0021	80H	9DH	VTC intake function diagnosis (VTC alignment check diagnosis)
			P0024	81H	9DH	VTC exhaust function diagnosis (VTC alignment check diagnosis)
			P0021	82H	9DH	VTC intake function diagnosis (VTC drive failure diagnosis)
			P0024	83H	9DH	VTC exhaust function diagnosis (VTC drive failure diagnosis)
			P100B	84H	10H	VEL slow response diagnosis
			P1093	85H	10H	VEL servo system diagnosis
			P0021	86H	9DH	VTC intake intermediate lock function diagnosis (VTC intermediate position alignment check diagnosis)
			Advanced: P052C Retarded: P052D	87H	9DH	VTC intake intermediate lock system diagnosis (VTC intermediate lock position check diagnosis)
EVAP SYSTEM	39H	EVAP control system leak (Cap Off)	P0455	80H	0CH	Difference in pressure sensor output voltage before and after pull down
	3BH	EVAP control system leak (Small leak)	P0442	80H	05H	Leak area index (for more than 0.04 inch)
	3CH	EVAP control system leak (Very small leak)	P0456	80H	05H	Leak area index (for more than 0.02 inch)
			P0456	81H	FDH	Maximum internal pressure of EVAP system during monitoring
			P0456	82H	FDH	Internal pressure of EVAP system at the end of monitoring
	3DH	Purge flow system	P0441	83H	0CH	Difference in pressure sensor output voltage before and after vent control valve close

Item	OBD-MID	Self-diagnostic test item	DTC	Test value and Test limit (GST display)		Description
				TID	Unit and Scaling ID	
O2 SENSOR HEATER	41H	A/F sensor 1 heater (Bank 1)	Low Input: P0031 High Input: P0032	81H	0BH	Converted value of heater electric current to voltage
	42H	Heated oxygen sensor 2 heater (Bank 1)	Low Input: P0037 High Input: P0038	80H	0CH	Converted value of heater electric current to voltage
	43H	Heated oxygen sensor 3 heater (Bank 1)	P0043	80H	0CH	Converted value of heater electric current to voltage
	45H	A/F sensor 1 heater (Bank 2)	Low Input: P0051 High Input: P0052	81H	0BH	Converted value of heater electric current to voltage
	46H	Heated oxygen sensor 2 heater (Bank 2)	Low Input: P0057 High Input: P0058	80H	0CH	Converted value of heater electric current to voltage
	47H	Heated oxygen sensor 3 heater (Bank 2)	P0063	80H	0CH	Converted value of heater electric current to voltage
SECONDARY AIR	71H	Secondary air system	P0411	80H	01H	Secondary air injection system incorrect flow detected
			Bank1: P0491 Bank2: P0492	81H	01H	Secondary air injection system insufficient flow
			P2445	82H	01H	Secondary air injection system pump stuck off
			P2448	83H	01H	Secondary air injection system high airflow
			Bank1: P2440 Bank2: P2442	84H	01H	Secondary air injection system switching valve stuck open
			P2440	85H	01H	Secondary air injection system switching valve stuck open
			P2444	86H	01H	Secondary air injection system pump stuck on
FUEL SYSTEM	81H	Fuel injection system function (Bank 1)	P0171 or P0172	80H	2FH	Long term fuel trim
			P0171 or P0172	81H	24H	The number of lambda control clamped
			P117A	82H	03H	Cylinder A/F imbalance monitoring
	82H	Fuel injection system function (Bank 2)	P0174 or P0175	80H	2FH	Long term fuel trim
			P0174 or P0175	81H	24H	The number of lambda control clamped
			P117B	82H	03H	Cylinder A/F imbalance monitoring

ECM

< ECU DIAGNOSIS INFORMATION >

[QR25DE]

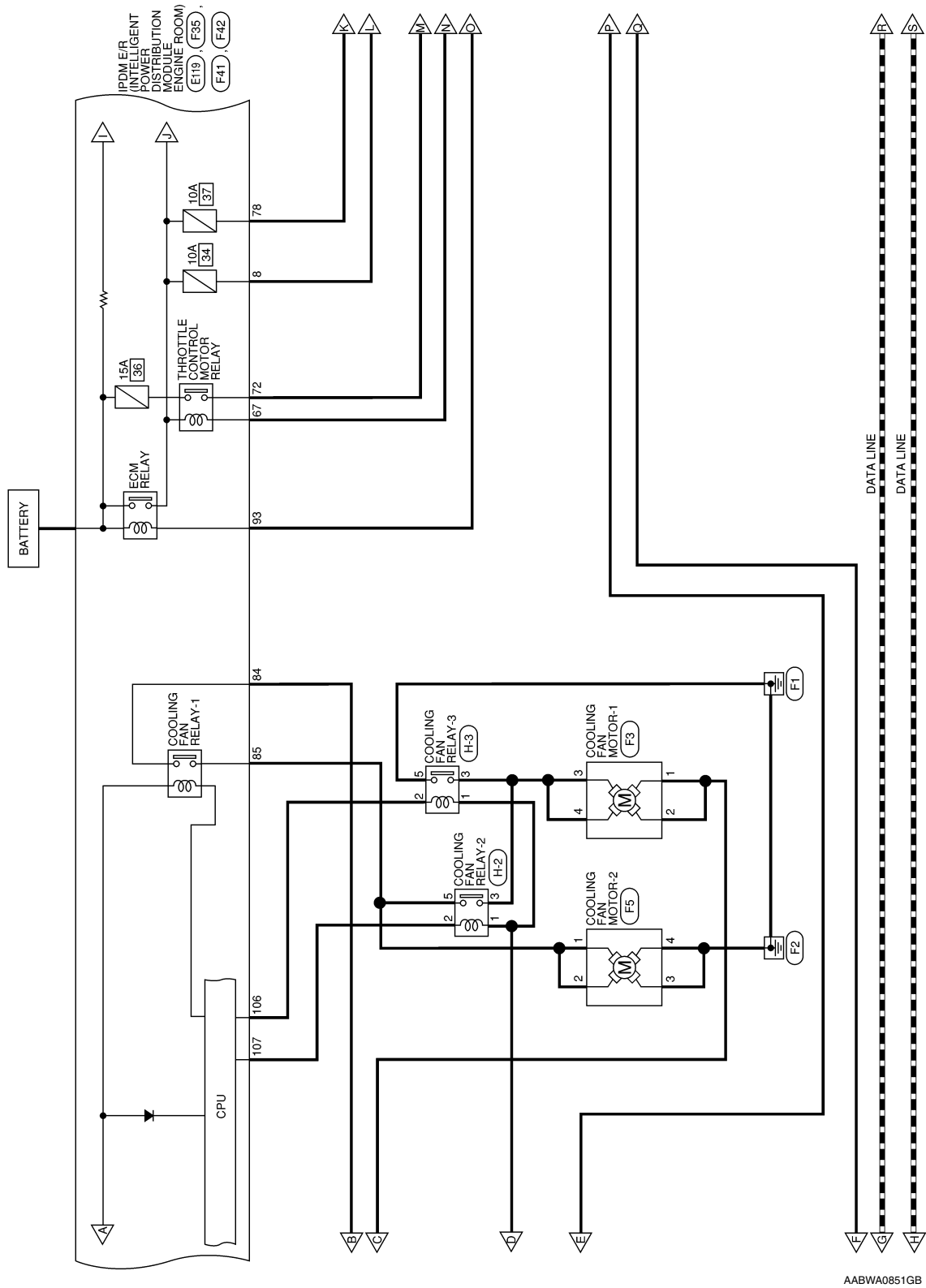
Item	OBD-MID	Self-diagnostic test item	DTC	Test value and Test limit (GST display)		Description
				TID	Unit and Scaling ID	
MISFIRE	A1H	Multiple cylinder misfires	P0301	80H	24H	Misfiring counter at 1000 revolution of the first cylinder
			P0302	81H	24H	Misfiring counter at 1000 revolution of the second cylinder
			P0303	82H	24H	Misfiring counter at 1000 revolution of the third cylinder
			P0304	83H	24H	Misfiring counter at 1000 revolution of the fourth cylinder
			P0305	84H	24H	Misfiring counter at 1000 revolution of the fifth cylinder
			P0306	85H	24H	Misfiring counter at 1000 revolution of the sixth cylinder
			P0307	86H	24H	Misfiring counter at 1000 revolution of the seventh cylinder
			P0308	87H	24H	Misfiring counter at 1000 revolution of the eighth cylinder
			P0300	88H	24H	Misfiring counter at 1000 revolution of the multiple cylinders
			P0301	89H	24H	Misfiring counter at 200 revolution of the first cylinder
			P0302	8AH	24H	Misfiring counter at 200 revolution of the second cylinder
			P0303	8BH	24H	Misfiring counter at 200 revolution of the third cylinder
			P0304	8CH	24H	Misfiring counter at 200 revolution of the fourth cylinder
			P0305	8DH	24H	Misfiring counter at 200 revolution of the fifth cylinder
			P0306	8EH	24H	Misfiring counter at 200 revolution of the sixth cylinder
			P0307	8FH	24H	Misfiring counter at 200 revolution of the seventh cylinder
			P0308	90H	24H	Misfiring counter at 200 revolution of the eighth cylinder
			P0300	91H	24H	Misfiring counter at 1000 revolution of the single cylinder
			P0300	92H	24H	Misfiring counter at 200 revolution of the single cylinder
			P0300	93H	24H	Misfiring counter at 200 revolution of the multiple cylinders

Item	OBD-MID	Self-diagnostic test item	DTC	Test value and Test limit (GST display)		Description
				TID	Unit and Scaling ID	
MISFIRE	A2H	No. 1 cylinder misfire	P0301	0BH	24H	EWMA (Exponential Weighted Moving Average) misfire counts for last 10 driving cycles
			P0301	0CH	24H	Misfire counts for last/current driving cycles
	A3H	No. 2 cylinder misfire	P0302	0BH	24H	EWMA (Exponential Weighted Moving Average) misfire counts for last 10 driving cycles
			P0302	0CH	24H	Misfire counts for last/current driving cycles
	A4H	No. 3 cylinder misfire	P0303	0BH	24H	EWMA (Exponential Weighted Moving Average) misfire counts for last 10 driving cycles
			P0303	0CH	24H	Misfire counts for last/current driving cycles
	A5H	No. 4 cylinder misfire	P0304	0BH	24H	EWMA (Exponential Weighted Moving Average) misfire counts for last 10 driving cycles
			P0304	0CH	24H	Misfire counts for last/current driving cycles
	A6H	No. 5 cylinder misfire	P0305	0BH	24H	EWMA (Exponential Weighted Moving Average) misfire counts for last 10 driving cycles
			P0305	0CH	24H	Misfire counts for last/current driving cycles
	A7H	No. 6 cylinder misfire	P0306	0BH	24H	EWMA (Exponential Weighted Moving Average) misfire counts for last 10 driving cycles
			P0306	0CH	24H	Misfire counts for last/current driving cycles
	A8H	No. 7 cylinder misfire	P0307	0BH	24H	EWMA (Exponential Weighted Moving Average) misfire counts for last 10 driving cycles
			P0307	0CH	24H	Misfire counts for last/current driving cycles
	A9H	No. 8 cylinder misfire	P0308	0BH	24H	EWMA (Exponential Weighted Moving Average) misfire counts for last 10 driving cycles
			P0308	0CH	24H	Misfire counts for last/current driving cycles

ENGINE CONTROL SYSTEM

< WIRING DIAGRAM >

[QR25DE]

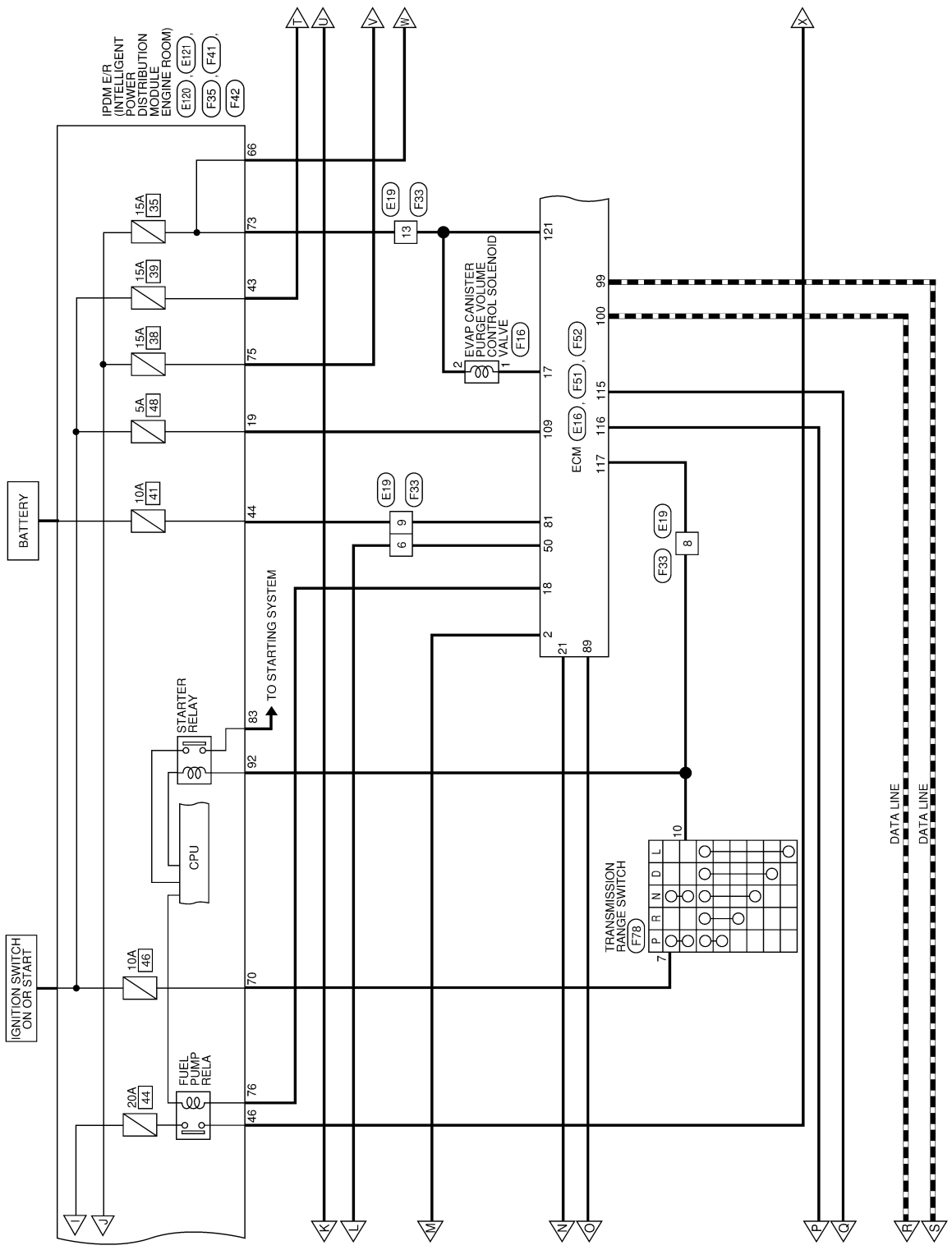


AABWA0851GB

ENGINE CONTROL SYSTEM

< WIRING DIAGRAM >

[QR25DE]

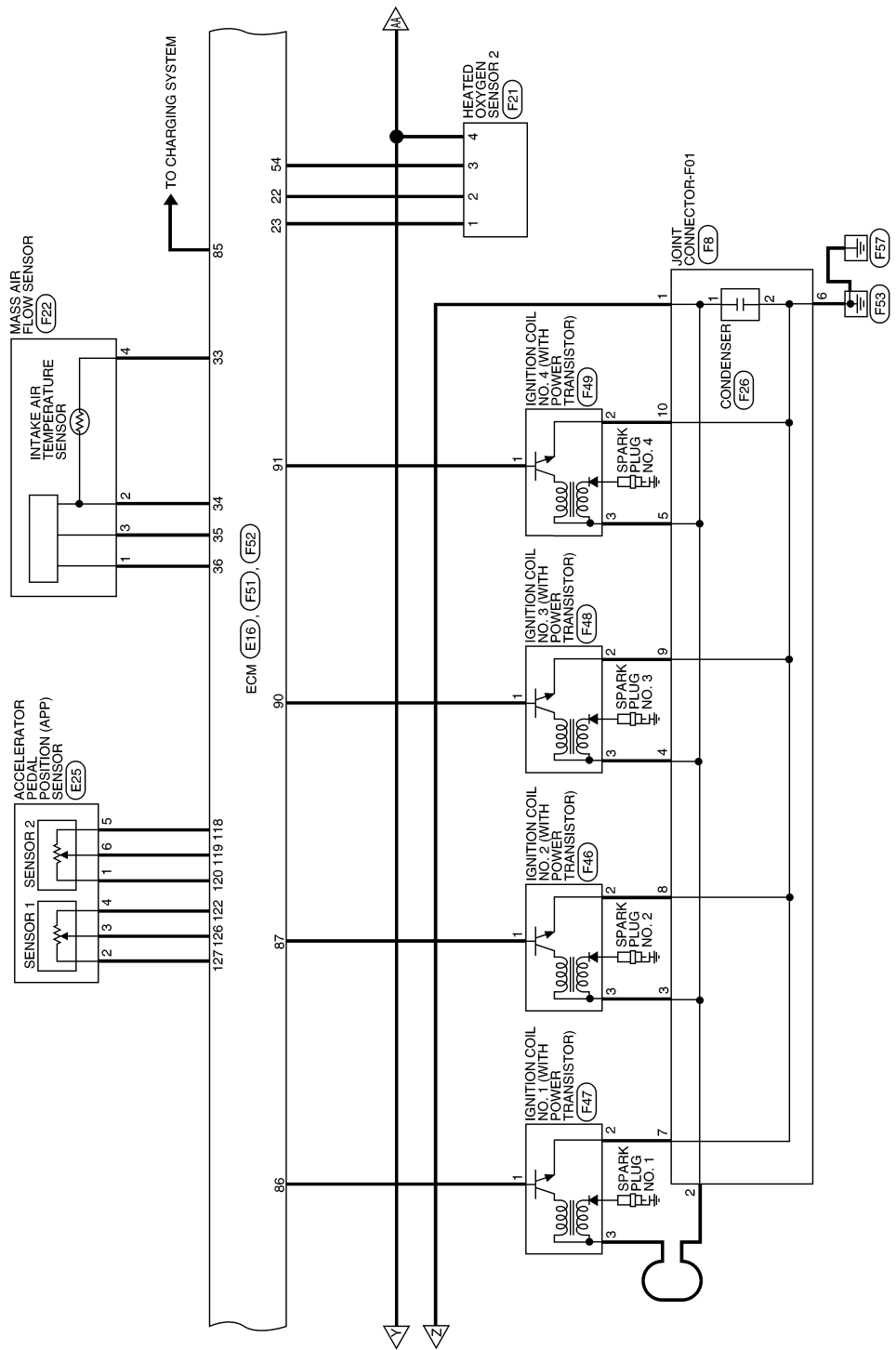


AABWA0852GB

A
EC
C
D
E
F
G
H
I
J
K
L
M
N
O
P

< WIRING DIAGRAM >

2014 Rogue NAM



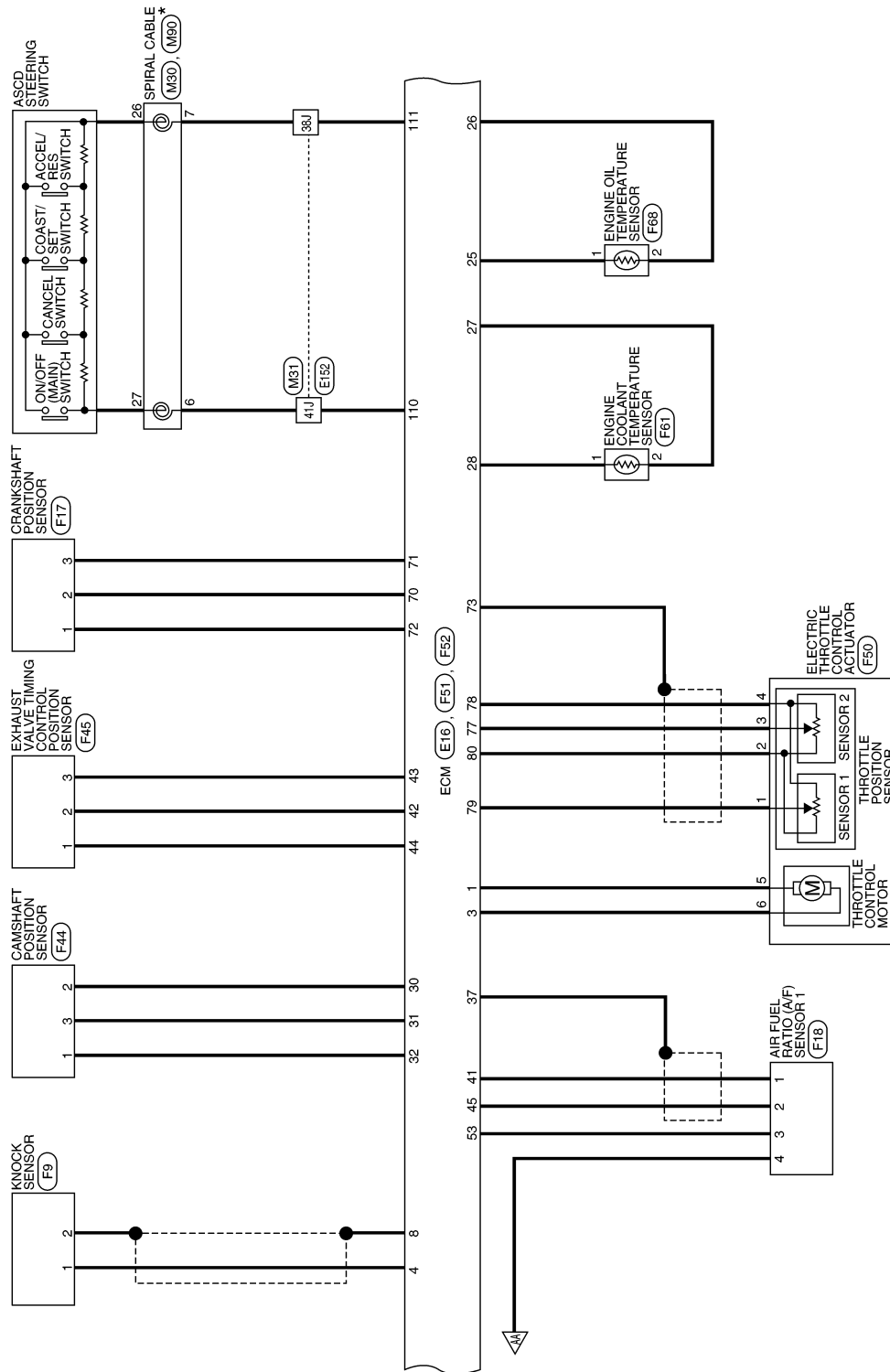
AABWA0854GB

A
EC
C
D
E
F
G
H
I
J
K
L
M
N
O
P

ENGINE CONTROL SYSTEM

< WIRING DIAGRAM >

[QR25DE]



★: THIS CONNECTOR IS NOT SHOWN IN "HARNES LAYOUT" OF PG SECTION.

AABWA0855GB

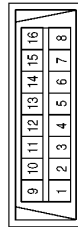
[QR25DE]

A
EC

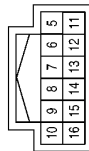
2014 Rogue NAM

ENGINE CONTROL SYSTEM CONNECTORS

Connector No.	M22
Connector Name	DATA LINK CONNECTOR
Connector Color	WHITE



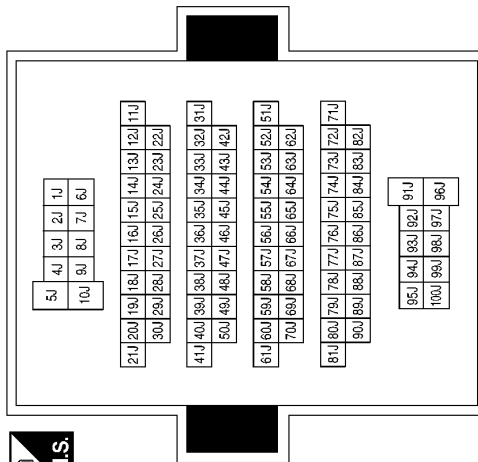
Connector No.	M30
Connector Name	COMBINATION SWITCH (SPIRAL CABLE)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
4	B	-
5	B	-
6	L	-
8	Y	-
14	P	-
16	W	-

Terminal No.	Color of Wire	Signal Name
6	LA/R	-
7	LA/BR	-

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
38J	LA/BR	-
41J	LA/R	-
50J	GR	-
55J	LA/Y	-
56J	LA/V	-
57J	R	-
58J	W	-
59J	BR	-
61J	L	-
62J	P	-
97J	SB	-
98J	P	-
99J	LA/R	-

AABIA1203GB

Connector No.	M43
Connector Name	JOINT CONNECTOR-M02
Connector Color	BLUE

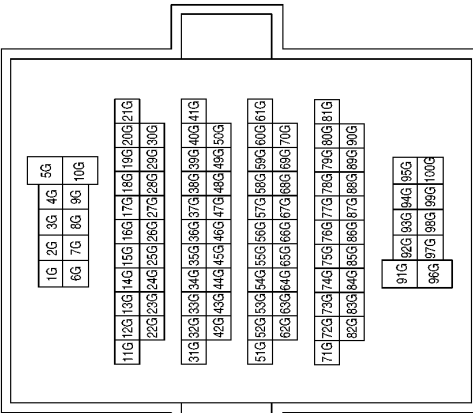


--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Terminal No.	Color of Wire	Signal Name
1	L	-
3	L	-
5	L	-
11	P	-
13	P	-
15	P	-

Terminal No.	Color of Wire	Signal Name
1G	LA/R	-
7G	P	-
18G	SB	-
19G	R	-
20G	W	-
21G	BR	-
78G	LA/Y	-
79G	LA/V	-

Connector No.	M36
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	M73
Connector Name	JOINT CONNECTOR-M23
Connector Color	WHITE



8	7	6	5	4	3	2	1
---	---	---	---	---	---	---	---

Terminal No.	Color of Wire	Signal Name
1	W	-
2	W	-

Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN



7R	6R	5R	4R		3R	2R	1R	
16R	15R	14R	13R	12R	11R	10R	9R	8R

Terminal No.	Color of Wire	Signal Name
15R	W	-
16R	GR	-

Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



7P	6P	5P	4P	3P	2P	1P		
16P	15P	14P	13P	12P	11P	10P	9P	8P

Terminal No.	Color of Wire	Signal Name
7P	Y	-
8P	LA/BR	-
13P	LA/G	-

AABIA1204GB

Connector No.	M90
Connector Name	COMBINATION SWITCH (SPIRAL CABLE)
Connector Color	WHITE



22	21	20	19	18	17
26	27	26	25	24	23

Terminal No.	Color of Wire	Signal Name
26	GR	—
27	V	—

Connector No.	M77
Connector Name	COMBINATION METER
Connector Color	WHITE



41	42	43	44	45	46
47	48	49	50	51	52

Terminal No.	Color of Wire	Signal Name
41	L	CAN-H
42	P	CAN-L
45	LA/G	ALVUSBAT
46	LA/BR	IGN
52	B	GND2

Connector No.	M76
Connector Name	COMBINATION METER
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

Terminal No.	Color of Wire	Signal Name
1	B	GND1

Connector No.	E6
Connector Name	BRAKE PEDAL POSITION SWITCH
Connector Color	BROWN



2	1
---	---

Terminal No.	Color of Wire	Signal Name
1	P	—
2	GR	—

Connector No.	M193
Connector Name	JOINT CONNECTOR-M18
Connector Color	WHITE



8	7	6	5	4	3	2	1
---	---	---	---	---	---	---	---

Terminal No.	Color of Wire	Signal Name
1	GR	—
3	GR	—

AABIA1205GB

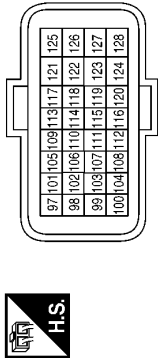
ENGINE CONTROL SYSTEM

< WIRING DIAGRAM >

[QR25DE]

A
EC
C
D
E
F
G
H
I
J
K
L
M
N
O
P

Connector No.	E16
Connector Name	ECM
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
97	GR	EVAP CANISTER VENT CONTROL VALVE
98	-	-
99	P	CAN-L
100	L	CAN-H
101	-	-
102	-	-
103	Y	REFRIGERANT PRESSURE SENSOR
104	R	SENSOR POWER SUPPLY
105	-	-
106	-	-
107	-	-
108	-	-
109	LG	IGNITION SWITCH
110	G	ASCD STEERING SWITCH
111	BR	SENSOR GROUND
112	-	-
113	R	SENSOR POWER SUPPLY
114	BR	EVAP CONTROL SYSTEM PRESSURE SENSOR
115	V	STOP LAMP SWITCH
116	GR	BRAKE PEDAL POSITION SWITCH

Terminal No.	Color of Wire	Signal Name
117	W	PNP SIGNAL
118	SB	SENSOR POWER SUPPLY
119	Y	ACCELERATOR PEDAL POSITION SENSOR 2
120	LG	SENSOR GROUND
121	BR	POWER SUPPLY FOR ECM
122	V	SENSOR POWER SUPPLY
123	BR	ECM GROUND
124	W	SENSOR GROUND
125	BG	FUEL TANK TEMPERATURE SENSOR
126	GR	ACCELERATOR PEDAL POSITION SENSOR 1
127	R	SENSOR GROUND
128	BR	ECM GROUND

AABIA1206GB

ENGINE CONTROL SYSTEM

< WIRING DIAGRAM >

[QR25DE]

Connector No.	E28
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



4M	3M	2M	1M
10M	9M	8M	7M
6M	5M		

Terminal No.	Color of Wire	Signal Name
5M	V	-

Connector No.	E25
Connector Name	ACCELERATOR PEDAL POSITION POSITION (APP) SENSOR
Connector Color	BLACK



1	2	3	4	5	6
---	---	---	---	---	---

Terminal No.	Color of Wire	Signal Name
1	LG	-
2	R	-
3	GR	-
4	V	-
5	SB	-
6	Y	-

Connector No.	E19
Connector Name	WIRE TO WIRE
Connector Color	BROWN



1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16					

Terminal No.	Color of Wire	Signal Name
1	SB	-
2	GR	-
4	BG	-
5	LG	-
6	BG	-
8	W	-
9	R	-
11	Y	-
12	GR	-
13	Y	-
14	P	-

Terminal No.	Color of Wire	Signal Name
5	L	-
6	P	-
7	W	-
8	Y	-
9	L	-
10	P	-
11	W	-
15	V	-
16	BR	-
19	V	-
20	R	-
23	LG	-

Connector No.	E44
Connector Name	JOINT CONNECTOR-E01
Connector Color	WHITE



4	3	2	1
8	7	6	5
12	11	10	9
16	15	14	13
20	19	18	17
24	23	22	21
28	27	26	25

Terminal No.	Color of Wire	Signal Name
3	W	-
4	Y	-

Connector No.	E38
Connector Name	STOP LAMP SWITCH
Connector Color	WHITE



3	4
1	2

Terminal No.	Color of Wire	Signal Name
1	V	-
2	LG	-

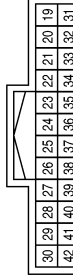
AABIA1207GB

Connector No.	E121
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	RED



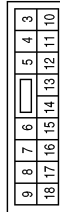
Terminal No.	Color of Wire	Signal Name
43	LG	O IGN LCS CABIN
44	R	O BAT ABS VALVE
46	W	O FUEL PUMP
47	B	POWER GROUND

Connector No.	E120
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
19	LG	O IGN ECM
22	P	CAN-L
24	L	CAN-H
31	B	2ND SIGNAL GROUND

Connector No.	E119
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
8	BG	O ACTUATOR4 CABIN (3FB4)
12	B	SIGNAL GROUND

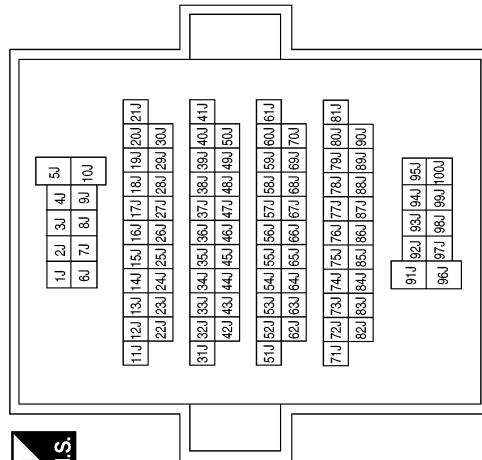
Connector No.	F3
Connector Name	COOLING FAN MOTOR-1
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
1	BG	-
2	BG	-
3	G	-
4	G	-

Terminal No.	Color of Wire	Signal Name
38J	BR	-
41J	G	-
50J	P	-
55J	W	-
56J	BG	-
57J	R	-
58J	V	-
59J	BR	-
61J	L	-
62J	P	-
97J	GR	-
98J	P	-
99J	W	-

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE



AABIA1208GB

ENGINE CONTROL SYSTEM

< WIRING DIAGRAM >

[QR25DE]

Connector No.	F5
Connector Name	COOLING FAN MOTOR-2
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
1	P	-
2	P	-
3	B	-
4	B	-

Connector No.	F8
Connector Name	JOINT CONNECTOR-F01
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	R	-
2	R	-
3	P	-
4	BG	-
5	BR	-
6	B	-
7	B	-
8	GR	-
9	B	-
10	B	-

Connector No.	F9
Connector Name	KNOCK SENSOR
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
1	W	-
2	SHIELD	-

Connector No.	F10
Connector Name	REFRIGERANT PRESSURE SENSOR
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	GR	-
2	P	-
3	BG	-

Connector No.	F11
Connector Name	FUEL INJECTOR NO. 1
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
1	LG	-
2	L	-

Connector No.	F12
Connector Name	FUEL INJECTOR NO. 2
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
1	BG	-
2	G	-

AABIA1209GB

ENGINE CONTROL SYSTEM

< WIRING DIAGRAM >

[QR25DE]

Connector No.	F16
Connector Name	EVAP CANISTER PURGE VOLUME CONTROL SOLENOID VALVE
Connector Color	BLUE



Terminal No.	Color of Wire	Signal Name
1	BG	—
2	Y	—

Connector No.	F14
Connector Name	FUEL INJECTOR NO. 3
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
1	W	—
2	P	—

Connector No.	F13
Connector Name	FUEL INJECTOR NO. 4
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
1	SB	—
2	Y	—

Connector No.	F19
Connector Name	INTAKE MANIFOLD RUNNER CONTROL VALVE
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	Y	—
2	G	—

Connector No.	F18
Connector Name	AIR FUEL RATIO (A/F) SENSOR 1
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
1	Y	—
2	G	—
3	P	—
4	BR	—

Connector No.	F17
Connector Name	CRANKSHAFT POSITION SENSOR
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	L	—
2	BR	—
3	GR	—

AABIA1210GB

A
EC
C
D
E
F
G
H
I
J
K
L
M
N
O
P

ENGINE CONTROL SYSTEM

< WIRING DIAGRAM >

[QR25DE]

Connector No.	F22
Connector Name	MASS AIR FLOW SENSOR
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	L	-
2	GR	-
3	BR	-
4	V	-

Connector No.	F21
Connector Name	HEATED OXYGEN SENSOR 2
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	B	-
2	Y	-
3	V	-
4	L	-

Connector No.	F20
Connector Name	INTAKE MANIFOLD RUNNER CONTROL VALVE POSITION SENSOR
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	V	-
2	L	-
3	LG	-

Connector No.	F25
Connector Name	INTAKE VALVE TIMING CONTROL SOLENOID VALVE
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
1	G	-
2	L	-

Connector No.	F24
Connector Name	EXHAUST VALVE TIMING CONTROL SOLENOID VALVE
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
1	L	-
2	BR	-

Connector No.	F23
Connector Name	INTAKE VALVE INTERMEDIATE LOCK TIMING CONTROL SOLENOID VALVE
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
1	V	-
2	GR	-

AABIA1211GB

ENGINE CONTROL SYSTEM

< WIRING DIAGRAM >

[QR25DE]

Connector No.	F35
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE



71	70	69	68	67		66	65
80	79	78	77	76	75	74	73
							72

Terminal No.	Color of Wire	Signal Name
66	R	O ACTUATOR 1
67	V	LI ECM ACT5 DRIVER
70	BG	O IGN AT LPG
72	GR	O ACTUATOR5 (3FBA)
73	Y	O ACTUATOR1 2 (3FB)
75	BR	O ACTUATOR3 (3FB3)
76	P	LI FUEL PUMP DRIVER
78	L	O ACTUATOR2 (3FB2)

Connector No.	F33
Connector Name	WIRE TO WIRE
Connector Color	BROWN



7	6	5	4		3	2	1	
16	15	14	13	12	11	10	9	8

Terminal No.	Color of Wire	Signal Name
1	B	-
2	BR	-
3	BG	-
5	LG	-
6	V	-
8	W	-
9	R	-
11	P	-
12	GR	-
13	BR	-
14	L	-

Connector No.	F26
Connector Name	CONDENSER
Connector Color	WHITE



1	2
---	---

Terminal No.	Color of Wire	Signal Name
1	R	-
2	GR	-

Connector No.	F44
Connector Name	CAMSHAFT POSITION SENSOR
Connector Color	BLACK



1	2	3
---	---	---

Terminal No.	Color of Wire	Signal Name
1	B	-
2	R	-
3	W	-

Connector No.	F42
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK



98	97	96	95	94	93	92	91	90	89	88	87
110	109	108	107	106	105	104	103	102	101	100	99

Terminal No.	Color of Wire	Signal Name
92	GR	LI NP SW
93	P	LI ECM DRIVER
106	BR	LO FAN RELAY2(PWM)
107	V	LO FAN RELAY 1

Connector No.	F41
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



83	82	81
86	85	84

Terminal No.	Color of Wire	Signal Name
83	G	O STARTER
84	LG	I BATT MOTOR FAN LO
85	P	O MOTOR FAN LO

AABIA1212GB

A
EC
C
D
E
F
G
H
I
J
K
L
M
N
O
P

ENGINE CONTROL SYSTEM

< WIRING DIAGRAM >

[QR25DE]

Connector No.	F47
Connector Name	IGNITION COIL NO.1 (WITH POWER TRANSISTOR)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
1	Y	-
2	B	-
3	R	-

Connector No.	F46
Connector Name	IGNITION COIL NO.2 (WITH POWER TRANSISTOR)
Connector Color	GRAY



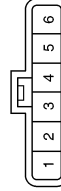
Terminal No.	Color of Wire	Signal Name
1	BR	-
2	GR	-
3	P	-

Connector No.	F45
Connector Name	EXHAUST VALVE TIMING CONTROL POSITION SENSOR
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	Y	-
2	B	-
3	LG	-

Connector No.	F50
Connector Name	ELECTRIC THROTTLE CONTROL ACTUATOR
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	G	-
2	R	-
3	W	-
4	B	-
5	G	-
6	L	-

Connector No.	F49
Connector Name	IGNITION COIL NO.4 (WITH POWER TRANSISTOR)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
1	SB	-
2	B	-
3	BR	-

Connector No.	F48
Connector Name	IGNITION COIL NO.3 (WITH POWER TRANSISTOR)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
1	W	-
2	B	-
3	BG	-

AABIA1213GB

ENGINE CONTROL SYSTEM

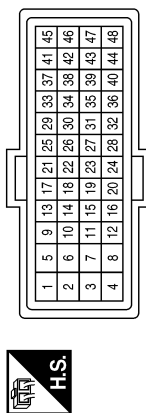
< WIRING DIAGRAM >

[QR25DE]

Terminal No.	Color of Wire	Signal Name
39	P	ENGINE OIL PRESSURE SENSOR
40	W	SENSOR POWER SUPPLY
41	Y	A/F SENSOR 1
42	B	SENSOR GROUND
43	LG	EXHAUST VALVE TIMING CONTROL POSITION SENSOR
44	Y	SENSOR POWER SUPPLY
45	G	A/F SENSOR 1
46	-	-
47	-	-
48	-	-

Terminal No.	Color of Wire	Signal Name
17	BG	EVAP CANISTER PURGE VOLUME CONTROL SOLENOID VALVE
18	P	FUEL PUMP RELAY
19	-	-
20	-	-
21	V	THROTTLE CONTROL MOTOR RELAY
22	Y	HEATED OXYGEN SENSOR 2
23	B	SENSOR GROUND
24	-	-
25	P	ENGINE OIL TEMPERATURE SENSOR
26	BR	SENSOR GROUND
27	L	SENSOR GROUND
28	G	ENGINE COOLANT TEMPERATURE SENSOR
29	-	-
30	R	SENSOR GROUND
31	W	CAMSHAFT POSITION SENSOR (PHASE)
32	B	SENSOR POWER SUPPLY
33	V	INTAKE AIR TEMPERATURE SENSOR
34	GR	SENSOR GROUND
35	BR	MASS AIR FLOW SENSOR
36	L	SENSOR POWER SUPPLY
37	SHIELD	SHIELD
38	SB	SENSOR GROUND

Connector No.	F51
Connector Name	ECM
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	G	THROTTLE CONTROL MOTOR (CLOSE)
2	GR	THROTTLE CONTROL MOTOR POWER SUPPLY
3	L	THROTTLE CONTROL MOTOR (OPEN)
4	W	KNOCK SENSOR
5	-	-
6	-	-
7	-	-
8	SHIELD	SENSOR GROUND
9	Y	FUEL INJECTOR NO. 4
10	P	FUEL INJECTOR NO. 3
11	-	-
12	-	-
13	L	FUEL INJECTOR NO. 1
14	G	FUEL INJECTOR NO. 2
15	-	-
16	BR	ECM GROUND

AABIA1214GB

ENGINE CONTROL SYSTEM

< WIRING DIAGRAM >

[QR25DE]

Terminal No.	Color of Wire	Signal Name
89	P	ECM RELAY (SELF SHUT-OFF)
90	W	IGNITION SIGNAL NO. 3
91	SB	IGNITION SIGNAL NO. 4
92	LG	SENSOR GROUND
93	L	INTAKE VALVE TIMING CONTROL SOLENOID VALVE
94	BR	EXHAUST VALVE TIMING CONTROL SOLENOID VALVE
95	-	-
96	-	-

Terminal No.	Color of Wire	Signal Name
66	-	-
67	-	-
68	-	-
69	-	-
70	BR	SENSOR GROUND
71	GR	CRANKSHAFT POSITION SENSOR (POS)
72	L	SENSOR POWER SUPPLY
73	SHIELD	SHIELD
74	-	-
75	-	-
76	-	-
77	W	THROTTLE POSITION SENSOR 2
78	B	SENSOR GROUND
79	G	THROTTLE POSITION SENSOR 1
80	R	SENSOR POWER SUPPLY
81	R	POWER SUPPLY FOR ECM (BACKUP)
82	-	-
83	L	INTAKE MANIFOLD RUNNER CONTROL VALVE POSITION SENSOR
84	V	SENSOR POWER SUPPLY
85	G	LIN
86	Y	IGNITION SIGNAL NO. 1
87	BR	IGNITION SIGNAL NO. 2
88	-	-

Connector No.	F52
Connector Name	ECM
Connector Color	BROWN

49	53	57	61	65	69	73	77	81	85	89	93
50	54	58	62	66	70	74	78	82	86	90	94
51	55	59	63	67	71	75	79	83	87	91	95
52	56	60	64	68	72	76	80	84	88	92	96



Terminal No.	Color of Wire	Signal Name
49	G	INTAKE MANIFOLD RUNNER CONTROL VALVE MOTOR (CLOSE)
50	V	INTAKE MANIFOLD RUNNER CONTROL VALVE MOTOR POWER SUPPLY
51	Y	INTAKE MANIFOLD RUNNER CONTROL VALVE MOTOR (OPEN)
52	B	ECM GROUND
53	P	A/F SENSOR 1 HEATER
54	V	HEATED OXYGEN SENSOR 2 HEATER
55	-	-
56	GR	INTAKE VALVE TIMING INTERMEDIATE LOCK CONTROL SOLENOID VALVE
57	-	-
58	-	-
59	-	-
60	-	-
61	-	-
62	-	-
63	-	-
64	-	-
65	-	-

AABIA1215GB

ENGINE CONTROL SYSTEM

< WIRING DIAGRAM >

[QR25DE]

Connector No.	F68
Connector Name	ENGINE OIL TEMPERATURE SENSOR
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
1	P	-
2	BR	-

Connector No.	F61
Connector Name	ENGINE COOLANT TEMPERATURE SENSOR
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
1	G	-
2	L	-

Connector No.	F54
Connector Name	ENGINE OIL PRESSURE SENSOR
Connector Color	BLACK



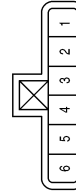
Terminal No.	Color of Wire	Signal Name
1	SB	-
2	P	-
3	W	-

Connector No.	B108
Connector Name	EVAP CANISTER VENT CONTROL VALVE
Connector Color	BLACK



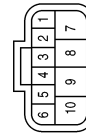
Terminal No.	Color of Wire	Signal Name
1	P	-
2	GR	-

Connector No.	B103
Connector Name	FUEL LEVEL SENSOR UNIT AND FUEL PUMP (MAIN)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
1	LA/R	-
3	LA/V	-
4	LA/B	-
6	LA/GR	-

Connector No.	F78
Connector Name	TRANSMISSION RANGE SWITCH
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
7	BG	-
10	GR	-

AABIA1216GB

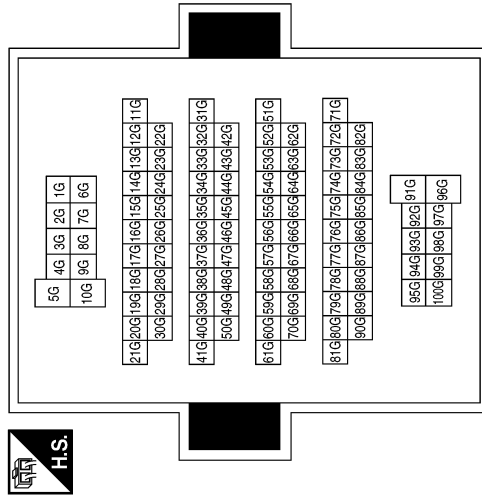
ENGINE CONTROL SYSTEM

< WIRING DIAGRAM >

[QR25DE]

Terminal No.	Color of Wire	Signal Name
1G	LA/GR	-
7G	P	-
18G	GR	-
19G	R	-
20G	W	-
21G	P	-
78G	LA/R	-
79G	LA/V	-

Connector No.	B136
Connector Name	WIRE TO WIRE
Connector Color	WHITE

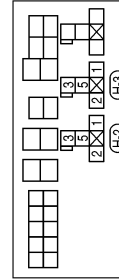


Connector No.	B111
Connector Name	EVAP CONTROL SYSTEM PRESSURE SENSOR
Connector Color	GRAY

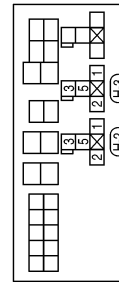


Terminal No.	Color of Wire	Signal Name
1	W	-
2	P	-
3	R	-

Connector No.	H-3
Connector Name	COOLING FAN RELAY-3
Connector Color	BLACK



Connector No.	H-2
Connector Name	COOLING FAN RELAY-2
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	GR	-
2	BR	-
3	G	-
5	GR	-

Terminal No.	Color of Wire	Signal Name
1	GR	-
2	V	-
3	G	-
5	P	-

AABIA1217GB

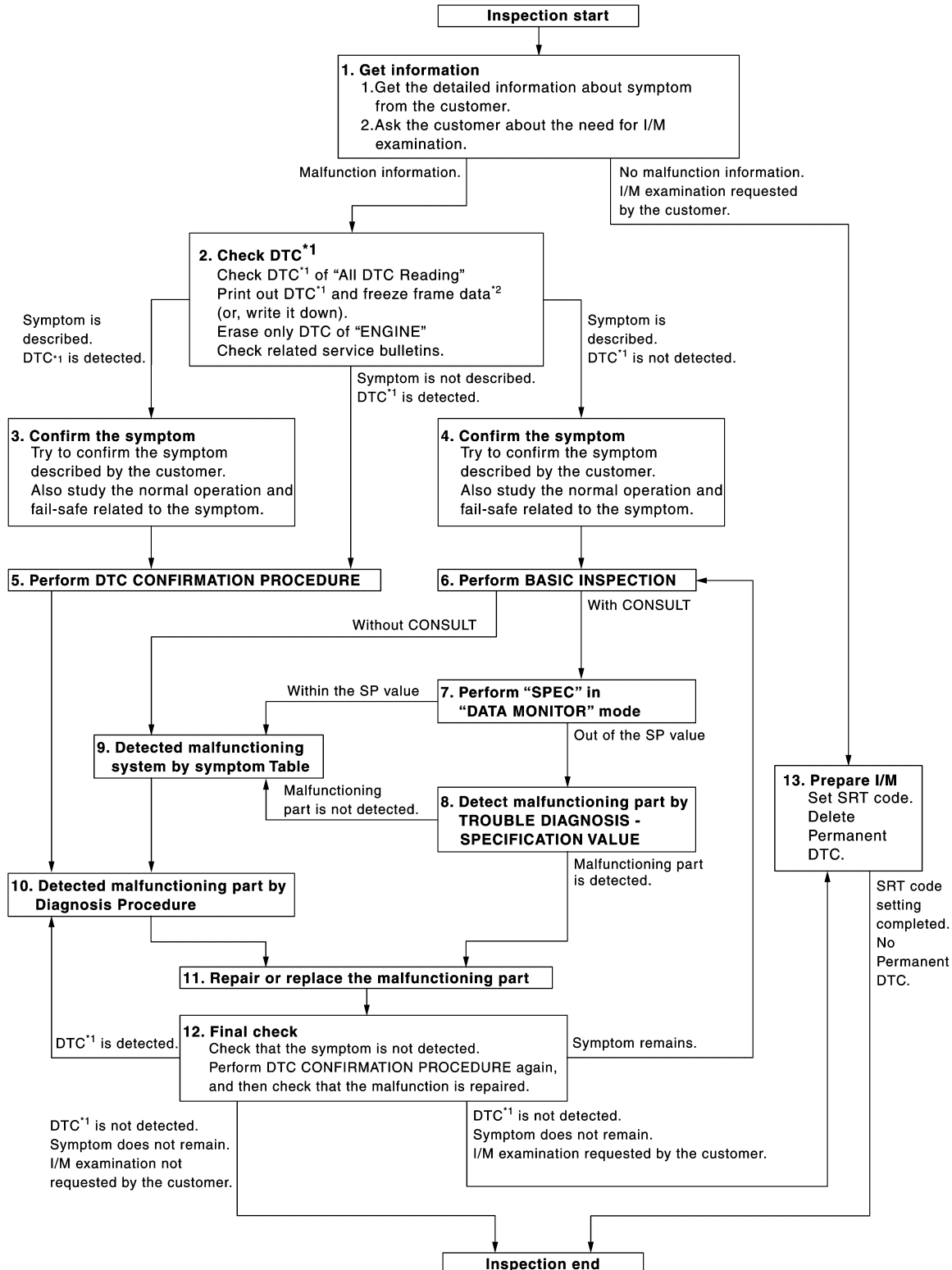
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:000000009984956

OVERALL SEQUENCE



JSBIA0123GB

DETAILED FLOW

< BASIC INSPECTION >

1. GET INFORMATION FOR SYMPTOM

1. Get the detailed information from the customer about the symptom (the condition and the environment when the incident/malfunction occurred) using the "Diagnostic Work Sheet". (Refer to [EC-130, "Diagnostic Work Sheet"](#).)
2. Ask if the customer requests I/M examination.

Malfunction information, obtained>>GO TO 2.

No malfunction information, but a request for I/M examination>>GO TO 13.

2. CHECK DTC

1. Check DTC.
2. Perform the following procedure if DTC is displayed.
 - Record DTC and freeze frame data. (Print them out with CONSULT or GST.)
 - Erase only DTC of "ENGINE".
 - Study the relationship between the cause detected by DTC and the symptom described by the customer. (Symptom Matrix Chart is useful. Refer to [EC-486, "Symptom Table"](#).)
3. Check related service bulletins for information.

Are any symptoms described and any DTCs detected?

Symptom is described, DTC is detected>>GO TO 3.

Symptom is described, DTC is not detected>>GO TO 4.

Symptom is not described, DTC is detected>>GO TO 5.

3. CONFIRM THE SYMPTOM

Try to confirm the symptom described by the customer (except MIL ON).

Also study the normal operation and fail-safe related to the symptom. Refer to [EC-492, "Description"](#) and [EC-89, "Fail Safe"](#).

Diagnosis Work Sheet is useful to verify the incident.

Verify relation between the symptom and the condition when the symptom is detected.

>> GO TO 5.

4. CONFIRM THE SYMPTOM

Try to confirm the symptom described by the customer.

Also study the normal operation and fail-safe related to the symptom. Refer to [EC-492, "Description"](#) and [EC-89, "Fail Safe"](#).

Diagnosis Work Sheet is useful to verify the incident.

Verify relation between the symptom and the condition when the symptom is detected.

>> GO TO 6.

5. PERFORM DTC CONFIRMATION PROCEDURE

Perform DTC CONFIRMATION PROCEDURE for the displayed DTC, and then check that DTC is detected again.

If two or more DTCs are detected, refer to [EC-92, "DTC Inspection Priority Chart"](#) and determine trouble diagnosis order.

NOTE:

- Freeze frame data is useful if the DTC is not detected.
- Perform Component Function Check if DTC CONFIRMATION PROCEDURE is not included on Service Manual. This simplified check procedure is an effective alternative though DTC cannot be detected during this check.

If the result of Component Function Check is NG, it is the same as the detection of DTC by DTC CONFIRMATION PROCEDURE.

Is DTC detected?

YES >> GO TO 10.

NO >> Check according to [GI-41, "Intermittent Incident"](#).

6. PERFORM BASIC INSPECTION

Perform [EC-132, "Work Procedure"](#).

DIAGNOSIS AND REPAIR WORKFLOW

[QR25DE]

< BASIC INSPECTION >

Do you have CONSULT?

YES >> GO TO 7.

NO >> GO TO 9.

7.PERFORM SPEC IN DATA MONITOR MODE

Ⓔ With CONSULT

Check that "MASS AIR FLOW SENSOR (Hz)", "B/FUEL SCHDL", and "A/F ALPHA-B1" are within the SP value using "SPEC" in "DATA MONITOR" mode with CONSULT. Refer to [EC-157, "Component Function Check"](#).

Is the measurement value within the SP value?

YES >> GO TO 9.

NO >> GO TO 8.

8.DETECT MALFUNCTIONING PART BY TROUBLE DIAGNOSIS - SPECIFICATION VALUE

Detect malfunctioning part according to [EC-158, "Diagnosis Procedure"](#).

Is a malfunctioning part detected?

YES >> GO TO 11.

NO >> GO TO 9.

9.DETECT MALFUNCTIONING SYSTEM BY SYMPTOM TABLE

Detect malfunctioning system according to [EC-486, "Symptom Table"](#) based on the confirmed symptom in step 4, and determine the trouble diagnosis order based on possible causes and symptoms.

>> GO TO 10.

10.DETECT MALFUNCTIONING PART BY DIAGNOSIS PROCEDURE

Inspect according to Diagnosis Procedure of the system.

NOTE:

The Diagnosis Procedure in EC section described based on open circuit inspection. A short circuit inspection is also required for the circuit check in the Diagnosis Procedure. For details, refer to [GI-44, "Circuit Inspection"](#).

Is a malfunctioning part detected?

YES >> GO TO 11.

NO >> Monitor input data from related sensors or check voltage of related ECM terminals using CONSULT. Refer to [EC-77, "Reference Value"](#).

11.REPAIR OR REPLACE THE MALFUNCTIONING PART

1. Repair or replace the malfunctioning part.
2. Reconnect parts or connectors disconnected during Diagnosis Procedure again after repair and replacement.
3. Check DTC. If DTC is displayed, erase it.

>> GO TO 12.

12.FINAL CHECK

When DTC was detected in step 2, perform DTC CONFIRMATION PROCEDURE or Component Function Check again, and then check that the malfunction have been completely repaired.

When symptom was described from the customer, refer to confirmed symptom in step 3 or 4, and check that the symptom is not detected.

Is DTC detected and does symptom remain?

YES-1 >> DTC is detected: GO TO 10.

YES-2 >> Symptom remains: GO TO 6.

NO-1 >> No request for I/M examination from the customer: Before returning the vehicle to the customer, always erase unnecessary DTC in ECM. If the completion of SRT is needed, drive vehicle under the specific driving pattern. Refer to [EC-146, "SRT Set Driving Pattern"](#).

NO-2 >> I/M examination, requested from the customer: GO TO 13.

13.PREPARE FOR I/M EXAMINATION

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

[QR25DE]

1. Set SRT codes. Refer to [EC-145, "Description"](#).
2. Erase permanent DTCs. Refer to [EC-151, "Description"](#).

>> INSPECTION END

Diagnostic Work Sheet

INFOID:000000009984957

DESCRIPTION

There are many operating conditions that lead to the malfunction of engine components. A good grasp of such conditions can make troubleshooting faster and more accurate.

In general, each customer feels differently about symptoms. It is important to fully understand the symptoms or conditions for a customer complaint.

Utilize a diagnostic worksheet like the WORKSHEET SAMPLE below in order to organize all the information for troubleshooting.

Some conditions may cause the MIL to illuminate or blink, and DTC to be detected. Examples:

- Vehicle ran out of fuel, which caused the engine to misfire.
- Fuel filler cap was left off or incorrectly screwed on, allowing fuel to evaporate into the atmosphere.

KEY POINTS

WHAT Vehicle & engine model
WHEN Date, Frequencies
WHERE..... Road conditions
HOW Operating conditions,
Weather conditions,
Symptoms

SEF907L

[QR25DE]

WORKSHEET SAMPLE

MTBL0017

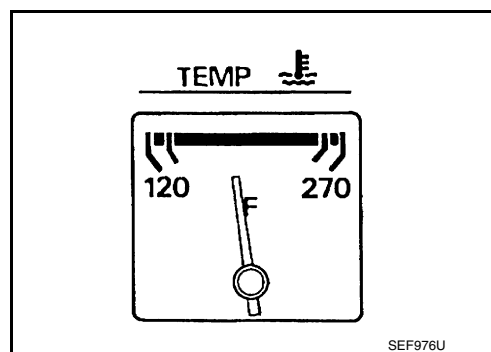
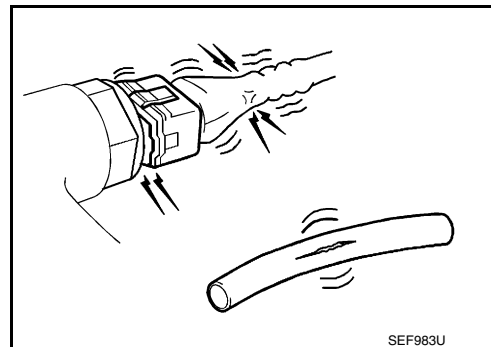
BASIC INSPECTION

Work Procedure

INFOID:000000009984958

1.INSPECTION START

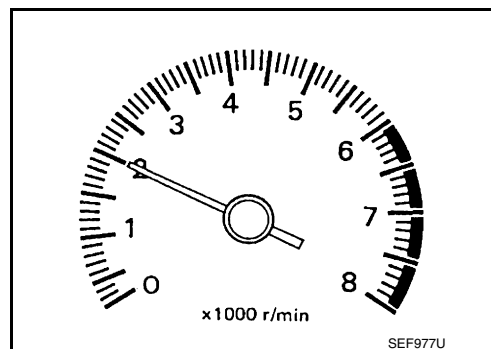
1. Check service records for any recent repairs that may indicate a related malfunction, or a current need for scheduled maintenance.
2. Open engine hood and check the following:
 - Harness connectors for improper connections
 - Wiring harness for improper connections, pinches and cut
 - Vacuum hoses for splits, kinks and improper connections
 - Hoses and ducts for leaks
 - Air cleaner clogging
 - Gasket
3. Confirm that electrical or mechanical loads are not applied.
 - Headlamp switch is OFF.
 - Air conditioner switch is OFF.
 - Rear window defogger switch is OFF.
 - Steering wheel is in the straight-ahead position, etc.
4. Start engine and warm it up until engine coolant temperature indicator points the middle of gauge. Ensure engine stays below 1,000 rpm.



5. Run engine at about 2,000 rpm for about 2 minutes under no load.
6. Make sure that no DTC is displayed with CONSULT or GST.

Is any DTC detected?

- YES >> GO TO 2.
NO >> GO TO 3.



2.REPAIR OR REPLACE

Repair or replace components as necessary according to corresponding Diagnostic Procedure.

>> GO TO 3.

3.CHECK TARGET IDLE SPEED

1. Run engine at about 2,000 rpm for about 2 minutes under no load.

BASIC INSPECTION

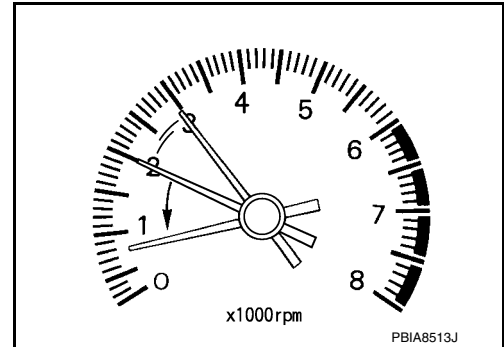
[QR25DE]

< BASIC INSPECTION >

- Rev engine (2,000 to 3,000 rpm) two or three times under no load, then run engine at idle speed for about 1 minute.
- Check idle speed.
For procedure, refer to [EC-493, "Inspection"](#).
For specification, refer to [EC-500, "Idle Speed"](#).

Is the inspection result normal?

- YES >> GO TO 10.
NO >> GO TO 4.



4.PERFORM ACCELERATOR PEDAL RELEASED POSITION LEARNING

- Stop engine.
- Perform [EC-139, "Work Procedure"](#).

>> GO TO 5.

5.PERFORM THROTTLE VALVE CLOSED POSITION LEARNING

Perform [EC-140, "Work Procedure"](#).

>> GO TO 6.

6.PERFORM IDLE AIR VOLUME LEARNING

Perform [EC-141, "Work Procedure"](#).

Is Idle Air Volume Learning carried out successfully?

- YES >> GO TO 7.
NO >> Follow the instruction of Idle Air Volume Learning. Then GO TO 4.

7.CHECK TARGET IDLE SPEED AGAIN

- Start engine and warm it up to normal operating temperature.
- Check idle speed.
For procedure, refer to [EC-493, "Inspection"](#).
For specification, refer to [EC-500, "Idle Speed"](#).

Is the inspection result normal?

- YES >> GO TO 10.
NO >> GO TO 8.

8.DETECT MALFUNCTIONING PART

Check the Following.

- Check camshaft position sensor (PHASE) and circuit. Refer to [EC-298, "DTC Description"](#).
- Check crankshaft position sensor (POS) and circuit. Refer to [EC-295, "DTC Description"](#).

Is the inspection result normal?

- YES >> GO TO 9.
NO >> Repair or replace. Then GO TO 4

9.CHECK ECM FUNCTION

- Substitute another known-good ECM to check ECM function. (ECM may be the cause of an incident, but this is a rare case.)
- Perform initialization of NVIS (NATS) system and registration of all NVIS (NATS) ignition key IDs. Refer to [SEC-65, "ECM : Work Procedure"](#) (With intelligent key system) or [SEC-153, "ECM RE-COMMUNICATING FUNCTION : Special Repair Requirement"](#) (Without intelligent key system).

>> GO TO 4.

10.CHECK IGNITION TIMING

- Run engine at idle.

BASIC INSPECTION

[QR25DE]

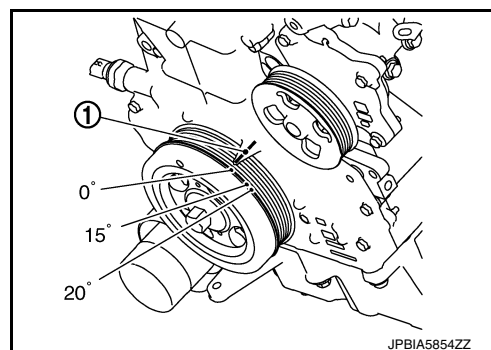
< BASIC INSPECTION >

2. Check ignition timing with a timing light.
For procedure, refer to [EC-494, "Inspection"](#).
For specification, refer to [EC-500, "Ignition Timing"](#).

① Timing indicator

Is the inspection result normal?

YES >> INSPECTION END.
NO >> GO TO 11.



11.PERFORM ACCELERATOR PEDAL RELEASED POSITION LEARNING

1. Stop engine.
2. Perform [EC-139, "Work Procedure"](#).

>> GO TO 12.

12.PERFORM THROTTLE VALVE CLOSED POSITION LEARNING

Perform [EC-140, "Work Procedure"](#).

>> GO TO 13.

13.PERFORM IDLE AIR VOLUME LEARNING

Perform [EC-141, "Work Procedure"](#).

Is Idle Air Volume Learning carried out successfully?

YES >> GO TO 14.
NO >> Follow the instruction of Idle Air Volume Learning. Then GO TO 4.

14.CHECK TARGET IDLE SPEED AGAIN

1. Start engine and warm it up to normal operating temperature.
2. Check idle speed.
For procedure, refer to [EC-493, "Inspection"](#).
For specification, refer to [EC-500, "Idle Speed"](#).

Is the inspection result normal?

YES >> GO TO 15.
NO >> GO TO 17.

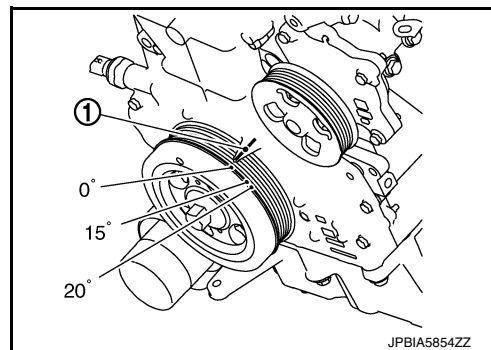
15.CHECK IGNITION TIMING AGAIN

1. Run engine at idle.
2. Check ignition timing with a timing light.
For procedure, refer to [EC-494, "Inspection"](#).
For specification, refer to [EC-500, "Ignition Timing"](#).

① Timing indicator

Is the inspection result normal?

YES >> INSPECTION END.
NO >> GO TO 16.



16.CHECK TIMING CHAIN INSTALLATION

Check timing chain installation. Refer to [EM-45, "Removal and Installation"](#).

Is the inspection result normal?

YES >> GO TO 17.
NO >> Repair the timing chain installation. Then GO TO 4.

17.DETECT MALFUNCTIONING PART

Check the following.

- Check camshaft position sensor (PHASE) and circuit. Refer to [EC-298, "DTC Description"](#).
- Check crankshaft position sensor (POS) and circuit. Refer to [EC-295, "DTC Description"](#).

Is the inspection result normal?

YES >> GO TO 18.

NO >> Repair or replace. Then GO TO 4

18.CHECK ECM FUNCTION

1. Substitute another known-good ECM to check ECM function. (ECM may be the cause of an incident, but this is a rare case.)
2. Perform initialization of NVIS (NATS) system and registration of all NVIS (NATS) ignition key IDs. Refer to [SEC-65, "ECM : Work Procedure"](#) (With intelligent key system) or [SEC-153, "ECM RE-COMMUNICATING FUNCTION : Special Repair Requirement"](#) (Without intelligent key system).

>> GO TO 4.

A

EC

C

D

E

F

G

H

I

J

K

L

M

N

O

P

ADDITIONAL SERVICE WHEN REPLACING ECM

Description

INFOID:000000009984959

When replacing ECM, the following procedure must be performed. (For details, refer to [EC-136, "Work Procedure."](#))

PROGRAMMING OPERATION

NOTE:

After replacing with a blank ECM, programming is required to write ECM information. Be sure to follow the procedure to perform the programming.

Work Procedure

INFOID:000000009984960

1. SAVE ECM DATA

Ⓟ With CONSULT

1. Turn ignition switch OFF.
2. Reconnect all harness connectors disconnected.
3. Turn ignition switch ON.
4. Select "SAVING DATA FOR REPLC CPU" in "WORK SUPPORT" mode of "ENGINE" using CONSULT.
5. Follow the instruction of CONSULT display.

NOTE:

- Necessary data in ECM is copied and saved to CONSULT.
- Go to Step 2 regardless of with or without success in saving data.

>> GO TO 2.

2. CHECK ECM PART NUMBER

Check ECM part number to see whether it is blank ECM or not.

NOTE:

- Part number of blank ECM is 23703 - xxxxxx.
- Check part number when ordering ECM or the one included in the label on the container box.

Is the ECM a blank ECM?

- YES >> GO TO 3.
NO >> GO TO 5.

3. SAVE ECM PART NUMBER

Read out the part number from the old ECM and save the number, following the programming instructions. Refer to CONSULT Operation Manual.

NOTE:

- The ECM part number is saved in CONSULT.
- Even when ECM part number is not saved in CONSULT, go to 4.

>> GO TO 4.

4. PERFORM ECM PROGRAMMING

After replacing ECM, perform the ECM programming. Refer to CONSULT Operation Manual.

NOTE:

- Refer to [EC-499, "Removal and Installation"](#) for replacement of ECM.
- During programming, maintain the following conditions:
 - Ignition switch: ON
 - Electric load: OFF
 - Brake pedal: Not depressed
 - Battery voltage: 12 – 13.5 V (Be sure to check the value of battery voltage by selecting "BATTERY VOLT" in "Data monitor" of CONSULT.)

>> GO TO 6.

5. REPLACE ECM

ADDITIONAL SERVICE WHEN REPLACING ECM

< BASIC INSPECTION >

[QR25DE]

Replace ECM. Refer to [EC-499, "Removal and Installation"](#).

>> GO TO 6.

6.PERFORM INITIALIZATION OF IVIS (NATS) SYSTEM AND REGISTRATION OF ALL IVIS (NATS) IGNITION KEY IDS

Refer to [SEC-62, "Work Flow"](#) (with intelligent key system) or [SEC-150, "Work Flow"](#) (without intelligent key system).

>> GO TO 7.

7.CHECK ECM DATA STATUS

Check if the data is successfully copied from the ECM at Step 1 (before replacement) and saved in CONSULT.
Is the data saved successfully?

YES >> GO TO 8.

NO >> GO TO 9.

8.WRITE ECM DATA

 With CONSULT

1. Select "WRITING DATA FOR REPLC CPU" in "WORK SUPPORT" mode of "ENGINE" using CONSULT.
2. Follow the instruction of CONSULT display.

NOTE:

The data saved by "SAVING DATA FOR REPLC CPU" is written to ECM.

>> GO TO 10.

9.PERFORM VIN REGISTRATION

Refer to [EC-138, "Work Procedure"](#).

>> GO TO 10.

10.PERFORM ACCELERATOR PEDAL RELEASED POSITION LEARNING

Perform Accelerator Pedal Released Position Learning. Refer to [EC-139, "Work Procedure"](#).

>> GO TO 11.

11.PERFORM THROTTLE VALVE CLOSED POSITION LEARNING

Perform Throttle Valve Closed Position Learning. Refer to [EC-140, "Work Procedure"](#).

>> GO TO 12.

12.PERFORM IDLE AIR VOLUME LEARNING

Perform Idle Air Volume Learning. Refer to [EC-141, "Work Procedure"](#).

>> END

VIN REGISTRATION

Description

INFOID:000000009984961

VIN Registration is an operation to registering VIN in ECM. It must be performed each time ECM is replaced.

NOTE:

Accurate VIN which is registered in ECM may be required for Inspection & Maintenance (I/M).

Work Procedure

INFOID:000000009984962

1.CHECK VIN

Check the VIN of the vehicle and note it. Refer to [GI-34. "Identification Number"](#).

>> GO TO 2.

2.PERFORM VIN REGISTRATION With CONSULT

1. Turn ignition switch ON and engine stopped.
2. Select "VIN REGISTRATION" in "WORK SUPPORT" mode of "ENGINE" using CONSULT.
3. Follow the instruction of CONSULT display.

>> END

ACCELERATOR PEDAL RELEASED POSITION LEARNING

< BASIC INSPECTION >

[QR25DE]

ACCELERATOR PEDAL RELEASED POSITION LEARNING

Description

INFOID:0000000009984963

Accelerator Pedal Released Position Learning is a function of ECM to learn the fully released position of the accelerator pedal by monitoring the accelerator pedal position sensor output signal. It must be performed each time harness connector of accelerator pedal position sensor or ECM is disconnected.

Work Procedure

INFOID:0000000009984964

1.START

1. Make sure that accelerator pedal is fully released.
2. Turn ignition switch ON and wait at least 2 seconds.
3. Turn ignition switch OFF and wait at least 10 seconds.
4. Turn ignition switch ON and wait at least 2 seconds.
5. Turn ignition switch OFF and wait at least 10 seconds.

>> END

THROTTLE VALVE CLOSED POSITION LEARNING

< BASIC INSPECTION >

[QR25DE]

THROTTLE VALVE CLOSED POSITION LEARNING

Description

INFOID:000000009984965

Throttle Valve Closed Position Learning is a function of ECM to learn the fully closed position of the throttle valve by monitoring the throttle position sensor output signal. It must be performed each time the harness connector of the electric throttle control actuator or ECM is disconnected or electric throttle control actuator inside is cleaned.

Work Procedure

INFOID:000000009984966

1.START

Ⓐ With CONSULT

1. Turn ignition switch ON.
2. Select "CLSD THL POS LEARN" in "WORK SUPPORT" mode of "ENGINE" using CONSULT.
3. Follow the instructions on the CONSULT display.
4. Turn ignition switch OFF and wait at least 10 seconds.
Check that throttle valve moves during the above 10 seconds by confirming the operating sound.

Ⓑ Without CONSULT

1. Start the engine.
NOTE:
Engine coolant temperature is 25°C (77°F) or less before engine starts.
2. Warm up the engine.
NOTE:
Raise engine coolant temperature until it reaches 65°C (149°F) or more.
3. Turn ignition switch OFF and wait at least 10 seconds.
Check that throttle valve moves during the above 10 seconds by confirming the operating sound.

>> END

IDLE AIR VOLUME LEARNING

Description

INFOID:000000009984967

Idle Air Volume Learning is a function of ECM to learn the idle air volume that keeps each engine idle speed within the specific range. It must be performed under any of the following conditions:

- Each time electric throttle control actuator or ECM is replaced.
- Idle speed or ignition timing is out of specification.

Work Procedure

INFOID:000000009984968

1. PRECONDITIONING

Make sure that all of the following conditions are satisfied.

Learning will be cancelled if any of the following conditions are missed for even a moment.

- Battery voltage: More than 12.9 V (At idle)
- Engine coolant temperature: 70 - 100°C (158 - 212°F)
- Selector lever : P or N
- Electric load switch: OFF
(Air conditioner, headlamp, rear window defogger)

On vehicles equipped with daytime running light systems, set lighting switch to the 1st position to light only small lamps.

- Steering wheel: Neutral (Straight-ahead position)
- Vehicle speed: Stopped
- Transmission: Warmed-up

- ☐ With CONSULT

Drive vehicle until "ATF TENP SEN" in "DATA MONITOR" mode of "CVT" system indicates less than 0.9 V.

- ☒ Without CONSULT

Drive vehicle for 10 minutes.

Do you have CONSULT?

YES >> GO TO 2.

NO >> GO TO 3.

2. IDLE AIR VOLUME LEARNING

☐ With CONSULT

1. Perform Accelerator Pedal Released Position Learning. Refer to [EC-139, "Work Procedure"](#).
2. Perform Throttle Valve Closed Position Learning. Refer to [EC-140, "Work Procedure"](#).
3. Start engine and warm it up to normal operating temperature.
4. Select "IDLE AIR VOL LEARN" in "WORK SUPPORT" mode of "ENGINE".
5. Touch "START" and wait 20 seconds.

Is "CMPLT" displayed on CONSULT screen?

YES >> GO TO 4.

NO >> GO TO 5.

3. IDLE AIR VOLUME LEARNING

☒ Without CONSULT

NOTE:

- It is better to count the time accurately with a clock.
- It is impossible to switch the diagnostic mode when an accelerator pedal position sensor circuit has a malfunction.

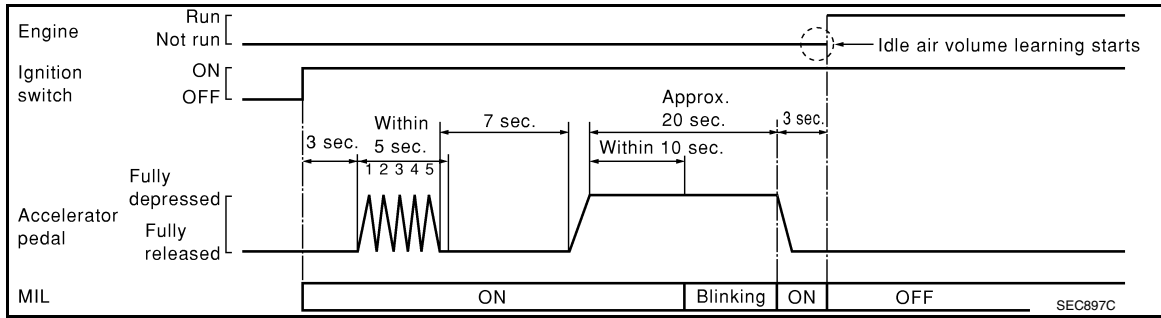
1. Perform Accelerator Pedal Released Position Learning. Refer to [EC-139, "Work Procedure"](#).
2. Perform Throttle Valve Closed Position Learning. Refer to [EC-140, "Work Procedure"](#).
3. Start engine and warm it up to normal operating temperature.
4. Turn ignition switch OFF and wait at least 10 seconds.
5. Confirm that accelerator pedal is fully released, turn ignition switch ON and wait 3 seconds.
6. Repeat the following procedure quickly five times within 5 seconds.
 - Fully depress the accelerator pedal.
 - Fully release the accelerator pedal.
7. Wait 7 seconds, fully depress the accelerator pedal and keep it for approx. 20 seconds until the MIL stops blinking and turned ON.

IDLE AIR VOLUME LEARNING

[QR25DE]

< BASIC INSPECTION >

8. Fully release the accelerator pedal within 3 seconds after the MIL turned ON.
9. Start engine and let it idle.
10. Wait 20 seconds.



>> GO TO 4

4. CHECK IDLE SPEED AND IGNITION TIMING

Rev up the engine two or three times and make sure that idle speed and ignition timing are within the specifications. For specification, refer to [EC-500, "Idle Speed"](#) and [EC-500, "Ignition Timing"](#).

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 5.

5. DETECT MALFUNCTIONING PART

Check the following

- Check that throttle valve is fully closed.
- Check PCV valve operation.
- Check that downstream of throttle valve is free from air leakage.

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace malfunctioning part.

6. DETECT MALFUNCTIONING PART

Engine component parts and their installation condition are questionable. Check and eliminate the cause of the incident.

It is useful to perform "TROUBLE DIAGNOSIS - SPECIFICATION VALUE". Refer to [EC-157, "Description"](#).

If any of the following conditions occur after the engine has started, eliminate the cause of the incident and perform Idle Air Volume Learning all over again:

- Engine stalls.
- Erroneous idle.

>> INSPECTION END

MIXTURE RATIO SELF-LEARNING VALUE CLEAR

< BASIC INSPECTION >

[QR25DE]

MIXTURE RATIO SELF-LEARNING VALUE CLEAR

Description

INFOID:0000000009984969

This describes how to erase the mixture ratio self-learning value. For the actual procedure, follow the instructions in "Diagnosis Procedure".

Work Procedure

INFOID:0000000009984970

1.START

With CONSULT

1. Start engine and warm it up to normal operating temperature.
2. Select "SELF-LEARNING CONT" in "WORK SUPPORT" mode of "ENGINE" using CONSULT.
3. Clear mixture ratio self-learning value by touching "CLEAR".

With GST

1. Start engine and warm it up to normal operating temperature.
2. Turn ignition switch OFF.
3. Disconnect mass air flow sensor harness connector.
4. Restart engine and let it idle for at least 5 seconds.
5. Stop engine and reconnect mass air flow sensor harness connector.
6. Select Service \$03 with GST. Make sure DTC P0102 is detected.
7. Select Service \$04 with GST to erase the DTC P0102.

>> END

FUEL PRESSURE

Work Procedure

INFOID:000000009984971

FUEL PRESSURE RELEASE

1.FUEL PRESSURE RELEASE

① With CONSULT

1. Turn ignition switch ON.
2. Perform "FUEL PRESSURE RELEASE" in "WORK SUPPORT" mode of "ENGINE" using CONSULT.
3. Start engine.
4. After engine stalls, crank it two or three times to release all fuel pressure.
5. Turn ignition switch OFF.

② Without CONSULT

1. Remove fuel pump fuse located in IPDM E/R. For the fuse number, refer to [EC-105, "Wiring Diagram"](#). For the fuse arrangement, refer to [PG-68, "IPDM E/R Terminal Arrangement"](#).
2. Start engine.
3. After engine stalls, crank it two or three times to release all fuel pressure.
4. Turn ignition switch OFF.
5. Reinstall fuel pump fuse after servicing fuel system.

>> END

FUEL PRESSURE CHECK

CAUTION:

Before disconnecting fuel line, release fuel pressure from fuel line to eliminate danger.

NOTE:

- Prepare pans or saucers under the disconnected fuel line because the fuel may spill out. The fuel pressure cannot be completely released because this models do not have fuel return system.
- Use Fuel Pressure Gauge Kit [SST: (J-44321)] to check fuel pressure.

1.FUEL PRESSURE CHECK

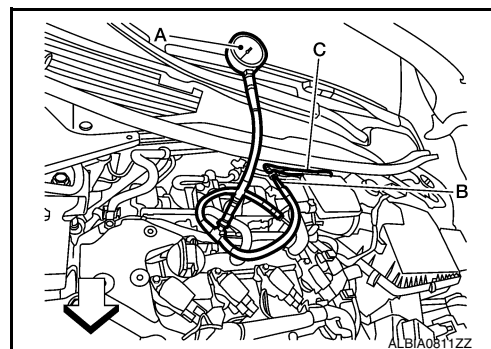
1. Release fuel pressure to zero.
2. Connect fuel tube adapter [SST:KV10120000] (B) to quick connector.

A : Fuel pressure gauge

C : Fuel feed hose

⇐ : Vehicle front

3. Turn ignition switch ON and check for fuel leakage.
4. Start engine and check for fuel leakage.
5. Read the indication of fuel pressure gauge.



At idling : Approximately 350 kPa (3.57 kg/cm², 51 psi)

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 2.

2.CHECK FUEL HOSES AND FUEL TUBES

Check fuel hoses and fuel tubes for clogging.

Is the inspection result normal?

YES >> Replace "fuel filter and fuel pump assembly". Refer to [FL-6, "Removal and Installation"](#).

NO >> Repair or replace error-detected parts.

HOW TO SET SRT CODE

< BASIC INSPECTION >

[QR25DE]

HOW TO SET SRT CODE

Description

INFOID:000000009984972

OUTLINE

In order to set all SRTs, the self-diagnoses as in the “SRT ITEM” table must have been performed at least once. Each diagnosis may require actual driving for a long period of time under various conditions.

SRT ITEM

The table below shows required self-diagnostic items to set the SRT to “CMPLT”.

SRT item* ¹ (CONSULT indication)	Performance Priority* ²	Required self-diagnostic items to set the SRT to “CMPLT”	Corresponding DTC No.
CATALYST	1	Three way catalyst function	P0420
EVAP SYSTEM	1	EVAP control system purge flow monitoring	P0441
	1	EVAP control system	P0456
HO2S	1	Air fuel ratio (A/F) sensor 1	P014C, P014D, P015A, P015B
		Heated oxygen sensor 2	P0137
		Heated oxygen sensor 2	P0138
		Heated oxygen sensor 2	P0139
EGR/VVT SYSTEM	2	Intake valve timing control function	P0011, P052A, P052B

*1: Though displayed on the CONSULT screen, “HO2S HTR” is not SRT item.

*2: If completion of several SRTs is required, perform driving patterns (DTC confirmation procedure), one by one based on the priority for models with CONSULT.

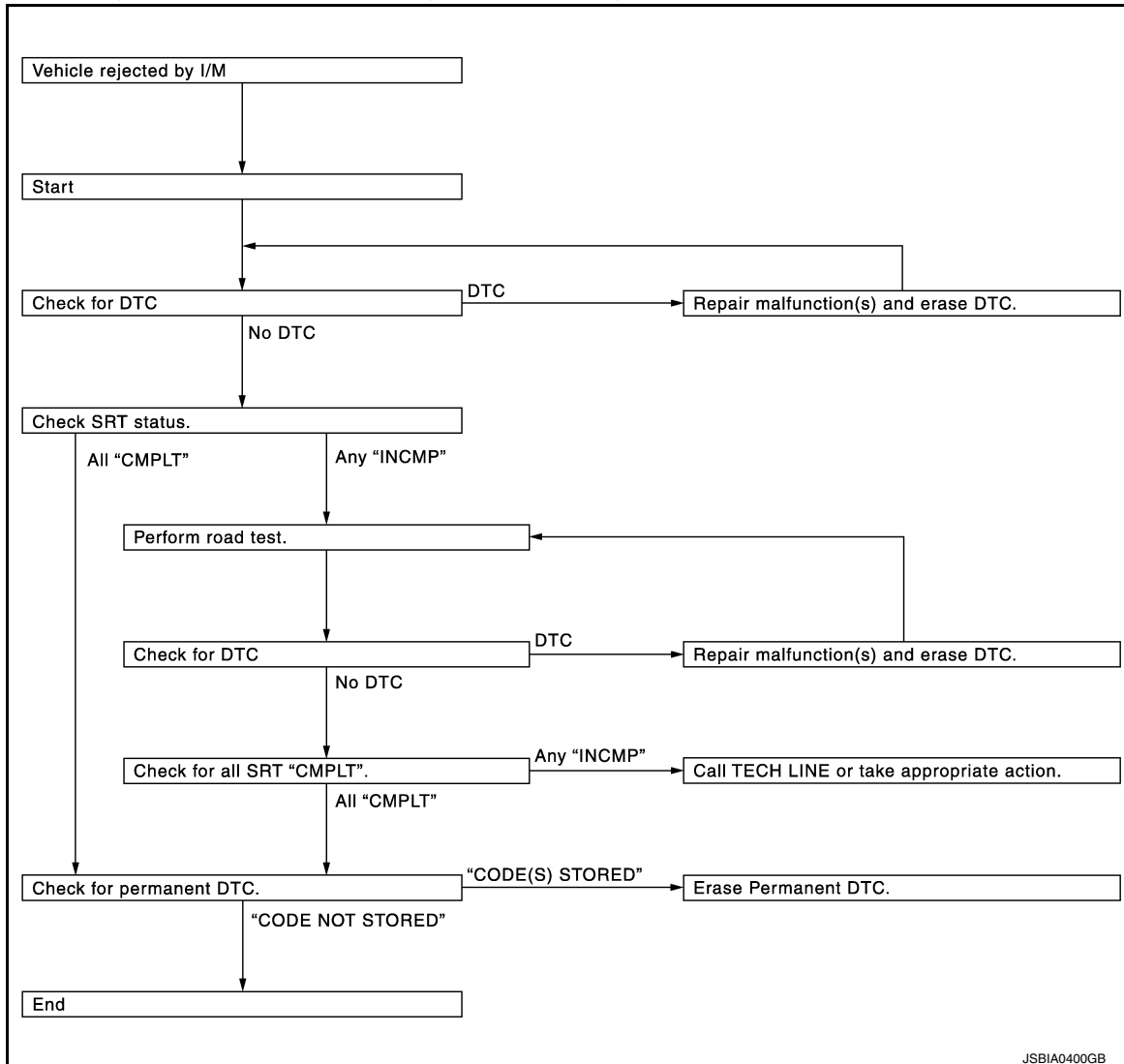
SRT SERVICE PROCEDURE

HOW TO SET SRT CODE

< BASIC INSPECTION >

[QR25DE]

If a vehicle has failed the state emissions inspection due to one or more SRT items indicating "INCMP", review the flowchart diagnostic sequence, referring to the following flowchart.



JSBIA0400GB

SRT Set Driving Pattern

INFOID:000000009984973

CAUTION:

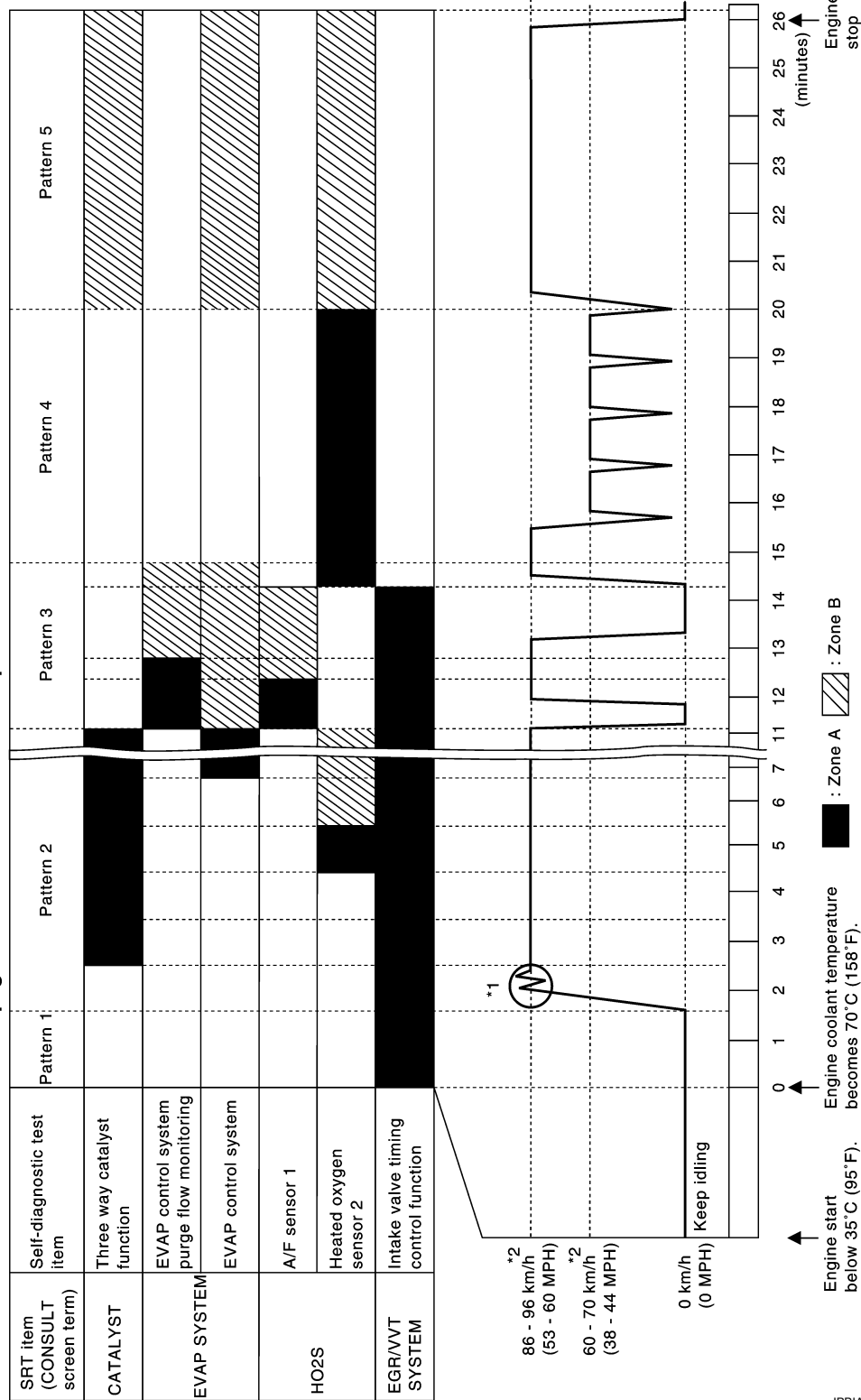
HOW TO SET SRT CODE

< BASIC INSPECTION >

[QR25DE]

Always drive the vehicle in safe manner according to traffic conditions and obey all traffic laws.

Note: Always drive vehicle in safe manner according to traffic conditions and obey all traffic laws.
Refer to next page for more information and explanation of chart.



*1: Depress the accelerator pedal until vehicle speed is 90 km/h (56 MPH), then release the accelerator pedal and keep it released for more than 10 seconds. Depress the accelerator pedal until vehicle speed is 90 km/h (56 MPH) again.

*2: Checking the vehicle speed with GST is advised.

- The time required for each diagnosis varies with road surface conditions, weather, altitude, individual driving habits, etc.
- "Zone A" is the fastest time where required for the diagnosis under normal conditions*. If the diagnosis is not completed within "Zone A", the diagnosis can still be performed within "Zone B".

< BASIC INSPECTION >

*: Normal conditions

- Sea level
- Flat road
- Ambient air temperature: 20 – 30°C (68 – 86°F)

NOTE:

Diagnosis is performed as quickly as possible under normal conditions. However, under other conditions, diagnosis may also be performed. [For example: ambient air temperature other than 20 – 30°C (68 – 86°F)]

Work Procedure

INFOID:000000009984974

1.CHECK DTC

Check DTC.

Is any DTC detected?

- YES >> Repair malfunction(s) and erase DTC. Refer to [EC-93, "DTC Index"](#).
- NO >> GO TO 2.

2.CHECK SRT STATUS

 With CONSULT

Select "SRT STATUS" in "DTC & SRT CONFIRMATION" mode with CONSULT.

 Without CONSULT

Perform "SRT status" mode with [EC-64, "On Board Diagnosis Function"](#).

 With GST

Select Service \$01 with GST.

Is SRT code(s) set?

- YES >> GO TO 11.
- NO-1 >> With CONSULT: GO TO 3.
- NO-2 >> Without CONSULT: GO TO 4.

3.DTC CONFIRMATION PROCEDURE

1. Select "SRT WORK SUPPORT" in "DTC & SRT CONFIRMATION" mode with CONSULT.
2. For SRT(s) that is not set, perform the corresponding "DTC CONFIRMATION PROCEDURE" according to the "Performance Priority" in the "SRT ITEM" table. Refer to [EC-145, "Description"](#).
3. Check DTC.

Is any DTC detected?

- YES >> Repair malfunction(s) and erase DTC. Refer to [EC-93, "DTC Index"](#).
- NO >> GO TO 10.

4.PERFORM ROAD TEST

- Check the "Performance Priority" in the "SRT ITEM" table. Refer to [EC-145, "Description"](#).
- Perform the most efficient SRT set driving pattern to set the SRT properly. Refer to [EC-146, "SRT Set Driving Pattern"](#).

In order to set all SRTs, the SRT set driving pattern must be performed at least once.

>> GO TO 5.

5.PATTERN 1

1. Check the vehicle condition;
 - Engine coolant temperature is –10 to 35°C (14 to 95°F).
 - Fuel tank temperature is more than 0°C (32°F).
2. Start the engine.
3. Keep engine idling until the engine coolant temperature is greater than 70°C (158°F)

NOTE:

ECM terminal voltage is follows;

- Engine coolant temperature
 - –10 to 35°C (14 to 95°F): 3.0 – 4.3 V
 - 70°C(158°F): Less than 4.1 V
- Fuel tank temperature: Less than 1.4 V

Refer to [EC-77, "Reference Value"](#).

HOW TO SET SRT CODE

< BASIC INSPECTION >

[QR25DE]

>> GO TO 6.

6.PATTERN 2

1. Drive the vehicle. And depress the accelerator pedal until vehicle speed is 90 km/h (56 MPH), then release the accelerator pedal and keep it released for more than 10 seconds.
2. Depress the accelerator pedal until vehicle speed is 90 km/h (56 MPH) again

NOTE:

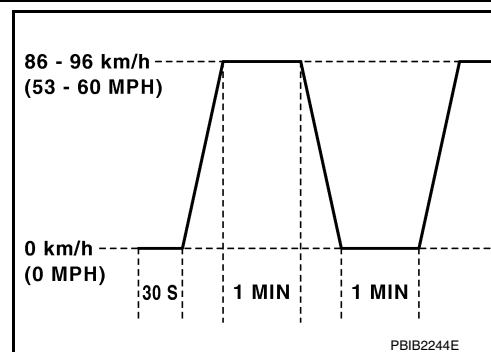
- Checking the vehicle speed with GST is advised.
- When steady-state driving is performed again even after it is interrupted, each diagnosis can be conducted. In this case, the time required for diagnosis may be extended.

>> GO TO 7.

7.PATTERN 3

- Operate vehicle following the driving pattern shown in the figure.
- Release the accelerator pedal during deceleration of vehicle speed from 90 km/h (56 MPH) to 0 km/h (0 MPH).

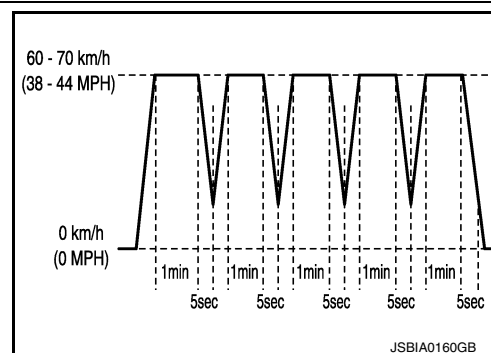
>> GO TO 8.



8.PATTERN 4

- Operate vehicle following the driving pattern shown in the figure.
- Drive the vehicle in a proper gear at 60 km/h (38 MPH) and maintain the speed.
- Release the accelerator pedal fully at least 5 seconds.
- Repeat the above two steps at least 5 times.

>> GO TO 9.



9.PATTERN 5

- The accelerator pedal must be held very steady during steady-state driving.
- If the accelerator pedal is moved, the test must be conducted again.

>> GO TO 10.

10.CHECK SRT STATUS

④ With CONSULT

Select "SRT STATUS" in "DTC & SRT CONFIRMATION" mode with CONSULT.

⊗ Without CONSULT

Perform "SRT status" mode with [EC-64, "On Board Diagnosis Function"](#).

Ⓢ With GST

Select Service \$01 with GST.

Is SRT(s) set?

YES >> GO TO 11.

NO >> Call TECH LINE or take appropriate action.

11.CHECK PERMANENT DTC

HOW TO SET SRT CODE

[QR25DE]

< BASIC INSPECTION >

NOTE:

Permanent DTC cannot be checked with a tool other than CONSULT or GST.

① With CONSULT

Select "SRT STATUS" in "DTC & SRT CONFIRMATION" mode with CONSULT.

② With GST

Select Service \$0A with GST.

Is permanent DTC(s) detected?

YES >> Proceed to [EC-151. "Description"](#).

NO >> END

HOW TO ERASE PERMANENT DTC

< BASIC INSPECTION >

[QR25DE]

HOW TO ERASE PERMANENT DTC

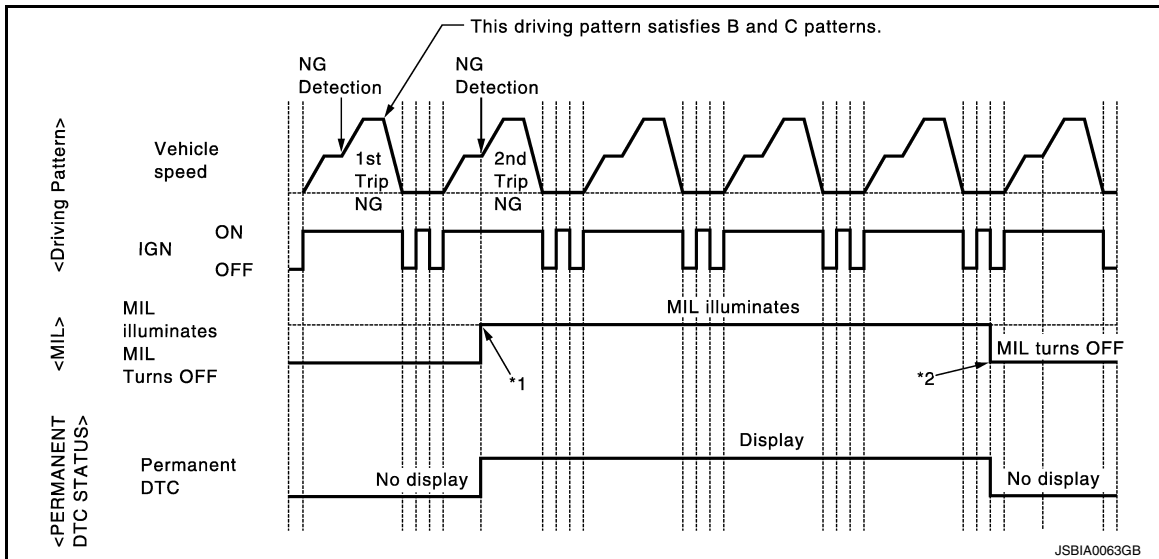
Description

INFOID:000000009984975

OUTLINE

When a DTC is stored in ECM

When a DTC is stored in ECM and MIL is ON, a permanent DTC is erased with MIL shutoff if the same malfunction is not detected after performing the driving pattern for MIL shutoff three times in a row.



*1: When the same malfunction is detected in two consecutive trips, MIL will illuminate.

*2: MIL will turn off after vehicle is driven 3 times (driving pattern B) without any malfunctions.

When a DTC is not stored in ECM

The erasing method depends on a permanent DTC stored in ECM. Refer to the following table.

NOTE:

If the applicable permanent DTC includes multiple groups, perform the procedure of Group B first. If the permanent DTC is not erased, perform the procedure of Group A.

×: Applicable —: Not applicable

Group*	Perform "DTC CONFIRMATION PROCEDURE" for applicable DTCs.	Driving pattern		Reference
		B	D	
A	×	—	—	EC-152
B	—	×	×	EC-154

*: For group, refer to [EC-93. "DTC Index"](#).

PERMANENT DTC ITEM

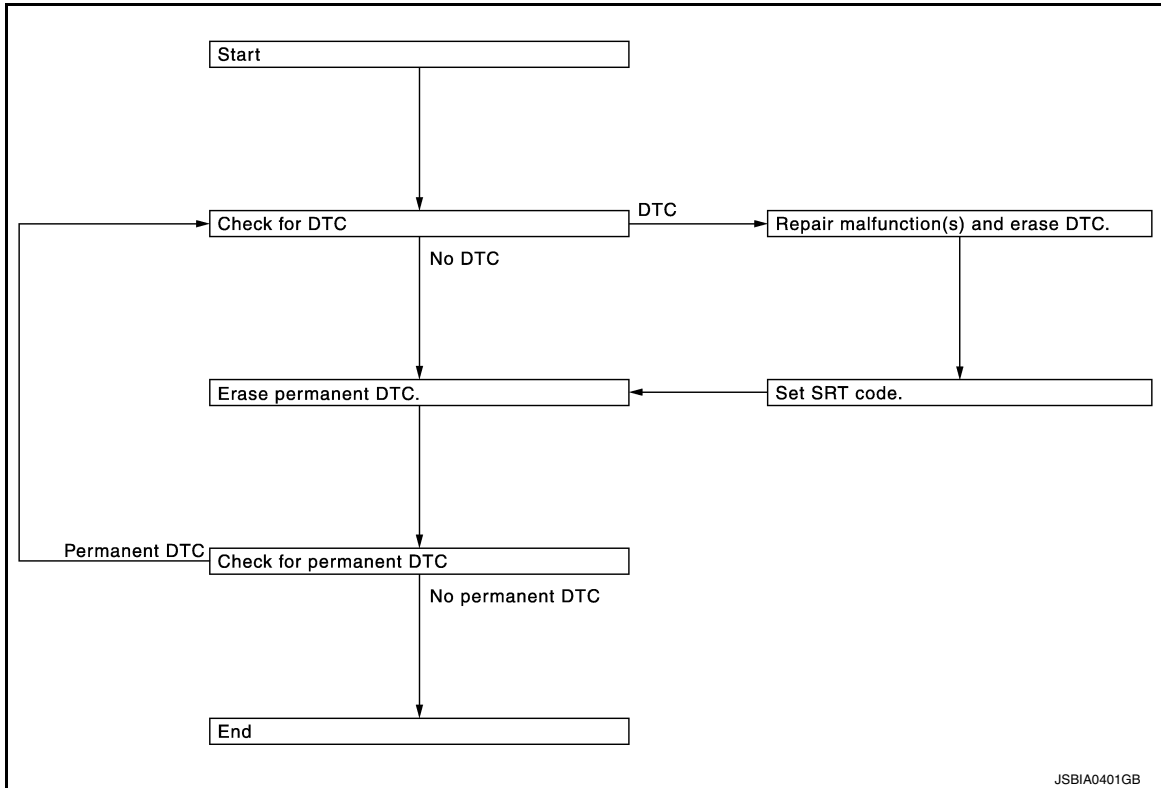
For permanent DTC items, MIL turns ON. Refer to [EC-93. "DTC Index"](#).

HOW TO ERASE PERMANENT DTC

< BASIC INSPECTION >

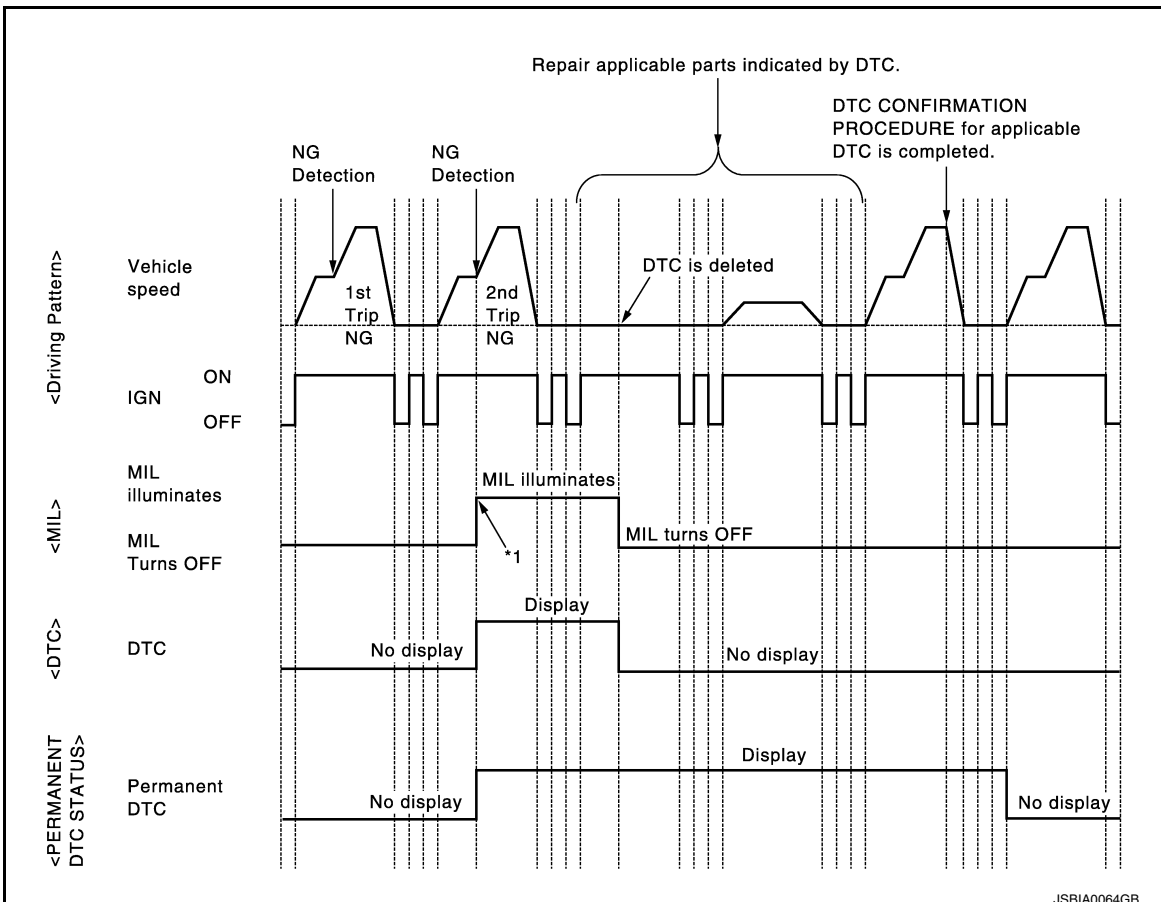
[QR25DE]

PERMANENT DTC SERVICE PROCEDURE



Work Procedure (Group A)

INFOID:000000009984976



HOW TO ERASE PERMANENT DTC

[QR25DE]

< BASIC INSPECTION >

*1: When the same malfunction is detected in two consecutive trips, MIL will illuminate.

1. CHECK DTC

Check DTC.

Is any DTC detected?

YES >> Repair malfunction(s) and erase DTC.

NO >> GO TO 2.

2. CHECK PERMANENT DTC

 With CONSULT

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.
4. Turn ignition switch ON.
5. Select "PERMANENT DTC STATUS" mode with CONSULT.

 With GST

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.
4. Turn ignition switch ON.
5. Select Service \$0A with GST.

Is any permanent DTC detected?

YES >> GO TO 3.

NO >> END

3. PERFORM DTC CONFIRMATION PROCEDURE

Perform "DTC CONFIRMATION PROCEDURE" for DTCs which are the same as permanent DTCs stored in ECM. Refer to [EC-93, "DTC Index"](#).

>> GO TO 4.

4. CHECK PERMANENT DTC

 With CONSULT

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.
4. Turn ignition switch ON.
5. Select "PERMANENT DTC STATUS" mode with CONSULT.

 With GST

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.
4. Turn ignition switch ON.
5. Select Service \$0A with GST.

Is any permanent DTC detected?

YES >> GO TO 1.

NO >> END

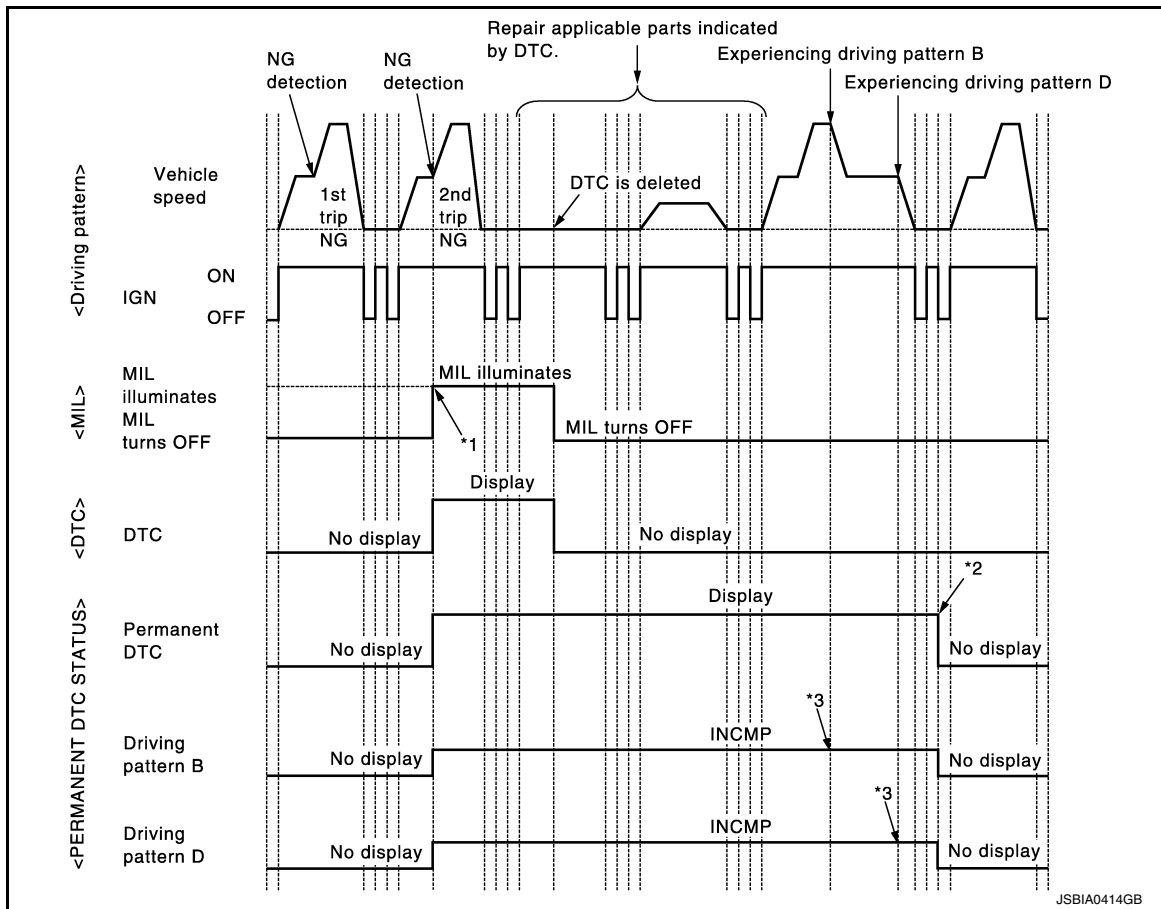
HOW TO ERASE PERMANENT DTC

< BASIC INSPECTION >

[QR25DE]

Work Procedure (Group B)

INFOID:000000009984977



*1: When the same malfunction is detected in two consecutive trips, MIL will illuminate.

*2: After experiencing driving pattern B and D, permanent DTC is erased.

*3: Indication does not change unless the ignition switch is turned from ON to OFF twice even after experiencing driving pattern B or D.

NOTE:

Drive the vehicle according to only driving patterns indicating "INCOMP" in driving patterns B and D on the "PERMANENT DTC STATUS" screen.

1.CHECK DTC

Check DTC.

Is any DTC detected?

YES >> Repair malfunction(s) and erase DTC.

NO >> GO TO 2.

2.CHECK PERMANENT DTC

Ⓔ With CONSULT

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.
4. Turn ignition switch ON.
5. Select "PERMANENT DTC STATUS" mode with CONSULT.

Ⓔ With GST

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.
4. Turn ignition switch ON.

HOW TO ERASE PERMANENT DTC

[QR25DE]

< BASIC INSPECTION >

5. Select Service \$0A with GST.

Is any permanent DTC detected?

YES >> GO TO 3.

NO >> END

3.DRIVE DRIVING PATTERN B

CAUTION:

- Always drive at a safe speed.
- Never erase self-diagnosis results.
- If self-diagnosis results are erased during the trip of driving pattern B or D, the counter of driving pattern B and D is reset.

 With CONSULT

1. Start engine and warm it up to normal operating temperature.
2. Use "PERMANENT DTC WORK SUPPORT" mode with CONSULT to drive the vehicle according to driving pattern B. Refer to [EC-67. "CONSULT Function"](#), [EC-61. "DIAGNOSIS DESCRIPTION : Driving Pattern"](#).

 With GST

1. Start engine and warm it up to normal operating temperature.
2. Drive the vehicle according to driving pattern B. Refer to [EC-61. "DIAGNOSIS DESCRIPTION : Driving Pattern"](#).

>> GO TO 4.

4.CHECK PERMANENT DTC

 With CONSULT

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.
4. Turn ignition switch ON.
5. Select "PERMANENT DTC STATUS" mode with CONSULT.

 With GST

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.
4. Turn ignition switch ON.
5. Select Service \$0A with GST.

Is any permanent DTC detected?

YES >> GO TO 5.

NO >> END

5.DRIVE DRIVING PATTERN D

CAUTION:

- Always drive at a safe speed.
- Never erase self-diagnosis results.
- If self-diagnosis results are erased during the trip of driving pattern B or D, the counter of driving pattern B and D is reset.

Drive the vehicle according to driving pattern D. Refer to [EC-61. "DIAGNOSIS DESCRIPTION : Driving Pattern"](#).

>> GO TO 6.

6.CHECK PERMANENT DTC

 With CONSULT

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.
4. Turn ignition switch ON.
5. Select "PERMANENT DTC STATUS" mode with CONSULT.

HOW TO ERASE PERMANENT DTC

< BASIC INSPECTION >

[QR25DE]

 With GST

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.
4. Turn ignition switch ON.
5. Select Service \$0A with GST.

Is any permanent DTC detected?

YES >> GO TO 1.

NO >> END

DTC/CIRCUIT DIAGNOSIS

TROUBLE DIAGNOSIS - SPECIFICATION VALUE

Description

INFOID:0000000009984978

The specification (SP) value indicates the tolerance of the value that is displayed in "SPEC" of "DATA MONITOR" mode of CONSULT during normal operation of the Engine Control System. When the value in "SPEC" of "DATA MONITOR" mode is within the SP value, the Engine Control System is confirmed OK. When the value in "SPEC" of "DATA MONITOR" mode is NOT within the SP value, the Engine Control System may have one or more malfunctions.

The SP value is used to detect malfunctions that may affect the Engine Control System, but will not light the MIL.

The SP value will be displayed for the following three items:

- B/FUEL SCHDL (The fuel injection pulse width programmed into ECM prior to any learned on board correction)
- A/F ALPHA-B1 (The mean value of air-fuel ratio feedback correction factor per cycle)
- MASS AIR FLOW SENSOR (Hz) (The signal frequency of the mass air flow sensor)

Component Function Check

INFOID:0000000009984979

1. START

Make sure that all of the following conditions are satisfied.

- Vehicle driven distance: More than 5,000 km (3,107 miles)
- Barometric pressure: 98.3 - 104.3 kPa (1.003 - 1.064 kg/cm², 14.25 - 15.12 psi)
- Atmospheric temperature: 20 - 30°C (68 - 86°F)
- Engine coolant temperature: 75 - 95°C (167 - 203°F)
- Transmission: Warmed-up
- After the engine is warmed up to normal operating temperature, drive vehicle until "ATF TEMP SEN" (CVT fluid temperature sensor signal) indicates more than 60°C (140°F).
- Electrical load: Not applied*
- Engine speed: Idle

*: Rear window defogger switch, air conditioner switch, lighting switch are OFF. Steering wheel is straight ahead.

>> GO TO 2.

2. PERFORM "SPEC" OF "DATA MONITOR" MODE

With CONSULT

NOTE:

Perform "SPEC" in "DATA MONITOR" mode in maximum scale display.

1. Perform [EC-132. "Work Procedure"](#).
2. Select "B/FUEL SCHDL", "A/F ALPHA-B1" and "MASS AIR FLOW SENSOR (Hz)" in "SPEC" of "DATA MONITOR" mode with CONSULT.
3. Make sure that monitor items are within the SP value.

Is the inspection result normal?

YES >> END

NO >> Proceed to [EC-158. "Diagnosis Procedure"](#).

TROUBLE DIAGNOSIS - SPECIFICATION VALUE

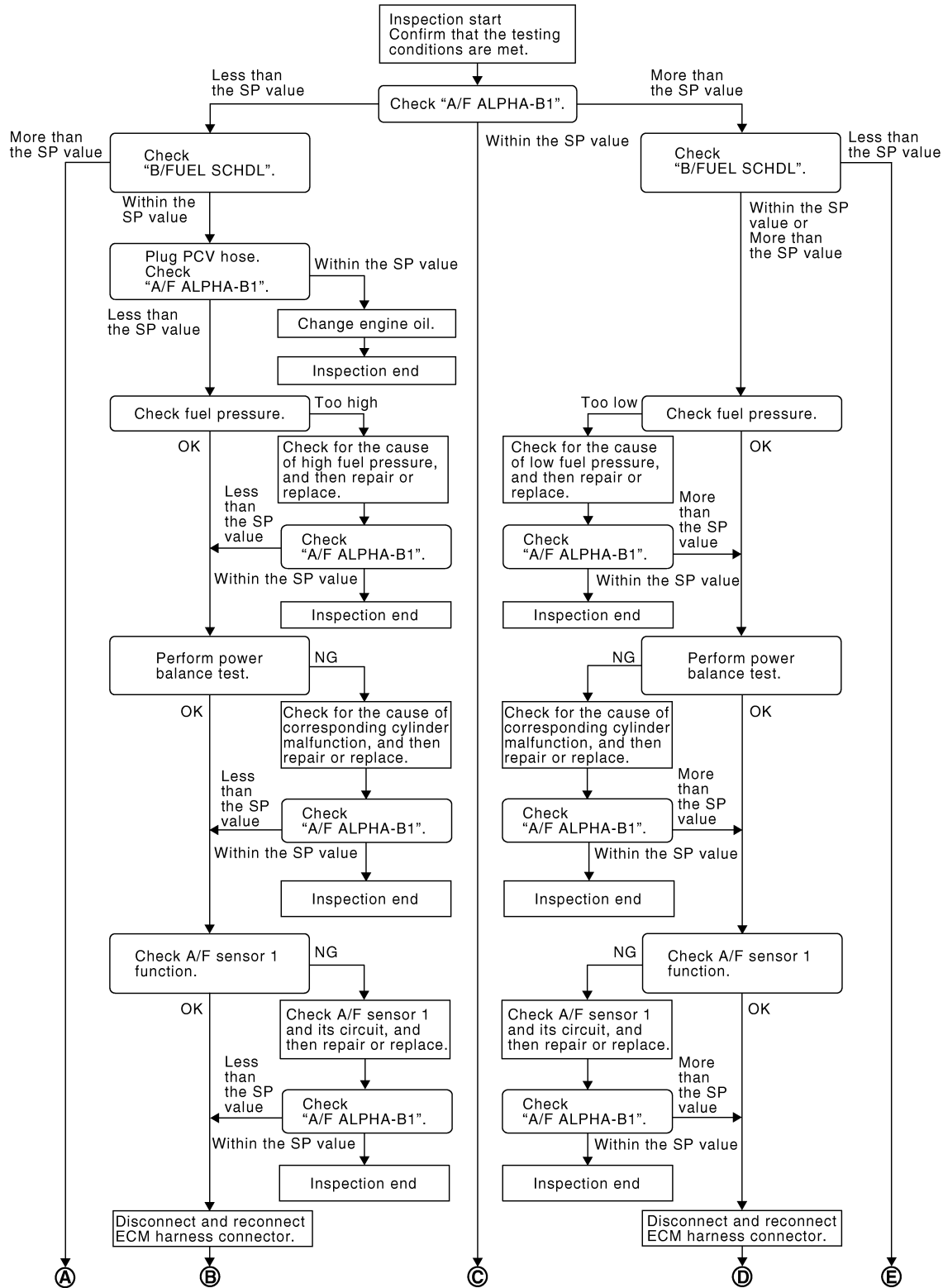
< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

INFOID:000000009984980

Diagnosis Procedure

OVERALL SEQUENCE



PBIB2318E

[QR25DE]

A



C

D

E

F

G

H

1

J

K

L

M

N

O

P

1.CHECK "A/F ALPHA-B1"

1. Start engine.
2. Confirm that the testing conditions are met. Refer to [EC-157, "Component Function Check"](#).
3. Select "A/F ALPHA-B1" in "SPEC" of "DATA MONITOR" mode, and make sure that the each indication is within the SP value.

TROUBLE DIAGNOSIS - SPECIFICATION VALUE

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

NOTE:

Check "A/F ALPHA-B1" for approximately 1 minute because they may fluctuate. It is NG if the indication is out of the SP value even a little.

Is the measurement value within the SP value?

YES >> GO TO 17.

NO-1 >> Less than the SP value: GO TO 2.

NO-2 >> More than the SP value: GO TO 3.

2.CHECK "B/FUEL SCHDL"

Select "B/FUEL SCHDL" in "SPEC" of "DATA MONITOR" mode, and make sure that the indication is within the SP value.

Is the measurement value within the SP value?

YES >> GO TO 4.

NO >> More than the SP value: GO TO 19.

3.CHECK "B/FUEL SCHDL"

Select "B/FUEL SCHDL" in "SPEC" of "DATA MONITOR" mode, and make sure that the indication is within the SP value.

Is the measurement value within the SP value?

YES >> GO TO 6.

NO-1 >> More than the SP value: GO TO 6.

NO-2 >> Less than the SP value: GO TO 25.

4.CHECK "A/F ALPHA-B1"

1. Stop the engine.
2. Disconnect PCV hose, and then plug it.
3. Start engine.
4. Select "A/F ALPHA-B1" in "SPEC" of "DATA MONITOR" mode, and make sure that the indication is within the SP value.

Is the measurement value within the SP value?

YES >> GO TO 5.

NO >> GO TO 6.

5.CHANGE ENGINE OIL

1. Stop the engine.
2. Change engine oil.

NOTE:

This symptom may occur when a large amount of gasoline is mixed with engine oil because of driving conditions (such as when engine oil temperature does not rise enough since a journey distance is too short during winter). The symptom will not be detected after changing engine oil or changing driving condition.

>> **INSPECTION END**

6.CHECK FUEL PRESSURE

Check fuel pressure. (Refer to [EC-144, "Work Procedure"](#).)

Is the inspection result normal?

YES >> GO TO 9.

NO-1 >> Fuel pressure is too high: Replace "fuel filter and fuel pump assembly", refer to [FL-6, "Removal and Installation"](#), and then GO TO 8.

NO-2 >> Fuel pressure is too low: GO TO 7.

7.DETECT MALFUNCTIONING PART

Check fuel hoses and fuel tubes for clogging

Is the inspection result normal?

YES >> Replace "fuel filter and fuel pump assembly", refer to [FL-6, "Removal and Installation"](#), and then GO TO 8.

NO >> Repair or replace and then GO TO 8.

TROUBLE DIAGNOSIS - SPECIFICATION VALUE

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

8.CHECK "A/F ALPHA-B1"

1. Start engine.
2. Select "A/F ALPHA-B1" in "SPEC" of "DATA MONITOR" mode, and make sure that the indication is within the SP value.

Is the measurement value within the SP value?

- YES >> INSPECTION END
NO >> GO TO 9.

9.PERFORM POWER BALANCE TEST

1. Perform "POWER BALANCE" in "ACTIVE TEST" mode.
2. Make sure that the each cylinder produces a momentary engine speed drop.

Is the inspection result normal?

- YES >> GO TO 12.
NO >> GO TO 10.

10.DETECT MALFUNCTIONING PART

Check the following.

1. Ignition coil and its circuit (Refer to [EC-470, "Component Function Check".](#))
2. Fuel injector and its circuit (Refer to [EC-464, "Component Function Check".](#))
3. Intake air leakage
4. Low compression pressure (Refer to [EM-22, "Compression pressure".](#))

Is the inspection result normal?

- YES >> Replace fuel injector, refer to [EM-40, "Removal and Installation"](#), and then GO TO 11.
NO >> Repair or replace malfunctioning part and then GO TO 11.

11.CHECK "A/F ALPHA-B1"

1. Start engine.
2. Select "A/F ALPHA-B1" in "SPEC" of "DATA MONITOR" mode, and make sure that the indication is within the SP value.

Is the measurement value within the SP value?

- YES >> INSPECTION END
NO >> GO TO 12.

12.CHECK A/F SENSOR 1 FUNCTION

Perform all DTC CONFIRMATION PROCEDURE related with A/F sensor 1.

- For DTC P0130, refer to [EC-226, "DTC Description".](#)
- For DTC P0131, refer to [EC-230, "DTC Description".](#)
- For DTC P0132, refer to [EC-233, "DTC Description".](#)
- For DTC P014C, P014D, P15A, P15B refer to [EC-255, "DTC Description".](#)
- For DTC P2096, P2097, refer to [EC-426, "DTC Description".](#)

Is any DTC detected?

- YES >> GO TO 15.
NO >> GO TO 13.

13.CHECK A/F SENSOR 1 CIRCUIT

Perform DIAGNOSTIC PROCEDURE according to corresponding DTC.

>> GO TO 14.

14.CHECK "A/F ALPHA-B1"

1. Start engine.
2. Select "A/F ALPHA-B1" in "SPEC" of "DATA MONITOR" mode, and make sure that the each indication is within the SP value.

Is the measurement value within the SP value?

- YES >> INSPECTION END
NO >> GO TO 15.

15.DISCONNECT AND RECONNECT ECM HARNESS CONNECTOR

1. Stop the engine.
2. Disconnect ECM harness connector. Check pin terminal and connector for damage, and then reconnect it.

>> GO TO 16.

16.CHECK "A/F ALPHA-B1"

1. Start engine.
2. Select "A/F ALPHA-B1" in "SPEC" of "DATA MONITOR" mode, and make sure that the indication is within the SP value.

Is the measurement value within the SP value?

YES >> INSPECTION END

NO >> Detect malfunctioning part according to [EC-486. "Symptom Table"](#).

17.CHECK "B/FUEL SCHDL"

Select "B/FUEL SCHDL" in "SPEC" of "DATA MONITOR" mode, and make sure that the indication is within the SP value.

Is the measurement value within the SP value?

YES >> INSPECTION END

NO-1 >> More than the SP value: GO TO 18.

NO-2 >> Less than the SP value: GO TO 25.

18.DETECT MALFUNCTIONING PART

1. Check for the cause of large engine friction. Refer to the following.
 - Engine oil level is too high
 - Engine oil viscosity
 - Belt tension of power steering, alternator, A/C compressor, etc. is excessive
 - Noise from engine
 - Noise from transmission, etc.
2. Check for the cause of insufficient combustion. Refer to the following.
 - Valve clearance malfunction
 - Intake valve timing control function malfunction
 - Camshaft sprocket installation malfunction, etc.

>> Repair or replace malfunctioning part, and then GO TO 30.

19.CHECK INTAKE SYSTEM

Check for the cause of uneven air flow through mass air flow sensor. Refer to the following.

- Crushed air ducts
- Malfunctioning seal of air cleaner element
- Uneven dirt of air cleaner element
- Improper specification of intake air system

Is the inspection result normal?

YES >> GO TO 21.

NO >> Repair or replace malfunctioning part, and then GO TO 20.

20.CHECK "A/F ALPHA-B1", AND "B/FUEL SCHDL"

Select "A/F ALPHA-B1" and "B/FUEL SCHDL" in "SPEC" of "DATA MONITOR" mode, and make sure that the each indication is within the SP value.

Is the measurement value within the SP value?

YES >> **INSPECTION END**

NO >> "B/FUEL SCHDL" is more, "A/F ALPHA-B1" is less than the SP value: GO TO 21.

21.DISCONNECT AND RECONNECT MASS AIR FLOW SENSOR HARNESS CONNECTOR

1. Stop the engine.
2. Disconnect mass air flow sensor harness connector. Check pin terminal and connector for damage and then reconnect it again.

TROUBLE DIAGNOSIS - SPECIFICATION VALUE

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

>> GO TO 22.

22.CHECK "A/F ALPHA-B1"

1. Start engine.
2. Select "A/F ALPHA-B1" in "SPEC" of "DATA MONITOR" mode, and make sure that the indication is within the SP value.

Is the measurement value within the SP value?

YES >> Detect malfunctioning part of mass air flow sensor circuit and repair it. Refer to [EC-198, "DTC Description"](#). Then GO TO 29.

NO >> GO TO 23.

23.CHECK "MASS AIR FLOW SENSOR (HZ)"

Select "MASS AIR FLOW SENSOR (Hz)" in "SPEC" of "DATA MONITOR" mode, and make sure that the indication is within the SP value.

Is the measurement value within the SP value?

YES >> GO TO 24.

NO >> More than the SP value: Replace mass air flow sensor, refer to [EM-24, "Removal and Installation"](#), and then GO TO 29.

24.REPLACE ECM

Replace ECM. Refer to [EC-499, "Removal and Installation"](#).

>> GO TO 29.

25.CHECK INTAKE SYSTEM

Check for the cause of uneven air flow through mass air flow sensor. Refer to the following.

- Crushed air ducts
- Malfunctioning seal of air cleaner element
- Uneven dirt of air cleaner element
- Improper specification of intake air system

Is the inspection result normal?

YES >> GO TO 27.

NO >> Repair or replace malfunctioning part, and then GO TO 26.

26.CHECK "B/FUEL SCHDL"

Select "B/FUEL SCHDL" in "SPEC" of "DATA MONITOR" mode, and make sure that the indication is within the SP value.

Is the measurement value within the SP value?

YES >> INSPECTION END

NO >> Less than the SP value: GO TO 27.

27.CHECK "MASS AIR FLOW SENSOR (HZ)"

Select "MASS AIR FLOW SENSOR (Hz)" in "SPEC" of "DATA MONITOR" mode, and make sure that the indication is within the SP value.

Is the measurement value within the SP value?

YES >> GO TO 28.

NO >> Less than the SP value: Replace mass air flow sensor, refer to [EM-24, "Removal and Installation"](#), and then GO TO 30.

28.CHECK INTAKE SYSTEM

Check for the cause of air leak after the mass air flow sensor. Refer to the following.

- Disconnection, looseness, and cracks in air duct
- Looseness of oil filler cap
- Disconnection of oil level gauge
- Open stuck, breakage, hose disconnection, or cracks of PCV valve
- Disconnection or cracks of EVAP purge hose, open stuck of EVAP canister purge volume control solenoid valve

TROUBLE DIAGNOSIS - SPECIFICATION VALUE

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

- Malfunctioning seal of rocker cover gasket
- Disconnection, looseness, or cracks of hoses, such as vacuum hose, connecting to intake air system parts
- Malfunctioning seal of intake air system, etc.

>> GO TO 30.

29.CHECK "A/F ALPHA-B1" AND "B/FUEL SCHDL"

Select "A/F ALPHA-B1" and "B/FUEL SCHDL" in "SPEC" of "DATA MONITOR" mode, and make sure that the indication is within the SP value.

Is the measurement value within the SP value?

YES >> INSPECTION END

NO >> Detect malfunctioning part according to [EC-486. "Symptom Table"](#).

30.CHECK "B/FUEL SCHDL"

Select "B/FUEL SCHDL" in "SPEC" of "DATA MONITOR" mode, and then make sure that the indication is within the SP value.

Is the measurement value within the SP value?

YES >> INSPECTION END

NO >> Detect malfunctioning part according to [EC-486. "Symptom Table"](#).

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

POWER SUPPLY AND GROUND CIRCUIT

Diagnosis Procedure

INFOID:000000009984981

1.CHECK FUSE

Check that the following fuse is not fusing.

Location	Fuse No.	Capacity
IPDM E/R	#48	5 A
	#41	10 A
	#35	15 A

Is the fuse fusing?

YES >> Replace the fuse after repairing the applicable circuit.

NO >> GO TO 2.

2.CHECK GROUND CONNECTION

1. Turn ignition switch OFF.

2. Check ground connection E9 or E15. Refer to [GI-44, "Circuit Inspection"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace ground connection.

3.CHECK ECM GROUND CIRCUIT

1. Disconnect ECM harness connectors.

2. Check the continuity between ECM harness connector and ground.

+		-	Continuity
ECM			
Connector	Terminal		
F52	52	Ground	Existed
F51	16		
E16	123		
	128		

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace error-detected parts.

4.CHECK ECM POWER SUPPLY (MAIN)-1

1. Reconnect ECM harness connector.

2. Turn ignition switch ON.

3. Check the voltage between ECM harness connector terminals.

ECM			Voltage
Connector	+	–	
	Terminal		
E16	121	128	Battery voltage

Is the inspection result normal?

YES >> GO TO 5.

NO >> GO TO 6.

5.CHECK ECM POWER SUPPLY (MAIN)--2

1. Turn ignition switch OFF and wait at least 10 seconds.

POWER SUPPLY AND GROUND CIRCUIT

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

- Check the voltage between ECM harness connector terminals as per the following.

ECM			Condition	Voltage (Approx.)
Connector	+	–		
	Terminal			
E16	121	128	After turning ignition switch OFF, battery voltage will exist for a few seconds	Drop to 0 V

Is the inspection result normal?

YES >> GO TO 9.

NO >> GO TO 7.

6.CHECK ECM POWER SUPPLY (MAIN) CIRCUIT

- Turn ignition switch OFF.
- Disconnect ECM harness connectors.
- Disconnect IPDM E/R harness connector.
- Check the continuity between ECM harness connector and IPDM E/R harness connector.

+		-		Continuity
ECM		IPDM E/R		
Connector	Terminal	Connector	Terminal	
E16	121	F35	73	Existed

- Also check harness for short to ground.

Is the inspection result normal?

YES >> Perform the trouble diagnosis for power supply circuit.

NO >> Repair or replace error-detected parts.

7.CHECK ECM RELAY CONTROL SIGNAL

Check the voltage between ECM harness connector terminals as per the following.

ECM				Condition	Voltage (Approx.)
+		−			
Connector	Terminal	Connector	Terminal		
F52	89	E16	128	Ignition switch ON	0 V
				Turn ignition switch OFF and wait at least 10 seconds.	Battery voltage

Is the inspection result normal?

YES >> Check Intermittent Incident. Refer to [GI-41, "Intermittent Incident"](#).

NO >> GO TO 8.

8.CHECK ECM RELAY CONTROL SIGNAL CIRCUIT

- Turn ignition switch OFF.
- Disconnect ECM harness connector.
- Disconnect IPDM E/R harness connector.
- Check the continuity between ECM harness connector and IPDM E/R harness connector.

+		-		Continuity
ECM		IPDM E/R		
Connector	Terminal	Connector	Terminal	
F52	89	F42	93	Existed

- Also check harness for short to ground and to power.

POWER SUPPLY AND GROUND CIRCUIT

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

Is the inspection result normal?

- YES >> Replace IPDM E/R. Refer to [PCS-35, "Removal and Installation"](#).
NO >> Repair or replace error-detected parts.

9.CHECK IGNITION SWITCH SIGNAL

1. Turn ignition switch ON.
2. Check the voltage between ECM harness connector terminals.

ECM			Condition	Voltage (Approx.)
Connector	+	-		
	Terminal			
E16	109	128	Ignition switch OFF	0 V
			Ignition switch ON	Battery voltage

Is the inspection result normal?

- YES >> GO TO 11.
NO >> GO TO 10.

10.CHECK IGNITION SWITCH SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Disconnect IPDM E/R harness connector.
4. Check the continuity between ECM harness connector and IPDM E/R harness connector.

+		-		Continuity
ECM		IPDM E/R		
Connector	Terminal	Connector	Terminal	
E16	109	E120	19	Existed

5. Also check harness for short to ground and to power.

Is the inspection result normal?

- YES >> Perform the trouble diagnosis for power supply circuit.
NO >> Repair or replace error-detected parts.

11.CHECK ECM POWER SUPPLY (BACK-UP)

Check the voltage between ECM harness connector terminals.

ECM				Voltage
+		−		
Connector	Terminal	Connector	Terminal	
F52	81	E16	128	Battery voltage

Is the inspection result normal?

- YES >> Check Intermittent Incident. Refer to [GI-41, "Intermittent Incident"](#).
NO >> GO TO 12.

12.CHECK ECM POWER SUPPLY (BACK-UP) CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Disconnect IPDM E/R harness connector.
4. Check the continuity between ECM harness connector and IPDM E/R harness connector.

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

+		-		Continuity
ECM		IPDM E/R		
Connector	Terminal	Connector	Terminal	
F52	81	E121	44	Existed

5. Also check harness for short to ground and to power.

Is the inspection result normal?

YES >> Perform the trouble diagnosis for power supply circuit.

NO >> Repair or replace error-detected parts.

U0101 CAN COMM CIRCUIT

Description

INFOID:0000000009984982

CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN H line, CAN L line) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.

DTC Description

INFOID:0000000009984983

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
U0101	LOST COMM (TCM) (Lost communication with TCM)	When ECM is not transmitting or receiving CAN communication signal of OBD (emission-related diagnosis) with TCM for 2 seconds or more.

POSSIBLE CAUSE

CAN communication line between TCM and ECM

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON and wait at least 3 seconds.
2. Check DTC.

Is DTC detected?

- YES >> Proceed to [EC-169, "Diagnosis Procedure"](#).
 NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000009984984

Perform the trouble diagnosis for CAN communication system. Refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).

U1001 CAN COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

U1001 CAN COMM CIRCUIT

Description

INFOID:000000009984985

CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN H line, CAN L line) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.

DTC Description

INFOID:000000009984986

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
U1001	CAN COMM CIRCUIT (CAN COMM CIRCUIT)	When ECM is not transmitting or receiving CAN communication signal other than OBD (emission related diagnosis) for 2 seconds or more.

POSSIBLE CAUSE

Harness or connectors (CAN communication line is open or shorted)

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON and wait at least 3 seconds.
2. Check 1st trip DTC.

Is 1st trip DTC detected?

YES >> Proceed to [EC-170, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009984987

Perform the trouble diagnosis for CAN communication system. Refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).

U1040 ENG COMM CIRCUIT

DTC Description

INFOID:0000000010354531

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
U1040	ENG COMM CIRCUIT (Engine communication circuit)	ECM cannot transmit a communication signal to generator.

POSSIBLE CAUSE

- Harness or connectors
(LIN communication circuit is open or shorted.)
- ECM

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

>> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition ON and wait at least 10 seconds.
2. Check DTC.

Is DTC detected?

- YES >> Proceed to [EC-171, "Diagnosis Procedure"](#).
 NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000010354532

1. CHECK LIN COMMUNICATION CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector and generator harness connector.
3. Check the continuity between ECM harness connector and generator harness connector.

+		-		Continuity
ECM		Generator		
Connector	Terminal	Connector	Terminal	
F52	85	F31	2	Existed

4. Also check harness for short to power and short to ground.

Is the inspection result normal?

- YES >> GO TO 2.
 NO >> Repair or replace error-detected parts.

2. REPLACE GENERATOR

1. Replace generator. Refer to [CHG-20, "Removal and Installation"](#).
2. Erase DTC.
3. Perform DTC confirmation procedure again. Refer to [EC-171, "DTC Description"](#).

U1040 ENG COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

Is DTC detected again?

YES >> Replace ECM. Refer to [EC-499, "Removal and Installation"](#).
NO >> INSPECTION END

U1044 ENG COMM CIRCUIT

DTC Description

INFOID:0000000010354533

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
U1044	ENG COMM CIRCUIT (Engine communication circuit)	A signal voltage of LIN communication between ECM and generator is excessively low or excessively high.

POSSIBLE CAUSE

- Harness or connectors
(LIN communication circuit is open or shorted.)
- Generator

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

>> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition ON and wait at least 10 seconds.
2. Check DTC.

Is DTC detected?

- YES >> Proceed to [EC-173, "Diagnosis Procedure"](#).
 NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000010354534

1. CHECK LIN COMMUNICATION CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector and generator harness connector.
3. Check the continuity between ECM harness connector and generator harness connector.

+		-		Continuity
ECM		Generator		
Connector	Terminal	Connector	Terminal	
F52	85	F31	2	Existed

4. Also check harness for short to power and short to ground.

Is the inspection result normal?

- YES >> GO TO 2.
 NO >> Repair or replace error-detected parts.

2. REPLACE GENERATOR

1. Replace generator. Refer to [CHG-20, "Removal and Installation"](#).
2. Erase DTC.
3. Perform DTC confirmation procedure again. Refer to [EC-173, "DTC Description"](#).

U1044 ENG COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

Is DTC detected again?

YES >> Replace ECM. Refer to [EC-499, "Removal and Installation"](#).
NO >> INSPECTION END

U1050, U1051 LIN COMMUNICATION

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

U1050, U1051 LIN COMMUNICATION

DTC Description

INFOID:0000000010285160

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
U1050	LIN COMMUNICATION [LIN (Local Interconnect Network) commu- nication)]	ECM detects LIN communication error.
U1051		

POSSIBLE CAUSE

- Harness or connectors
(LIN communication circuit is open or shorted.)
- Generator
- ECM

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition ON and wait at least 10 seconds.
2. Check DTC.

Is DTC detected?

- YES >> Proceed to [EC-175, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000010285161

1.CHECK LIN COMMUNICATION CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector and generator harness connector.
3. Check the continuity between ECM harness connector and generator harness connector.

+		-		Continuity
ECM		Generator		
Connector	Terminal	Connector	Terminal	
F52	85	F31	2	Existed

4. Also check harness for short to power and short to ground.

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace error-detected parts.

2.REPLACE GENERATOR

1. Replace generator. Refer to [CHG-20, "Removal and Installation"](#).

U1050, U1051 LIN COMMUNICATION

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

2. Erase DTC.
3. Perform DTC confirmation procedure again. Refer to [EC-175, "DTC Description"](#).

Is DTC detected again?

- YES >> Replace ECM. Refer to [EC-499, "Removal and Installation"](#).
NO >> INSPECTION END

P0011 IVT CONTROL

DTC Description

INFOID:000000009984988

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0011	INT/V TIM CONT-B1 ("A" Camshaft position - timing over-advanced or system performance bank 1)	There is a gap between angle of target and phase-control angle degree.

POSSIBLE CAUSE

- Crankshaft position sensor (POS)
- Camshaft position sensor (PHASE)
- Intake valve control solenoid valve
- Accumulation of debris to the signal pick-up portion of the camshaft
- Timing chain installation
- Foreign matter caught in the oil groove for intake valve timing control

FAIL-SAFE

- Device fix mode
- ECM activates the IVT intermediate lock control solenoid valve to bring the cam sprocket into an intermediate lock condition.

DTC CONFIRMATION PROCEDURE

1. CHECK DTC PRIORITY

If DTC P0011 is displayed with DTC P0075, first perform the trouble diagnosis for DTC P0075.

Is applicable DTC detected?

- YES >> Perform diagnosis of applicable. Refer to [EC-191. "DTC Description"](#).
 NO >> GO TO 2.

2. PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

TESTING CONDITION:

Before performing the following procedure, confirm that battery voltage is between 11 V and 16 V at idle.

>> GO TO 3.

3. PERFORM DTC CONFIRMATION PROCEDURE-1

 With CONSULT

1. Turn ignition switch ON and select "DATA MONITOR" mode of "ENGINE" using CONSULT.
2. Start engine and warm it up to normal operating temperature.
3. Maintain the following conditions for at least 13 consecutive seconds. Hold the accelerator pedal as steady as possible.

ENG SPEED	1,200 - 2,000 rpm
COOLAN TEMP/S	More than 60°C (140°F)
Selector lever	P or N position

4. Stop vehicle with engine running and let engine idle for 13 seconds.
5. Check 1st trip DTC.

 With GST

< DTC/CIRCUIT DIAGNOSIS >

Follow the procedure "With CONSULT" above.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-178, "Diagnosis Procedure"](#).
 NO >> GO TO 4.

4.PERFORM DTC CONFIRMATION PROCEDURE-2 With CONSULT

1. Maintain the following conditions for at least 20 consecutive seconds.

ENG SPEED	1,200 - 3,175 rpm (A constant rotation is maintained.)
COOLAN TEMP/S	More than 60°C (140°F)
Selector lever	D position
Driving location	Driving vehicle uphill (Increased engine load will help maintain the driving conditions required for this test.)

CAUTION:

Always drive at a safe speed.

2. Check 1st trip DTC.

 With GST

Follow the procedure "With CONSULT" above.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-178, "Diagnosis Procedure"](#).
 NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009984989

1.CHECK DTC PRIORITY

If DTC P0011 is displayed with DTC P0075, first perform the trouble diagnosis for DTC P0075.

Is applicable DTC detected?

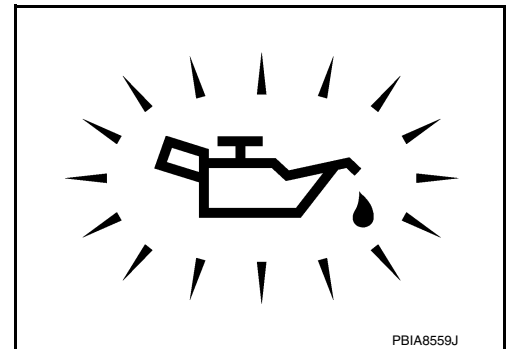
- YES >> Perform diagnosis of applicable. Refer to [EC-191, "DTC Description"](#).
 NO >> GO TO 2.

2.CHECK OIL PRESSURE WARNING LAMP

1. Start engine.
 2. Check oil pressure warning lamp and confirm it is not illuminated.

Is oil pressure warning lamp illuminated?

- YES >> Check the engine oil level. Refer to [LU-7, "Inspection"](#).
 NO >> GO TO 3.

**3.CHECK INTAKE VALVE TIMING CONTROL SOLENOID VALVE**

Check the intake valve timing control solenoid valve. Refer to [EC-179, "Component Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 4.
 NO >> Replace intake valve timing control solenoid valve. Refer to [EM-44, "Exploded View"](#).

4.CHECK CRANKSHAFT POSITION SENSOR (POS)

Check the crankshaft position sensor (POS). Refer to [EC-297, "Component Inspection \(Crankshaft Position sensor\)"](#).

Is the inspection result normal?

< DTC/CIRCUIT DIAGNOSIS >

- YES >> GO TO 5.
NO >> Replace crankshaft position sensor (POS). Refer to [EM-92, "Exploded View"](#).

5.CHECK CAMSHAFT POSITION SENSOR (PHASE)

Check the camshaft position sensor (PHASE). Refer to [EC-300, "Component Inspection \(Camshaft position sensor\)"](#).

Is the inspection result normal?

- YES >> GO TO 6.
NO >> Replace camshaft position sensor (PHASE). Refer to [EM-64, "Exploded View"](#).

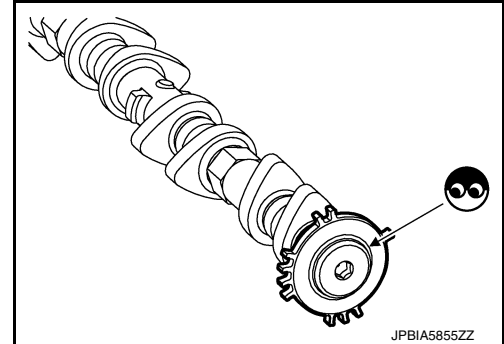
6.CHECK CAMSHAFT (INT)

Check the following.

- Accumulation of debris to the signal plate of camshaft rear end
- Chipping signal plate of camshaft rear end

Is the inspection result normal?

- YES >> GO TO 7.
NO >> Remove debris and clean the signal plate of camshaft rear end or replace camshaft. Refer to [EM-64, "Removal and Installation"](#).



7.CHECK TIMING CHAIN INSTALLATION

Check service records for any recent repairs that may cause timing chain misaligned.

Are there any service records that may cause timing chain misaligned?

- YES >> Check timing chain installation. Refer to [EM-45, "Removal and Installation"](#).
NO >> GO TO 8.

8.CHECK LUBRICATION CIRCUIT

Refer to [LU-7, "Inspection"](#), "INSPECTION AFTER INSTALLATION".

Is the inspection result normal?

- YES >> GO TO 9.
NO >> Clean lubrication line.

9.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> INSPECTION END

Component Inspection

INFOID:000000009984990

1.CHECK INTAKE VALVE TIMING CONTROL SOLENOID VALVE-1

1. Turn ignition switch OFF.
2. Disconnect intake valve timing control solenoid valve harness connector.
3. Check resistance between intake valve timing control solenoid valve terminals as per the following.

Intake valve timing control solenoid valve		Resistance
+	−	
Terminal		
1	2	6.7 - 7.7 Ω [at 20°C (68°F)]
1	Ground	$\infty \Omega$ (Continuity should not exist)
2		

Is the inspection result normal?

< DTC/CIRCUIT DIAGNOSIS >

YES >> GO TO 2.

NO >> Replace intake valve timing control solenoid valve. Refer to [EM-44, "Exploded View"](#).

2. CHECK INTAKE VALVE TIMING CONTROL SOLENOID VALVE-2

1. Remove intake valve timing control solenoid valve. Refer to [EM-44, "Exploded View"](#).

2. Provide 12 V DC between intake valve timing control solenoid valve terminals 1 and 2, and then interrupt it. Make sure that the plunger moves as shown in the figure.

CAUTION:

Do not apply 12 V DC continuously for 5 seconds or more. Doing so may result in damage to the coil in intake valve timing control solenoid valve.

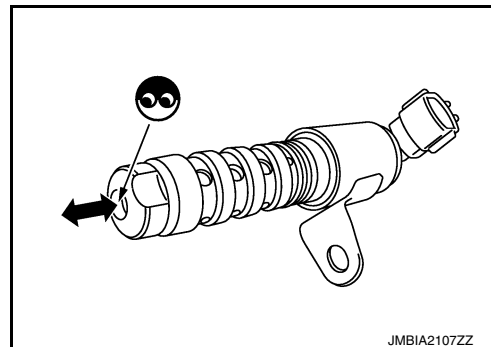
NOTE:

Always replace O-ring when intake valve timing control solenoid valve is removed.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace intake valve timing control solenoid valve. Refer to [EM-44, "Exploded View"](#).



P0014 EVT CONTROL

DTC Description

INFOID:000000009984991

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0014	EXH/V TIM CONT-B1 ("B" Camshaft position - timing over-advanced or system performance bank 1)	There is a gap between angle of target and phase-control angle degree.

POSSIBLE CAUSE

- Crankshaft position sensor (POS)
- Camshaft position sensor (PHASE)
- Exhaust valve timing control position sensor
- Exhaust valve control solenoid valve
- Accumulation of debris to the signal pick-up portion of the camshaft
- Timing chain installation
- Foreign matter caught in the oil groove for exhaust valve timing control

FAIL-SAFE

Device fix mode

DTC CONFIRMATION PROCEDURE

1.CHECK DTC PRIORITY

If DTC P0014 is displayed with DTC P0078 or P1078, first perform the trouble diagnosis for DTC P0078 or P1078.

Is applicable DTC detected?

- YES >> Perform diagnosis of applicable. Refer to [EC-93. "DTC Index"](#).
 NO >> GO TO 2.

2.PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

TESTING CONDITION:

Before performing the following procedure, confirm that battery voltage is between 10 V and 16 V at idle.

>> GO TO 3.

3.PERFORM DTC CONFIRMATION PROCEDURE-1

 With CONSULT

1. Turn ignition switch ON and select "DATA MONITOR" mode of "ENGINE" using CONSULT.
2. Start engine and warm it up to the normal operating temperature.
3. Maintain the following conditions for at least 6 consecutive seconds. Hold the accelerator pedal as steady as possible.

ENG SPEED	1,200 - 2,000 rpm (A constant rotation is maintained.)
COOLAN TEMP/S	More than 60°C (140°F)
Selector lever	P or N position

4. Let engine idle for 10 seconds.
5. Check 1st trip DTC.

 With GST

< DTC/CIRCUIT DIAGNOSIS >

Follow the procedure "With CONSULT" above.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-182. "Diagnosis Procedure"](#)
 NO >> GO TO 4.

4.PERFORM DTC CONFIRMATION PROCEDURE-2 With CONSULT

1. Select "DATA MONITOR" mode of "ENGINE" using CONSULT.
2. Maintain the following conditions for at least 20 consecutive seconds.

ENG SPEED	1,700 - 2,950 rpm (A constant rotation is maintained.)
COOLAN TEMP/S	More than 70°C (158°F)
Selector lever	D position
Driving location uphill	Driving vehicle uphill (Increased engine load will help maintain the driving conditions required for this test.)

CAUTION:

Always drive at a safe speed.

3. Check 1st trip DTC.

 With GST

Follow the procedure "With CONSULT" above.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-182. "Diagnosis Procedure"](#)
 NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009984992

1.CHECK DTC PRIORITY

If DTC P0014 is displayed with DTC P0078 or P1078, first perform the trouble diagnosis for DTC P0078 or P1078.

Is applicable DTC detected?

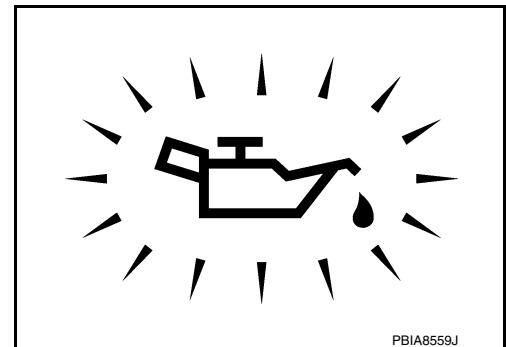
- YES >> Perform diagnosis of applicable. Refer to [EC-93. "DTC Index"](#).
 NO >> GO TO 2.

2.CHECK OIL PRESSURE WARNING LAMP

1. Start engine.
2. Check oil pressure warning lamp and confirm it is not illuminated.

Is oil pressure warning lamp illuminated?

- YES >> Check the engine oil level. Refer to [LU-7. "Inspection"](#).
 NO >> GO TO 3.

**3.CHECK EXHAUST VALVE TIMING CONTROL SOLENOID VALVE**

Check the exhaust valve timing control solenoid valve. Refer to [EC-179. "Component Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 4.
 NO >> Replace exhaust valve timing control solenoid valve. Refer to [EM-44. "Exploded View"](#).

4.CHECK CRANKSHAFT POSITION SENSOR (POS)

P0014 EVT CONTROL

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

Check the crankshaft position sensor (POS). Refer to [EC-297, "Component Inspection \(Crankshaft Position sensor\)"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace crankshaft position sensor (POS). Refer to [EM-92, "Exploded View"](#).

5.CHECK EXHAUST VALVE TIMING CONTROL POSITION SENSOR

Check the exhaust valve timing control position sensor. Refer to [EC-387, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 6.

NO >> Replace exhaust valve timing control position sensor. Refer to [EM-44, "Exploded View"](#).

6.CHECK CAMSHAFT (EXH)

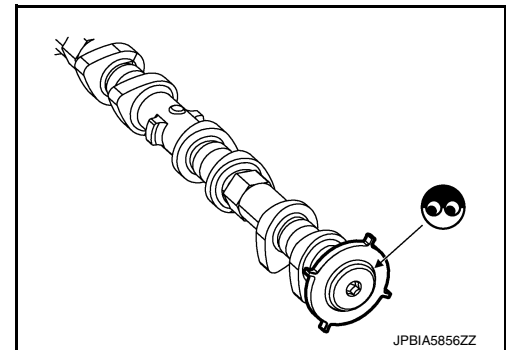
Check the following.

- Accumulation of debris to the signal plate of camshaft rear end
- Chipping signal plate of camshaft rear end

Is the inspection result normal?

YES >> GO TO 7.

NO >> Remove debris and clean the signal plate of camshaft rear end or replace camshaft. Refer to [EM-64, "Removal and Installation"](#).



7.CHECK TIMING CHAIN INSTALLATION

Check service records for any recent repairs that may cause timing chain misaligned.

Are there any service records that may cause timing chain misaligned?

YES >> Check timing chain installation. Refer to [EM-45, "Removal and Installation"](#).

NO >> GO TO 8.

8.CHECK LUBRICATION CIRCUIT

Refer to [LU-7, "Inspection"](#).

Is the inspection result normal?

YES >> GO TO 9.

NO >> Clean lubrication line.

9.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> INSPECTION END

Component Inspection

INFOID:000000009984993

1.CHECK EXHAUST VALVE TIMING CONTROL SOLENOID VALVE-1

1. Turn ignition switch OFF.
2. Disconnect exhaust valve timing control solenoid valve harness connector.
3. Check resistance between exhaust valve timing control solenoid valve terminals as per the following.

Exhaust valve timing control solenoid valve		Resistance
+	−	
Terminal		
1	2	7.0 - 7.7 Ω [at 20°C (68°F)]

P0014 EVT CONTROL

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

Exhaust valve timing control solenoid valve		Resistance
+	−	
Terminal		
1	Ground	$\infty \Omega$ (Continuity should not exist)
2		

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace exhaust valve timing control solenoid valve. Refer to [EM-44, "Exploded View"](#).

2. CHECK EXHAUST VALVE TIMING CONTROL SOLENOID VALVE-2

1. Remove exhaust valve timing control solenoid valve. Refer to [EM-44, "Exploded View"](#).

2. Provide 12 V DC between exhaust valve timing control solenoid valve terminals 1 and 2, and then interrupt it. Check that the plunger moves as shown in the figure.

CAUTION:

Do not apply 12 V DC continuously for 5 seconds or more. Doing so may result in damage to the coil in exhaust valve timing control solenoid valve.

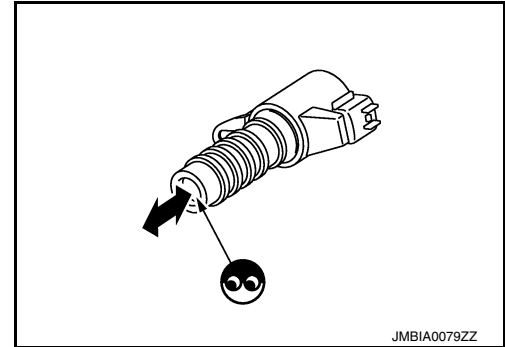
NOTE:

Always replace O-ring when exhaust valve timing control solenoid valve is removed.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace exhaust valve timing control solenoid valve. Refer to [EM-44, "Exploded View"](#).



P0031, P0032 A/F SENSOR 1 HEATER

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P0031, P0032 A/F SENSOR 1 HEATER

DTC Description

INFOID:000000009984994

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0031	A/F SEN1 HTR (B1) [Air fuel ratio (A/F) sensor 1 heater (bank 1)control circuit low]	The current amperage in the A/F sensor 1 heater circuit is out of the normal range. (An excessively low voltage signal is sent to ECM through the A/F sensor 1 heater.)
P0032	A/F SEN1 HTR (B1) [Air fuel ratio (A/F) sensor 1 heater (bank 1)control circuit high]	The current amperage in the A/F sensor 1 heater circuit is out of the normal range. (An excessively high voltage signal is sent to ECM through the A/F sensor 1 heater.)

POSSIBLE CAUSE

DTC P0031

- Harness or connectors (A/F sensor 1 heater circuit is open or shorted.)
- A/F sensor 1 heater

DTC P0032

- Harness or connectors (A/F sensor 1 heater circuit is shorted.)
- A/F sensor 1 heater

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

TESTING CONDITION:

Before performing the following procedure, confirm that battery voltage is more than between 11 V at idle.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine and let it idle for at least 10 seconds.
2. Check 1st trip DTC.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-185, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009984995

1.CHECK AIR FUEL RATIO (A/F) SENSOR 1 POWER SUPPLY CIRCUIT

1. Disconnect air fuel ratio (A/F) sensor 1 harness connector.
2. Turn ignition switch ON.
3. Check the voltage between A/F sensor 1 harness connector and ground.

P0031, P0032 A/F SENSOR 1 HEATER

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

+		-	Voltage
A/F sensor 1			
Connector	Terminal		
F18	4	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace error-detected parts.

2. CHECK A/F SENSOR 1 HEATER OUTPUT SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between A/F sensor 1 harness connector and ECM harness connector.

+		-		Continuity
A/F sensor 1		ECM		
Connector	Terminal	Connector	Terminal	
F18	3	F52	53	Existed

4. Also check harness for short to ground and to power.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair open circuit, short to ground or short to power in harness or connectors.

3. CHECK A/F SENSOR 1 HEATER

Check the A/F sensor 1 heater. Refer to [EC-186, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> GO TO 4.

4. REPLACE AIR FUEL RATIO (A/F) SENSOR 1

Replace malfunctioning air fuel ratio (A/F) sensor 1. Refer to [EM-29, "Exploded View"](#).

CAUTION:

- Discard any A/F sensor which has been dropped from a height of more than 0.5 m (19.7 in) onto a hard surface such as a concrete floor; use a new one.
- Before installing new A/F sensor, clean exhaust system threads using Oxygen Sensor Thread Cleaner [commercial service tool (J-43897-18 or J-43897-12)] and approved Anti-seize Lubricant (commercial service tool).

>> INSPECTION END

5. CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> INSPECTION END

Component Inspection

INFOID:000000009984996

1. CHECK AIR FUEL RATIO (A/F) SENSOR 1

1. Turn ignition switch OFF.
2. Disconnect A/F sensor 1 harness connector.
3. Check resistance between A/F sensor 1 terminals as per the following.

P0031, P0032 A/F SENSOR 1 HEATER

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

A/F sensor 1		Resistance
+	−	
Terminal		
3	4	1.8 - 2.44 Ω [at 20°C (68°F)]
	1	∞ Ω (Continuity should not exist)
	2	
4	1	
	2	

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 2.

2. REPLACE AIR FUEL RATIO (A/F) SENSOR 1

Replace air fuel ratio (A/F) sensor 1. Refer to [EM-29, "Exploded View"](#).

CAUTION:

- Discard any sensor which has been dropped from a height of more than 0.5 m (19.7 in) onto a hard surface such as a concrete floor; use a new one.
- Before installing new sensor, clean exhaust system threads using Oxygen Sensor Thread Cleaner [commercial service tool (J-43897-18 or J43897-12)] and approved Anti-seize Lubricant (commercial service tool).

>> INSPECTION END

P0037, P0038 HO2S2 HEATER

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P0037, P0038 HO2S2 HEATER

DTC Description

INFOID:000000009984997

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0037	HO2S2 HTR (B1) (HO2S heater control circuit low bank 1 sensor 2)	The current amperage in the heated oxygen sensor 2 heater circuit is out of the normal range. (An excessively low voltage signal is sent to ECM through the heated oxygen sensor 2 heater.)
P0038	HO2S2 HTR (B1) (HO2S heater control circuit high bank 1 sensor 2)	The current amperage in the heated oxygen sensor 2 heater circuit is out of the normal range. (An excessively high voltage signal is sent to ECM through the heated oxygen sensor 2 heater.)

POSSIBLE CAUSE

DTC P0037

- Harness or connectors (Heated oxygen sensor 2 heater circuit is open or shorted.)
- Heated oxygen sensor 2 heater

DTC P0038

- Harness or connectors (Heated oxygen sensor 2 heater circuit is shorted.)
- Heated oxygen sensor 2 heater

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

TESTING CONDITION:

Before performing the following procedure, confirm that battery voltage is more than 11 V at idle.

>> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT

1. Turn ignition switch ON and select "DATA MONITOR" mode of "ENGINE" using CONSULT.
2. Start engine and warm it up to normal operating temperature.
3. Turn ignition switch OFF and wait at least 10 seconds.
4. Start engine and keep the engine speed between 3,500 and 4,000 rpm for at least 1 minute under no load.
5. Let engine idle for 1 minute.
6. Check 1st trip DTC.

With GST

Follow the procedure "With CONSULT" above.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-188, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009984998

1. CHECK HO2S2 POWER SUPPLY CIRCUIT

P0037, P0038 HO2S2 HEATER

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

1. Turn ignition switch OFF.
2. Disconnect heated oxygen sensor 2 (HO2S2) harness connector.
3. Turn ignition switch ON.
4. Check the voltage between HO2S2 harness connector and ground.

+		-	Voltage
HO2S2			
Connector	Terminal		
F21	4	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace error-detected parts.

2.CHECK HO2S2 OUTPUT SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between HO2S2 harness connector and ECM harness connector.

+		-		Continuity
HO2S2		ECM		
Connector	Terminal	Connector	Terminal	
F21	3	F52	54	Existed

4. Also check harness for short to ground and to power.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace error-detected parts.

3.CHECK HEATED OXYGEN SENSOR 2 HEATER

Check the heated oxygen sensor 2 heater. Refer to [EC-189, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> GO TO 4.

4.REPLACE HEATED OXYGEN SENSOR 2

Replace heated oxygen sensor 2. Refer to [EX-5, "Exploded View"](#).

CAUTION:

- Discard any sensor which has been dropped from a height of more than 0.5 m (19.7 in) onto a hard surface such as a concrete floor; use a new one.
- Before installing new sensor, clean exhaust system threads using Oxygen Sensor Thread Cleaner [commercial service tool (J-43897-18 or J43897-12)] and approved Anti-seize Lubricant (commercial service tool).

>> INSPECTION END

5.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> INSPECTION END

Component Inspection

INFOID:000000009984999

1.CHECK HEATED OXYGEN SENSOR 2 HEATER

1. Turn ignition switch OFF.
2. Disconnect heated oxygen sensor 2 (HO2S2) harness connector.
3. Check resistance between HO2S2 terminals as per the following.

P0037, P0038 HO2S2 HEATER

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

Heated oxygen sensor 2		Resistance
+	–	
Terminal		
4	3	3.3 - 4.4 Ω [at 25°C (77°F)]
1	2	$\infty \Omega$ (Continuity should not exist)
	3	
	4	
2	3	
	4	

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 2.

2. REPLACE HEATED OXYGEN SENSOR 2

Replace heated oxygen sensor 2. Refer to [EX-5. "Exploded View"](#).

CAUTION:

- Discard any sensor which has been dropped from a height of more than 0.5 m (19.7 in) onto a hard surface such as a concrete floor; use a new one.
- Before installing new sensor, clean exhaust system threads using Oxygen Sensor Thread Cleaner [commercial service tool (J-43897-18 or J43897-12)] and approved Anti-seize Lubricant (commercial service tool).

>> INSPECTION END

P0075 INTAKE VALVE TIMING CONTROL

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P0075 INTAKE VALVE TIMING CONTROL

DTC Description

INFOID:0000000009985000

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0075	INT/V TIM V/CIR-B1 (Intake valve control solenoid circuit bank 1)	- ECM detects an abnormal voltage in the intake valve timing control solenoid valve control circuit. - ECM detects an abnormal voltage in the intake valve timing intermediate lock control solenoid valve control circuit.

POSSIBLE CAUSE

- Harness or connectors
- Intake valve timing control solenoid valve circuit is open or shorted.
- Intake valve timing intermediate lock control solenoid valve circuit is open or shorted.
- Intake valve timing control solenoid valve
- Intake valve timing intermediate lock control solenoid valve

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine and let it idle for 5 seconds.
2. Check 1st trip DTC.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-191, "Diagnosis Procedure"](#).
- NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000009985001

1.CHECK INTAKE VALVE TIMING (IVT) CONTROL SOLENOID VALVE POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect IVT control solenoid valve harness connector.
3. Turn ignition switch ON.
4. Check the voltage between intake valve timing control solenoid valve harness connector and ground.

+		–	Voltage
IVT control solenoid valve			
Connector	Terminal		
F25	1	Ground	Battery voltage

Is the inspection result normal?

- YES >> GO TO 3.
- NO >> GO TO 2.

2.CHECK IVT CONTROL SOLENOID VALVE POWER SUPPLY CIRCUIT

P0075 INTAKE VALVE TIMING CONTROL

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R harness connector.
3. Check the continuity between IVT control solenoid valve harness connector and IPDM E/R harness connector.

+		-		Continuity
IVT control solenoid valve		IPDM E/R		
Connector	Terminal	Connector	Terminal	
F25	1	F35	78	Existed

4. Also check harness for short to ground.

Is the inspection result normal?

- YES >> Perform the trouble diagnosis for power supply circuit.
NO >> Repair or replace error-detected parts.

3.CHECK IVT CONTROL SOLENOID VALVE GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between IVT control solenoid valve harness connector and ECM harness connector.

+		-		Continuity
IVT control solenoid valve		ECM		
Connector	Terminal	Connector	Terminal	
F25	2	F52	93	Existed

4. Also check harness for short to ground and short to power.

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Repair or replace error-detected parts.

4.CHECK IVT CONTROL SOLENOID VALVE

Check the IVT control solenoid valve. Refer to [EC-193, "Component Inspection \(IVT Control Solenoid Valve\)"](#).

Is the inspection result normal?

- YES >> GO TO 5.
NO >> Replace IVT control solenoid valve. Refer to [EM-44, "Exploded View"](#).

5.CHECK IVT INTERMEDIATE LOCK CONTROL SOLENOID VALVE POWER SUPPLY

1. Disconnect IVT intermediate lock control solenoid valve harness connector.
2. Turn ignition switch ON.
3. Check the voltage between IVT intermediate lock control solenoid valve harness connector and ground.

+		-	Voltage
IVT intermediate lock control solenoid valve			
Connector	Terminal		
F23	1	Ground	Battery voltage

Is the inspection result normal?

- YES >> GO TO 7.
NO >> GO TO 6.

6.CHECK IVT INTERMEDIATE LOCK CONTROL SOLENOID VALVE POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R harness connector.
3. Check the continuity between IVT intermediate lock control solenoid valve harness connector and IPDM E/R harness connector.

P0075 INTAKE VALVE TIMING CONTROL

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

+		-		Continuity
IVT intermediate lock control solenoid valve		IPDM E/R		
Connector	Terminal	Connector	Terminal	
F23	1	F35	78	Existed

4. Also check harness for short to ground.

Is the inspection result normal?

YES >> Perform the trouble diagnosis for power supply circuit.

NO >> Repair or replace error-detected parts.

7. CHECK IVT INTERMEDIATE LOCK CONTROL SOLENOID VALVE GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between IVT intermediate lock control solenoid valve harness connector and ECM harness connector.

+		-		Continuity
IVT intermediate lock control solenoid valve		ECM		
Connector	Terminal	Connector	Terminal	
F23	2	F52	56	Existed

4. Also check harness for short to ground and short to power.

Is the inspection result normal?

YES >> GO TO 8.

NO >> Repair or replace error-detected parts.

8. CHECK IVT INTERMEDIATE LOCK CONTROL SOLENOID VALVE

Check the IVT intermediate lock control solenoid valve. Refer to [EC-194, "Component Inspection \(IVT Intermediate Lock Control Solenoid Valve\)"](#).

Is the inspection result normal?

YES >> GO TO 9.

NO >> Replace IVT intermediate lock control solenoid valve. Refer to [EM-64, "Exploded View"](#).

9. CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> INSPECTION END

Component Inspection (IVT Control Solenoid Valve)

INFOID:000000009985002

1. CHECK INTAKE VALVE TIMING CONTROL SOLENOID VALVE-I

1. Turn ignition switch OFF.
2. Disconnect intake valve timing control solenoid valve harness connector.
3. Check resistance between intake valve timing control solenoid valve terminals as follows.

Terminals	Resistance
1 and 2	7.0 - 7.5 Ω [at 20°C (68°F)]
1 or 2 and ground	$\infty \Omega$ (Continuity should not exist)

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace intake valve timing control solenoid valve. Refer to [EM-44, "Exploded View"](#).

P0075 INTAKE VALVE TIMING CONTROL

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

2.CHECK INTAKE VALVE TIMING CONTROL SOLENOID VALVE-II

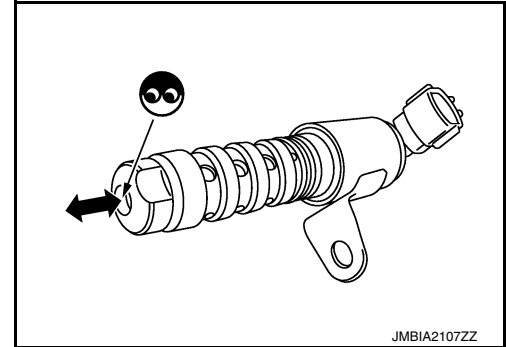
1. Remove intake valve timing control solenoid valve. Refer to [EM-44, "Exploded View"](#).
2. Provide 12 V DC between intake valve timing control solenoid valve terminals 1 and 2, and then interrupt it. Make sure that the plunger moves as shown in the figure.

CAUTION:

Do not apply 12 V DC continuously for 5 seconds or more. Doing so may result in damage to the coil in intake valve timing control solenoid valve.

NOTE:

Always replace O-ring when intake valve timing control solenoid valve is removed.



Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace intake valve timing control solenoid valve. Refer to [EM-44, "Exploded View"](#).

Component Inspection (IVT Intermediate Lock Control Solenoid Valve)

INFOID:000000009985003

1.CHECK INTAKE VALVE TIMING INTERMEDIATE LOCK CONTROL SOLENOID VALVE-I

1. Turn ignition switch OFF.
2. Disconnect intake valve timing intermediate lock control solenoid valve harness connector.
3. Check resistance between intake valve timing intermediate lock control solenoid valve terminals as follows.

Terminals	Resistance
1 and 2	7.0 - 7.5 Ω [at 20°C (68°F)]
1 or 2 and ground	$\infty \Omega$ (Continuity should not exist)

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace intake valve timing intermediate lock control solenoid valve. Refer to [EM-44, "Exploded View"](#).

2.CHECK INTAKE VALVE TIMING INTERMEDIATE LOCK CONTROL SOLENOID VALVE-II

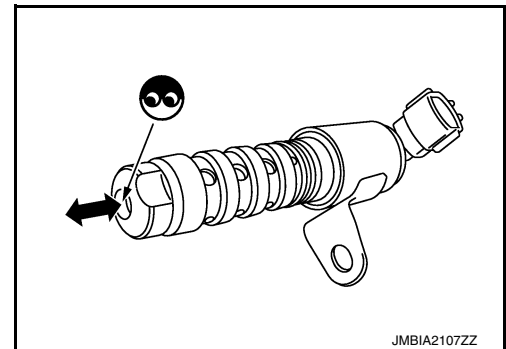
1. Remove intake valve timing intermediate lock control solenoid valve. Refer to [EM-44, "Exploded View"](#).
2. Provide 12 V DC between intake valve timing intermediate lock control solenoid valve terminals 1 and 2, and then interrupt it. Make sure that the plunger moves as shown in the figure.

CAUTION:

Do not apply 12 V DC continuously for 5 seconds or more. Doing so may result in damage to the coil in intake valve timing intermediate lock control solenoid valve.

NOTE:

Always replace O-ring when intake valve timing intermediate lock control solenoid valve is removed.



Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace intake valve timing intermediate lock control solenoid valve. Refer to [EM-44, "Exploded View"](#).

P0078 EVT CONTROL SOLENOID VALVE

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P0078 EVT CONTROL SOLENOID VALVE

DTC Description

INFOID:0000000009985004

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0078	EX V/T ACT/CIRC-B1 (Exhaust valve control solenoid circuit bank 1)	An improper voltage is sent to the ECM through exhaust valve timing control solenoid valve.

POSSIBLE CAUSE

- Harness or connectors (Exhaust valve timing control solenoid valve circuit is open or shorted.)
- Exhaust valve timing control solenoid valve

FAIL-SAFE

Device fix mode

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

>> GO TO2.

2.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine and let it idle for 5 seconds.
2. Check 1st trip DTC.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-195, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000009985005

1.CHECK EXHAUST VALVE TIMING CONTROL SOLENOID VALVE POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect exhaust valve timing (EVT) control solenoid valve harness connector.
3. Turn ignition switch ON.
4. Check the voltage between exhaust valve timing control solenoid valve harness connector and ground.

+		–	Voltage
EVT control solenoid valve			
Connector	Terminal		
F24	1	Ground	Battery voltage

Is the inspection result normal?

- YES >> GO TO 3.
NO >> GO TO 2.

2.CHECK EXHAUST VALVE TIMING CONTROL SOLENOID VALVE POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R harness connector.

P0078 EVT CONTROL SOLENOID VALVE

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

3. Check the continuity between EVT control solenoid valve harness connector and IPDM E/R harness connector.

+		+		Continuity
EVT control solenoid valve		IPDM E/R		
Connector	Terminal	Connector	Terminal	
F24	1	F35	78	Existed

4. Also check harness for short to ground.

Is the inspection result normal?

YES >> Perform the trouble diagnosis for power supply circuit.

NO >> Repair or replace error-detected parts.

3.CHECK EXHAUST VALVE TIMING CONTROL SOLENOID VALVE GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between EVT control solenoid valve harness connector and ECM harness connector.

+		+		Continuity
EVT control solenoid valve		ECM		
Connector	Terminal	Connector	Terminal	
F24	2	F52	94	Existed

4. Also check harness for short to ground and to power.

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace error-detected parts.

4.CHECK EXHAUST VALVE TIMING CONTROL SOLENOID VALVE

Check the exhaust valve timing control solenoid valve. Refer to [EC-183, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace exhaust valve timing control solenoid valve.

5.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> INSPECTION END

Component Inspection

INFOID:0000000009985006

1.CHECK EXHAUST VALVE TIMING CONTROL SOLENOID VALVE-1

1. Turn ignition switch OFF.
2. Disconnect exhaust valve timing control solenoid valve harness connector.
3. Check resistance between exhaust valve timing control solenoid valve terminals as per the following.

Exhaust valve timing control solenoid valve		Resistance
+	−	
Terminal		
1	2	7.0 - 7.7 Ω [at 20°C (68°F)]
1	Ground	$\infty \Omega$ (Continuity should not exist)
2		

Is the inspection result normal?

P0078 EVT CONTROL SOLENOID VALVE

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

YES >> GO TO 2.

NO >> Replace exhaust valve timing control solenoid valve. Refer to [EM-44, "Exploded View"](#).

2.CHECK EXHAUST VALVE TIMING CONTROL SOLENOID VALVE-2

1. Remove exhaust valve timing control solenoid valve. Refer to [EM-44, "Exploded View"](#).

2. Provide 12 V DC between exhaust valve timing control solenoid valve terminals 1 and 2, and then interrupt it. Check that the plunger moves as shown in the figure.

CAUTION:

Do not apply 12 V DC continuously for 5 seconds or more. Doing so may result in damage to the coil in exhaust valve timing control solenoid valve.

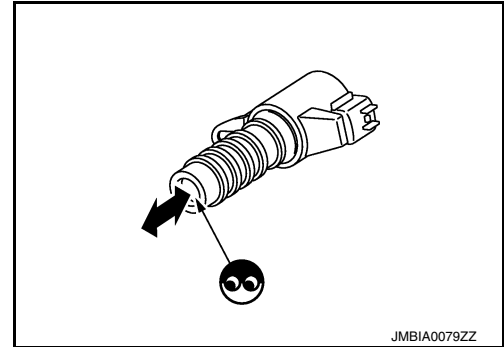
NOTE:

Always replace O-ring when exhaust valve timing control solenoid valve is removed.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace exhaust valve timing control solenoid valve. Refer to [EM-44, "Exploded View"](#).



P0101 MAF SENSOR

DTC Description

INFOID:000000009985007

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0101	MAF SEN/CIRCUIT-B1 (Mass or volume air Flow "A" circuit range/ performance)	- A high voltage from the sensor is sent to ECM under light load driving condition. - A low voltage from the sensor is sent to ECM under heavy load driving condition.

POSSIBLE CAUSE

- Harness or connectors (MAF sensor circuit is open or shorted.)
- Intake air leaks
- MAF sensor
- EVAP control system pressure sensor
- Intake air temperature sensor
- Sensor power supply 2 circuit

FAIL-SAFE

- Traveling control mode (Accelerator angle variation control)
- Traveling control mode (Engine output control)
- Device fix mode

DTC CONFIRMATION PROCEDURE

1.CHECK DTC PRIORITY

If DTC P0101 is displayed with other DTC, first perform the trouble diagnosis for other DTC.

Is applicable DTC detected?

- YES >> Perform diagnosis of applicable. Refer to [EC-93, "DTC Index"](#).
 NO >> GO TO 2.

2.PRECONDITIONING

If DTC CONFIRMATION PROCEDURE has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

>> GO TO 3.

3.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine and warm it up to normal operating temperature.
2. Drive the vehicle for at least 5 seconds under the following conditions:

CAUTION:

Always drive vehicle at safe speed.

Selector lever	Suitable position
Vehicle speed	40 km/h (25 MPH) or more

NOTE:

- The gear must be fixed while driving the vehicle.
- Keep the accelerator pedal as steady as possible during cruising.

3. Check 1st trip DTC.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-199, "Diagnosis Procedure"](#).
 NO >> INSPECTION END

P0101 MAF SENSOR

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

INFOID:000000009985008

Diagnosis Procedure

1.CHECK DTC PRIORITY

If DTC P0101 is displayed with other DTC, first perform the trouble diagnosis for other DTC.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable. Refer to [EC-93. "DTC Index"](#).

NO >> GO TO 2.

2.CHECK INTAKE SYSTEM

Check the following for connection.

- Air duct
- Vacuum hoses
- Intake air passage between air duct and intake manifold

Is the inspection result normal?

YES >> GO TO 3.

NO >> Reconnect the parts.

3.CHECK MASS AIR FLOW (MAF) SENSOR POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect MAF sensor harness connector.
3. Turn ignition switch ON.
4. Check the voltage between MAF sensor harness connector and ground.

+		-	Voltage
MAF sensor			
Connector	Terminal		
F22	1	Ground	5 V

Is the inspection result normal?

YES >> GO TO 5.

NO >> GO TO 4.

4.CHECK SENSOR POWER SUPPLY 2 CIRCUIT

Perform [EC-484. "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> Perform the trouble diagnosis for power supply circuit.

NO >> Repair or replace error-detected parts.

5.CHECK MAF SENSOR GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between MAF sensor harness connector and ECM harness connector.

+		-		Continuity
MAF sensor		ECM		
Connector	Terminal	Connector	Terminal	
F22	2	F51	34	Existed

4. Also check harness for short to power.

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace error-detected parts.

6.CHECK MAF SENSOR INPUT SIGNAL CIRCUIT

1. Check the continuity between MAF sensor harness connector and ECM harness connector.

P0101 MAF SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

+		-		Continuity
MAF sensor		ECM		
Connector	Terminal	Connector	Terminal	
F22	3	F51	35	Existed

2. Also check harness for short to ground and to power.

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace error-detected parts

7.CHECK INTAKE AIR TEMPERATURE SENSOR

Check the intake air temperature sensor. Refer to [EC-207, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 8.

NO >> Replace MAF sensor (with intake air temperature sensor). Refer to [EM-24, "Exploded View"](#).

8.CHECK EVAP CONTROL SYSTEM PRESSURE SENSOR

Check the EVAP control system pressure sensor. Refer to [EC-330, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 9.

NO >> Replace EVAP control system pressure sensor. Refer to [FL-22, "Removal and Installation"](#).

9.CHECK MAF SENSOR

Check the MAF sensor. Refer to [EC-200, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 10.

NO >> Replace MAF sensor. Refer to [EM-24, "Exploded View"](#).

10.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> INSPECTION END

Component Inspection

INFOID:000000009985009

1.CHECK MASS AIR FLOW SENSOR-1

Ⓐ With CONSULT

1. Turn ignition switch OFF.
2. Reconnect all harness connectors disconnected.
3. Start engine and warm it up to normal operating temperature.
4. Connect CONSULT and select "DATA MONITOR" mode of "ENGINE".
5. Select "MASS AIR FLOW SENSOR (Hz)" and check indication.

Monitor item	Condition	Value
MASS AIR FLOW SENSOR (Hz)	Ignition switch ON (Engine stopped.)	Approx. 3500 Hz
	Idle (Engine is warmed-up to normal operating temperature.)	3500- 4100 Hz
	2,500 rpm (Engine is warmed-up to normal operating temperature.)	5000 - 5600 Hz
	Idle to about 4,000 rpm	3500 - 4100 Hz to Approx. 6300 Hz*

*: Check for linear frequency rise in response to engine being increased to about 4,000 rpm.

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 2.

P0101 MAF SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

2.CHECK FOR THE CAUSE OF UNEVEN AIR FLOW THROUGH MASS AIR FLOW SENSOR

1. Turn ignition switch OFF.
2. Check for the cause of uneven air flow through mass air flow sensor. Refer to the following.
 - Crushed air ducts
 - Malfunctioning seal of air cleaner element
 - Uneven dirt of air cleaner element
 - Intake valve deposits
 - Improper specification of intake air system parts

Is the inspection result normal?

YES >> GO TO 4.

NO >> GO TO 3.

3.CHECK MASS AIR FLOW SENSOR-2

 With CONSULT

1. Repair or replace malfunctioning part.
2. Start engine and warm it up to normal operating temperature.
3. Connect CONSULT and select "DATA MONITOR" mode of "ENGINE".
4. Select "MASS AIR FLOW SENSOR (Hz)" and check indication.

Monitor item	Condition	Value
MASS AIR FLOW SENSOR (Hz)	Ignition switch ON (Engine stopped.)	Approx. 3500 Hz
	Idle (Engine is warmed-up to normal operating temperature.)	3500- 4100 Hz
	2,500 rpm (Engine is warmed-up to normal operating temperature.)	5000 - 5600 Hz
	Idle to about 4,000 rpm	3500 - 4100 Hz to Approx. 6300 Hz*

*: Check for linear frequency rise in response to engine being increased to about 4,000 rpm.

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 4.

4.CHECK MASS AIR FLOW SENSOR-3

 With CONSULT

1. Turn ignition switch OFF.
2. Disconnect mass air flow sensor harness connector and reconnect it again.
3. Start engine and warm it up to normal operating temperature.
4. Connect CONSULT and select "DATA MONITOR" mode of "ENGINE".
5. Select "MASS AIR FLOW SENSOR (Hz)" and check indication.

Monitor item	Condition	Value
MASS AIR FLOW SENSOR (Hz)	Ignition switch ON (Engine stopped.)	Approx. 3500 Hz
	Idle (Engine is warmed-up to normal operating temperature.)	3500- 4100 Hz
	2,500 rpm (Engine is warmed-up to normal operating temperature.)	5000 - 5600 Hz
	Idle to about 4,000 rpm	3500 - 4100 Hz to Approx. 6300 Hz*

*: Check for linear frequency rise in response to engine being increased to about 4,000 rpm.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Clean or replace mass air flow sensor. Refer to [EM-24. "Exploded View"](#).

P0102, P0103 MAF SENSOR**DTC Description**

INFOID:000000009985010

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0102	MAF SEN/CIRCUIT-B1 (Mass or volume air flow "A" circuit low)	An excessively low voltage from the mass air flow sensor is sent to ECM.
P0103	MAF SEN/CIRCUIT-B1 (Mass or volume air flow "A" circuit high)	An excessively high voltage from the mass air flow sensor is sent to ECM.

POSSIBLE CAUSE**DTC P0102**

- Harness or connectors (Mass air flow sensor circuit is open or shorted.)
- Intake air leaks
- Mass air flow sensor
- Sensor power supply 2 circuit

DTC P0103

- Harness or connectors (Mass air flow sensor circuit is open or shorted.)
- Mass air flow sensor
- Sensor power supply 2 circuit

FAIL-SAFE

- Traveling control mode (Accelerator angle variation control)
- Traveling control mode (Engine output control)
- Device fix mode

DTC CONFIRMATION PROCEDURE**1.PRECONDITIONING**

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

Which DTC is detected?

P0102 >> GO TO 2.

P0103 >> GO TO 3.

2.PERFORM DTC CONFIRMATION PROCEDURE FOR DTC P0102

1. Start engine and wait at least 5 seconds.
2. Check DTC.

Is DTC detected?

YES >> Proceed to [EC-203. "Diagnosis Procedure"](#).

NO >> INSPECTION END

3.PERFORM DTC CONFIRMATION PROCEDURE FOR DTC P0103-1

1. Turn ignition switch ON and wait at least 5 seconds.
2. Check DTC.

Is DTC detected?

YES >> Proceed to [EC-203. "Diagnosis Procedure"](#).

NO >> GO TO 4.

4.PERFORM DTC CONFIRMATION PROCEDURE FOR DTC P0103-2

1. Start engine and wait at least 5 seconds.
2. Check DTC.

< DTC/CIRCUIT DIAGNOSIS >

Is DTC detected?

- YES >> Proceed to [EC-203, "Diagnosis Procedure"](#).
 NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985011

EC

1.INSPECTION START

Confirm the detected DTC.

Which DTC is detected?

- P0102 >> GO TO 2.
 P0103 >> GO TO 3.

2.CHECK INTAKE SYSTEM

Check the following for connection.

- Air duct
- Vacuum hoses
- Intake air passage between air duct to intake manifold

Is the inspection result normal?

- YES >> GO TO 3.
 NO >> Reconnect the parts. Refer to [EM-24, "Exploded View"](#).

3.CHECK MAF SENSOR POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect mass air flow (MAF) sensor harness connector.
3. Turn ignition switch ON.
4. Check the voltage between MAF sensor harness connector and ground.

+		−	Voltage
MAF sensor			
Connector	Terminal		
F22	1	Ground	5 V

Is the inspection result normal?

- YES >> GO TO 5.
 NO >> GO TO 4.

4.CHECK SENSOR POWER SUPPLY 2 CIRCUITPerform [EC-484, "Diagnosis Procedure"](#).Is the inspection result normal?

- YES >> Perform the trouble diagnosis for power supply circuit.
 NO >> Repair or replace error-detected parts.

5.CHECK MAF SENSOR GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between MAF sensor harness connector and ECM harness connector.

+		-		Continuity
MAF sensor		ECM		
Connector	Terminal	Connector	Terminal	
F22	2	F51	34	Existed

Is the inspection result normal?

- YES >> GO TO 6.
 NO >> Repair or replace error-detected parts.

6.CHECK MAF SENSOR INPUT SIGNAL CIRCUIT

P0102, P0103 MAF SENSOR

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

1. Check the continuity between MAF sensor harness connector and ECM harness connector.

+		-		Continuity
MAF sensor		ECM		
Connector	Terminal	Connector	Terminal	
F22	3	F51	35	Existed

2. Also check harness for short to ground and to power.

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair open circuit or short to ground or short to power in harness or connectors.

7.CHECK MAF SENSOR

Check the MAF sensor. Refer to [EC-200, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 8.

NO >> Replace mass air flow sensor. Refer to [EM-24, "Exploded View"](#).

8.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> INSPECTION END

Component Inspection

INFOID:000000009985012

1.CHECK MASS AIR FLOW SENSOR-1

With CONSULT

1. Turn ignition switch OFF.
2. Reconnect all harness connectors disconnected.
3. Start engine and warm it up to normal operating temperature.
4. Connect CONSULT and select "DATA MONITOR" mode of "ENGINE".
5. Select "MASS AIR FLOW SENSOR (Hz)" and check indication.

Monitor item	Condition	Value
MASS AIR FLOW SENSOR (Hz)	Ignition switch ON (Engine stopped.)	Approx. 3500 Hz
	Idle (Engine is warmed-up to normal operating temperature.)	3500- 4100 Hz
	2,500 rpm (Engine is warmed-up to normal operating temperature.)	5000 - 5600 Hz
	Idle to about 4,000 rpm	3500 - 4100 Hz to Approx. 6300 Hz*

*: Check for linear frequency rise in response to engine being increased to about 4,000 rpm.

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 2.

2.CHECK FOR THE CAUSE OF UNEVEN AIR FLOW THROUGH MASS AIR FLOW SENSOR

1. Turn ignition switch OFF.
2. Check for the cause of uneven air flow through mass air flow sensor. Refer to the following.
 - Crushed air ducts
 - Malfunctioning seal of air cleaner element
 - Uneven dirt of air cleaner element
 - Intake valve deposits
 - Improper specification of intake air system parts

Is the inspection result normal?

YES >> GO TO 4.

P0102, P0103 MAF SENSOR

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

NO >> GO TO 3.

3. CHECK MASS AIR FLOW SENSOR-2

 With CONSULT

1. Repair or replace malfunctioning part.
2. Start engine and warm it up to normal operating temperature.
3. Connect CONSULT and select "DATA MONITOR" mode of "ENGINE".
4. Select "MASS AIR FLOW SENSOR (Hz)" and check indication.

Monitor item	Condition	Value
MASS AIR FLOW SENSOR (Hz)	Ignition switch ON (Engine stopped.)	Approx. 3500 Hz
	Idle (Engine is warmed-up to normal operating temperature.)	3500- 4100 Hz
	2,500 rpm (Engine is warmed-up to normal operating temperature.)	5000 - 5600 Hz
	Idle to about 4,000 rpm	3500 - 4100 Hz to Approx. 6300 Hz*

*: Check for linear frequency rise in response to engine being increased to about 4,000 rpm.

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 4.

4. CHECK MASS AIR FLOW SENSOR-3

 With CONSULT

1. Turn ignition switch OFF.
2. Disconnect mass air flow sensor harness connector and reconnect it again.
3. Start engine and warm it up to normal operating temperature.
4. Connect CONSULT and select "DATA MONITOR" mode of "ENGINE".
5. Select "MASS AIR FLOW SENSOR (Hz)" and check indication.

Monitor item	Condition	Value
MASS AIR FLOW SENSOR (Hz)	Ignition switch ON (Engine stopped.)	Approx. 3500 Hz
	Idle (Engine is warmed-up to normal operating temperature.)	3500- 4100 Hz
	2,500 rpm (Engine is warmed-up to normal operating temperature.)	5000 - 5600 Hz
	Idle to about 4,000 rpm	3500 - 4100 Hz to Approx. 6300 Hz*

*: Check for linear frequency rise in response to engine being increased to about 4,000 rpm.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Clean or replace mass air flow sensor. Refer to [EM-24. "Exploded View"](#).

P0111 IAT SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P0111 IAT SENSOR

DTC Description

INFOID:000000009985016

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0111	IAT SENSOR 1 B1 (Intake air temperature sensor 1 circuit range/performance bank 1)	The comparison result of signals transmitted to ECM from each temperature sensor (IAT sensor, ECT sensor, FTT sensor, and EOT sensor) shows that the voltage signal of the IAT sensor is higher/lower than that of other temperature sensors when the engine is started with its cold state.

POSSIBLE CAUSE

- Harness or connectors (High or low resistance in the IAT sensor circuit)
- IAT sensor

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1.INSPECTION START

Is it necessary to erase permanent DTC?

YES >> GO TO 3.

NO >> GO TO 2.

2.CHECK INTAKE AIR TEMPERATURE (IAT) SENSOR

1. Turn ignition switch OFF.
2. Disconnect mass air flow sensor harness connector and reconnect it again.
3. Turn ignition switch ON.
4. Select "DATA MONITOR" mode with CONSULT.
5. Check that "INT/A TEMP SEN" indicates as per following condition.

Monitor item	Condition	Value (Approx.)
INT/A TEMP SEN	Temperature [°C (°F)]	25 (77)
		1.9 - 2.1 (V)

Is the inspection result normal?

YES >> GO TO 5.

NO >> Proceed to [EC-207, "Diagnosis Procedure"](#).

3.PRECONDITIONING

If DTC CONFIRMATION PROCEDURE has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

TESTING CONDITION:

- Before performing the following procedure, do not add fuel.
- Before performing the following procedure, check that fuel level is between 1/4 and 4/4.
- Before performing the following procedure, confirm that battery voltage is 11 V or more at idle.

>> GO TO 4.

4.PERFORM DTC CONFIRMATION PROCEDURE

1. Move the vehicle to a cool place.

NOTE:

Cool the vehicle in an environment of ambient air temperature between -10°C (14°F) and 35°C (95°F).

P0111 IAT SENSOR

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

2. Turn ignition switch OFF and leave the vehicle for 12 hours.

CAUTION:

Never turn ignition switch ON during this procedure.

NOTE:

The vehicle must be cooled with the hood open.

3. Start engine and let it idle for 5 minutes or more.

CAUTION:

Never turn ignition switch OFF during idling.

4. Check 1st trip DTC.

Is 1st trip DTC detected?

YES >> Proceed to [EC-207, "Diagnosis Procedure"](#).

NO >> INSPECTION END

5.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> INSPECTION END

Diagnosis Procedure

INFOID:0000000009985018

1.CHECK INTAKE AIR TEMPERATURE (IAT) SENSOR

Check intake air temperature sensor. Refer to [EC-207, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace mass air flow sensor (with intake air temperature sensor). Refer to [EM-24, "Exploded View"](#).

2.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> INSPECTION END

Component Inspection

INFOID:0000000009985019

1.CHECK INTAKE AIR TEMPERATURE SENSOR

1. Turn ignition switch OFF.
2. Disconnect mass air flow sensor harness connector and reconnect it again.
3. Turn ignition switch ON.
4. Select "DATA MONITOR" mode with CONSULT.
5. Check that "INT/A TEMP SEN" indicates as per following condition.

Monitor item	Condition		Value (Approx.)
INT/A TEMP SEN	Temperature [°C (°F)]	25 (77)	1.9 - 2.1 (V)

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace mass air flow sensor (with intake air temperature sensor). Refer to [EM-24, "Exploded View"](#).

P0112, P0113 IAT SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P0112, P0113 IAT SENSOR

DTC Description

INFOID:000000009985020

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0112	IAT SEN/CIRCUIT- B1 (Intake air temperature sensor 1 circuit low bank 1)	An excessively low voltage from the intake air temperature sensor is sent to ECM.
P0113	IAT SEN/CIRCUIT- B1 (Intake air temperature sensor 1 circuit high bank 1)	An excessively high voltage from the intake air temperature sensor is sent to ECM.

POSSIBLE CAUSE

- Harness or connectors (Intake air temperature sensor circuit is open or shorted.)
- Intake air temperature sensor
- Sensor power supply 2 circuit

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON and wait at least 5 seconds.
2. Check 1st trip DTC.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-208, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985021

1.CHECK INTAKE AIR TEMPERATURE SENSOR POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect mass air flow sensor (with intake air temperature sensor) harness connector.
3. Turn ignition switch ON.
4. Check the voltage between mass air flow sensor harness connector and ground.

+		-	Voltage (Approx.)
MAF sensor			
Connector	Terminal		
F31	4	Ground	5 V

Is the inspection result normal?

- YES >> GO TO 3.
NO >> GO TO 2.

P0112, P0113 IAT SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

2.CHECK INTAKE AIR TEMPERATURE SENSOR POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between mass air flow sensor harness connector and ECM harness connector.

+		-		Continuity
MAF sensor		ECM		
Connector	Terminal	Connector	Terminal	
F22	4	F51	33	Existed

4. Also check harness for short to ground.

Is the inspection result normal?

YES >> Perform the trouble diagnosis for power supply circuit.

NO >> Repair or replace error-detected parts.

3.CHECK INTAKE AIR TEMPERATURE SENSOR GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between mass air flow sensor harness connector and ECM harness connector.

+		-		Continuity
MAF sensor		ECM		
Connector	Terminal	Connector	Terminal	
F22	2	F51	34	Existed

4. Also check harness for short to power.

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace error-detected parts.

4.CHECK INTAKE AIR TEMPERATURE SENSOR

Check the intake air temperature sensor. Refer to [EC-207, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace mass air flow sensor (with intake air temperature sensor). Refer to [EM-24, "Exploded View"](#).

5.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> INSPECTION END

Component Inspection

INFOID:000000009985022

1.CHECK INTAKE AIR TEMPERATURE SENSOR

1. Turn ignition switch OFF.
2. Disconnect mass air flow sensor harness connector and reconnect it again.
3. Turn ignition switch ON.
4. Select "DATA MONITOR" mode with CONSULT.
5. Check that "INT/A TEMP SEN" indicates as per following condition.

Monitor item	Condition		Value (Approx.)
INT/A TEMP SEN	Temperature [°C (°F)]	25 (77)	1.9 - 2.1 (V)

Is the inspection result normal?

P0112, P0113 IAT SENSOR

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

YES >> INSPECTION END

NO >> Replace mass air flow sensor (with intake air temperature sensor). Refer to [EM-24, "Exploded View"](#).

P0116 ECT SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P0116 ECT SENSOR

DTC Description

INFOID:000000009985023

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0116	ECT SENSOR (Engine coolant temperature sensor 1 circuit range/performance)	The comparison result of signals transmitted to ECM from each temperature sensor (IAT sensor, ECT sensor, FTT sensor, and EOT sensor) shows that the voltage signal of the ECT sensor is higher/lower than that of other temperature sensors when the engine is started with its cold state.

POSSIBLE CAUSE

- Harness or connectors (High or low resistance in the ECT sensor circuit)
- ECT sensor

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1.INSPECTION START

Is it necessary to erase permanent DTC?

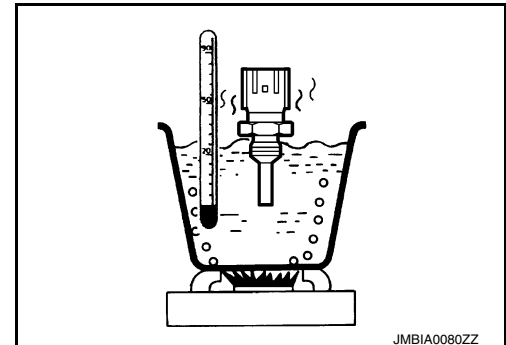
YES >> GO TO 3.

NO >> GO TO 2.

2.CHECK ENGINE COOLANT TEMPERATURE (ECT) SENSOR

1. Turn ignition switch OFF.
2. Disconnect ECT sensor harness connector.
3. Remove ECT sensor. Refer to [CO-23, "Exploded View"](#).
4. Check resistance between ECT sensor terminals by heating with hot water as shown in the figure.

ECT sensor		Condition		Resistance (kΩ)
+	−			
Terminal				
1	2	Temperature [°C (°F)]	20 (68)	2.37 – 2.63
			50 (122)	0.68 – 1.00
			90 (194)	0.236 – 0.260



Is the inspection result normal?

YES >> GO TO 5.

NO >> Proceed to [EC-212, "Diagnosis Procedure"](#).

3.PRECONDITIONING

If DTC CONFIRMATION PROCEDURE has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

TESTING CONDITION:

- Before performing the following procedure, do not add fuel.
- Before performing the following procedure, check that fuel level is between 1/4 and 4/4.
- Before performing the following procedure, confirm that battery voltage is 11 V or more at idle.

>> GO TO 4.

P0116 ECT SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

4.PERFORM DTC CONFIRMATION PROCEDURE

1. Move the vehicle to a cool place.

NOTE:

Cool the vehicle in an environment of ambient air temperature between -10°C (14°F) and 35°C (95°F).

2. Turn ignition switch OFF and leave the vehicle for 12 hours.

CAUTION:

Never turn ignition switch ON during this procedure.

NOTE:

The vehicle must be cooled with the hood open.

3. Start engine and let it idle for 5 minutes or more.

CAUTION:

Never turn ignition switch OFF during idling.

4. Check 1st trip DTC.

Is 1st trip DTC detected?

YES >> Proceed to [EC-212, "Diagnosis Procedure"](#).

NO >> INSPECTION END

5.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> INSPECTION END

Diagnosis Procedure

INFOID:000000009985025

1.CHECK ENGINE COOLANT TEMPERATURE (ECT) SENSOR

Check ECT sensor. Refer to [EC-212, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace ECT sensor. Refer to [CO-23, "Exploded View"](#).

2.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> INSPECTION END

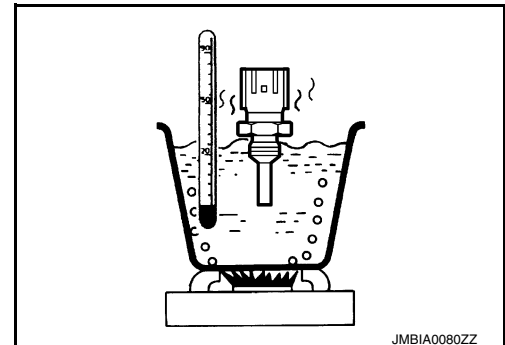
Component Inspection

INFOID:000000009985026

1.CHECK ENGINE COOLANT TEMPERATURE (ECT) SENSOR

1. Turn ignition switch OFF.
2. Disconnect ECT sensor harness connector.
3. Remove ECT sensor.
4. Check resistance between ECT sensor terminals by heating with hot water as shown in the figure.

ECT sensor		Condition		Resistance (kΩ)
+	−			
Terminal				
1	2	Temperature [°C (°F)]	20 (68)	2.37 - 2.63
			50 (122)	0.68 - 1.00
			90 (194)	0.236 - 0.260



Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace engine coolant temperature sensor. Refer to [CO-23, "Exploded View"](#).

P0117, P0118 ECT SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P0117, P0118 ECT SENSOR

DTC Description

INFOID:0000000009985027

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0117	ECT SEN/CIRC (Engine coolant temperature sensor 1 circuit low)	An excessively low voltage from the engine coolant temperature sensor is sent to ECM.
P0118	ECT SEN/CIRC (Engine coolant temperature sensor 1 circuit high)	An excessively high voltage from the engine coolant temperature sensor is sent to ECM.

POSSIBLE CAUSE

- Harness or connectors (Engine coolant temperature sensor circuit is open or shorted.)
- Engine coolant temperature sensor

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON and wait at least 5 seconds.
2. Check DTC.

Is DTC detected?

- YES >> Proceed to [EC-213, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000009985028

1.CHECK ENGINE COOLANT TEMPERATURE SENSOR POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect engine coolant temperature (ECT) sensor harness connector.
3. Turn ignition switch ON.
4. Check the voltage between ECT sensor harness connector and ground.

+		-	Voltage (Approx.)
ECT sensor			
Connector	Terminal		
F61	1	Ground	5 V

Is the inspection result normal?

- YES >> GO TO 3.
NO >> GO TO 2.

2.CHECK ENGINE COOLANT TEMPERATURE SENSOR POWER SUPPLY CIRCUIT

P0117, P0118 ECT SENSOR

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between ECT sensor harness connector and ECM harness connector.

+		-		Continuity
ECT sensor		ECM		
Connector	Terminal	Connector	Terminal	
F61	1	F51	28	Existed

4. Also check harness for short to ground.

Is the inspection result normal?

YES >> Perform the trouble diagnosis for power supply circuit.

NO >> Repair or replace error-detected parts.

3.CHECK ENGINE COOLANT TEMPERATURE SENSOR GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between ECT sensor harness connector and ECM harness connector.

+		-		Continuity
ECT sensor		ECM		
Connector	Terminal	Connector	Terminal	
F61	2	F51	27	Existed

4. Also check harness for short to ground to power.

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace error-detected parts.

4.CHECK ENGINE COOLANT TEMPERATURE SENSOR

Check the engine coolant temperature sensor. Refer to [EC-212, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace engine coolant temperature sensor. Refer to [CO-23, "Exploded View"](#).

5.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> INSPECTION END

Component Inspection

INFOID:0000000009985029

1.CHECK ENGINE COOLANT TEMPERATURE (ECT) SENSOR

1. Turn ignition switch OFF.
2. Disconnect ECT sensor harness connector.
3. Remove ECT sensor.

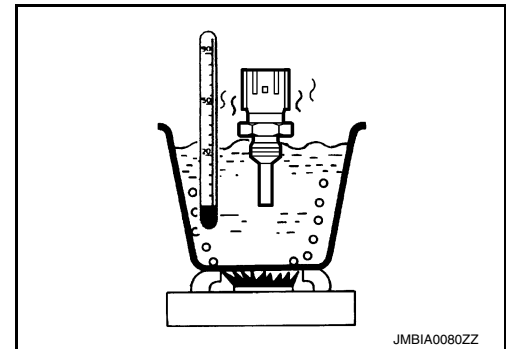
P0117, P0118 ECT SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

4. Check resistance between ECT sensor terminals by heating with hot water as shown in the figure.

ECT sensor		Condition		Resistance (kΩ)
+	-			
Terminal				
1	2	Temperature [°C (°F)]	20 (68)	2.37 - 2.63
			50 (122)	0.68 - 1.00
			90 (194)	0.236 - 0.260



Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace engine coolant temperature sensor. Refer to [CO-23, "Exploded View"](#).

P0122, P0123 TP SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P0122, P0123 TP SENSOR

DTC Description

INFOID:000000009985030

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0122	TP SEN 2/CIRC-B1 (Throttle/pedal position sensor/switch "A" circuit low)	An excessively low voltage from the TP sensor 2 is sent to ECM.
P0123	TP SEN 2/CIRC-B1 (Throttle/pedal position sensor/switch "A" circuit high)	An excessively high voltage from the TP sensor 2 is sent to ECM.

POSSIBLE CAUSE

- Harness or connectors (TP sensor 2 circuit is open or shorted.)
- Electric throttle control actuator (TP sensor 2)

FAIL-SAFE

- The ECM controls the electric throttle control actuator in regulating the throttle opening in order for the idle position to be within +10 degrees.
- The ECM regulates the opening speed of the throttle valve to be slower than the normal condition. So, the acceleration will be poor.

DTC CONFIRMATION PROCEDURE

1.CHECK DTC PRIORITY

If DTC P0122 or P0123 is displayed with DTC P0643, first perform the trouble diagnosis for DTC P0643.

Is applicable DTC detected?

- YES >> Perform diagnosis of applicable. Refer to [EC-379, "DTC Description"](#).
NO >> GO TO 2.

2.PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

TESTING CONDITION:

Before performing the following procedure, confirm that battery voltage is more than 8 V at idle.

>> GO TO 3.

3.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine and let it idle for 1 second.
2. Check DTC.

Is DTC detected?

- YES >> Proceed to [EC-216, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985031

1.CHECK DTC PRIORITY

If DTC P0122 or P0123 is displayed with DTC P0643, first perform the trouble diagnosis for DTC P0643.

Is applicable DTC detected?

- YES >> Perform diagnosis of applicable. Refer to [EC-379, "DTC Description"](#).
NO >> GO TO 2.

2.CHECK THROTTLE POSITION SENSOR 2 POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect electric throttle control actuator harness connector.
3. Turn ignition switch ON.
4. Check the voltage between electric throttle control actuator harness connector and ground.

+		-	Voltage (Approx.)
Electric throttle control actuator			
Connector	Terminal		
F50	2	Ground	5 V

Is the inspection result normal?

YES >> GO TO 4.

NO >> GO TO 3.

3.CHECK THROTTLE POSITION SENSOR 2 POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between electric throttle control actuator harness connector and ECM harness connector.

+		-		Continuity
Electric throttle control actuator		ECM		
Connector	Terminal	Connector	Terminal	
F50	2	F52	80	Existed

4. Also check harness for short to power.

Is the inspection result normal?

YES >> Perform the trouble diagnosis for power supply circuit.

NO >> Repair or replace error-detected parts.

4.CHECK THROTTLE POSITION SENSOR 2 GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between electric throttle control actuator harness connector and ECM harness connector.

+		-		Continuity
Electric throttle control actuator		ECM		
Connector	Terminal	Connector	Terminal	
F50	4	F52	78	Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace error-detected parts.

5.CHECK THROTTLE POSITION SENSOR 2 INPUT SIGNAL CIRCUIT

1. Check the continuity between electric throttle control actuator harness connector and ECM harness connector.

P0122, P0123 TP SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

+		-		Continuity
Electric throttle control actuator		ECM		
Connector	Terminal	Connector	Terminal	
F50	3	F52	77	Existed

2. Also check harness for short to ground and to power.

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace error-detected parts.

6.CHECK THROTTLE POSITION SENSOR

Check the throttle position sensor. Refer to [EC-218, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 7.

NO >> Replace electric throttle control actuator. Refer to [EM-26, "Removal and Installation"](#).

7.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> INSPECTION END

Component Inspection

INFOID:000000009985032

1.CHECK THROTTLE POSITION SENSOR

1. Turn ignition switch OFF.
2. Reconnect all harness connectors disconnected.
3. Perform "Throttle Valve Closed Position Learning". Refer to [EC-140, "Work Procedure"](#).
4. Turn ignition switch ON.
5. Set selector lever to D position.
6. Check the voltage between ECM harness connector terminals as per the following conditions.

ECM				Condition		Voltage	
Connector		+	—				
		Terminal					
Sensor 1	F52	79	78	Accelerator pedal	Fully released	More than 0.36V	
					Fully depressed	Less than 4.75V	
Sensor 2		77				Fully released	Less than 4.75V
						Fully depressed	More than 0.36V

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace electric throttle control actuator. Refer to [EM-26, "Removal and Installation"](#).

P0125 ECT SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P0125 ECT SENSOR

DTC Description

INFOID:000000009985033

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0125	ECT SENSOR (Insufficient coolant temperature for closed loop fuel control)	• Voltage sent to ECM from the sensor is not practical, even when some time has passed after starting the engine. • Engine coolant temperature is insufficient for closed loop fuel control.

POSSIBLE CAUSE

- Harness or connectors (High resistance in the circuit)
- Engine coolant temperature sensor
- Thermostat

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1.CHECK DTC PRIORITY

If DTC P0125 is displayed with DTC P0116 or P0117, first perform the trouble diagnosis for DTC P0116 or P0117.

Is applicable DTC detected?

- YES >> Perform diagnosis of applicable. Refer to [EC-93, "DTC Index"](#).
NO >> GO TO 2.

2.PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

>> GO TO 3.

3.CHECK ENGINE COOLANT TEMPERATURE SENSOR FUNCTION

 With CONSULT

1. Turn ignition switch ON.
2. Select "DATA MONITOR" mode of "ENGINE" using CONSULT.
3. Check that "COOLANT TEMP/S" is above 10°C (50°F).

 With GST

Follow the procedure "With CONSULT" above.

Is it above 5°C (41°F)?

- YES >> INSPECTION END
NO >> GO TO 4.

4.PERFORM DTC CONFIRMATION PROCEDURE

 With CONSULT

1. Start engine and run it for 65 minutes at idle speed.
2. Check 1st tip DTC.

If "COOLANT TEMP/S" indication increases to more than 10°C (50°F) within 65 minutes, stop engine because the test result will be OK.

CAUTION:

Be careful not to overheat engine.

 With GST

Follow the procedure "With CONSULT" above.

P0125 ECT SENSOR

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

Is 1st trip DTC detected?

- YES >> Proceed to [EC-220, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985034

1.CHECK DTC PRIORITY

If DTC P0125 is displayed with DTC P0116 or P0117, first perform the trouble diagnosis for DTC P0116 or P0117.

Is applicable DTC detected?

- YES >> Perform diagnosis of applicable. Refer to [EC-93, "DTC Index"](#).
NO >> GO TO 2.

2.CHECK ENGINE COOLANT TEMPERATURE SENSOR

Check the engine coolant temperature sensor. Refer to [EC-212, "Component Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Replace engine coolant temperature sensor. Refer to [CO-23, "Exploded View"](#).

3.CHECK THERMOSTAT OPERATION

When the engine is cold [lower than 70°C (158°F)] condition, grasp lower radiator hose and confirm the engine coolant does not flow.

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Repair or replace thermostat. Refer to [CO-21, "Removal and Installation"](#).

4.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> INSPECTION END

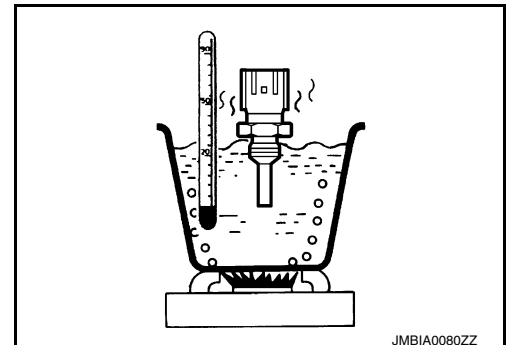
Component Inspection

INFOID:000000009985035

1.CHECK ENGINE COOLANT TEMPERATURE (ECT) SENSOR

1. Turn ignition switch OFF.
2. Disconnect ECT sensor harness connector.
3. Remove ECT sensor.
4. Check resistance between ECT sensor terminals by heating with hot water as shown in the figure.

ECT sensor		Condition		Resistance (kΩ)
+	−			
Terminal				
1	2	Temperature [°C (°F)]	20 (68)	2.37 - 2.63
			50 (122)	0.68 - 1.00
			90 (194)	0.236 - 0.260



Is the inspection result normal?

- YES >> INSPECTION END
NO >> Replace engine coolant temperature sensor. Refer to [CO-23, "Exploded View"](#).

P0127 IAT SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P0127 IAT SENSOR

DTC Description

INFOID:000000009985036

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0127	IAT SENSOR-B1 (Intake air temperature too high)	Rationally incorrect voltage from the sensor is sent to ECM, compared with the voltage signal from engine coolant temperature sensor.

POSSIBLE CAUSE

- Harness or connectors (Intake air temperature sensor circuit is open or shorted.)
- Intake air temperature sensor

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

TESTING CONDITION:

This test may be conducted with the drive wheels lifted in the shop or by driving the vehicle. If a road test is expected to be easier, it is unnecessary to lift the vehicle.

>> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT

1. Wait until engine coolant temperature is less than 96°C (205°F)
 - Turn ignition switch ON.
 - Select "DATA MONITOR" mode of "ENGINE" using CONSULT.
 - Check the engine coolant temperature.
 - If the engine coolant temperature is not less than 96°C (205°F), turn ignition switch OFF and cool down engine.

NOTE:

Perform the following steps before engine coolant temperature is above 96°C (205°F).

2. Turn ignition switch ON.
3. Select "DATA MONITOR" mode of "ENGINE" using CONSULT
4. Start engine.
5. Hold vehicle speed at more than 70 km/h (43 MPH) for 100 consecutive seconds.

CAUTION:

Always drive vehicle at a safe speed.

6. Check 1st trip DTC.

With GST

Follow the procedure "With CONSULT" above.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-221, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985037

1. CHECK INTAKE AIR TEMPERATURE SENSOR

Check the intake air temperature sensor. Refer to [EC-222, "Component Inspection"](#).

P0127 IAT SENSOR

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace mass air flow sensor (with intake air temperature sensor). Refer to [EM-24, "Exploded View"](#).

2. CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> INSPECTION END

Component Inspection

INFOID:000000009985038

1. CHECK INTAKE AIR TEMPERATURE SENSOR

1. Turn ignition switch OFF.
2. Disconnect mass air flow sensor harness connector and reconnect it again.
3. Turn ignition switch ON.
4. Select "DATA MONITOR" mode with CONSULT.
5. Check that "INT/A TEMP SEN" indicates as per following condition.

Monitor item	Condition		Value (Approx.)
INT/A TEMP SEN	Temperature [°C (°F)]	25 (77)	1.9 - 2.1 (V)

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace mass air flow sensor (with intake air temperature sensor). Refer to [EM-24, "Exploded View"](#).

P0128 THERMOSTAT FUNCTION

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P0128 THERMOSTAT FUNCTION

DTC Description

INFOID:0000000009985039

DTC DETECTION LOGIC

Engine coolant temperature has not risen enough to open the thermostat even though the engine has run long enough.

This is due to a leak in the seal or the thermostat being stuck open.

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0128	THERMSTAT FNCTN [Coolant thermostat (coolant temperature below thermostat regulating temperature)]	The engine coolant temperature does not reach to specified temperature even though the engine has run long enough.

POSSIBLE CAUSE

- Thermostat
- Leakage from sealing portion of thermostat
- Engine coolant temperature sensor

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

NOTE:

Never refuel before and during the following procedure.

1.CHECK DTC PRIORITY

If DTC P0128 is displayed with DTC P0300, P0301, P0302, P0303 or P0304, first perform the trouble diagnosis for DTC P0300, P0301, P0302, P0303 or P0304.

Is applicable DTC detected?

- YES >> Perform diagnosis of applicable. Refer to [EC-93, "DTC Index"](#).
NO >> GO TO 2.

2.PRECONDITIONING-1

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

>> GO TO 3.

3.PRECONDITIONING-2

With CONSULT

1. Turn ignition switch ON.
2. Check the following conditions:

Ambient temperature	-10°C (14°F) or more
A/C switch	OFF
Blower fan switch	OFF

3. Select "DATA MONITOR" mode of "ENGINE" using CONSULT.
4. Check the following conditions:

COOLAN TEMP/S	-10°C – 58°C (14 – 136°F)
---------------	---------------------------

Is the condition satisfied?

- YES >> GO TO 4.

P0128 THERMOSTAT FUNCTION

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

- NO >> 1. Satisfy the condition.
2. GO TO 4.

4.PERFORM DTC CONFIRMATION PROCEDURE-1

⑧ With CONSULT

1. Start engine.
2. Drive the vehicle until the following condition is satisfied.

CAUTION:

Always drive vehicle at safe speed.

- **STEP 1**

Drive the vehicle under the conditions instructed below until the difference between "COOLAN TEMP/S" and "FUEL T/TMP SE" becomes at least 26°C (47°F).

COOLAN TEMP/S	66°C (151°F) or less
FUEL T/TMP SE	Less than the value calculated by subtracting 26°C (47°F) from "COOLAN TEMP/S".*

*: Example

COOLAN TEMP/S	FUEL T/TMP SE
70°C (158°F)	44°C (111°F) or less
65°C (149°F)	39°C (102°F) or less
60°C (140°F)	34°C (93°F) or less

- **STEP 2**

Drive the vehicle at 50 km/h (32 MPH) or more with the difference between "COOLAN TEMP/S" and "FUEL T/TMP SE" maintained at 26°C (47°F) or more.

NOTE:

Keep the accelerator pedal as steady as possible during cruising.

- **STEP 3**

Drive the vehicle at 50 km/h (32 MPH) or more until "COOLAN TEMP/S" increases by 6°C (11°F).

NOTE:

Keep the accelerator pedal as steady as possible during cruising.

Is the condition satisfied?

- YES >> GO TO 5.
NO >> GO TO 2.

5.PERFORM DTC CONFIRMATION PROCEDURE-2

⑧ With CONSULT

1. Drive the vehicle until the following condition is satisfied.

COOLAN TEMP/S	67°C (153°F) or more
---------------	----------------------

CAUTION:

Always drive vehicle at safe speed.

2. Check 1st trip DTC.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-224, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985040

1.CHECK DTC PRIORITY

If DTC P0128 is displayed with DTC P0300, P0301, P0302, P0303 or P0304, first perform the trouble diagnosis for DTC P0300, P0301, P0302, P0303 or P0304.

Is applicable DTC detected?

- YES >> Perform diagnosis of applicable. Refer to [EC-93, "DTC Index"](#).
NO >> GO TO 2.

P0128 THERMOSTAT FUNCTION

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

2.CHECK ENGINE COOLANT TEMPERATURE SENSOR

Check the engine coolant temperature sensor. Refer to [EC-225, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace engine coolant temperature sensor. Refer to [CO-23, "Exploded View"](#).

3.CHECK THERMOSTAT

Check the thermostat. Refer to [CO-21, "Removal and Installation"](#).

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace thermostat.

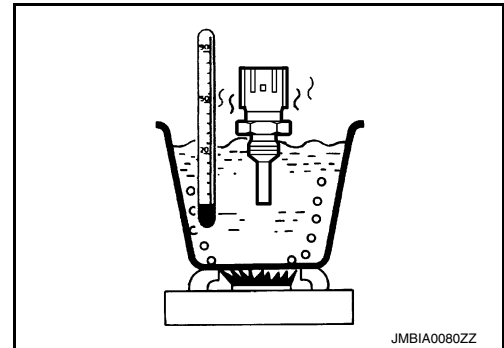
Component Inspection

INFOID:000000009985041

1.CHECK ENGINE COOLANT TEMPERATURE SENSOR

1. Turn ignition switch OFF.
2. Disconnect engine coolant temperature sensor harness connector.
3. Remove engine coolant temperature sensor.
4. Check resistance between engine coolant temperature sensor terminals by heating with hot water as shown in the figure.

Engine coolant temperature sensor		Condition		Resistance (kΩ)
+	−			
Terminal				
1	2	Temperature [°C (°F)]	20 (68)	2.37 - 2.63
			50 (122)	0.68 - 1.00
			90 (194)	0.236 - 0.260



Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace engine coolant temperature sensor. Refer to [CO-23, "Exploded View"](#).

P0130 A/F SENSOR 1

DTC Description

INFOID:000000009985042

DTC DETECTION LOGIC

To judge the malfunction, the diagnosis checks that the A/F signal computed by ECM from the A/F sensor 1 signal fluctuates according to fuel feedback control.

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition	
P0130	A/F SENSOR1 (B1) (O2 sensor circuit bank 1 sensor 1)	A	The A/F signal computed by ECM from the A/F sensor 1 signal is constantly in the range other than approx. 2.2 V.
		B	The A/F signal computed by ECM from the A/F sensor 1 signal is constantly approx. 2.2 V.

POSSIBLE CAUSE

- Harness or connectors (A/F sensor 1 circuit is open or shorted.)
- A/F sensor 1

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

TESTING CONDITION:

Before performing the following procedure, confirm that battery voltage is more than 11 V at idle.

>> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE FOR MALFUNCTION A

④ With CONSULT

1. Start engine and warm it up to normal operating temperature.
2. Let it idle for 2 minutes.
3. Check 1st trip DTC.

Is 1st trip DTC detected?

YES >> Proceed to [EC-227, "Diagnosis Procedure"](#).

NO-1 >> With CONSULT: GO TO 3.

NO-2 >> Without CONSULT: GO TO 7.

3. CHECK AIR FUEL RATIO (A/F) SENSOR 1 FUNCTION

1. Select "A/F SEN1 (B1)" in "DATA MONITOR" mode of "ENGINE" using CONSULT.
2. Check "A/F SEN1 (B1)" indication.

Does the indication fluctuates around 2.2 V?

YES >> GO TO 4.

NO >> Proceed to [EC-227, "Diagnosis Procedure"](#).

4. PERFORM DTC CONFIRMATION PROCEDURE FOR MALFUNCTION B-1

1. Select "A/F SEN1 (B1) P1276" of "A/F SEN1" in "DTC WORK SUPPORT" mode of "ENGINE" using CONSULT.
2. Touch "START".
3. When the following conditions are met, "TESTING" will be displayed on the CONSULT screen.

ENG SPEED	1,000 - 3,200 rpm
VHCL SPEED SE	More than 64 km/h (40 mph)
B/FUEL SCHDL	1.0 - 8.0 msec
Selector lever	D position

If "TESTING" is not displayed after 20 seconds, retry from step 2.

CAUTION:

Always drive vehicle at a safe speed.

Is "TESTING" displayed on CONSULT screen?

YES >> GO TO 5.

NO >> Check A/F sensor 1 function again. GO TO 2.

5.PERFORM DTC CONFIRMATION PROCEDURE FOR MALFUNCTION B-2

Release accelerator pedal fully.

NOTE:

Never apply brake during releasing the accelerator pedal.

Which does "TESTING" change to?

COMPLETED>>GO TO 6.

OUT OF CONDITION>>Retry DTC CONFIRMATION PROCEDURE. GO TO 3.

6.PERFORM DTC CONFIRMATION PROCEDURE FOR MALFUNCTION B-3

Touch "SELF-DIAG RESULT"

Which is displayed on CONSULT screen?

YES >> INSPECTION END

NO >> Proceed to [EC-227, "Diagnosis Procedure"](#).

7.PERFORM COMPONENT FUNCTION CHECK FOR MALFUNCTION B

 With GST

1. Start engine and warm it up to normal operating temperature.
2. Drive the vehicle at a speed of 80 km/h (50 MPH) for a few minutes in the suitable gear position.
3. Shift the selector lever to the D position, then release the accelerator pedal fully until the vehicle speed decreases to 50 km/h (31 MPH).

CAUTION:

Always drive vehicle at a safe speed.

NOTE:

Never apply brake during releasing the accelerator pedal.

4. Repeat steps 2 to 3 for five times.
5. Stop the vehicle and turn ignition switch OFF.
6. Wait at least 10 seconds and restart engine.
7. Repeat steps 2 to 3 for five times.
8. Stop the vehicle.
9. Check 1st trip DTC.

Is 1st trip DTC detected?

YES >> Proceed to [EC-227, "Diagnosis Procedure"](#).

NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000009985044

1.CHECK AIR FUEL RATIO (A/F) SENSOR 1 POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect A/F sensor 1 harness connector.
3. Turn ignition switch ON.
4. Check the voltage between A/F sensor 1 harness connector and ground.

P0130 A/F SENSOR 1

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

+		-	Voltage
A/F sensor 1			
Connector	Terminal		
F18	4	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 2.

2. CHECK AIR FUEL RATIO (A/F) SENSOR 1 POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R harness connector.
3. Check the continuity between A/F sensor 1 harness connector and IPDM E/R harness connector.

+		-		Continuity
A/F sensor 1		IPDM E/R		
Connector	Terminal	Connector	Terminal	
F18	4	F35	75	Existed

4. Also check harness for short to ground.

Is the inspection result normal?

YES >> Perform the trouble diagnosis for power supply circuit.

NO >> Repair or replace error-detected parts.

3. CHECK A/F SENSOR 1 INPUT SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between A/F sensor 1 harness connector and ECM harness connector.

+		-		Continuity
A/F sensor 1		ECM		
Connector	Terminal	Connector	Terminal	
F18	1	F51	41	Existed
	2		45	

4. Check the continuity between A/F sensor 1 harness connector and ground, or ECM harness connector and ground.

+		-	Continuity
A/F sensor 1			
Connector	Terminal		
F18	1	Ground	Not existed
	2		

+		-	Continuity
ECM			
Connector	Terminal		
F51	41	Ground	Not existed
	45		

5. Also check harness for short to power.

Is the inspection result normal?

P0130 A/F SENSOR 1

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

- YES >> GO TO 4.
NO >> Repair or replace error-detected parts.

4.CHECK INTERMITTENT INCIDENT

Perform [GI-41, "Intermittent Incident"](#).

Is the inspection result normal?

- YES >> GO TO 5.
NO >> Repair or replace error-detected parts.

5.REPLACE AIR FUEL RATIO (A/F) SENSOR 1

Replace air fuel ratio (A/F) sensor 1. Refer to [EM-29, "Exploded View"](#).

CAUTION:

- Discard any sensor which has been dropped from a height of more than 0.5 m (19.7 in) onto a hard surface such as a concrete floor; use a new one.
- Before installing new sensor, clean exhaust system threads using Oxygen Sensor Thread Cleaner [commercial service tool (J-43897-18 or J43897-12)] and approved Anti-seize Lubricant (commercial service tool).

>> INSPECTION END

P0131 A/F SENSOR 1

DTC Description

INFOID:000000009985045

DTC DETECTION LOGIC

To judge the malfunction, the diagnosis checks that the A/F signal computed by ECM from the A/F sensor 1 signal is not inordinately low.

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0131	A/F SENSOR1 (B1) (O2 sensor circuit low voltage bank 1 sensor 1)	The A/F signal computed by ECM from the A/F sensor 1 signal is constantly approx. 0 V.

POSSIBLE CAUSE

- Harness or connectors (A/F sensor 1 circuit is open or shorted.)
- A/F sensor 1

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

TESTING CONDITION:

Before performing the following procedure, confirm that battery voltage is more than 10.5 V at idle.

>> GO TO 2.

2. CHECK A/F SENSOR FUNCTION

 With CONSULT

1. Start engine and warm it up to normal operating temperature.
2. Select "A/F SEN1 (B1)" in "DATA MONITOR" mode of "ENGINE" using CONSULT.
3. Check "A/F SEN1 (B1)" indication.

 With GST

Follow the procedure "With CONSULT" above.

Is the indication constantly approx. 0 V?

- YES >> Proceed to [EC-231, "Diagnosis Procedure"](#).
- NO >> GO TO 3.

3. PERFORM DTC CONFIRMATION PROCEDURE

 With CONSULT

1. Turn ignition switch OFF, wait at least 10 seconds and then restart engine.
2. Drive and accelerate vehicle to more than 40 km/h (25 MPH) within 20 seconds after restarting engine.

CAUTION:

Always drive vehicle at a safe speed.

3. Maintain the following conditions for about 20 consecutive seconds.

ENG SPEED	1,000 - 3,200 rpm
VHCL SPEED SE	More than 40 km/h (25 mph)
B/FUEL SCHDL	1.5 - 9.0 msec
Selector lever	Suitable position

NOTE:

P0131 A/F SENSOR 1

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

- **Keep the accelerator pedal as steady as possible during the cruising.**
- **If this procedure is not completed within 1 minute after restarting engine at step 1, return to step 1.**

4. Check 1st trip DTC.

 With GST

Follow the procedure "With CONSULT" above.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-231. "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985046

1. CHECK AIR FUEL RATIO (A/F) SENSOR 1 POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect A/F sensor 1 harness connector.
3. Turn ignition switch ON.
4. Check the voltage between A/F sensor 1 harness connector and ground.

+		-	Voltage
A/F sensor 1			
Connector	Terminal		
F18	4	Ground	Battery voltage

Is the inspection result normal?

- YES >> GO TO 3.
NO >> GO TO 2.

2. CHECK AIR FUEL RATIO (A/F) SENSOR 1 POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R harness connector.
3. Check the continuity between A/F sensor 1 harness connector and IPDM E/R harness connector.

+		-		Continuity
A/F sensor 1		IPDM E/R		
Connector	Terminal	Connector	Terminal	
F18	4	F35	75	Existed

4. Also check harness for short to ground.

Is the inspection result normal?

- YES >> Perform the trouble diagnosis for power supply circuit.
NO >> Repair or replace error-detected parts.

3. CHECK A/F SENSOR 1 INPUT SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between A/F sensor 1 harness connector and ECM harness connector.

+		-		Continuity
A/F sensor 1		ECM		
Connector	Terminal	Connector	Terminal	
F18	1	F51	41	Existed
	2		45	

4. Check the continuity between A/F sensor 1 harness connector and ground, or ECM harness connector and ground.

P0131 A/F SENSOR 1

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

+		–	Continuity
A/F sensor 1			
Connector	Terminal		
F18	1	Ground	Not existed
	2		

+		–	Continuity
ECM			
Connector	Terminal		
F51	41	Ground	Not existed
	45		

5. Also check harness for short to power.

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace error-detected parts.

4.CHECK INTERMITTENT INCIDENT

Perform [GI-41. "Intermittent Incident"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace error-detected parts.

5.REPLACE AIR FUEL RATIO (A/F) SENSOR 1

Replace air fuel ratio (A/F) sensor 1. Refer to [EM-29. "Exploded View"](#).

CAUTION:

- **Discard any sensor which has been dropped from a height of more than 0.5 m (19.7 in) onto a hard surface such as a concrete floor; use a new one.**
- **Before installing new sensor, clean exhaust system threads using Oxygen Sensor Thread Cleaner [commercial service tool (J-43897-18 or J43897-12)] and approved Anti-seize Lubricant (commercial service tool).**

>> INSPECTION END

P0132 A/F SENSOR 1

DTC Description

INFOID:000000009985047

DTC DETECTION LOGIC

To judge the malfunction, the diagnosis checks that the A/F signal computed by ECM from the A/F sensor 1 signal is not inordinately high.

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0132	A/F SENSOR1 (B1) (O2 sensor circuit high voltage bank 1 sensor 1)	The A/F signal computed by ECM from the A/F sensor 1 signal is constantly approx. 5 V.

POSSIBLE CAUSE

- Harness or connectors (A/F sensor 1 circuit is open or shorted.)
- A/F sensor 1

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

TESTING CONDITION:

Before performing the following procedure, confirm that battery voltage is more than 10.5 V at idle.

>> GO TO 2.

2. CHECK A/F SENSOR FUNCTION

④ With CONSULT

1. Start engine and warm it up to normal operating temperature.
2. Select "A/F SEN1 (B1)" in "DATA MONITOR" mode of "ENGINE" using CONSULT.
3. Check "A/F SEN1 (B1)" indication.

④ With GST

Follow the procedure "With CONSULT" above.

Is the indication constantly approx. 5 V?

YES >> Proceed to [EC-234, "Diagnosis Procedure"](#).

NO >> GO TO 3.

3. PERFORM DTC CONFIRMATION PROCEDURE

④ With CONSULT

1. Turn ignition switch OFF, wait at least 10 seconds and then restart engine.
2. Drive and accelerate vehicle to more than 40 km/h (25 MPH) within 20 seconds after restarting engine.

CAUTION:

Always drive vehicle at a safe speed.

3. Maintain the following conditions for about 20 consecutive seconds.

ENG SPEED	1,000 - 3,200 rpm
VHCL SPEED SE	More than 40 km/h (25 mph)
B/FUEL SCHDL	1.5 - 9.0 msec
Selector lever	Suitable position

NOTE:

P0132 A/F SENSOR 1

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

- **Keep the accelerator pedal as steady as possible during the cruising.**
- **If this procedure is not completed within 1 minute after restarting engine at step 1, return to step 1.**

4. Check 1st trip DTC.

 With GST

Follow the procedure "With CONSULT" above.

Is 1st trip DTC is detected?

YES >> Proceed to [EC-234. "Diagnosis Procedure"](#).

NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985048

1. CHECK AIR FUEL RATIO (A/F) SENSOR 1 POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect A/F sensor 1 harness connector.
3. Turn ignition switch ON.
4. Check the voltage between A/F sensor 1 harness connector and ground.

+		-	Voltage
A/F sensor 1			
Connector	Terminal		
F18	4	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 2.

2. CHECK AIR FUEL RATIO (A/F) SENSOR 1 POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R harness connector.
3. Check the continuity between A/F sensor 1 harness connector and IPDM E/R harness connector.

+		-		Continuity
A/F sensor 1		IPDM E/R		
Connector	Terminal	Connector	Terminal	
F18	4	F35	75	Existed

4. Also check harness for short to ground.

Is the inspection result normal?

YES >> Perform the trouble diagnosis for power supply circuit.

NO >> Repair or replace error-detected parts.

3. CHECK A/F SENSOR 1 INPUT SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between A/F sensor 1 harness connector and ECM harness connector.

+		-		Continuity
A/F sensor 1		ECM		
Connector	Terminal	Connector	Terminal	
F18	1	F51	41	Existed
	2		45	

4. Check the continuity between A/F sensor 1 harness connector and ground, or ECM harness connector and ground.

+		-	Continuity
A/F sensor 1			
Connector	Terminal		
F18	1	Ground	Not existed
	2		

+		-	Continuity
ECM			
Connector	Terminal		
F51	41	Ground	Not existed
	45		

5. Also check harness for short to power.

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace error-detected parts.

4.CHECK INTERMITTENT INCIDENT

Perform [GI-41. "Intermittent Incident"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace error-detected parts.

5.REPLACE AIR FUEL RATIO (A/F) SENSOR 1

Replace air fuel ratio (A/F) sensor 1. Refer to [EM-29. "Exploded View"](#).

CAUTION:

- Discard any sensor which has been dropped from a height of more than 0.5 m (19.7 in) onto a hard surface such as a concrete floor; use a new one.
- Before installing new sensor, clean exhaust system threads using Oxygen Sensor Thread Cleaner [commercial service tool (J-43897-18 or J43897-12)] and approved Anti-seize Lubricant (commercial service tool).

>> INSPECTION END

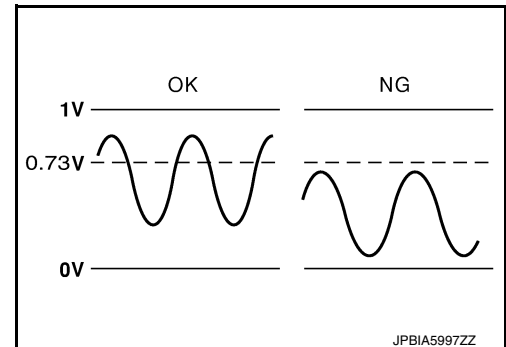
P0137 HO2S2

DTC Description

INFOID:000000009985049

DTC DETECTION LOGIC

The heated oxygen sensor 2 has a much longer switching time between rich and lean than the air fuel ratio (A/F) sensor 1. The oxygen storage capacity of the three way catalyst (manifold) causes the longer switching time. To judge the malfunctions of heated oxygen sensor 2, ECM monitors whether the maximum voltage of the sensor is sufficiently high during the various driving condition such as fuel-cut.



DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0137	HO2S2 (B1) (O2 sensor circuit low voltage bank 1 sensor 2)	The maximum voltage from the heated oxygen sensor 2 is not reached to the specified voltage.

POSSIBLE CAUSE

- Harness or connectors (Heated oxygen sensor 2 circuit is open or shorted.)
- Heated oxygen sensor 2
- Fuel pressure
- Fuel injector
- Intake air leaks

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1. INSPECTION START

Do you have CONSULT?

Do you have CONSULT?

YES >> GO TO 2.

NO >> GO TO 5.

2. PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

TESTING CONDITION:

For better results, perform "DTC WORK SUPPORT" at a temperature of 0 to 30°C (32 to 86°F).

>> GO TO 3.

3. PERFORM DTC CONFIRMATION PROCEDURE

Ⓟ With CONSULT

1. Turn ignition switch ON and select "DATA MONITOR" mode of "ENGINE" using CONSULT.
2. Start engine and warm it up to normal operating temperature.
3. Turn ignition switch OFF and wait at least 10 seconds.
4. Start engine and keep the engine speed between 3,500 and 4,000 rpm for at least 1 minute under no load.

< DTC/CIRCUIT DIAGNOSIS >

5. Let engine idle for 1 minute.
6. Make sure that "COOLAN TEMP/S" indicates more than 70°C (158°F).
If not, warm up engine and go to next step when "COOLAN TEMP/S" indication reaches 70°C (158°F).
7. Open engine hood.
8. Select "HO2S2 (B1) P1147" of "HO2S2" in "DTC WORK SUPPORT" mode of "ENGINE" using CONSULT.
9. Follow the instruction of CONSULT.

NOTE:

It will take at most 10 minutes until "COMPLETED" is displayed.

10. Touch "SELF-DIAG RESULT".

Which is displayed on CONSULT screen?

- OK >> INSPECTION END
 NG >> Proceed to [EC-238, "Diagnosis Procedure"](#).
 CAN NOT BE DIAGNOSED>>GO TO 4.

4.PERFORM DTC CONFIRMATION PROCEDURE AGAIN

1. Turn ignition switch OFF and leave the vehicle in a cool place (soak the vehicle).
2. Perform DTC CONFIRMATION PROCEDURE again.

>> GO TO 3.

5.PERFORM COMPONENT FUNCTION CHECK-1

 Without CONSULT

1. Start engine and warm it up to normal operating temperature.
2. Turn ignition switch OFF and wait at least 10 seconds.
3. Start engine and keep the engine speed between 3,500 and 4,000 rpm for at least 1 minute under no load.
4. Let engine idle for 1 minute.
5. Check the voltage between ECM harness connector and ground as per the following condition.

ECM			Condition	Voltage
Connector	+	-		
	Terminal			
F51	22	23	Revving up to 4,000 rpm under no load at least 10 times	The voltage should be above 0.73 V at least once during this procedure.

Is the inspection result normal?

- YES >> INSPECTION END
 NO >> GO TO 6.

6.PERFORM COMPONENT FUNCTION CHECK-2

Check the voltage between ECM harness connector and ground as per the following condition.

ECM			Condition	Voltage
Connector	+	-		
	Terminal			
F51	22	23	Keeping engine speed at idle for 10 minutes	The voltage should be above 0.73 V at least once during this procedure.

Is the inspection result normal?

- YES >> INSPECTION END
 NO >> GO TO 7.

7.PERFORM COMPONENT FUNCTION CHECK-3

Check the voltage between ECM harness connector and ground as per the following condition.

ECM			Condition	Voltage
Connector	+	–		
	Terminal			
F51	22	23	Coasting from 80 km/h (50 MPH) in D position	The voltage should be above 0.73 V at least once during this procedure.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Proceed to [EC-238, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000009985051

1. CLEAR THE MIXTURE RATIO SELF-LEARNING VALUE

1. Clear the mixture ratio self-learning value. Refer to [EC-143, "Work Procedure"](#).
2. Run engine for at least 10 minutes at idle speed.

Is the 1st trip DTC P0171 detected? Is it difficult to start engine?

YES >> Perform trouble diagnosis for DTC P0171. Refer to [EC-260, "DTC Description"](#).

NO >> GO TO 2.

2. CHECK HO2S2 GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect heated oxygen sensor 2 (HO2S2) harness connector.
3. Disconnect ECM harness connector.
4. Check the continuity between HO2S2 harness connector and ECM harness connector.

+		-		Continuity
HO2S2		ECM		
Connector	Terminal	Connector	Terminal	
F21	1	F51	23	Existed

5. Also check harness for short to power.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace error-detected parts.

3. CHECK HO2S2 INPUT SIGNAL CIRCUIT

1. Check the continuity between HO2S2 harness connector and ECM harness connector.

+		-		Continuity
HO2S2		ECM		
Connector	Terminal	Connector	Terminal	
F21	2	F51	22	Existed

2. Check the continuity between HO2S2 harness connector and ground, or ECM harness connector and ground.

+		-	Continuity
HO2S2			
Connector	Terminal		
F21	2	Ground	Not existed

+		-	Continuity
ECM			
Connector	Terminal		
F51	22	Ground	Not existed

3. Also check harness for short to power.

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace error-detected parts.

4. CHECK HEATED OXYGEN SENSOR 2

Check the heated oxygen sensor 2. Refer to [EC-239, "Component Inspection"](#).

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

NO >> GO TO 5.

5. REPLACE HEATED OXYGEN SENSOR 2

Replace heated oxygen sensor 2.

CAUTION:

- Discard any sensor which has been dropped from a height of more than 0.5 m (19.7 in) onto a hard surface such as a concrete floor; use a new one.
- Before installing new sensor, clean exhaust system threads using Oxygen Sensor Thread Cleaner [commercial service tool (J-43897-18 or J43897-12)] and approved Anti-seize Lubricant (commercial service tool).

>> INSPECTION END

Component Inspection

INFOID:000000009985052

1. INSPECTION START

Do you have CONSULT?

Do you have CONSULT?

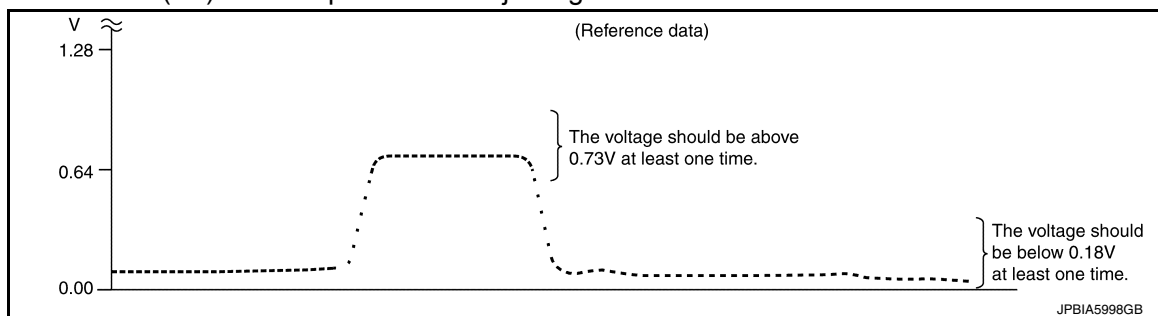
YES >> GO TO 2.

NO >> GO TO 3.

2. CHECK HEATED OXYGEN SENSOR 2

④ With CONSULT

1. Turn ignition switch ON and select "DATA MONITOR" mode of "ENGINE" using CONSULT.
2. Start engine and warm it up to normal operating temperature.
3. Turn ignition switch OFF and wait at least 10 seconds.
4. Start engine and keep the engine speed between 3,500 and 4,000 rpm for at least 1 minute under no load.
5. Let engine idle for 1 minute.
6. Select "FUEL INJECTION" in "ACTIVE TEST" mode of "ENGINE" using CONSULT, and select "HO2S2 (B1)" as the monitor item with CONSULT.
7. Check "HO2S2 (B1)" at idle speed when adjusting "FUEL INJECTION" to $\pm 25\%$.



"HO2S2 (B1)" should be above 0.73 V at least once when the "FUEL INJECTION" is + 25%.

"HO2S2 (B1)" should be below 0.18 V at least once when the "FUEL INJECTION" is - 25%.

< DTC/CIRCUIT DIAGNOSIS >

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 6.

3.CHECK HEATED OXYGEN SENSOR 2-1

⊗Without CONSULT

1. Start engine and warm it up to normal operating temperature.
2. Turn ignition switch OFF and wait at least 10 seconds.
3. Start engine and keep the engine speed between 3,500 and 4,000 rpm for at least 1 minute under no load.
4. Let engine idle for 1 minute.
5. Check the voltage between ECM harness connector and ground as per the following condition.

ECM			Condition	Voltage
Connector	+	–		
	Terminal			
F51	22	23	Revving up to 4,000 rpm under no load at least 10 times	The voltage should be above 0.73 V at least once during this procedure. The voltage should be below 0.18 V at least once during this procedure.

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 4.

4.CHECK HEATED OXYGEN SENSOR 2-2

Check the voltage between ECM harness connector and ground as per the following condition.

ECM			Condition	Voltage
Connector	+	−		
	Terminal			
F51	22	23	Keeping engine speed at idle for 10 minutes	The voltage should be above 0.73 V at least once during this procedure The voltage should be below 0.18 V at least once during this procedure

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 5.

5.CHECK HEATED OXYGEN SENSOR 2-3

Check the voltage between ECM harness connector and ground as per the following condition.

ECM			Condition	Voltage
Connector	+	–		
	Terminal			
F51	22	23	Coasting from 80 km/h (50 MPH) in D position	The voltage should be above 0.73 V at least once during this procedure. The voltage should be below 0.18 V at least once during this procedure.

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 6.

6.REPLACE HEATED OXYGEN SENSOR 2

Replace heated oxygen sensor 2. Refer to [EX-5. "Exploded View"](#).

CAUTION:

P0137 HO2S2

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

- Discard any sensor which has been dropped from a height of more than 0.5 m (19.7 in) onto a hard surface such as a concrete floor; use a new one.
- Before installing new sensor, clean exhaust system threads using Oxygen Sensor Thread Cleaner [commercial service tool (J-43897-18 or J43897-12)] and approved Anti-seize Lubricant (commercial service tool).

>> INSPECTION END

A

EC

C

D

E

F

G

H

I

J

K

L

M

N

O

P

P0138 HO2S2

DTC Description

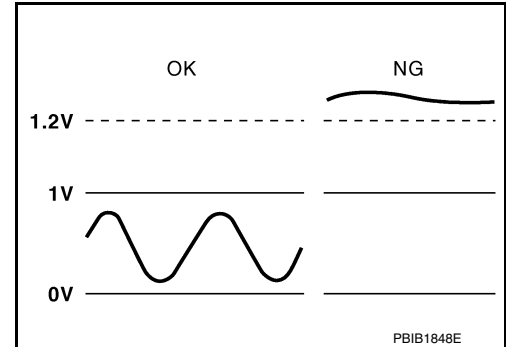
INFOID:000000009985053

DTC DETECTION LOGIC

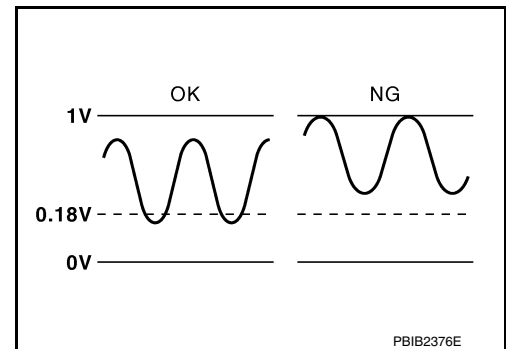
The heated oxygen sensor 2 has a much longer switching time between rich and lean than the air fuel ratio (A/F) sensor 1. The oxygen storage capacity of the three way catalyst (manifold) causes the longer switching time.

MALFUNCTION A

To judge the malfunctions of heated oxygen sensor 2, ECM monitors whether the voltage is unusually high during the various driving condition such as fuel-cut.

**MALFUNCTION B**

To judge the malfunctions of heated oxygen sensor 2, ECM monitors whether the minimum voltage of sensor is sufficiently low during the various driving condition such as fuel-cut.



DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition	
P0138	HO2S2 (B1) (O2 sensor circuit high voltage bank 1 sensor 2)	A	An excessively high voltage from the sensor is sent to ECM.
		B	The minimum voltage from the sensor is not reached to the specified voltage.

POSSIBLE CAUSE

DTC P0138 - A

- Harness or connectors (The sensor circuit is open or shorted.)
- Heated oxygen sensor 2

DTC P0138 - B

- Harness or connectors (The sensor circuit is open or shorted.)
- Heated oxygen sensor 2
- Fuel pressure
- Fuel injector

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

< DTC/CIRCUIT DIAGNOSIS >

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE FOR MALFUNCTION A

1. Start engine and warm it up to normal operating temperature.
2. Turn ignition switch OFF and wait at least 10 seconds.
3. Start engine and keep the engine speed between 3,500 and 4,000 rpm for at least 1 minute under no load.
4. Let engine idle for 2 minutes.
5. Check 1st trip DTC.

Is 1st trip DTC detected?

YES >> Proceed to [EC-244, "Diagnosis Procedure"](#).

NO-1 >> With CONSULT: GO TO 3.

NO-2 >> Without CONSULT: GO TO 5.

3.PERFORM DTC CONFIRMATION PROCEDURE FOR MALFUNCTION B

NOTE:

For better results, perform "DTC WORK SUPPORT" at a temperature of 0 to 30°C (32 to 86°F).

1. Turn ignition switch ON and select "DATA MONITOR" mode of "ENGINE" using CONSULT.
2. Start engine and warm it up to normal operating temperature.
3. Turn ignition switch OFF and wait at least 10 seconds.
4. Start engine and keep the engine speed between 3,500 and 4,000 rpm for at least 1 minute under no load.
5. Let engine idle for 1 minute.
6. Make sure that "COOLAN TEMP/S" indication is more than 70°C (158°F).
If not, warm up engine and go to next step when "COOLAN TEMP/S" indication reaches 70°C (158°F).
7. Open engine hood.
8. Select "HO2S2 (B1) P1146" of "HO2S2" in "DTC WORK SUPPORT" mode of "ENGINE" using CONSULT.
9. Follow the instruction of CONSULT.

NOTE:

It will take at most 10 minutes until "COMPLETED" is displayed.

10. Touch "SELF-DIAG RESULT".

Which is displayed on CONSULT

OK >> INSPECTION END

NG >> Proceed to [EC-244, "Diagnosis Procedure"](#).

CAN NOT BE DIAGNOSED>>GO TO 4.

4.PERFORM DTC CONFIRMATION PROCEDURE FOR MALFUNCTION B AGAIN

1. Turn ignition switch OFF and leave the vehicle in a cool place (soak the vehicle).
2. Perform DTC confirmation procedure again.

>> GO TO 3.

5.PERFORM COMPONENT FUNCTION CHECK-1

⊗Without CONSULT

1. Start engine and warm it up to normal operating temperature.
2. Turn ignition switch OFF and wait at least 10 seconds.
3. Start engine and keep the engine speed between 3,500 and 4,000 rpm for at least 1 minute under no load.
4. Let engine idle for 1 minute.
5. Check the voltage between ECM harness connector and ground as per the following condition.

ECM			Condition	Voltage
Connector	+	–		
	Terminal			
F51	22	23	Revving up to 4,000 rpm under no load at least 10 times	The voltage should be above 0.73 V at least once during this procedure.

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 6.

6.PERFORM COMPONENT FUNCTION CHECK-2

Check the voltage between ECM harness connector and ground as per the following condition.

ECM			Condition	Voltage
Connector	+	–		
	Terminal			
F51	22	23	Keeping engine speed at idle for 10 minutes	The voltage should be above 0.73 V at least once during this procedure.

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 7.

7.PERFORM COMPONENT FUNCTION CHECK-3

Check the voltage between ECM harness connector and ground as per the following condition.

ECM			Condition	Voltage
Connector	+	–		
	Terminal			
F51	22	23	Coasting from 80 km/h (50 MPH) in D position	The voltage should be above 0.73 V at least once during this procedure.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Proceed to [EC-244, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000009985055

1.INSPECTION START

Confirm the detected malfunction (A or B). Refer to [EC-242, "DTC Description"](#).

Which malfunction is detected?

A >> GO TO 2.

B >> GO TO 7.

2.CHECK HO2S2 CONNECTOR FOR WATER

1. Turn ignition switch OFF.
2. Disconnect heated oxygen sensor 2 harness connector.
3. Check connectors for water.

Water should not exist.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace error-detected parts.

3.CHECK HO2S2 GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

1. Disconnect ECM harness connector.
2. Check the continuity between HO2S2 harness connector and ECM harness connector.

+		-		Continuity
HO2S2		ECM		
Connector	Terminal	Connector	Terminal	
F21	1	F51	23	Existed

3. Also check harness for short to power.

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace error-detected parts.

4. CHECK HO2S2 INPUT SIGNAL CIRCUIT

1. Check the continuity between HO2S2 harness connector and ECM harness connector.

+		-		Continuity
HO2S2		ECM		
Connector	Terminal	Connector	Terminal	
F21	2	F51	22	Existed

2. Check the continuity between HO2S2 harness connector and ground, or ECM harness connector and ground.

+		-	Continuity
HO2S2			
Connector	Terminal		
F21	2	Ground	Not existed

+		-	Continuity
ECM			
Connector	Terminal		
F51	22	Ground	Not existed

3. Also check harness for short to power.

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace error-detected parts.

5. CHECK HEATED OXYGEN SENSOR 2

Check the heated oxygen sensor 2. Refer to [EC-247, "Component Inspection"](#).

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

NO >> GO TO 6.

6. REPLACE HEATED OXYGEN SENSOR 2

Replace heated oxygen sensor 2. Refer to [EX-5, "Exploded View"](#).

CAUTION:

- Discard any sensor which has been dropped from a height of more than 0.5 m (19.7 in) onto a hard surface such as a concrete floor; use a new one.
- Before installing new sensor, clean exhaust system threads using Oxygen Sensor Thread Cleaner [commercial service tool (J-43897-18 or J43897-12)] and approved Anti-seize Lubricant (commercial service tool).

>> INSPECTION END

< DTC/CIRCUIT DIAGNOSIS >

7. CLEAR THE MIXTURE RATIO SELF-LEARNING VALUE

1. Clear the mixture ratio self-learning value. Refer to [EC-143, "Work Procedure"](#).
2. Run engine for at least 10 minutes at idle speed.

Is the 1st trip DTC P0172 detected? Is it difficult to start engine?

- YES >> Perform trouble diagnosis for DTC P0172. Refer to [EC-265, "DTC Description"](#).
 NO >> GO TO 8.

8. CHECK HO2S2 GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect heated oxygen sensor 2 harness connector.
3. Disconnect ECM harness connector.
4. Check the continuity between HO2S2 harness connector and ECM harness connector.

+		-		Continuity
HO2S2		ECM		
Connector	Terminal	Connector	Terminal	
F21	1	F51	23	Existed

5. Also check harness for short to ground and to power.

Is the inspection result normal?

- YES >> GO TO 9.
 NO >> Repair or replace error-detected parts.

9. CHECK HO2S2 INPUT SIGNAL CIRCUIT

1. Check the continuity between HO2S2 harness connector and ECM harness connector.

+		-		Continuity
HO2S2		ECM		
Connector	Terminal	Connector	Terminal	
F21	2	F51	22	Existed

2. Check the continuity between HO2S2 harness connector and ground, or ECM harness connector and ground.

+		-	Continuity
HO2S2			
Connector	Terminal		
F21	2	Ground	Not existed

+		-	Continuity
ECM			
Connector	Terminal		
F51	22	Ground	Not existed

3. Also check harness for short to power.

Is the inspection result normal?

- YES >> GO TO 10.
 NO >> Repair open circuit or short to ground or short to power in harness or connectors.

10. CHECK HEATED OXYGEN SENSOR 2

Check the heated oxygen sensor 2. Refer to [EC-247, "Component Inspection"](#).

Is the inspection result normal?

- YES >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).
 NO >> GO TO 11.

11. REPLACE HEATED OXYGEN SENSOR 2

Replace heated oxygen sensor 2. Refer to [EX-5. "Exploded View"](#).

CAUTION:

- Discard any sensor which has been dropped from a height of more than 0.5 m (19.7 in) onto a hard surface such as a concrete floor; use a new one.
- Before installing new sensor, clean exhaust system threads using Oxygen Sensor Thread Cleaner [commercial service tool (J-43897-18 or J43897-12)] and approved Anti-seize Lubricant (commercial service tool).

>> INSPECTION END

Component Inspection

INFOID:000000009985056

1. INSPECTION START

Do you have CONSULT?

Do you have CONSULT?

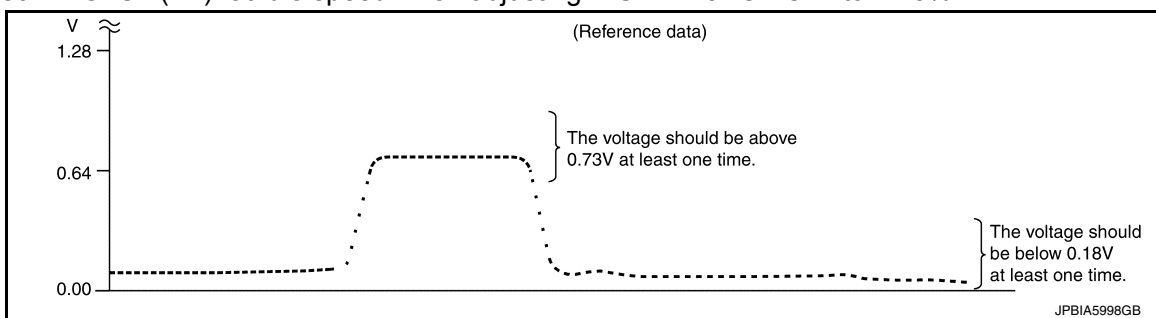
YES >> GO TO 2.

NO >> GO TO 3.

2. CHECK HEATED OXYGEN SENSOR 2

 With CONSULT

1. Turn ignition switch ON and select "DATA MONITOR" mode of "ENGINE" using CONSULT.
2. Start engine and warm it up to normal operating temperature.
3. Turn ignition switch OFF and wait at least 10 seconds.
4. Start engine and keep the engine speed between 3,500 and 4,000 rpm for at least 1 minute under no load.
5. Let engine idle for 1 minute.
6. Select "FUEL INJECTION" in "ACTIVE TEST" mode of "ENGINE" using CONSULT, and select "HO2S2 (B1)" as the monitor item with CONSULT.
7. Check "HO2S2 (B1)" at idle speed when adjusting "FUEL INJECTION" to $\pm 25\%$.



"HO2S2 (B1)" should be above 0.73 V at least once when the "FUEL INJECTION" is + 25%.

"HO2S2 (B1)" should be below 0.18 V at least once when the "FUEL INJECTION" is - 25%.

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 6.

3. CHECK HEATED OXYGEN SENSOR 2-1

 Without CONSULT

1. Start engine and warm it up to normal operating temperature.
2. Turn ignition switch OFF and wait at least 10 seconds.
3. Start engine and keep the engine speed between 3,500 and 4,000 rpm for at least 1 minute under no load.
4. Let engine idle for 1 minute.
5. Check the voltage between ECM harness connector and ground as per the following condition.

ECM			Condition	Voltage
Connector	+	–		
	Terminal			
F51	22	23	Revving up to 4,000 rpm under no load at least 10 times	The voltage should be above 0.73 V at least once during this procedure The voltage should be below 0.18 V at least once during this procedure

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 4.

4. CHECK HEATED OXYGEN SENSOR 2-2

Check the voltage between ECM harness connector and ground as per the following condition.

ECM			Condition	Voltage
Connector	+	−		
	Terminal			
F51	22	23	Keeping engine speed at idle for 10 minutes	The voltage should be above 0.73 V at least once during this procedure The voltage should be below 0.18 V at least once during this procedure

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 5.

5. CHECK HEATED OXYGEN SENSOR 2-3

Check the voltage between ECM harness connector and ground as per the following condition.

ECM			Condition	Voltage
Connector	+	−		
	Terminal			
F51	22	23	Coasting from 80 km/h (50 MPH) in D position	The voltage should be above 0.73 V at least once during this procedure. The voltage should be below 0.18 V at least once during this procedure.

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 6.

6. REPLACE HEATED OXYGEN SENSOR 2

Replace heated oxygen sensor 2. Refer to [EX-5, "Exploded View"](#).

CAUTION:

- Discard any sensor which has been dropped from a height of more than 0.5 m (19.7 in) onto a hard surface such as a concrete floor; use a new one.
- Before installing new sensor, clean exhaust system threads using Oxygen Sensor Thread Cleaner [commercial service tool (J-43897-18 or J43897-12)] and approved Anti-seize Lubricant (commercial service tool).

>> INSPECTION END

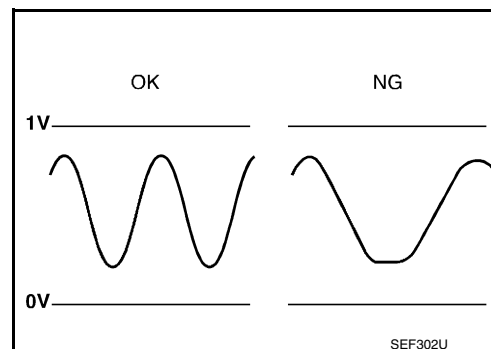
P0139 HO2S2

DTC Description

INFOID:000000009985057

DTC DETECTION LOGIC

The heated oxygen sensor 2 has a much longer switching time between rich and lean than the air fuel ratio (A/F) sensor 1. The oxygen storage capacity of the three way catalyst 1 causes the longer switching time. To judge the malfunctions of heated oxygen sensor 2, ECM monitors whether the switching response of the sensor's voltage is faster than specified during various driving conditions such as fuel cut.



DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0139	HO2S2 (B1) (O2 sensor circuit slow response bank 1 sensor 2)	The switching time between rich and lean of a heated oxygen sensor 2 signal delays more than the specified time computed by ECM.

POSSIBLE CAUSE

- Harness or connectors (The sensor circuit is open or shorted.)
- Heated oxygen sensor 2
- Fuel system
- EVAP system
- Intake air system

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1.INSPECTION START

Do you have CONSULT?

Do you have CONSULT?

YES >> GO TO 2.

NO >> GO TO 7.

2.PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

TESTING CONDITION:

For better results, perform "DTC WORK SUPPORT" at a temperature of 0 to 30°C (32 to 86°F).

>> GO TO 3.

3.PERFORM DTC CONFIRMATION PROCEDURE

④With CONSULT

1. Turn ignition switch ON and select "DATA MONITOR" mode of "ENGINE" using CONSULT.
2. Start engine and warm it up to the normal operating temperature.
3. Turn ignition switch OFF and wait at least 10 seconds.
4. Turn ignition switch ON.

< DTC/CIRCUIT DIAGNOSIS >

5. Turn ignition switch OFF and wait at least 10 seconds.
6. Start engine and keep the engine speed between 3,500 and 4,000 rpm for at least 1 minute under no load.
7. Let engine idle for 1 minute.
8. Make sure that "COOLAN TEMP/S" indicates more than 70°C (158°F).
9. Drive the vehicle in a proper at 60 km/h (38MPH) and maintain the speed.

CAUTION:

Always drive vehicle at a safe speed.

10. Release the accelerator pedal fully at least 5 seconds.

CAUTION:

- **Enable engine brake.**
- **Always drive carefully.**
- **Never apply brake when releasing the accelerator pedal.**

11. Repeat step 9 and 10 at least 8 times.
12. Check the following item of "DATA MONITOR".

Data monitor item	Status
HO2 S2 DIAG1 (B1)	CMPLT
HO2 S2 DIAG2 (B1)	

Is "CMPLT" displayed on CONSULT screen?

YES >> GO TO 6.

NO-1: "CMPLT" is not displayed on DIAG 1>>Perform DTC confirmation procedure again.

NO-2: "CMPLT" is not displayed on DIAG 2>>GO TO 4.

4.PERFORM DTC WORK SUPPORT

1. Open engine hood.
2. Select "HO2S2 (B1) P0139" in "DTC WORK SUPPORT" mode of "ENGINE" using CONSULT.
3. Start engine and follow the instruction of CONSULT display.

NOTE:

It will take at most 10 minutes until "COMPLETED" is displayed.

Is "COMPLETED" displayed on CONSULT screen?

YES >> GO TO 6.

NO >> GO TO 5.

5.PERFORM DTC CONFIRMATION PROCEDURE AGAIN

1. Turn ignition switch OFF and leave the vehicle in a cool place (soak the vehicle).
2. Perform DTC confirmation procedure again.

>> GO TO 3.

6.PERFORM SELF-DIAGNOSIS

ⓅWith CONSULT

Perform ECM self-diagnosis.

Is DTC "P0139" detected?

YES >> Proceed to [EC-251. "Diagnosis Procedure"](#).

NO >> INSPECTION END

7.PERFORM COMPONENT FUNCTION CHECK-1

ⓧWithout CONSULT

1. Start engine and warm it up to normal operating temperature.
2. Turn ignition switch OFF and wait at least 10 seconds.
3. Start engine and keep the engine speed between 3,500 and 4,000 rpm for at least 1 minute under no load.
4. Let engine idle for 1 minute.
5. Check the voltage between ECM harness connector and ground as per the following condition.

ECM			Condition	Voltage
Connector	+	–		
	Terminal			
F51	22	23	Revving up to 4,000 rpm under no load at least 10 times	The voltage should be above 0.73 V at least once during this procedure

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 8.

8.PERFORM COMPONENT FUNCTION CHECK-2

Check the voltage between ECM harness connector and ground as per the following condition.

ECM			Condition	Voltage
Connector	+	–		
	Terminal			
F51	22	23	Keeping engine speed at idle for 10 minutes	The voltage should be above 0.73 V at least once during this procedure

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 9.

9.PERFORM COMPONENT FUNCTION CHECK-3

Check the voltage between ECM harness connector and ground as per the following condition.

ECM			Condition	Voltage
Connector	+	–		
	Terminal			
F51	22	23	Coasting from 80 km/h (50 MPH) in D position	The voltage should be above 0.73 V at least once during this procedure

Is the inspection result normal?

YES >> INSPECTION END

NO >> Proceed to [EC-238, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000009985059

1.CLEAR THE MIXTURE RATIO SELF-LEARNING VALUE

1. Clear the mixture ratio self-learning value. Refer to [EC-143, "Work Procedure"](#).

2. Run engine for at least 10 minutes at idle speed.

Is the 1st trip DTC P0171 or P0172 detected? Is it difficult to start engine?

YES >> Perform trouble diagnosis for DTC P0171 or P0172. Refer to [EC-260, "DTC Description"](#) or [EC-265, "DTC Description"](#).

NO >> GO TO 2.

2.CHECK HO2S2 GROUND CIRCUIT

1. Turn ignition switch OFF.

2. Disconnect heated oxygen sensor 2 harness connector.

3. Disconnect ECM harness connector.

4. Check the continuity between HO2S2 harness connector and ECM harness connector.

< DTC/CIRCUIT DIAGNOSIS >

+		-		Continuity
HO2S2		ECM		
Connector	Terminal	Connector	Terminal	
F21	1	F51	23	Existed

5. Also check harness for short to power.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace error-detected parts.

3.CHECK HO2S2 INPUT SIGNAL CIRCUIT

1. Check the continuity between HO2S2 harness connector and ECM harness connector.

+		-		Continuity
HO2S2		ECM		
Connector	Terminal	Connector	Terminal	
F21	2	F51	22	Existed

2. Check the continuity between HO2S2 harness connector and ground, or ECM harness connector and ground.

+		-	Continuity
HO2S2			
Connector	Terminal		
F21	2	Ground	Not existed

+		-	Continuity
ECM			
Connector	Terminal		
F51	22	Ground	Not existed

3. Also check harness for short to power.

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace error-detected parts.

4.CHECK HEATED OXYGEN SENSOR 2

Check the heated oxygen sensor 2. Refer to [EC-253, "Component Inspection"](#).

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [EX-5, "Exploded View"](#).

NO >> GO TO 5.

5.REPLACE HEATED OXYGEN SENSOR 2

Replace heated oxygen sensor 2. Refer to [EX-5, "Exploded View"](#).

CAUTION:

- Discard any sensor which has been dropped from a height of more than 0.5 m (19.7 in) onto a hard surface such as a concrete floor; use a new one.
- Before installing new sensor, clean exhaust system threads using Oxygen Sensor Thread Cleaner [commercial service tool (J-43897-18 or J43897-12)] and approved Anti-seize Lubricant (commercial service tool).

>> INSPECTION END

Component Inspection

1.INSPECTION START

Do you have CONSULT?

Do you have CONSULT?

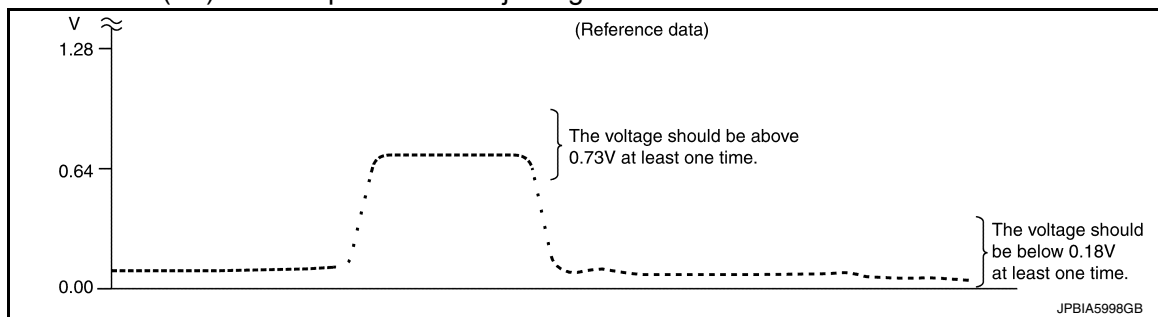
YES >> GO TO 2.

NO >> GO TO 3.

2.CHECK HEATED OXYGEN SENSOR 2

Ⓜ With CONSULT

1. Turn ignition switch ON and select "DATA MONITOR" mode of "ENGINE" using CONSULT.
2. Start engine and warm it up to normal operating temperature.
3. Turn ignition switch OFF and wait at least 10 seconds.
4. Start engine and keep the engine speed between 3,500 and 4,000 rpm for at least 1 minute under no load.
5. Let engine idle for 1 minute.
6. Select "FUEL INJECTION" in "ACTIVE TEST" mode of "ENGINE" using CONSULT, and select "HO2S2 (B1)" as the monitor item with CONSULT.
7. Check "HO2S2 (B1)" at idle speed when adjusting "FUEL INJECTION" to $\pm 25\%$.

**"HO2S2 (B1)" should be above 0.73 V at least once when the "FUEL INJECTION" is + 25%.****"HO2S2 (B1)" should be below 0.18 V at least once when the "FUEL INJECTION" is - 25%.**Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 6.

3.CHECK HEATED OXYGEN SENSOR 2-1

Ⓧ Without CONSULT

1. Start engine and warm it up to normal operating temperature.
2. Turn ignition switch OFF and wait at least 10 seconds.
3. Start engine and keep the engine speed between 3,500 and 4,000 rpm for at least 1 minute under no load.
4. Let engine idle for 1 minute.
5. Check the voltage between ECM harness connector and ground as per the following condition.

ECM			Condition	Voltage
Connector	+	-		
	Terminal			
F51	22	23	Revving up to 4,000 rpm under no load at least 10 times	The voltage should be above 0.73 V at least once during this procedure. The voltage should be below 0.18 V at least once during this procedure.

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 4.

4.CHECK HEATED OXYGEN SENSOR 2-2

Check the voltage between ECM harness connector and ground as per the following condition.

ECM			Condition	Voltage
Connector	+	−		
	Terminal			
F51	22	23	Keeping engine speed at idle for 10 minutes	The voltage should be above 0.73 V at least once during this procedure. The voltage should be below 0.18 V at least once during this procedure.

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 5.

5. CHECK HEATED OXYGEN SENSOR 2-3

Check the voltage between ECM harness connector and ground as per the following condition.

ECM			Condition	Voltage
Connector	+	–		
	Terminal			
F51	22	23	Coasting from 80 km/h (50 MPH) in D position	The voltage should be above 0.73 V at least once during this procedure. The voltage should be below 0.18 V at least once during this procedure.

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 6.

6. REPLACE HEATED OXYGEN SENSOR 2

Replace heated oxygen sensor 2. Refer to [EX-5. "Exploded View"](#).

CAUTION:

- Discard any sensor which has been dropped from a height of more than 0.5 m (19.7 in) onto a hard surface such as a concrete floor; use a new one.
- Before installing new sensor, clean exhaust system threads using Oxygen Sensor Thread Cleaner [commercial service tool (J-43897-18 or J43897-12)] and approved Anti-seize Lubricant (commercial service tool).

>> INSPECTION END

P014C, P014D, P015A, P015B, A/F SENSOR 1

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P014C, P014D, P015A, P015B, A/F SENSOR 1

DTC Description

INFOID:000000009985061

DTC DETECTION LOGIC

To judge malfunctions, this diagnosis measures response time of the A/F signal computed by ECM from the A/F sensor 1 signal. The time is compensated by engine operating (speed and load), fuel feedback control constant, and the A/F sensor 1 temperature index. Judgment is based on whether the compensated time (the A/F signal cycling time index) is inordinately long or not.

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P014C	A/F SENSOR1 (B1) (O2 sensor slow response - rich to lean bank 1 sensor 1)	The response time of a A/F sensor 1 signal delays more than the specified time computed by ECM.
P014D	A/F SENSOR1 (B1) (O2 sensor slow response - lean to rich bank 1 sensor 1)	
P015A	A/F SENSOR1 (B1) (O2 sensor delayed response - rich to lean bank 1 sensor 1)	
P015B	A/F SENSOR1 (B1) (O2 sensor delayed response - lean to rich bank 1 sensor 1)	

POSSIBLE CAUSE

- Harness or connectors (The A/F sensor 1 circuit is open or shorted.)
- A/F sensor 1

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

TESTING CONDITION:

Before performing the following procedure, confirm that battery voltage is more than 11 V at idle.

Do you have CONSULT?

YES >> GO TO 2.

NO >> GO TO 6.

2. PERFORM DTC CONFIRMATION PROCEDURE-1

With CONSULT

1. Start engine and warm it up to normal operating temperature.
2. Turn ignition switch OFF and wait at least 10 seconds.
3. Turn ignition switch ON.
4. Turn ignition switch OFF and wait at least 10 seconds.
5. Start engine and keep the engine speed between 3,500 and 4,000 rpm for at least 1 minute under no load.
6. Let engine idle for 1 minute.
7. Increase the engine speed up to about 3,600 rpm and keep it for 10 seconds.
8. Fully release accelerator pedal and then let engine idle for about 1 minute.
9. Check the items status of "DATA MONITOR" as follows.

NOTE:

If "PRCNT" changed to "ABSNT", refer to [EC-157, "Component Function Check"](#).

Data monitor item	Status
A/F SEN1 DIAG3 (B1)	PRSNT

Is "PRSNT" displayed on CONSULT screen?

- YES >> GO TO 4.
NO >> GO TO 3.

3.PERFORM DTC CONFIRMATION PROCEDURE-2

With CONSULT

Perform DTC confirmation procedure-1 again.

Is "PRSNT" displayed on CONSULT screen?

- YES >> GO TO 4.
NO >> Refer to [EC-157, "Component Function Check"](#).

4.PERFORM DTC CONFIRMATION PROCEDURE-2

With CONSULT

- Wait for about 20 seconds at idle.
- Check the items status of "DATA MONITOR" as follows.

NOTE:

If "CMPLT" changed to "INCMP", refer to [EC-157, "Component Function Check"](#).

Data monitor item	Status
A/F SEN1 DIAG1 (B1)	CMPLT
A/F SEN1 DIAG2 (B1)	

Is "CMPLT" displayed on CONSULT screen?

- YES >> GO TO 5.
NO >> Refer to [EC-157, "Component Function Check"](#).

5.PERFORM SELF-DIAGNOSIS

With CONSULT

Check the "SELF-DIAG RESULT".

Is any DTC detected?

- YES >> Proceed to [EC-257, "Diagnosis Procedure"](#).
NO >> INSPECTION END

6.CHECK AIR-FUEL RATIO SELF-LEARNING VALUE

With GST

- Start engine and warm it up to normal operating temperature.
- Select Service \$01 with GST.
- Calculate the total value of "Short term fuel trim" and "Long term fuel trim" indications.

Is the total percentage within $\pm 15\%$?

- YES >> GO TO 8.
NO >> GO TO 7.

7.DETECT MALFUNCTIONING PART

Check the following.

- Intake air leaks
- Exhaust gas leaks
- Incorrect fuel pressure
- Lack of fuel
- Fuel injector
- Incorrect PCV hose connection
- PCV valve
- Mass air flow sensor

P014C, P014D, P015A, P015B, A/F SENSOR 1

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

>> Repair or replace malfunctioning part.

8.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.
4. Start engine and keep the engine speed between 3,500 and 4,000 rpm for at least 1 minute under no load.
5. Let engine idle for 1 minute.
6. Increase the engine speed up to about 3,600 rpm and keep it for 10 seconds.
7. Fully release accelerator pedal and then let engine idle for about 1 minute.
8. Check 1st trip DTC.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-257, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985062

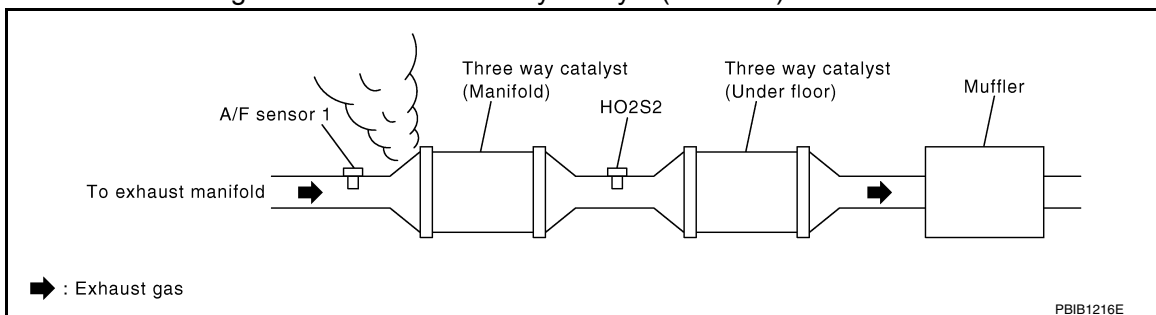
1.RETIGHTEN A/F SENSOR 1

Loosen and retighten the A/F sensor 1. Refer to [EM-29, "Exploded View"](#).

>> GO TO 2.

2.CHECK EXHAUST GAS LEAK

1. Start engine and run it at idle.
2. Listen for an exhaust gas leak before three way catalyst (manifold).



Is exhaust gas leak detected?

- YES >> Repair or replace.
NO >> GO TO 3.

3.CHECK FOR INTAKE AIR LEAK

Listen for an intake air leak after the mass air flow sensor.

Is intake air leak detected?

- YES >> Repair or replace.
NO >> GO TO 4.

4.CLEAR THE MIXTURE RATIO SELF-LEARNING VALUE

1. Clear the mixture ratio self-learning value. Refer to [EC-143, "Work Procedure"](#).
2. Run engine for at least 10 minutes at idle speed.

Is the 1st trip DTC P0171 or P172 detected? Is it difficult to start engine?

- YES >> Perform trouble diagnosis for DTC P0171 or P0172. Refer to [EC-260, "DTC Description"](#) or [EC-265, "DTC Description"](#).
NO >> GO TO 5.

5.CHECK AIR FUEL RATIO (A/F) SENSOR 1 POWER SUPPLY CIRCUIT

1. Disconnect A/F sensor 1 harness connector.
2. Turn ignition switch ON.
3. Check the voltage between A/F sensor 1 harness connector and ground.

P014C, P014D, P015A, P015B, A/F SENSOR 1

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

+		−	Voltage
A/F sensor 1			
Connector	Terminal		
F18	4	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace error-detected parts.

6. CHECK A/F SENSOR 1 INPUT SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between A/F sensor 1 harness connector and ECM harness connector.

+		-		Continuity
A/F sensor 1		ECM		
Connector	Terminal	Connector	Terminal	
F18	1	F51	41	Existed
	2		45	

4. Check the continuity between A/F sensor 1 harness connector and ground, or ECM harness connector and ground.

+		-	Continuity
A/F sensor 1			
Connector	Terminal		
F18	1	Ground	Not existed
	2		

+		-	Continuity
ECM			
Connector	Terminal		
F51	41	Ground	Not existed
	45		

5. Also check harness for short to power.

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace error-detected parts.

7. CHECK AIR FUEL RATIO (A/F) SENSOR 1 HEATER

Refer to [EC-186, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 8.

NO >> GO TO 11.

8. CHECK MASS AIR FLOW SENSOR

Refer to [EC-200, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 9.

NO >> Replace mass air flow sensor. Refer to [EM-24, "Exploded View"](#).

9. CHECK PCV VALVE

P014C, P014D, P015A, P015B, A/F SENSOR 1

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

Refer to [EC-498, "Inspection"](#).

Is the inspection result normal?

YES >> GO TO 10.

NO >> Repair or replace PCV valve. Refer to [EC-14, "Component Parts Location"](#).

10. CHECK INTERMITTENT INCIDENT

Perform [GI-41, "Intermittent Incident"](#).

Is the inspection result normal?

YES >> GO TO 11.

NO >> Repair or replace.

11. REPLACE AIR FUEL RATIO (A/F) SENSOR 1

Replace air fuel ratio (A/F) sensor 1. Refer to [EM-29, "Exploded View"](#).

CAUTION:

- Discard any sensor which has been dropped from a height of more than 0.5 m (19.7 in) onto a hard surface such as a concrete floor; use a new one.
- Before installing new sensor, clean exhaust system threads using Oxygen Sensor Thread Cleaner [commercial service tool (J-43897-18 or J43897-12)] and approved Anti-seize Lubricant (commercial service tool).

>> INSPECTION END

P0171 FUEL INJECTION SYSTEM FUNCTION

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P0171 FUEL INJECTION SYSTEM FUNCTION

DTC Description

INFOID:000000009985063

DTC DETECTION LOGIC

With the Air/Fuel Mixture Ratio Self-Learning Control, the actual mixture ratio can be brought closely to the theoretical mixture ratio based on the mixture ratio feedback signal from the A/F sensors 1. The ECM calculates the necessary compensation to correct the offset between the actual and the theoretical ratios.

In case the amount of the compensation value is extremely large (The actual mixture ratio is too lean.), the ECM judges the condition as the fuel injection system malfunction and lights up the MIL (2 trip detection logic).

Sensor	Input signal to ECM	ECM function	Actuator
A/F sensor 1	Density of oxygen in exhaust gas (Mixture ratio feedback signal)	Fuel injection control	Fuel injector

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0171	FUEL SYS-LEAN-B1 (System too lean bank 1)	- Fuel injection system does not operate properly. - The amount of mixture ratio compensation is too large. (The mixture ratio is too lean.)

POSSIBLE CAUSE

- Intake air leaks
- A/F sensor 1
- Fuel injector
- Exhaust gas leaks
- Incorrect fuel pressure
- Lack of fuel
- Mass air flow sensor
- Incorrect PCV hose connection

FAIL-SAFE

Traveling control mode (Accelerator angle variation control)

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE-1

1. Clear the mixture ratio self-learning value. Refer to [EC-143, "Work Procedure"](#).
2. Start engine.

Is it difficult to start engine?

- YES >> GO TO 3.
NO >> GO TO 4.

3.RESTART ENGINE

If it is difficult to start engine, the fuel injection system has a malfunction, too.
Crank engine while depressing accelerator pedal.

NOTE:

When depressing accelerator pedal three-fourths (3/4) or more, the control system does not start the engine. Do not depress accelerator pedal too much.

Does engine start?

P0171 FUEL INJECTION SYSTEM FUNCTION

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

- YES >> Proceed to [EC-261, "Diagnosis Procedure"](#).
NO >> Check exhaust and intake air leak visually.

4.PERFORM DTC CONFIRMATION PROCEDURE-2

1. Start engine and let it idle for at least 5 minutes.
2. Check 1st trip DTC.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-261, "Diagnosis Procedure"](#).
NO >> GO TO 5.

5.PERFORM DTC CONFIRMATION PROCEDURE-3

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Start engine.
3. Maintain the following conditions for at least 10 consecutive minutes.
Hold the accelerator pedal as steady as possible.

VHCL SPEED SE	50 - 120 km/h (31 - 75 MPH)
---------------	-----------------------------

CAUTION:

Always drive vehicle at a safe speed.

4. Check 1st trip DTC.

Is 1st trip DTC detected?

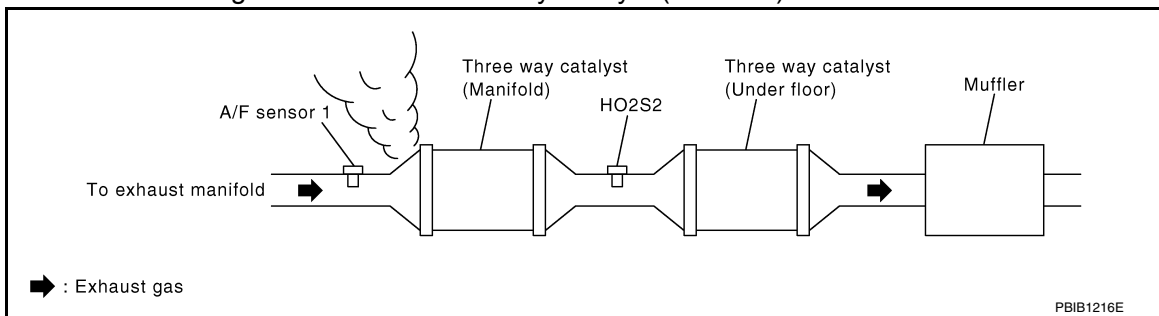
- YES >> Proceed to [EC-261, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985064

1.CHECK EXHAUST GAS LEAK

1. Start engine and run it at idle.
2. Listen for an exhaust gas leak before three way catalyst (manifold).



Is exhaust gas leak detected?

- YES >> Repair or replace error-detected parts.
NO >> GO TO 2.

2.CHECK FOR INTAKE AIR LEAK

1. Listen for an intake air leak after the mass air flow sensor.
2. Check PCV hose connection.

Intake air leak detected?

- YES >> Repair or replace error-detected parts.
NO >> GO TO 3.

3.CHECK A/F SENSOR 1 INPUT SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect corresponding A/F sensor 1 harness connector.
3. Disconnect ECM harness connector.
4. Check the continuity between A/F sensor 1 harness connector and ECM harness connector.

P0171 FUEL INJECTION SYSTEM FUNCTION

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

+		-		Continuity
A/F sensor 1		ECM		
Connector	Terminal	Connector	Terminal	
F18	1	F51	41	Existed
	2		45	

5. Check the continuity between A/F sensor 1 harness connector and ground, or ECM harness connector and ground.

+		-	Continuity
A/F sensor 1			
Connector	Terminal		
F18	1	Ground	Not existed
	2		

+		-	Continuity
ECM			
Connector	Terminal		
F51	41	Ground	Not existed
	45		

6. Also check harness for short to power.

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace error-detected parts.

4.CHECK FUEL PRESSURE

Check fuel pressure. Refer to [EC-144, "Work Procedure"](#).

Is the inspection result normal?

YES >> GO TO 6.

NO >> GO TO 5.

5. DETECT MALFUNCTIONING PART

Check fuel hoses and fuel tubes for clogging. Refer to [EM-40, "Exploded View"](#).

Is the inspection result normal?

YES >> Replace "fuel filter and fuel pump assembly". Refer to [FL-6, "Removal and Installation"](#).

NO >> Repair or replace error-detected parts.

6.CHECK MASS AIR FLOW SENSOR

④ With CONSULT

1. Install all removed parts.
2. Start engine and warm it up to normal operating temperature.
3. Check "MASS AIR FLOW SENSOR (Hz)" in "DATA MONITOR" mode of "ENGINE" using CONSULT.

Monitor item	Condition	Value
MASS AIR FLOW SENSOR (Hz)	Ignition switch ON (Engine stopped.)	Approx. 3500 Hz
	Idle (Engine is warmed-up to normal operating temperature.)	3500- 4100 Hz
	2,500 rpm (Engine is warmed-up to normal operating temperature.)	5000 - 5600 Hz
	Idle to about 4,000 rpm	3500 - 4100 Hz to Approx. 6300 Hz*

*: Check for linear frequency rise in response to engine being increased to about 4,000 rpm.

P0171 FUEL INJECTION SYSTEM FUNCTION

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

⊗ Without CONSULT

1. Install all removed parts.
2. Start engine and warm it up to normal operating temperature.
3. Check mass air flow sensor signal in Service \$01 with GST.

ECM			Condition	Value
Connector	+	-		
	Terminal			
F51	35	34	Ignition switch ON (Engine stopped.)	Approx. 3500 Hz
			Idle (Engine is warmed-up to normal operating temperature.)	3500- 4100 Hz
			2,500 rpm (Engine is warmed-up to normal operating temperature.)	5000 - 5600 Hz
			Idle to about 4,000 rpm	3500 - 4100 Hz to Approx. 6300 Hz*
			Ignition switch ON (Engine stopped.)	Approx. 3500 Hz

*: Check for linear frequency rise in response to engine being increased to about 4,000 rpm.

Is the measurement value within the specification?

YES >> GO TO 7.

NO >> Check connectors for rusted terminals or loose connections in the mass air flow sensor circuit or grounds. Refer to [EC-202, "DTC Description"](#).

7.CHECK FUNCTION OF FUEL INJECTOR

Ⓜ With CONSULT

1. Start engine.
2. Perform "POWER BALANCE" in "ACTIVE TEST" mode of "ENGINE" using CONSULT.
3. Make sure that each circuit produces a momentary engine speed drop.

⊗ Without CONSULT

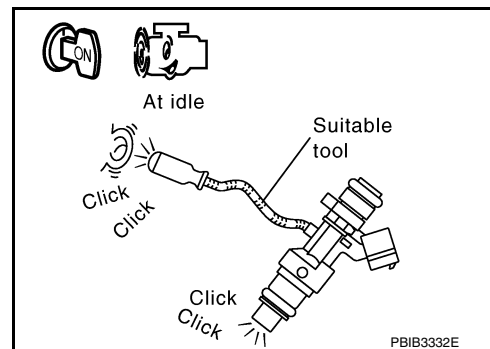
1. Let engine idle.
2. Listen to each fuel injector operating sound.

Clicking noise should be heard.

Is the inspection result normal?

YES >> GO TO 8.

NO >> Perform trouble diagnosis for "FUEL INJECTOR", refer to [EC-464, "Component Function Check"](#).



8.CHECK FUEL INJECTOR

1. Turn ignition switch OFF.
2. Confirm that the engine is cooled down and there are no fire hazards near the vehicle.
3. Disconnect all fuel injector harness connectors.
4. Remove fuel tube assembly. Refer to [EM-40, "Removal and Installation"](#).
Keep fuel hose and all fuel injectors connected to fuel tube.
5. Disconnect all ignition coil harness connectors.
6. Prepare pans or saucers under each fuel injector.

P0171 FUEL INJECTION SYSTEM FUNCTION

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

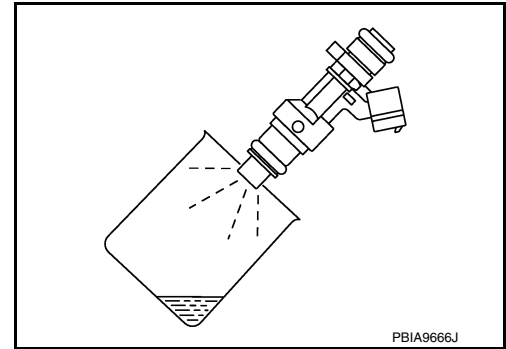
7. Crank engine for about 3 seconds.

Fuel should be sprayed evenly for each fuel injector.

Is the inspection result normal?

YES >> GO TO 9.

NO >> Replace fuel injectors from which fuel does not spray out. Always replace O-ring with new ones. Refer to [EM-40, "Removal and Installation"](#).



9. CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> INSPECTION END

P0172 FUEL INJECTION SYSTEM FUNCTION

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P0172 FUEL INJECTION SYSTEM FUNCTION

DTC Description

INFOID:000000009985065

DTC DETECTION LOGIC

With the Air/Fuel Mixture Ratio Self-Learning Control, the actual mixture ratio can be brought closely to the theoretical mixture ratio based on the mixture ratio feedback signal from the A/F sensors 1. The ECM calculates the necessary compensation to correct the offset between the actual and the theoretical ratios. In case the amount of the compensation value is extremely large (The actual mixture ratio is too rich.), the ECM judges the condition as the fuel injection system malfunction and lights up the MIL (2 trip detection logic).

Sensor	Input signal to ECM	ECM function	Actuator
A/F sensor 1	Density of oxygen in exhaust gas (Mixture ratio feedback signal)	Fuel injection control	Fuel injector

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0172	FUEL SYS-RICH-B1 (System too rich bank 1)	- Fuel injection system does not operate properly. - The amount of mixture ratio compensation is too large. (The mixture ratio is too rich.)

POSSIBLE CAUSE

- A/F sensor 1
- Fuel injector
- Exhaust gas leaks
- Incorrect fuel pressure
- Mass air flow sensor

FAIL-SAFE

Traveling control mode (Accelerator angle variation control)

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE-1

1. Clear the mixture ratio self-learning value. Refer to [EC-143, "Work Procedure"](#).
2. Start engine.

Is it difficult to start engine?

- YES >> GO TO 3.
NO >> GO TO 4.

3.RESTART ENGINE

If it is difficult to start engine, the fuel injection system has a malfunction, too.
Crank engine while depressing accelerator pedal.

NOTE:

When depressing accelerator pedal three-fourths (3/4) or more, the control system does not start the engine. Do not depress accelerator pedal too much.

Does engine start?

- YES >> Proceed to [EC-266, "Diagnosis Procedure"](#).
NO >> Check exhaust and intake air leak visually.

P0172 FUEL INJECTION SYSTEM FUNCTION

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

4.PERFORM DTC CONFIRMATION PROCEDURE-2

1. Start engine and let it idle for at least 5 minutes.
2. Check 1st trip DTC.

Is 1st trip DTC detected?

YES >> Proceed to [EC-266, "Diagnosis Procedure"](#).
NO >> GO TO 5.

5.PERFORM DTC CONFIRMATION PROCEDURE-3

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Start engine.
3. Maintain the following conditions for at least 10 consecutive minutes.
Hold the accelerator pedal as steady as possible.

VHCL SPEED SE	50 - 120 km/h (31 - 75 MPH)
---------------	-----------------------------

CAUTION:

Always drive vehicle at a safe speed.

4. Check 1st trip DTC.

Is 1st trip DTC detected?

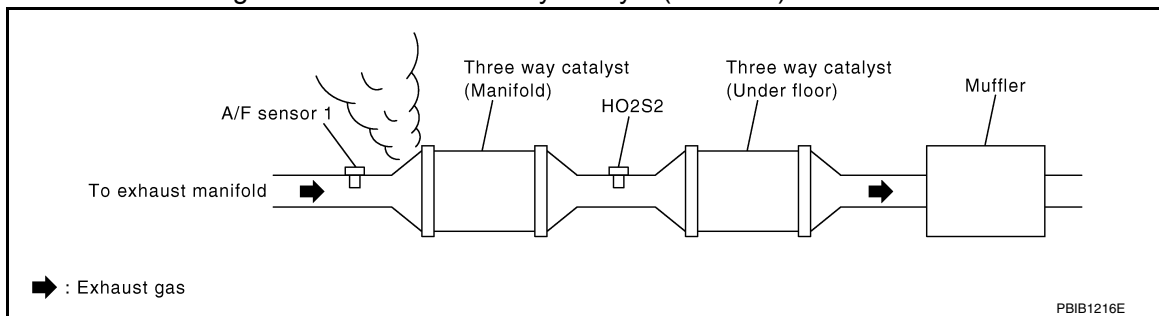
YES >> Proceed to [EC-266, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985066

1.CHECK EXHAUST GAS LEAK

1. Start engine and run it at idle.
2. Listen for an exhaust gas leak before three way catalyst (manifold).



Is exhaust gas leak detected?

YES >> Repair or replace error-detected parts.
NO >> GO TO 2.

2.CHECK FOR INTAKE AIR LEAK

1. Listen for an intake air leak after the mass air flow sensor.
2. Check PCV hose connection.

Intake air leak detected?

YES >> Repair or replace error-detected parts.
NO >> GO TO 3.

3.CHECK A/F SENSOR 1 INPUT SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect corresponding A/F sensor 1 harness connector.
3. Disconnect ECM harness connector.
4. Check the continuity between A/F sensor 1 harness connector and ECM harness connector.

P0172 FUEL INJECTION SYSTEM FUNCTION

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

+		-		Continuity
A/F sensor 1		ECM		
Connector	Terminal	Connector	Terminal	
F18	1	F51	41	Existed
	2		45	

5. Check the continuity between A/F sensor 1 harness connector and ground, or ECM harness connector and ground.

+		-	Continuity
A/F sensor 1			
Connector	Terminal		
F18	1	Ground	Not existed
	2		

+		-	Continuity
ECM			
Connector	Terminal	Ground	Not existed
F51	41		
	45		

6. Also check harness for short to power.

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace error-detected parts.

4.CHECK FUEL PRESSURE

Check fuel pressure. Refer to [EC-144, "Work Procedure"](#).

Is the inspection result normal?

YES >> GO TO 6.

NO >> GO TO 5.

5. DETECT MALFUNCTIONING PART

Check fuel hoses and fuel tubes for clogging. Refer to [EM-40, "Exploded View"](#).

Is the inspection result normal?

YES >> Replace "fuel filter and fuel pump assembly". Refer to [FL-6, "Removal and Installation"](#).

NO >> Repair or replace error-detected parts.

6.CHECK MASS AIR FLOW SENSOR

 With CONSULT

1. Install all removed parts.
2. Start engine and warm it up to normal operating temperature.
3. Check "MASS AIR FLOW SENSOR (Hz)" in "DATA MONITOR" mode of "ENGINE" using CONSULT.

Monitor item	Condition	Value
MASS AIR FLOW SENSOR (Hz)	Ignition switch ON (Engine stopped.)	Approx. 3500 Hz
	Idle (Engine is warmed-up to normal operating temperature.)	3500- 4100 Hz
	2,500 rpm (Engine is warmed-up to normal operating temperature.)	5000k - 5600 Hz
	Idle to about 4,000 rpm	3500 - 4100 Hz to Approx. 6300 Hz*

*: Check for linear frequency rise in response to engine being increased to about 4,000 rpm.

P0172 FUEL INJECTION SYSTEM FUNCTION

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

⊗ Without CONSULT

1. Install all removed parts.
2. Start engine and warm it up to normal operating temperature.
3. Check mass air flow sensor signal in Service \$01 with GST.

ECM			Condition	Value
Connector	+	-		
	Terminal			
F51	35	34	Ignition switch ON (Engine stopped.)	Approx. 3500 Hz
			Idle (Engine is warmed-up to normal operating temperature.)	3500- 4100 Hz
			2,500 rpm (Engine is warmed-up to normal operating temperature.)	5000k - 5600 Hz
			Idle to about 4,000 rpm	3500 - 4100 Hz to Approx. 6300 Hz*
			Ignition switch ON (Engine stopped.)	Approx. 3500 Hz

*: Check for linear frequency rise in response to engine being increased to about 4,000 rpm.

Is the measurement value within the specification?

YES >> GO TO 7.

NO >> Check connectors for rusted terminals or loose connections in the mass air flow sensor circuit or grounds. Refer to [EC-198, "DTC Description"](#).

7.CHECK FUNCTION OF FUEL INJECTOR

📱 With CONSULT

1. Start engine.
2. Perform "POWER BALANCE" in "ACTIVE TEST" mode of "ENGINE" using CONSULT.
3. Make sure that each circuit produces a momentary engine speed drop.

⊗ Without CONSULT

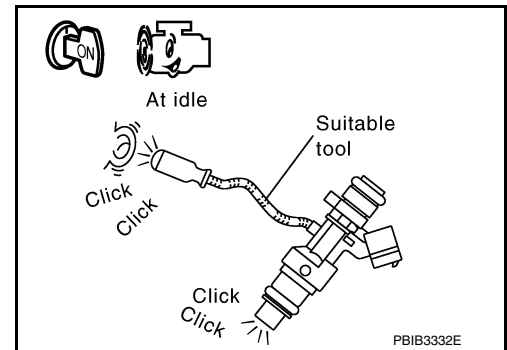
1. Let engine idle.
2. Listen to each fuel injector operating sound.

Clicking noise should be heard.

Is the inspection result normal?

YES >> GO TO 8.

NO >> Perform trouble diagnosis for "FUEL INJECTOR", refer to [EC-464, "Component Function Check"](#).



8.CHECK FUEL INJECTOR

1. Turn ignition switch OFF.
2. Confirm that the engine is cooled down and there are no fire hazards near the vehicle.
3. Disconnect all fuel injector harness connectors.
4. Remove fuel tube assembly. Refer to [EM-40, "Removal and Installation"](#).
Keep fuel hose and all fuel injectors connected to fuel tube.
5. Disconnect all ignition coil harness connectors.
6. Prepare pans or saucers under each fuel injector.

P0172 FUEL INJECTION SYSTEM FUNCTION

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

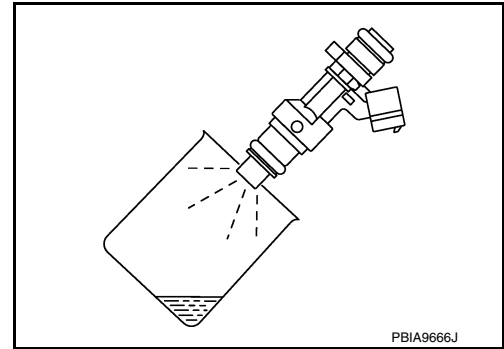
7. Crank engine for about 3 seconds.

Fuel should be sprayed evenly for each fuel injector.

Is the inspection result normal?

YES >> GO TO 9.

NO >> Replace fuel injectors from which fuel does not spray out. Always replace O-ring with new ones. Refer to [EM-40, "Removal and Installation"](#).



9. CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> INSPECTION END

P0181 FTT SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P0181 FTT SENSOR

DTC Description

INFOID:000000009985067

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition	
P0181	FTT SENSOR (Fuel temperature sensor "A" circuit range/ performance)	A	Rationally incorrect voltage from the sensor is sent to ECM, compared with the voltage signals from ECT sensor and intake air temperature sensor.
		B	The comparison result of signals transmitted to ECM from each temperature sensor (IAT sensor, ECT sensor, EOT sensor, and FTT sensor) shows that the voltage signal of the FTT sensor is higher/lower than that of other temperature sensors when the engine is started with its cold state.

POSSIBLE CAUSE

DTC P0181 - A

- Harness or connectors (FTT sensor circuit is open or shorted.)
- FTT sensor
- Combination meter

DTC P0181 - B

- Harness or connectors (High or low resistance in the FTT sensor circuit)
- FTT sensor

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1.INSPECTION START

Is it necessary to erase permanent DTC?

YES >> GO TO 7.

NO >> GO TO 2.

2.PRECONDITIONING

If DTC CONFIRMATION PROCEDURE has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

>> GO TO 3.

3.PERFORM DTC CONFIRMATION PROCEDURE FOR MALFUNCTION A-1

1. Turn ignition switch ON and wait at least 10 seconds.
2. Check 1st trip DTC.

Is 1st trip DTC detected?

YES >> Proceed to [EC-272, "Diagnosis Procedure"](#).

NO >> GO TO 4.

4.CHECK ENGINE COOLANT TEMPERATURE

With CONSULT

1. Select "COOLAN TEMP/S" in "DATA MONITOR" of "ENGINE" using CONSULT.
2. Check "COOLAN TEMP/S" value.

With GST

P0181 FTT SENSOR

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

Follow the procedure "With CONSULT" above.

"COOLAN TEMP/S" less than 60°C (140°F)?

- YES >> INSPECTION END
NO >> GO TO 5.

5.PERFORM DTC CONFIRMATION PROCEDURE FOR MALFUNCTION A-2

 With CONSULT

1. Cool engine down until "COOLAN TEMP/S" is less than 60°C (140°F).
2. Wait at least 10 seconds.
3. Check 1st trip DTC.

 With GST

Follow the procedure "With CONSULT" above.

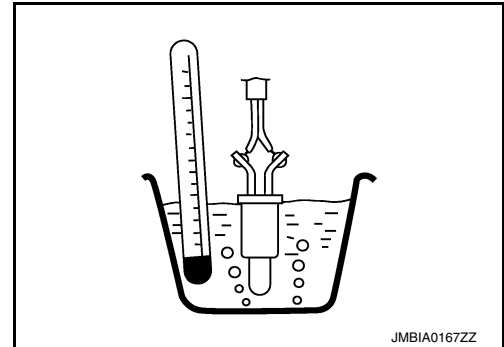
Is 1st trip DTC detected?

- YES >> Proceed to [EC-272, "Diagnosis Procedure"](#).
NO >> GO TO 6.

6.CHECK FUEL TANK TEMPERATURE (FTT) SENSOR

1. Turn ignition switch OFF.
2. Disconnect fuel level sensor unit and fuel pump harness connector.
3. Remove fuel level sensor unit. Refer to [FL-6, "Removal and Installation"](#).
4. Check resistance between fuel level sensor unit and fuel pump terminals by heating with hot water as shown in the figure.

Fuel level sensor unit and fuel pump		Condition		Resistance (kΩ)
+	−			
Terminal				
3	1	Temperature [°C (°F)]	20 (68)	2.3 – 2.7
			50 (122)	0.79 – 0.90



Is the inspection result normal?

- YES >> GO TO 9.
NO >> Proceed to [EC-272, "Diagnosis Procedure"](#).

7.PRECONDITIONING

If DTC CONFIRMATION PROCEDURE has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

TESTING CONDITION:

- Before performing the following procedure, do not add fuel.
- Before performing the following procedure, check that fuel level is between 1/4 and 4/4.
- Before performing the following procedure, confirm that battery voltage is 11 V or more at idle.

>> GO TO 8.

8.PERFORM DTC CONFIRMATION PROCEDURE B

1. Move the vehicle to a cool place.

NOTE:

Cool the vehicle in an environment of ambient air temperature between -10°C (14°F) and 35°C (95°F).

2. Turn ignition switch OFF and leave the vehicle for 12 hours.

CAUTION:

Never turn ignition switch ON during this procedure.

NOTE:

The vehicle must be cooled with the hood open.

3. Start engine and let it idle for 5 minutes or more.

CAUTION:

P0181 FTT SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

Never turn ignition switch OFF during idling.

4. Check 1st trip DTC.

Is 1st trip DTC detected?

YES >> Proceed to [EC-272, "Diagnosis Procedure"](#).

NO >> INSPECTION END

9.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> INSPECTION END

Diagnosis Procedure

INFOID:000000009985069

1.INSPECTION START

Confirm the detected malfunction (A or B). Refer to [EC-270, "DTC Description"](#).

Which malfunction is detected?

A >> GO TO 2.

B >> GO TO 6.

2.CHECK DTC WITH COMBINATION METER

Check DTC with combination meter. Refer to [MWI-21, "CONSULT Function \(METER/M&A\)"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Proceed to [MWI-62, "Component Function Check"](#).

3.CHECK FUEL TANK TEMPERATURE (FTT) SENSOR POWER

1. Turn ignition switch OFF.

2. Disconnect fuel level sensor unit and fuel pump harness connector.

3. Turn ignition switch ON.

4. Check the voltage between fuel level sensor unit and fuel pump harness connector and ground.

+		-	Voltage (Approx.)
Fuel level sensor unit and fuel pump			
Connector	Terminal		
B103	3	Ground	5 V

Is the inspection result normal?

YES >> GO TO 5.

NO >> GO TO 4.

4.CHECK FUEL TANK TEMPERATURE (FTT) SENSOR POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.

2. Disconnect ECM harness connector.

3. Check the continuity between fuel level sensor unit and fuel pump harness connector and ECM harness connector.

+		-		Continuity
Fuel level sensor unit and fuel pump		ECM		
Connector	Terminal	Connector	Terminal	
B103	3	E16	125	Existed

4. Also check harness for short to ground and to power.

Is the inspection result normal?

YES >> Perform the trouble diagnosis for power supply circuit.

NO >> Repair or replace error-detected parts.

P0181 FTT SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

5.CHECK FTT SENSOR GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between fuel level sensor unit and fuel pump harness connector and ECM harness connector.

+		-		Continuity
Fuel level sensor unit and fuel pump		ECM		
Connector	Terminal	Connector	Terminal	
B103	1	E16	124	Existed

4. Also check harness for short to power.

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace error-detected parts.

6.CHECK FUEL TANK TEMPERATURE (FTT) SENSOR

Check the FTT sensor. Refer to [EC-273, "Component Inspection"](#).

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

NO >> Replace fuel level sensor unit and fuel pump. Refer to [FL-6, "Removal and Installation"](#).

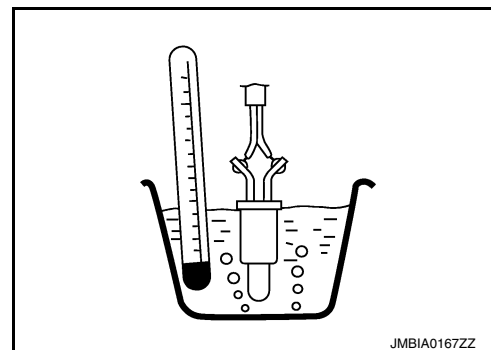
Component Inspection

INFOID:000000009985070

1.CHECK FUEL TANK TEMPERATURE (FTT) SENSOR

1. Turn ignition switch OFF.
2. Disconnect fuel level sensor unit and fuel pump harness connector.
3. Remove fuel level sensor unit. Refer to [FL-6, "Removal and Installation"](#).
4. Check resistance between fuel level sensor unit and fuel pump terminals by heating with hot water as shown in the figure.

Fuel level sensor unit and fuel pump		Condition		Resistance (kΩ)
+	–			
Terminal				
3	1	Temperature [°C (°F)]	20 (68)	2.3 – 2.7
			50 (122)	0.79 – 0.90



Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace fuel level sensor unit and fuel pump. Refer to [FL-6, "Removal and Installation"](#).

P0182, P0183 FTT SENSOR

DTC Description

INFOID:000000009985071

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0182	FTT SEN/CIRCUIT (Fuel temperature sensor "A" circuit low)	An excessively low voltage from the sensor is sent to ECM.
P0183	FTT SEN/CIRCUIT (Fuel temperature sensor "A" circuit high)	An excessively high voltage from the sensor is sent to ECM.

POSSIBLE CAUSE

- Harness or connectors (The FTT sensor circuit is open or shorted.)
- Fuel tank temperature sensor
- Combination meter

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON and wait at least 5 seconds.
2. Check 1st trip DTC.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-274, "Diagnosis Procedure"](#).
 NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985072

1.CHECK DTC WITH COMBINATION METER

Refer to [MWI-21, "CONSULT Function \(METER/M&A\)"](#).

Is the inspection result normal?

- YES >> GO TO 2.
 NO >> Proceed to [MWI-62, "Component Function Check"](#).

2.CHECK FUEL TANK TEMPERATURE (FTT) SENSOR POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect fuel level sensor unit and fuel pump harness connector.
3. Turn ignition switch ON.
4. Check the voltage between fuel level sensor unit and fuel pump harness connector and ground.

P0182, P0183 FTT SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

+		-	Voltage (Approx.)
Fuel level sensor unit and fuel pump			
Connector	Terminal		
B103	3	Ground	5 V

Is the inspection result normal?

YES >> GO TO 4.

NO >> GO TO 3.

3.CHECK FUEL TANK TEMPERATURE (FTT) SENSOR POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between fuel level sensor unit and fuel pump harness connector and ECM harness connector.

+		-		Continuity
Fuel level sensor unit and fuel pump		ECM		
Connector	Terminal	Connector	Terminal	
B103	3	E16	125	Existed

4. Also check harness for short to ground and to power.

Is the inspection result normal?

YES >> Perform the trouble diagnosis for power supply circuit.

NO >> Repair or replace error-detected parts.

4.CHECK FUEL TANK TEMPERATURE (FTT) SENSOR GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM connector.
3. Check the continuity between fuel level sensor unit and fuel pump harness connector and ECM harness connector.

+		-		Continuity
Fuel level sensor unit and fuel pump		ECM		
Connector	Terminal	Connector	Terminal	
B103	1	E16	124	Existed

4. Also check harness for short to power.

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace error-detected parts.

5.CHECK FUEL TANK TEMPERATURE (FTT) SENSOR

Check the FTT sensor. Refer to [EC-276, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 6.

NO >> Replace "fuel level sensor unit and fuel pump". Refer to [FL-6, "Removal and Installation"](#).

6.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> INSPECTION END

P0182, P0183 FTT SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

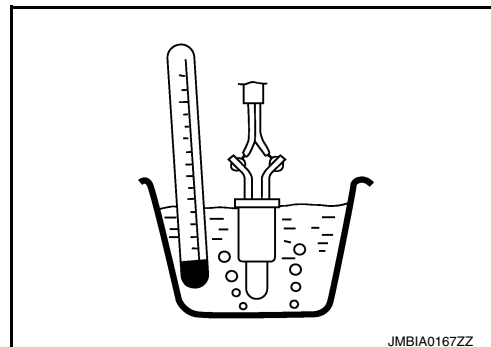
Component Inspection

INFOID:000000009985073

1. CHECK FUEL TANK TEMPERATURE (FTT) SENSOR

1. Turn ignition switch OFF.
2. Disconnect fuel level sensor unit and fuel pump harness connector.
3. Remove fuel level sensor unit. Refer to [FL-6, "Removal and Installation"](#).
4. Check resistance between fuel level sensor unit and fuel pump terminals by heating with hot water as shown in the figure.

Fuel level sensor unit and fuel pump		Condition		Resistance (k Ω)
+	-			
Terminal				
3	1	Temperature [°C (°F)]	20 (68)	2.3 – 2.7
			50 (122)	0.79 – 0.90



Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace fuel level sensor unit and fuel pump. Refer to [FL-6, "Removal and Installation"](#).

P0196 EOT SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P0196 EOT SENSOR

DTC Description

INFOID:000000009985074

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition	
P0196	EOT SENSOR (Engine oil temperature sensor range/performance)	A	Rationally incorrect voltage from the sensor is sent to ECM, compared with the voltage signals from EOT sensor and intake air temperature sensor.
		B	The comparison result of signals transmitted to ECM from each temperature sensor (IAT sensor, ECT sensor, FTT sensor, and EOT sensor) shows that the signal voltage of the EOT sensor is higher/lower than that of other temperature sensors when the engine is started with its cold state.

POSSIBLE CAUSE

DTC P0196 - A

- Harness or connectors (EOT sensor circuit is open or shorted.)
- EOT sensor

DTC P0196 - B

- Harness or connectors (High or low resistance in the EOT sensor circuit)
- EOT sensor

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1.CHECK DTC PRIORITY

If DTC P0196 is displayed with DTC P0197 or P0198, first perform the trouble diagnosis for DTC P0197 or P0198.

Is applicable DTC detected?

- YES >> Perform diagnosis of applicable. Refer to [EC-93, "DTC Index"](#).
NO >> GO TO 2.

2.INSPECTION START

Is it necessary to erase permanent DTC?

- YES >> GO TO 7.
NO >> GO TO 3.

3.PRECONDITIONING

If DTC CONFIRMATION PROCEDURE has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

TESTING CONDITION:

Before performing the following procedure, confirm that battery voltage is 11 V or more at idle.

>> GO TO 4.

4.PERFORM DTC CONFIRMATION PROCEDURE FOR MALFUNCTION A-1

1. Start engine and warm it up to normal operating temperature.
2. Turn ignition switch OFF and wait at least 10 seconds.
3. Turn ignition switch ON.

P0196 EOT SENSOR

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

4. Turn ignition switch OFF and wait at least 10 seconds.
5. Start engine and let it idle for 5 minutes and 10 seconds.
6. Check 1st trip DTC.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-279, "Diagnosis Procedure"](#).
NO >> GO TO 5.

5.PERFORM DTC CONFIRMATION PROCEDURE FOR MALFUNCTION A-2

ⓅWith CONSULT

1. Select "DATA MONITOR" mode of "ENGINE" using CONSULT.
2. Check that "COOLAN TEMP/S" indicates above 80°C (176°F).
If it is above 80°C (176°F), go to the following steps.
If it is below 80°C (176°F), warm engine up until "COOLAN TEMP/S" indicates more than 80°C (176°F).
Then perform the following steps.
3. Turn ignition switch OFF and soak the vehicle in a cool place.
4. Turn ignition switch ON.
NOTE:
Do not turn ignition switch OFF until step 8.
5. Select "DATA MONITOR" mode of "ENGINE" using CONSULT.
6. Check the following.

COOLAN TEMP/S	Below 40°C (104°F)
INT/A TEMP SE	Below 40°C (104°F)
Difference between "COOLAN TEMP/S" and "INT/A TEMP SE"	Within 6°C (11°F)

If they are within the specified range, perform the following steps.

If they are out of the specified range, soak the vehicle to meet the above conditions. Then perform the following steps.

NOTE:

- Do not turn ignition switch OFF.
- If it is supposed to need a long period of time, do not deplete the battery.

7. Start engine and let it idle for 5 minutes.
8. Check 1st trip DTC.

ⓈWith GST

Follow the procedure "With CONSULT" above.

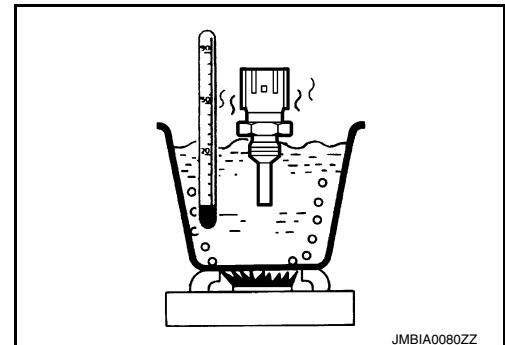
Is 1st trip DTC detected?

- YES >> Proceed to [EC-279, "Diagnosis Procedure"](#).
NO >> GO TO 6.

6.CHECK ENGINE OIL TEMPERATURE (EOT) SENSOR

1. Turn ignition switch OFF.
2. Disconnect EOT sensor harness connector.
3. Remove EOT sensor. Refer to [EC-14, "Component Parts Location"](#).
4. Check resistance between EOT sensor terminals by heating with hot water as shown in the figure.

EOT sensor		Condition		Resistance (kΩ)
+	−			
Terminal				
1	2	Temperature [°C (°F)]	20 (68)	2.37 – 2.63
			50 (122)	0.68 – 1.00
			90 (194)	0.236 – 0.260



Is the inspection result normal?

- YES >> GO TO 9.
NO >> Proceed to [EC-279, "Diagnosis Procedure"](#).

7.PRECONDITIONING

P0196 EOT SENSOR

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

If DTC CONFIRMATION PROCEDURE has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

TESTING CONDITION:

- Before performing the following procedure, do not add fuel.
- Before performing the following procedure, check that fuel level is between 1/4 and 4/4.
- Before performing the following procedure, confirm that battery voltage is 11 V or more at idle.

>> GO TO 8.

8.PERFORM DTC CONFIRMATION PROCEDURE B

1. Move the vehicle to a cool place.

NOTE:

Cool the vehicle in an environment of ambient air temperature between -10°C (14°F) and 35°C (95°F).

2. Turn ignition switch OFF and leave the vehicle for 12 hours.

CAUTION:

Never turn ignition switch ON during this procedure.

NOTE:

The vehicle must be cooled with the hood open.

3. Start engine and let it idle for 5 minutes or more.

CAUTION:

Never turn ignition switch OFF during idling.

4. Check 1st trip DTC.

Is 1st trip DTC detected?

YES >> Proceed to [EC-279, "Diagnosis Procedure"](#).

NO >> INSPECTION END

9.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> INSPECTION END

Diagnosis Procedure

INFOID:0000000009985076

1.CHECK DTC PRIORITY

If DTC P0196 is displayed with DTC P0197 or P0198, first perform the trouble diagnosis for DTC P0197 or P0198.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable. Refer to [EC-93, "DTC Index"](#).

NO >> GO TO 2.

2.CHECK ENGINE OIL TEMPERATURE (EOT) SENSOR

Check EOT sensor. Refer to [EC-279, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace EOT sensor. Refer to [EC-14, "Component Parts Location"](#).

3.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> INSPECTION END

Component Inspection

INFOID:0000000009985077

1.CHECK ENGINE OIL TEMPERATURE SENSOR

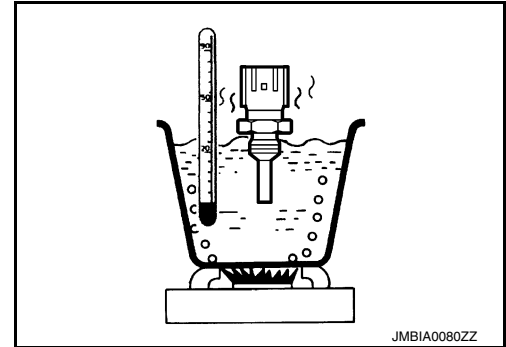
P0196 EOT SENSOR

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

1. Turn ignition switch OFF.
2. Disconnect engine oil temperature sensor harness connector.
3. Remove engine oil temperature sensor.
4. Check resistance between engine oil temperature sensor terminals by heating with hot water as shown in the figure.

Engine oil temperature sensor		Condition		Resistance (kΩ)
+	-			
Terminal				
1	2	Temperature [°C (°F)]	20 (68)	2.37 - 2.63
			50 (122)	0.68 - 1.00
			90 (194)	0.236 - 0.260



Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace engine oil temperature sensor. Refer to [EC-14, "Component Parts Location"](#).

P0197, P0198 EOT SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P0197, P0198 EOT SENSOR

DTC Description

INFOID:000000009985078

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0197	EOT SEN/CIRC (Engine oil temperature sensor low)	An excessively low voltage from the engine oil temperature sensor is sent to ECM.
P0198	EOT SEN/CIRC (Engine oil temperature sensor high)	An excessively high voltage from the engine oil temperature sensor is sent to ECM.

POSSIBLE CAUSE

- Harness or connectors (EOT sensor circuit is open or shorted.)
- Engine oil temperature sensor

FAIL-SAFE

Exhaust valve timing control does not function.

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine and wait at least 5 seconds.
2. Check 1st trip DTC.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-281, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985079

1.CHECK ENGINE OIL TEMPERATURE SENSOR POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect engine oil temperature (EOT) sensor harness connector.
3. Turn ignition switch ON.
4. Check the voltage between EOT sensor harness connector and ground.

+		-	Voltage (Approx.)
EOT sensor			
Connector	Terminal		
F68	1	Ground	5 V

Is the inspection result normal?

- YES >> GO TO 3.
NO >> GO TO 2.

2.CHECK ENGINE OIL TEMPERATURE SENSOR POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.

P0197, P0198 EOT SENSOR

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

3. Check the continuity between EOT sensor harness connector and ECM harness connector.

+		-		Continuity
EOT sensor		ECM		
Connector	Terminal	Connector	Terminal	
F68	1	F51	25	Existed

4. Also check harness for short to ground.

Is the inspection result normal?

YES >> Perform the trouble diagnosis for power supply circuit.

NO >> Repair or replace error-detected parts.

3.CHECK EOT SENSOR GROUND CIRCUIT

1. Turn ignition switch OFF.

2. Disconnect ECM harness connector.

3. Check the continuity between EOT sensor harness connector and ECM harness connector.

+		-		Continuity
EOT sensor		ECM		
Connector	Terminal	Connector	Terminal	
F68	2	F51	26	Existed

4. Also check harness for short to power.

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace error-detected parts.

4.CHECK ENGINE OIL TEMPERATURE SENSOR

Check the engine oil temperature sensor. Refer to [EC-279, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace engine oil temperature sensor. Refer to [EC-14, "Component Parts Location"](#).

5.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> INSPECTION END

Component Inspection

INFOID:000000009985080

1.CHECK ENGINE OIL TEMPERATURE SENSOR

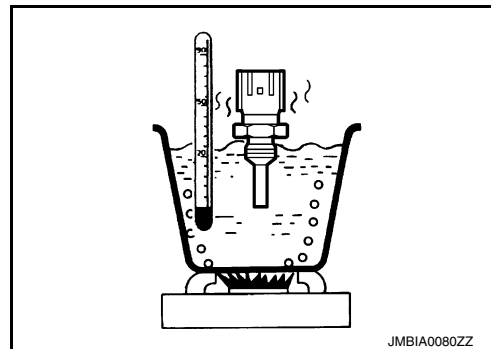
1. Turn ignition switch OFF.

2. Disconnect engine oil temperature sensor harness connector.

3. Remove engine oil temperature sensor.

4. Check resistance between engine oil temperature sensor terminals by heating with hot water as shown in the figure.

Engine oil temperature sensor		Condition		Resistance (kΩ)
+	−			
Terminal				
1	2	Temperature [°C (°F)]	20 (68)	2.37 - 2.63
			50 (122)	0.68 - 1.00
			90 (194)	0.236 - 0.260



P0197, P0198 EOT SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace engine oil temperature sensor. Refer to [EC-14, "Component Parts Location"](#).

A

EC

C

D

E

F

G

H

I

J

K

L

M

N

O

P

P0222, P0223 TP SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P0222, P0223 TP SENSOR

DTC Description

INFOID:000000009985081

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0222	TP SEN 1/CIRC-B1 (Throttle/pedal position sensor/switch "B" circuit low)	An excessively low voltage from the TP sensor 1 is sent to ECM.
P0223	TP SEN 1/CIRC-B1 (Throttle/pedal position sensor/switch "B" circuit high)	An excessively high voltage from the TP sensor 1 is sent to ECM.

POSSIBLE CAUSE

- Harness or connectors (TP sensor 1 circuit is open or shorted.)
- Electric throttle control actuator (TP sensor 1)

FAIL-SAFE

- The ECM controls the electric throttle control actuator in regulating the throttle opening in order for the idle position to be within +10 degrees.
- The ECM regulates the opening speed of the throttle valve to be slower than the normal condition. So, the acceleration will be poor.

DTC CONFIRMATION PROCEDURE

1.CHECK DTC PRIORITY

If DTC P0222 or P0223 is displayed with DTC P0643, first perform the trouble diagnosis for DTC P0643.

Is applicable DTC detected?

- YES >> Perform diagnosis of applicable. Refer to [EC-379, "DTC Description"](#).
NO >> GO TO 2.

2.PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

TESTING CONDITION:

Before performing the following procedure, confirm that battery voltage is more than 8 V at idle.

>> GO TO 3.

3.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine and let it idle for 1 second.
2. Check DTC.

Is DTC detected?

- YES >> Proceed to [EC-284, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985082

1.CHECK DTC PRIORITY

If DTC P0222 or P0223 is displayed with DTC P0643, first perform the trouble diagnosis for DTC P0643.

Is applicable DTC detected?

- YES >> Perform diagnosis of applicable. Refer to [EC-379, "DTC Description"](#).
NO >> GO TO 2.

P0222, P0223 TP SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

2. CHECK THROTTLE POSITION SENSOR 1 POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect electric throttle control actuator harness connector.
3. Turn ignition switch ON.
4. Check the voltage between electric throttle control actuator harness connector and ground.

+		-	Voltage (Approx.)
Electric throttle control actuator			
Connector	Terminal		
F50	2	Ground	5 V

Is the inspection result normal?

YES >> GO TO 4.

NO >> GO TO 3.

3. CHECK THROTTLE POSITION SENSOR 1 POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between electric throttle control actuator harness connector and ECM harness connector.

+		-		Continuity
Electric throttle control actuator		ECM		
Connector	Terminal	Connector	Terminal	
F50	2	F52	80	Existed

4. Also check harness for short to ground.

Is the inspection result normal?

YES >> Perform the trouble diagnosis for power supply circuit.

NO >> Repair or replace error-detected parts.

4. CHECK THROTTLE POSITION SENSOR 1 GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between electric throttle control actuator harness connector and ECM harness connector.

+		-		Continuity
Electric throttle control actuator		ECM		
Connector	Terminal	Connector	Terminal	
F50	4	F52	78	Existed

4. Also check harness for short to power.

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace error-detected parts.

5. CHECK THROTTLE POSITION SENSOR 1 INPUT SIGNAL CIRCUIT

1. Check the continuity between electric throttle control actuator harness connector and ECM harness connector.

P0222, P0223 TP SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

+		-		Continuity
Electric throttle control actuator		ECM		
Connector	Terminal	Connector	Terminal	
F50	1	F52	79	Existed

2. Also check harness for short to ground and to power.

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair open circuit or short to ground or short to power in harness or connectors.

6.CHECK THROTTLE POSITION SENSOR

Check the throttle position sensor. Refer to [EC-286, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 7.

NO >> Replace electric throttle control actuator. Refer to [EM-26, "Removal and Installation"](#).

7.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> INSPECTION END

Component Inspection

INFOID:000000009985083

1.CHECK THROTTLE POSITION SENSOR

1. Turn ignition switch OFF.
2. Reconnect all harness connectors disconnected.
3. Perform "Throttle Valve Closed Position Learning". Refer to [EC-140, "Work Procedure"](#).
4. Turn ignition switch ON.
5. Set selector lever to D position.
6. Check the voltage between ECM harness connector terminals as per the following conditions.

ECM				Condition		Voltage	
Connector		+	—				
		Terminal					
Sensor 1	F52	79	78	Accelerator pedal	Fully released	More than 0.36V	
					Fully depressed	Less than 4.75V	
Sensor 2		77				Fully released	Less than 4.75V
						Fully depressed	More than 0.36V

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace electric throttle control actuator. Refer to [EM-26, "Removal and Installation"](#).

P0300, P0301, P0302, P0303, P0304 MISFIRE

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P0300, P0301, P0302, P0303, P0304 MISFIRE

DTC Description

INFOID:000000009985084

DTC DETECTION LOGIC

When a misfire occurs, engine speed will fluctuate. If the engine speed fluctuates enough to cause the crankshaft position (CKP) sensor (POS) signal to vary, ECM can determine that a misfire is occurring.

Sensor	Input signal to ECM	ECM function
Crankshaft position sensor (POS)	Engine speed	On board diagnosis of misfire

The misfire detection logic consists of the following two conditions.

1. One Trip Detection Logic (Three Way Catalyst Damage)
On the 1st trip, when a misfire condition occurs that can damage the three way catalyst (TWC) due to overheating, the MIL will blink.
When a misfire condition occurs, the ECM monitors the CKP sensor signal every 200 engine revolutions for a change.
When the misfire condition decreases to a level that will not damage the TWC, the MIL will turn off.
If another misfire condition occurs that can damage the TWC on a second trip, the MIL will blink.
When the misfire condition decreases to a level that will not damage the TWC, the MIL will remain on.
If another misfire condition occurs that can damage the TWC, the MIL will begin to blink again.
2. Two Trip Detection Logic (Exhaust quality deterioration)
For misfire conditions that will not damage the TWC (but will affect vehicle emissions), the MIL will only light when the misfire is detected on a second trip. During this condition, the ECM monitors the CKP sensor signal every 1,000 engine revolutions.
A misfire malfunction can be detected on any one cylinder or on multiple cylinders.

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0300	MULTI CYL MISFIRE (Random/multiple cylinder misfire detected)	Multiple cylinder misfire.
P0301	CYL 1 MISFIRE (Cylinder 1 Misfire Detected)	No. 1 cylinder misfires.
P0302	CYL 2 MISFIRE (Cylinder 2 Misfire Detected)	No. 2 cylinder misfires.
P0303	CYL 3 MISFIRE (Cylinder 3 Misfire Detected)	No. 3 cylinder misfires.
P0304	CYL 4 MISFIRE (Cylinder 4 Misfire Detected)	No. 4 cylinder misfires.

POSSIBLE CAUSE

- Improper spark plug
- Insufficient compression
- Incorrect fuel pressure
- Fuel Injector circuit is open or shorted
- Fuel injector
- Intake air leak
- Ignition signal circuit is open or shorted
- Lack of fuel
- Signal plate
- A/F sensor 1
- Incorrect PCV hose connection

FAIL-SAFE

Traveling control mode (Accelerator angle variation control)

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

P0300, P0301, P0302, P0303, P0304 MISFIRE

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE-1

1. Start engine and warm it up to normal operating temperature.
2. Turn ignition switch OFF and wait at least 10 seconds.
3. Restart engine and let it idle for about 15 minutes.
4. Check 1st trip DTC.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-288, "Diagnosis Procedure"](#).
NO >> GO TO 3.

3.PERFORM DTC CONFIRMATION PROCEDURE-2

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Start engine and drive the vehicle as per the similar conditions to (1st trip) Freeze Frame Data for a certain time. Refer to the table below.

Hold the accelerator pedal as steady as possible.

The similar conditions to (1st trip) Freeze Frame Data means the vehicle operation that the following conditions should be satisfied at the same time.

CAUTION:

Always drive vehicle in safe manner according to traffic conditions and obey all traffic laws when driving.

Engine speed	Engine speed in the freeze frame data $\pm$ 400 rpm
Vehicle speed	Vehicle speed in the freeze frame data $\pm$ 10 km/h (6 MPH)
Engine coolant temperature (T) condition	When the freeze frame data shows lower than 70°C (158°F), T should be lower than 70°C (158°F).
	When the freeze frame data shows higher than or equal to 70°C (158°F), T should be higher than or equal to 70°C (158°F).

The time to driving varies according to the engine speed in the freeze frame data.

Engine speed	Time
Around 1,000 rpm	Approximately 10 minutes
Around 2,000 rpm	Approximately 5 minutes
More than 3,000 rpm	Approximately 3.5 minutes

3. Check 1st trip DTC.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-288, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985085

1.CHECK FOR INTAKE AIR LEAK AND PCV HOSE

1. Start engine and run it at idle speed.
2. Listen for the sound of the intake air leak.
3. Check PCV hose connection.

Is intake air leak detected?

- YES >> Discover air leak location and repair.
NO >> GO TO 2.

2. CHECK FOR EXHAUST SYSTEM CLOGGING

Stop engine and visually check exhaust tube, three way catalyst and muffler for dents.

Is the inspection result normal?

- YES-1 >> With CONSULT: GO TO 3.
- YES-2 >> Without CONSULT: GO TO 4.
- NO >> Repair or replace it.

3. PERFORM POWER BALANCE TEST

Ⓜ With CONSULT

1. Start engine.
2. Perform "POWER BALANCE" in "ACTIVE TEST" mode of "ENGINE" using CONSULT.
3. Make sure that each circuit produces a momentary engine speed drop.

Is the inspection result normal?

- YES >> GO TO 9.
- NO >> GO TO 4.

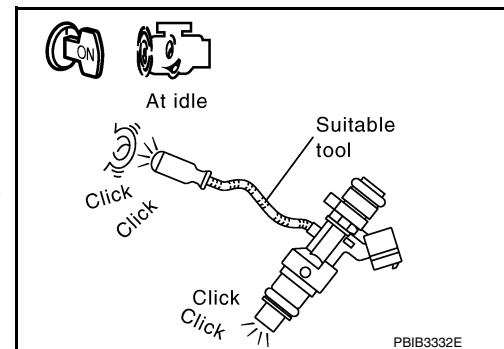
4. CHECK FUNCTION OF FUEL INJECTOR

1. Start engine and let engine idle.
2. Listen to each fuel injector operating sound.

Clicking noise should be heard.

Is the inspection result normal?

- YES >> GO TO 5.
- NO >> Perform trouble diagnosis for FUEL INJECTOR. Refer to [EC-464, "Diagnosis Procedure"](#).



5. CHECK FUNCTION OF IGNITION COIL-1

CAUTION:

Do the following procedure in the place where ventilation is good without the combustible.

1. Turn ignition switch OFF.
2. Remove fuel pump fuse in IPDM E/R to release fuel pressure.

NOTE:

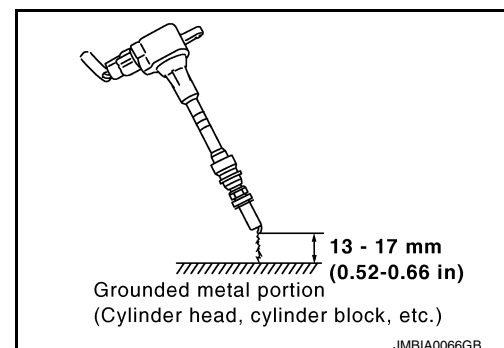
Do not use CONSULT to release fuel pressure, or fuel pressure applies again during the following procedure.

3. Start engine.
4. After engine stalls, crank it two or three times to release all fuel pressure.
5. Turn ignition switch OFF.
6. Remove all ignition coil harness connectors to avoid the electrical discharge from the ignition coils.
7. Remove ignition coil and spark plug of the cylinder to be checked.
8. Crank engine for 5 seconds or more to remove combustion gas in the cylinder.
9. Connect spark plug and harness connector to ignition coil.
10. Fix ignition coil using a rope etc. with gap of 13 - 17 mm (0.52 - 0.66 in) between the edge of the spark plug and grounded metal portion as shown in the figure.
11. Crank engine for about 3 seconds, and check whether spark is generated between the spark plug and the grounded metal portion.

Spark should be generated.

CAUTION:

- Do not approach to the spark plug and the ignition coil within 50 cm (19.7 in). Be careful not to get an electrical shock while checking, because the electrical discharge voltage becomes 20 kV or more.



P0300, P0301, P0302, P0303, P0304 MISFIRE

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

- It might cause to damage the ignition coil if the gap of more than 17 mm (0.66 in) is taken.

NOTE:

When the gap is less than 13 mm (0.52 in), the spark might be generated even if the coil is malfunctioning.

Is the inspection result normal?

YES >> GO TO 9.

NO >> GO TO 6.

6. CHECK FUNCTION OF IGNITION COIL-2

1. Turn ignition switch OFF.
2. Disconnect spark plug and connect a known-good spark plug.
3. Crank engine for about 3 seconds, and recheck whether spark is generated between the spark plug and the grounded metal portion.

Spark should be generated.

Is the inspection result normal?

YES >> GO TO 7.

NO >> Check ignition coil, power transistor and their circuits. Refer to [EC-470, "Diagnosis Procedure"](#).

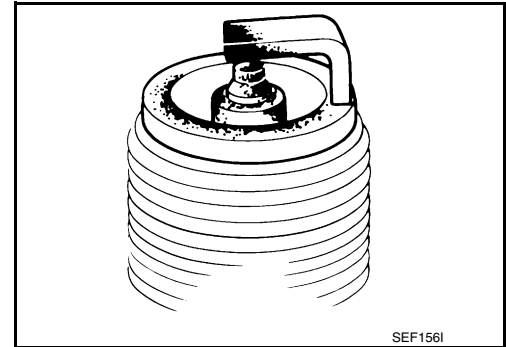
7. CHECK SPARK PLUG

Check the initial spark plug for fouling, etc.

Is the inspection result normal?

YES >> Replace spark plug(s) with standard type one(s). For spark plug type, refer to [EM-115, "Spark Plug"](#).

NO >> Repair or clean spark plug. Then GO TO 8.



8. CHECK FUNCTION OF IGNITION COIL-3

1. Reconnect the initial spark plugs.
2. Crank engine for about 3 seconds, and recheck whether spark is generated between the spark plug and the grounded portion.

Spark should be generated.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace spark plug(s) with standard type one(s). For spark plug type. Refer to [EM-115, "Spark Plug"](#).

9. CHECK COMPRESSION PRESSURE

Check compression pressure. Refer to [EM-22, "Compression pressure"](#).

Is the inspection result normal?

YES >> GO TO 10.

NO >> Check pistons, piston rings, valves, valve seats and cylinder head gaskets.

10. CHECK FUEL PRESSURE

1. Install all removed parts.
2. Release fuel pressure to zero.
3. Install fuel pressure gauge and check fuel pressure. Refer to [EC-144, "Work Procedure"](#).

At idling: Approximately 350 kPa (3.57 kg/cm², 51 psi)

Is the inspection result normal?

YES >> GO TO 12.

P0300, P0301, P0302, P0303, P0304 MISFIRE

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

NO >> GO TO 11.

11.DETECT MALFUNCTIONING PART

Check fuel hoses and fuel tubes for clogging.

Is the inspection result normal?

YES >> Replace "fuel filter and fuel pump assembly". Refer to [FL-6. "Removal and Installation"](#).

NO >> Repair or replace.

12.CHECK IGNITION TIMING

Check the following items.

For procedure, refer to [EC-132. "Work Procedure"](#).

For specification, refer to [EC-500. "Ignition Timing"](#).

Is the inspection result normal?

YES >> GO TO 13.

NO >> Follow the [EC-132. "Work Procedure"](#).

13.CHECK A/F SENSOR 1 INPUT SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect A/F sensor 1 harness connector.
3. Disconnect ECM harness connector.
4. Check the continuity between A/F sensor 1 harness connector and ECM harness connector.

+		-		Continuity
A/F sensor 1		ECM		
Connector	Terminal	Connector	Terminal	
F18	1	F51	41	Existed

5. Check the continuity between A/F sensor 1 harness connector or ECM harness connector and ground.

+		-	Continuity
A/F sensor 1			
Connector	Terminal		
F18	1	Ground	Not existed

+		-	Continuity
ECM			
Connector	Terminal		
F51	41	Ground	Not existed

6. Also check harness for short to power.

Is the inspection result normal?

YES >> GO TO 14.

NO >> Repair open circuit or short to ground or short to power in harness or connectors.

14.CHECK A/F SENSOR 1 HEATER

Check the A/F sensor 1 heater. Refer to [EC-186. "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 15.

NO >> Replace A/F sensor 1. Refer to [EM-29. "Exploded View"](#).

15.CHECK MASS AIR FLOW SENSOR

 With CONSULT

1. Install all removed parts.
2. Start engine and warm it up to normal operating temperature.
3. Check "MASS AIR FLOW SENSOR (Hz)" in "DATA MONITOR" mode of "ENGINE" using CONSULT.

P0300, P0301, P0302, P0303, P0304 MISFIRE

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

Monitor item	Condition	Value
MASS AIR FLOWSENSOR (Hz)	Ignition switch ON (Engine stopped.)	Approx. 3500 Hz
	Idle (Engine is warmed-up to normal operating temperature.)	3500- 4100 Hz
	2,500 rpm (Engine is warmed-up to normal operating temperature.)	5100 - 5600 Hz
	Idle to about 4,000 rpm	3500 - 4100 Hz to Approx. 6300 Hz*

*: Check for linear frequency rise in response to engine being increased to about 4,000 rpm.

⊗ Without CONSULT

1. Install all removed parts.
2. Start engine and warm it up to normal operating temperature.
3. Check mass air flow sensor signal in Service \$01 with GST.

ECM			Condition	Value
Connector	+	−		
	Terminal			
F51	35	34	Ignition switch ON (Engine stopped.)	Approx. 3500 Hz
			Idle (Engine is warmed-up to normal operating temperature.)	3500- 4100 Hz
			2,500 rpm (Engine is warmed-up to normal operating temperature.)	5100 - 5600 Hz
			Idle to about 4,000 rpm	3500 - 4100 Hz to Approx. 6300 Hz*
			Ignition switch ON (Engine stopped.)	Approx. 3500 Hz

*: Check for linear frequency rise in response to engine being increased to about 4,000 rpm.

Is the measurement value within the specification?

YES >> GO TO 16.

NO >> Check connectors for rusted terminals or loose connections in the mass air flow sensor circuit or ground. Refer to [EC-202, "DTC Description"](#).

16.CHECK SYMPTOM TABLE

Check items on the rough idle symptom in [EC-486, "Symptom Table"](#).

Is the inspection result normal?

YES >> GO TO 17.

NO >> Repair or replace error-detected parts.

17.ERASE THE 1ST TRIP DTC

Some tests may cause a 1st trip DTC to be set.

Erase the 1st trip DTC from the ECM memory after performing the tests. Refer to [EC-56, "Diagnosis Description"](#).

>> GO TO 18.

18.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> INSPECTION END

P0327, P0328 KS

DTC Description

INFOID:000000009985086

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0327	KNOCK SEN/CIRC-B1 (Knock sensor 1 circuit low bank 1 or single sensor)	An excessively low voltage from the knock sensor is sent to ECM.
P0328	KNOCK SEN/CIRC-B1 (Knock sensor 1 circuit high bank 1 or single sensor)	An excessively high voltage from the knock sensor is sent to ECM.

POSSIBLE CAUSE

- Harness or connectors (Knock sensor circuit is open or shorted.)
- Knock sensor

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

TESTING CONDITION:

Before performing the following procedure, confirm that battery voltage is more than 10 V at idle.

>> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine and run it for at least 5 seconds at idle speed.
2. Check 1st trip DTC.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-293. "Diagnosis Procedure"](#).
 NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985087

1. CHECK KNOCK SENSOR GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect knock sensor harness connector.
3. Disconnect ECM harness connector.
4. Check the continuity between knock sensor harness connector and ECM harness connector.

+		-		Continuity
Knock sensor		ECM		
Connector	Terminal	Connector	Terminal	
F9	2	F51	8	Existed

5. Also check harness for short to power.

Is the inspection result normal?

- YES >> GO TO 2.

< DTC/CIRCUIT DIAGNOSIS >

NO >> Repair or replace error-detected parts.

2.CHECK KNOCK SENSOR INPUT SIGNAL CIRCUIT

1. Check the continuity between knock sensor harness connector and ECM harness connector.

+		-		Continuity
Knock sensor		ECM		
Connector	Terminal	Connector	Terminal	
F9	1	F51	4	Existed

2. Also check harness for short to ground and to power.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair open circuit or short to ground or short to power in harness or connectors.

3.CHECK KNOCK SENSOR

Check the knock sensor. Refer to [EC-294, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace knock sensor. Refer to [EM-92, "Exploded View"](#).

4.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> INSPECTION END

Component Inspection

INFOID:000000009985088

1.CHECK KNOCK SENSOR

1. Turn ignition switch OFF.
2. Disconnect knock sensor harness connector.
3. Check resistance between knock sensor terminals as per the following.

NOTE:

It is necessary to use an ohmmeter which can measure more than 10 MΩ.

Knock sensor		Resistance
+	-	
Terminals		
1	2	Approx. 532 - 588 kΩ [at 20°C (68°F)]

CAUTION:

Do not use any knock sensors that have been dropped or physically damaged. Use only new ones.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace knock sensor. Refer to [EM-92, "Exploded View"](#).

P0335 CKP SENSOR (POS)

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P0335 CKP SENSOR (POS)

DTC Description

INFOID:000000009985089

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0335	CKP SEN/CIRCUIT (Crankshaft position sensor "A" circuit)	- The crankshaft position sensor (POS) signal is not detected by the ECM during the first few seconds of engine cranking. - The proper pulse signal from the crankshaft position sensor (POS) is not sent to ECM while the engine is running. - The crankshaft position sensor (POS) signal is not in the normal pattern during engine running.

POSSIBLE CAUSE

- Harness or connectors [Crankshaft position sensor (POS) circuit is open or shorted.]
- Crankshaft position sensor (POS)
- Signal plate
- Sensor power supply 2 circuit

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1.CHECK DTC PRIORITY

If DTC P0335 is displayed with DTC P0643, first perform the trouble diagnosis for DTC P0643.

Is applicable DTC detected?

- YES >> Perform diagnosis of applicable. Refer to [EC-379, "DTC Description"](#).
NO >> GO TO 2.

2.PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

- Turn ignition switch OFF and wait at least 10 seconds.
- Turn ignition switch ON.
- Turn ignition switch OFF and wait at least 10 seconds.

TESTING CONDITION:

Before performing the following procedure, confirm that battery voltage is more than 10.5 V with ignition switch ON.

>> GO TO 3.

3.PERFORM DTC CONFIRMATION PROCEDURE

- Start engine and let it idle for at least 5 seconds.
If engine does not start, crank engine for at least 2 seconds.
- Check 1st trip DTC.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-295, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985090

1.CHECK DTC PRIORITY

If DTC P0335 is displayed with DTC P0643, first perform the trouble diagnosis for DTC P0643.

Is applicable DTC detected?

- YES >> Perform diagnosis of applicable. Refer to [EC-379, "DTC Description"](#).
NO >> GO TO 2.

P0335 CKP SENSOR (POS)

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

2. CHECK CRANKSHAFT POSITION (CKP) SENSOR (POS) POWER SUPPLY

1. Disconnect crankshaft position (CKP) sensor (POS) harness connector.
2. Turn ignition switch ON.
3. Check the voltage between CKP sensor (POS) harness connector and ground.

+		-	Voltage (Approx.)
CKP sensor (POS)			
Connector	Terminal		
F17	1	Ground	5 V

Is the inspection result normal?

YES >> GO TO 4.

NO >> GO TO 3.

3. CHECK CKP SENSOR (POS) GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between CKP sensor (POS) harness connector and ECM harness connector.

+		-		Continuity
CKP sensor (POS)		ECM		
Connector	Terminal	Connector	Terminal	
F17	2	F52	70	Existed

4. Also check harness for short to power.

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace error-detected parts.

4. CHECK CKP SENSOR (POS) INPUT SIGNAL CIRCUIT

1. Check the continuity between CKP sensor (POS) harness connector and ECM harness connector.

+		-		Continuity
CKP sensor (POS)		ECM		
Connector	Terminal	Connector	Terminal	
F17	3	F52	71	Existed

2. Also check harness for short to ground and to power.

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace error-detected parts.

5. CHECK CRANKSHAFT POSITION SENSOR (POS)

Check the crankshaft position sensor (POS). Refer to [EC-297, "Component Inspection \(Crankshaft Position sensor\)"](#).

Is the inspection result normal?

YES >> GO TO 6.

NO >> Replace crankshaft position sensor (POS). Refer to [EM-92, "Exploded View"](#).

6. CHECK GEAR TOOTH

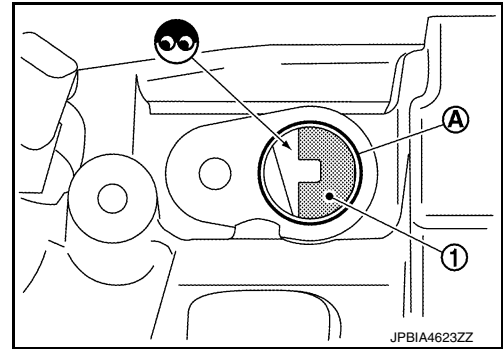
1. Remove crankshaft position sensor (POS). Refer to [EM-92, "Exploded View"](#).

P0335 CKP SENSOR (POS)

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

- Look into the mounting hole[Ⓐ] of the crankshaft position sensor (POS) to check that there is no missing gear tooth in the signal plate^①.



Is the inspection result normal?

YES >> GO TO 7.

NO >> Replace the signal plate. Refer to [EM-92, "Exploded View"](#).

7.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> INSPECTION END

Component Inspection (Crankshaft Position sensor)

INFOID:0000000009985091

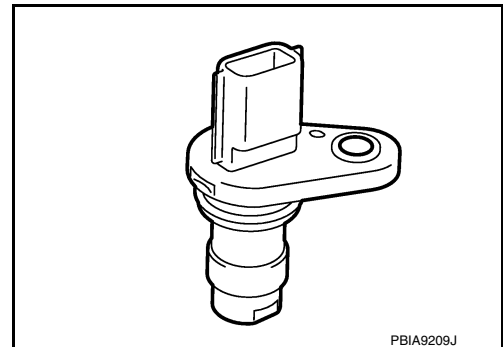
1.CHECK CRANKSHAFT POSITION SENSOR (POS)-1

- Turn ignition switch OFF.
- Loosen the fixing bolt of the sensor.
- Disconnect crankshaft position sensor (POS) harness connector.
- Remove the sensor.
- Visually check the sensor for chipping.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace crankshaft position sensor (POS). Refer to [EM-92, "Exploded View"](#).



2.CHECK CRANKSHAFT POSITION SENSOR (POS)-2

Check the resistance between crankshaft position sensor (POS) terminals as per the following.

Crankshaft position sensor (POS)		Resistance [at 25°C (77°F)]
+	–	
Terminal (Polarity)		
1	2	Except 0 or ∞ Ω
	3	
2	3	

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace crankshaft position sensor (POS). Refer to [EM-92, "Exploded View"](#).

P0340 CMP SENSOR (PHASE)

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P0340 CMP SENSOR (PHASE)

DTC Description

INFOID:000000009985092

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0340	CMP SEN/CIRC-B1 (Camshaft position sensor "A" circuit bank 1 or single sensor)	• The cylinder No. signal is not sent to ECM for the first few seconds during engine cranking. • The cylinder No. signal is not sent to ECM during engine running. • The cylinder No. signal is not in the normal pattern during engine running.

POSSIBLE CAUSE

- Harness or connectors (Camshaft position sensor circuit is open or shorted.)
- Camshaft position sensor
- Camshaft (Intake)
- Starter motor
- Starting system circuit
- Dead (Weak) battery
- Sensor power supply 2 circuit

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

TESTING CONDITION:

Before performing the following procedure, confirm that battery voltage is more than 10.5 V with ignition switch ON.

>> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE-1

1. Start engine and let it idle for at least 5 seconds.
If engine does not start, crank engine for at least 2 seconds.
2. Check 1st trip DTC.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-298, "Diagnosis Procedure"](#).
NO >> GO TO 3.

3. PERFORM DTC CONFIRMATION PROCEDURE-2

1. Maintaining engine speed at more than 800 rpm for at least 5 seconds.
2. Check 1st trip DTC.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-298, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985093

1. CHECK STARTING SYSTEM

Turn ignition switch to START position.

Does the engine turn over? Does the starter motor operate?

P0340 CMP SENSOR (PHASE)

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

- YES >> GO TO 2.
NO >> Check starting system (Refer to [STR-11, "Work Flow \(With GR8-1200 NI\)"](#) or [STR-15, "Work Flow \(Without GR8-1200 NI\)"](#)).

2.CHECK CAMSHAFT POSITION (CMP) SENSOR (PHASE) POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect camshaft position (CMP) sensor (PHASE) harness connector.
3. Turn ignition switch ON.
4. Check the voltage between CMP sensor (PHASE) harness connector and ground.

+		-	Voltage (Approx.)
CMP sensor (PHASE)			
Connector	Terminal		
F44	1	Ground	5 V

Is the inspection result normal?

- YES >> GO TO 4.
NO >> GO TO 3.

3.CHECK SENSOR POWER SUPPLY 2 CIRCUIT

Perform [EC-484, "Diagnosis Procedure"](#).

Is inspection result normal?

- YES >> Perform the trouble diagnosis for power supply circuit.
NO >> Repair or replace error-detected parts.

4.CHECK CMP SENSOR (PHASE) GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between CMP sensor (PHASE) harness connector and ECM harness connector.

+		-		Continuity
CMP sensor (PHASE)		ECM		
Connector	Terminal	Connector	Terminal	
F44	2	F51	30	Existed

4. Also check harness for short to power.

Is the inspection result normal?

- YES >> GO TO 5.
NO >> Repair or replace error-detected parts.

5.CHECK CMP SENSOR (PHASE) INPUT SIGNAL CIRCUIT

1. Disconnect ECM harness connector.
2. Check the continuity between CMP sensor (PHASE) harness connector and ECM harness connector.

+		-		Continuity
CMP sensor (PHASE)		ECM		
Connector	Terminal	Connector	Terminal	
F44	3	F51	31	Existed

3. Also check harness for short to ground and to power.

Is the inspection result normal?

- YES >> GO TO 6.
NO >> Repair or replace error-detected parts.

6.CHECK CAMSHAFT POSITION SENSOR (PHASE)

Check the camshaft position sensor (PHASE). Refer to [EC-300, "Component Inspection \(Camshaft position sensor\)"](#).

P0340 CMP SENSOR (PHASE)

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

Is the inspection result normal?

YES >> GO TO 7.

NO >> Replace camshaft position sensor (PHASE). Refer to [EM-64. "Removal and Installation"](#).

7. CHECK CAMSHAFT (INT)

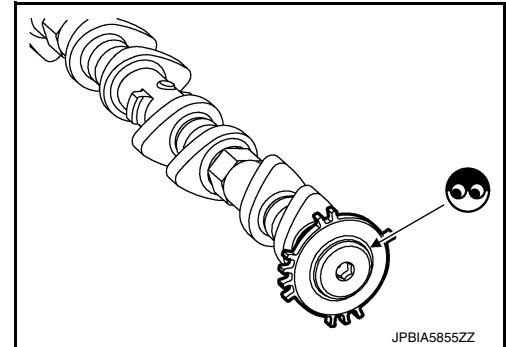
Check the following.

- Accumulation of debris to the signal plate of camshaft rear end
- Chipping signal plate of camshaft rear end

Is the inspection result normal?

YES >> GO TO 8.

NO >> Remove debris and clean the signal plate of camshaft rear end or replace camshaft. Refer to [EM-64. "Removal and Installation"](#).



8. CHECK INTERMITTENT INCIDENT

Refer to [GI-41. "Intermittent Incident"](#).

>> INSPECTION END

Component Inspection (Camshaft position sensor)

INFOID:0000000009985094

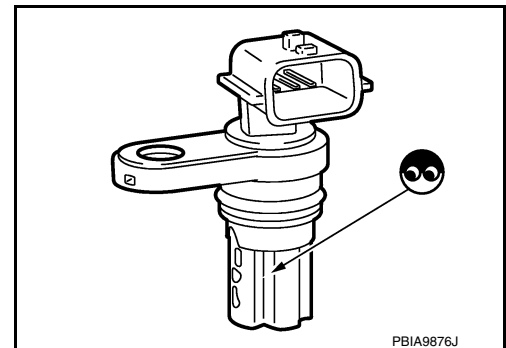
1. CHECK CAMSHAFT POSITION SENSOR (PHASE)-1

1. Turn ignition switch OFF.
2. Loosen the fixing bolt of the sensor.
3. Disconnect camshaft position sensor (PHASE) harness connector.
4. Remove the sensor.
5. Visually check the sensor for chipping.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace camshaft position sensor (PHASE).



2. CHECK CAMSHAFT POSITION SENSOR (PHASE)-2

Check the resistance camshaft position sensor (PHASE) terminals as per the following.

Camshaft position sensor (PHASE)		Resistance [Ω at 25°C (77°F)]
+	-	
Terminals (Polarity)		
1	2	Except 0 or ∞
	3	
2	3	

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace camshaft position sensor (PHASE). Refer to [EM-64. "Removal and Installation"](#).

P0420 THREE WAY CATALYST FUNCTION

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P0420 THREE WAY CATALYST FUNCTION

DTC Description

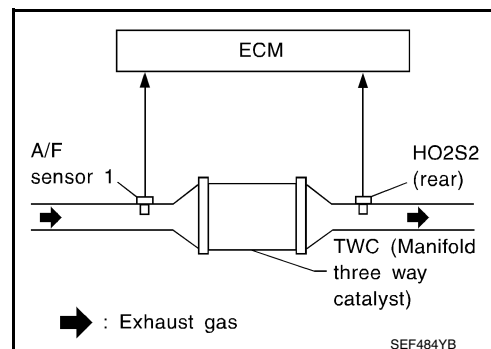
INFOID:000000009985095

DTC DETECTION LOGIC

The ECM monitors the switching frequency ratio of air fuel ratio (A/F) sensor 1 and heated oxygen sensor 2.

A three way catalyst (manifold) with high oxygen storage capacity will indicate a low switching frequency of heated oxygen sensor 2. As oxygen storage capacity decreases, the heated oxygen sensor 2 switching frequency will increase.

When the frequency ratio of air fuel ratio (A/F) sensor 1 and heated oxygen sensor 2 approaches a specified limit value, the three way catalyst (manifold) malfunction is diagnosed.



DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0420	TW CATALYST SYS-B1 (Catalyst system efficiency below threshold bank 1)	- Three way catalyst (manifold) does not operate properly. - Three way catalyst (manifold) does not have enough oxygen storage capacity.

POSSIBLE CAUSE

- Three way catalyst (manifold)
- Exhaust tube
- Intake air leaks
- Fuel injector
- Fuel injector leaks
- Spark plug
- Improper ignition timing

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

Will CONSULT be used?

- YES >> GO TO 2.
NO >> GO TO 6.

2.PERFORM DTC CONFIRMATION PROCEDURE-1

With CONSULT

TESTING CONDITION:

Do not hold engine speed for more than the specified minutes below.

1. Start engine and warm it up to the normal operating temperature.
2. Turn ignition switch OFF and wait at least 10 seconds.
3. Turn ignition switch ON.
4. Turn ignition switch OFF and wait at least 10 seconds.
5. Start engine and keep the engine speed between 3,500 and 4,000 rpm for at least 1 minute under no load.
6. Let engine idle for 1 minute.
7. Select "DATA MONITOR" mode of "ENGINE" using CONSULT.
8. Check that "COOLAN TEMP/S" indicates more than 70°C (158°F).

P0420 THREE WAY CATALYST FUNCTION

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

- If not, warm up engine and go to next step when "COOLAN TEMP/S" indication reaches to 70°C (158°F).
9. Open engine hood.
 10. Select "DTC & SRT CONFIRMATION" then "SRT WORK SUPPORT" mode of "ENGINE" using CONSULT.
 11. Rev engine up to 2,500 to 3,000 rpm and hold it for 3 consecutive minutes then release the accelerator pedal completely.
 12. Check the indication of "CATALYST".

Which is displayed on CONSULT screen?

CMPLT >> GO TO 5.

INCMP >> GO TO 3.

3.PERFORM DTC CONFIRMATION PROCEDURE-2

1. Wait 5 seconds at idle.
2. Rev engine up to 2,500 to 3,000 rpm and maintain it until "INCMP" of "CATALYST" changes to "CMPLT" (It will take approximately 5 minutes).

Does the indication change to "CMPLT"?

YES >> GO TO 5.

NO >> GO TO 4.

4.PERFORM DTC CONFIRMATION PROCEDURE AGAIN

1. Stop engine and cool it down to less than 70°C (158°F).
2. Perform DTC confirmation procedure again.

>> GO TO 2.

5.PERFORM DTC CONFIRMATION PROCEDURE-3

Check 1st trip DTC.

Is 1st trip DTC detected?

YES >> Proceed to [EC-302, "Diagnosis Procedure"](#).

NO >> INSPECTION END

6.PERFORM COMPONENT FUNCTION CHECK

⊗ Without CONSULT

1. Start engine and warm it up to the normal operating temperature.
2. Turn ignition switch OFF and wait at least 10 seconds.
3. Restart engine and keep the engine speed between 3,500 and 4,000 rpm for at least 1 minute under no load.
4. Let engine idle for 1 minute.
5. Open engine hood.
6. Check the voltage between ECM harness connector terminals as per the following condition.

ECM			Condition	Voltage (V)
Connector	+	–		
	Terminal			
F51	22	23	Keeping engine speed at 2500 rpm constant under no load	The voltage fluctuation cycle takes more than 5 seconds. • 1 cycle: 0.6 - 1.0 → 0 - 0.3 → 0.6 - 1.0

Is the inspection result normal?

YES >> INSPECTION END

NO >> Proceed to [EC-302, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000009985097

1.CHECK EXHAUST SYSTEM

Visually check exhaust tubes and muffler for dent.

Is the inspection result normal?

P0420 THREE WAY CATALYST FUNCTION

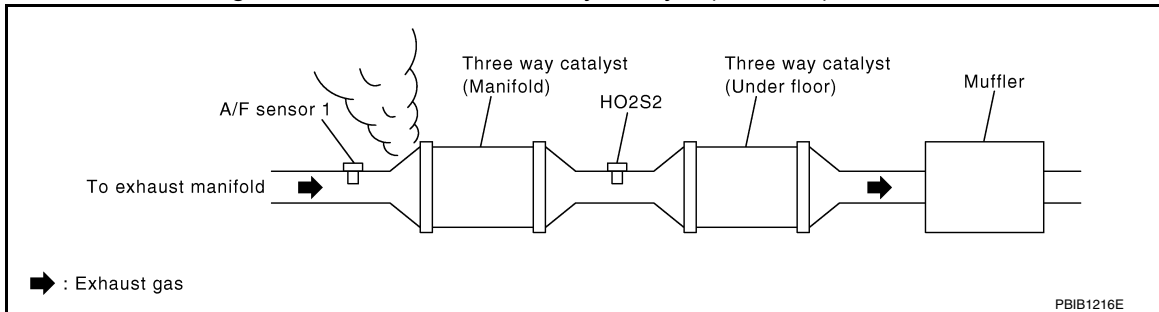
[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

- YES >> GO TO 2.
NO >> Repair or replace error-detected parts.

2.CHECK EXHAUST GAS LEAK

1. Start engine and run it at idle.
2. Listen for an exhaust gas leak before the three way catalyst (manifold).



Is exhaust gas leak detected?

- YES >> Repair or replace error-detected parts.
NO >> GO TO 3.

3.CHECK INTAKE AIR LEAK

Listen for an intake air leak after the mass air flow sensor.

Is intake air leak detected?

- YES >> Repair or replace error-detected parts.
NO >> GO TO 4.

4.CHECK IGNITION TIMING AND IDLE SPEED

Check the following items. Refer to [EC-132, "Work Procedure"](#).

For specification, refer to [EC-500, "Ignition Timing"](#)

For specification, refer to [EC-500, "Idle Speed"](#).

Is the inspection result normal?

- YES >> GO TO 5.
NO >> Follow the [EC-132, "Work Procedure"](#).

5.CHECK FUEL INJECTOR

Check the fuel injector. Refer to [EC-464, "Component Function Check"](#).

Is the inspection result normal?

- YES >> GO TO 6.
NO >> Perform [EC-464, "Diagnosis Procedure"](#).

6.CHECK FUNCTION OF IGNITION COIL-1

CAUTION:

Do the following procedure in the place where ventilation is good without the combustible.

1. Turn ignition switch OFF.
2. Remove fuel pump fuse in IPDM E/R to release fuel pressure.

NOTE:

Do not use CONSULT to release fuel pressure, or fuel pressure applies again during the following procedure.

3. Start engine.
4. After engine stalls, crank it two or three times to release all fuel pressure.
5. Turn ignition switch OFF.
6. Remove all ignition coil harness connectors to avoid the electrical discharge from the ignition coils.
7. Remove ignition coil and spark plug of the cylinder to be checked.
8. Crank engine for 5 seconds or more to remove combustion gas in the cylinder.
9. Connect spark plug and harness connector to ignition coil.

P0420 THREE WAY CATALYST FUNCTION

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

10. Fix ignition coil using a rope etc. with gap of 13 - 17 mm (0.52 - 0.66 in) between the edge of the spark plug and grounded metal portion as shown in the figure.
11. Crank engine for about 3 seconds, and check whether spark is generated between the spark plug and the grounded metal portion.

Spark should be generated.

CAUTION:

- Do not approach to the spark plug and the ignition coil within 50 cm (19.7 in). Be careful not to get an electrical shock while checking, because the electrical discharge voltage becomes 20 kV or more.
- It might cause to damage the ignition coil if the gap of more than 17 mm (0.66 in) is taken.

NOTE:

When the gap is less than 13 mm (0.52 in), the spark might be generated even if the coil is malfunctioning.

Is the inspection result normal?

- YES >> GO TO 10.
NO >> GO TO 7.

7.CHECK FUNCTION OF IGNITION COIL-2

1. Turn ignition switch OFF.
2. Disconnect spark plug and connect a known-good spark plug.
3. Crank engine for about 3 seconds, and recheck whether spark is generated between the spark plug and the grounded metal portion.

Spark should be generated.

Is the inspection result normal?

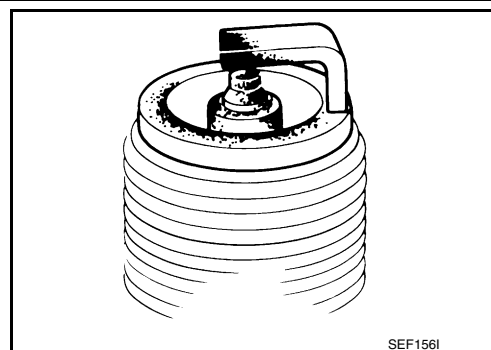
- YES >> GO TO 8.
NO >> Check ignition coil, power transistor and their circuits. Refer to [EC-470, "Diagnosis Procedure"](#).

8.CHECK SPARK PLUG

Check the initial spark plug for fouling, etc. Refer to [EM-17, "Removal and Installation"](#).

Is the inspection result normal?

- YES >> Replace spark plug(s) with standard type one(s). For spark plug type, refer to [EM-115, "General Specification"](#).
- NO >> Repair or clean spark plug. Refer to [EM-17, "Removal and Installation"](#). Then GO TO 9



9.CHECK FUNCTION OF IGNITION COIL-3

1. Reconnect the initial spark plugs.
2. Crank engine for about 3 seconds, and recheck whether spark is generated between the spark plug and the grounded portion.

Spark should be generated.

Is the inspection result normal?

- YES >> INSPECTION END
NO >> Replace spark plug(s) with standard type one(s). For spark plug type, refer to [EM-115, "General Specification"](#).

10.CHECK FUEL INJECTOR

1. Turn ignition switch OFF.

P0420 THREE WAY CATALYST FUNCTION

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

2. Remove fuel injector assembly.
Refer to [EM-40, "Exploded View"](#).
Keep fuel hose and all fuel injectors connected to fuel tube.
3. Disconnect all ignition coil harness connectors.
4. Reconnect all fuel injector harness connectors disconnected.
5. Turn ignition switch ON.

Does fuel drip from fuel injector?

YES >> GO TO 11.

NO >> Replace the fuel injector(s) from which fuel is dripping. Refer to [EM-40, "Exploded View"](#).

11. CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

Is the trouble fixed?

YES >> INSPECTION END

NO >> Replace three way catalyst assembly. Refer to [EM-29, "Exploded View"](#).

A

EC

C

D

E

F

G

H

I

J

K

L

M

N

O

P

P0441 EVAP CONTROL SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P0441 EVAP CONTROL SYSTEM

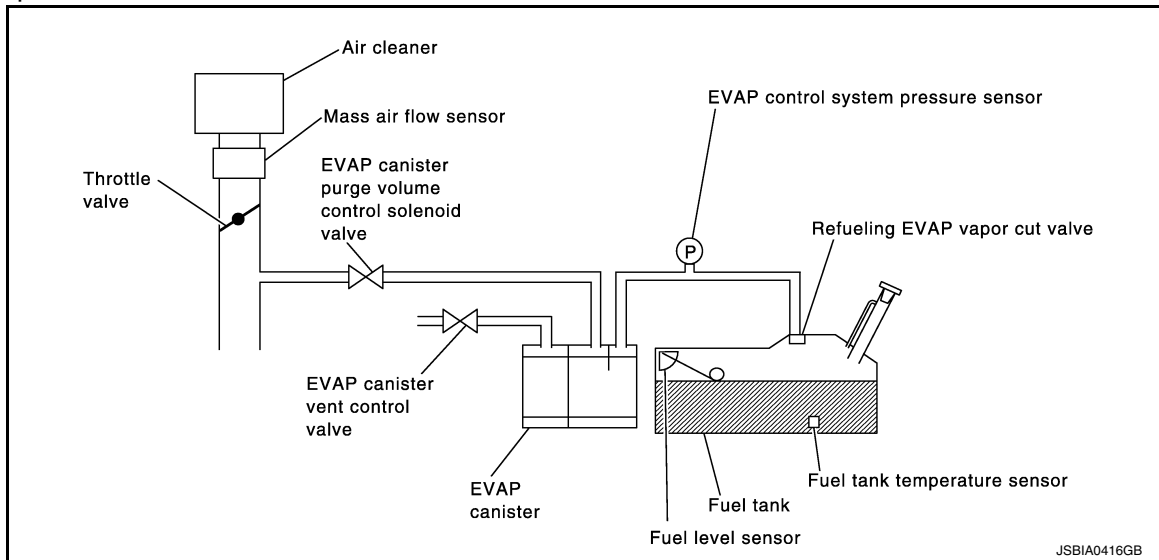
DTC Description

INFOID:000000009985098

DTC DETECTION LOGIC

In this evaporative emission (EVAP) control system, purge flow occurs during non-closed throttle conditions. Purge volume is related to air intake volume. Under normal purge conditions (non-closed throttle), the EVAP canister purge volume control solenoid valve is open to admit purge flow. Purge flow exposes the EVAP control system pressure sensor to intake manifold vacuum.

Under normal conditions (non-closed throttle), sensor output voltage indicates if pressure drop and purge flow are adequate. If not, a malfunction is determined.



DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0441	EVAP PURG FLOW/MON (Evaporative emission system incorrect purge flow)	EVAP control system does not operate properly, EVAP control system has a leak between intake manifold and EVAP control system pressure sensor.

POSSIBLE CAUSE

- EVAP canister purge volume control solenoid valve stuck closed
- EVAP control system pressure sensor and the circuit
- Loose, disconnected or improper connection of rubber tube
- Blocked rubber tube
- Cracked EVAP canister
- EVAP canister purge volume control solenoid valve circuit
- Accelerator pedal position sensor
- Blocked purge port
- EVAP canister vent control valve

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1.CHECK DTC PRIORITY

If DTC P0441 is displayed with DTC P2122, P2123, P2127, P2128 or P2138, first perform the trouble diagnosis for DTC P2122, P2123, P2127, P2128 or P2138.

Is applicable DTC detected?

- YES >> Perform diagnosis of applicable. Refer to [EC-93. "DTC Index"](#).
NO >> GO TO 2.

2.PRECONDITIONING

P0441 EVAP CONTROL SYSTEM

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

Will CONSULT be used?

YES >> GO TO 3.

NO >> GO TO 6.

3.PERFORM DTC CONFIRMATION PROCEDURE-1

Ⓔ WITH CONSULT

TESTING CONDITION:

Always perform test at a temperature of 5°C (41°F) or more.

1. Start engine and warm it up to normal operating temperature.
2. Turn ignition switch OFF and wait at least 10 seconds.
3. Turn ignition switch ON.
4. Turn ignition switch OFF and wait at least 10 seconds.
5. Start engine and let it idle for at least 70 seconds.
6. Select "PURG FLOW P0441" of "EVAPORATIVE SYSTEM" in "DTC WORK SUPPORT" mode of "ENGINE" using CONSULT.
7. Touch "START".

Is "COMPLETED" displayed on CONSULT screen?

YES >> GO TO 5.

NO >> GO TO 4.

4.PERFORM DTC CONFIRMATION PROCEDURE-2

When the following conditions are met, "TESTING" will be displayed on the CONSULT screen. Maintain the conditions continuously until "TESTING" changes to "COMPLETED". (It will take at least 35 seconds.)

Selector lever	Suitable position
VHCL SPEED SE	32 - 120 km/h (20 - 75 MPH)
ENG SPEED	500 - 3,800 rpm
B/FUEL SCHDL	1.0 - 10.0 msec
COOLAN TEMP/S	More than 0°C (32°F)

CAUTION:

Always drive vehicle at a safe speed.

NOTE:

If "TESTING" does not change for a long time, retry from step 2.

Is "COMPLETED" displayed on CONSULT screen?

YES >> GO TO 5.

NO >> Perform DTC CONFIRMATION PROCEDURE again. GO TO 2.

5.PERFORM DTC CONFIRMATION PROCEDURE-3

Touch "SELF-DIAG RESULTS".

Which is displayed on CONSULT screen?

OK >> INSPECTION END

NG >> Proceed to [EC-308, "Diagnosis Procedure"](#).

6.PERFORM COMPONENT FUNCTION CHECK

1. Lift up drive wheels.
2. Start engine (VDC switch OFF) and warm it up to normal operating temperature.
3. Turn ignition switch OFF and wait at least 10 seconds.
4. Start engine and wait at least 70 seconds.
5. Set voltmeter probes to ECM harness connector terminals as per the following.

P0441 EVAP CONTROL SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

ECM		
Connector	+	-
	Terminal	
E16	114	124

6. Check EVAP control system pressure sensor value at idle speed and note it.
7. Establish and maintain the following conditions for at least 1 minute.

Air conditioner switch	ON
Headlamp switch	ON
Rear window defogger switch	ON
Engine speed	Approx. 3,000 rpm
Gear position	Any position other than P, N or R

8. Verify that EVAP control system pressure sensor value stays 0.1 V less than the value at idle speed (measured at step 6) for at least 1 second.

Is the inspection result normal?

- YES >> INSPECTION END
NO >> Proceed to [EC-308, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000009985100

1.CHECK DTC PRIORITY

If DTC P0441 is displayed with DTC P2122, P2123, P2127, P2128 or P2138, first perform the trouble diagnosis for DTC P2122, P2123, P2127, P2128 or P2138.

Is applicable DTC detected?

- YES >> Perform diagnosis of applicable. Refer to [EC-93, "DTC Index"](#).
NO >> GO TO 2.

2.CHECK EVAP CANISTER

1. Turn ignition switch OFF.
2. Check EVAP canister for cracks.

Is the inspection result normal?

- YES-1 >> With CONSULT: GO TO 3.
YES-2 >> Without CONSULT: GO TO 4.
NO >> Replace EVAP canister. Refer to [FL-19, "Removal and Installation"](#).

3.CHECK PURGE FLOW

 WITH CONSULT

1. Disconnect vacuum hose connected to EVAP canister purge volume control solenoid valve at EVAP service port.
2. Start engine and let it idle.
3. Select "PURG VOL CONT/V" in "ACTIVE TEST" mode of "ENGINE" using CONSULT.
4. Touch "Qd" and "Qu" on CONSULT screen to adjust "PURG VOL CONT/V" opening and check vacuum existence.

PURG VOL CONT/V	Vacuum
100%	Existed
0%	Not existed

Is the inspection result normal?

- YES >> GO TO 8.
NO >> GO TO 5.

4.CHECK PURGE FLOW

P0441 EVAP CONTROL SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

⊗ WITHOUT CONSULT

1. Start engine and warm it up to normal operating temperature.
2. Stop engine.
3. Disconnect vacuum hose connected to EVAP canister purge volume control solenoid valve at EVAP service port and install vacuum gauge. For the location of EVAP service port, refer to [EC-53, "EVAPORATIVE EMISSION SYSTEM : System Description"](#).
4. Start engine and let it idle.
Never depress accelerator pedal even slightly.
5. Check vacuum gauge indication before 60 seconds pass after starting engine.

Vacuum should not exist.

6. Rev engine up to 2,000 rpm after 100 seconds pass after starting engine.

Vacuum should exist.

Is the inspection result normal?

YES >> GO TO 8.

NO >> GO TO 5.

5. CHECK EVAP PURGE LINE

1. Turn ignition switch OFF.
2. Check EVAP purge line for improper connection or disconnection.
Refer to [EC-53, "EVAPORATIVE EMISSION SYSTEM : System Description"](#).

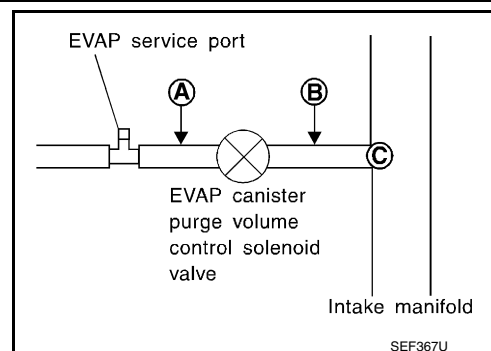
Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair EVAP purge line.

6. CHECK EVAP PURGE HOSE AND PURGE PORT

1. Disconnect purge hoses connected to EVAP service port (A) and EVAP canister purge volume control solenoid valve (B).
2. Blow air into each hose and EVAP purge port (C).



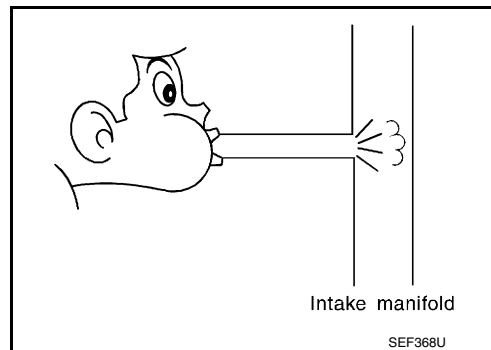
3. Check that air flows freely.

Is the inspection result normal?

YES-1 >> With CONSULT: GO TO 7.

YES-2 >> Without CONSULT: GO TO 8.

NO >> Repair or clean hoses and/or purge port.



7. CHECK EVAP CANISTER PURGE VOLUME CONTROL SOLENOID VALVE

Ⓢ WITH CONSULT

1. Start engine.
2. Perform "PURG VOL CONT/V" in "ACTIVE TEST" mode of "ENGINE" using CONSULT. Check that engine speed varies according to the valve opening.

Does engine speed vary according to the valve opening?

P0441 EVAP CONTROL SYSTEM

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

YES >> GO TO 9.
NO >> GO TO 8.

8.CHECK EVAP CANISTER PURGE VOLUME CONTROL SOLENOID VALVE

Check the EVAP canister purge volume control solenoid valve. Refer to [EC-315, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 9.
NO >> Replace EVAP canister purge volume control solenoid valve. Refer to [EC-14, "Component Parts Location"](#).

9.CHECK EVAP CONTROL SYSTEM PRESSURE SENSOR CONNECTOR

1. Disconnect EVAP control system pressure sensor harness connector.
2. Check that water is not inside connectors.

Is the inspection result normal?

YES >> GO TO 10.
NO >> Replace EVAP control system pressure sensor. Refer to [FL-22, "Removal and Installation"](#).

10.CHECK EVAP CONTROL SYSTEM PRESSURE SENSOR FUNCTION

Refer to [EC-331, "DTC Description"](#) for DTC P0452, [EC-334, "DTC Description"](#) for DTC P0453.

Is the inspection result normal?

YES >> GO TO 11.
NO >> Replace EVAP control system pressure sensor. Refer to [FL-22, "Removal and Installation"](#).

11.CHECK RUBBER TUBE FOR CLOGGING

1. Disconnect rubber tube connected to EVAP canister vent control valve.
2. Check the rubber tube for clogging.

Is the inspection result normal?

YES >> GO TO 12.
NO >> Clean the rubber tube using an air blower.

12.CHECK EVAP CANISTER VENT CONTROL VALVE

Check the EVAP canister vent control valve. Refer to [EC-321, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 13.
NO >> Replace EVAP canister vent control valve. Refer to [FL-21, "Removal and Installation"](#).

13.CHECK EVAP PURGE LINE

Inspect EVAP purge line (pipe and rubber tube). Check for evidence of leaks.

Refer to [EC-496, "Inspection"](#).

Is the inspection result normal?

YES >> GO TO 14.
NO >> Repair or replace malfunctioning part.

14.CLEAN EVAP PURGE LINE

Clean EVAP purge line (pipe and rubber tube) using air blower.

>> GO TO 15.

15.CHECK INTERMITTENT INCIDENT

Perform [GI-41, "Intermittent Incident"](#).

>> INSPECTION END

P0443 EVAP CANISTER PURGE VOLUME CONTROL SOLENOID VALVE

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P0443 EVAP CANISTER PURGE VOLUME CONTROL SOLENOID VALVE

DTC Description

INFOID:000000009985101

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition	
P0443	PURG VOLUME CONT/V (Evaporative emission system purge control valve circuit)	A	The canister purge flow is detected during the vehicle is stopped while the engine is running, even when EVAP canister purge volume control solenoid valve is completely closed.
		B	The canister purge flow is detected during the specified driving conditions, even when EVAP canister purge volume control solenoid valve is completely closed.

POSSIBLE CAUSE

- EVAP control system pressure sensor
- EVAP canister purge volume control solenoid valve (The valve is stuck open.)
- EVAP canister vent control valve
- EVAP canister
- Hoses (Hoses are connected incorrectly or clogged.)

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

TESTING CONDITION:

- **Perform DTC CONFIRMATION PROCEDURE** when the fuel is between 1/4 and 3/4 full, and vehicle is placed on flat level surface.
- **Always perform test at a temperature of 5 to 60°C (41 to 140°F).**
- **Cool the vehicle so that engine coolant temperature becomes same level as ambient temperature.**

Do you have CONSULT

YES >> GO TO 2.

NO >> GO TO 4.

2. PERFORM DTC CONFIRMATION PROCEDURE A

With CONSULT

1. Turn ignition switch ON.
2. Select "DATA MONITOR" mode of "ENGINE" using CONSULT.
3. Check that the following condition are met.
FUEL T/TMP SE: 0 - 35°C (32 - 95°F)
4. Start engine and wait at least 60 seconds.
5. Check 1st trip DTC.

Is 1st trip DTC detected?

YES >> Proceed to [EC-312, "Diagnosis Procedure"](#).

NO >> GO TO 3.

3. PERFORM DTC CONFIRMATION PROCEDURE B

With CONSULT

1. Start engine and warm it up to normal operating temperature.
2. Turn ignition switch OFF and wait at least 10 seconds.
3. Turn ignition switch ON.

P0443 EVAP CANISTER PURGE VOLUME CONTROL SOLENOID VALVE

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

4. Select "PURG VOL CN/V P1444" of "EVAPORATIVE SYSTEM" in "DTC WORK SUPPORT" mode of "ENGINE" using CONSULT.
5. Touch "START".
6. Start engine and let it idle until "TESTING" on CONSULT changes to "COMPLETED". (It will take approximately 10 seconds.)
If "TESTING" is not displayed after 5 minutes, retry from step 2.
7. Touch "SELF-DIAG RESULT".

Which is displayed on CONSULT?

- OK >> INSPECTION END
NG >> Proceed to [EC-312, "Diagnosis Procedure"](#).

4.PERFORM DTC CONFIRMATION PROCEDURE A

 With GST

1. Turn ignition switch ON.
2. Check the voltage between ECM harness connector and ground.

+		-	Voltage
ECM			
Connector	Terminal		
E16	125	Ground	3.1 - 4.0 V

3. Start engine and wait at least 60 seconds.
4. Check 1st trip DTC.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-312, "Diagnosis Procedure"](#).
NO >> GO TO 5.

5.PERFORM DTC CONFIRMATION PROCEDURE

 With GST

1. Start engine and warm it up to normal operating temperature.
2. Turn ignition switch OFF and wait at least 10 seconds.
3. Start engine and let it idle for at least 20 seconds.
4. Check 1st trip DTC.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-312, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000009985102

1.CHECK EVAP CANISTER PURGE VOLUME CONTROL SOLENOID VALVE POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect EVAP canister purge volume control solenoid valve harness connector.
3. Turn ignition switch ON.
4. Check the voltage between EVAP canister purge volume control solenoid valve harness connector and ground.

+		-	Voltage
EVAP canister purge volume control solenoid valve			
Connector	Terminal		
F16	2	Ground	Battery voltage

Is the inspection result normal?

- YES >> GO TO 3.
NO >> GO TO 2.

2.CHECK EVAP CANISTER PURGE VOLUME CONTROL SOLENOID VALVE POWER SUPPLY CIRCUIT

P0443 EVAP CANISTER PURGE VOLUME CONTROL SOLENOID VALVE

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R harness connector.
3. Check the continuity between EVAP canister purge volume control solenoid valve harness connector and IPDM E/R harness connector.

+		-		Continuity
EVAP canister purge volume control solenoid valve		IPDM E/R		
Connector	Terminal	Connector	Terminal	
F16	2	F35	73	Existed

4. Also check harness for short to ground.

Is the inspection result normal?

YES >> Perform the trouble diagnosis for power supply circuit.

NO >> Repair or replace error-detected parts.

3.CHECK EVAP CANISTER PURGE VOLUME CONTROL SOLENOID VALVE GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between EVAP canister purge volume control solenoid valve harness connector and ECM harness connector.

+		-		Continuity
EVAP canister purge volume control solenoid valve		ECM		
Connector	Terminal	Connector	Terminal	
F16	1	F51	17	Existed

4. Also check harness for short to power.

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace error-detected parts.

4.CHECK EVAP CONTROL SYSTEM PRESSURE SENSOR CONNECTOR

1. Disconnect EVAP control system pressure sensor harness connector.
2. Check connectors for water.

Water should not exist.

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace EVAP control system pressure sensor. Refer to [FL-22, "Removal and Installation"](#).

5.CHECK EVAP CONTROL SYSTEM PRESSURE SENSOR

Check the EVAP control system pressure sensor. Refer to [EC-315, "Component Inspection"](#).

Is the inspection result normal?

YES-1 >> With CONSULT: GO TO 6.

YES-2 >> Without CONSULT: GO TO 7.

NO >> Replace EVAP control system pressure sensor. Refer to [FL-22, "Removal and Installation"](#).

6.CHECK EVAP CANISTER PURGE VOLUME CONTROL SOLENOID VALVE

 With CONSULT

1. Turn ignition switch OFF.
2. Reconnect harness connectors disconnected.
3. Start engine.
4. Perform "PURG VOL CONT/V" in "ACTIVE TEST" mode of "ENGINE" using CONSULT. Check that engine speed varies according to the valve opening.

Is the inspection result normal?

P0443 EVAP CANISTER PURGE VOLUME CONTROL SOLENOID VALVE

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

- YES >> GO TO 8.
NO >> GO TO 7.

7.CHECK EVAP CANISTER PURGE VOLUME CONTROL SOLENOID VALVE

Check the EVAP canister purge volume control solenoid valve. Refer to [EC-315, "Component Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 8.
NO >> Replace EVAP canister purge volume control solenoid valve. Refer to [EC-14, "Component Parts Location"](#).

8.CHECK RUBBER TUBE FOR CLOGGING

1. Disconnect rubber tube connected to EVAP canister vent control valve.
2. Check the rubber tube for clogging.

Is the inspection result normal?

- YES >> GO TO 9.
NO >> Clean the rubber tube using an air blower.

9.CHECK EVAP CANISTER VENT CONTROL VALVE

Check the EVAP canister vent control valve. Refer to [EC-321, "Component Inspection"](#).

Is the inspection result normal?

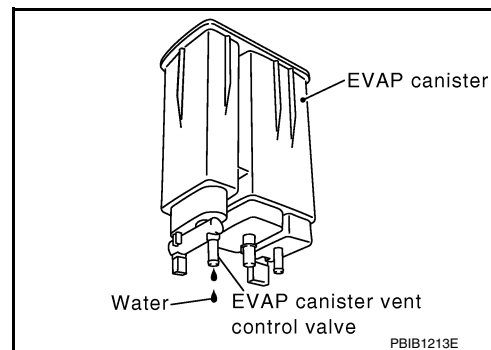
- YES >> GO TO 10.
NO >> Replace EVAP canister vent control valve. Refer to [FL-21, "Removal and Installation"](#).

10.CHECK IF EVAP CANISTER IS SATURATED WITH WATER

1. Remove EVAP canister with EVAP canister vent control valve and EVAP control system pressure sensor attached.
2. Check if water will drain from EVAP canister.

Does water drain from the EVAP canister?

- YES >> GO TO 11.
NO >> GO TO 13.



11.CHECK EVAP CANISTER

Weigh the EVAP canister with the EVAP canister vent control valve and EVAP control system pressure sensor attached.

The weight should be less than 2.1 kg (4.6 lb).

Is the inspection result normal?

- YES >> GO TO 13.
NO >> GO TO 12.

12.DETECT MALFUNCTIONING PART

Check the following.

- EVAP canister for damage
- EVAP hose between EVAP canister and vehicle frame for clogging or poor connection

>> Repair hose or replace EVAP canister. Refer to [FL-19, "Removal and Installation"](#).

13.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> INSPECTION END

P0443 EVAP CANISTER PURGE VOLUME CONTROL SOLENOID VALVE

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

INFOID:000000009985103

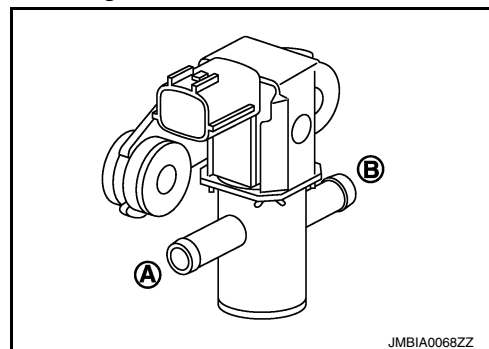
Component Inspection

1. CHECK EVAP CANISTER PURGE VOLUME CONTROL SOLENOID VALVE

④ With CONSULT

1. Turn ignition switch OFF.
2. Reconnect all harness connectors disconnected.
3. Disconnect EVAP purge hoses connected to EVAP canister purge volume control solenoid valve.
4. Turn ignition switch ON.
5. Select "PURG VOL CONT/V" in "ACTIVE TEST" mode of "ENGINE" using CONSULT.
6. Touch "Qd" and "Qu" on CONSULT screen to adjust "PURG VOL C/V" opening and check air passage continuity of EVAP canister purge volume control solenoid valve as per the following conditions.

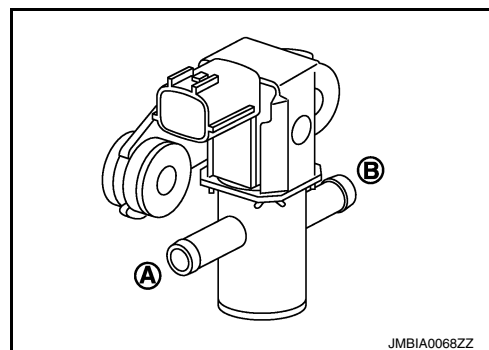
Condition (PURG VOL C/V value)	Air passage continuity between (A) and (B)
100%	Existed
0%	Not existed



⊗ Without CONSULT

1. Turn ignition switch OFF.
2. Disconnect EVAP canister purge volume control solenoid valve harness connector.
3. Disconnect EVAP purge hoses connected to EVAP canister purge volume control solenoid valve.
4. Check air passage continuity of EVAP canister purge volume control solenoid valve as per the following conditions.

Condition	Air passage continuity between (A) and (B)
12 V direct current supply between terminals 1 and 2	Existed
No supply	Not existed



Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace EVAP canister purge volume control solenoid valve. Refer to [EC-14](#),
["Component Parts Location"](#).

P0444, P0445 EVAP CANISTER PURGE VOLUME CONTROL SOLENOID VALVE

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P0444, P0445 EVAP CANISTER PURGE VOLUME CONTROL SOLENOID VALVE

DTC Description

INFOID:0000000009985104

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0444	PURG VOLUME CONT/V (Evaporative emission system purge control valve circuit open)	An excessively low voltage signal is sent to ECM through the EVAP canister purge volume control solenoid valve.
P0445	PURG VOLUME CONT/V (Evaporative emission system purge control valve circuit shorted)	An excessively high voltage signal is sent to ECM through the valve

POSSIBLE CAUSE

DTC P0444

- Harness or connectors (EVAP canister purge volume control solenoid valve circuit is open or shorted.)
- EVAP canister purge volume control solenoid valve

DTC P0445

- Harness or connectors (EVAP canister purge volume control solenoid valve circuit is shorted.)
- EVAP canister purge volume control solenoid valve

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1.CONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

TESTING CONDITION:

Before performing the following procedure, confirm battery voltage is more than 11 V at idle.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine and let it idle for at least 13 seconds.
2. Check 1st trip DTC.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-316, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000009985105

1.CHECK EVAP CANISTER PURGE VOLUME CONTROL SOLENOID VALVE POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect EVAP canister purge volume control solenoid valve harness connector.
3. Turn ignition switch ON.
4. Check the voltage between EVAP canister purge volume control solenoid valve harness connector and ground.

P0444, P0445 EVAP CANISTER PURGE VOLUME CONTROL SOLENOID VALVE

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

+		-	Voltage
EVAP canister purge volume control solenoid valve			
Connector	Terminal		
F16	2	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 2.

2.CHECK EVAP CANISTER PURGE VOLUME CONTROL SOLENOID VALVE POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R harness connector.
3. Check the continuity between EVAP canister purge volume control solenoid valve harness connector and IPDM E/R harness connector.

+		-		Continuity
EVAP canister purge volume control solenoid valve		IPDM E/R		
Connector	Terminal	Connector	Terminal	
F16	2	F35	73	Existed

4. Also check harness for short to ground.

Is the inspection result normal?

YES >> Perform the trouble diagnosis for power supply circuit.

NO >> Repair or replace error-detected parts.

3.CHECK EVAP CANISTER PURGE VOLUME CONTROL SOLENOID VALVE GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between EVAP canister purge volume control solenoid valve harness connector and ECM harness connector.

+		-		Continuity
EVAP canister purge volume control solenoid valve		ECM		
Connector	Terminal	Connector	Terminal	
F16	1	F51	17	Existed

4. Also check harness for short to power.

Is the inspection result normal?

YES-1 >> With CONSULT: GO TO 4.

YES-2 >> Without CONSULT: GO TO 5.

NO >> Repair or replace error-detected parts.

4.CHECK EVAP CANISTER PURGE VOLUME CONTROL SOLENOID VALVE OPERATION

Ⓔ With CONSULT

1. Reconnect all harness connectors disconnected.
2. Start engine.
3. Perform "PURG VOL CONT/V" in "ACTIVE TEST" mode of "ENGINE" using CONSULT.
4. Check that engine speed varies according to the valve opening.

Does engine speed vary according to the valve opening?

YES >> GO TO 6.

NO >> GO TO 5.

5.CHECK EVAP CANISTER PURGE VOLUME CONTROL SOLENOID VALVE

P0444, P0445 EVAP CANISTER PURGE VOLUME CONTROL SOLENOID VALVE

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

Check the EVAP canister purge volume control solenoid valve. Refer to [EC-315. "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 6.

NO >> Replace EVAP canister purge volume control solenoid valve. Refer to [EC-14. "Component Parts Location"](#).

6.CHECK INTERMITTENT INCIDENT

Refer to [GI-41. "Intermittent Incident"](#).

>> INSPECTION END

Component Inspection

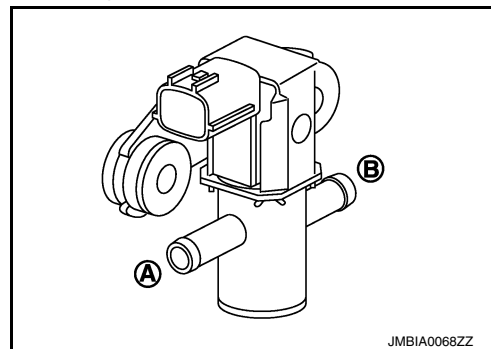
INFOID:000000009985106

1.CHECK EVAP CANISTER PURGE VOLUME CONTROL SOLENOID VALVE

With CONSULT

1. Turn ignition switch OFF.
2. Reconnect all harness connectors disconnected.
3. Disconnect EVAP purge hoses connected to EVAP canister purge volume control solenoid valve.
4. Turn ignition switch ON.
5. Select "PURG VOL CONT/V" in "ACTIVE TEST" mode of "ENGINE" using CONSULT.
6. Touch "Qd" and "Qu" on CONSULT screen to adjust "PURG VOL C/V" opening and check air passage continuity of EVAP canister purge volume control solenoid valve as per the following conditions.

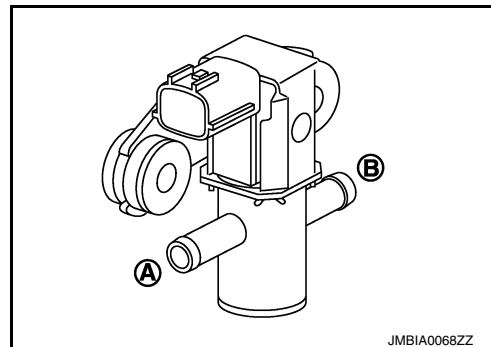
Condition (PURG VOL C/V value)	Air passage continuity between (A) and (B)
100%	Existed
0%	Not existed



Without CONSULT

1. Turn ignition switch OFF.
2. Disconnect EVAP canister purge volume control solenoid valve harness connector.
3. Disconnect EVAP purge hoses connected to EVAP canister purge volume control solenoid valve.
4. Check air passage continuity of EVAP canister purge volume control solenoid valve as per the following conditions.

Condition	Air passage continuity between (A) and (B)
12 V direct current supply between terminals 1 and 2	Existed
No supply	Not existed



Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace EVAP canister purge volume control solenoid valve. Refer to [EC-14. "Component Parts Location"](#).

P0447 EVAP CANISTER VENT CONTROL VALVE

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P0447 EVAP CANISTER VENT CONTROL VALVE

DTC Description

INFOID:000000009985107

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0447	VENT CONTROL VALVE (Evaporative emission system vent control circuit open)	An improper voltage signal is sent to ECM through EVAP canister vent control valve.

POSSIBLE CAUSE

- Harness or connectors (EVAP canister vent control valve circuit is open or shorted.)
- EVAP canister vent control valve

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

TESTING CONDITION:

Before performing the following procedure, confirm battery voltage is more than 11 V at idle.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine and wait at least 8 seconds.
2. Check 1st trip DTC.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-319. "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985108

1.INSPECTION START

Do you have CONSULT?

Do you have CONSULT?

- YES >> GO TO 2.
NO >> GO TO 3.

2.CHECK EVAP CANISTER VENT CONTROL VALVE CIRCUIT

Ⓔ With CONSULT

1. Turn ignition switch OFF and then turn ON.
2. Select "VENT CONTROL/V" in "ACTIVE TEST" mode of "ENGINE" using CONSULT.
3. Touch "ON/OFF" on CONSULT screen.
4. Check for operating sound of the valve.

Clicking sound should be heard.

Is the inspection result normal?

- YES >> GO TO 7.
NO >> GO TO 3.

P0447 EVAP CANISTER VENT CONTROL VALVE

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

3.CHECK EVAP CANISTER VENT CONTROL VALVE POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect EVAP canister vent control valve harness connector.
3. Turn ignition switch ON.
4. Check the voltage between EVAP canister vent control valve harness connector and ground.

+		-	Voltage
EVAP canister vent control valve			
Connector	Terminal		
B108	1	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 5.

NO >> GO TO 4.

4.CHECK EVAP CANISTER VENT CONTROL VALVE POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R harness connector.
3. Check the continuity between EVAP canister vent control valve harness connector and IPDM E/R harness connector.

+		-		Continuity
EVAP canister vent control valve		IPDM E/R		
Connector	Terminal	Connector	Terminal	
B108	1	F35	78	Existed

4. Also check harness for short to ground.

Is the inspection result normal?

YES >> Perform the trouble diagnosis for power supply circuit.

NO >> Repair or replace error-detected parts.

5.CHECK EVAP CANISTER VENT CONTROL VALVE OUTPUT SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between EVAP canister vent control valve harness connector and ECM harness connector.

+		-		Continuity
EVAP canister vent control valve		ECM		
Connector	Terminal	Connector	Terminal	
B108	2	E16	97	Existed

4. Also check harness for short to power.

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace error-detected parts.

6.CHECK RUBBER TUBE FOR CLOGGING

1. Disconnect rubber tube connected to EVAP canister vent control valve.
2. Check the rubber tube for clogging.

Is the inspection result normal?

YES >> GO TO 7.

NO >> Clean the rubber tube using an air blower.

P0447 EVAP CANISTER VENT CONTROL VALVE

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

7.CHECK EVAP CANISTER VENT CONTROL VALVE

Check the EVAP canister vent control valve. Refer to [EC-321, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 8.

NO >> Replace EVAP canister vent control valve. Refer to [FL-21, "Removal and Installation"](#)

8.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> INSPECTION END

Component Inspection

INFOID:000000009985109

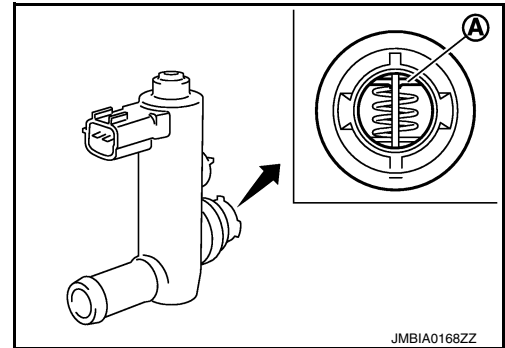
1.CHECK EVAP CANISTER VENT CONTROL VALVE-1

1. Turn ignition switch OFF.
2. Remove EVAP canister vent control valve from EVAP canister.
3. Check portion ① of EVAP canister vent control valve for being rusted.

Is it rusted?

YES >> Replace EVAP canister vent control valve. Refer to [FL-21, "Removal and Installation"](#).

NO >> GO TO 2.



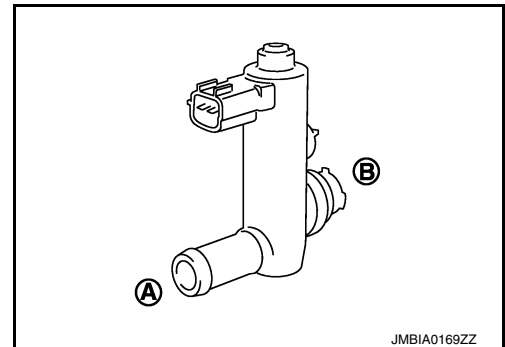
2.CHECK EVAP CANISTER VENT CONTROL VALVE-2

With CONSULT

1. Reconnect harness connectors disconnected.
2. Turn ignition switch ON.
3. Perform "VENT CONTROL/V" in "ACTIVE TEST" mode of "ENGINE" using CONSULT.
4. Check air passage continuity and operation delay time.
Make sure new O-ring is installed properly.

Condition (VENT CONT/V)	Air passage continuity between ① and ②
ON	Not existed
OFF	Existed

Operation takes less than 1 second.



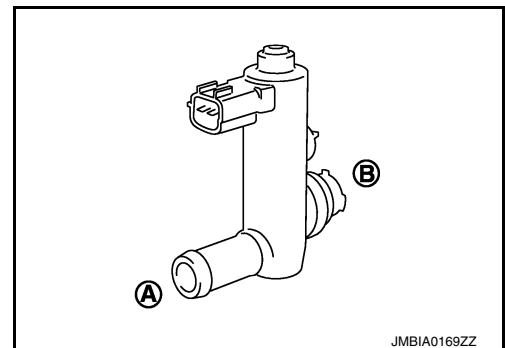
Without CONSULT

Check air passage continuity and operation delay time under the following conditions.

Make sure new O-ring is installed properly.

Condition	Air passage continuity between ① and ②
12 V direct current supply between terminals 1 and 2	Not existed
OFF	Existed

Operation takes less than 1 second.



P0447 EVAP CANISTER VENT CONTROL VALVE

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace EVAP canister vent control valve. Refer to [FL-21. "Removal and Installation"](#).

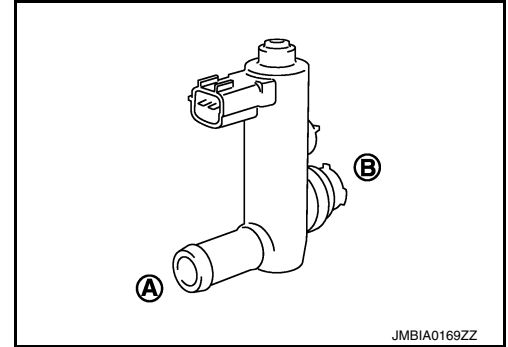
3.CHECK EVAP CANISTER VENT CONTROL VALVE-3

ⓑ With CONSULT

1. Clean the air passage [portion Ⓐ to Ⓑ] of EVAP canister vent control valve using an air blower.
2. Perform "VENT CONTROL/V" in "ACTIVE TEST" mode of "ENGINE" using CONSULT.
3. Check air passage continuity and operation delay time.
Make sure new O-ring is installed properly.

Condition (VENT CONT/V)	Air passage continuity between Ⓐ and Ⓑ
ON	Not existed
OFF	Existed

Operation takes less than 1 second.

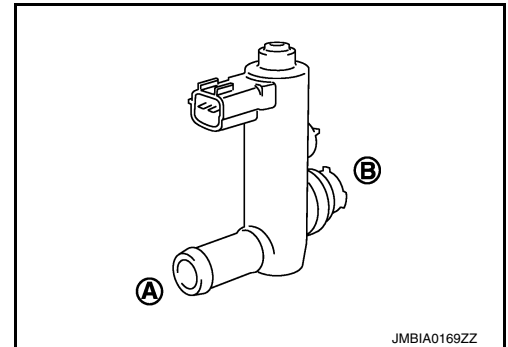


ⓧ Without CONSULT

1. Clean the air passage [portion Ⓐ to Ⓑ] of EVAP canister vent control valve using an air blower.
2. Check air passage continuity and operation delay time under the following conditions.
Make sure new O-ring is installed properly.

Condition	Air passage continuity between Ⓐ and Ⓑ
12 V direct current supply between terminals 1 and 2	Not existed
OFF	Existed

Operation takes less than 1 second.



Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace EVAP canister vent control valve. Refer to [FL-21. "Removal and Installation"](#).

P0448 EVAP CANISTER VENT CONTROL VALVE

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P0448 EVAP CANISTER VENT CONTROL VALVE

DTC Description

INFOID:000000009985110

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0448	VENT CONTROL VALVE (Evaporative emission system vent control circuit shorted)	EVAP canister vent control valve remains closed under specified driving conditions.

POSSIBLE CAUSE

- EVAP canister vent control valve
- EVAP control system pressure sensor and the circuit
- Blocked rubber tube to EVAP canister vent control valve
- EVAP canister is saturated with water

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

>> GO TO 2.

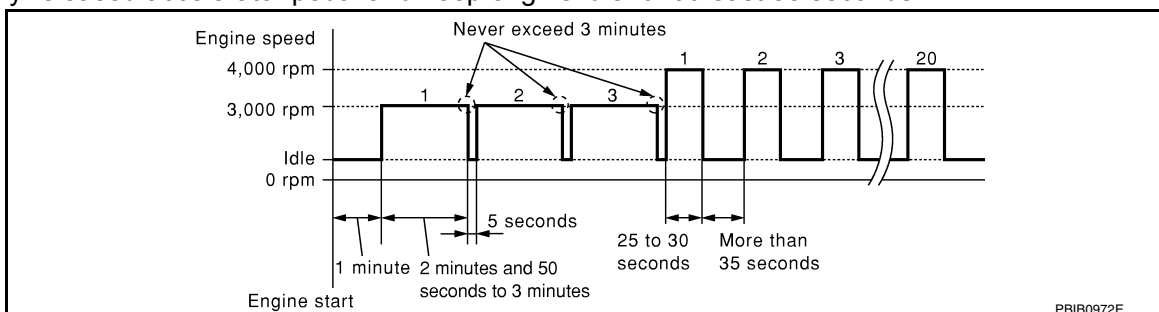
2.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT

1. Turn ignition switch ON and wait at least 5 seconds.
2. Turn ignition switch OFF and wait at least 10 seconds.
3. Turn ignition switch ON and select "DATA MONITOR" mode of "ENGINE" using CONSULT.
4. Start engine and let it idle for at least 1 minute.
5. Repeat next procedures three times.
 - Increase the engine speed up to 3,000 to 3,500 rpm and keep it for 2 minutes and 50 seconds to 3 minutes.

Never exceed 3 minutes.

- Fully released accelerator pedal and keep engine idle for about 5 seconds.
- 6. Repeat next procedure 20 times.
 - Quickly increase the engine speed up to 4,000 to 4,500 rpm or more and keep it for 25 to 30 seconds.
 - Fully released accelerator pedal and keep engine idle for at least 35 seconds.



7. Check 1st trip DTC.

With GST

Follow the procedure "With CONSULT" above.

Is 1st trip DTC detected?

P0448 EVAP CANISTER VENT CONTROL VALVE

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

- YES >> Proceed to [EC-324. "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985111

1. CHECK RUBBER TUBE

1. Turn ignition switch OFF.
2. Disconnect rubber tube connected to EVAP canister vent control valve.
3. Check the rubber tube for clogging.

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Clean rubber tube using an air blower.

2. CHECK EVAP CANISTER VENT CONTROL VALVE

Check the EVAP canister vent control valve. Refer to [EC-325. "Component Inspection"](#).

Is the inspection result normal?

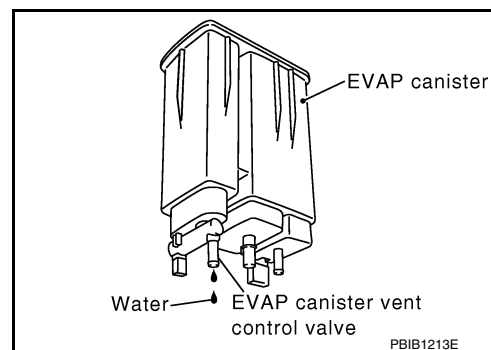
- YES >> GO TO 3.
NO >> Replace EVAP canister vent control valve. Refer to [FL-21. "Removal and Installation"](#).

3. CHECK IF EVAP CANISTER IS SATURATED WITH WATER

1. Remove EVAP canister with EVAP canister vent control valve and EVAP control system pressure sensor attached.
2. Check if water will drain from the EVAP canister.

Does water drain from EVAP canister?

- YES >> GO TO 4.
NO >> GO TO 6.



4. CHECK EVAP CANISTER

Weigh the EVAP canister with the EVAP canister vent control valve and EVAP control system pressure sensor attached.

The weight should be less than 2.1 kg (4.6 lb).

Is the inspection result normal?

- YES >> GO TO 6.
NO >> GO TO 5.

5. DETECT MALFUNCTIONING PART

Check the following.

- EVAP canister for damage
- EVAP hose between EVAP canister and vehicle frame for clogging or poor connection

>> Repair hose or replace EVAP canister. Refer to [FL-19. "Removal and Installation"](#).

6. CHECK EVAP CONTROL SYSTEM PRESSURE SENSOR CONNECTOR

1. Disconnect EVAP control system pressure sensor harness connector.
2. Check connectors for water.

Water should not exist.

Is the inspection result normal?

- YES >> GO TO 7.
NO >> Replace EVAP control system pressure sensor. Refer to [FL-22. "Removal and Installation"](#).

P0448 EVAP CANISTER VENT CONTROL VALVE

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

7. CHECK EVAP CONTROL SYSTEM PRESSURE SENSOR

Check the EVAP control system pressure sensor. Refer to [EC-330. "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 8.

NO >> Replace EVAP control system pressure sensor. Refer to [FL-22. "Removal and Installation"](#).

8. CHECK INTERMITTENT INCIDENT

Refer to [GI-41. "Intermittent Incident"](#).

>> INSPECTION END

Component Inspection

INFOID:000000009985112

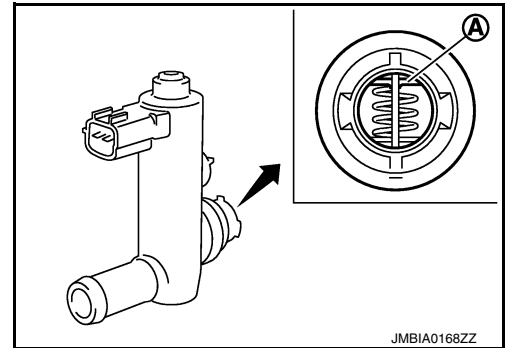
1. CHECK EVAP CANISTER VENT CONTROL VALVE-1

1. Turn ignition switch OFF.
2. Remove EVAP canister vent control valve from EVAP canister.
3. Check portion ① of EVAP canister vent control valve for being rusted.

Is it rusted?

YES >> Replace EVAP canister vent control valve. Refer to [FL-21. "Removal and Installation"](#).

NO >> GO TO 2.



2. CHECK EVAP CANISTER VENT CONTROL VALVE-2

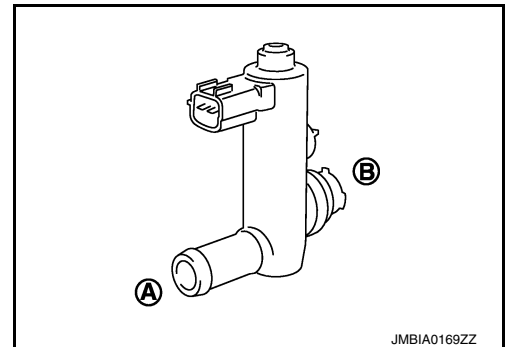
With CONSULT

1. Reconnect harness connectors disconnected.
2. Turn ignition switch ON.
3. Perform "VENT CONTROL/V" in "ACTIVE TEST" mode of "ENGINE" using CONSULT.
4. Check air passage continuity and operation delay time.

Make sure new O-ring is installed properly.

Condition (VENT CONT/V)	Air passage continuity between ① and ②
ON	Not existed
OFF	Existed

Operation takes less than 1 second.



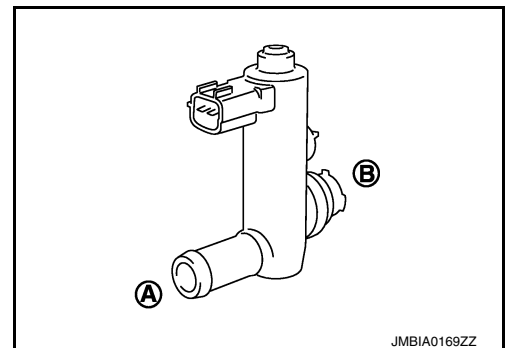
Without CONSULT

Check air passage continuity and operation delay time under the following conditions.

Make sure new O-ring is installed properly.

Condition	Air passage continuity between ① and ②
12 V direct current supply between terminals 1 and 2	Not existed
OFF	Existed

Operation takes less than 1 second.



P0448 EVAP CANISTER VENT CONTROL VALVE

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace EVAP canister vent control valve. Refer to [FL-21. "Removal and Installation"](#).

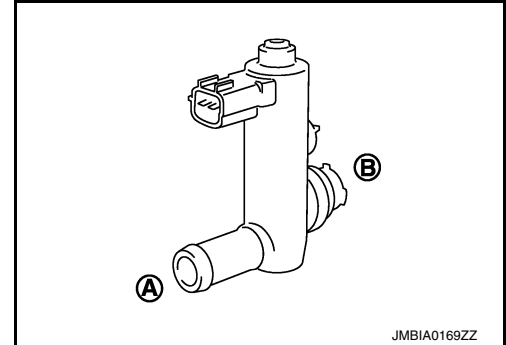
3. CHECK EVAP CANISTER VENT CONTROL VALVE-3

ⓑ With CONSULT

1. Clean the air passage [portion Ⓐ to Ⓑ] of EVAP canister vent control valve using an air blower.
2. Perform "VENT CONTROL/V" in "ACTIVE TEST" mode of "ENGINE" using CONSULT.
3. Check air passage continuity and operation delay time.
Make sure new O-ring is installed properly.

Condition (VENT CONT/V)	Air passage continuity between Ⓐ and Ⓑ
ON	Not existed
OFF	Existed

Operation takes less than 1 second.

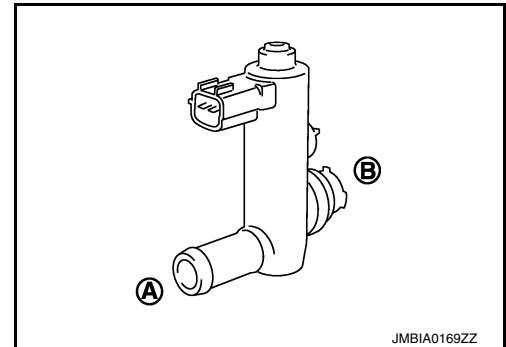


ⓧ Without CONSULT

1. Clean the air passage [portion Ⓐ to Ⓑ] of EVAP canister vent control valve using an air blower.
2. Check air passage continuity and operation delay time under the following conditions.
Make sure new O-ring is installed properly.

Condition	Air passage continuity between Ⓐ and Ⓑ
12 V direct current supply between terminals 1 and 2	Not existed
OFF	Existed

Operation takes less than 1 second.



Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace EVAP canister vent control valve. Refer to [FL-21. "Removal and Installation"](#).

P0451 EVAP CONTROL SYSTEM PRESSURE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P0451 EVAP CONTROL SYSTEM PRESSURE SENSOR

DTC Description

INFOID:000000009985113

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0451	EVAP SYS PRES SEN (Evaporative emission system pressure sensor/switch range/performance)	ECM detects a sloshing signal from the EVAP control system pressure sensor

POSSIBLE CAUSE

- Harness or connectors (EVAP control system pressure sensor circuit is shorted.)
- EVAP control system pressure sensor

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

NOTE:

Never remove fuel filler cap during DTC confirmation procedure.

1. PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

☐ With CONSULT >> GO TO 2.

☒ Without CONSULT >> GO TO 5.

2. PERFORM DTC CONFIRMATION PROCEDURE-1

☐ With CONSULT

1. Start engine and let it idle for least 40 seconds.

NOTE:

Do not depress accelerator pedal even slightly.

2. Check 1st trip DTC.

Is 1st trip DTC detected?

YES >> Proceed to [EC-328, "Diagnosis Procedure"](#).

NO >> GO TO 3.

3. PERFORM DTC CONFIRMATION PROCEDURE-2

☐ With CONSULT

1. Select "EVAP DIAG READY" in "DATA MONITOR" mode of "ENGINE".
2. Let it idle until "OFF" of "EVAP DIAG READY" changes to "ON".

NOTE:

It will take at most 2 hours until "OFF" of "EVAP DIAG READY" changes to "ON".

3. Turn ignition switch OFF and wait at least 90 minutes.

NOTE:

Never turn ignition switch ON during 90 minutes.

4. Turn ignition switch ON.
5. Select "EVAP LEAK DIAG" in "DATA MONITOR" mode of "ENGINE".
6. Check that "EVAP LEAK DIAG" indication.

Which is displayed on CONSULT?

CMPLT >> GO TO 4.

YET >> 1. Perform DTC CONFIRMATION PROCEDURE again.

2. GO TO 1.

P0451 EVAP CONTROL SYSTEM PRESSURE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

4.PERFORM DTC CONFIRMATION PROCEDURE-3

With CONSULT
Check 1st trip DTC.

Is 1st trip DTC detected?

YES >> Proceed to [EC-328, "Diagnosis Procedure"](#).
NO >> INSPECTION END

5.PERFORM DTC CONFIRMATION PROCEDURE-4

With GST
1. Start engine and let it idle for least 40 seconds.

NOTE:

Do not depress accelerator pedal even slightly.

2. Check 1st trip DTC.

Is 1st trip DTC detected?

YES >> Proceed to [EC-328, "Diagnosis Procedure"](#).
NO >> GO TO 6.

6.PERFORM DTC CONFIRMATION PROCEDURE-5

With GST
1. Let it idle for at least 2 hours.
2. Turn ignition switch OFF and wait at least 90 minutes.

NOTE:

Never turn ignition switch ON during 90 minutes.

3. Turn ignition switch ON.
4. Check 1st trip DTC.

Is 1st trip DTC detected?

YES >> Proceed to [EC-328, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985114

1.CHECK EVAP CONTROL SYSTEM PRESSURE SENSOR CONNECTOR FOR WATER

1. Turn ignition switch OFF.
2. Disconnect EVAP control system pressure sensor harness connector.
3. Check sensor harness connector for water.

Water should not exist.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace harness connector.

2.CHECK EVAP CONTROL SYSTEM PRESSURE SENSOR POWER SUPPLY

1. Turn ignition switch ON.
2. Check the voltage between EVAP control system pressure sensor harness connector and ground.

+		-	Voltage (Approx.)
EVAP control system pressure sensor			
Connector	Terminal		
B111	3	Ground	5 V

Is the inspection result normal?

YES >> GO TO 4.
NO >> GO TO 3.

3.CHECK EVAP CONTROL SYSTEM PRESSURE SENSOR POWER SUPPLY CIRCUIT

P0451 EVAP CONTROL SYSTEM PRESSURE SENSOR

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between EVAP control system pressure sensor harness connector and ECM harness connector.

+		-		Continuity
EVAP control system pressure sensor		ECM		
Connector	Terminal	Connector	Terminal	
B111	3	E16	113	Existed

4. Also check harness for short to ground and to power.

Is the inspection result normal?

YES >> Perform the trouble diagnosis for power supply circuit.

NO >> Repair or replace error-detected parts

4.CHECK EVAP CONTROL SYSTEM PRESSURE SENSOR GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between EVAP control system pressure sensor harness connector and ECM harness connector.

+		-		Continuity
EVAP control system pressure sensor		ECM		
Connector	Terminal	Connector	Terminal	
B111	1	E16	124	Existed

4. Also check harness for short to power.

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace error-detected parts.

5.CHECK EVAP CONTROL SYSTEM PRESSURE SENSOR SIGNAL CIRCUIT

1. Check the continuity between EVAP control system pressure sensor harness connector and ECM harness connector.

+		-		Continuity
EVAP control system pressure sensor		ECM		
Connector	Terminal	Connector	Terminal	
B111	2	E16	114	Existed

2. Also check harness for short to ground and to power.

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace error-detected parts.

6.CHECK EVAP CONTROL SYSTEM PRESSURE SENSOR

Check the EVAP control system pressure sensor. Refer to [EC-330, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 7.

NO >> Replace EVAP control system pressure sensor. Refer to [FL-22, "Removal and Installation"](#).

7.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

P0451 EVAP CONTROL SYSTEM PRESSURE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

>> INSPECTION END

Component Inspection

INFOID:000000009985115

1. CHECK EVAP CONTROL SYSTEM PRESSURE SENSOR

1. Turn ignition switch OFF.
2. Remove EVAP control system pressure sensor with its harness connector connected from EVAP canister.
Always replace O-ring with a new one.
3. Install a vacuum pump to EVAP control system pressure sensor.
4. Turn ignition switch ON and check output voltage between ECM harness connector and ground under the following conditions.

ECM			Condition [Applied vacuum kPa (kg/cm ² , psi)]	Voltage
Connector	+	-		
	Terminal			
E16	114	124	Not applied	0.5 - 4.6 V
			-26.7 (-0.272, -3.87)	2.1 to 2.5 V lower than above value

CAUTION:

- Always calibrate the vacuum pump gauge when using it.
- Do not apply below -93.3 kPa (-0.952 kg/cm², -13.53 psi) or pressure over 101.3 kPa (1.033 kg/cm², 14.69 psi).

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace EVAP control system pressure sensor. Refer to [FL-22. "Removal and Installation"](#).

P0452 EVAP CONTROL SYSTEM PRESSURE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P0452 EVAP CONTROL SYSTEM PRESSURE SENSOR

DTC Description

INFOID:000000009985116

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0452	EVAP SYS PRES SEN (Evaporative emission system pressure sensor/switch low)	An excessively low voltage from the sensor is sent to ECM.

POSSIBLE CAUSE

- Harness or connectors (EVAP control system pressure sensor circuit is shorted.)
- EVAP control system pressure sensor

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

TESTING CONDITION:

Always perform test at a temperature of 5°C (41°F) or more.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT

1. Start engine and warm it up to normal operating temperature.
2. Turn ignition switch OFF and wait at least 10 seconds.
3. Turn ignition switch ON.
4. Select "DATA MONITOR" mode of "ENGINE" using CONSULT.
5. Make sure that "FUEL T/TMP SE" indication is more than 0°C (32°F).
6. Start engine and wait at least 20 seconds.
7. Check 1st trip DTC.

With GST

1. Start engine and warm it up to normal operating temperature.
2. Set voltmeter probes to ECM harness connector terminals as per the following.

ECM			Voltage
Connector	+	—	
	Terminal		
E16	114	124	Less than 4.2 V

3. Make sure that the voltage is less than 4.2 V.
4. Turn ignition switch OFF and wait at least 10 seconds.
5. Start engine and wait at least 20 seconds.
6. Check 1st trip DTC.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-332. "Diagnosis Procedure"](#).
NO >> INSPECTION END

P0452 EVAP CONTROL SYSTEM PRESSURE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

Diagnosis Procedure

INFOID:000000009985117

1. CHECK EVAP CONTROL SYSTEM PRESSURE SENSOR CONNECTOR FOR WATER

1. Turn ignition switch OFF.
2. Disconnect EVAP control system pressure sensor harness connector.
3. Check sensor harness connector for water.

Water should not exist.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness connector.

2. CHECK EVAP CONTROL SYSTEM PRESSURE SENSOR POWER SUPPLY

1. Turn ignition switch ON.
2. Check the voltage between EVAP control system pressure sensor harness connector and ground.

+		-	Voltage (Approx.)
EVAP control system pressure sensor			
Connector	Terminal		
B111	3	Ground	5 V

Is the inspection result normal?

YES >> GO TO 4.

NO >> GO TO 3.

3. CHECK EVAP CONTROL SYSTEM PRESSURE SENSOR POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between EVAP control system pressure sensor harness connector and ECM harness connector.

+		-		Continuity
EVAP control system pressure sensor		ECM		
Connector	Terminal	Connector	Terminal	
B111	3	E16	113	Existed

4. Also check harness for short to ground and to power.

Is the inspection result normal?

YES >> Perform the trouble diagnosis for power supply circuit.

NO >> Repair or replace error-detected parts

4. CHECK EVAP CONTROL SYSTEM PRESSURE SENSOR GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between EVAP control system pressure sensor harness connector and ECM harness connector.

+		-		Continuity
EVAP control system pressure sensor		ECM		
Connector	Terminal	Connector	Terminal	
B111	1	E16	124	Existed

4. Also check harness for short to power.

P0452 EVAP CONTROL SYSTEM PRESSURE SENSOR

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace error-detected parts.

5.CHECK EVAP CONTROL SYSTEM PRESSURE SENSOR SIGNAL CIRCUIT

1. Check the continuity between EVAP control system pressure sensor harness connector and ECM harness connector.

+		-		Continuity
EVAP control system pressure sensor		ECM		
Connector	Terminal	Connector	Terminal	
B111	2	E16	114	Existed

2. Also check harness for short to ground and to power.

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace error-detected parts.

6.CHECK EVAP CONTROL SYSTEM PRESSURE SENSOR

Check the EVAP control system pressure sensor. Refer to [EC-330, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 7.

NO >> Replace EVAP control system pressure sensor. Refer to [FL-22, "Removal and Installation"](#).

7.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> INSPECTION END

Component Inspection

INFOID:000000009985118

1.CHECK EVAP CONTROL SYSTEM PRESSURE SENSOR

1. Turn ignition switch OFF.
2. Remove EVAP control system pressure sensor with its harness connector connected from EVAP canister.
Always replace O-ring with a new one.
3. Install a vacuum pump to EVAP control system pressure sensor.
4. Turn ignition switch ON and check output voltage between ECM harness connector and ground under the following conditions.

ECM			Condition [Applied vacuum kPa (kg/cm ² , psi)]	Voltage
Connector	+	−		
	Terminal			
E16	114	124	Not applied	0.5 - 4.6 V
			-26.7 (-0.272, -3.87)	2.1 to 2.5 V lower than above value

CAUTION:

- Always calibrate the vacuum pump gauge when using it.
- Do not apply below -93.3 kPa (-0.952 kg/cm², -13.53 psi) or pressure over 101.3 kPa (1.033 kg/cm², 14.69 psi).

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace EVAP control system pressure sensor. Refer to [FL-22, "Removal and Installation"](#).

P0453 EVAP CONTROL SYSTEM PRESSURE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P0453 EVAP CONTROL SYSTEM PRESSURE SENSOR

DTC Description

INFOID:000000009985119

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0453	EVAP SYS PRES SEN (Evaporative emission system pressure sensor/switch high)	An excessively high voltage from the sensor is sent to ECM.

POSSIBLE CAUSE

- Harness or connectors (EVAP control system pressure sensor circuit is shorted.)
- EVAP control system pressure sensor

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

TESTING CONDITION:

Always perform test at a temperature of 5°C (41°F) or more.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT

1. Start engine and warm it up to normal operating temperature.
2. Turn ignition switch OFF and wait at least 10 seconds.
3. Turn ignition switch ON.
4. Select "DATA MONITOR" mode of "ENGINE" using CONSULT.
5. Make sure that "FUEL T/TMP SE" indication is more than 0°C (32°F).
6. Start engine and wait at least 20 seconds.
7. Check 1st trip DTC.

With GST

1. Start engine and warm it up to normal operating temperature.
2. Set voltmeter probes to ECM harness connector terminals as per the following.

ECM			Voltage
Connector	+	—	
	Terminal		
E16	114	124	Less than 4.2 V

3. Make sure that the voltage is less than 4.2 V.
4. Turn ignition switch OFF and wait at least 10 seconds.
5. Start engine and wait at least 20 seconds.
6. Check 1st trip DTC.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-335, "Diagnosis Procedure"](#).
NO >> INSPECTION END

P0453 EVAP CONTROL SYSTEM PRESSURE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

Diagnosis Procedure

INFOID:000000009985120

1. CHECK EVAP CONTROL SYSTEM PRESSURE SENSOR CONNECTOR FOR WATER

1. Turn ignition switch OFF.
2. Disconnect EVAP control system pressure sensor harness connector.
3. Check sensor harness connector for water.

Water should not exist.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness connector.

2. CHECK EVAP CONTROL SYSTEM PRESSURE SENSOR POWER SUPPLY

1. Turn ignition switch ON.
2. Check the voltage between EVAP control system pressure sensor harness connector and ground.

+		-	Voltage (Approx.)
EVAP control system pressure sensor			
Connector	Terminal		
B111	3	Ground	5 V

Is the inspection result normal?

YES >> GO TO 4.

NO >> GO TO 3.

3. CHECK EVAP CONTROL SYSTEM PRESSURE SENSOR POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between EVAP control system pressure sensor harness connector and ECM harness connector.

+		-		Continuity
EVAP control system pressure sensor		ECM		
Connector	Terminal	Connector	Terminal	
B111	3	E16	113	Existed

4. Also check harness for short to ground and to power.

Is the inspection result normal?

YES >> Perform the trouble diagnosis for power supply circuit.

NO >> Repair or replace error-detected parts

4. CHECK EVAP CONTROL SYSTEM PRESSURE SENSOR GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between EVAP control system pressure sensor harness connector and ECM harness connector.

+		-		Continuity
EVAP control system pressure sensor		ECM		
Connector	Terminal	Connector	Terminal	
B111	1	E16	124	Existed

4. Also check harness for short to power.

P0453 EVAP CONTROL SYSTEM PRESSURE SENSOR

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace error-detected parts.

5.CHECK EVAP CONTROL SYSTEM PRESSURE SENSOR SIGNAL CIRCUIT

1. Check the continuity between EVAP control system pressure sensor harness connector and ECM harness connector.

+		-		Continuity
EVAP control system pressure sensor		ECM		
Connector	Terminal	Connector	Terminal	
B111	2	E16	114	Existed

2. Also check harness for short to ground and to power.

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace error-detected parts.

6.CHECK RUBBER TUBE

1. Disconnect rubber tube connected to EVAP canister vent control valve.
2. Check the rubber tube for clogging.

Is the inspection result normal?

YES >> GO TO 7.

NO >> Clean the rubber tube using an air blower, repair or replace rubber tube.

7.CHECK EVAP CANISTER VENT CONTROL VALVE

Refer to [EC-321, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 8.

NO >> Replace EVAP canister vent control valve. Refer to [FL-21, "Removal and Installation"](#).

8.CHECK EVAP CONTROL SYSTEM PRESSURE SENSOR

Refer to [EC-337, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 9.

NO >> Replace EVAP control system pressure sensor. Refer to [FL-22, "Removal and Installation"](#).

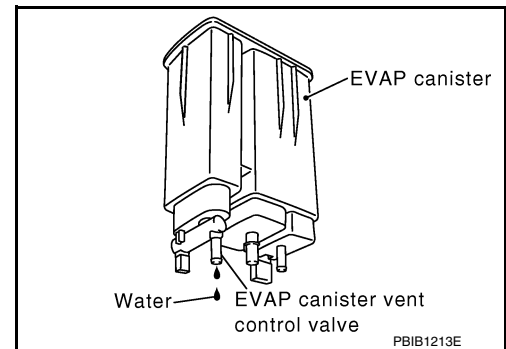
9.CHECK IF EVAP CANISTER IS SATURATED WITH WATER

1. Remove EVAP canister with EVAP canister vent control valve and EVAP control system pressure sensor attached.
2. Check if water will drain from the EVAP canister.

Does water drain from EVAP canister?

YES >> GO TO 10.

NO >> GO TO 12.



10.CHECK EVAP CANISTER

Weigh the EVAP canister with the EVAP canister vent control valve and EVAP control system pressure sensor attached.

The weight should be less than 1.9 kg (4.2 lb).

P0453 EVAP CONTROL SYSTEM PRESSURE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

Is the inspection result normal?

- YES >> GO TO 12.
- NO >> GO TO 11.

11.DETECT MALFUNCTIONING PART

Check the following.

- EVAP canister for damage
- EVAP hose between EVAP canister and vehicle frame for clogging or poor connection

>> Repair hose or replace EVAP canister. Refer to [FL-19, "Removal and Installation"](#).

12.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> INSPECTION END

Component Inspection

INFOID:000000009985121

1.CHECK EVAP CONTROL SYSTEM PRESSURE SENSOR

1. Turn ignition switch OFF.
2. Remove EVAP control system pressure sensor with its harness connector connected from EVAP canister.
Always replace O-ring with a new one.
3. Install a vacuum pump to EVAP control system pressure sensor.
4. Turn ignition switch ON and check output voltage between ECM harness connector and ground under the following conditions.

ECM			Condition [Applied vacuum kPa (kg/cm ² , psi)]	Voltage
Connector	+	-		
	Terminal			
E16	114	124	Not applied	0.5 - 4.6 V
			-26.7 (-0.272, -3.87)	2.1 to 2.5 V lower than above value

CAUTION:

- Always calibrate the vacuum pump gauge when using it.
- Do not apply below -93.3 kPa (-0.952 kg/cm², -13.53 psi) or pressure over 101.3 kPa (1.033 kg/cm², 14.69 psi).

Is the inspection result normal?

- YES >> INSPECTION END
- NO >> Replace EVAP control system pressure sensor. Refer to [FL-22, "Removal and Installation"](#).

P0456 EVAP CONTROL SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P0456 EVAP CONTROL SYSTEM

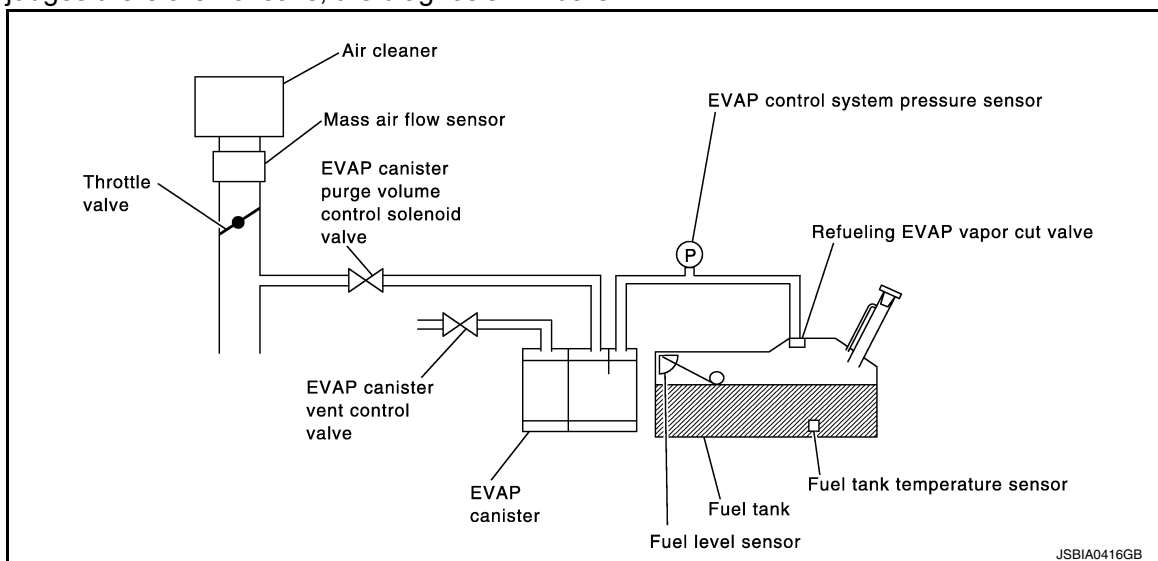
DTC Description

INFOID:000000009985122

DTC DETECTION LOGIC

This diagnosis detects leaks in the EVAP line between fuel tank and EVAP canister purge volume control solenoid valve, using the negative pressure caused by decrease of fuel temperature in the fuel tank after turning ignition switch OFF.

If ECM judges there are no leaks, the diagnosis will be OK.



DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0456	EVAP VERY SML LEAK [Evaporative emission system leak detected (very small leak)]	• EVAP system has a leak. • EVAP system does not operate properly.

CAUTION:

- Use only a genuine NISSAN fuel filler cap as a replacement. If an incorrect fuel filler cap is used, the MIL may illuminate.
- If the fuel filler cap is not tightened properly, the MIL may illuminate.
- Use only a genuine NISSAN rubber tube as a replacement.

POSSIBLE CAUSE

- Incorrect fuel tank vacuum relief valve
- Incorrect fuel filler cap used
- Fuel filler cap remains open or does not close.
- Foreign matter caught in fuel filler cap.
- Leak is in line between intake manifold and EVAP canister purge volume control solenoid valve.
- Foreign matter caught in EVAP canister vent control valve.
- EVAP canister or fuel tank leaks
- EVAP purge line (pipe and rubber tube) leaks
- EVAP purge line rubber tube bent
- Loose or disconnected rubber tube
- EVAP canister vent control valve and the circuit
- EVAP canister purge volume control solenoid valve and the circuit
- Fuel tank temperature sensor
- O-ring of EVAP canister vent control valve is missing or damaged
- EVAP canister is saturated with water
- EVAP control system pressure sensor
- Refueling EVAP vapor cut valve
- ORVR system leaks
- Fuel level sensor and the circuit
- Foreign matter caught in EVAP canister purge volume control solenoid valve

P0456 EVAP CONTROL SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

Do you have CONSULT?

YES >> GO TO 2.

NO >> GO TO 4.

2. PERFORM DTC CONFIRMATION PROCEDURE-1

Ⓐ WITH CONSULT

1. Turn ignition switch ON and select "EVAP DIAG READY" in "DATA MONITOR" mode of "ENGINE" using CONSULT.

2. Start engine and wait at idle until "OFF" of "EVAP DIAG READY" changes to "ON".

NOTE:

It will take at most 2 hours until "OFF" of "EVAP DIAG READY" changes to "ON".

3. Turn ignition switch OFF and wait at least 90 minutes.

NOTE:

Never turn ignition switch ON during 90 minutes.

4. Turn ignition switch ON and select "EVAP LEAK DIAG" in "DATA MONITOR" mode of "ENGINE" using CONSULT.

5. Check that "EVAP LEAK DIAG" indication.

Which is displayed on CONSULT?

CMPLT >> GO TO 3.

YET >> Perform DTC CONFIRMATION PROCEDURE again. GO TO 1.

3. PERFORM DTC CONFIRMATION PROCEDURE-2

Check 1st trip DTC.

Is 1st trip DTC detected?

YES >> Proceed to [EC-339. "Diagnosis Procedure"](#).

NO >> INSPECTION END.

4. PERFORM DTC CONFIRMATION PROCEDURE

Ⓑ WITH GST

1. Start engine and wait engine idle for at least 2 hours.

2. Turn ignition switch OFF and wait at least 90 minutes.

NOTE:

Never turn ignition switch ON during 90 minutes.

3. Turn ignition switch ON.

4. Check 1st trip DTC.

Is 1st trip DTC detected?

YES >> Proceed to [EC-339. "Diagnosis Procedure"](#).

NO >> INSPECTION END.

Diagnosis Procedure

INFOID:0000000009985123

1. CHECK FUEL FILLER CAP DESIGN

1. Turn ignition switch OFF.

P0456 EVAP CONTROL SYSTEM

[QR25DE]

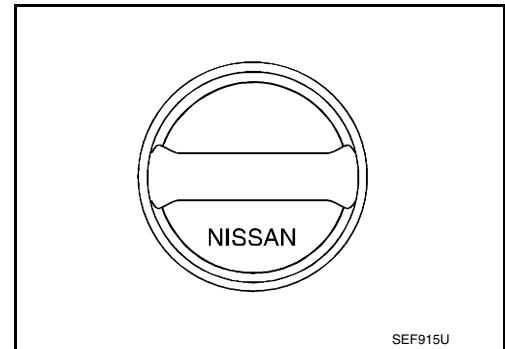
< DTC/CIRCUIT DIAGNOSIS >

2. Check for genuine NISSAN fuel filler cap design.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace with genuine NISSAN fuel filler cap.



2. CHECK FUEL FILLER CAP INSTALLATION

Check that the cap is tightened properly by rotating the cap clockwise.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Open fuel filler cap, then clean cap and fuel filler neck threads using air blower. Then retighten until ratcheting sound is heard.

3. CHECK FUEL FILLER CAP FUNCTION

Check for air releasing sound while opening the fuel filler cap.

Is the inspection result normal?

YES >> GO TO 5.

NO >> GO TO 4.

4. CHECK FUEL TANK VACUUM RELIEF VALVE

Refer to [EC-343, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace fuel filler cap with a genuine one.

5. CHECK FOR EVAP LEAK

Refer to [EC-496, "Inspection"](#).

Is there any leak in EVAP line?

YES >> Repair or replace.

NO >> GO TO 6.

6. CHECK EVAP CANISTER VENT CONTROL VALVE

Check the following.

- EVAP canister vent control valve is installed properly.

Refer to [FL-21, "Exploded View"](#).

- EVAP canister vent control valve.

Refer to [FL-21, "Removal and Installation"](#).

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace EVAP canister vent control valve and O-ring. Refer to [FL-21, "Removal and Installation"](#).

7. CHECK IF EVAP CANISTER SATURATED WITH WATER

1. Remove EVAP canister with EVAP canister vent control valve and EVAP control system pressure sensor attached.

P0456 EVAP CONTROL SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

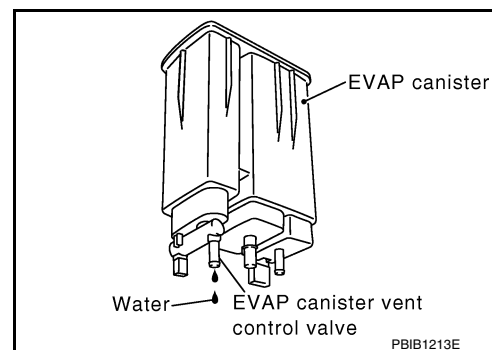
2. Check if water will drain from the EVAP canister.

Does water drain from EVAP canister?

YES >> GO TO 8.

NO-1 >> With CONSULT: GO TO 10.

NO-2 >> Without CONSULT: GO TO 11.



8. CHECK EVAP CANISTER

Weigh the EVAP canister assembly with the EVAP canister vent control valve and EVAP control system pressure sensor attached. Refer to [FL-21, "Removal and Installation"](#).

The weight should be less than 2.1 kg (4.6 lb).

Is the inspection result normal?

YES-1 >> With CONSULT: GO TO 10.

YES-2 >> Without CONSULT: GO TO 11.

NO >> GO TO 9.

9. DETECT MALFUNCTIONING PART

Check the following.

- EVAP canister for damage
- EVAP hose between EVAP canister and vehicle frame for clogging or poor connection

>> Repair hose or replace EVAP canister. Refer to [FL-19, "Removal and Installation"](#).

10. CHECK EVAP CANISTER PURGE VOLUME CONTROL SOLENOID VALVE OPERATION

Ⓜ With CONSULT

1. Disconnect vacuum hose to EVAP canister purge volume control solenoid valve at EVAP service port.
2. Start engine and let it idle.
3. Select "PURG VOL CONT/V" in "ACTIVE TEST" mode of "ENGINE" using CONSULT.
4. Touch "Qu" on CONSULT screen to increase "PURG VOL CONT/V" opening to 100%.
5. Check vacuum hose for vacuum.

Vacuum should exist.

Is the inspection result normal?

YES >> GO TO 13.

NO >> GO TO 12.

11. CHECK EVAP CANISTER PURGE VOLUME CONTROL SOLENOID VALVE OPERATION

ⓧ Without CONSULT

1. Start engine and warm it up to normal operating temperature.
2. Stop engine.
3. Disconnect vacuum hose to EVAP canister purge volume control solenoid valve at EVAP service port.
4. Start engine and let it idle for at least 80 seconds.
5. Check vacuum hose for vacuum when revving engine up to 2,000 rpm.

Vacuum should exist.

Is the inspection result normal?

YES >> GO TO 13.

NO >> GO TO 12.

12. CHECK VACUUM HOSE

Check vacuum hoses for clogging or disconnection.

Is the inspection result normal?

P0456 EVAP CONTROL SYSTEM

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

- YES >> GO TO 13.
NO >> Repair or reconnect the hose.

13.CHECK EVAP CANISTER PURGE VOLUME CONTROL SOLENOID VALVE

Check the EVAP canister purge volume control solenoid valve. Refer to [EC-315, "Component Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 14.
NO >> Replace EVAP canister purge volume control solenoid valve. Refer to [EC-14, "Component Parts Location"](#).

14.CHECK FUEL TANK TEMPERATURE SENSOR

Check the fuel tank temperature sensor. Refer to [EC-273, "Component Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 15.
NO >> Replace fuel level sensor unit. Refer to [FL-6, "Removal and Installation"](#).

15.CHECK EVAP CONTROL SYSTEM PRESSURE SENSOR

Check the EVAP control system pressure sensor. Refer to [FL-22, "Removal and Installation"](#).

Is the inspection result normal?

- YES >> GO TO 16.
NO >> Replace EVAP control system pressure sensor. Refer to [FL-22, "Removal and Installation"](#).

16.CHECK EVAP PURGE LINE

Check EVAP purge line (pipe, rubber tube, fuel tank and EVAP canister) for cracks or improper connection. Refer to [EC-53, "EVAPORATIVE EMISSION SYSTEM : System Description"](#).

Is the inspection result normal?

- YES >> GO TO 17.
NO >> Repair or reconnect the hose.

17.CLEAN EVAP PURGE LINE

Clean EVAP purge line (pipe and rubber tube) using air blower.

>> GO TO 18.

18.CHECK EVAP/ORVR LINE

Check EVAP/ORVR line between EVAP canister and fuel tank for clogging, kink, looseness and improper connection. For location, refer to [EC-53, "EVAPORATIVE EMISSION SYSTEM : System Description"](#).

Is the inspection result normal?

- YES >> GO TO 19.
NO >> Repair or replace hoses and tubes.

19.CHECK RECIRCULATION LINE

Check recirculation line between fuel filler tube and fuel tank for clogging, kink, cracks, looseness and improper connection.

Is the inspection result normal?

- YES >> GO TO 20.
NO >> Repair or replace hose, tube or fuel filler tube. Refer to [FL-12, "FWD : Exploded View"](#) (with FWD models) or [FL-16, "AWD : Exploded View"](#) (with AWD models).

20.CHECK REFUELING EVAP VAPOR CUT VALVE

Check the refueling EVAP vapor cut valve. Refer to [FL-15, "FWD : Inspection"](#) (with FWD models) or [FL-18, "AWD : Inspection"](#) (with AWD models).

Is the inspection result normal?

- YES >> GO TO 21.
NO >> Replace refueling EVAP vapor cut valve with fuel tank. Refer to [FL-12, "FWD : Removal and Installation"](#) (with FWD models) or [FL-16, "AWD : Removal and Installation"](#) (with AWD models).

P0456 EVAP CONTROL SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

21.CHECK FUEL LEVEL SENSOR

Check the fuel level sensor. Refer to [MWI-63. "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 22.

NO >> Replace fuel level sensor unit. Refer to [FL-6. "Removal and Installation"](#).

22.CHECK INTERMITTENT INCIDENT

Refer to [GI-41. "Intermittent Incident"](#).

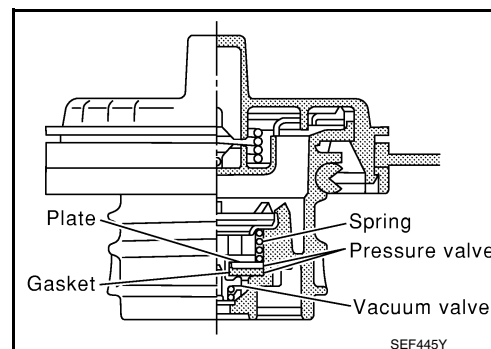
>> INSPECTION END

Component Inspection

INFOID:000000009985124

1.CHECK FUEL FILLER CAP

1. Turn ignition switch OFF.
2. Remove fuel filler cap.
3. Wipe clean valve housing.



4. Install fuel filler cap adapter (commercial service tool) to fuel filler cap.
5. Check valve opening pressure and vacuum.

Pressure: 15.3 - 20.0 kPa (0.156 - 0.204 kg/cm², 2.22 - 2.90 psi)

Vacuum: -6.0 to -3.3 kPa (-0.061 to -0.034 kg/cm², -0.87 to -0.48 psi)

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 2.

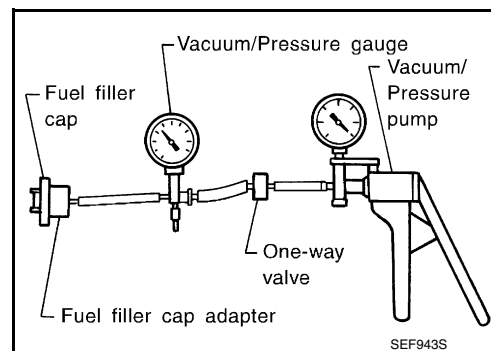
2.REPLACE FUEL FILLER CAP

Replace fuel filler cap.

CAUTION:

Use only a genuine fuel filler cap as a replacement. If an incorrect fuel filler cap is used, the MIL may illuminate.

>> INSPECTION END



P0460 FUEL LEVEL SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P0460 FUEL LEVEL SENSOR

DTC Description

INFOID:000000009985125

DTC DETECTION LOGIC

When the vehicle is parked, naturally the fuel level in the fuel tank is stable. It means that output signal of the fuel level sensor does not change. If ECM senses sloshing signal from the sensor, fuel level sensor malfunction is detected.

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0460	FUEL LEV SEN SLOSH (Fuel Level Sensor "A" Circuit)	Even though the vehicle is parked, a signal being varied is sent from the fuel level sensor to ECM.

POSSIBLE CAUSE

- Harness or connectors (The CAN communication line is open or shorted.)
- Harness or connectors (The sensor circuit is open or shorted.)
- Combination meter
- Fuel level sensor

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1.CHECK DTC PRIORITY

If DTC P0460 is displayed with DTC UXXXX or P0607, first perform the trouble diagnosis for DTC UXXXX or P0607.

Is applicable DTC detected?

- YES >> Perform diagnosis of applicable. Refer to [EC-93. "DTC Index"](#).
NO >> GO TO 2.

2.PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

>> GO TO 3.

3.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine and wait maximum of 2 consecutive minutes.
2. Check 1st trip DTC.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-344. "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985126

1.CHECK DTC PRIORITY

If DTC P0460 is displayed with DTC UXXXX or P0607, first perform the trouble diagnosis for DTC UXXXX or P0607.

Is applicable DTC detected?

- YES >> Perform diagnosis of applicable. Refer to [EC-93. "DTC Index"](#).
NO >> GO TO 2.

2.CHECK COMBINATION METER FUNCTION

P0460 FUEL LEVEL SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

Refer to [MWI-21, "CONSULT Function \(METER/M&A\)"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Refer to [MWI-62, "Component Function Check"](#).

3.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> INSPECTION END

A

EC

C

D

E

F

G

H

I

J

K

L

M

N

O

P

P0461 FUEL LEVEL SENSOR

DTC Description

INFOID:000000009985127

DTC DETECTION LOGIC

Driving long distances naturally affect fuel gauge level.

This diagnosis detects the fuel gauge malfunction of the gauge not moving even after a long distance has been driven.

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0461	FUEL LEVEL SENSOR (Fuel level sensor "A" circuit range/performance)	The output signal of the fuel level sensor does not change within the specified range even though the vehicle has been driven a long distance.

POSSIBLE CAUSE

- Harness or connectors (The CAN communication line is open or shorted.)
- Harness or connectors (The sensor circuit is open or shorted.)
- Combination meter
- Fuel level sensor

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1.CHECK DTC PRIORITY

If DTC P0461 is displayed with DTC UXXXX or P0607, first perform the trouble diagnosis for DTC UXXXX or P0607.

Is applicable DTC detected?

- YES >> Perform diagnosis of applicable. Refer to [EC-93. "DTC Index"](#).
 NO >> GO TO 2.

2.PRECONDITIONING

WARNING:

When performing following procedure, be sure to observe the handling of the fuel. Refer to [FL-2. "General Precaution"](#).

TESTING CONDITION:

Before starting component function check, preparation of draining fuel and refilling fuel is required.

Do you have CONSULT?

- YES >> GO TO 3.
 NO >> GO TO 4.

3.PERFORM COMPONENT FUNCTION CHECK

ⓅWith CONSULT

NOTE:

Start from step 10, if it is possible to confirm that the fuel cannot be drained by 30 ℓ (7-7/8 US gal, 6-5/8 Imp gal) in advance.

1. Prepare a fuel container and a spare hose.
2. Release fuel pressure from fuel line, refer to [EC-144. "Work Procedure"](#).
3. Remove the fuel feed hose on the fuel level sensor unit.
4. Connect a spare fuel hose where the fuel feed hose was removed.
5. Turn ignition switch OFF and wait at least 10 seconds then turn ON.
6. Select "FUEL LEVEL SE" in "DATA MONITOR" mode of "ENGINE" using CONSULT.
7. Check "FUEL LEVEL SE" output voltage and note it.
8. Select "FUEL PUMP RELAY" in "ACTIVE TEST" mode of "ENGINE" using CONSULT.
9. Touch "ON" and drain fuel approximately 30 ℓ (7-7/8 US gal, 6-5/8 Imp gal) and stop it.
10. Check "FUEL LEVEL SE" output voltage and note it.

P0461 FUEL LEVEL SENSOR

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

11. Fill fuel into the fuel tank for 30 ℓ (7-7/8 US gal, 6-5/8 Imp gal).
12. Check "FUEL LEVEL SE" output voltage and note it.
13. Confirm whether the voltage changes more than 0.03 V during step 7 to 10 and 10 to 12.

Is the inspection result normal?

- YES >> INSPECTION END
NO >> Proceed to [EC-347, "Diagnosis Procedure"](#).

4.PERFORM COMPONENT FUNCTION CHECK

 Without CONSULT

NOTE:

Start from step 8, if it is possible to confirm that the fuel cannot be drained by 30 ℓ (7-7/8 US gal, 6-5/8 Imp gal) in advance.

1. Prepare a fuel container and a spare hose.
2. Release fuel pressure from fuel line. Refer to [EC-144, "Work Procedure"](#).
3. Remove the fuel feed hose on the fuel level sensor unit.
4. Connect a spare fuel hose where the fuel feed hose was removed.
5. Turn ignition switch ON.
6. Drain fuel by 30 ℓ (7-7/8 US gal, 6-5/8 Imp gal) from the fuel tank using proper equipment.
7. Confirm that the fuel gauge indication varies.
8. Fill fuel into the fuel tank for 30 ℓ (7-7/8 US gal, 6-5/8 Imp gal).
9. Confirm that the fuel gauge indication varies.

Is the inspection result normal?

- YES >> INSPECTION END
NO >> Proceed to [EC-347, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000009985129

1.CHECK DTC PRIORITY

If DTC P0461 is displayed with DTC UXXXX or P0607, first perform the trouble diagnosis for DTC UXXXX or P0607.

Is applicable DTC detected?

- YES >> Perform diagnosis of applicable. Refer to [EC-93, "DTC Index"](#).
NO >> GO TO 2.

2.CHECK COMBINATION METER FUNCTION

Refer to [MWI-21, "CONSULT Function \(METER/M&A\)"](#).

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Refer to [MWI-62, "Component Function Check"](#)

3.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> INSPECTION END

P0462, P0463 FUEL LEVEL SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P0462, P0463 FUEL LEVEL SENSOR

DTC Description

INFOID:000000009985130

DTC DETECTION LOGIC

This diagnosis indicates the former, to detect open or short circuit malfunction.

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0462	FUEL LEVL SEN/CIRC (Fuel level sensor "A" circuit low)	An excessively low voltage from the sensor is sent to ECM.
P0463	FUEL LEVL SEN/CIRC (Fuel level sensor "A" circuit high)	An excessively high voltage from the sensor is sent to ECM.

POSSIBLE CAUSE

- Harness or connectors (The CAN communication line is open or shorted.)
- Harness or connectors (The sensor circuit is open or shorted.)
- Combination meter
- Fuel level sensor

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1.CHECK DTC PRIORITY

If DTC P0462 or P0463 is displayed with DTC UXXXX or P0607, first perform the trouble diagnosis for DTC UXXXX or P0607.

Is applicable DTC detected?

- YES >> Perform diagnosis of applicable. Refer to [EC-93, "DTC Index"](#).
NO >> GO TO 2.

2.PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always turn ignition switch OFF and wait at least 10 seconds before conducting the next test.

TESTING CONDITION:

Before performing the following procedure, confirm that battery voltage is between 11 V and 16 V at ignition switch ON.

>> GO TO 3.

3.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON and wait at least 5 seconds.
2. Check 1st trip DTC.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-348, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985131

1.CHECK DTC PRIORITY

If DTC P0462 or P0463 is displayed with DTC UXXXX or P0607, first perform the trouble diagnosis for DTC UXXXX or P0607.

Is applicable DTC detected?

- YES >> Perform diagnosis of applicable. Refer to [EC-93, "DTC Index"](#).
NO >> GO TO 2.

2.CHECK COMBINATION METER FUNCTION

P0462, P0463 FUEL LEVEL SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

Refer to [MWI-21, "CONSULT Function \(METER/M&A\)"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Proceed to [MWI-62, "Component Function Check"](#).

3.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> INSPECTION END

A

EC

C

D

E

F

G

H

I

J

K

L

M

N

O

P

P0500 VSS

Description

INFOID:000000009985132

ECM receives vehicle speed signals from two different paths via CAN communication line: One is from the ABS actuator and electric unit (control unit) via the combination unit and the other is from TCM.

DTC Description

INFOID:000000009985133

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0500	VEHICLE SPEED SENSOR A (Vehicle speed sensor "A")	At 20 km/h (13 MPH), ECM detects the following status continuously for 5 seconds or more: The difference between a vehicle speed calculated by a output speed sensor transmitted from TCM to ECM via CAN communication and the vehicle speed indicated on the combination meter exceeds 15km/h (10 MPH).

POSSIBLE CAUSE

- Harness or connectors (CAN communication line is open or shorted.)
- Combination meter
- ABS actuator and electric unit (control unit)
- Wheel sensor
- TCM
- Output speed sensor

FAIL-SAFE

Traveling control mode (Accelerator angle variation control)

DTC CONFIRMATION PROCEDURE

1.CHECK DTC PRIORITY

If DTC P0500 is displayed with DTC UXXXX or P0607, first perform the trouble diagnosis for DTC UXXXX or P0607.

Is applicable DTC detected?

- YES >> Perform diagnosis of applicable. Refer to [EC-93, "DTC Index"](#).
 NO >> GO TO 2.

2.PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

TESTING CONDITION:

Before performing the following procedure, confirm that battery voltage is 10 V or more at idle.

>> GO TO 3.

3.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Shift the selector lever to D range and wait at least for 2 seconds.
3. Drive the vehicle at least 5 seconds at 20 km/h (13 MPH) or more.

CAUTION:

Always drive vehicle at a safe speed.

NOTE:

This procedure may be conducted with the drive wheels lifted in the shop or by driving the vehicle. If a road test is expected to be easier, it is unnecessary to lift the vehicle.

4. Check 1st trip DTC.

< DTC/CIRCUIT DIAGNOSIS >

Is 1st trip DTC detected?

- YES >> Proceed to [EC-351, "Diagnosis Procedure"](#)
 NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985134

EC

1.CHECK DTC PRIORITY

If DTC P0500 is displayed with DTC UXXXX or P0607, first perform the trouble diagnosis for DTC UXXXX or P0607.

Is applicable DTC detected?

- YES >> Perform diagnosis of applicable. Refer to [EC-93, "DTC Index"](#).
 NO >> GO TO 2.

2.CHECK DTC WITH TCM

Check DTC with TCM. Refer to [TM-63, "DTC Index"](#).

Is the inspection result normal?

- YES >> GO TO 3.
 NO >> Perform trouble shooting relevant to DTC indicated.

3.CHECK DTC WITH ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

Check DTC with ABS actuator and electric unit (control unit). Refer to [BRC-55, "DTC Index"](#).

Is the inspection result normal?

- YES >> GO TO 4.
 NO >> Perform trouble shooting relevant to DTC indicated.

4.CHECK DTC WITH COMBINATION METER

Check DTC with combination meter. Refer to [MWI-30, "DTC Index"](#).

Is the inspection result normal?

- YES >> GO TO 5.
 NO >> Perform trouble shooting relevant to DTC indicated.

5.CHECK INPUT SPEED SENSOR

Check input speed sensor. Refer to [TM-126, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> GO TO 6.
 NO >> Replace or replace error-detected parts.

6.CHECK WHEEL SENSOR

Check wheel sensor. Refer to [BRC-74, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> GO TO 7.
 NO >> Replace or replace error-detected parts.

7.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> INSPECTION END

P0506 ISC SYSTEM

Description

INFOID:000000009985135

The ECM controls the engine idle speed to a specified level through the fine adjustment of the air, which is let into the intake manifold, by operating the electric throttle control actuator. The operating of the throttle valve is varied to allow for optimum control of the engine idling speed. The crankshaft position sensor (POS) detects the actual engine speed and sends a signal to the ECM.

The ECM controls the electric throttle control actuator so that the engine speed coincides with the target value memorized in the ECM. The target engine speed is the lowest speed at which the engine can operate steadily. The optimum value stored in the ECM is determined by taking into consideration various engine conditions, such as during warming up, deceleration, and engine load (air conditioner, power steering and cooling fan operation, etc.).

DTC Description

INFOID:000000009985136

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0506	ISC SYSTEM (Idle air control system RPM lower than expected)	The idle speed is less than the target idle speed by 100 rpm or more.

POSSIBLE CAUSE

- Electric throttle control actuator
- Intake air leak

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1. CHECK DTC PRIORITY

If DTC P0506 is displayed with other DTC, first perform the trouble diagnosis for other DTC.

Is applicable DTC detected?

- YES >> Perform diagnosis of applicable. Refer to [EC-93, "DTC Index"](#).
 NO >> GO TO 2.

2. PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

If the target idle speed is out of the specified value, perform [EC-141, "Work Procedure"](#), before conducting DTC Confirmation Procedure.

TESTING CONDITION:

- Before performing the following procedure, confirm that battery voltage is more than 11 V at idle.
- Always perform the test at a temperature above -10°C (14°F).

>> GO TO 3.

3. PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine and warm it up to normal operating temperature.
2. Turn ignition switch OFF and wait at least 10 seconds.
3. Start engine and run it for at least 1 minute at idle speed.
4. Check 1st trip DTC.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-353, "Diagnosis Procedure"](#).

P0506 ISC SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985137

1.CHECK DTC PRIORITY

If DTC P0506 is displayed with other DTC, first perform the trouble diagnosis for other DTC.

Is applicable DTC detected?

- YES >> Perform diagnosis of applicable. Refer to [EC-93, "DTC Index"](#).
NO >> GO TO 2.

2.CHECK INTAKE AIR LEAK

1. Start engine and let it idle.
2. Listen for an intake air leak after the mass air flow sensor.

Is intake air leak detected?

- YES >> Discover air leak location and repair.
NO >> Replace ECM. Refer to [EC-499, "Removal and Installation"](#).

A

EC

C

D

E

F

G

H

I

J

K

L

M

N

O

P

P0507 ISC SYSTEM

Description

INFOID:000000009985138

The ECM controls the engine idle speed to a specified level through the fine adjustment of the air, which is let into the intake manifold, by operating the electric throttle control actuator. The operating of the throttle valve is varied to allow for optimum control of the engine idling speed. The crankshaft position sensor (POS) detects the actual engine speed and sends a signal to the ECM.

The ECM controls the electric throttle control actuator so that the engine speed coincides with the target value memorized in the ECM. The target engine speed is the lowest speed at which the engine can operate steadily. The optimum value stored in the ECM is determined by taking into consideration various engine conditions, such as during warming up, deceleration, and engine load (air conditioner, power steering and cooling fan operation, etc.).

DTC Description

INFOID:000000009985139

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0507	ISC SYSTEM (Idle air control system RPM higher than expected)	The idle speed is more than the target idle speed by 200 rpm or more.

POSSIBLE CAUSE

- Electric throttle control actuator
- Intake air leak
- PCV system

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1. CHECK DTC PRIORITY

If DTC P0507 is displayed with other DTC, first perform the trouble diagnosis for other DTC.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable. Refer to [EC-93, "DTC Index"](#).

NO >> GO TO 2.

2. PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

If the target idle speed is out of the specified value, perform [EC-141, "Work Procedure"](#), before conducting DTC Confirmation Procedure.

TESTING CONDITION:

- Before performing the following procedure, confirm that battery voltage is more than 11 V at idle.
- Always perform the test at a temperature above -10°C (14°F).

>> GO TO 3.

3. PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine and warm it up to normal operating temperature.
2. Turn ignition switch OFF and wait at least 10 seconds.
3. Start engine and run it for at least 1 minute at idle speed.
4. Check 1st trip DTC.

Is 1st trip DTC detected?

P0507 ISC SYSTEM

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

YES >> Proceed to [EC-355. "Diagnosis Procedure"](#).
NO >> INSPECTION END

A

Diagnosis Procedure

INFOID:000000009985140

1.CHECK DTC PRIORITY

EC

If DTC P0507 is displayed with other DTC, first perform the trouble diagnosis for other DTC.

Is applicable DTC detected?

C

YES >> Perform diagnosis of applicable. Refer to [EC-93. "DTC Index"](#).
NO >> GO TO 2.

2.CHECK PCV HOSE CONNECTION

D

Confirm that PCV hose is connected correctly.

Is the inspection result normal?

E

YES >> GO TO 3.
NO >> Repair or replace error-detected parts.

3.CHECK INTAKE AIR LEAK

F

1. Start engine and let it idle.
2. Listen for an intake air leak after the mass air flow sensor.

Is intake air leak detected?

G

YES >> Discover air leak location and repair.
NO >> Replace ECM. Refer to [EC-499. "Removal and Installation"](#).

H

I

J

K

L

M

N

O

P

P050A, P050B, P050E COLD START CONTROL

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P050A, P050B, P050E COLD START CONTROL

Description

INFOID:000000009985141

ECM controls ignition timing and engine idle speed when engine is started with pre-warming up condition. This control promotes the activation of three way catalyst by heating the catalyst and reduces emissions.

DTC Description

INFOID:000000009985142

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P050A	COLD START CONTROL (Cold start idle air control system performance)	ECM does not control engine idle speed properly when engine is started with pre-warming up condition.
P050B	COLD START CONTROL (Cold start ignition timing performance)	ECM does not control ignition timing properly when engine is started with pre-warming up condition.
P050E	COLD START CONTROL (Cold start engine exhaust temperature too low)	The temperature of the catalyst inlet does not rise to the proper temperature when the engine is started with pre-warming up condition.

POSSIBLE CAUSE

- Lack of intake air volume
- Fuel injection system
- ECM

FAIL-SAFE

P050A

Traveling control mode (Accelerator angle variation control)

P050B, P050E

Not applicable

DTC CONFIRMATION PROCEDURE

1.CHECK DTC PRIORITY

If DTC P050A, P050B or P050E is displayed with other DTC, first perform the trouble diagnosis for other DTC.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable. Refer to [EC-93, "DTC Index"](#).

NO >> GO TO 2.

2.PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

TESTING CONDITION:

Before performing the following procedure, confirm that battery voltage is more than 11 V at idle.

>> GO TO 3.

3.PERFORM DTC CONFIRMATION PROCEDURE-1

With CONSULT

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Select "DATA MONITOR" mode with CONSULT.
4. Check the indication of "COOLAN TEMP/S".

With GST

P050A, P050B, P050E COLD START CONTROL

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

Follow the procedure "With CONSULT" above.

Is the value of "COOLAN TEMP/S" between 15°C (59°F) and 36°C (97°F)?

YES >> GO TO 4.

NO-1 [If it is below 15°C (59°F)]>>Warm up the engine until the value of "COOLAN TEMP/S" reaches 15°C (59°F) or more. Retry from step 1.

NO-2 [If it is above 36°C (97°F)]>>Cool engine down to less than 36°C (97°F). Retry from step 1.

4.PERFORM DTC CONFIRMATION PROCEDURE-2

With CONSULT

1. Set the select lever in N range.

2. Start the engine and warm up in idle with the value of "COOLAN TEMP/S" between 15°C (59°F) and 40°C (104°F) for more than 15 seconds.

3. Check 1st trip DTC.

With GST

Follow the procedure "With CONSULT" above.

Is 1st trip DTC detected?

YES >> Proceed to [EC-357, "Diagnosis Procedure"](#).

NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985143

1.CHECK DTC PRIORITY

If DTC P050A, P050B or P050E is displayed with other DTC, first perform the trouble diagnosis for other DTC.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable. Refer to [EC-93, "DTC Index"](#).

NO >> GO TO 2.

2.PERFORM IDLE AIR VOLUME LEARNING

Perform [EC-141, "Work Procedure"](#).

Is Idle Air Volume Learning carried out successfully?

YES >> GO TO 3.

NO >> Follow the instruction of Idle Air Volume Learning.

3.CHECK INTAKE SYSTEM

Check for the cause of intake air volume lacking. Refer to the following.

- Crushed intake air passage
- Intake air passage clogging
- Clogging of throttle body

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace malfunctioning part

4.CHECK FUEL INJECTION SYSTEM FUNCTION

Perform DTC Confirmation Procedure for DTC P0171. Refer to [EC-260, "DTC Description"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> Proceed to [EC-261, "Diagnosis Procedure"](#) for DTC P0171.

5.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.

2. Erase DTC.

3. Perform DTC Confirmation Procedure.

See [EC-356, "DTC Description"](#).

Is the 1st trip DTC P050A, P050B or P050E displayed again?

YES >> Replace ECM. Refer to [EC-499, "Removal and Installation"](#).

NO >> INSPECTION END

P0520 EOP SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P0520 EOP SENSOR

DTC Description

INFOID:000000009985144

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0520	EOP SENSOR/SWITCH (Engine oil pressure sensor/switch circuit)	Signal voltage from the EOP sensor remains at more than 5.02 V / less than 0.3 V for 5 seconds or more.

POSSIBLE CAUSE

- Harness or connectors (EOP sensor circuit is open or shorted.)
- Engine oil level abnormality
- EOP sensor
- Sensor power supply 2 circuit

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON and wait at least 5 seconds.
2. Check 1st trip DTC.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-358, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985145

1.CHECK ENGINE OIL

1. Turn ignition switch OFF.
2. Check engine oil level and pressure. Refer to [LU-7, "Inspection"](#).

Is inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace error-detected parts.

2.CHECK EOP SENSOR POWER SUPPLY-1

1. Disconnect EOP sensor connector.
2. Turn ignition switch ON.
3. Check the voltage between EOP sensor harness connector terminals.

EOP sensor			Voltage (Approx.)
Connector	+	—	
	terminal		
F54	3	1	5 V

Inspection result normal?

P0520 EOP SENSOR

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

YES >> GO TO 7.
NO >> GO TO 3.

3.CHECK EOP SENSOR POWER SUPPLY-2

Check the voltage between EOP sensor harness connector and the ground.

+		-	Voltage (Approx.)
EOP sensor			
Connector	Terminal		
F54	3	Ground	5 V

Is inspection result normal?

YES >> GO TO 5.
NO >> GO TO 4.

4.CHECK SENSOR POWER SUPPLY 2 CIRCUIT

Perform [EC-484. "Diagnosis Procedure"](#).

Is inspection result normal?

YES >> Perform the trouble diagnosis for power supply circuit.
NO >> Repair or replace error-detected parts.

5.CHECK EOP SENSOR GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between EOP sensor harness connector and ECM harness connector.

+		-		Continuity
EOP sensor		ECM		
Connector	Terminal	Connector	Terminal	
F54	1	F51	38	Existed

4. Also check harness for short to power.

Is inspection result normal?

YES >> GO TO 6.
NO >> Repair or replace error-detected parts.

6.CHECK ECM GROUND CIRCUIT

Check the continuity between ECM harness connector and ground.

+		-	Continuity
ECM			
Connector	Terminal		
F51	16	Ground	Existed
F52	52		
E16	123		
	128		

Is inspection result normal?

YES >> GO TO 9.
NO >> Repair or replace error-detected parts.

7.CHECK EOP SENSOR SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between EOP sensor harness connector and ECM harness connector.

P0520 EOP SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

+		-		Continuity
EOP sensor		ECM		
Connector	Terminal	Connector	Terminal	
F54	2	F51	39	Existed

4. Also check harness for short to ground and to power.

Is inspection result normal?

YES >> GO TO 8.

NO >> Repair or replace error-detected parts.

8.CHECK EOP SENSOR

Refer to [EC-360, "Component Inspection"](#).

Is inspection result normal?

YES >> GO TO 9.

NO >> Repair or replace error-detected parts.

9.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> INSPECTION END

Component Inspection

INFOID:000000009985146

1.CHECK EOP SENSOR

1. Turn ignition switch OFF.
2. Disconnect EOP sensor harness connector.
3. Check resistance between EOP sensor connector terminals.

EOP sensor		Condition	Resistance (kΩ)
+	–		
Terminal			
1	2	None	4 kΩ – 10 kΩ
	3		2 kΩ – 8 kΩ
2	1		4 kΩ – 10 kΩ
	3		1 kΩ – 3 kΩ
3	1		2 kΩ – 8 kΩ
	2		1 kΩ – 3 kΩ

Is the inspection result normal?

YES >> INSPECTION END.

NO >> Replace EOP sensor. Refer to [EC-14, "Component Parts Location"](#).

P0524 ENGINE OIL PRESSURE

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P0524 ENGINE OIL PRESSURE

DTC Description

INFOID:000000009985147

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0524	ENGINE OIL PRESSURE (Engine oil pressure too low)	An EOP sensor signal voltage applied to ECM remains lower than the specified value continuously for 10 seconds or more when the engine speed is 1,000 rpm or more.

POSSIBLE CAUSE

- Decrease in engine oil pressure
- Decrease in engine oil level
- Engine oil condition
- EOP sensor
- Engine body

FAIL-SAFE

- ECM illuminates oil pressure warning lamp on the combination meter.
- Engine speed will not rise more than 4,000rpm due to the fuel cut.
- Fail-safe is canceled when ignition switch OFF → ON.

DTC CONFIRMATION PROCEDURE

CAUTION:

If "[EC-362. "Diagnosis Procedure"](#)" is unfinished, be sure to perform Step 3 and 4.

1. PRECONDITIONING-1

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

TEST CONDITION:

Before performing the following procedure, confirm that battery voltage is 11 V or more at idle.

>> GO TO 2.

2. PRECONDITIONING-2

Is "Diagnosis Procedure" of DTC P0524 finished?

- YES >> GO TO 3.
NO >> GO TO 4.

3. PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine and warm it up to normal operating temperature.
2. Maintain the following conditions for about 10 consecutive seconds.

Selector lever	P or N position
Engine coolant temperature	70°C (158°F) or more
Engine speed	1,000 rpm or more

NOTE:

With engine speed set around 4,000 rpm, the phenomenon can be reproduced more easily.

3. Check 1st trip DTC.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-362. "Diagnosis Procedure"](#).
NO >> INSPECTION END

P0524 ENGINE OIL PRESSURE

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

4.CHECK ENGINE OIL LEVEL

Check engine oil pressure. Refer to [LU-7, "Inspection"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> Proceed to [EC-362, "Diagnosis Procedure"](#).

5.CHECK ENGINE OIL PRESSURE

 With CONSULT

1. Turn ignition switch ON.
2. Select "DATA MONITOR" mode of "ENGINE" using CONSULT.
3. Start the engine and check that "EOP SENSOR" changes, according to engine speeds.

Monitor item	Condition	Value (Approx.)
EOP SENSOR	• Engine oil temperature: 80°C (176°F) • Selector lever: P or N position • Air conditioner switch: OFF • No load	Engine speed: Idle 1,450 mV or more
		Engine speed: 2,000 rpm 2,850 mV or more

 Without CONSULT

Check engine oil level. Refer to [LU-7, "Inspection"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Proceed to [EC-362, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000009985148

1.CHECK ENGINE OIL LEVEL

1. Turn ignition switch OFF.
2. Check engine oil pressure level. Refer to [LU-7, "Inspection"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> GO TO 4.

2.CHECK ENGINE OIL PRESSURE

 With CONSULT

1. Turn ignition switch ON.
2. Select "DATA MONITOR" mode of "ENGINE" using CONSULT.
3. Start the engine and check that "EOP SENSOR" changes, according to engine speeds.

Monitor item	Condition	Value (Approx.)
EOP SENSOR	• Engine oil temperature: 80°C (176°F) • Selector lever: P or N position • Air conditioner switch: OFF • No load	Engine speed: Idle 1,450 mV or more
		Engine speed: 2,000 rpm 2,850 mV or more

 Without CONSULT

Check engine oil pressure. Refer to [LU-7, "Inspection"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check oil pump. Refer to [LU-15, "Inspection"](#).

3.CHECK EOP SENSOR

Check EOP sensor. Refer to [EC-360, "Component Inspection"](#).

Is the inspection result normal?

P0524 ENGINE OIL PRESSURE

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

- YES >> GO TO 6.
NO >> Repair or replace error-detected parts.

4.CHECK ENGINE OIL LEAKAGE

Check engine oil leakage. Refer to [LU-6, "Engine Lubrication System Schematic"](#).

Is the inspection result normal?

- YES >> GO TO 5.
NO >> Repair or replace error-detected parts.

5.CHECK CAUSE OF ENGINE OIL CONSUMPTION

Check the following item.

Step	Inspection item	Equipment	Standard	Reference
1	PCV valve	EC-498, "Inspection"		
2	Exhaust front tube	Visual	• No blocking • No abnormal sounds	—
3	Oil pump	Visual	• No blocking • No abnormal sounds	—
		LU-15, "Inspection"		
4	• Piston • Piston pin • Piston ring	• Piston to piston pin oil clearance • Piston ring side clearance • Piston ring end gap	EM-109, "How to Select Piston and Bearing"	
5	Cylinder block	• Cylinder block top surface distortion • Piston to cylinder bore clearance	EM-100, "Inspection"	

>> Repair or replace error-detected parts.

6.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> INSPECTION END

Component Inspection

INFOID:0000000009985149

1.CHECK EOP SENSOR

1. Turn ignition switch OFF.
2. Disconnect EOP sensor harness connector.
3. Check resistance between EOP sensor connector terminals.

EOP sensor		Condition	Resistance (kΩ)
+	—		
Terminal			
1	2	None	4 kΩ – 10 kΩ
	3		2 kΩ – 8 kΩ
2	1		4 kΩ – 10 kΩ
	3		1 kΩ – 3 kΩ
3	1		2 kΩ – 8 kΩ
	2		1 kΩ – 3 kΩ

Is the inspection result normal?

- YES >> INSPECTION END.
NO >> Replace EOP sensor. Refer to [EC-14, "Component Parts Location"](#).

P052A, P052B INTAKE VALVE TIMING CONTROL

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P052A, P052B INTAKE VALVE TIMING CONTROL

DTC Description

INFOID:000000009985150

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P052A	CAMSHAFT POSITION TIMING B1 (Cold start "A" camshaft position timing over-advanced bank 1)	There is a gap between angle of target and phase-control angle degree when the engine is in a cold condition.
P052B	CAMSHAFT POSITION TIMING B1 (Cold start "A" camshaft position timing over-retarded bank 1)	

POSSIBLE CAUSE

- Crankshaft position sensor
- Camshaft position sensor
- Intake valve timing control solenoid valve
- Intake valve timing intermediate lock control solenoid valve
- Accumulation of debris to the signal pick-up portion of the camshaft
- Timing chain installation
- Foreign matter caught in the oil groove for intake valve timing control

FAIL-SAFE

Device fix mode

DTC CONFIRMATION PROCEDURE

1.CHECK DTC PRIORITY

If DTC P052A or P052B is displayed with DTC P0075, first perform the trouble diagnosis for DTC P0075.

Is applicable DTC detected?

- YES >> Perform diagnosis of applicable. Refer to [EC-191, "DTC Description"](#).
NO >> GO TO 2.

2.PRECONDITIONING

TESTING CONDITION:

Before performing the following procedure, confirm that battery voltage is 10 V or more at idle.

With CONSULT

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.
4. Turn ignition switch ON.
5. On the CONSULT screen, select "ENGINE" >> "DATA MONITOR" >> "COOLAN TEMP/S".
6. Check "COOLAN TEMP/S" indication value.

With GST

Follow the procedure "With CONSULT" above.

Is the value of "COOLAN TEMP/S" -5°C (23°F) and 45°C (113°F)?

- YES >> GO TO 3.
NO-1 [if it is below -5°C (23°F)]>>Warm up the engine until the value of "COOLAN TEMP/S" indicates -5°C (23°F) and 45°C (113°F). And then GO TO 3.
NO-2 [if it is above 45°C (113°F)]>>Cool the engine down to the value of "COOLAN TEMP/S" indicates -5°C (23°F) and 45°C (113°F). And then GO TO 3.

3.PERFORM DTC CONFIRMATION PROCEDURE-I

1. Turn ignition switch OFF and wait at 10 seconds.
2. Turn ignition switch ON.
3. Set the selector lever in N range.
4. Start the engine and let it idle for 20 seconds or more.
5. Check 1st trip DTC.

P052A, P052B INTAKE VALVE TIMING CONTROL

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

Is 1st trip DTC detected?

- YES >> Proceed to [EC-365, "Diagnosis Procedure"](#)
- NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985151

1.CHECK DTC PRIORITY

If DTC P052A or P052B is displayed with DTC P0075, first perform the trouble diagnosis for DTC P0075.

Is applicable DTC detected?

- YES >> Perform diagnosis of applicable. Refer to [EC-191, "DTC Description"](#).
- NO >> GO TO 2.

2.INSPECTION START

- With CONSULT>>GO TO 3.
- Without CONSULT>>GO TO 4.

3.CHECK VTC POSITION

With CONSULT

1. Turn ignition switch ON.
2. On the CONSULT screen, select "ENGINE" >> "DATA MONITOR" >> "COOLAN TEMP/S".
3. Check that the "COOLAN TEMP/S" indication value is between -5°C (23°F) and 45°C (113°F).
4. Start engine and wait at least 5 seconds.
5. On the CONSULT screen, select "ENGINE" >> "DATA MONITOR" >> "INT/V TIM (B1)".
6. Check that the data monitor item indicates as follows:

Item	Value (°CA)
INT/V TIM (B1)	10 ± 2

Is the inspection result normal?

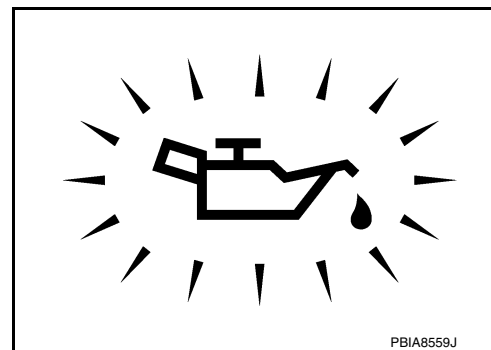
- YES >> GO TO 12.
- NO >> GO TO 4.

4.CHECK OIL PRESSURE WARNING LAMP

1. Start engine.
2. Check that oil pressure warning lamp is not illuminated.

Is oil pressure warning lamp illuminated?

- YES >> Refer to [LU-7, "Inspection"](#).
- NO >> GO TO 5.



5.CHECK INTAKE VALVE TIMING INTERMEDIATE LOCK CONTROL SOLENOID VALVE

Perform Component Inspection of the intake valve timing intermediate lock control solenoid valve. Refer to [EC-367, "Component Inspection \(Intake Valve Timing Intermediate Lock Control Solenoid Valve\)"](#).

Is the inspection result normal?

- YES >> GO TO 6.
- NO >> Repair or replace error-detected parts.

6.CHECK INTAKE VALVE TIMING CONTROL SOLENOID VALVE

Perform Component Inspection of the intake valve timing control solenoid valve. Refer to [EC-366, "Component Inspection \(Intake Valve Timing Control Solenoid Valve\)"](#).

P052A, P052B INTAKE VALVE TIMING CONTROL

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace error-detected parts.

7.CHECK CRANKSHAFT POSITION SENSOR

Perform Component Inspection of the crankshaft position sensor. Refer to [EC-368. "Component Inspection \(Crankshaft position sensor\)"](#).

Is the inspection result normal?

YES >> GO TO 8.

NO >> Repair or replace error-detected parts.

8.CHECK CAMSHAFT POSITION SENSOR

Perform Component Inspection of the camshaft position sensor. Refer to [EC-368. "Component Inspection \(Camshaft position sensor\)"](#).

Is the inspection result normal?

YES >> GO TO 9.

NO >> Repair or replace error-detected parts.

9.CHECK CAMSHAFT (INTAKE)

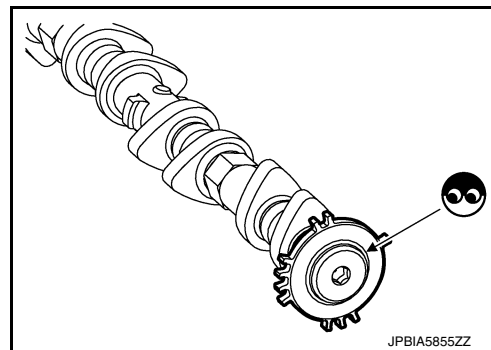
Check the following.

1. Accumulation of debris on the signal plate of camshaft front end
2. Chipping signal plate of camshaft front end

Is the inspection result normal?

YES >> GO TO 10.

NO >> Remove debris and clean the signal plate of camshaft front end or replace camshaft. Refer to [EM-64. "Removal and Installation"](#).



10.CHECK TIMING CHAIN INSTALLATION

Check service records for any recent repairs that may cause timing chain misalignment.

Are there any service records that may cause timing chain misalignment?

YES >> Check timing chain installation. Refer to [EM-45. "Removal and Installation"](#).

NO >> GO TO 11.

11.CHECK LUBRICATION CIRCUIT

Perform "Inspection of Camshaft Sprocket (INT) Oil Groove". Refer to [EM-72. "Inspection After Installation"](#).

Is the inspection result normal?

YES >> GO TO 12.

NO >> Clean lubrication line.

12.CHECK INTERMITTENT INCIDENT

Refer to [GI-41. "Intermittent Incident"](#).

>> INSPECTION END

Component Inspection (Intake Valve Timing Control Solenoid Valve)

INFOID:000000009985152

1.CHECK INTAKE VALVE TIMING CONTROL SOLENOID VALVE-I

1. Turn ignition switch OFF.
2. Disconnect intake valve timing control solenoid valve harness connector.
3. Check resistance between intake valve timing control solenoid valve terminals as per the following.

P052A, P052B INTAKE VALVE TIMING CONTROL

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

Terminals	Resistance
1 and 2	7.0 - 7.7 Ω [at 20°C (68°F)]
1 or 2 and ground	$\infty \Omega$ (Continuity should not exist)

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace malfunctioning intake valve timing control solenoid valve. Refer to [EM-44, "Exploded View"](#).

2.CHECK INTAKE VALVE TIMING CONTROL SOLENOID VALVE-II

1. Remove intake valve timing control solenoid valve. Refer to [EM-44, "Exploded View"](#).

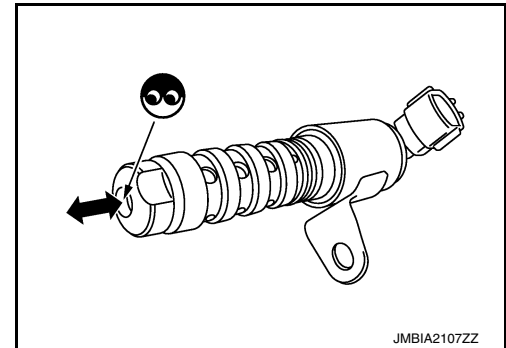
2. Provide 12 V DC between intake valve timing control solenoid valve terminals 1 and 2, and then interrupt it. Check that the plunger moves as shown in the figure.

CAUTION:

Never apply 12 V DC continuously for 5 seconds or more. Doing so may result in damage to the coil in intake valve timing control solenoid valve.

NOTE:

Always replace O-ring when intake valve timing control solenoid valve is removed.



Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace malfunctioning intake valve timing control solenoid valve. Refer to [EM-44, "Exploded View"](#).

Component Inspection (Intake Valve Timing Intermediate Lock Control Solenoid Valve)

INFOID:000000009985153

1.CHECK INTAKE VALVE TIMING INTERMEDIATE LOCK CONTROL SOLENOID VALVE-I

1. Turn ignition switch OFF.
2. Disconnect intake valve timing intermediate lock control solenoid valve harness connector.
3. Check resistance between intake valve timing intermediate lock control solenoid valve terminals as per the following.

Terminals	Resistance
1 and 2	7.0 - 7.7 Ω [at 20°C (68°F)]
1 or 2 and ground	$\infty \Omega$ (Continuity should not exist)

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace malfunctioning intake valve timing intermediate lock control solenoid valve. Refer to [EM-44, "Exploded View"](#).

2.CHECK INTAKE VALVE TIMING INTERMEDIATE LOCK CONTROL SOLENOID VALVE-II

1. Remove intake valve timing intermediate lock control solenoid valve. Refer to [EM-44, "Exploded View"](#).

P052A, P052B INTAKE VALVE TIMING CONTROL

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

2. Provide 12 V DC between intake valve timing intermediate lock control solenoid valve terminals 1 and 2, and then interrupt it. Check that the plunger moves as shown in the figure.

CAUTION:

Never apply 12 V DC continuously for 5 seconds or more. Doing so may result in damage to the coil in intake valve timing intermediate lock control solenoid valve.

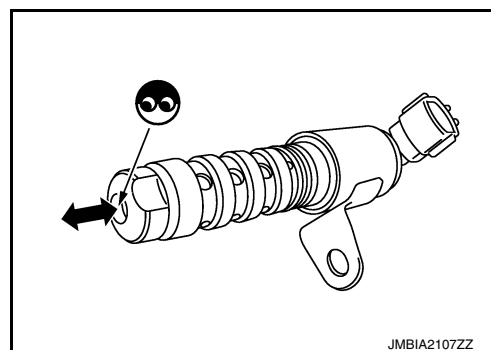
NOTE:

Always replace O-ring when intake valve timing intermediate lock control solenoid valve is removed.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace malfunctioning intake valve timing intermediate lock control solenoid valve. Refer to [EM-44, "Exploded View"](#).



Component Inspection (Crankshaft Position sensor)

INFOID:000000009985154

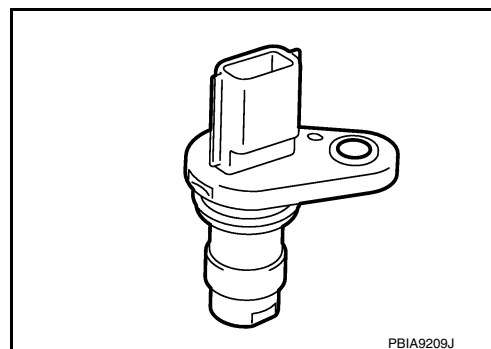
1.CHECK CRANKSHAFT POSITION SENSOR (POS)-1

1. Turn ignition switch OFF.
2. Loosen the fixing bolt of the sensor.
3. Disconnect crankshaft position sensor (POS) harness connector.
4. Remove the sensor.
5. Visually check the sensor for chipping.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace crankshaft position sensor (POS). Refer to [EM-92, "Exploded View"](#).



2.CHECK CRANKSHAFT POSITION SENSOR (POS)-2

Check the resistance between crankshaft position sensor (POS) terminals as per the following.

Crankshaft position sensor (POS)		Resistance [at 25°C (77°F)]
+	-	
Terminal (Polarity)		Except 0 or ∞ Ω
1	2	
	3	
2	3	

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace crankshaft position sensor (POS). Refer to [EM-92, "Exploded View"](#).

Component Inspection (Camshaft position sensor)

INFOID:000000009985155

1.CHECK CAMSHAFT POSITION SENSOR (PHASE)-1

1. Turn ignition switch OFF.
2. Loosen the fixing bolt of the sensor.
3. Disconnect camshaft position sensor (PHASE) harness connector.
4. Remove the sensor.

P052A, P052B INTAKE VALVE TIMING CONTROL

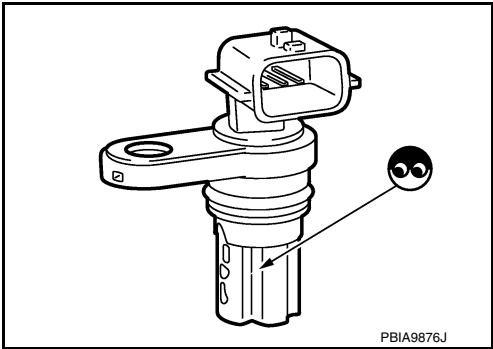
< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

5. Visually check the sensor for chipping.

Is the inspection result normal?

- YES >> GO TO 2.
- NO >> Replace camshaft position sensor (PHASE).



2.CHECK CAMSHAFT POSITION SENSOR (PHASE)-2

Check the resistance camshaft position sensor (PHASE) terminals as per the following.

Camshaft position sensor (PHASE)		Resistance [Ω at 25°C (77°F)]
+	–	
Terminals (Polarity)		
1	2	Except 0 or ∞
	3	
2	3	

Is the inspection result normal?

- YES >> INSPECTION END
- NO >> Replace camshaft position sensor (PHASE). Refer to [EM-64. "Removal and Installation"](#).

A
EC
C
D
E
F
G
H
I
J
K
L
M
N
O
P

P0603, P062F ECM

DTC Description

INFOID:000000010285440

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0603	ECM BACK UP/CIRCUIT [Internal Control Module Keep Alive Memory (KAM) Error]	ECM buck up system does not function properly.
P062F	CONTROL MODULE (Internal control module EEPROM error)	EEPROM (built-in microcomputer) system internal ECM does not function properly.

POSSIBLE CAUSE

DTC P0603

- Harness or connectors (ECM power supply circuit is open or shorted.)
- ECM

DTC P062F

ECM

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

Perform the following procedure before performing DTC Confirmation Procedure.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

>> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE FOR DTC P062F

1. Start engine and wait at least 10 seconds.
2. Turn ignition switch OFF and wait at least 10 seconds.
3. Repeat steps 1 and 2 for 4 times.
4. Turn ignition switch ON.
5. Erase DTC.
6. Turn ignition switch OFF and wait at least 10 seconds.
7. Start engine and wait at least 10 seconds.
8. Check 1st trip DTC.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-371, "Diagnosis Procedure"](#).
 NO >> GO TO 3.

3. PERFORM DTC CONFIRMATION PROCEDURE FOR DTC P0603

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON and wait at least 10 seconds.
3. Turn ignition switch OFF and wait at least 5 minutes.
4. Turn ignition switch ON and wait at least 10 seconds.
5. Repeat steps 3 and 4 for 5 times.
6. Turn ignition switch ON.
7. Check 1st trip DTC.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-371, "Diagnosis Procedure"](#).
 NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000010285441

1.INSPECTION START

Check that the battery negative terminal is not disconnected during ignition switch ON.

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 2.

2.ERASE DTC

1. Start the engine and let it idle at least 10 seconds.
2. Turn ignition switch OFF.
3. Repeat steps 1 and 2 for 4 times.
4. Erase DTC.
5. Turn ignition switch OFF and wait at least 10 seconds.
6. Start the engine and let it idle for 10 seconds.
7. Check 1st trip DTC.

Is DTC P062F detected again?

YES >> Replace ECM. Refer to [EC-499, "Removal and Installation"](#).

NO >> INSPECTION END

3.CHECK ECM POWER SUPPLY AND GROUND CIRCUIT

Check ECM power supply and ground circuit. Refer to [EC-165, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace error-detected parts.

4.CHECK INTERMITTENT INCIDENT

Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace error-detected parts.

5.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Erase DTC.
3. Perform DTC confirmation procedure. Refer to [EC-370, "DTC Description"](#).

Is the DTC P0603 or P062F detected again?

YES >> Replace ECM. Refer to [EC-499, "Removal and Installation"](#).

NO >> INSPECTION END

P0604 ECM

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P0604 ECM

DTC Description

INFOID:000000009985158

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0604	ECM [Internal control module random access memory (RAM) error]	Malfunction in the internal RAM of ECM.

POSSIBLE CAUSE

ECM

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

TESTING CONDITION:

Before performing the following procedure, confirm that battery voltage is 11 V or more with ignition switch ON.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON (engine stopped) and wait least 20 minutes.

CAUTION:

Never start engine during this procedure.

2. Turn ignition switch OFF and wait at least 10 seconds.
3. Turn ignition switch ON.
4. Check 1st trip DTC.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-372, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985159

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Erase DTC.
3. Perform DTC confirmation procedure. Refer to [EC-372, "DTC Description"](#).

Is the 1st trip DTC P0604 displayed again?

- YES >> Replace ECM. Refer to [EC-499, "Removal and Installation"](#).
NO >> INSPECTION END

P0605 ECM

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P0605 ECM

DTC Description

INFOID:000000009985160

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0605	ECM [Internal control module read only memory (ROM) error]	Malfunction in the internal ROM of ECM.

POSSIBLE CAUSE

ECM

FAIL-SAFE

Traveling control mode (Engine output control)

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

TESTING CONDITION:

Before performing the following procedure, confirm that battery voltage is 11 V or more with ignition switch ON.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON (engine stopped) and wait least 20 minutes.

CAUTION:

Never start engine during this procedure.

2. Turn ignition switch OFF and wait at least 10 seconds.
3. Turn ignition switch ON.
4. Check 1st trip DTC.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-373. "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985161

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Erase DTC.
3. Perform DTC confirmation procedure. Refer to [EC-372. "DTC Description"](#).

Is the 1st trip DTC P0605 displayed again?

- YES >> Replace ECM. Refer to [EC-499. "Removal and Installation"](#).
NO >> INSPECTION END

P0606 ECM

DTC Description

INFOID:000000009985162

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0606	CONTROL MODULE (Control module processor)	Malfunction in ECM processor.

POSSIBLE CAUSE

ECM

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

TESTING CONDITION:

Before performing the following procedure, confirm that battery voltage is 11 V or more with ignition switch ON.

>> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE-I

1. Turn ignition switch ON (engine stopped) and wait at least 10 seconds.

CAUTION:

Never start engine during this procedure.

2. Turn ignition switch OFF and wait at least 10 seconds.
3. Turn ignition switch ON.
4. Check 1st trip DTC.

Is 1st trip DTC detected?

YES >> Proceed to [EC-374, "Diagnosis Procedure"](#).

NO >> GO TO 3.

3. PERFORM DTC CONFIRMATION PROCEDURE-II

1. Start engine.
2. Rev up the engine quickly to approximately 3,000 rpm under unloaded condition and completely release the accelerator pedal.
3. Let the engine idle and wait at least 10 seconds.
4. Turn ignition switch OFF and wait at least 10 seconds.
5. Turn ignition switch ON.
6. Check 1st trip DTC.

Is 1st trip DTC detected?

YES >> Proceed to [EC-374, "Diagnosis Procedure"](#).

NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985163

1. PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Erase DTC.
3. Perform DTC confirmation procedure for 3 times. Refer to [EC-374, "DTC Description"](#).

Is the 1st trip DTC P0606 displayed again?

P0606 ECM

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

YES >> Replace ECM. Refer to [EC-499. "Removal and Installation"](#).
NO >> INSPECTION END

A

EC

C

D

E

F

G

H

I

J

K

L

M

N

O

P

P0607 ECM

DTC Description

INFOID:000000009985164

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0607	ECM (Control module performance)	ECM internal communication system is malfunctioning.

POSSIBLE CAUSE

ECM

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

TESTING CONDITION:

Before performing the following procedure, confirm that battery voltage is 11 V or more with ignition switch ON.

>> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON (engine stopped) and wait at least 10 seconds.
2. Turn ignition switch OFF and wait at least 10 seconds.
3. Turn ignition switch ON.
4. Check 1st trip DTC.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-376, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985165

1. PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Erase DTC.
3. Perform DTC confirmation procedure. Refer to [EC-372, "DTC Description"](#).

Is the 1st trip DTC P0607 displayed again?

- YES >> Replace ECM. Refer to [EC-499, "Removal and Installation"](#).
NO >> INSPECTION END

P060A ECM

DTC Description

INFOID:000000009985166

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P060A	CONTROL MODULE (Internal control module monitoring processor performance)	ECM internal monitoring processor is malfunctioning.

POSSIBLE CAUSE

ECM

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

TESTING CONDITION:

Before performing the following procedure, confirm that battery voltage is 11 V or more with ignition switch ON.

>> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine and wait at least 10 seconds.
2. Turn ignition switch OFF and wait at least 10 seconds.
3. Repeat step 1 and 2 for 5 times.
4. Turn ignition switch ON.
5. Check 1st trip DTC.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-377, "Diagnosis Procedure"](#).
 NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985167

1. PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Erase DTC.
3. Perform DTC confirmation procedure. Refer to [EC-377, "DTC Description"](#).

Is the 1st trip DTC P060A displayed again?

- YES >> Replace ECM. Refer to [EC-499, "Removal and Installation"](#).
 NO >> INSPECTION END

P060B ECM

DTC Description

INFOID:000000009985168

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P060B	CONTROL MODULE (Internal control module A/D processing performance)	ECM internal analog/digital conversion processing system is malfunctioning.

POSSIBLE CAUSE

ECM

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

TESTING CONDITION:

Before performing the following procedure, confirm that battery voltage is 11 V or more with ignition switch ON.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON (engine stopped) and wait least 10 seconds.
2. Turn ignition switch OFF and wait at least 10 seconds.
3. Turn ignition switch ON.
4. Check 1st trip DTC.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-378. "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985169

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Erase DTC.
3. Perform DTC confirmation procedure. Refer to [EC-378. "DTC Description"](#).

Is the 1st trip DTC P060B displayed again?

- YES >> Replace ECM. Refer to [EC-499. "Removal and Installation"](#).
NO >> INSPECTION END

P0643 SENSOR POWER SUPPLY

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P0643 SENSOR POWER SUPPLY

Description

INFOID:000000009985170

ECM supplies a voltage of 5 V to some of the sensors systematically divided into 2 groups, respectively. Accordingly, when a short circuit develops in a sensor power source, a malfunction may occur simultaneously in the sensors belonging to the same group as the short-circuited sensor.

Sensor power supply 1

- APP sensor 1
- CKP sensor (POS)
- Intake manifold runner control valve position sensor
- Refrigerant pressure sensor
- TP sensor

NOTE:

If sensor power supply 1 circuit is malfunctioning, DTC P0643 is displayed.

Sensor power supply 2

- APP sensor 2
- CMP sensor (PHASE)
- EVT control position sensor
- EOP sensor
- MAF sensor

DTC Description

INFOID:000000009985171

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0643	SENSOR POWER/CIRC (Sensor reference voltage "A" circuit high)	ECM detects that the voltage of sensor power supply 1 is excessively low or high.

POSSIBLE CAUSE

- Harness or connectors
- APP sensor 1 circuit is shorted.
- CKP sensor (POS) circuit is shorted.
- Intake manifold runner control valve position sensor circuit is shorted.
- TP sensor circuit is shorted.
- Refrigerant pressure sensor circuit is shorted.
- Accelerator pedal position sensor
- CKP sensor (POS)
- Intake manifold runner control valve position sensor
- Throttle position sensor
- Refrigerant pressure sensor

FAIL-SAFE

ECM stops the electric throttle control actuator control, throttle valve is maintained at a fixed opening (approx. 5 degrees) by the return spring.

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

TESTING CONDITION:

Before performing the following procedure, confirm that battery voltage is more than 10 V at idle.

P0643 SENSOR POWER SUPPLY

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine and let it idle for 1 second.
2. Check DTC.

Is DTC detected?

- YES >> Refer to [EC-380, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985172

1.CHECK GROUND CONNECTION

1. Turn ignition switch OFF.
2. Check ground connection E9 and E15. Refer to Ground Inspection in [GI-44, "Circuit Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace ground connection.

2.CHECK ACCELERATOR PEDAL POSITION SENSOR 1 POWER SUPPLY CIRCUIT

1. Disconnect accelerator pedal position (APP) sensor harness connector.
2. Turn ignition switch ON.
3. Check the voltage between APP sensor harness connector and ground.

+		-	Voltage (Approx.)
APP sensor			
Connector	Terminal		
E25	4	Ground	5 V

Is the inspection result normal?

- YES >> GO TO 5.
NO >> GO TO 3.

3.CHECK SENSOR POWER SUPPLY CIRCUITS

Check harness for short to power and short to ground, between the following terminals.

ECM		Sensor		
Connector	Terminal	Name	Connector	Terminal
F52	72	CKP sensor (POS)	F17	1
	80	Electric throttle control actuator	F50	2
	84	Intake manifold runner control valve position sensor	F20	1
E16	104	Refrigerant pressure sensor	F10	3
	122	APP sensor	E25	4

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Repair short to ground or short to power in harness or connectors.

4.CHECK COMPONENTS

Check the following.

- Crankshaft position sensor (POS) (Refer to [EC-297, "Component Inspection \(Crankshaft Position sensor\)"](#).)
- Intake manifold runner control valve position sensor (Refer to [EC-424, "Diagnosis Procedure"](#).)
- Refrigerant pressure sensor (Refer to [EC-482, "Diagnosis Procedure"](#).)
- TP sensor (Refer to [EC-218, "Component Inspection"](#).)

Is the inspection result normal?

- YES >> GO TO 5.

P0643 SENSOR POWER SUPPLY

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

NO >> Repair or replace malfunctioning component.

5.CHECK APP SENSOR

Refer to [EC-442, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 6.

NO >> Replace accelerator pedal assembly. Refer to [ACC-3, "Removal and Installation"](#).

6.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> INSPECTION END

A

EC

C

D

E

F

G

H

I

J

K

L

M

N

O

P

P0850 PNP SWITCH

Description

INFOID:000000009985173

Transmission range switch is turn ON when the selector lever is P or N.
ECM detects the position because the continuity of the line (the ON) exists.

DTC Description

INFOID:000000009985174

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P0850	P-N POS SW/CIRCUIT (Park/neutral switch input circuit)	The signal of transmission range switch is not changed in the process of engine starting and driving.

POSSIBLE CAUSE

- Harness or connectors (The transmission range switch circuit is open or shorted.)
- Transmission range switch

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1.INSPECTION START

Do you have CONSULT?

Do you have CONSULT?

- YES >> GO TO 2.
NO >> GO TO 5.

2.PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

>> GO TO 3.

3.CHECK PNP SIGNAL FUNCTION

 With CONSULT

1. Turn ignition switch ON.
2. Select "P/N POSI SW" in "DATA MONITOR" mode of "ENGINE" using CONSULT. Then check the "P/N POSI SW" signal as per the following conditions.

Selector lever position	Known-good signal
N or P position	ON
Except above position	OFF

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Proceed to [EC-383, "Diagnosis Procedure"](#).

4.PERFORM DTC CONFIRMATION PROCEDURE

1. Select "DATA MONITOR" mode of "ENGINE" using CONSULT.
2. Start engine and warm it up to normal operating temperature.
3. Maintain the following conditions for at least 60 consecutive seconds.

CAUTION:

P0850 PNP SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

Always drive vehicle at a safe speed.

ENG SPEED	1,000 - 6,375 rpm
COOLAN TEMP/S	More than 65°C (149°F)
B/FUEL SCHDL	3.25 - 31.8 msec
VHCL SPEED SE	More than 64 km/h (40 mph)
Selector lever	Suitable position

4. Check 1st trip DTC.

Is 1st trip DTC detected?

YES >> Proceed to [EC-383, "Diagnosis Procedure"](#).

NO >> INSPECTION END

5.PERFORM COMPONENT FUNCTION CHECK

- Turn ignition switch ON.
- Check the voltage between ECM harness connector terminals as per the following conditions.

ECM			Condition		Voltage (Approx.)
Connector	+	-			
	Terminal				
E16	117	128	Selector lever	P or N	Battery voltage
				Except above	0 V

Is the inspection result normal?

YES >> INSPECTION END

NO >> Proceed to [EC-383, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000009985176

1.CHECK TRANSMISSION RANGE SWITCH POWER SUPPLY

- Turn ignition switch OFF.
- Disconnect transmission range switch harness connector.
- Turn ignition switch ON.
- Check the voltage between transmission range switch harness connector and ground.

+		-	Voltage
Transmission range switch			
Connector	Terminal		
F78	7	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 2.

2.CHECK TRANSMISSION RANGE SWITCH POWER SUPPLY CIRCUIT

- Turn ignition switch OFF.
- Disconnect IPDM E/R harness connector.
- Check the continuity between transmission range switch harness connector and IPDM E/R harness connector.

+		-		Continuity
Transmission range switch		IPDM E/R		
Connector	Terminal	Connector	Terminal	
F78	7	F35	70	Existed

< DTC/CIRCUIT DIAGNOSIS >

4. Also check harness for short to ground.

Is the inspection result normal?

YES >> Perform the trouble diagnosis for power supply circuit.

NO >> Repair or replace error-detected parts.

3.CHECK TRANSMISSION RANGE SWITCH SIGNAL CIRCUIT

1. Turn ignition switch OFF.

2. Disconnect ECM harness connector.

3. Check the continuity between transmission range switch harness connector and ECM harness connector.

+		-		Continuity
Transmission range switch		ECM		
Connector	Terminal	Connector	Terminal	
F78	10	E16	117	Existed

4. Also check harness for short to ground and to power.

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace error-detected parts.

4.CHECK TRANSMISSION RANGE SWITCH

Check the transmission range switch. Refer to [TM-111, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace transmission range switch. Refer to [TM-220, "Removal and Installation"](#).

5.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> INSPECTION END

P1078 EVT CONTROL POSITION SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P1078 EVT CONTROL POSITION SENSOR

DTC Description

INFOID:0000000009985177

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P1078	EXH TIM SEN/CIRC-B1 (EXH TIM SEN/CIRC-B1)	An excessively high or low voltage from the sensor is sent to ECM.

POSSIBLE CAUSE

- Harness or connectors (Exhaust valve timing control position sensor circuit is open or shorted.)
- Accumulation of debris to the signal pick-up portion of the camshaft
- Exhaust valve timing control position sensor
- Sensor power supply 2 circuit

FAIL-SAFE

- Traveling control mode (Accelerator angle variation control)
- Device fix mode

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine and let it idle for 10 seconds.
2. Check 1st trip DTC.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-385, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000009985178

1.CHECK EXHAUST VALVE TIMING (EVT) CONTROL POSITION SENSOR POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect exhaust valve timing (EVT) control position sensor harness connector.
3. Turn ignition switch ON.
4. Check the voltage between EVT control position sensor harness connector and ground.

+		–	Voltage (Approx.)
EVT control position sensor			
Connector	Terminal		
F45	1	Ground	5 V

Is the inspection result normal?

- YES >> GO TO 3.
NO >> GO TO 2.

2.CHECK SENSOR POWER SUPPLY 2 CIRCUIT

Perform [EC-484, "Diagnosis Procedure"](#).

P1078 EVT CONTROL POSITION SENSOR

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

Is inspection result normal?

- YES >> Perform the trouble diagnosis for power supply circuit.
NO >> Repair or replace error-detected parts.

3.CHECK EVT CONTROL POSITION SENSOR GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between EVT control position sensor harness connector and ECM harness connector.

+		-		Continuity
EVT control position sensor		ECM		
Connector	Terminal	Connector	Terminal	
F45	2	F51	42	Existed

4. Also check harness for short to power.

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Repair or replace error-detected parts.

4.CHECK EVT CONTROL POSITION SENSOR INPUT SIGNAL CIRCUIT

1. Disconnect ECM harness connector.
2. Check the continuity between EVT control position sensor harness connector and ECM harness connector.

+		-		Continuity
EVT control position sensor		ECM		
Connector	Terminal	Connector	Terminal	
F45	3	F51	43	Existed

3. Also check harness for short to ground and to power.

Is the inspection result normal?

- YES >> GO TO 5.
NO >> Repair or replace error-detected parts.

5.CHECK EVT CONTROL POSITION SENSOR

Check the EVT control position sensor. Refer to [EC-387, "Component Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 6.
NO >> Replace EVT control position sensor. Refer to [EM-64, "Exploded View"](#).

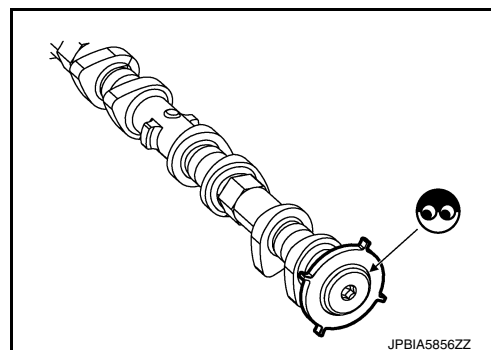
6.CHECK CAMSHAFT (EXT)

Check the following.

- Accumulation of debris to the signal plate of camshaft rear end
- Chipping signal plate of camshaft rear end

Is the inspection result normal?

- YES >> GO TO 7.
NO >> Remove debris and clean the signal plate of camshaft rear end or replace camshaft. Refer to [EM-64, "Removal and Installation"](#).



7.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

P1078 EVT CONTROL POSITION SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

>> INSPECTION END

Component Inspection

INFOID:000000009985179

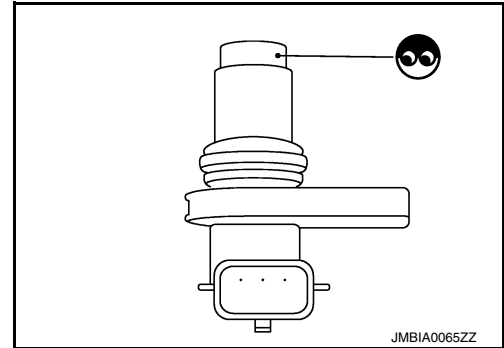
1.EXHAUST VALVE TIMING (EVT) CONTROL POSITION SENSOR-1

1. Turn ignition switch OFF.
2. Disconnect EVT control position sensor harness connector.
3. Loosen the fixing bolt of the sensor.
4. Remove the sensor.
5. Visually check the sensor for chipping.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace EVT control position sensor. Refer to [EM-64](#),
"Exploded View".



2.EVT CONTROL POSITION SENSOR-2

Check resistance EVT control position sensor terminals as shown below.

EVT control position sensor		Resistance
+	–	
Terminal		
1	2	Except 0 or ∞ Ω [at 25°C (77°F)]
	3	
2	3	

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace EVT control position sensor. Refer to [EM-64](#), "Exploded View".

P1148 CLOSED LOOP CONTROL

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P1148 CLOSED LOOP CONTROL

DTC Description

INFOID:0000000009985180

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P1148	CLOSED LOOP-B1 (CLOSED LOOP-B1)	The closed loop control function does not operate even when vehicle is being driven in the specified condition.

POSSIBLE CAUSE

- Harness or connectors (A/F sensor 1 circuit is open or shorted.)
- A/F sensor 1
- A/F sensor 1 heater

FAIL-SAFE

Not applicable

Diagnosis Procedure

INFOID:0000000009985181

DTC P1148 is displayed with DTC for A/F sensor 1.

When the DTC is detected, perform the trouble diagnosis of DTC corresponding to A/F sensor 1.

Refer to [EC-93, "DTC Index"](#).

P117A AIR FUEL RATIO

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P117A AIR FUEL RATIO

DTC Description

INFOID:000000009985182

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P117A	AIR FUEL RATIO B1 (AIR FUEL RATIO B1)	ECM detects a lean/rich air fuel ratio state in any cylinder for a specified length of time.

POSSIBLE CAUSE

- Fuel injector
- Exhaust gas leaks
- Incorrect fuel pressure
- Mass air flow sensor
- Intake air leaks
- Lack of fuel
- Incorrect PCV hose connection
- Improper spark plug
- Insufficient compression
- The fuel injector circuit is open or shorted
- Ignition coil
- The ignition signal circuit is open or shorted

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1.CHECK DTC PRIORITY

If DTC P117A is displayed with other DTC, first perform the trouble diagnosis for other DTC.

Is applicable DTC detected?

- YES >> Perform diagnosis of applicable. Refer to [EC-93, "DTC Index"](#).
NO >> GO TO 2.

2.PRECONDITIONING-1

If DTC Confirmation Procedure has been previously conducted, always perform the following before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

NOTE:

Before performing the following procedure, confirm that battery voltage is 11 V or more at idle.

>> GO TO 3.

3.PRECONDITIONING-2

1. Turn ignition switch ON.
2. Clear the mixture ratio self-learning value. Refer to [EC-143, "Work Procedure"](#).

Will CONSULT be used?

- YES >> GO TO 4.
NO >> GO TO 7.

4.PERFORM DTC CONFIRMATION PROCEDURE-1

1. Turn ignition switch ON.
2. Select "COOLAN TEMP/S" in "DATA MONITOR" mode of "ENGINE" using CONSULT.
3. Start engine.
4. Make sure that "COOLAN TEMP/S" indicates more than 80°C (176°F).

P117A AIR FUEL RATIO

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

>> GO TO 5.

5.PERFORM DTC CONFIRMATION PROCEDURE-2

Ⓢ With CONSULT

1. Select "SYSTEM 1 DIAGNOSIS B B1" and "SYSTEM 1 DIAGNOSIS A B1" in "DATA MONITOR" mode of "ENGINE" using CONSULT.
2. Drive vehicle under the following conditions for at least 5 consecutive seconds.

CAUTION:

- Always drive vehicle at a safe speed.

ENG SPEED	1,300 – 2,000rpm
COOLAN TEMP/S	More than 80°C (176°F)
B/FUEL SCHDL	4 – 8 msec
Selector lever	D position
SYSTEM 1 DIAGNOSIS B B1	PRSENT

NOTE:

- Drive the vehicle at approximately 88 km/h (55MPH) allows easy diagnosis.
- Keep the accelerator pedal as possible during crusing.

3. Check "SYSTEM 1 DIAGNOSIS A B1" indication.

Is "CMPLT" displayed?

YES >> GO TO 6.

NO >> GO TO 3.

6.PERFORM DTC CONFIRMATION PROCEDURE-3

Check 1st trip DTC.

Is 1st trip DTC detected?

YES >> Proceed to [EC-390, "Diagnosis Procedure"](#).

NO >> INSPECTION END

7.PERFORM DTC CONFIRMATION PROCEDURE-4

ⓧ Without CONSULT

1. Start the engine and warm it up to normal operating temperature.
2. Drive vehicle under the following conditions for at least 5 consecutive seconds.

CAUTION:

- Always drive vehicle at a safe speed.

Engine speed	1,000 – 1,250 rpm
Calculated load value	26 – 46 %
Selector lever	D position

NOTE:

- Drive the vehicle at approximately 88 km/h (55MPH) allows easy diagnosis.
- Keep the accelerator pedal as possible during crusing.

3. Check 1st trip DTC.

Is 1st trip DTC detected?

YES >> Proceed to [EC-390, "Diagnosis Procedure"](#).

NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000009985183

1.CHECK DTC PRIORITY

If DTC P117A is displayed with other DTC, first perform the trouble diagnosis for other DTC.

Is applicable DTC detected?

P117A AIR FUEL RATIO

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

- YES >> Perform diagnosis of applicable. Refer to [EC-93, "DTC Index"](#).
NO >> GO TO 2.

2.CHECK FOR INTAKE AIR LEAK

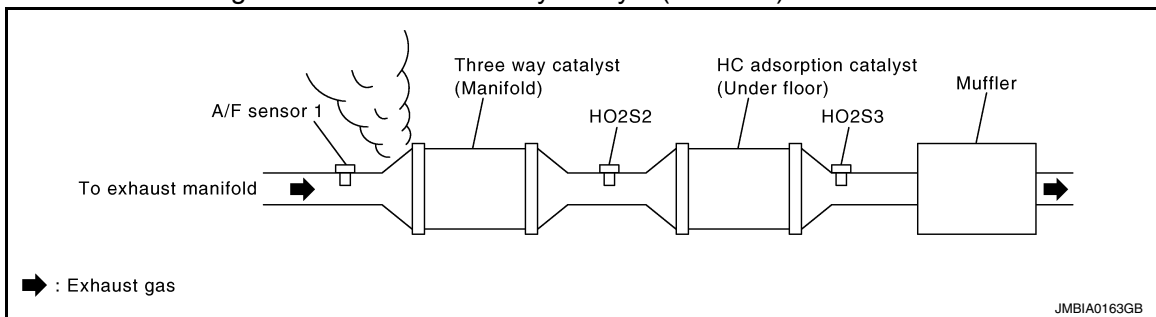
1. Stop engine and check the following for connection.
 - Air duct
 - Vacuum hoses
 - PCV hose
 - Intake air passage between air duct to intake manifold
2. Start engine and let it idle.
3. Listen for an intake air leak after the mass air flow sensor.

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace error-detected parts.

3.CHECK EXHAUST GAS LEAK

1. Stop engine and visually check exhaust tube, three way catalyst and muffler for dents connection.
2. Start engine and let it idle.
3. Listen for an exhaust gas leak before three way catalyst (manifold).



Is the inspection result normal?

- YES >> GO TO 4.
NO >> Repair or replace error-detected parts.

4.CHECK FUEL PRESSURE

1. Release fuel pressure to zero. Refer to [EC-144, "Work Procedure"](#).
2. Check fuel pressure. Refer to [EC-144, "Work Procedure"](#).

Is the inspection result normal?

- YES >> GO TO 5.
NO >> GO TO 10.

5.CHECK MASS AIR FLOW SENSOR

Ⓜ With CONSULT

Check "MASS AIR FLOW" in "DATA MONITOR" mode of "ENGINE" using CONSULT.
For specification, refer to [EC-500, "Mass Air Flow Sensor"](#).

Ⓜ With GST

Check mass air flow sensor signal in Service \$01 using GST.
For specification, refer to [EC-500, "Mass Air Flow Sensor"](#).

Is the inspection result normal?

- YES >> GO TO 6.
NO >> Check connectors for rusted terminals or loose connections in the mass air flow sensor circuit or grounds. Refer to [EC-199, "Diagnosis Procedure"](#).

6.CHECK FUNCTION OF FUEL INJECTOR-1

Ⓜ With CONSULT

1. Start engine.
2. Perform "POWER BALANCE" in "ACTIVE TEST" mode of "ENGINE" using CONSULT.
3. Check that each circuit produces a momentary engine speed drop.

P117A AIR FUEL RATIO

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

⊗ Without CONSULT

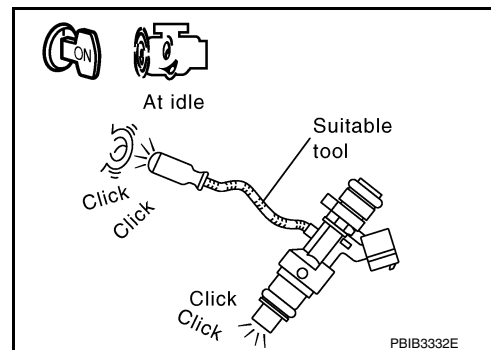
1. Let engine idle.
2. Listen to each fuel injector operating sound.

Clicking noise should be heard.

Is the inspection result normal?

YES >> GO TO 7.

NO >> Perform trouble diagnosis for fuel injector, refer to [EC-464, "Component Function Check"](#).



7. CHECK FUNCTION OF FUEL INJECTOR-2

CAUTION:

Perform the following procedure in a place with no combustible objects and good ventilation.

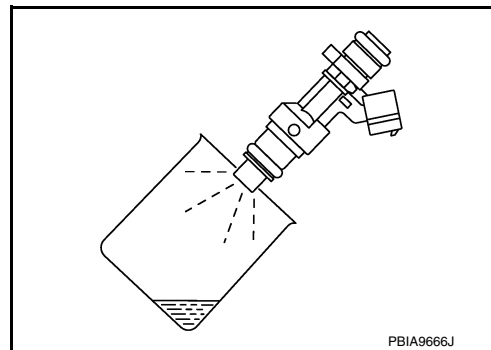
1. Turn ignition switch OFF.
2. Confirm that the engine is cooled down and there are no fire hazards near the vehicle.
3. Disconnect all fuel injector harness connectors.
4. Remove fuel tube assembly. Refer to [EM-40, "Removal and Installation"](#).
Keep fuel hose and all fuel injectors connected to fuel tube.
5. Disconnect all ignition coil harness connectors.
6. Prepare pans or saucers under each fuel injector.
7. Crank engine for approximately 3 seconds.

- Fuel should be sprayed evenly for each fuel injector.
- Fuel must not drip from the tip of fuel injector.

Is the inspection result normal?

YES >> GO TO 8.

NO >> Replace fuel injector. Refer to [EM-40, "Removal and Installation"](#).



8. CHECK FUNCTION OF IGNITION COIL-1

CAUTION:

Perform the following steps in a well-ventilated area with no combustibles.

1. Turn ignition switch OFF.
2. Remove fuel pump fuse from IPDM E/R to release fuel pressure.

NOTE:

CONSULT must not be used to release fuel pressure. It develops again during the following steps, if released by using CONSULT.

3. Start the engine.
4. After an engine stall, crank the engine two or three times to release all the fuel pressure.
5. Turn ignition switch OFF.
6. Disconnect all the harness connectors of ignition coil to prevent electric discharge from occurring in ignition coil.
7. Remove ignition coil assembly and spark plug of cylinder. Refer to [EM-36, "Removal and Installation"](#).
8. Crank engine for 5 seconds or more to remove combustion gas in the cylinder.
9. Connect spark plug and harness connector to ignition coil.

P117A AIR FUEL RATIO

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

10. Allow a 13-17mm (0.52-0.66 in) spacing between spark plug and grounded metal portion as shown in the figure to fix the ignition coil with a rope or an equivalent.
11. Crank the engine for approximately 3 seconds to see if sparking occurs between spark plug and the grounded metal portion.

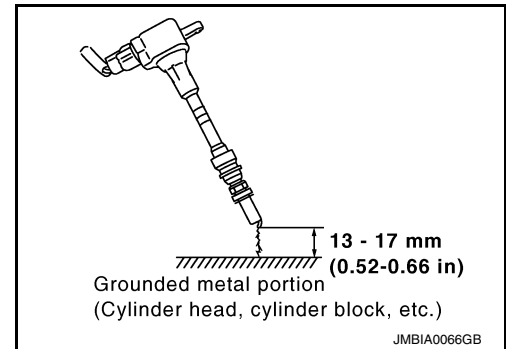
Spark should be generated.

CAUTION:

- The discharge voltage becomes 20 kV or higher. Therefore, always stay away from the spark plug and ignition coil at least 50 cm (19.7 in) during the inspection.
- Leaving a space of more than 17mm (0.66 in) may damage the ignition coil.

NOTE:

When the gap is less than 13 mm (0.52 in), a the spark might be generated even if the coil is malfunctioning.



Is the inspection result normal?

- YES >> GO TO 9.
NO >> GO TO 11.

9.CHECK COMPRESSION PRESSURE

Check compression pressure. Refer to [EM-22, "Compression pressure"](#).

Is the inspection result normal?

- YES >> GO TO 14.
NO >> Check pistons, piston rings, valves, valve seats and cylinder head gaskets.

10.DETECT MALFUNCTIONING PART

Check fuel hoses and fuel tubes for clogging.

Is the inspection result normal?

- YES >> Replace fuel filter and fuel pump assembly. Refer to [FL-6, "Removal and Installation"](#).
NO >> Repair or replace error-detected parts.

11.CHECK FUNCTION OF IGNITION COIL-2

1. Turn ignition switch OFF.
2. Disconnect spark plug and connect a non-malfunctioning spark plug.
3. Crank engine for approximately 3 seconds, and recheck whether spark is generated between the spark plug and the grounded metal portion.

Spark should be generated.

Is the inspection result normal?

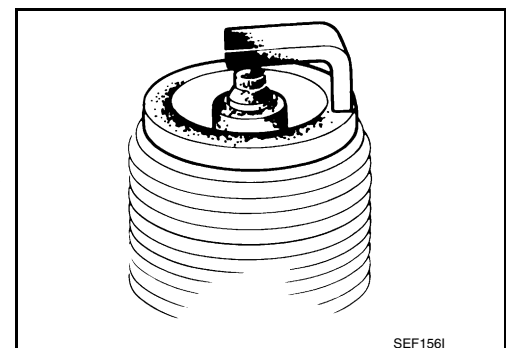
- YES >> GO TO 12.
NO >> Check ignition coil, power transistor and their circuits. Refer to [EC-470, "Component Function Check"](#).

12.CHECK SPARK PLUG

Check the initial spark plug for fouling, etc.

Is the inspection result normal?

- YES >> 1. Repair or clean spark plug. Refer to [EM-17, "Removal and Installation"](#).
2. GO TO 13.
NO >> Replace spark plug(s) with standard type one(s). For spark plug type, refer to [EM-115, "General Specification"](#).



13.CHECK FUNCTION OF IGNITION COIL-3

P117A AIR FUEL RATIO

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

1. Reconnect the initial spark plugs.
2. Crank engine for approximately 3 seconds, and recheck whether spark is generated between the spark plug and the grounded portion.

Spark should be generated.

Is the inspection result normal?

YES >> GO TO 14.

NO >> Replace spark plug(s) with standard type one(s). For spark plug type, refer to [EM-115](#), "[General Specification](#)".

14.CHECK INTERMITTENT INCIDENT

Refer to [GI-41](#), "[Intermittent Incident](#)".

>> INSPECTION END

P1212 TCS COMMUNICATION LINE

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P1212 TCS COMMUNICATION LINE

Description

INFOID:000000009985184

This CAN communication line is used to control the smooth engine operation during the TCS operation. Pulse signals are exchanged between ECM and "ABS actuator and electric unit (control unit)".

Be sure to erase the malfunction information such as DTC not only for "ABS actuator and electric unit (control unit)" but also for ECM after TCS related repair.

DTC Description

INFOID:000000009985185

DTC DETECTION LOGIC

Freeze frame data is not stored in the ECM for this self-diagnosis.

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P1212	TCS/CIRC (TCS/CIRC)	ECM can not receive the information from "ABS actuator and electric unit (control unit)" continuously.

POSSIBLE CAUSE

- Harness or connectors (CAN communication line is open or shorted.)
- ABS actuator and electric unit (control unit)
- Dead (Weak) battery

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1.CHECK DTC PRIORITY

If DTC P1217 is displayed with DTC UXXXX or P0607, first perform the trouble diagnosis for DTC UXXXX or P0607.

Is applicable DTC detected?

- YES >> Perform diagnosis of applicable. Refer to [EC-93. "DTC Index"](#).
NO >> GO TO 2.

2.PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

TESTING CONDITION:

Before performing the following procedure, confirm that battery voltage is more than 10.5V at idle.

>> GO TO 3.

3.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine and let it idle for at least 10 seconds.
2. Check 1st trip DTC.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-395. "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985186

Perform the trouble diagnosis for TCS. Refer to [BRC-66. "Work Flow"](#).

NOTE:

If DTC P1212 is displayed with DTC UXXXX and/or P0607, perform the following trouble diagnosis.

- Trouble diagnosis for DTC UXXXX Refer to [EC-93. "DTC Index"](#).

P1212 TCS COMMUNICATION LINE

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

-
- Trouble diagnosis for DTC P0607 Refer to [EC-376. "DTC Description"](#).

P1217 ENGINE OVER TEMPERATURE

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P1217 ENGINE OVER TEMPERATURE

DTC Description

INFOID:000000009985187

DTC DETECTION LOGIC

If the cooling fan or another component in the cooling system malfunctions, engine coolant temperature will rise.

When the engine coolant temperature reaches an abnormally high temperature condition, a malfunction is indicated.

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P1217	ENG OVER TEMP (ENG OVER TEMP)	- Cooling fan does not operate properly (Overheat). - Cooling fan system does not operate properly (Overheat). - Engine coolant was not added to the system using the proper filling method. - Engine coolant is not within the specified range.

CAUTION:

When a malfunction is indicated, be sure to replace the coolant. Refer to [CO-8, "Draining"](#) and [CO-9, "Refilling"](#). Also, replace the engine oil. Refer to [LU-8, "Draining"](#) and [LU-8, "Refilling"](#).

1. Fill radiator with coolant up to specified level with a filling speed of 2 liters per minute. Be sure to use coolant with the proper mixture ratio. Refer to [MA-12, "Anti-Freeze Coolant Mixture Ratio"](#).
2. After refilling coolant, run engine to ensure that no water-flow noise is emitted.

POSSIBLE CAUSE

- Harness or connectors (Cooling fan circuit is open or shorted.)
- IPDM E/R
- Cooling fan motor
- Radiator hose
- Radiator
- Radiator cap
- Reservoir tank
- Water pump
- Thermostat

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1.CHECK DTC PRIORITY

If DTC P1217 is displayed with DTC UXXXX or P0607, first perform the trouble diagnosis for DTC UXXXX or P0607.

Is applicable DTC detected?

- YES >> Perform diagnosis of applicable. Refer to [EC-93, "DTC Index"](#).
NO >> GO TO 2.

2.PERFORM COMPONENT FUNCTION CHECK-1

WARNING:

Never remove the radiator cap when the engine is hot. Serious burns could be caused by high pressure fluid escaping from the radiator.

Wrap a thick cloth around cap. Carefully remove the cap by turning it a quarter turn to allow built-up pressure to escape. Then turn the cap all the way off.

P1217 ENGINE OVER TEMPERATURE

[QR25DE]

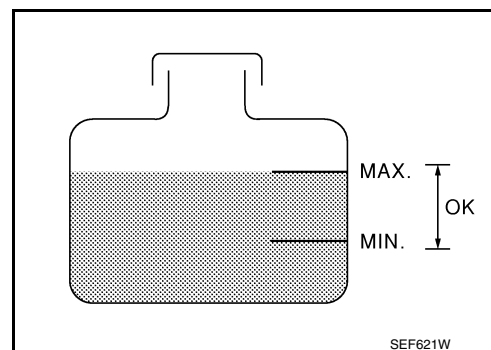
< DTC/CIRCUIT DIAGNOSIS >

Check the coolant level in the reservoir tank and radiator.

Allow engine to cool before checking coolant level.

Is the coolant level in the reservoir tank and/or radiator below the proper range?

- YES >> Proceed to [EC-398, "Diagnosis Procedure"](#).
NO >> GO TO 3.



3.PERFORM COMPONENT FUNCTION CHECK-2

Confirm whether customer filled the coolant or not.

Did customer fill the coolant?

- YES >> Proceed to [EC-398, "Diagnosis Procedure"](#).
NO >> GO TO 4.

4.PERFORM COMPONENT FUNCTION CHECK-3

Ⓔ With CONSULT

1. Turn ignition switch ON.
2. Perform "COOLING FAN (DUAL)" in "ACTIVE TEST" mode of "IPDM E/R" using CONSULT.
3. Touch "LOW", "HI" on the CONSULT screen.
4. Check that cooling fan operates.

Is the inspection result normal?

- YES >> INSPECTION END
NO >> Proceed to [EC-398, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000009985189

1.CHECK DTC PRIORITY

If DTC P1217 is displayed with DTC UXXXX or P0607, first perform the trouble diagnosis for DTC UXXXX or P0607.

Is applicable DTC detected?

- YES >> Perform diagnosis of applicable. Refer to [EC-93, "DTC Index"](#).
NO >> GO TO 2.

2.CHECK COOLING FAN OPERATION

Ⓔ With CONSULT

1. Turn ignition switch ON.
2. Perform "COOLING FAN (DUAL)" in "ACTIVE TEST" mode of "IPDM E/R" using CONSULT.
3. Touch "LOW", "HI" on the CONSULT screen.
4. Check that cooling fan operates.

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Proceed to [EC-458, "Diagnosis Procedure"](#).

3.CHECK COOLING SYSTEM FOR LEAK-1

Check cooling system for leak. Refer to [CO-8, "Inspection"](#).

Is leakage detected?

- YES >> GO TO 4.
NO >> GO TO 5.

4.CHECK COOLING SYSTEM FOR LEAK-2

Check the following for leak.

- Hose (Refer to [CO-8, "Inspection"](#).)
- Radiator (Refer to [CO-12, "RADIATOR : Inspection"](#).)
- Water pump (Refer to [CO-19, "Removal and Installation"](#).)

P1217 ENGINE OVER TEMPERATURE

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

>> Repair or replace malfunctioning part.

5.CHECK RADIATOR CAP

Check radiator cap. Refer to [CO-12. "RADIATOR CAP : Inspection"](#).

Is the inspection result normal?

YES >> GO TO 6.

NO >> Replace radiator cap. Refer to [CO-13. "Exploded View"](#).

6.CHECK THERMOSTAT

Check thermostat. Refer to [CO-21. "Removal and Installation"](#).

Is the inspection result normal?

YES >> GO TO 7.

NO >> Replace thermostat. Refer to [CO-21. "Removal and Installation"](#).

7.CHECK ENGINE COOLANT TEMPERATURE SENSOR

Refer to [EC-212. "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 8.

NO >> Replace engine coolant temperature sensor. Refer to [CO-23. "Exploded View"](#).

8.OVERHEATING CAUSE ANALYSIS

If the cause cannot be isolated, check the [CO-6. "Troubleshooting Chart"](#).

>> INSPECTION END

P1225 TP SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P1225 TP SENSOR

DTC Description

INFOID:000000009985190

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P1225	CTP LEARNING-B1 (CTP LEARNING-B1)	Closed throttle position learning value is excessively low.

POSSIBLE CAUSE

Electric throttle control actuator (TP sensor 1 and 2)

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

TESTING CONDITION:

Before performing the following procedure, confirm that battery voltage is more than 10 V at idle.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Turn ignition switch OFF and wait at least 10 seconds.
3. Turn ignition switch ON.
4. Check 1st trip DTC.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-400, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

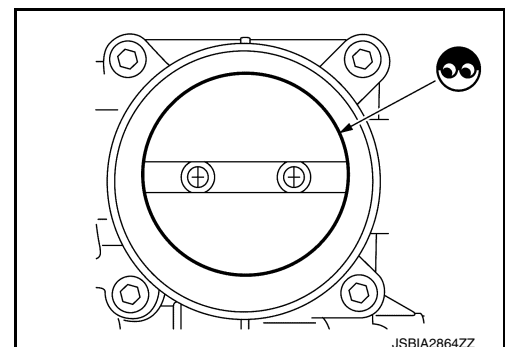
INFOID:000000009985191

1.CHECK ELECTRIC THROTTLE CONTROL ACTUATOR VISUALLY

1. Turn ignition switch OFF.
2. Remove the intake air duct. Refer to [EM-24, "Exploded View"](#).
3. Check if foreign matter is caught between the throttle valve and the housing.

Is the inspection result normal?

- YES >> Replace electric throttle control actuator. Refer to [EM-26, "Removal and Installation"](#).
NO >> Remove the foreign matter and clean the electric throttle control actuator inside, then perform throttle valve closed position learning. Refer to [EC-140, "Work Procedure"](#).



P1226 TP SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P1226 TP SENSOR

DTC Description

INFOID:000000009985192

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P1226	CTP LEARNING-B1 (CTP LEARNING-B1)	Closed throttle position learning is not performed successfully, repeatedly.

POSSIBLE CAUSE

Electric throttle control actuator (TP sensor 1 and 2)

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

TESTING CONDITION:

Before performing the following procedure, confirm that battery voltage is more than 10 V at idle.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Turn ignition switch OFF, wait at least 10 seconds.
3. Turn ignition switch ON.
4. Repeat steps 2 and 3 for 32 times.
5. Check 1st trip DTC.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-401. "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

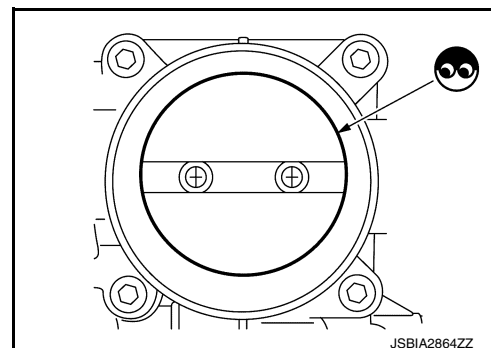
INFOID:000000009985193

1.CHECK ELECTRIC THROTTLE CONTROL ACTUATOR VISUALLY

1. Turn ignition switch OFF.
2. Remove the intake air duct. Refer to [EM-24. "Exploded View"](#).
3. Check if foreign matter is caught between the throttle valve and the housing.

Is the inspection result normal?

- YES >> Replace electric throttle control actuator. Refer to [EM-26. "Removal and Installation"](#).
NO >> Remove the foreign matter and clean the electric throttle control actuator inside, then perform throttle valve closed position learning. Refer to [EC-140. "Work Procedure"](#).



P155D GENERATOR**DTC Description**

INFOID:0000000010285162

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P155D	GENERATOR (Generator)	• ECM receives mechanical malfunction signal sent from generator. • ECM receives electrical malfunction signal sent from generator.

POSSIBLE CAUSE

Generator

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE**1.PRECONDITIONING**

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine and let it idle at least 10 seconds.
2. Check DTC.

Is DTC detected?

- YES >> Proceed to [EC-175, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000010285163

1.CHECK CHARGING SYSTEM

Perform trouble diagnosis for charging system. Refer to [EC-165, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace error-detected parts.

2.CHECK INTERMITTENT INCIDENT

Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

Is the inspection result normal?

- YES >> Replace generator. Refer to [CHG-20, "Removal and Installation"](#).
NO >> Repair or replace error-detected parts.

P1564 ASCD STEERING SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P1564 ASCD STEERING SWITCH

DTC Description

INFOID:000000009985210

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P1564	ASCD SW (ASCD switch)	- An excessively high voltage signal from the ASCD steering switch is sent to ECM. - ECM detects that input signal from the ASCD steering switch is out of the specified range. - ECM detects that the ASCD steering switch is stuck ON.

POSSIBLE CAUSE

- Harness or connectors (ASCD steering switch circuit is open or shorted.)
- ASCD steering switch
- ECM

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1.CHECK DTC PRIORITY

If DTC P1564 is displayed with DTC P0603, P0604, P0605, P0606, P0607, P060A, or P060B, first perform the trouble diagnosis for DTC P0603, P0604, P0605, P0606, P0607, P060A, or P060B.

Is applicable DTC detected?

- YES >> Perform diagnosis of applicable. Refer to [EC-93, "DTC Index"](#).
NO >> GO TO 2.

2.PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

>> GO TO 3.

3.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Wait at least 10 seconds.
3. Press MAIN switch for at least 10 seconds, then release it and wait at least 10 seconds.
4. Press CANCEL switch for at least 10 seconds, then release it and wait at least 10 seconds.
5. Press ACCEL/RES switch for at least 10 seconds, then release it and wait at least 10 seconds.
6. Press COAST/SET switch for at least 10 seconds, then release it and wait at least 10 seconds.
7. Check DTC.

Is DTC detected?

- YES >> Proceed to [EC-403, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985211

1.CHECK DTC PRIORITY

If DTC P1564 is displayed with DTC P0603, P0604, P0605, P0606, P0607, P060A, or P060B, first perform the trouble diagnosis for DTC P0603, P0604, P0605, P0606, P0607, P060A, or P060B.

Is applicable DTC detected?

- YES >> Perform diagnosis of applicable. Refer to [EC-93, "DTC Index"](#).

P1564 ASCD STEERING SWITCH

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

NO >> GO TO 2.

2.CHECK ASCD STEERING SWITCH CIRCUIT

With CONSULT

1. Turn ignition switch ON.
2. Select "CANCEL SW", "RESUME/ACC SW" and "SET SW" in "DATA MONITOR" mode of "ENGINE" using CONSULT.
3. Check each item indication as per the following conditions.

Monitor item	Condition		Indication
MAIN SW	MAIN switch	Pressed	ON
		Released	OFF
CANCEL SW	CANCEL switch	Pressed	ON
		Released	OFF
RESUME/ACC SW	ACCEL/RES switch	Pressed	ON
		Released	OFF
SET SW	COAST/SET switch	Pressed	ON
		Released	OFF

Without CONSULT

1. Turn ignition switch ON.
2. Check the voltage between ECM harness connector terminals.

ECM			Condition	Voltage (Approx.)
Connector	+	-		
	Terminal			
E16	110	111	MAIN switch: Pressed	0 V
			CANCEL switch: Pressed	1 V
			COAST/SET switch: Pressed	2 V
			ACCEL/RES switch: Pressed	3 V
			All ASCD steering switches: Released	4 V

Is the inspection result normal?

YES >> GO TO 6.

NO >> GO TO 3.

3.CHECK ASCD STEERING SWITCH GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Disconnect combination switch (spiral cable) harness connector.
4. Check the continuity between combination switch (spiral cable) and ECM harness connector.

+		-		Continuity
Combination switch (Spiral cable)		ECM		
Connector	Terminal	Connector	Terminal	
M30	7	E16	111	Existed

5. Also check harness for short to ground and to power.

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace error-detected parts.

4.CHECK ASCD STEERING SWITCH INPUT SIGNAL CIRCUIT

P1564 ASCD STEERING SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

1. Check the continuity between ECM harness connector and combination switch.

+		-		Continuity
Combination switch (Spiral cable)		ECM		
Connector	Terminal	Connector	Terminal	
M30	6	E16	110	Existed

2. Also check harness for short to ground and to power.

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace error-detected parts.

5.CHECK ASCD STEERING SWITCH

Refer to [EC-405, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 6.

NO >> Replace ASCD steering switch. Refer to [ST-11, "Removal and Installation"](#).

6.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> INSPECTION END

Component Inspection

INFOID:000000009985212

1.CHECK ASCD STEERING SWITCH

1. Disconnect combination switch (spiral cable) harness connector.
2. Check the resistance between combination switch harness connector terminals as per the following conditions.

Combination switch (Spiral cable)			Condition	Resistance (Approx.)
Connector	+	−		
	Terminals			
M90	27	26	MAIN switch: Pressed	0 Ω
			CANCEL switch: Pressed	250 Ω
			COAST/SET switch: Pressed	660 Ω
			ACCEL/RES switch: Pressed	1,480 Ω
			All ASCD steering switches: Released	4,000 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace ASCD steering switch. Refer to [ST-11, "Exploded View"](#).

P1568 SIGNAL INVALID

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P1568 SIGNAL INVALID

DTC Description

INFOID:0000000010353912

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P1568	ICC COMMAND VALUE (Intelligent cruise control command value)	ECM detects that a throttle valve opening angle request signal sent from chassis control module is difference from the specified value calculated by ECM.

POSSIBLE CAUSE

- Chassis control module
- ECM

FAIL-SAFE

Active trace control does not function.

DTC CONFIRMATION PROCEDURE

1.CHECK DTC PRIORITY

If DTC P1568 is displayed with DTC UXXXX, first perform the confirmation procedure for DTC UXXXX.

Is applicable DTC detected?

- YES >> Perform diagnosis for detected DTC. Refer to [EC-93. "DTC Index"](#).
NO >> GO TO 2.

2.PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

>> GO TO 3.

3.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON and wait at least 5 seconds.
2. Check DTC.

Is DTC detected?

- YES >> Proceed to [EC-406. "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000010353913

1.CHECK DTC PRIORITY

If DTC P1568 is displayed with DTC UXXXX, first perform the confirmation procedure for DTC UXXXX.

Is applicable DTC detected?

- YES >> Perform diagnosis for detected DTC. Refer to [EC-93. "DTC Index"](#).
NO >> GO TO 2.

2.CHECK SELF-DIAGNOSTIC RESULT OF CHASSIS CONTROL MODULE

Check that the chassis control module does not detect any DTC.

Is any DTC detected?

- YES >> GO TO 2.
NO >> Replace chassis control module. Refer to [DAS-277. "Removal and Installation"](#).

3.REPLACE CHASSIS CONTROL MODULE

P1568 SIGNAL INVALID

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

1. Replace chassis control module. Refer to [DAS-277, "Removal and Installation"](#).
2. Perform DTC Confirmation Procedure again.

Is DTC P1568 detected again?

YES >> Replace ECM. Refer to [EC-499, "Removal and Installation"](#).
NO >> INSPECTION END

A

EC

C

D

E

F

G

H

I

J

K

L

M

N

O

P

P1572 BRAKE PEDAL POSITION SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P1572 BRAKE PEDAL POSITION SWITCH

DTC Description

INFOID:000000009985213

DTC DETECTION LOGIC

NOTE:

This self-diagnosis has the one trip detection logic. When malfunction A is detected, DTC is not stored in ECM memory. And in that case, 1st trip DTC and 1st trip freeze frame data are displayed. 1st trip DTC is erased when ignition switch OFF. And even when malfunction A is detected in two consecutive trips, DTC is not stored in ECM memory.

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition	
P1572	ASCD BRAKE SW (ASCD BRAKE SW)	A	When the vehicle speed is above 30 km/h (19 MPH), ON signals from the stop lamp switch and the brake pedal position switch are sent to the ECM at the same time.
		B	Brake pedal position switch signal is not sent to ECM for extremely long time while the vehicle is driving.

POSSIBLE CAUSE

- Harness or connectors
- Stop lamp switch circuit is shorted.
- Brake pedal position switch circuit is shorted.
- Stop lamp switch
- Brake pedal position switch
- Incorrect stop lamp switch installation
- Incorrect brake pedal position switch installation
- ECM

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1.CHECK DTC PRIORITY

If DTC P1572 is displayed with DTC P0603, P0604, P0605, P0606, P0607, P060A, or P060B, first perform the trouble diagnosis for DTC P0603, P0604, P0605, P0606, P0607, P060A, or P060B.

Is applicable DTC detected?

- YES >> Perform diagnosis of applicable. Refer to [EC-93, "DTC Index"](#).
NO >> GO TO 2.

2.PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

NOTE:

Procedure for malfunction B is not described here. It takes extremely long time to complete procedure for malfunction B. By performing procedure for malfunction A, the incident that causes malfunction B can be detected.

>> GO TO 3.

3.PERFORM DTC CONFIRMATION PROCEDURE FOR MALFUNCTION A

1. Start engine.
2. Press MAIN switch and make sure that CRUISE indicator is displayed in combination meter.
3. Drive the vehicle for at least 5 consecutive seconds as per the following conditions.

CAUTION:

P1572 BRAKE PEDAL POSITION SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

Always drive vehicle at a safe speed.

NOTE:

**This procedure may be conducted with the drive wheels lifted in the shop or by driving the vehicle.
If a road test is expected to be easier, it is unnecessary to lift the vehicle.**

Vehicle speed	More than 30 km/h (19 mph)
Selector lever	Suitable position

4. Check DTC.

Is DTC detected?

YES >> Proceed to [EC-415, "Diagnosis Procedure"](#).

NO >> GO TO 4.

4.PERFORM DTC CONFIRMATION PROCEDURE FOR MALFUNCTION B

1. Drive the vehicle for at least 5 consecutive seconds as per the following conditions.

CAUTION:

Always drive vehicle at a safe speed.

NOTE:

**This procedure may be conducted with the drive wheels lifted in the shop or by driving the vehicle.
If a road test is expected to be easier, it is unnecessary to lift the vehicle.**

Vehicle speed	More than 30 km/h (19 mph)
Selector lever	Suitable position
Driving location	Depress the brake pedal for more than five seconds so as not to come off from the above-mentioned vehicle speed.

2. Check DTC.

Is DTC detected?

YES >> Proceed to [EC-415, "Diagnosis Procedure"](#).

NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985214

1.CHECK DTC PRIORITY

If DTC P1572 is displayed with DTC P0603, P0604, P0605, P0606, P0607, P060A, or P060B, first perform the trouble diagnosis for DTC P0603, P0604, P0605, P0606, P0607, P060A, or P060B.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable. Refer to [EC-93, "DTC Index"](#).

NO >> GO TO 2.

2.CHECK OVERALL FUNCTION-1

 With CONSULT

1. Turn ignition switch ON.
2. Select "BRAKE SW1" in "DATA MONITOR" mode of "ENGINE" using CONSULT.
3. Check "BRAKE SW1" indication as per the following conditions.

Monitor item	Condition		Indication
BRAKE SW1	Brake pedal	Slightly depressed	OFF
		Fully released	ON

 Without CONSULT

1. Turn ignition switch ON.
2. Check the voltage between ECM harness connector terminals as per the following.

P1572 BRAKE PEDAL POSITION SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

ECM			Condition		Voltage (Approx.)
Connector	+	−			
	Terminal				
E16	116	128	Brake pedal	Slightly depressed	0 V
				Fully released	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 4.

3.CHECK OVERALL FUNCTION-2

④ With CONSULT

Select "BRAKE SW2" and check indication as per the following conditions.

Monitor item	Condition		Indication
BRAKE SW2	Brake pedal	Slightly depressed	ON
		Fully released	OFF

⊗ Without CONSULT

Check the voltage between ECM harness connector terminals as per the following conditions.

ECM			Condition		Voltage (Approx.)
Connector	+	−			
	Terminal				
E16	115	128	Brake pedal	Slightly depressed	Battery voltage
				Fully released	0 V

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

NO >> GO TO 7.

4.CHECK BRAKE PEDAL POSITION SWITCH POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect brake pedal position switch harness connector.
3. Turn ignition switch ON.
4. Check the voltage between brake pedal position switch harness connector and ground.

+		–	Voltage
Brake pedal position switch			
Connector	Terminal		
E6	1	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 5.

NO >> Perform the trouble diagnosis for power supply circuit.

5.CHECK BRAKE PEDAL POSITION SWITCH INPUT SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between brake pedal position switch harness connector and ECM harness connector.

P1572 BRAKE PEDAL POSITION SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

+		-		Continuity
Brake pedal position switch		ECM		
Connector	Terminal	Connector	Terminal	
E6	2	E16	116	Existed

4. Also check harness for short to ground and to power.

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace error-detected parts.

6.CHECK BRAKE PEDAL POSITION SWITCH

Check the brake pedal position switch. Refer to [EC-411, "Component Inspection \(Brake Pedal Position Switch\)"](#)

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

NO >> Replace brake pedal position switch. Refer to [BR-20, "Exploded View"](#).

7.CHECK STOP LAMP SWITCH POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect stop lamp switch harness connector.
3. Check the voltage between stop lamp switch harness connector and ground.

+		-	Voltage
Stop lamp switch			
Connector	Terminal		
E38	1	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 8.

NO >> Perform the trouble diagnosis for power supply circuit.

8.CHECK STOP LAMP SWITCH GROUND CIRCUIT

1. Check the continuity between stop lamp switch harness connector and ECM harness connector.

+		-		Continuity
Stop lamp switch		ECM		
Connector	Terminal	Connector	Terminal	
E38	2	E16	115	Existed

2. Also check harness for short to ground and to power.

Is the inspection result normal?

YES >> GO TO 9.

NO >> Repair or replace error-detected parts.

9.CHECK STOP LAMP SWITCH

Check the stop lamp switch. Refer to [EC-412, "Component Inspection \(Stop Lamp Switch\)"](#).

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

NO >> Replace stop lamp switch. Refer to [BR-20, "Exploded View"](#).

Component Inspection (Brake Pedal Position Switch)

INFOID:000000009985215

1.CHECK BRAKE PEDAL POSITION SWITCH-1

1. Turn ignition switch OFF.
2. Disconnect brake pedal position harness connector.

P1572 BRAKE PEDAL POSITION SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

3. Check the continuity between brake pedal position switch terminals as per the following conditions.

Brake pedal position switch		Condition		Continuity
+	—			
Terminals				
1	2	Brake pedal	Fully released	Existed
			Slightly de-pressed	Not existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 2.

2.CHECK BRAKE PEDAL POSITION SWITCH-2

1. Adjust brake pedal position switch installation. Refer to [BR-15. "Adjustment"](#).
2. Check the continuity between brake pedal position switch terminals as per the following conditions.

Brake pedal position switch		Condition		Continuity
+	–			
Terminals				
1	2	Brake pedal	Fully released	Existed
			Slightly de-pressed	Not existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace brake pedal position switch. Refer to [BR-20. "Exploded View"](#).

Component Inspection (Stop Lamp Switch)

INFOID:000000009985216

1.CHECK STOP LAMP SWITCH-1

1. Turn ignition switch OFF.
2. Disconnect stop lamp switch harness connector.
3. Check the continuity between stop lamp switch terminals as per the following conditions.

Stop lamp switch		Condition		Continuity
+	–			
Terminals				
1	2	Brake pedal	Fully released	Not existed
			Slightly de-pressed	Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 2.

2.CHECK STOP LAMP SWITCH-2

1. Adjust stop lamp switch installation. Refer to [BR-7. "Inspection"](#).
2. Check the continuity between stop lamp switch terminals as per the following conditions.

P1572 BRAKE PEDAL POSITION SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

Stop lamp switch		Condition		Continuity
+	-			
Terminals				
1	2	Brake pedal	Fully released	Not existed
			Slightly de-pressed	Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace stop lamp switch. Refer to [BR-20, "Exploded View"](#).

A

EC

C

D

E

F

G

H

I

J

K

L

M

N

O

P

P1574 ASCD VEHICLE SPEED SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P1574 ASCD VEHICLE SPEED SENSOR

Description

INFOID:000000009985218

The ECM receives two vehicle speed sensor signals via CAN communication line. One is sent from combination meter, and the other is from TCM (Transmission control module). The ECM uses these signals for ASCD control. Refer to [EC-47, "AUTOMATIC SPEED CONTROL DEVICE \(ASCD\) : System Description"](#) for ASCD functions.

DTC Description

INFOID:000000009985219

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P1574	ASCD VHL SPD SEN (ASCD VHL SPD SEN)	ECM detects a difference between two vehicle speed signals is out of the specified range.

POSSIBLE CAUSE

- Harness or connectors (CAN communication line is open or shorted.)
- ABS actuator and electric unit (control unit)
- TCM
- ECM

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1.CHECK DTC PRIORITY

If DTC P1574 is displayed with DTC U1001, P0500, P0603, P0604, P0605, P0606, P0607, P060A or P060B, first perform the trouble diagnosis for DTC U1001, P0500, P0603, P0604, P0605, P0606, P0607, P060A or P060B.

Is applicable DTC detected?

- YES >> Perform diagnosis of applicable. Refer to [EC-93, "DTC Index"](#).
NO >> GO TO 2.

2.PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

>> GO TO 3.

3.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Drive the vehicle at more than 40 km/h (25 MPH).

CAUTION:

Always drive vehicle at a safe speed.

NOTE:

This procedure may be conducted with the drive wheels lifted in the shop or by driving the vehicle. If a road test is expected to be easier, it is unnecessary to lift the vehicle.

3. Check DTC.

Is DTC detected?

- YES >> Proceed to [EC-415, "Diagnosis Procedure"](#).
NO >> INSPECTION END

P1574 ASCD VEHICLE SPEED SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

Diagnosis Procedure

INFOID:000000009985220

1.CHECK DTC PRIORITY

If DTC P1574 is displayed with DTC U1001, P0500, P0603, P0604, P0605, P0606, P0607, P060A or P060B, first perform the trouble diagnosis for DTC U1001, P0500, P0603, P0604, P0605, P0606, P0607, P060A or P060B.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable. Refer to [EC-93. "DTC Index"](#).

NO >> GO TO 2.

2.CHECK DTC WITH TCM

Check DTC with TCM. Refer to [TM-47. "CONSULT Function"](#).

Is DTC detected?

NO >> GO TO 3.

YES >> Perform trouble shooting relevant to DTC indicated.

3.CHECK DTC WITH "ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)"

Check DTC with ABS actuator and electric unit (control unit). Refer to [BRC-44. "CONSULT Function"](#).

Is DTC detected?

NO >> INSPECTION END

YES >> Perform trouble shooting relevant to DTC indicated.

P1715 INPUT SPEED SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P1715 INPUT SPEED SENSOR

Description

INFOID:000000009985221

ECM receives input speed sensor signal from TCM through CAN communication line. ECM uses this signal for engine control.

DTC Description

INFOID:000000009985222

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P1715	IN PULY SPEED (IN PULY SPEED)	Input speed sensor signal is different from the theoretical value calculated by ECM from output speed sensor signal and engine rpm signal.

POSSIBLE CAUSE

- Harness or connectors (The CAN communication line is open or shorted.)
- Harness or connectors (Input speed sensor circuit is open or shorted.)
- TCM

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1.CHECK DTC PRIORITY

If DTC P1715 is displayed with DTC UXXXX, P0335, P0340, P0603, P0604, P0605, P0606, P0607, P060A, or P060B, first perform the trouble diagnosis for DTC UXXXX, P0335, P0340, P0603, P0604, P0605, P0606, P0607, P060A, or P060B.

Is applicable DTC detected?

- YES >> Perform diagnosis of applicable. Refer to [EC-93, "DTC Index"](#).
NO >> GO TO 2.

2.PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

>> GO TO 3.

3.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine and drive the vehicle at more than 50 km/h (31 MPH) for at least 5 seconds.

CAUTION:

Always drive vehicle at a safe speed.

2. Check 1st trip DTC.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-416, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985223

1.CHECK DTC PRIORITY

If DTC P1715 is displayed with DTC UXXXX, P0335, P0340, P0603, P0604, P0605, P0606, P0607, P060A, or P060B, first perform the trouble diagnosis for DTC UXXXX, P0335, P0340, P0603, P0604, P0605, P0606, P0607, P060A, or P060B.

Is applicable DTC detected?

P1715 INPUT SPEED SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

YES >> Perform diagnosis of applicable. Refer to [EC-93. "DTC Index"](#).
NO >> GO TO 2.

2.CHECK DTC WITH TCM

Check DTC with TCM. Refer to [TM-47. "CONSULT Function"](#).

Is the inspection result normal?

YES >> GO TO 3.
NO >> Perform trouble shooting relevant to DTC indicated.

3.REPLACE TCM

Replace TCM. Refer to [TM-202. "Removal and Installation"](#).

>> INSPECTION END

A
EC
C
D
E
F
G
H
I
J
K
L
M
N
O
P

P1805 BRAKE SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P1805 BRAKE SWITCH

DTC Description

INFOID:000000009985227

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P1805	BRAKE SW/CIRCUIT (BRAKE SW/CIRCUIT)	A stop lamp switch signal is not sent to ECM for extremely long time while the vehicle is driving.

POSSIBLE CAUSE

- Harness or connectors (Stop lamp switch circuit is open or shorted.)
- Stop lamp switch

FAIL-SAFE

ECM controls the electric throttle control actuator by regulating the throttle opening to a small range. Therefore, acceleration will be poor.

Vehicle condition	Driving condition
When engine is idling	Normal
When accelerating	Poor acceleration

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Fully depress the brake pedal for at least 5 seconds.
3. Erase the DTC.
4. Check 1st trip DTC.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-418, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985228

1.CHECK STOP LAMP SWITCH POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect stop lamp switch harness connector.
3. Check the voltage between stop lamp switch harness connector and ground.

+		-	Voltage
Stop lamp switch			
Connector	Terminal		
E38	1	Ground	Battery voltage

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Perform the trouble diagnosis for power supply circuit.

2.CHECK STOP LAMP SWITCH GROUND CIRCUIT

1. Disconnect ECM harness connector.
2. Check the continuity between stop lamp switch harness connector and ECM harness connector.

P1805 BRAKE SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

+		-		Continuity
Stop lamp switch		ECM		
Connector	Terminal	Connector	Terminal	
E38	2	E16	115	Existed

3. Also check harness for short to ground and to power.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace error-detected parts.

3.CHECK STOP LAMP SWITCH

Check the stop lamp switch. Refer to [EC-412, "Component Inspection \(Stop Lamp Switch\)"](#).

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

NO >> Replace stop lamp switch. Refer to [BR-20, "Exploded View"](#).

Component Inspection (Stop Lamp Switch)

INFOID:000000009985229

1.CHECK STOP LAMP SWITCH-1

1. Turn ignition switch OFF.
2. Disconnect stop lamp switch harness connector.
3. Check the continuity between stop lamp switch terminals as per the following conditions.

Stop lamp switch		Condition		Continuity
+	–			
Terminals				
1	2	Brake pedal	Fully released	Not existed
			Slightly de-pressed	Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 2.

2.CHECK STOP LAMP SWITCH-2

1. Adjust stop lamp switch installation. Refer to [BR-15, "Adjustment"](#).
2. Check the continuity between stop lamp switch terminals as per the following conditions.

Stop lamp switch		Condition		Continuity
+	–			
Terminals				
1	2	Brake pedal	Fully released	Not existed
			Slightly de-pressed	Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace stop lamp switch. Refer to [BR-20, "Exploded View"](#).

P2004 INTAKE MANIFOLD RUNNER CONTROL VALVE

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P2004 INTAKE MANIFOLD RUNNER CONTROL VALVE

DTC Description

INFOID:000000009985231

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P2004	TUMBLE CONT/V (Intake manifold runner control stuck open bank 1)	The target angle of intake manifold runner control valve controlled by ECM and the input signal from intake manifold runner control valve position sensor is not in the normal range.

POSSIBLE CAUSE

- Harness or connectors (Intake manifold runner control valve motor circuit is open or shorted.)
- Intake manifold runner control valve motor
- Intake manifold runner control valve is stuck

FAIL-SAFE

- Traveling control mode (Engine output control)
- Device fix mode

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always turn ignition switch OFF and wait at least 10 seconds before conducting the next test.

TESTING CONDITION:

- Before performing the following procedure, confirm that battery voltage is more than 11 V at idle.
- Always perform the test at a temperature above -7°C (19°F)

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT

1. Turn ignition switch ON.
2. Select "DATA MONITOR" mode with CONSULT.
3. Make sure that "COOLAN TEMP/S" indicates between -7°C (19°F) to 60°C (140°F).
If not, cool engine down or warm engine up until "COOLAN TEMP/S" indicates between -7°C (19°F) to 60°C (140°F). Then go to the following steps.
4. Fully release accelerator pedal and wait at least 10 seconds.
5. Depress accelerator pedal and wait at least 10 seconds.
6. Check 1st trip DTC.

With GST

Following the procedure "With CONSULT" above.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-420, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985232

1.CHECK INTAKE MANIFOLD RUNNER CONTROL VALVE MOTOR POWER SUPPLY

1. Turn ignition switch ON.
2. Check the voltage between ECM harness connector.

ECM				Voltage
+		-		
Connector	Terminal	Connector	Terminal	
F52	50	E16	128	Battery voltage

P2004 INTAKE MANIFOLD RUNNER CONTROL VALVE

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

Is the inspection result normal?

- YES >> GO TO 3.
NO >> GO TO 2.

2.CHECK INTAKE MANIFOLD RUNNER CONTROL VALVE MOTOR POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Disconnect IPDM E/R harness connector.
4. Check the continuity between ECM harness connector and IPDM E/R harness connector.

+		-		Continuity
ECM		IPDM E/R		
Connector	Terminal	Connector	Terminal	
F52	50	E119	8	Existed

5. Also check harness for short to ground.

Is the inspection result normal?

- YES >> Perform the trouble diagnosis for power supply circuit.
NO >> Repair or replace error-detected parts.

3.CHECK INTAKE MANIFOLD RUNNER CONTROL VALVE MOTOR OUTPUT SIGNAL CIRCUIT

1. Disconnect intake manifold runner control valve motor harness connector.
2. Check the continuity between intake manifold runner control valve motor harness connector and ECM harness connector.

+		-		Continuity
Intake manifold runner control valve motor		ECM		
Connector	Terminal	Connector	Terminal	
F19	1	F52	49	Not existed
			51	Existed
	2		49	Existed
			51	Not existed

3. Also check harness for short to ground and to power.

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Repair or replace error-detected parts.

4.CHECK INTAKE MANIFOLD RUNNER CONTROL VALVE MOTOR

Check the intake manifold runner control valve motor. Refer to [EC-421, "Component Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 5.
NO >> Replace intake manifold assembly. Refer to [EM-26, "Removal and Installation"](#).

5.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> INSPECTION END

Component Inspection

INFOID:000000009985233

1.CHECK INTAKE MANIFOLD RUNNER CONTROL VALVE

With CONSULT

1. Turn ignition switch ON.
2. Select "DATA MONITOR" mode with CONSULT.

P2004 INTAKE MANIFOLD RUNNER CONTROL VALVE

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

3. Make sure that "COOLAN TEMP/S" indicates between -7°C (19°F) to 60°C (140°F).
If not, cool engine down or warm engine up until "COOLAN TEMP/S" indicates between -7°C (19°F) to 60°C (140°F). Then go to the following steps.
4. Fully release accelerator pedal and make sure that "TUMBLE POS SEN" indicates between 2.8 V to 4.1 V.
5. Depress accelerator pedal and make sure that "TUMBLE POS SEN" indicates between 0.2 V to 1.4 V.
6. Check 1st trip DTC.



With GST

Following the procedure "With CONSULT" above.

Is 1st trip DTC detected?

- YES >> Replace intake manifold assembly. Refer to [EM-26, "Removal and Installation"](#).
NO >> GO TO 2.

2. CHECK INTAKE MANIFOLD RUNNER CONTROL VALVE MOTOR

1. Turn ignition switch OFF.
2. Disconnect intake manifold runner control valve motor harness connector.
3. Check the resistance between intake manifold runner control valve motor terminals as per the following.

Intake manifold runner control valve motor		Resistance (Approx.)
+	−	
Terminals		
1	2	4.64 - 6.30 Ω [at 25°C (77°F)]

Is the inspection result normal?

- YES >> INSPECTION END
NO >> Replace intake manifold assembly. Refer to [EM-26, "Removal and Installation"](#).

P2014, P2016, P2017, P2018 INTAKE MANIFOLD RUNNER CONTROL VALVE POSITION SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P2014, P2016, P2017, P2018 INTAKE MANIFOLD RUNNER CONTROL VALVE POSITION SENSOR

DTC Description

INFOID:000000009985234

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P2014	IN/MANIFOLD RUNNER POS SEN B1 (Intake manifold runner position sensor/ switch circuit bank 1)	An excessively low voltage from the sensor is sent to ECM.
P2016	IN/MANIFOLD RUNNER POS SEN B1 (Intake manifold runner position sensor/ switch circuit low bank 1)	
P2017	IN/MANIFOLD RUNNER POS SEN B1 (Intake manifold runner position sensor/ switch circuit high bank 1)	An excessively high voltage from the sensor is sent to ECM.
P2018	IN/MANIFOLD RUNNER POS SEN B1 (Intake manifold runner position sensor/ switch circuit intermittent bank 1)	

POSSIBLE CAUSE

- Harness or connectors (Intake manifold runner control position sensor circuit is shorted.)
- Intake manifold runner control position sensor

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1.CHECK DTC PRIORITY

If DTC P2014, P2016, P2017 or P2018 is displayed with DTC P0643, first perform the trouble diagnosis for DTC P0643.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable. Refer to [EC-379, "DTC Description"](#).

NO >> GO TO 2.

2.PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

TESTING CONDITION:

Before performing the following procedure, confirm that battery voltage is more than 11 V at idle.

>> GO TO 3.

3.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine and let it idle for 10 seconds.
2. Check 1st trip DTC.

Is 1st trip DTC detected?

YES >> Proceed to [EC-424, "Diagnosis Procedure"](#).

NO >> INSPECTION END

P2014, P2016, P2017, P2018 INTAKE MANIFOLD RUNNER CONTROL VALVE POSITION SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

Diagnosis Procedure

INFOID:000000009985235

1.CHECK DTC PRIORITY

If DTC P2014, P2016, P2017 or P2018 is displayed with DTC P0643, first perform the trouble diagnosis for DTC P0643.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable. Refer to [EC-379, "DTC Description"](#).

NO >> GO TO 2.

2.CHECK INTAKE MANIFOLD RUNNER CONTROL VALVE POSITION SENSOR POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect intake valve manifold runner control valve position sensor harness connector.
3. Turn ignition switch ON.
4. Check the voltage between intake valve manifold runner control valve position sensor harness connector.

Intake manifold runner control valve position sensor			Voltage (Approx.)
Connector	+	-	
	Terminal		
F20	1	3	5 V

Is the inspection result normal?

YES >> GO TO 5.

NO >> GO TO 3.

3.CHECK INTAKE MANIFOLD RUNNER CONTROL VALVE POSITION SENSOR POWER SUPPLY CIRCUIT

Check the voltage between intake valve manifold runner control valve position sensor harness connector and ground.

+		-	Voltage (Approx.)
Intake manifold runner control valve position sensor			
Connector	Terminal		
F20	1	Ground	5 V

Is the inspection result normal?

YES >> GO TO 4.

NO >> Perform the trouble diagnosis for power supply circuit.

4.CHECK ECM GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between ECM harness connector and ground.

+		-	Continuity
ECM			
Connector	Terminal		
F51	16	Ground	Existed
F52	52		
E16	123		
	128		

4. Also check harness for short to power.

Is the inspection result normal?

YES >> GO TO 8.

P2014, P2016, P2017, P2018 INTAKE MANIFOLD RUNNER CONTROL VALVE POSITION SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

NO >> Repair or replace error-detected parts.

5.CHECK INTAKE MANIFOLD RUNNER CONTROL VALVE POSITION SENSOR GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between intake manifold runner control valve position sensor harness connector and ECM harness connector.

+		-		Continuity
Intake manifold runner control valve position sensor		ECM		
Connector	Terminal	Connector	Terminal	
F20	3	F52	92	Existed

4. Also check harness for short to power.

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace error-detected parts.

6.CHECK INTAKE MANIFOLD RUNNER CONTROL VALVE POSITION SENSOR INPUT SIGNAL CIRCUIT

1. Check the continuity between intake manifold runner control valve position sensor harness connector and ECM harness connector.

+		-		Continuity
Intake manifold runner control valve position sensor		ECM		
Connector	Terminal	Connector	Terminal	
F20	2	F52	83	Existed

2. Also check harness for short to ground and to power.

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace error-detected parts.

7.CHECK INTERMITTENT INCIDENT

Perform [GI-41, "Intermittent Incident"](#).

Is the inspection result normal?

YES >> Replace intake manifold assembly. Refer to [EM-26, "Exploded View"](#).

NO >> Repair or replace error-detected parts.

8.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> INSPECTION END

P2096, P2097 A/F SENSOR 1

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P2096, P2097 A/F SENSOR 1

DTC Description

INFOID:000000009985236

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P2096	POST CATALYST FUEL TRIM SYS B1 (Post catalyst fuel trim system too lean bank 1)	The output voltage computed by ECM from the A/F sensor 1 signal is shifts to the lean side for a specified period.
P2097	POST CATALYST FUEL TRIM SYS B1 (Post catalyst fuel trim system too rich bank 1)	The A/F signal computed by ECM from the A/F sensor 1 signal is shifts to the rich side for a specified period.

POSSIBLE CAUSE

- A/F sensor 1
- A/F sensor 1 heater
- Heated oxygen sensor 2
- Fuel pressure
- Fuel injector
- Intake air leaks
- Exhaust gas leaks

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait least 10 seconds.

TESTING CONDITION:

Before performing the following procedure, confirm that battery voltage is more than 11 at idle.

>> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

1. Clear the mixture ratio self-learning value. Refer to [EC-143, "Work Procedure"](#).
2. Turn ignition switch OFF and wait at least 10 seconds.
3. Start engine and keep the engine speed between 3,500 and 4,000 rpm for 1 minute under no load.
4. Let engine idle for 1 minute.
5. Keep engine speed between 2,500 and 3,000 rpm for 20 minutes.
6. Check 1st trip DTC.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-426, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985237

1. CHECK HARNESS CONNECTOR

1. Turn ignition switch OFF.
2. Disconnect A/F sensor 1 harness connector.
3. Check harness connector for water.

Water should not exit.

P2096, P2097 A/F SENSOR 1

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace harness connector.

2. RETIGHTEN A/F SENSOR 1 AND HEATED OXYGEN SENSOR 2

Loosen and retighten the A/F sensor 1 and heated oxygen sensor 2. Refer to [EM-29, "Exploded View"](#), [EX-5, "Exploded View"](#).

>> GO TO 3.

3. CHECK FOR EXHAUST GAS LEAK

1. Start engine and run it at idle.
2. Listen for an exhaust gas leak before the three way catalyst 2.

Is exhaust gas leak detected?

- YES >> Repair or replace malfunctioning parts.
NO >> GO TO 4.

4. CHECK FOR INTAKE AIR LEAK

1. Reconnect A/F sensor 1 harness connector.
2. Start engine and run it at idle.
3. Listen for an intake air leak after the mass air flow sensor.

Is intake air leak detected?

- YES >> Repair or replace malfunctioning parts.
NO >> GO TO 5.

5. CLEAR THE MIXTURE RATIO SELF-LEARNING VALUE

1. Clear the mixture ratio self-learning value. Refer to [EC-143, "Work Procedure"](#).
2. Run engine for at least 10 minutes at idle speed.

Is the 1st trip DTC P0171 or P0172 detected? Is it difficult to start engine?

- YES >> Perform trouble diagnosis for DTC P0171 or P0172. Refer to [EC-260, "DTC Description"](#) or [EC-265, "DTC Description"](#).
NO >> GO TO 6.

6. CHECK A/F SENSOR 1 POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect A/F sensor 1 harness connector.
3. Turn ignition switch ON.
4. Check the voltage between A/F sensor 1 harness connector and ground.

+		-	Voltage
A/F sensor 1			
Connector	Terminal		
F18	4	Ground	Battery voltage

Is the inspection result normal?

- YES >> GO TO 8.
NO >> GO TO 7.

7. CHECK A/F SENSOR 1 POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R harness connector.
3. Check the continuity between A/F sensor 1 harness connector and IPDM E/R harness connector.

P2096, P2097 A/F SENSOR 1

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

+		-		Continuity
A/F sensor 1		IPDM E/R		
Connector	Terminal	Connector	Terminal	
F18	4	F35	75	Existed

4. Also check harness for short to ground.

Is the inspection result normal?

YES >> Perform the trouble diagnosis for power supply circuit.

NO >> Repair or replace error-detected parts.

8.CHECK A/F SENSOR 1 INPUT SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between A/F sensor 1 harness connector and ECM harness connector.

+		-		Continuity
A/F sensor 1		ECM		
Connector	Terminal	Connector	Terminal	
F18	1	F51	41	Existed
	2		45	

4. Check the continuity between A/F sensor 1 harness connector and ground, or ECM harness connector and ground.

+		-	Continuity
A/F sensor 1			
Connector	Terminal		
F18	1	Ground	Not existed
	2		

+		-	Continuity
ECM			
Connector	Terminal		
F51	41	Ground	Not existed
	45		

5. Also check harness for short to power.

Is the inspection result normal?

YES >> GO TO 9.

NO >> Repair or replace error-detected parts.

9.CHECK A/F SENSOR 1 HEATER

Check the A/F sensor 1 heater. Refer to [EC-186. "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 10.

NO >> GO TO 12.

10.CHECK HEATED OXYGEN SENSOR 2

Check heated oxygen sensor 2. Refer to [EC-239. "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 11.

NO >> Replace heated oxygen sensor 2. Refer to [EX-5. "Exploded View"](#).

11.CHECK INTERMITTENT INCIDENT

Perform [GI-41, "Intermittent Incident"](#).

Is the inspection result normal?

YES >> GO TO 12.

NO >> Repair or replace error-detected parts.

12.REPLACE AIR FUEL RATIO (A/F) SENSOR 1

Replace air fuel ratio (A/F) sensor 1. Refer to [EM-29, "Exploded View"](#).

CAUTION:

- Discard any sensor which has been dropped from a height of more than 0.5 m (19.7 in) onto a hard surface such as a concrete floor; use a new one.
- Before installing new sensor, clean exhaust system threads using Oxygen Sensor Thread Cleaner [commercial service tool (J-43897-18 or J-43897-12)] and approved Anti-seize Lubricant (commercial service tool).

Do you have CONSULT?

YES >> GO TO 13.

NO >> GO TO 14.

13.CONFIRM A/F ADJUSTMENT DATA

ⓂWith CONSULT

1. Turn ignition switch ON.
2. Select "A/F ADJ-B1" in "DATA MONITOR" mode of "ENGINE" using CONSULT.
3. Make sure that "0.000" is displayed on CONSULT screen.

Is "0.000" displayed?

YES >> INSPECTION END

NO >> GO TO 14.

14.CLEAR THE MIXTURE RATIO SELF-LEARNING VALUE

Clear the mixture ratio self-learning value. Refer to [EC-143, "Work Procedure"](#).

Do you have CONSULT?

YES >> GO TO 15.

NO >> INSPECTION END

15.CONFIRM A/F ADJUSTMENT DATA

ⓂWith CONSULT

1. Turn ignition switch ON.
2. Select "A/F ADJ-B1" in "DATA MONITOR" mode of "ENGINE" using CONSULT.
3. Make sure that "0.000" is displayed on CONSULT screen.

>> INSPECTION END

P2100, P2103 THROTTLE CONTROL MOTOR RELAY

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P2100, P2103 THROTTLE CONTROL MOTOR RELAY

DTC Description

INFOID:000000009985238

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P2100	ETC MOT PWR-B1 (Throttle actuator "A" control motor circuit/ open)	ECM detects a voltage of power source for throttle control motor is excessively low.
P2103	ETC MOT PWR-B1 (Throttle actuator "A" control motor circuit high)	ECM detect the throttle control motor relay is stuck ON.

POSSIBLE CAUSE

DTC P2100

- Harness or connectors (Throttle control motor relay circuit is open.)
- Throttle control motor relay

DTC P2103

- Harness or connectors (Throttle control motor relay circuit is shorted.)
- Throttle control motor relay

FAIL-SAFE

ECM stops the electric throttle control actuator control, throttle valve is maintained at a fixed opening (approx. 5 degrees) by the return spring.

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

TESTING CONDITION:

Before performing the following procedure, confirm that battery voltage is more than 8 V.

With DTC is detected?

- P2100 >> GO TO 2.
P2103 >> GO TO 3.

2. PERFORM DTC CONFIRMATION PROCEDURE FOR DTC P2100

1. Turn ignition switch ON and wait at least 2 seconds.
2. Start engine and let it idle for 5 seconds.
3. Check DTC.

Is DTC detected?

- YES >> Proceed to [EC-431, "Diagnosis Procedure"](#).
NO >> INSPECTION END

3. PERFORM DTC CONFIRMATION PROCEDURE FOR DTC P2103

1. Turn ignition switch ON and wait at least 1 second.
2. Check DTC.

Is DTC detected?

- YES >> Proceed to [EC-431, "Diagnosis Procedure"](#).
NO >> INSPECTION END

P2100, P2103 THROTTLE CONTROL MOTOR RELAY

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

Diagnosis Procedure

INFOID:000000009985239

1.CHECK THROTTLE CONTROL MOTOR RELAY POWER SUPPLY

1. Turn ignition switch OFF.
2. Check the voltage between ECM harness connector and ground.

+		-		Voltage
ECM				
Connector	Terminal	Connector	Terminal	
F51	2	E16	128	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 2.

2.CHECK THROTTLE CONTROL MOTOR RELAY POWER SUPPLY CIRCUIT

1. Disconnect ECM harness connector.
2. Disconnect IPDM E/R harness connector.
3. Check the continuity between ECM harness connector and IPDM E/R harness connector.

+		-		Continuity
ECM		IPDM E/R		
Connector	Terminal	Connector	Terminal	
F51	2	F35	72	Existed

4. Also check harness for short to ground.

Is the inspection result normal?

YES >> Perform the trouble diagnosis for power supply circuit.

NO >> Repair or replace error-detected parts.

3.CHECK THROTTLE CONTROL MOTOR RELAY INPUT SIGNAL

Check the voltage between ECM harness connector and ground as per the following conditions.

ECM				Condition	Voltage (Approx.)
+		-			
Connector	Terminal	Connector	Terminal		
F51	21	E16	128	Ignition switch: OFF	0 V
				Ignition switch: ON	Battery voltage

Is the inspection result normal?

YES >> GO TO 5.

NO >> GO TO 4.

4.CHECK THROTTLE CONTROL MOTOR RELAY INPUT SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Disconnect IPDM E/R harness connector.
4. Check the continuity between ECM harness connector and IPDM E/R harness connector.

+		-		Continuity
ECM		IPDM E/R		
Connector	Terminal	Connector	Terminal	
F51	21	F35	67	Existed

5. Also check harness for short to ground and to power.

P2100, P2103 THROTTLE CONTROL MOTOR RELAY

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace error-detected parts.

5.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> INSPECTION END

P2101 ELECTRIC THROTTLE CONTROL FUNCTION

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P2101 ELECTRIC THROTTLE CONTROL FUNCTION

DTC Description

INFOID:000000009985240

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P2101	ETC FNCTN/CIRC-B1 (Throttle actuator "A" control motor circuit range/performance)	Electric throttle control function does not operate properly.

POSSIBLE CAUSE

- Harness or connectors (Throttle control motor circuit is open or shorted.)
- Electric throttle control actuator

FAIL-SAFE

ECM stops the electric throttle control actuator control, throttle valve is maintained at a fixed opening (approx. 5 degrees) by the return spring.

DTC CONFIRMATION PROCEDURE

1.CHECK DTC PRIORITY

If DTC P2101 is displayed with DTC P2100 or P2119, first perform the trouble diagnosis for DTC P2100 or P2119.

Is applicable DTC detected?

- YES >> Perform diagnosis of applicable. Refer to [EC-93, "DTC Index"](#).
NO >> GO TO 2.

2.PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

TESTING CONDITION:

Before performing the following procedure, confirm that battery voltage is more than 11 V when engine is running.

>> GO TO 3.

3.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON and wait at least 2 seconds.
2. Start engine and let it idle for 5 seconds.
3. Check DTC.

Is DTC detected?

- YES >> Proceed to [EC-433, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985241

1.CHECK DTC PRIORITY

If DTC P2101 is displayed with DTC P2100 or P2119, first perform the trouble diagnosis for DTC P2100 or P2119.

Is applicable DTC detected?

- YES >> Perform diagnosis of applicable. Refer to [EC-93, "DTC Index"](#).
NO >> GO TO 2.

2.CHECK THROTTLE CONTROL MOTOR RELAY INPUT SIGNAL

P2101 ELECTRIC THROTTLE CONTROL FUNCTION

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

Check the voltage between ECM harness connector terminals as per the following conditions.

ECM				Condition	Voltage (Approx.)
+		−			
Connector	Terminal	Connector	Terminal		
F51	21	E16	128	Ignition switch: OFF	0 V
				Ignition switch: ON	Battery voltage

Is the inspection result normal?

YES >> GO TO 5.

NO >> GO TO 3.

3.CHECK THROTTLE CONTROL MOTOR RELAY POWER SUPPLY CIRCUIT

1. Check the continuity between ECM harness connector and IPDM E/R harness connector.

+		-		Continuity
ECM		IPDM E/R		
Connector	Terminal	Connector	Terminal	
F51	2	F35	72	Existed

2. Also check harness for short to ground.

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace error-detected parts.

4.CHECK THROTTLE CONTROL MOTOR RELAY INPUT SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Disconnect IPDM E/R harness connector.
4. Check the continuity between ECM harness connector and IPDM E/R harness connector.

+		-		Continuity
ECM		IPDM E/R		
Connector	Terminal	Connector	Terminal	
F51	21	F35	67	Existed

5. Also check harness for short to ground and to power.

Is the inspection result normal?

YES >> Perform the trouble diagnosis for power supply circuit.

NO >> Repair or replace error-detected parts.

5.CHECK THROTTLE CONTROL MOTOR OUTPUT SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect electric throttle control actuator harness connector.
3. Disconnect ECM harness connector.
4. Check the continuity between electric throttle control actuator harness connector and ECM harness connector.

P2101 ELECTRIC THROTTLE CONTROL FUNCTION

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

+		-		Continuity
Electric throttle control actuator		ECM		
Connector	Terminal	Connector	Terminal	
F50	5	F51	1	Existed
			3	Not existed
	6		1	Not existed
			3	Existed

5. Also check harness for short to ground and to power.

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace error-detected parts.

6.CHECK ELECTRIC THROTTLE CONTROL ACTUATOR VISUALLY

1. Remove the intake air duct. Refer to [EM-24, "Exploded View"](#).

2. Check if foreign matter is caught between the throttle valve and the housing.

Is the inspection result normal?

YES >> GO TO 7.

NO >> Remove the foreign matter and clean the electric throttle control actuator inside, then perform throttle valve closed position learning. Refer to [EC-140, "Work Procedure"](#).

7.CHECK THROTTLE CONTROL MOTOR

Check the throttle control motor. Refer to [EC-435, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 8.

NO >> Replace electric throttle control actuator. Refer to [EM-26, "Removal and Installation"](#).

8.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> INSPECTION END

Component Inspection

INFOID:000000009985242

1.CHECK THROTTLE CONTROL MOTOR

1. Turn ignition switch OFF.

2. Disconnect electric throttle control actuator harness connector.

3. Check the resistance between electric throttle control actuator terminals as per the following.

Electric throttle control actuator		Resistance (Approx.)
+	−	
Terminals		
5	6	1 - 15 Ω [at 25°C (77°F)]

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace electric throttle control actuator. Refer to [EM-26, "Removal and Installation"](#).

P2118 THROTTLE CONTROL MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P2118 THROTTLE CONTROL MOTOR

DTC Description

INFOID:000000009985243

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P2118	ETC MOT-B1 (Throttle actuator control motor current range/performance)	ECM detects short in both circuits between ECM and throttle control motor.

POSSIBLE CAUSE

- Harness or connectors (Throttle control motor circuit is shorted.)
- Electric throttle control actuator (Throttle control motor)

FAIL-SAFE

ECM stops the electric throttle control actuator control, throttle valve is maintained at a fixed opening (approx. 5 degrees) by the return spring.

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON and wait at least 2 seconds.
2. Start engine and let it idle for 5 seconds.
3. Check DTC.

Is DTC detected?

- YES >> Proceed to [EC-436. "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985244

1.CHECK THROTTLE CONTROL MOTOR OUTPUT SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect electric throttle control actuator harness connector.
3. Disconnect ECM harness connector.
4. Check the continuity between electric throttle control actuator harness connector and ECM harness connector.

+		—		Continuity
Electric throttle control actuator		ECM		
Connector	Terminal	Connector	Terminal	
F50	5	F51	1	Existed
			3	Not existed
	6		1	Not existed
			3	Existed

5. Also check harness for short to ground and to power.

P2118 THROTTLE CONTROL MOTOR

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace error-detected parts.

2.CHECK THROTTLE CONTROL MOTOR

Check the throttle control motor. Refer to [EC-437, "Component Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Replace electric throttle control actuator. Refer to [EM-26, "Removal and Installation"](#).

3.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> INSPECTION END

Component Inspection

INFOID:000000009985245

1.CHECK THROTTLE CONTROL MOTOR

1. Turn ignition switch OFF.
2. Disconnect electric throttle control actuator harness connector.
3. Check the resistance between electric throttle control actuator terminals as per the following.

Electric throttle control actuator		Resistance (Approx.)
+	−	
Terminals		
5	6	1 - 15 Ω [at 25°C (77°F)]

Is the inspection result normal?

- YES >> INSPECTION END
NO >> Replace electric throttle control actuator. Refer to [EM-26, "Removal and Installation"](#).

P2119 ELECTRIC THROTTLE CONTROL ACTUATOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P2119 ELECTRIC THROTTLE CONTROL ACTUATOR

DTC Description

INFOID:000000009985246

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition	
P2119	ETC ACTR-B1 (Throttle actuator control throttle body range/performance)	A	Electric throttle control actuator does not function properly due to the return spring malfunction.
		B	Throttle valve opening angle in fail-safe mode is not in specified range.
		C	ECM detect the throttle valve is stuck open.

POSSIBLE CAUSE

Electric throttle control actuator

FAIL-SAFE

Traveling control mode (Engine output control)

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE FOR MALFUNCTION A AND B

1. Turn ignition switch ON and wait at least 1 second.
2. Set selector lever to D position and wait at least 3 seconds.
3. Set selector lever to P position.
4. Turn ignition switch OFF and wait at least 10 seconds.
5. Turn ignition switch ON and wait at least 1 second.
6. Set selector lever to D position and wait at least 3 seconds.
7. Set selector lever to P position.
8. Turn ignition switch OFF, wait at least 10 seconds and then turn ON.
9. Check DTC.

Is DTC detected?

- YES >> Proceed to [EC-438, "Diagnosis Procedure"](#).
NO >> GO TO 3.

3.PERFORM DTC CONFIRMATION PROCEDURE FOR MALFUNCTION C

1. Turn ignition switch ON and wait at least 1 second.
2. Set selector lever to D position and wait at least 3 seconds.
3. Set selector lever to P position.
4. Start engine and let it idle for 3 seconds.
5. Check DTC.

Is DTC detected?

- YES >> Proceed to [EC-438, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985247

1.CHECK ELECTRIC THROTTLE CONTROL ACTUATOR VISUALLY

1. Remove the intake air duct. Refer to [EM-24, "Exploded View"](#).

P2119 ELECTRIC THROTTLE CONTROL ACTUATOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

2. Check if foreign matter is caught between the throttle valve and the housing.

Is the inspection result normal?

YES >> Replace electric throttle control actuator. Refer to [EM-26, "Removal and Installation"](#).

NO >> Remove the foreign matter and clean the electric throttle control actuator inside, then perform throttle valve closed position learning. Refer to [EC-140, "Work Procedure"](#).

A

EC

C

D

E

F

G

H

I

J

K

L

M

N

O

P

P2122, P2123 APP SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P2122, P2123 APP SENSOR

DTC Description

INFOID:000000009985248

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P2122	APP SEN 1/CIRC (Throttle/pedal position sensor/switch "D" circuit low)	An excessively low voltage from the APP sensor 1 is sent to ECM.
P2123	APP SEN 1/CIRC (Throttle/pedal position sensor/switch "D" circuit high)	An excessively high voltage from the APP sensor 1 is sent to ECM.

POSSIBLE CAUSE

- Harness or connectors (APP sensor 1 circuit is open or shorted.)
- Accelerator pedal position sensor (APP sensor 1)

FAIL-SAFE

- The ECM controls the electric throttle control actuator in regulating the throttle opening in order for the idle position to be within +10 degrees.
- The ECM regulates the opening speed of the throttle valve to be slower than the normal condition. So, the acceleration will be poor.

DTC CONFIRMATION PROCEDURE

1.CHECK DTC PRIORITY

If DTC P2122 or P2123 is displayed with DTC P0643, first perform the trouble diagnosis for DTC P0643.

Is applicable DTC detected?

- YES >> Perform diagnosis of applicable. Refer to [EC-379, "DTC Description"](#).
NO >> GO TO 2.

2.PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

TESTING CONDITION:

Before performing the following procedure, confirm that battery voltage is more than 8 V at idle.

>> GO TO 3.

3.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine and let it idle for 1 second.
2. Check DTC.

Is DTC detected?

- YES >> Proceed to [EC-440, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985249

1.CHECK DTC PRIORITY

If DTC P2122 or P2123 is displayed with DTC P0643, first perform the trouble diagnosis for DTC P0643.

Is applicable DTC detected?

- YES >> Perform diagnosis of applicable. Refer to [EC-379, "DTC Description"](#).
NO >> GO TO 2.

P2122, P2123 APP SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

2. CHECK APP SENSOR 1 POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect accelerator pedal position (APP) sensor harness connector.
3. Turn ignition switch ON.
4. Check the voltage between APP sensor harness connector and ground.

+		-	Voltage (Approx.)
APP sensor			
Connector	Terminal		
E25	4	Ground	5 V

Is the inspection result normal?

YES >> GO TO 4.

NO >> GO TO 3.

3. CHECK APP SENSOR 1 POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between APP sensor harness connector and ECM harness connector.

+		-		Continuity
APP sensor		ECM		
Connector	Terminal	Connector	Terminal	
E25	4	E16	122	Existed

4. Also check harness for short to ground.

Is the inspection result normal?

YES >> Perform the trouble diagnosis for power supply circuit.

NO >> Repair or replace error-detected parts.

4. CHECK APP SENSOR 1 GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between APP sensor harness connector and ECM harness connector.

+		-		Continuity
APP sensor		ECM		
Connector	Terminal	Connector	Terminal	
E25	2	E16	127	Existed

4. Also check harness for short to power.

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace error-detected parts.

5. CHECK APP SENSOR INPUT SIGNAL CIRCUIT

1. Check the continuity between APP sensor harness connector and ECM harness connector.

+		-		Continuity
APP sensor		ECM		
Connector	Terminal	Connector	Terminal	
E25	3	E16	126	Existed

2. Also check harness for short to ground and to power.

Is the inspection result normal?

P2122, P2123 APP SENSOR

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

- YES >> GO TO 6.
NO >> Repair or replace error-detected parts.

6.CHECK APP SENSOR

Check the APP sensor. Refer to [EC-442. "Component Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 7.
NO >> Replace accelerator pedal assembly. Refer to [ACC-3. "Removal and Installation"](#).

7.CHECK INTERMITTENT INCIDENT

Refer to [GI-41. "Intermittent Incident"](#).

>> INSPECTION END

Component Inspection

INFOID:000000009985250

1.CHECK ACCELERATOR PEDAL POSITION SENSOR

1. Turn ignition switch OFF.
2. Reconnect all harness connectors disconnected.
3. Turn ignition switch ON.
4. Check the voltage between ECM harness connector terminals as per the following condition.

ECM				Condition		Voltage
Connector		+	−			
		Terminal				
Sensor 1	E16	126	127	Accelerator pedal	Fully released	0.5 - 1.0 V
					Fully depressed	4.2 - 4.8 V
Sensor 2		119	120		Fully released	0.25 - 0.5 V
					Fully depressed	2.0 - 2.5 V

Is the inspection result normal?

- YES >> INSPECTION END
NO >> Replace accelerator pedal assembly. Refer to [ACC-3. "Removal and Installation"](#).

P2127, P2128 APP SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P2127, P2128 APP SENSOR

DTC Description

INFOID:000000009985251

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P2127	APP SEN 2/CIRC (Throttle/pedal position sensor/switch "E" circuit low)	An excessively low voltage from the APP sensor 2 is sent to ECM.
P2128	APP SEN 2/CIRC (Throttle/pedal position sensor/switch "E" circuit high)	An excessively high voltage from the APP sensor 2 is sent to ECM.

POSSIBLE CAUSE

- Harness or connectors (APP sensor 2 circuit is open or shorted.)
- Accelerator pedal position sensor (APP sensor 2)
- Sensor power supply 2 circuit

FAIL-SAFE

- The ECM controls the electric throttle control actuator in regulating the throttle opening in order for the idle position to be within +10 degrees.
- The ECM regulates the opening speed of the throttle valve to be slower than the normal condition. So, the acceleration will be poor.

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

TESTING CONDITION:

Before performing the following procedure, confirm that battery voltage is more than 8 V at idle.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine and let it idle for 1 second.
2. Check DTC.

Is DTC detected?

- YES >> Proceed to [EC-443, "Diagnosis Procedure"](#).
- NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985252

1.CHECK APP SENSOR 2 POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect accelerator pedal position (APP) sensor harness connector.
3. Turn ignition switch ON.
4. Check the voltage between APP sensor harness connector and ground.

+		-	Voltage (Approx.)
APP sensor			
Connector	Terminal		
E25	5	Ground	5 V

P2127, P2128 APP SENSOR

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

Is the inspection result normal?

- YES >> GO TO 3.
NO >> GO TO 2.

2.CHECK SENSOR POWER SUPPLY 2 CIRCUIT

Perform [EC-484, "Diagnosis Procedure"](#).

Is inspection result normal?

- YES >> Perform the trouble diagnosis for power supply circuit.
NO >> Repair or replace error-detected parts.

3.CHECK APP SENSOR 2 GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between APP sensor harness connector and ECM harness connector.

+		-		Continuity
APP sensor		ECM		
Connector	Terminal	Connector	Terminal	
E25	1	E16	120	Existed

4. Also check harness for short to power.

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Repair or replace error-detected parts.

4.CHECK APP SENSOR 2 INPUT SIGNAL CIRCUIT

1. Check the continuity between APP sensor harness connector and ECM harness connector.

+		-		Continuity
APP sensor		ECM		
Connector	Terminal	Connector	Terminal	
E25	6	E16	119	Existed

2. Also check harness for short to ground and to power.

Is the inspection result normal?

- YES >> GO TO 5.
NO >> Repair or replace error-detected parts

5.CHECK APP SENSOR

Check the APP sensor. Refer to [EC-444, "Component Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 6.
NO >> Replace accelerator pedal assembly. Refer to [ACC-3, "Removal and Installation"](#).

6.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> INSPECTION END

Component Inspection

INFOID:000000009985253

1.CHECK ACCELERATOR PEDAL POSITION SENSOR

1. Turn ignition switch OFF.
2. Reconnect all harness connectors disconnected.
3. Turn ignition switch ON.
4. Check the voltage between ECM harness connector terminals as per the following condition.

P2127, P2128 APP SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

ECM				Condition		Voltage
Connector		+	−			
		Terminal				
Sensor 1	E16	126	127	Accelerator pedal	Fully released	0.5 - 1.0 V
					Fully depressed	4.2 - 4.8 V
Sensor 2		119	120		Fully released	0.25 - 0.5 V
					Fully depressed	2.0 - 2.5 V

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace accelerator pedal assembly. Refer to [ACC-3. "Removal and Installation"](#).

A

EC

C

D

E

F

G

H

I

J

K

L

M

N

O

P

P2135 TP SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P2135 TP SENSOR

DTC Description

INFOID:000000009985254

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P2135	TP SENSOR-B1 (Throttle/pedal position sensor/switch "A" / "B" voltage correlation)	Rationally incorrect voltage is sent to ECM compared with the signals from TP sensor 1 and TP sensor 2.

POSSIBLE CAUSE

- Harness or connectors (TP sensor 1 or 2 circuit is open or shorted.)
- Electric throttle control actuator (TP sensor 1 or 2)

FAIL-SAFE

- The ECM controls the electric throttle control actuator in regulating the throttle opening in order for the idle position to be within +10 degrees.
- The ECM regulates the opening speed of the throttle valve to be slower than the normal condition. So, the acceleration will be poor.

DTC CONFIRMATION PROCEDURE

1.CHECK DTC PRIORITY

If DTC P2135 is displayed with DTC P0643, first perform the trouble diagnosis for DTC P0643.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable. Refer to [EC-379, "DTC Description"](#).

NO >> GO TO 2.

2.PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

TESTING CONDITION:

Before performing the following procedure, confirm that battery voltage is more than 8 V at idle.

>> GO TO 3.

3.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine and let it idle for 1 second.
2. Check DTC.

Is DTC detected?

YES >> Proceed to [EC-446, "Diagnosis Procedure"](#).

NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985255

1.CHECK DTC PRIORITY

If DTC P2135 is displayed with DTC P0643, first perform the trouble diagnosis for DTC P0643.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable. Refer to [EC-379, "DTC Description"](#).

NO >> GO TO 2.

2.CHECK THROTTLE POSITION SENSOR POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect electric throttle control actuator harness connector.

P2135 TP SENSOR

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

- Turn ignition switch ON.
- Check the voltage between electric throttle control actuator harness connector and ground.

+		-	Voltage (Approx.)
Electric throttle control actuator			
Connector	Terminal		
F50	2	Ground	5 V

Is the inspection result normal?

- YES >> GO TO 4.
NO >> GO TO 3.

3.CHECK THROTTLE POSITION SENSOR POWER SUPPLY CIRCUIT

- Turn ignition switch OFF.
- Disconnect ECM harness connector.
- Check the continuity between electric throttle control actuator harness connector and ground.

+		-		Continuity
Electric throttle control actuator		ECM		
Connector	Terminal	Connector	Terminal	
F50	2	F52	80	Existed

- Also check harness for short to ground.

Is the inspection result normal?

- YES >> Perform the trouble diagnosis for power supply circuit.
NO >> Repair or replace error-detected parts.

4.CHECK THROTTLE POSITION SENSOR GROUND CIRCUIT

- Turn ignition switch OFF.
- Disconnect ECM harness connector.
- Check the continuity between electric throttle control actuator harness connector and ECM harness connector.

+		-		Continuity
Electric throttle control actuator		ECM		
Connector	Terminal	Connector	Terminal	
F50	4	F52	78	Existed

- Also check harness for short to power.

Is the inspection result normal?

- YES >> GO TO 5.
NO >> Repair or replace error-detected parts.

5.CHECK THROTTLE POSITION SENSOR INPUT SIGNAL CIRCUIT

- Check the continuity between electric throttle control actuator harness connector and ECM harness connector.

+		-		Continuity
Electric throttle control actuator		ECM		
Connector	Terminal	Connector	Terminal	
F50	1	F52	79	Existed
	3		77	

P2135 TP SENSOR

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

2. Also check harness for short to ground and to power.

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair open circuit or short to ground or short to power in harness or connectors.

6.CHECK THROTTLE POSITION SENSOR

Check the throttle position sensor. Refer to [EC-448, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 7.

NO >> Replace electric throttle control actuator. Refer to [EM-26, "Removal and Installation"](#).

7.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> INSPECTION END

Component Inspection

INFOID:000000009985256

1.CHECK THROTTLE POSITION SENSOR

1. Turn ignition switch OFF.
2. Reconnect all harness connectors disconnected.
3. Perform "Throttle Valve Closed Position Learning". Refer to [EC-140, "Work Procedure"](#).
4. Turn ignition switch ON.
5. Set selector lever to D position.
6. Check the voltage between ECM harness connector terminals as per the following conditions.

ECM				Condition		Voltage	
Connector		+	—				
		Terminal					
Sensor 1	F52	79	78	Accelerator pedal	Fully released	More than 0.36V	
					Fully depressed	Less than 4.75V	
Sensor 2		77				Fully released	Less than 4.75V
						Fully depressed	More than 0.36V

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace electric throttle control actuator. Refer to [EM-26, "Removal and Installation"](#).

P2138 APP SENSOR

DTC Description

INFOID:000000009985257

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P2138	APP SENSOR (Throttle/pedal position sensor/switch "D" / "E" voltage correlation)	Rationally incorrect voltage is sent to ECM compared with the signals from APP sensor 1 and APP sensor 2.

POSSIBLE CAUSE

- Harness or connectors (APP sensor 1 or 2 circuit is open or shorted.)
- Accelerator pedal position sensor (APP sensor 1 or 2)
- Sensor power supply 2 circuit

FAIL-SAFE

- The ECM controls the electric throttle control actuator in regulating the throttle opening in order for the idle position to be within +10 degrees.
- The ECM regulates the opening speed of the throttle valve to be slower than the normal condition. So, the acceleration will be poor.

DTC CONFIRMATION PROCEDURE

1.CHECK DTC PRIORITY

If DTC P2138 is displayed with DTC P0643, first perform the trouble diagnosis for DTC P0643.

Is applicable DTC detected?

- YES >> Perform diagnosis of applicable. Refer to [EC-379. "DTC Description"](#).
 NO >> GO TO 2.

2.PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always perform the following procedure before conducting the next test.

1. Turn ignition switch OFF and wait at least 10 seconds.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.

TESTING CONDITION:

Before performing the following procedure, confirm that battery voltage is more than 8 V at idle.

>> GO TO 3.

3.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine and let it idle for 1 second.
2. Check DTC.

Is DTC detected?

- YES >> Proceed to [EC-449. "Diagnosis Procedure"](#).
 NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985258

1.CHECK DTC PRIORITY

If DTC P2138 is displayed with DTC P0643, first perform the trouble diagnosis for DTC P0643.

Is applicable DTC detected?

- YES >> Perform diagnosis of applicable. Refer to [EC-379. "DTC Description"](#).
 NO >> GO TO 2.

2.CHECK APP SENSOR 1 POWER SUPPLY

1. Turn ignition switch OFF.

P2138 APP SENSOR

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

2. Disconnect accelerator pedal position (APP) sensor harness connector.
3. Turn ignition switch ON.
4. Check the voltage between APP sensor harness connector and ground.

+		-	Voltage (Approx.)
APP sensor			
Connector	Terminal		
E25	4	Ground	5 V

Is the inspection result normal?

- YES >> GO TO 4.
NO >> GO TO 3.

3.CHECK APP SENSOR 1 POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between APP sensor harness connector and ECM harness connector.

+		-		Continuity
APP sensor		ECM		
Connector	Terminal	Connector	Terminal	
E25	4	E16	122	Existed

4. Also check harness for short to ground.

Is the inspection result normal?

- YES >> Perform the trouble diagnosis for power supply circuit.
NO >> Repair or replace error-detected parts.

4.CHECK APP SENSOR 2 POWER SUPPLY

Check the voltage between APP sensor harness connector and ground.

+		-	Voltage (Approx.)
APP sensor			
Connector	Terminal		
E25	5	Ground	5 V

Is the inspection result normal?

- YES >> GO TO 6.
NO >> GO TO 5.

5.CHECK SENSOR POWER SUPPLY 2 CIRCUIT

Perform [EC-484, "Diagnosis Procedure"](#).

Is inspection result normal?

- YES >> Perform the trouble diagnosis for power supply circuit.
NO >> Repair or replace error-detected parts.

6.CHECK APP SENSOR GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between APP sensor harness connector and ECM harness connector.

P2138 APP SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

+		-		Continuity
APP sensor		ECM		
Connector	Terminal	Connector	Terminal	
E25	1	E16	120	Existed
	2		127	

4. Also check harness for short to power.

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace error-detected parts.

7.CHECK APP SENSOR INPUT SIGNAL CIRCUIT

1. Check the continuity between APP sensor harness connector and ECM harness connector.

+		-		Continuity
APP sensor		ECM		
Connector	Terminal	Connector	Terminal	
E25	3	E16	126	Existed
	6		119	

2. Also check harness for short to ground and to power.

Is the inspection result normal?

YES >> GO TO 8.

NO >> Repair or replace error-detected parts

8.CHECK APP SENSOR

Check the APP sensor. Refer to [EC-451. "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 9.

NO >> Replace accelerator pedal assembly. Refer to [ACC-3. "Removal and Installation"](#).

9.CHECK INTERMITTENT INCIDENT

Refer to [GI-41. "Intermittent Incident"](#).

>> INSPECTION END

Component Inspection

INFOID:0000000009985259

1.CHECK ACCELERATOR PEDAL POSITION SENSOR

1. Turn ignition switch OFF.
2. Reconnect all harness connectors disconnected.
3. Turn ignition switch ON.
4. Check the voltage between ECM harness connector terminals as per the following condition.

ECM				Condition		Voltage
Connector		+	−			
		Terminal				
Sensor 1	E16	126	127	Accelerator pedal	Fully released	0.5 - 1.0 V
					Fully depressed	4.2 - 4.8 V
Sensor 2		119	120		Fully released	0.25 - 0.5 V
					Fully depressed	2.0 - 2.5 V

Is the inspection result normal?

P2138 APP SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

YES >> INSPECTION END

NO >> Replace accelerator pedal assembly. Refer to [ACC-3, "Removal and Installation"](#).

P2610 ECM INTERNAL TIMER

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

P2610 ECM INTERNAL TIMER

Description

INFOID:0000000009985260

This ECM contains a timer and measures time between an ignition switch OFF and the next ignition switch ON. This enables the judging of the state of engine cooling at an engine start.

DTC Description

INFOID:0000000009985261

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC detecting condition
P2610	ECM/PCM INTERNAL ENG OFF TIMER (ECM/PCM internal engine off timer performance)	- ECM internal engine off timer is malfunctioning. - The time calculated by ECM based on a descent allowance of engine coolant temperatures during ignition switch OFF is extremely shorter than the time counted by the Engine internal OFF timer.

POSSIBLE CAUSE

ECM

FAIL-SAFE

Not applicable

DTC CONFIRMATION PROCEDURE

1.INSPECTION START

It is necessary to erase permanent DTC?

YES >> GO TO 4.

NO >> GO TO 2.

2.PRECONDITIONING

- Turn ignition switch OFF and wait at least 10 seconds.
- Turn ignition switch ON.
- Turn ignition switch OFF and wait at least 10 seconds.

TESTING CONDITION:

Before performing the following procedure, confirm that battery voltage is 12 V or more under ignition switch OFF condition.

>> GO TO 3.

3.PERFORM DTC CONFIRMATION PROCEDURE-I

- Turn ignition switch ON and wait at least 190 seconds.
- Check 1st trip DTC.

Is 1st trip DTC detected?

YES >> Proceed to [EC-454, "Diagnosis Procedure"](#).

NO >> INSPECTION END

4.PRECONDITIONING

- Turn ignition switch OFF and wait at least 10 seconds.
- Turn ignition switch ON.
- Turn ignition switch OFF and wait at least 10 seconds.

TESTING CONDITION:

- Before performing the following procedure, confirm that battery voltage is 12 V or more under ignition switch OFF condition.**
- Before performing the following procedure, check that fuel level is between 2/8 and 7/8.**

>> GO TO 5.

< DTC/CIRCUIT DIAGNOSIS >

5.PERFORM DTC CONFIRMATION PROCEDURE-I

1. Turn ignition switch ON and wait at least 190 seconds.
2. Check 1st trip DTC.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-454, "Diagnosis Procedure"](#).
NO >> GO TO 6.

6.PERFORM DTC CONFIRMATION PROCEDURE-II

CAUTION:

To start this self-diagnosis, the conditions listed bellow are required to be satisfied. Perform the following steps to satisfy the conditions.

- Engine coolant temperature decrease by 55°C (131°F) or more during the time between an ignition switch OFF (after engine warm-up) and the second ignition switch ON.
- A fuel temperature at the second ignition switch ON is -5°C (23°F) or more and less than 35°C (95°F).
- The temperature difference between engine coolant and fuel is 5°C (41°F) or more.

NOTE:

This self-diagnosis is not performed if the distance traveled is extremely short.

1. Turn ignition switch ON.
2. Start engine and warm it up to normal operating temperature.
3. Turn ignition switch OFF and soak the vehicle for at least 12 hours.

CAUTION:

- Never turn ON the ignition switch during soaking.
- Never open the fuel filler cap and perform refueling during soaking.

4. Turn ignition switch ON and wait at least 190 seconds.
5. Check 1st trip DTC.

Is 1st trip DTC detected?

- YES >> Proceed to [EC-454, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985262

1.CHECK SELF-DIAGNOSTIC RESULT

check that DTCs related to the fuel system and the cooling system are not detected.

Is the inspection result normal?

- YES >> Check the DTC. Refer to [EC-67, "CONSULT Function"](#).
NO >> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

1. Erase DTC.
2. Perform DTC Confirmation Procedure again. Refer to [EC-453, "DTC Description"](#).

Is the 1st trip DTC P2610 displayed again?

- YES >> Replace ECM. Refer to [EC-499, "Removal and Installation"](#).
NO >> INSPECTION END

BRAKE PEDAL POSITION SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

BRAKE PEDAL POSITION SWITCH

Component Function Check

INFOID:000000009985263

1.CHECK BRAKE PEDAL POSITION SWITCH FUNCTION

With CONSULT

1. Turn ignition switch ON.
2. Select "BRAKE SW1" in "DATA MONITOR" mode with CONSULT.
3. Check "BRAKE SW1" indication as per the following conditions.

Monitor item	Condition		Indication
BRAKE SW1	Brake pedal	Slightly depressed	OFF
		Fully released	ON

Without CONSULT

1. Turn ignition switch ON.
2. Check the voltage between ECM harness connector terminals.

ECM			Condition	Voltage
Connector	+	-		
	Terminal			
E16	116	128	Brake pedal	Slightly depressed
				Fully released
				Approx. 0 V
				Battery voltage

Is the inspection result normal?

YES >> INSPECTION END

NO >> Proceed to [EC-455. "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000009985264

1.CHECK BRAKE PEDAL POSITION SWITCH POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect brake pedal position switch harness connector.
3. Turn ignition switch ON.
4. Check the voltage between brake pedal position switch harness connector and ground.

+		-	Voltage
Brake pedal position switch			
Connector	Terminal		
E6	1	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 2.

2.CHECK BRAKE PEDAL POSITION SWITCH POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect fuse block (J/B) harness connector.
3. Check the continuity between brake pedal position switch harness connector and fuse block (J/B) harness connector.

+		+		Continuity
Brake pedal position switch		Fuse block (J/B)		
Connector	Terminal	Connector	Terminal	
E6	1	M68	16R	Existed

BRAKE PEDAL POSITION SWITCH

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

Is the inspection result normal?

- YES >> Perform the trouble diagnosis for power supply circuit.
NO >> Repair or replace error-detected parts.

3.CHECK BRAKE PEDAL POSITION SWITCH INPUT SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between brake pedal position switch harness connector and ECM harness connector.

+		+		Continuity
Brake pedal position switch		ECM		
Connector	Terminal	Connector	Terminal	
E6	2	E16	116	Existed

4. Also check harness for short to ground and to power.

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Repair open circuit, short to ground or short to power in harness or connectors.

4.CHECK BRAKE PEDAL POSITION SWITCH

Check brake pedal position switch. Refer to [EC-456, "Component Inspection \(Brake Pedal Position Switch\)"](#).

Is the inspection result normal?

- YES >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).
NO >> Replace brake pedal position switch. Refer to [BR-20, "Exploded View"](#).

Component Inspection (Brake Pedal Position Switch)

INFOID:000000009985265

1.CHECK BRAKE PEDAL POSITION SWITCH-1

1. Turn ignition switch OFF.
2. Disconnect brake pedal position harness connector.
3. Check the continuity between brake pedal position switch terminals as per the following conditions.

Brake pedal position switch		Condition		Continuity
+	–			
Terminals				
1	2	Brake pedal	Fully released	Existed
			Slightly de-pressed	Not existed

Is the inspection result normal?

- YES >> INSPECTION END
NO >> GO TO 2.

2.CHECK BRAKE PEDAL POSITION SWITCH-2

1. Adjust brake pedal position switch installation. Refer to [BR-15, "Adjustment"](#).
2. Check the continuity between brake pedal position switch terminals as per the following conditions.

Brake pedal position switch		Condition		Continuity
+	–			
Terminals				
1	2	Brake pedal	Fully released	Existed
			Slightly de-pressed	Not existed

Is the inspection result normal?

BRAKE PEDAL POSITION SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

YES >> INSPECTION END

NO >> Replace brake pedal position switch. Refer to [BR-20, "Exploded View"](#).

A

EC

C

D

E

F

G

H

I

J

K

L

M

N

O

P

COOLING FAN

Component Function Check

INFOID:000000009985266

1.CHECK COOLING FAN FUNCTION

 With CONSULT

1. Turn ignition switch ON.
2. Perform "COOLING FAN (DUAL)" in "ACTIVE TEST" mode of "IPDM E/R" using CONSULT.
3. Touch "LOW", "HI" on the CONSULT screen.
4. Check that cooling fan operates.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Proceed to [EC-458, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000009985267

1.CHECK COOLING FAN RELAY POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect cooling fan relays-2, -3.
3. Turn ignition switch ON.
4. Check the voltage between cooling fan relays-2, -3 harness connectors and ground.

+		-	Voltage
Cooling fan relay			
Connector	Terminal		
H-2 (cooling fan relay-2)	1	Ground	Battery voltage
H-3 (cooling fan relay-3)			

Is the inspection result normal?

YES >> GO TO 2.

NO >> Perform trouble diagnosis for power supply circuit.

2.CHECK COOLING FAN MOTOR CIRCUIT-1

Check the voltage between cooling fan relays-2, -3 harness connectors and ground.

+		-	Voltage
Cooling fan relay			
Connector	Terminal		
H-2 (cooling fan relay-2)	3	Ground	Battery voltage
H-3 (cooling fan relay-3)			

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 4.

3.CHECK COOLING FAN RELAY OUTPUT SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R harness connectors.
3. Check the continuity between cooling fan relay-2, -3 harness connectors and IPDM E/R harness connector.

COOLING FAN

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

+		-		Continuity
Cooling fan relay		IPDM E/R		
Connector	Terminal	Connector	Terminal	
H-2 (cooling fan relay-2)	2	F42	107	Existed
H-3 (cooling fan relay-3)			106	

4. Also check harness for short to ground and to power.

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace error-detected parts.

4.CHECK COOLING FAN MOTOR POWER SUPPLY CIRCUIT

1. Disconnect cooling fan motor-1 harness connector.
2. Check the voltage between cooling fan motor-1 harness connector and ground.

+		-	Voltage
Cooling fan motor-1			
Connector	Terminal		
F3	1	Ground	Battery voltage
	2		

Is the inspection result normal?

YES >> GO TO 5.

NO >> Perform trouble diagnosis for power supply circuit.

5.CHECK COOLING FAN MOTOR CIRCUIT-2

1. Check the continuity between cooling fan relay-2, -3 harness connectors and cooling fan motor-1, -2 harness connectors.

+		—		Continuity
Cooling fan relay		Cooling fan motor-1		
Connector	Terminal	Connector	Terminal	
H-2 (cooling fan relay-2)	3	F3	3	Existed
			4	
H-3 (cooling fan relay-3)			3	
			4	

2. Also check harness for short to ground and to power.

Is the inspection result normal?

YES >> GO TO 11.

NO >> Repair or replace error-detected parts.

6.CHECK COOLING FAN MOTOR CIRCUIT-3

1. Check the continuity between IPDM E/R harness connector and cooling fan motor-2 harness connector.

+		-		Continuity
IPDM E/R		Cooling fan motor-2		
Connector	Terminal	Connector	Terminal	
F41	85	F5	1	Existed
			2	

COOLING FAN

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

2. Also check harness for short to ground and to power.

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace error-detected parts.

7.CHECK COOLING FAN MOTOR CIRCUIT-4

1. Check the continuity between cooling fan relay-3 harness connectors and ground.

+		-	Continuity
Cooling fan relay-3			
Connector	Terminal		
H-3	5	Ground	Existed

2. Also check harness for short to ground and to power.

Is the inspection result normal?

YES >> GO TO 8.

NO >> Repair or replace error-detected parts.

8.CHECK COOLING FAN MOTOR CIRCUIT-5

1. Check the continuity between cooling fan relay-3 harness connectors and cooling fan motor-2 harness connector.

+		-		Continuity
Cooling fan relay-2		Cooling fan motor-2		
Connector	Terminal	Connector	Terminal	
H-2	5	F5	1	Existed
			2	

2. Also check harness for short to ground and to power.

Is the inspection result normal?

YES >> GO TO 9.

NO >> Repair or replace error-detected parts.

9.CHECK COOLING FAN MOTOR CIRCUIT-4

1. Check the continuity between cooling fan motor-2 harness connector and ground.

+		-	Continuity
Cooling fan motor-2			
Connector	Terminal		
F5	3	Ground	Existed
	4		

2. Also check harness for short to ground and to power.

Is the inspection result normal?

YES >> GO TO 10.

NO >> Repair or replace error-detected parts.

10.CHECK COOLING FAN RELAY-2 AND -3

Refer to [EC-461, "Component Inspection \(Cooling Fan Relay\)".](#)

Is the inspection result normal?

YES >> GO TO 11.

NO >> Replace malfunctioning cooling fan relay.

11.CHECK COOLING FAN MOTORS-1 AND -2

Refer to [EC-461, "Component Inspection \(Cooling Fan Motor\)".](#)

COOLING FAN

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

Is the inspection result normal?

YES >> GO TO 12.

NO >> Replace malfunctioning cooling fan motor. Refer to [CO-17, "Removal and Installation"](#).

12.CHECK INTERMITTENT INCIDENT

Perform [GI-41, "Intermittent Incident"](#).

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to [PCS-35, "Removal and Installation"](#).

NO >> Repair or replace error-detected parts.

Component Inspection (Cooling Fan Motor)

INFOID:000000009985268

1.CHECK COOLING FAN MOTOR

1. Turn ignition switch OFF.
2. Disconnect cooling fan motor harness connector.
3. Supply cooling fan motor terminals with battery voltage and check operation.

Cooling fan motor		Condition
Terminal		
+	—	
1	3 and 4	A
2	3 and 4	
1 and 2	3	
1 and 2	4	
1, 2	3, 4	B

Check that cooling fan speed of condition B is higher than that of A.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace cooling fan motor. Refer to [CO-17, "Removal and Installation"](#).

Component Inspection (Cooling Fan Relay)

INFOID:000000009985269

1.CHECK COOLING FAN RELAYS

1. Turn ignition switch OFF.
2. Remove cooling fan relay-2, -3.
3. Check the continuity between cooling fan relay-2, -3 terminals as per the following conditions.

Cooling fan relay-2, -3		Conditions	Continuity
+	–		
Terminal			
3	5	12V direct current supply between terminals 1 and 2	Existed
		No current supply	Not existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace cooling fan relay.

ELECTRICAL LOAD SIGNAL

Description

INFOID:000000009985270

The electrical load signal (Headlamp switch signal, rear window defogger switch signal, etc.) is transferred via the CAN communication.

Component Function Check

INFOID:000000009985271

1. CHECK REAR WINDOW DEFOGGER SWITCH FUNCTION

1. Turn ignition switch ON.
2. Connect CONSULT and select "DATA MONITOR" mode.
3. Select "LOAD SIGNAL" and check indication under the following conditions.

Monitor item	Condition		Indication
LOAD SIGNAL	Rear window defogger switch	ON	ON
		OFF	OFF

Is the inspection result normal?

YES >> GO TO 2.

NO >> Proceed to [EC-462, "Diagnosis Procedure"](#).

2. CHECK LIGHTING SWITCH FUNCTION

Check "LOAD SIGNAL" indication under the following conditions.

Monitor item	Condition		Indication
LOAD SIGNAL	Lighting switch	ON at 2nd position	ON
		OFF	OFF

Is the inspection result normal?

YES >> GO TO 3.

NO >> Proceed to [EC-462, "Diagnosis Procedure"](#).

3. CHECK HEATER FAN CONTROL SWITCH FUNCTION

Select "HEATER FAN SW" and check indication under the following conditions.

Monitor item	Condition		Indication
HEATER FAN SW	Heater fan control switch	ON	ON
		OFF	OFF

Is the inspection result normal?

YES >> INSPECTION END

NO >> Proceed to [EC-462, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000009985272

1. INSPECTION START

Confirm the malfunctioning circuit (rear window defogger, headlamp or heater fan). Refer to [EC-462, "Component Function Check"](#).

Which circuit is related to the incident?

Rear window defogger>>GO TO 2.

Headlamp>>GO TO 3.

Heater fan>>GO TO 4.

2. CHECK REAR WINDOW DEFOGGER SYSTEM

Check rear window defogger system. Refer to [DEF-19, "Work Flow"](#).

ELECTRICAL LOAD SIGNAL

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

>> INSPECTION END

3.CHECK HEADLAMP SYSTEM

Check headlamp system. Refer to [EXL-82, "Work Flow"](#) (with halogen headlamp) or [EXL-219, "Work Flow"](#) (with LED headlamp).

>> INSPECTION END

4.CHECK HEATER FAN CONTROL SYSTEM

Check heater fan control system. Refer to [HAC-46, "Work Flow"](#) (with automatic air conditioner) or [HAC-146, "Work Flow"](#) (with manual air conditioner).

>> INSPECTION END

A

EC

C

D

E

F

G

H

I

J

K

L

M

N

O

P

FUEL INJECTOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

FUEL INJECTOR

Component Function Check

INFOID:000000009985273

1.INSPECTION START

Turn ignition switch to START.

Are any cylinders ignited?

- YES >> GO TO 2.
NO >> Proceed to [EC-464, "Diagnosis Procedure"](#).

2.CHECK FUEL INJECTOR FUNCTION

ⓅWith CONSULT

1. Start engine.
2. Perform "POWER BALANCE" in "ACTIVE TEST" mode with CONSULT.
3. Check that each circuit produces a momentary engine speed drop.

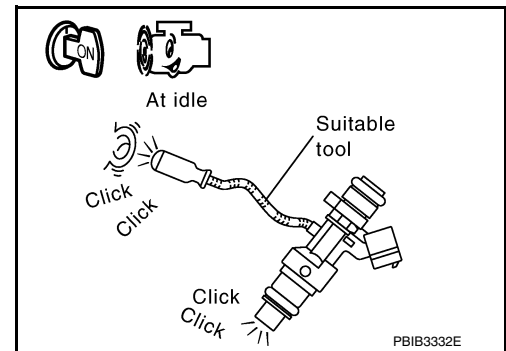
ⓧWithout CONSULT

1. Start engine.
2. Listen to each fuel injector operating sound.

Clicking sound should be heard.

Is the inspection result normal?

- YES >> INSPECTION END
NO >> Proceed to [EC-464, "Diagnosis Procedure"](#).



Diagnosis Procedure

INFOID:000000009985274

1.CHECK FUEL INJECTOR POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect fuel injector harness connector.
3. Turn ignition switch ON.
4. Check the voltage between fuel injector harness connector and ground.

+			-	Voltage
Fuel injector				
Cylinder	Connector	Terminal		
1	F11	1	Ground	Battery voltage
2	F12	1		
3	F14	1		
4	F13	1		

Is the inspection result normal?

- YES >> GO TO 3.
NO >> GO TO 2.

2.CHECK FUEL INJECTOR POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R harness connector.
3. Check the continuity between fuel injector harness connector and IPDM E/R harness connector.

FUEL INJECTOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

+			-		Continuity
Fuel injector			IPDM E/R		
Cylinder	Connector	Terminal	Connector	Terminal	
1	F11	1	E121	43	Existed
2	F12	1			
3	F14	1			
4	F13	1			

Is the inspection result normal?

YES >> Perform the trouble diagnosis for power supply circuit.

NO >> Repair or replace error-detected parts.

3.CHECK FUEL INJECTOR OUTPUT SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between fuel injector harness connector and ECM harness connector.

+			-		Continuity
Fuel injector			ECM		
Cylinder	Connector	Terminal	Connector	Terminal	
1	F11	2	F51	13	Existed
2	F12	2		14	
3	F14	2		10	
4	F13	2		9	

4. Also check harness for short to ground and to power.

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair open circuit, short to ground or short to power in harness or connectors.

4.CHECK FUEL INJECTOR

Check fuel injector. Refer to [EC-465, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace malfunctioning fuel injector. Refer to [EM-40, "Exploded View"](#).

5.CHECK INTERMITTENT INCIDENT

Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to [PCS-35, "Removal and Installation"](#).

NO >> Repair or replace error-detected parts.

Component Inspection

INFOID:000000009985275

1.CHECK FUEL INJECTOR

1. Turn ignition switch OFF.
2. Disconnect fuel injector harness connector.

FUEL INJECTOR

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

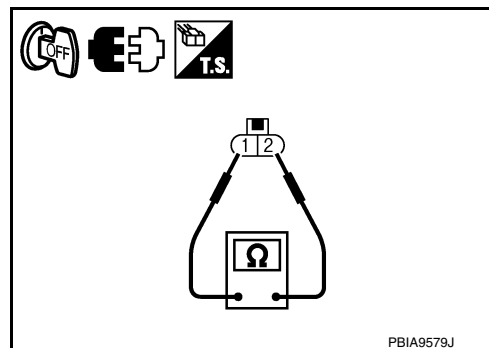
3. Check resistance between fuel injector terminals as per the following.

Fuel injector		Resistance
+	-	
Terminal		
1	2	11.1 - 14.5 Ω [at 10 - 60°C (50 - 140°F)]

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace malfunctioning fuel injector. Refer to [EM-40](#).
["Removal and Installation"](#).



FUEL PUMP

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

FUEL PUMP

Description

INFOID:000000009985276

Sensor	Input signal to ECM	ECM Function	Actuator
Crankshaft position sensor (POS) Camshaft position sensor (PHASE)	Engine speed*	Fuel pump control	Fuel pump relay ↓
Battery	Battery voltage*		Fuel pump

*: ECM determines the start signal status by the signals of engine speed and battery voltage.

The ECM activates the fuel pump for several seconds after the ignition switch is turned ON to improve engine start ability. If the ECM receives a engine speed signal from the camshaft position sensor (PHASE), it knows that the engine is rotating, and causes the pump to operate. If the engine speed signal is not received when the ignition switch is ON, the engine stalls. The ECM stops pump operation and prevents battery discharging, thereby improving safety. The ECM does not directly drive the fuel pump. It controls the ON/OFF fuel pump relay, which in turn controls the fuel pump.

Condition	Fuel pump operation
Ignition switch is turned to ON.	Operates for 1 second.
Engine running and cranking	Operates.
When engine is stopped	Stops in 1.5 seconds.
Except as shown above	Stops.

Component Function Check

INFOID:000000009985277

1.CHECK FUEL PUMP FUNCTION

1. Turn ignition switch ON.
2. Pinch fuel feed hose with two fingers.

Fuel pressure pulsation should be felt on the fuel feed hose for 1 second after ignition switch is turned ON.

Is the inspection result normal?

- YES >> INSPECTION END
NO >> Proceed to [EC-467, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000009985278

1.CHECK FUEL PUMP RELAY CONTROL SIGNAL

1. Turn ignition switch ON.
2. Check the voltage between ECM harness connector.

ECM				Voltage
+		-		
Connector	Terminal	Connector	Terminal	
F51	18	E16	128	Battery voltage should exist 1 second after ignition switch is turn ON.

Is the inspection result normal?

- YES >> GO TO 3.
NO >> GO TO 2.

2.CHECK FUEL PUMP RELAY CONTROL SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Disconnect IPDM E/R harness connector.

FUEL PUMP

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

4. Check the continuity between ECM harness connector and IPDM E/R harness connector.

+		-		Continuity
ECM		IPDM E/R		
Connector	Terminal	Connector	Terminal	
F51	18	F35	76	Existed

5. Also check harness for short to ground and to power.

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace error-detected parts.

3.CHECK FUEL PUMP POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect “fuel level sensor unit and fuel pump” harness connector.
3. Turn ignition switch ON.
4. Check the voltage between “fuel level sensor unit and fuel pump” harness connector and ground.

+		-	Voltage
Fuel level sensor unit and fuel pump			
Connector	Terminal		
B103	6	Ground	Battery voltage should exist 1 second after ignition switch is turn ON.

Is the inspection result normal?

YES >> GO TO 5.

NO >> GO TO 4.

4.CHECK FUEL PUMP POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R harness connector.
3. Check the continuity between IPDM E/R harness connector and “fuel level sensor unit and fuel pump” harness connector.

+		-		Continuity
IPDM E/R		Fuel level sensor unit and fuel pump		
Connector	Terminal	Connector	Terminal	
E121	46	B103	6	Existed

4. Also check harness for short to ground and to power.

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace error-detected parts.

5.CHECK FUEL PUMP GROUND CIRCUIT

1. Check the continuity between “fuel level sensor unit and fuel pump” and ground.

+		-	Continuity
Fuel level sensor unit and fuel pump			
Connector	Terminal		
B103	4	Ground	Existed

2. Also heck harness for short to power.

Is the inspection result normal?

FUEL PUMP

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

- YES >> GO TO 6.
NO >> Repair or replace error-detected parts.

6.CHECK FUEL PUMP

Refer to [EC-469. "Component Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 7.
NO >> Replace "fuel level sensor unit and fuel pump". Refer to [FL-6. "Removal and Installation"](#).

7.CHECK INTERMITTENT INCIDENT

Perform [GI-41. "Intermittent Incident"](#).

Is the inspection result normal?

- YES >> Replace IPDM E/R. Refer to [PCS-35. "Removal and Installation"](#).
NO >> Repair or replace harness or connectors.

Component Inspection

INFOID:0000000009985279

1.CHECK FUEL PUMP

1. Turn ignition switch OFF.
2. Disconnect "fuel level sensor unit and fuel pump" harness connector.
3. Check resistance between "fuel level sensor unit and fuel pump" terminals as follows.

Fuel level sensor unit and fuel pump		Resistance
+	-	
Terminal		
6	4	0.2 - 5.0Ω [at 25°C (77°F)]

Is the inspection result normal?

- YES >> INSPECTION END
NO >> Replace "fuel level sensor unit and fuel pump". Refer to [FL-6. "Removal and Installation"](#).

IGNITION SIGNAL

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

IGNITION SIGNAL

Component Function Check

INFOID:000000009985280

1.INSPECTION START

Turn ignition switch OFF, and restart engine.

Does the engine start?

YES-1 >> With CONSULT: GO TO 2.

YES-2 >> Without CONSULT: GO TO 3.

NO >> Proceed to [EC-470, "Diagnosis Procedure"](#).

2.CHECK IGNITION SIGNAL FUNCTION

 With CONSULT

1. Perform "POWER BALANCE" in "ACTIVE TEST" mode with CONSULT.

2. Check that each circuit produces a momentary engine speed drop.

Is the inspection result normal?

YES >> INSPECTION END

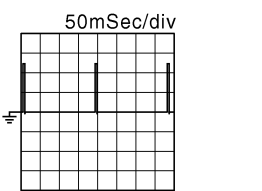
NO >> Proceed to [EC-470, "Diagnosis Procedure"](#).

3.CHECK IGNITION SIGNAL FUNCTION

 Without CONSULT

1. Let engine idle.

2. Read the voltage signal between ECM harness connector terminals with an oscilloscope.

ECM				Voltage signal
+		-		
Connector	Terminal	Connector	Terminal	
F52	86	E16	128	50mSec/div  2V/div JMBIA0035GB
	87			
	90			
	91			

NOTE:

The pulse cycle changes depending on rpm at idle.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Proceed to [EC-470, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000009985281

1.CHECK ECM POWER SUPPLY

1. Turn ignition switch OFF, wait at least 10 seconds and then turn it ON.

2. Check the voltage between ECM harness connector terminals.

ECM			Voltage
Connector	+	−	
	Terminal		
E16	121	128	Battery voltage

Is the inspection result normal?

YES >> GO TO 2.

NO >> Refer to [EC-165, "Diagnosis Procedure"](#).

IGNITION SIGNAL

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

2.CHECK CONDENSER POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect condenser harness connector.
3. Turn ignition switch ON.
4. Check the voltage between condenser harness connector and ground.

+		-	Voltage
Condenser			
Connector	Terminal		
F26	1	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 4.

NO >> GO TO 3.

3.CHECK CONDENSER POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R harness connector.
3. Check the continuity between IPDM E/R harness connector and condenser harness connector.

+		-		Continuity
IPDM E/R		Condenser		
Connector	Terminal	Connector	Terminal	
F35	66	F26	1	Existed

4. Also check harness for short to ground and to power.

Is the inspection result normal?

YES >> Refer to [EC-165, "Diagnosis Procedure"](#).

NO >> Repair open circuit, short to ground or short to power in harness or connectors.

4.CHECK CONDENSER GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check the continuity between condenser harness connector and ground.

+		-	Voltage
Condenser			
Connector	Terminal		
F26	2	Ground	Existed

3. Also check harness for short to power.

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair open circuit or short to power in harness or connectors.

5.CHECK CONDENSER

Check condenser. Refer to [EC-474, "Component Inspection \(Condenser\)"](#)

Is the inspection result normal?

YES >> GO TO 6.

NO >> Replace condenser.

6.CHECK IGNITION COIL POWER SUPPLY

1. Reconnect all harness connectors disconnected.
2. Disconnect ignition coil harness connector.
3. Turn ignition switch ON.
4. Check the voltage between ignition coil harness connector and ground.

IGNITION SIGNAL

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

+			-	Voltage
Ignition coil				
Cylinder	Connector	Terminal		
1	F47	3	Ground	Battery voltage
2	F46	3		
3	F48	3		
4	F49	3		

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace harness or connectors.

7.CHECK IGNITION COIL GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check the continuity between ignition coil harness connector and ground.

+			-	Continuity
Ignition coil				
Cylinder	Connector	Terminal	Ground	Existed
1	F47	2		
2	F46	2		
3	F48	2		
4	F49	2		

3. Also check harness for short to power.

Is the inspection result normal?

YES >> GO TO 8.

NO >> Repair open circuit or short to power in harness or connectors.

8.CHECK IGNITION COIL OUTPUT SIGNAL CIRCUIT

1. Disconnect ECM harness connector.
2. Check the continuity between ignition coil harness connector and ECM harness connector.

+			-		Continuity
Ignition coil			ECM		
Cylinder	Connector	Terminal	Connector	Terminal	Existed
1	F47	1	F52	86	
2	F46	1		87	
3	F48	1		90	
4	F49	1		91	

3. Also check harness for short to ground and to power.

Is the inspection result normal?

YES >> GO TO 9.

NO >> Repair open circuit, short to ground or short to power in harness or connectors.

9.CHECK IGNITION COIL WITH POWER TRANSISTOR

Check ignition coil with power transistor. Refer to [EC-473, "Component Inspection \(Ignition Coil with Power Transistor\)"](#).

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

NO >> Replace malfunctioning ignition coil with power transistor. Refer to [EM-36, "Removal and Installation"](#).

IGNITION SIGNAL

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

Component Inspection (Ignition Coil with Power Transistor)

INFOID:000000009985282

1.CHECK IGNITION COIL WITH POWER TRANSISTOR-1

1. Turn ignition switch OFF.
2. Disconnect ignition coil harness connector.
3. Check resistance between ignition coil terminals as per the following.

Ignition coil		Resistance Ω [at 25°C (77°F)]
+	-	
Terminal No. (Polarity)		
1	2	Except 0 or ∞
	3	
2	3	Except 0

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace malfunctioning ignition coil with power transistor. Refer to [EM-36, "Removal and Installation"](#).

2.CHECK IGNITION COIL WITH POWER TRANSISTOR-2

CAUTION:

Perform the following procedure in a place with no combustible objects and good ventilation.

1. Turn ignition switch OFF.
2. Reconnect all harness connectors disconnected.
3. Remove fuel pump fuse in IPDM E/R to release fuel pressure.

NOTE:

Do not use CONSULT to release fuel pressure, or fuel pressure applies again during the following procedure.

4. Start engine.
5. After engine stalls, crank it 2 or 3 times to release all fuel pressure.
6. Turn ignition switch OFF.
7. Remove all ignition coil harness connectors to avoid the electrical discharge from the ignition coils.
8. Remove ignition coil and spark plug of the cylinder to be checked.
9. Crank engine for 5 seconds or more to remove combustion gas in the cylinder.
10. Connect spark plug and harness connector to ignition coil.
11. Fix ignition coil using a rope etc. with gap of 13 - 17 mm (0.52 - 0.66 in) between the edge of the spark plug and grounded metal portion as shown in the figure.
12. Crank engine for approximately 3 seconds, and check whether spark is generated between the spark plug and the grounded metal portion.

Spark should be generated.

CAUTION:

- During the operation, always stay 0.5 m (19.7 in) or more away from the spark plug and the ignition coil. Be careful not to get an electrical shock while checking, because the electrical discharge voltage becomes 20 kV or more.
- It might cause to damage the ignition coil if the gap of more than 17 mm (0.66 in) is taken.

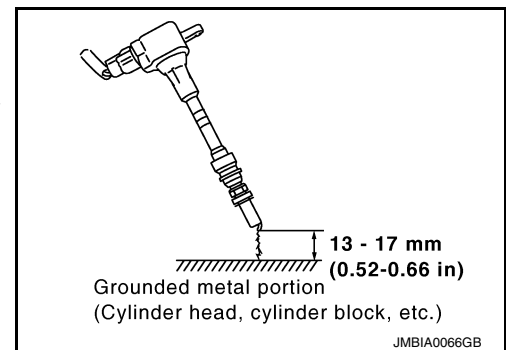
NOTE:

When the gap is less than 13 mm (0.52 in), the spark might be generated even if the coil is malfunctioning.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace malfunctioning ignition coil with power transistor. Refer to [EM-36, "Removal and Installation"](#).



IGNITION SIGNAL

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

Component Inspection (Condenser)

INFOID:000000009985283

1. CHECK CONDENSER

1. Turn ignition switch OFF.
2. Disconnect condenser harness connector.
3. Check resistance between condenser terminals as per the following.

Condenser		Resistance
+	-	
Terminal		
1	2	Above 1 MΩ [at 25C° (77C°)]

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace condenser.

INFORMATION DISPLAY (ASCD)

Component Function Check

INFOID:0000000009985284

1.CHECK INFORMATION DISPLAY

1. Start engine.
2. Press ASCD MAIN switch on ASCD steering switch.
3. Drive the vehicle at more than 40 km/h (25 MPH).
CAUTION:
Always drive vehicle at a safe speed.
4. Press SET/- switch.
5. Check that the reading of the speedometer shows the same value as the set speed indicated in the information display while driving the vehicle on a flat road.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Proceed to [EC-475, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000009985285

1.CHECK DTC

Check that DTC UXXXX, P0500 or P1574 is not displayed.

Is the inspection result normal?

YES >> GO TO 2.

NO-1 >> Perform trouble diagnosis for DTC UXXXX.

NO-2 >> Perform trouble diagnosis for DTC P0500. Refer to [EC-350, "DTC Description"](#).

NO-3 >> Perform trouble diagnosis for DTC P1574. Refer to [EC-414, "DTC Description"](#).

2.CHECK DTC WITH COMBINATION METER

Refer to [MWI-21, "CONSULT Function \(METER/M&A\)"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Perform trouble diagnosis for DTC indicated.

3.CHECK INTERMITTENT INCIDENT

Perform [GI-41, "Intermittent Incident"](#).

Is the inspection result normal?

YES >> Replace combination meter. Refer to [MWI-82, "Removal and Installation"](#).

NO >> Repair or replace error-detected parts.

MALFUNCTION INDICATOR LAMP

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

MALFUNCTION INDICATOR LAMP

Component Function Check

INFOID:000000009985286

1.CHECK MIL FUNCTION

1. Turn ignition switch ON.
2. Check that MIL illuminates.

Is the inspection result normal?

- YES >> INSPECTION END
NO >> Proceed to [EC-476, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000009985287

1.CHECK DTC

Check that DTC UXXXX is not displayed.

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Perform trouble diagnosis for DTC UXXXX.

2.CHECK COMBINATION METER FUNCTION

Check combination meter function. Refer to [MWI-21, "CONSULT Function \(METER/M&A\)"](#).

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace.

3.CHECK INTERMITTENT INCIDENT

Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

Is the inspection result normal?

- YES >> Replace combination meter. Refer to [MWI-82, "Removal and Installation"](#).
NO >> Repair or replace error-detected parts.

ON BOARD REFUELING VAPOR RECOVERY (ORVR)

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

ON BOARD REFUELING VAPOR RECOVERY (ORVR)

Component Function Check

INFOID:000000009985288

1.CHECK ORVR FUNCTION

Check whether the following symptoms are present.

- Fuel odor from EVAP canister is strong.
- Cannot refuel/Fuel odor from the fuel filler opening is strong while refueling.

Are any symptoms present?

- YES >> Proceed to [EC-477, "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000009985289

1.INSPECTION START

Check whether the following symptoms are present.

- A: Fuel odor from EVAP canister is strong.
B: Cannot refuel/Fuel odor from the fuel filler opening is strong while refueling.

A or B

- A >> GO TO 2.
B >> GO TO 7.

2.CHECK EVAP CANISTER

1. Remove EVAP canister with EVAP canister vent control valve and EVAP control system pressure sensor attached. Refer to [FL-19, "Removal and Installation"](#).
2. Weigh the EVAP canister with EVAP canister vent control valve and EVAP control system pressure sensor attached.

The weight should be less than 2.1 kg (4.6 lb).

Is the inspection result normal?

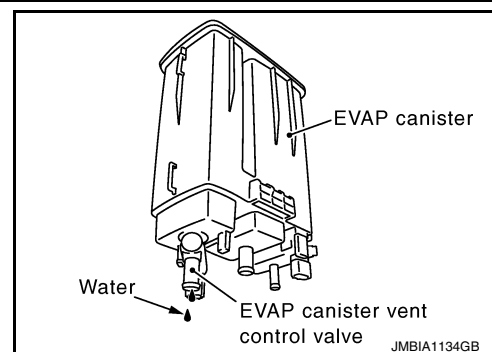
- YES >> GO TO 3.
NO >> GO TO 4.

3.CHECK IF EVAP CANISTER IS SATURATED WITH WATER

Check if water will drain from EVAP canister

Does water drain from the EVAP canister?

- YES >> GO TO 4.
NO >> GO TO 6.



4.REPLACE EVAP CANISTER

Replace EVAP canister with a new one. Refer to [FL-19, "Removal and Installation"](#).

>> GO TO 5.

5.DETECT MALFUNCTIONING PART

Check the EVAP hose between EVAP canister and vehicle frame for clogging or poor connection.

>> Repair or replace EVAP hose. Refer to [FL-12, "FWD : Removal and Installation"](#) (with FWD models) or [FL-16, "AWD : Removal and Installation"](#) (with AWD models).

6.CHECK REFUELING EVAP VAPOR CUT VALVE

ON BOARD REFUELING VAPOR RECOVERY (ORVR)

[QR25DE]

< DTC/CIRCUIT DIAGNOSIS >

Check refueling EVAP vapor cut valve. Refer to [EC-479, "Component Inspection"](#).

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace refueling EVAP vapor cut valve with fuel tank. Refer to [FL-12, "FWD : Removal and Installation"](#) (with FWD models) or [FL-16, "AWD : Removal and Installation"](#) (with AWD models).

7. CHECK EVAP CANISTER

1. Remove EVAP canister with EVAP canister vent control valve and EVAP control system pressure sensor attached. Refer to [FL-19, "Removal and Installation"](#).
2. Weigh the EVAP canister with EVAP canister vent control valve and EVAP control system pressure sensor attached.

The weight should be less than 2.1 kg (4.6 lb).

Is the inspection result normal?

YES >> GO TO 8.

NO >> GO TO 9.

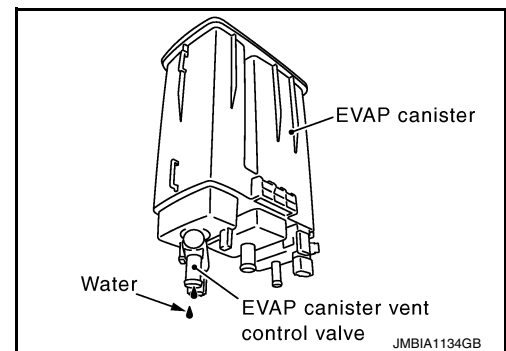
8. CHECK IF EVAP CANISTER IS SATURATED WITH WATER

Check if water will drain from EVAP canister.

Does water drain from the EVAP canister?

YES >> GO TO 6.

NO >> GO TO 11.



9. REPLACE EVAP CANISTER

Replace EVAP canister with a new one. Refer to [FL-19, "Removal and Installation"](#).

>> GO TO 10.

10. DETECT MALFUNCTIONING PART

Check the EVAP hose between EVAP canister and vehicle frame for clogging or poor connection.

>> Repair or replace EVAP hose. Refer to [FL-12, "FWD : Removal and Installation"](#) (with FWD models) or [FL-16, "AWD : Removal and Installation"](#) (with AWD models).

11. CHECK VENT HOSES AND VENT TUBES

Check hoses and tubes between EVAP canister and refueling control valve for clogging, kinks, looseness and improper connection.

Is the inspection result normal?

YES >> GO TO 12.

NO >> Repair or replace hoses and tubes.

12. CHECK FILLER NECK TUBE

Check recirculation line for clogging, dents and cracks.

Is the inspection result normal?

YES >> GO TO 13.

NO >> Replace filler neck tube.

13. CHECK REFUELING EVAP VAPOR CUT VALVE

Check refueling EVAP vapor cut valve. Refer to [EC-479, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 14.

ON BOARD REFUELING VAPOR RECOVERY (ORVR)

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

NO >> Replace refueling EVAP vapor cut valve with fuel tank. Refer to [FL-12, "FWD : Removal and Installation"](#) (with FWD models) [FL-16, "AWD : Removal and Installation"](#) (with AWD models).

14. CHECK FUEL FILLER TUBE

Check filler neck tube and hose connected to the fuel tank for clogging, dents and cracks.

Is the inspection result normal?

YES >> GO TO 15.

NO >> Replace fuel filler tube. Refer to [FL-12, "FWD : Exploded View"](#) (with FWD models) [FL-16, "AWD : Exploded View"](#) (with AWD models).

15. CHECK ONE-WAY FUEL VALVE-1

Check one-way valve for clogging.

Is the inspection result normal?

YES >> GO TO 16.

NO >> Repair or replace one-way fuel valve with fuel tank. Refer to [FL-12, "FWD : Removal and Installation"](#) (with FWD models) [FL-16, "AWD : Removal and Installation"](#) (with AWD models).

16. CHECK ONE-WAY FUEL VALVE-2

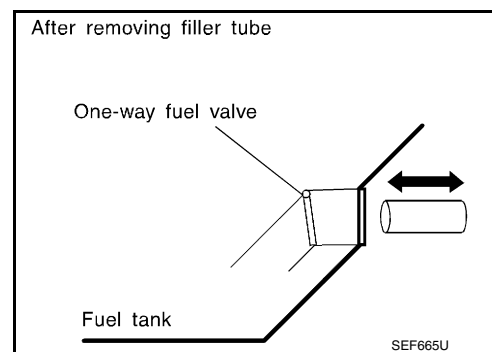
1. Check that fuel is drained from the tank.
2. Remove fuel filler tube and hose. Refer to [FL-12, "FWD : Exploded View"](#) (with FWD models) [FL-16, "AWD : Exploded View"](#) (with AWD models).
3. Check one-way fuel valve for operation as per the following.
When a stick is inserted, the valve should open, when removing stick it should close.

Do not drop any material into the tank.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace fuel filler tube or replace one-way fuel valve with fuel tank. Refer to [FL-12, "FWD : Removal and Installation"](#) (with FWD models) [FL-16, "AWD : Removal and Installation"](#) (with AWD models).



INFOID:000000009985290

Component Inspection

1. INSPECTION START

Will CONSULT be used?

Will CONSULT be used?

YES >> GO TO 2.

NO >> GO TO 3.

2. CHECK REFUELING EVAP VAPOR CUT VALVE

With CONSULT

1. Turn ignition switch OFF.
2. Remove fuel tank. Refer to [FL-12, "FWD : Removal and Installation"](#) (with FWD models) [FL-16, "AWD : Removal and Installation"](#) (with AWD models).
3. Drain fuel from the tank as per the following:
 - Remove fuel feed hose located on the fuel gauge retainer.
 - Connect a spare fuel hose, one side to fuel gauge retainer where the hose was removed and the other side to a fuel container.
 - Drain fuel using "FUEL PUMP RELAY" in "ACTIVE TEST" mode with CONSULT.
4. Check refueling EVAP vapor cut valve for being stuck to close as per the following.
Blow air into the refueling EVAP vapor cut valve (from the end of EVAP/ORVR line hose), and check that the air flows freely into the tank.
5. Check refueling EVAP vapor cut valve for being stuck to open as per the following.
 - Connect vacuum pump to hose end.
 - Remove fuel gauge retainer with fuel gauge unit.

Always replace O-ring with new one.

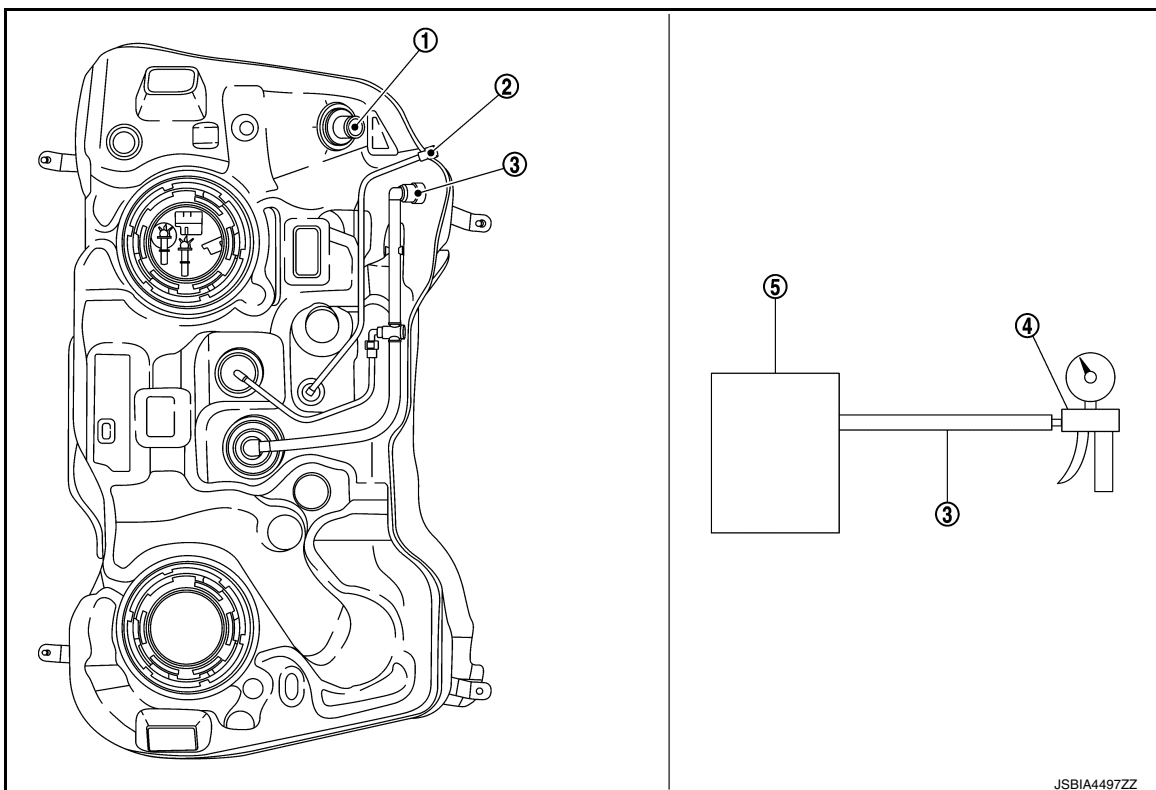
 - Turn fuel tank upside down.

ON BOARD REFUELING VAPOR RECOVERY (ORVR)

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

- Apply vacuum pressure to hose end [-13.3 kPa (-0.136 kg/cm², -1.93 psi)] with fuel gauge retainer remaining open and check that the pressure is applicable.



- | | | |
|------------------------------|----------------------|------------------|
| ① Filler tube | ② Recirculation line | ③ EVAP/ORVR line |
| ④ Vacuum/pressure handy pump | ⑤ Fuel tank | |

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace refueling EVAP vapor cut valve with fuel tank. Refer to [FL-12. "FWD : Removal and Installation"](#) (with FWD models) [FL-16. "AWD : Removal and Installation"](#) (with AWD models).

3.CHECK REFUELING EVAP VAPOR CUT VALVE

⊗Without CONSULT

1. Turn ignition switch OFF.
2. Remove fuel tank. Refer to [FL-12. "FWD : Removal and Installation"](#) (with FWD models) [FL-16. "AWD : Removal and Installation"](#) (with AWD models).
3. Drain fuel from the tank as per the following:
 - Remove fuel gauge retainer.
 - Drain fuel from the tank using a handy pump into a fuel container.
4. Check refueling EVAP vapor cut valve for being stuck to close as per the following.
Blow air into the refueling EVAP vapor cut valve (from the end of EVAP/ORVR line hose), and check that the air flows freely into the tank.
5. Check refueling EVAP vapor cut valve for being stuck to open as per the following.
 - Connect vacuum pump to hose end.
 - Remove fuel gauge retainer with fuel gauge unit.

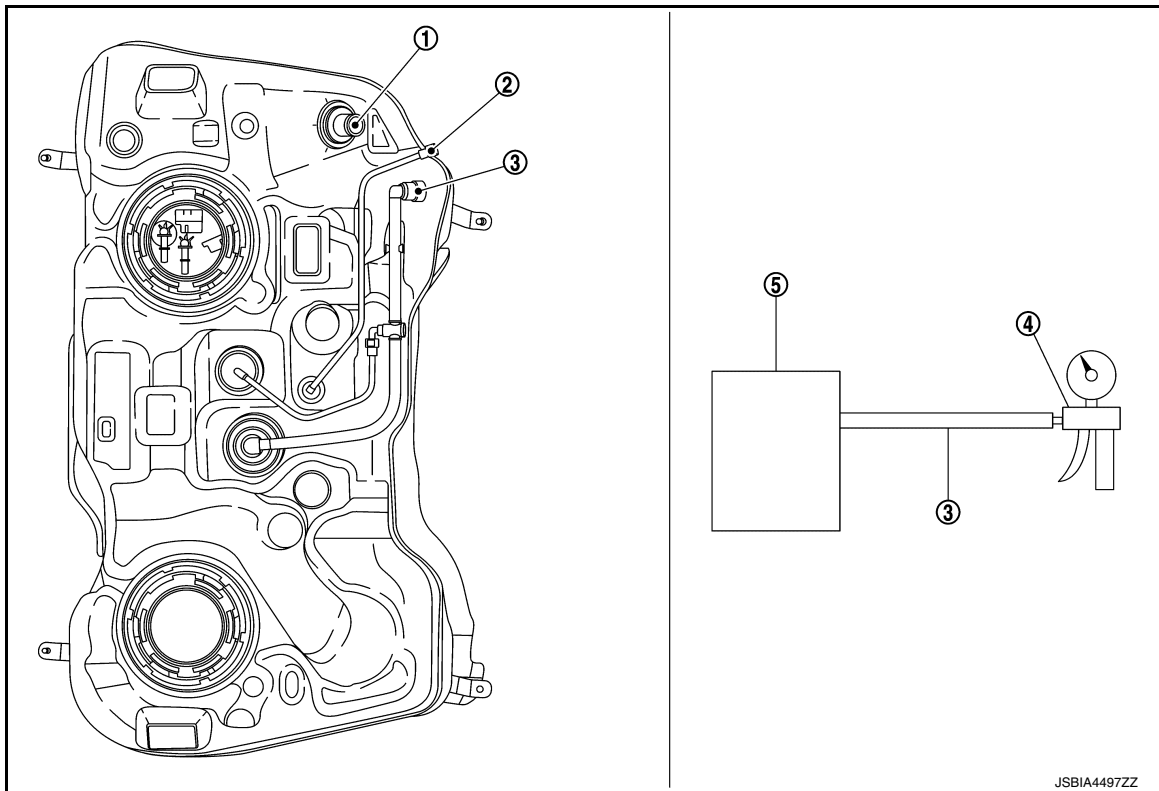
Always replace O-ring with new one.

 - Turn fuel tank upside down.
 - Apply vacuum pressure to hose end [-13.3 kPa (-0.136 kg/cm², -1.93 psi)] with fuel gauge retainer remaining open and check that the pressure is applicable.

ON BOARD REFUELING VAPOR RECOVERY (ORVR)

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]



- | | | |
|------------------------------|----------------------|------------------|
| ① Filler tube | ② Recirculation line | ③ EVAP/ORVR line |
| ④ Vacuum/pressure handy pump | ⑤ Fuel tank | |

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace refueling EVAP vapor cut valve with fuel tank. Refer to [FL-12, "FWD : Removal and Installation"](#) (with FWD models) [FL-16, "AWD : Removal and Installation"](#) (with AWD models).

REFRIGERANT PRESSURE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

REFRIGERANT PRESSURE SENSOR

Component Function Check

INFOID:000000009985291

1.CHECK REFRIGERANT PRESSURE SENSOR FUNCTION

1. Start engine and warm it up to normal operating temperature.
2. Turn A/C switch and blower fan switch ON.
3. Check the voltage between ECM harness connector terminals under the following conditions.

ECM			Voltage (V)
Connector	+	–	
	Terminal		
E16	103	124	1.0 - 4.0

Is the inspection result normal?

YES >> INSPECTION END

NO >> Proceed to [EC-482, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000009985292

1.CHECK REFRIGERANT PRESSURE SENSOR POWER SUPPLY

1. Disconnect refrigerant pressure sensor harness connector.
2. Turn ignition switch ON.
3. Check the voltage between refrigerant pressure sensor harness connector and ground.

+		-	Voltage (Approx.)
Refrigerant pressure sensor			
Connector	Terminal		
F10	3	Ground	5 V

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 2.

2.CHECK REFRIGERANT PRESSURE SENSOR POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between refrigerant pressure sensor harness connector and ECM harness connector.

+		-		Continuity
Refrigerant pressure sensor		ECM		
Connector	Terminal	Connector	Terminal	
F10	3	E16	104	Existed

Is the inspection result normal?

YES >> Perform the trouble diagnosis for power supply circuit.

NO >> Repair or replace error-detected parts.

3.CHECK REFRIGERANT PRESSURE SENSOR GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between refrigerant pressure sensor harness connector and ECM harness connector.

REFRIGERANT PRESSURE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

+		-		Continuity
Refrigerant pressure sensor		ECM		
Connector	Terminal	Connector	Terminal	
F10	1	E16	124	Existed

4. Also check harness for short to power.

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace error-detected parts.

4.CHECK REFRIGERANT PRESSURE SENSOR INPUT SIGNAL CIRCUIT

1. Check the continuity between refrigerant pressure sensor harness connector and ECM harness connector.

+		-		Continuity
Refrigerant pressure sensor		ECM		
Connector	Terminal	Connector	Terminal	
F10	2	E16	103	Existed

2. Also check harness for short to ground and to power.

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace error-detected parts.

5.CHECK INTERMITTENT INCIDENT

Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

Is the inspection result normal?

YES >> Replace refrigerant pressure sensor. Refer to [HAC-108, "Removal and Installation"](#) (with automatic air conditioner) or [HAC-183, "Removal and Installation"](#) (with manual air conditioner).

NO >> Repair or replace error-detected parts.

SENSOR POWER SUPPLY2 CIRCUIT

Description

INFOID:000000009985293

ECM supplies a voltage of 5 V to some of the sensors systematically divided into 2 groups, respectively. Accordingly, when a short circuit develops in a sensor power source, a malfunction may occur simultaneously in the sensors belonging to the same group as the short-circuited sensor.

Sensor power supply 1

- APP sensor 1
- CKP sensor (POS)
- Intake manifold runner control valve position sensor
- Refrigerant pressure sensor
- TP sensor

NOTE:

If sensor power supply 1 circuit is malfunctioning, DTC P0643 is displayed.

Sensor power supply 2

- APP sensor 2
- CMP sensor (PHASE)
- EVT control position sensor
- EOP sensor
- MAF sensor

Diagnosis Procedure

INFOID:000000009985294

1.CHECK APP SENSOR 2 POWER SUPPLY CIRCUIT-1

1. Turn ignition switch OFF.
2. Disconnect accelerator pedal position (APP) sensor harness connector.
3. Turn ignition switch ON.
4. Check the voltage between APP sensor harness connector and ground.

+		-	Voltage (Approx.)
APP sensor			
Connector	Terminal		
E25	5	Ground	5V

Is the inspection result normal?

- YES >> INSPECTION END
 NO >> GO TO 2.

2.CHECK APP SENSOR 2 POWER SUPPLY CIRCUIT-2

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between APP sensor harness connector and ECM harness connector.

+		+		Continuity
APP sensor		ECM		
Connector	Terminal	Connector	Terminal	
E25	5	E16	118	Existed

Is the inspection result normal?

- YES >> GO TO 3.
 NO >> Repair open circuit.

3.CHECK SENSOR POWER SUPPLY 2 CIRCUIT

1. Disconnect following sensors harness connector.
2. Check harness for short to power and short to ground, between the following terminals.

SENSOR POWER SUPPLY2 CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[QR25DE]

ECM		Sensor		
Connector	Terminal	Name	Connector	Terminal
F51	32	CMP sensor (PHASE)	F44	1
	36	MAF sensor	F22	1
	40	EOP sensor	F54	3
	44	EVT control position sensor	F45	1
E16	118	APP sensor 2	E25	5

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair short to ground or short to power in harness or connectors.

4.CHECK COMPONENTS

Check the following.

- APP sensor 2 (Refer to [EC-444, "Component Inspection".](#))
- Camshaft position sensor (PHASE) (Refer to [EC-300, "Component Inspection \(Camshaft position sensor\)".](#))
- EVT control position sensor (Refer to [EC-387, "Component Inspection".](#))
- EOP sensor (Refer to [EC-360, "Component Inspection".](#))
- MAF sensor (Refer to [EC-200, "Component Inspection".](#))

Is the inspection result normal?

YES >> Refer to [GI-41, "Intermittent Incident".](#)

NO >> Replace malfunctioning component.

ENGINE CONTROL SYSTEM

< SYMPTOM DIAGNOSIS >

[QR25DE]

SYMPTOM DIAGNOSIS

ENGINE CONTROL SYSTEM

Symptom Table

INFOID:000000009985295

SYSTEM — BASIC ENGINE CONTROL SYSTEM

		SYMPTOM													Reference page
		HARD/NO START/RESTART (EXCP. HA)	ENGINE STALL	HESITATION/SURGING/FLAT SPOT	SPARK KNOCK/DETONATION	LACK OF POWER/POOR ACCELERATION	HIGH IDLE/LOW IDLE	ROUGH IDLE/HUNTING	IDLING VIBRATION	SLOW/NO RETURN TO IDLE	OVERHEATS/WATER TEMPERATURE HIGH	EXCESSIVE FUEL CONSUMPTION	EXCESSIVE OIL CONSUMPTION	BATTERY DEAD (UNDER CHARGE)	
Warranty symptom code		AA	AB	AC	AD	AE	AF	AG	AH	AJ	AK	AL	AM	HA	
Fuel	Fuel pump circuit	1	1	2	3	2		2	2			3		2	EC-467
	Fuel pressure regulator system	3	3	4	4	4	4	4	4	4		4			EC-144
	Fuel injector circuit	1	1	2	3	2		2	2			2			EC-464
	Fuel level sensor circuit														EC-344 , EC-347
	Fuel tank temperature sensor circuit														EC-272 , EC-274
	Evaporative emission system	3	3	4	4	4	4	4	4	4		4			EC-495
Air	Positive crankcase ventilation system	3	3	4	4	4	4	4	4	4		4	1		EC-498
	Incorrect idle speed adjustment						1	1	1	1		1			EC-141
	Electric throttle control actuator	1	1	2	3	3	2	2	2	2		2		2	EC-433 , EC-438
Ignition	Incorrect ignition timing adjustment	3	3	1	1	1		1	1			1			EC-494
	Ignition circuit	1	1	2	2	2		2	2			2			EC-470
Main power supply and ground circuit		2	2	3	3	3		3	3		2	3			EC-165

ENGINE CONTROL SYSTEM

< SYMPTOM DIAGNOSIS >

[QR25DE]

	SYMPTOM													Reference page
	HARD/NO START/RESTART (EXCP. HA)	ENGINE STALL	HESITATION/SURGING/FLAT SPOT	SPARK KNOCK/DETONATION	LACK OF POWER/POOR ACCELERATION	HIGH IDLE/LOW IDLE	ROUGH IDLE/HUNTING	IDLING VIBRATION	SLOW/NO RETURN TO IDLE	OVERHEATS/WATER TEMPERATURE HIGH	EXCESSIVE FUEL CONSUMPTION	EXCESSIVE OIL CONSUMPTION	BATTERY DEAD (UNDER CHARGE)	
Warranty symptom code	AA	AB	AC	AD	AE	AF	AG	AH	AJ	AK	AL	AM	HA	
Mass air flow sensor circuit	1			2										EC-198 , EC-202
Intake air temperature sensor circuit													EC-207 , EC-208	
Engine coolant temperature sensor circuit						3						3		3
Air fuel ratio (A/F) sensor 1 circuit		1	2	3	2		2	2			2			EC-226 , EC-230 , EC-233 , EC-255 , EC-426
Throttle position sensor circuit										2			2	
Accelerator pedal position sensor circuit			3	2	1									EC-440 , EC-443 , EC-449
Heated oxygen sensor 2 circuit			6		6		6	6			5			EC-236 , EC-244 , EC-251
Knock sensor circuit			2								3			EC-293
Engine oil temperature sensor circuit			4		2						3			EC-279 , EC-281
Engine oil pressure sensor circuit			4		4	3	3	3			3			EC-358 , EC-362
Crankshaft position sensor (POS) circuit	2	2												EC-295
Camshaft position sensor (PHASE) circuit	3	2												EC-298
Vehicle speed signal circuit		2	3		3						3			EC-350
ECM	2	2	3	3	3	3	3	3	3	3	3			EC-370 , EC-372 , EC-373 , EC-376 , EC-377 , EC-378
Intake valve timing control solenoid valve circuit		3	2		1	3	2	2	3		3			EC-177 , EC-191

ENGINE CONTROL SYSTEM

< SYMPTOM DIAGNOSIS >

[QR25DE]

	SYMPTOM													Reference page
	HARD/NO START/RESTART (EXCP. HA)	ENGINE STALL	HESITATION/SURGING/FLAT SPOT	SPARK KNOCK/DETONATION	LACK OF POWER/POOR ACCELERATION	HIGH IDLE/LOW IDLE	ROUGH IDLE/HUNTING	IDLING VIBRATION	SLOW/NO RETURN TO IDLE	OVERHEATS/WATER TEMPERATURE HIGH	EXCESSIVE FUEL CONSUMPTION	EXCESSIVE OIL CONSUMPTION	BATTERY DEAD (UNDER CHARGE)	
Warranty symptom code	AA	AB	AC	AD	AE	AF	AG	AH	AJ	AK	AL	AM	HA	
Intake valve timing intermediate lock control solenoid valve circuit														EC-364
Exhaust valve timing control solenoid valve circuit		3	2		1	3	2	2	3		3			EC-195
PNP signal circuit			3		3		3	3			3			EC-382
Refrigerant pressure sensor circuit		2				3			3		4			EC-482
Electrical load signal circuit							3							EC-462
Intake manifold runner control valve motor circuit					4	4								EC-420
Intake manifold runner control valve position sensor circuit					4	4								EC-423
Air conditioner circuit	2	2	3	3	3	3	3	3	3		3		2	HAC-46 , HAC-146
ASCD steering switch circuit														EC-403
ABS actuator and electric unit (control unit)			4											BRC-66

1 - 6: The numbers refer to the order of inspection.

(continued on next table)

SYSTEM — ENGINE MECHANICAL & OTHER

ENGINE CONTROL SYSTEM

< SYMPTOM DIAGNOSIS >

[QR25DE]

		SYMPTOM													Reference page
		HARD/NO START/RESTART (EXCP. HA)	ENGINE STALL	HESITATION/SURGING/FLAT SPOT	SPARK KNOCK/DETONATION	LACK OF POWER/POOR ACCELERATION	HIGH IDLE/LOW IDLE	ROUGH IDLE/HUNTING	IDLING VIBRATION	SLOW/NO RETURN TO IDLE	OVERHEATS/WATER TEMPERATURE HIGH	EXCESSIVE FUEL CONSUMPTION	EXCESSIVE OIL CONSUMPTION	BATTERY DEAD (UNDER CHARGE)	
Warranty symptom code		A A	AB	AC	AD	AE	AF	AG	AH	AJ	AK	AL	AM	HA	
Fuel	Fuel tank	5	5												FL-12, FL-16
	Fuel piping			5	5	5		5	5			5		EM-40	
	Vapor lock														—
	Valve deposit														—
	Poor fuel (Heavy weight gasoline, Low octane)	5		5	5	5		5	5			5			—
Air	Air duct		5	5											EM-24
	Air cleaner														
	Air leakage from air duct (Mass air flow sensor — electric throttle control actuator)					5		5	5		5				
	Electric throttle control actuator	5				5		5		5		5			EM-26
	Air leakage from intake manifold/Collector/Gasket														
Cranking	Battery	1	1	1		1		1	1			1		1	PG-75
	Generator circuit														
	Starter circuit	3									1			STR-6	
	Signal plate	6												EM-93	
	PNP signal	4												TM-220	
Engine	Cylinder head	5	5	5	5	5		5	5			5			EM-61
	Cylinder head gasket										4		3		
	Cylinder block	6	6	6	6		6	6			6	4	EM-93		
	Piston														
	Piston ring														
	Connecting rod														
	Bearing														
	Crankshaft														

ENGINE CONTROL SYSTEM

< SYMPTOM DIAGNOSIS >

[QR25DE]

		SYMPTOM												Reference page	
		HARD/NO START/RESTART (EXC.P. HA)	ENGINE STALL	HESITATION/SURGING/FLAT SPOT	SPARK KNOCK/DETONATION	LACK OF POWER/POOR ACCELERATION	HIGH IDLE/LOW IDLE	ROUGH IDLE/HUNTING	IDLING VIBRATION	SLOW/NO RETURN TO IDLE	OVERHEATS/WATER TEMPERATURE HIGH	EXCESSIVE FUEL CONSUMPTION	EXCESSIVE OIL CONSUMPTION		BATTERY DEAD (UNDER CHARGE)
Warranty symptom code		A A	AB	AC	AD	AE	AF	AG	AH	AJ	AK	AL	AM	HA	
Valve mecha- nism	Timing chain	5	5	5	5	5		5	5			5	3		EM-45
	Camshaft														EM-64
	Intake valve timing control														EM-45
	Intake valve														EM-61
	Exhaust valve														
Exhaust	Exhaust manifold/Tube/Muf- fler/Gasket	5	5	5	5	5		5	5			5			EM-29 , EX-5
	Three way catalyst														
Lubrica- tion	Oil pan/Oil strainer/Oil pump/ Oil filter/Oil gallery/Oil cooler	5	5	5	5	5		5	5			5			EM-32 , LU-7 , LU-10 , LU-5 , LU-13
	Oil level (Low)/Filthy oil														LU-7
Cooling	Radiator/Hose/Radiator filler cap	5	5	5	5	5		5	5		4	5			CO-13
	Thermostat									5					CO-21
	Water pump														CO-19
	Water gallery														CO-5
	Cooling fan														CO-17
	Coolant level (Low)/Contami- nated coolant									5					CO-8
NVIS (NISSAN Vehicle Immobilizer Sys- tem — NATS)		1	1												SEC-62 , SEC-150

1 - 6: The numbers refer to the order of inspection.

INFORMATION DISPLAY IS MALFUNCTIONING

< SYMPTOM DIAGNOSIS >

[QR25DE]

INFORMATION DISPLAY IS MALFUNCTIONING

Diagnosis Procedure

INFOID:000000009985296

1.CHECK DTC WITH ECM

Check that DTC is not displayed.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Perform trouble diagnosis relevant to DTC indicated.

2.CHECK INFORMATION DISPLAY (ASCD)

Refer to [EC-475. "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace malfunctioning part.

3.CHECK INTERMITTENT INCIDENT

Refer to [GI-41. "Intermittent Incident"](#).

>> INSPECTION END

A

EC

C

D

E

F

G

H

I

J

K

L

M

N

O

P

NORMAL OPERATING CONDITION

Description

INFOID:000000009985297

FUEL CUT CONTROL (AT NO LOAD AND HIGH ENGINE SPEED)

If the engine speed is above 1,800 rpm under no load (for example, the selector lever position is neutral and engine speed is over 1,800 rpm) fuel will be cut off after some time. The exact time when the fuel is cut off varies based on engine speed.

Fuel cut will be operated until the engine speed reaches 1,500 rpm, then fuel cut will be cancelled.

NOTE:

This function is different from deceleration control listed under Multiport Fuel Injection (MFI) System, [EC-34. "MULTIPOINT FUEL INJECTION SYSTEM : System Description \(with automatic air conditioner\)"](#) or [EC-37. "MULTIPOINT FUEL INJECTION SYSTEM : System Description \(with manual air conditioner\)"](#).

PERIODIC MAINTENANCE

IDLE SPEED

Inspection

INFOID:0000000009985298

EC

1.CHECK IDLE SPEED

- With CONSULT
Check idle speed in “DATA MONITOR” mode of “ENGINE” using CONSULT.
- With GST
Check idle speed with Service \$01 of GST.

>> INSPECTION END

A
C
D
E
F
G
H
I
J
K
L
M
N
O
P

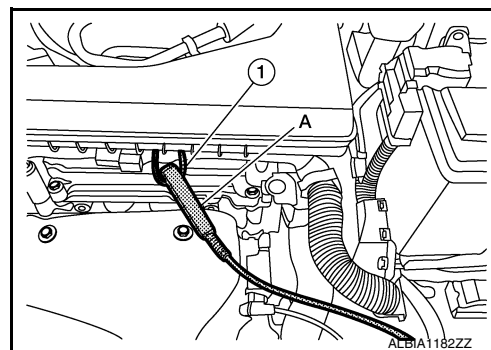
IGNITION TIMING

Inspection

INFOID:000000009985299

1.CHECK IGNITION TIMING

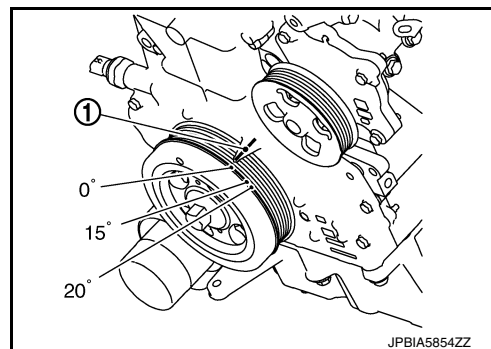
1. Attach timing light (A) to the ignition coil No.1 harness①.



2. Check ignition timing.

① : Timing indicator

>> INSPECTION END



EVAPORATIVE EMISSION SYSTEM

< PERIODIC MAINTENANCE >

[QR25DE]

EVAPORATIVE EMISSION SYSTEM

Inspection

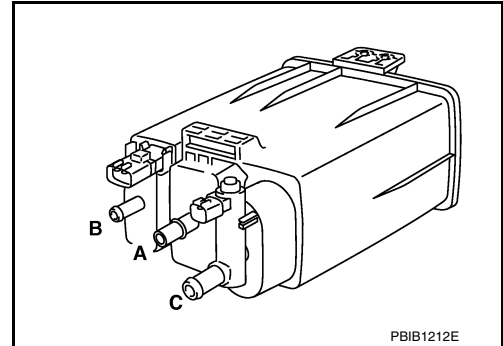
INFOID:000000009985300

EVAP CANISTER

1. CHECK EVAP CANISTER

1. Block port (B).
2. Blow air into port (A) and check that it flows freely out of port (C).
3. Release blocked port (B).
4. Apply vacuum pressure to port (B) and check that vacuum pressure exists at the ports (A) and (C).
5. Block port (A) and (B).
6. Apply pressure to port (C) and check that there is no leakage.

>> INSPECTION END



EVAP LEAK CHECK

< PERIODIC MAINTENANCE >

[QR25DE]

EVAP LEAK CHECK

Inspection

INFOID:000000009985301

CAUTION:

- Do not use compressed air or a high pressure pump.
- Do not exceed 4.12 kPa (0.042 kg/cm², 0.6 psi) of pressure in EVAP system.

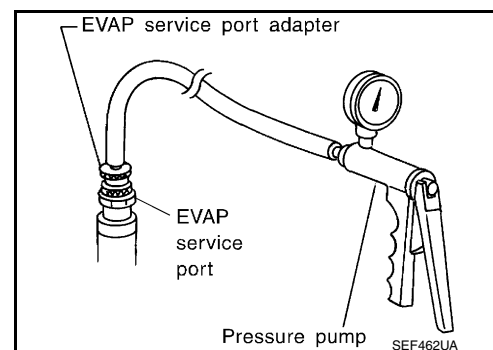
NOTE:

- Do not start engine.
- Improper installation of EVAP service port adapter [commercial service tool: (J-41413-OBD)] to the EVAP service port may cause a leak.

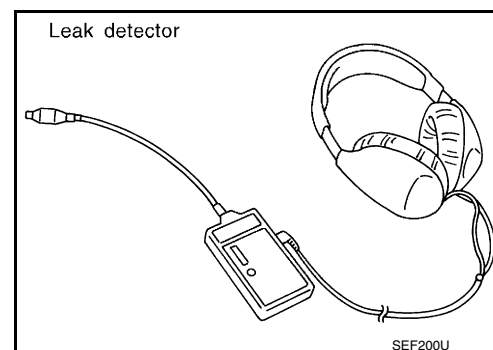
1. EVAP LEAK CHECK

With CONSULT

1. Install EVAP service port adapter [commercial service tool: (J-41413-OBD)] and pressure pump to EVAP service port.

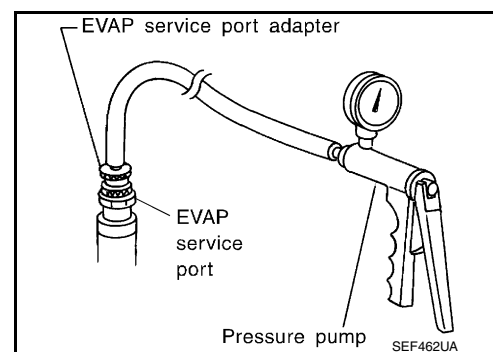


2. Turn ignition switch ON.
3. Select the "EVAP SYSTEM CLOSE" in "WORK SUPPORT" mode of "ENGINE" using CONSULT.
4. Touch "START". A bar graph (Pressure indicating display) will appear on the screen.
5. Apply positive pressure to the EVAP system until the pressure indicator reaches the middle of the bar graph.
6. Remove EVAP service port adapter [commercial service tool: (J-41413-OBD)] and hose with pressure pump.
7. Locate the leak using a leak detector [commercial service tool: (J-41416)]. Refer to [EC-53, "EVAPORATIVE EMISSION SYSTEM : System Description"](#).



Without CONSULT

1. Install EVAP service port adapter [commercial service tool: (J-41413-OBD)] and pressure pump to EVAP service port.



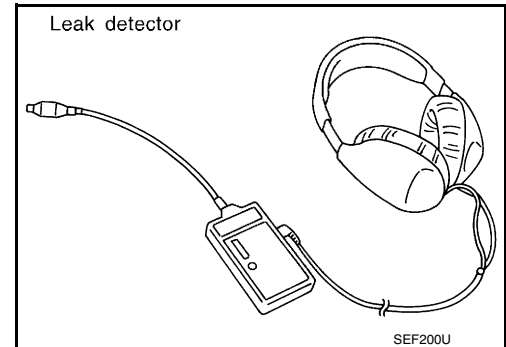
EVAP LEAK CHECK

[QR25DE]

< PERIODIC MAINTENANCE >

2. Apply battery voltage between the terminals of EVAP canister vent control valve to make a closed EVAP system.
3. To locate the leak, deliver positive pressure to the EVAP system until pressure gauge points reach 1.38 to 2.76 kPa (0.014 to 0.028 kg/cm², 0.2 to 0.4 psi).
4. Remove EVAP service port adapter [commercial service tool: (J-41413-OBD)] and hose with pressure pump.
5. Locate the leak using a leak detector [commercial service tool: (J-41416)]. Refer to [EC-53, "EVAPORATIVE EMISSION SYSTEM : System Description"](#).

>> INSPECTION END



POSITIVE CRANKCASE VENTILATION

< PERIODIC MAINTENANCE >

[QR25DE]

POSITIVE CRANKCASE VENTILATION

Inspection

INFOID:000000009985302

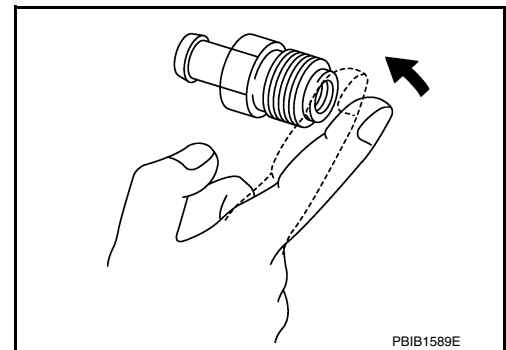
1.CHECK PCV VALVE

With engine running at idle, remove PCV valve from rocker cover. A properly working valve makes a hissing noise as air passes through it. A strong vacuum should be felt immediately when a finger is placed over valve inlet.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace PCV valve. Refer to [EC-14](#),
["Component Parts Location"](#).



PBIB1589E

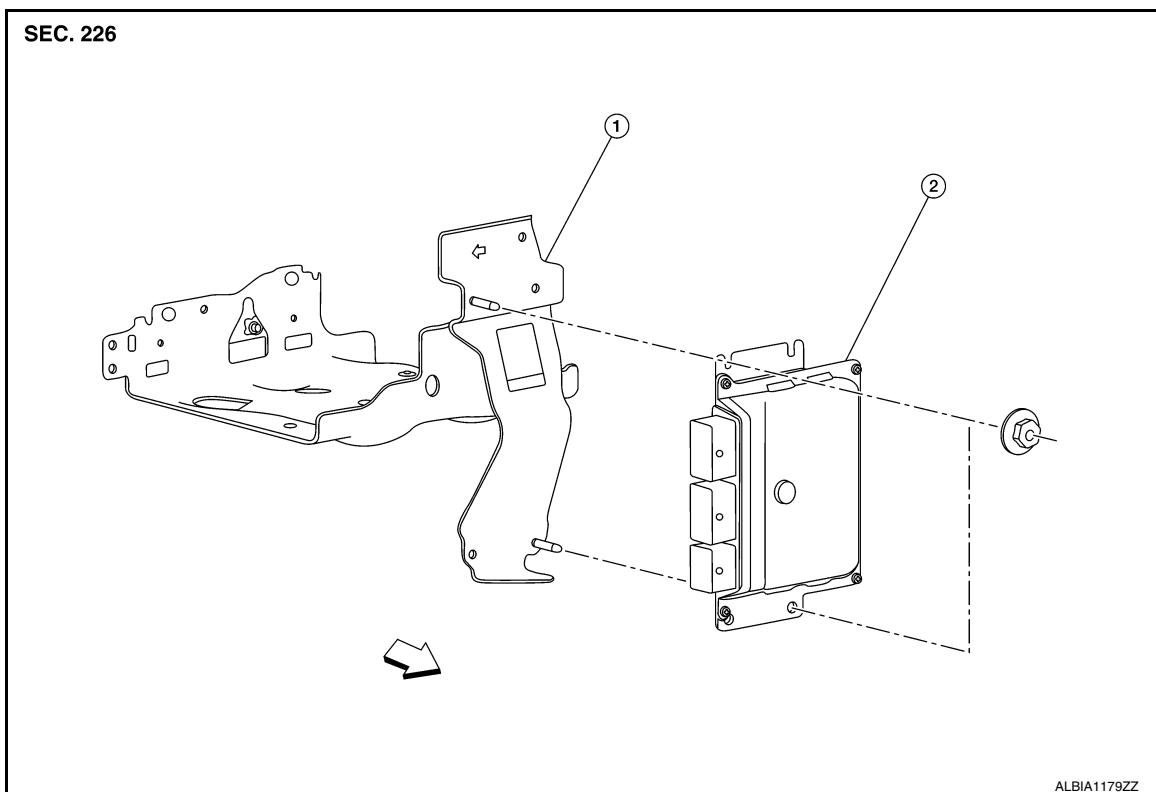
REMOVAL AND INSTALLATION

ECM

Removal and Installation

INFOID:000000009985303

EXPLODED VIEW



① ECM bracket

② ECM

⇐ : Vehicle front

CAUTION:

Perform **ADDITIONAL SERVICE WHEN REPLACING ECM**. Refer to [EC-136, "Work Procedure"](#).

REMOVAL

1. Disconnect the battery negative terminal.
2. Remove the resonator. Refer to [EM-24, "Exploded View"](#).
3. Disconnect ECM harness connectors.
4. Remove ECM mounting nuts, and then remove ECM.

INSTALLATION

Install in the reverse order of removal.

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

[QR25DE]

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

Idle Speed

INFOID:0000000009985304

Condition	Specification
No load* (in P or N position)	650 ± 50 rpm

*: Under the following conditions

- A/C switch: OFF
- Electric load: OFF (Lights, heater fan & rear window defogger)
- Steering wheel: Kept in straight-ahead position

Ignition Timing

INFOID:0000000009985305

Condition	Specification
No load* (in P or N position)	10 ± 2° BTDC

*: Under the following conditions

- A/C switch: OFF
- Electric load: OFF (Lights, heater fan & rear window defogger)
- Steering wheel: Kept in straight-ahead position

Calculated Load Value

INFOID:0000000009985306

Condition	Specification (Using CONSULT or GST)
At idle	10 – 35 %
At 2,500 rpm	10 – 35 %

Mass Air Flow Sensor

INFOID:0000000009985307

Supply voltage	Battery voltage (11 – 14 V)
Output voltage at idle	1.3 – 1.6 V*
Mass air flow (Using CONSULT or GST)	1.0 – 4.0 g/s at idle* 4.0 – 10.0 g/s at 2,500 rpm*

*: Engine is warmed up to normal operating temperature and running under no load.

SECTION **EXL**

EXTERIOR LIGHTING SYSTEM

CONTENTS

HALOGEN HEADLAMP	
PRECAUTION	7
PRECAUTIONS	7
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	7
Precaution for Work	7
PREPARATION	8
PREPARATION	8
Special Service Tool	8
SYSTEM DESCRIPTION	9
COMPONENT PARTS	9
Component Parts Location	9
Optical Sensor	10
Hazard Switch	11
SYSTEM	12
HEADLAMP SYSTEM	12
HEADLAMP SYSTEM : System Description	12
HEADLAMP SYSTEM : Fail-Safe	12
AUTO LIGHT SYSTEM	13
AUTO LIGHT SYSTEM : System Description	13
DAYTIME RUNNING LIGHT SYSTEM	14
DAYTIME RUNNING LIGHT SYSTEM : System Description	14
TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM	14
TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM : System Description	15
PARKING, LICENSE PLATE, SIDE MARKER AND TAIL LAMP SYSTEM	15
PARKING, LICENSE PLATE, SIDE MARKER AND TAIL LAMP SYSTEM : System Description	15
PARKING, LICENSE PLATE, SIDE MARKER AND TAIL LAMP SYSTEM : Fail-Safe	16
FRONT FOG LAMP SYSTEM	16
FRONT FOG LAMP SYSTEM : System Description	17
FRONT FOG LAMP SYSTEM : Fail-Safe	17
EXTERIOR LAMP BATTERY SAVER SYSTEM	17
EXTERIOR LAMP BATTERY SAVER SYSTEM : System Description	18
DIAGNOSIS SYSTEM (BCM)	19
WITH INTELLIGENT KEY	19
WITH INTELLIGENT KEY : CONSULT Function (BCM - COMMON ITEM)	19
WITH INTELLIGENT KEY : CONSULT Function (BCM - HEADLAMP)	19
WITH INTELLIGENT KEY : CONSULT Function (BCM - FLASHER)	21
WITHOUT INTELLIGENT KEY	21
WITHOUT INTELLIGENT KEY : CONSULT Function (BCM - COMMON ITEM)	21
WITHOUT INTELLIGENT KEY : CONSULT Function (BCM - HEADLAMP)	22
WITHOUT INTELLIGENT KEY : CONSULT Function (BCM - FLASHER)	23
DIAGNOSIS SYSTEM (IPDM E/R)	24
CONSULT Function (IPDM E/R)	24
ECU DIAGNOSIS INFORMATION	27
BCM, IPDM E/R	27
List of ECU Reference	27
WIRING DIAGRAM	28
HEADLAMP	28

Wiring Diagram	28	HAZARD SWITCH	91
DAYTIME LIGHT SYSTEM	35	Component Function Check	91
Wiring Diagram	35	Diagnosis Procedure	91
AUTO LIGHT SYSTEM	42	TURN SIGNAL LAMP CIRCUIT	93
Wiring Diagram	42	Description	93
FRONT FOG LAMP SYSTEM	49	Component Function Check	93
Wiring Diagram	49	Diagnosis Procedure	93
TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM	55	B121A FRONT FOG LAMP LH POWER SUP- PLY CIRCUIT	96
Wiring Diagram	55	DTC Logic	96
PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM	62	Diagnosis Procedure	96
Wiring Diagram	62	B1231 DAYTIME RUNNING LIGHT RH POW- ER SUPPLY CIRCUIT	97
STOP LAMP	74	DTC Logic	97
Wiring Diagram	74	Diagnosis Procedure	97
BACK-UP LAMP	78	B1256 FRONT FOG LAMP RH POWER SUP- PLY CIRCUIT	98
Wiring Diagram	78	DTC Logic	98
BASIC INSPECTION	82	Diagnosis Procedure	98
DIAGNOSIS AND REPAIR WORKFLOW	82	B20CB DAYTIME RUNNING LIGHT LH POW- ER SUPPLY CIRCUIT	99
Work Flow	82	DTC Logic	99
INSPECTION AND ADJUSTMENT	85	Diagnosis Procedure	99
ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT	85	B20CE HEADLAMP (HI) LH POWER SUP- PLY CIRCUIT	100
ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Description	85	DTC Logic	100
ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement	85	Diagnosis Procedure	100
SENSOR INITIALIZE	85	B20CF HEADLAMP (HI) RH POWER SUP- PLY CIRCUIT	101
SENSOR INITIALIZE : Description	85	DTC Logic	101
SENSOR INITIALIZE : Special Repair Require- ment	85	Diagnosis Procedure	101
DTC/CIRCUIT DIAGNOSIS	86	B20D0 HEADLAMP (LO) LH POWER SUP- PLY CIRCUIT	102
POWER SUPPLY AND GROUND CIRCUIT	86	DTC Logic	102
BCM (BODY CONTROL SYSTEM) (WITH INTEL- LIGENT KEY SYSTEM)	86	Diagnosis Procedure	102
BCM (BODY CONTROL SYSTEM) (WITH INTEL- LIGENT KEY SYSTEM) : Diagnosis Procedure	86	B20D1 HEADLAMP (LO) RH POWER SUP- PLY CIRCUIT	103
BCM (BODY CONTROL SYSTEM) (WITHOUT IN- TELLIGENT KEY SYSTEM)	86	DTC Logic	103
BCM (BODY CONTROL SYSTEM) (WITHOUT INTELLIGENT KEY SYSTEM) : Diagnosis Proce- dure	86	Diagnosis Procedure	103
OPTICAL SENSOR	88	B20D2 PARKING LAMP POWER SUPPLY CIRCUIT	104
Component Function Check	88	DTC Logic	104
Diagnosis Procedure	88	Diagnosis Procedure	104
		B20D4 TAIL LAMP LH POWER SUPPLY CIR- CUIT	105
		DTC Logic	105
		Diagnosis Procedure	105
		B20D5 TAIL LAMP RH POWER SUPPLY CIRCUIT	106

DTC Logic	106	SIDE TURN SIGNAL LAMP	126	
Diagnosis Procedure	106	Removal and Installation	126	A
SYMPTOM DIAGNOSIS	107	Bulb Replacement	126	
EXTERIOR LIGHTING SYSTEM SYMPTOMS.	107	REAR COMBINATION LAMP	127	B
Symptom Table	107	Exploded View	127	
NORMAL OPERATING CONDITION	109	Removal and Installation	127	C
Description	109	Bulb Replacement	127	
BOTH SIDE HEADLAMPS (HI) ARE NOT		HIGH-MOUNTED STOP LAMP	129	
TURNED ON	110	Exploded View	129	D
Description	110	Removal and Installation	129	
Diagnosis Procedure	110	Bulb Replacement	129	
BOTH SIDE HEADLAMPS (LO) ARE NOT		BACK-UP LAMP ASSEMBLY	130	E
TURNED ON	111	Exploded View	130	
Description	111	Removal and Installation	130	
Diagnosis Procedure	111	Bulb Replacement	130	F
PARKING, LICENSE PLATE, SIDE MARKER		LICENSE PLATE LAMP	132	
AND TAIL LAMPS ARE NOT TURNED ON ...	112	Exploded View	132	G
Description	112	Removal and Installation	132	
Diagnosis Procedure	112	Bulb Replacement	132	
BOTH SIDE FRONT FOG LAMPS ARE NOT		UNIT DISASSEMBLY AND ASSEMBLY .	134	H
TURNED ON	113	FRONT COMBINATION LAMP	134	
Description	113	Exploded View	134	I
Diagnosis Procedure	113	Disassembly and Assembly	134	
PERIODIC MAINTENANCE	114	REAR COMBINATION LAMP	135	J
HEADLAMP AIMING ADJUSTMENT	114	Exploded View	135	
Inspection	114	Disassembly and Assembly	135	
Aiming Adjustment Procedure	115	SERVICE DATA AND SPECIFICATIONS		K
FRONT FOG LAMP AIMING ADJUSTMENT ..	117	(SDS)	136	
Aiming Adjustment Procedure	117	SERVICE DATA AND SPECIFICATIONS		
REMOVAL AND INSTALLATION	119	(SDS)	136	
FRONT COMBINATION LAMP	119	Bulb Specifications	136	EXL
Exploded View	119	LED HEADLAMP		
Removal and Installation	119	PRECAUTION	137	M
Bulb Replacement	119	PRECAUTIONS	137	
FOG LAMP	121	Precaution for Supplemental Restraint System		N
Exploded View	121	(SRS) "AIR BAG" and "SEAT BELT PRE-TEN-		
Removal and Installation	121	SIONER"	137	
Bulb Replacement	121	Precaution for Work	137	O
OPTICAL SENSOR	123	PREPARATION	138	
Removal and Installation	123	PREPARATION	138	P
COMBINATION SWITCH	124	Special Service Tool	138	
Exploded View	124	SYSTEM DESCRIPTION	139	
Removal and Installation	124	COMPONENT PARTS	139	
HAZARD SWITCH	125	Component Parts Location	139	
Exploded View	125	Optical Sensor	140	
Removal and Installation	125	Hazard Switch	141	

SYSTEM	142	BCM, IPDM E/R	158
HEADLAMP SYSTEM	142	List of ECU Reference	158
HEADLAMP SYSTEM : System Description	142	WIRING DIAGRAM	159
HEADLAMP SYSTEM : Fail-Safe	142	HEADLAMP	159
AUTO LIGHT SYSTEM	143	Wiring Diagram	159
AUTO LIGHT SYSTEM : System Description	143	DAYTIME LIGHT SYSTEM	165
DAYTIME RUNNING LIGHT SYSTEM	144	Wiring Diagram	165
DAYTIME RUNNING LIGHT SYSTEM : System Description	144	AUTO LIGHT SYSTEM	172
HEADLAMP AIMING CONTROL SYSTEM (AUTO)	144	Wiring Diagram	172
HEADLAMP AIMING CONTROL SYSTEM (AUTO) : System Diagram	145	FRONT FOG LAMP SYSTEM	179
HEADLAMP AIMING CONTROL SYSTEM (AUTO) : System Description	145	Wiring Diagram	179
TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM	145	TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM	185
TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM : System Description	146	Wiring Diagram	185
PARKING, LICENSE PLATE, SIDE MARKER AND TAIL LAMP SYSTEM	146	PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM	192
PARKING, LICENSE PLATE, SIDE MARKER AND TAIL LAMP SYSTEM : System Description	146	Wiring Diagram	192
PARKING, LICENSE PLATE, SIDE MARKER AND TAIL LAMP SYSTEM : Fail-Safe	147	STOP LAMP	204
FRONT FOG LAMP SYSTEM	147	Wiring Diagram	204
FRONT FOG LAMP SYSTEM : System Description	148	BACK-UP LAMP	208
FRONT FOG LAMP SYSTEM : Fail-Safe	148	Wiring Diagram	208
EXTERIOR LAMP BATTERY SAVER SYSTEM	148	HEADLAMP AIMING SYSTEM (AUTOMATIC)	212
EXTERIOR LAMP BATTERY SAVER SYSTEM : System Description	149	Wiring Diagram	212
DIAGNOSIS SYSTEM (BCM)	150	BASIC INSPECTION	219
WITH INTELLIGENT KEY	150	DIAGNOSIS AND REPAIR WORKFLOW	219
WITH INTELLIGENT KEY : CONSULT Function (BCM - COMMON ITEM)	150	Work Flow	219
WITH INTELLIGENT KEY : CONSULT Function (BCM - HEADLAMP)	150	INSPECTION AND ADJUSTMENT	222
WITH INTELLIGENT KEY : CONSULT Function (BCM - FLASHER)	152	ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT	222
WITHOUT INTELLIGENT KEY	152	ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Description	222
WITHOUT INTELLIGENT KEY : CONSULT Function (BCM - COMMON ITEM)	152	ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement ..	222
WITHOUT INTELLIGENT KEY : CONSULT Function (BCM - HEADLAMP)	153	SENSOR INITIALIZE	222
WITHOUT INTELLIGENT KEY : CONSULT Function (BCM - FLASHER)	154	SENSOR INITIALIZE : Description	222
DIAGNOSIS SYSTEM (IPDM E/R)	155	SENSOR INITIALIZE : Special Repair Requirement	222
CONSULT Function (IPDM E/R)	155	LED HEADLAMP OPERATION INSPECTION	223
ECU DIAGNOSIS INFORMATION	158	Diagnosis Procedure	223
		DTC/CIRCUIT DIAGNOSIS	224
		POWER SUPPLY AND GROUND CIRCUIT	224
		BCM (BODY CONTROL SYSTEM) (WITH INTELLIGENT KEY SYSTEM)	224

BCM (BODY CONTROL SYSTEM) (WITH INTELLIGENT KEY SYSTEM) : Diagnosis Procedure ...	224	Diagnosis Procedure	246	
BCM (BODY CONTROL SYSTEM) (WITHOUT INTELLIGENT KEY SYSTEM)	224	B20CF HEADLAMP (HI) RH POWER SUPPLY CIRCUIT	247	A
BCM (BODY CONTROL SYSTEM) (WITHOUT INTELLIGENT KEY SYSTEM) : Diagnosis Procedure	224	DTC Logic	247	B
OPTICAL SENSOR	226	Diagnosis Procedure	247	
Component Function Check	226	B20D0 HEADLAMP (LO) LH POWER SUPPLY CIRCUIT	248	C
Diagnosis Procedure	226	DTC Logic	248	
HAZARD SWITCH	229	Diagnosis Procedure	248	D
Component Function Check	229	B20D1 HEADLAMP (LO) RH POWER SUPPLY CIRCUIT	249	E
Diagnosis Procedure	229	DTC Logic	249	
TURN SIGNAL LAMP CIRCUIT	231	Diagnosis Procedure	249	
Description	231	B20D2 PARKING LAMP POWER SUPPLY CIRCUIT	250	F
Component Function Check	231	DTC Logic	250	
Diagnosis Procedure	231	Diagnosis Procedure	250	
B121A FRONT FOG LAMP LH POWER SUPPLY CIRCUIT	234	B20D4 TAIL LAMP LH POWER SUPPLY CIRCUIT	251	G
DTC Logic	234	DTC Logic	251	
Diagnosis Procedure	234	Diagnosis Procedure	251	H
B1231 DAYTIME RUNNING LIGHT RH POWER SUPPLY CIRCUIT	235	B20D5 TAIL LAMP RH POWER SUPPLY CIRCUIT	252	I
DTC Logic	235	DTC Logic	252	
Diagnosis Procedure	235	Diagnosis Procedure	252	
B1256 FRONT FOG LAMP RH POWER SUPPLY CIRCUIT	236	B20DB HEIGHT SENSOR INITIALIZE NOT DONE	253	J
DTC Logic	236	DTC Logic	253	
Diagnosis Procedure	236	Diagnosis Procedure	253	K
B1C00 HEIGHT SENSOR POWER SUPPLY CIRCUIT	237	B20E2 LED HEADLAMP RH	254	EXL
DTC Logic	237	DTC Logic	254	
Diagnosis Procedure	237	Diagnosis Procedure	254	
B1C01 FRONT HEIGHT SENSOR SIGNAL ...	239	B20E3 LED HEADLAMP LH	255	M
DTC Logic	239	DTC Logic	255	
Diagnosis Procedure	239	Diagnosis Procedure	255	
B1C02 REAR HEIGHT SENSOR SIGNAL	241	SYMPTOM DIAGNOSIS	256	N
DTC Logic	241	EXTERIOR LIGHTING SYSTEM SYMPTOMS.	256	
Diagnosis Procedure	241	Symptom Table	256	
B1C07 AIMING MOTOR DRIVE SIGNAL	243	NORMAL OPERATING CONDITION	258	O
DTC Logic	243	Description	258	
Diagnosis Procedure	243	BOTH SIDE HEADLAMPS (HI) ARE NOT TURNED ON	259	P
B20CB DAYTIME RUNNING LIGHT LH POWER SUPPLY CIRCUIT	245	Description	259	
DTC Logic	245	Diagnosis Procedure	259	
Diagnosis Procedure	245	BOTH SIDE HEADLAMPS (LO) ARE NOT TURNED ON	260	
B20CE HEADLAMP (HI) LH POWER SUPPLY CIRCUIT	246	Description	260	
DTC Logic	246			

Diagnosis Procedure	260	HAZARD SWITCH	276
PARKING, LICENSE PLATE, SIDE MARKER AND TAIL LAMPS ARE NOT TURNED ON ..	261	Exploded View	276
Description	261	Removal and Installation	276
Diagnosis Procedure	261	SIDE TURN SIGNAL LAMP	277
BOTH SIDE FRONT FOG LAMPS ARE NOT TURNED ON	262	Removal and Installation	277
Description	262	Bulb Replacement	277
Diagnosis Procedure	262	REAR COMBINATION LAMP	278
PERIODIC MAINTENANCE	263	Exploded View	278
HEADLAMP AIMING ADJUSTMENT	263	Removal and Installation	278
Inspection	263	Bulb Replacement	278
Aiming Adjustment Procedure	264	HIGH-MOUNTED STOP LAMP	280
FRONT FOG LAMP AIMING ADJUSTMENT .	266	Exploded View	280
Aiming Adjustment Procedure	266	Removal and Installation	280
REMOVAL AND INSTALLATION	268	Bulb Replacement	280
FRONT COMBINATION LAMP	268	BACK-UP LAMP ASSEMBLY	281
Exploded View	268	Exploded View	281
Removal and Installation	268	Removal and Installation	281
Bulb Replacement	268	Bulb Replacement	281
HEIGHT SENSOR	270	LICENSE PLATE LAMP	283
Exploded View	270	Exploded View	283
Removal and Installation - Front Height Sensor ...	270	Removal and Installation	283
Exploded View	271	Bulb Replacement	283
Removal and Installation - Rear Height Sensor ...	271	UNIT DISASSEMBLY AND ASSEMBLY ..	285
FOG LAMP	272	FRONT COMBINATION LAMP	285
Exploded View	272	Exploded View	285
Removal and Installation	272	Disassembly and Assembly	285
Bulb Replacement	272	REAR COMBINATION LAMP	286
OPTICAL SENSOR	274	Exploded View	286
Removal and Installation	274	Disassembly and Assembly	286
COMBINATION SWITCH	275	SERVICE DATA AND SPECIFICATIONS (SDS)	287
Exploded View	275	SERVICE DATA AND SPECIFICATIONS (SDS)	287
Removal and Installation	275	Bulb Specifications	287

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010336851

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Precaution for Work

INFOID:0000000010336852

- When removing or disassembling each component, be careful not to damage or deform it. If a component may be subject to interference, be sure to protect it with a shop cloth.
- When removing (disengaging) components with a screwdriver or similar tool, be sure to wrap the component with a shop cloth or vinyl tape to protect it.
- Protect the removed parts with a shop cloth and prevent them from being dropped.
- Replace a deformed or damaged clip.
- If a part is specified as a non-reusable part, always replace it with a new one.
- Be sure to tighten bolts and nuts securely to the specified torque.
- After installation is complete, be sure to check that each part works properly.
- Follow the steps below to clean components:
 - Water soluble dirt:
 - Dip a soft cloth into lukewarm water, wring the water out of the cloth and wipe the dirty area.
 - Then rub with a soft, dry cloth.
 - Oily dirt:
 - Dip a soft cloth into lukewarm water with mild detergent (concentration: within 2 to 3%) and wipe the dirty area.
 - Then dip a cloth into fresh water, wring the water out of the cloth and wipe the detergent off.
 - Then rub with a soft, dry cloth.
 - Do not use organic solvent such as thinner, benzene, alcohol or gasoline.
 - For genuine leather seats, use a genuine leather seat cleaner.

A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

PREPARATION

< PREPARATION >

[HALOGEN HEADLAMP]

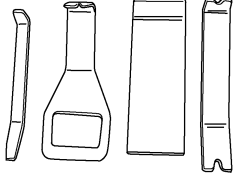
PREPARATION

PREPARATION

Special Service Tool

INFOID:0000000010351310

The actual shape of the tools may differ from those illustrated here.

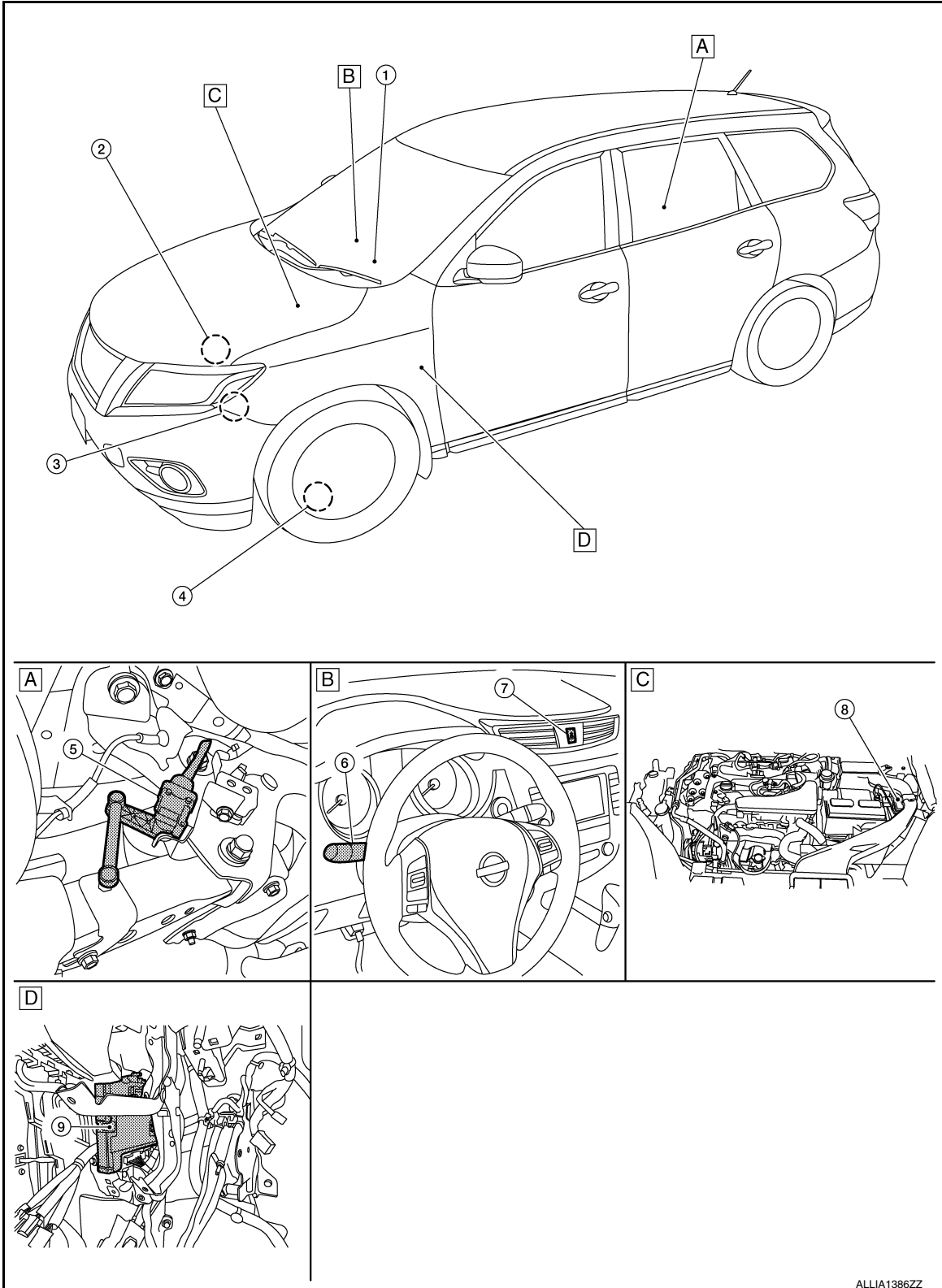
Tool number (TechMate No.) Tool name	Description
— (J-46534) Trim Tool Set  AWJIA0483ZZ	Removing trim components

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:0000000010286948



A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[HALOGEN HEADLAMP]

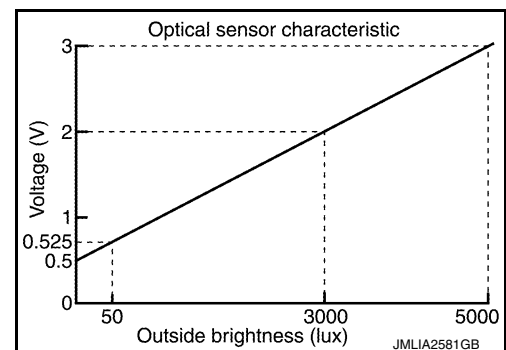
- | | | |
|---|---------------------|-----------------------|
| A. Right rear wheel area | B. Instrument panel | C. Engine compartment |
| D. Left side of instrument panel (view with trim panel removed) | | |

No.	Part	Function
1.	Optical sensor	Refer to EXL-10, "Optical Sensor" .
2.	LED headlamp control module	Turns the headlamps ON according to the power supply from IPDM E/R.
3.	Headlamp aiming motor	Moves the headlamps up/down based on inputs from the front and rear height sensors.
4.	Front height sensor	Sends the vehicles pitch angle signal to the IPDM E/R necessary for adjusting the headlamp aiming motors.
5.	Rear height sensor	Sends the vehicles pitch angle signal to the IPDM E/R necessary for adjusting the headlamp aiming motors.
6.	Combination switch (Lighting and turn signal switch)	Refer to BCS-9, "COMBINATION SWITCH READING SYSTEM : System Description" (with Intelligent Key) or BCS-81, "COMBINATION SWITCH READING SYSTEM : System Description" (without Intelligent Key).
7.	Hazard switch	Refer to EXL-11, "Hazard Switch" .
8.	IPDM E/R	- Supplies voltage to the load according to the request from BCM (via CAN communication). - Refer to PCS-4, "Component Parts Location" for detailed installation location.
9.	BCM	- Detects each switch condition by the combination switch reading function. - Judges that the exterior lamps are turned ON according to the vehicle condition. - Requests the headlamp (HI/LO), tail lamp and front fog lamp ON to IPDM E/R (via CAN communication). - Requests high beam indicator lamp ON to the combination meter (via CAN communication). - Judges the outside brightness from the optical sensor signal. - Judges the ON/OFF timing according to the vehicle condition. - Judges the ON/OFF status of the exterior lamp according to the outside brightness and the vehicle condition. - Refer to BCS-7, "BODY CONTROL SYSTEM : Component Parts Location" (with Intelligent Key) or BCS-79, "BODY CONTROL SYSTEM : Component Parts Location" (without Intelligent Key).

Optical Sensor

INFOID:000000010286949

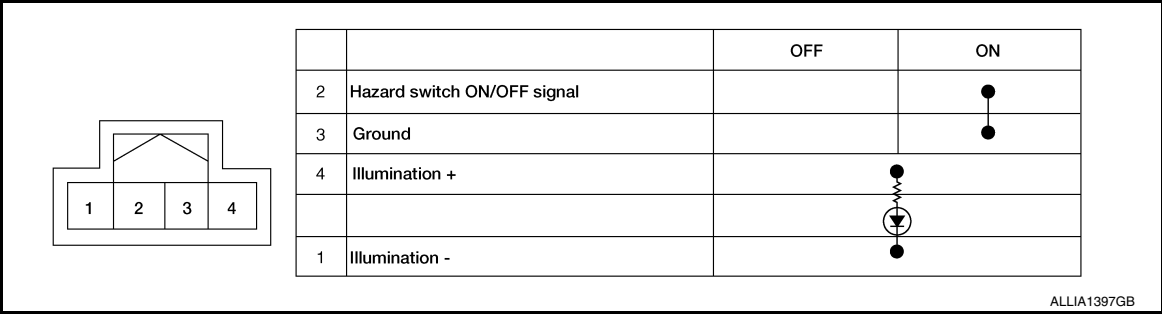
Optical sensor converts the outside brightness (lux) to voltage and transmits the optical sensor signal to BCM.



Hazard Switch

INFOID:0000000010286950

Inputs the hazard switch ON/OFF signal to BCM.



A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

EXL

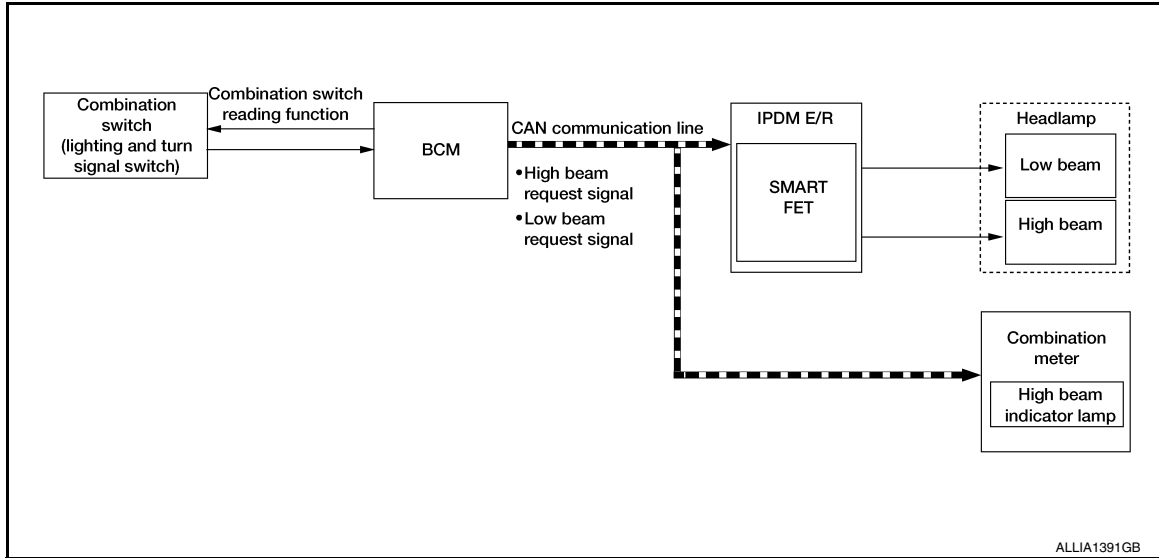
SYSTEM

HEADLAMP SYSTEM

HEADLAMP SYSTEM : System Description

INFOID:0000000010336173

SYSTEM DIAGRAM



OUTLINE

Headlamp is controlled by combination switch reading function and headlamp control function of BCM, and Smart FET control function of IPDM E/R.

HEADLAMP (LO) OPERATION

- BCM detects the combination switch condition with the combination switch reading function.
- BCM transmits the low beam request signal to IPDM E/R with CAN communication according to the headlamp (LO) ON condition.

Headlamp (LO) ON condition

- Lighting switch 2ND
- Lighting switch AUTO (auto light function ON judgment)
- Lighting switch AUTO, with the front fog lamp switch ON and the power switch ON
- Lighting switch PASS

HEADLAMP (HI) OPERATION

- BCM transmits the high beam request signal to IPDM E/R and the combination meter with CAN communication according to the headlamp (HI) ON condition.

Headlamp (HI) ON condition:

- Lighting switch HI with the lighting switch 2ND or AUTO (auto light function ON judgment)
- Lighting switch PASS
- Lighting switch AUTO, with the front fog lamp switch ON, the power switch ON and lighting switch HI
- Combination meter turns the high beam indicator lamp ON according to the high beam request signal.
- IPDM E/R turns the headlamp ON according to the high beam request signal.

HEADLAMP SYSTEM : Fail-Safe

INFOID:0000000010336174

CAN COMMUNICATION CONTROL

When CAN communication with BCM is impossible, IPDM E/R performs fail-safe control. After CAN communication recovers normally, it also returns to normal control.

If no CAN communication is available with BCM

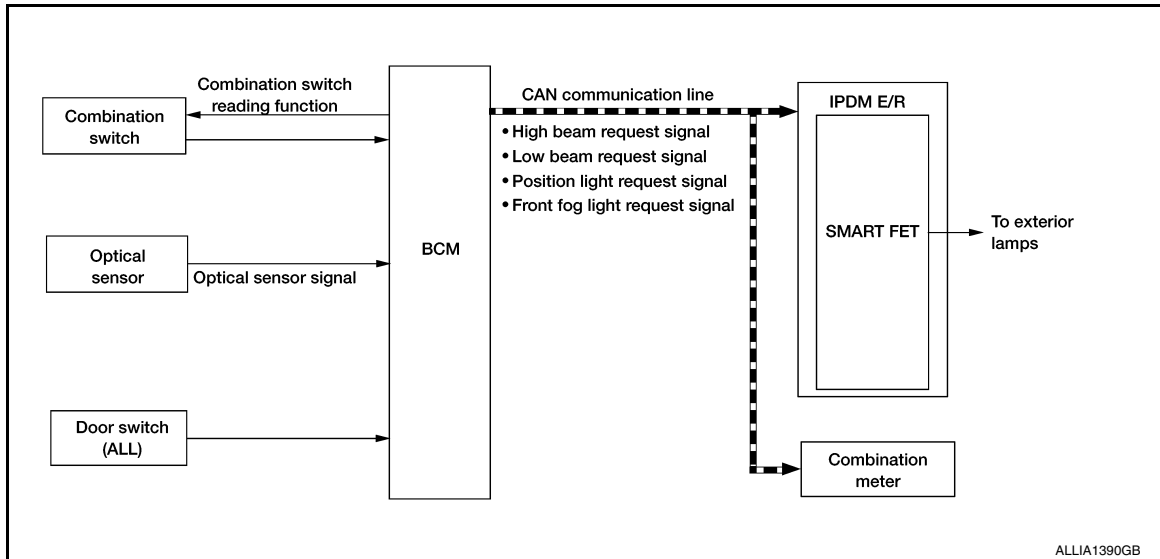
Control part	Fail-safe operation
Headlamp	• Turns ON the headlamp low beam when the power switch is turned ON • Turns OFF the headlamp low beam when the power switch is turned OFF

AUTO LIGHT SYSTEM

AUTO LIGHT SYSTEM : System Description

INFOID:0000000010336175

SYSTEM DIAGRAM



OUTLINE

- Auto light system is controlled by each function of BCM and IPDM E/R.

Controlled by BCM:

- Combination switch reading function
- Headlamp control function
- Auto light function
- Delay timer function
- Auto light adjustment system

Controlled by IPDM E/R:

- Auto light system has the auto light function and delay timer function.
- Auto light function automatically turns ON/OFF the exterior lamps* and each illumination automatically, depending on the outside brightness.
- When auto light system turns the exterior lamps ON with the power switch OFF, delay timer function turns the exterior lamps OFF, depending on the vehicle condition with the auto light function after a certain period of time.

*: Headlamp (LO/HI), parking lamp, side marker lamp, tail lamp and front fog lamp (Headlamp HI and front fog lamp depend on the combination switch condition).

AUTO LIGHT FUNCTION

- BCM detects the combination switch condition with the combination switch reading function.
- BCM supplies voltage to optical sensor when the power switch is turned ON or ACC.
- Optical sensor converts outside brightness (lux) to voltage and transmits the optical sensor signal to BCM.
- BCM judges outside brightness from the optical sensor signal and judges ON/OFF condition of the exterior lamp and each illumination according to the outside brightness.
- BCM transmits each request signal to IPDM E/R and combination meter via CAN communication according to ON/OFF condition by the auto light function.

NOTE:

ON/OFF timing differs based on the sensitivity from the setting. The setting can be set by CONSULT. Refer to.

AUTO LIGHT ADJUSTMENT SYSTEM

< SYSTEM DESCRIPTION >

The auto light adjustment system automatically, dims/brightens the display, according to brightness outside the vehicle, when lighting switch 1ST, lighting switch 2ND or lighting switch AUTO is operated. Refer to [EXL-13, "AUTO LIGHT SYSTEM : System Description"](#).

DELAY TIMER FUNCTION

BCM turns the exterior lamp OFF depending on the vehicle condition with the auto light function when the power switch is turned OFF.

- Turns the exterior lamp OFF 5 minutes after detecting that any door opens. (Door switch ON).
- Turns the exterior lamp OFF a certain period of time* after closing all doors. (Door switch ON→OFF).
- Turns the exterior lamp OFF with the power switch ACC or the light switch OFF.

*: The preset time is 45 seconds. The timer operating time can be set by CONSULT. Refer to [BCS-19, "HEADLAMP : CONSULT Function \(BCM - HEADLAMP\)"](#) (with Intelligent Key) or [BCS-90, "HEADLAMP : CONSULT Function \(BCM - HEADLAMP\)"](#) (without Intelligent Key).

NOTE:

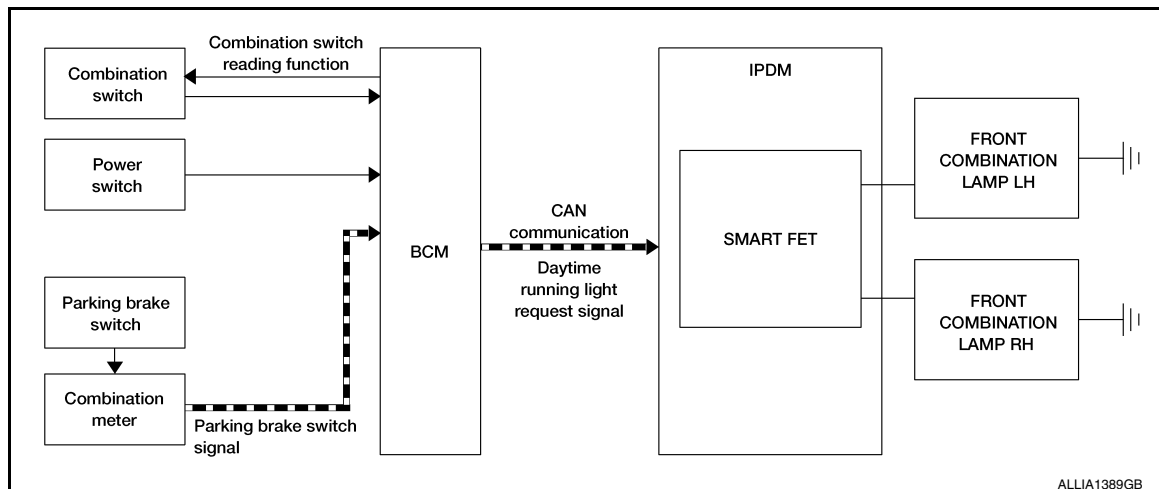
When any position other than the light switch AUTO is set, the auto light system function switches to the exterior lamp battery saver function.

DAYTIME RUNNING LIGHT SYSTEM

DAYTIME RUNNING LIGHT SYSTEM : System Description

INFOID:000000010336176

SYSTEM DIAGRAM



OUTLINE

- Daytime running light is controlled by daytime running light control function and combination switch reading function of BCM, and smart FET of IPDM E/R.

DAYTIME RUNNING LIGHT OPERATION

- BCM detects the combination switch condition by the combination switch reading function.
- BCM detects the vehicle condition according to power switch
- BCM detects the parking brake condition by the parking brake switch signal received from combination meter using CAN communication.
- BCM transmits the daytime running light request signal to IPDM E/R using CAN communication according to the daytime running light ON condition.

Daytime running light ON condition:

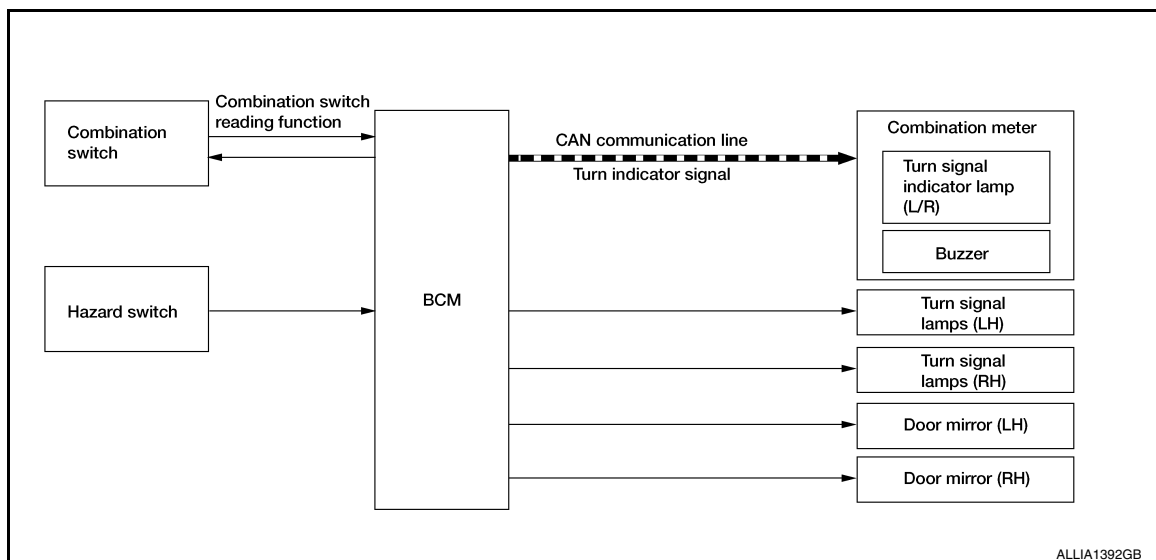
- Vehicle condition READY
- Lighting switch OFF or 1ST
- Lighting switch AUTO, and the auto light function OFF judgment
- Parking brake switch OFF
- IPDM E/R controls the daytime running light request signal.
- Power is supplied from the IPDM E/R to the daytime lights.

TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM : System Description

INFOID:000000010336177

SYSTEM DIAGRAM



OUTLINE

Turn signal lamp and the hazard warning lamp is controlled by combination switch reading function and the flasher control function of BCM.

TURN SIGNAL LAMP OPERATION

- BCM detects the combination switch condition by the combination switch reading function.
- BCM supplies voltage to the right (left) turn signal lamp circuit when the power switch is ON and the turn signal switch is in the right (left) position. BCM blinks the turn signal lamp.

HAZARD WARNING LAMP OPERATION

BCM supplies voltage to both turn signal lamp circuit when the hazard switch is ON. BCM blinks the hazard warning lamp.

TURN SIGNAL INDICATOR LAMP AND TURN SIGNAL OPERATION

- BCM transmits the turn signal indicator lamp signal to the combination meter using CAN communication while the turn signal lamp and the hazard warning lamp are operating.
- Combination meter outputs the turn signal sound with the integrated buzzer while blinking the turn signal indicator lamp according to the turn signal indicator lamp signal.

HIGH FLASHER OPERATION

- BCM detects the turn signal lamp circuit status from the current value.
- BCM increases the turn signal lamp blinking speed if the bulb or harness open is detected with the turn signal lamp operating.

NOTE:

The blinking speed is normal while operating the hazard warning lamp.

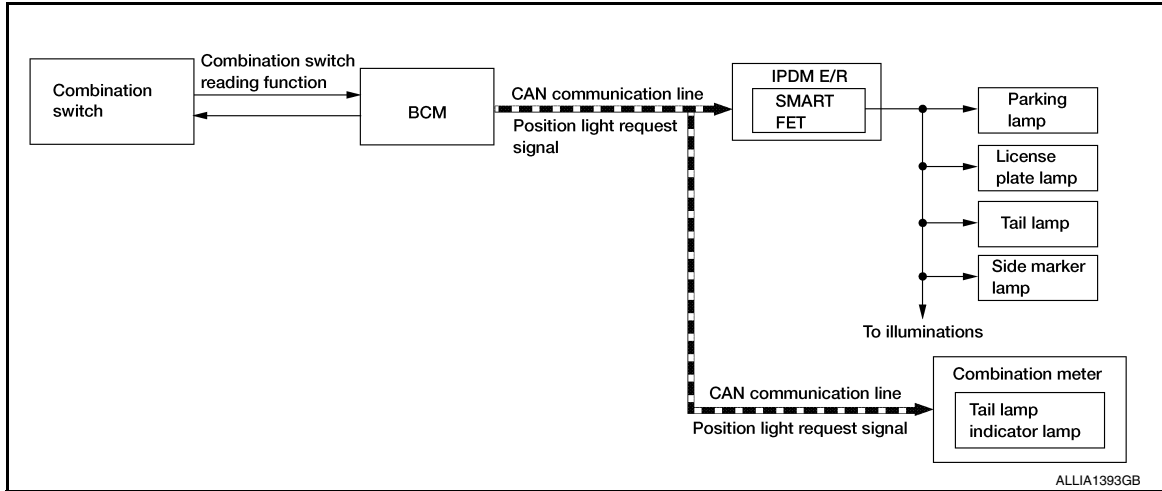
PARKING, LICENSE PLATE, SIDE MARKER AND TAIL LAMP SYSTEM

PARKING, LICENSE PLATE, SIDE MARKER AND TAIL LAMP SYSTEM : System De-

scription

INFOID:000000010336178

SYSTEM DIAGRAM



OUTLINE

Parking, license plate, side marker and tail lamps are controlled by combination switch reading function and headlamp control function of BCM, and smart FET of IPDM E/R.

PARKING, LICENSE PLATE, SIDE MARKER AND TAIL LAMPS OPERATION

- BCM detects the combination switch condition by the combination switch reading function.
- BCM transmits the position light request signal to IPDM E/R and the combination meter via CAN communication according to the ON/OFF condition of the parking, license plate, side marker and tail lamps.

Parking, license plate, side marker and tail lamps ON condition:

- Lighting switch 1ST
- Lighting switch 2ND
- Lighting switch AUTO, and the auto light function ON judgment
- Lighting switch AUTO, with the front fog lamp switch ON and the power switch ON
- IPDM E/R turns the parking, license plate, side marker and tail lamps ON according to the position light request signal.
- Combination meter turns the tail lamp indicator lamp ON according to the position light request signal.

PARKING, LICENSE PLATE, SIDE MARKER AND TAIL LAMP SYSTEM : Fail-Safe

INFOID:000000010336179

CAN COMMUNICATION CONTROL

When CAN communication with BCM is impossible, IPDM E/R performs fail-safe control. After CAN communication recovers normally, it also returns to normal control.

If no CAN communication is available with BCM

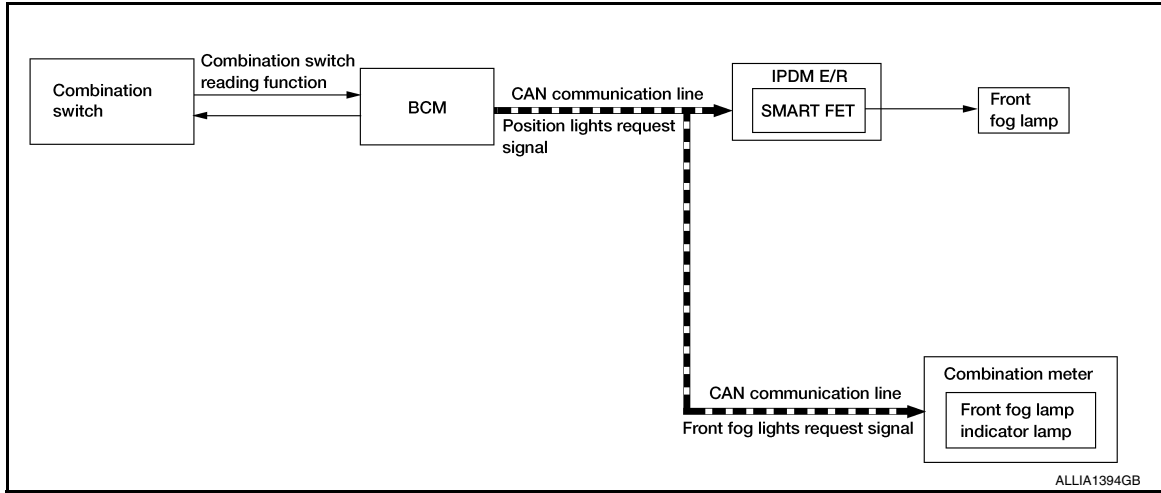
Control part	Fail-safe operation
• Parking lamp • License plate lamp • Illumination • Tail lamp • Side marker lamp	• Turns ON the tail lamp when the power switch is turned ON • Turns OFF the tail lamp when the power switch is turned OFF

FRONT FOG LAMP SYSTEM

FRONT FOG LAMP SYSTEM : System Description

INFOID:0000000010336180

SYSTEM DIAGRAM



OUTLINE

Front fog lamp is controlled by combination switch reading function, front fog lamp control function of BCM, and smart FET function of IPDM E/R.

FRONT FOG LAMP OPERATION

- BCM detects the combination switch condition by the combination switch reading function.
- BCM transmits the front fog lights request signal to IPDM E/R and the combination meter via CAN communication according to the front fog lamp ON condition.

Front fog lamp ON condition:

- Front fog lamp switch ON, and any of the following condition is satisfied (except for the high beam ON).
- Lighting switch 2ND
- Lighting switch AUTO and the power switch ON

IPDM E/R turns the front fog lamp ON according to the front fog lights request signal.

Combination meter turns the front fog lamp indicator lamp ON according to the front fog lights request signal.

FRONT FOG LAMP SYSTEM : Fail-Safe

INFOID:0000000010336181

CAN COMMUNICATION CONTROL

When CAN communication with BCM is impossible, IPDM E/R performs fail-safe control. After CAN communication recovers normally, it also returns to normal control.

If no CAN communication is available with BCM

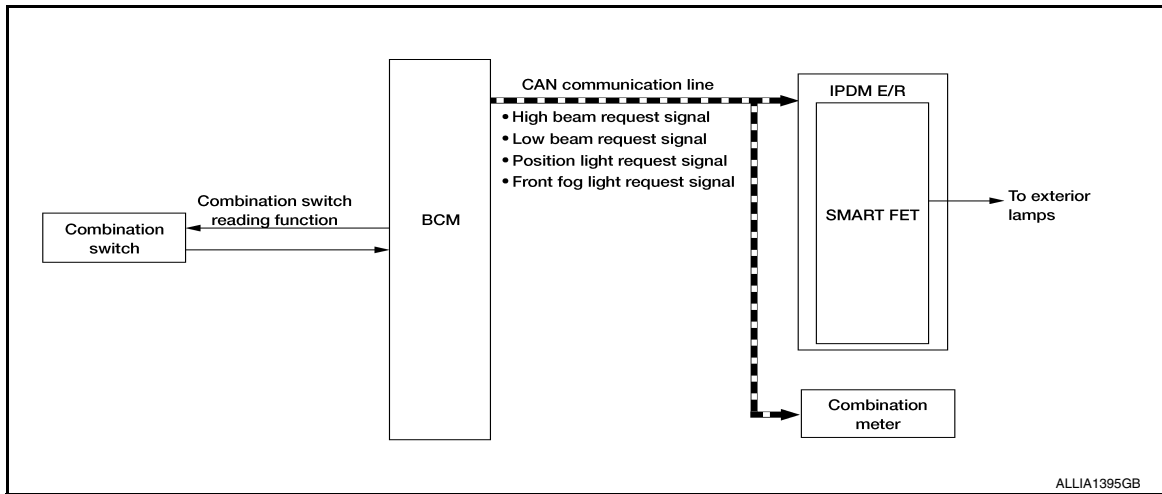
Control part	Fail-safe operation
Front fog lamp	Front fog lamp OFF

EXTERIOR LAMP BATTERY SAVER SYSTEM

EXTERIOR LAMP BATTERY SAVER SYSTEM : System Description

INFOID:000000010336182

SYSTEM DIAGRAM



OUTLINE

- Exterior lamp battery saver system is controlled by each function of BCM and IPDM E/R.

Controlled by BCM:

- Combination switch reading function
- Headlamp control function
- Exterior lamp battery saver function

Controlled by IPDM E/R:

- BCM turns the exterior lamps* OFF after a period of time to prevent the battery from over-discharge when the power switch is turned OFF with the exterior lamps ON.

*: Headlamp (LO/HI), parking lamp, tail lamp, side marker lamp, license plate lamp and front fog lamp

EXTERIOR LAMP BATTERY SAVER ACTIVATION

BCM activates the timer and turns the exterior lamp OFF 5 minutes after the power switch is turned from ON → OFF with the exterior lamps ON.

NOTE:

- Headlamp control function turns the exterior lamps ON normally when the power switch is turned ACC or set the vehicle to READY (both before and after the exterior lamp battery saver is turned OFF).
- The timer starts at the time that the lighting switch is turned from OFF → 1ST or 2ND with the exterior lamps OFF.

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[HALOGEN HEADLAMP]

DIAGNOSIS SYSTEM (BCM) WITH INTELLIGENT KEY

WITH INTELLIGENT KEY : CONSULT Function (BCM - COMMON ITEM) INFOID:0000000010287175

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with BCM.

Direct Diagnostic Mode	Description
Ecu Identification	The BCM part number is displayed.
Self Diagnostic Result	The BCM self diagnostic results are displayed.
Data Monitor	The BCM input/output data is displayed in real time.
Active Test	The BCM activates outputs to test components.
Work support	The settings for BCM functions can be changed.
Configuration	- The vehicle specification can be read and saved. - The vehicle specification can be written when replacing BCM.
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.

SYSTEM APPLICATION

BCM can perform the following functions.

System	Sub System	Direct Diagnostic Mode						
		Ecu Identification	Self Diagnostic Result	Data Monitor	Active Test	Work support	Configuration	CAN Diag Support Mntr
Door lock	DOOR LOCK		x	x	x	x		
Rear window defogger	REAR DEFOGGER			x	x	x		
Warning chime	BUZZER			x	x			
Interior room lamp timer	INT LAMP			x	x	x		
Exterior lamp	HEADLAMP			x	x	x		
Wiper and washer	WIPER			x	x	x		
Turn signal and hazard warning lamps	FLASHER			x	x			
Intelligent Key system	INTELLIGENT KEY		x	x	x	x		
Combination switch	COMB SW			x				
BCM	BCM	x	x			x	x	x
Immobilizer	IMMU		x	x	x			
Interior room lamp battery saver	BATTERY SAVER			x	x			
Back door open	TRUNK			x				
Vehicle security system	THEFT ALM			x	x	x		
RAP system	RETAINED PWR			x				
Signal buffer system	SIGNAL BUFFER			x				
TPMS	AIR PRESSURE MONITOR		x	x	x	x		

WITH INTELLIGENT KEY : CONSULT Function (BCM - HEADLAMP)

INFOID:0000000010287176

DATA MONITOR

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[HALOGEN HEADLAMP]

Monitor Item [Unit]	Description
PUSH SW [On/Off]	Indicates condition of push-button ignition switch.
ENGINE STATE [STOP/STALL/CRANK/RUN]	Indicates engine status received from ECM on CAN communication line.
VEH SPEED 1 [km/h]	Indicates vehicle speed signal received from ABS on CAN communication line.
TURN SIGNAL R [On/Off]	Indicates condition of combination switch.
TURN SIGNAL L [On/Off]	
TAIL LAMP SW [On/Off]	
HI BEAM SW [On/Off]	
HEAD LAMP SW [On/Off]	
LIGHT OFF SW [On/Off]	
PASSING SW [On/Off]	
AUTO LIGHT SW [On/Off]	
FR FOG SW [On/Off]	
DOOR SW-DR [On/Off]	Indicates condition of front door switch LH.
DOOR SW-AS [On/Off]	Indicates condition of front door switch RH.
DOOR SW-RR [On/Off]	Indicates condition of rear door switch RH.
DOOR SW-RL [On/Off]	Indicates condition of rear door switch LH.
DOOR SW-BK [On/Off]	Indicates condition of back door switch.
OPTI SEN (DTCT) [V]	Indicates outside brightness voltage signal from optical sensor.
OPTI SEN (FILT) [V]	Indicates outside brightness voltage signal from optical sensor filtered by BCM.

ACTIVE TEST

Test Item	Description
FR FOG LAMP	This test is able to check front fog lamp operation [On/Off].
STOP LAMP 1	This test is able to check rear combination lamp stop lamp operation [On/Off].
STOP LAMP 3	This test is able to check high-mounted stop lamp operation [On/Off].

WORK SUPPORT

Support Item	Setting	Description
TWILIGHT ON	MODE2*	Autolamp function ON.
	MODE1	Autolamp function OFF.
CUSTOM A/LIGHT SETTING	MODE4	Less sensitive than normal setting (turns ON later).
	MODE3	More sensitive than MODE2.
	MODE2	More sensitive than normal setting (turns ON earlier).
	MODE1*	Normal setting.
ILL DELAY SET	MODE 8	Autolamp delay timer.
	MODE 7	
	MODE 6	
	MODE 4	
	MODE 5	
	MODE 3	
	MODE 2	
	MODE 1*	

*: Initial setting

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[HALOGEN HEADLAMP]

WITH INTELLIGENT KEY : CONSULT Function (BCM - FLASHER)

INFOID:000000010287177

DATA MONITOR

Monitor Item [Unit]	Description
REQ SW -DR [On/Off]	Indicates condition of door request switch LH.
REQ SW -AS [On/Off]	Indicates condition of door request switch RH.
PUSH SW [On/Off]	Indicates condition of push-button ignition switch.
TURN SIGNAL R [On/Off]	Indicates condition of turn signal function of combination switch.
TURN SIGNAL L [On/Off]	
HAZARD SW [On/Off]	Indicates condition of hazard switch.
RKE-LOCK [On/Off]	Indicates condition of lock signal from Intelligent Key.
RKE-UNLOCK [On/Off]	Indicates condition of unlock signal from Intelligent Key.
RKE-PANIC [On/Off]	Indicates condition of panic alarm signal from Intelligent Key.

ACTIVE TEST

Test Item	Description
FLASHER	This test is able to check turn signal lamp operation [Off/LH/RH].

WITHOUT INTELLIGENT KEY

WITHOUT INTELLIGENT KEY : CONSULT Function (BCM - COMMON ITEM)

INFOID:000000010287178

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with BCM.

Direct Diagnostic Mode	Description
Ecu Identification	The BCM part number is displayed.
Self Diagnostic Result	The BCM self diagnostic results are displayed.
Data Monitor	The BCM input/output data is displayed in real time.
Active Test	The BCM activates outputs to test components.
Work support	The settings for BCM functions can be changed.
Configuration	- The vehicle specification can be read and saved. - The vehicle specification can be written when replacing BCM.
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.

SYSTEM APPLICATION

BCM can perform the following functions.

System	Sub System	Direct Diagnostic Mode						
		Ecu Identification	Self Diagnostic Result	Data Monitor	Active Test	Work support	Configuration	CAN Diag Support Mntr
Door lock	DOOR LOCK			×	×	×		
Rear window defogger	REAR DEFOGGER			×	×	×		

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[HALOGEN HEADLAMP]

System	Sub System	Direct Diagnostic Mode						
		Ecu Identification	Self Diagnostic Result	Data Monitor	Active Test	Work support	Configuration	CAN Diag Support Mntr
Warning chime	BUZZER			×	×			
Interior room lamp timer	INT LAMP			×	×	×		
Remote keyless entry system	MULTI REMOTE ENT					×		
Exterior lamp	HEADLAMP			×	×			
Wiper and washer	WIPER			×	×	×		
Turn signal and hazard warning lamps	FLASHER			×	×			
Combination switch	COMB SW			×				
BCM	BCM	×	×			×	×	×
Immobilizer	IMMU		×		×			
Interior room lamp battery saver	BATTERY SAVER			×	×			
Back door open	TRUNK			×				
Vehicle security system	THEFT ALM			×	×	×		
RAP system	RETAINED PWR			×				
TPMS	AIR PRESSURE MONITOR		×	×	×	×		

WITHOUT INTELLIGENT KEY : CONSULT Function (BCM - HEADLAMP) INFOID:0000000010287179

DATA MONITOR

Monitor Item [Unit]	Description
TURN SIGNAL R [On/Off]	Indicates condition of combination switch.
TURN SIGNAL L [On/Off]	
TAIL LAMP SW [On/Off]	
HI BEAM SW [On/Off]	
HEAD LAMP SW [On/Off]	
LIGHT OFF SW [On/Off]	
PASSING SW [On/Off]	
DOOR SW-DR [On/Off]	Indicates condition of front door switch LH.
DOOR SW-AS [On/Off]	Indicates condition of front door switch RH.
DOOR SW-RR [On/Off]	Indicates condition of rear door switch RH.
DOOR SW-RL [On/Off]	Indicates condition of rear door switch LH.
DOOR SW-BK [On/Off]	Indicates condition of back door switch.

ACTIVE TEST

Test Item	Description
DAYTIME RUNNING LIGHT	This test is able to check daytime running lamp operation [On/Off].
ILL DIM SIGNAL	This test is able to check head lamp illumination dimming operation [On/Off].

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[HALOGEN HEADLAMP]

WITHOUT INTELLIGENT KEY : CONSULT Function (BCM - FLASHER)

INFOID:0000000010287180

DATA MONITOR

Monitor Item [Unit]	Description
TURN SIGNAL R [On/Off]	Indicates condition of turn signal function of combination switch.
TURN SIGNAL L [On/Off]	
HAZARD SW [On/Off]	Indicates condition of hazard switch.
RKE-LOCK [On/Off]	Indicates condition of lock signal from Intelligent Key.
RKE-UNLOCK [On/Off]	Indicates condition of unlock signal from Intelligent Key.
RKE-PANIC [On/Off]	Indicates condition of panic alarm signal from Intelligent Key.

ACTIVE TEST

Test Item	Description
FLASHER	This test is able to check turn signal lamp operation [Off/LH/RH].

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (IPDM E/R)

CONSULT Function (IPDM E/R)

INFOID:000000010287181

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with IPDM E/R.

Direct Diagnostic Mode	Description
Ecu Identification	The IPDM E/R part number is displayed.
Self Diagnostic Result	The IPDM E/R self diagnostic results are displayed.
Data Monitor	The IPDM E/R input/output data is displayed in real time.
Active Test	The IPDM E/R activates outputs to test components.
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.

ECU IDENTIFICATION

The IPDM E/R part number is displayed.

SELF DIAGNOSTIC RESULT

Refer to [PCS-20. "DTC Index"](#).

DATA MONITOR

Monitor Item [Unit]	Description
REVERSE SIGNAL [Open/Close]	Indicates condition of transmission range switch R (Reverse) position.
IGN RELAY [Open/Close]	Indicates condition of ignition relay-1.
PUSH SW [Open/Close]	Indicates condition of push-button ignition switch.
INTERLOCK/PNP SW [Open/Close]	Indicates condition of transmission range switch P (Park) and N (Neutral) positions.
OIL PRESSURE SW [Open/Close]	Indicates condition of oil pressure switch.
HOOD SW [Open/Close]	Indicates condition of hood switch.
COMPRESSOR [OFF/ON]	Indicates condition of A/C compressor.
HORN RELAY [OFF/ ON]	Indicates condition of horn relay.
COOLING FAN [OFF/ON]	Indicates condition of cooling fan relay-1.
FRONT WIPER HI/LO RELAY [OFF/ON]	Indicates condition of front wiper high relay.
FRONT WIPER RELAY [OFF/ON]	Indicates condition of front wiper relay.
IGN RELAY OFF STATUS [OFF/ON]	Indicates condition of ignition relay-1 OFF status.
IGN RELAY ON STATUS [OFF/ON]	Indicates condition of ignition relay-1 ON status.
COOLING FAN RELAY 1 [OFF/ON]	Indicates condition of cooling fan relay-1.
STARTER RELAY [OFF/ON]	Indicates condition of starter relay.
COMP ECV DUTY [%]	Indicates condition of A/C compressor.
COOLING FAN RELAY 2 [%]	Indicates condition of cooling fan relay-2.
FR FOG LAMP LH [%]	Indicates condition of front fog lamp LH.
FR FOG LAMP RH [%]	Indicates condition of front fog lamp RH.
PARKING LAMP [%]	Indicates condition of parking lamp.
TAIL LAMP LH [%]	Indicates condition of tail lamp LH.
TAIL LAMP RH [%]	Indicates condition of tail lamp RH.
DAYTIME RUNNING LIGHT LH [%]	Indicates condition of daytime running light LH.
DAYTIME RUNNING LIGHT RH [%]	Indicates condition of daytime running light RH.
HEADLAMP (HI) LH [%]	Indicates condition of headlamp high beam LH.

DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

[HALOGEN HEADLAMP]

Monitor Item [Unit]	Description	
HEADLAMP (HI) RH [%]	Indicates condition of headlamp high beam RH.	A
HEADLAMP (LO) LH [%]	Indicates condition of headlamp low beam LH.	
HEADLAMP (LO) RH [%]	Indicates condition of headlamp low beam RH.	B
A/C RELAY STUCK [NG/OK]	Indicates condition of A/C relay.	
A/C RELAY [Off/On]	Indicates condition of A/C relay.	
COMP ECV STATUS [NG/OK]	Indicates condition of A/C compressor.	C
VEHICLE SECURITY HORN [Off/On]	Indicates condition of horn relay.	
BATTERY CURRENT SENSOR [NG/OK]	Indicates condition of battery current sensor.	D
FRONT FOG LAMP [Off/On]	Indicates condition of front fog lamps.	
COMP ECV CURRENT [A]	Indicates condition of A/C compressor current.	
BATTERY VOLTAGE [V]	Indicates condition of battery voltage.	E
COOLING FAN DUTY [%]	Indicates condition of cooling fans.	
HOOD SW (CAN) [OPEN/CLOSE]	Indicates condition of hood switch.	F
FRONT WIPER [STOP/LOW/HIGH]	Indicates condition of front wiper motor.	
FR WIPER STOP POSITION [STOP P/ACTIVE P]	Indicates condition of front wiper motor stop.	
HEADLAMP (HI) [Off/On]	Indicates condition of headlamp high beams.	G
HEADLAMP (LO) [Off/On]	Indicates condition of headlamp low beams.	
IGNITION RELAY STATUS [Off/On]	Indicates condition of ignition relay-1.	
IGN RELAY MONITOR [Off/On]	Indicates condition of ignition relay-1 feedback.	H
IGNITION POWER SUPPLY [Off/On]	Indicates condition of ignition relay-1.	
INTERLOCK/PNP SW (CAN) [Off/On]	Indicates condition of transmission range switch P (Park) and N (Neutral) positions.	I
PUSH-BUTTON IGN SW (CAN) [Off/On]	Indicates condition of push-button ignition switch.	
TAIL LAMP [Off/On]	Indicates condition of tail lamps.	J
REVERSE SIGNAL (CAN) [Off/On]	Indicates condition of transmission range switch R (Reverse) position.	
ST&ST CONT RELAY STATUS [Off/ST R On]	Indicates condition of starter cut and starter relays.	K
STARTER MOTOR STATUS [Off/On]	Indicates condition of starter motor.	
STARTER RELAY (CAN) [LOW/HIGH]	Indicates condition of starter relay.	
IPDM NOT SLEEP [NO RDY/RDY]	Indicates condition of IPDM E/R sleep status.	EXL
AFTER COOLING TIME [No request/Request]	Indicates condition of cooling fan request.	
AFTER COOLING SPEED [%]	Indicates condition of cooling fans.	M
COOLING FAN TYPE [NISSAN/RENAULT]	Indicates cooling fan type.	
COMPRESSOR REQ1 [Off/On]	Indicates condition of A/C compressor request.	
VHCL SECURITY HORN REQ [Off/On]	Indicates condition of horn relay request.	N
DTRL REQ [Off/On]	Indicates condition of daytime running light request.	
SLEEP/WAKE UP [WAKEUP/SLEEP]	Indicates condition of IPDM E/R sleep/wake.	O
CRANKING ENABLE-TCM [NG/OK]	Indicates condition of crank enable from TCM.	
CRANKING ENABLE-ECM [NG/OK]	Indicates condition of crank enable from ECM.	
CAN DIAGNOSIS [NG/OK]	Indicates condition of CAN diagnosis.	P
FRONT FOG LAMP REQ [Off/On]	Indicates condition of front fog lamp request.	
HIGH BEAM REQ [Off/On]	Indicates condition of headlamp high beam request.	
HORN CHIRP [Off/On]	Indicates condition of horn relay request.	
COOLING FAN REQ [%]	Indicates condition of cooling fan request.	
ENGINE STATUS [STOP/RUN/IDLING]	Indicates condition of engine status.	

DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

[HALOGEN HEADLAMP]

Monitor Item [Unit]	Description
TURN SIGNAL REQ [Off/LH/RH]	Indicates condition of turn signal request.
FR WIPER REQ [RETURN/LOW/HIGH]	Indicates condition of front wiper motor request.
SHIFT POSITION [P/R/N/D/L]	Indicates condition of transmission range switch positions.
LOW BEAM REQ [Off/On]	Indicates condition of headlamp low beam request.
POSITION LIGHT REQ [Off/On]	Indicates condition of parking lamp request.
COMPRESSOR REQ2 [Off/On]	Indicates condition of A/C compressor request.
IGNITION SW [Off/On]	Indicates condition of ignition switch.
VEHICLE SPEED (METER) [mph/km/h]	Indicates vehicle speed.
BAT DISCHARGE COUNT [0-100]	Indicates condition of battery discharge.
BATTERY STATUS [NG/OK]	Indicates battery status.

ACTIVE TEST

Test item	Description
HORN	This test is able to check horn operation [Off/On].
FRONT WIPER	This test is able to check wiper motor operation [Off/Low/High].
COMPRESSOR	This test is able to check A/C compressor operation [Off/On].
COOLING FAN (DUAL)	This test is able to check cooling fan operation [Off/LO/HI].
HEADLAMP (HI)	This test is able to check headlamp high beam operation [Off/3/5].
HEADLAMP (LO)	This test is able to check headlamp low beam operation [Off/3/5].
FRONT FOG LAMP	This test is able to check front fog lamp operation [Off/3/5].
DAYTIME RUNNING LAMP	This test is able to check daytime running lamp operation [Off/3/5].
PARKING LAMP	This test is able to check parking lamp operation [Off/3/5].
TAIL LAMP	This test is able to check tail lamp operation [Off/3/5].

CAN DIAG SUPPORT MNTR

Refer to [LAN-14, "CAN Diagnostic Support Monitor"](#).

ECU DIAGNOSIS INFORMATION

BCM, IPDM E/R

List of ECU Reference

INFOID:0000000010286972

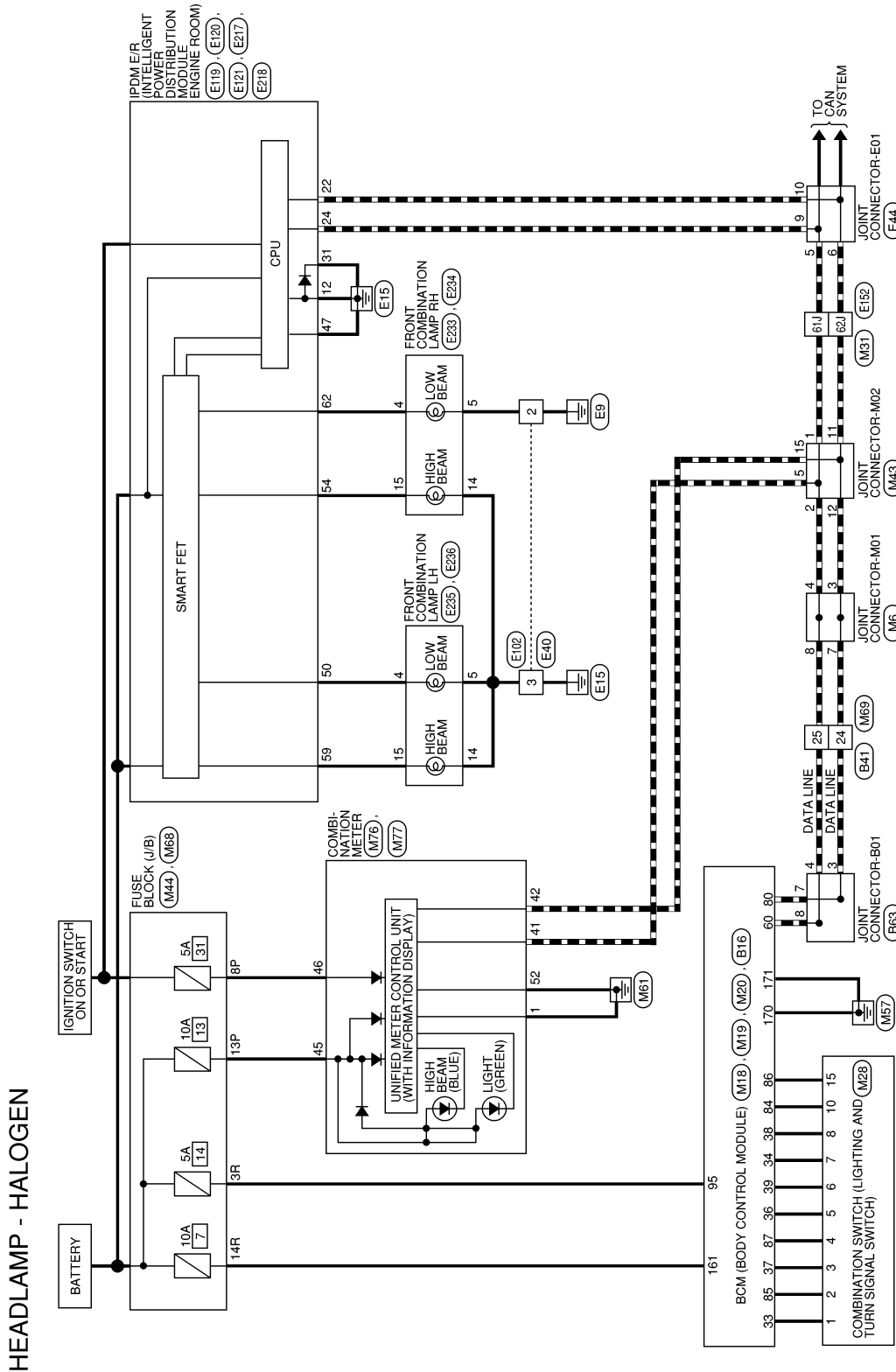
ECU	Reference
BCM	BCS-28, "Reference Value" (with Intelligent Key) BCS-96, "Reference Value" (without Intelligent Key)
	BCS-47, "Fail Safe" (with Intelligent Key) BCS-107, "Fail Safe" (without Intelligent Key)
	BCS-47, "DTC Inspection Priority Chart" (with Intelligent Key) BCS-107, "DTC Inspection Priority Chart" (without Intelligent Key)
	BCS-48, "DTC Index" (with Intelligent Key) BCS-108, "DTC Index" (without Intelligent Key)
IPDM E/R	PCS-12, "Reference Value" .
	PCS-19, "Fail-safe"
	PCS-20, "DTC Index"

WIRING DIAGRAM

HEADLAMP

Wiring Diagram

INFOID:0000000010288622



AALWA0768GB

HEADLAMP

< WIRING DIAGRAM >

[HALOGEN HEADLAMP]

HEAD LAMP - HALOGEN CONNECTORS

Connector No.	M6
Connector Name	JOINT CONNECTOR-M01
Connector Color	GRAY



4	3	2	1
8	7	6	5
12	11	10	9
16	15	14	13
20	19	18	17
24	23	22	21

Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY



20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21

Terminal No.	Color of Wire	Signal Name
33	LG	ICSW 5
34	Y	OCSW 5
36	G	ICSW 3
37	GR	ICSW 4
38	V	ICSW 1
39	W	ICSW 2

Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



100	99	98	97	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81
120	119	118	117	116	115	114	113	112	111	110	109	108	107	106	105	104	103	102	101

Terminal No.	Color of Wire	Signal Name
84	BR	OCSW 2
85	SB	OCSW 1
86	P	OCSW 3
87	BG	OCSW 4
95	V	I SHORTING PIN

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BROWN



167	166	165	164	163	162	161
176	175	174	173	172	171	170
169	168					

Terminal No.	Color of Wire	Signal Name
161	W	I PWR ECU
170	B	I GND1
171	B	I GND2

Connector No.	M28
Connector Name	COMBINATION SWITCH
Connector Color	WHITE



8	7	6	5	4	3	2	1
16	15	14	13	12	11	10	9

Terminal No.	Color of Wire	Signal Name
1	LG	-
2	SB	-
3	GR	-

Terminal No.	Color of Wire	Signal Name
4	BG	-
5	G	-
6	W	-
7	Y	-
8	V	-
10	BR	-
15	P	-

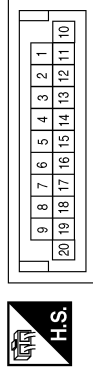
A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

HEADLAMP

< WIRING DIAGRAM >

[HALOGEN HEADLAMP]

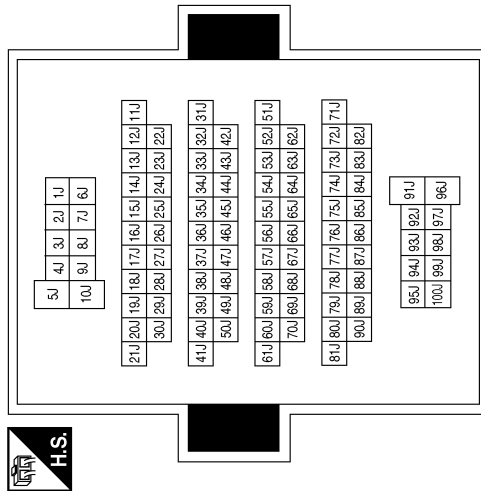
Connector No.	M43
Connector Name	JOINT CONNECTOR-M02
Connector Color	BLUE



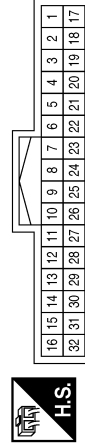
Terminal No.	Color of Wire	Signal Name
1	L	-
2	L	-
5	L	-
11	P	-
12	P	-
15	P	-

Terminal No.	Color of Wire	Signal Name
61J	L	-
62J	P	-

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	M69
Connector Name	WIRE TO WIRE
Connector Color	WHITE



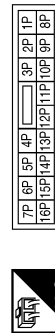
Terminal No.	Color of Wire	Signal Name
24	P	-
25	L	-

Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
3R	V	-
14R	W	-

Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
8P	LA/BR	-
13P	LA/G	-

AALIA2133GB

HEADLAMP

< WIRING DIAGRAM >

[HALOGEN HEADLAMP]

Connector No.	E40
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2
3	4

Terminal No.	Color of Wire	Signal Name
2	GR	-
3	B	-

Connector No.	M77
Connector Name	COMBINATION METER
Connector Color	WHITE



41	42	43	44	45	46
47	48	49	50	51	52

Terminal No.	Color of Wire	Signal Name
41	L	CAN-H
42	P	CAN-L
45	LA/G	BAT
46	LA/BR	IGN
52	B	GND2

Connector No.	M76
Connector Name	COMBINATION METER
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

Terminal No.	Color of Wire	Signal Name
1	B	GND1

Connector No.	E120
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



30	29	28	27	26	25	24	23	22	21	20	19
42	41	40	39	38	37	36	35	34	33	32	31

Connector No.	E119
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



9	8	7	6			5	4	3
18	17	16	15	14	13	12	11	10

Terminal No.	Color of Wire	Signal Name
22	P	CAN-L
24	L	CAN-H
31	B	2ND SIGNAL GROUND

Terminal No.	Color of Wire	Signal Name
12	B	SIGNAL GROUND

Connector No.	E44
Connector Name	JOINT CONNECTOR-E01
Connector Color	WHITE



4	3	2	1
8	7	6	5
12	11	10	9
16	15	14	13
20	19	18	17
24	23	22	21
28	27	26	25

Terminal No.	Color of Wire	Signal Name
5	L	-
6	P	-
9	L	-
10	P	-

AALIA2134GB

A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

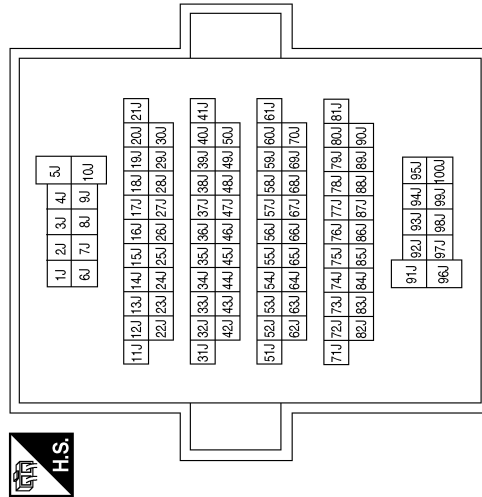
HEADLAMP

< WIRING DIAGRAM >

[HALOGEN HEADLAMP]

Terminal No.	Color of Wire	Signal Name
61J	L	—
62J	P	—

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	E121
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	RED



Terminal No.	Color of Wire	Signal Name
47	B	POWER GROUND

Connector No.	E218
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE



Connector No.	E217
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BROWN



Connector No.	E201
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
59	G	O LIGHT HBEAM LH
62	SB	O LIGHT LBEAM RH

Terminal No.	Color of Wire	Signal Name
50	L	O LIGHT LBEAM LH
54	LG	O LIGHT HBEAM RH

Terminal No.	Color of Wire	Signal Name
2	B	—
3	B	—

AALIA2135GB

HEADLAMP

< WIRING DIAGRAM >

[HALOGEN HEADLAMP]

Connector No.	E235
Connector Name	FRONT COMBINATION LAMP LH (WITH HALOGEN HEADLAMPS)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
4	L	-
5	B	-

Connector No.	E234
Connector Name	FRONT COMBINATION LAMP RH (WITH HALOGEN HEADLAMPS)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
14	B	-
15	LG	-

Connector No.	E233
Connector Name	FRONT COMBINATION LAMP RH (WITH HALOGEN HEADLAMPS)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
4	SB	-
5	B	-

Connector No.	B41
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

Terminal No.	Color of Wire	Signal Name
24	P	-
25	L	-

Connector No.	B16
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GREEN



60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61
----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

Terminal No.	Color of Wire	Signal Name
60	L	CAN-H
80	P	CAN-L

Connector No.	E236
Connector Name	FRONT COMBINATION LAMP LH (WITH HALOGEN HEADLAMPS)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
14	B	-
15	G	-

AALIA2136GB

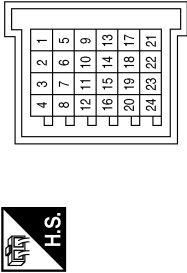
A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

HEADLAMP

< WIRING DIAGRAM >

[HALOGEN HEADLAMP]

Connector No.	B63
Connector Name	JOINT CONNECTOR-B01
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

AALIA2137GB

DAYTIME LIGHT SYSTEM

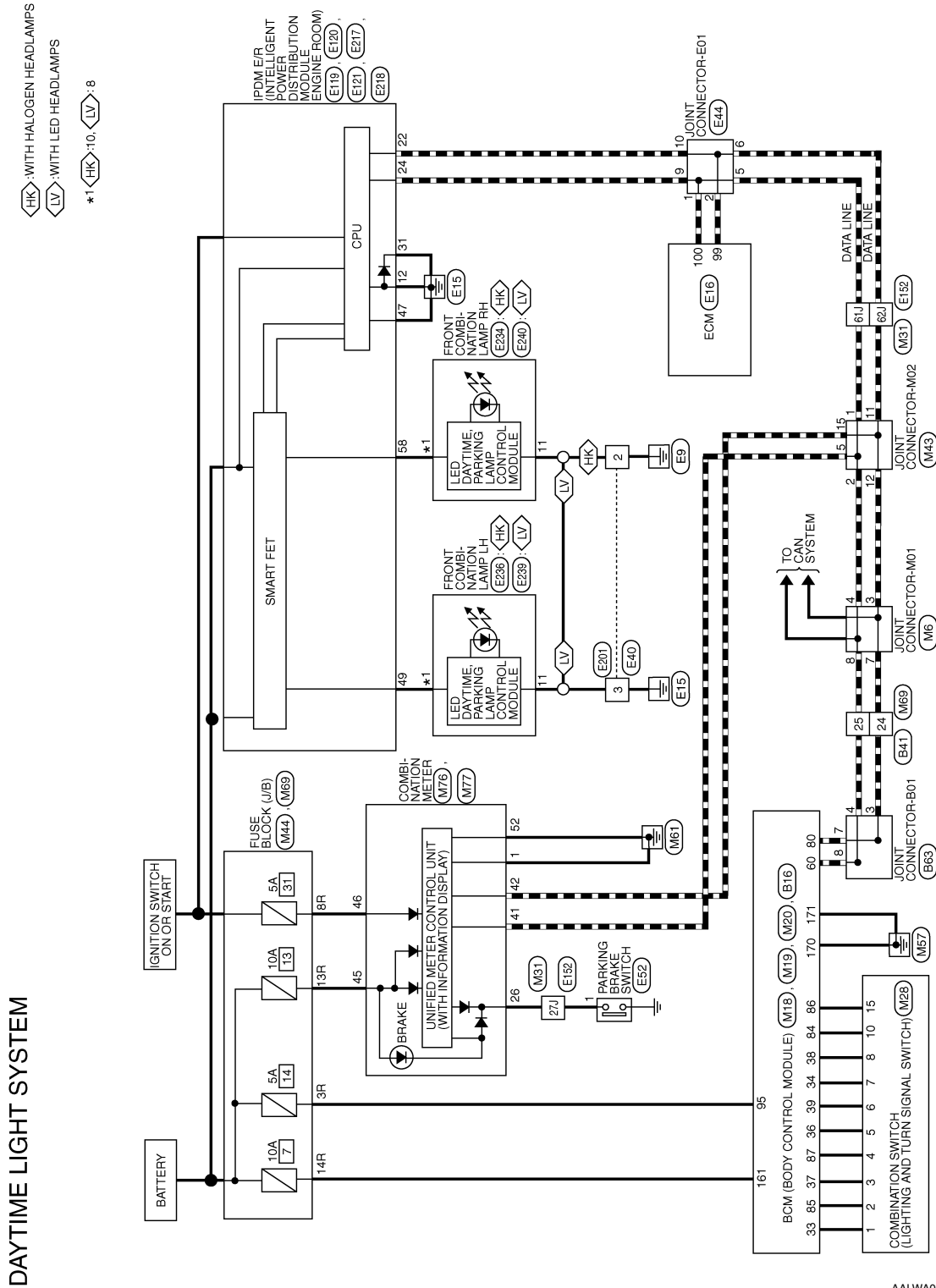
< WIRING DIAGRAM >

[HALOGEN HEADLAMP]

DAYTIME LIGHT SYSTEM

Wiring Diagram

INFOID:0000000010288623



AALWA0771GB

DAYTIME LIGHT SYSTEM CONNECTORS

Connector No.	M6
Connector Name	JOINT CONNECTOR-M01
Connector Color	GRAY



4	3	2	1
8	7	6	5
12	11	10	9
16	15	14	13
20	19	18	17
24	23	22	21



20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY

Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



100	99	98	97	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81
120	119	118	117	116	115	114	113	112	111	110	109	108	107	106	105	104	103	102	101

Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

Terminal No.	Color of Wire	Signal Name
33	LG	I CSW 5
34	Y	O CSW 5
36	G	I CSW 3
37	GR	I CSW 4
38	V	I CSW 1
39	W	I CSW 2

Terminal No.	Color of Wire	Signal Name
84	BR	O CSW 2
85	SB	O CSW 1
86	P	O CSW 3
87	BG	O CSW 4
95	V	I SHORTING PIN

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BROWN



167	166	165	164	163	162	161
176	175	174	173	172	171	170
168	169	168	169	168	169	168

Terminal No.	Color of Wire	Signal Name
161	W	I PWR ECU
170	B	I GND1
171	B	I GND2

Connector No.	M28
Connector Name	COMBINATION SWITCH
Connector Color	WHITE



8	7	6	5	4	3	2	1
16	15	14	13	12	11	10	9

Terminal No.	Color of Wire	Signal Name
1	LG	-
2	SB	-
3	GR	-
4	BG	-

Terminal No.	Color of Wire	Signal Name
5	G	-
6	W	-
7	Y	-
8	V	-
10	BR	-
15	P	-

DAYTIME LIGHT SYSTEM

< WIRING DIAGRAM >

[HALOGEN HEADLAMP]

Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



7P	6P	5P	4P		3P	2P	1P	
16P	15P	14P	13P	12P	11P	10P	9P	8P

Terminal No.	Color of Wire	Signal Name
8P	LA/BR	—
13P	LA/G	—

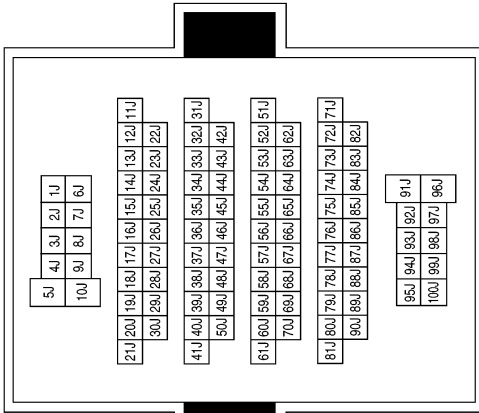
Connector No.	M43
Connector Name	JOINT CONNECTOR-M02
Connector Color	BLUE



--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Terminal No.	Color of Wire	Signal Name
1	L	—
2	L	—
5	L	—
11	P	—
12	P	—
15	P	—

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
27J	G	—
61J	L	—
62J	P	—

Connector No.	M76
Connector Name	COMBINATION METER
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

Terminal No.	Color of Wire	Signal Name
1	B	GND1
26	G	PBK SW

Connector No.	M69
Connector Name	WIRE TO WIRE
Connector Color	WHITE



16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17

Terminal No.	Color of Wire	Signal Name
24	P	—
25	L	—

Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN



7R	6R	5R	4R		3R	2R	1R	
16R	15R	14R	13R	12R	11R	10R	9R	8R

Terminal No.	Color of Wire	Signal Name
3R	V	—
14R	W	—

AALIA2122GB

A B C D E F G H I J K EXL M N O P

DAYTIME LIGHT SYSTEM

< WIRING DIAGRAM >

[HALOGEN HEADLAMP]

Connector No.	E40
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2
3	4

Connector No.	E16
Connector Name	ECM
Connector Color	BLACK



97	101	105	108	113	117	121	125
98	102	106	110	114	118	122	126
99	103	107	111	115	119	123	127
100	104	108	112	116	120	124	128

Terminal No.	Color of Wire	Signal Name
2	GR	—
3	B	—

Terminal No.	Color of Wire	Signal Name
99	P	CAN-L
100	L	CAN-H

Connector No.	M77
Connector Name	COMBINATION METER
Connector Color	WHITE



41	42	43	44	45	46
47	48	49	50	51	52

Terminal No.	Color of Wire	Signal Name
41	L	CAN-H
42	P	CAN-L
45	LA/G	BAT
46	LA/BR	IGN
52	B	GND2

Connector No.	E119
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



9	8	7	6	5	4	3
18	17	16	15	14	13	12
11	10					

Connector No.	E52
Connector Name	PARKING BRAKE SWITCH
Connector Color	BLACK



1

Terminal No.	Color of Wire	Signal Name
12	B	SIGNAL GROUND

Terminal No.	Color of Wire	Signal Name
1	G	—

Connector No.	E44
Connector Name	JOINT CONNECTOR-E01
Connector Color	WHITE



4	3	2	1
8	7	6	5
12	11	10	9
16	15	14	13
20	19	18	17
24	23	22	21
28	27	26	25

Terminal No.	Color of Wire	Signal Name
1	L	—
2	P	—
5	L	—
6	P	—
9	L	—
10	P	—

AALIA2123GB

DAYTIME LIGHT SYSTEM

< WIRING DIAGRAM >

[HALOGEN HEADLAMP]

Connector No.	E121
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	RED



45	44	43
48	47	46

Terminal No.	Color of Wire	Signal Name
47	B	POWER GROUND

Connector No.	E120
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY

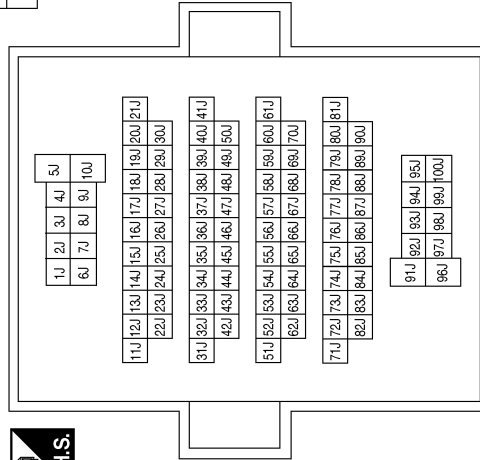


30	29	28	27	26	25	24	23	22	21	20	19
42	41	40	39	38	37	36	35	34	33	32	31

Terminal No.	Color of Wire	Signal Name
22	P	CAN-L
24	L	CAN-H
31	B	2ND SIGNAL GROUND

Terminal No.	Color of Wire	Signal Name
27J	G	-
61J	L	-
62J	P	-

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	E201
Connector Name	WIRE TO WIRE
Connector Color	WHITE



2	1
4	3

Terminal No.	Color of Wire	Signal Name
2	B	-
3	B	-

AALIA2124GB

A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

DAYTIME LIGHT SYSTEM

< WIRING DIAGRAM >

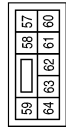
[HALOGEN HEADLAMP]

Connector No.	E234
Connector Name	FRONT COMBINATION LAMP RH (WITH HALOGEN HEADLAMPS)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
10	R	—
11	GR	—

Connector No.	E218
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE



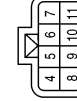
Terminal No.	Color of Wire	Signal Name
58	R	O LIGHT DTRL RH

Connector No.	E217
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BROWN



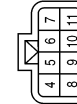
Terminal No.	Color of Wire	Signal Name
49	R	O LIGHT DTRL LH

Connector No.	E240
Connector Name	FRONT COMBINATION LAMP RH (WITH LED HEADLAMPS)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
8	R	—
11	B	—

Connector No.	E239
Connector Name	FRONT COMBINATION LAMP LH (WITH LED HEADLAMPS)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
8	R	—
11	B	—

Connector No.	E236
Connector Name	FRONT COMBINATION LAMP LH (WITH HALOGEN HEADLAMPS)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
10	R	—
11	GR	—

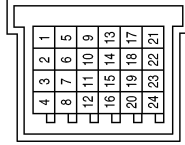
AALIA2125GB

DAYTIME LIGHT SYSTEM

< WIRING DIAGRAM >

[HALOGEN HEADLAMP]

Connector No.	B63
Connector Name	JOINT CONNECTOR-B01
Connector Color	GRAY



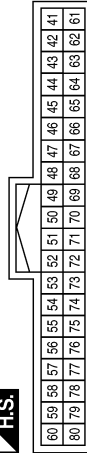
Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

Connector No.	B41
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
24	P	-
25	L	-

Connector No.	B16
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GREEN



Terminal No.	Color of Wire	Signal Name
60	L	CAN-H
80	P	CAN-L

AALIA2126GB

A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

AUTO LIGHT SYSTEM

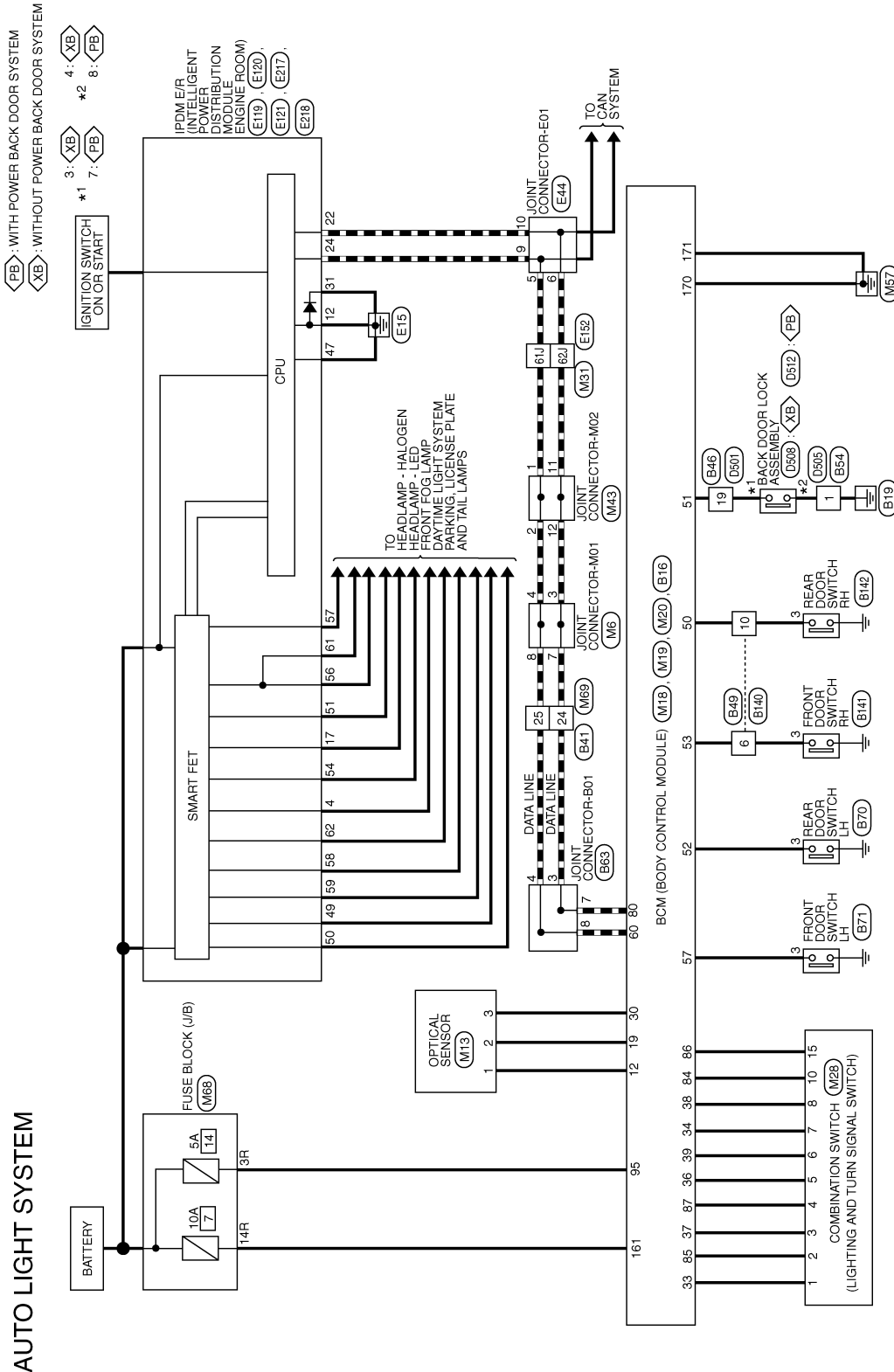
< WIRING DIAGRAM >

[HALOGEN HEADLAMP]

AUTO LIGHT SYSTEM

Wiring Diagram

INFOID:0000000010288624



AALWA0767GB

AUTO LIGHT SYSTEM CONNECTORS

Connector No.	M6
Connector Name	JOINT CONNECTOR-M01
Connector Color	GRAY



4	3	2	1
8	7	6	5
12	11	10	9
16	15	14	13
20	19	18	17
24	23	22	21

Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

Connector No.	M13
Connector Name	OPTICAL SENSOR
Connector Color	WHITE



1	2	3
---	---	---

Terminal No.	Color of Wire	Signal Name
1	W	-
2	LG	-
3	V	-

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY



20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21

Terminal No.	Color of Wire	Signal Name
12	W	O PWR AUTOLIGHT SENSOR
19	LG	I AUTOLIGHT SENSOR
30	V	O GND AUTOLIGHT SENSOR
33	LG	I CSW 5
34	Y	O CSW 5
36	G	I CSW 3
37	GR	I CSW 4
38	V	I CSW 1
39	W	I CSW 2

Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



100	99	98	97	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81
120	119	118	117	116	115	114	113	112	111	110	109	108	107	106	105	104	103	102	101

Terminal No.	Color of Wire	Signal Name
84	BR	O CSW 2
85	SB	O CSW 1
86	P	O CSW 3
87	BG	O CSW 4
95	V	I SHORTING PIN

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BROWN



167	166	165	164	163	162	161
176	175	174	173	172	171	170
169	168	167	166	165	164	163

Terminal No.	Color of Wire	Signal Name
161	W	I PWR ECU
170	B	I GND1
171	B	I GND2

AALIA2112GB

AUTO LIGHT SYSTEM

< WIRING DIAGRAM >

[HALOGEN HEADLAMP]

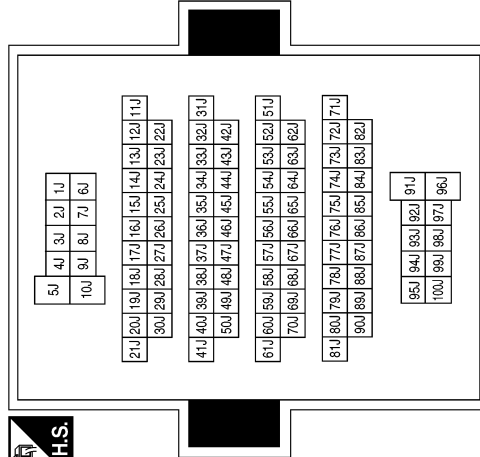
Connector No.	M43
Connector Name	JOINT CONNECTOR-M02
Connector Color	BLUE



--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Terminal No.	Color of Wire	Signal Name
1	L	—
2	L	—
11	P	—
12	P	—

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
61J	L	—
62J	P	—

Connector No.	M28
Connector Name	COMBINATION SWITCH
Connector Color	WHITE



8	7	6	5	4	3	2	1
16	15	14	13	12	11	10	9

Terminal No.	Color of Wire	Signal Name
1	LG	—
2	SB	—
3	GR	—
4	BG	—
5	G	—
6	W	—
7	Y	—
8	V	—
10	BR	—
15	P	—

Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN



7R	6R	5R	4R		3R	2R	1R	
16R	15R	14R	13R	12R	11R	10R	9R	8R

Terminal No.	Color of Wire	Signal Name
3R	V	—
14R	W	—

Connector No.	M69
Connector Name	WIRE TO WIRE
Connector Color	WHITE



16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17

Terminal No.	Color of Wire	Signal Name
24	P	—
25	L	—

AUTO LIGHT SYSTEM

< WIRING DIAGRAM >

[HALOGEN HEADLAMP]

Connector No.	E120
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



30	29	28	27	26	25	24	23	22	21	20	19
42	41	40	39	38	37	36	35	34	33	32	31

Terminal No.	Color of Wire	Signal Name
22	P	CAN-L
24	L	CAN-H
31	B	2ND SIGNAL GROUND

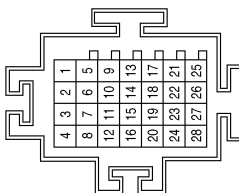
Connector No.	E119
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



9	8	7	6		5	4	3
18	17	16	15	14	13	12	11
							10

Terminal No.	Color of Wire	Signal Name
4	Y	O LIGHT POSITION REAR LH
12	B	SIGNAL GROUND
17	W	O LIGHT POSITION REAR RH

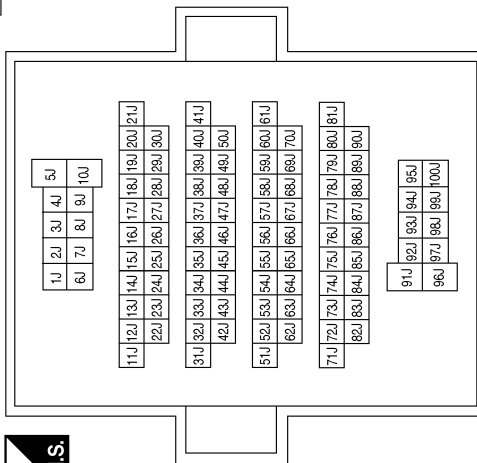
Connector No.	E44
Connector Name	JOINT CONNECTOR-E01
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
5	L	-
6	P	-
9	L	-
10	P	-

Terminal No.	Color of Wire	Signal Name
61J	L	-
62J	P	-

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	E121
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	RED



45	44	43
48	47	46

Terminal No.	Color of Wire	Signal Name
47	B	POWER GROUND

AALIA2114GB

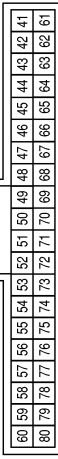
A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

AUTO LIGHT SYSTEM

< WIRING DIAGRAM >

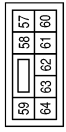
[HALOGEN HEADLAMP]

Connector No.	B16
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GREEN

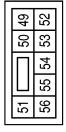
Terminal No.	Color of Wire	Signal Name
50	W	I RR DOOR SW
51	LG	I TGATE SW
52	R	I RL DOOR SW
53	SB	I AS DOOR2 SW
57	SB	I DR DOOR2 SW
60	L	CAN-H
80	P	CAN-L

Connector No.	E218
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE

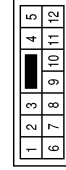
Terminal No.	Color of Wire	Signal Name
57	W	O LIGHT FR FOG LAMPS RH
58	R	O LIGHT DTRL RH
59	G	O LIGHT HBEAM LH
61	GR	O LIGHT CLEARANCE FR RH
62	SB	O LIGHT LBEAM RH

Connector No.	E217
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BROWN

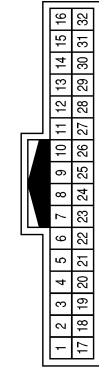
Terminal No.	Color of Wire	Signal Name
49	R	O LIGHT DTRL LH
50	L	O LIGHT LBEAM LH
51	V	O LIGHT FR FOG LAMPS LH
54	LG	O LIGHT HBEAM RH
56	BG	O LIGHT CLEARANCE FR LH

Connector No.	B49
Connector Name	WIRE TO WIRE
Connector Color	WHITE

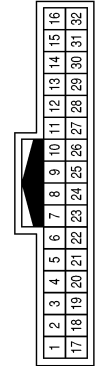
Terminal No.	Color of Wire	Signal Name
6	SB	-
10	W	-

Connector No.	B46
Connector Name	WIRE TO WIRE
Connector Color	WHITE

Terminal No.	Color of Wire	Signal Name
19	LG	-

Connector No.	B41
Connector Name	WIRE TO WIRE
Connector Color	WHITE

Terminal No.	Color of Wire	Signal Name
24	P	-
25	L	-

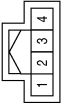
AALIA2115GB

AUTO LIGHT SYSTEM

< WIRING DIAGRAM >

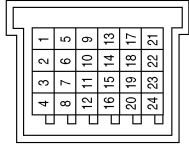
[HALOGEN HEADLAMP]

Connector No.	B70
Connector Name	REAR DOOR SWITCH LH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
3	R	-

Connector No.	B63
Connector Name	JOINT CONNECTOR-B01
Connector Color	GRAY



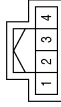
Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

Connector No.	B54
Connector Name	WIRE TO WIRE
Connector Color	WHITE



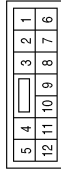
Terminal No.	Color of Wire	Signal Name
1	B	-

Connector No.	B141
Connector Name	FRONT DOOR SWITCH RH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
3	GR	-

Connector No.	B140
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
6	GR	-
10	W	-

Connector No.	B71
Connector Name	FRONT DOOR SWITCH LH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
3	SB	-

AALIA2116GB

A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

EXL

AUTO LIGHT SYSTEM

< WIRING DIAGRAM >

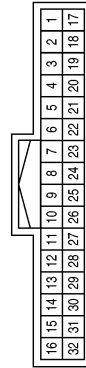
[HALOGEN HEADLAMP]

Connector No.	D505
Connector Name	WIRE TO WIRE
Connector Color	WHITE



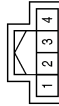
Terminal No.	1	Color of Wire	B	Signal Name	—
--------------	---	---------------	---	-------------	---

Connector No.	D501
Connector Name	WIRE TO WIRE
Connector Color	WHITE



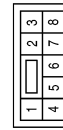
Terminal No.	19	Color of Wire	W	Signal Name	—
--------------	----	---------------	---	-------------	---

Connector No.	B142
Connector Name	REAR DOOR SWITCH RH
Connector Color	WHITE



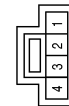
Terminal No.	3	Color of Wire	W	Signal Name	—
--------------	---	---------------	---	-------------	---

Connector No.	D512
Connector Name	BACK DOOR LOCK ASSEMBLY (WITH POWER BACK DOOR SYSTEM)
Connector Color	WHITE



Terminal No.	7	Color of Wire	W	Signal Name	—
Terminal No.	8	Color of Wire	B	Signal Name	—

Connector No.	D508
Connector Name	BACK DOOR LOCK ASSEMBLY (WITHOUT POWER BACK DOOR SYSTEM)
Connector Color	WHITE



Terminal No.	3	Color of Wire	W	Signal Name	—
Terminal No.	4	Color of Wire	GR	Signal Name	—

AALIA2117GB

FRONT FOG LAMP SYSTEM

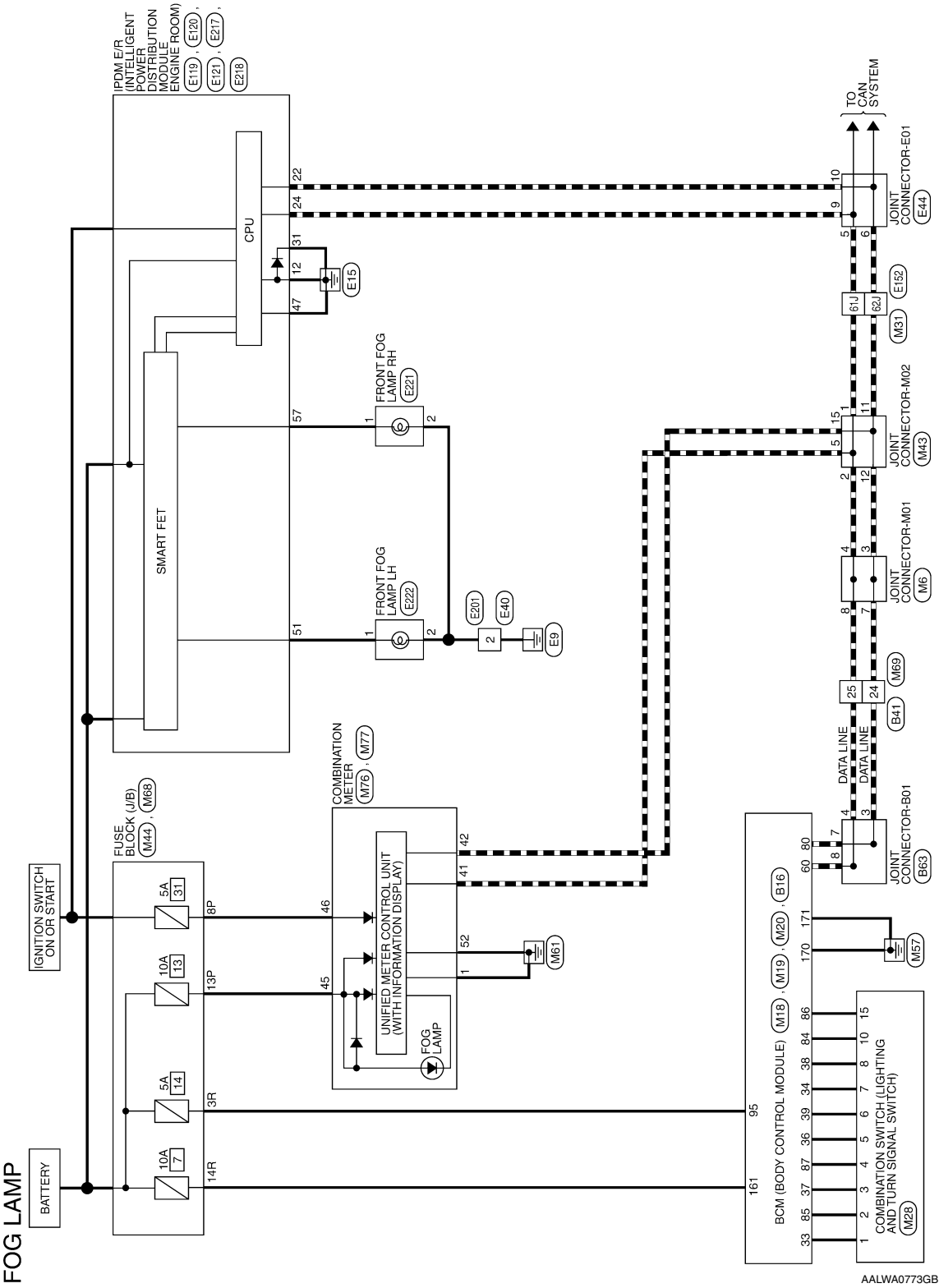
< WIRING DIAGRAM >

[HALOGEN HEADLAMP]

FRONT FOG LAMP SYSTEM

Wiring Diagram

INFOID:000000010288625



AALWA0773GB

A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

EXL

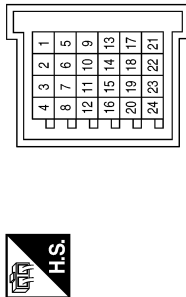
FRONT FOG LAMP SYSTEM

< WIRING DIAGRAM >

[HALOGEN HEADLAMP]

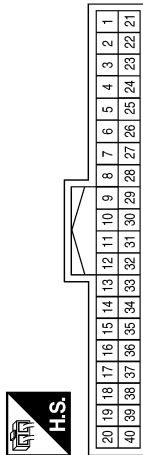
FOG LAMP CONNECTORS

Connector No.	M6
Connector Name	JOINT CONNECTOR-M01
Connector Color	GRAY



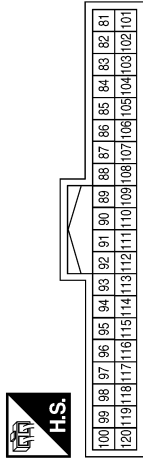
Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
33	LG	I CSW 5
34	Y	O CSW 5
36	G	I CSW 3
37	GR	I CSW 4
38	V	I CSW 1
39	W	I CSW 2

Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



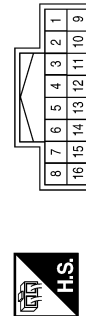
Terminal No.	Color of Wire	Signal Name
84	BR	O CSW 2
85	SB	O CSW 1
86	P	O CSW 3
87	BG	O CSW 4
95	V	I SHORTING PIN

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
161	W	I PWR ECU
170	B	I GND1
171	B	I GND2

Connector No.	M28
Connector Name	COMBINATION SWITCH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	LG	-
2	SB	-
3	GR	-
4	BG	-
5	G	-

Terminal No.	Color of Wire	Signal Name
6	W	-
7	Y	-
8	V	-
10	BR	-
15	P	-

FRONT FOG LAMP SYSTEM

< WIRING DIAGRAM >

[HALOGEN HEADLAMP]

Connector No.	M43
Connector Name	JOINT CONNECTOR-M02
Connector Color	BLUE



9	8	7	6	5	4	3	2	1
20	19	18	17	16	15	14	13	12
11	10							

Terminal No.	Color of Wire	Signal Name
1	L	-
2	L	-
5	L	-
11	P	-
12	P	-
15	P	-

Terminal No.	Color of Wire	Signal Name
61J	L	-
62J	P	-

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE



5J	4J	3J	2J	1J
10J	9J	8J	7J	6J
21J	20J	19J	18J	17J
16J	15J	14J	13J	12J
11J	30J	29J	28J	27J
26J	25J	24J	23J	22J
41J	40J	39J	38J	37J
36J	35J	34J	33J	32J
31J	50J	49J	48J	47J
46J	45J	44J	43J	42J
61J	60J	59J	58J	57J
56J	55J	54J	53J	52J
51J	70J	69J	68J	67J
66J	65J	64J	63J	62J
81J	80J	79J	78J	77J
76J	75J	74J	73J	72J
71J	90J	89J	88J	87J
86J	85J	84J	83J	82J
95J	94J	93J	92J	91J
100J	99J	98J	97J	96J

Connector No.	M69
Connector Name	WIRE TO WIRE
Connector Color	WHITE



16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17

Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN



17R	6R	5R	4R	3R	2R	1R
16R	15R	14R	13R	12R	11R	10R
9R	8R					

Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



7P	6P	5P	4P	3P	2P	1P
16P	15P	14P	13P	12P	11P	10P
9P	8P					

Terminal No.	Color of Wire	Signal Name
24	P	-
25	L	-

Terminal No.	Color of Wire	Signal Name
3R	V	-
14R	W	-

Terminal No.	Color of Wire	Signal Name
8P	LA/BR	-
13P	LA/G	-

AALIA2128GB

A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

FRONT FOG LAMP SYSTEM

< WIRING DIAGRAM >

[HALOGEN HEADLAMP]

Connector No.	E40
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2
3	4

Connector No.	M77
Connector Name	COMBINATION METER
Connector Color	WHITE



41	42	43	44	45	46
47	48	49	50	51	52

Connector No.	M76
Connector Name	COMBINATION METER
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

Terminal No.	2
Color of Wire	GR
Signal Name	—

Terminal No.	41
Color of Wire	L
Signal Name	CAN-H
Terminal No.	42
Color of Wire	P
Signal Name	CAN-L
Terminal No.	45
Color of Wire	LA/G
Signal Name	BAT
Terminal No.	46
Color of Wire	LA/BR
Signal Name	IGN
Terminal No.	52
Color of Wire	B
Signal Name	GND2

Terminal No.	1
Color of Wire	B
Signal Name	GND1

Connector No.	E120
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



30	29	28	27	26	25	24	23	22	21	20	19
42	41	40	39	38	37	36	35	34	33	32	31

Connector No.	E119
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



9	8	7	6			5	4	3
18	17	16	15	14	13	12	11	10

Connector No.	E44
Connector Name	JOINT CONNECTOR-E01
Connector Color	WHITE



4	3	2	1
8	7	6	5
12	11	10	9
16	15	14	13
20	19	18	17
24	23	22	21
28	27	26	25

Terminal No.	22
Color of Wire	P
Signal Name	CAN-L
Terminal No.	24
Color of Wire	L
Signal Name	CAN-H
Terminal No.	31
Color of Wire	B
Signal Name	2ND SIGNAL GROUND

Terminal No.	12
Color of Wire	B
Signal Name	SIGNAL GROUND

Terminal No.	5
Color of Wire	L
Signal Name	—
Terminal No.	6
Color of Wire	P
Signal Name	—
Terminal No.	9
Color of Wire	L
Signal Name	—
Terminal No.	10
Color of Wire	P
Signal Name	—

AALIA2129GB

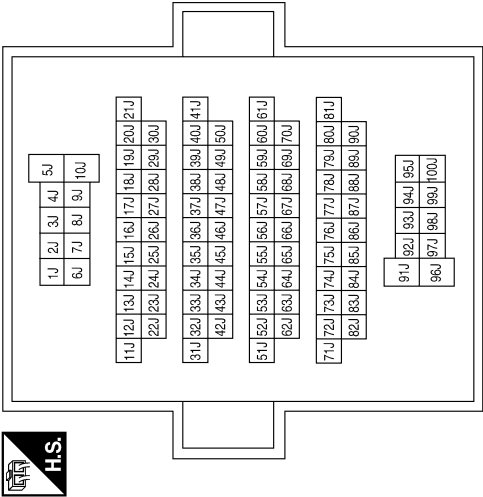
FRONT FOG LAMP SYSTEM

< WIRING DIAGRAM >

[HALOGEN HEADLAMP]

Terminal No.	Color of Wire	Signal Name
61J	L	—
62J	P	—

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	E121
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	RED

45	44	43
48	47	46



Terminal No.	Color of Wire	Signal Name
47	B	POWER GROUND

Connector No.	E218
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE

59	58	57
64	63	62
61	60	



Terminal No.	Color of Wire	Signal Name
57	W	O LIGHT FR FOG LAMPS RH

Connector No.	E217
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BROWN

51	50	49
56	55	54
53	52	



Terminal No.	Color of Wire	Signal Name
51	V	O LIGHT FR FOG LAMPS LH

Connector No.	E201
Connector Name	WIRE TO WIRE
Connector Color	WHITE

2	1	3
4		



Terminal No.	Color of Wire	Signal Name
2	B	—

AALIA2130GB

A B C D E F G H I J K EXL M N O P

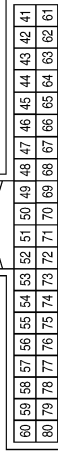
EXL

FRONT FOG LAMP SYSTEM

< WIRING DIAGRAM >

[HALOGEN HEADLAMP]

Connector No.	B16
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GREEN

Terminal No.	Color of Wire	Signal Name
60	L	CAN-H
80	P	CAN-L

Connector No.	E222
Connector Name	FRONT FOG LAMP LH
Connector Color	BLACK



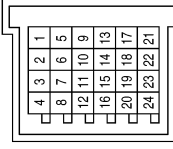

Terminal No.	Color of Wire	Signal Name
1	V	-
2	GR	-

Connector No.	E221
Connector Name	FRONT FOG LAMP RH
Connector Color	BLACK



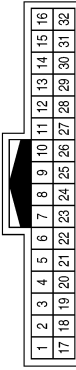

Terminal No.	Color of Wire	Signal Name
1	W	-
2	GR	-

Connector No.	B63
Connector Name	JOINT CONNECTOR-B01
Connector Color	GRAY

Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

Connector No.	B41
Connector Name	WIRE TO WIRE
Connector Color	WHITE

Terminal No.	Color of Wire	Signal Name
24	P	-
25	L	-

AALIA2131GB

TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

< WIRING DIAGRAM >

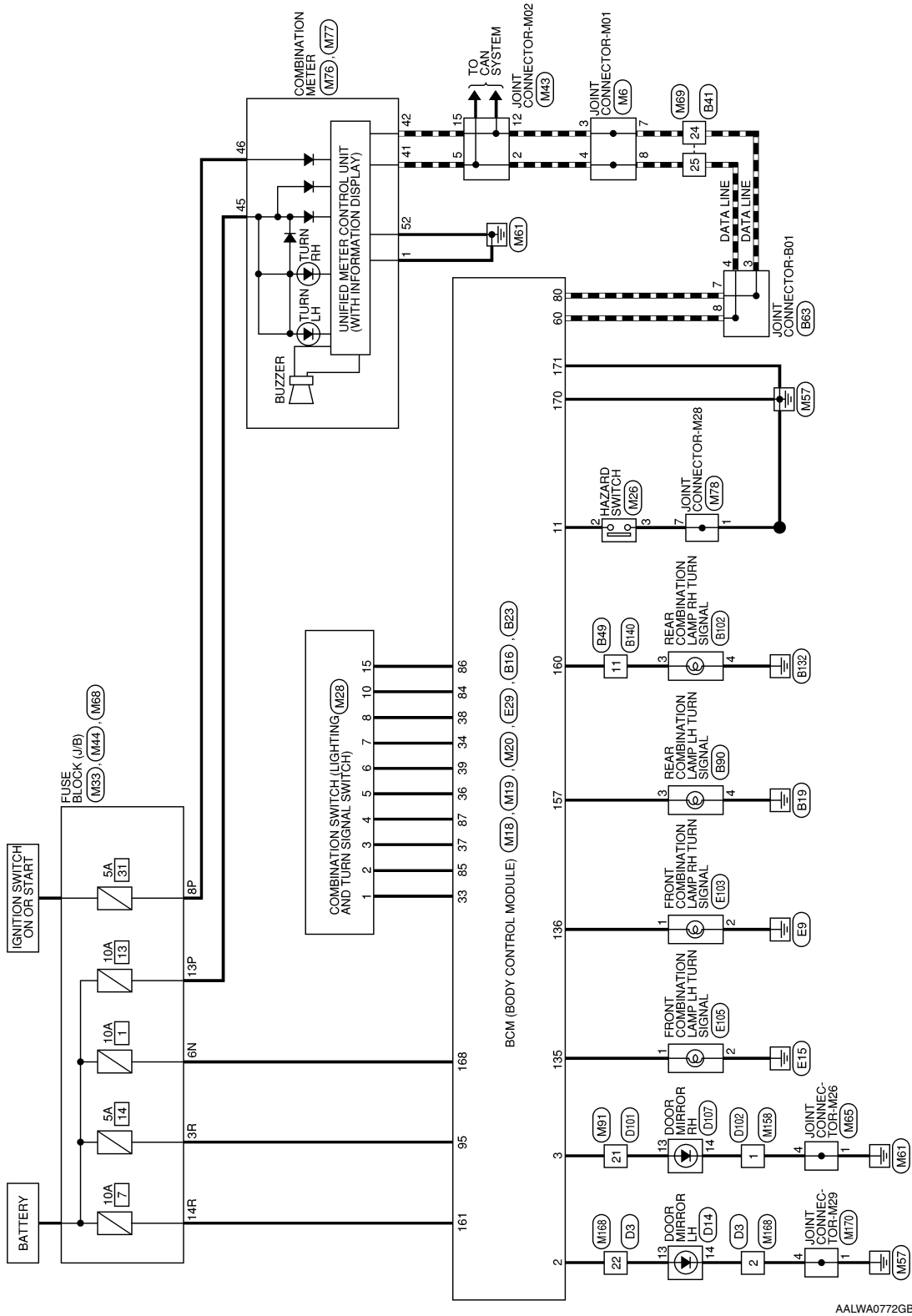
[HALOGEN HEADLAMP]

TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

Wiring Diagram

INFOID:0000000010288626

TURN SIGNAL AND HAZARD WARNING LAMPS



TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

< WIRING DIAGRAM >

[HALOGEN HEADLAMP]

TURN SIGNAL AND HAZARD WARNING LAMPS CONNECTORS

Connector No.	M6
Connector Name	JOINT CONNECTOR-M01
Connector Color	GRAY



4	3	2	1
8	7	6	5
12	11	10	9
16	15	14	13
20	19	18	17
24	23	22	21

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY



20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21

Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



100	99	98	97	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81
120	119	118	117	116	115	114	113	112	111	110	109	108	107	106	105	104	103	102	101

Terminal No.	Color of Wire	Signal Name
3	P	—
4	L	—
7	P	—
8	L	—

Terminal No.	Color of Wire	Signal Name
2	LA/G	O DI FR LEFT D
3	LA/Y	O DI FR RIGHT D
11	Y	I HAZARD SW D
33	LG	I CSW 5
34	Y	O CSW 5
36	G	I CSW 3
37	GR	I CSW 4
38	V	I CSW 1
39	W	I CSW 2

Terminal No.	Color of Wire	Signal Name
84	BR	O CSW 2
85	SB	O CSW 1
86	P	O CSW 3
87	BG	O CSW 4
95	V	I SHORTING PIN

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BROWN



167	166	165	164	163	162	161
176	175	174	173	172	171	170
169	168	167	166	165	164	163

Connector No.	M26
Connector Name	HAZARD SWITCH
Connector Color	WHITE



1	2	3	4
---	---	---	---

Terminal No.	Color of Wire	Signal Name
161	W	I PWR ECU
168	BG	I PWR FLASHERS
170	B	I GND1
171	B	I GND2

Terminal No.	Color of Wire	Signal Name
2	Y	—
3	GR	—

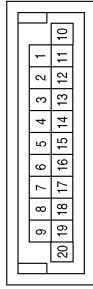
AALIA2162GB

TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

< WIRING DIAGRAM >

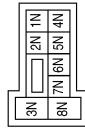
[HALOGEN HEADLAMP]

Connector No.	M43
Connector Name	JOINT CONNECTOR-M02
Connector Color	BLUE



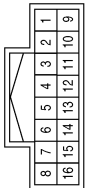
Terminal No.	Color of Wire	Signal Name
2	L	-
5	L	-
12	P	-
15	P	-

Connector No.	M33
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
6N	BG	-

Connector No.	M28
Connector Name	COMBINATION SWITCH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	LG	-
2	SB	-
3	GR	-
4	BG	-
5	G	-
6	W	-
7	Y	-
8	V	-
10	BR	-
15	P	-

Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
3R	V	-
14R	W	-

Connector No.	M65
Connector Name	JOINT CONNECTOR-M26
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	B	-
4	B	-

Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
8P	LA/BR	-
13P	LA/G	-

AALIA2163GB

A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

< WIRING DIAGRAM >

[HALOGEN HEADLAMP]

Connector No.	M77
Connector Name	COMBINATION METER
Connector Color	WHITE



41	42	43	44	45	46
47	48	49	50	51	52

Terminal No.	Color of Wire	Signal Name
41	L	CAN-H
42	P	CAN-L
45	LA/G	BAT
46	LAVBR	IGN
52	B	GND2

Connector No.	M76
Connector Name	COMBINATION METER
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

Terminal No.	Color of Wire	Signal Name
1	B	GND1

Connector No.	M69
Connector Name	WIRE TO WIRE
Connector Color	WHITE



16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17

Terminal No.	Color of Wire	Signal Name
24	P	—
25	L	—

Connector No.	M158
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7		
8	9	10	11	12	13	14	15	16

Terminal No.	Color of Wire	Signal Name
1	B	—

Connector No.	M91
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12
13	14	15	16	17	18	19	20	21	22	23	24

Terminal No.	Color of Wire	Signal Name
21	LAY	—

Connector No.	M78
Connector Name	JOINT CONNECTOR-M28
Connector Color	WHITE



8	7	6	5	4	3	2	1
---	---	---	---	---	---	---	---

Terminal No.	Color of Wire	Signal Name
1	GR	—
7	GR	—

AALIA2164GB

TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

< WIRING DIAGRAM >

[HALOGEN HEADLAMP]

Connector No.	E29
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



132	131	130	129	128	127	126	125	124	123	122	121
144	143	142	141	140	139	138	137	136	135	134	133

Terminal No.	Color of Wire	Signal Name
135	BR	DI FR LEFT E
136	GR	O DI FR RIGHT E

Connector No.	M170
Connector Name	JOINT CONNECTOR-M29
Connector Color	WHITE



8	7	6	5	4	3	2	1
---	---	---	---	---	---	---	---

Terminal No.	Color of Wire	Signal Name
1	B	-
4	B	-

Connector No.	M168
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12
13	14	15	16	17	18	19	20	21	22	23	24

Terminal No.	Color of Wire	Signal Name
2	B	-
22	LA/G	-

Connector No.	B16
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GREEN



60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41
80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61

Terminal No.	Color of Wire	Signal Name
60	L	CAN-H
80	P	CAN-L

Connector No.	E105
Connector Name	FRONT COMBINATION LAMP LH
Connector Color	GRAY



2	1	3
---	---	---

Terminal No.	Color of Wire	Signal Name
1	BR	-
2	B	-

Connector No.	E103
Connector Name	FRONT COMBINATION LAMP RH
Connector Color	GRAY



2	1	3
---	---	---

Terminal No.	Color of Wire	Signal Name
1	GR	-
2	BR	-

AALIA2165GB

A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

< WIRING DIAGRAM >

[HALOGEN HEADLAMP]

Connector No.	B49
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5
6	7	8	9	10
11	12			

Terminal No.	Color of Wire	Signal Name
11	P	—

Connector No.	B41
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Terminal No.	Color of Wire	Signal Name
24	P	—
25	L	—

Connector No.	B23
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY



151	150	149	148	147	146	145
160	159	158	157	156	155	154
153	152					

Terminal No.	Color of Wire	Signal Name
157	GR	O DI RR LEFT B
160	P	O DI RR RIGHT B

Connector No.	B102
Connector Name	REAR COMBINATION LAMP RH
Connector Color	WHITE



4	3	2	1
---	---	---	---

Connector No.	B90
Connector Name	REAR COMBINATION LAMP LH
Connector Color	WHITE



4	3	2	1
---	---	---	---

Connector No.	B63
Connector Name	JOINT CONNECTOR-B01
Connector Color	GRAY



4	3	2	1
8	7	6	5
12	11	10	9
16	15	14	13
20	19	18	17
24	23	22	21

Terminal No.	Color of Wire	Signal Name
3	LA/V	—
4	B	—

Terminal No.	Color of Wire	Signal Name
3	GR	—
4	B	—

Terminal No.	Color of Wire	Signal Name
3	P	—
4	L	—
7	P	—
8	L	—

AALIA2166GB

TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

< WIRING DIAGRAM >

[HALOGEN HEADLAMP]

Connector No.	D14
Connector Name	DOOR MIRROR LH
Connector Color	WHITE



8	7	6	5	4	3	2	1
16	15	14	13	12	11	10	9

Terminal No.	Color of Wire	Signal Name
13	LA/G	–
14	LA/B	–

Connector No.	D3
Connector Name	WIRE TO WIRE
Connector Color	WHITE



12	11	10	9	8	7	6	5	4	3	2	1
24	23	22	21	20	19	18	17	16	15	14	13

Terminal No.	Color of Wire	Signal Name
2	LA/B	–
22	LA/G	–

Connector No.	B140
Connector Name	WIRE TO WIRE
Connector Color	WHITE



5	4			3	2	1
12	11	10	9	8	7	6

Terminal No.	Color of Wire	Signal Name
11	LAV	–

Connector No.	D107
Connector Name	DOOR MIRROR RH
Connector Color	WHITE



8	7	6	5	4	3	2	1
16	15	14	13	12	11	10	9

Terminal No.	Color of Wire	Signal Name
13	LA/G	–
14	LA/B	–

Connector No.	D102
Connector Name	WIRE TO WIRE
Connector Color	WHITE



7	6	5	4	3	2	1		
16	15	14	13	12	11	10	9	8

Terminal No.	Color of Wire	Signal Name
1	LA/B	–

Connector No.	D101
Connector Name	WIRE TO WIRE
Connector Color	WHITE



12	11	10	9	8	7	6	5	4	3	2	1
24	23	22	21	20	19	18	17	16	15	14	13

Terminal No.	Color of Wire	Signal Name
21	LA/G	–

AALIA2239GB

A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM

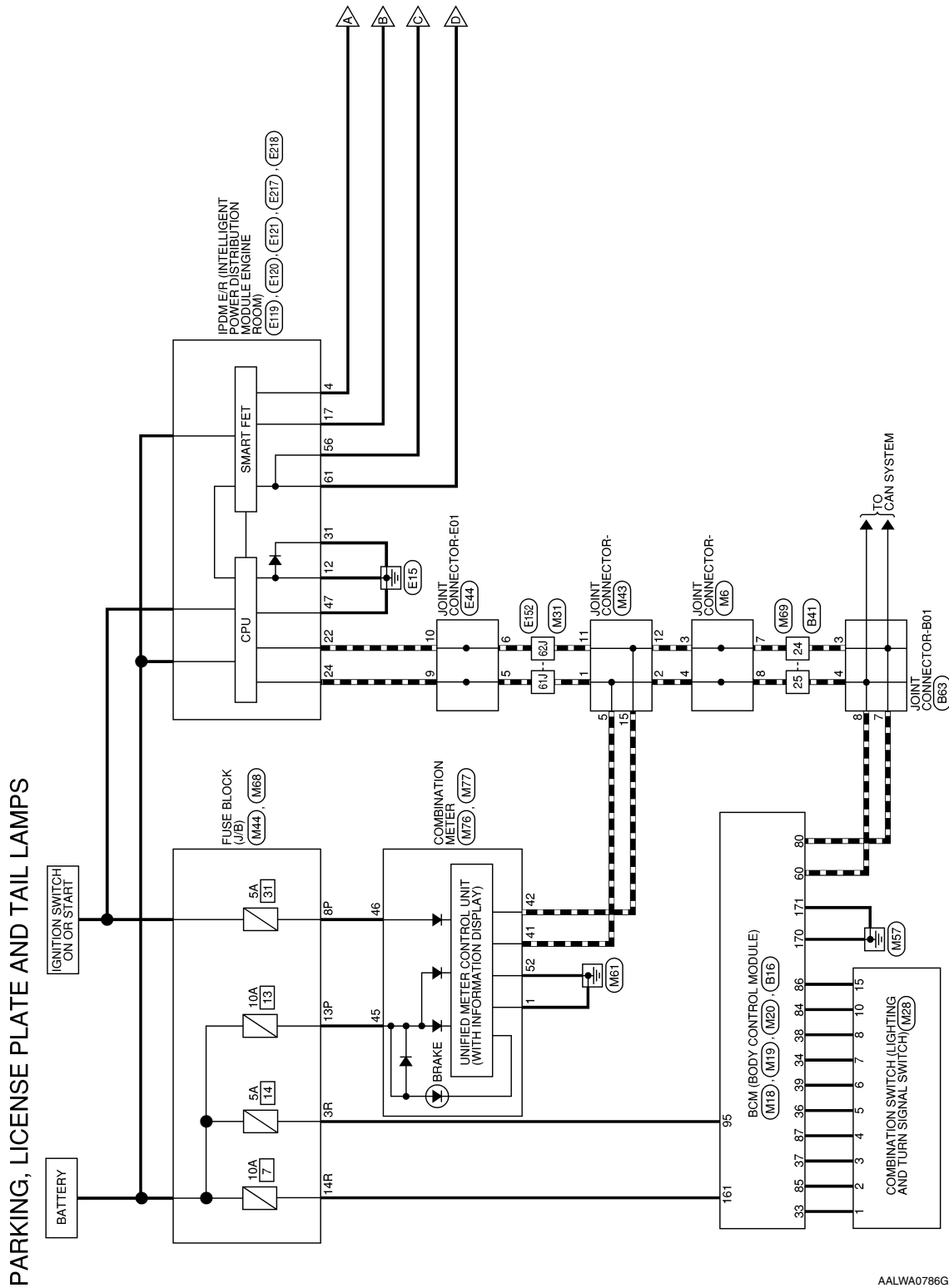
< WIRING DIAGRAM >

[HALOGEN HEADLAMP]

PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM

Wiring Diagram

INFOID:000000010288627



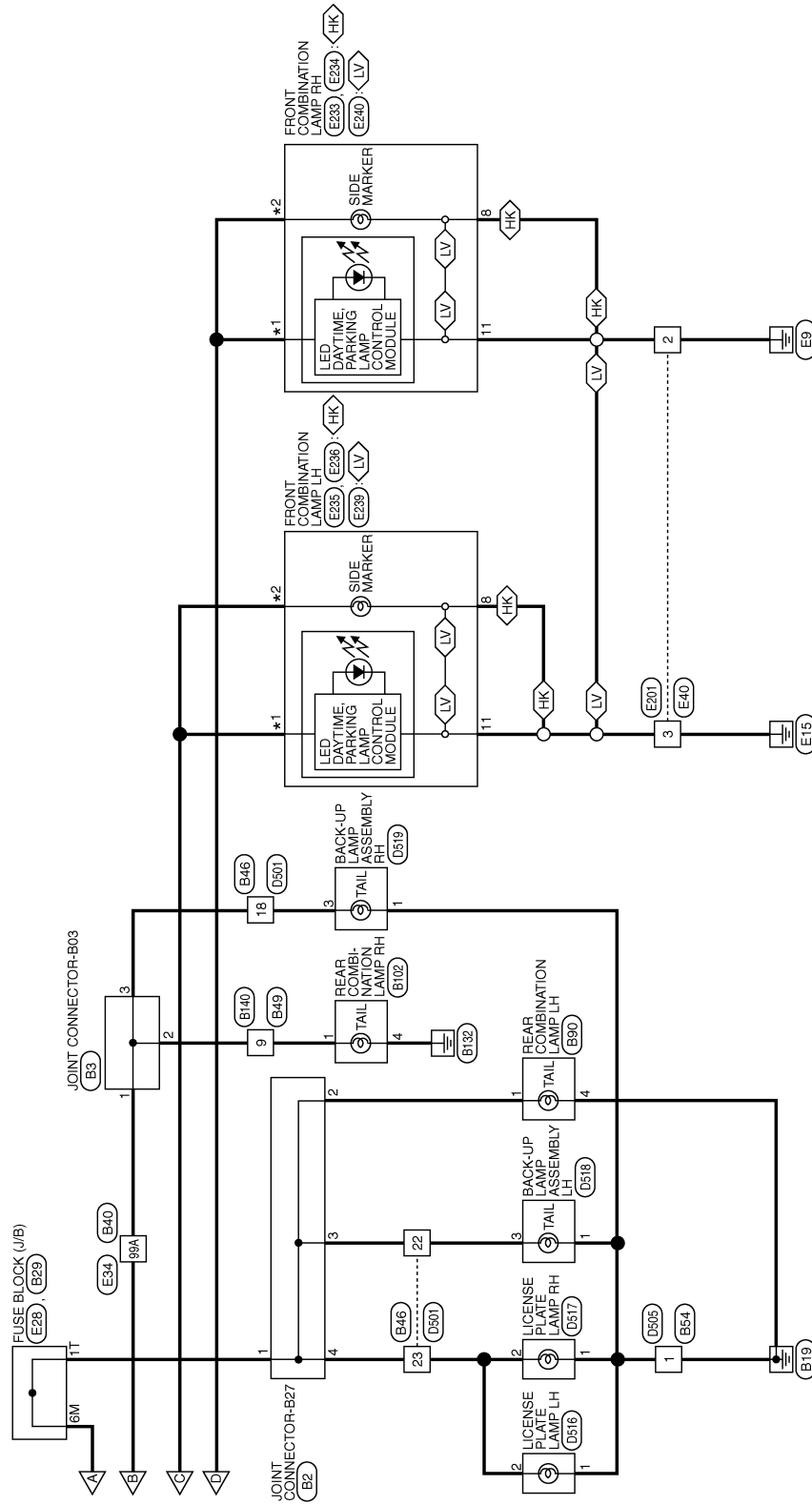
AALWA0786GB

PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM

< WIRING DIAGRAM >

[HALOGEN HEADLAMP]

(HK) : WITH HALOGEN HEADLAMPS
 (LV) : WITH LED HEADLAMPS
 (HK) : 12
 (LV) : 9
 *1
 (HK) : 12
 (LV) : 9
 *2
 (HK) : 9
 (LV) : 10



AALWA0787GB

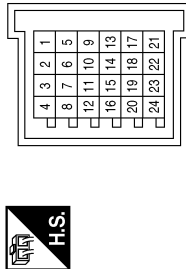
PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM

< WIRING DIAGRAM >

[HALOGEN HEADLAMP]

PARKING, LICENSE AND TAIL LAMPS CONNECTORS

Connector No.	M6
Connector Name	JOINT CONNECTOR-M01
Connector Color	GRAY



20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY



100	99	98	97	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81
120	119	118	117	116	115	114	113	112	111	110	109	108	107	106	105	104	103	102	101

Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK

Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

Terminal No.	Color of Wire	Signal Name
33	LG	ICSW 5
34	Y	OCSW 5
36	G	ICSW 3
37	GR	ICSW 4
38	V	ICSW 1
39	W	ICSW 2

Terminal No.	Color of Wire	Signal Name
84	BR	OCSW 2
85	SB	OCSW 1
86	P	OCSW 3
87	BG	OCSW 4
95	V	I SHORTING PIN

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BROWN



167	166	165	164	163	162	161
178	177	176	175	174	173	172

Connector No.	M28
Connector Name	COMBINATION SWITCH
Connector Color	WHITE



8	7	6	5	4	3	2	1
16	15	14	13	12	11	10	9

Terminal No.	Color of Wire	Signal Name
5	G	-
6	W	-
7	Y	-
8	V	-
10	BR	-
15	P	-

Terminal No.	Color of Wire	Signal Name
161	W	I PWR ECU
170	B	I GND1
171	B	I GND2

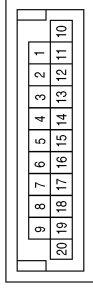
Terminal No.	Color of Wire	Signal Name
1	LG	-
2	SB	-
3	GR	-
4	BG	-

PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM

< WIRING DIAGRAM >

[HALOGEN HEADLAMP]

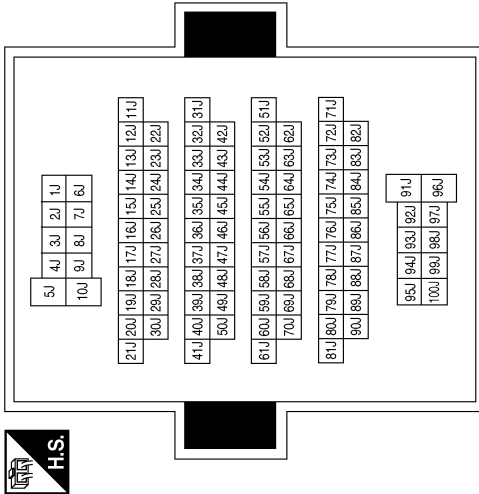
Connector No.	M43
Connector Name	JOINT CONNECTOR-M02
Connector Color	BLUE



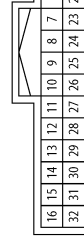
Terminal No.	Color of Wire	Signal Name
1	L	-
2	L	-
5	L	-
11	P	-
12	P	-
15	P	-

Terminal No.	Color of Wire	Signal Name
61J	L	-
62J	P	-

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	M69
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
24	P	-
25	L	-

Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
3R	V	-
14R	W	-

Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
8P	LA/BR	-
13P	LA/G	-

AALIA2150GB

A B C D E F G H I J K EXL M N O P

PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM

< WIRING DIAGRAM >

[HALOGEN HEADLAMP]

Connector No.	E28
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE

4M	3M	2M	1M
10M	9M	8M	7M
6M	5M		



Terminal No.	Color of Wire	Signal Name
6M	Y	—

Connector No.	M77
Connector Name	COMBINATION METER
Connector Color	WHITE

41	42	43	44	45	46
47	48	49	50	51	52



Terminal No.	Color of Wire	Signal Name
41	L	CAN-H
42	P	CAN-L
45	LA/G	BAT
46	LA/BR	IGN
52	B	GND2

Connector No.	M76
Connector Name	COMBINATION METER
Connector Color	WHITE

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40



Terminal No.	Color of Wire	Signal Name
1	B	GND1

Connector No.	E40
Connector Name	WIRE TO WIRE
Connector Color	WHITE

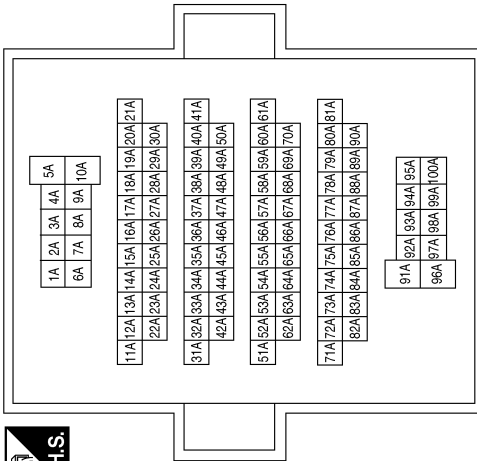
1	2
3	4



Terminal No.	Color of Wire	Signal Name
2	GR	—
3	B	—

Terminal No.	Color of Wire	Signal Name
99A	W	—

Connector No.	E34
Connector Name	WIRE TO WIRE
Connector Color	GRAY



AALIA2151GB

PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM

< WIRING DIAGRAM >

[HALOGEN HEADLAMP]

Connector No.	E120
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



30	29	28	27	26	25	24	23	22	21	20	19
42	41	40	39	38	37	36	35	34	33	32	31

Terminal No.	Color of Wire	Signal Name
22	P	CAN-L
24	L	CAN-H
31	B	2ND SIGNAL GROUND

Connector No.	E119
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



9	8	7	6		5	4	3	
18	17	16	15	14	13	12	11	10

Terminal No.	Color of Wire	Signal Name
4	Y	O LIGHT POSITION REAR LH
12	B	SIGNAL GROUND
17	W	O LIGHT POSITION REAR RH

Connector No.	E44
Connector Name	JOINT CONNECTOR-E01
Connector Color	WHITE



4	3	2	1
8	7	6	5
12	11	10	9
16	15	14	13
20	19	18	17
24	23	22	21
28	27	26	25

Terminal No.	Color of Wire	Signal Name
5	L	-
6	P	-
9	L	-
10	P	-

Connector No.	E121
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	RED



45	44	43
48	47	46

Terminal No.	Color of Wire	Signal Name
47	B	POWER GROUND

AALIA2152GB

A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM

< WIRING DIAGRAM >

[HALOGEN HEADLAMP]

Connector No.	E201
Connector Name	WIRE TO WIRE
Connector Color	WHITE

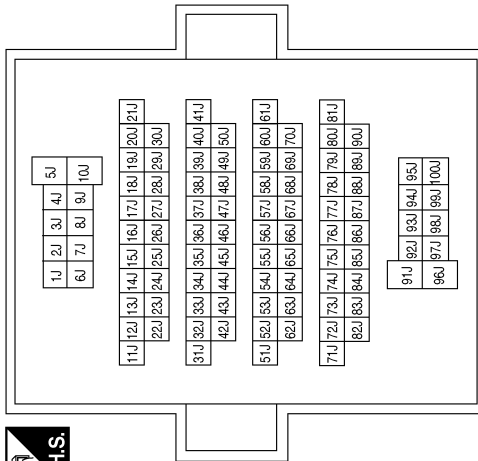


2	1
4	3

Terminal No.	Color of Wire	Signal Name
2	B	—
3	B	—

Terminal No.	Color of Wire	Signal Name
61J	L	—
62J	P	—

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	E233
Connector Name	FRONT COMBINATION LAMP RH (WITH HALOGEN HEADLAMPS)
Connector Color	BLACK



4	5	6
7	8	9

Connector No.	E218
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE



59	58	57
64	63	62
61	60	

Connector No.	E217
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BROWN



51	50	49
56	55	54
53	52	

Terminal No.	Color of Wire	Signal Name
8	B	—
9	W	—

Terminal No.	Color of Wire	Signal Name
61	GR	O LIGHT CLEARANCE FR RH

Terminal No.	Color of Wire	Signal Name
56	BG	O LIGHT CLEARANCE FR LH

AALIA2153GB

PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM

< WIRING DIAGRAM >

[HALOGEN HEADLAMP]

Connector No.	E236
Connector Name	FRONT COMBINATION LAMP LH (WITH HALOGEN HEADLAMPS)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
11	GR	-
12	BG	-

Connector No.	E235
Connector Name	FRONT COMBINATION LAMP LH (WITH HALOGEN HEADLAMPS)
Connector Color	BLACK



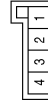
Terminal No.	Color of Wire	Signal Name
8	B	-
9	P	-

Connector No.	E234
Connector Name	FRONT COMBINATION LAMP RH (WITH HALOGEN HEADLAMPS)
Connector Color	GRAY



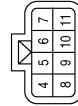
Terminal No.	Color of Wire	Signal Name
11	GR	-
12	GR	-

Connector No.	B2
Connector Name	JOINT CONNECTOR-B27
Connector Color	WHITE



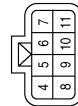
Terminal No.	Color of Wire	Signal Name
1	LA/R	-
2	LA/R	-
3	LA/R	-
4	LA/R	-

Connector No.	E240
Connector Name	FRONT COMBINATION LAMP RH (WITH LED HEADLAMPS)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
9	GR	-
10	W	-
11	B	-

Connector No.	E239
Connector Name	FRONT COMBINATION LAMP LH (WITH LED HEADLAMPS)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
9	BG	-
10	P	-
11	B	-

AALIA2154GB

A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM

< WIRING DIAGRAM >

[HALOGEN HEADLAMP]

Connector No.	B3
Connector Name	JOINT CONNECTOR-B03
Connector Color	WHITE



4	3	2	1
---	---	---	---

Connector No.	B16
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GREEN



60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41
80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61

Terminal No.	Color of Wire	Signal Name
1	LA/BR	—
2	LA/BR	—
3	LA/BR	—

Terminal No.	Color of Wire	Signal Name
60	L	CAN-H
80	P	CAN-L

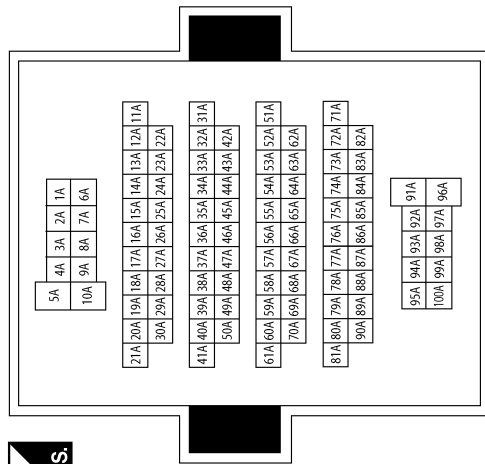
Connector No.	B29
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



2T	1T
6T	5T
4T	3T

Terminal No.	Color of Wire	Signal Name
1T	LA/R	—

Connector No.	B40
Connector Name	WIRE TO WIRE
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
99A	LA/BR	—

Connector No.	B41
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Terminal No.	Color of Wire	Signal Name
24	P	—
25	L	—

PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM

< WIRING DIAGRAM >

[HALOGEN HEADLAMP]

Connector No.	B54
Connector Name	WIRE TO WIRE
Connector Color	WHITE



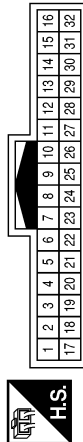
Terminal No.	Color of Wire	Signal Name
1	B	—

Connector No.	B49
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
9	LA/BR	—

Connector No.	B46
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
18	LA/BR	—
22	LA/R	—
23	LA/R	—

Connector No.	B102
Connector Name	REAR COMBINATION LAMP RH
Connector Color	WHITE



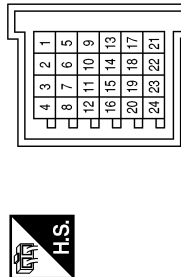
Terminal No.	Color of Wire	Signal Name
1	LA/BR	—
4	B	—

Connector No.	B90
Connector Name	REAR COMBINATION LAMP LH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	LA/R	—
4	B	—

Connector No.	B63
Connector Name	JOINT CONNECTOR-B01
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
3	P	—
4	L	—
7	P	—
8	L	—

AALIA2156GB

A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM

< WIRING DIAGRAM >

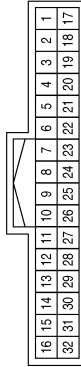
[HALOGEN HEADLAMP]

Connector No.	D505
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	B	-

Connector No.	D501
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
18	LA/R	-
22	LA/Y	-
23	P	-

Connector No.	B140
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
9	LA/BR	-

Connector No.	D518
Connector Name	BACK-UP LAMP ASSEMBLY LH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	GR	-
3	LA/Y	-

Connector No.	D517
Connector Name	LICENSE PLATE LAMP RH
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
1	B	-
2	R	-

Connector No.	D516
Connector Name	LICENSE PLATE LAMP LH
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
1	B	-
2	P	-

AALIA2157GB

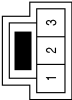
PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM

< WIRING DIAGRAM >

[HALOGEN HEADLAMP]

A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

Connector No.	D519
Connector Name	BACK-UP LAMP ASSEMBLY RH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	GR	-
3	LA/R	-

AALIA2173GB

STOP LAMP

< WIRING DIAGRAM >

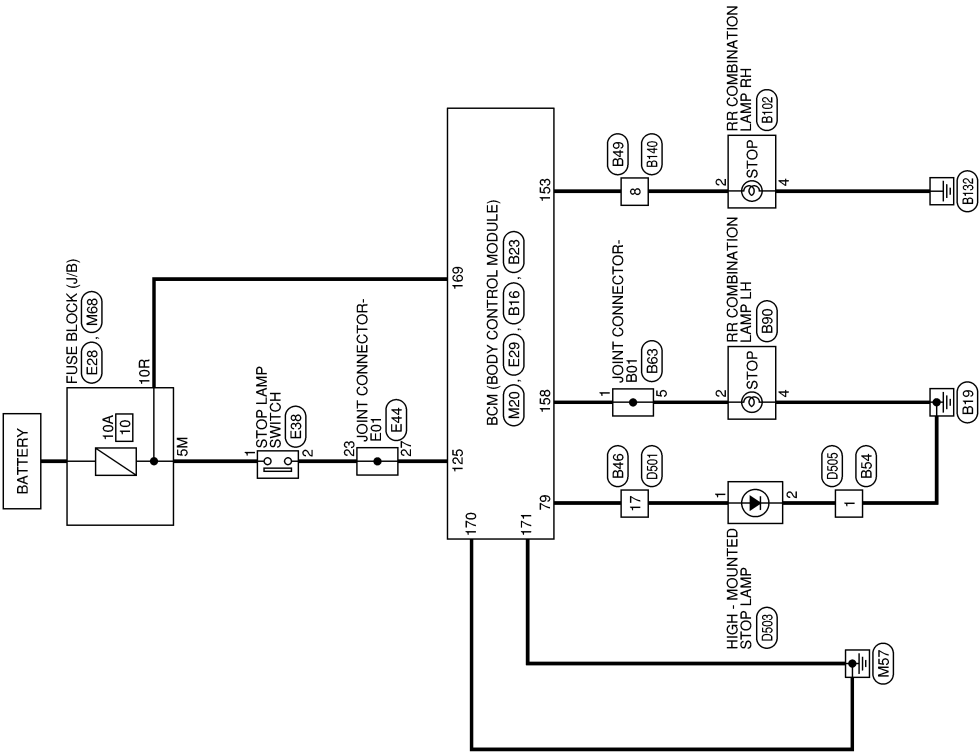
[HALOGEN HEADLAMP]

STOP LAMP

Wiring Diagram

INFOID:000000010288628

STOP LAMP



AALWA0765GB

STOP LAMP

< WIRING DIAGRAM >

[HALOGEN HEADLAMP]

STOP LAMP CONNECTORS

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
169	GR	I PWR STOP LAMP
170	B	I GND1
171	B	I GND2

Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
10R	GR	-

Connector No.	E28
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
5M	V	-

Connector No.	E29
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



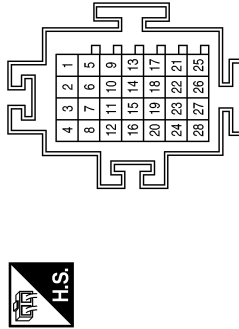
Terminal No.	Color of Wire	Signal Name
125	LG	I BRAKE SW2

Connector No.	E38
Connector Name	STOP LAMP SWITCH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	V	-
2	LG	-

Connector No.	E44
Connector Name	JOINT CONNECTOR-E01
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
23	LG	-
27	LG	-

AALIA2158GB

A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

STOP LAMP

< WIRING DIAGRAM >

[HALOGEN HEADLAMP]

Connector No.	B46
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Terminal No.	Color of Wire	Signal Name
17	LA/W	—

Connector No.	B23
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY



151	150	149	148	147	146	145
160	159	158	157	156	155	154
153	152					

Terminal No.	Color of Wire	Signal Name
153	LA/W	O STOP LAMP 1
158	LA/Y	O STOP LAMP 2 NISSAN EUR

Connector No.	B16
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GREEN



60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41
80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61

Terminal No.	Color of Wire	Signal Name
79	LA/W	O STOP LAMP 3

Connector No.	B63
Connector Name	JOINT CONNECTOR-B01
Connector Color	GRAY



4	3	2	1
8	7	6	5
12	11	10	9
16	15	14	13
20	19	18	17
24	23	22	21

Terminal No.	Color of Wire	Signal Name
1	LA/Y	—
5	LA/Y	—

Connector No.	B54
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1
2

Terminal No.	Color of Wire	Signal Name
1	B	—

Connector No.	B49
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5
6	7	8	9	10
11	12			

Terminal No.	Color of Wire	Signal Name
8	LA/W	—

AALIA2159GB

STOP LAMP

< WIRING DIAGRAM >

[HALOGEN HEADLAMP]

Connector No.	B140
Connector Name	WIRE TO WIRE
Connector Color	WHITE



5	4		3	2	1	
12	11	10	9	8	7	6

Terminal No.	Color of Wire	Signal Name
8	LA/Y	—

Connector No.	B102
Connector Name	REAR COMBINATION LAMP RH
Connector Color	WHITE



4	3	2	1
---	---	---	---

Terminal No.	Color of Wire	Signal Name
2	LA/Y	—
4	B	—

Connector No.	B90
Connector Name	REAR COMBINATION LAMP LH
Connector Color	WHITE



4	3	2	1
---	---	---	---

Terminal No.	Color of Wire	Signal Name
2	LA/Y	—
4	B	—

Connector No.	D505
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2
---	---

Terminal No.	Color of Wire	Signal Name
1	B	—

Connector No.	D503
Connector Name	HIGH-MOUNTED STOP LAMP
Connector Color	WHITE



2	1
---	---

Terminal No.	Color of Wire	Signal Name
1	Y	—
2	B	—

Connector No.	D501
Connector Name	WIRE TO WIRE
Connector Color	WHITE



16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17

Terminal No.	Color of Wire	Signal Name
17	Y	—

AALIA2160GB

A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

BACK-UP LAMP

< WIRING DIAGRAM >

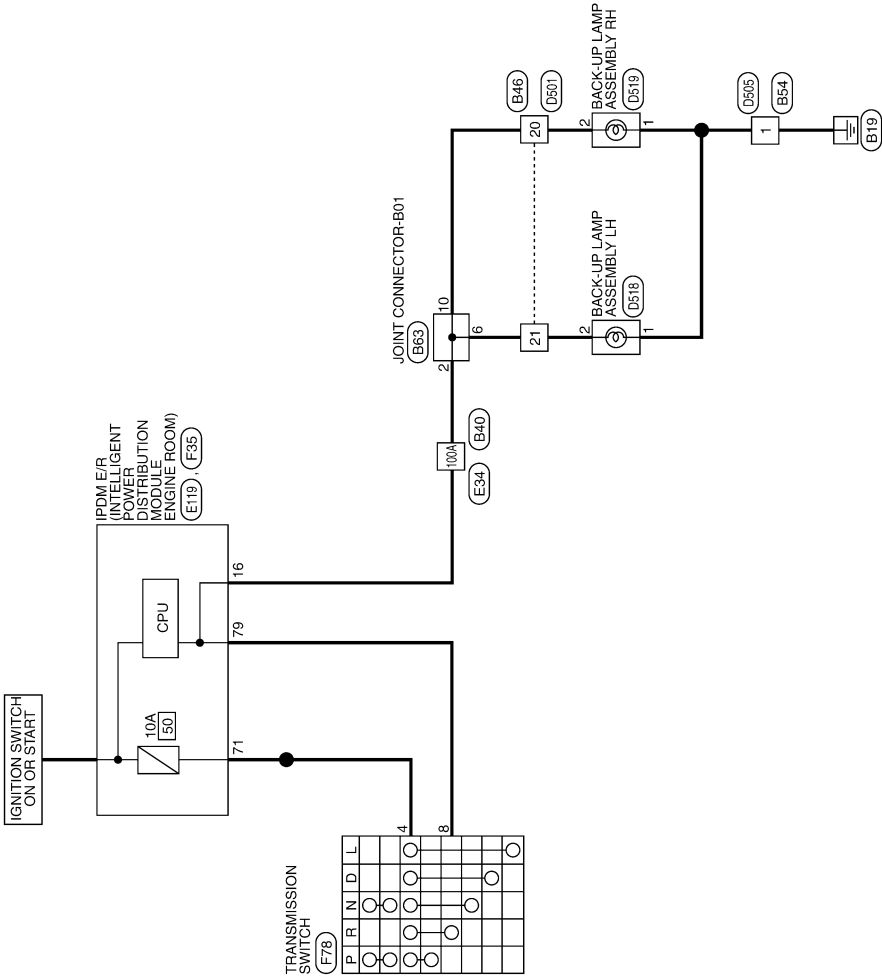
[HALOGEN HEADLAMP]

BACK-UP LAMP

Wiring Diagram

INFOID:0000000010288629

BACK - UP LAMP



AALWA0763GB

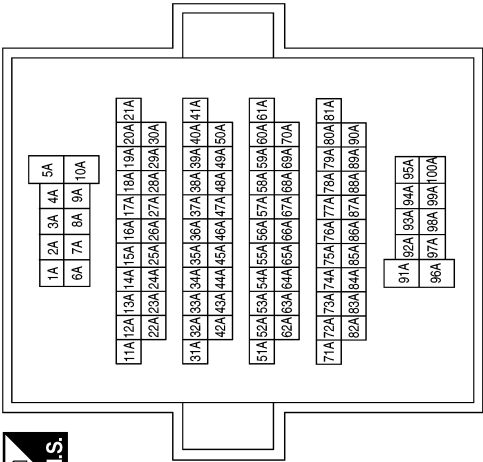
BACK-UP LAMP

< WIRING DIAGRAM >

[HALOGEN HEADLAMP]

BACK-UP LAMP CONNECTORS

Connector No.	E34
Connector Name	WIRE TO WIRE
Connector Color	GRAY



1A	2A	3A	4A	5A
6A	7A	8A	9A	10A

11A	12A	13A	14A	15A	16A	17A	18A	19A	20A	21A
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

22A	23A	24A	25A	26A	27A	28A	29A	30A
-----	-----	-----	-----	-----	-----	-----	-----	-----

31A	32A	33A	34A	35A	36A	37A	38A	39A	40A	41A
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

42A	43A	44A	45A	46A	47A	48A	49A	50A
-----	-----	-----	-----	-----	-----	-----	-----	-----

51A	52A	53A	54A	55A	56A	57A	58A	59A	60A	61A
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

62A	63A	64A	65A	66A	67A	68A	69A	70A
-----	-----	-----	-----	-----	-----	-----	-----	-----

71A	72A	73A	74A	75A	76A	77A	78A	79A	80A	81A
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

82A	83A	84A	85A	86A	87A	88A	89A	90A
-----	-----	-----	-----	-----	-----	-----	-----	-----

91A	92A	93A	94A	95A
96A	97A	98A	99A	100A



Connector No.	F35
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE

71	70	69	68		67	66	65	
80	79	78	77	76	75	74	73	72

Terminal No.	Color of Wire	Signal Name
100A	G	-

Connector No.	E119
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



9	8	7	6		5	4	3	
18	17	16	15	14	13	12	11	10

Terminal No.	Color of Wire	Signal Name
16	G	O LIGHT REVERSE LAMP

Connector No.	F78
Connector Name	TRANSMISSION RANGE SWITCH
Connector Color	BLACK



6	5	4	3	2	1
10	9	8	7		

Terminal No.	Color of Wire	Signal Name
4	W	-
8	G	-

Terminal No.	Color of Wire	Signal Name
71	SB	O IGN REVERSE SW AC VALVE
79	G	LI LIGHT REVERSE SW

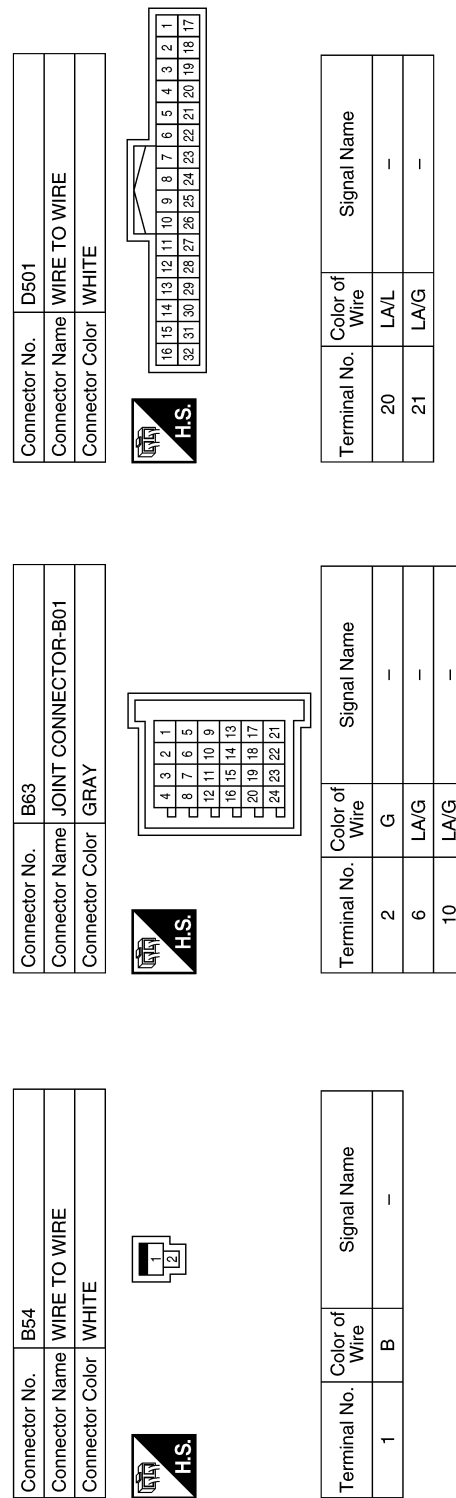
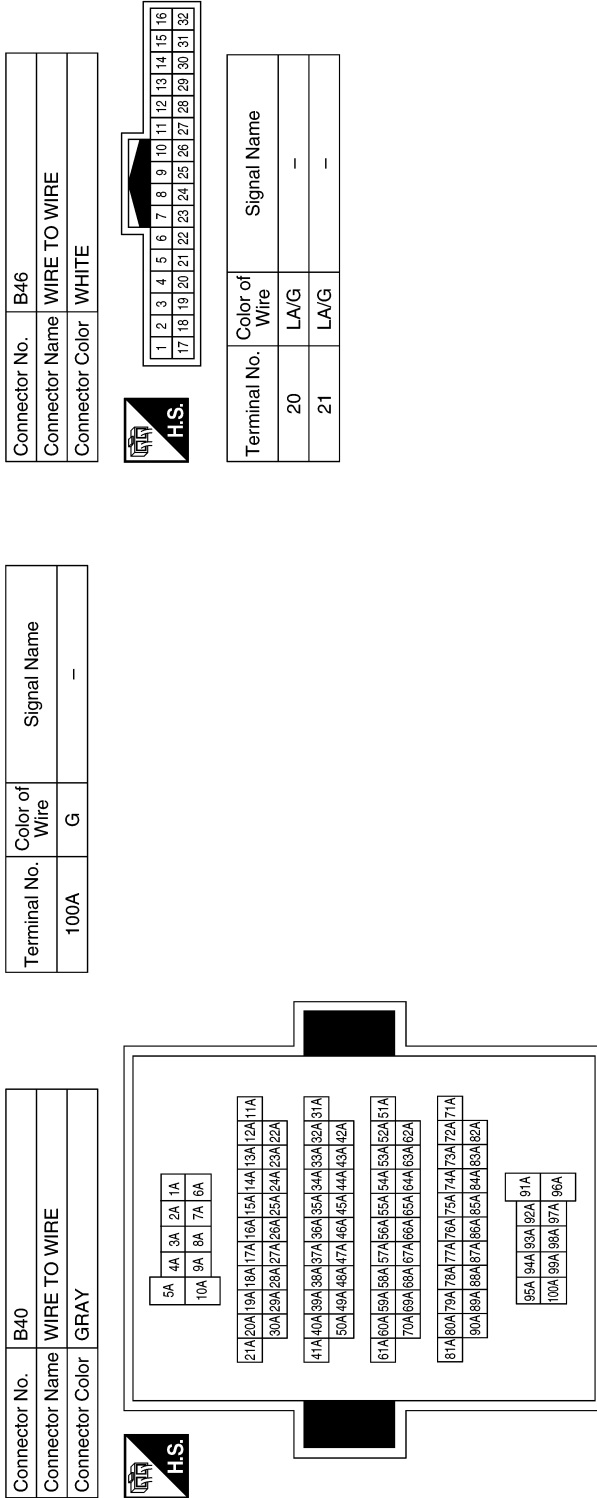
AALIA2118GB

A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

BACK-UP LAMP

< WIRING DIAGRAM >

[HALOGEN HEADLAMP]



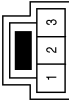
AALIA2119GB

BACK-UP LAMP

< WIRING DIAGRAM >

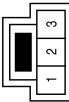
[HALOGEN HEADLAMP]

Connector No.	D519
Connector Name	BACK-UP LAMP ASSEMBLY RH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	GR	-
2	LA/L	-

Connector No.	D518
Connector Name	BACK-UP LAMP ASSEMBLY LH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	GR	-
2	LA/G	-

Connector No.	D505
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	B	-

AALIA2120GB

A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

EXL

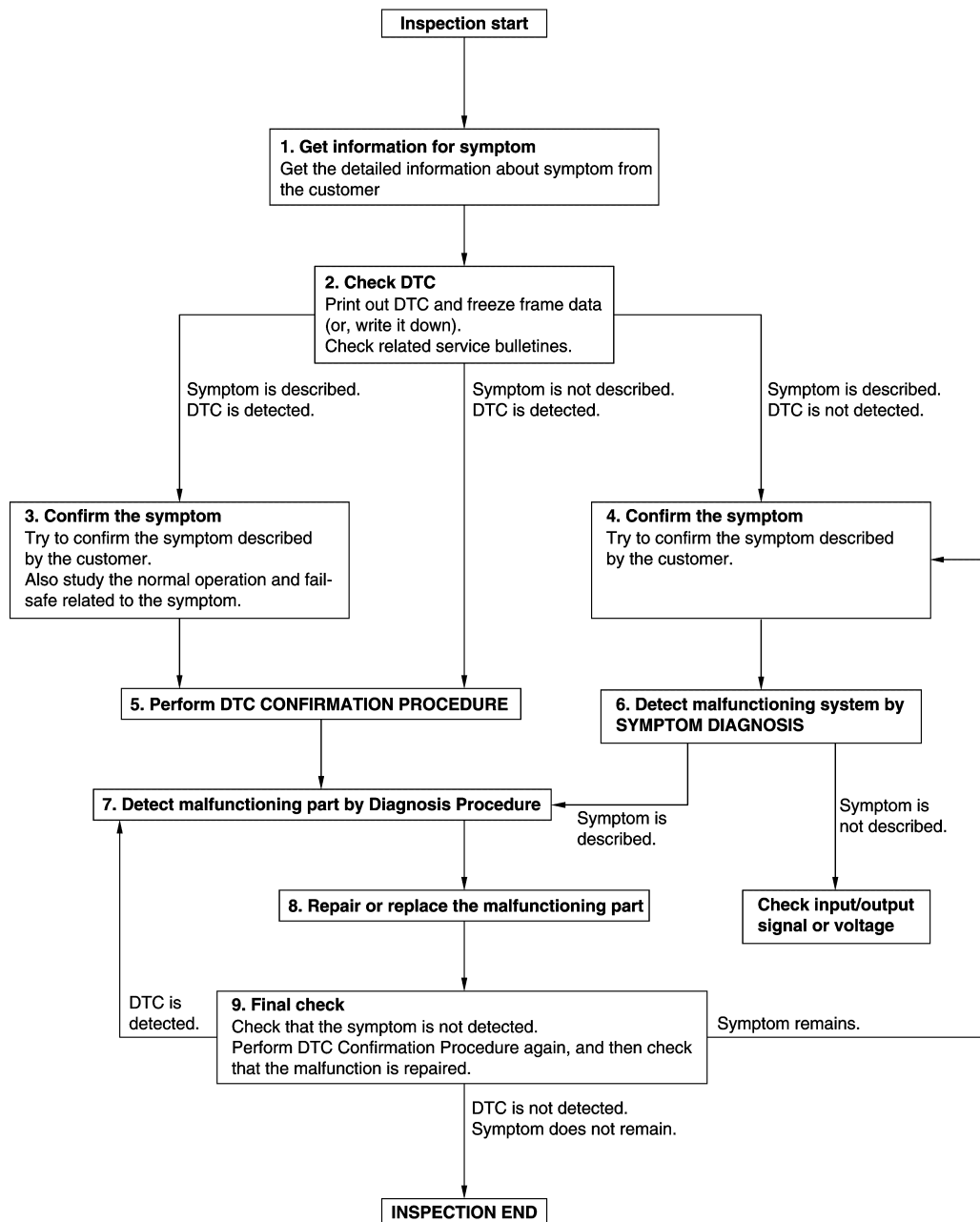
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:0000000010286974

OVERALL SEQUENCE



JMKIA8652GB

DETAILED FLOW

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

[HALOGEN HEADLAMP]

1.GET INFORMATION FOR SYMPTOM

1. Get detailed information from the customer about the symptom (the condition and the environment when the incident/malfunction occurs).
2. Check operation condition of the function that is malfunctioning.

>> GO TO 2.

2.CHECK DTC

1. Check DTC.
2. Perform the following procedure if DTC is detected.
 - Record DTC and freeze frame data (Print them out using CONSULT.)
 - Erase DTC.
 - Study the relationship between the cause detected by DTC and the symptom described by the customer.
3. Check related service bulletins for information.

Are any symptoms described and any DTC detected?

Symptom is described, DTC is detected>>GO TO 3.

Symptom is described, DTC is not detected>>GO TO 4.

Symptom is not described, DTC is detected>>GO TO 5.

3.CONFIRM THE SYMPTOM

Try to confirm the symptom described by the customer.

Also study the normal operation and fail-safe related to the symptom.

Verify relation between the symptom and the condition when the symptom is detected.

>> GO TO 5.

4.CONFIRM THE SYMPTOM

Try to confirm the symptom described by the customer.

Verify relation between the symptom and the condition when the symptom is detected.

>> GO TO 6.

5.PERFORM DTC CONFIRMATION PROCEDURE

Perform DTC CONFIRMATION PROCEDURE for the detected DTC, and then check that DTC is detected again. At this time, always connect CONSULT to the vehicle, and check self diagnostic results in real time.

If two or more DTCs are detected, refer to [BCS-47, "DTC Inspection Priority Chart"](#) (BCM) (with Intelligent Key System) or [BCS-107, "DTC Inspection Priority Chart"](#) (BCM) (without Intelligent Key System) or [PCS-12, "Reference Value"](#) (IPDM E/R), and determine trouble diagnosis order.

NOTE:

- Freeze frame data is useful if the DTC is not detected.
- Perform Component Function Check if DTC CONFIRMATION PROCEDURE is not included on Service Manual. This simplified check procedure is an effective alternative though DTC cannot be detected during this check.

If the result of Component Function Check is NG, it is the same as the detection of DTC by DTC CONFIRMATION PROCEDURE.

Is DTC detected?

YES >> GO TO 7.

NO >> Check according to [GI-41, "Intermittent Incident"](#).

6.DETECT MALFUNCTIONING SYSTEM BY SYMPTOM DIAGNOSIS

Detect malfunctioning system according to SYMPTOM DIAGNOSIS based on the confirmed symptom in step 4, and determine the trouble diagnosis order based on possible causes and symptom.

Is the symptom described?

YES >> GO TO 7.

NO >> Monitor input data from related sensors or check voltage of related module terminals using CONSULT.

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

[HALOGEN HEADLAMP]

7. DETECT MALFUNCTIONING PART BY DIAGNOSTIC PROCEDURE

Inspect according to Diagnostic Procedure of the system.

Is malfunctioning part detected?

YES >> GO TO 8.

NO >> Check according to [GI-41, "Intermittent Incident"](#).

8. REPAIR OR REPLACE THE MALFUNCTIONING PART

1. Repair or replace the malfunctioning part.
2. Reconnect parts or connectors disconnected during Diagnostic Procedure again after repair and replacement.
3. Check DTC. If DTC is detected, erase it.

>> GO TO 9.

9. FINAL CHECK

When DTC is detected in step 2, perform DTC CONFIRMATION PROCEDURE again, and then check that the malfunction is repaired securely.

When symptom is described by the customer, refer to confirmed symptom in step 3 or 4, and check that the symptom is not detected.

Is DTC detected and does symptom remain?

YES-1 >> DTC is detected: GO TO 7.

YES-2 >> Symptom remains: GO TO 4.

NO >> Before returning the vehicle to the customer, always erase DTC.

INSPECTION AND ADJUSTMENT

< BASIC INSPECTION >

[HALOGEN HEADLAMP]

INSPECTION AND ADJUSTMENT

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Description

INFOID:0000000010376487

CAUTION:

- When the IPDM E/R is replaced or disconnected and reconnected, perform "SENSOR INITIALIZE" with CONSULT.

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement

INFOID:0000000010376488

1. SENSOR INITIALIZE

CONSULT WORK SUPPORT

Perform "SENSOR INITIALIZE". Refer to [EXL-85. "SENSOR INITIALIZE : Special Repair Requirement"](#).

>> WORK END

SENSOR INITIALIZE

SENSOR INITIALIZE : Description

INFOID:0000000010376489

HEADLAMP AIMING CONTROL SYSTEM

Perform the sensor initialize when installing, removing and replacing the auto levelizer control unit or suspension components.

SENSOR INITIALIZE : Special Repair Requirement

INFOID:0000000010376490

CAUTION:

If performing aiming adjustment after the levelizer initialization, be sure to start the engine after turning ignition switch OFF.

1. VEHICLE CONDITION CHECK

1. Park the vehicle in the straight-forward position.
2. Unload the vehicle (no passenger aboard).

>> GO TO 2.

2. SENSOR INITIALIZE

CONSULT WORK SUPPORT

1. Select "SENSOR INITIALIZE" of IPDM E/R work support item.
2. Select "START".
3. When "INITIALIZE COMPLETE", select "END".

CAUTION:

If "INITIALIZE NOT DONE" is indicated, auto levelizer control unit detects that the sensor lever signal was changing. The sensor initialization is cancelled. In this case, turn the ignition switch OFF, do not allow the vehicle height to change. Perform the sensor initialization again.

Is the sensor initialize completed?

YES >> GO TO 3.

NO >> Perform the sensor initialize again.

3. SELF-DIAGNOSIS RESULT CHECK

Perform the self-diagnosis with CONSULT. Check that any DTC is not detected.

Is any DTC detected?

YES >> GO TO 2.

NO >> Sensor initialize completed.

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[HALOGEN HEADLAMP]

DTC/CIRCUIT DIAGNOSIS

POWER SUPPLY AND GROUND CIRCUIT

BCM (BODY CONTROL SYSTEM) (WITH INTELLIGENT KEY SYSTEM)

BCM (BODY CONTROL SYSTEM) (WITH INTELLIGENT KEY SYSTEM) : Diagnosis Procedure

INFOID:0000000010290265

Regarding Wiring Diagram information, refer to [BCS-50, "Wiring Diagram"](#).

1. CHECK FUSE

Check that the following fuse is not blown.

Terminal No.	Signal name	Fuse No.
161	BCM power supply	7 (10A)

Is the fuse blown?

YES >> Replace the blown fuse after repairing the affected circuit.

NO >> GO TO 2.

2. CHECK POWER SUPPLY CIRCUIT

1. Disconnect BCM connector M20.

2. Check voltage between BCM connector M20 and ground.

BCM		Ground	Voltage (Approx.)
Connector	Terminal		
M20	161	—	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

3. CHECK GROUND CIRCUIT

Check continuity between BCM connector M20 and ground.

BCM		Ground	Continuity
Connector	Terminal		
M20	170	—	Yes
	171		

Is the inspection result normal?

YES >> Inspection End.

NO >> Repair or replace harness or connectors.

BCM (BODY CONTROL SYSTEM) (WITHOUT INTELLIGENT KEY SYSTEM)

BCM (BODY CONTROL SYSTEM) (WITHOUT INTELLIGENT KEY SYSTEM) : Diagnosis Procedure

INFOID:0000000010290266

Regarding Wiring Diagram information, refer to [BCS-110, "Wiring Diagram"](#).

1. CHECK FUSE

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[HALOGEN HEADLAMP]

Check that the following fuse is not blown.

Terminal No.	Signal name	Fuse No.
161	BCM power supply	7 (10A)

Is the fuse blown?

- YES >> Replace the blown fuse after repairing the affected circuit.
NO >> GO TO 2.

2. CHECK POWER SUPPLY CIRCUIT

1. Disconnect BCM connector M20.
2. Check voltage between BCM connector M20 and ground.

BCM		Ground	Voltage (Approx.)
Connector	Terminal		
M20	161	—	Battery voltage

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace harness or connectors.

3. CHECK GROUND CIRCUIT

Check continuity between BCM connector M20 and ground.

BCM		Ground	Continuity
Connector	Terminal		
M20	170	—	Yes
	171		

Is the inspection result normal?

- YES >> Inspection End.
NO >> Repair or replace harness or connectors.

A
B
C
D
E
F
G
H
I
J
K
M
N
O
P

EXL

OPTICAL SENSOR

Component Function Check

INFOID:0000000010286996

1.CHECK OPTICAL SENSOR SIGNAL BY CONSULT

CONSULT DATA MONITOR

1. Turn power switch ON.
2. Select "OPTICAL SENSOR" of BCM (HEADLAMP) data monitor item.
3. Turn lighting switch AUTO.
4. With the optical sensor illuminating, check the monitor status.

Monitor item	Condition		Voltage (Approx.)
OPTICAL SENSOR	Optical sensor	When illuminating	3.1 V or more *
		When shutting off light	0.6 V or less

*: Illuminates the optical sensor. The value may be less than the standard value if brightness is weak.

Is the inspection result normal?

- YES >> Optical sensor is normal.
 NO >> Refer to [EXL-88, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010286997

1.CHECK OPTICAL SENSOR POWER SUPPLY INPUT

1. Turn power switch ON.
2. Turn lighting switch AUTO.
3. Check voltage between optical sensor harness connector and ground.

(+) <table><tr><td colspan="2">Optical sensor</td></tr><tr><td>Connector</td><td>Terminal</td></tr><tr><td>M13</td><td>1</td></tr></table>		Optical sensor		Connector	Terminal	M13	1	(-)	Voltage (Approx.)
Optical sensor									
Connector	Terminal								
M13	1								
		Ground	5 V						

Is the inspection result normal?

- YES >> GO TO 2.
 NO >> GO TO 4.

2.CHECK OPTICAL SENSOR GROUND INPUT

Check voltage between optical sensor harness connector and ground.

(+) <table><tr><td colspan="2">Optical sensor</td></tr><tr><td>Connector</td><td>Terminal</td></tr><tr><td>M13</td><td>3</td></tr></table>		Optical sensor		Connector	Terminal	M13	3	(-)	Voltage (Approx.)
Optical sensor									
Connector	Terminal								
M13	3								
		Ground	0 V						

Is the inspection result normal?

- YES >> GO TO 3.
 NO >> GO TO 6.

3.CHECK OPTICAL SENSOR SIGNAL OUTPUT

With illuminating the optical sensor, check voltage between optical sensor harness connector and ground.

OPTICAL SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[HALOGEN HEADLAMP]

(+)		(-)	Condition		Voltage (Approx.)
Optical sensor					
Connector	Terminal				
M13	2	Ground	Optical sensor	When illuminating	3.1 V or more *
				When shutting off light	0.6 V or less

*: Illuminate the optical sensor. The value may be less than the standard if brightness is weak.

Is the inspection result normal?

YES >> GO TO 7.

NO >> Replace the optical sensor.

4.CHECK OPTICAL SENSOR OPEN CIRCUIT

1. Turn power switch OFF.
2. Disconnect optical sensor connector and BCM connector.
3. Check continuity between optical sensor harness connector and BCM harness connector.

Optical sensor		BCM		Continuity
Connector	Terminal	Connector	Terminal	
M13	1	M18	12	Yes

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace harness.

5.CHECK OPTICAL SENSOR SHORT CIRCUIT

Check continuity between optical sensor harness connector and ground.

Optical sensor		Ground	Continuity
Connector	Terminal		
M13	1		No

Is the inspection result normal?

YES >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#) (with Intelligent Key system) or [BCS-135, "Removal and Installation"](#) (without Intelligent Key system).

NO >> Repair or replace harness.

6.CHECK OPTICAL SENSOR GROUND OPEN CIRCUIT

1. Turn power switch OFF.
2. Disconnect optical sensor connector and BCM connector.
3. Check continuity between optical sensor harness connector and BCM harness connector.

Optical sensor		BCM		Continuity
Connector	Terminal	Connector	Terminal	
M13	3	M18	30	Yes

Is the inspection result normal?

YES >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#) (with Intelligent Key system) or [BCS-135, "Removal and Installation"](#) (without Intelligent Key system).

NO >> Repair or replace harness.

7.CHECK OPTICAL SENSOR SIGNAL OPEN CIRCUIT

1. Turn power switch OFF.
2. Disconnect optical sensor connector and BCM connector.
3. Check continuity between optical sensor harness connector and BCM harness connector.

OPTICAL SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[HALOGEN HEADLAMP]

Optical sensor		BCM		Continuity
Connector	Terminal	Connector	Terminal	
M13	2	M18	19	Yes

Is the inspection result normal?

YES >> GO TO 8.

NO >> Repair or replace harness.

8.CHECK OPTICAL SENSOR SHORT CIRCUIT

Check continuity between optical sensor harness connector and ground.

Optical sensor		Ground	Continuity
Connector	Terminal		
M13	2		No

Is the inspection result normal?

YES >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#) (with Intelligent Key system) or [BCS-135, "Removal and Installation"](#) (without Intelligent Key system).

NO >> Repair or replace harness.

HAZARD SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[HALOGEN HEADLAMP]

HAZARD SWITCH

Component Function Check

INFOID:0000000010286998

1.CHECK HAZARD SWITCH SIGNAL BY CONSULT

CONSULT DATA MONITOR

1. Turn power switch ON.
2. Select "HAZARD SW" of BCM (FLASHER) data monitor item.
3. With operating the hazard switch, check the monitor status.

Monitor item	Condition		Monitor status
HAZARD SW	Hazard switch	ON	On
		OFF	Off

Is the inspection result normal?

- YES >> Hazard switch circuit is normal.
NO >> Refer to [EXL-91, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010286999

1.CHECK HAZARD SWITCH SIGNAL INPUT

1. Turn power switch OFF.
2. Disconnect hazard switch connector.
3. Check voltage between hazard switch connector and ground.

(+)		(-)	Voltage (Approx.)
Hazard switch			
Connector	Terminal		
M26	2	Ground	Battery voltage

Is the inspection result normal?

- YES >> GO TO 4.
NO >> GO TO 2.

2.CHECK HAZARD SWITCH SIGNAL OPEN CIRCUIT

1. Disconnect BCM connector.
2. Check continuity between hazard switch harness connector and BCM harness connector.

Hazard switch		BCM		Continuity
Connector	Terminal	Connector	Terminal	
M26	2	M18	11	Yes

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace harness.

3.CHECK HAZARD SWITCH SIGNAL SHORT CIRCUIT

Check continuity between hazard switch harness connector and ground.

Hazard switch		Ground	Continuity
Connector	Terminal		
M26	2		No

Is the inspection result normal?

- YES >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#) (with Intelligent Key) or [BCS-135, "Removal and Installation"](#) (without Intelligent Key).
NO >> Repair or replace harness.

HAZARD SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[HALOGEN HEADLAMP]

4. CHECK HAZARD SWITCH GROUND OPEN CIRCUIT

Check continuity between hazard switch harness connector and ground.

Hazard switch		Ground	Continuity
Connector	Terminal		
M26	3		Yes

Is the inspection result normal?

- YES >> Replace hazard switch. Refer to [EXL-125, "Removal and Installation"](#).
NO >> Repair or replace harness.

TURN SIGNAL LAMP CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[HALOGEN HEADLAMP]

TURN SIGNAL LAMP CIRCUIT

Description

INFOID:0000000010330247

The BCM monitors inputs from the combination switch (lighting and turn signal switch) to determine when to activate the turn signals. The BCM outputs voltage direction to the left and right turn signals during turn signal operation or both during hazard warning operation. The BCM sends a turn signal indicator request to the combination meter via the CAN communication lines.

The BCM performs the fast flasher operation (fail-safe) if any bulb or harness of the turn signal lamp circuit is open.

NOTE:

Turn signal lamp blinks at normal speed when using the hazard warning lamp.

Component Function Check

INFOID:0000000010330248

1.CHECK TURN SIGNAL LAMP

CONSULT

1. Select FLASHER of BCM (FLASHER) active test item.
2. While operating the test items, check that the turn signal lamp blinks.

LH : Turn signal lamps (LH) ON

RH : Turn signal lamps (RH) ON

Off : Turn signal lamps OFF

Is the inspection result normal?

YES >> Turn signal lamp circuit is normal.

NO >> Refer to [EXL-93, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010330249

Regarding Wiring Diagram information, refer to [EXL-185, "Wiring Diagram"](#).

1.CHECK TURN SIGNAL LAMP BULB

Check the applicable lamp bulb to be sure the proper bulb standard is in use and the bulb is not open.

Is the bulb OK?

YES >> GO TO 2.

NO >> Replace the bulb.

2.CHECK TURN SIGNAL LAMP OUTPUT VOLTAGE

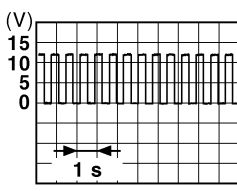
1. Turn the ignition switch OFF.
2. Disconnect the front combination lamp harness connector or the side turn signal harness connector or the rear combination lamp harness connector in question.
3. Turn the ignition switch ON.
4. Operate the turn signal switch.
5. While the turn signal is operating, check the voltage between the front combination lamp harness connector and ground.

(+)		(-)	Voltage (Approx.)
Connector	Terminal		

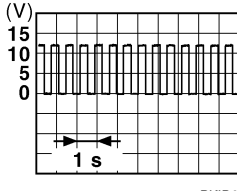
TURN SIGNAL LAMP CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[HALOGEN HEADLAMP]

LH	E105			
RH	E103	1	Ground	

6. While the turn signal is operating, check the voltage between the rear combination lamp harness connector and ground.

(+) Connector		Terminal	(-)	Voltage (Approx.)
LH	B90			
RH	B102	3	Ground	

Are the inspection results normal?

YES >> GO TO 5.

NO >> GO TO 3.

3.CHECK TURN SIGNAL LAMP CIRCUIT FOR OPEN

- Turn the ignition switch OFF.
- Disconnect BCM harness connector E29 or B23.
- Check continuity between the BCM harness connector E29 and the front combination lamp harness connector.

BCM		Front combination lamp		Continuity
Connector	Terminal	Connector	Terminal	
LH	E29	E105	1	Yes
RH		E103		

4. Check continuity between the BCM harness connector B23 and the rear combination lamp harness connector.

BCM		Rear combination lamp		Continuity
Connector	Terminal	Connector	Terminal	
LH	B23	B90	3	Yes
RH		B102		

Are the inspection results normal?

YES >> GO TO 4.

NO >> Repair or replace the harness or connectors.

4.CHECK TURN SIGNAL LAMP SHORT CIRCUIT

- Check continuity between the BCM harness connector E29 and ground.

TURN SIGNAL LAMP CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[HALOGEN HEADLAMP]

BCM			Ground	Continuity
Connector		Terminal		No
LH	E29	135		
RH		136		

2. Check continuity between the BCM harness connector M20 and ground.

BCM			Ground	Continuity
Connector		Terminal		No
LH	B23	157		
RH		160		

Are the inspection results normal?

YES >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#) (with Intelligent Key) or [BCS-135, "Removal and Installation"](#) (without Intelligent Key).

NO >> Repair or replace the harness or connectors.

5.CHECK TURN SIGNAL LAMP GROUND CIRCUIT

- Turn the ignition switch OFF.
- Check continuity between the front combination lamp harness connector or the side turn signal harness connector or the rear combination lamp harness connector in question and ground.

Front combination lamp			(-)	Continuity
Connector		Terminal		
LH	E105	2	Ground	Yes
RH	E103			

3. Check continuity between the rear combination lamp harness connector and ground.

Rear combination lamp			(-)	Continuity
Connector		Terminal		
LH	B90	4	Ground	Yes
RH	B102			

Are the inspection results normal?

YES >> Replace the malfunctioning lamp.

NO >> Repair or replace the harness or connectors.

B121A FRONT FOG LAMP LH POWER SUPPLY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[HALOGEN HEADLAMP]

B121A FRONT FOG LAMP LH POWER SUPPLY CIRCUIT

DTC Logic

INFOID:0000000010321286

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
B121A	FR FOG LAMP LH PWR SPLY CIRC [CIRC SHORT TO GROUND]	• Short to ground	• IPDM E/R • Short to ground

DTC CONFIRMATION PROCEDURE

1.CHECK SELF-DIAGNOSTIC RESULT

⑧ With CONSULT.

1. Turn ignition switch ON.
2. Perform self-diagnostic result.

Is DTC B121A detected?

YES >> Proceed to diagnosis procedure. Refer to [EXL-96, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010321287

1.CHECK FOG LAMP SHORT CIRCUIT TO GROUND

1. Disconnect fog lamp connector and IPDM E/R connector.
2. Check continuity between IPDM E/R harness connector and ground.

IPDM E/R			Ground	Continuity
Connector		Terminal		
LH	E217	51		No

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace harness.

2.CHECK FOG LAMP SHORT CIRCUIT TO GROUND

1. Reconnect IPDM E/R connector.
2. Check continuity between fog lamp harness connector and ground.

Fog lamp (LH)			Ground	Continuity
Connector		Terminal		
LH	E222	1		No

Is the inspection result normal?

YES >> Refer to [GI-41, "Intermittent Incident"](#).
NO >> Replace IPDM E/R. Refer to [PCS-35, "Removal and Installation"](#).

B1231 DAYTIME RUNNING LIGHT RH POWER SUPPLY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[HALOGEN HEADLAMP]

B1231 DAYTIME RUNNING LIGHT RH POWER SUPPLY CIRCUIT

DTC Logic

INFOID:0000000010287232

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
B1231	DTRL RH PWR SPLY CIRC [CIRC SHORT TO GRND]	When a short circuit to ground in the daytime running lamp circuit is detected.	- IPDM E/R - Short to ground

DTC CONFIRMATION PROCEDURE

1.CHECK SELF-DIAGNOSTIC RESULT

 With CONSULT.

1. Turn ignition switch ON.

2. Perform self-diagnostic result.

Is DTC B1231 detected?

YES >> Proceed to diagnosis procedure. Refer to [EXL-97, "Diagnosis Procedure"](#).

NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010375484

1.CHECK FRONT COMBINATION LAMP SHORT CIRCUIT TO GROUND

1. Disconnect front combination lamp connector and IPDM E/R connector.

2. Check continuity between IPDM E/R harness connector and ground.

IPDM E/R			Ground	Continuity
Connector		Terminal		
RH	E218	58		No

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness.

2.CHECK FRONT COMBINATION LAMP SHORT CIRCUIT TO GROUND

1. Reconnect IPDM E/R connector.

2. Check continuity between front combination lamp harness connector and ground.

Front combination lamp (RH)			Ground	Continuity
Connector		Terminal		
RH	E234	10		No

Is the inspection result normal?

YES >> Refer to [GI-41, "Intermittent Incident"](#).

NO >> Replace IPDM E/R. Refer to [PCS-35, "Removal and Installation"](#).

B1256 FRONT FOG LAMP RH POWER SUPPLY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[HALOGEN HEADLAMP]

B1256 FRONT FOG LAMP RH POWER SUPPLY CIRCUIT

DTC Logic

INFOID:0000000010321292

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
B1256	FR FOG LAMP RH PWR SPLY CIRC [CIRC SHORT TO GRND]	When a short circuit to ground is detected.	• IPDM E/R • Short to ground

DTC CONFIRMATION PROCEDURE

1.CHECK SELF-DIAGNOSTIC RESULT

 With CONSULT.

1. Turn ignition switch ON.
2. Perform self-diagnostic result.

Is DTC B1256 detected?

YES >> Proceed to diagnosis procedure. Refer to [EXL-98, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010375499

1.CHECK FOG LAMP SHORT CIRCUIT TO GROUND

1. Disconnect fog lamp connector and IPDM E/R connector.
2. Check continuity between IPDM E/R harness connector and ground.

IPDM E/R			Ground	Continuity
Connector		Terminal		
LH	E217	51		No

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace harness.

2.CHECK FOG LAMP SHORT CIRCUIT TO GROUND

1. Reconnect IPDM E/R connector.
2. Check continuity between fog lamp harness connector and ground.

Fog lamp (LH)			Ground	Continuity
Connector		Terminal		
LH	E222	1		No

Is the inspection result normal?

YES >> Refer to [GI-41, "Intermittent Incident"](#).
NO >> Replace IPDM E/R. Refer to [PCS-35, "Removal and Installation"](#).

B20CB DAYTIME RUNNING LIGHT LH POWER SUPPLY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[HALOGEN HEADLAMP]

B20CB DAYTIME RUNNING LIGHT LH POWER SUPPLY CIRCUIT

DTC Logic

INFOID:0000000010296914

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
B02CB	DTRL LH PWR SPLY CIRC [CIRC SHORT TO GRND]	When a short circuit to ground is detected.	• IPDM E/R • Short to ground

DTC CONFIRMATION PROCEDURE

1.CHECK SELF-DIAGNOSTIC RESULT

 With CONSULT.

1. Turn ignition switch ON.

2. Perform self-diagnostic result.

Is DTC B02CB detected?

YES >> Proceed to diagnosis procedure. Refer to [EXL-99. "Diagnosis Procedure"](#).

NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010375500

1.CHECK FRONT COMBINATION LAMP SHORT CIRCUIT TO GROUND

1. Disconnect front combination lamp connector and IPDM E/R connector.

2. Check continuity between IPDM E/R harness connector and ground.

IPDM E/R			Ground	Continuity
Connector		Terminal		
LH	E217	49		No

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness.

2.CHECK FRONT COMBINATION LAMP SHORT CIRCUIT TO GROUND

1. Reconnect IPDM E/R connector.

2. Check continuity between fog lamp harness connector and ground.

Front combination lamp (LH)			Ground	Continuity
Connector		Terminal		
LH	E236	10		No

Is the inspection result normal?

YES >> Refer to [GI-41. "Intermittent Incident"](#).

NO >> Replace IPDM E/R. Refer to [PCS-35. "Removal and Installation"](#).

B20CE HEADLAMP (HI) LH POWER SUPPLY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[HALOGEN HEADLAMP]

B20CE HEADLAMP (HI) LH POWER SUPPLY CIRCUIT

DTC Logic

INFOID:0000000010296917

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
B20CE	DTRL LH PWR SPLY CIRC [CIRC SHORT TO GRND]	• Short to ground	• IPDM E/R • Short to ground

DTC CONFIRMATION PROCEDURE

1.CHECK SELF-DIAGNOSTIC RESULT

 With CONSULT.

1. Turn ignition switch ON.
2. Perform self-diagnostic result.

Is DTC B20CE detected?

- YES >> Proceed to diagnosis procedure. Refer to [EXL-100, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010375501

1.CHECK HEAD LAMP SHORT CIRCUIT TO GROUND

1. Disconnect front combination lamp connector and IPDM E/R connector.
2. Check continuity between IPDM E/R harness connector and ground.

IPDM E/R			Ground	Continuity
Connector		Terminal		
LH	E218	59		No

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace harness.

2.CHECK HEAD LAMP SHORT CIRCUIT TO GROUND

1. Reconnect IPDM E/R connector.
2. Check continuity between front combination lamp harness connector and ground.

Front combination lamp (LH)			Ground	Continuity
Connector		Terminal		
LH	E234	15		No

Is the inspection result normal?

- YES >> Refer to [GI-41, "Intermittent Incident"](#).
NO >> Replace IPDM E/R. Refer to [PCS-35, "Removal and Installation"](#).

B20CF HEADLAMP (HI) RH POWER SUPPLY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[HALOGEN HEADLAMP]

B20CF HEADLAMP (HI) RH POWER SUPPLY CIRCUIT

DTC Logic

INFOID:0000000010296918

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
B20CF	HL (HI) RH PWR SPLY CIRC [CIRC SHORT TO GRND]	• Short to ground	• IPDM E/R • Short to ground

DTC CONFIRMATION PROCEDURE

1.CHECK SELF-DIAGNOSTIC RESULT

 With CONSULT.

1. Turn ignition switch ON.

2. Perform self-diagnostic result.

Is DTC B20CF detected?

YES >> Proceed to diagnosis procedure. Refer to [EXL-101, "Diagnosis Procedure"](#).

NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010375502

1.CHECK HEAD LAMP SHORT CIRCUIT TO GROUND

1. Disconnect front combination lamp connector and IPDM E/R connector.

2. Check continuity between IPDM E/R harness connector and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		
RH	E217	54	No

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness.

2.CHECK HEAD LAMP SHORT CIRCUIT TO GROUND

1. Reconnect IPDM E/R connector.

2. Check continuity between front combination lamp harness connector and ground.

Front combination lamp (RH)		Ground	Continuity
Connector	Terminal		
RH	E234	15	No

Is the inspection result normal?

YES >> Refer to [GI-41, "Intermittent Incident"](#).

NO >> Replace IPDM E/R. Refer to [PCS-35, "Removal and Installation"](#).

B20D0 HEADLAMP (LO) LH POWER SUPPLY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[HALOGEN HEADLAMP]

B20D0 HEADLAMP (LO) LH POWER SUPPLY CIRCUIT

DTC Logic

INFOID:0000000010297886

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
B20D0	HI (LO) RH PWR SPLY CIRC [CIRC SHORT TO GRND]	• Short to ground	• IPDM E/R • Short to ground

DTC CONFIRMATION PROCEDURE

1.CHECK SELF-DIAGNOSTIC RESULT

 With CONSULT.

1. Turn ignition switch ON.
2. Perform self-diagnostic result.

Is DTC B20D0 detected?

- YES >> Proceed to diagnosis procedure. Refer to [EXL-102, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010375503

1.CHECK FRONT COMBINATION LAMP SHORT CIRCUIT TO GROUND

1. Disconnect front combination lamp connector and IPDM E/R connector.
2. Check continuity between IPDM E/R harness connector and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		
LH	E217	50	No

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace harness.

2.CHECK FRONT COMBINATION LAMP SHORT CIRCUIT TO GROUND

1. Reconnect IPDM E/R connector.
2. Check continuity between front combination lamp harness connector and ground.

Front combination lamp (LH)		Ground	Continuity
Connector	Terminal		
LH	E233	4	No

Is the inspection result normal?

- YES >> Refer to [GI-41, "Intermittent Incident"](#).
NO >> Replace IPDM E/R. Refer to [PCS-35, "Removal and Installation"](#).

B20D1 HEADLAMP (LO) RH POWER SUPPLY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[HALOGEN HEADLAMP]

B20D1 HEADLAMP (LO) RH POWER SUPPLY CIRCUIT

DTC Logic

INFOID:0000000010297888

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
B20D1	HL (LO) RH PWR SPLY CIRC [CIRC SHORT TO GRND]	• Short to ground	• IPDM E/R • Short to ground

DTC CONFIRMATION PROCEDURE

1.CHECK SELF-DIAGNOSTIC RESULT

 With CONSULT.

1. Turn ignition switch ON.

2. Perform self-diagnostic result.

Is DTC B20D1 detected?

YES >> Proceed to diagnosis procedure. Refer to [EXL-103. "Diagnosis Procedure"](#).

NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010375504

1.CHECK FRONT COMBINATION LAMP SHORT CIRCUIT TO GROUND

1. Disconnect front combination lamp connector and IPDM E/R connector.

2. Check continuity between IPDM E/R harness connector and ground.

IPDM E/R			Ground	Continuity
Connector		Terminal		
LH	E218	62		No

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness.

2.CHECK FOG LAMP SHORT CIRCUIT TO GROUND

1. Reconnect IPDM E/R connector.

2. Check continuity between fog lamp harness connector and ground.

Fog lamp (LH)			Ground	Continuity
Connector		Terminal		
LH	E233	4		No

Is the inspection result normal?

YES >> Refer to [GI-41. "Intermittent Incident"](#).

NO >> Replace IPDM E/R. Refer to [PCS-35. "Removal and Installation"](#).

B20D2 PARKING LAMP POWER SUPPLY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[HALOGEN HEADLAMP]

B20D2 PARKING LAMP POWER SUPPLY CIRCUIT

DTC Logic

INFOID:0000000010297890

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
B20D2	PARKING LAMP PWR SPLY CIRC [CIRC SHORT TO GROUND]	When a short to ground is detected in the parking lamp power supply circuit.	• Short to ground

DTC CONFIRMATION PROCEDURE

1.CHECK SELF-DIAGNOSTIC RESULT

 With CONSULT.

1. Turn ignition switch ON.
2. Perform self-diagnostic result.

Is DTC B20D2 detected?

- YES >> Proceed to diagnosis procedure. Refer to [EXL-104. "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010375505

1.CHECK FRONT COMBINATION LAMP SHORT CIRCUIT TO GROUND

1. Disconnect front combination lamp connectors and IPDM E/R connector.
2. Check continuity between IPDM E/R harness connector and ground.

IPDM E/R			Ground	Continuity
Connector		Terminal		
LH	E217	56		No
RH	E218	61		

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace harness.

2.CHECK FRONT COMBINATION LAMP SHORT CIRCUIT TO GROUND

1. Reconnect IPDM E/R connector.
2. Check continuity between front combination lamp harness connector and ground.

IPDM E/R			Ground	Continuity
Connector		Terminal		
LH	E217	56		No
RH	E218	61		

Is the inspection result normal?

- YES >> Refer to [GI-41. "Intermittent Incident"](#).
NO >> Replace IPDM E/R. Refer to [PCS-35. "Removal and Installation"](#).

B20D4 TAIL LAMP LH POWER SUPPLY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[HALOGEN HEADLAMP]

B20D4 TAIL LAMP LH POWER SUPPLY CIRCUIT

DTC Logic

INFOID:0000000010297892

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
B20D4	TAIL LAMP LH PWR SPLY CIRC [CIRC SHORT TO GRND]	• Short to ground	• IPDM E/R • Short to ground

DTC CONFIRMATION PROCEDURE

1.CHECK SELF-DIAGNOSTIC RESULT

 With CONSULT.

1. Turn ignition switch ON.

2. Perform self-diagnostic result.

Is DTC B20D4 detected?

YES >> Proceed to diagnosis procedure. Refer to [EXL-105, "Diagnosis Procedure"](#).

NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010375506

1.CHECK TAIL LAMP SHORT CIRCUIT TO GROUND

1. Disconnect rear combination lamp (LH), license plate lamps, back up lamp connectors and IPDM E/R connector.

2. Check continuity between IPDM E/R harness connector and ground.

IPDM E/R			Ground	Continuity
Connector		Terminal		
LH	E119	4		No

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness.

2.CHECK TAIL LAMP SHORT CIRCUIT TO GROUND

1. Reconnect IPDM E/R connector.

2. Check continuity between rear combination lamp harness connector and ground.

Rear combination lamp (LH)			Ground	Continuity
Connector		Terminal		
LH	B90	1		No

Is the inspection result normal?

YES >> Refer to [GI-41, "Intermittent Incident"](#).

NO >> Replace IPDM E/R. Refer to [PCS-35, "Removal and Installation"](#).

B20D5 TAIL LAMP RH POWER SUPPLY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[HALOGEN HEADLAMP]

B20D5 TAIL LAMP RH POWER SUPPLY CIRCUIT

DTC Logic

INFOID:0000000010297894

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
B20D5	TAIL LAMP RH PWR SPLY CIRC [CIRC SHORT TO GRND]	When a short circuit to ground is detected in the tail lamp supply voltage circuit.	• IPDM E/R • Short to ground

DTC CONFIRMATION PROCEDURE

1.CHECK SELF-DIAGNOSTIC RESULT

 With CONSULT.

1. Turn ignition switch ON.
2. Perform self-diagnostic result.

Is DTC B20D5 detected?

- YES >> Proceed to diagnosis procedure. Refer to [EXL-106, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010375507

1.CHECK TAIL LAMP SHORT CIRCUIT TO GROUND

1. Disconnect rear combination lamp (RH), back up lamp connectors and IPDM E/R connector.
2. Check continuity between IPDM E/R harness connector and ground.

IPDM E/R			Ground	Continuity
Connector		Terminal		
RH	E119	17		No

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace harness.

2.CHECK TAIL LAMP SHORT CIRCUIT TO GROUND

1. Reconnect IPDM E/R connector.
2. Check continuity between rear combination lamp harness connector and ground.

Rear combination lamp (RH)			Ground	Continuity
Connector		Terminal		
RH	B102	1		No

Is the inspection result normal?

- YES >> Refer to [GI-41, "Intermittent Incident"](#).
NO >> Replace IPDM E/R. Refer to [PCS-35, "Removal and Installation"](#).

EXTERIOR LIGHTING SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

[HALOGEN HEADLAMP]

SYMPTOM DIAGNOSIS

EXTERIOR LIGHTING SYSTEM SYMPTOMS

Symptom Table

INFOID:0000000010325965

CAUTION:

Perform the self-diagnosis with CONSULT before the symptom diagnosis. Perform the trouble diagnosis if any DTC is detected.

Symptom		Possible cause	Inspection item
Headlamp (HI) is not turned ON.	One side	- Fuse - Halogen bulb (HI) - Harness between IPDM E/R and headlamp (HI) - Harness between headlamp (HI) and ground - IPDM E/R	Headlamp (HI) circuit Refer to EXL-100, "DTC Logic" (LH) or EXL-101, "DTC Logic" (RH).
	Both sides	Symptom diagnosis "BOTH SIDE HEADLAMPS (HI) ARE NOT TURNED ON" Refer to EXL-100, "DTC Logic" (LH) or EXL-101, "DTC Logic" (RH).	
High beam indicator lamp is not turned ON. [Headlamp (HI) is turned ON.]		Combination meter	- Combination meter Data monitor "HI-BEAM IND" - BCM (HEAD LAMP) Active test "HEADLAMP"
Headlamp (LO) is not turned ON.	One side	- Fuse - Halogen bulb (LO) - Harness between IPDM E/R and headlamp lamp (LO) - Harness between headlamp (LO) and ground - IPDM E/R	Headlamp (LO) circuit Refer to EXL-102, "DTC Logic" (LH) or EXL-103, "DTC Logic" (RH).
	Both sides	Symptom diagnosis "BOTH SIDE HEADLAMPS (LO) ARE NOT TURNED ON" Refer to EXL-102, "DTC Logic" (LH) or EXL-103, "DTC Logic" (RH).	
Each lamp is not turned ON/OFF with lighting switch AUTO.		- Combination switch - Harness between combination switch and BCM - BCM	Combination switch Refer to BCS-73, "Symptom Table" (with Intelligent Key) or BCS-133, "Symptom Table" (without Intelligent Key).
		- Optical sensor - Harness between optical sensor and BCM - BCM	Optical sensor Refer to EXL-88, "Component Function Check" .
Daytime running light is not turned ON. [Headlamp (HI) is turned ON.]		- Fuse - Harness between IPDM E/R and front combination lamp - IPDM E/R - BCM - ECM - Combination meter	- Daytime running light circuit Refer to EXL-97, "DTC Logic". - BCM (HEADLAMP) Data monitor "ENGINE STATE" - Combination meter Data monitor "PKB SW" - BCM (HEADLAMP) Active test "DAYTIME RUNNING LIGHT"
Parking lamp is not turned ON.		- Fuse - Parking lamp bulb - Harness between IPDM E/R and front combination lamp - IPDM E/R	Parking lamp circuit Refer to EXL-104, "DTC Logic" .

EXTERIOR LIGHTING SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

[HALOGEN HEADLAMP]

Symptom		Possible cause	Inspection item
Front side marker lamp is not turned ON.		• Front side marker lamp bulb • Harness between IPDM E/R and front side marker lamp • Harness between front side marker lamp and ground • IPDM E/R	Front side marker lamp circuit Refer to EXL-104, "DTC Logic" .
License plate lamp is not turned ON.		• License plate lamp bulb • Harness between IPDM E/R and license plate lamp • Harness between license plate lamp and ground	License plate lamp circuit Refer to EXL-105, "DTC Logic" .
Parking lamp, side marker lamp, tail lamp and license plate lamp are not turned ON.		Symptom diagnosis "PARKING, SIDE MARKER, LICENSE PLATE AND TAIL LAMPS ARE NOT TURNED ON" Refer to EXL-104, "DTC Logic" .	
Tail lamp indicator is not turned ON. (Exterior lamps are turned ON.)		Combination meter	• Combination meter • Data monitor "LIGHT IND" • BCM (HEADLAMP) • Active test "TAIL LAMP"
Turn signal lamp does not blink.	Indicator lamp is normal. (Applicable side performs high flasher activation.)	• Turn signal lamp bulb • Door mirror • Harness between BCM and each turn signal lamp • Harness between each turn signal lamp and ground	Turn signal lamp circuit Refer to EXL-93, "Component Function Check" .
Turn signal indicator lamp does not blink. (Turn signal lamp is normal.)	One side	Combination meter	—
	Both sides (Always)	• Turn signal indicator lamp signal • BCM • Combination meter	• Combination meter • Data monitor "TURN IND" • BCM (FLASHER) • Active test "FLASHER"
	Both sides (Only when activating hazard warning lamp with ignition switch OFF)	• Combination meter power supply and ground circuit • Combination meter	Combination meter Power supply and ground circuit Refer to MWI-59, "COMBINATION METER : Diagnosis Procedure" .
• Hazard warning lamp does not activate. • Hazard warning lamp continues activating. (Turn signal is normal.)		• Hazard switch • Harness between hazard switch and BCM • Harness between hazard switch and ground • BCM	Hazard switch circuit Refer to EXL-91, "Component Function Check" .
Front fog lamp is not turned ON.	One side	• Front fog lamp bulb • Harness between IPDM E/R and front fog lamp • Harness between front fog lamp and ground • IPDM E/R	Front fog lamp circuit Refer to EXL-96, "DTC Logic" (LH) or EXL-98, "DTC Logic" (RH).
	Both sides	Symptom diagnosis "BOTH SIDE FRONT FOG LAMPS ARE NOT TURNED ON" Refer to EXL-96, "DTC Logic" (LH) or EXL-98, "DTC Logic" (RH).	

NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

[HALOGEN HEADLAMP]

NORMAL OPERATING CONDITION

Description

INFOID:0000000010325966

AUTO LIGHT SYSTEM

The headlamp may not be turned ON/OFF immediately after passing dark area or bright area (short tunnel, sky bridge, shadowed area, etc.) while using the auto light system. This is caused by for the control difference. This is normal.

A

B

C

D

E

F

G

H

I

J

K

EXL

M

N

O

P

BOTH SIDE HEADLAMPS (HI) ARE NOT TURNED ON

< SYMPTOM DIAGNOSIS >

[HALOGEN HEADLAMP]

BOTH SIDE HEADLAMPS (HI) ARE NOT TURNED ON

Description

INFOID:0000000010325969

Both side headlamps (HI) are not turned ON when setting to the lighting switch HI or PASS.

Diagnosis Procedure

INFOID:0000000010325970

1.COMBINATION SWITCH INSPECTION

Check combination switch. Refer to [BCS-73, "Symptom Table"](#) (with Intelligent Key system) or [BCS-133, "Symptom Table"](#) (without Intelligent Key system).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning part.

2.CHECK HEADLAMP (HI) REQUEST SIGNAL INPUT

CONSULT DATA MONITOR

1. Select "HEADLAMP (HI)" of IPDM E/R data monitor item.
2. With operating the lighting switch, check the monitor status.

Monitor item	Condition		Monitor status
HEADLAMP (HI)	Lighting switch (2ND)	HI or PASS	On
		LO	Off

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#) (with Intelligent Key system) or [BCS-135, "Removal and Installation"](#) (without Intelligent Key system).

3.HEADLAMP (HI) CIRCUIT INSPECTION

Check headlamp (HI) circuit. Refer to [EXL-100, "DTC Logic"](#) (LH) or [EXL-101, "DTC Logic"](#) (RH).

Is the inspection result normal?

YES >> Refer to [GI-41, "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning part.

BOTH SIDE HEADLAMPS (LO) ARE NOT TURNED ON

< SYMPTOM DIAGNOSIS >

[HALOGEN HEADLAMP]

BOTH SIDE HEADLAMPS (LO) ARE NOT TURNED ON

Description

INFOID:0000000010325971

Both side headlamps (LO) are not turned ON in any condition.

Diagnosis Procedure

INFOID:0000000010325972

1.CHECK COMBINATION SWITCH

Check combination switch. Refer to [BCS-73, "Symptom Table"](#) (with Intelligent Key) or [BCS-133, "Symptom Table"](#) (without Intelligent Key).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning part.

2.CHECK HEADLAMP (LO) REQUEST SIGNAL INPUT

CONSULT DATA MONITOR

1. Select "HEADLAMP (LO)" of IPDM E/R data monitor item.
2. With operating the lighting switch, check the monitor status.

Monitor item	Condition		Monitor status
HEADLAMP (LO)	Lighting switch	2ND	On
		OFF	Off

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#) (with Intelligent Key) or [BCS-135, "Removal and Installation"](#) (without Intelligent Key).

3.HEADLAMP (LO) CIRCUIT INSPECTION

Check headlamp (LO) circuit. Refer to [EXL-102, "DTC Logic"](#) (LH) or [EXL-103, "DTC Logic"](#) (RH).

Is the inspection result normal?

YES >> Refer to [GI-41, "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning part.

A
B
C
D
E
F
G
H
I
J
K
M
N
O
P

EXL

PARKING, LICENSE PLATE, SIDE MARKER AND TAIL LAMPS ARE NOT TURNED ON

< SYMPTOM DIAGNOSIS >

[HALOGEN HEADLAMP]

PARKING, LICENSE PLATE, SIDE MARKER AND TAIL LAMPS ARE NOT TURNED ON

Description

INFOID:0000000010325973

The parking, license plate, side marker, tail lamps and each illumination are not turned ON in any condition.

Diagnosis Procedure

INFOID:0000000010325974

1.COMBINATION SWITCH INSPECTION

Check combination switch. Refer to [BCS-73, "Symptom Table"](#) (with Intelligent Key) or [BCS-133, "Symptom Table"](#) (without Intelligent Key).

Is the combination switch normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning part.

2.CHECK TAIL LAMP REQUEST SIGNAL INPUT

CONSULT DATA MONITOR

1. Select "TAIL LAMP" of IPDM E/R data monitor item.
2. With operating the lighting switch, check the monitor status.

Monitor item	Condition		Monitor status
TAIL LAMP	Lighting switch	1ST	On
		OFF	Off

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to [PCS-35, "Removal and Installation"](#).

NO >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#) (with Intelligent Key) or [BCS-135, "Removal and Installation"](#) (without Intelligent Key).

BOTH SIDE FRONT FOG LAMPS ARE NOT TURNED ON

< SYMPTOM DIAGNOSIS >

[HALOGEN HEADLAMP]

BOTH SIDE FRONT FOG LAMPS ARE NOT TURNED ON

Description

INFOID:0000000010325975

The front fog lamps are not turned ON in any condition.

Diagnosis Procedure

INFOID:0000000010325976

1.CHECK COMBINATION SWITCH

Check combination switch. Refer to [BCS-73, "Symptom Table"](#) (with Intelligent Key) or [BCS-133, "Symptom Table"](#) (without Intelligent Key).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace the malfunctioning part.

2.CHECK FRONT FOG LAMP REQUEST SIGNAL INPUT

CONSULT DATA MONITOR

1. Select "FRONT FOG LAMP REQ" of IPDM E/R data monitor item.
2. With operating the front fog lamp switch, check the monitor status.

Monitor item	Condition		Monitor status
FRONT FOG LAMP REQ	Front fog lamp switch (With lighting switch 2ND)	ON	On
		OFF	Off

Is the item status normal?

YES >> Replace IPDM E/R. Refer to [PCS-35, "Removal and Installation"](#).

NO >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#) (with Intelligent Key) or [BCS-135, "Removal and Installation"](#) (without Intelligent Key).

HEADLAMP AIMING ADJUSTMENT

< PERIODIC MAINTENANCE >

[HALOGEN HEADLAMP]

PERIODIC MAINTENANCE

HEADLAMP AIMING ADJUSTMENT

Inspection

INFOID:000000009795989

PREPARATION BEFORE ADJUSTING

Before performing aiming adjustment, check the following:

- Make sure all tires are inflated to correct pressure.
- Place vehicle and screen on level surface.
- Make sure there is no load in vehicle other than the driver (or equivalent weight placed in driver's position).
- Coolant and engine oil filled to correct level, and fuel tank full.
- Remove cargo and/or luggage to maintain an unloaded vehicle condition.
- Confirm spare tire, jack and tools are properly stowed.
- Carefully wipe off any dirt from headlamp lens.

CAUTION:

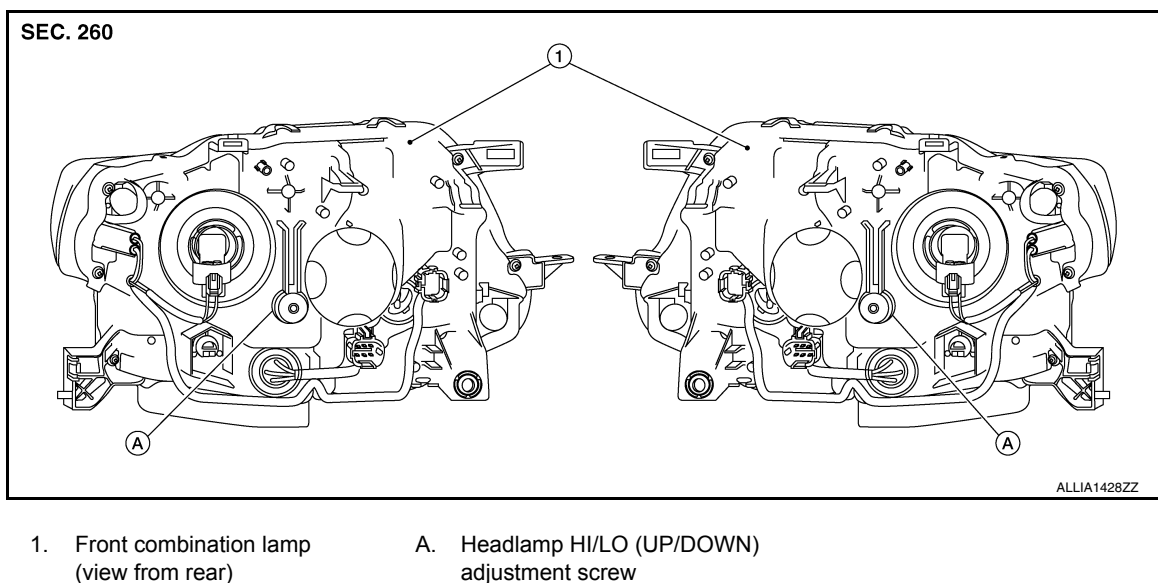
Do not use organic solvent (thinner, gasoline etc.)

- Place a driver or equivalent weight of 68.5 kg (150 lb) on the driver seat.
- By hand, bounce the front and rear of the vehicle to settle the suspension and eliminate any static load.
- Place the front tires in the straight ahead position.
- Aim each headlamp individually and ensure other headlamp beam pattern is blocked from screen.

NOTE:

- For headlamp aiming details, refer to regulations in your area.
- By regulation, no means for horizontal aim adjustment is provided from the factory; only vertical aim is adjustable.
- Use adjusting screw to perform aiming adjustment.
- Perform headlamp aiming if:
 - The vehicle front body has been repaired;
 - The front combination lamp has been removed or replaced;
 - Any outfitting has been installed;
 - The vehicle's standard load condition has been substantially increased.

AIMING ADJUSTMENT SCREW



HEADLAMP AIMING ADJUSTMENT

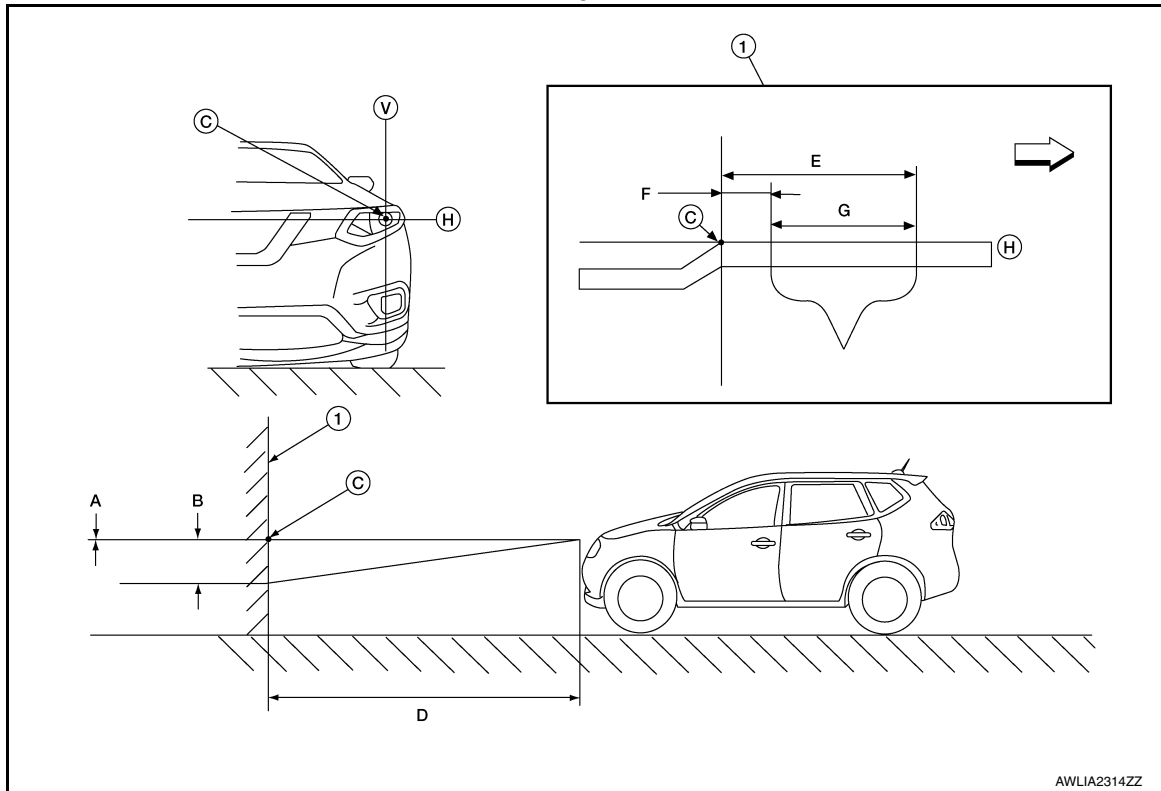
< PERIODIC MAINTENANCE >

[HALOGEN HEADLAMP]

Aiming Adjustment Procedure

INFOID:000000009795990

Aiming Chart



- | | | |
|---|---|---|
| 1. Adjustment screen | A. Highest cutoff line height | B. Lowest cutoff line height |
| C. Headlamp bulb center (H-V point) | D. Distance of headlamp aiming screen from vehicle 7.62 m (25 ft) | E. Maximum aim evaluation distance from vertical center on aiming screen 399 mm (3°R) |
| F. Minimum aim evaluation distance from vertical center on aiming screen 133 mm (1°R) | G. Aim evaluation area | H. Horizontal aiming evaluation line |
| V. Vertical aiming evaluation line | ↔ Right | |

A (Highest cutoff line height)

-13.3 mm (0.5 in)

0.1° up

B (Lowest cutoff line height)

53.2 mm (2.1 in)

0.4° down

LOW BEAM AND HIGH BEAM

NOTE:

- Basic illuminating area for evaluation and/or adjustment should be within range shown on aiming chart.

- Use adjustment screw to perform aiming adjustment.

- Ensure fog lamps are turned off.

- Block the opposite headlamp from projecting a beam pattern onto the adjustment screen, using a suitable object. Aim each headlamp individually.

CAUTION:

Do not cover the lens surface with a tape etc. The lens is made of resin.

- Place the screen on the same level and flat surface as the vehicle.

NOTE:

Surface should be free of any debris that would cause a difference between the headlamp center and the adjustment screen.

- Face the front of the vehicle to the screen and measure distance between the headlamp center and the screen surface.

HEADLAMP AIMING ADJUSTMENT

< PERIODIC MAINTENANCE >

[HALOGEN HEADLAMP]

Distance between the headlamp center and the screen (D) : 7.62 m (25 ft)

5. Start the engine. Turn the headlamp on.
6. Determine the preferred vertical aim range dimensions, using the aiming chart.
7. Measure the projected beam within the aim evaluation segment on the screen.
8. Adjust the beam pattern of each headlamp until the aim evaluation segment (the area relative to both the highest and lowest cutoff line height) is positioned within the vertical aim range dimensions shown on the aiming chart.

FRONT FOG LAMP AIMING ADJUSTMENT

< PERIODIC MAINTENANCE >

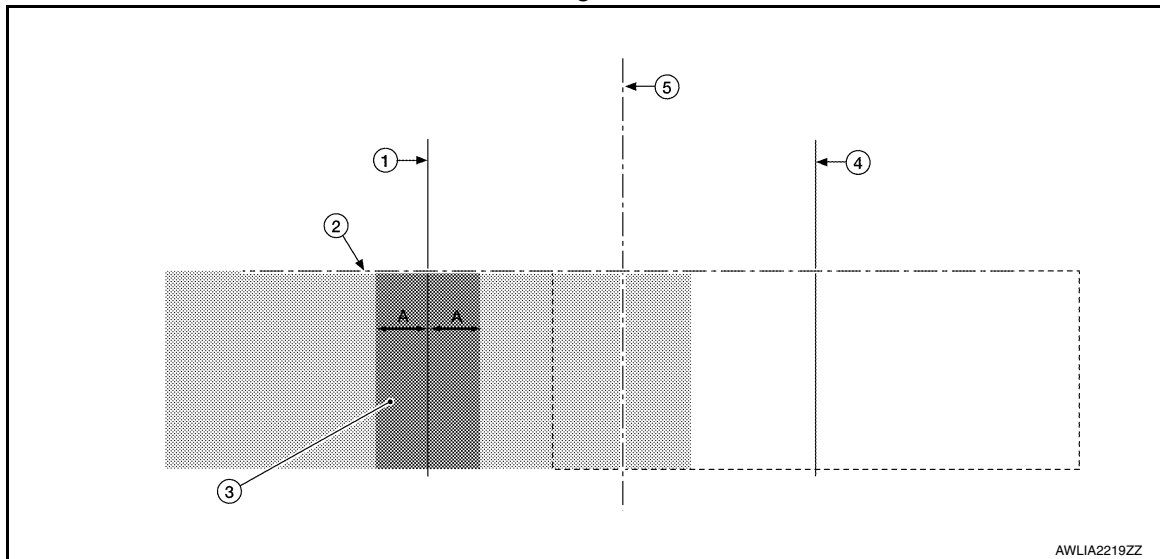
[HALOGEN HEADLAMP]

FRONT FOG LAMP AIMING ADJUSTMENT

Aiming Adjustment Procedure

INFOID:000000009795992

Aiming Chart



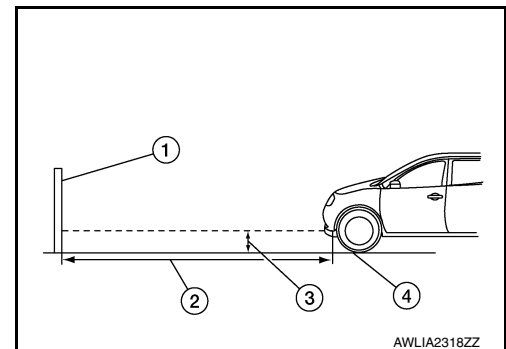
- | | | |
|--|-----------------------------|--------------------------------------|
| 1. Vertical center line of fog lamp (LH) | 2. Lamp center above ground | 3. Fog lamp high intensity area (LH) |
| 4. Vertical center line of fog lamp (RH) | 5. Vertical center axis | A. 100mm (4in) |

NOTE:

- (LH) Fog lamp aiming specifications shown, (RH) similar.
- Check the following conditions before performing the aiming adjustment.
 - Keep all tires inflated to correct pressure.
 - Place vehicle on level ground.
 - See that vehicle is unloaded (except for full levels of coolant, engine oil and fuel, and spare tire, jack, and tools). Have the driver or equivalent weight placed in driver seat.
 - When performing adjustment, if necessary, cover the headlamps and opposite fog lamp.

1. Set the distance between the screen and the center of the fog lamp lens as shown.

- (1) Aiming screen or a matte white surface
- (2) 7.62 m (25 ft)
- (3) Floor to center of fog lamp lens
- (4) Floor



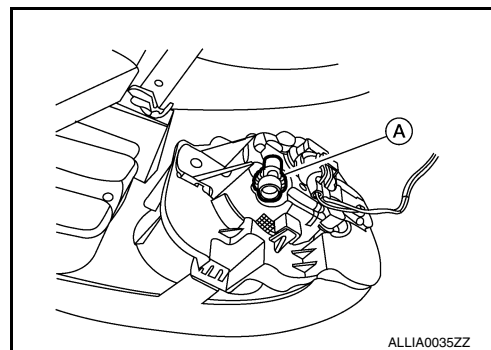
2. Turn front fog lamps ON.

FRONT FOG LAMP AIMING ADJUSTMENT

< PERIODIC MAINTENANCE >

[HALOGEN HEADLAMP]

3. Access adjusting screw (A) from underneath front bumper fascia. Adjust front fog lamps using adjusting screw so that the top edge of the high intensity zone is at the fog lamp centers above ground.



FRONT COMBINATION LAMP

< REMOVAL AND INSTALLATION >

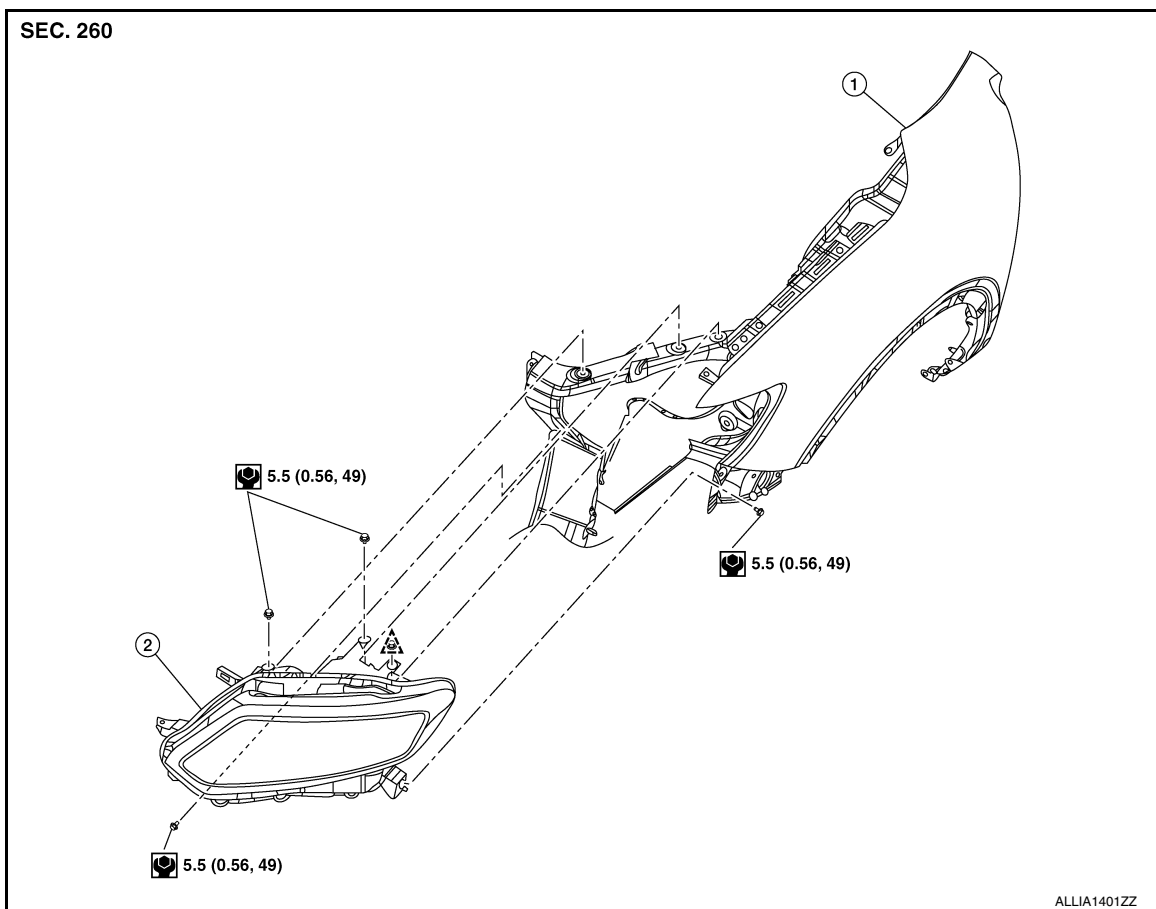
[HALOGEN HEADLAMP]

REMOVAL AND INSTALLATION

FRONT COMBINATION LAMP

Exploded View

INFOID:000000009795993



1. Front fender

2. Front combination lamp

Clip

Removal and Installation

INFOID:000000009795994

REMOVAL

1. Remove front bumper fascia. Refer to [EXT-17, "Removal and Installation"](#).
2. Remove front combination lamp bolts and clip.
3. Pull front combination lamp forward.
4. Disconnect the harness connectors from the front combination lamp and remove.

INSTALLATION

Installation is in the reverse order of removal.

NOTE:

After installation, perform headlamp aiming adjustment. Refer to [EXL-114, "Inspection"](#).

Bulb Replacement

INFOID:000000009795995

WARNING:

Do not touch bulb by hand while it is lit or right after being turned off. Burning may result.

CAUTION:

- Do not touch the glass surface of the bulb with bare hands or allow oil or grease to get on it to prevent damage to the bulb.

FRONT COMBINATION LAMP

< REMOVAL AND INSTALLATION >

[HALOGEN HEADLAMP]

- **Do not leave bulb out of lamp reflector for a long time because dust, moisture smoke, etc. may affect the performance of lamp. When replacing bulb, be sure to replace it with new one.**

HEADLAMP (LOW BEAM) BULB

Removal

1. Rotate the bulb counterclockwise and remove from the front combination lamp.
2. Disconnect the harness connector from bulb and remove.

Installation

Installation is in the reverse order of removal.

CAUTION:

After installing the bulb, install the bulb socket securely for watertightness.

HEADLAMP (HIGH BEAM) BULB

Removal

1. Remove plastic cover.
2. Rotate the bulb counterclockwise and remove from the front combination lamp.
3. Disconnect the harness connector from bulb and remove.

Installation

Installation is in the reverse order of removal.

CAUTION:

After installing the bulb, install the bulb socket securely for watertightness.

PARKING (SIDE MARKER) LAMP BULB

Removal

1. Rotate the bulb counterclockwise and remove from the front combination lamp.
2. Remove the bulb from the bulb socket.

Installation

Installation is in the reverse order of removal.

CAUTION:

After installing the bulb, install the bulb socket securely for watertightness.

TURN SIGNAL LAMP BULB

Removal

1. Rotate bulb socket counterclockwise and remove from the front combination lamp.
2. Remove the bulb from bulb socket.

Installation

Installation is in the reverse order of removal.

CAUTION:

After installing the bulb, install the bulb socket securely for watertightness.

FOG LAMP

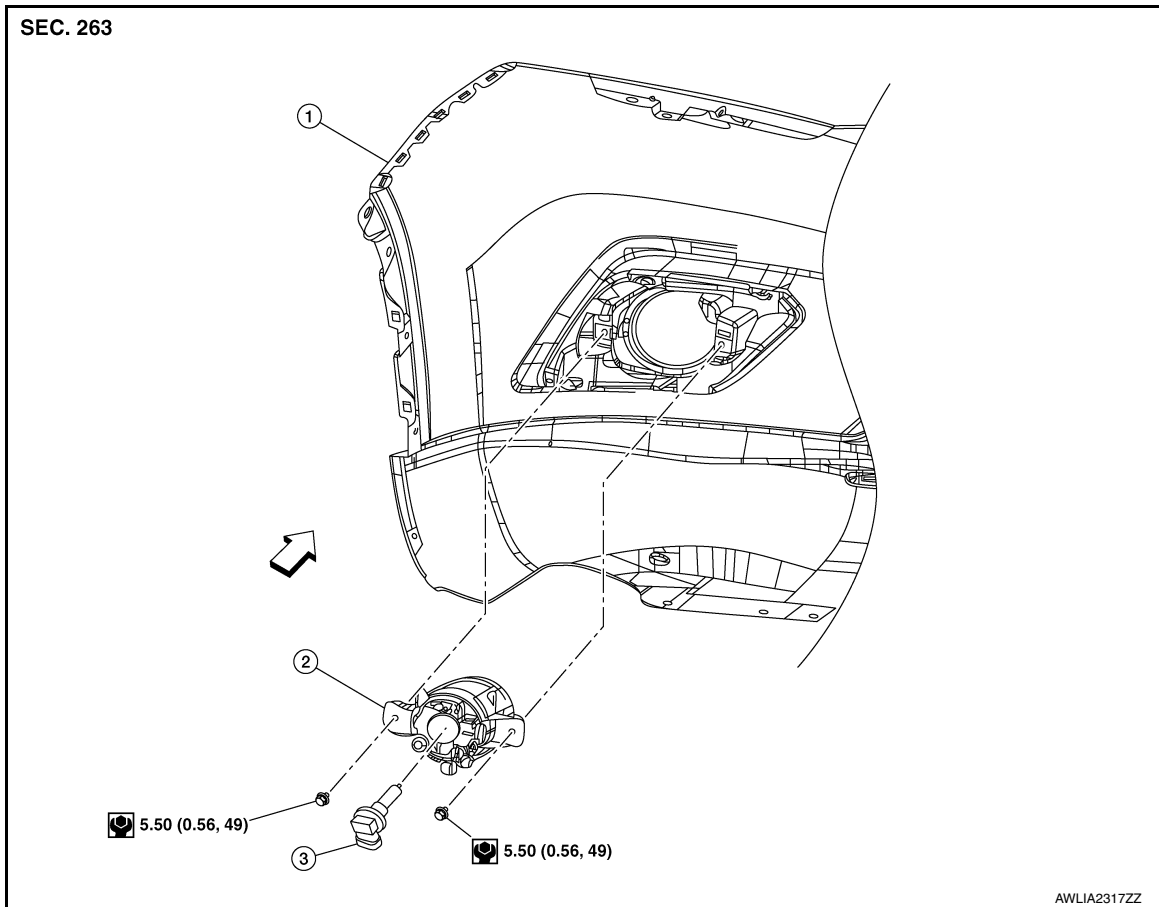
< REMOVAL AND INSTALLATION >

[HALOGEN HEADLAMP]

FOG LAMP

Exploded View

INFOID:000000009795997



1. Front bumper fascia

2. Fog lamp

3. Fog lamp bulb

⇐ Front

Removal and Installation

INFOID:000000009795998

EXL

REMOVAL

1. Partially remove front fender protector. Refer to [EXT-28. "FENDER PROTECTOR : Exploded View"](#).
2. Disconnect the harness connector from the fog lamp.
3. Remove fog lamp bolts and fog lamp.

INSTALLATION

Installation in the reverse order of removal.

NOTE:

After installation, perform fog lamp aiming adjustment. Refer to [EXL-117. "Aiming Adjustment Procedure"](#).

Bulb Replacement

INFOID:000000009795999

WARNING:

Do not touch bulb by hand while it is lit or right after being turned off. Burning may result.

CAUTION:

- Do not touch the glass surface of the bulb with bare hands or allow oil or grease to get on it to prevent damage to the bulb.
- Do not leave bulb out of lamp reflector for a long time because dust, moisture smoke, etc. may affect the performance of lamp. When replacing bulb, be sure to replace it with new one.

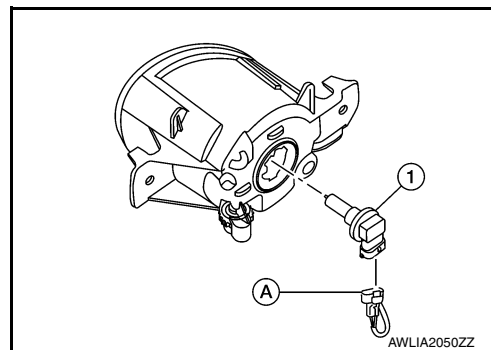
FOG LAMP

[HALOGEN HEADLAMP]

< REMOVAL AND INSTALLATION >

REMOVAL

1. Partially remove front fender protector. Refer to [EXT-28, "FENDER PROTECTOR : Exploded View"](#).
2. Disconnect the harness connector from the fog lamp (A).
3. Rotate bulb (1) counterclockwise and remove.



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

After installing the bulb, install the bulb socket securely for watertightness.

OPTICAL SENSOR

< REMOVAL AND INSTALLATION >

[HALOGEN HEADLAMP]

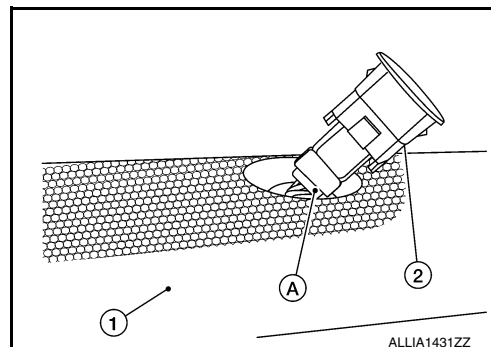
OPTICAL SENSOR

Removal and Installation

INFOID:0000000010336279

REMOVAL

1. Release the optical sensor (2) from defroster grille (1) using a suitable tool.
2. Disconnect the harness connector (A) from the optical sensor (2) and remove.



INSTALLATION

Installation is in the reverse order of removal.

A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

COMBINATION SWITCH

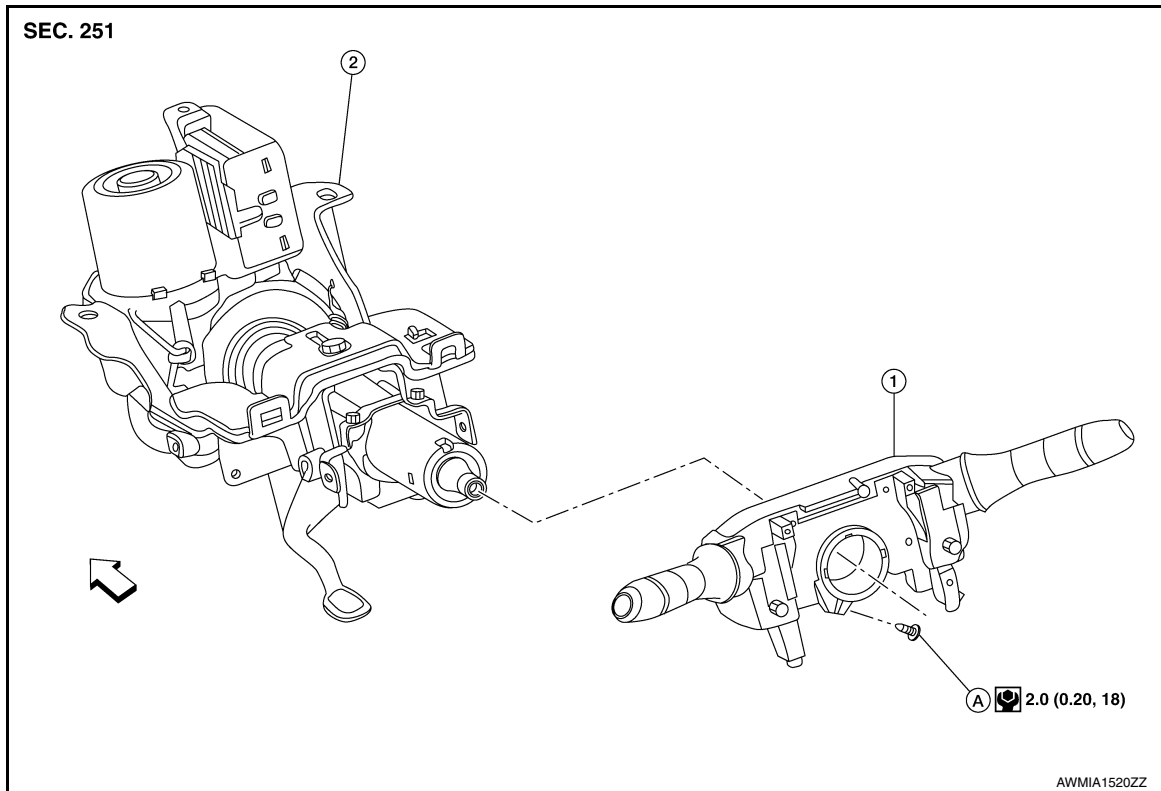
< REMOVAL AND INSTALLATION >

[HALOGEN HEADLAMP]

COMBINATION SWITCH

Exploded View

INFOID:0000000010351322



1. Combination switch

2. Steering column

A. Screw

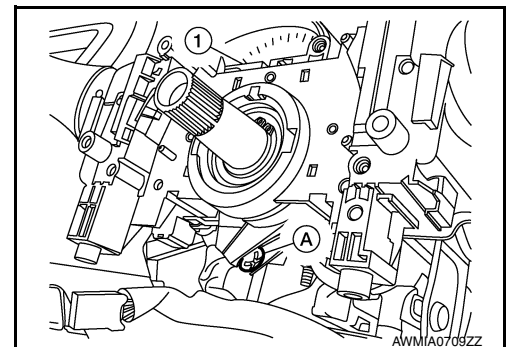
⇐ Front

Removal and Installation

INFOID:0000000010351323

REMOVAL

1. Remove the steering angle sensor. Refer to [BRC-139, "Removal and Installation"](#).
2. Disconnect harness connector from combination switch.
3. Remove screw (A) and combination switch (1).



INSTALLATION

Installation is in the reverse order of removal.

HAZARD SWITCH

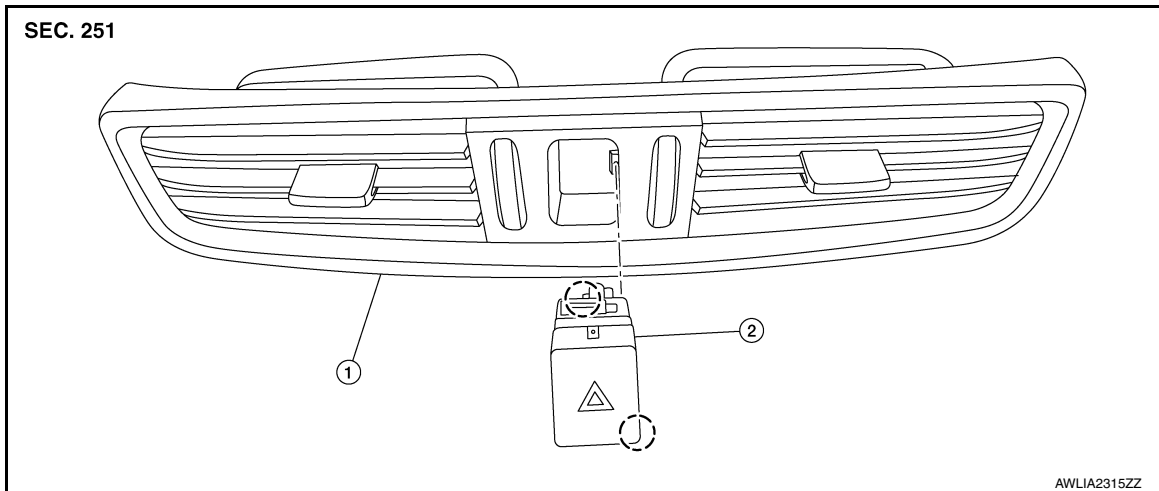
< REMOVAL AND INSTALLATION >

[HALOGEN HEADLAMP]

HAZARD SWITCH

Exploded View

INFOID:000000009796002



1. Center ventilator grille

2. Hazard switch

3. Pawl

Removal and Installation

INFOID:000000009796003

REMOVAL

1. Remove center ventilator grille. Refer to [VTL-13. "CENTER VENTILATOR GRILLE : Removal and Installation"](#).
2. Release the pawls and remove the hazard switch.

INSTALLATION

Installation is in the reverse order of removal.

A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

SIDE TURN SIGNAL LAMP

< REMOVAL AND INSTALLATION >

[HALOGEN HEADLAMP]

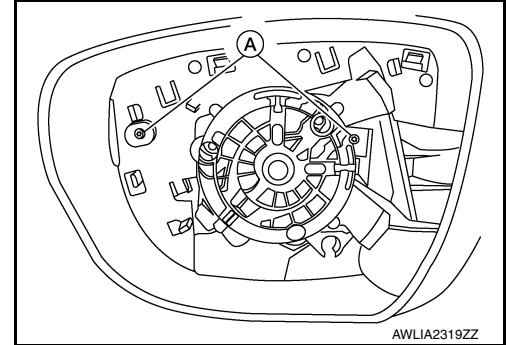
SIDE TURN SIGNAL LAMP

Removal and Installation

INFOID:0000000010357679

REMOVAL

1. Remove door mirror rear finisher. Refer to [MIR-25, "Removal and Installation"](#).
2. Remove door mirror glass. Refer to [MIR-24, "Removal and Installation"](#).
3. Remove the screws (A) and reposition side turn signal lamp.



4. Disconnect the harness connector from the side turn signal lamp and remove.

INSTALLATION

Installation is in the reverse order of removal.

Bulb Replacement

INFOID:0000000010357680

The side turn signal lamp bulb is not serviced separately. Refer to [EXL-126, "Removal and Installation"](#).

REAR COMBINATION LAMP

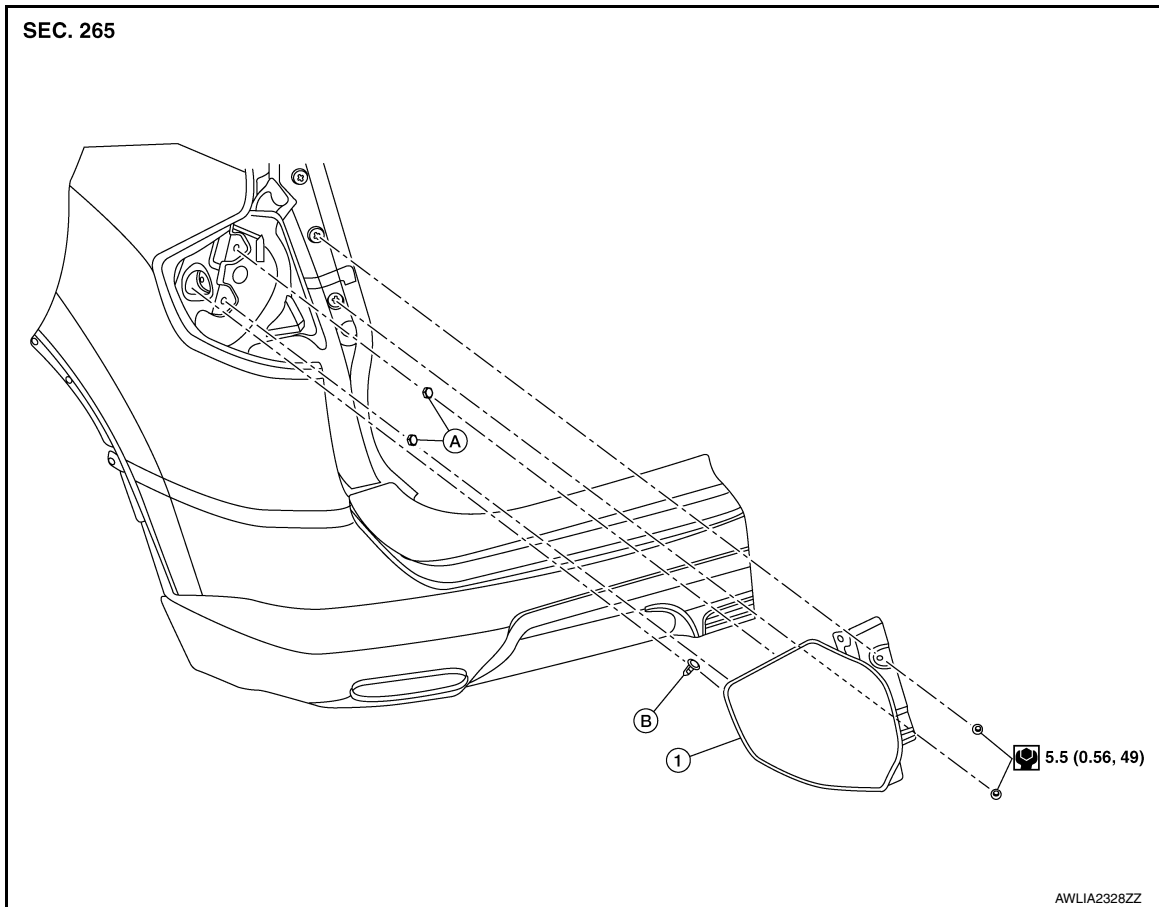
< REMOVAL AND INSTALLATION >

[HALOGEN HEADLAMP]

REAR COMBINATION LAMP

Exploded View

INFOID:000000009796004



1. Rear combination lamp

A. Grommet

B. Clip

Removal and Installation

INFOID:000000009796005

REMOVAL

1. Remove side air spoiler. Refer to [EXT-48. "Removal and Installation"](#).
2. Remove rear combination lamp bolts.
3. Pull rear combination lamp rearward to release from clip and locators.
4. Disconnect the harness connector from the rear combination lamp and remove.

INSTALLATION

Installation is in the reverse order of removal.

Bulb Replacement

INFOID:0000000010338569

WARNING:

Do not touch bulb with bare hand while it is lit or right after being turned off. Burning may result.

CAUTION:

- Do not touch the glass surface of the bulb with bare hands or allow oil or grease to get on it to prevent damage to the bulb.
- Do not leave bulb out of lamp reflector for a long time because dust, moisture smoke, etc. may affect the performance of lamp. When replacing bulb, be sure to replace it with new one.

STOP LAMP BULB

REAR COMBINATION LAMP

[HALOGEN HEADLAMP]

< REMOVAL AND INSTALLATION >

Removal

1. Remove rear combination lamp. Refer to [EXL-127. "Removal and Installation"](#).
2. Rotate stop lamp bulb socket counterclockwise and remove.
3. Remove stop lamp bulb from bulb socket.

Installation

Installation is in the reverse order of removal.

CAUTION:

After installing the bulb, install bulb socket securely for watertightness.

TAIL LAMP BULB

Removal

1. Remove rear combination lamp. Refer to [EXL-127. "Removal and Installation"](#).
2. Rotate tail lamp bulb socket counterclockwise and remove.
3. Remove tail lamp bulb from bulb socket.

Installation

Installation is in the reverse order of removal.

CAUTION:

After installing the bulb, install bulb socket securely for watertightness.

TURN SIGNAL LAMP BULB

Removal

1. Remove rear combination lamp. Refer to [EXL-127. "Removal and Installation"](#).
2. Rotate turn signal lamp bulb socket counterclockwise and remove.
3. Remove turn signal lamp bulb from bulb socket.

Installation

Installation is in the reverse order of removal.

CAUTION:

After installing the bulb, install bulb socket securely for watertightness.

HIGH-MOUNTED STOP LAMP

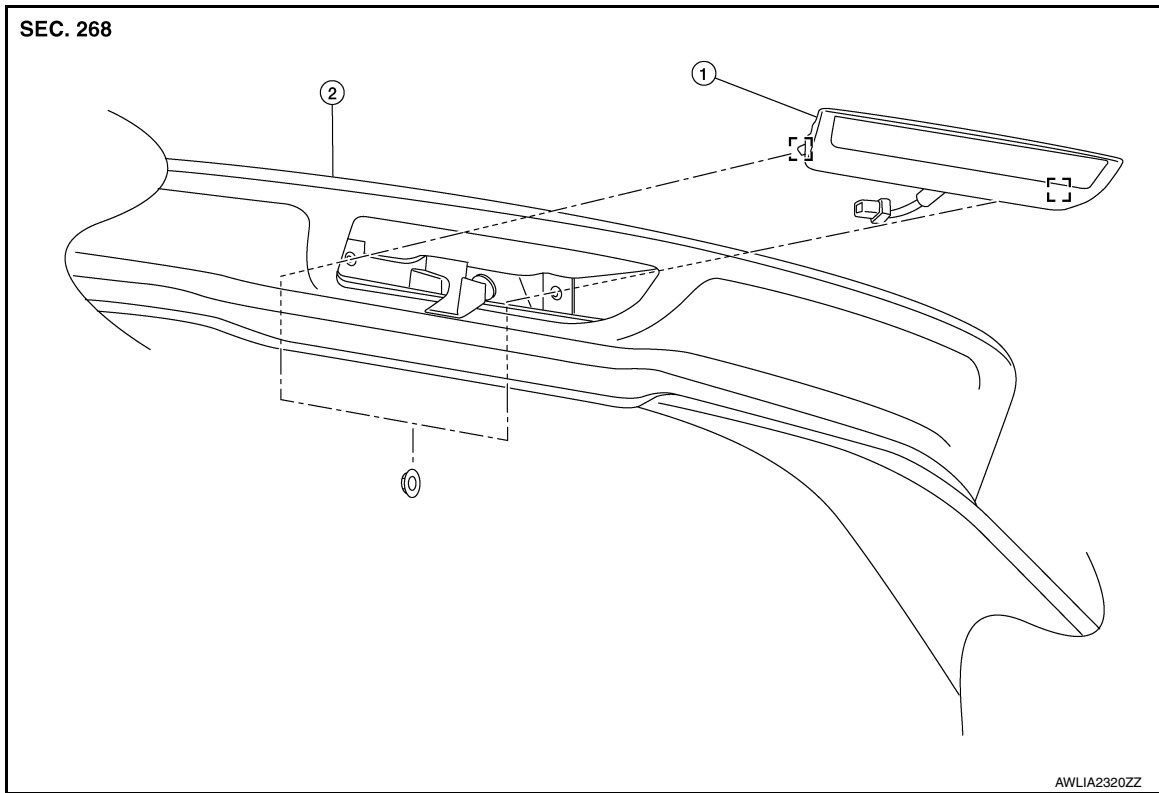
< REMOVAL AND INSTALLATION >

[HALOGEN HEADLAMP]

HIGH-MOUNTED STOP LAMP

Exploded View

INFOID:000000009796007



Removal and Installation

INFOID:000000009796008

REMOVAL

1. Remove access cover using a suitable tool. Refer to [INT-38, "Exploded View"](#).
2. Remove high-mounted stop lamp nuts.
3. Disconnect the harness connector from high-mounted stop lamp and remove.

INSTALLATION

Installation is in the reverse order of removal.

Bulb Replacement

INFOID:0000000010338573

HIGH-MOUNTED STOP LAMP BULB

The high-mounted stop lamp bulb is not serviced separately. Refer to [EXL-129, "Removal and Installation"](#).

BACK-UP LAMP ASSEMBLY

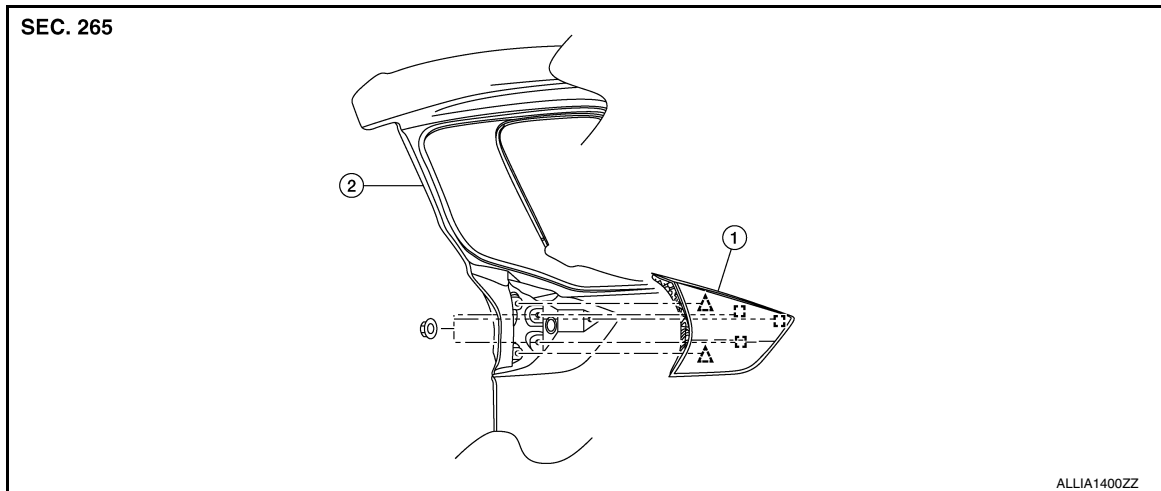
< REMOVAL AND INSTALLATION >

[HALOGEN HEADLAMP]

BACK-UP LAMP ASSEMBLY

Exploded View

INFOID:000000009796009



1. Back-up lamp assembly

2. Back door

△ Clip

□ Stud

Removal and Installation

INFOID:000000009796010

REMOVAL

1. Remove back door finisher. Refer to [INT-38. "Removal and Installation"](#).
2. Remove back-up lamp assembly nuts.
3. Pull back-up lamp assembly rearward, disconnect the harness connector and remove.

INSTALLATION

Installation is in the reverse order of removal.

Bulb Replacement

INFOID:000000009796011

WARNING:

Do not touch bulb with bare hand while it is lit or right after being turned off. Burning may result.

CAUTION:

- Do not touch the glass surface of the bulb with bare hands or allow oil or grease to get on it to prevent damage to the bulb.
- Do not leave bulb out of lamp reflector for a long time because dust, moisture smoke, etc. may affect the performance of lamp. When replacing bulb, be sure to replace it with new one.

TAIL LAMP BULB

Removal

1. Remove back-up lamp assembly. Refer to [EXL-130. "Removal and Installation"](#).
2. Rotate tail lamp bulb socket counterclockwise and remove.
3. Remove tail lamp bulb from bulb socket.

Installation

Installation is in the reverse order of removal.

CAUTION:

After installing the bulb, install bulb socket securely for watertightness.

BACK-UP LAMP BULB

Removal

BACK-UP LAMP ASSEMBLY

< REMOVAL AND INSTALLATION >

[HALOGEN HEADLAMP]

1. Remove back-up lamp assembly. Refer to [EXL-130. "Removal and Installation"](#).
2. Rotate back-up lamp bulb socket counterclockwise and remove.
3. Remove back-up lamp bulb from bulb socket.

Installation

Installation is in the reverse order of removal.

CAUTION:

After installing the bulb, install bulb socket securely for watertightness.

A

B

C

D

E

F

G

H

I

J

K

EXL

M

N

O

P

LICENSE PLATE LAMP

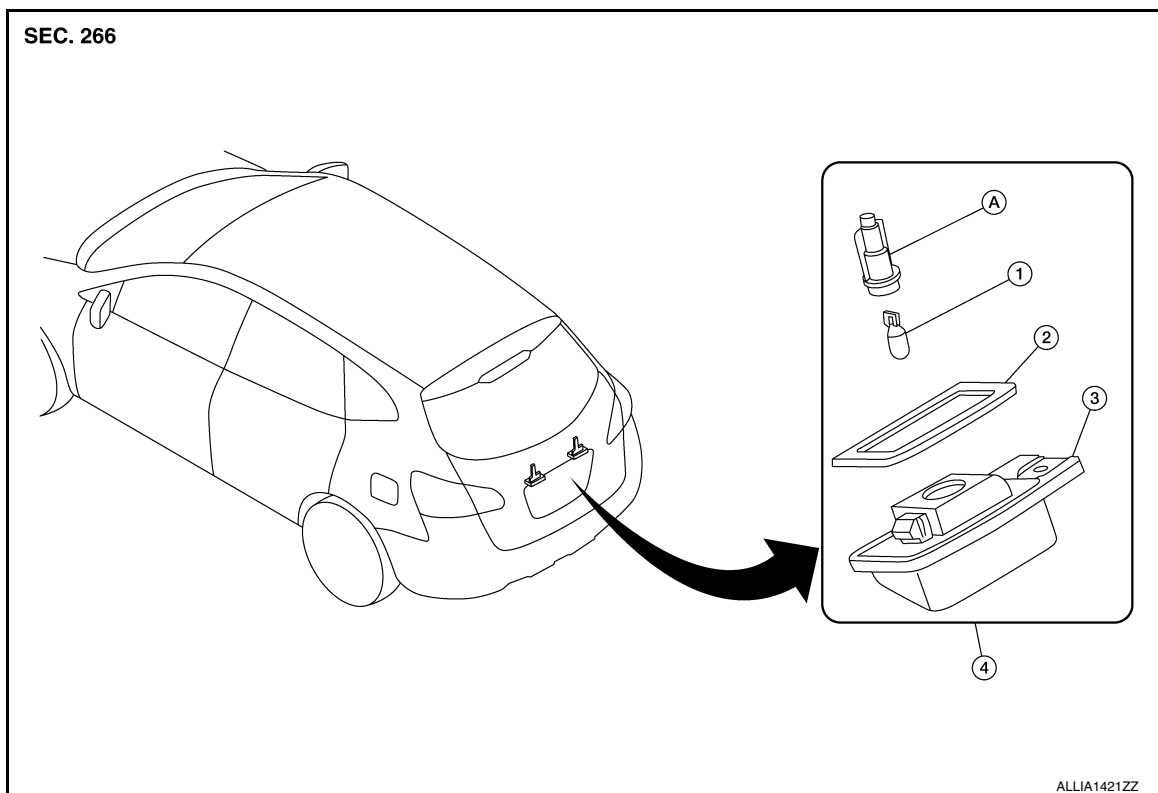
< REMOVAL AND INSTALLATION >

[HALOGEN HEADLAMP]

LICENSE PLATE LAMP

Exploded View

INFOID:0000000010365316



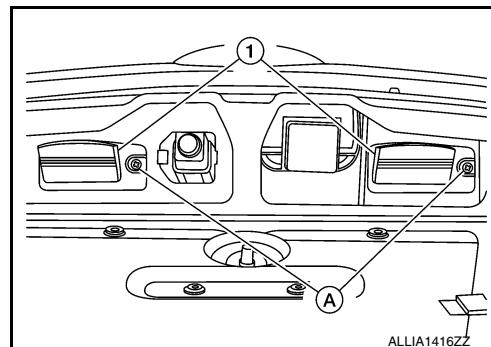
- | | | |
|--------------------------------|-----------------------------------|-----------------------|
| 1. License plate lamp bulb | 2. License plate lamp seal | 3. License plate lamp |
| 4. License plate lamp assembly | A. License plate lamp bulb socket | |

Removal and Installation

INFOID:0000000009796013

REMOVAL

1. Release the license lamp finisher. Refer to [EXT-50, "Exploded View"](#).
2. Remove the screw (A) (LH or RH) and pull license plate lamp (1) (LH or RH) downward.



3. Disconnect the harness connector from the license plate lamp and remove.

INSTALLATION

Installation is in the reverse order of removal.

Bulb Replacement

INFOID:0000000009796014

WARNING:

Do not touch bulb with your hand while it is on or right after being turned off. Burning may result.

LICENSE PLATE LAMP

< REMOVAL AND INSTALLATION >

[HALOGEN HEADLAMP]

CAUTION:

- Do not touch the glass surface of the bulb with bare hands or allow oil or grease to get on it to prevent damage to the bulb.
- Do not leave bulb out of lamp reflector for a long time because dust, moisture smoke, etc. may affect the performance of lamp. When replacing bulb, be sure to replace it with new one.

REMOVAL

1. Remove license plate lamp. Refer to [EXL-132. "Removal and Installation"](#).
2. Rotate license plate lamp bulb socket counterclockwise and remove.
3. Remove license plate lamp bulb from bulb socket.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

After installing the bulb, install the bulb socket securely for watertightness.

A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

FRONT COMBINATION LAMP

< UNIT DISASSEMBLY AND ASSEMBLY >

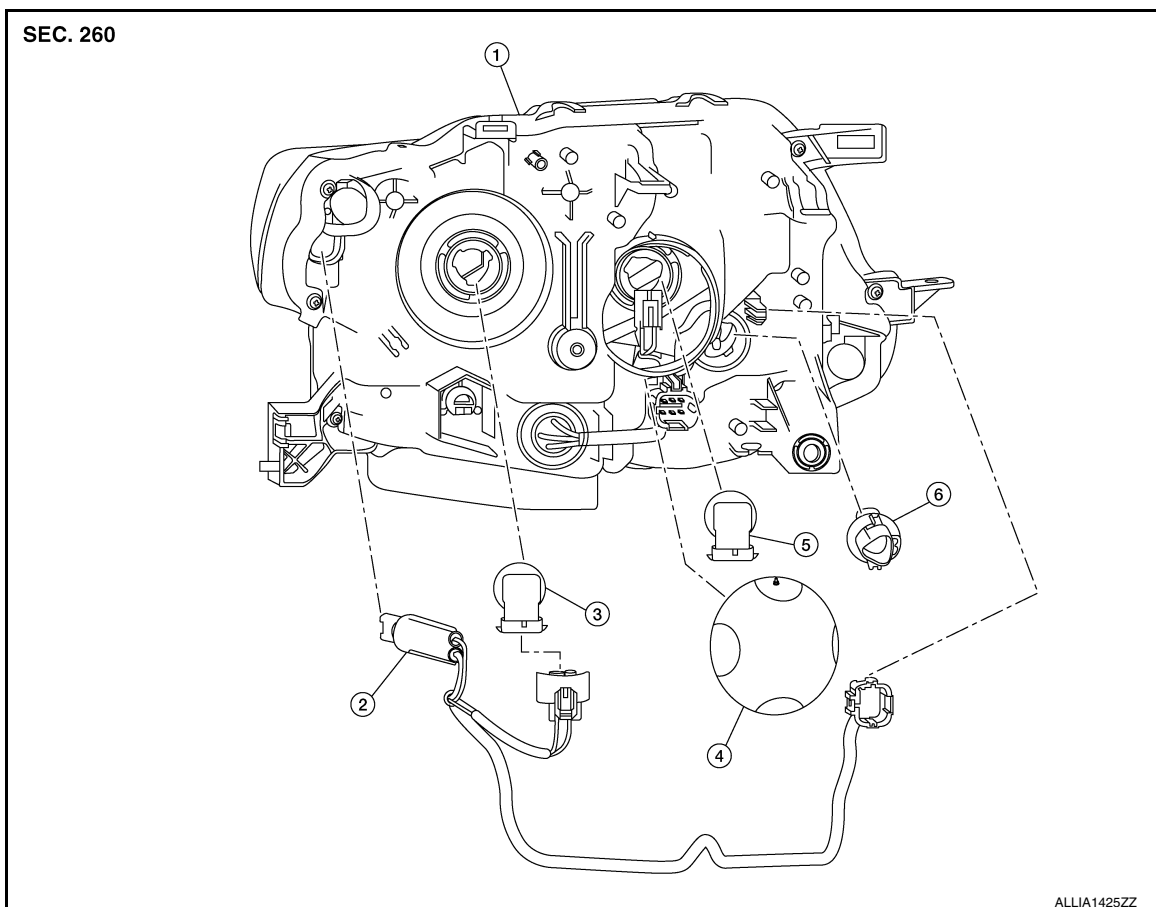
[HALOGEN HEADLAMP]

UNIT DISASSEMBLY AND ASSEMBLY

FRONT COMBINATION LAMP

Exploded View

INFOID:0000000010377938



- | | | |
|---------------------------|---|---------------------------------|
| 1. Front combination lamp | 2. Parking (side marker) lamp bulb socket | 3. Headlamp (low beam) bulb |
| 4. Plastic cover | 5. Headlamp (high beam) bulb | 6. Turn signal lamp bulb socket |

Disassembly and Assembly

INFOID:0000000009795996

DISASSEMBLY

1. Remove front combination lamp. Refer to [EXL-119, "Removal and Installation"](#).
2. Rotate the headlamp (low beam) bulb counterclockwise and remove.
3. Disconnect the harness connector from headlamp (low beam) bulb.
4. Remove plastic cover.
5. Rotate the headlamp (high beam) bulb counterclockwise and remove.
6. Disconnect the harness connector from headlamp (high beam) bulb.
7. Rotate the parking (side marker) lamp bulb socket counterclockwise and remove.
8. Remove the parking (side marker) lamp bulb from the bulb socket.
9. Rotate the turn signal lamp bulb socket counterclockwise and remove.
10. Remove the turn signal lamp bulb from the bulb socket.

ASSEMBLY

Assembly is in the reverse order of disassembly.

REAR COMBINATION LAMP

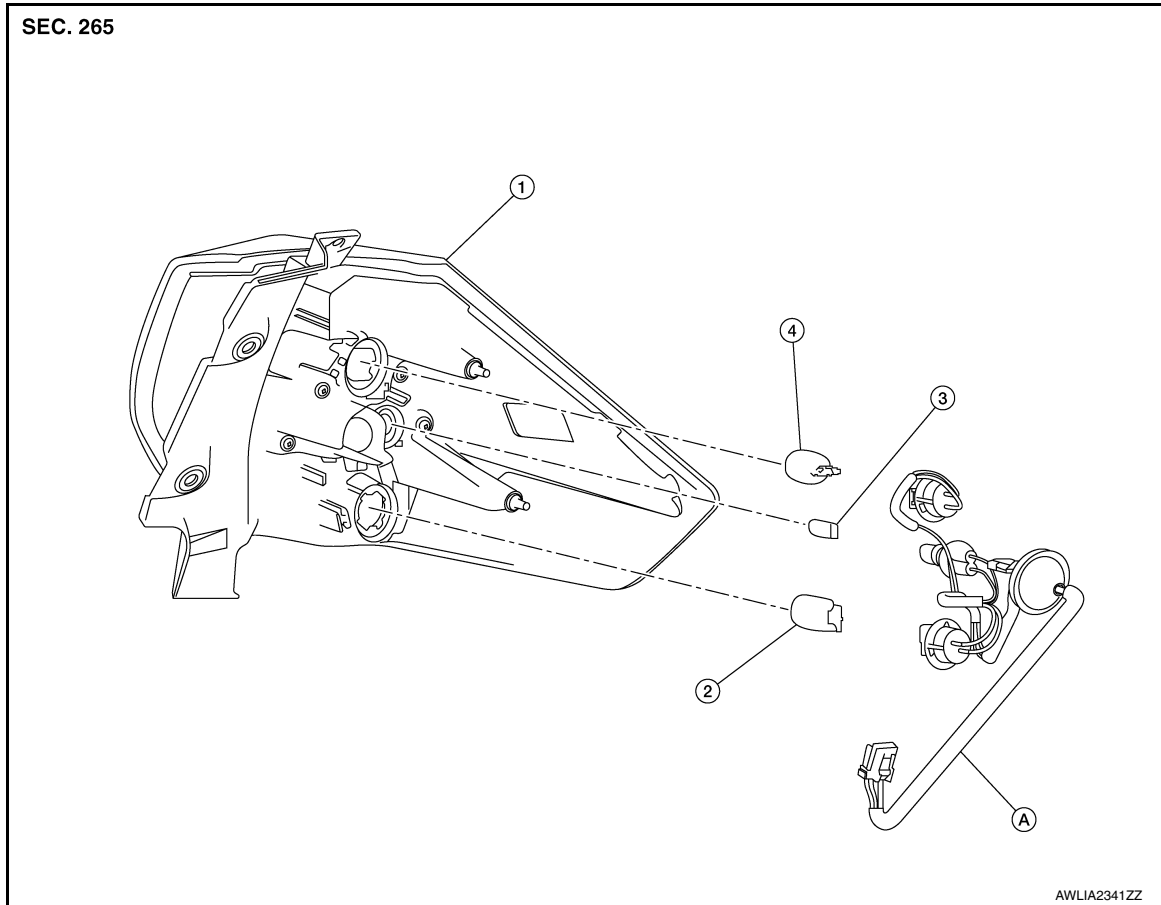
< UNIT DISASSEMBLY AND ASSEMBLY >

[HALOGEN HEADLAMP]

REAR COMBINATION LAMP

Exploded View

INFOID:0000000010377939



- | | | |
|--------------------------|----------------------------------|-------------------|
| 1. Rear combination lamp | 2. Turn signal lamp bulb | 3. Tail lamp bulb |
| 4. Stop lamp bulb | A. Rear combination lamp harness | |

Disassembly and Assembly

INFOID:0000000010377940

DISASSEMBLY

1. Remove rear combination lamp. Refer to [EXL-127, "Removal and Installation"](#).
2. Rotate the stop lamp bulb socket counterclockwise and remove.
3. Remove the stop lamp bulb from the bulb socket.
4. Rotate the tail lamp bulb socket counterclockwise and remove.
5. Remove the tail lamp bulb from the bulb socket.
6. Rotate the turn signal lamp bulb socket counterclockwise and remove.
7. Remove the turn signal lamp bulb from bulb socket.

ASSEMBLY

Assembly is in the reverse order of disassembly.

CAUTION:

After installing, be sure to install the bulb sockets securely to ensure watertightness.

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

[HALOGEN HEADLAMP]

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

Bulb Specifications

INFOID:0000000010336293

Item		Wattage (W)*
Front combination lamp	High beam	65
	Low beam	55
	Turn signal lamp	28/8
	Parking (side marker) lamp	5
	Daytime running lamp	—
Fog lamp (if equipped)		55
Side turn signal lamp		—
Rear combination lamp	Stop lamp	21
	Tail lamp	5
	Turn signal lamp	21
Back-up lamp	Tail lamp	5
	Back-up lamp	16
License plate lamp		5
High-mounted stop lamp		—

*: Always check with the Parts Department for the latest parts info.

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010335190

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Precaution for Work

INFOID:0000000010335191

- When removing or disassembling each component, be careful not to damage or deform it. If a component may be subject to interference, be sure to protect it with a shop cloth.
- When removing (disengaging) components with a screwdriver or similar tool, be sure to wrap the component with a shop cloth or vinyl tape to protect it.
- Protect the removed parts with a shop cloth and prevent them from being dropped.
- Replace a deformed or damaged clip.
- If a part is specified as a non-reusable part, always replace it with a new one.
- Be sure to tighten bolts and nuts securely to the specified torque.
- After installation is complete, be sure to check that each part works properly.
- Follow the steps below to clean components:
 - Water soluble dirt:
 - Dip a soft cloth into lukewarm water, wring the water out of the cloth and wipe the dirty area.
 - Then rub with a soft, dry cloth.
 - Oily dirt:
 - Dip a soft cloth into lukewarm water with mild detergent (concentration: within 2 to 3%) and wipe the dirty area.
 - Then dip a cloth into fresh water, wring the water out of the cloth and wipe the detergent off.
 - Then rub with a soft, dry cloth.
 - Do not use organic solvent such as thinner, benzene, alcohol or gasoline.
 - For genuine leather seats, use a genuine leather seat cleaner.

A
B
C
D
E
F
G
H
I
J
K
M
N
O
P

EXL

PREPARATION

< PREPARATION >

[LED HEADLAMP]

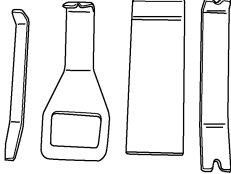
PREPARATION

PREPARATION

Special Service Tool

INFOID:0000000010351309

The actual shape of the tools may differ from those illustrated here.

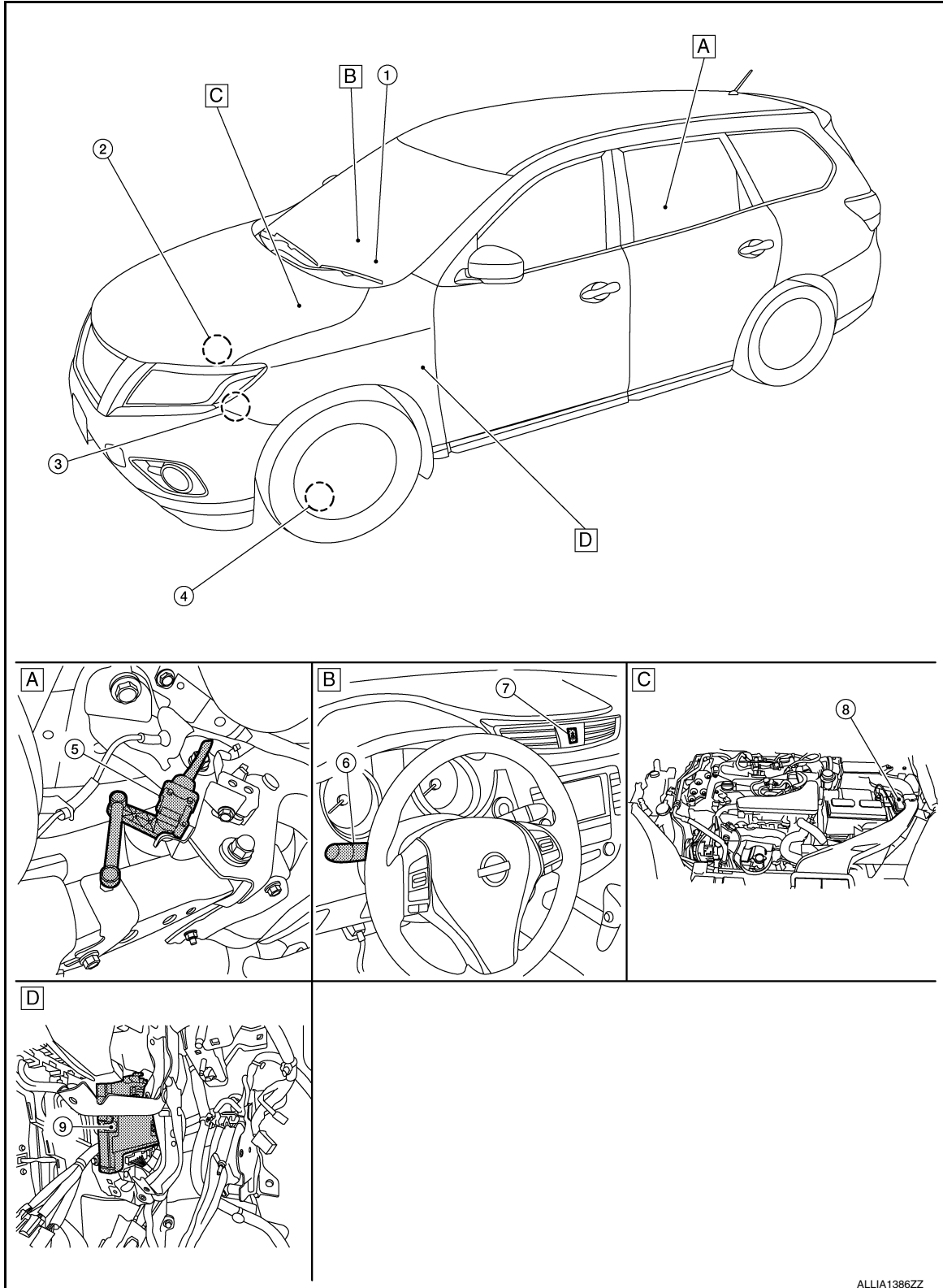
Tool number (TechMate No.) Tool name	Description
— (J-46534) Trim Tool Set  AWJIA0483ZZ	Removing trim components

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:0000000010330263



A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[LED HEADLAMP]

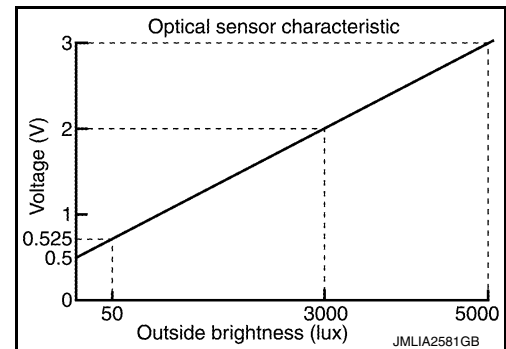
- A. Right rear wheel area B. Instrument panel C. Engine compartment
D. Left side of instrument panel (view with trim panel removed)

No.	Part	Function
1.	Optical sensor	Refer to EXL-140, "Optical Sensor" .
2.	LED headlamp control module	Turns the headlamps ON according to the power supply from IPDM E/R.
3.	Headlamp aiming motor	Moves the headlamps up/down based on inputs from the front and rear height sensors.
4.	Front height sensor	Sends the vehicles pitch angle signal to the IPDM E/R necessary for adjusting the headlamp aiming motors.
5.	Rear height sensor	Sends the vehicles pitch angle signal to the IPDM E/R necessary for adjusting the headlamp aiming motors.
6.	Combination switch (Lighting and turn signal switch)	Refer to BCS-9, "COMBINATION SWITCH READING SYSTEM : System Description" .
7.	Hazard switch	Refer to EXL-141, "Hazard Switch" .
8.	IPDM E/R	- Supplies voltage to the load according to the request from BCM (via CAN communication). - Refer to PCS-4, "Component Parts Location" for detailed installation location.
9.	BCM	- Detects each switch condition by the combination switch reading function. - Judges that the exterior lamps are turned ON according to the vehicle condition. - Requests the headlamp (HI/LO), tail lamp and front fog lamp ON to IPDM E/R (via CAN communication). - Requests high beam indicator lamp ON to the combination meter (via CAN communication). - Judges the outside brightness from the optical sensor signal. - Judges the ON/OFF timing according to the vehicle condition. - Judges the ON/OFF status of the exterior lamp according to the outside brightness and the vehicle condition. - Refer to BCS-7, "BODY CONTROL SYSTEM : Component Parts Location" (with Intelligent Key) or BCS-79, "BODY CONTROL SYSTEM : Component Parts Location" (without Intelligent Key).

Optical Sensor

INFOID:0000000010330264

Optical sensor converts the outside brightness (lux) to voltage and transmits the optical sensor signal to BCM.



COMPONENT PARTS

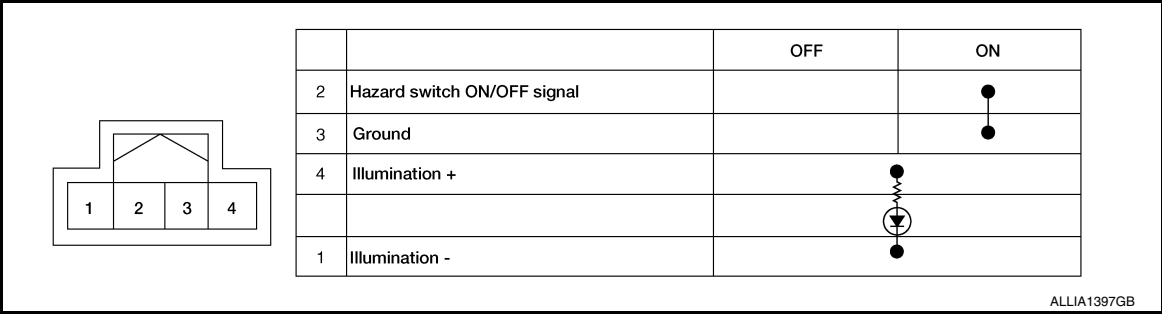
< SYSTEM DESCRIPTION >

[LED HEADLAMP]

Hazard Switch

INFOID:0000000010330265

Inputs the hazard switch ON/OFF signal to BCM.



A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

EXL

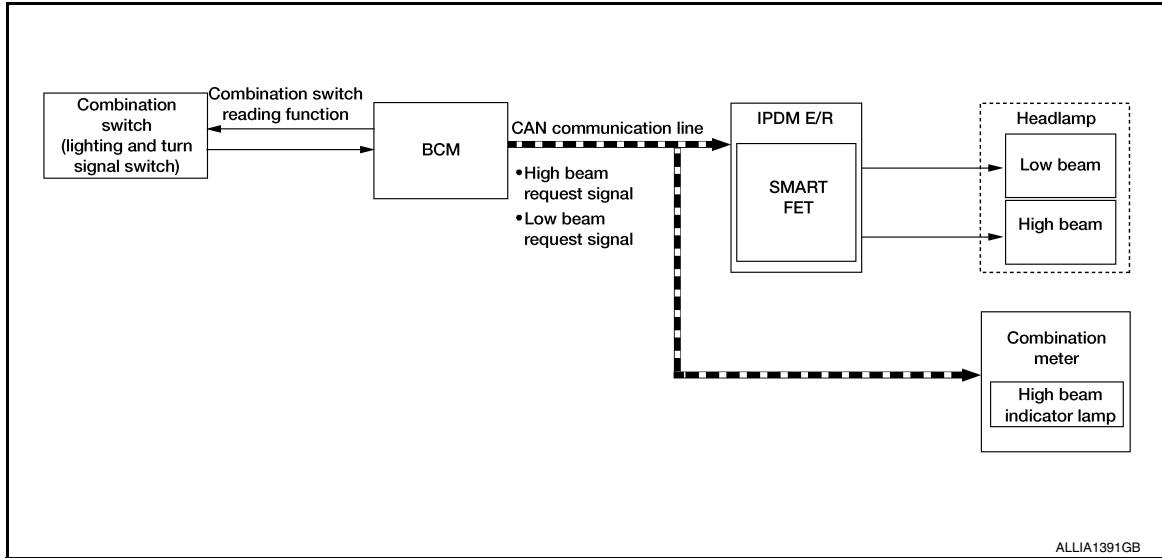
SYSTEM

HEADLAMP SYSTEM

HEADLAMP SYSTEM : System Description

INFOID:0000000010330266

SYSTEM DIAGRAM



OUTLINE

Headlamp is controlled by combination switch reading function and headlamp control function of BCM, and smart FET control function of IPDM E/R.

HEADLAMP (LO) OPERATION

- BCM detects the combination switch condition with the combination switch reading function.
- BCM transmits the low beam request signal to IPDM E/R with CAN communication according to the headlamp (LO) ON condition.

Headlamp (LO) ON condition

- Lighting switch 2ND
- Lighting switch AUTO (auto light function ON judgment)
- Lighting switch AUTO, with the front fog lamp switch ON and the power switch ON
- Lighting switch PASS

HEADLAMP (HI) OPERATION

- BCM transmits the high beam request signal to IPDM E/R and the combination meter with CAN communication according to the headlamp (HI) ON condition.

Headlamp (HI) ON condition

- Lighting switch HI with the lighting switch 2ND or AUTO (auto light function ON judgment)
- Lighting switch PASS
- Lighting switch AUTO, with the front fog lamp switch ON, the power switch ON and lighting switch HI
- Combination meter turns the high beam indicator lamp ON according to the high beam request signal.
- IPDM E/R turns the headlamp ON according to the high beam request signal.

HEADLAMP SYSTEM : Fail-Safe

INFOID:0000000010330267

CAN COMMUNICATION CONTROL

When CAN communication with BCM is impossible, IPDM E/R performs fail-safe control. After CAN communication recovers normally, it also returns to normal control.

If no CAN communication is available with BCM

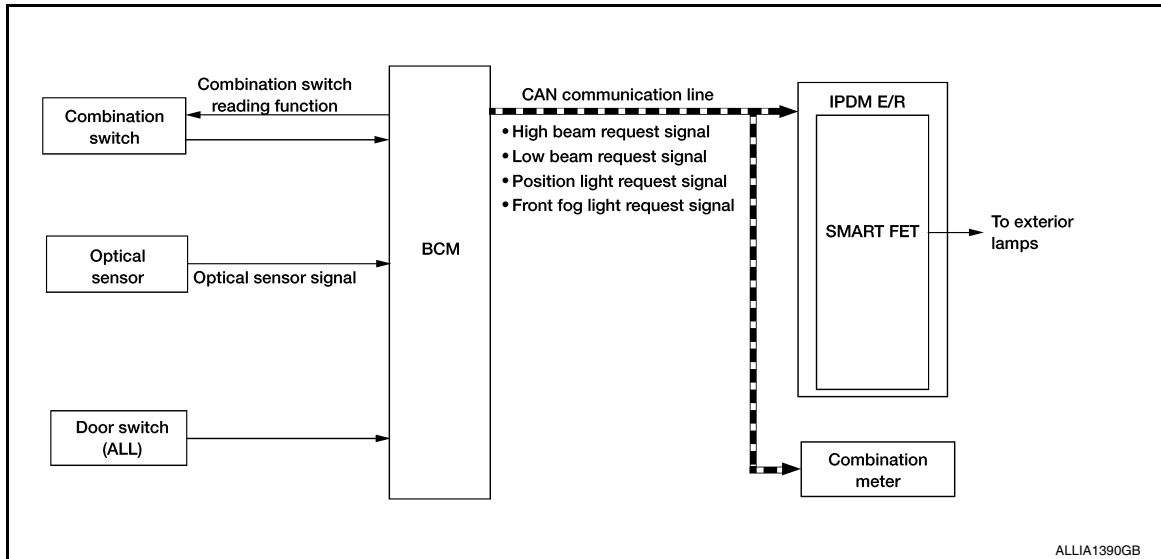
Control part	Fail-safe operation
Headlamp	• Turns ON the headlamp low beam when the power switch is turned ON • Turns OFF the headlamp low beam when the power switch is turned OFF

AUTO LIGHT SYSTEM

AUTO LIGHT SYSTEM : System Description

INFOID:0000000010336120

SYSTEM DIAGRAM



OUTLINE

- Auto light system is controlled by each function of BCM and IPDM E/R.

Controlled by BCM:

- Combination switch reading function
- Headlamp control function
- Auto light function
- Delay timer function
- Auto light adjustment system

Controlled by IPDM E/R:

- Auto light system has the auto light function and delay timer function.
- Auto light function automatically turns ON/OFF the exterior lamps* and each illumination automatically, depending on the outside brightness.
- When auto light system turns the exterior lamps ON with the power switch OFF, delay timer function turns the exterior lamps OFF, depending on the vehicle condition with the auto light function after a certain period of time.

*: Headlamp (LO/HI), parking lamp, side marker lamp, tail lamp and front fog lamp (Headlamp HI and front fog lamp depend on the combination switch condition).

AUTO LIGHT FUNCTION

- BCM detects the combination switch condition with the combination switch reading function.
- BCM supplies voltage to optical sensor when the power switch is turned ON or ACC.
- Optical sensor converts outside brightness (lux) to voltage and transmits the optical sensor signal to BCM.
- BCM judges outside brightness from the optical sensor signal and judges ON/OFF condition of the exterior lamp and each illumination according to the outside brightness.
- BCM transmits each request signal to IPDM E/R and combination meter via CAN communication according to ON/OFF condition by the auto light function.

NOTE:

ON/OFF timing differs based on the sensitivity from the setting. The setting can be set by CONSULT. Refer to.

AUTO LIGHT ADJUSTMENT SYSTEM

< SYSTEM DESCRIPTION >

The auto light adjustment system automatically, dims/brightens the display, according to brightness outside the vehicle, when lighting switch 1ST, lighting switch 2ND or lighting switch AUTO is operated. Refer to [EXL-143, "AUTO LIGHT SYSTEM : System Description"](#).

DELAY TIMER FUNCTION

BCM turns the exterior lamp OFF depending on the vehicle condition with the auto light function when the power switch is turned OFF.

- Turns the exterior lamp OFF 5 minutes after detecting that any door opens. (Door switch ON).
- Turns the exterior lamp OFF a certain period of time* after closing all doors. (Door switch ON→OFF).
- Turns the exterior lamp OFF with the power switch ACC or the light switch OFF.

*: The preset time is 45 seconds. The timer operating time can be set by CONSULT. Refer to [BCS-19, "HEADLAMP : CONSULT Function \(BCM - HEADLAMP\)"](#) with (Intelligent Key) or [BCS-90, "HEADLAMP : CONSULT Function \(BCM - HEADLAMP\)"](#) (without Intelligent Key).

NOTE:

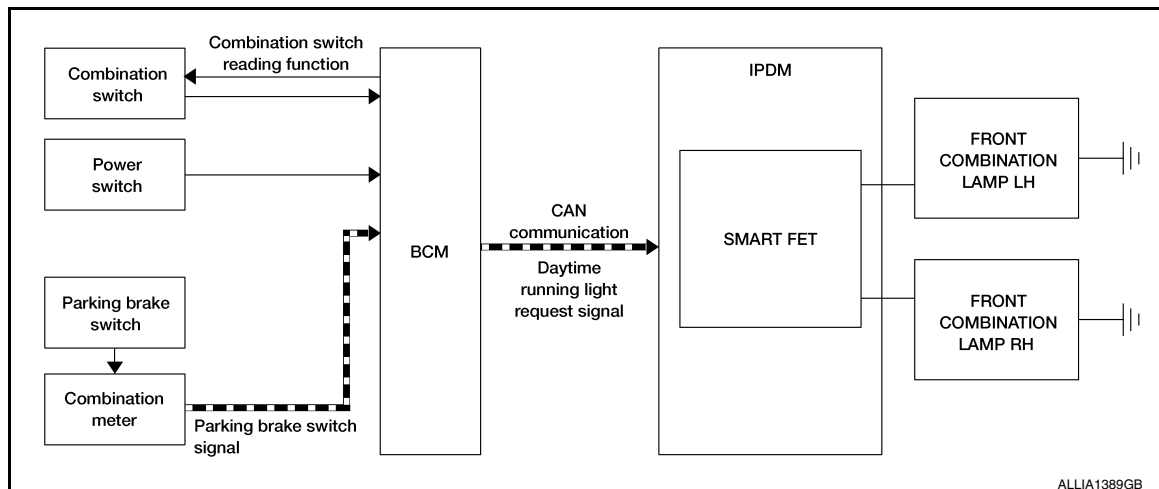
When any position other than the light switch AUTO is set, the auto light system function switches to the exterior lamp battery saver function.

DAYTIME RUNNING LIGHT SYSTEM

DAYTIME RUNNING LIGHT SYSTEM : System Description

INFOID:000000010330272

SYSTEM DIAGRAM



OUTLINE

- Daytime running light is controlled by daytime running light control function and combination switch reading function of BCM, and smart FET of IPDM E/R.

DAYTIME RUNNING LIGHT OPERATION

- BCM detects the combination switch condition by the combination switch reading function.
- BCM detects the vehicle condition according to power switch
- BCM detects the parking brake condition by the parking brake switch signal received from combination meter using CAN communication.
- BCM transmits the daytime running light request signal to IPDM E/R using CAN communication according to the daytime running light ON condition.

Daytime running light ON condition:

- Vehicle condition READY
- Lighting switch OFF or 1ST
- Lighting switch AUTO, and the auto light function OFF judgment
- Parking brake switch OFF
- IPDM E/R controls the daytime running light request signal.
- Power is supplied from the IPDM E/R to the daytime lights.

HEADLAMP AIMING CONTROL SYSTEM (AUTO)

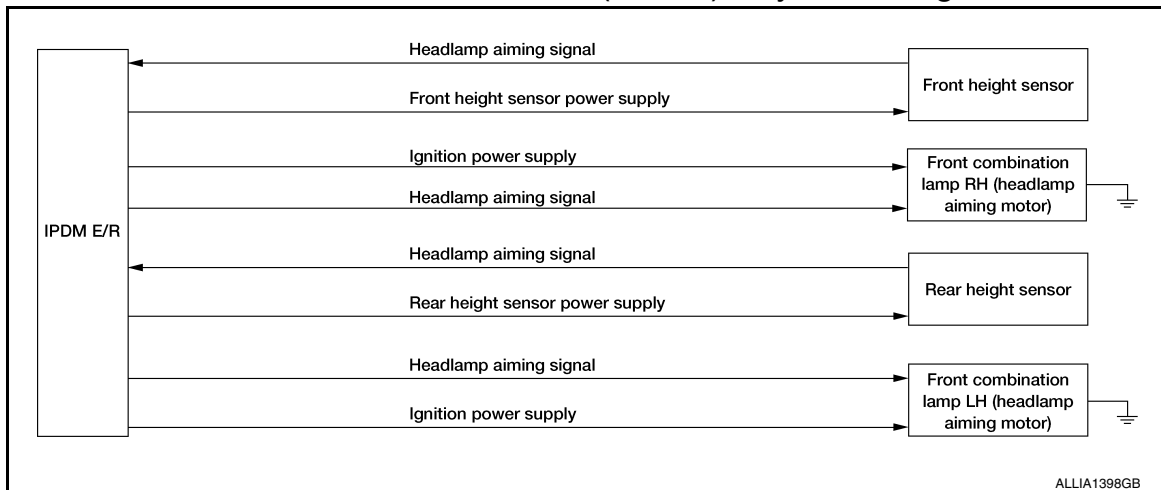
SYSTEM

< SYSTEM DESCRIPTION >

[LED HEADLAMP]

HEADLAMP AIMING CONTROL SYSTEM (AUTO) : System Diagram

INFOID:000000010340297



HEADLAMP AIMING CONTROL SYSTEM (AUTO) : System Description

INFOID:000000010340298

OUTLINE

- Headlamp aiming control system is controlled by the IPDM E/R.
- The IPDM E/R controls the headlamp light axis height appropriately depending on the vehicle front and rear height sensor positions.
- Auto levelizer control unit detects the vehicle condition necessary for the aiming motor control with the following signals.
 - Front and rear height sensor signals

HEADLAMP AUTO AIMING OPERATION

- The IPDM E/R calculates vehicle pitch angle from the front and rear height sensor signals and determines the necessary correction to compensate the deviation from standard light axis position.
- The IPDM E/R outputs aiming motor drive signal when operating conditions are met.

Operating condition:

- Ignition switch ON
- Parking lamp ON
- The IPDM E/R unit changes the aiming motor drive signal when any of the correcting conditions are detected. Output is maintained if other condition is detected.

Correcting condition:

- Parking lamp is turned ON.
- Vehicle posture becomes stable after the vehicle posture change is detected with the parking lamp ON and the vehicle stopped.
- Vehicle speed is maintained with the parking lamp ON and the vehicle driven.

CAUTION:

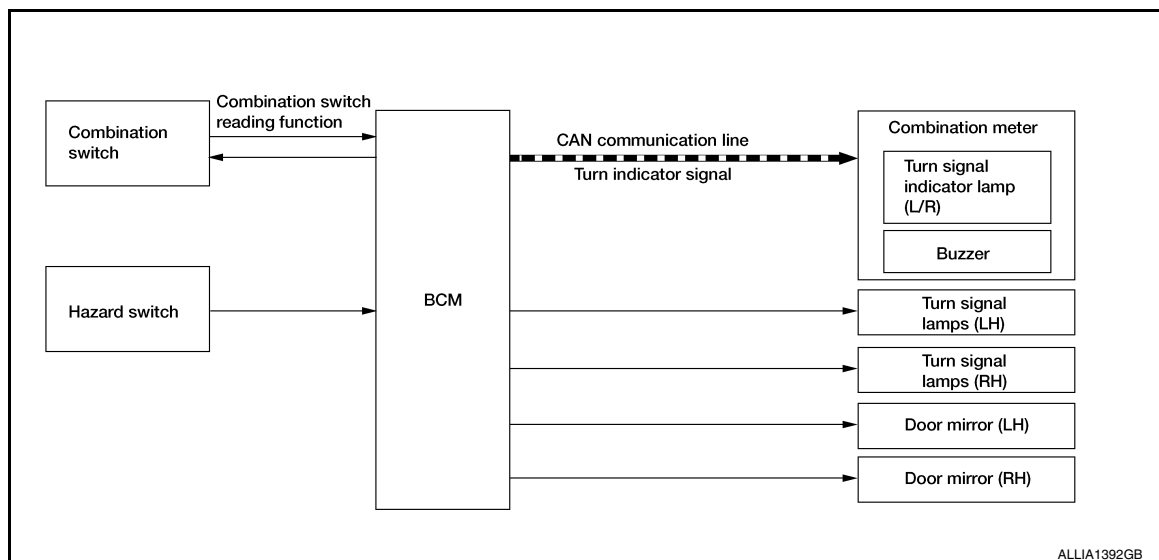
If the suspension is worn, the adjusted axis position may differ from the preset position.

TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM : System Description

INFOID:0000000010330273

SYSTEM DIAGRAM



OUTLINE

Turn signal lamp and the hazard warning lamp is controlled by combination switch reading function and the flasher control function of BCM.

TURN SIGNAL LAMP OPERATION

- BCM detects the combination switch condition by the combination switch reading function.
- BCM supplies voltage to the right (left) turn signal lamp circuit when the power switch is ON and the turn signal switch is in the right (left) position. BCM blinks the turn signal lamp.

HAZARD WARNING LAMP OPERATION

BCM supplies voltage to both turn signal lamp circuit when the hazard switch is ON. BCM blinks the hazard warning lamp.

TURN SIGNAL INDICATOR LAMP AND TURN SIGNAL OPERATION

- BCM transmits the turn signal indicator lamp signal to the combination meter using CAN communication while the turn signal lamp and the hazard warning lamp are operating.
- Combination meter outputs the turn signal sound with the integrated buzzer while blinking the turn signal indicator lamp according to the turn signal indicator lamp signal.

HIGH FLASHER OPERATION

- BCM detects the turn signal lamp circuit status from the current value.
- BCM increases the turn signal lamp blinking speed if the bulb or harness open is detected with the turn signal lamp operating.

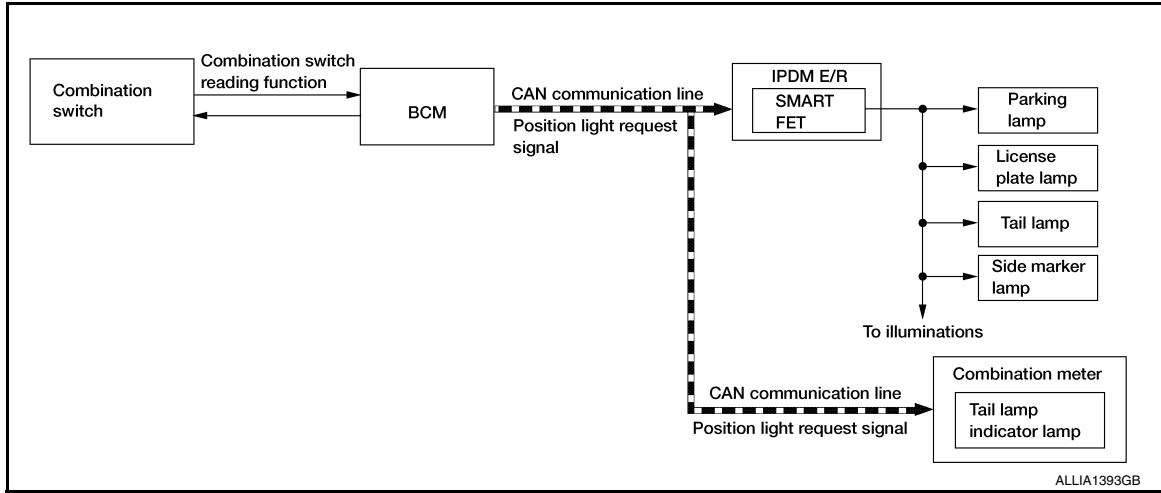
NOTE:

The blinking speed is normal while operating the hazard warning lamp.

PARKING, LICENSE PLATE, SIDE MARKER AND TAIL LAMP SYSTEM

PARKING, LICENSE PLATE, SIDE MARKER AND TAIL LAMP SYSTEM : System De-

SYSTEM DIAGRAM



OUTLINE

Parking, license plate, side marker and tail lamps are controlled by combination switch reading function and headlamp control function of BCM, and smart FET control function of IPDM E/R.

PARKING, LICENSE PLATE, SIDE MARKER AND TAIL LAMPS OPERATION

- BCM detects the combination switch condition by the combination switch reading function.
- BCM transmits the position light request signal to IPDM E/R and the combination meter via CAN communication according to the ON/OFF condition of the parking, license plate, side marker and tail lamps.

Parking, license plate, side marker and tail lamps ON condition:

- Lighting switch 1ST
- Lighting switch 2ND
- Lighting switch AUTO, and the auto light function ON judgment
- Lighting switch AUTO, with the front fog lamp switch ON and the power switch ON
- IPDM E/R turns the integrated tail lamp ON and turns the parking, license plate, side marker and tail lamps ON according to the position light request signal.
- Combination meter turns the tail lamp indicator lamp ON according to the position light request signal.

PARKING, LICENSE PLATE, SIDE MARKER AND TAIL LAMP SYSTEM : Fail-Safe

CAN COMMUNICATION CONTROL

When CAN communication with BCM is impossible, IPDM E/R performs fail-safe control. After CAN communication recovers normally, it also returns to normal control.

If no CAN communication is available with BCM

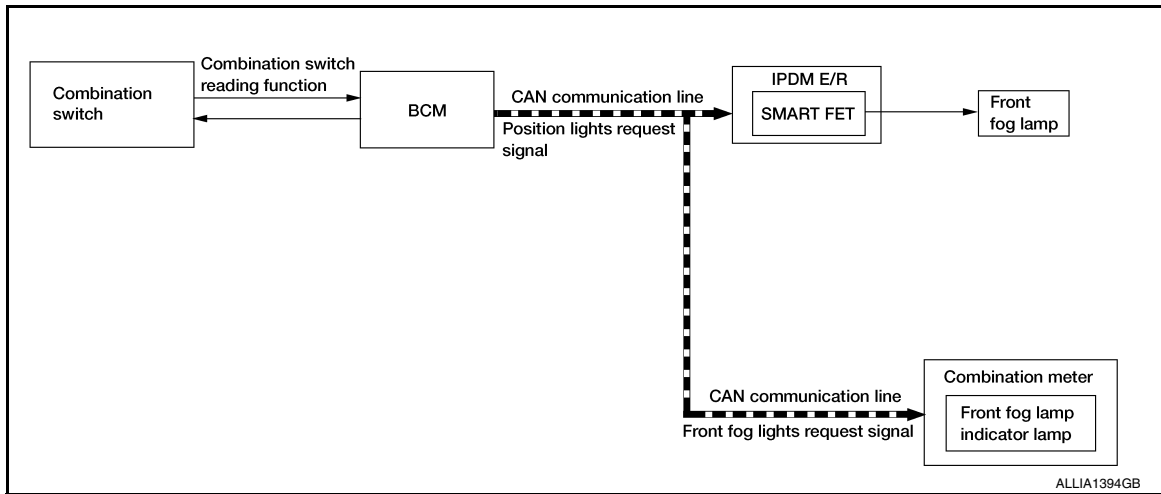
Control part	Fail-safe operation
• Parking lamp • License plate lamp • Illumination • Tail lamp • Side marker lamp	• Turns ON the tail lamp when the power switch is turned ON • Turns OFF the tail lamp when the power switch is turned OFF

FRONT FOG LAMP SYSTEM

FRONT FOG LAMP SYSTEM : System Description

INFOID:0000000010330277

SYSTEM DIAGRAM



OUTLINE

Front fog lamp is controlled by combination switch reading function, front fog lamp control function of BCM, and smart FET function of IPDM E/R.

FRONT FOG LAMP OPERATION

- BCM detects the combination switch condition by the combination switch reading function.
- BCM transmits the front fog lights request signal to IPDM E/R and the combination meter via CAN communication according to the front fog lamp ON condition.

Front fog lamp ON condition:

- Front fog lamp switch ON, and any of the following condition is satisfied (except for the high beam ON).
- Lighting switch 2ND
- Lighting switch AUTO and the power switch ON

IPDM E/R turns the front fog lamp ON according to the front fog lights request signal.

Combination meter turns the front fog lamp indicator lamp ON according to the front fog lights request signal.

FRONT FOG LAMP SYSTEM : Fail-Safe

INFOID:0000000010330279

CAN COMMUNICATION CONTROL

When CAN communication with BCM is impossible, IPDM E/R performs fail-safe control. After CAN communication recovers normally, it also returns to normal control.

If no CAN communication is available with BCM

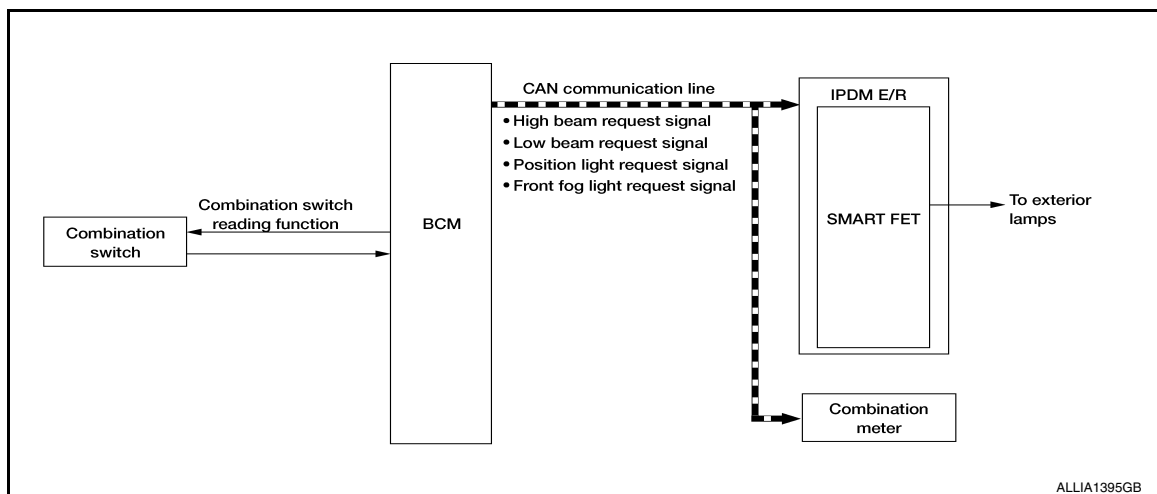
Control part	Fail-safe operation
Front fog lamp	Front fog lamp OFF

EXTERIOR LAMP BATTERY SAVER SYSTEM

EXTERIOR LAMP BATTERY SAVER SYSTEM : System Description

INFOID:000000010330280

SYSTEM DIAGRAM



OUTLINE

- Exterior lamp battery saver system is controlled by each function of BCM and IPDM E/R.

Controlled by BCM:

- Combination switch reading function
- Headlamp control function
- Exterior lamp battery saver function

Controlled by IPDM E/R:

- BCM turns the exterior lamps* OFF after a period of time to prevent the battery from over-discharge when the power switch is turned OFF with the exterior lamps ON.

*: Headlamp (LO/HI), parking lamp, tail lamp, side marker lamp, license plate lamp and front fog lamp

EXTERIOR LAMP BATTERY SAVER ACTIVATION

BCM activates the timer and turns the exterior lamp OFF 5 minutes after the power switch is turned from ON → OFF with the exterior lamps ON.

NOTE:

- Headlamp control function turns the exterior lamps ON normally when the power switch is turned ACC or set the vehicle to READY (both before and after the exterior lamp battery saver is turned OFF).
- The timer starts at the time that the lighting switch is turned from OFF → 1ST or 2ND with the exterior lamps OFF.

DIAGNOSIS SYSTEM (BCM)

[LED HEADLAMP]

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (BCM) WITH INTELLIGENT KEY

WITH INTELLIGENT KEY : CONSULT Function (BCM - COMMON ITEM)

INFOID:0000000010287185

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with BCM.

Direct Diagnostic Mode	Description
Ecu Identification	The BCM part number is displayed.
Self Diagnostic Result	The BCM self diagnostic results are displayed.
Data Monitor	The BCM input/output data is displayed in real time.
Active Test	The BCM activates outputs to test components.
Work support	The settings for BCM functions can be changed.
Configuration	- The vehicle specification can be read and saved. - The vehicle specification can be written when replacing BCM.
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.

SYSTEM APPLICATION

BCM can perform the following functions.

System	Sub System	Direct Diagnostic Mode						
		Ecu Identification	Self Diagnostic Result	Data Monitor	Active Test	Work support	Configuration	CAN Diag Support Mntr
Door lock	DOOR LOCK		×	×	×	×		
Rear window defogger	REAR DEFOGGER			×	×	×		
Warning chime	BUZZER			×	×			
Interior room lamp timer	INT LAMP			×	×	×		
Exterior lamp	HEADLAMP			×	×	×		
Wiper and washer	WIPER			×	×	×		
Turn signal and hazard warning lamps	FLASHER			×	×			
Intelligent Key system	INTELLIGENT KEY		×	×	×	×		
Combination switch	COMB SW			×				
BCM	BCM	×	×			×	×	×
Immobilizer	IMMU		×	×	×			
Interior room lamp battery saver	BATTERY SAVER			×	×			
Back door open	TRUNK			×				
Vehicle security system	THEFT ALM			×	×	×		
RAP system	RETAINED PWR			×				
Signal buffer system	SIGNAL BUFFER			×				
TPMS	AIR PRESSURE MONITOR		×	×	×	×		

WITH INTELLIGENT KEY : CONSULT Function (BCM - HEADLAMP)

INFOID:0000000010287188

DATA MONITOR

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[LED HEADLAMP]

Monitor Item [Unit]	Description	
PUSH SW [On/Off]	Indicates condition of push-button ignition switch.	A
ENGINE STATE [STOP/STALL/CRANK/RUN]	Indicates engine status received from ECM on CAN communication line.	B
VEH SPEED 1 [km/h]	Indicates vehicle speed signal received from ABS on CAN communication line.	
TURN SIGNAL R [On/Off]	Indicates condition of combination switch.	C
TURN SIGNAL L [On/Off]		
TAIL LAMP SW [On/Off]		
HI BEAM SW [On/Off]		D
HEAD LAMP SW [On/Off]		
LIGHT OFF SW [On/Off]		E
PASSING SW [On/Off]		
AUTO LIGHT SW [On/Off]		F
FR FOG SW [On/Off]		
DOOR SW-DR [On/Off]	Indicates condition of front door switch LH.	
DOOR SW-AS [On/Off]	Indicates condition of front door switch RH.	G
DOOR SW-RR [On/Off]	Indicates condition of rear door switch RH.	
DOOR SW-RL [On/Off]	Indicates condition of rear door switch LH.	H
DOOR SW-BK [On/Off]	Indicates condition of back door switch.	
OPTI SEN (DTCT) [V]	Indicates outside brightness voltage signal from optical sensor.	I
OPTI SEN (FILT) [V]	Indicates outside brightness voltage signal from optical sensor filtered by BCM.	

ACTIVE TEST

Test Item	Description	
FR FOG LAMP	This test is able to check front fog lamp operation [On/Off].	J
STOP LAMP 1	This test is able to check rear combination lamp stop lamp operation [On/Off].	
STOP LAMP 3	This test is able to check high-mounted stop lamp operation [On/Off].	K

WORK SUPPORT

Support Item	Setting	Description	EXL
TWILIGHT ON	MODE2*	Autolamp function ON.	M
	MODE1	Autolamp function OFF.	
CUSTOM A/LIGHT SETTING	MODE4	Less sensitive than normal setting (turns ON later).	N
	MODE3	More sensitive than MODE2.	
	MODE2	More sensitive than normal setting (turns ON earlier).	
	MODE1*	Normal setting.	
ILL DELAY SET	MODE 8	Autolamp delay timer.	P
	MODE 7		
	MODE 6		
	MODE 4		
	MODE 5		
	MODE 3		
	MODE 2		
	MODE 1*		

*: Initial setting

DIAGNOSIS SYSTEM (BCM)

[LED HEADLAMP]

< SYSTEM DESCRIPTION >

WITH INTELLIGENT KEY : CONSULT Function (BCM - FLASHER)

INFOID:0000000010287191

DATA MONITOR

Monitor Item [Unit]	Description
REQ SW -DR [On/Off]	Indicates condition of door request switch LH.
REQ SW -AS [On/Off]	Indicates condition of door request switch RH.
PUSH SW [On/Off]	Indicates condition of push-button ignition switch.
TURN SIGNAL R [On/Off]	Indicates condition of turn signal function of combination switch.
TURN SIGNAL L [On/Off]	
HAZARD SW [On/Off]	Indicates condition of hazard switch.
RKE-LOCK [On/Off]	Indicates condition of lock signal from Intelligent Key.
RKE-UNLOCK [On/Off]	Indicates condition of unlock signal from Intelligent Key.
RKE-PANIC [On/Off]	Indicates condition of panic alarm signal from Intelligent Key.

ACTIVE TEST

Test Item	Description
FLASHER	This test is able to check turn signal lamp operation [Off/LH/RH].

WITHOUT INTELLIGENT KEY

WITHOUT INTELLIGENT KEY : CONSULT Function (BCM - COMMON ITEM)

INFOID:0000000010287193

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with BCM.

Direct Diagnostic Mode	Description
Ecu Identification	The BCM part number is displayed.
Self Diagnostic Result	The BCM self diagnostic results are displayed.
Data Monitor	The BCM input/output data is displayed in real time.
Active Test	The BCM activates outputs to test components.
Work support	The settings for BCM functions can be changed.
Configuration	- The vehicle specification can be read and saved. - The vehicle specification can be written when replacing BCM.
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.

SYSTEM APPLICATION

BCM can perform the following functions.

System	Sub System	Direct Diagnostic Mode						
		Ecu Identification	Self Diagnostic Result	Data Monitor	Active Test	Work support	Configuration	CAN Diag Support Mntr
Door lock	DOOR LOCK			×	×	×		
Rear window defogger	REAR DEFOGGER			×	×	×		

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[LED HEADLAMP]

System	Sub System	Direct Diagnostic Mode						
		Ecu Identification	Self Diagnostic Result	Data Monitor	Active Test	Work support	Configuration	CAN Diag Support Mntr
Warning chime	BUZZER			x	x			
Interior room lamp timer	INT LAMP			x	x	x		
Remote keyless entry system	MULTI REMOTE ENT					x		
Exterior lamp	HEADLAMP			x	x			
Wiper and washer	WIPER			x	x	x		
Turn signal and hazard warning lamps	FLASHER			x	x			
Combination switch	COMB SW			x				
BCM	BCM	x	x			x	x	x
Immobilizer	IMMU		x		x			
Interior room lamp battery saver	BATTERY SAVER			x	x			
Back door open	TRUNK			x				
Vehicle security system	THEFT ALM			x	x	x		
RAP system	RETAINED PWR			x				
TPMS	AIR PRESSURE MONITOR		x	x	x	x		

WITHOUT INTELLIGENT KEY : CONSULT Function (BCM - HEADLAMP) INFOID:0000000010287194

DATA MONITOR

Monitor Item [Unit]	Description
TURN SIGNAL R [On/Off]	Indicates condition of combination switch.
TURN SIGNAL L [On/Off]	
TAIL LAMP SW [On/Off]	
HI BEAM SW [On/Off]	
HEAD LAMP SW [On/Off]	
LIGHT OFF SW [On/Off]	
PASSING SW [On/Off]	
DOOR SW-DR [On/Off]	Indicates condition of front door switch LH.
DOOR SW-AS [On/Off]	Indicates condition of front door switch RH.
DOOR SW-RR [On/Off]	Indicates condition of rear door switch RH.
DOOR SW-RL [On/Off]	Indicates condition of rear door switch LH.
DOOR SW-BK [On/Off]	Indicates condition of back door switch.

ACTIVE TEST

Test Item	Description
DAYTIME RUNNING LIGHT	This test is able to check daytime running lamp operation [On/Off].
ILL DIM SIGNAL	This test is able to check head lamp illumination dimming operation [On/Off].

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[LED HEADLAMP]

WITHOUT INTELLIGENT KEY : CONSULT Function (BCM - FLASHER)

INFOID:0000000010287195

DATA MONITOR

Monitor Item [Unit]	Description
TURN SIGNAL R [On/Off]	Indicates condition of turn signal function of combination switch.
TURN SIGNAL L [On/Off]	
HAZARD SW [On/Off]	Indicates condition of hazard switch.
RKE-LOCK [On/Off]	Indicates condition of lock signal from Intelligent Key.
RKE-UNLOCK [On/Off]	Indicates condition of unlock signal from Intelligent Key.
RKE-PANIC [On/Off]	Indicates condition of panic alarm signal from Intelligent Key.

ACTIVE TEST

Test Item	Description
FLASHER	This test is able to check turn signal lamp operation [Off/LH/RH].

DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

[LED HEADLAMP]

DIAGNOSIS SYSTEM (IPDM E/R)

CONSULT Function (IPDM E/R)

INFOID:000000010287196

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with IPDM E/R.

Direct Diagnostic Mode	Description
Ecu Identification	The IPDM E/R part number is displayed.
Self Diagnostic Result	The IPDM E/R self diagnostic results are displayed.
Data Monitor	The IPDM E/R input/output data is displayed in real time.
Active Test	The IPDM E/R activates outputs to test components.
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.

ECU IDENTIFICATION

The IPDM E/R part number is displayed.

SELF DIAGNOSTIC RESULT

Refer to [PCS-20, "DTC Index"](#).

DATA MONITOR

Monitor Item [Unit]	Description
REVERSE SIGNAL [Open/Close]	Indicates condition of transmission range switch R (Reverse) position.
IGN RELAY [Open/Close]	Indicates condition of ignition relay-1.
PUSH SW [Open/Close]	Indicates condition of push-button ignition switch.
INTERLOCK/PNP SW [Open/Close]	Indicates condition of transmission range switch P (Park) and N (Neutral) positions.
OIL PRESSURE SW [Open/Close]	Indicates condition of oil pressure switch.
HOOD SW [Open/Close]	Indicates condition of hood switch.
COMPRESSOR [OFF/ON]	Indicates condition of A/C compressor.
HORN RELAY [OFF/ ON]	Indicates condition of horn relay.
COOLING FAN [OFF/ON]	Indicates condition of cooling fan relay-1.
FRONT WIPER HI/LO RELAY [OFF/ON]	Indicates condition of front wiper high relay.
FRONT WIPER RELAY [OFF/ON]	Indicates condition of front wiper relay.
IGN RELAY OFF STATUS [OFF/ON]	Indicates condition of ignition relay-1 OFF status.
IGN RELAY ON STATUS [OFF/ON]	Indicates condition of ignition relay-1 ON status.
COOLING FAN RELAY 1 [OFF/ON]	Indicates condition of cooling fan relay-1.
STARTER RELAY [OFF/ON]	Indicates condition of starter relay.
COMP ECV DUTY [%]	Indicates condition of A/C compressor.
COOLING FAN RELAY 2 [%]	Indicates condition of cooling fan relay-2.
FR FOG LAMP LH [%]	Indicates condition of front fog lamp LH.
FR FOG LAMP RH [%]	Indicates condition of front fog lamp RH.
PARKING LAMP [%]	Indicates condition of parking lamp.
TAIL LAMP LH [%]	Indicates condition of tail lamp LH.
TAIL LAMP RH [%]	Indicates condition of tail lamp RH.
DAYTIME RUNNING LIGHT LH [%]	Indicates condition of daytime running light LH.
DAYTIME RUNNING LIGHT RH [%]	Indicates condition of daytime running light RH.
HEADLAMP (HI) LH [%]	Indicates condition of headlamp high beam LH.

DIAGNOSIS SYSTEM (IPDM E/R)

[LED HEADLAMP]

< SYSTEM DESCRIPTION >

Monitor Item [Unit]	Description
HEADLAMP (HI) RH [%]	Indicates condition of headlamp high beam RH.
HEADLAMP (LO) LH [%]	Indicates condition of headlamp low beam LH.
HEADLAMP (LO) RH [%]	Indicates condition of headlamp low beam RH.
A/C RELAY STUCK [NG/OK]	Indicates condition of A/C relay.
A/C RELAY [Off/On]	Indicates condition of A/C relay.
COMP ECV STATUS [NG/OK]	Indicates condition of A/C compressor.
VEHICLE SECURITY HORN [Off/On]	Indicates condition of horn relay.
BATTERY CURRENT SENSOR [NG/OK]	Indicates condition of battery current sensor.
FRONT FOG LAMP [Off/On]	Indicates condition of front fog lamps.
COMP ECV CURRENT [A]	Indicates condition of A/C compressor current.
BATTERY VOLTAGE [V]	Indicates condition of battery voltage.
COOLING FAN DUTY [%]	Indicates condition of cooling fans.
HOOD SW (CAN) [OPEN/CLOSE]	Indicates condition of hood switch.
FRONT WIPER [STOP/LOW/HIGH]	Indicates condition of front wiper motor.
FR WIPER STOP POSITION [STOP P/ACTIVE P]	Indicates condition of front wiper motor stop.
HEADLAMP (HI) [Off/On]	Indicates condition of headlamp high beams.
HEADLAMP (LO) [Off/On]	Indicates condition of headlamp low beams.
IGNITION RELAY STATUS [Off/On]	Indicates condition of ignition relay-1.
IGN RELAY MONITOR [Off/On]	Indicates condition of ignition relay-1 feedback.
IGNITION POWER SUPPLY [Off/On]	Indicates condition of ignition relay-1.
INTERLOCK/PNP SW (CAN) [Off/On]	Indicates condition of transmission range switch P (Park) and N (Neutral) positions.
PUSH-BUTTON IGN SW (CAN) [Off/On]	Indicates condition of push-button ignition switch.
TAIL LAMP [Off/On]	Indicates condition of tail lamps.
REVERSE SIGNAL (CAN) [Off/On]	Indicates condition of transmission range switch R (Reverse) position.
ST&ST CONT RELAY STATUS [Off/ST R On]	Indicates condition of starter cut and starter relays.
STARTER MOTOR STATUS [Off/On]	Indicates condition of starter motor.
STARTER RELAY (CAN) [LOW/HIGH]	Indicates condition of starter relay.
IPDM NOT SLEEP [NO RDY/RDY]	Indicates condition of IPDM E/R sleep status.
AFTER COOLING TIME [No request/Request]	Indicates condition of cooling fan request.
AFTER COOLING SPEED [%]	Indicates condition of cooling fans.
COOLING FAN TYPE [NISSAN/RENAULT]	Indicates cooling fan type.
COMPRESSOR REQ1 [Off/On]	Indicates condition of A/C compressor request.
VHCL SECURITY HORN REQ [Off/On]	Indicates condition of horn relay request.
DTRL REQ [Off/On]	Indicates condition of daytime running light request.
SLEEP/WAKE UP [WAKEUP/SLEEP]	Indicates condition of IPDM E/R sleep/wake.
CRANKING ENABLE-TCM [NG/OK]	Indicates condition of crank enable from TCM.
CRANKING ENABLE-ECM [NG/OK]	Indicates condition of crank enable from ECM.
CAN DIAGNOSIS [NG/OK]	Indicates condition of CAN diagnosis.
FRONT FOG LAMP REQ [Off/On]	Indicates condition of front fog lamp request.
HIGH BEAM REQ [Off/On]	Indicates condition of headlamp high beam request.
HORN CHIRP [Off/On]	Indicates condition of horn relay request.
COOLING FAN REQ [%]	Indicates condition of cooling fan request.
ENGINE STATUS [STOP/RUN/IDLING]	Indicates condition of engine status.

DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

[LED HEADLAMP]

Monitor Item [Unit]	Description
TURN SIGNAL REQ [Off/LH/RH]	Indicates condition of turn signal request.
FR WIPER REQ [RETURN/LOW/HIGH]	Indicates condition of front wiper motor request.
SHIFT POSITION [P/R/N/D/L]	Indicates condition of transmission range switch positions.
LOW BEAM REQ [Off/On]	Indicates condition of headlamp low beam request.
POSITION LIGHT REQ [Off/On]	Indicates condition of parking lamp request.
COMPRESSOR REQ2 [Off/On]	Indicates condition of A/C compressor request.
IGNITION SW [Off/On]	Indicates condition of ignition switch.
VEHICLE SPEED (METER) [mph/km/h]	Indicates vehicle speed.
BAT DISCHARGE COUNT [0-100]	Indicates condition of battery discharge.
BATTERY STATUS [NG/OK]	Indicates battery status.

ACTIVE TEST

Test item	Description
HORN	This test is able to check horn operation [Off/On].
FRONT WIPER	This test is able to check wiper motor operation [Off/Low/High].
COMPRESSOR	This test is able to check A/C compressor operation [Off/On].
COOLING FAN (DUAL)	This test is able to check cooling fan operation [Off/LO/HI].
HEADLAMP (HI)	This test is able to check headlamp high beam operation [Off/3/5].
HEADLAMP (LO)	This test is able to check headlamp low beam operation [Off/3/5].
FRONT FOG LAMP	This test is able to check front fog lamp operation [Off/3/5].
DAYTIME RUNNING LAMP	This test is able to check daytime running lamp operation [Off/3/5].
PARKING LAMP	This test is able to check parking lamp operation [Off/3/5].
TAIL LAMP	This test is able to check tail lamp operation [Off/3/5].

CAN DIAG SUPPORT MNTR

Refer to [LAN-14, "CAN Diagnostic Support Monitor"](#).

A
B
C
D
E
F
G
H
I
J
K
M
N
O
P

EXL

ECU DIAGNOSIS INFORMATION

BCM, IPDM E/R

List of ECU Reference

INFOID:0000000010330283

ECU	Reference
BCM	BCS-28, "Reference Value" (with Intelligent Key system) BCS-96, "Reference Value" (without Intelligent Key system)
	BCS-47, "Fail Safe" (with Intelligent Key system) BCS-107, "Fail Safe" (without Intelligent Key system)
	BCS-47, "DTC Inspection Priority Chart" (with Intelligent Key system) BCS-107, "DTC Inspection Priority Chart" (without Intelligent Key system)
	BCS-48, "DTC Index" (with Intelligent Key system) BCS-108, "DTC Index" (without Intelligent Key system)
IPDM E/R	PCS-12, "Reference Value" .
	PCS-19, "Fail-safe"
	PCS-20, "DTC Index"

HEADLAMP

< WIRING DIAGRAM >

[LED HEADLAMP]

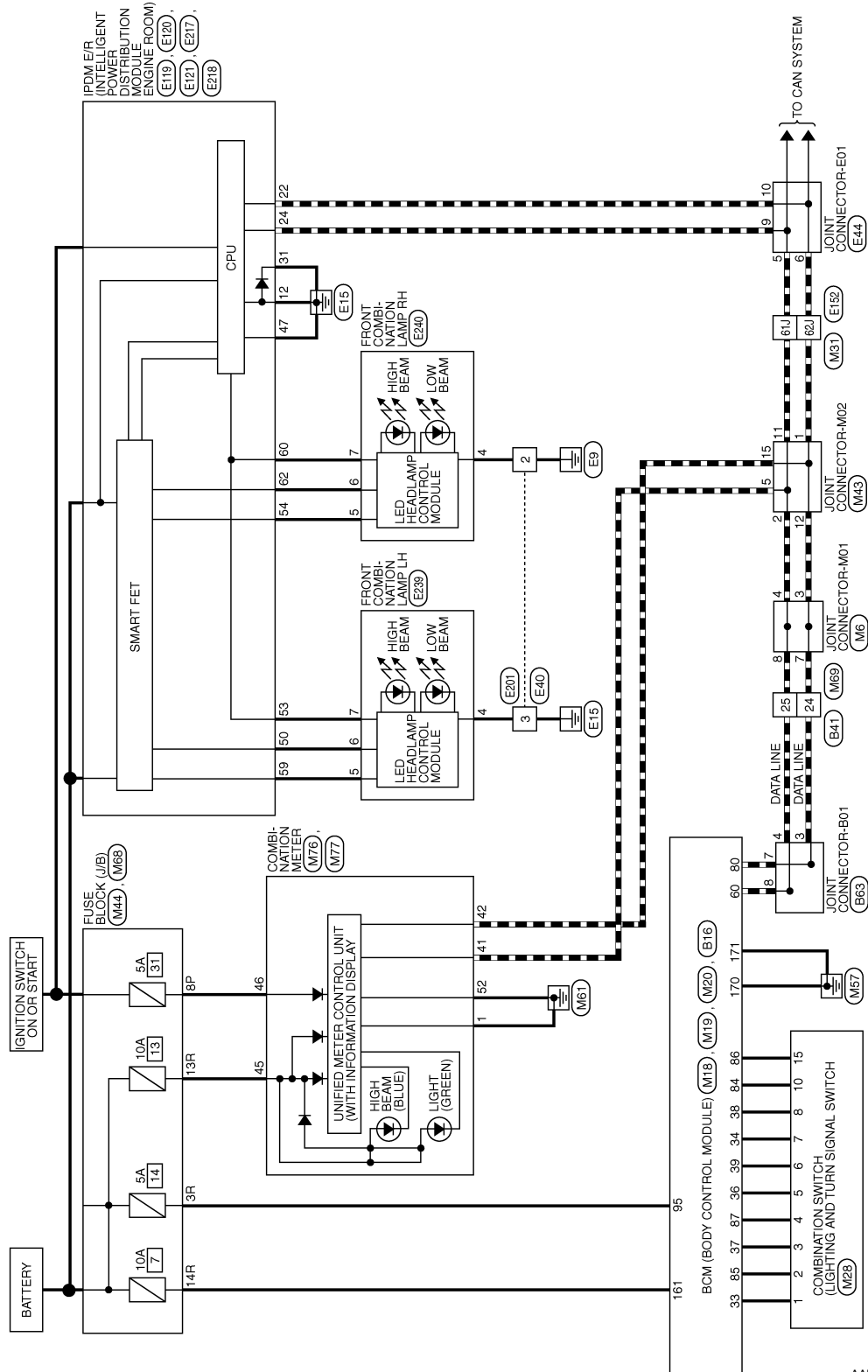
WIRING DIAGRAM

HEADLAMP

Wiring Diagram

INFOID:0000000010288648

HEADLAMP - LED



AALWA0769GB

HEAD LAMP - LED CONNECTORS

Connector No.	M6
Connector Name	JOINT CONNECTOR-M01
Connector Color	GRAY



4	3	2	1
8	7	6	5
12	11	10	9
16	15	14	13
20	19	18	17
24	23	22	21

Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY



20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21

Terminal No.	Color of Wire	Signal Name
33	LG	I CSW 5
34	Y	O CSW 5
36	G	I CSW 3
37	GR	I CSW 4
38	V	I CSW 1
39	W	I CSW 2

Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



100	99	98	97	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81
120	119	118	117	116	115	114	113	112	111	110	109	108	107	106	105	104	103	102	101

Terminal No.	Color of Wire	Signal Name
84	BR	O CSW 2
85	SB	O CSW 1
86	P	O CSW 3
87	BG	O CSW 4
95	V	I SHORTING PIN

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BROWN



167	166	165	164	163	162	161
176	175	174	173	172	171	170
169	168	167	166	165	164	163

Terminal No.	Color of Wire	Signal Name
161	W	I PWR ECU
170	B	I GND1
171	B	I GND2

Connector No.	M28
Connector Name	COMBINATION SWITCH
Connector Color	WHITE



8	7	6	5	4	3	2	1
16	15	14	13	12	11	10	9

Terminal No.	Color of Wire	Signal Name
1	LG	-
2	SB	-
3	GR	-
4	BG	-

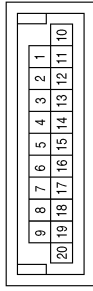
Terminal No.	Color of Wire	Signal Name
5	G	-
6	W	-
7	Y	-
8	V	-
10	BR	-
15	P	-

HEADLAMP

< WIRING DIAGRAM >

[LED HEADLAMP]

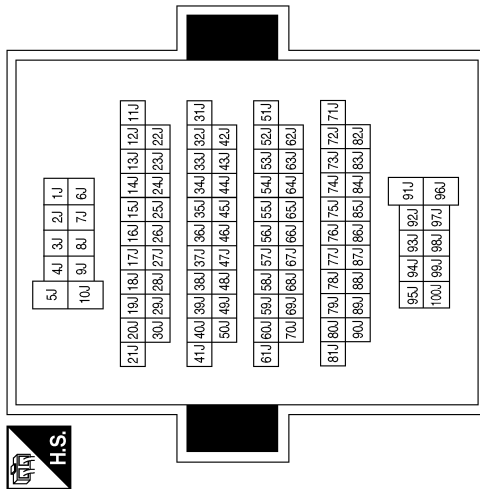
Connector No.	M43
Connector Name	JOINT CONNECTOR-M02
Connector Color	BLUE



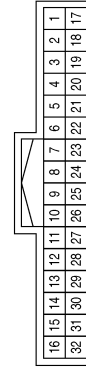
Terminal No.	Color of Wire	Signal Name
1	L	-
2	L	-
5	L	-
11	P	-
12	P	-
15	P	-

Terminal No.	Color of Wire	Signal Name
61J	L	-
62J	P	-

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	M69
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
24	P	-
25	L	-

Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
3R	V	-
14R	W	-

Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
8P	LA/BR	-
13P	LA/G	-

AALIA2139GB

A B C D E F G H I J K EXL M N O P

HEADLAMP

< WIRING DIAGRAM >

[LED HEADLAMP]

Connector No.	E40
Connector Name	WIRE TO WIRE
Connector Color	WHITE

1	2
3	4



Terminal No.	Color of Wire	Signal Name
2	GR	—
3	B	—

Connector No.	M77
Connector Name	COMBINATION METER
Connector Color	WHITE

41	42	43	44	45	46
47	48	49	50	51	52



Terminal No.	Color of Wire	Signal Name
41	L	CAN-H
42	P	CAN-L
45	LA/G	BAT
46	LA/BR	IGN
52	B	GND2

Connector No.	M76
Connector Name	COMBINATION METER
Connector Color	WHITE

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40



Terminal No.	Color of Wire	Signal Name
1	B	GND1

Connector No.	E120
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY

30	29	28	27	26	25	24	23	22	21	20	19
42	41	40	39	38	37	36	35	34	33	32	31



Connector No.	E119
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY

9	8	7	6		5	4	3	
18	17	16	15	14	13	12	11	10



Terminal No.	Color of Wire	Signal Name
22	P	CAN-L
24	L	CAN-H
31	B	2ND SIGNAL GROUND

Terminal No.	Color of Wire	Signal Name
12	B	SIGNAL GROUND

Connector No.	E44
Connector Name	JOINT CONNECTOR-E01
Connector Color	WHITE

4	3	2	1
8	7	6	5
12	11	10	9
16	15	14	13
20	19	18	17
24	23	22	21
28	27	26	25



Terminal No.	Color of Wire	Signal Name
5	L	—
6	P	—
9	L	—
10	P	—

AALJA2140GB

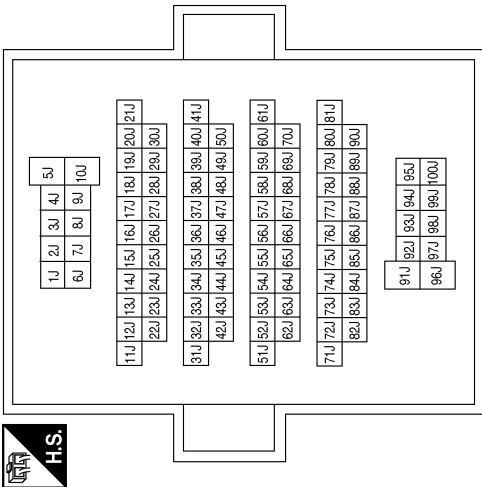
HEADLAMP

< WIRING DIAGRAM >

[LED HEADLAMP]

Terminal No.	Color of Wire	Signal Name
61J	L	-
62J	P	-

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE

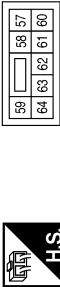


Connector No.	E121
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	RED

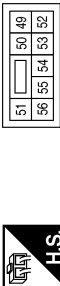


Terminal No.	Color of Wire	Signal Name
47	B	POWER GROUND

Connector No.	E218
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE



Connector No.	E217
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BROWN



Connector No.	E201
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
59	G	O LIGHT HBEAM LH
60	Y	LI LED DETECTION 1
62	SB	O LIGHT LBEAM RH

Terminal No.	Color of Wire	Signal Name
50	L	O LIGHT LBEAM LH
53	GR	LI LED DETECTION 2
54	LG	O LIGHT HBEAM RH

Terminal No.	Color of Wire	Signal Name
2	B	-
3	B	-

AALIA2141GB

A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

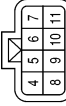
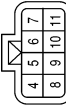
EXL

HEADLAMP

< WIRING DIAGRAM >

[LED HEADLAMP]

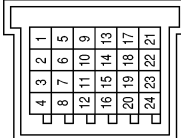
Connector No.	E239	Connector No.	E240	Connector No.	B16
Connector Name	FRONT COMBINATION LAMP LH (WITH LED HEADLAMPS)	Connector Name	FRONT COMBINATION LAMP RH (WITH LED HEADLAMPS)	Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK	Connector Color	BLACK	Connector Color	GREEN

				
---	---	---	---	---

Terminal No.	Color of Wire	Signal Name	Terminal No.	Color of Wire	Signal Name
4	B	-	4	B	-
5	G	-	5	LG	-
6	L	-	6	SB	-
7	GR	-	7	Y	-

Terminal No.	Color of Wire	Signal Name	Terminal No.	Color of Wire	Signal Name
60	L	CAN-H	60	L	CAN-H
80	P	CAN-L	80	P	CAN-L

Connector No.	B41	Connector No.	B63	Connector No.	B16
Connector Name	WIRE TO WIRE	Connector Name	JOINT CONNECTOR-B01	Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	WHITE	Connector Color	GRAY	Connector Color	GREEN

			
--	--	--	--

Terminal No.	Color of Wire	Signal Name	Terminal No.	Color of Wire	Signal Name
24	P	-	3	P	-
25	L	-	4	L	-
			7	P	-
			8	L	-

AALJA2142GB

DAYTIME LIGHT SYSTEM

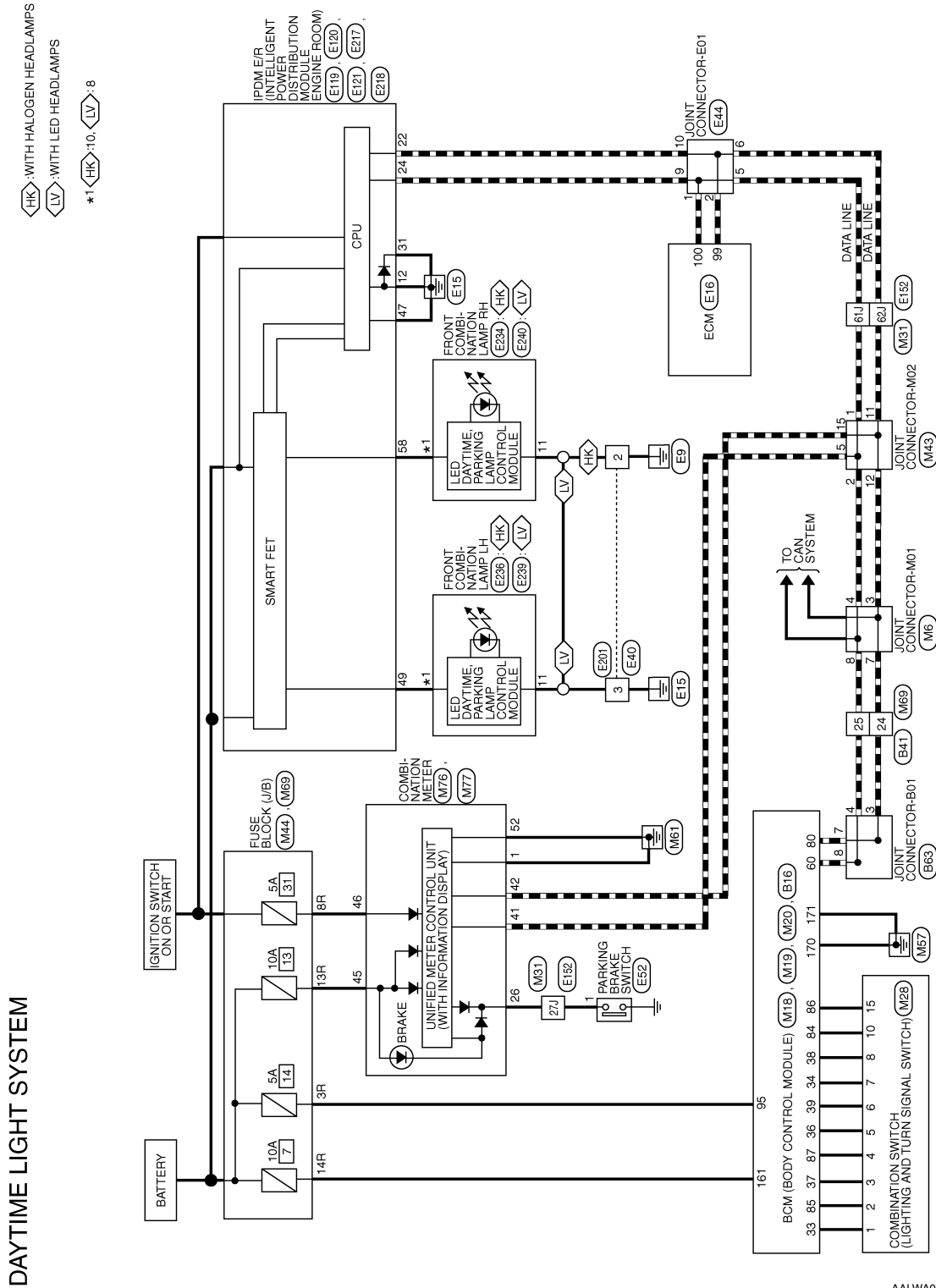
< WIRING DIAGRAM >

[LED HEADLAMP]

DAYTIME LIGHT SYSTEM

Wiring Diagram

INFOID:0000000010288649



AALWA0771GB

DAYTIME LIGHT SYSTEM CONNECTORS

Connector No.	M6
Connector Name	JOINT CONNECTOR-M01
Connector Color	GRAY



4	3	2	1
8	7	6	5
12	11	10	9
16	15	14	13
20	19	18	17
24	23	22	21



20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY

Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



100	99	98	97	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81
120	119	118	117	116	115	114	113	112	111	110	109	108	107	106	105	104	103	102	101

Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

Terminal No.	Color of Wire	Signal Name
33	LG	I CSW 5
34	Y	O CSW 5
36	G	I CSW 3
37	GR	I CSW 4
38	V	I CSW 1
39	W	I CSW 2

Terminal No.	Color of Wire	Signal Name
84	BR	O CSW 2
85	SB	O CSW 1
86	P	O CSW 3
87	BG	O CSW 4
95	V	I SHORTING PIN

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BROWN



167	166	165	164	163	162	161
176	175	174	173	172	171	170
168	169	168	169	168	169	168

Terminal No.	Color of Wire	Signal Name
161	W	I PWR ECU
170	B	I GND1
171	B	I GND2

Connector No.	M28
Connector Name	COMBINATION SWITCH
Connector Color	WHITE



8	7	6	5	4	3	2	1
16	15	14	13	12	11	10	9

Terminal No.	Color of Wire	Signal Name
1	LG	-
2	SB	-
3	GR	-
4	BG	-

Terminal No.	Color of Wire	Signal Name
5	G	-
6	W	-
7	Y	-
8	V	-
10	BR	-
15	P	-

DAYTIME LIGHT SYSTEM

< WIRING DIAGRAM >

[LED HEADLAMP]

Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE

7P 6P 5P 4P 3P 2P 1P
10P 15P 14P 13P 12P 11P 10P 9P 8P



Terminal No.	Color of Wire	Signal Name
8P	LA/BR	—
13P	LA/G	—

Connector No.	M43
Connector Name	JOINT CONNECTOR-M02
Connector Color	BLUE

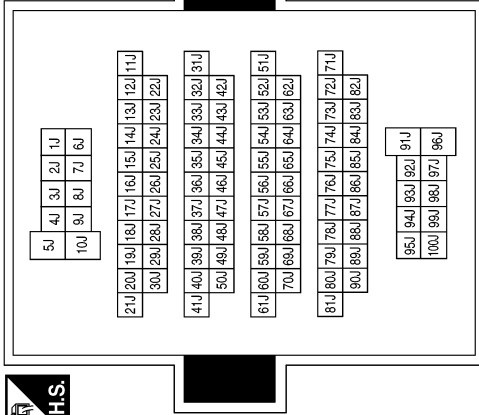
9 8 7 6 5 4 3 2 1
20 19 18 17 16 15 14 13 12 11 10



Terminal No.	Color of Wire	Signal Name
1	L	—
2	L	—
5	L	—
11	P	—
12	P	—
15	P	—

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE

5J 4J 3J 2J 1J
10J 9J 8J 7J 6J



Terminal No.	Color of Wire	Signal Name
27J	G	—
61J	L	—
62J	P	—

Connector No.	M76
Connector Name	COMBINATION METER
Connector Color	WHITE

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40



Terminal No.	Color of Wire	Signal Name
1	B	GND1
26	G	PBK SW

Connector No.	M69
Connector Name	WIRE TO WIRE
Connector Color	WHITE

16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17



Terminal No.	Color of Wire	Signal Name
24	P	—
25	L	—

Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN

7R 6R 5R 4R 3R 2R 1R
16R 15R 14R 13R 12R 11R 10R 9R 8R



Terminal No.	Color of Wire	Signal Name
3R	V	—
14R	W	—

AALIA2122GB

A B C D E F G H I J K EXL M N O P

DAYTIME LIGHT SYSTEM

< WIRING DIAGRAM >

[LED HEADLAMP]

Connector No.	E40
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2
3	4

Terminal No.	Color of Wire	Signal Name
2	GR	-
3	B	-

Connector No.	E16
Connector Name	ECM
Connector Color	BLACK



97	101	105	108	113	117	121	125
98	102	106	110	114	118	122	126
99	103	107	111	115	119	123	127
100	104	108	112	116	120	124	128

Terminal No.	Color of Wire	Signal Name
99	P	CAN-L
100	L	CAN-H

Connector No.	M77
Connector Name	COMBINATION METER
Connector Color	WHITE



41	42	43	44	45	46
47	48	49	50	51	52

Terminal No.	Color of Wire	Signal Name
41	L	CAN-H
42	P	CAN-L
45	LA/G	BAT
46	LA/BR	IGN
52	B	GND2

Connector No.	E119
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



9	8	7	6	5	4	3
18	17	16	15	14	13	12
11	10					

Connector No.	E52
Connector Name	PARKING BRAKE SWITCH
Connector Color	BLACK



1

Terminal No.	Color of Wire	Signal Name
12	B	SIGNAL GROUND

Connector No.	E44
Connector Name	JOINT CONNECTOR-E01
Connector Color	WHITE



4	3	2	1
8	7	6	5
12	11	10	9
16	15	14	13
20	19	18	17
24	23	22	21
28	27	26	25

Terminal No.	Color of Wire	Signal Name
1	L	-
2	P	-
5	L	-
6	P	-
9	L	-
10	P	-

AALIA2123GB

DAYTIME LIGHT SYSTEM

< WIRING DIAGRAM >

[LED HEADLAMP]

Connector No.	E121
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	RED



45	44	43
48	47	46

Terminal No.	Color of Wire	Signal Name
47	B	POWER GROUND

Connector No.	E120
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY

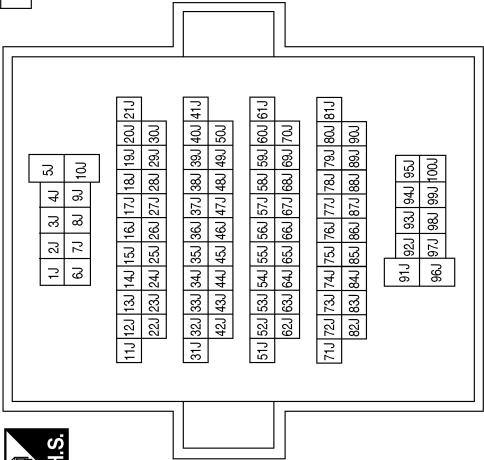


30	29	28	27	26	25	24	23	22	21	20	19
42	41	40	39	38	37	36	35	34	33	32	31

Terminal No.	Color of Wire	Signal Name
22	P	CAN-L
24	L	CAN-H
31	B	2ND SIGNAL GROUND

Terminal No.	Color of Wire	Signal Name
27J	G	-
61J	L	-
62J	P	-

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	E201
Connector Name	WIRE TO WIRE
Connector Color	WHITE



2	1
4	3

Terminal No.	Color of Wire	Signal Name
2	B	-
3	B	-

AALIA2124GB

A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

DAYTIME LIGHT SYSTEM

< WIRING DIAGRAM >

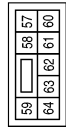
[LED HEADLAMP]

Connector No.	E234
Connector Name	FRONT COMBINATION LAMP RH (WITH HALOGEN HEADLAMPS)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
10	R	–
11	GR	–

Connector No.	E218
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE



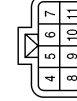
Terminal No.	Color of Wire	Signal Name
58	R	O LIGHT DTRL RH

Connector No.	E217
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BROWN



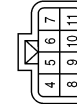
Terminal No.	Color of Wire	Signal Name
49	R	O LIGHT DTRL LH

Connector No.	E240
Connector Name	FRONT COMBINATION LAMP RH (WITH LED HEADLAMPS)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
8	R	–
11	B	–

Connector No.	E239
Connector Name	FRONT COMBINATION LAMP LH (WITH LED HEADLAMPS)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
8	R	–
11	B	–

Connector No.	E236
Connector Name	FRONT COMBINATION LAMP LH (WITH HALOGEN HEADLAMPS)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
10	R	–
11	GR	–

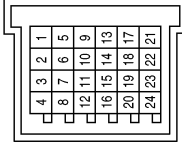
AALIA2125GB

DAYTIME LIGHT SYSTEM

< WIRING DIAGRAM >

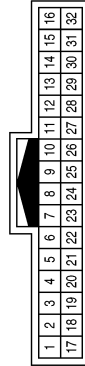
[LED HEADLAMP]

Connector No.	B63
Connector Name	JOINT CONNECTOR-B01
Connector Color	GRAY



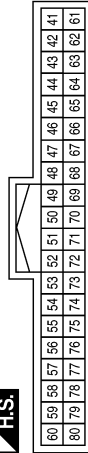
Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

Connector No.	B41
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
24	P	-
25	L	-

Connector No.	B16
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GREEN



Terminal No.	Color of Wire	Signal Name
60	L	CAN-H
80	P	CAN-L

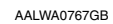
AALIA2126GB

A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

[LED HEADLAMP]

AUTO LIGHT SYSTEM

INFOID:0000000010288650



AUTO LIGHT SYSTEM CONNECTORS

Connector No.	M6
Connector Name	JOINT CONNECTOR-M01
Connector Color	GRAY



4	3	2	1
8	7	6	5
12	11	10	9
16	15	14	13
20	19	18	17
24	23	22	21

Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

Connector No.	M13
Connector Name	OPTICAL SENSOR
Connector Color	WHITE



1	2	3
---	---	---

Terminal No.	Color of Wire	Signal Name
1	W	-
2	LG	-
3	V	-

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY



20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21

Terminal No.	Color of Wire	Signal Name
12	W	O PWR AUTOLIGHT SENSOR
19	LG	I AUTOLIGHT SENSOR
30	V	O GND AUTOLIGHT SENSOR
33	LG	I CSW 5
34	Y	O CSW 5
36	G	I CSW 3
37	GR	I CSW 4
38	V	I CSW 1
39	W	I CSW 2

Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



100	99	98	97	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81
120	119	118	117	116	115	114	113	112	111	110	109	108	107	106	105	104	103	102	101

Terminal No.	Color of Wire	Signal Name
84	BR	O CSW 2
85	SB	O CSW 1
86	P	O CSW 3
87	BG	O CSW 4
95	V	I SHORTING PIN

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BROWN



167	166	165	164		163	162	161	
176	175	174	173	172	171	170	169	168

Terminal No.	Color of Wire	Signal Name
161	W	I PWR ECU
170	B	I GND1
171	B	I GND2

AALIA2112GB

AUTO LIGHT SYSTEM

< WIRING DIAGRAM >

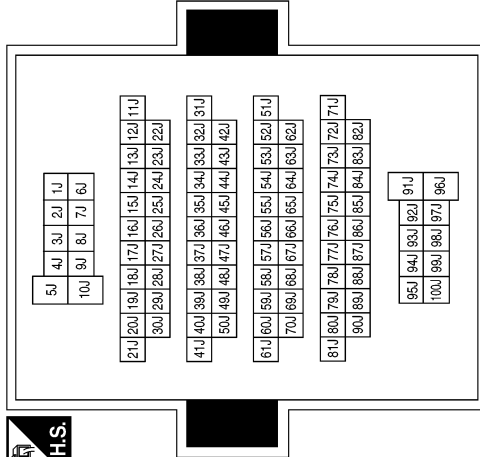
[LED HEADLAMP]

Connector No.	M43
Connector Name	JOINT CONNECTOR-M02
Connector Color	BLUE



Terminal No.	Color of Wire	Signal Name
1	L	—
2	L	—
11	P	—
12	P	—

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
61J	L	—
62J	P	—

Connector No.	M28
Connector Name	COMBINATION SWITCH
Connector Color	WHITE



8	7	6	5	4	3	2	1
16	15	14	13	12	11	10	9

Terminal No.	Color of Wire	Signal Name
1	LG	—
2	SB	—
3	GR	—
4	BG	—
5	G	—
6	W	—
7	Y	—
8	V	—
10	BR	—
15	P	—

Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN



7R	6R	5R	4R		3R	2R	1R	
16R	15R	14R	13R	12R	11R	10R	9R	8R

Terminal No.	Color of Wire	Signal Name
3R	V	—
14R	W	—

Connector No.	M69
Connector Name	WIRE TO WIRE
Connector Color	WHITE



16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17

Terminal No.	Color of Wire	Signal Name
24	P	—
25	L	—

AUTO LIGHT SYSTEM

< WIRING DIAGRAM >

[LED HEADLAMP]

Connector No.	E120
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



30	29	28	27	26	25	24	23	22	21	20	19
42	41	40	39	38	37	36	35	34	33	32	31

Terminal No.	Color of Wire	Signal Name
22	P	CAN-L
24	L	CAN-H
31	B	2ND SIGNAL GROUND

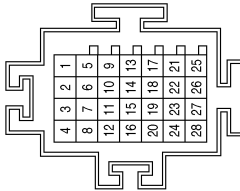
Connector No.	E119
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



9	8	7	6		5	4	3	
18	17	16	15	14	13	12	11	10

Terminal No.	Color of Wire	Signal Name
4	Y	O LIGHT POSITION REAR LH
12	B	SIGNAL GROUND
17	W	O LIGHT POSITION REAR RH

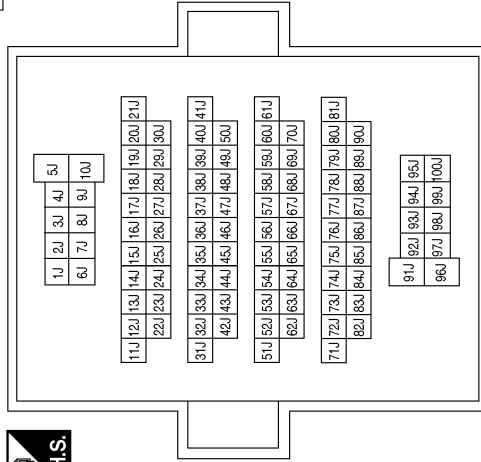
Connector No.	E44
Connector Name	JOINT CONNECTOR-E01
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
5	L	-
6	P	-
9	L	-
10	P	-

Terminal No.	Color of Wire	Signal Name
61J	L	-
62J	P	-

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	E121
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	RED



45	44	43
48	47	46

Terminal No.	Color of Wire	Signal Name
47	B	POWER GROUND

AALIA2114GB

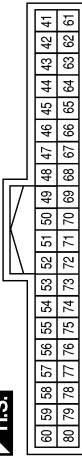
A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

AUTO LIGHT SYSTEM

< WIRING DIAGRAM >

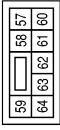
[LED HEADLAMP]

Connector No.	B16
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GREEN

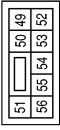
Terminal No.	Color of Wire	Signal Name
50	W	I RR DOOR SW
51	LG	I TGATE SW
52	R	I RL DOOR SW
53	SB	I AS DOOR2 SW
57	SB	I DR DOOR2 SW
60	L	CAN-H
80	P	CAN-L

Connector No.	E218
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE

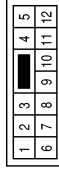
Terminal No.	Color of Wire	Signal Name
57	W	O LIGHT FR FOG LAMPS RH
58	R	O LIGHT DTRL RH
59	G	O LIGHT HBEAM LH
61	GR	O LIGHT CLEARANCE FR RH
62	SB	O LIGHT LBEAM RH

Connector No.	E217
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BROWN

Terminal No.	Color of Wire	Signal Name
49	R	O LIGHT DTRL LH
50	L	O LIGHT LBEAM LH
51	V	O LIGHT FR FOG LAMPS LH
54	LG	O LIGHT HBEAM RH
56	BG	O LIGHT CLEARANCE FR LH

Connector No.	B49
Connector Name	WIRE TO WIRE
Connector Color	WHITE

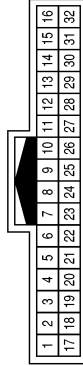
Terminal No.	Color of Wire	Signal Name
6	SB	-
10	W	-

Connector No.	B46
Connector Name	WIRE TO WIRE
Connector Color	WHITE




Terminal No.	Color of Wire	Signal Name
19	LG	-

Connector No.	B41
Connector Name	WIRE TO WIRE
Connector Color	WHITE

Terminal No.	Color of Wire	Signal Name
24	P	-
25	L	-

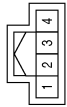
AALIA2115GB

AUTO LIGHT SYSTEM

< WIRING DIAGRAM >

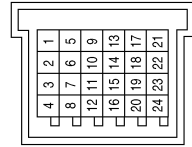
[LED HEADLAMP]

Connector No.	B70
Connector Name	REAR DOOR SWITCH LH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
3	R	-

Connector No.	B63
Connector Name	JOINT CONNECTOR-B01
Connector Color	GRAY



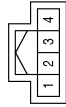
Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

Connector No.	B54
Connector Name	WIRE TO WIRE
Connector Color	WHITE



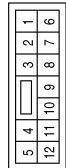
Terminal No.	Color of Wire	Signal Name
1	B	-

Connector No.	B141
Connector Name	FRONT DOOR SWITCH RH
Connector Color	WHITE



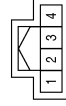
Terminal No.	Color of Wire	Signal Name
3	GR	-

Connector No.	B140
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
6	GR	-
10	W	-

Connector No.	B71
Connector Name	FRONT DOOR SWITCH LH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
3	SB	-

AALIA2116GB

A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

EXL

AUTO LIGHT SYSTEM

< WIRING DIAGRAM >

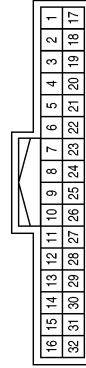
[LED HEADLAMP]

Connector No.	D505
Connector Name	WIRE TO WIRE
Connector Color	WHITE



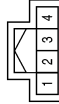
Terminal No.	Color of Wire	Signal Name
1	B	—

Connector No.	D501
Connector Name	WIRE TO WIRE
Connector Color	WHITE



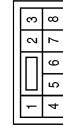
Terminal No.	Color of Wire	Signal Name
19	W	—

Connector No.	B142
Connector Name	REAR DOOR SWITCH RH
Connector Color	WHITE



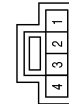
Terminal No.	Color of Wire	Signal Name
3	W	—

Connector No.	D512
Connector Name	BACK DOOR LOCK ASSEMBLY (WITH POWER BACK DOOR SYSTEM)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
7	W	—
8	B	—

Connector No.	D508
Connector Name	BACK DOOR LOCK ASSEMBLY (WITHOUT POWER BACK DOOR SYSTEM)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
3	W	—
4	GR	—

AALIA2117GB

FRONT FOG LAMP SYSTEM

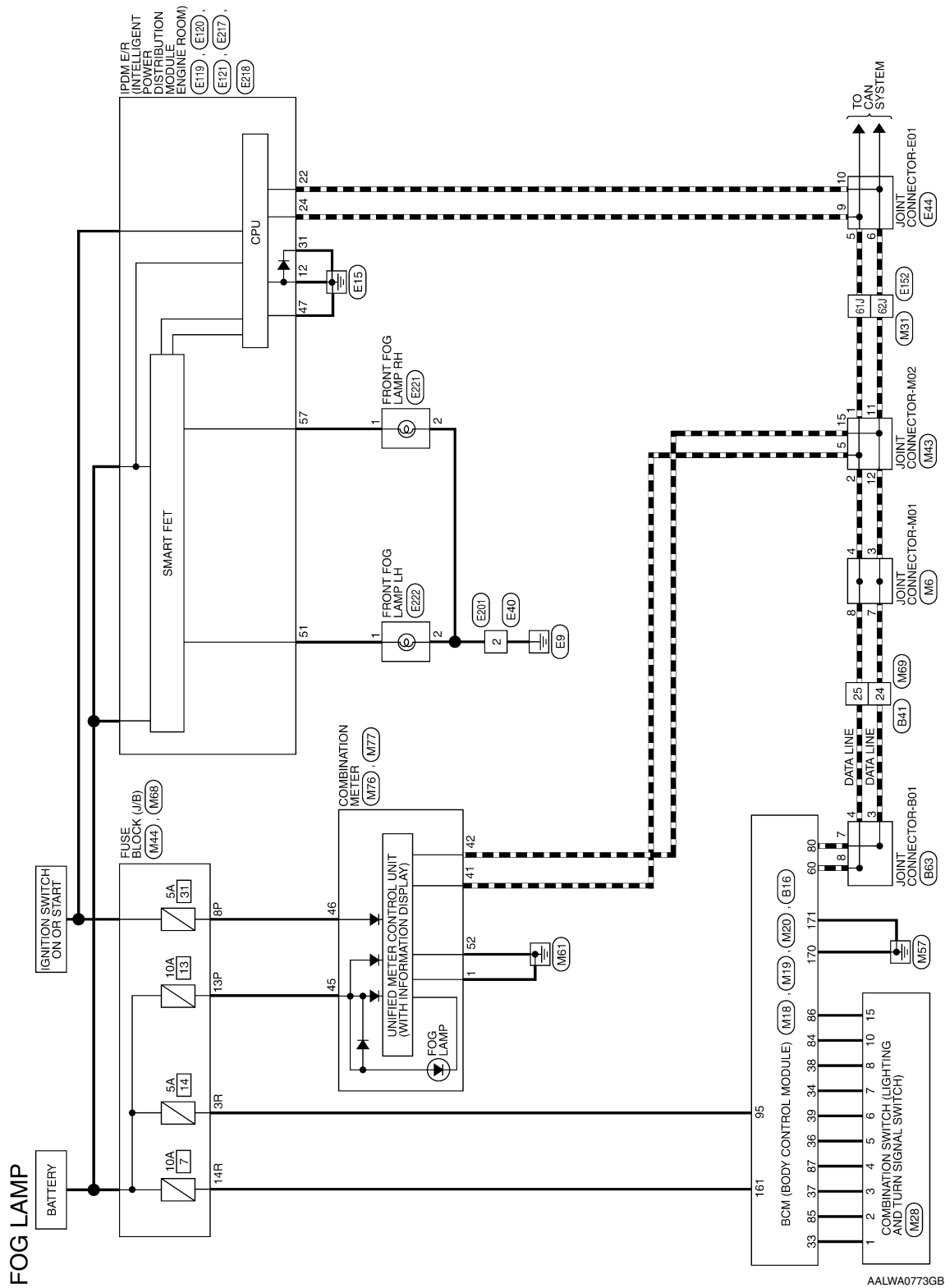
< WIRING DIAGRAM >

[LED HEADLAMP]

FRONT FOG LAMP SYSTEM

Wiring Diagram

INFOID:000000010288651



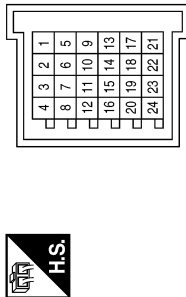
FRONT FOG LAMP SYSTEM

< WIRING DIAGRAM >

[LED HEADLAMP]

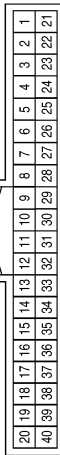
FOG LAMP CONNECTORS

Connector No.	M6
Connector Name	JOINT CONNECTOR-M01
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
33	LG	ICSW 5
34	Y	OCSW 5
36	G	ICSW 3
37	GR	ICSW 4
38	V	ICSW 1
39	W	ICSW 2

Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



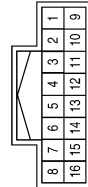
Terminal No.	Color of Wire	Signal Name
84	BR	OCSW 2
85	SB	OCSW 1
86	P	OCSW 3
87	BG	OCSW 4
95	V	I SHORTING PIN

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
161	W	I PWR ECU
170	B	I GND1
171	B	I GND2

Connector No.	M28
Connector Name	COMBINATION SWITCH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	LG	-
2	SB	-
3	GR	-
4	BG	-
5	G	-

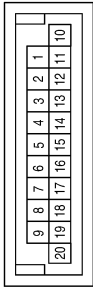
Terminal No.	Color of Wire	Signal Name
6	W	-
7	Y	-
8	V	-
10	BR	-
15	P	-

FRONT FOG LAMP SYSTEM

< WIRING DIAGRAM >

[LED HEADLAMP]

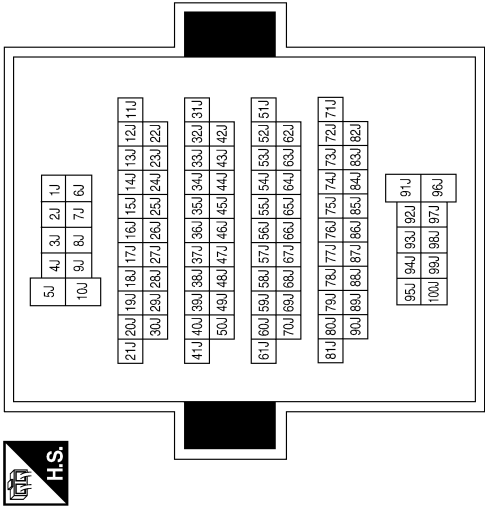
Connector No.	M43
Connector Name	JOINT CONNECTOR-M02
Connector Color	BLUE



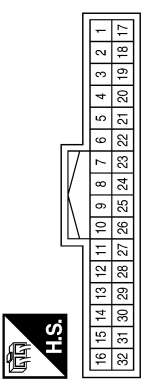
Terminal No.	Color of Wire	Signal Name
1	L	-
2	L	-
5	L	-
11	P	-
12	P	-
15	P	-

Terminal No.	Color of Wire	Signal Name
61J	L	-
62J	P	-

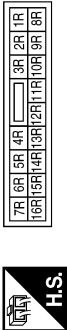
Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE



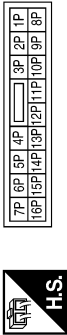
Connector No.	M69
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN



Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
24	P	-
25	L	-

Terminal No.	Color of Wire	Signal Name
3R	V	-
14R	W	-

Terminal No.	Color of Wire	Signal Name
8P	LA/BR	-
13P	LA/G	-

AALIA2128GB

A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

FRONT FOG LAMP SYSTEM

< WIRING DIAGRAM >

[LED HEADLAMP]

Connector No.	E40
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2
3	4

Terminal No.	Color of Wire	Signal Name
2	GR	—

Connector No.	M77
Connector Name	COMBINATION METER
Connector Color	WHITE



41	42	43	44	45	46
47	48	49	50	51	52

Terminal No.	Color of Wire	Signal Name
41	L	CAN-H
42	P	CAN-L
45	LA/G	BAT
46	LA/BR	IGN
52	B	GND2

Connector No.	M76
Connector Name	COMBINATION METER
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

Terminal No.	Color of Wire	Signal Name
1	B	GND1

Connector No.	E120
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



30	29	28	27	26	25	24	23	22	21	20	19
42	41	40	39	38	37	36	35	34	33	32	31

Connector No.	E119
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



9	8	7	6		5	4	3	
18	17	16	15	14	13	12	11	10

Connector No.	E44
Connector Name	JOINT CONNECTOR-E01
Connector Color	WHITE



4	3	2	1
8	7	6	5
12	11	10	9
16	15	14	13
20	19	18	17
24	23	22	21
28	27	26	25

Terminal No.	Color of Wire	Signal Name
22	P	CAN-L
24	L	CAN-H
31	B	2ND SIGNAL GROUND

Terminal No.	Color of Wire	Signal Name
12	B	SIGNAL GROUND

Terminal No.	Color of Wire	Signal Name
5	L	—
6	P	—
9	L	—
10	P	—

AALIA2129GB

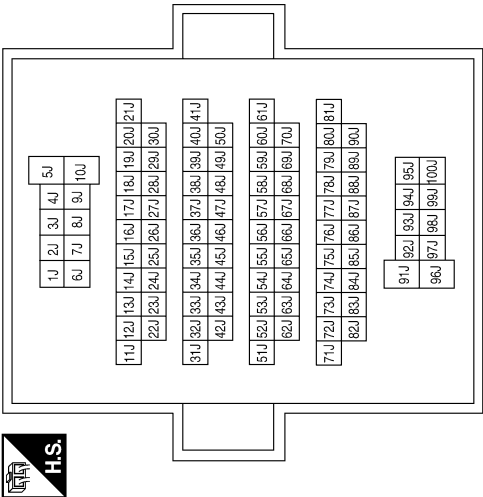
FRONT FOG LAMP SYSTEM

< WIRING DIAGRAM >

[LED HEADLAMP]

Terminal No.	Color of Wire	Signal Name
61J	L	—
62J	P	—

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE

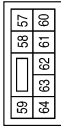


Connector No.	E121
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	RED

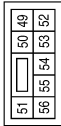


Terminal No.	Color of Wire	Signal Name
47	B	POWER GROUND

Connector No.	E218
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE



Connector No.	E217
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BROWN



Connector No.	E201
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
57	W	O LIGHT FR FOG LAMPS RH

Terminal No.	Color of Wire	Signal Name
51	V	O LIGHT FR FOG LAMPS LH

Terminal No.	Color of Wire	Signal Name
2	B	—

AALIA2130GB

A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

EXL

FRONT FOG LAMP SYSTEM

< WIRING DIAGRAM >

[LED HEADLAMP]

Connector No.	B16
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GREEN




Terminal No.	Color of Wire	Signal Name
60	L	CAN-H
80	P	CAN-L

Connector No.	E222
Connector Name	FRONT FOG LAMP LH
Connector Color	BLACK



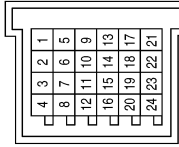

Terminal No.	Color of Wire	Signal Name
1	V	-
2	GR	-

Connector No.	E221
Connector Name	FRONT FOG LAMP RH
Connector Color	BLACK



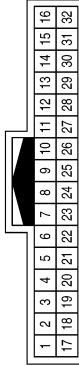

Terminal No.	Color of Wire	Signal Name
1	W	-
2	GR	-

Connector No.	B63
Connector Name	JOINT CONNECTOR-B01
Connector Color	GRAY

Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

Connector No.	B41
Connector Name	WIRE TO WIRE
Connector Color	WHITE

Terminal No.	Color of Wire	Signal Name
24	P	-
25	L	-

AALIA2131GB

TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

< WIRING DIAGRAM >

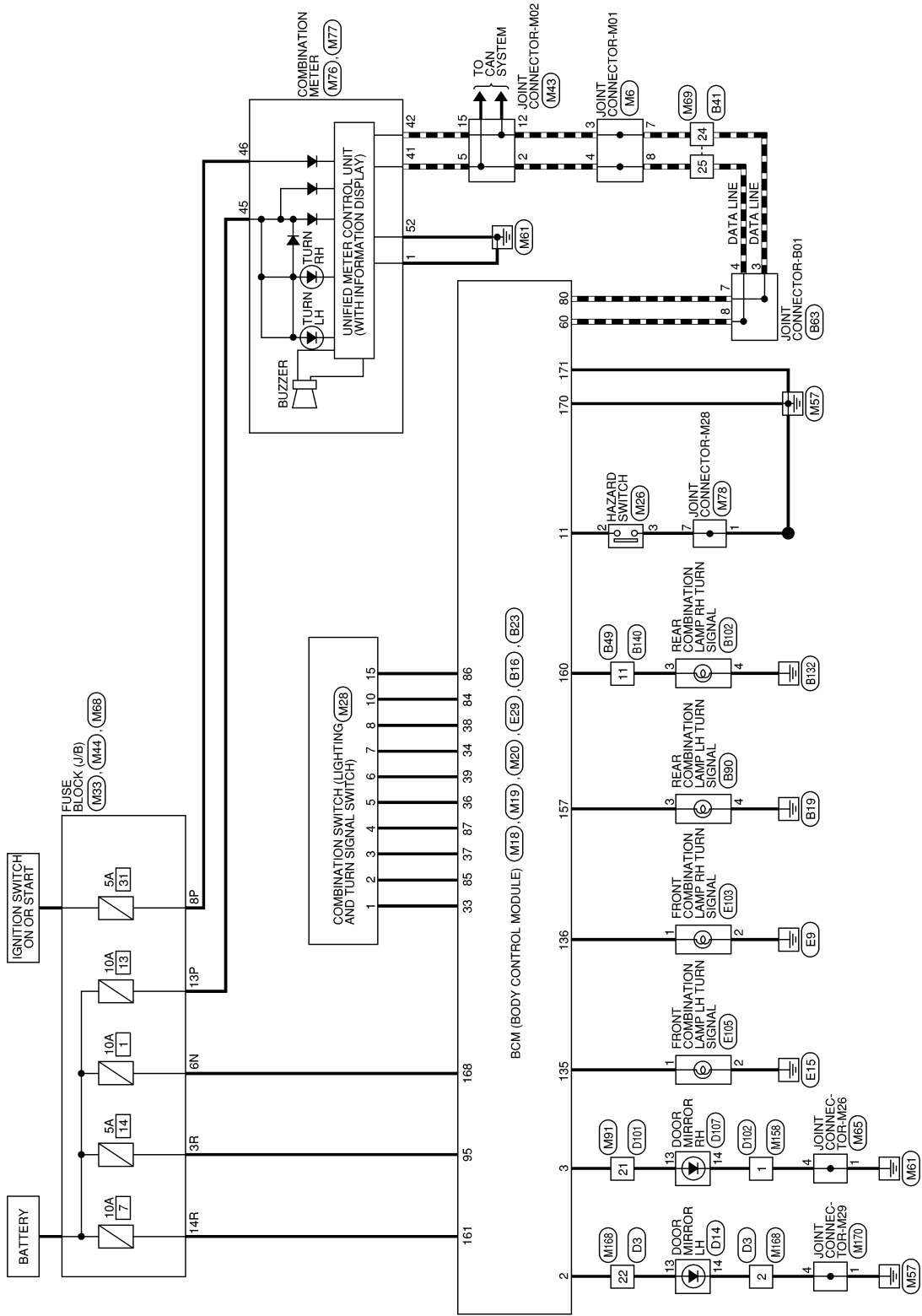
[LED HEADLAMP]

TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

Wiring Diagram

INFOID:0000000010288652

TURN SIGNAL AND HAZARD WARNING LAMPS



TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

< WIRING DIAGRAM >

[LED HEADLAMP]

TURN SIGNAL AND HAZARD WARNING LAMPS CONNECTORS

Connector No.	M6
Connector Name	JOINT CONNECTOR-M01
Connector Color	GRAY



4	3	2	1
8	7	6	5
12	11	10	9
16	15	14	13
20	19	18	17
24	23	22	21

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY



20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21

Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



100	99	98	97	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81
120	119	118	117	116	115	114	113	112	111	110	109	108	107	106	105	104	103	102	101

Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

Terminal No.	Color of Wire	Signal Name
2	LA/G	O DI FR LEFT D
3	LA/Y	O DI FR RIGHT D
11	Y	I HAZARD SW D
33	LG	I CSW 5
34	Y	O CSW 5
36	G	I CSW 3
37	GR	I CSW 4
38	V	I CSW 1
39	W	I CSW 2

Terminal No.	Color of Wire	Signal Name
84	BR	O CSW 2
85	SB	O CSW 1
86	P	O CSW 3
87	BG	O CSW 4
95	V	I SHORTING PIN

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BROWN



167	166	165	164	163	162	161
176	175	174	173	172	171	170
169	168	167	166	165	164	163

Connector No.	M26
Connector Name	HAZARD SWITCH
Connector Color	WHITE



1	2	3	4
---	---	---	---

Terminal No.	Color of Wire	Signal Name
161	W	I PWR ECU
168	BG	I PWR FLASHERS
170	B	I GND1
171	B	I GND2

Terminal No.	Color of Wire	Signal Name
2	Y	-
3	GR	-

AALIA2162GB

TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

< WIRING DIAGRAM >

[LED HEADLAMP]

Connector No.	M43
Connector Name	JOINT CONNECTOR-M02
Connector Color	BLUE



																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										</
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	----

Terminal No.	Color of Wire	Signal Name
2	L	-
5	L	-
12	P	-
15	P	-

Connector No.	M33
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



3N		2N	1N
8N		7N	6N
		5N	4N

Terminal No.	Color of Wire	Signal Name
6N	BG	-

Connector No.	M28
Connector Name	COMBINATION SWITCH
Connector Color	WHITE



8	7	6	5	4	3	2	1
16	15	14	13	12	11	10	9

Terminal No.	Color of Wire	Signal Name
1	LG	-
2	SB	-
3	GR	-
4	BG	-
5	G	-
6	W	-
7	Y	-
8	V	-
10	BR	-
15	P	-

Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN



7R	6R	5R	4R		3R	2R	1R	
16R	15R	14R	13R	12R	11R	10R	9R	8R

Terminal No.	Color of Wire	Signal Name
3R	V	-
14R	W	-

Connector No.	M65
Connector Name	JOINT CONNECTOR-M26
Connector Color	WHITE



8	7	6	5	4	3	2	1
---	---	---	---	---	---	---	---

Terminal No.	Color of Wire	Signal Name
1	B	-
4	B	-

Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



7P	6P	5P	4P		3P	2P	1P	
16P	15P	14P	13P	12P	11P	10P	9P	8P

Terminal No.	Color of Wire	Signal Name
8P	LA/BR	-
13P	LA/G	-

AALIA2163GB

A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

< WIRING DIAGRAM >

[LED HEADLAMP]

Connector No.	M77
Connector Name	COMBINATION METER
Connector Color	WHITE



41	42	43	44	45	46
47	48	49	50	51	52

Terminal No.	Color of Wire	Signal Name
41	L	CAN-H
42	P	CAN-L
45	LA/G	BAT
46	LAVBR	IGN
52	B	GND2

Connector No.	M76
Connector Name	COMBINATION METER
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

Terminal No.	Color of Wire	Signal Name
1	B	GND1

Connector No.	M69
Connector Name	WIRE TO WIRE
Connector Color	WHITE



16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17

Terminal No.	Color of Wire	Signal Name
24	P	—
25	L	—

Connector No.	M158
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4		5	6	7	
8	9	10	11	12	13	14	15	16

Connector No.	M91
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12
13	14	15	16	17	18	19	20	21	22	23	24

Connector No.	M78
Connector Name	JOINT CONNECTOR-M28
Connector Color	WHITE



8	7	6	5	4	3	2	1
---	---	---	---	---	---	---	---

Terminal No.	Color of Wire	Signal Name
1	B	—

Terminal No.	Color of Wire	Signal Name
21	LAY	—

Terminal No.	Color of Wire	Signal Name
1	GR	—
7	GR	—

AALIA2164GB

TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

< WIRING DIAGRAM >

[LED HEADLAMP]

Connector No.	E29
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



132	131	130	129	128	127	126	125	124	123	122	121
144	143	142	141	140	139	138	137	136	135	134	133

Terminal No.	Color of Wire	Signal Name
135	BR	DI FR LEFT E
136	GR	O DI FR RIGHT E

Connector No.	M170
Connector Name	JOINT CONNECTOR-M29
Connector Color	WHITE



8	7	6	5	4	3	2	1
---	---	---	---	---	---	---	---

Terminal No.	Color of Wire	Signal Name
1	B	-
4	B	-

Connector No.	M168
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12
13	14	15	16	17	18	19	20	21	22	23	24

Terminal No.	Color of Wire	Signal Name
2	B	-
22	LA/G	-

Connector No.	B16
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GREEN



60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41
80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61

Terminal No.	Color of Wire	Signal Name
60	L	CAN-H
80	P	CAN-L

Connector No.	E105
Connector Name	FRONT COMBINATION LAMP LH
Connector Color	GRAY



2	1	3
---	---	---

Terminal No.	Color of Wire	Signal Name
1	BR	-
2	B	-

Connector No.	E103
Connector Name	FRONT COMBINATION LAMP RH
Connector Color	GRAY



2	1	3
---	---	---

Terminal No.	Color of Wire	Signal Name
1	GR	-
2	BR	-

AALIA2165GB

A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

< WIRING DIAGRAM >

[LED HEADLAMP]

Connector No.	B49
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5
6	7	8	9	10
11	12			

Terminal No.	Color of Wire	Signal Name
11	P	—

Connector No.	B41
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Terminal No.	Color of Wire	Signal Name
24	P	—
25	L	—

Connector No.	B23
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY



151	150	149	148	147	146	145
160	159	158	157	156	155	154
153	152					

Terminal No.	Color of Wire	Signal Name
157	GR	O DI RR LEFT B
160	P	O DI RR RIGHT B

Connector No.	B102
Connector Name	REAR COMBINATION LAMP RH
Connector Color	WHITE



4	3	2	1
---	---	---	---

Connector No.	B90
Connector Name	REAR COMBINATION LAMP LH
Connector Color	WHITE



4	3	2	1
---	---	---	---

Connector No.	B63
Connector Name	JOINT CONNECTOR-B01
Connector Color	GRAY



4	3	2	1
8	7	6	5
12	11	10	9
16	15	14	13
20	19	18	17
24	23	22	21

Terminal No.	Color of Wire	Signal Name
3	LA/V	—
4	B	—

Terminal No.	Color of Wire	Signal Name
3	GR	—
4	B	—

Terminal No.	Color of Wire	Signal Name
3	P	—
4	L	—
7	P	—
8	L	—

AALIA2166GB

TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

< WIRING DIAGRAM >

[LED HEADLAMP]

Connector No.	D14
Connector Name	DOOR MIRROR LH
Connector Color	WHITE



8	7	6	5	4	3	2	1
16	15	14	13	12	11	10	9

Terminal No.	Color of Wire	Signal Name
13	LA/G	–
14	LA/B	–

Connector No.	D3
Connector Name	WIRE TO WIRE
Connector Color	WHITE



12	11	10	9	8	7	6	5	4	3	2	1
24	23	22	21	20	19	18	17	16	15	14	13

Terminal No.	Color of Wire	Signal Name
2	LA/B	–
22	LA/G	–

Connector No.	B140
Connector Name	WIRE TO WIRE
Connector Color	WHITE



5	4			3	2	1
12	11	10	9	8	7	6

Terminal No.	Color of Wire	Signal Name
11	LAV	–

Connector No.	D107
Connector Name	DOOR MIRROR RH
Connector Color	WHITE



8	7	6	5	4	3	2	1
16	15	14	13	12	11	10	9

Terminal No.	Color of Wire	Signal Name
13	LA/G	–
14	LA/B	–

Connector No.	D102
Connector Name	WIRE TO WIRE
Connector Color	WHITE



7	6	5	4	3	2	1		
16	15	14	13	12	11	10	9	8

Terminal No.	Color of Wire	Signal Name
1	LA/B	–

Connector No.	D101
Connector Name	WIRE TO WIRE
Connector Color	WHITE



12	11	10	9	8	7	6	5	4	3	2	1
24	23	22	21	20	19	18	17	16	15	14	13

Terminal No.	Color of Wire	Signal Name
21	LA/G	–

AALIA2239GB

A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM

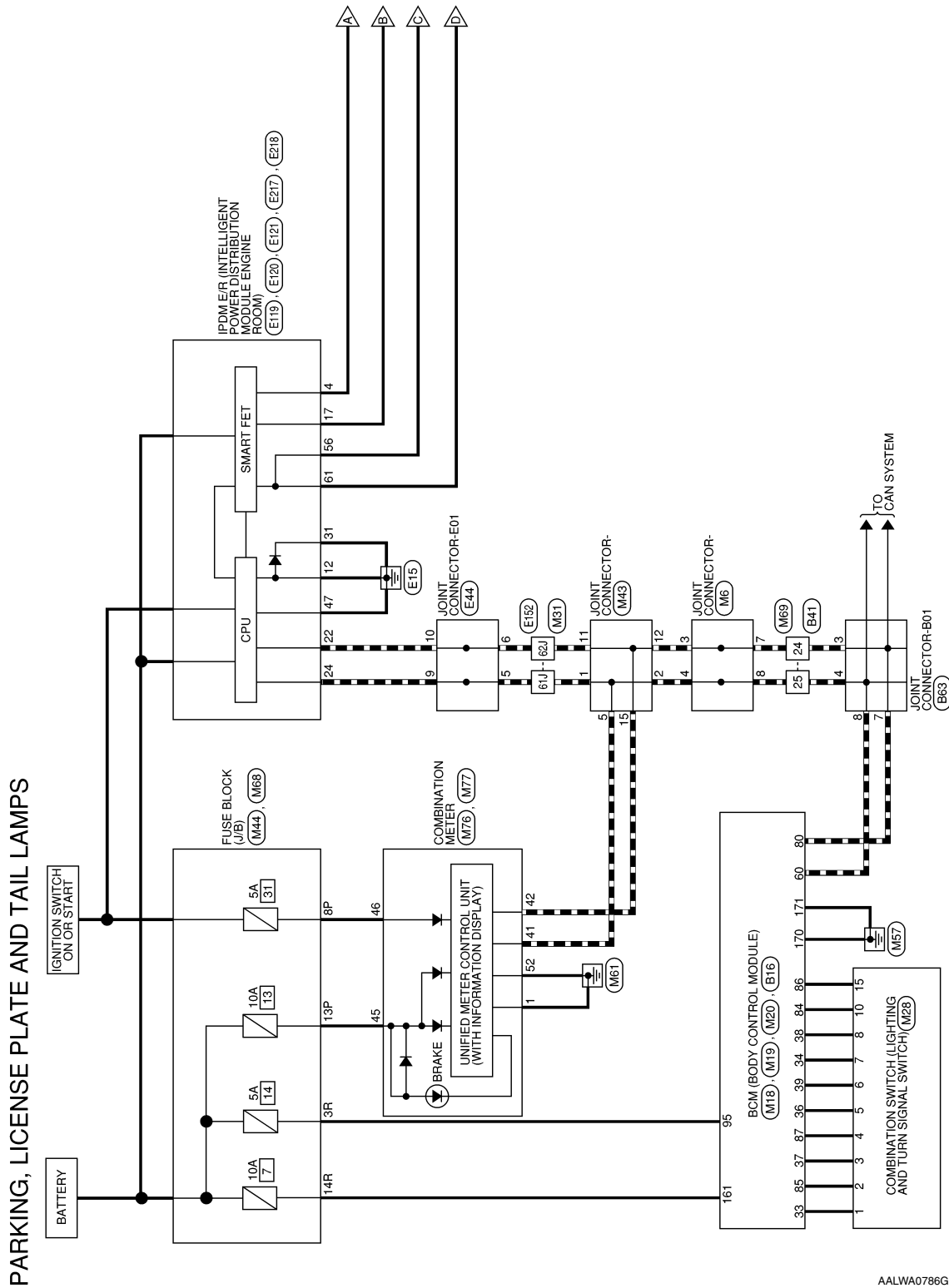
< WIRING DIAGRAM >

[LED HEADLAMP]

PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM

Wiring Diagram

INFOID:000000010288653



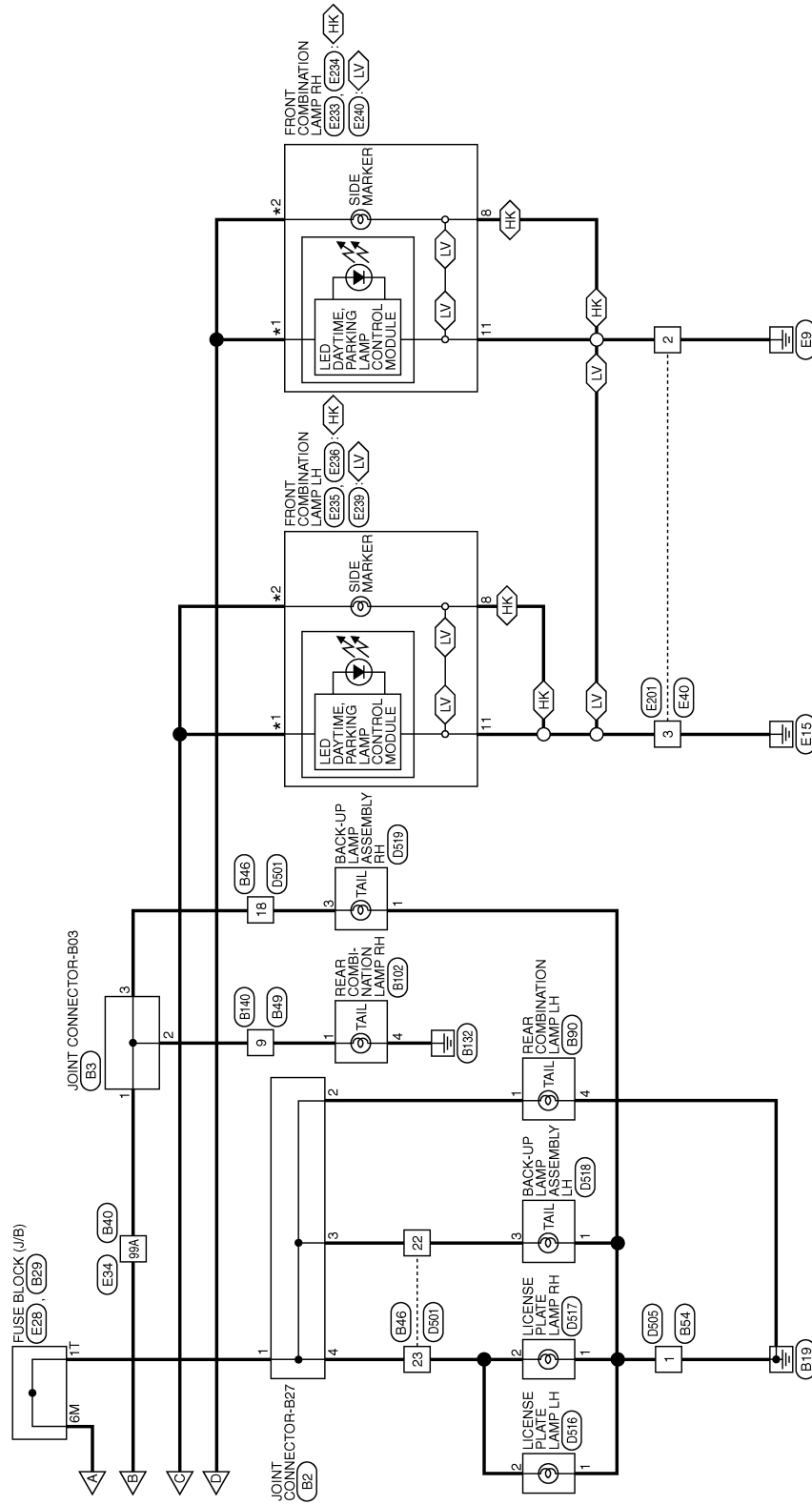
AALWA0786GB

PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM

< WIRING DIAGRAM >

[LED HEADLAMP]

(HK) : WITH HALOGEN HEADLAMPS
 (LV) : WITH LED HEADLAMPS
 (HK) : 12
 (LV) : 9
 *1
 (HK) : 12
 (LV) : 9
 *2
 (LV) : 10



AALWA0787GB

A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM

[LED HEADLAMP]

< WIRING DIAGRAM >

PARKING, LICENSE AND TAIL LAMPS CONNECTORS

Connector No.	M6
Connector Name	JOINT CONNECTOR-M01
Connector Color	GRAY



4	3	2	1
8	7	6	5
12	11	10	9
16	15	14	13
20	19	18	17
24	23	22	21

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY



20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21

Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



100	99	98	97	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81
120	119	118	117	116	115	114	113	112	111	110	109	108	107	106	105	104	103	102	101

Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

Terminal No.	Color of Wire	Signal Name
33	LG	ICSW 5
34	Y	OCSW 5
36	G	ICSW 3
37	GR	ICSW 4
38	V	ICSW 1
39	W	ICSW 2

Terminal No.	Color of Wire	Signal Name
84	BR	OCSW 2
85	SB	OCSW 1
86	P	OCSW 3
87	BG	OCSW 4
95	V	I SHORTING PIN

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BROWN



167	166	165	164	163	162	161
178	177	176	175	174	173	172
171	170	169	168			

Connector No.	M28
Connector Name	COMBINATION SWITCH
Connector Color	WHITE



8	7	6	5	4	3	2	1
16	15	14	13	12	11	10	9

Terminal No.	Color of Wire	Signal Name
5	G	-
6	W	-
7	Y	-
8	V	-
10	BR	-
15	P	-

Terminal No.	Color of Wire	Signal Name
161	W	I PWR ECU
170	B	I GND1
171	B	I GND2

Terminal No.	Color of Wire	Signal Name
1	LG	-
2	SB	-
3	GR	-
4	BG	-

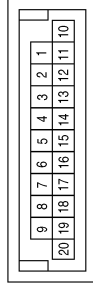
AALIA2149GB

PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM

< WIRING DIAGRAM >

[LED HEADLAMP]

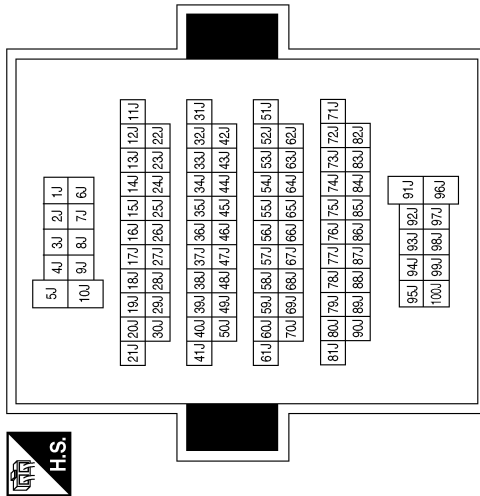
Connector No.	M43
Connector Name	JOINT CONNECTOR-M02
Connector Color	BLUE



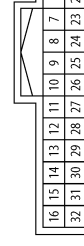
Terminal No.	Color of Wire	Signal Name
1	L	-
2	L	-
5	L	-
11	P	-
12	P	-
15	P	-

Terminal No.	Color of Wire	Signal Name
61J	L	-
62J	P	-

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	M69
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
24	P	-
25	L	-

Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
3R	V	-
14R	W	-

Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
8P	LA/BR	-
13P	LA/G	-

AALIA2150GB

A B C D E F G H I J K EXL M N O P

PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM

< WIRING DIAGRAM >

[LED HEADLAMP]

Connector No.	E28
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE

4M	3M	2M	1M
10M	9M	8M	7M
6M	5M		



Terminal No.	Color of Wire	Signal Name
6M	Y	—

Connector No.	M77
Connector Name	COMBINATION METER
Connector Color	WHITE

41	42	43	44	45	46
47	48	49	50	51	52



Terminal No.	Color of Wire	Signal Name
41	L	CAN-H
42	P	CAN-L
45	LA/G	BAT
46	LA/BR	IGN
52	B	GND2

Connector No.	M76
Connector Name	COMBINATION METER
Connector Color	WHITE

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40



Terminal No.	Color of Wire	Signal Name
1	B	GND1

Connector No.	E40
Connector Name	WIRE TO WIRE
Connector Color	WHITE

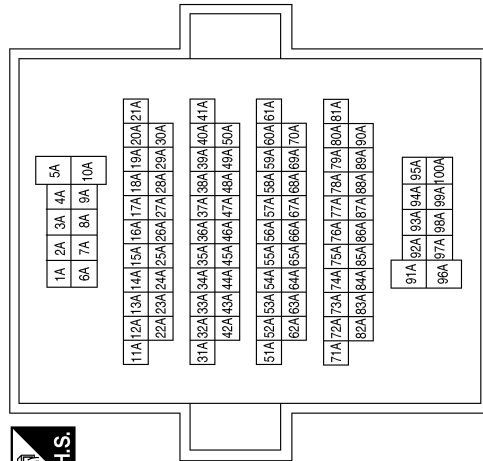
1	2
3	4



Terminal No.	Color of Wire	Signal Name
2	GR	—
3	B	—

Terminal No.	99A
Color of Wire	W
Signal Name	—

Connector No.	E34
Connector Name	WIRE TO WIRE
Connector Color	GRAY



AALIA2151GB

PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM

< WIRING DIAGRAM >

[LED HEADLAMP]

Connector No.	E120
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



30	29	28	27	26	25	24	23	22	21	20	19
42	41	40	39	38	37	36	35	34	33	32	31

Terminal No.	Color of Wire	Signal Name
22	P	CAN-L
24	L	CAN-H
31	B	2ND SIGNAL GROUND

Connector No.	E119
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



9	8	7	6		5	4	3	
18	17	16	15	14	13	12	11	10

Terminal No.	Color of Wire	Signal Name
4	Y	O LIGHT POSITION REAR LH
12	B	SIGNAL GROUND
17	W	O LIGHT POSITION REAR RH

Connector No.	E44
Connector Name	JOINT CONNECTOR-E01
Connector Color	WHITE



4	3	2	1
8	7	6	5
12	11	10	9
16	15	14	13
20	19	18	17
24	23	22	21
28	27	26	25

Terminal No.	Color of Wire	Signal Name
5	L	-
6	P	-
9	L	-
10	P	-

Connector No.	E121
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	RED



45	44	43
48	47	46

Terminal No.	Color of Wire	Signal Name
47	B	POWER GROUND

AALIA2152GB

A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM

< WIRING DIAGRAM >

[LED HEADLAMP]

Connector No.	E201
Connector Name	WIRE TO WIRE
Connector Color	WHITE

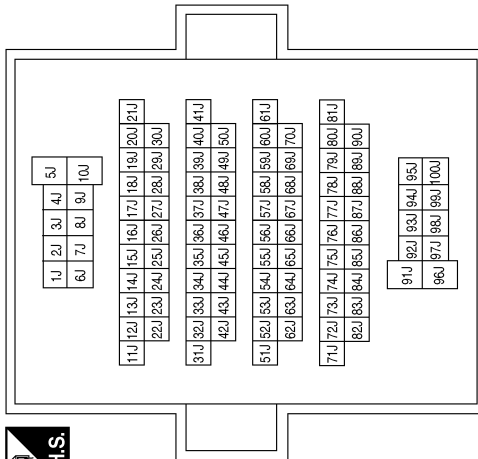


2	1
4	3

Terminal No.	Color of Wire	Signal Name
2	B	-
3	B	-

Terminal No.	Color of Wire	Signal Name
61J	L	-
62J	P	-

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	E233
Connector Name	FRONT COMBINATION LAMP RH (WITH HALOGEN HEADLAMPS)
Connector Color	BLACK



4	5	6
7	8	9

Connector No.	E218
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE



59	58	57
64	63	62
61	60	

Connector No.	E217
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BROWN



51	50	49
56	55	54
53	52	

Terminal No.	Color of Wire	Signal Name
8	B	-
9	W	-

Terminal No.	Color of Wire	Signal Name
61	GR	O LIGHT CLEARANCE FR RH

Terminal No.	Color of Wire	Signal Name
56	BG	O LIGHT CLEARANCE FR LH

AALIA2153GB

PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM

< WIRING DIAGRAM >

[LED HEADLAMP]

Connector No.	E236
Connector Name	FRONT COMBINATION LAMP LH (WITH HALOGEN HEADLAMPS)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
11	GR	-
12	BG	-

Connector No.	E235
Connector Name	FRONT COMBINATION LAMP LH (WITH HALOGEN HEADLAMPS)
Connector Color	BLACK



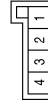
Terminal No.	Color of Wire	Signal Name
8	B	-
9	P	-

Connector No.	E234
Connector Name	FRONT COMBINATION LAMP RH (WITH HALOGEN HEADLAMPS)
Connector Color	GRAY



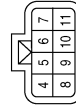
Terminal No.	Color of Wire	Signal Name
11	GR	-
12	GR	-

Connector No.	B2
Connector Name	JOINT CONNECTOR-B27
Connector Color	WHITE



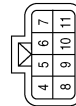
Terminal No.	Color of Wire	Signal Name
1	LA/R	-
2	LA/R	-
3	LA/R	-
4	LA/R	-

Connector No.	E240
Connector Name	FRONT COMBINATION LAMP RH (WITH LED HEADLAMPS)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
9	GR	-
10	W	-
11	B	-

Connector No.	E239
Connector Name	FRONT COMBINATION LAMP LH (WITH LED HEADLAMPS)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
9	BG	-
10	P	-
11	B	-

AALIA2154GB

A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM

< WIRING DIAGRAM >

[LED HEADLAMP]

Connector No.	B3
Connector Name	JOINT CONNECTOR-B03
Connector Color	WHITE



4	3	2	1
---	---	---	---

Connector No.	B16
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GREEN



60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41
80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61

Terminal No.	Color of Wire	Signal Name
1	LA/BR	—
2	LA/BR	—
3	LA/BR	—

Terminal No.	Color of Wire	Signal Name
60	L	CAN-H
80	P	CAN-L

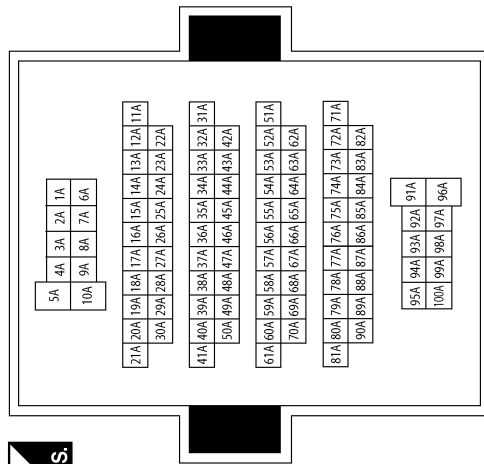
Connector No.	B29
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



2T	1T
6T	5T
4T	3T

Terminal No.	Color of Wire	Signal Name
1T	LA/R	—

Connector No.	B40
Connector Name	WIRE TO WIRE
Connector Color	GRAY



Connector No.	B41
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Terminal No.	Color of Wire	Signal Name
24	P	—
25	L	—

PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM

< WIRING DIAGRAM >

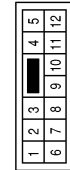
[LED HEADLAMP]

Connector No.	B54
Connector Name	WIRE TO WIRE
Connector Color	WHITE



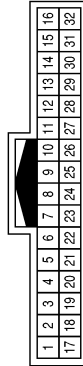
Terminal No.	Color of Wire	Signal Name
1	B	—

Connector No.	B49
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
9	LA/BR	—

Connector No.	B46
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
18	LA/BR	—
22	LA/R	—
23	LA/R	—

Connector No.	B102
Connector Name	REAR COMBINATION LAMP RH
Connector Color	WHITE



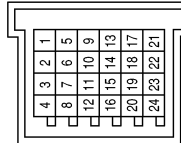
Terminal No.	Color of Wire	Signal Name
1	LA/BR	—
4	B	—

Connector No.	B90
Connector Name	REAR COMBINATION LAMP LH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	LA/R	—
4	B	—

Connector No.	B63
Connector Name	JOINT CONNECTOR-B01
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
3	P	—
4	L	—
7	P	—
8	L	—

AALIA2156GB

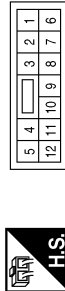
A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM

< WIRING DIAGRAM >

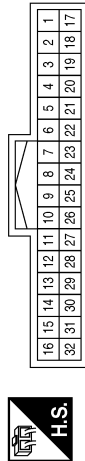
[LED HEADLAMP]

Connector No.	B140
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
9	LA/BR	-

Connector No.	D501
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
18	LA/R	-
22	LA/Y	-
23	P	-

Connector No.	D505
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	B	-

Connector No.	D516
Connector Name	LICENSE PLATE LAMP LH
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
1	B	-
2	P	-

Connector No.	D517
Connector Name	LICENSE PLATE LAMP RH
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
1	B	-
2	R	-

Connector No.	D518
Connector Name	BACK-UP LAMP ASSEMBLY LH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	GR	-
3	LA/Y	-

AALIA2157GB

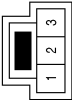
PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM

< WIRING DIAGRAM >

[LED HEADLAMP]

A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

Connector No.	D519
Connector Name	BACK-UP LAMP ASSEMBLY RH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	GR	-
3	LA/R	-

AALIA2173GB

STOP LAMP

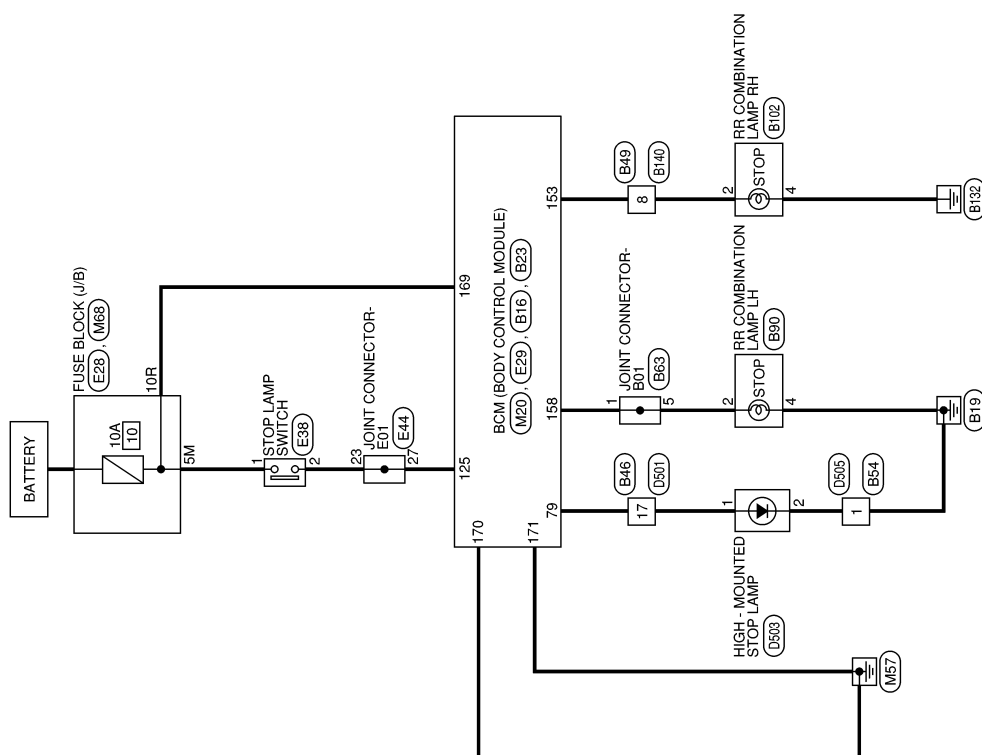
< WIRING DIAGRAM >

[LED HEADLAMP]

STOP LAMP

Wiring Diagram

INFOID:0000000010288654



STOP LAMP

AALWA0765GB

STOP LAMP

< WIRING DIAGRAM >

[LED HEADLAMP]

STOP LAMP CONNECTORS

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
169	GR	I PWR STOP LAMP
170	B	I GND1
171	B	I GND2

Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN



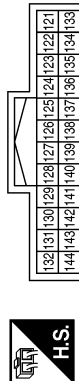
Terminal No.	Color of Wire	Signal Name
10R	GR	-

Connector No.	E28
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
5M	V	-

Connector No.	E29
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



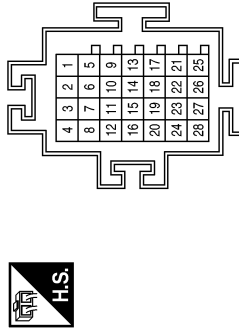
Terminal No.	Color of Wire	Signal Name
125	LG	I BRAKE SW2

Connector No.	E38
Connector Name	STOP LAMP SWITCH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	V	-
2	LG	-

Connector No.	E44
Connector Name	JOINT CONNECTOR-E01
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
23	LG	-
27	LG	-

AALIA2158GB

A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

STOP LAMP

< WIRING DIAGRAM >

[LED HEADLAMP]

Connector No.	B46
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Terminal No.	Color of Wire	Signal Name
17	LA/W	—

Connector No.	B23
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY



151	150	149	148	147	146	145
160	159	158	157	156	155	154
153	152					

Terminal No.	Color of Wire	Signal Name
153	LA/W	O STOP LAMP 1
158	LA/Y	O STOP LAMP 2 NISSAN EUR

Connector No.	B16
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GREEN



60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41
80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61

Terminal No.	Color of Wire	Signal Name
79	LA/W	O STOP LAMP 3

Connector No.	B63
Connector Name	JOINT CONNECTOR-B01
Connector Color	GRAY



4	3	2	1
8	7	6	5
12	11	10	9
16	15	14	13
20	19	18	17
24	23	22	21

Terminal No.	Color of Wire	Signal Name
1	LA/Y	—
5	LA/Y	—

Connector No.	B54
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2
---	---

Terminal No.	Color of Wire	Signal Name
1	B	—

Connector No.	B49
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5
6	7	8	9	10
11	12			

Terminal No.	Color of Wire	Signal Name
8	LA/W	—

AALIA2159GB

STOP LAMP

< WIRING DIAGRAM >

[LED HEADLAMP]

Connector No.	B140
Connector Name	WIRE TO WIRE
Connector Color	WHITE



5	4		3	2	1	
12	11	10	9	8	7	6

Terminal No.	Color of Wire	Signal Name
8	LA/Y	—

Connector No.	B102
Connector Name	REAR COMBINATION LAMP RH
Connector Color	WHITE



4	3	2	1
---	---	---	---

Terminal No.	Color of Wire	Signal Name
2	LA/Y	—
4	B	—

Connector No.	B90
Connector Name	REAR COMBINATION LAMP LH
Connector Color	WHITE



4	3	2	1
---	---	---	---

Terminal No.	Color of Wire	Signal Name
2	LA/Y	—
4	B	—

Connector No.	D505
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2
---	---

Terminal No.	Color of Wire	Signal Name
1	B	—

Connector No.	D503
Connector Name	HIGH-MOUNTED STOP LAMP
Connector Color	WHITE



2	1
---	---

Terminal No.	Color of Wire	Signal Name
1	Y	—
2	B	—

Connector No.	D501
Connector Name	WIRE TO WIRE
Connector Color	WHITE



16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17

Terminal No.	Color of Wire	Signal Name
17	Y	—

AALIA2160GB

A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

BACK-UP LAMP

< WIRING DIAGRAM >

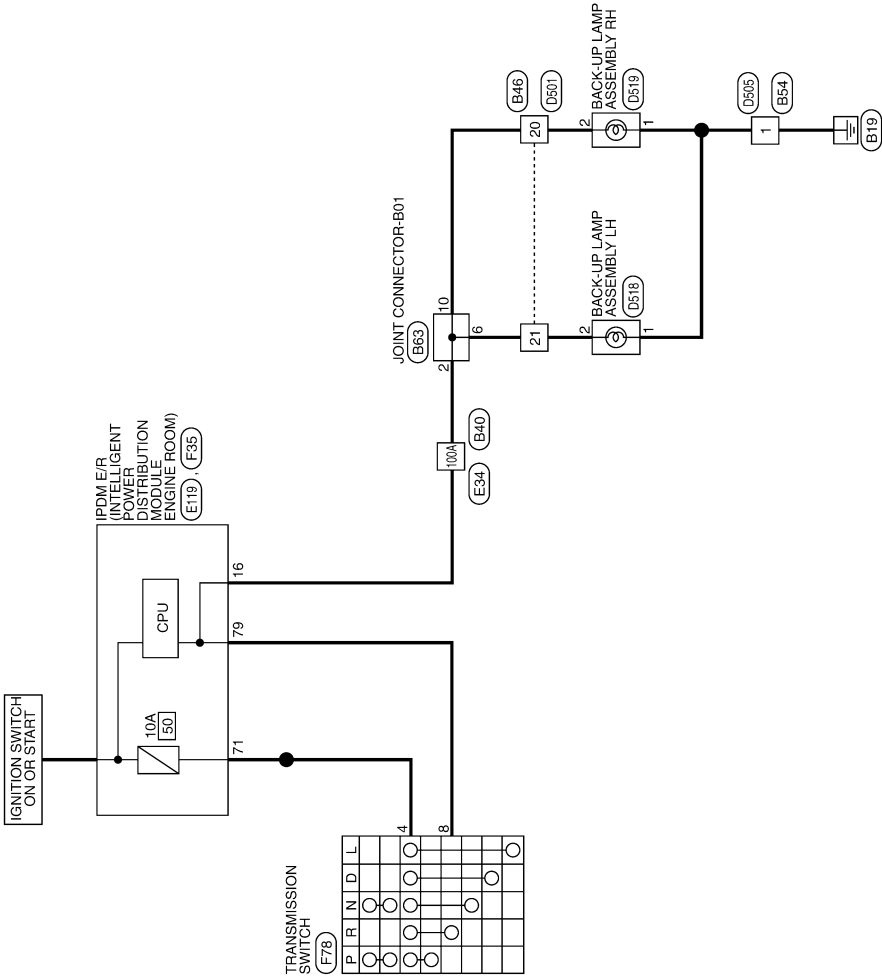
[LED HEADLAMP]

BACK-UP LAMP

Wiring Diagram

INFOID:000000010288655

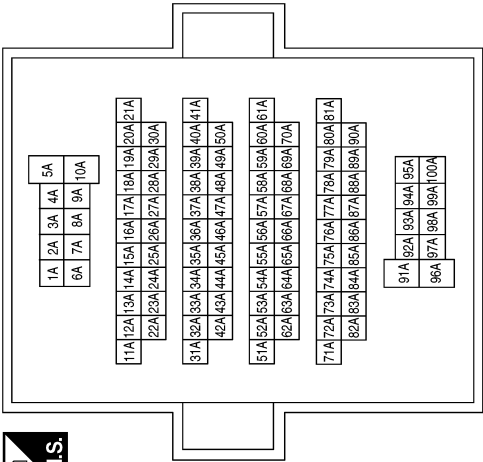
BACK - UP LAMP



AALWA0763GB

BACK-UP LAMP CONNECTORS

Connector No.	E34
Connector Name	WIRE TO WIRE
Connector Color	GRAY



1A	2A	3A	4A	5A
6A	7A	8A	9A	10A

11A	12A	13A	14A	15A	16A	17A	18A	19A	20A	21A
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

22A	23A	24A	25A	26A	27A	28A	29A	30A
-----	-----	-----	-----	-----	-----	-----	-----	-----

31A	32A	33A	34A	35A	36A	37A	38A	39A	40A	41A
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

42A	43A	44A	45A	46A	47A	48A	49A	50A
-----	-----	-----	-----	-----	-----	-----	-----	-----

51A	52A	53A	54A	55A	56A	57A	58A	59A	60A	61A
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

62A	63A	64A	65A	66A	67A	68A	69A	70A
-----	-----	-----	-----	-----	-----	-----	-----	-----

71A	72A	73A	74A	75A	76A	77A	78A	79A	80A	81A
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

82A	83A	84A	85A	86A	87A	88A	89A	90A
-----	-----	-----	-----	-----	-----	-----	-----	-----

91A	92A	93A	94A	95A
-----	-----	-----	-----	-----

96A	97A	98A	99A	100A
-----	-----	-----	-----	------

Terminal No.	Color of Wire	Signal Name
100A	G	-

Connector No.	E119
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



9	8	7	6	5	4	3		
18	17	16	15	14	13	12	11	10

Terminal No.	Color of Wire	Signal Name
16	G	O LIGHT REVERSE LAMP

Connector No.	F35
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE



71	70	69	68		67	66	65	
80	79	78	77	76	75	74	73	72

Connector No.	F78
Connector Name	TRANSMISSION RANGE SWITCH
Connector Color	BLACK



6	5	4	3	2	1
10	9	8	7		

Terminal No.	Color of Wire	Signal Name
71	SB	O IGN REVERSE SW AC VALVE
79	G	LI LIGHT REVERSE SW

Terminal No.	Color of Wire	Signal Name
4	W	-
8	G	-

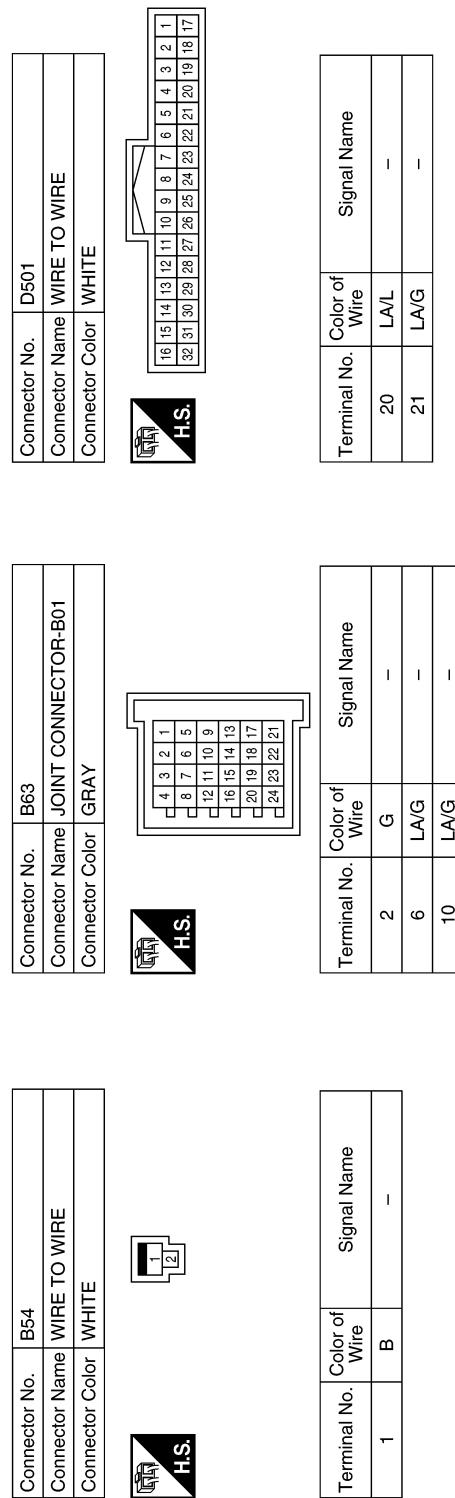
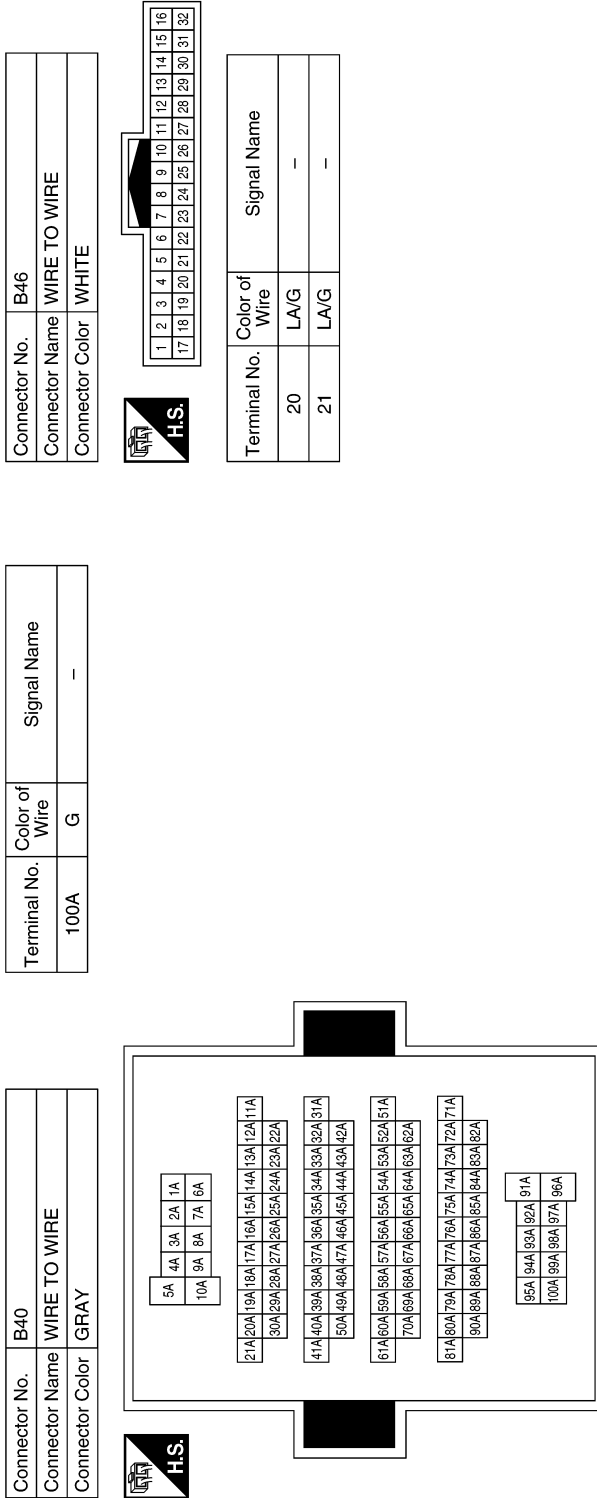
AALIA2118GB

A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

BACK-UP LAMP

< WIRING DIAGRAM >

[LED HEADLAMP]



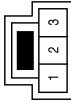
AALIA2119GB

BACK-UP LAMP

< WIRING DIAGRAM >

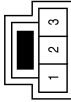
[LED HEADLAMP]

Connector No.	D519	
Connector Name	BACK-UP LAMP ASSEMBLY RH	
Connector Color	WHITE	



Terminal No.	Color of Wire	Signal Name
1	GR	-
2	LA/L	-

Connector No.	D518	
Connector Name	BACK-UP LAMP ASSEMBLY LH	
Connector Color	WHITE	



Terminal No.	Color of Wire	Signal Name
1	GR	-
2	LA/G	-

Connector No.	D505	
Connector Name	WIRE TO WIRE	
Connector Color	WHITE	



Terminal No.	Color of Wire	Signal Name
1	B	-

A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

AALIA2120GB

HEADLAMP AIMING SYSTEM (AUTOMATIC)

< WIRING DIAGRAM >

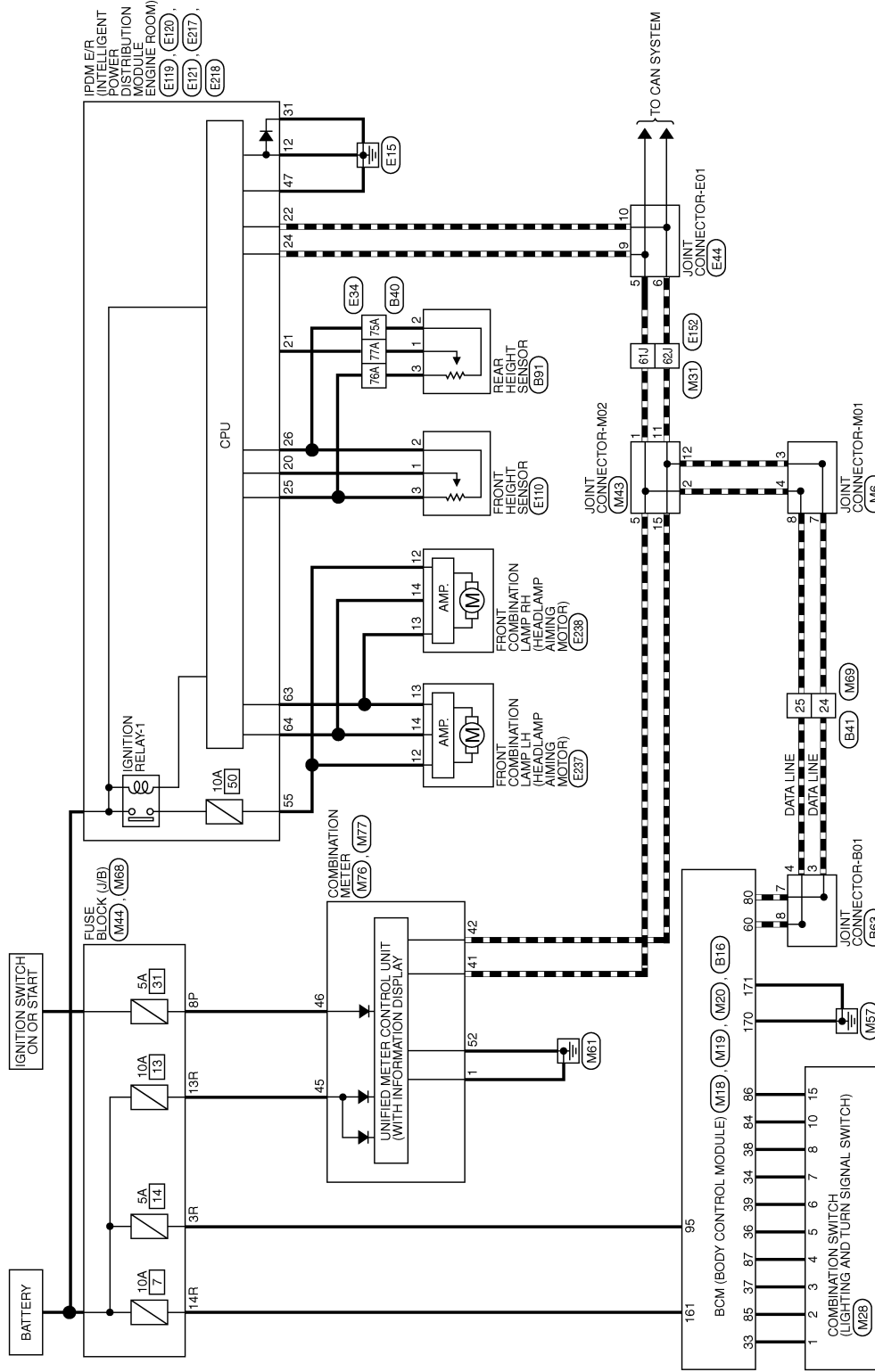
[LED HEADLAMP]

HEADLAMP AIMING SYSTEM (AUTOMATIC)

Wiring Diagram

INFOID:0000000010288656

HEADLAMP AIMING SYSTEM



AALWA0770GB

HEADLAMP AIMING SYSTEM (AUTOMATIC)

< WIRING DIAGRAM >

[LED HEADLAMP]

HEADLAMP AIMING SYSTEM CONNECTORS

Connector No.	M6
Connector Name	JOINT CONNECTOR-M01
Connector Color	GRAY



4	3	2	1
8	7	6	5
12	11	10	9
16	15	14	13
20	19	18	17
24	23	22	21

Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY



20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21

Terminal No.	Color of Wire	Signal Name
33	LG	I CSW 5
34	Y	O CSW 5
36	G	I CSW 3
37	GR	I CSW 4
38	V	I CSW 1
39	W	I CSW 2

Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



100	99	98	97	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81
120	119	118	117	116	115	114	113	112	111	110	109	108	107	106	105	104	103	102	101

Terminal No.	Color of Wire	Signal Name
84	BR	O CSW 2
85	SB	O CSW 1
86	P	O CSW 3
87	BG	O CSW 4
95	V	I SHORTING PIN

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BROWN



167	166	165	164	163	162	161
176	175	174	173	172	171	170

Terminal No.	Color of Wire	Signal Name
161	W	I PWR ECU
170	B	I GND1
171	B	I GND2

Connector No.	M28
Connector Name	COMBINATION SWITCH
Connector Color	WHITE



8	7	6	5	4	3	2	1
16	15	14	13	12	11	10	9

Terminal No.	Color of Wire	Signal Name
1	LG	-
2	SB	-
3	GR	-
4	BG	-

Terminal No.	Color of Wire	Signal Name
5	G	-
6	W	-
7	Y	-
8	V	-
10	BR	-
15	P	-

AALIA2143GB

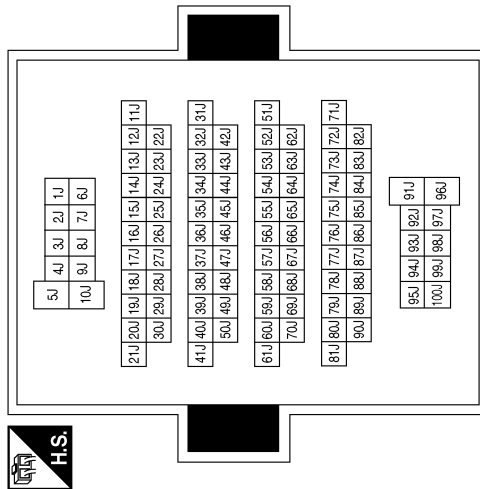
A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

HEADLAMP AIMING SYSTEM (AUTOMATIC)

< WIRING DIAGRAM >

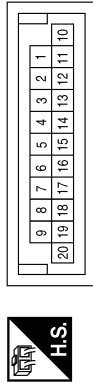
[LED HEADLAMP]

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
61J	L	-
62J	P	-

Connector No.	M43
Connector Name	JOINT CONNECTOR-M02
Connector Color	BLUE



Terminal No.	Color of Wire	Signal Name
1	L	-
2	L	-
5	L	-
11	P	-
12	P	-
15	P	-

Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



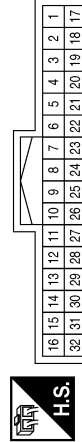
Terminal No.	Color of Wire	Signal Name
8P	LA/BR	-
13P	LA/G	-

Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
3R	V	-
14R	W	-

Connector No.	M69
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
24	P	-
25	L	-

HEADLAMP AIMING SYSTEM (AUTOMATIC)

< WIRING DIAGRAM >

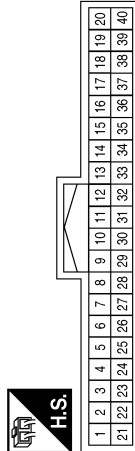
[LED HEADLAMP]

Connector No.	M77
Connector Name	COMBINATION METER
Connector Color	WHITE



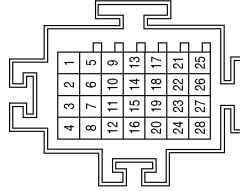
Terminal No.	Color of Wire	Signal Name
41	L	CAN-H
42	P	CAN-L
45	LA/G	BAT
46	LA/BR	IGN
52	B	GND2

Connector No.	M76
Connector Name	COMBINATION METER
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	B	GND1

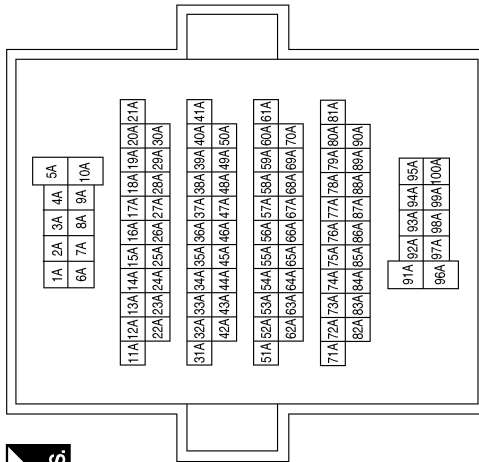
Connector No.	E44
Connector Name	JOINT CONNECTOR-E01
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
5	L	-
6	P	-
9	L	-
10	P	-

Terminal No.	Color of Wire	Signal Name
75A	B	-
76A	G	-
77A	SB	-

Connector No.	E34
Connector Name	WIRE TO WIRE
Connector Color	GRAY



AALIA2145GB

A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

HEADLAMP AIMING SYSTEM (AUTOMATIC)

< WIRING DIAGRAM >

[LED HEADLAMP]

Connector No.	E110
Connector Name	FRONT HEIGHT SENSOR
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	W	-
2	B	-
3	BR	-

Connector No.	E119
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



9	8	7	6	5	4	3
18	17	16	15	14	13	12
11	10					

Terminal No.	Color of Wire	Signal Name
12	B	SIGNAL GROUND

Connector No.	E120
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



30	29	28	27	26	25	24	23	22	21	20	19
42	41	40	39	38	37	36	35	34	33	32	31

Terminal No.	Color of Wire	Signal Name
20	W	I HEIGHT FRONT
21	SB	I HEIGHT REAR
22	P	CAN-L
24	L	CAN-H
25	G	O HEIGHT SENSOR SUPPLY
26	B	O HEIGHT SENSOR GROUND
31	B	2ND SIGNAL GROUND

Connector No.	E121
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	RED



Terminal No.	Color of Wire	Signal Name
47	B	POWER GROUND

AALIA2146GB

HEADLAMP AIMING SYSTEM (AUTOMATIC)

< WIRING DIAGRAM >

[LED HEADLAMP]

Connector No.	E217
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BROWN

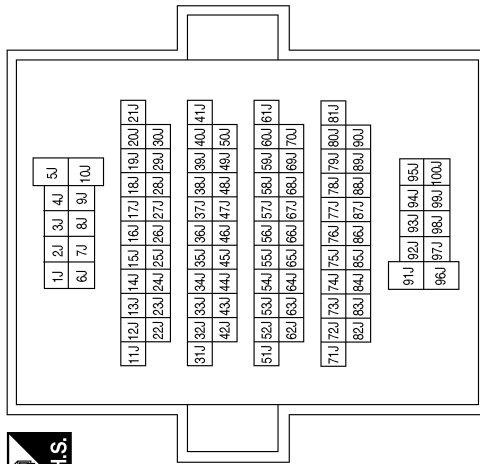


51	50	49
56	55	54
53		

Terminal No.	Color of Wire	Signal Name
55	SB	O IGN REVERSE SW AC VALVE 1

Terminal No.	Color of Wire	Signal Name
61J	L	-
62J	P	-

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	E238
Connector Name	FRONT COMBINATION LAMP RH (HEAD LAMP AIMING MOTOR)
Connector Color	BLACK



12	13	14
----	----	----

Terminal No.	Color of Wire	Signal Name
12	SB	-
13	B	-
14	V	-

Connector No.	E237
Connector Name	FRONT COMBINATION LAMP LH (HEAD LAMP AIMING MOTOR)
Connector Color	BLACK



12	13	14
----	----	----

Terminal No.	Color of Wire	Signal Name
12	L	-
13	B	-
14	V	-

Connector No.	E218
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE



59	58	57
64	63	62
61	60	

Terminal No.	Color of Wire	Signal Name
63	B	I LEVELIZER DC MOTOR GROUND
64	V	O LEVELIZER DC MOTOR

AALIA2147GB

A B C D E F G H I J K EXL M N O P

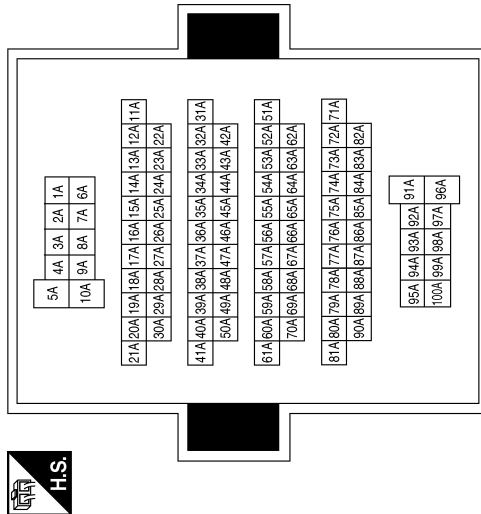
HEADLAMP AIMING SYSTEM (AUTOMATIC)

< WIRING DIAGRAM >

[LED HEADLAMP]

Terminal No.	Color of Wire	Signal Name
75A	B	-
76A	G	-
77A	SB	-

Connector No.	B40
Connector Name	WIRE TO WIRE
Connector Color	GRAY



Connector No.	B16
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GREEN



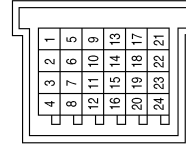
60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41
80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61

Terminal No.	Color of Wire	Signal Name
60	L	CAN-H
80	P	CAN-L

Connector No.	B91
Connector Name	REAR HEIGHT SENSOR
Connector Color	BLACK



Connector No.	B63
Connector Name	JOINT CONNECTOR-B01
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
1	SB	-
2	B	-
3	G	-

Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

Connector No.	B41
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Terminal No.	Color of Wire	Signal Name
24	P	-
25	L	-

AALJA2148GB

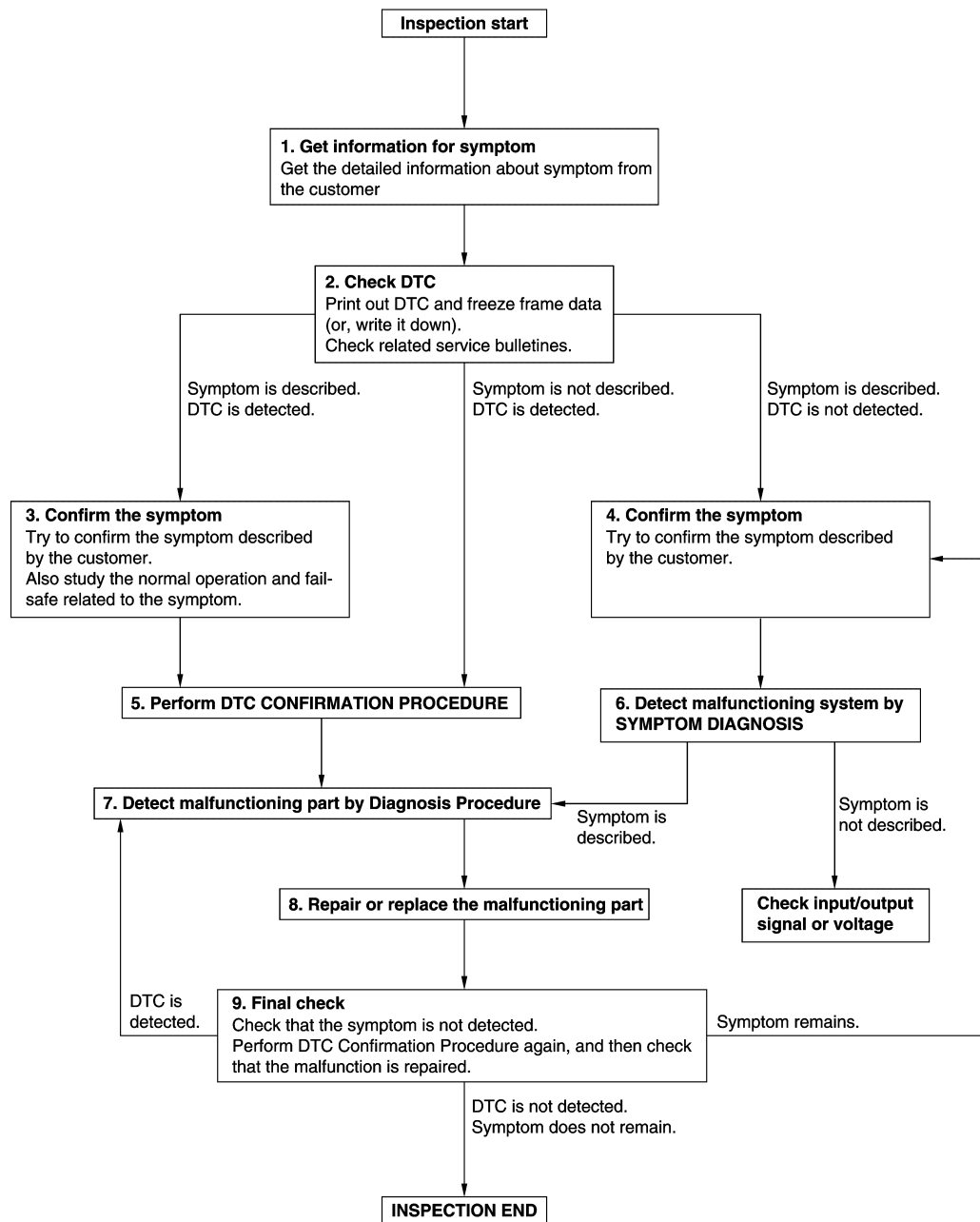
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:0000000010287040

OVERALL SEQUENCE



DETAILED FLOW

JMKIA8652GB

DIAGNOSIS AND REPAIR WORKFLOW

[LED HEADLAMP]

< BASIC INSPECTION >

1.GET INFORMATION FOR SYMPTOM

1. Get detailed information from the customer about the symptom (the condition and the environment when the incident/malfunction occurs).
2. Check operation condition of the function that is malfunctioning.

>> GO TO 2.

2.CHECK DTC

1. Check DTC.
2. Perform the following procedure if DTC is detected.
 - Record DTC and freeze frame data (Print them out using CONSULT.)
 - Erase DTC.
 - Study the relationship between the cause detected by DTC and the symptom described by the customer.
3. Check related service bulletins for information.

Are any symptoms described and any DTC detected?

Symptom is described, DTC is detected>>GO TO 3.

Symptom is described, DTC is not detected>>GO TO 4.

Symptom is not described, DTC is detected>>GO TO 5.

3.CONFIRM THE SYMPTOM

Try to confirm the symptom described by the customer.

Also study the normal operation and fail-safe related to the symptom.

Verify relation between the symptom and the condition when the symptom is detected.

>> GO TO 5.

4.CONFIRM THE SYMPTOM

Try to confirm the symptom described by the customer.

Verify relation between the symptom and the condition when the symptom is detected.

>> GO TO 6.

5.PERFORM DTC CONFIRMATION PROCEDURE

Perform DTC CONFIRMATION PROCEDURE for the detected DTC, and then check that DTC is detected again. At this time, always connect CONSULT to the vehicle, and check self diagnostic results in real time.

If two or more DTCs are detected, refer to [BCS-47, "DTC Inspection Priority Chart"](#) (with Intelligent Key system) or [BCS-107, "DTC Inspection Priority Chart"](#) (without Intelligent Key system) (BCM) or [PCS-20, "DTC Index"](#) (IPDM E/R), and determine trouble diagnosis order.

NOTE:

- Freeze frame data is useful if the DTC is not detected.
- Perform Component Function Check if DTC CONFIRMATION PROCEDURE is not included on Service Manual. This simplified check procedure is an effective alternative though DTC cannot be detected during this check.

If the result of Component Function Check is NG, it is the same as the detection of DTC by DTC CONFIRMATION PROCEDURE.

Is DTC detected?

YES >> GO TO 7.

NO >> Check according to [GI-41, "Intermittent Incident"](#).

6.DETECT MALFUNCTIONING SYSTEM BY SYMPTOM DIAGNOSIS

Detect malfunctioning system according to SYMPTOM DIAGNOSIS based on the confirmed symptom in step 4, and determine the trouble diagnosis order based on possible causes and symptom.

Is the symptom described?

YES >> GO TO 7.

NO >> Monitor input data from related sensors or check voltage of related module terminals using CONSULT.

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

[LED HEADLAMP]

7. DETECT MALFUNCTIONING PART BY DIAGNOSTIC PROCEDURE

Inspect according to Diagnostic Procedure of the system.

Is malfunctioning part detected?

YES >> GO TO 8.

NO >> Check according to [GI-41, "Intermittent Incident"](#).

8. REPAIR OR REPLACE THE MALFUNCTIONING PART

1. Repair or replace the malfunctioning part.
2. Reconnect parts or connectors disconnected during Diagnostic Procedure again after repair and replacement.
3. Check DTC. If DTC is detected, erase it.

>> GO TO 9.

9. FINAL CHECK

When DTC is detected in step 2, perform DTC CONFIRMATION PROCEDURE again, and then check that the malfunction is repaired securely.

When symptom is described by the customer, refer to confirmed symptom in step 3 or 4, and check that the symptom is not detected.

Is DTC detected and does symptom remain?

YES-1 >> DTC is detected: GO TO 7.

YES-2 >> Symptom remains: GO TO 4.

NO >> Before returning the vehicle to the customer, always erase DTC.

A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

INSPECTION AND ADJUSTMENT

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Description

INFOID:0000000010365309

CAUTION:

- When the IPDM E/R is replaced or disconnected and reconnected, perform “SENSOR INITIALIZE” with CONSULT.

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement

INFOID:0000000010365310

1. SENSOR INITIALIZE

CONSULT WORK SUPPORT

Perform “SENSOR INITIALIZE”. Refer to [EXL-222. "SENSOR INITIALIZE : Special Repair Requirement"](#).

>> WORK END

SENSOR INITIALIZE

SENSOR INITIALIZE : Description

INFOID:0000000010365313

HEADLAMP AIMING CONTROL SYSTEM

Perform the sensor initialize when installing, removing and replacing the auto levelizer control unit or suspension components.

SENSOR INITIALIZE : Special Repair Requirement

INFOID:0000000010365314

CAUTION:

If performing aiming adjustment after the levelizer initialization, be sure to start the engine after turning ignition switch OFF.

1. VEHICLE CONDITION CHECK

1. Park the vehicle in the straight-forward position.
2. Unload the vehicle (no passenger aboard).

>> GO TO 2.

2. SENSOR INITIALIZE

CONSULT WORK SUPPORT

1. Select “SENSOR INITIALIZE” of IPDM E/R work support item.
2. Select “START”.
3. When “INITIALIZE COMPLETE”, select “END”.

CAUTION:

If “INITIALIZE NOT DONE” is indicated, auto levelizer control unit detects that the sensor lever signal was changing. The sensor initialization is cancelled. In this case, turn the ignition switch OFF, do not allow the vehicle height to change. Perform the sensor initialization again.

Is the sensor initialize completed?

- YES >> GO TO 3.
NO >> Perform the sensor initialize again.

3. SELF-DIAGNOSIS RESULT CHECK

Perform the self-diagnosis with CONSULT. Check that any DTC is not detected.

Is any DTC detected?

- YES >> GO TO 2.
NO >> Sensor initialize completed.

LED HEADLAMP OPERATION INSPECTION

< BASIC INSPECTION >

[LED HEADLAMP]

LED HEADLAMP OPERATION INSPECTION

Diagnosis Procedure

INFOID:0000000010287041

1.CHECK START

1. In the cool LED status (wait for more than 10 minutes after turning headlamp OFF), turn ON and turn OFF headlamp for the several times. Check that headlamp operates normally each time.
2. In the cool LED status, turn headlamp ON, wait until headlamp enters to the stable status (approximately 5 minutes after turning headlamp ON), and then check that headlamp operates normally without blinking or flickering.
3. In the warm LED status (turn headlamp ON for more than 15 minutes and wait for 1 minute after turning OFF), turn ON and turn OFF headlamp for the several times. Check that headlamp operates normally each time.
4. Turn headlamp ON for approximately 30 minutes, and then check that headlamp operates normally without difference in brightness between LH and RH, blinking or flickering.

Is the inspection result normal?

YES >> Inspection End.

NO >> Refer to [EXL-256, "Symptom Table"](#).

A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

DTC/CIRCUIT DIAGNOSIS**POWER SUPPLY AND GROUND CIRCUIT****BCM (BODY CONTROL SYSTEM) (WITH INTELLIGENT KEY SYSTEM)****BCM (BODY CONTROL SYSTEM) (WITH INTELLIGENT KEY SYSTEM) : Diagnosis Procedure**

INFOID:0000000010290271

Regarding Wiring Diagram information, refer to [BCS-50, "Wiring Diagram"](#).

1. CHECK FUSE

Check that the following fuse is not blown.

Terminal No.	Signal name	Fuse No.
161	BCM power supply	7 (10A)

Is the fuse blown?

YES >> Replace the blown fuse after repairing the affected circuit.

NO >> GO TO 2.

2. CHECK POWER SUPPLY CIRCUIT

1. Disconnect BCM connector M20.

2. Check voltage between BCM connector M20 and ground.

BCM		Ground	Voltage (Approx.)
Connector	Terminal		
M20	161	—	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

3. CHECK GROUND CIRCUIT

Check continuity between BCM connector M20 and ground.

BCM		Ground	Continuity
Connector	Terminal		
M20	170	—	Yes
	171		

Is the inspection result normal?

YES >> Inspection End.

NO >> Repair or replace harness or connectors.

BCM (BODY CONTROL SYSTEM) (WITHOUT INTELLIGENT KEY SYSTEM)**BCM (BODY CONTROL SYSTEM) (WITHOUT INTELLIGENT KEY SYSTEM) : Diagnosis Procedure**

INFOID:0000000010290272

Regarding Wiring Diagram information, refer to [BCS-110, "Wiring Diagram"](#).

1. CHECK FUSE

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[LED HEADLAMP]

Check that the following fuse is not blown.

Terminal No.	Signal name	Fuse No.
161	BCM power supply	7 (10A)

Is the fuse blown?

- YES >> Replace the blown fuse after repairing the affected circuit.
NO >> GO TO 2.

2. CHECK POWER SUPPLY CIRCUIT

1. Disconnect BCM connector M20.
2. Check voltage between BCM connector M20 and ground.

BCM		Ground	Voltage (Approx.)
Connector	Terminal		
M20	161	—	Battery voltage

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace harness or connectors.

3. CHECK GROUND CIRCUIT

Check continuity between BCM connector M20 and ground.

BCM		Ground	Continuity
Connector	Terminal		
M20	170	—	Yes
	171		

Is the inspection result normal?

- YES >> Inspection End.
NO >> Repair or replace harness or connectors.

A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

OPTICAL SENSOR

Component Function Check

INFOID:0000000010350547

1.CHECK OPTICAL SENSOR SIGNAL BY CONSULT

CONSULT DATA MONITOR

1. Turn power switch ON.
2. Select "OPTICAL SENSOR" of BCM (HEADLAMP) data monitor item.
3. Turn lighting switch AUTO.
4. With the optical sensor illuminating, check the monitor status.

Monitor item	Condition		Voltage (Approx.)
OPTICAL SENSOR	Optical sensor	When illuminating	3.1 V or more *
		When shutting off light	0.6 V or less

*: Illuminates the optical sensor. The value may be less than the standard value if brightness is weak.

Is the inspection result normal?

- YES >> Optical sensor is normal.
 NO >> Refer to [EXL-226, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010350548

1.CHECK OPTICAL SENSOR POWER SUPPLY INPUT

1. Turn power switch ON.
2. Turn lighting switch AUTO.
3. Check voltage between optical sensor harness connector and ground.

(+)		(-)	Voltage (Approx.)
Optical sensor			
Connector	Terminal		
M13	1	Ground	5 V

Is the inspection result normal?

- YES >> GO TO 2.
 NO >> GO TO 4.

2.CHECK OPTICAL SENSOR GROUND INPUT

Check voltage between optical sensor harness connector and ground.

(+)		(-)	Voltage (Approx.)
Optical sensor			
Connector	Terminal		
M13	3	Ground	0 V

Is the inspection result normal?

- YES >> GO TO 3.
 NO >> GO TO 6.

3.CHECK OPTICAL SENSOR SIGNAL OUTPUT

With illuminating the optical sensor, check voltage between optical sensor harness connector and ground.

OPTICAL SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[LED HEADLAMP]

(+)		(-)	Condition		Voltage (Approx.)
Optical sensor					
Connector	Terminal				
M13	2	Ground	Optical sensor	When illuminating	3.1 V or more *
				When shutting off light	0.6 V or less

*: Illuminate the optical sensor. The value may be less than the standard if brightness is weak.

Is the inspection result normal?

YES >> GO TO 7.

NO >> Replace the optical sensor.

4.CHECK OPTICAL SENSOR OPEN CIRCUIT

1. Turn power switch OFF.
2. Disconnect optical sensor connector and BCM connector.
3. Check continuity between optical sensor harness connector and BCM harness connector.

Optical sensor		BCM		Continuity
Connector	Terminal	Connector	Terminal	
M13	1	M18	12	Yes

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace harness.

5.CHECK OPTICAL SENSOR SHORT CIRCUIT

Check continuity between optical sensor harness connector and ground.

Optical sensor		Ground	Continuity
Connector	Terminal		
M13	1		No

Is the inspection result normal?

YES >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#) (with I Key) or [BCS-135, "Removal and Installation"](#) (without I Key).

NO >> Repair or replace harness.

6.CHECK OPTICAL SENSOR GROUND OPEN CIRCUIT

1. Turn power switch OFF.
2. Disconnect optical sensor connector and BCM connector.
3. Check continuity between optical sensor harness connector and BCM harness connector.

Optical sensor		BCM		Continuity
Connector	Terminal	Connector	Terminal	
M13	3	M18	30	Yes

Is the inspection result normal?

YES >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#) (with I Key) or [BCS-135, "Removal and Installation"](#) (without I Key).

NO >> Repair or replace harness.

7.CHECK OPTICAL SENSOR SIGNAL OPEN CIRCUIT

1. Turn power switch OFF.
2. Disconnect optical sensor connector and BCM connector.
3. Check continuity between optical sensor harness connector and BCM harness connector.

OPTICAL SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[LED HEADLAMP]

Optical sensor		BCM		Continuity
Connector	Terminal	Connector	Terminal	
M13	2	M18	19	Yes

Is the inspection result normal?

YES >> GO TO 8.

NO >> Repair or replace harness.

8.CHECK OPTICAL SENSOR SHORT CIRCUIT

Check continuity between optical sensor harness connector and ground.

Optical sensor		Ground	Continuity
Connector	Terminal		
M13	2		No

Is the inspection result normal?

YES >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#) (with I Key) or [BCS-135, "Removal and Installation"](#) (without I Key).

NO >> Repair or replace harness.

HAZARD SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[LED HEADLAMP]

HAZARD SWITCH

Component Function Check

INFOID:0000000010350549

1.CHECK HAZARD SWITCH SIGNAL BY CONSULT

CONSULT DATA MONITOR

1. Turn power switch ON.
2. Select "HAZARD SW" of BCM (FLASHER) data monitor item.
3. With operating the hazard switch, check the monitor status.

Monitor item	Condition		Monitor status
HAZARD SW	Hazard switch	ON	On
		OFF	Off

Is the inspection result normal?

- YES >> Hazard switch circuit is normal.
NO >> Refer to [EXL-229. "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010350550

1.CHECK HAZARD SWITCH SIGNAL INPUT

1. Turn power switch OFF.
2. Disconnect hazard switch connector.
3. Check voltage between hazard switch connector and ground.

(+)		(-)	Voltage (Approx.)
Hazard switch			
Connector	Terminal		
M26	2	Ground	Battery voltage

Is the inspection result normal?

- YES >> GO TO 4.
NO >> GO TO 2.

2.CHECK HAZARD SWITCH SIGNAL OPEN CIRCUIT

1. Disconnect BCM connector.
2. Check continuity between hazard switch harness connector and BCM harness connector.

Hazard switch		BCM		Continuity
Connector	Terminal	Connector	Terminal	
M26	2	M18	11	Yes

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace harness.

3.CHECK HAZARD SWITCH SIGNAL SHORT CIRCUIT

Check continuity between hazard switch harness connector and ground.

Hazard switch		Ground	Continuity
Connector	Terminal		
M26	2		No

Is the inspection result normal?

- YES >> Replace BCM. Refer to [BCS-75. "Removal and Installation"](#) (with Intelligent Key system) or [BCS-135. "Removal and Installation"](#) (without Intelligent Key system).
NO >> Repair or replace harness.

HAZARD SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[LED HEADLAMP]

4.CHECK HAZARD SWITCH GROUND OPEN CIRCUIT

Check continuity between hazard switch harness connector and ground.

Hazard switch		Ground	Continuity
Connector	Terminal		
M26	3		Yes

Is the inspection result normal?

YES >> Replace hazard switch. Refer to [EXL-276, "Removal and Installation"](#).

NO >> Repair or replace harness.

TURN SIGNAL LAMP CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[LED HEADLAMP]

TURN SIGNAL LAMP CIRCUIT

Description

INFOID:0000000010350551

The BCM monitors inputs from the combination switch (lighting and turn signal switch) to determine when to activate the turn signals. The BCM outputs voltage direction to the left and right turn signals during turn signal operation or both during hazard warning operation. The BCM sends a turn signal indicator request to the combination meter via the CAN communication lines.

The BCM performs the fast flasher operation (fail-safe) if any bulb or harness of the turn signal lamp circuit is open.

NOTE:

Turn signal lamp blinks at normal speed when using the hazard warning lamp.

Component Function Check

INFOID:0000000010350552

1.CHECK TURN SIGNAL LAMP

CONSULT

1. Select FLASHER of BCM (FLASHER) active test item.
2. While operating the test items, check that the turn signal lamp blinks.

LH : Turn signal lamps (LH) ON

RH : Turn signal lamps (RH) ON

Off : Turn signal lamps OFF

Is the inspection result normal?

YES >> Turn signal lamp circuit is normal.

NO >> Refer to [EXL-231, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010350553

Regarding Wiring Diagram information, refer to [EXL-185, "Wiring Diagram"](#).

1.CHECK TURN SIGNAL LAMP BULB

Check the applicable lamp bulb to be sure the proper bulb standard is in use and the bulb is not open.

Is the bulb OK?

YES >> GO TO 2.

NO >> Replace the bulb.

2.CHECK TURN SIGNAL LAMP OUTPUT VOLTAGE

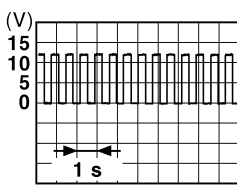
1. Turn the ignition switch OFF.
2. Disconnect the front combination lamp harness connector or the side turn signal harness connector or the rear combination lamp harness connector in question.
3. Turn the ignition switch ON.
4. Operate the turn signal switch.
5. While the turn signal is operating, check the voltage between the front combination lamp harness connector and ground.

(+)		(-)	Voltage (Approx.)
Connector	Terminal		

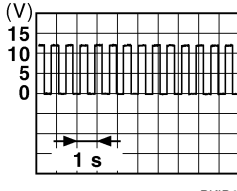
TURN SIGNAL LAMP CIRCUIT

[LED HEADLAMP]

< DTC/CIRCUIT DIAGNOSIS >

LH	E105			
RH	E103	1	Ground	 PKID0926E

6. While the turn signal is operating, check the voltage between the rear combination lamp harness connector and ground.

(+) Connector		Terminal	(-)	Voltage (Approx.)
LH	B90			
RH	B102	3	Ground	 PKID0926E

Are the inspection results normal?

YES >> GO TO 5.

NO >> GO TO 3.

3.CHECK TURN SIGNAL LAMP CIRCUIT FOR OPEN

- Turn the ignition switch OFF.
- Disconnect BCM harness connector E29 or B23.
- Check continuity between the BCM harness connector E29 and the front combination lamp harness connector.

BCM		Front combination lamp		Continuity
Connector	Terminal	Connector	Terminal	
LH	E29	E105	1	Yes
RH		E103		

4. Check continuity between the BCM harness connector B23 and the rear combination lamp harness connector.

BCM		Rear combination lamp		Continuity
Connector	Terminal	Connector	Terminal	
LH	B23	B90	3	Yes
RH		B102		

Are the inspection results normal?

YES >> GO TO 4.

NO >> Repair or replace the harness or connectors.

4.CHECK TURN SIGNAL LAMP SHORT CIRCUIT

- Check continuity between the BCM harness connector E29 and ground.

TURN SIGNAL LAMP CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[LED HEADLAMP]

BCM			Ground	Continuity
Connector		Terminal		No
LH	E29	135		
RH		136		

- Check continuity between the BCM harness connector M20 and ground.

BCM			Ground	Continuity
Connector		Terminal		No
LH	B23	157		
RH		160		

Are the inspection results normal?

YES >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#) (with Intelligent Key) or [BCS-135, "Removal and Installation"](#) (without Intelligent Key).

NO >> Repair or replace the harness or connectors.

5.CHECK TURN SIGNAL LAMP GROUND CIRCUIT

- Turn the ignition switch OFF.
- Check continuity between the front combination lamp harness connector or the side turn signal harness connector or the rear combination lamp harness connector in question and ground.

Front combination lamp			(-)	Continuity
Connector		Terminal		
LH	E105	2	Ground	Yes
RH	E103			

- Check continuity between the rear combination lamp harness connector and ground.

Rear combination lamp			(-)	Continuity
Connector		Terminal		
LH	B90	4	Ground	Yes
RH	B102			

Are the inspection results normal?

YES >> Replace the malfunctioning lamp.

NO >> Repair or replace the harness or connectors.

B121A FRONT FOG LAMP LH POWER SUPPLY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[LED HEADLAMP]

B121A FRONT FOG LAMP LH POWER SUPPLY CIRCUIT

DTC Logic

INFOID:0000000010376092

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
B121A	FR FOG LAMP LH PWR SPLY CIRC [CIRC SHORT TO GROUND]	• Short to ground	• IPDM E/R • Short to ground

DTC CONFIRMATION PROCEDURE

1.CHECK SELF-DIAGNOSTIC RESULT

ⓘ With CONSULT.

1. Turn ignition switch ON.
2. Perform self-diagnostic result.

Is DTC B121A detected?

YES >> Proceed to diagnosis procedure. Refer to [EXL-234, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010376093

1.CHECK FOG LAMP SHORT CIRCUIT TO GROUND

1. Disconnect fog lamp connector and IPDM E/R connector.
2. Check continuity between IPDM E/R harness connector and ground.

IPDM E/R			Ground	Continuity
Connector		Terminal		
LH	E217	51		No

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace harness.

2.CHECK FOG LAMP SHORT CIRCUIT TO GROUND

1. Reconnect IPDM E/R connector.
2. Check continuity between fog lamp harness connector and ground.

Fog lamp (LH)			Ground	Continuity
Connector		Terminal		
LH	E222	1		No

Is the inspection result normal?

YES >> Refer to [GI-41, "Intermittent Incident"](#).
NO >> Replace IPDM E/R. Refer to [PCS-35, "Removal and Installation"](#).

B1231 DAYTIME RUNNING LIGHT RH POWER SUPPLY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[LED HEADLAMP]

B1231 DAYTIME RUNNING LIGHT RH POWER SUPPLY CIRCUIT

DTC Logic

INFOID:0000000010376094

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
B1231	DTRL RH PWR SPLY CIRC [CIRC SHORT TO GRND]	When a short circuit to ground in the daytime running lamp circuit is detected.	- IPDM E/R - Short to ground

DTC CONFIRMATION PROCEDURE

1.CHECK SELF-DIAGNOSTIC RESULT

 With CONSULT.

1. Turn ignition switch ON.

2. Perform self-diagnostic result.

Is DTC B1231 detected?

YES >> Proceed to diagnosis procedure. Refer to [EXL-235, "Diagnosis Procedure"](#).

NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010376095

1.CHECK FRONT COMBINATION LAMP SHORT CIRCUIT TO GROUND

1. Disconnect front combination lamp connector and IPDM E/R connector.

2. Check continuity between IPDM E/R harness connector and ground.

IPDM E/R			Ground	Continuity
Connector		Terminal		
RH	E218	58		No

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness.

2.CHECK FRONT COMBINATION LAMP SHORT CIRCUIT TO GROUND

1. Reconnect IPDM E/R connector.

2. Check continuity between front combination lamp harness connector and ground.

Front combination lamp (RH)			Ground	Continuity
Connector		Terminal		
RH	E240	8		No

Is the inspection result normal?

YES >> Refer to [GI-41, "Intermittent Incident"](#).

NO >> Replace IPDM E/R. Refer to [PCS-35, "Removal and Installation"](#).

B1256 FRONT FOG LAMP RH POWER SUPPLY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[LED HEADLAMP]

B1256 FRONT FOG LAMP RH POWER SUPPLY CIRCUIT

DTC Logic

INFOID:0000000010376096

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
B1256	FR FOG LAMP RH PWR SPLY CIRC [CIRC SHORT TO GRND]	When a short circuit to ground is detected.	- IPDM E/R - Short to ground

DTC CONFIRMATION PROCEDURE

1.CHECK SELF-DIAGNOSTIC RESULT

 With CONSULT.

1. Turn ignition switch ON.
2. Perform self-diagnostic result.

Is DTC B1256 detected?

- YES >> Proceed to diagnosis procedure. Refer to [EXL-236, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010376097

1.CHECK FOG LAMP SHORT CIRCUIT TO GROUND

1. Disconnect fog lamp connector and IPDM E/R connector.
2. Check continuity between IPDM E/R harness connector and ground.

IPDM E/R			Ground	Continuity
Connector		Terminal		
LH	E217	51		No

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace harness.

2.CHECK FOG LAMP SHORT CIRCUIT TO GROUND

1. Reconnect IPDM E/R connector.
2. Check continuity between fog lamp harness connector and ground.

Fog lamp (LH)			Ground	Continuity
Connector		Terminal		
LH	E222	1		No

Is the inspection result normal?

- YES >> Refer to [GI-41, "Intermittent Incident"](#).
NO >> Replace IPDM E/R. Refer to [PCS-35, "Removal and Installation"](#).

B1C00 HEIGHT SENSOR POWER SUPPLY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[LED HEADLAMP]

B1C00 HEIGHT SENSOR POWER SUPPLY CIRCUIT

DTC Logic

INFOID:000000010376098

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
B1C00	HEIGHT SENSOR PWR SPLY CIRC [CIRC SHORT TO GRND]	When the height sensor power supply circuit is shorted to supply power or shorted to ground	- Short to ground - Short to supply voltage
	HEIGHT SENSOR PWR SPLY CIRC [CIRC SHORT TO BATTERY]		

DTC CONFIRMATION PROCEDURE

1.CHECK SELF-DIAGNOSTIC RESULT

Ⓑ With CONSULT.

- Turn ignition switch ON.
- Perform self-diagnostic result.

Is DTC B1C00 detected?

- YES >> Proceed to diagnosis procedure. Refer to [EXL-237, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:000000010376099

1.CHECK HEIGHT SENSOR SHORT CIRCUIT TO GROUND

- Disconnect front and rear height sensor connector and IPDM E/R connector.
- Check continuity between IPDM E/R harness connector and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		
E120	25		No

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace harness.

2.CHECK HEIGHT SENSOR SHORT CIRCUIT TO BATTERY VOLTAGE

Check the voltage between IPDM E/R harness connector and ground.

IPDM E/R		Ground	Voltage (Approx.)
Connector	Terminal		
E120	25		0 V

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace harness.

3.CHECK HEIGHT SENSOR SHORT CIRCUIT TO BATTERY VOLTAGE

- Reconnect IPDM E/R connector.
- Check the voltage between IPDM E/R harness connector and ground.

IPDM E/R		Ground	Voltage (Approx.)
Connector	Terminal		
E120	25		0 V

Is the inspection result normal?

- YES >> Refer to [GI-41, "Intermittent Incident"](#).

B1C00 HEIGHT SENSOR POWER SUPPLY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[LED HEADLAMP]

NO >> Replace IPDM E/R. Refer to [PCS-35. "Removal and Installation"](#).

B1C01 FRONT HEIGHT SENSOR SIGNAL

< DTC/CIRCUIT DIAGNOSIS >

[LED HEADLAMP]

B1C01 FRONT HEIGHT SENSOR SIGNAL

DTC Logic

INFOID:0000000010376100

DTC DETECTION LOGIC

DTC No.	Self-diagnosis item	DTC Detection Condition	Possible causes
B1C01	FR HEIGHT SENSOR SIGNAL [CIRC SHORT TO BATTERY]	- Short to ground - Short to supply voltage - Circuit voltage out of range	- Harness or connectors between the front height sensor and the IPDM E/R (The sensor circuit is open or shorted) - IPDM E/R - Height sensor
	FR HEIGHT SENSOR SIGNAL [CIRC SHORT TO GROUND OR OPEN]		
	FR HEIGHT SENSOR SIGNAL [CIRC VOLTAGE OUT OF RANGE]		

DTC CONFIRMATION PROCEDURE

1.SELF-DIAGNOSIS WITH IPDM E/R

- Turn ignition switch ON.
- Check Self-diagnostic result with CONSULT.

Is DTC detected?

- YES >> Refer to [EXL-239, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010376101

1.CHECK HEIGHT SENSOR SHORT CIRCUIT TO GROUND

- Disconnect front height sensor connector and IPDM E/R connector.
- Check continuity between IPDM E/R harness connector and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		
E120	20		No

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace harness.

2.CHECK HEIGHT SENSOR SHORT OPEN CIRCUIT

Check the continuity between IPDM E/R harness connector and height sensor connector.

IPDM E/R		Front height sensor		Ground	Continuity
Connector	Terminal	Connector	Terminal		
E120	20	E110	1		Yes

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace harness.

3.CHECK HEIGHT SENSOR SHORT CIRCUIT TO BATTERY VOLTAGE

Check the voltage between IPDM E/R harness connector and ground.

IPDM E/R		Ground	Voltage (Approx.)
Connector	Terminal		
E120	20		0 V

Is the inspection result normal?

B1C01 FRONT HEIGHT SENSOR SIGNAL

< DTC/CIRCUIT DIAGNOSIS >

[LED HEADLAMP]

- YES >> GO TO 3.
NO >> Repair or replace harness.

4. CHECK HEIGHT SENSOR SHORT CIRCUIT TO BATTERY VOLTAGE

1. Reconnect IPDM E/R connector.
2. Check the voltage between IPDM E/R harness connector and ground.

IPDM E/R		Ground	Voltage (Approx.)
Connector	Terminal		
E120	20		0 V

Is the inspection result normal?

- YES >> Refer to [GI-41, "Intermittent Incident"](#).
NO >> Replace IPDM E/R. Refer to [PCS-35, "Removal and Installation"](#).

B1C02 REAR HEIGHT SENSOR SIGNAL

< DTC/CIRCUIT DIAGNOSIS >

[LED HEADLAMP]

B1C02 REAR HEIGHT SENSOR SIGNAL

DTC Logic

INFOID:0000000010376102

DTC DETECTION LOGIC

DTC No.	Self-diagnosis item	DTC Detection Condition	Possible causes
B1C02	RR HEIGHT SENSOR SIGNAL [CIRC SHORT TO BATTERY]	- Short to ground - Short to supply voltage - Circuit voltage out of range	- Harness or connectors between the rear height sensor and the IPDM E/R (The sensor circuit is open or shorted) - IPDM E/R - Height sensor
	RR HEIGHT SENSOR SIGNAL [CIRC SHORT TO GROUND OR OPEN]		
	RR HEIGHT SENSOR SIGNAL [CIRC VOLTAGE OUT OF RANGE]		

DTC CONFIRMATION PROCEDURE

1.SELF-DIAGNOSIS WITH IPDM E/R

- Turn ignition switch ON.
- Check Self-diagnostic result with CONSULT.

Is DTC detected?

- YES >> Refer to [EXL-241, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010376103

1.CHECK HEIGHT SENSOR SHORT CIRCUIT TO GROUND

- Disconnect rear height sensor connector and IPDM E/R connector.
- Check continuity between IPDM E/R harness connector and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		
E120	21		No

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace harness.

2.CHECK HEIGHT SENSOR SHORT OPEN CIRCUIT

Check the continuity between IPDM E/R harness connector and height sensor connector.

IPDM E/R		Rear height sensor		Ground	Continuity
Connector	Terminal	Connector	Terminal		
E120	20	B91	1		Yes

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace harness.

3.CHECK HEIGHT SENSOR SHORT CIRCUIT TO BATTERY VOLTAGE

Check the voltage between IPDM E/R harness connector and ground.

IPDM E/R		Ground	Voltage (Approx.)
Connector	Terminal		
E120	21		0 V

Is the inspection result normal?

B1C02 REAR HEIGHT SENSOR SIGNAL

< DTC/CIRCUIT DIAGNOSIS >

[LED HEADLAMP]

- YES >> GO TO 3.
NO >> Repair or replace harness.

4. CHECK HEIGHT SENSOR SHORT CIRCUIT TO BATTERY VOLTAGE

1. Reconnect IPDM E/R connector.
2. Check the voltage between IPDM E/R harness connector and ground.

IPDM E/R		Ground	Voltage (Approx.)
Connector	Terminal		
E120	21		0 V

Is the inspection result normal?

- YES >> Refer to [GI-41, "Intermittent Incident"](#).
NO >> Replace IPDM E/R. Refer to [PCS-35, "Removal and Installation"](#).

B1C07 AIMING MOTOR DRIVE SIGNAL

< DTC/CIRCUIT DIAGNOSIS >

[LED HEADLAMP]

B1C07 AIMING MOTOR DRIVE SIGNAL

DTC Logic

INFOID:0000000010376104

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
B1C07	AIMING MOTOR DRIVE SIGNAL [CIRC SHORT TO GRND]	- DC motor circuit short to ground - DC motor circuit short to supply voltage	- Front combination lamp harness - IPDM E/R
	AIMING MOTOR DRIVE SIGNAL [CIRC SHORT TO BATTERY]		
	AIMING MOTOR DRIVE SIGNAL [SIGNAL COMPARE FAILURE]		

DTC CONFIRMATION PROCEDURE

1.CHECK SELF-DIAGNOSTIC RESULT

Ⓐ With CONSULT.

- Turn ignition switch ON.
- Perform self-diagnostic result.

Is DTC B1C07 detected?

- YES >> Proceed to diagnosis procedure. Refer to [EXL-243, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010376105

1.CHECK HEADLAMP AIMING MOTOR DRIVE SIGNAL SHORT CIRCUIT TO GROUND

- Disconnect LH and RH headlamp aiming motor connectors and IPDM E/R connector.
- Check continuity between IPDM E/R harness connector and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		
E218	64		No

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace harness.

2.CHECK HEADLAMP AIMING MOTOR DRIVE SIGNAL SHORT CIRCUIT TO BATTERY VOLTAGE

Check the voltage between IPDM E/R harness connector and ground.

IPDM E/R		Ground	Voltage (Approx.)
Connector	Terminal		
E218	64		0 V

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace harness.

3.CHECK HEADLAMP AIMING MOTOR DRIVE SIGNAL SHORT CIRCUIT TO BATTERY VOLTAGE

- Reconnect IPDM E/R connector.
- Check the voltage between IPDM E/R harness connector and ground.

IPDM E/R		Ground	Voltage (Approx.)
Connector	Terminal		
E218	64		0 V

B1C07 AIMING MOTOR DRIVE SIGNAL

< DTC/CIRCUIT DIAGNOSIS >

[LED HEADLAMP]

Is the inspection result normal?

YES >> Refer to [GI-41, "Intermittent Incident"](#).

NO >> Replace IPDM E/R. Refer to [PCS-35, "Removal and Installation"](#).

B20CB DAYTIME RUNNING LIGHT LH POWER SUPPLY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[LED HEADLAMP]

B20CB DAYTIME RUNNING LIGHT LH POWER SUPPLY CIRCUIT

DTC Logic

INFOID:0000000010376106

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
B20CB	DTRL LH PWR SPLY CIRC [CIRC SHORT TO GRND]	When a short circuit to ground is detected.	• IPDM E/R • Short to ground

DTC CONFIRMATION PROCEDURE

1.CHECK SELF-DIAGNOSTIC RESULT

 With CONSULT.

1. Turn ignition switch ON.

2. Perform self-diagnostic result.

Is DTC B02CB detected?

YES >> Proceed to diagnosis procedure. Refer to [EXL-245. "Diagnosis Procedure"](#).

NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010376107

1.CHECK FRONT COMBINATION LAMP SHORT CIRCUIT TO GROUND

1. Disconnect front combination lamp connector and IPDM E/R connector.

2. Check continuity between IPDM E/R harness connector and ground.

IPDM E/R			Ground	Continuity
Connector		Terminal		
LH	E217	49		No

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness.

2.CHECK FRONT COMBINATION LAMP SHORT CIRCUIT TO GROUND

1. Reconnect IPDM E/R connector.

2. Check continuity between fog lamp harness connector and ground.

Front combination lamp (LH)			Ground	Continuity
Connector		Terminal		
LH	E239	8		No

Is the inspection result normal?

YES >> Refer to [GI-41. "Intermittent Incident"](#).

NO >> Replace IPDM E/R. Refer to [PCS-35. "Removal and Installation"](#).

B20CE HEADLAMP (HI) LH POWER SUPPLY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[LED HEADLAMP]

B20CE HEADLAMP (HI) LH POWER SUPPLY CIRCUIT

DTC Logic

INFOID:0000000010376108

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
B20CE	DTRL LH PWR SPLY CIRC [CIRC SHORT TO GRND]	• Short to ground	• IPDM E/R • Short to ground

DTC CONFIRMATION PROCEDURE

1.CHECK SELF-DIAGNOSTIC RESULT

 With CONSULT.

1. Turn ignition switch ON.
2. Perform self-diagnostic result.

Is DTC B20CE detected?

YES >> Proceed to diagnosis procedure. Refer to [EXL-246, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010376109

1.CHECK HEAD LAMP SHORT CIRCUIT TO GROUND

1. Disconnect front combination lamp connector and IPDM E/R connector.
2. Check continuity between IPDM E/R harness connector and ground.

IPDM E/R			Ground	Continuity
Connector		Terminal		
LH	E218	59		No

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace harness.

2.CHECK HEAD LAMP SHORT CIRCUIT TO GROUND

1. Reconnect IPDM E/R connector.
2. Check continuity between front combination lamp harness connector and ground.

Front combination lamp (LH)			Ground	Continuity
Connector		Terminal		
LH	E236	15		No

Is the inspection result normal?

YES >> Refer to [GI-41, "Intermittent Incident"](#).
NO >> Replace IPDM E/R. Refer to [PCS-35, "Removal and Installation"](#).

B20CF HEADLAMP (HI) RH POWER SUPPLY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[LED HEADLAMP]

B20CF HEADLAMP (HI) RH POWER SUPPLY CIRCUIT

DTC Logic

INFOID:0000000010376110

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
B20CF	HL (HI) RH PWR SPLY CIRC [CIRC SHORT TO GRND]	• Short to ground	• IPDM E/R • Short to ground

DTC CONFIRMATION PROCEDURE

1.CHECK SELF-DIAGNOSTIC RESULT

Ⓐ With CONSULT.

1. Turn ignition switch ON.

2. Perform self-diagnostic result.

Is DTC B20CF detected?

YES >> Proceed to diagnosis procedure. Refer to [EXL-247, "Diagnosis Procedure"](#).

NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010376111

1.CHECK HEAD LAMP SHORT CIRCUIT TO GROUND

1. Disconnect front combination lamp connector and IPDM E/R connector.

2. Check continuity between IPDM E/R harness connector and ground.

IPDM E/R			Ground	Continuity
Connector		Terminal		
RH	E217	54		No

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness.

2.CHECK HEAD LAMP SHORT CIRCUIT TO GROUND

1. Reconnect IPDM E/R connector.

2. Check continuity between front combination lamp harness connector and ground.

Front combination lamp (RH)			Ground	Continuity
Connector		Terminal		
RH	E240	5		No

Is the inspection result normal?

YES >> Refer to [GI-41, "Intermittent Incident"](#).

NO >> Replace IPDM E/R. Refer to [PCS-35, "Removal and Installation"](#).

B20D0 HEADLAMP (LO) LH POWER SUPPLY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[LED HEADLAMP]

B20D0 HEADLAMP (LO) LH POWER SUPPLY CIRCUIT

DTC Logic

INFOID:0000000010376112

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
B20D0	HI (LO) RH PWR SPLY CIRC [CIRC SHORT TO GRND]	• Short to ground	• IPDM E/R • Short to ground

DTC CONFIRMATION PROCEDURE

1.CHECK SELF-DIAGNOSTIC RESULT

 With CONSULT.

1. Turn ignition switch ON.
2. Perform self-diagnostic result.

Is DTC B20D0 detected?

YES >> Proceed to diagnosis procedure. Refer to [EXL-248, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010376113

1.CHECK FRONT COMBINATION LAMP SHORT CIRCUIT TO GROUND

1. Disconnect front combination lamp connector and IPDM E/R connector.
2. Check continuity between IPDM E/R harness connector and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		
LH	E217		No

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace harness.

2.CHECK FRONT COMBINATION LAMP SHORT CIRCUIT TO GROUND

1. Reconnect IPDM E/R connector.
2. Check continuity between front combination lamp harness connector and ground.

Front combination lamp (LH)		Ground	Continuity
Connector	Terminal		
LH	E239		No

Is the inspection result normal?

YES >> Refer to [GI-41, "Intermittent Incident"](#).
NO >> Replace IPDM E/R. Refer to [PCS-35, "Removal and Installation"](#).

B20D1 HEADLAMP (LO) RH POWER SUPPLY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[LED HEADLAMP]

B20D1 HEADLAMP (LO) RH POWER SUPPLY CIRCUIT

DTC Logic

INFOID:0000000010376114

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
B20D1	HL (LO) RH PWR SPLY CIRC [CIRC SHORT TO GRND]	• Short to ground	• IPDM E/R • Short to ground

DTC CONFIRMATION PROCEDURE

1.CHECK SELF-DIAGNOSTIC RESULT

 With CONSULT.

1. Turn ignition switch ON.

2. Perform self-diagnostic result.

Is DTC B20D1 detected?

YES >> Proceed to diagnosis procedure. Refer to [EXL-249, "Diagnosis Procedure"](#).

NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010376115

1.CHECK FRONT COMBINATION LAMP SHORT CIRCUIT TO GROUND

1. Disconnect front combination lamp connector and IPDM E/R connector.

2. Check continuity between IPDM E/R harness connector and ground.

IPDM E/R			Ground	Continuity
Connector		Terminal		
RH	E218	62		No

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness.

2.CHECK FRONT COMBINATION LAMP SHORT CIRCUIT TO GROUND

1. Reconnect IPDM E/R connector.

2. Check continuity between front combination lamp harness connector and ground.

Front combination lamp (LH)			Ground	Continuity
Connector		Terminal		
RH	E240	6		No

Is the inspection result normal?

YES >> Refer to [GI-41, "Intermittent Incident"](#).

NO >> Replace IPDM E/R. Refer to [PCS-35, "Removal and Installation"](#).

B20D2 PARKING LAMP POWER SUPPLY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[LED HEADLAMP]

B20D2 PARKING LAMP POWER SUPPLY CIRCUIT

DTC Logic

INFOID:0000000010376116

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
B20D2	PARKING LAMP PWR SPLY CIRC [CIRC SHORT TO GROUND]	When a short to ground is detected in the parking lamp power supply circuit.	• Short to ground

DTC CONFIRMATION PROCEDURE

1.CHECK SELF-DIAGNOSTIC RESULT

 With CONSULT.

1. Turn ignition switch ON.
2. Perform self-diagnostic result.

Is DTC B20D2 detected?

- YES >> Proceed to diagnosis procedure. Refer to [EXL-250, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010376117

1.CHECK FRONT COMBINATION LAMP SHORT CIRCUIT TO GROUND

1. Disconnect front combination lamp connectors and IPDM E/R connector.
2. Check continuity between IPDM E/R harness connector and ground.

IPDM E/R			Ground	Continuity
Connector		Terminal		
LH	E217	56		No
RH	E218	61		

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace harness.

2.CHECK FRONT COMBINATION LAMP SHORT CIRCUIT TO GROUND

1. Reconnect IPDM E/R connector.
2. Check continuity between front combination lamp harness connector and ground.

IPDM E/R			Ground	Continuity
Connector		Terminal		
LH	E217	56		No
RH	E218	61		

Is the inspection result normal?

- YES >> Refer to [GI-41, "Intermittent Incident"](#).
NO >> Replace IPDM E/R. Refer to [PCS-35, "Removal and Installation"](#).

B20D4 TAIL LAMP LH POWER SUPPLY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[LED HEADLAMP]

B20D4 TAIL LAMP LH POWER SUPPLY CIRCUIT

DTC Logic

INFOID:0000000010376118

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
B20D4	TAIL LAMP LH PWR SPLY CIRC [CIRC SHORT TO GRND]	• Short to ground	• IPDM E/R • Short to ground

DTC CONFIRMATION PROCEDURE

1.CHECK SELF-DIAGNOSTIC RESULT

 With CONSULT.

1. Turn ignition switch ON.
2. Perform self-diagnostic result.

Is DTC B20D4 detected?

YES >> Proceed to diagnosis procedure. Refer to [EXL-251, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010376119

1.CHECK TAIL LAMP SHORT CIRCUIT TO GROUND

1. Disconnect rear combination lamp (LH), license plate lamps, back up lamp connectors and IPDM E/R connector.
2. Check continuity between IPDM E/R harness connector and ground.

IPDM E/R			Ground	Continuity
Connector		Terminal		
LH	E119	4		No

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace harness.

2.CHECK TAIL LAMP SHORT CIRCUIT TO GROUND

1. Reconnect IPDM E/R connector.
2. Check continuity between rear combination lamp harness connector and ground.

Rear combination lamp (LH)			Ground	Continuity
Connector		Terminal		
LH	B90	1		No

Is the inspection result normal?

YES >> Refer to [GI-41, "Intermittent Incident"](#).
NO >> Replace IPDM E/R. Refer to [PCS-35, "Removal and Installation"](#).

B20D5 TAIL LAMP RH POWER SUPPLY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[LED HEADLAMP]

B20D5 TAIL LAMP RH POWER SUPPLY CIRCUIT

DTC Logic

INFOID:0000000010376120

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
B20D5	TAIL LAMP RH PWR SPLY CIRC [CIRC SHORT TO GRND]	When a short circuit to ground is detected in the tail lamp supply voltage circuit.	• IPDM E/R • Short to ground

DTC CONFIRMATION PROCEDURE

1.CHECK SELF-DIAGNOSTIC RESULT

 With CONSULT.

1. Turn ignition switch ON.
2. Perform self-diagnostic result.

Is DTC B20D5 detected?

- YES >> Proceed to diagnosis procedure. Refer to [EXL-252, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010376121

1.CHECK TAIL LAMP SHORT CIRCUIT TO GROUND

1. Disconnect rear combination lamp (RH), back up lamp connectors and IPDM E/R connector.
2. Check continuity between IPDM E/R harness connector and ground.

IPDM E/R			Ground	Continuity
Connector		Terminal		
RH	E119	17		No

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace harness.

2.CHECK TAIL LAMP SHORT CIRCUIT TO GROUND

1. Reconnect IPDM E/R connector.
2. Check continuity between rear combination lamp harness connector and ground.

Rear combination lamp (RH)			Ground	Continuity
Connector		Terminal		
RH	B102	1		No

Is the inspection result normal?

- YES >> Refer to [GI-41, "Intermittent Incident"](#).
NO >> Replace IPDM E/R. Refer to [PCS-35, "Removal and Installation"](#).

B20DB HEIGHT SENSOR INITIALIZE NOT DONE

< DTC/CIRCUIT DIAGNOSIS >

[LED HEADLAMP]

B20DB HEIGHT SENSOR INITIALIZE NOT DONE

DTC Logic

INFOID:0000000010376122

DTC DETECTION LOGIC

DTC	Display Item	DTC detection condition	Possible causes
B20DB	HEIGHT SENS INITIALIZE NOT DONE [MISSING CALIBRATION]	Sensor initialization is not complete.	• Incomplete sensor initialization. • Rear height sensor • Front height sensor
	HEIGHT SENS INITIALIZE NOT DONE [NOT CONFIGURED]		

DTC CONFIRMATION PROCEDURE

1.PERFORM SELF-DIAGNOSIS

CONSULT

1. Turn ignition switch ON.
2. Perform self-diagnosis of IPDM E/R using CONSULT.

Is DTC B20DB detected?

- YES >> Refer to [EXL-253, "Diagnosis Procedure"](#).
- NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010376123

1.CHECK SELF-DIAGNOSTIC RESULT

With CONSULT.

1. Turn ignition ON.
2. Select "SENSOR INITIALIZE" of IPDM E/R Work Support item.

Is DTC B20DB detected?

- YES >> Replace IPDM E/R. Refer to [PCS-35, "Removal and Installation"](#).
- NO >> Inspection End.

EXL

B20E2 LED HEADLAMP RH

< DTC/CIRCUIT DIAGNOSIS >

[LED HEADLAMP]

B20E2 LED HEADLAMP RH

DTC Logic

INFOID:0000000010350724

DTC DETECTION LOGIC

DTC No.	Self-diagnosis item	DTC Detection Condition	Possible causes
B20E2	LED HEADLAMP RH [CMPNENT INTERNAL MLFNCTN]	Detection signal circuit short to ground	- Harness or connectors between the front combination lamp RH and the IPDM E/R - IPDM E/R

DTC CONFIRMATION PROCEDURE

1.SELF-DIAGNOSIS WITH IPDM E/R

- Turn ignition switch ON.
- Check Self-diagnostic result with CONSULT.

Is DTC detected?

- YES >> Refer to [EXL-254, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010350725

1.CHECK FRONT COMBINATION LAMP RH SHORT CIRCUIT TO GROUND

- Disconnect front combination lamp RH connector and IPDM E/R connector.
- Check continuity between IPDM E/R harness connector and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		
E218	60		No

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace harness.

2.CHECK FRONT COMBINATION LAMP RH SHORT CIRCUIT TO GROUND

- Reconnect IPDM E/R connector.
- Check continuity between front combination lamp RH harness connector and ground.

Front combination lamp RH		Ground	Ground
Connector	Terminal		
E240	7		No

Is the inspection result normal?

- YES >> Refer to [GI-41, "Intermittent Incident"](#).
NO >> Replace IPDM E/R. Refer to [PCS-35, "Removal and Installation"](#).

B20E3 LED HEADLAMP LH

< DTC/CIRCUIT DIAGNOSIS >

[LED HEADLAMP]

B20E3 LED HEADLAMP LH

DTC Logic

INFOID:0000000010350728

DTC DETECTION LOGIC

DTC No.	Self-diagnosis item	DTC Detection Condition	Possible causes
B20E3	LED HEADLAMP LH [CMPNENT INTERNAL MLFNCTN]	Detection signal circuit short to ground	- Harness or connectors between the front combination lamp LH and the IPDM E/R - IPDM E/R

DTC CONFIRMATION PROCEDURE

1.SELF-DIAGNOSIS WITH IPDM E/R

- Turn ignition switch ON.
- Check Self-diagnostic result with CONSULT.

Is DTC detected?

- YES >> Refer to [EXL-255, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010350729

1.CHECK FRONT COMBINATION LAMP LH SHORT CIRCUIT TO GROUND

- Disconnect front combination lamp LH connector and IPDM E/R connector.
- Check continuity between IPDM E/R harness connector and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		
E217	53		No

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace harness.

2.CHECK FRONT COMBINATION LAMP LH SHORT CIRCUIT TO GROUND

- Reconnect IPDM E/R connector.
- Check continuity between front combination lamp LH harness connector and ground.

Front combination lamp LH		Ground	Ground
Connector	Terminal		
E239	7		No

Is the inspection result normal?

- YES >> Refer to [GI-41, "Intermittent Incident"](#).
NO >> Replace IPDM E/R. Refer to [PCS-35, "Removal and Installation"](#).

EXTERIOR LIGHTING SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

[LED HEADLAMP]

SYMPTOM DIAGNOSIS

EXTERIOR LIGHTING SYSTEM SYMPTOMS

Symptom Table

INFOID:000000010350643

CAUTION:

Perform the self-diagnosis with CONSULT before the symptom diagnosis. Perform the trouble diagnosis if any DTC is detected.

Symptom		Possible cause	Inspection item
Headlamp (HI) is not turned ON.	One side	• Fuse • LED • Harness between IPDM E/R and headlamp (HI) • Harness between headlamp (HI) and ground • IPDM E/R	Headlamp (HI) circuit Refer to EXL-246, "DTC Logic" (LH) or EXL-247, "DTC Logic" (RH).
	Both sides	Symptom diagnosis "BOTH SIDE HEADLAMPS (HI) ARE NOT TURNED ON" Refer to EXL-246, "DTC Logic" (LH) or EXL-247, "DTC Logic" (RH).	
High beam indicator lamp is not turned ON. [Headlamp (HI) is turned ON.]		Combination meter	• Combination meter Data monitor "HI-BEAM IND" • BCM (HEAD LAMP) Active test "HEADLAMP"
Headlamp (LO) is not turned ON.	One side	• Fuse • LED • Harness between IPDM E/R and headlamp lamp (LO) • Harness between headlamp (LO) and ground • IPDM E/R	Headlamp (LO) circuit Refer to EXL-248, "DTC Logic" (LH) or EXL-249, "DTC Logic" (RH).
	Both sides	Symptom diagnosis "BOTH SIDE HEADLAMPS (LO) ARE NOT TURNED ON" Refer to EXL-248, "DTC Logic" (LH) or EXL-249, "DTC Logic" (RH).	
Each lamp is not turned ON/OFF with lighting switch AUTO.		• Combination switch • Harness between combination switch and BCM • BCM	Combination switch Refer to BCS-73, "Symptom Table" (with Intelligent Key) or BCS-133, "Symptom Table" (without Intelligent Key).
		• Optical sensor • Harness between optical sensor and BCM • BCM	Optical sensor Refer to EXL-226, "Component Function Check" .
Daytime running light is not turned ON. [Headlamp (HI) is turned ON.]		• Fuse • Harness between IPDM E/R and front combination lamp • IPDM E/R • BCM • ECM • Combination meter	• Daytime running light circuit Refer to EXL-235, "DTC Logic". • BCM (HEADLAMP) Data monitor "ENGINE STATE" • Combination meter Data monitor "PKB SW" • BCM (HEADLAMP) Active test "DAYTIME RUNNING LIGHT"
Parking lamp is not turned ON.		• Fuse • Parking lamp bulb • Harness between IPDM E/R and front combination lamp • IPDM E/R	Parking lamp circuit Refer to EXL-250, "DTC Logic" .

EXTERIOR LIGHTING SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

[LED HEADLAMP]

Symptom		Possible cause	Inspection item
Front side marker lamp is not turned ON.		- Front side marker lamp bulb - Harness between IPDM E/R and front side marker lamp - Harness between front side marker lamp and ground - IPDM E/R	Front side marker lamp circuit Refer to EXL-250, "DTC Logic" .
License plate lamp is not turned ON.		- License plate lamp bulb - Harness between IPDM E/R and license plate lamp - Harness between license plate lamp and ground	License plate lamp circuit Refer to EXL-251, "DTC Logic" .
Parking lamp, side marker lamp, tail lamp and license plate lamp are not turned ON.		Symptom diagnosis "PARKING, SIDE MARKER, LICENSE PLATE AND TAIL LAMPS ARE NOT TURNED ON" Refer to EXL-261, "Description" .	
Tail lamp indicator is not turned ON. (Exterior lamps are turned ON.)		Combination meter	- Combination meter Data monitor "LIGHT IND" - BCM (HEADLAMP) Active test "TAIL LAMP"
Turn signal lamp does not blink.	Indicator lamp is normal. (Applicable side performs high flasher activation.)	- Turn signal lamp bulb - Door mirror - Harness between BCM and each turn signal lamp - Harness between each turn signal lamp and ground	Turn signal lamp circuit Refer to EXL-93, "Component Function Check" .
Turn signal indicator lamp does not blink. (Turn signal lamp is normal.)	One side	Combination meter	—
	Both sides (Always)	- Turn signal indicator lamp signal - BCM - Combination meter	- Combination meter Data monitor "TURN IND" - BCM (FLASHER) Active test "FLASHER"
	Both sides (Only when activating hazard warning lamp with ignition switch OFF)	- Combination meter power supply and ground circuit - Combination meter	Combination meter Power supply and ground circuit Refer to MWI-59, "COMBINATION METER : Diagnosis Procedure" .
- Hazard warning lamp does not activate. - Hazard warning lamp continues activating. (Turn signal is normal.)		- Hazard switch - Harness between hazard switch and BCM - Harness between hazard switch and ground - BCM	Hazard switch circuit Refer to EXL-229, "Component Function Check" .
Front fog lamp is not turned ON.	One side	- Front fog lamp bulb - Harness between IPDM E/R and front fog lamp - Harness between front fog lamp and ground - IPDM E/R	Front fog lamp circuit Refer to EXL-234, "DTC Logic" (LH) or EXL-236, "DTC Logic" (RH).
	Both sides	Symptom diagnosis "BOTH SIDE FRONT FOG LAMPS ARE NOT TURNED ON" Refer to EXL-234, "DTC Logic" (LH) or EXL-236, "DTC Logic" (RH).	

A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

[LED HEADLAMP]

NORMAL OPERATING CONDITION

Description

INFOID:0000000010350644

AUTO LIGHT SYSTEM

The headlamp may not be turned ON/OFF immediately after passing dark area or bright area (short tunnel, sky bridge, shadowed area, etc.) while using the auto light system. This is caused by for the control difference. This is normal.

BOTH SIDE HEADLAMPS (HI) ARE NOT TURNED ON

< SYMPTOM DIAGNOSIS >

[LED HEADLAMP]

BOTH SIDE HEADLAMPS (HI) ARE NOT TURNED ON

Description

INFOID:0000000010350645

Both side headlamps (HI) are not turned ON when setting to the lighting switch HI or PASS.

Diagnosis Procedure

INFOID:0000000010350646

1.COMBINATION SWITCH INSPECTION

Check combination switch. Refer to [BCS-73, "Symptom Table"](#) (with Intelligent Key system) or [BCS-133, "Symptom Table"](#) (without Intelligent Key system).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning part.

2.CHECK HEADLAMP (HI) REQUEST SIGNAL INPUT

CONSULT DATA MONITOR

1. Select "HEADLAMP (HI)" of IPDM E/R data monitor item.
2. With operating the lighting switch, check the monitor status.

Monitor item	Condition		Monitor status
HEADLAMP (HI)	Lighting switch (2ND)	HI or PASS	On
		LO	Off

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#) (with Intelligent Key system) or [BCS-135, "Removal and Installation"](#) (without Intelligent Key system).

3.HEADLAMP (HI) CIRCUIT INSPECTION

Check headlamp (HI) circuit. Refer to [EXL-246, "DTC Logic"](#) (LH) or [EXL-247, "DTC Logic"](#) (RH).

Is the inspection result normal?

YES >> Refer to [GI-41, "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning part.

A
B
C
D
E
F
G
H
I
J
K
M
N
O
P

EXL

BOTH SIDE HEADLAMPS (LO) ARE NOT TURNED ON

< SYMPTOM DIAGNOSIS >

[LED HEADLAMP]

BOTH SIDE HEADLAMPS (LO) ARE NOT TURNED ON

Description

INFOID:0000000010350647

Both side headlamps (LO) are not turned ON in any condition.

Diagnosis Procedure

INFOID:0000000010350648

1.CHECK COMBINATION SWITCH

Check combination switch. Refer to [BCS-73, "Symptom Table"](#) (with Intelligent Key system) or [BCS-133, "Symptom Table"](#) (without Intelligent Key system).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning part.

2.CHECK HEADLAMP (LO) REQUEST SIGNAL INPUT

CONSULT DATA MONITOR

1. Select "HEADLAMP (LO)" of IPDM E/R data monitor item.
2. With operating the lighting switch, check the monitor status.

Monitor item	Condition		Monitor status
HEADLAMP (LO)	Lighting switch	2ND	On
		OFF	Off

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#) (with Intelligent Key system) or [BCS-135, "Removal and Installation"](#) (without Intelligent Key system).

3.HEADLAMP (LO) CIRCUIT INSPECTION

Check headlamp (LO) circuit. Refer to [EXL-248, "DTC Logic"](#) (LH) or [EXL-249, "DTC Logic"](#) (RH).

Is the inspection result normal?

YES >> Refer to [GI-41, "Intermittent Incident"](#).

NO >> Repair or replace the malfunctioning part.

PARKING, LICENSE PLATE, SIDE MARKER AND TAIL LAMPS ARE NOT TURNED ON

< SYMPTOM DIAGNOSIS >

[LED HEADLAMP]

PARKING, LICENSE PLATE, SIDE MARKER AND TAIL LAMPS ARE NOT TURNED ON

Description

INFOID:0000000010350649

The parking, license plate, side marker, tail lamps and each illumination are not turned ON in any condition.

Diagnosis Procedure

INFOID:0000000010350650

1.COMBINATION SWITCH INSPECTION

Check combination switch. Refer to [BCS-73, "Symptom Table"](#) (with Intelligent Key system) or [BCS-133, "Symptom Table"](#) (without Intelligent Key system).

Is the combination switch normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning part.

2.CHECK TAIL LAMP REQUEST SIGNAL INPUT

CONSULT DATA MONITOR

1. Select "TAIL LAMP" of IPDM E/R data monitor item.
2. With operating the lighting switch, check the monitor status.

Monitor item	Condition		Monitor status
TAIL LAMP	Lighting switch	1ST	On
		OFF	Off

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to [PCS-35, "Removal and Installation"](#).

NO >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#) (with Intelligent Key system) or [BCS-135, "Removal and Installation"](#) (without Intelligent Key system).

BOTH SIDE FRONT FOG LAMPS ARE NOT TURNED ON

< SYMPTOM DIAGNOSIS >

[LED HEADLAMP]

BOTH SIDE FRONT FOG LAMPS ARE NOT TURNED ON

Description

INFOID:0000000010350651

The front fog lamps are not turned ON in any condition.

Diagnosis Procedure

INFOID:0000000010350652

1.CHECK COMBINATION SWITCH

Check combination switch. Refer to [BCS-73, "Symptom Table"](#) (with Intelligent Key) or [BCS-133, "Symptom Table"](#) (without Intelligent Key).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace the malfunctioning part.

2.CHECK FRONT FOG LAMP REQUEST SIGNAL INPUT

CONSULT DATA MONITOR

1. Select "FRONT FOG LAMP REQ" of IPDM E/R data monitor item.
2. With operating the front fog lamp switch, check the monitor status.

Monitor item	Condition		Monitor status
FRONT FOG LAMP REQ	Front fog lamp switch (With lighting switch 2ND)	ON	On
		OFF	Off

Is the item status normal?

YES >> Replace IPDM E/R. Refer to [PCS-35, "Removal and Installation"](#).

NO >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#) (with Intelligent Key) or [BCS-135, "Removal and Installation"](#) (without Intelligent Key).

HEADLAMP AIMING ADJUSTMENT

< PERIODIC MAINTENANCE >

[LED HEADLAMP]

PERIODIC MAINTENANCE

HEADLAMP AIMING ADJUSTMENT

Inspection

INFOID:0000000010247821

PREPARATION BEFORE ADJUSTING

Before performing aiming adjustment, check the following:

- Make sure all tires are inflated to correct pressure.
- Place vehicle and screen on level surface.
- Make sure there is no load in vehicle other than the driver (or equivalent weight placed in driver's position).
- Coolant and engine oil filled to correct level, and fuel tank full.
- Remove cargo and/or luggage to maintain an unloaded vehicle condition.
- Confirm spare tire, jack and tools are properly stowed.
- Carefully wipe off any dirt from headlamp lens.

CAUTION:

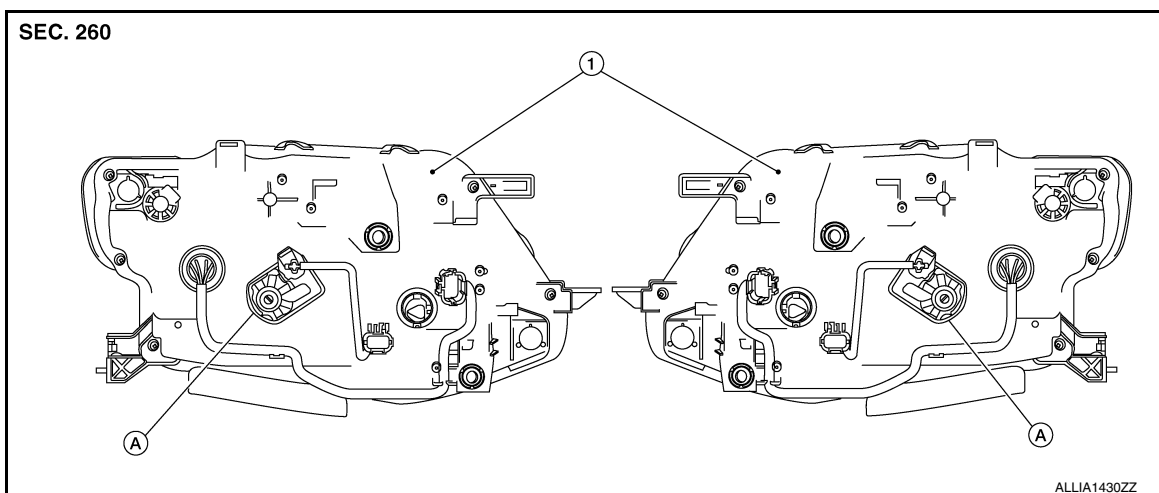
Do not use organic solvent (thinner, gasoline etc.)

- Place a driver or equivalent weight of 68.5 kg (150 lb) on the driver seat.
- By hand, bounce the front and rear of the vehicle to settle the suspension and eliminate any static load.
- Place the front tires in the straight ahead position.
- Aim each headlamp individually and ensure other headlamp beam pattern is blocked from screen.

NOTE:

- For headlamp aiming details, refer to regulations in your area.
- By regulation, no means for horizontal aim adjustment is provided from the factory; only vertical aim is adjustable.
- Use adjusting screw to perform aiming adjustment.
- Perform headlamp aiming if:
 - The vehicle front body has been repaired;
 - The front combination lamp has been removed or replaced;
 - Any outfitting has been installed;
 - The vehicle's standard load condition has been substantially increased.

AIMING ADJUSTMENT SCREW



1. Front combination lamp
(view from rear)

A. Headlamp HI/LO (UP/DOWN)
adjustment screw

HEADLAMP AIMING ADJUSTMENT

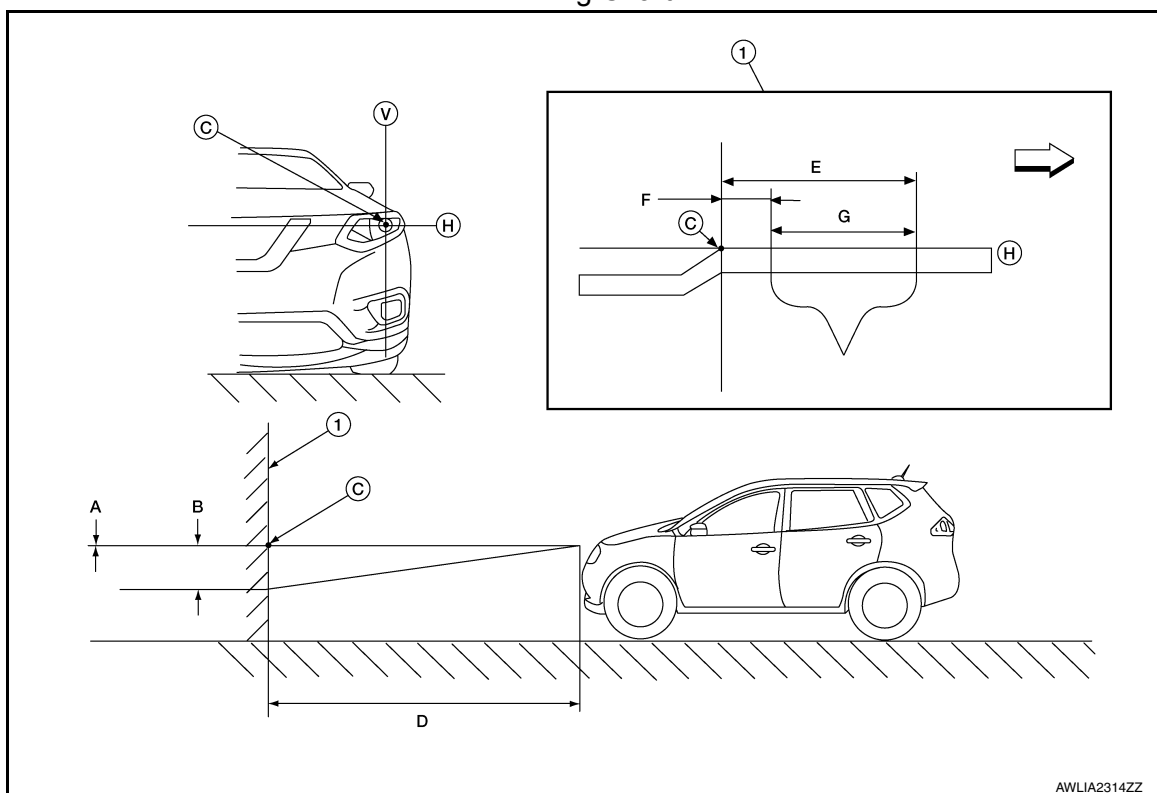
< PERIODIC MAINTENANCE >

[LED HEADLAMP]

Aiming Adjustment Procedure

INFOID:000000010247822

Aiming Chart



- | | | |
|---|---|---|
| 1. Adjustment screen | A. Highest cutoff line height | B. Lowest cutoff line height |
| C. Headlamp bulb center (H-V point) | D. Distance of headlamp aiming screen from vehicle 7.62 m (25 ft) | E. Maximum aim evaluation distance from vertical center on aiming screen 399 mm (3°R) |
| F. Minimum aim evaluation distance from vertical center on aiming screen 133 mm (1°R) | G. Aim evaluation area | H. Horizontal aiming evaluation line |
| V. Vertical aiming evaluation line | ↔ Right | |

A (Highest cutoff line height)

-13.3 mm (0.5 in)

0.1° up

B (Lowest cutoff line height)

53.2 mm (2.1 in)

0.4° down

LOW BEAM AND HIGH BEAM

NOTE:

- Basic illuminating area for evaluation and/or adjustment should be within range shown on aiming chart.

- Use adjustment screw to perform aiming adjustment.

- **Ensure fog lamps are turned off.**

- Block the opposite headlamp from projecting a beam pattern onto the adjustment screen, using a suitable object. Aim each headlamp individually.

CAUTION:

Do not cover the lens surface with a tape etc. The lens is made of resin.

- Place the screen on the same level and flat surface as the vehicle.

NOTE:

Surface should be free of any debris that would cause a difference between the headlamp center and the adjustment screen.

- Face the front of the vehicle to the screen and measure distance between the headlamp center and the screen surface.

HEADLAMP AIMING ADJUSTMENT

< PERIODIC MAINTENANCE >

[LED HEADLAMP]

Distance between the headlamp center and the screen (D) : 7.62 m (25 ft)

5. Start the engine. Turn the headlamp on.
6. Determine the preferred vertical aim range dimensions, using the aiming chart.
7. Measure the projected beam within the aim evaluation segment on the screen.
8. Adjust the beam pattern of each headlamp until the aim evaluation segment (the area relative to both the highest and lowest cutoff line height) is positioned within the vertical aim range dimensions shown on the aiming chart.

A

B

C

D

E

F

G

H

I

J

K

EXL

M

N

O

P

FRONT FOG LAMP AIMING ADJUSTMENT

< PERIODIC MAINTENANCE >

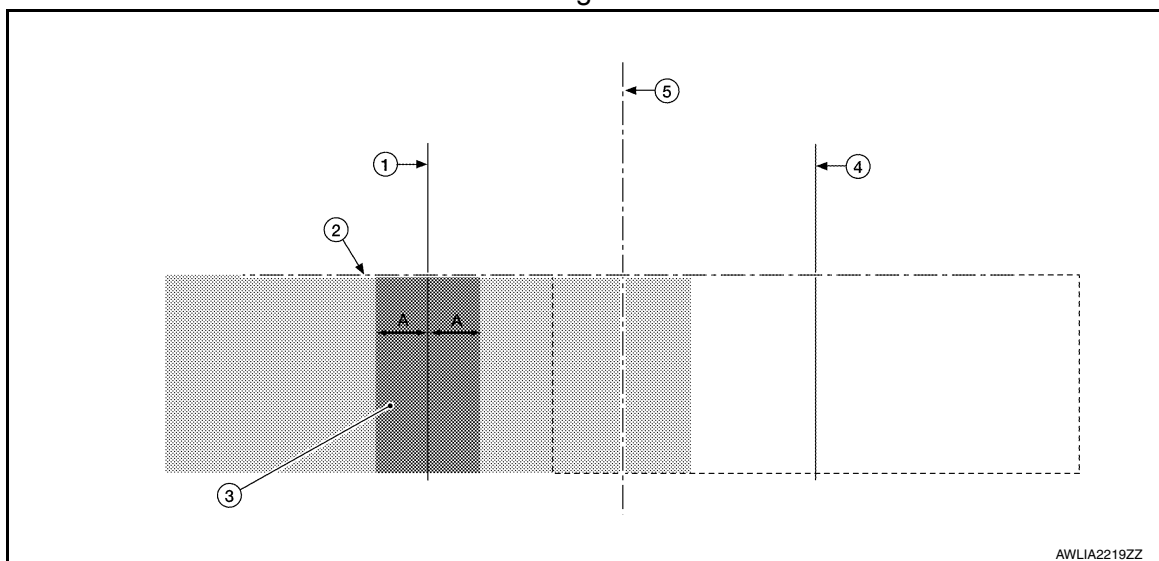
[LED HEADLAMP]

FRONT FOG LAMP AIMING ADJUSTMENT

Aiming Adjustment Procedure

INFOID:000000010247824

Aiming Chart



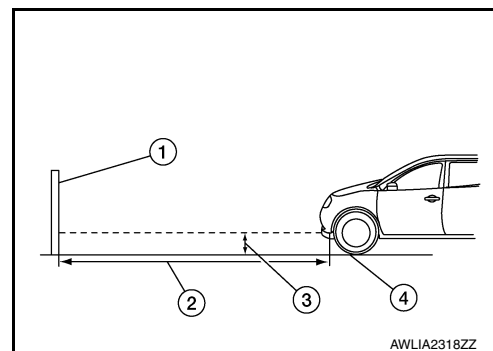
- | | | |
|--|-----------------------------|--------------------------------------|
| 1. Vertical center line of fog lamp (LH) | 2. Lamp center above ground | 3. Fog lamp high intensity area (LH) |
| 4. Vertical center line of fog lamp (RH) | 5. Vertical center axis | A. 100mm (4in) |

NOTE:

- (LH) Fog lamp aiming specifications shown, (RH) similar.
- Check the following conditions before performing the aiming adjustment.
 - Keep all tires inflated to correct pressure.
 - Place vehicle on level ground.
 - See that vehicle is unloaded (except for full levels of coolant, engine oil and fuel, and spare tire, jack, and tools). Have the driver or equivalent weight placed in driver seat.
 - When performing adjustment, if necessary, cover the headlamps and opposite fog lamp.

1. Set the distance between the screen and the center of the fog lamp lens as shown.

- (1) Aiming screen or a matte white surface
- (2) 7.62 m (25 ft)
- (3) Floor to center of fog lamp lens
- (4) Floor



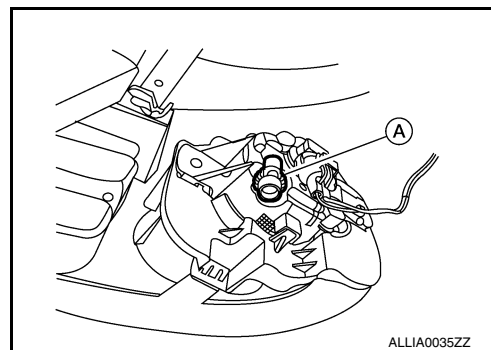
2. Turn front fog lamps ON.

FRONT FOG LAMP AIMING ADJUSTMENT

< PERIODIC MAINTENANCE >

[LED HEADLAMP]

3. Access adjusting screw (A) from underneath front bumper fascia. Adjust front fog lamps using adjusting screw so that the top edge of the high intensity zone is at the fog lamp centers above ground.



A

B

C

D

E

F

G

H

I

J

K

EXL

M

N

O

P

FRONT COMBINATION LAMP

< REMOVAL AND INSTALLATION >

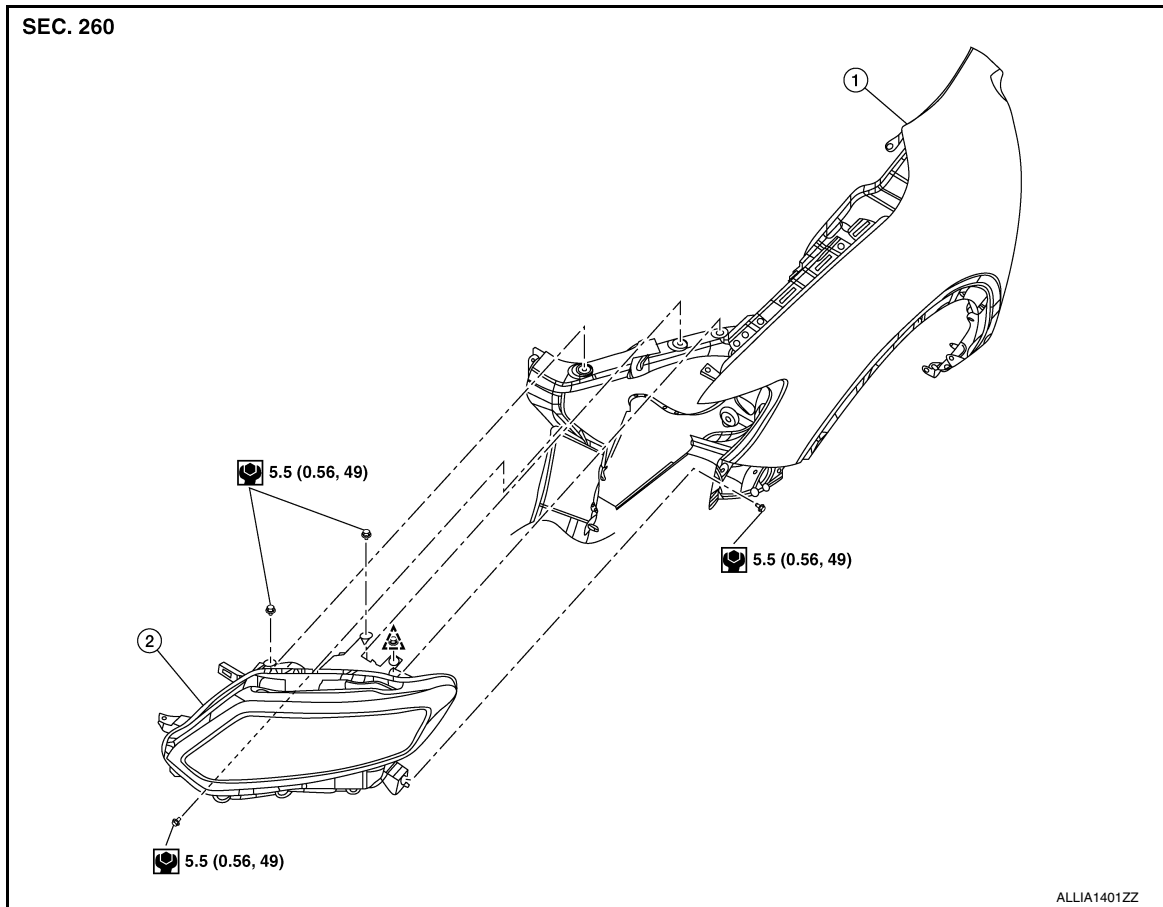
[LED HEADLAMP]

REMOVAL AND INSTALLATION

FRONT COMBINATION LAMP

Exploded View

INFOID:0000000010247825



1. Front fender

2. Front combination lamp

Clip

Removal and Installation

INFOID:0000000010247826

REMOVAL

1. Remove front bumper fascia. Refer to [EXT-17, "Removal and Installation"](#).
2. Remove front combination lamp bolts and clip.
3. Pull front combination lamp forward.
4. Disconnect the harness connectors from the front combination lamp and remove.

INSTALLATION

Installation is in the reverse order of removal.

NOTE:

After installation, perform headlamp aiming adjustment. Refer to [EXL-114, "Inspection"](#).

Bulb Replacement

INFOID:0000000010247827

HEADLAMP (LOW BEAM) BULB

The headlamp (low beam) bulb is not serviced separately. Refer to [EXL-119, "Removal and Installation"](#).

HEADLAMP (HIGH BEAM) BULB

The headlamp (high beam) bulb is not serviced separately. Refer to [EXL-119, "Removal and Installation"](#).

FRONT COMBINATION LAMP

< REMOVAL AND INSTALLATION >

[LED HEADLAMP]

PARKING (SIDE MARKER) LAMP BULB

The parking lamp (side marker) bulb is not serviced separately. Refer to [EXL-119. "Removal and Installation"](#).

TURN SIGNAL LAMP BULB

Removal

1. Rotate bulb socket counterclockwise and remove from the front combination lamp.
2. Remove the bulb from bulb socket.

Installation

Installation is in the reverse order of removal.

CAUTION:

After installing the bulb, install the bulb socket securely for watertightness.

A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

HEIGHT SENSOR

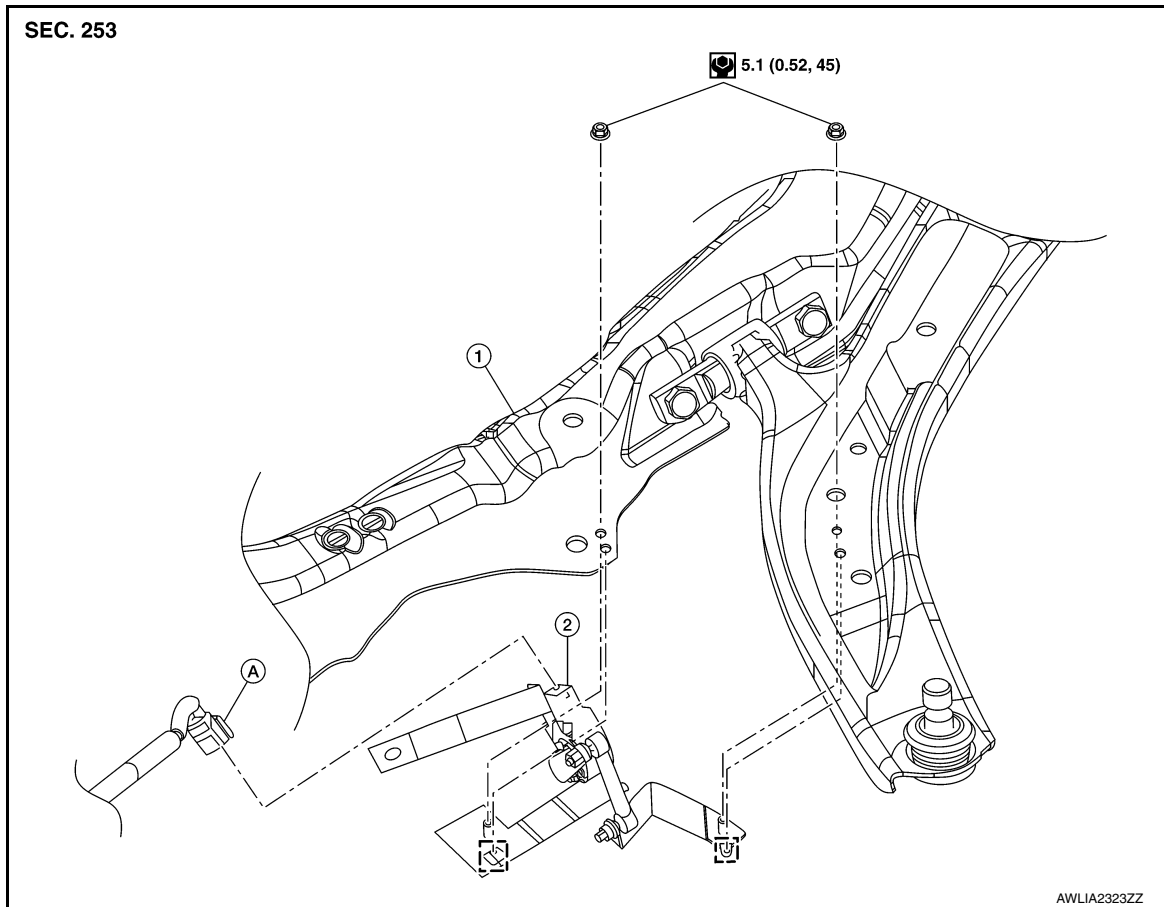
< REMOVAL AND INSTALLATION >

[LED HEADLAMP]

HEIGHT SENSOR

Exploded View

INFOID:0000000010353869



1. Front suspension member

2. Front height sensor

A. Harness connector

Locator

Removal and Installation - Front Height Sensor

INFOID:0000000010335195

REMOVAL

1. Disconnect the harness connector from the front height sensor.
2. Remove the nuts and the front height sensor.

INSTALLATION

Installation is in the reverse order of removal.

After installation, perform height sensor initialization. Refer to [EXL-222, "SENSOR INITIALIZE : Description"](#).

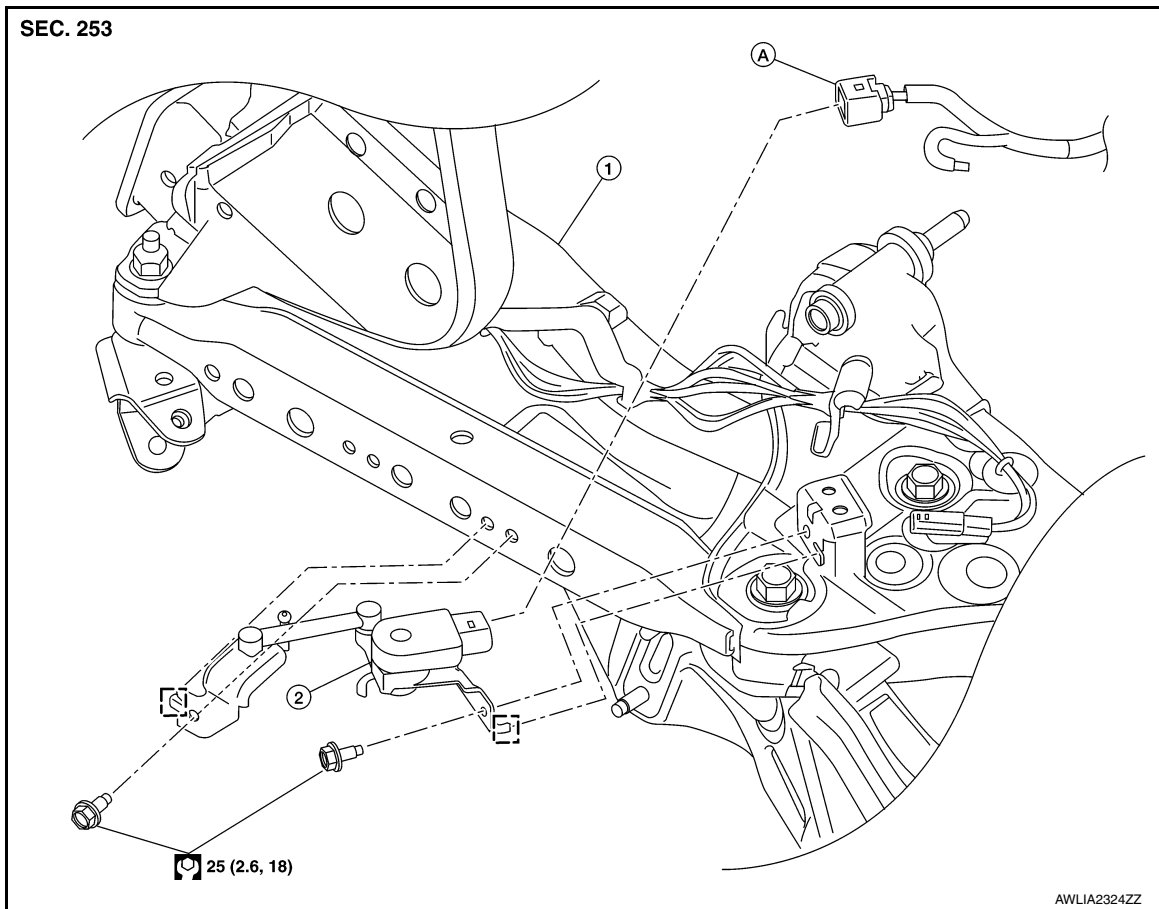
HEIGHT SENSOR

< REMOVAL AND INSTALLATION >

[LED HEADLAMP]

Exploded View

INFOID:000000010353870



1. Rear suspension member

2. Rear height sensor

A. Harness connector

Locator

Removal and Installation - Rear Height Sensor

INFOID:000000010335196

REMOVAL

1. Disconnect the harness connector from the rear height sensor.
2. Remove the bolts and rear height sensor.

INSTALLATION

Installation is in the reverse order of removal.

After installation, perform height sensor initialization. Refer to [EXL-222, "SENSOR INITIALIZE : Description"](#).

FOG LAMP

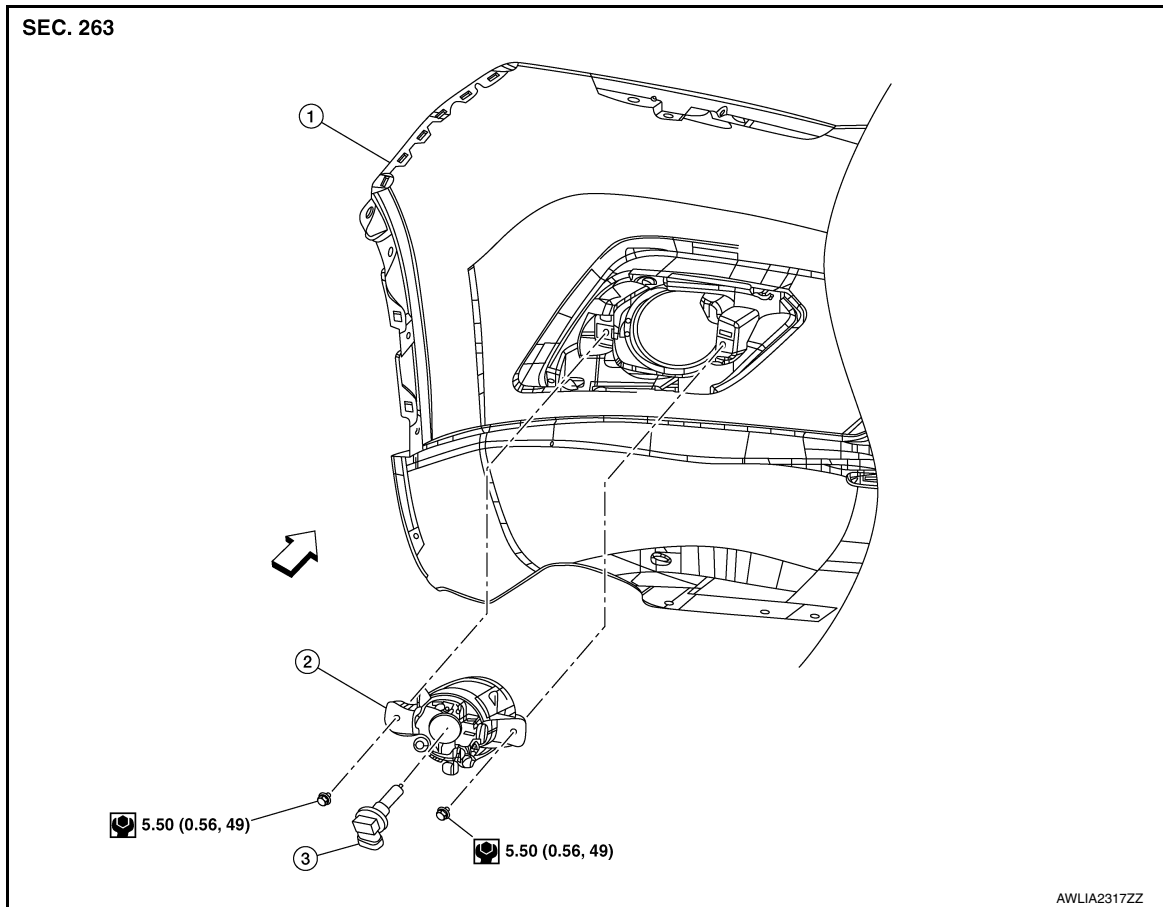
< REMOVAL AND INSTALLATION >

[LED HEADLAMP]

FOG LAMP

Exploded View

INFOID:0000000010247829



1. Front bumper fascia

2. Fog lamp

3. Fog lamp bulb

⇐ Front

Removal and Installation

INFOID:0000000010247830

REMOVAL

1. Partially remove front fender protector. Refer to [EXT-28. "FENDER PROTECTOR : Exploded View"](#).
2. Disconnect the harness connector from the fog lamp.
3. Remove fog lamp bolts and fog lamp.

INSTALLATION

Installation in the reverse order of removal.

NOTE:

After installation, perform fog lamp aiming adjustment. Refer to [EXL-117. "Aiming Adjustment Procedure"](#).

Bulb Replacement

INFOID:0000000010247831

WARNING:

Do not touch bulb by hand while it is lit or right after being turned off. Burning may result.

CAUTION:

- Do not touch the glass surface of the bulb with bare hands or allow oil or grease to get on it to prevent damage to the bulb.
- Do not leave bulb out of lamp reflector for a long time because dust, moisture smoke, etc. may affect the performance of lamp. When replacing bulb, be sure to replace it with new one.

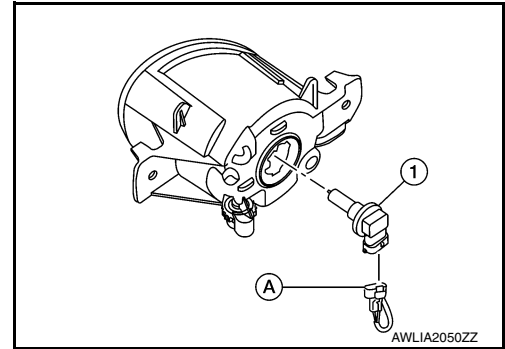
FOG LAMP

< REMOVAL AND INSTALLATION >

[LED HEADLAMP]

REMOVAL

1. Partially remove front fender protector. Refer to [EXT-28. "FENDER PROTECTOR : Exploded View"](#).
2. Disconnect the harness connector from the fog lamp (A).
3. Rotate bulb (1) counterclockwise and remove.



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

After installing the bulb, install the bulb socket securely for watertightness.

A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

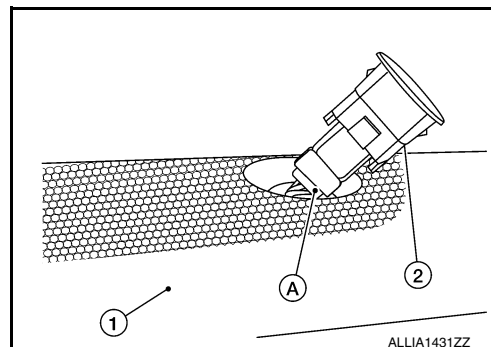
OPTICAL SENSOR

Removal and Installation

INFOID:0000000010335202

REMOVAL

1. Release the optical sensor (2) from defroster grille (1) using a suitable tool.
2. Disconnect the harness connector (A) from the optical sensor (2) and remove.



INSTALLATION

Installation is in the reverse order of removal.

COMBINATION SWITCH

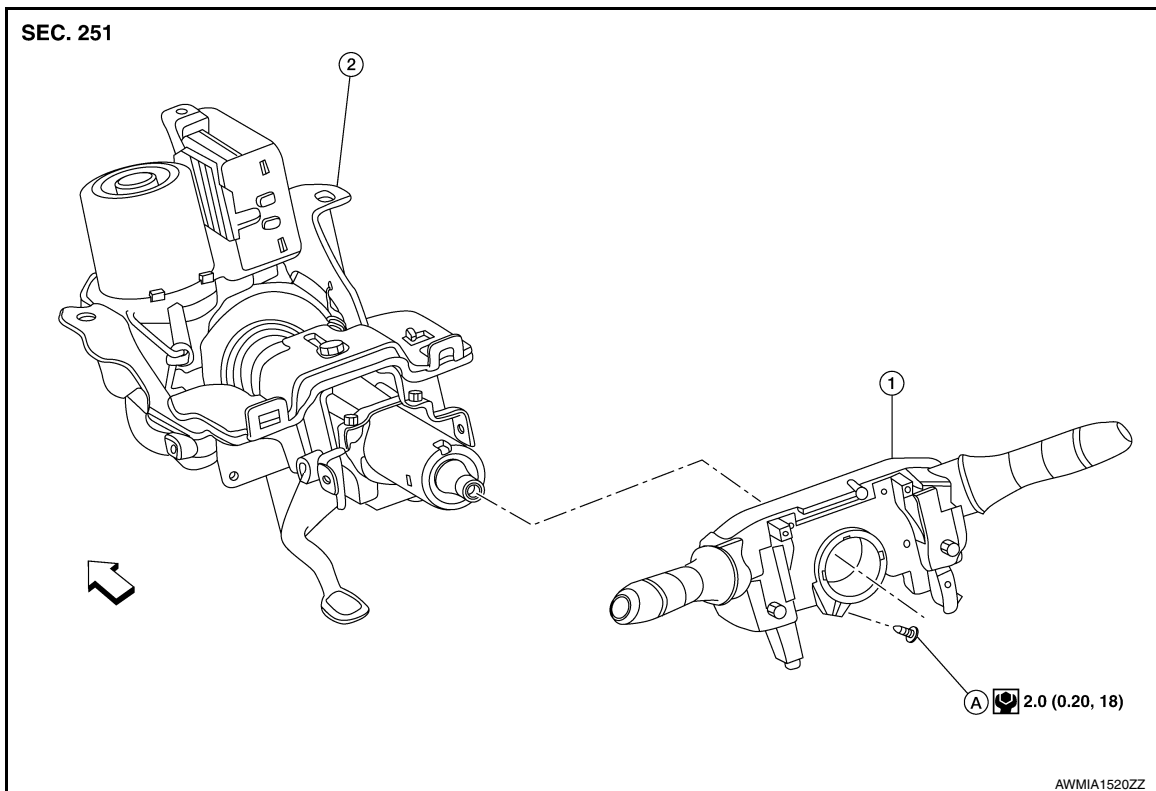
< REMOVAL AND INSTALLATION >

[LED HEADLAMP]

COMBINATION SWITCH

Exploded View

INFOID:0000000010351324



1. Combination switch

2. Steering column

A. Screw

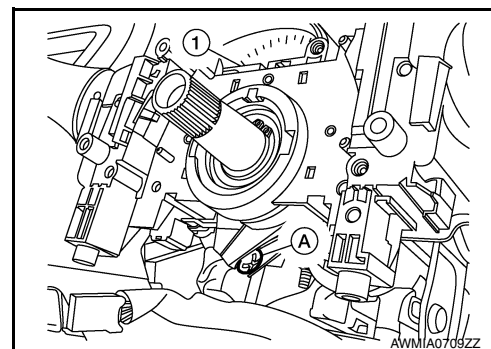
⇐ Front

Removal and Installation

INFOID:0000000010351325

REMOVAL

1. Remove the steering angle sensor. Refer to [BRC-139. "Removal and Installation"](#).
2. Disconnect harness connector from combination switch.
3. Remove screw (A) and combination switch (1).



INSTALLATION

Installation is in the reverse order of removal.

HAZARD SWITCH

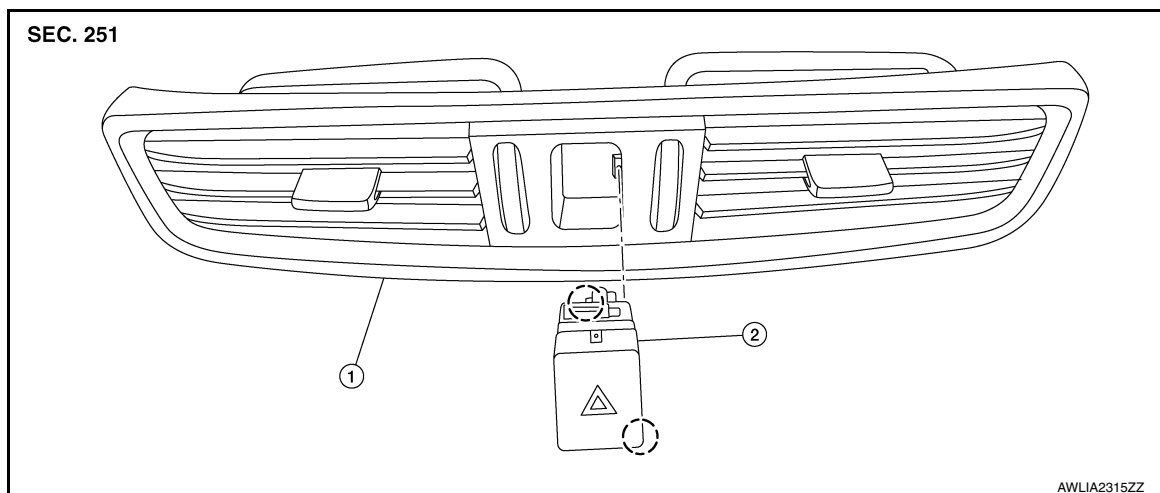
< REMOVAL AND INSTALLATION >

[LED HEADLAMP]

HAZARD SWITCH

Exploded View

INFOID:0000000010247834



1. Center ventilator grille

2. Hazard switch

 Pawl

Removal and Installation

INFOID:0000000010247835

REMOVAL

1. Remove center ventilator grille. Refer to [VTL-13, "CENTER VENTILATOR GRILLE : Removal and Installation"](#).
2. Release the pawls and remove the hazard switch.

INSTALLATION

Installation is in the reverse order of removal.

SIDE TURN SIGNAL LAMP

< REMOVAL AND INSTALLATION >

[LED HEADLAMP]

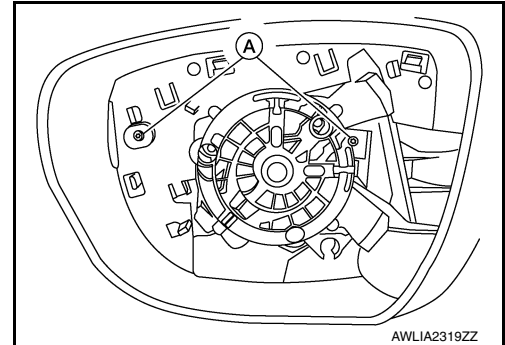
SIDE TURN SIGNAL LAMP

Removal and Installation

INFOID:0000000010365194

REMOVAL

1. Remove door mirror rear finisher. Refer to [MIR-25, "Removal and Installation"](#).
2. Remove door mirror glass. Refer to [MIR-24, "Removal and Installation"](#).
3. Remove the screws (A) and reposition side turn signal lamp.



4. Disconnect the harness connector from the side turn signal lamp and remove.

INSTALLATION

Installation is in the reverse order of removal.

Bulb Replacement

INFOID:0000000010365196

The side turn signal lamp bulb is not serviced separately. Refer to [EXL-126, "Removal and Installation"](#).

REAR COMBINATION LAMP

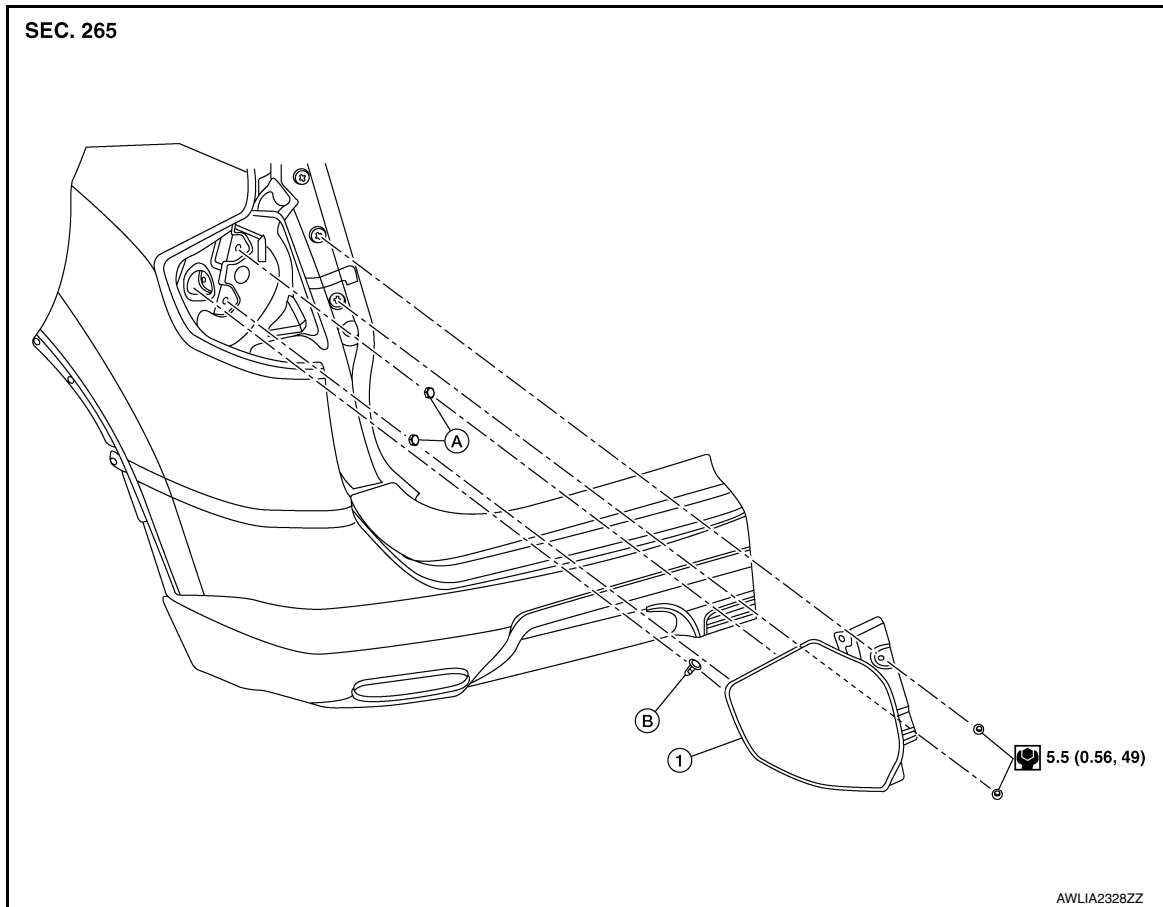
< REMOVAL AND INSTALLATION >

[LED HEADLAMP]

REAR COMBINATION LAMP

Exploded View

INFOID:000000010247838



1. Rear combination lamp

A. Grommet

B. Clip

Removal and Installation

INFOID:000000010247839

REMOVAL

1. Remove side air spoiler. Refer to [EXT-48, "Removal and Installation"](#).
2. Remove rear combination lamp bolts.
3. Pull rear combination lamp rearward to release from clip and locators.
4. Disconnect the harness connector from the rear combination lamp and remove.

INSTALLATION

Installation is in the reverse order of removal.

Bulb Replacement

INFOID:000000010338571

WARNING:

Do not touch bulb with bare hand while it is lit or right after being turned off. Burning may result.

CAUTION:

- Do not touch the glass surface of the bulb with bare hands or allow oil or grease to get on it to prevent damage to the bulb.
- Do not leave bulb out of lamp reflector for a long time because dust, moisture smoke, etc. may affect the performance of lamp. When replacing bulb, be sure to replace it with new one.

STOP LAMP BULB

REAR COMBINATION LAMP

< REMOVAL AND INSTALLATION >

[LED HEADLAMP]

Removal

1. Remove rear combination lamp. Refer to [EXL-127. "Removal and Installation"](#).
2. Rotate stop lamp bulb socket counterclockwise and remove.
3. Remove stop lamp bulb from bulb socket.

Installation

Installation is in the reverse order of removal.

CAUTION:

After installing the bulb, install bulb socket securely for watertightness.

TAIL LAMP BULB

Removal

1. Remove rear combination lamp. Refer to [EXL-127. "Removal and Installation"](#).
2. Rotate tail lamp bulb socket counterclockwise and remove.
3. Remove tail lamp bulb from bulb socket.

Installation

Installation is in the reverse order of removal.

CAUTION:

After installing the bulb, install bulb socket securely for watertightness.

TURN SIGNAL LAMP BULB

Removal

1. Remove rear combination lamp. Refer to [EXL-127. "Removal and Installation"](#).
2. Rotate turn signal lamp bulb socket counterclockwise and remove.
3. Remove turn signal lamp bulb from bulb socket.

Installation

Installation is in the reverse order of removal.

CAUTION:

After installing the bulb, install bulb socket securely for watertightness.

A

B

C

D

E

F

G

H

I

J

K

EXL

M

N

O

P

HIGH-MOUNTED STOP LAMP

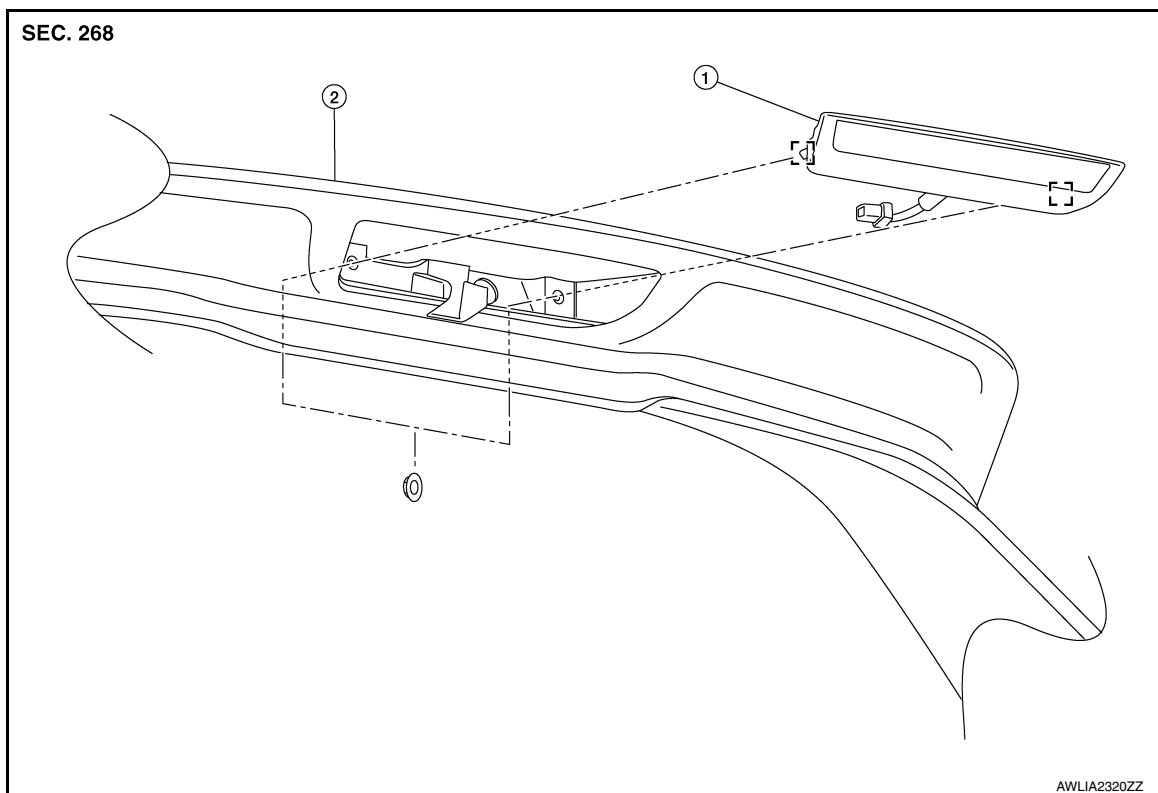
< REMOVAL AND INSTALLATION >

[LED HEADLAMP]

HIGH-MOUNTED STOP LAMP

Exploded View

INFOID:0000000010247841



Removal and Installation

INFOID:0000000010247842

REMOVAL

1. Remove access cover using a suitable tool. Refer to [INT-38, "Exploded View"](#).
2. Remove high-mounted stop lamp nuts.
3. Disconnect the harness connector from high-mounted stop lamp and remove.

INSTALLATION

Installation is in the reverse order of removal.

Bulb Replacement

INFOID:0000000010338577

HIGH-MOUNTED STOP LAMP BULB

The high-mounted stop lamp bulb is not serviced separately. Refer to [EXL-129, "Removal and Installation"](#).

BACK-UP LAMP ASSEMBLY

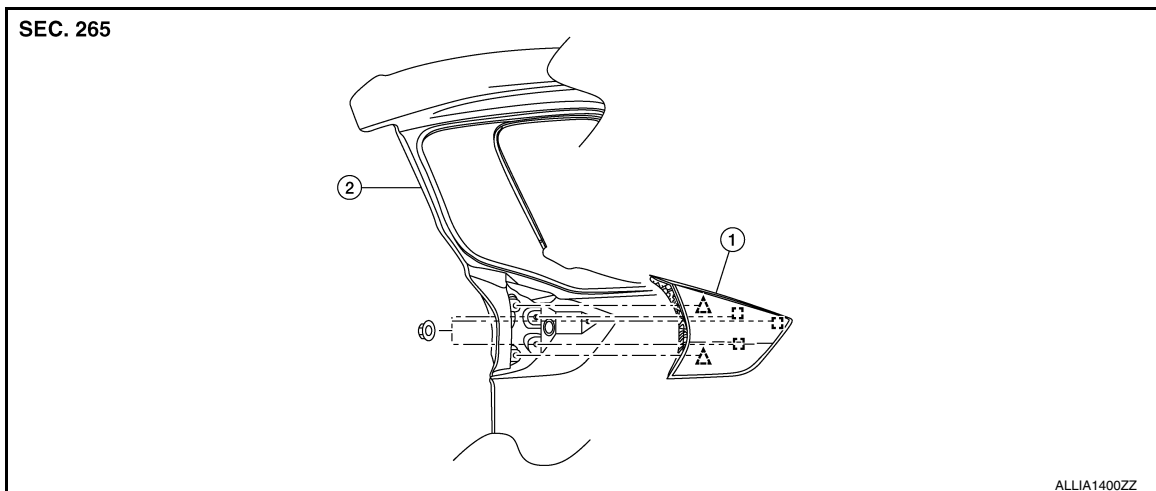
< REMOVAL AND INSTALLATION >

[LED HEADLAMP]

BACK-UP LAMP ASSEMBLY

Exploded View

INFOID:0000000010247843



1. Back-up lamp assembly

2. Back door

△ Clip

□ Stud

Removal and Installation

INFOID:0000000010247844

REMOVAL

1. Remove back door finisher. Refer to [INT-38. "Removal and Installation"](#).
2. Remove back-up lamp assembly nuts.
3. Pull back-up lamp assembly rearward, disconnect the harness connector and remove.

INSTALLATION

Installation is in the reverse order of removal.

Bulb Replacement

INFOID:0000000010247845

WARNING:

Do not touch bulb with bare hand while it is lit or right after being turned off. Burning may result.

CAUTION:

- Do not touch the glass surface of the bulb with bare hands or allow oil or grease to get on it to prevent damage to the bulb.
- Do not leave bulb out of lamp reflector for a long time because dust, moisture smoke, etc. may affect the performance of lamp. When replacing bulb, be sure to replace it with new one.

TAIL LAMP BULB

Removal

1. Remove back-up lamp assembly. Refer to [EXL-130. "Removal and Installation"](#).
2. Rotate tail lamp bulb socket counterclockwise and remove.
3. Remove tail lamp bulb from bulb socket.

Installation

Installation is in the reverse order of removal.

CAUTION:

After installing the bulb, install bulb socket securely for watertightness.

BACK-UP LAMP BULB

Removal

BACK-UP LAMP ASSEMBLY

[LED HEADLAMP]

< REMOVAL AND INSTALLATION >

1. Remove back-up lamp assembly. Refer to [EXL-130, "Removal and Installation"](#).
2. Rotate back-up lamp bulb socket counterclockwise and remove.
3. Remove back-up lamp bulb from bulb socket.

Installation

Installation is in the reverse order of removal.

CAUTION:

After installing the bulb, install bulb socket securely for watertightness.

LICENSE PLATE LAMP

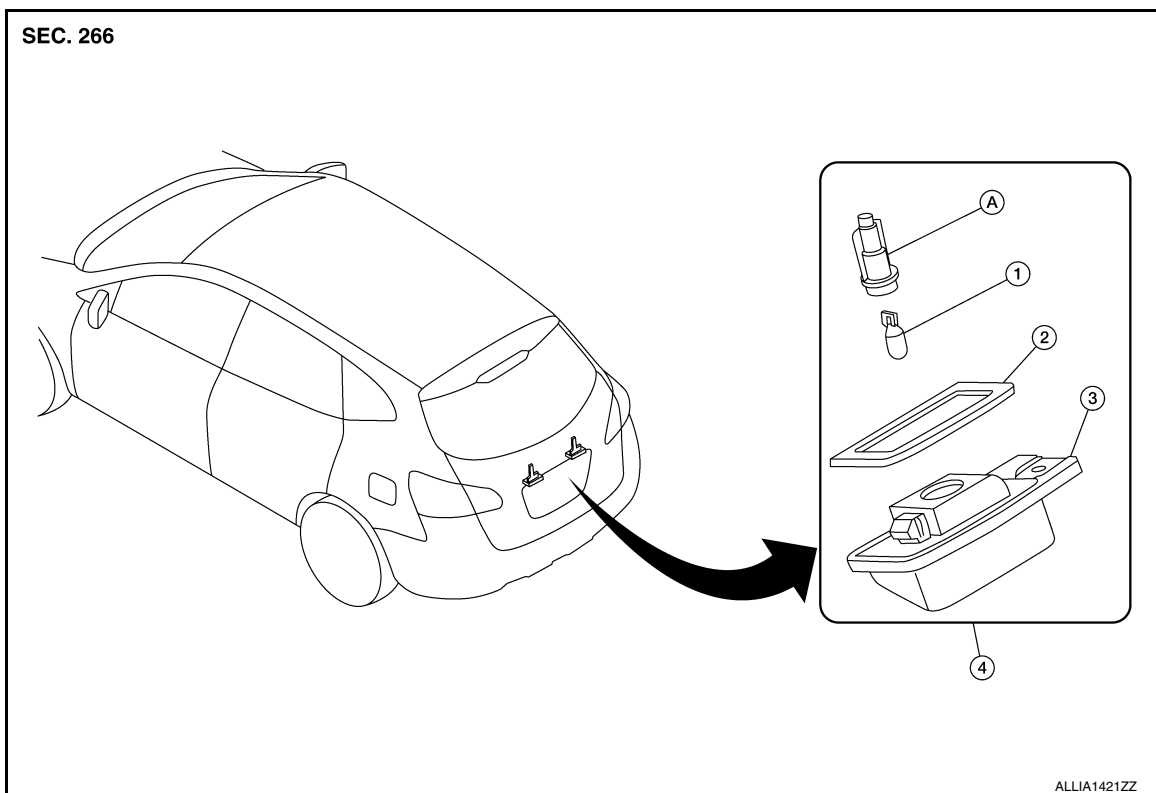
< REMOVAL AND INSTALLATION >

[LED HEADLAMP]

LICENSE PLATE LAMP

Exploded View

INFOID:000000010365390



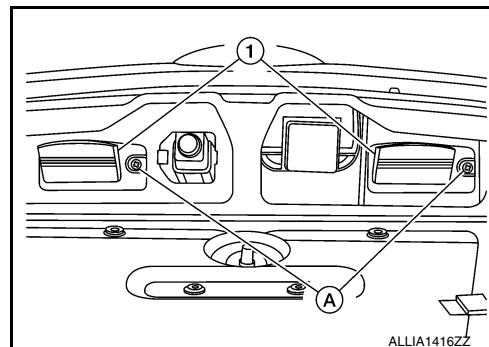
- | | | |
|--------------------------------|-----------------------------------|-----------------------|
| 1. License plate lamp bulb | 2. License plate lamp seal | 3. License plate lamp |
| 4. License plate lamp assembly | A. License plate lamp bulb socket | |

Removal and Installation

INFOID:000000010247847

REMOVAL

1. Release the license lamp finisher. Refer to [EXT-50. "Exploded View"](#).
2. Remove the screw (A) (LH or RH) and pull license plate lamp (1) (LH or RH) rearward.



3. Disconnect the harness connector from the license plate lamp and remove.

INSTALLATION

Installation is in the reverse order of removal.

Bulb Replacement

INFOID:000000010247848

WARNING:

Do not touch bulb with your hand while it is on or right after being turned off. Burning may result.

LICENSE PLATE LAMP

< REMOVAL AND INSTALLATION >

[LED HEADLAMP]

CAUTION:

- Do not touch the glass surface of the bulb with bare hands or allow oil or grease to get on it to prevent damage to the bulb.
- Do not leave bulb out of lamp reflector for a long time because dust, moisture smoke, etc. may affect the performance of lamp. When replacing bulb, be sure to replace it with new one.

REMOVAL

1. Remove license plate lamp. Refer to [EXL-283. "Removal and Installation"](#).
2. Rotate license plate lamp bulb socket counterclockwise and remove.
3. Remove license plate lamp bulb from bulb socket.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

After installing the bulb, install the bulb socket securely for watertightness.

FRONT COMBINATION LAMP

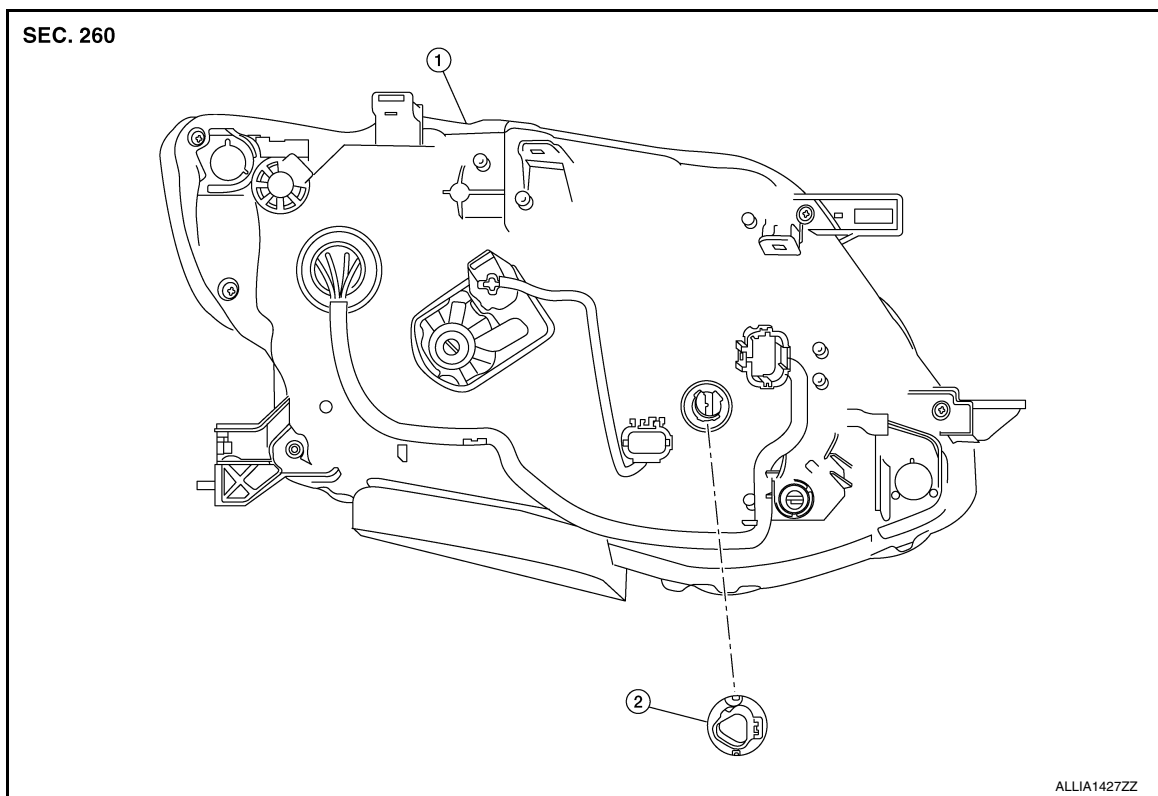
< UNIT DISASSEMBLY AND ASSEMBLY >

[LED HEADLAMP]

UNIT DISASSEMBLY AND ASSEMBLY

FRONT COMBINATION LAMP

Exploded View



1. Front combination lamp

2. Turn signal lamp bulb socket

Disassembly and Assembly

INFOID:0000000010377948

DISASSEMBLY

1. Remove front combination lamp. Refer to [EXL-268, "Removal and Installation"](#).
2. Rotate the turn signal lamp bulb socket counterclockwise and remove.
3. Remove the turn signal lamp bulb from the bulb socket.

ASSEMBLY

Assembly is in the reverse order of disassembly.

REAR COMBINATION LAMP

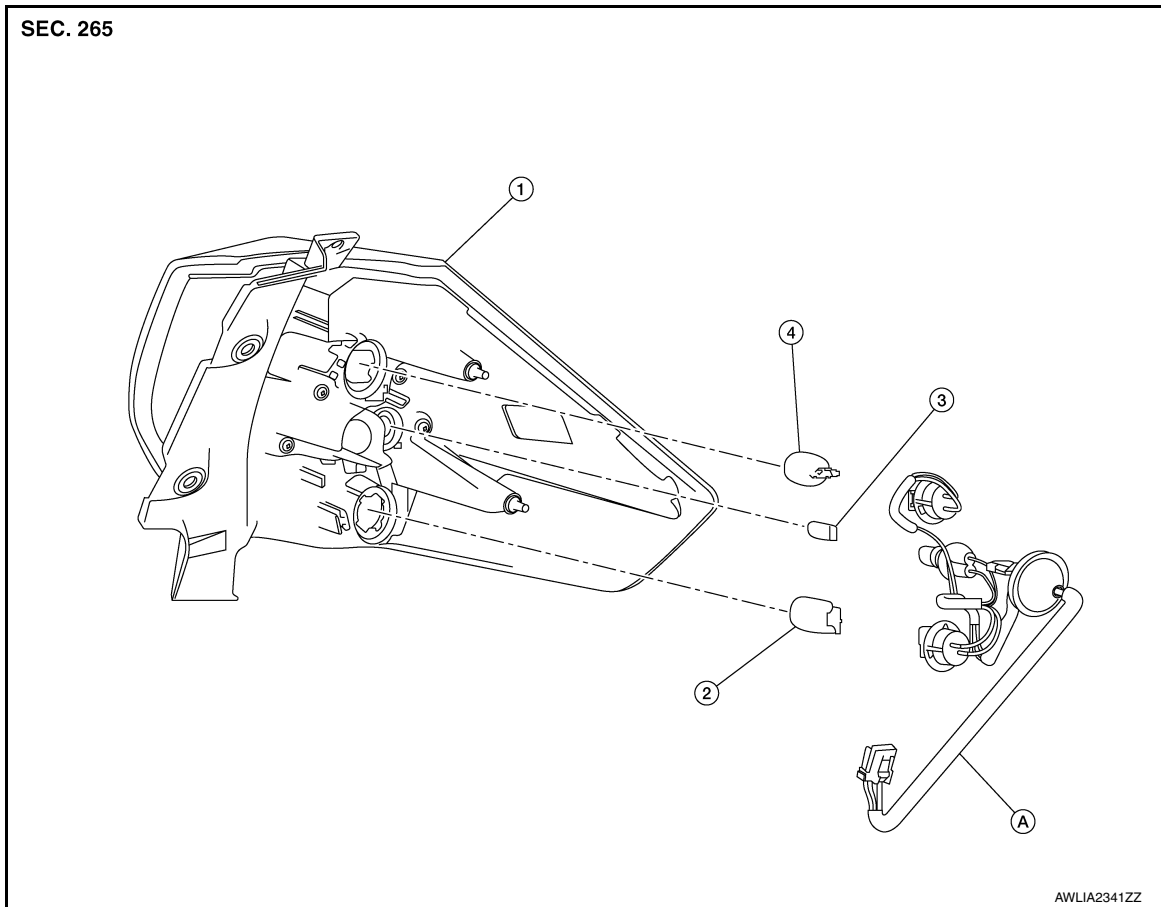
< UNIT DISASSEMBLY AND ASSEMBLY >

[LED HEADLAMP]

REAR COMBINATION LAMP

Exploded View

INFOID:0000000010377949



- | | | |
|--------------------------|----------------------------------|-------------------|
| 1. Rear combination lamp | 2. Turn signal lamp bulb | 3. Tail lamp bulb |
| 4. Stop lamp bulb | A. Rear combination lamp harness | |

Disassembly and Assembly

INFOID:0000000010377950

DISASSEMBLY

1. Remove rear combination lamp. Refer to [EXL-278, "Removal and Installation"](#).
2. Rotate the stop lamp bulb socket counterclockwise and remove.
3. Remove the stop lamp bulb from the bulb socket.
4. Rotate the tail lamp bulb socket counterclockwise and remove.
5. Remove the tail lamp bulb from the bulb socket.
6. Rotate the turn signal lamp bulb socket counterclockwise and remove.
7. Remove the turn signal lamp bulb from bulb socket.

ASSEMBLY

Assembly is in the reverse order of disassembly.

CAUTION:

After installing, be sure to install the bulb sockets securely to ensure watertightness.

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

[LED HEADLAMP]

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

Bulb Specifications

INFOID:0000000010336294

Item		Wattage (W)*
Front combination lamp	High beam	—
	Low beam	—
	Turn signal lamp	28/8
	Parking (side marker) lamp	—
	Daytime running lamp	—
Fog lamp		55
Side turn signal lamp		—
Rear combination lamp	Stop lamp	21
	Tail lamp	5
	Turn signal lamp	21
Back-up lamp	Tail lamp	5
	Back-up lamp	16
License plate lamp		5
High-mounted stop lamp		—

*: Always check with the Parts Department for the latest parts info.

A
B
C
D
E
F
G
H
I
J
K
EXL
M
N
O
P

SECTION **EXT** EXTERIOR

CONTENTS

PRECAUTION	3	FENDER PROTECTOR	28
PRECAUTIONS	3	FENDER PROTECTOR	28
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	3	FENDER PROTECTOR : Exploded View	28
Precaution for Procedure without Cowl Top Cover.....	3	FENDER PROTECTOR : Removal and Installation	28
Precaution for Work	3	REAR WHEEL HOUSE PROTECTOR	29
PREPARATION	5	REAR WHEEL HOUSE PROTECTOR : Exploded View	29
PREPARATION	5	REAR WHEEL HOUSE PROTECTOR : Removal and Installation	29
Special Service Tool	5	OVER FENDER	30
Commercial Service Tool	5	FRONT OVER FENDER	30
CLIP LIST	6	FRONT OVER FENDER : Exploded View	30
Descriptions for Clips	6	FRONT OVER FENDER : Removal and Installation	30
SYMPTOM DIAGNOSIS	10	REAR OVER FENDER	31
SQUEAK AND RATTLE TROUBLE DIAGNOSES	10	REAR OVER FENDER : Exploded View	32
Work Flow	10	REAR OVER FENDER : Removal and Installation.....	32
Generic Squeak and Rattle Troubleshooting	11	MUDGUARD	34
Diagnostic Worksheet	14	Exploded View	34
REMOVAL AND INSTALLATION	16	Removal and Installation	34
FRONT BUMPER	16	Exploded View - Center Mudguard	35
Exploded View	16	Removal and Installation - Center Mudguard	35
Removal and Installation	17	UNDER COVER	37
REAR BUMPER	20	Exploded View	37
Exploded View	20	ENGINE UNDER COVER	37
Removal and Installation	20	ENGINE UNDER COVER : Removal and Installation	37
FRONT GRILLE	23	FLOOR UNDER COVER	37
Exploded View	23	FLOOR UNDER COVER : Removal and Installation	37
Removal and Installation	23	ROOF SIDE MOLDING	39
COWL TOP	25	Exploded View	39
Exploded View	25		
Removal and Installation	25		

Removal and Installation	39	DOOR OUTSIDE LOWER MOLDING	45
DOOR SASH MOLDING	40	Exploded View	45
Exploded View	40	Removal and Installation	45
Removal and Installation	40	REAR SPOILER	47
DOOR OUTSIDE MOLDING	42	Removal and Installation	47
Exploded View	42	SIDE AIR SPOILER	48
Removal and Installation	42	Exploded View	48
ROOF RACK	44	Removal and Installation	48
Exploded View	44	BACK DOOR OUTER FINISHER	50
Removal and Installation	44	Exploded View	50
		Removal and Installation	50

PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010249311

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

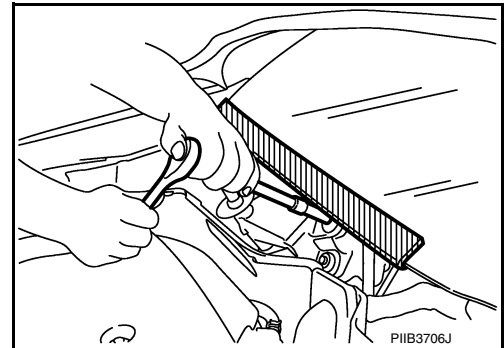
WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Precaution for Procedure without Cowl Top Cover

INFOID:0000000010249312

When performing the procedure after removing cowl top cover, cover the lower end of windshield with urethane, etc to prevent damage to windshield.



Precaution for Work

INFOID:0000000010249313

- When removing or disassembling each component, be careful not to damage or deform it. If a component may be subject to interference, be sure to protect it with a shop cloth.
- When removing (disengaging) components with a screwdriver or similar tool, be sure to wrap the component with a shop cloth or vinyl tape to protect it.
- Protect the removed parts with a shop cloth and prevent them from being dropped.
- Replace a deformed or damaged clip.
- If a part is specified as a non-reusable part, always replace it with a new one.
- Be sure to tighten bolts and nuts securely to the specified torque.
- After installation is complete, be sure to check that each part works properly.
- Follow the steps below to clean components:
 - Water soluble dirt:
 - Dip a soft cloth into lukewarm water, wring the water out of the cloth and wipe the dirty area.
 - Then rub with a soft, dry cloth.
 - Oily dirt:

PRECAUTIONS

< PRECAUTION >

- Dip a soft cloth into lukewarm water with mild detergent (concentration: within 2 to 3%) and wipe the dirty area.
- Then dip a cloth into fresh water, wring the water out of the cloth and wipe the detergent off.
- Then rub with a soft, dry cloth.
- Do not use organic solvent such as thinner, benzene, alcohol or gasoline.
- For genuine leather seats, use a genuine leather seat cleaner.

PREPARATION

< PREPARATION >

PREPARATION

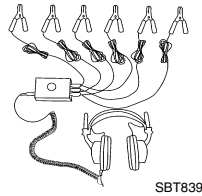
PREPARATION

Special Service Tool

INFOID:000000010249322

The actual shape of the tools may differ from those illustrated here.

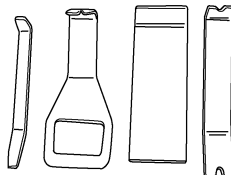
Tool number (TechMate No.) Tool name	Description
— (J-39570) Chassis Ear	Locating the noise
— (J-50397) NISSAN Squeak and Rattle Kit	Repairing the cause of noise
— (J-46534) Trim Tool Set	Removing trim components



SBT839



ALJIA1232ZZ

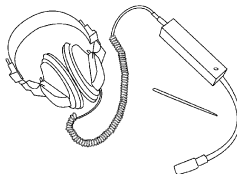


AWJIA0483ZZ

Commercial Service Tool

INFOID:000000010249323

(TechMate No.) Tool name	Description
(J-39565) Engine Ear	Locating the noise



SIIA0995E

CLIP LIST

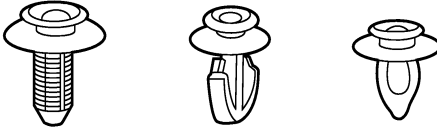
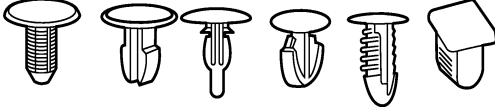
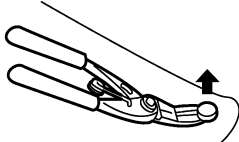
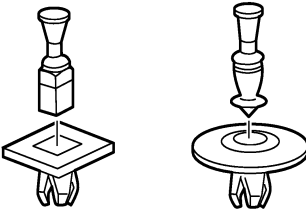
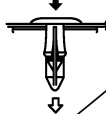
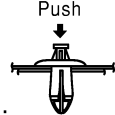
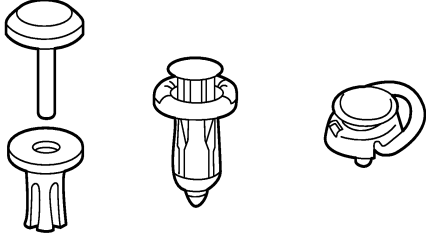
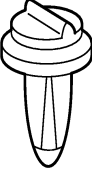
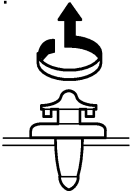
< PREPARATION >

CLIP LIST

Descriptions for Clips

INFOID:000000010249324

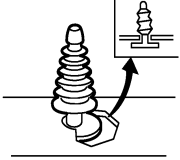
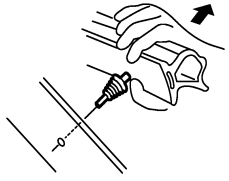
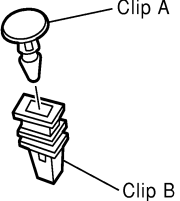
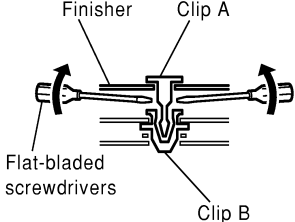
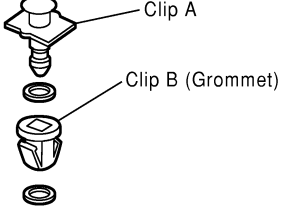
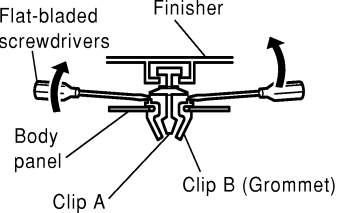
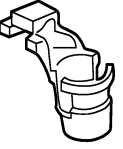
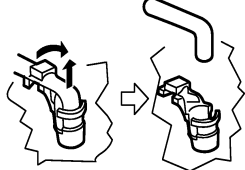
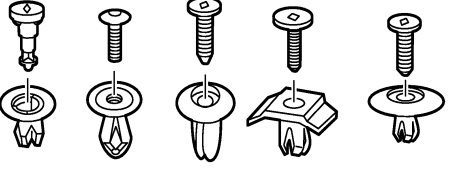
Replace any clips which are damaged during removal or installation.

Symbol No.	Shapes	Removal & Installation
C101 		Removal: Remove by bending up with flat-bladed screwdrivers or clip remover. 
C103 		 Removal: Remove with a clip remover.
C203 		Removal: Push center pin to catching position. (Do not remove center pin by hitting it.) Push  Installation: Push 
C205 		Removal: Flat-bladed screwdriver  Clip Finisher
C206 		Removal: 

SIIA0315E

CLIP LIST

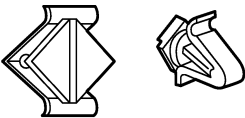
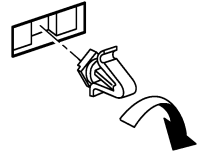
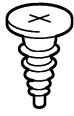
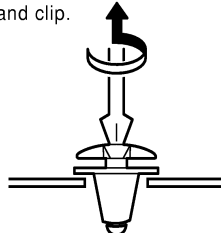
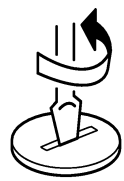
< PREPARATION >

Symbol No.	Shapes	Removal & Installation
CE103 		Removal: 
CF110 		Removal: 
CF118 		Removal: 
CR103 		Removal: Holder portion of clip must be spread out to remove rod. 
CS101 		Removal: 1. Screw out with a Phillips screwdriver. 2. Remove female portion with flat-bladed screwdriver. 

SIIA0316E

CLIP LIST

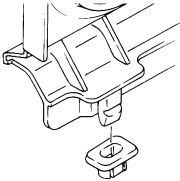
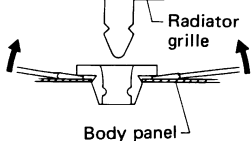
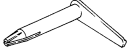
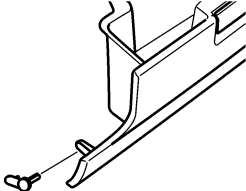
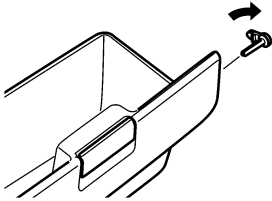
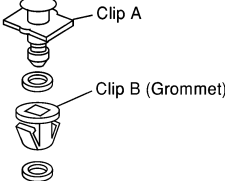
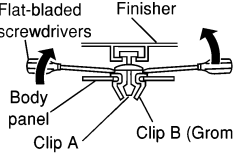
< PREPARATION >

Symbol No.	Shapes	Removal & Installation	
CG101 		Removal:  Rotate 45° to remove	Installation: 
CS102 			
CS113 		Removal: Disconnect upper connection of clip with a flat-bladed screwdriver, then remove clip while inserting a flat-bladed screwdriver between body panel and clip. 	
C111 			

SIIA0317E

CLIP LIST

< PREPARATION >

Symbol No.	Shapes	Removal & Installation
CG104 		Removal: Remove by bending up with flat-bladed screwdrivers. 
CE114 		
CF118 		Removal: Flat-bladed screwdrivers 

ALJIA0564GB

A
B
C
D
E
F
G
H
I
J
EXT
L
M
N
O
P

SQUEAK AND RATTLE TROUBLE DIAGNOSES

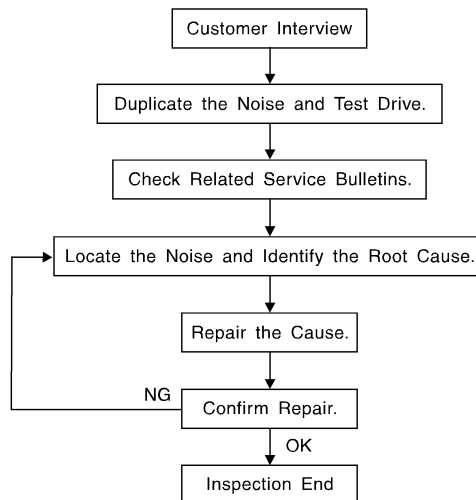
< SYMPTOM DIAGNOSIS >

SYMPTOM DIAGNOSIS

SQUEAK AND RATTLE TROUBLE DIAGNOSES

Work Flow

INFOID:0000000010249314



SBT842

CUSTOMER INTERVIEW

Interview the customer if possible, to determine the conditions that exist when the noise occurs. Use the Diagnostic Worksheet during the interview to document the facts and conditions when the noise occurs and any customer's comments; refer to [EXT-14, "Diagnostic Worksheet"](#). This information is necessary to duplicate the conditions that exist when the noise occurs.

- The customer may not be able to provide a detailed description or the location of the noise. Attempt to obtain all the facts and conditions that exist when the noise occurs (or does not occur).
- If there is more than one noise in the vehicle, be sure to diagnose and repair the noise that the customer is concerned about. This can be accomplished by test driving the vehicle with the customer.
- After identifying the type of noise, isolate the noise in terms of its characteristics. The noise characteristics are provided so the customer, service adviser and technician are all speaking the same language when defining the noise.
- Squeak —(Like tennis shoes on a clean floor)
Squeak characteristics include the light contact/fast movement/brought on by road conditions/hard surfaces = higher pitch noise/softer surfaces = lower pitch noises/edge to surface = chirping.
- Creak—(Like walking on an old wooden floor)
Creak characteristics include firm contact/slow movement/twisting with a rotational movement/pitch dependent on materials/often brought on by activity.
- Rattle—(Like shaking a baby rattle)
Rattle characteristics include the fast repeated contact/vibration or similar movement/loose parts/missing clip or fastener/incorrect clearance.
- Knock —(Like a knock on a door)
Knock characteristics include hollow sounding/sometimes repeating/often brought on by driver action.
- Tick—(Like a clock second hand)
Tick characteristics include gentle contacting of light materials/loose components/can be caused by driver action or road conditions.
- Thump—(Heavy, muffled knock noise)
Thump characteristics include softer knock/dead sound often brought on by activity.
- Buzz—(Like a bumble bee)
Buzz characteristics include high frequency rattle/firm contact.
- Often the degree of acceptable noise level will vary depending upon the person. A noise that you may judge as acceptable may be very irritating to the customer.
- Weather conditions, especially humidity and temperature, may have a great effect on noise level.

DUPLICATE THE NOISE AND TEST DRIVE

SQUEAK AND RATTLE TROUBLE DIAGNOSES

< SYMPTOM DIAGNOSIS >

If possible, drive the vehicle with the customer until the noise is duplicated. Note any additional information on the Diagnostic Worksheet regarding the conditions or location of the noise. This information can be used to duplicate the same conditions when you confirm the repair.

If the noise can be duplicated easily during the test drive, to help identify the source of the noise, try to duplicate the noise with the vehicle stopped by doing one or all of the following:

- 1) Close a door.
 - 2) Tap or push/pull around the area where the noise appears to be coming from.
 - 3) Rev the engine.
 - 4) Use a floor jack to recreate vehicle "twist".
 - 5) At idle, apply engine load (electrical load, half-clutch on M/T model, drive position on CVT and A/T models).
 - 6) Raise the vehicle on a hoist and hit a tire with a rubber hammer.
- Drive the vehicle and attempt to duplicate the conditions the customer states exist when the noise occurs.
 - If it is difficult to duplicate the noise, drive the vehicle slowly on an undulating or rough road to stress the vehicle body.

CHECK RELATED SERVICE BULLETINS

After verifying the customer concern or symptom, check ASIST for Technical Service Bulletins (TSBs) related to that concern or symptom.

If a TSB relates to the symptom, follow the procedure to repair the noise.

LOCATE THE NOISE AND IDENTIFY THE ROOT CAUSE

1. Narrow down the noise to a general area. To help pinpoint the source of the noise, use a listening tool (Chassis Ear: J-39570, Engine Ear: J-39565 and mechanic's stethoscope).
2. Narrow down the noise to a more specific area and identify the cause of the noise by:
 - removing the components in the area that you suspect the noise is coming from.
Do not use too much force when removing clips and fasteners, otherwise clips and fasteners can be broken or lost during the repair, resulting in the creation of new noise.
 - tapping or pushing/pulling the component that you suspect is causing the noise.
Do not tap or push/pull the component with excessive force, otherwise the noise will be eliminated only temporarily.
 - feeling for a vibration with your hand by touching the component(s) that you suspect is (are) causing the noise.
 - placing a piece of paper between components that you suspect are causing the noise.
 - looking for loose components and contact marks.Refer to [EXT-11. "Generic Squeak and Rattle Troubleshooting"](#).

REPAIR THE CAUSE

- If the cause is a loose component, tighten the component securely.
- If the cause is insufficient clearance between components:
 - separate components by repositioning or loosening and retightening the component, if possible.
 - insulate components with a suitable insulator such as urethane pads, foam blocks, felt cloth tape or urethane tape. A NISSAN Squeak and Rattle Kit (J-50397) is available through your authorized NISSAN Parts Department.

CAUTION:

Do not use excessive force as many components are constructed of plastic and may be damaged.

NOTE:

- Always check with the Parts Department for the latest parts information.
- The materials contained in the NISSAN Squeak and Rattle Kit (J-50397) are listed on the inside cover of the kit; and can each be ordered separately as needed.
- The following materials not found in the kit can also be used to repair squeaks and rattles.
 - SILICONE GREASE: Use instead of UHMW tape that will be visible or does not fit. The silicone grease will only last a few months.
 - SILICONE SPRAY: Use when grease cannot be applied.
 - DUCT TAPE: Use to eliminate movement.

CONFIRM THE REPAIR

Confirm that the cause of a noise is repaired by test driving the vehicle. Operate the vehicle under the same conditions as when the noise originally occurred. Refer to the notes on the Diagnostic Worksheet.

Generic Squeak and Rattle Troubleshooting

INFOID:0000000010249315

Refer to Table of Contents for specific component removal and installation information.

SQUEAK AND RATTLE TROUBLE DIAGNOSES

< SYMPTOM DIAGNOSIS >

INSTRUMENT PANEL

Most incidents are caused by contact and movement between:

1. Cluster lid A and the instrument panel
2. Acrylic lens and combination meter housing
3. Instrument panel to front pillar finisher
4. Instrument panel to windshield
5. Instrument panel pins
6. Wiring harnesses behind the combination meter
7. A/C defroster duct and duct joint

These incidents can usually be located by tapping or moving the components to duplicate the noise or by pressing on the components while driving to stop the noise. Most of these incidents can be repaired by applying felt cloth tape or silicone spray (in hard to reach areas). Urethane pads can be used to insulate wiring harness.

CAUTION:

Do not use silicone spray to isolate a squeak or rattle. If you saturate the area with silicone, you will not be able to recheck the repair.

CENTER CONSOLE

Components to pay attention to include:

1. Shift selector assembly cover to finisher
2. A/C control unit and cluster lid C
3. Wiring harnesses behind audio and A/C control unit

The instrument panel repair and isolation procedures also apply to the center console.

DOORS

Pay attention to the:

1. Finisher and inner panel making a slapping noise
2. Inside handle escutcheon to door finisher
3. Wiring harnesses tapping
4. Door striker out of alignment causing a popping noise on starts and stops

Tapping or moving the components or pressing on them while driving to duplicate the conditions can isolate many of these incidents. You can usually insulate the areas with felt cloth tape or insulator foam blocks from the NISSAN Squeak and Rattle Kit (J-50397) to repair the noise.

TRUNK

Trunk noises are often caused by a loose jack or loose items put into the trunk by the owner.

In addition look for:

1. Trunk lid bumpers out of adjustment
2. Trunk lid striker out of adjustment
3. The trunk lid torsion bars knocking together
4. A loose license plate or bracket

Most of these incidents can be repaired by adjusting, securing or insulating the item(s) or component(s) causing the noise.

SUNROOF/HEADLINING

Noises in the sunroof/headlining area can often be traced to one of the following:

1. Sunroof lid, rail, linkage or seals making a rattle or light knocking noise
2. Sun visor shaft shaking in the holder
3. Front or rear windshield touching headlining and squeaking

Again, pressing on the components to stop the noise while duplicating the conditions can isolate most of these incidents. Repairs usually consist of insulating with felt cloth tape.

OVERHEAD CONSOLE (FRONT AND REAR)

Overhead console noises are often caused by the console panel clips not being engaged correctly. Most of these incidents are repaired by pushing up on the console at the clip locations until the clips engage.

In addition look for:

SQUEAK AND RATTLE TROUBLE DIAGNOSES

< SYMPTOM DIAGNOSIS >

1. Loose harness or harness connectors.
2. Front console map/reading lamp lens loose.
3. Loose screws at console attachment points.

A

SEATS

When isolating seat noise it's important to note the position the seat is in and the load placed on the seat when the noise is present. These conditions should be duplicated when verifying and isolating the cause of the noise.

B

Cause of seat noise include:

C

1. Headrest rods and holder
2. A squeak between the seat pad cushion and frame
3. The rear seatback lock and bracket

D

These noises can be isolated by moving or pressing on the suspected components while duplicating the conditions under which the noise occurs. Most of these incidents can be repaired by repositioning the component or applying urethane tape to the contact area.

E

UNDERHOOD

Some interior noise may be caused by components under the hood or on the engine wall. The noise is then transmitted into the passenger compartment.

F

Causes of transmitted underhood noise include:

1. Any component installed to the engine wall
2. Components that pass through the engine wall
3. Engine wall mounts and connectors
4. Loose radiator installation pins
5. Hood bumpers out of adjustment
6. Hood striker out of adjustment

G

H

These noises can be difficult to isolate since they cannot be reached from the interior of the vehicle. The best method is to secure, move or insulate one component at a time and test drive the vehicle. Also, engine rpm or load can be changed to isolate the noise. Repairs can usually be made by moving, adjusting, securing, or insulating the component causing the noise.

I

J

EXT

L

M

N

O

P

SQUEAK AND RATTLE TROUBLE DIAGNOSES

< SYMPTOM DIAGNOSIS >

Diagnostic Worksheet

INFOID:000000010249316

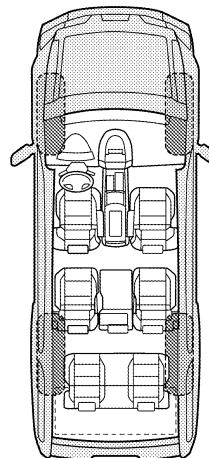
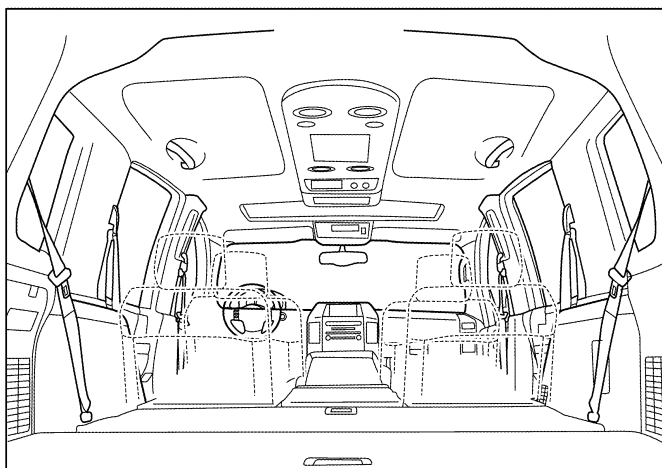
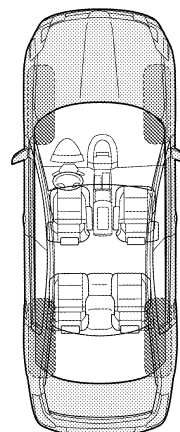
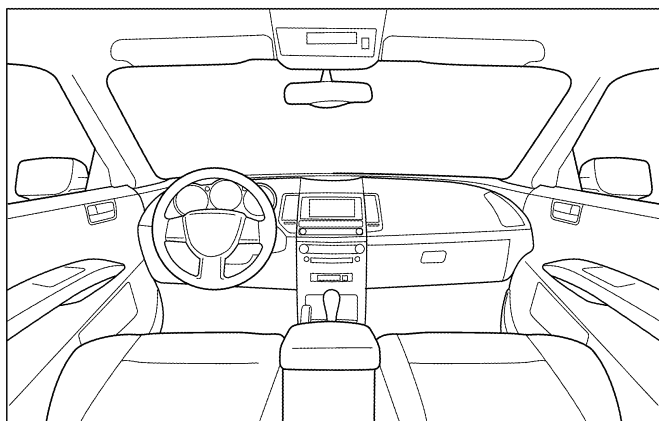
Dear Customer:

We are concerned about your satisfaction with your vehicle. Repairing a squeak or rattle sometimes can be very difficult. To help us fix your vehicle right the first time, please take a moment to note the area of the vehicle where the squeak or rattle occurs and under what conditions. You may be asked to take a test drive with a service advisor or technician to ensure we confirm the noise you are hearing.

SQUEAK & RATTLE DIAGNOSTIC WORKSHEET

I. WHERE DOES THE NOISE COME FROM? (circle the area of the vehicle)

The illustrations are for reference only, and may not reflect the actual configuration of your vehicle.



Continue to page 2 of the worksheet and briefly describe the location of the noise or rattle. In addition, please indicate the conditions which are present when the noise occurs.

SQUEAK AND RATTLE TROUBLE DIAGNOSES

< SYMPTOM DIAGNOSIS >

SQUEAK & RATTLE DIAGNOSTIC WORKSHEET - page 2

Briefly describe the location where the noise occurs:

II. WHEN DOES IT OCCUR? (please check the boxes that apply)

- | | |
|---|--|
| ☐ Anytime | ☐ After sitting out in the rain |
| ☐ 1st time in the morning | ☐ When it is raining or wet |
| ☐ Only when it is cold outside | ☐ Dry or dusty conditions |
| ☐ Only when it is hot outside | ☐ Other: |

III. WHEN DRIVING:

- ☐ Through driveways
- ☐ Over rough roads
- ☐ Over speed bumps
- ☐ Only about ____ mph
- ☐ On acceleration
- ☐ Coming to a stop
- ☐ On turns: left, right or either (circle)
- ☐ With passengers or cargo
- ☐ Other: _____
- ☐ After driving ____ miles or ____ minutes

IV. WHAT TYPE OF NOISE

- ☐ Squeak (like tennis shoes on a clean floor)
- ☐ Creak (like walking on an old wooden floor)
- ☐ Rattle (like shaking a baby rattle)
- ☐ Knock (like a knock at the door)
- ☐ Tick (like a clock second hand)
- ☐ Thump (heavy muffled knock noise)
- ☐ Buzz (like a bumble bee)

TO BE COMPLETED BY DEALERSHIP PERSONNEL

Test Drive Notes:

	YES	NO	Initials of person performing
Vehicle test driven with customer	☐	☐	_____
- Noise verified on test drive	☐	☐	_____
- Noise source located and repaired	☐	☐	_____
- Follow up test drive performed to confirm repair	☐	☐	_____

VIN: _____ Customer Name _____
W.O.# _____ Date: _____

This form must be attached to Work Order

LAIA0071E

FRONT BUMPER

< REMOVAL AND INSTALLATION >

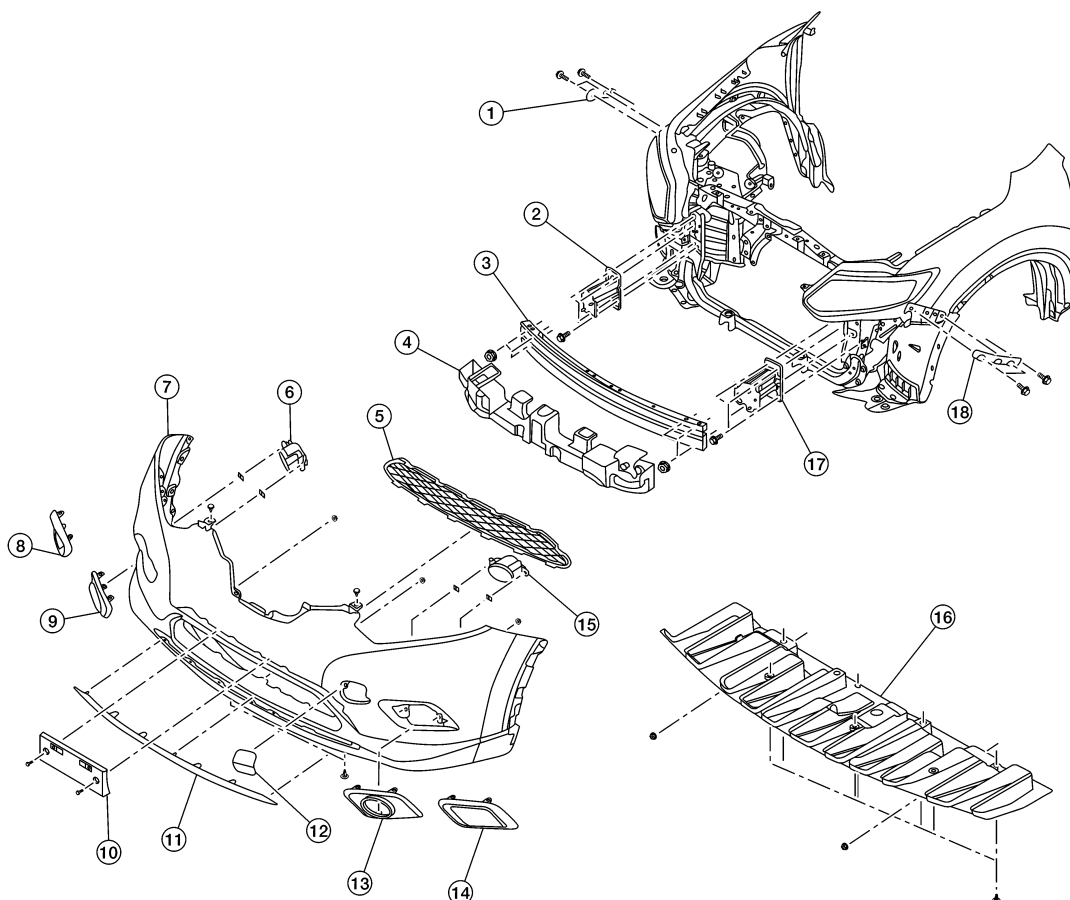
REMOVAL AND INSTALLATION

FRONT BUMPER

Exploded View

INFOID:000000009795091

SEC. 236 • 620



ALKIA3336ZZ

- | | | |
|--|---|---|
| 1. Front bumper fascia side bracket (RH) | 2. Front bumper reinforcement support (RH) | 3. Front bumper reinforcement |
| 4. Front energy absorber | 5. Front lower grille | 6. Front fog lamp (RH) (if equipped) |
| 7. Front bumper fascia | 8. Front bumper fascia finisher (RH) (if equipped) | 9. Front fog lamp finisher (RH) (if equipped) |
| 10. Front license plate bracket | 11. Front air spoiler | 12. Tow cover |
| 13. Front fog lamp finisher (LH) (if equipped) | 14. Front bumper fascia finisher (LH) (if equipped) | 15. Front fog lamp (LH) (if equipped) |
| 16. Front under cover | 17. Front bumper reinforcement support (LH) | 18. Front bumper fascia side bracket (LH) |

FRONT BUMPER

< REMOVAL AND INSTALLATION >

Removal and Installation

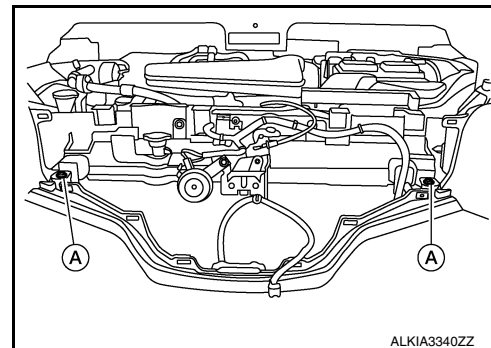
INFOID:000000009795092

REMOVAL

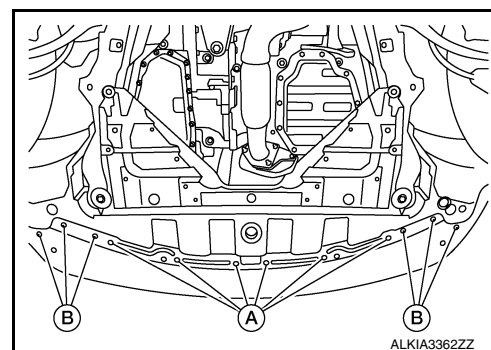
CAUTION:

Bumper fascia is made of resin. Use care when handling to prevent damage. Avoid contact with oily substances.

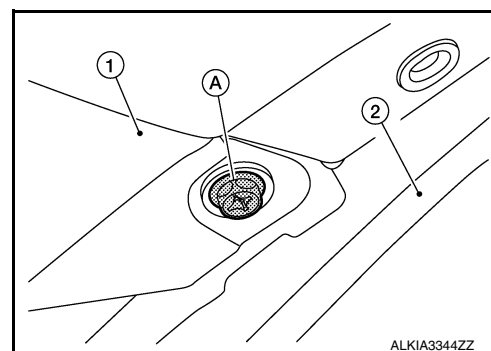
1. Remove front grille. Refer to [EXT-23. "Removal and Installation"](#).
2. Remove front bumper fascia clips (A).



3. Remove front bumper fascia clips (A) and screws (B).



4. Partially remove front fender protectors (LH/RH). Refer to [EXT-28. "FENDER PROTECTOR : Exploded View"](#).
5. Partially remove front over fender molding. Refer to [EXT-30. "FRONT OVER FENDER : Removal and Installation"](#).
6. Remove front bumper fascia screws (A) (LH/RH).
(1): Front bumper fascia
(2): Front over fender molding



7. Disconnect fog lamp harness connectors (LH/RH) (if equipped).
8. Release front bumper fascia pawls from front bumper fascia side brackets (LH/RH) and remove.

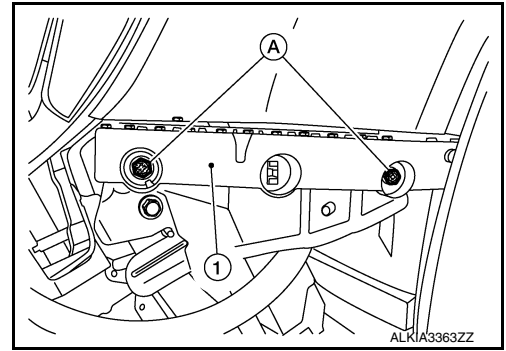
CAUTION:

When removing front bumper fascia, two people are required to avoid damaging.

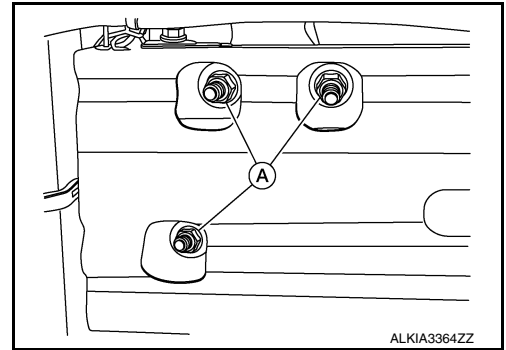
FRONT BUMPER

< REMOVAL AND INSTALLATION >

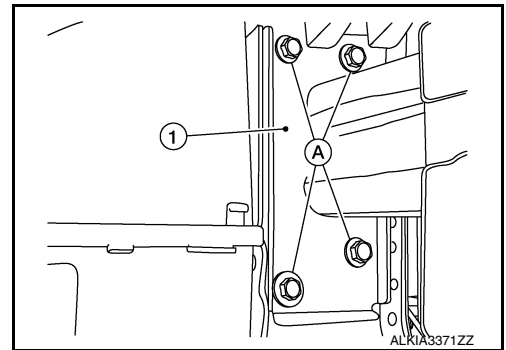
9. Remove front bumper fascia bolts (A) and the front bumper side bracket (1) (LH/RH) (if necessary).



10. Remove intelligent key warning buzzer. Refer to [DLK-273, "Removal and Installation"](#).
11. Release harness connector clips from bumper reinforcement, then remove bumper reinforcement nuts (A) and bumper reinforcement (1) (LH/RH).



12. Remove front bumper reinforcement support bolts (A) and front bumper reinforcement supports (1) (LH/RH).



13. Remove the following parts (if necessary) after removing front bumper fascia assembly.
- Front fog lamps (if equipped). Refer to [EXL-121, "Removal and Installation"](#).
 - Front fog lamp finishers
 - Front fascia grille
 - Front license plate bracket

INSTALLATION

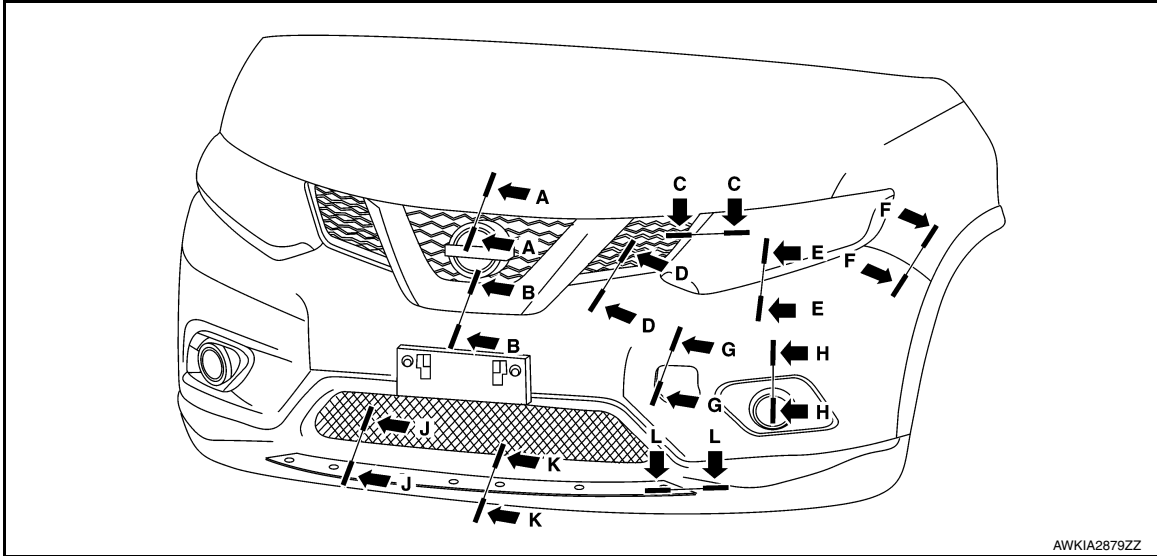
Installation in the reverse order of removal.

- The following table shows the specified values for checking normal installation status.

FRONT BUMPER

< REMOVAL AND INSTALLATION >

- Fitting adjustment cannot be performed.



mm (in)

Section	Measurement	Minimum	Target Value	Maximum
A-A	Clearance	6.9 (0.27)	8.9 (0.35)	10.9 (0.43)
B-B	Clearance	0.1 (0.004)	1.5 (0.06)	3.0 (0.12)
C-C	Clearance	0.0 (0.00)	0.0 (0.00)	0.0 (0.00)
D-D	Clearance	0.1 (0.004)	1.5 (0.06)	3.0 (0.12)
E-E	Clearance	0.1 (0.004)	1.5 (0.06)	3.0 (0.12)
F-F	Clearance	0.1 (0.004)	0.3 (0.01)	1.0 (0.04)
F-F	Surface height	-0.3 (0.01)	0.7 (0.03)	1.7 (0.07)
G-G	Clearance	0.0 (0.00)	0.5 (0.02)	1.0 (0.04)
G-G	Surface height	0.0 (0.00)	0.5 (0.02)	1.0 (0.04)
H-H	Clearance	0.5 (0.02)	1.5 (0.06)	2.5 (0.10)
J-J	Clearance	0.0 (0.00)	1.0 (0.04)	2.0 (0.08)
K-K	Clearance	0.0 (0.00)	1.0 (0.04)	2.0 (0.08)
K-K	Surface height	0.0 (0.00)	1.0 (0.04)	2.0 (0.08)
L-L	Clearance	0.5 (0.02)	2.0 (0.08)	3.5 (0.14)
L-L	Surface height	0.0 (0.00)	1.0 (0.04)	2.0 (0.08)

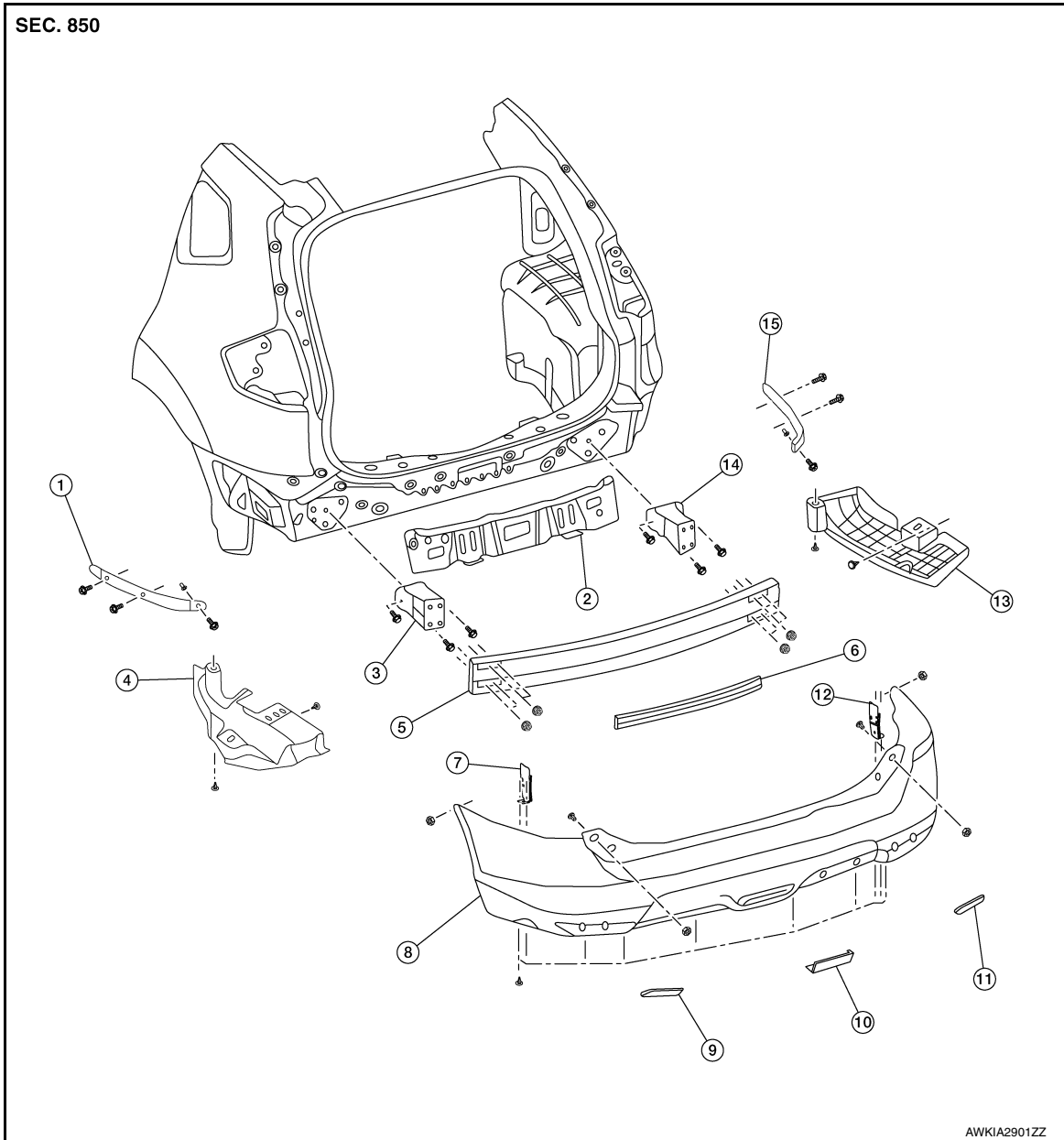
REAR BUMPER

< REMOVAL AND INSTALLATION >

REAR BUMPER

Exploded View

INFOID:000000009795093



- | | | |
|---|--|---|
| 1. Rear bumper fascia side bracket (LH) | 2. Rear mud protector | 3. Rear bumper reinforcement support (LH) |
| 4. Rear bumper fascia undercover (LH) | 5. Rear bumper reinforcement | 6. Rear energy absorber |
| 7. Rear bumper bracket (LH) | 8. Rear bumper fascia | 9. Rear bumper fascia reflector (LH) |
| 10. Rear bumper finisher | 11. Rear bumper fascia reflector (RH) | 12. Rear bumper bracket (RH) |
| 13. Rear bumper fascia undercover (RH) | 14. Rear bumper reinforcement support (RH) | 15. Rear bumper fascia side bracket (RH) |

Removal and Installation

INFOID:000000009795094

REMOVAL

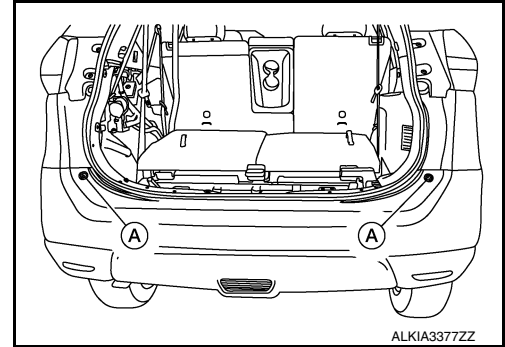
REAR BUMPER

< REMOVAL AND INSTALLATION >

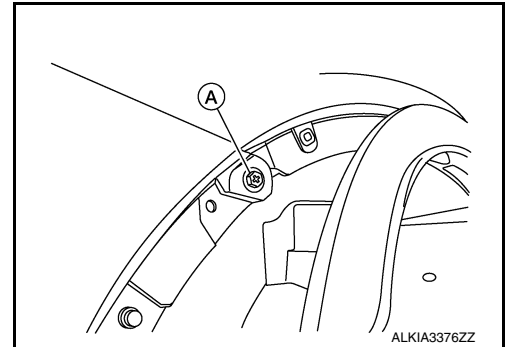
CAUTION:

Bumper fascia is made of resin. Use care when handling to prevent damage. Avoid contact with oily substances.

1. Partially remove rear over fender molding. Refer to [EXT-32, "REAR OVER FENDER : Exploded View"](#).
2. Partially remove rear wheel house protector. Refer to [EXT-29, "REAR WHEEL HOUSE PROTECTOR : Removal and Installation"](#).
3. Remove clips and remove rear bumper fascia undercover (LH/RH) then remove rear mud guard (LH/RH). Refer to [EXT-34, "Removal and Installation"](#).
4. Remove rear bumper fascia upper screws (A).



5. Remove rear bumper fascia screw (A) (LH/RH).

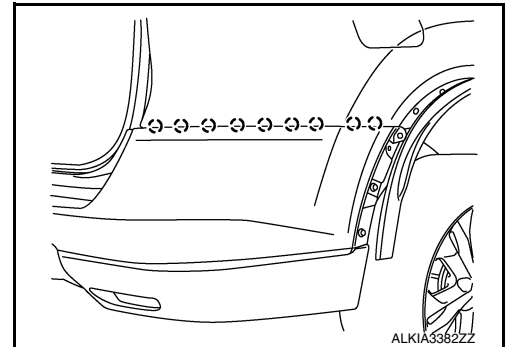


6. Disconnect harness connector from rear sonar sensors (if equipped).
7. Release pawls (LH/RH) using a suitable tool and remove rear bumper fascia.

○: Pawl

CAUTION:

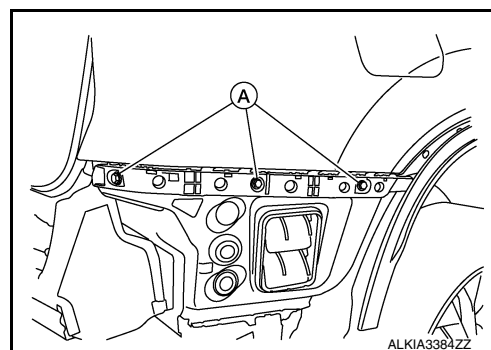
When removing rear bumper fascia, two people are required to avoid damaging.



8. Remove energy absorber.
9. Remove bolts (A) and remove rear bumper side bracket (LH/RH) (if necessary).

REAR BUMPER

< REMOVAL AND INSTALLATION >



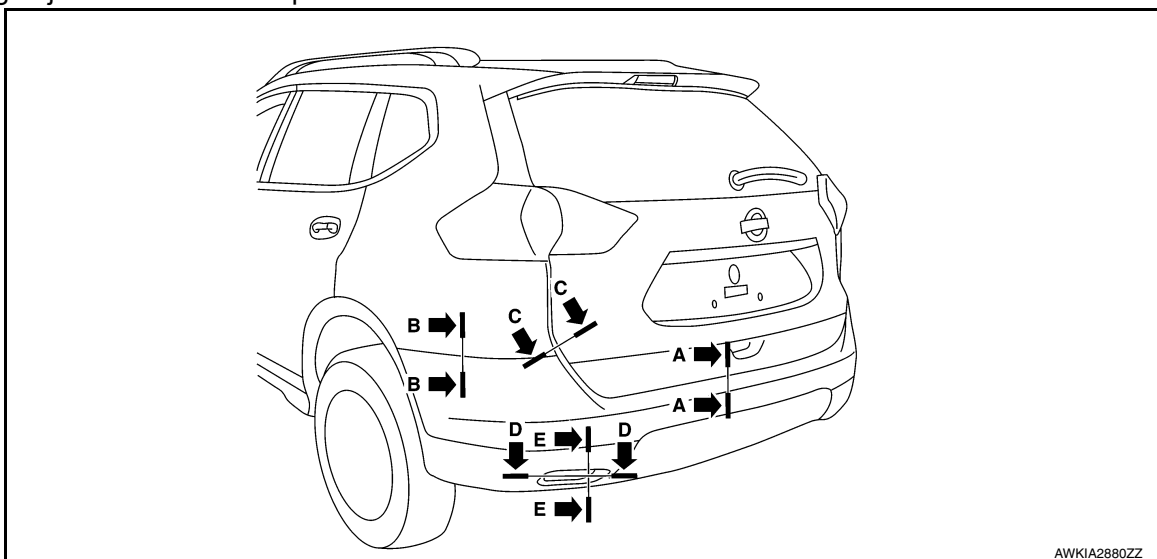
10. Remove rear bumper reinforcement nuts (LH/RH), then remove rear bumper reinforcement (if necessary).
11. Remove bumper stay bolts, then remove bumper stay (if necessary).
12. Remove rear bump reinforce support bolts and rear bumper reinforcement (LH/RH).

INSTALLATION

Installation is in the reverse order of removal.

NOTE:

- The following table shows the specified values for checking normal installation status.
- Fitting adjustment cannot be performed.



Unit: mm (in)

Section	Measurement	Minimum	Target Value	Maximum
A-A	Clearance	6.0 (0.24)	8.0 (0.31)	10.0 (0.39)
B-B	Clearance	0.1 (0.004)	0.3 (0.04)	1.0 (0.04)
B-B	Surface height	-0.3 (0.01)	0.7 (0.06)	1.7 (0.07)
C-C	Clearance	3.0 (0.12)	5.0 (0.20)	7.0 (0.28)
C-C	Surface height	-2.2 (-0.09)	0.3 (0.00)	2.4 (0.09)
D-D	Clearance	0.0 (0.00)	1.0 (0.04)	2.0 (0.08)
E-E	Clearance	0.6 (0.02)	1.6 (0.04)	2.6 (0.10)
E-E	Clearance	0.0 (0.00)	1.0 (0.04)	2.0 (0.08)

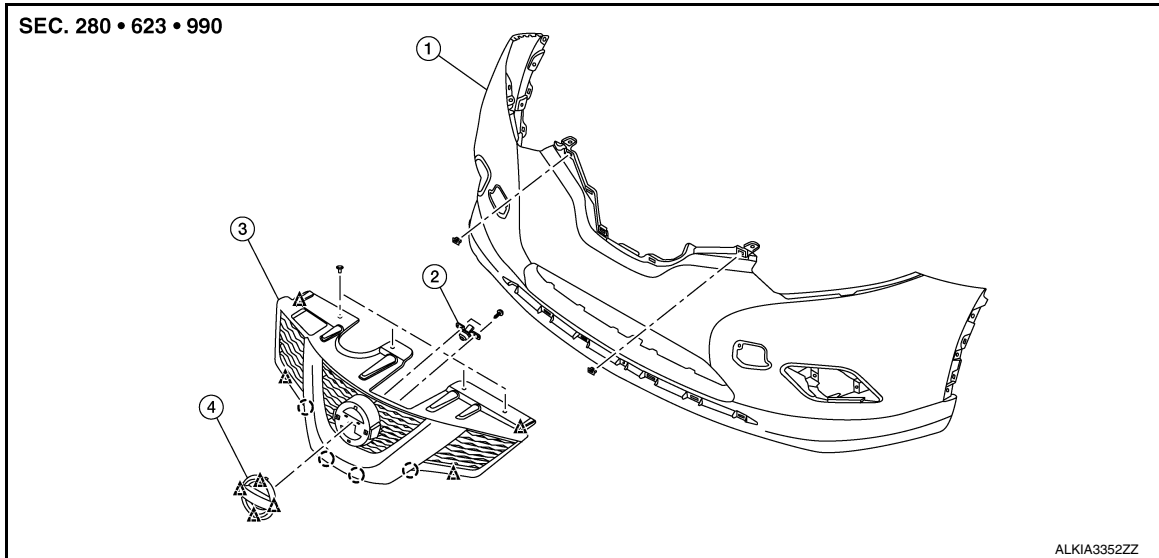
FRONT GRILLE

< REMOVAL AND INSTALLATION >

FRONT GRILLE

Exploded View

INFOID:000000009795095



1. Front bumper fascia

2. Front camera (if equipped)

3. Front grille

4. Front emblem

○: Pawl

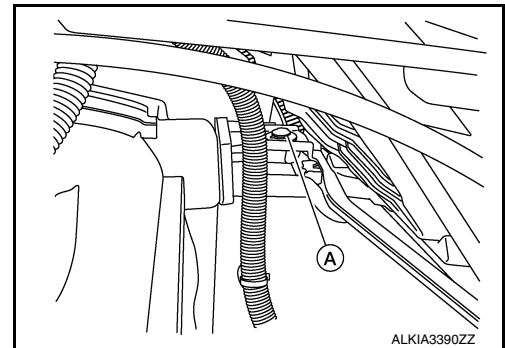
△: Clip

Removal and Installation

INFOID:000000009795096

REMOVAL

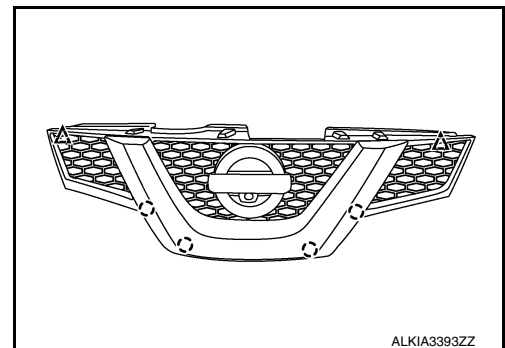
1. Remove front grille upper clip (A) (LH/RH).



2. Release clips and pawls, then remove front grille.

△: Clip

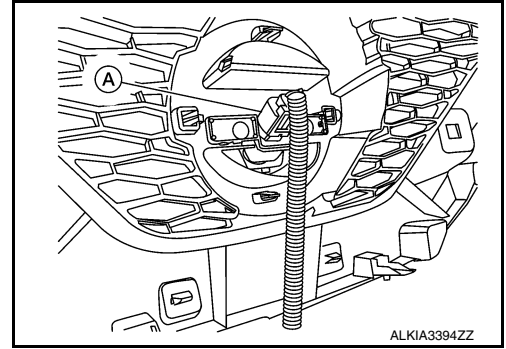
○: Pawl



FRONT GRILLE

< REMOVAL AND INSTALLATION >

3. Disconnect harness connector (A) from front camera (if equipped).



4. Remove the following parts after removing front grille (if necessary).
 - Front camera (if equipped). Refer to [AV-388, "Removal and Installation"](#).
 - Front emblem

INSTALLATION

Installation is in the reverse order of removal.

NOTE:

Calibration must be performed after removing/replacing the front camera (if equipped). Refer to [AV-292, "CALIBRATING CAMERA IMAGE \(AROUND VIEW MONITOR\) : Work Procedure"](#).

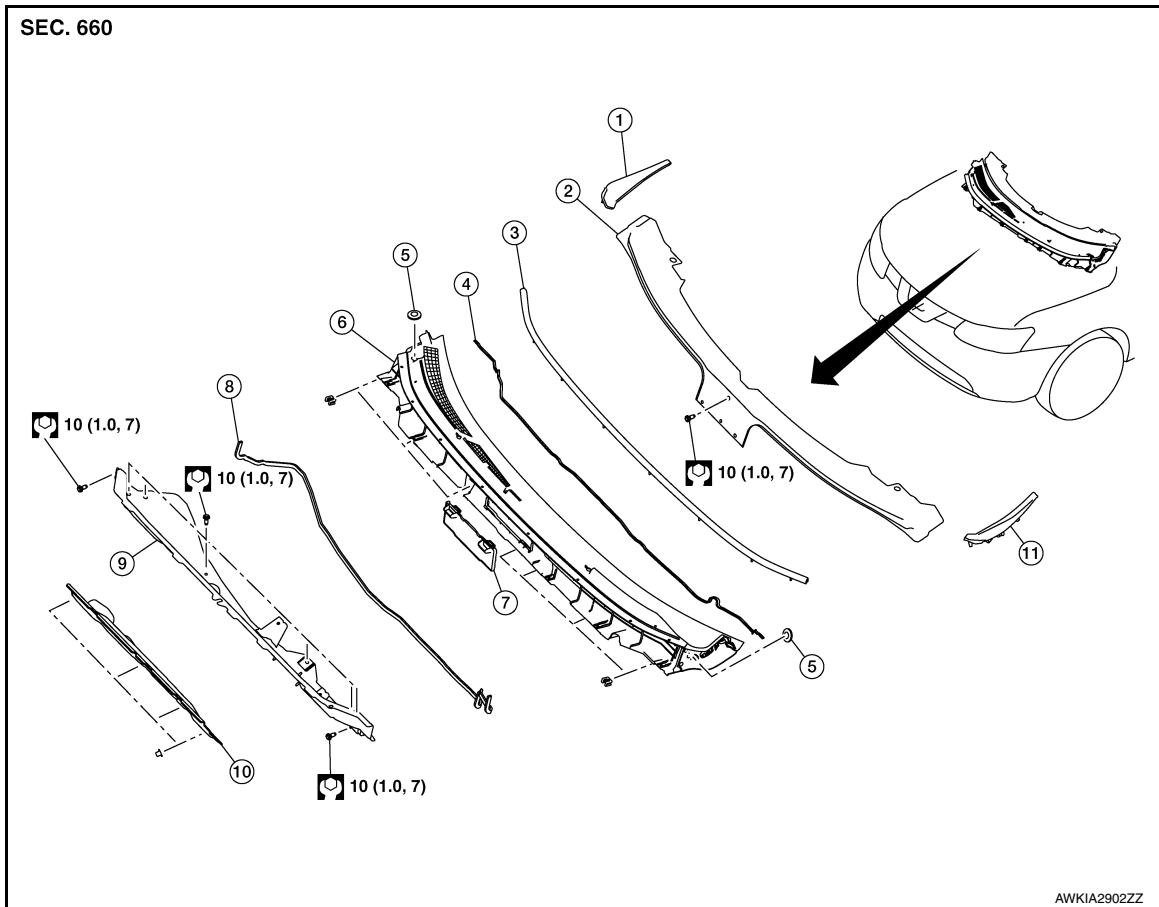
COWL TOP

< REMOVAL AND INSTALLATION >

COWL TOP

Exploded View

INFOID:000000009795097



- | | | |
|----------------------------------|-----------------------------------|------------------------|
| 1. Cowl top side trim cover (RH) | 2. Cowl top cover screen | 3. Cowl top cover seal |
| 4. EPT seal | 5. Cowl top cover plug | 6. Cowl top cover |
| 7. Cowl top cover mask | 8. Cowl top extension seal | 9. Cowl top extension |
| 10. Cowl top insulation | 11. Cowl top side trim cover (LH) | |

Removal and Installation

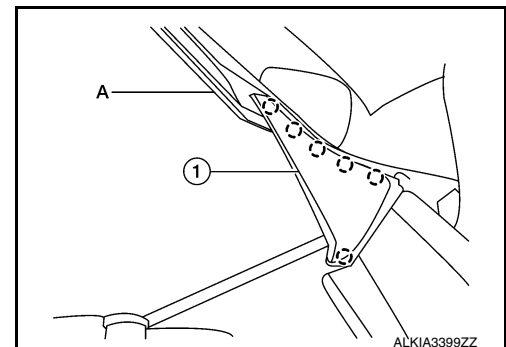
INFOID:000000009795098

COWL TOP COVER

Removal

1. Remove front wiper arms (LH/RH). Refer to [WW-63. "Removal and Installation"](#).
2. Release pawls using suitable tool (A) and remove cowl top side trim cover (1) (LH/RH).

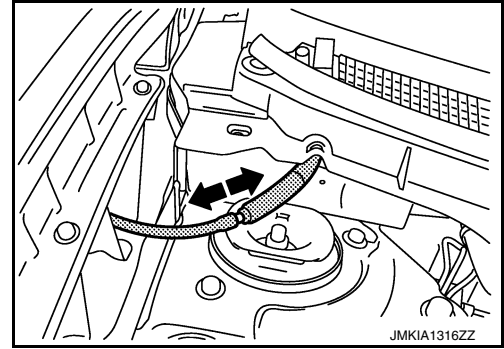
○: Pawl



COWL TOP

< REMOVAL AND INSTALLATION >

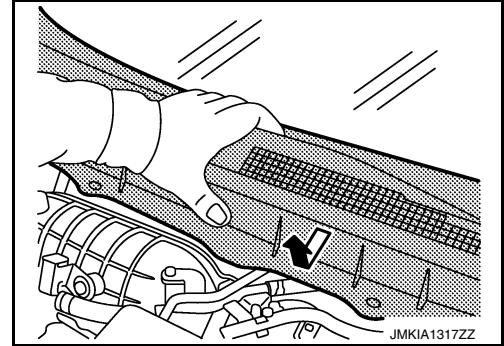
3. Disconnect front washer tube connector.



4. Remove cowl top cover clips, then pull forward to release cowl top cover and remove.

CAUTION:

When performing the procedure after removing cowl top cover, cover the lower end of windshield glass with urethane etc.



5. Remove the following parts after removing cowl top cover (if necessary).
 - Cowl top seal
 - Cowl top cover plug
 - Washer nozzle, Refer to [WW-60, "Removal and Installation - Front Washer Nozzle"](#).
 - Washer tube, [WW-60, "Removal and Installation - Front Washer Nozzle"](#).
 - EPT sealer

Installation

Installation is in the reverse order of removal.

CAUTION:

When installing cowl top cover, check that clips are securely fitted in body panel holes and then press them in.

COWL TOP EXTENSION

Removal

1. Remove the front wiper drive assembly. Refer to [WW-66, "Removal and Installation"](#).
2. Remove the cowl top extension bolts and the cowl top extension.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

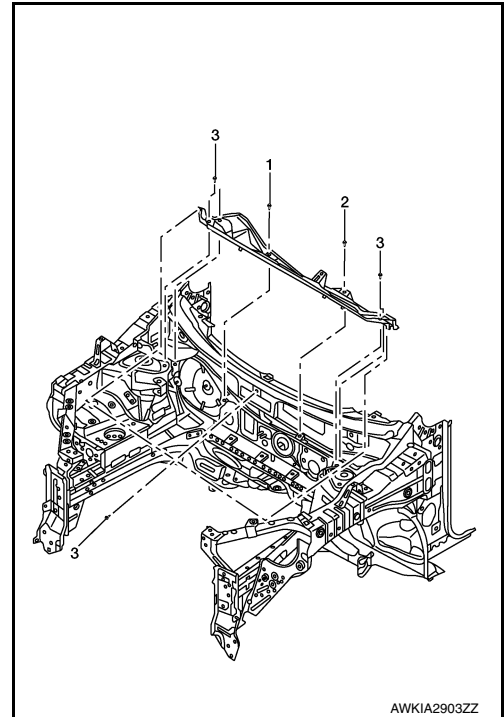
When installing cowl top cover, check that clips are securely placed in panel holes on body and then pressed in.

NOTE:

COWL TOP

< REMOVAL AND INSTALLATION >

When installing the cowl top extension, tighten the bolts to specification in the order shown.



A
B
C
D
E
F
G
H
I
J
EXT
L
M
N
O
P

FENDER PROTECTOR

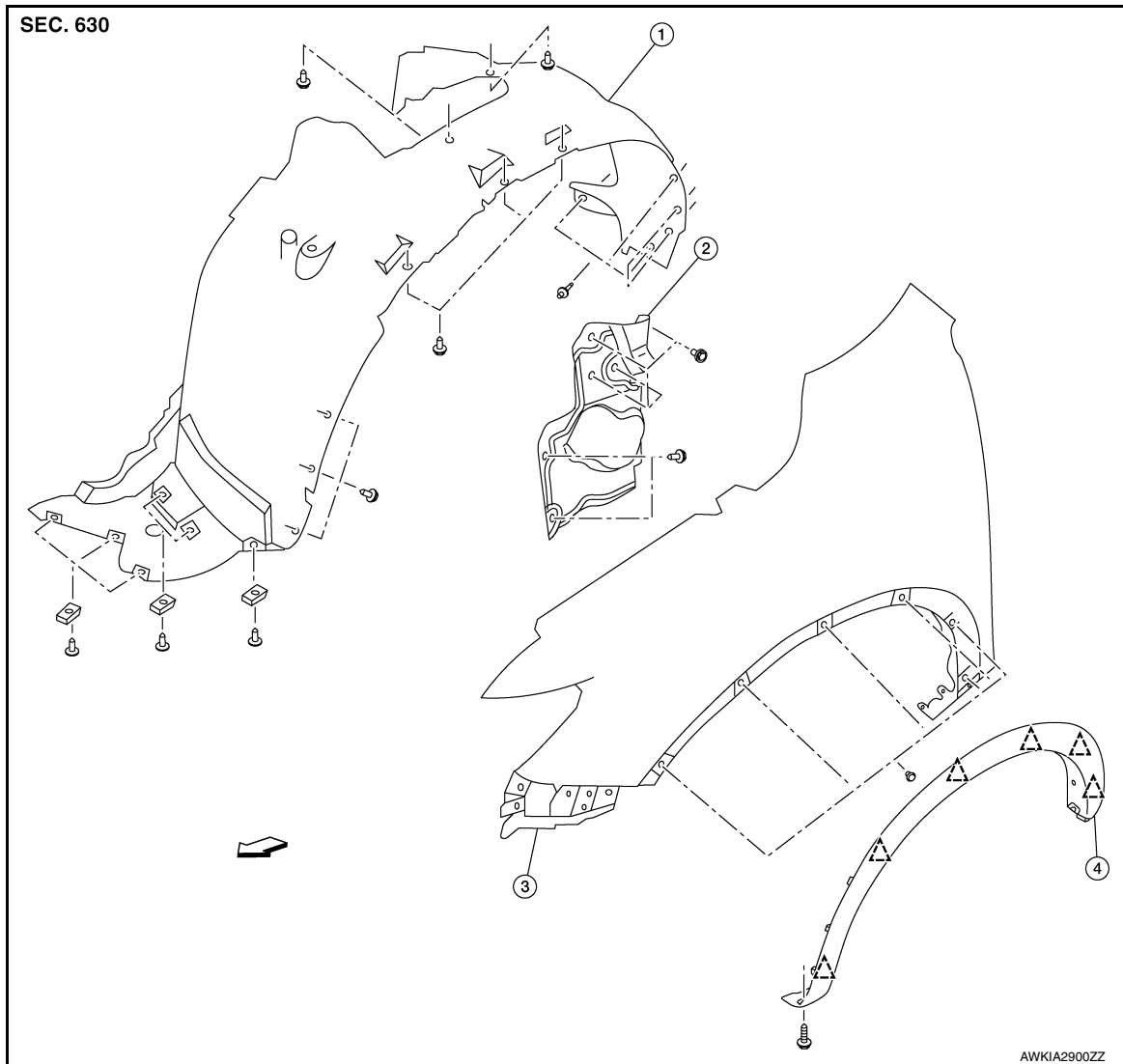
< REMOVAL AND INSTALLATION >

FENDER PROTECTOR

FENDER PROTECTOR

FENDER PROTECTOR : Exploded View

INFOID:0000000010249307



1. Front fender protector

2. Engine side cover

3. Front fender

4. Over fender

△ Clip

← Front

FENDER PROTECTOR : Removal and Installation

INFOID:0000000010249308

REMOVAL

1. Remove wheel and tire using power tool. Refer to [WT-60, "Removal and Installation"](#).
2. Remove front over fender molding. Refer to [EXT-30, "FRONT OVER FENDER : Removal and Installation"](#).
3. Remove front under cover. Refer to [EXT-16, "Exploded View"](#).
4. Remove sill molding screw. Refer to [EXT-35, "Exploded View - Center Mudguard"](#).
5. Remove engine side cover.
6. Release front fender protector clips and remove front fender protector.

INSTALLATION

Installation is in the reverse order of removal.

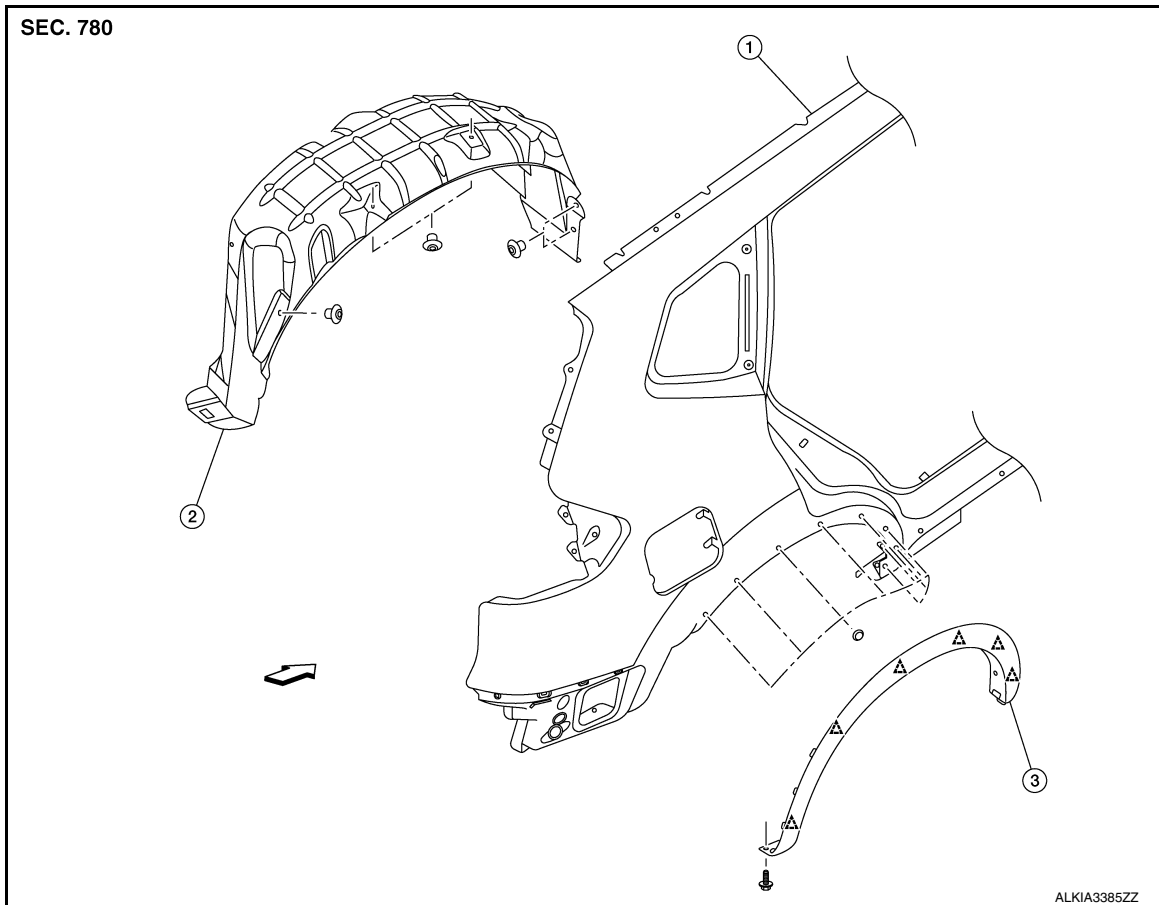
FENDER PROTECTOR

< REMOVAL AND INSTALLATION >

REAR WHEEL HOUSE PROTECTOR

REAR WHEEL HOUSE PROTECTOR : Exploded View

INFOID:000000010249309



REAR WHEEL HOUSE PROTECTOR : Removal and Installation

INFOID:000000010249310

REMOVAL

1. Remove rear wheel house protector clip and screws.
2. Remove rear wheel house protector nuts and rear wheel house protector.

INSTALLATION

Installation is in the reverse order of removal.

OVER FENDER

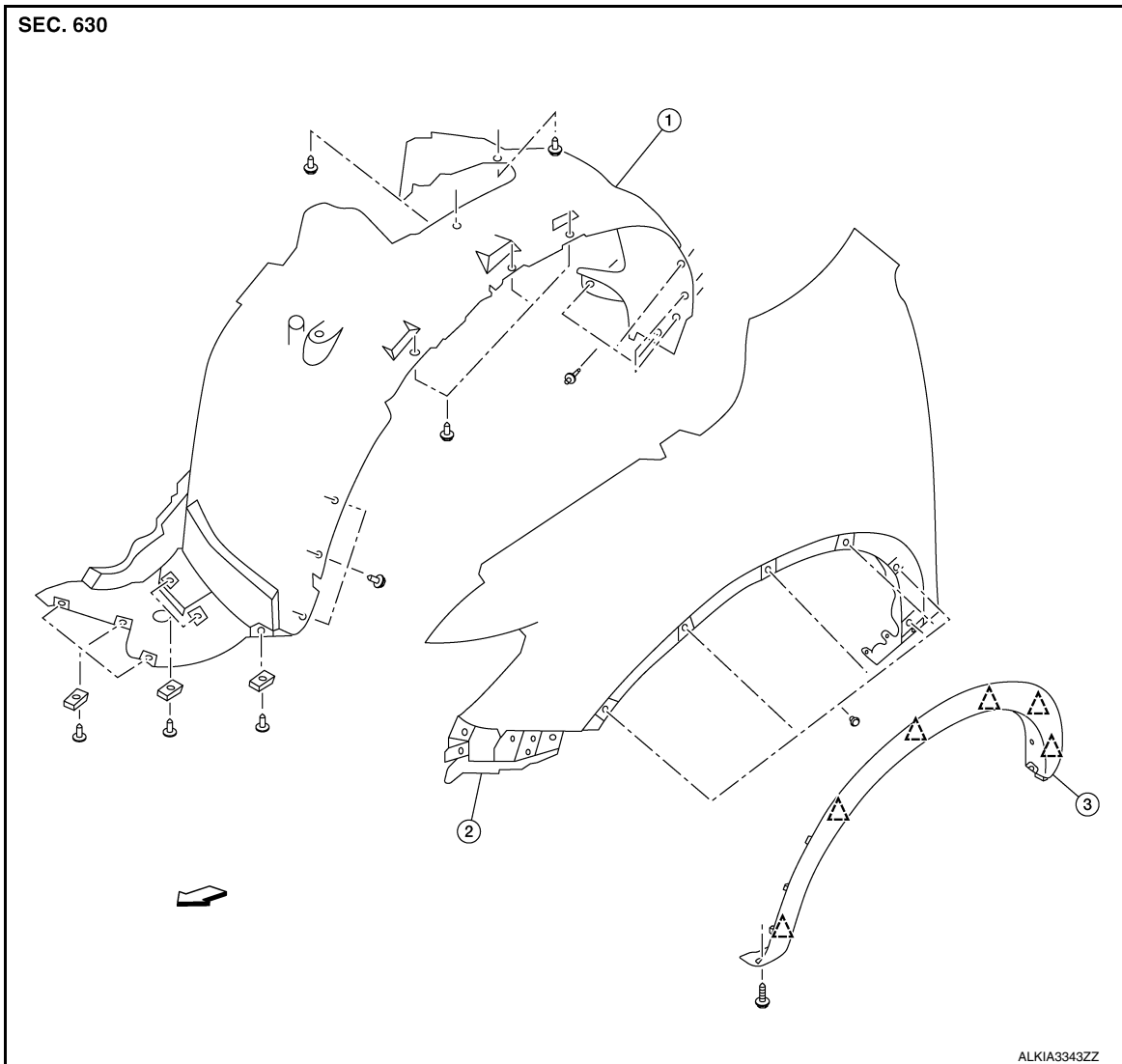
< REMOVAL AND INSTALLATION >

OVER FENDER

FRONT OVER FENDER

FRONT OVER FENDER : Exploded View

INFOID:0000000010250287



1. Front fender protector

2. Front fender

3. Front over fender molding

△ Clip

FRONT OVER FENDER : Removal and Installation

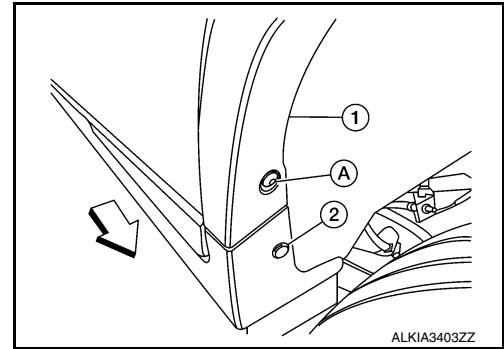
INFOID:0000000010250288

REMOVAL

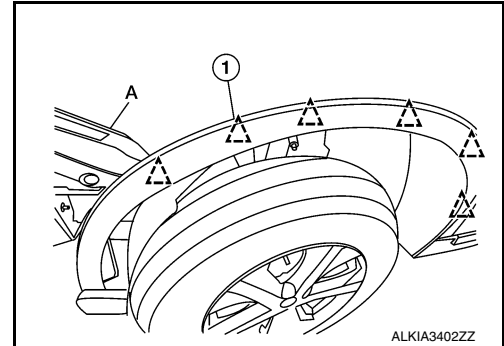
OVER FENDER

< REMOVAL AND INSTALLATION >

1. Remove front and rear screw (A).
 - 1: Front over fender
 - 2: Sill molding: Front



2. Release clips using suitable tool (A) and remove front over fender (1).: Clips



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Visually check the clips for deformation and damage during installation. Replace with new ones if necessary.
- When installing front over fender molding, check that clips are securely placed in body panel holes.

REAR OVER FENDER

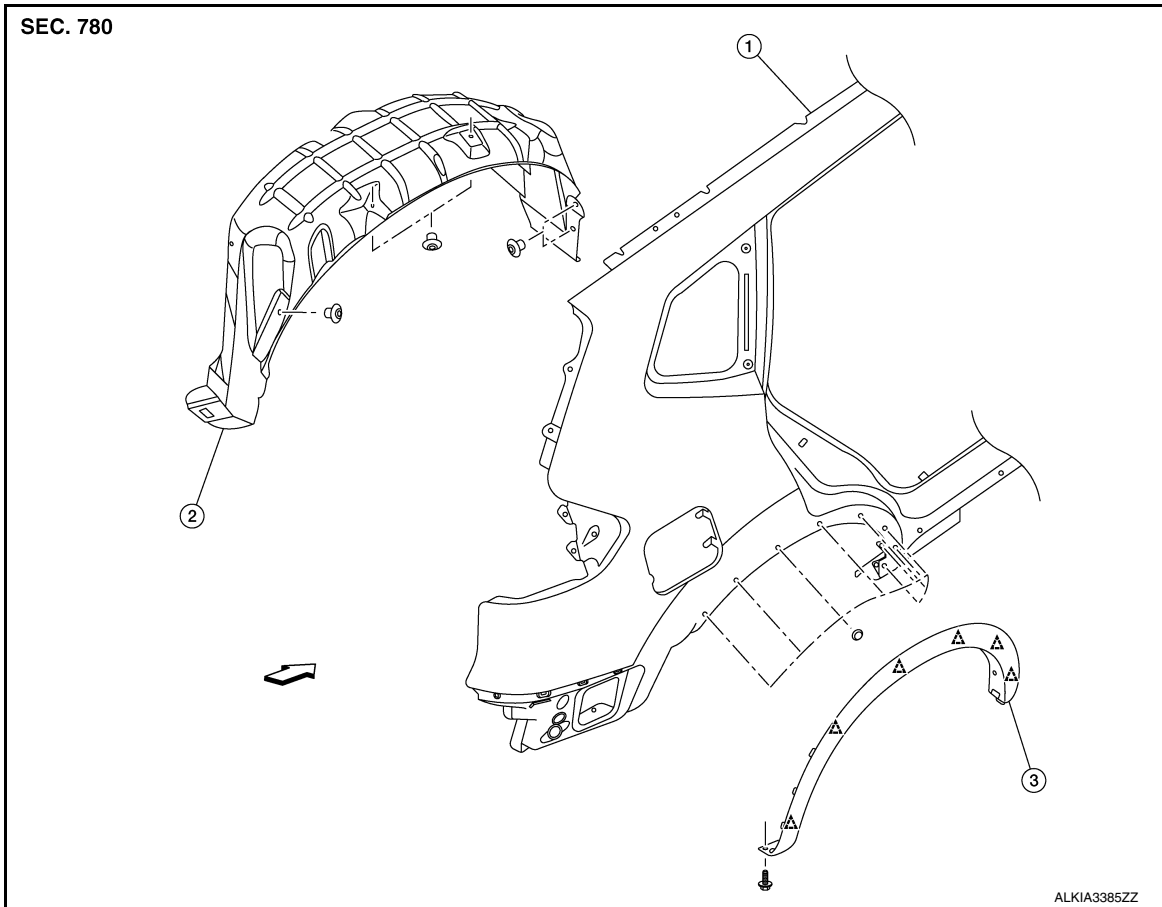
A
B
C
D
E
F
G
H
I
J
EXT
L
M
N
O
P

OVER FENDER

< REMOVAL AND INSTALLATION >

REAR OVER FENDER : Exploded View

INFOID:0000000010262930



REAR OVER FENDER : Removal and Installation

INFOID:0000000010262931

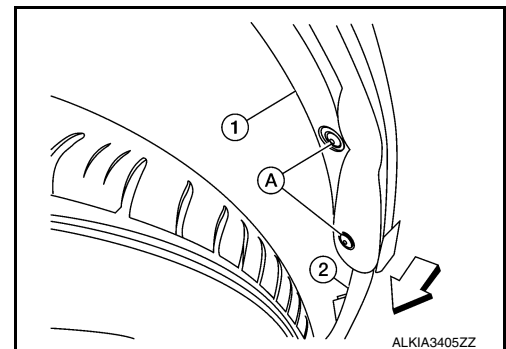
REMOVAL

1. Remove rear over fender molding screws (A).

1: Rear over fender

2: Rear bumper

⇐ Front

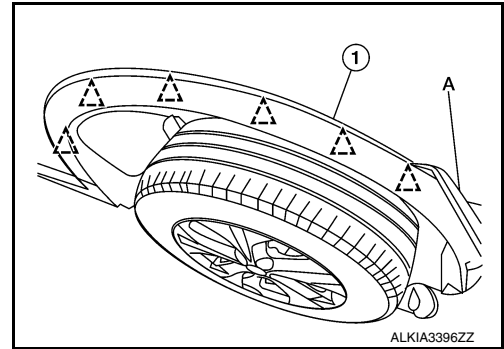


OVER FENDER

< REMOVAL AND INSTALLATION >

2. Release clips using suitable tool (A) and remove rear over fender (1).

△: Clips



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Visually check the clips for deformation and damage during installation. Replace with new ones if necessary.
- When installing over fender molding, check that clips are securely placed in body panel holes.

A
B
C
D
E
F
G
H
I
J
EXT
L
M
N
O
P

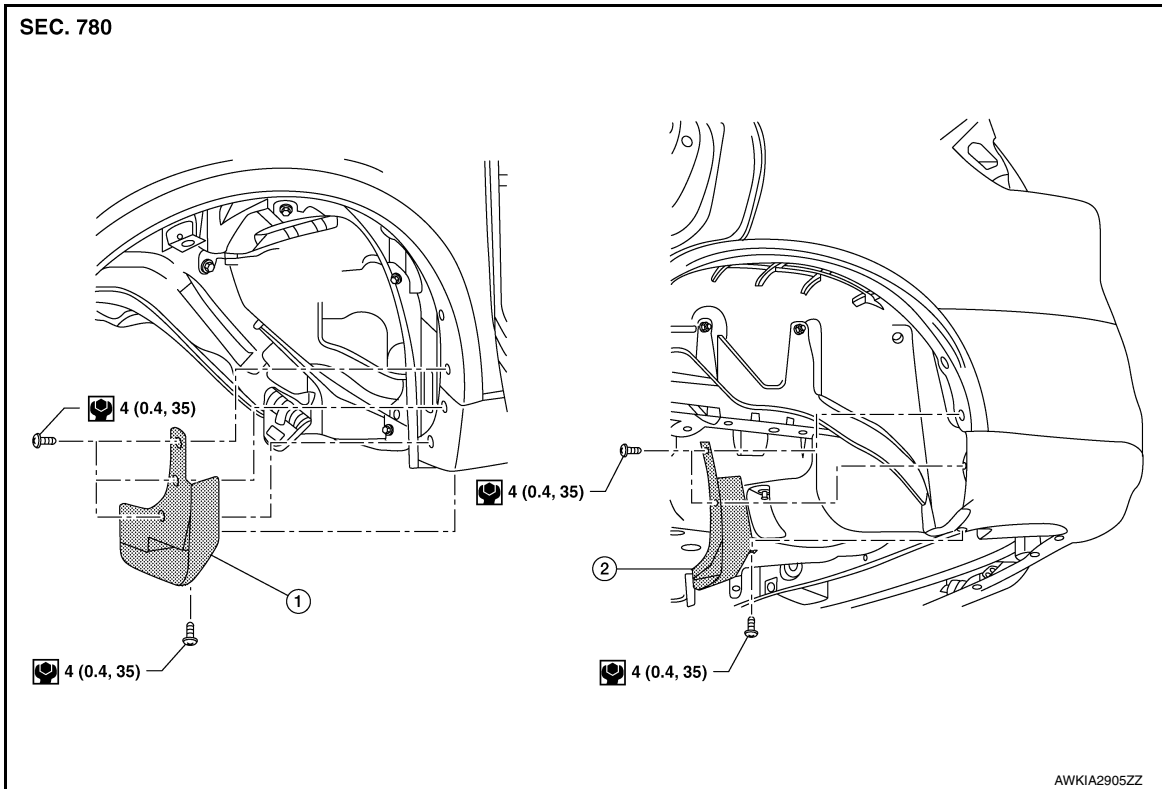
MUDGUARD

< REMOVAL AND INSTALLATION >

MUDGUARD

Exploded View

INFOID:000000009795101



1. Front mud guard

2. Rear mud guard

Removal and Installation

INFOID:000000009795102

FRONT MUD GUARD

Removal

Remove front mud guard screws and remove front mud guard.

Installation

Installation is in the reverse order of removal.

REAR MUD GUARD

Removal

Remove rear mud guard screws and remove rear mud guard.

Installation

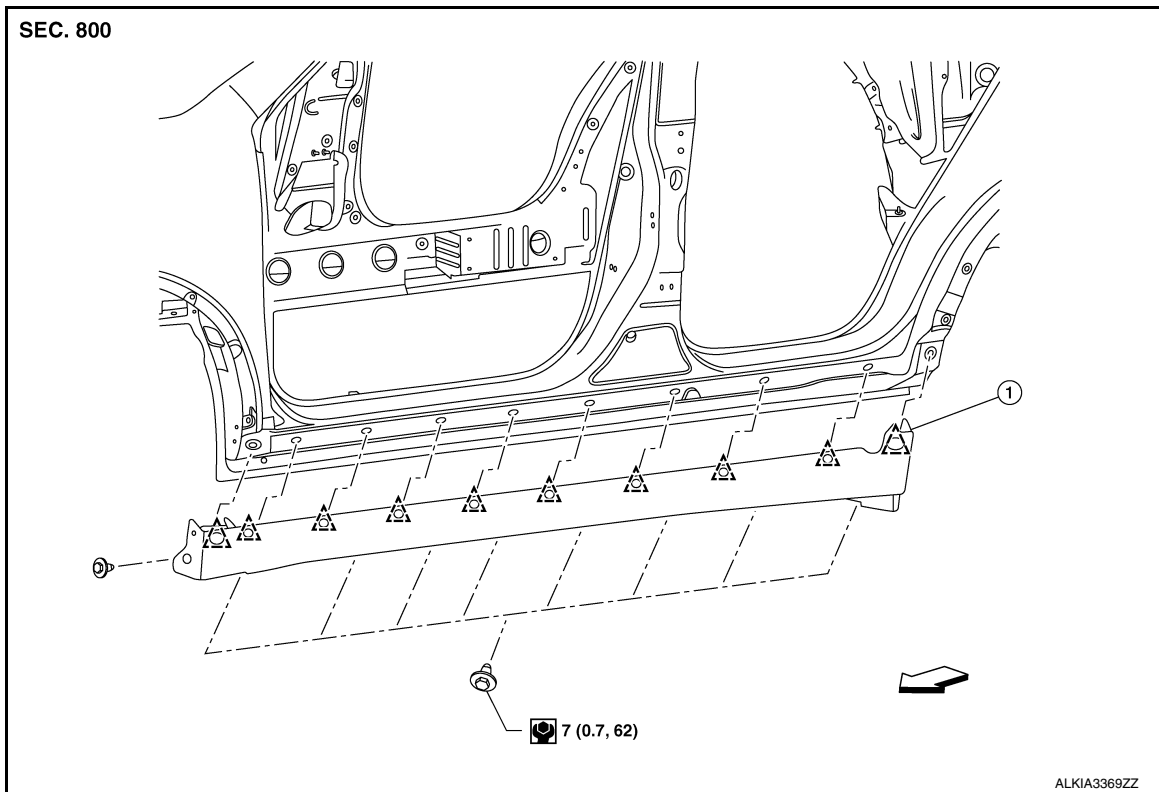
Installation is in the reverse order of removal.

MUDGUARD

< REMOVAL AND INSTALLATION >

Exploded View - Center Mudguard

INFOID:0000000010249320



1. Center mudguard

A Clip

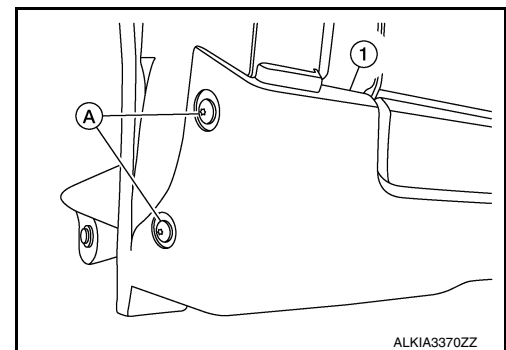
← Front

Removal and Installation - Center Mudguard

INFOID:0000000010249321

REMOVAL

1. Partially remove over fender moldings. Refer to [EXT-30, "FRONT OVER FENDER : Exploded View"](#).
2. Remove screws (A) from center mudguard (1).

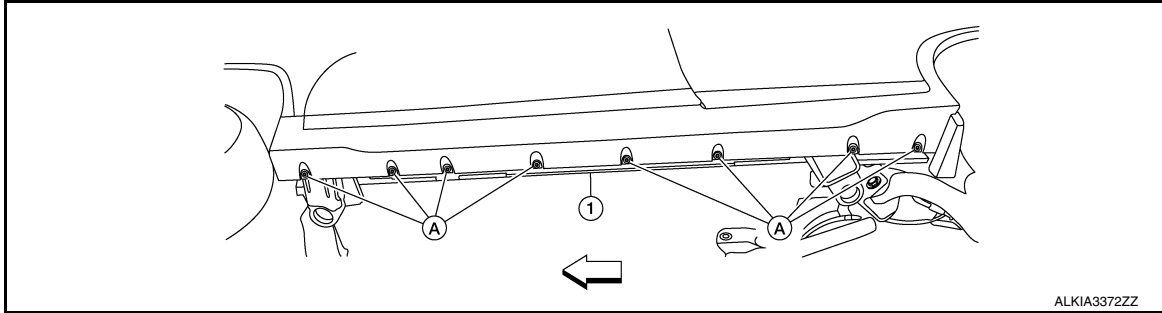


3. Remove center mudguard center mudguard bolts (A) from center mudguard (1).

MUDGUARD

< REMOVAL AND INSTALLATION >

⇐: Front

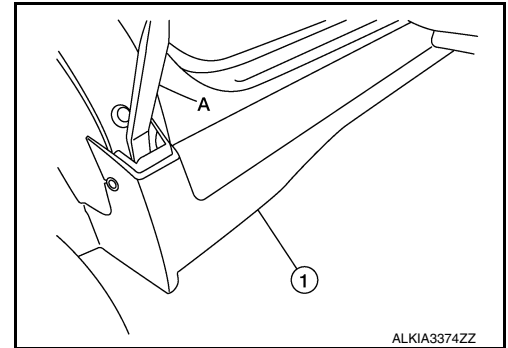


4. Release center mudguard clips with a suitable tool (A) and remove the center mudguard (1).

△: Clip

CAUTION:

Release clips slowly and carefully.



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Visually check the clips for deformation and damage during installation. Replace with new ones if necessary.
- When installing center mudguard, check that clips are securely placed in body panel holes.

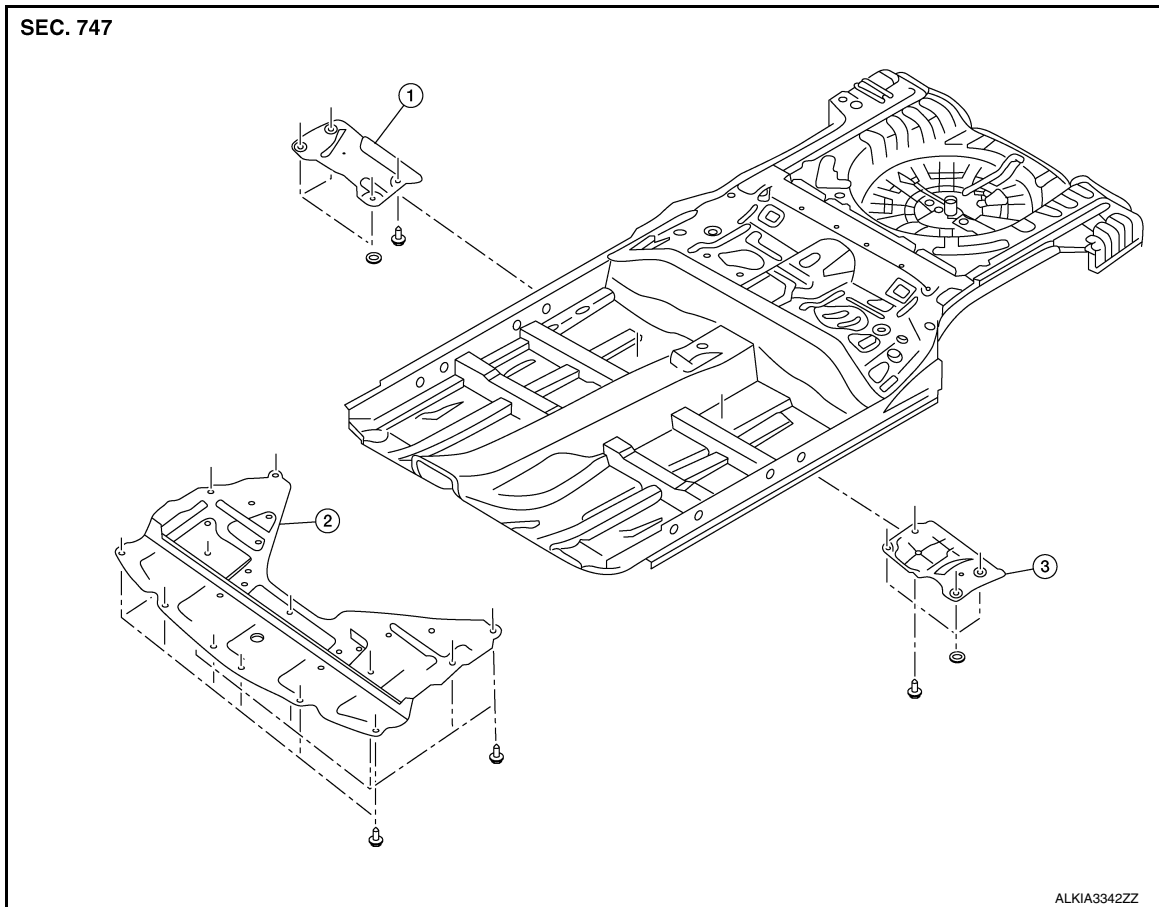
UNDER COVER

< REMOVAL AND INSTALLATION >

UNDER COVER

Exploded View

INFOID:000000009795103



1. Floor under cover (RH)

2. Engine under cover

3. Floor under cover (LH)

ENGINE UNDER COVER

ENGINE UNDER COVER : Removal and Installation

INFOID:000000009795104

REMOVAL

1. Remove engine under cover clips.
2. Remove engine under cover.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

When installing engine under covers, check that clips are securely placed in body panel holes.

FLOOR UNDER COVER

FLOOR UNDER COVER : Removal and Installation

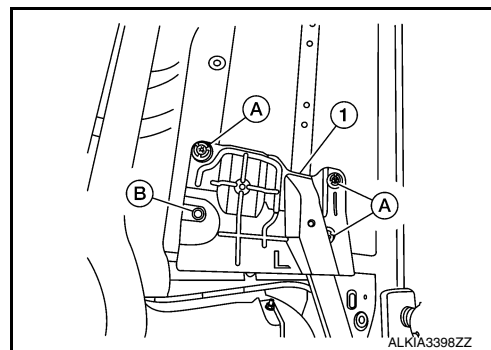
INFOID:0000000010269485

REMOVAL

UNDER COVER

< REMOVAL AND INSTALLATION >

1. Remove floor under cover clip (B) and nuts (A).
2. Remove floor under cover (1).



INSTALLATION

Install in the reverse order of removal.

CAUTION:

When installing floor under covers, check that clips are securely placed in body panel holes.

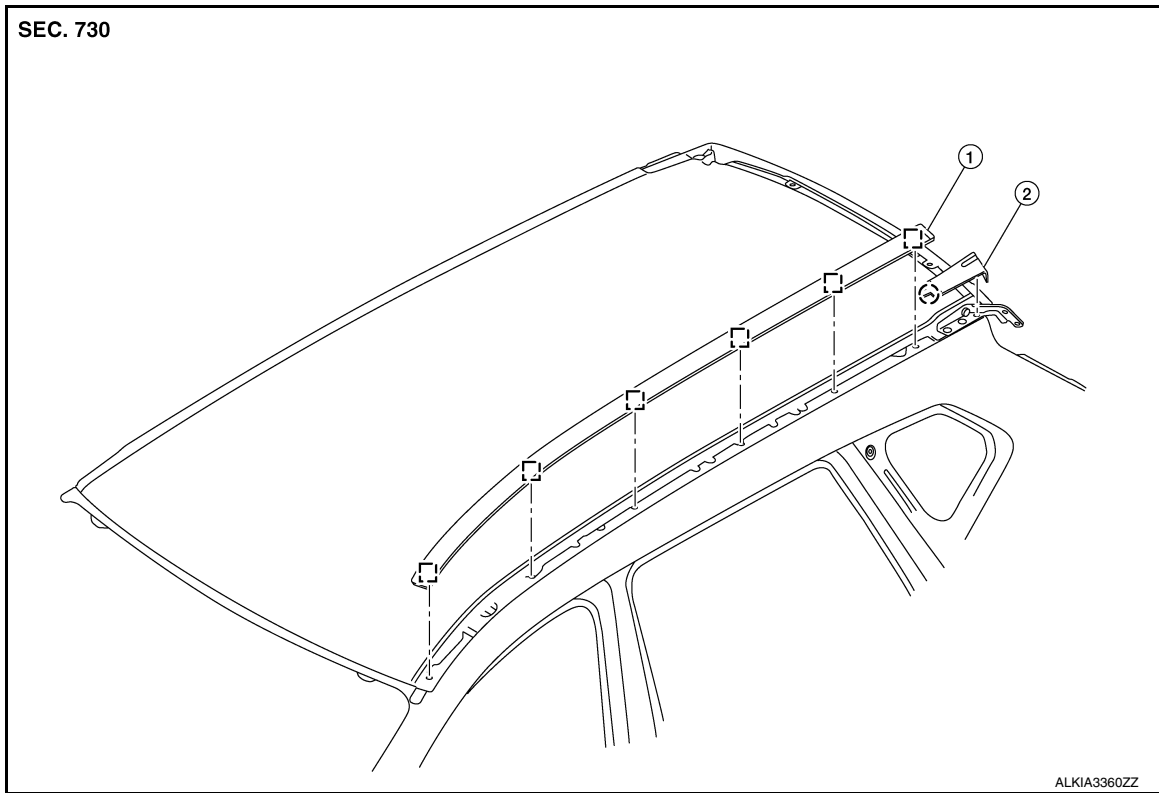
ROOF SIDE MOLDING

< REMOVAL AND INSTALLATION >

ROOF SIDE MOLDING

Exploded View

INFOID:000000009795105



1. Roof side molding

2. Back door hinge cover

[] Metal clip

○ Pawl

Removal and Installation

INFOID:000000009795106

EXT

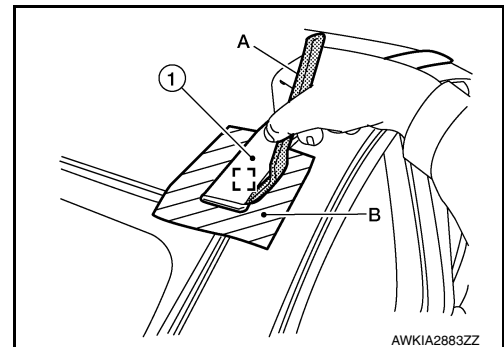
REMOVAL

1. Release roof side molding (1) using suitable tool (A) then remove roof side molding.

[] Metal clip

CAUTION:

Apply protective tape (B) around the roof side molding.



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

When installing roof side molding, check that clips are securely placed in body panel holes.

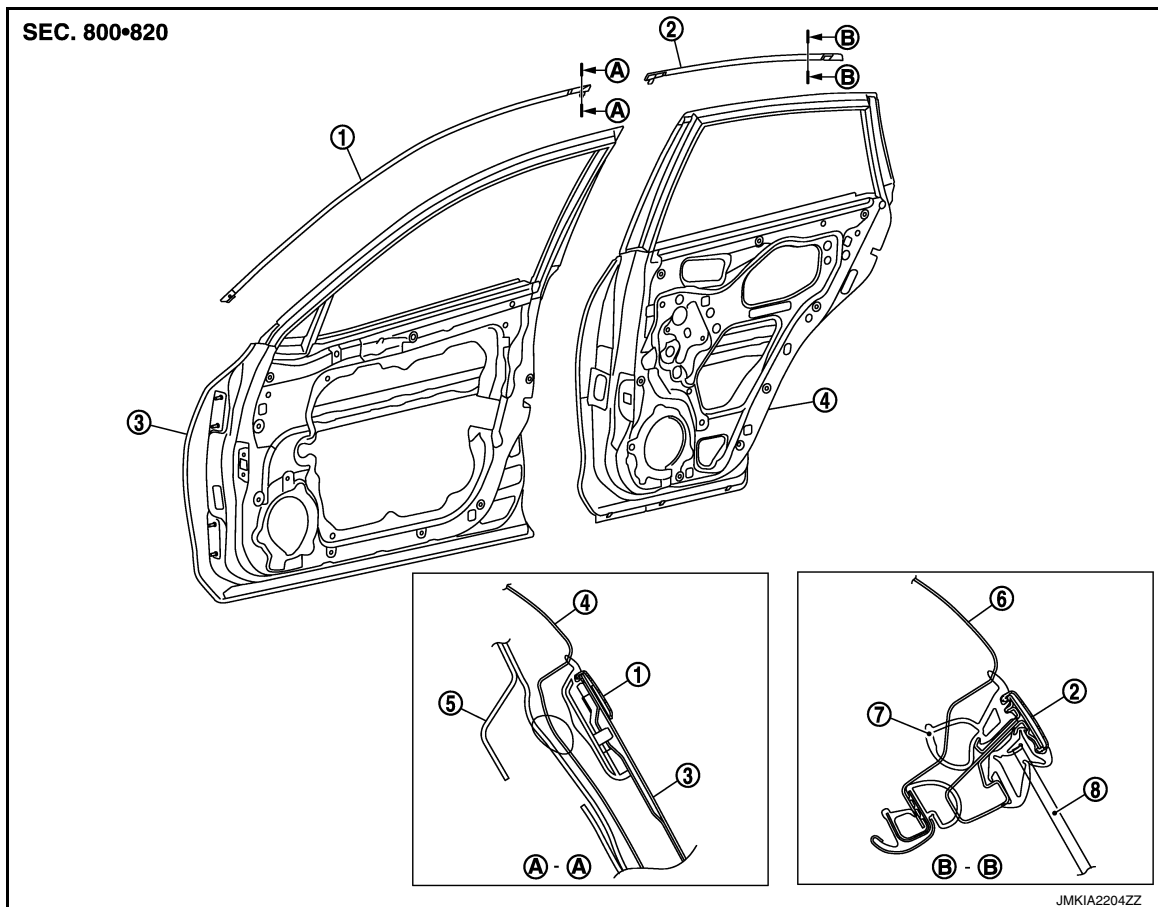
DOOR SASH MOLDING

< REMOVAL AND INSTALLATION >

DOOR SASH MOLDING

Exploded View

INFOID:000000010269698



- | | | |
|----------------------------|--------------------------------|---------------------|
| 1. Front door sash molding | 2. Rear door rear sash molding | 3. Front door panel |
| 4. Rear door panel | 5. Roof rail side outer | 6. Body side outer |
| 7. Rear door weather strip | 8. Rear door glass | |

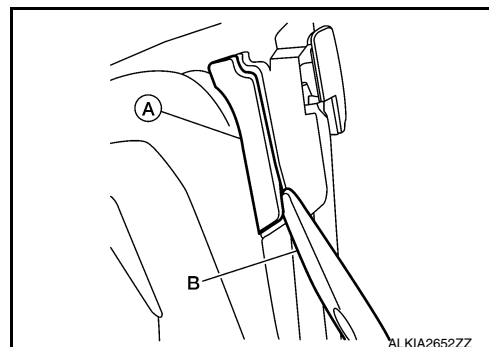
Removal and Installation

INFOID:000000010269699

FRONT DOOR

Removal

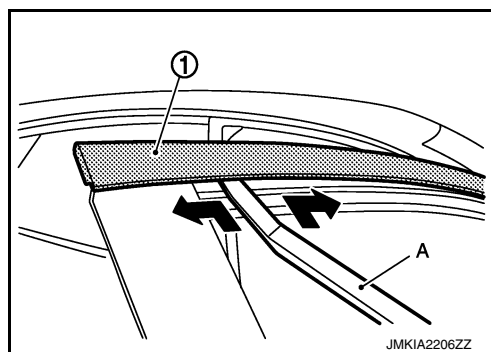
1. Remove door mirror. Refer to [MIR-22, "Removal and Installation"](#).
2. Remove front door sash molding clip (A) using a suitable tool (B).



DOOR SASH MOLDING

< REMOVAL AND INSTALLATION >

3. Using a suitable tool (A) remove front door sash molding (1) as shown and remove.



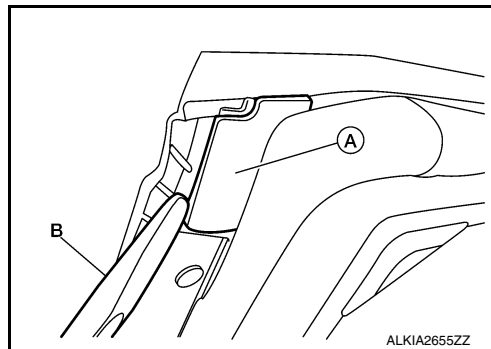
INSTALLATION

Installation is in the reverse order of removal.

REAR DOOR

Removal

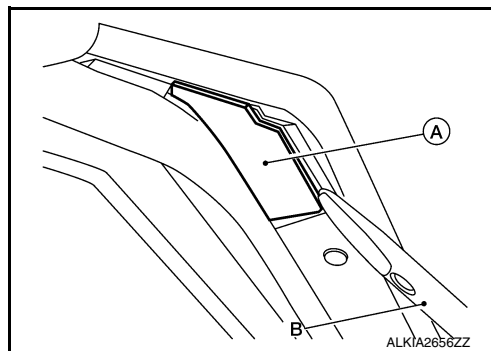
1. Remove rear door finisher. Refer to [INT-18, "Removal and Installation"](#).
2. Remove rear door front sash molding clip (A) using a suitable tool (B).



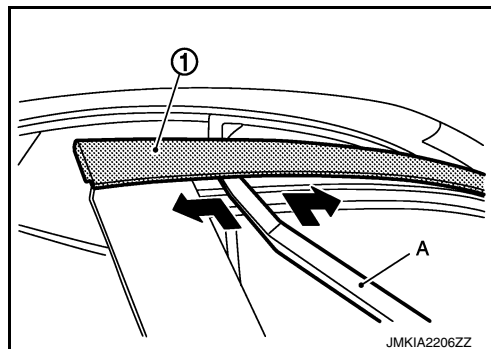
3. Remove rear door rear sash molding clip (A) using a suitable tool (B).

CAUTION:

Do not reuse the clip (A).



4. Using a suitable tool (A) remove rear door sash molding (1) as shown and remove.



INSTALLATION

Installation is in the reverse order of removal.

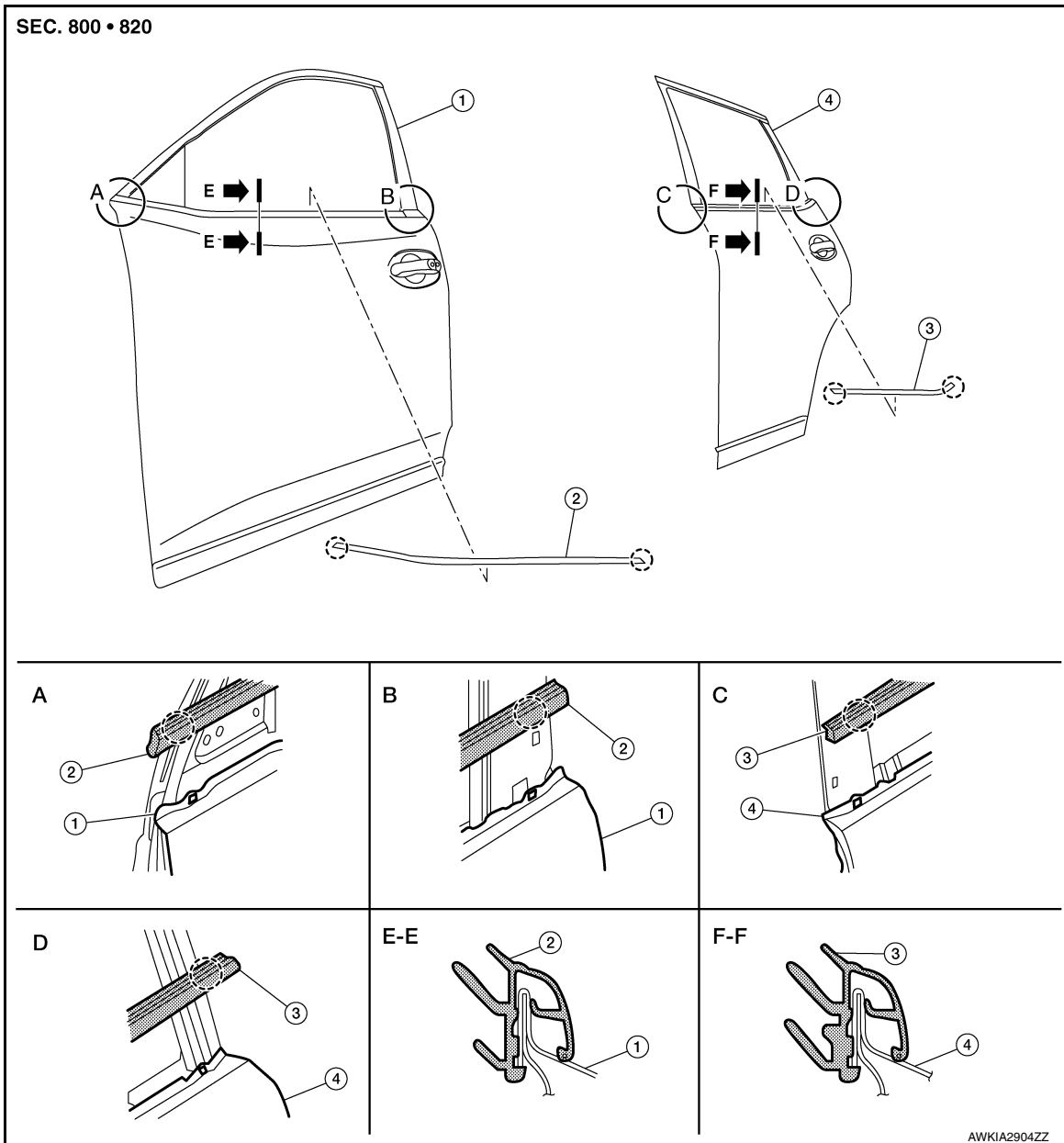
DOOR OUTSIDE MOLDING

< REMOVAL AND INSTALLATION >

DOOR OUTSIDE MOLDING

Exploded View

INFOID:000000009795109



- | | | |
|------------------------------|-------------------------------|--------------------|
| 1. Front door panel | 2. Front door outside molding | 3. Rear door panel |
| 4. Rear door outside molding | ⊖ Pawl | |

Removal and Installation

INFOID:000000009795110

FRONT DOOR OUTSIDE MOLDING

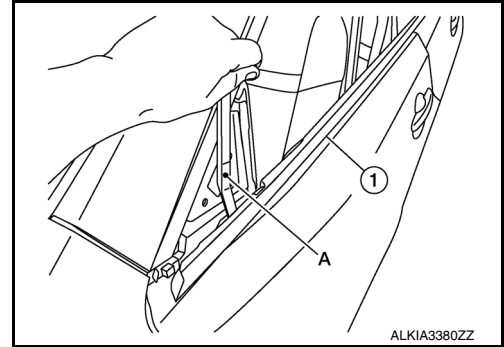
Removal

1. Lower front door glass.
2. Remove door mirror. Refer to [MIR-22, "Removal and Installation"](#).

DOOR OUTSIDE MOLDING

< REMOVAL AND INSTALLATION >

3. Release front pawl then rear pawl using a suitable tool (A) and remove door outside molding (1).



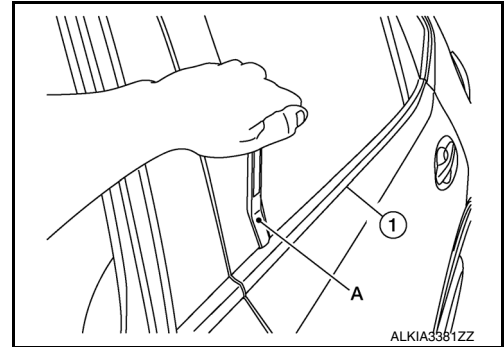
Installation

Installation is in the reverse order of removal.

REAR DOOR OUTSIDE MOLDING

Removal

1. Lower rear door glass.
2. Release front pawl then rear pawl using a suitable tool (A) and remove door outside molding (1).



Installation

Installation is in the reverse order of removal.

A
B
C
D
E
F
G
H
I
J
EXT
L
M
N
O
P

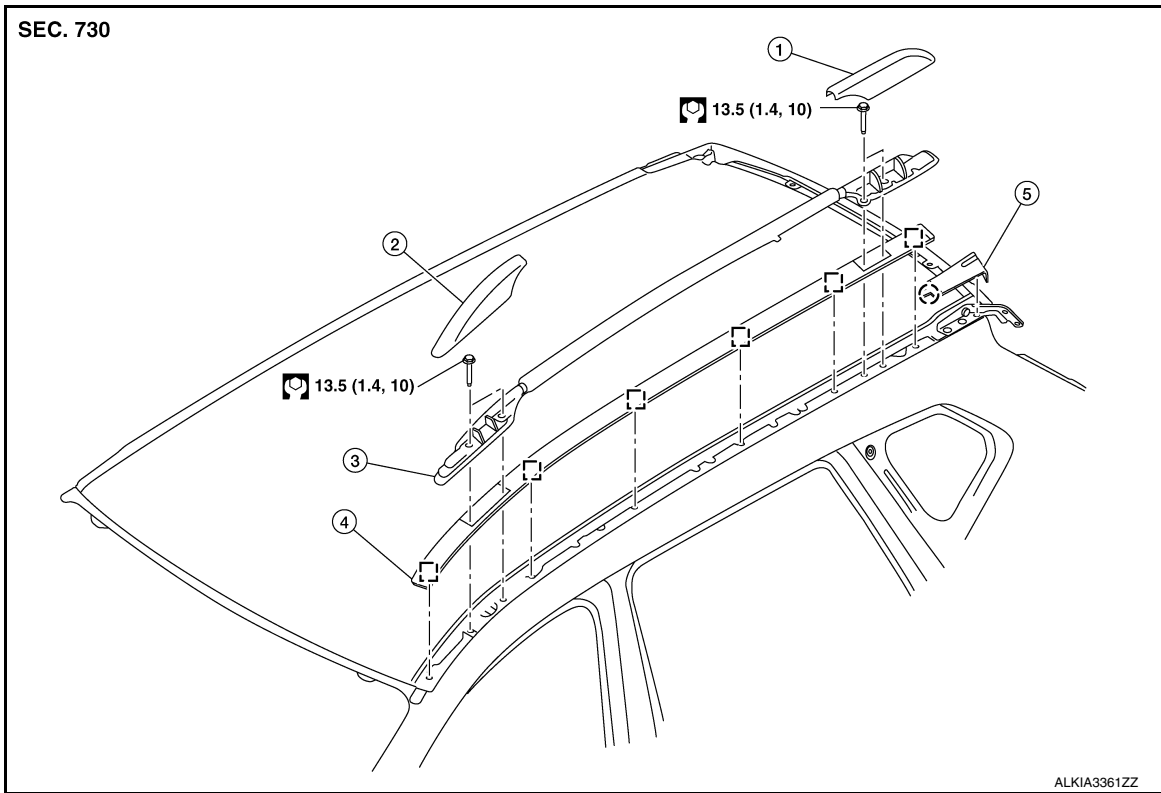
ROOF RACK

< REMOVAL AND INSTALLATION >

ROOF RACK

Exploded View

INFOID:000000009795107



- | | | |
|------------------------------|-------------------------------|--------------|
| 1. Roof rack rear bolt cover | 2. Roof rack front bolt cover | 3. Roof rack |
| 4. Roof side molding | 5. Back door hinge cover | □ Metal Clip |
| ○ Pawl | | |

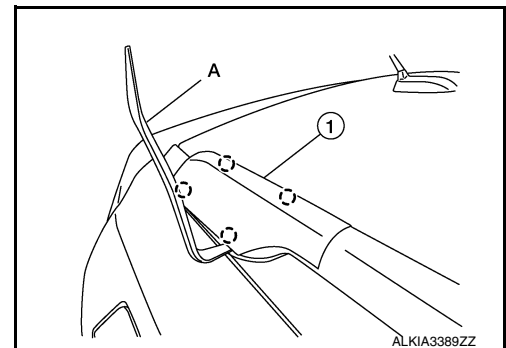
Removal and Installation

INFOID:000000009795108

REMOVAL

1. Release pawls and remove roof rack front and rear cover (1) using suitable tool (A).

○: Pawl



2. Remove bolts and remove roof rack.

INSTALLATION

Installation is in the reverse order of removal.

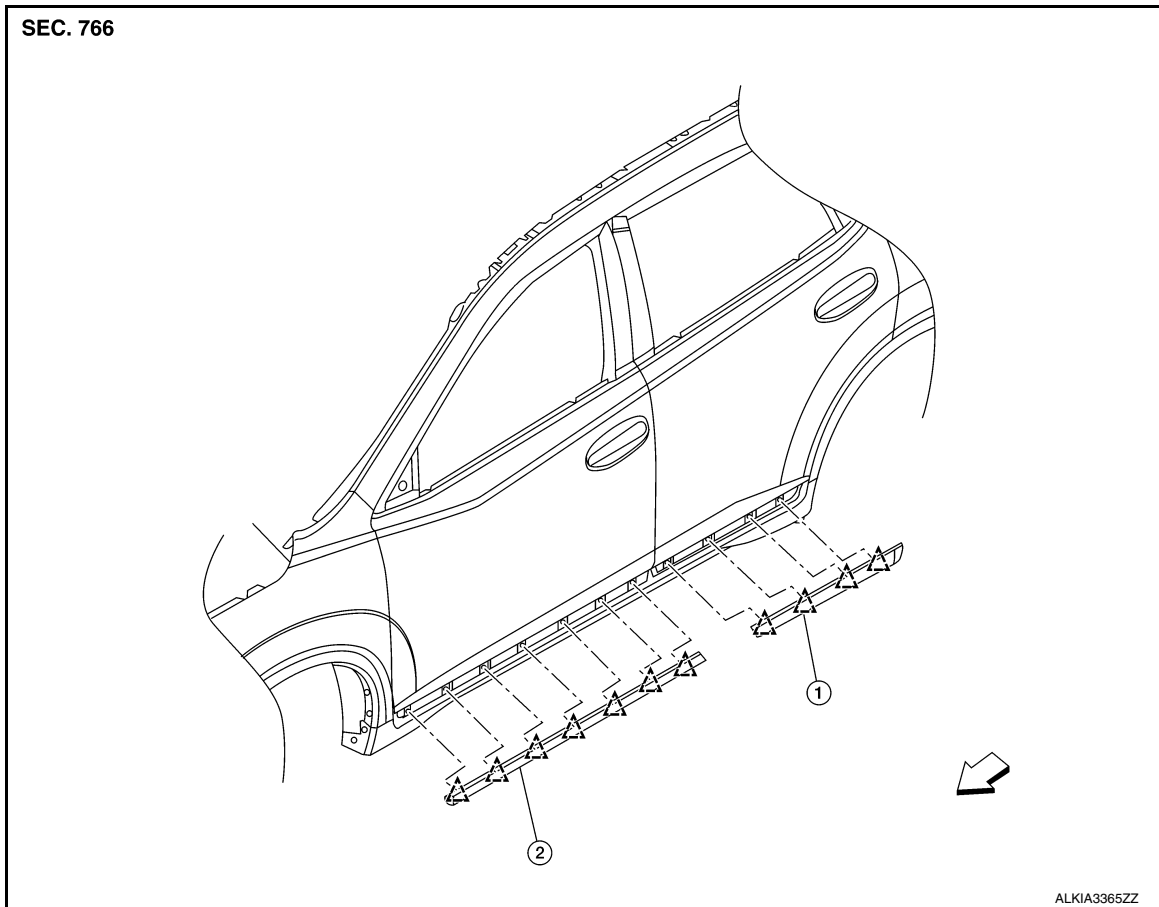
DOOR OUTSIDE LOWER MOLDING

< REMOVAL AND INSTALLATION >

DOOR OUTSIDE LOWER MOLDING

Exploded View

INFOID:000000010249318



1. Rear door outside lower molding 2. Front door outside lower molding  Clip

 Front

Removal and Installation

INFOID:000000010249319

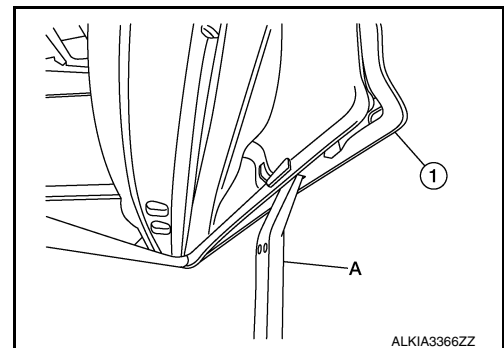
FRONT DOOR OUTSIDE LOWER MOLDING

Removal

1. Using a suitable tool (A) release clips from front door outside lower molding (1) starting at the rear and working forward.

CAUTION:

- Release the clips slowly and carefully.
- Do not pull the front door outside lower molding.



2. Remove the front door outside lower molding.

Installation

Installation is in the reverse order of removal.

DOOR OUTSIDE LOWER MOLDING

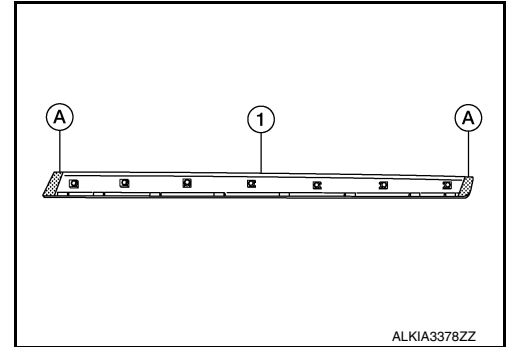
< REMOVAL AND INSTALLATION >

CAUTION:

- Do not reuse double-sided tape, always replace with new tape.
- When installing, visually check the front door outside lower molding and clips, replace with new clips if they have been damaged.
- When installing front door outside lower molding, make sure clips are attached to the molding. Make sure old clips have all been removed from door.

NOTE:

Install new double-sided tape (A) to front door outside lower molding as shown.



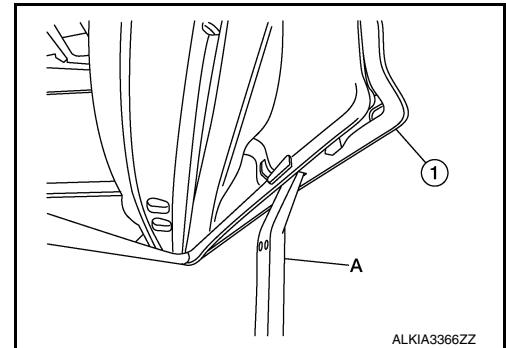
REAR DOOR OUTSIDE LOWER MOLDING

Removal

1. Using a suitable tool (A) release clips from rear door outside lower molding (1) starting at the rear and working forward.

CAUTION:

- Release the clips slowly and carefully.
- Do not pull the front door outside lower molding.



2. Remove the rear door outside lower molding.

Installation

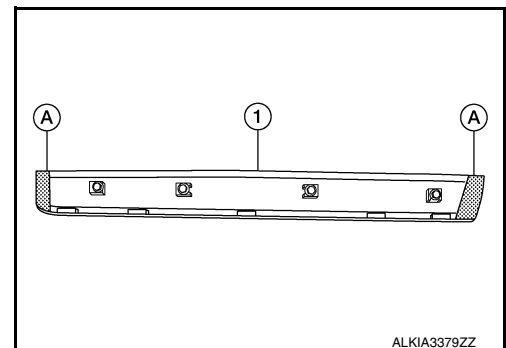
Installation is in the reverse order of removal.

CAUTION:

- Do not reuse double-sided tape, always replace with new tape.
- When installing, visually check the front door outside lower molding and clips, replace with new clips if they have been damaged.
- When installing front door outside lower molding, make sure clips are attached to the molding. Make sure old clips have all been removed from door.

NOTE:

Install new double-sided tape (A) to front door outside lower molding as shown.



REAR SPOILER

< REMOVAL AND INSTALLATION >

REAR SPOILER

Removal and Installation

INFOID:000000010351307

The rear spoiler is part of the back door assembly. Refer to [DLK-248. "BACK DOOR ASSEMBLY : Removal and Installation"](#) (WITH INTELLIGENT KEY SYSTEM) or [DLK-365. "BACK DOOR ASSEMBLY : Removal and Installation"](#) (WITHOUT INTELLIGENT KEY SYSTEM).

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

EXT

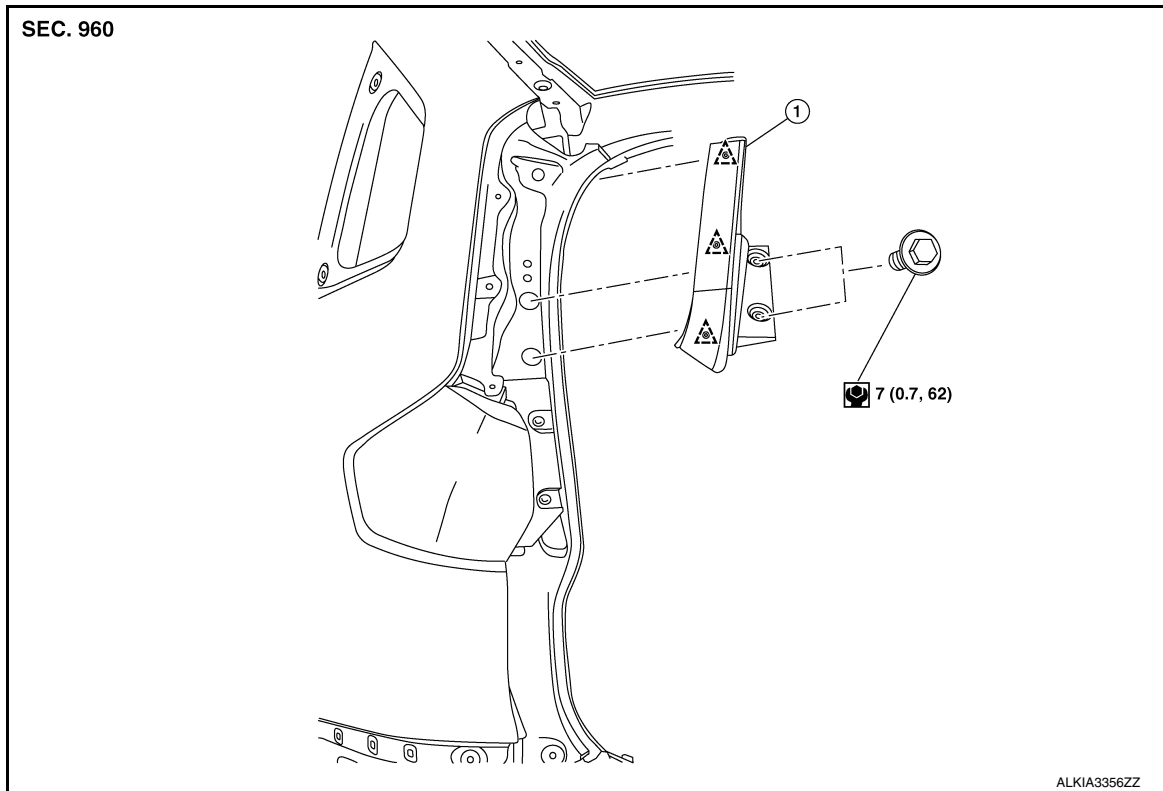
SIDE AIR SPOILER

< REMOVAL AND INSTALLATION >

SIDE AIR SPOILER

Exploded View

INFOID:000000009795115



1. Side air spoiler

△ Clip

Removal and Installation

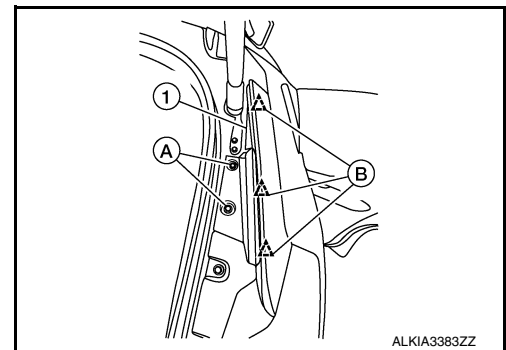
INFOID:000000009795116

REMOVAL

1. Remove side air spoiler bolts (A).

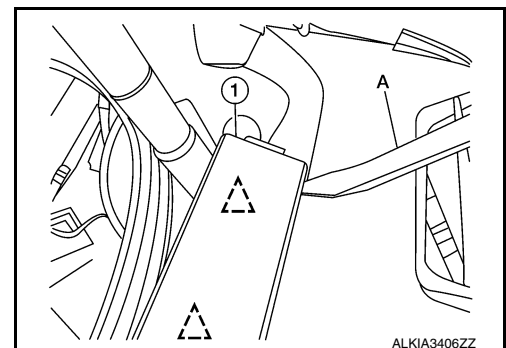
1: Side air spoiler

B: Clips



2. Release clips using suitable tool (A) and remove side air spoiler (1).

△: Clips



SIDE AIR SPOILER

< REMOVAL AND INSTALLATION >

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- When installing, visually check the side air spoiler and clips and replace them with new parts if they have been damaged.
- When installing side air spoiler, check that clips and bolts are securely placed in body panel holes.

A

B

C

D

E

F

G

H

I

J

EXT

L

M

N

O

P

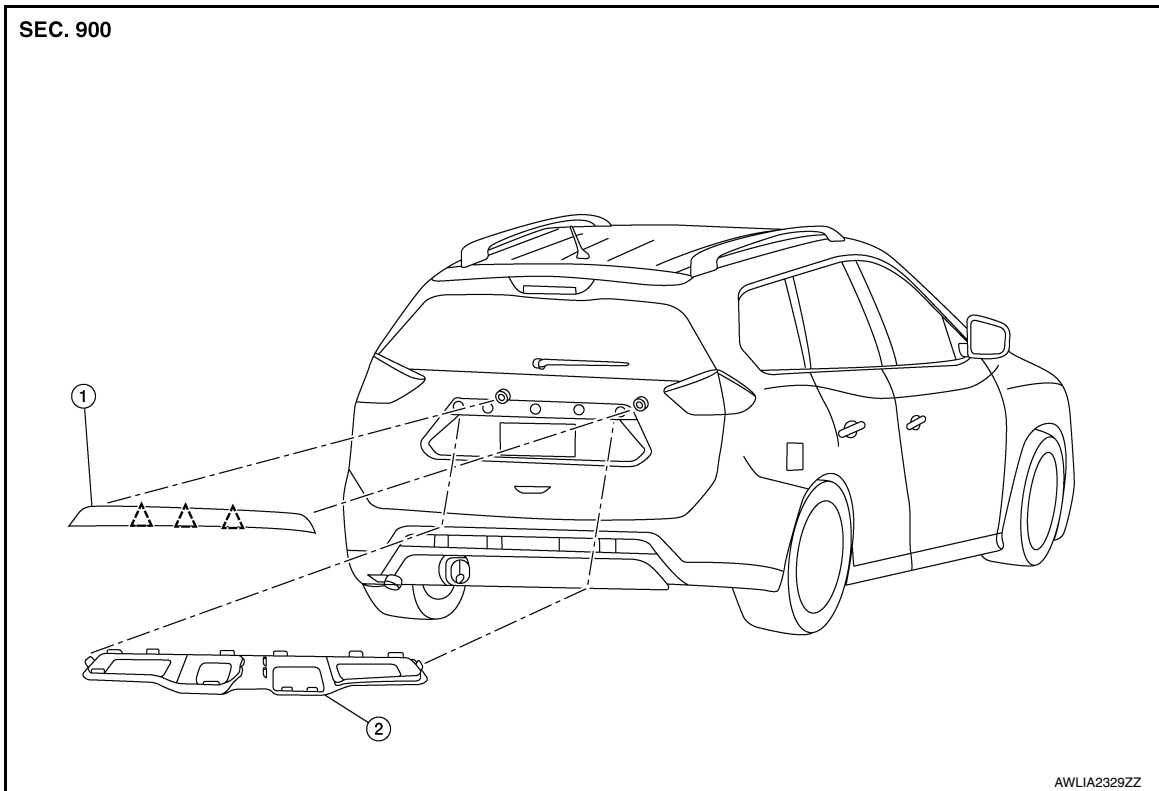
BACK DOOR OUTER FINISHER

< REMOVAL AND INSTALLATION >

BACK DOOR OUTER FINISHER

Exploded View

INFOID:000000009795117



1. Back door outer finisher

2. License lamp finisher

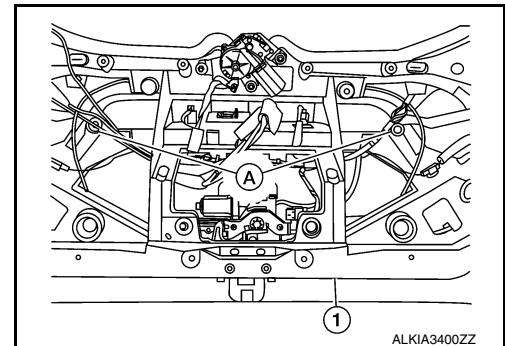
 Clip

Removal and Installation

INFOID:000000009795118

REMOVAL

1. Remove back door finisher. Refer to [INT-38, "Removal and Installation"](#).
2. Remove plugs (A) from back door (1).

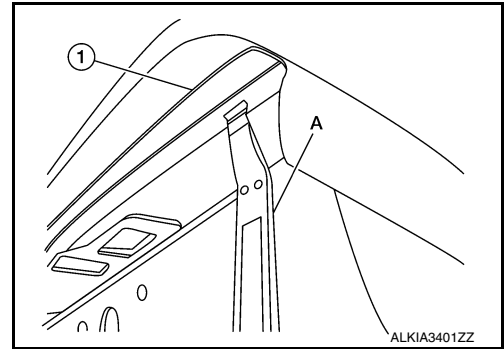


3. Remove back door outer finisher nuts.

BACK DOOR OUTER FINISHER

< REMOVAL AND INSTALLATION >

4. Release clips using suitable tool (A) and remove back door outer finisher (1).



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

When installing back door outer finisher, check that clips are securely placed in back door panel holes.

A
B
C
D
E
F
G
H
I
J
EXT
L
M
N
O
P

SECTION FAX

FRONT AXLE

A

B

C

FAX

CONTENTS

E

FWD	TRANSAXLE SIDE : Removal and Installation16	F
PRECAUTION 3	Inspection17	
PRECAUTIONS 3	FRONT DRIVE SHAFT18	G
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"3	Exploded View (LH)18	
Precautions for Drive Shaft3	Removal and Installation (LH)18	
PREPARATION 4	Exploded View (RH)20	H
PREPARATION 4	Removal and Installation (RH)20	
Special Service Tool4	Inspection23	
Commercial Service Tools4	UNIT DISASSEMBLY AND ASSEMBLY ...24	I
SYMPTOM DIAGNOSIS 6	FRONT DRIVE SHAFT24	J
NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING 6	Exploded View (LH)24	
NVH Troubleshooting Chart6	Disassembly and Assembly (LH)24	
PERIODIC MAINTENANCE 7	Exploded View (RH)27	K
FRONT WHEEL HUB AND KNUCKLE 7	Disassembly and Assembly (RH)27	
Inspection7	SERVICE DATA AND SPECIFICATIONS (SDS)32	L
FRONT DRIVE SHAFT 8	SERVICE DATA AND SPECIFICATIONS (SDS)32	
Inspection8	Wheel Bearing32	M
REMOVAL AND INSTALLATION 9	Drive Shaft32	
FRONT WHEEL HUB 9	AWD	
Exploded View9	PRECAUTION34	N
Removal and Installation9	PRECAUTIONS34	
FRONT DRIVE SHAFT BOOT12	Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"34	O
Exploded View12	Precautions for Drive Shaft34	
WHEEL SIDE13	PREPARATION35	P
WHEEL SIDE : Removal and Installation13	PREPARATION35	
TRANSAXLE SIDE16	Special Service Tool35	
	Commercial Service Tools35	
	SYMPTOM DIAGNOSIS37	

NOISE, VIBRATION AND HARSHNESS		TRANSAXLE SIDE : Removal and Installation	48
(NVH) TROUBLESHOOTING	37	Inspection	48
NVH Troubleshooting Chart	37		
PERIODIC MAINTENANCE	38		
FRONT WHEEL HUB AND KNUCKLE	38	FRONT DRIVE SHAFT	50
Inspection	38	Exploded View (LH)	50
FRONT DRIVE SHAFT	39	Removal and Installation (LH)	50
Inspection	39	Exploded View (RH)	52
REMOVAL AND INSTALLATION	40	Removal and Installation (RH)	52
FRONT WHEEL HUB	40	Inspection	55
Exploded View	40	UNIT DISASSEMBLY AND ASSEMBLY ...	57
Removal and Installation	40	FRONT DRIVE SHAFT	57
Inspection	42	Exploded View (LH)	57
FRONT DRIVE SHAFT BOOT	44	Disassembly and Assembly (LH)	57
Exploded View	44	Exploded View (RH)	60
WHEEL SIDE	44	Disassembly and Assembly (RH)	60
WHEEL SIDE : Removal and Installation	44	SERVICE DATA AND SPECIFICATIONS	
TRANSAXLE SIDE	48	(SDS)	65
		SERVICE DATA AND SPECIFICATIONS	
		(SDS)	65
		Wheel Bearing	65
		Drive Shaft	65

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010249196

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Precautions for Drive Shaft

INFOID:0000000010351439

Observe the following precautions when disassembling and assembling drive shaft:

- Do not disassemble joint sub-assembly because it is non-overhaul parts.
- Perform work in a location which is as dust-free as possible.
- Clean the parts before disassembling and assembling.
- Prevent the entry of foreign objects during disassembly.
- Reassemble disassembled parts carefully in the correct order. If work is interrupted, a clean cover must be placed over parts.
- Use paper shop cloths. Fabric shop cloths must not be used because of the danger of lint adhering to parts.
- Clean disassembled parts (except for rubber parts) with kerosene which shall be removed by blowing with air or wiping with paper shop cloths.

PREPARATION

< PREPARATION >

[FWD]

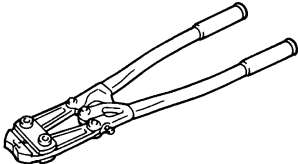
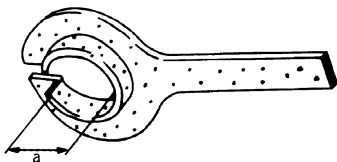
PREPARATION

PREPARATION

Special Service Tool

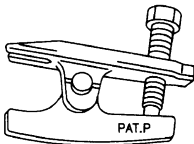
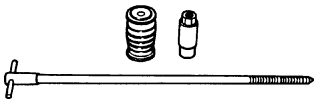
INFOID:0000000010351864

The actual shape of the tools may differ from those illustrated here.

Tool number (TechMate No.) Tool name	Description
KV40107300 (—) Boot band crimping tool	Installing boot band
 ZZA1229D	
KV40107500 (—) Drive shaft attachment	Removing drive shaft
 ZZA1230D	
KV38107900 (—) Protector	Installing drive shaft a: 32 mm (1.26 in) dia.
 PDIA1183J	

Commercial Service Tools

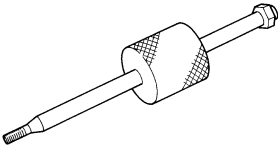
INFOID:0000000010351865

Tool name	Description
Ball joint remover	Removing wheel stud
 NT146	
Drive shaft puller	Removing drive shaft joint sub assembly
 JPDIG0152ZZ	

PREPARATION

< PREPARATION >

[FWD]

Tool name	Description
Sliding hammer	Removing drive shaft
 ZZA0023D	
Power tool	Loosening nuts, screws and bolts
 PIIB1407E	

A
B
C
FAX
E
F
G
H
I
J
K
L
M
N
O
P

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

< SYMPTOM DIAGNOSIS >

[FWD]

SYMPTOM DIAGNOSIS

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

NVH Troubleshooting Chart

INFOID:000000009798725

Use chart below to find the cause of the symptom. If necessary, repair or replace these parts.

Reference			—	FAX-23	—	FAX-9	—	FAX-7	FSU-5	—	WT-55	WT-55	—	BR-6	ST-6
Possible cause and SUSPECTED PARTS			Excessive joint angle	Joint sliding resistance	Imbalance	Improper installation, looseness	Parts interference	Wheel bearing damage	FRONT SUSPENSION	FRONT AXLE	TIRE	WHEEL	DRIVE SHAFT	BRAKE	STEERING
Symptom	DRIVE SHAFT	Noise	x	x				x	x	x	x	x		x	x
		Shake	x		x			x	x	x	x	x		x	x
	FRONT AXLE	Noise				x	x	x	x		x	x	x	x	x
		Shake				x	x	x	x		x	x	x	x	x
		Vibration				x	x	x	x		x		x		x
		Shimmy				x	x		x		x	x		x	x
		shudder				x			x		x	x		x	x
		Poor quality ride or handling				x	x		x		x	x			

x: Applicable

PERIODIC MAINTENANCE

FRONT WHEEL HUB AND KNUCKLE

Inspection

INFOID:0000000009798732

- Move the wheel hub and bearing in an axial direction by hand to verify that looseness of wheel hub and bearing exists. If any looseness exists, replace the wheel hub and bearing.

Axial end play : Refer to [FAX-32, "Wheel Bearing"](#).

- Rotate wheel hub and bearing to verify if unusual noises or other irregular conditions exist. If any irregular conditions exist, replace the wheel hub and bearing.

A

B

C

E

F

G

H

I

J

K

L

M

N

O

P

FAX

FRONT DRIVE SHAFT

Inspection

INFOID:000000009798733

Check the following items and replace parts as necessary:

- Check drive shaft mounting point and joint for looseness and other damage.
- Check boot for cracks and other damage.

CAUTION:

Replace entire drive shaft when noise or vibration occurs from drive shaft.

FRONT WHEEL HUB

< REMOVAL AND INSTALLATION >

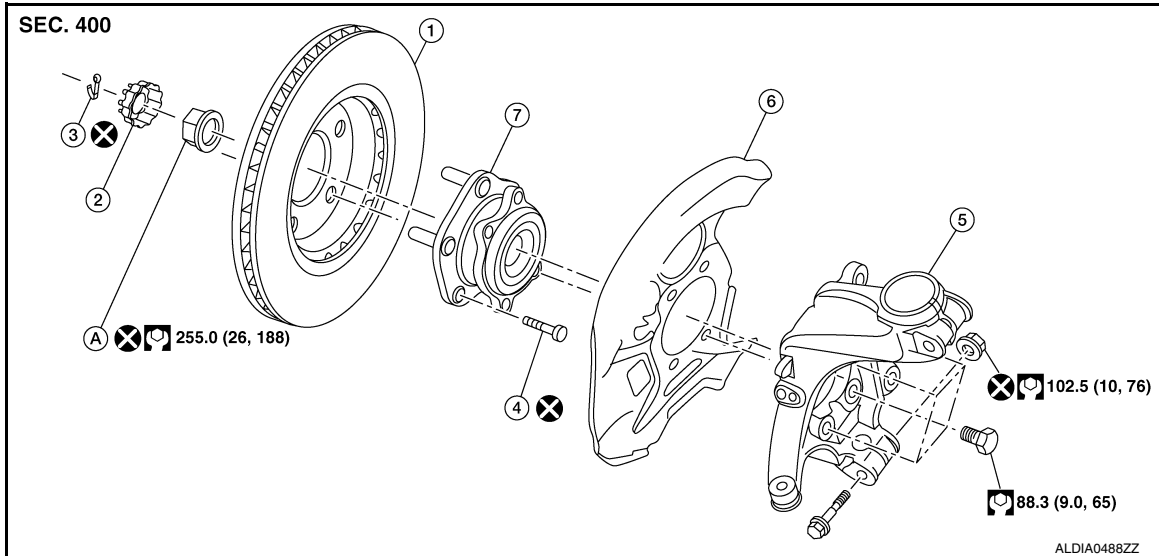
[FWD]

REMOVAL AND INSTALLATION

FRONT WHEEL HUB

Exploded View

INFOID:000000009798734



- | | | |
|--------------------------|-----------------------|-----------------|
| 1. Disc brake rotor | 2. Nut retainer | 3. Cotter pin |
| 4. Wheel stud | 5. Steering knuckle | 6. Splash guard |
| 7. Wheel hub and bearing | A. Wheel hub lock nut | |

Removal and Installation

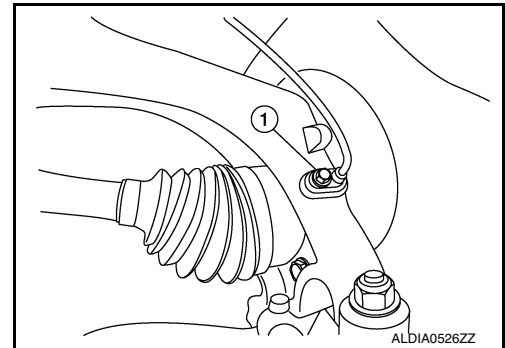
INFOID:000000009798735

REMOVAL

1. Remove front wheel and tire using power tool. Refer to [WT-57, "Adjustment"](#).
2. Remove the bolt (1) and separate the front wheel sensor from the steering knuckle. Refer to [BRC-132, "FRONT WHEEL SENSOR : Exploded View"](#).

CAUTION:

- Failure to separate the front wheel sensor from the steering knuckle may result in damage to the front wheel sensor.
- Pull out the front wheel sensor, being careful to turn it as little as possible. Do not pull on wheel sensor harness.



3. Remove brake caliper torque member bolts, leaving brake hose attached, reposition the caliper aside with wire. Refer to [BR-35, "BRAKE CALIPER ASSEMBLY \(1 PISTON TYPE\) : Exploded View"](#) (1 PISTON TYPE), or [BR-35, "BRAKE CALIPER ASSEMBLY \(1 PISTON TYPE\) : Exploded View"](#) (2 PISTON TYPE).

CAUTION:

Do not depress brake pedal while brake caliper is removed.

FRONT WHEEL HUB

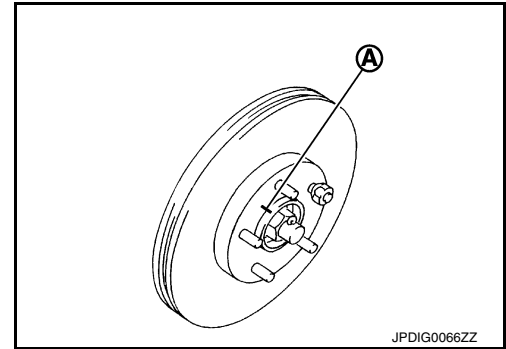
[FWD]

< REMOVAL AND INSTALLATION >

4. Put alignment marks (A) on disc brake rotor and wheel hub and bearing. Remove disc brake rotor.

CAUTION:

Do not drop the disc brake rotor.



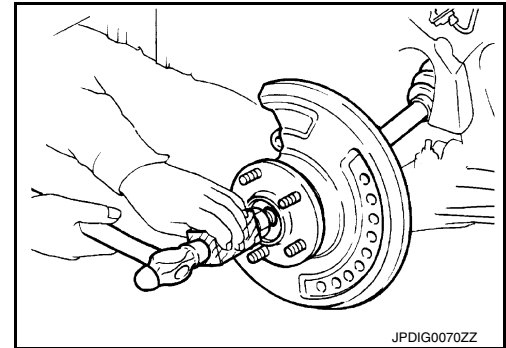
5. Remove cotter pin.
6. Remove the nut retainer.
7. Loosen the wheel hub lock nut from the drive shaft using power tool.
8. Using a piece of wood and a suitable tool, tap on the lock nut to disengage the drive shaft from the wheel hub and bearing.

CAUTION:

- **Do not place the drive shaft joint at an extreme angle. Be careful not to over extend the slide joint.**
- **Do not allow the drive shaft to hang without support.**

NOTE:

Use a suitable puller if drive shaft cannot be separated from the wheel hub and bearing.



9. Remove the wheel hub lock nut.
10. Remove the engine side cover. Refer to [EXT-28, "FENDER PROTECTOR : Exploded View"](#).
11. Remove the lower nut and bolt from the steering knuckle. Refer to [FAX-9, "Exploded View"](#).
12. Separate transverse link from steering knuckle. Refer to [FSU-12, "Exploded View"](#).
13. Separate drive shaft from wheel hub and bearing, Reposition the drive shaft aside with wire. Refer to [FAX-18, "Exploded View \(LH\)"](#) (LH) or [FAX-20, "Exploded View \(RH\)"](#) (RH).
14. Remove the wheel hub and bearing bolts using power tool.
15. Remove the splash guard and the wheel hub and bearing from the steering knuckle.

INSPECTION AFTER REMOVAL

Check the following items, and replace the part if necessary.

- Check components for deformation, cracks, and other damage.
- Check boots of transverse link ball joint for cracks, axial end play, and swing torque. Refer to [FAX-32](#).

INSTALLATION

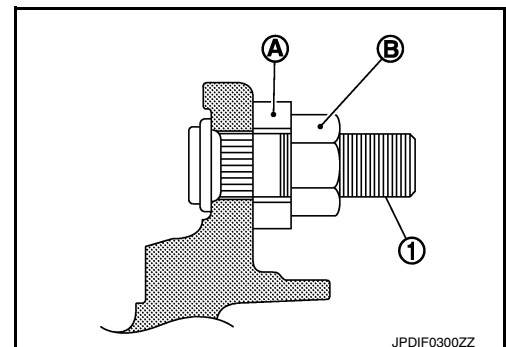
Installation is in the reverse order of the removal.

CAUTION:

- **Do not reuse the wheel stud.**
- **Do not reuse the cotter pin.**
- Place a washer (A) as shown to install the wheel studs (1) by using the tightening force of the nut (B).

CAUTION:

Check that there is no clearance between the wheel stud and the wheel hub and bearing.



FRONT WHEEL HUB

< REMOVAL AND INSTALLATION >

[FWD]

- Clean the mating surfaces of the wheel hub lock nut and the wheel hub and bearing.

CAUTION:

Do not apply lubricating oil to these mating surfaces.

- Clean the mating surfaces of the joint sub-assembly and the wheel hub and bearing. Apply Molykote M77 lubricant to the surface (A) of the joint sub-assembly.

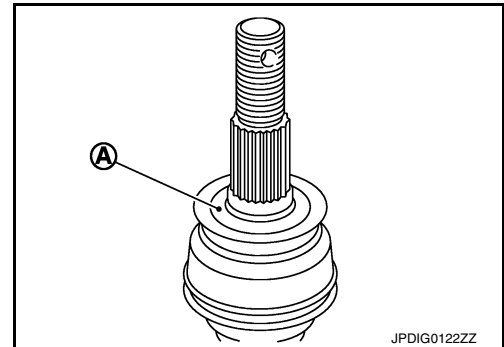
CAUTION:

Apply lubricant to cover the entire flat mating surface of the joint sub-assembly.

Amount of lubricant : [FAX-32, "Drive Shaft"](#)

NOTE:

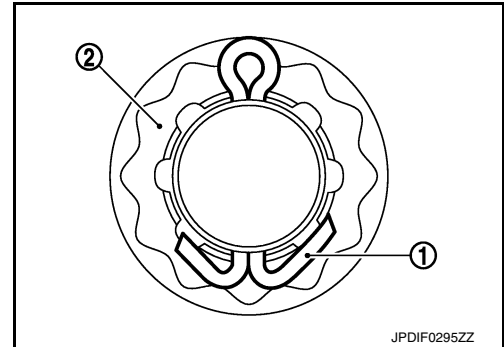
Always check with the Parts Department for the latest parts information.



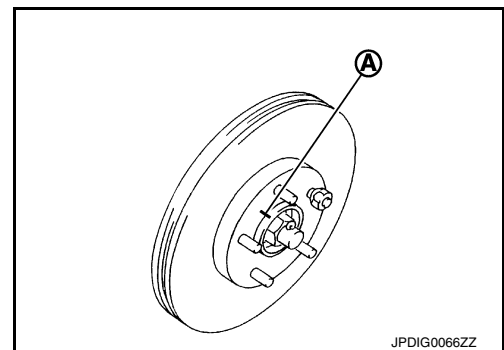
- Hold the wheel hub and bearing using a suitable tool. Tighten the wheel hub lock nut.

CAUTION:

- **Since the drive shaft is assembled by press-fitting, use a torque wrench to tighten the wheel hub lock nut. Do not use a power tool.**
- **Too much torque causes axle noise. Too little torque causes wheel bearing looseness. Tighten the wheel hub lock nut to the specification.**
- When installing a the cotter pin (1) and the nut retainer (2), securely bend the cotter pin to prevent rattles.



- Align the matching marks (A) on the disc brake rotor and on the wheel hub and bearing.



- Complete the inspection. Refer to [FAX-7, "Inspection"](#).

INSPECTION AFTER INSTALLATION

1. Check the wheel alignment. Refer to [FSU-7, "Inspection"](#).
2. Adjust neutral position of steering angle sensor. Refer to [BRC-70, "Work Procedure"](#).

FRONT DRIVE SHAFT BOOT

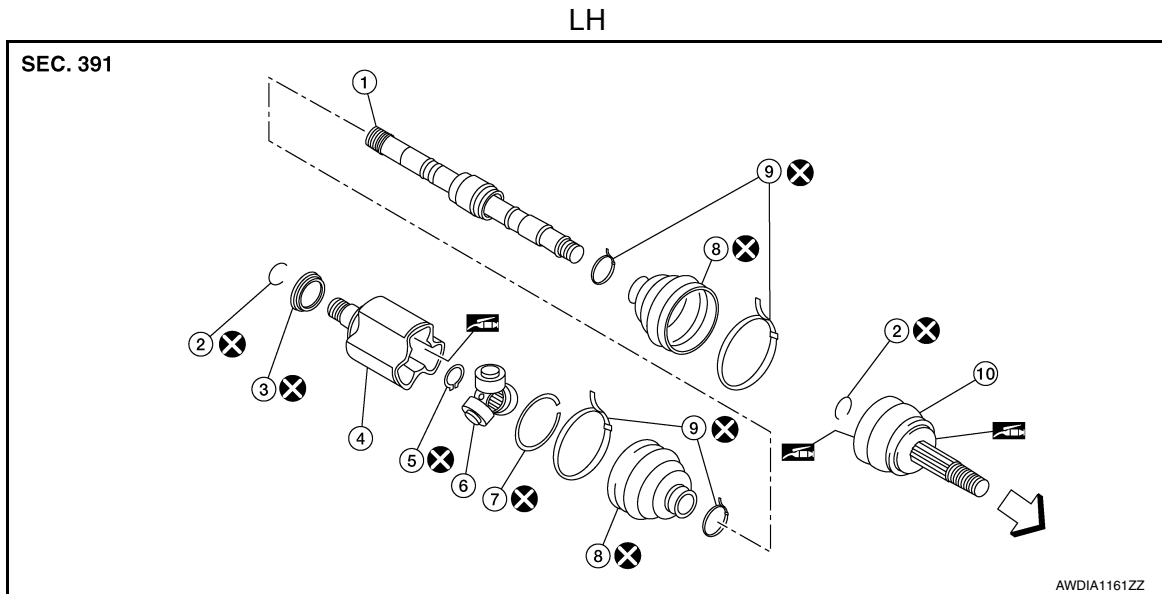
< REMOVAL AND INSTALLATION >

[FWD]

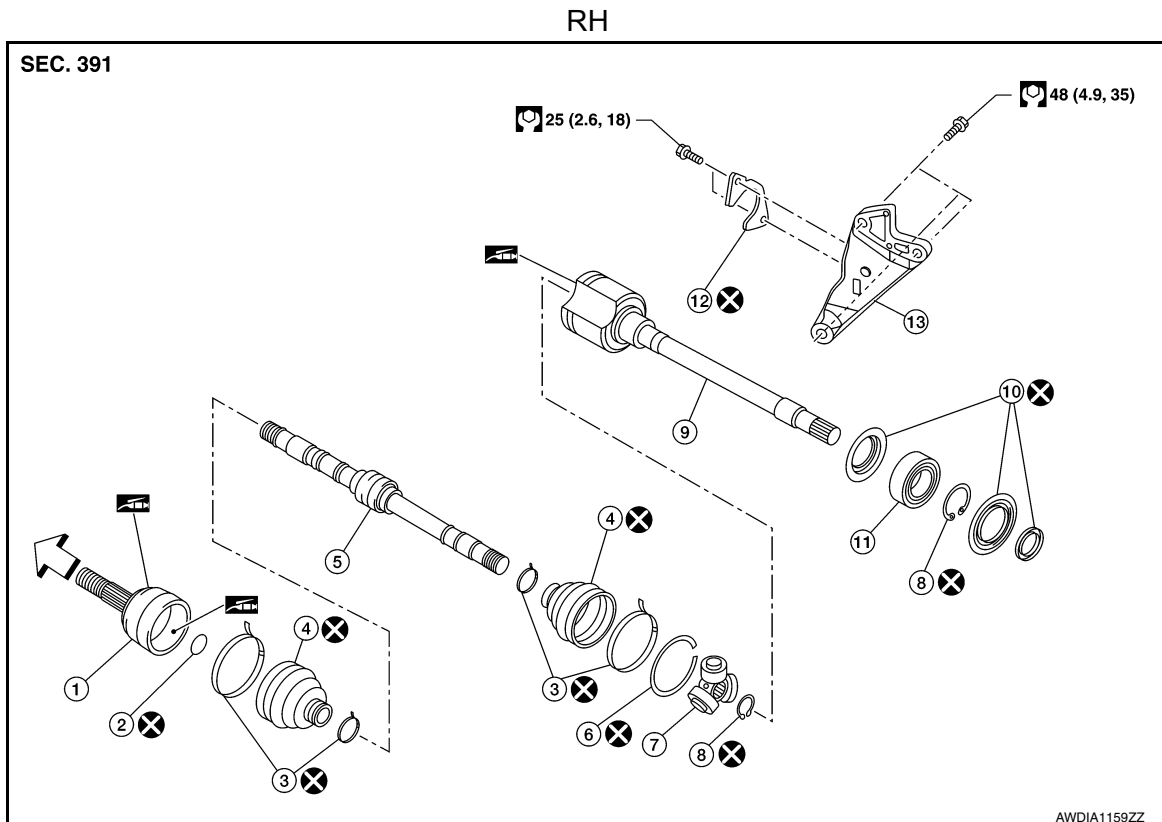
FRONT DRIVE SHAFT BOOT

Exploded View

INFOID:000000009798737



- | | | |
|------------------------|------------------|--------------------|
| 1. Shaft | 2. Circular clip | 3. Dust shield |
| 4. Housing | 5. Snap ring | 6. Spider assembly |
| 7. Stopper ring | 8. Boot | 9. Boot band |
| 10. Joint sub-assembly | : Wheel side | |



- | | | |
|-----------------------|------------------|----------------|
| 1. Joint sub-assembly | 2. Circular clip | 3. Boot band |
| 4. Boot | 5. Shaft | 6. Damper band |

FRONT DRIVE SHAFT BOOT

< REMOVAL AND INSTALLATION >

[FWD]

- | | | |
|---------------------|-----------------|-----------------------------|
| 7. Dynamic damper | 8. Stopper ring | 9. Spider assembly |
| 10. Snap ring | 11. Housing | 12. Dust shield |
| 13. Support bearing | 14. Retainer | 15. Support bearing bracket |

↩ : Wheel side

WHEEL SIDE

WHEEL SIDE : Removal and Installation

INFOID:000000010339835

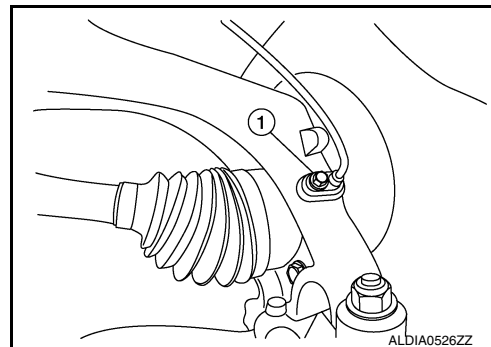
REMOVAL

1. Remove front wheel and tire using power tool. Refer to [WT-57, "Adjustment"](#).

2. Remove the bolt (1) and separate the front wheel sensor from the steering knuckle. Refer to [BRC-132, "FRONT WHEEL SENSOR : Removal and Installation"](#).

CAUTION:

- Failure to separate the front wheel sensor from the steering knuckle may result in damage to the front wheel sensor.
- Pull out the front wheel sensor, being careful to turn it as little as possible. Do not pull on front wheel sensor harness



3. Remove brake caliper torque member bolts, leaving brake hose attached, reposition the caliper aside with wire. Refer to [BR-35, "BRAKE CALIPER ASSEMBLY \(1 PISTON TYPE\) : Exploded View"](#) (1 PISTON TYPE), or [BR-35, "BRAKE CALIPER ASSEMBLY \(1 PISTON TYPE\) : Exploded View"](#) (2 PISTON TYPE).

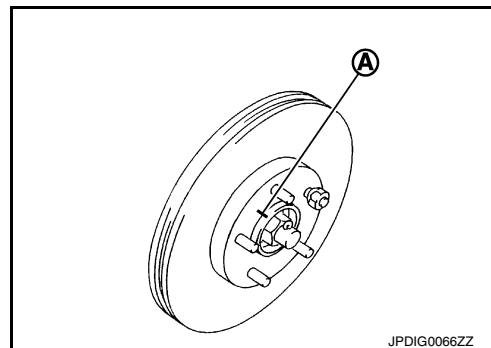
CAUTION:

Do not depress brake pedal while brake caliper is removed.

4. Put alignment marks (A) on disc brake rotor and wheel hub and bearing. Remove disc brake rotor.

CAUTION:

Do not drop the disc brake rotor.



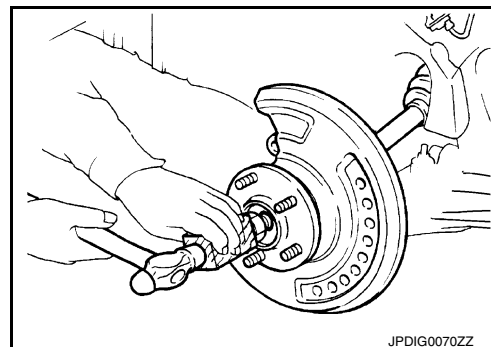
5. Remove cotter pin.
6. Remove the nut retainer.
7. Loosen the wheel hub lock nut from the drive shaft using power tool.
8. Using a piece of wood and a suitable tool, tap on the lock nut to disengage the drive shaft from the wheel hub and bearing.

CAUTION:

- Do not place the drive shaft joint at an extreme angle. Be careful not to over extend the slide joint.
- Do not allow the drive shaft to hang without support.

NOTE:

Use a suitable puller if drive shaft cannot be separated from the wheel hub and bearing.



9. Remove the wheel hub lock nut.
10. Remove the engine side cover. Refer to [EXT-28, "FENDER PROTECTOR : Exploded View"](#).

FRONT DRIVE SHAFT BOOT

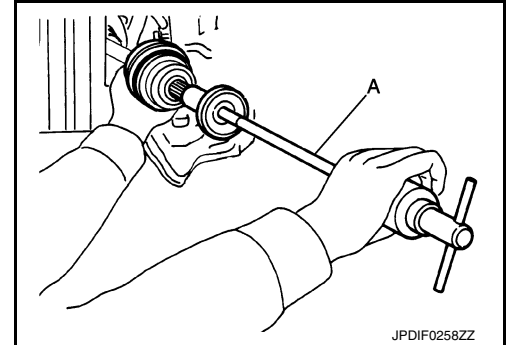
[FWD]

< REMOVAL AND INSTALLATION >

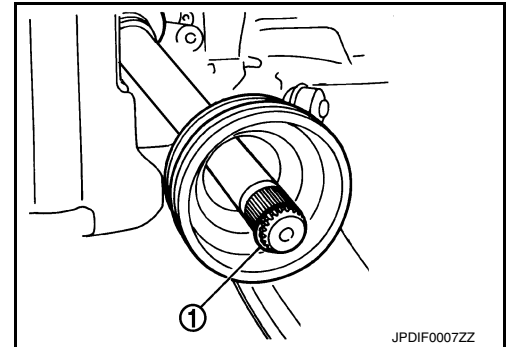
11. Remove the lower nut and bolt from the steering knuckle (shown in explode). Separate the transverse link from the steering knuckle. Refer to [FAX-9, "Exploded View"](#).
12. Separate drive shaft from wheel hub and bearing, Reposition the drive shaft aside with wire. Refer to [FAX-12, "Exploded View"](#).
13. Remove boot bands.
14. Remove boot from joint sub-assembly.
15. Screw a suitable tool (A) 30 mm (1.18 in) or more into threaded part of joint sub-assembly. Support drive shaft with one hand and pull out joint sub-assembly with a sliding hammer or suitable tool from housing assembly.

CAUTION:

- Align sliding hammer or suitable tool and drive shaft and remove joint sub-assembly by pulling directly.
- If joint sub-assembly cannot be removed after five or more unsuccessful attempts, replace the entire drive shaft assembly.



16. Remove circular clip (1) from shaft.



17. Remove outer boot from shaft.
18. Inspect the components. Refer to [FAX-17, "Inspection"](#).

INSTALLATION

1. Clean the old grease on joint sub-assembly with paper shop cloth.
2. Fill serration slot joint sub-assembly with NISSAN genuine grease or equivalent.

CAUTION:

After applying grease, use a paper shop cloth to wipe off old grease that has oozed out.

NOTE:

Always check with the Parts Department for the latest parts information.

3. Install boot and boot bands to shaft.

CAUTION:

- Wrap serration on shaft with tape to protect the boot from damage.
- Do not reuse boot and boot band.

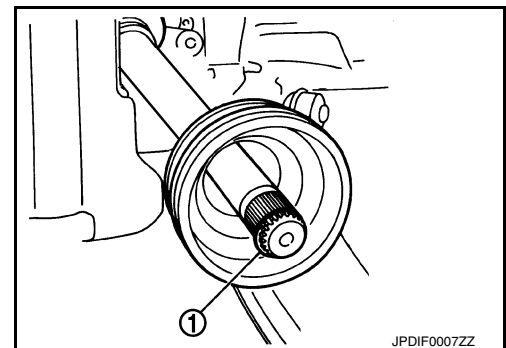
4. Remove the tape wrapped around the serration on shaft.
5. Position the circular clip (1) on groove at the shaft edge.

CAUTION:

Do not reuse circular clip.

NOTE:

A drive joint inserter is recommended when installing the circular clip.



FRONT DRIVE SHAFT BOOT

< REMOVAL AND INSTALLATION >

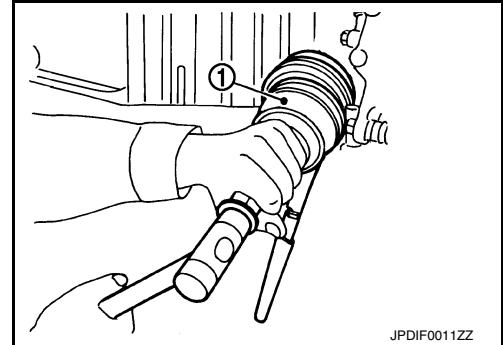
[FWD]

6. Align of the shaft and joint sub-assembly. Assemble the shaft with joint sub-assembly while holding the circular clip.

7. Install joint sub-assembly (1) to housing assembly using suitable tool.

CAUTION:

Confirm that joint sub-assembly is correctly engaged while rotating drive housing assembly.



8. Apply the specified amount of grease into the large diameter side opening of the boot.

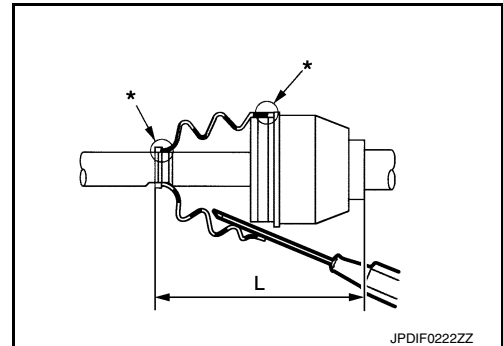
Grease amount : Refer to [FAX-32, "Drive Shaft"](#).

9. Install the boot securely into grooves (indicated by "*" marks) shown in the figure.

CAUTION:

If grease adheres to the boot mounting surface (indicated by "*" mark) on the shaft or the joint sub-assembly, boot may come off. Remove all grease from the boot mounting surface.

10. Make sure boot installation length (L) is the specified length. Insert a suitable tool into the large end of boot. Bleed air from boot to prevent boot deformation.



Boot installation length (L) : Refer to [FAX-32, "Drive Shaft"](#).

CAUTION:

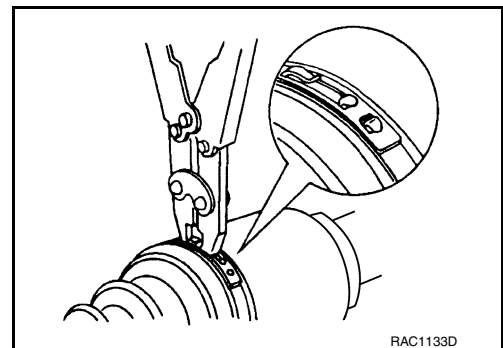
- Boot may break if boot installation length is not within standard value.
- Be careful that suitable tool does not contact inside surface of boot.

11. Install new large and small boot bands securely using Tool.

Tool number : KV40107300 (—)

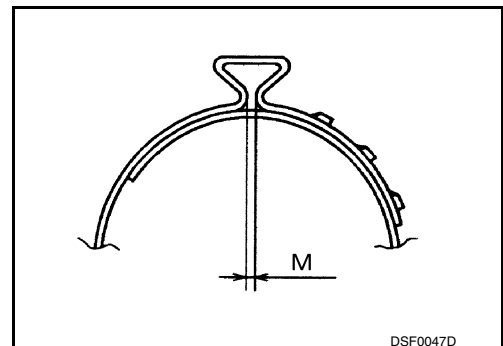
CAUTION:

Do not reuse boot band.



12. Secure boot band so that dimension (M) meets the specification as shown.

Dimension (M) : Refer to [FAX-13, "WHEEL SIDE : Removal and Installation"](#).



FRONT DRIVE SHAFT BOOT

< REMOVAL AND INSTALLATION >

[FWD]

13. Attempt to rotate the boot to check whether or not the boot bands are securing the boot. If the boot is not secure, remove the boot bands, reposition the boot, and install new boot bands.
14. Clean the mating surfaces of the joint sub-assembly and the wheel hub and bearing. Apply Molykote M77 lubricant to the surface (A) of the joint sub-assembly.

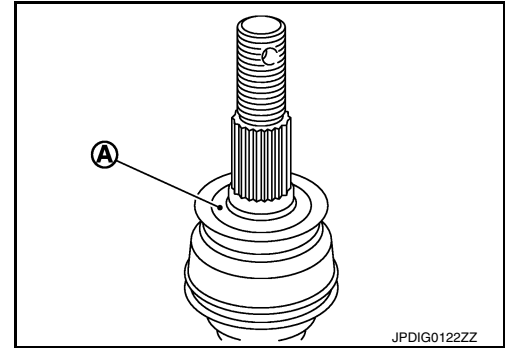
CAUTION:

Apply lubricant to cover the entire flat mating surface of the joint sub-assembly.

Amount of lubricant [FAX-32, "Drive Shaft"](#)

NOTE:

Always check with the Parts Department for the latest parts information.



15. Clean the mating surface of the drive shaft (A) and the wheel hub and bearing.
16. Insert drive shaft to wheel hub and bearing.
17. Temporarily install the wheel hub lock nut.

CAUTION:
Do not reuse the wheel hub lock nut.
18. Install the transverse link to the steering knuckle. Tighten the steering knuckle nut and bolt to the specification. Refer to [FSU-12, "Exploded View"](#).
19. Align the marks on the disc brake rotor and on the wheel hub and bearing. Install the disc brake rotor.
20. Install caliper to steering knuckle. Refer to [BR-35, "BRAKE CALIPER ASSEMBLY \(1 PISTON TYPE\): Removal and Installation"](#).
21. Install the front wheel sensor to the steering knuckle. Refer to [BRC-132, "FRONT WHEEL SENSOR: Removal and Installation"](#).

CAUTION:

 - Before installing, make sure there is no foreign material such as iron fragments adhered to the pick-up part of the front wheel sensor.
 - When installing, make sure there is no foreign material such as iron fragments on and in the hole in the steering knuckle for the front wheel sensor. Make sure no foreign material has been caught in the sensor rotor. Remove any foreign material and then install the front wheel sensor.
22. Hold the wheel hub and bearing. tighten the wheel hub lock nut. Refer to [FAX-9, "Removal and Installation"](#).

CAUTION:

 - Since the drive shaft is assembled by press-fitting, use a torque wrench to tighten the wheel hub lock nut. Do not use a power tool.
 - Too much torque causes axle noise. too little torque causes wheel bearing looseness. Tighten the wheel hub lock nut to the specification.
23. Install the nut retainer.
24. Install a new cotter pin. Refer to [FAX-9, "Exploded View"](#).

CAUTION:

 - Do not reuse cotter pin.
 - Bend cotter pin securely to prevent any looseness.
25. Install the front wheel and tire. Refer to [WT-57, "Adjustment"](#).

TRANSAXLE SIDE

TRANSAXLE SIDE : Removal and Installation

INFOID:0000000010339836

NOTE:

Remove boot after removing drive shaft.

- For drive shaft removal and installation, refer to [FAX-18, "Removal and Installation \(LH\)"](#).
- For drive shaft disassembly and assembly, refer to [FAX-24, "Disassembly and Assembly \(LH\)"](#) (LH) or [FAX-27, "Disassembly and Assembly \(RH\)"](#) (RH).

FRONT DRIVE SHAFT BOOT

< REMOVAL AND INSTALLATION >

[FWD]

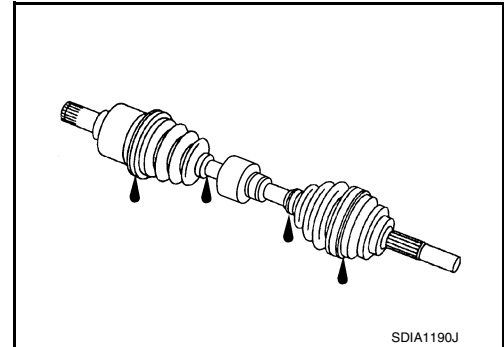
Inspection

INFOID:0000000010339837

INSPECTION AFTER INSTALLATION

Check the following items, and replace the part if necessary.

- Move joint up/down, left/right, and in the axial directions. Check for motion that is not smooth and for significant looseness.
- Check boot for cracks, damage, and leakage of grease.
- Check the wheel sensor harness to be sure the connectors are fully seated.
- Check the wheel alignment. Refer to [WT-56, "Inspection"](#).



A

B

C

FAX

E

F

G

H

I

J

K

L

M

N

O

P

FRONT DRIVE SHAFT

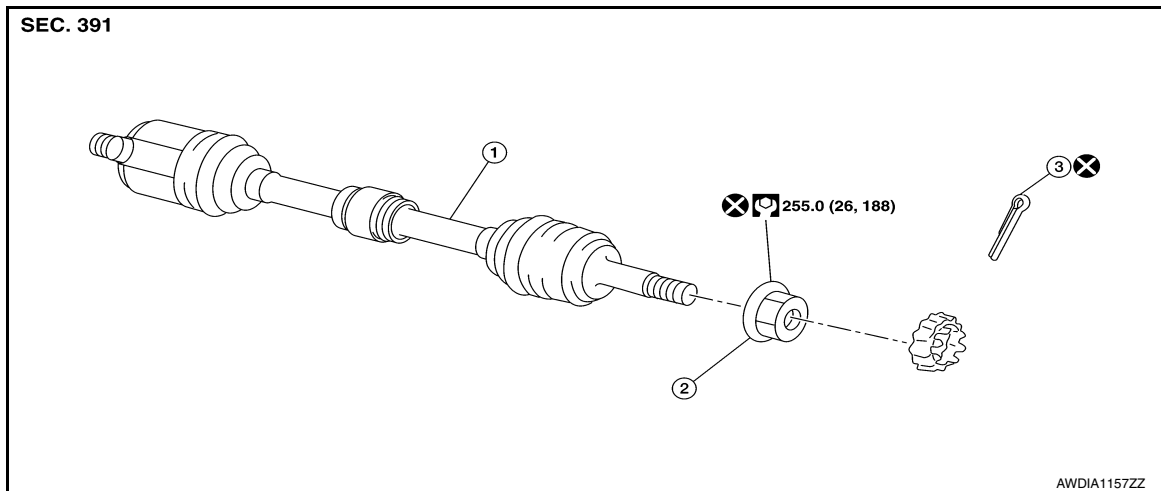
< REMOVAL AND INSTALLATION >

[FWD]

FRONT DRIVE SHAFT

Exploded View (LH)

INFOID:000000010365188



1. Drive shaft

2. Nut retainer

3. Cotter pin

Removal and Installation (LH)

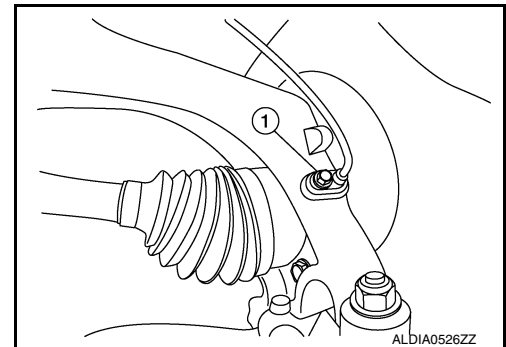
INFOID:000000009798741

REMOVAL

1. Remove front wheel and tire using power tool. Refer to [WT-57, "Adjustment"](#).
2. Remove the bolt (1) and separate the front wheel sensor from the steering knuckle. Refer to [BRC-132, "FRONT WHEEL SENSOR : Removal and Installation"](#).

CAUTION:

- Failure to separate the front wheel sensor from the steering knuckle may result in damage to the front wheel sensor.
- Pull out the front wheel sensor, being careful to turn it as little as possible. Do not pull on front wheel sensor harness



3. Remove brake caliper torque member bolts, leaving brake hose attached, reposition the caliper aside with wire. Refer to [BR-35, "BRAKE CALIPER ASSEMBLY \(1 PISTON TYPE\) : Exploded View"](#) (1 PISTON TYPE), or [BR-35, "BRAKE CALIPER ASSEMBLY \(1 PISTON TYPE\) : Exploded View"](#) (2 PISTON TYPE).

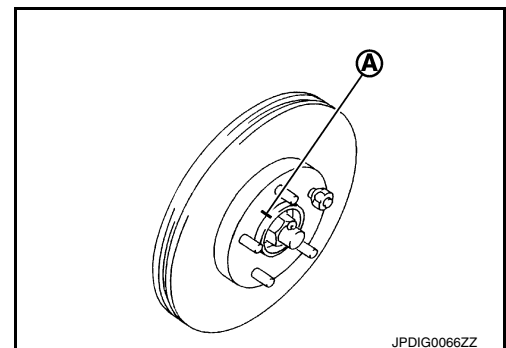
CAUTION:

Do not depress brake pedal while brake caliper is removed.

4. Put alignment marks (A) on disc brake rotor and wheel hub and bearing. Remove disc brake rotor.

CAUTION:

Do not drop the disc brake rotor.



5. Remove cotter pin.

FRONT DRIVE SHAFT

< REMOVAL AND INSTALLATION >

[FWD]

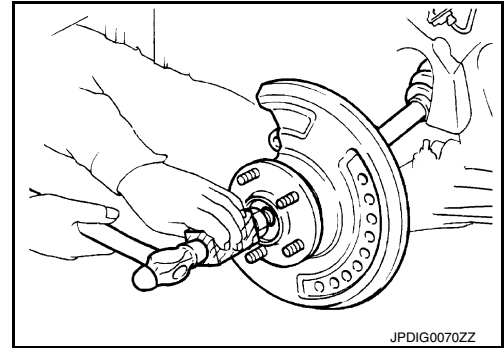
6. Remove the nut retainer.
7. Loosen the wheel hub lock nut from the drive shaft using power tool.
8. Using a piece of wood and a suitable tool, tap on the lock nut to disengage the drive shaft from the wheel hub and bearing.

CAUTION:

- Do not place the drive shaft joint at an extreme angle. Be careful not to over extend the slide joint.
- Do not allow the drive shaft to hang without support.

NOTE:

Use a suitable puller if drive shaft cannot be separated from the wheel hub and bearing.

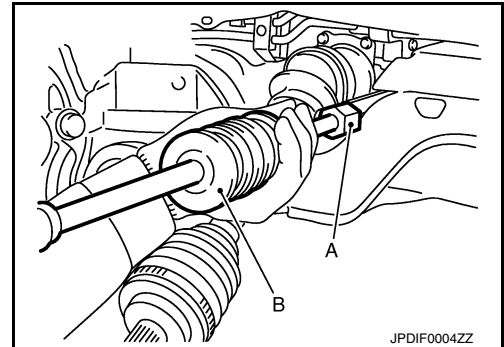


9. Remove the wheel hub lock nut.
10. Remove the engine side cover. Refer to [EXT-28, "FENDER PROTECTOR : Exploded View"](#).
11. Remove the lower nut and bolt from the steering knuckle (shown in explode). Separate the transverse link from the steering knuckle. Refer to [FAX-9, "Exploded View"](#).
12. Separate drive shaft from wheel hub and bearing, Reposition the drive shaft aside with wire.
13. Remove drive shaft from transaxle assembly.

- Use the Tool (A) and a suitable tool (B) while inserting tip of Tool (A) between housing and transaxle assembly.

CAUTION:

- Do not place drive shaft joint at an extreme angle when removing drive shaft. Also be careful not to overextend slide joint.
- Confirm that the circular clip is attached to the drive shaft.



Tool (A) : KV40107500 (—)

INSTALLATION

Installation is in the reverse order of removal.

- Install a new differential side oil seal. Refer to [TM-210, "Removal and Installation"](#).

CAUTION:

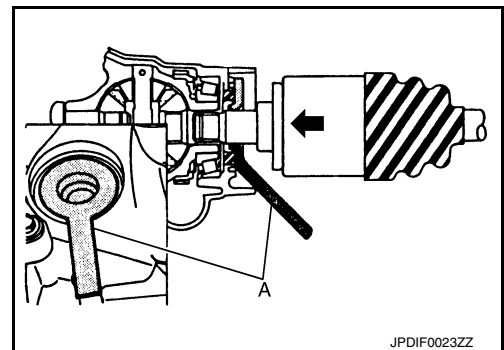
Do not reuse the differential side oil seal.

- Place Tool (A) onto transaxle assembly to prevent damage to the differential side oil seal while inserting drive shaft. Slide drive shaft sliding joint and tap with a suitable tool to install securely.

CAUTION:

Check that circular clip is completely engaged.

Tool (A) : KV38107900 (—)



- Clean the matching surface of wheel hub lock nut and wheel hub and bearing.

CAUTION:

Do not apply lubricating oil to these matching surface.

FRONT DRIVE SHAFT

[FWD]

< REMOVAL AND INSTALLATION >

- Clean the mating surfaces of the joint sub-assembly and the wheel hub and bearing. Apply Molykote M77 lubricant to the surface (A) of the joint sub-assembly.

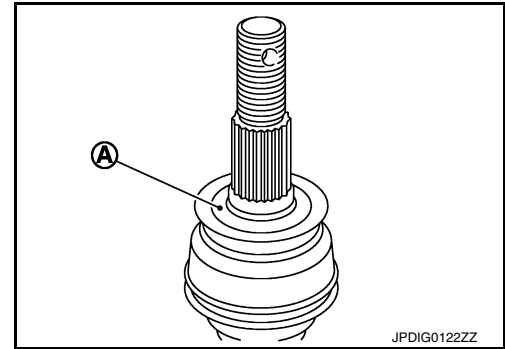
CAUTION:

Apply lubricant to cover the entire flat mating surface of the joint sub-assembly.

Amount of lubricant : [FAX-32, "Drive Shaft"](#)

NOTE:

Always check with the Parts Department for the latest parts information.



- Hold the wheel hub and bearing using a suitable tool. Tighten the wheel hub lock nut.

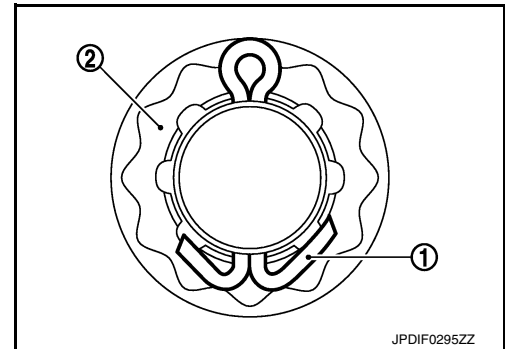
CAUTION:

- Since the drive shaft is assembled by press-fitting, use a torque wrench to tighten the wheel hub lock nut. Do not use a power tool.
- Too much torque causes axle noise. Too little torque causes wheel bearing looseness. Tighten the wheel hub lock nut to the specification.
- Align the matching marks that have been made during removal when reusing the disc brake rotor.
- When installing a cotter pin (1) and nut retainer (2), securely bend the cotter pin to prevent rattles.

CAUTION:

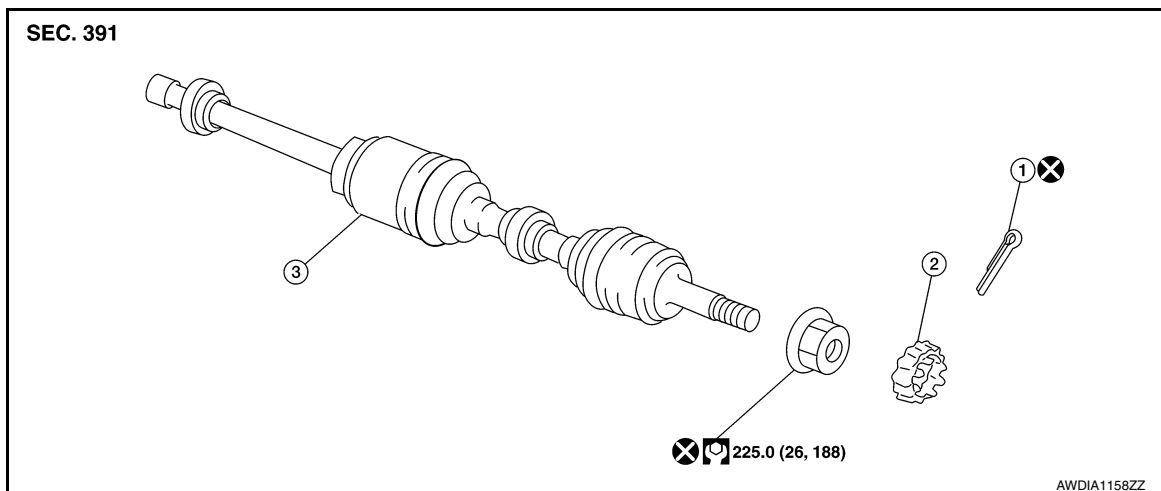
Do not reuse cotter pin.

- Perform the final tightening of each of parts under unladen conditions, which were removed when removing wheel hub and bearing and steering knuckle.



Exploded View (RH)

INFOID:0000000010365189



1. Cotter pin

2. Nut retainer

3. Drive shaft

Removal and Installation (RH)

INFOID:0000000010365186

REMOVAL

1. Remove front wheel and tire using power tool. Refer to [WT-57, "Adjustment"](#).

FRONT DRIVE SHAFT

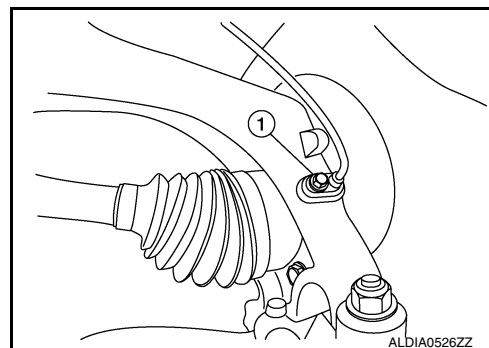
< REMOVAL AND INSTALLATION >

[FWD]

2. Remove the bolt (1) and separate the front wheel sensor from the steering knuckle. Refer to [BRC-132, "FRONT WHEEL SENSOR : Removal and Installation"](#).

CAUTION:

- Failure to separate the front wheel sensor from the steering knuckle may result in damage to the front wheel sensor.
- Pull out the front wheel sensor, being careful to turn it as little as possible. Do not pull on front wheel sensor harness



3. Remove brake caliper torque member bolts, leaving brake hose attached, reposition the caliper aside with wire. Refer to [BR-35, "BRAKE CALIPER ASSEMBLY \(1 PISTON TYPE\) : Exploded View"](#) (1 PISTON TYPE), or [BR-35, "BRAKE CALIPER ASSEMBLY \(1 PISTON TYPE\) : Exploded View"](#) (2 PISTON TYPE).

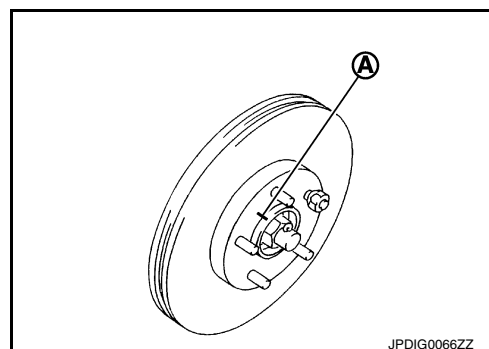
CAUTION:

Do not depress brake pedal while brake caliper is removed.

4. Put alignment marks (A) on disc brake rotor and wheel hub and bearing. Remove disc brake rotor.

CAUTION:

Do not drop the disc brake rotor.



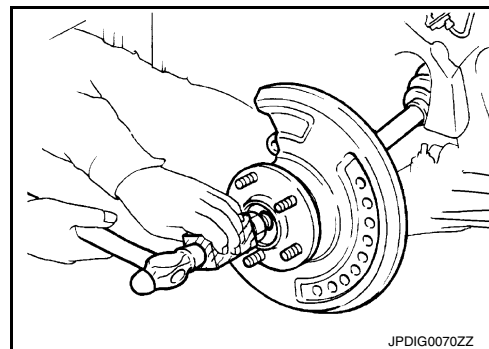
5. Remove cotter pin.
6. Remove the nut retainer.
7. Loosen the wheel hub lock nut from the drive shaft using power tool.
8. Using a piece of wood and a suitable tool, tap on the lock nut to disengage the drive shaft from the wheel hub and bearing.

CAUTION:

- Do not place the drive shaft joint at an extreme angle. Be careful not to over extend the slide joint.
- Do not allow the drive shaft to hang without support.

NOTE:

Use a suitable puller if drive shaft cannot be separated from the wheel hub and bearing.



9. Remove the wheel hub lock nut.
 10. Remove the engine side cover. Refer to [EXT-28, "FENDER PROTECTOR : Exploded View"](#).
 11. Remove the lower nut and bolt from the steering knuckle (shown in explode). Separate the transverse link from the steering knuckle. Refer to [FAX-9, "Exploded View"](#).
 12. Separate drive shaft from wheel hub and bearing and reposition drive shaft aside with wire.
 13. Remove retainer mounting bolts and retainer.
 14. If necessary, remove the support bearing bracket mounting bolts and the support bearing bracket.
 15. Remove drive shaft from transaxle assembly.
 - Use the Tool (A) and a suitable tool (B) while inserting tip of Tool (A) between housing and transaxle assembly.
- CAUTION:**
- Do not place drive shaft joint at an extreme angle when removing drive shaft. Also be careful not to overextend slide joint.

FRONT DRIVE SHAFT

< REMOVAL AND INSTALLATION >

[FWD]

Tool : KV40107500 (—)

INSTALLATION

1. Install a new differential side oil seal. Refer to [TM-210, "Removal and Installation"](#).

CAUTION:

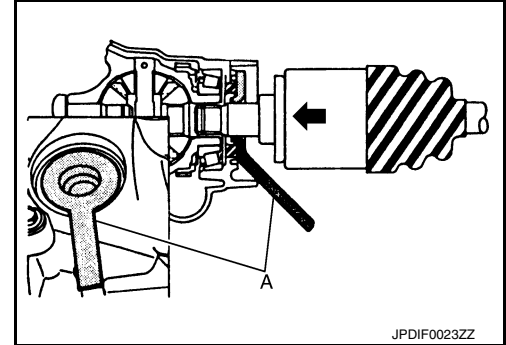
Do not reuse the differential side oil seal.

2. Place Tool (A) onto transaxle assembly to prevent damage to the differential side oil seal while inserting drive shaft. Slide drive shaft sliding joint and tap with a suitable tool to install securely.

CAUTION:

Check that circular clip is completely engaged.

Tool : KV38107900 (—)

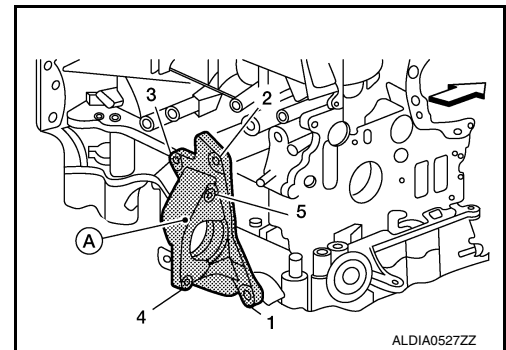


Support bearing bracket

1. Install front drive shaft and bearing retainer with notch (A) facing upward.
2. Tighten bolts in the numerical order as shown.
 - Refer to the following for the installation positions of bolts.

⇐ : Front

M12 bolts	: No. 1	97.1 N·m (9.9 kg-m, 72 ft-lb)
M10 bolts	: No. 2, 3	48.0 N·m (4.9 kg-m, 35 ft-lb)
M8 bolts	: No. 4, 5	25.0 N·m (2.6 kg-m, 18 ft-lb)



3. Clean the matching surface of wheel hub lock nut and wheel hub and bearing.

CAUTION:

Do not apply lubricating oil to these matching surface.

4. Clean the mating surfaces of the joint sub-assembly and the wheel hub and bearing. Apply Molykote M77 lubricant to the surface (A) of the joint sub-assembly.

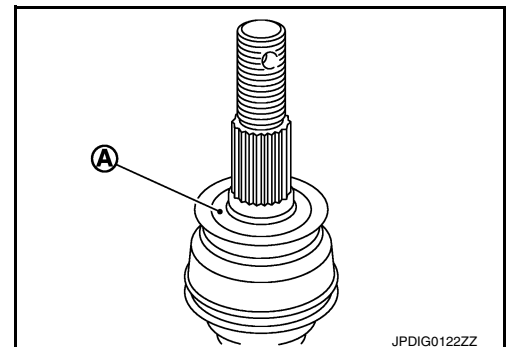
CAUTION:

Apply lubricant to cover the entire flat mating surface of the joint sub-assembly.

Amount of lubricant : [FAX-32, "Drive Shaft"](#)

NOTE:

Always check with the Parts Department for the latest parts information.



5. Hold the wheel hub and bearing using a suitable tool. Tighten the wheel hub lock nut.
 - CAUTION:**
 - **Since the drive shaft is assembled by press-fitting, use a torque wrench to tighten the wheel hub lock nut. Do not use a power tool.**
 - **Too much torque causes axle noise. Too little torque causes wheel bearing looseness. Tighten the wheel hub lock nut to the specification.**
6. Align the matching marks that have been made during removal when reusing the disc brake rotor.

FRONT DRIVE SHAFT

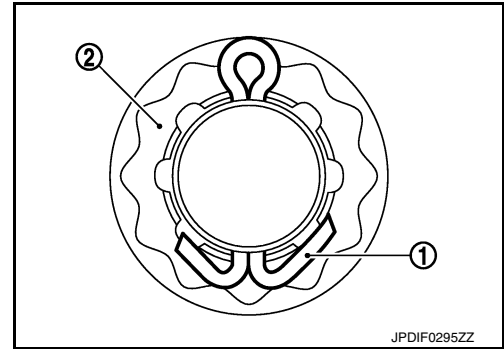
< REMOVAL AND INSTALLATION >

[FWD]

7. When installing a cotter pin (1) and adjusting cap (2), securely bend the cotter pin to prevent rattles.

CAUTION:

Do not reuse cotter pin.



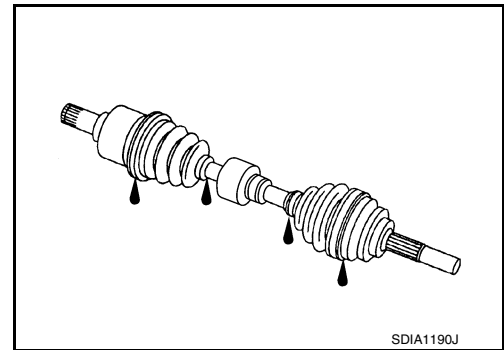
8. Perform the final tightening of each of parts under unladen conditions, which were removed when removing wheel hub and bearing and steering knuckle.
9. Installation of the remaining components is in the reverse order of removal.

Inspection

INFOID:000000009798743

INSPECTION AFTER REMOVAL

- Move joint up/down, left/right, and in the axial directions. Check for motion that is not smooth and for significant looseness.
- Check boot for cracks, damage, and leakage of grease.
- Disassemble drive shaft and exchange malfunctioning part if there is a non-standard condition.



INSPECTION AFTER DISASSEMBLY

Shaft

Check shaft for runout, cracks, or other damage. Replace if there are.

Dynamic Damper

Check damper for cracks or wear. Replace if necessary.

Joint Sub-Assembly (Wheel Side)

Check the following:

- Joint sub-assembly for rough rotation and excessive axial looseness
 - The inside of the joint sub-assembly for entry of foreign material
 - Joint sub-assembly for compression scars, cracks, and fractures inside of joint sub-assembly
- Replace joint sub-assembly if there are any non-standard conditions of components.

Housing and Spider assembly (Transaxle Side)

Replace housing and spider assembly if there is scratching or wear of housing roller contact surface or spider roller contact surface.

NOTE:

Housing and spider assembly are used in a set.

Support Bearing (Right Side)

Make sure wheel bearing rolls freely and is free from noise, cracks, pitting or wear. Replace support bearing if there are any non-standard conditions.

Support Bearing Bracket (Right Side)

Check for bending, cracks, or damage. Replace support bearing bracket if there are any non-standard conditions.

FRONT DRIVE SHAFT

< UNIT DISASSEMBLY AND ASSEMBLY >

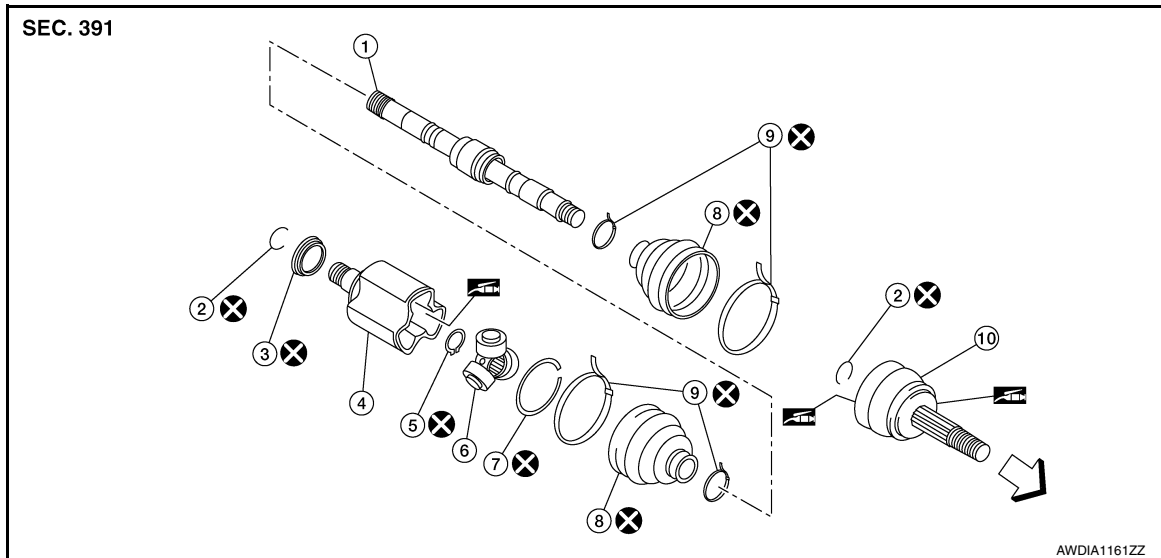
[FWD]

UNIT DISASSEMBLY AND ASSEMBLY

FRONT DRIVE SHAFT

Exploded View (LH)

INFOID:000000010351611



- | | | |
|------------------------|------------------|--------------------|
| 1. Shaft | 2. Circular clip | 3. Dust shield |
| 4. Housing | 5. Snap ring | 6. Spider assembly |
| 7. Stopper ring | 8. Boot | 9. Boot band |
| 10. Joint sub-assembly | ↵ Wheel side | |

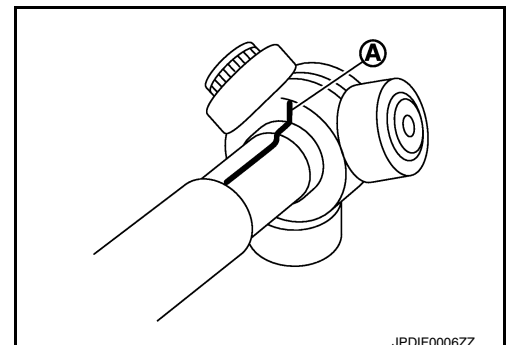
Disassembly and Assembly (LH)

INFOID:000000009798742

DISASSEMBLY

Transaxle Assembly Side

- Fix shaft with a vise.
CAUTION:
Protect shaft using aluminum or copper plates when fixing with a vise.
- Remove boot bands, and then remove boot from housing.
- Remove stopper ring.
- Put matching marks on housing and shaft, and then pull out housing from shaft.
CAUTION:
Use paint or an equivalent for matching marks. Do not scratch the surfaces.
- Put matching marks (A) on the spider assembly and shaft.
CAUTION:
Use paint or an equivalent for matching marks. Do not scratch the surfaces.

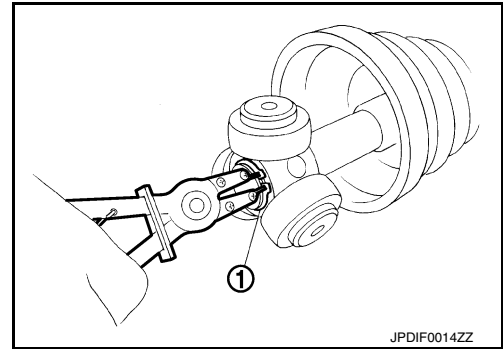


FRONT DRIVE SHAFT

< UNIT DISASSEMBLY AND ASSEMBLY >

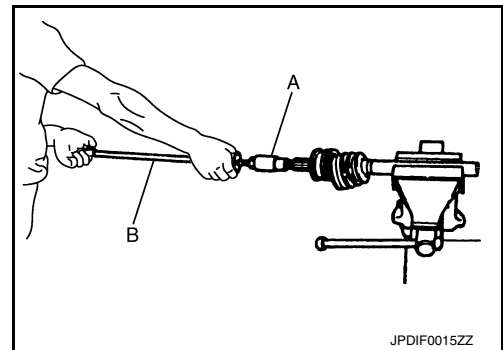
[FWD]

6. Remove snap ring (1), and then remove spider assembly from shaft.
7. Remove boot from shaft.
8. Remove circular clip from housing (left side).
9. Remove dust shield from housing.
10. Clean old grease on housing with paper waste.



Wheel Side

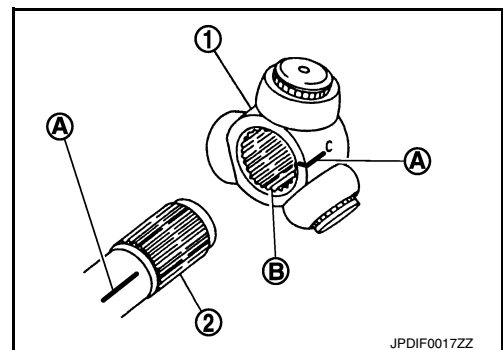
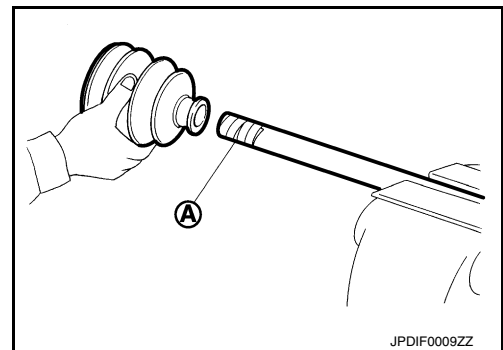
1. Fix shaft with a vise.
CAUTION:
Protect shaft using aluminum or copper plates when fixing with a vise.
2. Remove boot bands, and then remove boot from joint sub-assembly.
3. Screw the drive shaft puller (A) 30 mm (1.18 in) or more into the thread of joint sub-assembly, and pull joint sub-assembly with a sliding hammer (B) from shaft.
CAUTION:
 - If joint sub-assembly cannot be removed after five or more unsuccessful attempts, replace shaft and joint sub assembly as a set.
 - Align sliding hammer and drive shaft and remove them by pulling forcibly.
4. Remove circular clip from shaft.
5. Remove boot from shaft.
6. Clean old grease on joint sub-assembly with paper waste while rotating ball cage.



ASSEMBLY

Transaxle Assembly Side

1. Install new boot and boot bands to shaft.
CAUTION:
 - Wrap serration on shaft with tape (A) to protect from damage
 - Do not reuse boot and boot band.
2. Remove the tape wrapped around the serration on shaft.
3. To install the spider assembly (1), align it with the matching marks (A) on the shaft (2) put during the removal, and direct the serration mounting surface (B) to the shaft.



FRONT DRIVE SHAFT

< UNIT DISASSEMBLY AND ASSEMBLY >

[FWD]

4. Secure spider assembly onto shaft with snap ring (1).
CAUTION:
Do not reuse snap ring.
5. Apply the appropriate amount of grease to spider assembly and sliding surface.
6. Assemble the housing onto spider assembly, and apply the specified amount of grease.

Grease amount : Refer to [FAX-32, "Drive Shaft"](#).

7. Align matching marks put during the removal of housing.
8. Install stopper ring.
CAUTION:
Do not reuse stopper ring.
9. Install boot securely into grooves (indicated by "*" marks) shown.
CAUTION:
If grease adheres to the boot mounting surface (indicated "*" mark) on shaft or housing, boot may be removed. Remove all grease from the boot mounting surface.
10. To prevent the deformation of the boot, adjust the boot installation length (L) to the value shown below by inserting the suitable tool into the inside of boot from the large diameter side of boot and discharging inside air.

Boots installed length (L) : Refer to [FAX-32, "Drive Shaft"](#).

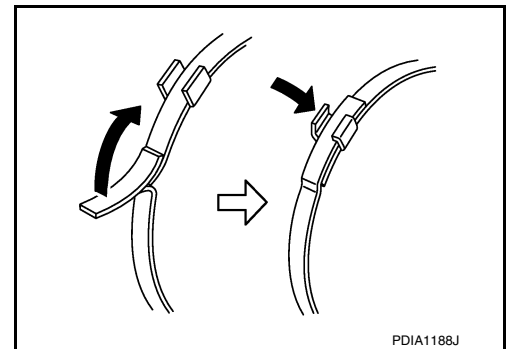
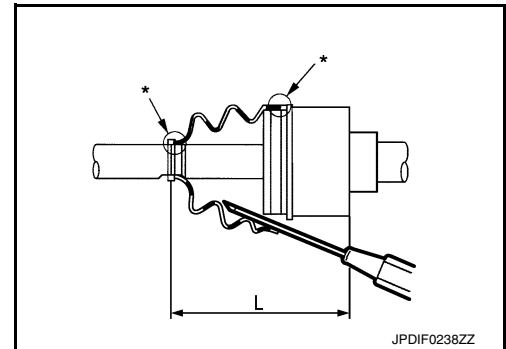
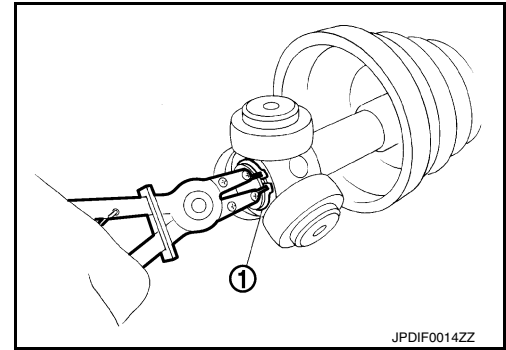
CAUTION:

- If the boot installation length is outside the standard, it may cause breakage of boot.
- Be careful not to touch the inside of the boot with the tip of tool.

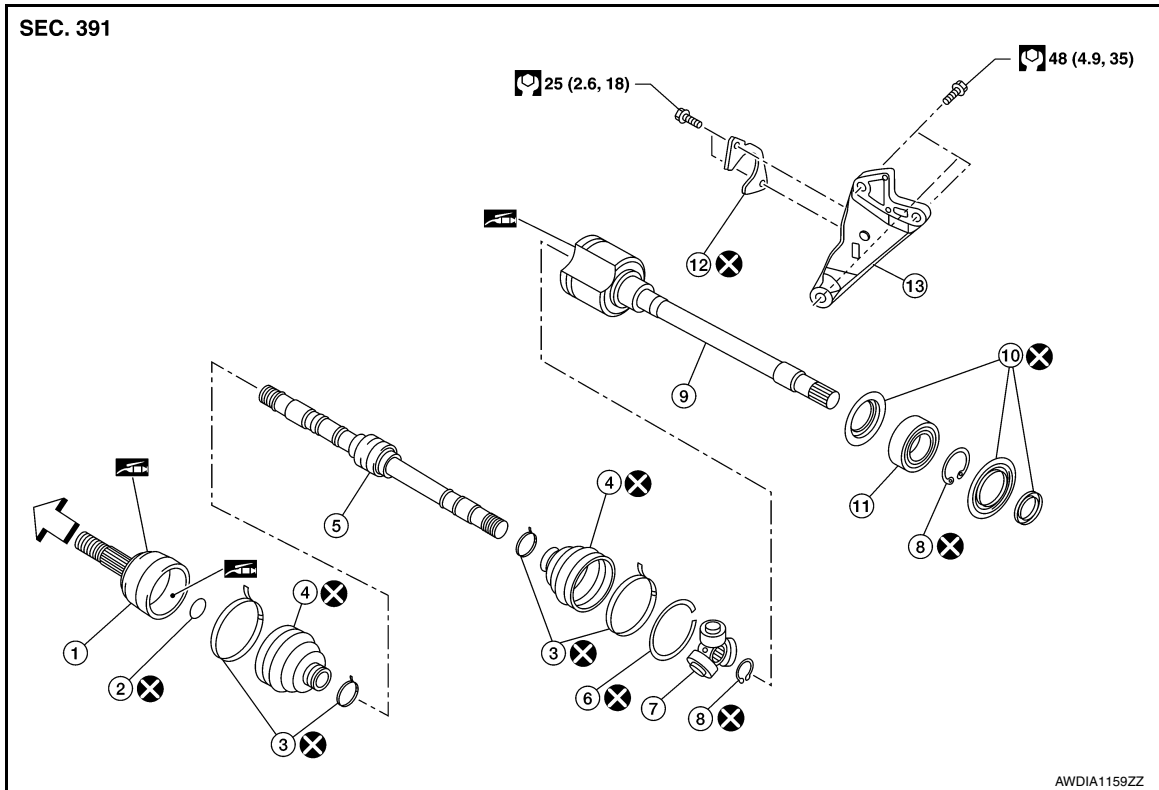
11. Install new boot bands securely as shown.
CAUTION:
Do not reuse boot band.
12. Secure housing and shaft, and then make sure that they are in the correct position when rotating boot. Reinstall them with new boot bands when the mounting positions become incorrect.
13. Install dust shield to housing (left side).
CAUTION:
Do not reuse dust shield.
14. Install circular clip to housing (left side).
CAUTION:
Do not reuse circular clip.

Wheel Side

For further details, refer to the installation procedure of ["FAX-13. "WHEEL SIDE : Removal and Installation"'](#) for the drive shaft boot.



Exploded View (RH)



- | | | |
|-----------------------|------------------|-----------------------------|
| 1. Joint sub-assembly | 2. Circular clip | 3. Boot band |
| 4. Boot | 5. Shaft | 6. Damper band |
| 7. Dynamic damper | 8. Stopper ring | 9. Spider assembly |
| 10. Snap ring | 11. Housing | 12. Dust shield |
| 13. Support bearing | 14. Retainer | 15. Support bearing bracket |

← : Wheel side

Disassembly and Assembly (RH)

INFOID:0000000010365191

DISASSEMBLY

Transaxle Assembly Side

1. Fix shaft with a vise.

CAUTION:

Protect shaft using aluminum or copper plates when fixing with a vise.

2. Remove boot bands, and then remove boot from housing.
3. Remove stopper ring.
4. Put matching marks on housing and shaft, and then pull out housing from shaft.

CAUTION:

Use paint or an equivalent for matching marks. Do not scratch the surfaces.

FRONT DRIVE SHAFT

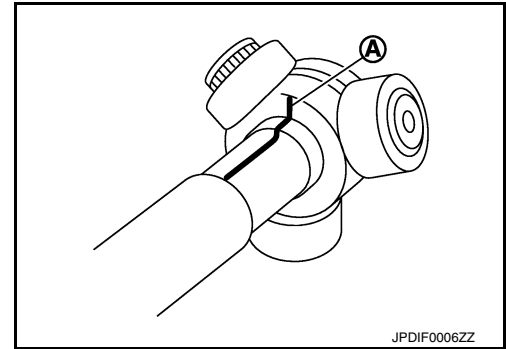
< UNIT DISASSEMBLY AND ASSEMBLY >

[FWD]

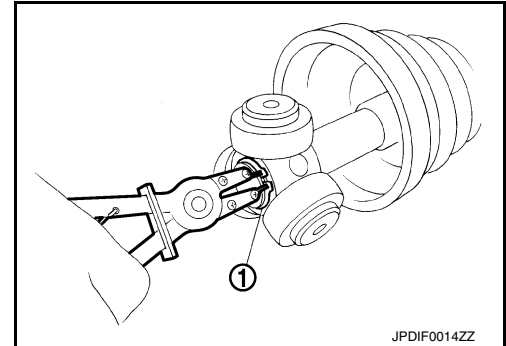
5. Put matching marks (A) on the spider assembly and shaft.

CAUTION:

Use paint or an equivalent for matching marks. Do not scratch the surfaces.

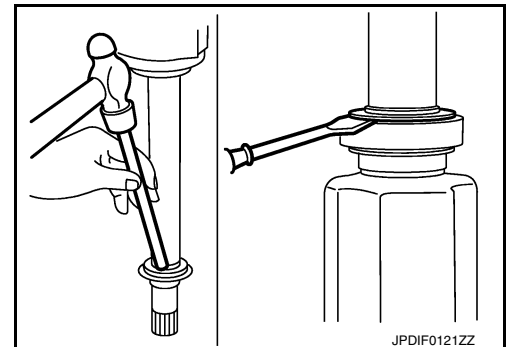


6. Remove snap ring (1), and then remove spider assembly from shaft.
7. Remove boot from shaft.
8. Remove circular clip from housing (left side).
9. Remove dust shield from housing.
10. Clean old grease on housing with paper waste.

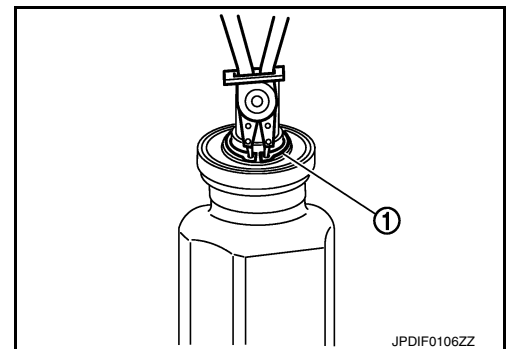


Support Bearing

1. Remove dust shield from housing.



2. Remove snap ring (1).

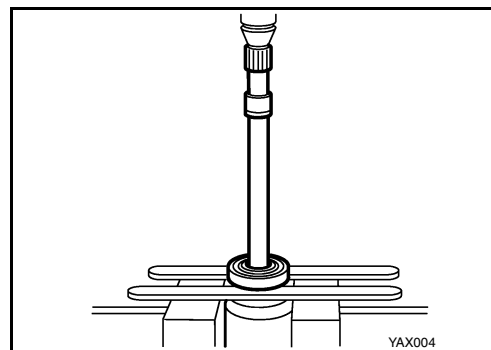


FRONT DRIVE SHAFT

< UNIT DISASSEMBLY AND ASSEMBLY >

[FWD]

3. Press out support bearing from housing.
4. Remove dust shield.



Wheel Side

1. Fix shaft with a vise.

CAUTION:

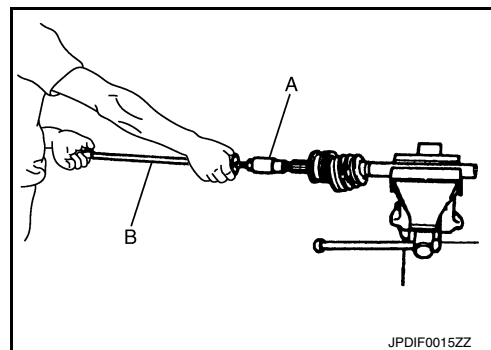
Protect shaft using aluminum or copper plates when fixing with a vise.

2. Remove boot bands, and then remove boot from joint sub-assembly.
3. Screw the drive shaft puller (A) 30 mm (1.18 in) or more into the thread of joint sub-assembly, and pull joint sub-assembly with a sliding hammer (B) from shaft.

CAUTION:

- If joint sub-assembly cannot be removed after five or more unsuccessful attempts, replace shaft and joint sub assembly as a set.
- Align sliding hammer and drive shaft and remove them by pulling forcibly.

4. Remove circular clip from shaft.
5. Remove boot from shaft.
6. Clean old grease on joint sub-assembly with paper waste while rotating ball cage.



ASSEMBLY

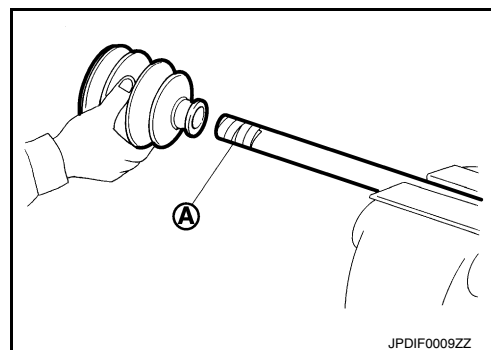
Transaxle Assembly Side

1. Wrap serration on shaft with tape (A) to protect boot from damage. Install new boot and boot bands to shaft.

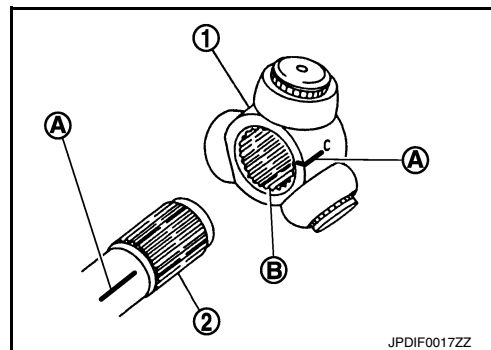
CAUTION:

Do not reuse boot and boot band.

2. Remove the tape wrapped around the serration on shaft.



3. To install the spider assembly (1), align it with the matching marks (A) on the shaft (2) put during the removal, and direct the serration mounting surface (B) to the shaft.



FRONT DRIVE SHAFT

< UNIT DISASSEMBLY AND ASSEMBLY >

[FWD]

- Secure spider assembly onto shaft with snap ring (1).

CAUTION:

Do not reuse snap ring.

- Apply the appropriate amount of grease to spider assembly and sliding surface.
- Assemble the housing onto spider assembly, and apply the specified amount of grease.

Grease amount : Refer to [FAX-32, "Drive Shaft"](#).

- Align matching marks put during the removal of housing.
- Install stopper ring.

CAUTION:

Do not reuse stopper ring.

- Install boot securely into grooves (indicated by "*" marks) shown in the figure.

CAUTION:

If grease adheres to the boot mounting surface (indicated "*" mark) on shaft or housing, boot may be removed. Remove all grease from the boot mounting surface.

- To prevent the deformation of the boot, adjust the boot installation length (L) to the value shown below by inserting the suitable tool into the inside of boot from the large diameter side of boot and discharging inside air.

Boots installed length (L) : Refer to [FAX-32, "Drive Shaft"](#).

CAUTION:

- If the boot installation length is outside the standard, it may cause breakage of boot.
- Be careful not to touch the inside of the boot with the tip of tool.

- Install new boot bands securely as shown in the figure.

CAUTION:

Do not reuse boot band.

- Secure housing and shaft, and then make sure that they are in the correct position when rotating boot. Reinstall them with new boot bands when the mounting positions become incorrect.
- Install dust shield to housing (left side).

CAUTION:

Do not reuse dust shield.

- Install circular clip to housing (left side).

CAUTION:

Do not reuse circular clip.

Support Bearing

- Install dust shield on housing.

CAUTION:

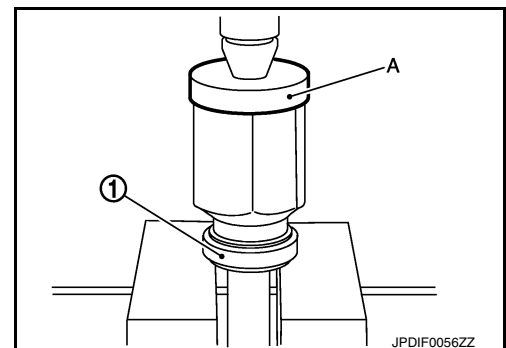
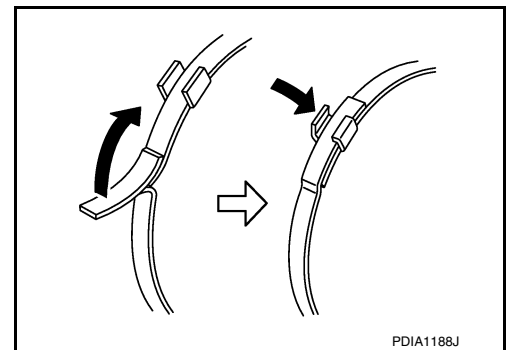
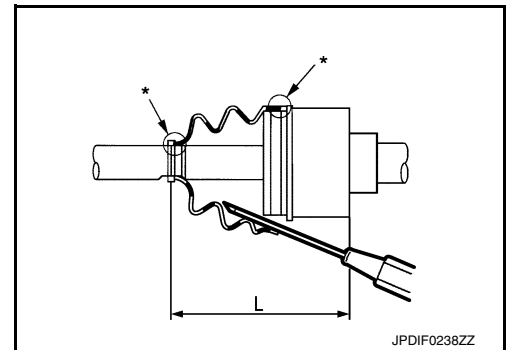
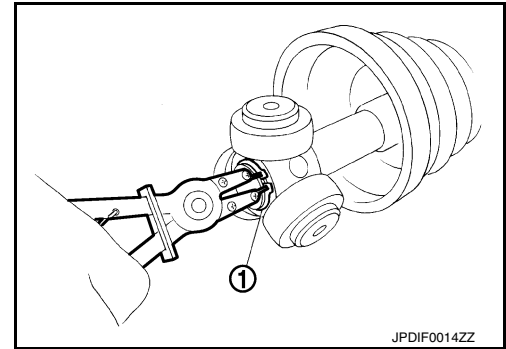
Do not reuse dust shield.

- Press support bearing (1) onto housing to using the suitable tool (A).

- Install snap ring.

CAUTION:

Do not reuse snap ring.



FRONT DRIVE SHAFT

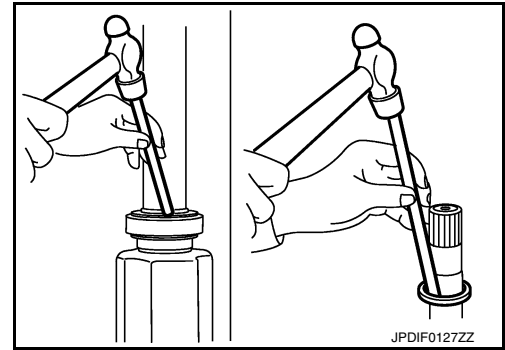
< UNIT DISASSEMBLY AND ASSEMBLY >

[FWD]

4. Install dust shields.

CAUTION:

Do not reuse dust shields.



Wheel Side

For further details, refer to the installation procedure of [“FAX-13, “WHEEL SIDE : Removal and Installation”](#) for the drive shaft boot.

A

B

C

FAX

E

F

G

H

I

J

K

L

M

N

O

P

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

[FWD]

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

Wheel Bearing

INFOID:0000000010356118

Item	Standard
Axial end play	0.0 mm (0.0 in)
Rotating torque	1.9 N·m (0.19 kg-m, 17 in-lb) or less
Spring balance measurement	13.7 N (1.40 kg-f, 3.08 lb-f) or less
Wheel bearing press-fit load	49 kN (4,998.0 kg-f, 11,015.2 lb-f)

Drive Shaft

INFOID:0000000010356119

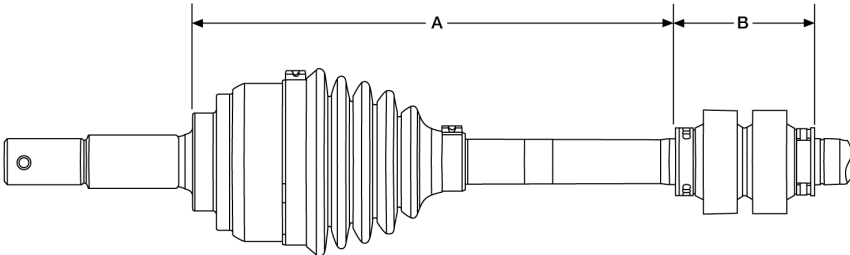
Drive Shaft Specifications

Application	FWD			
Joint type	Wheel side		Transaxle side	
	(LH)	(RH)	(LH)	(RH)
Grease quantity*	115 - 135 g (4.06 - 4.76 oz)		175 - 195 g (6.17 - 6.88 oz)	
Boot installed length (L)	141.5 mm (5.57 in)		176.9 mm (6.96 in)	

*Always check with the Parts Department for the latest parts information.

Dynamic Damper Specifications

Unit: mm (in)

	
ALDIA0270ZZ	
Application	FWD
	(LH) (RH)
Dimension (A)	243 ± 3 (9.57 ± 0.1)
Dimension (B)	70 (2.76)

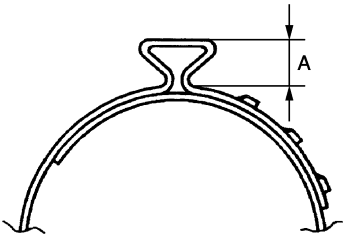
Boot Band Specification

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

[FWD]

Unit: mm (in)



JPDIF0268ZZ

Dimension (A) - maximum	7.0 (0.28)
-------------------------	------------

A
B
C
FAX
E
F
G
H
I
J
K
L
M
N
O
P

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010249202

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Precautions for Drive Shaft

INFOID:0000000010365391

Observe the following precautions when disassembling and assembling drive shaft:

- Do not disassemble joint sub-assembly because it is non-overhaul parts.
- Perform work in a location which is as dust-free as possible.
- Clean the parts before disassembling and assembling.
- Prevent the entry of foreign objects during disassembly.
- Reassemble disassembled parts carefully in the correct order. If work is interrupted, a clean cover must be placed over parts.
- Use paper shop cloths. Fabric shop cloths must not be used because of the danger of lint adhering to parts.
- Clean disassembled parts (except for rubber parts) with kerosene which shall be removed by blowing with air or wiping with paper shop cloths.

PREPARATION

< PREPARATION >

[AWD]

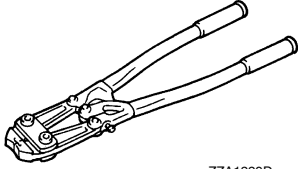
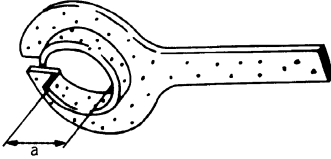
PREPARATION

PREPARATION

Special Service Tool

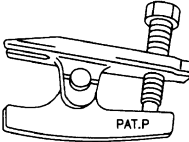
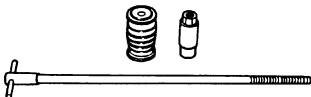
INFOID:0000000010351930

The actual shape of the tools may differ from those illustrated here.

Tool number (TechMate No.) Tool name	Description
KV40107300 (—) Boot band crimping tool	Installing boot band
 ZZA1229D	
KV40107500 (—) Drive shaft attachment	Removing drive shaft
 ZZA1230D	
KV38107900 (—) Protector	Installing drive shaft a: 32 mm (1.26 in) dia.
 PDIA1183J	

Commercial Service Tools

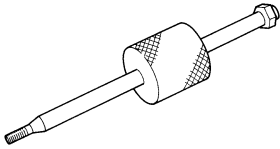
INFOID:0000000010351931

Tool name	Description
Ball joint remover	Removing wheel stud
 NT146	
Drive shaft puller	Removing drive shaft joint sub assembly
 JPDIG0152ZZ	

PREPARATION

< PREPARATION >

[AWD]

Tool name	Description
Sliding hammer	Removing drive shaft
 ZZA0023D	
Power tool	Loosening nuts, screws and bolts
 PIIB1407E	

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

< SYMPTOM DIAGNOSIS >

[AWD]

SYMPTOM DIAGNOSIS

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

NVH Troubleshooting Chart

INFOID:0000000010249201

Use chart below to find the cause of the symptom. If necessary, repair or replace these parts.

Reference			—	FAX-39	—	FAX-40	—	FAX-7	FSU-5	—	WT-55	WT-55	—	BR-6	ST-6
Possible cause and SUSPECTED PARTS			Excessive joint angle	Joint sliding resistance	Imbalance	Improper installation, looseness	Parts interference	Wheel bearing damage	FRONT AXLE AND FRONT SUSPENSION	FRONT AXLE	TIRE	ROAD WHEEL	DRIVE SHAFT	BRAKE	STEERING
Symptom	DRIVE SHAFT	Noise	x	x				x	x	x	x	x		x	x
		Shake	x		x			x	x	x	x	x		x	x
	FRONT AXLE	Noise				x	x	x	x		x	x	x	x	x
		Shake				x	x	x	x		x	x	x	x	x
		Vibration				x	x	x	x		x		x		x
		Shimmy				x	x		x		x	x		x	x
		Shudder				x			x		x	x		x	x
		Poor quality ride or handling				x	x		x		x	x			

x: Applicable

PERIODIC MAINTENANCE

FRONT WHEEL HUB AND KNUCKLE

Inspection

INFOID:000000009798753

- Move the wheel hub and bearing in an axial direction by hand to verify that looseness of wheel hub and bearing exists. If any looseness exists, replace the wheel hub and bearing.

Axial end play : Refer to [FAX-32, "Wheel Bearing"](#).

- Rotate wheel hub and bearing to verify if unusual noises or other irregular conditions exist. If any irregular conditions exist, replace the wheel hub and bearing.

FRONT DRIVE SHAFT

< PERIODIC MAINTENANCE >

[AWD]

FRONT DRIVE SHAFT

Inspection

INFOID:000000009798754

Check drive shaft mounting point and joint for looseness and other damage.

- Check boot for cracks and other damage.

CAUTION:

Replace entire drive shaft assembly when noise or vibration occurs from drive shaft.

A

B

C

FAX

E

F

G

H

I

J

K

L

M

N

O

P

FRONT WHEEL HUB

< REMOVAL AND INSTALLATION >

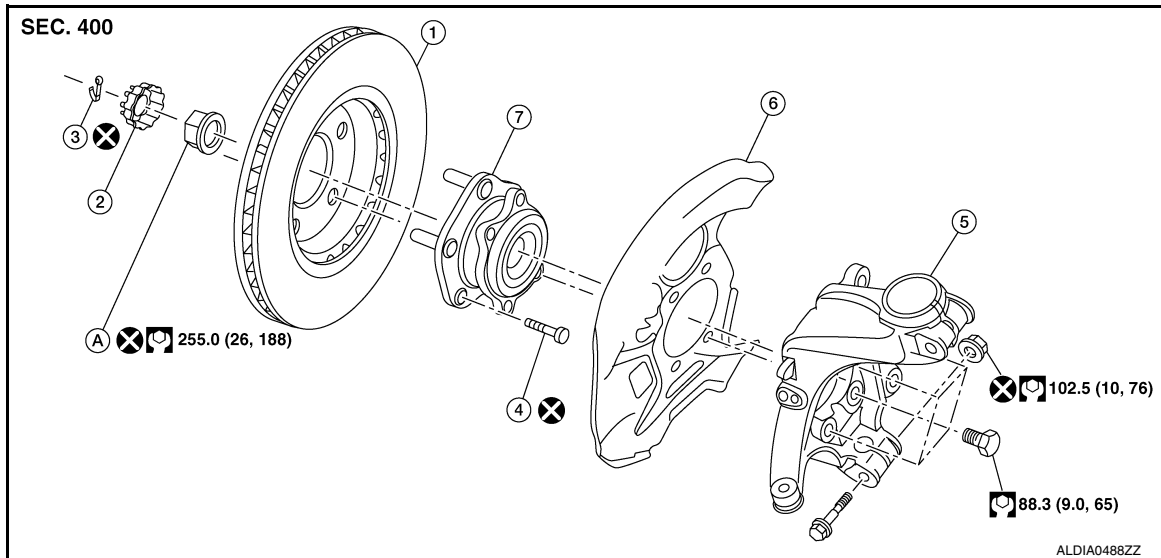
[AWD]

REMOVAL AND INSTALLATION

FRONT WHEEL HUB

Exploded View

INFOID:0000000010249206



- | | | |
|--------------------------|---------------|-----------------|
| 1. Wheel hub and bearing | 2. Cotter pin | 3. Nut retainer |
| 4. Wheel hub lock nut | 5. Hub bolt | 6. Splash guard |
| 7. Steering knuckle | | |

Removal and Installation

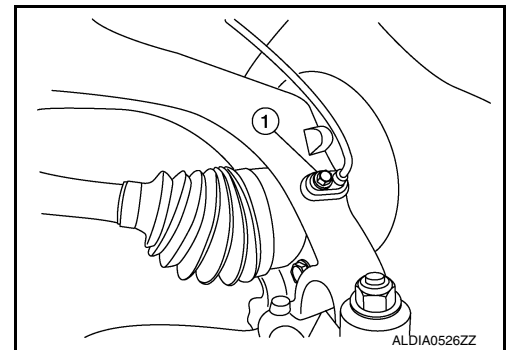
INFOID:0000000010249207

REMOVAL

1. Remove front wheel and tire using power tool. Refer to [WT-57. "Adjustment"](#).
2. Remove the bolt (1) and separate the front wheel sensor from the steering knuckle. Refer to [BRC-132. "FRONT WHEEL SENSOR : Exploded View"](#).

CAUTION:

- Failure to separate the front wheel sensor from the steering knuckle may result in damage to the front wheel sensor.
- Pull out the front wheel sensor, being careful to turn it as little as possible. Do not pull on wheel sensor harness.



3. Remove brake caliper torque member bolts, leaving brake hose attached, reposition the caliper aside with wire. Refer to [BR-35. "BRAKE CALIPER ASSEMBLY \(1 PISTON TYPE\) : Exploded View"](#) (1 PISTON TYPE), or [BR-35. "BRAKE CALIPER ASSEMBLY \(1 PISTON TYPE\) : Exploded View"](#) (2 PISTON TYPE).

CAUTION:

Do not depress brake pedal while brake caliper is removed.

FRONT WHEEL HUB

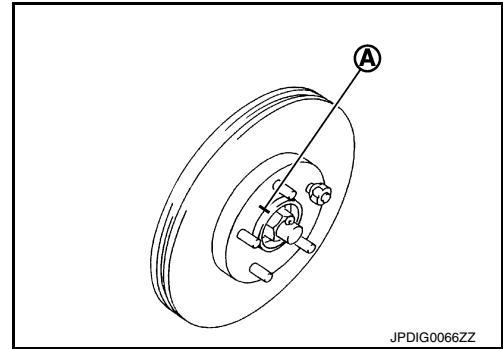
< REMOVAL AND INSTALLATION >

[AWD]

4. Put alignment marks (A) on disc brake rotor and wheel hub and bearing. Remove disc brake rotor.

CAUTION:

Do not drop the disc brake rotor.



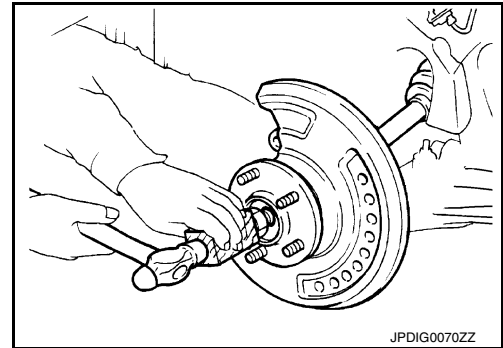
5. Remove cotter pin.
6. Remove the nut retainer.
7. Loosen the wheel hub lock nut from the drive shaft using power tool.
8. Using a piece of wood and a suitable tool, tap on the lock nut to disengage the drive shaft from the wheel hub and bearing.

CAUTION:

- Do not place the drive shaft joint at an extreme angle. Be careful not to over extend the slide joint.
- Do not allow the drive shaft to hang without support.

NOTE:

Use a suitable puller if drive shaft cannot be separated from the wheel hub and bearing.



9. Remove the wheel hub lock nut.
10. Remove the engine side cover. Refer to [EXT-28, "FENDER PROTECTOR : Exploded View"](#).
11. Remove the lower nut and bolt from the steering knuckle. Refer to [FAX-9, "Exploded View"](#).
12. Separate transverse link from steering knuckle. Refer to [FSU-12, "Exploded View"](#).
13. Separate drive shaft from wheel hub and bearing, Reposition the drive shaft aside with wire. Refer to [FAX-18, "Exploded View \(LH\)"](#) (LH) or [FAX-20, "Exploded View \(RH\)"](#) (RH).
14. Remove the wheel hub and bearing bolts using power tool.
15. Remove the splash guard and the wheel hub and bearing from the steering knuckle.

INSPECTION AFTER REMOVAL

Check the following items, and replace the part if necessary.

- Check components for deformation, cracks, and other damage.
- Check boots of transverse link ball joint for cracks, axial end play, and swing torque. Refer to [FAX-65, "Drive Shaft"](#).

INSTALLATION

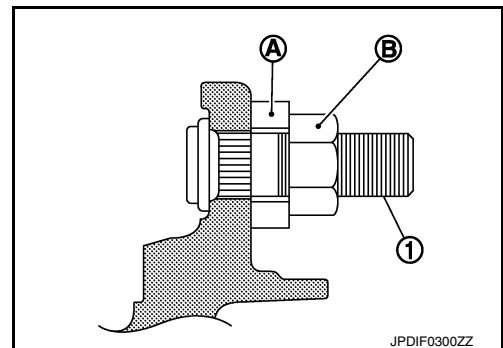
Installation is in the reverse order of the removal.

CAUTION:

- Do not reuse the wheel stud.
- Do not reuse the cotter pin.
- Place a washer (A) as shown to install the wheel studs (1) by using the tightening force of the nut (B).

CAUTION:

Check that there is no clearance between the wheel stud and the wheel hub and bearing.



FRONT WHEEL HUB

< REMOVAL AND INSTALLATION >

[AWD]

- Clean the mating surfaces of the wheel hub lock nut and the wheel hub and bearing.

CAUTION:

Do not apply lubricating oil to these mating surfaces.

- Clean the mating surfaces of the joint sub-assembly and the wheel hub and bearing. Apply Molykote M77 lubricant to the surface (A) of the joint sub-assembly.

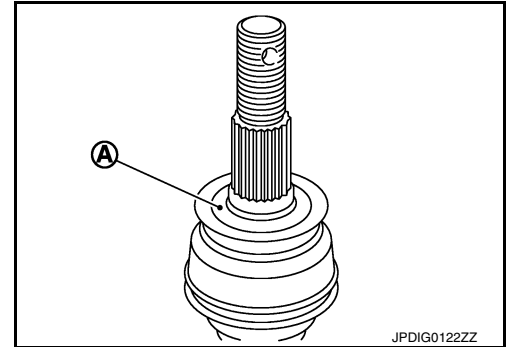
CAUTION:

Apply lubricant to cover the entire flat mating surface of the joint sub-assembly.

Amount of lubricant : FAX-65, "Drive Shaft"

NOTE:

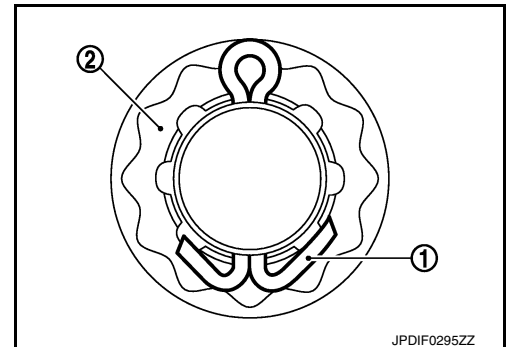
Always check with the Parts Department for the latest parts information.



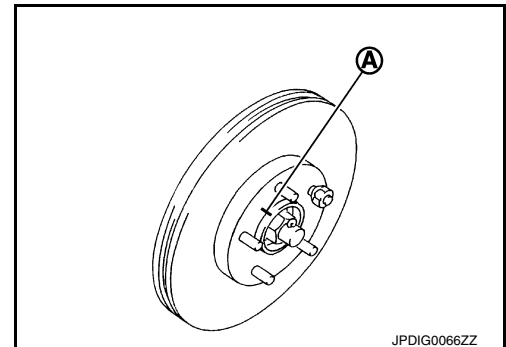
- Hold the wheel hub and bearing using a suitable tool. Tighten the wheel hub lock nut.

CAUTION:

- **Since the drive shaft is assembled by press-fitting, use a torque wrench to tighten the wheel hub lock nut. Do not use a power tool.**
- **Too much torque causes axle noise. Too little torque causes wheel bearing looseness. Tighten the wheel hub lock nut to the specification.**
- When installing a the cotter pin (1) and the nut retainer (2), securely bend the cotter pin to prevent rattles.



- Align the matching marks (A) on the disc brake rotor and on the wheel hub and bearing.



- Complete the inspection. Refer to [FAX-42, "Inspection"](#).

INSPECTION AFTER INSTALLATION

1. Check the wheel alignment. Refer to [FSU-7, "Inspection"](#).
2. Adjust neutral position of steering angle sensor. Refer to [BRC-70, "Work Procedure"](#).

Inspection

INFOID:0000000010249208

INSPECTION AFTER REMOVAL

Check components for deformation, cracks, and other damage. Replace if there are.

Ball Joint Inspection

FRONT WHEEL HUB

< REMOVAL AND INSTALLATION >

[AWD]

Check boots of transverse link and steering outer socket ball joint for breakage, axial play, and torque. Refer to [FSU-26, "Ball Joint"](#) and [ST-15, "Inspection"](#).

INSPECTION AFTER INSTALLATION

1. Check the wheel alignment. Refer to [FSU-7, "Inspection"](#).
2. Adjust neutral position of steering angle sensor. Refer to [BRC-70, "Work Procedure"](#).

A

B

C

FAX

E

F

G

H

I

J

K

L

M

N

O

P

FRONT DRIVE SHAFT BOOT

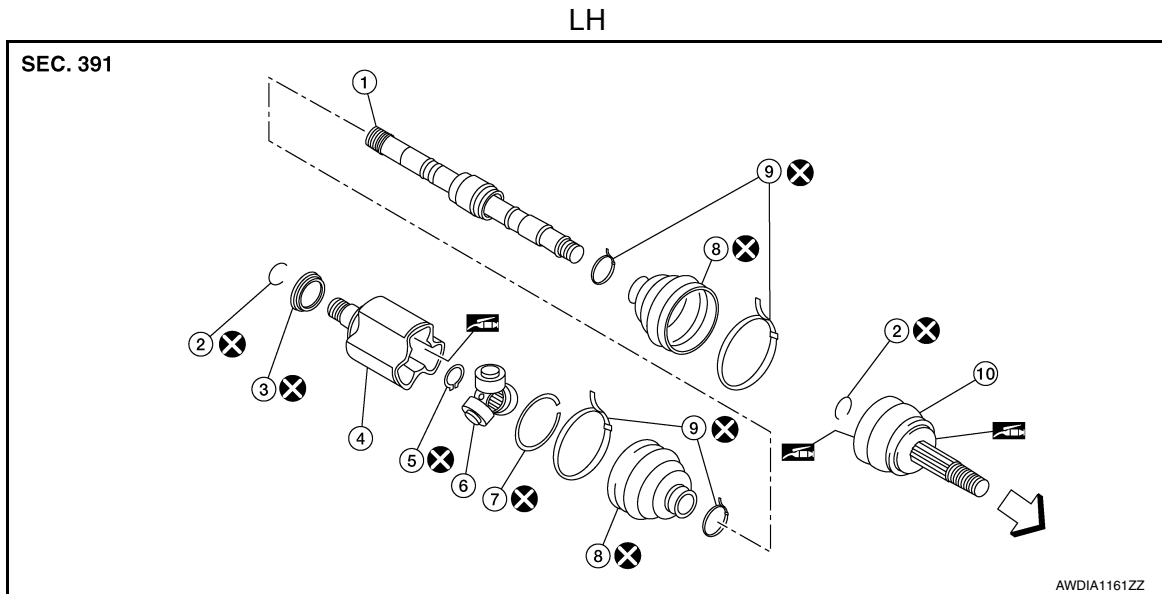
< REMOVAL AND INSTALLATION >

[AWD]

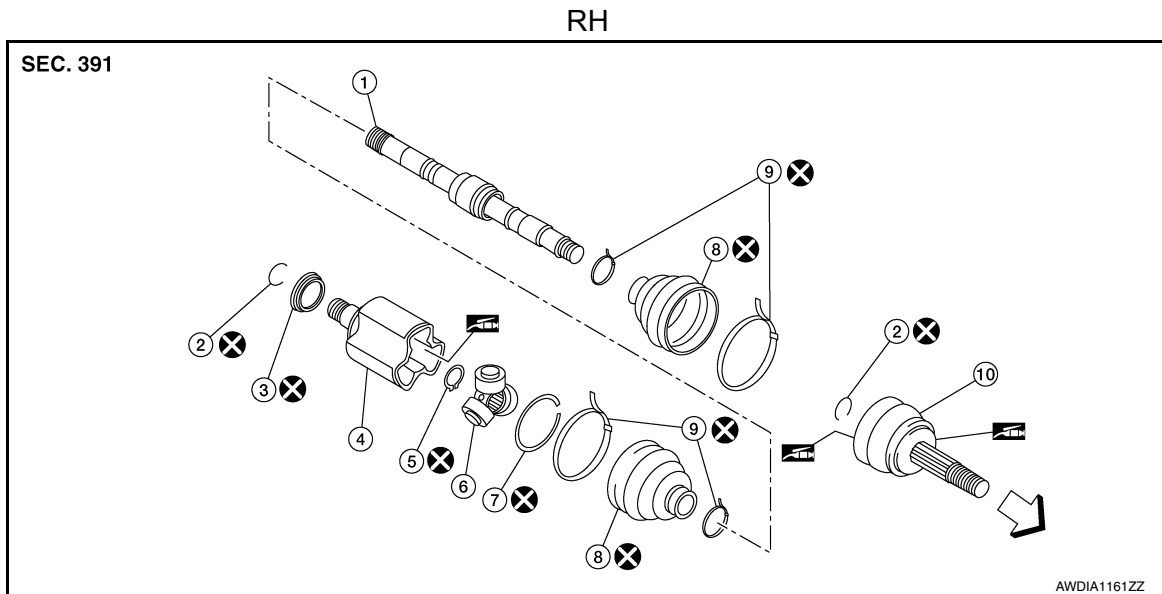
FRONT DRIVE SHAFT BOOT

Exploded View

INFOID:0000000010365302



- | | | |
|------------------------|------------------|--------------------|
| 1. Shaft | 2. Circular clip | 3. Dust shield |
| 4. Housing | 5. Snap ring | 6. Spider assembly |
| 7. Stopper ring | 8. Boot | 9. Boot band |
| 10. Joint sub-assembly | ↩ : Wheel side | |



- | | | |
|------------------------|------------------|--------------------|
| 1. Shaft | 2. Circular clip | 3. Dust shield |
| 4. Housing | 5. Snap ring | 6. Spider assembly |
| 7. Stopper ring | 8. Boot | 9. Boot band |
| 10. Joint sub-assembly | ↩ : Wheel side | |

WHEEL SIDE

WHEEL SIDE : Removal and Installation

INFOID:0000000010365201

REMOVAL

FRONT DRIVE SHAFT BOOT

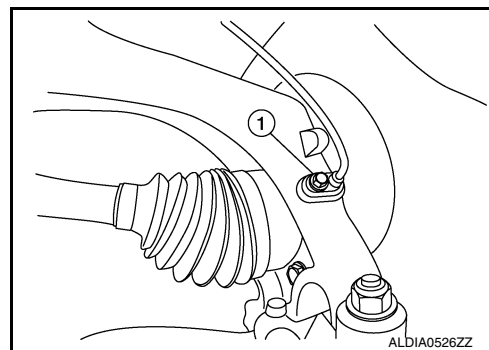
< REMOVAL AND INSTALLATION >

[AWD]

1. Remove front wheel and tire using power tool. Refer to [WT-57, "Adjustment"](#).
2. Remove the bolt (1) and separate the front wheel sensor from the steering knuckle. Refer to [BRC-132, "FRONT WHEEL SENSOR : Removal and Installation"](#).

CAUTION:

- Failure to separate the front wheel sensor from the steering knuckle may result in damage to the front wheel sensor.
- Pull out the front wheel sensor, being careful to turn it as little as possible. Do not pull on front wheel sensor harness



3. Remove brake caliper torque member bolts, leaving brake hose attached, reposition the caliper aside with wire. Refer to [BR-35, "BRAKE CALIPER ASSEMBLY \(1 PISTON TYPE\) : Exploded View"](#) (1 PISTON TYPE), or [BR-35, "BRAKE CALIPER ASSEMBLY \(1 PISTON TYPE\) : Exploded View"](#) (2 PISTON TYPE).

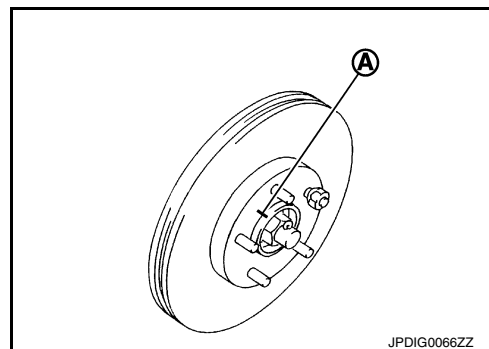
CAUTION:

Do not depress brake pedal while brake caliper is removed.

4. Put alignment marks (A) on disc brake rotor and wheel hub and bearing. Remove disc brake rotor.

CAUTION:

Do not drop the disc brake rotor.



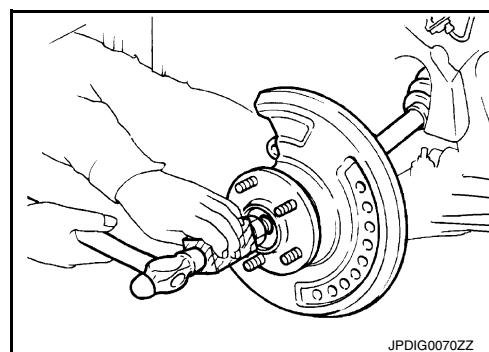
5. Remove cotter pin.
6. Remove the nut retainer.
7. Loosen the wheel hub lock nut from the drive shaft using power tool.
8. Using a piece of wood and a suitable tool, tap on the lock nut to disengage the drive shaft from the wheel hub and bearing.

CAUTION:

- Do not place the drive shaft joint at an extreme angle. Be careful not to over extend the slide joint.
- Do not allow the drive shaft to hang without support.

NOTE:

Use a suitable puller if drive shaft cannot be separated from the wheel hub and bearing.



9. Remove the wheel hub lock nut.
10. Remove the engine side cover. Refer to [EXT-28, "FENDER PROTECTOR : Exploded View"](#).
11. Remove the lower nut and bolt from the steering knuckle (shown in explode). Separate the transverse link from the steering knuckle. Refer to [FAX-9, "Exploded View"](#).
12. Separate drive shaft from wheel hub and bearing, Reposition the drive shaft aside with wire. Refer to [FAX-40, "Exploded View"](#).
13. Remove boot bands.
14. Remove boot from joint sub-assembly.

FRONT DRIVE SHAFT BOOT

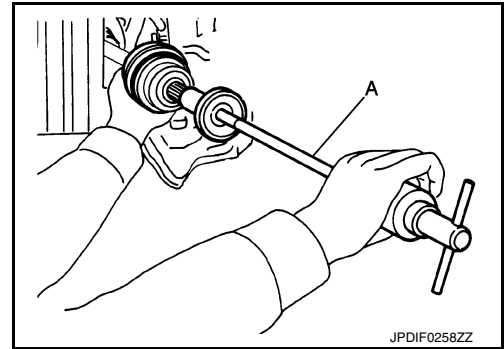
[AWD]

< REMOVAL AND INSTALLATION >

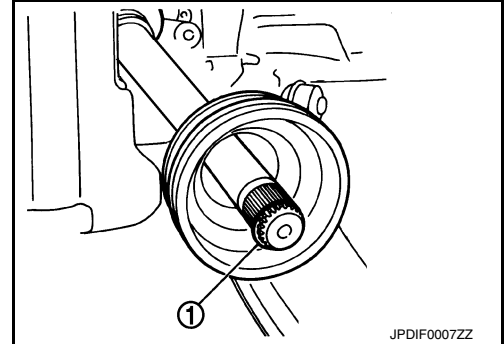
15. Screw a suitable tool (A) 30 mm (1.18 in) or more into threaded part of joint sub-assembly. Support drive shaft with one hand and pull out joint sub-assembly with a sliding hammer or suitable tool from housing assembly.

CAUTION:

- Align sliding hammer or suitable tool and drive shaft and remove joint sub-assembly by pulling directly.
- If joint sub-assembly cannot be removed after five or more unsuccessful attempts, replace the entire drive shaft assembly.



16. Remove circular clip (1) from shaft.



17. Remove outer boot from shaft.

18. Inspect the components. Refer to [FAX-48. "Inspection"](#).

INSTALLATION

1. Clean the old grease on joint sub-assembly with paper shop cloth.
2. Fill serration slot joint sub-assembly with NISSAN genuine grease or equivalent.

CAUTION:

After applying grease, use a paper shop cloth to wipe off old grease that has oozed out.

NOTE:

Always check with the Parts Department for the latest parts information.

3. Install boot and boot bands to shaft.

CAUTION:

- Wrap serration on shaft with tape to protect the boot from damage.
- Do not reuse boot and boot band.

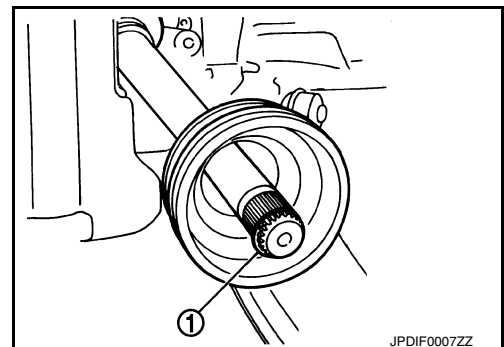
4. Remove the tape wrapped around the serration on shaft.
5. Position the circular clip (1) on groove at the shaft edge.

CAUTION:

Do not reuse circular clip.

NOTE:

A drive joint inserter is recommended when installing the circular clip.



6. Align of the shaft and joint sub-assembly. Assemble the shaft with joint sub-assembly while holding the circular clip.

FRONT DRIVE SHAFT BOOT

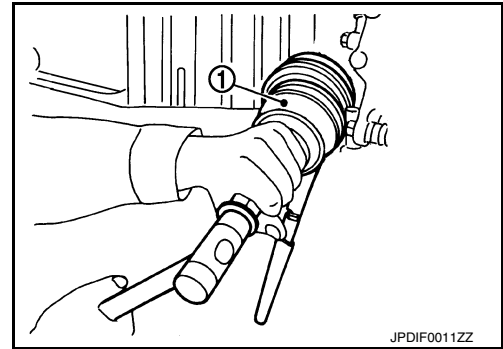
< REMOVAL AND INSTALLATION >

[AWD]

7. Install joint sub-assembly (1) to housing assembly using suitable tool.

CAUTION:

Confirm that joint sub-assembly is correctly engaged while rotating drive housing assembly.



8. Apply the specified amount of grease into the large diameter side opening of the boot.

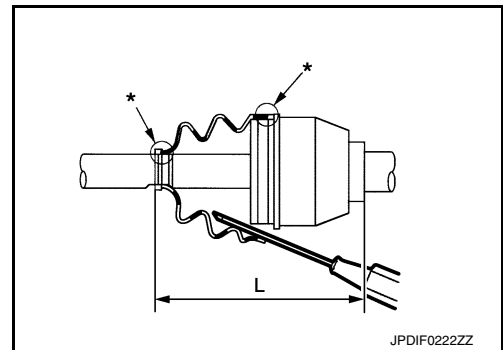
Grease amount : Refer to [FAX-65, "Drive Shaft"](#).

9. Install the boot securely into grooves (indicated by "*" marks) shown in the figure.

CAUTION:

If grease adheres to the boot mounting surface (indicated by "*" mark) on the shaft or the joint sub-assembly, boot may come off. Remove all grease from the boot mounting surface.

10. Make sure boot installation length (L) is the specified length. Insert a suitable tool into the large end of boot. Bleed air from boot to prevent boot deformation.



Boot installation length (L) : Refer to [FAX-65, "Drive Shaft"](#).

CAUTION:

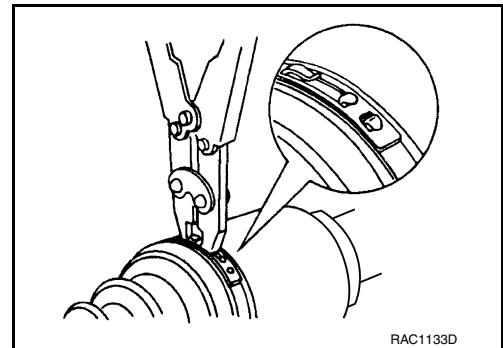
- Boot may break if boot installation length is not within standard value.
- Be careful that suitable tool does not contact inside surface of boot.

11. Install new large and small boot bands securely using Tool.

Tool number : KV40107300 (—)

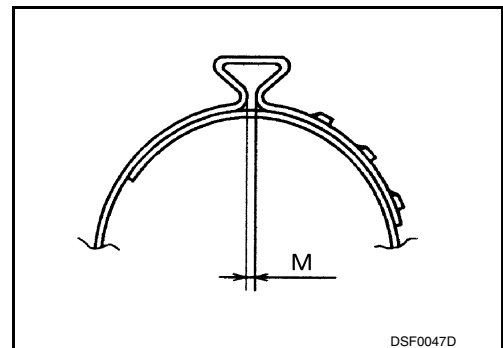
CAUTION:

Do not reuse boot band.



12. Secure boot band so that dimension (M) meets the specification as shown.

Dimension (M) : Refer to [FAX-65, "Drive Shaft"](#).



13. Attempt to rotate the boot to check whether or not the boot bands are securing the boot. If the boot is not secure, remove the boot bands, reposition the boot, and install new boot bands.

FRONT DRIVE SHAFT BOOT

< REMOVAL AND INSTALLATION >

[AWD]

14. Clean the mating surfaces of the joint sub-assembly and the wheel hub and bearing. Apply Molykote M77 lubricant to the surface (A) of the joint sub-assembly.

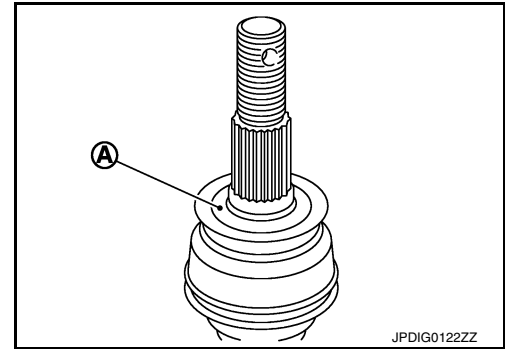
CAUTION:

Apply lubricant to cover the entire flat mating surface of the joint sub-assembly.

Amount of lubricant [FAX-65, "Drive Shaft"](#)

NOTE:

Always check with the Parts Department for the latest parts information.



15. Clean the mating surface of the drive shaft (A) and the wheel hub and bearing.
16. Insert drive shaft to wheel hub and bearing.
17. Temporarily install the wheel hub lock nut.
- CAUTION:**
Do not reuse the wheel hub lock nut.
18. Install the transverse link to the steering knuckle. Tighten the steering knuckle nut and bolt to the specification. Refer to [FSU-12, "Exploded View"](#).
19. Align the marks on the disc brake rotor and on the wheel hub and bearing. Install the disc brake rotor.
20. Install caliper to steering knuckle. Refer to [FSU-17, "Exploded View"](#).
21. Install the front wheel sensor to the steering knuckle. Refer to [BRC-132, "FRONT WHEEL SENSOR : Exploded View"](#).
- CAUTION:**
- Before installing, make sure there is no foreign material such as iron fragments adhered to the pick-up part of the front wheel sensor.
 - When installing, make sure there is no foreign material such as iron fragments on and in the hole in the steering knuckle for the front wheel sensor. Make sure no foreign material has been caught in the sensor rotor. Remove any foreign material and then install the front wheel sensor.
22. Hold the wheel hub and bearing. tighten the wheel hub lock nut. Refer to [FAX-40, "Exploded View"](#).
- CAUTION:**
- Since the drive shaft is assembled by press-fitting, use a torque wrench to tighten the wheel hub lock nut. Do not use a power tool.
 - Too much torque causes axle noise. too little torque causes wheel bearing looseness. Tighten the wheel hub lock nut to the specification.
23. Install the nut retainer.
24. Install a new cotter pin. Refer to [FAX-40, "Exploded View"](#).
- CAUTION:**
- Do not reuse cotter pin.
 - Bend cotter pin securely to prevent any looseness.
25. Install the front wheel and tire. Refer to [WT-60, "Removal and Installation"](#).

TRANSAXLE SIDE

TRANSAXLE SIDE : Removal and Installation

INFOID:0000000010365202

NOTE:

Remove boot after removing drive shaft.

- For drive shaft removal and installation, refer to [FAX-18, "Removal and Installation \(LH\)"](#).
- For drive shaft disassembly and assembly, refer to [FAX-57, "Disassembly and Assembly \(LH\)"](#) (LH) or [FAX-60, "Disassembly and Assembly \(RH\)"](#) (RH).

Inspection

INFOID:0000000010365204

INSPECTION AFTER INSTALLATION

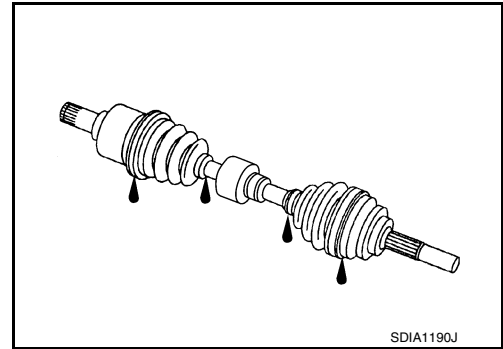
FRONT DRIVE SHAFT BOOT

< REMOVAL AND INSTALLATION >

[AWD]

Check the following items, and replace the part if necessary.

- Move joint up/down, left/right, and in the axial directions. Check for motion that is not smooth and for significant looseness.
- Check boot for cracks, damage, and leakage of grease.
- Check the wheel sensor harness to be sure the connectors are fully seated.
- Check the wheel alignment. Refer to [FSU-7. "Inspection"](#).



A

B

C

FAX

E

F

G

H

I

J

K

L

M

N

O

P

FRONT DRIVE SHAFT

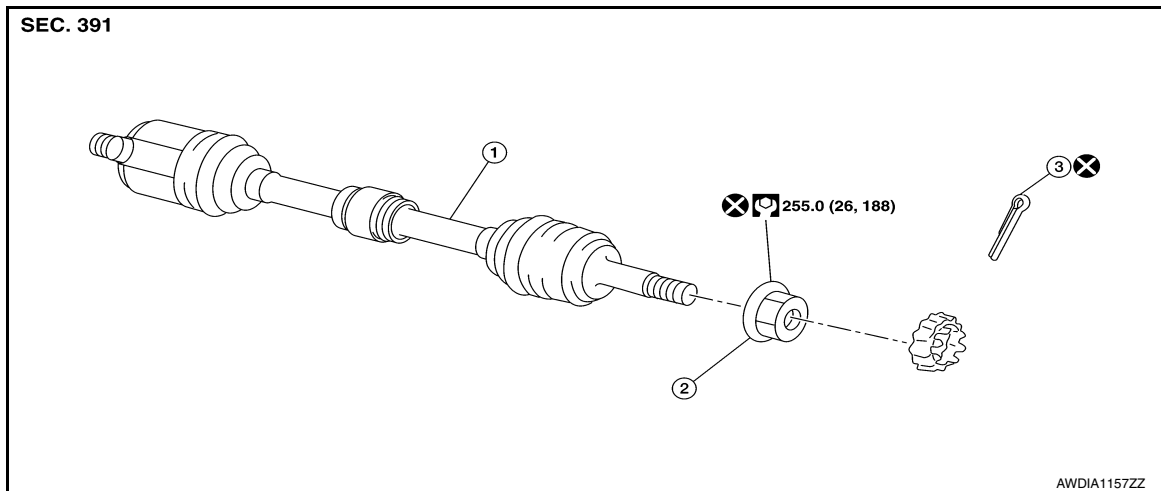
< REMOVAL AND INSTALLATION >

[AWD]

FRONT DRIVE SHAFT

Exploded View (LH)

INFOID:0000000010365205



1. Drive shaft

2. Nut retainer

3. Cotter pin

Removal and Installation (LH)

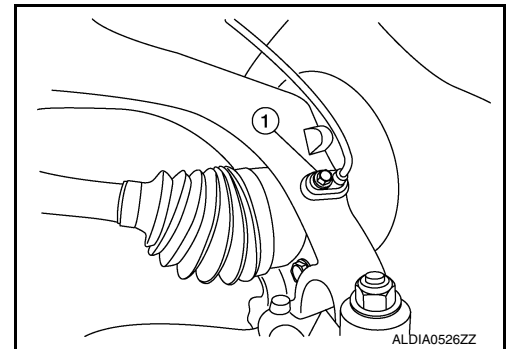
INFOID:0000000010365206

REMOVAL

1. Remove front wheel and tire using power tool. Refer to [WT-57, "Adjustment"](#).
2. Remove the bolt (1) and separate the front wheel sensor from the steering knuckle. Refer to [BRC-132, "FRONT WHEEL SENSOR : Exploded View"](#).

CAUTION:

- Failure to separate the front wheel sensor from the steering knuckle may result in damage to the front wheel sensor.
- Pull out the front wheel sensor, being careful to turn it as little as possible. Do not pull on wheel sensor harness.



3. Remove brake caliper torque member bolts, leaving brake hose attached, reposition the caliper aside with wire. Refer to [BR-35, "BRAKE CALIPER ASSEMBLY \(1 PISTON TYPE\) : Exploded View"](#) (1 PISTON TYPE), or [BR-35, "BRAKE CALIPER ASSEMBLY \(1 PISTON TYPE\) : Exploded View"](#) (2 PISTON TYPE).

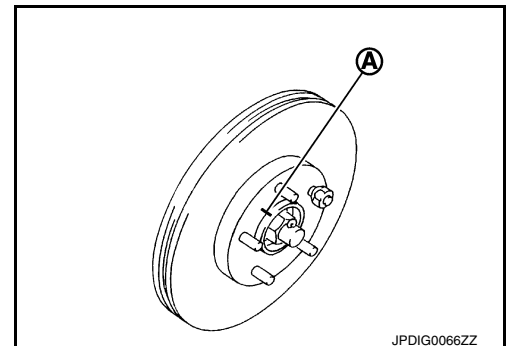
CAUTION:

Do not depress brake pedal while brake caliper is removed.

4. Put alignment marks (A) on disc brake rotor and wheel hub and bearing. Remove disc brake rotor.

CAUTION:

Do not drop the disc brake rotor.



5. Remove cotter pin.

FRONT DRIVE SHAFT

< REMOVAL AND INSTALLATION >

[AWD]

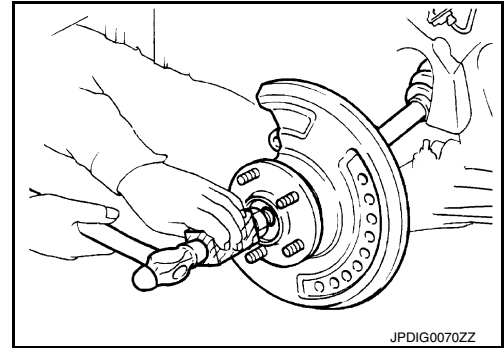
6. Remove the nut retainer.
7. Loosen the wheel hub lock nut from the drive shaft using power tool.
8. Using a piece of wood and a suitable tool, tap on the lock nut to disengage the drive shaft from the wheel hub and bearing.

CAUTION:

- Do not place the drive shaft joint at an extreme angle. Be careful not to over extend the slide joint.
- Do not allow the drive shaft to hang without support.

NOTE:

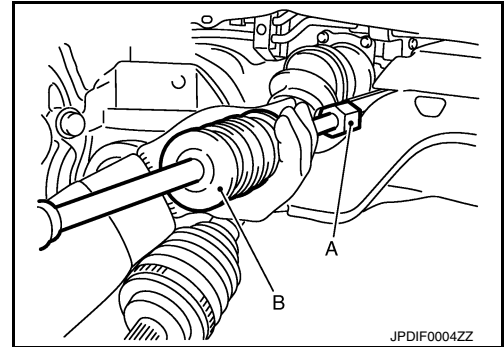
Use a suitable puller if drive shaft cannot be separated from the wheel hub and bearing.



9. Remove the wheel hub lock nut.
10. Remove the engine side cover. Refer to [EXT-28, "FENDER PROTECTOR : Exploded View"](#).
11. Remove the lower nut and bolt from the steering knuckle. Refer to [FAX-50, "Exploded View \(LH\)"](#).
12. Separate transverse link from steering knuckle. Refer to [FSU-12, "Exploded View"](#).
13. Separate drive shaft from wheel hub and bearing, Reposition the drive shaft aside with wire. Refer to [FAX-40, "Exploded View"](#).
14. Remove drive shaft from transaxle assembly.
 - Use the Tool (A) and a suitable tool (B) while inserting tip of Tool (A) between housing and transaxle assembly.

CAUTION:

- Do not place drive shaft joint at an extreme angle when removing drive shaft. Also be careful not to overextend slide joint.
- Confirm that the circular clip is attached to the drive shaft.



Tool (A) : KV40107500 (—)

INSTALLATION

Installation is in the reverse order of removal.

- Install a new differential side oil seal. Refer to [TM-210, "Removal and Installation"](#).

CAUTION:

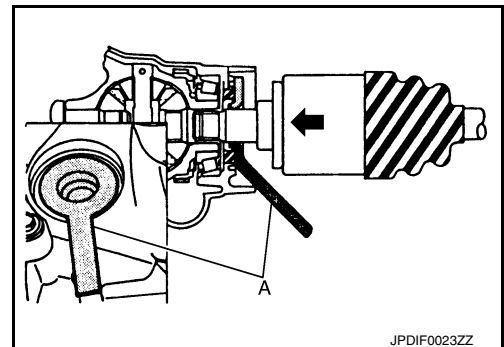
Do not reuse the differential side oil seal.

- Place Tool (A) onto transaxle assembly to prevent damage to the differential side oil seal while inserting drive shaft. Slide drive shaft sliding joint and tap with a suitable tool to install securely.

CAUTION:

Check that circular clip is completely engaged.

Tool (A) : KV38107900 (—)



- Clean the matching surface of wheel hub lock nut and wheel hub and bearing.

CAUTION:

Do not apply lubricating oil to these matching surface.

FRONT DRIVE SHAFT

[AWD]

< REMOVAL AND INSTALLATION >

- Clean the matching surface of drive shaft, wheel hub and bearing. And then apply Molykote M77 lubricant to surface (A) of joint sub-assembly of drive shaft.

CAUTION:

Apply paste to cover entire flat surface of joint sub-assembly of drive shaft.

Amount of lubricant : 1.0 – 3.0 g (0.04 – 0.10 oz)

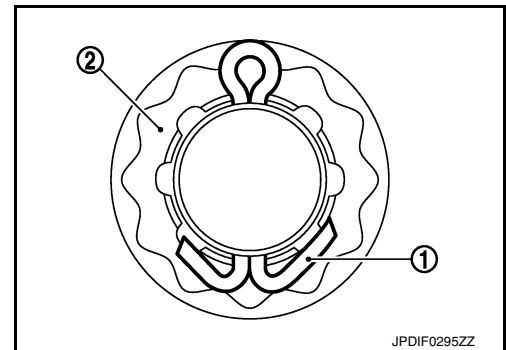
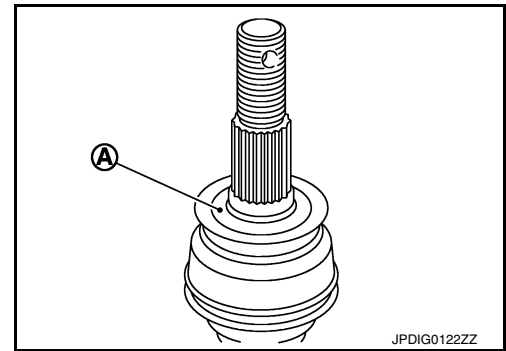
CAUTION:

- Since the drive shaft is assembled by press-fitting, use the tightening torque range for the wheel hub lock nut.
- Be sure to use torque wrench to tighten the wheel hub lock nut. Do not use a power tool.
- Do not reuse wheel hub lock nut.
- Too much torque causes axle noise. Too little torque, causes wheel hub and bearing looseness. Tighten the wheel hub lock nut to the specification.
- Align the matching marks that have been made during removal when reusing the disc brake rotor.
- When installing a cotter pin (1) and nut retainer (2), securely bend the cotter pin to prevent rattles.

CAUTION:

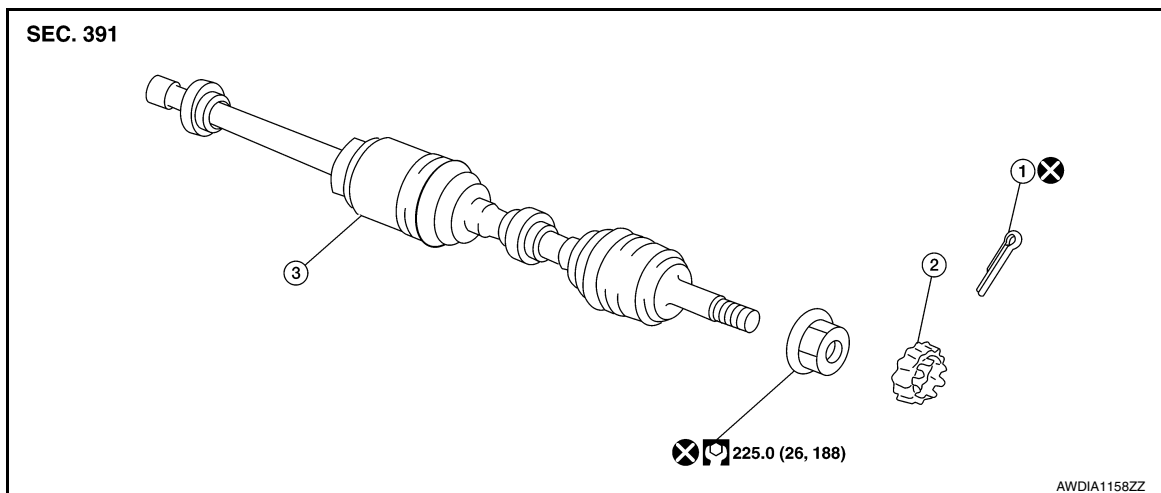
Do not reuse cotter pin.

- Perform the final tightening of each of parts under unladen conditions, which were removed when removing wheel hub and bearing and steering knuckle.



Exploded View (RH)

INFOID:0000000010365207



1. Cotter pin

2. Nut retainer

3. Drive shaft

Removal and Installation (RH)

INFOID:0000000010365208

REMOVAL

1. Remove front wheel and tire using power tool. Refer to [WT-57. "Adjustment"](#).

FRONT DRIVE SHAFT

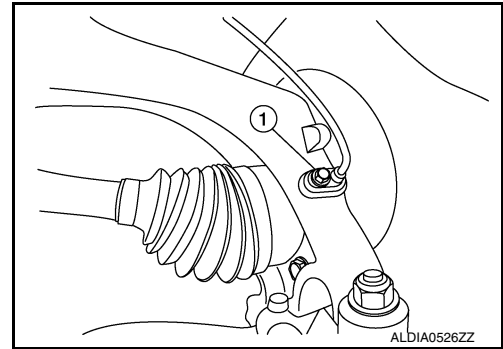
< REMOVAL AND INSTALLATION >

[AWD]

2. Remove wheel sensor bolt (A) and position wheel sensor aside. Refer to [BRC-132, "FRONT WHEEL SENSOR : Removal and Installation"](#).

CAUTION:

Do not pull on wheel sensor harness.



3. Remove brake caliper torque member bolts, leaving brake hose attached, reposition the caliper aside with wire. Refer to [BR-35, "BRAKE CALIPER ASSEMBLY \(1 PISTON TYPE\) : Exploded View"](#) (1 PISTON TYPE), or [BR-35, "BRAKE CALIPER ASSEMBLY \(1 PISTON TYPE\) : Exploded View"](#) (2 PISTON TYPE).

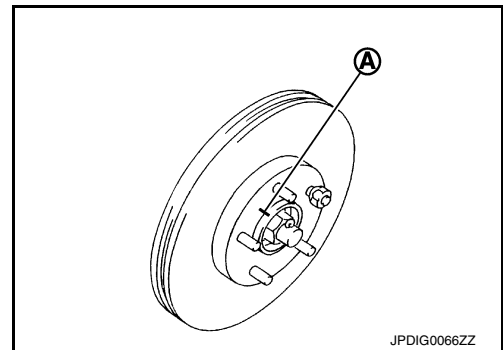
CAUTION:

Do not depress brake pedal while brake caliper is removed.

4. Put alignment marks (A) on disc brake rotor and wheel hub and bearing. Remove disc brake rotor.

CAUTION:

Do not drop the disc brake rotor.



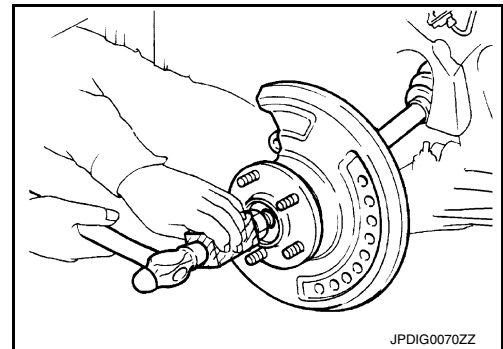
5. Remove cotter pin.
6. Remove the nut retainer.
7. Loosen the wheel hub lock nut from the drive shaft using power tool.
8. Using a piece of wood and a hammer, tap on the lock nut to disengage the drive shaft from the wheel hub and bearing.

CAUTION:

- **Do not place the drive shaft joint at an extreme angle. Be careful not to over extend the slide joint.**
- **Do not allow the drive shaft to hang without support.**

NOTE:

Use a suitable puller if drive shaft cannot be separated from the wheel hub and bearing.



9. Remove the wheel hub lock nut.
10. Remove the engine side cover. Refer to [EXT-28, "FENDER PROTECTOR : Exploded View"](#).
11. Separate transverse link from steering knuckle. Refer to [FSU-12, "Exploded View"](#).
12. Separate drive shaft from wheel hub and bearing and reposition drive shaft aside with wire.
13. Remove retainer mounting bolts and retainer.
14. If necessary, remove the support bearing bracket mounting bolts and the support bearing bracket.
15. Remove drive shaft from transaxle assembly.
 - Use the Tool (A) and a suitable tool (B) while inserting tip of Tool (A) between housing and transaxle assembly.

CAUTION:

- **Do not place drive shaft joint at an extreme angle when removing drive shaft. Also be careful not to overextend slide joint.**

FRONT DRIVE SHAFT

< REMOVAL AND INSTALLATION >

[AWD]

Tool : KV40107500 (—)

INSTALLATION

1. Install a new differential side oil seal. Refer to [TM-210. "Removal and Installation"](#).

CAUTION:

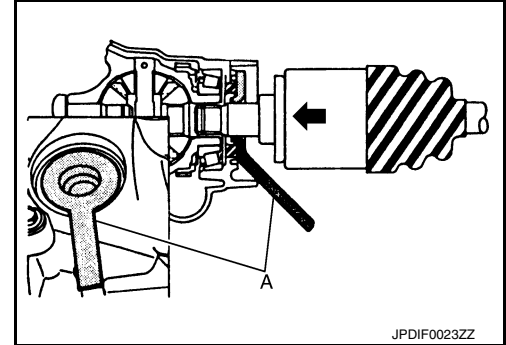
Do not reuse the differential side oil seal.

2. Place Tool (A) onto transaxle assembly to prevent damage to the differential side oil seal while inserting drive shaft. Slide drive shaft sliding joint and tap with a suitable tool to install securely.

CAUTION:

Check that circular clip is completely engaged.

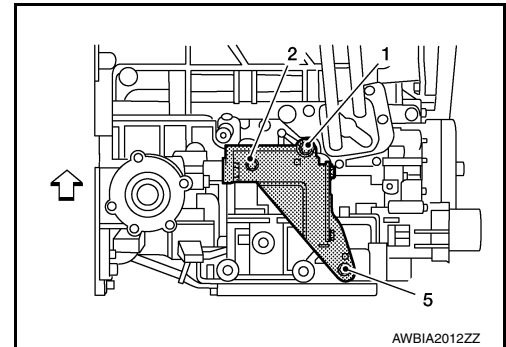
Tool : KV38107900 (—)



Support bearing bracket (AWD models)

1. Install front drive shaft and bearing retainer with notch (A) facing upward.

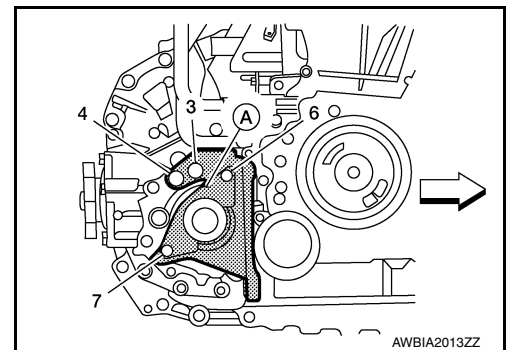
⇐ : Front



2. Tighten bolts in the numerical order as shown.
 - Refer to the following for the installation positions of bolts.

⇐ : Front

M10 bolts	: No. 1, 2, 3, 4	48.0 N·m (4.9 kg-m, 35 ft-lb)
M12 bolt	: No. 5	97.1 N·m (9.9 kg-m, 72 ft-lb)
M8 bolts	: No. 6, 7	25.0 N·m (2.6 kg-m, 18 ft-lb)



3. Clean the matching surface of wheel hub lock nut and wheel hub and bearing.

CAUTION:

Do not apply lubricating oil to these matching surface.

FRONT DRIVE SHAFT

< REMOVAL AND INSTALLATION >

[AWD]

4. Clean the mating surfaces of the joint sub-assembly and the wheel hub and bearing. Apply Molykote M77 lubricant to the surface (A) of the joint sub-assembly.

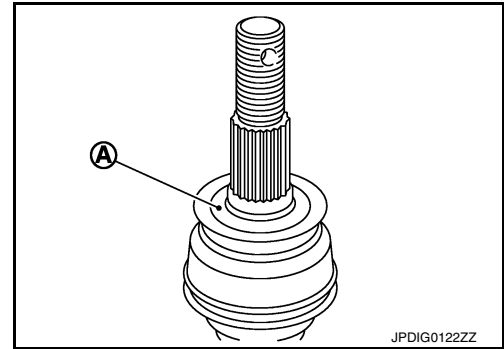
CAUTION:

Apply lubricant to cover the entire flat mating surface of the joint sub-assembly.

Amount of lubricant [FAX-65, "Drive Shaft"](#)

NOTE:

Always check with the Parts Department for the latest parts information.



5. Use the following torque range for tightening the wheel hub lock nut.

CAUTION:

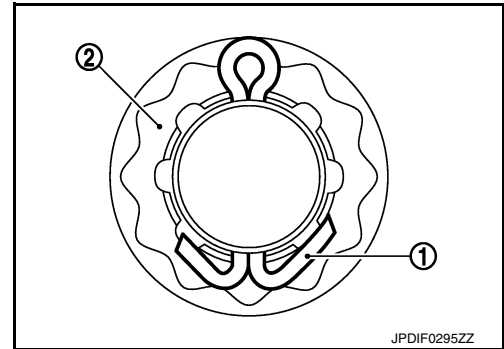
- **Since the drive shaft is assembled by press-fitting, use the tightening torque range for the wheel hub lock nut.**
- **Be sure to use torque wrench to tighten the wheel hub lock nut. Do not use a power tool.**
- **Do not reuse wheel hub lock nut.**
- **Too much torque causes axle noise. Too little torque, causes wheel bearing looseness. Tighten the wheel hub lock nut to the specification.**

6. Align the matching marks that have been made during removal when reusing the disc brake rotor.

7. When installing a cotter pin (1) and adjusting cap (2), securely bend the cotter pin to prevent rattles.

CAUTION:

Do not reuse cotter pin.



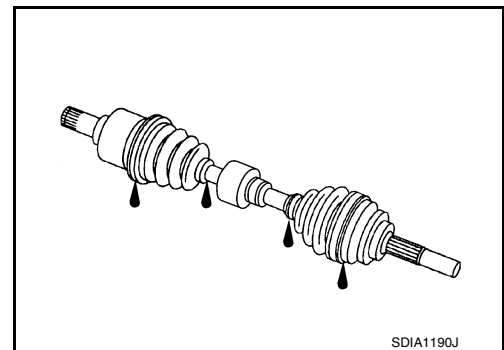
8. Perform the final tightening of each of parts under unladen conditions, which were removed when removing wheel hub and bearing and steering knuckle.
9. Installation of the remaining components is in the reverse order of removal.

Inspection

INFOID:0000000010249289

INSPECTION AFTER REMOVAL

- Move joint up/down, left/right, and in the axial directions. Check for motion that is not smooth and for significant looseness.
- Check boot for cracks, damage, and leakage of grease.
- Disassemble drive shaft and exchange malfunctioning part if there is a non-standard condition.



INSPECTION AFTER DISASSEMBLY

Shaft

Check shaft for runout, cracks, or other damage. Replace if there are.

Dynamic Damper

FRONT DRIVE SHAFT

< REMOVAL AND INSTALLATION >

[AWD]

Check damper for cracks or wear. Replace if necessary.

Joint Sub-Assembly (Wheel Side)

Check the following:

- Joint sub-assembly for rough rotation and excessive axial looseness
- The inside of the joint sub-assembly for entry of foreign material
- Joint sub-assembly for compression scars, cracks, and fractures inside of joint sub-assembly

Replace joint sub-assembly if there are any non-standard conditions of components.

Housing and Spider assembly (Transaxle Side)

Replace housing and spider assembly if there is scratching or wear of housing roller contact surface or spider roller contact surface.

NOTE:

Housing and spider assembly are used in a set.

Support Bearing (Right Side)

Make sure wheel bearing rolls freely and is free from noise, cracks, pitting or wear. Replace support bearing if there are any non-standard conditions.

Support Bearing Bracket (Right Side)

Check for bending, cracks, or damage. Replace support bearing bracket if there are any non-standard conditions.

FRONT DRIVE SHAFT

< UNIT DISASSEMBLY AND ASSEMBLY >

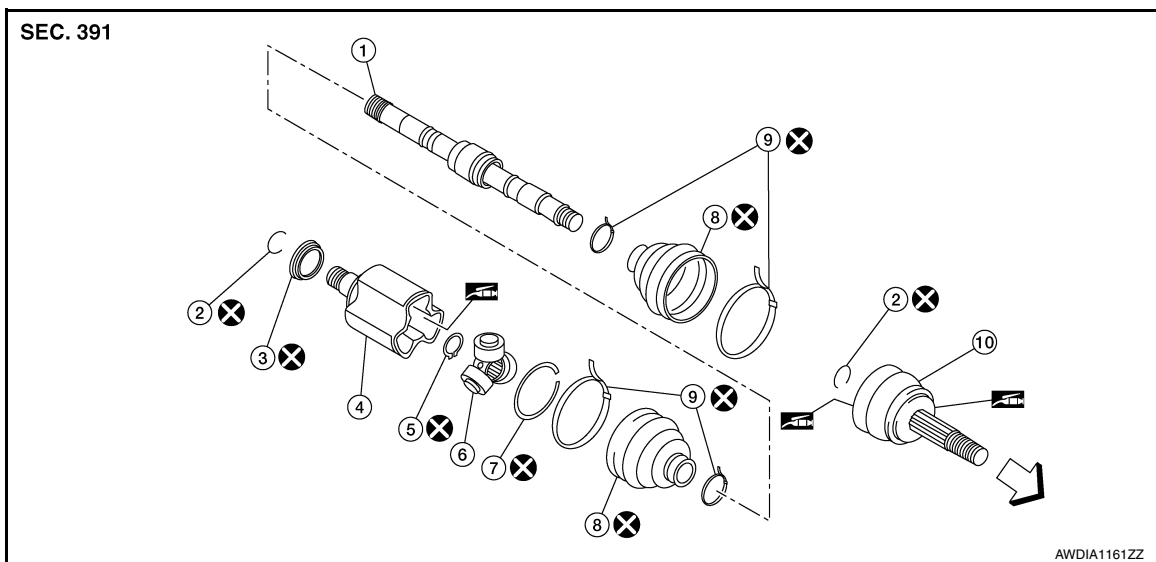
[AWD]

UNIT DISASSEMBLY AND ASSEMBLY

FRONT DRIVE SHAFT

Exploded View (LH)

INFOID:0000000010365281



- | | | |
|------------------------|------------------|--------------------|
| 1. Shaft | 2. Circular clip | 3. Dust shield |
| 4. Housing | 5. Snap ring | 6. Spider assembly |
| 7. Stopper ring | 8. Boot | 9. Boot band |
| 10. Joint sub-assembly | ↶ Wheel side | |

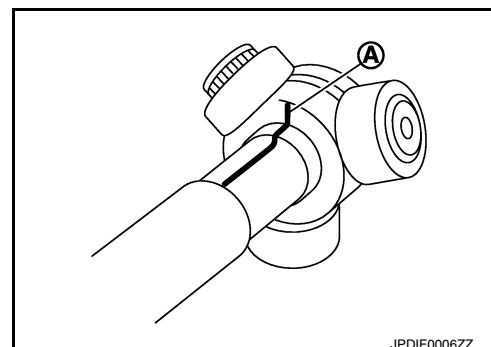
Disassembly and Assembly (LH)

INFOID:0000000010365198

DISASSEMBLY

Transaxle Assembly Side

- Fix shaft with a vise.
CAUTION:
Protect shaft using aluminum or copper plates when fixing with a vise.
- Remove boot bands, and then remove boot from housing.
- Remove stopper ring.
- Put matching marks on housing and shaft, and then pull out housing from shaft.
CAUTION:
Use paint or an equivalent for matching marks. Do not scratch the surfaces.
- Put matching marks (A) on the spider assembly and shaft.
CAUTION:
Use paint or an equivalent for matching marks. Do not scratch the surfaces.

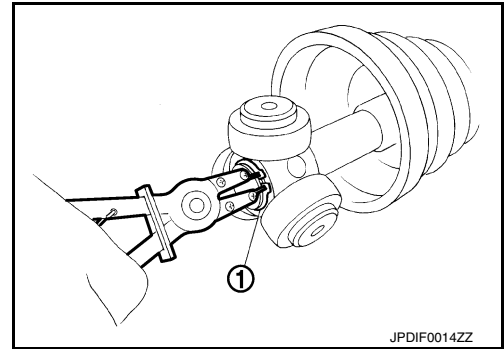


FRONT DRIVE SHAFT

[AWD]

< UNIT DISASSEMBLY AND ASSEMBLY >

6. Remove snap ring (1), and then remove spider assembly from shaft.
7. Remove boot from shaft.
8. Remove circular clip from housing (left side).
9. Remove dust shield from housing.
10. Clean old grease on housing with paper waste.



Wheel Side

1. Fix shaft with a vise.

CAUTION:

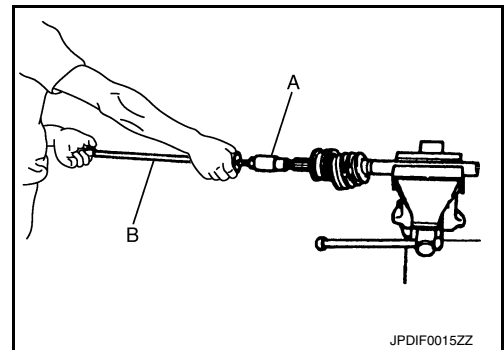
Protect shaft using aluminum or copper plates when fixing with a vise.

2. Remove boot bands, and then remove boot from joint sub-assembly.
3. Screw the drive shaft puller (A) 30 mm (1.18 in) or more into the thread of joint sub-assembly, and pull joint sub-assembly with a sliding hammer (B) from shaft.

CAUTION:

- If joint sub-assembly cannot be removed after five or more unsuccessful attempts, replace shaft and joint sub assembly as a set.
- Align sliding hammer and drive shaft and remove them by pulling forcibly.

4. Remove circular clip from shaft.
5. Remove boot from shaft.
6. Clean old grease on joint sub-assembly with paper waste while rotating ball cage.



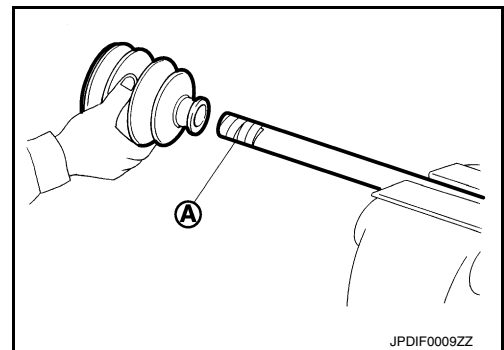
ASSEMBLY

Transaxle Assembly Side

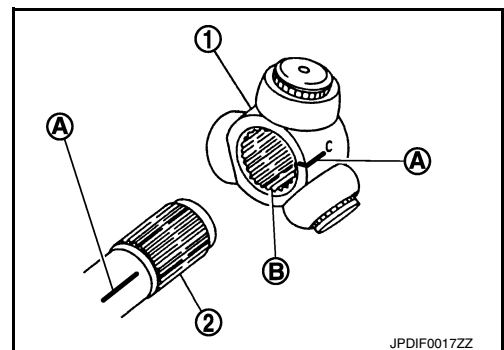
1. Install new boot and boot bands to shaft.

CAUTION:

- Wrap serration on shaft with tape (A) to protect from damage
- Do not reuse boot and boot band.



2. Remove the tape wrapped around the serration on shaft.
3. To install the spider assembly (1), align it with the matching marks (A) on the shaft (2) put during the removal, and direct the serration mounting surface (B) to the shaft.



FRONT DRIVE SHAFT

< UNIT DISASSEMBLY AND ASSEMBLY >

[AWD]

4. Secure spider assembly onto shaft with snap ring (1).
CAUTION:
Do not reuse snap ring.
5. Apply the appropriate amount of grease to spider assembly and sliding surface.
6. Assemble the housing onto spider assembly, and apply the specified amount of grease.

Grease amount : Refer to [FAX-65, "Drive Shaft"](#).

7. Align matching marks put during the removal of housing.
8. Install stopper ring.
CAUTION:
Do not reuse stopper ring.
9. Install boot securely into grooves (indicated by "*" marks) shown.
CAUTION:
If grease adheres to the boot mounting surface (indicated "*" mark) on shaft or housing, boot may be removed. Remove all grease from the boot mounting surface.
10. To prevent the deformation of the boot, adjust the boot installation length (L) to the value shown below by inserting the suitable tool into the inside of boot from the large diameter side of boot and discharging inside air.

Boots installed length (L) : Refer to [FAX-65, "Drive Shaft"](#).

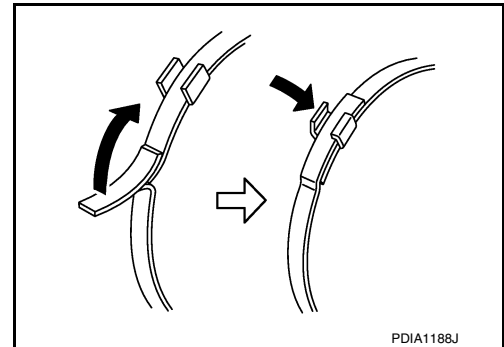
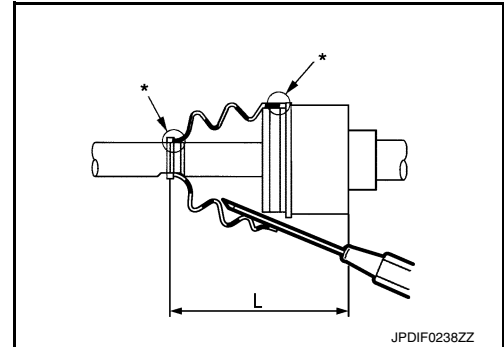
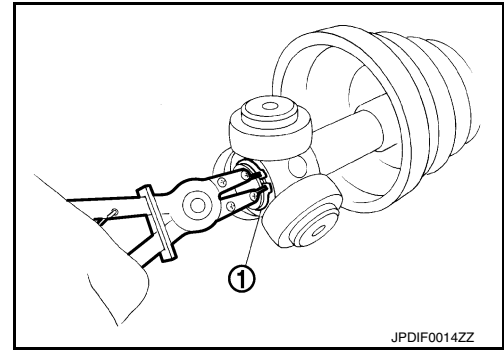
CAUTION:

- If the boot installation length is outside the standard, it may cause breakage of boot.
- Be careful not to touch the inside of the boot with the tip of tool.

11. Install new boot bands securely as shown.
CAUTION:
Do not reuse boot band.
12. Secure housing and shaft, and then make sure that they are in the correct position when rotating boot. Reinstall them with new boot bands when the mounting positions become incorrect.
13. Install dust shield to housing (left side).
CAUTION:
Do not reuse dust shield.
14. Install circular clip to housing (left side).
CAUTION:
Do not reuse circular clip.

Wheel Side

For further details, refer to the installation procedure of ["FAX-44, "WHEEL SIDE : Removal and Installation"](#) for the drive shaft boot.



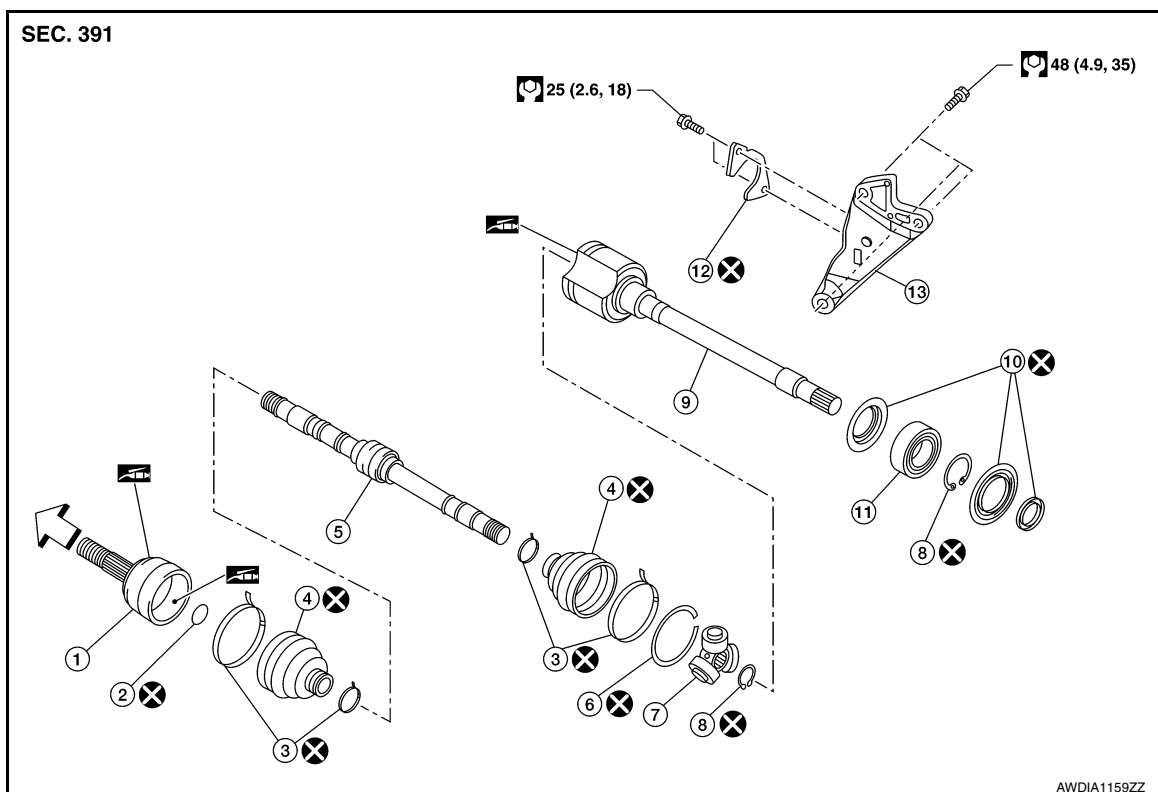
FRONT DRIVE SHAFT

< UNIT DISASSEMBLY AND ASSEMBLY >

[AWD]

Exploded View (RH)

INFOID:000000010365199



- | | | |
|-----------------------|------------------|-----------------------------|
| 1. Joint sub-assembly | 2. Circular clip | 3. Boot band |
| 4. Boot | 5. Shaft | 6. Damper band |
| 7. Dynamic damper | 8. Stopper ring | 9. Spider assembly |
| 10. Snap ring | 11. Housing | 12. Dust shield |
| 13. Support bearing | 14. Retainer | 15. Support bearing bracket |

⇐ : Wheel side

Disassembly and Assembly (RH)

INFOID:000000010365200

DISASSEMBLY

Transaxle Assembly Side

1. Fix shaft with a vise.

CAUTION:

Protect shaft using aluminum or copper plates when fixing with a vise.

2. Remove boot bands, and then remove boot from housing.
 3. Remove stopper ring.
 4. Put matching marks on housing and shaft, and then pull out housing from shaft.
- CAUTION:**
Use paint or an equivalent for matching marks. Do not scratch the surfaces.

FRONT DRIVE SHAFT

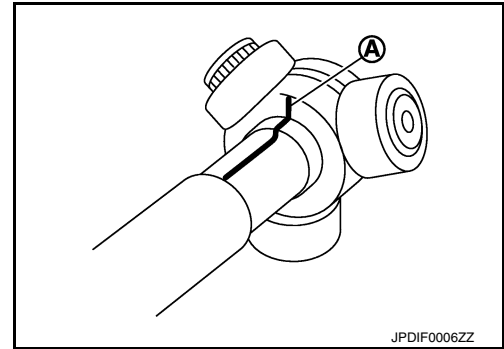
< UNIT DISASSEMBLY AND ASSEMBLY >

[AWD]

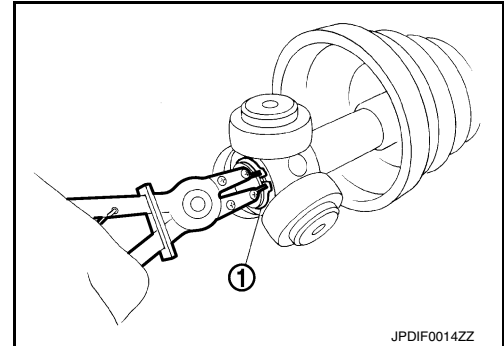
5. Put matching marks (A) on the spider assembly and shaft.

CAUTION:

Use paint or an equivalent for matching marks. Do not scratch the surfaces.

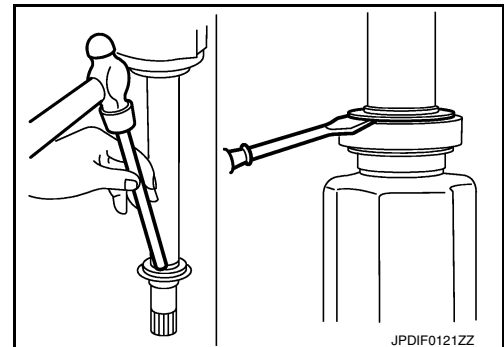


6. Remove snap ring (1), and then remove spider assembly from shaft.
7. Remove boot from shaft.
8. Remove circular clip from housing (left side).
9. Remove dust shield from housing.
10. Clean old grease on housing with paper waste.

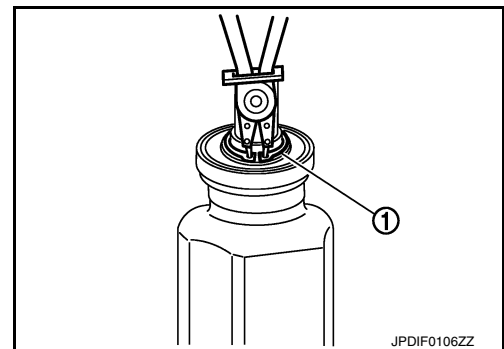


Support Bearing

1. Remove dust shield from housing.



2. Remove snap ring (1).

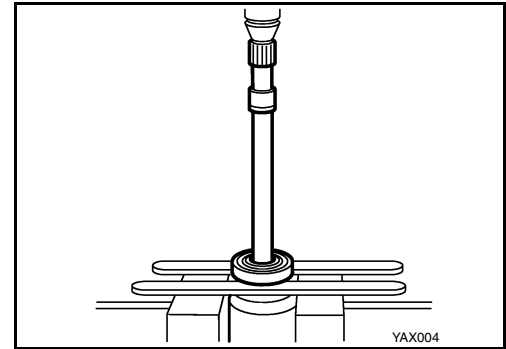


FRONT DRIVE SHAFT

< UNIT DISASSEMBLY AND ASSEMBLY >

[AWD]

3. Press out support bearing from housing.
4. Remove dust shield.



Wheel Side

1. Fix shaft with a vise.

CAUTION:

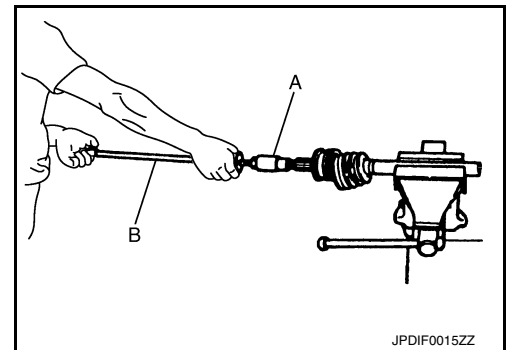
Protect shaft using aluminum or copper plates when fixing with a vise.

2. Remove boot bands, and then remove boot from joint sub-assembly.
3. Screw the drive shaft puller (A) 30 mm (1.18 in) or more into the thread of joint sub-assembly, and pull joint sub-assembly with a sliding hammer (B) from shaft.

CAUTION:

- If joint sub-assembly cannot be removed after five or more unsuccessful attempts, replace shaft and joint sub assembly as a set.
- Align sliding hammer and drive shaft and remove them by pulling forcibly.

4. Remove circular clip from shaft.
5. Remove boot from shaft.
6. Clean old grease on joint sub-assembly with paper waste while rotating ball cage.



ASSEMBLY

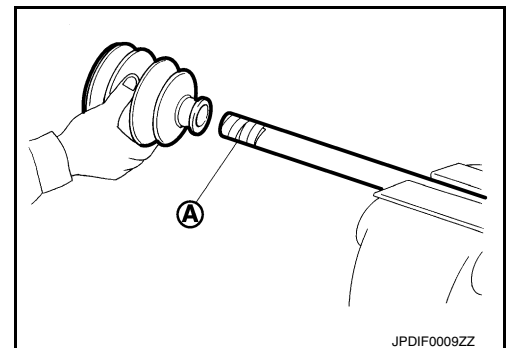
Transaxle Assembly Side

1. Wrap serration on shaft with tape (A) to protect boot from damage. Install new boot and boot bands to shaft.

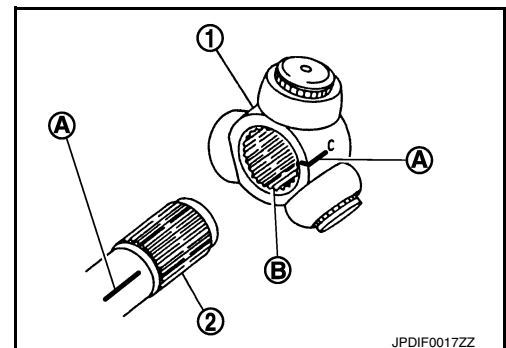
CAUTION:

Do not reuse boot and boot band.

2. Remove the tape wrapped around the serration on shaft.



3. To install the spider assembly (1), align it with the matching marks (A) on the shaft (2) put during the removal, and direct the serration mounting surface (B) to the shaft.



FRONT DRIVE SHAFT

[AWD]

< UNIT DISASSEMBLY AND ASSEMBLY >

4. Secure spider assembly onto shaft with snap ring (1).
CAUTION:
Do not reuse snap ring.
5. Apply the appropriate amount of grease to spider assembly and sliding surface.
6. Assemble the housing onto spider assembly, and apply the specified amount of grease.

Grease amount : Refer to [FAX-65, "Drive Shaft"](#).

7. Align matching marks put during the removal of housing.
8. Install stopper ring.
CAUTION:
Do not reuse stopper ring.
9. Install boot securely into grooves (indicated by "*" marks) shown in the figure.
CAUTION:
If grease adheres to the boot mounting surface (indicated "*" mark) on shaft or housing, boot may be removed. Remove all grease from the boot mounting surface.
10. To prevent the deformation of the boot, adjust the boot installation length (L) to the value shown below by inserting the suitable tool into the inside of boot from the large diameter side of boot and discharging inside air.

Boots installed length (L) : Refer to [FAX-65, "Drive Shaft"](#).

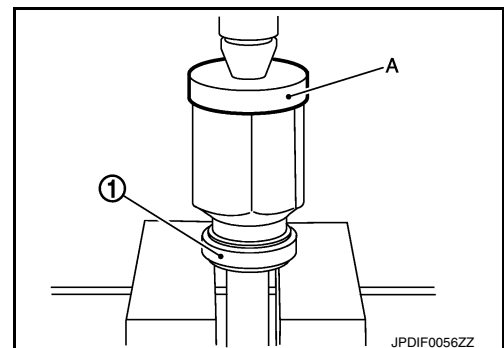
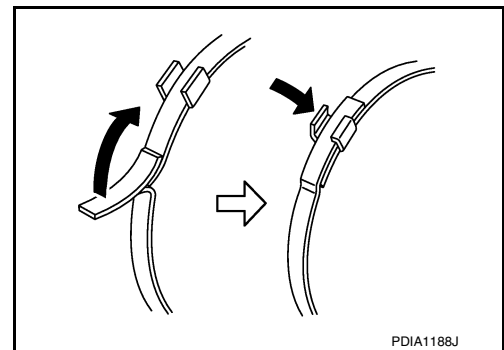
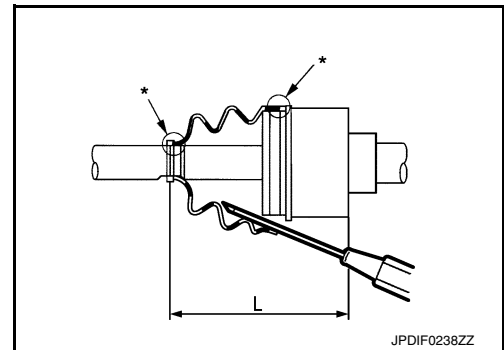
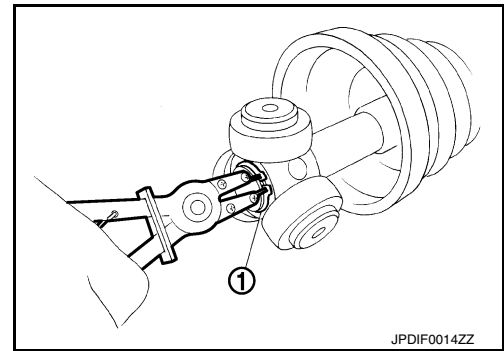
CAUTION:

- If the boot installation length is outside the standard, it may cause breakage of boot.
- Be careful not to touch the inside of the boot with the tip of tool.

11. Install new boot bands securely as shown in the figure.
CAUTION:
Do not reuse boot band.
12. Secure housing and shaft, and then make sure that they are in the correct position when rotating boot. Reinstall them with new boot bands when the mounting positions become incorrect.
13. Install dust shield to housing (left side).
CAUTION:
Do not reuse dust shield.
14. Install circular clip to housing (left side).
CAUTION:
Do not reuse circular clip.

Support Bearing

1. Install dust shield on housing.
CAUTION:
Do not reuse dust shield.
2. Press support bearing (1) onto housing to using the suitable tool (A).
3. Install snap ring.
CAUTION:
Do not reuse snap ring.



FRONT DRIVE SHAFT

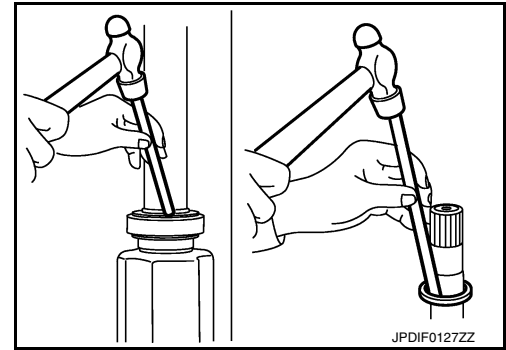
< UNIT DISASSEMBLY AND ASSEMBLY >

[AWD]

4. Install dust shields.

CAUTION:

Do not reuse dust shields.



Wheel Side

For further details, refer to the installation procedure of [“FAX-44, “WHEEL SIDE : Removal and Installation”](#) for the drive shaft boot.

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

[AWD]

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

Wheel Bearing

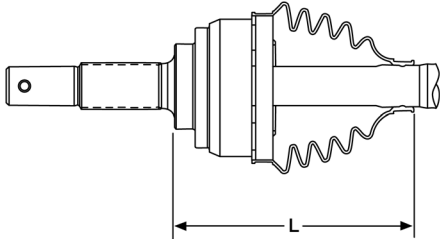
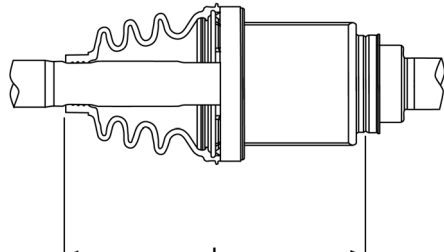
INFOID:0000000010356125

Item	Standard
Axial end play	0.0 mm (0.0 in)
Rotating torque	1.9 N·m (0.19 kg-m, 17 in-lb) or less
Spring balance measurement	13.7 N (1.40 kg-f, 3.08 lb-f) or less
Wheel bearing press-fit load	49 kN (4,998.0 kg-f, 11,015.2 lb-f)

Drive Shaft

INFOID:0000000010356126

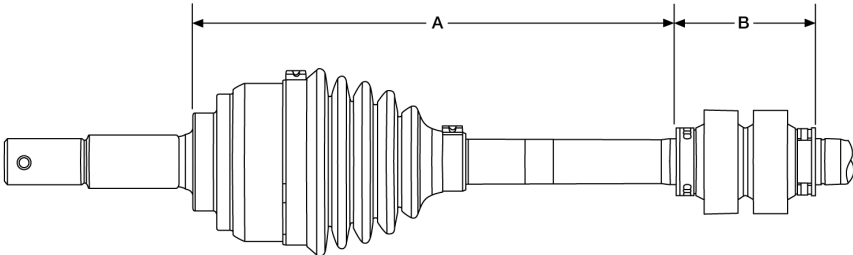
Drive Shaft Specifications

			
ALDIA0269ZZ		ALDIA0268ZZ	
Application	AWD		
Joint type	Wheel side		Transaxle side
	(LH)	(RH)	(LH) (RH)
Grease quantity*	115 - 135 g (4.06 - 4.76 oz)		175 - 195 g (6.17 - 6.88 oz)
Boot installed length (L)	141.5 mm (5.57 in)		176.9 mm (6.96 in)

*Always check with the Parts Department for the latest parts information.

Dynamic Damper Specifications

Unit: mm (in)

	
ALDIA0270ZZ	
Application	AWD
	(LH) (RH)
Dimension (A)	243 ± 3 (9.57 ± 0.1)
Dimension (B)	50 (1.97)

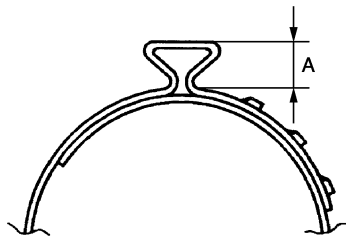
Boot Band Specification

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

[AWD]

Unit: mm (in)



JPDIF0268ZZ

Dimension (A) - maximum	7.0 (0.28)
-------------------------	------------

SECTION FSU

FRONT SUSPENSION

CONTENTS

PRECAUTION	2	
PRECAUTIONS	2	
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	2	
Precaution for Procedure without Cowl Top Cover.....	2	
Precautions for Suspension	2	
PREPARATION	3	
PREPARATION	3	
Special Service Tool	3	
Commercial Service Tool	3	
SYMPTOM DIAGNOSIS	5	
NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING	5	
NVH Troubleshooting Chart	5	
PERIODIC MAINTENANCE	6	
FRONT SUSPENSION ASSEMBLY	6	
Inspection	6	
WHEEL ALIGNMENT	7	
Inspection	7	
Adjustment	8	
REMOVAL AND INSTALLATION	9	
FRONT COIL SPRING AND STRUT	9	
Exploded View	9	
Removal and Installation	9	
Inspection	11	
TRANSVERSE LINK	12	
Exploded View	12	
Removal and Installation	12	
FRONT STABILIZER	14	
Exploded View	14	
Removal and Installation	14	
Inspection	16	
STEERING KNUCKLE	17	
Exploded View	17	
Removal and Installation	17	
UNIT REMOVAL AND INSTALLATION	20	
FRONT SUSPENSION MEMBER	20	
Exploded View	20	
Removal and Installation	20	
Inspection	21	
UNIT DISASSEMBLY AND ASSEMBLY	22	
FRONT COIL SPRING AND STRUT	22	
Exploded View	22	
Disassembly and Assembly	22	
Inspection	24	
Disposal	24	
SERVICE DATA AND SPECIFICATIONS (SDS)	26	
SERVICE DATA AND SPECIFICATIONS (SDS)	26	
Wheel Alignment (Unladen*1)	26	
Ball Joint	26	
Wheelarch Height (Unladen*)	26	

PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010282985

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

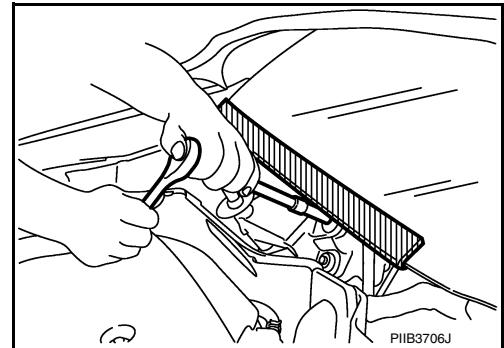
WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Precaution for Procedure without Cowl Top Cover

INFOID:0000000009797724

When performing the procedure after removing cowl top cover, cover the lower end of windshield with urethane, etc to prevent damage to windshield.



Precautions for Suspension

INFOID:0000000009797725

- When installing rubber bushings, the final tightening must be carried out under unladen conditions with tires on ground. Spilled oil might shorten the life of rubber bushings. Be sure to wipe off any spilled oil.
- Unladen conditions mean that fuel, engine coolant and lubricants are full. Spare tire, jack, hand tools and mats are in designated positions.
- After servicing suspension parts, be sure to check wheel alignment.
- Self-lock nuts are not reusable. Always use new ones when installing. Since new self-lock nuts are pre-oiled, tighten as they are.

PREPARATION

< PREPARATION >

PREPARATION

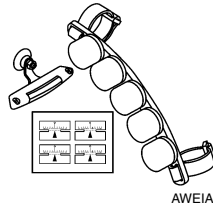
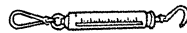
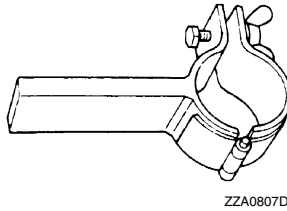
PREPARATION

Special Service Tool

INFOID:000000009797729

The actual shape of the tools may differ from those illustrated here.

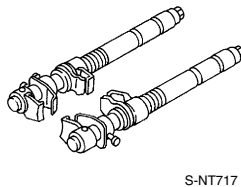
Tool number (TechMate No.) Tool name	Description
ST35652000 (—) Strut attachment	Disassembling and assembling strut
— (J-44372) Pull Gauge	Measuring ball joint swinging force
— (J-49286) Drift and Pull gauge	Measuring drift and pull



Commercial Service Tool

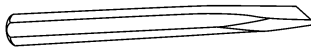
INFOID:000000009797730

Tool name	Description
Spring compressor	Removing and installing coil spring



PREPARATION

< PREPARATION >

Tool name	Description
Power tool  PIIB1407E	Loosening nuts, screws and bolts
Chisel  ALEIA0224ZZ	Separating steering knuckle from front coil spring and strut

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

< SYMPTOM DIAGNOSIS >

SYMPTOM DIAGNOSIS

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

NVH Troubleshooting Chart

INFOID:000000009797722

Use chart below to find the cause of the symptom. If necessary, repair or replace these parts.

Reference			FSU-9, FSU-12, FSU-14, FSU-20	FSU-11	—	—	FSU-11	FSU-9, FSU-12, FSU-14, FSU-20	FSU-6	FSU-16	DLN-97	DLN-110	FAX-6 (FWD), FAX-37 (AWD)	WT-55	WT-55	FAX-6 (FWD), FAX-37 (AWD)	BR-6	ST-6
Possible cause and SUSPECTED PARTS			Improper installation, looseness	Shock absorber deformation, damage or deflection	Bushing or mounting deterioration	Parts interference	Spring fatigue	Suspension looseness	Incorrect wheel alignment	Stabilizer bar fatigue	PROPELLER SHAFT (AWD)	DIFFERENTIAL (AWD)	FRONT AXLE	TIRE	WHEEL	DRIVE SHAFT	BRAKE	STEERING
Symptom	FRONT SUSPENSION	Noise	x	x	x	x	x	x			x	x	x	x	x	x	x	x
		Shake	x	x	x	x		x			x		x	x	x	x	x	x
		Vibration	x	x	x	x	x				x		x	x		x		x
		Shimmy	x	x	x	x			x				x	x	x		x	x
		Shudder	x	x	x								x	x	x		x	x
		Poor quality ride or handling	x	x	x	x	x		x	x			x	x	x			

x: Applicable

FRONT SUSPENSION ASSEMBLY

< PERIODIC MAINTENANCE >

PERIODIC MAINTENANCE

FRONT SUSPENSION ASSEMBLY

Inspection

INFOID:000000009797731

COMPONENT

Check the conditions (looseness, backlash) of each component. Verify the component conditions (wear, damage) are normal.

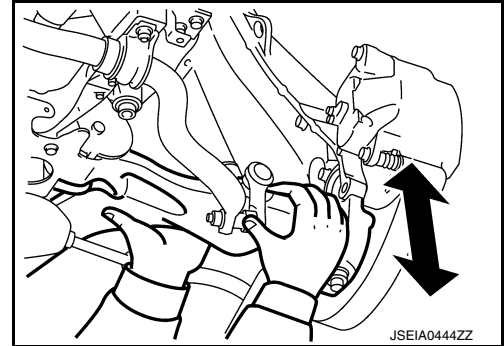
Ball Joint Axial End Play

1. Set front wheels in a straight-ahead position.
2. Move axle side of transverse link, and check the axial end play by moving the transverse link up and down.

Axial end play : Refer to [FSU-26, "Ball Joint"](#).

CAUTION:

- Do not depress brake pedal when measuring.
- Do not perform this inspection with the tires on the ground.
- Be careful not to damage ball joint boot. Do not damage components by applying excessive force.



STRUT

Check for oil leakage and damage. Replace if necessary.

WHEEL ALIGNMENT

< PERIODIC MAINTENANCE >

WHEEL ALIGNMENT

Inspection

INFOID:000000009797732

PRELIMINARY INSPECTION

WARNING:

Always adjust the wheel alignment with the vehicle on a flat surface.

NOTE:

If the wheel alignment is out of specification, inspect and replace any damaged or worn rear suspension parts before making any adjustments.

Check the following:

1. Check and adjust the wheel alignment with the vehicle under unladen conditions. "Unladen conditions" means that the fuel, engine coolant, and lubricants are full; the spare tire, jack, hand tools and mats are in designated positions.
2. Check the tires for incorrect air pressure and excessive wear. Refer to [WT-65, "Tire Air Pressure"](#).
3. Check the wheels for run out and damage. Refer to [WT-56, "Inspection"](#).
4. Check the wheel bearing axial end play. Refer to [FAX-7, "Inspection"](#) (FWD), or [FAX-38, "Inspection"](#) (AWD).
5. Check the shock absorbers for leaks or damage.
6. Check each mounting point of the suspension components for any excessive looseness or damage.
7. Check each link, arm, and the suspension member for any damage.
8. Check the vehicle height. Refer to [FSU-26, "Wheelarch Height \(Unladen*\)"](#).

GENERAL INFORMATION AND RECOMMENDATIONS

- A four-wheel thrust alignment should be performed.
- This type of alignment is recommended for any NISSAN vehicle.
- The four-wheel "thrust" process helps ensure that the vehicle is properly aligned and the steering wheel is centered.
- The alignment rack itself should be capable of accepting any NISSAN vehicle.
- The rack should be checked to ensure that it is level.
- Make sure the machine is properly calibrated.
- Your alignment equipment should be regularly calibrated in order to give correct information.
- Check with the manufacturer of your specific equipment for their recommended Service/Calibration Schedule.

ALIGNMENT PROCESS

IMPORTANT:

Use only the alignment specifications listed in this Service Manual. Refer to [FSU-26, "Wheel Alignment \(Unladen*1\)"](#).

- When displaying the alignment settings, many alignment machines use "indicators": (Green/red, plus or minus, Go/No Go). **Do not use these indicators.**
- The alignment specifications programmed into your machine that operate these indicators may not be correct.
- This may result in an ERROR.
- Most camera-type alignment machines are equipped with both "Rolling Compensation" method and optional "Jacking Compensation" method to "compensate" the alignment targets or head units. "Rolling Compensation" is the preferred method.
- If using the "Rolling Compensation" method, after installing the alignment targets or head units, push or pull on the rear wheel to move the vehicle. **Do not push or pull on the vehicle body.**
- If using the "Jacking Compensation" method, after installing the alignment targets or head units, raise the vehicle and rotate the wheels 1/2 turn both ways.

NOTE:

- Do not use the "Rolling Compensation" method if you are using sensor-type alignment equipment.
 - Follow all instructions for the alignment machine you're using for more information.
- Last line

CAMBER, CASTER AND KINGPIN INCLINATION ANGLES INSPECTION

- Camber, caster, kingpin inclination angles cannot be adjusted.

WHEEL ALIGNMENT

< PERIODIC MAINTENANCE >

- Before inspection, set the front wheels onto a turning radius gauge. Set the rear wheels onto a pad that has the same height so the vehicle will remain horizontal.

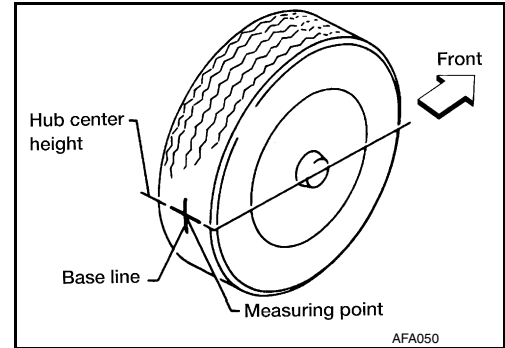
TOTAL TOE-IN INSPECTION

Measure the total toe-in using the following procedure.

WARNING:

- **Always perform the following procedure on a flat surface.**
- **Make sure that no person is in front of vehicle before pushing it.**

1. Bounce the front of vehicle up and down to stabilize the vehicle height (posture).
2. Push on the rear wheel to move the vehicle straight ahead about 5 m (16 ft).
3. Put a mark on base line of the tread (rear side) of both tires at the same height of hub center. These are measuring points.

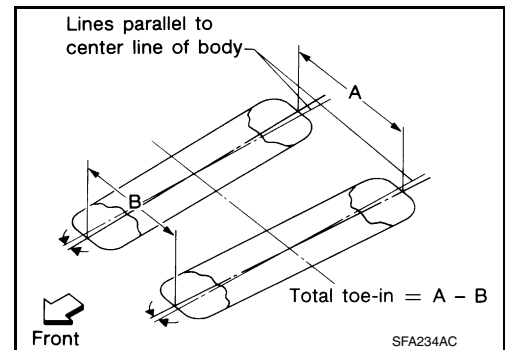


4. Measure the distance (A) from the rear side.
5. Push on the rear wheel to move the vehicle slowly ahead and to rotate the wheels 180 degrees (1/2 turn).

CAUTION:

If the wheels have rotated more than 180 degrees (1/2 turn), try the above procedure again from the beginning. Do not push vehicle backward.

6. Measure the distance (B) from the front side.



7. Use the formula below to calculate total toe-in.

Total toe-in : **A - B**

Total toe-in specification : **Refer to [FSU-26, "Wheel Alignment \(Unladen*1\)"](#).**

- If the total toe-in is outside the specification, adjust the total toe-in. Refer to [FSU-8, "Adjustment"](#).

Adjustment

INFOID:000000009797733

TOE-IN

- Loosen the steering outer socket. Adjust the length using the steering inner socket.

Toe-in : **Refer to [FSU-26, "Wheel Alignment \(Unladen*1\)"](#).**

CAUTION:

- **Always evenly adjust both toe-in alternately and adjust the difference between the left and right to the standard.**
- **Always hold the steering inner socket when tightening the steering outer socket.**
- After toe-in adjustment, adjust neutral position of steering angle sensor. Refer to [BRC-70, "Work Procedure"](#).

FRONT COIL SPRING AND STRUT

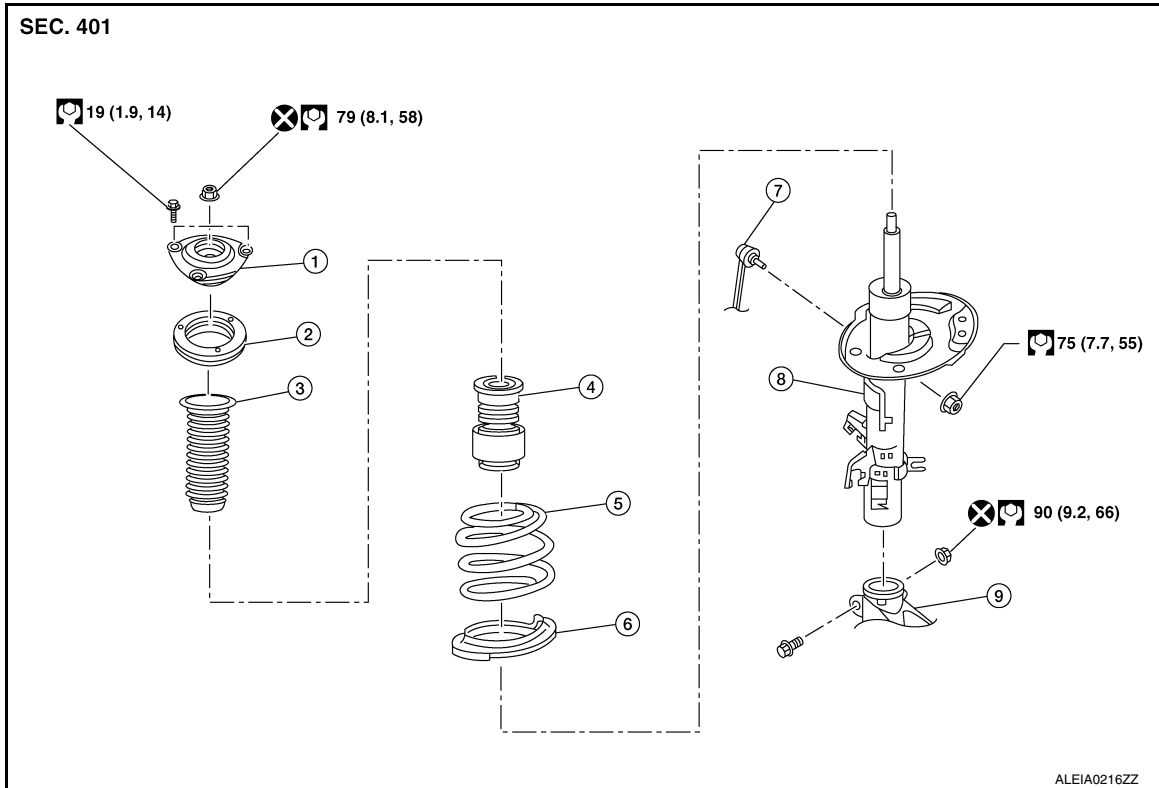
< REMOVAL AND INSTALLATION >

REMOVAL AND INSTALLATION

FRONT COIL SPRING AND STRUT

Exploded View

INFOID:000000009797734



- | | | |
|----------------------------------|-----------------|-----------------------------------|
| 1. Strut mount insulator | 2. Rotary stop | 3. Front spring upper rubber seat |
| 4. Front suspension bound bumper | 5. Front spring | 6. Front spring lower rubber seat |
| 7. Stabilizer connecting rod | 8. Strut | 9. Steering knuckle |

Removal and Installation

INFOID:000000009797735

REMOVAL

1. Remove the wheel and tire using power tool. Refer to [WT-60, "Removal and Installation"](#).
2. Remove the brake hose lock plate from strut.
3. Remove the bolt and separate the front wheel sensor from the steering knuckle. Separate the harness from the brackets and position aside. Refer to [BRC-132, "FRONT WHEEL SENSOR : Exploded View"](#).
CAUTION:
 - Failure to separate the front wheel sensor from the steering knuckle may result in damage to the front wheel sensor.
 - Pull out the front wheel sensor, being careful to turn it as little as possible. Do not pull on wheel sensor harness.
4. Remove torque member bolts, leaving the brake hose attached. Position brake caliper aside with wire. Refer to [BR-35, "BRAKE CALIPER ASSEMBLY \(1 PISTON TYPE\) : Exploded View"](#) (1 PISTON TYPE), or [BR-39, "BRAKE CALIPER ASSEMBLY \(2 PISTON TYPE\) : Exploded View"](#) (2 PISTON TYPE).
5. Put alignment marks on the disc brake rotor and on the wheel hub and bearing. Remove the disc brake rotor.
CAUTION:
Do not drop the disc brake rotor.
6. Remove the cotter pin from the drive shaft.
7. Remove the nut retainer from the wheel hub lock nut.

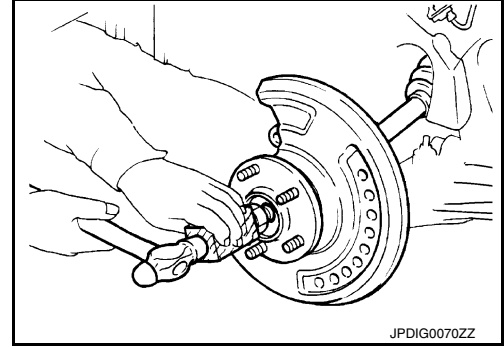
FRONT COIL SPRING AND STRUT

< REMOVAL AND INSTALLATION >

8. Loosen the wheel hub lock nut using power tool.
9. Tap wheel hub lock nut with a piece of wood to disengage wheel hub and bearing from drive shaft.

NOTE:

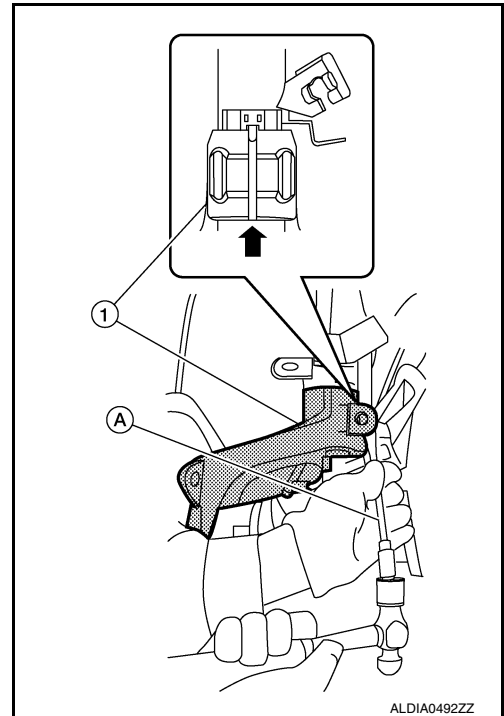
Use a suitable puller if wheel hub and bearing and drive shaft cannot be separated even after performing the above procedure.



10. Remove the wheel hub lock nut.
11. Separate drive shaft from wheel hub and bearing.
12. Remove the nut and separate the stabilizer connecting rod from the strut bracket.
13. Remove the nut and separate the outer socket from the steering knuckle.
14. Remove the upper nut and bolt from steering knuckle. Refer to [FAX-9, "Exploded View"](#).
15. Open the slot using a suitable tool (A). Separate the steering knuckle (1) from the front coil spring and strut.

CAUTION:

Do not drop steering knuckle.



16. Remove the lower nut and bolt from the steering knuckle. Separate transverse link from the steering knuckle. Refer to [FAX-9, "Exploded View"](#).
17. Remove the cowl top cover plug to access the upper strut bolt.
18. Remove the upper strut bolts and the front coil spring and strut.
19. Inspect the components. Refer to [FSU-6, "Inspection"](#).

INSTALLATION

CAUTION:

- Do not reuse the wheel hub lock nut.
- Do not reuse the cotter pin.
- Do not reuse steering knuckle upper bolt.
- Do not reuse steering knuckle lower nut.

Installation is in the reverse order of removal.

- Adjust the neutral position of the steering angle sensor. Refer to [BRC-70, "Work Procedure"](#).
- After replacing strut, always follow the disposal procedure to discard the strut. Refer to [FSU-24, "Disposal"](#).
- Perform the inspection after installation. Refer to [FSU-6, "Inspection"](#).

FRONT COIL SPRING AND STRUT

< REMOVAL AND INSTALLATION >

Inspection

INFOID:000000009797737

INSPECTION AFTER REMOVAL

Strut

Check the following items, and replace the parts if necessary.

- Strut for deformation, cracks or damage
- Piston rod for damage, uneven wear or distortion
- Oil leakage

Strut Mounting Insulator and Rubber Parts Inspection

Check strut mounting insulator for cracks and rubber parts for wear. Replace it if necessary.

Coil Spring

Check coil spring for cracks, wear or damage. Replace it if necessary.

INSPECTION AFTER INSTALLATION

Check wheel alignment. Refer to [FSU-7, "Inspection"](#).

A

B

C

D

FSU

F

G

H

I

J

K

L

M

N

O

P

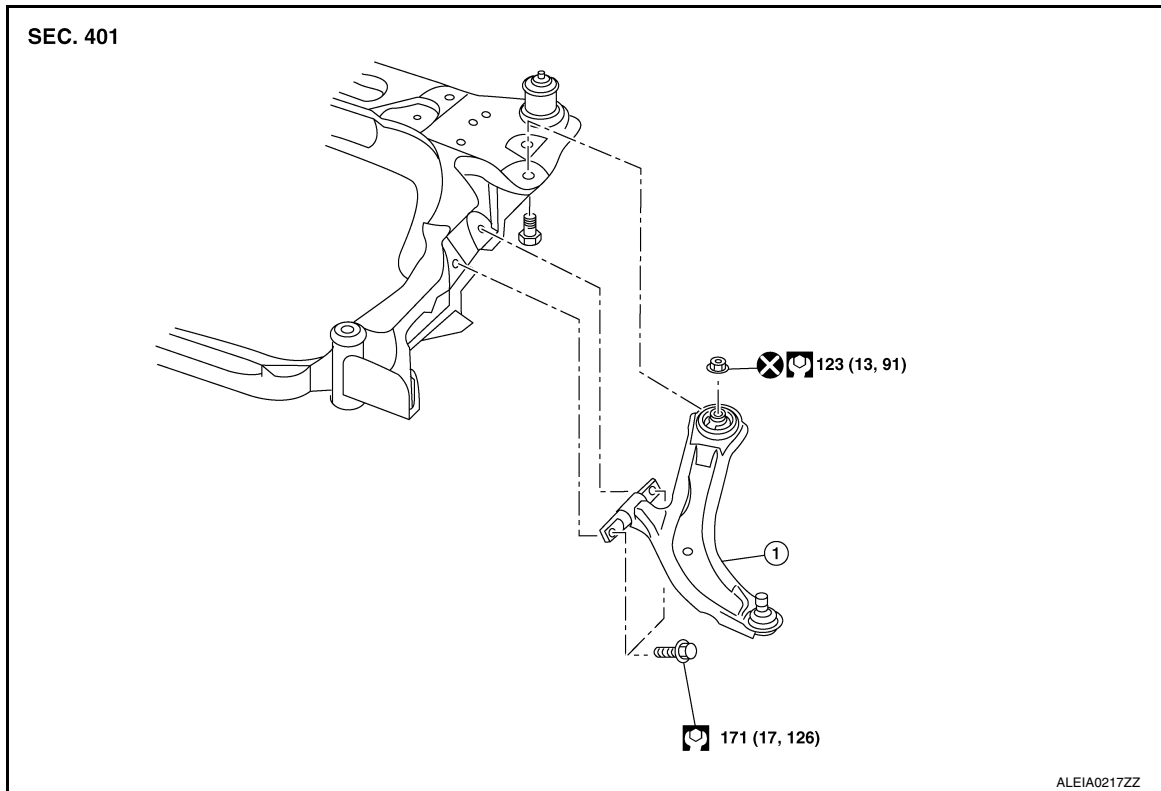
TRANSVERSE LINK

< REMOVAL AND INSTALLATION >

TRANSVERSE LINK

Exploded View

INFOID:000000009797739



1. Transverse link

Removal and Installation

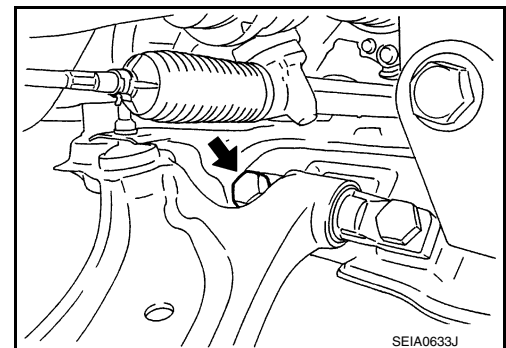
INFOID:000000009797740

REMOVAL

1. Remove the wheel and tires using power tool. Refer to [WT-60, "Removal and Installation"](#).
2. Remove the engine undercover. Refer to [EXT-37, "ENGINE UNDER COVER : Removal and Installation"](#).
3. Remove the steering knuckle lower bolt and nut. Refer to [FSU-17, "Exploded View"](#)
4. Remove the nut and separate the stabilizer connecting rod from the strut bracket.
5. Remove transverse link bolts from suspension member, and remove transverse link.

NOTE:

Transverse link cannot be removed before the stabilizer bar is positioned out of the way because the rear bolt (↖). Refer to [FSU-14, "Exploded View"](#).



INSPECTION AFTER REMOVAL

Check the following items, and replace the components as necessary.

Ball Joint Inspection

Manually move ball joint to confirm it moves smoothly with no binding.

TRANSVERSE LINK

< REMOVAL AND INSTALLATION >

Transverse Link

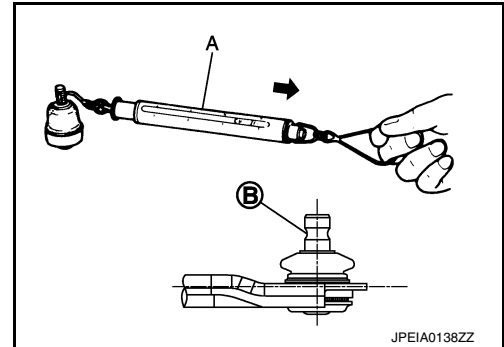
- Check the transverse link and bushing for deformation, cracks or damage.
- Check the ball joint boot for cracks or other damage, and also for grease leaks.

Swing Torque

1. Move the ball joint at least ten times by hand to check for smooth movement with no binding.
2. Hook the Tool (A) on the on ball joint (B). Confirm the measurement value is within specifications when the ball joint begins moving.

Tool number : - (J-44372)
Swing torque : Refer to [FSU-26, "Ball Joint"](#).
Rotating torque : Refer to [FSU-26, "Ball Joint"](#)

- If swing torque or rotating torque exceeds standard range, replace the transverse link.



Axial End Play

1. Move the ball joint at least ten times by hand to check for smooth movement.
2. Move the tip of the ball joint in the axial direction to check for looseness.

Axial end play : Refer to [FSU-26, "Ball Joint"](#).

- If the axial end play exceeds the standard value, replace the transverse link.

INSTALLATION

Installation is in the reverse order of removal.

- Perform final tightening of nuts and bolts under unladen conditions with tires on level ground.

INSPECTION AFTER INSTALLATION

1. Adjust neutral position of the steering angle sensor. Refer to [BRC-70, "Work Procedure"](#).
2. Check the wheel alignment. Refer to [FSU-7, "Inspection"](#).

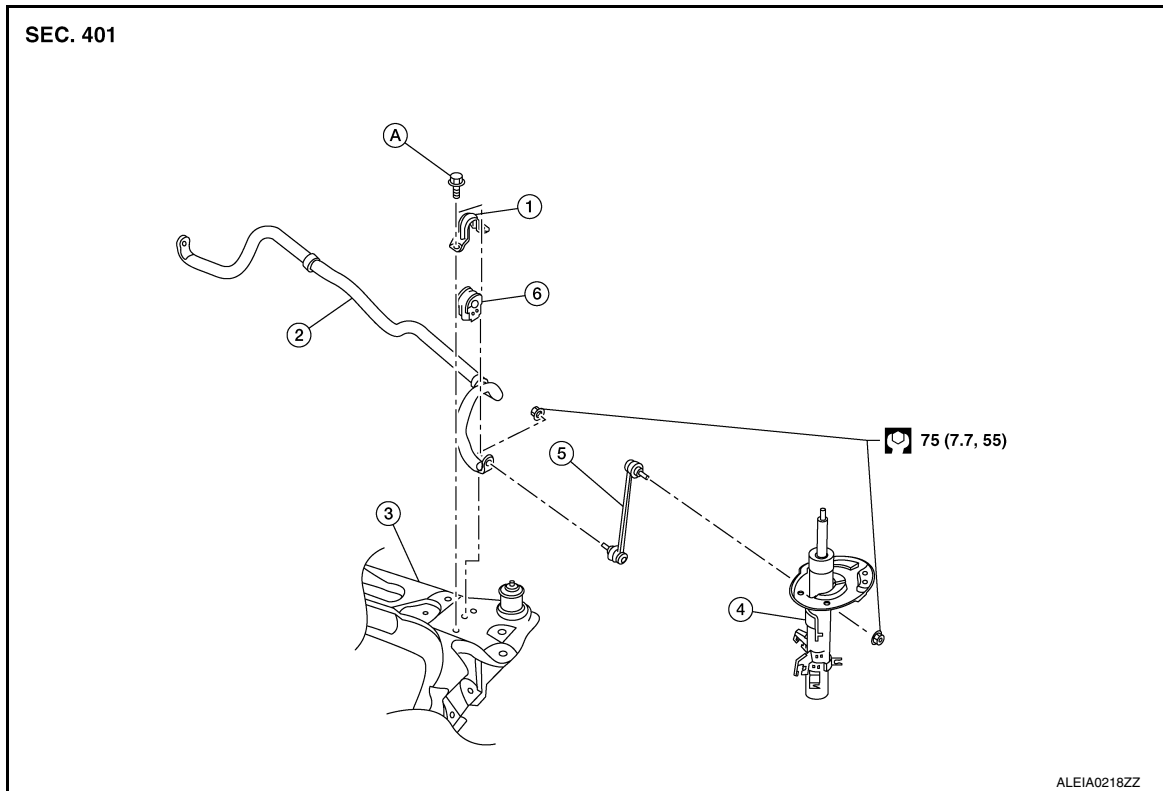
FRONT STABILIZER

< REMOVAL AND INSTALLATION >

FRONT STABILIZER

Exploded View

INFOID:000000009797742



- | | | |
|--------------------------|------------------------------|----------------------------|
| 1. Stabilizer clamp | 2. Stabilizer bar | 3. Front suspension member |
| 4. Strut | 5. Stabilizer connecting rod | 6. Stabilizer bushing |
| A. Refer to Installation | | |

Removal and Installation

INFOID:000000009797743

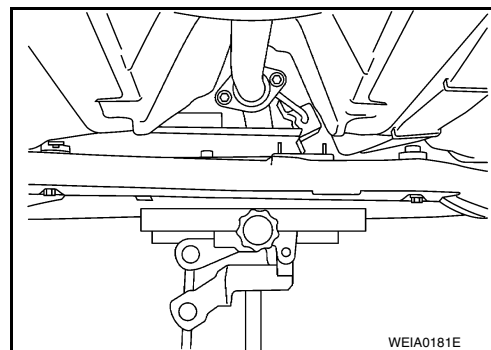
REMOVAL

1. Remove the wheel and tire using power tool. Refer to [WT-60, "Removal and Installation"](#).
2. Remove the engine side under cover. Refer to [EXT-37, "ENGINE UNDER COVER : Removal and Installation"](#).
3. Set suitable jack under front suspension member.
4. Remove stabilizer connecting rod.
5. Remove steering outer socket from steering knuckle. Refer to [ST-14, "Exploded View"](#).
6. Remove front exhaust mount. Refer to [EX-5, "Exploded View"](#).
7. Remove catalytic converter. Refer to [EX-5, "Exploded View"](#).
8. Remove rear torque rod. Refer to [EM-81, "Exploded View"](#).
9. Remove front suspension member stay and rubber stopper.

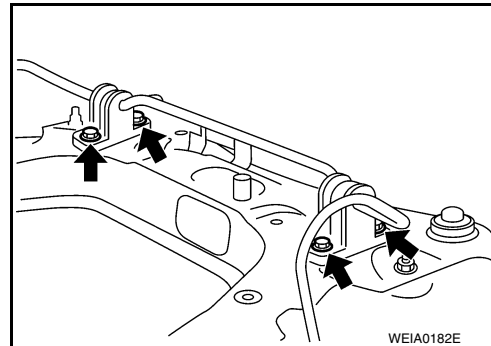
FRONT STABILIZER

< REMOVAL AND INSTALLATION >

10. Gradually lower jack front suspension member in order to remove stabilizer clamp bolts.



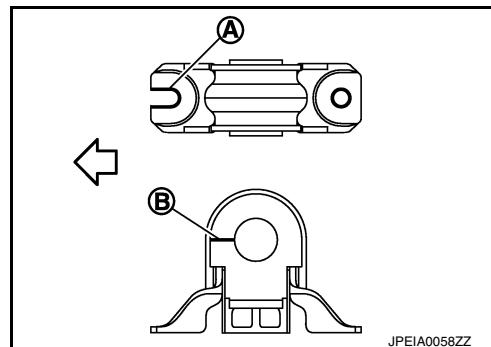
11. Remove stabilizer clamp bolts (←), and then remove stabilizer clamp and stabilizer bushing from front suspension member.
12. Remove stabilizer bar.



INSTALLATION

Installation is in the reverse order of removal.

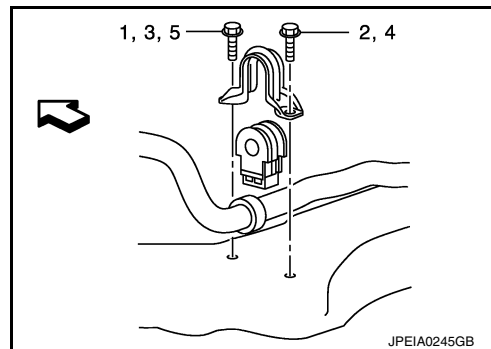
- Install stabilizer clamp so that notch (A) is facing front of vehicle (←).
- Install stabilizer bushing so that slit (B) is facing front of vehicle (←).



- Install the stabilizer clamp bolts in the order of 1 to 5 as shown.

Manual tightening	: 1
Temporary tightening	: 2 → 3
Final tightening (Specified torque)	: 4 → 5
Specified torque	No. 4-5 32 N·m (3.4 kg-m, 24 ft-lb)

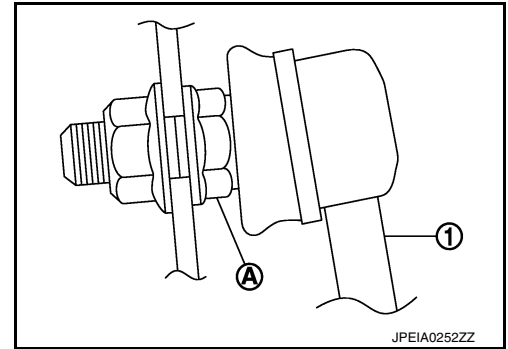
← : Front



FRONT STABILIZER

< REMOVAL AND INSTALLATION >

- To connect the stabilizer connecting rod (1), tighten the nut while holding the hexagonal part (A) on the stabilizer connecting rod.



- Perform the final tightening of the nuts and bolts under unladen conditions with the tires on level ground.
- Perform inspection after installation. Refer to [FSU-6, "Inspection"](#).

Inspection

INFOID:000000009797744

INSPECTION AFTER REMOVAL

Check the stabilizer bar, the stabilizer connecting rod, the stabilizer bushing and the stabilizer clamp for deformation, cracks or damage. Replace components if necessary.

INSPECTION AFTER INSTALLATION

1. Check the wheel alignment. Refer to [FSU-7, "Inspection"](#).
2. Perform the steering angle sensor neutral position adjustment. Refer to [BRC-70, "Work Procedure"](#).

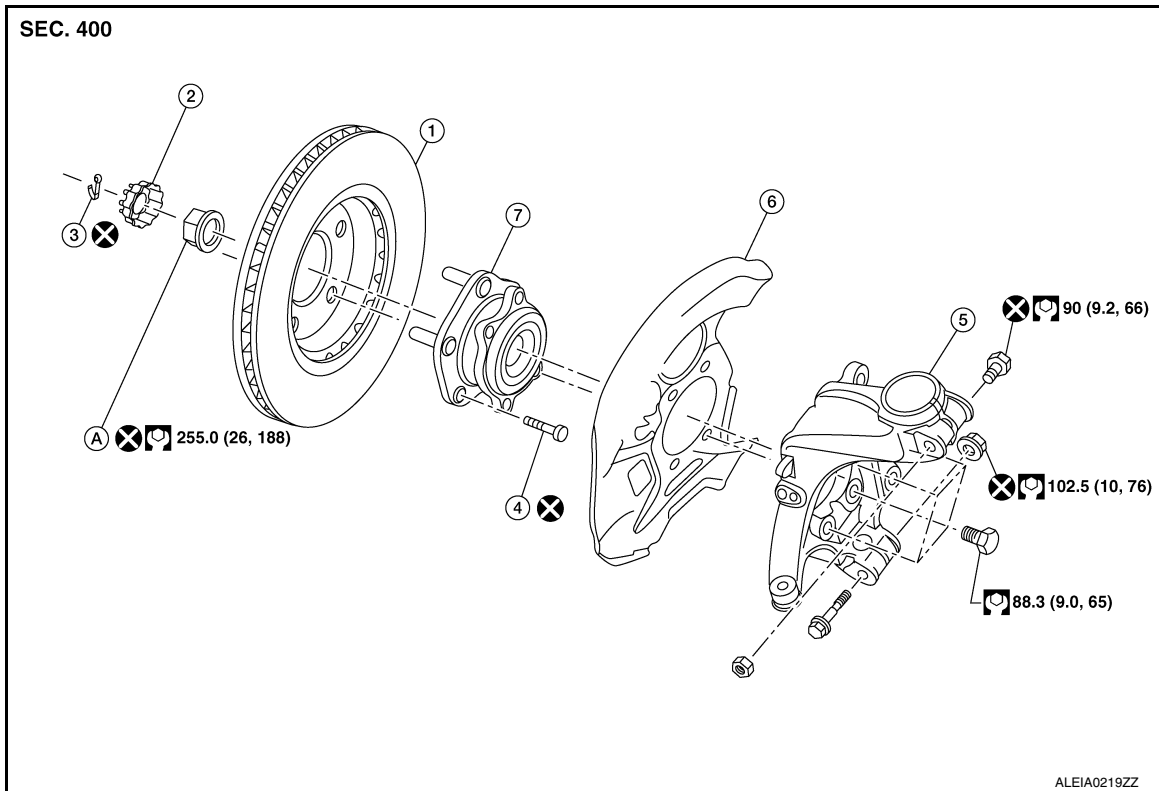
STEERING KNUCKLE

< REMOVAL AND INSTALLATION >

STEERING KNUCKLE

Exploded View

INFOID:0000000010338162



- | | | |
|--------------------------|-----------------------|-----------------|
| 1. Disc brake rotor | 2. Nut retainer | 3. Cotter pin |
| 4. Wheel stud | 5. Steering knuckle | 6. Splash guard |
| 7. Wheel hub and bearing | A. Wheel hub lock nut | |

Removal and Installation

INFOID:0000000010338163

REMOVAL

1. Remove the wheel and tire using power tool. Refer to [WT-60, "Removal and Installation"](#).
2. Remove the bolt and separate the front wheel sensor from the steering knuckle. Separate the harness from the brackets and position aside. Refer to [BRC-132, "FRONT WHEEL SENSOR : Exploded View"](#).
CAUTION:
 - Failure to separate the front wheel sensor from the steering knuckle may result in damage to the front wheel sensor.
 - Pull out the front wheel sensor, being careful to turn it as little as possible. Do not pull on wheel sensor harness.
3. Remove torque member bolts, leaving the brake hose attached. Position brake caliper aside with wire. Refer to [BR-35, "BRAKE CALIPER ASSEMBLY \(1 PISTON TYPE\) : Exploded View"](#) (1 PISTON TYPE), or [BR-39, "BRAKE CALIPER ASSEMBLY \(2 PISTON TYPE\) : Exploded View"](#) (2 PISTON TYPE).
4. Put alignment marks on the disc brake rotor and on the wheel hub and bearing. Remove the disc brake rotor.
CAUTION:
Do not drop the disc brake rotor.
5. Remove the cotter pin from the drive shaft.
6. Remove the nut retainer from the wheel hub lock nut.
7. Loosen the wheel hub lock nut using power tool.

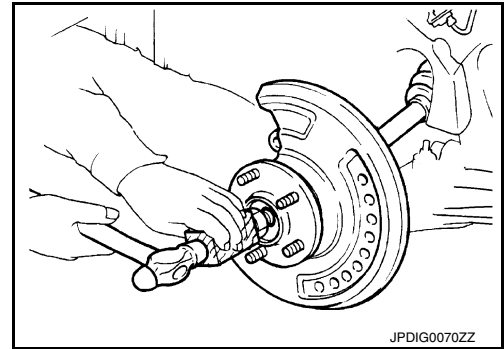
STEERING KNUCKLE

< REMOVAL AND INSTALLATION >

8. Tap wheel hub lock nut with a piece of wood to disengage wheel hub and bearing from drive shaft.

NOTE:

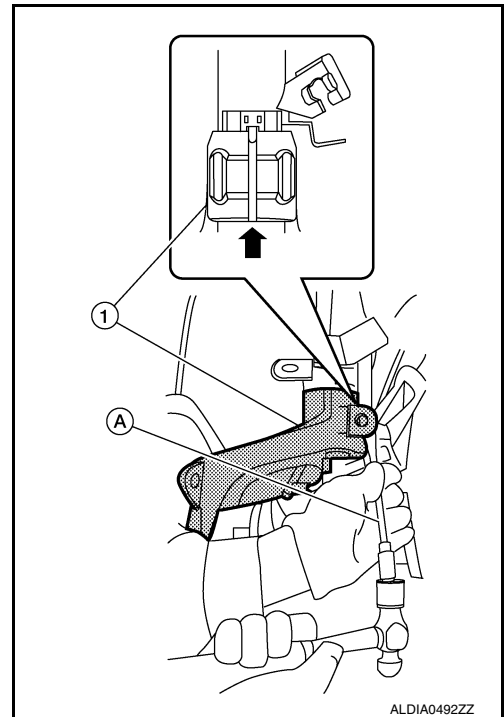
Use a suitable puller if wheel hub and bearing and drive shaft cannot be separated even after performing the above procedure.



9. Remove the wheel hub lock nut.
10. Remove the nut and separate the stabilizer connecting rod from the strut bracket.
11. Remove the nut, and separate the outer socket from the steering knuckle.
12. Remove engine side undercover.
13. Remove the lower nut and bolt from the steering knuckle. Separate the transverse link from the steering knuckle. Refer to [FSU-17, "Exploded View"](#).
14. Separate drive shaft from wheel hub and bearing.
15. Remove the bolts and the wheel hub and bearing and splash guard from the steering knuckle.
16. Remove the upper nut and bolt from the steering knuckle.
17. Open the slot using a suitable tool (A). Separate the steering knuckle (1) from the front coil spring and strut.

CAUTION:

Do not drop steering knuckle.



18. Inspect the components. Refer to [FSU-6, "Inspection"](#).

INSPECTION AFTER REMOVAL

Check for deformity, cracks and damage on each part, replace if necessary.

Ball Joint Inspection

- Check for boot breakage, axial looseness, and torque of transverse link ball joint and repair as necessary.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- **Do not reuse the wheel hub lock nut.**
- **Do not reuse the cotter pin.**
- **Do not reuse steering knuckle upper bolt.**

STEERING KNUCKLE

< REMOVAL AND INSTALLATION >

- **Do not reuse steering knuckle lower nut.**
- Check the wheel alignment. Refer to [FSU-7, "Inspection"](#).
- Adjust the neutral position of the steering angle sensor. Refer to [BRC-70, "Work Procedure"](#).

A

B

C

D

FSU

F

G

H

I

J

K

L

M

N

O

P

FRONT SUSPENSION MEMBER

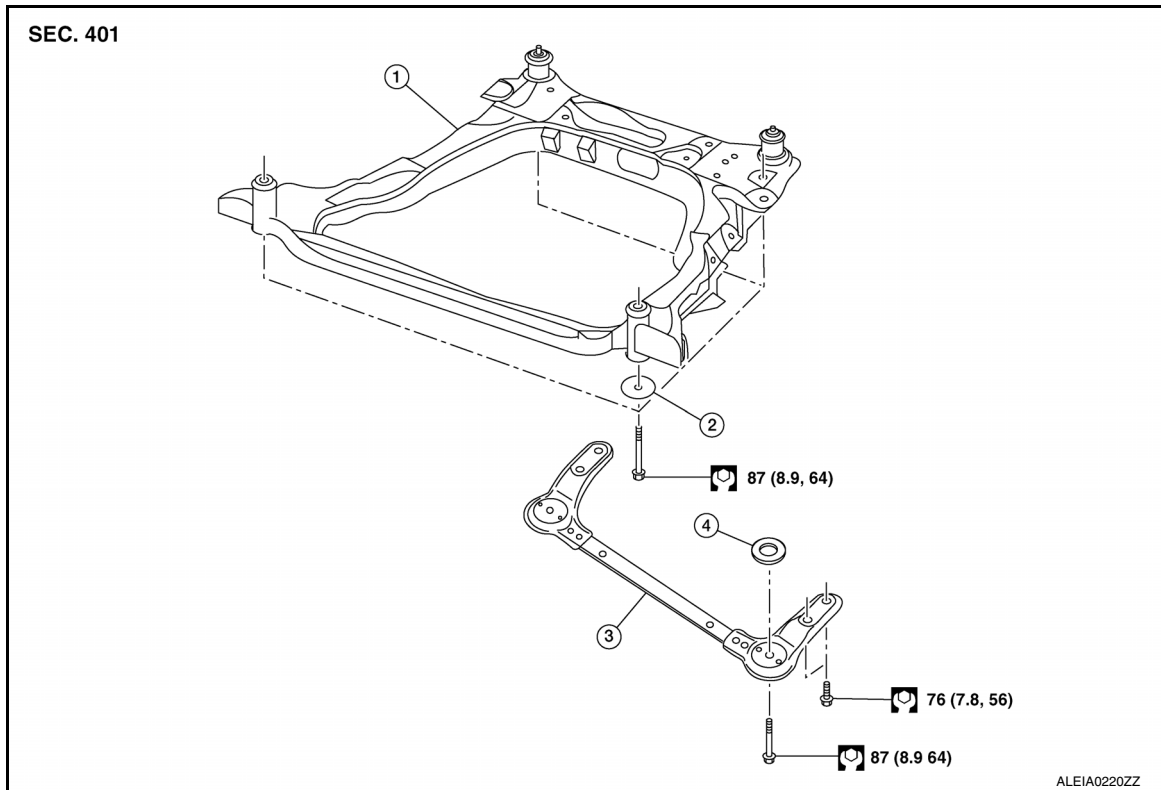
< UNIT REMOVAL AND INSTALLATION >

UNIT REMOVAL AND INSTALLATION

FRONT SUSPENSION MEMBER

Exploded View

INFOID:000000009797745



1. Front suspension member
2. Strut mounting bearing
3. Rebound stopper insulator
4. Rebound stopper

Removal and Installation

INFOID:000000009797746

REMOVAL

1. Remove the wheel and tire using power tool. Refer to [WT-60, "Removal and Installation"](#).
2. Remove side under cover. Refer to [EXT-37, "ENGINE UNDER COVER : Removal and Installation"](#).
3. Remove the bolt and separate the front wheel sensor from the steering knuckle. Separate the harness from the brackets and position aside. Refer to [BRC-132, "FRONT WHEEL SENSOR : Exploded View"](#).
CAUTION:
 - Failure to separate the front wheel sensor from the steering knuckle may result in damage to the front wheel sensor.
 - Pull out the front wheel sensor, being careful to turn it as little as possible. Do not pull on wheel sensor harness.
4. Remove the nut and separate the stabilizer connecting rod from the strut bracket.
5. Remove the cotter pin and nut, and separate the outer socket from the steering knuckle.
6. Remove the bolt and separate steering column yoke from steering gear. Refer to [ST-12, "Exploded View"](#).
7. Remove transverse link from steering knuckle. Refer to [FAX-9, "Exploded View"](#) (FWD), [FAX-40, "Exploded View"](#) (AWD).
8. Remove rear torque rod. Refer to [EM-81, "Exploded View"](#).

FRONT SUSPENSION MEMBER

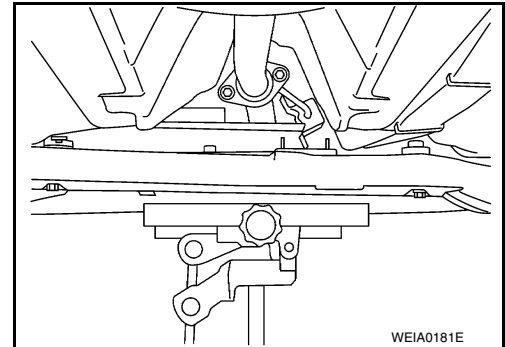
< UNIT REMOVAL AND INSTALLATION >

9. Set suitable jack front suspension member.
10. Remove front suspension member stay from vehicle.
11. Remove bolts and nuts of front suspension member.
12. Gradually lower jack to remove front suspension assembly from vehicle.

CAUTION:

Secure suspension assembly to suitable jack while removing it.

13. Remove bolts and nuts, and then remove transverse link, stabilizer bar from front suspension member.



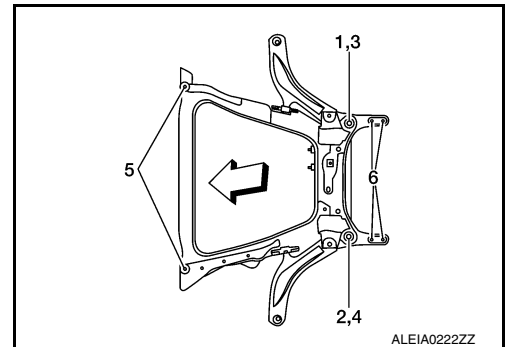
INSTALLATION

Installation is in the reverse order of removal.

- Install the suspension member bolts in the order shown.
 - 1-2 temporary tightening
 - 3-5 torque to specification Refer to [FSU-20, "Exploded View"](#).

⇐ : Front

- Perform final tightening of installation position between front suspension member and transverse links (rubber bushing) under unladen condition with tires on level ground.
- Check wheel sensor harness for proper connection. Refer to [BRC-132, "FRONT WHEEL SENSOR : Exploded View"](#).



INFOID:000000009797747

Inspection

INSPECTION AFTER REMOVAL

Check the front suspension member for significant deformation, cracks, or damages. Replace it if necessary.

INSPECTION AFTER INSTALLATION

Check wheel alignment. Refer to [FSU-7, "Inspection"](#).

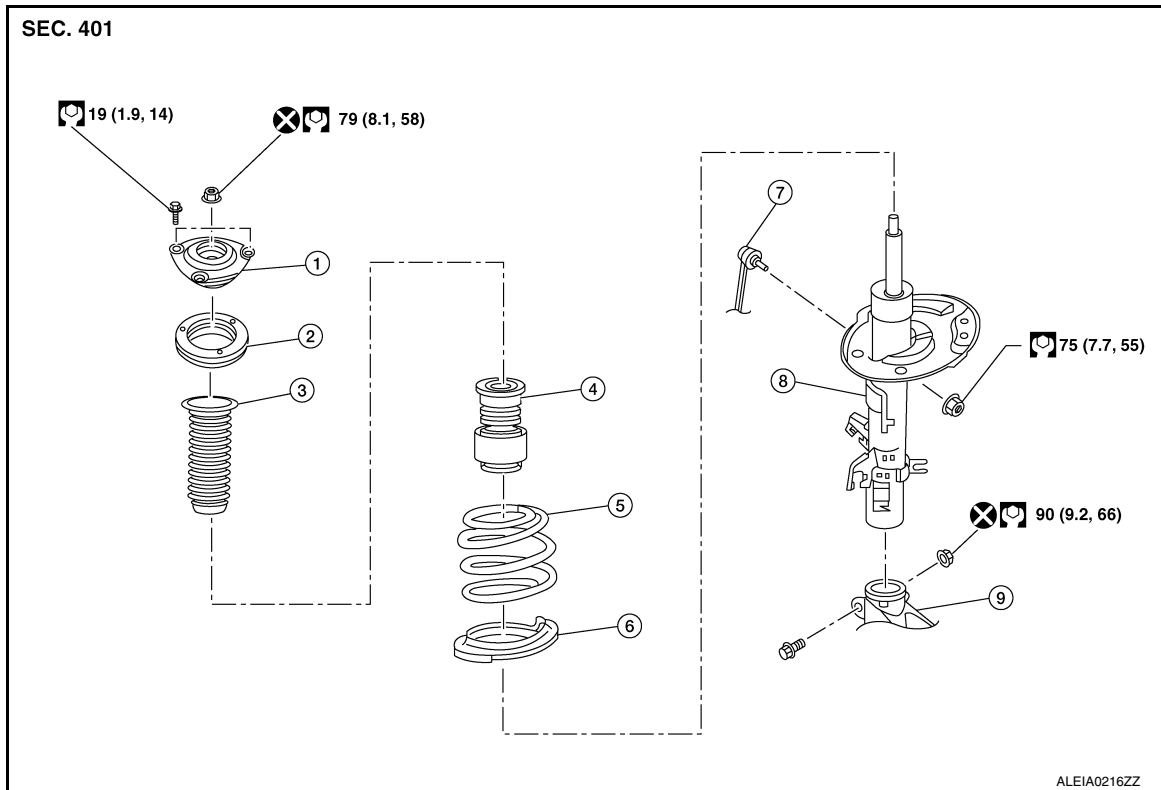
< UNIT DISASSEMBLY AND ASSEMBLY >

UNIT DISASSEMBLY AND ASSEMBLY

FRONT COIL SPRING AND STRUT

Exploded View

INFOID:0000000010351326



- | | | |
|----------------------------------|-----------------|-----------------------------------|
| 1. Strut mount insulator | 2. Rotary Stop | 3. Front spring upper rubber seat |
| 4. Front suspension bound bumper | 5. Front spring | 6. Front spring lower rubber seat |
| 7. Stabilizer connecting rod | 8. Strut | 9. Steering knuckle |

Disassembly and Assembly

INFOID:0000000009797736

DISASSEMBLY

CAUTION:

Do not damage the piston rod when removing components from the front coil spring and strut.

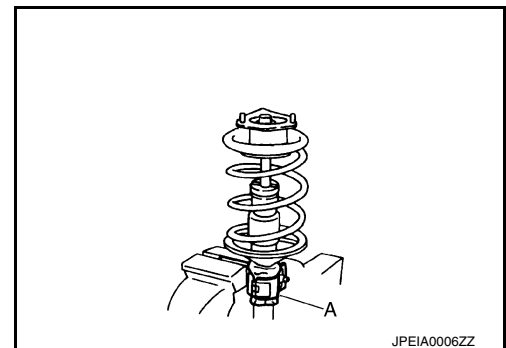
1. Install Tool (A) to the front coil spring and strut.

CAUTION:

When installing Tool (A), wrap a shop cloth around the front coil spring and strut to protect the parts from damage.

Tool number : ST35652000 (-)

2. Secure Tool (A) in a vise.



3. Install a suitable tool to strut rod.
4. Slightly loosen the piston rod lock nut.

WARNING:

FRONT COIL SPRING AND STRUT

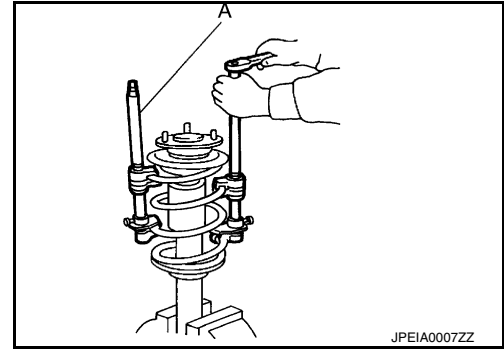
< UNIT DISASSEMBLY AND ASSEMBLY >

Do not remove the piston rod lock nut completely. If the piston rod lock nut is removed completely, the coil spring can jump out and may cause serious damage or injury.

5. Compress the coil spring using a suitable tool (A).

WARNING:

Make sure that the pawls of the suitable tool are firmly hooked on the coil spring. The suitable tool must be tightened alternately so as to not tilt the coil spring.



6. Make sure coil spring is free between the strut mount insulator and the front spring lower rubber seat.
7. Hold the piston rod and remove the piston rod lock nut.
8. Remove strut mounting insulator and rotary stop, and front suspension bound bumper from strut.
9. Gradually release the suitable tool and remove the coil spring.

CAUTION:

Release the suitable tool while making sure the position of the suitable tool on the coil spring does not move.

10. Remove front spring lower rubber seat.
11. Remove the suitable tool from strut, and inspect the components. Refer to [FSU-6, "Inspection"](#).

ASSEMBLY

CAUTION:

Do not damage the piston rod when removing components from the front coil spring and strut.

1. Install lower rubber seat to the strut.
2. Compress the coil spring using a suitable tool.

WARNING:

Make sure that the pawls of the suitable tool are firmly hooked on the coil spring. The suitable tool must be tightened alternately so as to not tilt the coil spring.

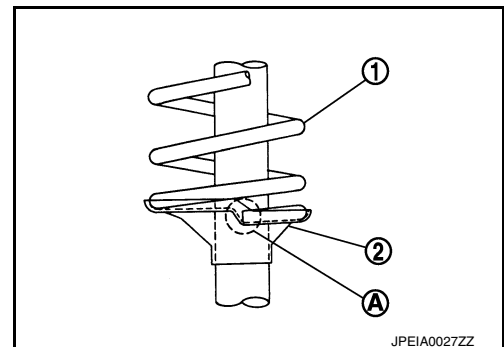
3. Align the lower end of the coil spring (1) with the front spring lower rubber seat (2) as shown.

Maximum Gap (A) : 5 mm (0.2 in)

4. Connect the bound bumper to the rotary stop and dust boot, then place over strut piston rod.

CAUTION:

- Be sure to install the bound bumper to the rotary stop and dust boot securely.
- When installing the bound bumper, use soapy water. Do not use machine oil or other lubricants.



5. Install front spring upper rubber seat to the coil spring.

CAUTION:

Do not apply oil, such as grease, when installing the strut mount bearing.

6. Temporarily install piston rod lock nut.

CAUTION:

Do not reuse piston rod lock nut.

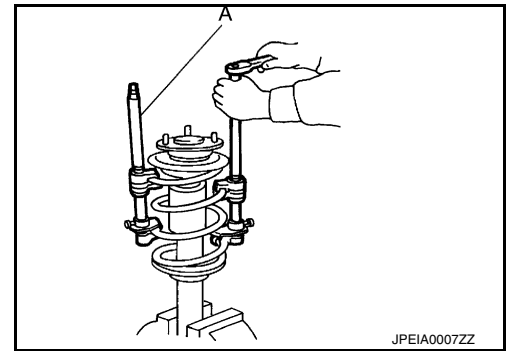
FRONT COIL SPRING AND STRUT

< UNIT DISASSEMBLY AND ASSEMBLY >

7. Gradually release the suitable tool (A) and remove the suitable tool from coil spring.

CAUTION:

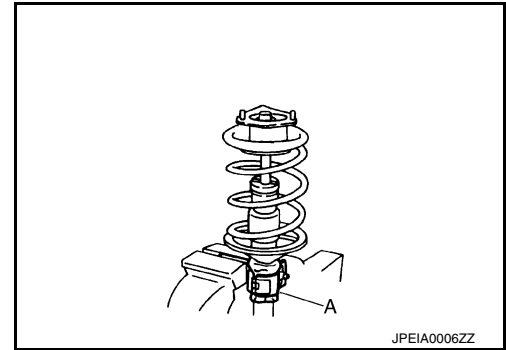
Release the suitable tool while making sure the position of the suitable tool on the coil spring does not move.



8. Tighten the piston rod lock nut to the specified torque. Refer to [FSU-22, "Exploded View"](#).

9. Remove Tool (A) from the vise.

10. Remove Tool (A) from the front coil spring and strut.



11. After replacing strut, always follow the disposal procedure to discard the old strut. Refer to [FSU-24, "Disposal"](#).

Inspection

INFOID:0000000010284283

INSPECTION AFTER DISASSEMBLY

Strut

- Check strut for deformation, cracks, and damage, and replace if necessary.
- Check piston rod for damage, uneven wear, and distortion, and replace if necessary.
- Check welded and sealed areas for oil leakage, and replace if necessary.

Insulator and Rubber Parts

Check strut mount insulator for cracks, rubber parts for wear and replace if necessary.

Coil Spring

Check for cracks, wear, and damage and replace if necessary.

Disposal

INFOID:0000000009797738

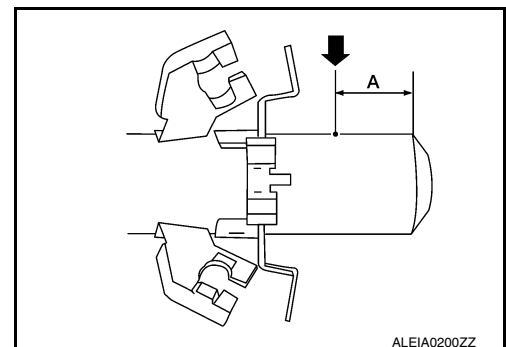
1. Set front coil spring and strut horizontally to the ground with the piston rod fully extracted.
2. Drill 2 – 3 mm (0.08 – 0.12 in) hole at the position (●) from top as shown in the figure to release gas gradually.

CAUTION:

- Wear eye protection (safety glasses).
- Wear gloves.
- Be careful with metal chips or oil blown out by the compressed gas.

NOTE:

- Drill vertically in this direction (↕).
- Directly to the outer tube avoiding brackets.
- The gas is clear, colorless, odorless, and harmless.



A: 20 – 30 mm (0.79 – 1.18 in)

3. Position the drilled hole downward and drain oil by moving the piston rod several times.

FRONT COIL SPRING AND STRUT

< UNIT DISASSEMBLY AND ASSEMBLY >

CAUTION:

Dispose of drained oil according to the law and local regulations.

A

B

C

D

FSU

F

G

H

I

J

K

L

M

N

O

P

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

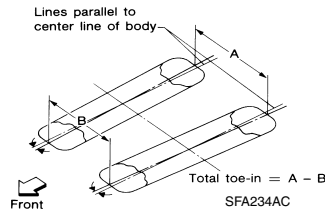
SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

Wheel Alignment (Unladen*¹)

INFOID:0000000010282977

Axle type		FWD		AWD	
Body type		2 ROW	3 ROW	2 ROW	3 ROW
Camber Degree minute (Decimal degree)	Minimum	-1° 04' (-1.07°)	-1° 20' (-1.33°)	-1° 05' (-1.08°)	-1° 15' (-1.25°)
	Nominal	-0° 25' (-0.42°)	-0° 35' (-0.58°)	-0° 20' (-0.33°)	-0° 30' (-0.50°)
	Maximum	0° 14' (0.23°)	-0° 10' (0.17°)	0° 20' (0.33°)	0° 15' (0.25°)
	(LH) and (RH) difference	0° 35' (0.58°) —0° 35' (-0.58°)			
Caster Degree minute (Decimal degree)	Minimum	5° 0' (5.00°)		4° 50' (4.83°)	4° 55' (4.92°)
	Nominal	5° 45' (5.75°)		5° 35' (5.58°)	5° 40' (5.67°)
	Maximum	6° 30' (6.50°)		6° 20' (6.33°)	6° 25' (6.42°)
	(LH) and (RH) difference	0° 35' (-0.58°) —0° 35' (-0.58°)			
Kingpin inclination Degree minute (Decimal degree)	Minimum	11° 05' (11.08°)		10° 55' (10.92°)	10° 50' (10.83°)
	Nominal	11° 50' (11.83°)		11° 40' (11.67°)	11° 35' (11.58°)
	Maximum	12° 35' (12.58°)		12° 25' (12.42°)	12° 20' (12.33°)



Total toe-in	Distance (A - B)	Minimum	Out 0.9 mm (Out 0.04 in)	Out 0.8 mm (Out 0.01 in)	In 0.4 mm (In 0.02 in)	In 0.5 mm (In 0.02 in)
		Nominal	In 0.1 mm (In 0.00 in)	In 0.2 mm (In 0.01 in)	In 1.4 mm (In 0.06 in)	In 1.5 mm (In 0.06 in)
		Maximum	In 1.1 mm (In 0.04 in)	In 1.2 mm (In 0.05 in)	In 2.4 mm (In 0.09 in)	In 2.5 mm (In 0.10 in)
	Angle (LH and RH) Degree minute (Decimal degree)	Minimum	Out 0° 06' (Out 0.1°)	Out 0° 06' (Out 0.10°)	Out 0° 12' (Out 0.20°)	
		Nominal	In 0° 00' (In 0.0°)	In 0° 01' (In 0.01°)	In 0° 06' (In 0.10°)	
		Maximum	In 0° 06' (In 0.1°)	In 0° 07' (In 0.12°)	In 0° 00' (In 0.00°)	

*1: Fuel, engine coolant, and lubricants are full. Spare tire, jack, hand tools, and mats are in designated positions.

Ball Joint

INFOID:0000000009797749

Item		Standard
Swing torque	Transverse link	0.5 – 3.4 N·m (0.06 – 0.34 kg-m, 5 – 30 in-lb)
Measurement on spring balance	Transverse link	13.5 – 91.9 N (1.4 – 9.3 kg, 3 – 21 lb)
Axial end play		0 mm (0 in)

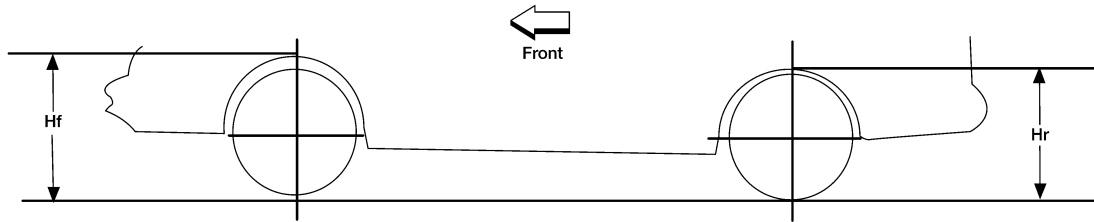
Wheelarch Height (Unladen*)

INFOID:0000000010282979

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

Unit: mm (in)



LEIA0085E

Axle type	FWD			AWD		
Body type	2 ROW		3 ROW	2 ROW		3 ROW
Tire size	225/65R17	225/60R18	225/65R17 RF	225/65R17	225/60R18	225/65R17 RF
Front (Hf)	788 (31.02)	791 (31.14)	791 (31.14)	798 (31.42)	801 (31.54)	801 (31.54)
Rear (Hr)	787 (30.98)	789 (31.06)	787 (30.98)	796 (31.34)	798 (31.42)	796 (31.34)

*: Fuel, engine coolant, and lubricants are full. Spare tire, jack, hand tools, and mats are in designated positions.

SECTION

GW

GLASS & WINDOW SYSTEM

CONTENTS

PRECAUTION	2	Exploded View	14	F
PRECAUTIONS	2	Removal and Installation	14	
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	2	FRONT REGULATOR	16	G
Procedure without Cowl Top Cover	2	Exploded View	16	
Handling for Adhesive and Primer	2	Removal and Installation	16	
Precaution for Work	2	Inspection and Adjustment	17	H
PREPARATION	4	FRONT POWER WINDOW MOTOR	19	
PREPARATION	4	Removal and Installation	19	
Special Service Tool	4	REAR DOOR GLASS	20	I
Commercial Service Tool	4	Exploded View	20	
SYMPTOM DIAGNOSIS	5	Removal and Installation	20	J
SQUEAK AND RATTLE TROUBLE DIAGNOSES	5	REAR REGULATOR	22	
Work Flow	5	Exploded View	22	
Generic Squeak and Rattle Troubleshooting	6	Removal and Installation	22	GW
Diagnostic Worksheet	9	REAR POWER WINDOW MOTOR	25	
REMOVAL AND INSTALLATION	11	Removal and Installation	25	
WINDSHIELD GLASS	11	QUARTER WINDOW GLASS	26	L
Exploded View	11	Exploded View	26	
Removal and Installation	12	Removal and Installation	26	M
FRONT DOOR GLASS	14	Inspection	27	
		BACK DOOR WINDOW GLASS	28	N
		Exploded View	28	
		Removal and Installation	28	
		Inspection	29	O
				P

PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010282997

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

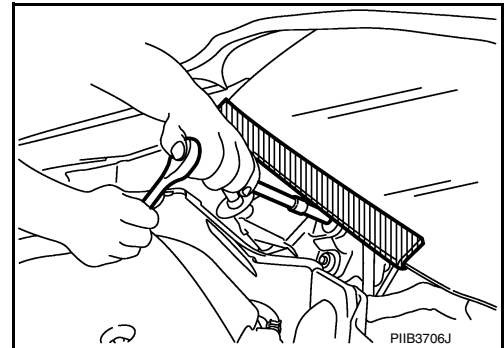
WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Procedure without Cowl Top Cover

INFOID:0000000010282995

When performing the procedure after removing cowl top cover, cover the lower end of windshield with urethane, etc. to prevent damage to the windshield.



Handling for Adhesive and Primer

INFOID:0000000010282996

- Do not use an adhesive which is past its usable date. Shelf life of this product is limited to six months after the date of manufacture. Carefully adhere to the expiration or manufacture date printed on the box.
- Keep primers and adhesive in a cool, dry place. Ideally, they should be stored in a refrigerator.
- Open the seal of the primer and adhesive just before application. Discard the remainder.
- Before application, be sure to shake the primer container to stir the contents. If any floating material is found, do not use it.
- If any primer or adhesive contacts the skin, wipe it off with gasoline or equivalent and wash the skin with soap.
- When using primer and adhesive, always observe the precautions in the instruction manual.

Precaution for Work

INFOID:0000000010283031

- When removing or disassembling each component, be careful not to damage or deform it. If a component may be subject to interference, be sure to protect it with a shop cloth.

PRECAUTIONS

< PRECAUTION >

- When removing (disengaging) components with a screwdriver or similar tool, be sure to wrap the component with a shop cloth or vinyl tape to protect it.
- Protect the removed parts with a shop cloth and prevent them from being dropped.
- Replace a deformed or damaged clip.
- If a part is specified as a non-reusable part, always replace it with a new one.
- Be sure to tighten bolts and nuts securely to the specified torque.
- After installation is complete, be sure to check that each part works properly.
- Follow the steps below to clean components:
 - Water soluble dirt:
 - Dip a soft cloth into lukewarm water, wring the water out of the cloth and wipe the dirty area.
 - Then rub with a soft, dry cloth.
 - Oily dirt:
 - Dip a soft cloth into lukewarm water with mild detergent (concentration: within 2 to 3%) and wipe the dirty area.
 - Then dip a cloth into fresh water, wring the water out of the cloth and wipe the detergent off.
 - Then rub with a soft, dry cloth.
 - Do not use organic solvent such as thinner, benzene, alcohol or gasoline.
 - For genuine leather seats, use a genuine leather seat cleaner.

A

B

C

D

E

F

G

H

I

J

GW

L

M

N

O

P

PREPARATION

< PREPARATION >

PREPARATION

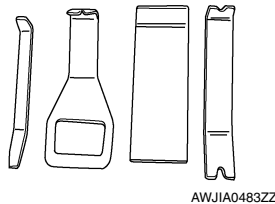
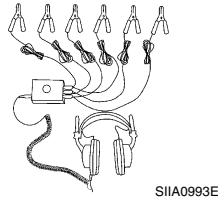
PREPARATION

Special Service Tool

INFOID:0000000010283033

The actual shape of the tools may differ from those illustrated here.

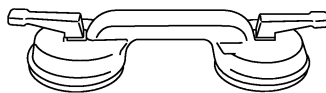
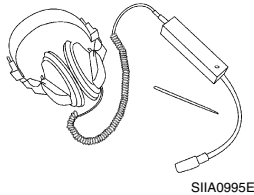
Tool number (TechMate No.) Tool name	Description
— (J-39570) Chassis Ear	Locating the noise
— (J-50397) NISSAN Squeak and Rattle Kit	Repairing the cause of noise
— (J-46534) Trim Tool Set	Removing trim components



Commercial Service Tool

INFOID:0000000010283032

(TechMate No.) Tool name	Description
(J-39565) Engine Ear	Locating the noise
(—) Suction lifter	Holding the door glass



SQUEAK AND RATTLE TROUBLE DIAGNOSES

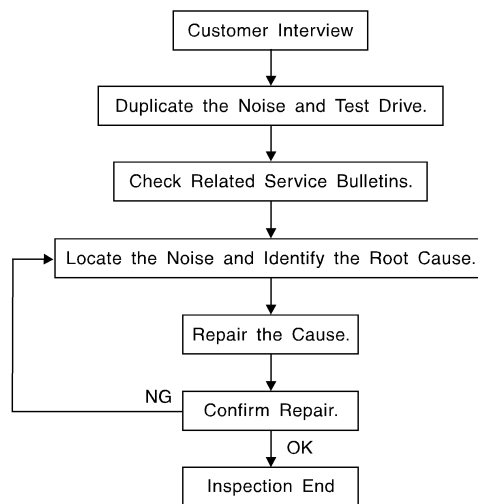
< SYMPTOM DIAGNOSIS >

SYMPTOM DIAGNOSIS

SQUEAK AND RATTLE TROUBLE DIAGNOSES

Work Flow

INFOID:0000000010283182



SBT842

CUSTOMER INTERVIEW

Interview the customer if possible, to determine the conditions that exist when the noise occurs. Use the Diagnostic Worksheet during the interview to document the facts and conditions when the noise occurs and any customer's comments; refer to [GW-9, "Diagnostic Worksheet"](#). This information is necessary to duplicate the conditions that exist when the noise occurs.

- The customer may not be able to provide a detailed description or the location of the noise. Attempt to obtain all the facts and conditions that exist when the noise occurs (or does not occur).
- If there is more than one noise in the vehicle, be sure to diagnose and repair the noise that the customer is concerned about. This can be accomplished by test driving the vehicle with the customer.
- After identifying the type of noise, isolate the noise in terms of its characteristics. The noise characteristics are provided so the customer, service adviser and technician are all speaking the same language when defining the noise.
- Squeak —(Like tennis shoes on a clean floor)
Squeak characteristics include the light contact/fast movement/brought on by road conditions/hard surfaces = higher pitch noise/softer surfaces = lower pitch noises/edge to surface = chirping.
- Creak—(Like walking on an old wooden floor)
Creak characteristics include firm contact/slow movement/twisting with a rotational movement/pitch dependent on materials/often brought on by activity.
- Rattle—(Like shaking a baby rattle)
Rattle characteristics include the fast repeated contact/vibration or similar movement/loose parts/missing clip or fastener/incorrect clearance.
- Knock —(Like a knock on a door)
Knock characteristics include hollow sounding/sometimes repeating/often brought on by driver action.
- Tick—(Like a clock second hand)
Tick characteristics include gentle contacting of light materials/loose components/can be caused by driver action or road conditions.
- Thump—(Heavy, muffled knock noise)
Thump characteristics include softer knock/dead sound often brought on by activity.
- Buzz—(Like a bumble bee)
Buzz characteristics include high frequency rattle/firm contact.
- Often the degree of acceptable noise level will vary depending upon the person. A noise that you may judge as acceptable may be very irritating to the customer.
- Weather conditions, especially humidity and temperature, may have a great effect on noise level.

DUPLICATE THE NOISE AND TEST DRIVE

SQUEAK AND RATTLE TROUBLE DIAGNOSES

< SYMPTOM DIAGNOSIS >

If possible, drive the vehicle with the customer until the noise is duplicated. Note any additional information on the Diagnostic Worksheet regarding the conditions or location of the noise. This information can be used to duplicate the same conditions when you confirm the repair.

If the noise can be duplicated easily during the test drive, to help identify the source of the noise, try to duplicate the noise with the vehicle stopped by doing one or all of the following:

- 1) Close a door.
 - 2) Tap or push/pull around the area where the noise appears to be coming from.
 - 3) Rev the engine.
 - 4) Use a floor jack to recreate vehicle "twist".
 - 5) At idle, apply engine load (electrical load, half-clutch on M/T model, drive position on CVT and A/T models).
 - 6) Raise the vehicle on a hoist and hit a tire with a rubber hammer.
- Drive the vehicle and attempt to duplicate the conditions the customer states exist when the noise occurs.
 - If it is difficult to duplicate the noise, drive the vehicle slowly on an undulating or rough road to stress the vehicle body.

CHECK RELATED SERVICE BULLETINS

After verifying the customer concern or symptom, check ASIST for Technical Service Bulletins (TSBs) related to that concern or symptom.

If a TSB relates to the symptom, follow the procedure to repair the noise.

LOCATE THE NOISE AND IDENTIFY THE ROOT CAUSE

1. Narrow down the noise to a general area. To help pinpoint the source of the noise, use a listening tool (Chassis Ear: J-39570, Engine Ear: J-39565 and mechanic's stethoscope).
2. Narrow down the noise to a more specific area and identify the cause of the noise by:
 - removing the components in the area that you suspect the noise is coming from.
Do not use too much force when removing clips and fasteners, otherwise clips and fasteners can be broken or lost during the repair, resulting in the creation of new noise.
 - tapping or pushing/pulling the component that you suspect is causing the noise.
Do not tap or push/pull the component with excessive force, otherwise the noise will be eliminated only temporarily.
 - feeling for a vibration with your hand by touching the component(s) that you suspect is (are) causing the noise.
 - placing a piece of paper between components that you suspect are causing the noise.
 - looking for loose components and contact marks.Refer to [GW-6, "Generic Squeak and Rattle Troubleshooting"](#).

REPAIR THE CAUSE

- If the cause is a loose component, tighten the component securely.
- If the cause is insufficient clearance between components:
 - separate components by repositioning or loosening and retightening the component, if possible.
 - insulate components with a suitable insulator such as urethane pads, foam blocks, felt cloth tape or urethane tape. A NISSAN Squeak and Rattle Kit (J-50397) is available through your authorized NISSAN Parts Department.

CAUTION:

Do not use excessive force as many components are constructed of plastic and may be damaged.

NOTE:

- Always check with the Parts Department for the latest parts information.
- The materials contained in the NISSAN Squeak and Rattle Kit (J-50397) are listed on the inside cover of the kit; and can each be ordered separately as needed.
- The following materials not found in the kit can also be used to repair squeaks and rattles.
 - SILICONE GREASE: Use instead of UHMW tape that will be visible or does not fit. The silicone grease will only last a few months.
 - SILICONE SPRAY: Use when grease cannot be applied.
 - DUCT TAPE: Use to eliminate movement.

CONFIRM THE REPAIR

Confirm that the cause of a noise is repaired by test driving the vehicle. Operate the vehicle under the same conditions as when the noise originally occurred. Refer to the notes on the Diagnostic Worksheet.

Generic Squeak and Rattle Troubleshooting

INFOID:000000010283183

Refer to Table of Contents for specific component removal and installation information.

SQUEAK AND RATTLE TROUBLE DIAGNOSES

< SYMPTOM DIAGNOSIS >

INSTRUMENT PANEL

Most incidents are caused by contact and movement between:

1. Cluster lid A and the instrument panel
2. Acrylic lens and combination meter housing
3. Instrument panel to front pillar finisher
4. Instrument panel to windshield
5. Instrument panel pins
6. Wiring harnesses behind the combination meter
7. A/C defroster duct and duct joint

These incidents can usually be located by tapping or moving the components to duplicate the noise or by pressing on the components while driving to stop the noise. Most of these incidents can be repaired by applying felt cloth tape or silicone spray (in hard to reach areas). Urethane pads can be used to insulate wiring harness.

CAUTION:

Do not use silicone spray to isolate a squeak or rattle. If you saturate the area with silicone, you will not be able to recheck the repair.

CENTER CONSOLE

Components to pay attention to include:

1. Shift selector assembly cover to finisher
2. A/C control unit and cluster lid C
3. Wiring harnesses behind audio and A/C control unit

The instrument panel repair and isolation procedures also apply to the center console.

DOORS

Pay attention to the:

1. Finisher and inner panel making a slapping noise
2. Inside handle escutcheon to door finisher
3. Wiring harnesses tapping
4. Door striker out of alignment causing a popping noise on starts and stops

Tapping or moving the components or pressing on them while driving to duplicate the conditions can isolate many of these incidents. You can usually insulate the areas with felt cloth tape or insulator foam blocks from the NISSAN Squeak and Rattle Kit (J-50397) to repair the noise.

TRUNK

Trunk noises are often caused by a loose jack or loose items put into the trunk by the owner.

In addition look for:

1. Trunk lid bumpers out of adjustment
2. Trunk lid striker out of adjustment
3. The trunk lid torsion bars knocking together
4. A loose license plate or bracket

Most of these incidents can be repaired by adjusting, securing or insulating the item(s) or component(s) causing the noise.

SUNROOF/HEADLINING

Noises in the sunroof/headlining area can often be traced to one of the following:

1. Sunroof lid, rail, linkage or seals making a rattle or light knocking noise
2. Sun visor shaft shaking in the holder
3. Front or rear windshield touching headlining and squeaking

Again, pressing on the components to stop the noise while duplicating the conditions can isolate most of these incidents. Repairs usually consist of insulating with felt cloth tape.

OVERHEAD CONSOLE (FRONT AND REAR)

Overhead console noises are often caused by the console panel clips not being engaged correctly. Most of these incidents are repaired by pushing up on the console at the clip locations until the clips engage.

In addition look for:

SQUEAK AND RATTLE TROUBLE DIAGNOSES

< SYMPTOM DIAGNOSIS >

1. Loose harness or harness connectors.
2. Front console map/reading lamp lens loose.
3. Loose screws at console attachment points.

SEATS

When isolating seat noise it's important to note the position the seat is in and the load placed on the seat when the noise is present. These conditions should be duplicated when verifying and isolating the cause of the noise.

Cause of seat noise include:

1. Headrest rods and holder
2. A squeak between the seat pad cushion and frame
3. The rear seatback lock and bracket

These noises can be isolated by moving or pressing on the suspected components while duplicating the conditions under which the noise occurs. Most of these incidents can be repaired by repositioning the component or applying urethane tape to the contact area.

UNDERHOOD

Some interior noise may be caused by components under the hood or on the engine wall. The noise is then transmitted into the passenger compartment.

Causes of transmitted underhood noise include:

1. Any component installed to the engine wall
2. Components that pass through the engine wall
3. Engine wall mounts and connectors
4. Loose radiator installation pins
5. Hood bumpers out of adjustment
6. Hood striker out of adjustment

These noises can be difficult to isolate since they cannot be reached from the interior of the vehicle. The best method is to secure, move or insulate one component at a time and test drive the vehicle. Also, engine rpm or load can be changed to isolate the noise. Repairs can usually be made by moving, adjusting, securing, or insulating the component causing the noise.

SQUEAK AND RATTLE TROUBLE DIAGNOSES

< SYMPTOM DIAGNOSIS >

Diagnostic Worksheet

INFOID:000000010283184

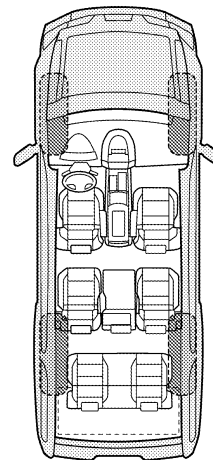
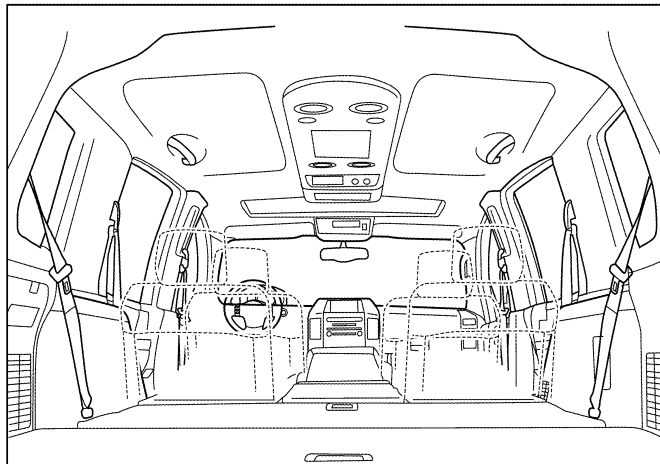
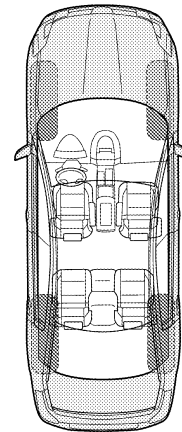
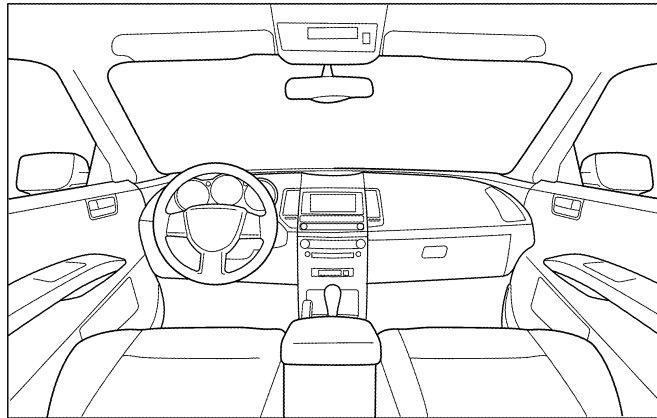
Dear Customer:

We are concerned about your satisfaction with your vehicle. Repairing a squeak or rattle sometimes can be very difficult. To help us fix your vehicle right the first time, please take a moment to note the area of the vehicle where the squeak or rattle occurs and under what conditions. You may be asked to take a test drive with a service advisor or technician to ensure we confirm the noise you are hearing.

SQUEAK & RATTLE DIAGNOSTIC WORKSHEET

I. WHERE DOES THE NOISE COME FROM? (circle the area of the vehicle)

The illustrations are for reference only, and may not reflect the actual configuration of your vehicle.



Continue to page 2 of the worksheet and briefly describe the location of the noise or rattle. In addition, please indicate the conditions which are present when the noise occurs.

SQUEAK AND RATTLE TROUBLE DIAGNOSES

< SYMPTOM DIAGNOSIS >

SQUEAK & RATTLE DIAGNOSTIC WORKSHEET - page 2

Briefly describe the location where the noise occurs:

II. WHEN DOES IT OCCUR? (please check the boxes that apply)

- | | |
|---|--|
| ☐ Anytime | ☐ After sitting out in the rain |
| ☐ 1st time in the morning | ☐ When it is raining or wet |
| ☐ Only when it is cold outside | ☐ Dry or dusty conditions |
| ☐ Only when it is hot outside | ☐ Other: |

III. WHEN DRIVING:

- ☐ Through driveways
- ☐ Over rough roads
- ☐ Over speed bumps
- ☐ Only about ____ mph
- ☐ On acceleration
- ☐ Coming to a stop
- ☐ On turns: left, right or either (circle)
- ☐ With passengers or cargo
- ☐ Other: _____
- ☐ After driving ____ miles or ____ minutes

IV. WHAT TYPE OF NOISE

- ☐ Squeak (like tennis shoes on a clean floor)
- ☐ Creak (like walking on an old wooden floor)
- ☐ Rattle (like shaking a baby rattle)
- ☐ Knock (like a knock at the door)
- ☐ Tick (like a clock second hand)
- ☐ Thump (heavy muffled knock noise)
- ☐ Buzz (like a bumble bee)

TO BE COMPLETED BY DEALERSHIP PERSONNEL

Test Drive Notes:

	YES	NO	Initials of person performing
Vehicle test driven with customer	☐	☐	_____
- Noise verified on test drive	☐	☐	_____
- Noise source located and repaired	☐	☐	_____
- Follow up test drive performed to confirm repair	☐	☐	_____

VIN: _____ Customer Name _____
W.O.# _____ Date: _____

This form must be attached to Work Order

LAIA0071E

WINDSHIELD GLASS

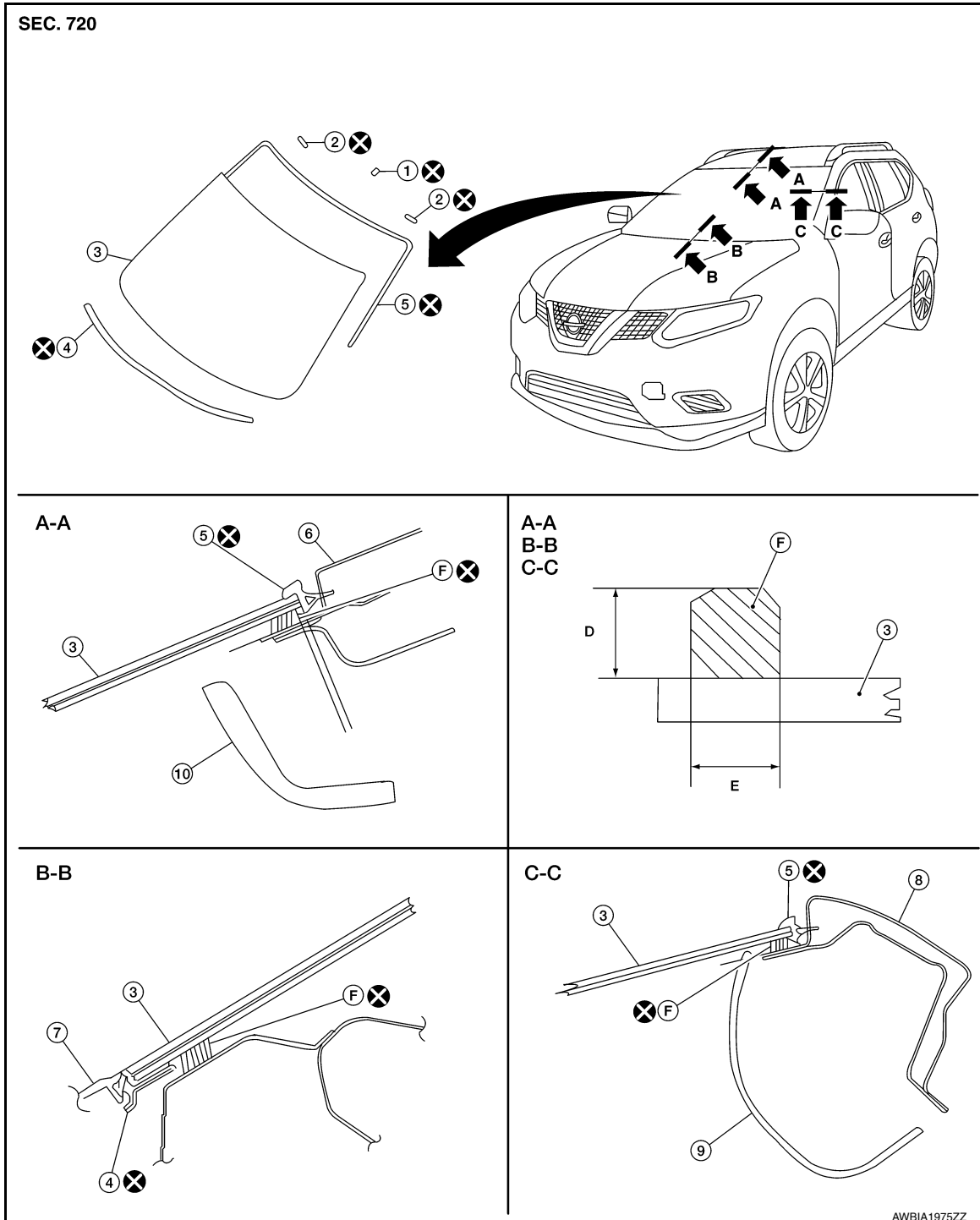
< REMOVAL AND INSTALLATION >

REMOVAL AND INSTALLATION

WINDSHIELD GLASS

Exploded View

INFOID:000000009796668



- | | | |
|-----------------------------------|-----------------------------|--------------------------|
| 1. Mirror base | 2. Spacer | 3. Windshield glass |
| 4. Windshield glass lower molding | 5. Windshield glass molding | 6. Roof |
| 7. Cowl top cover | 8. Body side outer | 9. Front pillar finisher |
| 10. Headlining | D. 7.0 mm (0.28 in) | E. 12 mm (0.47 in) |
| F. Adhesive | | |

A
B
C
D
E
F
G
H
I
J
GW
L
M
N
O
P

WINDSHIELD GLASS

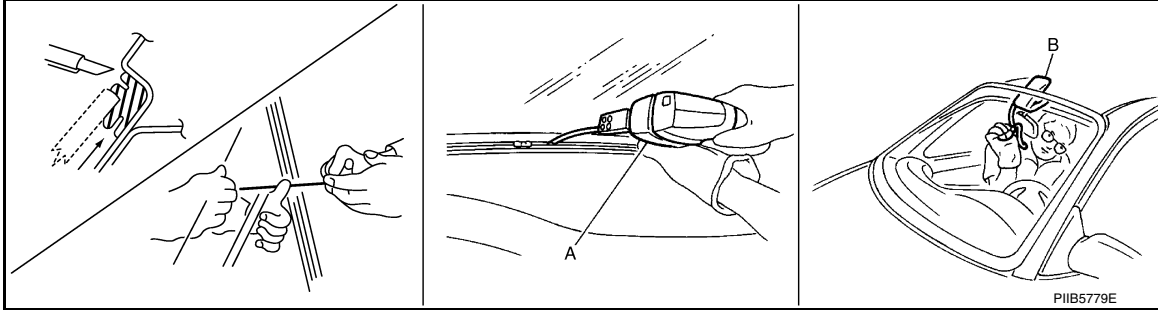
< REMOVAL AND INSTALLATION >

Removal and Installation

INFOID:000000009796669

REMOVAL

1. Remove inside mirror. Refer to [MIR-20, "Removal and Installation"](#).
2. Partially remove the headlining (front edge). Refer to [INT-29, "Exploded View"](#).
3. Remove the cowl top extension. Refer to [EXT-25, "Exploded View"](#).
4. Remove windshield glass using piano wire or power cutting tool (A) and an inflatable pump bag (B).



- Apply protective tape around the windshield glass to protect the painted surface from damage.
- If the windshield glass is to be reused, mark the body and the glass with matching marks.

WARNING:

When cutting the glass from the vehicle, always wear safety glasses and heavy gloves to help prevent glass splinters from entering your eyes or cutting your hands.

CAUTION:

- Be careful not to scratch the glass when removing.
- Do not set or stand glass on its edge. Small chips may develop into cracks.
- Apply protective tape around the windshield glass to protect the painted surface from damage.

INSTALLATION

Installation is in the reverse order of removal.

- Use a genuine NISSAN Urethane Adhesive Kit (if available) or equivalent and follow the instructions furnished with it.
- Adhesive shall be continuously applied to assure watertightness. Glass installation shall be finished within five minutes after applying the adhesive.
- While the urethane adhesive is curing, open a door window. This will prevent the glass from being forced out by passenger compartment air pressure when a door is closed.
- The molding must be installed securely so that it is in position and leaves no gap.
- Inform the customer that the vehicle should remain stationary until the urethane adhesive has completely cured (preferably 24 hours). Curing time varies with temperature and humidity.

WARNING:

- Keep heat and open flames away as primers and adhesive are flammable.
- The materials contained in the kit are harmful if swallowed, and may irritate skin and eyes. Avoid contact with the skin and eyes.
- Use in an open, well ventilated location. Avoid breathing the vapors. They can be harmful if inhaled. If affected by vapor inhalation, immediately move to an area with fresh air.
- Driving the vehicle before the urethane adhesive has completely cured may affect the performance of the windshield in case of an accident.

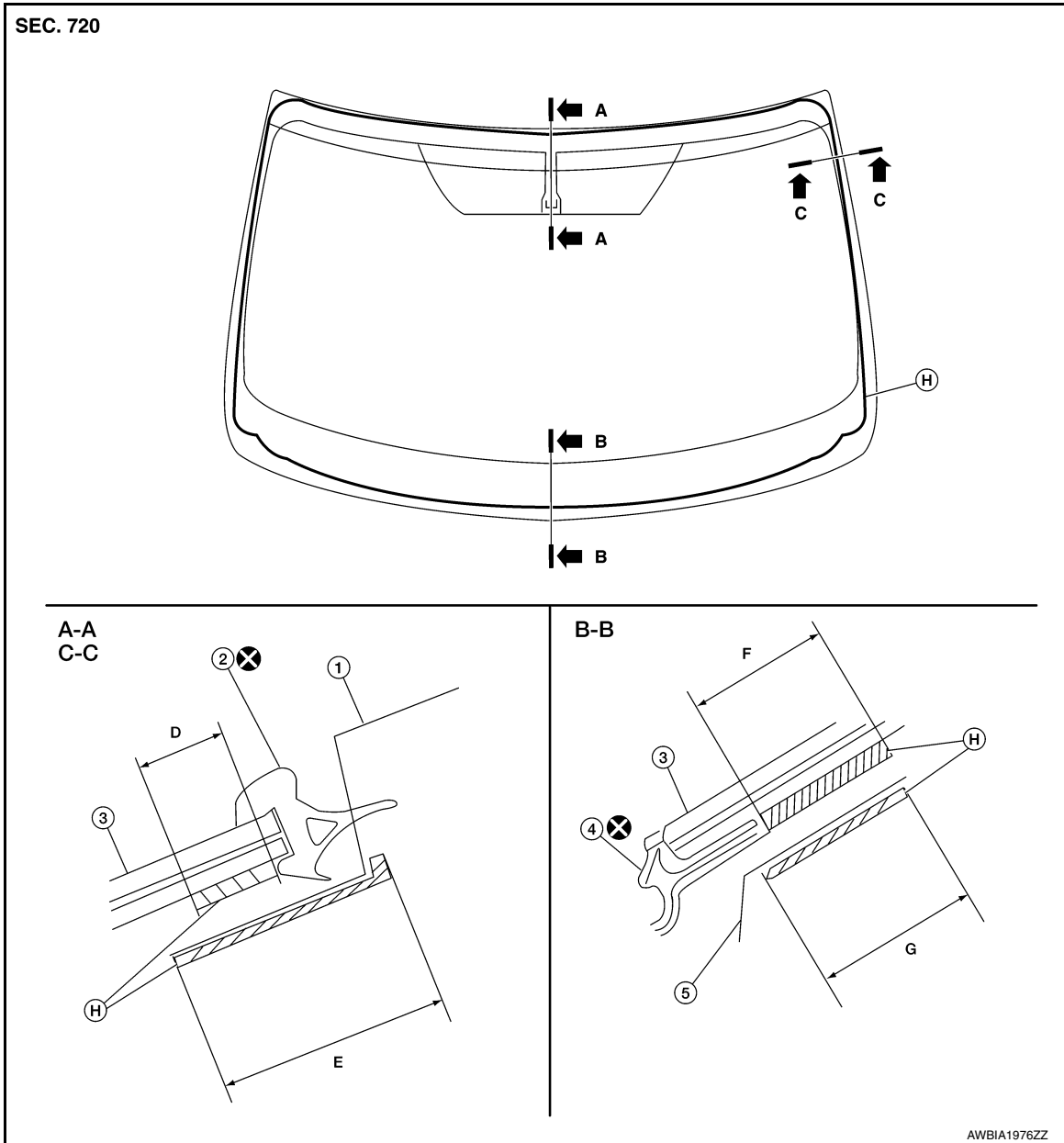
CAUTION:

- Do not use an adhesive which is past its usable term. Shelf life of this product is limited to six months after the date of manufacture. Carefully adhere to the expiration or manufacture date printed on the box.
- Keep primers and adhesive in a cool, dry place. Ideally, they should be stored in a refrigerator.
- Do not leave primers or adhesive cartridge unattended with their caps open or off.
- The vehicle should not be driven for at least 24 hours or until the urethane adhesive has completely cured. Curing time varies depending on temperature and humidity. The curing time will increase under lower temperatures and lower humidity.

WINDSHIELD GLASS

< REMOVAL AND INSTALLATION >

PRIMER



- | | | |
|-----------------------------------|-----------------------------|---------------------|
| 1. Body | 2. Windshield glass molding | 3. Windshield glass |
| 4. Windshield glass lower molding | 5. Cowl top cover | D. 16 mm (0.63 in) |
| E. 22 mm (0.87 in) | F. 14 mm (0.55 in) | G. 20 mm (0.79 in) |
| H. Primer | | |

INSPECTION

Repairing Water Leaks for Windshield

- Leaks can be repaired without removing and reinstalling glass.
- If water is leaking between the urethane adhesive material and body or glass, determine the extent of leak.
- This can be done by applying water to the windshield area while pushing glass outward.
- To stop the leak, apply primer (if necessary) and then urethane adhesive to the leak point.

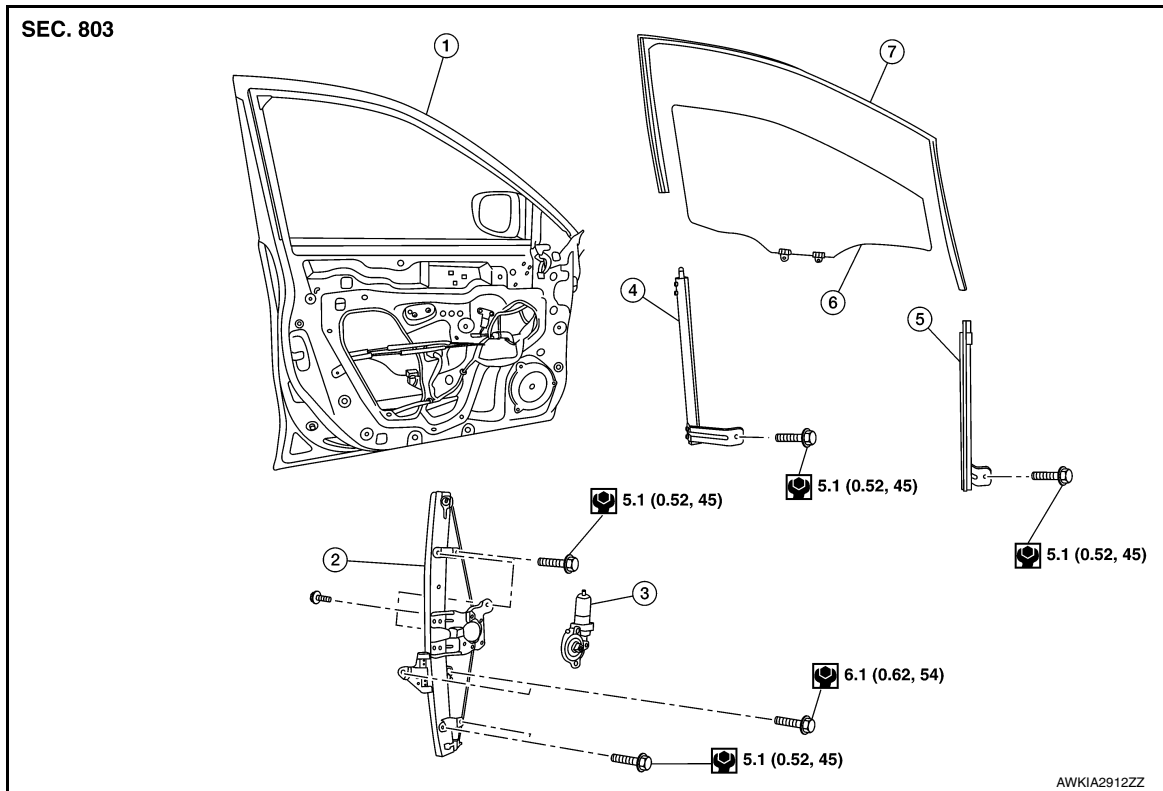
FRONT DOOR GLASS

< REMOVAL AND INSTALLATION >

FRONT DOOR GLASS

Exploded View

INFOID:000000009796677



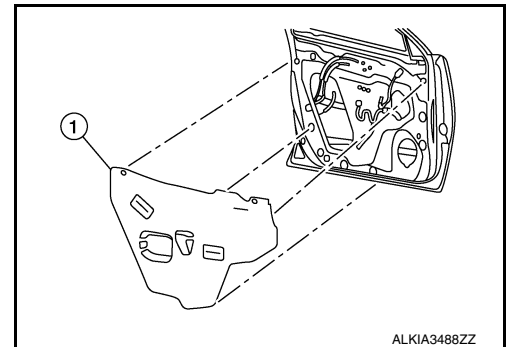
- | | | |
|--------------------------------|-------------------------------|-----------------------------|
| 1. Front door | 2. Front regulator | 3. Front power window motor |
| 4. Front door glass rear run | 5. Front door glass front run | 6. Front door glass |
| 7. Front door glass rubber run | | |

Removal and Installation

INFOID:000000009796678

REMOVAL

1. Remove the front door finisher. Refer to [INT-15, "Removal and Installation"](#).
2. Remove the vapor barrier (1).

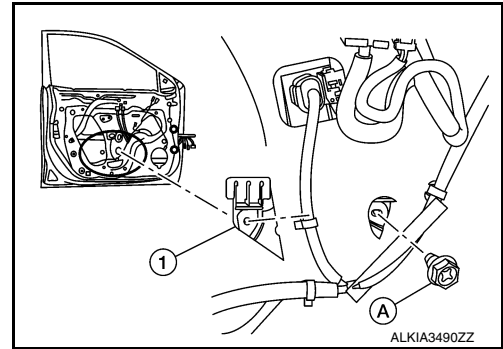


3. Temporarily reconnect the main power window and door lock/unlock switch (LH door) or power window and door lock/unlock switch RH (RH door).
4. Operate the main power window and door lock/unlock switch (LH door) or front door power window motor and door lock/unlock switch RH (RH door) to raise/lower the front door glass until the front door regulator to front door glass bolts can be seen.

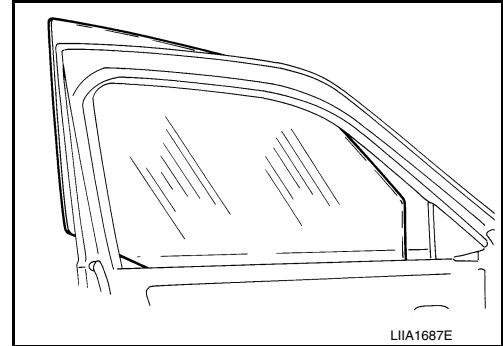
FRONT DOOR GLASS

< REMOVAL AND INSTALLATION >

5. Remove the front door glass regulator (1) to front door glass bolts (A).



6. While holding the front door glass, raise it at the rear end and pull the front door glass out of the sash toward the outside of the door.



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- When the main power window and door lock/unlock switch or front power window and door lock/unlock switch RH is removed it is necessary to perform the initialization procedure. Refer to [PWC-27, "ADDITIONAL SERVICE WHEN REMOVING BATTERY NEGATIVE TERMINAL : Special Repair Requirement"](#).
- Tighten bolts to specification. Refer to [GW-14, "Exploded View"](#).

FITTING INSPECTION

- Check that the front door glass is fit securely into the glass run groove.
- Lower the front door glass slightly [approximately 10 to 20 mm (0.39 to 0.79)] and check that the clearance to the sash is parallel. If the clearance between the glass and sash is not parallel, loosen the front door glass regulator bolts, front door glass run channel bolts, and glass and run rail bolts to correct the glass position.

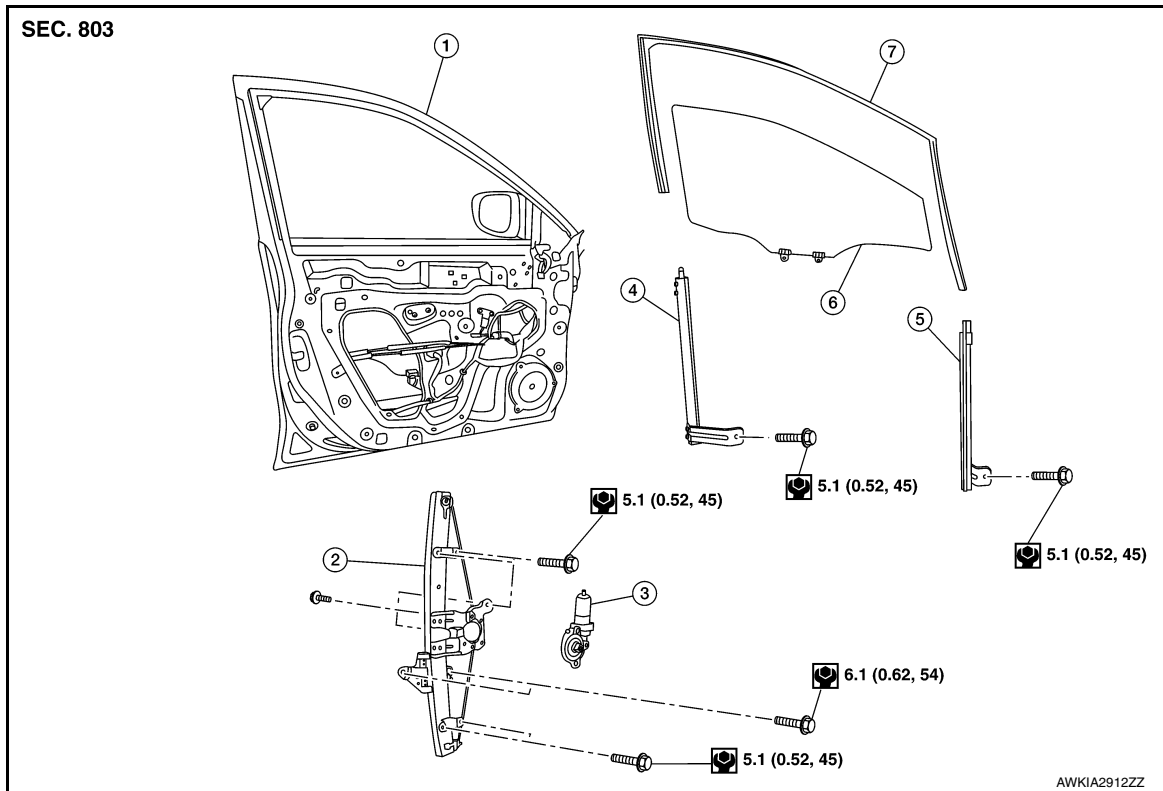
FRONT REGULATOR

< REMOVAL AND INSTALLATION >

FRONT REGULATOR

Exploded View

INFOID:000000009796680



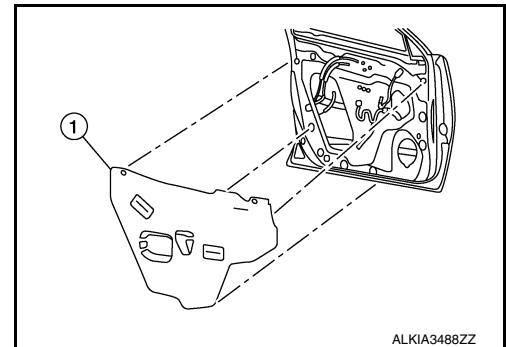
- | | | |
|--------------------------------|-------------------------------|----------------------------------|
| 1. Front door panel | 2. Front door regulator | 3. Front door power window motor |
| 4. Front door glass run rear | 5. Front door glass run front | 6. Front door glass |
| 7. Front door glass rubber run | | |

Removal and Installation

INFOID:000000009796681

REMOVAL

1. Remove the front door finisher. Refer to [INT-15, "Removal and Installation"](#).
2. Partially remove vapor barrier.

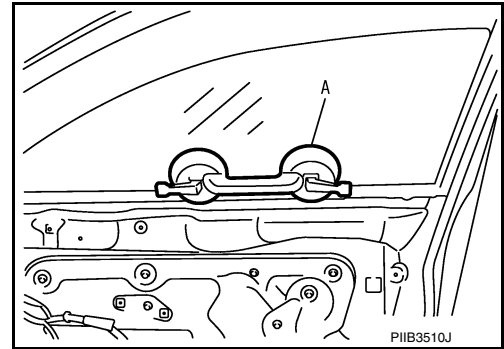


3. Temporarily reconnect the main power window and door lock/unlock switch (LH door) or power window door lock/unlock switch RH (RH door).
4. Operate the power window and door lock/unlock switch (LH door) or front door power window motor and door lock/unlock switch RH (RH door) to raise/lower the front door glass until the front door regulator to front door glass bolts can be seen.

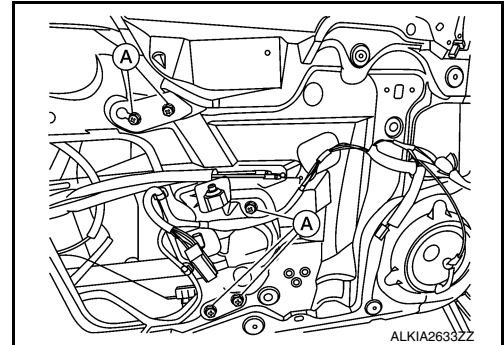
FRONT REGULATOR

< REMOVAL AND INSTALLATION >

5. Raise the front door glass and hold in place using a suitable tool (A).



6. Disconnect the harness connector from the front power window motor.
7. Remove the bolts (A) and remove the front door glass regulator.



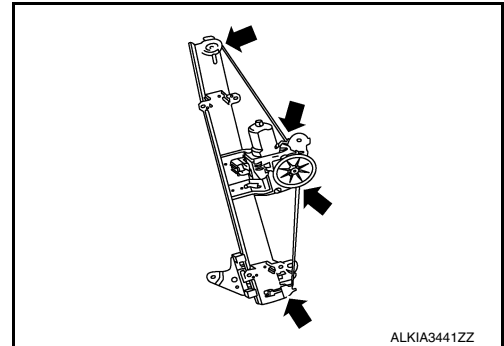
INSPECTION AFTER REMOVAL

Check the front door glass regulator for the following items:

- Wire wear
- Front door glass regulator deformation
- Grease condition for each sliding part

If a malfunction is detected, replace or grease it.

The arrows in the figure show the application points of the suitable multi-purpose grease, if needed.



Inspection and Adjustment

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- When the main power window and door lock/unlock switch or front power window and door lock/unlock switch RH is removed it is necessary to perform the initialization procedure. Refer to [PWC-27, "ADDITIONAL SERVICE WHEN REMOVING BATTERY NEGATIVE TERMINAL : Special Repair Requirement"](#).
- Tighten front door regulator bolts to specification. Refer to [GW-16, "Exploded View"](#).

FITTING INSPECTION

- Check that the front door glass is fit securely into the glass run groove.

FRONT REGULATOR

< REMOVAL AND INSTALLATION >

- Lower the front door glass slightly [approximately 10 to 20 mm (0.39 to 0.79) and check that the clearance to the run is parallel. If the clearance between the glass and sash is not parallel, loosen the front door glass regulator bolts, front door glass run channel bolts, and glass and run rail bolts to correct the glass position.

FRONT POWER WINDOW MOTOR

< REMOVAL AND INSTALLATION >

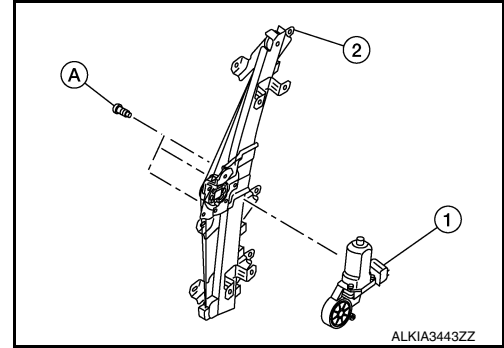
FRONT POWER WINDOW MOTOR

Removal and Installation

INFOID:000000010283187

REMOVAL

1. Remove front door glass regulator. Refer to [GW-16. "Removal and Installation"](#).
2. Remove screws (A) and front power window motor (1) from front door glass regulator (2).



INSTALLATION

Installation is in the reverse order of removal.

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

GW

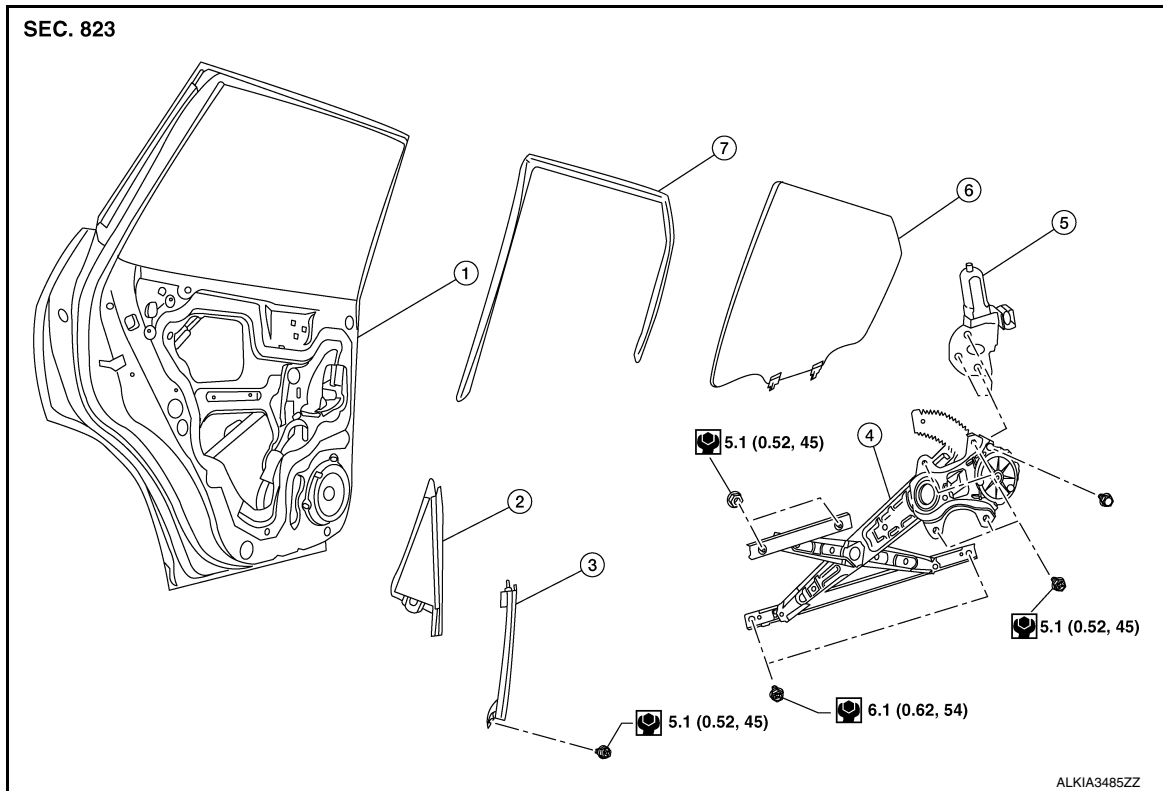
REAR DOOR GLASS

< REMOVAL AND INSTALLATION >

REAR DOOR GLASS

Exploded View

INFOID:000000009796684



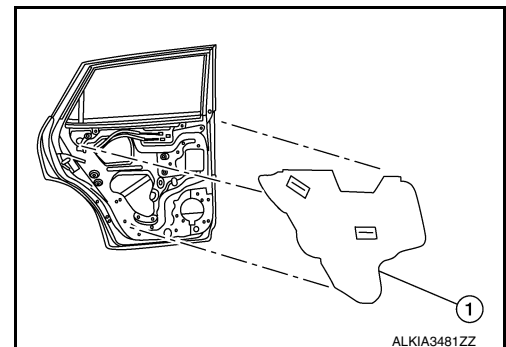
- | | | |
|---------------------------------------|---------------------------------------|-------------------------------------|
| 1. Rear door panel | 2. Rear door glass corner finisher | 3. Rear door glass rear run channel |
| 4. Rear door glass regulator assembly | 5. Rear door glass power window motor | 6. Rear door glass |
| 7. Rear door glass rubber run channel | | |

Removal and Installation

INFOID:000000009796685

REMOVAL

1. Remove the rear door finisher. Refer to [INT-18. "Removal and Installation"](#).
2. Remove the rear door vapor barrier (1).

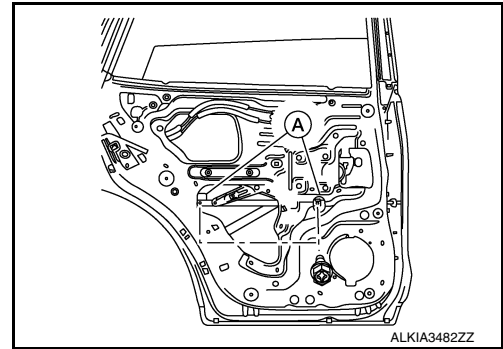


3. Temporarily reconnect the rear power window switch.

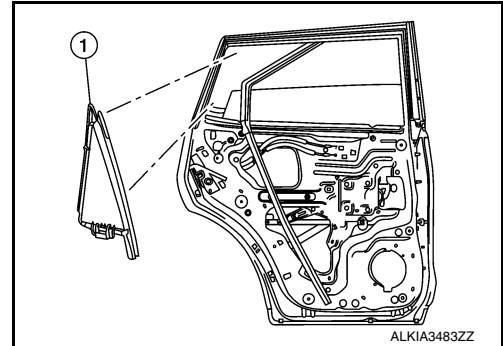
REAR DOOR GLASS

< REMOVAL AND INSTALLATION >

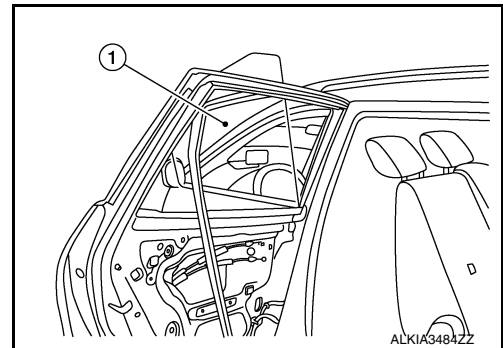
4. Operate the rear power window switch to raise/lower the rear door glass until the rear door glass regulator to rear door glass bolts (A) can be seen and remove.



5. Remove screws and rear door corner finisher (1).



6. Remove the rear door glass (1).



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Tighten the rear door regulator bolts to glass specification. Refer to [GW-22, "Exploded View"](#)

FITTING INSPECTION

- Check that the rear door glass is securely fit into the rear door glass run channel.
- Lower the rear door glass slightly [approximately 10 to 20 mm (0.39 to 0.79 in)], and check that the clearance to the sash is parallel. If the clearance between the rear door glass and sash is not parallel, loosen the rear door regulator to glass bolts, rear door run channel bolts, and rear door glass bolts to correct the rear door glass position.

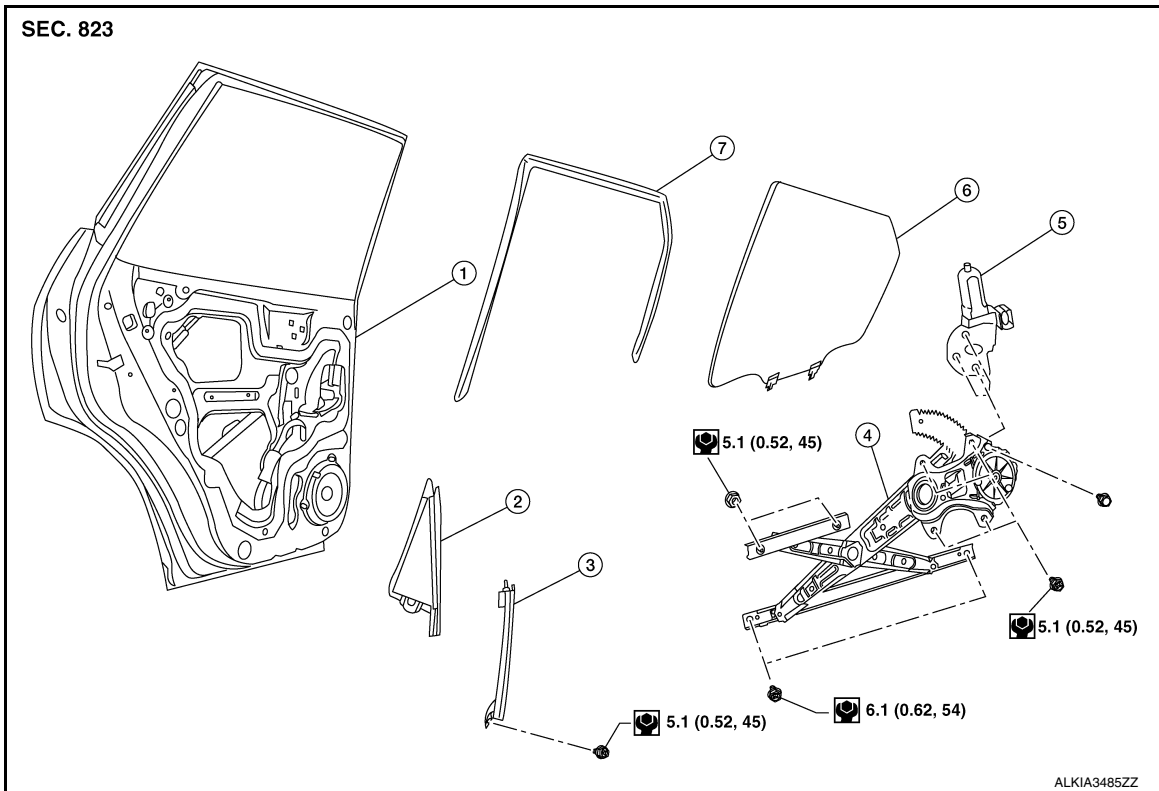
REAR REGULATOR

< REMOVAL AND INSTALLATION >

REAR REGULATOR

Exploded View

INFOID:000000009796687

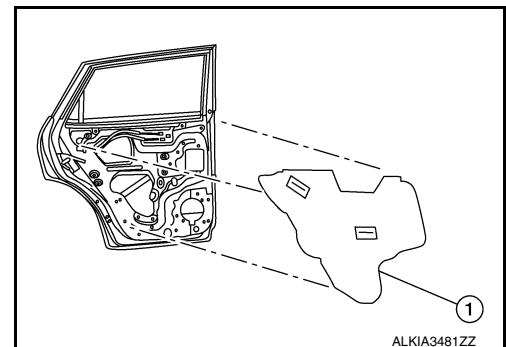


Removal and Installation

INFOID:000000009796688

REMOVAL

1. Remove the rear door finisher. Refer to [INT-18. "Removal and Installation"](#).
2. Remove vapor barrier.

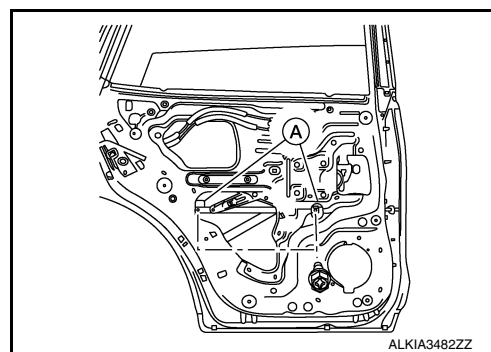


3. Temporarily reconnect the rear power window switch.

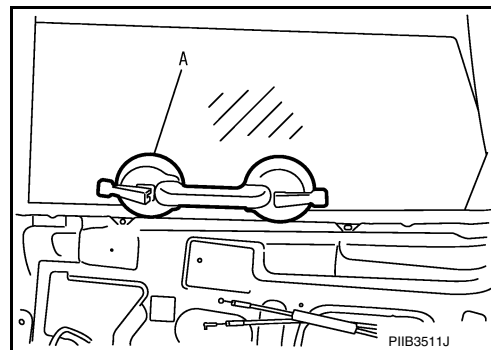
REAR REGULATOR

< REMOVAL AND INSTALLATION >

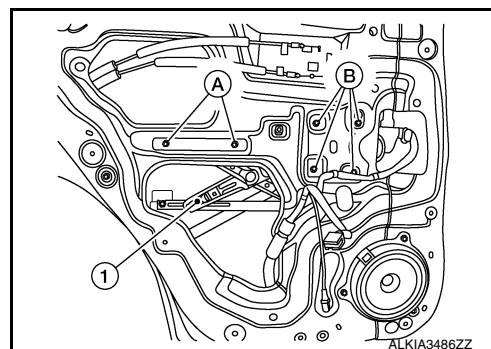
4. Operate the rear power window switch to raise/lower the rear door glass until the rear door glass regulator to rear door glass bolts (A) can be seen and remove.



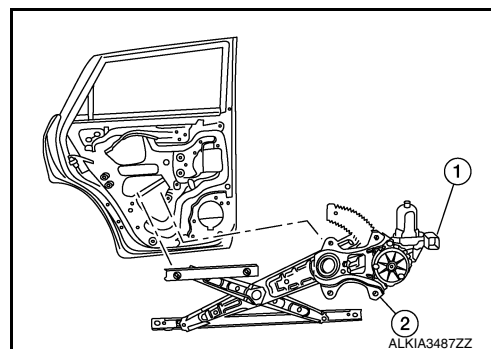
5. Raise the rear door glass and hold in place with suitable tool (A).



6. Remove the bolts (B) and nuts (A) from the rear door glass regulator (1).



7. Disconnect the harness connector from the rear door regulator (1).
8. Remove rear door regulator (2).



INSPECTION AFTER REMOVAL

Check the rear door glass regulator for the following items:

- Gear wear
- Rear door glass regulator deformation
- Spring damage
- Grease condition for each sliding part

If a malfunction is detected, replace or grease it.

INSTALLATION

Installation is in reverse order of removal.

CAUTION:

REAR REGULATOR

< REMOVAL AND INSTALLATION >

- Tighten the rear door regulator to specification Refer to [GW-22, "Exploded View"](#)

REAR POWER WINDOW MOTOR

< REMOVAL AND INSTALLATION >

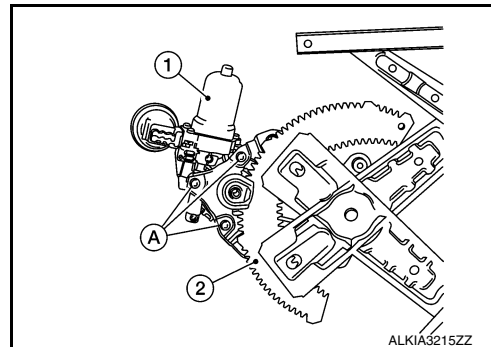
REAR POWER WINDOW MOTOR

Removal and Installation

INFOID:0000000010283188

REMOVAL

1. Remove rear door glass regulator. Refer to [GW-22, "Removal and Installation"](#).
2. Remove screws (A) and rear door power window motor (1) from rear door glass regulator (2).



INSTALLATION

Installation is in the reverse order of removal.

GW

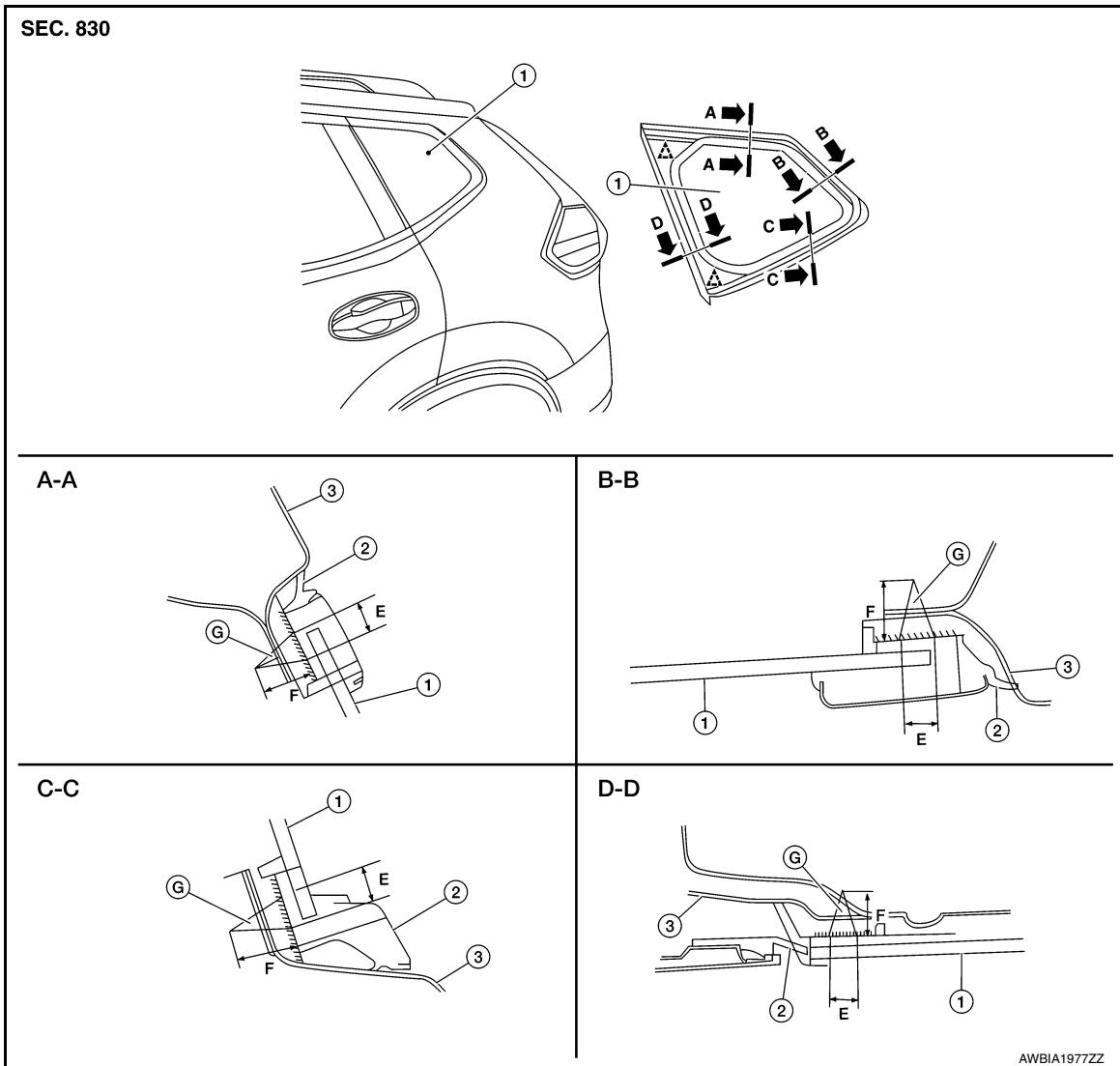
QUARTER WINDOW GLASS

< REMOVAL AND INSTALLATION >

QUARTER WINDOW GLASS

Exploded View

INFOID:000000009796671



Removal and Installation

INFOID:000000009796672

REMOVAL

1. Remove the luggage side upper finisher. Refer to [INT-36. "LUGGAGE SIDE UPPER FINISHER : Removal and Installation"](#).
2. Remove quarter glass from the inside of vehicle using a piano wire or cutting tool and an inflatable bag.

WARNING:

When cutting the quarter window from the vehicle, always wear safety glasses and heavy gloves to help prevent glass splinters from entering your eyes or cutting your hands.

CAUTION:

- Apply protective tape around the quarter glass to protect the painted surface.
- Be careful not to scratch the quarter window glass when removing.
- Do not set or stand the quarter window glass on its edge. Small chips may develop into cracks.

QUARTER WINDOW GLASS

< REMOVAL AND INSTALLATION >

INSTALLATION

Installation is in the reverse order of removal.

- Install the quarter glass from outside the vehicle to ensure that it is even around the top, bottom and sides of the opening.
- Use a genuine NISSAN Urethane Adhesive Kit (if available) or equivalent and follow the instructions furnished with it.
- While the urethane adhesive is curing, open a door window. This will prevent the glass from being forced out by passenger compartment air pressure when a door is closed.
- Check gap along bottom to confirm that glass does not contact sheet metal.
- Inform the customer that the vehicle should remain stationary until the urethane adhesive has completely cured (preferably 24 hours). Curing time varies with temperature and humidity.

WARNING:

- **Keep heat and open flames away as primers and adhesive are flammable.**
- **The materials contained in the kit are harmful if swallowed, and may irritate skin and eyes. Avoid contact with the skin and eyes.**
- **Use in an open, well ventilated location. Avoid breathing the vapors. They can be harmful if inhaled. If affected by vapor inhalation, immediately move to an area with fresh air.**
- **Driving the vehicle before the urethane adhesive has completely cured may affect the performance of the glass in case of an accident.**

CAUTION:

- **Do not use an adhesive which is past its usable term. Shelf life of this product is limited to six months after the date of manufacture. Carefully adhere to the expiration or manufacture date printed on the box.**
- **Keep primers and adhesive in a cool, dry place. Ideally, they should be stored in a refrigerator.**
- **Do not leave primers or adhesive cartridge unattended with their caps open or off.**
- **The vehicle should not be driven for at least 24 hours or until the urethane adhesive has completely cured. Curing time varies depending on temperature and humidity. The curing time will increase under lower temperatures and lower humidity.**

Inspection

INFOID:000000009796673

REPAIRING WATER LEAKAGE FOR QUARTER WINDOW GLASS

Leakage can be repaired without removing glass.

Determine the extent of leakage if water is leaking between the urethane adhesive material and body or glass.

This can be done by applying water to the side window glass area while pushing glass outward.

Apply primer (if necessary) and then urethane adhesive to the leakage point to stop the leakage.

GW

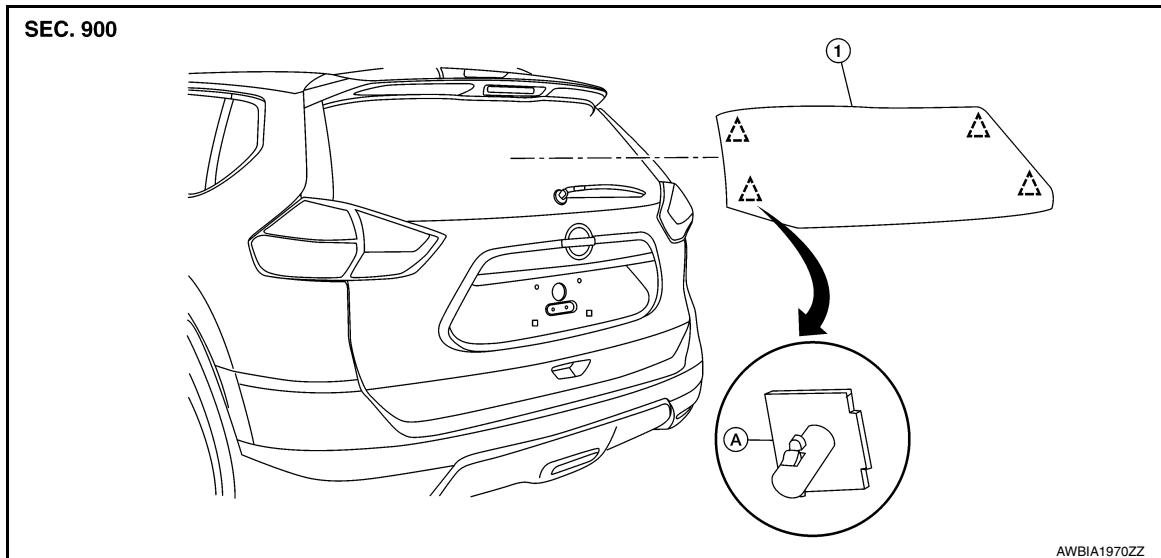
BACK DOOR WINDOW GLASS

< REMOVAL AND INSTALLATION >

BACK DOOR WINDOW GLASS

Exploded View

INFOID:000000009796674



1. Back door window glass

A. Clip

Clip

Removal and Installation

INFOID:000000009796675

REMOVAL

1. Remove back door finisher. Refer to [INT-38, "Removal and Installation"](#).
2. Remove back door lock. Refer to [DLK-263, "DOOR LOCK : Removal and Installation"](#) (for intelligent key) or [DLK-380, "DOOR LOCK : Removal and Installation"](#) (for others).
3. Remove the rear wiper arm and motor. Refer to [WW-71, "Removal and Installation"](#).
4. Disconnect harness connectors from back door window defogger.
5. Remove back door window glass using piano wire or power cutting tool and an inflatable pump bag.

WARNING:

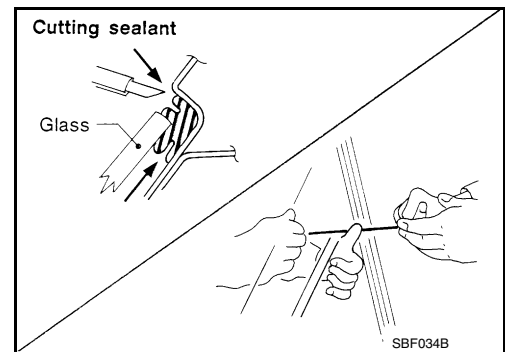
When cutting back door window glass from vehicle, always wear safety glasses and heavy gloves to prevent glass splinters from entering your eyes or cutting your hands.

CAUTION:

- Be careful not to scratch glass when removing.
- Do not set or stand glass on its edge. Small chips may develop into cracks.
- Apply protective tape around back door window glass to protect painted surface from damage.

NOTE:

Mark body and glass with matching marks if back door window glass is to be reused.



INSTALLATION

Installation is in the reverse order of removal.

- Use genuine NISSAN Urethane Adhesive Kit (if available) or equivalent and follow the instructions furnished with it.
- Adhesive shall be continuously applied to assure watertightness. Glass installation shall be finished within five minutes after applying adhesive.
- While urethane adhesive is curing, open door window. This will prevent glass from being forced out by passenger compartment air pressure when door is closed.
- Start and finish urethane adhesive application at the bottom to assure watertightness.

BACK DOOR WINDOW GLASS

< REMOVAL AND INSTALLATION >

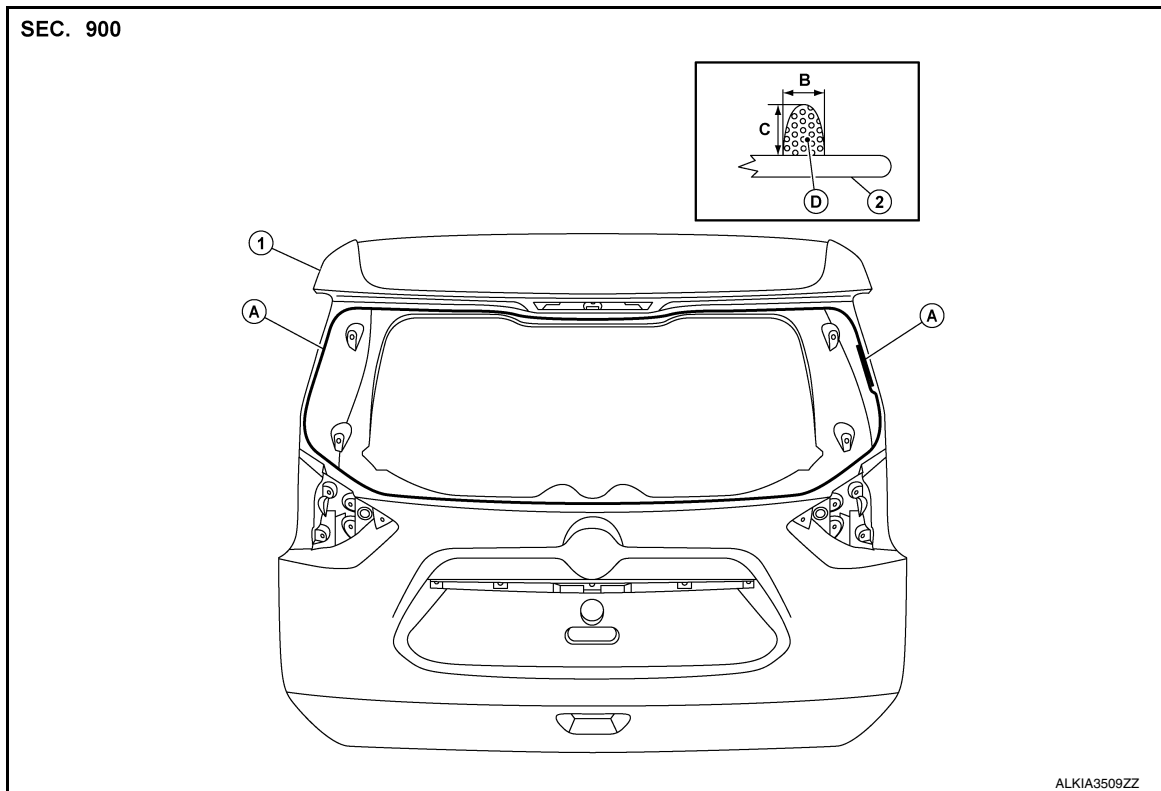
- Inform customer that vehicle should remain stationary until urethane adhesive has completely cured (preferably 24 hours). Curing time varies with temperature and humidity.

WARNING:

- Keep heat and open flames away as primers and adhesive are flammable.
- Materials contained in the kit are harmful if swallowed, and may irritate skin and eyes. Avoid contact with the skin and eyes.
- Use in an open, well ventilated location. Avoid breathing vapors. They can be harmful if inhaled. If affected by vapor inhalation, immediately move to an area with fresh air.
- Driving vehicle before urethane adhesive has completely cured may affect performance of the windshield in case of an accident.

CAUTION:

- Do not use adhesive which is past its usable term. Shelf life of this product is limited to six months after date of manufacture. Carefully adhere to expiration or manufacture date printed on box.
- Keep primers and adhesive in cool, dry place. Ideally, they should be stored in refrigerator.
- Do not leave primers or adhesive cartridge unattended with their caps open or off.
- Vehicle should not be driven for at least 24 hours or until urethane adhesive has completely cured. Curing time varies depending on temperature and humidity. Curing time will increase under lower temperatures and lower humidity.



1. Back door
B. 7.0 mm (0.28 in)

2. Back door window glass
C. 12.0 mm (0.47 in)

A. Primer and adhesive area
D. Adhesive

REPAIRING WATER LEAKS FOR BACK DOOR GLASS

- Leaks can be repaired without removing and reinstalling glass.
- Determine extent of leak, if water leaks between urethane adhesive material and body or glass.
- This can be done by applying water to glass area while pushing glass outward.
- Apply primer (if necessary) and then urethane adhesive to leak point to stop leak.

Inspection

INFOID:000000009796676

REPAIRING WATER LEAKAGE FOR BACK DOOR WINDOW GLASS

Leakage can be repaired without removing the glass.

Determine the extent of leakage if water is leaking between the urethane adhesive material and body or glass. This can be done by applying water to the back door window glass area while pushing glass outward.

BACK DOOR WINDOW GLASS

< REMOVAL AND INSTALLATION >

Apply primer (if necessary) and then urethane adhesive to the leakage point to stop the leakage.

SECTION **HA**

HEATER & AIR CONDITIONING SYSTEM

CONTENTS

PRECAUTION	3	REFRIGERANT	21	F
PRECAUTIONS	3	Description	21	
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	3	Leak Test	21	
Precaution for Work	3	Recycle Refrigerant	23	G
Procedure without Cowl Top Cover	4	Charge Refrigerant	23	
Precautions For Refrigerant System Service	4	OIL	25	H
Service Equipment	7	Description	25	
PREPARATION	9	Inspection	25	
PREPARATION	9	Perform Oil Return Operation	25	HA
Special Service Tool	9	Oil Adjusting Procedure for Components Replacement Except Compressor	25	
Commercial Service Tool	9	Oil Adjusting Procedure for Compressor Replacement	26	J
Sealant and/or Oil	11	PERFORMANCE TEST	28	
SYSTEM DESCRIPTION	12	Inspection	28	K
COMPONENT PARTS	12	REMOVAL AND INSTALLATION	30	
Component Parts Location	12	COMPRESSOR	30	L
Component Description	12	Exploded View	30	
SYSTEM	13	Removal and Installation	30	
System Diagram	13	COOLER PIPE AND HOSE	32	M
System Description	13	Exploded View	32	
BASIC INSPECTION	15	LOW-PRESSURE PIPE	32	N
DIAGNOSIS AND REPAIR WORKFLOW	15	LOW-PRESSURE PIPE : Removal and Installation	32	
Workflow	15	LOW-PRESSURE FLEXIBLE HOSE	34	O
SYMPTOM DIAGNOSIS	17	LOW-PRESSURE FLEXIBLE HOSE : Removal and Installation	34	
REFRIGERATION SYSTEM SYMPTOMS	17	HIGH-PRESSURE PIPE	34	P
Trouble Diagnosis For Unusual Pressure	17	HIGH-PRESSURE PIPE : Removal and Installation	34	
Symptom Table	17	HIGH-PRESSURE FLEXIBLE HOSE	36	
COMPRESSOR SYSTEM SYMPTOMS	20	HIGH-PRESSURE FLEXIBLE HOSE : Removal and Installation	36	
Symptom Table	20			
PERIODIC MAINTENANCE	21			

CONDENSER	37	HEATER CORE	42
Exploded View	37	HEATER CORE : Exploded View	43
CONDENSER	37	HEATER CORE : Removal and Installation	43
CONDENSER : Removal and Installation	37	EVAPORATOR	43
LIQUID TANK	38	EVAPORATOR : Exploded View	44
LIQUID TANK : Removal and Installation	38	EVAPORATOR : Removal and Installation	44
REFRIGERANT PRESSURE SENSOR	38	EXPANSION VALVE	44
REFRIGERANT PRESSURE SENSOR : Removal and Installation	38	EXPANSION VALVE : Removal and Installation ...	44
HEATING AND COOLING UNIT ASSEMBLY...	39	SERVICE DATA AND SPECIFICATIONS (SDS)	46
Exploded View	39	SERVICE DATA AND SPECIFICATIONS (SDS)	46
HEATING AND COOLING UNIT ASSEMBLY	41	Compressor	46
HEATING AND COOLING UNIT ASSEMBLY : Removal and Installation	42	Oil	46
		Refrigerant	46

PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010197348

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Precaution for Work

INFOID:0000000010197349

- When removing or disassembling each component, be careful not to damage or deform it. If a component may be subject to interference, be sure to protect it with a shop cloth.
- When removing (disengaging) components with a screwdriver or similar tool, be sure to wrap the component with a shop cloth or vinyl tape to protect it.
- Protect the removed parts with a shop cloth and prevent them from being dropped.
- Replace a deformed or damaged clip.
- If a part is specified as a non-reusable part, always replace it with a new one.
- Be sure to tighten bolts and nuts securely to the specified torque.
- After installation is complete, be sure to check that each part works properly.
- Follow the steps below to clean components:
 - Water soluble dirt:
 - Dip a soft cloth into lukewarm water, wring the water out of the cloth and wipe the dirty area.
 - Then rub with a soft, dry cloth.
 - Oily dirt:
 - Dip a soft cloth into lukewarm water with mild detergent (concentration: within 2 to 3%) and wipe the dirty area.
 - Then dip a cloth into fresh water, wring the water out of the cloth and wipe the detergent off.
 - Then rub with a soft, dry cloth.
 - Do not use organic solvent such as thinner, benzene, alcohol or gasoline.
 - For genuine leather seats, use a genuine leather seat cleaner.

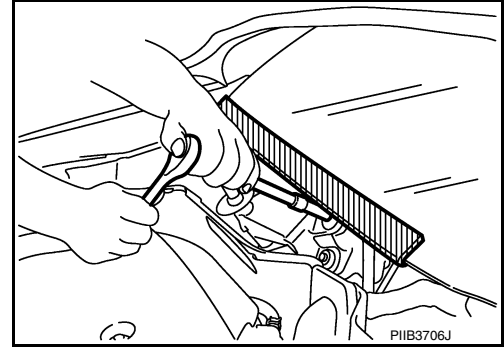
PRECAUTIONS

< PRECAUTION >

Procedure without Cowl Top Cover

INFOID:000000010197350

When performing the procedure after removing cowl top cover, cover the lower end of windshield with urethane, etc. to prevent damage to the windshield.



Precautions For Refrigerant System Service

INFOID:000000010201249

GENERAL REFRIGERANT PRECAUTION

WARNING:

- Do not breathe A/C refrigerant and oil vapor or mist. Exposure may irritate eyes, nose and throat. Remove HFC-134a (R-134a) from the A/C system, using certified service equipment meeting requirements of SAE J-2210 [HFC-134a (R-134a) recycling equipment] or J-2209 [HFC-134a (R-134a) recovery equipment]. Ventilate work area before resuming service if accidental system discharge occurs. Additional health and safety information may be obtained from refrigerant and oil manufacturers.
- Do not release refrigerant into the air. Use approved recovery/recycling recharging equipment to capture the refrigerant each time an air conditioning system is discharged.
- Always wear eye and hand protection (goggles and gloves) when working with any refrigerant or air conditioning system.
- Do not store or heat refrigerant containers above 52°C (126°F).
- Do not heat a refrigerant container with an open flame; Place the bottom of the container in a warm pail of water if container warming is required.
- Do not intentionally drop, puncture or incinerate refrigerant containers.
- Do not refrigerant away from open flames; poisonous gas is produced if refrigerant burns.
- Refrigerant displaces oxygen; therefore be certain to work in well ventilated areas to prevent suffocation.
- Do not pressure test or leak test HFC-134a (R-134a) service equipment and/or vehicle air conditioning systems with compressed air during repair. Some mixtures of air and HFC-134a (R-134a) have been shown to be combustible at elevated pressures. These mixtures, if ignited, may cause injury or property damage. Additional health and safety information may be obtained from refrigerant manufacturers.

WORKING WITH HFC-134a (R-134a)

CAUTION:

- CFC-12 (R-12) refrigerant and HFC-134a (R-134a) refrigerant are not compatible. Compressor malfunction is likely to occur if the refrigerants are mixed, refer to "CONTAMINATED REFRIGERANT" below. To determine the purity of HFC-134a (R-134a) in the vehicle and recovery tank, use Refrigerant recovery/recycling recharging equipment and Refrigerant Identifier.
- Use only specified oil for the HFC-134a (R-134a) A/C system and HFC-134a (R-134a) components. Compressor malfunction is likely to occur if oil other than that specified is used.
- The specified HFC-134a (R-134a) oil rapidly absorbs moisture from the atmosphere. The following handling precautions must be observed:
 - Cap (seal) the component immediately to minimize the entry of moisture from the atmosphere when removing refrigerant components from a vehicle.
 - Do not remove the caps (unseal) until just before connecting the components when installing refrigerant components to a vehicle. Connect all refrigerant loop components as quickly as possible to minimize the entry of moisture into system.
 - Use only the specified oil from a sealed container. Reseal containers of oil immediately. Oil becomes moisture saturated and should not be used without proper sealing.
 - Do not allow oil to come in contact with styrene foam parts. Damage may result.

CONTAMINATED REFRIGERANT

PRECAUTIONS

< PRECAUTION >

Take appropriate steps shown below if a refrigerant other than pure HFC-134a (R-134a) is identified in a vehicle:

- Explain to the customer that environmental regulations prohibit the release of contaminated refrigerant into the atmosphere.
- Explain that recovery of the contaminated refrigerant could damage service equipment and refrigerant supply.
- Suggest the customer return the vehicle to the location of previous service where the contamination may have occurred.
- In case of repairing, recover the refrigerant using only **dedicated equipment and containers. Do not recover contaminated refrigerant into the existing service equipment.** Contact a local refrigerant product retailer for available service if the facility does not have dedicated recovery equipment. This refrigerant must be disposed of in accordance with all federal and local regulations. In addition, replacement of all refrigerant system components on the vehicle is recommended.
- The air conditioner warranty is void if the vehicle is within the warranty period. Please contact NISSAN Customer Affairs for further assistance.

REFRIGERANT CONNECTION

A new type of refrigerant connection has been introduced to all refrigerant lines except the following locations:

- Expansion valve to evaporator
- Refrigerant pressure sensor to liquid tank

WARNING:

Check that all refrigerant is discharged into the recycling equipment and the pressure in the system is less than atmospheric pressure. Then gradually loosen the discharge side hose fitting and remove it.

CAUTION:

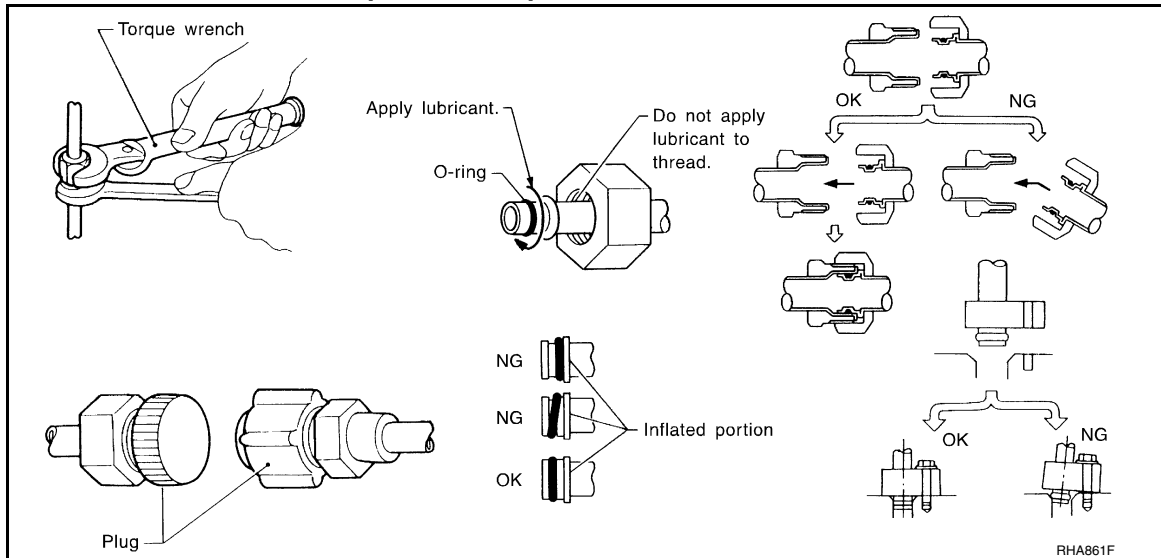
Observe the following when replacing or cleaning refrigerant components.

- **When the compressor is removed, store it in the same way as it is when mounted on the vehicle. Failure to do so will cause oil to enter the low-pressure chamber.**
- **Always use a torque wrench and a back-up wrench when connecting tubes.**
- **Plug immediately all openings to prevent entry of dust and moisture after disconnecting tubes.**
- **Connect the pipes at the final stage of the operation when installing an air conditioner in the vehicle. Do not remove the seal caps of pipes and other components until just before required for connection.**
- **Allow components stored in cool areas to warm to working area temperature before removing seal caps. This prevents condensation from forming inside A/C components.**
- **Remove moisture thoroughly from the refrigeration system before charging the refrigerant.**
- **Always replace used O-rings.**
- **Apply oil to the O-rings shown in illustrations when connecting tubes. Be careful not to apply oil to threaded portion.**
- **O-ring must be closely attached to the groove portion of tube.**
- **Be careful not to damage O-ring and tube when replacing the O-ring.**
- **Connect tube until a click can be heard. Then tighten the nut or bolt by hand. Check that the O-ring is installed to tube correctly.**

PRECAUTIONS

< PRECAUTION >

- Perform leak test and make sure that there are no leaks from connections after connecting line. Disconnect that line and replace the O-ring when the refrigerant leaking point is found. Then tighten connections of seal seat to the specified torque.



COMPRESSOR

CAUTION:

- Plug all openings to prevent moisture and foreign matter from entering.
- When the compressor is removed, store it in the same way as it is when mounted on the vehicle.
- Follow "Oil Adjusting Procedure for Compressor Replacement" exactly when replacing or repairing compressor. Refer to [HA-26, "Oil Adjusting Procedure for Compressor Replacement"](#).
- Keep friction surfaces between clutch and pulley clean. Wipe them off by using a clean waste cloth moistened with solvent if the surface is contaminated with oil.
- Turn the compressor shaft by hand more than five turns in both directions after compressor service operation. This distributes oil equally inside the compressor. Let the engine idle and operate the compressor for one hour after the compressor is installed.
- After replacing the compressor magnet clutch, apply voltage to the new one and check for normal operation.

LEAK DETECTION DYE

CAUTION:

- The A/C system contains a fluorescent leak detection dye used for locating refrigerant leaks. An ultraviolet (UV) lamp is required to illuminate the dye when inspecting for leaks.
- Always wear fluorescence enhancing UV safety goggles to protect eyes and enhance the visibility of the fluorescent dye.
- The fluorescent dye leak detector is not a replacement for an electronic leak detector (SST: J-41995). The fluorescent dye leak detector should be used in conjunction with an electronic leak detector (SST: J-41995) to pin-point refrigerant leaks.
- Read and follow all manufacturers operating instructions and precautions prior to performing the work for the purpose of safety and customer's satisfaction.
- A compressor shaft seal should not necessarily be repaired because of dye seepage. The compressor shaft seal should only be repaired after confirming the leak with an electronic leak detector (SST: J-41995).
- Always remove any remaining dye from the leak area after repairs are completed to avoid a misdiagnosis during a future service.
- Do not allow dye to come into contact with painted body panels or interior components. Clean immediately with the approved dye cleaner if dye is spilled. Fluorescent dye left on a surface for an extended period of time cannot be removed.
- Do not spray the fluorescent dye cleaning agent on hot surfaces (engine exhaust manifold, etc.).
- Do not use more than one refrigerant dye bottle [1/4 ounce (7.4 cc)] per A/C system.
- Leak detection dyes for HFC-134a (R-134a) and CFC-12 (R-12) A/C systems are different. Do not use HFC-134a (R-134a) leak detection dye in CFC-12 (R-12) A/C system or CFC-12 (R-12) leak detection dye in HFC-134a (R-134a) A/C system, or A/C system damage may result.
- The fluorescent properties of the dye remains for three or more years unless a compressor malfunction occurs.

PRECAUTIONS

< PRECAUTION >

Service Equipment

INFOID:000000010201250

RECOVERY/RECYCLING RECHARGING EQUIPMENT

Be certain to follow the manufacturer's instructions for machine operation and machine maintenance. Do not introduce any refrigerant other than that specified into the machine.

ELECTRONIC LEAK DETECTOR

Be certain to follow the manufacturer's instructions for detector operation and maintenance.

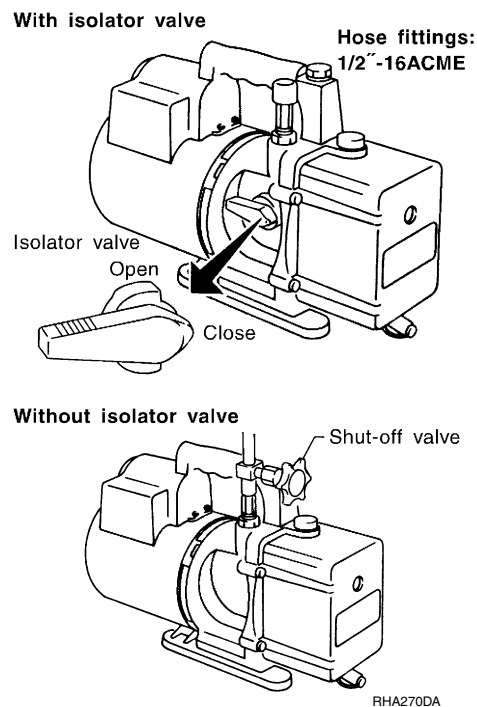
VACUUM PUMP

The oil contained inside the vacuum pump is not compatible with the specified oil for HFC-134a (R-134a) A/C systems. The vent side of the vacuum pump is exposed to atmospheric pressure, so the vacuum pump oil may migrate out of the pump into the service hose. This is possible when the pump is switched OFF after evacuation (vacuuming) with the hose is connected to it.

To prevent this migration, use a manual valve placed near the hose-to-pump connection, as per the following:

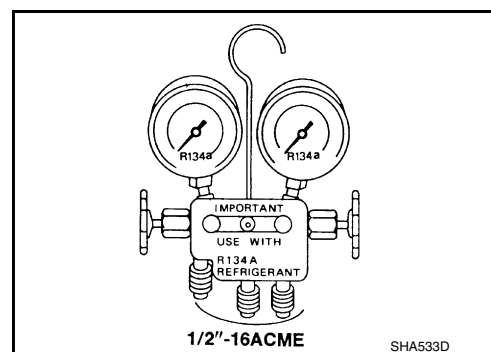
- Vacuum pumps usually have a manual isolator valve as part of the pump. Close this valve to isolate the service hose from the pump.
- Use a hose equipped with a manual shut-off valve near the pump end for pumps without an isolator. Close the valve to isolate the hose from the pump.
- Disconnect the hose from the pump if the hose has an automatic shut-off valve. As long as the hose is connected, the valve is open and lubricating oil may migrate.

Some one-way valves open when vacuum is applied and close under no vacuum condition. Such valves may restrict the pump's ability to pull a deep vacuum and are not recommended.



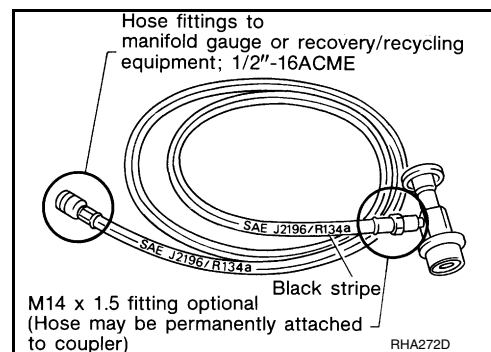
MANIFOLD GAUGE SET

Be certain that the gauge face indicates HFC-134a or R-134a. Be sure the gauge set has 1/2"-16 ACME threaded connections for service hoses. Confirm the set has been used only with refrigerant HFC-134a (R-134a) and specified oils.



SERVICE HOSES

Be certain that the service hoses display the markings described (colored hose with black stripe). All hoses must be equipped with positive shut-off devices (either manual or automatic) near the end of the hoses opposite to the manifold gauge.



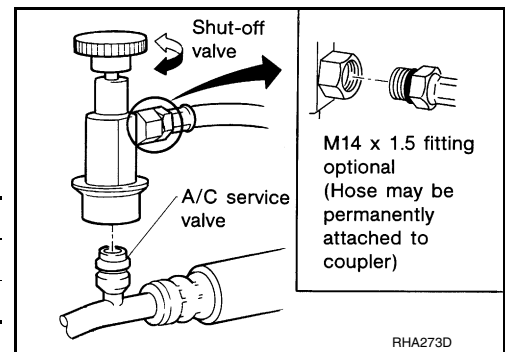
SERVICE COUPLERS

PRECAUTIONS

< PRECAUTION >

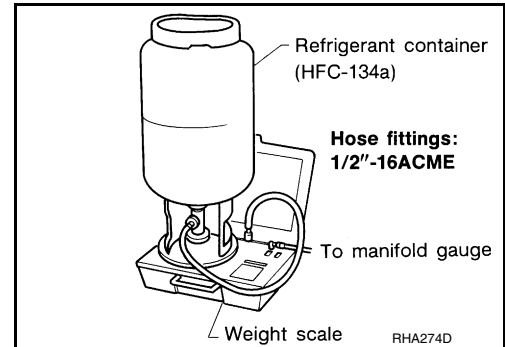
Do not attempt to connect HFC-134a (R-134a) service couplers to a CFC-12 (R-12) A/C system. The HFC-134a (R-134a) couplers do not properly connect to a CFC-12 (R-12) system. However, if an improper connection is attempted, refrigerant discharging and contamination may occur.

Shut-off valve rotation	A/C service valve
Clockwise	Open
Counterclockwise	Close



REFRIGERANT WEIGHT SCALE

Verify that no refrigerant other than HFC-134a (R-134a) and specified oils have been used with the scale. The hose fitting must be 1/2"-16 ACME if the scale controls refrigerant flow electronically.



CHARGING CYLINDER

Using a charging cylinder is not recommended. Refrigerant may be vented into the air from cylinder's top valve when filling the cylinder with refrigerant. Also, the accuracy of the cylinder is generally less than that of an electronic scale or of quality recycle/recharge equipment.

PREPARATION

< PREPARATION >

PREPARATION

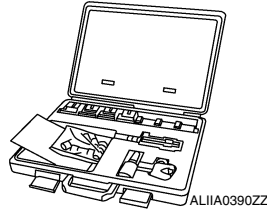
PREPARATION

Special Service Tool

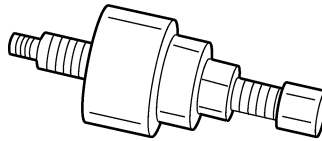
INFOID:0000000010197357

The actual shape of the tools may differ from those illustrated here.

Tool number (TechMate No.) Tool name	Description
— (J-41425-NIS) Aluminum tube repair kit	Repairing leaks in A/C tubes
— (J-38873-A) Drive plate installer	Installing pulley



ALIA0390ZZ

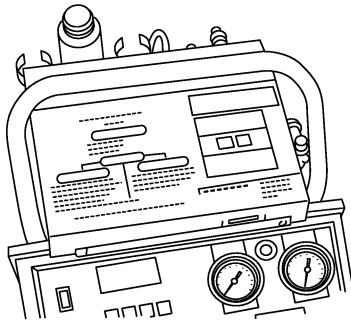


WJIA0367E

Commercial Service Tool

INFOID:0000000010197358

(TechMate No.) Tool name	Description
(J-41810-NI) Refrigerant identifier equipment (R-134a)	For checking refrigerant purity and system contamination
(—) Power Tool	Loosening nuts, screws and bolts
— (J-48710) NISSAN ACR2009 RRR Unit	Refrigerant recovery, recycling and re-charging



RJIA0197E



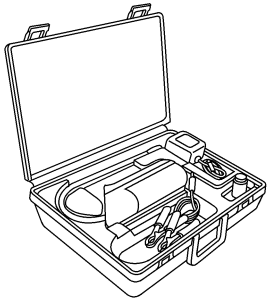
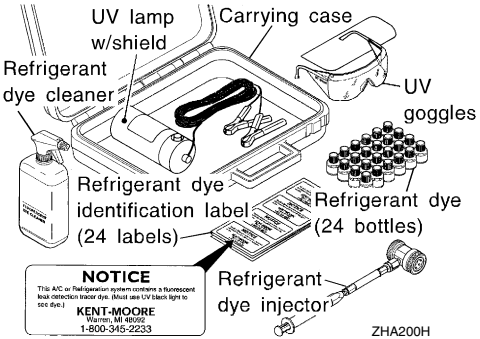
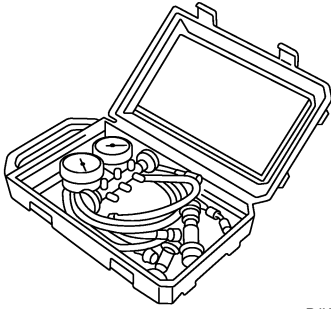
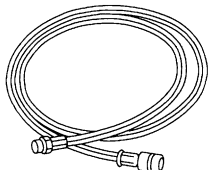
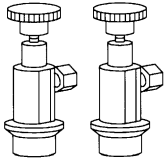
PIIB1407E



WJIA0293E

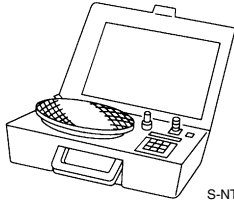
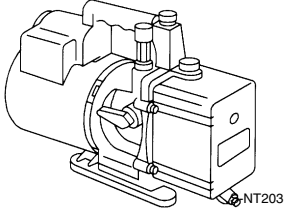
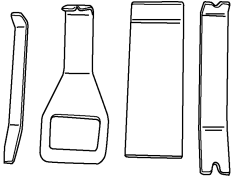
PREPARATION

< PREPARATION >

(TechMate No.) Tool name	Description
— (J-41995) Electronic refrigerant leak detector  AHA281A	Power supply: • DC 12V (battery terminal)
— (J-43926) Refrigerant dye leak detection kit Kit includes: (J-42220) UV lamp and UV safety goggles (J-41459) Refrigerant dye injector (J-41447) Fluorescent leak detection dye (box of 24, 1/4 ounce bottles) (J-43872) Refrigerant dye cleaner  ZHA200H	Power supply: • DC 12V (battery terminal)
— (J-39183-C) Manifold Gauge Set (with hoses and couplers)  RJIA0196E	Identification: • The gauge face indicates R-134a. • Fitting size-Thread size • 1/2"-16 ACME
Service Hoses: • High side hose (J-39500-72B) • Low side hose (J-39500-72R) • Utility hose (J-39500-72Y)  S-NT201	Hose color: • Low side hose: Blue with black stripe • High side hose: Red with black stripe • Utility hose: Yellow with black stripe or green with black stripe Hose fitting to gauge: • 1/2"-16 ACME
Service couplers • High side coupler (J-39500-20A) • Low side coupler (J-39500-24A)  S-NT202	Hose fitting to service hose: • M14 x 1.5 fitting is optional or permanently attached.

PREPARATION

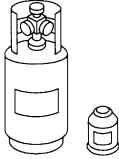
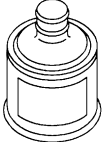
< PREPARATION >

(TechMate No.) Tool name		Description	A
— (J-39699) Refrigerant Weight Scale		For measuring of refrigerant Fitting size-Thread size • 1/2"-16 ACME	B C
— (J-39649) Vacuum Pump (Including the isolator valve)		Capacity: • Air displacement: 4 CFM • Micron rating: 20 microns • Oil capacity: 482 g (17 oz) Fitting size-Thread size • 1/2"-16 ACME	D E
— (J-46534) Trim Tool Set		Removing trim components	F G H

Sealant and/or Oil

INFOID:0000000010197359

HA

Tool number (TechMate No.) Tool name		Description	J
— (—) HFC-134a (R-134a) Refrigerant		Container color: Light blue Container marking: HFC-134a (R-134a) Fitting size: Thread size • large container 1/2"-16 ACME	K L
— (—) ND-OIL 8		Type: Nippon Denso Oil 8 (ND-OIL 8) Application: HFC-134a (R-134a)	M N O

P

COMPONENT PARTS

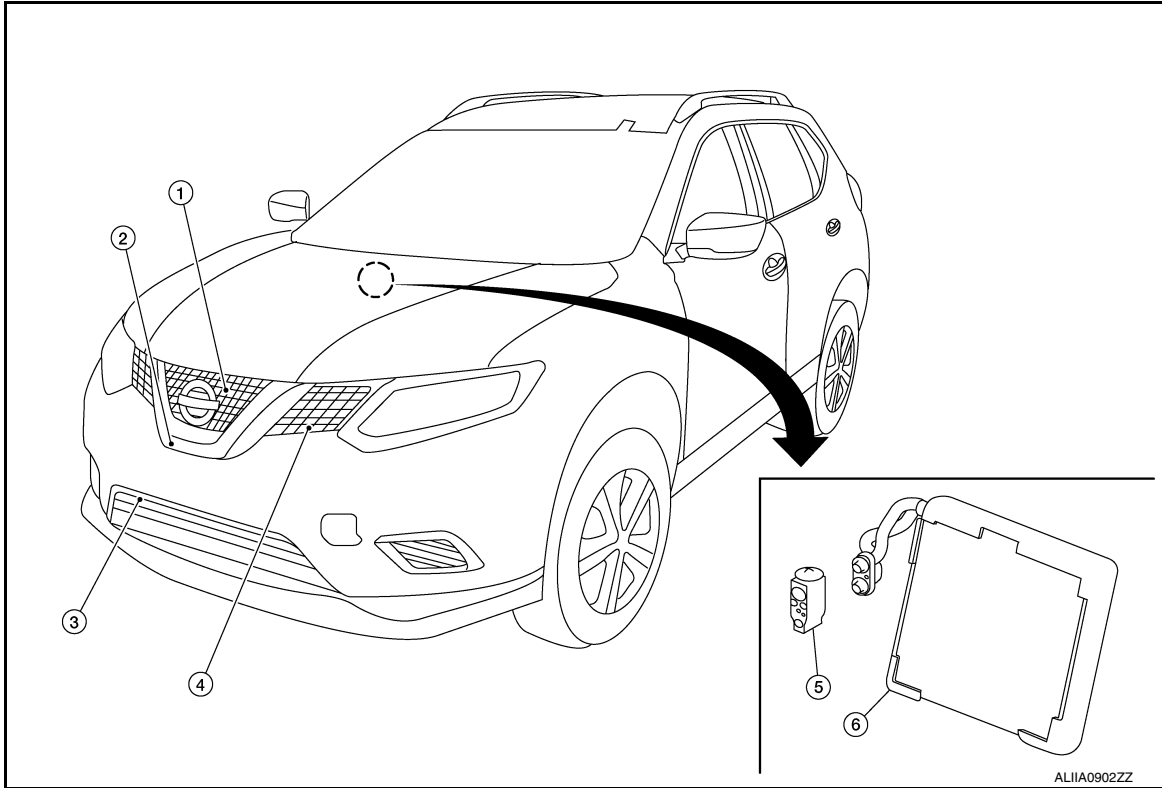
< SYSTEM DESCRIPTION >

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:0000000010197360



- | | | |
|----------------|--------------------|--------------------------------|
| 1. Condenser | 2. Compressor | 3. Refrigerant pressure sensor |
| 4. Liquid tank | 5. Expansion valve | 6. Evaporator |

Component Description

INFOID:0000000010197361

Component	Description
Compressor	Intakes, compresses and discharges refrigerant to circulate refrigerant inside the refrigerant system.
Condenser	Cools refrigerant discharged from compressor and transforms it to liquid refrigerant.
Liquid tank	Eliminates foreign matter in refrigerant and stores temporarily liquid refrigerant.
Refrigerant pressure sensor	Refer to EC-482, "Component Function Check" .
Expansion valve	Transforms high-pressure liquid refrigerant to mist form low-pressure liquid refrigerant.
Evaporator	The mist form liquid refrigerant transforms to gas by evaporation by the air conveyed from blower motor. The air is cooled by the heat by evaporation.

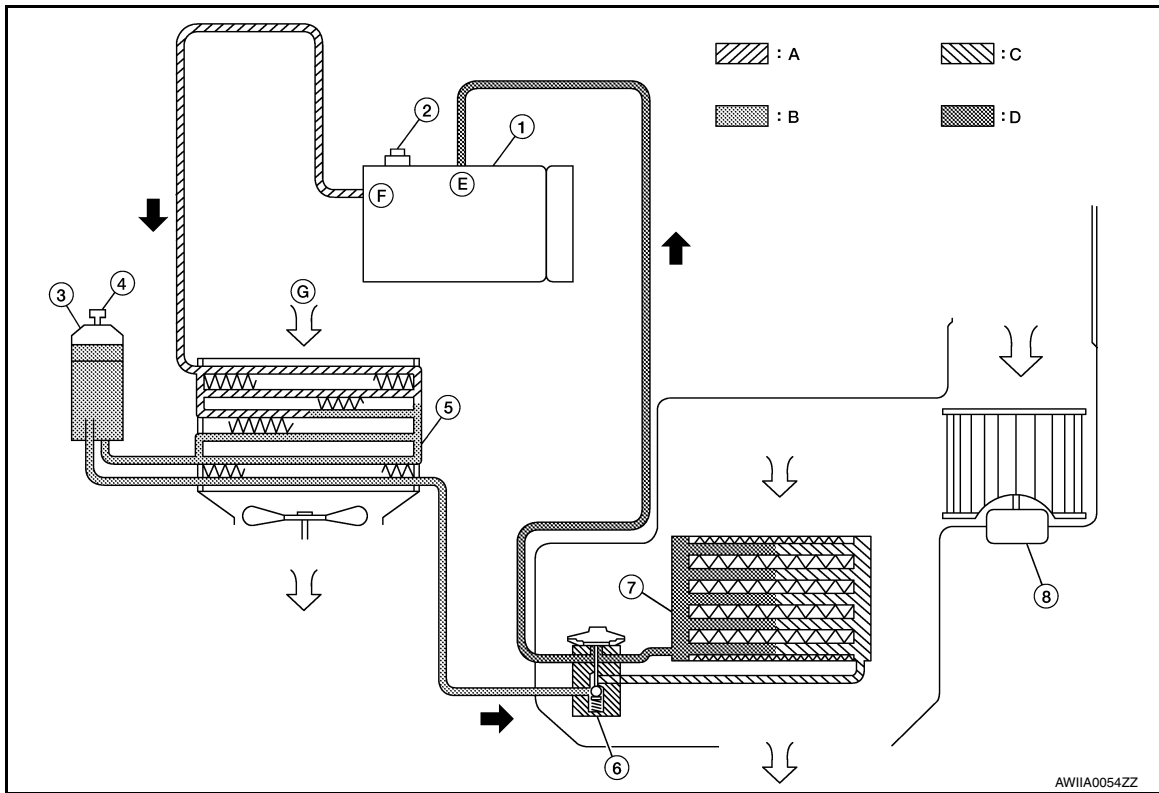
SYSTEM

< SYSTEM DESCRIPTION >

SYSTEM

System Diagram

INFOID:000000010197362



- | | | |
|--------------------------------|--------------------------|----------------------|
| 1. Compressor | 2. Pressure relief valve | 3. Liquid tank |
| 4. Refrigerant pressure sensor | 5. Condenser | 6. Expansion valve |
| 7. Evaporator | 8. Blower motor | A. High-pressure gas |
| B. High-pressure liquid | C. Low-pressure liquid | D. Low-pressure gas |
| E. Suction port | F. Discharge port | G. Outside air |

System Description

INFOID:000000010197363

REFRIGERANT CYCLE

Refrigerant Flow

The refrigerant from the compressor flows through the condenser and liquid tank, evaporator, and returns to the compressor. The refrigerant evaporation in the evaporator is controlled by an expansion valve.

Freeze Protection

To prevent evaporator from freezing up, the evaporator air temperature is monitored and the voltage signal to the A/C auto amp. makes the A/C relay go OFF and stop the compressor.

REFRIGERANT SYSTEM PROTECTION

Refrigerant Pressure Sensor

- The refrigerant system is protected against excessively high or low pressures by the refrigerant pressure sensor, located on the liquid tank. The refrigerant pressure sensor detects the pressure inside the refrigerant line and sends the voltage signal to the ECM if the system pressure rises above or falls below the specifications.
- ECM turns the A/C relay to OFF and stops the compressor when the high-pressure side detected by refrigerant pressure sensor to have the following conditions:
 - Approximately 3,120 kPa (31.8 kg/cm², 452 psi) or more (Engine speed is 1,500 rpm or more.)
 - Approximately 2,740 kPa (27.9 kg/cm², 397 psi) or more (Engine speed is less than 1,500 rpm.)

SYSTEM

< SYSTEM DESCRIPTION >

- Approximately 120 kPa (1.2 kg/cm², 17 psi) or less

Pressure Relief Valve

The refrigerant system is also protected by a pressure relief valve, located in the rear head of the compressor. The release port on the pressure relief valve automatically opens and releases refrigerant into the atmosphere when the pressure of refrigerant in the system increases to an unusual level [more than 3,800 kPa (38.8 kg/cm², 551 psi)].

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

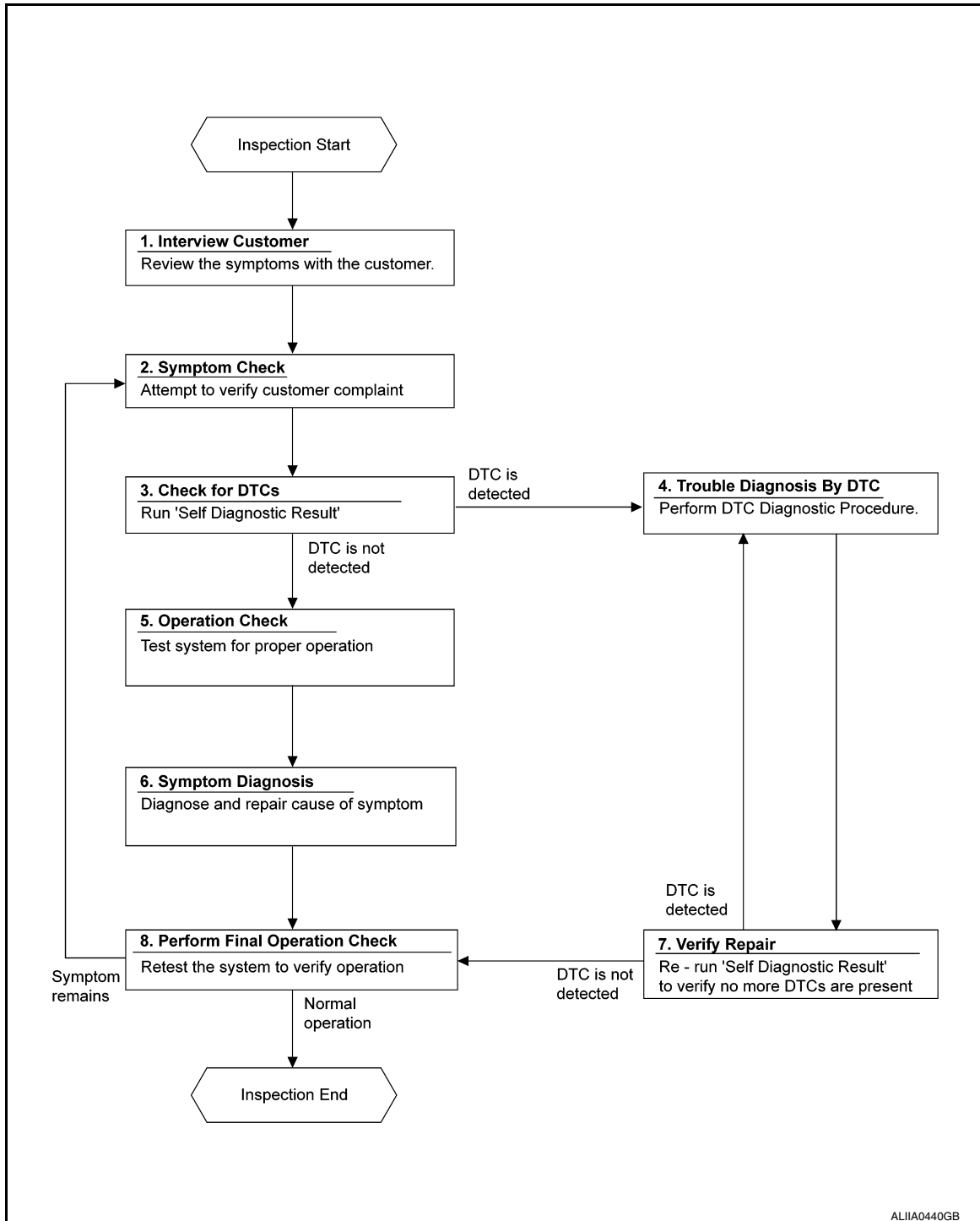
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Workflow

INFOID:0000000010001854

OVERALL SEQUENCE



DETAILED FLOW

1. INTERVIEW CUSTOMER

Interview the customer to obtain as much information as possible about the conditions and environment under which the malfunction occurred.

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

>> GO TO 2.

2. SYMPTOM CHECK

Verify symptoms.

>> GO TO 3.

3. CHECK FOR DTCS

 With CONSULT

1. Turn ignition switch ON.
2. Select "Self Diagnostic Result" mode of "HVAC" using CONSULT.
3. Check DTC.

Is any DTC detected?

- YES >> GO TO 4.
NO >> GO TO 5.

4. PERFORM DTC DIAGNOSTIC PROCEDURE

Perform the diagnostic procedure for the detected DTC. Refer to [HAC-32, "DTC Inspection Priority Chart"](#) (automatic A/C) or [HAC-134, "DTC Inspection Priority Chart"](#) (manual A/C).

>> GO TO 7.

5. OPERATION CHECK

Perform the operation check. Refer to [HAC-48, "Work Procedure"](#) (automatic A/C) or [HAC-148, "Work Procedure"](#) (manual A/C).

>> GO TO 6.

6. SYMPTOM DIAGNOSIS

Check the symptom diagnosis table. Refer to [HAC-96, "Diagnosis Chart By Symptom"](#) (automatic A/C) or [HAC-174, "Symptom Table"](#) (manual A/C).

>> GO TO 8.

7. VERIFY REPAIR.

 With CONSULT

1. Turn ignition switch ON.
2. Select "Self Diagnostic Result" mode of "HVAC" using CONSULT.
3. Check DTC.

Is any DTC detected?

- YES >> GO TO 4.
NO >> GO TO 8.

8. PERFORM FINAL OPERATION CHECK

Perform the operation check. Refer to [HAC-48, "Work Procedure"](#) (automatic A/C) or [HAC-148, "Work Procedure"](#) (manual A/C).

Does it operate normally?

- YES >> Inspection End.
NO >> GO TO 2.

REFRIGERATION SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

SYMPTOM DIAGNOSIS

REFRIGERATION SYSTEM SYMPTOMS

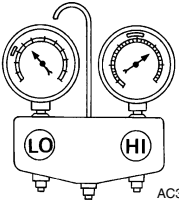
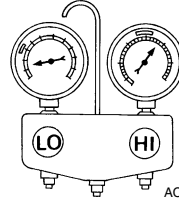
Trouble Diagnosis For Unusual Pressure

INFOID:000000009795022

Diagnose using a manifold gauge whenever system's high and/or low side pressure(s) is/are unusual. The marker above the gauge scale in the following tables indicates the standard (usual) pressure range. Refer to above table (Ambient air temperature-to-operating pressure table) since the standard (usual) pressure, however, differs from vehicle to vehicle.

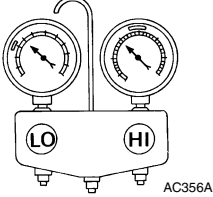
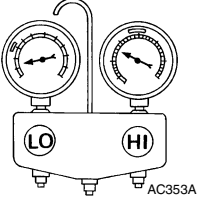
Symptom Table

INFOID:000000009795023

Gauge indication	Refrigerant cycle	Probable cause	Corrective action
Both high- and low-pressure sides are too high.  AC359A	The pressure returns to normal is reduced soon after water is splashed on condenser.	Excessive refrigerant charge in refrigeration cycle.	Reduce refrigerant until specified pressure is obtained.
	Air suction by cooling fan is insufficient.	Insufficient condenser cooling performance. ↓ 1. Condenser fins are clogged. 2. Improper fan rotation of cooling fan.	- Clean condenser. - Check and repair cooling fan if necessary.
	- Low-pressure pipe is not cold. - When compressor is stopped high-pressure reading quickly drops by approximately 196 kPa (1.96 bar, 2 kg/cm², 28 psi). It then decreases gradually thereafter.	Poor heat exchange in condenser (After compressor operation stops, high-pressure decreases too slowly). ↓ Air in refrigeration cycle.	Evacuate repeatedly and re-charge system.
	Engine tends to overheat.	Engine cooling systems malfunction.	Check and repair each engine cooling system.
	- An area of the low-pressure pipe is colder than areas near the evaporator outlet. - Low-pressure pipe is sometimes covered with frost.	- Excessive liquid refrigerant on low-pressure side. - Excessive refrigerant discharge flow. - Expansion valve is open a little compared with the specification. ↓ Improper expansion valve adjustment.	Replace expansion valve.
High-pressure side is too high and low-pressure side is too low.  AC360A	Upper side of condenser and high-pressure side are hot, however, liquid tank is not so hot.	High-pressure tube or parts located between compressor and condenser are clogged or crushed.	- Check and repair or replace malfunctioning parts. - Check lubricant for contamination.

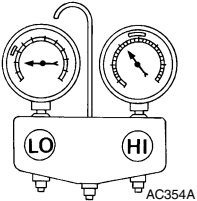
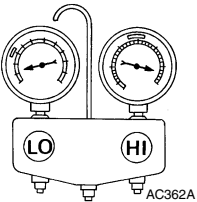
REFRIGERATION SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

Gauge indication	Refrigerant cycle	Probable cause	Corrective action
High-pressure side is too low and low-pressure side is too high. 	High- and low-pressure sides become equal soon after compressor operation stops.	Compressor pressure operation is improper. ↓ Damaged inside compressor packings.	Replace compressor.
	No temperature difference between high- and low-pressure sides.	Compressor pressure operation is improper. ↓ Damaged inside compressor packings.	Replace compressor.
Both high- and low-pressure sides are too low. 	- There is a big temperature difference between liquid tank outlet and inlet. Outlet temperature is extremely low. - Liquid tank inlet and expansion valve are frosted.	Liquid tank inside is slightly clogged.	- Replace liquid tank. - Check lubricant for contamination.
	- Expansion valve inlet temperature is extremely low as compared with areas near liquid tank. - Expansion valve inlet is frosted. - Temperature difference occurs somewhere in high-pressure side.	High-pressure pipe located between liquid tank and expansion valve is clogged.	- Check and repair malfunctioning parts. - Check lubricant for contamination.
	Expansion valve and liquid tank are warm or slightly cool when touched.	Low refrigerant charge. ↓ Leaking fittings or components.	Check refrigerant for leaks. Refer to HA-21, "Leak Test" .
	There is a big temperature difference between expansion valve inlet and outlet while the valve itself is frosted.	Expansion valve closes a little compared with the specification. ↓ 1. Improper expansion valve adjustment. 2. Malfunctioning expansion valve. 3. Outlet and inlet may be clogged.	- Remove foreign particles by using compressed air. - Replace expansion valve. - Check lubricant for contamination.
	An area of the low-pressure pipe is colder than areas near the evaporator outlet.	Low-pressure pipe is clogged or crushed.	- Check and repair malfunctioning parts. - Check lubricant for contamination.
	Air flow volume is not enough or is too low.	Evaporator is frozen.	- Check intake sensor circuit. Refer to HAC-179, "Diagnosis Procedure". - Replace compressor. - Repair evaporator fins. - Replace evaporator. - Check blower motor circuit. Refer to HAC-179, "Diagnosis Procedure".

REFRIGERATION SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

Gauge indication	Refrigerant cycle	Probable cause	Corrective action
Low-pressure side sometimes becomes negative.  AC354A	- Air conditioning system does not function and does not cyclically cool the compartment air. - The system constantly functions for a period of time after compressor is stopped and restarted.	Refrigerant does not discharge cyclically. ↓ Moisture is frozen at expansion valve outlet and inlet. ↓ Water is mixed with refrigerant.	- Drain water from refrigerant or replace refrigerant. - Replace liquid tank.
Low-pressure side becomes negative.  AC362A	Liquid tank or front/rear side of expansion valve's pipe is frosted or wet with dew.	High-pressure side is closed and refrigerant does not flow. ↓ Expansion valve or liquid tank is frosted.	Leave the system at rest until no frost is present. Start it again to check whether or not the malfunction is caused by water or foreign particles. - Cooling is initially okay if water is the cause. Then the water freezes causing a blockage. Drain water from refrigerant or replace refrigerant. - Remove expansion valve and remove the particles with dry and compressed air (not shop air) if due to foreign particles. - Replace expansion valve if either of the above methods cannot correct the malfunction. - Replace liquid tank. - Check lubricant for contamination.

A

B

C

D

E

F

G

H

HA

J

K

L

M

N

O

P

COMPRESSOR SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

COMPRESSOR SYSTEM SYMPTOMS

Symptom Table

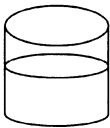
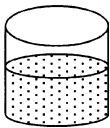
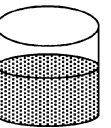
INFOID:000000009795024

Follow the next table and perform trouble diagnosis if there is a compressor unit malfunction (internal noise, insufficient cooling).

Symptom	Inspection method	Check list	Result	Action
Noise from compressor unit When A/C is ON. (rattling or rolling sound)	Cooker system internal pressure	Check with manifold gauge	Both high- and low-pressure sides are high.*2	Recharge with proper amount of refrigerant.
			High/low-pressures hunt.*2	Replace compressor only.
	Check compressor oil condition.	Sample compressor oil and judge.	Refer to the criteria shown in compressor lubricant.	Judgment result 1: Replace compressor only. Judgment result 2: Replace compressor and liquid tank.
Insufficient cooling*1	Compressor body	Check rotation of compressor. If sized or stuck, sample compressor oil and judge.		
	Cooler system internal pressure	Check with a manifold gauge. Sample compressor oil and judge if the difference between high-pressure and low-pressure is small or if they are almost the same.		
Outlet air temperature rises temporarily while driving.*2	—	—	—	Replace compressor only.

*1: First conduct inspection according to trouble diagnosis for each malfunction.

*2: Applicable to variable capacity compressor only.

Compressor oil judgment figure				
				
Almost clear, no foreign material	Grayish clear, no foreign material	Light gray, no foreign material	Gray, foreign material	Black, foreign material
Judgment result 1			Judgment result 2	

JSIIA0927GB

REFRIGERANT

< PERIODIC MAINTENANCE >

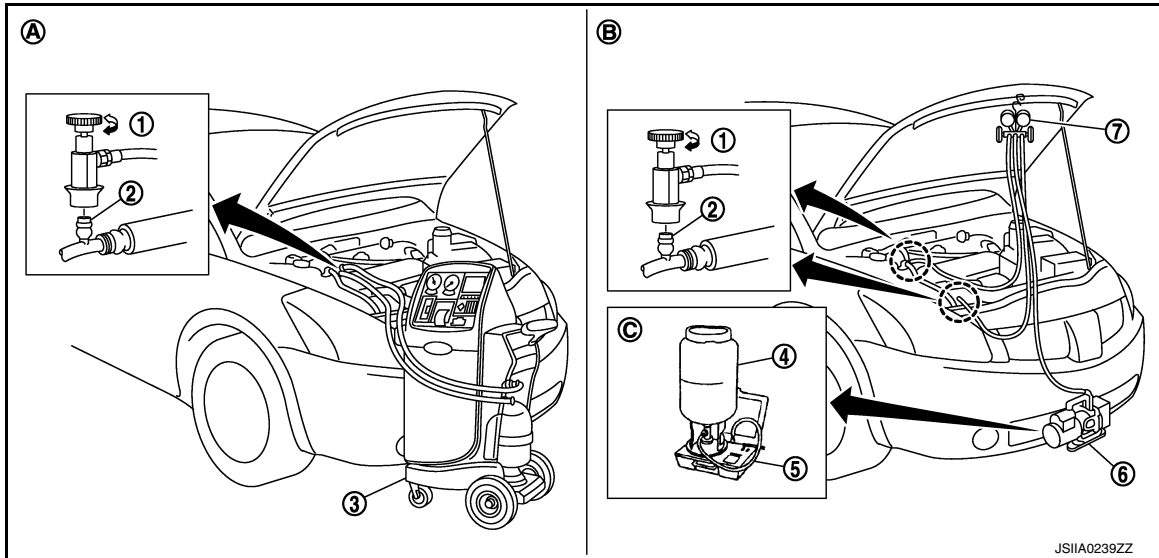
PERIODIC MAINTENANCE

REFRIGERANT

Description

INFOID:0000000010197364

CONNECTION OF SERVICE TOOLS AND EQUIPMENT

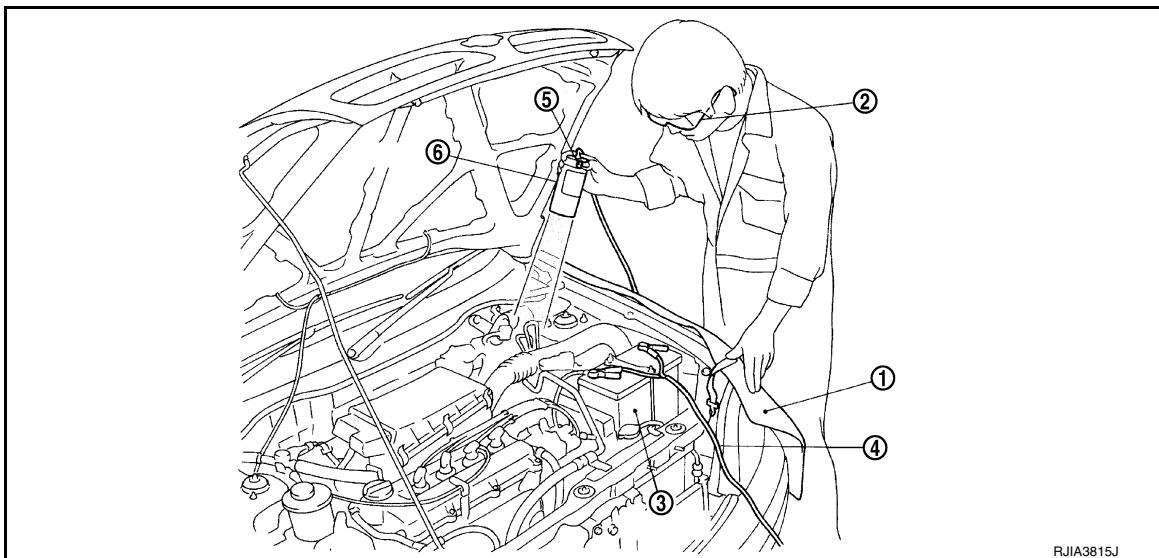


- | | | |
|-------------------------------------|-----------------------|--|
| 1. Shut-off valve | 2. A/C service valve | 3. Recovery/recycling/recharging equipment |
| 4. Refrigerant container (HFC-134a) | 5. Weight scale | 6. Vacuum pump |
| 7. Manifold gauge set | | |
| A. Preferred (best) method | B. Alternative method | C. For charging |

Leak Test

INFOID:0000000010197365

CHECK REFRIGERANT LEAK USING FLUORESCENT LEAK DETECTION DYE



1. Install a fender cover (1).
2. Wear UV safety goggles (2) provided with refrigerant dye leak detection kit.
3. Connect power cable (4) of UV lamp (6) to positive and negative terminals of the battery (3).

REFRIGERANT

< PERIODIC MAINTENANCE >

4. Press UV lamp switch (5) and check A/C system for refrigerant leak. (Where refrigerant leak occurs, fluorescent leak detection dye appears in green color.)

WARNING:

Do not look directly into UV lamp light source.

NOTE:

- For continuous operating time of UV lamp, follow the manufacturer operating instructions.
- Illuminate piping joints from different angles using UV lamp and check that there is no leak.
- Use a mirror in area that is difficult to see to check for refrigerant leak.
- Refrigerant leak from evaporator can be detected by soaking cotton swab or a similar material with drain hose water and illuminating it using UV lamp.
- Dust, dirt, and packing materials adhesive used for condenser, evaporator, and other locations may fluoresce. Be careful not to misidentify leak.

5. Repair or replace parts where refrigerant leak occurs and wipe off fluorescent leak detection dye.

NOTE:

Completely wipe off fluorescent leak detection dye from gaps between parts, screw threads, and others using a cotton swab or similar materials.

6. Use a UV lamp to check that no fluorescent leak detection dye remains after finishing work.

WARNING:

Do not look directly into UV lamp light source.

NOTE:

- For continuous operating time of UV lamp, follow the manufacturer operating instructions.
- Dust, dirt, and packing materials adhesive used for condenser, evaporator, and other locations may fluoresce. Be careful not to misidentify leak.

CHECK REFRIGERANT LEAK USING ELECTRONIC LEAK DETECTOR

WARNING:

Do not check for refrigerant leak while the engine is running.

CAUTION:

Be careful of the following items so that inaccurate checks or misidentifications are avoided.

- **Do not allow refrigerant vapor, shop chemical vapors, cigarette smoke or others around the vehicle.**
- **Always check for refrigerant leak in a low air flow environment so that refrigerant may not disperse when leak occurs.**

1. Stop the engine.
2. Connect recovery/recycling/recharging equipment or manifold gauge set to A/C service valve.
3. Check that A/C refrigerant pressure is 345 kPa (3.52 kg/cm², 50 psi) or more when temperature is 16°C (61°F) or more. When pressure is lower than the specified value, recycle refrigerant completely and fill refrigerant to the specified level.

NOTE:

Leaks may not be detected if A/C refrigerant pressure is 345 kPa (3.52 kg/cm², 50 psi) or less when temperature is less than 16°C (61°F).

4. Clean area where refrigerant leak check is performed and check for refrigerant leak along all surfaces of pipe connections and A/C system components using electronic leak detector probe.

CAUTION:

- **Continue checking when a leak is found. Always continue and complete checking along all pipe connections and A/C system components for additional leak.**
- **When a leak is detected, clean leak area using compressed air and check again.**
- **When checking leak of cooling unit inside, always clean inside of drain hose so that the probe surface may not be exposed to water or dirt.**

NOTE:

- Always check leak starting from high-pressure side and continue to low-pressure side.
- When checking for leaks of cooling unit inside, operate blower fan motor for 15 minutes or more at the maximum fan speed while the engine is stopped, and then insert electrical leak detector probe into drain hose and hold for 10 minutes or more.
- When disconnecting shut-off valve that is connected to A/C service valve, always evacuate remaining refrigerant so that misidentification can be avoided.

5. Repair or replace parts where refrigerant leak is detected.
6. Start the engine and set A/C control in the following conditions.
 - A/C switch ON

REFRIGERANT

< PERIODIC MAINTENANCE >

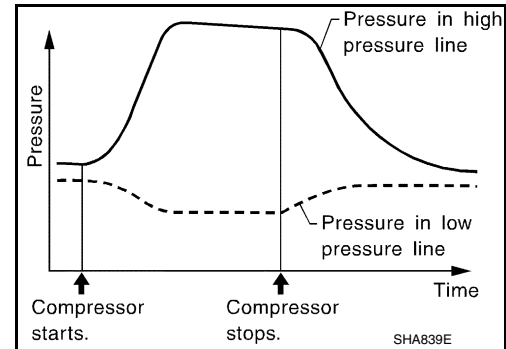
- Air flow: VENT (ventilation)
 - Intake door position: Recirculation
 - Temperature setting: Full cold
 - Fan (blower) speed: Maximum speed set
7. Run the engine at approximately 1,500 rpm for 2 minutes or more.
 8. Stop the engine. Check again for refrigerant leak. Go to step 4.

WARNING:

Be careful not to get burned when the engine is hot.

NOTE:

- Start refrigerant leak check immediately after the engine is stopped.
- When refrigerant circulation is stopped, pressure on the low-pressure side rises gradually, and after this, pressure on the high-pressure side falls gradually.
- The higher the pressure is, the easier it is to find the refrigerant leak.



Recycle Refrigerant

INFOID:0000000010197366

WARNING:

- Always use HFC-134a for A/C refrigerant. If CFC-12 is accidentally charged, compressor is damaged due to insufficient lubrication.
- Always observe and follow precautions described on refrigerant container. Incorrect handling may result in an explosion of refrigerant container, frostbite or the loss of eyesight.
- Do not breathe A/C refrigerant and oil vapor or mist. Exposure may irritate eyes, nose, or throat.
- Do not allow HFC-134a to be exposed to an open flame or others because it generates poisonous gas when in contact with high temperature objects. Keep workshop well ventilated.

1. Perform oil return operation. Refer to [HA-25. "Perform Oil Return Operation"](#). (If refrigerant or oil leak is detected in a large amount, omit this step, and go to step 2.)

CAUTION:

Do not perform oil return operation if a large amount of refrigerant or oil leak is detected.

2. Check gauge pressure readings of recovery/recycling/recharging equipment. When remaining pressure exists, recycle refrigerant from high-pressure hose and low-pressure hose.

NOTE:

Follow manufacturer instructions for the handling or maintenance of the equipment. Do not fill the equipment with non-specified refrigerant.

3. Remove A/C service valve cap from the vehicle.
4. Connect recovery/recycling/recharging equipment to A/C service valve.
5. Operate recovery/recycling/recharging equipment, and recycle refrigerant from the vehicle.
6. Evacuate air for 10 minutes or more to remove any remaining refrigerant integrated to compressor oil, etc.
7. Refrigerant recycle operation is complete.

Charge Refrigerant

INFOID:0000000010197367

WARNING:

- Always use HFC-134a for A/C refrigerant. If CFC-12 is accidentally charged, compressor is damaged due to insufficient lubrication.
- Always observe and follow precautions described on refrigerant container. Incorrect handling may result in an explosion of refrigerant container, frostbite, or the loss of eyesight.
- Do not breathe A/C refrigerant and oil vapor or mist. Exposure may irritate eyes, nose, or throat.
- Do not allow HFC-134a to be exposed to an open flame or others because it generates poisonous gas when in contact with high temperature objects. Keep workshop well ventilated.

1. Connect recovery/recycling/recharging equipment to the A/C service valve.

REFRIGERANT

< PERIODIC MAINTENANCE >

2. Operate recovery/recycling/recharging equipment, and evacuate air from A/C system for 25 minutes or more.
CAUTION:
Evacuate air for 15 minutes or more if the parts are replaced.
3. Check the airtightness of A/C system for 25 minutes or more. If pressure raises more than the specified level, charge A/C system with approximately 200g refrigerant and check that there is no refrigerant leak. Refer to [HA-21, "Leak Test"](#).
CAUTION:
Check the airtightness for 15 minutes or more if the parts are replaced.
4. If parts other than compressor are replaced, fill compressor oil according to parts that are replaced.
5. Charge the specified amount of refrigerant to A/C system.
6. Check that A/C system operates normally.
7. Disconnect recovery/recycling/recharging equipment. (Collect the refrigerant from the high-pressure hose and low-pressure hose of recovery/recycling/recharging equipment.)
8. Install A/C service valve cap.
9. Refrigerant charge is complete.

OIL

< PERIODIC MAINTENANCE >

OIL

Description

INFOID:0000000010197368

MAINTENANCE OF OIL LEVEL

The compressor oil is circulating in the system together with the refrigerant. It is necessary to fill compressor with oil when replacing A/C system parts or when a large amount of refrigerant leak is detected. It is important to always maintain oil level within the specified level or otherwise the following conditions may occur:

- Insufficient oil amount: Stuck compressor
- Excessive oil amount: Insufficient cooling (caused by insufficient heat exchange)

Oil Type: ND-OIL8

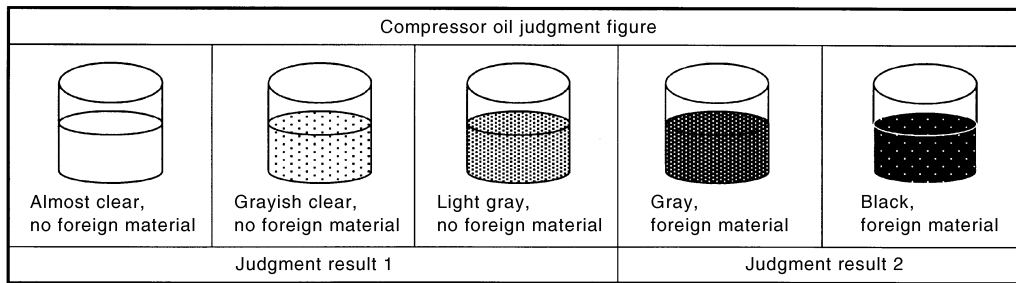
Inspection

INFOID:0000000010197369

If a compressor is malfunctioning (internal noise, insufficient cooling), check the compressor oil.

1.COMPRESSOR OIL JUDGMENT

1. Remove the compressor. Refer to [HA-30, "Removal and Installation"](#).
2. Sample compressor oil and judge below according to the figure.



Judgement result 1>>Replace compressor only.

Judgement result 2>>Replace compressor and condenser (includes liquid tank).

Perform Oil Return Operation

INFOID:0000000010197370

CAUTION:

If a large amount of refrigerant or oil leak is detected, do not perform oil return operation.

1. Start the engine and set to the following conditions:
 - Engine speed: Idling to 1,200 rpm
 - A/C switch: ON
 - Fan (blower) speed: Maximum speed set
 - Intake door position: Recirculation
 - Temperature setting: Full cold
2. Perform oil return operation for approximately 10 minutes.
3. Stop the engine.
4. Oil return operation is complete.

Oil Adjusting Procedure for Components Replacement Except Compressor

INFOID:0000000010197371

Fill with oil for the amount that is calculated according to the following conditions.

Example: Oil amount to be added when replacing evaporator [mℓ (US fl oz, Imp fl oz)] = 75 (2.5, 2.6) + α

Conditions	Oil amount to be added to A/C system m ℓ (US fl oz, Imp fl oz)
Replace evaporator	75 (2.5, 2.6)
Replace condenser (includes liquid tank)	80 (2.7, 2.8)

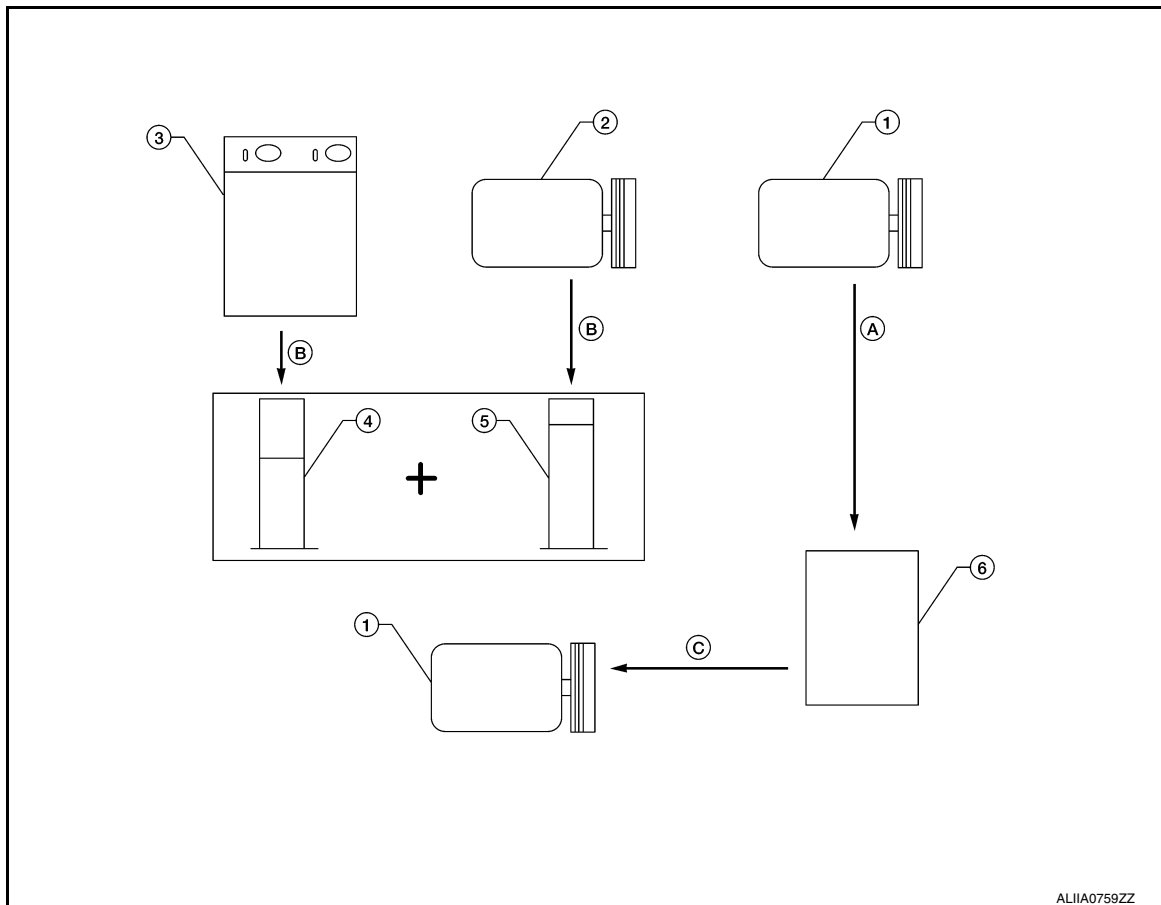
OIL

< PERIODIC MAINTENANCE >

Conditions		Oil amount to be added to A/C system mℓ (US fl oz, Imp fl oz)
Refrigerant leak is detected	Large amount leak	30 (1.0, 1.1)
	Small amount leak	—
Oil amount that is recycled together with refrigerant during recycle operation		α

Oil Adjusting Procedure for Compressor Replacement

INFOID:0000000010197372



- | | | |
|---|-----------------------------------|--|
| 1. New compressor | 2. Old compressor | 3. Recovery/recycling equipment |
| 4. Measuring cup X | 5. Measuring cup Y | 6. New oil |
| A. Drain oil from the new compressor into clean container | B. Record amount of oil recovered | C. Install new oil equal to recorded amounts in measuring cups X and Y |

- Before connecting recovery/recycling equipment to vehicle, check recovery/recycling equipment gauges. No refrigerant pressure should be displayed. If NG, recover refrigerant from equipment lines.
- Connect recovery/recycling equipment to vehicle. Confirm refrigerant purity in supply tank using recovery/recycling equipment and refrigerant identifier. If NG, refer to [HA-4, "Precautions For Refrigerant System Service"](#).
- Confirm refrigerant purity in vehicle A/C system using recovery/recycling equipment and refrigerant identifier. If NG, refer to [HA-4, "Precautions For Refrigerant System Service"](#).
- Discharge refrigerant into the refrigerant recovery/recycling equipment. Measure oil discharged into the recovery/recycling equipment.
- Drain the oil from the "old" (removed) compressor into a graduated container and recover the amount of oil drained.
- Drain the oil from the "new" compressor into a separate, clean container.
- Measure an amount of new oil installed equal to amount drained from "old" compressor. Add this oil to "new" compressor through the suction port opening.

OIL

< PERIODIC MAINTENANCE >

8. Measure an amount of new oil equal to the amount recovered during discharging. Add this oil to “new” compressor through the suction port opening.

A

B

C

D

E

F

G

H

HA

J

K

L

M

N

O

P

PERFORMANCE TEST

< PERIODIC MAINTENANCE >

PERFORMANCE TEST

Inspection

INFOID:000000010197373

INSPECTION PROCEDURE

1. Connect recovery/recycling/recharging equipment (for HFC-134a) or manifold gauge.
2. Start the engine, and set to the following condition.

Test condition

Surrounding condition		Indoors or in the shade (in a well-ventilated place)
Vehicle condition	Door	Closed
	Door glass	Full open
	Hood	Open
	Engine speed	Idle speed
A/C condition	Temperature control switch or dial	Full cold
	A/C switch	ON
	Air outlet	VENT (ventilation)
	Intake door position	Recirculation
	Fan (blower) speed	Maximum speed set

3. Maintain test condition until A/C system becomes stable. (Approximately 10 minutes)
4. Check that test results of “recirculating-to-discharge air temperature” and “ambient air temperature-to-operating pressure” are within the specified value.
5. When test results are within the specified value, inspection is complete.
If any of test result is out of the specified value, perform diagnosis by gauge pressure. Refer to [HA-17, "Symptom Table"](#).

RECIRCULATING-TO-DISCHARGE AIR TEMPERATURE TABLE

Inside air (Recirculating air) at blower assembly inlet		Discharge air temperature from center ventilator °C (°F)
Relative humidity %	Air temperature °C (°F)	
50 – 60	20 (68)	4.7 – 6.7 (40 – 44)
	25 (77)	8.6 – 11.1 (47 – 52)
	30 (86)	12.6 – 15.6 (55 – 60)
	35 (95)	19.0 – 22.5 (66 – 73)
60 – 70	20 (68)	6.7 – 8.7 (44 – 48)
	25 (77)	11.1 – 13.6 (52 – 56)
	30 (86)	15.6 – 18.6 (60 – 65)
	35 (95)	22.5 – 26.0 (73 – 79)

AMBIENT AIR TEMPERATURE-TO-OPERATING PRESSURE TABLE

PERFORMANCE TEST

< PERIODIC MAINTENANCE >

Fresh air		High-pressure (Discharge side) kPa (kg/cm ² , psi)	Low-pressure (Suction side) kPa (kg/cm ² , psi)	A
Relative humidity %	Air temperature °C (°F)			
50 – 70	25 (77)	909 – 1,112 (9.2 – 11.3, 131.8 – 161.2)	159 – 194 (1.6 – 2.0, 23.1 – 28.1)	B
	30 (86)	1,073 – 1,312 (10.9 – 13.4, 155.6 – 190.2)	211 – 259 (2.2 – 2.6, 30.6 – 37.6)	C
	35 (95)	1,445 – 1,766 (14.7 – 18.0, 209.5 – 256.1)	247 – 300 (2.5 – 3.1, 35.8 – 43.5)	D
	40 (104)	1,650 – 2,017 (16.8 – 20.6, 239.3 – 292.5)	290 – 355 (3.0 – 3.6, 42.1 – 51.5)	E
				F
				G
				H
				HA
				J
				K
				L
				M
				N
				O
				P

COMPRESSOR

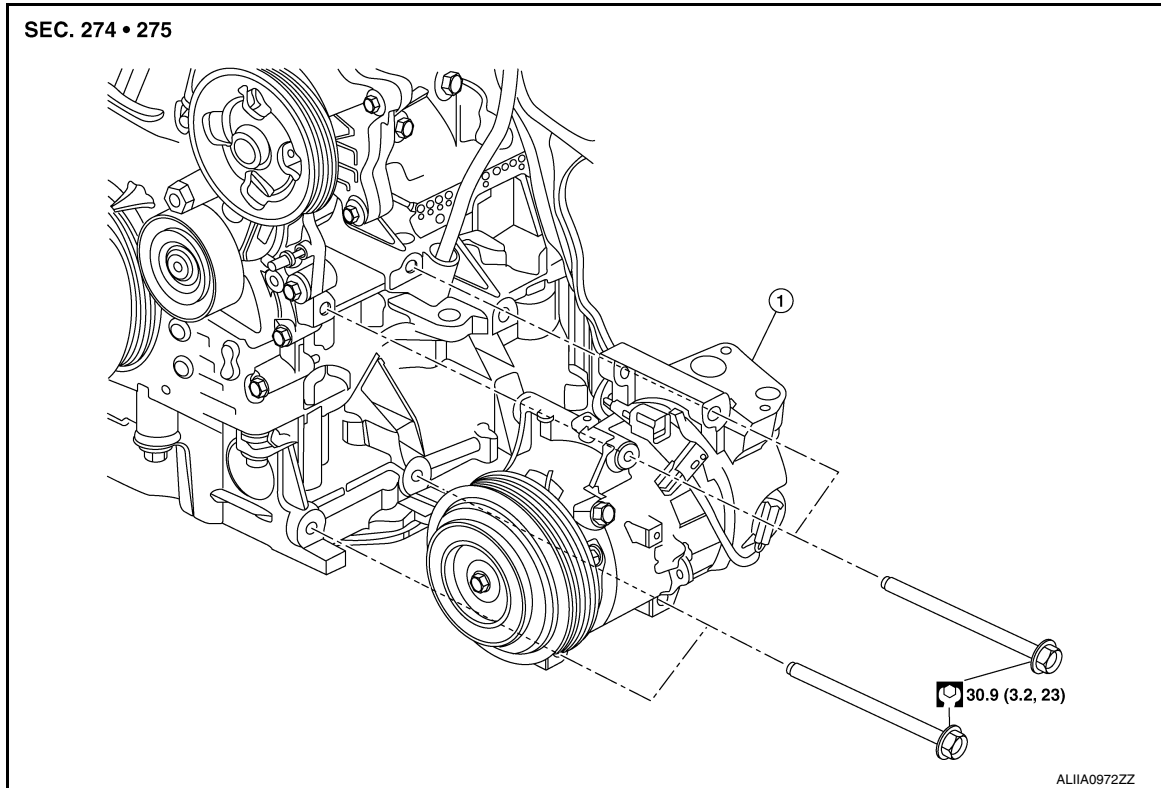
< REMOVAL AND INSTALLATION >

REMOVAL AND INSTALLATION

COMPRESSOR

Exploded View

INFOID:000000010197385



1. Compressor

Removal and Installation

INFOID:000000010197386

REMOVAL

1. Discharge the refrigerant. Refer to [HA-23. "Recycle Refrigerant"](#).
2. Remove the engine under cover. Refer to [EXT-37. "ENGINE UNDER COVER : Removal and Installation"](#).
3. Release the drive belt from the compressor. Refer to [EM-13. "Removal and Installation"](#).

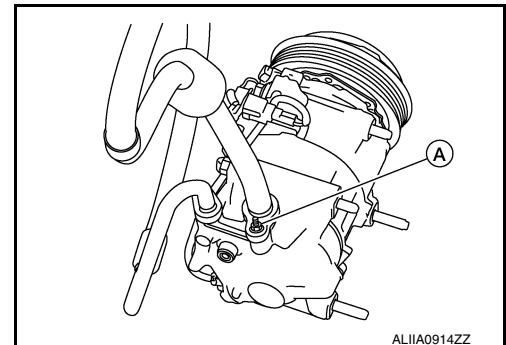
NOTE:

Complete removal of the drive belt is not necessary.

4. Partially remove the front fender protector (RH). Refer to [EXT-28. "FENDER PROTECTOR : Removal and Installation"](#).
5. Remove the nut (A) that retains the low-pressure flexible hose to the compressor.

CAUTION:

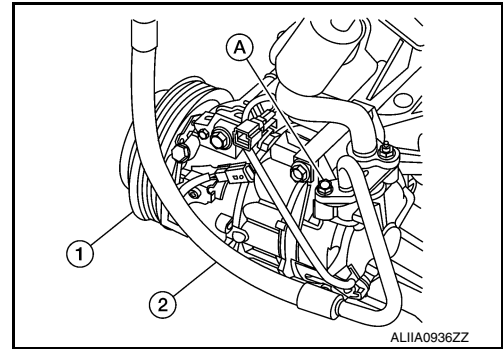
Cap or wrap the joint of the pipe with suitable material such as vinyl tape to avoid the entry of air.



COMPRESSOR

< REMOVAL AND INSTALLATION >

6. Remove the bolt (A) that retains the high-pressure flexible hose (2) to the compressor (1).



7. Disconnect the harness connectors from the compressor.
8. Remove bolts and compressor.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Tighten nut/bolt to specification. Refer to [HA-32, "Exploded View"](#).
- Do not reuse O-rings.
- Apply A/C oil to new O-rings for installation.
- After charging refrigerant, check for leaks. Refer to [HA-21, "Leak Test"](#).
- After installation, check the tension of the drive belt. Refer to [EM-13, "Checking"](#).

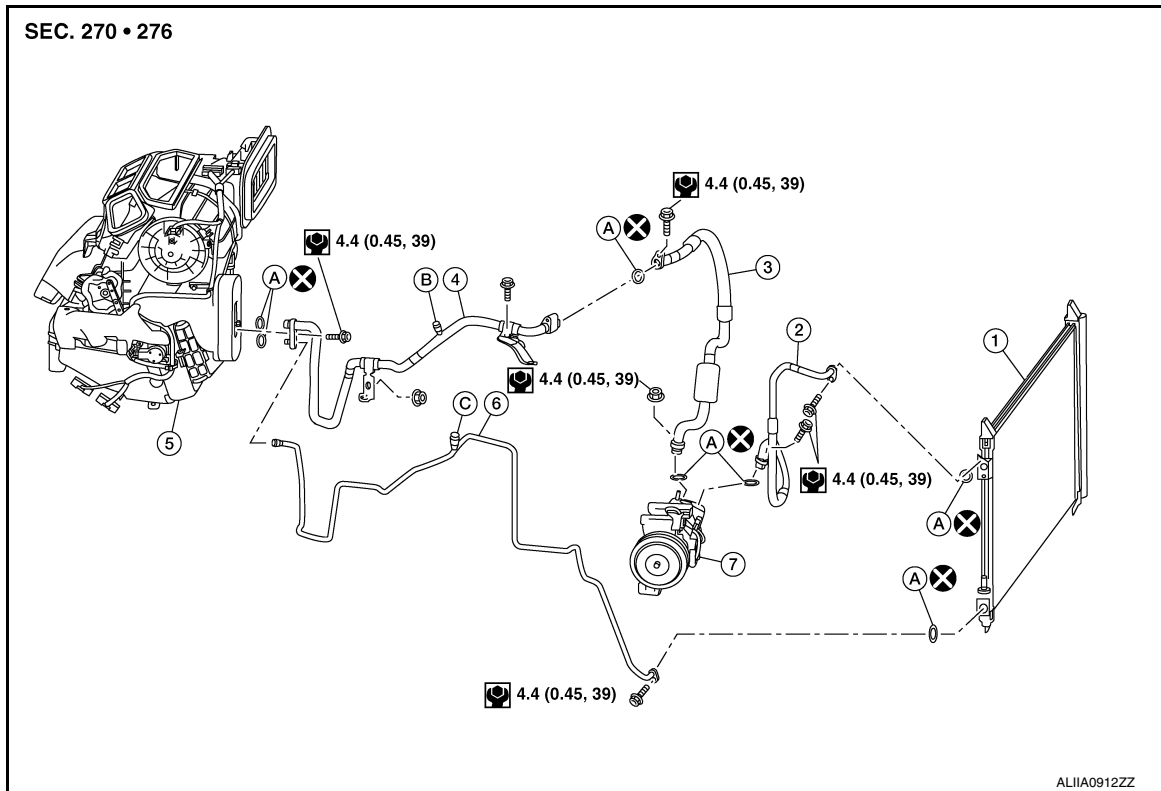
COOLER PIPE AND HOSE

< REMOVAL AND INSTALLATION >

COOLER PIPE AND HOSE

Exploded View

INFOID:000000010197388



- | | | |
|-------------------------------|--------------------------------------|-------------------------------|
| 1. Condenser | 2. High-pressure flexible hose | 3. Low-pressure flexible hose |
| 4. Low-pressure pipe | 5. Heating and cooling unit assembly | 6. High-pressure pipe |
| 7. Compressor | A. O-ring | B. Low-pressure service port |
| C. High-pressure service port | | |

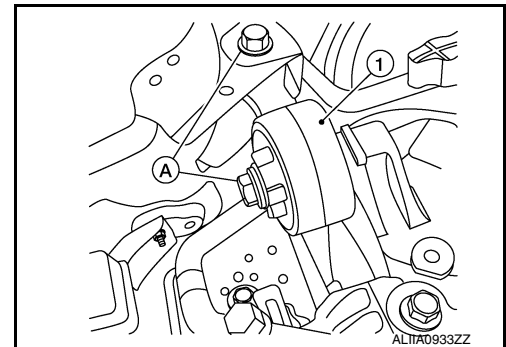
LOW-PRESSURE PIPE

LOW-PRESSURE PIPE : Removal and Installation

INFOID:000000010197389

REMOVAL

1. Discharge the refrigerant. Refer to [HA-23. "Recycle Refrigerant"](#).
2. Remove bolts (A) and engine upper mount (1).



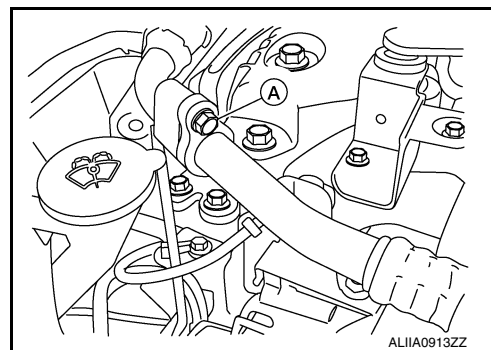
COOLER PIPE AND HOSE

< REMOVAL AND INSTALLATION >

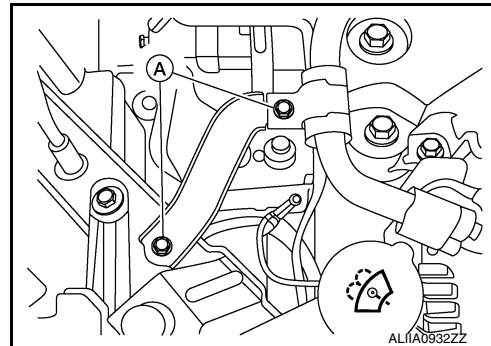
3. Remove the bolt (A) that retains the low-pressure flexible hose to the low-pressure pipe.

CAUTION:

Cap or wrap the joint of the pipe with suitable material such as vinyl tape to avoid the entry of air.

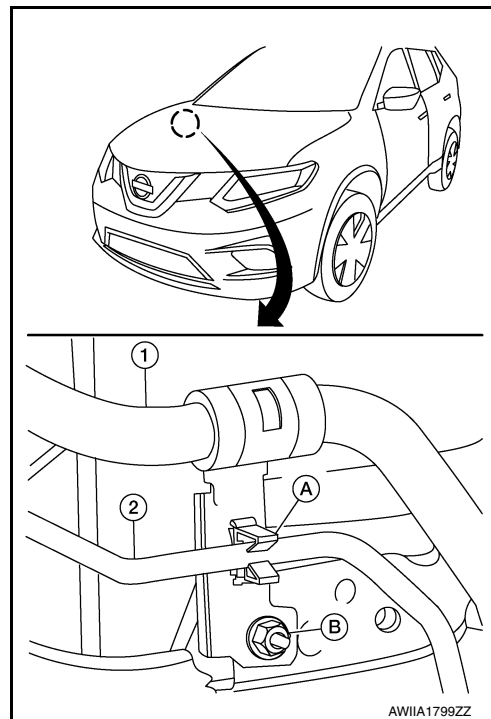


4. Remove low-pressure pipe bracket bolts (A) and bracket.

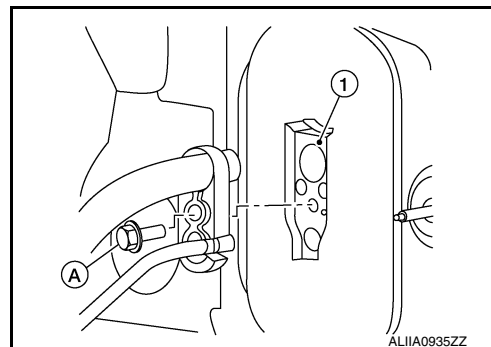


5. Release high-pressure pipe (2) from clamp (A).

6. Remove nut (B) and low-pressure pipe (1).



7. Remove the bolt (A) that retains the low-pressure and high-pressure pipe to the expansion valve (1).



COOLER PIPE AND HOSE

< REMOVAL AND INSTALLATION >

8. Remove low-pressure pipe.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Tighten bolts to specified torque. Refer to [HA-32, "Exploded View"](#).
- Do not reuse O-rings.
- Apply A/C oil to new O-rings for installation.
- After charging refrigerant, check for leaks. Refer to [HA-21, "Leak Test"](#).

LOW-PRESSURE FLEXIBLE HOSE

LOW-PRESSURE FLEXIBLE HOSE : Removal and Installation

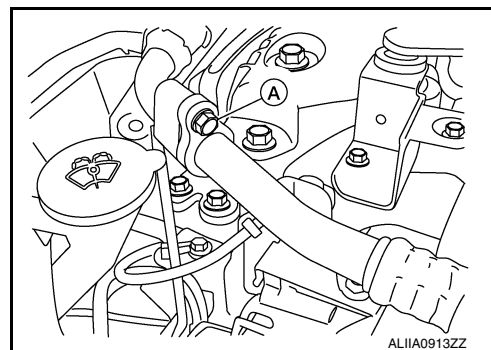
INFOID:0000000010197390

REMOVAL

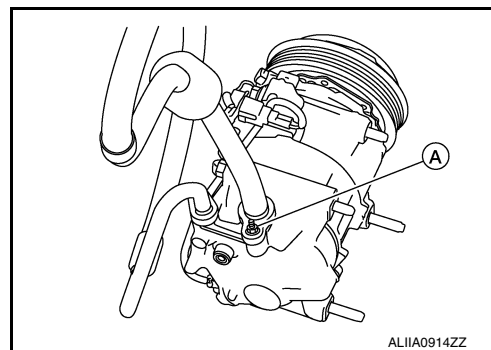
1. Discharge the refrigerant. Refer to [HA-23, "Recycle Refrigerant"](#).
2. Remove the bolt (A) that retains the low-pressure flexible hose to the low-pressure pipe.

CAUTION:

Cap or wrap the joint of the pipe with suitable material such as vinyl tape to avoid the entry of air.



3. Remove the nut (A) that retains the low-pressure flexible hose to the compressor.



4. Remove the low-pressure flexible hose.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Tighten nut/bolt to specified torque. Refer to [HA-32, "Exploded View"](#).
- Do not reuse O-rings.
- Apply A/C oil to new O-rings for installation.
- After charging refrigerant, check for leaks. Refer to [HA-21, "Leak Test"](#).

HIGH-PRESSURE PIPE

HIGH-PRESSURE PIPE : Removal and Installation

INFOID:0000000010197391

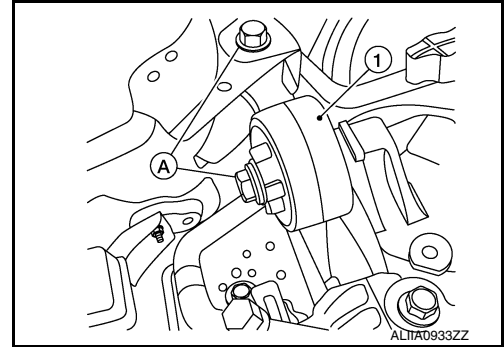
REMOVAL

1. Discharge the refrigerant. Refer to [HA-23, "Recycle Refrigerant"](#).
2. Remove front bumper fascia. Refer to [EXT-17, "Removal and Installation"](#).
3. Remove air duct assembly. Refer to [EM-24, "Exploded View"](#).

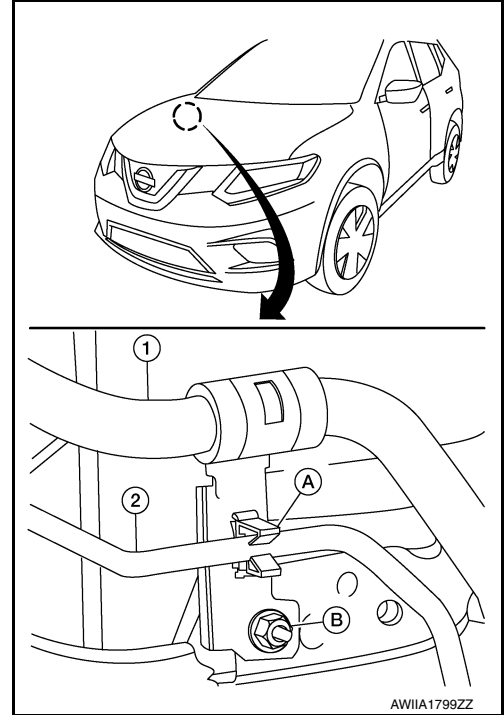
COOLER PIPE AND HOSE

< REMOVAL AND INSTALLATION >

4. Remove bolts (A) and upper engine mount (1).



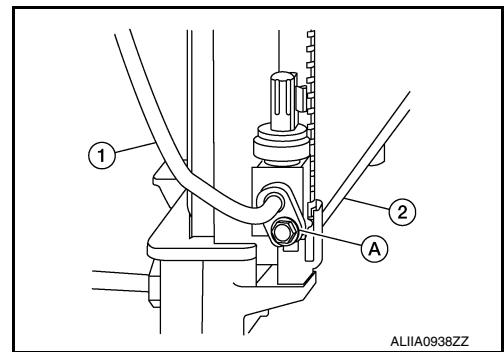
5. Release high-pressure pipe (2) from clamp (A).
(1): Low-pressure pipe
(B): Nut



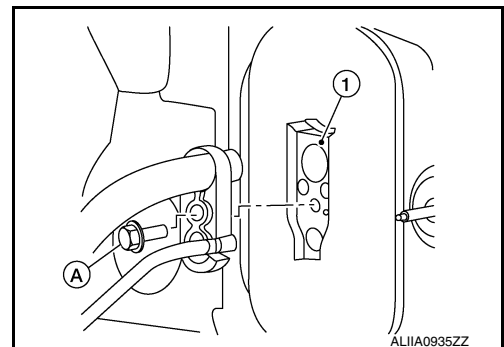
6. Remove bolt (A) that retains high-pressure pipe (1) to the condenser (2).

CAUTION:

Cap or wrap the joint of the pipe with suitable material such as vinyl tape to avoid the entry of air.



7. Remove the bolt (A) that retains the high-pressure and low-pressure pipe to the expansion valve (1).



COOLER PIPE AND HOSE

< REMOVAL AND INSTALLATION >

8. Remove high-pressure pipe.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Tighten bolts to specified torque. Refer to [HA-32, "Exploded View"](#).
- Do not reuse O-rings.
- Apply A/C oil to new O-rings for installation.
- After charging the refrigerant, check for leaks. Refer to [HA-21, "Leak Test"](#).

HIGH-PRESSURE FLEXIBLE HOSE

HIGH-PRESSURE FLEXIBLE HOSE : Removal and Installation

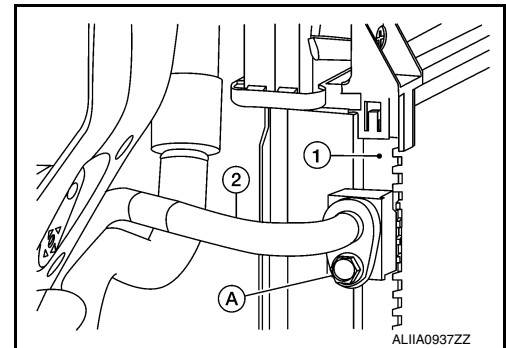
INFOID:0000000010197392

REMOVAL

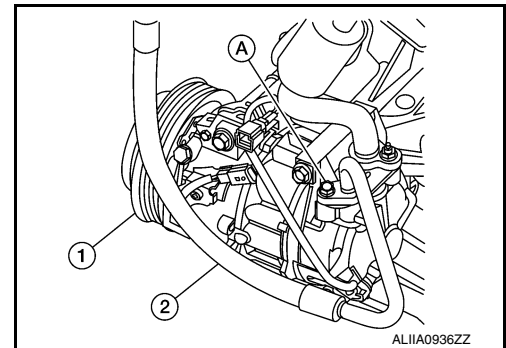
1. Discharge the refrigerant. Refer to [HA-23, "Recycle Refrigerant"](#).
2. Remove front bumper fascia. Refer to [EXT-17, "Removal and Installation"](#).
3. Remove the bolt (A) that retains the high-pressure flexible hose (2) to the condenser (1).

CAUTION:

Cap or wrap the joint of the pipe with suitable material such as vinyl tape to avoid the entry of air.



4. Remove the bolt (A) that retains the high-pressure flexible hose (2) to the compressor (1).



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Tighten bolts to specified torque. Refer to [HA-37, "Exploded View"](#).
- Do not reuse O-rings.
- Apply A/C oil to new O-rings for installation.
- After charging the refrigerant, check for leaks. Refer to [HA-21, "Leak Test"](#).

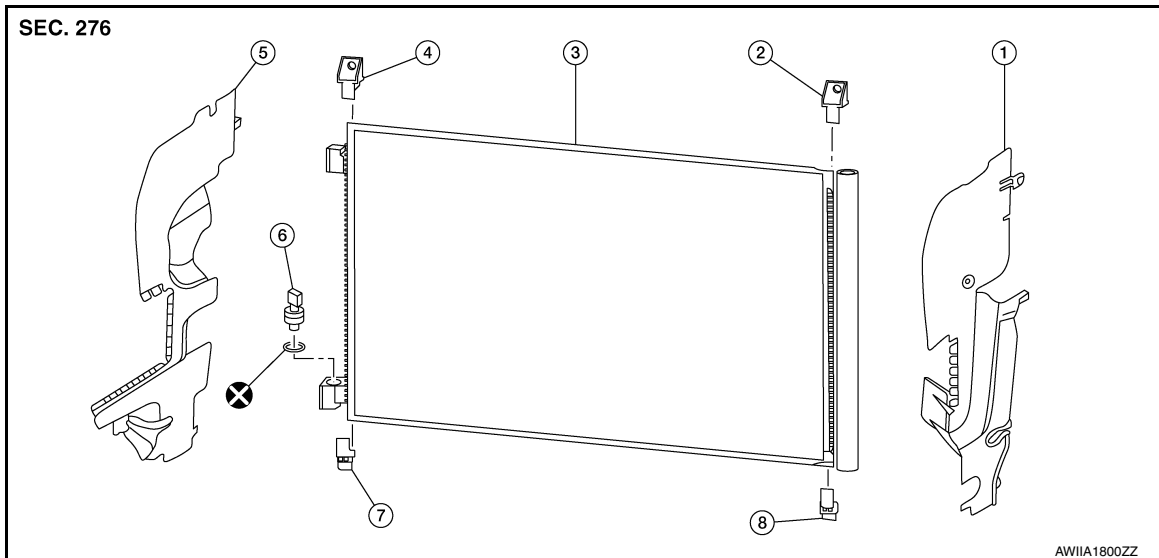
CONDENSER

< REMOVAL AND INSTALLATION >

CONDENSER

Exploded View

INFOID:000000010197395



- | | | |
|---------------------------------|---------------------------------|-------------------------------------|
| 1. Air guide (LH) | 2. Condenser upper bracket (LH) | 3. Condenser (includes liquid tank) |
| 4. Condenser upper bracket (RH) | 5. Air guide (RH) | 6. Refrigerant pressure sensor |
| 7. Condenser lower bracket (RH) | 8. Condenser lower bracket (LH) | |

CONDENSER

CONDENSER : Removal and Installation

INFOID:000000010197396

REMOVAL

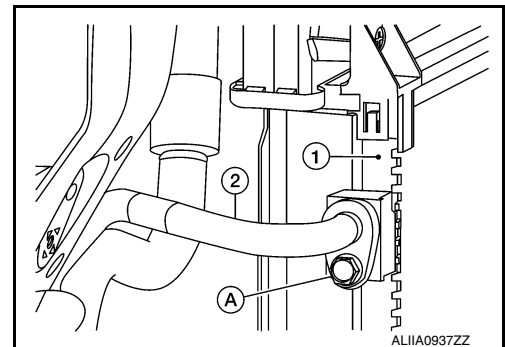
CAUTION:

Before servicing, turn the ignition switch off, disconnect both battery cables and wait at least three minutes.

1. Disconnect the negative and positive battery terminals and wait at least three minutes. Refer to [PG-75, "Removal and Installation \(Battery\)"](#).
2. Discharge the refrigerant. Refer to [HA-23, "Recycle Refrigerant"](#).
3. Remove front air duct. Refer to [EM-24, "Removal and Installation"](#).
4. Remove front bumper fascia. Refer to [EXT-17, "Removal and Installation"](#).
5. Remove front combination lamp (RH). Refer to [EXL-119, "Removal and Installation"](#).
6. Remove air guides (LH/RH). Refer to [HA-37, "Exploded View"](#).
7. Remove crash zone sensor. Refer to [SR-22, "Removal and Installation"](#).
8. Disconnect the harness connector from the refrigerant pressure sensor.
9. Remove the bolt (A) that retains the high-pressure flexible hose (2) to the condenser (1).

CAUTION:

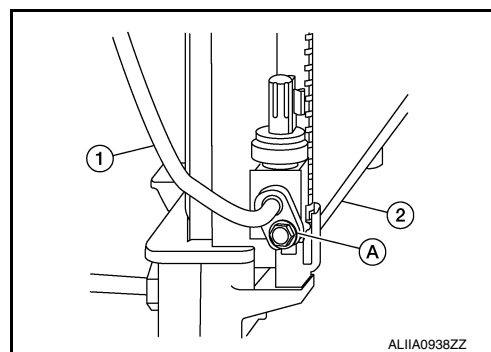
Cap or wrap the joint of the pipe with suitable material such as vinyl tape to avoid the entry of air.



CONDENSER

< REMOVAL AND INSTALLATION >

10. Remove bolt (A) that retains high-pressure pipe (1) to condenser (2).



11. Remove the condenser bracket bolts and condenser.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Tighten bolts to specification. Refer to [HA-32, "Exploded View"](#).
- Do not reuse O-rings.
- Apply A/C oil to new O-rings for installation.
- After charging the refrigerant, check for leaks. Refer to [HA-21, "Leak Test"](#).

LIQUID TANK

LIQUID TANK : Removal and Installation

INFOID:0000000010350719

The liquid tank is serviced as an assembly with the condenser. Refer to [HA-37, "CONDENSER : Removal and Installation"](#).

REFRIGERANT PRESSURE SENSOR

REFRIGERANT PRESSURE SENSOR : Removal and Installation

INFOID:0000000010197399

REMOVAL

1. Discharge the refrigerant. Refer to [HA-23, "Recycle Refrigerant"](#).
2. Remove front air duct. Refer to [EM-24, "Removal and Installation"](#).
3. Remove front bumper fascia. Refer to [EXT-17, "Removal and Installation"](#).
4. Remove air guide (RH). Refer to [HA-37, "Exploded View"](#).
5. Disconnect the harness connector from the refrigerant pressure sensor and remove.

CAUTION:

Cap or wrap the opening of the refrigerant pressure sensor with suitable material such as vinyl tape to avoid the entry of air.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Do not reuse O-ring.
- Apply A/C oil to new O-rings for installation.
- After charging the refrigerant, check for leaks. Refer to [HA-21, "Leak Test"](#).

HEATING AND COOLING UNIT ASSEMBLY

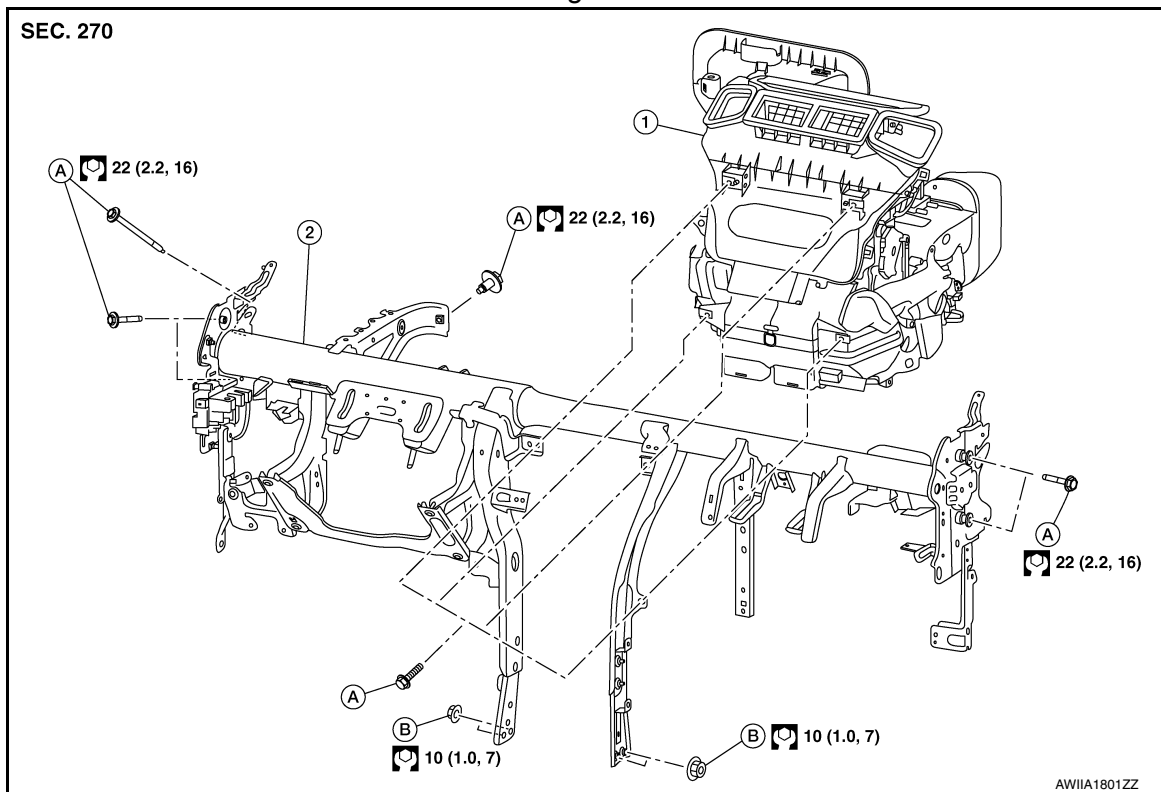
< REMOVAL AND INSTALLATION >

HEATING AND COOLING UNIT ASSEMBLY

Exploded View

INFOID:000000010197400

Steering Member

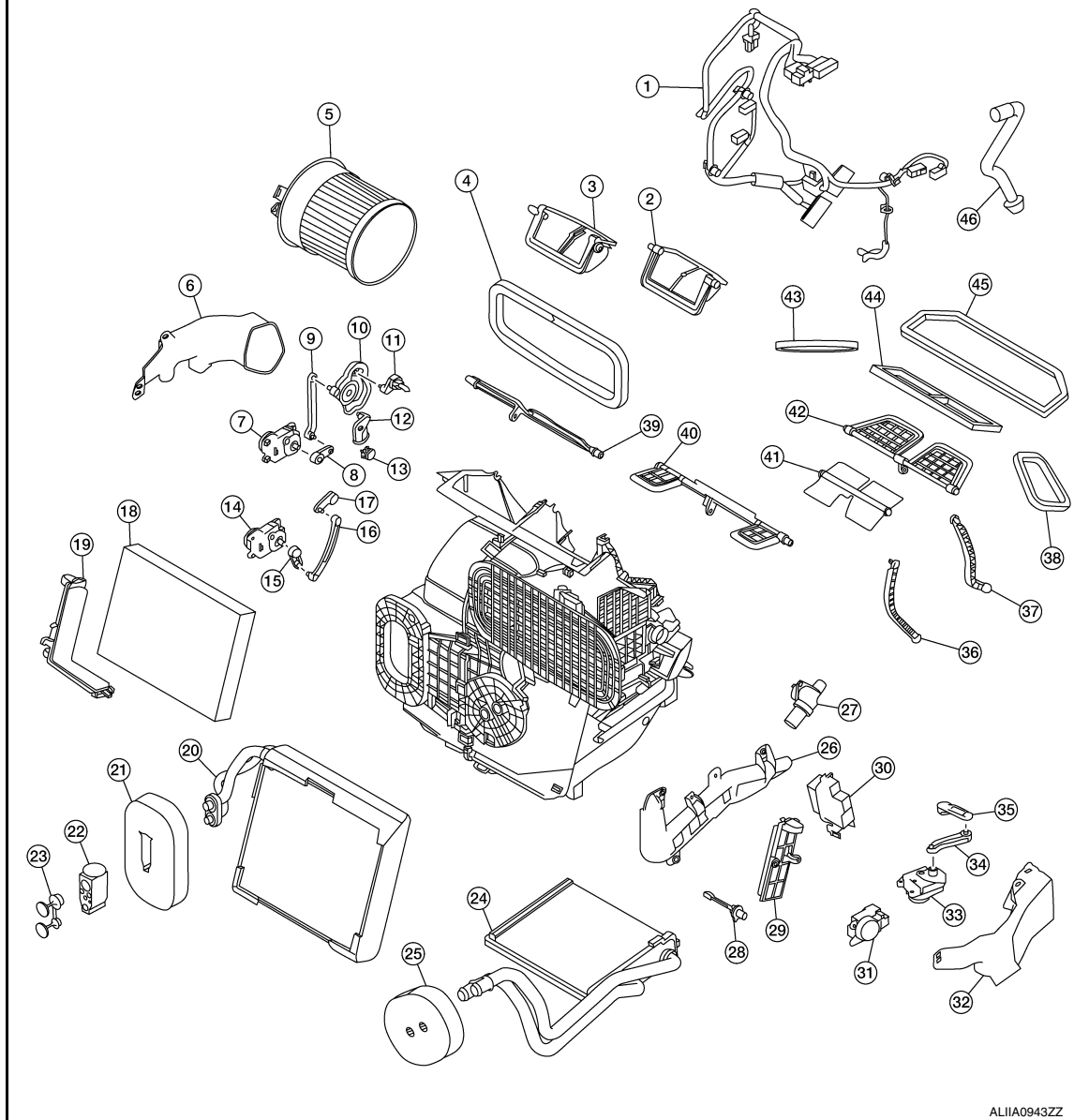


HEATING AND COOLING UNIT ASSEMBLY

< REMOVAL AND INSTALLATION >

Automatic Air Conditioning

SEC. 270



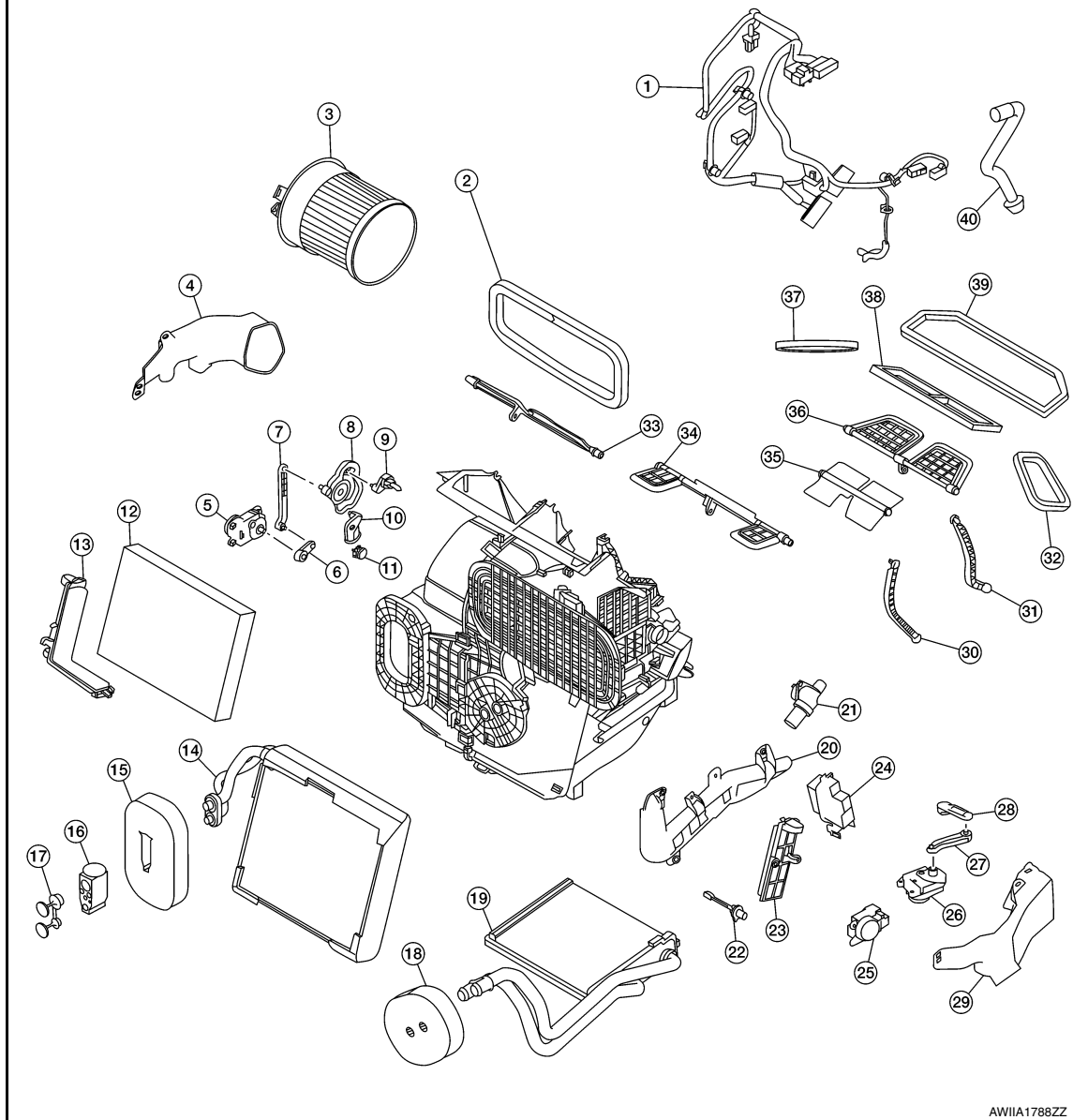
- | | | |
|--------------------------------------|--------------------------------------|----------------------------------|
| 1. Wiring harness | 2. Air mix door duct (LH) | 3. Air mix door duct (RH) |
| 4. Intake housing gasket | 5. Blower motor | 6. Front foot duct (RH) |
| 7. Mode door motor | 8. Mode door motor link | 9. Mode door motor link 2 |
| 10. Mode door motor main link | 11. Rear foot door lever | 12. Front foot door link |
| 13. Front foot door lever | 14. Air mix door motor (RH) | 15. Air mix door motor link (RH) |
| 16. Air mix door motor link 2 (RH) | 17. Air mix door lever (RH) | 18. In-cabin microfilter |
| 19. In-cabin microfilter cover | 20. Evaporator | 21. Evaporator grommet |
| 22. Expansion valve | 23. Expansion valve plug | 24. Heater core |
| 25. Heater core grommet | 26. Heater core pipe cover | 27. Aspirator |
| 28. Intake sensor | 29. Inspection cover | 30. Variable blower control |
| 31. Air mix door motor (LH) | 32. Front foot duct (LH) | 33. Intake door motor |
| 34. Intake door motor link | 35. Intake door lever | 36. Internal door linkage 1 |
| 37. Internal door linkage 2 | 38. Side ventilator duct gasket (LH) | 39. Rear foot door |
| 40. Front foot door | 41. Center ventilator door | 42. Defroster door |
| 43. Side ventilator duct gasket (RH) | 44. Center ventilator duct gasket | 45. Defroster duct gasket |
| 46. Drain hose | | |

HEATING AND COOLING UNIT ASSEMBLY

< REMOVAL AND INSTALLATION >

Manual Air Conditioning

SEC. 270



- | | | |
|--------------------------------------|--------------------------------------|-----------------------------|
| 1. Wiring harness | 2. Intake housing gasket | 3. Blower motor |
| 4. Front foot duct | 5. Mode door motor | 6. Mode door motor link |
| 7. Mode door motor link 2 | 8. Mode door motor main link | 9. Rear foot door lever |
| 10. Front foot door link | 11. Front foot door lever | 12. In-cabin microfilter |
| 13. In-cabin microfilter cover | 14. Evaporator | 15. Evaporator grommet |
| 16. Expansion valve | 17. Expansion valve plug | 18. Heater core grommet |
| 19. Heater core | 20. Heater core pipe cover | 21. Aspirator |
| 22. Intake sensor | 23. Inspection cover | 24. Variable blower control |
| 25. Air mix door motor | 26. Intake door motor | 27. Intake door motor link |
| 28. Intake door lever | 29. Front foot duct (LH) | 30. Internal door linkage 1 |
| 31. Internal door linkage 2 | 32. Side ventilator duct gasket (LH) | 33. Rear foot door |
| 34. Front foot door | 35. Center ventilator door | 36. Defroster door |
| 37. Side ventilator duct gasket (RH) | 38. Center ventilator duct gasket | 39. Defroster duct gasket |
| 40. Drain hose | | |

HEATING AND COOLING UNIT ASSEMBLY

HEATING AND COOLING UNIT ASSEMBLY

< REMOVAL AND INSTALLATION >

HEATING AND COOLING UNIT ASSEMBLY : Removal and Installation

INFOID:000000010197401

REMOVAL

CAUTION:

Before servicing, turn the ignition switch off, disconnect both battery cables and wait at least three minutes.

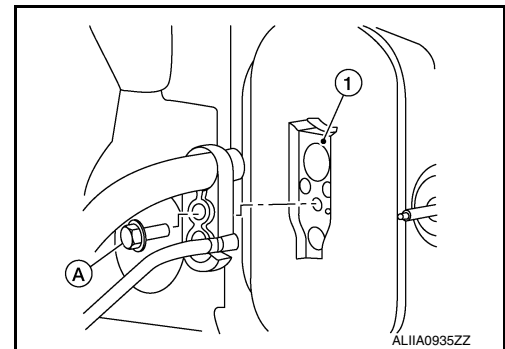
NOTE:

When removing components such as hoses, lines/tubes, etc., cap or plug openings to prevent fluid from leaking.

1. Disconnect the negative and positive battery terminals and wait at least three minutes. Refer to [PG-75, "Removal and Installation \(Battery\)"](#).
2. Discharge the refrigerant. Refer to [HA-23, "Recycle Refrigerant"](#).
3. Drain the engine coolant. Refer to [CO-8, "Draining"](#).
4. Remove instrument panel assembly. Refer to [IP-14, "INSTRUMENT PANEL ASSEMBLY : Removal and Installation"](#).
5. Remove steering column. Refer to [ST-12, "Removal and Installation"](#).
6. Remove dash side finishers (LH/RH). Refer to [INT-24, "DASH SIDE FINISHER : Removal and Installation"](#).
7. Remove front floor connecting ducts (LH/RH). Refer to [VTL-10, "FRONT FLOOR DUCT : Removal and Installation - Front Floor Connecting Duct"](#).
8. Remove the cowl top extension. Refer to [EXT-25, "Removal and Installation"](#).
9. Remove the bolt (A) that retains the low-pressure pipe and high-pressure pipe to the expansion valve (1).

CAUTION:

Cap or wrap the joint of the pipe with suitable material such as vinyl tape to avoid the entry of air.



10. Disconnect the heater hoses from the heater core.
11. Remove the nuts and bolts that retain the steering member to the vehicle body.
12. Disconnect the drain hose from the heating and cooling unit assembly.
13. Disconnect the harness connectors from the heating and cooling unit assembly and steering member.
14. Remove the heating and cooling unit assembly and steering member from the vehicle as an assembly.

CAUTION:

Use care not to damage the seats when removing the steering member.

15. Remove the bolts that retain the heating and cooling unit assembly to the steering member.
16. Separate the heating and cooling unit assembly from the steering member.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Do not reuse O-rings.
- Apply A/C oil to new O-rings for installation.
- After charging refrigerant, check for leaks. Refer to [HA-21, "Leak Test"](#).

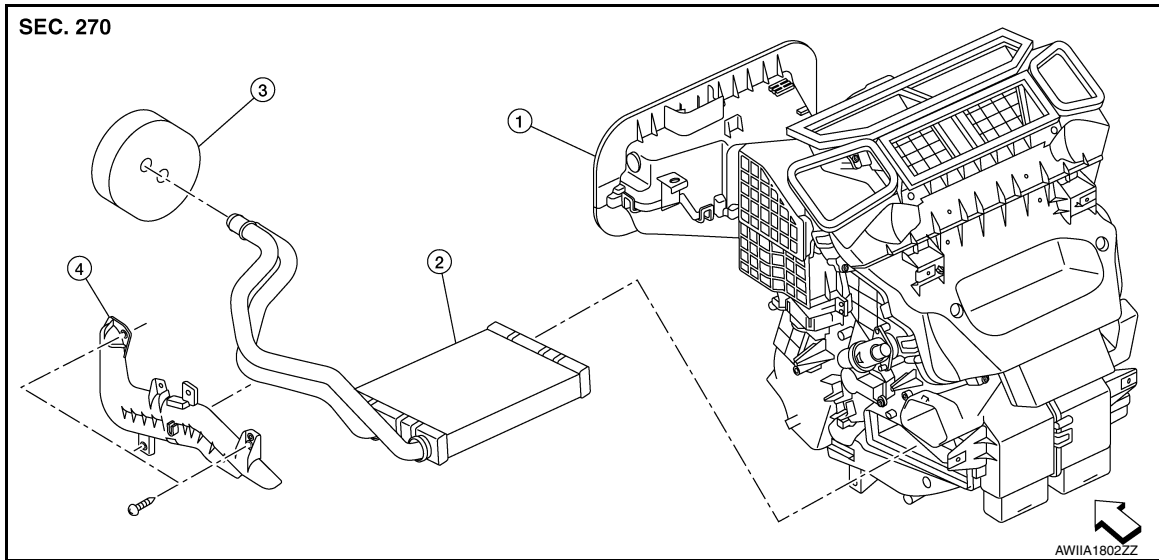
HEATER CORE

HEATING AND COOLING UNIT ASSEMBLY

< REMOVAL AND INSTALLATION >

HEATER CORE : Exploded View

INFOID:000000010197404



1. Heating and cooling unit assembly 2. Heater core 3. Heater core grommet
4. Heater core pipe cover ⇐ Front

HEATER CORE : Removal and Installation

INFOID:000000010197405

REMOVAL

NOTE:

When removing components such as hoses, lines/tubes, etc., cap or plug openings to prevent fluid from spilling.

1. Discharge the refrigerant. Refer to [HA-23, "Recycle Refrigerant"](#).
2. Drain the engine coolant. Refer to [CO-8, "Draining"](#).
3. Remove heating and cooling unit assembly. Refer to [HA-42, "HEATING AND COOLING UNIT ASSEMBLY : Removal and Installation"](#).
4. Remove front foot duct (LH). Refer to [VTL-10, "FRONT FOOT DUCT : Removal and Installation"](#).
5. Remove screws and heater core pipe cover. Refer to [HA-39, "Exploded View"](#).
6. Remove heater core.

INSTALLATION

Installation is in the reverse order of removal.

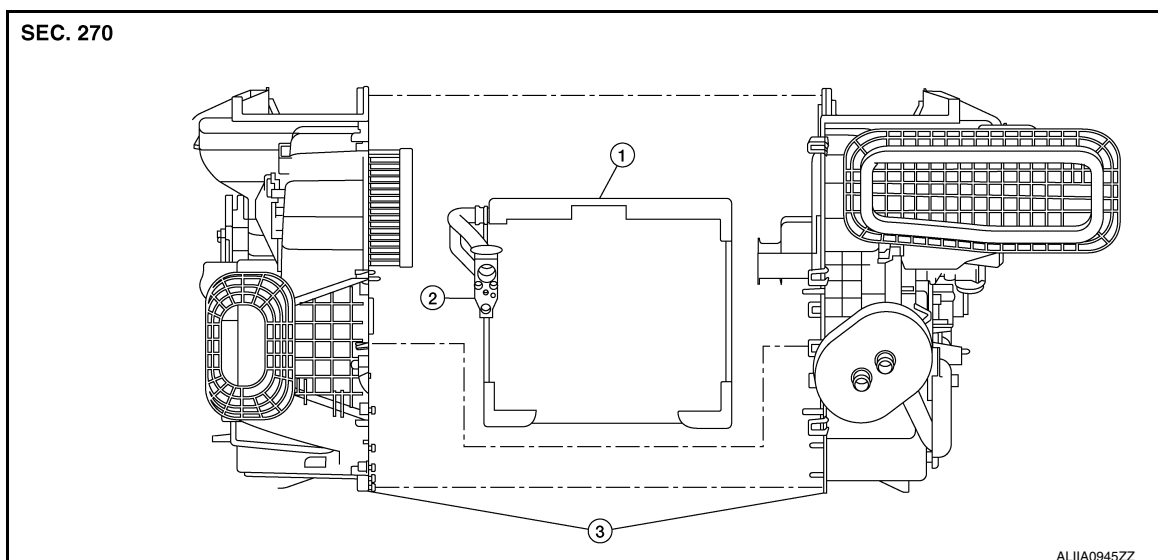
EVAPORATOR

HEATING AND COOLING UNIT ASSEMBLY

< REMOVAL AND INSTALLATION >

EVAPORATOR : Exploded View

INFOID:0000000010197406



EVAPORATOR : Removal and Installation

INFOID:0000000010197407

REMOVAL

1. Discharge the refrigerant. Refer to [HA-23, "Recycle Refrigerant"](#).
2. Remove front foot duct (LH). Refer to [VTL-10, "FRONT FOOT DUCT : Removal and Installation"](#).
3. Remove heater core. Refer to [HA-43, "HEATER CORE : Removal and Installation"](#).
4. Remove intake door motor. Refer to [HAC-110, "INTAKE DOOR MOTOR : Removal and Installation"](#) (AUTOMATIC AIR CONDITIONING) or [HAC-185, "INTAKE DOOR MOTOR : Removal and Installation"](#) (MANUAL AIR CONDITIONING).
5. Remove air mix door motor (LH) (AUTOMATIC AIR CONDITONING). Refer to [HAC-110, "AIR MIX DOOR MOTOR : Removal and Installation"](#).
6. Remove air mix door motor (MANUAL AIR CONDITIONING). Refer to [HAC-185, "AIR MIX DOOR MOTOR : Removal and Installation"](#).
7. Separate the heating and cooling unit assembly and remove evaporator.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Do not reuse O-rings.
- Apply A/C oil to new O-rings for installation.
- After charging the refrigerant, check for leaks. Refer to [HA-21, "Leak Test"](#).

EXPANSION VALVE

EXPANSION VALVE : Removal and Installation

INFOID:0000000010197410

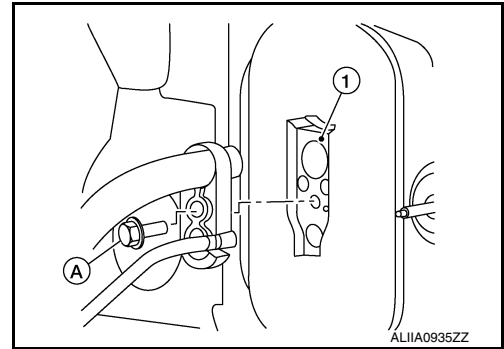
REMOVAL

1. Discharge the refrigerant. Refer to [HA-23, "Recycle Refrigerant"](#).
2. Remove cowl top extension. Refer to [EXT-25, "Removal and Installation"](#).

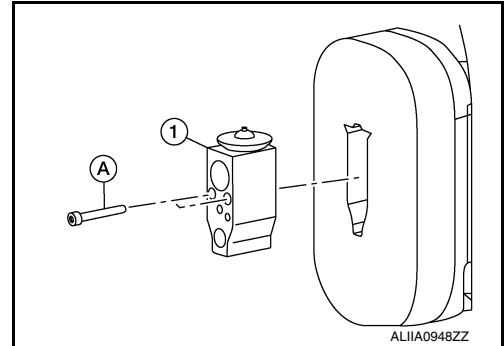
HEATING AND COOLING UNIT ASSEMBLY

< REMOVAL AND INSTALLATION >

3. Remove the bolt (A) that retains the low-pressure pipe and high-pressure pipe to the expansion valve (1).
- CAUTION:**
Cap or wrap the joint of the pipe with suitable material such as vinyl tape to avoid the entry of air.



4. Remove bolts (A) and expansion valve (1).



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Tighten bolts to specification. Refer to [HA-32, "Exploded View"](#).
- Do not reuse O-rings.
- Apply A/C oil to new O-rings for installation.
- After charging refrigerant, check for leaks. Refer to [HA-21, "Leak Test"](#).

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

Compressor

INFOID:0000000010197414

Model		DENSO
Type		Variable displacement swash plate
Displacement		140.6 cm ³ (8.6 cu in)/rev
Number of cylinders		6
Cylinder bore diameter x stroke mm (in)		32 x 29.1 mm (1.3 x 1.1 in)
Direction of rotation		Clockwise (viewed from clutch)
Drive belt		Poly V 6 grooves
Disc to pulley clearance mm (in)	Standard	0.21 – 0.55 mm (0.008 – 0.022 in)

Oil

INFOID:0000000010197415

Name		ND-OIL8
Capacity mℓ (US fl oz, Imp fl oz)	Total in system	110 (3.7, 3.9)
	Compressor (service part) charging amount	Refer to HA-26, "Oil Adjusting Procedure for Compressor Replacement" .

Refrigerant

INFOID:0000000010197416

Type	HFC-134a (R-134a)
Capacity	0.50 kg (1.10 lbs)

HAC

SECTION

HEATER & AIR CONDITIONING CONTROL SYSTEM

CONTENTS

AUTOMATIC AIR CONDITIONING	
PRECAUTION	5
PRECAUTIONS	5
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	5
Precaution for Work	5
PREPARATION	6
PREPARATION	6
Special Service Tool	6
Commercial Service Tool	6
SYSTEM DESCRIPTION	7
COMPONENT PARTS	7
Component Part Location	7
SYSTEM	10
System Description	10
Air Flow Control	11
Air Inlet Control	12
Air Outlet Control	13
Compressor Control	13
Door Control	13
Temperature Control	18
Fail-safe	18
OPERATION	19
Switch Name and Function	19
DIAGNOSIS SYSTEM (A/C AUTO AMP.)	22
Description	22
CONSULT Function (HVAC)	22
DIAGNOSIS SYSTEM (IPDM E/R)	26
CONSULT Function (IPDM E/R)	26
ECU DIAGNOSIS INFORMATION	29
A/C AUTO AMP.	29
Reference Value	29
DTC Inspection Priority Chart	32
DTC Index	32
ECM, IPDM E/R, BCM	34
List of ECU Reference	34
WIRING DIAGRAM	35
AUTOMATIC AIR CONDITIONING SYSTEM ...	35
Wiring Diagram	35
BASIC INSPECTION	46
DIAGNOSIS AND REPAIR WORKFLOW	46
Work Flow	46
OPERATION INSPECTION	48
Work Procedure	48
SYSTEM SETTING	50
Temperature Setting Trimmer	50
Foot Position Setting Trimmer	50
Inlet Port Memory Function (FRE)	50
Inlet Port Memory Function (REC)	51
Target Evaporator Temp Upper Limit	51
DOOR MOTOR STARTING POSITION RESET	52
Description	52
Work Procedure	52
DTC/CIRCUIT DIAGNOSIS	53
U1000 CAN COMM CIRCUIT	53
Description	53
DTC Logic	53
Diagnosis Procedure	53
U1010 CONTROL UNIT (CAN)	54
Description	54
DTC Logic	54

Diagnosis Procedure	54	B24D4 A/C CONTROL COMMUNICATION	89
B24A0 A/C AUTO AMP.	55	DTC Logic	89
DTC Logic	55	Diagnosis Procedure	89
Diagnosis Procedure	55	MAGNET CLUTCH	91
B24A1 A/C AUTO AMP. POWER SUPPLY	56	Component Function Check	91
DTC Logic	56	Diagnosis Procedure	91
Diagnosis Procedure	56	ECV (ELECTRICAL CONTROL VALVE)	92
B24A4 INTAKE SENSOR	58	Diagnosis Procedure	92
DTC Logic	58	Component Inspection	93
Diagnosis Procedure	58	POWER SUPPLY AND GROUND CIRCUIT	94
Component Inspection	59	A/C SWITCH ASSEMBLY	94
B24A6 IN-VEHICLE SENSOR	61	A/C SWITCH ASSEMBLY : Component Function	
DTC Logic	61	Check	94
Diagnosis Procedure	61	A/C SWITCH ASSEMBLY : Diagnosis Procedure...	94
Component Inspection	62	SYMPTOM DIAGNOSIS	96
B24A9 SUNLOAD SENSOR	64	HEATER AND AIR CONDITIONING SYSTEM	
DTC Logic	64	CONTROL SYMPTOMS	96
Diagnosis Procedure	64	Diagnosis Chart By Symptom	96
Component Inspection	65	INSUFFICIENT COOLING	98
B24BB LEFT AIR MIX DOOR MOTOR	67	Description	98
DTC Logic	67	Diagnosis Procedure	98
Diagnosis Procedure	67	INSUFFICIENT HEATING	99
Component Inspection	68	Description	99
B24BD RIGHT AIR MIX DOOR MOTOR	70	Diagnosis Procedure	99
DTC Logic	70	COMPRESSOR DOES NOT OPERATE	100
Diagnosis Procedure	70	Description	100
Component Inspection	71	Diagnosis Procedure	100
B24B4 A/C CONTROL	73	REMOVAL AND INSTALLATION	102
DTC Logic	73	A/C SWITCH ASSEMBLY	102
Diagnosis Procedure	73	Removal and Installation	102
B24B6 A/C CONTROL	75	A/C AUTO AMP.	103
DTC Logic	75	Removal and Installation	103
Diagnosis Procedure	75	AMBIENT SENSOR	104
B24B7 INTAKE DOOR MOTOR	77	Removal and Installation	104
DTC Logic	77	IN-VEHICLE SENSOR	105
Diagnosis Procedure	77	Removal and Installation	105
Component Inspection (Motor)	78	SUNLOAD SENSOR	106
B24B9 MODE DOOR MOTOR	80	Removal and Installation	106
DTC Logic	80	INTAKE SENSOR	107
Diagnosis Procedure	80	Exploded View	107
Component Inspection	81	Removal and Installation	107
B24C3 BLOWER MOTOR FEEDBACK	83	REFRIGERANT PRESSURE SENSOR	108
DTC Logic	83	Removal and Installation	108
Diagnosis Procedure	83	DOOR MOTOR	109
B24C6 BLOWER MOTOR CONTROL	85	Component Parts Location	109
DTC Logic	85		
Diagnosis Procedure	85		
Component Inspection (Front Blower Motor)	88		
Component Inspection (Front Blower Relay)	88		

INTAKE DOOR MOTOR	110	WIRING DIAGRAM	136
INTAKE DOOR MOTOR : Removal and Installation	110	MANUAL AIR CONDITIONING SYSTEM	136
MODE DOOR MOTOR	110	Wiring Diagram	136
MODE DOOR MOTOR : Removal and Installation	110	BASIC INSPECTION	146
AIR MIX DOOR MOTOR	110	DIAGNOSIS AND REPAIR WORKFLOW	146
AIR MIX DOOR MOTOR : Removal and Installation	110	Work Flow	146
VARIABLE BLOWER CONTROL	112	OPERATION INSPECTION	148
Removal and Installation	112	Work Procedure	148
MANUAL AIR CONDITIONING		SYSTEM SETTING	150
PRECAUTION	113	Target Evaporator Temp Upper Limit	150
PRECAUTIONS	113	DOOR MOTOR STARTING POSITION RESET	151
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	113	Description	151
Precaution for Work	113	Work Procedure	151
PREPARATION	114	DTC/CIRCUIT DIAGNOSIS	152
PREPARATION	114	U1000 CAN COMM CIRCUIT	152
Special Service Tool	114	Description	152
Commercial Service Tool	114	DTC Logic	152
SYSTEM DESCRIPTION	115	Diagnosis Procedure	152
COMPONENT PARTS	115	U1010 CONTROL UNIT (CAN)	153
Component Part Location	115	Description	153
SYSTEM	118	DTC Logic	153
System Description	118	Diagnosis Procedure	153
Air Flow Control	119	B24A4 INTAKE SENSOR	154
Air Inlet Control	119	DTC Logic	154
Air Outlet Control	119	Diagnosis Procedure	154
Compressor Control	119	Component Inspection	155
Door Control	120	B24B7 INTAKE DOOR MOTOR	157
Temperature Control	123	DTC Logic	157
OPERATION	124	Diagnosis Procedure	157
Switch Name and Function	124	Component Inspection (Motor)	158
DIAGNOSIS SYSTEM (HVAC)	126	B24B9 MODE DOOR MOTOR	160
Description	126	DTC Logic	160
CONSULT Function (HVAC)	126	Diagnosis Procedure	160
DIAGNOSIS SYSTEM (IPDM E/R)	129	Component Inspection	161
CONSULT Function (IPDM E/R)	129	B24BB LEFT AIR MIX DOOR MOTOR	163
ECU DIAGNOSIS INFORMATION	132	DTC Logic	163
FRONT AIR CONTROL	132	Diagnosis Procedure	163
Reference Value	132	Component Inspection	164
DTC Inspection Priority Chart	134	POWER SUPPLY AND GROUND CIRCUIT ..	166
DTC Index	134	FRONT A/C CONTROL	166
ECM, IPDM E/R, BCM	135	FRONT A/C CONTROL : Diagnosis Procedure ..	166
List of ECU Reference	135	FRONT BLOWER MOTOR	167
		Diagnosis Procedure	167
		Component Inspection (Front Blower Motor)	170
		Component Inspection (Front Blower Relay)	170

A

B

C

D

E

F

G

H

HAC

J

K

L

M

N

O

P

MAGNET CLUTCH	171	FRONT AIR CONTROL	181
Component Function Check	171	Removal and Installation	181
Diagnosis Procedure	171	INTAKE SENSOR	182
ECV (ELECTRICAL CONTROL VALVE)	172	Exploded View	182
Diagnosis Procedure	172	Removal and Installation	182
Component Inspection	173	REFRIGERANT PRESSURE SENSOR	183
SYMPTOM DIAGNOSIS	174	Removal and Installation	183
HEATER AND AIR CONDITIONING SYSTEM		DOOR MOTOR	184
CONTROL SYMPTOMS	174	Component Parts Location	184
Symptom Table	174	INTAKE DOOR MOTOR	185
INSUFFICIENT COOLING	175	INTAKE DOOR MOTOR : Removal and Installation	185
Component Function Check	175	MODE DOOR MOTOR	185
INSUFFICIENT HEATING	177	MODE DOOR MOTOR : Removal and Installation	185
Component Function Check	177	AIR MIX DOOR MOTOR	185
COMPRESSOR DOES NOT OPERATE	179	AIR MIX DOOR MOTOR : Removal and Installation	185
Description	179	VARIABLE BLOWER CONTROL	187
Diagnosis Procedure	179	Removal and Installation	187
REMOVAL AND INSTALLATION	181		

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010181618

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Precaution for Work

INFOID:0000000010181619

- When removing or disassembling each component, be careful not to damage or deform it. If a component may be subject to interference, be sure to protect it with a shop cloth.
- When removing (disengaging) components with a screwdriver or similar tool, be sure to wrap the component with a shop cloth or vinyl tape to protect it.
- Protect the removed parts with a shop cloth and prevent them from being dropped.
- Replace a deformed or damaged clip.
- If a part is specified as a non-reusable part, always replace it with a new one.
- Be sure to tighten bolts and nuts securely to the specified torque.
- After installation is complete, be sure to check that each part works properly.
- Follow the steps below to clean components:
 - Water soluble dirt:
 - Dip a soft cloth into lukewarm water, wring the water out of the cloth and wipe the dirty area.
 - Then rub with a soft, dry cloth.
 - Oily dirt:
 - Dip a soft cloth into lukewarm water with mild detergent (concentration: within 2 to 3%) and wipe the dirty area.
 - Then dip a cloth into fresh water, wring the water out of the cloth and wipe the detergent off.
 - Then rub with a soft, dry cloth.
 - Do not use organic solvent such as thinner, benzene, alcohol or gasoline.
 - For genuine leather seats, use a genuine leather seat cleaner.

PREPARATION

< PREPARATION >

[AUTOMATIC AIR CONDITIONING]

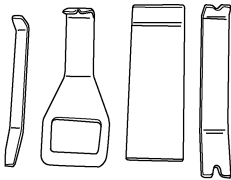
PREPARATION

PREPARATION

Special Service Tool

INFOID:0000000010181622

The actual shape of the tools may differ from those illustrated here.

Tool number (TechMate No.) Tool name	Description
— (J-46534) Trim Tool Set  AWJIA0483ZZ	Removing trim components

Commercial Service Tool

INFOID:0000000010181623

(TechMate No.) Tool name	Description
(—) Power tool  PIIB1407E	Loosening nuts, screws and bolts

COMPONENT PARTS

< SYSTEM DESCRIPTION >

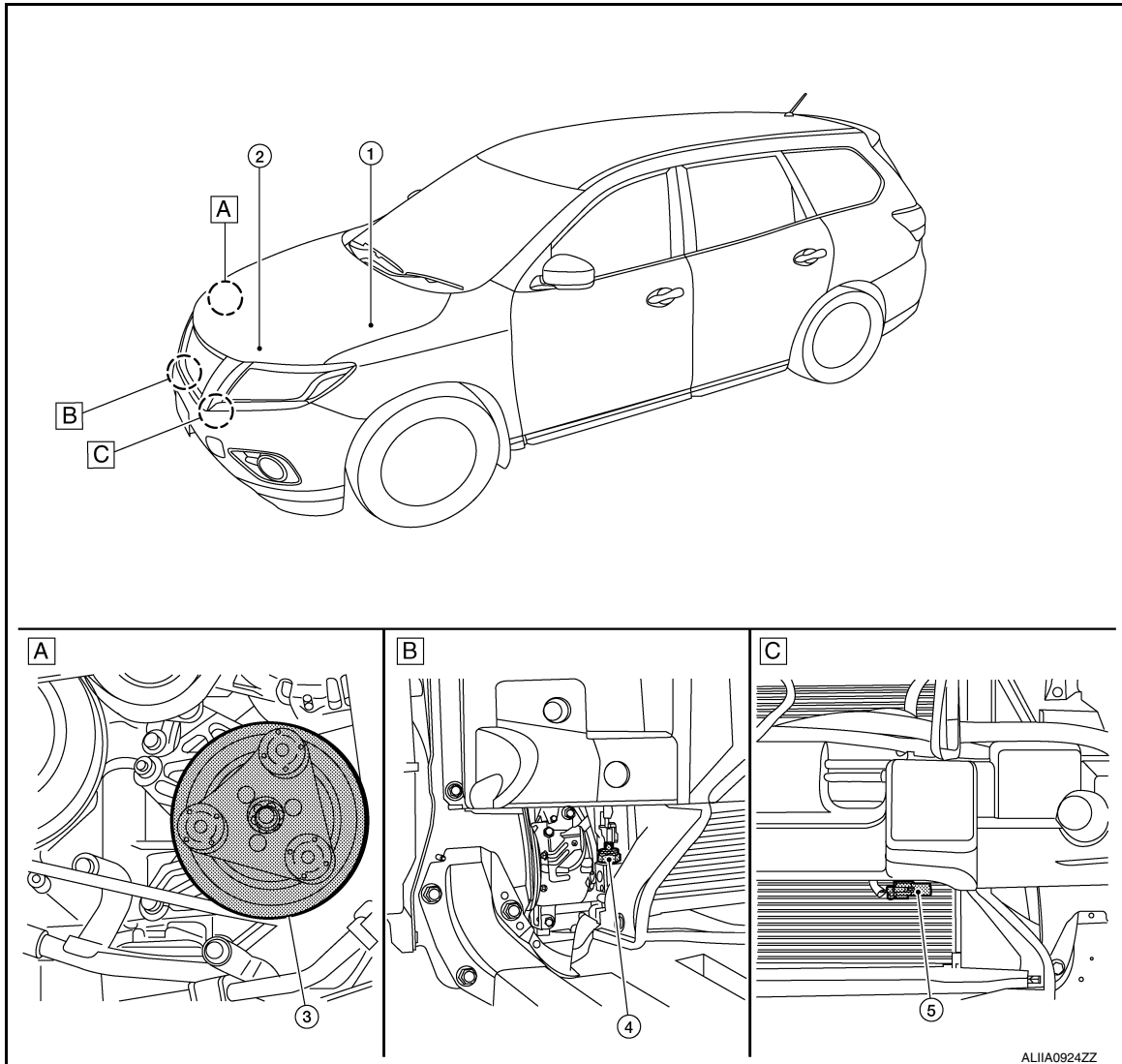
[AUTOMATIC AIR CONDITIONING]

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Part Location

INFOID:0000000010012025



A. RH side of engine compartment

B. RH front of vehicle (view with front bumper fascia removed)

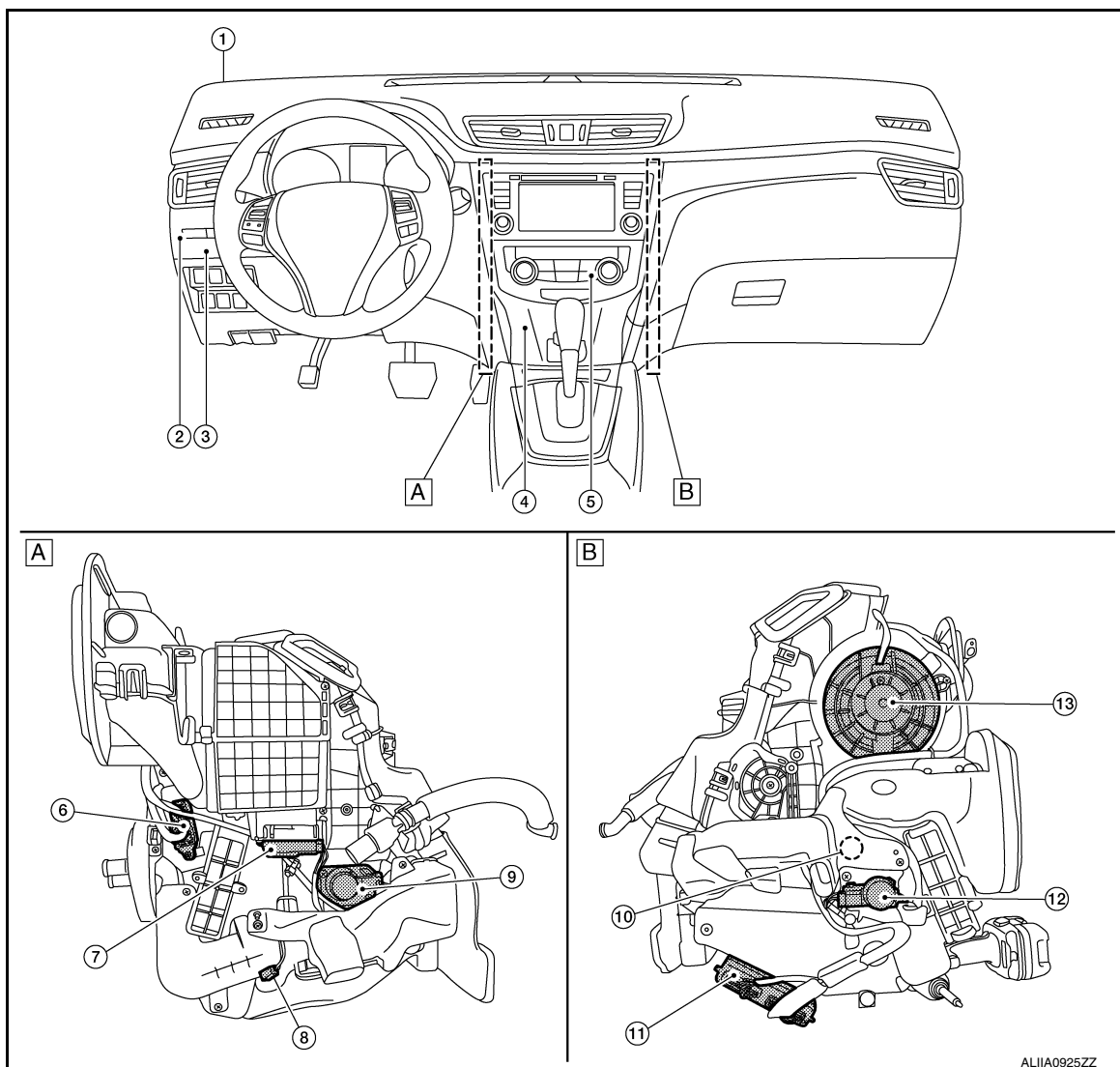
C. LH front of vehicle (view with front bumper fascia removed)

No.	Component	Description
1.	IPDM E/R	Refer to PCS-5, "RELAY CONTROL SYSTEM : System Description" .
2.	ECM	The ECM sends a compressor ON request to the IPDM E/R based on the status of engine operation and load as well as refrigerant pressure information. If all the conditions are met for A/C operation, the ECM transmits the compressor ON request to the IPDM E/R.
3.	A/C Compressor	Vaporized refrigerant is drawn into the A/C compressor from the evaporator, where it is compressed to a high pressure, high temperature vapor. The hot, compressed vapor is then discharged to the condenser.
4.	Refrigerant pressure sensor	Refer to EC-28, "Refrigerant Pressure Sensor" .
5.	Ambient sensor	The ambient sensor measures the temperature of the air surrounding the vehicle. The sensor uses a thermistor which is sensitive to the change in temperature. The electrical resistance of the thermistor decreases as temperature increases.

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONING]



A. Left side of A/C unit

B. Right side of A/C unit

No.	Component	Description
1.	Sunload sensor	Sunload sensor measures sunload amount. This sensor is a dual system so that sunload for driver side and passenger side are measured separately. This sensor converts sunload amount to voltage signal by photodiode and transmits to A/C auto amp.
2.	Front blower relay	The front blower relay controls the flow of current to fuse 17 and 27 in the Fuse Block (J/B). The relay is grounded when the ignition switch is in the ON position.
3.	BCM	The BCM receives the fan ON and A/C ON signals from the A/C auto amp. and sends a compressor ON request to the ECM.
4.	In-vehicle sensor	In-vehicle sensor measures temperature of intake air that flows through aspirator to passenger room. The sensor uses a thermistor which is sensitive to the change in temperature. The electrical resistance of the thermistor decreases as temperature increases.
5.	A/C switch assembly	The A/C switch assembly controls the operation of the A/C and heating system based on inputs from the temperature control knob, the mode switches, the blower control dial, the ambient temperature sensor, the intake sensor, and inputs received from the ECM across the CAN. Diagnosis of the A/C switch assembly can be performed using the CONSULT. There is no self-diagnostic feature available.
6.	Variable blower control	The variable blower control controls the speed of the blower motor by controlling the ground circuit of the blower motor. The front air control provides voltage to the gate of the variable blower control based on the position of the blower control dial.

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONING]

No.	Component	Description
7.	Intake door motor	The intake door motor controls the position of the intake door. Fresh air is allowed to enter the cabin in one position, and recirculated inside air is allowed to enter in the other position. The intake door motor receives position commands from the A/C auto amp.
8.	Intake sensor	The intake sensor measures the temperature of the front evaporator fins. The sensor uses a thermistor which is sensitive to the change in temperature. The electrical resistance of the thermistor decreases as temperature increases.
9.	Air mix door motor (driver side)	The air mix door controls the mix of hot or cold air that enters the ventilation system. It is controlled by the A/C auto amp. based on the position of the temperature dial. The air mix door motor LH receives position commands from the A/C auto amp.
10.	Mode door motor	The mode door controls the direction the conditioned air passes through the ventilation system. Through a series of levers and gears, the mode door controls the defrost door, the foot door, and the vent door. There are 5 preset positions: VENT, B/L, FOOT, D/F, and DEF. The mode door motor receives position commands from the A/C auto amp.
11.	A/C auto amp.	A/C auto amp. controls front automatic air conditioning system by inputting and calculating signals from each sensor and each switch.
12.	Air mix door motor (passenger side)	The air mix door controls the mix of hot or cold air that enters the ventilation system. It is controlled by the A/C auto amp. based on the position of the temperature dial. The air mix door motor RH receives position commands from the A/C auto amp.
13.	Front Blower motor	The blower motor varies the speed at which the air flows through the ventilation system.

A

B

C

D

E

F

G

H

HAC

J

K

L

M

N

O

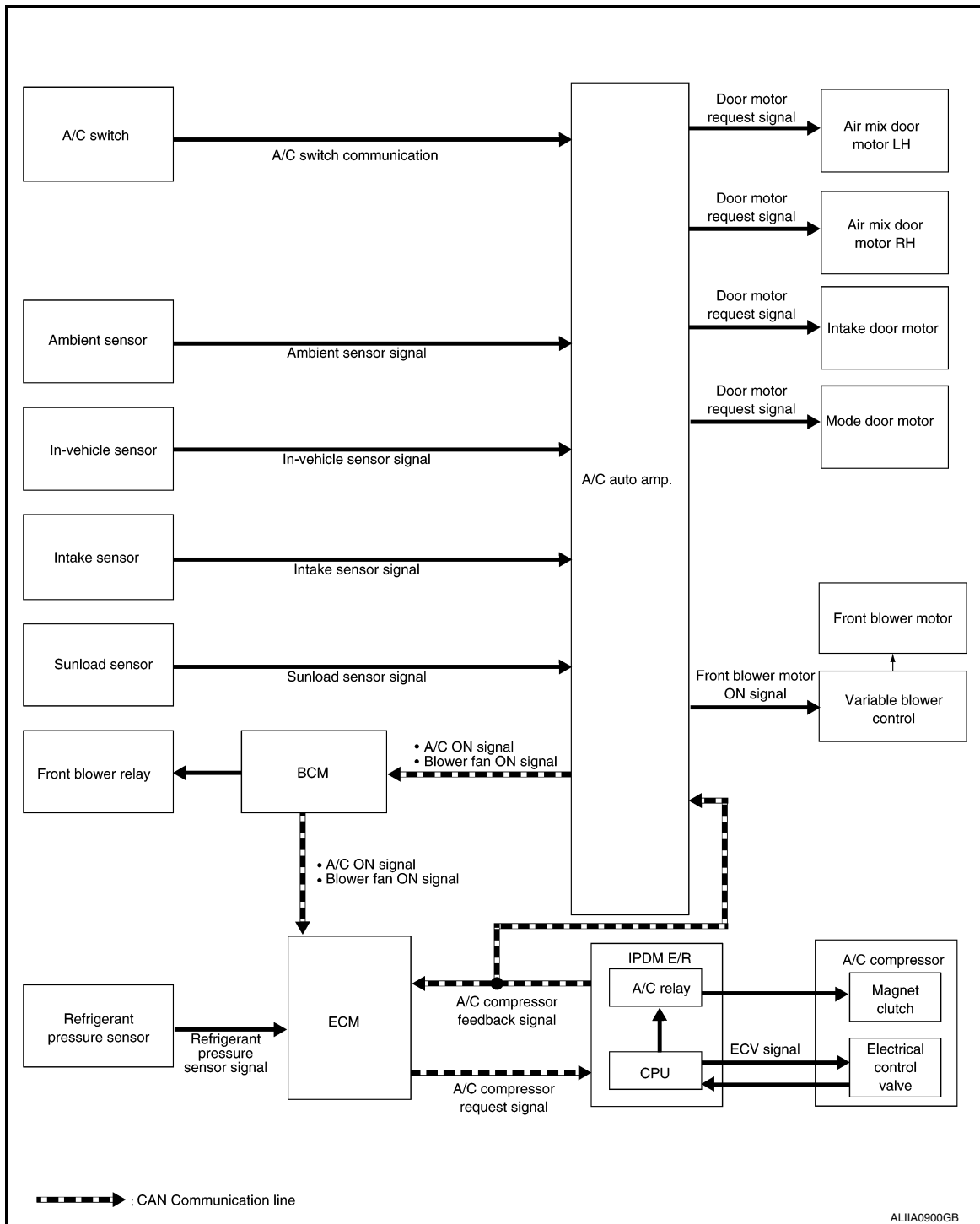
P

SYSTEM

System Description

INFOID:000000010012028

SYSTEM DIAGRAM



SYSTEM DESCRIPTION

- Automatic air conditioning system is controlled by each function of A/C auto amp., ECM, IPDM E/R and BCM.

Control by A/C auto amp.

- [HAC-11, "Air Flow Control"](#)
- [HAC-12, "Air Inlet Control"](#)
- [HAC-13, "Air Outlet Control"](#)

< SYSTEM DESCRIPTION >

- [HAC-13, "Compressor Control"](#)
- [HAC-13, "Door Control"](#)
- [HAC-18, "Temperature Control"](#)
- Correction for input value of each sensor

Ambient sensor (setting temperature correction)

- A/C auto amp. controls passenger room temperature so that the optimum level always matches the temperature level that the passenger may feel. Correction is applied to the target temperature that is set using temperature control dial, according to ambient temperature detected by ambient sensor.

In-vehicle sensor [in-vehicle temperature correction]

- Passenger room temperature detected by in-vehicle sensor is corrected for each front air conditioning control (driver side and passenger side).

Intake sensor (intake temperature correction)

- A/C auto amp. performs correction to change recognition intake temperature of A/C auto amp. quickly when difference is large between recognition intake temperature and intake temperature detected by intake temperature sensor. The correction is performed to change recognition intake temperature slowly when difference is small.

Sunload sensor (sunload amount correction)

- Sunload amount detected by sunload sensor is corrected for each air conditioning control.
- A/C auto amp. performs correction to change recognition sunload amount of A/C auto amp. slowly when sunload amount changes quickly, for example when entering or exiting a tunnel.

Set temperature correction

- A/C auto amp. performs correction to the target temperature set by the temperature control switch so as to match the temperature felt by the passengers depending on the ambient temperature detected by the ambient sensor, and controls it so the in-vehicle temperature is always the most suitable.

Control by ECM

- Cooling fan control
Refer to [PCS-5, "RELAY CONTROL SYSTEM : System Description"](#).
- Air conditioning cut control
Refer to [EC-45, "AIR CONDITIONING CUT CONTROL : System Description"](#).

Control by IPDM E/R

- Relay control
Refer to [PCS-5, "RELAY CONTROL SYSTEM : System Description"](#).
- Cooling fan control
Refer to [PCS-5, "RELAY CONTROL SYSTEM : System Description"](#).

Control by BCM

- Relay control
Refer to [BCS-8, "BODY CONTROL SYSTEM : System Description"](#) (with Intelligent Key system) or [BCS-80, "BODY CONTROL SYSTEM : System Description"](#) (without Intelligent Key system).

Air Flow Control

INFOID:0000000010012029

DESCRIPTION

- A/C auto amp. changes duty ratio of blower motor drive signal and controls air flow continuously. When air flow is increased, duty ratio of blower motor control signal gradually increases to prevent a sudden increase in air flow.
- In addition to manual control and automatic control, air flow control consists of starting fan speed control, low coolant temperature starting control, high in-vehicle temperature starting control and fan speed control at door motor operation

AUTOMATIC AIR FLOW CONTROL

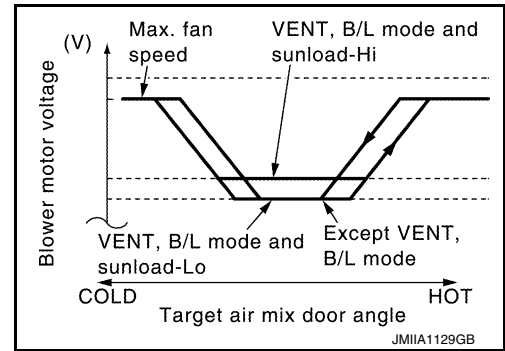
- A/C auto amp. decides target air flow depending on target air mix door opening angle.
- A/C auto amp. changes duty ratio of blower motor control signal and controls the air flow continuously so that air flow matches the target air flow.

SYSTEM

< SYSTEM DESCRIPTION >

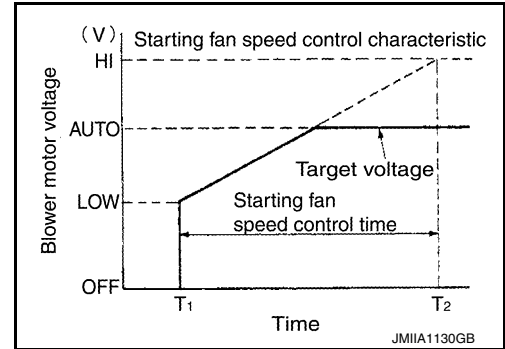
[AUTOMATIC AIR CONDITIONING]

- When air outlet is VENT or B/L, the minimum air flow is changed depending on sunload.



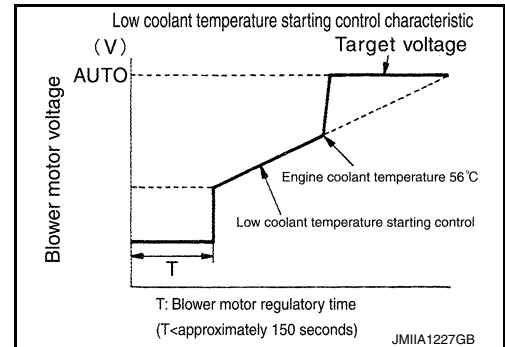
STARTING AIR FLOW CONTROL

- When blower motor is activated, A/C auto amp. gradually increases duty ratio of blower motor control signal to prevent a sudden increase in discharge air flow.
- It takes approximately 8 seconds for air flow to reach HI from LOW.



LOW COOLANT TEMPERATURE STARTING CONTROL

If the engine coolant temperature is 56°C (133°F) or less, to prevent a cold discharged air flow, A/C auto amp. suspends blower motor activation for a maximum of 150 seconds depending on target air mix door opening angle. After this, blower motor control signal is increased gradually, and blower motor is activated.



HIGH IN-VEHICLE TEMPERATURE STARTING CONTROL

When front evaporator fin temperature is high [intake sensor value is 35°C (95°F) or more], to prevent a hot discharged air flow, A/C auto amp. suspends blower motor activation for approximately 3 seconds so that front evaporator is cooled by refrigerant.

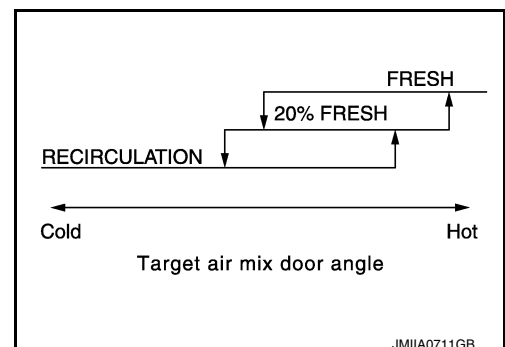
FAN SPEED CONTROL AT DOOR MOTOR OPERATION

When mode door motor is activated while air flow is more than the specified value, A/C auto amp. reduces fan speed temporarily so that mode door moves smoothly.

Air Inlet Control

INFOID:0000000010012030

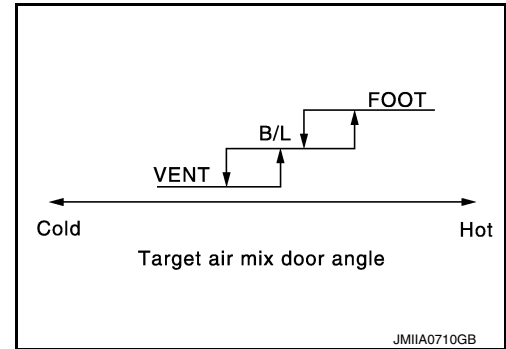
The intake door is automatically controlled by the temperature setting, ambient temperature, in-vehicle temperature, intake temperature, amount of sunload and ON/OFF operation of the compressor. Intake door automatic control selects FRE, 20% FRE, or REC depending on a target air mix door opening angle, based on in-vehicle temperature, ambient temperature, and sunload.



Air Outlet Control

INFOID:0000000010012031

- While air outlet is in automatic control, A/C auto amp. selects the mode door position depending on a target air mix door angle and outlet air temperature calculated from sunload.
- If ambient temperature is excessively low, D/F is selected to prevent windshield fogging when air outlet is set to FOOT.



Compressor Control

INFOID:0000000010012032

DESCRIPTION

- When the compressor activation condition is satisfied while blower motor is activated, A/C auto amp. transmits A/C ON signal and blower fan ON signal to BCM.
- BCM transmits the A/C ON signal and blower fan ON signal to the ECM via CAN communication line.
- ECM judges that the compressor can be activated depending on the state of each sensor (refrigerant pressure sensor signal and others) and transmits A/C compressor request signal to IPDM E/R via CAN communication.
- IPDM E/R turns A/C relay ON and activates the compressor depending on request from ECM.

COMPRESSOR PROTECTION CONTROL AT PRESSURE MALFUNCTION

When high-pressure side value that is detected by refrigerant pressure sensor is as per the following state, ECM requests IPDM E/R to turn A/C relay OFF and stops the compressor.

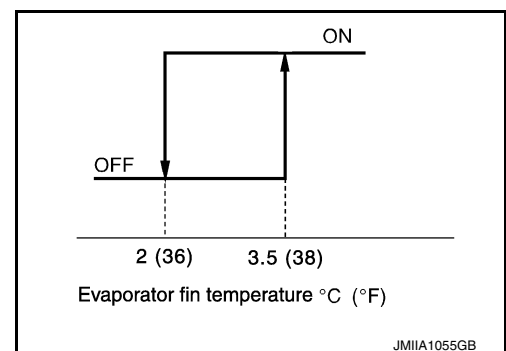
- 3.12 MPa (31.82 kg/cm², 452.4 psi) or more (When the engine speed is less than 1,500 rpm)
- 2.74 MPa (27.95 kg/cm², 397.3 psi) or more (When the engine speed is 1,500 rpm or more)
- 0.14 MPa (1.43 kg/cm², 20.3 psi) or less

COMPRESSOR OIL CIRCULATION CONTROL

When the engine starts while the engine coolant temperature is 56°C (133°F) or less, ECM activates the compressor for approximately 6 seconds and circulates the compressor lubricant once.

LOW TEMPERATURE PROTECTION CONTROL

- When intake sensor detects that front evaporator fin temperature is 2°C (36°F) or less, A/C auto amp. requests ECM to turn compressor OFF, and stops the compressor.
- When the front evaporator fin temperature returns to 3.5°C (38°F) or more, the compressor is activated.



AIR CONDITIONING CUT CONTROL

When set engine is running is excessively high load condition, ECM requests IPDM E/R to turn A/C relay OFF, and stops the compressor. Refer to [EC-45. "AIR CONDITIONING CUT CONTROL : System Description"](#).

Door Control

INFOID:0000000010012033

AIR MIX DOOR MOTOR (DRIVER SIDE)

DESCRIPTION

- The step motor system is adopted for air mix door motor (driver side).
- When a drive signal is input from A/C auto amp. to door motor, a step motor built into the door motor rotates according to the drive signal, and then stops at the target door position.

SYSTEM

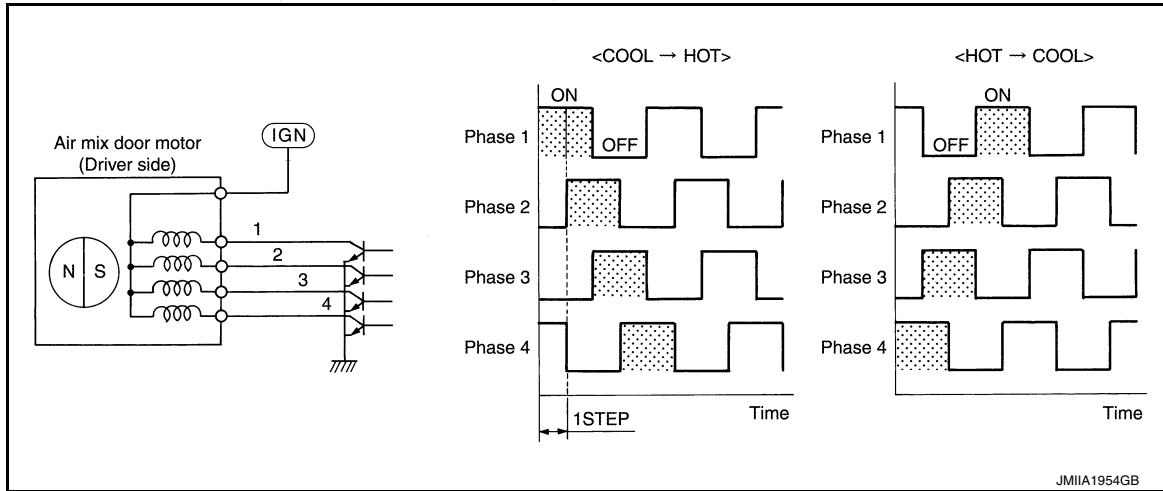
< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONING]

- Rotation of motor is transmitted to air mix door (driver side) [upper air mix door (driver side) and lower air mix door (driver side)] by link, rod and lever, then air flow temperature (driver side) is switched.

DRIVE METHOD

- The 4 drive coils are excited in sequence in order to drive the motor.
- Direction of rotation is changeable by recomposing pattern of excitation.



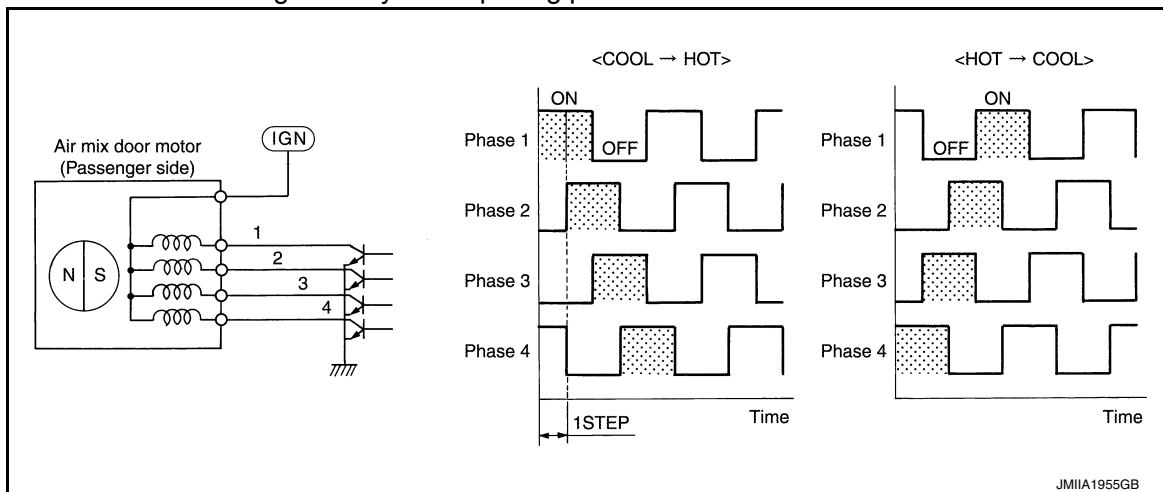
AIR MIX DOOR MOTOR (PASSENGER SIDE)

DESCRIPTION

- The step motor system is adopted for air mix door motor (passenger side).
- When a drive signal is input from A/C auto amp. to door motor, a step motor built into the door motor rotates according to the drive signal, and then stops at the target door position.
- Rotation of motor is transmitted to air mix door (passenger side) [upper air mix door (passenger side) and lower air mix door (passenger side)] by link, rod and lever, then air flow temperature (passenger side) is switched.

DRIVE METHOD

- The 4 drive coils are excited in sequence in order to drive the motor.
- Direction of rotation is changeable by recomposing pattern of excitation.



MODE DOOR MOTOR

DESCRIPTION

- The step motor system is adopted for mode door motor.
- When a drive signal is input from A/C auto amp. to door motor, a step motor built into the door motor rotates according to the drive signal, and then stops at the target door position.
- Rotation of motor is transmitted to mode door (center ventilator and defroster door, sub defroster door, side ventilator door, and foot door) by link, rod, and lever, then air outlet is switched.

DRIVE METHOD

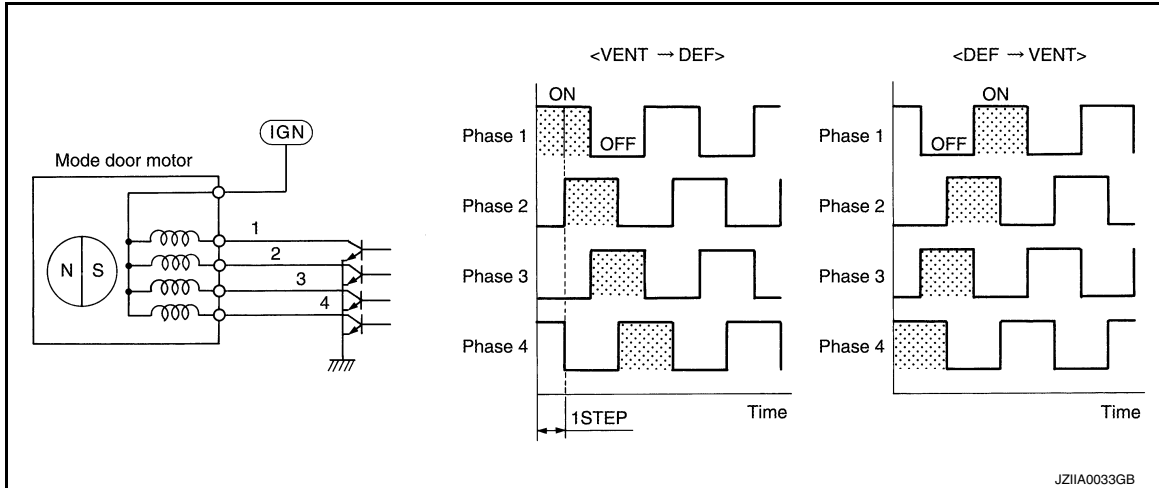
- The 4 drive coils are excited in sequence in order to drive the motor.

SYSTEM

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONING]

- Direction of rotation is changeable by recomposing pattern of excitation.



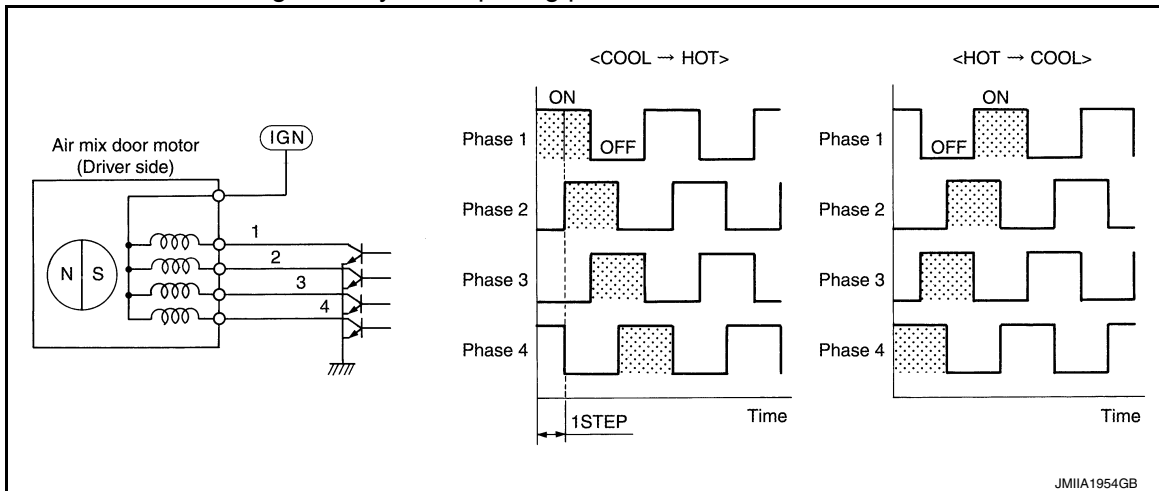
INTAKE DOOR MOTOR

DESCRIPTION

- The step motor system is adopted for intake door motor.
- When a drive signal is input from A/C auto amp. to door motor, a step motor built into the door motor rotates according to the drive signal, and then stops at the target door position.
- Rotation of motor is transmitted to intake door, then air flow is switched.

DRIVE METHOD

- The 4 drive coils are excited in sequence in order to drive the motor.
- Direction of rotation is changeable by recomposing pattern of excitation.

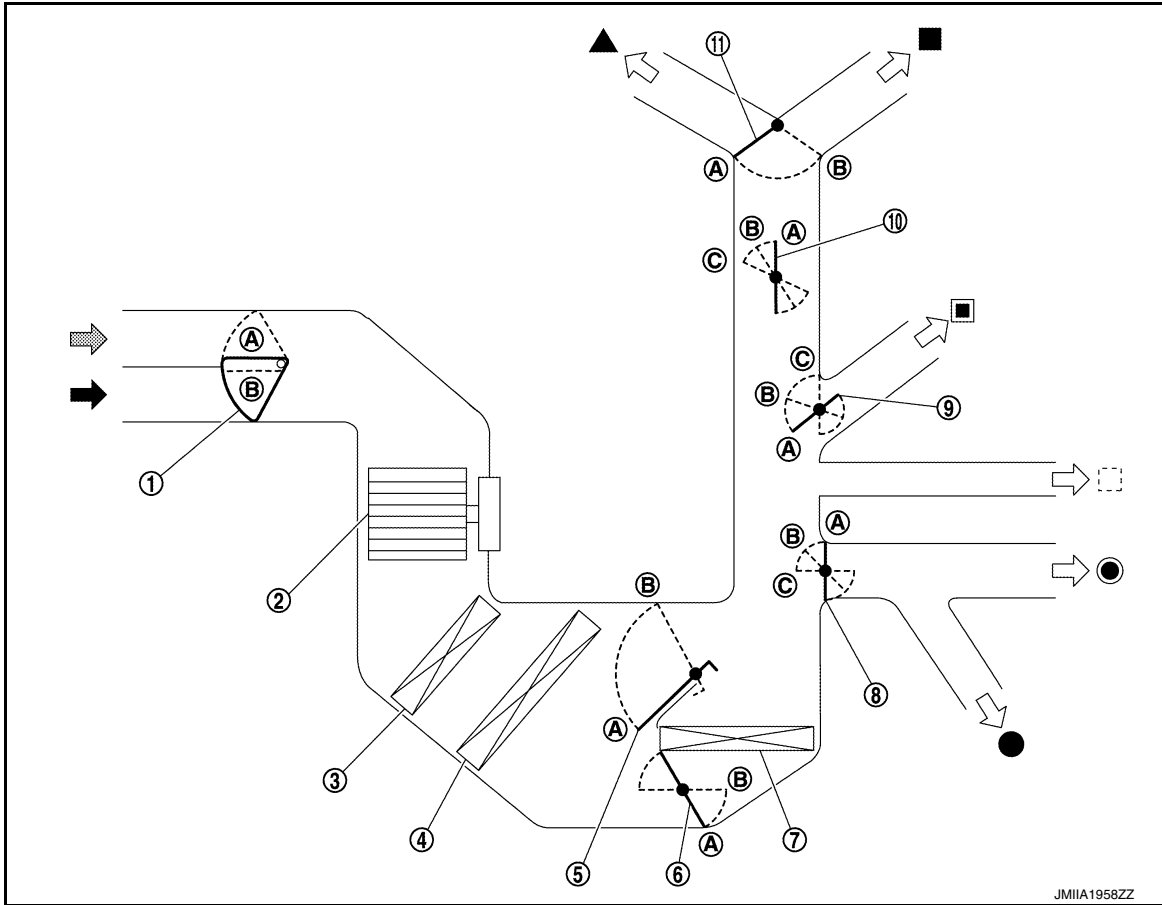


SWITCHES AND THEIR CONTROL FUNCTION

SYSTEM

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONING]



- | | | |
|----------------------|---|---|
| ① Intake door | ② Blower motor | ③ Air conditioner filter |
| ④ Evaporator | ⑤ Upper air mix door (driver side/passenger side) | ⑥ Lower air mix door (driver side/passenger side) |
| ⑦ Heater core | ⑧ Foot door | ⑨ Side ventilator door |
| ⑩ Sub defroster door | ⑪ Center ventilator and defroster door | |
| ← Fresh air intake | ← Recirculation air | ← Discharge air |
| ▲ Defroster | ■ Center ventilator | ■ Side ventilator |
| □ Rear ventilator | ● Front foot | ● Rear foot |

SYSTEM

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONING]

Switch position			Door position																		
			Mode door				Intake door	Air mix door													
								(Driver side)		(Passenger side)											
			Center ventilator and defroster door	Sub defroster door	Side ventilator door	Foot door		Upper air mix door	Lower air mix door	Upper air mix door	Lower air mix door										
AUTO switch				AUTO				—	—	—	—										
MODE switch				(A)	(A)	(A)	(A)														
				(A)	(B)	(B)	(B)														
				(B)	(C)	(C)	(C)														
				(B)	(B)	(C)	(C)														
DEF switch				(B)	(A)	(C)	(A)	(A)													
REC switch*												(B)									
FRE switch*								—	—	—	—	—	(A)								
Temperature control dial (Driver side)		Full cold 18°C		AUTO																	
		18.5°C – 31.5°C		(B)																	
		Full hot 32°C																			
Temperature control dial (Driver side)		Full cold 18°C		—	—	—	—						—	(A)							
		18.5°C – 31.5°C												AUTO		—	—				
		Full hot 32°C												(B)							
Temperature control dial (Passenger side)		Full cold 18°C												—	—	—	—	—	—	(A)	
		18.5°C – 31.5°C																		AUTO	
		Full hot 32°C						(B)													
ON-OFF switch		OFF						(B)	(C)	(C)	(C)				—	—					

*: Inlet status is displayed by indicator during activating automatic control

AIR DISTRIBUTION

SYSTEM

< SYSTEM DESCRIPTION >

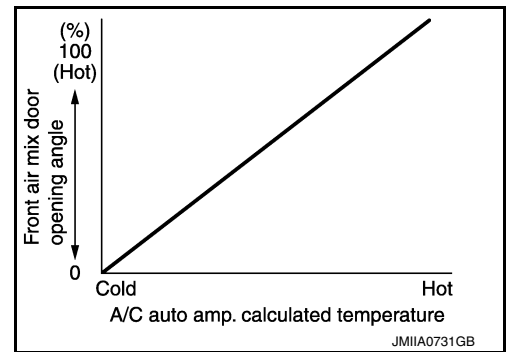
[AUTOMATIC AIR CONDITIONING]

Discharge air flow						
MODE/DEF set- ting position	Air outlet/distribution					
	Ventilator			Foot		Defroster
	Front		Rear	Front	Rear	
	Center	Side				
	47%	38%	15%	—	—	—
	25%	34%	13%	18%	10%	—
	—	7%	4%	38%	24%	27%
	—	6%	2%	30%	17%	45%
	—	8%	2%	—	—	90%

Temperature Control

INFOID:000000010012034

- When ignition switch is in the ON position, A/C auto amp. always automatically controls temperature regardless of front air conditioning operational state.
- A/C auto amp. calculates the target air mix door opening angle depending on set temperature, in-vehicle temperature, ambient temperature, and sunload.
- Air mix door is controlled depending on the comparison of current air mix door opening angle and target air mix door opening angle.
- Regardless of in-vehicle temperature, ambient temperature, and sunload, air mix door is fixed at the fully cold position when set temperature is 18.0°C (60°F), and at the fully hot position when set temperature is 32.0°C (90°F).



Fail-safe

INFOID:000000010012035

FAIL-SAFE FUNCTION

If a communication error exists between the A/C auto amp., and the AV control unit and preset switch for 30 seconds or longer, air conditioning is controlled under the following conditions:

A/C switch	: ON
Air outlet	: AUTO
Air inlet	: FRE (Fresh air intake)
Blower fan speed	: AUTO
Set temperature	: Setting before communication error occurs

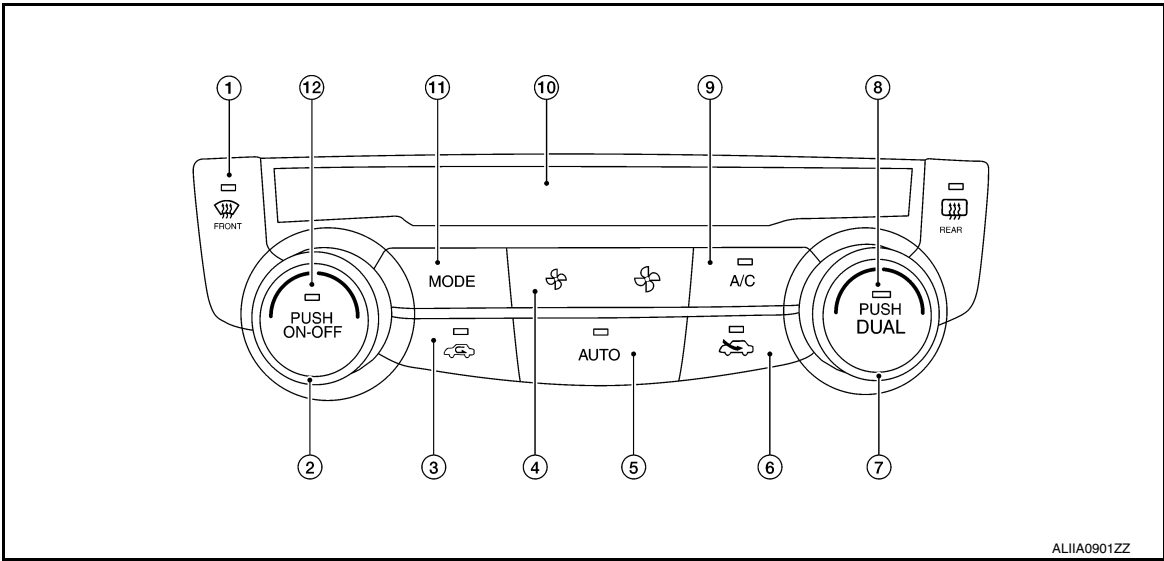
OPERATION

Switch Name and Function

INFOID:0000000010012036

CONTROL OPERATION

A/C Switch Assembly



- | | | |
|--|---|-------------------------|
| 1. Defroster switch | 2. Temperature control switch (driver side) | 3. Recirculation switch |
| 4. Fan control switch | 5. AUTO switch | 6. Fresh air switch |
| 7. Temperature control switch (passenger side) | 8. DUAL switch | 9. A/C switch |
| 10. Display | 11. Mode switch | 12. ON/OFF switch |

Switch Operation

Switch name	Function
Temperature control dial (Driver side)	Setting temperature is selected using this dial within a range between 18°C (60°F) and 32°C (90°F) at a rate of 0.5°C (1.0°F) per adjustment. NOTE: When air conditioning system is OFF, setting temperature can be selected only while air conditioning system status screen [only when MODE switch (driver side) is pressed] is indicated on display.
ON-OFF switch	Air conditioning turns ON ⇄ OFF each time this switch is pressed. - When this switch is pressed while air conditioning is ON - Air conditioning turns OFF and becomes the following status, when this switch is pressed. - Air outlet: FOOT - Air flow: OFF - Air inlet: Settings set before this switch is pressed - A/C switch: OFF - When this switch is pressed while air conditioning is OFF - Air conditioning turns ON and operates according to the settings set before air conditioning is turned OFF, when this switch is pressed.

A
B
C
D
E
F
G
H
J
K
L
M
N
O
P

HAC

OPERATION

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONING]

Switch name	Function
AUTO switch	• AUTO switch indicator turns ON and air conditioning becomes the following status, when this switch is pressed while air conditioning is ON. - Air outlet: Automatic control - Air flow: Automatic control - Air inlet: Settings set before this switch is pressed - A/C switch: ON • Air conditioning turns ON and operates according to the following status, when this switch is pressed while air conditioning is OFF. (AUTO switch indicator turns ON) - Air outlet: Automatic control - Air flow: Automatic control - Air inlet: Settings set before this switch is pressed - A/C switch: ON NOTE: When air outlet or air flow is manually operated while AUTO switch indicator is ON, AUTO switch indicator turns OFF. However, automatic control continues for other functions than air outlet or air flow.
Fan switch	• Air flow can be set within a range between 1st – 7th speed according to switch operation. - Press +: Air flow increases - Press -: Air flow decreases • Air conditioning turns ON and operates according to the following status, when this switch is pressed while air conditioning is OFF. - Air outlet: Automatic control - Air flow: 1st speed - Air inlet: Settings set before this switch is pressed - A/C switch: Settings set before air conditioning is turned OFF NOTE: Automatic air flow control is cancelled (AUTO switch indicator turns OFF), when fan switch is pressed while AUTO switch indicator is ON.
A/C switch	Compressor control (switch indicator) changes between ON ⇔ OFF each time this switch is pressed while blower motor is operated. NOTE: A/C switch cannot be turned ON when blower motor is OFF.
DUAL switch	Left and right ventilation temperature separately control (switch indicator) changes between ON ⇔ OFF each time this switch is pressed while blower motor is operated. NOTE: • Setting temperature for passenger side is the same as that for driver side when left and right ventilation temperature separately control is OFF. • DUAL switch operation is not accepted when DEF mode is ON.
Temperature control dial (Passenger side)	• Outlet air flow temperature of passenger side can be changed without changing outlet air flow temperature of driver side. • Setting temperature is selected using this dial within a range between 18°C (60°F) and 32°C (90°F) at a rate of 0.5°C (1.0°F) per adjustment. NOTE: • When air conditioning system is OFF, setting temperature can be selected only while air conditioning system status screen [only when MODE switch (passenger side) is pressed] is indicated on display. • When DEF mode is ON, temperature control dial (passenger side) is inoperative.
REC switch	Switch indicator turns ON and air inlet is set to recirculation (REC), when this switch is pressed. NOTE: Air inlet can be changed when air conditioning is in OFF status.
FRE switch	Switch indicator turns ON and air inlet is set to fresh air intake (FRE), when this switch is pressed. NOTE: Air inlet can be changed when air conditioning is in OFF status.

OPERATION

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONING]

Switch name	Function
MODE switch	Air outlet changes from VENT⇒ B/L ⇒ FOOT ⇒ D/F ⇒ VENT each time this switch is pressed. NOTE: • Air outlet can be changed when air conditioning is in OFF status. • Automatic air outlet control is cancelled (AUTO switch indicator turns OFF), when MODE switch is pressed while AUTO switch indicator is ON.
DEF switch	DEF mode (switch indicator) changes between ON ⇔ OFF each time switch is pressed. • When this switch is pressed while air conditioning is ON - Air conditioning becomes the following status when DEF mode is turned ON. • Air outlet: DEF • Air flow: Settings set before DEF mode is turned ON • Air inlet: Fresh air intake • A/C switch: ON - Air conditioning becomes the following status when DEF mode is turned OFF. • Air outlet: Settings set before DEF mode is turned ON • Air flow: Settings set before DEF mode is turned OFF • Air inlet: Settings set before DEF mode is turned OFF • A/C switch: Settings set before DEF mode is turned OFF • When this switch is pressed while air conditioning is OFF - Air conditioning turns ON and operates in the following status, when DEF mode is turned ON. • Air outlet: DEF • Air flow: Automatic control • Air inlet: Fresh air intake • A/C switch: ON - Air conditioning becomes the following status when DEF mode is turned OFF. • Air outlet: Automatic control • Air flow: Settings set before DEF mode is turned OFF • Air inlet: Settings set before DEF mode is turned OFF • A/C switch: Settings set before DEF mode is turned OFF NOTE: When DEF mode is turned ON while AUTO switch indicator is turned ON, AUTO switch indicator turns OFF. However, automatic air flow control continues.

A

B

C

D

E

F

G

H

HAC

J

K

L

M

N

O

P

DIAGNOSIS SYSTEM (A/C AUTO AMP.)

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONING]

DIAGNOSIS SYSTEM (A/C AUTO AMP.)

Description

INFOID:0000000010012037

Air conditioning system performs self-diagnosis, operation check, function diagnosis, and various settings using diagnosis function of each control unit.

ECU	Diagnostic item (CONSULT)	
A/C auto amp.	 HVAC	Self Diagnostic Result
		Data Monitor
		Active Test
		Work support
BCM	 BCM-AIR CONDITIONER	Self Diagnostic Result
		Data Monitor
ECM	 ENGINE	Self Diagnostic Result
		Data Monitor
IPDM E/R	 IPDM E/R	Self Diagnostic Result
		Data Monitor

CONSULT Function (HVAC)

INFOID:0000000010012038

CONSULT can display each diagnosis item using the diagnosis test modes as shown.

CONSULT application items

Diagnosis mode	Description
Self-Diagnostic Result	Displays the diagnosis results judged by A/C auto amp.
Data Monitor	Displays A/C auto amp. input/output data in real time.
Work support	Changes the setting for each system function.
Active Test	The signals used to activate each device are forcibly supplied from A/C auto amp.
ECU Identification	Displays the A/C auto amp. number.

SELF-DIAGNOSTIC RESULT

Refer to [HAC-32. "DTC Index"](#).

Display Item List

DTC	Items (CONSULT screen terms)	Diagnostic item is detected when...	Possible cause
U1000	CAN COMM CIRCUIT	When A/C auto amp. is not transmitting or receiving CAN communication signal for 2 or more seconds.	CAN communication system
U1010	CONTROL UNIT (CAN)	When detecting error during the initial diagnosis of CAN controller of A/C auto amp.	A/C auto amp.
B24A0	A/C AUTO AMP.	A/C auto amp. EEPROM system is malfunctioning.	A/C auto amp.
B24A1	A/C AUTO AMP. POWER SUPPLY	Detected power supply voltage is out of range.	- A/C auto amp. - Harness and connector (Power supply circuit is open, or there is a short in the circuit)
B24A6	IN-CAR SENSOR	Detected temperature at in-vehicle sensor is out of range.	- In-vehicle sensor - A/C auto amp. - Harness and connector (In-vehicle sensor circuit is open, or there is a short in the circuit)

DIAGNOSIS SYSTEM (A/C AUTO AMP.)

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONING]

DTC	Items (CONSULT screen terms)	Diagnostic item is detected when...	Possible cause
B24A4	EVAP TEMP SEN	Detected temperature at intake sensor is out of range.	- Intake sensor - A/C auto amp. - Harness and connector (Intake sensor circuit is open, or there is a short in the circuit)
B24A9*	SUNLOAD SEN	Detected calorie at sunload sensor 1395 w/m ² (1200 kcal/m ² ·h).	- Sunload sensor - A/C auto amp. - Harness and connector (Sunload sensor circuit is open, or there is a short in the circuit)
B24BB	DR AIRMIX ACTR	Short or open circuit of air mix door motor drive signal.	- Air mix door motor LH - A/C auto amp. - Harness and connector (Air mix door motor is open or shorted)
B24BD	AS AIRMIX ACTR	Short or open circuit of air mix door motor drive signal.	- Air mix door motor RH - A/C auto amp. - Harness and connector (Air mix door motor is open or shorted)
B24B4	A/C CONTROL	Short or open circuit of A/C switch communication.	- A/C switch - A/C auto amp. - Harness and connector (A/C switch is open or shorted)
B24B6			
B24B7	INTAKE ACTR	Short or open circuit of intake door motor drive signal.	- Intake door motor - A/C auto amp. - Harness and connector (Intake door motor is open or shorted)
B24B9	MODE DOOR ACTR	Short or open circuit of mode door motor drive signal.	- Mode door motor - A/C auto amp. - Harness and connector (Mode door motor is open or shorted)
B24C3	BLOWER MOTOR FEEDBACK	Short or open circuit.	- Front blower motor - Front blower motor relay - Variable blower control - A/C auto amp. - Harness and connector
B24C6	BLOWER MOTOR CONTROL		
B24D4	A/C CONTROL COMMUNICATION	Short or open circuit.	- A/C switch - A/C auto amp. - Harness and connector (A/C switch is open or shorted)

*: Perform self-diagnosis under sunshine. When performing indoors, aim a light (more than 60 W) at sunload sensor, otherwise self-diagnosis reports an error even though the sunload sensor is functioning normally.

DATA MONITOR

Display item list

Monitor item [Unit]	Description
AMB TEMP SEN [°C]	Ambient sensor value converted from ambient sensor signal received from ambient sensor
IN-VEH TEMP [°]	In-vehicle sensor value converted from in-vehicle sensor signal received from in-vehicle sensor
INT TEMP SEN [°C]	Intake sensor value converted from intake sensor signal received from intake sensor
SUNLOAD SEN [w/m ²]	Sunload sensor value converted from sunload sensor signal received from sunload sensor
AMB SEN CAL [°]	Ambient sensor value calculated by A/C auto amp.

DIAGNOSIS SYSTEM (A/C AUTO AMP.)

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONING]

Monitor item [Unit]	Description
IN-VEH CAL [°C]	In-vehicle sensor value calculated by A/C auto amp.
INT TEMP CAL [°C]	Intake sensor value calculated by A/C auto amp.
COMP REQ SIG [On/Off]	Displays A/C switch ON/OFF status transmitted to other units via CAN communication
FAN REQ SIG [On/Off]	Displays blower switch ON/OFF status transmitted to other units via CAN communication
ENG COOL TEMP [°C]	Water temperature signal value received from ECM via CAN communication
VEHICLE SPEED [km/h (mph)]	Vehicle speed signal value received from meter via CAN communication

WORK SUPPORT

Work item	Description	Reference
TEMP SET CORRECT (Setting of difference between temperature setting and control temperature)	If the temperature felt by the customer is different than the airflow temperature controlled by the temperature setting, the auto amplifier control temperature can be adjusted to compensate for the temperature setting.	HAC-50. "Temperature Setting Trimmer"
REC MEMORY SET (REC memory function setting)	- If the ignition switch is turned to the OFF position while the REC switch is set to ON (recirculation), "With" or "Without" of the REC switch ON (recirculation) condition can be selected. - If "With" was set, the REC switch will be ON (recirculation) when turning the ignition switch to the ON position again. - If "Without" was set, the air inlets will be controlled automatically when turning the ignition switch to the ON position again.	HAC-51. "Inlet Port Memory Function (REC)"
FRE MEMORY SET (FRE memory function setting)	- If the ignition switch is turned to the OFF position while the FRE switch is set to ON (fresh air intake), "With" or "Without" of the FRE switch ON (fresh air intake) condition can be selected. - If "With" was set, the FRE switch will be ON (fresh air intake) when turning the ignition switch to the ON position again. - If "Without" was set, the air inlets will be controlled automatically when turning the ignition switch to the ON position again.	HAC-50. "Inlet Port Memory Function (FRE)"
BLOW SET	Setting change of foot position setting trimmer can be performed.	HAC-50. "Foot Position Setting Trimmer"
Door Motor Starting Position Reset	Starting position reset of air mix door motor and mode door motor can be performed.	HAC-52. "Work Procedure"
TARGET EVAPORATOR TEMP UPPER LIMIT SETTING	Set the target evaporator upper temperature limit.	HAC-51. "Target Evaporator Temp Upper Limit"

NOTE:

When the battery cable is disconnected from the negative terminal or when the battery voltage becomes 10V or less, the setting of WORK SUPPORT may be cancelled.

ACTIVE TEST

Test item	Description
HVAC TEST	The operation check of A/C system can be performed by selecting the mode. Refer to the following table for the conditions of each mode.

HVAC TEST

	Test item						
	MODE 1	MODE 2	MODE 3	MODE 4	MODE 5	MODE 6	MODE 7
Mode door position	VENT	VENT	B/L	B/L	D/F1	D/F2	DEF
Intake door position	REC	REC	20%FRE	20%FRE	FRE	FRE	FRE
Air mix door position (driver & passenger side)	FULL COLD	FULL COLD	FULL COLD	FULL HOT	FULL HOT	FULL HOT	FULL HOT

DIAGNOSIS SYSTEM (A/C AUTO AMP.)

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONING]

	Test item						
	MODE 1	MODE 2	MODE 3	MODE 4	MODE 5	MODE 6	MODE 7
Blower motor (Applied voltage)	35%	35%	60%	60%	90%	90%	35%
A/C compressor (Magnet clutch)	ON	ON	ON	ON	OFF	OFF	ON
ECV duty	80%	80%	40%	40%	0%	0%	90%

NOTE:

Perform the inspection of each output device after starting the engine, because the A/C compressor has been operating.

A

B

C

D

E

F

G

H

HAC

J

K

L

M

N

O

P

DIAGNOSIS SYSTEM (IPDM E/R)

CONSULT Function (IPDM E/R)

INFOID:000000010256039

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with IPDM E/R.

Direct Diagnostic Mode	Description
Ecu Identification	The IPDM E/R part number is displayed.
Self Diagnostic Result	The IPDM E/R self diagnostic results are displayed.
Data Monitor	The IPDM E/R input/output data is displayed in real time.
Active Test	The IPDM E/R activates outputs to test components.
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.

ECU IDENTIFICATION

The IPDM E/R part number is displayed.

SELF DIAGNOSTIC RESULT

Refer to [PCS-20. "DTC Index"](#).

DATA MONITOR

Monitor Item [Unit]	Description
REVERSE SIGNAL [Open/Close]	Indicates condition of transmission range switch R (Reverse) position.
IGN RELAY [Open/Close]	Indicates condition of ignition relay-1.
PUSH SW [Open/Close]	Indicates condition of push-button ignition switch.
INTERLOCK/PNP SW [Open/Close]	Indicates condition of transmission range switch P (Park) and N (Neutral) positions.
OIL PRESSURE SW [Open/Close]	Indicates condition of oil pressure switch.
HOOD SW [Open/Close]	Indicates condition of hood switch.
COMPRESSOR [OFF/ON]	Indicates condition of A/C compressor.
HORN RELAY [OFF/ ON]	Indicates condition of horn relay.
COOLING FAN [OFF/ON]	Indicates condition of cooling fan relay-1.
FRONT WIPER HI/LO RELAY [OFF/ON]	Indicates condition of front wiper high relay.
FRONT WIPER RELAY [OFF/ON]	Indicates condition of front wiper relay.
IGN RELAY OFF STATUS [OFF/ON]	Indicates condition of ignition relay-1 OFF status.
IGN RELAY ON STATUS [OFF/ON]	Indicates condition of ignition relay-1 ON status.
COOLING FAN RELAY 1 [OFF/ON]	Indicates condition of cooling fan relay-1.
STARTER RELAY [OFF/ON]	Indicates condition of starter relay.
COMP ECV DUTY [%]	Indicates condition of A/C compressor.
COOLING FAN RELAY 2 [%]	Indicates condition of cooling fan relay-2.
FR FOG LAMP LH [%]	Indicates condition of front fog lamp LH.
FR FOG LAMP RH [%]	Indicates condition of front fog lamp RH.
PARKING LAMP [%]	Indicates condition of parking lamp.
TAIL LAMP LH [%]	Indicates condition of tail lamp LH.
TAIL LAMP RH [%]	Indicates condition of tail lamp RH.
DAYTIME RUNNING LIGHT LH [%]	Indicates condition of daytime running light LH.
DAYTIME RUNNING LIGHT RH [%]	Indicates condition of daytime running light RH.
HEADLAMP (HI) LH [%]	Indicates condition of headlamp high beam LH.

DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONING]

Monitor Item [Unit]	Description
HEADLAMP (HI) RH [%]	Indicates condition of headlamp high beam RH.
HEADLAMP (LO) LH [%]	Indicates condition of headlamp low beam LH.
HEADLAMP (LO) RH [%]	Indicates condition of headlamp low beam RH.
A/C RELAY STUCK [NG/OK]	Indicates condition of A/C relay.
A/C RELAY [Off/On]	Indicates condition of A/C relay.
COMP ECV STATUS [NG/OK]	Indicates condition of A/C compressor.
VEHICLE SECURITY HORN [Off/On]	Indicates condition of horn relay.
BATTERY CURRENT SENSOR [NG/OK]	Indicates condition of battery current sensor.
FRONT FOG LAMP [Off/On]	Indicates condition of front fog lamps.
COMP ECV CURRENT [A]	Indicates condition of A/C compressor current.
BATTERY VOLTAGE [V]	Indicates condition of battery voltage.
COOLING FAN DUTY [%]	Indicates condition of cooling fans.
HOOD SW (CAN) [OPEN/CLOSE]	Indicates condition of hood switch.
FRONT WIPER [STOP/LOW/HIGH]	Indicates condition of front wiper motor.
FR WIPER STOP POSITION [STOP P/ACTIVE P]	Indicates condition of front wiper motor stop.
HEADLAMP (HI) [Off/On]	Indicates condition of headlamp high beams.
HEADLAMP (LO) [Off/On]	Indicates condition of headlamp low beams.
IGNITION RELAY STATUS [Off/On]	Indicates condition of ignition relay-1.
IGN RELAY MONITOR [Off/On]	Indicates condition of ignition relay-1 feedback.
IGNITION POWER SUPPLY [Off/On]	Indicates condition of ignition relay-1.
INTERLOCK/PNP SW (CAN) [Off/On]	Indicates condition of transmission range switch P (Park) and N (Neutral) positions.
PUSH-BUTTON IGN SW (CAN) [Off/On]	Indicates condition of push-button ignition switch.
TAIL LAMP [Off/On]	Indicates condition of tail lamps.
REVERSE SIGNAL (CAN) [Off/On]	Indicates condition of transmission range switch R (Reverse) position.
ST&ST CONT RELAY STATUS [Off/ST R On]	Indicates condition of starter cut and starter relays.
STARTER MOTOR STATUS [Off/On]	Indicates condition of starter motor.
STARTER RELAY (CAN) [LOW/HIGH]	Indicates condition of starter relay.
IPDM NOT SLEEP [NO RDY/RDY]	Indicates condition of IPDM E/R sleep status.
AFTER COOLING TIME [No request/Request]	Indicates condition of cooling fan request.
AFTER COOLING SPEED [%]	Indicates condition of cooling fans.
COOLING FAN TYPE [NISSAN/RENAULT]	Indicates cooling fan type.
COMPRESSOR REQ1 [Off/On]	Indicates condition of A/C compressor request.
VHCL SECURITY HORN REQ [Off/On]	Indicates condition of horn relay request.
DTRL REQ [Off/On]	Indicates condition of daytime running light request.
SLEEP/WAKE UP [WAKEUP/SLEEP]	Indicates condition of IPDM E/R sleep/wake.
CRANKING ENABLE-TCM [NG/OK]	Indicates condition of crank enable from TCM.
CRANKING ENABLE-ECM [NG/OK]	Indicates condition of crank enable from ECM.
CAN DIAGNOSIS [NG/OK]	Indicates condition of CAN diagnosis.
FRONT FOG LAMP REQ [Off/On]	Indicates condition of front fog lamp request.
HIGH BEAM REQ [Off/On]	Indicates condition of headlamp high beam request.
HORN CHIRP [Off/On]	Indicates condition of horn relay request.
COOLING FAN REQ [%]	Indicates condition of cooling fan request.
ENGINE STATUS [STOP/RUN/IDLING]	Indicates condition of engine status.

A

B

C

D

E

F

G

H

HAC

J

K

L

M

N

O

P

DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

[AUTOMATIC AIR CONDITIONING]

Monitor Item [Unit]	Description
TURN SIGNAL REQ [Off/LH/RH]	Indicates condition of turn signal request.
FR WIPER REQ [RETURN/LOW/HIGH]	Indicates condition of front wiper motor request.
SHIFT POSITION [P/R/N/D/L]	Indicates condition of transmission range switch positions.
LOW BEAM REQ [Off/On]	Indicates condition of headlamp low beam request.
POSITION LIGHT REQ [Off/On]	Indicates condition of parking lamp request.
COMPRESSOR REQ2 [Off/On]	Indicates condition of A/C compressor request.
IGNITION SW [Off/On]	Indicates condition of ignition switch.
VEHICLE SPEED (METER) [mph/km/h]	Indicates vehicle speed.
BAT DISCHARGE COUNT [0-100]	Indicates condition of battery discharge.
BATTERY STATUS [NG/OK]	Indicates battery status.

ACTIVE TEST

Test item	Description
HORN	This test is able to check horn operation [Off/On].
FRONT WIPER	This test is able to check wiper motor operation [Off/Low/High].
COMPRESSOR	This test is able to check A/C compressor operation [Off/On].
COOLING FAN (DUAL)	This test is able to check cooling fan operation [Off/LO/HI].
HEADLAMP (HI)	This test is able to check headlamp high beam operation [Off/3/5].
HEADLAMP (LO)	This test is able to check headlamp low beam operation [Off/3/5].
FRONT FOG LAMP	This test is able to check front fog lamp operation [Off/3/5].
DAYTIME RUNNING LAMP	This test is able to check daytime running lamp operation [Off/3/5].
PARKING LAMP	This test is able to check parking lamp operation [Off/3/5].
TAIL LAMP	This test is able to check tail lamp operation [Off/3/5].

CAN DIAG SUPPORT MNTR

Refer to [LAN-14, "CAN Diagnostic Support Monitor"](#).

A/C AUTO AMP.

< ECU DIAGNOSIS INFORMATION >

[AUTOMATIC AIR CONDITIONING]

ECU DIAGNOSIS INFORMATION

A/C AUTO AMP.

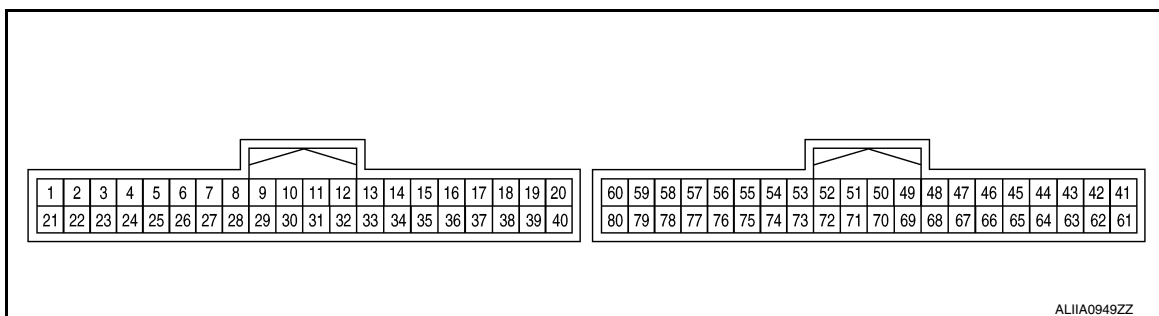
Reference Value

INFOID:0000000010012043

VALUES ON THE DIAGNOSIS TOOL

Monitor item	Condition		Value/Status
AMB TEMP SEN	Ignition switch ON	—	22 - 131°F (–30 - 55°C)
IN-VEH TEMP	Ignition switch ON	—	22 - 131°F (–30 - 55°C)
INT TEMP SEN	Ignition switch ON	—	22 - 131°F (–30 - 55°C)
SUNLOAD SEN	Ignition switch ON	—	0 - 1395 w/m ² (0 - 1200 kcal/m ² ·h)
AMB SEN CAL	Ignition switch ON	—	22 -131°F (–30 - 55°C)
IN-VEH CAL	Ignition switch ON	—	22 -131°F (–30 - 55°C)
INT TEMP CAL	Ignition switch ON	—	22 -131°F (–30 - 55°C)
COMP REQ SIG	Engine: Run at idle after warming up	A/C switch: ON (A/C compressor operation status)	On
		A/C switch: OFF	Off
FAN REQ SIG	Engine: Run at idle after warming up	Blower fan: ON	On
		Blower fan: OFF	Off
ENG COOL TEMP	Ignition switch ON	—	Values according to coolant temperature
VEHICLE SPEED	Driving	—	Equivalent to speedometer reading

TERMINAL LAYOUT



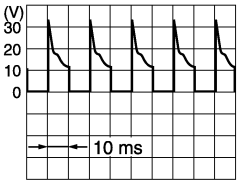
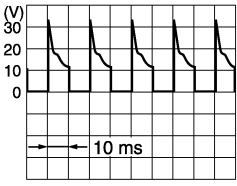
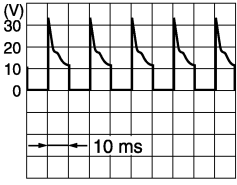
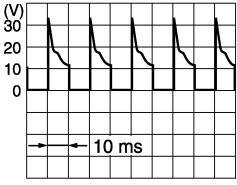
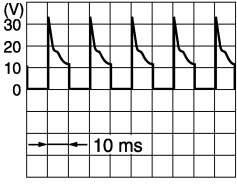
PHYSICAL VALUES

Terminal No. (Wire color)		Description		Condition	Value
+	–	Signal name	Input/ Output		
1 (SB)	3 (B)	Ignition power supply	Input	Ignition switch ON	Battery voltage
3 (B)	Ground	Ground	—	Ignition switch ON	0 – 0.1 V
11 (L)	3 (B)	CAN-H	Input/ Output	Ignition switch ON	—

A/C AUTO AMP.

< ECU DIAGNOSIS INFORMATION >

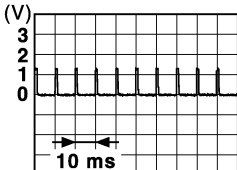
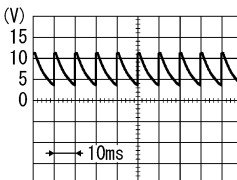
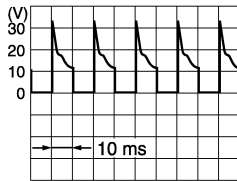
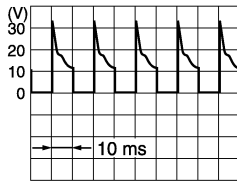
[AUTOMATIC AIR CONDITIONING]

Terminal No. (Wire color)		Description		Condition	Value
+	–	Signal name	Input/ Output		
13 (Y)	3 (B)	In-vehicle sensor signal	Input	Ignition switch ON	0 – 4.8 V Output voltage varies with in-vehicle temperature
14 (G)	3 (B)	Sunload sensor signal	Input	Ignition switch ON	0 – 4.8 V Output voltage varies with sun-load amount
23 (BR)	3 (B)	Sensor ground	—	Ignition switch ON	0 – 0.1 V
31 (R)	3 (B)	CAN-L	Input/ Output	Ignition switch ON	—
33 (LG)	3 (B)	LIN	Input/ Output	Ignition switch ON	—
41 (W)	3 (B)	ACTR V	Output	Ignition switch ON	Battery voltage
44 (L)	3 (B)	INTAKE drive 1	Output	- Ignition switch ON - Right after the Intake switch operation	 JPIIA1647GB
45 (R)	3 (B)	INTAKE drive 2			
47 (BR)	3 (B)	INTAKE drive 3	Output	- Ignition switch ON - Right after the intake switch operation	 JPIIA1647GB
49 (L)	3 (B)	MODE drive 1	Output	- Ignition switch ON - Right after the MODE switch operation	 JPIIA1647GB
50 (BR)	3 (B)	MODE drive 2			
51 (L)	3 (B)	A/MIX drive 1	Output	- Ignition switch ON - Right after the temperature control switch (driver side) operation	 JPIIA1647GB
52 (W)	3 (B)	A/MIX drive 2			
59 (L)	3 (B)	A/MIX drive 1	Output	- Ignition switch ON - Right after the temperature control switch (passenger side) operation	 JPIIA1647GB
60 (BR)	3 (B)	A/MIX drive 2			

A/C AUTO AMP.

< ECU DIAGNOSIS INFORMATION >

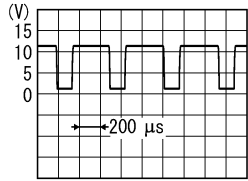
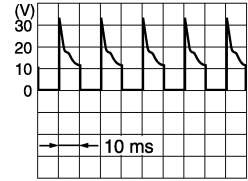
[AUTOMATIC AIR CONDITIONING]

Terminal No. (Wire color)		Description		Condition	Value
+	–	Signal name	Input/ Output		
61 (G)	3 (B)	ACTR V	Output	Ignition switch ON	Battery voltage
63 (BG)	3 (B)	Intake sensor signal	Input	Ignition switch ON	0 – 4.8 V Output voltage varies with evaporator fin temperature
64 (R)	3 (B)	Blower fan ON signal	Output	- Ignition switch ON - Blower motor: OFF	 JMIIA0941GB
				- Ignition switch ON - Blower motor: ON	 PKIB4960J
65 (W)	3 (B)	INTAKE drive 4	Intake door motor drive signal	Output	- Ignition switch ON - Right after the intake switch operation  JPIIA1647GB
66 (BR)	3 (B)	Sensor ground	—	Ignition switch ON	0 – 0.1 V
68 (R)	3 (B)	MODE drive 3	Mode door motor drive signal	Output	- Ignition switch ON - Right after the MODE switch operation  JPIIA1647GB
69 (G)	3 (B)	MODE drive 4			
70 (R)	3 (B)	A/MIX drive 3	Air mix door motor (driver side) drive signal	Output	- Ignition switch ON - Right after the temperature control switch (driver side) operation  JPIIA1647GB
71 (BR)	3 (B)	A/MIX drive 4			

A/C AUTO AMP.

< ECU DIAGNOSIS INFORMATION >

[AUTOMATIC AIR CONDITIONING]

Terminal No. (Wire color)		Description		Condition	Value
+	-	Signal name	Input/ Output		
74 (G)	3 (B)	Power transistor control signal	Output	- Ignition switch ON - Blower motor: 1st speed (manual)	 ZJIA0863J
79 (R)	3 (B)	A/MIX drive 3	Output	- Ignition switch ON - Right after the temperature control switch (passenger side) operation	 JP1IA1647GB
80 (G)	3 (B)	A/MIX drive 4			
		Air mix door motor (passenger side) drive signal			

DTC Inspection Priority Chart

INFOID:0000000010012044

If some DTCs are displayed at the same time, perform inspections one by one based on the following priority chart.

Priority	Detected items (DTC)
1	- U1000: CAN COMM CIRCUIT - U1010: CONTROL UNIT (CAN)
2	- B24A9: SUNLOAD SEN - B24A0: A/C AUTO AMP. - B24A1: A/C AUTO AMP. POWER SUPPLY - B24A4: INTAKE TEMP SEN - B24A6: IN-VEHICLE SEN - B24BB: LEFT AIRMIX ACTR - B24BD: RIGHT AIRMIX ACTR - B24B4: A/C CONTROL - B24B6: A/C CONTROL - B24B7: INTAKE ACTR - B24B9: MODE ACTR - B24C3: BLOWER MOTOR FEEDBACK - B24C6: BLOWER MOTOR CONTROL - B24D4: A/C CONTROL COMMUNICATION

DTC Index

INFOID:0000000010012045

DTC	Items (CONSULT screen terms)	Reference
U1000	CAN COMM CIRCUIT	HAC-53, "DTC Logic"
U1010	CONTROL UNIT (CAN)	HAC-54, "DTC Logic"
B24A0	A/C AUTO AMP.	HAC-55, "DTC Logic"
B24A1	A/C AUTO AMP. POWER SUPPLY	HAC-56, "DTC Logic"
B24A4	INTAKE SENSOR	HAC-58, "DTC Logic"
B24A6	IN-VEHICLE SENSOR	HAC-61, "DTC Logic"
B24A9*	SUNLOAD SENSOR	HAC-64, "DTC Logic"
B24BB	DR AIR MIX DOOR MOT	HAC-67, "DTC Logic"

A/C AUTO AMP.

< ECU DIAGNOSIS INFORMATION >

[AUTOMATIC AIR CONDITIONING]

DTC	Items (CONSULT screen terms)	Reference
B24BD	AS AIR MIX DOOR MOT	HAC-70. "DTC Logic"
B24B4	A/C CONTROL	HAC-73. "DTC Logic"
B24B6	A/C CONTROL	HAC-75. "DTC Logic"
B24B7	INTAKE DOOR MOTOR	HAC-77. "DTC Logic"
B24B9	MODE DOOR MOTOR	HAC-80. "DTC Logic"
B24C3	BLOWER MOTOR FEEDBACK	HAC-83. "DTC Logic"
B24C6	BLOWER MOTOR CONTROL	HAC-85. "DTC Logic"
B24D4	A/C CONTROL COMM	HAC-89. "DTC Logic"

*: Perform self-diagnosis under direct sunlight. When performing indoors, aim a light (more than 60 W) at sunload sensor, otherwise self-diagnosis reports an error even though the sunload sensor is functioning normally.

A

B

C

D

E

F

G

H

HAC

J

K

L

M

N

O

P

ECM, IPDM E/R, BCM

List of ECU Reference

INFOID:0000000010012046

ECU	Reference
ECM	EC-77. "Reference Value"
	EC-89. "Fail Safe"
	EC-92. "DTC Inspection Priority Chart"
	EC-93. "DTC Index"
IPDM E/R	PCS-12. "Reference Value"
	PCS-19. "Fail-safe"
	PCS-20. "DTC Index"
BCM (with Intelligent Key system)	BCS-28. "Reference Value"
	BCS-47. "Fail Safe"
	BCS-47. "DTC Inspection Priority Chart"
	BCS-48. "DTC Index"

AUTOMATIC AIR CONDITIONING SYSTEM

< WIRING DIAGRAM >

[AUTOMATIC AIR CONDITIONING]

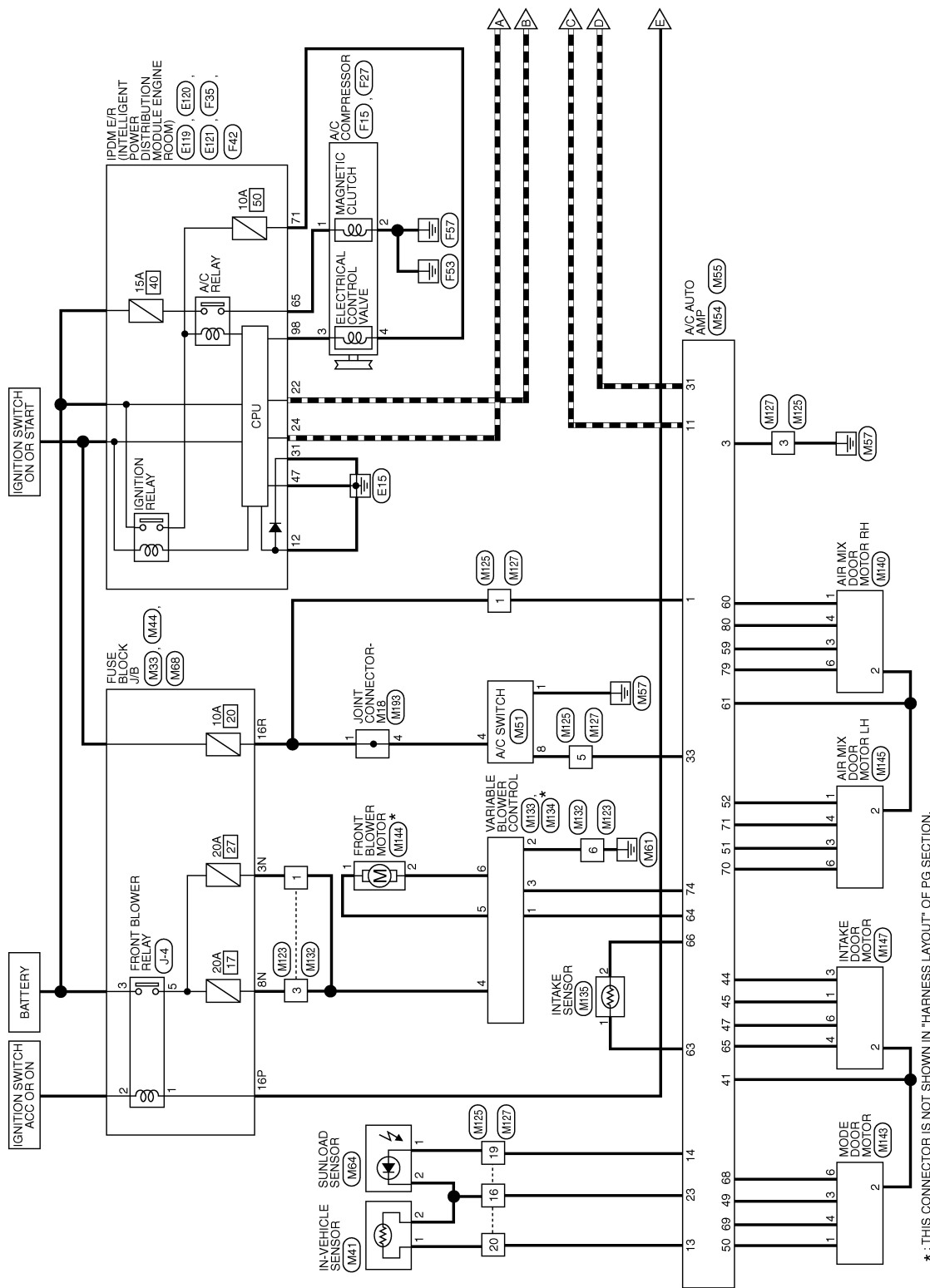
WIRING DIAGRAM

AUTOMATIC AIR CONDITIONING SYSTEM

Wiring Diagram

INFOID:0000000010012047

AIR CONDITIONER CONTROL - WITH AUTOMATIC

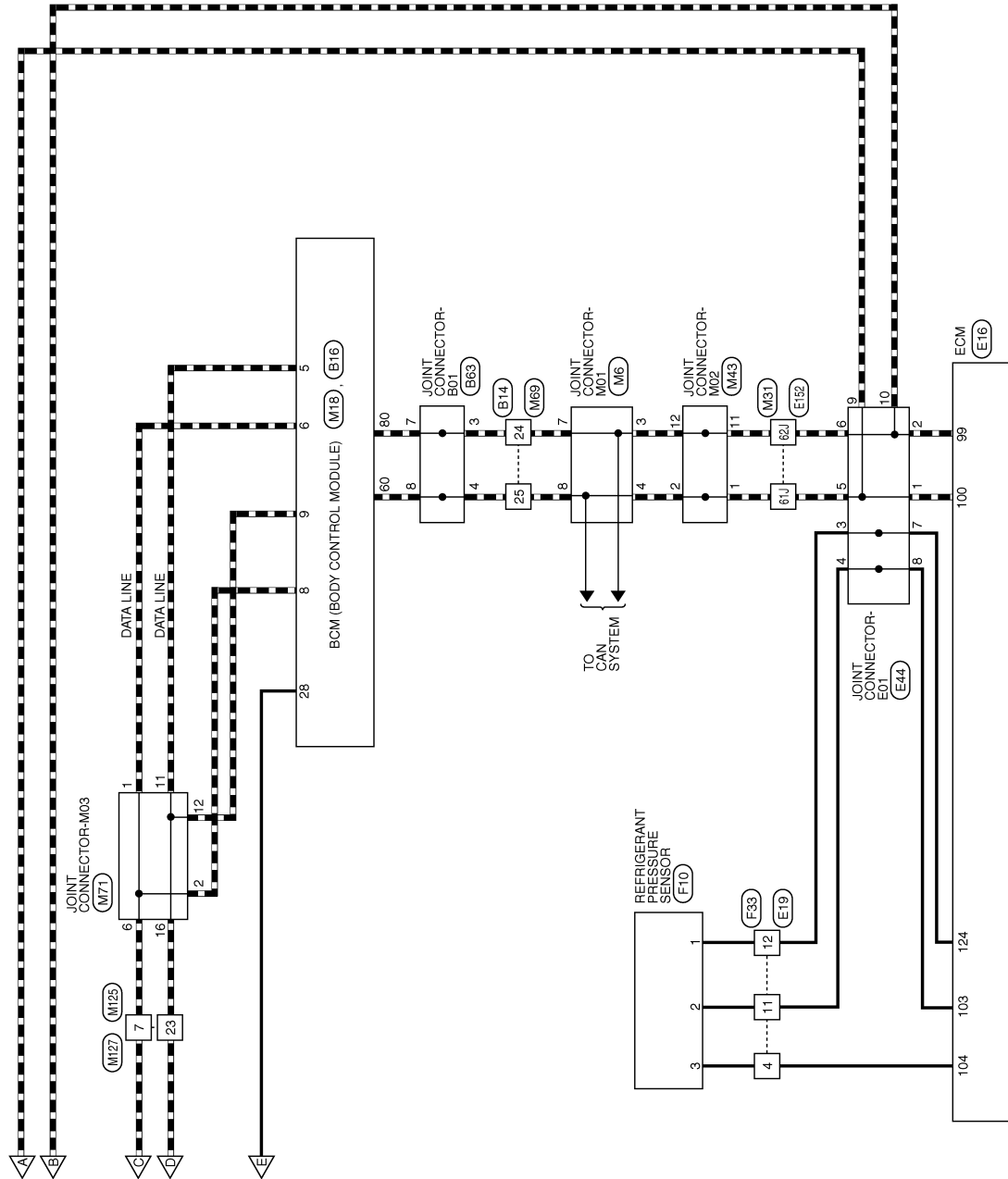


AAIWA0175GB

AUTOMATIC AIR CONDITIONING SYSTEM

< WIRING DIAGRAM >

[AUTOMATIC AIR CONDITIONING]



AAIWA0176GB

AUTOMATIC AIR CONDITIONING SYSTEM

< WIRING DIAGRAM >

[AUTOMATIC AIR CONDITIONING]

AIR CONDITIONER CONTROL CONNECTORS - WITH AUTOMATIC

Connector No.	M6
Connector Name	JOINT CONNECTOR-MO1
Connector Color	GRAY



4	3	2	1
8	7	6	5
12	11	10	9
16	15	14	13
20	19	18	17
24	23	22	21

Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY



20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21

Terminal No.	Color of Wire	Signal Name
5	R	CAN-L
6	L	CAN-H
8	L	CAN-H
9	R	CAN-L
28	LAW	O IGN2 RL

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE



5J	4J	3J	2J	1J
10J	9J	8J	7J	6J
21J	20J	19J	18J	17J
16J	15J	14J	13J	12J
11J	10J	9J	8J	7J
6J	5J	4J	3J	2J
41J	40J	39J	38J	37J
36J	35J	34J	33J	32J
31J	30J	29J	28J	27J
26J	25J	24J	23J	22J
61J	60J	59J	58J	57J
56J	55J	54J	53J	52J
51J	70J	69J	68J	67J
66J	65J	64J	63J	62J
81J	80J	79J	78J	77J
76J	75J	74J	73J	72J
71J	90J	89J	88J	87J
86J	85J	84J	83J	82J
95J	94J	93J	92J	91J
100J	99J	98J	97J	96J

Terminal No.	Color of Wire	Signal Name
61J	L	-
62J	P	-

Connector No.	M33
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



3N	2N	1N
8N	7N	6N
5N	4N	3N

Terminal No.	Color of Wire	Signal Name
3N	Y	-
8N	SB	-

Connector No.	M41
Connector Name	IN-VEHICLE SENSOR
Connector Color	WHITE



1	2
---	---

Terminal No.	Color of Wire	Signal Name
1	Y	-
2	P	-

Connector No.	M43
Connector Name	JOINT CONNECTOR-MO2
Connector Color	BLUE



9	8	7	6	5	4	3	2	1
20	19	18	17	16	15	14	13	12
11	10							

Terminal No.	Color of Wire	Signal Name
1	L	-
2	L	-
11	P	-
12	P	-

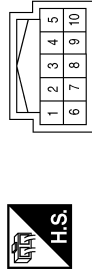
AAIIA0402GB

AUTOMATIC AIR CONDITIONING SYSTEM

< WIRING DIAGRAM >

[AUTOMATIC AIR CONDITIONING]

Connector No.	M51
Connector Name	A/C SWITCH
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	B	-
4	GR	-
8	LG	-

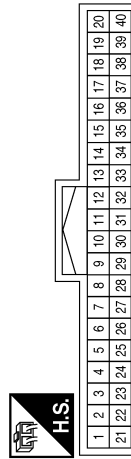
Terminal No.	Color of Wire	Signal Name
34	-	-
35	-	-
36	-	-
37	-	-
38	-	-
39	-	-
40	-	-

Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
16P	LA/W	-

Connector No.	M54
Connector Name	A/C AUTO AMP.
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	SB	-
3	B	-
6	-	-
7	-	-
8	-	-
9	-	-
10	-	-
11	L	CAN-H
12	-	-
13	Y	INCAR SEN

Terminal No.	Color of Wire	Signal Name
14	G	SUN SEN
15	-	-
16	-	-
17	-	-
18	-	-
19	-	-
20	-	-
21	-	-
22	-	-
23	BR	SEN GND
25	-	-
26	-	-
27	-	-
28	-	-
29	-	-
30	-	-
31	R	CAN-L
32	-	-
33	LG	LIN SW AMP

AAIIA0403GB

AUTOMATIC AIR CONDITIONING SYSTEM

< WIRING DIAGRAM >

[AUTOMATIC AIR CONDITIONING]

Terminal No.	Color of Wire	Signal Name
64	R	FR FAN F/B
65	W	INTAKE4
66	BR	INTAKE SEN GND
67	-	-
68	R	MODE3
69	G	MODE4
70	R	MIX DR 3
71	BR	MIX DR 4
72	-	-
74	G	FR FAN OUT
75	-	-
76	-	-
77	-	-
78	-	-
79	R	MIX AS 3
80	G	MIX AS 4

Terminal No.	Color of Wire	Signal Name
48	-	-
49	L	MODE1
50	BR	MODE2
51	L	MIX DR1
52	W	MIX DR 2
53	-	-
54	-	-
55	-	-
56	-	-
57	-	-
58	-	-
59	L	MIX AS 1
60	BR	MIX AS 2
61	G	12V PROT MOTOR34
62	-	-
63	BG	INTAKE SEN

Connector No.	M55
Connector Name	A/C AUTO AMP.
Connector Color	GRAY



60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41
80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61

Terminal No.	Color of Wire	Signal Name
41	W	12V PROT MOTOR 12
42	-	-
43	-	-
44	L	INTAKE1
45	R	INTAKE2
46	-	-
47	BR	INTAKE3

Connector No.	M69
Connector Name	WIRE TO WIRE
Connector Color	WHITE



16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17

Terminal No.	Color of Wire	Signal Name
24	P	-
25	L	-

Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN



7R	6R	5R	4R	3R	2R	1R
16R	15R	14R	13R	12R	11R	10R
9R	8R					

Terminal No.	Color of Wire	Signal Name
16R	GR	-

Connector No.	M64
Connector Name	SUNLOAD SENSOR
Connector Color	BLACK

1	2
---	---



Terminal No.	Color of Wire	Signal Name
1	G	-
2	BR	-

AAIIA0404GB

A
B
C
D
E
F
G
H
HAC
J
K
L
M
N
O
P

AUTOMATIC AIR CONDITIONING SYSTEM

< WIRING DIAGRAM >

[AUTOMATIC AIR CONDITIONING]

Connector No.	M125
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Terminal No.	Color of Wire	Signal Name
1	SB	-
3	B	-
5	LG	-
7	L	-
16	BR	-
19	G	-
20	Y	-
23	R	-

Connector No.	M123
Connector Name	WIRE TO WIRE
Connector Color	WHITE



6	5	4
3	2	1

Terminal No.	Color of Wire	Signal Name
1	Y	-
3	SB	-
6	B	-

Connector No.	M71
Connector Name	JOINT CONNECTOR-M03
Connector Color	BLUE



																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							</
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	----

Terminal No.	Color of Wire	Signal Name
1	L	-
2	L	-
6	L	-
11	R	-
12	R	-
16	R	-

Connector No.	M133
Connector Name	VARIABLE BLOWER CONTROL (WITH AUTO A/C)
Connector Color	GRAY



1	2
3	4

Connector No.	M132
Connector Name	WIRE TO WIRE
Connector Color	WHITE



4	5	6
1	2	3

Terminal No.	Color of Wire	Signal Name
1	Y	-
3	SB	-
6	B	-

Connector No.	M127
Connector Name	WIRE TO WIRE
Connector Color	WHITE



16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17

Terminal No.	Color of Wire	Signal Name
1	SB	-
3	B	-
5	LG	-
7	L	-
16	BR	-
19	G	-
20	Y	-
23	R	-

AAIIA0405GB

AUTOMATIC AIR CONDITIONING SYSTEM

< WIRING DIAGRAM >

[AUTOMATIC AIR CONDITIONING]

Connector No.	M140
Connector Name	AIR MIX DOOR MOTOR RH
Connector Color	BLACK



1	4
2	5
3	6

Terminal No.	Color of Wire	Signal Name
1	BR	-
2	G	-
3	L	-
4	G	-
6	R	-

Connector No.	M135
Connector Name	INTAKE SENSOR
Connector Color	GRAY



1	2
---	---

Terminal No.	Color of Wire	Signal Name
1	BG	-
2	BR	-

Connector No.	M134
Connector Name	VARIABLE BLOWER CONTROL (WITH AUTO A/C)
Connector Color	GRAY



5	6
---	---

Terminal No.	Color of Wire	Signal Name
5	W	-
6	B	-

Connector No.	M145
Connector Name	AIR MIX DOOR MOTOR LH
Connector Color	BLACK



1	4
2	5
3	6

Terminal No.	Color of Wire	Signal Name
1	W	-
2	G	-
3	L	-
4	BR	-
6	R	-

Connector No.	M144
Connector Name	FRONT BLOWER MOTOR
Connector Color	WHITE



1	2
---	---

Terminal No.	Color of Wire	Signal Name
1	Y	-
2	R	-

Connector No.	M143
Connector Name	MODE DOOR MOTOR
Connector Color	BLACK



1	4
2	5
3	6

Terminal No.	Color of Wire	Signal Name
1	BR	-
2	W	-
3	L	-
4	G	-
6	R	-

AAIIA0406GB

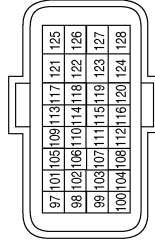
A
B
C
D
E
F
G
H
HAC
J
K
L
M
N
O
P

AUTOMATIC AIR CONDITIONING SYSTEM

< WIRING DIAGRAM >

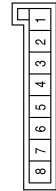
[AUTOMATIC AIR CONDITIONING]

Connector No.	E16
Connector Name	ECM
Connector Color	BLACK



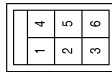
Terminal No.	Color of Wire	Signal Name
99	P	CAN-L
100	L	CAN-H
103	Y	PDPRES
104	R	AVCC1-PDPRES
124	W	GNDA-PDPRES

Connector No.	M193
Connector Name	JOINT CONNECTOR-M18
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	GR	-
4	GR	-

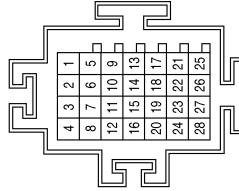
Connector No.	M147
Connector Name	INTAKE DOOR MOTOR
Connector Color	BLACK



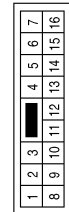
Terminal No.	Color of Wire	Signal Name
1	R	-
2	W	-
3	L	-
4	W	-
6	BR	-

Terminal No.	Color of Wire	Signal Name
1	L	-
2	P	-
3	W	-
4	Y	-
5	L	-
6	P	-
7	W	-
8	Y	-
9	L	-
10	P	-

Connector No.	E44
Connector Name	JOINT CONNECTOR-E01
Connector Color	WHITE



Connector No.	E19
Connector Name	WIRE TO WIRE
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
4	R	-
11	Y	-
12	W	-

AAIIA0407GB

AUTOMATIC AIR CONDITIONING SYSTEM

< WIRING DIAGRAM >

[AUTOMATIC AIR CONDITIONING]

Connector No.	E121
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	RED



45	44	43
48	47	46

Terminal No.	Color of Wire	Signal Name
47	B	Power Ground

Connector No.	E120
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



30	29	28	27	26	25	24	23	22	21	20	19
42	41	40	39	38	37	36	35	34	33	32	31

Terminal No.	Color of Wire	Signal Name
22	P	CAN-L
24	L	CAN-H
31	B	2ND SIGNAL GROUND

Connector No.	E119
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



9	8	7	6	5	4	3		
18	17	16	15	14	13	12	11	10

Terminal No.	Color of Wire	Signal Name
12	B	SIGNAL GROUND

Connector No.	F15
Connector Name	A/C COMPRESSOR (ELECTRICAL CONTROL VALVE)
Connector Color	GRAY



3	4
---	---

Terminal No.	Color of Wire	Signal Name
3	SB	-
4	Y	-

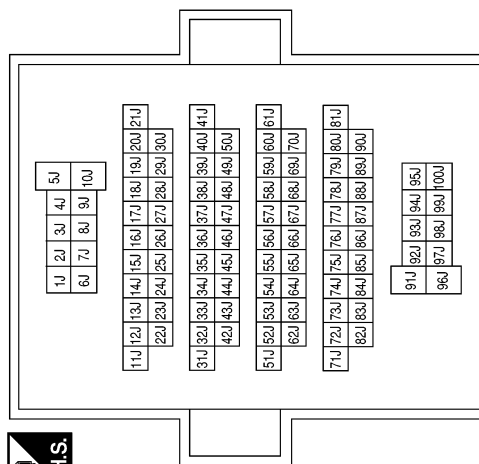
Connector No.	F10
Connector Name	REFRIGERANT PRESSURE SENSOR
Connector Color	BLACK



1	2	3
---	---	---

Terminal No.	Color of Wire	Signal Name
1	GR	-
2	P	-
3	BG	-

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE



AAIIA0414GB

Terminal No.	Color of Wire	Signal Name
61J	L	-
62J	P	-

A
B
C
D
E
F
G
H
HAC
J
K
L
M
N
O
P

AUTOMATIC AIR CONDITIONING SYSTEM

< WIRING DIAGRAM >

[AUTOMATIC AIR CONDITIONING]

Connector No.	F35
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE



71	70	69	68		67	66	65	
80	79	78	77	76	75	74	73	72

Terminal No.	Color of Wire	Signal Name
65	P	O AC CLUTCH
71	SB	O IGN REVERSE S VALVE

Connector No.	F33
Connector Name	WIRE TO WIRE
Connector Color	BROWN



7	6	5	4	3	2	1		
16	15	14	13	12	11	10	9	8

Terminal No.	Color of Wire	Signal Name
4	BG	-
11	P	-
12	GR	-

Connector No.	F27
Connector Name	A/C COMPRESSOR (MAGNETIC CLUTCH)
Connector Color	BLACK



1	2
---	---

Terminal No.	Color of Wire	Signal Name
1	P	-
2	B	-

Connector No.	B41
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Connector No.	B16
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GREEN



60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41
80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61

Terminal No.	Color of Wire	Signal Name
24	P	-
25	L	-

Terminal No.	Color of Wire	Signal Name
60	L	CAN-H
80	P	CAN-L

Connector No.	F42
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK



98	97	96	95	94	93	92	91	90	89	88	87
110	109	108	107	106	105	104	103	102	101	100	99

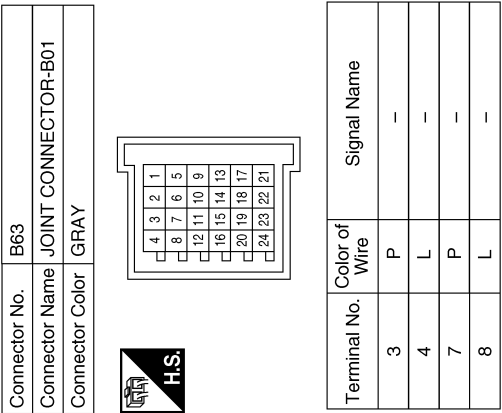
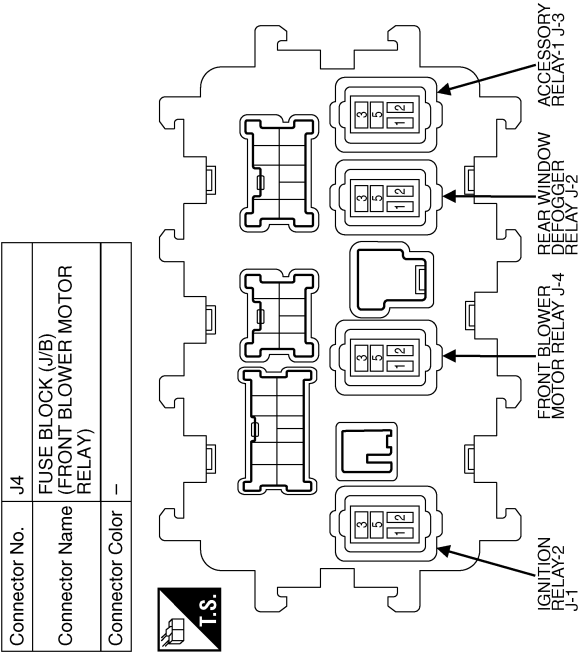
Terminal No.	Color of Wire	Signal Name
98	Y	O AC VALVE

AAIIA0417GB

AUTOMATIC AIR CONDITIONING SYSTEM

< WIRING DIAGRAM >

[AUTOMATIC AIR CONDITIONING]



AAIIA0419GB

A
B
C
D
E
F
G
H
HAC
J
K
L
M
N
O
P

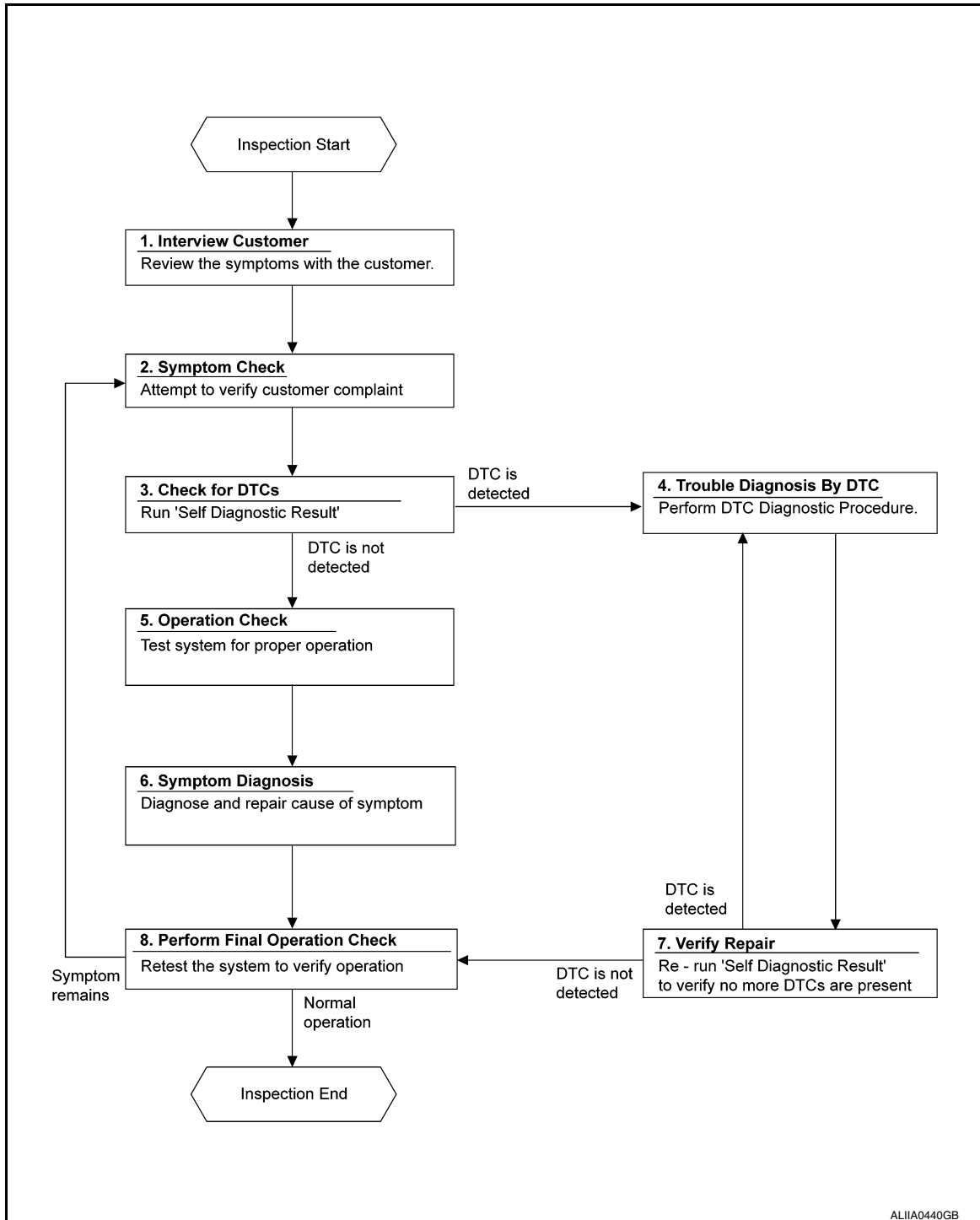
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:0000000010012048

OVERALL SEQUENCE



DETAILED FLOW

1. INTERVIEW CUSTOMER

Interview the customer to obtain as much information as possible about the conditions and environment under which the malfunction occurred.

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

[AUTOMATIC AIR CONDITIONING]

>> GO TO 2.

2.SYMPTOM CHECK

Verify symptoms.

>> GO TO 3.

3.CHECK FOR DTCS

 With CONSULT

1. Turn ignition switch ON.
2. Select "Self Diagnostic Result" mode of "HVAC" using CONSULT.
3. Check DTC.

Is any DTC detected?

YES >> GO TO 4.

NO >> GO TO 5.

4.PERFORM DTC DIAGNOSTIC PROCEDURE

Perform the diagnostic procedure for the detected DTC. Refer to [HAC-32. "DTC Inspection Priority Chart"](#).

>> GO TO 7.

5.OPERATION CHECK

Perform the operation check. Refer to [HAC-48. "Work Procedure"](#).

>> GO TO 6.

6.SYMPTOM DIAGNOSIS

Check the symptom diagnosis table. Refer to [HAC-96. "Diagnosis Chart By Symptom"](#).

>> GO TO 8.

7.VERIFY REPAIR.

 With CONSULT

1. Turn ignition switch ON.
2. Select "Self Diagnostic Result" mode of "HVAC" using CONSULT.
3. Check DTC.

Is any DTC detected?

YES >> GO TO 4.

NO >> GO TO 8.

8.PERFORM FINAL OPERATION CHECK

Perform the operation check. Refer to [HAC-48. "Work Procedure"](#).

Does it operate normally?

YES >> Inspection End.

NO >> GO TO 2.

OPERATION INSPECTION

Work Procedure

INFOID:0000000010012049

DESCRIPTION

The purpose of the operational check is to check that the individual system operates normally.

Conditions : Engine running at normal operating temperature

INSPECTION PROCEDURE

1. CHECK MEMORY FUNCTION

1. Start the engine.
2. Operate the temperature control switch (driver side) and raise the temperature setting to 32°C (90°F).
3. Press the OFF switch.
4. Turn the ignition switch OFF.
5. Turn the ignition switch ON.
6. Press the AUTO switch.
7. Check that the temperature setting, before turning the ignition switch OFF, is stored.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Check power and ground circuits for A/C auto amp. Refer to [HAC-56, "Diagnosis Procedure"](#).

2. CHECK BLOWER MOTOR SPEED

1. Operate the fan control dial. Check that the fan speed changes.
2. Check the operation for all fan speeds.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check blower motor system. Refer to [HAC-85, "Diagnosis Procedure"](#).

3. CHECK DISCHARGE AIR (MODE SWITCH AND DEF SWITCH)

1. Press the MODE switch and the DEF switch.
2. Check that the air outlets change according to each indicated air outlet by placing a hand in front of the outlets. Refer to [HAC-10, "System Description"](#).

NOTE:

Confirm that the A/C compressor clutch is engaged (sound or visual inspection) and intake door position is at FRE () when the D/F () or DEF () is selected.

Is the inspection result normal?

YES >> GO TO 4.

NO >> Check mode door system. Refer to [HAC-80, "Diagnosis Procedure"](#).

4. CHECK INTAKE AIR

1. Press the REC () switch. Indicator is turned ON.
2. Press the FRE () switch. Indicator is turned ON.
3. Listen for the intake door position change. (Slight change of blower sound can be heard.)

NOTE:

Confirm that the A/C compressor clutch is engaged (sound or visual inspection) and the FRE () switch is pressed when the D/F () or DEF () is selected.

Is the inspection result normal?

YES >> GO TO 5.

NO >> Check intake door system. Refer to [HAC-77, "Diagnosis Procedure"](#).

5. CHECK A/C SWITCH

1. Press the A/C switch.
2. The A/C switch indicator is turned ON.
Confirm that the A/C compressor clutch engages (sound or visual inspection).

Is the inspection result normal?

YES >> GO TO 6.

OPERATION INSPECTION

< BASIC INSPECTION >

[AUTOMATIC AIR CONDITIONING]

NO >> Check magnet clutch system. Refer to [HAC-91. "Diagnosis Procedure"](#).

6. CHECK TEMPERATURE DECREASE

1. Operate the A/C compressor.
2. Operate the temperature control dial (driver side) and lower the temperature setting to 18°C (60°F).
3. Check that the cool air blows from the outlets.

Is the inspection result normal?

YES >> GO TO 7.

NO >> Check for insufficient cooling. Refer to [HAC-98. "Diagnosis Procedure"](#).

7. CHECK TEMPERATURE INCREASE

1. Operate the temperature control dial (driver side) and raise the temperature setting to 32°C (90°F) after warming up the engine.
2. Check that the warm air blows from the outlets.

Is the inspection result normal?

YES >> GO TO 8.

NO >> Check for insufficient heating. Refer to [HAC-99. "Diagnosis Procedure"](#).

8. CHECK DUAL MODE FUNCTION

1. Press the DUAL mode switch, and then check that "DUAL" is shown on the display.
2. Operate the temperature control dial (driver side). Check that the discharge air temperature (driver side) changes.
3. Operate the temperature control dial (passenger side). Check that the discharge air temperature (passenger side) changes.
4. Press the DUAL mode switch, and then check that the temperature setting (driver/passenger) is unified to the driver side temperature setting.

Is the inspection result normal?

YES >> GO TO 9.

NO >> Refer to [HAC-96. "Diagnosis Chart By Symptom"](#) and perform the appropriate diagnosis.

9. CHECK AUTO MODE

1. Press the AUTO switch, and then check that "AUTO" is shown on the display.
2. Operate the temperature control dial (driver side). Check that the fan speed, outlet air or intake air changes. The discharge air temperature or fan speed varies depending on the ambient temperature, in-vehicle temperature, and temperature setting.

Is the inspection result normal?

YES >> Inspection End.

NO >> Refer to [HAC-96. "Diagnosis Chart By Symptom"](#) and perform the appropriate diagnosis.

SYSTEM SETTING

< BASIC INSPECTION >

[AUTOMATIC AIR CONDITIONING]

SYSTEM SETTING

Temperature Setting Trimmer

INFOID:0000000010012050

Description

If the temperature felt by the customer is different than the airflow temperature controlled by the temperature setting, the auto amplifier control temperature can be adjusted to compensate for the temperature setting.

How to set

Using CONSULT, perform "TEMP SET CORRECT" in "WORK SUPPORT" of HVAC.

Work support items	Display (°F)	Display (°C)
TEMP SET CORRECT	6	3.0
	5	2.5
	4	2.0
	3	1.5
	2	1.0
	1	0.5
	0 (initial status)	0 (initial status)
	-1	-0.5
	-2	-1.0
	-3	-1.5
	-4	-2.0
	-5	-2.5
	-6	-3.0

NOTE:

- When the temperature setting is set to 25.0°C (77°F) and -3.0°C (-6°F), the temperature controlled by auto amp is 25.0°C (77°F) - 3.0°C (6°F) = 22.0°C (71°F) and the temperature becomes lower than the temperature setting.
- When the battery cable is disconnected from the negative terminal or when the battery voltage becomes 10V or less, the setting of the difference between the temperature setting and control temperature may be cancelled.

Foot Position Setting Trimmer

INFOID:0000000010228160

DESCRIPTION

In FOOT mode, the air blowing to DEF can change ON/OFF.

HOW TO SET

ⓅWith CONSULT

Perform the "BLOW SET" of HVAC work support item.

Work support items	Display	Defroster door position	
		Auto control	Manual control
BLOW SET	Mode1	OPEN	CLOSE
	Mode2 (initial status)	OPEN	OPEN
	Mode3	CLOSE	OPEN
	Mode4	CLOSE	CLOSE

NOTE:

When the battery cable is disconnected from the negative terminal or when the battery voltage becomes 10 V or less, the setting of the discharge air mix ratio in FOOT mode may be cancelled.

Inlet Port Memory Function (FRE)

INFOID:0000000010012051

Description

SYSTEM SETTING

< BASIC INSPECTION >

[AUTOMATIC AIR CONDITIONING]

- If the ignition switch is turned to the OFF position while the FRE () switch is set to ON (fresh air intake), “Perform the memory” or “Do not perform the memory” of the FRE () switch ON (fresh air intake) condition can be selected.
- If “Perform the memory” was set, the FRE () switch will be ON (fresh air intake) when turning the ignition switch to the ON position again.
- If “Do not perform the memory” was set, the air inlets will be controlled automatically when turning the ignition switch to the ON position again.

How to set

Using CONSULT, perform “FRE MEMORY SET” in “WORK SUPPORT” of HVAC.

Work support items	Display	Setting
FRE MEMORY SET	WITHOUT	Perform the memory of manual FRE
	WITH (initial status)	Do not perform the memory of manual FRE (auto control)

NOTE:

When the battery cable is disconnected from the negative terminal or when the battery voltage becomes 10V or less, the setting of the FRE switch memory function may be cancelled.

Inlet Port Memory Function (REC)

INFOID:0000000010012052

Description

- If the ignition switch is turned to the OFF position while the REC () switch is set to ON (recirculation), “Perform the memory” or “Do not perform the memory” of the REC () switch ON (recirculation) condition can be selected.
- If “Perform the memory” was set, the REC () switch will be ON (recirculation) when turning the ignition switch to the ON position again.
- If “Do not perform the memory” was set, the air inlets will be controlled automatically when turning the ignition switch to the ON position again.

How to set

Using CONSULT, perform “REC MEMORY SET” in “WORK SUPPORT” of HVAC.

Work support items	Display	Setting
REC MEMORY SET	WITHOUT (initial status)	Perform the memory of manual REC
	WITH	Do not perform the memory of manual REC (auto control)

NOTE:

When the battery cable is disconnected from the negative terminal or when the battery voltage becomes 10V or less, the setting of the REC switch memory function may be cancelled.

Target Evaporator Temp Upper Limit

INFOID:0000000010012053

DESCRIPTION

Set the target evaporator temperature upper limit.

HOW TO SET

 With CONSULT

Perform the “TARGET EVAPORATOR TEMP UPPER LIMIT SETTING” of HVAC work support item.

Work support items	Display
TARGET EVAPORATOR TEMP UPPER LIMIT SETTING	Initial Setting
	Low
	Middle
	High

DOOR MOTOR STARTING POSITION RESET

< BASIC INSPECTION >

[AUTOMATIC AIR CONDITIONING]

DOOR MOTOR STARTING POSITION RESET

Description

INFOID:0000000010012054

- Reset signal is transmitted from A/C auto amp. to air mix door motor, intake door motor and mode door motor. Starting position reset can be performed.

NOTE:

During reset, DEF switch indicator blinks.

- When air mix door motor, intake door motor or mode door motor is removed and installed, always perform door motor starting position reset.

Work Procedure

INFOID:0000000010012055

1. PERFORM DOOR MOTOR STARTING POSITION RESET

⑧ With CONSULT

1. Turn ignition switch ON.
2. Select "Door Motor Starting Position Reset" in "ACTIVE TEST" mode of "HVAC" using CONSULT.
3. Touch "Start" and wait a few seconds.
4. Make sure the "COMPLETED" is displayed on CONSULT screen.

>> Inspection End.

DTC/CIRCUIT DIAGNOSIS

U1000 CAN COMM CIRCUIT

Description

INFOID:0000000010012056

CAN (Controller Area Network) is a serial communication system for real time application. It is an on-vehicle multiplex communication system with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto vehicles, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with two communication lines (CAN-H line, CAN-L line) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only. Refer to [LAN-32, "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart"](#).

DTC Logic

INFOID:0000000010012057

DTC DETECTION LOGIC

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
U1000	CAN COMM CIRCUIT	When A/C auto amp. is not transmitting or receiving CAN communication signal for 2 or more seconds.	CAN communication system

DTC CONFIRMATION PROCEDURE

1.PERFORM SELF-DIAGNOSIS

With CONSULT

1. Turn ignition switch ON and wait for 2 seconds or more.
2. Using CONSULT, perform "Self Diagnostic Result" of "HVAC".
3. Check if any DTC No. is displayed in the self-diagnosis results.

Is DTC detected?

- YES >> Refer to [HAC-53, "Diagnosis Procedure"](#).
NO >> Refer to [GI-41, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010012058

1.CHECK CAN COMMUNICATION SYSTEM

Check CAN communication system. Refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).

>> Inspection End.

U1010 CONTROL UNIT (CAN)

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

U1010 CONTROL UNIT (CAN)

Description

INFOID:0000000010012059

Initial diagnosis of A/C auto amp.

DTC Logic

INFOID:0000000010012060

DTC DETECTION LOGIC

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
U1010	CONTROL UNIT (CAN)	When detecting error during the initial diagnosis of CAN controller of A/C auto amp.	A/C auto amp.

DTC CONFIRMATION PROCEDURE

1.PERFORM SELF-DIAGNOSIS

ⒺWith CONSULT

1. Turn ignition switch ON.
2. Using CONSULT, perform "Self Diagnostic Result" of "HVAC".
3. Check if any DTC No. is displayed in the self-diagnosis results.

Is DTC detected?

- YES >> Refer to [HAC-54, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010012061

NOTE:

This DTC can be set if the BCM is placed in transit mode. Confirm if the DTC is CURRENT or PAST. If PAST, perform the following steps before carrying out Diagnosis Procedure.

1. Clear DTC using CONSULT. Refer to [HAC-22, "CONSULT Function \(HVAC\)"](#).
2. Perform OPERATION INSPECTION. Refer to [HAC-48, "Work Procedure"](#).
3. Perform "Self Diagnostic Result" of "HVAC" using CONSULT. Refer to [HAC-22, "CONSULT Function \(HVAC\)"](#).
4. If DTC resets, proceed with Diagnosis Procedure.

1.REPLACE A/C AUTO AMP.

Replace A/C auto amp. Refer to [HAC-103, "Removal and Installation"](#).

>> Inspection End.

B24A0 A/C AUTO AMP.

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

B24A0 A/C AUTO AMP.

DTC Logic

INFOID:0000000010269614

DTC DETECTION LOGIC

NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [HAC-53, "DTC Logic"](#).
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [HAC-54, "DTC Logic"](#).

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
B24A0	A/C AUTO AMP.	A/C auto amp. EEPROM system is malfunctioning.	A/C auto amp.

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT

1. Turn ignition switch ON.
2. Using CONSULT, perform "Self Diagnostic Result" of "HVAC".
3. Check if any DTC No. is displayed in the self-diagnosis results.

Is DTC detected?

- YES >> Refer to [HAC-55, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010269615

1.PERFORM SELF DIAGNOSTIC

With CONSULT

1. Turn ignition switch ON.
2. Select "Self Diagnostic Result" mode of "HVAC" using CONSULT.
3. Touch "ERASE".
4. Turn ignition switch OFF.
5. Turn ignition switch ON.
6. Perform "DTC CONFIRMATION PROCEDURE". Refer to [HAC-55, "DTC Logic"](#).

Is DTC detected again?

- YES >> Replace A/C auto amp. Refer to [HAC-103, "Removal and Installation"](#).
NO >> Inspection End.

B24A1 A/C AUTO AMP. POWER SUPPLY

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

B24A1 A/C AUTO AMP. POWER SUPPLY

DTC Logic

INFOID:0000000010269628

DTC DETECTION LOGIC

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
B24A1	A/C AUTO AMP. POWER SUPPLY	A/C auto amp. power supply is out of range	- A/C auto amp. - Harness and connector (Power supply is open or shorted)

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT

- Turn ignition switch ON.
- Using CONSULT, perform "Self Diagnostic Result" of "HVAC".
- Check if any DTC No. is displayed in the self-diagnosis results.

Is DTC detected?

- YES >> Refer to [HAC-56, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010012087

Regarding Wiring Diagram information, refer to [HAC-35, "Wiring Diagram"](#).

1.CHECK FUSE

Check 10A fuse [No. 20, located in the fuse block (J/B)].

NOTE:

Refer to [PG-64, "Terminal Arrangement"](#).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Replace the blown fuse after repairing the affected circuit.

2.CHECK A/C AUTO AMP. POWER SUPPLY

- Turn ignition switch OFF.
- Disconnect A/C auto amp. connector.
- Check voltage between A/C auto amp. harness connector and ground.

+		–	Voltage		
A/C auto amp.			Ignition switch position		
Connector	Terminal		OFF	ACC	ON
M54	1	Ground	Approx. 0 V	Approx. 0 V	Battery voltage

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair harness or connector between A/C auto amp. and fuse block (J/B).

3.CHECK A/C AUTO AMP. GROUND CIRCUIT

- Turn ignition switch OFF.
- Check continuity between A/C auto amp. harness connector and ground.

B24A1 A/C AUTO AMP. POWER SUPPLY

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

A/C auto amp.		—	Continuity
Connector	Terminal		
M54	3	Ground	Yes

Is the inspection result normal?

YES >> Inspection End.

NO >> Repair harness or connector.

A

B

C

D

E

F

G

H

HAC

J

K

L

M

N

O

P

B24A4 INTAKE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

B24A4 INTAKE SENSOR

DTC Logic

INFOID:0000000010012068

DTC DETECTION LOGIC

NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [HAC-53, "DTC Logic"](#).
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [HAC-54, "DTC Logic"](#).

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
B24A4	INTAKE SENSOR	The intake sensor recognition temperature is too high.	• Intake sensor • A/C auto amp. • Harness or connectors (The sensor circuit is open or shorted.)
		The intake sensor recognition temperature is too low.	

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT

1. Turn ignition switch ON.
2. Using CONSULT, perform "Self Diagnostic Result" of "HVAC".
3. Check if any DTC No. is displayed in the self-diagnosis results.

Is DTC detected?

- YES >> Refer to [HAC-58, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010012069

Regarding Wiring Diagram information, refer to [HAC-35, "Wiring Diagram"](#).

1.CHECK INTAKE SENSOR POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect intake sensor connector.
3. Turn ignition switch ON.
4. Check voltage between intake sensor harness connector and ground.

+		-	Voltage (Approx.)
Intake sensor			
Connector	Terminal		
M135	1	Ground	5 V

Is the inspection result normal?

- YES >> GO TO 2.
NO >> GO TO 4.

2.CHECK INTAKE SENSOR GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check continuity between intake sensor harness connector and ground.

B24A4 INTAKE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

Intake sensor		—	Continuity
Connector	Terminal		
M135	2	Ground	Yes

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

3.CHECK INTAKE SENSOR

Check intake sensor. Refer to [HAC-59, "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to [HAC-103, "Removal and Installation"](#).

NO >> Replace intake sensor. Refer to [HAC-107, "Removal and Installation"](#).

4.CHECK INTAKE SENSOR POWER SUPPLY CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect A/C auto amp. connector.
3. Check continuity between intake sensor harness connector and A/C auto amp. harness connector.

Intake sensor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M135	1	M55	63	Yes

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair harness or connector.

5.CHECK INTAKE SENSOR POWER SUPPLY CIRCUIT FOR SHORT TO GROUND

Check continuity between intake sensor harness connector and ground.

Intake sensor		—	Continuity
Connector	Terminal		
M135	1	Ground	No

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair harness or connector.

6.CHECK INTAKE SENSOR POWER SUPPLY CIRCUIT FOR SHORT TO VOLTAGE

1. Turn ignition switch ON.
2. Check voltage between intake sensor harness connector and ground.

+		—	Voltage (Approx.)
Intake sensor			
Connector	Terminal		
M135	1	Ground	0 V

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to [HAC-103, "Removal and Installation"](#).

NO >> Repair harness or connector.

Component Inspection

INFOID:0000000010012070

1.CHECK INTAKE SENSOR

1. Turn ignition switch OFF.
2. Disconnect intake sensor connector.

B24A4 INTAKE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

3. Check resistance between intake sensor terminals.

Terminal		Condition	Resistance: kΩ
		Temperature: °C (°F)	
1	2	-15 (5)	17.73
		-10 (14)	13.46
		-5 (23)	10.33
		0 (32)	8.00
		5 (41)	6.25
		10 (50)	4.93
		15 (59)	3.92
		20 (68)	3.14
		25 (77)	2.54
		30 (86)	2.06
		35 (95)	1.69
		40 (104)	1.39
		45 (113)	1.15

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace intake sensor. Refer to [HAC-107, "Removal and Installation"](#).

B24A6 IN-VEHICLE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

B24A6 IN-VEHICLE SENSOR

DTC Logic

INFOID:0000000010012062

DTC DETECTION LOGIC

NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [HAC-53, "DTC Logic"](#).
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [HAC-54, "DTC Logic"](#).

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
B24A6	IN-VEHICLE SENSOR	The in-vehicle sensor recognition temperature is too high.	• In-vehicle sensor • A/C auto amp. • Harness or connectors (The sensor circuit is open or shorted.)
		The in-vehicle sensor recognition temperature is too low.	

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

Ⓜ With CONSULT

1. Turn ignition switch ON.
2. Using CONSULT, perform "Self Diagnostic Result" of "HVAC".
3. Check if any DTC No. is displayed in the self-diagnosis results.

Is DTC detected?

- YES >> Refer to [HAC-61, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010012063

Regarding Wiring Diagram information, refer to [HAC-35, "Wiring Diagram"](#).

1.CHECK IN-VEHICLE SENSOR POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect in-vehicle sensor connector.
3. Turn ignition switch ON.
4. Check voltage between in-vehicle sensor harness connector and ground.

+		-	Voltage (Approx.)
In-vehicle sensor			
Connector	Terminal		
M41	1	Ground	5 V

Is the inspection result normal?

- YES >> GO TO 2.
NO >> GO TO 4.

2.CHECK CONTINUITY BETWEEN IN-VEHICLE SENSOR AND A/C AUTO AMP.

1. Turn ignition switch OFF.
2. Disconnect A/C auto amp. connector.
3. Check continuity between in-vehicle sensor harness connector and A/C auto amp. harness connector.

B24A6 IN-VEHICLE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

In-vehicle sensor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M41	2	M54	23	Yes

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

3.CHECK IN-VEHICLE SENSOR

Check in-vehicle sensor. Refer to [HAC-62, "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to [HAC-103, "Removal and Installation"](#).

NO >> Replace in-vehicle sensor. Refer to [HAC-105, "Removal and Installation"](#).

4.CHECK IN-VEHICLE SENSOR POWER SUPPLY CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect A/C auto amp. connector.
3. Check continuity between in-vehicle sensor harness connector and A/C auto amp. harness connector.

In-vehicle sensor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M41	1	M54	13	Yes

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair harness or connector.

5.CHECK IN-VEHICLE SENSOR POWER SUPPLY CIRCUIT FOR GROUND SHORT

Check continuity between in-vehicle sensor harness connector and ground.

In-vehicle sensor		—	Continuity
Connector	Terminal		
M41	1	Ground	No

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair harness or connector.

6.CHECK IN-VEHICLE SENSOR POWER SUPPLY CIRCUIT FOR POWER SHORT

1. Turn ignition switch ON.
2. Check voltage between in-vehicle sensor harness connector and ground.

+		—	Voltage (Approx.)
In-vehicle sensor			
Connector	Terminal		
M41	1	Ground	0 V

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to [HAC-103, "Removal and Installation"](#).

NO >> Repair harness or connector.

Component Inspection

INFOID:0000000010012064

1.CHECK IN-VEHICLE SENSOR

1. Turn ignition switch OFF.
2. Disconnect in-vehicle sensor connector.

B24A6 IN-VEHICLE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

3. Check resistance between in-vehicle sensor terminals.

Terminal		Condition	Resistance: kΩ
		Temperature: °C (°F)	
1	2	-15 (5)	12.73
		-10 (14)	9.92
		-5 (23)	7.80
		0 (32)	6.19
		5 (41)	4.95
		10 (50)	3.99
		15 (59)	3.24
		20 (68)	2.65
		25 (77)	2.19
		30 (86)	1.81
		35 (95)	1.51
		40 (104)	1.27
		45 (113)	1.07

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace in-vehicle sensor. Refer to [HAC-105. "Removal and Installation"](#).

A

B

C

D

E

F

G

H

HAC

J

K

L

M

N

O

P

B24A9 SUNLOAD SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

B24A9 SUNLOAD SENSOR

DTC Logic

INFOID:0000000010012071

DTC DETECTION LOGIC

NOTE:

- If DTC is displayed along with DTC U1000 or U1010, first diagnose the DTC U1000 or U1010. Refer to [HAC-53, "DTC Logic"](#) (U1000) or [HAC-54, "DTC Logic"](#) (U1010).
- Sunload sensor may register a malfunction when indoors, at dusk, or at other times when light is insufficient. When performing the diagnosis indoors, light the sunload sensor with a lamp (60W or more).

DTC	Items (CONSULT screen terms)	Diagnostic item is detected when...	Possible cause
B24A9	SUNLOAD SEN (SHORT)	Detected calorie at sunload sensor 1677 w/m ² (1442 kcal/m ² ·h) or more	• Sunload sensor • A/C auto amp. • Harness and connector (Sunload sensor circuit is open, or there is a short in the circuit)
	SUNLOAD SEN (OPEN)	Detected calorie at sunload sensor 33 w/m ² (28 kcal/m ² ·h)	

DTC CONFIRMATION PROCEDURE

1.CHECK WITH SELF-DIAGNOSIS FUNCTION OF CONSULT

1. Using CONSULT, perform "Self Diagnostic Result" of "HVAC".
2. Check if any DTC No. is displayed in the self-diagnosis results.

NOTE:

- If DTC is displayed along with DTC U1000 or U1010, first diagnose the DTC U1000 or U1010. Refer to [HAC-53, "DTC Logic"](#) (U1000) or [HAC-54, "DTC Logic"](#) (U1010).
- Sunload sensor may register a malfunction when indoors, at dusk, or at other times when light is insufficient. When performing the diagnosis indoors, light the sunload sensor with a lamp (60W or more).

Is DTC No. "B24A9" displayed?

- YES >> Perform trouble diagnosis for the sunload sensor. Refer to [HAC-64, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010012072

Regarding Wiring Diagram information, refer to [HAC-35, "Wiring Diagram"](#).

NOTE:

This DTC can be set if the BCM is placed in transit mode. Confirm if the DTC is CURRENT or PAST. If PAST, perform the following steps before carrying out Diagnosis Procedure.

1. Clear DTC using CONSULT. Refer to [HAC-22, "CONSULT Function \(HVAC\)"](#).
2. Perform OPERATION INSPECTION. Refer to [HAC-48, "Work Procedure"](#).
3. Perform "Self Diagnostic Result" of "HVAC" using CONSULT. Refer to [HAC-22, "CONSULT Function \(HVAC\)"](#).
4. If DTC resets, proceed with Diagnosis Procedure.

1.CHECK SUNLOAD SENSOR POWER SUPPLY

1. Disconnect sunload sensor connector.
2. Turn ignition switch ON.
3. Check voltage between sunload sensor harness connector and ground.

+		-	Voltage (Approx.)
Sunload sensor			
Connector	Terminal		
M64	1	Ground	5 V

B24A9 SUNLOAD SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

Is the inspection result normal?

YES >> GO TO 2.

NO >> GO TO 4.

2.CHECK CONTINUITY BETWEEN SUNLOAD SENSOR AND A/C AUTO AMP.

1. Turn ignition switch OFF.
2. Disconnect A/C auto amp. connector.
3. Check continuity between sunload sensor harness connector and A/C auto amp. harness connector.

Sunload sensor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M64	2	M54	23	Yes

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

3.CHECK SUNLOAD SENSOR

1. Reconnect sunload sensor connector and A/C auto amp. connector.
2. Check sunload sensor. Refer to [HAC-65, "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to [HAC-103, "Removal and Installation"](#).

NO >> Replace sunload sensor. Refer to [HAC-106, "Removal and Installation"](#).

4.CHECK CONTINUITY BETWEEN SUNLOAD SENSOR AND A/C AUTO AMP.

1. Turn ignition switch OFF.
2. Disconnect A/C auto amp. connector.
3. Check continuity between sunload sensor harness connector and A/C auto amp. harness connector.

Sunload sensor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M64	1	M54	14	Yes

4. Check continuity between sunload sensor harness connector and ground.

Sunload sensor		—	Continuity
Connector	Terminal		
M64	1	Ground	No

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to [HAC-103, "Removal and Installation"](#).

NO >> Repair harness or connector.

Component Inspection

INFOID:0000000010012073

1.CHECK SUNLOAD SENSOR

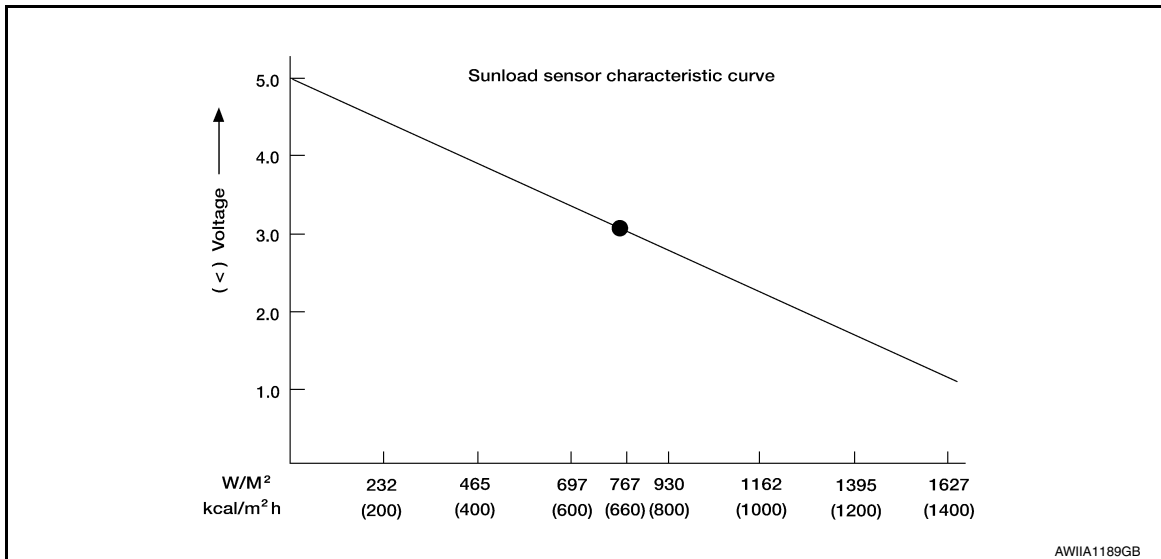
1. Turn ignition switch ON.
2. Check voltage between A/C auto amp. harness connector and ground.

(+)		(-)	
A/C auto amp.		—	
Connector	Terminal		
M54	14	Ground	

B24A9 SUNLOAD SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]



NOTE:

Select a place in direct sunlight when checking sunload sensor.

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace sunload sensor. Refer to [HAC-106, "Removal and Installation"](#).

B24BB LEFT AIR MIX DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

B24BB LEFT AIR MIX DOOR MOTOR

DTC Logic

INFOID:0000000010012074

DTC DETECTION LOGIC

NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [HAC-53, "DTC Logic"](#).
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. [HAC-54, "DTC Logic"](#).
- If air mix door motors DTC (B24BB – B24BD) are detected, there is probably a disconnected connector or an open circuit in air mix door motor drive power supply harness.

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
B24BB	DR AIR MIX DOOR MOT	Short or open circuit of air mix door motor drive signal.	• Air mix door motor • A/C auto amp. • Harness or connectors (The motor circuit is open or shorted.)

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

ⓂWith CONSULT

1. Turn ignition switch ON.
2. Select "Self Diagnostic Result" mode of "HVAC" using CONSULT.
3. Check DTC.

Is DTC detected?

- YES >> Refer to [HAC-70, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010012075

Regarding Wiring Diagram information, refer to [HAC-35, "Wiring Diagram"](#).

1.CHECK AIR MIX DOOR MOTOR LH POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect air mix door motor LH connector.
3. Turn ignition switch ON.
4. Check voltage between air mix door motor LH harness connector and ground.

+		-	Voltage
Air mix door motor LH			
Connector	Terminal		
M145	2	Ground	Battery voltage

Is the inspection result normal?

- YES >> GO TO 3.
NO >> GO TO 2.

2.CHECK AIR MIX DOOR MOTOR LH POWER SUPPLY CIRCUIT FOR OPEN

1. Disconnect A/C auto amp. connector.
2. Check continuity between air mix door motor LH harness connector and A/C auto amp. harness connector.

B24BB LEFT AIR MIX DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

Air mix door motor LH		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M145	2	M55	61	Yes

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to [HAC-103. "Removal and Installation"](#).

NO >> Repair harness or connector.

3.CHECK AIR MIX DOOR MOTOR LH DRIVE SIGNAL CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect A/C auto amp. connector.
3. Check continuity between air mix door motor LH harness connector and A/C auto amp. harness connector.

Air mix door motor LH		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M145	1	M55	52	Yes
	3		51	
	4		71	
	6		70	

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

4.CHECK AIR MIX DOOR MOTOR LH DRIVE SIGNAL CIRCUIT FOR SHORT

Check continuity between air mix door motor LH harness connector and A/C auto amp. harness connector.

Air mix door motor LH		—	Continuity
Connector	Terminal		
M145	1	Ground	No
	3		
	4		
	6		

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair harness or connector.

5.CHECK AIR MIX DOOR MOTOR LH

Check air mix door motor LH. Refer to [HAC-71. "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to [HAC-103. "Removal and Installation"](#).

NO >> Replace air mix door motor LH. Refer to [HAC-110. "AIR MIX DOOR MOTOR : Removal and Installation"](#).

Component Inspection

INFOID:0000000010012076

1.CHECK AIR MIX DOOR MOTOR LH

1. Remove air mix door motor LH. Refer to [HAC-110. "AIR MIX DOOR MOTOR : Removal and Installation"](#).
2. Check resistance between air mix door motor LH terminals. Refer to applicable table for the normal value.

B24BB LEFT AIR MIX DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

Terminal		Resistance (Ω) (Approx.)
2	1	90
	3	
	4	
	6	

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace air mix door motor LH. Refer to [HAC-110, "AIR MIX DOOR MOTOR : Removal and Installation"](#).

A

B

C

D

E

F

G

H

HAC

J

K

L

M

N

O

P

B24BD RIGHT AIR MIX DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

B24BD RIGHT AIR MIX DOOR MOTOR

DTC Logic

INFOID:0000000010012077

DTC DETECTION LOGIC

NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [HAC-53, "DTC Logic"](#).
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. [HAC-54, "DTC Logic"](#).
- If air mix door motors DTC (B24BB – B24BD) are detected, there is probably a disconnected connector or an open circuit in air mix door motor drive power supply harness.

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
B24BD	AS AIR MIX DOOR MOT	Short or open circuit of air mix door motor drive signal.	• Air mix door motor • A/C auto amp. • Harness or connectors (The motor circuit is open or shorted.)

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

Ⓔ With CONSULT

1. Turn ignition switch ON.
2. Select "Self Diagnostic Result" mode of "HVAC" using CONSULT.
3. Check DTC.

Is DTC detected?

- YES >> Refer to [HAC-70, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010012078

Regarding Wiring Diagram information, refer to [HAC-35, "Wiring Diagram"](#).

1.CHECK AIR MIX DOOR MOTOR RH POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect air mix door motor RH connector.
3. Turn ignition switch ON.
4. Check voltage between air mix door motor RH harness connector and ground.

+		–	Voltage
Air mix door motor RH			
Connector	Terminal		
M140	2	Ground	Battery voltage

Is the inspection result normal?

- YES >> GO TO 3.
NO >> GO TO 2.

2.CHECK AIR MIX DOOR MOTOR RH POWER SUPPLY CIRCUIT FOR OPEN

1. Disconnect A/C auto amp. connector.
2. Check continuity between air mix door motor RH harness connector and A/C auto amp. harness connector.

B24BD RIGHT AIR MIX DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

Air mix door motor RH		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M140	2	M55	61	Yes

Is the inspection result normal?

- YES >> Replace A/C auto amp. Refer to [HAC-103. "Removal and Installation"](#).
NO >> Repair harness or connector.

3.CHECK AIR MIX DOOR MOTOR DRIVE SIGNAL CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect A/C auto amp. connector.
3. Check continuity between air mix door motor RH harness connector and A/C auto amp. harness connector.

Air mix door motor RH		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M140	1	M55	60	Yes
	3		59	
	4		80	
	6		79	

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Repair harness or connector.

4.CHECK AIR MIX DOOR MOTOR RH DRIVE SIGNAL CIRCUIT FOR SHORT

Check continuity between air mix door motor RH harness connector and A/C auto amp. harness connector.

Air mix door motor RH		—	Continuity
Connector	Terminal		
M140	1	Ground	No
	3		
	4		
	6		

Is the inspection result normal?

- YES >> GO TO 5.
NO >> Repair harness or connector.

5.CHECK AIR MIX DOOR MOTOR RH

Check air mix door motor RH. Refer to [HAC-71. "Component Inspection"](#).

Is the inspection result normal?

- YES >> Replace A/C auto amp. Refer to [HAC-103. "Removal and Installation"](#).
NO >> Replace air mix door motor RH. Refer to [HAC-110. "AIR MIX DOOR MOTOR : Removal and Installation"](#).

Component Inspection

INFOID:0000000010012079

1.CHECK AIR MIX DOOR MOTOR RH

1. Remove air mix door motor RH. Refer to [HAC-110. "AIR MIX DOOR MOTOR : Removal and Installation"](#).
2. Check resistance between air mix door motor RH terminals. Refer to applicable table for the normal value.

B24BD RIGHT AIR MIX DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

Terminal		Resistance (Ω) (Approx.)
2	1	90
	3	
	4	
	6	

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace air mix door motor RH. Refer to [HAC-110, "AIR MIX DOOR MOTOR : Removal and Installation"](#).

B24B4 A/C CONTROL

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

B24B4 A/C CONTROL

DTC Logic

INFOID:0000000010350714

DTC DETECTION LOGIC

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
B24B4	A/C CONTROL COMM	When A/C auto amp. is not transmitting or receiving communication signal for 2 or more seconds.	- A/C switch - A/C auto amp. - Harness and connector (Communication line is open or shorted)

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT

- Turn ignition switch ON.
- Using CONSULT, perform "Self Diagnostic Result" of "HVAC".
- Check if any DTC No. is displayed in the self-diagnosis results.

Is DTC detected?

- YES >> Refer to [HAC-73, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010350715

Regarding Wiring Diagram information, refer to [HAC-35, "Wiring Diagram"](#).

1.CHECK WITH SELF-DIAGNOSIS FUNCTION OF CONSULT

- Using CONSULT, perform "Self Diagnostic Result" of "HVAC".
- Check if any DTC No. is displayed in the self-diagnosis results.

NOTE:

If DTC is displayed along with DTC U1000 or U1010, first diagnose the DTC U1000 or U1010. Refer to [HAC-53, "DTC Logic"](#) (U1000) or [HAC-54, "DTC Logic"](#) (U1010).

Is any DTC No. displayed?

- YES >> Perform diagnosis for the applicable DTC. Refer to [HAC-32, "DTC Index"](#).
NO >> GO TO 2.

2.CHECK A/C SWITCH COMMUNICATION CIRCUIT CONTINUITY

- Turn ignition switch OFF.
- Disconnect the A/C switch and the A/C auto amp. connectors.
- Check continuity between A/C switch harness connector and A/C auto amp. harness connector.

A/C switch		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M51	8	M54	33	Yes

- Check continuity between A/C switch harness connector and ground.

A/C switch		—	Continuity
Connector	Terminal		
M51	8	Ground	No

Is the inspection result normal?

B24B4 A/C CONTROL

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

YES >> Replace A/C switch. Refer to [HAC-102. "Removal and Installation"](#).
NO >> Repair harness or connector.

B24B6 A/C CONTROL

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

B24B6 A/C CONTROL

DTC Logic

INFOID:0000000010350716

DTC DETECTION LOGIC

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
B24B6	A/C CONTROL COMM	When A/C auto amp. is not transmitting or receiving communication signal for 2 or more seconds.	- A/C switch - A/C auto amp. - Harness and connector (Communication line is open or shorted)

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT

- Turn ignition switch ON.
- Using CONSULT, perform "Self Diagnostic Result" of "HVAC".
- Check if any DTC No. is displayed in the self-diagnosis results.

Is DTC detected?

- YES >> Refer to [HAC-75, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010350717

Regarding Wiring Diagram information, refer to [HAC-35, "Wiring Diagram"](#).

1.CHECK WITH SELF-DIAGNOSIS FUNCTION OF CONSULT

- Using CONSULT, perform "Self Diagnostic Result" of "HVAC".
- Check if any DTC No. is displayed in the self-diagnosis results.

NOTE:

If DTC is displayed along with DTC U1000 or U1010, first diagnose the DTC U1000 or U1010. Refer to [HAC-53, "DTC Logic"](#) (U1000) or [HAC-54, "DTC Logic"](#) (U1010).

Is any DTC No. displayed?

- YES >> Perform diagnosis for the applicable DTC. Refer to [HAC-32, "DTC Index"](#).
NO >> GO TO 2.

2.CHECK A/C SWITCH COMMUNICATION CIRCUIT CONTINUITY

- Turn ignition switch OFF.
- Disconnect the A/C switch and the A/C auto amp. connectors.
- Check continuity between A/C switch harness connector and A/C auto amp. harness connector.

A/C switch		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M51	8	M54	33	Yes

- Check continuity between A/C switch harness connector and ground.

A/C switch		—	Continuity
Connector	Terminal		
M51	8	Ground	No

Is the inspection result normal?

B24B6 A/C CONTROL

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

YES >> Replace A/C switch. Refer to [HAC-102. "Removal and Installation"](#).
NO >> Repair harness or connector.

B24B7 INTAKE DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

B24B7 INTAKE DOOR MOTOR

DTC Logic

INFOID:0000000010012083

DTC DETECTION LOGIC

NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [HAC-53, "DTC Logic"](#).
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. [HAC-54, "DTC Logic"](#).
- If mode door motors DTC (B24B7 – B24B9) are detected, there is probably a disconnected connector or an open circuit in mode door motor drive power supply harness.

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
B24B7	INTAKE DOOR MOTOR	Short or open circuit of intake door motor drive signal.	• Intake door motor • A/C auto amp. • Harness or connectors (The motor circuit is open or shorted.)

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

Ⓔ With CONSULT

1. Start engine.
2. Select "Self Diagnostic Result" mode of "HVAC" using CONSULT.
3. Check DTC.

Is DTC detected?

- YES >> Refer to [HAC-77, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010012084

Regarding Wiring Diagram information, refer to [HAC-35, "Wiring Diagram"](#).

1.CHECK INTAKE DOOR MOTOR POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect intake door motor connector.
3. Turn ignition switch ON.
4. Check voltage between intake door motor harness connector and ground.

+		-	Voltage
Intake door motor			
Connector	Terminal		
M147	2	Ground	Battery voltage

Is the inspection result normal?

- YES >> GO TO 3.
NO >> GO TO 2.

2.CHECK INTAKE DOOR MOTOR DRIVE SIGNAL CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect A/C auto amp. connector.
3. Check continuity between intake door motor harness connector and A/C auto amp. harness connector.

B24B7 INTAKE DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

Intake door motor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M147	2	M55	41	Yes

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to [HAC-103, "Removal and Installation"](#).

NO >> Repair harness or connector.

3.CHECK INTAKE DOOR MOTOR DRIVE SIGNAL CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect A/C auto amp. connector.
3. Check continuity between intake door motor harness connector and A/C auto amp. harness connector.

Intake door motor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M147	1	M55	45	Yes
	3		44	
	4		65	
	6		47	

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

4.CHECK INTAKE DOOR MOTOR DRIVE SIGNAL CIRCUIT FOR SHORT

Check continuity between intake door motor harness connector and A/C auto amp. harness connector.

Intake door motor		—	Continuity
Connector	Terminal		
M147	1	Ground	No
	3		
	4		
	6		

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair harness or connector.

5.CHECK INTAKE DOOR MOTOR

Check intake door motor. Refer to [HAC-81, "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to [HAC-103, "Removal and Installation"](#).

NO >> Replace intake door motor. Refer to [HAC-110, "INTAKE DOOR MOTOR : Removal and Installation"](#).

Component Inspection (Motor)

INFOID:0000000010012086

1.CHECK INTAKE DOOR MOTOR

1. Remove intake door motor. Refer to [HAC-110, "INTAKE DOOR MOTOR : Removal and Installation"](#).
2. Check resistance between intake door motor terminals. Refer to applicable table for the normal value.

B24B7 INTAKE DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

Terminal		Resistance (Ω) (Approx.)
2	1	90
	3	
	4	
	6	

Is the inspection result normal?

- YES >> Inspection End.
- NO >> Replace intake door motor. Refer to [HAC-110, "INTAKE DOOR MOTOR : Removal and Installation"](#).

A

B

C

D

E

F

G

H

J

K

L

M

N

O

P

HAC

B24B9 MODE DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

B24B9 MODE DOOR MOTOR

DTC Logic

INFOID:0000000010012080

DTC DETECTION LOGIC

NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [HAC-53, "DTC Logic"](#).
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. [HAC-54, "DTC Logic"](#).
- If mode door motors DTC (B24B7 – B24B9) are detected, there is probably a disconnected connector or an open circuit in mode door motor drive power supply harness.

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
B24B9	MODE DOOR MOTOR	Short or open circuit of mode door motor drive signal.	• Mode door motor • A/C auto amp. • Harness or connectors (The motor circuit is open or shorted.)

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

Ⓔ With CONSULT

1. Turn ignition switch ON.
2. Select "Self Diagnostic Result" mode of "HVAC" using CONSULT.
3. Check DTC.

Is DTC detected?

- YES >> Refer to [HAC-80, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010012081

Regarding Wiring Diagram information, refer to [HAC-35, "Wiring Diagram"](#).

1.CHECK MODE DOOR MOTOR POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect mode door motor connector.
3. Turn ignition switch ON.
4. Check voltage between mode door motor harness connector and ground.

+		-	Voltage
Mode door motor			
Connector	Terminal		
M143	2	Ground	Battery voltage

Is the inspection result normal?

- YES >> GO TO 3.
NO >> GO TO 2.

2.CHECK MODE DOOR MOTOR POWER SUPPLY CIRCUIT FOR OPEN

1. Disconnect A/C auto amp. connector.
2. Check continuity between mode door motor harness connector and A/C auto amp. harness connector.

B24B9 MODE DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

Mode door motor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M143	2	M55	41	Yes

Is the inspection result normal?

- YES >> Replace A/C auto amp. Refer to [HAC-103, "Removal and Installation"](#).
NO >> Repair harness or connector.

3.CHECK MODE DOOR MOTOR DRIVE SIGNAL CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect A/C auto amp. connector.
3. Check continuity between mode door motor harness connector and A/C auto amp. harness connector.

Mode door motor		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M143	1	M55	50	Yes
	3		49	
	4		69	
	6		68	

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Repair harness or connector.

4.CHECK MODE DOOR MOTOR DRIVE SIGNAL CIRCUIT FOR SHORT

Check continuity between mode door motor harness connector and A/C auto amp. harness connector.

Mode door motor		—	Continuity
Connector	Terminal		
M143	1	Ground	No
	3		
	4		
	6		

Is the inspection result normal?

- YES >> GO TO 5.
NO >> Repair harness or connector.

5.CHECK MODE DOOR MOTOR

Check mode door motor. Refer to [HAC-81, "Component Inspection"](#).

Is the inspection result normal?

- YES >> Replace A/C auto amp. Refer to [HAC-103, "Removal and Installation"](#).
NO >> Replace mode door motor. Refer to [HAC-110, "MODE DOOR MOTOR : Removal and Installation"](#).

Component Inspection

INFOID:0000000010012082

1.CHECK MODE DOOR MOTOR

1. Remove mode door motor. Refer to [HAC-110, "MODE DOOR MOTOR : Removal and Installation"](#).
2. Check resistance between mode door motor terminals. Refer to applicable table for the normal value.

B24B9 MODE DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

Terminal		Resistance (Ω) (Approx.)
2	1	90
	3	
	4	
	6	

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace mode door motor. Refer to [HAC-110, "MODE DOOR MOTOR : Removal and Installation"](#).

B24C3 BLOWER MOTOR FEEDBACK

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

B24C3 BLOWER MOTOR FEEDBACK

DTC Logic

INFOID:0000000010350710

DTC DETECTION LOGIC

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
B24C3	BLOWER MOTOR FEEDBACK	Short or open circuit of blower motor feedback circuit.	- Variable blower control - A/C auto amp. - Harness and connector

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

ⓂWith CONSULT

- Turn ignition switch ON.
- Using CONSULT, perform "Self Diagnostic Result" of "HVAC".
- Check if any DTC No. is displayed in the self-diagnosis results.

Is DTC detected?

- YES >> Refer to [HAC-83, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010350711

Regarding Wiring Diagram information, refer to [HAC-35, "Wiring Diagram"](#).

NOTE:

This DTC can be set if the BCM is placed in transit mode. Confirm if the DTC is CURRENT or PAST. If PAST, perform the following steps before carrying out Diagnosis Procedure.

- Clear DTC using CONSULT. Refer to [HAC-22, "CONSULT Function \(HVAC\)"](#).
- Perform OPERATION INSPECTION. Refer to [HAC-48, "Work Procedure"](#).
- Perform "Self Diagnostic Result" of "HVAC" using CONSULT. Refer to [HAC-22, "CONSULT Function \(HVAC\)"](#).
- If DTC resets, proceed with Diagnosis Procedure.

1.CHECK FRONT BLOWER FEEDBACK SIGNAL

- Turn ignition switch ON.
- Set air outlet to VENT.
- Change fan speed from 1st – 7th, and check duty ratios between variable blower control harness connector and ground by using an oscilloscope.

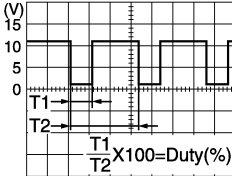
NOTE:

Calculate the drive signal duty ratio as shown in the figure.
T2 = Approx. 1.6 ms

B24C3 BLOWER MOTOR FEEDBACK

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

+		-	Condition	Duty ratio (Approx.)	Output waveform
Variable blower control					
Connector	Terminal		Fan speed (manual) Air outlet: VENT		
M133	1	Ground	1st	25%	 JPIIA1646GB
			2nd	35%	
			3rd	47%	
			4th	57%	
			5th	69%	
			6th	79%	
			7th	91%	

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace variable blower control. Refer to [HAC-112, "Removal and Installation"](#).

2. CHECK FRONT BLOWER MOTOR FEEDBACK CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect variable blower control connector and A/C auto amp. connector.
3. Check continuity between variable blower control harness connector and A/C auto amp. connector.

Variable blower control		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M133	1	M55	64	Yes

Is the inspection result normal?

YES >> Replace A/C auto amp. Refer to [VTL-16, "Removal and Installation"](#).

NO >> Repair harness or connector.

B24C6 BLOWER MOTOR CONTROL

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

B24C6 BLOWER MOTOR CONTROL

DTC Logic

INFOID:0000000010269624

DTC DETECTION LOGIC

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
B24C6	BLOWER MOTOR CONTROL	Short or open circuit of blower motor control circuit.	• Front blower motor • Front blower relay • Variable blower control • A/C auto amp. • Harness and connector

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT

1. Turn ignition switch ON.
2. Using CONSULT, perform "Self Diagnostic Result" of "HVAC".
3. Check if any DTC No. is displayed in the self-diagnosis results.

Is DTC detected?

- YES >> Refer to [HAC-85, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010269546

Regarding Wiring Diagram information, refer to [HAC-35, "Wiring Diagram"](#).

NOTE:

This DTC can be set if the BCM is placed in transit mode. Confirm if the DTC is CURRENT or PAST. If PAST, perform the following steps before carrying out Diagnosis Procedure.

1. Clear DTC using CONSULT. Refer to [HAC-22, "CONSULT Function \(HVAC\)"](#).
2. Perform OPERATION INSPECTION. Refer to [HAC-48, "Work Procedure"](#).
3. Perform "Self Diagnostic Result" of "HVAC" using CONSULT. Refer to [HAC-22, "CONSULT Function \(HVAC\)"](#).
4. If DTC resets, proceed with Diagnosis Procedure.

1.CHECK FUSE

1. Turn ignition switch OFF.
2. Check 20A fuses. [Nos. 17 and 27, located in fuse block (J/B)].

NOTE:

Refer to [PG-64, "Terminal Arrangement"](#).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Replace the blown fuse after repairing the affected circuit.

2.CHECK VARIABLE BLOWER CONTROL POWER SUPPLY

1. Disconnect variable blower control connector.
2. Turn ignition switch ON.
3. Check voltage between variable blower control harness connector and ground.

B24C6 BLOWER MOTOR CONTROL

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

+		-	Voltage
Variable blower control			
Connector	Terminal		
M133	4	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 4.

NO >> GO TO 3.

3.CHECK FRONT BLOWER RELAY

1. Turn ignition switch OFF.
2. Check front blower relay. Refer to [HAC-88. "Component Inspection \(Front Blower Relay\)".](#)

Is the inspection result normal?

YES >> Repair harness or connector between variable blower control and fuse.

NO >> Replace front blower relay.

4.CHECK FRONT BLOWER MOTOR POWER SUPPLY

1. Connect variable blower control connector.
2. Disconnect front blower motor connector.
3. Turn ignition switch ON.
4. Check voltage between front blower motor harness connector and ground.

+		-	Voltage
Front blower motor			
Connector	Terminal		
M144	1	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace variable blower control. Refer to [HAC-112. "Removal and Installation".](#)

5.CHECK FRONT BLOWER MOTOR CONTROL CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect variable blower control connector.
3. Check continuity between variable blower control harness connector and front blower motor harness connector.

Variable blower control		Front blower motor		Continuity
Connector	Terminal	Connector	Terminal	
M134	6	M144	2	Yes

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair harness or connector.

6.CHECK FRONT BLOWER MOTOR OPERATION

Check front blower motor operation. Refer to [HAC-88. "Component Inspection \(Front Blower Motor\)".](#)

Is the inspection result normal?

YES >> GO TO 7.

NO >> Replace front blower motor. Refer to [VTL-16. "Removal and Installation".](#)

7.CHECK VARIABLE BLOWER CONTROL GROUND CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Check continuity between variable blower control harness connector and ground.

B24C6 BLOWER MOTOR CONTROL

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

Variable blower control		—	Continuity
Connector	Terminal		
M133	2	Ground	Yes

Is the inspection result normal?

YES >> GO TO 8.

NO >> Repair harness or connector.

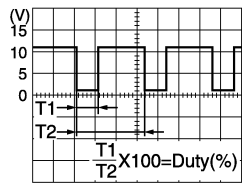
8.CHECK VARIABLE BLOWER CONTROL SIGNAL

1. Connect variable blower control connector and A/C auto amp. connector.
2. Turn ignition switch ON.
3. Set air outlet to VENT.
4. Change fan speed from 1st – 7th, and check duty ratios between variable blower control harness connector and ground by using an oscilloscope.

NOTE:

Calculate the drive signal duty ratio as shown in the figure.

T2 = Approx. 1.6 ms

+		—	Condition	Duty ratio (Approx.)	Output waveform
Variable blower control					
Connector	Terminal		Fan speed (manual) Air outlet: VENT		
M133	3	Ground	1st	25%	
			2nd	35%	
			3rd	47%	
			4th	57%	
			5th	69%	
			6th	79%	
			7th	91%	

Is the inspection result normal?

YES >> Replace variable blower control. Refer to [HAC-112. "Removal and Installation"](#).

NO >> GO TO 9.

9.CHECK VARIABLE BLOWER CONTROL SIGNAL CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect variable blower control connector and A/C auto amp. connector.
3. Check continuity between variable blower control harness connector and A/C auto amp. harness connector.

Variable blower control		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M133	3	M55	74	Yes

Is the inspection result normal?

YES >> GO TO 10.

NO >> Repair harness or connector.

10.CHECK VARIABLE BLOWER CONTROL SIGNAL CIRCUIT FOR SHORT

Check continuity between variable blower control harness connector and ground.

Variable blower control		—	Continuity
Connector	Terminal		
M133	3	Ground	No

B24C6 BLOWER MOTOR CONTROL

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

Is the inspection result normal?

- YES >> Replace A/C auto amp. Refer to [HAC-103, "Removal and Installation"](#).
NO >> Repair harness or connector.

Component Inspection (Front Blower Motor)

INFOID:0000000010269547

1.CHECK BLOWER MOTOR

1. Connect battery voltage to terminal 1 of blower motor.
2. Connect ground to terminal 2 of blower motor.

Does the blower fan operate?

- YES >> Intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).
NO >> Replace blower motor. Refer to [VTL-16, "Removal and Installation"](#).

Component Inspection (Front Blower Relay)

INFOID:0000000010269548

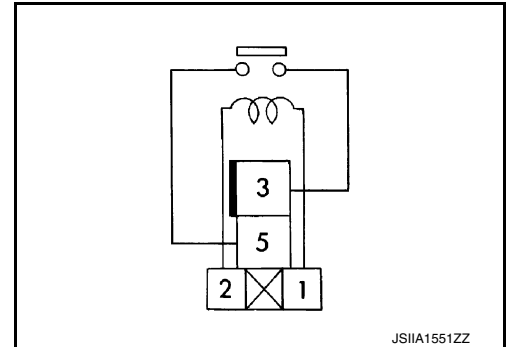
1.CHECK FRONT BLOWER RELAY

1. Remove front blower relay. Refer to [PG-64, "Terminal Arrangement"](#).
2. Check continuity between blower relay terminal 3 and 5 when the voltage is supplied between terminal 1 and 2.

Terminal		Voltage	Continuity
3	5	ON	Yes
		OFF	No

Is the inspection result normal?

- YES >> Inspection End.
NO >> Replace front blower relay.



B24D4 A/C CONTROL COMMUNICATION

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

B24D4 A/C CONTROL COMMUNICATION

DTC Logic

INFOID:000000010269627

DTC DETECTION LOGIC

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
B24D4	A/C CONTROL COMM	When A/C auto amp. is not transmitting or receiving communication signal for 2 or more seconds.	- A/C switch - A/C auto amp. - Harness and connector (Communication line is open or shorted)

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT

- Turn ignition switch ON.
- Using CONSULT, perform "Self Diagnostic Result" of "HVAC".
- Check if any DTC No. is displayed in the self-diagnosis results.

Is DTC detected?

- YES >> Refer to [HAC-89, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:000000010012090

Regarding Wiring Diagram information, refer to [HAC-35, "Wiring Diagram"](#).

1.CHECK WITH SELF-DIAGNOSIS FUNCTION OF CONSULT

- Using CONSULT, perform "Self Diagnostic Result" of "HVAC".
- Check if any DTC No. is displayed in the self-diagnosis results.

NOTE:

If DTC is displayed along with DTC U1000 or U1010, first diagnose the DTC U1000 or U1010. Refer to [HAC-53, "DTC Logic"](#) (U1000) or [HAC-54, "DTC Logic"](#) (U1010).

Is any DTC No. displayed?

- YES >> Perform diagnosis for the applicable DTC. Refer to [HAC-32, "DTC Index"](#).
NO >> GO TO 2.

2.CHECK A/C SWITCH COMMUNICATION CIRCUIT CONTINUITY

- Turn ignition switch OFF.
- Disconnect the A/C switch and the A/C auto amp. connectors.
- Check continuity between A/C switch harness connector and A/C auto amp. harness connector.

A/C switch		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M51	8	M54	33	Yes

- Check continuity between A/C switch harness connector and ground.

A/C switch		—	Continuity
Connector	Terminal		
M51	8	Ground	No

Is the inspection result normal?

B24D4 A/C CONTROL COMMUNICATION

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

YES >> Replace A/C switch. Refer to [HAC-102. "Removal and Installation"](#).
NO >> Repair harness or connector.

MAGNET CLUTCH

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

MAGNET CLUTCH

Component Function Check

INFOID:0000000010012098

1.CHECK MAGNET CLUTCH OPERATION

Perform "COMPRESSOR" in "Active Test" of "IPDM E/R". Refer to [PCS-9, "CONSULT Function \(IPDM E/R\)"](#).

Does it operate normally?

- YES >> Inspection End.
NO >> Refer to [HAC-91, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010012099

Regarding Wiring Diagram information, refer to [HAC-35, "Wiring Diagram"](#).

1.CHECK FUSE

1. Turn ignition switch OFF.
2. Check 10A fuse (No. 50, located in IPDM E/R).

NOTE:

Refer to [PG-68, "IPDM E/R Terminal Arrangement"](#).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Replace the blown fuse after repairing the affected circuit.

2.CHECK MAGNET CLUTCH POWER SUPPLY CIRCUIT

1. Disconnect compressor connector and IPDM E/R connector.
2. Check continuity between compressor harness connector and IPDM E/R harness connector.

Compressor		IPDM E/R		Continuity
Connector	Terminal	Connector	Terminal	
F27	1	F35	65	Yes

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair harness or connector.

3.CHECK MAGNET CLUTCH GROUND CIRCUIT

1. Disconnect compressor connector.
2. Check continuity between compressor harness connector and ground.

Compressor			Continuity
Connector	Terminal		
F27	2	Ground	Yes

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Repair harness or connector.

4.CHECK MAGNET CLUTCH

Directly apply battery voltage to the magnet clutch. Check operation visually and by sound.

Does it operate normally?

- YES >> Replace IPDM E/R. Refer to [PCS-35, "Removal and Installation"](#).
NO >> Replace magnet clutch. Refer to [HA-30, "Removal and Installation"](#).

ECV (ELECTRICAL CONTROL VALVE)

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

ECV (ELECTRICAL CONTROL VALVE)

Diagnosis Procedure

INFOID:0000000010012100

Regarding Wiring Diagram information, refer to [HAC-35, "Wiring Diagram"](#).

1. CHECK ECV (ELECTRICAL CONTROL VALVE) POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect compressor connector.
3. Turn ignition switch ON.
4. Check voltage between compressor harness connector and ground.

+		-	Voltage
Compressor			
Connector	Terminal		
F15	4	Ground	Battery voltage

Is the inspection result normal?

- YES >> GO TO 3.
NO >> GO TO 2.

2. CHECK FUSE

1. Turn ignition switch OFF.
2. Check 10 A fuse [No. 50, located in IPDM E/R]. Refer to [PCS-35, "Removal and Installation"](#).

Is the inspection result normal?

- YES >> Repair harness or connector.
NO >> Replace the blown fuse after repairing the affected circuit.

3. CHECK ECV CONTROL SIGNAL CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector.
3. Check continuity between compressor harness connector and IPDM E/R harness connector.

Compressor		IPDM E/R		Continuity
Connector	Terminal	Connector	Terminal	
F15	3	F42	98	Yes

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Repair harness or connector.

4. CHECK ECV CONTROL SIGNAL CIRCUIT FOR SHORT

Check continuity between compressor harness connector and ground.

Compressor		—	Continuity
Connector	Terminal		
F15	3	Ground	No

Is the inspection result normal?

- YES >> GO TO 5.
NO >> Repair harness or connector.

5. CHECK ECV

Check ECV. Refer to [HAC-93, "Component Inspection"](#).

ECV (ELECTRICAL CONTROL VALVE)

[AUTOMATIC AIR CONDITIONING]

< DTC/CIRCUIT DIAGNOSIS >

Is the inspection result normal?

YES >> GO TO 6.

NO >> Replace compressor. Refer to [HA-30. "Removal and Installation"](#).

6.CHECK INTERMITTENT INCIDENT

Refer to [GI-41. "Intermittent Incident"](#).

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to [PCS-35. "Removal and Installation"](#).

NO >> Repair or replace malfunctioning parts.

Component Inspection

INFOID:0000000010012101

1.CHECK ECV (ELECTRICAL CONTROL VALVE)

1. Turn ignition switch OFF.
2. Disconnect compressor connector.
3. Check continuity between compressor connector F88 terminals.

Terminals		Condition	Resistance (kΩ)
		Temperature: °C (°F)	
3	4	20 (68)	10.1 – 11.1

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace compressor. Refer to [HA-30. "Removal and Installation"](#).

HAC

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

POWER SUPPLY AND GROUND CIRCUIT

A/C SWITCH ASSEMBLY

A/C SWITCH ASSEMBLY : Component Function Check

INFOID:0000000010012088

1.CHECK OPERATION

1. Press the AUTO switch, and then check that "AUTO" is shown on the display.
2. Operate the temperature control dial (driver side). Check that the fan speed or outlet changes. (The discharge air temperature or fan speed varies depending on the ambient temperature, in-vehicle temperature, and temperature setting.)

Does it operate normally?

YES >> Inspection End.

NO >> Perform trouble diagnosis for the A/C switch. Refer to [HAC-94. "A/C SWITCH ASSEMBLY : Diagnosis Procedure"](#).

A/C SWITCH ASSEMBLY : Diagnosis Procedure

INFOID:0000000010012089

Regarding Wiring Diagram information, refer to [HAC-35. "Wiring Diagram"](#).

1.CHECK A/C SWITCH POWER SUPPLY

1. Disconnect the A/C switch connector.
2. Turn ignition switch ON.
3. Check voltage between A/C switch harness connector and ground.

(+)		(-)	Voltage (Approx.)
A/C switch			
Connector	Terminal		
M51	4	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 4.

NO >> GO TO 2.

2.CHECK FUSE

Check 10A fuse [No. 20, located in the fuse block (J/B)].

NOTE:

Refer to [PG-64. "Terminal Arrangement"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace the blown fuse after repairing the affected circuit.

3.CHECK A/C SWITCH POWER SUPPLY CIRCUIT FOR OPEN

1. Check continuity between A/C switch harness connector and fuse block (J/B) harness connector.

A/C switch		Fuse block (J/B)		Continuity
Connector	Terminal	Connector	Terminal	
M51	4	M34	16R	Yes

Is the inspection result normal?

YES >> Inspection End.

NO >> Repair harness or connector.

4.CHECK A/C SWITCH GROUND CIRCUIT

1. Turn ignition switch OFF.

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

2. Check continuity between A/C switch harness connector and ground.

A/C switch		—	Continuity
Connector	Terminal		
M51	3	Ground	Yes

Is the inspection result normal?

- YES >> Replace the A/C switch. Refer to [HAC-102. "Removal and Installation"](#).
- NO >> Repair the harness or connectors.

A

B

C

D

E

F

G

H

HAC

J

K

L

M

N

O

P

HEATER AND AIR CONDITIONING SYSTEM CONTROL SYMPTOMS

< SYMPTOM DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

SYMPTOM DIAGNOSIS

HEATER AND AIR CONDITIONING SYSTEM CONTROL SYMPTOMS

Diagnosis Chart By Symptom

INFOID:0000000010012102

NOTE:

Perform the self-diagnoses with CONSULT before performing the symptom diagnosis. If DTC is detected, perform the corresponding diagnosis.

Symptom	Corresponding malfunction part	Reference
- Air conditioning does not activate. - Air conditioning cannot be controlled. - Operation status of air conditioning is not indicated on display.	- A/C auto amp. ignition power supply circuit - Front A/C control (A/C auto amp.)	HAC-56, "Diagnosis Procedure"
- Air outlet does not change. - Mode door motor does not operate normally.	- Circuit between mode door motor and A/C auto amp. - Mode door motor control linkage - Mode door motor - A/C auto amp.	HAC-80, "Diagnosis Procedure"
- Discharge air temperature of driver side does not change. - Air mix door motor LH does not operate normally.	- Circuit between air mix door motor LH and A/C auto amp. - Air mix door motor LH installation condition - Air mix door motor LH - A/C auto amp.	HAC-67, "Diagnosis Procedure"
- Discharge air temperature of passenger side does not change. - Air mix door motor RH does not operate normally.	- Circuit between air mix door motor RH and A/C auto amp. - Air mix door motor RH installation condition - Air mix door motor RH - A/C auto amp.	HAC-70, "Diagnosis Procedure"
- Intake door does not change. - Intake door motor does not operate normally.	- Circuit between intake door motor and A/C auto amp. - Intake door motor control linkage - Intake door motor - A/C auto amp.	HAC-77, "Diagnosis Procedure"
Blower motor operation is malfunctioning.	- Power supply system of front blower motor - Circuit between front blower motor and A/C auto amp. - Front blower motor - A/C auto amp.	HAC-85, "Diagnosis Procedure"
Compressor does not operate.	- Circuit between magnet clutch and IPDM E/R - Magnet clutch - IPDM E/R (A/C relay) - Circuit between ECM and refrigerant pressure sensor - Refrigerant pressure sensor - CAN communication circuit - A/C auto amp.	HAC-91, "Diagnosis Procedure"
- Insufficient cooling. - No cool air comes out. (Air flow volume is normal.)	- Magnet clutch control system - Drive belt slipping - Refrigerant cycle - ECV (electrical control valve) - Air leakage from each duct - A/C auto amp. connection recognition signal circuit - Temperature setting trimmer (front)	HAC-98, "Diagnosis Procedure"

HEATER AND AIR CONDITIONING SYSTEM CONTROL SYMPTOMS

< SYMPTOM DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

Symptom		Corresponding malfunction part	Reference
- Insufficient heating. - No warm air comes out. (Air flow volume is normal.)		- Engine cooling system - Heater hose - Heater core - Air leakage from each duct - Temperature setting trimmer (front)	HAC-99, "Diagnosis Procedure"
Noise is heard when front air conditioning system operates.	During compressor operation	Refrigerant cycle	HA-20, "Symptom Table"
	During front blower motor operation	- Mixing any foreign object in front blower motor - Front blower motor fan breakage - Front blower motor rotation inferiority	HAC-88, "Component Inspection (Front Blower Motor)"
- Memory function does not operate. - Setting temperature is not memorized.		- Battery power supply system of A/C auto amp. - A/C auto amp.	HAC-56, "Diagnosis Procedure"

A

B

C

D

E

F

G

H

HAC

J

K

L

M

N

O

P

INSUFFICIENT COOLING

Description

INFOID:0000000010012103

Symptom

- Insufficient cooling
- No cool air comes out. (Air flow volume is normal.)

Diagnosis Procedure

INFOID:0000000010012104

NOTE:

Perform self-diagnoses with CONSULT before performing symptom diagnosis. If any DTC is detected, perform the corresponding diagnosis.

1.CHECK MAGNET CLUTCH OPERATION

1. Turn ignition switch ON.
2. Operate fan switch.
3. Press A/C switch.
4. Check that A/C indicator turns ON. Check visually and by sound that compressor operates.
5. Press A/C switch again.
6. Check that A/C indicator turns OFF. Check that compressor stops.

Is the inspection result normal?

- YES >> GO TO 2.
 NO >> Perform diagnosis of "COMPRESSOR DOES NOT OPERATE" in "SYMPTOM DIAGNOSIS".
 Refer to [HAC-100, "Diagnosis Procedure"](#).

2.CHECK DRIVE BELT

Check tension of drive belt. Refer to [EM-13, "Checking"](#).

Is the inspection result normal?

- YES >> GO TO 3.
 NO >> Adjust or replace drive belt depending on the inspection results.

3.CHECK REFRIGERANT CYCLE

Connect recovery/recycling recharging equipment to the vehicle and perform pressure inspection with gauge. Refer to [HA-17, "Symptom Table"](#).

Is the inspection result normal?

- YES >> GO TO 4.
 NO >> Repair or replace parts depending on the inspection results.

4.CHECK AIR LEAKAGE FROM EACH DUCT

Check duct and nozzle, etc. of the front air conditioning system for leakage.

Is the inspection result normal?

- YES >> GO TO 5.
 NO >> Repair or replace parts depending on the inspection results.

5.CHECK SETTING OF TEMPERATURE SETTING TRIMMER (FRONT)

1. Check setting value of temperature setting trimmer (front). Refer to [HAC-50, "Temperature Setting Trimmer"](#).
2. Check that temperature setting trimmer (front) is set to "+ direction".

NOTE:

The control temperature can be set with the setting of the temperature setting trimmer (front).

3. Set difference between set temperature and control temperature to "0".

Is inspection result normal?

- YES >> Inspection End.
 NO >> Replace A/C auto amp. Refer to [HAC-103, "Removal and Installation"](#).

INSUFFICIENT HEATING

Description

INFOID:0000000010012105

Symptom

- Insufficient heating
- No warm air comes out. (Air flow volume is normal.)

Diagnosis Procedure

INFOID:0000000010012106

NOTE:

Perform self-diagnosis with CONSULT before performing symptom diagnosis. If DTC is detected, perform the corresponding diagnosis.

1.CHECK COOLING SYSTEM

1. Check engine coolant level and check leakage. Refer to [CO-8, "Inspection"](#).
2. Check reservoir tank cap. Refer to [CO-12, "RADIATOR CAP : Inspection"](#).
3. Check water flow sounds of the engine coolant. Refer to [CO-8, "Inspection"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Refill engine coolant and repair or replace parts depending on the inspection results.

2.CHECK HEATER HOSE

Check installation of heater hose visually or by touching.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace parts depending on the inspection results.

3.CHECK HEATER CORE

1. Check temperature of inlet hose and outlet hose of front heater core.
2. Check that inlet side of heater core is hot and the outlet side is slightly lower than/almost equal to the inlet side.

CAUTION:

Always perform the temperature inspection in a short period of time because the engine coolant temperature is very hot.

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace heater core. Refer to [HA-43, "HEATER CORE : Removal and Installation"](#).**4.CHECK AIR LEAKAGE FROM EACH DUCT**

Check duct and nozzle, etc. of front air conditioning system for air leakage.

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace parts depending on the inspection results.

5.CHECK SETTING OF TEMPERATURE SETTING TRIMMER (FRONT)

1. Check setting value of temperature setting trimmer (front). Refer to [HAC-50, "Temperature Setting Trimmer"](#).
2. Check that temperature setting trimmer (front) is set to "– direction".

NOTE:

The control temperature can be set by the temperature setting trimmer (front).

3. Set difference between the set temperature and control temperature to "0".

Are the symptoms solved?

YES >> Inspection End.

NO >> Replace A/C auto amp. Refer to [HAC-103, "Removal and Installation"](#).

COMPRESSOR DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

COMPRESSOR DOES NOT OPERATE

Description

INFOID:0000000010012107

Symptom: Compressor does not operate.

Diagnosis Procedure

INFOID:0000000010012108

NOTE:

- Perform self-diagnoses with CONSULT before performing symptom diagnosis. If DTC is detected, perform the corresponding diagnosis.
- Check that refrigerant system is properly charged. If refrigerant amount is below the proper amount, perform inspection of refrigerant leakage.

1.CHECK MAGNET CLUTCH OPERATION

Check magnet clutch. Refer to [HAC-91, "Component Function Check"](#).

Does it operate normally?

YES >> GO TO 2.

NO >> Repair or replace malfunctioning parts.

2.CHECK REFRIGERANT PRESSURE SENSOR

Check refrigerant pressure sensor. Refer to [EC-482, "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace malfunctioning parts.

3.CHECK A/C AUTO AMP. OUTPUT SIGNAL

 With CONSULT

Check "COMP REQ SIG" and "FAN REQ SIG" in "DATA MONITOR" mode of "HVAC" using CONSULT.

Monitor item	Condition		Status
COMP REQ SIG	A/C switch	ON	On
		OFF	Off
FAN REQ SIG	Blower motor	ON	On
		OFF	Off

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace A/C auto amp. Refer to [HAC-103, "Removal and Installation"](#).

4.CHECK ECM INPUT SIGNAL

 With CONSULT

Check "AIR COND SIG" and "HEATER FAN SW" in "DATA MONITOR" mode of "ECM" using CONSULT.

Monitor item	Condition		Status
AIR COND SIG	A/C switch	ON	On
		OFF	Off
HEATER FAN SW	Blower motor	ON	On
		OFF	Off

Is the inspection result normal?

YES >> GO TO 5.

NO >> Check CAN communication system. Refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).

5.CHECK IPDM E/R INPUT SIGNAL

 With CONSULT

1. Start engine.

COMPRESSOR DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

[AUTOMATIC AIR CONDITIONING]

2. Check “AC COMP REQ” in “DATA MONITOR” mode of “IPDM E/R” using CONSULT.

Monitor item	Condition		Status
AC COMP REQ	A/C switch	ON	On
		OFF	Off

Is the inspection result normal?

- YES >> Inspection End.
- NO >> Check CAN communication system. Refer to [LAN-17. "Trouble Diagnosis Flow Chart"](#).

A

B

C

D

E

F

G

H

J

K

L

M

N

O

P

HAC

REMOVAL AND INSTALLATION

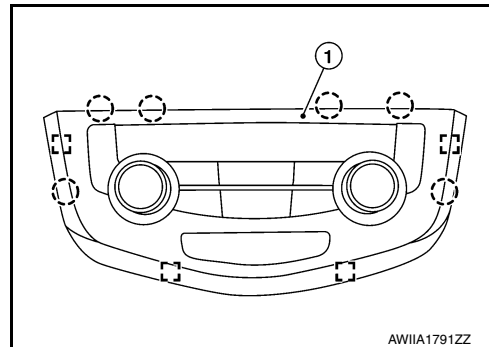
A/C SWITCH ASSEMBLY

Removal and Installation

INFOID:000000009797860

REMOVAL

1. Release the A/C switch assembly clips and pawls using a suitable tool.
□: Metal clip
○: Pawl
2. Disconnect the harness connector from the A/C switch assembly (1) and remove.



AWIIA1791ZZ

INSTALLATION

Installation is in the reverse order of removal.

A/C AUTO AMP.

Removal and Installation

INFOID:000000010193941

REMOVAL

1. Remove heating and cooling unit assembly. Refer to [HA-42. "HEATING AND COOLING UNIT ASSEMBLY : Removal and Installation"](#).
2. Disconnect the harness connectors from the A/C auto amp.
3. Release pawls and remove A/C auto amp.

INSTALLATION

Installation is in the reverse order of removal.

A

B

C

D

E

F

G

H

HAC

J

K

L

M

N

O

P

AMBIENT SENSOR

< REMOVAL AND INSTALLATION >

[AUTOMATIC AIR CONDITIONING]

AMBIENT SENSOR

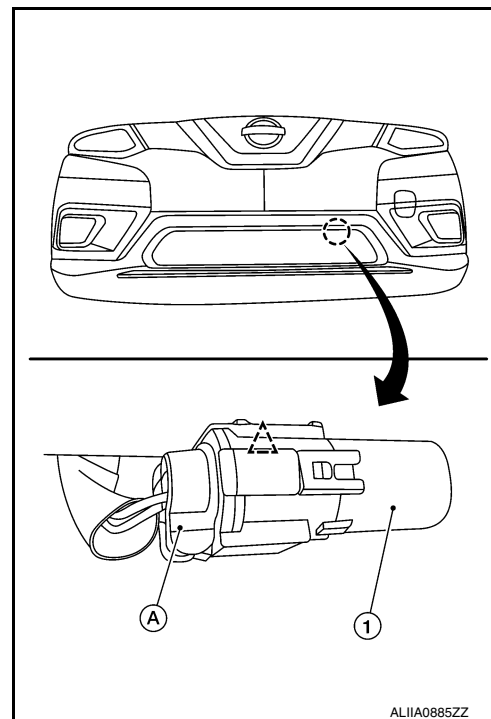
Removal and Installation

INFOID:000000009797861

REMOVAL

1. Disconnect the harness connector (A) from the ambient sensor (1).
2. Release the clip and remove ambient sensor.

△△: Clip



ALIIA0885ZZ

INSTALLATION

Installation is in the reverse order of removal.

IN-VEHICLE SENSOR

< REMOVAL AND INSTALLATION >

[AUTOMATIC AIR CONDITIONING]

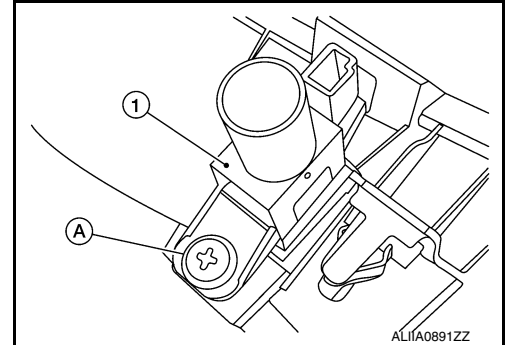
IN-VEHICLE SENSOR

Removal and Installation

INFOID:000000009797862

REMOVAL

1. Remove cluster lid C. Refer to [IP-21. "Removal and Installation"](#).
2. Remove screw (A) and in-vehicle sensor (1).



INSTALLATION

Installation is in the reverse order of removal.

A
B
C
D
E
F
G
H
J
K
L
M
N
O
P

HAC

SUNLOAD SENSOR

< REMOVAL AND INSTALLATION >

[AUTOMATIC AIR CONDITIONING]

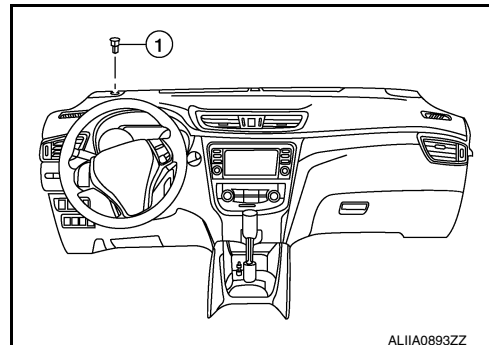
SUNLOAD SENSOR

Removal and Installation

INFOID:000000009797863

REMOVAL

1. Release the sunload sensor pawls using a suitable tool.
2. Disconnect the harness connector from the sunload sensor (1) and remove.



ALIIA0893ZZ

INSTALLATION

Installation is in the reverse order of removal.

INTAKE SENSOR

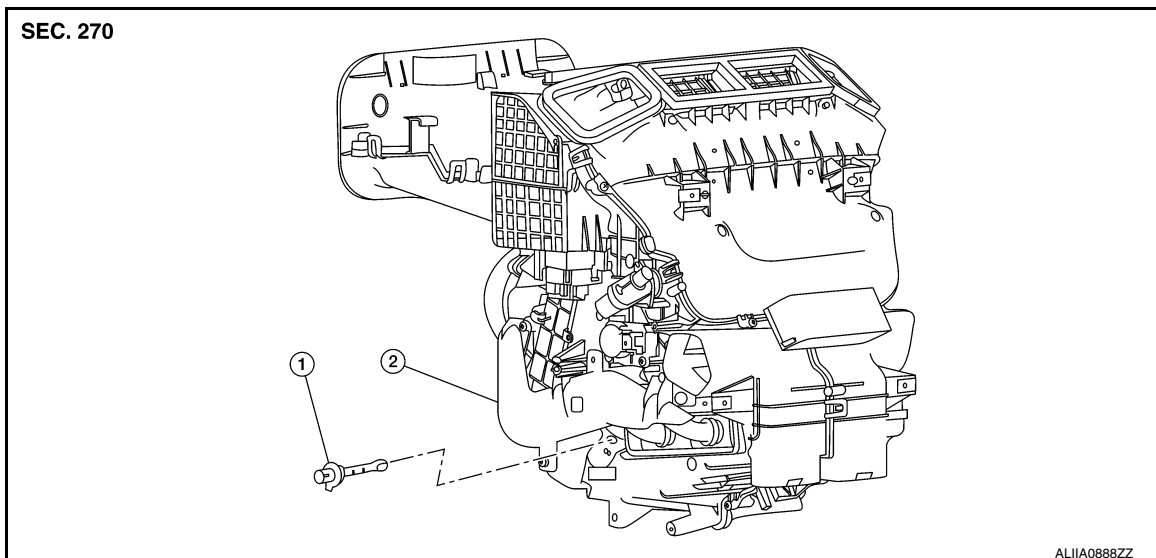
< REMOVAL AND INSTALLATION >

[AUTOMATIC AIR CONDITIONING]

INTAKE SENSOR

Exploded View

INFOID:000000009797864



Removal and Installation

INFOID:000000009797865

REMOVAL

1. Remove front foot duct (LH). Refer to [VTL-10, "FRONT FOOT DUCT : Removal and Installation"](#).
2. Disconnect the harness connector and remove intake sensor.

INSTALLATION

Installation is in the reverse order of removal.

REFRIGERANT PRESSURE SENSOR

< REMOVAL AND INSTALLATION >

[AUTOMATIC AIR CONDITIONING]

REFRIGERANT PRESSURE SENSOR

Removal and Installation

INFOID:000000009797867

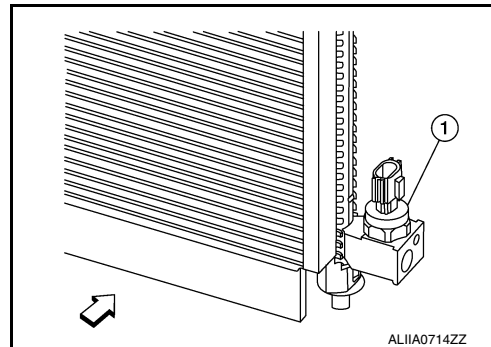
REMOVAL

1. Discharge the refrigerant. Refer to [HA-23, "Recycle Refrigerant"](#).
2. Remove front bumper fascia. Refer to [EXT-17, "Removal and Installation"](#).
3. Disconnect the harness connector from the refrigerant pressure sensor.
4. Remove the refrigerant pressure sensor (1) from the condenser.

⇐: Front

CAUTION:

Cap or wrap the opening of the refrigerant pressure sensor with suitable material such as vinyl tape to avoid the entry of air.



ALIIA0714ZZ

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Do not reuse O-ring.
- Apply A/C oil to new O-ring for installation.
- After charging refrigerant, check for leaks. Refer to [HA-21, "Leak Test"](#).

DOOR MOTOR

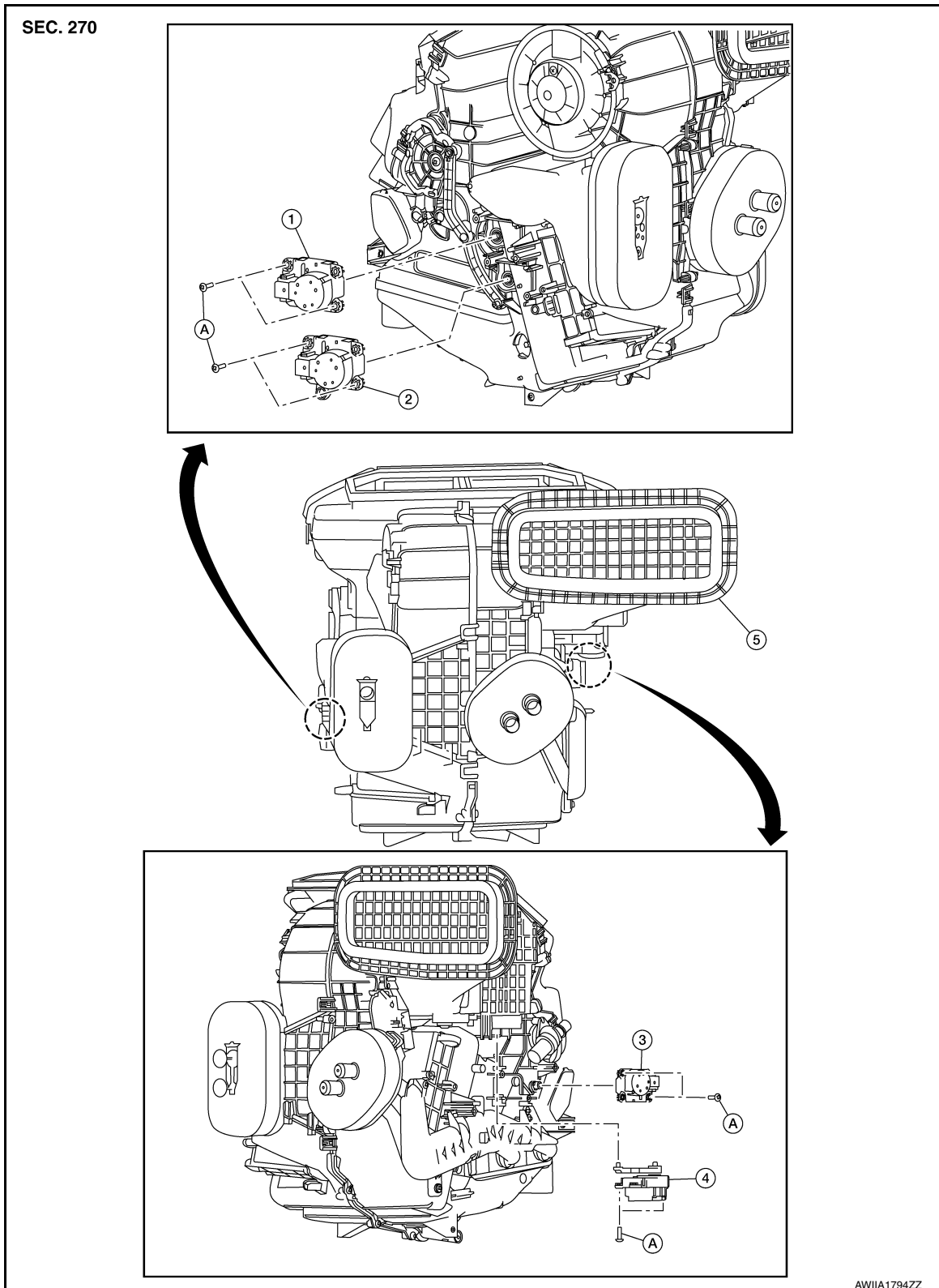
< REMOVAL AND INSTALLATION >

[AUTOMATIC AIR CONDITIONING]

DOOR MOTOR

Component Parts Location

INFOID:000000009797868



DOOR MOTOR

< REMOVAL AND INSTALLATION >

[AUTOMATIC AIR CONDITIONING]

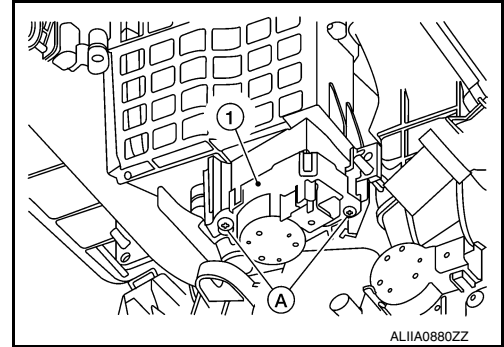
INTAKE DOOR MOTOR

INTAKE DOOR MOTOR : Removal and Installation

INFOID:000000009797869

REMOVAL

1. Remove front foot duct (LH). Refer to [VTL-10, "FRONT FOOT DUCT : Removal and Installation"](#).
2. Disconnect the harness connector from the intake door motor.
3. Remove screws (A) and intake door motor (1).



INSTALLATION

Installation is in the reverse order of removal.

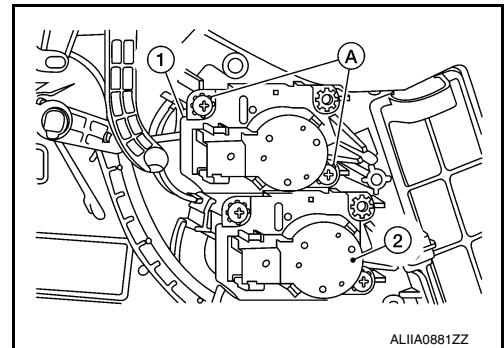
MODE DOOR MOTOR

MODE DOOR MOTOR : Removal and Installation

INFOID:000000009797870

REMOVAL

1. Remove front foot duct (RH). Refer to [VTL-10, "FRONT FOOT DUCT : Removal and Installation"](#).
2. Disconnect the harness connector from the mode door motor.
3. Remove screws (A) and mode door motor (1).
(2): Air mix door motor (RH)



INSTALLATION

Installation is in the reverse order of removal.

AIR MIX DOOR MOTOR

AIR MIX DOOR MOTOR : Removal and Installation

INFOID:000000009797871

REMOVAL

Air Mix Door Motor (LH)

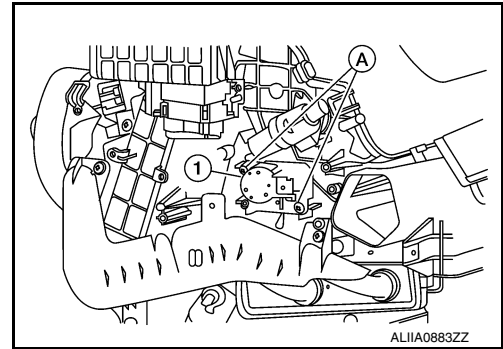
1. Remove front foot duct (LH). Refer to [VTL-10, "FRONT FOOT DUCT : Removal and Installation"](#).
2. Disconnect the harness connector from the air mix door motor (LH).

DOOR MOTOR

< REMOVAL AND INSTALLATION >

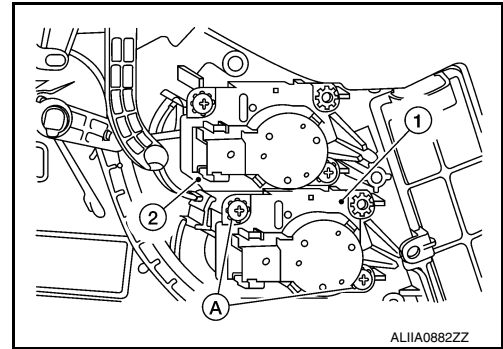
[AUTOMATIC AIR CONDITIONING]

3. Remove screws (A) and air mix door motor (LH) (1).



Air Mix Door Motor (RH)

1. Remove front foot duct (RH). Refer to [VTL-10. "FRONT FOOT DUCT : Removal and Installation"](#).
2. Disconnect the harness connector from the air mix door motor (RH).
3. Remove screws (A) and air mix door motor (RH) (1).
(2): Mode door motor



INSTALLATION

Installation is in the reverse order of removal.

VARIABLE BLOWER CONTROL

< REMOVAL AND INSTALLATION >

[AUTOMATIC AIR CONDITIONING]

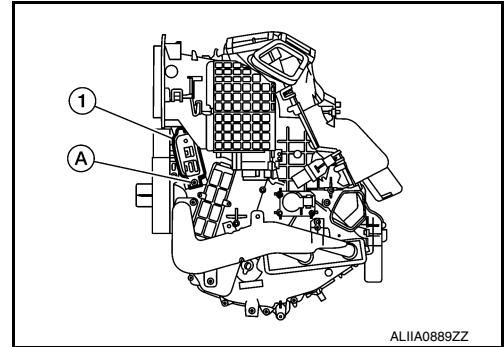
VARIABLE BLOWER CONTROL

Removal and Installation

INFOID:000000010193942

REMOVAL

1. Remove center console side finisher (LH). Refer to [IP-18. "Exploded View"](#).
2. Disconnect the harness connector from the variable blower control.
3. Remove screw (A) and variable blower control (1).



ALIIA0889ZZ

INSTALLATION

Installation is in the reverse order of removal.

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010181620

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Precaution for Work

INFOID:0000000010181621

- When removing or disassembling each component, be careful not to damage or deform it. If a component may be subject to interference, be sure to protect it with a shop cloth.
- When removing (disengaging) components with a screwdriver or similar tool, be sure to wrap the component with a shop cloth or vinyl tape to protect it.
- Protect the removed parts with a shop cloth and prevent them from being dropped.
- Replace a deformed or damaged clip.
- If a part is specified as a non-reusable part, always replace it with a new one.
- Be sure to tighten bolts and nuts securely to the specified torque.
- After installation is complete, be sure to check that each part works properly.
- Follow the steps below to clean components:
 - Water soluble dirt:
 - Dip a soft cloth into lukewarm water, wring the water out of the cloth and wipe the dirty area.
 - Then rub with a soft, dry cloth.
 - Oily dirt:
 - Dip a soft cloth into lukewarm water with mild detergent (concentration: within 2 to 3%) and wipe the dirty area.
 - Then dip a cloth into fresh water, wring the water out of the cloth and wipe the detergent off.
 - Then rub with a soft, dry cloth.
 - Do not use organic solvent such as thinner, benzene, alcohol or gasoline.
 - For genuine leather seats, use a genuine leather seat cleaner.

PREPARATION

< PREPARATION >

[MANUAL AIR CONDITIONING]

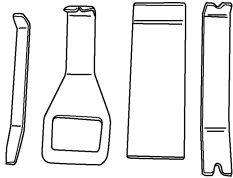
PREPARATION

PREPARATION

Special Service Tool

INFOID:0000000010181624

The actual shape of the tools may differ from those illustrated here.

Tool number (TechMate No.) Tool name	Description
— (J-46534) Trim Tool Set  AWJIA0483ZZ	Removing trim components

Commercial Service Tool

INFOID:0000000010181625

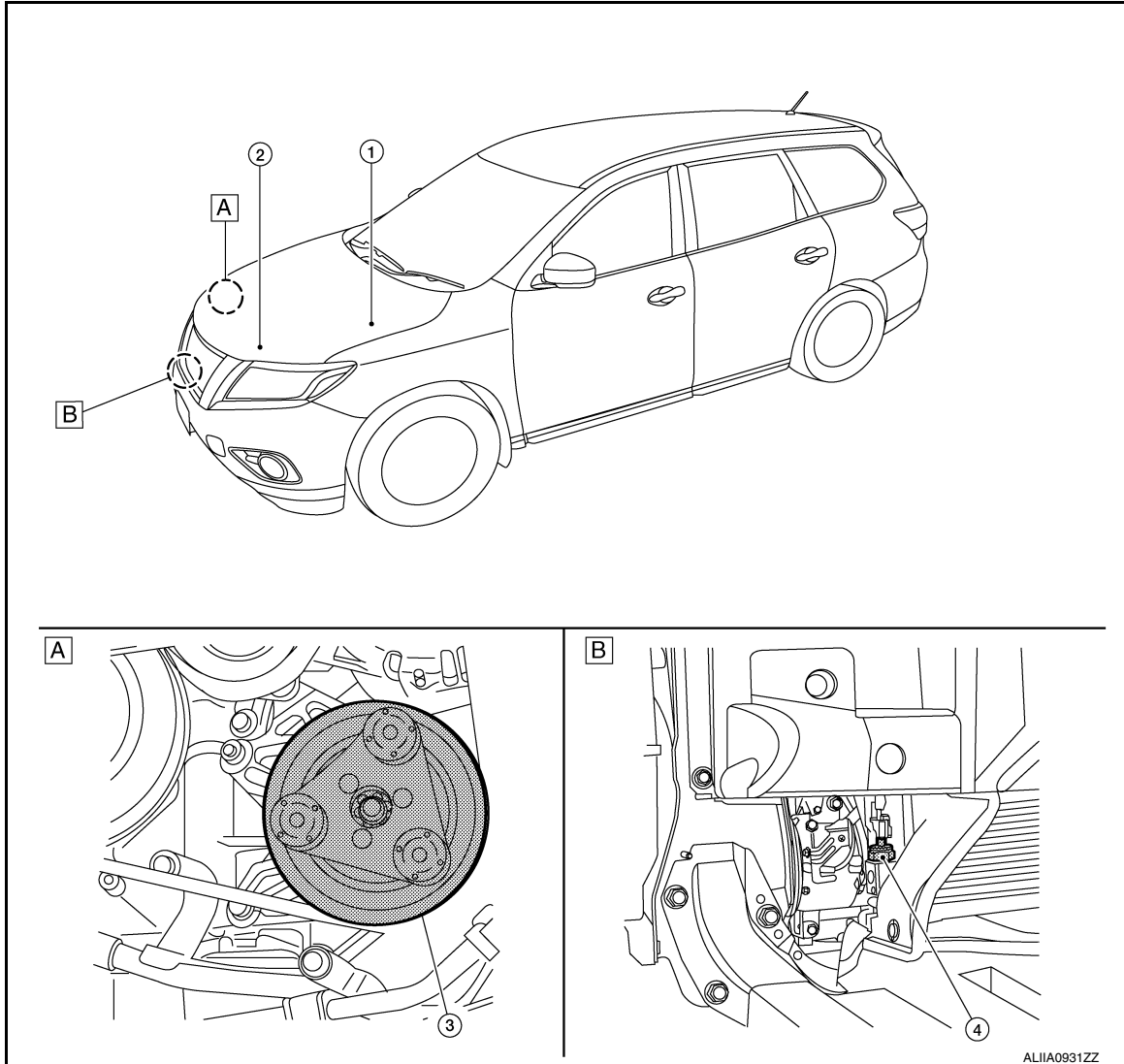
(TechMate No.) Tool name	Description
(—) Power tool  PIIB1407E	Loosening nuts, screws and bolts

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Part Location

INFOID:0000000010012109



A. RH side of engine compartment

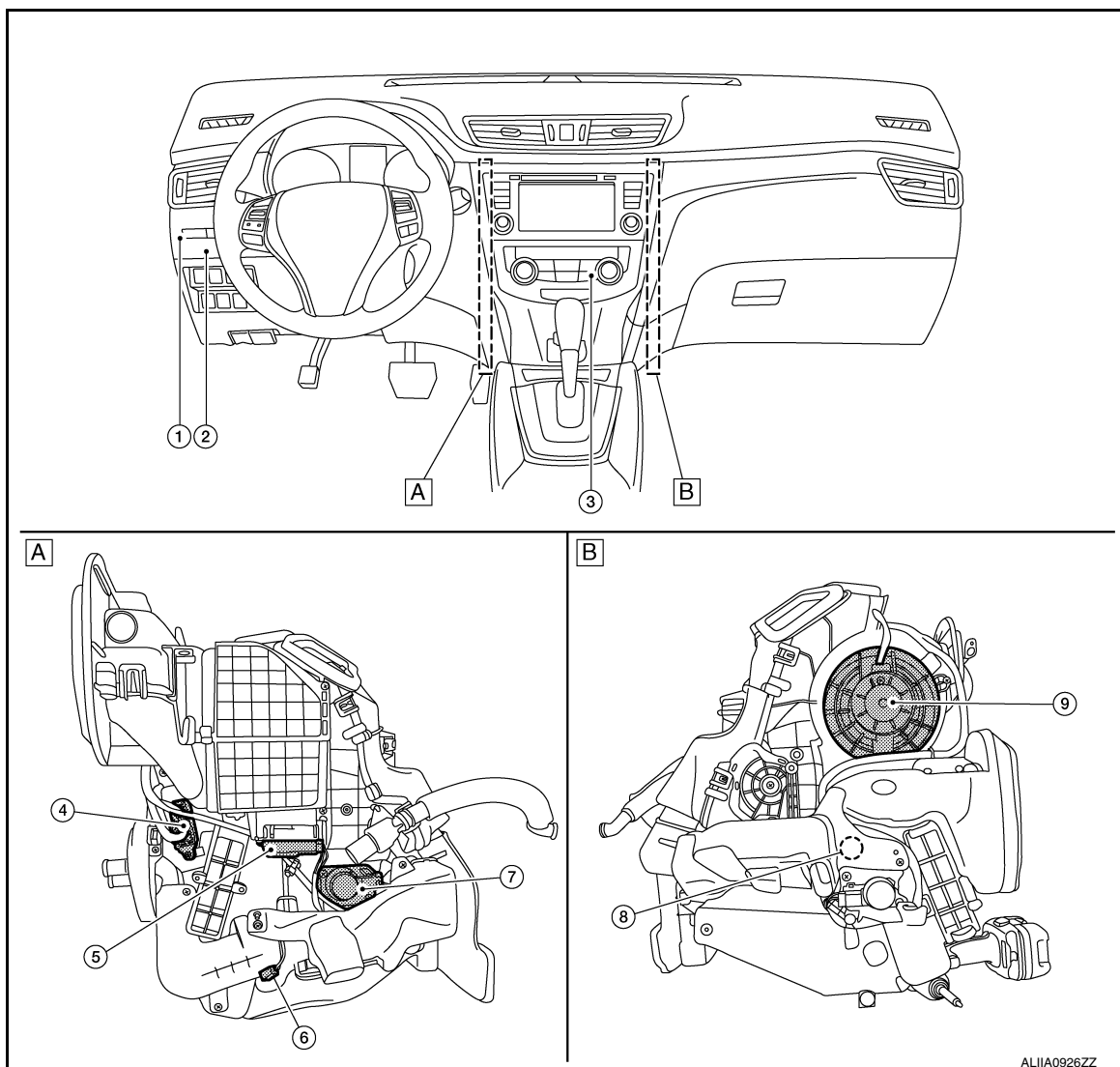
B. RH front of vehicle (view with front bumper fascia removed)

No.	Component	Description
1.	IPDM E/R	Refer to PCS-5, "RELAY CONTROL SYSTEM : System Description" .
2.	ECM	The ECM sends a compressor ON request to the IPDM E/R based on the status of engine operation and load as well as refrigerant pressure information. If all the conditions are met for A/C operation, the ECM transmits the compressor ON request to the IPDM E/R.
3.	A/C Compressor	Vaporized refrigerant is drawn into the A/C compressor from the evaporator, where it is compressed to a high pressure, high temperature vapor. The hot, compressed vapor is then discharged to the condenser.
4.	Refrigerant pressure sensor	Refer to EC-28, "Refrigerant Pressure Sensor" .

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[MANUAL AIR CONDITIONING]



A. Left side of A/C unit

B. Right side of A/C unit

No.	Component	Description
1.	Front blower relay	The front blower relay controls the flow of current to fuse 17 and 27 in the Fuse Block (J/B). The relay is grounded when the ignition switch is in the ON position.
2.	BCM	The BCM receives the fan ON and A/C ON signals from the front air control and sends a compressor ON request to the ECM.
3.	Front air control	The front air control controls the operation of the A/C and heating system based on inputs from the temperature control knob, the mode switches, the blower control dial, the intake sensor, and inputs received from the ECM across the CAN. Diagnosis of the front air control can be performed using the CONSULT. There is no self-diagnostic feature available.
4.	Variable blower control	The variable blower control controls the speed of the blower motor by controlling the ground circuit of the blower motor. The front air control provides voltage to the gate of the variable blower control based on the position of the blower control dial.
5.	Intake door motor	The intake door motor controls the position of the intake door. Fresh air is allowed to enter the cabin in one position, and recirculated inside air is allowed to enter in the other position. The intake door motor receives position commands from the front air control.
6.	Intake sensor	The intake sensor measures the temperature of the front evaporator fins. The sensor uses a thermistor which is sensitive to the change in temperature. The electrical resistance of the thermistor decreases as temperature increases.

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[MANUAL AIR CONDITIONING]

No.	Component	Description
7.	Air mix door motor	The air mix door controls the mix of hot or cold air that enters the ventilation system. It is controlled by the front air control based on the position of the temperature dial. The air mix door motor LH receives position commands from the front air control.
8.	Mode door motor	The mode door controls the direction the conditioned air passes through the ventilation system. Through a series of levers and gears, the mode door controls the defrost door, the foot door, and the vent door. There are 5 preset positions: VENT, B/L, FOOT, D/F, and DEF. The mode door motor receives position commands from the front air control.
9.	Front blower motor	The blower motor varies the speed at which the air flows through the ventilation system.

A

B

C

D

E

F

G

H

HAC

J

K

L

M

N

O

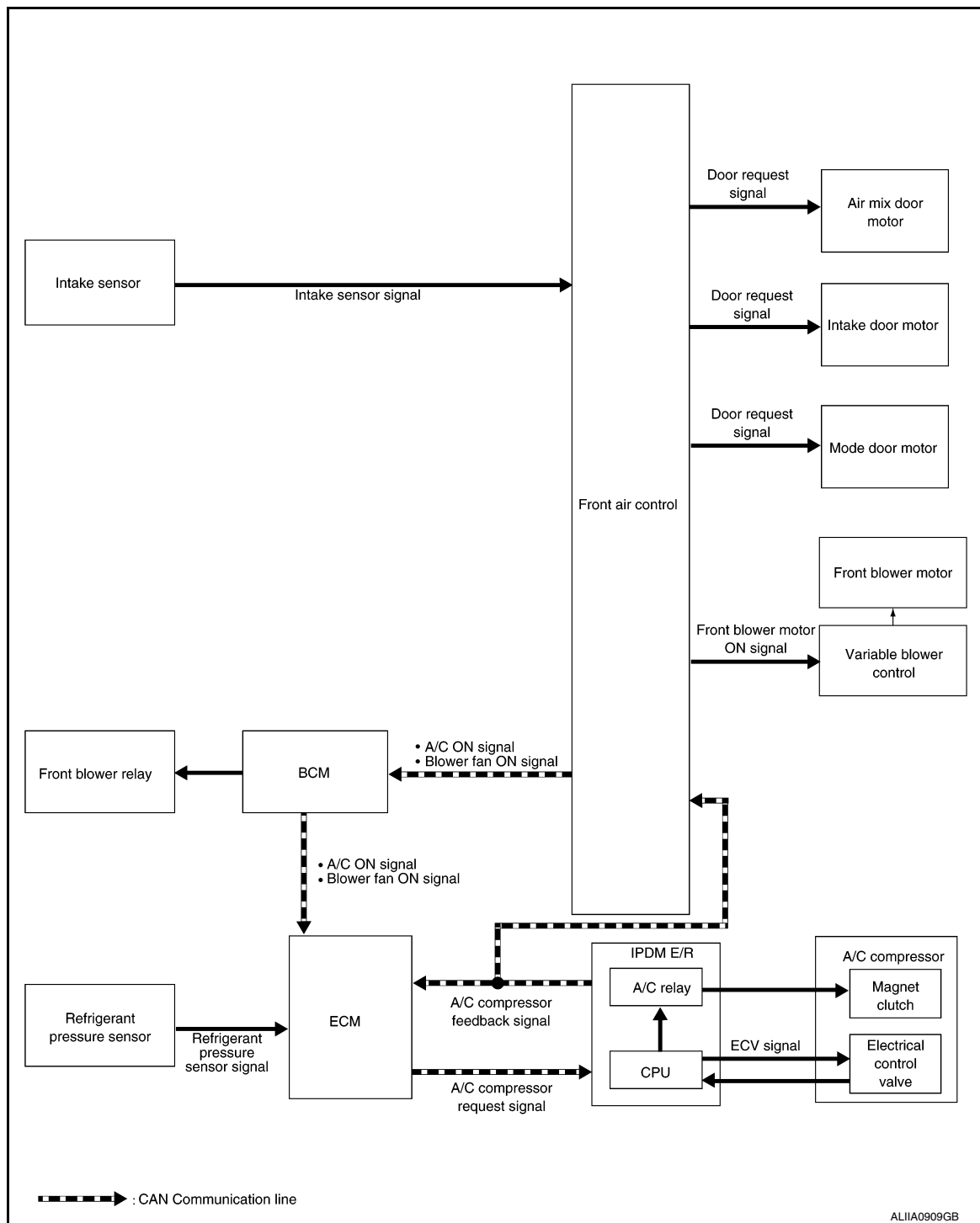
P

SYSTEM

System Description

INFOID:000000010012112

SYSTEM DIAGRAM



SYSTEM DESCRIPTION

- The manual air conditioning system is controlled by a sequence of functions from the front air control, BCM, ECM, and IPDM E/R.

Controlled by front air control:

- [HAC-119, "Air Flow Control"](#)
- [HAC-119, "Air Inlet Control"](#)
- [HAC-119, "Air Outlet Control"](#)

< SYSTEM DESCRIPTION >

- [HAC-119, "Compressor Control"](#)
- [HAC-120, "Door Control"](#)
- [HAC-123, "Temperature Control"](#)

Controlled by BCM:

- Air conditioning request signal.
Refer to [BCS-8, "BODY CONTROL SYSTEM : System Description"](#) (with Intelligent Key system) or [BCS-80, "BODY CONTROL SYSTEM : System Description"](#) (without Intelligent Key system).

Control by ECM

- Cooling fan control
Refer to [EC-46, "COOLING FAN CONTROL : System Description"](#).
- Air conditioning cut control
Refer to [EC-45, "AIR CONDITIONING CUT CONTROL : System Description"](#).

Control by IPDM E/R

- Relay control
Refer to [PCS-5, "RELAY CONTROL SYSTEM : System Description"](#).
- Cooling fan control
Refer to [EC-46, "COOLING FAN CONTROL : System Description"](#).

Air Flow Control

INFOID:0000000010012113

DESCRIPTION

- Front air control changes duty ratio of front blower motor control signal to control air flow continuously. When air flow is increased, duty ratio of front blower motor control signal gradually increases to prevent a sudden increase in air flow.
- In addition to manual control, air flow control is composed of fan speed control at door motor operation.

FAN SPEED CONTROL AT DOOR MOTOR OPERATION

When mode door motor is activated while air flow is more than the specified value, front air control temporarily reduces fan speed so that mode door moves smoothly.

Air Inlet Control

INFOID:0000000010012114

The intake door position is automatically controlled in MAX A/C and DEF modes. The intake door is controlled by customer input in the other modes.

Air Outlet Control

INFOID:0000000010012115

Air outlet control is controlled by customer input. When the A/C is turned off by turning the blower control dial fully counterclockwise, the front air control retains the current selections and returns to these selections the next time the blower control dial is turned to any fan position.

NOTE:

If ambient temperature is excessively low, D/F is selected to prevent windshield fogging when air outlet is set to FOOT.

Compressor Control

INFOID:0000000010012116

DESCRIPTION

In order for the IPDM E/R to complete a compressor ON request, the following conditions must be met:

1. The BCM detects a Fan ON signal from the front air control. The front air control grounds the fan ON signal monitored by the BCM when the blower speed dial is in any of the fan speed positions.
2. The BCM detects an A/C ON signal from the front air control. The front air control grounds the A/C ON signal monitored by the BCM when:
 - The A/C switch is pressed. The A/C switch LED illuminates and the front air control grounds the A/C ON signal monitored by the BCM. Any mode control button except D/F may be selected.
 - The A/C switch is OFF, and the MAX A/C button is pressed. The A/C switch LED will automatically illuminate and the front air control grounds the A/C ON signal monitored by the BCM.
 - The A/C switch is OFF, and the mode button for either D/F or DEF is selected. The front air control grounds the A/C ON signal monitored by the BCM, but it does not illuminate the A/C switch LED

NOTE:

If the compressor was engaged by pressing the D/F or DEF mode buttons, and the time spent in either mode exceeds 1 minute, then the compressor stays requested, even when modes other than D/F or DEF are selected, until either:

1. The ignition switch is turned OFF.
2. The blower speed dial is turned completely counterclockwise to the OFF position.
3. The A/C switch is manually turned OFF.

In other words, the compressor ON request cannot be turned off in D/F or DEF modes.

REFRIGERANT PRESSURE PROTECTION

The refrigerant system is protected against excessively high- or low-pressures by the refrigerant pressure sensor, located on the liquid tank on the condenser. The refrigerant pressure sensor detects the pressure inside the refrigerant line and sends a voltage signal to the ECM. If the system pressure rises above or falls below the following values, the ECM requests the IPDM E/R to de-energize the A/C relay and disengage the compressor.

- 3.12 MPa (31.82 kg/cm², 452.4 psi) or more (When the engine speed is less than 1,500 rpm)
- 2.74 MPa (27.95 kg/cm², 397.3 psi) or more (When the engine speed is 1,500 rpm or more)
- 0.14 MPa (1.43 kg/cm², 20.3 psi) or less

PRESSURE RELIEF VALVE

The refrigerant system is also protected by a pressure relief valve, located in the rear head of the compressor. When the pressure of refrigerant in the system increases to an abnormal level [more than 2,990 kPa (30.5 kg/cm², 433.6 psi)], the release port on the pressure relief valve automatically opens and releases refrigerant into the atmosphere.

COMPRESSOR OIL CIRCULATION CONTROL

When the engine starts while the engine coolant temperature is 56°C (133°F) or less, ECM activates the compressor for approximately 6 seconds and circulates the compressor lubricant once.

LOW TEMPERATURE PROTECTION CONTROL

- When the intake sensor detects that the front evaporator fin temperature is 1.5°C (35°F) or less, the front air control requests the BCM to turn the compressor OFF, and stops the compressor.
- When the front evaporator fin temperature returns to 5.0°C (41°F) or more, the compressor is activated.

OPERATING RATE CONTROL

When the set temperature is other than fully cold or the air outlet is "VENT", "B/L" or "FOOT", the front air control controls the compressor activation depending on ambient temperature.

Door Control

INFOID:0000000010012117

AIR MIX DOOR MOTOR**DESCRIPTION**

- The step motor system is adopted for air mix door motor.
- When a drive signal is input from front air control to door motor, a step motor built into the door motor rotates according to the drive signal, and then stops at the target door position.
- Rotation of motor is transmitted to air mix door (upper air mix door and lower air mix door) by link, rod and lever, then air flow temperature is switched.

DRIVE METHOD

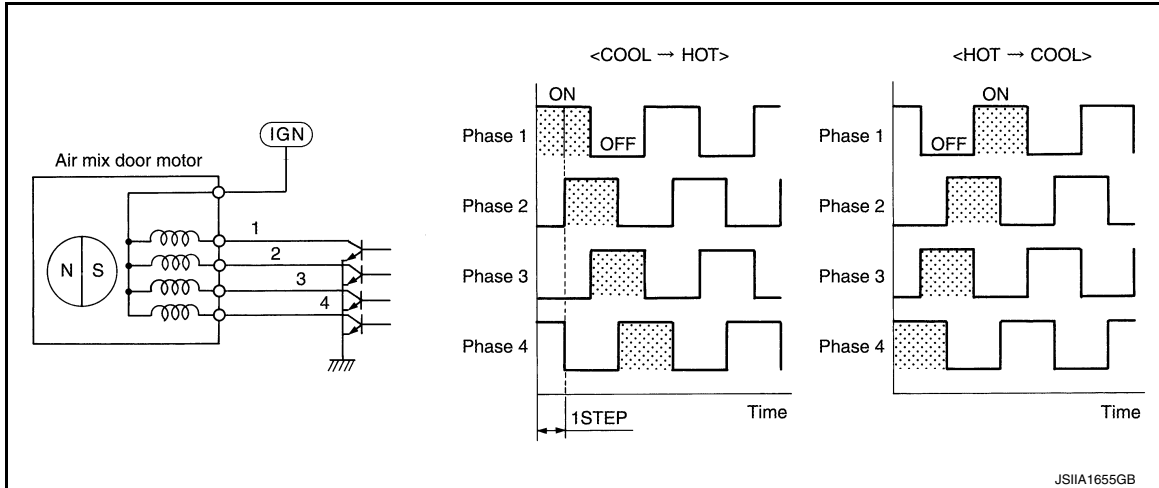
- The 4 drive coils are excited in sequence in order to drive the motor.

SYSTEM

< SYSTEM DESCRIPTION >

[MANUAL AIR CONDITIONING]

- Direction of rotation is changeable by recomposing pattern of excitation.



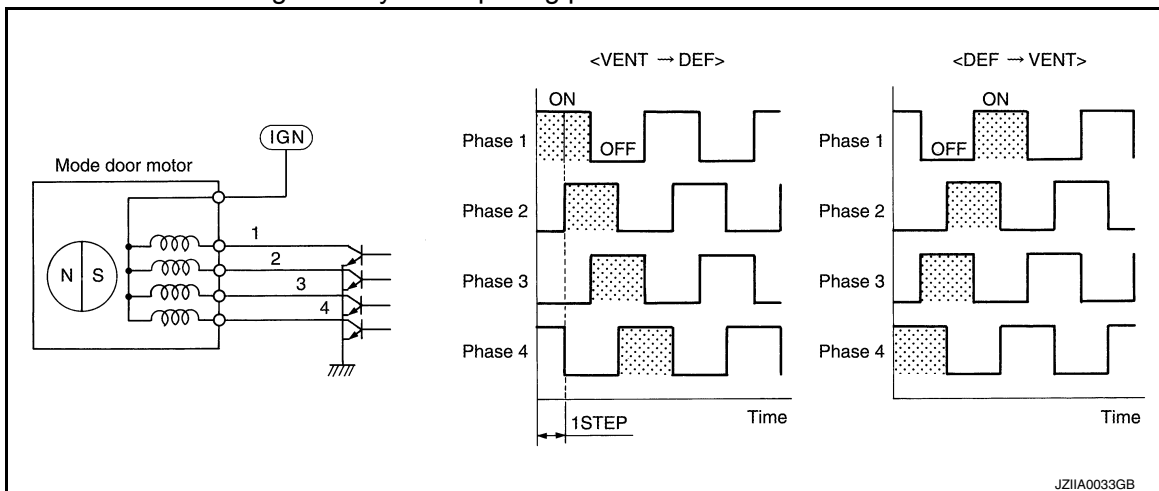
MODE DOOR MOTOR

DESCRIPTION

- The step motor system is adopted for mode door motor.
- When a drive signal is input from front air control to door motor, a step motor built into the door motor rotates according to the drive signal, and then stops at the target door position.
- Rotation of motor is transmitted to mode door (center ventilator and defroster door, sub defroster door, side ventilator door, and foot door) by link, rod, and lever, then air outlet is switched.

DRIVE METHOD

- The 4 drive coils are excited in sequence in order to drive the motor.
- Direction of rotation is changeable by recomposing pattern of excitation.



INTAKE DOOR MOTOR

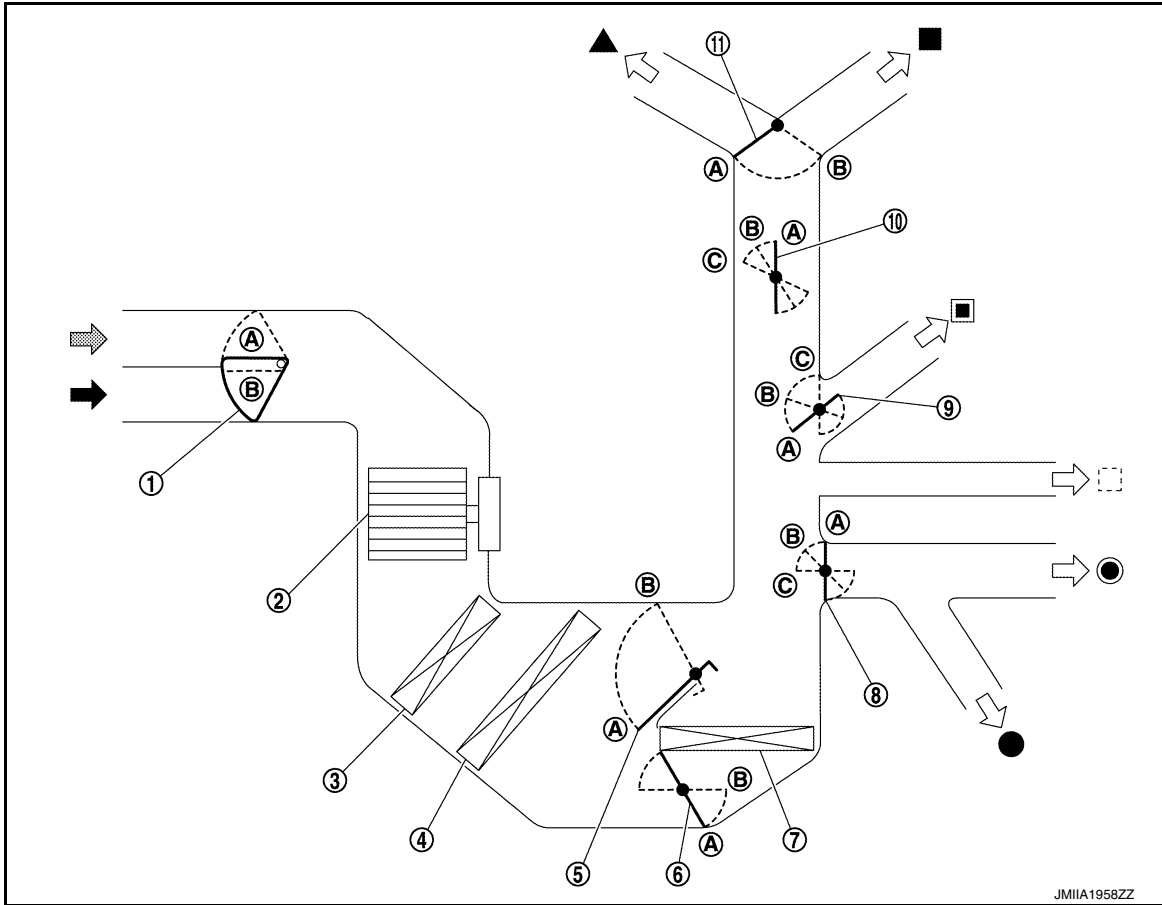
- Motor operates intake door according to control signal from front air control.
- Rotation of motor is transmitted to intake door by lever, then air inlet is switched.

SWITCHES AND THEIR CONTROL FUNCTION

SYSTEM

< SYSTEM DESCRIPTION >

[MANUAL AIR CONDITIONING]



- | | | |
|----------------------|--|--|
| ① Intake door | ② Blower motor | ③ Air conditioner filter |
| ④ Evaporator | ⑤ Upper air mix door (driver side/pas-
senger side) | ⑥ Lower air mix door (driver side/pas-
senger side) |
| ⑦ Heater core | ⑧ Foot door | ⑨ Side ventilator door |
| ⑩ Sub defroster door | ⑪ Center ventilator and defroster door | |
| ← Fresh air intake | ← Recirculation air | ⇐ Discharge air |
| ▲ Defroster | ■ Center ventilator | ■ Side ventilator |
| □ Rear ventilator | ● Front foot | ● Rear foot |

SYSTEM

< SYSTEM DESCRIPTION >

[MANUAL AIR CONDITIONING]

Switch position			Door position						
			Mode door				Intake door	Air mix door	
			Center ventilator and defroster door	Sub defroster door	Side ventilator door	Foot door		Upper air mix door	Lower air mix door
MODE switch			(A)	(A)	(A)	(A)	—	—	—
			(A)	(B)	(B)	(B)			
			(B)	(C)	(C)	(C)			
			(B)	(B)	(C)	(C)			
DEF switch			(B)	(A)	(C)	(A)	(A)	—	—
REC switch			—	—	—	—			
FRE switch							(B)		
Temperature control switch	Full cold 18°C		—	—	—	—	—	(A)	
	Full hot 32°C							(B)	
ON·OFF switch	OFF		(B)	(C)	(C)	(C)		—	—

AIR DISTRIBUTION

Discharge air flow						
MODE/DEF setting position	Air outlet/distribution					
	Ventilator			Foot		Defroster
	Front		Rear	Front	Rear	
	Center	Side				
	47%	38%	15%	—	—	—
	25%	34%	13%	18%	10%	—
	—	7%	4%	38%	24%	27%
	—	6%	2%	30%	17%	45%
	—	8%	2%	—	—	90%

Temperature Control

INFOID:0000000010012118

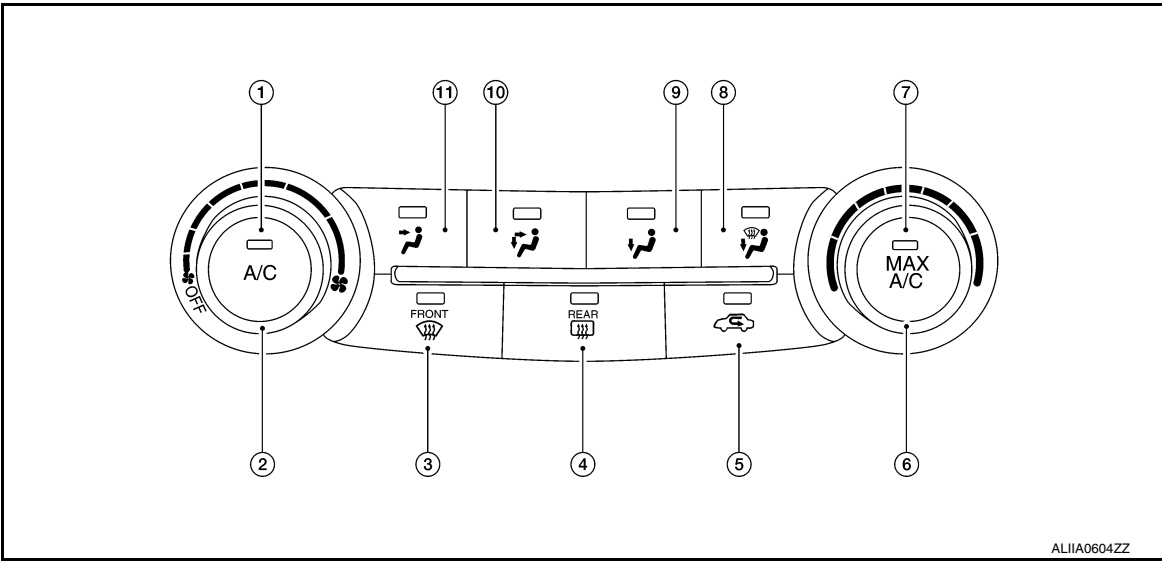
- When the ignition switch is in the ON position, the customer uses the front air control temperature control dial to set the desired temperature.
- The front air control calculates the target front air mix door opening angle depending on the selected temperature, intake temperature sensor, engine coolant temperature and rpm, and ambient temperature.
- Front air mix door is controlled depending on the comparison of current front air mix door opening angle and target front air mix door opening angle.
- Regardless of ambient temperature, the front air mix door is fixed at the fully cold position when the temperature control dial is set at the full cold position and fixed at the fully hot position when the temperature control dial is set at the full hot position.

OPERATION

Switch Name and Function

INFOID:0000000010012119

A/C Switch Assembly



1. A/C switch

4. Rear DEF switch

7. MAX A/C switch

10. B/L switch
2. Blower control dial (with OFF switch)

5. REC switch

8. D/F switch

11. VENT switch
3. DEF switch

6. Temperature control dial

9. FOOT switch

Switch Operation

A/C switch	Switches the compressor control switch indicator between ON ⇔ OFF with each press while front blower fan is activated. The circuit used by the BCM to detect an A/C ON request is grounded. NOTE: When front blower fan is OFF, the compressor control cannot be activated.
Blower control dial (with OFF switch)	- Blower fan speed is manually controlled with the dial for varying blower speed. When ON, the circuit used by the BCM to detect a fan ON request signal is grounded. - Turns air conditioning system OFF. NOTE: When blower control dial is turned to any ON position the air conditioning system is activated. (Compressor control state returns to the previous state before air conditioning system was turned OFF.)
DEF switch	Switches DEF mode (switch indicator) between ON ⇔ OFF with each press. - When DEF mode is turned ON, the air conditioning system changes to the following state. - Air inlet: Fresh air intake - Air outlet: DEF - Blower fan: Manual setting. - Compressor: ON - When DEF mode is turned OFF, the air conditioning system state returns to the previous state before DEF mode was selected, but the following state is continued: - Air inlet: Fresh air intake - Compressor: ON NOTE: When front blower fan is OFF, DEF cannot be activated.

OPERATION

< SYSTEM DESCRIPTION >

[MANUAL AIR CONDITIONING]

MAX A/C switch	Switches the MAX A/C and compressor control switch indicators between ON ⇔ OFF with each press while front blower fan is activated. • When MAX A/C mode is turned ON, the air conditioning system changes to the following state. - Air inlet: Recirculation air intake - Air outlet: Manual setting - Blower fan: Manual setting. - Compressor: ON • When MAX A/C mode is turned OFF, the air conditioning system state returns to the previous state before MAX A/C mode is selected. But, the following state is changed: - Air inlet: Fresh air intake - Compressor: ON NOTE: When front blower fan is OFF, the compressor control cannot be activated.
MODE switches	Selects air outlet from VENT, B/L, FOOT, and D/F. NOTE: When the air conditioning system is OFF, the air outlet can still be selected.
REC switch	• Air inlet is selected to fresh air intake (REC) by pressing this switch. - REC indicator: ON NOTE: • When the air conditioning system is OFF, the air inlet can still be selected. • When D/F mode or DEF is selected, the REC button is disabled.
Temperature control dial	• Selects desired temperature between full cold and full hot. - Clockwise rotation: Temperature increases. - Counterclockwise rotation: Temperature decreases.

A
B
C
D
E
F
G
H
J
K
L
M
N
O
P

HAC

DIAGNOSIS SYSTEM (HVAC)

Description

INFOID:0000000010262906

Air conditioning system performs self-diagnosis, operation check, function diagnosis, and various settings using diagnosis function of each control unit.

ECU	Diagnostic item (CONSULT)	
Front air control	 HVAC	Self Diagnostic Result
		Data Monitor
		Active Test
		Work support
BCM	 BCM-AIR CONDITIONER	Self Diagnostic Result
		Data Monitor
ECM	 ENGINE	Self Diagnostic Result
		Data Monitor
IPDM E/R	 IPDM E/R	Self Diagnostic Result
		Data Monitor

CONSULT Function (HVAC)

INFOID:0000000010262907

CONSULT can display each diagnosis item using the diagnosis test modes as shown.

CONSULT application items

Diagnosis mode	Description
Self-Diagnostic Result	Displays the diagnosis results judged by A/C auto amp.
Data Monitor	Displays A/C auto amp. input/output data in real time.
Work support	Changes the setting for each system function.
Active Test	The signals used to activate each device are forcibly supplied from front air control.
ECU Identification	Displays the A/C auto amp. number.

SELF-DIAGNOSTIC RESULT

Refer to [HAC-134. "DTC Index"](#).

Display Item List

DTC	Items (CONSULT screen terms)	Diagnostic item is detected when...	Possible cause
U1000	CAN COMM CIRCUIT	When A/C auto amp. is not transmitting or receiving CAN communication signal for 2 or more seconds.	CAN communication system
U1010	CONTROL UNIT (CAN)	When detecting error during the initial diagnosis of CAN controller of front air control.	Front air control
B24A4	INTAKE TEMP SEN	Short or open circuit of the intake temperature sensor signal.	- Intake sensor - Front air control - Harness and connector (Intake sensor circuit is open, or there is a short in the circuit)
B24BB	AIRMIX ACTR	Short or open circuit of air mix door motor drive signal.	- Air mix door motor LH - Front air control - Harness and connector (Air mix door motor is open or shorted)

DIAGNOSIS SYSTEM (HVAC)

< SYSTEM DESCRIPTION >

[MANUAL AIR CONDITIONING]

DTC	Items (CONSULT screen terms)	Diagnostic item is detected when...	Possible cause
B24B7	INTAKE ACTR	Short or open circuit of intake door motor drive signal.	- Intake door motor - Front air control - Harness and connector (Intake door motor is open or shorted)
B27B9	MODE DOOR ACTR	Short or open circuit of mode door motor drive signal.	- Mode door motor - Front air control - Harness and connector (Mode door motor is open or shorted)

DATA MONITOR

Display item list

Monitor item [Unit]	Description
AMB TEMP SEN [°C]	Ambient sensor value converted from ambient sensor signal received from ambient sensor
INT TEMP SEN [°C]	Intake sensor value converted from intake sensor signal received from intake sensor
AMB SEN CAL [°]	Ambient sensor value calculated by A/C auto amp.
INT TEMP CAL [°C]	Intake sensor value calculated by A/C auto amp.
COMP REQ SIG [On/Off]	Displays A/C switch ON/OFF status transmitted to other units via CAN communication
FAN REQ SIG [On/Off]	Displays blower switch ON/OFF status transmitted to other units via CAN communication
FAN DUTY [%]	Duty ratio of blower motor judged by A/C auto amp.
VEHICLE SPEED [km/h (mph)]	Vehicle speed signal value received from meter via CAN communication

WORK SUPPORT

Work item	Description	Reference
Door Motor Starting Position Reset	Starting position reset of air mix door motor and mode door motor can be performed.	HAC-151. "Work Procedure"
TARGET EVAPORATOR TEMP UPPER LIMIT SETTING	Set the target evaporator upper temperature limit.	HAC-150. "Target Evaporator Temp Upper Limit"

NOTE:

When the battery cable is disconnected from the negative terminal or when the battery voltage becomes 10V or less, the setting of WORK SUPPORT may be cancelled.

ACTIVE TEST

Test item	Description
HVAC TEST	The operation check of A/C system can be performed by selecting the mode. Refer to the following table for the conditions of each mode.

HVAC TEST

	Test item						
	MODE 1	MODE 2	MODE 3	MODE 4	MODE 5	MODE 6	MODE 7
Mode door position	VENT	VENT	B/L	B/L	D/F1	D/F2	DEF
Intake door position	REC	REC	20%FRE	20%FRE	FRE	FRE	FRE
Air mix door position	FULL COLD	FULL COLD	FULL COLD	FULL HOT	FULL HOT	FULL HOT	FULL HOT
Blower motor (Applied voltage)	35%	35%	60%	60%	90%	90%	35%

DIAGNOSIS SYSTEM (HVAC)

< SYSTEM DESCRIPTION >

[MANUAL AIR CONDITIONING]

	Test item						
	MODE 1	MODE 2	MODE 3	MODE 4	MODE 5	MODE 6	MODE 7
A/C compressor (Magnet clutch)	ON	ON	ON	ON	OFF	OFF	ON
ECV duty	80%	80%	40%	40%	0%	0%	90%

NOTE:

Perform the inspection of each output device after starting the engine, because the A/C compressor has been operating.

DIAGNOSIS SYSTEM (IPDM E/R)

CONSULT Function (IPDM E/R)

INFOID:000000010256044

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with IPDM E/R.

Direct Diagnostic Mode	Description
Ecu Identification	The IPDM E/R part number is displayed.
Self Diagnostic Result	The IPDM E/R self diagnostic results are displayed.
Data Monitor	The IPDM E/R input/output data is displayed in real time.
Active Test	The IPDM E/R activates outputs to test components.
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.

ECU IDENTIFICATION

The IPDM E/R part number is displayed.

SELF DIAGNOSTIC RESULT

Refer to [PCS-20, "DTC Index"](#).

DATA MONITOR

Monitor Item [Unit]	Description
REVERSE SIGNAL [Open/Close]	Indicates condition of transmission range switch R (Reverse) position.
IGN RELAY [Open/Close]	Indicates condition of ignition relay-1.
PUSH SW [Open/Close]	Indicates condition of push-button ignition switch.
INTERLOCK/PNP SW [Open/Close]	Indicates condition of transmission range switch P (Park) and N (Neutral) positions.
OIL PRESSURE SW [Open/Close]	Indicates condition of oil pressure switch.
HOOD SW [Open/Close]	Indicates condition of hood switch.
COMPRESSOR [OFF/ON]	Indicates condition of A/C compressor.
HORN RELAY [OFF/ ON]	Indicates condition of horn relay.
COOLING FAN [OFF/ON]	Indicates condition of cooling fan relay-1.
FRONT WIPER HI/LO RELAY [OFF/ON]	Indicates condition of front wiper high relay.
FRONT WIPER RELAY [OFF/ON]	Indicates condition of front wiper relay.
IGN RELAY OFF STATUS [OFF/ON]	Indicates condition of ignition relay-1 OFF status.
IGN RELAY ON STATUS [OFF/ON]	Indicates condition of ignition relay-1 ON status.
COOLING FAN RELAY 1 [OFF/ON]	Indicates condition of cooling fan relay-1.
STARTER RELAY [OFF/ON]	Indicates condition of starter relay.
COMP ECV DUTY [%]	Indicates condition of A/C compressor.
COOLING FAN RELAY 2 [%]	Indicates condition of cooling fan relay-2.
FR FOG LAMP LH [%]	Indicates condition of front fog lamp LH.
FR FOG LAMP RH [%]	Indicates condition of front fog lamp RH.
PARKING LAMP [%]	Indicates condition of parking lamp.
TAIL LAMP LH [%]	Indicates condition of tail lamp LH.
TAIL LAMP RH [%]	Indicates condition of tail lamp RH.
DAYTIME RUNNING LIGHT LH [%]	Indicates condition of daytime running light LH.
DAYTIME RUNNING LIGHT RH [%]	Indicates condition of daytime running light RH.
HEADLAMP (HI) LH [%]	Indicates condition of headlamp high beam LH.

DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

[MANUAL AIR CONDITIONING]

Monitor Item [Unit]	Description
HEADLAMP (HI) RH [%]	Indicates condition of headlamp high beam RH.
HEADLAMP (LO) LH [%]	Indicates condition of headlamp low beam LH.
HEADLAMP (LO) RH [%]	Indicates condition of headlamp low beam RH.
A/C RELAY STUCK [NG/OK]	Indicates condition of A/C relay.
A/C RELAY [Off/On]	Indicates condition of A/C relay.
COMP ECV STATUS [NG/OK]	Indicates condition of A/C compressor.
VEHICLE SECURITY HORN [Off/On]	Indicates condition of horn relay.
BATTERY CURRENT SENSOR [NG/OK]	Indicates condition of battery current sensor.
FRONT FOG LAMP [Off/On]	Indicates condition of front fog lamps.
COMP ECV CURRENT [A]	Indicates condition of A/C compressor current.
BATTERY VOLTAGE [V]	Indicates condition of battery voltage.
COOLING FAN DUTY [%]	Indicates condition of cooling fans.
HOOD SW (CAN) [OPEN/CLOSE]	Indicates condition of hood switch.
FRONT WIPER [STOP/LOW/HIGH]	Indicates condition of front wiper motor.
FR WIPER STOP POSITION [STOP P/ACTIVE P]	Indicates condition of front wiper motor stop.
HEADLAMP (HI) [Off/On]	Indicates condition of headlamp high beams.
HEADLAMP (LO) [Off/On]	Indicates condition of headlamp low beams.
IGNITION RELAY STATUS [Off/On]	Indicates condition of ignition relay-1.
IGN RELAY MONITOR [Off/On]	Indicates condition of ignition relay-1 feedback.
IGNITION POWER SUPPLY [Off/On]	Indicates condition of ignition relay-1.
INTERLOCK/PNP SW (CAN) [Off/On]	Indicates condition of transmission range switch P (Park) and N (Neutral) positions.
PUSH-BUTTON IGN SW (CAN) [Off/On]	Indicates condition of push-button ignition switch.
TAIL LAMP [Off/On]	Indicates condition of tail lamps.
REVERSE SIGNAL (CAN) [Off/On]	Indicates condition of transmission range switch R (Reverse) position.
ST&ST CONT RELAY STATUS [Off/ST R On]	Indicates condition of starter cut and starter relays.
STARTER MOTOR STATUS [Off/On]	Indicates condition of starter motor.
STARTER RELAY (CAN) [LOW/HIGH]	Indicates condition of starter relay.
IPDM NOT SLEEP [NO RDY/RDY]	Indicates condition of IPDM E/R sleep status.
AFTER COOLING TIME [No request/Request]	Indicates condition of cooling fan request.
AFTER COOLING SPEED [%]	Indicates condition of cooling fans.
COOLING FAN TYPE [NISSAN/RENAULT]	Indicates cooling fan type.
COMPRESSOR REQ1 [Off/On]	Indicates condition of A/C compressor request.
VHCL SECURITY HORN REQ [Off/On]	Indicates condition of horn relay request.
DTRL REQ [Off/On]	Indicates condition of daytime running light request.
SLEEP/WAKE UP [WAKEUP/SLEEP]	Indicates condition of IPDM E/R sleep/wake.
CRANKING ENABLE-TCM [NG/OK]	Indicates condition of crank enable from TCM.
CRANKING ENABLE-ECM [NG/OK]	Indicates condition of crank enable from ECM.
CAN DIAGNOSIS [NG/OK]	Indicates condition of CAN diagnosis.
FRONT FOG LAMP REQ [Off/On]	Indicates condition of front fog lamp request.
HIGH BEAM REQ [Off/On]	Indicates condition of headlamp high beam request.
HORN CHIRP [Off/On]	Indicates condition of horn relay request.
COOLING FAN REQ [%]	Indicates condition of cooling fan request.
ENGINE STATUS [STOP/RUN/IDLING]	Indicates condition of engine status.

DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

[MANUAL AIR CONDITIONING]

Monitor Item [Unit]	Description
TURN SIGNAL REQ [Off/LH/RH]	Indicates condition of turn signal request.
FR WIPER REQ [RETURN/LOW/HIGH]	Indicates condition of front wiper motor request.
SHIFT POSITION [P/R/N/D/L]	Indicates condition of transmission range switch positions.
LOW BEAM REQ [Off/On]	Indicates condition of headlamp low beam request.
POSITION LIGHT REQ [Off/On]	Indicates condition of parking lamp request.
COMPRESSOR REQ2 [Off/On]	Indicates condition of A/C compressor request.
IGNITION SW [Off/On]	Indicates condition of ignition switch.
VEHICLE SPEED (METER) [mph/km/h]	Indicates vehicle speed.
BAT DISCHARGE COUNT [0-100]	Indicates condition of battery discharge.
BATTERY STATUS [NG/OK]	Indicates battery status.

ACTIVE TEST

Test item	Description
HORN	This test is able to check horn operation [Off/On].
FRONT WIPER	This test is able to check wiper motor operation [Off/Low/High].
COMPRESSOR	This test is able to check A/C compressor operation [Off/On].
COOLING FAN (DUAL)	This test is able to check cooling fan operation [Off/LO/HI].
HEADLAMP (HI)	This test is able to check headlamp high beam operation [Off/3/5].
HEADLAMP (LO)	This test is able to check headlamp low beam operation [Off/3/5].
FRONT FOG LAMP	This test is able to check front fog lamp operation [Off/3/5].
DAYTIME RUNNING LAMP	This test is able to check daytime running lamp operation [Off/3/5].
PARKING LAMP	This test is able to check parking lamp operation [Off/3/5].
TAIL LAMP	This test is able to check tail lamp operation [Off/3/5].

CAN DIAG SUPPORT MNTR

Refer to [LAN-14, "CAN Diagnostic Support Monitor"](#).

FRONT AIR CONTROL

< ECU DIAGNOSIS INFORMATION >

[MANUAL AIR CONDITIONING]

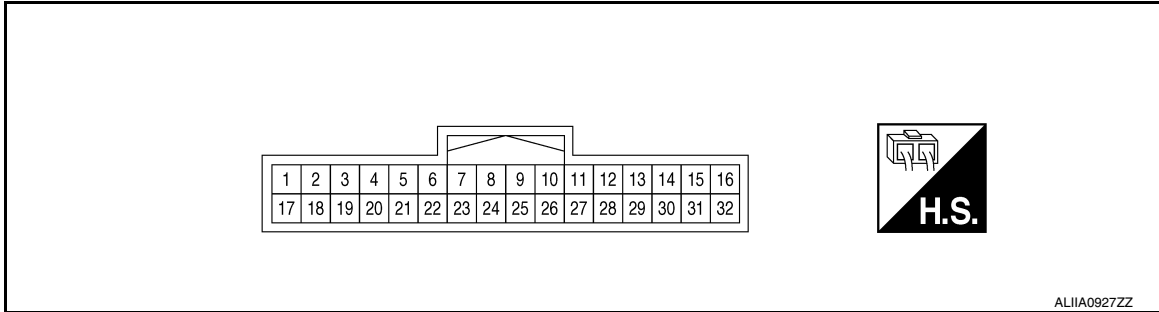
ECU DIAGNOSIS INFORMATION

FRONT AIR CONTROL

Reference Value

INFOID:0000000010012128

TERMINAL LAYOUT



PHYSICAL VALUES

Terminal No. (Wire color)		Description		Condition	Value
+	-	Signal name	Input/ Output		
1 (G)	19 (B)	Power transistor control signal	Output	- Ignition switch ON - Blower motor: 1st speed (manual)	ZJIA0863J
3 (SB)	19 (B)	Ignition power supply	Input	Ignition switch ON	Battery voltage
4 (V)	19 (B)	Ignition power supply	Output	Ignition switch ON	Battery voltage
7 (L)	19 (B)	CAN-H	Input/ Output	Ignition switch ON	—
8 (W)	19 (B)	ACTR V	Output	Ignition switch ON	Battery voltage
9 (BG)	19 (B)	A/MIX drive 1	Output	- Ignition switch ON - Right after the temperature control switch (passenger side) operation	JPIIA1647GB
10 (Y)	19 (B)	A/MIX drive 2			
11 (V)	19 (B)	INTAKE drive 1	Output	- Ignition switch ON - Right after the Intake switch operation	JPIIA1647GB
12 (GR)	19 (B)	INTAKE drive 2			

FRONT AIR CONTROL

< ECU DIAGNOSIS INFORMATION >

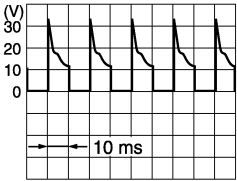
[MANUAL AIR CONDITIONING]

Terminal No. (Wire color)		Description		Condition	Value
+	—	Signal name	Input/ Output		
13 (LG)	19 (B)	MODE drive 1	Output	- Ignition switch ON - Right after the MODE switch operation	
14 (SB)	19 (B)	MODE drive 2			
17 (W)	19 (B)	Blower fan ON signal	Output	- Ignition switch ON - Blower motor: OFF	
				- Ignition switch ON - Blower motor: ON	
18 (BR)	19 (B)	Sensor ground	—	Ignition switch ON	0 – 0.1 V
19 (B)	Ground	Ground	—	Ignition switch ON	0 – 0.1 V
21 (BG)	19 (B)	Intake sensor signal	Input	Ignition switch ON	0 – 4.8 V Output voltage varies with evaporator fin temperature
23 (R)	19 (B)	CAN-L	Input/ Output	Ignition switch ON	—
24 (SB)	19 (B)	ACTR V	Output	Ignition switch ON	Battery voltage
25 (GR)	19 (B)	A/MIX drive 3	Output	- Ignition switch ON - Right after the temperature control switch (passenger side) operation	
26 (BR)	19 (B)	A/MIX drive 4			
27 (LG)	19 (B)	INTAKE drive 3	Output	- Ignition switch ON - Right after the intake switch operation	
28 (W)	19 (B)	INTAKE drive 4			

FRONT AIR CONTROL

< ECU DIAGNOSIS INFORMATION >

[MANUAL AIR CONDITIONING]

Terminal No. (Wire color)		Description		Condition	Value
+	–	Signal name	Input/ Output		
29 (BG)	19 (B)	MODE drive 3	Output	- Ignition switch ON - Right after the MODE switch operation	
30 (G)	19 (B)	MODE drive 4			
		Mode door motor drive signal			JPIIA1647GB

DTC Inspection Priority Chart

INFOID:0000000010262904

If some DTCs are displayed at the same time, perform inspections one by one based on the following priority chart.

Priority	Detected items (DTC)
1	- U1000: CAN COMM CIRCUIT - U1010: CONTROL UNIT (CAN)
2	- B24A4: INTAKE TEMP SEN - B24BB: AIRMIX ACTR - B24B7: INTAKE ACTR - B24B9: MODE ACTR

DTC Index

INFOID:0000000010262905

DTC	Items (CONSULT screen terms)	Reference
U1000	CAN COMM CIRCUIT	HAC-53, "DTC Logic"
U1010	CONTROL UNIT (CAN)	HAC-54, "DTC Logic"
B24A4	INTAKE SENSOR	HAC-58, "DTC Logic"
B24B7	INTAKE DOOR MOTOR	HAC-77, "DTC Logic"
B24B9	MODE DOOR MOTOR	HAC-80, "DTC Logic"
B24BB	LEFT AIR MIX DOOR MOTOR	HAC-67, "DTC Logic"

ECM, IPDM E/R, BCM

List of ECU Reference

INFOID:0000000010012129

ECU	Reference
ECM	EC-77, "Reference Value"
	EC-89, "Fail Safe"
	EC-92, "DTC Inspection Priority Chart"
	EC-93, "DTC Index"
IPDM E/R	PCS-12, "Reference Value"
	PCS-19, "Fail-safe"
	PCS-20, "DTC Index"
BCM (with Intelligent Key system)	BCS-28, "Reference Value"
	BCS-47, "Fail Safe"
	BCS-47, "DTC Inspection Priority Chart"
	BCS-48, "DTC Index"
BCM (without Intelligent Key system)	BCS-96, "Reference Value"
	BCS-107, "Fail Safe"
	BCS-107, "DTC Inspection Priority Chart"
	BCS-108, "DTC Index"

A

B

C

D

E

F

G

H

HAC

J

K

L

M

N

O

P

MANUAL AIR CONDITIONING SYSTEM

< WIRING DIAGRAM >

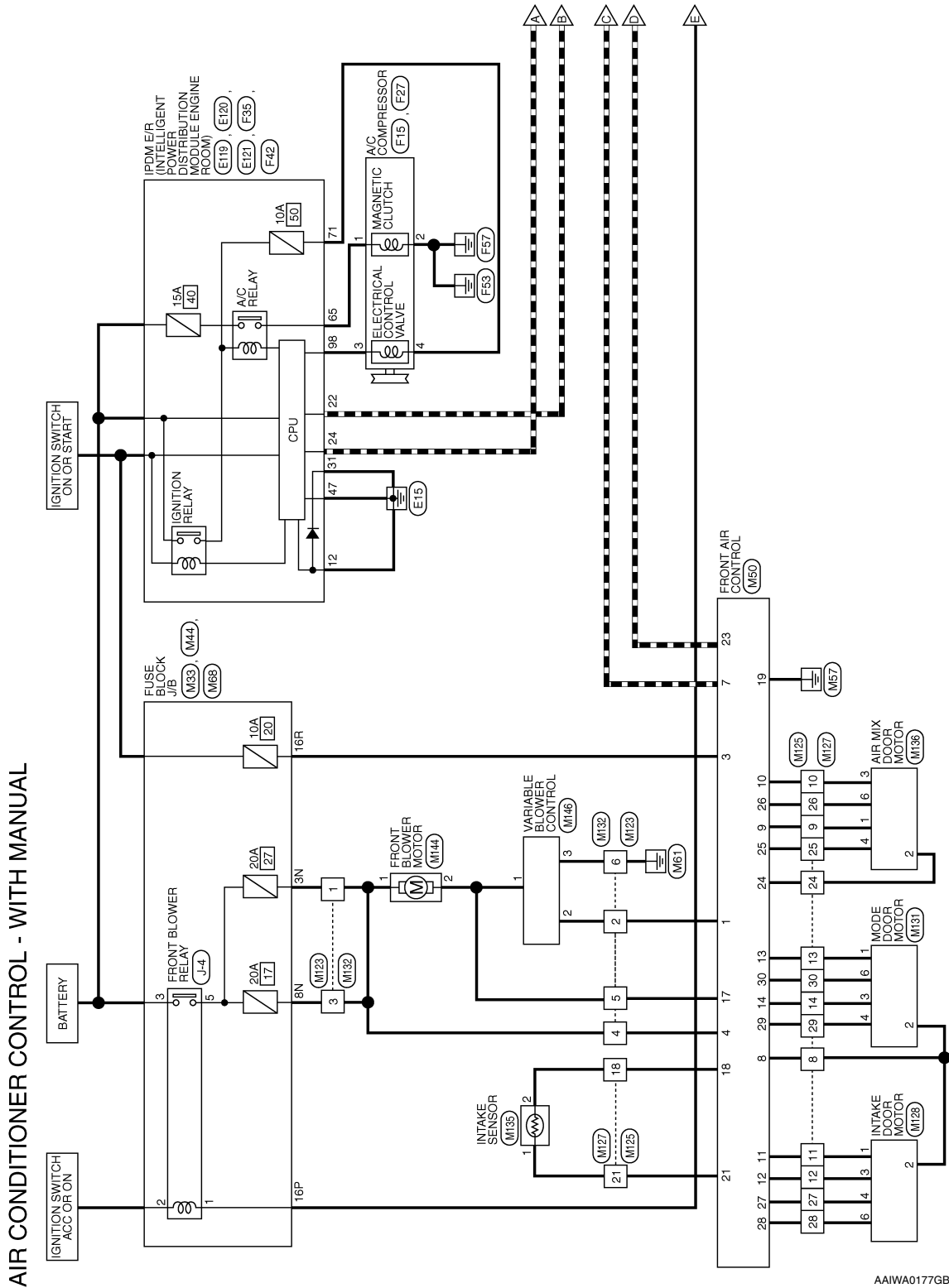
[MANUAL AIR CONDITIONING]

WIRING DIAGRAM

MANUAL AIR CONDITIONING SYSTEM

Wiring Diagram

INFOID:0000000010012130

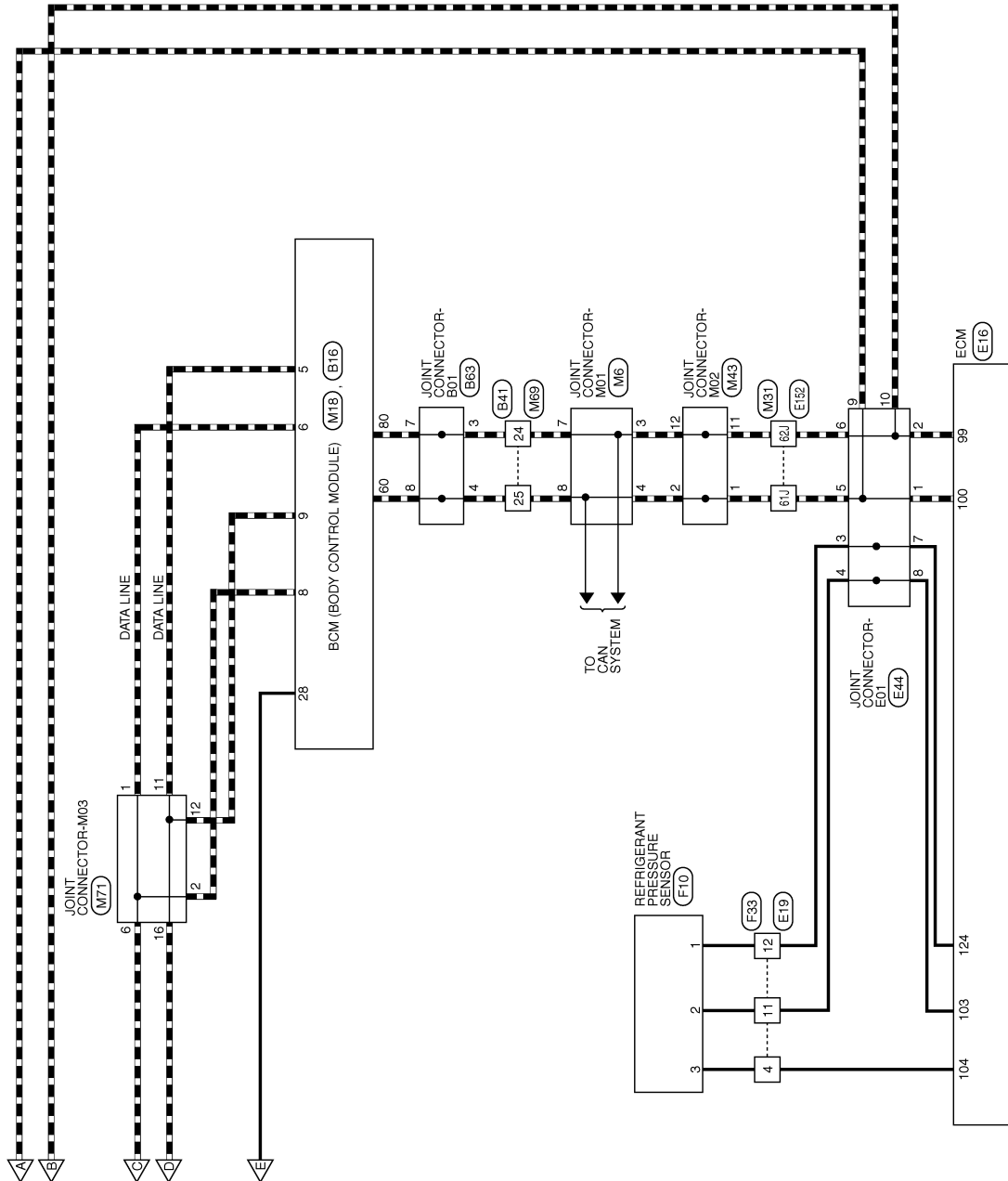


AAIWA0177GB

MANUAL AIR CONDITIONING SYSTEM

< WIRING DIAGRAM >

[MANUAL AIR CONDITIONING]



AAIWA0178GB

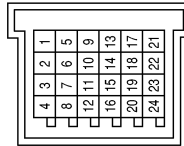
MANUAL AIR CONDITIONING SYSTEM

< WIRING DIAGRAM >

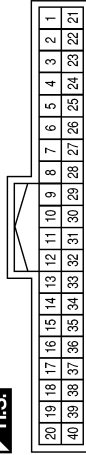
[MANUAL AIR CONDITIONING]

AIR CONDITIONER CONNECTORS - WITH MANUAL

Connector No.	M6
Connector Name	JOINT CONNECTOR-M01
Connector Color	GRAY



Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY

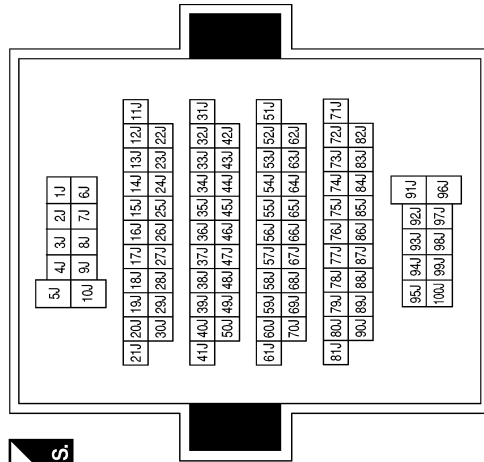


Terminal No.	Color of Wire	Signal Name
9	R	CAN-L
28	LAW	O IGN2 RL

Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

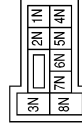
Terminal No.	Color of Wire	Signal Name
5	R	CAN-L
6	L	CAN-H
8	L	CAN-H

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
61J	L	-
62J	P	-

Connector No.	M33
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
3N	Y	-
8N	SB	-

MANUAL AIR CONDITIONING SYSTEM

< WIRING DIAGRAM >

[MANUAL AIR CONDITIONING]

Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE

7P 6P 5P 4P 3P 2P 1P
16P 15P 14P 13P 12P 11P 10P 9P 8P



Terminal No.	Color of Wire	Signal Name
16P	LA/W	-

Connector No.	M43
Connector Name	JOINT CONNECTOR-M02
Connector Color	BLUE

9 8 7 6 5 4 3 2 1
20 19 18 17 16 15 14 13 12 11 10



Terminal No.	Color of Wire	Signal Name
1	L	-
2	L	-
11	P	-
12	P	-

Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN

7R 6R 5R 4R 3R 2R 1R
16R 15R 14R 13R 12R 11R 10R 9R 8R



Terminal No.	Color of Wire	Signal Name
16R	GR	-

Terminal No.	Color of Wire	Signal Name
13	LG	MODE 1
14	SB	MODE 2
15	-	-
16	-	-
17	W	FR FAN F/B
18	BR	INTAKE SEN GND
19	B	GND
20	-	-
21	BG	INTAKE SEN
22	-	-
23	R	CAN-L
24	SB	12V PROT MOTOR
25	GR	MIX DR 3
26	BR	MIX DR 4
27	LG	INTAKE 3
28	W	INTAKE 4
29	BG	MODE 3
30	G	MODE 4
31	-	-
32	-	-

Connector No.	M50
Connector Name	FRONT AIR CONTROL
Connector Color	WHITE

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32



Terminal No.	Color of Wire	Signal Name
1	G	FR FAN OUT
2	-	-
3	SB	ING TEMPO
4	V	IGNW
5	-	-
6	-	-
7	L	CAN-H
8	W	12V PROT MOTOR
9	BG	MIX DR 1
10	Y	MIX DR 2
11	V	INTAKE 1
12	GR	INTAKE 2

AAIIA0409GB

A
B
C
D
E
F
G
H
HAC
J
K
L
M
N
O
P

MANUAL AIR CONDITIONING SYSTEM

< WIRING DIAGRAM >

[MANUAL AIR CONDITIONING]

Connector No.	M123
Connector Name	WIRE TO WIRE
Connector Color	WHITE



6	5	4
3	2	1

Terminal No.	Color of Wire	Signal Name
1	Y	-
2	G	-
3	SB	-
4	V	-
5	W	-
6	B	-

Connector No.	M71
Connector Name	JOINT CONNECTOR-M03
Connector Color	BLUE



--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Terminal No.	Color of Wire	Signal Name
1	L	-
2	L	-
6	L	-
11	R	-
12	R	-
16	R	-

Connector No.	M69
Connector Name	WIRE TO WIRE
Connector Color	WHITE



16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17

Terminal No.	Color of Wire	Signal Name
24	P	-
25	L	-

Connector No.	M125
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Terminal No.	Color of Wire	Signal Name
18	BR	-
21	BG	-
24	SB	-
25	GR	-
26	BR	-
27	LG	-
28	W	-
29	BG	-
30	G	-

Terminal No.	Color of Wire	Signal Name
8	W	-
9	BG	-
10	Y	-
11	V	-
12	GR	-
13	LG	-
14	SB	-

AAIIA0410GB

MANUAL AIR CONDITIONING SYSTEM

< WIRING DIAGRAM >

[MANUAL AIR CONDITIONING]

Connector No.	M127
Connector Name	WIRE TO WIRE
Connector Color	WHITE



16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17

Terminal No.	Color of Wire	Signal Name
24	G	-
25	R	-
26	BR	-
27	BR	-
28	W	-
29	R	-
30	G	-

Connector No.	M128
Connector Name	INTAKE DOOR MOTOR
Connector Color	BLACK



1	4
2	5
3	6

Terminal No.	Color of Wire	Signal Name
1	L	-
2	W	-
3	R	-
4	BR	-
6	W	-

Connector No.	M131
Connector Name	MODE DOOR MOTOR
Connector Color	BLACK



1	4
2	5
3	6

Connector No.	M132
Connector Name	WIRE TO WIRE
Connector Color	WHITE



4	5	6
1	2	3

Connector No.	M135
Connector Name	INTAKE SENSOR
Connector Color	GRAY



1	2
---	---

Terminal No.	Color of Wire	Signal Name
1	L	-
2	W	-
3	BR	-
4	R	-
6	G	-

Terminal No.	Color of Wire	Signal Name
1	Y	-
2	G	-
3	SB	-
4	V	-
5	W	-
6	B	-

Terminal No.	Color of Wire	Signal Name
1	BG	-
2	BR	-

AAIIA0411GB

MANUAL AIR CONDITIONING SYSTEM

< WIRING DIAGRAM >

[MANUAL AIR CONDITIONING]

Connector No.	M146
Connector Name	VARIABLE BLOWER CONTROL (WITH MANUAL A/C)
Connector Color	GRAY



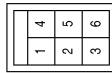
Terminal No.	Color of Wire	Signal Name
1	R	-
2	G	-
3	B	-
4	-	-

Connector No.	M144
Connector Name	FRONT BLOWER MOTOR
Connector Color	GRAY



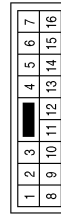
Terminal No.	Color of Wire	Signal Name
1	Y	-
2	R	-

Connector No.	M136
Connector Name	AIR MIX DOOR MOTOR
Connector Color	BLACK



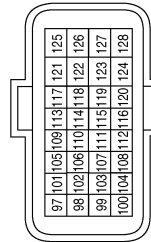
Terminal No.	Color of Wire	Signal Name
1	L	-
2	G	-
3	W	-
4	R	-
6	BR	-

Connector No.	E19
Connector Name	WIRE TO WIRE
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
4	BG	-
11	Y	-
12	GR	-

Connector No.	E16
Connector Name	ECM
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
99	P	CAN-L
100	L	CAN-H
103	Y	REFRIGERANT PRESSURE SENSOR
104	R	AVCC1-PDPRES
124	W	GNDA-PDPRES

AAIIA0412GB

MANUAL AIR CONDITIONING SYSTEM

< WIRING DIAGRAM >

[MANUAL AIR CONDITIONING]

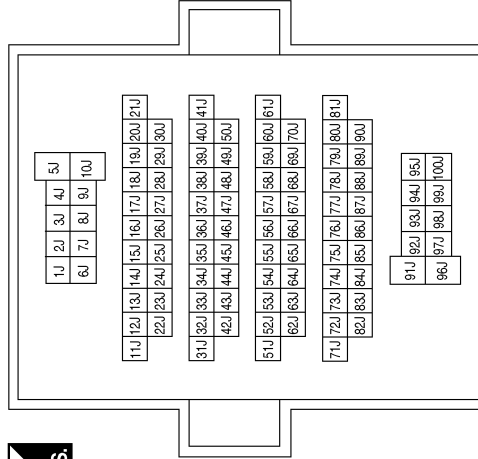
Connector No.	E119
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY

9	8	7	6	5	4	3
18	17	16	15	14	13	12
11	10	9	8	7	6	5



Terminal No.	Color of Wire	Signal Name
12	B	SIGNAL GROUND

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
61J	L	-
62J	P	-

Terminal No.	Color of Wire	Signal Name
1	L	-
2	P	-
3	W	-
4	Y	-
5	L	-
6	P	-
7	W	-
8	Y	-
9	L	-
10	P	-

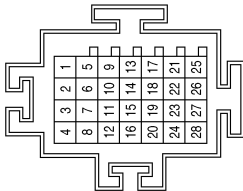
Connector No.	E121
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	RED

45	44	43
48	47	46



Terminal No.	Color of Wire	Signal Name
48	B	POWER GROUND

Connector No.	E44
Connector Name	JOINT CONNECTOR-E01
Connector Color	WHITE



Connector No.	E120
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY

30	29	28	27	26	25	24	23	22	21	20	19
42	41	40	39	38	37	36	35	34	33	32	31



Terminal No.	Color of Wire	Signal Name
22	P	CAN-L
24	L	CAN-H
31	B	2ND SIGNAL GROUND

AAIIA0415GB

A
B
C
D
E
F
G
H
HAC
J
K
L
M
N
O
P

MANUAL AIR CONDITIONING SYSTEM

< WIRING DIAGRAM >

[MANUAL AIR CONDITIONING]

Connector No.	F27
Connector Name	A/C COMPRESSOR (MAGNETIC CLUTCH)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	P	-
2	B	-

Connector No.	F15
Connector Name	A/C COMPRESSOR (ELECTRICAL CONTROL VALVE)
Connector Color	BLACK



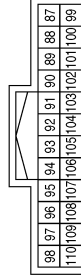
Terminal No.	Color of Wire	Signal Name
3	SB	-
4	Y	-

Connector No.	F10
Connector Name	REFRIGERANT PRESSURE SENSOR
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	GR	-
2	P	-
3	BG	-

Connector No.	F42
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
98	Y	O AC VALVE

Connector No.	F35
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
65	P	O AC CLUTCH
71	SB	O IGN REVERSE SW AC VALVE

Connector No.	F33
Connector Name	WIRE TO WIRE
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
4	BG	-
11	P	-
12	GR	-

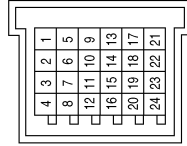
AAIIA0416GB

MANUAL AIR CONDITIONING SYSTEM

< WIRING DIAGRAM >

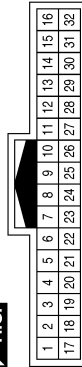
[MANUAL AIR CONDITIONING]

Connector No.	B63
Connector Name	JOINT CONNECTOR-B01
Connector Color	GRAY



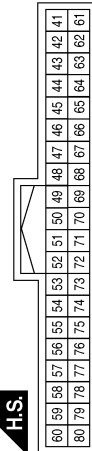
Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

Connector No.	B41
Connector Name	WIRE TO WIRE
Connector Color	WHITE



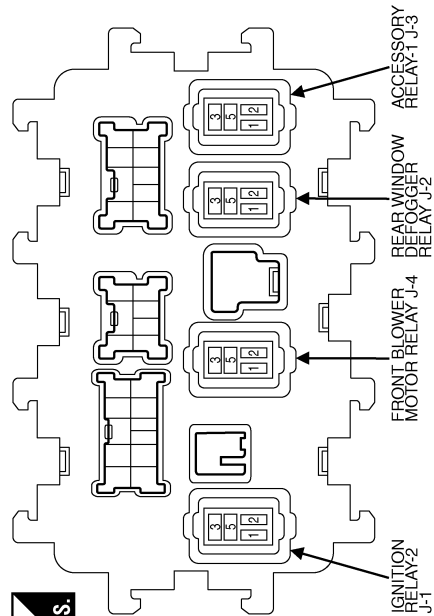
Terminal No.	Color of Wire	Signal Name
24	P	-
25	L	-

Connector No.	B16
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GREEN



Terminal No.	Color of Wire	Signal Name
60	L	CAN-H
80	P	CAN-L

Connector No.	J4
Connector Name	FUSE BLOCK (J/B) (FRONT BLOWER MOTOR RELAY)
Connector Color	-



AAIIA0420GB

A
B
C
D
E
F
G
H
HAC
J
K
L
M
N
O
P

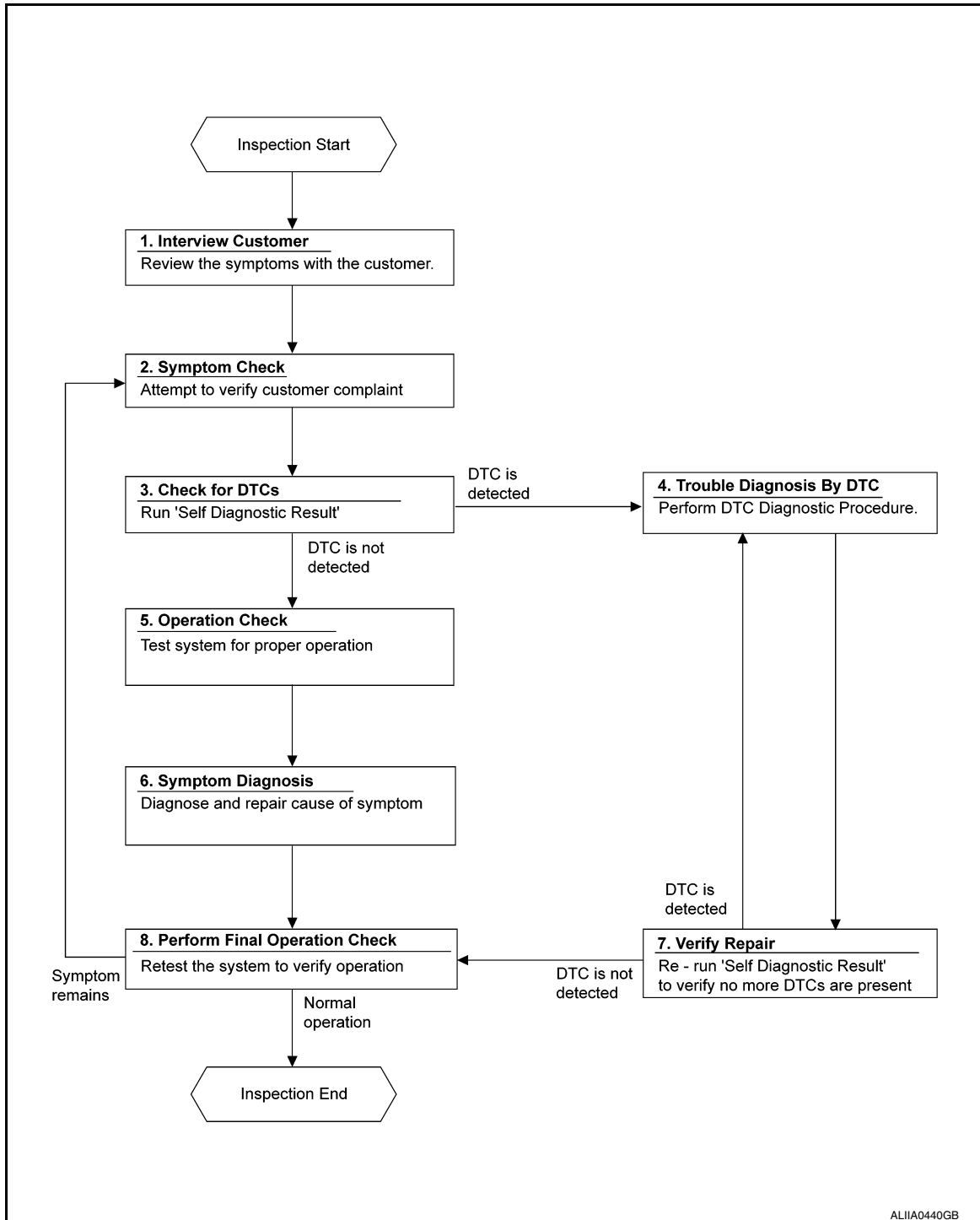
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:0000000010228225

OVERALL SEQUENCE



DETAILED FLOW

1. INTERVIEW CUSTOMER

Interview the customer to obtain as much information as possible about the conditions and environment under which the malfunction occurred.

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

[MANUAL AIR CONDITIONING]

>> GO TO 2.

2.SYMPTOM CHECK

Verify symptoms.

>> GO TO 3.

3.CHECK FOR DTCS

 With CONSULT

1. Turn ignition switch ON.
2. Select "Self Diagnostic Result" mode of "HVAC" using CONSULT.
3. Check DTC.

Is any DTC detected?

YES >> GO TO 4.

NO >> GO TO 5.

4.PERFORM DTC DIAGNOSTIC PROCEDURE

Perform the diagnostic procedure for the detected DTC. Refer to [HAC-134. "DTC Inspection Priority Chart"](#).

>> GO TO 7.

5.OPERATION CHECK

Perform the operation check. Refer to [HAC-148. "Work Procedure"](#).

>> GO TO 6.

6.SYMPTOM DIAGNOSIS

Check the symptom diagnosis table. Refer to [HAC-174. "Symptom Table"](#).

>> GO TO 8.

7.VERIFY REPAIR.

 With CONSULT

1. Turn ignition switch ON.
2. Select "Self Diagnostic Result" mode of "HVAC" using CONSULT.
3. Check DTC.

Is any DTC detected?

YES >> GO TO 4.

NO >> GO TO 8.

8.PERFORM FINAL OPERATION CHECK

Perform the operation check. Refer to [HAC-148. "Work Procedure"](#).

Does it operate normally?

YES >> Inspection End.

NO >> GO TO 2.

A

B

C

D

E

F

G

H

HAC

J

K

L

M

N

O

P

OPERATION INSPECTION

Work Procedure

INFOID:0000000010012133

DESCRIPTION

The purpose of the operational check is to check that the individual system operates normally.

- Check condition : Engine running at normal operating temperature.**
- Check condition : Blower control dial in OFF position.**
- Check condition : REC off (LED extinguished).**
- Check condition : VENT selected (LED illuminated).**
- Check condition : DEF off (LED extinguished).**

OPERATION INSPECTION

1.CHECK BLOWER

1. Rotate the blower control dial clockwise one detent. Blower should operate on low speed.
2. Rotate the blower control dial one detent at a time, and continue checking blower speed until all speeds are checked.
3. Leave blower on maximum speed.

Is the test result normal?

YES >> GO TO 2.

NO >> Refer to [HAC-167, "Diagnosis Procedure"](#).

2.CHECK A/C SWITCH LED

1. Press A/C switch.
2. A/C switch indicator should turn ON.

Is the test result normal?

YES >> GO TO 3.

NO >> Refer to [HAC-166, "FRONT A/C CONTROL : Diagnosis Procedure"](#).

3.CHECK A/C SWITCH

Confirm that the compressor clutch engages (sound or visual inspection).

Is the test result normal?

YES >> GO TO 4.

NO >> Refer to [HAC-171, "Diagnosis Procedure"](#).

4.CHECK FRONT AIR CONTROL MODE LEDS

1. Press D/F (), FOOT (), B/L (), and VENT (), MAX A/C, and DEF ().
2. Each button indicator should illuminate.

Is the test result normal?

YES >> GO TO 5.

NO >> Refer to [HAC-166, "FRONT A/C CONTROL : Diagnosis Procedure"](#).

5.CHECK DISCHARGE AIR

1. Press D/F (), FOOT (), B/L (), and VENT () and DEF ().
2. Confirm that discharge air comes out according to the air distribution table. Refer to [HAC-120, "Door Control"](#).

Is the test result normal?

YES >> GO TO 6.

NO >> Refer to [HAC-174, "Symptom Table"](#).

6.CHECK REC LED

1. Press DEF () and make sure LED is off.
2. Make sure VENT () or B/L () is selected.
3. Press REC () switch one time. REC indicator should illuminate.

OPERATION INSPECTION

< BASIC INSPECTION >

[MANUAL AIR CONDITIONING]

4. Press REC () switch one more time. REC indicator should go off.

Is the test result normal?

YES >> GO TO 7.

NO >> Refer to [HAC-166, "FRONT A/C CONTROL : Diagnosis Procedure"](#).

7.CHECK INTAKE DOOR OPERATION

1. Press REC () switch one time. REC indicator should illuminate.
2. Listen to the sound of the air coming out of the vent.
3. Press REC () switch one more time. REC indicator should go off.
4. There should be an audible change to the sound of the air flowing out of the vent.

Is the test result normal?

YES >> GO TO 8.

NO >> Refer to [HAC-157, "Diagnosis Procedure"](#).

8.CHECK TEMPERATURE DECREASE

1. Press A/C switch.
2. Rotate temperature control dial counterclockwise until maximum cold.
3. Check for cold air at selected discharge air outlets.

Is the test result normal?

YES >> GO TO 9.

NO >> Refer to [HAC-175, "Component Function Check"](#).

9.CHECK TEMPERATURE INCREASE

1. Rotate temperature control dial clockwise until maximum hot.
2. Check for hot air at appropriate discharge air outlets.

Is the test result normal?

YES >> Inspection End.

NO >> Refer to [HAC-177, "Component Function Check"](#).

SYSTEM SETTING

Target Evaporator Temp Upper Limit

INFOID:0000000010262912

DESCRIPTION

Set the target evaporator temperature upper limit.

HOW TO SET

ⓘ With CONSULT

Perform the "TARGET EVAPORATOR TEMP UPPER LIMIT SETTING" of HVAC work support item.

Work support items	Display
TARGET EVAPORATOR TEMP UPPER LIMIT SETTING	Initial Setting
	Low
	Middle
	High

DOOR MOTOR STARTING POSITION RESET

< BASIC INSPECTION >

[MANUAL AIR CONDITIONING]

DOOR MOTOR STARTING POSITION RESET

Description

INFOID:0000000010262913

- Reset signal is transmitted from A/C auto amp. to air mix door motor, intake door motor and mode door motor. Starting position reset can be performed.

NOTE:

- During reset, DEF switch indicator blinks.
- When air mix door motor, intake door motor or mode door motor is removed and installed, always perform door motor starting position reset.

Work Procedure

INFOID:0000000010262914

1.PERFORM DOOR MOTOR STARTING POSITION RESET

With CONSULT

- Turn ignition switch ON.
- Select "Door Motor Starting Position Reset" in "ACTIVE TEST" mode of "HVAC" using CONSULT.
- Touch "Start" and wait a few seconds.
- Make sure the "COMPLETED" is displayed on CONSULT screen.

>> Inspection End.

A
B
C
D
E
F
G
H
J
K
L
M
N
O
P

HAC

DTC/CIRCUIT DIAGNOSIS

U1000 CAN COMM CIRCUIT

Description

INFOID:0000000010262919

CAN (Controller Area Network) is a serial communication system for real time application. It is an on-vehicle multiplex communication system with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto vehicles, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with two communication lines (CAN-H line, CAN-L line) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only. Refer to [LAN-32, "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart"](#).

DTC Logic

INFOID:0000000010262920

DTC DETECTION LOGIC

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
U1000	CAN COMM CIRCUIT	When A/C auto amp. is not transmitting or receiving CAN communication signal for 2 or more seconds.	CAN communication system

DTC CONFIRMATION PROCEDURE

1.PERFORM SELF-DIAGNOSIS

With CONSULT

1. Turn ignition switch ON and wait for 2 seconds or more.
2. Using CONSULT, perform "Self Diagnostic Result" of "HVAC".
3. Check if any DTC No. is displayed in the self-diagnosis results.

Is DTC detected?

YES >> Refer to [HAC-152, "Diagnosis Procedure"](#).

NO >> Refer to [GI-41, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010262921

1.CHECK CAN COMMUNICATION SYSTEM

Check CAN communication system. Refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).

>> Inspection End.

U1010 CONTROL UNIT (CAN)

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

U1010 CONTROL UNIT (CAN)

Description

INFOID:0000000010262922

Initial diagnosis of A/C auto amp.

DTC Logic

INFOID:0000000010262923

DTC DETECTION LOGIC

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
U1010	CONTROL UNIT (CAN)	When detecting error during the initial diagnosis of CAN controller of front air control.	Front air control

DTC CONFIRMATION PROCEDURE

1.PERFORM SELF-DIAGNOSIS

ⒺWith CONSULT

1. Turn ignition switch ON.
2. Using CONSULT, perform "Self Diagnostic Result" of "HVAC".
3. Check if any DTC No. is displayed in the self-diagnosis results.

Is DTC detected?

- YES >> Refer to [HAC-153. "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010262924

1.REPLACE FRONT AIR CONTROL

Replace front air control. Refer to [HAC-181. "Removal and Installation"](#).

>> Inspection End.

B24A4 INTAKE SENSOR

DTC Logic

INFOID:0000000010262915

DTC DETECTION LOGIC

NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [HAC-152, "DTC Logic"](#).
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [HAC-153, "DTC Logic"](#).

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
B24A4	INTAKE SENSOR	The intake sensor recognition temperature is too high.	• Intake sensor • A/C auto amp. • Harness or connectors (The sensor circuit is open or shorted.)

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

④ With CONSULT

1. Turn ignition switch ON.
2. Using CONSULT, perform "Self Diagnostic Result" of "HVAC".
3. Check if any DTC No. is displayed in the self-diagnosis results.

Is DTC detected?YES >> Refer to [HAC-154, "Diagnosis Procedure"](#).

NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010012146

Regarding Wiring Diagram information, refer to [HAC-136, "Wiring Diagram"](#).**1.**CHECK INTAKE SENSOR POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect intake sensor connector.
3. Turn ignition switch ON.
4. Check voltage between intake sensor harness connector and ground.

+		–	Voltage (Approx.)
Intake sensor			
Connector	Terminal		
M135	1	Ground	5 V

Is the inspection result normal?

YES >> GO TO 2.

NO >> GO TO 4.

2.CHECK INTAKE SENSOR GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check continuity between intake sensor harness connector and ground.

B24A4 INTAKE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

Intake sensor		—	Continuity
Connector	Terminal		
M135	2	Ground	Yes

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

3.CHECK INTAKE SENSOR

Check intake sensor. Refer to [HAC-155, "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace front air control. Refer to [HAC-181, "Removal and Installation"](#).

NO >> Replace intake sensor. Refer to [HAC-182, "Removal and Installation"](#).

4.CHECK INTAKE SENSOR POWER SUPPLY CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect front air control connector.
3. Check continuity between intake sensor harness connector and front air control harness connector.

Intake sensor		Front air control		Continuity
Connector	Terminal	Connector	Terminal	
M135	1	M50	21	Yes

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair harness or connector.

5.CHECK INTAKE SENSOR POWER SUPPLY CIRCUIT FOR SHORT TO GROUND

Check continuity between intake sensor harness connector and ground.

Intake sensor		—	Continuity
Connector	Terminal		
M135	1	Ground	No

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair harness or connector.

6.CHECK INTAKE SENSOR POWER SUPPLY CIRCUIT FOR SHORT TO VOLTAGE

1. Turn ignition switch ON.
2. Check voltage between intake sensor harness connector and ground.

+		-	Voltage (Approx.)
Intake sensor			
Connector	Terminal		
M135	1	Ground	0 V

Is the inspection result normal?

YES >> Replace front air control. Refer to [HAC-181, "Removal and Installation"](#).

NO >> Repair harness or connector.

Component Inspection

INFOID:0000000010012147

1.CHECK INTAKE SENSOR

1. Turn ignition switch OFF.
2. Disconnect intake sensor connector.

B24A4 INTAKE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

3. Check resistance between intake sensor terminals.

Terminal		Condition	Resistance: kΩ
		Temperature: °C (°F)	
1	2	-15 (5)	17.73
		-10 (14)	13.46
		-5 (23)	10.33
		0 (32)	8.00
		5 (41)	6.25
		10 (50)	4.93
		15 (59)	3.92
		20 (68)	3.14
		25 (77)	2.54
		30 (86)	2.06
		35 (95)	1.69
		40 (104)	1.39
		45 (113)	1.15

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace intake sensor. Refer to [HAC-182, "Removal and Installation"](#).

B24B7 INTAKE DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

B24B7 INTAKE DOOR MOTOR

DTC Logic

INFOID:000000010262916

DTC DETECTION LOGIC

NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [HAC-152, "DTC Logic"](#).
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. [HAC-153, "DTC Logic"](#).

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
B24B7	INTAKE DOOR MOTOR	Short or open circuit of intake door motor drive signal.	• Intake door motor • Intake door motor system installation condition • Front air control • Harness or connectors (The motor circuit is open or shorted.)

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

④ With CONSULT

1. Start engine.
2. Select "Self Diagnostic Result" mode of "HVAC" using CONSULT.
3. Check DTC.

Is DTC detected?

- YES >> Refer to [HAC-157, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:000000010012141

Regarding Wiring Diagram information, refer to [HAC-136, "Wiring Diagram"](#).

NOTE:

This DTC can be set if the BCM is placed in transit mode. Confirm if the DTC is CURRENT or PAST. If PAST, perform the following steps before carrying out Diagnosis Procedure.

1. Clear DTC using CONSULT. Refer to [HAC-22, "CONSULT Function \(HVAC\)"](#).
2. Perform OPERATION INSPECTION. Refer to [HAC-48, "Work Procedure"](#).
3. Perform "Self Diagnostic Result" of "HVAC" using CONSULT. Refer to [HAC-22, "CONSULT Function \(HVAC\)"](#).
4. If DTC resets, proceed with Diagnosis Procedure.

1.CHECK INTAKE DOOR MOTOR POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect intake door motor connector.
3. Turn ignition switch ON.
4. Check voltage between intake door motor harness connector and ground.

+		-	Voltage
Intake door motor			
Connector	Terminal		
M128	2	Ground	Battery voltage

B24B7 INTAKE DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

Is the inspection result normal?

- YES >> GO TO 3.
NO >> GO TO 2.

2.CHECK INTAKE DOOR MOTOR POWER SUPPLY CIRCUIT FOR OPEN

1. Disconnect front air control connector.
2. Check continuity between intake door motor harness connector and front air control harness connector.

Intake door motor		Front air control		Continuity
Connector	Terminal	Connector	Terminal	
M128	2	M50	8	Yes

Is the inspection result normal?

- YES >> Replace front air control. Refer to [HAC-181. "Removal and Installation"](#).
NO >> Repair harness or connector.

3.CHECK INTAKE DOOR MOTOR DRIVE SIGNAL CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect front air control connector.
3. Check continuity between intake door motor harness connector and front air control harness connector.

Intake door motor		Front air control		Continuity
Connector	Terminal	Connector	Terminal	
M128	1	M50	11	Yes
	3		12	
	4		27	
	6		28	

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Repair harness or connector.

4.CHECK INTAKE DOOR MOTOR DRIVE SIGNAL CIRCUIT FOR SHORT

Check continuity between intake door motor harness connector and front air control harness connector.

Intake door motor		—	Continuity
Connector	Terminal		
M128	1	Ground	No
	3		
	4		
	6		

Is the inspection result normal?

- YES >> GO TO 5.
NO >> Repair harness or connector.

5.CHECK INTAKE DOOR MOTOR

Check intake door motor. Refer to [HAC-185. "INTAKE DOOR MOTOR : Removal and Installation"](#).

Is the inspection result normal?

- YES >> Replace front air control. Refer to [HAC-181. "Removal and Installation"](#).
NO >> Replace intake door motor. Refer to [HAC-185. "INTAKE DOOR MOTOR : Removal and Installation"](#).

Component Inspection (Motor)

INFOID:0000000010012142

1.CHECK INTAKE DOOR MOTOR

B24B7 INTAKE DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

1. Remove intake door motor. Refer to [HAC-185. "INTAKE DOOR MOTOR : Removal and Installation".](#)
2. Check resistance between intake door motor terminals. Refer to applicable table for the normal value.

Terminal		Resistance (Ω) (Approx.)
2	1	90
	3	
	4	
	6	

Is the inspection result normal?

- YES >> Inspection End.
- NO >> Replace intake door motor. Refer to [HAC-185. "INTAKE DOOR MOTOR : Removal and Installation".](#)

A

B

C

D

E

F

G

H

J

K

L

M

N

O

P

HAC

B24B9 MODE DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

B24B9 MODE DOOR MOTOR

DTC Logic

INFOID:0000000010262918

DTC DETECTION LOGIC

NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [HAC-152, "DTC Logic"](#).
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. [HAC-153, "DTC Logic"](#).
- If mode door motors DTC (B27A6 – B27A9) are detected, there is probably a disconnected connector or an open circuit in mode door motor drive power supply harness.

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
B24B9	MODE DOOR MOTOR	Short or open circuit of mode door motor drive signal.	• Mode door motor • Front air control • Harness or connectors (The motor circuit is open or shorted.)

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

ⒺWith CONSULT

1. Turn ignition switch ON.
2. Select "Self Diagnostic Result" mode of "HVAC" using CONSULT.
3. Check DTC.

Is DTC detected?

- YES >> Refer to [HAC-160, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010012137

Regarding Wiring Diagram information, refer to [HAC-136, "Wiring Diagram"](#).

NOTE:

This DTC can be set if the BCM is placed in transit mode. Confirm if the DTC is CURRENT or PAST. If PAST, perform the following steps before carrying out Diagnosis Procedure.

1. Clear DTC using CONSULT. Refer to [HAC-22, "CONSULT Function \(HVAC\)"](#).
2. Perform OPERATION INSPECTION. Refer to [HAC-48, "Work Procedure"](#).
3. Perform "Self Diagnostic Result" of "HVAC" using CONSULT. Refer to [HAC-22, "CONSULT Function \(HVAC\)"](#).
4. If DTC resets, proceed with Diagnosis Procedure.

1.CHECK MODE DOOR MOTOR POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect mode door motor connector.
3. Turn ignition switch ON.
4. Check voltage between mode door motor harness connector and ground.

+		–	Voltage
Mode door motor			
Connector	Terminal		
M131	2	Ground	Battery voltage

B24B9 MODE DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

Is the inspection result normal?

- YES >> GO TO 3.
NO >> GO TO 2.

2.CHECK MODE DOOR MOTOR POWER SUPPLY CIRCUIT FOR OPEN

1. Disconnect front air control connector.
2. Check continuity between mode door motor harness connector and front air control harness connector.

Mode door motor		Front air control		Continuity
Connector	Terminal	Connector	Terminal	
M131	2	M50	8	Yes

Is the inspection result normal?

- YES >> Replace front air control. Refer to [HAC-181, "Removal and Installation"](#).
NO >> Repair harness or connector.

3.CHECK MODE DOOR MOTOR DRIVE SIGNAL CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect front air control connector.
3. Check continuity between mode door motor harness connector and front air control harness connector.

Mode door motor		Front air control		Continuity
Connector	Terminal	Connector	Terminal	
M131	4	M50	29	Yes
	3		14	
	6		30	
	1		13	

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Repair harness or connector.

4.CHECK MODE DOOR MOTOR DRIVE SIGNAL CIRCUIT FOR SHORT

Check continuity between mode door motor harness connector and ground.

Mode door motor		—	Continuity
Connector	Terminal		
M131	4	Ground	No
	3		
	6		
	1		

Is the inspection result normal?

- YES >> GO TO 5.
NO >> Repair harness or connector.

5.CHECK MODE DOOR MOTOR

Check mode door motor. Refer to [HAC-161, "Component Inspection"](#).

Is the inspection result normal?

- YES >> Replace front air control. Refer to [HAC-181, "Removal and Installation"](#).
NO >> Replace mode door motor. Refer to [HAC-185, "MODE DOOR MOTOR : Removal and Installation"](#).

Component Inspection

INFOID:0000000010012138

1.CHECK MODE DOOR MOTOR

B24B9 MODE DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

1. Remove mode door motor. Refer to [HAC-185. "MODE DOOR MOTOR : Removal and Installation"](#).
2. Check resistance between mode door motor terminals. Refer to applicable table for the normal value.

Terminal		Resistance (Ω) (Approx.)
2	1	90
	6	
	3	
	4	

Is the inspection result normal?

- YES >> Inspection End.
NO >> Replace mode door motor. Refer to [HAC-185. "MODE DOOR MOTOR : Removal and Installation"](#).

B24BB LEFT AIR MIX DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

B24BB LEFT AIR MIX DOOR MOTOR

DTC Logic

INFOID:0000000010262917

DTC DETECTION LOGIC

NOTE:

- If DTC is displayed along with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [HAC-152, "DTC Logic"](#).
- If DTC is displayed along with DTC U1010, first perform the trouble diagnosis for DTC U1010. [HAC-153, "DTC Logic"](#).

DTC	Items (CONSULT screen terms)	DTC detection condition	Possible cause
B24BB	AIR MIX DOOR MOT	Short or open circuit of air mix door motor drive signal.	• Air mix door motor • Front air control • Harness or connectors (The motor circuit is open or shorted.)

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

④With CONSULT

1. Turn ignition switch ON.
2. Select "Self Diagnostic Result" mode of "HVAC" using CONSULT.
3. Check DTC.

Is DTC detected?

- YES >> Refer to [HAC-163, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010012139

Regarding Wiring Diagram information, refer to [HAC-136, "Wiring Diagram"](#).

NOTE:

This DTC can be set if the BCM is placed in transit mode. Confirm if the DTC is CURRENT or PAST. If PAST, perform the following steps before carrying out Diagnosis Procedure.

1. Clear DTC using CONSULT. Refer to [HAC-22, "CONSULT Function \(HVAC\)"](#).
2. Perform OPERATION INSPECTION. Refer to [HAC-48, "Work Procedure"](#).
3. Perform "Self Diagnostic Result" of "HVAC" using CONSULT. Refer to [HAC-22, "CONSULT Function \(HVAC\)"](#).
4. If DTC resets, proceed with Diagnosis Procedure.

1.CHECK AIR MIX DOOR MOTOR POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect air mix door motor connector.
3. Turn ignition switch ON.
4. Check voltage between air mix door motor harness connector and ground.

+		-	Voltage
Air mix door motor			
Connector	Terminal		
M136	2	Ground	Battery voltage

Is the inspection result normal?

- YES >> GO TO 3.

B24BB LEFT AIR MIX DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

NO >> GO TO 2.

2.CHECK AIR MIX DOOR MOTOR POWER SUPPLY CIRCUIT FOR OPEN

1. Disconnect front air control connector.
2. Check continuity between air mix door motor harness connector and front air control harness connector.

Air mix door motor		Front air control		Continuity
Connector	Terminal	Connector	Terminal	
M136	2	M50	24	Yes

Is the inspection result normal?

YES >> Replace front air control. Refer to [HAC-181, "Removal and Installation"](#).

NO >> Repair harness or connector.

3.CHECK AIR MIX DOOR MOTOR DRIVE SIGNAL CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect front air control connector.
3. Check continuity between air mix door motor harness connector and front air control harness connector.

Air mix door motor		Front air control		Continuity
Connector	Terminal	Connector	Terminal	
M136	3	M50	10	Yes
	6		26	
	1		9	
	4		25	

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

4.CHECK AIR MIX DOOR MOTOR DRIVE SIGNAL CIRCUIT FOR SHORT

Check continuity between air mix door motor harness connector and front air control harness connector.

Air mix door motor		—	Continuity
Connector	Terminal		
M131	3	Ground	No
	6		
	1		
	4		

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair harness or connector.

5.CHECK AIR MIX DOOR MOTOR

Check air mix door motor. Refer to [HAC-164, "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace front air control. Refer to [HAC-181, "Removal and Installation"](#).

NO >> Replace air mix door motor. Refer to [HAC-185, "AIR MIX DOOR MOTOR : Removal and Installation"](#).

Component Inspection

INFOID:0000000010012140

1.CHECK AIR MIX DOOR MOTOR

1. Remove air mix door motor. Refer to [HAC-185, "AIR MIX DOOR MOTOR : Removal and Installation"](#).
2. Check resistance between air mix door motor terminals. Refer to applicable table for the normal value.

B24BB LEFT AIR MIX DOOR MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

Terminal		Resistance (Ω) (Approx.)
2	3	90
	6	
	1	
	4	

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace air mix door motor. Refer to [HAC-185, "AIR MIX DOOR MOTOR : Removal and Installation"](#).

A
B
C
D
E
F
G
H
J
K
L
M
N
O
P

HAC

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

POWER SUPPLY AND GROUND CIRCUIT

FRONT A/C CONTROL

FRONT A/C CONTROL : Diagnosis Procedure

INFOID:0000000010012134

Regarding Wiring Diagram information, refer to [HAC-136. "Wiring Diagram"](#).

1. CHECK FUSE

Check 10A fuse [No. 20, located in the fuse block (J/B)].

NOTE:

Refer to [PG-64. "Terminal Arrangement"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the blown fuse after repairing the affected circuit.

2. CHECK FRONT AIR CONTROL POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect front air control connector.
3. Check voltage between front air control harness connector and ground.

+		-	Voltage		
Front air control			Ignition switch position		
Connector	Terminal		OFF	ACC	ON
M50	3	Ground	Approx. 0 V	Approx. 0 V	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

3. CHECK FRONT AIR CONTROL GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check continuity between front air control harness connector and ground.

Front air control		—	Continuity
Connector	Terminal		
M50	19	Ground	Yes

Is the inspection result normal?

YES >> Inspection End.

NO >> Repair harness or connector.

FRONT BLOWER MOTOR

Diagnosis Procedure

INFOID:0000000010012150

Regarding Wiring Diagram information, refer to [HAC-136, "Wiring Diagram"](#).

1.CHECK FUSE

1. Turn ignition switch OFF.
2. Check 20A fuses [Nos. 17 and 27, located in fuse block (J/B)]

NOTE:

Refer to [PG-64, "Terminal Arrangement"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the blown fuse after repairing the affected circuit.

2.CHECK FRONT BLOWER MOTOR POWER SUPPLY

1. Disconnect front blower motor connector.
2. Turn ignition switch ON.
3. Check voltage between front blower motor harness connector and ground.

+		-	Voltage
Front blower motor			
Connector	Terminal		
M144	1	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 4.

NO >> GO TO 3.

3.CHECK FRONT BLOWER RELAY

1. Turn ignition switch OFF.
2. Check front blower relay. Refer to [HAC-170, "Component Inspection \(Front Blower Relay\)"](#).

Is the inspection result normal?

YES >> Repair harness or connector between front blower motor and fuse.

NO >> Replace front blower relay.

4.CHECK BLOWER MOTOR CONTROL CIRCUIT

1. Turn ignition switch OFF.
2. Connect front blower motor connector.
3. Disconnect variable blower control connector.
4. Turn ignition switch ON.
5. Check voltage between variable blower control harness connector and ground.

+		-	Voltage
Variable blower control			
Connector	Terminal		
M146	1	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 6.

NO >> GO TO 5.

5.CHECK FRONT BLOWER MOTOR CONTROL CIRCUIT FOR OPEN

1. Turn ignition switch OFF.

FRONT BLOWER MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

2. Disconnect front blower motor connector.
3. Check continuity between variable blower control harness connector and front blower motor harness connector.

Variable blower control		Front blower motor		Continuity
Connector	Terminal	Connector	Terminal	
M146	1	M144	2	Yes

Is the inspection result normal?

- YES >> Replace front blower motor. Refer to [VTL-16, "Removal and Installation"](#).
NO >> Repair harness or connector.

6. CHECK VARIABLE BLOWER CONTROL GROUND CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Check continuity between variable blower control harness connector and ground.

Variable blower control		—	Continuity
Connector	Terminal		
M146	3	Ground	Yes

Is the inspection result normal?

- YES >> GO TO 7.
NO >> Repair harness or connector.

7. CHECK VARIABLE BLOWER CONTROL SIGNAL CIRCUIT

1. Turn blower control dial fully counterclockwise to the OFF position
2. While turning the blower control dial clockwise, through each detent, check voltage between variable blower control and ground.

FRONT BLOWER MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

Power transistor			Condition					
Connector	Terminal		Blower control dial detents	VENT	B/L	D/F1	D/F2	DEF
				Voltage				
M146	2	Ground	OFF	0.00 volts	0.00 volts	0.00 volts	0.00 volts	0.00 volts
			1	4.00 volts	4.00 volts	4.00 volts	4.00 volts	4.00 volts
			2	4.75 volts	4.75 volts	4.75 volts	4.75 volts	4.75 volts
			3	5.00 volts	5.00 volts	5.25 volts	5.25 volts	5.25 volts
			4	5.50 volts	5.50 volts	5.50 volts	5.50 volts	5.50 volts
			5	5.75 volts	5.75 volts	6.00 volts	6.00 volts	6.00 volts
			6	6.25 volts	6.25 volts	6.25 volts	6.25 volts	6.25 volts
			7	6.50 volts	6.50 volts	6.75 volts	6.75 volts	6.75 volts
			8	6.75 volts	6.75 volts	7.00 volts	7.00 volts	7.00 volts
			9	7.25 volts	7.25 volts	7.50 volts	7.50 volts	7.50 volts
			10	7.50 volts	7.50 volts	7.75 volts	7.75 volts	7.75 volts
			11	8.00 volts	8.00 volts	8.25 volts	8.25 volts	8.25 volts
			12	8.25 volts	8.25 volts	8.50 volts	8.50 volts	8.50 volts
			13	8.50 volts	8.50 volts	9.00 volts	9.00 volts	9.00 volts
			14	9.00 volts	9.00 volts	9.25 volts	9.25 volts	9.25 volts
			15	9.25 volts	9.25 volts	9.75 volts	9.75 volts	9.75 volts
			16	9.75 volts	9.75 volts	10.00 volts	10.00 volts	10.00 volts
			17	10.00 volts	10.00 volts	10.50 volts	10.50 volts	10.50 volts
			18	10.50 volts	10.50 volts	10.75 volts	10.75 volts	10.75 volts
			19	10.75 volts	10.75 volts	11.25 volts	11.25 volts	11.25 volts
			20	11.00 volts	11.00 volts	11.50 volts	11.50 volts	11.50 volts
			21	11.50 volts	11.50 volts	12.00 volts	12.00 volts	12.00 volts
			22	11.75 volts	11.75 volts	12.25 volts	12.25 volts	12.25 volts
			23	12.25 volts	12.25 volts	12.75 volts	12.75 volts	12.75 volts
			24	12.50 volts	12.50 volts	13.00 volts	13.00 volts	13.00 volts
12 = Max blower voltage								

Is the inspection result normal?

YES >> Replace variable blower control. Refer to [HAC-187. "Removal and Installation"](#).

NO >> GO TO 8.

8.CHECK VARIABLE BLOWER CONTROL SIGNAL CIRCUIT FOR OPEN

- Turn ignition switch OFF.
- Disconnect variable blower control connector and front air control connector.
- Check continuity between variable blower control harness connector and front air control harness connector.

Variable blower control		Front air control		Continuity
Connector	Terminal	Connector	Terminal	
M146	2	M50	1	Yes

Is the inspection result normal?

YES >> GO TO 9.

NO >> Repair harness or connector.

9.CHECK VARIABLE BLOWER CONTROL SIGNAL CIRCUIT FOR SHORT

FRONT BLOWER MOTOR

< DTC/CIRCUIT DIAGNOSIS >

[MANUAL AIR CONDITIONING]

Check continuity between variable blower control harness connector and ground.

Variable blower control		—	Continuity
Connector	Terminal		
M146	2	Ground	No

Is the inspection result normal?

- YES >> Replace front air control. Refer to [HAC-181. "Removal and Installation"](#).
NO >> Repair harness or connector.

Component Inspection (Front Blower Motor)

INFOID:0000000010012151

1.CHECK FRONT BLOWER MOTOR

1. Connect battery voltage to terminal 1 of front blower motor.
2. Connect ground to terminal 2 of front blower motor.

Does the blower fan operate?

- YES >> Intermittent incident. Refer to [GI-41. "Intermittent Incident"](#).
NO >> Replace front blower motor. Refer to [VTL-16. "Removal and Installation"](#).

Component Inspection (Front Blower Relay)

INFOID:0000000010012152

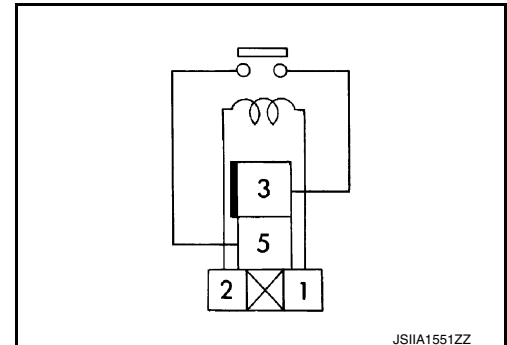
1.CHECK FRONT BLOWER RELAY

1. Turn ignition switch OFF.
2. Remove front blower relay.
3. Check continuity between front blower relay terminals 3 and 5 when voltage is supplied between terminals 1 and 2.

Terminals		Voltage	Continuity
3	5	ON	Yes
		OFF	No

Is the inspection result normal?

- YES >> Inspection End.
NO >> Replace front blower relay.



MAGNET CLUTCH

Component Function Check

INFOID:0000000010012153

1.CHECK MAGNET CLUTCH OPERATION

Perform "COMPRESSOR" "Active Test" of "IPDM E/R". Refer to [HAC-129, "CONSULT Function \(IPDM E/R\)".](#)

Does it operate normally?

YES >> Inspection End.

NO >> Refer to [HAC-171, "Diagnosis Procedure".](#)

Diagnosis Procedure

INFOID:0000000010012154

Regarding Wiring Diagram information, refer to [HAC-136, "Wiring Diagram".](#)

1.CHECK FUSE

1. Turn ignition switch OFF.
2. Check 15A fuse (No. 40, located in IPDM E/R).

NOTE:

Refer to [PG-68, "IPDM E/R Terminal Arrangement".](#)

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the blown fuse after repairing the affected circuit.

2.CHECK MAGNET CLUTCH POWER SUPPLY CIRCUIT

1. Disconnect compressor connector and IPDM E/R connector.
2. Check continuity between compressor harness connector and IPDM E/R harness connector.

Compressor		IPDM E/R		Continuity
Connector	Terminal	Connector	Terminal	
F27	1	F35	65	Yes

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

3.CHECK MAGNET CLUTCH GROUND CIRCUIT

1. Disconnect compressor connector.
2. Check continuity between compressor harness connector and ground.

Compressor			Continuity
Connector	Terminal		
F27	2	Ground	Yes

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

4.CHECK MAGNET CLUTCH

Directly apply battery voltage to the magnet clutch. Check operation visually and by sound.

Does it operate normally?

YES >> Replace IPDM E/R. Refer to [PCS-35, "Removal and Installation".](#)

NO >> Replace magnet clutch. Refer to [HA-30, "Removal and Installation".](#)

ECV (ELECTRICAL CONTROL VALVE)

Diagnosis Procedure

INFOID:0000000010012155

Regarding Wiring Diagram information, refer to [HAC-136, "Wiring Diagram"](#).

1. CHECK ECV (ELECTRICAL CONTROL VALVE) POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect compressor connector.
3. Turn ignition switch ON.
4. Check voltage between compressor harness connector and ground.

+		-	Voltage
Compressor			
Connector	Terminal		
F15	4	Ground	Battery voltage

Is the inspection result normal?

- YES >> GO TO 3.
 NO >> GO TO 2.

2. CHECK FUSE

1. Turn ignition switch OFF.
2. Check 10 A fuse [No. 50, located in IPDM E/R]. Refer to [PG-68, "IPDM E/R Terminal Arrangement"](#).

Is the inspection result normal?

- YES >> Repair harness or connector.
 NO >> Replace the blown fuse after repairing the affected circuit.

3. CHECK ECV CONTROL SIGNAL CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector.
3. Check continuity between compressor harness connector and IPDM E/R harness connector.

Compressor		IPDM E/R		Continuity
Connector	Terminal	Connector	Terminal	
F15	3	F42	98	Yes

Is the inspection result normal?

- YES >> GO TO 4.
 NO >> Repair harness or connector.

4. CHECK ECV CONTROL SIGNAL CIRCUIT FOR SHORT

Check continuity between compressor harness connector and ground.

Compressor		—	Continuity
Connector	Terminal		
F15	3	Ground	No

Is the inspection result normal?

- YES >> GO TO 5.
 NO >> Repair harness or connector.

5. CHECK ECV

Check ECV. Refer to [HAC-173, "Component Inspection"](#).

ECV (ELECTRICAL CONTROL VALVE)

[MANUAL AIR CONDITIONING]

< DTC/CIRCUIT DIAGNOSIS >

Is the inspection result normal?

YES >> GO TO 6.

NO >> Replace compressor. Refer to [HA-30, "Removal and Installation"](#).

6.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

Is the inspection result normal?

YES >> Replace front air control. Refer to [HAC-181, "Removal and Installation"](#).

NO >> Repair or replace malfunctioning parts.

Component Inspection

INFOID:0000000010012156

1.CHECK ECV (ELECTRICAL CONTROL VALVE)

1. Turn ignition switch OFF.
2. Disconnect compressor connector.
3. Check continuity between compressor connector F27 terminals.

Terminals		Condition	Resistance (kΩ)
		Temperature: °C (°F)	
3	4	20 (68)	10.1 – 11.1

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace compressor. Refer to [HA-30, "Removal and Installation"](#).

HAC

HEATER AND AIR CONDITIONING SYSTEM CONTROL SYMPTOMS

< SYMPTOM DIAGNOSIS >

[MANUAL AIR CONDITIONING]

SYMPTOM DIAGNOSIS

HEATER AND AIR CONDITIONING SYSTEM CONTROL SYMPTOMS

Symptom Table

INFOID:0000000010012157

SYMPTOM TABLE

Symptom	Reference Page	
A/C system does not come on.	Go to Trouble Diagnosis Procedure for A/C System.	HAC-166, "FRONT A/C CONTROL : Diagnosis Procedure"
Air outlet does not change.	Go to Trouble Diagnosis Procedure for Mode Door Motor.	HAC-160, "Diagnosis Procedure"
Mode door motor does not operate normally.		
Discharge air temperature does not change.	Go to Trouble Diagnosis Procedure for Air Mix Door Motor.	HAC-163, "Diagnosis Procedure"
Air mix door motor does not operate normally.		
Intake door does not change.	Go to Trouble Diagnosis Procedure for Intake Door Motor.	HAC-157, "Diagnosis Procedure"
Intake door motor does not operate normally.		
Blower motor operation is malfunctioning.	Go to Trouble Diagnosis Procedure for Blower Motor.	HAC-167, "Diagnosis Procedure"
Magnet clutch does not engage.	Go to Trouble Diagnosis Procedure for Magnet Clutch.	HAC-171, "Component Function Check"
Insufficient cooling	Go to Trouble Diagnosis Procedure for Insufficient Cooling.	HAC-175, "Component Function Check"
Insufficient heating	Go to Trouble Diagnosis Procedure for Insufficient Heating.	HAC-177, "Component Function Check"
Noise	Go to Trouble Diagnosis Procedure for Noise.	HA-20, "Symptom Table"

INSUFFICIENT COOLING

< SYMPTOM DIAGNOSIS >

[MANUAL AIR CONDITIONING]

INSUFFICIENT COOLING

Component Function Check

INFOID:000000010012158

SYMPTOM: Insufficient cooling

INSPECTION FLOW

1. CONFIRM SYMPTOM BY PERFORMING OPERATION CHECK - TEMPERATURE DECREASE

1. Press the A/C switch.
2. Turn temperature control dial counterclockwise to maximum cold.
3. Check for cold air at discharge air outlets.

Can a symptom be duplicated?

- YES >> GO TO 3.
NO >> GO TO 2.

2. CHECK FOR ANY SYMPTOMS

Perform a complete operational check and check for any symptoms. Refer to [HAC-148. "Work Procedure"](#).

Does another symptom exist?

- YES >> Refer to [HAC-174. "Symptom Table"](#).
NO >> System OK.

3. CHECK FOR SERVICE BULLETINS

Check for any service bulletins.

>> GO TO 4.

4. CHECK DRIVE BELTS

Check A/C compressor belt tension. Refer to [EM-13. "Checking"](#).

Is the inspection result normal?

- YES >> GO TO 5.
NO >> Adjust or replace compressor belt. Refer to [EM-13. "Tension Adjustment"](#).

5. CHECK AIR MIX DOOR MOTOR OPERATION

Check and verify air mix door mechanism for smooth operation.

Does air mix door operate correctly?

- YES >> GO TO 6.
NO >> Check air mix door motor circuit. Refer to [HAC-163. "Diagnosis Procedure"](#).

6. CHECK COOLING FAN MOTOR OPERATION

Check and verify cooling fan motor for smooth operation.

Does cooling fan motor operation correctly?

- YES >> GO TO 7.
NO >> Check cooling fan motor. Refer to [EC-458. "Component Function Check"](#).

7. CHECK RECOVERY/RECYCLING EQUIPMENT BEFORE USAGE

Check recovery/recycling equipment before connecting to vehicle. Verify there is no pressure in the recovery/recycling equipment by checking the gauges. If pressure exists, recover refrigerant from equipment lines.

>> GO TO 8.

8. CHECK REFRIGERANT PURITY

1. Connect recovery/recycling equipment to vehicle.
2. Confirm refrigerant purity in supply tank using recovery/recycling and refrigerant identifier.

Is the inspection result normal?

- YES >> GO TO 9.
NO >> Check contaminated refrigerant. Refer to [HA-21. "Description"](#).

INSUFFICIENT COOLING

< SYMPTOM DIAGNOSIS >

[MANUAL AIR CONDITIONING]

9. CHECK REFRIGERANT PRESSURE

Check refrigerant pressure with manifold gauge connected. Refer to [HA-28. "Inspection"](#).

Is the inspection result normal?

- YES >> Perform diagnostic work flow. Refer to [HA-15. "Workflow"](#).
NO >> GO TO 10.

10. CHECK FOR EVAPORATOR FREEZE UP

Start engine and run A/C. Check for evaporator freeze up.

Does evaporator freeze up?

- YES >> Perform diagnostic work flow. Refer [HA-15. "Workflow"](#).
NO >> GO TO 11.

11. CHECK AIR DUCTS

Check ducts for air leaks.

Is the inspection result normal?

- YES >> System OK.
NO >> Repair air leaks.

INSUFFICIENT HEATING

Component Function Check

INFOID:000000010012159

SYMPTOM: Insufficient heating

INSPECTION FLOW

1. CONFIRM SYMPTOM BY PERFORMING OPERATION CHECK - TEMPERATURE INCREASE

1. Turn temperature control dial clockwise to maximum heat.
2. Check for hot air at discharge air outlets.

Can a symptom be duplicated?

- YES >> GO TO 3.
NO >> GO TO 2.

2. CHECK FOR ANY SYMPTOMSPerform a complete operational check and check for any symptoms. Refer to [HAC-148, "Work Procedure"](#).Does another symptom exist?

- YES >> Refer to [HAC-174, "Symptom Table"](#).
NO >> System OK.

3. CHECK FOR SERVICE BULLETINS

Check for any service bulletins.

>> GO TO 4.

4. CHECK ENGINE COOLING SYSTEM

1. Check for proper engine coolant level. Refer to [CO-8, "Inspection"](#).
2. Check hoses for leaks or kinks.
3. Check radiator cap. Refer to [CO-12, "RADIATOR CAP : Inspection"](#).
4. Check for air in cooling system.

>> GO TO 5.

5. CHECK AIR MIX DOOR MOTOR OPERATION

Check and verify air mix door mechanism for smooth operation.

Does air mix door operate correctly?

- YES >> GO TO 6.
NO >> Check the air mix door motor circuit. Refer to [HAC-163, "Diagnosis Procedure"](#).

6. CHECK AIR DUCTS

Check for disconnected or leaking air ducts.

Is the inspection result normal?

- YES >> GO TO 7.
NO >> Repair all disconnected or leaking air ducts.

7. CHECK HEATER HOSE TEMPERATURES

1. Start engine and warm it up to normal operating temperature.
2. Touch both the inlet and outlet heater hoses. The inlet hose should be hot and the outlet hose should be warm.

Is the inspection result normal?

- YES >> GO TO 8.
NO >> Both hoses warm: GO TO 9.

8. CHECK ENGINE COOLANT SYSTEMCheck thermostat operation. Refer to [CO-22, "Inspection"](#).Is the inspection result normal?

INSUFFICIENT HEATING

[MANUAL AIR CONDITIONING]

< SYMPTOM DIAGNOSIS >

- YES >> System OK.
NO >> Repair or replace as necessary.

9. CHECK HEATER HOSES

Check heater hoses for proper installation.

Is the inspection result normal?

- YES >> System OK.
NO >> 1. Back flush heater core.
2. Drain the water from the system.
3. Refill system with new engine coolant. Refer to [CO-9, "Refilling"](#).
4. To retest GO TO 10.

10. CHECK HEATER HOSE TEMPERATURES

1. Start engine and warm up to normal operating temperature.
2. Touch both the inlet and outlet heater hoses. The inlet hose should be hot and the outlet hose should be warm

Is the inspection result normal?

- YES >> System OK.
NO >> Replace heater core. Refer to [HA-43, "HEATER CORE : Removal and Installation"](#).

COMPRESSOR DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

[MANUAL AIR CONDITIONING]

COMPRESSOR DOES NOT OPERATE

Description

INFOID:0000000010012160

Symptom: Compressor does not operate.

Diagnosis Procedure

INFOID:0000000010012161

NOTE:

- Perform self-diagnoses with CONSULT before performing symptom diagnosis. If DTC is detected, perform the corresponding diagnosis.
- Check that refrigerant system is properly charged. If refrigerant amount is below the proper amount, perform inspection of refrigerant leakage.

1.CHECK MAGNET CLUTCH OPERATION

Check magnet clutch. Refer to [HAC-171, "Component Function Check"](#).

Does it operate normally?

YES >> GO TO 2.

NO >> Repair or replace malfunctioning parts.

2.CHECK REFRIGERANT PRESSURE SENSOR

Check refrigerant pressure sensor. Refer to [EC-482, "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace malfunctioning parts.

3.CHECK FRONT AIR CONTROL OUTPUT SIGNAL

 With CONSULT

Check "FAN ON" and "" in "DATA MONITOR" mode of "" using CONSULT.

Monitor item	Condition		Status
AIR COND SW	A/C switch	ON	On
		OFF	Off
FAN ON	Blower motor	ON	On
		OFF	Off

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace front air control. Refer to [HAC-181, "Removal and Installation"](#).

4.CHECK ECM INPUT SIGNAL

 With CONSULT

Check "AIR COND SIG" and "HEATER FAN SW" in "DATA MONITOR" mode of "ECM" using CONSULT.

Monitor item	Condition		Status
AIR COND SIG	A/C switch	ON	On
		OFF	Off
HEATER FAN SW	Blower motor	ON	On
		OFF	Off

Is the inspection result normal?

YES >> GO TO 5.

NO >> Check CAN communication system. Refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).

5.CHECK IPDM E/R INPUT SIGNAL

 With CONSULT

1. Start engine.

COMPRESSOR DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

[MANUAL AIR CONDITIONING]

2. Check "AC COMP REQ" in "DATA MONITOR" mode of "IPDM E/R" using CONSULT.

Monitor item	Condition		Status
AC COMP REQ	A/C switch	ON	On
		OFF	Off

Is the inspection result normal?

YES >> Inspection End.

NO >> Check CAN communication system. Refer to [LAN-17. "Trouble Diagnosis Flow Chart"](#).

REMOVAL AND INSTALLATION

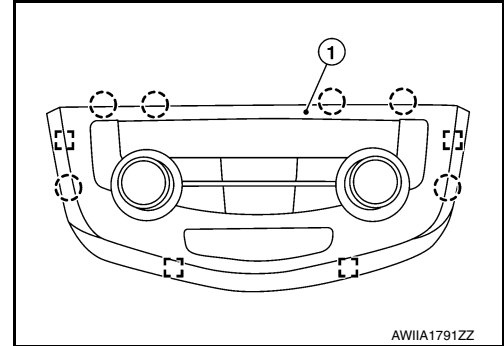
FRONT AIR CONTROL

Removal and Installation

INFOID:000000009797944

REMOVAL

1. Release the front air control clips and pawls using a suitable tool.
□: Metal clip
○: Pawl
2. Disconnect the harness connector from the front air control (1) and remove.



INSTALLATION

Installation is in the reverse order of removal.

A
B
C
D
E
F
G
H
J
K
L
M
N
O
P

HAC

INTAKE SENSOR

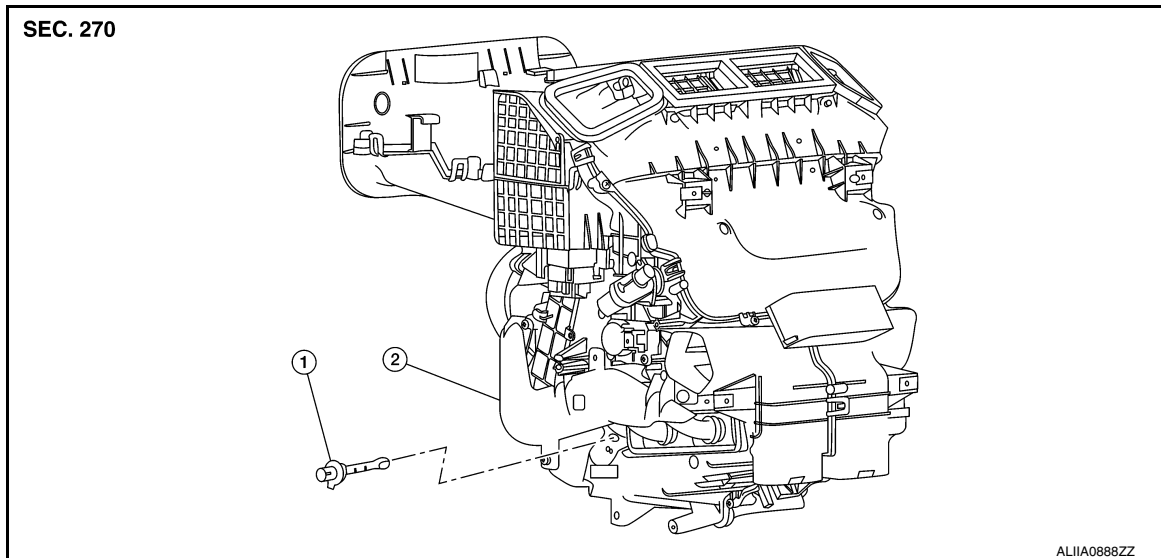
< REMOVAL AND INSTALLATION >

[MANUAL AIR CONDITIONING]

INTAKE SENSOR

Exploded View

INFOID:0000000010193939



1. Intake sensor

2. Heating and cooling unit assembly

Removal and Installation

INFOID:0000000010193940

REMOVAL

1. Remove front foot duct (LH). Refer to [VTL-10, "FRONT FOOT DUCT : Removal and Installation"](#).
2. Disconnect the harness connector and remove intake sensor.

INSTALLATION

Installation is in the reverse order of removal.

REFRIGERANT PRESSURE SENSOR

< REMOVAL AND INSTALLATION >

[MANUAL AIR CONDITIONING]

REFRIGERANT PRESSURE SENSOR

Removal and Installation

INFOID:0000000010193997

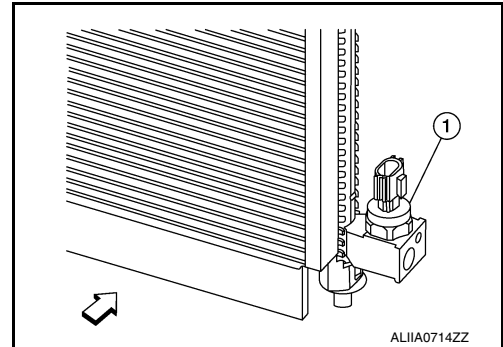
REMOVAL

1. Discharge the refrigerant. Refer to [HA-23, "Recycle Refrigerant"](#).
2. Remove front bumper fascia. Refer to [EXT-17, "Removal and Installation"](#).
3. Disconnect the harness connector from the refrigerant pressure sensor.
4. Remove the refrigerant pressure sensor (1) from the condenser.

⇐: Front

CAUTION:

Cap or wrap the opening of the refrigerant pressure sensor with suitable material such as vinyl tape to avoid the entry of air.



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Do not reuse O-ring.
- Apply A/C oil to new O-ring for installation.
- After charging refrigerant, check for leaks. Refer to [HA-21, "Leak Test"](#).

A
B
C
D
E
F
G
H
J
K
L
M
N
O
P

HAC

DOOR MOTOR

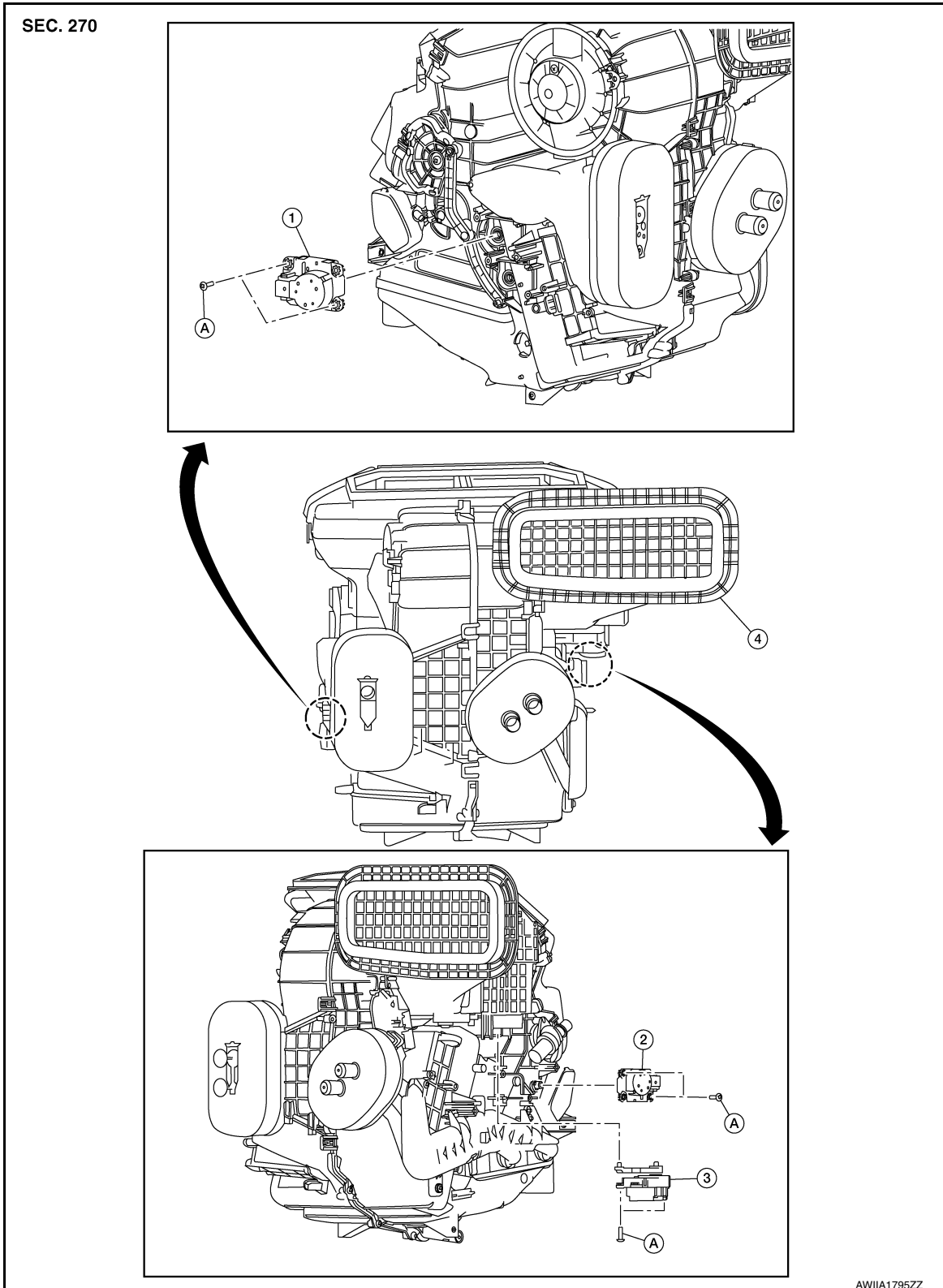
< REMOVAL AND INSTALLATION >

[MANUAL AIR CONDITIONING]

DOOR MOTOR

Component Parts Location

INFOID:000000010193913



AWIIA1795ZZ

- | | | |
|--------------------------------------|-----------------------|----------------------|
| 1. Mode door motor | 2. Air mix door motor | 3. Intake door motor |
| 4. Heating and cooling unit assembly | A. Screw | |

DOOR MOTOR

< REMOVAL AND INSTALLATION >

[MANUAL AIR CONDITIONING]

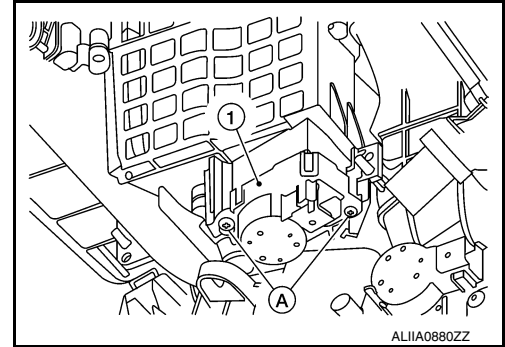
INTAKE DOOR MOTOR

INTAKE DOOR MOTOR : Removal and Installation

INFOID:000000010193914

REMOVAL

1. Remove front foot duct (LH). Refer to [VTL-10. "FRONT FOOT DUCT : Removal and Installation"](#).
2. Disconnect the harness connector from the intake door motor.
3. Remove screws (A) and intake door motor (1).



INSTALLATION

Installation is in the reverse order of removal.

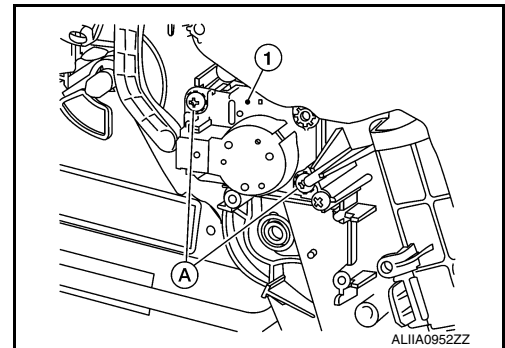
MODE DOOR MOTOR

MODE DOOR MOTOR : Removal and Installation

INFOID:000000010193915

REMOVAL

1. Remove front foot duct (RH). Refer to [VTL-10. "FRONT FOOT DUCT : Removal and Installation"](#).
2. Disconnect the harness connector from the mode door motor.
3. Remove screws (A) and mode door motor (1).



INSTALLATION

Installation is in the reverse order of removal.

AIR MIX DOOR MOTOR

AIR MIX DOOR MOTOR : Removal and Installation

INFOID:000000010193916

REMOVAL

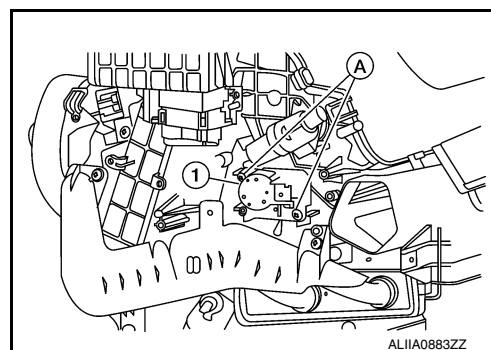
1. Remove front foot duct (LH). Refer to [VTL-10. "FRONT FOOT DUCT : Removal and Installation"](#).
2. Disconnect the harness connector from the air mix door motor.

DOOR MOTOR

< REMOVAL AND INSTALLATION >

[MANUAL AIR CONDITIONING]

3. Remove screws (A) and air mix door motor (1).



INSTALLATION

Installation is in the reverse order of removal.

VARIABLE BLOWER CONTROL

< REMOVAL AND INSTALLATION >

[MANUAL AIR CONDITIONING]

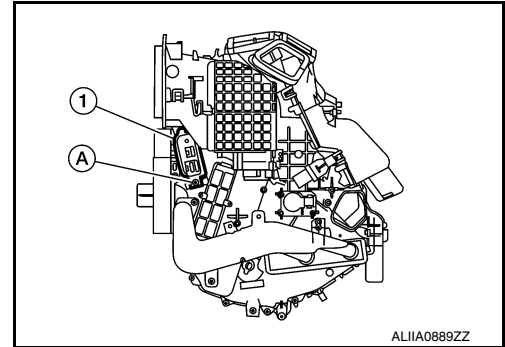
VARIABLE BLOWER CONTROL

Removal and Installation

INFOID:000000010193944

REMOVAL

1. Remove center console side finisher (LH). Refer to [IP-18. "Exploded View"](#).
2. Disconnect the harness connector from the variable blower control.
3. Remove screw (A) and variable blower control (1).



INSTALLATION

Installation is in the reverse order of removal.

A
B
C
D
E
F
G
H
J
K
L
M
N
O
P

HAC

SECTION

HRN

HORN

A

B

C

CONTENTS

E

PRECAUTION	2	HORN	3	F
PRECAUTIONS	2	Wiring Diagram	3	
Precaution for Supplemental Restraint System		REMOVAL AND INSTALLATION	6	G
(SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	2	HORN	6	
WIRING DIAGRAM	3	Exploded View	6	H
		Removal and Installation	6	

PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010204926

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

HORN

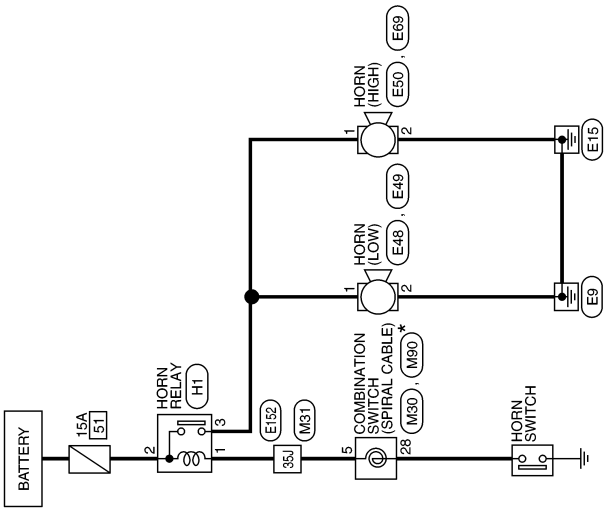
< WIRING DIAGRAM >

WIRING DIAGRAM

HORN

Wiring Diagram

INFOID:0000000010288619



* : THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT" OF PG SECTION.

AALWA0766GB

HORN

HRN

M

N

O

P

A

B

C

D

E

F

G

H

I

J

K

HRN

M

N

O

P

AALWA0766GB

2014 Rogue NAM

HRN-3

Revision: November 2013

Connector No.	M30
Connector Name	COMBINATION SWITCH (SPIRAL CABLE)
Connector Color	WHITE



10	9	8	7	6	5
16	15	14	13	12	11

Terminal No.	Color of Wire	Signal Name
5	BG	-

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE



5J	4J	3J	2J	1J
10J	9J	8J	7J	6J

210	20	19	18	17	16	15	14	13	12	11
30	29	28	27	26	25	24	23	22		
41	40	39	38	37	36	35	34	33	32	31
50	49	48	47	46	45	44	43	42		
61	60	59	58	57	56	55	54	53	52	51
70	69	68	67	66	65	64	63	62		
81	80	79	78	77	76	75	74	73	72	71
90	89	88	87	86	85	84	83	82		

95J	94J	93J	92J	91J
100J	99J	98J	97J	96J

Terminal No.	Color of Wire	Signal Name
35J	BG	CAN-L

Connector No.	M90
Connector Name	COMBINATION SWITCH (SPIRAL CABLE)
Connector Color	WHITE



22	21	20	19	18	17
28	27	26	25	24	23

Terminal No.	Color of Wire	Signal Name
28	BR	-

Connector No.	E48
Connector Name	HORN (LOW)
Connector Color	BLACK



2

Terminal No.	Color of Wire	Signal Name
2	B	-

Connector No.	E49
Connector Name	HORN (LOW)
Connector Color	BROWN



--	--

Terminal No.	Color of Wire	Signal Name
1	R	-

HORN

< WIRING DIAGRAM >

Connector No.	E69
Connector Name	HORN (HIGH)
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
1	R	-

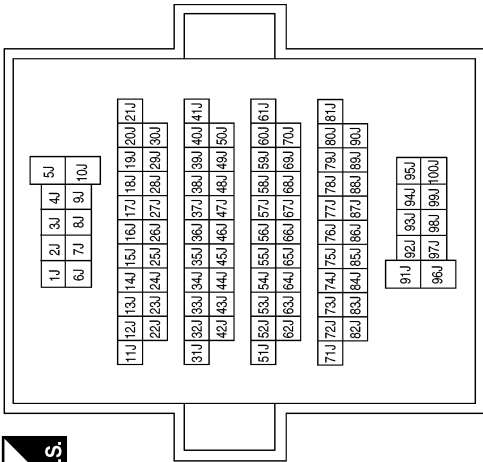
Connector No.	E50
Connector Name	HORN (HIGH)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
2	B	-

Terminal No.	Color of Wire	Signal Name
35J	BG	-

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE



AALIA2106GB

A
B
C
D
E
F
G
H
I
J
K
M
N
O
P

HRN

HORN

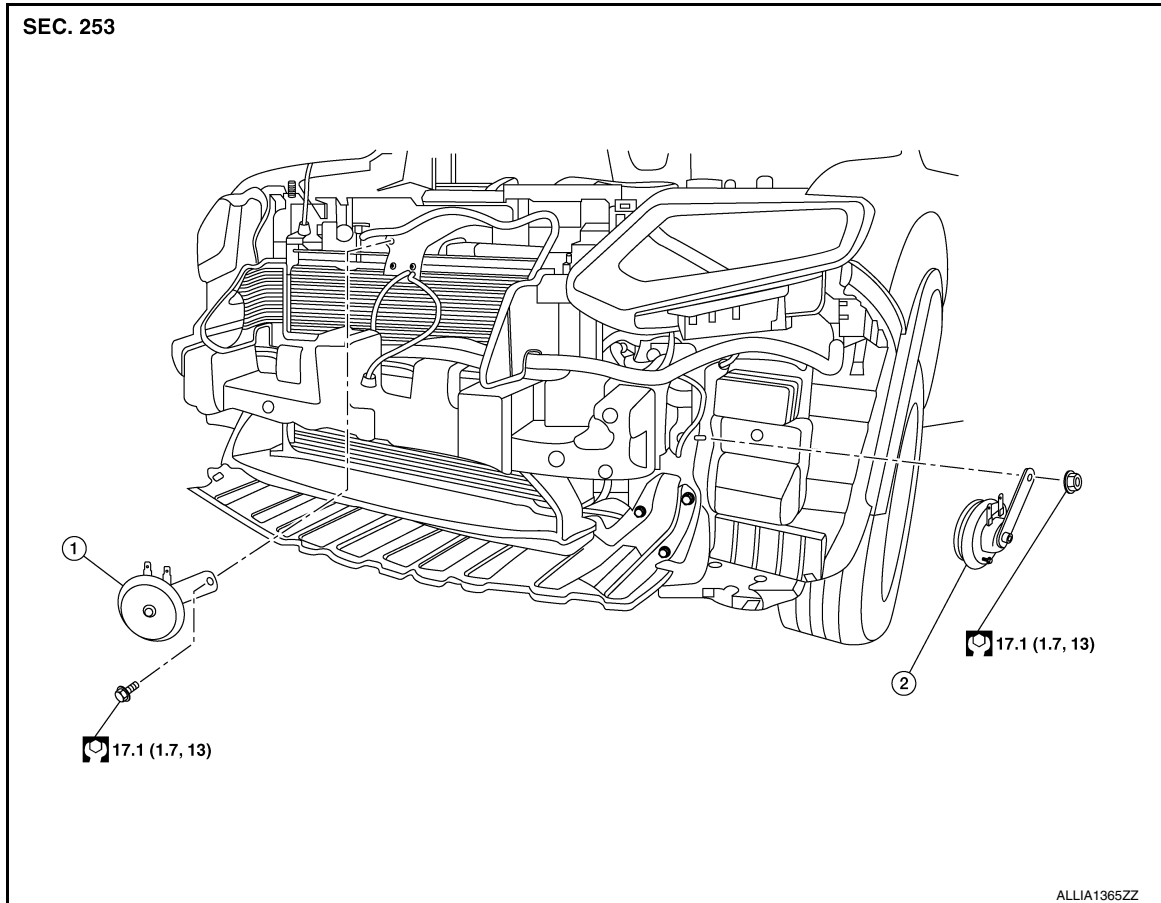
< REMOVAL AND INSTALLATION >

REMOVAL AND INSTALLATION

HORN

Exploded View

INFOID:000000009796651



1. Horn (LOW)

2. Horn (HIGH)

Removal and Installation

INFOID:000000009796652

REMOVAL

Horn (LOW)

1. Remove the front grille. Refer to [EXT-23. "Removal and Installation"](#).
2. Disconnect the harness connectors from the horn (LOW).
NOTE:
Before disconnecting the harness connectors, mark each for proper connection during installation.
3. Remove bolt and the horn (LOW).

Horn (HIGH)

1. Remove the engine side cover. Refer to [EXT-28. "FENDER PROTECTOR : Exploded View"](#).
2. Partially remove the fender protector LH (front). Refer to [EXT-28. "FENDER PROTECTOR : Exploded View"](#).
3. Disconnect the harness connectors from horn (HIGH).
NOTE:
Before disconnecting the harness connectors, mark each for proper connection during installation.
4. Remove nut and the horn (HIGH).

INSTALLATION

HORN

< REMOVAL AND INSTALLATION >

Installation is in the reverse order of removal.

- A
- B
- C
- D
- E
- F
- G
- H
- I
- J
- K
- HRN
- M
- N
- O
- P

HRN

INL

SECTION

INTERIOR LIGHTING SYSTEM

CONTENTS

PRECAUTION	3	INT LAMP	12
PRECAUTIONS	3	INT LAMP : CONSULT Function (BCM - INT LAMP)	13
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	3	BATTERY SAVER	13
Precaution for Work	3	BATTERY SAVER : CONSULT Function (BCM - BATTERY SAVER)	13
PREPARATION	4	DIAGNOSIS SYSTEM (BCM) (WITHOUT INTELLIGENT KEY SYSTEM)	15
PREPARATION	4	COMMON ITEM	15
Special Service Tool	4	COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)	15
SYSTEM DESCRIPTION	5	INT LAMP	15
COMPONENT PARTS	5	INT LAMP : CONSULT Function (BCM - INT LAMP)	15
Component Parts Location	5	BATTERY SAVER	16
SYSTEM	7	BATTERY SAVER : CONSULT Function (BCM - BATTERY SAVER)	16
INTERIOR ROOM LAMP CONTROL SYSTEM	7	ECU DIAGNOSIS INFORMATION	17
INTERIOR ROOM LAMP CONTROL SYSTEM : System Description	7	BCM	17
INTERIOR ROOM LAMP BATTERY SAVER SYSTEM	8	List of ECU Reference	17
INTERIOR ROOM LAMP BATTERY SAVER SYSTEM : System Description	9	WIRING DIAGRAM	18
ILLUMINATION CONTROL SYSTEM	9	INTERIOR ROOM LAMP CONTROL SYSTEM	18
ILLUMINATION CONTROL SYSTEM : System Description	10	Wiring Diagram	18
AUTO LIGHT ADJUSTMENT SYSTEM	10	ILLUMINATION	30
AUTO LIGHT ADJUSTMENT SYSTEM : System Description	11	Wiring Diagram	30
DIAGNOSIS SYSTEM (BCM) (WITH INTELLIGENT KEY SYSTEM)	12	BASIC INSPECTION	43
COMMON ITEM	12	DIAGNOSIS AND REPAIR WORKFLOW	43
COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)	12	Work Flow	43
		DTC/CIRCUIT DIAGNOSIS	46

INTERIOR ROOM LAMP POWER SUPPLY	
CIRCUIT	46
Description	46
Component Function Check	46
Diagnosis Procedure	46
INTERIOR ROOM LAMP CONTROL CIRCUIT	
.....	49
Description	49
Component Function Check	49
Diagnosis Procedure	49
LUGGAGE ROOM LAMP CIRCUIT	51
Description	51
Diagnosis Procedure	51
POWER SWITCH ILLUMINATION CIRCUIT ...	52
Description	52
Component Function Check	52
Diagnosis Procedure	52
SYMPTOM DIAGNOSIS	54
INTERIOR LIGHTING SYSTEM SYMPTOMS ...	54
Symptom Table	54
REMOVAL AND INSTALLATION	55
MAP LAMP ASSEMBLY	55
Exploded View	55
Removal and Installation	55
Bulb Replacement	56
VANITY MIRROR LAMP	57
Exploded View	57
Removal and Installation	57
Bulb or Lens Replacement	57
GLOVE BOX LAMP	58
Bulb Replacement	58
ROOM LAMP	59
Removal and Installation	59
Bulb Replacement	59
PERSONAL LAMP	60
Removal and Installation	60
Bulb or Lens Replacement	60
LUGGAGE ROOM LAMP	61
Removal and Installation	61
Bulb Replacement	61
METER CONTROL SWITCH	62
Removal and Installation	62
SERVICE DATA AND SPECIFICATIONS	
(SDS)	63
SERVICE DATA AND SPECIFICATIONS	
(SDS)	63
Bulb Specifications	63

PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010306916

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Precaution for Work

INFOID:0000000010306969

- When removing or disassembling each component, be careful not to damage or deform it. If a component may be subject to interference, be sure to protect it with a shop cloth.
- When removing (disengaging) components with a screwdriver or similar tool, be sure to wrap the component with a shop cloth or vinyl tape to protect it.
- Protect the removed parts with a shop cloth and prevent them from being dropped.
- Replace a deformed or damaged clip.
- If a part is specified as a non-reusable part, always replace it with a new one.
- Be sure to tighten bolts and nuts securely to the specified torque.
- After installation is complete, be sure to check that each part works properly.
- Follow the steps below to clean components:
 - Water soluble dirt:
 - Dip a soft cloth into lukewarm water, wring the water out of the cloth and wipe the dirty area.
 - Then rub with a soft, dry cloth.
 - Oily dirt:
 - Dip a soft cloth into lukewarm water with mild detergent (concentration: within 2 to 3%) and wipe the dirty area.
 - Then dip a cloth into fresh water, wring the water out of the cloth and wipe the detergent off.
 - Then rub with a soft, dry cloth.
 - Do not use organic solvent such as thinner, benzene, alcohol or gasoline.
 - For genuine leather seats, use a genuine leather seat cleaner.

PREPARATION

< PREPARATION >

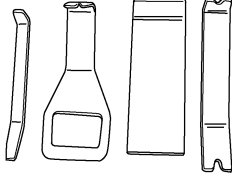
PREPARATION

PREPARATION

Special Service Tool

INFOID:0000000010307029

The actual shape of the tools may differ from those illustrated here.

Tool number (TechMate No.) Tool name	Description
— (J-46534) Trim Tool Set  AWJIA0483ZZ	Removing trim components

COMPONENT PARTS

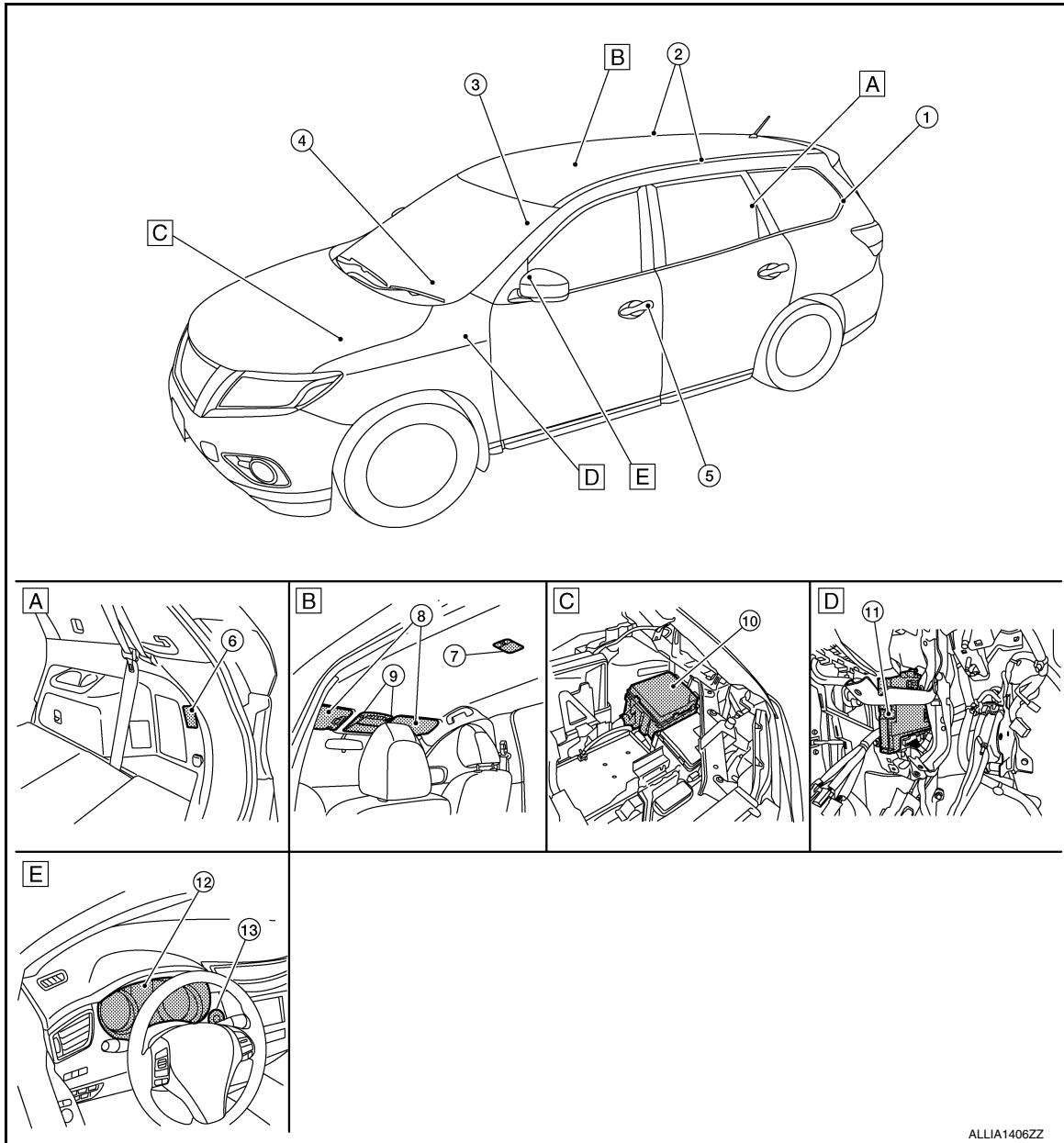
< SYSTEM DESCRIPTION >

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:0000000010346342



A. Rear luggage area (RH)

B. Front headliner area

C. Engine compartment (LH)

D. Left side of instrument panel (view with finish panel removed)

E. Instrument panel (LH)

No.	Part	Description
1.	Back door lock assembly (back door switch)	Refer to DLK-21, "Back Door Lock Assembly" .
2.	Personal lamps 2nd row	Refer to INL-63, "Bulb Specifications" .
3.	Front door request switch (RH)	Refer to DLK-24, "Front Door Request Switch (RH)" .
4.	Optical sensor	Refer to EXL-10, "Optical Sensor" .

COMPONENT PARTS

< SYSTEM DESCRIPTION >

No.	Part	Description
5.	Front door request switch (LH)	Refer to DLK-24, "Front Door Request Switch (LH)" .
6.	Luggage room lamp	Refer to INL-63, "Bulb Specifications" .
7.	Room lamp	Refer to INL-63, "Bulb Specifications" .
8.	Vanity mirror lamps	Refer to INL-63, "Bulb Specifications" .
9.	Map lamp assembly	Refer to INL-63, "Bulb Specifications" .
10.	IPDM E/R	Controls audio unit and AV control unit illumination supply voltage according to the request signal from BCM (via CAN communication). Refer to PCS-4, "Component Parts Location" for detailed installation location.
11.	BCM	• Activates the interior room lamp timer depending on the vehicle condition to turn the interior room lamps ON/OFF. • Operates the interior room lamp battery saver depending on the vehicle condition to cut the interior room lamp power supply. • Detects each switch condition by the combination switch reading function. • Judges the illumination lamp ON/OFF status depending on the vehicle condition. And then it transmits position light request signal to IPDM E/R and combination meter (with CAN communication). • Controls the room lamp relay according to the request signal from BCM (via CAN communication). Refer to BCS-7, "BODY CONTROL SYSTEM : Component Parts Location" (with Intelligent Key system) or BCS-79, "BODY CONTROL SYSTEM : Component Parts Location" (without Intelligent Key system) for detailed installation location.

SYSTEM

< SYSTEM DESCRIPTION >

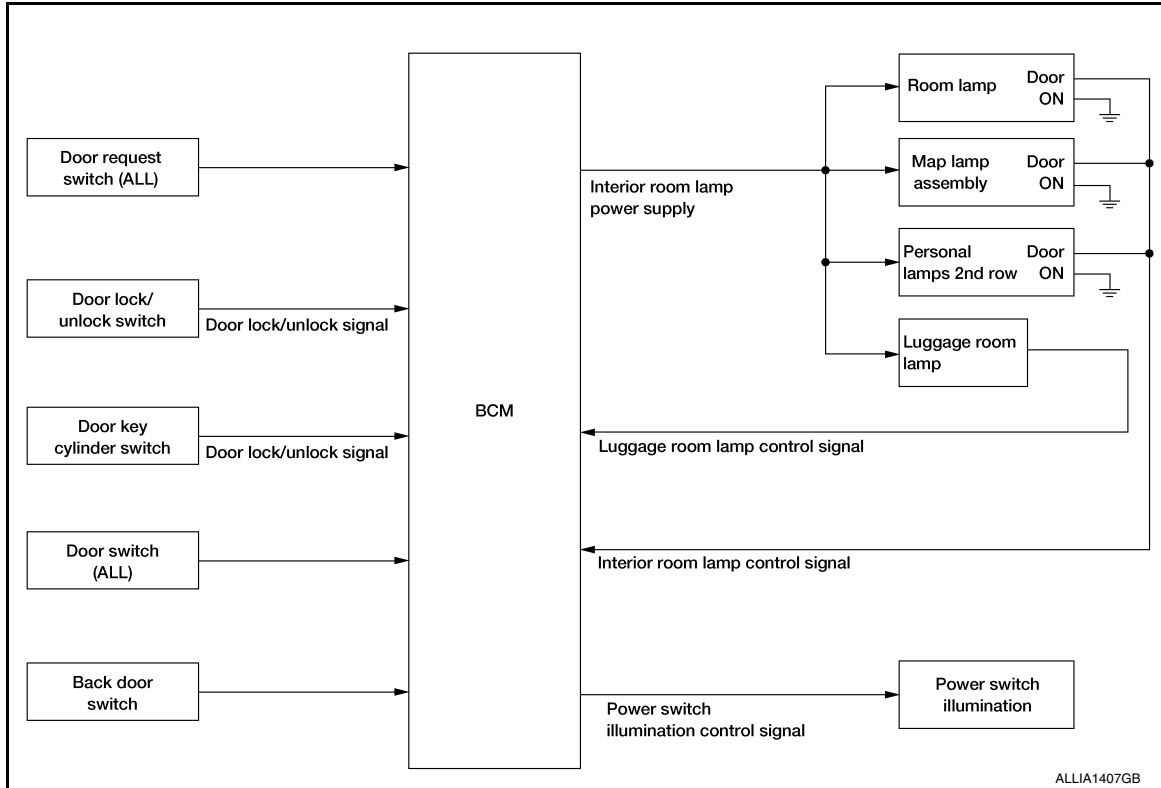
SYSTEM

INTERIOR ROOM LAMP CONTROL SYSTEM

INTERIOR ROOM LAMP CONTROL SYSTEM : System Description

INFOID:000000010346343

SYSTEM DIAGRAM

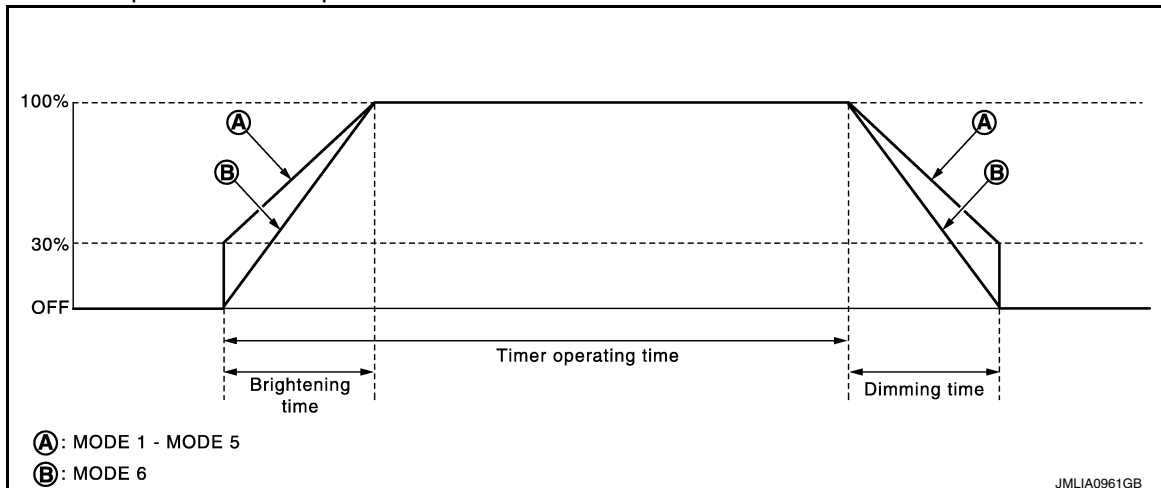


OUTLINE

- Interior room lamps* are controlled by interior room lamp timer control function of BCM.
 - *: Map lamp and room lamp (when map lamp switch and room lamp switch are in DOOR position).
- Luggage room lamp is controlled by luggage room lamp control function of BCM.
- Power switch illumination is controlled by the power switch illumination control function of BCM.

INTERIOR ROOM LAMP TIMER CONTROL

Interior Room Lamp Timer Basic Operation



NOTE:

- A: Sets the interior room lamp gradual brightening and dimming time.
B: Gradually dims from 100% to 0% and gradually brightens 0% to 100% in 1 second.

SYSTEM

< SYSTEM DESCRIPTION >

- The interior room lamp turns ON and OFF (gradual brightening and dimming) by the interior room lamp timer.
- BCM judges the vehicle condition with the following items. It activates the interior room timer.
 - Power switch status
 - Door switch signal
 - Door lock/unlock signal (Remote keyless entry receiver, each door request switch, door lock/unlock switch, door key cylinder switch)

NOTE:

Each function of interior room lamp timer can be set by CONSULT. Refer to [BCS-18. "INT LAMP : CONSULT Function \(BCM - INT LAMP\)"](#) (with Intelligent Key system) or [BCS-89. "INT LAMP : CONSULT Function \(BCM - INT LAMP\)"](#) (without Intelligent Key system).

Interior Room Lamp ON Operation:

- BCM always turns the interior room lamp ON when any door opens.
- BCM activates the interior room lamp timer in any of the following conditions to turn the interior room lamp ON for a period of time:
 - Status of all doors changes from open to close
 - Power switch is turned ON → OFF
 - Door unlock signal is detected when all doors close

NOTE:

The timer restarts if new condition is input during the timer operating time.

Interior Room Lamp OFF Operation:

BCM stops the timer in any of the following conditions to turn the interior room lamp OFF.

- The timer operating time is expired
- Power switch is turned OFF → ON
- Door lock signal is detected with all doors close except back door.

LUGGAGE ROOM LAMP CONTROL

BCM turns luggage room lamp ON when the following condition is detected:

- Back door switch is ON

BCM turns luggage room lamp OFF when the following condition is detected:

- Back door switch is OFF

POWER SWITCH ILLUMINATION CONTROL

Power Switch Illumination Basic Operation:

BCM provides the power supply to turn the power switch illumination ON.

Power Switch Illumination ON Operation

BCM turns the power switch illumination ON in the following conditions.

- Power switch ON
- Any of the following conditions with power switch OFF:
 - Driver side door is LOCK → UNLOCK
 - Driver side door is open

Power Switch Illumination OFF Operation

BCM turns the power switch illumination OFF in any of the following conditions:

- The push-button power switch illumination ON conditions are not satisfied.
- Any of the following conditions with power switch OFF:
 - The power switch illumination ON conditions do not change (15 seconds after the power switch OFF)
 - Driver side door is UNLOCK → LOCK

INTERIOR ROOM LAMP BATTERY SAVER SYSTEM

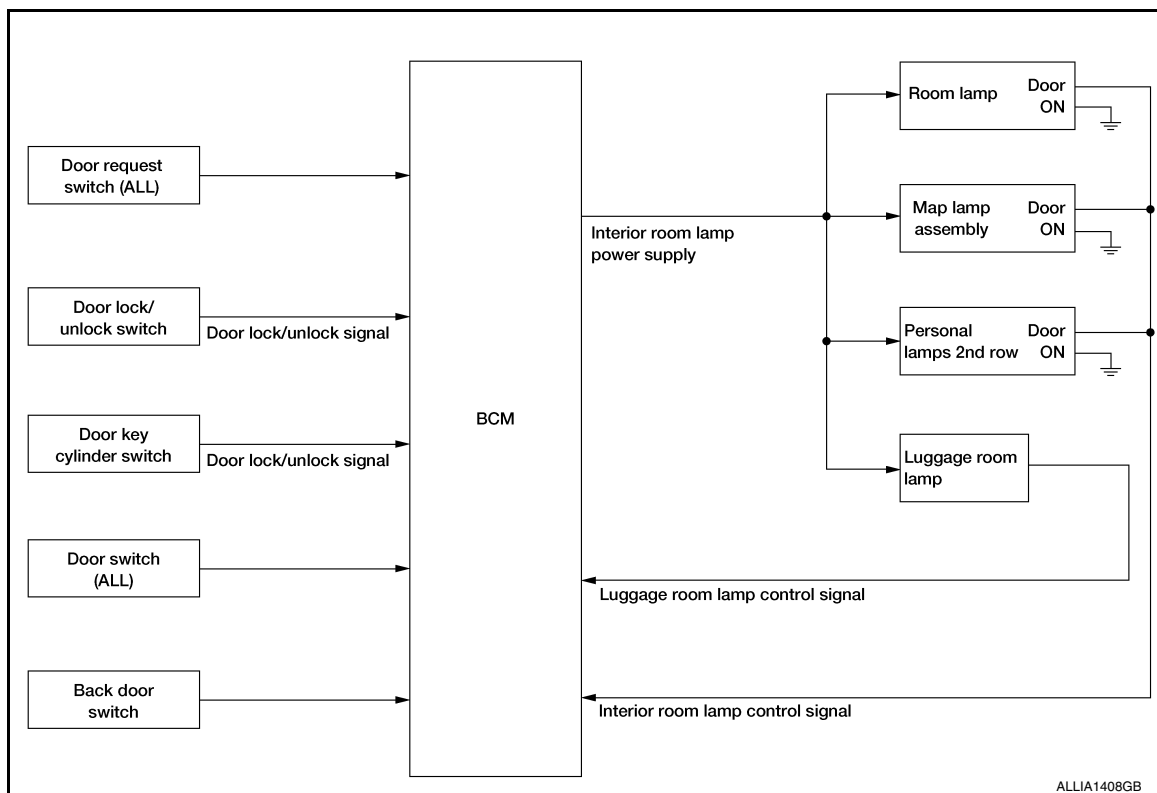
SYSTEM

< SYSTEM DESCRIPTION >

INTERIOR ROOM LAMP BATTERY SAVER SYSTEM : System Description

INFOID:000000010346344

SYSTEM DIAGRAM



OUTLINE

- Interior room lamp battery saver is controlled by BCM.
- BCM turns applicable lamps OFF depending on the vehicle condition. This function prevents the 12V battery from over-discharging if the driver neglects turning OFF the lamps.

Applicable lamps:

- Map lamp
- Room lamp
- Luggage room lamp
- Personal lamps 2nd row (if equipped)

INTERIOR ROOM LAMP BATTERY SAVER FUNCTION

- When the power switch is turned to other position than ON, BCM operates the timer for a period of time to cut the interior room lamp power supply.
- BCM restarts the timer when any of the following signals changes while operating the timer:
 - Power switch status
 - Door switch signal (ALL)
 - Door lock/unlock signal (remote keyless entry receiver, each door request switch, door lock and unlock switch, door key cylinder switch)
- BCM provides the interior room lamp power supply continuously when the power switch position is ON.

NOTE:

Each function of interior room lamp battery saver can be set by CONSULT. Refer to [BCS-18, "INT LAMP : CONSULT Function \(BCM - INT LAMP\)"](#) (with intelligent Key system) or [BCS-89, "INT LAMP : CONSULT Function \(BCM - INT LAMP\)"](#) (without Intelligent Key system).

ILLUMINATION CONTROL SYSTEM

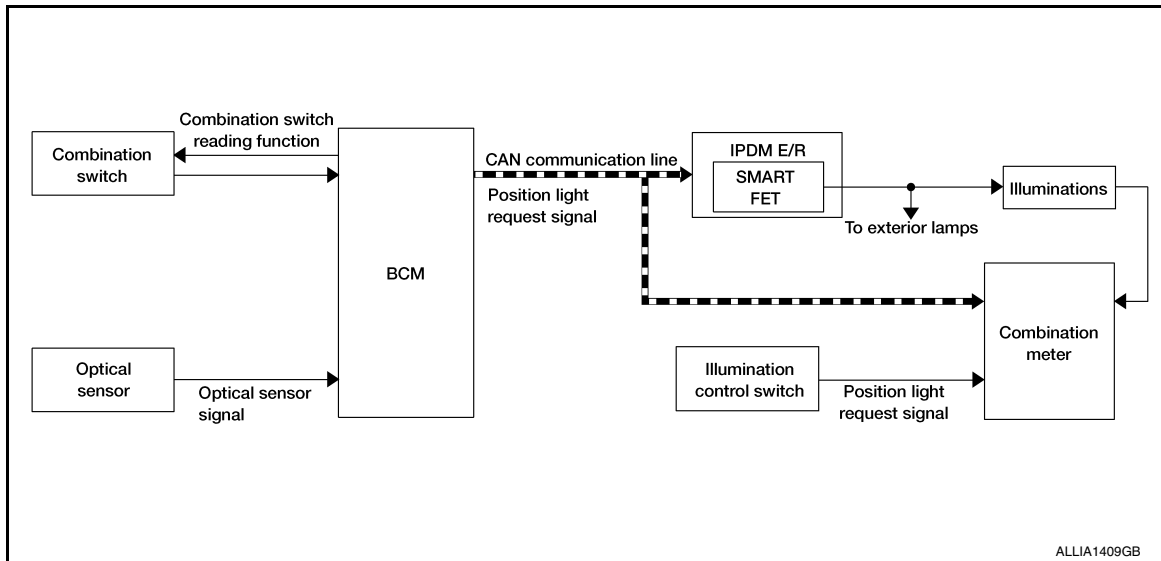
SYSTEM

< SYSTEM DESCRIPTION >

ILLUMINATION CONTROL SYSTEM : System Description

INFOID:000000010346345

SYSTEM DIAGRAM



OUTLINE

Each illumination lamp is controlled by each function of BCM and IPDM E/R.

Controlled by BCM:

- Combination switch reading function
- Headlamp control function

Controlled by IPDM E/R:

- Smart FET control function

Controlled by combination meter:

- Meter illumination control function

ILLUMINATION CONTROL

- BCM detects the combination switch condition by the combination switch reading function.
- BCM transmits position light request signal to IPDM E/R and combination meter according to tail lamp ON condition.

Tail lamp ON condition:

- Lighting switch 1ST
- Lighting switch 2ND
- Lighting switch AUTO, and the auto light function ON judgment
- Lighting switch AUTO, with the front fog lamp switch ON and the power switch ON
- IPDM E/R turns each illumination lamp ON according to position light request signal. It provides the power supply to each illumination lamp.
- Combination meter enters in the nighttime mode according to position light request signal. Under the nighttime mode the combination meter controls the illuminance by controlling the each illumination lamp.

AUTO LIGHT ADJUSTMENT SYSTEM

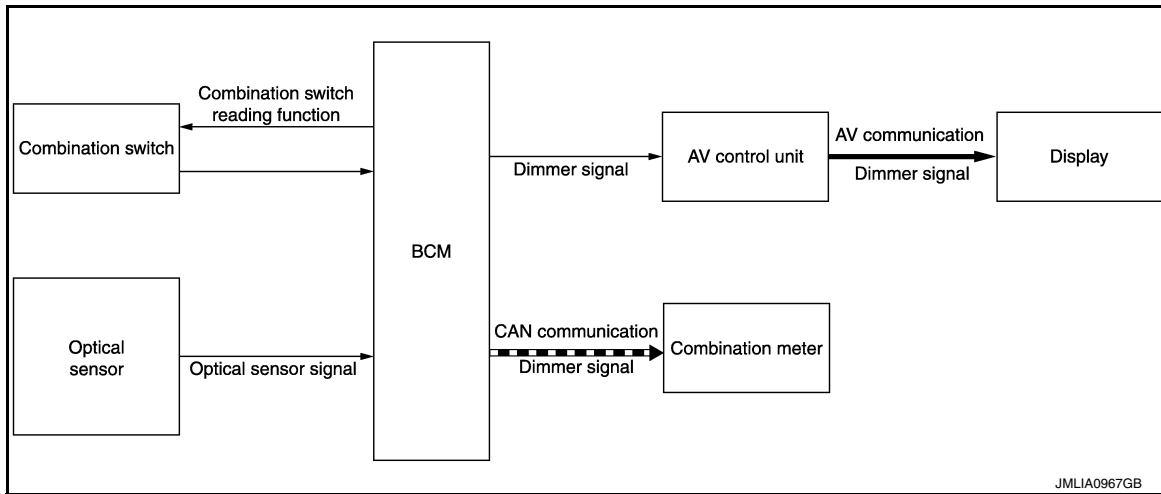
SYSTEM

< SYSTEM DESCRIPTION >

AUTO LIGHT ADJUSTMENT SYSTEM : System Description

INFOID:0000000010346346

SYSTEM DIAGRAM



OUTLINE

Auto light adjustment system is controlled by each function of BCM, combination meter and AV control unit

Controlled by BCM:

- Auto light system
- Auto light adjustment system

AUTO LIGHT ADJUSTMENT SYSTEM

Description

- BCM supplies voltage to the optical sensor when the power switch is turned ON.
- Optical sensor converts outside brightness (lux) to voltage and transmits the optical sensor signal to BCM.
- BCM judges dimming/brightening of combination meter and display according to brightness outside the vehicle, when power switch is ON.
- BCM transmits dimmer signal to combination meter via CAN communication, according to auto light adjustment conditions. Dimmer signal is also transmitted to AV control unit.

NOTE:

As to dimming/brightening timing, the sensitivity depends on settings. The settings can be changed with CONSULT. Refer to [BCS-19, "HEADLAMP : CONSULT Function \(BCM - HEADLAMP\)"](#) (with Intelligent Key system) or [BCS-90, "HEADLAMP : CONSULT Function \(BCM - HEADLAMP\)"](#) (without Intelligent Key system).

DIAGNOSIS SYSTEM (BCM) (WITH INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (BCM) (WITH INTELLIGENT KEY SYSTEM) COMMON ITEM

COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)

INFOID:0000000010346385

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with BCM.

Direct Diagnostic Mode	Description
Ecu Identification	The BCM part number is displayed.
Self Diagnostic Result	The BCM self diagnostic results are displayed.
Data Monitor	The BCM input/output data is displayed in real time.
Active Test	The BCM activates outputs to test components.
Work support	The settings for BCM functions can be changed.
Configuration	- The vehicle specification can be read and saved. - The vehicle specification can be written when replacing BCM.
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.

SYSTEM APPLICATION

BCM can perform the following functions.

System	Sub System	Direct Diagnostic Mode						
		Ecu Identification	Self Diagnostic Result	Data Monitor	Active Test	Work support	Configuration	CAN Diag Support Mntr
Door lock	DOOR LOCK		×	×	×	×		
Rear window defogger	REAR DEFOGGER			×	×	×		
Warning chime	BUZZER			×	×			
Interior room lamp timer	INT LAMP			×	×	×		
Exterior lamp	HEADLAMP			×	×	×		
Wiper and washer	WIPER			×	×	×		
Turn signal and hazard warning lamps	FLASHER			×	×			
Intelligent Key system	INTELLIGENT KEY		×	×	×	×		
Combination switch	COMB SW			×				
BCM	BCM	×	×			×	×	×
Immobilizer	IMMU		×	×	×			
Interior room lamp battery saver	BATTERY SAVER			×	×			
Back door open	TRUNK			×				
Vehicle security system	THEFT ALM			×	×	×		
RAP system	RETAINED PWR			×				
Signal buffer system	SIGNAL BUFFER			×				
TPMS	AIR PRESSURE MONITOR		×	×	×	×		

INT LAMP

DIAGNOSIS SYSTEM (BCM) (WITH INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

INT LAMP : CONSULT Function (BCM - INT LAMP)

INFOID:0000000010346386

DATA MONITOR

Monitor Item [Unit]	Description
REQ SW -DR [On/Off]	Indicates condition of door request switch LH.
REQ SW -AS [On/Off]	Indicates condition of door request switch RH.
PUSH -SW [On/Off]	Indicates condition of push-button ignition switch.
DOOR SW-DR [On/Off]	Indicates condition of front door switch LH.
DOOR SW-AS [On/Off]	Indicates condition of front door switch RH.
DOOR SW-RR [On/Off]	Indicates condition of rear door switch RH.
DOOR SW-RL [On/Off]	Indicates condition of rear door switch LH.
DOOR SW-BK [On/Off]	Indicates condition of back door switch.
CDL LOCK SW [On/Off]	Indicates condition of lock signal from door lock and unlock switch.
CDL UNLOCK SW [On/Off]	Indicates condition of unlock signal from door lock and unlock switch.
KEY CYL LK-SW [On/Off]	Indicates condition of lock signal from door key cylinder switch.
KEY CYL UN-SW [On/Off]	Indicates condition of unlock signal from door key cylinder switch.
RKE-LOCK [On/Off]	Indicates condition of lock signal from Intelligent Key.
RKE-UNLOCK [On/Off]	Indicates condition of unlock signal from Intelligent Key.

ACTIVE TEST

Test Item	Description
INT LAMP	This test is able to check interior room lamp operation [On/Off].

WORK SUPPORT

Support Item	Setting	Description
SET I/L D-UNLCK INTCON	On	Interior room lamp timer function ON.
	Off*	Interior room lamp timer function OFF.

*: Initial setting

BATTERY SAVER

BATTERY SAVER : CONSULT Function (BCM - BATTERY SAVER)

INFOID:0000000010346387

DATA MONITOR

Monitor Item [Unit]	Description
REQ SW -DR [On/Off]	Indicates condition of door request switch LH.
REQ SW -AS [On/Off]	Indicates condition of door request switch RH.
PUSH SW [On/Off]	Indicates condition push-button ignition switch.
DOOR SW-DR [On/Off]	Indicates condition of front door switch LH.
DOOR SW-AS [On/Off]	Indicates condition of front door switch RH.
DOOR SW-RR [On/Off]	Indicates condition of rear door switch RH.
DOOR SW-RL [On/Off]	Indicates condition of rear door switch LH.
DOOR SW-BK [On/Off]	Indicates condition of back door switch.
CDL LOCK SW [On/Off]	Indicates condition of lock signal from door lock and unlock switch.
CDL UNLOCK SW [On/Off]	Indicates condition of unlock signal from door lock and unlock switch.
KEY CYL LK-SW [On/Off]	Indicates condition of lock signal from door key cylinder switch.

DIAGNOSIS SYSTEM (BCM) (WITH INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

Monitor Item [Unit]	Description
KEY CYL UN-SW [On/Off]	Indicates condition of unlock signal from door key cylinder switch.
RKE-LOCK [On/Off]	Indicates condition of lock signal from Intelligent Key.
RKE-UNLOCK [On/Off]	Indicates condition of unlock signal from Intelligent Key.

ACTIVE TEST

Test item	Description
BATTERY SAVER	This test is able to check battery saver operation [On/Off].

DIAGNOSIS SYSTEM (BCM) (WITHOUT INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (BCM) (WITHOUT INTELLIGENT KEY SYSTEM) COMMON ITEM

COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)

INFOID:0000000010346388

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with BCM.

Direct Diagnostic Mode	Description
Ecu Identification	The BCM part number is displayed.
Self Diagnostic Result	The BCM self diagnostic results are displayed.
Data Monitor	The BCM input/output data is displayed in real time.
Active Test	The BCM activates outputs to test components.
Work support	The settings for BCM functions can be changed.
Configuration	- The vehicle specification can be read and saved. - The vehicle specification can be written when replacing BCM.
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.

SYSTEM APPLICATION

BCM can perform the following functions.

System	Sub System	Direct Diagnostic Mode						
		Ecu Identification	Self Diagnostic Result	Data Monitor	Active Test	Work support	Configuration	CAN Diag Support Mntr
Door lock	DOOR LOCK			x	x	x		
Rear window defogger	REAR DEFOGGER			x	x	x		
Warning chime	BUZZER			x	x			
Interior room lamp timer	INT LAMP			x	x	x		
Remote keyless entry system	MULTI REMOTE ENT					x		
Exterior lamp	HEADLAMP			x	x			
Wiper and washer	WIPER			x	x	x		
Turn signal and hazard warning lamps	FLASHER			x	x			
Combination switch	COMB SW			x				
BCM	BCM	x	x			x	x	x
Immobilizer	IMMU		x		x			
Interior room lamp battery saver	BATTERY SAVER			x	x			
Back door open	TRUNK			x				
Vehicle security system	THEFT ALM			x	x	x		
RAP system	RETAINED PWR			x				
TPMS	AIR PRESSURE MONITOR		x	x	x	x		

INT LAMP

INT LAMP : CONSULT Function (BCM - INT LAMP)

INFOID:0000000010346389

DATA MONITOR

DIAGNOSIS SYSTEM (BCM) (WITHOUT INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

Monitor Item [Unit]	Description
DOOR SW-DR [On/Off]	Indicates condition of front door switch LH.
DOOR SW-AS [On/Off]	Indicates condition of front door switch RH.
DOOR SW-RR [On/Off]	Indicates condition of rear door switch RH.
DOOR SW-RL [On/Off]	Indicates condition of rear door switch LH.
DOOR SW-BK [On/Off]	Indicates condition of back door switch.
CDL LOCK SW [On/Off]	Indicates condition of lock signal from door lock and unlock switch.
CDL UNLOCK SW [On/Off]	Indicates condition of unlock signal from door lock and unlock switch.
KEY CYL LK-SW [On/Off]	Indicates condition of lock signal from door key cylinder switch.
KEY CYL UN-SW [On/Off]	Indicates condition of unlock signal from door key cylinder switch.
RKE-LOCK [On/Off]	Indicates condition of lock signal from Intelligent Key.
RKE-UNLOCK [On/Off]	Indicates condition of unlock signal from Intelligent Key.

ACTIVE TEST

Test Item	Description
INT LAMP	This test is able to check interior room lamp operation [On/Off].

WORK SUPPORT

Support Item	Setting	Description
SET I/L D-UNLCK INTCON	On	Interior room lamp timer function ON.
	Off*	Interior room lamp timer function OFF.

*: Initial setting

BATTERY SAVER

BATTERY SAVER : CONSULT Function (BCM - BATTERY SAVER)

INFOID:0000000010346390

DATA MONITOR

Monitor Item [Unit]	Description
DOOR SW-DR [On/Off]	Indicates condition of front door switch LH.
DOOR SW-AS [On/Off]	Indicates condition of front door switch RH.
DOOR SW-RR [On/Off]	Indicates condition of rear door switch RH.
DOOR SW-RL [On/Off]	Indicates condition of rear door switch LH.
DOOR SW-BK [On/Off]	Indicates condition of back door switch.
CDL LOCK SW [On/Off]	Indicates condition of lock signal from door lock and unlock switch.
CDL UNLOCK SW [On/Off]	Indicates condition of unlock signal from door lock and unlock switch.
KEY CYL LK-SW [On/Off]	Indicates condition of lock signal from door key cylinder switch.
KEY CYL UN-SW [On/Off]	Indicates condition of unlock signal from door key cylinder switch.
RKE-LOCK [On/Off]	Indicates condition of lock signal from Intelligent Key.
RKE-UNLOCK [On/Off]	Indicates condition of unlock signal from Intelligent Key.

ACTIVE TEST

Test item	Description
BATTERY SAVER	This test is able to check battery saver operation [On/Off].

ECU DIAGNOSIS INFORMATION

BCM

List of ECU Reference

INFOID:0000000010346350

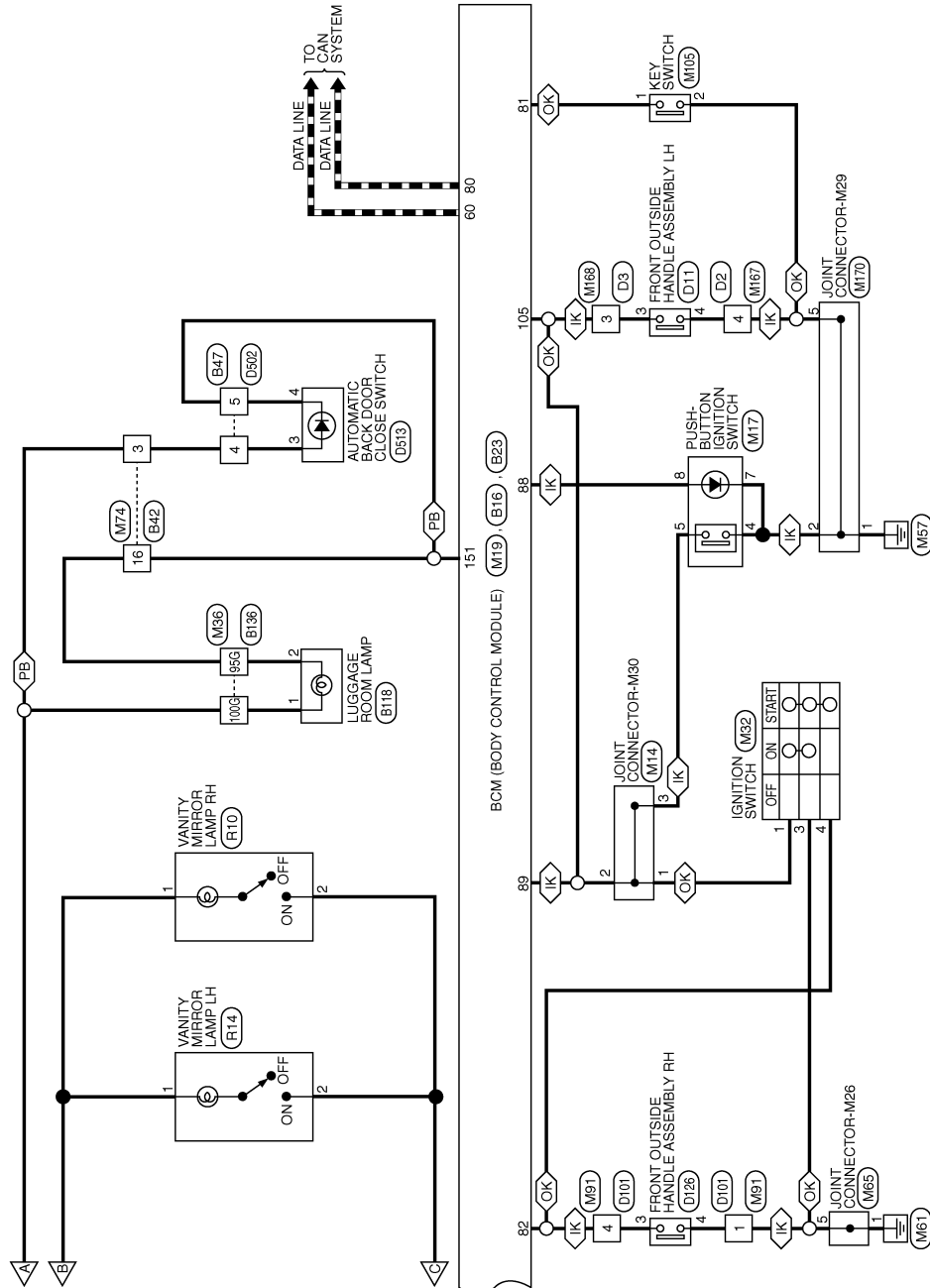
ECU	Reference
BCM (with Intelligent Key system)	BCS-28, "Reference Value"
	BCS-47, "Fail Safe"
	BCS-47, "DTC Inspection Priority Chart"
	BCS-48, "DTC Index"
BCM (without Intelligent Key system)	BCS-96, "Reference Value"
	BCS-107, "Fail Safe"
	BCS-107, "DTC Inspection Priority Chart"
	BCS-108, "DTC Index"

A
B
C
D
E
F
G
H
I
J
K
INL
M
N
O
P

INTERIOR ROOM LAMP CONTROL SYSTEM

< WIRING DIAGRAM >

- ⬡ : WITH INTELLIGENT KEY SYSTEM
- ⬢ : WITHOUT INTELLIGENT KEY SYSTEM
- ⬢ : WITH POWER BACK DOOR



AALWA0783GB

INTERIOR ROOM LAMP CONTROL SYSTEM

< WIRING DIAGRAM >

INTERIOR ROOM LAMP CONNECTORS

Connector No.	M12
Connector Name	ROOM LAMP RELAY
Connector Color	BLUE



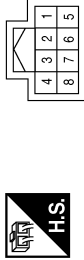
Terminal No.	Color of Wire	Signal Name
1	LG	-
2	P	-
3	LG	-
5	V	-

Connector No.	M14
Connector Name	JOINT CONNECTOR-M30
Connector Color	WHITE



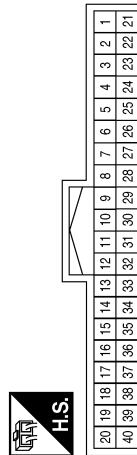
Terminal No.	Color of Wire	Signal Name
1	Y	-
2	Y	-
3	Y	-

Connector No.	M17
Connector Name	PUSH-BUTTON IGNITION SWITCH
Connector Color	WHITE



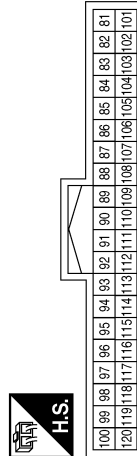
Terminal No.	Color of Wire	Signal Name
4	B	-
5	Y	-
7	B	-
8	W	-

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
4	P	O SPARE4 RL N
10	BG	I DOORLOCK SW
40	SB	I DOORUNLOCK SW

Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
81	L	I KEY SW
82	LA/R	I STARTER SW (WITHOUT INTELLIGENT KEY SYSTEM)
82	W	I SES FR HANDLE BUTTON SW (WITH INTELLIGENT KEY SYSTEM)
88	W	O START SW BACKLIGHT LED

Terminal No.	Color of Wire	Signal Name
89	Y	I START WO ECSL SW
95	V	I SHORTING PIN
104	R	I DR KNOB SW
105	Y	I IGN SW (WITHOUT INTELLIGENT KEY SYSTEM)
105	Y	I SES DR HANDLE BUTTON SW (WITH INTELLIGENT KEY SYSTEM)

INTERIOR ROOM LAMP CONTROL SYSTEM

< WIRING DIAGRAM >

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BROWN

167	166	165	164	163	162	161
176	175	174	173	172	171	170
169	168					



Terminal No.	Color of Wire	Signal Name
161	W	I PWR ECU
162	SB	O PWM ROOMLAMP 1
170	B	I GND1
171	B	I GND2

Connector No.	M21
Connector Name	WIRE TO WIRE
Connector Color	WHITE

3	2	1
8	7	6
5	4	



Terminal No.	Color of Wire	Signal Name
2	V	-
3	B	-

Connector No.	M32
Connector Name	IGNITION SWITCH
Connector Color	WHITE

1	2	3	4
---	---	---	---



Terminal No.	Color of Wire	Signal Name
1	Y	-
3	B	-
4	LA/R	-

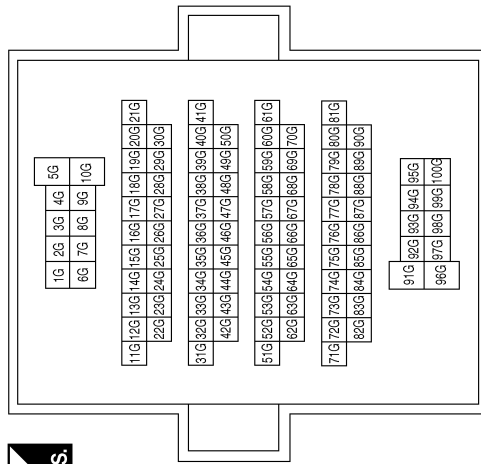
Connector No.	M33
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE

3N	2N	1N
8N	7N	6N
5N	4N	



Terminal No.	Color of Wire	Signal Name
2N	LG	-

Connector No.	M36
Connector Name	WIRE TO WIRE
Connector Color	WHITE



AALIA2185GB

INTERIOR ROOM LAMP CONTROL SYSTEM

< WIRING DIAGRAM >

Connector No.	M65
Connector Name	JOINT CONNECTOR-M26
Connector Color	WHITE



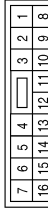

Terminal No.	Color of Wire	Signal Name
1	B	-
5	B	-

Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN



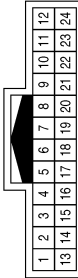

Terminal No.	Color of Wire	Signal Name
3R	V	-
14R	W	-

Connector No.	M74
Connector Name	WIRE TO WIRE
Connector Color	WHITE

Terminal No.	Color of Wire	Signal Name
3	V	-
16	GR	-

Connector No.	M91
Connector Name	WIRE TO WIRE
Connector Color	WHITE

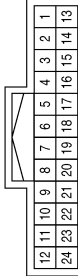
Terminal No.	Color of Wire	Signal Name
1	B	-
2	GR	-
4	W	-
19	LG	-
20	BR	-

Connector No.	M105
Connector Name	KEY SWITCH
Connector Color	WHITE




Terminal No.	Color of Wire	Signal Name
1	L	-
2	B	-

Connector No.	M156
Connector Name	WIRE TO WIRE
Connector Color	WHITE

Terminal No.	Color of Wire	Signal Name
19	SB	-

INTERIOR ROOM LAMP CONTROL SYSTEM

< WIRING DIAGRAM >

Connector No.	M170
Connector Name	JOINT CONNECTOR-M29
Connector Color	WHITE

1	2	3	4	5	6	7	8
---	---	---	---	---	---	---	---



Terminal No.	Color of Wire	Signal Name
1	B	-
2	B	-
5	B	-

Connector No.	M168
Connector Name	WIRE TO WIRE
Connector Color	WHITE

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----



Terminal No.	Color of Wire	Signal Name
3	Y	-
23	BG	-
24	SB	-

Connector No.	M167
Connector Name	WIRE TO WIRE
Connector Color	WHITE

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----



Terminal No.	Color of Wire	Signal Name
2	R	-
4	B	-
16	B	-

Connector No.	B42
Connector Name	WIRE TO WIRE
Connector Color	WHITE

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----



Terminal No.	Color of Wire	Signal Name
3	V	-
16	R	-

Connector No.	B23
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY

151	150	149	148	147	146	145	160	159	158	157	156	155	154	153	152
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----



Terminal No.	Color of Wire	Signal Name
151	R	O PWM ROOMLAMP 5

Connector No.	B16
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GREEN

60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61
----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----



Terminal No.	Color of Wire	Signal Name
50	W	I RR DOOR SW
51	LG	I TGATE SW
52	R	I RL DOOR SW
53	SB	I AS DOOR2 SW
57	SB	I DR DOOR2 SW
60	L	CAN-H
80	P	CAN-L

AALIA2187GB

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P

INL

INTERIOR ROOM LAMP CONTROL SYSTEM

< WIRING DIAGRAM >

Connector No.	B49
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5
6	7	8	9	10
11	12			

Terminal No.	Color of Wire	Signal Name
6	SB	—
10	W	—

Connector No.	B47
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16					

Terminal No.	Color of Wire	Signal Name
4	V	—
5	W	—

Connector No.	B46
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Terminal No.	Color of Wire	Signal Name
19	LG	—

Connector No.	B71
Connector Name	FRONT DOOR SWITCH LH
Connector Color	WHITE



1	2	3	4
---	---	---	---

Terminal No.	Color of Wire	Signal Name
3	SB	—

Connector No.	B70
Connector Name	REAR DOOR SWITCH LH
Connector Color	WHITE



1	2	3	4
---	---	---	---

Terminal No.	Color of Wire	Signal Name
3	R	—

Connector No.	B54
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2
---	---

Terminal No.	Color of Wire	Signal Name
1	B	—

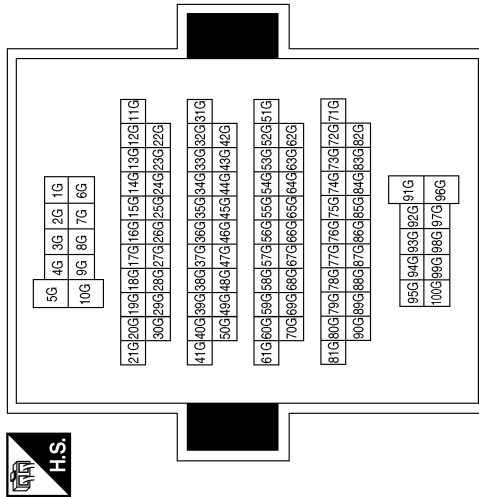
AALIA2188GB

INTERIOR ROOM LAMP CONTROL SYSTEM

< WIRING DIAGRAM >

Terminal No.	Color of Wire	Signal Name
95G	V	—
100G	Y	—

Connector No.	B136
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	B118
Connector Name	LUGGAGE ROOM LAMP
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	Y	—
2	V	—

Connector No.	B142
Connector Name	REAR DOOR SWITCH RH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
3	W	—

Connector No.	B141
Connector Name	FRONT DOOR SWITCH RH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
3	GR	—

Connector No.	B140
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
6	GR	—
10	W	—

AALIA2189GB

A B C D E F G H I J K INL M N O P

INTERIOR ROOM LAMP CONTROL SYSTEM

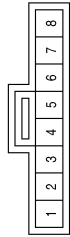
< WIRING DIAGRAM >

Connector No.	R10
Connector Name	VANITY MIRROR LAMP RH
Connector Color	WHITE



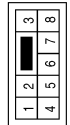
Terminal No.	Color of Wire	Signal Name
1	P	-
2	B	-

Connector No.	R6
Connector Name	MAP LAMP ASSEMBLY
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	P	-
2	SB	-
3	SB	-
6	B	-

Connector No.	R1
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
2	P	-
3	B	-

Connector No.	R15
Connector Name	ROOM LAMP
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	SB	-
2	P	-
3	B	-

Connector No.	R14
Connector Name	VANITY MIRROR LAMP LH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	P	-
2	B	-

Connector No.	R11
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
19	SB	-

AALIA2190GB

INTERIOR ROOM LAMP CONTROL SYSTEM

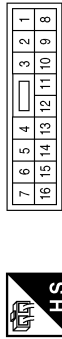
< WIRING DIAGRAM >

Connector No.	R16
Connector Name	PERSONAL LAMPS 2ND ROW
Connector Color	WHITE



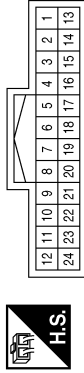
Terminal No.	Color of Wire	Signal Name
2	P	-
3	SB	-
4	B	-

Connector No.	D2
Connector Name	WIRE TO WIRE
Connector Color	WHITE



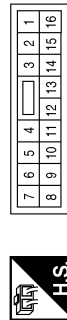
Terminal No.	Color of Wire	Signal Name
2	R	-
4	B	-
16	B	-

Connector No.	D3
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
3	W	-
23	L	-
24	BG	-

Connector No.	D6
Connector Name	MAIN POWER WINDOW AND DOOR LOCK/UNLOCK SWITCH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	B	-
3	L	-
15	BG	-

Connector No.	D11
Connector Name	FRONT OUTSIDE HANDLE ASSEMBLY LH
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
3	W	-
4	B	-

Connector No.	D23
Connector Name	FRONT DOOR LOCK ASSEMBLY LH
Connector Color	GRAY



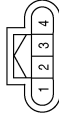
Terminal No.	Color of Wire	Signal Name
3	R	-
4	B	-

AALIA2191GB

INTERIOR ROOM LAMP CONTROL SYSTEM

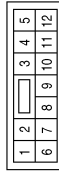
< WIRING DIAGRAM >

Connector No.	D126
Connector Name	FRONT OUTSIDE HANDLE ASSEMBLY RH
Connector Color	BLACK



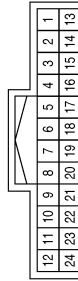
Terminal No.	Color of Wire	Signal Name
3	P	-
4	B	-

Connector No.	D112
Connector Name	FRONT POWER WINDOW SWITCH RH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	LG	-
2	BR	-
3	B	-

Connector No.	D101
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	B	-
2	B	-
4	P	-
19	LG	-
20	BR	-

Connector No.	D505
Connector Name	WIRE TO WIRE
Connector Color	WHITE



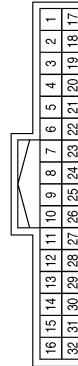
Terminal No.	Color of Wire	Signal Name
1	B	-

Connector No.	D502
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
4	R	-
5	W	-

Connector No.	D501
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
19	W	-

AALIA2192GB

INTERIOR ROOM LAMP CONTROL SYSTEM

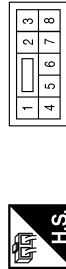
< WIRING DIAGRAM >

Connector No.	D513
Connector Name	AUTOMATIC BACK DOOR CLOSE SWITCH
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
3	R	-
4	W	-

Connector No.	D512
Connector Name	BACK DOOR LOCK ASSEMBLY (WITH POWER BACK DOOR SYSTEM)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
7	W	-
8	B	-

Connector No.	D508
Connector Name	BACK DOOR LOCK ASSEMBLY (WITHOUT POWER BACK DOOR SYSTEM)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
3	W	-
4	GR	-

AALIA2193GB

A
B
C
D
E
F
G
H
I
J
K
INL
M
N
O
P

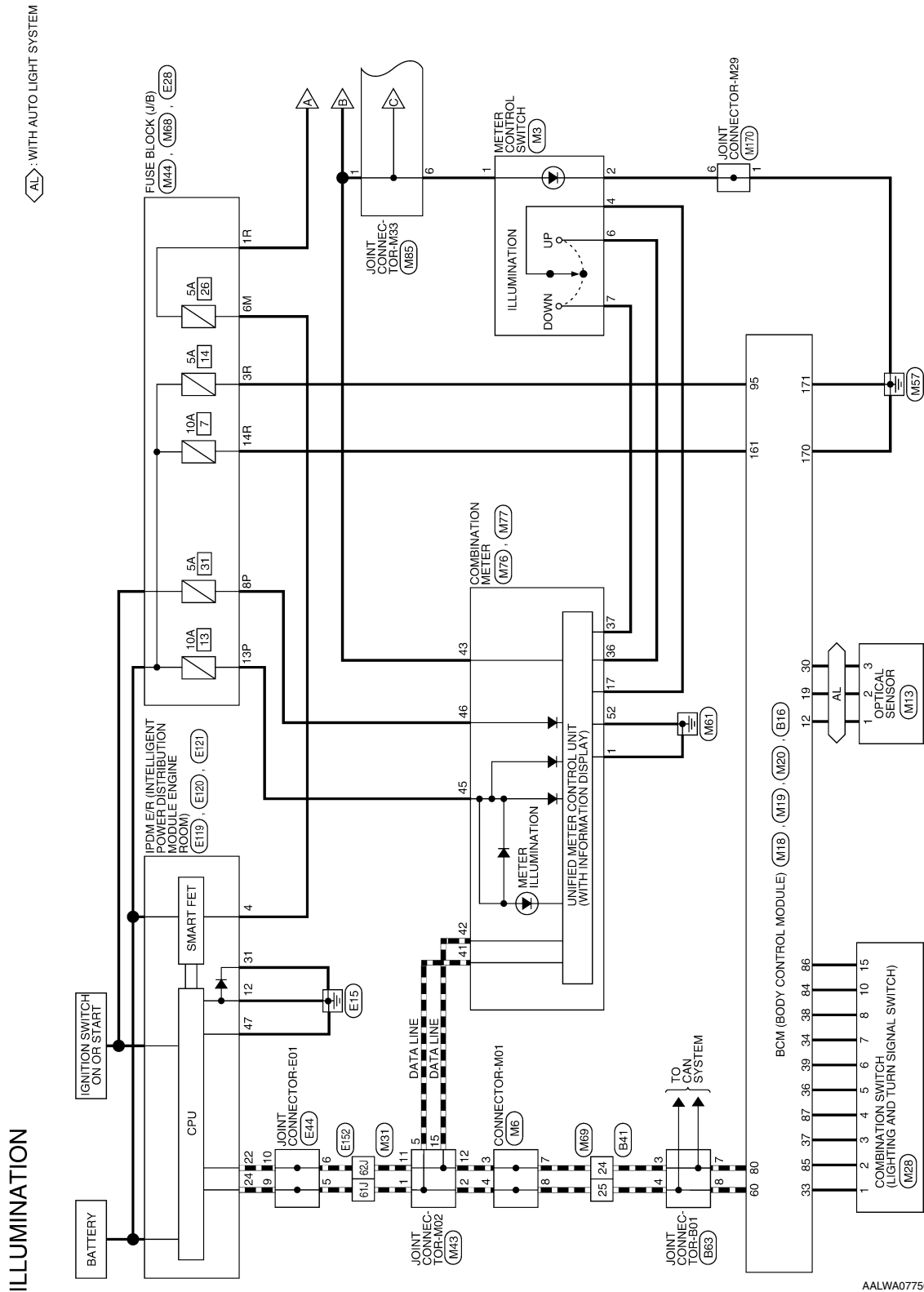
ILLUMINATION

< WIRING DIAGRAM >

ILLUMINATION

Wiring Diagram

INFOID:000000010346352

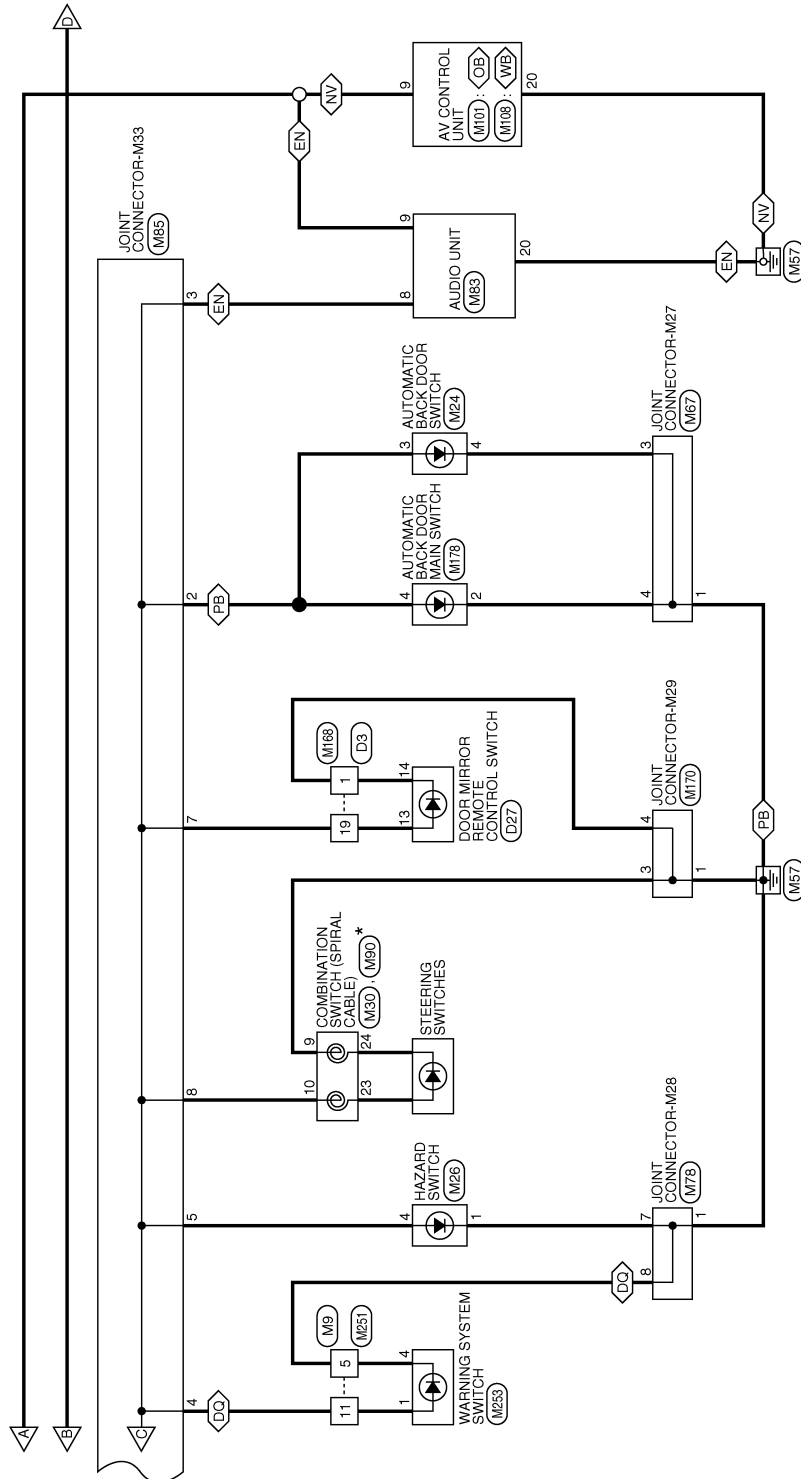


AALWA0775GB

ILLUMINATION

< WIRING DIAGRAM >

- EN : WITHOUT NAVI
- DQ : WITH DRIVER ASSISTANCE SYSTEM
- NV : WITH NAVI
- OB : WITHOUT BOSE AUDIO SYSTEM
- PB : WITH POWER BACK DOOR
- WB : WITH BOSE AUDIO SYSTEM



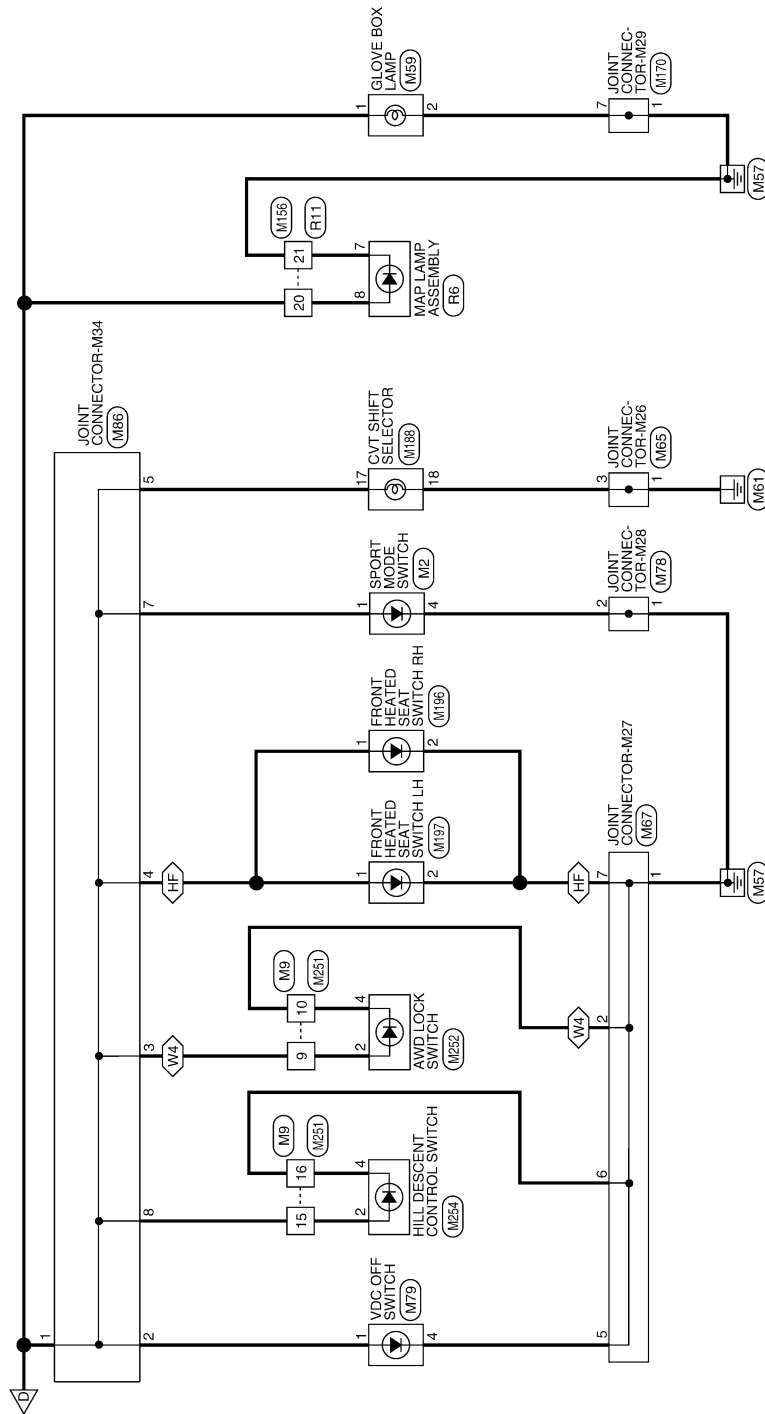
* : THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT" OF PG SECTION.

AALWA0776GB

ILLUMINATION

< WIRING DIAGRAM >

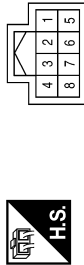
HF : WITH FRONT HEATED SEAT
W4 : WITH ALL WHEEL DRIVE



AALWA0777GB

ILLUMINATION CONNECTORS

Connector No.	M2
Connector Name	SPORT MODE SWITCH
Connector Color	BLUE



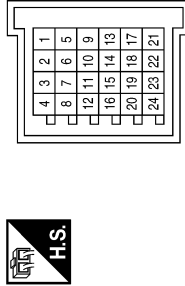
Terminal No.	Color of Wire	Signal Name
1	G	-
4	GR	-

Connector No.	M3
Connector Name	METER CONTROL SWITCH
Connector Color	WHITE



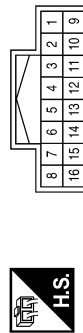
Terminal No.	Color of Wire	Signal Name
1	R	-
2	B	-
4	BG	-
6	GR	-
7	V	-

Connector No.	M6
Connector Name	JOINT CONNECTOR-M01
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

Connector No.	M9
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
5	GR	-
9	G	-
10	B	-
11	R	-
15	G	-
16	B	-

Connector No.	M13
Connector Name	OPTICAL SENSOR
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	W	-
2	LG	-
3	V	-

AALIA2096GB

ILLUMINATION

< WIRING DIAGRAM >

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY



20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21

Terminal No.	Color of Wire	Signal Name
12	W	O PWR AUTOLIGHT SENSOR
19	LG	I AUTOLIGHT SENSOR
30	V	O GND AUTOLIGHT SENSOR
33	LG	I CSW 5
34	Y	O CSW 5
36	BG	I CSW 3
37	GR	I CSW 4
38	V	I CSW 1
39	W	I CSW 2



4	3	2	1
---	---	---	---

Terminal No.	Color of Wire	Signal Name
3	R	-
4	B	-

Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



100	99	98	97	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81
120	119	118	117	116	115	114	113	112	111	110	109	108	107	106	105	104	103	102	101

Terminal No.	Color of Wire	Signal Name
84	BR	O CSW 2
85	SB	O CSW 1
86	P	O CSW 3
87	BG	O CSW 4
95	V	I SHORTING PIN



4	3	2	1
---	---	---	---

Connector No.	M26
Connector Name	HAZARD SWITCH
Connector Color	WHITE

Terminal No.	Color of Wire	Signal Name
1	GR	-
4	R	-

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BROWN



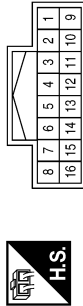
167	166	165	164	163	162	161
176	175	174	173	172	171	170
169	168					

Terminal No.	Color of Wire	Signal Name
161	W	I PWR ECU
170	B	I GND1
171	B	I GND2

ILLUMINATION

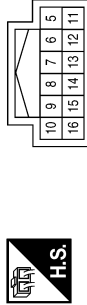
< WIRING DIAGRAM >

Connector No.	M28
Connector Name	COMBINATION SWITCH
Connector Color	WHITE



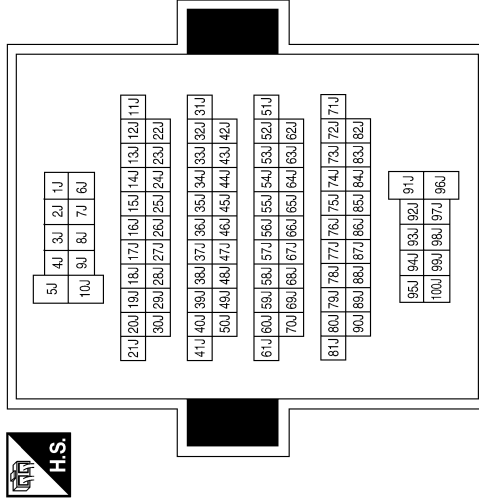
Terminal No.	Color of Wire	Signal Name
1	LG	-
2	SB	-
3	GR	-
4	BG	-
5	G	-
6	W	-
7	Y	-
8	V	-
10	BR	-
15	P	-

Connector No.	M30
Connector Name	COMBINATION SWITCH (SPIRAL CABLE)
Connector Color	WHITE



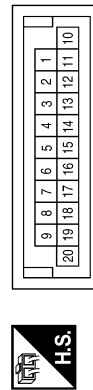
Terminal No.	Color of Wire	Signal Name
9	B	-
10	R	-

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE



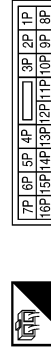
Terminal No.	Color of Wire	Signal Name
61J	L	-
62J	P	-

Connector No.	M43
Connector Name	JOINT CONNECTOR-M02
Connector Color	BLUE



Terminal No.	Color of Wire	Signal Name
1	L	-
2	L	-
5	L	-
11	P	-
12	P	-
15	P	-

Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
8P	LA/BR	-
13P	LA/G	-

AALIA2098GB

A
B
C
D
E
F
G
H
I
J
K
INL
M
N
O
P

ILLUMINATION

< WIRING DIAGRAM >

Connector No.	M59
Connector Name	GLOVE BOX LAMP
Connector Color	WHITE



Connector No.	M65
Connector Name	JOINT CONNECTOR-M26
Connector Color	WHITE



8	7	6	5	4	3	2	1
---	---	---	---	---	---	---	---

Connector No.	M67
Connector Name	JOINT CONNECTOR-M27
Connector Color	WHITE



8	7	6	5	4	3	2	1
---	---	---	---	---	---	---	---

Terminal No.	Color of Wire	Signal Name
1	W	-
2	B	-

Terminal No.	Color of Wire	Signal Name
1	B	-
3	B	-

Terminal No.	Color of Wire	Signal Name
1	B	-
2	B	-
3	B	-
4	B	-
5	B	-
6	B	-
7	B	-

Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN



7R	6R	5R	4R	3R	2R	1R
16H	15H	14H	13H	12H	11H	10H
9R	8R	7R	6R	5R	4R	3R

Connector No.	M69
Connector Name	WIRE TO WIRE
Connector Color	WHITE



16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17

Connector No.	M76
Connector Name	COMBINATION METER
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

Terminal No.	Color of Wire	Signal Name
1R	V	-
3R	V	-
14R	W	-

Terminal No.	Color of Wire	Signal Name
24	P	-
25	L	-

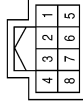
Terminal No.	Color of Wire	Signal Name
1	B	GND 1
17	BG	SATELLITE SW GND
36	GR	ILL UP SW
37	V	ILL DOWN SW

AALIA2099GB

ILLUMINATION

< WIRING DIAGRAM >

Connector No.	M79
Connector Name	VDC OFF SWITCH
Connector Color	BLACK



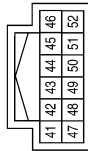
Terminal No.	Color of Wire	Signal Name
1	G	-
4	B	-

Connector No.	M78
Connector Name	JOINT CONNECTOR-M28
Connector Color	WHITE



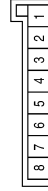
Terminal No.	Color of Wire	Signal Name
1	GR	-
2	GR	-
7	GR	-
8	GR	-

Connector No.	M77
Connector Name	COMBINATION METER
Connector Color	WHITE



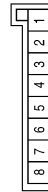
Terminal No.	Color of Wire	Signal Name
41	L	CAN-H
42	P	CAN-L
43	W	ILL CONT OUT
45	LA/G	ALVUSBAT
46	LA/BR	IGN
52	B	GND 2

Connector No.	M86
Connector Name	JOINT CONNECTOR-M34
Connector Color	WHITE



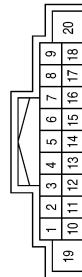
Terminal No.	Color of Wire	Signal Name
1	G	-
2	G	-
3	G	-
4	G	-
5	G	-
7	G	-
8	G	-

Connector No.	M85
Connector Name	JOINT CONNECTOR-M33
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	R	-
2	R	-
3	R	-
4	R	-
5	R	-
6	R	-
7	LA/R	-
8	R	-

Connector No.	M83
Connector Name	AUDIO UNIT
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
8	R	ILL-
9	V	ILL+, LIGHT SW
20	B	GND

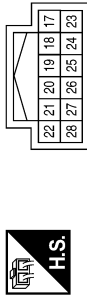
AALIA2100GB

A
B
C
D
E
F
G
H
I
J
K
INL
M
N
O
P

ILLUMINATION

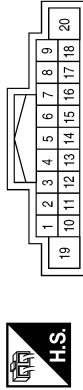
< WIRING DIAGRAM >

Connector No.	M90
Connector Name	COMBINATION SWITCH (SPIRAL CABLE)
Connector Color	WHITE



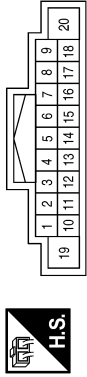
Terminal No.	Color of Wire	Signal Name
23	R	—
24	Y	—

Connector No.	M101
Connector Name	AV CONTROL UNIT (WITHOUT BOSE AUDIO SYSTEM)
Connector Color	WHITE



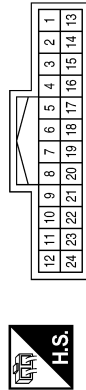
Terminal No.	Color of Wire	Signal Name
9	V	ILL(+), LIGHT SW
20	B	GND

Connector No.	M108
Connector Name	AV CONTROL UNIT (WITH BOSE AUDIO SYSTEM)
Connector Color	WHITE



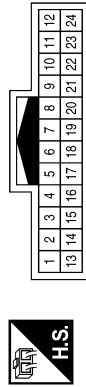
Terminal No.	Color of Wire	Signal Name
9	V	ILL(+), LIGHT SW
20	B	GND

Connector No.	M156
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
20	R	—
21	B	—

Connector No.	M168
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	B	—
19	LA/R	—

Connector No.	M170
Connector Name	JOINT CONNECTOR-M29
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	B	—
3	B	—
4	B	—
6	B	—
7	B	—

AALJA2101GB

ILLUMINATION

< WIRING DIAGRAM >

Connector No.	M196
Connector Name	FRONT HEATED SEAT SWITCH RH
Connector Color	BROWN



1	2
3	4
5	6

Terminal No.	Color of Wire	Signal Name
1	G	-
2	B	-

Connector No.	M188
Connector Name	CVT SHIFT SELECTOR
Connector Color	BROWN



18	17
----	----

Terminal No.	Color of Wire	Signal Name
17	G	-
18	B	-

Connector No.	M178
Connector Name	AUTOMATIC BACK DOOR MAIN SWITCH
Connector Color	BLACK



2	4	3
1		

Terminal No.	Color of Wire	Signal Name
2	B	-
4	R	-

Connector No.	M252
Connector Name	AWD LOCK SWITCH
Connector Color	WHITE



5	4	3	2	1
10	9	8	7	6

Terminal No.	Color of Wire	Signal Name
2	R	-
4	B	-

Connector No.	M251
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16

Terminal No.	Color of Wire	Signal Name
5	B	-
9	R	-
10	B	-
11	G	-
15	P	-
16	B	-

Connector No.	M197
Connector Name	FRONT HEATED SEAT SWITCH LH
Connector Color	WHITE



1	2
3	4
5	6

Terminal No.	Color of Wire	Signal Name
1	L	-
2	B	-

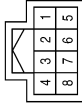
AALIA2102GB

A
B
C
D
E
F
G
H
I
J
K
INL
M
N
O
P

ILLUMINATION

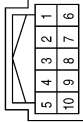
< WIRING DIAGRAM >

Connector No.	M253
Connector Name	WARNING SYSTEM SWITCH
Connector Color	WHITE

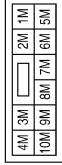
Terminal No.	Color of Wire	Signal Name
1	G	-
4	B	-

Connector No.	M254
Connector Name	HILL DESCENT CONTROL SWITCH
Connector Color	GRAY

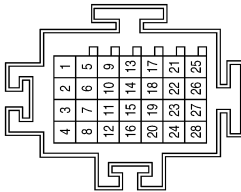
Terminal No.	Color of Wire	Signal Name
2	P	-
4	B	-

Connector No.	E28
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE

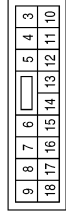
Terminal No.	Color of Wire	Signal Name
6M	Y	-

Connector No.	E44
Connector Name	JOINT CONNECTOR-E01
Connector Color	WHITE

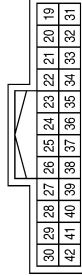
Terminal No.	Color of Wire	Signal Name
5	L	-
6	P	-
9	L	-
10	P	-

Connector No.	E119
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY

Terminal No.	Color of Wire	Signal Name
4	Y	O LIGHT POSITION REAR LH
12	B	SIGNAL GROUND

Connector No.	E120
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY

Terminal No.	Color of Wire	Signal Name
22	P	CAN-L
24	L	CAN-H
31	B	2ND SIGNAL GROUND

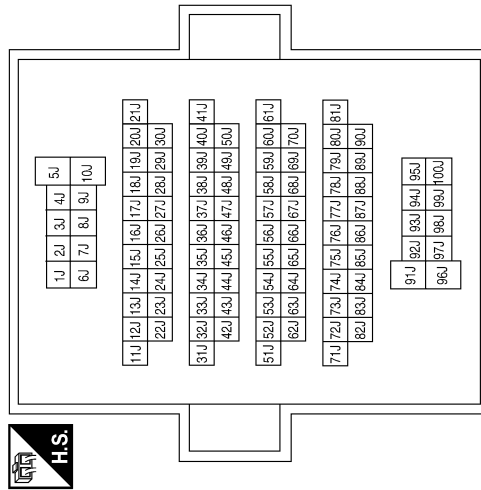
AALIA2103GB

ILLUMINATION

< WIRING DIAGRAM >

Terminal No.	Color of Wire	Signal Name
61J	L	—
62J	P	—

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE

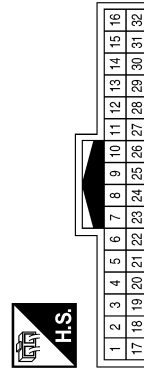


Connector No.	E121
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	RED



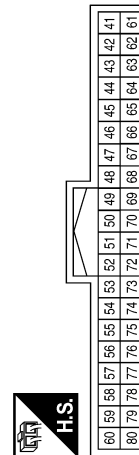
Terminal No.	Color of Wire	Signal Name
47	B	POWER GROUND

Connector No.	B41
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
24	P	—
25	L	—

Connector No.	B16
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GREEN



Terminal No.	Color of Wire	Signal Name
60	L	CAN-H
80	P	CAN-L

AALIA2104GB

ILLUMINATION

< WIRING DIAGRAM >

Connector No.	B63
Connector Name	JOINT CONNECTOR-B01
Connector Color	GRAY



4	3	2	1
8	7	6	5
12	11	10	9
16	15	14	13
20	19	18	17
24	23	22	21

Connector No.	R6
Connector Name	MAP LAMP
Connector Color	WHITE



1	2	3	4	5	6	7	8
---	---	---	---	---	---	---	---

Connector No.	R11
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12
13	14	15	16	17	18	19	20	21	22	23	24

Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

Terminal No.	Color of Wire	Signal Name
7	B	-
8	R	-

Terminal No.	Color of Wire	Signal Name
20	R	-
21	B	-

Connector No.	D3
Connector Name	WIRE TO WIRE
Connector Color	WHITE



12	11	10	9	8	7	6	5	4	3	2	1
24	23	22	21	20	19	18	17	16	15	14	13

Connector No.	D27
Connector Name	DOOR MIRROR REMOTE CONTROL SWITCH
Connector Color	BLACK



1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16

Terminal No.	Color of Wire	Signal Name
1	LA/B	-
19	LA/R	-

Terminal No.	Color of Wire	Signal Name
13	LA/R	-
14	LA/B	-

AALJA2209GB

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

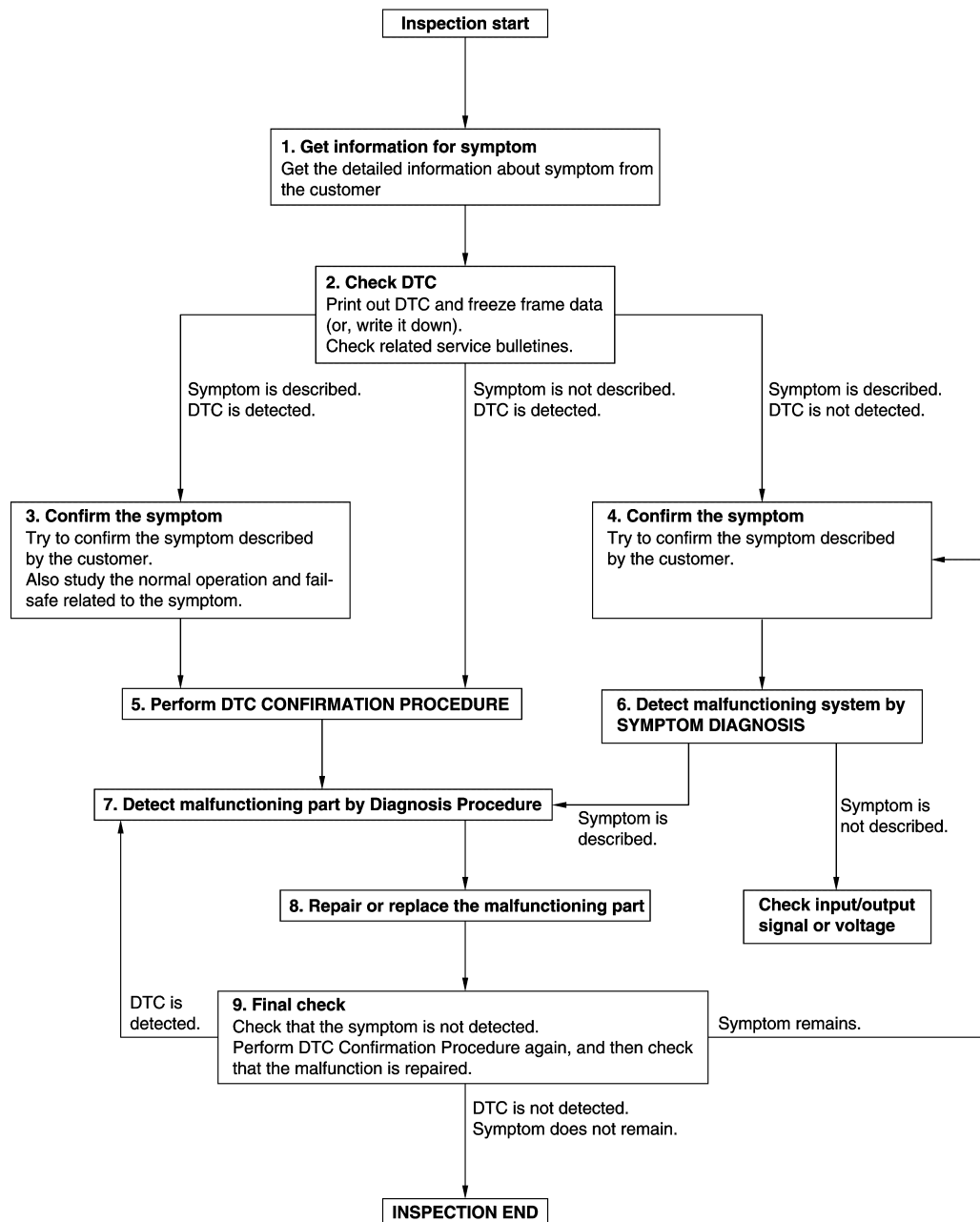
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:0000000010346353

OVERALL SEQUENCE



DETAILED FLOW

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

1.GET INFORMATION FOR SYMPTOM

1. Get detailed information from the customer about the symptom (the condition and the environment when the incident/malfunction occurs).
2. Check operation condition of the function that is malfunctioning.

>> GO TO 2.

2.CHECK DTC

1. Check DTC.
2. Perform the following procedure if DTC is detected.
 - Record DTC and freeze frame data (Print them out using CONSULT.)
 - Erase DTC.
 - Study the relationship between the cause detected by DTC and the symptom described by the customer.
3. Check related service bulletins for information.

Are any symptoms described and any DTC detected?

Symptom is described, DTC is detected>>GO TO 3.

Symptom is described, DTC is not detected>>GO TO 4.

Symptom is not described, DTC is detected>>GO TO 5.

3.CONFIRM THE SYMPTOM

Try to confirm the symptom described by the customer.

Also study the normal operation and fail-safe related to the symptom.

Verify relation between the symptom and the condition when the symptom is detected.

>> GO TO 5.

4.CONFIRM THE SYMPTOM

Try to confirm the symptom described by the customer.

Verify relation between the symptom and the condition when the symptom is detected.

>> GO TO 6.

5.PERFORM DTC CONFIRMATION PROCEDURE

Perform DTC CONFIRMATION PROCEDURE for the detected DTC, and then check that DTC is detected again. At this time, always connect CONSULT to the vehicle, and check self diagnostic results in real time.

NOTE:

- Freeze frame data is useful if the DTC is not detected.
- Perform Component Function Check if DTC CONFIRMATION PROCEDURE is not included on Service Manual. This simplified check procedure is an effective alternative though DTC cannot be detected during this check.

If the result of Component Function Check is NG, it is the same as the detection of DTC by DTC CONFIRMATION PROCEDURE.

Is DTC detected?

YES >> GO TO 7.

NO >> Check according to [GI-41, "Intermittent Incident"](#).

6.DETECT MALFUNCTIONING SYSTEM BY SYMPTOM DIAGNOSIS

Detect malfunctioning system according to SYMPTOM DIAGNOSIS based on the confirmed symptom in step 4, and determine the trouble diagnosis order based on possible causes and symptom.

Is the symptom described?

YES >> GO TO 7.

NO >> Monitor input data from related sensors or check voltage of related module terminals using CONSULT.

7.DETECT MALFUNCTIONING PART BY DIAGNOSTIC PROCEDURE

Inspect according to Diagnostic Procedure of the system.

Is malfunctioning part detected?

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

YES >> GO TO 8.

NO >> Check according to [GI-41, "Intermittent Incident"](#).

8.REPAIR OR REPLACE THE MALFUNCTIONING PART

1. Repair or replace the malfunctioning part.
2. Reconnect parts or connectors disconnected during Diagnostic Procedure again after repair and replacement.
3. Check DTC. If DTC is detected, erase it.

>> GO TO 9.

9.FINAL CHECK

When DTC is detected in step 2, perform DTC CONFIRMATION PROCEDURE again, and then check that the malfunction is repaired securely.

When symptom is described by the customer, refer to confirmed symptom in step 3 or 4, and check that the symptom is not detected.

Is DTC detected and does symptom remain?

YES-1 >> DTC is detected: GO TO 7.

YES-2 >> Symptom remains: GO TO 4.

NO >> Before returning the vehicle to the customer, always erase DTC.

A

B

C

D

E

F

G

H

I

J

K

INL

M

N

O

P

INTERIOR ROOM LAMP POWER SUPPLY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

DTC/CIRCUIT DIAGNOSIS

INTERIOR ROOM LAMP POWER SUPPLY CIRCUIT

Description

INFOID:0000000010346354

Provides the interior room lamp power supply. Also cuts the power supply when the interior room lamp battery saver is activating.

Component Function Check

INFOID:0000000010346355

1. CHECK INTERIOR ROOM LAMP POWER SUPPLY FUNCTION

Ⓟ CONSULT ACTIVE TEST

1. Turn power switch ON.
2. Turn each interior room lamp ON.
 - Map lamp
 - Room lamp
 - Personal lamps 2nd row (if equipped)
 - Luggage room lamp
3. Select "BATTERY SAVER" of "BCM" active test item.
4. With operating the test items, check that each interior room lamp turns ON/OFF.

Off : Interior room lamp OFF

On : Interior room lamp ON

Does each interior room lamp turn ON/OFF?

YES >> Interior room lamp power supply circuit is normal.

NO >> Refer to [INL-46, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010346356

1. CHECK INTERIOR ROOM LAMP POWER SUPPLY OUTPUT

Ⓟ CONSULT ACTIVE TEST

1. Turn power switch OFF.
2. Turn power switch ON.
3. Select "BATTERY SAVER" of "" active test item.
4. With operating the test item, check continuity between BCM harness connector and ground.

BCM		(-)	Test item		Continuity
(+)					
Connector	Terminal				
M18	4	Ground	BATTERY SAVER	Off	No
				On	Yes

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#) (with Intelligent Key system) or [BCS-135, "Removal and Installation"](#) (without Intelligent Key system).

2. CHECK INTERIOR ROOM LAMP RELAY SIGNAL OPEN CIRCUIT

1. Turn power switch OFF.
2. Disconnect the BCM connector and room lamp relay.
3. Check continuity between BCM harness connector and room lamp relay harness connector.

BCM		Room lamp relay		Continuity
Connector	Terminal	Connector	Terminal	
M18	4	M12	2	Yes

INTERIOR ROOM LAMP POWER SUPPLY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harnesses.

3.CHECK INTERIOR ROOM LAMP RELAY POWER SUPPLY CIRCUIT

1. Check voltage at room lamp relay harness connector.

Room lamp relay		Voltage (Approx.)
Connector	Terminal	
M12	1	Battery voltage
	3	

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harnesses.

4.CHECK INTERIOR ROOM LAMP RELAY POWER SUPPLY OUTPUT

1. Reconnect room lamp relay.
2. Check voltage at room lamp relay harness connector.

Room lamp relay		Voltage (Approx.)
Connector	Terminal	
M12	5	Battery voltage

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace room lamp relay.

5.CHECK INTERIOR ROOM LAMP RELAY POWER SUPPLY OUTPUT

1. Disconnect the following connectors:
 - Room lamp relay M12
 - Map lamp assembly R6
 - Room lamp R15
 - Personal lamps 2nd row R16 (if equipped)
 - Vanity mirror lamp LH R14
 - Vanity mirror lamp RH R10
 - Luggage room lamp B118
2. Check continuity between room lamp relay connector M12 and interior room lamp connector in question.

Room lamp relay		Each interior room lamp			Continuity
Connector	Terminal	Connector	Terminal	Terminal	
M12	5	Map lamp assembly	R6	1	Yes
		Room lamp	R15	2	
		Personal lamps 2nd row (if equipped)	R16	2	
		Vanity mirror lamp LH	R14	1	
		Vanity mirror lamp RH	R10	1	
		Luggage room lamp	B118	1	

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace harnesses.

6.CHECK INTERIOR ROOM LAMP RELAY POWER SUPPLY OUTPUT SHORT CIRCUIT

Check continuity between room lamp relay and ground.

INTERIOR ROOM LAMP POWER SUPPLY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

Room lamp relay		—	Continuity
Connector	Terminal		
M12	5	Ground	No

Is the inspection result normal?

YES >> Check that each interior lamp has no internal short circuit.

NO >> Repair or replace harnesses.

INTERIOR ROOM LAMP CONTROL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

INTERIOR ROOM LAMP CONTROL CIRCUIT

Description

INFOID:0000000010346357

Controls each interior room lamp (ground side) by PWM signal.

NOTE:

PWM signal control period is approximately 250 Hz (in the gradual brightening/dimming).

Component Function Check

INFOID:0000000010346358

CAUTION:

Before performing the diagnosis, check that the following is normal.

- Interior room lamp power supply
- Map lamp bulb
- Room lamp bulb

1.CHECK INTERIOR ROOM LAMP CONTROL FUNCTION

CONSULT ACTIVE TEST

1. Switch the map lamp switch and room lamp switch to DOOR.
2. Turn power switch ON.
3. Select "INT LAMP" of "BCM" active test item.
4. With operating the test items, check that each interior room lamp turns ON/OFF (gradual brightening/dimming).

On : Interior room lamp gradual brightening

Off : Interior room lamp gradual dimming

Does the interior room lamp turns ON/OFF (gradual brightening/dimming)?

YES >> Interior room lamp control circuit is normal.

NO >> Refer to [INL-49, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010346359

1.CHECK INTERIOR ROOM LAMP CONTROL OUTPUT

CONSULT ACTIVE TEST

1. Turn power switch OFF.
2. Remove all the bulbs of map lamp and room lamp.
3. Turn power switch ON.
4. Select "INT LAMP" of "BCM" active test item.
5. With operating the test item, check continuity between BCM harness connector and ground.

BCM		Ground	Test item		Continuity
Connector	Terminal				
M20	162		INT LAMP	On	Yes
				Off	No

Is the inspection result normal?

YES >> GO TO 2.

Fixed ON>>GO TO 3.

Fixed OFF>>Replace BCM. Refer to [BCS-75, "Removal and Installation"](#) (with Intelligent Key system) or [BCS-135, "Removal and Installation"](#) (without Intelligent Key system).

2.CHECK INTERIOR ROOM LAMP CONTROL OPEN CIRCUIT

1. Turn power switch OFF.
2. Disconnect BCM connector, map lamp assembly and room lamp connector.
3. Check continuity between BCM harness connector and map lamp harness connector.

INTERIOR ROOM LAMP CONTROL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

BCM		Map lamp assembly		Continuity
Connector	Terminal	Connector	Terminal	
M20	162	R6	3	Yes

4. Check continuity between BCM harness connector and room lamp harness connector.

BCM		Room lamp		Continuity
Connector	Terminal	Connector	Terminal	
M20	162	R15	1	Yes

Is the inspection result normal?

YES >> Replace map lamp or room lamp.

NO >> Repair or replace harnesses.

3. CHECK INTERIOR ROOM LAMP CONTROL SHORT CIRCUIT

1. Turn power switch OFF.
2. Disconnect BCM connector, map lamp connector and room lamp connector.
3. Check continuity between BCM harness connector and ground.

BCM		Ground	Continuity
Connector	Terminal		
M20	162		No

Is the inspection result normal?

YES >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#) (with Intelligent Key system) or [BCS-135, "Removal and Installation"](#) (without Intelligent Key system).

NO >> Repair or replace harnesses.

LUGGAGE ROOM LAMP CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

LUGGAGE ROOM LAMP CIRCUIT

Description

INFOID:0000000010346360

Controls the luggage room lamp (ground side) to turn the luggage room lamp ON and OFF.

Diagnosis Procedure

INFOID:0000000010346361

CAUTION:

Before performing the diagnosis, check that the following is normal.

- Interior room lamp power supply
- Luggage room lamp bulb

1.CHECK LUGGAGE ROOM LAMP OUTPUT

1. Turn power switch OFF.
2. Remove the luggage room lamp bulb.
3. Check continuity between BCM harness connector and ground.

BCM		Ground	Condition		Continuity
Connector	Terminal		Back door	Open	Yes
M23	151			Closed	No

Is the inspection result normal?

YES >> GO TO 2.

Fixed ON>>GO TO 3.

Fixed OFF>>Replace BCM. Refer to [BCS-75. "Removal and Installation"](#) (with Intelligent Key system) or [BCS-135. "Removal and Installation"](#) (without Intelligent Key system).

2.CHECK LUGGAGE ROOM LAMP OPEN CIRCUIT

1. Disconnect BCM connector.
2. Check continuity between BCM harness connector and luggage room lamp harness connector.

BCM		Luggage room lamp		Continuity
Connector	Terminal	Connector	Terminal	
M23	151	B118	2	Yes

Is the inspection result normal?

YES >> Replace luggage room lamp.

NO >> Repair or replace harnesses.

3.CHECK LUGGAGE ROOM LAMP SHORT CIRCUIT

1. Disconnect BCM connector.
2. Check continuity between BCM harness connector and ground.

BCM		Ground	Continuity
Connector	Terminal		
M23	151		No

Is the inspection result normal?

YES >> Replace BCM. Refer to [BCS-75. "Removal and Installation"](#) (with Intelligent Key system) or [BCS-135. "Removal and Installation"](#) (without Intelligent Key system).

NO >> Repair or replace harnesses.

POWER SWITCH ILLUMINATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

POWER SWITCH ILLUMINATION CIRCUIT

Description

INFOID:0000000010346362

Provides the power supply and the ground to control the power switch illumination.

Component Function Check

INFOID:0000000010346363

1.CHECK POWER SWITCH ILLUMINATION OPERATION

CONSULT ACTIVE TEST

1. Turn the power switch ON.
2. Select "ENGINE SW ILLUMI" of "BCM" active test item.
3. With operating the test items, check that the power switch illumination turns ON/OFF.

On : Power switch illumination ON

Off : Power switch illumination OFF

Does the power switch illumination turn ON/OFF?

YES >> Power switch illumination circuit is normal.

NO >> Refer to [INL-52, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010346364

1.CHECK POWER SWITCH ILLUMINATION POWER SUPPLY OUTPUT

1. Turn power switch OFF.
2. Disconnect power switch connector.
3. Check voltage between power switch harness connector and ground.

(+)		(-)	Condition		Voltage (Approx.)
Power switch					
Connector	Terminal				
M17	8	Ground	Power switch illumination	ON	Battery voltage
				OFF	0 V

Is the inspection result normal?

YES >> GO TO 4.

NO >> GO TO 2.

2.CHECK POWER SWITCH ILLUMINATION POWER SUPPLY OPEN CIRCUIT

1. Turn the power switch OFF.
2. Disconnect BCM connector.
3. Check continuity between BCM harness connector and the power switch harness connector.

BCM		Power switch		Continuity
Connector	Terminal	Connector	Terminal	
M19	88	M17	8	Yes

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harnesses.

3.CHECK POWER SWITCH ILLUMINATION POWER SUPPLY SHORT CIRCUIT

Check continuity between BCM harness connector and ground.

BCM		Ground	Continuity
Connector	Terminal		
M19	88		No

POWER SWITCH ILLUMINATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

Is the inspection result normal?

- YES >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#) (with intelligent Key system) or [BCS-135, "Removal and Installation"](#) (without Intelligent Key system).
- NO >> Repair or replace harnesses.

4.CHECK POWER SWITCH ILLUMINATION GROUND CIRCUIT

1. Turn the power switch OFF.
2. Check continuity between power switch harness connector and ground.

Power switch		Ground	Continuity
Connector	Terminal		
M19	7		Yes

Is the inspection result normal?

- YES >> Replace power switch. Refer to [SEC-112, "Removal and Installation"](#).
- NO >> Repair or replace harnesses.

INL

INTERIOR LIGHTING SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

SYMPTOM DIAGNOSIS

INTERIOR LIGHTING SYSTEM SYMPTOMS

Symptom Table

INFOID:0000000010346365

CAUTION:

Perform the self-diagnosis with CONSULT before the symptom diagnosis. Perform the trouble diagnosis if any DTC is detected.

Symptom	Possible cause	Inspection item
All the following lamps do not turn ON. • Map lamp • Room lamp • Luggage room lamp	• Harness between BCM and each interior room lamp • BCM	Interior room lamp power supply circuit Refer to INL-46 .
• Interior room lamp does not turn ON even though the door is open. (It turns ON when turning the interior room lamp ON.) • Interior room lamp does not turn OFF even though the door is closed.	• Harness between BCM and each door switch • Harness between BCM and each interior room lamp • BCM	Door switch circuit Refer to DLK-149 , "Component Function Check" (with Intelligent Key system) or DLK-319 , "Component Function Check" (without Intelligent Key system). Interior room lamp control circuit Refer to INL-49 .
Interior room lamp timer does not activate. (It turns ON/ OFF when the door opens/closes.)	—	Check the interior room lamp setting. Refer to INL-9 , "INTERIOR ROOM LAMP BATTERY SAVER SYSTEM : System Description" .
• Luggage room lamp does not turn ON even though the back door is open. • Luggage room lamp does not turn OFF even though the back door is closed.	• Harness between BCM and back door switch • Harness between BCM and luggage room lamp • BCM	Back door switch circuit Refer to DLK-151 , "Component Function Check" (with Intelligent Key system) or DLK-319 , "Component Function Check" (without Intelligent Key system). Luggage room lamp circuit Refer to INL-51 .
Power switch illumination does not illuminate.	• Harness between BCM and power switch • BCM	Power switch illumination circuit Refer to INL-52 .
Interior room lamp battery saver does not activate.	BCM	Replace BCM. Refer to BCS-75 , "Removal and Installation" (with Intelligent Key system) or BCS-135 , "Removal and Installation" (without Intelligent Key system).

MAP LAMP ASSEMBLY

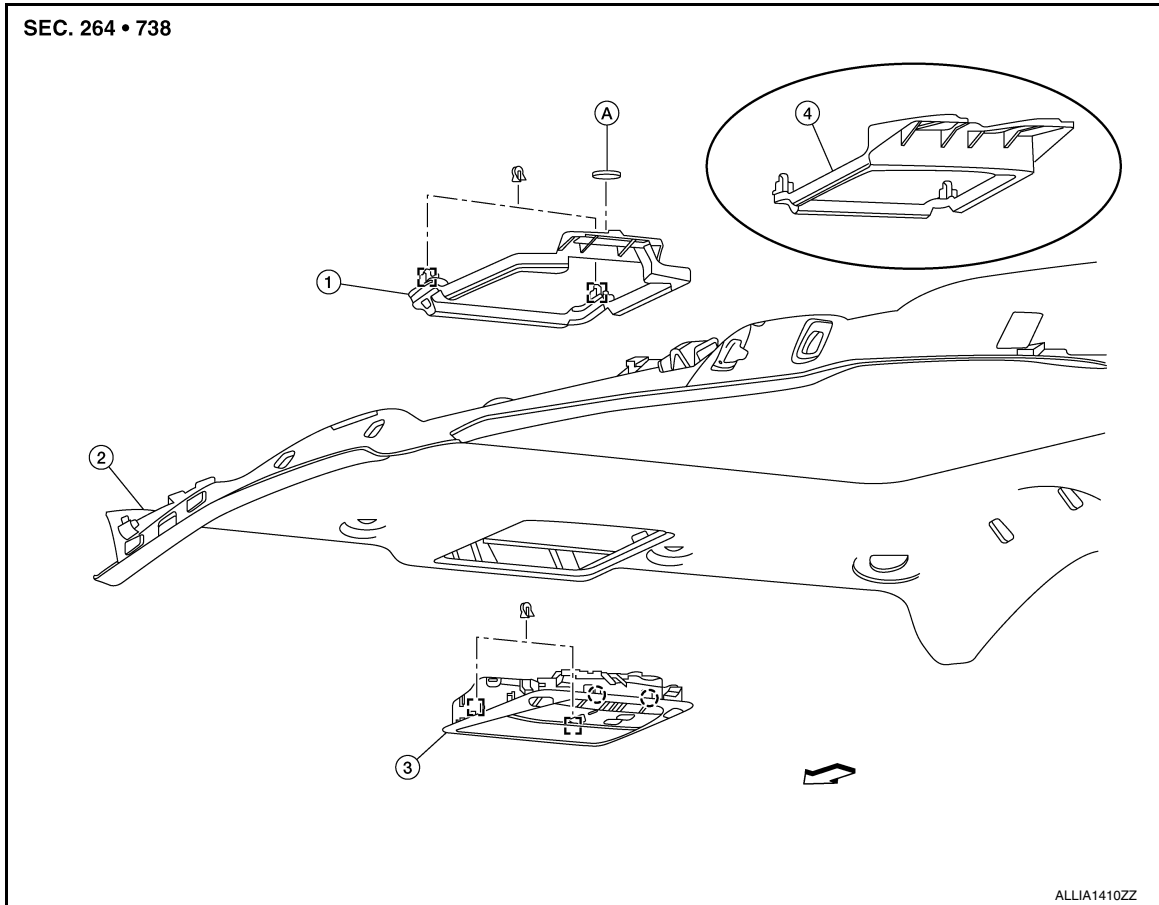
< REMOVAL AND INSTALLATION >

REMOVAL AND INSTALLATION

MAP LAMP ASSEMBLY

Exploded View

INFOID:0000000010307578



- | | | |
|---|----------------|----------------------|
| 1. Map lamp assembly bracket (with moonroof) | 2. Headlining | 3. Map lamp assembly |
| 4. Map lamp assembly bracket (without moonroof) | A. Dual magnet | Metal clip |
| Pawl | | |

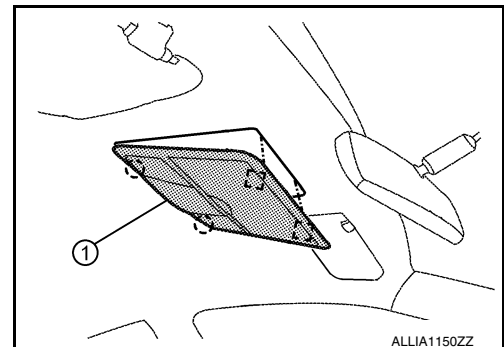
Removal and Installation

INFOID:0000000010307579

REMOVAL

- Lower front edge of map lamp assembly (1) down from the headlining by releasing the metals clips, then slide forward to clear pawls at rear.

- Metal clip
 Pawl



- Disconnect the harness connectors from map lamp assembly and remove.

MAP LAMP ASSEMBLY

< REMOVAL AND INSTALLATION >

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

Visually check the metal clips and pawls for deformation and damage during installation. Replace if necessary.

Bulb Replacement

INFOID:0000000010307580

CAUTION:

Do not attempt to separate LED bulbs from map lamp assembly or damage to the components may occur.

The LED bulbs are replaced as part of the map lamp assembly. Refer to [INL-55. "Removal and Installation"](#)

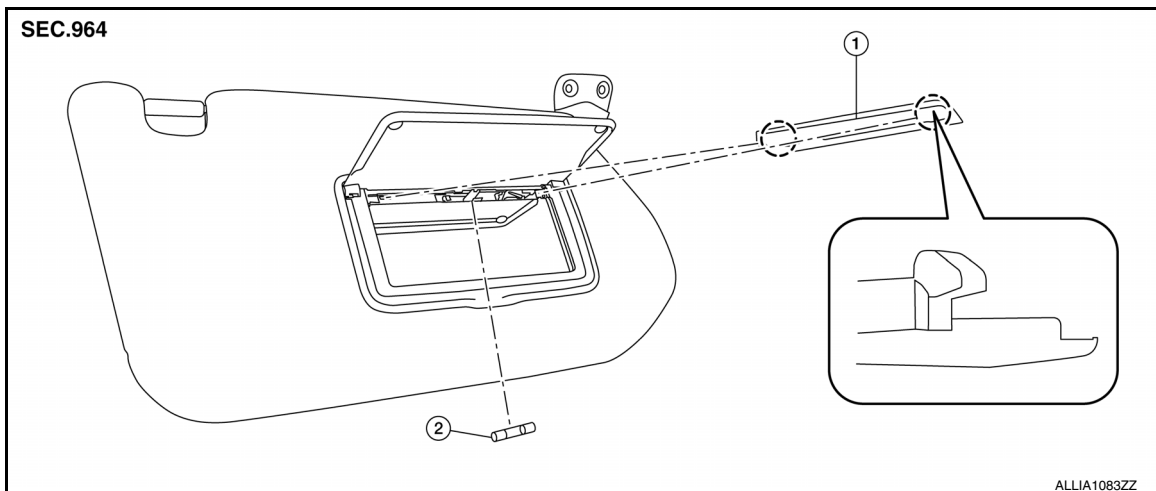
VANITY MIRROR LAMP

< REMOVAL AND INSTALLATION >

VANITY MIRROR LAMP

Exploded View

INFOID:0000000010307952



Removal and Installation

INFOID:0000000010307953

CAUTION:

Do not attempt to separate the vanity lamp from the sun visor or damage to the components may occur.

The vanity lamp is replaced as part of the sun visor. Refer to [INT-29, "Exploded View"](#).

Bulb or Lens Replacement

INFOID:0000000010307954

WARNING:

Do not touch the glass surface of a bulb while it is lit or right after being turned OFF to prevent burns.

CAUTION:

- Do not touch the glass of bulb directly by hand. Keep grease and other oily substances away from bulb surface.
- Do not leave bulb out of lamp reflector for a long time because dust, moisture, smoke, etc. may affect the performance of lamp.
- Do not attempt to separate the vanity lamp from the sun visor or damage to the components may occur.

1. Insert a suitable tool into the gap between the lens and vanity mirror lamp, then release the lens pawls and remove.
2. Grasp the vanity mirror lamp bulb and pull straight out of the vanity mirror lamp to remove.
3. Install vanity mirror lamp bulb to vanity mirror lamp.
4. Install the vanity mirror lamp lens.

GLOVE BOX LAMP

< REMOVAL AND INSTALLATION >

GLOVE BOX LAMP

Bulb Replacement

INFOID:0000000010308265

WARNING:

Do not touch the glass surface of a bulb while it is lit or right after being turned OFF to prevent burns.

CAUTION:

- Do not touch the glass of bulb directly by hand. Keep grease and other oily substances away from bulb surface.
 - Do not leave bulb out of lamp reflector for a long time because dust, moisture, smoke, etc. may affect the performance of lamp.
1. Remove glove box. Refer to [IP-23, "Removal and Installation"](#).
 2. Rotate the bulb socket counterclockwise and remove.
 3. Insert bulb socket into glove box and rotate clockwise to lock in position.
 4. Install glove box. Refer to [IP-23, "Removal and Installation"](#).

ROOM LAMP

< REMOVAL AND INSTALLATION >

ROOM LAMP

Removal and Installation

INFOID:0000000010308701

WARNING:

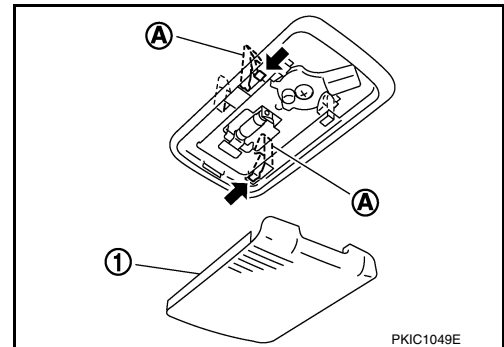
Do not touch the glass surface of a bulb while it is lit or right after being turned OFF to prevent burns.

CAUTION:

- Do not touch the glass of bulb directly by hand. Keep grease and other oily substances away from bulb surface.
- Do not leave bulb out of reflector for a long time because moisture, smoke, etc. may affect the performance of lamp.

REMOVAL

1. Lower lens (1) and room lamp as an assembly by releasing room lamp metal clips (A) using a suitable tool.
2. Disconnect the harness connector from the room lamp and remove.



INSTALLATION

Installation is in the reverse order of removal.

Bulb Replacement

INFOID:0000000010308702

WARNING:

Do not touch the glass surface of a bulb while it is lit or right after being turned OFF to prevent burns.

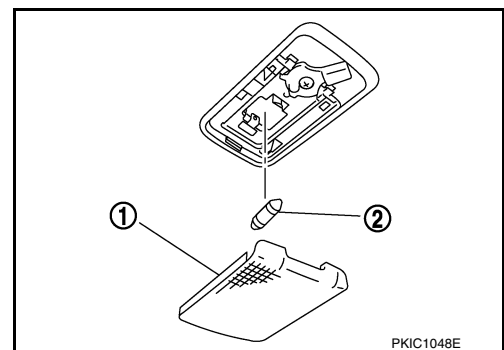
CAUTION:

- Do not touch the glass of bulb directly by hand. Keep grease and other oily substances away from bulb surface.
- Do not leave bulb out of reflector for a long time because moisture, smoke, etc. may affect the performance of lamp.

1. Remove lens (1) by inserting suitable tool and releasing LH side (switch side) first.
2. Remove room lamp bulb (2).
3. Install room lamp bulb (2).
4. Install room lamp lens (1).

NOTE:

Insert the lens hook end (RH side) first to install lens.



PERSONAL LAMP

< REMOVAL AND INSTALLATION >

PERSONAL LAMP

Removal and Installation

INFOID:0000000010307141

The personal lamp is serviced as part of headlining. Refer to [INT-30. "Removal and Installation"](#).

Bulb or Lens Replacement

INFOID:0000000010307142

WARNING:

Do not touch the glass surface of a bulb while it is lit or right after being turned OFF to prevent burns.

CAUTION:

- Do not touch the glass of bulb directly by hand. Keep grease and other oily substances away from bulb surface.
 - Do not leave bulb out of lamp reflector for a long time because dust, moisture, smoke, etc. may affect the performance of lamp.
 - Do not attempt to separate the personal lamp from the headlining or damage may occur.
1. Insert a suitable tool into the gap between the lens and personal lamp, then gently release the lens pawls and remove.
 2. Grasp the bulb and pull straight out from its socket to remove.
 3. Install personal lamp bulb to personal lamp.
 4. Install the personal lamp lens.

LUGGAGE ROOM LAMP

< REMOVAL AND INSTALLATION >

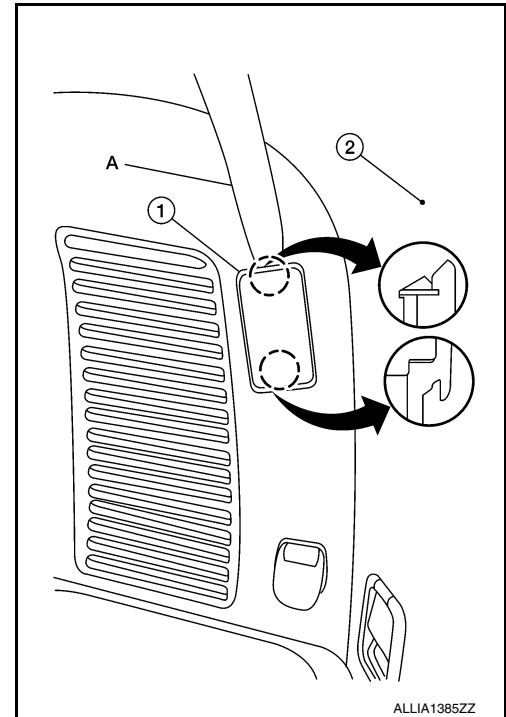
LUGGAGE ROOM LAMP

Removal and Installation

INFOID:000000010308262

REMOVAL

1. Insert a suitable tool (A) into the gap between the luggage lower finisher (RH) (2) and the top of luggage room lamp (1) to release the pawl.
○: Pawl



2. Disconnect the harness connector from the luggage room lamp and remove.

INSTALLATION

Installation is in the reverse order of removal.

Bulb Replacement

INFOID:000000010308263

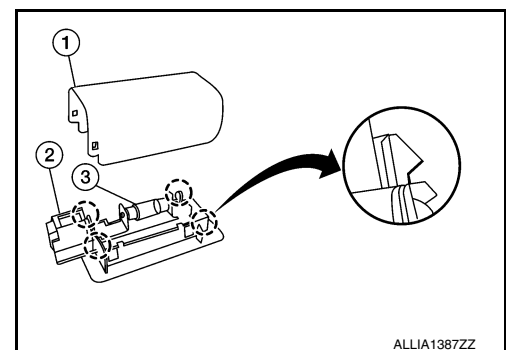
WARNING:

Do not touch the glass surface of a bulb while it is lit or right after being turned OFF to prevent burns.

CAUTION:

- Do not touch the glass of bulb directly by hand. Keep grease and other oily substances away from bulb surface.
- Do not leave bulb out of lamp reflector for a long time because dust, moisture, smoke, etc. may affect the performance of lamp.

1. Remove luggage room lamp. Refer to [INL-61, "Removal and Installation"](#).
2. Release pawls using a suitable tool and remove luggage room lamp cover (1).
○: Pawl
3. Push the tab to release one bulb end, then grasp the luggage room lamp bulb (3) and pull out the second end to remove.
4. Install luggage room lamp bulb (3) to luggage room lamp (2).
5. Install luggage room lamp cover (1).



6. Install luggage room lamp. Refer to [INL-61, "Removal and Installation"](#).

METER CONTROL SWITCH

< REMOVAL AND INSTALLATION >

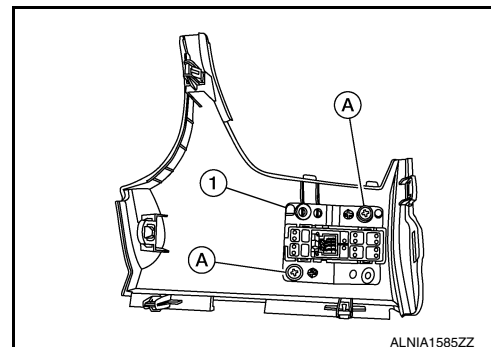
METER CONTROL SWITCH

Removal and Installation

INFOID:0000000010355869

REMOVAL

1. Remove the instrument finisher (A). Refer to [IP-14, "Exploded View"](#).
2. Remove the screws (A) and the meter control switch (1).



INSTALLATION

Installation is in the reverse order of removal.

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

Bulb Specifications

INFOID:0000000010307057

Item	Wattage (W)*
Map lamp	LED
Room lamp (if equipped)	8
Vanity mirror lamp	1.8
Glove box lamp	1.4
Personal lamp (if equipped)	8
Luggage room lamp	5

*:Always check with the parts department for the latest parts information.

A
B
C
D
E
F
G
H
I
J
K
INL
M
N
O
P

SECTION INT

INTERIOR

CONTENTS

PRECAUTION	3	CENTER PILLAR UPPER FINISHER : Removal and Installation	21
PRECAUTIONS	3	CENTER PILLAR LOWER FINISHER	22
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	3	CENTER PILLAR LOWER FINISHER : Removal and Installation	22
Precaution for Work	3	BODY SIDE WELT	23
PREPARATION	4	BODY SIDE WELT : Removal and Installation - Front Door WELT	23
PREPARATION	4	BODY SIDE WELT : Removal and Installation - Rear Door WELT	23
Special Service Tool	4	KICKING PLATE	23
Commercial Service Tools	4	KICKING PLATE : Removal and Installation - Front Kicking Plate	23
CLIP LIST	5	KICKING PLATE : Removal and Installation - Rear Kicking Plate	24
Descriptions for Clips	5	DASH SIDE FINISHER	24
SYMPTOM DIAGNOSIS	9	DASH SIDE FINISHER : Removal and Installation	24
SQUEAK AND RATTLE TROUBLE DIAGNOSES	9	FLOOR TRIM	26
Work Flow	9	Exploded View	26
Generic Squeak and Rattle Troubleshooting	10	Removal and Installation	26
Diagnostic Worksheet	13	HEADLINING	29
REMOVAL AND INSTALLATION	15	Exploded View	29
FRONT DOOR FINISHER	15	Removal and Installation	30
Exploded View	15	LUGGAGE TRIM	33
Removal and Installation	15	Exploded View	33
REAR DOOR FINISHER	18	LUGGAGE SIDE LOWER FINISHER	34
Exploded View	18	LUGGAGE SIDE LOWER FINISHER : Removal and Installation - With Third Row Seat	34
Removal and Installation	18	LUGGAGE SIDE LOWER FINISHER : Removal and Installation - Without Third Row Seat	35
BODY SIDE TRIM	20	LUGGAGE SIDE UPPER FINISHER	36
Exploded View	20	LUGGAGE SIDE UPPER FINISHER : Removal and Installation	36
FRONT PILLAR FINISHER	20		
FRONT PILLAR FINISHER : Removal and Installation	20		
CENTER PILLAR UPPER FINISHER	21		

LUGGAGE REAR PLATE	37	BACK DOOR FINISHER	38
LUGGAGE REAR PLATE : Removal and Installation	37	Exploded View	38
		Removal and Installation	38

PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010213570

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Precaution for Work

INFOID:0000000010213574

INT

- When removing or disassembling each component, be careful not to damage or deform it. If a component may be subject to interference, be sure to protect it with a shop cloth.
- When removing (disengaging) components with a screwdriver or similar tool, be sure to wrap the component with a shop cloth or vinyl tape to protect it.
- Protect the removed parts with a shop cloth and prevent them from being dropped.
- Replace a deformed or damaged clip.
- If a part is specified as a non-reusable part, always replace it with a new one.
- Be sure to tighten bolts and nuts securely to the specified torque.
- After installation is complete, be sure to check that each part works properly.
- Follow the steps below to clean components:
 - Water soluble dirt:
 - Dip a soft cloth into lukewarm water, wring the water out of the cloth and wipe the dirty area.
 - Then rub with a soft, dry cloth.
 - Oily dirt:
 - Dip a soft cloth into lukewarm water with mild detergent (concentration: within 2 to 3%) and wipe the dirty area.
 - Then dip a cloth into fresh water, wring the water out of the cloth and wipe the detergent off.
 - Then rub with a soft, dry cloth.
 - Do not use organic solvent such as thinner, benzene, alcohol or gasoline.
 - For genuine leather seats, use a genuine leather seat cleaner.

PREPARATION

< PREPARATION >

PREPARATION

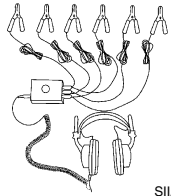
PREPARATION

Special Service Tool

INFOID:000000010213575

The actual shape of the tools may differ from those illustrated here.

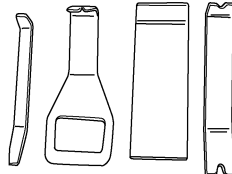
Tool number (TechMate No.) Tool name	Description
— (J-39570) Chassis Ear	Locating the noise
— (J-50397) NISSAN Squeak and Rattle Kit	Repairing the cause of noise
— (J-46534) Trim Tool Set	Removing trim components



SIIA0993E



ALJIA1232ZZ

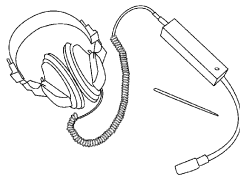


AWJIA0483ZZ

Commercial Service Tools

INFOID:000000010213576

(TechMate No.) Tool name	Description
(J-39565) Engine Ear	Locating the noise
(—) Power tool	Loosening nuts, screws and bolts



SIIA0995E



PIIB1407E

CLIP LIST

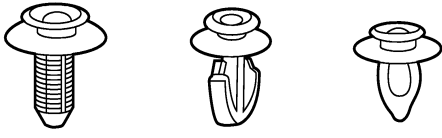
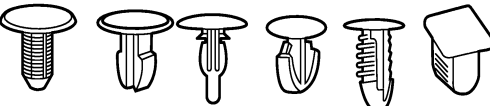
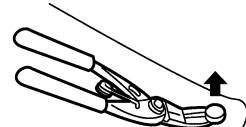
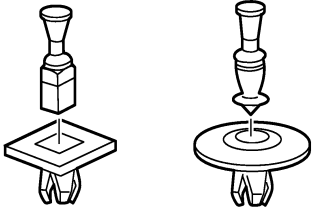
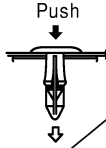
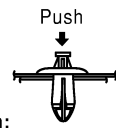
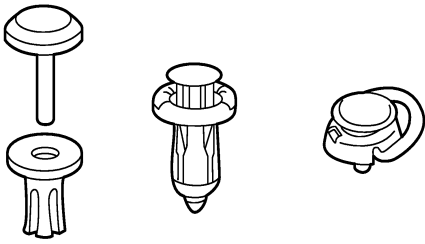
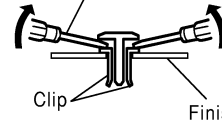
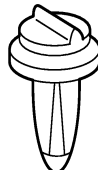
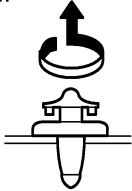
< PREPARATION >

CLIP LIST

Descriptions for Clips

INFOID:000000010213577

Replace any clips which are damaged during removal or installation.

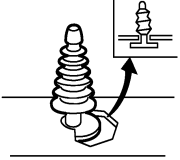
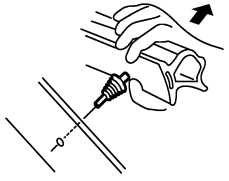
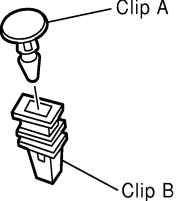
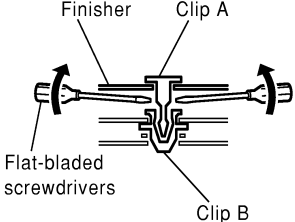
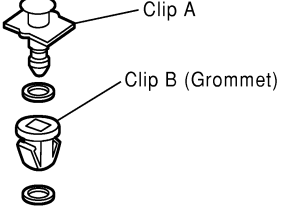
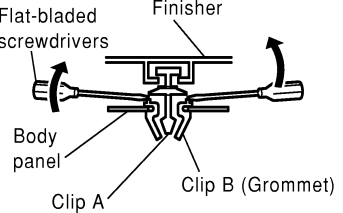
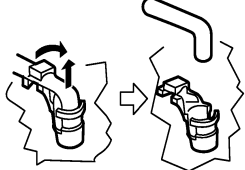
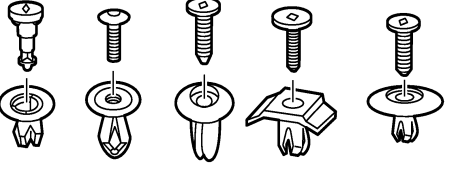
Symbol No.	Shapes	Removal & Installation
C101 		Removal: Remove by bending up with flat-bladed screwdrivers or clip remover. 
C103 		 Removal: Remove with a clip remover.
C203 		Removal: Push center pin to catching position. (Do not remove center pin by hitting it.) Push  Installation: Push 
C205 		Removal: Flat-bladed screwdriver  Clip Finisher
C206 		Removal: 

SIIA0315E

A
B
C
D
E
F
G
H
I
INT
K
L
M
N
O
P

CLIP LIST

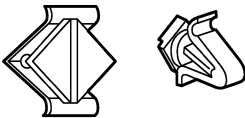
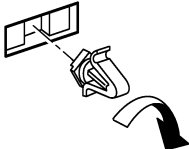
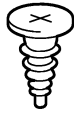
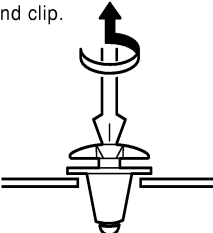
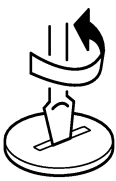
< PREPARATION >

Symbol No.	Shapes	Removal & Installation
CE103 		Removal: 
CF110 		Removal: 
CF118 		Removal: 
CR103 		Removal: Holder portion of clip must be spread out to remove rod. 
CS101 		Removal: 1. Screw out with a Phillips screwdriver. 2. Remove female portion with flat-bladed screwdriver. 

SIIA0316E

CLIP LIST

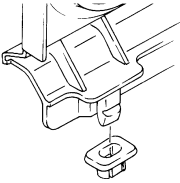
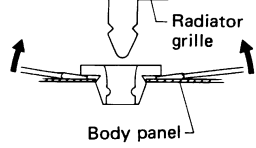
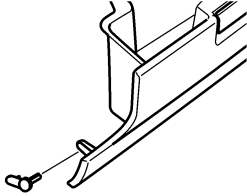
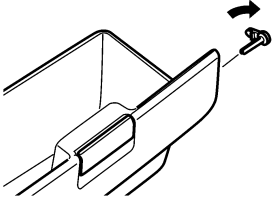
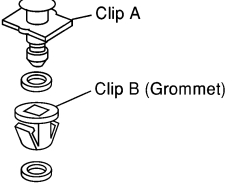
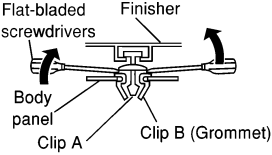
< PREPARATION >

Symbol No.	Shapes	Removal & Installation	
CG101 		Removal:  Rotate 45° to remove	Installation: 
CS102 			
CS113 		Removal: Disconnect upper connection of clip with a flat-bladed screwdriver, then remove clip while inserting a flat-bladed screwdriver between body panel and clip. 	
C111 			

SIIA0317E

CLIP LIST

< PREPARATION >

Symbol No.	Shapes	Removal & Installation
CG104 		Removal: Remove by bending up with flat-bladed screwdrivers. 
CE114 		
CF118 		Removal: Flat-bladed screwdrivers Finisher Body panel Clip A Clip B (Grommet) 

ALJIA0564GB

SQUEAK AND RATTLE TROUBLE DIAGNOSES

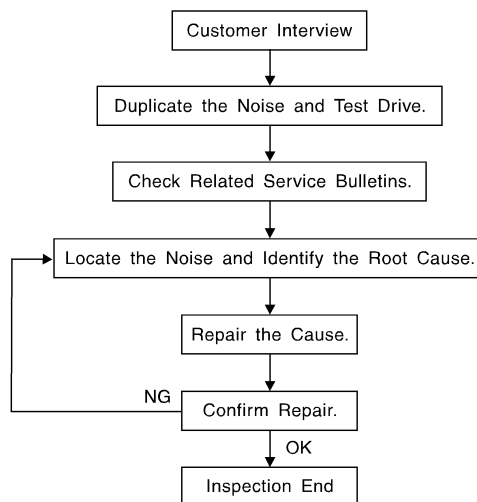
< SYMPTOM DIAGNOSIS >

SYMPTOM DIAGNOSIS

SQUEAK AND RATTLE TROUBLE DIAGNOSES

Work Flow

INFOID:0000000010213578



SBT842

CUSTOMER INTERVIEW

Interview the customer if possible, to determine the conditions that exist when the noise occurs. Use the Diagnostic Worksheet during the interview to document the facts and conditions when the noise occurs and any customer's comments; refer to [INT-13, "Diagnostic Worksheet"](#). This information is necessary to duplicate the conditions that exist when the noise occurs.

- The customer may not be able to provide a detailed description or the location of the noise. Attempt to obtain all the facts and conditions that exist when the noise occurs (or does not occur).
- If there is more than one noise in the vehicle, be sure to diagnose and repair the noise that the customer is concerned about. This can be accomplished by test driving the vehicle with the customer.
- After identifying the type of noise, isolate the noise in terms of its characteristics. The noise characteristics are provided so the customer, service adviser and technician are all speaking the same language when defining the noise.
- Squeak —(Like tennis shoes on a clean floor)
Squeak characteristics include the light contact/fast movement/brought on by road conditions/hard surfaces = higher pitch noise/softer surfaces = lower pitch noises/edge to surface = chirping.
- Creak—(Like walking on an old wooden floor)
Creak characteristics include firm contact/slow movement/twisting with a rotational movement/pitch dependent on materials/often brought on by activity.
- Rattle—(Like shaking a baby rattle)
Rattle characteristics include the fast repeated contact/vibration or similar movement/loose parts/missing clip or fastener/incorrect clearance.
- Knock —(Like a knock on a door)
Knock characteristics include hollow sounding/sometimes repeating/often brought on by driver action.
- Tick—(Like a clock second hand)
Tick characteristics include gentle contacting of light materials/loose components/can be caused by driver action or road conditions.
- Thump—(Heavy, muffled knock noise)
Thump characteristics include softer knock/dead sound often brought on by activity.
- Buzz—(Like a bumble bee)
Buzz characteristics include high frequency rattle/firm contact.
- Often the degree of acceptable noise level will vary depending upon the person. A noise that you may judge as acceptable may be very irritating to the customer.
- Weather conditions, especially humidity and temperature, may have a great effect on noise level.

DUPLICATE THE NOISE AND TEST DRIVE

SQUEAK AND RATTLE TROUBLE DIAGNOSES

< SYMPTOM DIAGNOSIS >

If possible, drive the vehicle with the customer until the noise is duplicated. Note any additional information on the Diagnostic Worksheet regarding the conditions or location of the noise. This information can be used to duplicate the same conditions when you confirm the repair.

If the noise can be duplicated easily during the test drive, to help identify the source of the noise, try to duplicate the noise with the vehicle stopped by doing one or all of the following:

- 1) Close a door.
 - 2) Tap or push/pull around the area where the noise appears to be coming from.
 - 3) Rev the engine.
 - 4) Use a floor jack to recreate vehicle "twist".
 - 5) At idle, apply engine load (electrical load, half-clutch on M/T model, drive position on CVT and A/T models).
 - 6) Raise the vehicle on a hoist and hit a tire with a rubber hammer.
- Drive the vehicle and attempt to duplicate the conditions the customer states exist when the noise occurs.
 - If it is difficult to duplicate the noise, drive the vehicle slowly on an undulating or rough road to stress the vehicle body.

CHECK RELATED SERVICE BULLETINS

After verifying the customer concern or symptom, check ASIST for Technical Service Bulletins (TSBs) related to that concern or symptom.

If a TSB relates to the symptom, follow the procedure to repair the noise.

LOCATE THE NOISE AND IDENTIFY THE ROOT CAUSE

1. Narrow down the noise to a general area. To help pinpoint the source of the noise, use a listening tool (Chassis Ear: J-39570, Engine Ear: J-39565 and mechanic's stethoscope).
2. Narrow down the noise to a more specific area and identify the cause of the noise by:
 - removing the components in the area that you suspect the noise is coming from.
Do not use too much force when removing clips and fasteners, otherwise clips and fasteners can be broken or lost during the repair, resulting in the creation of new noise.
 - tapping or pushing/pulling the component that you suspect is causing the noise.
Do not tap or push/pull the component with excessive force, otherwise the noise will be eliminated only temporarily.
 - feeling for a vibration with your hand by touching the component(s) that you suspect is (are) causing the noise.
 - placing a piece of paper between components that you suspect are causing the noise.
 - looking for loose components and contact marks.Refer to [INT-10. "Generic Squeak and Rattle Troubleshooting"](#).

REPAIR THE CAUSE

- If the cause is a loose component, tighten the component securely.
- If the cause is insufficient clearance between components:
 - separate components by repositioning or loosening and retightening the component, if possible.
 - insulate components with a suitable insulator such as urethane pads, foam blocks, felt cloth tape or urethane tape. A NISSAN Squeak and Rattle Kit (J-50397) is available through your authorized NISSAN Parts Department.

CAUTION:

Do not use excessive force as many components are constructed of plastic and may be damaged.

NOTE:

- Always check with the Parts Department for the latest parts information.
- The materials contained in the NISSAN Squeak and Rattle Kit (J-50397) are listed on the inside cover of the kit; and can each be ordered separately as needed.
- The following materials not found in the kit can also be used to repair squeaks and rattles.
 - SILICONE GREASE: Use instead of UHMW tape that will be visible or does not fit. The silicone grease will only last a few months.
 - SILICONE SPRAY: Use when grease cannot be applied.
 - DUCT TAPE: Use to eliminate movement.

CONFIRM THE REPAIR

Confirm that the cause of a noise is repaired by test driving the vehicle. Operate the vehicle under the same conditions as when the noise originally occurred. Refer to the notes on the Diagnostic Worksheet.

Generic Squeak and Rattle Troubleshooting

INFOID:000000010213579

Refer to Table of Contents for specific component removal and installation information.

SQUEAK AND RATTLE TROUBLE DIAGNOSES

< SYMPTOM DIAGNOSIS >

INSTRUMENT PANEL

Most incidents are caused by contact and movement between:

1. Cluster lid A and the instrument panel
2. Acrylic lens and combination meter housing
3. Instrument panel to front pillar finisher
4. Instrument panel to windshield
5. Instrument panel pins
6. Wiring harnesses behind the combination meter
7. A/C defroster duct and duct joint

These incidents can usually be located by tapping or moving the components to duplicate the noise or by pressing on the components while driving to stop the noise. Most of these incidents can be repaired by applying felt cloth tape or silicone spray (in hard to reach areas). Urethane pads can be used to insulate wiring harness.

CAUTION:

Do not use silicone spray to isolate a squeak or rattle. If you saturate the area with silicone, you will not be able to recheck the repair.

CENTER CONSOLE

Components to pay attention to include:

1. Shift selector assembly cover to finisher
2. A/C control unit and cluster lid C
3. Wiring harnesses behind audio and A/C control unit

The instrument panel repair and isolation procedures also apply to the center console.

DOORS

Pay attention to the:

1. Finisher and inner panel making a slapping noise
2. Inside handle escutcheon to door finisher
3. Wiring harnesses tapping
4. Door striker out of alignment causing a popping noise on starts and stops

Tapping or moving the components or pressing on them while driving to duplicate the conditions can isolate many of these incidents. You can usually insulate the areas with felt cloth tape or insulator foam blocks from the NISSAN Squeak and Rattle Kit (J-50397) to repair the noise.

TRUNK

Trunk noises are often caused by a loose jack or loose items put into the trunk by the owner.

In addition look for:

1. Trunk lid bumpers out of adjustment
2. Trunk lid striker out of adjustment
3. The trunk lid torsion bars knocking together
4. A loose license plate or bracket

Most of these incidents can be repaired by adjusting, securing or insulating the item(s) or component(s) causing the noise.

SUNROOF/HEADLINING

Noises in the sunroof/headlining area can often be traced to one of the following:

1. Sunroof lid, rail, linkage or seals making a rattle or light knocking noise
2. Sun visor shaft shaking in the holder
3. Front or rear windshield touching headlining and squeaking

Again, pressing on the components to stop the noise while duplicating the conditions can isolate most of these incidents. Repairs usually consist of insulating with felt cloth tape.

OVERHEAD CONSOLE (FRONT AND REAR)

Overhead console noises are often caused by the console panel clips not being engaged correctly. Most of these incidents are repaired by pushing up on the console at the clip locations until the clips engage.

In addition look for:

SQUEAK AND RATTLE TROUBLE DIAGNOSES

< SYMPTOM DIAGNOSIS >

1. Loose harness or harness connectors.
2. Front console map/reading lamp lens loose.
3. Loose screws at console attachment points.

SEATS

When isolating seat noise it's important to note the position the seat is in and the load placed on the seat when the noise is present. These conditions should be duplicated when verifying and isolating the cause of the noise.

Cause of seat noise include:

1. Headrest rods and holder
2. A squeak between the seat pad cushion and frame
3. The rear seatback lock and bracket

These noises can be isolated by moving or pressing on the suspected components while duplicating the conditions under which the noise occurs. Most of these incidents can be repaired by repositioning the component or applying urethane tape to the contact area.

UNDERHOOD

Some interior noise may be caused by components under the hood or on the engine wall. The noise is then transmitted into the passenger compartment.

Causes of transmitted underhood noise include:

1. Any component installed to the engine wall
2. Components that pass through the engine wall
3. Engine wall mounts and connectors
4. Loose radiator installation pins
5. Hood bumpers out of adjustment
6. Hood striker out of adjustment

These noises can be difficult to isolate since they cannot be reached from the interior of the vehicle. The best method is to secure, move or insulate one component at a time and test drive the vehicle. Also, engine rpm or load can be changed to isolate the noise. Repairs can usually be made by moving, adjusting, securing, or insulating the component causing the noise.

SQUEAK AND RATTLE TROUBLE DIAGNOSES

< SYMPTOM DIAGNOSIS >

Diagnostic Worksheet

INFOID:000000010213580

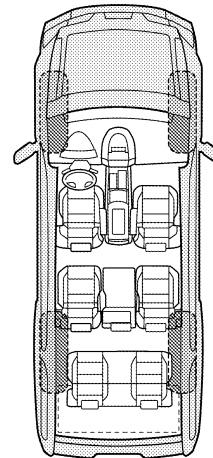
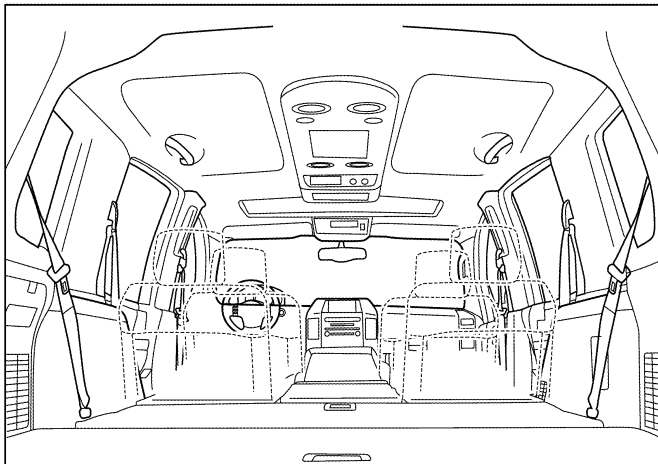
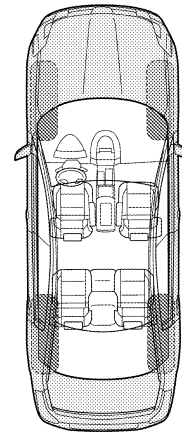
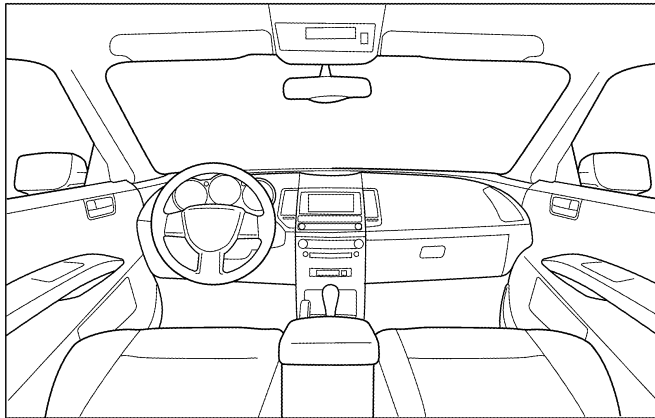
Dear Customer:

We are concerned about your satisfaction with your vehicle. Repairing a squeak or rattle sometimes can be very difficult. To help us fix your vehicle right the first time, please take a moment to note the area of the vehicle where the squeak or rattle occurs and under what conditions. You may be asked to take a test drive with a service advisor or technician to ensure we confirm the noise you are hearing.

SQUEAK & RATTLE DIAGNOSTIC WORKSHEET

I. WHERE DOES THE NOISE COME FROM? (circle the area of the vehicle)

The illustrations are for reference only, and may not reflect the actual configuration of your vehicle.



Continue to page 2 of the worksheet and briefly describe the location of the noise or rattle. In addition, please indicate the conditions which are present when the noise occurs.

SQUEAK AND RATTLE TROUBLE DIAGNOSES

< SYMPTOM DIAGNOSIS >

SQUEAK & RATTLE DIAGNOSTIC WORKSHEET - page 2

Briefly describe the location where the noise occurs:

II. WHEN DOES IT OCCUR? (please check the boxes that apply)

- | | |
|---|--|
| ☐ Anytime | ☐ After sitting out in the rain |
| ☐ 1st time in the morning | ☐ When it is raining or wet |
| ☐ Only when it is cold outside | ☐ Dry or dusty conditions |
| ☐ Only when it is hot outside | ☐ Other: |

III. WHEN DRIVING:

- ☐ Through driveways
- ☐ Over rough roads
- ☐ Over speed bumps
- ☐ Only about ____ mph
- ☐ On acceleration
- ☐ Coming to a stop
- ☐ On turns: left, right or either (circle)
- ☐ With passengers or cargo
- ☐ Other: _____
- ☐ After driving ____ miles or ____ minutes

IV. WHAT TYPE OF NOISE

- ☐ Squeak (like tennis shoes on a clean floor)
- ☐ Creak (like walking on an old wooden floor)
- ☐ Rattle (like shaking a baby rattle)
- ☐ Knock (like a knock at the door)
- ☐ Tick (like a clock second hand)
- ☐ Thump (heavy muffled knock noise)
- ☐ Buzz (like a bumble bee)

TO BE COMPLETED BY DEALERSHIP PERSONNEL

Test Drive Notes:

	YES	NO	Initials of person performing
Vehicle test driven with customer	☐	☐	_____
- Noise verified on test drive	☐	☐	_____
- Noise source located and repaired	☐	☐	_____
- Follow up test drive performed to confirm repair	☐	☐	_____

VIN: _____ Customer Name _____
W.O.# _____ Date: _____

This form must be attached to Work Order

LAIA0071E

FRONT DOOR FINISHER

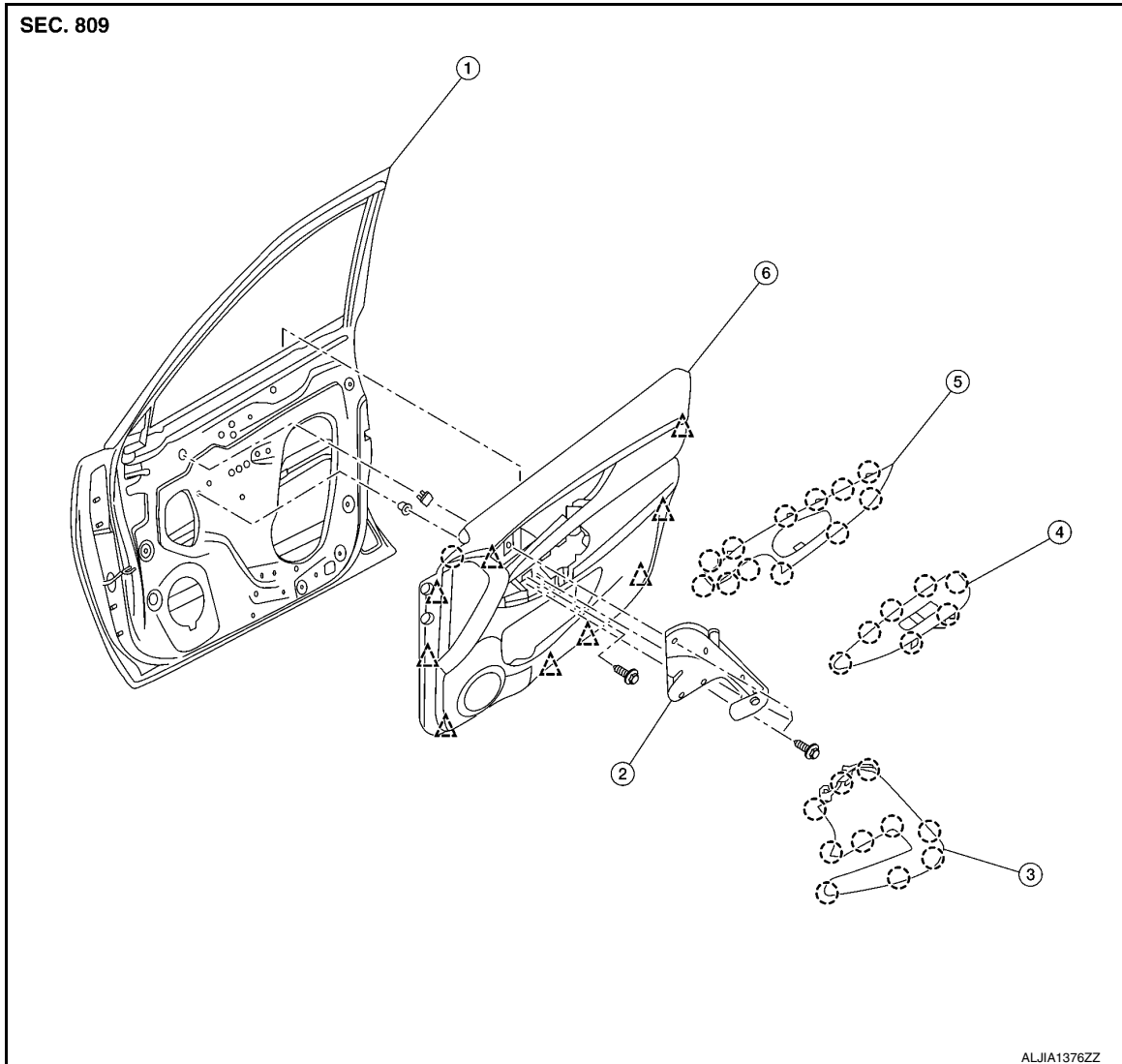
< REMOVAL AND INSTALLATION >

REMOVAL AND INSTALLATION

FRONT DOOR FINISHER

Exploded View

INFOID:000000009796028



- | | | |
|--|--|---------------------------|
| 1. Front door | 2. Front door pull handle bracket | 3. Front door pull handle |
| 4. Front power window switch (RH) finisher | 5. Front door inside handle finisher | 6. Front door finisher |
|  Clip |  Pawl | |

Removal and Installation

INFOID:000000009796029

REMOVAL

NOTE:

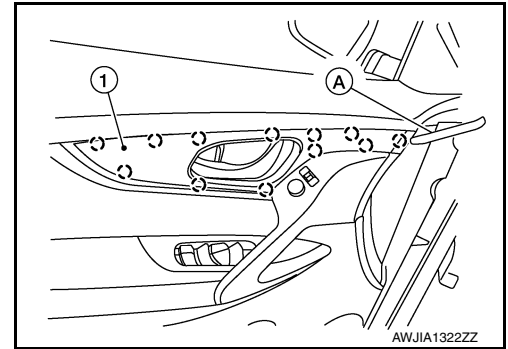
LH shown, RH similar.

FRONT DOOR FINISHER

< REMOVAL AND INSTALLATION >

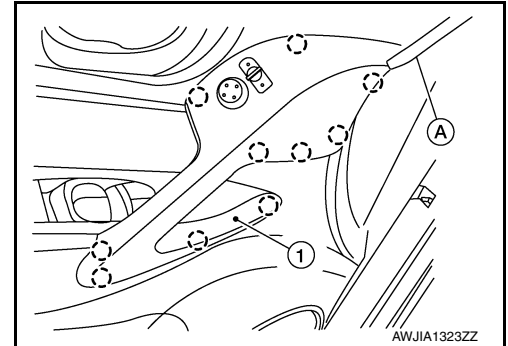
1. Release pawls using a suitable tool (A) from front of inside handle finisher (1) while working toward the rear and remove.

(○): Pawl

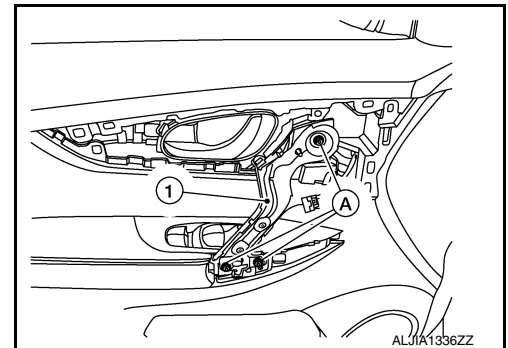


2. Release pawls using a suitable tool (A) from front of inside handle finisher (1) while working toward the rear and remove.

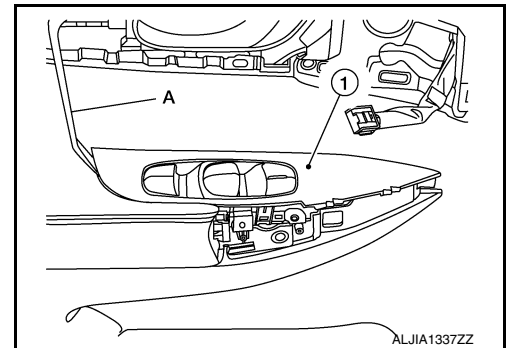
(○): Pawl



3. Disconnect harness connector from door mirror remote control switch (LH only).
4. Remove bolts (A) and front door inside pull handle bracket (1).



5. Release pawls using a suitable tool (A) and remove front door power window and door lock/unlock switch finisher (1).

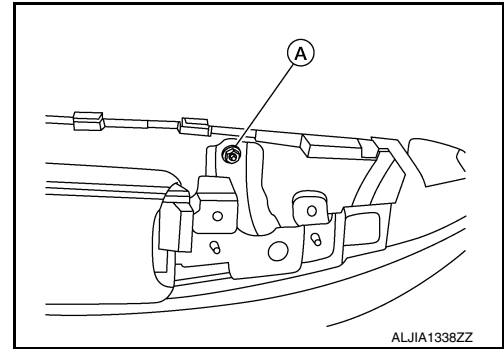


6. Disconnect harness connectors from front door power window and door lock/unlock switch.

FRONT DOOR FINISHER

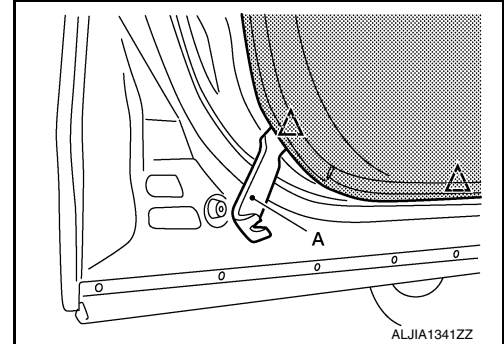
< REMOVAL AND INSTALLATION >

7. Remove front door finisher bolt (A).



8. Insert suitable tool (A) between front door finisher and door panel to release clips and pawl, starting from the bottom and working to the top.

△: Clip



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Visually check the clips and pawls for deformation and damage during installation. Replace with new ones if necessary.
- When installing front door finisher, check that clips and pawls are securely placed in door panel holes.

NOTE:

When main power window and door lock/unlock switch or power window door lock/unlock switch RH is removed or replaced, it is necessary to perform the initialization procedure. Refer to [PWC-25. "Work Flow"](#).

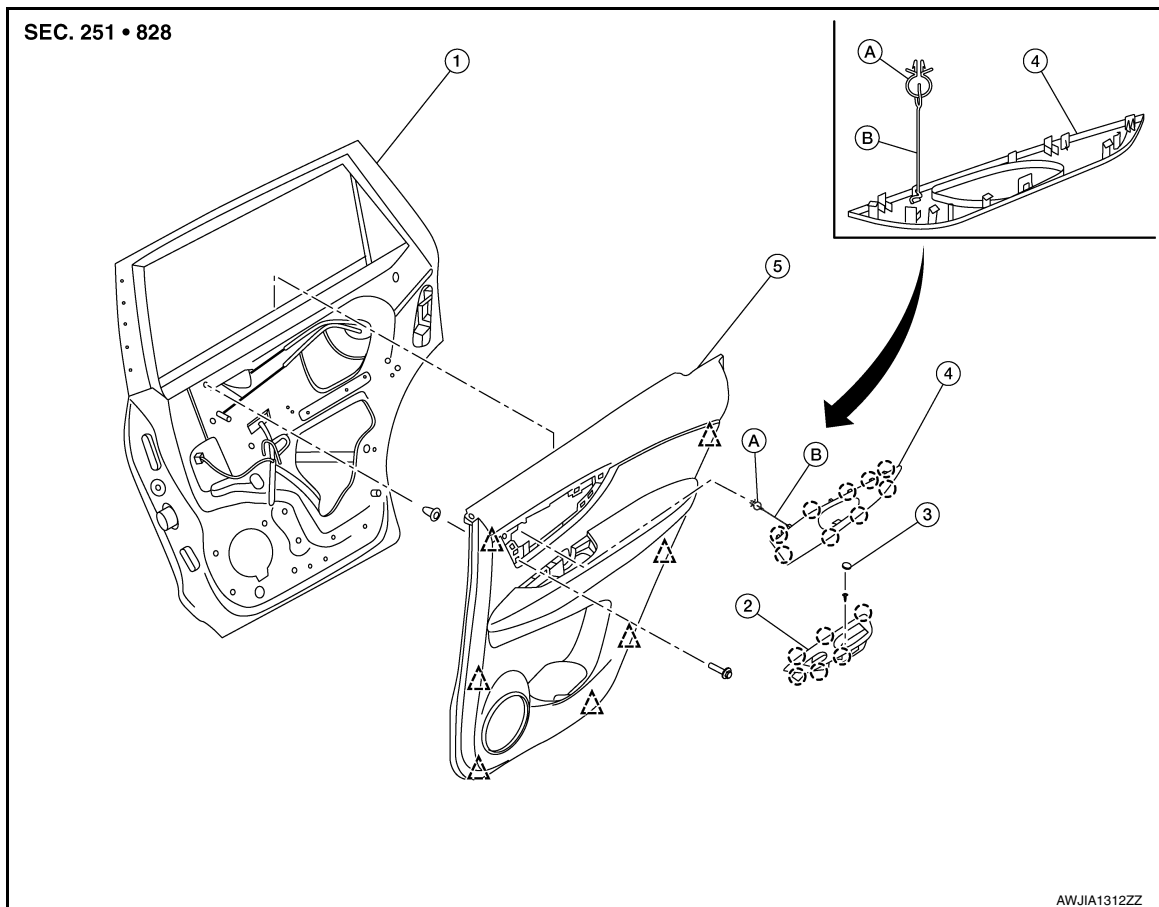
REAR DOOR FINISHER

< REMOVAL AND INSTALLATION >

REAR DOOR FINISHER

Exploded View

INFOID:000000009796030



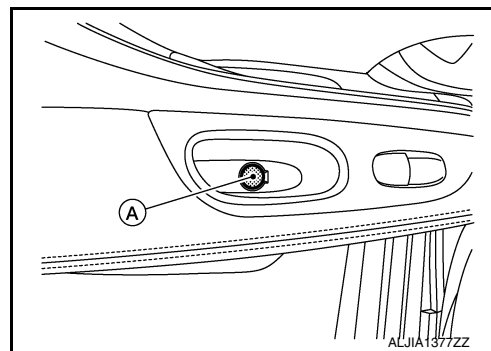
- | | | |
|-------------------------------------|--------------------------------------|--------------------------|
| 1. Rear door | 2. Rear power window switch finisher | 3. Rear door screw cover |
| 4. Rear door inside handle finisher | 5. Rear door finisher | A. Tether clip |
| B. Tether | (○) Pawl | (△) Clip |

Removal and Installation

INFOID:000000009796031

REMOVAL

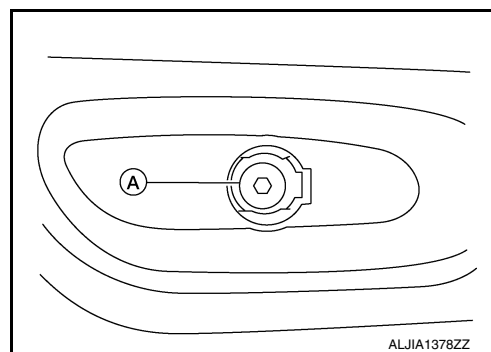
1. Remove screw cover (1).



REAR DOOR FINISHER

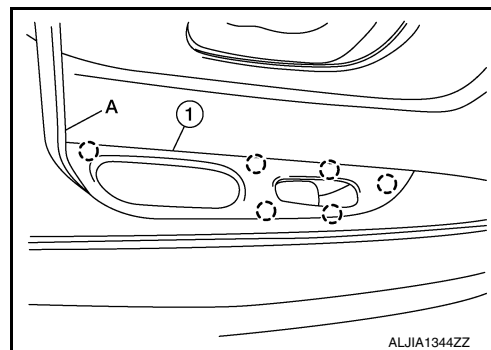
< REMOVAL AND INSTALLATION >

2. Remove screw (A).



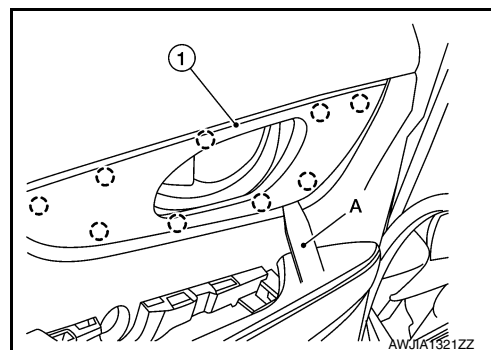
3. Release pawls using a suitable tool (A) and remove rear power window switch finisher (1).

○: Pawl



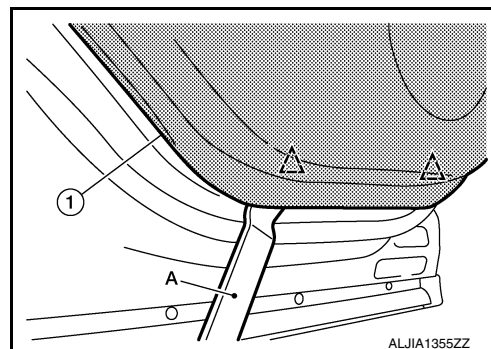
4. Disconnect harness connector from rear power window switch finisher.
5. Release pawls using a suitable tool (A) and remove rear door inside handle finisher (1).

○: Pawl



6. Release clip and remove tether from the front door panel.
7. Release clips using a suitable tool (A) and remove rear door finisher (1).

△: Clip



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Visually check the clips and pawls for deformation and damage during installation. Replace with new ones if necessary.
- When installing rear door finisher, check that clips and pawls are securely placed in door panel holes.

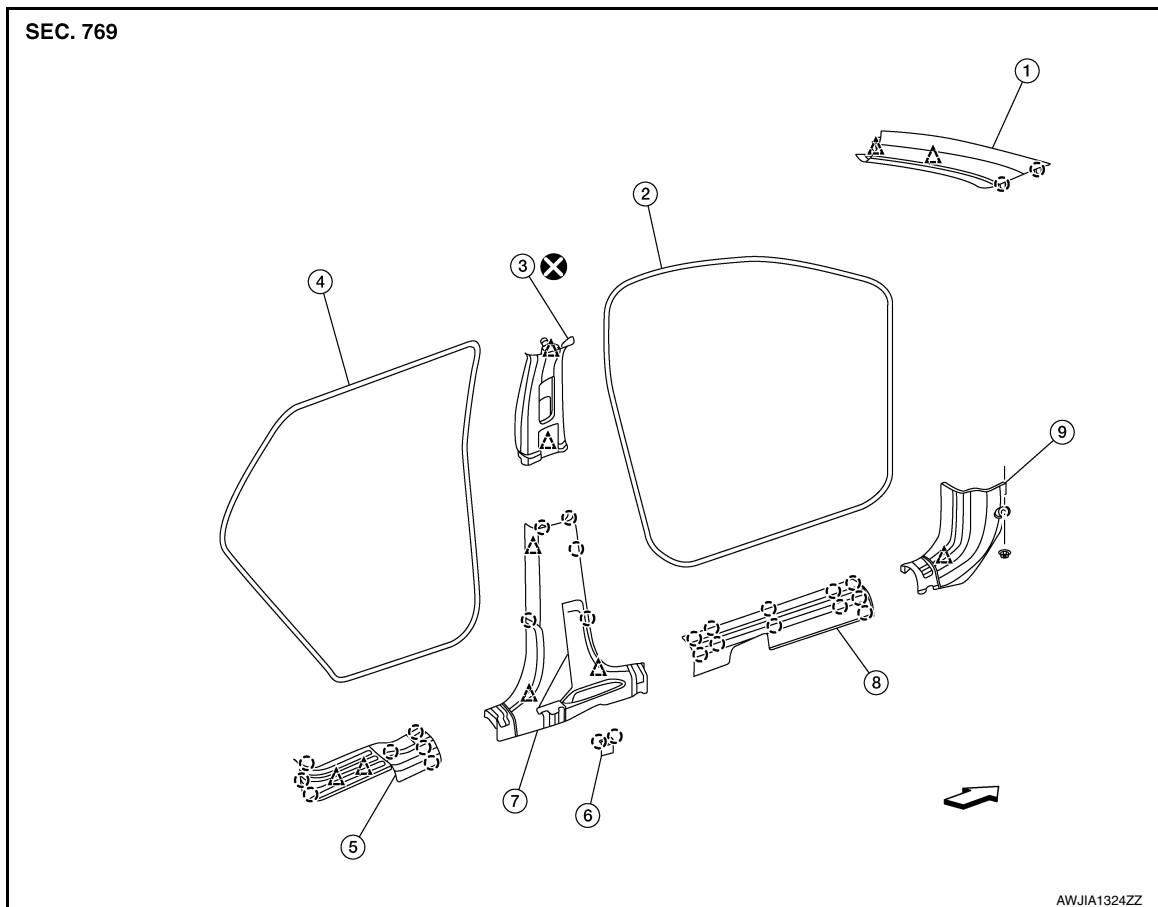
BODY SIDE TRIM

< REMOVAL AND INSTALLATION >

BODY SIDE TRIM

Exploded View

INFOID:000000009796032



- | | | |
|---------------------------------|-------------------------|---------------------------------|
| 1. Front pillar finisher | 2. Front body side welt | 3. Center pillar upper finisher |
| 4. Rear body side welt | 5. Rear kicking plate | 6. Seat belt cover |
| 7. Center pillar lower finisher | 8. Front kicking plate | 9. Dash side finisher |
| Pawl | Clip | Front |

FRONT PILLAR FINISHER

FRONT PILLAR FINISHER : Removal and Installation

INFOID:0000000010213581

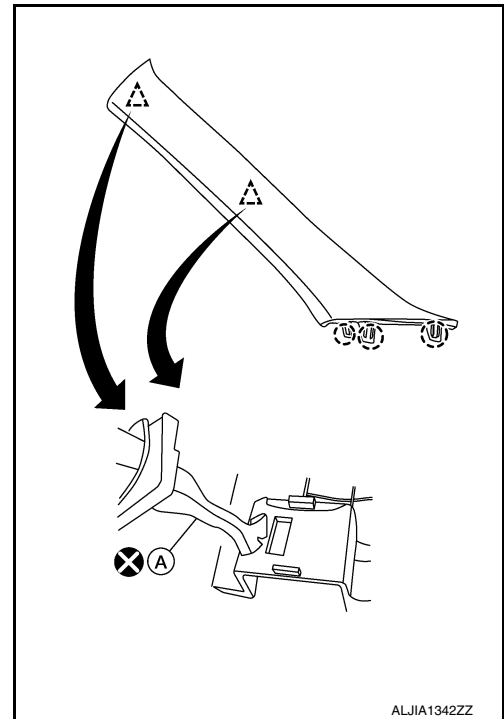
REMOVAL

1. Partially remove front door welt (front edge).

BODY SIDE TRIM

< REMOVAL AND INSTALLATION >

2. Release the front pillar finisher pawls using a suitable tool.
○: Pawl
3. Cut and discard front pillar finisher tether clip (A).
CAUTION:
Do not reuse tether clip. Replace with new part after removal.
4. Remove the remaining piece of tether clips (A) using a suitable tool and remove front pillar finisher.

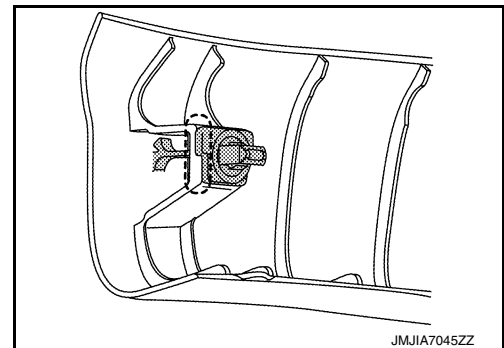


INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Do not reuse tether clip. Replace with new part after removal.
- Make sure that the location of the airbag and tether clip do not block body panel holes before installing front pillar finisher.
- Make sure to install tether clip to front pillar finisher by inserting clip end and rotating 90 degrees in either direction, before installing front pillar finisher.
- When installing tether clip to front pillar finisher, be sure to install by aligning to the cutout.
- Front pillar finisher is re-usable.
- New tether clip should be used from service parts, ordered separately.



- When installing front pillar finisher, check that tether clip and pawls are securely placed into correct body panel holes.

CENTER PILLAR UPPER FINISHER

CENTER PILLAR UPPER FINISHER : Removal and Installation

INFOID:000000010213582

REMOVAL

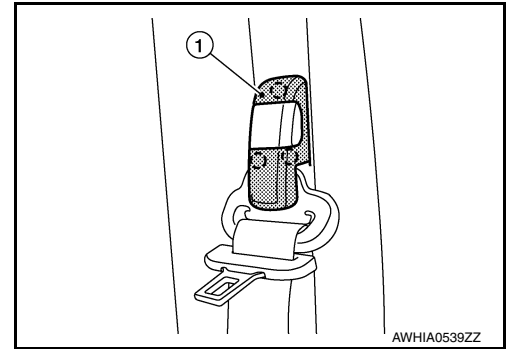
1. Remove center pillar lower finisher. Refer to [INT-22. "CENTER PILLAR LOWER FINISHER : Removal and Installation"](#).

BODY SIDE TRIM

< REMOVAL AND INSTALLATION >

2. Release pawls, using a suitable tool and remove the seat belt height adjuster finisher (1).

(○): Pawl



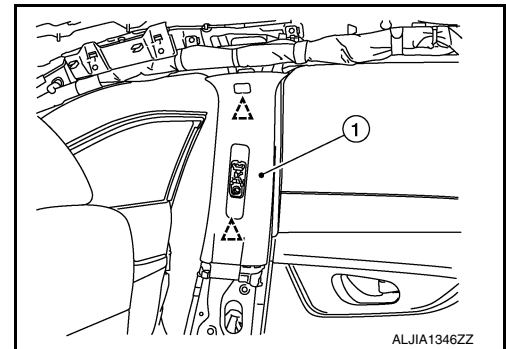
3. Remove front D-ring anchor bolt.

CAUTION:

Before removing D-ring anchor bolt note the positions of washers and spacers for correct installation.

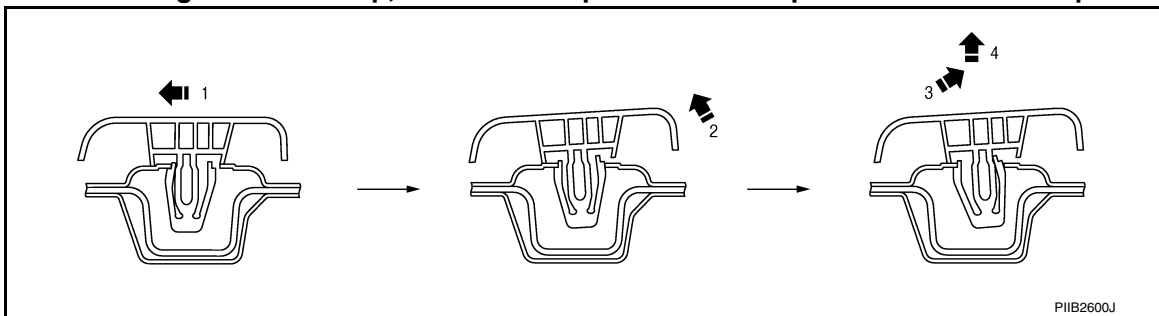
4. Release center pillar upper finisher clips using a suitable tool as shown.
5. Release center pillar upper finisher (1) clips using a suitable tool and remove.

(△): Clip



CAUTION:

- Do not reuse center pillar upper finisher.
- Do not bend the sheet metal when removing the center pillar upper finisher from the sheet metal.
- When releasing molded in clip, follow the steps as shown to prevent finisher or clip damage.



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Do not reuse center pillar upper finisher. Replace with new part for installation.
- Visually check sheet metal around clip and pawl locations to confirm no deformation from removal of center pillar upper finisher. Repair sheet metal if necessary.
- When installing center pillar upper finisher, check that the clips are securely placed in body panel holes.

CENTER PILLAR LOWER FINISHER

CENTER PILLAR LOWER FINISHER : Removal and Installation

INFOID:0000000010213583

REMOVAL

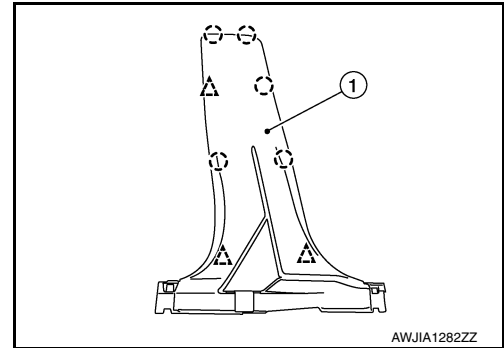
1. Move front seat to the full forward position.

BODY SIDE TRIM

< REMOVAL AND INSTALLATION >

2. Remove front kicking plate. Refer to [INT-23, "KICKING PLATE : Removal and Installation - Front Kicking Plate"](#).
3. Remove rear kicking plate. Refer to [INT-24, "KICKING PLATE : Removal and Installation - Rear Kicking Plate"](#).
4. Release center pillar lower finisher clips and pawls using a suitable tool, then remove the center pillar lower finisher (1).

- △: Clip
○: Pawl



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Visually check the clips for deformation and damage during installation. Replace with new ones if necessary.
- When installing center pillar lower finisher, check that clips and pawls are securely placed in body panel holes.

BODY SIDE WELT

BODY SIDE WELT : Removal and Installation - Front Door Welt

INFOID:0000000010213584

REMOVAL

1. Remove the front kicking plate. Refer to [INT-23, "KICKING PLATE : Removal and Installation - Front Kicking Plate"](#).
2. Remove the front body side welt.

INSTALLATION

Installation is in the reverse order of removal.

BODY SIDE WELT : Removal and Installation - Rear Door Welt

INFOID:0000000010213585

REMOVAL

1. Remove the rear kicking plate. Refer to [INT-24, "KICKING PLATE : Removal and Installation - Rear Kicking Plate"](#).
2. Remove the rear body side welt.

INSTALLATION

Installation is in the reverse order of removal.

KICKING PLATE

KICKING PLATE : Removal and Installation - Front Kicking Plate

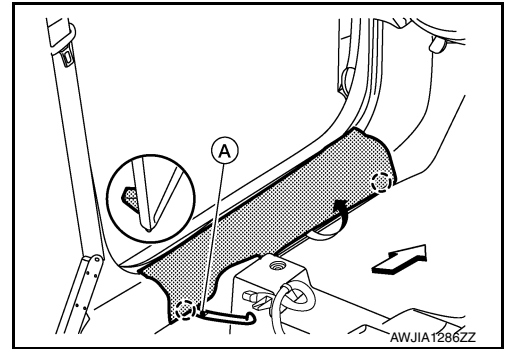
INFOID:0000000010213586

REMOVAL

BODY SIDE TRIM

< REMOVAL AND INSTALLATION >

1. Release the front and rear pawls by rotating the front kicking plate.
○: Pawl
⇐: Front
2. Lift front edge of front kicking plate and release the remaining pawls using suitable tool (A) and remove.



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

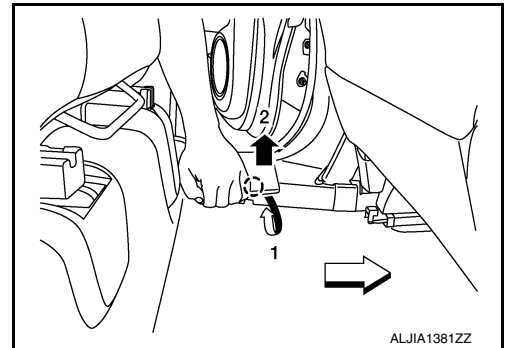
- Visually check the clips and pawls for deformation and damage during installation. Replace with new ones if necessary.
- When installing front kicking plate, check that the floor trim does not cover harness protector slots.
- When installing front kicking plate, check that the clips and pawls are securely placed in body panel holes.

KICKING PLATE : Removal and Installation - Rear Kicking Plate

INFOID:0000000010213587

REMOVAL

1. Release front inside pawl of rear kicking plate as shown, then lift front end of rear kicking plate to release pawls and remove.
○: Pawl
⇐: Front



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Visually check the clips and pawls for deformation and damage during installation. Replace with new ones if necessary.
- When installing rear kicking plate, check that the clips and pawls are securely placed in body panel holes.

DASH SIDE FINISHER

DASH SIDE FINISHER : Removal and Installation

INFOID:0000000010244483

REMOVAL

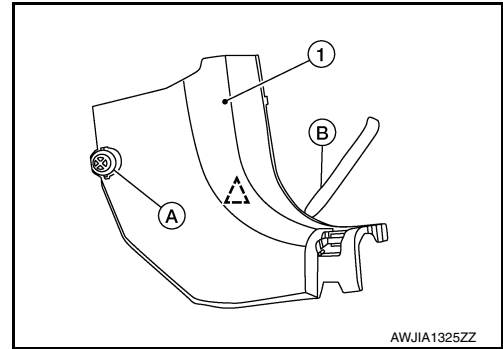
1. Remove front kicking plate. Refer to [INT-23, "KICKING PLATE : Removal and Installation - Front Kicking Plate"](#).

BODY SIDE TRIM

< REMOVAL AND INSTALLATION >

2. Remove nut (A) then insert suitable tool (B) to release clip, then remove dash side finisher.

△: Clip



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Visually check the clips for deformation and damage during installation. Replace with new ones if necessary.
- When installing dash side finisher, make sure insulation does not cover stud bolt.
- When installing dash side finisher, check that the clips are securely placed in body panel holes.

A
B
C
D
E
F
G
H
I
INT
K
L
M
N
O
P

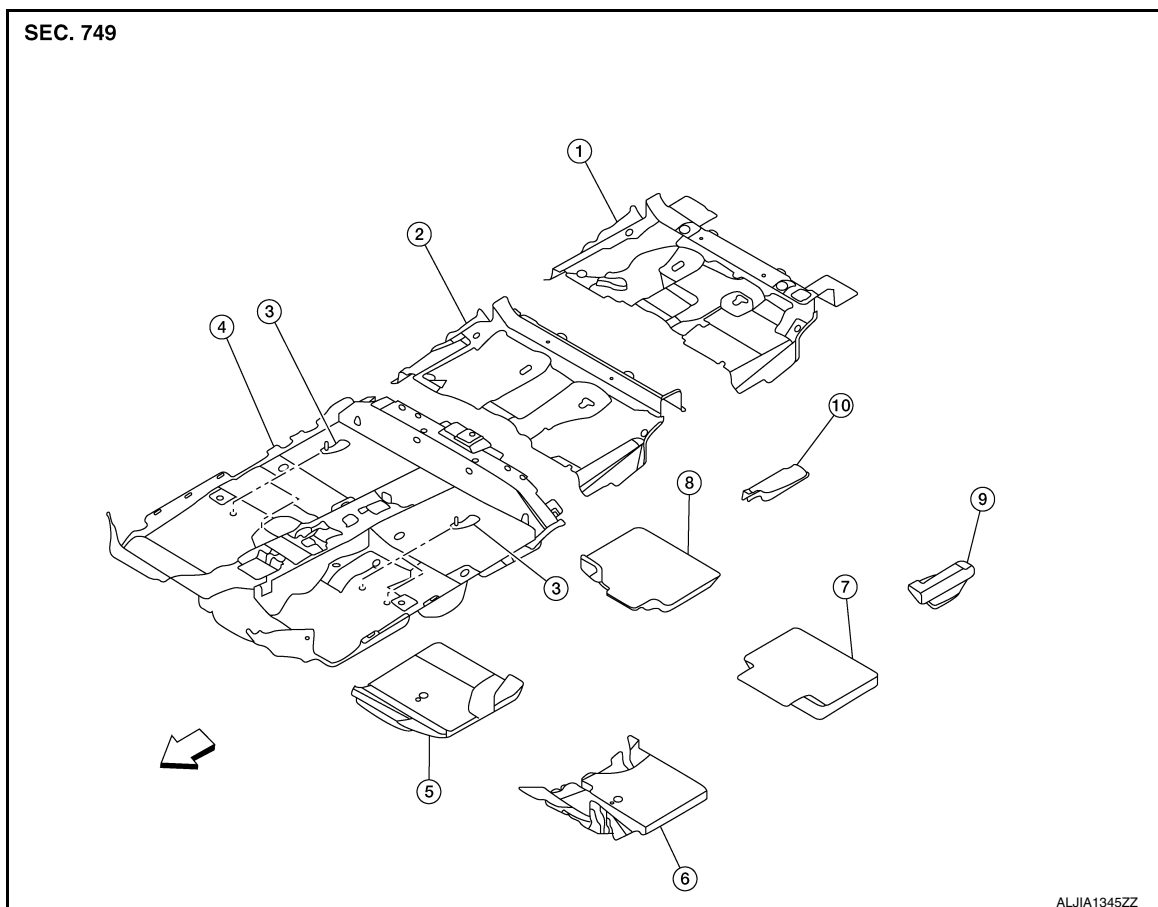
FLOOR TRIM

< REMOVAL AND INSTALLATION >

FLOOR TRIM

Exploded View

INFOID:000000009796034



- | | | |
|--|---|--------------------------------|
| 1. Rear floor trim (with third row seat) | 2. Rear floor trim (without third row seat) | 3. Floor trim hook |
| 4. Front floor trim | 5. Front floor spacer (RH) | 6. Front floor spacer (LH) |
| 7. Rear floor spacer (LH) | 8. Rear floor spacer (RH) | 9. Third row floor spacer (LH) |
| 10. Third row floor spacer (RH) | ↩ Front | |

Removal and Installation

INFOID:000000009796035

REMOVAL - Front Floor Trim

CAUTION:

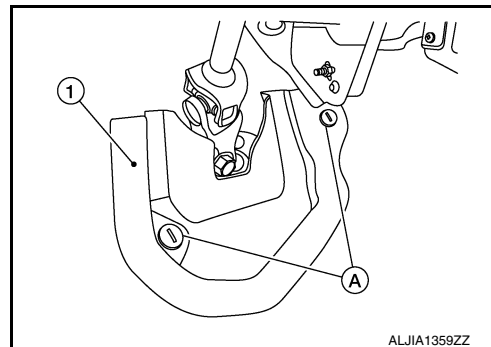
Before servicing, turn the ignition switch off, disconnect both battery cables and wait at least three minutes.

1. Disconnect the negative and positive battery terminals, then wait at least three minutes. Refer to [PG-77, "Removal and Installation"](#).
2. Remove front door welts (LH/RH). Refer to [INT-23, "BODY SIDE WELT : Removal and Installation - Front Door Welt"](#).
3. Remove rear door welts (LH/RH). Refer to [INT-23, "BODY SIDE WELT : Removal and Installation - Rear Door Welt"](#).
4. Remove driver and passenger seat (LH/RH). Refer to [SE-32, "DRIVER SIDE : Removal and Installation"](#).
5. Remove rear seat. Refer to [SE-39, "Removal and Installation"](#).
6. Disconnect harness connectors from seatbelt pretensioners.

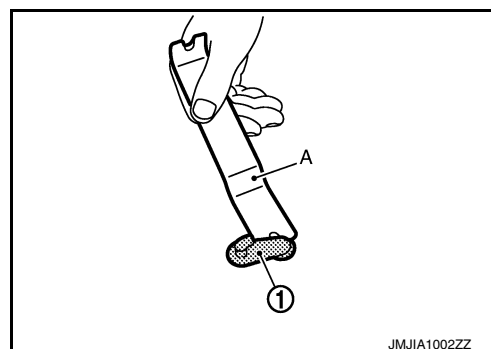
FLOOR TRIM

< REMOVAL AND INSTALLATION >

7. Remove dash side finisher (LH/RH). Refer to [INT-24, "DASH SIDE FINISHER : Removal and Installation"](#).
8. Remove cvt shift selector. Refer to [TM-194, "Removal and Installation"](#).
9. Remove center pillar upper finisher (LH/RH). Refer to [INT-21, "CENTER PILLAR UPPER FINISHER : Removal and Installation"](#).
10. Remove the front floor connecting ducts (LH/RH). Refer to [VTL-10, "FRONT FLOOR DUCT : Removal and Installation - Front Floor Connecting Duct"](#).
11. Disconnect front parking brake cable from rear parking brake cable and remove bolts from parking brake cable hold down. Refer to [PB-7, "Exploded View"](#).
12. Disconnect heating and cooling unit assembly drain hose from floor.
13. Release clips (A) using a suitable tool and remove steering joint floor cover (1).



14. Remove floor trim hooks (1) using a suitable tool (A) and front floor trim.



15. Remove the following parts (if necessary).
 - Front floor spacer (LH/RH)
 - Rear floor spacer (LH/RH)

INSTALLATION

Installation is in the reverse order of removal.

REMOVAL - Rear Floor Trim

CAUTION:

Before servicing, turn the ignition switch off, disconnect both battery cables and wait at least three minutes.

1. Disconnect the negative and positive battery terminals, then wait at least three minutes. Refer to [PG-77, "Removal and Installation"](#).
2. Partially remove front door welts (LH/RH). Refer to [INT-23, "BODY SIDE WELT : Removal and Installation - Front Door Welt"](#).
3. Partially remove rear door welts (LH/RH). Refer to [INT-23, "BODY SIDE WELT : Removal and Installation - Rear Door Welt"](#).
4. Remove rear seat assembly. Refer to [SE-39, "Removal and Installation"](#).
5. Remove seat belt lower anchor bolt (LH/RH).

CAUTION:

Before removing the seat belt lower anchor bolt, note the positions of washers and spacers for correct installation.

FLOOR TRIM

< REMOVAL AND INSTALLATION >

6. Remove luggage side lower finisher (LH/RH). Refer to [INT-34. "LUGGAGE SIDE LOWER FINISHER : Removal and Installation - With Third Row Seat"](#).
7. Remove third row seat assembly (if equipped). Refer to [SE-43. "Removal and Installation"](#).
8. Remove rear floor trim.

INSTALLATION

Installation is in the reverse order of removal.

HEADLINING

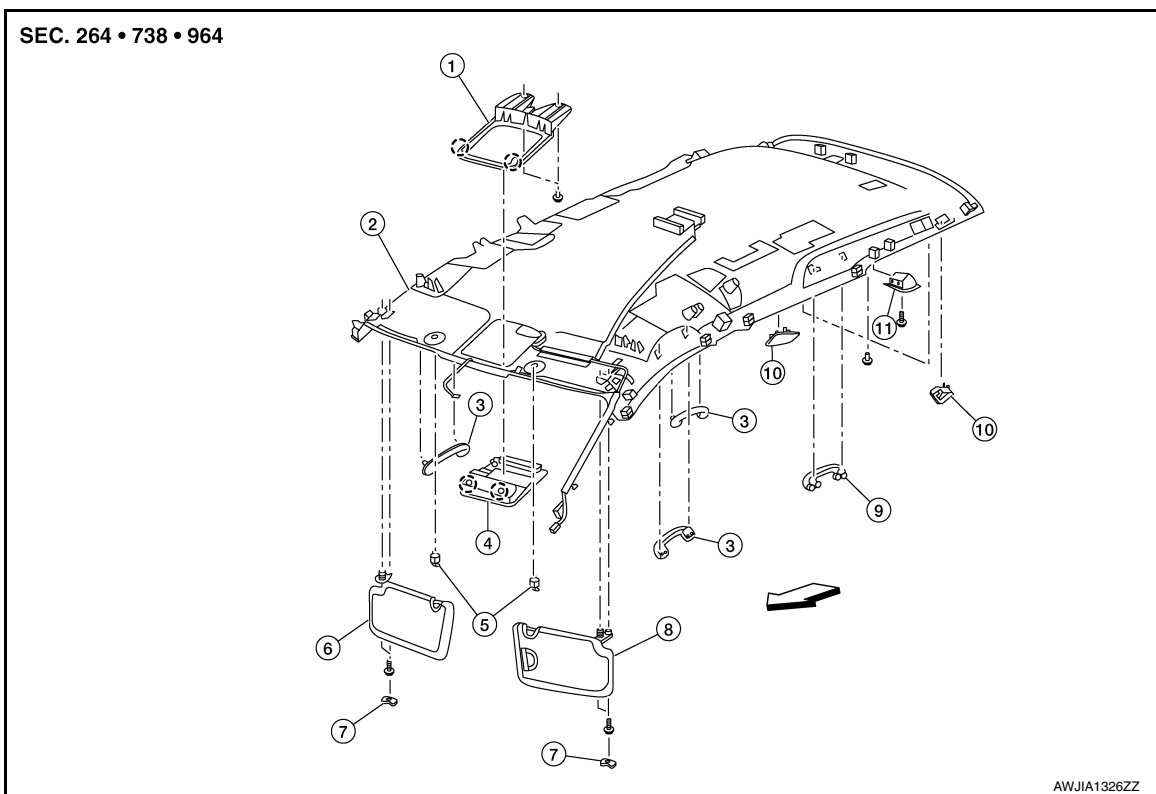
< REMOVAL AND INSTALLATION >

HEADLINING

Exploded View

INFOID:000000009796036

WITHOUT MOONROOF



- | | | |
|------------------------------------|---|--------------------------------------|
| 1. Map lamp assembly bracket | 2. Headlining | 3. Assist grip (without coat hanger) |
| 4. Map lamp assembly | 5. Sun visor holder (LH/RH) | 6. Sun visor (RH) |
| 7. Sun visor cover | 8. Sun visor (LH) | 9. Headlining cover |
| 10. Assist grip (with coat hanger) | 11. Top tether strap child restraint finisher | ← Front |

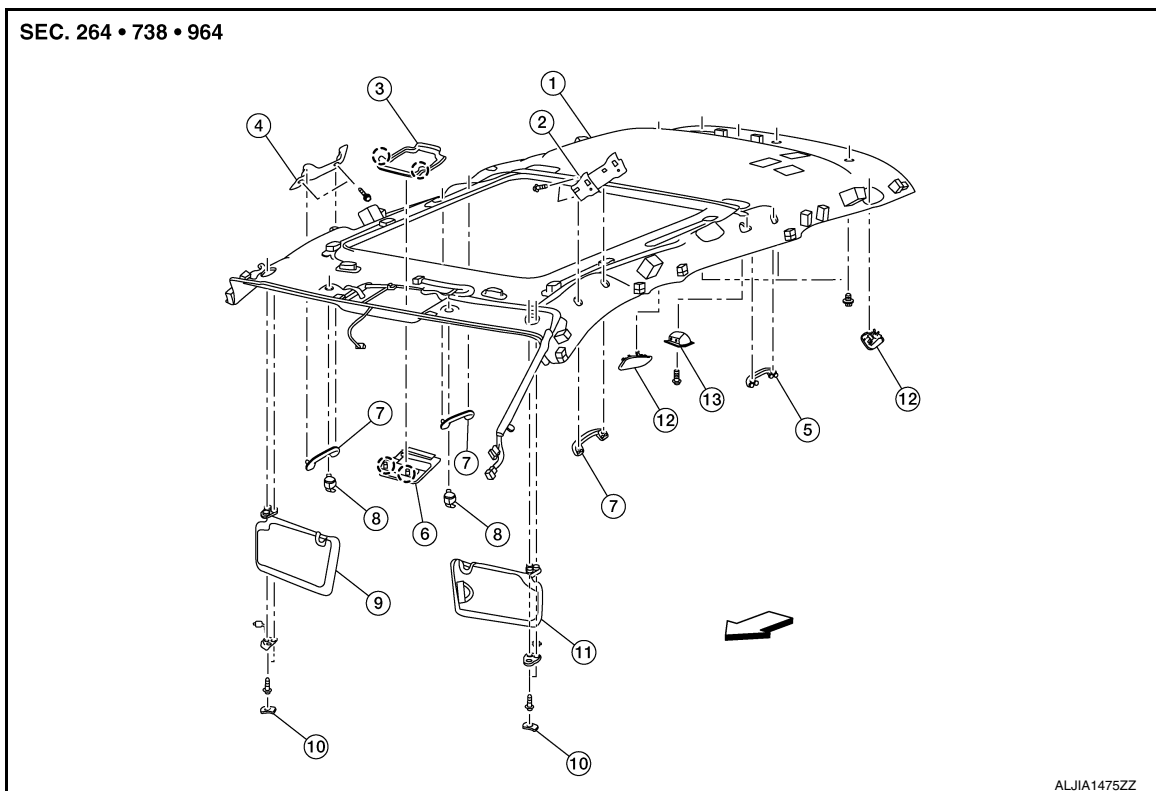
⊖ Pawl

INT

HEADLINING

< REMOVAL AND INSTALLATION >

WITH MOONROOF



- | | | |
|---|-----------------------------------|------------------------------|
| 1. Headlining | 2. Front assist grip bracket (LH) | 3. Map lamp assembly bracket |
| 4. Front assist grip bracket (RH) | 5. Assist grip (with coat hanger) | 6. Map lamp assembly |
| 7. Assist grip (without coat hanger) | 8. Sun visor holder (LH/RH) | 9. Sun visor (RH) |
| 10. Sun visor cover (LH/RH) | 11. Sun visor (LH) | 12. Headlining cover |
| 13. Top tether strap child restraint finisher | ↔ Front | ○ Pawl |

Removal and Installation

INFOID:000000009796037

REMOVAL

WARNING:

Before servicing the SRS, turn ignition switch OFF, disconnect both battery terminals then wait at least three minutes.

1. Disconnect negative and positive battery terminals, then wait at least three minutes. Refer to [PG-77, "Removal and Installation"](#).
2. Remove front pillar finisher (LH/RH). Refer to [INT-20, "FRONT PILLAR FINISHER : Removal and Installation"](#).
3. Remove center pillar upper finisher (LH/RH). Refer to [INT-21, "CENTER PILLAR UPPER FINISHER : Removal and Installation"](#).
4. Remove luggage side upper finisher (LH/RH). Refer to [INT-36, "LUGGAGE SIDE UPPER FINISHER : Removal and Installation"](#).
5. Remove map lamp assembly. Refer to [INL-55, "Removal and Installation"](#).
6. Disconnect map lamp assembly, personal lamp and microphone harness connectors.
7. Remove luggage side upper finisher (LH/RH). Refer to [INT-36, "LUGGAGE SIDE UPPER FINISHER : Removal and Installation"](#).

HEADLINING

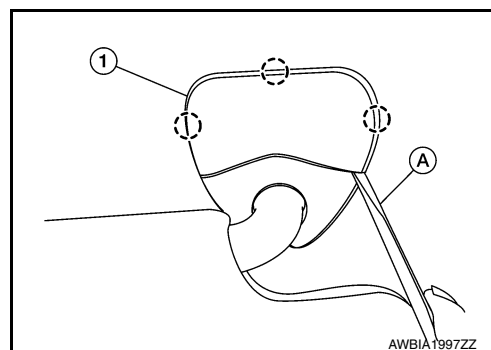
< REMOVAL AND INSTALLATION >

8. Remove sun visor cover (LH/RH) (1) by inserting a suitable tool (A) as shown.

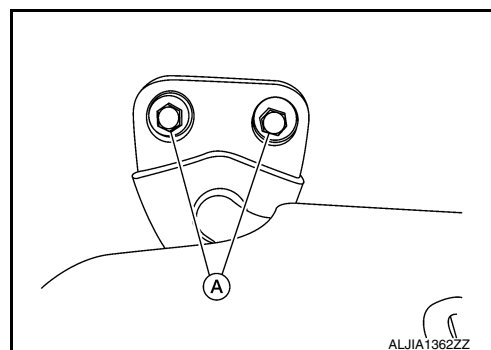
○: Pawl

CAUTION:

Do not damage headlining or sun visor cover surface.



9. Remove sun visor screws (A) (LH/RH), then disconnect harness connectors and remove .



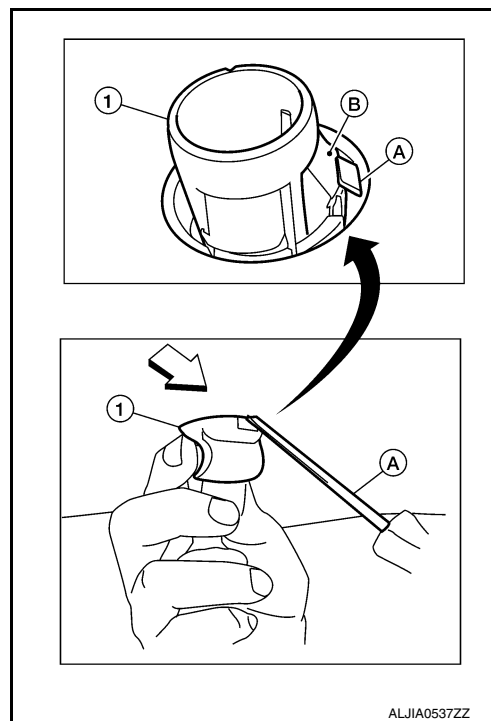
10. Insert a suitable tool (A) at approximately a 30 degree angle into the sun visor holder notch on the front of the sun visor holder (1). Press in to release the locking tab (B). While holding in locking tab (B), turn the sun visor holder (1) 90 degrees to release it from the headliner.

- If the sun visor holder (1) does not fully rotate, make sure that the suitable tool (A) is pressing in on the locking tab (B) and is not positioned under locking tab (B). Reinsert the suitable tool (A) as necessary to release the locking tab (B).

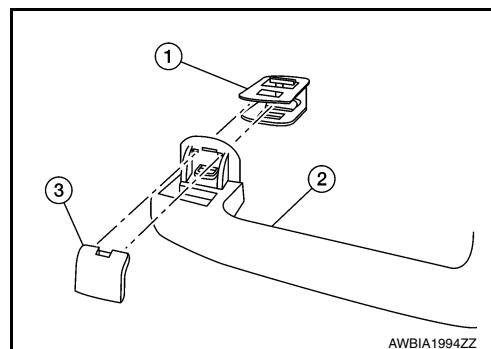
• ⇐: Front

CAUTION:

Do not force the sun visor holder when removing as the locking tab may be damaged if the suitable tool is not positioned correctly.



11. Remove front assist grip (LH/RH) and rear assist grip (LH/RH).
 - a. Remove assist grip cap (3).
 - b. Release clip (1) and remove assist grip (2).

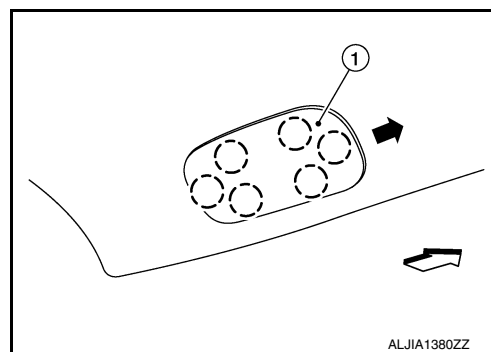


HEADLINING

< REMOVAL AND INSTALLATION >

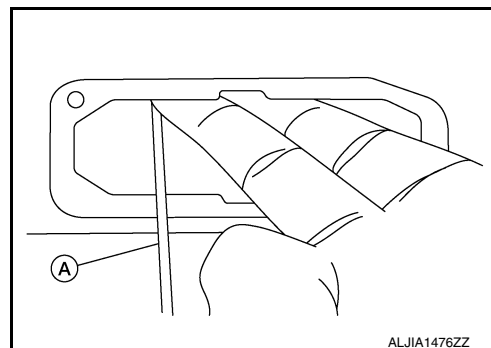
12. Insert suitable tool from front, release pawls then pull headlining cover (1) forward and outward to remove.

○: Pawl
⇐ Front

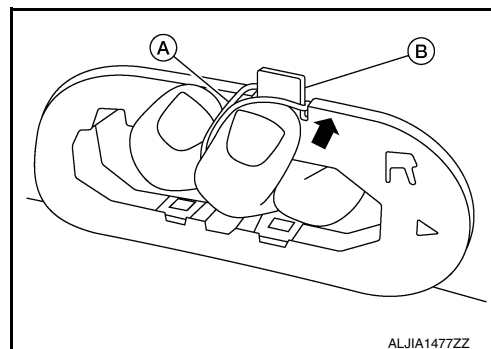


13. Insert two fingers through hole on headlining.

(A) :Tether

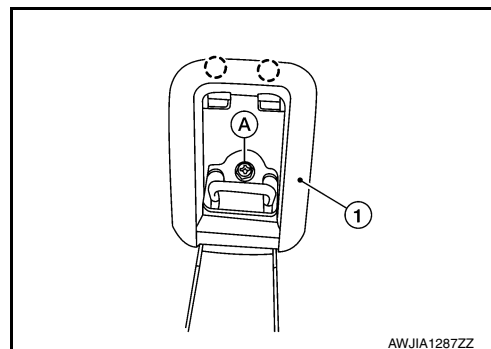


14. Release tether (A) from hook (B) and remove.



15. Remove screw (A) then release pawls using a suitable tool and remove child tether finisher (1).

○: Pawl



16. Release headlining clip at rear and remove headlining through the back door.

CAUTION:

- When removing headlining, two workers are required.
- Do not bend headlining when removing.
- Be careful not to scratch or damage any part of the body while removing the headlining.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Install sun-visor holder (LH/RH) and clips of the rear of headlining for positioning.
- Do not to bend the headlining when installing.

LUGGAGE TRIM

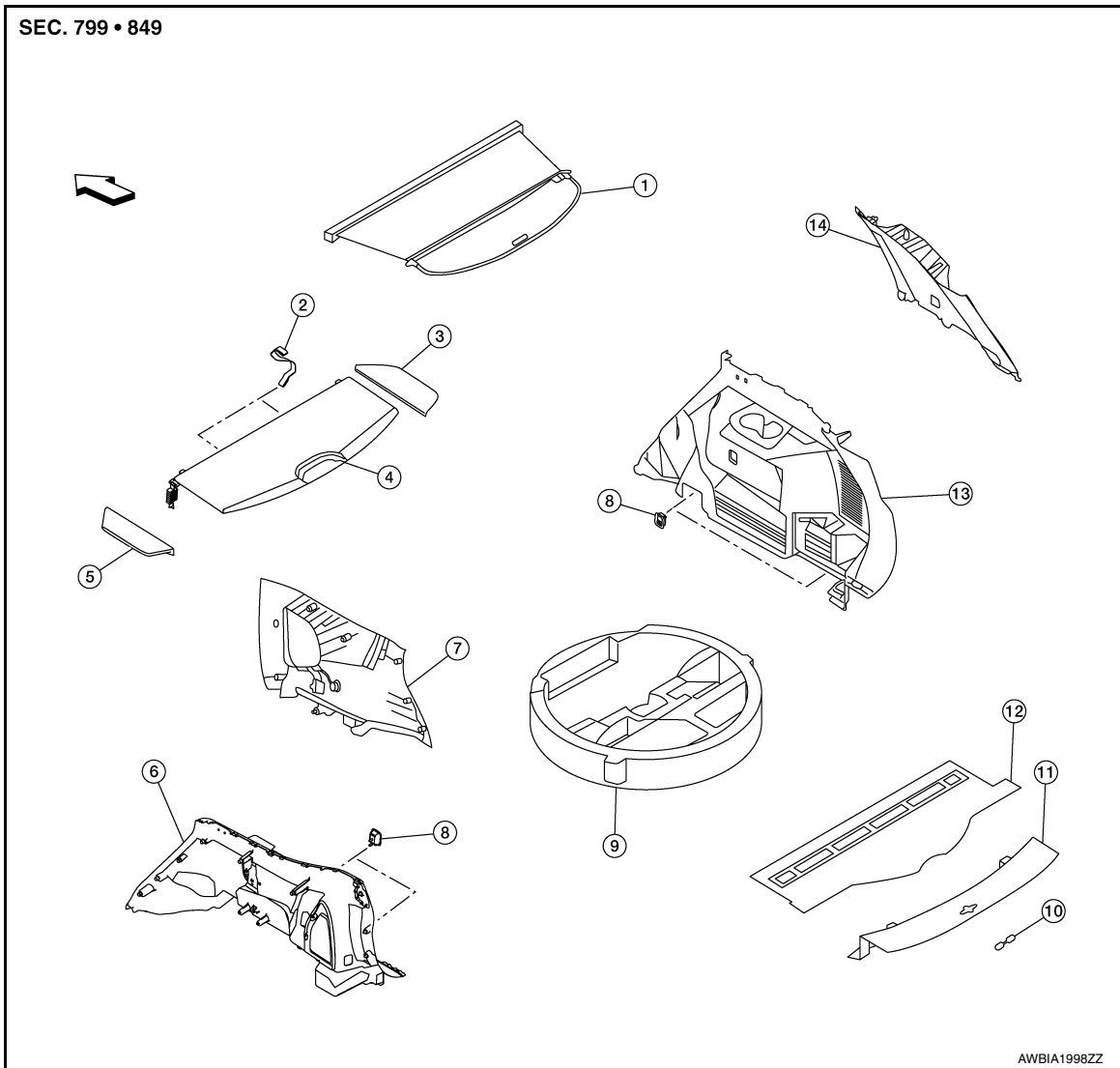
< REMOVAL AND INSTALLATION >

LUGGAGE TRIM

Exploded View

INFOID:000000009796040

WITH THIRD ROW SEAT

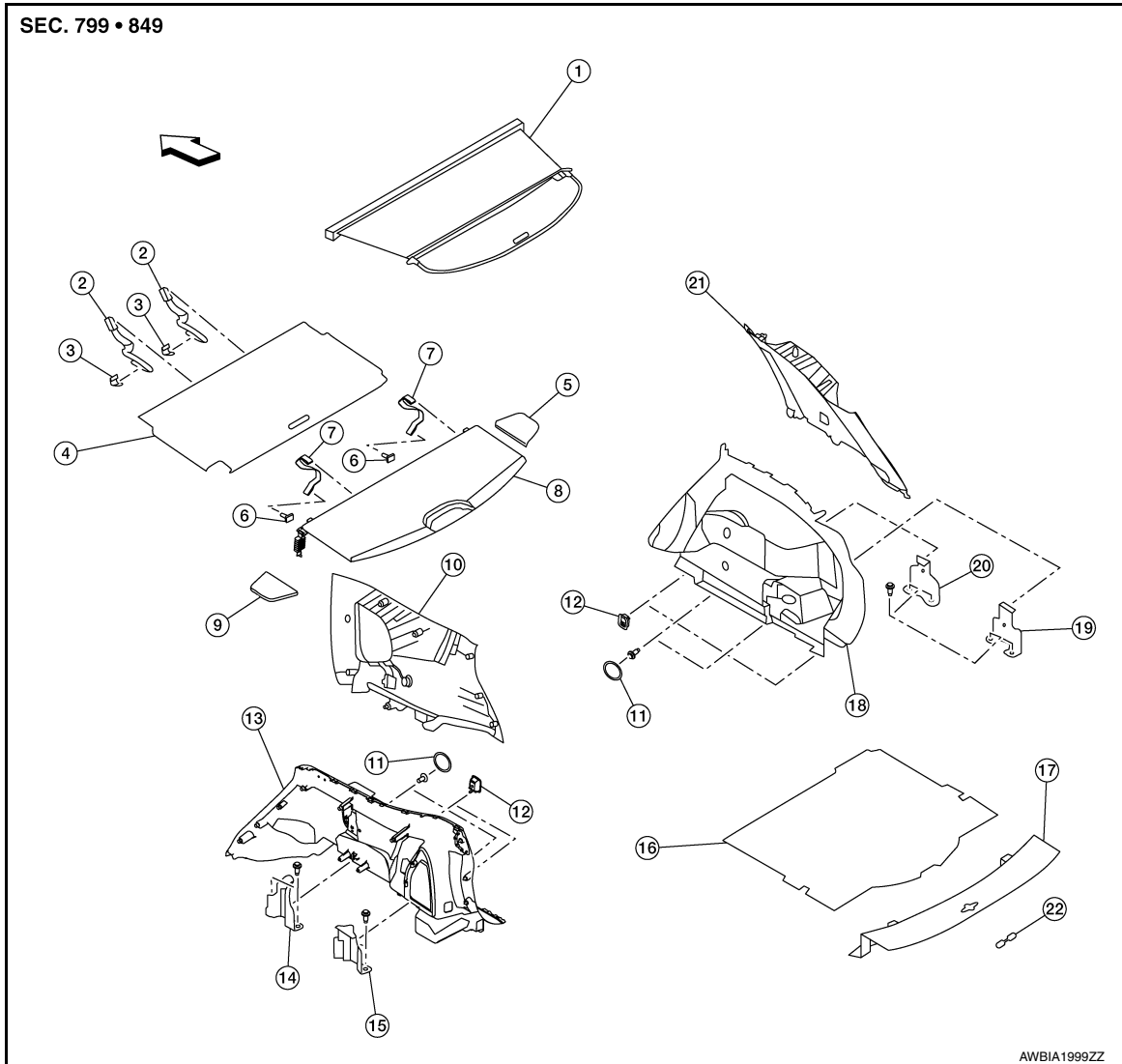


- | | | |
|--------------------------------------|--------------------------------------|-------------------------------------|
| 1. Tonneau cover (if equipped) | 2. Strap (LH/RH) | 3. Luggage floor finisher (RH) |
| 4. Luggage floor center finisher | 5. Luggage floor finisher (LH) | 6. Luggage side lower finisher (LH) |
| 7. Luggage side upper finisher (LH) | 8. Hooks (LH/RH) | 9. Luggage storage box |
| 10. Luggage rear plate finisher | 11. Luggage rear plate | 12. Luggage floor trim |
| 13. Luggage side lower finisher (RH) | 14. Luggage side upper finisher (RH) | ← Front |

LUGGAGE TRIM

< REMOVAL AND INSTALLATION >

WITHOUT THIRD ROW SEAT



- | | | |
|---|--|---|
| 1. Tonneau cover (if equipped) | 2. Front strap (LH/RH) | 3. Front strap hook (LH/RH) |
| 4. Front luggage floor finisher | 5. Luggage floor finisher (RH) | 6. Rear strap hook (LH/RH) |
| 7. Rear strap (LH/RH) | 8. Rear luggage floor finisher | 9. Luggage floor finisher (LH) |
| 10. Luggage side upper finisher (LH) | 11. Bolt covers (LH/RH) | 12. Hooks (LH/RH) |
| 13. Luggage side lower finisher (LH) | 14. Luggage side lower finisher front bracket (LH) | 15. Luggage side lower finisher rear bracket (LH) |
| 16. Luggage floor trim | 17. Luggage rear plate | 18. Luggage side lower finisher (RH) |
| 19. Rear luggage side lower finisher bracket (RH) | 20. Front luggage side lower finisher bracket (RH) | 21. Luggage side upper finisher (RH) |
| 22. Luggage rear plate finisher | ⇐ Front | |

LUGGAGE SIDE LOWER FINISHER

LUGGAGE SIDE LOWER FINISHER : Removal and Installation - With Third Row Seat

INFOID:000000010213591

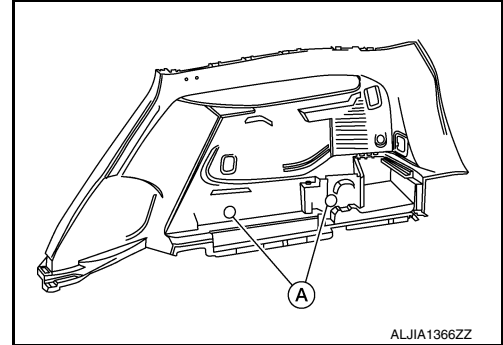
REMOVAL

1. Release straps and remove luggage floor finisher front and rear.
2. Remove luggage rear plate. Refer to [INT-37, "LUGGAGE REAR PLATE : Removal and Installation"](#).
3. Partially remove back door weatherstrip.
4. Partially remove rear door welt (LH/RH).

LUGGAGE TRIM

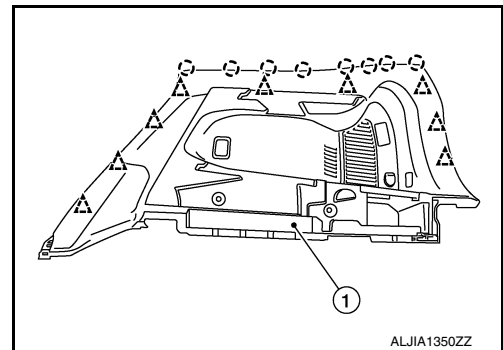
< REMOVAL AND INSTALLATION >

5. Fold third row seatback flat.
6. Partially remove the rear door welt. Refer to [INT-23, "BODY SIDE WELT : Removal and Installation - Rear Door Welt"](#).
7. Remove the luggage side lower finisher hook bolts and hooks.
8. Remove the luggage side lower finisher bolt covers (A) then remove bolts.



9. Release luggage side lower finisher (1) clips and pawls.

△: Clip
○: Pawl



10. Disconnect the harness connector from power socket (RH only) and luggage room lamp (RH only) and remove.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Visually check the clips and pawls for deformation and damage during installation. Replace with new ones if necessary.
- When installing luggage side lower finisher, check that clips and pawls are securely placed in body panel holes.

LUGGAGE SIDE LOWER FINISHER : Removal and Installation - Without Third Row Seat

INFOID:0000000010269697

REMOVAL

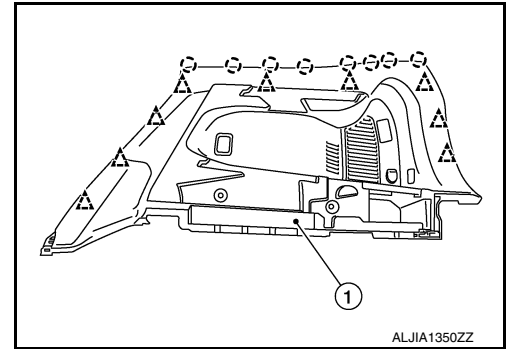
1. Release straps and remove luggage floor finisher front and rear.
2. Remove luggage rear plate. Refer to [INT-37, "LUGGAGE REAR PLATE : Removal and Installation"](#).
3. Partially remove back door weatherstrip.
4. Partially remove rear door welt.
5. Remove the luggage side lower finisher hook bolts and hooks.

LUGGAGE TRIM

< REMOVAL AND INSTALLATION >

6. Release luggage side lower finisher (1) clips and pawls.

△: Clip
○: Pawl



7. Disconnect the harness connector from power socket (RH only) and luggage room lamp (RH only) and remove.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Visually check the clips and pawls for deformation and damage during installation. Replace with new ones if necessary.
- When installing luggage side lower finisher, check that clips and pawls are securely placed in body panel holes.

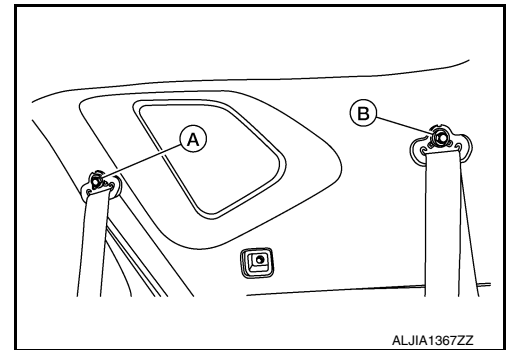
LUGGAGE SIDE UPPER FINISHER

LUGGAGE SIDE UPPER FINISHER : Removal and Installation

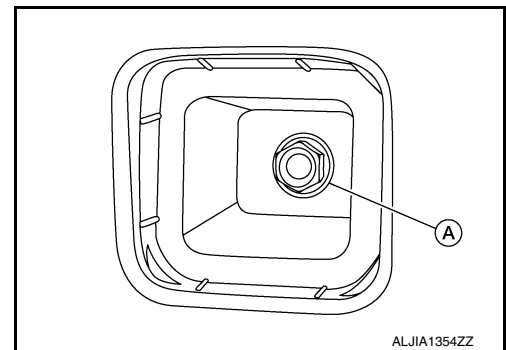
INFOID:0000000010213592

REMOVAL

1. Remove luggage side lower finisher. Refer to [INT-34. "LUGGAGE SIDE LOWER FINISHER : Removal and Installation - With Third Row Seat"](#).
2. Remove rear and third row seatbelt d-ring anchor bolt covers, then remove rear and third row seatbelt d-ring anchor bolts (A and B).



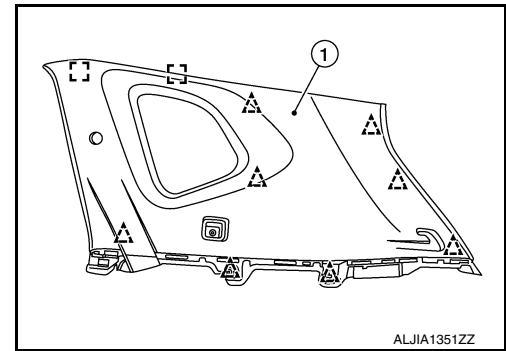
3. Remove luggage side upper finisher bolt (A).



LUGGAGE TRIM

< REMOVAL AND INSTALLATION >

4. Release clips, then remove luggage side upper finisher (1).



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Visually check the clips for deformation and damage during installation. Replace with new ones if necessary.
- When installing luggage side upper finisher, check that clips are securely placed in body panel holes.

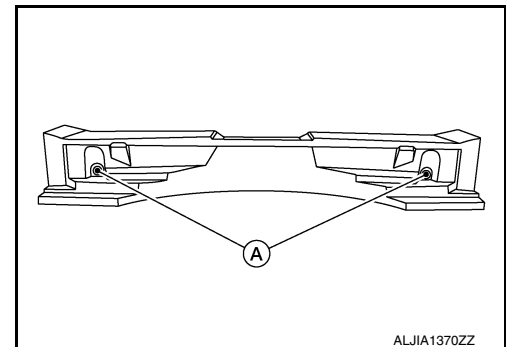
LUGGAGE REAR PLATE

LUGGAGE REAR PLATE : Removal and Installation

INFOID:0000000010246866

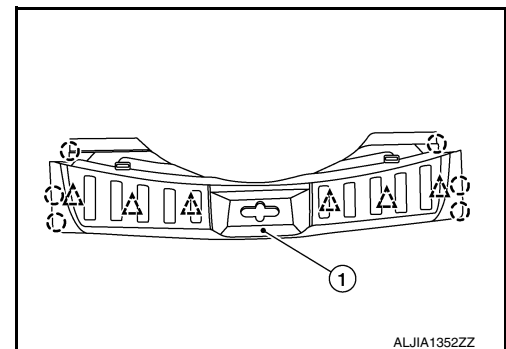
REMOVAL

1. Release the luggage rear plate front clips (A) using a suitable tool.



2. Release clips and pawls using a suitable tool and remove luggage rear plate (1).

- △: Clip
- : Pawl



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Visually check the clips and pawls for deformation and damage during installation. Replace with new ones if necessary.
- When installing luggage rear plate, check that clips and pawls are securely placed in body panel holes.

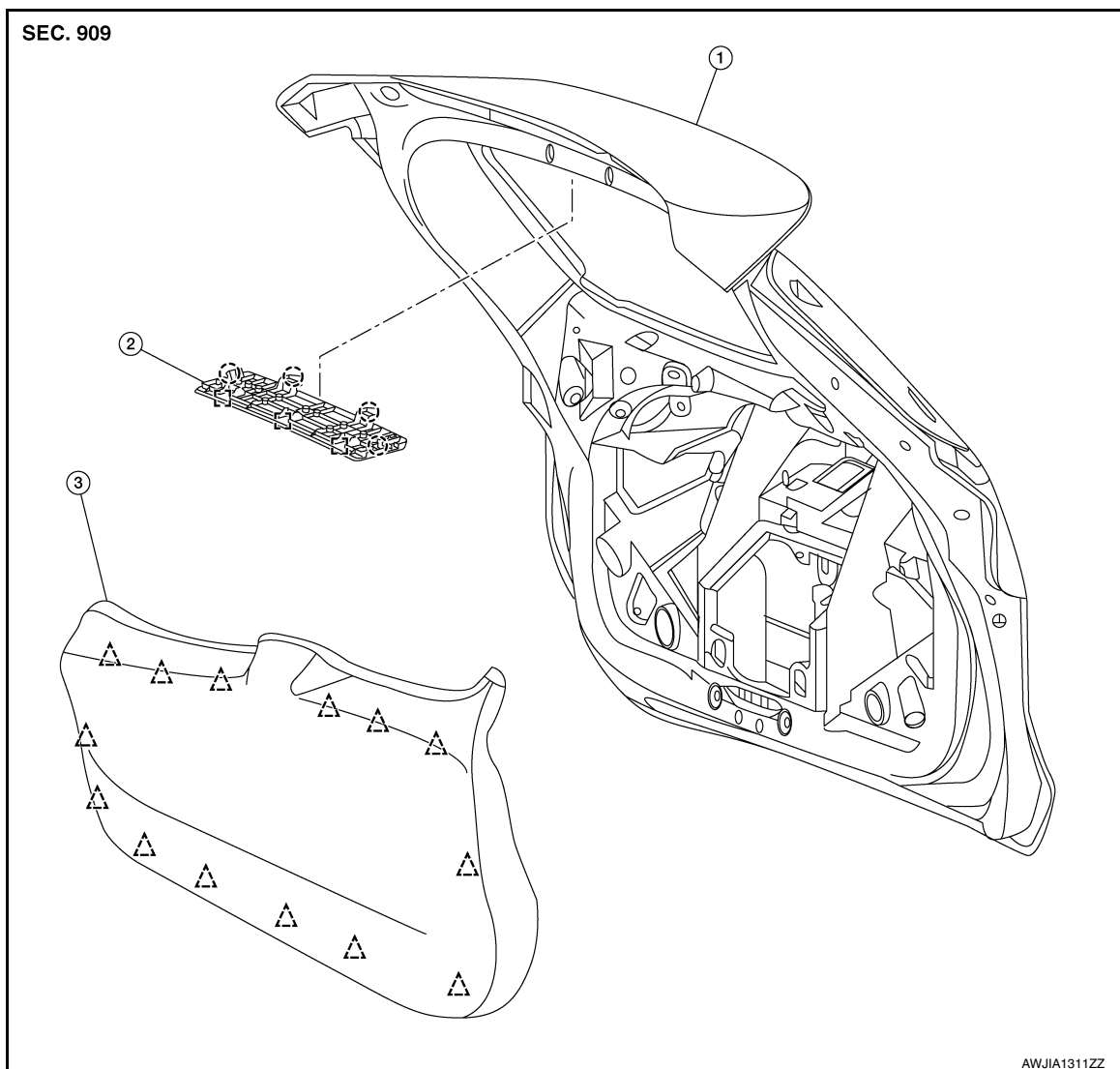
BACK DOOR FINISHER

< REMOVAL AND INSTALLATION >

BACK DOOR FINISHER

Exploded View

INFOID:000000009796042



1. Back door

△ Clip

2. Access cover

○ Pawl

3. Back door finisher

□ Metal clip

Removal and Installation

INFOID:000000009796043

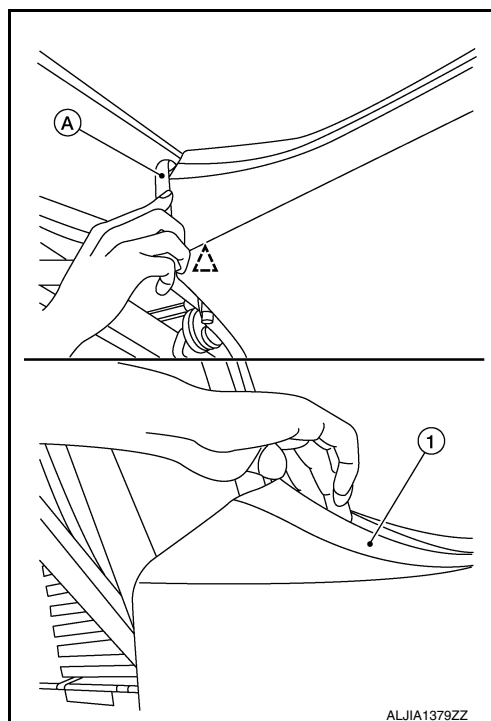
REMOVAL

BACK DOOR FINISHER

< REMOVAL AND INSTALLATION >

1. Using a suitable tool (A) release upper LH most clip, then release remaining clips by gently pulling down on back door finisher (1).

△ : Clip



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

When installing back door finisher, check that clips are securely placed in door panel holes.

SECTION **IP**

INSTRUMENT PANEL

CONTENTS

PRECAUTION	2	INSTRUMENT FINISHER A : Removal and Installation	15	A
PRECAUTIONS	2	INSTRUMENT FINISHER B	15	B
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	2	INSTRUMENT FINISHER B : Removal and Installation	16	C
Precaution for Work	2	INSTRUMENT FINISHER E	16	D
PREPARATION	3	INSTRUMENT FINISHER E : Removal and Installation	16	E
PREPARATION	3	STEERING COLUMN COVERS	17	F
Special Service Tools	3	Removal and Installation	17	G
Commercial Service Tools	3	CENTER CONSOLE ASSEMBLY	18	H
CLIP LIST	4	Exploded View	18	I
Descriptions for Clips	4	Removal and Installation	18	IP
SYMPTOM DIAGNOSIS	8	CLUSTER LID A	20	K
SQUEAK AND RATTLE TROUBLE DIAGNOSES	8	Removal and Installation	20	L
Work Flow	8	CLUSTER LID C	21	M
Generic Squeak and Rattle Troubleshooting	9	Exploded View	21	N
Diagnostic Worksheet	12	Removal and Installation	21	O
REMOVAL AND INSTALLATION	14	INSTRUMENT LOWER PANEL LH	22	P
INSTRUMENT PANEL ASSEMBLY	14	Removal and Installation	22	
Exploded View	14	GLOVE BOX ASSEMBLY AND HOUSING	23	
INSTRUMENT PANEL ASSEMBLY	14	Removal and Installation	23	
INSTRUMENT PANEL ASSEMBLY : Removal and Installation	14	UNIT DISASSEMBLY AND ASSEMBLY ...	25	
INSTRUMENT FINISHER A	15	CENTER CONSOLE ASSEMBLY	25	
		Exploded View	25	
		Disassembly and Assembly	25	

PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010284134

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Precaution for Work

INFOID:0000000010284137

- When removing or disassembling each component, be careful not to damage or deform it. If a component may be subject to interference, be sure to protect it with a shop cloth.
- When removing (disengaging) components with a screwdriver or similar tool, be sure to wrap the component with a shop cloth or vinyl tape to protect it.
- Protect the removed parts with a shop cloth and prevent them from being dropped.
- Replace a deformed or damaged clip.
- If a part is specified as a non-reusable part, always replace it with a new one.
- Be sure to tighten bolts and nuts securely to the specified torque.
- After installation is complete, be sure to check that each part works properly.
- Follow the steps below to clean components:
 - Water soluble dirt:
 - Dip a soft cloth into lukewarm water, wring the water out of the cloth and wipe the dirty area.
 - Then rub with a soft, dry cloth.
 - Oily dirt:
 - Dip a soft cloth into lukewarm water with mild detergent (concentration: within 2 to 3%) and wipe the dirty area.
 - Then dip a cloth into fresh water, wring the water out of the cloth and wipe the detergent off.
 - Then rub with a soft, dry cloth.
 - Do not use organic solvent such as thinner, benzene, alcohol or gasoline.
 - For genuine leather seats, use a genuine leather seat cleaner.

PREPARATION

< PREPARATION >

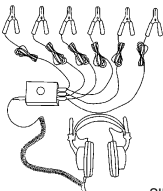
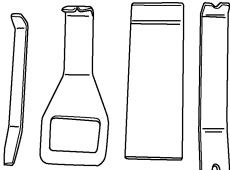
PREPARATION

PREPARATION

Special Service Tools

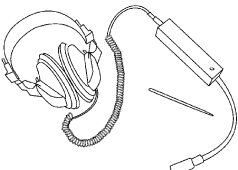
INFOID:0000000010178102

The actual shape of the tools may differ from those illustrated here.

Tool number (TechMate No.) Tool name	Description
— (J-39570) Chassis Ear	Locating the noise
 SIIA0993E	
— (J-50397) NISSAN Squeak and Rattle Kit	Repairing the cause of noise
 ALJIA1232ZZ	
— (J-46534) Trim Tool Set	Removing trim components
 AWJIA0483ZZ	

Commercial Service Tools

INFOID:0000000010178103

(TechMate No.) Tool name	Description
(J-39565) Engine Ear	Locating the noise
 SIIA0995E	
(—) Power Tool	Loosening nuts, screws and bolts
 PIIB1407E	

CLIP LIST

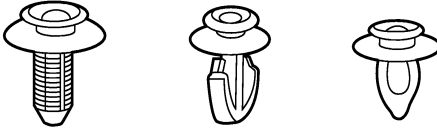
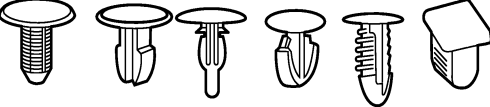
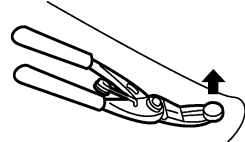
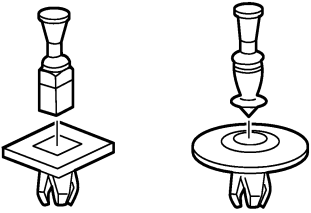
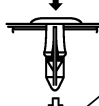
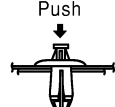
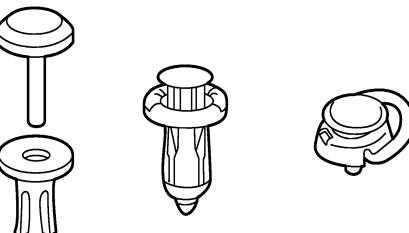
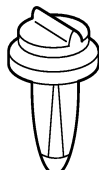
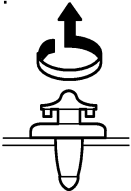
< PREPARATION >

CLIP LIST

Descriptions for Clips

INFOID:0000000010284163

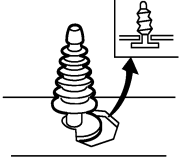
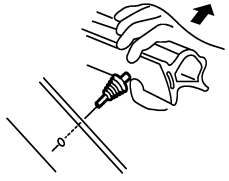
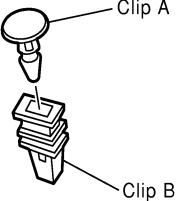
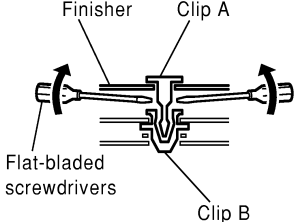
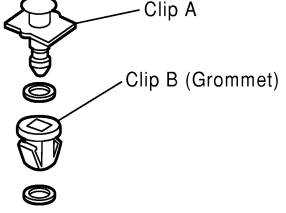
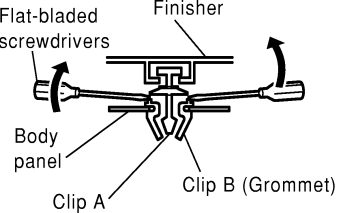
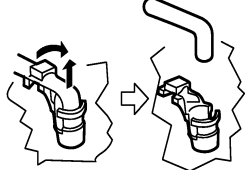
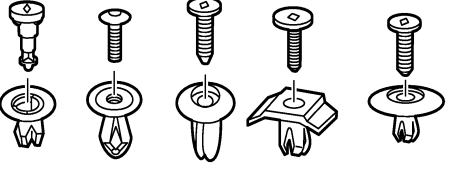
Replace any clips which are damaged during removal or installation.

Symbol No.	Shapes	Removal & Installation
C101 		Removal: Remove by bending up with flat-bladed screwdrivers or clip remover. 
C103 		 Removal: Remove with a clip remover.
C203 		Removal: Push center pin to catching position. (Do not remove center pin by hitting it.) Push  Installation: Push 
C205 		Removal: Flat-bladed screwdriver  Clip Finisher
C206 		Removal: 

SIIA0315E

CLIP LIST

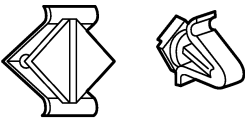
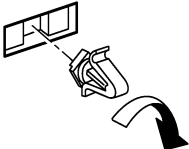
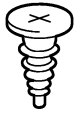
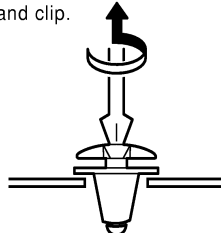
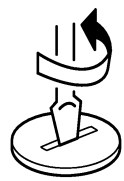
< PREPARATION >

Symbol No.	Shapes	Removal & Installation
CE103 		Removal: 
CF110 		Removal: 
CF118 		Removal: 
CR103 		Removal: Holder portion of clip must be spread out to remove rod. 
CS101 		Removal: 1. Screw out with a Phillips screwdriver. 2. Remove female portion with flat-bladed screwdriver. 

SIIA0316E

CLIP LIST

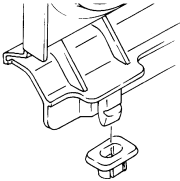
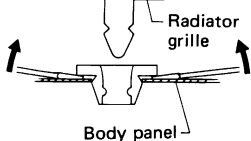
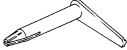
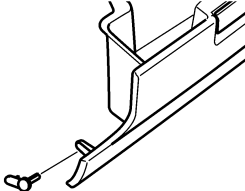
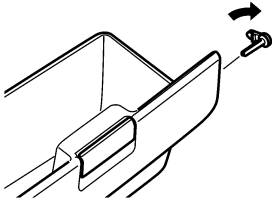
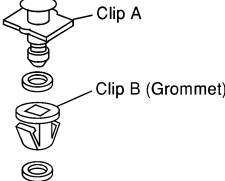
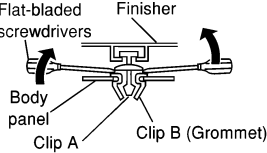
< PREPARATION >

Symbol No.	Shapes	Removal & Installation	
CG101 		Removal:  Rotate 45° to remove	Installation: 
CS102 			
CS113 		Removal: Disconnect upper connection of clip with a flat-bladed screwdriver, then remove clip while inserting a flat-bladed screwdriver between body panel and clip. 	
C111 			

SIIA0317E

CLIP LIST

< PREPARATION >

Symbol No.	Shapes	Removal & Installation
CG104 		Removal: Remove by bending up with flat-bladed screwdrivers. 
CE114 		
CF118 		Removal: Flat-bladed screwdrivers 

ALJIA0564GB

A
B
C
D
E
F
G
H
I
IP
K
L
M
N
O
P

SQUEAK AND RATTLE TROUBLE DIAGNOSES

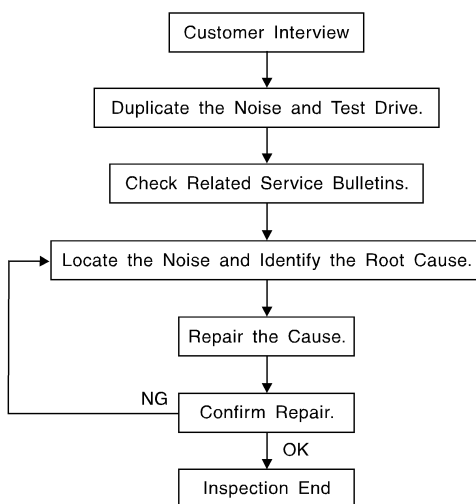
< SYMPTOM DIAGNOSIS >

SYMPTOM DIAGNOSIS

SQUEAK AND RATTLE TROUBLE DIAGNOSES

Work Flow

INFOID:0000000010284164



SBT842

CUSTOMER INTERVIEW

Interview the customer if possible, to determine the conditions that exist when the noise occurs. Use the Diagnostic Worksheet during the interview to document the facts and conditions when the noise occurs and any customer's comments; refer to [IP-12, "Diagnostic Worksheet"](#). This information is necessary to duplicate the conditions that exist when the noise occurs.

- The customer may not be able to provide a detailed description or the location of the noise. Attempt to obtain all the facts and conditions that exist when the noise occurs (or does not occur).
- If there is more than one noise in the vehicle, be sure to diagnose and repair the noise that the customer is concerned about. This can be accomplished by test driving the vehicle with the customer.
- After identifying the type of noise, isolate the noise in terms of its characteristics. The noise characteristics are provided so the customer, service adviser and technician are all speaking the same language when defining the noise.
- Squeak —(Like tennis shoes on a clean floor)
Squeak characteristics include the light contact/fast movement/brought on by road conditions/hard surfaces = higher pitch noise/softer surfaces = lower pitch noises/edge to surface = chirping.
- Creak—(Like walking on an old wooden floor)
Creak characteristics include firm contact/slow movement/twisting with a rotational movement/pitch dependent on materials/often brought on by activity.
- Rattle—(Like shaking a baby rattle)
Rattle characteristics include the fast repeated contact/vibration or similar movement/loose parts/missing clip or fastener/incorrect clearance.
- Knock —(Like a knock on a door)
Knock characteristics include hollow sounding/sometimes repeating/often brought on by driver action.
- Tick—(Like a clock second hand)
Tick characteristics include gentle contacting of light materials/loose components/can be caused by driver action or road conditions.
- Thump—(Heavy, muffled knock noise)
Thump characteristics include softer knock/dead sound often brought on by activity.
- Buzz—(Like a bumble bee)
Buzz characteristics include high frequency rattle/firm contact.
- Often the degree of acceptable noise level will vary depending upon the person. A noise that you may judge as acceptable may be very irritating to the customer.
- Weather conditions, especially humidity and temperature, may have a great effect on noise level.

DUPLICATE THE NOISE AND TEST DRIVE

SQUEAK AND RATTLE TROUBLE DIAGNOSES

< SYMPTOM DIAGNOSIS >

If possible, drive the vehicle with the customer until the noise is duplicated. Note any additional information on the Diagnostic Worksheet regarding the conditions or location of the noise. This information can be used to duplicate the same conditions when you confirm the repair.

If the noise can be duplicated easily during the test drive, to help identify the source of the noise, try to duplicate the noise with the vehicle stopped by doing one or all of the following:

- 1) Close a door.
 - 2) Tap or push/pull around the area where the noise appears to be coming from.
 - 3) Rev the engine.
 - 4) Use a floor jack to recreate vehicle "twist".
 - 5) At idle, apply engine load (electrical load, half-clutch on M/T model, drive position on CVT and A/T models).
 - 6) Raise the vehicle on a hoist and hit a tire with a rubber hammer.
- Drive the vehicle and attempt to duplicate the conditions the customer states exist when the noise occurs.
 - If it is difficult to duplicate the noise, drive the vehicle slowly on an undulating or rough road to stress the vehicle body.

CHECK RELATED SERVICE BULLETINS

After verifying the customer concern or symptom, check ASIST for Technical Service Bulletins (TSBs) related to that concern or symptom.

If a TSB relates to the symptom, follow the procedure to repair the noise.

LOCATE THE NOISE AND IDENTIFY THE ROOT CAUSE

1. Narrow down the noise to a general area. To help pinpoint the source of the noise, use a listening tool (Chassis Ear: J-39570, Engine Ear: J-39565 and mechanic's stethoscope).
2. Narrow down the noise to a more specific area and identify the cause of the noise by:
 - removing the components in the area that you suspect the noise is coming from.
Do not use too much force when removing clips and fasteners, otherwise clips and fasteners can be broken or lost during the repair, resulting in the creation of new noise.
 - tapping or pushing/pulling the component that you suspect is causing the noise.
Do not tap or push/pull the component with excessive force, otherwise the noise will be eliminated only temporarily.
 - feeling for a vibration with your hand by touching the component(s) that you suspect is (are) causing the noise.
 - placing a piece of paper between components that you suspect are causing the noise.
 - looking for loose components and contact marks.Refer to [IP-9, "Generic Squeak and Rattle Troubleshooting"](#).

REPAIR THE CAUSE

- If the cause is a loose component, tighten the component securely.
- If the cause is insufficient clearance between components:
 - separate components by repositioning or loosening and retightening the component, if possible.
 - insulate components with a suitable insulator such as urethane pads, foam blocks, felt cloth tape or urethane tape. A NISSAN Squeak and Rattle Kit (J-50397) is available through your authorized NISSAN Parts Department.

CAUTION:

Do not use excessive force as many components are constructed of plastic and may be damaged.

NOTE:

- Always check with the Parts Department for the latest parts information.
- The materials contained in the NISSAN Squeak and Rattle Kit (J-50397) are listed on the inside cover of the kit; and can each be ordered separately as needed.
- The following materials not found in the kit can also be used to repair squeaks and rattles.
 - SILICONE GREASE: Use instead of UHMW tape that will be visible or does not fit. The silicone grease will only last a few months.
 - SILICONE SPRAY: Use when grease cannot be applied.
 - DUCT TAPE: Use to eliminate movement.

CONFIRM THE REPAIR

Confirm that the cause of a noise is repaired by test driving the vehicle. Operate the vehicle under the same conditions as when the noise originally occurred. Refer to the notes on the Diagnostic Worksheet.

Generic Squeak and Rattle Troubleshooting

INFOID:0000000010284165

Refer to Table of Contents for specific component removal and installation information.

SQUEAK AND RATTLE TROUBLE DIAGNOSES

< SYMPTOM DIAGNOSIS >

INSTRUMENT PANEL

Most incidents are caused by contact and movement between:

1. Cluster lid A and the instrument panel
2. Acrylic lens and combination meter housing
3. Instrument panel to front pillar finisher
4. Instrument panel to windshield
5. Instrument panel pins
6. Wiring harnesses behind the combination meter
7. A/C defroster duct and duct joint

These incidents can usually be located by tapping or moving the components to duplicate the noise or by pressing on the components while driving to stop the noise. Most of these incidents can be repaired by applying felt cloth tape or silicone spray (in hard to reach areas). Urethane pads can be used to insulate wiring harness.

CAUTION:

Do not use silicone spray to isolate a squeak or rattle. If you saturate the area with silicone, you will not be able to recheck the repair.

CENTER CONSOLE

Components to pay attention to include:

1. Shift selector assembly cover to finisher
2. A/C control unit and cluster lid C
3. Wiring harnesses behind audio and A/C control unit

The instrument panel repair and isolation procedures also apply to the center console.

DOORS

Pay attention to the:

1. Finisher and inner panel making a slapping noise
2. Inside handle escutcheon to door finisher
3. Wiring harnesses tapping
4. Door striker out of alignment causing a popping noise on starts and stops

Tapping or moving the components or pressing on them while driving to duplicate the conditions can isolate many of these incidents. You can usually insulate the areas with felt cloth tape or insulator foam blocks from the NISSAN Squeak and Rattle Kit (J-50397) to repair the noise.

TRUNK

Trunk noises are often caused by a loose jack or loose items put into the trunk by the owner.

In addition look for:

1. Trunk lid bumpers out of adjustment
2. Trunk lid striker out of adjustment
3. The trunk lid torsion bars knocking together
4. A loose license plate or bracket

Most of these incidents can be repaired by adjusting, securing or insulating the item(s) or component(s) causing the noise.

SUNROOF/HEADLINING

Noises in the sunroof/headlining area can often be traced to one of the following:

1. Sunroof lid, rail, linkage or seals making a rattle or light knocking noise
2. Sun visor shaft shaking in the holder
3. Front or rear windshield touching headlining and squeaking

Again, pressing on the components to stop the noise while duplicating the conditions can isolate most of these incidents. Repairs usually consist of insulating with felt cloth tape.

OVERHEAD CONSOLE (FRONT AND REAR)

Overhead console noises are often caused by the console panel clips not being engaged correctly. Most of these incidents are repaired by pushing up on the console at the clip locations until the clips engage.

In addition look for:

SQUEAK AND RATTLE TROUBLE DIAGNOSES

< SYMPTOM DIAGNOSIS >

1. Loose harness or harness connectors.
2. Front console map/reading lamp lens loose.
3. Loose screws at console attachment points.

A

SEATS

When isolating seat noise it's important to note the position the seat is in and the load placed on the seat when the noise is present. These conditions should be duplicated when verifying and isolating the cause of the noise.

B

Cause of seat noise include:

C

1. Headrest rods and holder
2. A squeak between the seat pad cushion and frame
3. The rear seatback lock and bracket

D

These noises can be isolated by moving or pressing on the suspected components while duplicating the conditions under which the noise occurs. Most of these incidents can be repaired by repositioning the component or applying urethane tape to the contact area.

E

UNDERHOOD

Some interior noise may be caused by components under the hood or on the engine wall. The noise is then transmitted into the passenger compartment.

F

Causes of transmitted underhood noise include:

1. Any component installed to the engine wall
2. Components that pass through the engine wall
3. Engine wall mounts and connectors
4. Loose radiator installation pins
5. Hood bumpers out of adjustment
6. Hood striker out of adjustment

G

H

These noises can be difficult to isolate since they cannot be reached from the interior of the vehicle. The best method is to secure, move or insulate one component at a time and test drive the vehicle. Also, engine rpm or load can be changed to isolate the noise. Repairs can usually be made by moving, adjusting, securing, or insulating the component causing the noise.

I

IP

K

L

M

N

O

P

SQUEAK AND RATTLE TROUBLE DIAGNOSES

< SYMPTOM DIAGNOSIS >

Diagnostic Worksheet

INFOID:000000010284166

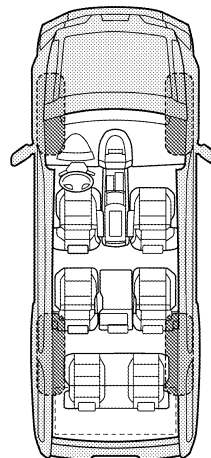
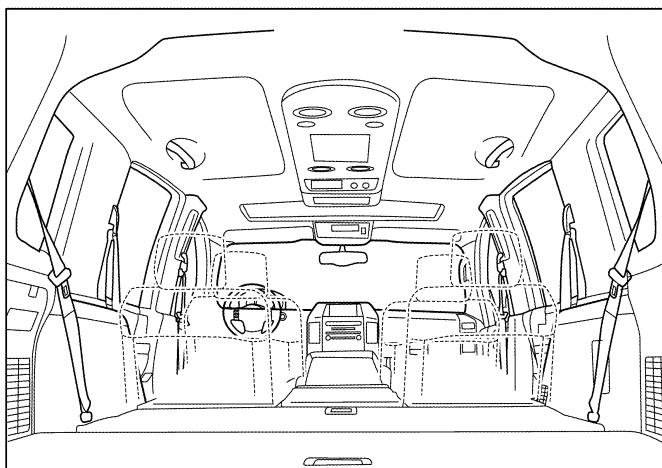
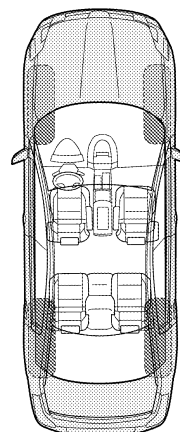
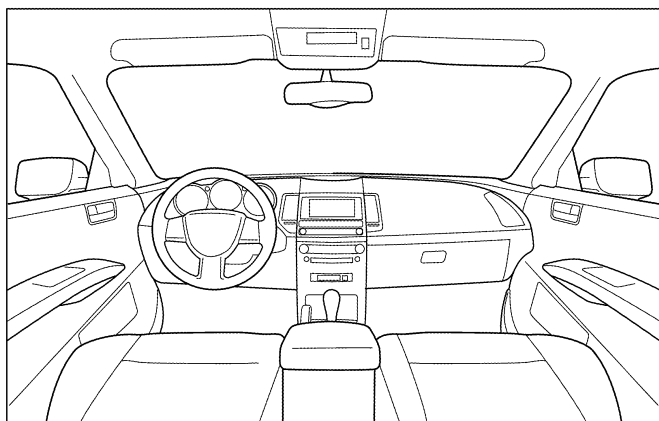
Dear Customer:

We are concerned about your satisfaction with your vehicle. Repairing a squeak or rattle sometimes can be very difficult. To help us fix your vehicle right the first time, please take a moment to note the area of the vehicle where the squeak or rattle occurs and under what conditions. You may be asked to take a test drive with a service advisor or technician to ensure we confirm the noise you are hearing.

SQUEAK & RATTLE DIAGNOSTIC WORKSHEET

I. WHERE DOES THE NOISE COME FROM? (circle the area of the vehicle)

The illustrations are for reference only, and may not reflect the actual configuration of your vehicle.



Continue to page 2 of the worksheet and briefly describe the location of the noise or rattle. In addition, please indicate the conditions which are present when the noise occurs.

SQUEAK AND RATTLE TROUBLE DIAGNOSES

< SYMPTOM DIAGNOSIS >

SQUEAK & RATTLE DIAGNOSTIC WORKSHEET - page 2

Briefly describe the location where the noise occurs:

II. WHEN DOES IT OCCUR? (please check the boxes that apply)

- | | |
|---|--|
| ☐ Anytime | ☐ After sitting out in the rain |
| ☐ 1st time in the morning | ☐ When it is raining or wet |
| ☐ Only when it is cold outside | ☐ Dry or dusty conditions |
| ☐ Only when it is hot outside | ☐ Other: |

III. WHEN DRIVING:

- ☐ Through driveways
- ☐ Over rough roads
- ☐ Over speed bumps
- ☐ Only about ____ mph
- ☐ On acceleration
- ☐ Coming to a stop
- ☐ On turns: left, right or either (circle)
- ☐ With passengers or cargo
- ☐ Other: _____
- ☐ After driving ____ miles or ____ minutes

IV. WHAT TYPE OF NOISE

- ☐ Squeak (like tennis shoes on a clean floor)
- ☐ Creak (like walking on an old wooden floor)
- ☐ Rattle (like shaking a baby rattle)
- ☐ Knock (like a knock at the door)
- ☐ Tick (like a clock second hand)
- ☐ Thump (heavy muffled knock noise)
- ☐ Buzz (like a bumble bee)

TO BE COMPLETED BY DEALERSHIP PERSONNEL

Test Drive Notes:

	YES	NO	Initials of person performing
Vehicle test driven with customer	☐	☐	_____
- Noise verified on test drive	☐	☐	_____
- Noise source located and repaired	☐	☐	_____
- Follow up test drive performed to confirm repair	☐	☐	_____

VIN: _____ Customer Name _____
W.O.# _____ Date: _____

This form must be attached to Work Order

LAIA0071E

INSTRUMENT PANEL ASSEMBLY

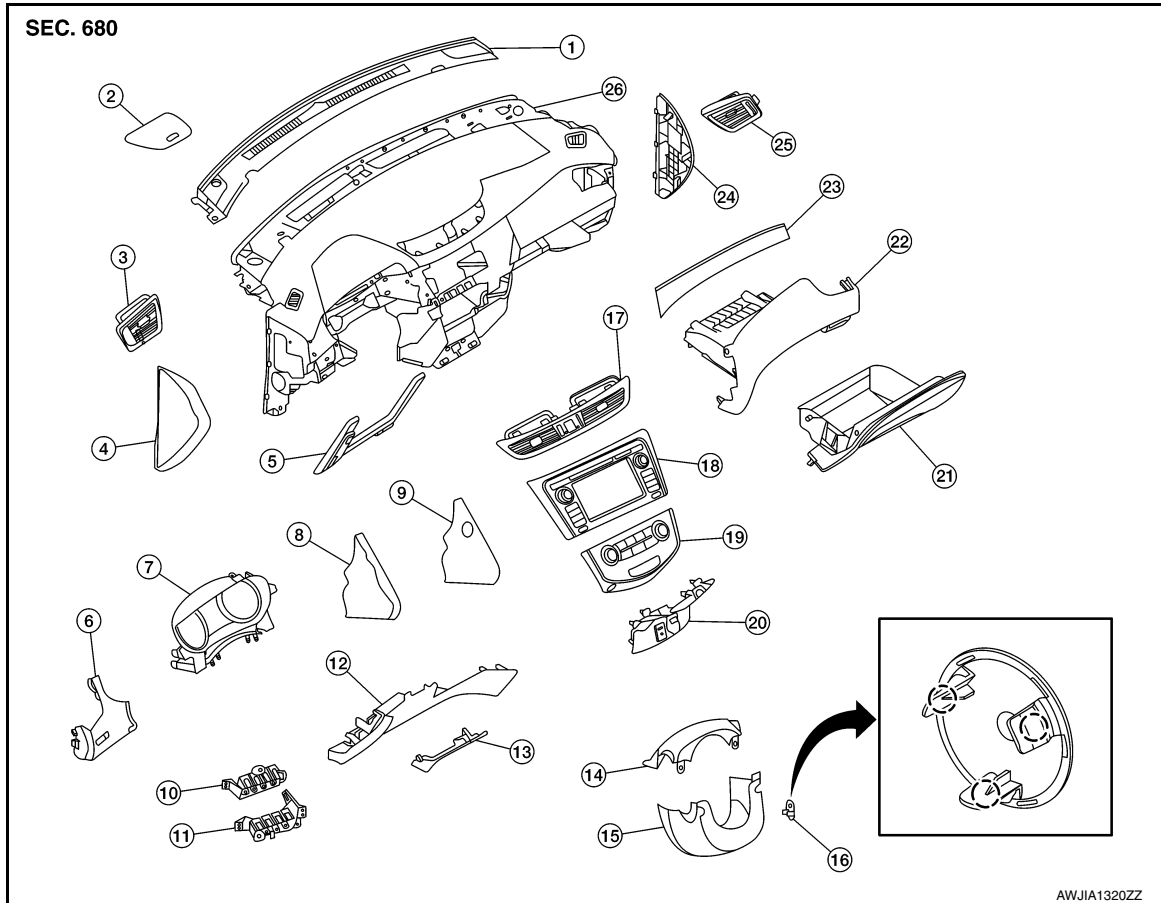
< REMOVAL AND INSTALLATION >

REMOVAL AND INSTALLATION

INSTRUMENT PANEL ASSEMBLY

Exploded View

INFOID:0000000010178117



- | | | |
|--|---|---|
| 1. Defroster grille | 2. Center speaker grille (if equipped) | 3. Side ventilator grille (LH) |
| 4. Instrument side finisher (LH) | 5. Knee protector | 6. Instrument finisher A |
| 7. Cluster lid A | 8. Instrument finisher B (without push-button ignition) | 9. Instrument finisher B (with push-button ignition) |
| 10. Upper switch carrier | 11. Lower switch carrier | 12. Instrument lower panel LH |
| 13. Data link cover | 14. Steering column upper cover | 15. Steering column lower cover |
| 16. Steering lock escutcheon | 17. Center ventilator grille | 18. Audio unit (DISPLAY AUDIO) / AV control unit (NAVIGATION WITHOUT BOSE) (NAVIGATION WITH BOSE) |
| 19. A/C switch assembly (AUTOMATIC AIR CONDITIONING) / front air control (MANUAL AIR CONDITIONING) | 20. Cluster lid C | 21. Glove box assembly |
| 22. Glove box housing | 23. Instrument finisher E | 24. Instrument side finisher (RH) |
| 25. Side ventilator grille (RH) | 26. Instrument panel | |

INSTRUMENT PANEL ASSEMBLY

INSTRUMENT PANEL ASSEMBLY : Removal and Installation

INFOID:0000000010178118

CAUTION:

- Be careful not to scratch instrument panel pad and other parts.

INSTRUMENT PANEL ASSEMBLY

< REMOVAL AND INSTALLATION >

- Whenever a suitable tool is used, always wrap a cloth around the end of the tool to protect components from damage.
- Before servicing, turn ignition switch OFF, disconnect both battery terminals then wait at least three minutes.

REMOVAL

1. Disconnect the negative and positive battery terminals, then wait at least three minutes. Refer to [PG-75, "Removal and Installation \(Battery\)"](#).
2. Remove dash side finishers (LH/RH). Refer to [INT-24, "DASH SIDE FINISHER : Removal and Installation"](#).
3. Remove front pillar finishers (LH/RH). Refer to [INT-20, "FRONT PILLAR FINISHER : Removal and Installation"](#).
4. Remove combination switch. Refer to [EXL-124, "Removal and Installation"](#).
5. Remove center console assembly. Refer to [IP-18, "Removal and Installation"](#).
6. Remove combination meter. Refer to [MWI-82, "Removal and Installation"](#).
7. Remove audio unit (DISPLAY AUDIO). Refer to [AV-64, "Removal and Installation"](#).
8. Remove AV control unit. Refer to [AV-209, "Removal and Installation"](#) (NAVIGATION WITHOUT BOSE) or [AV-376, "Removal and Installation"](#) (NAVIGATION WITH BOSE).
9. Remove instrument finisher A. Refer to [IP-15, "INSTRUMENT FINISHER A : Removal and Installation"](#).
10. Remove instrument finisher B. Refer to [IP-16, "INSTRUMENT FINISHER B : Removal and Installation"](#).
11. Remove instrument finisher E. Refer to [IP-16, "INSTRUMENT FINISHER E : Removal and Installation"](#).
12. Remove glove box assembly and housing. Refer to [IP-23, "Removal and Installation"](#).
13. Remove instrument panel assembly screws.
14. Disconnect the harness connectors from the instrument panel assembly and remove.

INSTALLATION

Installation is in the reverse order of removal.

- If replacing the instrument panel, transfer all the necessary parts to the new instrument panel.

INSTRUMENT FINISHER A

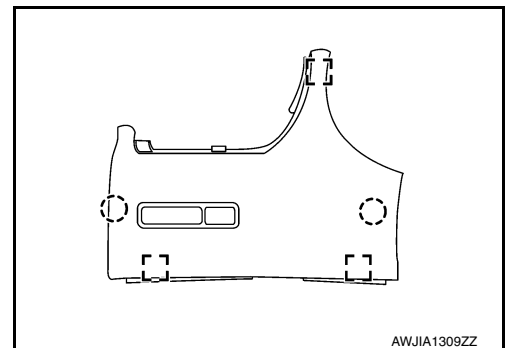
INSTRUMENT FINISHER A : Removal and Installation

INFOID:000000010290262

REMOVAL

1. Remove side ventilator grille (LH). Refer to [VTL-13, "SIDE VENTILATOR GRILLE : Removal and Installation"](#).
2. Remove instrument lower panel LH. Refer to [IP-22, "Removal and Installation"](#).
3. Release the instrument finisher A clips and pawls using a suitable tool.

- : Pawl
□: Metal clip



4. Disconnect the harness connector from instrument finisher A and remove.

INSTALLATION

Installation is in the reverse order of removal.

INSTRUMENT FINISHER B

INSTRUMENT PANEL ASSEMBLY

< REMOVAL AND INSTALLATION >

INSTRUMENT FINISHER B : Removal and Installation

INFOID:000000010288669

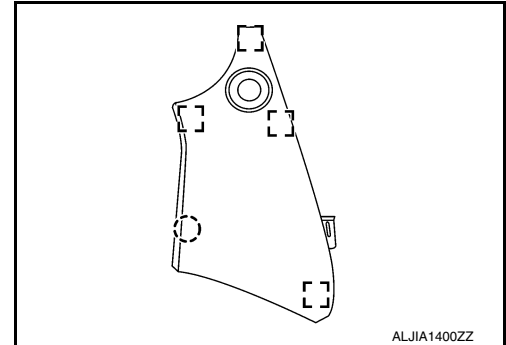
REMOVAL

1. Remove front air control or A/C switch assembly. Refer to [HAC-181, "Removal and Installation"](#) (MANUAL AIR CONDITIONING) or [HAC-102, "Removal and Installation"](#) (AUTOMATIC AIR CONDITIONING).

2. Release the instrument finisher B clips and pawls using a suitable tool.

○: Pawl

□: Metal clip



3. Disconnect the harness connector (if equipped) and remove instrument finisher B.

INSTALLATION

Installation is in the reverse order of removal.

INSTRUMENT FINISHER E

INSTRUMENT FINISHER E : Removal and Installation

INFOID:000000010288668

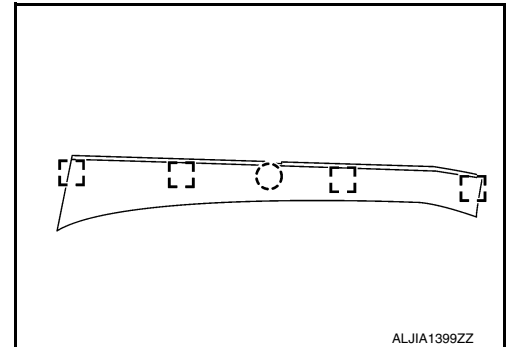
REMOVAL

1. Remove side ventilator grille (RH). Refer to [VTL-13, "SIDE VENTILATOR GRILLE : Removal and Installation"](#).

2. Release the clips and pawls using a suitable tool and remove instrument finisher E.

○: Pawl

□: Metal clip



INSTALLATION

Installation is in the reverse order of removal.

STEERING COLUMN COVERS

< REMOVAL AND INSTALLATION >

STEERING COLUMN COVERS

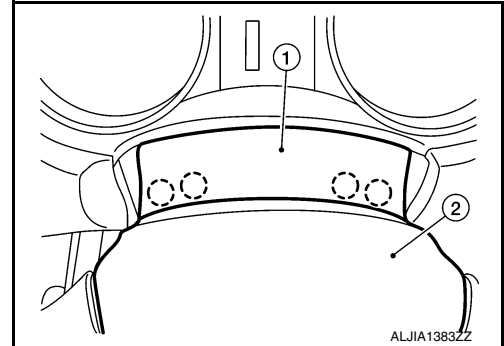
Removal and Installation

INFOID:0000000010178119

REMOVAL

1. Release gap hider (1) pawls from the steering column upper cover (2).

○: Pawl



2. Remove steering column cover screws (A)

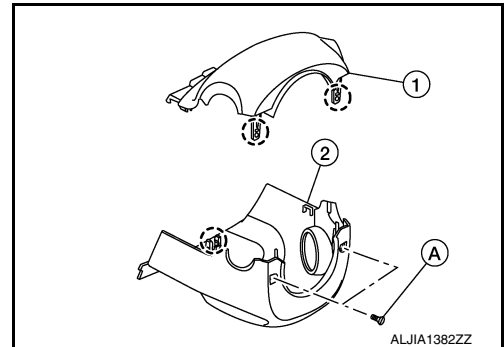
NOTE:

Rotate steering wheel to access steering column cover screws.

3. Release steering column upper cover (1) pawls using a suitable tool and remove.

○: Pawl

4. Release steering column lower cover (2) pawl using a suitable tool and remove.



INSTALLATION

Installation is in the reverse order of removal.

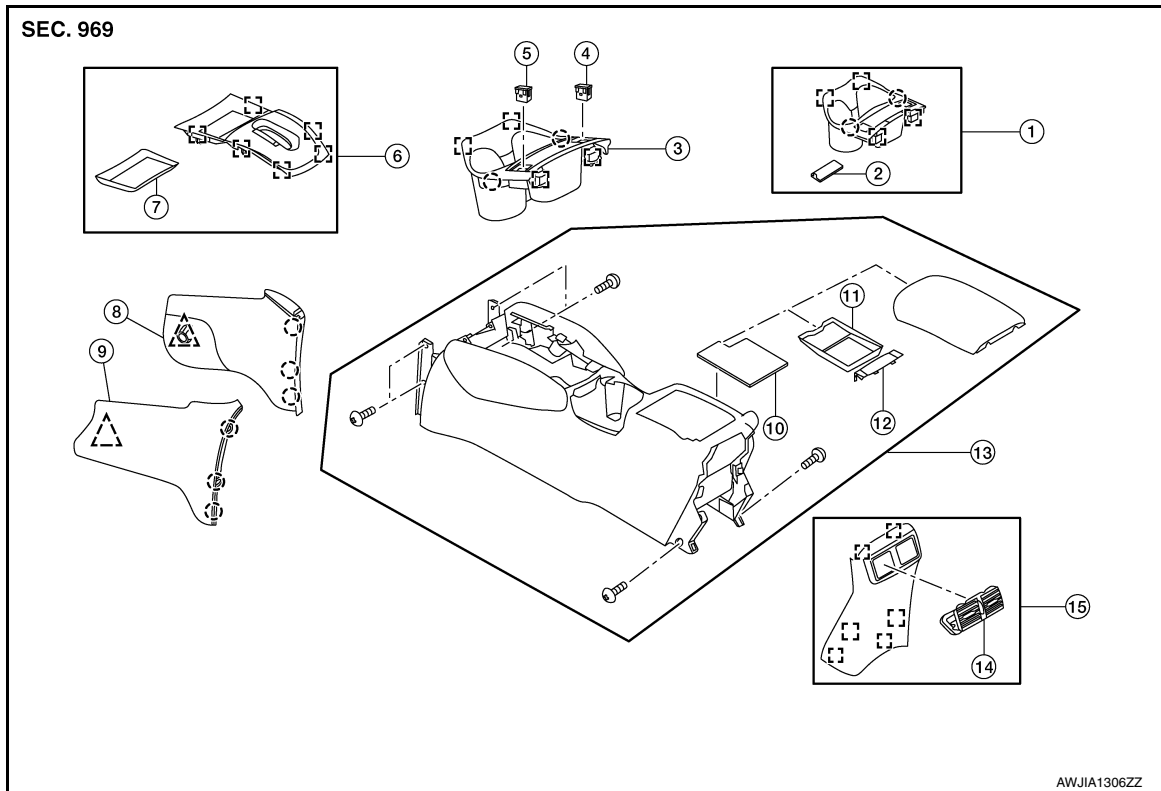
CENTER CONSOLE ASSEMBLY

< REMOVAL AND INSTALLATION >

CENTER CONSOLE ASSEMBLY

Exploded View

INFOID:000000009794810



- | | | |
|---|--------------------------------------|--|
| 1. Center console cup holder (without heated seats) | 2. Coin tray insert | 3. Center console cup holder (with heated seats) |
| 4. Front heated seat switch (RH) | 5. Front heated seat switch (LH) | 6. Shift selector finisher |
| 7. Shift selector finisher mat | 8. Center console side finisher (RH) | 9. Center console side finisher (LH) |
| 10. Center console tray | 11. Center console bin mat | 12. Center console rear brace finisher |
| 13. Center console assembly | 14. Rear center ventilator grille | 15. Center console rear finisher |
| Metal clip | Clip | Pawl |

Removal and Installation

INFOID:000000009794811

REMOVAL

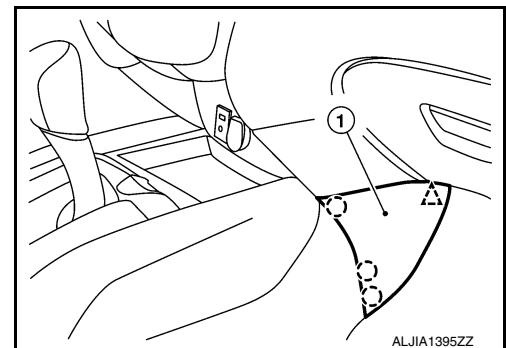
1. Release clips and pawls using a suitable tool and remove center console side finisher (1) (LH/RH).

Pawl

Clip

NOTE:

RH side shown; LH similar.



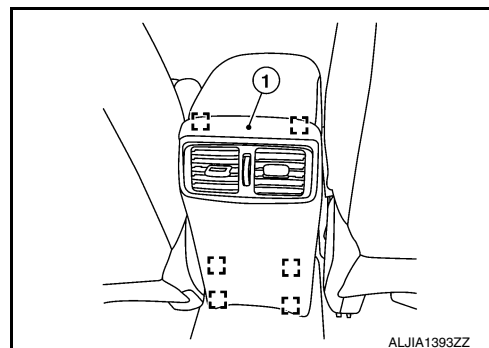
2. Remove shift selector knob. Refer to [TM-194, "Exploded View"](#).
3. Remove cluster lid C. Refer to [IP-21, "Removal and Installation"](#).

CENTER CONSOLE ASSEMBLY

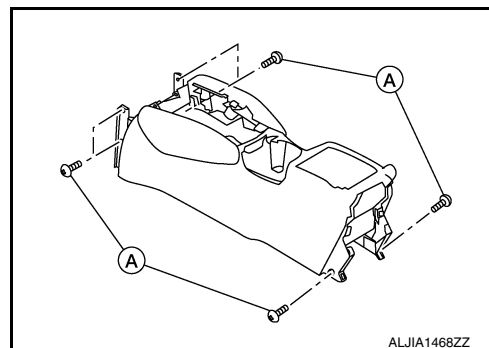
< REMOVAL AND INSTALLATION >

4. Release clips using a suitable tool and remove center console rear finisher (1).

 Metal clip



5. Remove center console screws (A).



6. Disconnect the harness connectors and remove center console.

INSTALLATION

Installation is in the reverse order of removal.

A
B
C
D
E
F
G
H
I
IP
K
L
M
N
O
P

CLUSTER LID A

< REMOVAL AND INSTALLATION >

CLUSTER LID A

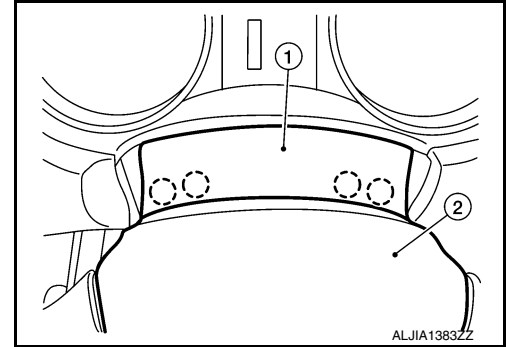
Removal and Installation

INFOID:0000000010178120

REMOVAL

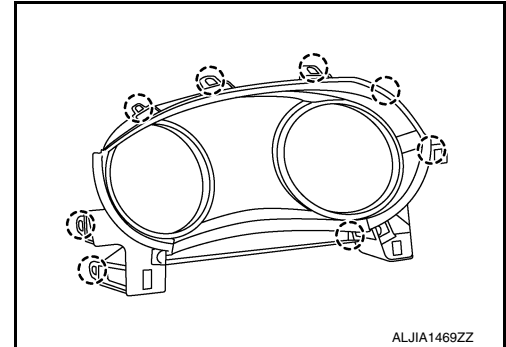
1. Remove instrument lower panel LH. Refer to [IP-22. "Removal and Installation"](#).
2. Remove instrument finisher A. Refer to [IP-15. "INSTRUMENT FINISHER A : Removal and Installation"](#).
3. Remove instrument finisher B. Refer to [IP-16. "INSTRUMENT FINISHER B : Removal and Installation"](#).
4. Release gap hider (1) pawls from the steering column upper cover (2).

○: Pawl



5. Release pawls using a suitable tool and remove cluster lid A.

○: Pawl



INSTALLATION

Installation is in the reverse order of removal.

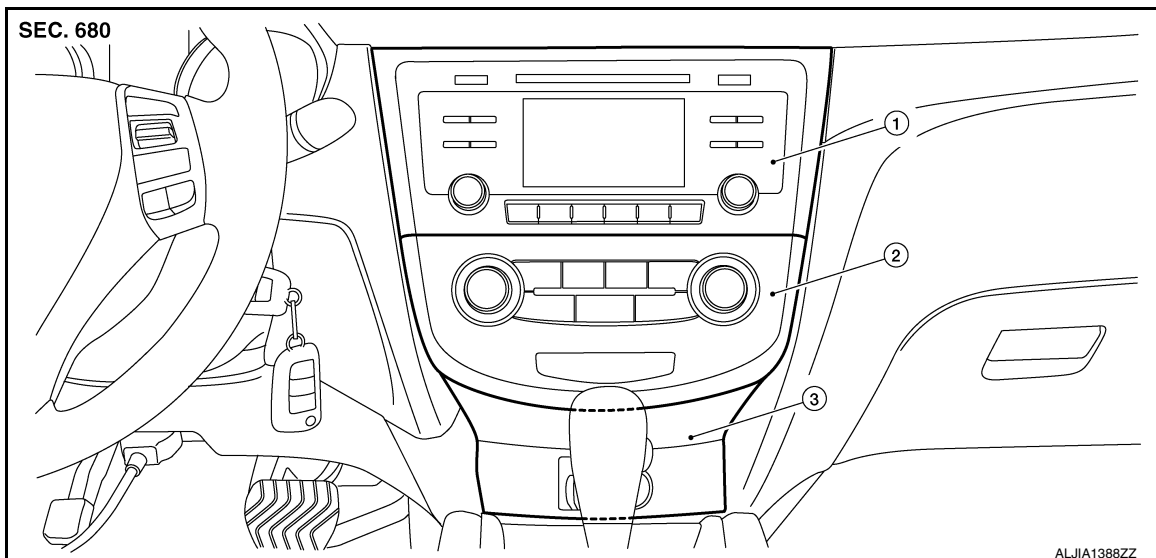
CLUSTER LID C

< REMOVAL AND INSTALLATION >

CLUSTER LID C

Exploded View

INFOID:000000010178121



- | | | |
|---|---|------------------|
| 1. Audio unit (AUDIO WITHOUT BOSE) /
AV control unit (AUDIO WITH BOSE)
(NAVIGATION WITH BOSE) | 2. A/C switch assembly (AUTOMATIC
AIR CONDITIONING) / front air control
(MANUAL AIR CONDITIONING) | 3. Cluster lid C |
|---|---|------------------|

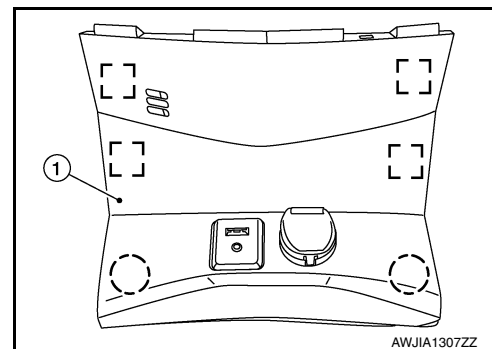
Removal and Installation

INFOID:000000010178123

REMOVAL

- Release cluster lid C (1) clips and pawls using a suitable tool.

- [] Metal clip
- [○] Pawl



- Disconnect the in-vehicle sensor hose from the cluster lid C.
- Disconnect the harness connectors from cluster lid C and remove.

INSTALLATION

Installation is in the reverse order of removal.

INSTRUMENT LOWER PANEL LH

< REMOVAL AND INSTALLATION >

INSTRUMENT LOWER PANEL LH

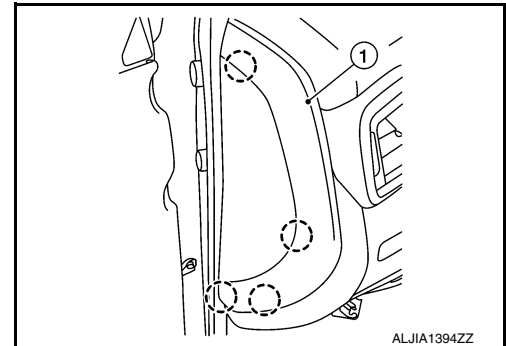
Removal and Installation

INFOID:000000010290248

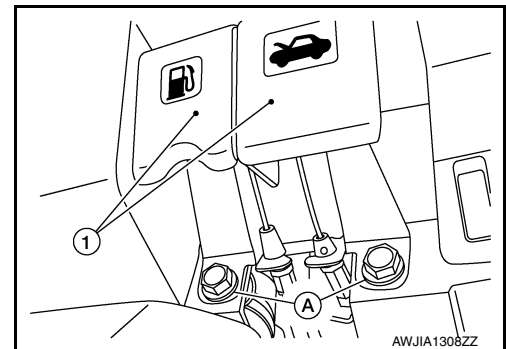
REMOVAL

1. Release instrument side finisher (LH) (1) pawls using a suitable tool and remove.

○: Pawl



2. Remove bolts (A) and fuel filler lid/hood lock release handle (1) from instrument lower panel LH.

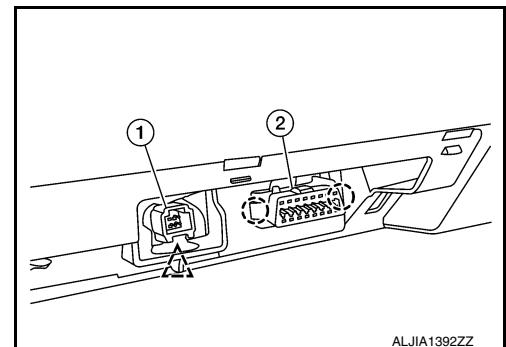


3. Remove data link cover from the instrument lower panel LH.
4. Release the clip using a suitable tool and remove accessory connector (1) from instrument lower panel LH.

△: Clip

5. Release the pawls using a suitable tool and remove data link connector (2) from instrument lower panel LH.

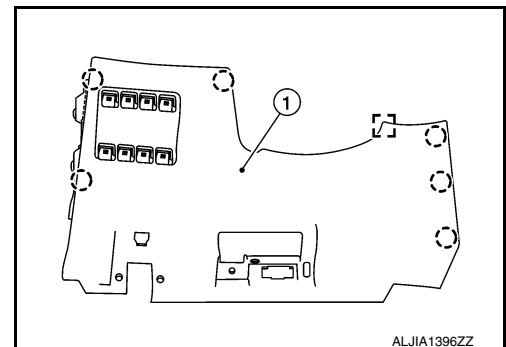
○: Pawl



6. Release the clips and pawls using a suitable tool, disconnect the harness connector and remove instrument lower panel LH (1).

○: Pawl

□: Metal clip



INSTALLATION

Installation is in the reverse order of removal.

GLOVE BOX ASSEMBLY AND HOUSING

< REMOVAL AND INSTALLATION >

GLOVE BOX ASSEMBLY AND HOUSING

Removal and Installation

INFOID:000000010178125

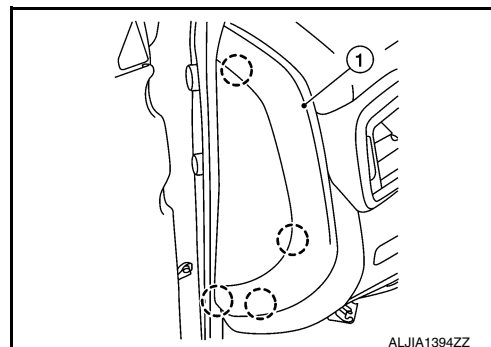
REMOVAL

1. Release instrument side finisher (RH) (1) pawls using a suitable tool and remove.

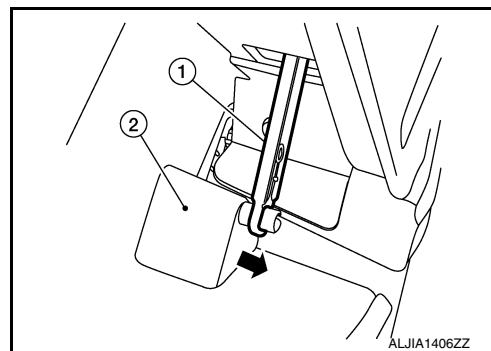
○: Pawl

NOTE:

LH side shown; RH similar.

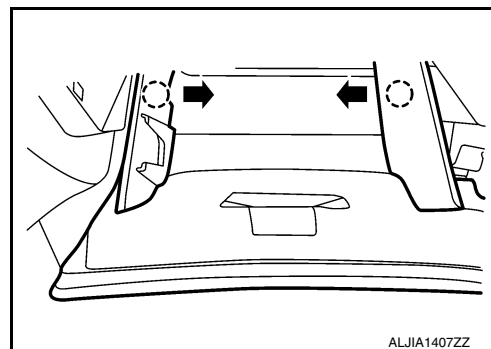


2. Release the glove box damper (1) from the glove box assembly (2) as shown.



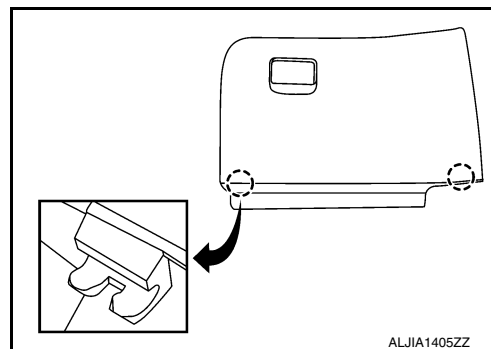
3. Release the glove box assembly pawls as shown.

○: Pawl



4. Release the pawls and remove the glove box assembly.

○: Pawl

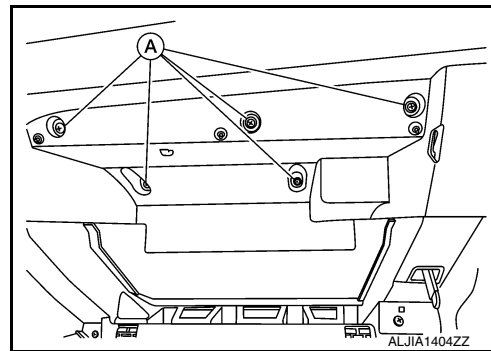


5. Remove instrument finisher E. Refer to [IP-16, "INSTRUMENT FINISHER E : Removal and Installation"](#).
6. Remove audio unit (DISPLAY AUDIO). Refer to [AV-64, "Removal and Installation"](#).
7. Remove AV control unit. Refer to [AV-209, "Removal and Installation"](#) (NAVIGATION WITHOUT BOSE) or [AV-376, "Removal and Installation"](#) (NAVIGATION WITH BOSE).

GLOVE BOX ASSEMBLY AND HOUSING

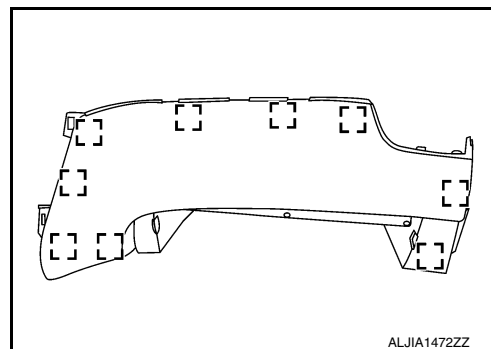
< REMOVAL AND INSTALLATION >

8. Remove front air control or A/C switch assembly. Refer to [HAC-181, "Removal and Installation"](#) (MANUAL AIR CONDITIONING) or [HAC-102, "Removal and Installation"](#) (AUTOMATIC AIR CONDITIONING).
9. Remove the glove box housing screws (A).



10. Release the clips using a suitable tool, disconnect the harness connector and remove glove box housing.

[]: Metal clip



INSTALLATION

Installation is in the reverse order of removal.

CENTER CONSOLE ASSEMBLY

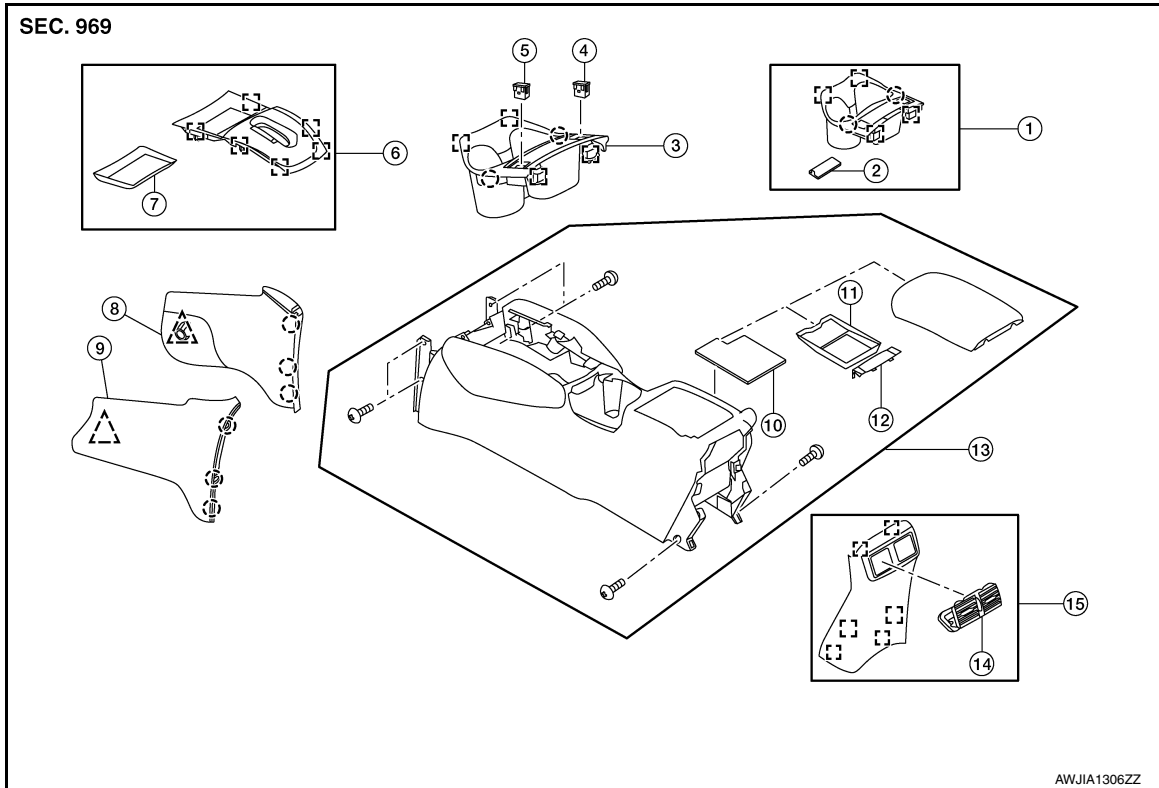
< UNIT DISASSEMBLY AND ASSEMBLY >

UNIT DISASSEMBLY AND ASSEMBLY

CENTER CONSOLE ASSEMBLY

Exploded View

INFOID:0000000010340315



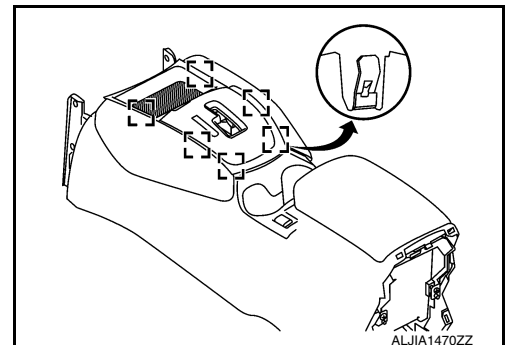
- | | | |
|---|--------------------------------------|--|
| 1. Center console cup holder (without heated seats) | 2. Coin tray insert | 3. Center console cup holder (with heated seats) |
| 4. Front heated seat switch (RH) | 5. Front heated seat switch (LH) | 6. Shift selector finisher |
| 7. Shift selector finisher mat | 8. Center console side finisher (RH) | 9. Center console side finisher (LH) |
| 10. Center console bin mat | 11. Center console tray | 12. Center console rear brace finisher |
| 13. Center console assembly | 14. Rear center ventilator grille | 15. Center console rear finisher |
| Metal clip | Clip | Pawl |

Disassembly and Assembly

INFOID:0000000010340316

DISASSEMBLY

1. Remove center console assembly. Refer to [IP-18, "Removal and Installation"](#).
 2. Remove the center console bin mat. Refer to [IP-25, "Exploded View"](#).
 3. Release clips using a suitable tool and remove shift selector finisher.
- Metal clip



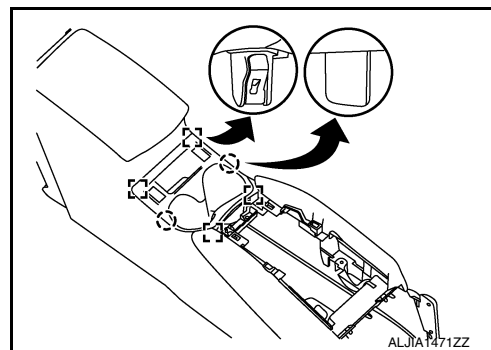
CENTER CONSOLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

4. Release clips and pawls using a suitable tool and remove center console cup holder.

□: Metal clip

○: Pawl



5. Release pawls and remove center console rear brace finisher. Refer to [IP-25, "Exploded View"](#).
6. Remove screws and center console tray. Refer to [IP-25, "Exploded View"](#).

ASSEMBLY

Assembly is in the reverse order of disassembly.

SECTION

LAN

LAN SYSTEM

A

B

C

CONTENTS

E

CAN FUNDAMENTAL		
PRECAUTION	7	
PRECAUTIONS	7	
Precautions for Trouble Diagnosis	7	
Precautions for Harness Repair	7	
SYSTEM DESCRIPTION	8	
CAN COMMUNICATION SYSTEM	8	
System Description	8	
System Diagram	8	
CAN Communication Control Circuit	9	
DIAG ON CAN	10	
Description	10	
System Diagram	10	
TROUBLE DIAGNOSIS	11	
Condition of Error Detection	11	
Symptom When Error Occurs in CAN Communi- cation System	11	
CAN Diagnosis with CONSULT	14	
Self-Diagnosis	14	
CAN Diagnostic Support Monitor	14	
How to Use CAN Communication Signal Chart	16	
BASIC INSPECTION	17	
DIAGNOSIS AND REPAIR WORKFLOW	17	
Trouble Diagnosis Flow Chart	17	
Trouble Diagnosis Procedure	17	
CAN		
HOW TO USE THIS MANUAL	22	
HOW TO USE THIS SECTION	22	
Caution	22	
Abbreviation List	22	
PRECAUTION	23	
PRECAUTIONS	23	
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TEN- SIONER"	23	
Precautions for Trouble Diagnosis	23	
Precautions for Harness Repair	23	
SYSTEM DESCRIPTION	25	
COMPONENT PARTS	25	
Component Parts Location	25	
SYSTEM	26	
CAN COMMUNICATION SYSTEM	26	
CAN COMMUNICATION SYSTEM : System De- scription	26	
CAN COMMUNICATION SYSTEM : CAN Com- munication Control Circuit	30	
CAN COMMUNICATION SYSTEM : CAN System Specification Chart	30	
CAN COMMUNICATION SYSTEM : CAN Com- munication Signal Chart	32	
WIRING DIAGRAM	35	
CAN SYSTEM	35	
Wiring Diagram - CAN SYSTEM -	35	
BASIC INSPECTION	44	
DIAGNOSIS AND REPAIR WORKFLOW	44	
Interview Sheet	44	
DTC/CIRCUIT DIAGNOSIS	45	
MALFUNCTION AREA CHART	45	
Main Line	45	
Branch Line	45	
Short Circuit	45	
MAIN LINE BETWEEN IPDM-E AND DLC CIRCUIT	46	

F

G

H

I

J

K

L

LAN

N

O

P

Diagnosis Procedure	46
MAIN LINE BETWEEN DLC AND CCM CIRCUIT	47
Diagnosis Procedure	47
MAIN LINE BETWEEN CCM AND PWBD CIRCUIT	48
Diagnosis Procedure	48
MAIN LINE BETWEEN CCM AND 4WD CIRCUIT	49
Diagnosis Procedure	49
ECM BRANCH LINE CIRCUIT	50
Diagnosis Procedure	50
ABS BRANCH LINE CIRCUIT	51
Diagnosis Procedure	51
IPDM-E BRANCH LINE CIRCUIT	52
Diagnosis Procedure	52
TCM BRANCH LINE CIRCUIT	53
Diagnosis Procedure	53
DLC BRANCH LINE CIRCUIT	55
Diagnosis Procedure	55
EPS BRANCH LINE CIRCUIT	56
Diagnosis Procedure	56
M&A BRANCH LINE CIRCUIT	57
Diagnosis Procedure	57
STRG BRANCH LINE CIRCUIT	58
Diagnosis Procedure	58
A-BAG BRANCH LINE CIRCUIT	59
Diagnosis Procedure	59
CCM BRANCH LINE CIRCUIT	60
Diagnosis Procedure	60
4WD BRANCH LINE CIRCUIT	61
Diagnosis Procedure	61
PWBD BRANCH LINE CIRCUIT	62
Diagnosis Procedure	62
BCM BRANCH LINE CIRCUIT	63
Diagnosis Procedure	63
AV BRANCH LINE CIRCUIT	64
Diagnosis Procedure	64
AVM BRANCH LINE CIRCUIT	65
Diagnosis Procedure	65
HVAC BRANCH LINE CIRCUIT	66
Diagnosis Procedure	66
ICC BRANCH LINE CIRCUIT	68

Diagnosis Procedure	68
CAN COMMUNICATION CIRCUIT 1	69
Diagnosis Procedure	69
CAN COMMUNICATION CIRCUIT 2	71
Diagnosis Procedure	71
CAN GATEWAY	
PRECAUTION	73
PRECAUTIONS	73
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	73
SYSTEM DESCRIPTION	74
SYSTEM	74
System Description	74
DIAGNOSIS SYSTEM (CAN GATEWAY)	75
CONSULT Function	75
ECU DIAGNOSIS INFORMATION	76
CAN GATEWAY	76
Reference Value	76
DTC Index	76
BASIC INSPECTION	77
CONFIGURATION (CAN GATEWAY)	77
Work Procedure	77
DTC/CIRCUIT DIAGNOSIS	78
B2600-46 CONFIG ERROR	78
DTC Description	78
Diagnosis Procedure	78
B2600-55 CONFIG ERROR	79
DTC Description	79
Diagnosis Procedure	79
CAN SYSTEM (TYPE 1)	
DTC/CIRCUIT DIAGNOSIS	80
MAIN LINE BETWEEN IPDM-E AND DLC CIRCUIT	80
Diagnosis Procedure	80
MAIN LINE BETWEEN DLC AND CCM CIRCUIT	81
Diagnosis Procedure	81
ECM BRANCH LINE CIRCUIT	82
Diagnosis Procedure	82
ABS BRANCH LINE CIRCUIT	83
Diagnosis Procedure	83
IPDM-E BRANCH LINE CIRCUIT	84

Diagnosis Procedure	84	Diagnosis Procedure	108
TCM BRANCH LINE CIRCUIT	85	EPS BRANCH LINE CIRCUIT	109
Diagnosis Procedure	85	Diagnosis Procedure	109
DLC BRANCH LINE CIRCUIT	87	M&A BRANCH LINE CIRCUIT	110
Diagnosis Procedure	87	Diagnosis Procedure	110
EPS BRANCH LINE CIRCUIT	88	STRG BRANCH LINE CIRCUIT	111
Diagnosis Procedure	88	Diagnosis Procedure	111
M&A BRANCH LINE CIRCUIT	89	A-BAG BRANCH LINE CIRCUIT	112
Diagnosis Procedure	89	Diagnosis Procedure	112
STRG BRANCH LINE CIRCUIT	90	CCM BRANCH LINE CIRCUIT	113
Diagnosis Procedure	90	Diagnosis Procedure	113
A-BAG BRANCH LINE CIRCUIT	91	PWBD BRANCH LINE CIRCUIT	114
Diagnosis Procedure	91	Diagnosis Procedure	114
CCM BRANCH LINE CIRCUIT	92	BCM BRANCH LINE CIRCUIT	115
Diagnosis Procedure	92	Diagnosis Procedure	115
BCM BRANCH LINE CIRCUIT	93	HVAC BRANCH LINE CIRCUIT	116
Diagnosis Procedure	93	Diagnosis Procedure	116
HVAC BRANCH LINE CIRCUIT	94	CAN COMMUNICATION CIRCUIT 1	118
Diagnosis Procedure	94	Diagnosis Procedure	118
CAN COMMUNICATION CIRCUIT 1	96	CAN COMMUNICATION CIRCUIT 2	120
Diagnosis Procedure	96	Diagnosis Procedure	120
CAN COMMUNICATION CIRCUIT 2	98	CAN SYSTEM (TYPE 3)	
Diagnosis Procedure	98	DTC/CIRCUIT DIAGNOSIS	122
CAN SYSTEM (TYPE 2)		MAIN LINE BETWEEN IPDM-E AND DLC	
DTC/CIRCUIT DIAGNOSIS	100	CIRCUIT	122
MAIN LINE BETWEEN IPDM-E AND DLC		Diagnosis Procedure	122
CIRCUIT	100	MAIN LINE BETWEEN DLC AND CCM CIR-	
Diagnosis Procedure	100	CUIT	123
MAIN LINE BETWEEN DLC AND CCM CIR-		Diagnosis Procedure	123
CUIT	101	MAIN LINE BETWEEN CCM AND PWBD CIR-	
Diagnosis Procedure	101	CUIT	124
MAIN LINE BETWEEN CCM AND PWBD CIR-		Diagnosis Procedure	124
CUIT	102	ECM BRANCH LINE CIRCUIT	125
Diagnosis Procedure	102	Diagnosis Procedure	125
ECM BRANCH LINE CIRCUIT	103	ABS BRANCH LINE CIRCUIT	126
Diagnosis Procedure	103	Diagnosis Procedure	126
ABS BRANCH LINE CIRCUIT	104	IPDM-E BRANCH LINE CIRCUIT	127
Diagnosis Procedure	104	Diagnosis Procedure	127
IPDM-E BRANCH LINE CIRCUIT	105	TCM BRANCH LINE CIRCUIT	128
Diagnosis Procedure	105	Diagnosis Procedure	128
TCM BRANCH LINE CIRCUIT	106	DLC BRANCH LINE CIRCUIT	130
Diagnosis Procedure	106	Diagnosis Procedure	130
DLC BRANCH LINE CIRCUIT	108	EPS BRANCH LINE CIRCUIT	131

A

B

C

D

E

F

G

H

I

J

K

L

LAN

N

O

P

Diagnosis Procedure	131	Diagnosis Procedure	154
M&A BRANCH LINE CIRCUIT	132	EPS BRANCH LINE CIRCUIT	155
Diagnosis Procedure	132	Diagnosis Procedure	155
STRG BRANCH LINE CIRCUIT	133	M&A BRANCH LINE CIRCUIT	156
Diagnosis Procedure	133	Diagnosis Procedure	156
A-BAG BRANCH LINE CIRCUIT	134	STRG BRANCH LINE CIRCUIT	157
Diagnosis Procedure	134	Diagnosis Procedure	157
CCM BRANCH LINE CIRCUIT	135	A-BAG BRANCH LINE CIRCUIT	158
Diagnosis Procedure	135	Diagnosis Procedure	158
PWBD BRANCH LINE CIRCUIT	136	CCM BRANCH LINE CIRCUIT	159
Diagnosis Procedure	136	Diagnosis Procedure	159
BCM BRANCH LINE CIRCUIT	137	PWBD BRANCH LINE CIRCUIT	160
Diagnosis Procedure	137	Diagnosis Procedure	160
AV BRANCH LINE CIRCUIT	138	BCM BRANCH LINE CIRCUIT	161
Diagnosis Procedure	138	Diagnosis Procedure	161
AVM BRANCH LINE CIRCUIT	139	AV BRANCH LINE CIRCUIT	162
Diagnosis Procedure	139	Diagnosis Procedure	162
HVAC BRANCH LINE CIRCUIT	140	AVM BRANCH LINE CIRCUIT	163
Diagnosis Procedure	140	Diagnosis Procedure	163
CAN COMMUNICATION CIRCUIT 1	142	HVAC BRANCH LINE CIRCUIT	164
Diagnosis Procedure	142	Diagnosis Procedure	164
CAN COMMUNICATION CIRCUIT 2	144	ICC BRANCH LINE CIRCUIT	166
Diagnosis Procedure	144	Diagnosis Procedure	166
CAN SYSTEM (TYPE 4)		CAN COMMUNICATION CIRCUIT 1	167
DTC/CIRCUIT DIAGNOSIS	146	Diagnosis Procedure	167
MAIN LINE BETWEEN IPDM-E AND DLC		CAN COMMUNICATION CIRCUIT 2	169
CIRCUIT	146	Diagnosis Procedure	169
Diagnosis Procedure	146	CAN SYSTEM (TYPE 5)	
MAIN LINE BETWEEN DLC AND CCM CIR-		DTC/CIRCUIT DIAGNOSIS	171
CUIT	147	MAIN LINE BETWEEN IPDM-E AND DLC	
Diagnosis Procedure	147	CIRCUIT	171
MAIN LINE BETWEEN CCM AND PWBD CIR-		Diagnosis Procedure	171
CUIT	148	MAIN LINE BETWEEN DLC AND CCM CIR-	
Diagnosis Procedure	148	CUIT	172
ECM BRANCH LINE CIRCUIT	149	Diagnosis Procedure	172
Diagnosis Procedure	149	MAIN LINE BETWEEN CCM AND 4WD CIR-	
ABS BRANCH LINE CIRCUIT	150	CUIT	173
Diagnosis Procedure	150	Diagnosis Procedure	173
IPDM-E BRANCH LINE CIRCUIT	151	ECM BRANCH LINE CIRCUIT	174
Diagnosis Procedure	151	Diagnosis Procedure	174
TCM BRANCH LINE CIRCUIT	152	ABS BRANCH LINE CIRCUIT	175
Diagnosis Procedure	152	Diagnosis Procedure	175
DLC BRANCH LINE CIRCUIT	154	IPDM-E BRANCH LINE CIRCUIT	176

Diagnosis Procedure	176	Diagnosis Procedure	199
TCM BRANCH LINE CIRCUIT	177	DLC BRANCH LINE CIRCUIT	201
Diagnosis Procedure	177	Diagnosis Procedure	201
DLC BRANCH LINE CIRCUIT	179	EPS BRANCH LINE CIRCUIT	202
Diagnosis Procedure	179	Diagnosis Procedure	202
EPS BRANCH LINE CIRCUIT	180	M&A BRANCH LINE CIRCUIT	203
Diagnosis Procedure	180	Diagnosis Procedure	203
M&A BRANCH LINE CIRCUIT	181	STRG BRANCH LINE CIRCUIT	204
Diagnosis Procedure	181	Diagnosis Procedure	204
STRG BRANCH LINE CIRCUIT	182	A-BAG BRANCH LINE CIRCUIT	205
Diagnosis Procedure	182	Diagnosis Procedure	205
A-BAG BRANCH LINE CIRCUIT	183	CCM BRANCH LINE CIRCUIT	206
Diagnosis Procedure	183	Diagnosis Procedure	206
CCM BRANCH LINE CIRCUIT	184	4WD BRANCH LINE CIRCUIT	207
Diagnosis Procedure	184	Diagnosis Procedure	207
4WD BRANCH LINE CIRCUIT	185	PWBD BRANCH LINE CIRCUIT	208
Diagnosis Procedure	185	Diagnosis Procedure	208
BCM BRANCH LINE CIRCUIT	186	BCM BRANCH LINE CIRCUIT	209
Diagnosis Procedure	186	Diagnosis Procedure	209
HVAC BRANCH LINE CIRCUIT	187	HVAC BRANCH LINE CIRCUIT	210
Diagnosis Procedure	187	Diagnosis Procedure	210
CAN COMMUNICATION CIRCUIT 1	189	CAN COMMUNICATION CIRCUIT 1	212
Diagnosis Procedure	189	Diagnosis Procedure	212
CAN COMMUNICATION CIRCUIT 2	191	CAN COMMUNICATION CIRCUIT 2	214
Diagnosis Procedure	191	Diagnosis Procedure	214
CAN SYSTEM (TYPE 6)		CAN SYSTEM (TYPE 7)	
DTC/CIRCUIT DIAGNOSIS	193	DTC/CIRCUIT DIAGNOSIS	216
MAIN LINE BETWEEN IPDM-E AND DLC CIRCUIT	193	MAIN LINE BETWEEN IPDM-E AND DLC CIRCUIT	216
Diagnosis Procedure	193	Diagnosis Procedure	216
MAIN LINE BETWEEN DLC AND CCM CIRCUIT	194	MAIN LINE BETWEEN DLC AND CCM CIRCUIT	217
Diagnosis Procedure	194	Diagnosis Procedure	217
MAIN LINE BETWEEN CCM AND PWBD CIRCUIT	195	MAIN LINE BETWEEN CCM AND PWBD CIRCUIT	218
Diagnosis Procedure	195	Diagnosis Procedure	218
ECM BRANCH LINE CIRCUIT	196	ECM BRANCH LINE CIRCUIT	219
Diagnosis Procedure	196	Diagnosis Procedure	219
ABS BRANCH LINE CIRCUIT	197	ABS BRANCH LINE CIRCUIT	220
Diagnosis Procedure	197	Diagnosis Procedure	220
IPDM-E BRANCH LINE CIRCUIT	198	IPDM-E BRANCH LINE CIRCUIT	221
Diagnosis Procedure	198	Diagnosis Procedure	221
TCM BRANCH LINE CIRCUIT	199	TCM BRANCH LINE CIRCUIT	222

A

B

C

D

E

F

G

H

I

J

K

L

LAN

N

O

P

Diagnosis Procedure	222	ECM BRANCH LINE CIRCUIT	244
DLC BRANCH LINE CIRCUIT	224	Diagnosis Procedure	244
Diagnosis Procedure	224	ABS BRANCH LINE CIRCUIT	245
EPS BRANCH LINE CIRCUIT	225	Diagnosis Procedure	245
Diagnosis Procedure	225	IPDM-E BRANCH LINE CIRCUIT	246
M&A BRANCH LINE CIRCUIT	226	Diagnosis Procedure	246
Diagnosis Procedure	226	TCM BRANCH LINE CIRCUIT	247
STRG BRANCH LINE CIRCUIT	227	Diagnosis Procedure	247
Diagnosis Procedure	227	DLC BRANCH LINE CIRCUIT	249
A-BAG BRANCH LINE CIRCUIT	228	Diagnosis Procedure	249
Diagnosis Procedure	228	EPS BRANCH LINE CIRCUIT	250
CCM BRANCH LINE CIRCUIT	229	Diagnosis Procedure	250
Diagnosis Procedure	229	M&A BRANCH LINE CIRCUIT	251
4WD BRANCH LINE CIRCUIT	230	Diagnosis Procedure	251
Diagnosis Procedure	230	STRG BRANCH LINE CIRCUIT	252
PWBD BRANCH LINE CIRCUIT	231	Diagnosis Procedure	252
Diagnosis Procedure	231	A-BAG BRANCH LINE CIRCUIT	253
BCM BRANCH LINE CIRCUIT	232	Diagnosis Procedure	253
Diagnosis Procedure	232	CCM BRANCH LINE CIRCUIT	254
AV BRANCH LINE CIRCUIT	233	Diagnosis Procedure	254
Diagnosis Procedure	233	4WD BRANCH LINE CIRCUIT	255
AVM BRANCH LINE CIRCUIT	234	Diagnosis Procedure	255
Diagnosis Procedure	234	PWBD BRANCH LINE CIRCUIT	256
HVAC BRANCH LINE CIRCUIT	235	Diagnosis Procedure	256
Diagnosis Procedure	235	BCM BRANCH LINE CIRCUIT	257
CAN COMMUNICATION CIRCUIT 1	237	Diagnosis Procedure	257
Diagnosis Procedure	237	AV BRANCH LINE CIRCUIT	258
CAN COMMUNICATION CIRCUIT 2	239	Diagnosis Procedure	258
Diagnosis Procedure	239	AVM BRANCH LINE CIRCUIT	259
CAN SYSTEM (TYPE 8)		Diagnosis Procedure	259
DTC/CIRCUIT DIAGNOSIS	241	HVAC BRANCH LINE CIRCUIT	260
MAIN LINE BETWEEN IPDM-E AND DLC		Diagnosis Procedure	260
CIRCUIT	241	ICC BRANCH LINE CIRCUIT	262
Diagnosis Procedure	241	Diagnosis Procedure	262
MAIN LINE BETWEEN DLC AND CCM CIR-		CAN COMMUNICATION CIRCUIT 1	263
CUIT	242	Diagnosis Procedure	263
Diagnosis Procedure	242	CAN COMMUNICATION CIRCUIT 2	265
MAIN LINE BETWEEN CCM AND PWBD CIR-		Diagnosis Procedure	265
CUIT	243		
Diagnosis Procedure	243		

PRECAUTION

PRECAUTIONS

Precautions for Trouble Diagnosis

INFOID:000000009799545

CAUTION:

- Never apply 7.0 V or more to the measurement terminal.
- Use a tester with open terminal voltage of 7.0 V or less.
- Turn the ignition switch OFF and disconnect the battery cable from the negative terminal when checking the harness.

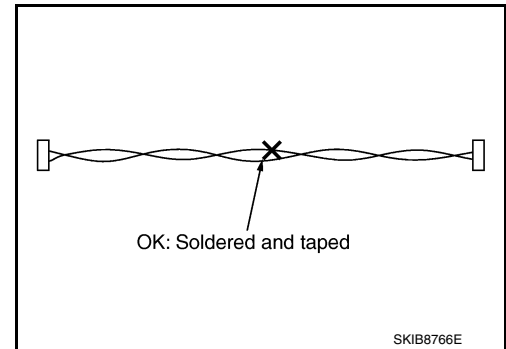
Precautions for Harness Repair

INFOID:000000009799546

- Solder the repaired area and wrap tape around the soldered area.

NOTE:

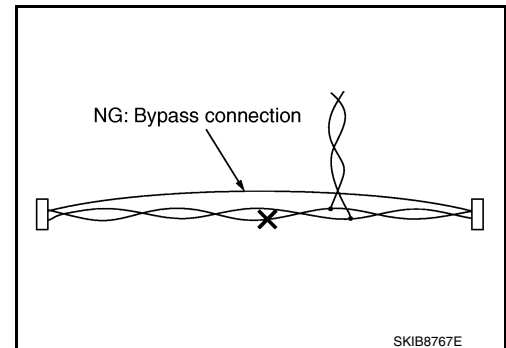
A fray of twisted lines must be within 110 mm (4.33 in).



- Bypass connection is never allowed at the repaired area.

NOTE:

Bypass connection may cause CAN communication error. The spliced wire becomes separated and the characteristics of twisted line are lost.



- Replace the applicable harness as an assembly if error is detected on the shield lines of CAN communication line.

LAN

SYSTEM DESCRIPTION

CAN COMMUNICATION SYSTEM

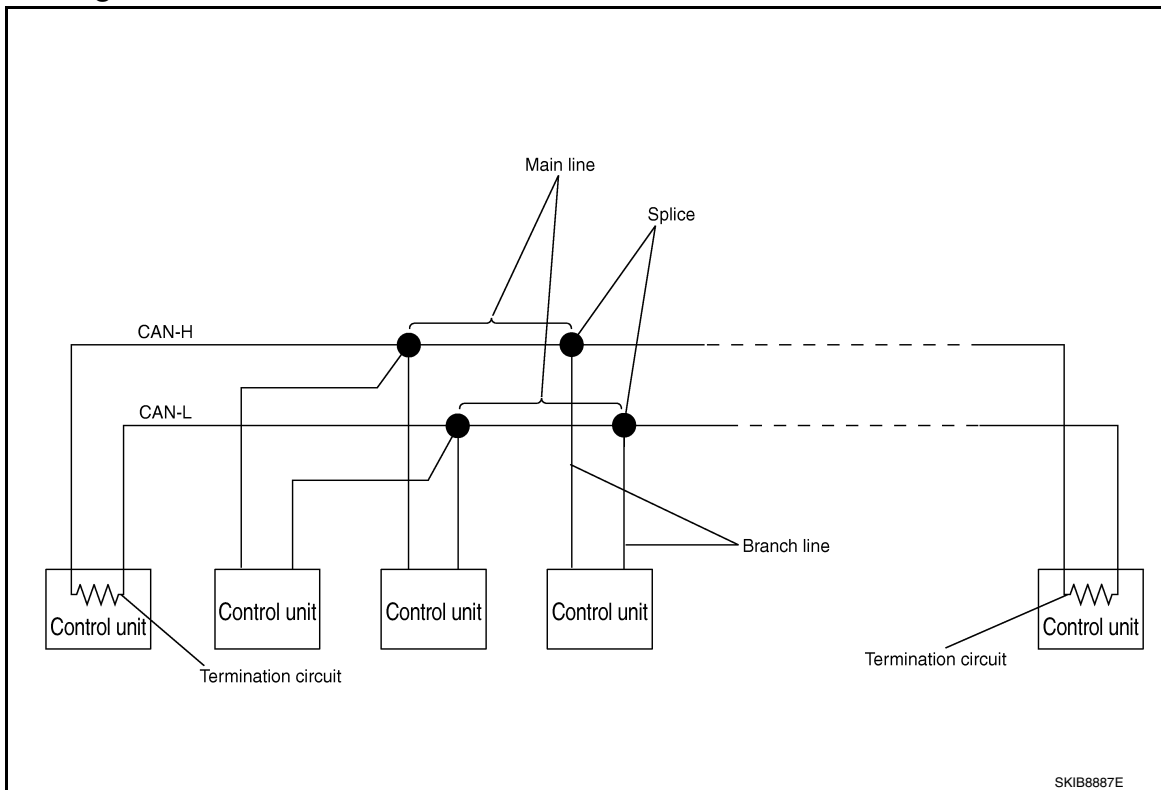
System Description

INFOID:000000009799547

- CAN communication is a multiplex communication system. This enables the system to transmit and receive large quantities of data at high speed by connecting control units with two communication lines (CAN-H and CAN-L).
- Control units on the CAN network transmit signals using the CAN communication control circuit. They receive only necessary signals from other control units to operate various functions.
- CAN communication lines adopt twisted-pair line style (two lines twisted) for noise immunity.

System Diagram

INFOID:000000009799548

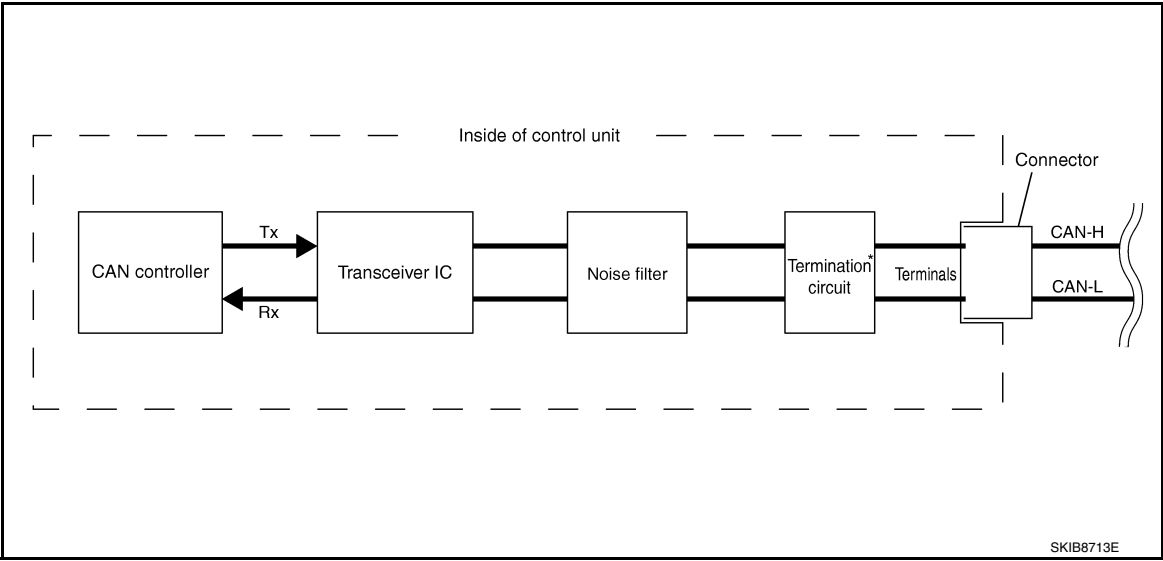


Each control unit passes an electric current to the termination circuits when transmitting CAN communication signal. The termination circuits produce an electrical potential difference between CAN-H and CAN-L. CAN communication system transmits and receives CAN communication signals by the potential difference.

Component	Description
Main line	CAN communication line between splices
Branch line	CAN communication line between splice and a control unit
Splice	A point connecting a branch line with a main line
Termination circuit	Refer to LAN-9, "CAN Communication Control Circuit" .

CAN Communication Control Circuit

INFOID:000000009799549



Component	System description
CAN controller	It controls CAN communication signal transmission and reception, error detection, etc.
Transceiver IC	It converts digital signal into CAN communication signal, and CAN communication signal into digital signal.
Noise filter	It eliminates noise of CAN communication signal.
Termination circuit* (Resistance of approx. 120 Ω)	It produces potential difference.

*: These are the only control units wired with both ends of CAN communication system.

DIAG ON CAN

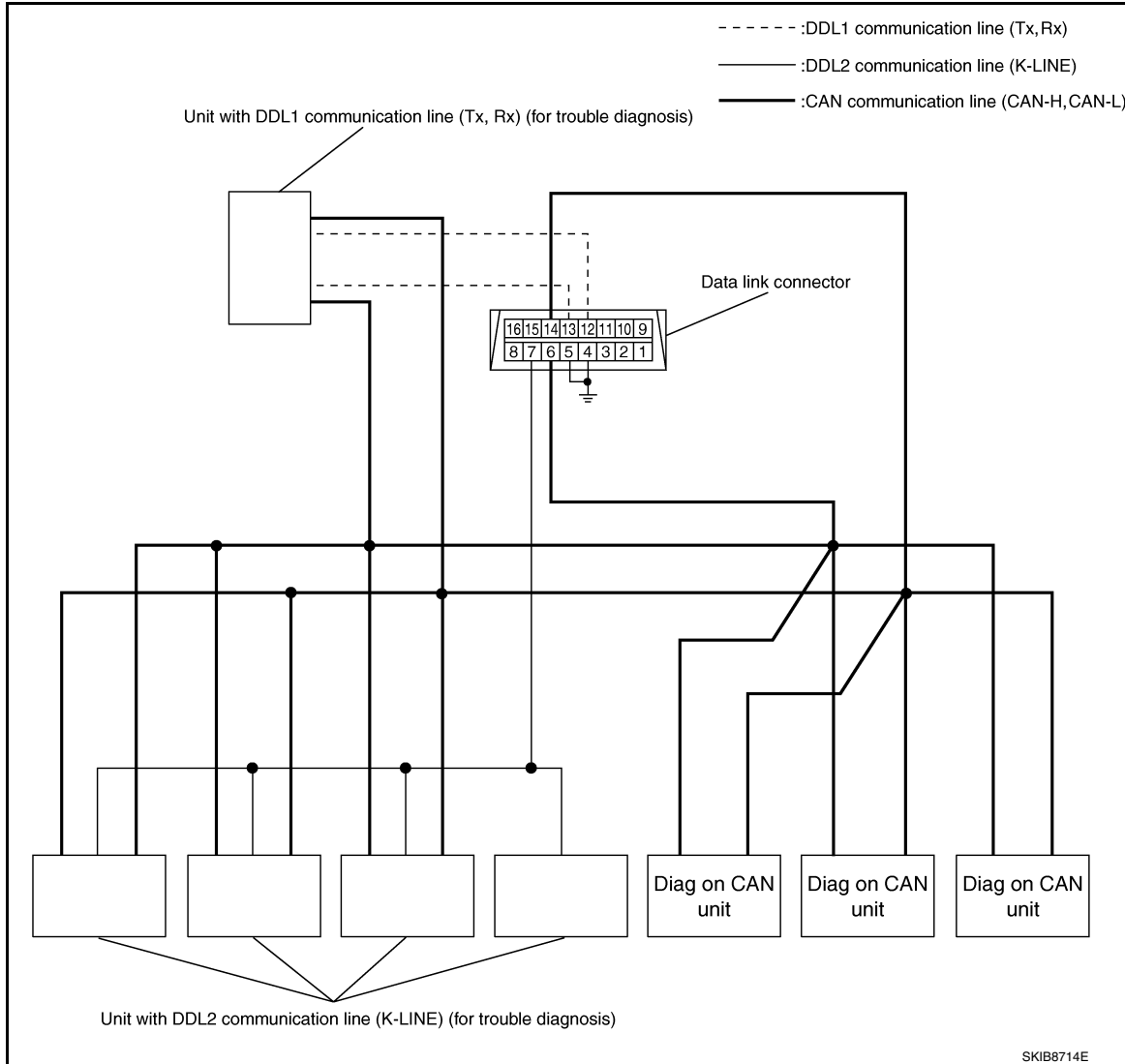
Description

INFOID:000000009799550

“Diag on CAN” is a diagnosis using CAN communication instead of previous DDL1 and DDL2 communication lines, between control units and diagnosis unit.

System Diagram

INFOID:000000009799551



Name	Harness	Description
DDL1	Tx Rx	It is used for trouble diagnosis. (CAN-H and CAN-L are used for controlling)
DDL2	K-LINE	It is used for trouble diagnosis. (CAN-H and CAN-L are used for controlling)
Diag on CAN	CAN-H CAN-L	It is used for trouble diagnosis and control.

TROUBLE DIAGNOSIS

Condition of Error Detection

INFOID:000000009799552

DTC (e.g. U1000 and U1001) of CAN communication is indicated on SELF-DIAG RESULTS on CONSULT if a CAN communication signal is not transmitted or received between units for 2 seconds or more.

CAN COMMUNICATION SYSTEM ERROR

- CAN communication line open (CAN-H, CAN-L, or both)
- CAN communication line short (ground, between CAN communication lines, other harnesses)
- Error of CAN communication control circuit of the unit connected to CAN communication line

WHEN DTC OF CAN COMMUNICATION IS INDICATED EVEN THOUGH CAN COMMUNICATION SYSTEM IS NORMAL

- Removal/installation of parts: Error may be detected when removing and installing CAN communication unit and related parts while turning the ignition switch ON. (A DTC except for CAN communication may be detected.)
- Fuse blown out (removed): CAN communication of the unit may cease.
- Voltage drop: Error may be detected if voltage drops due to discharged battery when turning the ignition switch ON (Depending on the control unit which carries out CAN communication).
- Error may be detected if the power supply circuit of the control unit, which carries out CAN communication, malfunctions (Depending on the control unit which carries out CAN communication).
- Error may be detected if reprogramming is not completed normally.

CAUTION:

CAN communication system is normal if DTC of CAN communication is indicated on SELF-DIAG RESULTS of CONSULT under the above conditions. Erase the memory of the self-diagnosis of each unit.

Symptom When Error Occurs in CAN Communication System

INFOID:000000009799553

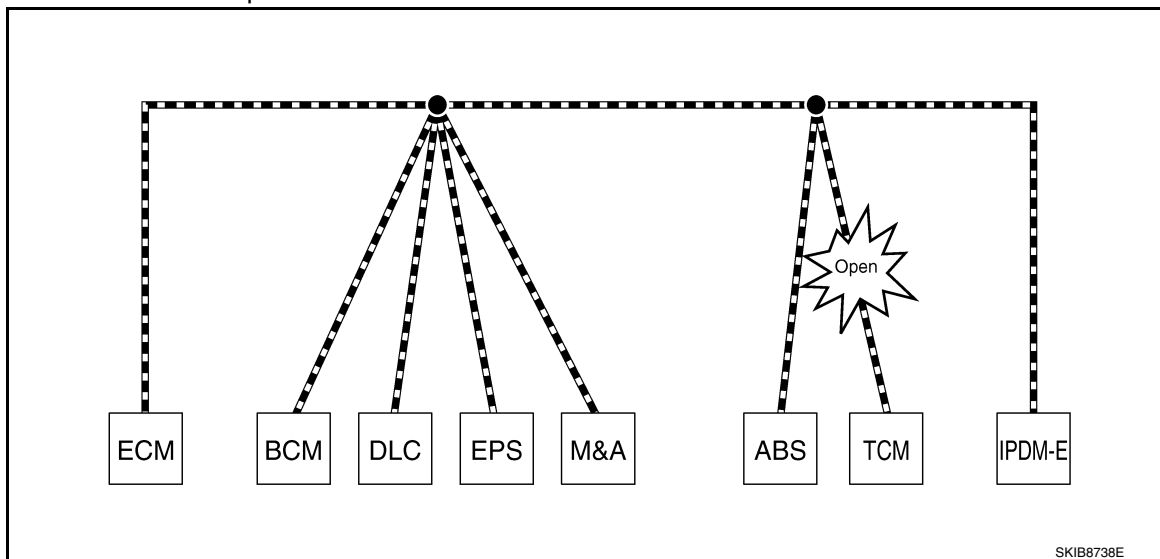
In CAN communication system, multiple units mutually transmit and receive signals. Each unit cannot transmit and receive signals if any error occurs on CAN communication line. Under this condition, multiple control units related to the root cause malfunction or go into fail-safe mode.

ERROR EXAMPLE

NOTE:

- Each vehicle differs in symptom of each unit under fail-safe mode and CAN communication line wiring.
- Refer to [LAN-22, "Abbreviation List"](#) for the unit abbreviation.

Example: TCM branch line open circuit



Unit name	Symptom
ECM	Engine torque limiting is affected, and shift harshness increases.
BCM	Reverse warning chime does not sound.

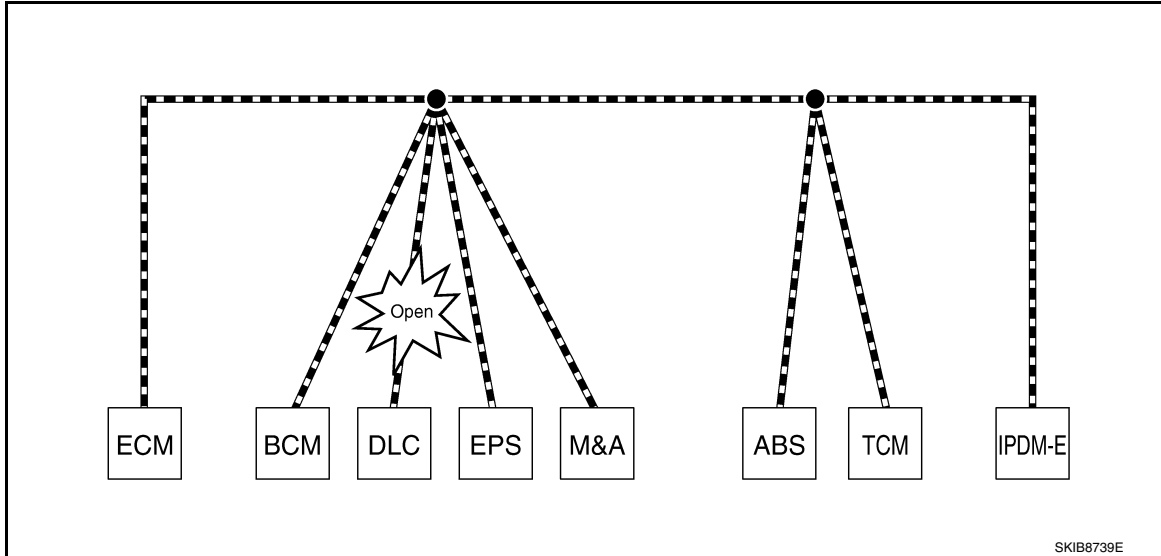
TROUBLE DIAGNOSIS

< SYSTEM DESCRIPTION >

[CAN FUNDAMENTAL]

Unit name	Symptom
EPS control unit	Normal operation.
Combination meter	- Shift position indicator and OD OFF indicator turn OFF. - Warning lamps turn ON.
ABS actuator and electric unit (control unit)	Normal operation.
TCM	No impact on operation.
IPDM E/R	Normal operation.

Example: Data link connector branch line open circuit



Unit name	Symptom
ECM	Normal operation.
BCM	
EPS control unit	
Combination meter	
ABS actuator and electric unit (control unit)	
TCM	
IPDM E/R	

NOTE:

- When data link connector branch line is open, transmission and reception of CAN communication signals are not affected. Therefore, no symptoms occur. However, be sure to repair malfunctioning circuit.
- The model (all units on CAN communication system are Diag on CAN) cannot perform CAN diagnosis with CONSULT if the following error occurs. The error is judged by the symptom.

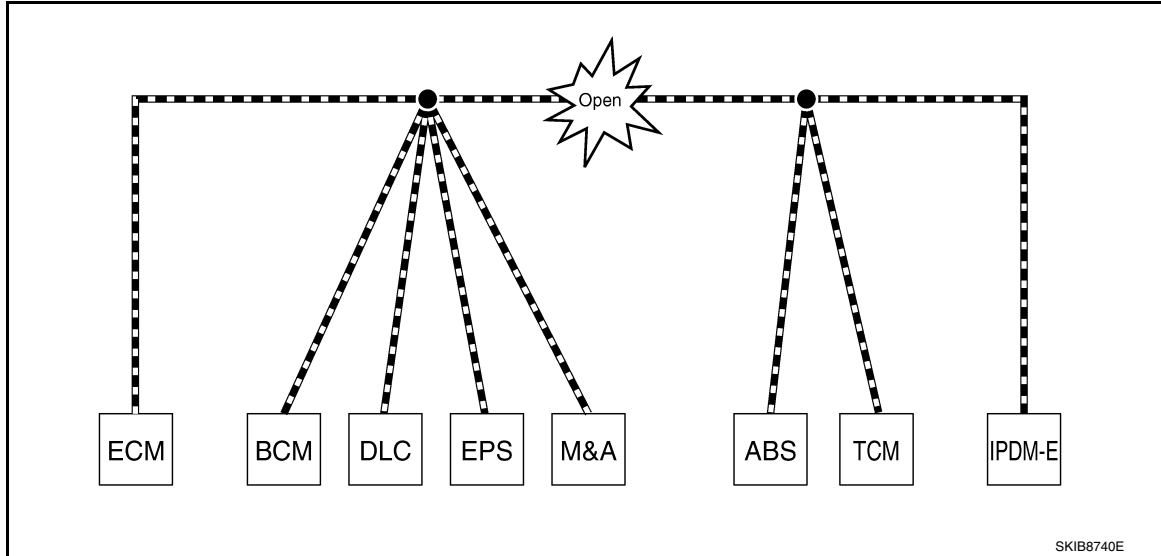
Error	Difference of symptom
Data link connector branch line open circuit	Normal operation.
CAN-H, CAN-L harness short-circuit	Most of the units which are connected to the CAN communication system enter fail-safe mode or are deactivated.

TROUBLE DIAGNOSIS

< SYSTEM DESCRIPTION >

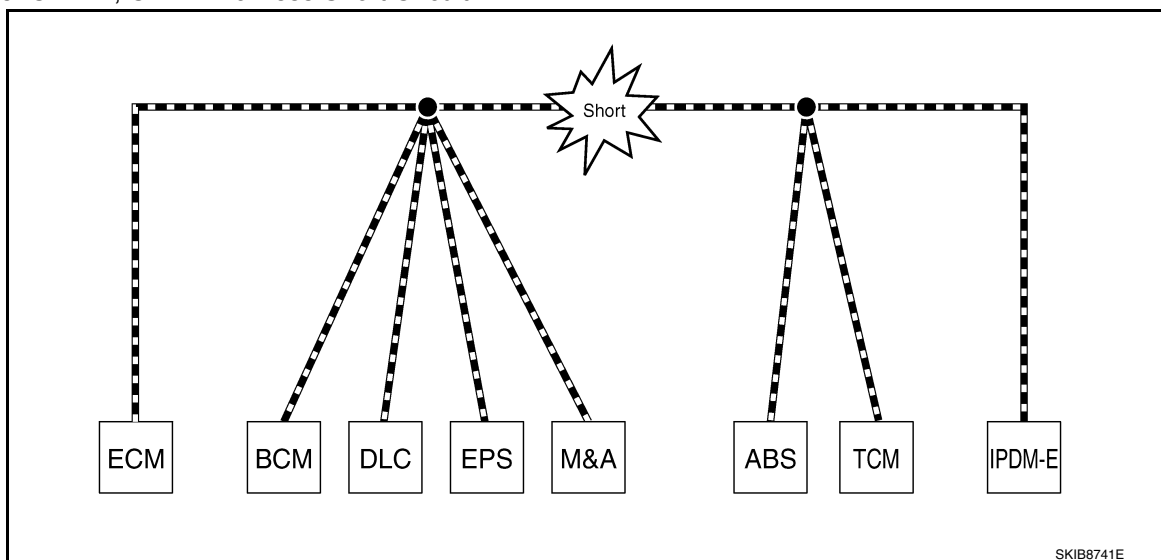
[CAN FUNDAMENTAL]

Example: Main Line Between Data Link Connector and ABS Actuator and Electric Unit (Control Unit) Open Circuit



Unit name	Symptom
ECM	Engine torque limiting is affected, and shift harshness increases.
BCM	- Reverse warning chime does not sound. - The front wiper moves under continuous operation mode even though the front wiper switch being in the intermittent position.
EPS control unit	The steering effort increases.
Combination meter	- The shift position indicator and OD OFF indicator turn OFF. - The speedometer is inoperative. - The odo/trip meter stops.
ABS actuator and electric unit (control unit)	Normal operation.
TCM	No impact on operation.
IPDM E/R	When the ignition switch is ON, - The headlamps (Lo) turn ON. - The cooling fan continues to rotate.

Example: CAN-H, CAN-L Harness Short Circuit



TROUBLE DIAGNOSIS

< SYSTEM DESCRIPTION >

[CAN FUNDAMENTAL]

Unit name	Symptom
ECM	- Engine torque limiting is affected, and shift harshness increases. - Engine speed drops.
BCM	- Reverse warning chime does not sound. - The front wiper moves under continuous operation mode even though the front wiper switch being in the intermittent position. - The room lamp does not turn ON. - The engine does not start (if an error or malfunction occurs while turning the ignition switch OFF.) - The steering lock does not release (if an error or malfunction occurs while turning the ignition switch OFF.)
EPS control unit	The steering effort increases.
Combination meter	- The tachometer and the speedometer do not move. - Warning lamps turn ON. - Indicator lamps do not turn ON.
ABS actuator and electric unit (control unit)	Normal operation.
TCM	No impact on operation.
IPDM E/R	When the ignition switch is ON, - The headlamps (Lo) turn ON. - The cooling fan continues to rotate.

CAN Diagnosis with CONSULT

INFOID:000000009799554

CAN diagnosis on CONSULT extracts the root cause by receiving the following information.

- Response to the system call
- Control unit diagnosis information
- Self-diagnosis
- CAN diagnostic support monitor

Self-Diagnosis

INFOID:000000009799555

If communication signals cannot be transmitted or received among units communicating via CAN communication line, CAN communication-related DTC is displayed on the CONSULT "Self Diagnostic Result" screen.

NOTE:

The following table shows examples of CAN communication-related DTC. For other DTC, refer to the applicable sections.

DTC	Self-diagnosis item (CONSULT indication)	DTC detection condition		Inspection/Action
U1000	CAN COMM CIRCUIT	ECM	When ECM is not transmitting or receiving CAN communication signal of OBD (emission-related diagnosis) for 2 seconds or more.	Start the inspection. Refer to the applicable section of the indicated control unit.
		Except for ECM	When a control unit (except for ECM) is not transmitting or receiving CAN communication signal for 2 seconds or more.	
U1001	CAN COMM CIRCUIT	When ECM is not transmitting or receiving CAN communication signal other than OBD (emission-related diagnosis) for 2 seconds or more.		
U1002	SYSTEM COMM	When a control unit is not transmitting or receiving CAN communication signal for 2 seconds or less.		
U1010	CONTROL UNIT(CAN)	When an error is detected during the initial diagnosis for CAN controller of each control unit.		
				Replace the control unit indicating “U1010”.

CAN Diagnostic Support Monitor

INFOID:000000009799556

MONITOR ITEM (CONSULT)

TROUBLE DIAGNOSIS

< SYSTEM DESCRIPTION >

[CAN FUNDAMENTAL]

Example: CAN DIAG SUPPORT MNTR indication

Without PAST			With PAST		
BCM			ENGINE		
MONITOR ITEM	PRESENT	PAST	MONITOR ITEM	PRESENT	PAST
INITIAL DIAG	OK	-	TRANSMIT DIAG	OK	OK
TRANSMIT DIAG	OK	-	VDC/TCS/ABS	OK	5
ECM	OK	-	METER/M&A	Not diagnosed	-
METER/M&A	OK	-	BCM/SEC	OK	OK
TCM	OK	-	ICC	Not diagnosed	-
IPDM E/R	OK	-	HVAC	Not diagnosed	-
I-KEY	OK	-	TCM	OK	OK
			EPS	OK	OK
			IPDM E/R	OK	5
			e4WD	Not diagnosed	-
			AWD/4WD	Not diagnosed	-

JSMIA0964GB

Without PAST

Item	PRESENT	Description
Initial diagnosis	OK	Normal at present
	NG	Control unit error (Except for some control units)
Transmission diagnosis	OK	Normal at present
	UNKWN	Unable to transmit signals for 2 seconds or more.
		Diagnosis not performed
Control unit name (Reception diagnosis)	OK	Normal at present
	UNKWN	Unable to receive signals for 2 seconds or more.
		Diagnosis not performed
		No control unit for receiving signals. (No applicable optional parts)

With PAST

Item	PRESENT	PAST	Description
Transmission diagnosis	OK	OK	Normal at present and in the past
		1 – 39	Normal at present, but unable to transmit signals for 2 seconds or more in the past. (The number indicates the number of ignition switch cycles from OFF to ON.)
	UNKWN	0	Unable to transmit signals for 2 seconds or more at present.
Control unit name (Reception diagnosis)	OK	OK	Normal at present and in the past
		1 – 39	Normal at present, but unable to receive signals for 2 seconds or more in the past. (The number indicates the number of ignition switch cycles from OFF to ON.)
	UNKWN	0	Unable to receive signals for 2 seconds or more at present.
	Not diagnosed	–	Diagnosis not performed.
			No control unit for receiving signals. (No applicable optional parts)

MONITOR ITEM (ON-BOARD DIAGNOSIS)

NOTE:

For some models, CAN communication diagnosis result is received from the vehicle monitor.

TROUBLE DIAGNOSIS

< SYSTEM DESCRIPTION >

[CAN FUNDAMENTAL]

Example: Vehicle Display

Item	Result indicated	Error counter	Description
CAN_COMM (Initial diagnosis)	OK	0	Normal at present
	NG	1 – 50	Control unit error (The number indicates how many times diagnosis has been run.)
CAN_CIRC_1 (Transmission diagnosis)	OK	0	Normal at present
	UNKWN	1 – 50	Unable to transmit for 2 seconds or more at present. (The number indicates how many times diagnosis has been run.)
CAN_CIRC_2 – 9 (Reception diagnosis of each unit)	OK	0	Normal at present
	UNKWN	1 – 50	Unable to transmit for 2 seconds or more at present. (The number indicates how many times diagnosis has been run.)
			Diagnosis not performed. No control unit for receiving signals. (No applicable optional parts)

How to Use CAN Communication Signal Chart

INFOID:000000009799557

The CAN communication signal chart lists the signals needed for trouble diagnosis. It is useful for detecting the root cause by finding a signal related to the symptom, and by checking transmission and reception unit.

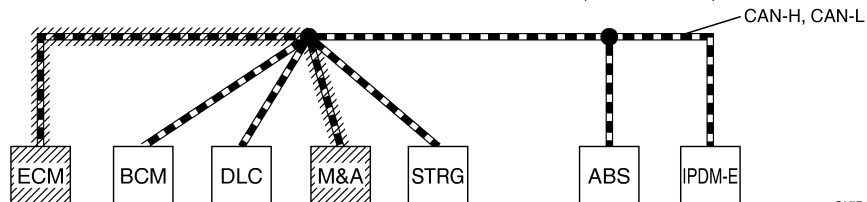
Example: Tachometer does not move even though the engine rotates.

T: Transmit R: Receive

Signal name/Connecting unit	ECM	BCM	M&A	STRG	ABS	IPDM-E
A/C compressor feedback signal	T		R			
A/C compressor request signal	T					R
Accelerator pedal position signal	T				R	
Cooling fan motor operation signal	T					R
Engine coolant temperature signal	T		R			
Engine speed signal	T		R		R	
Fuel consumption monitor signal	T		R			
Malfunction indicator lamp signal	T		R			
A/C switch signal	R	T				
Ignition switch signal		T				R
Sleep/wake up signal		T	R			R

No communication between ECM and M&A.

It indicates that an error occurs between ECM and M&A (Shaded area).



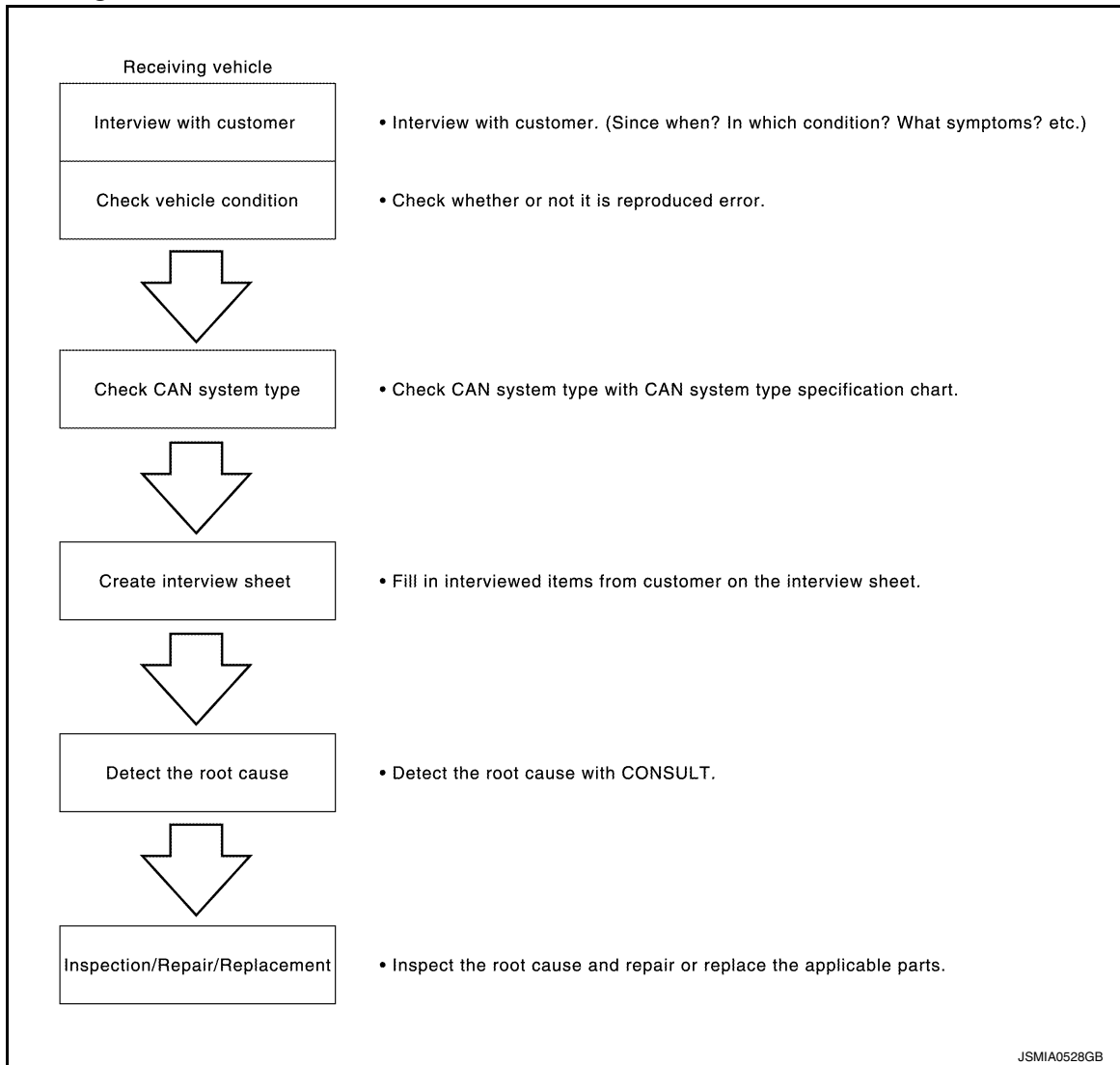
SKIB8715E

BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Trouble Diagnosis Flow Chart

INFOID:000000009799558



Trouble Diagnosis Procedure

INFOID:000000009799559

INTERVIEW WITH CUSTOMER

Interview with the customer is important to detect the root cause of CAN communication system errors and to understand vehicle condition and symptoms for proper trouble diagnosis.

Points in interview

- What: Parts name, system name
- When: Date, Frequency
- Where: Road condition, Place
- In what condition: Driving condition/environment
- Result: Symptom

NOTE:

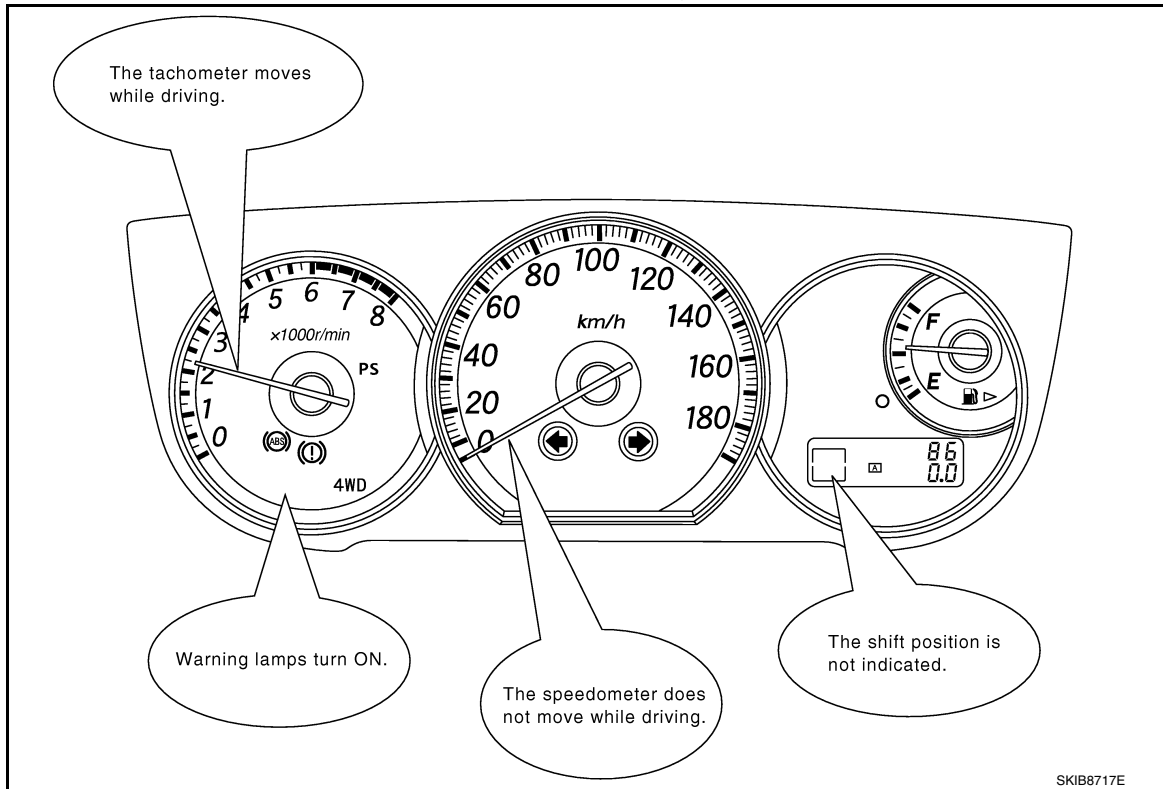
- Check normal units as well as error symptoms.
- Example: Circuit between ECM and the combination meter is judged normal if the customer indicates tachometer functions normally.
- When a CAN communication system error is present, multiple control units may malfunction or go into fail-safe mode.

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

[CAN FUNDAMENTAL]

- Indication of the combination meter is important to detect the root cause because it is the most obvious to the customer, and it performs CAN communication with many units.



INSPECTION OF VEHICLE CONDITION

Check whether the symptom is reproduced or not.

NOTE:

Do not turn the ignition switch OFF or disconnect the battery cable while reproducing the error. The error may temporarily correct itself, making it difficult to determine the root cause.

CHECK OF CAN SYSTEM TYPE (HOW TO USE CAN SYSTEM TYPE SPECIFICATION CHART)

Determine CAN system type based on vehicle equipment.

NOTE:

- This chart is used if CONSULT does not automatically recognize CAN system type.
- There are two styles for CAN system type specification charts. Depending on the number of available system types, either style A or style B may be used.

CAN System Type Specification Chart (Style A)

NOTE:

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

[CAN FUNDAMENTAL]

CAN system type is easily checked with the vehicle equipment identification information shown in the chart.

Example:
Vehicle is equipped as follows: Wagon, AWD, VQ35DE, CVT, VDC, and Intelligent Key system. (○ shows an example of CAN system type.)

CAN System Specification Chart
Determine CAN system type from the following specification chart.

Body type	Wagon					
Axle	2WD			AWD		
Engine	QR25DE			VQ35DE		
Transmission	A/T			CVT		
Brake control	ABS			VDC		
Intelligent Key system		X		X		X
CAN system type	1	2	3	4	5	6
CAN communication signal chart	XX-XX. "TYPE 1/TYPE 2"		XX-XX. "TYPE 3/TYPE 4"		XX-XX. "TYPE 5/TYPE 6"	

X : Applicable

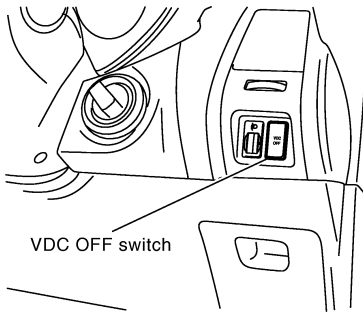
Check the vehicle equipment with the vehicle identification number plate.

Check the vehicle equipment.

The number indicates the CAN system type of the vehicle.

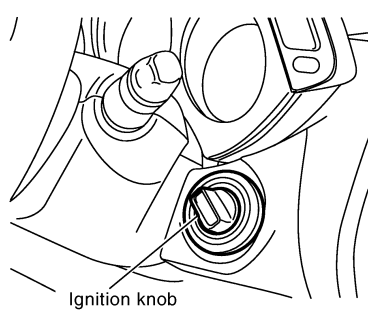
VEHICLE EQUIPMENT IDENTIFICATION INFORMATION
NOTE:
Check CAN system type from the vehicle shape and equipment.

With VDC



VDC OFF switch

With Intelligent Key system



Ignition knob

In the above example,
• Checking VDC OFF switch leads to judge whether or not VDC is equipped.
• Checking the ignition knob leads to judge whether or not Intelligent Key system is equipped.

[For the above case, CAN system type is "6".]

JSMIA0017GB

CAN System Type Specification Chart (Style B)

NOTE:

LAN

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

[CAN FUNDAMENTAL]

CAN system type is easily checked with the vehicle equipment identification information shown in the chart.

Example:

Vehicle is equipped as follows: Sedan, 2WD, MR20DE, CVT, ABS, Active AFS, Intelligent Key system, Navigation system and Automatic drive positioner. (○ shows an example of CAN system type.)

CAN System Specification Chart

Refer to the specification as shown in the chart.

Body type	Sedan		
Axle	2WD		AWD
Engine	HR15DE	MR20DE	HR15DE
Transmission	A/T	CVT	A/T
Brake control		ABS	
Specification chart	XXX SPECIFICATION CHART A	YYY SPECIFICATION CHART B	XXX SPECIFICATION CHART C

x: Applicable

Check the vehicle equipment with the vehicle identification number plate.

Check the vehicle equipment.

Select the applicable vehicle equipment. Refer to the specification chart.

SPECIFICATION CHART B

Determine CAN system type from the following specification chart.

Body type	Sedan											
Axle	2WD											
Engine	MR20DE											
Transmission	CVT											
Brake control	ABS											
Active AFS		x			x	x			x	x		x
Intelligent Key system			x		x		x	x	x	x		x
Navigation system				x		x	x		x		x	x
Automatic drive positioner								x		x	x	x
CAN system type	9	10	11	12	13	14	15	16	17	18	19	20
CAN communication signal chart	XXX TYPE WINPA WINPA 1A/TYPE 12/TYPE 13/TYPE 14/TYPE 15/TYPE 16/TYPE 17/TYPE 18/TYPE 19/TYPE 20											

x: Applicable

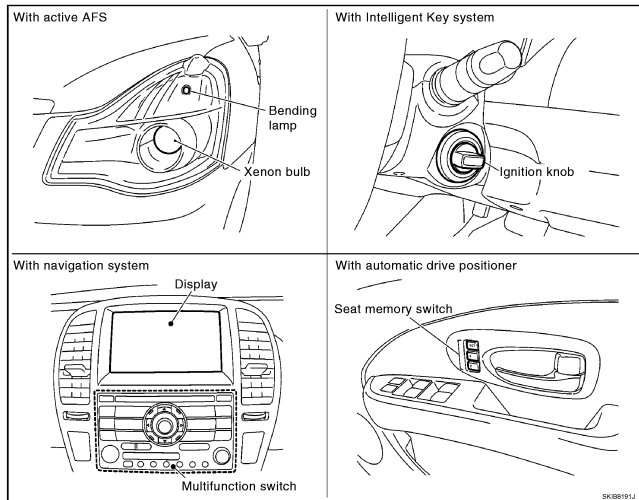
Check the vehicle equipment.

The number indicates the CAN system type of the vehicle.

VEHICLE EQUIPMENT IDENTIFICATION INFORMATION

NOTE:

Check CAN system type from the vehicle shape and equipment.



In the above example,

- Checking Xenon bulb and bending lamp lead to judge whether or not Active AFS is equipped.
- Checking the ignition knob leads to judge whether or not Intelligent Key system is equipped.
- Checking display and multifunction switch lead to judge whether or not Navigation system is equipped.
- Checking seat memory switch leads to judge whether or not Automatic drive positioner is equipped.

[For the above case, CAN system type is "20".]

JSMIA0018GB

CREATE INTERVIEW SHEET

Fill out the symptom described by the customer, vehicle condition, and CAN system type on the interview sheet.

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

[CAN FUNDAMENTAL]

Interview Sheet (Example)

CAN Communication System Diagnosis Interview Sheet	
Date received: 3, Feb. 2006	
Type: DBA-KG11	VIN No.: KG11-005040
Model: BDRARGZ397EDA-E-J-	
First registration: 10, Jan. 2001	Mileage: 62,140
CAN system type: Type 19	
Symptom (Results from interview with customer)	
• Headlamps suddenly turn ON while driving the vehicle. • The engine does not restart after stopping the vehicle and turning the ignition switch OFF. • The cooling fan continues rotating while turning the ignition switch ON.	
Condition at inspection	
Error Symptom: Present / Past	
The engine does not start. While turning the ignition switch ON, • The headlamps (Lo) turn ON, and the cooling fan continues rotating. • The interior lamp does not turn ON.	

JSMIA0019GB

DETECT THE ROOT CAUSE

CAN diagnosis function of CONSULT detects the root cause.

HOW TO USE THIS MANUAL

HOW TO USE THIS SECTION

Caution

INFOID:000000009799560

- This section describes information peculiar to a vehicle and inspection procedures.
- For trouble diagnosis procedure, refer to [LAN-17, "Trouble Diagnosis Procedure"](#).

Abbreviation List

INFOID:000000009799561

Unit name abbreviations in CONSULT CAN diagnosis and in this section are as per the following list.

Abbreviation	Unit name
4WD	AWD control unit
A-BAG	Air bag diagnosis sensor unit
ABS	ABS actuator and electric unit (control unit)
AV	AV control unit
AVM	Around view monitor control unit
BCM	BCM
CCM	Chassis control module
DLC	Data link connector
ECM	ECM
EPS	EPS control unit
HVAC	A/C auto amp. (with auto A/C)
	Front air control (without auto A/C)
ICC	Distance sensor
IPDM-E	IPDM E/R
M&A	Combination meter
PWBD	Automatic back door control module
STRG	Steering angle sensor
TCM	TCM

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:000000010269354

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Precautions for Trouble Diagnosis

INFOID:000000009799563

CAUTION:

- Never apply 7.0 V or more to the measurement terminal.
- Use a tester with open terminal voltage of 7.0 V or less.
- Turn the ignition switch OFF and disconnect the battery cable from the negative terminal when checking the harness.

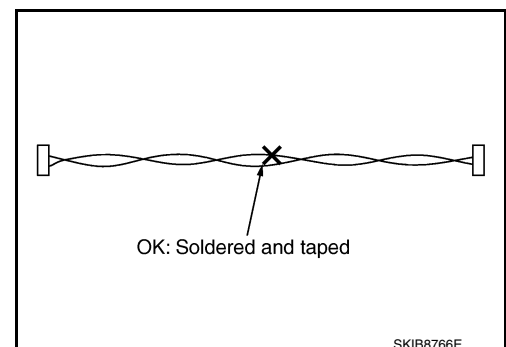
Precautions for Harness Repair

INFOID:000000009799564

- Solder the repaired area and wrap tape around the soldered area.

NOTE:

A fray of twisted lines must be within 110 mm (4.33 in).



PRECAUTIONS

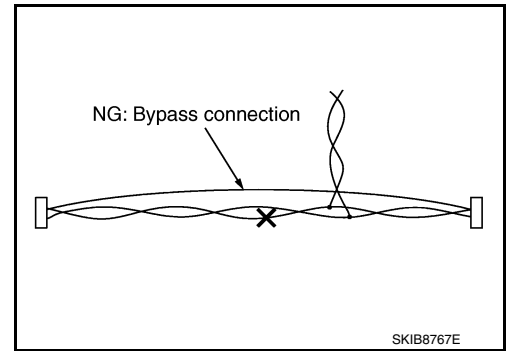
< PRECAUTION >

[CAN]

- Bypass connection is never allowed at the repaired area.

NOTE:

Bypass connection may cause CAN communication error. The spliced wire becomes separated and the characteristics of twisted line are lost.



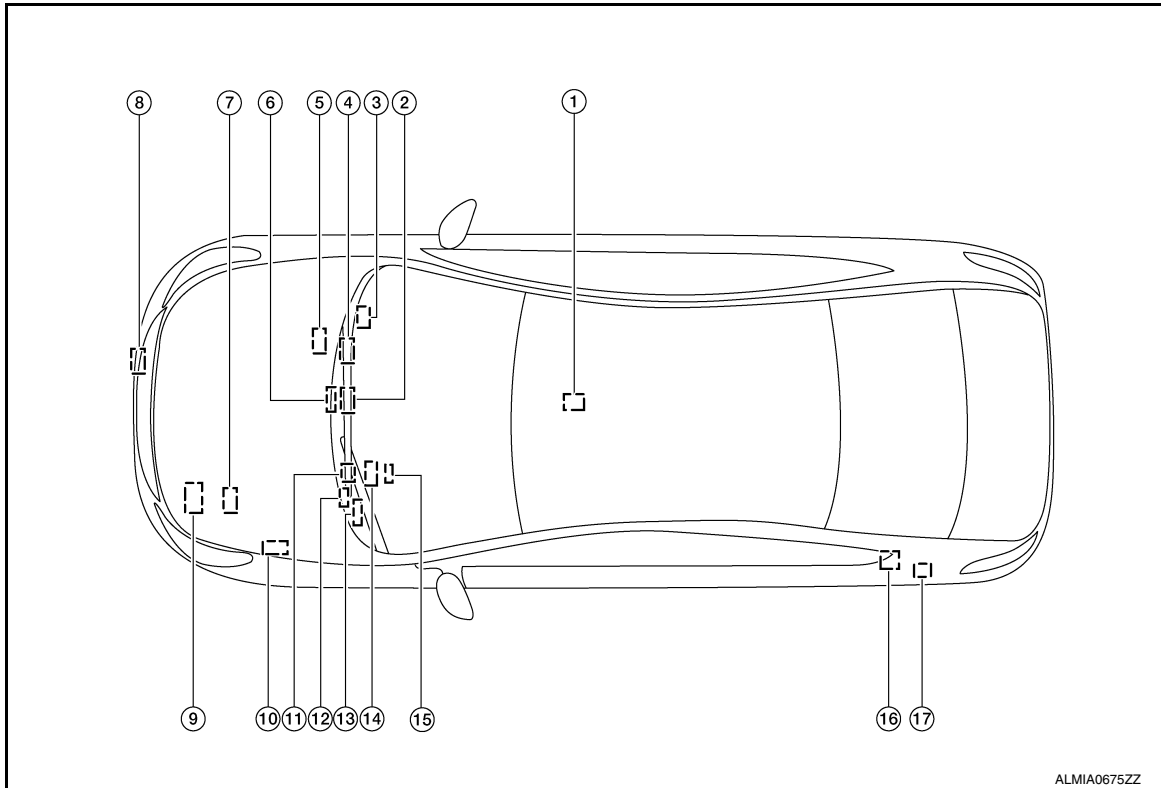
- Replace the applicable harness as an assembly if error is detected on the shield lines of CAN communication line.

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:000000009799571



- | | | |
|----------------------------------|--|--|
| 1. Air bag diagnosis sensor unit | 2. AV control unit | 3. Around view monitor control unit |
| 4. Chassis control module | 5. ABS actuator and electric unit (control unit) | 6. • A/C auto amp. (With auto A/C)
• Front air control (Without auto A/C) |
| 7. TCM | 8. Distance sensor | 9. ECM |
| 10. IPDM E/R | 11. EPS control unit | 12. Data link connector |
| 13. BCM | 14. Combination meter | 15. Steering angle sensor |
| 16. AWD control unit | 17. Automatic back door control module | |

LAN

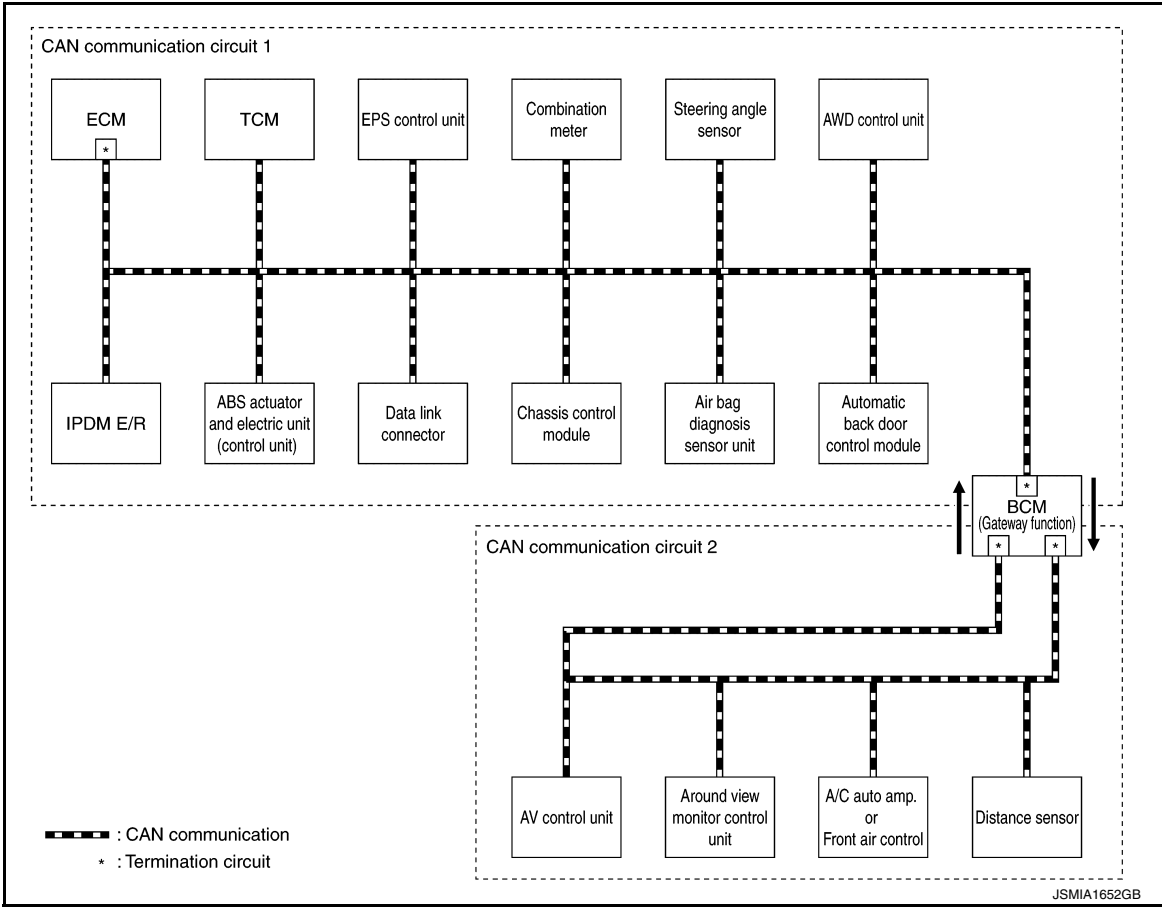
SYSTEM

CAN COMMUNICATION SYSTEM

CAN COMMUNICATION SYSTEM : System Description

INFOID:0000000010269365

SYSTEM DIAGRAM



DESCRIPTION

- CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN-H line, CAN-L line) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.
- The following control units include a gateway function and communicate signals between the different CAN communication circuits.

CAN communication circuit	Gateway control unit	Reference
CAN communication circuit 1 ↔ CAN communication circuit 2	BCM	LAN-74, "System Description"

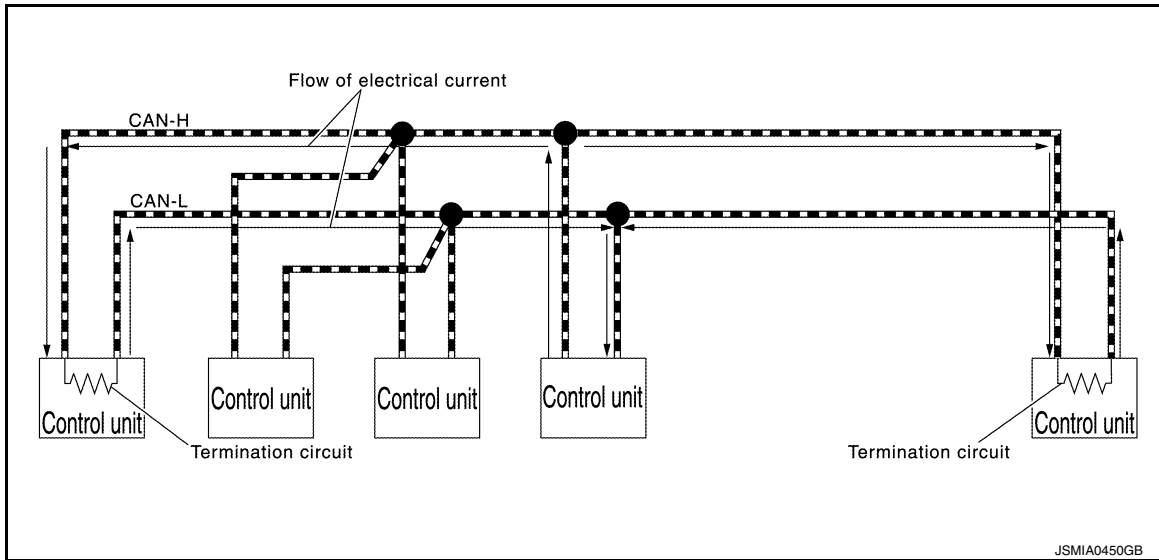
CAN Communication Signal Generation

SYSTEM

< SYSTEM DESCRIPTION >

[CAN]

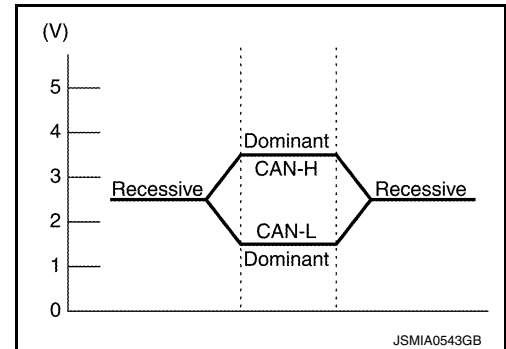
- Termination circuits (resistors) are connected across the CAN communication system. When transmitting a CAN communication signal, each control unit passes a current to the CAN-H line and the current returns to the CAN-L line.



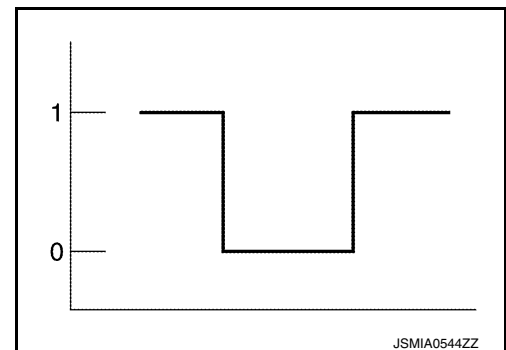
- The current flows separately into the termination circuits connected across the CAN communication system and the termination circuits drop voltage to generate a potential difference between the CAN-H line and the CAN-L line.

NOTE:

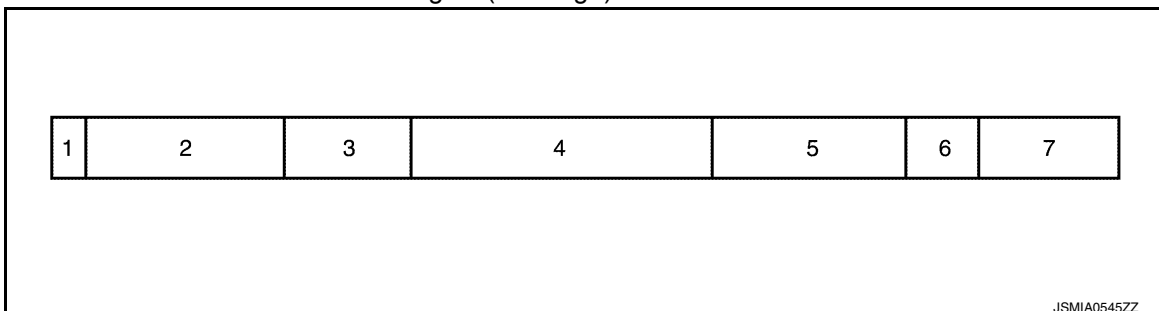
A signal with no current passage is called "Recessive" and one with current passage is called "Dominant".



- The system produces digital signals for signal communications, by using the potential difference.



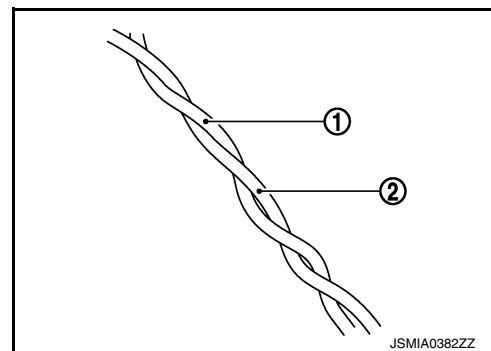
The Construction of CAN Communication Signal (Message)



No.	Message name	Description
1	Start of frame (1 bit)	Start of message.
2	Arbitration of field (11 bit)	Priorities of message-sending are shown when there is a possibility that multiple messages are sent at the same time.
3	Control field (6 bit)	Signal quantity in data field is shown.
4	Data field (0-64 bit)	Actual signal is shown.
5	CRC field (16 bit)	- The transmitting control unit calculates sending data in advance and writes the calculated value in a message. - The receiving control unit calculates received data and judges that the data reception is normal when the calculated value is the same as the value written in the sent data.
6	ACK field (2 bit)	The completion of normal reception is sent to the transmitting unit.
7	End of frame (7 bit)	End of message.

CAN Communication Line

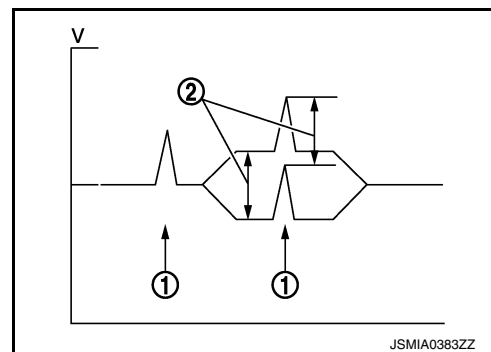
The CAN communication line is a twisted pair wire consisting of strands of CAN-H ① and CAN-L ② and has noise immunity.



NOTE:

The CAN communication system has the characteristics of noise-resistant because this system produces digital signals by using the potential difference between the CAN-H line and the CAN-L line and has the twisted pair wire structure.

Since the CAN-H line and the CAN-L line are always adjacent to each other, the same degree of noise occurs, respectively, when a noise ① occurs. Although the noise changes the voltage, the potential difference ② between the CAN-H line and the CAN-L line is insensitive to noise. Therefore, noise-resistant signals can be obtained.



CAN Signal Communications

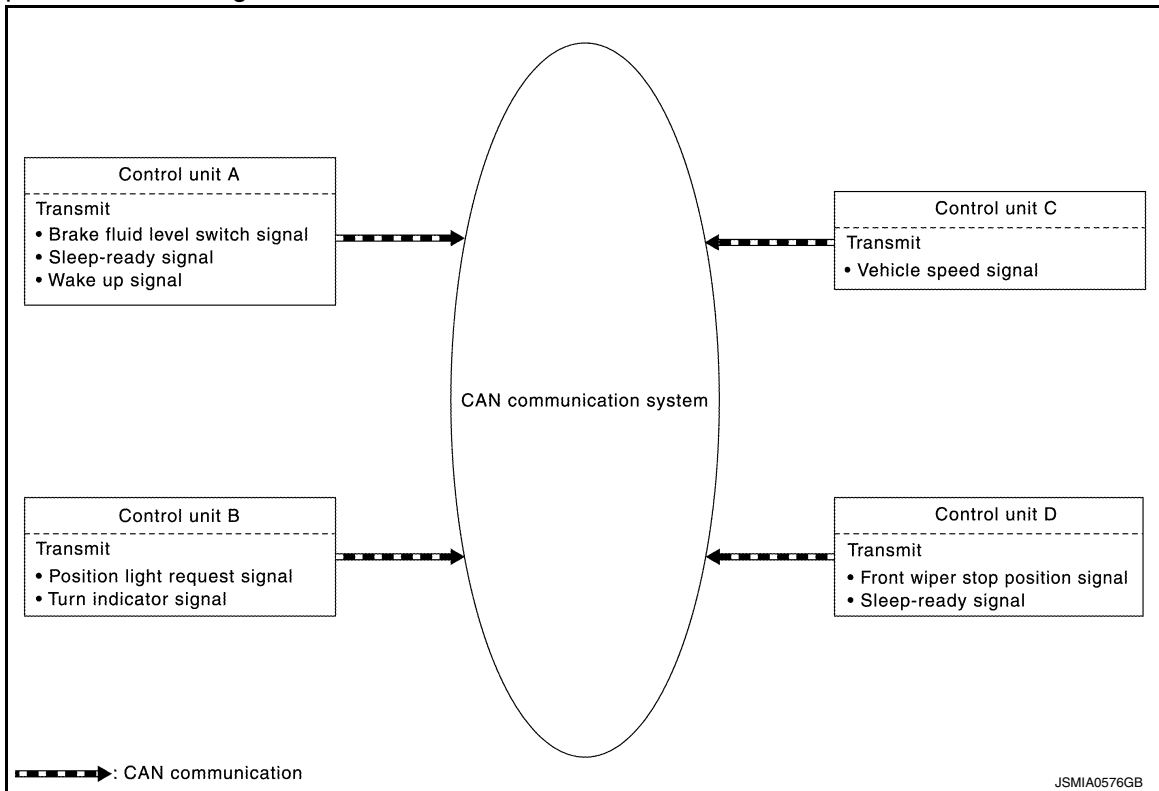
Each control unit of the CAN communication system transmits signals through the CAN communication control circuit included in the control unit and receives only necessary signals from each control unit to perform various kinds of control.

SYSTEM

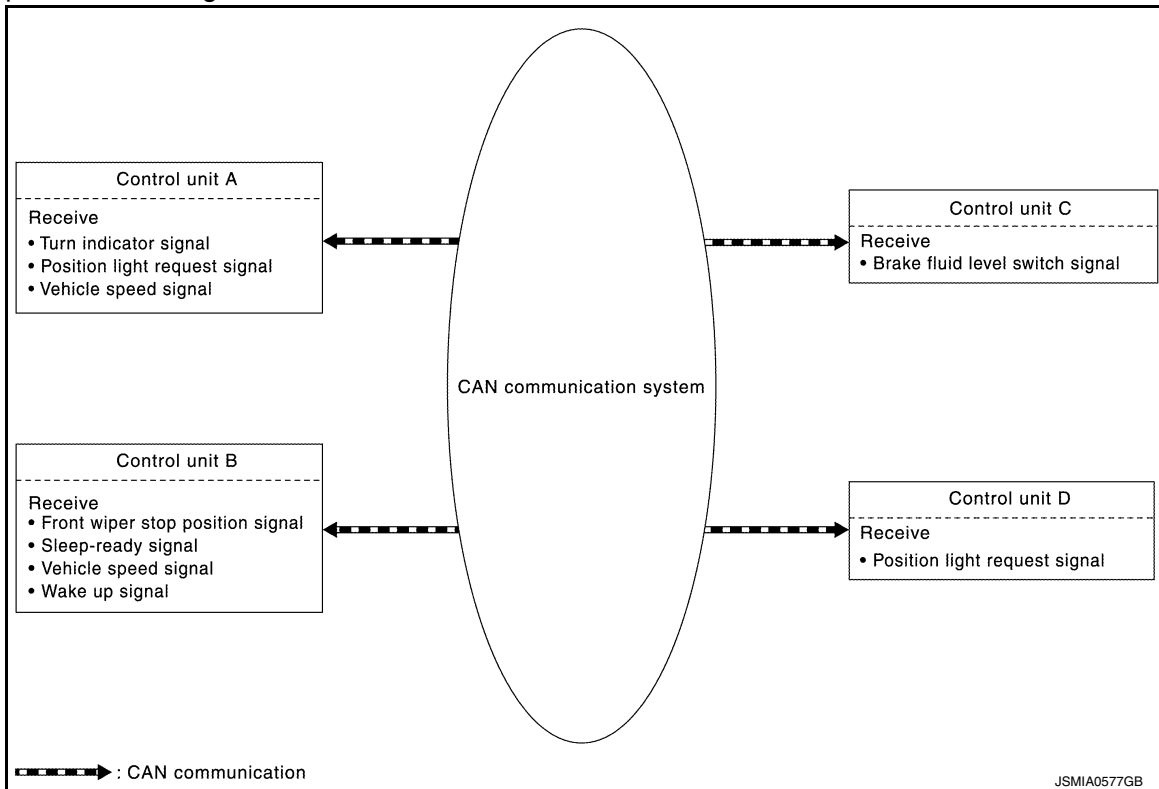
[CAN]

< SYSTEM DESCRIPTION >

• Example: Transmitted signals



• Example: Received signals



NOTE:

The above signal names and signal communications are provided for reference purposes. For CAN communications signals of this vehicle, refer to [LAN-32, "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart"](#).

SYSTEM

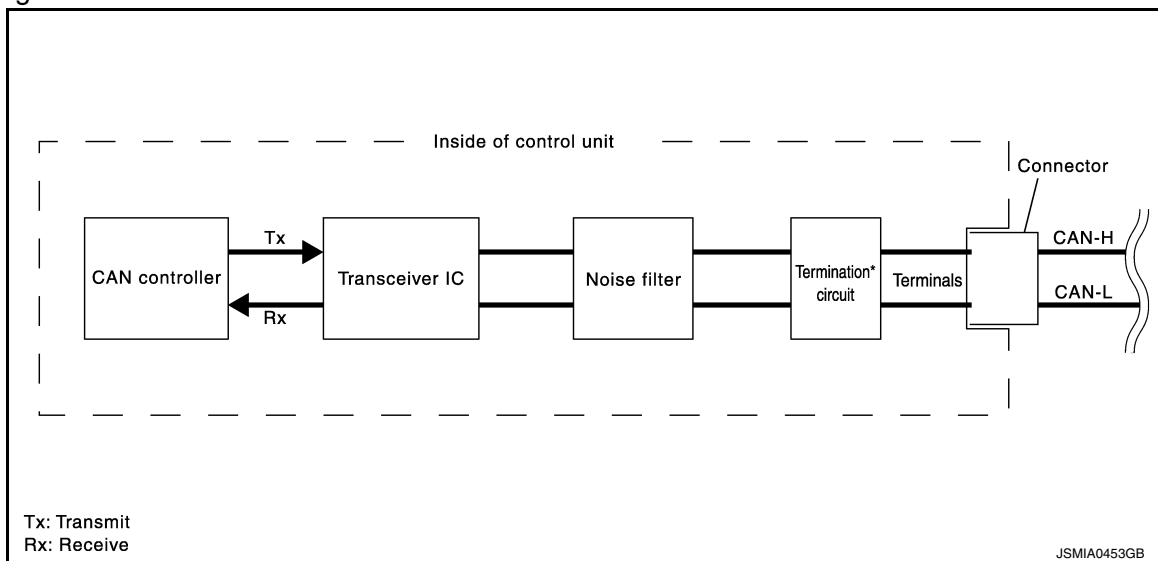
< SYSTEM DESCRIPTION >

[CAN]

CAN COMMUNICATION SYSTEM : CAN Communication Control Circuit

INFOID:000000010269366

CAN communication control circuit is incorporated into the control unit and transmits/receives CAN communication signals.



Component	System description
CAN controller	It controls CAN communication signal transmission and reception, error detection, etc.
Transceiver IC	It converts digital signal into CAN communication signal, and CAN communication signal into digital signal.
Noise filter	It eliminates noise of CAN communication signal.
Termination circuit* (Resistance of approx. 120 Ω)	Generates a potential difference between CAN-H and CAN-L.

*: These are the only control units wired with both ends of CAN communication system.

CAN COMMUNICATION SYSTEM : CAN System Specification Chart

INFOID:000000009799569

Determine CAN system type from the following specification chart.

NOTE:

Refer to [LAN-17, "Trouble Diagnosis Procedure"](#) for how to use CAN system specification chart.

Body type	Wagon							
Axle	2WD				AWD			
Engine	QR25DE							
Transmission	CVT							
Brake control	VDC							
Around view monitor system			×	×			×	×
Automatic back door system		×	×	×		×	×	×
Forward Collision Warning				×				×
CAN system type	1	2	3	4	5	6	7	8
CAN communication unit								
ECM	×	×	×	×	×	×	×	×
ABS actuator and electric unit (control unit)	×	×	×	×	×	×	×	×
IPDM E/R	×	×	×	×	×	×	×	×
TCM	×	×	×	×	×	×	×	×
Data link connector	×	×	×	×	×	×	×	×

SYSTEM

< SYSTEM DESCRIPTION >

[CAN]

Body type	Wagon							
Axle	2WD				AWD			
Engine	QR25DE							
Transmission	CVT							
Brake control	VDC							
Around view monitor system			×	×			×	×
Automatic back door system		×	×	×		×	×	×
Forward Collision Warning				×				×
CAN system type	1	2	3	4	5	6	7	8
CAN communication unit								
Combination meter	×	×	×	×	×	×	×	×
Air bag diagnosis sensor unit	×	×	×	×	×	×	×	×
Chassis control module	×	×	×	×	×	×	×	×
EPS control unit	×	×	×	×	×	×	×	×
Steering angle sensor	×	×	×	×	×	×	×	×
AWD control unit					×	×	×	×
Automatic back door control module		×	×	×		×	×	×
BCM	×	×	×	×	×	×	×	×
AV control unit			×	×			×	×
Around view monitor control unit			×	×			×	×
A/C auto amp.*1 or Front air control*2	×	×	×	×	×	×	×	×
Distance sensor				×				×

x: Applicable

*1: With auto A/C

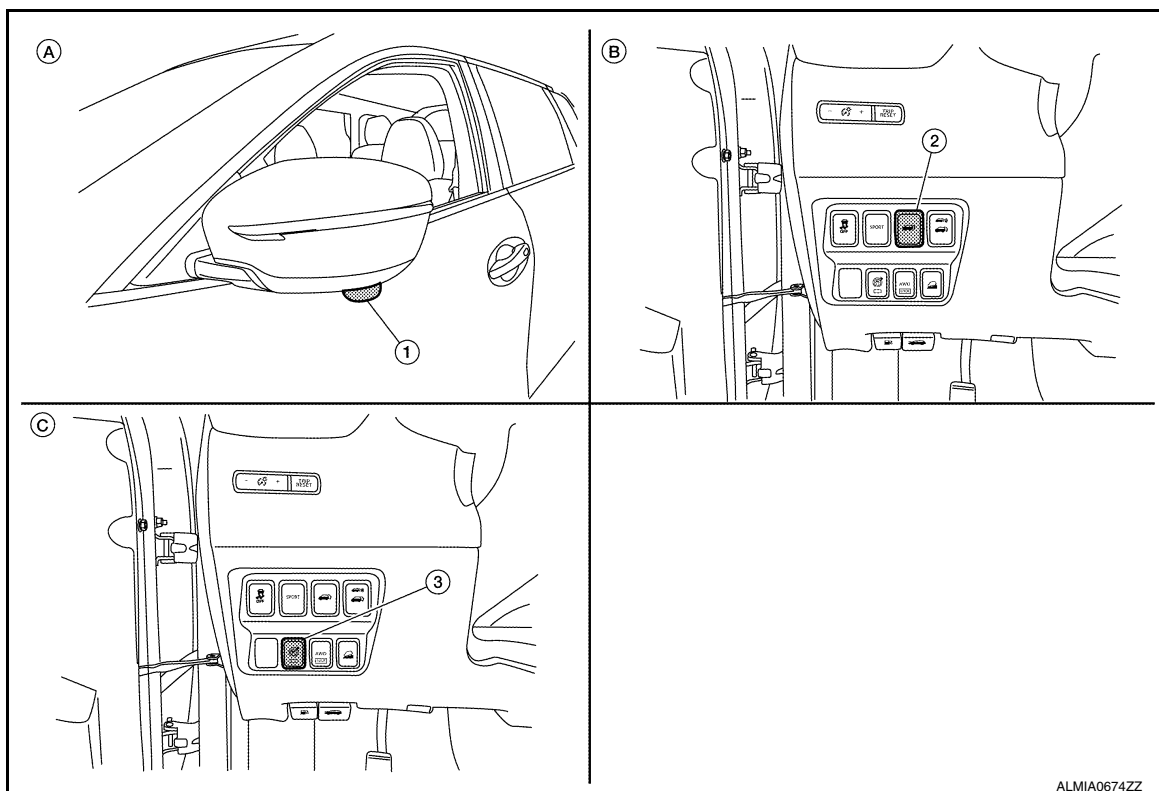
*2: Without auto A/C

VEHICLE EQUIPMENT IDENTIFICATION INFORMATION

NOTE:

Check CAN system type from the vehicle shape and equipment.

LAN



1. Door mirror LH side camera 2. Automatic back door main switch 3. Warning systems switch
A. With around view monitor system B. With automatic back door system C. With forward collision warning

CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart

INFOID:000000009799570

Refer to [LAN-16, "How to Use CAN Communication Signal Chart"](#) for how to use CAN communication signal chart.

NOTE:

Refer to [LAN-22, "Abbreviation List"](#) for the abbreviations of the connecting units.

T: Transmit R: Receive

Signal name/Connecting unit	ECM	ABS	IPDM-E	TCM	M&A	A-BAG	CCM	EPS	STRG	4WD	PWBD	BCM	AV	AVM	HVAC	ICC
A/C compressor request signal	T		R													
Accelerator pedal position signal	T	R		R			R			R				R		R
ASCD status signal	T				R											
Closed throttle position signal	T			R												
Cooling fan speed request signal	T		R												R	
Engine and CVT integrated control signal	T			R												
	R			T												
Engine coolant temperature signal	T			R	R									R	R	
Engine speed signal	T	R		R	R		R			R					R	R
Engine status signal	T				R			R				R	R	R		
Fuel consumption monitor signal	T				R								R			
Fuel filler cap warning display signal	T				R											
Malfunctioning indicator lamp signal	T				R											
	R			T												
SPORT mode indicator lamp signal	T				R											

SYSTEM

< SYSTEM DESCRIPTION >

[CAN]

Signal name/Connecting unit	ECM	ABS	IPDM-E	TCM	M&A	A-BAG	CCM	EPS	STRG	4WD	PWBD	BCM	AV	AVM	HVAC	ICC
Oil pressure switch signal	T				R											
ABS malfunction signal		T		R												
ABS operation signal		T		R												
ABS warning lamp signal		T			R											
G sensor signal		T		R			R									
TCS operation signal		T			R											
VDC operation signal		T			R											
VDC warning lamp signal		T			R											
VDC OFF indicator lamp signal		T			R											
A/C compressor feedback signal	R		T												R	
Front wiper stop position signal			T									R				
High beam status signal	R		T													
Hood switch signal			T									R				
Ignition relay status signal			T									R				
Low beam status signal	R		T													
Push-button ignition switch status			T									R				
Starter relay status signal			T									R				
Input shaft revolution signal	R			T												
OD OFF indicator signal				T	R											
Output shaft revolution signal	R	R		T						R						R
Shift position signal		R	R	T	R		R			R		R		R		R
SPORT mode signal	R			T												
Brake fluid level switch signal		R			T											
Fuel filler cap warning reset signal	R				T											
Overdrive control switch signal				R	T											
Parking brake switch signal		R			T					R	R	R				R
Seat belt buckle switch signal					T							R				
Sleep-ready signal					T							R				
SPORT mode switch signal			T									R				
Vehicle speed signal	R		R		T	R		R			R	R	R			
	R	T		R	R		R	R			R	R		R		R
EPS operation signal	R							T								
EPS warning lamp signal					R			T								
Steering angle sensor signal		R					R		T				R	R		R
AWD warning lamp signal					R					T						
Mode lamp signal					R					T						
A/C switch signal	R											T				
Blower fan motor switch signal	R											T				
Buzzer output signal					R							T				
					R									T		
					R											T
Auto accessory status					R							T				

A

B

C

D

E

F

G

H

I

J

K

L

LAN

N

O

P

SYSTEM

< SYSTEM DESCRIPTION >

[CAN]

Signal name/Connecting unit	ECM	ABS	IPDM-E	TCM	M&A	A-BAG	CCM	EPS	STRG	4WD	PWBD	BCM	AV	AVM	HVAC	ICC
Back door lock status											R	T				
Daytime running light request signal			R		R							T				
Door switch signal					R							T		R		
Front fog light request signal			R		R							T				
Front wiper request signal			R									T		R		R
High beam request signal			R		R							T				
Horn request signal			R									T				
Ignition switch signal			R								R	T				
Key warning signal					R							T				
Low beam request signal			R		R							T				
Low tire pressure warning lamp signal					R							T				
Meter ring illumination request					R							T				
Position light request signal			R		R							T				
Sleep wake up signal			R		R						R	T				
Turn indicator signal					R							T		R		
Meter display signal					R									T		
					R							T				
					R		T									
Rear window defogger control signal	R											R			T	

NOTE:

CAN data of the air bag diagnosis sensor unit is not used by usual service work, thus it is omitted.

< WIRING DIAGRAM >

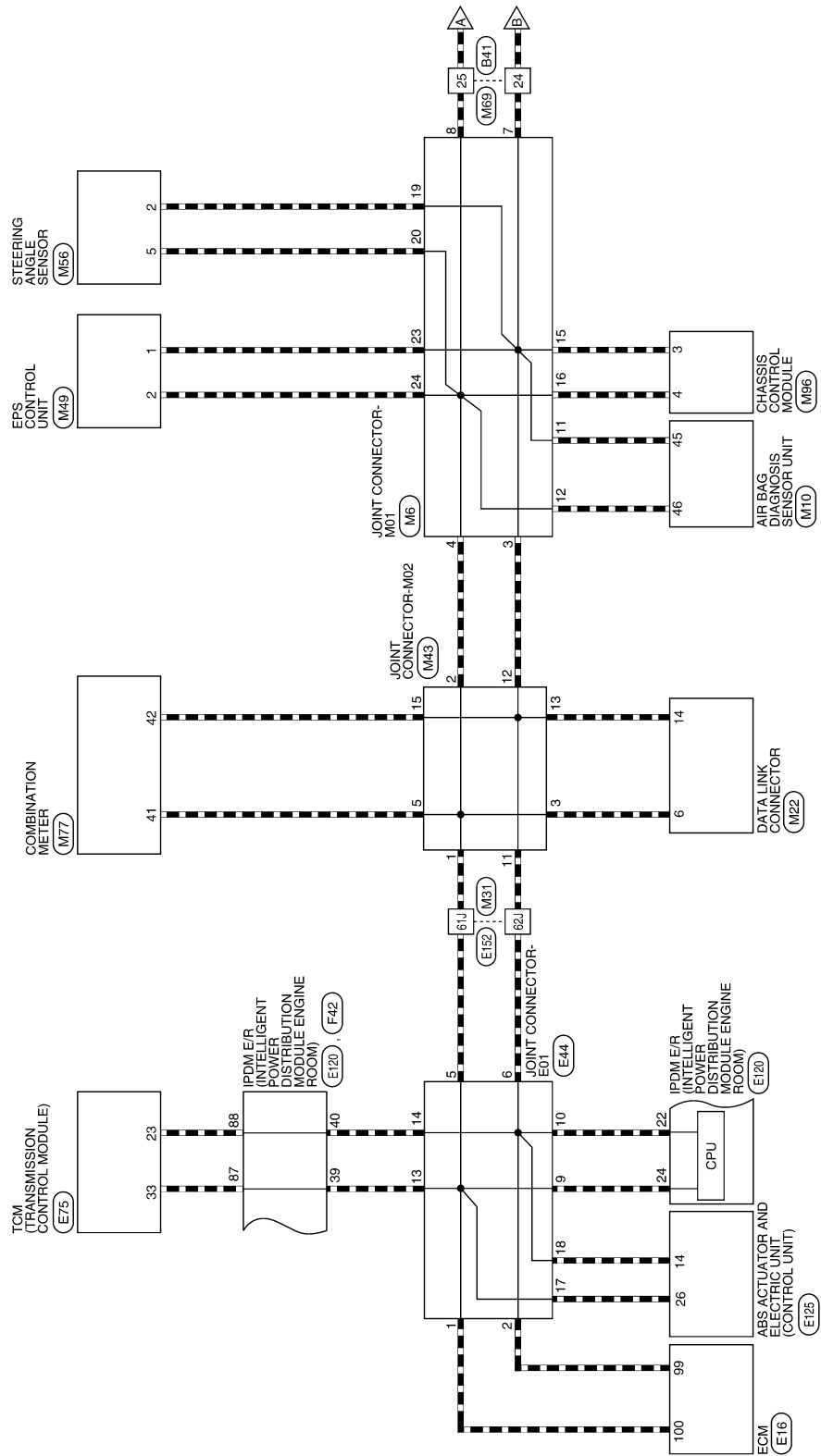
WIRING DIAGRAM

CAN SYSTEM

Wiring Diagram - CAN SYSTEM -

INFOID:000000009799572

CAN SYSTEM



AAMWA1011GB

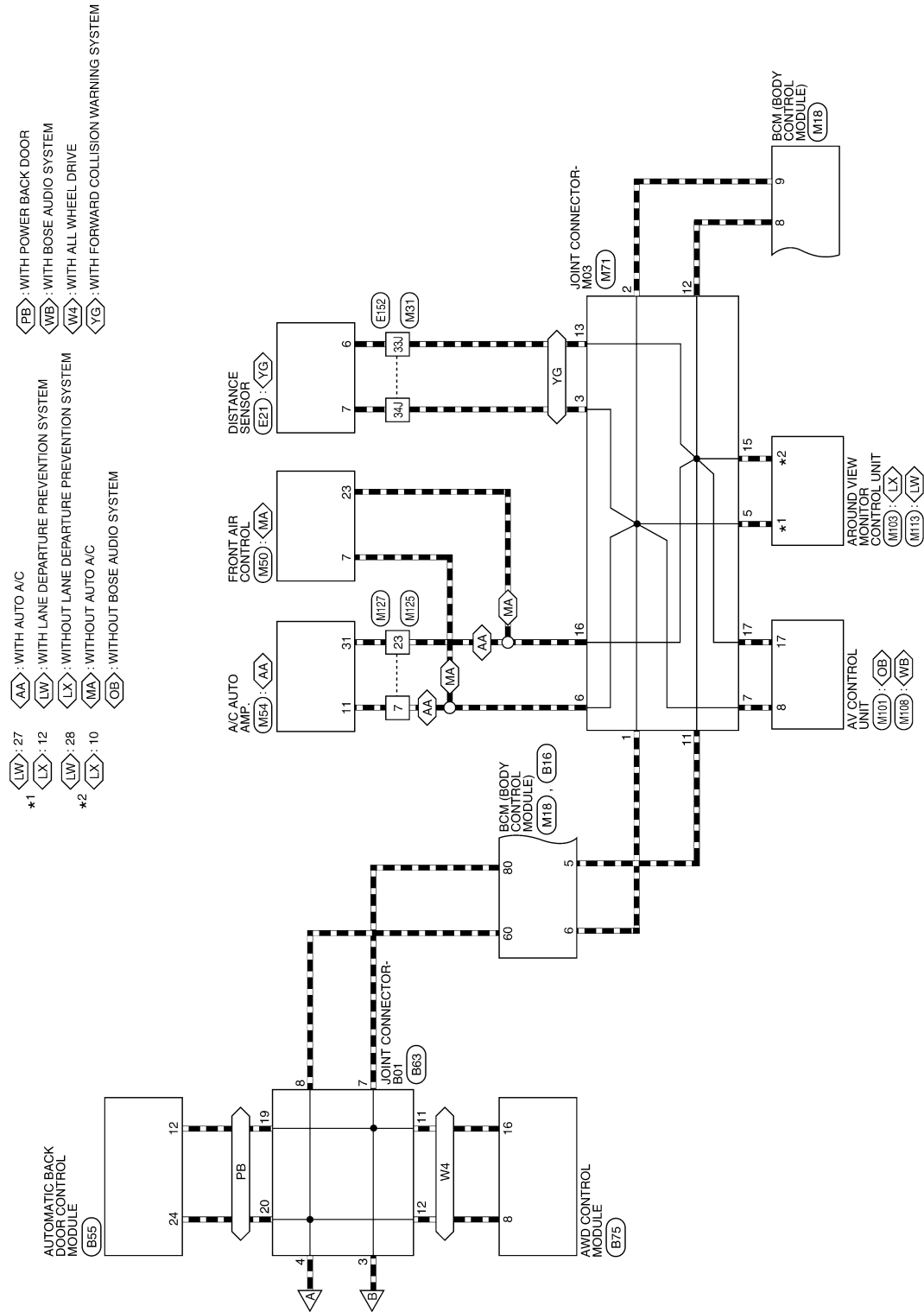
A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

LAN

CAN SYSTEM

< WIRING DIAGRAM >

[CAN]



AAMWA1012GB

CAN SYSTEM CONNECTORS

Connector No.	M6
Connector Name	JOINT CONNECTOR-M01
Connector Color	GRAY



4	3	2	1
8	7	6	5
12	11	10	9
16	15	14	13
20	19	18	17
24	23	22	21

Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-
11	P	-
12	L	-

Terminal No.	Color of Wire	Signal Name
15	P	-
16	L	-
19	P	-
20	L	-
23	P	-
24	L	-

Connector No.	M10
Connector Name	AIR BAG DIAGNOSIS SENSOR UNIT
Connector Color	YELLOW



23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38
39	40	41	42	43	44	45	46
47	48	49	50				

Terminal No.	Color of Wire	Signal Name
45	P	CAN-L
46	L	CAN-H

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY



20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21

Terminal No.	Color of Wire	Signal Name
5	R	CAN-L
6	L	CAN-H
8	L	CAN-H
9	R	CAN-L

Connector No.	M22
Connector Name	DATA LINK CONNECTOR
Connector Color	WHITE



9	10	11	12	13	14	15	16
1	2	3	4	5	6	7	8

Terminal No.	Color of Wire	Signal Name
6	L	-
14	P	-

AAMIA2107GB

Connector No.	M43
Connector Name	JOINT CONNECTOR-M02
Connector Color	BLUE

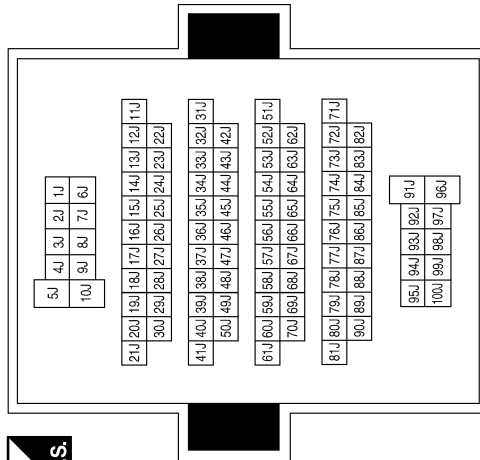


--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Terminal No.	Color of Wire	Signal Name
1	L	-
2	L	-
3	L	-
5	L	-
11	P	-
12	P	-
13	P	-
15	P	-

Terminal No.	Color of Wire	Signal Name
33J	R	-
34J	L	-
61J	L	-
62J	P	-

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	M54
Connector Name	A/C AUTO AMP.
Connector Color	BLACK



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16				
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

Connector No.	M50
Connector Name	FRONT AIR CONTROL
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Connector No.	M49
Connector Name	EPS CONTROL UNIT
Connector Color	WHITE



4	3	2	1
8	7	6	5

Terminal No.	Color of Wire	Signal Name
11	L	CAN-H
31	R	CAN-L

Terminal No.	Color of Wire	Signal Name
7	L	CAN-H
23	R	CAN-L

Terminal No.	Color of Wire	Signal Name
1	P	CAN-L
2	L	CAN-H

AAMIA2108GB

CAN SYSTEM

< WIRING DIAGRAM >

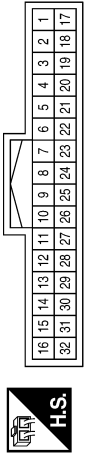
[CAN]

Connector No.	M56
Connector Name	STEERING ANGLE SENSOR
Connector Color	GRAY



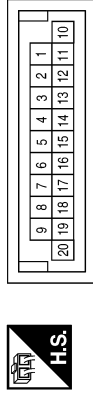
Terminal No.	Color of Wire	Signal Name
2	P	-
5	L	-

Connector No.	M69
Connector Name	WIRE TO WIRE
Connector Color	WHITE



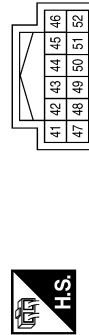
Terminal No.	Color of Wire	Signal Name
24	P	-
25	L	-

Connector No.	M71
Connector Name	JOINT CONNECTOR-M03
Connector Color	BLUE



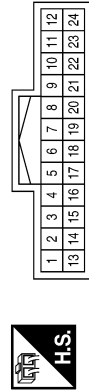
Terminal No.	Color of Wire	Signal Name
1	L	-
2	L	-
3	L	-
5	L	-
6	L	-
7	L	-
11	R	-
12	R	-
13	R	-
15	R	-
16	R	-
17	R	-

Connector No.	M77
Connector Name	COMBINATION METER
Connector Color	WHITE



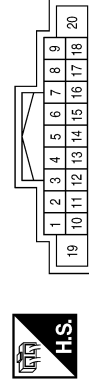
Terminal No.	Color of Wire	Signal Name
41	L	CAN-H
42	P	CAN-L

Connector No.	M96
Connector Name	CHASSIS CONTROL UNIT
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
3	P	CAN-L
4	L	CAN-H

Connector No.	M101
Connector Name	AV CONTROL UNIT (WITHOUT BOSE AUDIO SYSTEM)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
8	L	CAN-H
17	R	CAN-L

AAMIA2109GB

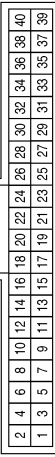
A
B
C
D
E
F
G
H
I
J
K
L
LAN
N
O
P

CAN SYSTEM

< WIRING DIAGRAM >

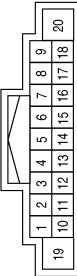
[CAN]

Connector No.	M113
Connector Name	AROUND VIEW MONITOR CONTROL UNIT (WITH DRIVER ASSISTANCE SYSTEM)
Connector Color	WHITE

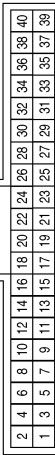
Terminal No.	Color of Wire	Signal Name
27	L	CAN-H
28	R	CAN-L

Connector No.	M108
Connector Name	AV CONTROL UNIT (WITH BOSE AUDIO SYSTEM)
Connector Color	WHITE

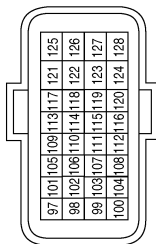
Terminal No.	Color of Wire	Signal Name
8	L	CAN-H
17	R	CAN-L

Connector No.	M103
Connector Name	AROUND VIEW MONITOR CONTROL UNIT (WITHOUT DRIVER ASSISTANCE SYSTEM)
Connector Color	WHITE

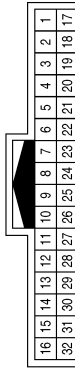
Terminal No.	Color of Wire	Signal Name
10	R	CAN-L
12	L	CAN-H

Connector No.	E16
Connector Name	ECM
Connector Color	BLACK

Terminal No.	Color of Wire	Signal Name
99	P	CAN-L
100	L	CAN-H

Connector No.	M127
Connector Name	WIRE TO WIRE
Connector Color	WHITE

Terminal No.	Color of Wire	Signal Name
7	L	-
23	R	-

Connector No.	M125
Connector Name	WIRE TO WIRE
Connector Color	WHITE




Terminal No.	Color of Wire	Signal Name
7	L	-
23	R	-

AAMIA2110GB

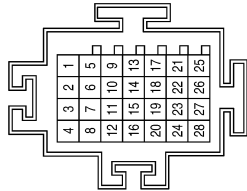
CAN SYSTEM

< WIRING DIAGRAM >

[CAN]

Terminal No.	Color of Wire	Signal Name
10	P	-
13	L	-
14	P	-
17	L	-
18	P	-

Connector No.	E44
Connector Name	JOINT CONNECTOR-E01
Connector Color	WHITE



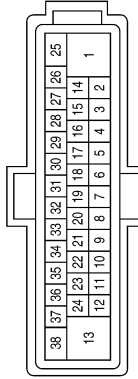
Connector No.	E21
Connector Name	DISTANCE SENSOR
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	L	-
2	P	-
5	L	-
6	P	-
9	L	-

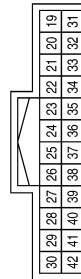
Terminal No.	Color of Wire	Signal Name
6	R	CAN-L
7	L	CAN-H

Connector No.	E125
Connector Name	ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
14	P	CAN-L
26	L	CAN-H

Connector No.	E120
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
22	P	CAN-L
24	L	CAN-H
39	L	CAN-H
40	P	CAN-L

AAMIA2111GB

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

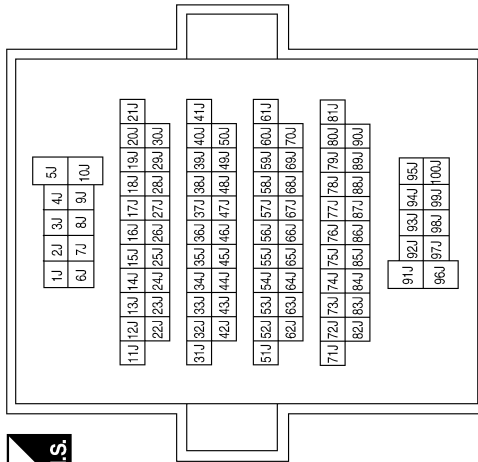
LAN

CAN SYSTEM

< WIRING DIAGRAM >

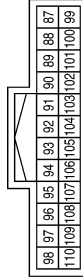
[CAN]

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE



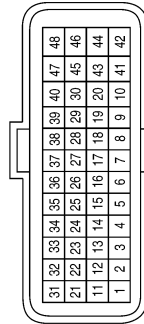
Terminal No.	Color of Wire	Signal Name
33J	R	-
34J	L	-
61J	L	-
62J	P	-

Connector No.	F42
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK



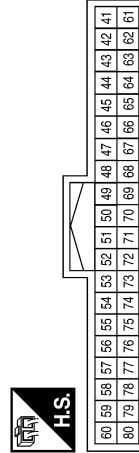
Terminal No.	Color of Wire	Signal Name
87	L	CAN-H
88	P	CAN-L

Connector No.	F75
Connector Name	TCM (TRANSMISSION CONTROL MODULE)
Connector Color	BLACK



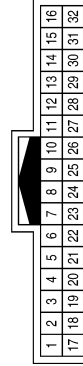
Terminal No.	Color of Wire	Signal Name
23	P	CAN-L
33	L	CAN-H

Connector No.	B16
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GREEN



Terminal No.	Color of Wire	Signal Name
60	L	CAN-H
80	P	CAN-L

Connector No.	B41
Connector Name	WIRE TO WIRE
Connector Color	WHITE



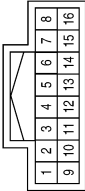
Terminal No.	Color of Wire	Signal Name
24	P	-
25	L	-

CAN SYSTEM

< WIRING DIAGRAM >

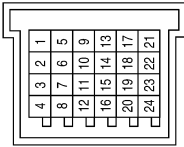
[CAN]

Connector No.	B75
Connector Name	AWD CONTROL MODULE
Connector Color	WHITE



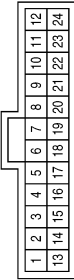
Terminal No.	Color of Wire	Signal Name
8	L	CAN-H
16	P	CAN-L

Connector No.	B63
Connector Name	JOINT CONNECTOR-B01
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-
11	P	-
12	L	-
19	P	-
20	L	-

Connector No.	B55
Connector Name	AUTOMATIC BACK DOOR CONTROL MODULE
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
12	P	CAN-L
24	L	CAN-H

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

LAN

AAMIA2117GB

BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Interview Sheet

INFOID:000000009799568

CAN Communication System Diagnosis Interview Sheet

Date received:

Type:

VIN No.:

Model:

First registration:

Mileage:

CAN system type:

Symptom (Results from interview with customer)

Condition at inspection

Error symptom : Present / Past

SKIB8898E

MALFUNCTION AREA CHART

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

DTC/CIRCUIT DIAGNOSIS

MALFUNCTION AREA CHART

Main Line

INFOID:000000009799573

Malfunction area	Reference
Main line between IPDM E/R and data link connector	LAN-46. "Diagnosis Procedure"
Main line between data link connector and chassis control module	LAN-47. "Diagnosis Procedure"
Main line between chassis control module and automatic back door control module	LAN-48. "Diagnosis Procedure"
Main line between chassis control module and AWD control unit	LAN-49. "Diagnosis Procedure"

Branch Line

INFOID:000000009799574

Malfunction area	Reference
ECM branch line circuit	LAN-50. "Diagnosis Procedure"
ABS actuator and electric unit (control unit) branch line circuit	LAN-51. "Diagnosis Procedure"
IPDM E/R branch line circuit	LAN-52. "Diagnosis Procedure"
TCM branch line circuit	LAN-53. "Diagnosis Procedure"
Data link connector branch line circuit	LAN-55. "Diagnosis Procedure"
Combination meter branch line circuit	LAN-57. "Diagnosis Procedure"
Air bag diagnosis sensor unit branch line circuit	LAN-59. "Diagnosis Procedure"
Chassis control module branch line circuit	LAN-60. "Diagnosis Procedure"
EPS control unit branch line circuit	LAN-56. "Diagnosis Procedure"
Steering angle sensor branch line circuit	LAN-58. "Diagnosis Procedure"
AWD control unit branch line circuit	LAN-61. "Diagnosis Procedure"
Automatic back door control module branch line circuit	LAN-62. "Diagnosis Procedure"
BCM branch line circuit	LAN-63. "Diagnosis Procedure"
AV control unit branch line circuit	LAN-64. "Diagnosis Procedure"
Around view monitor control unit branch line circuit	LAN-65. "Diagnosis Procedure"
A/C auto amp. branch line circuit	LAN-66. "Diagnosis Procedure"
Front air control branch line circuit	LAN-66. "Diagnosis Procedure"
Distance sensor branch line circuit	LAN-68. "Diagnosis Procedure"

Short Circuit

INFOID:000000009799575

Malfunction area	Reference
CAN communication circuit 1	LAN-69. "Diagnosis Procedure"
CAN communication circuit 2	LAN-71. "Diagnosis Procedure"

MAIN LINE BETWEEN IPDM-E AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

MAIN LINE BETWEEN IPDM-E AND DLC CIRCUIT

Diagnosis Procedure

INFOID:000000009799576

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
 - Harness connector E152
 - Harness connector M31

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
 - IPDM E/R
 - Harness connectors E152 and M31
2. Check the continuity between the IPDM E/R harness connector and the harness connector.

IPDM E/R harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E120	24	E152	61J	Existed
	22		62J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the IPDM E/R and the harness connector E152.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and the data link connector.

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M31	61J	M22	6	Existed
	62J		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the IPDM E/R and the data link connector.

NO >> Repair the main line between the harness connector M31 and the data link connector.

MAIN LINE BETWEEN DLC AND CCM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

MAIN LINE BETWEEN DLC AND CCM CIRCUIT

Diagnosis Procedure

INFOID:000000009799577

1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
 - ECM
 - Chassis control module
4. Check the continuity between the data link connector and the chassis control module harness connector.

Data link connector		Chassis control module harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	6	M96	4	Existed
	14		3	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the chassis control module.

NO >> Repair the main line between the data link connector and the chassis control module.

LAN

MAIN LINE BETWEEN CCM AND PWBD CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

MAIN LINE BETWEEN CCM AND PWBD CIRCUIT

Diagnosis Procedure

INFOID:0000000010269403

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
 - Harness connector M69
 - Harness connector B41

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
 - Chassis control module
 - Harness connectors M69 and B41
2. Check the continuity between the chassis control module harness connector and the harness connector.

Chassis control module harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M96	4	M69	25	Existed
	3		24	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the chassis control module and the harness connector M69.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of automatic back door control module.
2. Check the continuity between the harness connector and the automatic back door control module harness connector.

Harness connector		Automatic back door control module harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B41	25	B55	24	Existed
	24		12	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the chassis control module and the automatic back door control module.

NO >> Repair the main line between the harness connector B41 and the automatic back door control module.

MAIN LINE BETWEEN CCM AND 4WD CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

MAIN LINE BETWEEN CCM AND 4WD CIRCUIT

Diagnosis Procedure

INFOID:000000010351443

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
 - Harness connector M69
 - Harness connector B41

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
 - Chassis control module
 - Harness connectors M69 and B41
2. Check the continuity between the chassis control module harness connector and the harness connector.

Chassis control module harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M96	4	M69	25	Existed
	3		24	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the chassis control module and the harness connector M69.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of AWD control unit.
2. Check the continuity between the harness connector and the AWD control unit harness connector.

Harness connector		AWD control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B41	25	B75	8	Existed
	24		16	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the chassis control module and the AWD control unit.

NO >> Repair the main line between the harness connector B41 and the AWD control unit.

ECM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

ECM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000009799578

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ECM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	100	99	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to [EC-165, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to [EC-499, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the ECM branch line.

NO >> Repair the power supply and the ground circuit.

ABS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

ABS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000009799588

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E125	26	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to [BRC-114, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-136, "Removal and Installation"](#).
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.
NO >> Repair the power supply and the ground circuit.

LAN

IPDM-E BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

IPDM-E BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000009799590

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E120	24	22	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-34. "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-35. "Removal and Installation"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

TCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000009799589

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
 - TCM
 - IPDM E/R

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
 - TCM
 - IPDM E/R
2. Check the continuity between the TCM harness connector and the IPDM E/R harness connector.

TCM harness connector		IPDM E/R harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
F75	33	F42	87	Existed
	23		88	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the branch line between the TCM and IPDM E/R.

3.CHECK IPDM E/R (OPEN CIRCUIT)

Check the continuity between the IPDM E/R terminals.

IPDM E/R terminals		Continuity
Terminal No.	Terminal No.	
87	39	Existed
88	40	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace the IPDM E/R.

4.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E120	39	40	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Repair the IPDM E/R branch line.

5.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to [TM-176. "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the TCM. Refer to [TM-202. "Removal and Installation"](#).

TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

YES (Past error)>>Error was detected in the TCM branch line.

NO >> Repair the power supply and the ground circuit.

DLC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

DLC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000009799585

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M22	6	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the data link connector branch line circuit.
NO >> Repair the data link connector branch line.

LAN

EPS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000009799586

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
 NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M49	2	1	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.
 NO >> Repair the EPS control unit branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-20, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the EPS control unit. Refer to [STC-36, "Removal and Installation"](#).
 YES (Past error)>>Error was detected in the EPS control unit branch line.
 NO >> Repair the power supply and the ground circuit.

M&A BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

M&A BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000009799587

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M77	41	42	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.
NO >> Repair the combination meter branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-59, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to [MWI-82, "Removal and Installation"](#).
YES (Past error)>>Error was detected in the combination meter branch line.
NO >> Repair the power supply and the ground circuit.

LAN

STRG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

STRG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000009799583

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M56	5	2	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the steering angle sensor branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-57, "Wiring Diagram"](#).

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-139, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the steering angle sensor branch line.

NO >> Repair the power supply and the ground circuit.

A-BAG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

A-BAG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000009799580

WARNING:

- Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)
- Never use unspecified tester or other measuring device.

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Replace the main harness.

2.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to [SRC-39, "Work Flow"](#).

Is the inspection result normal?

- YES >> Replace the main harness.
NO >> Replace parts whose air bag system has a malfunction.

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

LAN

CCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

CCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010269413

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the chassis control module connector for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of chassis control module.
2. Check the resistance between the chassis control module harness connector terminals.

Chassis control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M96	4	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the chassis control module branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the chassis control module. Refer to [DAS-272, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the chassis control module. Refer to [DAS-277, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the chassis control module branch line.

NG >> Repair the power supply and the ground circuit.

4WD BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

4WD BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000009799579

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the AWD control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AWD control unit.
2. Check the resistance between the AWD control unit harness connector terminals.

AWD control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B75	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.
NO >> Repair the AWD control unit branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AWD control unit. Refer to [DLN-57, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the AWD control unit. Refer to [DLN-67, "Removal and Installation"](#).
YES (Past error)>>Error was detected in the AWD control unit branch line.
NG >> Repair the power supply and the ground circuit.

LAN

PWBD BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010269414

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the automatic back door control module for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of automatic back door control module.
2. Check the resistance between the automatic back door control module harness connector terminals.

Automatic back door control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B55	24	12	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the automatic back door control module branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the automatic back door control module. Refer to [DLK-141, "AUTOMATIC BACK DOOR CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the automatic back door control module. Refer to [DLK-276, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the automatic back door control module branch line.

NG >> Repair the power supply and the ground circuit.

BCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

BCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000009799581

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B16	60	80	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.
NO >> Repair the BCM branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to the following.

- With intelligent key system: [BCS-68, "Diagnosis Procedure"](#).
- Without intelligent key system: [BCS-128, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to the following.
- With intelligent key system: [BCS-75, "Removal and Installation"](#).
 - Without intelligent key system: [BCS-135, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the BCM branch line.

NO >> Repair the power supply and the ground circuit.

LAN

AV BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010269418

1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
 - AV control unit
 - BCM

Is the inspection result normal?

- YES >> GO TO 2.
 NO >> Repair the terminal and connector.

2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of BCM.
2. Check the continuity between the BCM harness connector terminals.

BCM harness connector			Continuity
Connector No.	Terminal No.		
M18	6	8	Existed
	5	9	Existed

Is the inspection result normal?

- YES >> GO TO 3.
 NO >> Check the harness and repair the root cause (CAN communication circuit 2 side). Refer to [LAN-71, "Diagnosis Procedure"](#).

3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AV control unit.
2. Check the resistance between the AV control unit harness connector terminals.
 - Models with BOSE audio system

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M108	8	17	Approx. 54 – 66

- Models without BOSE audio system

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M101	8	17	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 4.
 NO >> Repair the AV control unit branch line.

4. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AV control unit. Refer to the following.

- Navigation with BOSE: [AV-337, "AV CONTROL UNIT : Diagnosis Procedure"](#)
- Navigation without BOSE: [AV-180, "AV CONTROL UNIT : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the AV control unit. Refer to following.
- Navigation with BOSE: [AV-376, "Removal and Installation"](#)
 - Navigation without BOSE: [AV-209, "Removal and Installation"](#)
- YES (Past error)>>Error was detected in the AV control unit branch line.
 NO >> Repair the power supply and the ground circuit.

AVM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

AVM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000009799584

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
 - Around view monitor control unit
 - BCM

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of BCM.
2. Check the continuity between the BCM harness connector terminals.

BCM harness connector			Continuity
Connector No.	Terminal No.		
M18	6	8	Existed
	5	9	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause (CAN communication circuit 2 side). Refer to [LAN-71, "Diagnosis Procedure"](#).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of around view monitor control unit.
2. Check the resistance between the around view monitor control unit harness connector terminals.
 - With lane departure prevention system

Around view monitor control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M113	27	28	Approx. 54 – 66

- Without lane departure prevention system

Around view monitor control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M103	12	10	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.

NO >> Repair the around view monitor control unit branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the around view monitor control unit. Refer to the following.

- Navigation with BOSE: [AV-338, "AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure"](#)
- Navigation without BOSE: [AV-180, "AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the around view monitor control unit. Refer to the following.

- Navigation with BOSE: [AV-387, "Removal and Installation"](#)
- Navigation without BOSE: [AV-217, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the around view monitor control unit branch line.

NO >> Repair the power supply and the ground circuit.

HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

HVAC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010269419

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
 - A/C auto amp. (With auto A/C)
 - Harness connector M127 (With auto A/C)
 - Harness connector M125 (With auto A/C)
 - Front air control (Without auto A/C)
 - BCM

Is the inspection result normal?

- YES >> GO TO 2. (With auto A/C)
YES >> GO TO 3. (Without auto A/C)
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of BCM.
2. Check the continuity between the BCM harness connector terminals.

BCM harness connector			Continuity
Connector No.	Terminal No.		
M18	6	8	Existed
	5	9	Existed

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side). Refer to [LAN-71. "Diagnosis Procedure"](#).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of BCM (With auto A/C).
2. Disconnect the connector of A/C auto amp. (With auto A/C) or front air control (Without auto A/C).
3. Check the resistance between the A/C auto amp. (With auto A/C) or front air control (Without auto A/C) harness connector terminals.
 - With auto A/C

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M54	11	31	Approx. 54 – 66

- Without auto A/C

Front air control harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M50	7	23	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 4.
NO >> Repair the A/C auto amp. (With auto A/C) or front air control (Without auto A/C) branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. (With auto A/C) or front air control (Without auto A/C). Refer to the following.

- Automatic air conditioning: [HAC-56. "Diagnosis Procedure"](#).

HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

- Manual air conditioning: [HAC-166. "FRONT A/C CONTROL : Diagnosis Procedure".](#)

Is the inspection result normal?

YES (Present error)>>Replace the A/C auto amp. (With auto A/C) or front air control (Without auto A/C).
Refer to the following.

- Automatic air conditioning: [HAC-103. "Removal and Installation".](#)
- Manual air conditioning: [HAC-181. "Removal and Installation".](#)

YES (Past error)>>Error was detected in the A/C auto amp. (With auto A/C) or front air control (Without auto A/C) branch line.

NO >> Repair the power supply and the ground circuit.

A
B
C
D
E
F
G
H
I
J
K
L

LAN

N
O
P

ICC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010269420

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
 - Distance sensor
 - Harness connector E152
 - Harness connector M31
 - BCM

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of BCM.
2. Check the continuity between the BCM harness connector terminals.

BCM harness connector			Continuity
Connector No.	Terminal No.		
M18	6	8	Existed
	5	9	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause (CAN communication circuit 2 side). Refer to [LAN-71, "Diagnosis Procedure"](#).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of BCM.
2. Disconnect the connector of distance sensor.
3. Check the resistance between the distance sensor harness connector terminals.

Distance sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E21	7	6	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.

NO >> Repair the distance sensor branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the distance sensor. Refer to [DAS-144, "DISTANCE SENSOR : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the distance sensor. Refer to [DAS-160, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the distance sensor branch line.

NO >> Repair the power supply and the ground circuit.

CAN COMMUNICATION CIRCUIT 1

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

CAN COMMUNICATION CIRCUIT 1

Diagnosis Procedure

INFOID:0000000010269395

1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 1.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M22	6	14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line or fuse block (J/B) is short) the root cause.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Check the harness and repair or replace (if shield line or fuse block (J/B) is short) the root cause.

4.CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the IPDM E/R terminals.

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		
60	80	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 5.
NO >> Replace the ECM and/or the BCM.

5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced.

A
B
C
D
E
F
G
H
I
J
K
L
LAN
N
O
P

CAN COMMUNICATION CIRCUIT 1

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 1.

NOTE:

ECM and BCM have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced.

NOTE:

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

CAN COMMUNICATION CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

CAN COMMUNICATION CIRCUIT 2

Diagnosis Procedure

INFOID:000000010269396

1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of BCM.
2. Check the continuity between the BCM harness connector terminals.

BCM harness connector			Continuity
Connector No.	Terminal No.		
M18	6	8	Existed
	5	9	Existed

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Check the harness and repair or replace the root cause.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

1. Disconnect all the unit connectors on CAN communication circuit 2.
2. Check the continuity between the BCM harness connector terminals.

BCM harness connector			Continuity
Connector No.	Terminal No.		
M18	6	5	Not existed

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Check the harness and repair or replace the root cause.

4.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the BCM and the ground.

BCM harness connector		Ground	Continuity
Connector No.	Terminal No.		
M18	6		Not existed
	5		Not existed

Is the inspection result normal?

- YES >> GO TO 5.
NO >> Check the harness and repair or replace (if shield line is short) the root cause.

5.CHECK BCM TERMINATION CIRCUIT

1. Remove the BCM.
2. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		

CAN COMMUNICATION CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

6	5	Approx. 108 – 132
8	9	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 6.

NO >> Replace the chassis control module.

6.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 7.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

7.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 2.

NOTE:

BCM has two termination circuits. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

NOTE:

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010352027

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

LAN

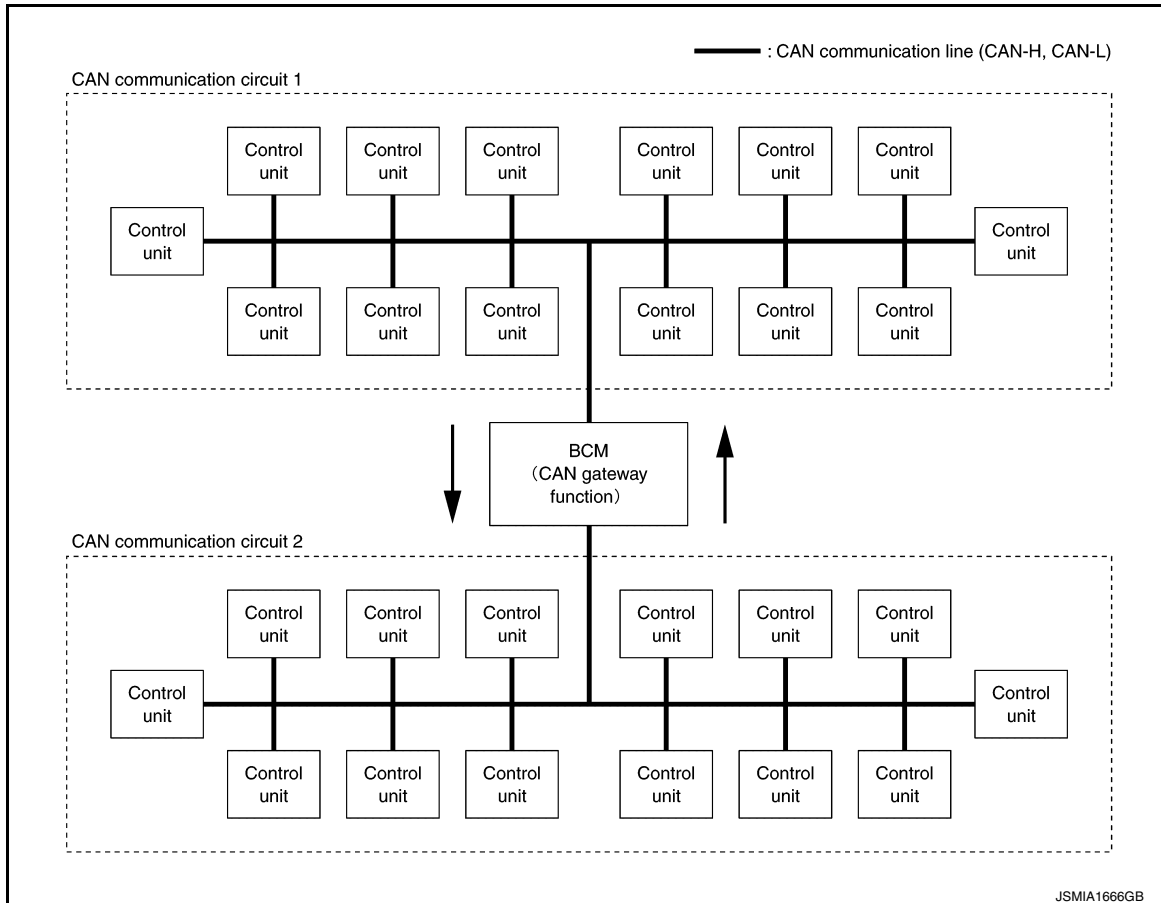
SYSTEM DESCRIPTION

SYSTEM

System Description

INFOID:000000010335053

SYSTEM DIAGRAM



SYSTEM DESCRIPTION

- The BCM has a CAN gateway function.
- The BCM communicates between two CAN communication circuits.
- The BCM selects and transmits only necessary information.

DIAGNOSIS SYSTEM (CAN GATEWAY)

< SYSTEM DESCRIPTION >

[CAN GATEWAY]

DIAGNOSIS SYSTEM (CAN GATEWAY)

CONSULT Function

INFOID:000000010335054

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with CAN gateway.

Diagnosis mode	Function Description
Ecu Identification	The CAN gateway software number is displayed.
Self Diagnostic Result	Displays the diagnosis results of BCM CAN gateway function.
Data Monitor	Displays real-time input/output data of BCM CAN gateway function.
Configuration	• Read and save the vehicle specification. • Write the vehicle specification when replacing of BCM.

ECU IDENTIFICATION

The CAN gateway part number is displayed.

SELF DIAGNOSTIC RESULT

Refer to [LAN-76. "DTC Index"](#).

- When "CRNT" is displayed on self-diagnosis result
 - The system is presently malfunctioning.
- When "PAST" is displayed on self-diagnosis result
 - System malfunction in the past is detected, but the system is presently normal.

Freeze Frame Data (FFD)

When DTC is detected, a vehicle state shown below is recorded and displayed on CONSULT.

Item name	Display item
Milage (Kirometers)	Displays the total mileage when a DTC is detected.

DATA MONITOR

Monitor item	Description
CAN GW MODE (UNCONF/MALF/NORMAL)	Displays the status of BCM CAN gateway function.
IGN SIGNAL (Off/On)	Displays the status of ignition switch.

CONFIGURATION

Function		Description
Read / Write Configuration	Before Replace ECU	• Reads the vehicle configuration of current BCM. • Saves the read vehicle configuration.
	After Replace ECU	Writes the vehicle configuration with saved data.
Manual Configuration		Writes the vehicle configuration with manual selection.

CAUTION:

Follow the instructions listed below. Failure to do this may cause malfunctions to the BCM.:

- When replacing BCM you must perform "Read / Write Configuration" or "Manual Configuration" with CONSULT.
- Complete the procedure of "Read / Write Configuration" or "Manual Configuration" in order.
- If you set incorrect "Read / Write Configuration" or "Manual Configuration", incidents might occur.
- Configuration is different for each vehicle model. Confirm configuration of each vehicle model.
- Never perform "Read / Write Configuration" or "Manual Configuration" except for new BCM.

ECU DIAGNOSIS INFORMATION

CAN GATEWAY

Reference Value

INFOID:0000000010335055

VALUES ON THE DIAGNOSIS TOOL

NOTE:

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

Monitor item	Condition	Value/Status
CAN GW MODE	When the configuration of the BCM CAN gateway function is not written	UNCONF
	When the BCM CAN Gateway function is malfunction	MALF
	When BCM CAN Gateway function is normal.	NORMAL
IGN SIGNAL	Ignition switch in OFF or ACC position	Off
	Ignition switch in ON position	On

DTC Index

INFOID:0000000010335057

DTC	Reference
No DTC is detected. Further testing may be required.	—
B2600-46: CONFIG ERROR	LAN-78. "DTC Description"
B2600-55: CONFIG ERROR	LAN-79. "DTC Description"

BASIC INSPECTION

CONFIGURATION (CAN GATEWAY)

Work Procedure

INFOID:0000000010335061

1. WRITING MODE SELECTION

 **CONSULT Configuration**
Select "Re/programming, Configuration" of CAN gateway.

When writing saved data>>GO TO 2.

When writing manually>>GO TO 3.

2. PERFORM "AFTER REPLACE ECU" OF "READ / WRITE CONFIGURATION"

 **CONSULT Configuration**
Perform "After Replace ECU" of "Read / Write Configuration".

>> GO TO 4.

3. PERFORM "MANUAL CONFIGURATION"

 **CONSULT Configuration**

1. Select "Manual Configuration".
2. Touch "Next".
3. Touch "OK".
4. Check that the configuration has been successfully written and touch "End".

>> GO TO 4.

4. CHECK ALL ECU SELF-DIAGNOSIS RESULTS

1. Erase all ECU self-diagnosis results using CONSULT.
2. Turn the ignition switch OFF.
3. Turn the ignition switch ON and wait for 2 seconds or more.
4. Check that all ECU self-diagnosis results have no DTC (e.g. U1000 and U1001) of CAN communication.

>> WORK END

LAN

DTC/CIRCUIT DIAGNOSIS

B2600-46 CONFIG ERROR

DTC Description

INFOID:0000000010335098

DTC DETECTION LOGIC

DTC	Trouble diagnosis (Trouble diagnosis contents)	Detecting condition
B2600-46	CONFIG ERROR (Configuration error)	When errors are detected in the configuration data stored in the BCM (CAN gateway function).

POSSIBLE CAUSE

BCM

FAIL-SAFE

Transmission and reception of the signal between CAN communication circuit 1 and CAN communication circuit 2 are stopped

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT

1. Turn ignition switch ON and wait at least 2 seconds or more.
2. Select "Self Diagnostic Result" mode of "CAN GATEWAY" using CONSULT.
3. Check DTC.

Is DTC B2600-46 detected?

- YES >> Proceed to [LAN-78, "Diagnosis Procedure"](#).
 NO-1 >> To check malfunction symptom before repair: [GI-41, "Intermittent Incident"](#).
 NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010335099

1.PERFORM DTC CONFIRMATION PROCEDURE AGAIN

1. Turn ignition switch ON.
2. Erase DTC.
3. Perform DTC confirmation procedure again. Refer to [LAN-78, "DTC Description"](#).
4. Check DTC.

Is DTC B2600-46 detected again?

- YES >> Replace BCM. Refer to the following.
- With Intelligent Key system: [BCS-75, "Removal and Installation"](#).
 - Without Intelligent Key system: [BCS-135, "Removal and Installation"](#).
- NO >> INSPECTION END

B2600-55 CONFIG ERROR

< DTC/CIRCUIT DIAGNOSIS >

[CAN GATEWAY]

B2600-55 CONFIG ERROR

DTC Description

INFOID:0000000010352109

DTC DETECTION LOGIC

DTC	Trouble diagnosis (Trouble diagnosis contents)	Detecting condition
B2600-55	CONFIG ERROR (Configuration error)	When no data are stored in the BCM (CAN gateway function).

POSSIBLE CAUSE

- Configuration is incomplete
- BCM

FAIL-SAFE

Transmission and reception of the signal between CAN communication circuit 1 and CAN communication circuit 2 are stopped

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

 With CONSULT

1. Turn ignition switch ON and wait at least 2 seconds or more.
2. Select "Self Diagnostic Result" mode of "CAN GATEWAY" using CONSULT.
3. Check DTC.

Is DTC B2600-55 detected?

- YES >> Proceed to [LAN-79, "Diagnosis Procedure"](#).
NO-1 >> To check malfunction symptom before repair: [GI-41, "Intermittent Incident"](#).
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010352111

1.PERFORM CONFIGURATION OF CAN GATEWAY

Perform CAN gateway configuration. Refer to [LAN-77, "Work Procedure"](#).

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE AGAIN

1. Turn ignition switch ON.
2. Perform DTC confirmation procedure again. Refer to [LAN-79, "DTC Description"](#).
3. Check DTC.

Is DTC B2600-55 detected again?

- YES >> Replace BCM. Refer to the following.
 • With Intelligent Key system: [BCS-75, "Removal and Installation"](#).
 • Without Intelligent Key system: [BCS-135, "Removal and Installation"](#).
NO >> INSPECTION END

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

LAN

MAIN LINE BETWEEN IPDM-E AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 1)]

DTC/CIRCUIT DIAGNOSIS

MAIN LINE BETWEEN IPDM-E AND DLC CIRCUIT

Diagnosis Procedure

INFOID:0000000010337418

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
 - Harness connector E152
 - Harness connector M31

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
 - IPDM E/R
 - Harness connectors E152 and M31
2. Check the continuity between the IPDM E/R harness connector and the harness connector.

IPDM E/R harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E120	24	E152	61J	Existed
	22		62J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the IPDM E/R and the harness connector E152.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and the data link connector.

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M31	61J	M22	6	Existed
	62J		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the IPDM E/R and the data link connector.

NO >> Repair the main line between the harness connector M31 and the data link connector.

MAIN LINE BETWEEN DLC AND CCM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 1)]

MAIN LINE BETWEEN DLC AND CCM CIRCUIT

Diagnosis Procedure

INFOID:0000000010337419

1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
 - ECM
 - Chassis control module
4. Check the continuity between the data link connector and the chassis control module harness connector.

Data link connector		Chassis control module harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	6	M96	4	Existed
	14		3	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the chassis control module.

NO >> Repair the main line between the data link connector and the chassis control module.

LAN

ECM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 1)]

ECM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337421

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ECM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	100	99	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to [EC-165, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to [EC-499, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the ECM branch line.

NO >> Repair the power supply and the ground circuit.

ABS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 1)]

ABS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337422

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E125	26	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to [BRC-114, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-136, "Removal and Installation"](#).
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.
NO >> Repair the power supply and the ground circuit.

LAN

IPDM-E BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337423

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E120	24	22	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-34. "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-35. "Removal and Installation"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 1)]

TCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337424

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
 - TCM
 - IPDM E/R

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
 - TCM
 - IPDM E/R
2. Check the continuity between the TCM harness connector and the IPDM E/R harness connector.

TCM harness connector		IPDM E/R harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
F75	33	F42	87	Existed
	23		88	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the branch line between the TCM and IPDM E/R.

3.CHECK IPDM E/R (OPEN CIRCUIT)

Check the continuity between the IPDM E/R terminals.

IPDM E/R terminals		Continuity
Terminal No.	Terminal No.	
87	39	Existed
88	40	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace the IPDM E/R.

4.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E120	39	40	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Repair the IPDM E/R branch line.

5.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to [TM-176. "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the TCM. Refer to [TM-202. "Removal and Installation"](#).

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

LAN

TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 1)]

YES (Past error)>>Error was detected in the TCM branch line.

NO >> Repair the power supply and the ground circuit.

DLC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 1)]

DLC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337425

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M22	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

LAN

EPS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337426

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M49	2	1	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.
NO >> Repair the EPS control unit branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-20, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the EPS control unit. Refer to [STC-36, "Removal and Installation"](#).
YES (Past error)>>Error was detected in the EPS control unit branch line.
NO >> Repair the power supply and the ground circuit.

M&A BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 1)]

M&A BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337427

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M77	41	42	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.
NO >> Repair the combination meter branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-59, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to [MWI-82, "Removal and Installation"](#).
YES (Past error)>>Error was detected in the combination meter branch line.
NO >> Repair the power supply and the ground circuit.

LAN

STRG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 1)]

STRG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337428

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M56	5	2	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the steering angle sensor branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-57, "Wiring Diagram"](#).

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-139, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the steering angle sensor branch line.

NO >> Repair the power supply and the ground circuit.

A-BAG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 1)]

A-BAG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337429

WARNING:

- Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)
- Never use unspecified tester or other measuring device.

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Replace the main harness.

2.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to [SRC-39, "Work Flow"](#).

Is the inspection result normal?

- YES >> Replace the main harness.
NO >> Replace parts whose air bag system has a malfunction.

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

LAN

CCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 1)]

CCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337430

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the chassis control module connector for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of chassis control module.
2. Check the resistance between the chassis control module harness connector terminals.

Chassis control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M96	4	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the chassis control module branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the chassis control module. Refer to [DAS-272, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the chassis control module. Refer to [DAS-277, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the chassis control module branch line.

NG >> Repair the power supply and the ground circuit.

BCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 1)]

BCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337433

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B16	60	80	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.
NO >> Repair the BCM branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to the following.

- With intelligent key system: [BCS-68, "Diagnosis Procedure"](#).
- Without intelligent key system: [BCS-128, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to the following.
- With intelligent key system: [BCS-75, "Removal and Installation"](#).
 - Without intelligent key system: [BCS-135, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the BCM branch line.

NO >> Repair the power supply and the ground circuit.

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

LAN

HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 1)]

HVAC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337436

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
 - A/C auto amp. (With auto A/C)
 - Harness connector M127 (With auto A/C)
 - Harness connector M125 (With auto A/C)
 - Front air control (Without auto A/C)
 - BCM

Is the inspection result normal?

YES >> GO TO 2. (With auto A/C)

YES >> GO TO 3. (Without auto A/C)

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of BCM.
2. Check the continuity between the BCM harness connector terminals.

BCM harness connector			Continuity
Connector No.	Terminal No.		
M18	6	8	Existed
	5	9	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause (CAN communication circuit 2 side). Refer to [LAN-265. "Diagnosis Procedure"](#).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of BCM (With auto A/C).
2. Disconnect the connector of A/C auto amp. (With auto A/C) or front air control (Without auto A/C).
3. Check the resistance between the A/C auto amp. (With auto A/C) or front air control (Without auto A/C) harness connector terminals.
 - With auto A/C

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M54	11	31	Approx. 54 – 66

- Without auto A/C

Front air control harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M50	7	23	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.

NO >> Repair the A/C auto amp. (With auto A/C) or front air control (Without auto A/C) branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. (With auto A/C) or front air control (Without auto A/C). Refer to the following.

- Automatic air conditioning: [HAC-56. "Diagnosis Procedure"](#).

HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 1)]

- Manual air conditioning: [HAC-166. "FRONT A/C CONTROL : Diagnosis Procedure".](#)

Is the inspection result normal?

YES (Present error)>>Replace the A/C auto amp. (With auto A/C) or front air control (Without auto A/C).
Refer to the following.

- Automatic air conditioning: [HAC-103. "Removal and Installation".](#)
- Manual air conditioning: [HAC-181. "Removal and Installation".](#)

YES (Past error)>>Error was detected in the A/C auto amp. (With auto A/C) or front air control (Without auto A/C) branch line.

NO >> Repair the power supply and the ground circuit.

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

LAN

CAN COMMUNICATION CIRCUIT 1

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 1)]

CAN COMMUNICATION CIRCUIT 1

Diagnosis Procedure

INFOID:0000000010337438

1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 1.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M22	6	14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line or fuse block (J/B) is short) the root cause.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Check the harness and repair or replace (if shield line or fuse block (J/B) is short) the root cause.

4.CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the IPDM E/R terminals.

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		
60	80	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 5.
NO >> Replace the ECM and/or the BCM.

5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

CAN COMMUNICATION CIRCUIT 1

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 1)]

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 1.

NOTE:

ECM and BCM have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced.

NOTE:

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

A

B

C

D

E

F

G

H

I

J

K

L

LAN

N

O

P

CAN COMMUNICATION CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 1)]

CAN COMMUNICATION CIRCUIT 2

Diagnosis Procedure

INFOID:0000000010337465

1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of BCM.
2. Check the continuity between the BCM harness connector terminals.

BCM harness connector			Continuity
Connector No.	Terminal No.		
M18	6	8	Existed
	5	9	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair or replace the root cause.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

1. Disconnect all the unit connectors on CAN communication circuit 2.
2. Check the continuity between the BCM harness connector terminals.

BCM harness connector			Continuity
Connector No.	Terminal No.		
M18	6	5	Not existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Check the harness and repair or replace the root cause.

4.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the BCM and the ground.

BCM harness connector		Ground	Continuity
Connector No.	Terminal No.		
M18	6		Not existed
	5		Not existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Check the harness and repair or replace (if shield line is short) the root cause.

5.CHECK BCM TERMINATION CIRCUIT

1. Remove the BCM.
2. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		

CAN COMMUNICATION CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 1)]

6	5	Approx. 108 – 132
8	9	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 6.

NO >> Replace the chassis control module.

6.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 7.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

7.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 2.

NOTE:

BCM has two termination circuits. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

NOTE:

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

LAN

MAIN LINE BETWEEN IPDM-E AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

DTC/CIRCUIT DIAGNOSIS

MAIN LINE BETWEEN IPDM-E AND DLC CIRCUIT

Diagnosis Procedure

INFOID:0000000010337441

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
 - Harness connector E152
 - Harness connector M31

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
 - IPDM E/R
 - Harness connectors E152 and M31
2. Check the continuity between the IPDM E/R harness connector and the harness connector.

IPDM E/R harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E120	24	E152	61J	Existed
	22		62J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the IPDM E/R and the harness connector E152.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and the data link connector.

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M31	61J	M22	6	Existed
	62J		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the IPDM E/R and the data link connector.

NO >> Repair the main line between the harness connector M31 and the data link connector.

MAIN LINE BETWEEN DLC AND CCM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

MAIN LINE BETWEEN DLC AND CCM CIRCUIT

Diagnosis Procedure

INFOID:0000000010337442

1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
 - ECM
 - Chassis control module
4. Check the continuity between the data link connector and the chassis control module harness connector.

Data link connector		Chassis control module harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	6	M96	4	Existed
	14		3	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the chassis control module.

NO >> Repair the main line between the data link connector and the chassis control module.

LAN

MAIN LINE BETWEEN CCM AND PWBD CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

MAIN LINE BETWEEN CCM AND PWBD CIRCUIT

Diagnosis Procedure

INFOID:0000000010337443

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
 - Harness connector M69
 - Harness connector B41

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
 - Chassis control module
 - Harness connectors M69 and B41
2. Check the continuity between the chassis control module harness connector and the harness connector.

Chassis control module harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M96	4	M69	25	Existed
	3		24	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the chassis control module and the harness connector M69.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of automatic back door control module.
2. Check the continuity between the harness connector and the automatic back door control module harness connector.

Harness connector		Automatic back door control module harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B41	25	B55	24	Existed
	24		12	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the chassis control module and the automatic back door control module.

NO >> Repair the main line between the harness connector B41 and the automatic back door control module.

ECM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

ECM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337444

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ECM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	100	99	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.
NO >> Repair the ECM branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to [EC-165. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ECM. Refer to [EC-499. "Removal and Installation"](#).
YES (Past error)>>Error was detected in the ECM branch line.
NO >> Repair the power supply and the ground circuit.

LAN

ABS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

ABS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337445

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E125	26	14	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ABS actuator and electric unit (control unit) branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to [BRC-114, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-136, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.

NO >> Repair the power supply and the ground circuit.

IPDM-E BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

IPDM-E BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337446

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E120	24	22	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.
NO >> Repair the IPDM E/R branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-34, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-35, "Removal and Installation"](#).
YES (Past error)>>Error was detected in the IPDM E/R branch line.
NO >> Repair the power supply and the ground circuit.

LAN

TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

TCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337447

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
 - TCM
 - IPDM E/R

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
 - TCM
 - IPDM E/R
2. Check the continuity between the TCM harness connector and the IPDM E/R harness connector.

TCM harness connector		IPDM E/R harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
F75	33	F42	87	Existed
	23		88	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the branch line between the TCM and IPDM E/R.

3.CHECK IPDM E/R (OPEN CIRCUIT)

Check the continuity between the IPDM E/R terminals.

IPDM E/R terminals		Continuity
Terminal No.	Terminal No.	
87	39	Existed
88	40	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace the IPDM E/R.

4.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E120	39	40	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Repair the IPDM E/R branch line.

5.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to [TM-176, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the TCM. Refer to [TM-202, "Removal and Installation"](#).

TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

YES (Past error)>>Error was detected in the TCM branch line.

NO >> Repair the power supply and the ground circuit.

A

B

C

D

E

F

G

H

I

J

K

L

LAN

N

O

P

DLC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

DLC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337448

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M22	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

EPS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337449

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M49	2	1	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.
NO >> Repair the EPS control unit branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-20, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the EPS control unit. Refer to [STC-36, "Removal and Installation"](#).
YES (Past error)>>Error was detected in the EPS control unit branch line.
NO >> Repair the power supply and the ground circuit.

LAN

M&A BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337450

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M77	41	42	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the combination meter branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-59, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to [MWI-82, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the combination meter branch line.

NO >> Repair the power supply and the ground circuit.

STRG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

STRG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337451

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M56	5	2	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.
NO >> Repair the steering angle sensor branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-57, "Wiring Diagram"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-139, "Removal and Installation"](#).
YES (Past error)>>Error was detected in the steering angle sensor branch line.
NO >> Repair the power supply and the ground circuit.

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

LAN

A-BAG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337452

WARNING:

- Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)
- Never use unspecified tester or other measuring device.

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the main harness.

2.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to [SRC-39, "Work Flow"](#).

Is the inspection result normal?

YES >> Replace the main harness.

NO >> Replace parts whose air bag system has a malfunction.

CCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

CCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337453

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the chassis control module connector for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of chassis control module.
2. Check the resistance between the chassis control module harness connector terminals.

Chassis control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M96	4	3	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.
NO >> Repair the chassis control module branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the chassis control module. Refer to [DAS-272, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the chassis control module. Refer to [DAS-277, "Removal and Installation"](#).
YES (Past error)>>Error was detected in the chassis control module branch line.
NG >> Repair the power supply and the ground circuit.

LAN

PWBD BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337455

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the automatic back door control module for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of automatic back door control module.
2. Check the resistance between the automatic back door control module harness connector terminals.

Automatic back door control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B55	24	12	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the automatic back door control module branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the automatic back door control module. Refer to [DLK-141, "AUTOMATIC BACK DOOR CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the automatic back door control module. Refer to [DLK-276, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the automatic back door control module branch line.

NG >> Repair the power supply and the ground circuit.

BCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

BCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337456

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B16	60	80	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.
NO >> Repair the BCM branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to the following.

- With intelligent key system: [BCS-68, "Diagnosis Procedure"](#).
- Without intelligent key system: [BCS-128, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to the following.
- With intelligent key system: [BCS-75, "Removal and Installation"](#).
 - Without intelligent key system: [BCS-135, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the BCM branch line.

NO >> Repair the power supply and the ground circuit.

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

LAN

HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

HVAC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337459

1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
 - A/C auto amp. (With auto A/C)
 - Harness connector M127 (With auto A/C)
 - Harness connector M125 (With auto A/C)
 - Front air control (Without auto A/C)
 - BCM

Is the inspection result normal?

YES >> GO TO 2. (With auto A/C)

YES >> GO TO 3. (Without auto A/C)

NO >> Repair the terminal and connector.

2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of BCM.
2. Check the continuity between the BCM harness connector terminals.

BCM harness connector			Continuity
Connector No.	Terminal No.		
M18	6	8	Existed
	5	9	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause (CAN communication circuit 2 side). Refer to [LAN-265. "Diagnosis Procedure"](#).

3. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of BCM (With auto A/C).
2. Disconnect the connector of A/C auto amp. (With auto A/C) or front air control (Without auto A/C).
3. Check the resistance between the A/C auto amp. (With auto A/C) or front air control (Without auto A/C) harness connector terminals.
 - With auto A/C

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M54	11	31	Approx. 54 – 66

- Without auto A/C

Front air control harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M50	7	23	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.

NO >> Repair the A/C auto amp. (With auto A/C) or front air control (Without auto A/C) branch line.

4. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. (With auto A/C) or front air control (Without auto A/C). Refer to the following.

- Automatic air conditioning: [HAC-56. "Diagnosis Procedure"](#).

HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

- Manual air conditioning: [HAC-166. "FRONT A/C CONTROL : Diagnosis Procedure".](#)

Is the inspection result normal?

YES (Present error)>>Replace the A/C auto amp. (With auto A/C) or front air control (Without auto A/C).
Refer to the following.

- Automatic air conditioning: [HAC-103. "Removal and Installation".](#)
- Manual air conditioning: [HAC-181. "Removal and Installation".](#)

YES (Past error)>>Error was detected in the A/C auto amp. (With auto A/C) or front air control (Without auto A/C) branch line.

NO >> Repair the power supply and the ground circuit.

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

LAN

CAN COMMUNICATION CIRCUIT 1

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

CAN COMMUNICATION CIRCUIT 1

Diagnosis Procedure

INFOID:0000000010337461

1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 1.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M22	6	14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line or fuse block (J/B) is short) the root cause.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Check the harness and repair or replace (if shield line or fuse block (J/B) is short) the root cause.

4.CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the IPDM E/R terminals.

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		
60	80	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 5.
NO >> Replace the ECM and/or the BCM.

5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced.

CAN COMMUNICATION CIRCUIT 1

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 1.

NOTE:

ECM and BCM have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced.

NOTE:

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

A

B

C

D

E

F

G

H

I

J

K

L

LAN

N

O

P

CAN COMMUNICATION CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

CAN COMMUNICATION CIRCUIT 2

Diagnosis Procedure

INFOID:0000000010337462

1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of BCM.
2. Check the continuity between the BCM harness connector terminals.

BCM harness connector			Continuity
Connector No.	Terminal No.		
M18	6	8	Existed
	5	9	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair or replace the root cause.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

1. Disconnect all the unit connectors on CAN communication circuit 2.
2. Check the continuity between the BCM harness connector terminals.

BCM harness connector			Continuity
Connector No.	Terminal No.		
M18	6	5	Not existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Check the harness and repair or replace the root cause.

4.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the BCM and the ground.

BCM harness connector		Ground	Continuity
Connector No.	Terminal No.		
M18	6		Not existed
	5		Not existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Check the harness and repair or replace (if shield line is short) the root cause.

5.CHECK BCM TERMINATION CIRCUIT

1. Remove the BCM.
2. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		

CAN COMMUNICATION CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

6	5	Approx. 108 – 132
8	9	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 6.

NO >> Replace the chassis control module.

6.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 7.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

7.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 2.

NOTE:

BCM has two termination circuits. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

NOTE:

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

LAN

MAIN LINE BETWEEN IPDM-E AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

DTC/CIRCUIT DIAGNOSIS

MAIN LINE BETWEEN IPDM-E AND DLC CIRCUIT

Diagnosis Procedure

INFOID:0000000010337466

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
 - Harness connector E152
 - Harness connector M31

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
 - IPDM E/R
 - Harness connectors E152 and M31
2. Check the continuity between the IPDM E/R harness connector and the harness connector.

IPDM E/R harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E120	24	E152	61J	Existed
	22		62J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the IPDM E/R and the harness connector E152.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and the data link connector.

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M31	61J	M22	6	Existed
	62J		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the IPDM E/R and the data link connector.

NO >> Repair the main line between the harness connector M31 and the data link connector.

MAIN LINE BETWEEN DLC AND CCM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

MAIN LINE BETWEEN DLC AND CCM CIRCUIT

Diagnosis Procedure

INFOID:0000000010337467

1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
 - ECM
 - Chassis control module
4. Check the continuity between the data link connector and the chassis control module harness connector.

Data link connector		Chassis control module harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	6	M96	4	Existed
	14		3	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the chassis control module.

NO >> Repair the main line between the data link connector and the chassis control module.

LAN

MAIN LINE BETWEEN CCM AND PWBD CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

MAIN LINE BETWEEN CCM AND PWBD CIRCUIT

Diagnosis Procedure

INFOID:0000000010337468

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
 - Harness connector M69
 - Harness connector B41

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
 - Chassis control module
 - Harness connectors M69 and B41
2. Check the continuity between the chassis control module harness connector and the harness connector.

Chassis control module harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M96	4	M69	25	Existed
	3		24	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the chassis control module and the harness connector M69.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of automatic back door control module.
2. Check the continuity between the harness connector and the automatic back door control module harness connector.

Harness connector		Automatic back door control module harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B41	25	B55	24	Existed
	24		12	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the chassis control module and the automatic back door control module.

NO >> Repair the main line between the harness connector B41 and the automatic back door control module.

ECM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

ECM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337469

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ECM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	100	99	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.
NO >> Repair the ECM branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to [EC-165. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ECM. Refer to [EC-499. "Removal and Installation"](#).
YES (Past error)>>Error was detected in the ECM branch line.
NO >> Repair the power supply and the ground circuit.

LAN

ABS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

ABS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337470

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E125	26	14	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ABS actuator and electric unit (control unit) branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to [BRC-114, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-136, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.

NO >> Repair the power supply and the ground circuit.

IPDM-E BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

IPDM-E BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337471

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E120	24	22	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.
NO >> Repair the IPDM E/R branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-34, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-35, "Removal and Installation"](#).
YES (Past error)>>Error was detected in the IPDM E/R branch line.
NO >> Repair the power supply and the ground circuit.

LAN

TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

TCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337472

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
 - TCM
 - IPDM E/R

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
 - TCM
 - IPDM E/R
2. Check the continuity between the TCM harness connector and the IPDM E/R harness connector.

TCM harness connector		IPDM E/R harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
F75	33	F42	87	Existed
	23		88	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the branch line between the TCM and IPDM E/R.

3.CHECK IPDM E/R (OPEN CIRCUIT)

Check the continuity between the IPDM E/R terminals.

IPDM E/R terminals		Continuity
Terminal No.	Terminal No.	
87	39	Existed
88	40	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace the IPDM E/R.

4.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E120	39	40	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Repair the IPDM E/R branch line.

5.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to [TM-176, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the TCM. Refer to [TM-202, "Removal and Installation"](#).

TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

YES (Past error)>>Error was detected in the TCM branch line.

NO >> Repair the power supply and the ground circuit.

A

B

C

D

E

F

G

H

I

J

K

L

LAN

N

O

P

DLC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

DLC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337473

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M22	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

EPS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

EPS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337474

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M49	2	1	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.
NO >> Repair the EPS control unit branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-20, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the EPS control unit. Refer to [STC-36, "Removal and Installation"](#).
YES (Past error)>>Error was detected in the EPS control unit branch line.
NO >> Repair the power supply and the ground circuit.

LAN

M&A BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337475

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M77	41	42	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the combination meter branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-59, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to [MWI-82, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the combination meter branch line.

NO >> Repair the power supply and the ground circuit.

STRG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

STRG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337476

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M56	5	2	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.
NO >> Repair the steering angle sensor branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-57, "Wiring Diagram"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-139, "Removal and Installation"](#).
YES (Past error)>>Error was detected in the steering angle sensor branch line.
NO >> Repair the power supply and the ground circuit.

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

LAN

A-BAG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

A-BAG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337477

WARNING:

- Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)
- Never use unspecified tester or other measuring device.

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the main harness.

2.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to [SRC-39, "Work Flow"](#).

Is the inspection result normal?

YES >> Replace the main harness.

NO >> Replace parts whose air bag system has a malfunction.

CCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

CCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337478

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the chassis control module connector for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of chassis control module.
2. Check the resistance between the chassis control module harness connector terminals.

Chassis control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M96	4	3	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.
NO >> Repair the chassis control module branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the chassis control module. Refer to [DAS-272, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the chassis control module. Refer to [DAS-277, "Removal and Installation"](#).
YES (Past error)>>Error was detected in the chassis control module branch line.
NG >> Repair the power supply and the ground circuit.

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

LAN

PWBD BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337480

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the automatic back door control module for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of automatic back door control module.
2. Check the resistance between the automatic back door control module harness connector terminals.

Automatic back door control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B55	24	12	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the automatic back door control module branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the automatic back door control module. Refer to [DLK-141, "AUTOMATIC BACK DOOR CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the automatic back door control module. Refer to [DLK-276, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the automatic back door control module branch line.

NG >> Repair the power supply and the ground circuit.

BCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337481

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B16	60	80	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.
NO >> Repair the BCM branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to the following.

- With intelligent key system: [BCS-68, "Diagnosis Procedure"](#).
- Without intelligent key system: [BCS-128, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to the following.
- With intelligent key system: [BCS-75, "Removal and Installation"](#).
 - Without intelligent key system: [BCS-135, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the BCM branch line.

NO >> Repair the power supply and the ground circuit.

LAN

AV BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337482

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
 - AV control unit
 - BCM

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of BCM.
2. Check the continuity between the BCM harness connector terminals.

BCM harness connector			Continuity
Connector No.	Terminal No.		
M18	6	8	Existed
	5	9	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause (CAN communication circuit 2 side). Refer to [LAN-265, "Diagnosis Procedure"](#).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AV control unit.
2. Check the resistance between the AV control unit harness connector terminals.
 - Models with BOSE audio system

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M108	8	17	Approx. 54 – 66

- Models without BOSE audio system

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M101	8	17	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.

NO >> Repair the AV control unit branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AV control unit. Refer to the following.

- Navigation with BOSE: [AV-337, "AV CONTROL UNIT : Diagnosis Procedure"](#)
- Navigation without BOSE: [AV-180, "AV CONTROL UNIT : Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the AV control unit. Refer to following.

- Navigation with BOSE: [AV-376, "Removal and Installation"](#)
- Navigation without BOSE: [AV-209, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the AV control unit branch line.

NO >> Repair the power supply and the ground circuit.

AVM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337483

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
 - Around view monitor control unit
 - BCM

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of BCM.
2. Check the continuity between the BCM harness connector terminals.

BCM harness connector			Continuity
Connector No.	Terminal No.		
M18	6	8	Existed
	5	9	Existed

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side). Refer to [LAN-265, "Diagnosis Procedure"](#).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of around view monitor control unit.
2. Check the resistance between the around view monitor control unit harness connector terminals.
 - With lane departure prevention system

Around view monitor control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M113	27	28	Approx. 54 – 66

- Without lane departure prevention system

Around view monitor control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M103	12	10	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 4.
NO >> Repair the around view monitor control unit branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the around view monitor control unit. Refer to the following.

- Navigation with BOSE: [AV-338, "AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure"](#)
- Navigation without BOSE: [AV-180, "AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the around view monitor control unit. Refer to the following.
- Navigation with BOSE: [AV-387, "Removal and Installation"](#)
 - Navigation without BOSE: [AV-217, "Removal and Installation"](#)
- YES (Past error)>>Error was detected in the around view monitor control unit branch line.
NO >> Repair the power supply and the ground circuit.

HVAC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337484

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
 - A/C auto amp. (With auto A/C)
 - Harness connector M127 (With auto A/C)
 - Harness connector M125 (With auto A/C)
 - Front air control (Without auto A/C)
 - BCM

Is the inspection result normal?

- YES >> GO TO 2. (With auto A/C)
 YES >> GO TO 3. (Without auto A/C)
 NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of BCM.
2. Check the continuity between the BCM harness connector terminals.

BCM harness connector			Continuity
Connector No.	Terminal No.		
M18	6	8	Existed
	5	9	Existed

Is the inspection result normal?

- YES >> GO TO 3.
 NO >> Check the harness and repair the root cause (CAN communication circuit 2 side). Refer to [LAN-265. "Diagnosis Procedure"](#).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of BCM (With auto A/C).
2. Disconnect the connector of A/C auto amp. (With auto A/C) or front air control (Without auto A/C).
3. Check the resistance between the A/C auto amp. (With auto A/C) or front air control (Without auto A/C) harness connector terminals.
 - With auto A/C

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M54	11	31	Approx. 54 – 66

- Without auto A/C

Front air control harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M50	7	23	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 4.
 NO >> Repair the A/C auto amp. (With auto A/C) or front air control (Without auto A/C) branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. (With auto A/C) or front air control (Without auto A/C). Refer to the following.

- Automatic air conditioning: [HAC-56. "Diagnosis Procedure"](#).

HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

- Manual air conditioning: [HAC-166. "FRONT A/C CONTROL : Diagnosis Procedure".](#)

Is the inspection result normal?

YES (Present error)>>Replace the A/C auto amp. (With auto A/C) or front air control (Without auto A/C).
Refer to the following.

- Automatic air conditioning: [HAC-103. "Removal and Installation".](#)
- Manual air conditioning: [HAC-181. "Removal and Installation".](#)

YES (Past error)>>Error was detected in the A/C auto amp. (With auto A/C) or front air control (Without auto A/C) branch line.

NO >> Repair the power supply and the ground circuit.

A

B

C

D

E

F

G

H

I

J

K

L

LAN

N

O

P

CAN COMMUNICATION CIRCUIT 1

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

CAN COMMUNICATION CIRCUIT 1

Diagnosis Procedure

INFOID:0000000010337486

1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 1.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M22	6	14	Not existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair or replace (if shield line or fuse block (J/B) is short) the root cause.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	6		Not existed
	14		Not existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Check the harness and repair or replace (if shield line or fuse block (J/B) is short) the root cause.

4.CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the IPDM E/R terminals.

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		
60	80	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the BCM.

5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced.

CAN COMMUNICATION CIRCUIT 1

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 1.

NOTE:

ECM and BCM have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced.

NOTE:

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

A

B

C

D

E

F

G

H

I

J

K

L

LAN

N

O

P

CAN COMMUNICATION CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

CAN COMMUNICATION CIRCUIT 2

Diagnosis Procedure

INFOID:0000000010337487

1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of BCM.
2. Check the continuity between the BCM harness connector terminals.

BCM harness connector			Continuity
Connector No.	Terminal No.		
M18	6	8	Existed
	5	9	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair or replace the root cause.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

1. Disconnect all the unit connectors on CAN communication circuit 2.
2. Check the continuity between the BCM harness connector terminals.

BCM harness connector			Continuity
Connector No.	Terminal No.		
M18	6	5	Not existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Check the harness and repair or replace the root cause.

4.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the BCM and the ground.

BCM harness connector		Ground	Continuity
Connector No.	Terminal No.		
M18	6		Not existed
	5		Not existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Check the harness and repair or replace (if shield line is short) the root cause.

5.CHECK BCM TERMINATION CIRCUIT

1. Remove the BCM.
2. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		

CAN COMMUNICATION CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

6	5	Approx. 108 – 132
8	9	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 6.

NO >> Replace the chassis control module.

6.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 7.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

7.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 2.

NOTE:

BCM has two termination circuits. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

NOTE:

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

LAN

MAIN LINE BETWEEN IPDM-E AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

DTC/CIRCUIT DIAGNOSIS

MAIN LINE BETWEEN IPDM-E AND DLC CIRCUIT

Diagnosis Procedure

INFOID:0000000010337489

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
 - Harness connector E152
 - Harness connector M31

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
 - IPDM E/R
 - Harness connectors E152 and M31
2. Check the continuity between the IPDM E/R harness connector and the harness connector.

IPDM E/R harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E120	24	E152	61J	Existed
	22		62J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the IPDM E/R and the harness connector E152.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and the data link connector.

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M31	61J	M22	6	Existed
	62J		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the IPDM E/R and the data link connector.

NO >> Repair the main line between the harness connector M31 and the data link connector.

MAIN LINE BETWEEN DLC AND CCM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

MAIN LINE BETWEEN DLC AND CCM CIRCUIT

Diagnosis Procedure

INFOID:0000000010337490

1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
 - ECM
 - Chassis control module
4. Check the continuity between the data link connector and the chassis control module harness connector.

Data link connector		Chassis control module harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	6	M96	4	Existed
	14		3	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the chassis control module.

NO >> Repair the main line between the data link connector and the chassis control module.

LAN

MAIN LINE BETWEEN CCM AND PWBD CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

MAIN LINE BETWEEN CCM AND PWBD CIRCUIT

Diagnosis Procedure

INFOID:000000010337491

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
 - Harness connector M69
 - Harness connector B41

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
 - Chassis control module
 - Harness connectors M69 and B41
2. Check the continuity between the chassis control module harness connector and the harness connector.

Chassis control module harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M96	4	M69	25	Existed
	3		24	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the chassis control module and the harness connector M69.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of automatic back door control module.
2. Check the continuity between the harness connector and the automatic back door control module harness connector.

Harness connector		Automatic back door control module harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B41	25	B55	24	Existed
	24		12	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the chassis control module and the automatic back door control module.

NO >> Repair the main line between the harness connector B41 and the automatic back door control module.

ECM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

ECM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337492

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ECM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	100	99	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.
NO >> Repair the ECM branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to [EC-165. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ECM. Refer to [EC-499. "Removal and Installation"](#).
YES (Past error)>>Error was detected in the ECM branch line.
NO >> Repair the power supply and the ground circuit.

LAN

ABS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337493

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
 NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E125	26	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.
 NO >> Repair the ABS actuator and electric unit (control unit) branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to [BRC-114, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-136, "Removal and Installation"](#).
 YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.
 NO >> Repair the power supply and the ground circuit.

IPDM-E BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

IPDM-E BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337494

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E120	24	22	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.
NO >> Repair the IPDM E/R branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-34, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-35, "Removal and Installation"](#).
YES (Past error)>>Error was detected in the IPDM E/R branch line.
NO >> Repair the power supply and the ground circuit.

LAN

TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

TCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337495

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
 - TCM
 - IPDM E/R

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
 - TCM
 - IPDM E/R
2. Check the continuity between the TCM harness connector and the IPDM E/R harness connector.

TCM harness connector		IPDM E/R harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
F75	33	F42	87	Existed
	23		88	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the branch line between the TCM and IPDM E/R.

3.CHECK IPDM E/R (OPEN CIRCUIT)

Check the continuity between the IPDM E/R terminals.

IPDM E/R terminals		Continuity
Terminal No.	Terminal No.	
87	39	Existed
88	40	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace the IPDM E/R.

4.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E120	39	40	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Repair the IPDM E/R branch line.

5.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to [TM-176, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the TCM. Refer to [TM-202, "Removal and Installation"](#).

TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

YES (Past error)>>Error was detected in the TCM branch line.

NO >> Repair the power supply and the ground circuit.

A

B

C

D

E

F

G

H

I

J

K

L

LAN

N

O

P

DLC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

DLC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337496

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M22	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

EPS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

EPS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337497

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M49	2	1	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.
NO >> Repair the EPS control unit branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-20, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the EPS control unit. Refer to [STC-36, "Removal and Installation"](#).
YES (Past error)>>Error was detected in the EPS control unit branch line.
NO >> Repair the power supply and the ground circuit.

LAN

M&A BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337498

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M77	41	42	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the combination meter branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-59, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to [MWI-82, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the combination meter branch line.

NO >> Repair the power supply and the ground circuit.

STRG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

STRG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337499

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M56	5	2	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.
NO >> Repair the steering angle sensor branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-57, "Wiring Diagram"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-139, "Removal and Installation"](#).
YES (Past error)>>Error was detected in the steering angle sensor branch line.
NO >> Repair the power supply and the ground circuit.

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

LAN

A-BAG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337500

WARNING:

- Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)
- Never use unspecified tester or other measuring device.

1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the main harness.

2. CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to [SRC-39, "Work Flow"](#).

Is the inspection result normal?

YES >> Replace the main harness.

NO >> Replace parts whose air bag system has a malfunction.

CCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

CCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337501

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the chassis control module connector for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of chassis control module.
2. Check the resistance between the chassis control module harness connector terminals.

Chassis control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M96	4	3	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.
NO >> Repair the chassis control module branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the chassis control module. Refer to [DAS-272, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the chassis control module. Refer to [DAS-277, "Removal and Installation"](#).
YES (Past error)>>Error was detected in the chassis control module branch line.
NG >> Repair the power supply and the ground circuit.

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

LAN

PWBD BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337503

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the automatic back door control module for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of automatic back door control module.
2. Check the resistance between the automatic back door control module harness connector terminals.

Automatic back door control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B55	24	12	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the automatic back door control module branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the automatic back door control module. Refer to [DLK-141, "AUTOMATIC BACK DOOR CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the automatic back door control module. Refer to [DLK-276, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the automatic back door control module branch line.

NG >> Repair the power supply and the ground circuit.

BCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337504

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B16	60	80	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.
NO >> Repair the BCM branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to the following.

- With intelligent key system: [BCS-68, "Diagnosis Procedure"](#).
- Without intelligent key system: [BCS-128, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to the following.
- With intelligent key system: [BCS-75, "Removal and Installation"](#).
 - Without intelligent key system: [BCS-135, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the BCM branch line.

NO >> Repair the power supply and the ground circuit.

LAN

AV BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337505

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
 - AV control unit
 - BCM

Is the inspection result normal?

- YES >> GO TO 2.
 NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of BCM.
2. Check the continuity between the BCM harness connector terminals.

BCM harness connector			Continuity
Connector No.	Terminal No.		
M18	6	8	Existed
	5	9	Existed

Is the inspection result normal?

- YES >> GO TO 3.
 NO >> Check the harness and repair the root cause (CAN communication circuit 2 side). Refer to [LAN-265, "Diagnosis Procedure"](#).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AV control unit.
2. Check the resistance between the AV control unit harness connector terminals.
 - Models with BOSE audio system

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M108	8	17	Approx. 54 – 66

- Models without BOSE audio system

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M101	8	17	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 4.
 NO >> Repair the AV control unit branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AV control unit. Refer to the following.

- Navigation with BOSE: [AV-337, "AV CONTROL UNIT : Diagnosis Procedure"](#)
- Navigation without BOSE: [AV-180, "AV CONTROL UNIT : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the AV control unit. Refer to following.
- Navigation with BOSE: [AV-376, "Removal and Installation"](#)
 - Navigation without BOSE: [AV-209, "Removal and Installation"](#)
- YES (Past error)>>Error was detected in the AV control unit branch line.
 NO >> Repair the power supply and the ground circuit.

AVM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337506

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
 - Around view monitor control unit
 - BCM

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of BCM.
2. Check the continuity between the BCM harness connector terminals.

BCM harness connector			Continuity
Connector No.	Terminal No.		
M18	6	8	Existed
	5	9	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause (CAN communication circuit 2 side). Refer to [LAN-265, "Diagnosis Procedure"](#).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of around view monitor control unit.
2. Check the resistance between the around view monitor control unit harness connector terminals.
 - With lane departure prevention system

Around view monitor control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M113	27	28	Approx. 54 – 66

- Without lane departure prevention system

Around view monitor control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M103	12	10	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.

NO >> Repair the around view monitor control unit branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the around view monitor control unit. Refer to the following.

- Navigation with BOSE: [AV-338, "AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure"](#)
- Navigation without BOSE: [AV-180, "AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the around view monitor control unit. Refer to the following.

- Navigation with BOSE: [AV-387, "Removal and Installation"](#)
- Navigation without BOSE: [AV-217, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the around view monitor control unit branch line.

NO >> Repair the power supply and the ground circuit.

HVAC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337507

1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
 - A/C auto amp. (With auto A/C)
 - Harness connector M127 (With auto A/C)
 - Harness connector M125 (With auto A/C)
 - Front air control (Without auto A/C)
 - BCM

Is the inspection result normal?

- YES >> GO TO 2. (With auto A/C)
 YES >> GO TO 3. (Without auto A/C)
 NO >> Repair the terminal and connector.

2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of BCM.
2. Check the continuity between the BCM harness connector terminals.

BCM harness connector			Continuity
Connector No.	Terminal No.		
M18	6	8	Existed
	5	9	Existed

Is the inspection result normal?

- YES >> GO TO 3.
 NO >> Check the harness and repair the root cause (CAN communication circuit 2 side). Refer to [LAN-265. "Diagnosis Procedure"](#).

3. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of BCM (With auto A/C).
2. Disconnect the connector of A/C auto amp. (With auto A/C) or front air control (Without auto A/C).
3. Check the resistance between the A/C auto amp. (With auto A/C) or front air control (Without auto A/C) harness connector terminals.
 - With auto A/C

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M54	11	31	Approx. 54 – 66

- Without auto A/C

Front air control harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M50	7	23	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 4.
 NO >> Repair the A/C auto amp. (With auto A/C) or front air control (Without auto A/C) branch line.

4. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. (With auto A/C) or front air control (Without auto A/C). Refer to the following.

- Automatic air conditioning: [HAC-56. "Diagnosis Procedure"](#).

HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

- Manual air conditioning: [HAC-166. "FRONT A/C CONTROL : Diagnosis Procedure".](#)

Is the inspection result normal?

YES (Present error)>>Replace the A/C auto amp. (With auto A/C) or front air control (Without auto A/C).
Refer to the following.

- Automatic air conditioning: [HAC-103. "Removal and Installation".](#)
- Manual air conditioning: [HAC-181. "Removal and Installation".](#)

YES (Past error)>>Error was detected in the A/C auto amp. (With auto A/C) or front air control (Without auto A/C) branch line.

NO >> Repair the power supply and the ground circuit.

A

B

C

D

E

F

G

H

I

J

K

L

LAN

N

O

P

ICC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337508

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
 - Distance sensor
 - Harness connector E152
 - Harness connector M31
 - BCM

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of BCM.
2. Check the continuity between the BCM harness connector terminals.

BCM harness connector			Continuity
Connector No.	Terminal No.		
M18	6	8	Existed
	5	9	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause (CAN communication circuit 2 side). Refer to [LAN-265, "Diagnosis Procedure"](#).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of BCM.
2. Disconnect the connector of distance sensor.
3. Check the resistance between the distance sensor harness connector terminals.

Distance sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E21	7	6	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.

NO >> Repair the distance sensor branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the distance sensor. Refer to [DAS-144, "DISTANCE SENSOR: Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the distance sensor. Refer to [DAS-160, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the distance sensor branch line.

NO >> Repair the power supply and the ground circuit.

CAN COMMUNICATION CIRCUIT 1

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

CAN COMMUNICATION CIRCUIT 1

Diagnosis Procedure

INFOID:000000010337509

1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 1.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M22	6	14	Not existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair or replace (if shield line or fuse block (J/B) is short) the root cause.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	6		Not existed
	14		Not existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Check the harness and repair or replace (if shield line or fuse block (J/B) is short) the root cause.

4.CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the IPDM E/R terminals.

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		
60	80	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the BCM.

5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced.

A
B
C
D
E
F
G
H
I
J
K
L
LAN
N
O
P

CAN COMMUNICATION CIRCUIT 1

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 1.

NOTE:

ECM and BCM have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced.

NOTE:

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

CAN COMMUNICATION CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

CAN COMMUNICATION CIRCUIT 2

Diagnosis Procedure

INFOID:000000010337510

1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of BCM.
2. Check the continuity between the BCM harness connector terminals.

BCM harness connector			Continuity
Connector No.	Terminal No.		
M18	6	8	Existed
	5	9	Existed

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Check the harness and repair or replace the root cause.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

1. Disconnect all the unit connectors on CAN communication circuit 2.
2. Check the continuity between the BCM harness connector terminals.

BCM harness connector			Continuity
Connector No.	Terminal No.		
M18	6	5	Not existed

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Check the harness and repair or replace the root cause.

4.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the BCM and the ground.

BCM harness connector		Ground	Continuity
Connector No.	Terminal No.		
M18	6		Not existed
	5		Not existed

Is the inspection result normal?

- YES >> GO TO 5.
NO >> Check the harness and repair or replace (if shield line is short) the root cause.

5.CHECK BCM TERMINATION CIRCUIT

1. Remove the BCM.
2. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		

CAN COMMUNICATION CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

6	5	Approx. 108 – 132
8	9	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 6.

NO >> Replace the chassis control module.

6.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 7.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

7.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 2.

NOTE:

BCM has two termination circuits. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

NOTE:

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

MAIN LINE BETWEEN IPDM-E AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

DTC/CIRCUIT DIAGNOSIS

MAIN LINE BETWEEN IPDM-E AND DLC CIRCUIT

Diagnosis Procedure

INFOID:0000000010337697

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
 - Harness connector E152
 - Harness connector M31

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
 - IPDM E/R
 - Harness connectors E152 and M31
2. Check the continuity between the IPDM E/R harness connector and the harness connector.

IPDM E/R harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E120	24	E152	61J	Existed
	22		62J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the IPDM E/R and the harness connector E152.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and the data link connector.

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M31	61J	M22	6	Existed
	62J		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the IPDM E/R and the data link connector.

NO >> Repair the main line between the harness connector M31 and the data link connector.

MAIN LINE BETWEEN DLC AND CCM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

MAIN LINE BETWEEN DLC AND CCM CIRCUIT

Diagnosis Procedure

INFOID:0000000010337698

1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
 - ECM
 - Chassis control module
4. Check the continuity between the data link connector and the chassis control module harness connector.

Data link connector		Chassis control module harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	6	M96	4	Existed
	14		3	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the chassis control module.

NO >> Repair the main line between the data link connector and the chassis control module.

MAIN LINE BETWEEN CCM AND 4WD CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

MAIN LINE BETWEEN CCM AND 4WD CIRCUIT

Diagnosis Procedure

INFOID:0000000010351798

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
 - Harness connector M69
 - Harness connector B41

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
 - Chassis control module
 - Harness connectors M69 and B41
2. Check the continuity between the chassis control module harness connector and the harness connector.

Chassis control module harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M96	4	M69	25	Existed
	3		24	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the chassis control module and the harness connector M69.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of AWD control unit.
2. Check the continuity between the harness connector and the AWD control unit harness connector.

Harness connector		AWD control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B41	25	B75	8	Existed
	24		16	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the chassis control module and the AWD control unit.

NO >> Repair the main line between the harness connector B41 and the AWD control unit.

ECM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337700

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ECM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	100	99	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to [EC-165, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to [EC-499, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the ECM branch line.

NO >> Repair the power supply and the ground circuit.

ABS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

ABS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337701

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E125	26	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to [BRC-114, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-136, "Removal and Installation"](#).
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.
NO >> Repair the power supply and the ground circuit.

LAN

IPDM-E BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337702

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E120	24	22	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-34. "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-35. "Removal and Installation"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

TCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337703

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
 - TCM
 - IPDM E/R

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
 - TCM
 - IPDM E/R
2. Check the continuity between the TCM harness connector and the IPDM E/R harness connector.

TCM harness connector		IPDM E/R harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
F75	33	F42	87	Existed
	23		88	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the branch line between the TCM and IPDM E/R.

3.CHECK IPDM E/R (OPEN CIRCUIT)

Check the continuity between the IPDM E/R terminals.

IPDM E/R terminals		Continuity
Terminal No.	Terminal No.	
87	39	Existed
88	40	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace the IPDM E/R.

4.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E120	39	40	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Repair the IPDM E/R branch line.

5.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to [TM-176. "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the TCM. Refer to [TM-202. "Removal and Installation"](#).

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

LAN

TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

YES (Past error)>>Error was detected in the TCM branch line.

NO >> Repair the power supply and the ground circuit.

DLC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

DLC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337704

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M22	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

LAN

EPS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337705

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M49	2	1	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-20, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to [STC-36, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.

M&A BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

M&A BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337706

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M77	41	42	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.
NO >> Repair the combination meter branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-59, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to [MWI-82, "Removal and Installation"](#).
YES (Past error)>>Error was detected in the combination meter branch line.
NO >> Repair the power supply and the ground circuit.

LAN

STRG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

STRG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337707

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M56	5	2	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the steering angle sensor branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-57, "Wiring Diagram"](#).

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-139, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the steering angle sensor branch line.

NO >> Repair the power supply and the ground circuit.

A-BAG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

A-BAG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337708

WARNING:

- Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)
- Never use unspecified tester or other measuring device.

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Replace the main harness.

2.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to [SRC-39, "Work Flow"](#).

Is the inspection result normal?

- YES >> Replace the main harness.
NO >> Replace parts whose air bag system has a malfunction.

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

LAN

CCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

CCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337709

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the chassis control module connector for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of chassis control module.
2. Check the resistance between the chassis control module harness connector terminals.

Chassis control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M96	4	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the chassis control module branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the chassis control module. Refer to [DAS-272, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the chassis control module. Refer to [DAS-277, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the chassis control module branch line.

NG >> Repair the power supply and the ground circuit.

4WD BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

4WD BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337710

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the AWD control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AWD control unit.
2. Check the resistance between the AWD control unit harness connector terminals.

AWD control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B75	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.
NO >> Repair the AWD control unit branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AWD control unit. Refer to [DLN-57, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the AWD control unit. Refer to [DLN-67, "Removal and Installation"](#).
YES (Past error)>>Error was detected in the AWD control unit branch line.
NG >> Repair the power supply and the ground circuit.

LAN

BCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337712

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B16	60	80	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.
NO >> Repair the BCM branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to the following.

- With intelligent key system: [BCS-68, "Diagnosis Procedure"](#).
- Without intelligent key system: [BCS-128, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to the following.
- With intelligent key system: [BCS-75, "Removal and Installation"](#).
 - Without intelligent key system: [BCS-135, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the BCM branch line.

NO >> Repair the power supply and the ground circuit.

HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

HVAC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337715

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
 - A/C auto amp. (With auto A/C)
 - Harness connector M127 (With auto A/C)
 - Harness connector M125 (With auto A/C)
 - Front air control (Without auto A/C)
 - BCM

Is the inspection result normal?

- YES >> GO TO 2. (With auto A/C)
YES >> GO TO 3. (Without auto A/C)
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of BCM.
2. Check the continuity between the BCM harness connector terminals.

BCM harness connector			Continuity
Connector No.	Terminal No.		
M18	6	8	Existed
	5	9	Existed

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side). Refer to [LAN-265. "Diagnosis Procedure"](#).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of BCM (With auto A/C).
2. Disconnect the connector of A/C auto amp. (With auto A/C) or front air control (Without auto A/C).
3. Check the resistance between the A/C auto amp. (With auto A/C) or front air control (Without auto A/C) harness connector terminals.
 - With auto A/C

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M54	11	31	Approx. 54 – 66

- Without auto A/C

Front air control harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M50	7	23	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 4.
NO >> Repair the A/C auto amp. (With auto A/C) or front air control (Without auto A/C) branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. (With auto A/C) or front air control (Without auto A/C). Refer to the following.

- Automatic air conditioning: [HAC-56. "Diagnosis Procedure"](#).

HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

- Manual air conditioning: [HAC-166. "FRONT A/C CONTROL : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the A/C auto amp. (With auto A/C) or front air control (Without auto A/C).
Refer to the following.

- Automatic air conditioning: [HAC-103. "Removal and Installation"](#).
- Manual air conditioning: [HAC-181. "Removal and Installation"](#).

YES (Past error)>>Error was detected in the A/C auto amp. (With auto A/C) or front air control (Without auto A/C) branch line.

NO >> Repair the power supply and the ground circuit.

CAN COMMUNICATION CIRCUIT 1

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

CAN COMMUNICATION CIRCUIT 1

Diagnosis Procedure

INFOID:000000010337717

1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 1.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M22	6	14	Not existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair or replace (if shield line or fuse block (J/B) is short) the root cause.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	6		Not existed
	14		Not existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Check the harness and repair or replace (if shield line or fuse block (J/B) is short) the root cause.

4.CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the IPDM E/R terminals.

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		
60	80	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the BCM.

5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced.

A
B
C
D
E
F
G
H
I
J
K
L
LAN
N
O
P

CAN COMMUNICATION CIRCUIT 1

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 1.

NOTE:

ECM and BCM have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced.

NOTE:

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

CAN COMMUNICATION CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

CAN COMMUNICATION CIRCUIT 2

Diagnosis Procedure

INFOID:000000010337718

1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of BCM.
2. Check the continuity between the BCM harness connector terminals.

BCM harness connector			Continuity
Connector No.	Terminal No.		
M18	6	8	Existed
	5	9	Existed

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Check the harness and repair or replace the root cause.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

1. Disconnect all the unit connectors on CAN communication circuit 2.
2. Check the continuity between the BCM harness connector terminals.

BCM harness connector			Continuity
Connector No.	Terminal No.		
M18	6	5	Not existed

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Check the harness and repair or replace the root cause.

4.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the BCM and the ground.

BCM harness connector		Ground	Continuity
Connector No.	Terminal No.		
M18	6		Not existed
	5		Not existed

Is the inspection result normal?

- YES >> GO TO 5.
NO >> Check the harness and repair or replace (if shield line is short) the root cause.

5.CHECK BCM TERMINATION CIRCUIT

1. Remove the BCM.
2. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		

CAN COMMUNICATION CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

6	5	Approx. 108 – 132
8	9	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 6.

NO >> Replace the chassis control module.

6.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 7.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

7.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 2.

NOTE:

BCM has two termination circuits. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

NOTE:

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

MAIN LINE BETWEEN IPDM-E AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

DTC/CIRCUIT DIAGNOSIS

MAIN LINE BETWEEN IPDM-E AND DLC CIRCUIT

Diagnosis Procedure

INFOID:0000000010337721

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
 - Harness connector E152
 - Harness connector M31

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
 - IPDM E/R
 - Harness connectors E152 and M31
2. Check the continuity between the IPDM E/R harness connector and the harness connector.

IPDM E/R harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E120	24	E152	61J	Existed
	22		62J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the IPDM E/R and the harness connector E152.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and the data link connector.

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M31	61J	M22	6	Existed
	62J		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the IPDM E/R and the data link connector.

NO >> Repair the main line between the harness connector M31 and the data link connector.

MAIN LINE BETWEEN DLC AND CCM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

MAIN LINE BETWEEN DLC AND CCM CIRCUIT

Diagnosis Procedure

INFOID:0000000010337722

1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
 - ECM
 - Chassis control module
4. Check the continuity between the data link connector and the chassis control module harness connector.

Data link connector		Chassis control module harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	6	M96	4	Existed
	14		3	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the chassis control module.

NO >> Repair the main line between the data link connector and the chassis control module.

MAIN LINE BETWEEN CCM AND PWBD CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

MAIN LINE BETWEEN CCM AND PWBD CIRCUIT

Diagnosis Procedure

INFOID:0000000010337723

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
 - Harness connector M69
 - Harness connector B41

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
 - Chassis control module
 - Harness connectors M69 and B41
2. Check the continuity between the chassis control module harness connector and the harness connector.

Chassis control module harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M96	4	M69	25	Existed
	3		24	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the chassis control module and the harness connector M69.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of automatic back door control module.
2. Check the continuity between the harness connector and the automatic back door control module harness connector.

Harness connector		Automatic back door control module harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B41	25	B55	24	Existed
	24		12	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the chassis control module and the automatic back door control module.

NO >> Repair the main line between the harness connector B41 and the automatic back door control module.

ECM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337724

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ECM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	100	99	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to [EC-165, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to [EC-499, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the ECM branch line.

NO >> Repair the power supply and the ground circuit.

ABS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

ABS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337725

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E125	26	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to [BRC-114, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-136, "Removal and Installation"](#).
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.
NO >> Repair the power supply and the ground circuit.

LAN

IPDM-E BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

IPDM-E BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337726

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E120	24	22	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-34. "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-35. "Removal and Installation"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

TCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337727

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
 - TCM
 - IPDM E/R

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
 - TCM
 - IPDM E/R
2. Check the continuity between the TCM harness connector and the IPDM E/R harness connector.

TCM harness connector		IPDM E/R harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
F75	33	F42	87	Existed
	23		88	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the branch line between the TCM and IPDM E/R.

3.CHECK IPDM E/R (OPEN CIRCUIT)

Check the continuity between the IPDM E/R terminals.

IPDM E/R terminals		Continuity
Terminal No.	Terminal No.	
87	39	Existed
88	40	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace the IPDM E/R.

4.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E120	39	40	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Repair the IPDM E/R branch line.

5.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to [TM-176. "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the TCM. Refer to [TM-202. "Removal and Installation"](#).

TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

YES (Past error)>>Error was detected in the TCM branch line.

NO >> Repair the power supply and the ground circuit.

DLC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

DLC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337728

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M22	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

LAN

EPS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337729

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M49	2	1	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-20, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to [STC-36, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.

M&A BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

M&A BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337730

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M77	41	42	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.
NO >> Repair the combination meter branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-59, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to [MWI-82, "Removal and Installation"](#).
YES (Past error)>>Error was detected in the combination meter branch line.
NO >> Repair the power supply and the ground circuit.

LAN

STRG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

STRG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337731

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M56	5	2	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the steering angle sensor branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-57, "Wiring Diagram"](#).

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-139, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the steering angle sensor branch line.

NO >> Repair the power supply and the ground circuit.

A-BAG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

A-BAG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337732

WARNING:

- Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)
- Never use unspecified tester or other measuring device.

1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Replace the main harness.

2. CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to [SRC-39, "Work Flow"](#).

Is the inspection result normal?

- YES >> Replace the main harness.
NO >> Replace parts whose air bag system has a malfunction.

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

LAN

CCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337733

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the chassis control module connector for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of chassis control module.
2. Check the resistance between the chassis control module harness connector terminals.

Chassis control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M96	4	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the chassis control module branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the chassis control module. Refer to [DAS-272, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the chassis control module. Refer to [DAS-277, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the chassis control module branch line.

NG >> Repair the power supply and the ground circuit.

4WD BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

4WD BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337734

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the AWD control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AWD control unit.
2. Check the resistance between the AWD control unit harness connector terminals.

AWD control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B75	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.
NO >> Repair the AWD control unit branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AWD control unit. Refer to [DLN-57, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the AWD control unit. Refer to [DLN-67, "Removal and Installation"](#).
YES (Past error)>>Error was detected in the AWD control unit branch line.
NG >> Repair the power supply and the ground circuit.

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

LAN

PWBD BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337735

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the automatic back door control module for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of automatic back door control module.
2. Check the resistance between the automatic back door control module harness connector terminals.

Automatic back door control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B55	24	12	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the automatic back door control module branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the automatic back door control module. Refer to [DLK-141, "AUTOMATIC BACK DOOR CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the automatic back door control module. Refer to [DLK-276, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the automatic back door control module branch line.

NG >> Repair the power supply and the ground circuit.

BCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

BCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337736

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B16	60	80	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.
NO >> Repair the BCM branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to the following.

- With intelligent key system: [BCS-68, "Diagnosis Procedure"](#).
- Without intelligent key system: [BCS-128, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to the following.
- With intelligent key system: [BCS-75, "Removal and Installation"](#).
 - Without intelligent key system: [BCS-135, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the BCM branch line.

NO >> Repair the power supply and the ground circuit.

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

LAN

HVAC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337739

1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
 - A/C auto amp. (With auto A/C)
 - Harness connector M127 (With auto A/C)
 - Harness connector M125 (With auto A/C)
 - Front air control (Without auto A/C)
 - BCM

Is the inspection result normal?

YES >> GO TO 2. (With auto A/C)

YES >> GO TO 3. (Without auto A/C)

NO >> Repair the terminal and connector.

2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of BCM.
2. Check the continuity between the BCM harness connector terminals.

BCM harness connector			Continuity
Connector No.	Terminal No.		
M18	6	8	Existed
	5	9	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause (CAN communication circuit 2 side). Refer to [LAN-265. "Diagnosis Procedure"](#).

3. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of BCM (With auto A/C).
2. Disconnect the connector of A/C auto amp. (With auto A/C) or front air control (Without auto A/C).
3. Check the resistance between the A/C auto amp. (With auto A/C) or front air control (Without auto A/C) harness connector terminals.
 - With auto A/C

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M54	11	31	Approx. 54 – 66

- Without auto A/C

Front air control harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M50	7	23	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.

NO >> Repair the A/C auto amp. (With auto A/C) or front air control (Without auto A/C) branch line.

4. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. (With auto A/C) or front air control (Without auto A/C). Refer to the following.

- Automatic air conditioning: [HAC-56. "Diagnosis Procedure"](#).

HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

- Manual air conditioning: [HAC-166. "FRONT A/C CONTROL : Diagnosis Procedure".](#)

Is the inspection result normal?

YES (Present error)>>Replace the A/C auto amp. (With auto A/C) or front air control (Without auto A/C).
Refer to the following.

- Automatic air conditioning: [HAC-103. "Removal and Installation".](#)
- Manual air conditioning: [HAC-181. "Removal and Installation".](#)

YES (Past error)>>Error was detected in the A/C auto amp. (With auto A/C) or front air control (Without auto A/C) branch line.

NO >> Repair the power supply and the ground circuit.

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

LAN

CAN COMMUNICATION CIRCUIT 1

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

CAN COMMUNICATION CIRCUIT 1

Diagnosis Procedure

INFOID:0000000010337741

1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 1.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M22	6	14	Not existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair or replace (if shield line or fuse block (J/B) is short) the root cause.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	6		Not existed
	14		Not existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Check the harness and repair or replace (if shield line or fuse block (J/B) is short) the root cause.

4.CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the IPDM E/R terminals.

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		
60	80	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the BCM.

5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced.

CAN COMMUNICATION CIRCUIT 1

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 1.

NOTE:

ECM and BCM have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced.

NOTE:

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

A

B

C

D

E

F

G

H

I

J

K

L

LAN

N

O

P

CAN COMMUNICATION CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

CAN COMMUNICATION CIRCUIT 2

Diagnosis Procedure

INFOID:0000000010337742

1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of BCM.
2. Check the continuity between the BCM harness connector terminals.

BCM harness connector			Continuity
Connector No.	Terminal No.		
M18	6	8	Existed
	5	9	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair or replace the root cause.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

1. Disconnect all the unit connectors on CAN communication circuit 2.
2. Check the continuity between the BCM harness connector terminals.

BCM harness connector			Continuity
Connector No.	Terminal No.		
M18	6	5	Not existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Check the harness and repair or replace the root cause.

4.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the BCM and the ground.

BCM harness connector		Ground	Continuity
Connector No.	Terminal No.		
M18	6		Not existed
	5		Not existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Check the harness and repair or replace (if shield line is short) the root cause.

5.CHECK BCM TERMINATION CIRCUIT

1. Remove the BCM.
2. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		

CAN COMMUNICATION CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

6	5	Approx. 108 – 132
8	9	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 6.

NO >> Replace the chassis control module.

6.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 7.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

7.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 2.

NOTE:

BCM has two termination circuits. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

NOTE:

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

LAN

MAIN LINE BETWEEN IPDM-E AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

DTC/CIRCUIT DIAGNOSIS

MAIN LINE BETWEEN IPDM-E AND DLC CIRCUIT

Diagnosis Procedure

INFOID:0000000010337743

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
 - Harness connector E152
 - Harness connector M31

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
 - IPDM E/R
 - Harness connectors E152 and M31
2. Check the continuity between the IPDM E/R harness connector and the harness connector.

IPDM E/R harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E120	24	E152	61J	Existed
	22		62J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the IPDM E/R and the harness connector E152.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and the data link connector.

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M31	61J	M22	6	Existed
	62J		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the IPDM E/R and the data link connector.

NO >> Repair the main line between the harness connector M31 and the data link connector.

MAIN LINE BETWEEN DLC AND CCM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

MAIN LINE BETWEEN DLC AND CCM CIRCUIT

Diagnosis Procedure

INFOID:0000000010337744

1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
 - ECM
 - Chassis control module
4. Check the continuity between the data link connector and the chassis control module harness connector.

Data link connector		Chassis control module harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	6	M96	4	Existed
	14		3	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the chassis control module.

NO >> Repair the main line between the data link connector and the chassis control module.

LAN

MAIN LINE BETWEEN CCM AND PWBD CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

MAIN LINE BETWEEN CCM AND PWBD CIRCUIT

Diagnosis Procedure

INFOID:0000000010337745

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
 - Harness connector M69
 - Harness connector B41

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
 - Chassis control module
 - Harness connectors M69 and B41
2. Check the continuity between the chassis control module harness connector and the harness connector.

Chassis control module harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M96	4	M69	25	Existed
	3		24	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the chassis control module and the harness connector M69.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of automatic back door control module.
2. Check the continuity between the harness connector and the automatic back door control module harness connector.

Harness connector		Automatic back door control module harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B41	25	B55	24	Existed
	24		12	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the chassis control module and the automatic back door control module.

NO >> Repair the main line between the harness connector B41 and the automatic back door control module.

ECM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

ECM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337746

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ECM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	100	99	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.
NO >> Repair the ECM branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to [EC-165. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ECM. Refer to [EC-499. "Removal and Installation"](#).
YES (Past error)>>Error was detected in the ECM branch line.
NO >> Repair the power supply and the ground circuit.

LAN

ABS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

ABS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337747

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E125	26	14	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ABS actuator and electric unit (control unit) branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to [BRC-114, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-136, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.

NO >> Repair the power supply and the ground circuit.

IPDM-E BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

IPDM-E BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337748

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E120	24	22	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.
NO >> Repair the IPDM E/R branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-34, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-35, "Removal and Installation"](#).
YES (Past error)>>Error was detected in the IPDM E/R branch line.
NO >> Repair the power supply and the ground circuit.

LAN

TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

TCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337749

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
 - TCM
 - IPDM E/R

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
 - TCM
 - IPDM E/R
2. Check the continuity between the TCM harness connector and the IPDM E/R harness connector.

TCM harness connector		IPDM E/R harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
F75	33	F42	87	Existed
	23		88	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the branch line between the TCM and IPDM E/R.

3.CHECK IPDM E/R (OPEN CIRCUIT)

Check the continuity between the IPDM E/R terminals.

IPDM E/R terminals		Continuity
Terminal No.	Terminal No.	
87	39	Existed
88	40	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace the IPDM E/R.

4.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E120	39	40	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Repair the IPDM E/R branch line.

5.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to [TM-176, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the TCM. Refer to [TM-202, "Removal and Installation"](#).

TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

YES (Past error)>>Error was detected in the TCM branch line.

NO >> Repair the power supply and the ground circuit.

A

B

C

D

E

F

G

H

I

J

K

L

LAN

N

O

P

DLC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

DLC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337750

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M22	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

EPS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

EPS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337751

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M49	2	1	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.
NO >> Repair the EPS control unit branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-20, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the EPS control unit. Refer to [STC-36, "Removal and Installation"](#).
YES (Past error)>>Error was detected in the EPS control unit branch line.
NO >> Repair the power supply and the ground circuit.

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

LAN

M&A BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337752

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M77	41	42	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the combination meter branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-59, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to [MWI-82, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the combination meter branch line.

NO >> Repair the power supply and the ground circuit.

STRG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

STRG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337753

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M56	5	2	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.
NO >> Repair the steering angle sensor branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-57, "Wiring Diagram"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-139, "Removal and Installation"](#).
YES (Past error)>>Error was detected in the steering angle sensor branch line.
NO >> Repair the power supply and the ground circuit.

LAN

A-BAG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

A-BAG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337754

WARNING:

- Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)
- Never use unspecified tester or other measuring device.

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the main harness.

2.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to [SRC-39, "Work Flow"](#).

Is the inspection result normal?

YES >> Replace the main harness.

NO >> Replace parts whose air bag system has a malfunction.

CCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

CCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337755

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the chassis control module connector for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of chassis control module.
2. Check the resistance between the chassis control module harness connector terminals.

Chassis control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M96	4	3	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.
NO >> Repair the chassis control module branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the chassis control module. Refer to [DAS-272, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the chassis control module. Refer to [DAS-277, "Removal and Installation"](#).
YES (Past error)>>Error was detected in the chassis control module branch line.
NG >> Repair the power supply and the ground circuit.

LAN

4WD BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337756

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the AWD control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AWD control unit.
2. Check the resistance between the AWD control unit harness connector terminals.

AWD control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B75	8	16	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the AWD control unit branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AWD control unit. Refer to [DLN-57, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the AWD control unit. Refer to [DLN-67, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the AWD control unit branch line.

NG >> Repair the power supply and the ground circuit.

PWBD BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

PWBD BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337757

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the automatic back door control module for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of automatic back door control module.
2. Check the resistance between the automatic back door control module harness connector terminals.

Automatic back door control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B55	24	12	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.
NO >> Repair the automatic back door control module branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the automatic back door control module. Refer to [DLK-141, "AUTOMATIC BACK DOOR CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the automatic back door control module. Refer to [DLK-276, "Removal and Installation"](#).
YES (Past error)>>Error was detected in the automatic back door control module branch line.
NG >> Repair the power supply and the ground circuit.

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

LAN

BCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337758

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B16	60	80	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.
NO >> Repair the BCM branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to the following.

- With intelligent key system: [BCS-68, "Diagnosis Procedure"](#).
- Without intelligent key system: [BCS-128, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to the following.
- With intelligent key system: [BCS-75, "Removal and Installation"](#).
 - Without intelligent key system: [BCS-135, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the BCM branch line.

NO >> Repair the power supply and the ground circuit.

AV BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337759

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
 - AV control unit
 - BCM

Is the inspection result normal?

- YES >> GO TO 2.
 NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of BCM.
2. Check the continuity between the BCM harness connector terminals.

BCM harness connector			Continuity
Connector No.	Terminal No.		
M18	6	8	Existed
	5	9	Existed

Is the inspection result normal?

- YES >> GO TO 3.
 NO >> Check the harness and repair the root cause (CAN communication circuit 2 side). Refer to [LAN-265, "Diagnosis Procedure"](#).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AV control unit.
2. Check the resistance between the AV control unit harness connector terminals.
 - Models with BOSE audio system

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M108	8	17	Approx. 54 – 66

- Models without BOSE audio system

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M101	8	17	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 4.
 NO >> Repair the AV control unit branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AV control unit. Refer to the following.

- Navigation with BOSE: [AV-337, "AV CONTROL UNIT : Diagnosis Procedure"](#)
- Navigation without BOSE: [AV-180, "AV CONTROL UNIT : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the AV control unit. Refer to following.
- Navigation with BOSE: [AV-376, "Removal and Installation"](#)
 - Navigation without BOSE: [AV-209, "Removal and Installation"](#)
- YES (Past error)>>Error was detected in the AV control unit branch line.
 NO >> Repair the power supply and the ground circuit.

AVM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337760

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
 - Around view monitor control unit
 - BCM

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of BCM.
2. Check the continuity between the BCM harness connector terminals.

BCM harness connector			Continuity
Connector No.	Terminal No.		
M18	6	8	Existed
	5	9	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause (CAN communication circuit 2 side). Refer to [LAN-265, "Diagnosis Procedure"](#).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of around view monitor control unit.
2. Check the resistance between the around view monitor control unit harness connector terminals.
 - With lane departure prevention system

Around view monitor control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M113	27	28	Approx. 54 – 66

- Without lane departure prevention system

Around view monitor control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M103	12	10	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.

NO >> Repair the around view monitor control unit branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the around view monitor control unit. Refer to the following.

- Navigation with BOSE: [AV-338, "AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure"](#)
- Navigation without BOSE: [AV-180, "AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the around view monitor control unit. Refer to the following.

- Navigation with BOSE: [AV-387, "Removal and Installation"](#)
- Navigation without BOSE: [AV-217, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the around view monitor control unit branch line.

NO >> Repair the power supply and the ground circuit.

HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

HVAC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337761

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
 - A/C auto amp. (With auto A/C)
 - Harness connector M127 (With auto A/C)
 - Harness connector M125 (With auto A/C)
 - Front air control (Without auto A/C)
 - BCM

Is the inspection result normal?

- YES >> GO TO 2. (With auto A/C)
YES >> GO TO 3. (Without auto A/C)
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of BCM.
2. Check the continuity between the BCM harness connector terminals.

BCM harness connector			Continuity
Connector No.	Terminal No.		
M18	6	8	Existed
	5	9	Existed

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side). Refer to [LAN-265. "Diagnosis Procedure"](#).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of BCM (With auto A/C).
2. Disconnect the connector of A/C auto amp. (With auto A/C) or front air control (Without auto A/C).
3. Check the resistance between the A/C auto amp. (With auto A/C) or front air control (Without auto A/C) harness connector terminals.
 - With auto A/C

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M54	11	31	Approx. 54 – 66

- Without auto A/C

Front air control harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M50	7	23	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 4.
NO >> Repair the A/C auto amp. (With auto A/C) or front air control (Without auto A/C) branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. (With auto A/C) or front air control (Without auto A/C). Refer to the following.

- Automatic air conditioning: [HAC-56. "Diagnosis Procedure"](#).

HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

- Manual air conditioning: [HAC-166. "FRONT A/C CONTROL : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the A/C auto amp. (With auto A/C) or front air control (Without auto A/C).
Refer to the following.

- Automatic air conditioning: [HAC-103. "Removal and Installation"](#).
- Manual air conditioning: [HAC-181. "Removal and Installation"](#).

YES (Past error)>>Error was detected in the A/C auto amp. (With auto A/C) or front air control (Without auto A/C) branch line.

NO >> Repair the power supply and the ground circuit.

CAN COMMUNICATION CIRCUIT 1

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

CAN COMMUNICATION CIRCUIT 1

Diagnosis Procedure

INFOID:000000010337763

1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 1.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M22	6	14	Not existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair or replace (if shield line or fuse block (J/B) is short) the root cause.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	6		Not existed
	14		Not existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Check the harness and repair or replace (if shield line or fuse block (J/B) is short) the root cause.

4.CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the IPDM E/R terminals.

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		
60	80	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the BCM.

5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced.

A
B
C
D
E
F
G
H
I
J
K
L
LAN
N
O
P

CAN COMMUNICATION CIRCUIT 1

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 1.

NOTE:

ECM and BCM have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced.

NOTE:

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

CAN COMMUNICATION CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

CAN COMMUNICATION CIRCUIT 2

Diagnosis Procedure

INFOID:000000010337764

1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of BCM.
2. Check the continuity between the BCM harness connector terminals.

BCM harness connector			Continuity
Connector No.	Terminal No.		
M18	6	8	Existed
	5	9	Existed

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Check the harness and repair or replace the root cause.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

1. Disconnect all the unit connectors on CAN communication circuit 2.
2. Check the continuity between the BCM harness connector terminals.

BCM harness connector			Continuity
Connector No.	Terminal No.		
M18	6	5	Not existed

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Check the harness and repair or replace the root cause.

4.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the BCM and the ground.

BCM harness connector		Ground	Continuity
Connector No.	Terminal No.		
M18	6		Not existed
	5		Not existed

Is the inspection result normal?

- YES >> GO TO 5.
NO >> Check the harness and repair or replace (if shield line is short) the root cause.

5.CHECK BCM TERMINATION CIRCUIT

1. Remove the BCM.
2. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		

CAN COMMUNICATION CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

6	5	Approx. 108 – 132
8	9	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 6.

NO >> Replace the chassis control module.

6.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 7.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

7.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 2.

NOTE:

BCM has two termination circuits. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

NOTE:

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

MAIN LINE BETWEEN IPDM-E AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 8)]

DTC/CIRCUIT DIAGNOSIS

MAIN LINE BETWEEN IPDM-E AND DLC CIRCUIT

Diagnosis Procedure

INFOID:0000000010337777

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
 - Harness connector E152
 - Harness connector M31

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
 - IPDM E/R
 - Harness connectors E152 and M31
2. Check the continuity between the IPDM E/R harness connector and the harness connector.

IPDM E/R harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E120	24	E152	61J	Existed
	22		62J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the IPDM E/R and the harness connector E152.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and the data link connector.

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M31	61J	M22	6	Existed
	62J		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the IPDM E/R and the data link connector.

NO >> Repair the main line between the harness connector M31 and the data link connector.

MAIN LINE BETWEEN DLC AND CCM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 8)]

MAIN LINE BETWEEN DLC AND CCM CIRCUIT

Diagnosis Procedure

INFOID:0000000010337778

1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
 - ECM
 - Chassis control module
4. Check the continuity between the data link connector and the chassis control module harness connector.

Data link connector		Chassis control module harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	6	M96	4	Existed
	14		3	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the chassis control module.

NO >> Repair the main line between the data link connector and the chassis control module.

MAIN LINE BETWEEN CCM AND PWBD CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 8)]

MAIN LINE BETWEEN CCM AND PWBD CIRCUIT

Diagnosis Procedure

INFOID:000000010337779

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
 - Harness connector M69
 - Harness connector B41

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
 - Chassis control module
 - Harness connectors M69 and B41
2. Check the continuity between the chassis control module harness connector and the harness connector.

Chassis control module harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M96	4	M69	25	Existed
	3		24	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the chassis control module and the harness connector M69.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of automatic back door control module.
2. Check the continuity between the harness connector and the automatic back door control module harness connector.

Harness connector		Automatic back door control module harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B41	25	B55	24	Existed
	24		12	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the chassis control module and the automatic back door control module.

NO >> Repair the main line between the harness connector B41 and the automatic back door control module.

ECM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 8)]

ECM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337780

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ECM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	100	99	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to [EC-165, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to [EC-499, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the ECM branch line.

NO >> Repair the power supply and the ground circuit.

ABS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 8)]

ABS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337781

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E125	26	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to [BRC-114, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-136, "Removal and Installation"](#).
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.
NO >> Repair the power supply and the ground circuit.

LAN

IPDM-E BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 8)]

IPDM-E BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337782

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E120	24	22	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-34. "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-35. "Removal and Installation"](#).

YES (Past error)>>Error was detected in the IPDM E/R branch line.

NO >> Repair the power supply and the ground circuit.

TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 8)]

TCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337783

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
 - TCM
 - IPDM E/R

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
 - TCM
 - IPDM E/R
2. Check the continuity between the TCM harness connector and the IPDM E/R harness connector.

TCM harness connector		IPDM E/R harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
F75	33	F42	87	Existed
	23		88	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the branch line between the TCM and IPDM E/R.

3.CHECK IPDM E/R (OPEN CIRCUIT)

Check the continuity between the IPDM E/R terminals.

IPDM E/R terminals		Continuity
Terminal No.	Terminal No.	
87	39	Existed
88	40	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace the IPDM E/R.

4.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E120	39	40	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Repair the IPDM E/R branch line.

5.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to [TM-176. "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the TCM. Refer to [TM-202. "Removal and Installation"](#).

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

LAN

TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 8)]

YES (Past error)>>Error was detected in the TCM branch line.

NO >> Repair the power supply and the ground circuit.

DLC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 8)]

DLC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337784

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M22	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

LAN

EPS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337785

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the EPS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of EPS control unit.
2. Check the resistance between the EPS control unit harness connector terminals.

EPS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M49	2	1	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-20, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to [STC-36, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.

M&A BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 8)]

M&A BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337786

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M77	41	42	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.
NO >> Repair the combination meter branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-59, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to [MWI-82, "Removal and Installation"](#).
YES (Past error)>>Error was detected in the combination meter branch line.
NO >> Repair the power supply and the ground circuit.

LAN

STRG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 8)]

STRG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337787

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M56	5	2	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the steering angle sensor branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-57, "Wiring Diagram"](#).

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-139, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the steering angle sensor branch line.

NO >> Repair the power supply and the ground circuit.

A-BAG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 8)]

A-BAG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337788

WARNING:

- Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)
- Never use unspecified tester or other measuring device.

1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Replace the main harness.

2. CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to [SRC-39, "Work Flow"](#).

Is the inspection result normal?

- YES >> Replace the main harness.
NO >> Replace parts whose air bag system has a malfunction.

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

LAN

CCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 8)]

CCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337789

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the chassis control module connector for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of chassis control module.
2. Check the resistance between the chassis control module harness connector terminals.

Chassis control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M96	4	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the chassis control module branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the chassis control module. Refer to [DAS-272, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the chassis control module. Refer to [DAS-277, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the chassis control module branch line.

NG >> Repair the power supply and the ground circuit.

4WD BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 8)]

4WD BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337790

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the AWD control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AWD control unit.
2. Check the resistance between the AWD control unit harness connector terminals.

AWD control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B75	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.
NO >> Repair the AWD control unit branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AWD control unit. Refer to [DLN-57, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the AWD control unit. Refer to [DLN-67, "Removal and Installation"](#).
YES (Past error)>>Error was detected in the AWD control unit branch line.
NG >> Repair the power supply and the ground circuit.

LAN

PWBD BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337791

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the automatic back door control module for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of automatic back door control module.
2. Check the resistance between the automatic back door control module harness connector terminals.

Automatic back door control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B55	24	12	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the automatic back door control module branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the automatic back door control module. Refer to [DLK-141, "AUTOMATIC BACK DOOR CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the automatic back door control module. Refer to [DLK-276, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the automatic back door control module branch line.

NG >> Repair the power supply and the ground circuit.

BCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 8)]

BCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337792

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B16	60	80	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.
NO >> Repair the BCM branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to the following.

- With intelligent key system: [BCS-68, "Diagnosis Procedure"](#).
- Without intelligent key system: [BCS-128, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to the following.
- With intelligent key system: [BCS-75, "Removal and Installation"](#).
 - Without intelligent key system: [BCS-135, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the BCM branch line.

NO >> Repair the power supply and the ground circuit.

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

LAN

AV BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337793

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
 - AV control unit
 - BCM

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of BCM.
2. Check the continuity between the BCM harness connector terminals.

BCM harness connector			Continuity
Connector No.	Terminal No.		
M18	6	8	Existed
	5	9	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause (CAN communication circuit 2 side). Refer to [LAN-265, "Diagnosis Procedure"](#).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AV control unit.
2. Check the resistance between the AV control unit harness connector terminals.
 - Models with BOSE audio system

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M108	8	17	Approx. 54 – 66

- Models without BOSE audio system

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M101	8	17	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.

NO >> Repair the AV control unit branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AV control unit. Refer to the following.

- Navigation with BOSE: [AV-337, "AV CONTROL UNIT : Diagnosis Procedure"](#)
- Navigation without BOSE: [AV-180, "AV CONTROL UNIT : Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the AV control unit. Refer to following.

- Navigation with BOSE: [AV-376, "Removal and Installation"](#)
- Navigation without BOSE: [AV-209, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the AV control unit branch line.

NO >> Repair the power supply and the ground circuit.

AVM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337794

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
 - Around view monitor control unit
 - BCM

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of BCM.
2. Check the continuity between the BCM harness connector terminals.

BCM harness connector			Continuity
Connector No.	Terminal No.		
M18	6	8	Existed
	5	9	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause (CAN communication circuit 2 side). Refer to [LAN-265, "Diagnosis Procedure"](#).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of around view monitor control unit.
2. Check the resistance between the around view monitor control unit harness connector terminals.
 - With lane departure prevention system

Around view monitor control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M113	27	28	Approx. 54 – 66

- Without lane departure prevention system

Around view monitor control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M103	12	10	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.

NO >> Repair the around view monitor control unit branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the around view monitor control unit. Refer to the following.

- Navigation with BOSE: [AV-338, "AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure"](#)
- Navigation without BOSE: [AV-180, "AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the around view monitor control unit. Refer to the following.

- Navigation with BOSE: [AV-387, "Removal and Installation"](#)
- Navigation without BOSE: [AV-217, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the around view monitor control unit branch line.

NO >> Repair the power supply and the ground circuit.

HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 8)]

HVAC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337795

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
 - A/C auto amp. (With auto A/C)
 - Harness connector M127 (With auto A/C)
 - Harness connector M125 (With auto A/C)
 - Front air control (Without auto A/C)
 - BCM

Is the inspection result normal?

YES >> GO TO 2. (With auto A/C)

YES >> GO TO 3. (Without auto A/C)

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of BCM.
2. Check the continuity between the BCM harness connector terminals.

BCM harness connector			Continuity
Connector No.	Terminal No.		
M18	6	8	Existed
	5	9	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause (CAN communication circuit 2 side). Refer to [LAN-265. "Diagnosis Procedure"](#).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of BCM (With auto A/C).
2. Disconnect the connector of A/C auto amp. (With auto A/C) or front air control (Without auto A/C).
3. Check the resistance between the A/C auto amp. (With auto A/C) or front air control (Without auto A/C) harness connector terminals.
 - With auto A/C

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M54	11	31	Approx. 54 – 66

- Without auto A/C

Front air control harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M50	7	23	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.

NO >> Repair the A/C auto amp. (With auto A/C) or front air control (Without auto A/C) branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. (With auto A/C) or front air control (Without auto A/C). Refer to the following.

- Automatic air conditioning: [HAC-56. "Diagnosis Procedure"](#).

HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 8)]

- Manual air conditioning: [HAC-166. "FRONT A/C CONTROL : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the A/C auto amp. (With auto A/C) or front air control (Without auto A/C).
Refer to the following.

- Automatic air conditioning: [HAC-103. "Removal and Installation"](#).
- Manual air conditioning: [HAC-181. "Removal and Installation"](#).

YES (Past error)>>Error was detected in the A/C auto amp. (With auto A/C) or front air control (Without auto A/C) branch line.

NO >> Repair the power supply and the ground circuit.

A

B

C

D

E

F

G

H

I

J

K

L

LAN

N

O

P

ICC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337796

1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
 - Distance sensor
 - Harness connector E152
 - Harness connector M31
 - BCM

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of BCM.
2. Check the continuity between the BCM harness connector terminals.

BCM harness connector			Continuity
Connector No.	Terminal No.		
M18	6	8	Existed
	5	9	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause (CAN communication circuit 2 side). Refer to [LAN-265, "Diagnosis Procedure"](#).

3. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of BCM.
2. Disconnect the connector of distance sensor.
3. Check the resistance between the distance sensor harness connector terminals.

Distance sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E21	7	6	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.

NO >> Repair the distance sensor branch line.

4. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the distance sensor. Refer to [DAS-144, "DISTANCE SENSOR: Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the distance sensor. Refer to [DAS-160, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the distance sensor branch line.

NO >> Repair the power supply and the ground circuit.

CAN COMMUNICATION CIRCUIT 1

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 8)]

CAN COMMUNICATION CIRCUIT 1

Diagnosis Procedure

INFOID:000000010337797

1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 1.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M22	6	14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line or fuse block (J/B) is short) the root cause.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Check the harness and repair or replace (if shield line or fuse block (J/B) is short) the root cause.

4.CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the IPDM E/R terminals.

ECM		Resistance (Ω)
Terminal No.		
100	99	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		
60	80	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 5.
NO >> Replace the ECM and/or the BCM.

5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced.

A
B
C
D
E
F
G
H
I
J
K
L
LAN
N
O
P

CAN COMMUNICATION CIRCUIT 1

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 8)]

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 1.

NOTE:

ECM and BCM have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced.

NOTE:

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

CAN COMMUNICATION CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 8)]

CAN COMMUNICATION CIRCUIT 2

Diagnosis Procedure

INFOID:000000010337798

1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of BCM.
2. Check the continuity between the BCM harness connector terminals.

BCM harness connector			Continuity
Connector No.	Terminal No.		
M18	6	8	Existed
	5	9	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair or replace the root cause.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

1. Disconnect all the unit connectors on CAN communication circuit 2.
2. Check the continuity between the BCM harness connector terminals.

BCM harness connector			Continuity
Connector No.	Terminal No.		
M18	6	5	Not existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Check the harness and repair or replace the root cause.

4.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the BCM and the ground.

BCM harness connector		Ground	Continuity
Connector No.	Terminal No.		
M18	6		Not existed
	5		Not existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Check the harness and repair or replace (if shield line is short) the root cause.

5.CHECK BCM TERMINATION CIRCUIT

1. Remove the BCM.
2. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		

CAN COMMUNICATION CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 8)]

6	5	Approx. 108 – 132
8	9	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 6.

NO >> Replace the chassis control module.

6.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 7.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

7.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 2.

NOTE:

BCM has two termination circuits. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

NOTE:

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

SECTION MA

MAINTENANCE

CONTENTS

PRECAUTION	3	SPARK PLUG : Exploded View	16
PRECAUTIONS	3	SPARK PLUG : Removal and Installation	16
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	3	ENGINE OIL	17
PREPARATION	4	ENGINE OIL : Inspection	17
PREPARATION	4	ENGINE OIL : Draining	19
Special Service Tool	4	ENGINE OIL : Refilling	19
Commercial Service Tool	4	OIL FILTER	19
PERIODIC MAINTENANCE	5	OIL FILTER : Removal and Installation	19
GENERAL MAINTENANCE	5	OIL FILTER : Inspection	20
Explanation of General Maintenance	5	ENGINE COOLANT	21
PERIODIC MAINTENANCE	7	ENGINE COOLANT : Inspection	21
Introduction of Periodic Maintenance	7	ENGINE COOLANT : Draining	21
RECOMMENDED FLUIDS AND LUBRICANTS	11	ENGINE COOLANT : Refilling	22
Fluids and Lubricants	11	ENGINE COOLANT : Flushing	24
Engine Oil Recommendation	11	RADIATOR CAP	24
Anti-Freeze Coolant Mixture Ratio	12	RADIATOR CAP : Inspection	24
ENGINE MAINTENANCE	13	RADIATOR	24
DRIVE BELTS	13	RADIATOR : Inspection	24
DRIVE BELTS : Exploded View	13	FUEL LINES	25
DRIVE BELTS : Checking	13	FUEL LINES : Inspection	25
DRIVE BELTS : Tension Adjustment	13	EVAP VAPOR LINES	25
DRIVE BELTS : Removal and Installation	13	EVAP VAPOR LINES : Inspection	25
DRIVE BELTS : Removal and Installation of Drive Belt Auto-tensioner	14	CHASSIS MAINTENANCE	27
AIR CLEANER FILTER	15	EXHAUST SYSTEM	27
AIR CLEANER FILTER : Exploded View	15	EXHAUST SYSTEM : Inspection	27
AIR CLEANER FILTER : Removal and Installation	15	CVT FLUID	27
SPARK PLUG	16	CVT FLUID : Inspection	27
		CVT FLUID : Replacement	27
		CVT FLUID : Adjustment	29
		TRANSFER OIL	30
		TRANSFER OIL : Inspection	30
		TRANSFER OIL : Draining	30
		TRANSFER OIL : Refilling	31

REAR PROPELLER SHAFT	31	REAR BRAKE	37
REAR PROPELLER SHAFT : Inspection	31	REAR BRAKE : Inspection	37
REAR DIFFERENTIAL GEAR OIL	31	REAR BRAKE : Inspection	37
REAR DIFFERENTIAL GEAR OIL : Inspection	31	STEERING GEAR AND LINKAGE	38
REAR DIFFERENTIAL GEAR OIL : Draining	32	STEERING GEAR AND LINKAGE : Inspection	38
REAR DIFFERENTIAL GEAR OIL : Refilling	32	AXLE AND SUSPENSION PARTS	39
WHEELS	32	AXLE AND SUSPENSION PARTS : Inspection	39
WHEELS : Inspection	32	DRIVE SHAFT	39
WHEELS : Adjustment	33	DRIVE SHAFT : Inspection	39
BRAKE LINES AND CABLES	35	LOCKS, HINGES AND HOOD LATCH	39
BRAKE LINES AND CABLES : Inspection	35	LOCKS, HINGES AND HOOD LATCH : Lubricat-	
BRAKE FLUID	35	ing	39
BRAKE FLUID : Inspection	35	SEAT BELT, BUCKLES, RETRACTORS, AN-	
BRAKE FLUID : Drain and Refill	35	CHORS AND ADJUSTERS	40
FRONT BRAKE	36	SEAT BELT, BUCKLES, RETRACTORS, AN-	
FRONT BRAKE : Inspection	36	CHORS AND ADJUSTERS : Inspection	40
FRONT BRAKE : Inspection	36		

PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010255983

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O

MA

PREPARATION

< PREPARATION >

PREPARATION

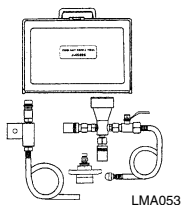
PREPARATION

Special Service Tool

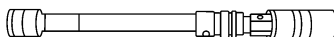
INFOID:0000000010255954

The actual shapes of the tools may differ from those illustrated here.

Tool number (TechMate No.) Tool name	Description
KV991J0070 (J-45695-A) Coolant refill tool	Refilling engine cooling system
— (J-48891) 14 mm spark plug socket	Removing and installing spark plug



LMA053



AWBIA1785ZZ

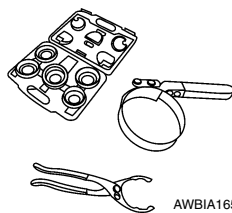
Commercial Service Tool

INFOID:0000000010255955

Tool name	Description
Power tool	Loosening nuts, screws and bolts
— (223-50000) Oil filter wrench assortment	Removing oil filter



PIIB1407E



AWBIA1656ZZ

GENERAL MAINTENANCE

< PERIODIC MAINTENANCE >

PERIODIC MAINTENANCE

GENERAL MAINTENANCE

Explanation of General Maintenance

INFOID:000000009794690

General maintenance includes those items which should be checked during the normal day-to-day operation of the vehicle. They are essential if the vehicle is to continue operating properly. The owners can perform the checks and inspections themselves or have their **NISSAN** dealers do them.

OUTSIDE THE VEHICLE

The maintenance items listed here should be performed from time to time, unless otherwise specified.

Item		Reference page
Tires	Check the pressure with a gauge often and always prior to long distance trips. Adjust the pressure in all tires, including the spare, to the pressure specified. Check carefully for damage, cuts or excessive wear.	WT-65
Wheel nuts	When checking the tires, make sure no nuts are missing, and check for any loose nuts. Tighten if necessary.	—
Tire rotation	Tires should be rotated every 5,000 miles (8,000 km). If the vehicle is equipped with different sized tires in the front and rear, tires cannot be rotated.	WT-57
Tire Pressure Monitoring System (TPMS) transmitter components	Replace the TPMS transmitter grommet seal, valve core and cap when the tires are replaced due to wear or age.	WT-61
Wheel alignment and balance	If the vehicle should pull to either side while driving on a straight and level road, or if you detect uneven or abnormal tire wear, there may be a need for wheel alignment. If the steering wheel or seat vibrates at normal highway speeds, wheel balancing may be needed. For additional information regarding tires, refer to "Important Tire Safety Information" (US) or "Tire Safety Information" (Canada) in the NISSAN Warranty Information Booklet.	FSU-7 RSU-6 WT-57
Windshield	Clean the windshield on a regular basis. Check the windshield at least every six months for cracks or other damage. Repair as necessary.	—
Windshield wiper blades	Check for cracks or wear if they do not wipe properly.	—
Doors and engine hood	Check that all doors and the engine hood operate smoothly as well as the back door. Also make sure that all latches lock securely. Lubricate if necessary. Make sure that the secondary latch keeps the hood from opening when the primary latch is released. When driving in areas using road salt or other corrosive materials, check lubrication frequently.	MA-39
Lamps	Make sure that the headlamps, stop lamps, tail lamps, turn signal lamps, and other lamps are all operating properly and installed securely. Also check headlamp aim. Clean the headlamps on a regular basis.	—

INSIDE THE VEHICLE

The maintenance items listed here should be checked on a regular basis, such as when performing periodic maintenance, cleaning the vehicle, etc.

Item		Reference page
Warning lamps and chimes	Make sure that all warning lamps and chimes are operating properly.	—
Windshield wiper and washer	Check that the wipers and washer operate properly and that the wipers do not streak.	—
Windshield defroster	Check that the air comes out of the defroster outlets properly and in sufficient quantity when operating the heater or air conditioner.	—
Steering wheel	Check that it has the specified play. Check for changes in the steering condition, such as excessive play, hard steering or strange noises. Free play: Less than 35 mm (1.38 in)	—

GENERAL MAINTENANCE

< PERIODIC MAINTENANCE >

Item		Reference page
Seats	Check seat position controls such as seat adjusters, seatback recliner, etc. to make sure they operate smoothly and that all latches lock securely in every position. Check that the head restraints move up and down smoothly and that the locks (if equipped) hold securely in all latched positions. Check that the latches lock securely for folding-down rear seatbacks.	—
Seat belts	Check that all parts of the seat belt system (e.g. buckles, anchors, adjusters and retractors) operate properly and smoothly and are installed securely. Check the belt webbing for cuts, fraying, wear or damage.	MA-40
Accelerator pedal	Check the pedal for smooth operation and make sure the pedal does not catch or require uneven effort. Keep the floor mats away from the pedal.	—
Brakes	Check that the brake does not pull the vehicle to one side when applied.	—
Brake pedal and booster	Check the pedal for smooth operation and make sure it has the proper distance under it when depressed fully. Check the brake booster function. Be sure to keep the floor mats away from the pedal.	BR-15 BR-10
Parking brake	Check that the lever or the pedal has the proper travel and make sure that the vehicle is held securely on a fairly steep hill when only the parking brake is applied.	PB-4
CVT P (Park) position mechanism	On a fairly steep hill check that the vehicle is held securely with the selector lever in the P (Park) position without applying any brakes.	—

UNDER THE HOOD AND VEHICLE

The maintenance items listed here should be checked periodically (e.g. each time you check the engine oil or refuel).

Item		Reference page
Windshield washer fluid	Check that there is adequate fluid in the tank.	—
Engine coolant level	Check the coolant level when the engine is cold.	CO-8
Radiator and hoses	Check the front of the radiator and clean off any dirt, insects, leaves, etc., that may have accumulated. Make sure the hoses have no cracks, deformation, deterioration or loose connections.	CO-12
Brake fluid level	Make sure that the brake fluid level is between the "MAX" and "MIN" lines on the reservoir.	BR-8
Battery	Check the fluid level in each cell. It should be between the "MAX" and "MIN" lines. Vehicles operated in high temperatures or under severe conditions require frequent checks of the battery fluid level.	PG-69
Engine drive belts	Make sure that no belt is frayed, worn, cracked or oily.	EM-13
Engine oil level	Check the level on the oil level gauge after parking the vehicle on a level spot and turning off the engine.	LU-7
Exhaust system	Make sure there are no loose supports, cracks or holes. If the sound of the exhaust seems unusual or there is a smell of exhaust fumes, immediately locate the trouble and correct it.	EX-4
Underbody	The underbody is frequently exposed to corrosive substances such as those used on icy roads or to control dust. It is very important to remove these substances, otherwise rust will form on the floor pan, frame, fuel lines and around the exhaust system. At the end of winter, the underbody should be thoroughly flushed with plain water, being careful to clean those areas where mud and dirt can easily accumulate.	—
Fluid leaks	Check under the vehicle for fuel, oil, water or other fluid leaks after the vehicle has been parked for a while. Water dripping from the air conditioner after use is normal. If you should notice any leaks or gasoline fumes are evident, check for the cause and correct it immediately.	—

PERIODIC MAINTENANCE

< PERIODIC MAINTENANCE >

PERIODIC MAINTENANCE

Introduction of Periodic Maintenance

INFOID:0000000010255911

The following tables show the normal maintenance schedule. Depending upon weather and atmospheric conditions, varying road surfaces, individual driving habits and vehicle usage, additional or more frequent maintenance may be required.

Periodic maintenance beyond the last period shown on the tables requires similar maintenance.

ENGINE AND EMISSION CONTROL MAINTENANCE

Abbreviations: R = Replace, I = Inspect and correct or replace as necessary

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								
Perform either at number of miles, kilometers or months, whichever comes first.	Miles x 1,000 (km x 1,000)	5 (8)	10 (16)	15 (24)	20 (32)	25 (40)	30 (48)	35 (56)	40 (64)	45 (72)
	Months	6	12	18	24	30	36	42	48	48
Drive belts	NOTE (1)								I*	
Air cleaner filter	NOTE (2)						R			
EVAP vapor lines					I*				I*	
Fuel lines					I*				I*	
Fuel filter	NOTE (3)									
Engine coolant*	NOTE (4)(5)									
Engine oil		R	R	R	R	R	R	R	R	R
Engine oil filter (Use genuine NISSAN engine oil filter or equivalent)		R	R	R	R	R	R	R	R	R
Spark plugs (Iridium-tipped type)	NOTE (6)	Replace every 105,000 miles (168,000 km)								
Intake & exhaust valve clearance	NOTE (7)									

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								
Perform either at number of miles, kilometers or months, whichever comes first.	Miles x 1,000 (km x 1,000)	50 (80)	55 (88)	60 (96)	65 (104)	70 (112)	75 (120)	80 (128)	85 (136)	90 (144)
	Months	60	66	72	78	84	90	96	102	108
Drive belts	NOTE (1)	I*		I*		I*		I*		I*
Air cleaner filter	NOTE (2)			R						R
EVAP vapor lines				I*				I*		
Fuel lines				I*				I*		
Fuel filter	NOTE (3)									
Engine coolant*	NOTE (4)(5)									
Engine oil		R	R	R	R	R	R	R	R	R
Engine oil filter (Use genuine NISSAN engine oil filter or equivalent)		R	R	R	R	R	R	R	R	R
Spark plugs (Iridium-tipped type)	NOTE (6)	Replace every 105,000 miles (168,000 km)								
Intake & exhaust valve clearance	NOTE (7)									

MAINTENANCE OPERATION		MAINTENANCE INTERVAL						Reference Page
Perform either at number of miles, kilometers or months, whichever comes first.	Miles x 1,000	95	100	105	110	115	120	
	(km x 1,000)	(152)	(160)	(168)	(176)	(184)	(192)	
	Months	114	120	126	132	138	144	
Drive belts	NOTE (1)		I*		I*		I*	EM-13
Air cleaner filter	NOTE (2)						R	EM-16
EVAP vapor lines			I*				I*	EC-495
Fuel lines			I*				I*	FL-5
Fuel filter	NOTE (3)							—

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O

PERIODIC MAINTENANCE

< PERIODIC MAINTENANCE >

MAINTENANCE OPERATION		MAINTENANCE INTERVAL						Reference Page
Perform either at number of miles, kilometers or months, whichever comes first.	Miles x 1,000 (km x 1,000) Months	95 (152) 114	100 (160) 120	105 (168) 126	110 (176) 132	115 (184) 138	120 (192) 144	
Engine coolant*	NOTE (4)(5)							CO-8
Engine oil		R	R	R	R	R	R	LU-7
Engine oil filter (Use genuine NISSAN engine oil filter or equivalent)		R	R	R	R	R	R	LU-11
Spark plugs (Iridium-tipped type)	NOTE (6)	Replace every 105,000 miles (168,000 km)						EM-17
Intake & exhaust valve clearance	NOTE (7)							

NOTE:

- (1) After 40,000 miles (64,000 km) or 48 months, inspect every 10,000 miles (16,000 km) or 12 months. Replace the drive belts if found damaged.
- (2) If operating mainly in dusty conditions, more frequent maintenance may be required.
- (3) Maintenance-free item. For service procedures, refer to FL section.
- (4) First replacement interval is 105,000 miles (168,000 km) or 84 months. After first replacement, replace every 75,000 miles (120,000 km) or 60 months.
- (5) Use only Genuine NISSAN Long Life Antifreeze / Coolant (blue) or equivalent with proper mixture ratio of 50% antifreeze and 50% demineralized or distilled water. Mixing any other type of coolant or the use of non-distilled water will reduce the life expectancy of the factory-fill coolant.
- (6) Replace spark plug when the spark plug gap exceeds 1.4 mm (0.055 in), even if within specified periodic replacement mileage.
- (7) Periodic maintenance is not required. However, if valve noise increases, inspect valve clearance.

: Maintenance items and intervals with “” are recommended by NISSAN for reliable vehicle operation. The owner need not perform such maintenance in order to maintain the emission warranty or manufacturer recall liability. Other maintenance items and intervals are required.

CHASSIS AND BODY MAINTENANCE

Abbreviations: R= Replace. I = Inspect. Correct or replace if necessary.

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								
Perform either at number of miles, kilometers or months, whichever comes first.	Miles x 1,000 (km x 1,000) Months	5 (8) 6	10 (16) 12	15 (24) 18	20 (32) 24	25 (40) 30	30 (48) 36	35 (56) 42	40 (64) 48	45 (72) 54
Brake line & cables			I		I		I		I	
Brake pads, rotors★			I		I		I		I	
Brake fluid ★					R				R	
CVT fluid	NOTE (1)		I		I		I		I	
Transfer oil & differential gear oil	NOTE (2)		I		I		I		I	
Steering gear and linkage, axle and suspension parts ★					I				I	
Tire rotation	NOTE (3)									
Propeller shaft (AWD) & drive shaft boots★			I		I		I		I	
Exhaust system★					I				I	
In-cabin microfilter				R			R			R

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								
Perform either at number of miles, kilometers or months, whichever comes first.	Miles x 1,000 (km x 1,000) Months	50 (80) 60	55 (88) 66	60 (96) 72	65 (104) 78	70 (112) 84	75 (120) 90	80 (128) 96	85 (136) 102	90 (144) 108
Brake line & cables		I		I		I		I		I
Brake pads, rotors ★		I		I		I		I		I
Brake fluid ★				R				R		

PERIODIC MAINTENANCE

< PERIODIC MAINTENANCE >

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								
Perform either at number of miles, kilometers or months, whichever comes first.	Miles x 1,000 (km x 1,000) Months	50 (80) 60	55 (88) 66	60 (96) 72	65 (104) 78	70 (112) 84	75 (120) 90	80 (128) 96	85 (136) 102	90 (144) 108
CVT fluid	NOTE (1)	I		I		I		I		I
Transfer oil & differential gear oil	NOTE (2)	I		I		I		I		I
Steering gear and linkage, axle and suspension parts ★				I				I		
Tire rotation	NOTE (3)									
Propeller shaft (AWD) & drive shaft boots★		I		I		I		I		I
Exhaust system★				I				I		
In-cabin microfilter				R			R			R

MAINTENANCE OPERATION		MAINTENANCE INTERVAL						Reference Page
Perform either at number of miles, kilometers or months, whichever comes first.	Miles x 1,000 (km x 1,000) Months	95 (152) 114	100 (160) 120	105 (168) 126	110 (176) 132	115 (184) 138	120 (192) 90	
Brake line & cables			I		I		I	MA-35
Brake pads, rotors & other brake components ★			I		I		I	MA-36 MA-37
Brake fluid ★			R				R	MA-35
CVT fluid	NOTE (1)		I		I		I	MA-27
Transfer oil & differential gear oil	NOTE (2)		I		I		I	MA-30
Steering gear and linkage, axle and suspension parts ★			I				I	MA-38 MA-39
Tire rotation	NOTE (3)							MA-32
Propeller shaft (AWD) & drive shaft boots★			I		I		I	DLN-98 MA-39
Exhaust system★			I				I	MA-27
In-cabin microfilter				R			R	VTL-5

NOTE:

- Maintenance items with “★” should be performed more frequently according to “Maintenance Under Severe Driving Conditions”.
- (1) Use only Genuine NISSAN CVT fluid. If towing a trailer, using a camper or a car-top carrier, or driving on rough or muddy roads, inspect CVT fluid deterioration at an NISSAN dealer every 60,000 miles (96,000 km), then change CVT fluid if necessary. And if the inspection is not performed, change (not just inspect) CVT fluid every 60,000 miles (96,000 km).
- (2) If tower a trailer, using a camper or car-top carrier, or driving on rough or muddy roads, change (not just inspect) oil at every 20,000 miles (32,000 km) or 24 months.
- (3) Refer to "Tire rotation" under "GENERAL MAINTENANCE" heading earlier in this section.

MAINTENANCE UNDER SEVERE DRIVING CONDITIONS

The maintenance intervals shown on the preceding pages are for normal operating conditions. If the vehicle is mainly operated under severe driving conditions as shown below, more frequent maintenance must be performed on the following items as shown in the table.

Severe driving conditions

- Repeated short trips of less than 5 miles (8 km).
- Repeated short trips of less than 10 miles (16 km) with outside temperatures remaining below freezing.
- Operating in hot weather in stop-and-go "rush hour" traffic.
- Extensive idling and/or low speed driving for long distances, such as police, taxi or door-to-door delivery use.
- Driving in dusty conditions.
- Driving on rough, muddy, or salt spread roads.
- Towing a trailer, using a camper or a car-top carrier

PERIODIC MAINTENANCE

< PERIODIC MAINTENANCE >

Maintenance operation: Check = Check and correct or replace as necessary.

Maintenance item	Maintenance operation	Maintenance interval	Reference page
Brake fluid	Replace	Every 10,000 miles (16,000 km) or 12 months	BR-16
Brake pads, rotors	Inspect	Every 5,000 miles (8,000 km) or 6 months	BR-11 BR-11 BR-13 BR-13
Steering gear & linkage, axle & suspension parts	Inspect	Every 5,000 miles (8,000 km) or 6 months	MA-38 MA-39
Propeller shaft (AWD) & drive shaft boots	Inspect	Every 5,000 miles (8,000 km) or 6 months	MA-31 MA-39
Exhaust system	Inspect	Every 5,000 miles (8,000 km) or 6 months	MA-27

RECOMMENDED FLUIDS AND LUBRICANTS

< PERIODIC MAINTENANCE >

RECOMMENDED FLUIDS AND LUBRICANTS

Fluids and Lubricants

INFOID:000000009794696

		Capacity (Approximate)			Recommended Fluids/Lubricants
		Liter	US measure	Imp measure	
Fuel		55 ℓ	14-1/2 gal	12-1/8 gal	Unleaded gasoline with an octane rating of at least 87 AKI (RON 91)
Engine oil Drain and refill	With oil filter change	4.6 ℓ	4-7/8 qt	4 qt	Genuine NISSAN engine oil* ¹ Engine oil with API Certification Mark* ¹ Viscosity SAE 0W-20* ²
	Without oil filter change	4.3 ℓ	4-1/2 qt	3-3/4 qt	
Dry engine (Overhaul)		5.3 ℓ	5-5/8 qt	4-5/8 qt	
Cooling system	With reservoir tank	7.3 ℓ	7-3/4 qt	6-3/8 qt	Pre-diluted Genuine NISSAN Long Life Anti-freeze/Coolant (blue) or equivalent
	Reservoir tank	0.75 ℓ	3/4 qt	5/8 qt	
CVT fluid		7.9 ℓ	8-3/8 qt	7 qt	Genuine NISSAN CVT Fluid NS-3 * ³
Differential gear oil		0.55 ℓ	1-1/8 pt	1 pt	Genuine NISSAN Differential Oil Hypoid Super GL-5 80W-90 or API GL-5, Viscosity SAE 80W-90 * ⁴
Transfer oil		0.31 ℓ	5/8 pt	1/2 qt	Genuine NISSAN Differential Oil Hypoid Super GL-5 80W-90 or API GL-5, Viscosity SAE 80W-90
Brake fluid		—	—	—	Genuine NISSAN Super Heavy Duty Brake Fluid* ⁵ or equivalent DOT 3 (US FMVSS No. 116)
Multi-purpose grease		—	—	—	NLGI No. 2 (Lithium soap base)
Windshield washer fluid		5.45 ℓ	5-3/4 qt	4-3/4 qt	Genuine NISSAN Windshield Washer Concentrate Cleaner & Antifreeze or equivalent
Air conditioning system refrigerant		0.50 kg	1.10 lb	1.10 lb	HFC-134a (R-134a) * ⁶
Air conditioning system oil		110 m ℓ	3.7 fl oz	3.9 fl oz	A/C System Oil Type S (DH-PS) * ⁶

*1: For additional information, see "Engine Oil Recommendation".

*2: As an alternative to this recommended oil, SAE 5W-30 conventional petroleum based oil may be used and meet all specifications and requirements necessary to maintain the New Vehicle Limited Warranty

*3: Use only Genuine NISSAN CVT Fluid NS-3. Using transmission fluid other than Genuine NISSAN CVT Fluid NS-3 will damage the CVT, which is not covered by the NISSAN new vehicle limited warranty.

*4: For hot climates, viscosity SAE 90 is suitable for ambient temperatures above 0°C (32°F).

*5: Available in mainland U.S.A. through a NISSAN dealer.

*6: For further information, see "Air conditioning specification label" found under the hood.

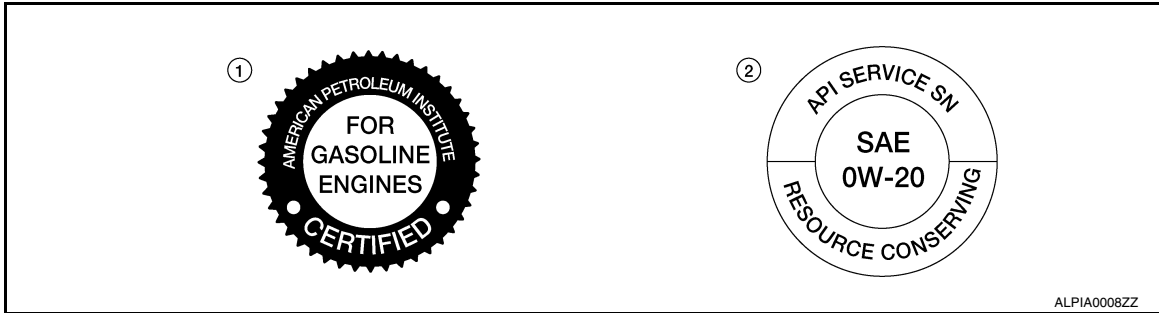
Engine Oil Recommendation

INFOID:000000009794697

NISSAN recommends the use of an resource conserving oil in order to improve fuel economy. Select only engine oils that meet the American Petroleum Institute (API) certification and International Lubricant Standardization and Approval Committee (ILSAC) certification and SAE viscosity standard. These oils have the API certification mark on the front of the container. Oils which do not have the specified quality label should not be used as they could cause engine damage.

RECOMMENDED FLUIDS AND LUBRICANTS

< PERIODIC MAINTENANCE >



1. API certification mark

2. API service symbol

Anti-Freeze Coolant Mixture Ratio

INFOID:000000009794698

The engine cooling system is filled at the factory with a pre-diluted mixture of 50% Genuine NISSAN Long Life Antifreeze/Coolant (blue) and 50% water to provide year-round anti-freeze and coolant protection. The anti-freeze solution contains rust and corrosion inhibitors. Additional engine cooling system additives are not necessary.

WARNING:

- Do not remove the radiator cap when the engine is hot. Serious burns could occur from high pressure engine coolant escaping from the radiator. Wrap a thick cloth around the cap. Slowly turn it a quarter turn to allow built-up pressure to escape. Carefully remove the cap by turning it all the way.
- The radiator is equipped with a pressure type radiator cap. To prevent engine damage, use only a genuine NISSAN radiator cap.

CAUTION:

- When adding or replacing coolant, be sure to use only Genuine NISSAN Long Life Antifreeze/Coolant (blue) or equivalent. Genuine NISSAN Long Life Antifreeze/Coolant (blue) is pre-diluted to provide antifreeze protection to -34°F (-37°C). If additional freeze protection is needed due to weather where you operate your vehicle, add Genuine NISSAN Long Life Antifreeze/Coolant (blue) concentrate following the directions on the container. If an equivalent coolant other than Genuine NISSAN Long Life Antifreeze/Coolant (blue) is used, follow the coolant manufacturer's instructions to maintain minimum antifreeze protection to -34°F (-37°C). The use of other types of coolant solutions other than Genuine NISSAN Long Life Antifreeze/Coolant (blue) or equivalent may damage the engine cooling system.
- Mixing any other type of coolant other than Genuine NISSAN Long Life Antifreeze/Coolant (blue), including Genuine NISSAN Long Life Antifreeze/Coolant (green), or the use of non-distilled water will reduce the life expectancy of the factory-fill coolant.

ENGINE MAINTENANCE

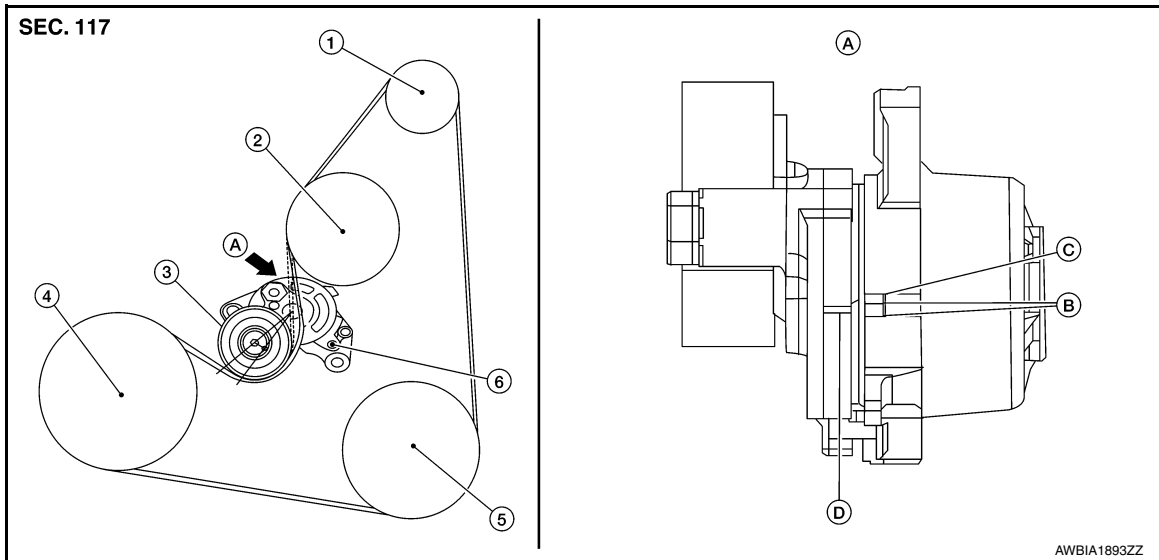
< PERIODIC MAINTENANCE >

ENGINE MAINTENANCE

DRIVE BELTS

DRIVE BELTS : Exploded View

INFOID:0000000010365338



- | | | |
|----------------------|--------------------------|------------------------------|
| 1. Generator pulley | 2. Water pump pulley | 3. Drive belt auto-tensioner |
| 4. Crankshaft pulley | 5. A/C compressor pulley | 6. Drive belt retainer boss |
| A. View A | B. New drive belt range | C. Possible use range |
| D. Indicator (notch) | | |

DRIVE BELTS : Checking

INFOID:0000000010365339

WARNING:

Inspect the drive belt only when the engine is stopped.

1. Visually check entire drive belt for wear, damage or cracks.
2. Check that the drive belt auto-tensioner indicator is within the possible use range.

NOTE:

- When new drive belt is installed, the drive belt auto-tensioner indicator should be within the new drive belt range.
 - Check the drive belt auto-tensioner indicator when the engine is cold.
3. If the drive belt auto-tensioner indicator is out of the possible use range or belt is damaged, replace drive belt.

DRIVE BELTS : Tension Adjustment

INFOID:0000000010365340

Belt tension is not manually adjustable. It is automatically adjusted by the drive belt auto-tensioner.

DRIVE BELTS : Removal and Installation

INFOID:0000000010365341

REMOVAL

1. Remove wheel and tire (RH) using a power tool.
2. Remove engine under cover. Refer to [EXT-37, "ENGINE UNDER COVER : Removal and Installation"](#)
3. Remove fender protector side cover. Refer to [EXT-28, "FENDER PROTECTOR : Exploded View"](#).

ENGINE MAINTENANCE

< PERIODIC MAINTENANCE >

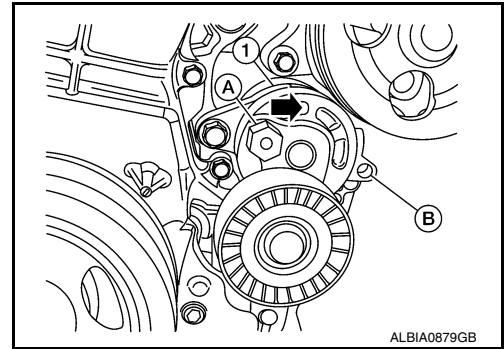
- Securely hold the hexagonal part (A) of drive belt auto-tensioner (1) using suitable tool, and move in the direction of arrow (loosening direction of tensioner).
- Insert a rod approximately 6 mm (0.24 in) in diameter through the rear of the drive belt auto-tensioner into retaining boss (B) to lock drive belt auto-tensioner pulley.

WARNING:

Avoid placing hand in a location where pinching may occur if the holding tool accidentally comes off.

NOTE:

Leave drive belt auto-tensioner pulley arm locked until drive belt is installed again.



- Loosen drive belt from drive belt auto-tensioner and then remove it from the other pulleys.
- Installation of remaining components is in the reverse order of removal.

INSTALLATION

Installation is in the reverse order of removal.

- Install the drive belt onto all of the pulleys except for the drive belt auto-tensioner. Then install the drive belt onto drive belt auto-tensioner last.

CAUTION:

- Confirm belts are completely set on the pulleys.
- Check for engine oil and engine coolant. Be sure they are not adhered to the drive belt and each pulley groove.

- Release the drive belt auto-tensioner and apply tension to drive belt.

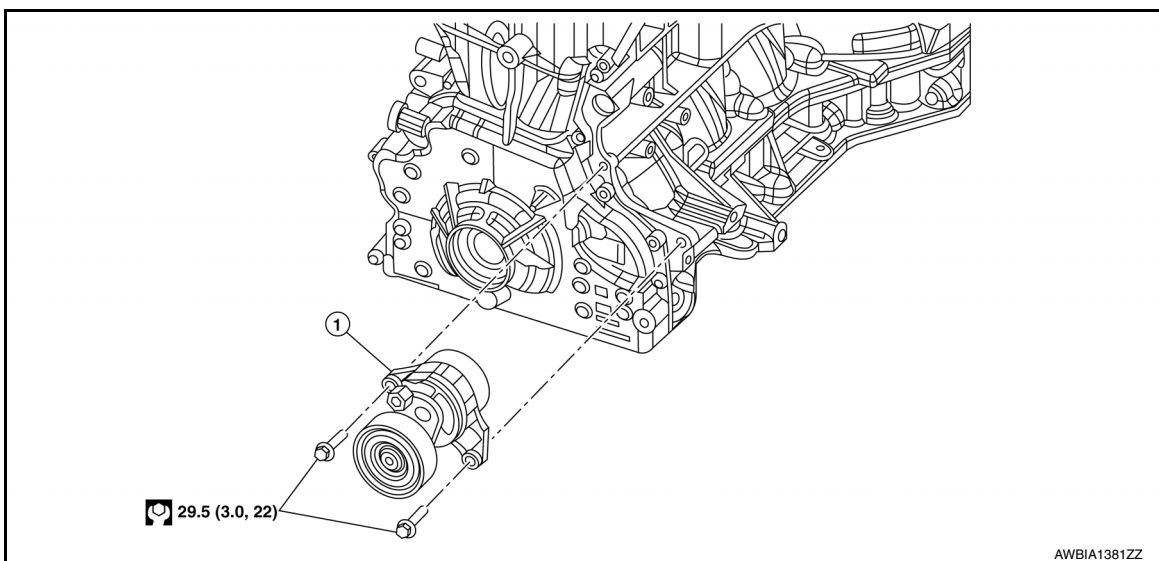
WARNING:

Avoid placing hand in a location where pinching may occur if the holding tool accidentally comes off.

- Turn crankshaft pulley clockwise several times to equalize tension between each pulley.
- Confirm the indicator is within the possible use range. Refer to [MA-13. "DRIVE BELTS : Checking"](#).
- Install wheel and tire (RH). Refer to [WT-57. "Adjustment"](#).

DRIVE BELTS : Removal and Installation of Drive Belt Auto-tensioner

INFOID:0000000010365342



1. Drive belt auto-tensioner

REMOVAL

CAUTION:

The complete drive belt auto-tensioner must be replaced as a unit, including the pulley.

ENGINE MAINTENANCE

< PERIODIC MAINTENANCE >

1. Remove the drive belt. Refer to [MA-13. "DRIVE BELTS : Removal and Installation"](#).
2. Remove the drive belt auto-tensioner.

INSTALLATION

Installation is in the reverse order of removal.

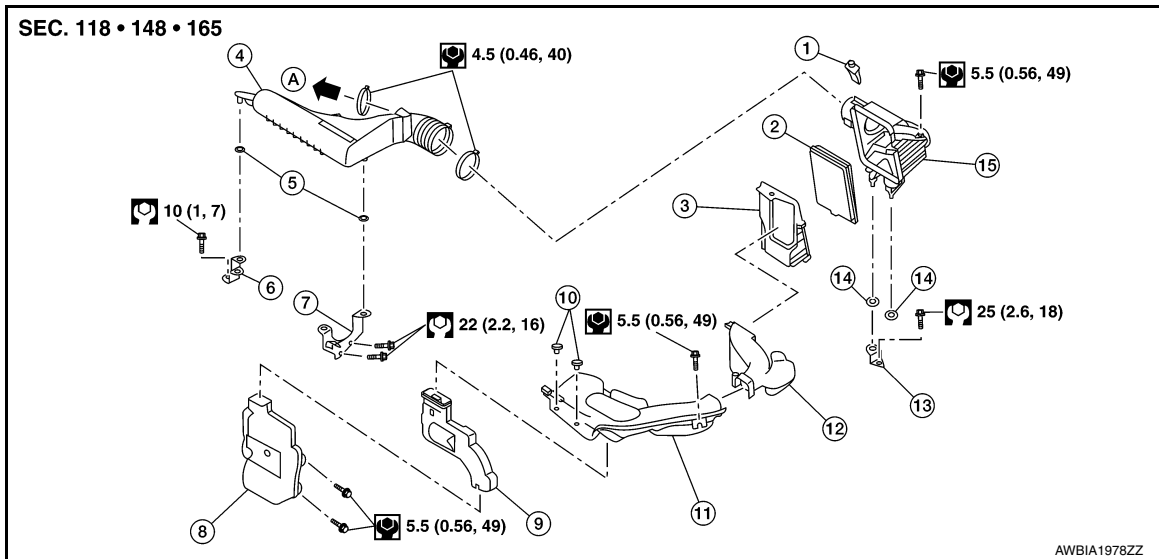
CAUTION:

Install the drive belt auto-tensioner carefully so not to damage the water pump pulley.

AIR CLEANER FILTER

AIR CLEANER FILTER : Exploded View

INFOID:0000000010365345



- | | | |
|--|-----------------------|------------------------------|
| 1. Mass air flow sensor | 2. Air cleaner filter | 3. Air cleaner case (lower) |
| 4. Air duct assembly | 5. Grommet | 6. Resonator bracket (front) |
| 7. Resonator bracket (rear) | 8. Resonator | 9. Air duct |
| 10. Mounting clip | 11. Air duct assembly | 12. Air duct assembly |
| 13. Air cleaner bracket | 14. Grommet | 15. Air cleaner case (upper) |
| A. To Electric throttle control actuator | | |

AIR CLEANER FILTER : Removal and Installation

INFOID:0000000010365346

CHANGING THE AIR CLEANER FILTER

1. Remove air duct assembly from air cleaner case (upper).
2. Open the air cleaner case.
3. Remove the air cleaner filter.
4. Install a new air cleaner filter.
5. Close the air cleaner case.
6. Secure the air cleaner case clips.

INSPECTION AFTER REMOVAL

Examine the air cleaner filter for stains, clogging, or damage.

- Remove dirt and foreign objects (such as dead leaves) on air cleaner filter surface and inside cleaner case.
- If clogging or damage is observed, replace the air cleaner filter.

CAUTION:

Do not clean the viscous paper type air cleaner filter by blowing as there is a risk of deterioration of its performance.

MAINTENANCE INTERVAL

Refer to [MA-7. "Introduction of Periodic Maintenance"](#).

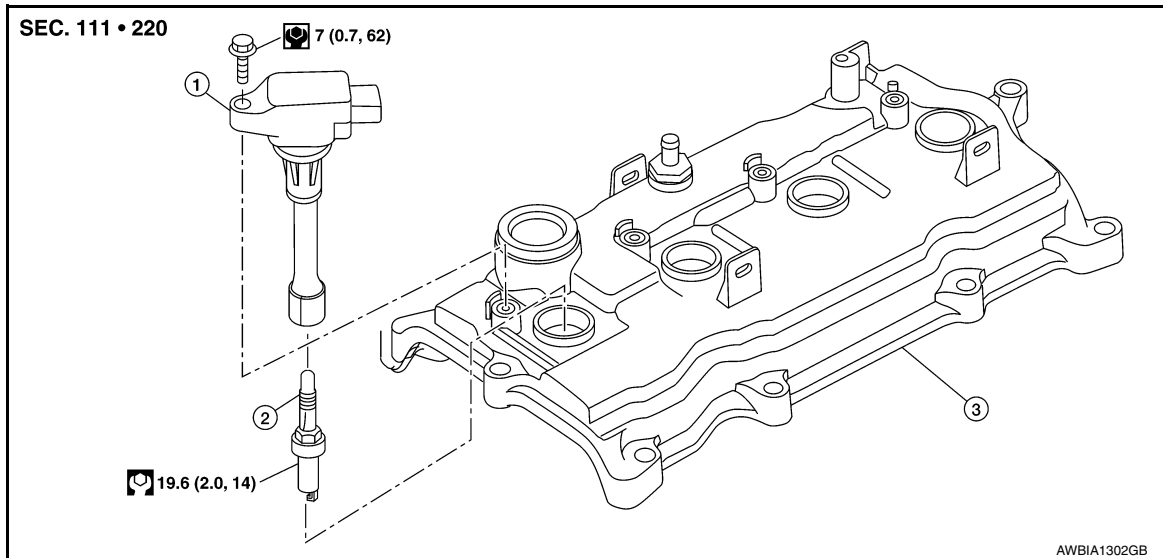
ENGINE MAINTENANCE

< PERIODIC MAINTENANCE >

SPARK PLUG

SPARK PLUG : Exploded View

INFOID:000000010365347



1. Ignition coil

2. Spark plug

3. Rocker cover

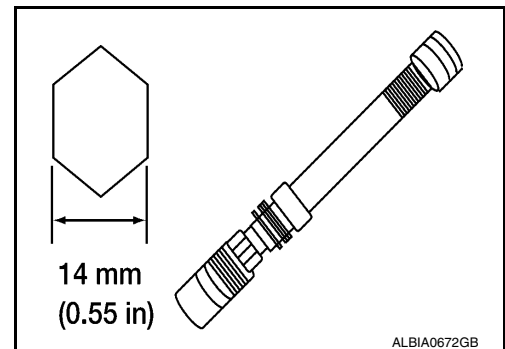
SPARK PLUG : Removal and Installation

INFOID:000000010365348

REMOVAL

1. Remove air duct assembly.
2. Remove ignition coil. Refer to [EM-36. "Exploded View"](#).
3. Remove spark plug using Tool.

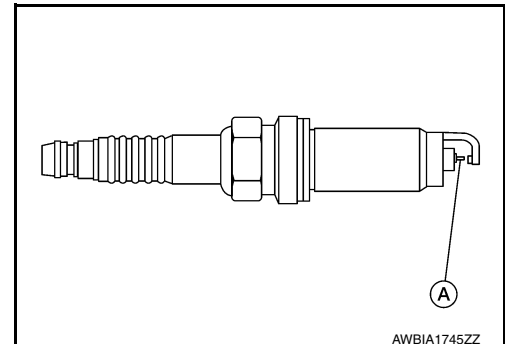
Tool number : — (J-48891)



INSPECTION AFTER REMOVAL

Visually check the electrode for dirt and wear and the insulator for burning.

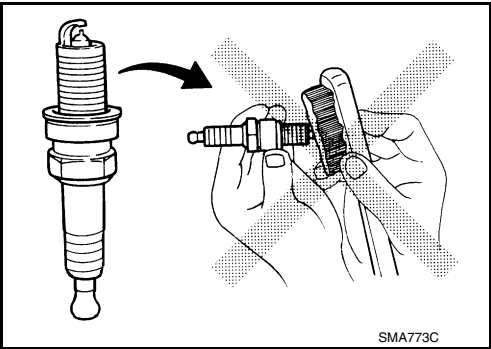
(A) : Iridium alloy



ENGINE MAINTENANCE

< PERIODIC MAINTENANCE >

- Do not use a wire brush for cleaning the spark plugs. Replace as necessary.



- If plug is covered with carbon, a spark plug cleaner may be used.

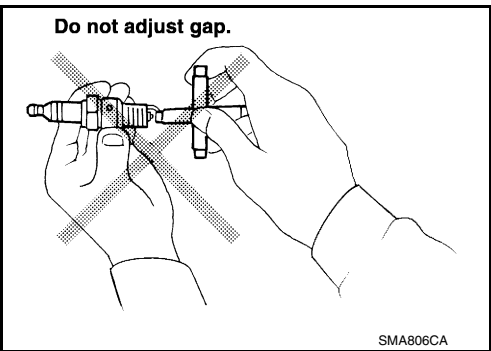
Cleaner air pressure : less than 588 kPa (6 kg/cm², 85 psi)

Cleaning time : less than 20 seconds

- Checking and adjusting plug gap is not required between change intervals. If the gap is out of specification, replace the spark plug.

CAUTION:

Do not drop or shock plug.



INSTALLATION

Installation is in the reverse order of removal.

Standard type*	DENSO
	FXE20HE11C
Gap (nominal)	1.1 mm (0.043 in)

*: Always check with the Parts Department for the latest parts information.

ENGINE OIL

ENGINE OIL : Inspection

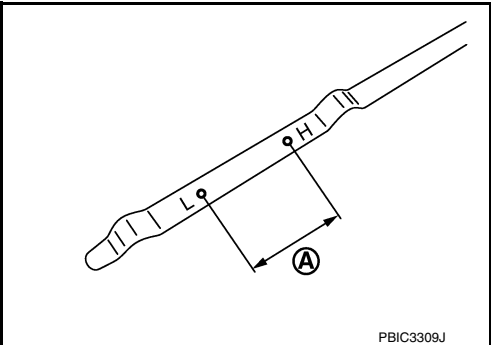
INFOID:000000010365350

ENGINE OIL LEVEL

NOTE:

Before starting engine, put vehicle horizontally and check the engine oil level. If engine is already started, stop it and allow 5 minutes before checking.

- Pull out oil level gauge and wipe it clean.
- Insert oil level gauge and check the engine oil level is within the range (A) as shown.
- If it is out of range, adjust it.



A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
MA

MA

ENGINE MAINTENANCE

< PERIODIC MAINTENANCE >

ENGINE OIL APPEARANCE

- Check engine oil for white milky appearance or excessive contamination.
- If engine oil becomes turbid and white, it is highly probable that it is contaminated with engine coolant. Repair or replace damaged parts.

ENGINE OIL LEAKS

Check for engine oil leaks around the following areas:

- Oil temperature sensor
- Oil level sensor
- Oil level gauge assembly O-ring.
- Crankshaft position sensor
- Camshaft position sensors
- Oil cooler
- Oil pan (upper and lower)
- Oil pan drain plug
- Oil pressure switch
- Oil filter
- Intake valve timing intermediate lock control solenoid valve
- Intake valve timing control solenoid valve
- Exhaust valve timing control solenoid valve
- Front cover
- Mating surface between cylinder head and camshaft bracket
- Mating surface between cylinder block and cylinder head
- Mating surface between cylinder head and rocker cover
- Crankshaft oil seals (front and rear)

OIL PRESSURE CHECK

WARNING:

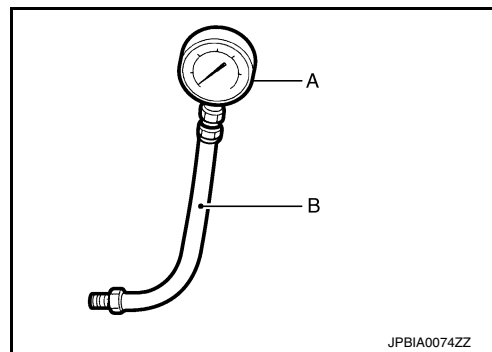
- **Be careful not to get burn yourself, as engine oil may be hot.**
- **When checking engine oil pressure, CVT shift lever should be in "P" position. Be sure to apply parking brake.**

1. Check the engine oil level.
2. Remove fender protector side cover (RH). Refer to [EXT-28, "FENDER PROTECTOR : Exploded View"](#).
3. Disconnect harness connector at oil pressure switch and remove oil pressure switch using suitable tool.

CAUTION:

Never drop or shock oil pressure switch.

4. Install suitable tools (A/B).



5. Start the engine and warm it up to normal operating temperature.
6. Check the engine oil pressure with engine running under no-load.
NOTE:
 - When engine oil temperature is low, engine oil pressure becomes high.
 - If difference is extreme, check oil passage and oil pump for engine oil leaks.

Engine oil pressure : Refer to [LU-17, "Oil Pressure"](#).

7. After the inspections, install oil pressure switch as follows:
 - a. Remove old liquid gasket adhering to oil pressure switch and engine.
 - b. Apply liquid gasket and tighten oil pressure switch to the specification.

ENGINE MAINTENANCE

< PERIODIC MAINTENANCE >

Use Genuine RTV Silicone Sealant or equivalent. Refer to [GI-22, "Recommended Chemical Products and Sealants"](#).

Tightening torque : Refer to [EM-92, "Exploded View"](#).

8. Check engine oil level.
9. After warming up engine, check that there are no engine oil leaks with the engine running.
10. Install fender protector side cover (RH). Refer to [EXT-28, "FENDER PROTECTOR : Exploded View"](#).

ENGINE OIL : Draining

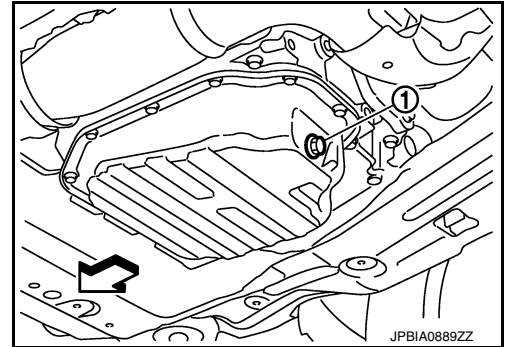
INFOID:000000010365351

WARNING:

- Be careful not to get burn yourself, as engine oil may be hot.
- Prolonged and repeated contact with used engine oil may cause skin cancer. Try to avoid direct skin contact with used engine oil. If skin contact is made, wash thoroughly with soap or hand cleaner as soon as possible.

1. Warm up the engine, and check for engine oil leaks from engine components. Refer to [MA-17, "ENGINE OIL : Inspection"](#).
2. Stop the engine and wait for 10 minutes.
3. Loosen oil filler cap.
4. Remove drain plug (1) and then drain engine oil.

← : Front



ENGINE OIL : Refilling

INFOID:000000010365352

1. Install drain plug with new drain plug washer. Refer to [EM-32, "Exploded View"](#).

CAUTION:

Be sure to clean drain plug and install with new drain plug washer.

Tightening torque : Refer to [EM-32, "Exploded View"](#).

2. Refill with new engine oil.
Engine oil specification and viscosity: Refer to [MA-11, "Engine Oil Recommendation"](#).

Engine oil capacity : Refer to [LU-17, "Oil Capacity"](#).

CAUTION:

- The refill capacity depends on the engine oil temperature and drain time. Use these specifications for reference only.
- Always use oil level gauge to determine the proper amount of engine oil in engine.

3. Warm up the engine and check area around drain plug and oil filter for engine oil leaks.
4. Stop the engine and wait for 5 minutes.
5. Check the engine oil level. Refer to [MA-17, "ENGINE OIL : Inspection"](#).

OIL FILTER

OIL FILTER : Removal and Installation

INFOID:000000010365355

REMOVAL

1. Remove fender protector side cover (RH). Refer to [EXT-28, "FENDER PROTECTOR : Exploded View"](#).

ENGINE MAINTENANCE

< PERIODIC MAINTENANCE >

2. Drain engine oil. Refer to [MA-19. "ENGINE OIL : Draining"](#).
3. Remove oil filter using suitable tool (A)..

↩ : Front

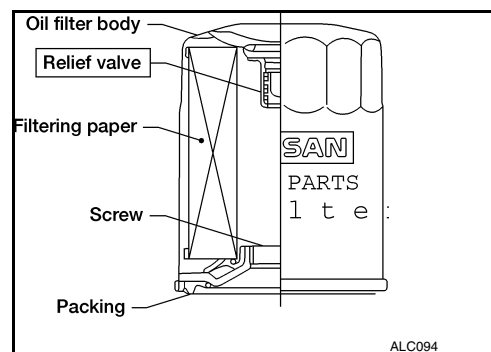
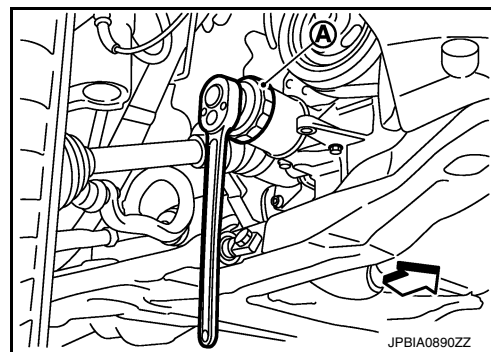
WARNING:

Be careful not to burn yourself, as engine oil may be hot.

CAUTION:

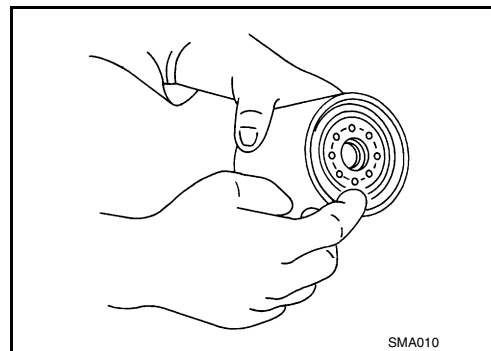
- When removing, prepare a shop cloth to absorb any engine oil leaks or spills.
- Do allow engine oil to adhere to drive belt.
- Completely wipe off any engine oil that adheres to engine and vehicle.

- Oil filter is provided with relief valve. Use genuine NISSAN oil filter or equivalent.



INSTALLATION

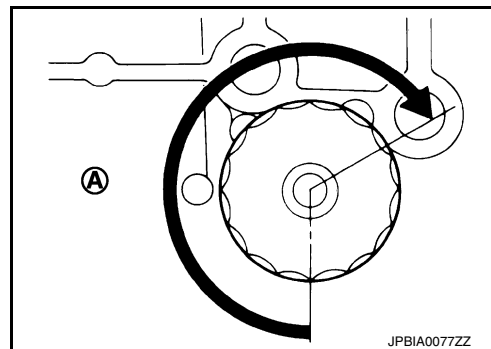
1. Remove foreign materials adhering to oil filter installation surface.
2. Apply new engine oil to the oil seal contact surface of new oil filter.



3. Screw oil filter manually until it touches the installation surface, then tighten it by 2/3 turn (A). Or tighten to the specification.

Oil filter:

: 17.7 N·m (1.8 kg-m, 13 ft-lb)



OIL FILTER : Inspection

INFOID:000000010365356

INSPECTION AFTER INSTALLATION

1. Check the engine oil level. Refer to [MA-17. "ENGINE OIL : Inspection"](#).
2. Start the engine, and check that there is are no leaks of engine oil.

ENGINE MAINTENANCE

< PERIODIC MAINTENANCE >

- Stop the engine and wait for at least 5 minutes.
- Check the engine oil level, and adjust the level (if necessary). Refer to [MA-17, "ENGINE OIL : Inspection"](#).

ENGINE COOLANT

ENGINE COOLANT : Inspection

INFOID:0000000010365360

LEVEL

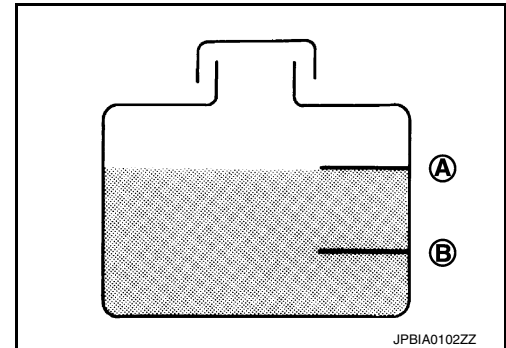
- Check that the reservoir tank engine coolant level is within the "MIN" to "MAX" when the engine is cool.

- (A) : MAX
(B) : MIN

- Adjust the engine coolant level if necessary.

CAUTION:

Refill Genuine NISSAN Long Life Antifreeze/Coolant (blue) or equivalent in its quality mixed with water (distilled or demineralized). Refer to [MA-11, "Fluids and Lubricants"](#).



CHECKING COOLING SYSTEM FOR LEAKS

- To check for leaks, apply pressure to the cooling system using suitable tools (A/B).

Testing pressure : Refer to [CO-25, "Radiator"](#).

WARNING:

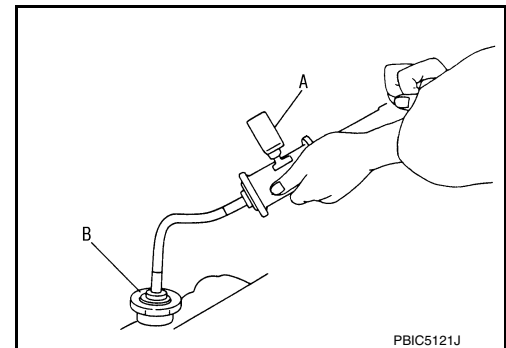
Do not remove the radiator cap when the engine is hot. Serious burns could occur from high-pressure engine coolant escaping from the radiator. Wrap a thick cloth around the cap. Slowly push down and turn it a quarter turn to allow built-up pressure to escape. Carefully remove the cap by pushing it down and turning it all the way.

CAUTION:

- Perform this step when the engine is cold.
- Do not spill engine coolant on drivebelt.
- Higher test pressure than specified may cause radiator damage.

NOTE:

- If engine coolant decreases, replenish radiator with engine coolant. Refer to [MA-11, "Fluids and Lubricants"](#).
- If anything is found, repair or replace damaged parts.



ENGINE COOLANT : Draining

INFOID:0000000010365361

WARNING:

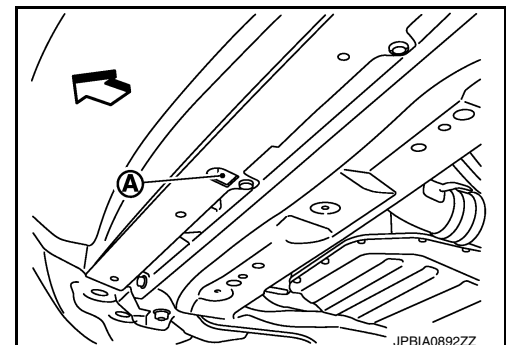
Do not remove radiator cap when engine is hot. Serious burns could occur from high pressure engine coolant escaping the radiator. Wrap a thick cloth around the cap. Slowly push down and turn it a quarter turn to allow built-up pressure to escape. Carefully remove the cap by pushing it down and turning it all the way.

- Open radiator drain plug at the bottom of radiator, and then remove radiator cap.

- (A) : Radiator drain plug hole
↔ : Vehicle front

CAUTION:

- Do not allow engine coolant to contact the drive belt.
- Perform this step when the engine is cold.



ENGINE MAINTENANCE

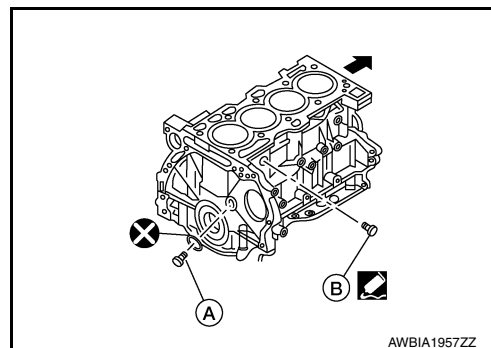
< PERIODIC MAINTENANCE >

2. Follow this step for heater core removal/replacement only. Disconnect the upper heater hose at the engine side and apply moderate air pressure [103.46 kPa (1.055 kg/cm², 15 psi) maximum air pressure] into the hose for 30 seconds to blow the excess engine coolant out of the heater core.
3. When draining all of the engine coolant in the system, remove the reservoir tank and drain the engine coolant, then clean the reservoir tank before installation.

CAUTION:

- Do not allow the engine coolant to contact the drive belt.
- Perform this step when engine is cold.

4. When draining all of the engine coolant in the system for engine removal or repair, remove the engine coolant drain plugs (A/B) from the cylinder block.



5. Check the drained engine coolant for contaminants such as rust, corrosion or discoloration. If the engine coolant is contaminated, flush the engine cooling system. Refer to [MA-24, "ENGINE COOLANT : Flushing"](#).

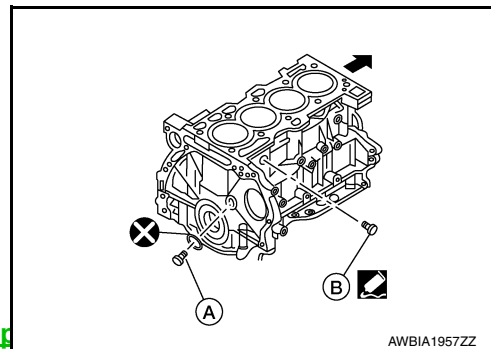
ENGINE COOLANT : Refilling

INFOID:0000000010365362

CAUTION:

- Do not put additive such as waterleak preventive, since it may cause cooling waterway clogging.
- When refilling use Genuine NISSAN Long Life Antifreeze/Coolant (blue) or equivalent in its quality mixed with water (distilled or demineralized). Refer to [MA-11, "Fluids and Lubricants"](#).

1. Install the radiator drain plug. Install the reservoir tank and cylinder block drain plug, if removed for a total system drain or for engine removal or repair.
 - The radiator must be completely empty of coolant and water.
 - Apply sealant to the threads of the cylinder block drain plug.
 - Use recommended coolant or equivalent. Refer to [MA-11, "Fluids and Lubricants"](#).



Radiator drain plug	: Refer to CO-13, "Exp
Cylinder block drain plug (A)	: 53.9 Nm (5.5 kg-m, 40 ft-lb)
Cylinder block drain plug (B)	: 9.8 N·m (1.0 kg-m, 87 in-lb)

2. If disconnected, reattach the upper radiator hose at the engine side.
3. Set the vehicle heater controls to the full HOT and heater ON position. Turn the vehicle ignition ON with the engine OFF as necessary to activate the heater mode.

ENGINE MAINTENANCE

< PERIODIC MAINTENANCE >

4. Install the Tool by installing the radiator cap adapter onto the radiator neck opening. Then attach the gauge body assembly with the refill tube and the venturi assembly to the radiator cap adapter.

Tool number : KV991J0070 (J-45695)

5. Insert the refill hose into the coolant mixture container that is placed at floor level. Make sure the ball valve is in the closed position.

- **Use recommended coolant or equivalent.**
Refer to [MA-11, "Fluids and Lubricants"](#).

Engine coolant capacity (with reservoir tank) : **Refer to** [CO-25, "Periodical Maintenance Specification"](#).

CAUTION:

Do not use any cooling system additives such as radiator sealer. Additives may clog the cooling system and cause damage to the engine, transmission and/or cooling system.

6. Install an air hose to the venturi assembly, the air pressure must be within specification.

Compressed air supply pressure : **549 - 824 kPa (5.6 - 8.4 kg/cm², 80 - 119 psi)**

CAUTION:

The compressed air supply must be equipped with an air dryer.

7. The vacuum gauge will begin to rise and there will be an audible hissing noise. During this process open the ball valve on the refill hose slightly. Coolant will be visible rising in the refill hose. Once the refill hose is full of coolant, close the ball valve. This will purge any air trapped in the refill hose.
8. Continue to draw the vacuum until the gauge reaches 28 inches of vacuum. The gauge may not reach 28 inches in high altitude locations, use the vacuum specifications based on the altitude above sea level.

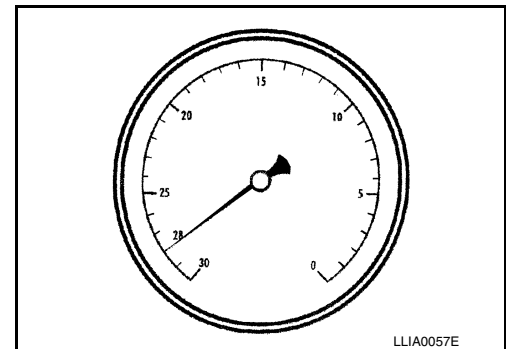
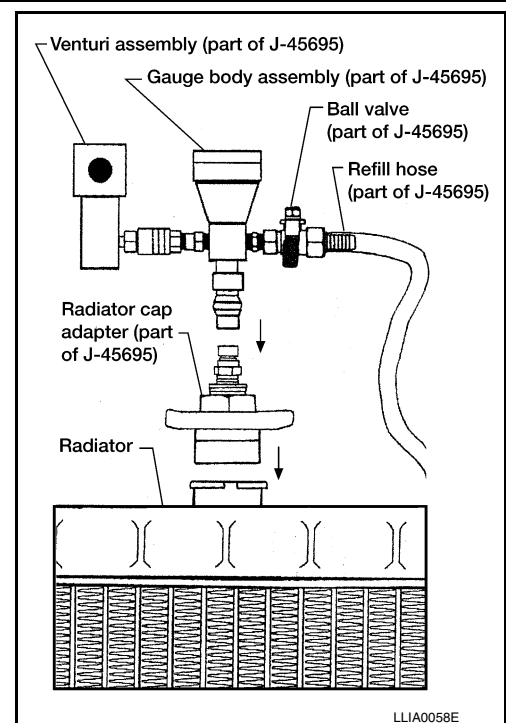
Altitude above sea level	Vacuum gauge reading
0 - 100 m (328 ft)	: 28 inches of vacuum
300 m (984 ft)	: 27 inches of vacuum
500 m (1,641 ft)	: 26 inches of vacuum
1,000 m (3,281 ft)	: 24 - 25 inches of vacuum

9. When the vacuum gauge has reached the specified amount, disconnect the air hose and wait 20 seconds to see if the system loses any vacuum. If the vacuum level drops, perform any necessary repairs to the system and repeat steps 6 - 8 to bring the vacuum to the specified amount. Recheck for any leaks.
10. Place the coolant container (with the refill hose inserted) at the same level as the top of the radiator. Then open the ball valve on the refill hose so the coolant will be drawn up to fill the cooling system. The cooling system is full when the vacuum gauge reads zero.

CAUTION:

Do not allow the coolant container to get too low when filling, to avoid air from being drawn into the cooling system.

11. Remove the Tool from the radiator neck opening.
12. Fill the cooling system reservoir tank to the specified level and install the radiator cap. Run the engine to warm up the cooling system and top up the system as necessary.



ENGINE MAINTENANCE

< PERIODIC MAINTENANCE >

ENGINE COOLANT : Flushing

INFOID:0000000010365363

1. Install reservoir tank, if removed, and radiator drain plug.

CAUTION:

- Be sure to clean drain plug.
- Do not reuse O-ring.

Radiator drain plug : Refer to [CO-13, "Exploded View"](#).

- If water drain plugs on cylinder block are removed, close and tighten them. Refer to [EM-92, "Exploded View"](#).
2. Run the engine and warm it up to normal operating temperature.
 3. Rev the engine two or three times under no-load.
 4. Stop the engine and wait until it cools down.
 5. Drain water from the system. Refer to [MA-21, "ENGINE COOLANT : Draining"](#).
 6. Repeat steps 1 through 5 until clear water begins to drain from radiator.

RADIATOR CAP

RADIATOR CAP : Inspection

INFOID:0000000010365367

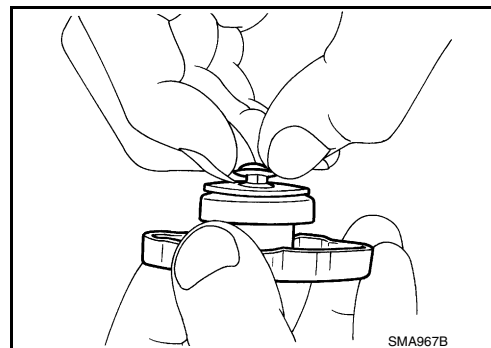
CHECKING RADIATOR CAP

1. Inspect the radiator cap.
 - Replace the cap if the metal plunger cannot be seen around the edge of the black rubber gasket.
 - Replace the cap if deposits of waxy residue or other foreign material are on the black rubber gasket or the metal retainer.

NOTE:

Thoroughly wipe out the radiator filler neck to remove any waxy residue or foreign material.

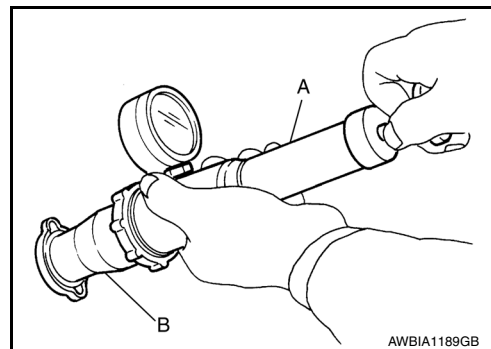
2. Pull the negative-pressure valve to open it and check that it closes completely when released.
 - Check that there is no dirt or damage on the valve seat of the radiator cap negative-pressure valve.
 - Check that there are no abnormalities in the opening and closing conditions of the negative-pressure valve.



3. Check radiator cap relief pressure using suitable tool (A/B).

Standard : Refer to [CO-25, "Radiator"](#).

- Apply water or engine coolant to the cap seal surface before connecting the radiator cap to the tester.
- Replace the radiator cap if there is an abnormality in the negative-pressure valve, or if the open-valve pressure is outside of the standard values.



RADIATOR

RADIATOR : Inspection

INFOID:0000000010365365

Check radiator for mud or clogging. If necessary, clean radiator as follows.

CAUTION:

- Be careful not to bend or damage radiator fins.

ENGINE MAINTENANCE

< PERIODIC MAINTENANCE >

- When radiator is cleaned without removal, remove all surrounding parts such as radiator cooling fan assembly and horns. Then tape harness and harness connectors to prevent water from entering.
1. Spray water to the back side of the radiator core using a side to side motion from the top down.
 2. Stop spraying when debris no longer flows from radiator core.
 3. Blow air into the back side of radiator core using a side to side motion from the top down.
 - Use compressed air lower than 490 kPa (5 kg/cm², 71 psi) and keep distance more than 30 cm (11.8 in).
 4. Continue to blow air until no water sprays out.
 5. Check for engine coolant leaks. Repair as necessary.

FUEL LINES

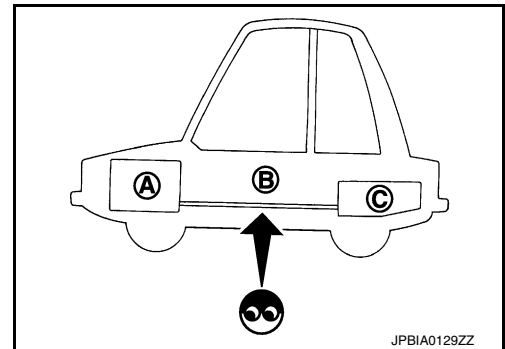
FUEL LINES : Inspection

INFOID:0000000010365368

Inspect fuel lines, fuel filler cap, and fuel tank for improper attachment, leaks, cracks, damage, loose connections, chafing or deterioration.

- (A) : Engine
(B) : Fuel line
(C) : Fuel tank

If necessary, repair or replace damaged parts.



EVAP VAPOR LINES

EVAP VAPOR LINES : Inspection

INFOID:0000000010365369

CAUTION:

- Do not use compressed air or a high pressure pump.
- Do not exceed 4.12 kPa (0.042 kg/cm², 0.6 psi) of pressure in EVAP system.

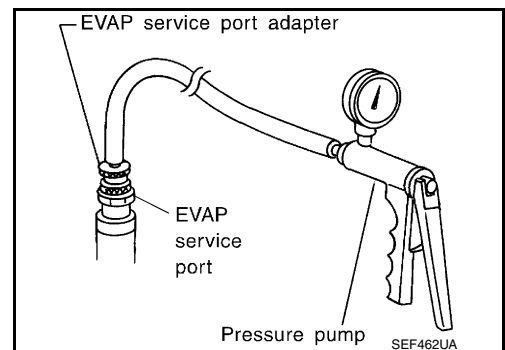
NOTE:

- Do not start engine.
- Improper installation of EVAP service port adapter [commercial service tool: (J-41413-OBDD)] to the EVAP service port may cause a leak.

1. EVAP LEAK CHECK

④ With CONSULT

1. Install EVAP service port adapter [commercial service tool: (J-41413-OBDD)] and pressure pump to EVAP service port.

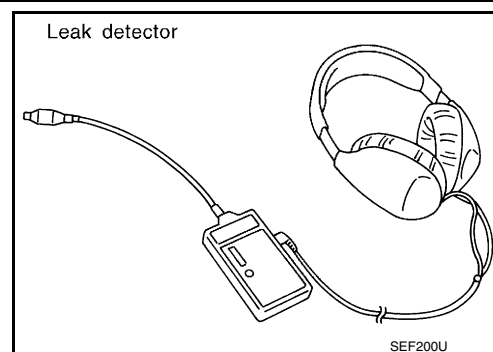


2. Turn ignition switch ON.
3. Select the "EVAP SYSTEM CLOSE" in "WORK SUPPORT" mode of "ENGINE" using CONSULT.
4. Touch "START". A bar graph (Pressure indicating display) will appear on the screen.
5. Apply positive pressure to the EVAP system until the pressure indicator reaches the middle of the bar graph.
6. Remove EVAP service port adapter [commercial service tool: (J-41413-OBDD)] and hose with pressure pump.

ENGINE MAINTENANCE

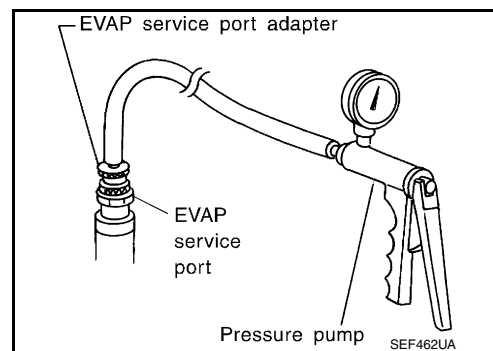
< PERIODIC MAINTENANCE >

7. Locate the leak using a leak detector [commercial service tool: (J-41416)]. Refer to [EC-53, "EVAPORATIVE EMISSION SYSTEM : System Description"](#).



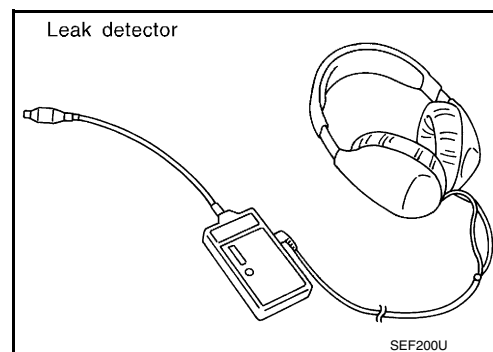
⊗ Without CONSULT

1. Install EVAP service port adapter [commercial service tool: (J-41413-OBD)] and pressure pump to EVAP service port.



2. Apply battery voltage between the terminals of EVAP canister vent control valve to make a closed EVAP system.
3. To locate the leak, deliver positive pressure to the EVAP system until pressure gauge points reach 1.38 to 2.76 kPa (0.014 to 0.028 kg/cm², 0.2 to 0.4 psi).
4. Remove EVAP service port adapter [commercial service tool: (J-41413-OBD)] and hose with pressure pump.
5. Locate the leak using a leak detector [commercial service tool: (J-41416)]. Refer to [EC-53, "EVAPORATIVE EMISSION SYSTEM : System Description"](#).

>> INSPECTION END



CHASSIS MAINTENANCE

< PERIODIC MAINTENANCE >

CHASSIS MAINTENANCE

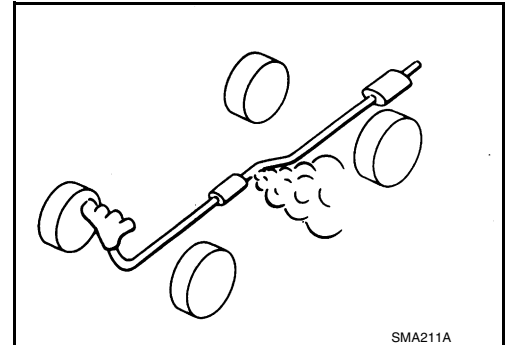
EXHAUST SYSTEM

EXHAUST SYSTEM : Inspection

INFOID:0000000010365370

Check exhaust pipes, muffler, and mounting for improper attachment, leakage, cracks, damage or deterioration.

- If anything is found, repair or replace damaged parts.



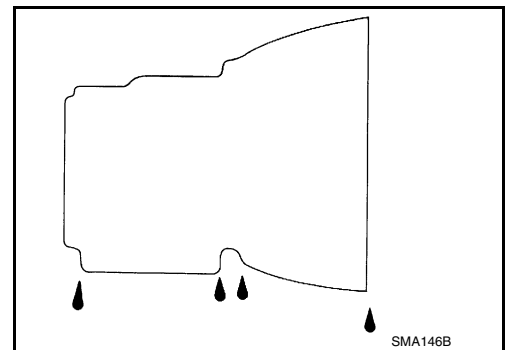
CVT FLUID

CVT FLUID : Inspection

INFOID:0000000010365371

FLUID LEAKAGE

- Check transaxle surrounding area (oil seal and plug etc.)for fluid leakage.
- If anything is found, repair or replace damaged parts and adjust CVT fluid level. Refer to [MA-29, "CVT FLUID : Adjustment"](#).



CVT FLUID : Replacement

INFOID:0000000010365372

Recommended fluid and fluid capacity : Refer to [TM-226, "General Specification"](#).

CAUTION:

- Always use shop paper. Never use shop cloth.
- Replace a drain plug gasket with new ones at the final stage of the operation when installing.
- Use caution when looking into the drain hole as there is a risk of dripping fluid entering the eye.
- After replacement, always perform CVT fluid leakage check.

1. Select "Data Monitor" in "TRANSMISSION" using CONSULT.
2. Select "FLUID TEMP" and confirm that the CVT fluid temperature is 40°C (104°F) or less.
3. Check that the selector lever is in the "P" position, then completely engage the parking brake.
4. Lift up the vehicle.
5. Remove the drain plug and drain the CVT fluid from the oil pan. Refer to [TM-205, "Exploded View"](#).
6. Install the drain plug to oil pan.

CAUTION:

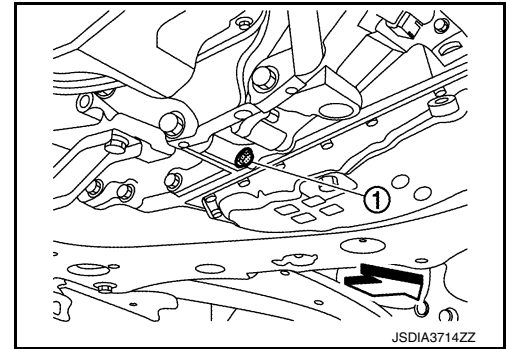
Drain plug gasket use the old one.

CHASSIS MAINTENANCE

< PERIODIC MAINTENANCE >

7. Remove the overflow plug ① from converter housing.

⇐ : Vehicle front



8. Install the charging pipe set (KV311039S0) (A) into the overflow plug hole.

CAUTION:

Tighten the charging pipe by hand.

9. Install the ATF changer hose (B) to the charging pipe.

CAUTION:

Press the ATF changer hose all the way onto the charging pipe until it stops.

10. Fill approximately 3 liter (3-1/8 US qt, 2-5/8 Imp qt) of the CVT fluid.

11. Remove the ATF changer hose and charging pipe, then install the overflow plug.

NOTE:

Perform this work quickly because CVT fluid leaks.

12. Lift down the vehicle.

13. Start the engine.

14. While depressing the brake pedal, shift the selector lever to the entire position from "P" to "L", and shift it to the "P" position.

NOTE:

Hold the lever at each position for 5 seconds.

15. Check that the CONSULT "Data Monitor" in "FLUID TEMP" is 35°C (95°F) to 45°C (113°F).

16. Stop the engine.

17. Lift up the vehicle.

18. Remove the drain plug, and then drain CVT fluid from oil pan.

19. Repeat steps 8 to 18 (one time).

20. Tighten the drain plug to the specified torque. Refer to [TM-205, "Exploded View"](#).

21. Remove the overflow plug.

22. Install the charging pipe set (KV311039S0) into the overflow plug hole.

CAUTION:

Tighten the charging pipe by hand.

23. Install the ATF changer hose to the charging pipe.

CAUTION:

Press the ATF changer hose all the way onto the charging pipe until it stops.

24. Fill approximately 3 liter (3-1/8 US qt, 2-5/8 Imp qt) of the CVT fluid.

25. Remove the ATF changer hose and charging pipe, then install the overflow plug.

NOTE:

Perform this work quickly because CVT fluid leaks.

26. Lift down the vehicle.

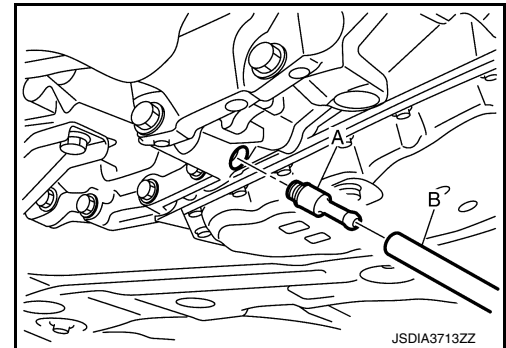
27. Start the engine.

28. While depressing the brake pedal, shift the selector lever to the entire position from "P" to "L", and shift it to the "P" position.

NOTE:

Hold the lever at each position for 5 seconds.

29. Check that the CONSULT "Data Monitor" in "FLUID TEMP" is 35°C (95°F) to 45°C (113°F).



CHASSIS MAINTENANCE

< PERIODIC MAINTENANCE >

30. Lift up the vehicle.
31. Remove the overflow plug and confirm that the CVT fluid is drained from the overflow plug hole.
CAUTION:
Perform this work with the vehicle idling.
NOTE:
If the CVT fluid is not drained, refer to "Adjustment" and refill with the CVT fluid.
32. When the flow of CVT fluid slows to a drip, tighten the overflow plug to the specified torque. Refer to [TM-205, "Exploded View"](#).
CAUTION:
Never reuse O-ring.
33. Lift down the vehicle.
34. Select "Data Monitor" in "TRANSMISSION" using CONSULT.
35. Select "CONFORM CVTF DETERIORATION".
36. Select "Erase".
37. Stop the engine.

CVT FLUID : Adjustment

INFOID:0000000010365373

Recommended fluid and fluid capacity : Refer to [TM-226, "General Specification"](#).

CAUTION:

- During adjustment of the CVT fluid level, check CONSULT so that the oil temperature may be maintained from 35 to 45°C (95 to 113°F).
- During adjustment of the CVT fluid level, check that the engine speed is maintaining 500 rpm.
- Use caution when looking into the drain hole as there is a risk of dripping fluid entering the eye.

1. Check that the selector lever is in the "P" position, then completely engage the parking brake.
2. Start the engine.
3. Adjust the CVT fluid temperature to be approximately 40°C (104°F).

NOTE:

The CVT fluid is largely affected by temperature. Therefore be sure to use CONSULT and check the "FLUID TEMP" under "TRANSMISSION" in "Data Monitor" while adjusting.

4. While depressing the brake pedal, shift the selector lever to the entire position from "P" to "L", and shift it to the "P" position.

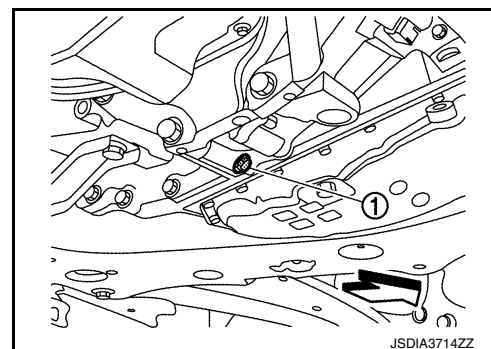
NOTE:

Hold the lever at each position for 5 seconds.

5. Lift up the vehicle.
6. Check that there is no CVT fluid leakage.
7. Remove the overflow plug ① from converter housing.



: Vehicle front

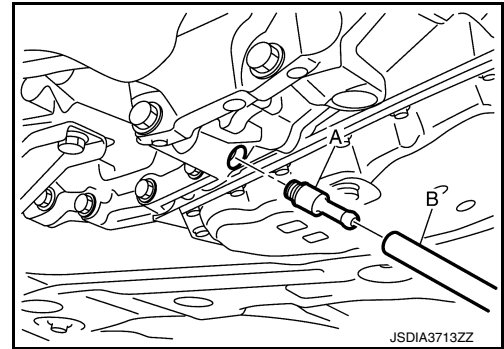


JSDIA3714ZZ

CHASSIS MAINTENANCE

< PERIODIC MAINTENANCE >

8. Install the charging pipe set (KV311039S0) (A) into the overflow plug hole.
CAUTION:
Tighten the charging pipe by hand.
9. Install the ATF changer hose (B) to the charging pipe.
CAUTION:
Press the ATF changer hose all the way onto the charging pipe until it stops.
10. Fill approximately 0.5 liter (1/2 US qt, 1/2 Imp qt) of the CVT fluid.
11. Remove the ATF changer hose from the charging pipe, and check that the CVT fluid drains out from the charging pipe. If it does not drain out, perform charging again.
CAUTION:
Perform this work with the vehicle idling.
12. When the flow of CVT fluid slows to a drip, remove the charging pipe from the converter housing.
13. Tighten the overflow plug to the specified torque. Refer to [TM-205, "Exploded View"](#).
CAUTION:
Never reuse O-ring.
14. Lift down the vehicle.
15. Stop the engine.



TRANSFER OIL

TRANSFER OIL : Inspection

INFOID:0000000010365374

TRANSFER OIL LEAKS

Check that transfer oil is not leaking from transfer assembly or around it.

TRANSFER OIL LEVEL

CAUTION:

Do not start engine while checking transfer oil level.

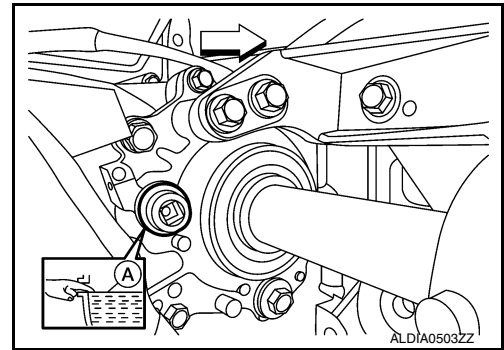
1. Remove filler plug (1) and gasket.

⇐ : Front

2. Transfer oil level (A) should be level with bottom of filler plug hole. Add transfer oil if necessary. Refer to [MA-11, "Fluids and Lubricants"](#).
3. Set a new gasket onto filler plug, and install it in the transfer and tighten to specified torque. Refer to [DLN-89, "Exploded View"](#).

CAUTION:

Do not reuse gasket.



TRANSFER OIL : Draining

INFOID:0000000010365375

CAUTION:

Do not start engine while working.

1. Run the vehicle to warm up the transfer unit sufficiently.

CHASSIS MAINTENANCE

< PERIODIC MAINTENANCE >

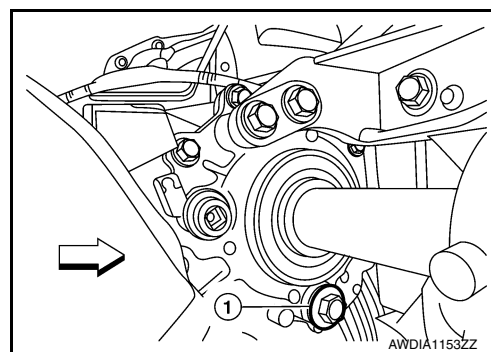
2. Stop the engine and remove drain plug (1) and gasket and drain the transfer oil.

← : Front

3. Set a new gasket onto drain plug, and install it in the transfer and tighten to specified torque. Refer to [DLN-89, "Exploded View"](#).

CAUTION:

Do not reuse gasket.



INFOID:0000000010365376

TRANSFER OIL : Refilling

CAUTION:

Do not start engine while checking transfer oil level.

1. Remove filler plug (1).
2. Fill with new transfer oil to the specified level near the filler plug hole.

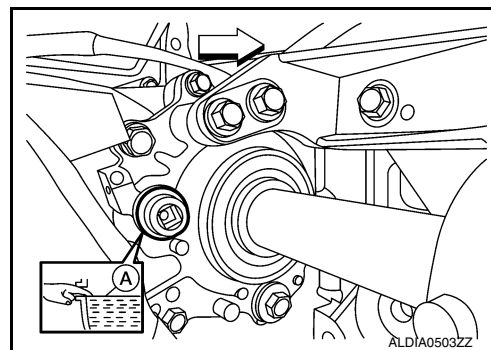
← : Front

Transfer oil grade and viscosity

: Refer to [MA-11, "Fluids and Lubricants"](#).

Transfer oil capacity

: Refer to [DLN-93, "General Specifications"](#).



3. Set a new gasket onto filler plug, and install it in the transfer and tighten to specified torque. Refer to [DLN-89, "Exploded View"](#).

CAUTION:

Do not reuse gasket.

REAR PROPELLER SHAFT

REAR PROPELLER SHAFT : Inspection

INFOID:0000000010365377

APPEARANCE AND NOISE

- Check the propeller shaft tube surface for dents or cracks. If malfunction is detected, replace propeller shaft assembly.
- If center bearing is noisy or damaged, replace propeller shaft assembly.

VIBRATION

If vibration is present at high speed, adjust the propeller shaft phase first.

1. Check the propeller shaft for bend and damage. If damaged, replace propeller shaft assembly.
2. Perform a cruise test drive to check the propeller shaft for runout. If vibration occurs, separate propeller shaft at electric controlled coupling of final drive; then change the phase between electric controlled coupling stud bolt and propeller shaft by the one bolt hole at a time and install propeller shaft.
3. If vibration is still detected, measure propeller shaft runout after removing it. Refer to [DLN-101, "Inspection"](#).

REAR DIFFERENTIAL GEAR OIL

REAR DIFFERENTIAL GEAR OIL : Inspection

INFOID:0000000010365378

OIL LEAKS

Make sure that oil is not leaking from final drive assembly or around it.

OIL LEVEL

CHASSIS MAINTENANCE

< PERIODIC MAINTENANCE >

- Remove filler plug (1) and check oil level from filler plug mounting hole as shown.

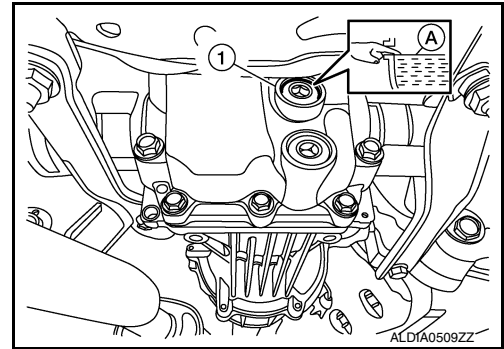
CAUTION:

Do not start engine while checking oil level.

- Set a new gasket on filler plug and install it on final drive assembly. Refer to [DLN-124, "Exploded View"](#).

CAUTION:

Do not reuse gasket.



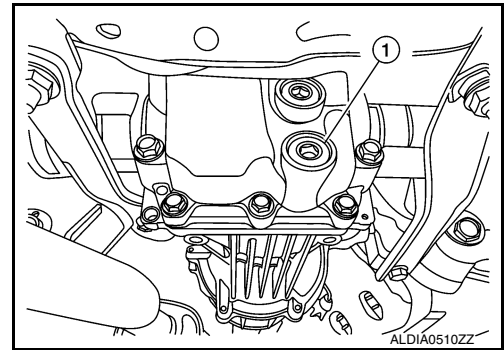
INFOID:0000000010365379

REAR DIFFERENTIAL GEAR OIL : Draining

- Stop engine.
- Remove drain plug (1) and drain gear oil.
- Set a new gasket on drain plug and install it to final drive assembly and tighten to the specified torque. Refer to [DLN-124, "Exploded View"](#).

CAUTION:

Do not reuse gasket.



INFOID:0000000010365380

REAR DIFFERENTIAL GEAR OIL : Refilling

- Remove filler plug (1). Fill with new gear oil until oil level reaches the specified level near filler plug hole.

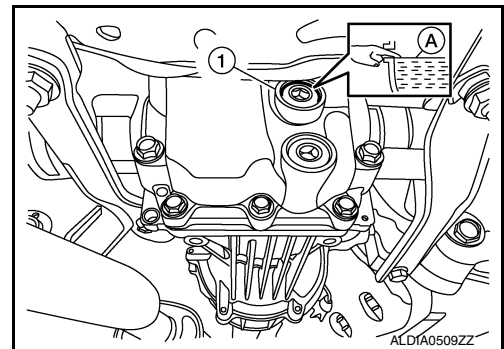
Oil grade and viscosity : Refer to [MA-11, "Fluids and Lubricants"](#).

Oil capacity : Refer to [DLN-141, "General Specifications"](#).

- After refilling oil, check oil level. Set a new gasket to filler plug, then install it to final drive assembly. Refer to [DLN-124, "Exploded View"](#).

CAUTION:

Do not reuse gasket.



INFOID:0000000010365381

WHEELS

WHEELS : Inspection

WHEEL

- Check tires for wear and improper inflation.
- Check wheels for deformation, cracks and other damage. If deformed, remove wheel and check wheel runout.
 - Remove tire from wheel and mount wheel on a balancer machine.

CHASSIS MAINTENANCE

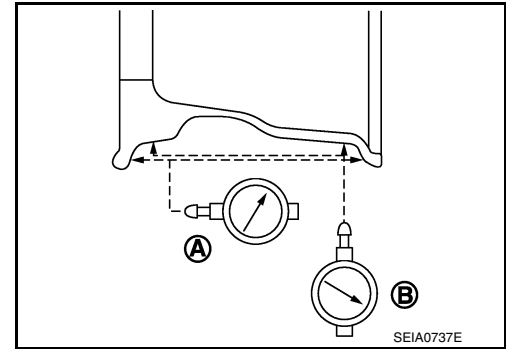
< PERIODIC MAINTENANCE >

- Set dial indicator as shown.
- Check runout, if runout value exceeds the limit, replace wheel.

Limit

Axial Runout (A) Refer to [WT-65, "Wheel"](#).

Radial Runout (B) Refer to [WT-65, "Wheel"](#).



INFOID:000000010365382

WHEELS : Adjustment

BALANCING WHEELS (ADHESIVE WEIGHT TYPE)

Preparation Before Adjustment

Remove inner and outer balance weights from the wheel. Using releasing agent, remove double-faced adhesive tape from the wheel and tire.

CAUTION:

- Be careful not to scratch the wheel and tire during removal.
- After removing double-faced adhesive tape, wipe clean all traces of releasing agent from the wheel and tire.

Wheel Balance Adjustment

CAUTION:

- DO NOT use center hole cone-type clamping machines to hold the wheel during tire removal/installation or balancing or damage to the wheel paint, cladding or chrome may result. Use only rim-type or universal lug-type clamping machines to hold the wheel during servicing.**
 - If a balancer machine has an adhesive weight mode setting, select the adhesive weight mode setting and skip Step 2 below. If a balancer machine only has the clip-on (rim flange) weight mode setting, follow Step 2 to calculate the correct size adhesive weight.
- Set wheel and tire on balancer machine using the center hole as a guide. Start the balancer machine.
 - For balancer machines that only have a clip-on (rim flange) weight mode setting, follow this step to calculate the correct size adhesive weight to use. When inner and outer imbalance values are shown on the balancer machine indicator, multiply outer imbalance value by 5/3 (1.67) to determine balance weight that should be used. Select the outer balance weight with a value closest to the calculated value above and install in to the designated outer position of or at the designated angle in relation to the wheel and tire.

- Indicated imbalance value $\times 5/3$ (1.67) = balance weight to be installed

Calculation example:

23 g (0.81 oz) $\times 5/3$ (1.67) = 38.33 g (1.35 oz) $\Rightarrow$ 40 g (1.41 oz)
balance weight (closer to calculated balance weight value)

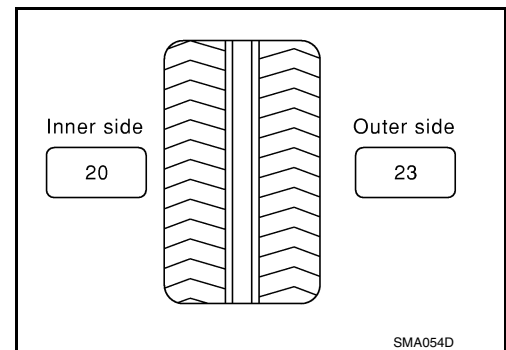
NOTE:

Note that balance weight value must be closer to the calculated balance weight value.

Example:

37.4 $\Rightarrow$ 35 g (1.23 oz)

37.5 $\Rightarrow$ 40 g (1.41 oz)



CHASSIS MAINTENANCE

< PERIODIC MAINTENANCE >

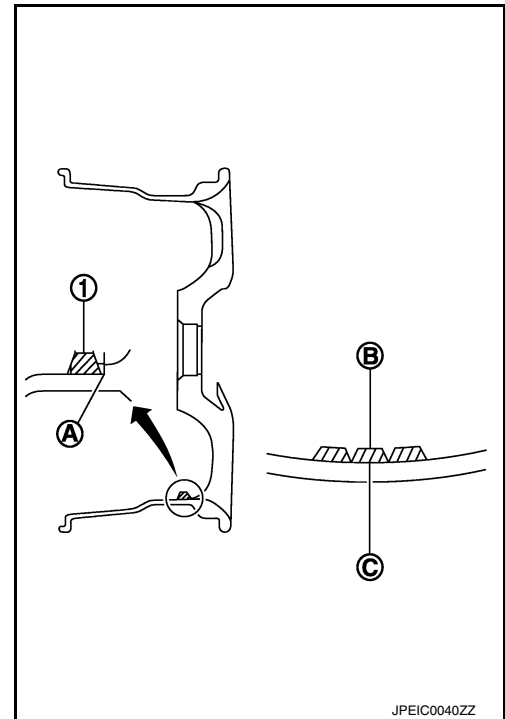
3. Install balance weight in the position shown.

CAUTION:

- Do not install the inner balance weight before installing the outer balance weight.
- Before installing the balance weight, be sure to clean the mating surface of the wheel and tire.
- When installing balance weight (1) to wheel and tire, set it into the grooved area (A) on the inner wall of the wheel and tire as shown so that the balance weight center (B) is aligned with the balancer machine indication position (angle) (C).

CAUTION:

- Always use Genuine NISSAN adhesive balance weights.
- Balance weights are non-reusable; always replace with new ones.
- Do not install more than three sheets of balance weights.



4. If calculated balance weight value exceeds 50 g (1.76 oz), install two balance weight sheets in line with each other as shown.

CAUTION:

Do not install one balance weight sheet on top of another.

5. Start balancer machine again.

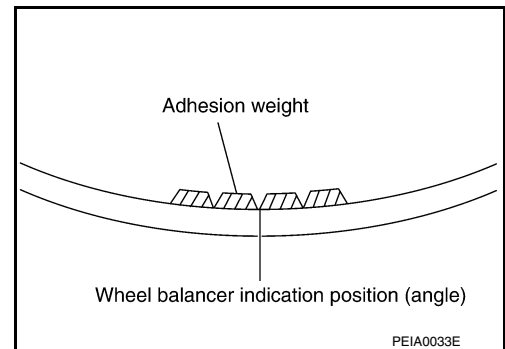
6. Install balance weight on inner side of wheel and tire in the balancer machine indication position (angle).

CAUTION:

Do not install more than two balance weights.

7. Start balancer machine. Make sure that inner and outer residual imbalance values are 5 g (0.17 oz) each or below.

8. If either residual imbalance value exceeds 5 g (0.17 oz), repeat installation procedures.



Wheel balance	Dynamic (At flange)	Static (At flange)
Maximum allowable imbalance	Refer to WT-65, "Wheel" .	

TIRE ROTATION

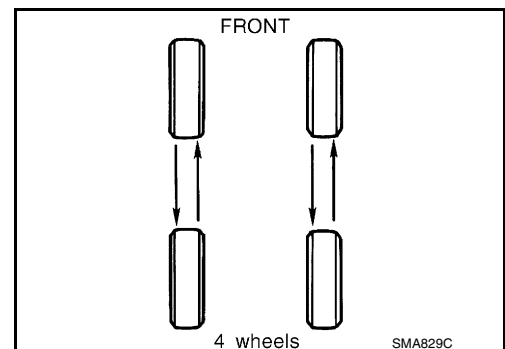
- Follow the maintenance schedule for tire rotation service intervals. Refer to [MA-7, "Introduction of Periodic Maintenance"](#).
- Rotate the wheels and tires front to back in the pattern as shown.
- When installing the wheel, tighten wheel nuts to the specified torque. [MA-7, "Introduction of Periodic Maintenance"](#)

WARNING:

- Do not include the spare tire (if equipped) when rotating tires.
- After rotating tires, check and adjust the tire pressure.

CAUTION:

- When installing wheel nuts, tighten them diagonally by dividing the work two to three times in order to prevent the wheels from developing any distortion.
- Be careful not to tighten the wheel nuts to a torque exceeding specification to prevent strain on the disc brake rotor.
- Use Genuine NISSAN wheel nuts.



CHASSIS MAINTENANCE

< PERIODIC MAINTENANCE >

Wheel nut tightening torque : [WT-65, "Wheel"](#)

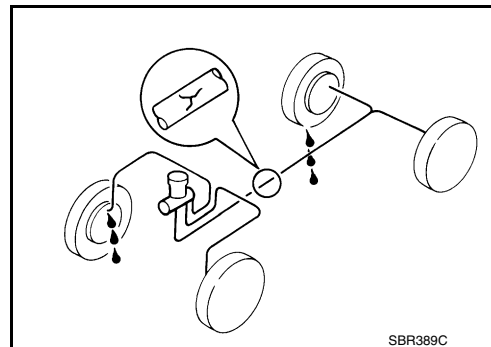
- Perform the ID registration after tire rotation. Refer to [WT-21, "Work Procedure"](#).

BRAKE LINES AND CABLES

BRAKE LINES AND CABLES : Inspection

INFOID:000000009794732

- Check brake fluid lines and parking brake cables for improper attachment, leaks, chafing, abrasions, deterioration, etc.



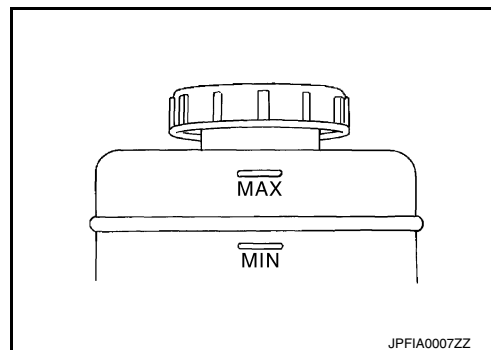
BRAKE FLUID

BRAKE FLUID : Inspection

INFOID:0000000010365383

BRAKE FLUID LEVEL

- Make sure that the brake fluid level in the reservoir tank is between the MAX and MIN lines.
- Visually check around the reservoir tank for brake fluid leakage.
- If the brake fluid level is excessively low, check the brake system for leakage.
- If brake warning lamp remains illuminated after parking brake pedal is released, check the brake system for brake fluid leakage.

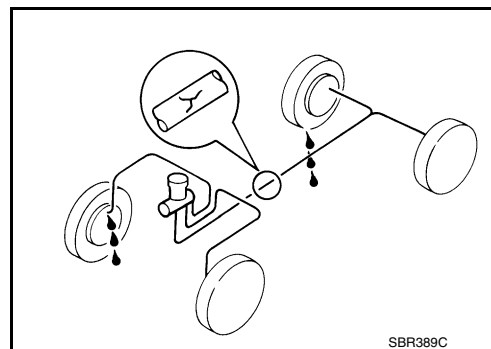


BRAKE LINE

1. Check brake line (tubes and hoses) for cracks, deterioration or other damage. Replace any damaged parts.
2. Check for brake fluid leakage by fully depressing brake pedal while engine is running.

CAUTION:

If brake fluid leakage occurs around joints, retighten or replace damaged parts as necessary.



BRAKE FLUID : Drain and Refill

INFOID:0000000010365384

CAUTION:

- Do not spill or splash brake fluid on painted surfaces. Brake fluid may damage paint. If brake fluid is splashed on painted areas, wash it away with water immediately.
- Prior to repair, turn the ignition switch OFF, disconnect the ABS actuator and electric unit (control unit) connector or negative battery terminal. Refer to [PG-75, "Removal and Installation \(Battery\)"](#).

CHASSIS MAINTENANCE

< PERIODIC MAINTENANCE >

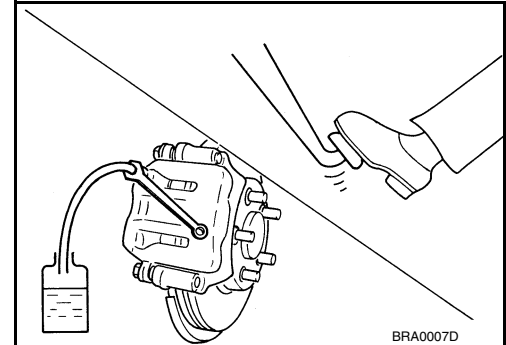
- Refill brake system with new brake fluid. Refer to [MA-11, "Fluids and Lubricants"](#).
- Do not reuse drained brake fluid.

DRAINING

1. Turn ignition switch OFF and disconnect ABS actuator and electric unit (control unit) connector or negative battery terminal. Refer to [PG-75, "Removal and Installation \(Battery\)"](#).
2. Connect a vinyl tube to bleeder valve.
3. Depress brake pedal, loosen bleeder valve, and gradually remove brake fluid.

CAUTION:

Do not allow master cylinder reservoir tank to empty as this may cause damage to master cylinder internal components.



REFILLING

1. Make sure no foreign material is in the reservoir tank, and refill with new brake fluid.

CAUTION:

Do not reuse drained brake fluid.

2. Refill the brake system as follows:

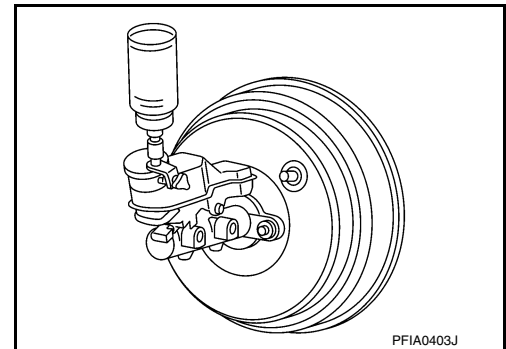
- Depress the brake pedal.
- Loosen bleeder valve.
- Slowly depress brake pedal to 2/3 of the brake pedal full stroke.
- Tighten bleeder valve.
- Release brake pedal.

Repeat this operation at intervals of two or three seconds until all old brake fluid is discharged. Add new brake fluid frequently.

CAUTION:

Do not allow master cylinder reservoir tank to empty as this may cause damage to master cylinder internal components.

3. Bleed the air out of the brake hydraulic system. Refer to [BR-16, "Bleeding Brake System"](#).



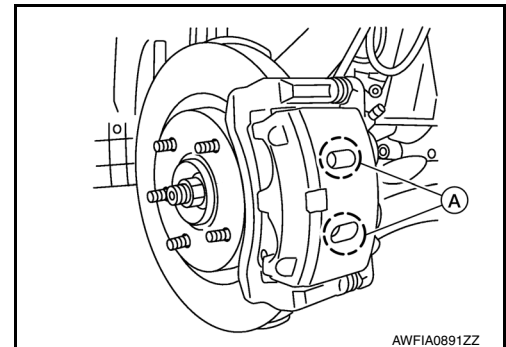
FRONT BRAKE

FRONT BRAKE : Inspection

INFOID:000000010365386

Check brake pad wear thickness from an inspection hole (A) on cylinder body. Check using a scale if necessary.

Wear thickness : Refer to [BR-55, "Front Disc Brake"](#).



FRONT BRAKE : Inspection

INFOID:000000010365387

APPEARANCE

Check surface of disc brake rotor for uneven wear, cracks or damage. Replace if any abnormal conditions exist.

RUNOUT

CHASSIS MAINTENANCE

< PERIODIC MAINTENANCE >

1. Check the wheel bearing axial end play before the inspection. Refer to [FAX-7, "Inspection"](#)(FWD) or [FAX-38, "Inspection"](#)(AWD).
2. Secure the disc brake rotor to the wheel hub and bearing with wheel nuts at two wheel nut locations.
3. Inspect the runout with a dial gauge, measured at 10 mm (0.39 in) inside the disc brake rotor edge.

Runout : Refer to [BR-55, "Front Disc Brake"](#).

4. Find the installation position with a minimum runout by shifting the disc brake rotor-to-wheel hub and bearing installation position by one hole at a time if the runout exceeds the limit value.
5. Refinish the disc brake rotor if the runout is outside the limit even after performing the above operation. When refinishing, use Tool.

Tool number : 38-PFM92

CAUTION:

- Check in advance that the thickness of the disc brake rotor is wear thickness + 0.3 mm (0.012 in) or more.
- If the thickness is less than wear thickness + 0.3 mm (0.012 in), replace the disc brake rotor.

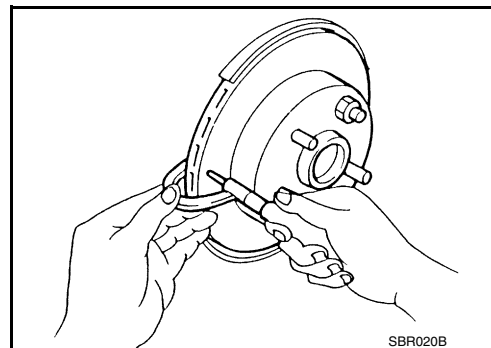
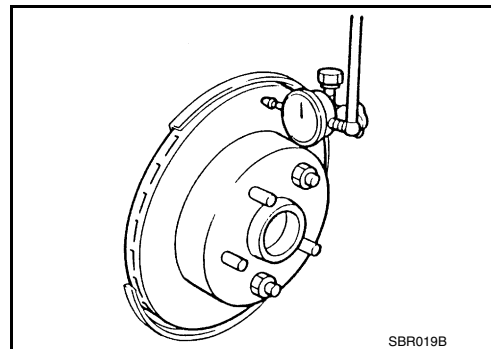
Wear thickness : Refer to [BR-55, "Front Disc Brake"](#).

THICKNESS

Check the thickness of the disc brake rotor using a micrometer. Replace the disc brake rotor if the thickness is below the wear limit.

Wear thickness : Refer to [BR-55, "Front Disc Brake"](#).

Thickness variation : Refer to [BR-55, "Front Disc Brake"](#).



INFOID:000000010365388

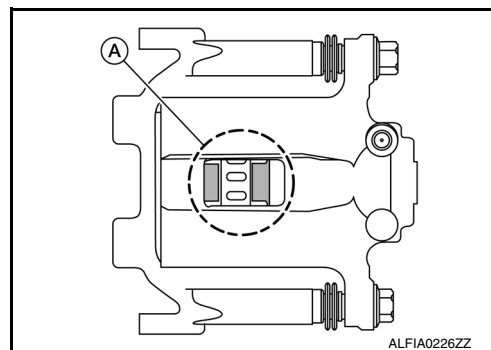
REAR BRAKE

REAR BRAKE : Inspection

INSPECTION

Check brake pad wear thickness from an inspection hole (A) on cylinder body. Check using a scale if necessary.

Wear thickness : Refer to [BR-55, "Rear Disc Brake"](#).



INFOID:000000010365389

REAR BRAKE : Inspection

Appearance

CHASSIS MAINTENANCE

< PERIODIC MAINTENANCE >

Check surface of disc brake rotor for uneven wear, cracks or damage. Replace if any abnormal conditions exist.

Runout

1. Check the wheel bearing axial end play before the inspection. Refer to [RAX-6, "Inspection"](#)(FWD) or [RAX-14, "Inspection"](#)(AWD).
2. Secure the disc brake rotor to the wheel hub and bearing with wheel nuts at two wheel nut locations.
3. Measure the runout with a dial gauge 10 mm (0.39 in) from the disc brake rotor edge.

Runout

: Refer to [BR-55, "Rear Disc Brake"](#).

4. Find the installation position with a minimum runout by shifting the disc brake rotor-to-wheel hub and bearing installation position by one hole at a time if the runout exceeds the limit value.
5. Refinish the disc brake rotor if the runout is outside the limit even after performing the above operation. When refinishing, use Tool.

Tool number : 38-PFM92

CAUTION:

- Check in advance that the thickness of the disc brake rotor is wear thickness + 0.3 mm (0.012 in) or more.
- If the thickness is less than wear thickness + 0.3 mm (0.012 in), replace the disc brake rotor.

Wear thickness

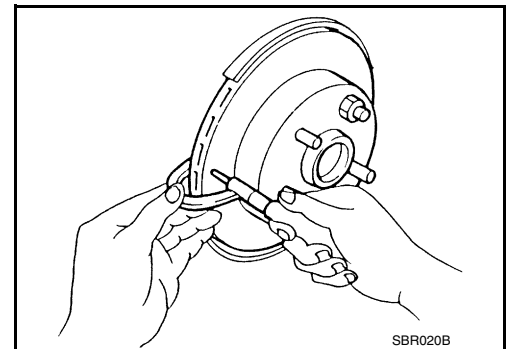
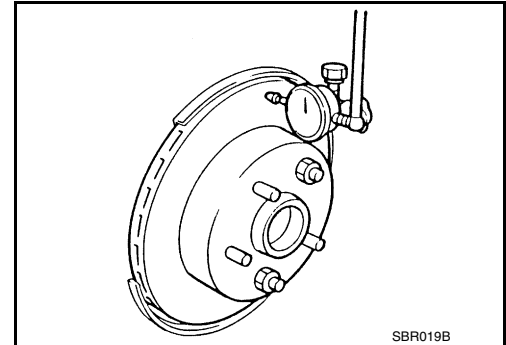
: Refer to [BR-55, "Rear Disc Brake"](#).

Thickness

Check the thickness of the disc brake rotor using a micrometer. Replace the disc brake rotor if the thickness is below the minimum thickness.

Minimum thickness : Refer to [BR-55, "Rear Disc Brake"](#).

Thickness variation : Refer to [BR-55, "Rear Disc Brake"](#).



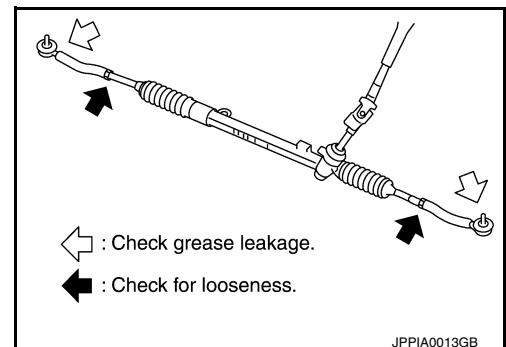
STEERING GEAR AND LINKAGE

STEERING GEAR AND LINKAGE : Inspection

INFOID:000000009794737

STEERING GEAR

- Check gear housing and boots for looseness, damage and grease leakage.
- Check connection with steering column for looseness.



STEERING LINKAGE

CHASSIS MAINTENANCE

< PERIODIC MAINTENANCE >

Check ball joint, dust cover and other component parts for looseness, wear, damage and grease leakage.

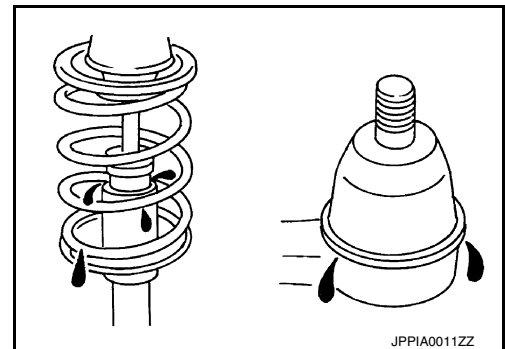
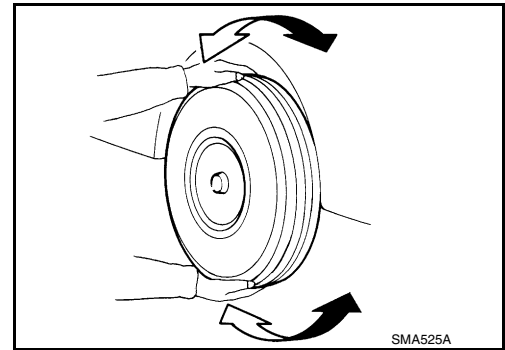
AXLE AND SUSPENSION PARTS

AXLE AND SUSPENSION PARTS : Inspection

INFOID:000000009794738

Check front and rear axle and suspension parts for excessive play, cracks, wear or other damage.

- Shake each wheel to check for excessive play.
- Check wheel bearings for smooth operation.
- Check axle and suspension nuts and bolts for looseness.
- Check strut (shock absorber) for oil leakage or other damage.
- Check suspension ball joint for grease leakage and ball joint dust cover for cracks or other damage.

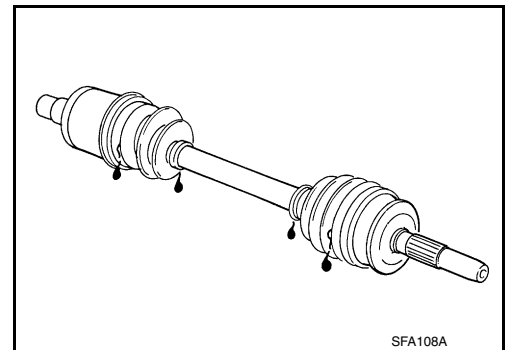


DRIVE SHAFT

DRIVE SHAFT : Inspection

INFOID:000000009794739

- Check boot and drive shaft for cracks, wear, damage and grease leakage.



LOCKS, HINGES AND HOOD LATCH

LOCKS, HINGES AND HOOD LATCH : Lubricating

INFOID:000000009794740

WITH INTELLIGENT KEY SYSTEM

For hood and hood lock illustration.

- Hood: Refer to [DLK-233, "Exploded View"](#).
- Hood lock control: Refer to [DLK-233, "Exploded View"](#).

For front door and front door lock illustration.

- Front door: Refer to [DLK-240, "Exploded View"](#).
- Front door lock: Refer to [DLK-256, "Exploded View"](#).
- Rear door: Refer to [DLK-244, "Exploded View"](#).
- Rear door lock: Refer to [DLK-260, "Exploded View"](#).

For back door and back door lock illustration.

CHASSIS MAINTENANCE

< PERIODIC MAINTENANCE >

- Back door: Refer to [DLK-248, "Exploded View"](#).
- Back door lock: Refer to [DLK-263, "Exploded View"](#).

WITHOUT INTELLIGENT KEY SYSTEM

For hood and hood lock illustration.

- Hood: Refer to [DLK-350, "Exploded View"](#).
- Hood lock control: Refer to [DLK-370, "Exploded View"](#).

For front door and front door lock illustration.

- Front door: Refer to [DLK-357, "Exploded View"](#).
- Front door lock: Refer to [DLK-377, "Exploded View"](#).
- Rear door: Refer to [DLK-361, "Exploded View"](#).
- Rear door lock: Refer to [DLK-377, "Exploded View"](#).

For back door and back door lock illustration.

- Back door: Refer to [DLK-365, "Exploded View"](#).
- Back door lock: Refer to [DLK-380, "Exploded View"](#).

SEAT BELT, BUCKLES, RETRACTORS, ANCHORS AND ADJUSTERS

SEAT BELT, BUCKLES, RETRACTORS, ANCHORS AND ADJUSTERS : Inspection

INFOID:000000009794741

For front seat belt illustration. Refer to [SB-8, "Exploded View"](#).

For rear seat belt illustration. Refer to [SB-12, "Exploded View"](#).

CAUTION:

- **After any collision, inspect all seat belt assemblies, including retractors and other attached hardwares (I.e. anchor bolt, guide rail set). Nissan recommends to replace all seat belt assemblies in use during a collision, unless not damaged and properly operating after minor collision. Also inspect seat belt assemblies not in use during a collision, and replace if damaged or improperly operating.**
Seat belt pre-tensioner should be replaced even if the seat belts are not in use during a frontal collision where the driver and passenger air bags are deployed.
- **If any component of seat belt assembly is questionable, do not repair. Replace as seat belt assembly.**
- **If webbing is cut, frayed, or damaged, replace belt assembly.**
- **Never oil tongue and buckle.**
- **Use a genuine NISSAN seat belt assembly.**

For details, refer to [SB-5, "Inspection"](#) in SB section.

- Check anchors for loose mounting
- Check belts for damage
- Check retractor for smooth operation
- Check function of buckles and tongues when buckled and released

SECTION

MIR

MIRRORS

A

B

C

CONTENTS

E

PRECAUTION	2	SYMPTOM DIAGNOSIS	14	F
PRECAUTIONS	2	SQUEAK AND RATTLE TROUBLE DIAG- NOSES	14	G
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TEN- SIONER"	2	Work Flow	14	H
Precaution for Work	2	Generic Squeak and Rattle Troubleshooting	15	
		Diagnostic Worksheet	18	
PREPARATION	3	REMOVAL AND INSTALLATION	20	
PREPARATION	3	INSIDE MIRROR	20	I
Special Service Tool	3	Exploded View	20	
Commercial Service Tools	3	Removal and Installation	20	
WIRING DIAGRAM	4	DOOR MIRROR	22	J
INSIDE MIRROR	4	Exploded View	22	
Wiring Diagram - With Homelink Universal Trans- ceiver	4	Removal and Installation	22	K
Wiring Diagram - Without Homelink Universal Transceiver	7	DOOR MIRROR GLASS	24	
DOOR MIRROR	10	Removal and Installation	24	
Wiring Diagram	10	DOOR MIRROR REAR FINISHER	25	MIR
DTC/CIRCUIT DIAGNOSIS	13	Removal and Installation	25	
DOOR MIRROR REMOTE CONTROL SWITCH (MIRROR SWITCH/CHANGE OVER SWITCH)	13	SIDE CAMERA FINISHER	26	M
Component Inspection	13	Removal and Installation	26	
		DOOR MIRROR REMOTE CONTROL SWITCH	27	N
		Removal and Installation	27	

O

P

PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010284168

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Precaution for Work

INFOID:0000000010284167

- When removing or disassembling each component, be careful not to damage or deform it. If a component may be subject to interference, be sure to protect it with a shop cloth.
- When removing (disengaging) components with a screwdriver or similar tool, be sure to wrap the component with a shop cloth or vinyl tape to protect it.
- Protect the removed parts with a shop cloth and prevent them from being dropped.
- Replace a deformed or damaged clip.
- If a part is specified as a non-reusable part, always replace it with a new one.
- Be sure to tighten bolts and nuts securely to the specified torque.
- After installation is complete, be sure to check that each part works properly.
- Follow the steps below to clean components:
 - Water soluble dirt:
 - Dip a soft cloth into lukewarm water, wring the water out of the cloth and wipe the dirty area.
 - Then rub with a soft, dry cloth.
 - Oily dirt:
 - Dip a soft cloth into lukewarm water with mild detergent (concentration: within 2 to 3%) and wipe the dirty area.
 - Then dip a cloth into fresh water, wring the water out of the cloth and wipe the detergent off.
 - Then rub with a soft, dry cloth.
 - Do not use organic solvent such as thinner, benzene, alcohol or gasoline.
 - For genuine leather seats, use a genuine leather seat cleaner.

PREPARATION

< PREPARATION >

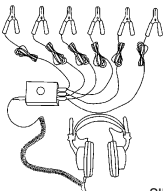
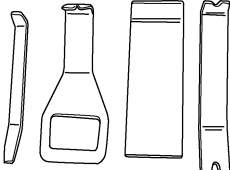
PREPARATION

PREPARATION

Special Service Tool

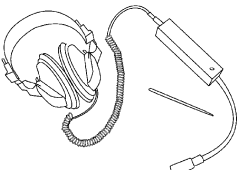
INFOID:000000010284251

The actual shape of the tools may differ from those illustrated here.

Tool number (TechMate No.) Tool name	Description
— (J-39570) Chassis Ear	Locating the noise
 SIIA0993E	
— (J-46534) Trim Tool Set	Removing trim components
 AWJIA0483ZZ	
— (J-50397) NISSAN Squeak and Rattle Kit	Repairing the cause of noise
 ALJIA1232ZZ	

Commercial Service Tools

INFOID:000000010284252

(TechMate No.) Tool name	Description
(J-39565) Engine Ear	Locating the noise
 SIIA0995E	

INSIDE MIRROR

< WIRING DIAGRAM >

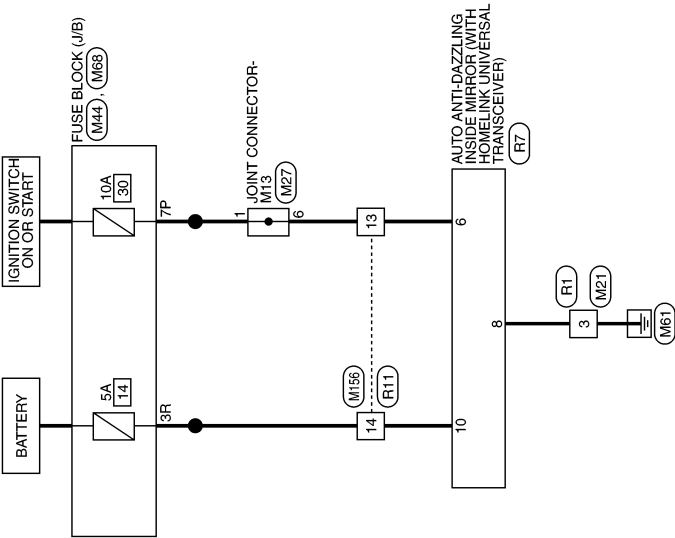
WIRING DIAGRAM

INSIDE MIRROR

Wiring Diagram - With Homelink Universal Transceiver

INFOID:0000000010290348

INSIDE MIRROR - WITH HOMELINK UNIVERSAL TRANSCEIVER



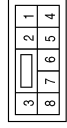
AALWA0784GB

INSIDE MIRROR

< WIRING DIAGRAM >

INSIDE MIRROR-WITH HOMELINK UNIVERSAL TRANSCEIVER CONNECTORS

Connector No.	M21
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	M27
Connector Name	JOINT CONNECTOR-M13
Connector Color	WHITE



Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	3
Color of Wire	B
Signal Name	-

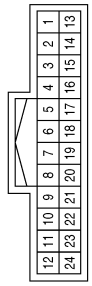
Terminal No.	1
Color of Wire	SB
Signal Name	-
Terminal No.	6
Color of Wire	SB
Signal Name	-

Terminal No.	7P
Color of Wire	Y
Signal Name	-

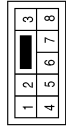
Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN



Connector No.	M156
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	R1
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	3R
Color of Wire	V
Signal Name	-

Terminal No.	13
Color of Wire	SB
Signal Name	-
Terminal No.	14
Color of Wire	GR
Signal Name	-

Terminal No.	3
Color of Wire	B
Signal Name	-

MIR

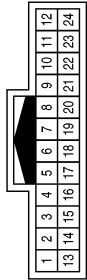
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P

AALIA2169GB

INSIDE MIRROR

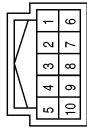
< WIRING DIAGRAM >

Connector No.	R11
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
13	SB	-
14	P	-

Connector No.	R7
Connector Name	AUTO ANTI-DAZZLING INSIDE MIRROR (WITH HOMELINK UNIVERSAL TRANSCIEVER)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
6	SB	-
8	B	-
10	P	-

AALJA2170GB

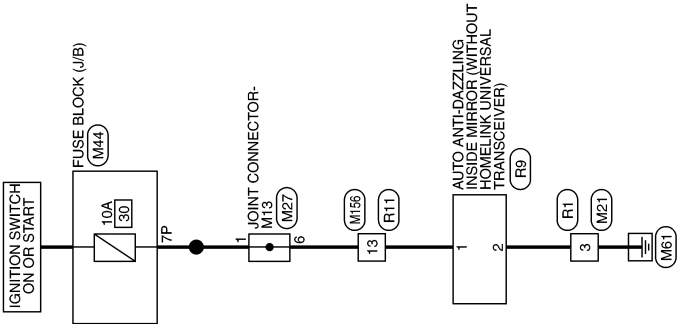
INSIDE MIRROR

< WIRING DIAGRAM >

Wiring Diagram - Without Homelink Universal Transceiver

INFOID:0000000010290349

INSIDE MIRROR - WITHOUT HOMELINK UNIVERSAL TRANSCEIVER



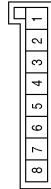
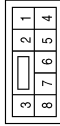
MIR

INSIDE MIRROR

< WIRING DIAGRAM >

INSIDE MIRROR-WITHOUT HOMELINK TRANSCEIVER CONNECTORS

Connector No.	M21
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	M27
Connector Name	JOINT CONNECTOR-M13
Connector Color	WHITE

Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE

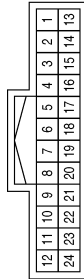


Terminal No.	3
Color of Wire	B
Signal Name	—

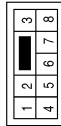
Terminal No.	1
Color of Wire	SB
Signal Name	—
Terminal No.	6
Color of Wire	SB
Signal Name	—

Terminal No.	7P
Color of Wire	Y
Signal Name	—

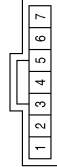
Connector No.	M156
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	R1
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	R9
Connector Name	AUTO ANTI-DAZZLING INSIDE MIRROR (WITHOUT HOMELINK UNIVERSAL TRANSCIEVER)
Connector Color	BLACK



Terminal No.	13
Color of Wire	SB
Signal Name	—

Terminal No.	3
Color of Wire	B
Signal Name	—

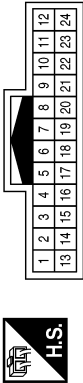
Terminal No.	1
Color of Wire	SB
Signal Name	—
Terminal No.	2
Color of Wire	B
Signal Name	—

INSIDE MIRROR

< WIRING DIAGRAM >

A
B
C
D
E
F
G
H
I
J
K
MIR
M
N
O
P

Connector No.	R11
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
13	SB	-

AALIA2172GB

DOOR MIRROR

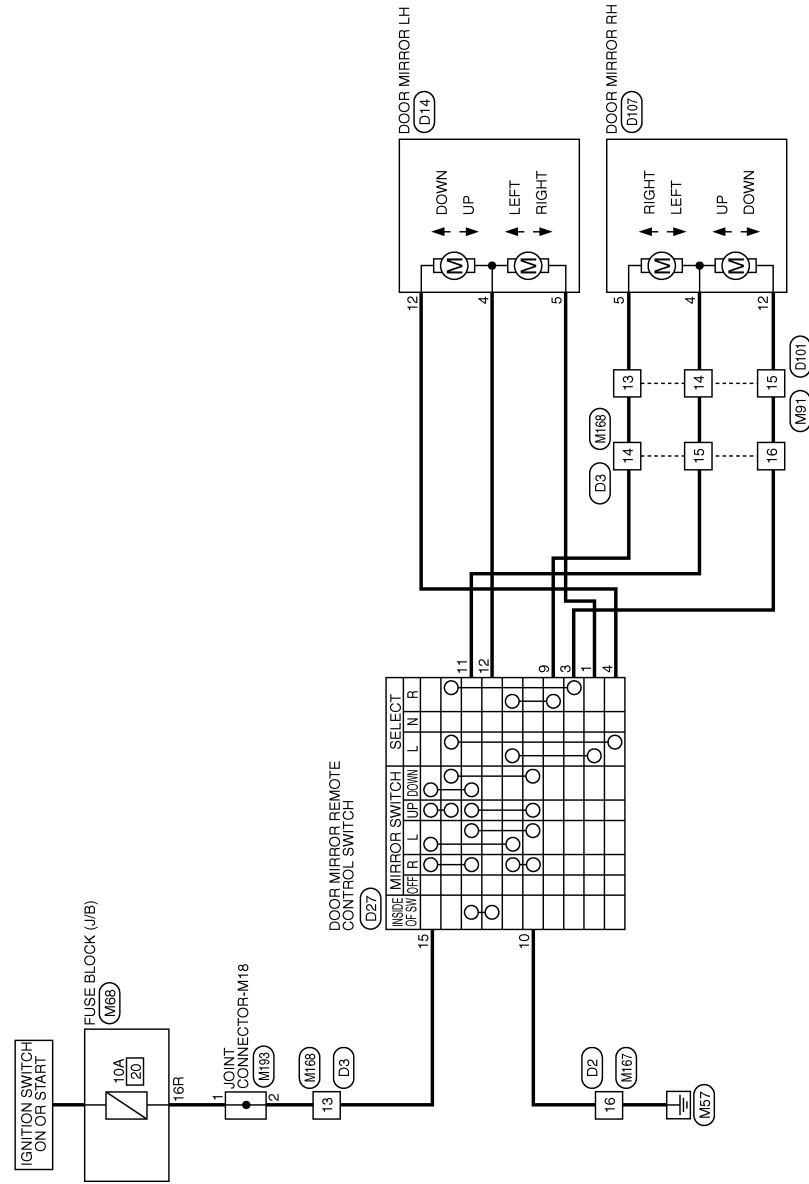
< WIRING DIAGRAM >

DOOR MIRROR

Wiring Diagram

INFOID:0000000010290350

DOOR MIRROR



AALWA0791GB

DOOR MIRROR

< WIRING DIAGRAM >

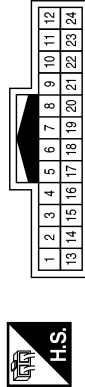
DOOR MIRROR CONNECTORS

Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN



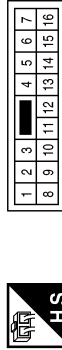
Terminal No.	Color of Wire	Signal Name
16R	GR	—

Connector No.	M91
Connector Name	WIRE TO WIRE
Connector Color	WHITE



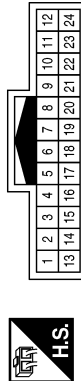
Terminal No.	Color of Wire	Signal Name
13	LA/SB	—
14	LA/GR	—
15	LAV	—

Connector No.	M167
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
16	B	—

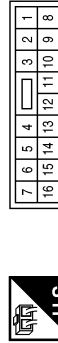
Connector No.	M168
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	M193
Connector Name	JOINT CONNECTOR-M18
Connector Color	WHITE



Connector No.	D2
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
13	GR	—
14	LA/SB	—
15	LA/GR	—
16	LAV	—

Terminal No.	Color of Wire	Signal Name
1	GR	—
2	GR	—

Terminal No.	Color of Wire	Signal Name
16	B	—

AALIA2167GB

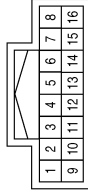
A
B
C
D
E
F
G
H
I
J
K
M
N
O
P

MIR

DOOR MIRROR

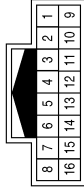
< WIRING DIAGRAM >

Connector No.	D27
Connector Name	DOOR MIRROR REMOTE CONTROL SWITCH
Connector Color	BLACK



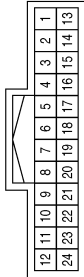
Terminal No.	Color of Wire	Signal Name
1	LA/W	-
3	LA/V	-
4	LA/GR	-
9	LA/Y	-
10	B	-
11	LA/LG	-
12	LA/BR	-
15	LA/W	-

Connector No.	D14
Connector Name	DOOR MIRROR LH
Connector Color	WHITE



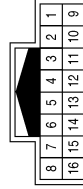
Terminal No.	Color of Wire	Signal Name
4	LA/BR	-
5	LA/W	-
12	LA/GR	-

Connector No.	D3
Connector Name	WIRE TO WIRE
Connector Color	WHITE



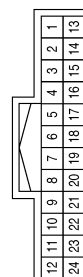
Terminal No.	Color of Wire	Signal Name
13	LA/W	-
14	LA/Y	-
15	LA/LG	-
16	LA/V	-

Connector No.	D107
Connector Name	DOOR MIRROR RH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
4	LA/R	-
5	LA/Y	-
12	LA/V	-

Connector No.	D101
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
13	LA/Y	-
14	LA/R	-
15	LA/V	-

AALIA2168GB

DOOR MIRROR REMOTE CONTROL SWITCH (MIRROR SWITCH/ CHANGEOVER SWITCH)

< DTC/CIRCUIT DIAGNOSIS >

DTC/CIRCUIT DIAGNOSIS

DOOR MIRROR REMOTE CONTROL SWITCH (MIRROR SWITCH/ CHANGEOVER SWITCH)

Component Inspection

INFOID:0000000010377391

1. CHECK MIRROR SWITCH & CHANGEOVER SWITCH

1. Turn ignition switch OFF.
2. Disconnect door mirror remote control switch connector.
3. Check door mirror remote control switch.

Door mirror remote control switch			Condition		Continuity
Terminal			Change over switch	Mirror switch	
RH	15	11	RIGHT	RIGHT	Yes
	10	3		LEFT	
	15	3		UP	
	10	11		DOWN	
	15	9			
	10	11			
	15	11			
	10	9			
LH	15	12	LEFT	RIGHT	
	10	4		LEFT	
	15	4		UP	
	10	12		DOWN	
	15	1			
	10	12			
	15	12			
	10	1			

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace door mirror remote control switch. Refer to [MIR-27, "Removal and Installation"](#).

MIR

SQUEAK AND RATTLE TROUBLE DIAGNOSES

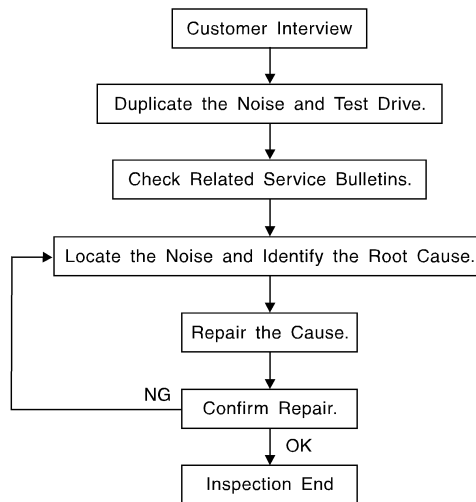
< SYMPTOM DIAGNOSIS >

SYMPTOM DIAGNOSIS

SQUEAK AND RATTLE TROUBLE DIAGNOSES

Work Flow

INFOID:000000010284241



SBT842

CUSTOMER INTERVIEW

Interview the customer if possible, to determine the conditions that exist when the noise occurs. Use the Diagnostic Worksheet during the interview to document the facts and conditions when the noise occurs and any customer's comments; refer to [MIR-18, "Diagnostic Worksheet"](#). This information is necessary to duplicate the conditions that exist when the noise occurs.

- The customer may not be able to provide a detailed description or the location of the noise. Attempt to obtain all the facts and conditions that exist when the noise occurs (or does not occur).
- If there is more than one noise in the vehicle, be sure to diagnose and repair the noise that the customer is concerned about. This can be accomplished by test driving the vehicle with the customer.
- After identifying the type of noise, isolate the noise in terms of its characteristics. The noise characteristics are provided so the customer, service adviser and technician are all speaking the same language when defining the noise.
- Squeak —(Like tennis shoes on a clean floor)
Squeak characteristics include the light contact/fast movement/brought on by road conditions/hard surfaces = higher pitch noise/softer surfaces = lower pitch noises/edge to surface = chirping.
- Creak—(Like walking on an old wooden floor)
Creak characteristics include firm contact/slow movement/twisting with a rotational movement/pitch dependent on materials/often brought on by activity.
- Rattle—(Like shaking a baby rattle)
Rattle characteristics include the fast repeated contact/vibration or similar movement/loose parts/missing clip or fastener/incorrect clearance.
- Knock —(Like a knock on a door)
Knock characteristics include hollow sounding/sometimes repeating/often brought on by driver action.
- Tick—(Like a clock second hand)
Tick characteristics include gentle contacting of light materials/loose components/can be caused by driver action or road conditions.
- Thump—(Heavy, muffled knock noise)
Thump characteristics include softer knock/dead sound often brought on by activity.
- Buzz—(Like a bumble bee)
Buzz characteristics include high frequency rattle/firm contact.
- Often the degree of acceptable noise level will vary depending upon the person. A noise that you may judge as acceptable may be very irritating to the customer.
- Weather conditions, especially humidity and temperature, may have a great effect on noise level.

DUPLICATE THE NOISE AND TEST DRIVE

SQUEAK AND RATTLE TROUBLE DIAGNOSES

< SYMPTOM DIAGNOSIS >

If possible, drive the vehicle with the customer until the noise is duplicated. Note any additional information on the Diagnostic Worksheet regarding the conditions or location of the noise. This information can be used to duplicate the same conditions when you confirm the repair.

If the noise can be duplicated easily during the test drive, to help identify the source of the noise, try to duplicate the noise with the vehicle stopped by doing one or all of the following:

- 1) Close a door.
 - 2) Tap or push/pull around the area where the noise appears to be coming from.
 - 3) Rev the engine.
 - 4) Use a floor jack to recreate vehicle "twist".
 - 5) At idle, apply engine load (electrical load, half-clutch on M/T model, drive position on CVT and A/T models).
 - 6) Raise the vehicle on a hoist and hit a tire with a rubber hammer.
- Drive the vehicle and attempt to duplicate the conditions the customer states exist when the noise occurs.
 - If it is difficult to duplicate the noise, drive the vehicle slowly on an undulating or rough road to stress the vehicle body.

CHECK RELATED SERVICE BULLETINS

After verifying the customer concern or symptom, check ASIST for Technical Service Bulletins (TSBs) related to that concern or symptom.

If a TSB relates to the symptom, follow the procedure to repair the noise.

LOCATE THE NOISE AND IDENTIFY THE ROOT CAUSE

1. Narrow down the noise to a general area. To help pinpoint the source of the noise, use a listening tool (Chassis Ear: J-39570, Engine Ear: J-39565 and mechanic's stethoscope).
2. Narrow down the noise to a more specific area and identify the cause of the noise by:
 - removing the components in the area that you suspect the noise is coming from.
Do not use too much force when removing clips and fasteners, otherwise clips and fasteners can be broken or lost during the repair, resulting in the creation of new noise.
 - tapping or pushing/pulling the component that you suspect is causing the noise.
Do not tap or push/pull the component with excessive force, otherwise the noise will be eliminated only temporarily.
 - feeling for a vibration with your hand by touching the component(s) that you suspect is (are) causing the noise.
 - placing a piece of paper between components that you suspect are causing the noise.
 - looking for loose components and contact marks.Refer to [MIR-15. "Generic Squeak and Rattle Troubleshooting"](#).

REPAIR THE CAUSE

- If the cause is a loose component, tighten the component securely.
- If the cause is insufficient clearance between components:
 - separate components by repositioning or loosening and retightening the component, if possible.
 - insulate components with a suitable insulator such as urethane pads, foam blocks, felt cloth tape or urethane tape. A NISSAN Squeak and Rattle Kit (J-50397) is available through your authorized NISSAN Parts Department.

CAUTION:

Do not use excessive force as many components are constructed of plastic and may be damaged.

NOTE:

- Always check with the Parts Department for the latest parts information.
- The materials contained in the NISSAN Squeak and Rattle Kit (J-50397) are listed on the inside cover of the kit; and can each be ordered separately as needed.
- The following materials not found in the kit can also be used to repair squeaks and rattles.
 - SILICONE GREASE: Use instead of UHMW tape that will be visible or does not fit. The silicone grease will only last a few months.
 - SILICONE SPRAY: Use when grease cannot be applied.
 - DUCT TAPE: Use to eliminate movement.

CONFIRM THE REPAIR

Confirm that the cause of a noise is repaired by test driving the vehicle. Operate the vehicle under the same conditions as when the noise originally occurred. Refer to the notes on the Diagnostic Worksheet.

Generic Squeak and Rattle Troubleshooting

INFOID:0000000010284242

Refer to Table of Contents for specific component removal and installation information.

SQUEAK AND RATTLE TROUBLE DIAGNOSES

< SYMPTOM DIAGNOSIS >

INSTRUMENT PANEL

Most incidents are caused by contact and movement between:

1. Cluster lid A and the instrument panel
2. Acrylic lens and combination meter housing
3. Instrument panel to front pillar finisher
4. Instrument panel to windshield
5. Instrument panel pins
6. Wiring harnesses behind the combination meter
7. A/C defroster duct and duct joint

These incidents can usually be located by tapping or moving the components to duplicate the noise or by pressing on the components while driving to stop the noise. Most of these incidents can be repaired by applying felt cloth tape or silicone spray (in hard to reach areas). Urethane pads can be used to insulate wiring harness.

CAUTION:

Do not use silicone spray to isolate a squeak or rattle. If you saturate the area with silicone, you will not be able to recheck the repair.

CENTER CONSOLE

Components to pay attention to include:

1. Shift selector assembly cover to finisher
2. A/C control unit and cluster lid C
3. Wiring harnesses behind audio and A/C control unit

The instrument panel repair and isolation procedures also apply to the center console.

DOORS

Pay attention to the:

1. Finisher and inner panel making a slapping noise
2. Inside handle escutcheon to door finisher
3. Wiring harnesses tapping
4. Door striker out of alignment causing a popping noise on starts and stops

Tapping or moving the components or pressing on them while driving to duplicate the conditions can isolate many of these incidents. You can usually insulate the areas with felt cloth tape or insulator foam blocks from the NISSAN Squeak and Rattle Kit (J-50397) to repair the noise.

TRUNK

Trunk noises are often caused by a loose jack or loose items put into the trunk by the owner.

In addition look for:

1. Trunk lid bumpers out of adjustment
2. Trunk lid striker out of adjustment
3. The trunk lid torsion bars knocking together
4. A loose license plate or bracket

Most of these incidents can be repaired by adjusting, securing or insulating the item(s) or component(s) causing the noise.

SUNROOF/HEADLINING

Noises in the sunroof/headlining area can often be traced to one of the following:

1. Sunroof lid, rail, linkage or seals making a rattle or light knocking noise
2. Sun visor shaft shaking in the holder
3. Front or rear windshield touching headlining and squeaking

Again, pressing on the components to stop the noise while duplicating the conditions can isolate most of these incidents. Repairs usually consist of insulating with felt cloth tape.

OVERHEAD CONSOLE (FRONT AND REAR)

Overhead console noises are often caused by the console panel clips not being engaged correctly. Most of these incidents are repaired by pushing up on the console at the clip locations until the clips engage.

In addition look for:

SQUEAK AND RATTLE TROUBLE DIAGNOSES

< SYMPTOM DIAGNOSIS >

1. Loose harness or harness connectors.
2. Front console map/reading lamp lens loose.
3. Loose screws at console attachment points.

A

SEATS

When isolating seat noise it's important to note the position the seat is in and the load placed on the seat when the noise is present. These conditions should be duplicated when verifying and isolating the cause of the noise.

B

Cause of seat noise include:

C

1. Headrest rods and holder
2. A squeak between the seat pad cushion and frame
3. The rear seatback lock and bracket

D

These noises can be isolated by moving or pressing on the suspected components while duplicating the conditions under which the noise occurs. Most of these incidents can be repaired by repositioning the component or applying urethane tape to the contact area.

E

UNDERHOOD

Some interior noise may be caused by components under the hood or on the engine wall. The noise is then transmitted into the passenger compartment.

F

Causes of transmitted underhood noise include:

1. Any component installed to the engine wall
2. Components that pass through the engine wall
3. Engine wall mounts and connectors
4. Loose radiator installation pins
5. Hood bumpers out of adjustment
6. Hood striker out of adjustment

G

H

These noises can be difficult to isolate since they cannot be reached from the interior of the vehicle. The best method is to secure, move or insulate one component at a time and test drive the vehicle. Also, engine rpm or load can be changed to isolate the noise. Repairs can usually be made by moving, adjusting, securing, or insulating the component causing the noise.

I

J

K

MIR

M

N

O

P

SQUEAK AND RATTLE TROUBLE DIAGNOSES

< SYMPTOM DIAGNOSIS >

Diagnostic Worksheet

INFOID:000000010284243

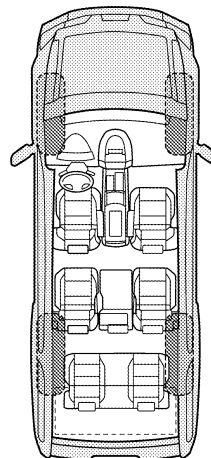
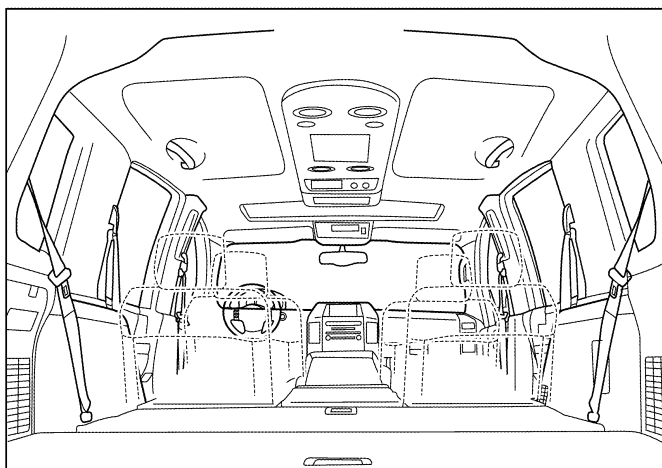
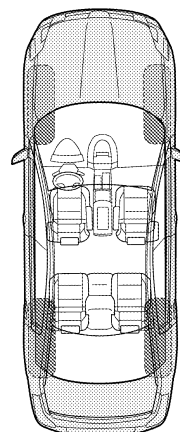
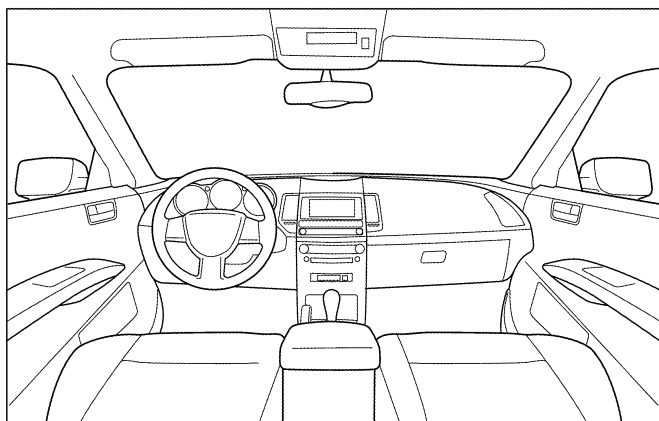
Dear Customer:

We are concerned about your satisfaction with your vehicle. Repairing a squeak or rattle sometimes can be very difficult. To help us fix your vehicle right the first time, please take a moment to note the area of the vehicle where the squeak or rattle occurs and under what conditions. You may be asked to take a test drive with a service advisor or technician to ensure we confirm the noise you are hearing.

SQUEAK & RATTLE DIAGNOSTIC WORKSHEET

I. WHERE DOES THE NOISE COME FROM? (circle the area of the vehicle)

The illustrations are for reference only, and may not reflect the actual configuration of your vehicle.



Continue to page 2 of the worksheet and briefly describe the location of the noise or rattle. In addition, please indicate the conditions which are present when the noise occurs.

SQUEAK AND RATTLE TROUBLE DIAGNOSES

< SYMPTOM DIAGNOSIS >

SQUEAK & RATTLE DIAGNOSTIC WORKSHEET - page 2

Briefly describe the location where the noise occurs:

II. WHEN DOES IT OCCUR? (please check the boxes that apply)

- | | |
|---|--|
| ☐ Anytime | ☐ After sitting out in the rain |
| ☐ 1st time in the morning | ☐ When it is raining or wet |
| ☐ Only when it is cold outside | ☐ Dry or dusty conditions |
| ☐ Only when it is hot outside | ☐ Other: |

III. WHEN DRIVING:

- ☐ Through driveways
- ☐ Over rough roads
- ☐ Over speed bumps
- ☐ Only about ____ mph
- ☐ On acceleration
- ☐ Coming to a stop
- ☐ On turns: left, right or either (circle)
- ☐ With passengers or cargo
- ☐ Other: _____
- ☐ After driving ____ miles or ____ minutes

IV. WHAT TYPE OF NOISE

- ☐ Squeak (like tennis shoes on a clean floor)
- ☐ Creak (like walking on an old wooden floor)
- ☐ Rattle (like shaking a baby rattle)
- ☐ Knock (like a knock at the door)
- ☐ Tick (like a clock second hand)
- ☐ Thump (heavy muffled knock noise)
- ☐ Buzz (like a bumble bee)

TO BE COMPLETED BY DEALERSHIP PERSONNEL

Test Drive Notes:

	YES	NO	Initials of person performing
Vehicle test driven with customer	☐	☐	_____
- Noise verified on test drive	☐	☐	_____
- Noise source located and repaired	☐	☐	_____
- Follow up test drive performed to confirm repair	☐	☐	_____

VIN: _____ Customer Name _____
W.O.# _____ Date: _____

This form must be attached to Work Order

LAIA0071E

INSIDE MIRROR

< REMOVAL AND INSTALLATION >

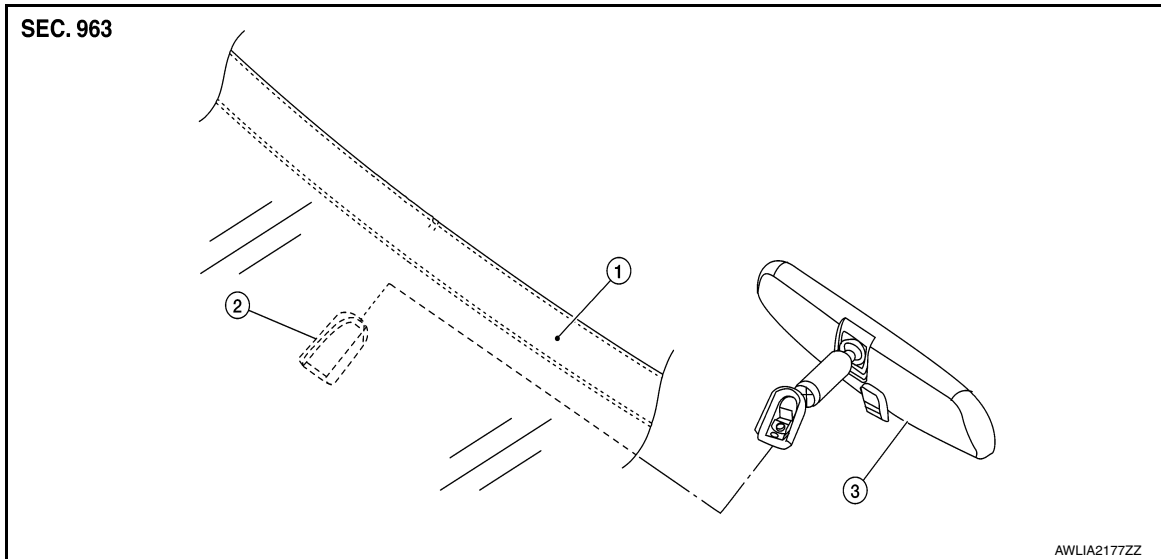
REMOVAL AND INSTALLATION

INSIDE MIRROR

Exploded View

INFOID:000000009796276

MANUAL ANTI-DAZZLING

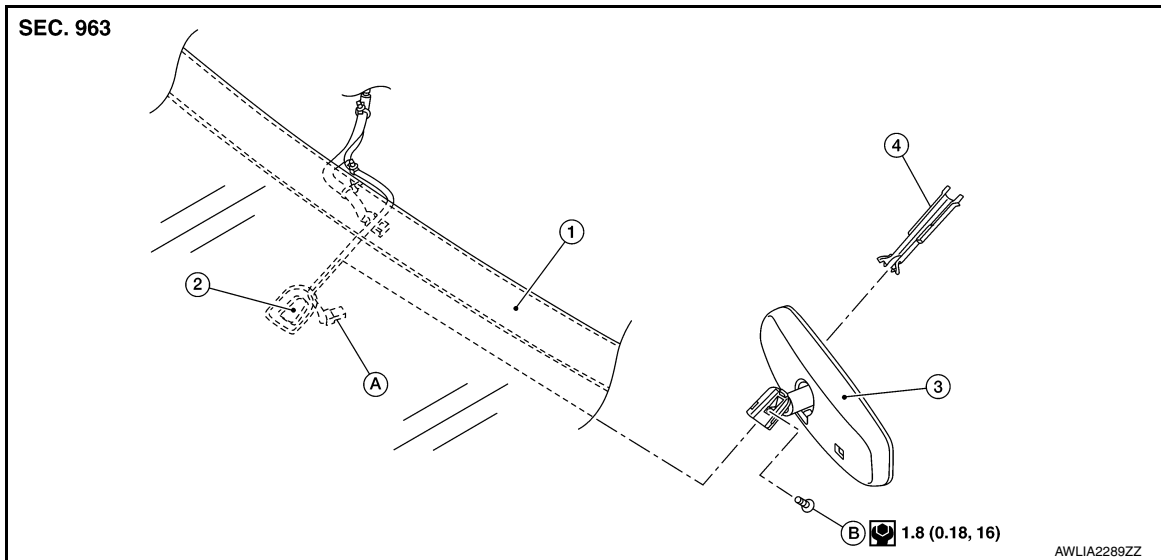


1. Windshield glass

2. Mirror base

3. Inside mirror

AUTO ANTI-DAZZLING



1. Windshield glass

2. Mirror base

3. Inside mirror

4. Inside mirror finisher

A. Harness connector

B. Bolt

Removal and Installation

INFOID:000000009796277

MANUAL ANTI-DAZZLING

Removal

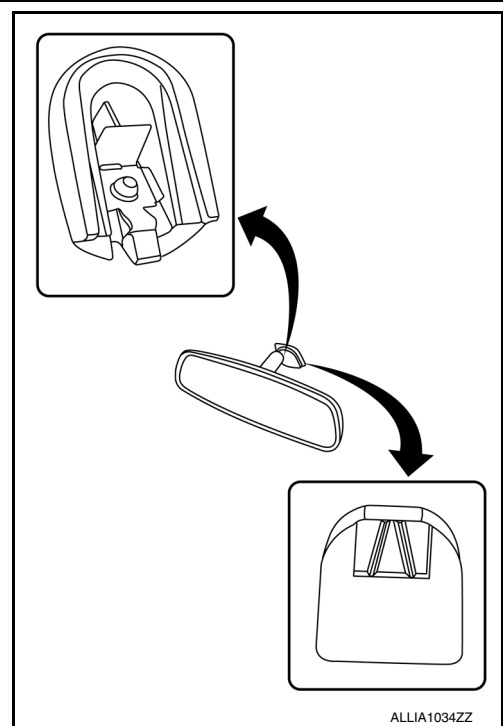
INSIDE MIRROR

< REMOVAL AND INSTALLATION >

1. Hold inside mirror at the base and push upward, while using a suitable tool to release the pawl and remove.

CAUTION:

Use care when removing inside mirror to avoid damage to mirror, mirror base or windshield glass.



Installation

Installation is in the reverse order of removal.

CAUTION:

Apply Genuine Mirror Adhesive or equivalent to bonding surface of mirror base if loose or removed. Refer to [GI-22, "Recommended Chemical Products and Sealants"](#).

AUTO ANTI-DAZZLING

Removal

1. Remove inside mirror finisher.
2. Disconnect the harness connector from the inside mirror.
3. Loosen bolt and slide inside mirror upward to remove.

Installation

Installation is in the reverse order of removal.

- Calibrate compass (if equipped).

CAUTION:

Apply Genuine Mirror Adhesive or equivalent to bonding surface of mirror base if loose or removed. Refer to [GI-22, "Recommended Chemical Products and Sealants"](#).

NOTE:

Calibrate the compass by driving the vehicle in a complete circle three times.

A
B
C
D
E
F
G
H
I
J
K
M
N
O
P

MIR

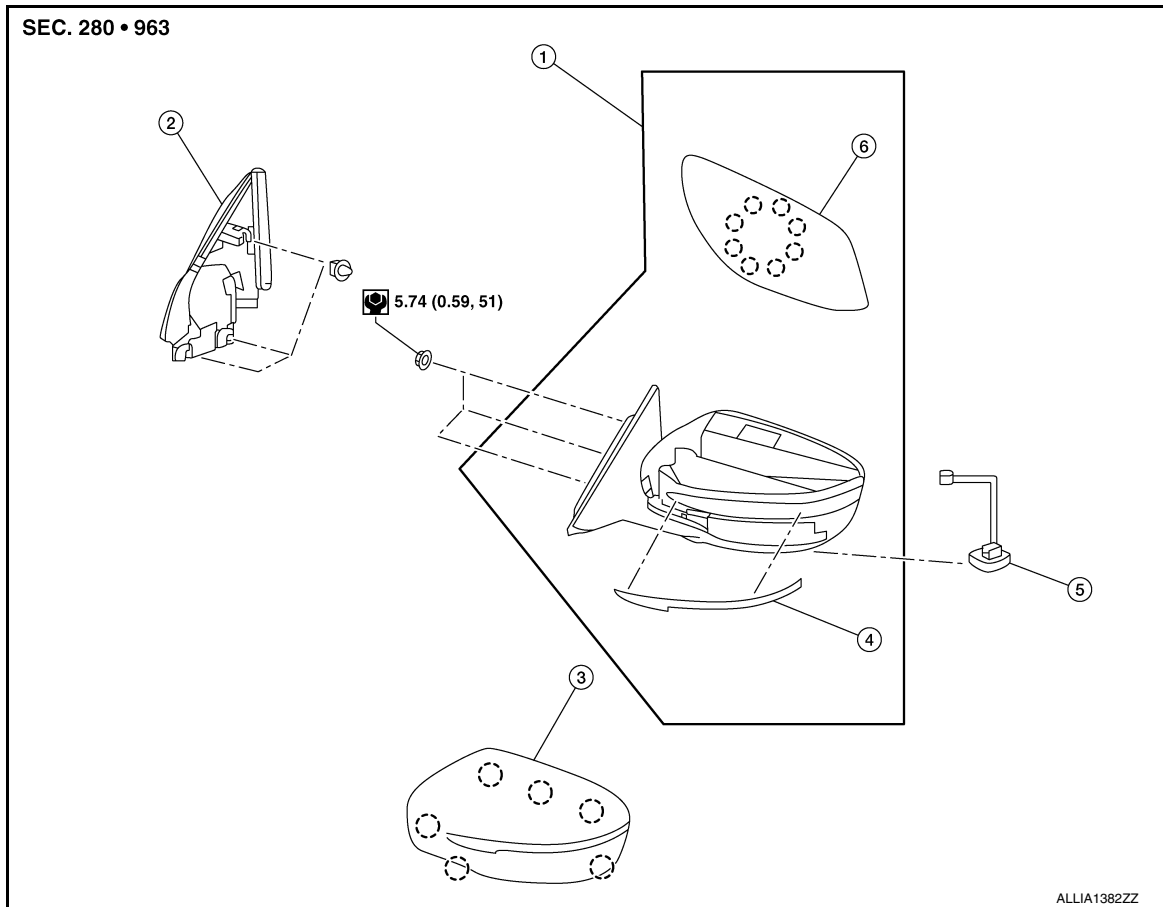
DOOR MIRROR

< REMOVAL AND INSTALLATION >

DOOR MIRROR

Exploded View

INFOID:000000009796278



- | | | |
|--------------------------|--------------------------------|------------------------------|
| 1. Door mirror | 2. Door mirror corner finisher | 3. Door mirror rear finisher |
| 4. Side turn signal lamp | 5. Side camera (if equipped) | 6. Door mirror glass |
| ○ Pawl | | |

Removal and Installation

INFOID:000000009796279

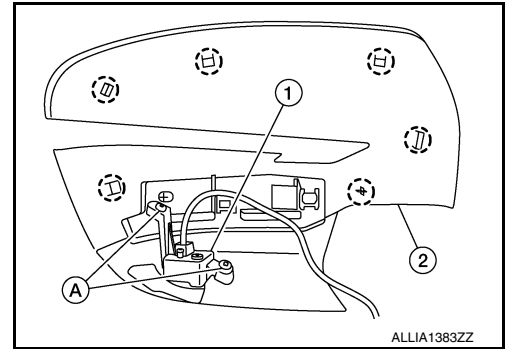
REMOVAL

1. Remove front door finisher. Refer to [INT-15, "Removal and Installation"](#).
2. Release door mirror corner finisher clips using a suitable tool.
3. Disconnect the harness connector from the blind spot warning indicator (if equipped), then remove the door mirror corner finisher.
4. Disconnect the harness connector from the door mirror.
5. Remove door mirror nuts and door mirror.

DOOR MIRROR

< REMOVAL AND INSTALLATION >

6. Remove screws (A) and side camera (1) (if equipped) (if necessary) from door mirror rear finisher (2).
○: Pawl



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

Perform camera image calibration (if equipped with around view camera). Refer to [AV-136, "CALIBRATING CAMERA IMAGE \(AROUND VIEW MONITOR\) : Work Procedure"](#).

DOOR MIRROR GLASS

< REMOVAL AND INSTALLATION >

DOOR MIRROR GLASS

Removal and Installation

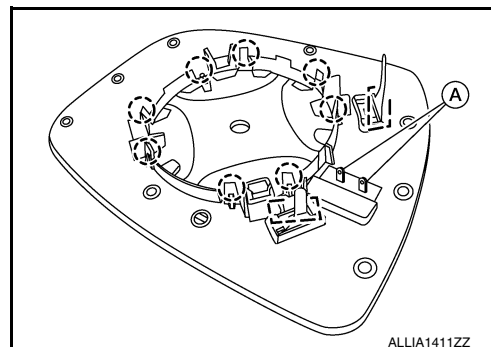
INFOID:000000009796281

REMOVAL

1. Release the metal clips and pawls that retain the door mirror glass using a suitable tool, disconnect the harness connectors (A) (if equipped) from the door mirror glass and remove.

□: Metal clip

○: Pawl



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

After installation, visually inspect that metal clips and pawls are securely engaged.

DOOR MIRROR REAR FINISHER

< REMOVAL AND INSTALLATION >

DOOR MIRROR REAR FINISHER

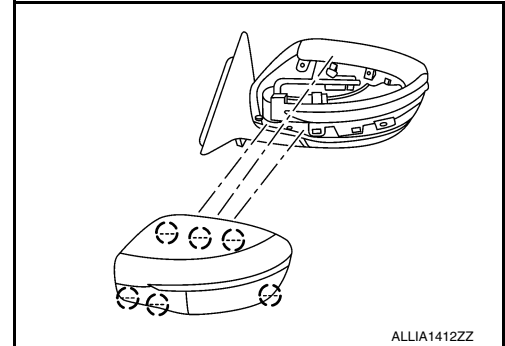
Removal and Installation

INFOID:000000009796282

REMOVAL

1. Beginning at the top of door mirror rear finisher and working around, use a suitable tool to release the pawls and remove door mirror rear finisher.

⦿: Pawl



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

After installation, visually check that all the pawls are securely engaged.

A
B
C
D
E
F
G
H
I
J
K
M
N
O
P

MIR

SIDE CAMERA FINISHER

< REMOVAL AND INSTALLATION >

SIDE CAMERA FINISHER

Removal and Installation

INFOID:0000000010284254

The side camera finisher (if equipped) or door mirror lower finisher is serviced as part of the door mirror rear finisher. Refer to [MIR-25, "Removal and Installation"](#).

DOOR MIRROR REMOTE CONTROL SWITCH

< REMOVAL AND INSTALLATION >

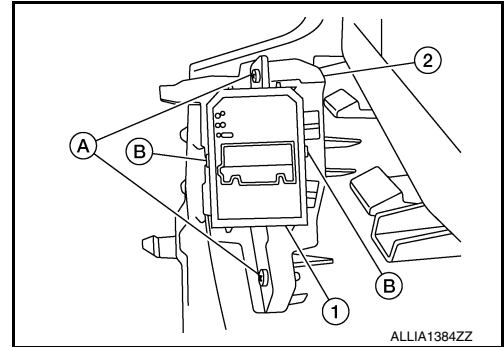
DOOR MIRROR REMOTE CONTROL SWITCH

Removal and Installation

INFOID:000000009796284

REMOVAL

1. Release pawls using a suitable tool and remove front door pull handle (LH). Refer to [INT-15. "Exploded View"](#).
2. Release pawls (B) using a suitable tool and remove door mirror remote control switch (1).
3. Remove screws (A) and door mirror remote control switch bracket (2) (if necessary).



INSTALLATION

Installation is in the reverse order of removal.

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P

MIR

MWI

SECTION

METER, WARNING LAMP & INDICATOR

CONTENTS

PRECAUTION	4	METER EFFECT FUNCTION : System Description	13
PRECAUTIONS	4	INFORMATION DISPLAY	14
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	4	INFORMATION DISPLAY : System Description	15
PREPARATION	5	COMPASS	16
PREPARATION	5	COMPASS : Description	16
Commercial Service Tools	5	OPERATION	18
SYSTEM DESCRIPTION	6	Switch Name and Function	18
COMPONENT PARTS	6	DIAGNOSIS SYSTEM (COMBINATION METER)	19
METER SYSTEM	6	Description	19
METER SYSTEM : Component Parts Location	6	CONSULT Function (METER/M&A)	21
METER SYSTEM : Design	7	ECU DIAGNOSIS INFORMATION	24
SYSTEM	8	COMBINATION METER	24
METER SYSTEM	8	Reference Value	24
METER SYSTEM : System Description	8	Fail-safe	29
METER SYSTEM : Fail-safe	10	DTC Index	30
SPEEDOMETER	11	BCM (BODY CONTROL MODULE)	31
SPEEDOMETER : System Description	11	List of ECU Reference	31
TACHOMETER	12	WIRING DIAGRAM	32
TACHOMETER : System Description	12	METER SYSTEM	32
ENGINE COOLANT TEMPERATURE GAUGE	12	Wiring Diagram	32
ENGINE COOLANT TEMPERATURE GAUGE : System Description	12	COMPASS	49
FUEL GAUGE	12	Wiring Diagram	49
FUEL GAUGE : System Description	12	BASIC INSPECTION	52
METER ILLUMINATION CONTROL	13	DIAGNOSIS AND REPAIR WORK FLOW	52
METER ILLUMINATION CONTROL : System Description	13	Work flow	52
METER EFFECT FUNCTION	13	DTC/CIRCUIT DIAGNOSIS	54
		U1000 CAN COMM CIRCUIT	54
		DTC Logic	54

Diagnosis Procedure	54	Diagnosis Procedure	69
U1010 CONTROL UNIT (CAN)	55	Component Inspection	69
Description	55	WASHER LEVEL SWITCH SIGNAL CIRCUIT... 71	
DTC Logic	55	Description	71
Diagnosis Procedure	55	Diagnosis Procedure	71
B2205 VEHICLE SPEED	56	Component Inspection	71
Description	56	SYMPTOM DIAGNOSIS	73
DTC Logic	56	THE FUEL GAUGE DOES NOT MOVE	73
Diagnosis Procedure	56	Description	73
B2267 ENGINE SPEED	57	Diagnosis Procedure	73
Description	57	THE OIL PRESSURE WARNING CONTIN-	
DTC Logic	57	UES DISPLAYING, OR DOES NOT DISPLAY... 74	
Diagnosis Procedure	57	Description	74
B2268 WATER TEMP	58	Diagnosis Procedure	74
Description	58	THE PARKING BRAKE RELEASE WARNING	
DTC Logic	58	CONTINUES DISPLAYING, OR DOES NOT	
Diagnosis Procedure	58	DISPLAY	75
POWER SUPPLY AND GROUND CIRCUIT 59		Description	75
COMBINATION METER	59	Diagnosis Procedure	75
COMBINATION METER : Diagnosis Procedure ... 59		THE LOW WASHER FLUID WARNING CON-	
BCM (BODY CONTROL SYSTEM) (WITH INTEL-		tinUES DISPLAYING, or DOES NOT DIS-	
LIGENT KEY SYSTEM)	59	PLAY	76
BCM (BODY CONTROL SYSTEM) (WITH INTEL-		Description	76
LIGENT KEY SYSTEM) : Diagnosis Procedure ... 59		Diagnosis Procedure	76
BCM (BODY CONTROL SYSTEM) (WITHOUT IN-		THE DOOR OPEN WARNING CONTINUES	
TELLIGENT KEY SYSTEM)	60	DISPLAYING, OR DOES NOT DISPLAY	77
BCM (BODY CONTROL SYSTEM) (WITHOUT		Description	77
INTELLIGENT KEY SYSTEM) : Diagnosis Proce-		Diagnosis Procedure	77
dure	60	THE LIFTGATE OPEN WARNING CONTIN-	
FUEL LEVEL SENSOR SIGNAL CIRCUIT	62	UES DISPLAYING, OR DOES NOT DISPLAY... 78	
Component Function Check	62	Description	78
Diagnosis Procedure	62	Diagnosis Procedure	78
Component Inspection	63	THE METER CONTROL SWITCH IS INOPER-	
PARKING BRAKE SWITCH SIGNAL CIR-		ATIVE	79
CUIT	64	Description	79
Description	64	Diagnosis Procedure	79
Component Function Check	64	THE STEERING SWITCHES ARE INOPERA-	
Diagnosis Procedure	64	TIVE	80
Component Inspection	64	Description	80
AMBIENT SENSOR SIGNAL CIRCUIT	65	Diagnosis Procedure	80
Description	65	THE AMBIENT TEMPERATURE DISPLAY IS	
Diagnosis Procedure	65	INCORRECT	81
Component Inspection	65	Description	81
METER CONTROL SWITCH SIGNAL CIR-		Diagnosis Procedure	81
CUIT	67	REMOVAL AND INSTALLATION	82
Diagnosis Procedure	67	COMBINATION METER	82
Component Inspection	68	Removal and Installation	82
STEERING SWITCH	69		
Description	69		

METER CONTROL SWITCH	83	COMBINATION METER	84
Removal and Installation	83	Exploded View	84
UNIT DISASSEMBLY AND ASSEMBLY ...	84	Disassembly and Assembly	84

A

B

C

D

E

F

G

H

I

J

K

L

M

MWI

O

P

PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010275768

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

PREPARATION

< PREPARATION >

PREPARATION

PREPARATION

Commercial Service Tools

INFOID:0000000010275771

Tool name	Description
Power tool	Loosening nuts, screws and bolts
 PIIB1407E	

COMPONENT PARTS

< SYSTEM DESCRIPTION >

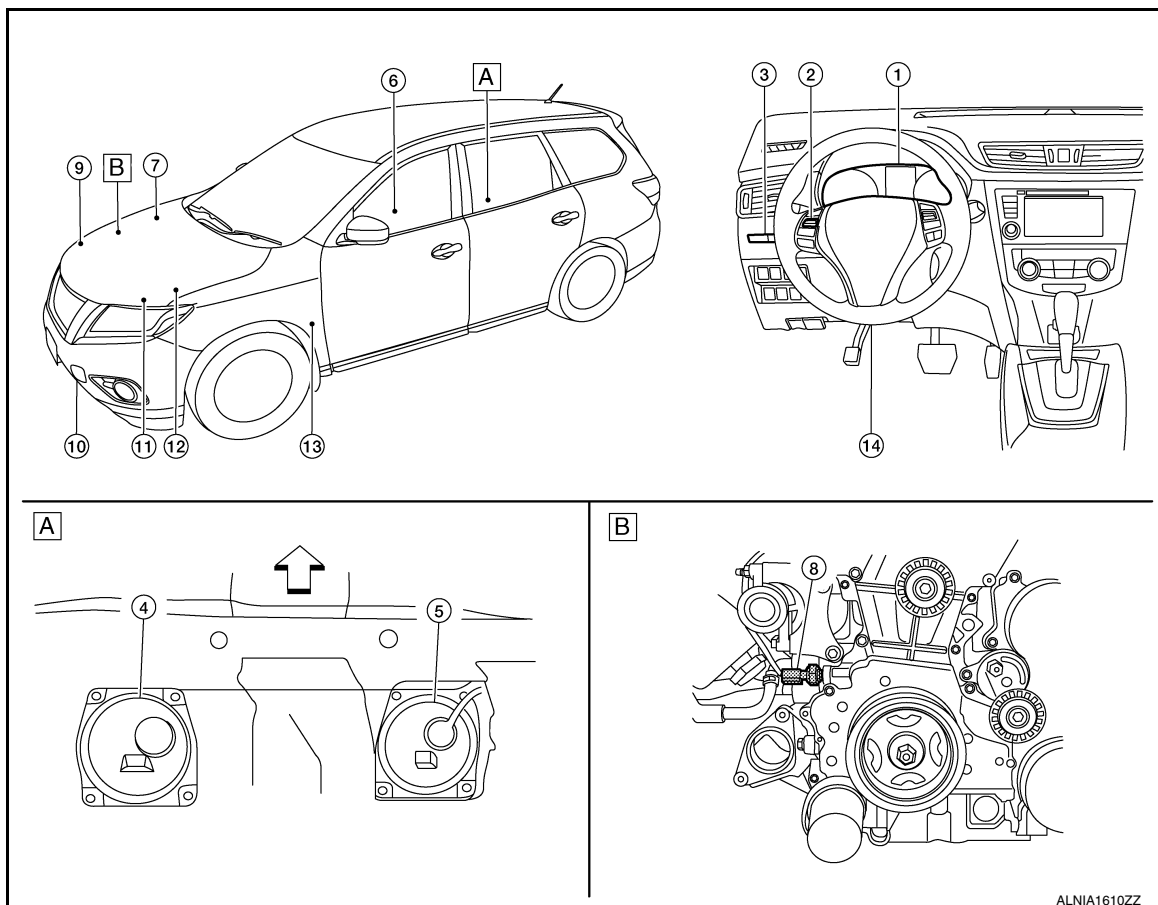
SYSTEM DESCRIPTION

COMPONENT PARTS

METER SYSTEM

METER SYSTEM : Component Parts Location

INFOID:0000000010336183



Vehicle front

- A. View of the fuel pump and fuel level sensor inspection hole covers with the rear seat removed. B. View of front engine assembly

No.	Component	Function
1.	Combination meter	Refer to MWI-8, "METER SYSTEM : System Description" .
2.	Steering switch	Refer to MWI-18, "Switch Name and Function" .
3.	Meter control switch	Refer to MWI-18, "Switch Name and Function" .
4.	Fuel level sensor unit (sub)	Transmits the fuel level sensor signal to the combination meter.
5.	Fuel level sensor unit (main)	Transmits the fuel level sensor signal to the combination meter.
6.	Seat belt buckle switch LH	Transmits the seat belt buckle switch signal LH to the combination meter.
7.	ABS actuator and electric unit (control unit)	- Transmits each signal to the combination meter via CAN communication. Refer to MWI-8, "METER SYSTEM : System Description". - Refer to BRC-8, "Component Parts Location" for detailed installation location.

COMPONENT PARTS

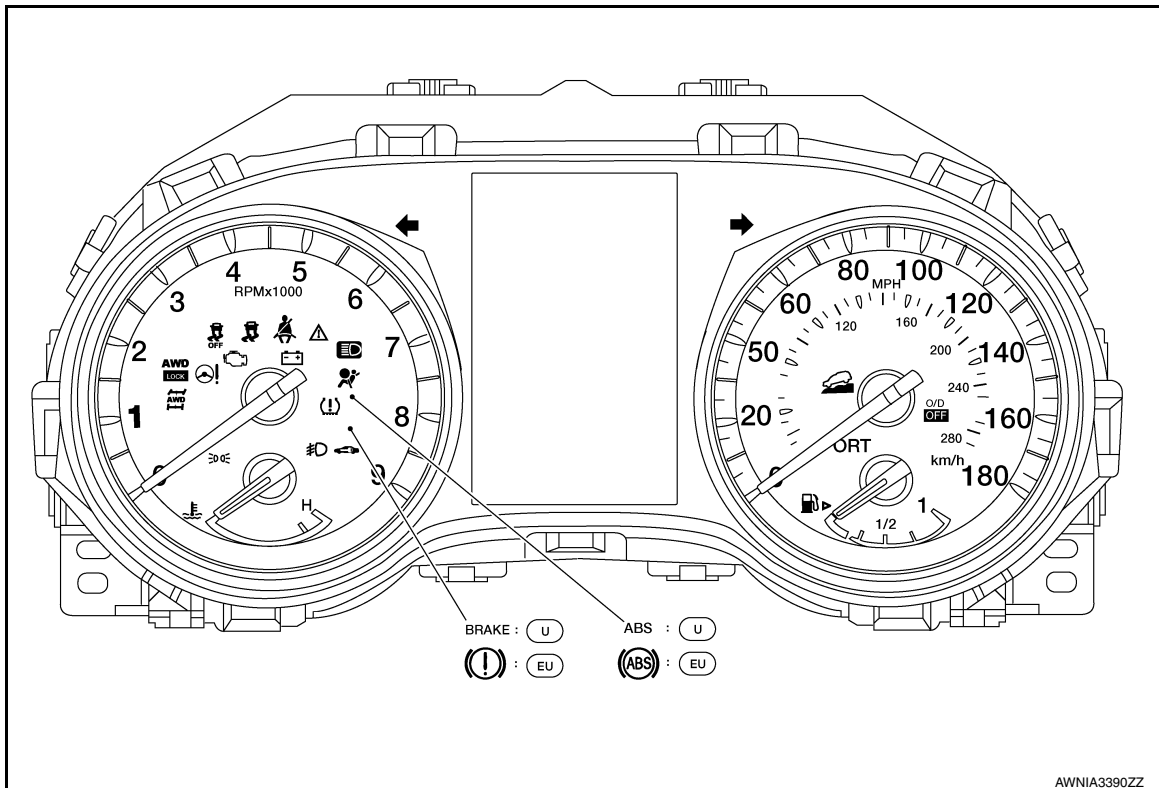
< SYSTEM DESCRIPTION >

No.	Component	Function
8.	Engine oil pressure sensor	Transmits the engine oil pressure sensor signal to the ECM.
9.	Washer fluid level switch	- Transmits the washer fluid level switch signal to the combination meter. - Refer to WW-6, "Component Parts Location" for detailed installation location.
10.	Ambient sensor	Transmits the ambient sensor signal to the combination meter.
11.	ECM	- Transmits each signal to the combination meter via CAN communication. - Refer to MWI-8, "METER SYSTEM : System Description". - Refer to EC-14, "Component Parts Location" for detailed installation location.
12.	TCM	- Transmits each signal to the combination meter via CAN communication. - Refer to MWI-8, "METER SYSTEM : System Description". - Refer to TM-12, "CVT CONTROL SYSTEM : Component Parts Location" for detailed installation location.
13.	BCM	- Transmits each signal to the combination meter via CAN communication. - Refer to MWI-8, "METER SYSTEM : System Description". - Refer to BCS-7, "BODY CONTROL SYSTEM : Component Parts Location" (with Intelligent Key system) or BCS-79, "BODY CONTROL SYSTEM : Component Parts Location" (without Intelligent Key system) for detailed installation location.
14.	Parking brake switch	Transmits the parking brake switch signal to the combination meter.

METER SYSTEM : Design

INFOID:0000000010336184

ARRANGEMENT OF COMBINATION METER



SYSTEM

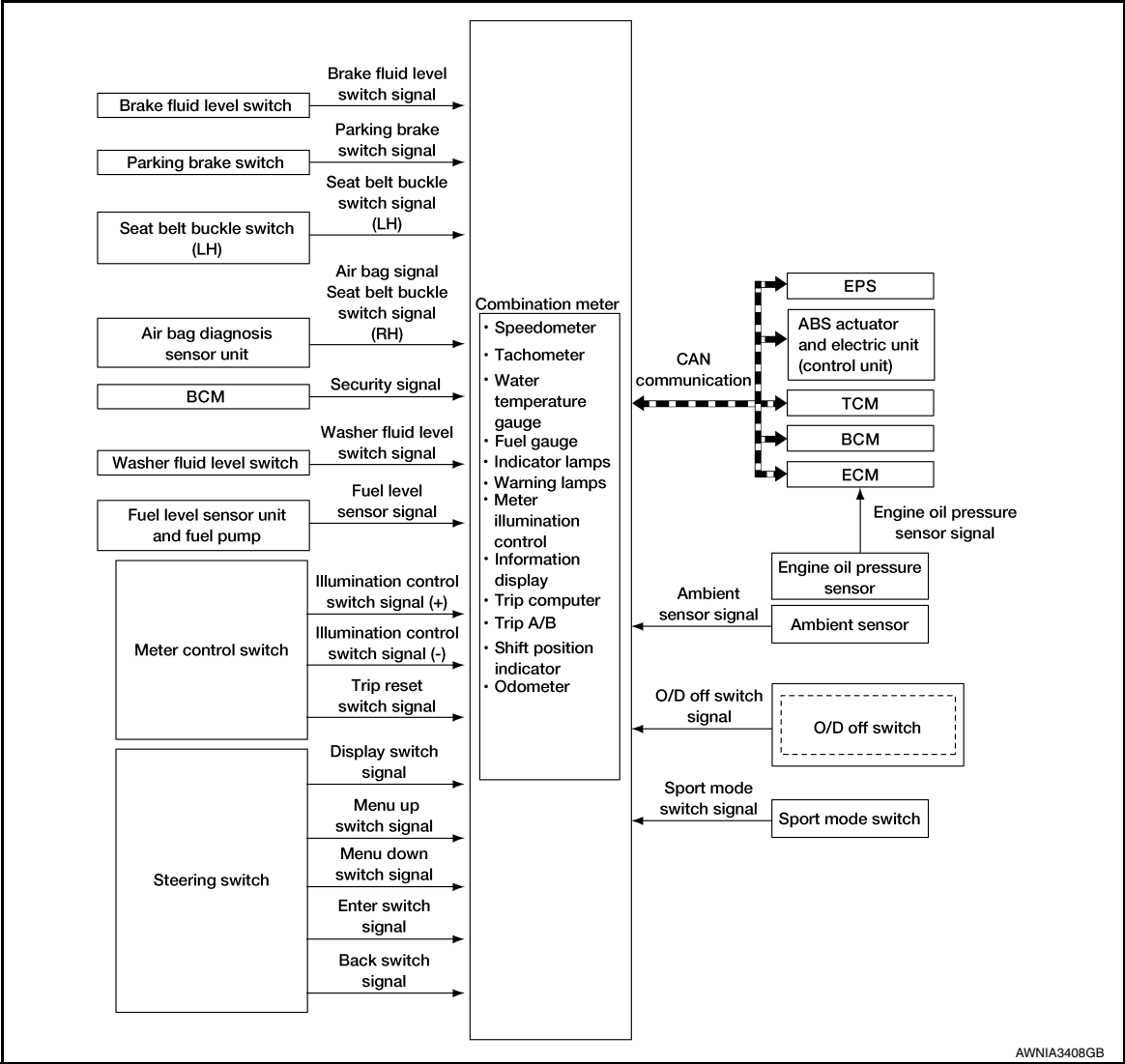
< SYSTEM DESCRIPTION >

SYSTEM
METER SYSTEM

METER SYSTEM : System Description

INFOID:0000000010336188

SYSTEM DIAGRAM



Combination Meter Input Signal (CAN Communication Signal)

Transmit unit	Signal name
ABS actuator and electric unit (control unit)	Vehicle speed signal
	ABS warning lamp signal
	VDC warning lamp signal
	VDC OFF indicator lamp signal
	Brake warning lamp signal

SYSTEM

< SYSTEM DESCRIPTION >

Transmit unit	Signal name	
BCM	Dimmer signal	A
	Position light request signal	
	Door switch signal	B
	Front fog light request signal	
	High beam request signal	
	Meter display signal	C
	Sleep wake up signal	
	Buzzer output signal	D
	Tire pressure data signal	
	Key ID signal	
	Turn indicator signal	E
	TPMS malfunction warning lamp signal	
	Starter relay status signal	F
	Low tire pressure warning lamp signal	
TCM	Turn indicator signal	
	Shift position signal	G
	CVT warning lamp signal	
ECM	Engine speed signal	H
	ASCD status signal	
	Engine coolant temperature signal	
	Fuel consumption monitor signal	I
	Malfunctioning indicator lamp signal	
	Engine status signal	
	Engine oil pressure sensor signal	J
	Fuel filler cap warning display signal	
AWD control unit	AWD warning lamp signal	K

DESCRIPTION

Combination Meter

- The combination meter controls the following items according to the signals received from each unit via CAN communication and the signals from switches and sensors.
 - Measuring instruments
 - Speedometer
 - Tachometer
 - Engine coolant temperature gauge
 - Fuel gauge
 - Warning lamps
 - Indicator lamps
 - Meter illumination control
 - Meter effect function
 - Information display
- The combination meter incorporates a buzzer function that sounds an audible alarm with the integrated buzzer. Refer to [WCS-6. "WARNING CHIME SYSTEM : System Description"](#) for further details.
- The combination meter includes an on board diagnosis function.
- The combination meter can be diagnosed with CONSULT.

METER CONTROL FUNCTION LIST

SYSTEM

< SYSTEM DESCRIPTION >

System		Description	Reference
Measuring instruments	Speedometer	Indicates vehicle speed.	MWI-11. "SPEEDOMETER : System Description"
	Tachometer	Indicates engine speed.	MWI-12. "TACHOMETER : System Description"
	Engine coolant temperature gauge	Indicates engine coolant temperature.	MWI-12. "ENGINE COOLANT TEMPERATURE GAUGE : System Description"
	Fuel gauge	Indicates fuel level.	MWI-12. "FUEL GAUGE : System Description"
Information display		The Information display displays status, according to system malfunction or vehicle condition.	MWI-15. "INFORMATION DISPLAY : System Description"
Meter illumination control	Meter illumination control function	Switches back and forth between daytime mode and nighttime mode, according to a light switch position.	MWI-13. "METER ILLUMINATION CONTROL : System Description"
	Back light illumination control function	The operation of the illumination control switch allows the brightness adjustment of meter illumination.	
Meter effect function	Engine-start effect function	Controls pointers of combination meter, back light illumination and information display at engine start to produce illumination effects.	MWI-13. "METER EFFECT FUNCTION : System Description"
	Driver welcome function	Controls meter illumination to produce illumination effects when getting in the vehicle.	

METER SYSTEM : Fail-safe

INFOID:0000000010336461

The combination meter activates the fail-safe control if the CAN communication lines between each unit are malfunctioning.

Function		Specifications
Speedometer		Reset to zero by suspending communication.
Tachometer		
Engine coolant temperature gauge		
Meter illumination control		When suspending communication, changes to nighttime mode.
Buzzer		Turned off by suspending communication.

SYSTEM

< SYSTEM DESCRIPTION >

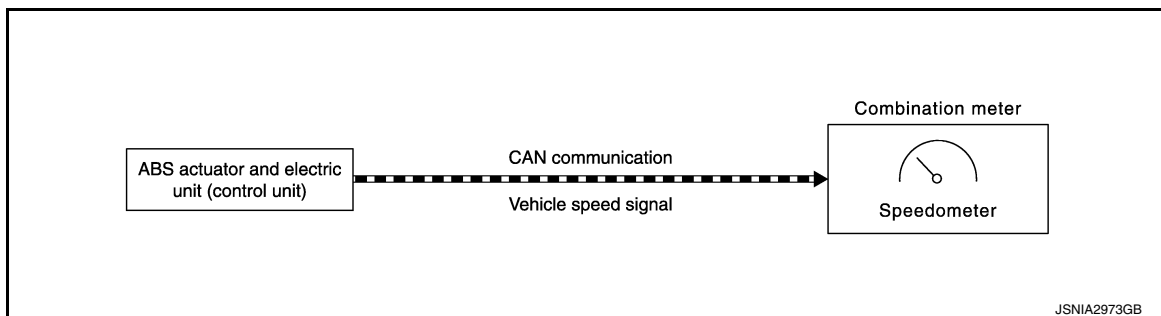
Function		Specifications
Information display	Current fuel consumption	- When reception time of an abnormal signal is 2 seconds or less, the last received datum is used for calculation to indicate the result. - When reception time of an abnormal signal is more than 2 seconds, the last result calculated during normal condition is indicated.
	Average fuel consumption	
	Average vehicle speed	
	Range (Distance to empty)	
	Driving distance	An indicated value is maintained at communications blackout.
	Door open warning	The display turns OFF by suspending communication.
	Lift gate open warning	
	Low tire pressure warning	
	Parking brake release warning	
	Fuel filler cap warning	
	Oil pressure warning	
	CVT warning	
	BSW/LDW warning	
	Odo/trip meter	An indicated value is maintained at communications blackout.
	Shift position indicator	The indicator turns OFF by suspending communication.
Warning lamp/indicator lamp	ABS warning lamp	Turned on by suspending communication.
	Brake warning lamp	
	EPS warning lamp	
	VDC warning lamp	
	AWD warning lamp	
	Malfunction indicator lamp	
	VDC OFF indicator lamp	Turned off by suspending communication.
	SPORT mode indicator lamp	
	AWD LOCK indicator lamp	
	High beam indicator lamp	
	Turn signal indicator lamp	
	Position lamp indicator lamp	
	OD OFF indicator lamp	
	BSW indicator lamp	
	LDW indicator lamp	
	Low tire pressure warning lamp	After blinking for 1 minute, the lamp remains ON.

SPEEDOMETER

SPEEDOMETER : System Description

INFOID:0000000010336191

SYSTEM DIAGRAM



SYSTEM

< SYSTEM DESCRIPTION >

DESCRIPTION

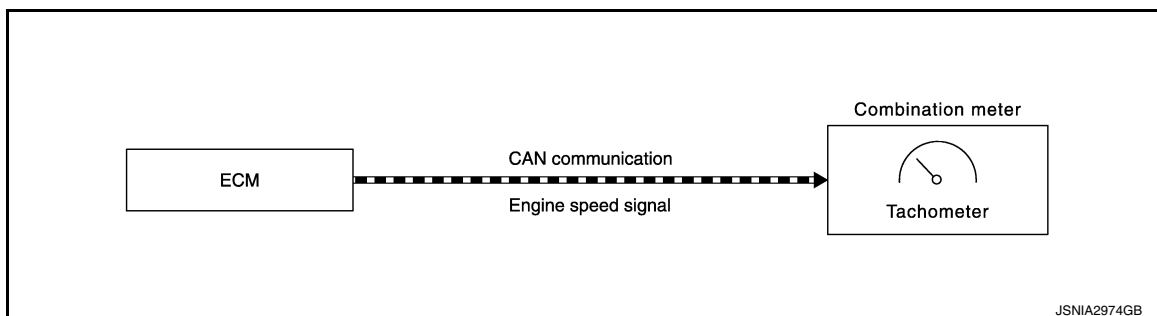
The ABS actuator and electric unit (control unit) receives each wheel speed sensor signal and provides a vehicle speed signal to the combination meter via CAN communication lines.

TACHOMETER

TACHOMETER : System Description

INFOID:0000000010336192

SYSTEM DIAGRAM



DESCRIPTION

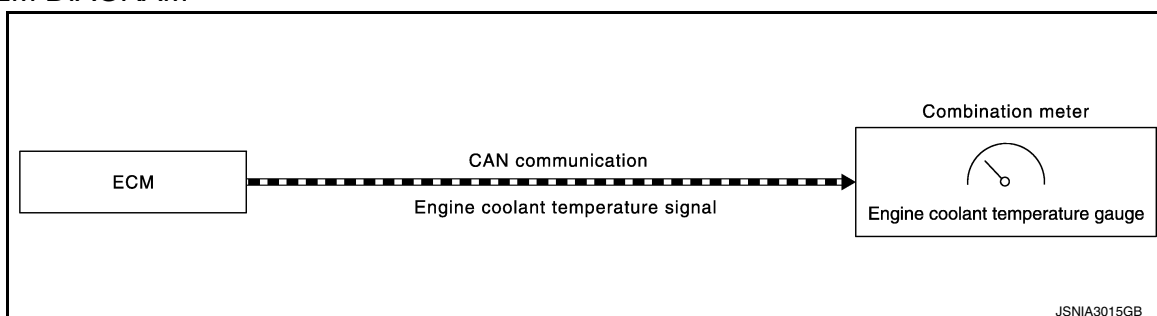
The crank position sensor sends a crankshaft position signal to the ECM. The ECM provides an engine speed signal to the combination meter via CAN communication lines. The tachometer indicates engine speed in revolutions per minute (rpm).

ENGINE COOLANT TEMPERATURE GAUGE

ENGINE COOLANT TEMPERATURE GAUGE : System Description

INFOID:0000000010336193

SYSTEM DIAGRAM



DESCRIPTION

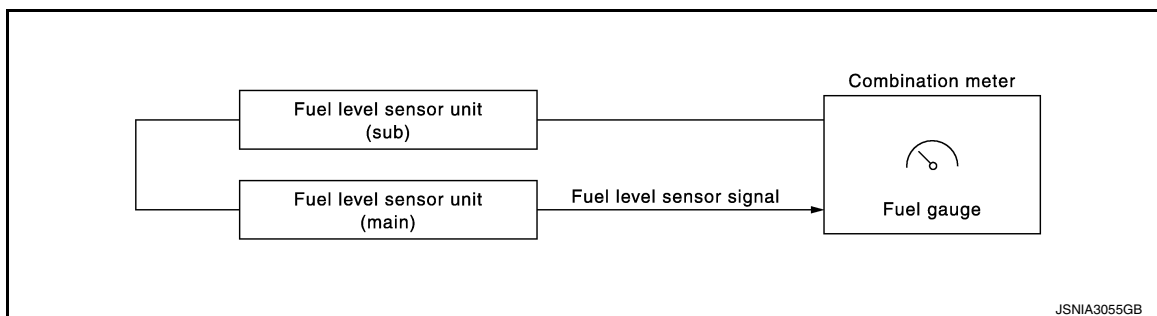
The engine coolant temperature sensor sends an engine coolant temperature signal to the ECM. The ECM provides an engine coolant temperature signal to the combination meter via CAN communication lines. The engine coolant temperature gauge indicates the engine coolant temperature.

FUEL GAUGE

FUEL GAUGE : System Description

INFOID:0000000010336194

SYSTEM DIAGRAM



DESCRIPTION

SYSTEM

< SYSTEM DESCRIPTION >

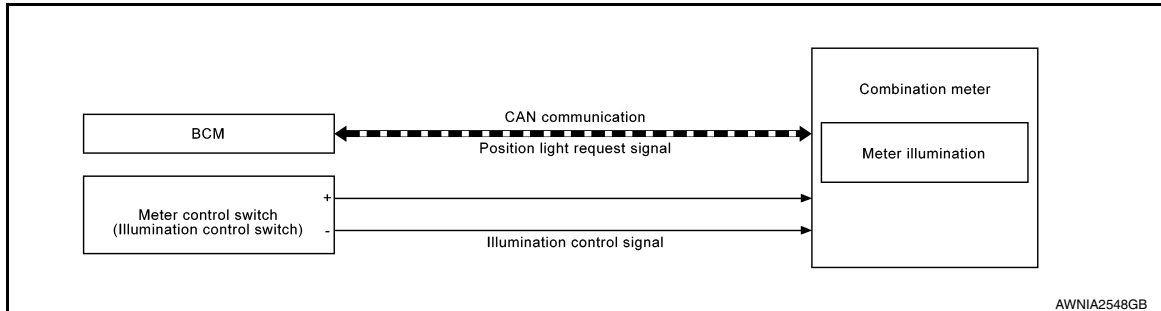
The fuel level sensor unit sends a variable resistor signal to the combination meter. The fuel gauge indicates the approximate fuel level in the fuel tank.

METER ILLUMINATION CONTROL

METER ILLUMINATION CONTROL : System Description

INFOID:0000000010336218

SYSTEM DIAGRAM



DESCRIPTION

Meter Illumination Control Function

The operation of the illumination control switch changes brightness of the meter illumination.

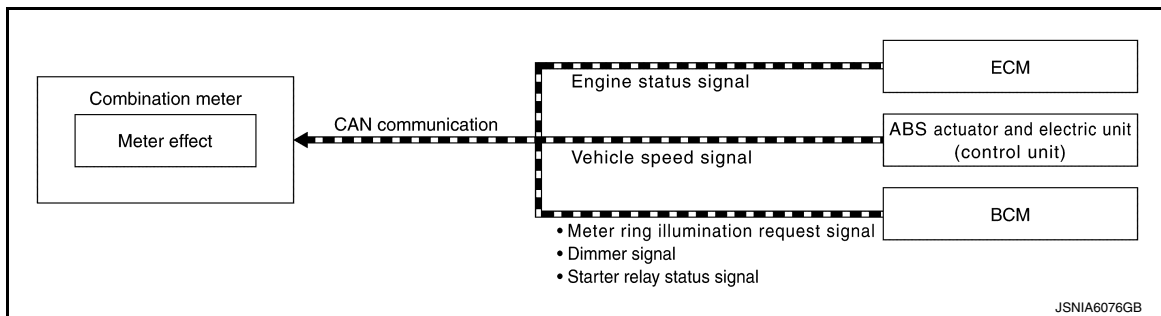
Meter illumination	The number of adjustable steps
Daytime	21 step
Nighttime	21 step

METER EFFECT FUNCTION

METER EFFECT FUNCTION : System Description

INFOID:0000000010336219

SYSTEM DIAGRAM



ENGINE-START EFFECT FUNCTION

When recognizing an engine start, the combination meter controls the following items for producing the effect:

- Speedometer
- Tachometer
- Engine coolant temperature gauge
- Fuel gauge
- Meter illumination

Meter and Illumination Operations During Engine-start Effect

The combination meter controls the following items during the engine-start effect.

Control item	Operation
Speedometer	Sweeps the pointer.
Tachometer	Sweeps the pointer.
Engine coolant temperature gauge	Stops the pointer.
Fuel gauge	Stops the pointer.

A
B
C
D
E
F
G
H
I
J
K
L
M
O
P

SYSTEM

< SYSTEM DESCRIPTION >

Control item		Operation
Meter illumination	Pointers	Turns on the illumination at the effect level.
	Information display	Turns on the illumination at the normal brightness level.
	Other than those above	Increases the brightness to the effect level in stages.

NOTE:

The pointers are stopped and illumination is turned off while cranking the engine.

Engine Start Judgement

The combination meter judges “engine-start” and activates the engine-start effect only once when the following operational conditions are all satisfied.

Condition	
Ignition switch	ON position
Vehicle speed	Less than 0.6 MPH (1 km/h)
Engine state	Other than the time of cranking the engine
	500 rpm or more
Information display (SETTING)	The setting of “EFFECT” is “ON.”

NOTE:

Engine-start effect exits when any of the above operational conditions is cancelled during the engine-start effect.

INFORMATION DISPLAY

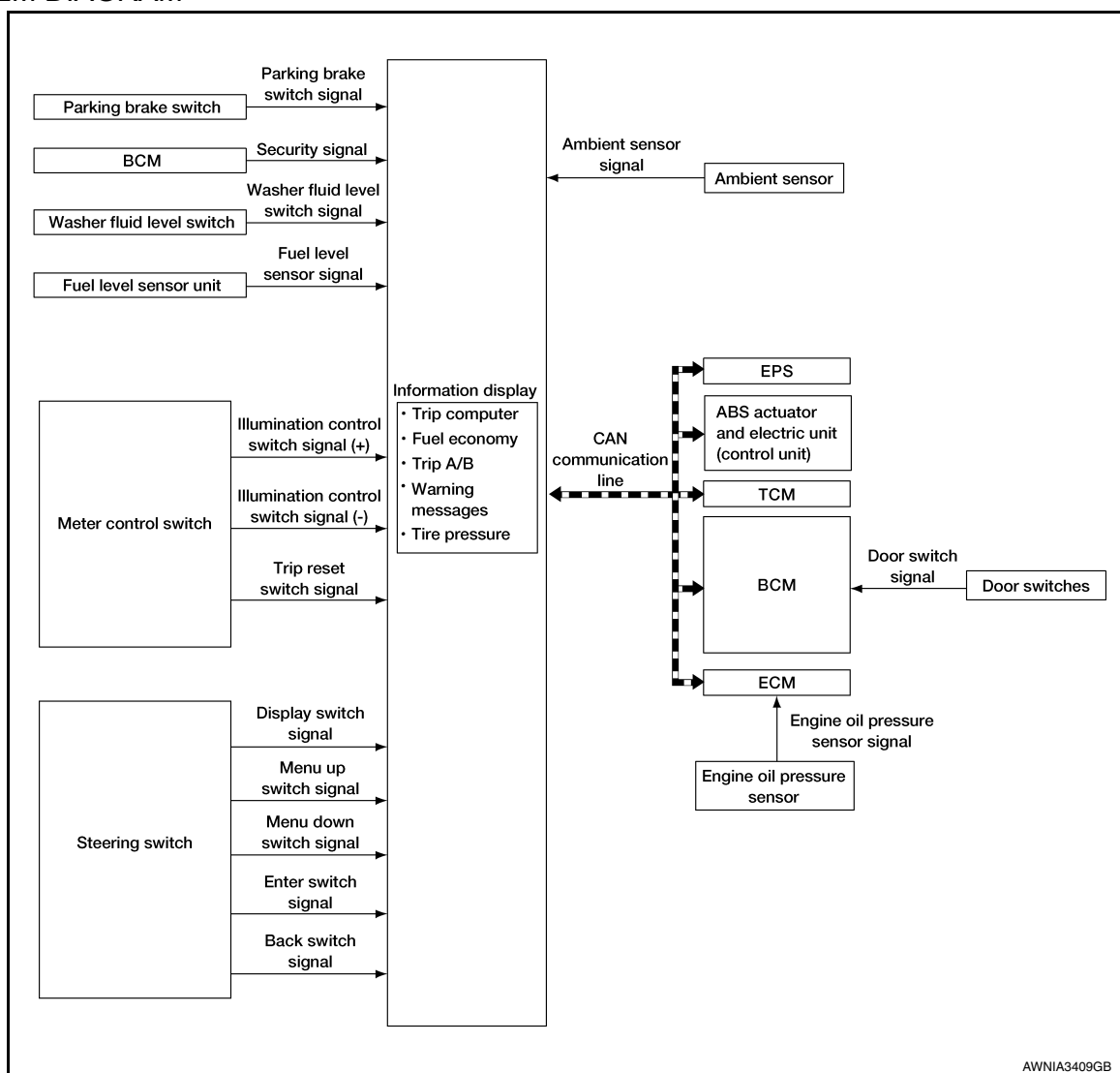
SYSTEM

< SYSTEM DESCRIPTION >

INFORMATION DISPLAY : System Description

INFOID:000000010336220

SYSTEM DIAGRAM



FUNCTION

The information display can indicate the following items:

- Outside air temperature
- Trip computer
- Intelligent Key operation information
- CVT shift position indicator
- Odometer
- Warning/Indication messages (door open, lift gate open, low oil pressure, CVT, AWD, I-Key, low fuel, low washer fluid, release parking brake, low tire pressure and loose fuel cap).

OUTSIDE AIR TEMPERATURE INDICATION

The combination meter receives the ambient sensor signal and displays the ambient temperature in the information display.

LOOSE FUEL CAP MESSAGE

The LOOSE FUEL CAP message will display in the information display when the fuel-filler cap is not tightened correctly. The message will turn off as soon as the ECM detects the fuel-filler cap is properly tightened. The ECM provides a loose fuel cap signal to the combination meter via CAN communication lines.

LOW TIRE PRESSURE WARNING

SYSTEM

< SYSTEM DESCRIPTION >

This warning appears when the BCM detects low inflation pressure or a system malfunction. The BCM sends a signal to the combination meter via CAN communication to illuminate the low tire pressure warning lamp. In addition, a warning message will be displayed in the vehicle information display.

DOOR OPEN WARNING

This warning appears when the ignition switch is ON and the door is open. The BCM receives a door switch signal from the door open door switch. The BCM sends the door switch signal to the combination meter via CAN communication lines.

LIFTGATE OPEN WARNING

This warning appears when the ignition switch is ON and the liftgate is opened. The BCM receives a back door switch signal from the back door switch. The BCM sends the door switch signal to the combination meter via CAN communication lines.

LOW FUEL WARNING

This warning appears when the fuel level in the fuel tank is low.

LOW WINDSHIELD WASHER FLUID WARNING

When the windshield washer fluid level is low, the washer fluid level switch provides a ground signal to the combination meter and the warning is displayed. Once fluid is added, the switch opens and the warning is no longer displayed.

RELEASE PARKING BRAKE WARNING

When the parking brake is applied, the parking brake switch provides a ground signal to the combination meter. When the vehicle speed is greater than 4 MPH (7 km/h), the message is displayed and the warning chime sounds.

SHIFT POSITION INDICATOR

The combination meter activates the shift position indicator and manual mode information based on signals received from TCM via CAN communication.

LOW OIL PRESSURE WARNING

The low oil pressure warning appears in the information display when the combination meter receives a low engine oil pressure signal from the ECM via CAN communication.

WARNING CHECK INDICATION

The combination meter can cause an interrupt on the information display to indicate a warning, based on signals received from each unit and switch.

Refer to Owner's Manual for additional information display items.

COMPASS

COMPASS : Description

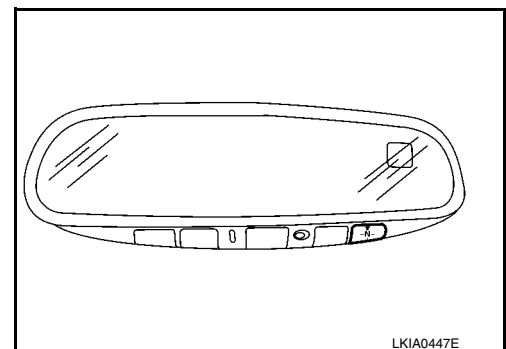
INFOID:0000000010336459

DESCRIPTION

With the ignition switch in the ON position, and the mode or (N) switch ON, the compass display will indicate the direction the vehicle is heading.

Vehicle direction is displayed as follows:

- N: north
- E: east
- S: south
- W: west



LKIA0447E

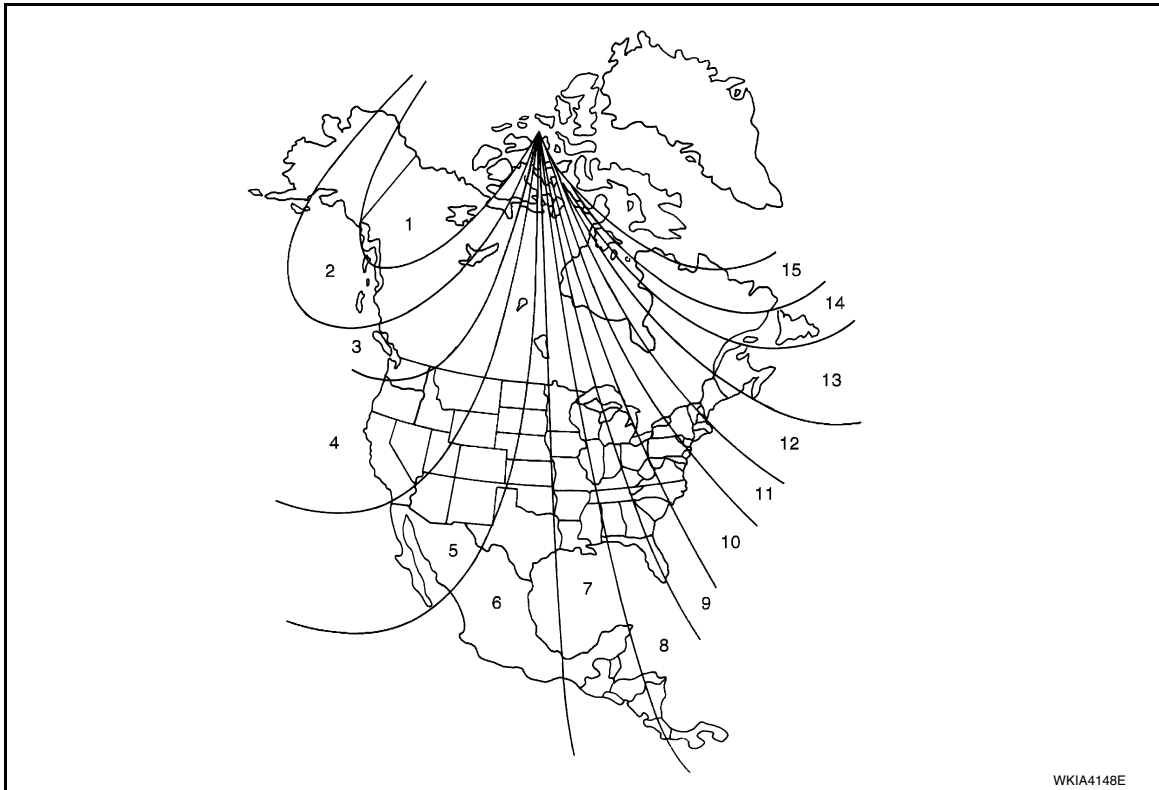
ZONE VARIATION SETTING PROCEDURE

The difference between magnetic north and geographical north can sometimes be great enough to cause false compass readings. This difference is known as variance. In order for the compass to operate properly (accurately) in a particular zone, the zone variation must be calibrated using the following procedure.

SYSTEM

< SYSTEM DESCRIPTION >

Zone Variation Chart



1. Determine your location on the zone map.
2. Turn the ignition switch to the ON position.
3. Press and hold the (N) switch for about 5 seconds. The current zone number will appear in the display.
4. Press the mode or (N) switch repeatedly until the desired zone number appears in the display.

Once the desired zone number is displayed, stop pressing the mode or (N) switch and the display will show a compass direction after a few seconds.

NOTE:

Use zone number 5 for Hawaii.

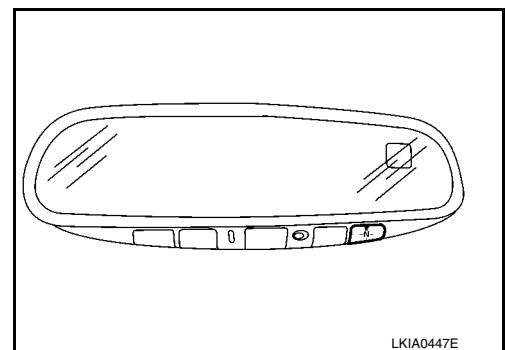
CALIBRATION PROCEDURE

The compass display is equipped with an automatic correction function. If the compass display reads "CAL" or the direction is not shown correctly, perform the correction procedure below.

1. Press and hold the (N) switch for about 10 seconds. The display will read "CAL".
2. Drive the vehicle slowly in a circle, in an open, safe place. The initial calibration is completed in about 3 turns.

NOTE:

In places where the terrestrial magnetism is extremely disturbed, the initial correction may start automatically.



OPERATION

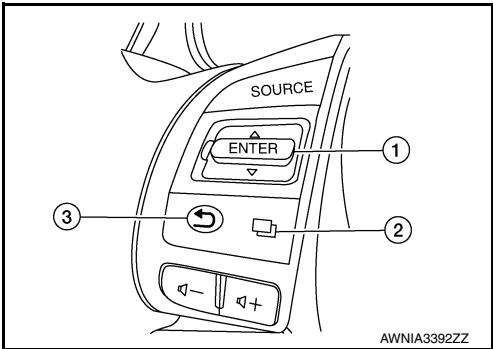
< SYSTEM DESCRIPTION >

OPERATION

Switch Name and Function

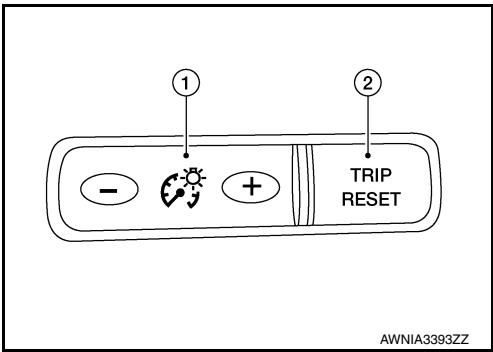
INFOID:0000000010336221

STEERING SWITCH



No.	Switch name	Operation	Description
1.	Enter/Up/Down switch	Press	The information display settings can be changed.
2.	Display switch		
3.	Back switch		

METER CONTROL SWITCH



No.	Switch name	Operation	Description
1.	Illumination control switch	Press	An illuminance level of the back light of the combination meter can be adjusted.
2.	Trip reset switch	Press	• The trip meter can be switched between A and B. • Trip meter A/B can be reset by pressing and holding the trip reset switch. • A trip computer value displayed on the information display can be reset by pressing and holding the trip reset switch for 1 second or more. • All trip computer values can be reset by pressing and holding the trip reset switch for 3 seconds or more.

DIAGNOSIS SYSTEM (COMBINATION METER)

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (COMBINATION METER)

Description

INFOID:0000000010336854

COMBINATION METER SELF-DIAGNOSIS MODE

The following meter functions can be checked during Combination Meter Self-Diagnosis Mode:

- Pointer sweep of speedometer, tachometer and gauges.
- Illumination of all LCD segments and color patterns for meter displays.
- Illumination of all lamps/LEDs that are controlled by the combination meter (regardless of switch status).

STARTING COMBINATION METER SELF-DIAGNOSIS MODE

NOTE:

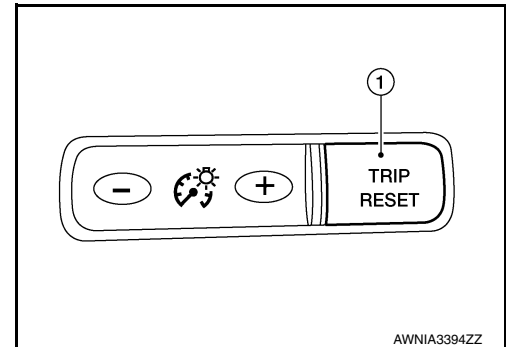
- Check combination meter power supply and ground circuits if self-diagnosis mode does not start. Refer to [MWI-59, "COMBINATION METER : Diagnosis Procedure"](#). Replace combination meter if power supply and ground circuits are found to be normal and self-diagnosis mode does not start. Refer to [MWI-82, "Removal and Installation"](#).
- Combination meter self-diagnosis mode will function with the ignition switch in ON. Combination meter self-diagnosis mode will exit upon turning the ignition switch to OFF.

How to Initiate Self-Diagnosis Mode

1. Turn ignition switch OFF.
2. While pressing the trip reset switch (1), turn ignition switch ON.
3. Keep the trip reset switch for 1 seconds or more.
4. Press the trip reset switch at least 3 times. (Within 7 seconds after the ignition switch is turned ON.)
5. "Work instruction code" is indicated in the top portion of information display and self-diagnosis is started.
6. The mode switches in the order shown below each time the trip reset switch is pressed.

NOTE:

If the trip reset switch is not operated for 20 seconds or more, the self-diagnosis mode is automatically cancelled.



AWNIA3394ZZ

Test order	Test item	Description
1	Work instruction code	This item is displayed, but not used.
2	Part number	
3	Software code	
4	EEPROM code	
5	Hardware code	
6	P.C.B code	
7	Circuit check	The pointer of the following items moves from 0 to MAX twice. • Speedometer • Tachometer • Engine coolant temperature gauge • Fuel gauge NOTE: If any one of the pointers does not sweep, replace combination meter.
8	Color check*1	Performs the color check of the information display.

DIAGNOSIS SYSTEM (COMBINATION METER)

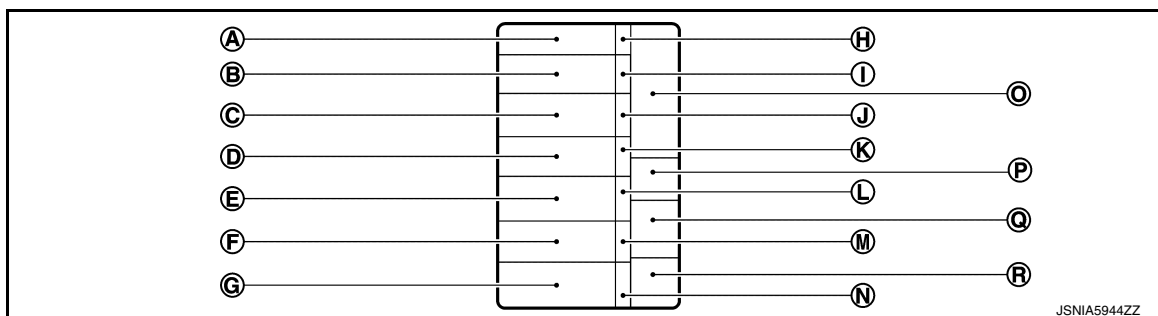
< SYSTEM DESCRIPTION >

Test order	Test item	Description
9	error code*2	Displays the error code of the following items: • Speedometer • Tachometer • Engine coolant temperature gauge • Fuel gauge • Meter control switch
10	Warning/indicator lamp check	All warning/indicator lamp illuminate. NOTE: • When either one of them does not turn ON, replace combination meter. • SRS air bag warning lamp and security indicator lamp are not illuminate.

NOTE:

When the trip reset switch is pressed during the indication of Test order “10,” test item returns to Test order “2.”

*1: Color Check



(A) Blue

(D) Green

(G) White

(J) Light blue

(M) Black

(P) Dark blue

(B) Red

(E) Light blue

(H) White

(K) Black

(N) Blue

(Q) White

(C) Pink

(F) Yellow

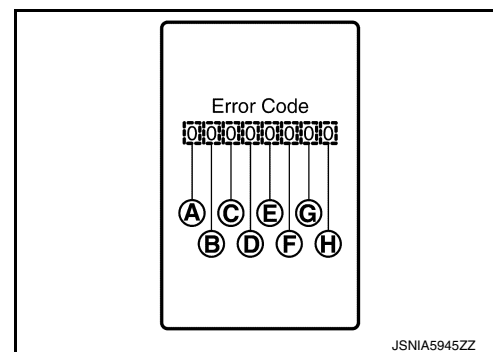
(I) Black

(L) Pink

(O) Black

(R) Blue

*2: Error Code



Item	Code	Description	Action to take/Reference
(A) Speedometer	0	Normal	—
	1	A vehicle speed signal cannot be received from ABS actuator and electric unit (control unit).	Perform “Self Diagnostic Result” of “ABS.” Refer to BRC-55. "DTC Index" .
	2	A vehicle speed signal received from the ABS actuator and electric unit (control unit) is abnormal.	

DIAGNOSIS SYSTEM (COMBINATION METER)

< SYSTEM DESCRIPTION >

Item		Code	Description	Action to take/Reference
Ⓑ	Tachometer	0	Normal	—
		1	An engine speed signal cannot be received from ECM.	Perform "Self Diagnostic Result" of "ECM." Refer to EC-93, "DTC Index" .
Ⓒ	Fuel gauge	0	Normal	—
		1	Fuel gauge circuit is short.	Refer to MWI-62, "Component Function Check" .
		2	Fuel gauge circuit is open.	
Ⓓ	Engine coolant temperature gauge	0	Normal	—
		1	An engine coolant temperature signal cannot be received from ECM.	Perform "Self Diagnostic Result" of "ECM." Refer to MWI-30, "DTC Index" .
Ⓔ	Meter control switch	0	Normal	—
		1	When judging that the illumination control switch signal circuit is shorted for 5 minutes or more.	Refer to MWI-67, "Diagnosis Procedure" .
		2	When judging that the trip reset switch signal circuit is shorted for 5 minutes or more.	
		3	When judging that the both switch signal circuit is shorted for 5 minutes or more.	
Ⓕ	—	0	Displays "0" constantly.	—
Ⓖ	—	0	Displays "0" constantly.	—
Ⓗ	—	0	Displays "0" constantly.	—

How to Reset Error Code

Error codes stored in combination meter can be reset by following the instructions below:

1. Turn ignition switch OFF.
2. While pressing the trip reset switch, turn ignition switch ON.
3. Keep the trip reset switch for 1 seconds or more.
4. Press the trip reset switch at least 3 times. (Within 7 seconds after the ignition switch is turned ON.)
5. Turn ignition switch OFF.
6. Perform self-diagnosis and check that the error codes are reset.

CONSULT Function (METER/M&A)

INFOID:0000000010336855

APPLICATION ITEMS

CONSULT can display each diagnostic item using the diagnostic test modes shown.

METER/M&A Diagnosis mode	Description
SELF DIAGNOSTIC RESULT	Displays combination meter self-diagnosis results.
DATA MONITOR	Displays combination meter input/output data in real time.
WARNING HISTORY	Lighting history of the warning lamp and indicator lamp can be checked.
CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be read.

SELF DIAG RESULT

Refer to [MWI-30, "DTC Index"](#).

DATA MONITOR

Display Item List

DIAGNOSIS SYSTEM (COMBINATION METER)

< SYSTEM DESCRIPTION >

X: Applicable

Display item [Unit]	MAIN SIGNALS	Description
SPEED METER	X	Displays the value of vehicle speed signal.
SPEED OUTPUT [mph or km/h]	X	Vehicle speed signal value transmitted to other units via CAN communication.
ODO OUTPUT [mph or km/h]		Odometer signal value transmitted to other units via CAN communication.
TACHO METER [rpm]	X	Value of the engine speed signal received from ECM via CAN communication.
FUEL METER [L]	X	Fuel level indicated on combination meter.
W TEMP METER [°F] or [°C]	X	Displays the value of engine coolant temperature signal, which is input from ECM.
ABS W/L [On/Off]		Displays [On/Off] condition of ABS warning indicator.
VDC/TCS IND [On/Off]		Displays [On/Off] condition of VDC OFF indicator lamp.
SLIP IND [On/Off]		Displays [On/Off] condition of SLIP indicator lamp.
BRAKE W/L [On/Off]		Displays [On/Off] condition of brake warning indicator.
DOOR W/L [On/Off]		Displays [On/Off] condition of door or liftgate warning message in the information display.
HI-BEAM IND [On/Off]		Displays [On/Off] condition of high beam indicator.
TURN IND [On/Off]		Displays [On/Off] condition of turn indicator.
LIGHT IND [On/Off]		Displays [On/Off] condition of light indicator.
FR FOG IND [On/Off]		Displays [On/Off] condition of front fog lamp indicator.
OIL W/L [On/Off]		Displays [On/Off] condition of low oil pressure warning message in the information display.
O/D OFF IND [On/Off]		Displays [On/Off] condition of O/D OFF indicator.
DDS W/L [On/Off]		Displays [On/Off] condition of hill descent control warning indicator.
MIL [On/Off]		Displays [On/Off] condition of malfunction indicator.
SPORT IND [On/Off]		Displays [On/Off] condition of SPORT indicator.
CHAGE W/L [On/Off]		Displays [On/Off] condition of charge warning indicator.
4WD LOCK IND [On/Off]		Displays [On/Off] condition of AWD LOCK indicator lamp.
4WD W/L [On/Off]		Displays [On/Off] condition of AWD warning message in the information display.
FUEL W/L [On/Off]		Displays [On/Off] condition of low-fuel warning message.
WASHER W/L [On/Off]		Displays [On/Off] condition of low washer fluid warning message.

DIAGNOSIS SYSTEM (COMBINATION METER)

< SYSTEM DESCRIPTION >

Display item [Unit]	MAIN SIGNALS	Description	
AIR PRES W/L [On/Off]		Displays [On/Off] condition of tire pressure warning lamp.	A
KEY G/Y W/L [On/Off]		Displays [On/Off] condition of key green warning lamp.	B
EPS W/L [On/Off]		Displays [On/Off] condition of EPS warning indicator.	C
LCD		Displays the value of Intelligent Key system message indication.	
SHIFT IND [P, R, N, D, L]		Displays shift selector position.	D
FUEL CAP W/L [On/Off]		Displays [On/Off] condition of loose fuel cap warning message.	
O/D OFF SW [On/Off]		Displays [On/Off] condition of O/D Off switch.	E
PKB SW [On/Off]		Displays [On/Off] condition of parking brake switch.	F
BUCKLE SW [On/Off]		Displays [On/Off] condition of seat belt buckle switch LH.	
PASS BUCKLE SW [On/Off]		Displays [On/Off] condition of seat belt buckle switch RH.	G
BRAKE OIL SW [On/Off]		Displays [On/Off] condition of brake fluid level switch.	H
DISTANCE [Mi] or [km]		Displays distance to empty.	
OUTSIDE TEMP [°F or °C]		Displays the ambient air temperature which is input from the ambient sensor.	I
FUEL LOW SIG [On/Off]		Displays [On/Off] condition of low-fuel warning signal.	J
STRG SW INPUT [SW 1-SW 10, NOT INPUT]		Displays [SW 1-SW 10, NOT INPUT] condition of steering switches.	
BUZZER [On/Off]	X	Buzzer status (in the combination meter) is detected from the buzzer output signal received from each unit via CAN communication and the warning output condition of the combination meter.	K
BSW IND [On/Off]		Displays [On/Off] condition of blind spot warning indicator.	L
BSW W/L [On/Off]		Displays [On/Off] condition of blind spot warning message in the information display.	M

SPECIAL FUNCTION

Special menu

Display item	Description
W/L ON HISTORY	Lighting history of warning lamp and indicator lamp can be checked.

W/L ON HISTORY

- “W/L ON HISTORY” indicates the “TIME” when the warning/ indicator lamp is turned on.
- The “TIME” above is:
 - 0: The condition that the warning/indicator lamp has been turned on 1 or more times after starting the engine and waiting for 30 seconds.
 - 1 - 39: The number of times the engine was restarted after the 0 condition.
 - NO W/L ON HISTORY: No warning/indicator lamp history is stored.

NOTE:

- W/L ON HISTORY is not stored for approximately 30 seconds after the engine starts.
- Brake warning lamp does not store any history when the parking brake is applied or the brake fluid level gets low.

COMBINATION METER

< ECU DIAGNOSIS INFORMATION >

ECU DIAGNOSIS INFORMATION

COMBINATION METER

Reference Value

INFOID:000000009799789

VALUES ON THE DIAGNOSIS TOOL

Monitor Item	Condition		Value/Status
SPEED METER [mph or km/h]	Ignition switch ON	While driving	Input value of vehicle speed signal (CAN communication signal)
SPEED OUTPUT [mph or km/h]	Ignition switch ON	While driving	Output value of vehicle speed signal (CAN communication signal)
ODO OUTPUT [mph or km/h]	Ignition switch ON	—	Output value of odometer signal (CAN communication signal)
TACHO METER [rpm]	Ignition switch ON	Engine running	Input value of engine speed signal (CAN communication signal)
FUEL METER [L]	Ignition switch ON	—	Input value of fuel level sensor signal
W TEMP METER [°F] or [°C]	Ignition switch ON	—	Input value of engine coolant temperature signal (CAN communication signal)
ABS W/L	Ignition switch ON	ABS warning lamp ON	On
		ABS warning lamp OFF	Off
VDC/TCS IND	Ignition switch ON	VDC OFF indicator lamp ON	On
		VDC OFF indicator lamp OFF	Off
SLIP IND	Ignition switch ON	VDC warning lamp ON	On
		VDC warning lamp OFF	Off
BRAKE W/L	Ignition switch ON	Brake warning lamp ON	On ^{*1}
		Brake warning lamp OFF	Off
DOOR W/L	Ignition switch ON	Door or lift gate open warning displayed	On
		Other than the above	Off
HI-BEAM IND	Ignition switch ON	High beam indicator lamp ON	On
		High beam indicator lamp OFF	Off
TURN IND	Ignition switch ON	Turn signal indicator lamp ON	On
		Turn signal indicator lamp OFF	Off
FR FOG IND	Ignition switch ON	Front fog lamp indicator lamp ON	On
		Front fog lamp indicator lamp OFF	Off
LIGHT IND	Ignition switch ON	Position lamp indicator lamp ON	On
		Position lamp indicator lamp OFF	Off
OIL W/L	Ignition switch ON	Engine oil pressure warning displayed	On
		Other than the above	Off
O/D OFF IND	Ignition switch ON	O/D OFF indicator lamp ON	On
		Other than the above	Off
DDS W/L	Ignition switch ON	Hill descent warning indicator ON	On
		Other than the above	Off
MIL	Ignition switch ON	Malfunction indicator lamp ON	On
		Malfunction indicator lamp OFF	Off

COMBINATION METER

< ECU DIAGNOSIS INFORMATION >

Monitor Item	Condition		Value/Status	
4WD W/L	Ignition switch ON	AWD warning displayed	On	A
		Other than the above	Off	
4WD LOCK IND	Ignition switch ON	AWD LOCK indicator lamp ON	On	B
		Other than the above	Off	
FUEL W/L	Ignition switch ON	Low fuel warning displayed	On	C
		Low fuel warning lamp OFF	Off	
WASHER W/L	Ignition switch ON	Low washer fluid warning displayed	On	D
		Other than the above	Off	
AIR PRES W/L	Ignition switch ON	Low tire pressure warning lamp ON	On	E
		Low tire pressure warning lamp OFF	Off	
KEY G/Y W/L	Ignition switch ON	Intelligent Key system warning indication	On	F
		Other than the above	Off	
EPS W/L	Ignition switch ON	Power steering warning lamp ON	On	G
		Power steering warning lamp OFF	Off	
SPORT IND	Ignition switch ON	Sport mode indicator ON	On	H
		Sport mode indicator OFF	Off	
CHAGE W/L	Ignition switch ON	Charge warning lamp ON	On	I
		Charge warning lamp OFF	Off	
SHIFT IND	Ignition switch ON	Shift position indicator displayed	[P, R, N, D, L]	J
FUEL CAP W/L	Ignition switch ON	Fuel filler cap warning displayed	On	K
		Other than the above	Off	
O/D OFF SW	Ignition switch ON	O/D off switch ON	On	L
		O/D off switch OFF	Off	
PKB SW	Ignition switch ON	Parking brake switch ON	On	M
		Parking brake switch OFF	Off	
BUCKLE SW	Ignition switch ON	Driver seat belt not fastened	On	MWI
		Driver seat belt fastened	Off	
PASS BUCKLE SW	Ignition switch ON	Passenger seat belt not fastened	On	O
		Passenger seat belt fastened	Off	
BRAKE OIL SW	Ignition switch ON	Brake fluid level switch ON	On	P
		Brake fluid level switch OFF	Off	
DISTANCE [mi] or [km]	Ignition switch ON	—	Distance to empty	
OUTSIDE TEMP [°F] or [°C]	Ignition switch ON	—	Displays the ambient air temperature which is input from the ambient sensor	
FUEL LOW SIG	—	Low fuel level warning	On	
		Except during low fuel level warning	Off	
BUZZER	Ignition switch ON	Buzzer ON	On	
		Buzzer OFF	Off	
LCD	Ignition switch ON	Engine start information	B&P	

COMBINATION METER

< ECU DIAGNOSIS INFORMATION >

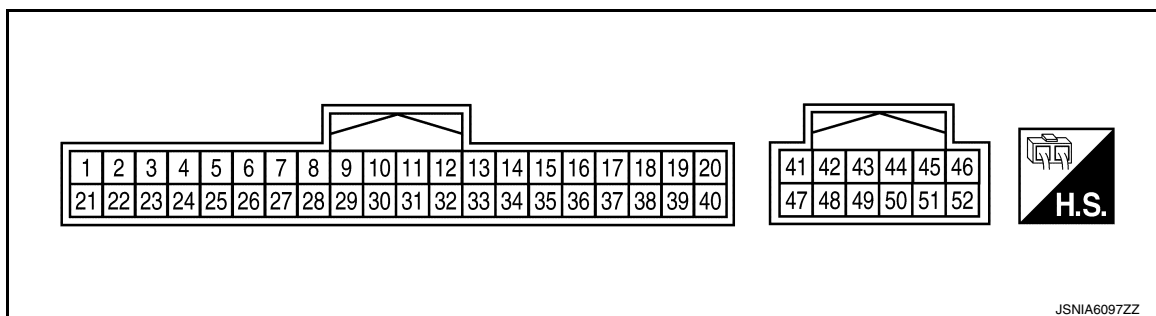
Monitor Item	Condition		Value/Status
STRG SW INPUT	Ignition switch ON	BACK switch is pressed	SW1
		MENU UP switch is pressed	SW2
		MENU DOWN switch is pressed	SW3
		Voice recognition switch is pressed	SW4
		MENU OK switch is pressed	SW5
		VOL DOWN switch is pressed	SW6
		VOL UP switch is pressed	SW7
		TEL switch is pressed	SW8
		Display back switch is pressed	SW9
		Display next switch is pressed	SW10
		Other than above	NO INPUT
BSW IND	Ignition switch ON	Blind spot warning lamp ON	On
		Blind spot warning lamp OFF	Off
BSW W/L	Ignition switch ON	Blind spot warning displayed	On
		Other than above	Off

*: DDS (hill descent control)

NOTE:

Some items are not available according to vehicle specification.

TERMINAL LAYOUT

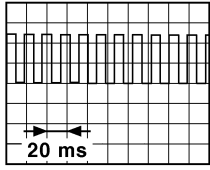


PHYSICAL VALUES

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	-	Signal name	Input/ Output			
1 (B)	Ground	Ground	—	—	—	0 V
7 (BG)	Ground	Security signal	Input	Ignition switch OFF	Security indicator ON	0 V
					Security indicator OFF	Battery voltage
10 (P)	Ground	O/D off switch	—	—	—	—
15 (L)	Ground	Ambient sensor signal	Input	Ignition switch ON	—	JSNIA0014GB

COMBINATION METER

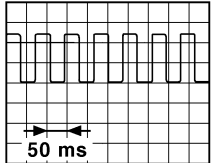
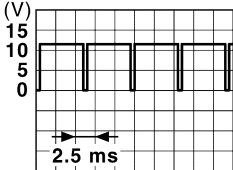
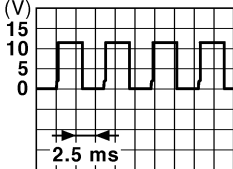
< ECU DIAGNOSIS INFORMATION >

Terminal No. (Wire color)		Description		Condition		Value (Approx.)	
+	-	Signal name	Input/ Output				
17 (BG)	Ground	Meter control switch ground	—	—	—	0 V	A
18 (SB)	Ground	Trip/reset signal	Input	Ignition switch OFF or ON	Trip/Reset switch is pressed	0 V	B
					Other than the above	5.0 V	C
20 (Y)	Ground	Ambient sensor ground	—	—	—	0 V	D
21 (L)	Ground	Steering switch ground	—	—	—	0 V	E
22 (Y)	Ground	Steering switch output 1	—	—	—	—	F
23 (GR)	Ground	Steering switch output 2	—	—	—	—	G
24 (V)	Ground	Washer fluid level switch signal	Input	Ignition switch ON	Washer fluid level switch ON	0 V	H
					Washer fluid level switch OFF	Battery voltage	I
25 (V)	Ground	Brake fluid level switch signal	Input	Ignition switch ON	Brake fluid level low	0 V	J
					Brake fluid level normal	Battery voltage	K
26 (G)	Ground	Parking brake switch signal	Input	Ignition switch ON	Parking brake applied	0 V	L
					Parking brake released	Battery voltage	M
28 (Y)	Ground	Seat belt buckle switch signal LH	Input	Ignition switch ON	When driver seat belt is fastened.	Battery voltage	
					When driver seat belt is unfastened.	0 V	
29 (R)	Ground	Sport mode switch signal	—	—	—	—	
36 (GR)	Ground	Illumination control switch signal (+)	Input	Ignition switch OFF or ON	When illumination control switch (+) is pressed	0 V	
					Other than the above	5.0 V	
37 (V)	Ground	Illumination control switch signal (-)	Input	Ignition switch OFF or ON	When illumination control switch (-) is pressed	0 V	
					Other than the above	5.0 V	
38 (G)	Ground	Vehicle speed signal (8-pulse)	Output	Ignition switch ON	Speedometer operated [When vehicle speed is approx. 25 MPH (40 km/h)]	NOTE: The maximum voltage varies depending on the specification (destination unit). 	MWI O P

JSNIA0012GB

COMBINATION METER

< ECU DIAGNOSIS INFORMATION >

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	-	Signal name	Input/ Output			
39 (W)	Ground	Vehicle speed signal (2-pulse)	Output	Ignition switch ON	Speedometer operated [When vehicle speed is approx. 25 MPH (40 km/h)]	NOTE: The maximum voltage varies de- pending on the specification (destination unit).  JSNIA0015GB
41 (L)	Ground	CAN-H	—	—	—	—
42 (P)	Ground	CAN-L	—	—	—	—
43 (W)	Ground	Illumination control sig- nal	Output	Ignition switch ON	- Lighting switch 1st position - When meter illumination is minimum  JSNIA5983GB	
					- Lighting switch 1st position - When meter illumination is step 11  JPNIA1686GB	
					- Lighting switch 1st position - When meter illumination is maximum	0 V
44 (LA/B)	Ground	Fuel level sensor ground	—	Ignition switch ON	—	0 V
45 (LA/G)	Ground	Battery power supply	—	—	—	Battery voltage
46 (LA/ BR)	Ground	Ignition signal	—	Ignition switch ON or START	—	Battery voltage
47 (SB)	Ground	M CAN-H	—	—	—	—
48 (LG)	Ground	M CAN-L	—	—	—	—
51 (LA/L)	Ground	Fuel level sensor signal	—	Ignition switch ON	Fuel gauge indication position	—
52 (B)	Ground	Ground	—	—	—	0 V

COMBINATION METER

< ECU DIAGNOSIS INFORMATION >

Fail-safe

INFOID:000000009799790

The combination meter activates the fail-safe control if the CAN communication lines between each unit are malfunctioning.

Function		Specifications
Speedometer		Reset to zero by suspending communication.
Tachometer		
Engine coolant temperature gauge		
Meter illumination control		When suspending communication, changes to nighttime mode.
Buzzer		Turned off by suspending communication.
Information display	Current fuel consumption	- When reception time of an abnormal signal is 2 seconds or less, the last received datum is used for calculation to indicate the result. - When reception time of an abnormal signal is more than 2 seconds, the last result calculated during normal condition is indicated.
	Average fuel consumption	
	Average vehicle speed	
	Range (Distance to empty)	
	Driving distance	An indicated value is maintained at communications blackout.
	Door open warning	The display turns OFF by suspending communication.
	Lift gate open warning	
	Low tire pressure warning	
	Parking brake release warning	
	Fuel filler cap warning	
	Oil pressure warning	
	CVT warning	
	BSW/LDW warning	
	Odo/trip meter	An indicated value is maintained at communications blackout.
	Shift position indicator	The indicator turns OFF by suspending communication.
Warning lamp/indicator lamp	ABS warning lamp	Turned on by suspending communication.
	Brake warning lamp	
	EPS warning lamp	
	VDC warning lamp	
	AWD warning lamp	
	Malfunction indicator lamp	
	VDC OFF indicator lamp	Turned off by suspending communication.
	SPORT mode indicator lamp	
	AWD LOCK indicator lamp	
	High beam indicator lamp	
	Turn signal indicator lamp	
	Position lamp indicator lamp	
	OD OFF indicator lamp	
	BSW indicator lamp	
	LDW indicator lamp	
	Low tire pressure warning lamp	After blinking for 1 minute, the lamp remains ON.

COMBINATION METER

< ECU DIAGNOSIS INFORMATION >

DTC Index

INFOID:000000009799791

Display contents of CONSULT	Diagnostic item is detected when...	Refer to
CAN COMM CIRCUIT [U1000]	Combination meter is not transmitting or receiving CAN communication signal for 2 seconds or more.	MWI-54
CONTROL UNIT (CAN) [U1010]	Detecting error during the initial diagnosis of CAN controller of combination meter.	MWI-55
VEHICLE SPEED [B2205]	The abnormal vehicle speed signal is input from ABS actuator and electric unit (control unit) for 2 seconds or more.	MWI-56
ENGINE SPEED [B2267]	ECM continuously transmits abnormal engine speed signals for 2 seconds or more.	MWI-57
WATER TEMP [B2268]	ECM continuously transmits abnormal engine coolant temperature signals for 60 seconds or more.	MWI-58

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

BCM (BODY CONTROL MODULE)

List of ECU Reference

INFOID:0000000010336838

ECU	Reference
BCM (with Intelligent Key system)	BCS-28, "Reference Value"
	BCS-47, "Fail Safe"
	BCS-47, "DTC Inspection Priority Chart"
	BCS-48, "DTC Index"
BCM (without Intelligent Key system)	BCS-96, "Reference Value"
	BCS-107, "Fail Safe"
	BCS-107, "DTC Inspection Priority Chart"
	BCS-108, "DTC Index"

A
B
C
D
E
F
G
H
I
J
K
L
M
O
P

MWI

METER SYSTEM

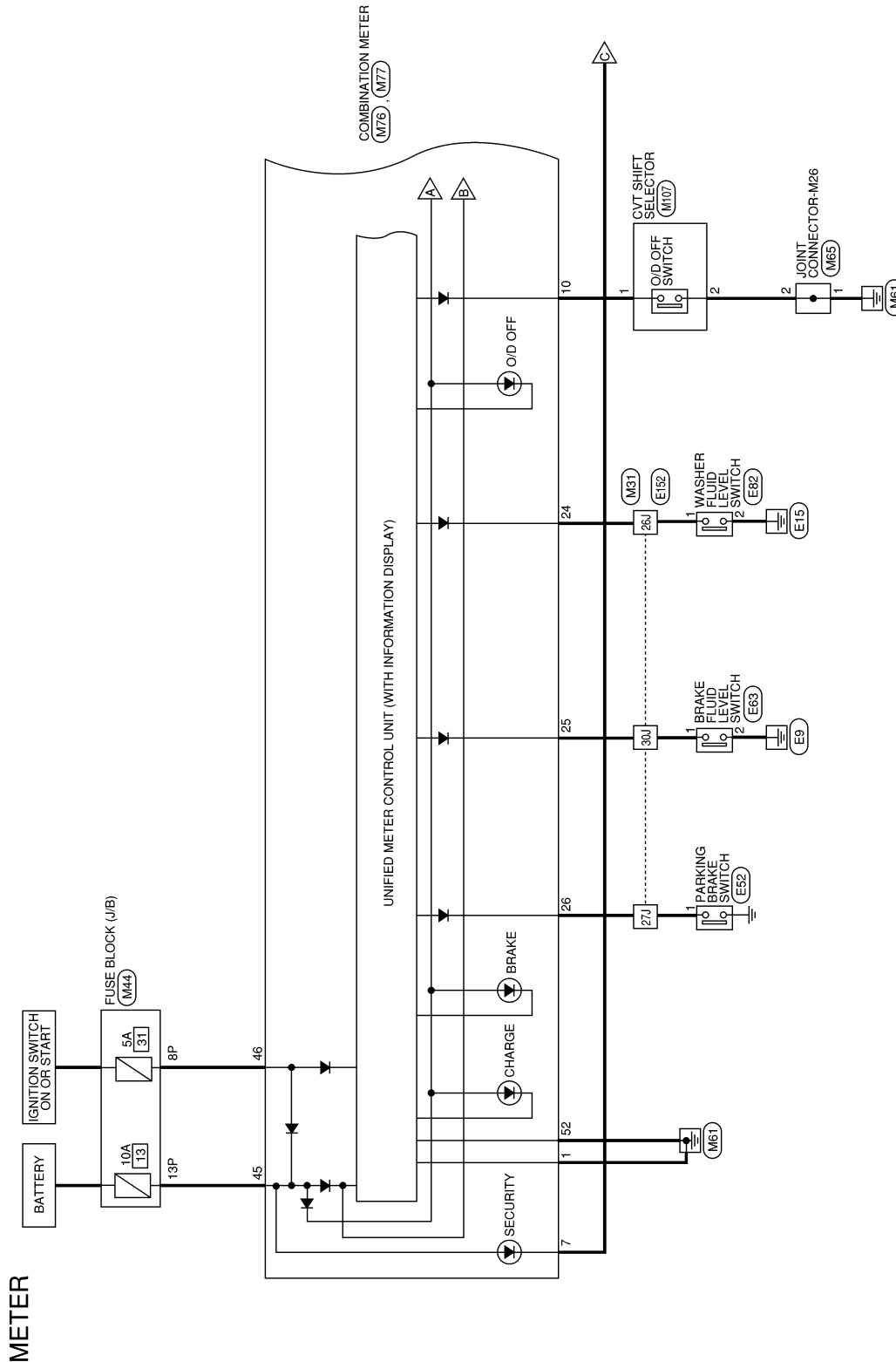
< WIRING DIAGRAM >

WIRING DIAGRAM

METER SYSTEM

Wiring Diagram

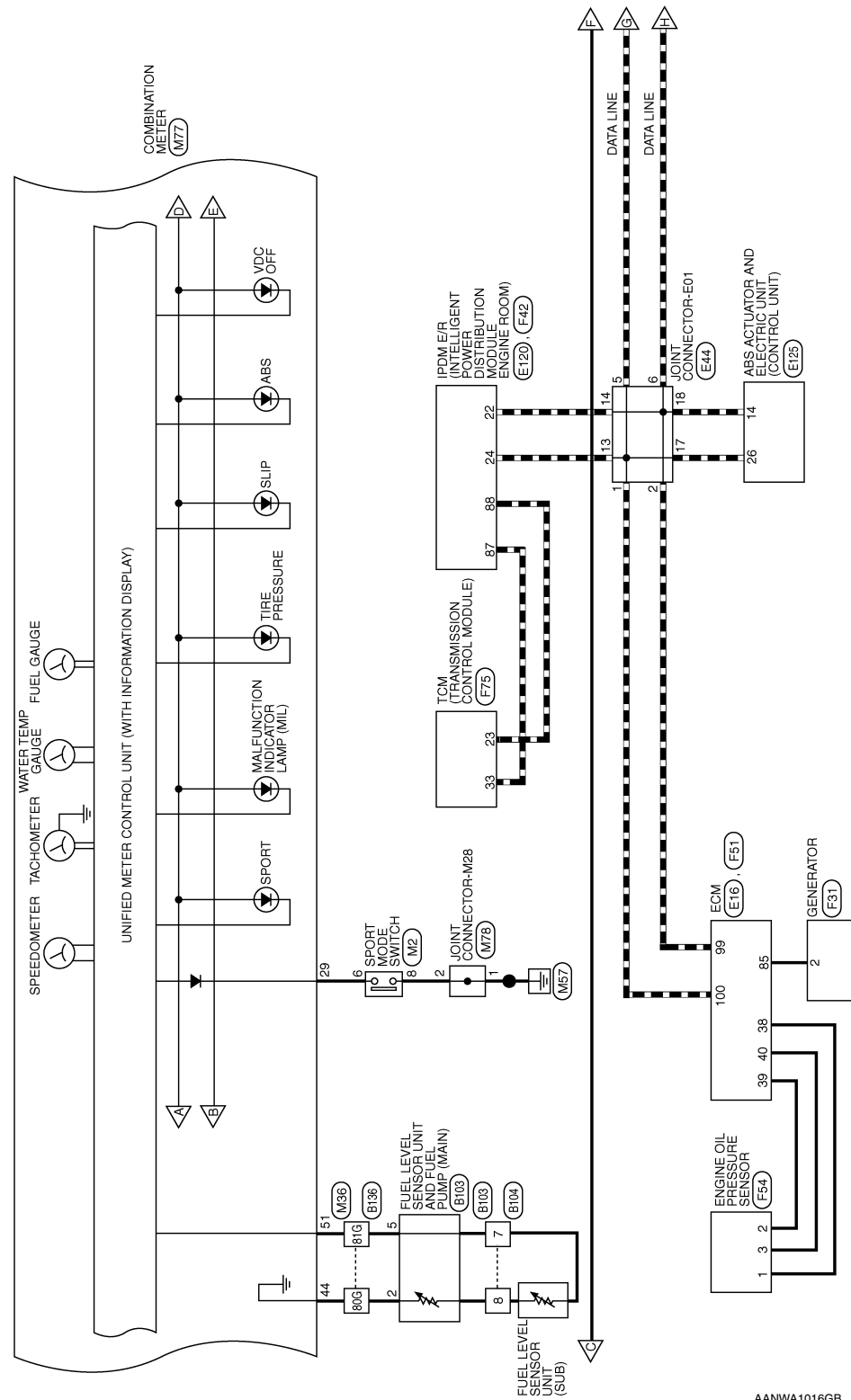
INFOID:000000009799793



AANWA1015GB

METER SYSTEM

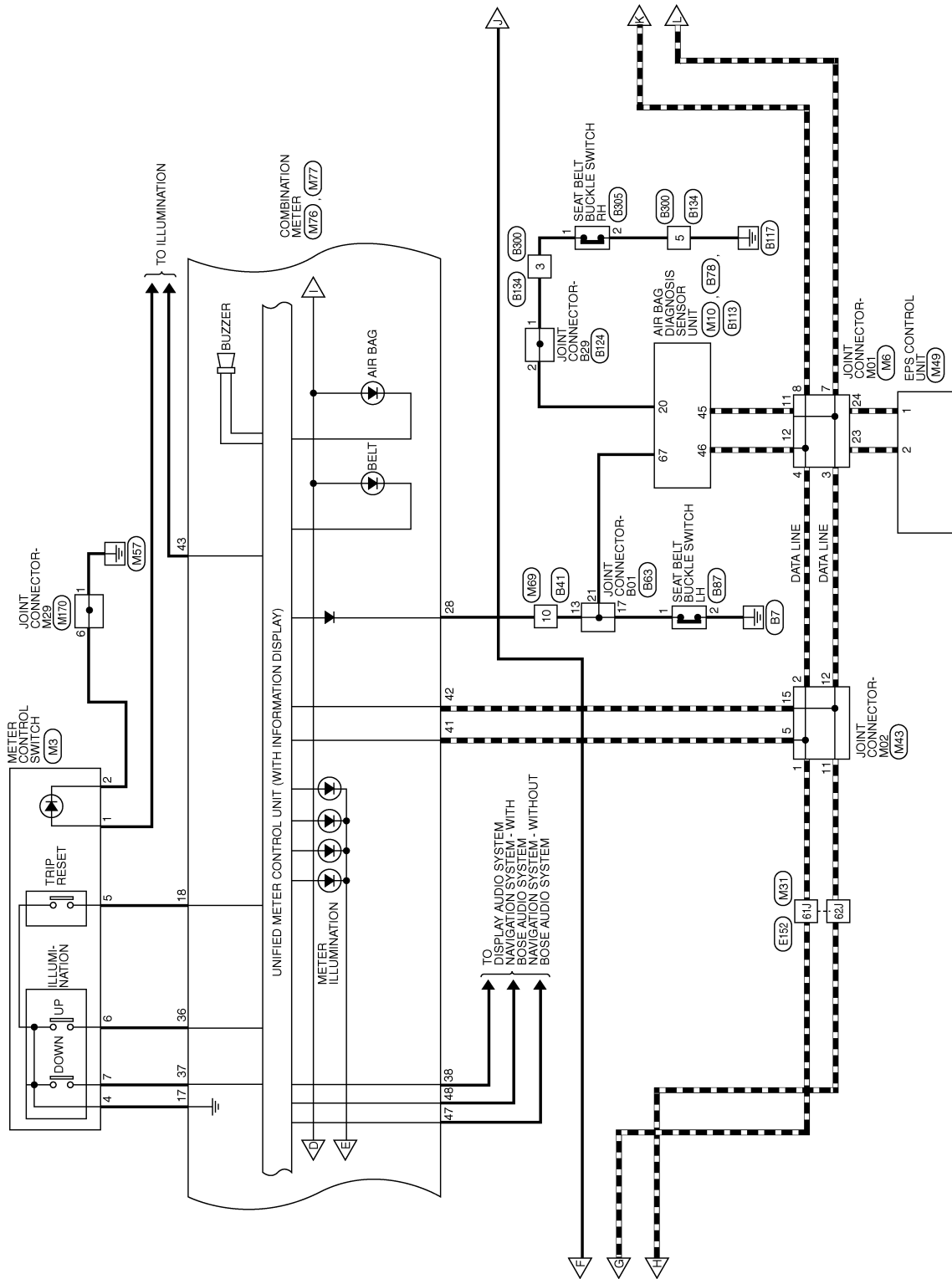
< WIRING DIAGRAM >



AANWA1016GB

METER SYSTEM

< WIRING DIAGRAM >



AANWA1017GB

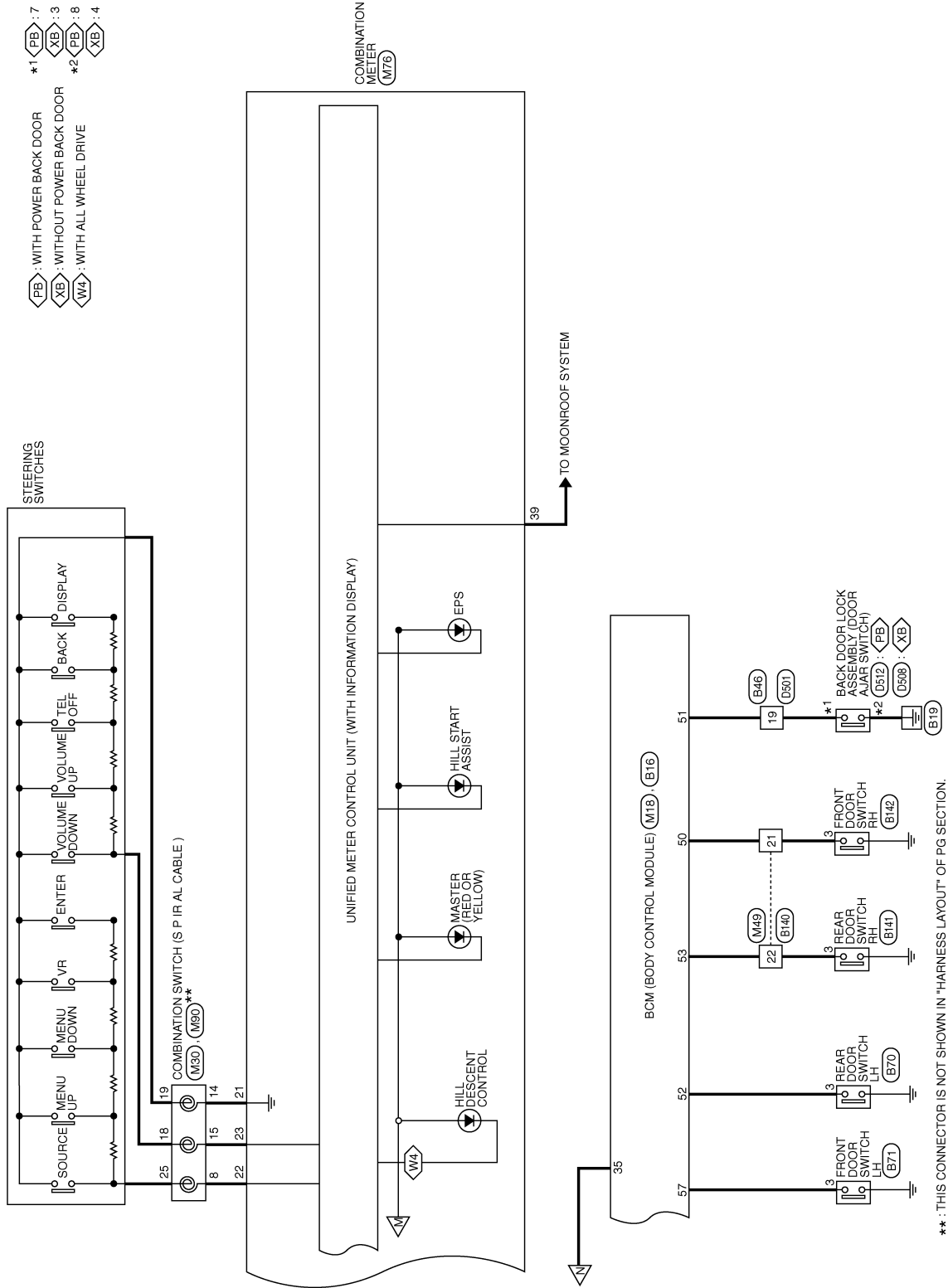
A
B
C
D
E
F
G
H
I
J
K
L
M
MV
O
P

MWI



METER SYSTEM

< WIRING DIAGRAM >



AANWA1019GB

METER CONNECTORS

Connector No.	M2
Connector Name	SPORT MODE SWITCH
Connector Color	BLUE



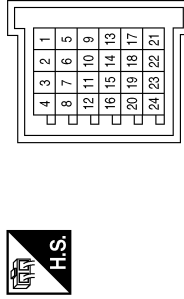
Terminal No.	Color of Wire	Signal Name
1	G	-
4	GR	-
6	R	-
8	GR	-

Connector No.	M3
Connector Name	METER CONTROL SWITCH
Connector Color	WHITE



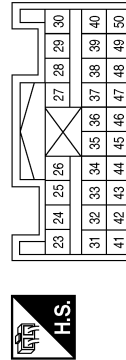
Terminal No.	Color of Wire	Signal Name
1	R	-
2	B	-
3	-	-
4	BG	-
5	SB	-
6	GR	-
7	V	-
8	-	-

Connector No.	M6
Connector Name	JOINT CONNECTOR-M01
Connector Color	GRAY



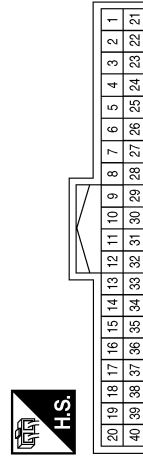
Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-
11	P	-
12	L	-
23	P	-
24	L	-

Connector No.	M10
Connector Name	AIR BAG DIAGNOSIS SENSOR UNIT
Connector Color	YELLOW



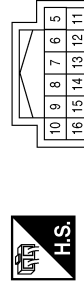
Terminal No.	Color of Wire	Signal Name
45	P	CAN-H
46	L	CAN-L

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
35	BG	SECURITY LED

Connector No.	M30
Connector Name	COMBINATION SWITCH (SPIRAL CABLE)
Connector Color	WHITE

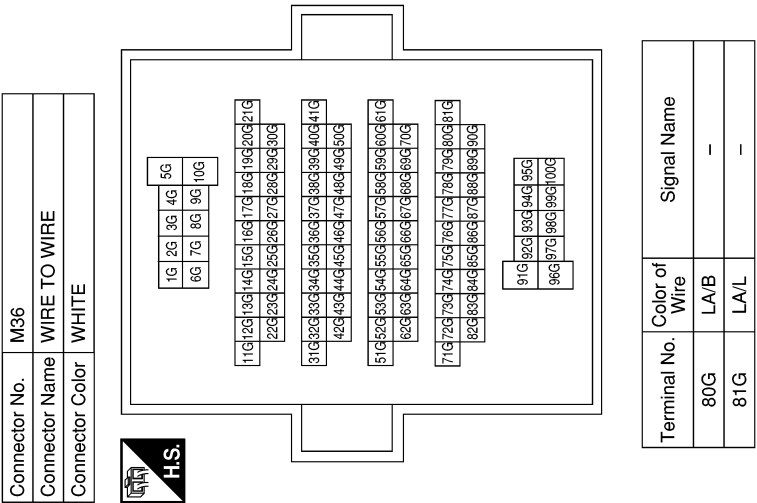


Terminal No.	Color of Wire	Signal Name
8	Y	-
14	L	-
15	GR	-

AANIA2470GB

METER SYSTEM

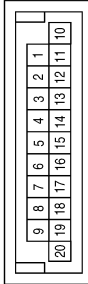
< WIRING DIAGRAM >



METER SYSTEM

< WIRING DIAGRAM >

Connector No.	M43
Connector Name	JOINT CONNECTOR-M02
Connector Color	BLUE

Terminal No.	Color of Wire	Signal Name
1	L	-
2	L	-
5	L	-
11	P	-
12	P	-
15	P	-

Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



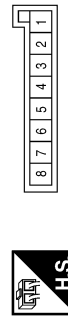
Terminal No.	Color of Wire	Signal Name
8P	LA/BR	-
13P	LA/G	-

Connector No.	M49
Connector Name	EPS CONTROL UNIT
Connector Color	WHITE



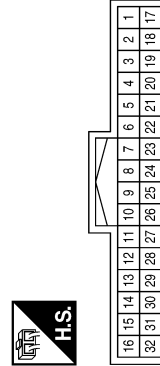
Terminal No.	Color of Wire	Signal Name
1	P	CAN-L
2	L	CAN-H

Connector No.	M65
Connector Name	JOINT CONNECTOR-M26
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	B	-
2	B	-

Connector No.	M69
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
10	Y	-
24	P	-
25	L	-

AANIA2472GB

METER SYSTEM

< WIRING DIAGRAM >

Connector No.	M76
Connector Name	COMBINATION METER
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

Terminal No.	Color of Wire	Signal Name
1	B	GND1
2	-	-
3	-	-
4	-	-
6	-	-
7	BG	SECURITY
8	-	-
9	-	-
10	P	TOW MODE SW

Terminal No.	Color of Wire	Signal Name
11	-	-
12	-	-
13	-	-
15	L	OUTSIDE TEMP SENSOR
16	-	-
17	BG	SATELLITE SW GND
18	SB	TRIP RESET SW
19	-	-
20	Y	OUTSIDE TEMP GND
21	L	STRG SW GND
22	Y	STRG SW INPUT1
23	GR	STRG SW INPUT2
24	BR	WASHER SW
25	V	BRAKE OIL SW

Terminal No.	Color of Wire	Signal Name
26	G	PKB SW
27	-	-
28	Y	DR BELT SW
29	R	O/D OFF SW
30	-	-
31	-	-
32	-	-
33	-	-
34	-	-
35	-	-
36	GR	ILL UP SW
37	V	ILL DOWN SW
38	G	8P/R OUT
39	W	2P/R OUT
40	-	-

Connector No.	M77
Connector Name	COMBINATION METER
Connector Color	WHITE



41	42	43	44	45	46
47	48	49	50	51	52

Terminal No.	Color of Wire	Signal Name
41	L	CAN-H
42	P	CAN-L
43	W	ILLUMINATION OUTPUT

Terminal No.	Color of Wire	Signal Name
44	LA/B	FUEL SENSOR GND
45	LA/G	BAT
46	LA/BR	IGN
47	SB	M CAN-H
48	LG	M CAN-L
49	-	-
50	-	-
51	LA/L	FUEL SENSOR
52	B	GND2

Connector No.	M78
Connector Name	JOINT CONNECTOR-M28
Connector Color	WHITE



8	7	6	5	4	3	2	1
---	---	---	---	---	---	---	---

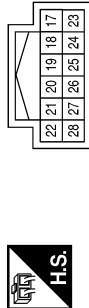
Terminal No.	Color of Wire	Signal Name
1	GR	-
2	GR	-

AANIA2473GB

METER SYSTEM

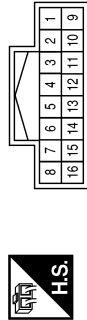
< WIRING DIAGRAM >

Connector No.	M90
Connector Name	COMBINATION SWITCH (SPIRAL CABLE)
Connector Color	WHITE



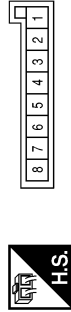
Terminal No.	Color of Wire	Signal Name
18	GR	-
19	L	-
25	Y	-

Connector No.	M107
Connector Name	CVT SHIFT SELECTOR
Connector Color	WHITE



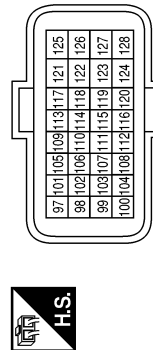
Terminal No.	Color of Wire	Signal Name
1	P	-
2	B	-

Connector No.	M170
Connector Name	JOINT CONNECTOR-M29
Connector Color	WHITE



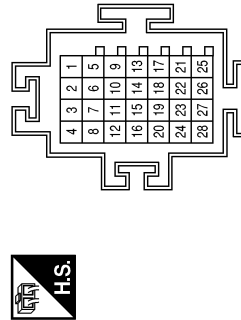
Terminal No.	Color of Wire	Signal Name
1	B	-
6	B	-

Connector No.	E16
Connector Name	ECM
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
99	P	CAN-L
100	L	CAN-H

Connector No.	E44
Connector Name	JOINT CONNECTOR-E01
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	L	-
2	P	-
5	L	-

Terminal No.	Color of Wire	Signal Name
6	P	-
13	L	-
14	P	-
17	L	-
18	P	-

A B C D E F G H I J K L M O P

MWI

AANIA2474GB

METER SYSTEM

< WIRING DIAGRAM >

Connector No.	E52
Connector Name	PARKING BRAKE SWITCH
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	G	-

Connector No.	E63
Connector Name	BRAKE FLUID LEVEL SWITCH
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	V	-
2	BR	-

Connector No.	E76
Connector Name	AMBIENT SENSOR
Connector Color	BLACK



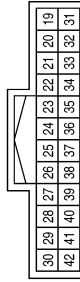
Terminal No.	Color of Wire	Signal Name
1	L	-
2	R	-

Connector No.	E82
Connector Name	WASHER FLUID LEVEL SWITCH
Connector Color	WHITE



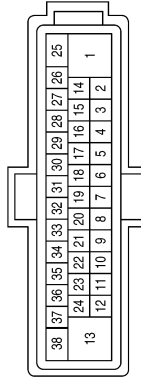
Terminal No.	Color of Wire	Signal Name
1	BR	-
2	B	-

Connector No.	E120
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
22	P	CAN-L
24	L	CAN-H

Connector No.	E125
Connector Name	ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)
Connector Color	BLACK



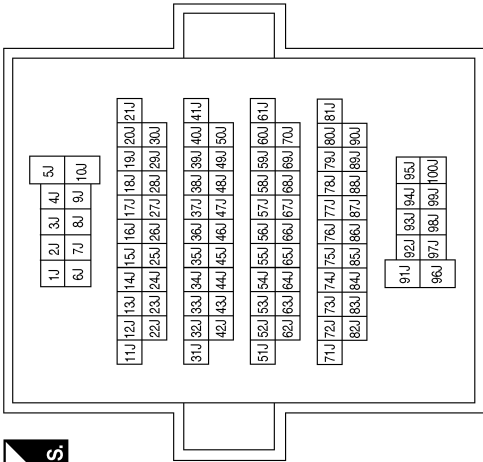
Terminal No.	Color of Wire	Signal Name
14	P	CAN-L
26	L	CAN-H

AANIA2475GB

METER SYSTEM

< WIRING DIAGRAM >

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE



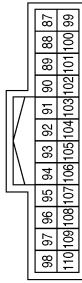
Terminal No.	Color of Wire	Signal Name
26J	BR	-
27J	G	-
28J	R	-
29J	L	-
30J	V	-
61J	L	-
62J	P	-

Connector No.	F31
Connector Name	GENERATOR
Connector Color	BLACK

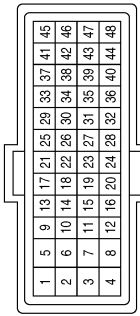


Terminal No.	Color of Wire	Signal Name
2	G	-

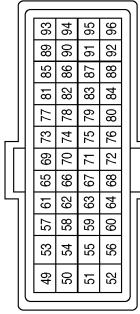
Connector No.	F42
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK



Connector No.	F51
Connector Name	ECM
Connector Color	BLACK



Connector No.	F52
Connector Name	ECM
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
87	L	CAN-H
88	P	CAN-L

Terminal No.	Color of Wire	Signal Name
38	SB	GND OILPRES
39	P	OILPRES
40	W	AVCC2 OILPRES

Terminal No.	Color of Wire	Signal Name
85	G	LIN

AANIA2476GB

A B C D E F G H I J K L M MWI O P

METER SYSTEM

< WIRING DIAGRAM >

Connector No.	F54
Connector Name	ENGINE OIL PRESSURE SENSOR
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	SB	-
2	P	-
3	W	-

Connector No.	F75
Connector Name	TCM (TRANSMISSION CONTROL MODULE)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
23	P	CAN-L
33	L	CAN-H

Connector No.	B16
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GREEN



Terminal No.	Color of Wire	Signal Name
50	W	RR DOOR SW
51	LG	TGATE SW
52	R	RL DOOR SW
53	SB	AS DOOR2 SW
57	SB	DR DOOR2 SW
60	L	CAN-H
80	P	CAN-L

Connector No.	B41
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	B46
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	B49
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
10	LA/Y	-
24	P	-
25	L	-

Terminal No.	Color of Wire	Signal Name
19	LG	-

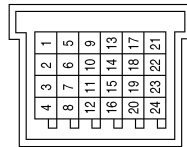
Terminal No.	Color of Wire	Signal Name
6	SB	-
10	W	-

AANIA2477GB

METER SYSTEM

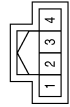
< WIRING DIAGRAM >

Connector No.	B63
Connector Name	JOINT CONNECTOR-B01
Connector Color	GRAY



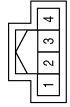
Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-
13	LAY	-
17	LAY	-
21	SB	-

Connector No.	B70
Connector Name	REAR DOOR SWITCH LH
Connector Color	WHITE



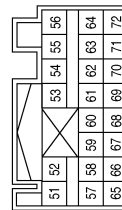
Terminal No.	Color of Wire	Signal Name
3	R	-

Connector No.	B71
Connector Name	FRONT DOOR SW LH
Connector Color	WHITE



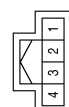
Terminal No.	Color of Wire	Signal Name
3	SB	-

Connector No.	B78
Connector Name	AIR BAG DIAGNOSIS SENSOR UNIT
Connector Color	YELLOW



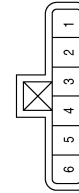
Terminal No.	Color of Wire	Signal Name
67	SB	BUCKLE SW FR LH

Connector No.	B87
Connector Name	SEAT BELT BUCKLE SWITCH LH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	LA/Y	-
2	B	-

Connector No.	B103
Connector Name	FUEL LEVEL SENSOR AND FUEL PUMP (FUEL SENSOR)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
2	LA/B	-
5	LA/L	-

METER SYSTEM

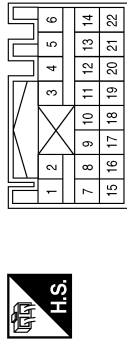
< WIRING DIAGRAM >

Connector No.	B104
Connector Name	FUEL LEVEL SENSOR UNIT AND FUEL PUMP (MAIN)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
7	R	-
8	G	-

Connector No.	B113
Connector Name	AIR BAG DIAGNOSIS SENSOR UNIT
Connector Color	YELLOW



Terminal No.	Color of Wire	Signal Name
20	SB	BUCKLE SW FR RH

Connector No.	B124
Connector Name	JOINT CONNECTOR-B29
Connector Color	WHITE



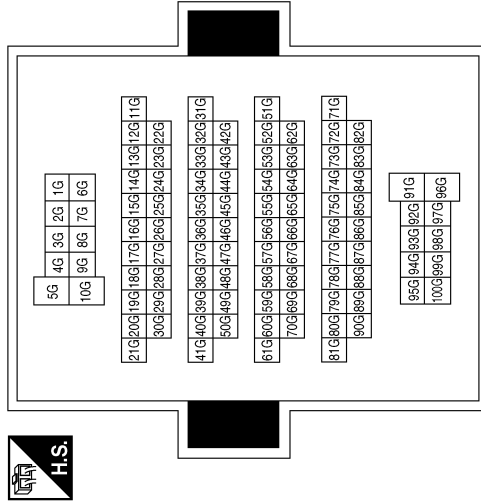
Terminal No.	Color of Wire	Signal Name
1	SB	-
2	SB	-

Connector No.	B134
Connector Name	WIRE TO WIRE
Connector Color	WHITE

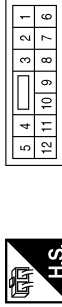


Terminal No.	Color of Wire	Signal Name
3	SB	-
5	B	-

Connector No.	B136
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	B140
Connector Name	WIRE TO WIRE
Connector Color	WHITE



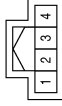
Terminal No.	Color of Wire	Signal Name
6	GR	-
10	W	-

AANIA2479GB

METER SYSTEM

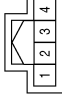
< WIRING DIAGRAM >

Connector No.	B141
Connector Name	REAR DOOR SWITCH RH
Connector Color	WHITE

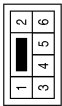
Terminal No.	Color of Wire	Signal Name
3	GR	—

Connector No.	B142
Connector Name	FRONT DOOR SWITCH RH
Connector Color	WHITE

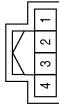
Terminal No.	Color of Wire	Signal Name
3	W	—

Connector No.	B300
Connector Name	WIRE TO WIRE
Connector Color	WHITE

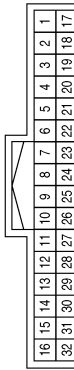
Terminal No.	Color of Wire	Signal Name
3	SB	—
5	B	—

Connector No.	B305
Connector Name	SEAT BELT BUCKLE SWITCH RH
Connector Color	WHITE

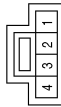
Terminal No.	Color of Wire	Signal Name
1	SB	—
2	B	—

Connector No.	D501
Connector Name	WIRE TO WIRE
Connector Color	WHITE

Terminal No.	Color of Wire	Signal Name
19	W	—

Connector No.	D508
Connector Name	BACK DOOR LOCK ASSEMBLY (DOOR AJAR SWITCH) (WITHOUT POWER BACK DOOR)
Connector Color	WHITE

Terminal No.	Color of Wire	Signal Name
3	W	—
4	GR	—

AANIA2480GB

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P

MWI

METER SYSTEM

< WIRING DIAGRAM >

Connector No.	D512
Connector Name	BACK DOOR LOCK ASSEMBLY (DOOR AJAR SWITCH) (WITH POWER BACK DOOR)
Connector Color	WHITE

1	2	3
4	5	6
7	8	

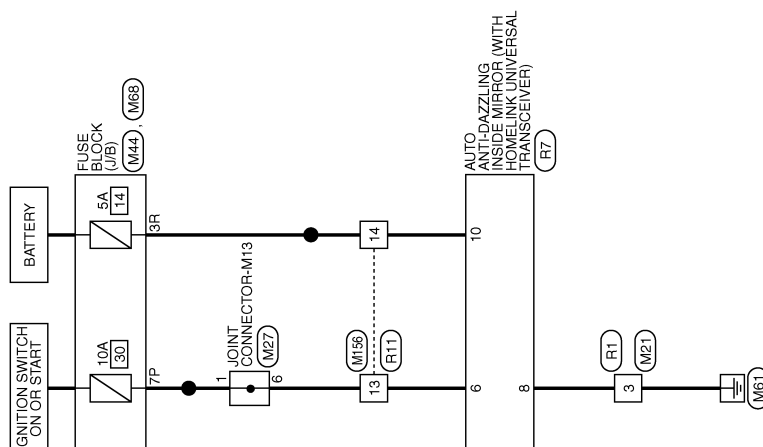


Terminal No.	Color of Wire	Signal Name
7	W	-
8	GR	-

AANIA2619GB

Wiring Diagram

A
B
C
D
E
F
G
H
I
J
K
L
M
MV
O
P

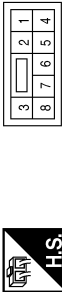


AANWA1020GB

MWI

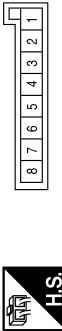
COMPASS CONNECTORS

Connector No.	M21
Connector Name	WIRE TO WIRE
Connector Color	WHITE



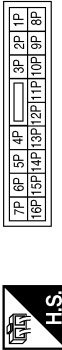
Terminal No.	Color of Wire	Signal Name
3	B	—

Connector No.	M27
Connector Name	JOINT CONNECTOR-M13
Connector Color	WHITE



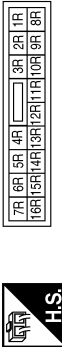
Terminal No.	Color of Wire	Signal Name
1	SB	—
6	SB	—

Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



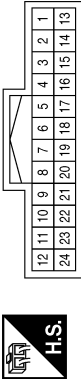
Terminal No.	Color of Wire	Signal Name
7P	Y	—

Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
3R	V	—

Connector No.	M156
Connector Name	WIRE TO WIRE
Connector Color	WHITE



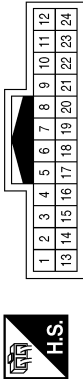
Terminal No.	Color of Wire	Signal Name
13	SB	—
14	GR	—

Connector No.	R1
Connector Name	WIRE TO WIRE
Connector Color	WHITE



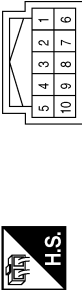
Terminal No.	Color of Wire	Signal Name
3	B	—

Connector No.	R11
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
13	SB	-
14	P	-

Connector No.	R7
Connector Name	AUTO ANTI-DAZZLING INSIDE MIRROR (WITH HOMELINK UNIVERSAL TRANSCIEVER)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
6	SB	-
8	B	-
10	P	-

AANIA2456GB

MWI

A
B
C
D
E
F
G
H
I
J
K
L
M
O
P

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

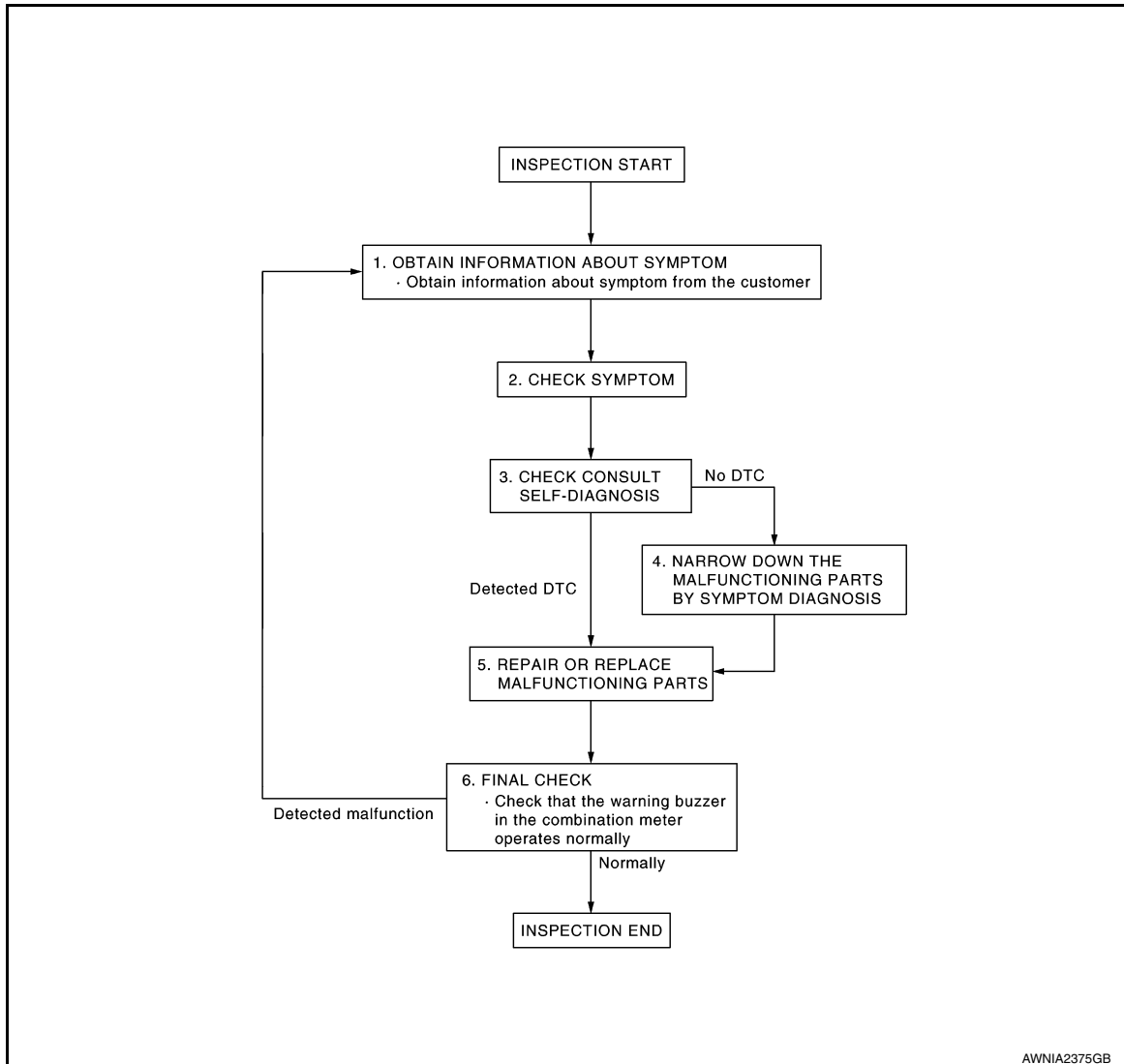
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

Work flow

INFOID:0000000010336460

OVERALL SEQUENCE



DETAILED FLOW

1.OBTAIN INFORMATION ABOUT SYMPTOM

Interview the customer to obtain as much information as possible about the conditions and environment under which the malfunction occurred.

>> GO TO 2.

2.CHECK SYMPTOM

- Check the symptom based on the information obtained from the customer.
- Check if any other malfunctions are present.

>> GO TO 3.

3.CHECK CONSULT SELF-DIAGNOSIS RESULTS

Connect CONSULT and perform "self-diagnosis". Refer to [MWI-30, "DTC Index"](#).

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

Are self-diagnosis results normal?

YES >> GO TO 4.

NO >> GO TO 5.

4.NARROW DOWN MALFUNCTIONING PARTS BY SYMPTOM DIAGNOSIS

Perform symptom diagnosis and narrow down the malfunctioning parts.

>> GO TO 5.

5.REPAIR OR REPLACE MALFUNCTIONING PARTS

Repair or replace malfunctioning parts.

NOTE:

If DTC is displayed, erase DTC after repairing or replacing malfunctioning parts.

>> GO TO 6.

6.FINAL CHECK

Check that the warning buzzer in the combination meter operates normally.

Does it operate normally?

YES >> Inspection End.

NO >> GO TO 1.

A

B

C

D

E

F

G

H

I

J

K

L

M

MWI

O

P

U1000 CAN COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

DTC/CIRCUIT DIAGNOSIS

U1000 CAN COMM CIRCUIT

DTC Logic

INFOID:0000000010336416

DTC DETECTION LOGIC

DTC	CONSULT	Detection Condition	Possible Cause
U1000	CAN COMM CIRC [U1000]	When combination meter is not transmitting or receiving CAN communication signals for 2 seconds or more.	CAN communication system

Diagnosis Procedure

INFOID:0000000010336417

1.PERFORM SELF DIAGNOSTIC

1. Turn ignition switch ON and wait 2 seconds or more.
2. Check "Self Diagnostic Result" of "METER/M&A".

Is DTC "U1000" displayed?

- YES >> Refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).
NO >> Refer to [GI-41, "Intermittent Incident"](#).

U1010 CONTROL UNIT (CAN)

< DTC/CIRCUIT DIAGNOSIS >

U1010 CONTROL UNIT (CAN)

Description

INFOID:000000009799801

Initial diagnosis of combination meter.

DTC Logic

INFOID:0000000010336419

DTC DETECTION LOGIC

DTC	CONSULT	Detection Condition	Possible Cause
U1010	CONTROL UNIT (CAN) [U1010]	When detecting error during the initial diagnosis of the CAN controller of combination meter.	Combination meter

Diagnosis Procedure

INFOID:0000000010336420

1.REPLACE COMBINATION METER

When DTC "U1010" is detected, replace combination meter.

>> Replace combination meter. Refer to [MWI-82, "Removal and Installation"](#).

B2205 VEHICLE SPEED

< DTC/CIRCUIT DIAGNOSIS >

B2205 VEHICLE SPEED

Description

INFOID:000000009799804

Vehicle speed signal is transmitted from ABS actuator and electric unit (control unit) via CAN communication line to combination meter.

DTC Logic

INFOID:0000000010336421

DTC DETECTION LOGIC

DTC	CONSULT	Detection Condition	Possible Cause
B2205	VEHICLE SPEED CIRC [B2205]	Malfunction is detected when an erroneous speed signal is received for 2 seconds or more.	- Combination meter - ABS actuator and electric unit (control unit)

Diagnosis Procedure

INFOID:0000000010336422

1. CHECK COMBINATION METER INPUT SIGNAL

1. Start engine and select "METER/M&A" on CONSULT.
2. Using "SPEED METER" on "Data Monitor", compare the value of Data Monitor with speedometer pointer of combination meter. Speedometer and Data Monitor indications should be close.

Is the inspection result normal?

- YES >> Perform "Self Diagnostic Result" of "ABS" Refer to [BRC-44, "CONSULT Function"](#).
- NO >> Replace combination meter. Refer to [MWI-82, "Removal and Installation"](#).

B2267 ENGINE SPEED

< DTC/CIRCUIT DIAGNOSIS >

B2267 ENGINE SPEED

Description

INFOID:000000009799807

The engine speed signal is transmitted from ECM to the combination meter with CAN communication.

DTC Logic

INFOID:0000000010336423

DTC DETECTION LOGIC

DTC	CONSULT	Detection Condition	Possible Cause
B2267	TACHO METER [B2267]	ECM continuously transmits abnormal engine speed signals for 2 seconds or more.	• Crankshaft position sensor (POS) • ECM

Diagnosis Procedure

INFOID:0000000010336424

1.PERFORM SELF-DIAGNOSIS OF ECM

Perform "Self-Diagnostic Result" of "ECM", and repair or replace malfunctioning parts.

>> Refer to [EC-93, "DTC Index"](#).

MWI

B2268 WATER TEMP

< DTC/CIRCUIT DIAGNOSIS >

B2268 WATER TEMP

Description

INFOID:000000009799810

The engine coolant temperature signal is transmitted from ECM to the combination meter via CAN communication.

DTC Logic

INFOID:000000009799811

DTC DETECTION LOGIC

DTC	CONSULT	Detection Condition	Possible Cause
B2268	WATER TEMP [B2268]	ECM continuously transmits abnormal engine coolant temperature signals for 60 seconds or more.	• Engine coolant temperature sensor • ECM

Diagnosis Procedure

INFOID:000000009799812

1.PERFORM SELF DIAGNOSIS OF ECM

Perform "Self Diagnostic Result" of "ECM", and repair or replace malfunctioning parts.

>> Refer to [EC-93. "DTC Index"](#).

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

POWER SUPPLY AND GROUND CIRCUIT COMBINATION METER

COMBINATION METER : Diagnosis Procedure

INFOID:0000000010336425

Regarding Wiring Diagram information, refer to [MWI-32, "Wiring Diagram"](#).

1.CHECK FUSES

Check that the following fuses are not blown.

Unit	Power source	Fuse No.
Combination meter	Battery	13
	Ignition switch ON or START	31

Is the fuse blown?

YES >> Replace the blown fuse after repairing the affected circuit.

NO >> GO TO 2.

2.POWER SUPPLY CIRCUIT CHECK

1. Disconnect combination meter connector.
2. Check voltage between combination meter harness connector M77 terminals 45, 46 and ground.

Terminals			Ignition switch position		
(+) (+)		(-) (-)	OFF	ON	START
Connector	Terminal				
M77	45	Ground	Battery voltage	Battery voltage	Battery voltage
	46		0V	Battery voltage	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connector.

3.GROUND CIRCUIT CHECK

1. Turn ignition switch OFF.
2. Check continuity between combination meter harness connector and ground.

Terminals			Continuity
(+)		(-)	
Connector	Terminal		
M76	1	Ground	Yes
M77	52		

Is the inspection result normal?

YES >> Inspection End.

NO >> Repair or replace harness or connector.

BCM (BODY CONTROL SYSTEM) (WITH INTELLIGENT KEY SYSTEM)

BCM (BODY CONTROL SYSTEM) (WITH INTELLIGENT KEY SYSTEM) : Diagnosis Procedure

INFOID:0000000010336841

Regarding Wiring Diagram information, refer to [BCS-50, "Wiring Diagram"](#).

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

1. CHECK FUSE

Check that the following fuse is not blown.

Terminal No.	Signal name	Fuse No.
161	BCM power supply	7 (10A)

Is the fuse blown?

YES >> Replace the blown fuse after repairing the affected circuit.

NO >> GO TO 2.

2. CHECK POWER SUPPLY CIRCUIT

1. Disconnect BCM connector M20.
2. Check voltage between BCM connector M20 and ground.

BCM		Ground	Voltage (Approx.)
Connector	Terminal		
M20	161	—	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

3. CHECK GROUND CIRCUIT

Check continuity between BCM connector M20 and ground.

BCM		Ground	Continuity
Connector	Terminal		
M20	170	—	Yes
	171		

Is the inspection result normal?

YES >> Inspection End.

NO >> Repair or replace harness or connectors.

BCM (BODY CONTROL SYSTEM) (WITHOUT INTELLIGENT KEY SYSTEM)

BCM (BODY CONTROL SYSTEM) (WITHOUT INTELLIGENT KEY SYSTEM) : Diagnosis Procedure

INFOID:0000000010336842

Regarding Wiring Diagram information, refer to [BCS-110, "Wiring Diagram"](#).

1. CHECK FUSE

Check that the following fuse is not blown.

Terminal No.	Signal name	Fuse No.
161	BCM power supply	7 (10A)

Is the fuse blown?

YES >> Replace the blown fuse after repairing the affected circuit.

NO >> GO TO 2.

2. CHECK POWER SUPPLY CIRCUIT

1. Disconnect BCM connector M20.

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

2. Check voltage between BCM connector M20 and ground.

BCM		Ground	Voltage (Approx.)
Connector	Terminal		
M20	161	—	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

3. CHECK GROUND CIRCUIT

Check continuity between BCM connector M20 and ground.

BCM		Ground	Continuity
Connector	Terminal		
M20	170	—	Yes
	171		

Is the inspection result normal?

YES >> Inspection End.

NO >> Repair or replace harness or connectors.

FUEL LEVEL SENSOR SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

FUEL LEVEL SENSOR SIGNAL CIRCUIT

Component Function Check

INFOID:000000009799814

1.COMBINATION METER INPUT SIGNAL

1. Select "METER/M&A" on "CONSULT".
2. Using "FUEL METER" of "Data Monitor", compare the value of "Data Monitor" with fuel gauge pointer of combination meter.

Fuel gauge pointer	Fuel tank volume [L] (Approx.)
Full	55
3/4	41.2
1/2	27.5
1/4	13.7
Empty	0.0

Does the data monitor value approximately match the fuel gauge indication?

YES >> Inspection End.

NO >> Replace combination meter. Refer to [MWI-82, "Removal and Installation"](#).

Diagnosis Procedure

INFOID:000000009799815

1.CHECK FUEL LEVEL SENSOR UNIT AND FUEL PUMP (FUEL LEVEL SENSOR) CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect combination meter connector and fuel level sensor unit and fuel pump (fuel level sensor) connector.
3. Check continuity between combination meter harness connector and fuel level sensor unit and fuel pump (fuel level sensor) harness connector.

Combination meter		Fuel level sensor unit and fuel pump (fuel level sensor)		Continuity
Connector	Terminal	Connector	Terminal	
M77	51	B103	5	Yes

4. Check continuity between combination meter harness connector and ground.

Combination meter		Ground	Continuity
Connector	Terminal		
M77	51		No

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK FUEL LEVEL SENSOR UNIT AND FUEL PUMP (FUEL LEVEL SENSOR) GROUND CIRCUIT

Check continuity between fuel level sensor unit and fuel pump (fuel level sensor) harness connector and combination meter harness connector.

Fuel level sensor unit and fuel pump (fuel level sensor)		Combination meter		Continuity
Connector	Terminal	Connector	Terminal	
B103	2	M77	44	Yes

Is the inspection result normal?

YES >> Replace combination meter. Refer to [MWI-82, "Removal and Installation"](#).

NO >> Repair harness or connector.

FUEL LEVEL SENSOR SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

Component Inspection

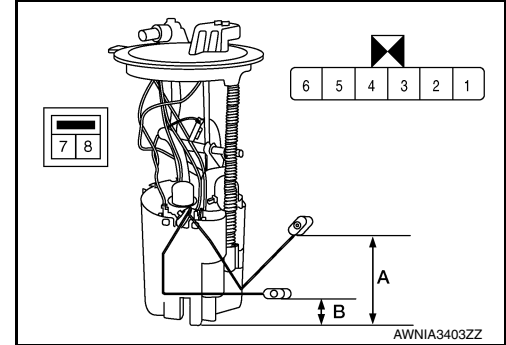
INFOID:000000009799816

1. CHECK FUEL LEVEL SENSOR UNIT AND FUEL PUMP (FUEL LEVEL SENSOR)

1. Remove the fuel level sensor unit and fuel pump (fuel level sensor). Refer to [FL-6, "Removal and Installation"](#).
2. Check the resistance between fuel level sensor unit and fuel pump (fuel level sensor).

Terminals		Condition	Resistance (Ω) (Approx.)	Height [mm (in)]
Fuel level sensor unit and fuel pump (fuel level sensor)				
2	8	Full* (A)	45	171.4 (6.7)
		Empty* (B)	141	20.5 (0.8)
5	7	—	0	—

*: When float rod is contact with stopper.



Is the inspection result normal?

YES >> GO TO 2.

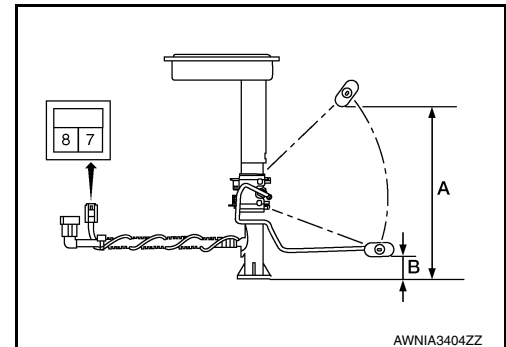
NO >> Replace fuel level sensor unit and fuel pump (fuel level sensor). Refer to [FL-6, "Removal and Installation"](#).

2. CHECK FUEL LEVEL SENSOR UNIT (SUB)

1. Remove the fuel level sensor unit (sub). Refer to [FL-6, "Removal and Installation"](#).
2. Check the resistance between fuel level sensor unit (sub).

Terminals		Condition	Resistance (Ω) (Approx.)	Height [mm (in)]
Fuel level sensor unit (sub)				
7	8	Full* (A)	6.0	194.1 (7.6)
		Empty* (B)	141	18 (0.7)

*: When float rod is contact with stopper.



Is the inspection result normal?

YES >> Inspection End.

NO >> Replace fuel level sensor unit (sub). Refer to [FL-6, "Removal and Installation"](#).

PARKING BRAKE SWITCH SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

PARKING BRAKE SWITCH SIGNAL CIRCUIT

Description

INFOID:0000000010336429

Transmits the parking brake switch signal to the combination meter.

Component Function Check

INFOID:0000000010336430

1.COMBINATION METER INPUT SIGNAL

1. Start engine.
2. Check "PKB SW" in "Data Monitor" while applying and releasing the parking brake.

Monitor item	Condition	Status
PKB SW	Parking brake applied	On
	Parking brake released	Off

Is the inspection result normal?

- YES >> Inspection End.
NO >> Refer to [MWI-64, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010336431

Regarding Wiring Diagram information, refer to [MWI-32, "Wiring Diagram"](#).

1.CHECK PARKING BRAKE SWITCH CIRCUIT

1. Disconnect combination meter harness connector M76 and parking brake switch harness connector E52.
2. Check continuity between combination meter harness connector M76 terminal 26 and parking brake switch harness connector E52 terminal 1.

Combination meter		Parking brake switch		Continuity
Connector	Terminal	Connector	Terminal	
M76	26	E52	1	Yes

3. Check continuity between combination meter harness connector M76 terminal 26 and ground.

Combination meter		Ground	Continuity
Connector	Terminal		
M76	26		No

Is the inspection result normal?

- YES >> Inspection End.
NO >> Repair or replace harness or connector.

Component Inspection

INFOID:0000000010336432

1.CHECK PARKING BRAKE SWITCH

Check continuity between parking brake switch terminal 1 and switch case ground.

Component	Terminal	Condition	Continuity
Parking brake switch	1	Parking brake applied	Yes
		Parking brake released	No

Is the inspection result normal?

- YES >> Inspection End.
NO >> Replace parking brake switch. Refer to [PB-7, "Exploded View"](#).

AMBIENT SENSOR SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

AMBIENT SENSOR SIGNAL CIRCUIT

Description

INFOID:0000000010336454

It detects outside air temperature and converts it into a resistance value which is then input into the combination meter.

Diagnosis Procedure

INFOID:0000000010336455

Regarding Wiring Diagram information, refer to [MWI-32, "Wiring Diagram"](#).

1.CHECK AMBIENT SENSOR SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect combination meter connector and ambient sensor connector.
3. Check continuity between combination meter harness connector and ambient sensor harness connector.

Combination meter		Ambient sensor		Continuity
Connector	Terminal	Connector	Terminal	
M76	15	E76	1	Yes

4. Check continuity between combination meter harness connector and ground.

Combination meter		Ground	Continuity
Connector	Terminal		
M76	15		No

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness or connector.

2.CHECK AMBIENT SENSOR SIGNAL GROUND CIRCUIT

Check continuity between combination meter harness connector and ambient sensor harness connector.

Combination meter		Ambient sensor		Continuity
Connector	Terminal	Connector	Terminal	
M76	20	E76	2	Yes

Is the inspection result normal?

YES >> Inspection End.

NO >> Repair or replace harness or connector.

Component Inspection

INFOID:0000000010336456

MWI

1.CHECK AMBIENT SENSOR

1. Turn ignition switch OFF.
2. Disconnect ambient sensor connector.
3. Check resistance between ambient sensor terminals.

AMBIENT SENSOR SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

Terminal		Condition	Resistance: k Ω
		Temperature: °C (°F)	
1	2	-15 (5)	12.73
		-10 (14)	9.92
		-5 (23)	7.80
		0 (32)	6.19
		5 (41)	4.95
		10 (50)	3.99
		15 (59)	3.24
		20 (68)	2.65
		25 (77)	2.19
		30 (86)	1.81
		35 (95)	1.51
		40 (104)	1.27
		45 (113)	1.07

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace ambient sensor. Refer to [HAC-104, "Removal and Installation"](#).

METER CONTROL SWITCH SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

METER CONTROL SWITCH SIGNAL CIRCUIT

Diagnosis Procedure

INFOID:000000010336450

Regarding Wiring Diagram information, refer to [MWI-32. "Wiring Diagram"](#).

1.CHECK METER CONTROL SWITCH SIGNAL

1. Turn ignition switch ON.
2. Check voltage between the following terminals of the meter control switch harness connector M3.

Meter control switch			Condition	Voltage (Approx.)
Connector	Terminals			
	(+)	(-)		
M3	7	4	When illumination control switch (–) is pressed	0 V
			Other than the above	5 V
	5		When trip reset switch is pressed	0 V
			Other than the above	5 V
	6		When illumination control switch (+) is pressed	0 V
			Other than the above	5 V

Is the inspection result normal?

YES >> Inspection End.

NO >> GO TO 2.

2.CHECK METER CONTROL SWITCH HARNESS

1. Turn ignition switch OFF.
2. Disconnect combination meter harness connector M77 and meter control switch harness connector M3.
3. Check continuity between combination meter harness connector M77 and meter control switch harness connector M3.

Combination meter		Meter control switch		Continuity
Connector	Terminal	Connector	Terminal	
M77	18	M3	5	Yes
	37		7	
	36		6	
	17		4	

4. Check continuity between combination meter harness connector and ground.

Combination meter			Continuity
Connector	Terminal		
M77	18	Ground	No
	37		
	36		
	17		

Is the inspection result normal?

YES >> Inspection End.

NO >> Repair or replace harness or connectors.

METER CONTROL SWITCH SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

Component Inspection

INFOID:0000000010336451

1.CHECK METER CONTROL SWITCH

1. Turn ignition switch OFF.
2. Disconnect meter control switch connector.
3. Check meter control switch.

Meter control switch		Condition	Continuity
Terminals			
7	4	When illumination control switch (–) is pressed	Yes
		Other than the above	No
5		When trip reset switch is pressed	Yes
		Other than the above	No
6		When illumination control switch (+) is pressed	Yes
		Other than the above	No

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace meter control switch. Refer to [MWI-83. "Removal and Installation"](#).

STEERING SWITCH

< DTC/CIRCUIT DIAGNOSIS >

STEERING SWITCH

Description

INFOID:0000000010336433

When one of the steering switches is pushed, the resistance in the steering switch changes the signal to identify which button is controlling the information display.

Diagnosis Procedure

INFOID:0000000010336434

Regarding Wiring Diagram information, refer to [MWI-32, "Wiring Diagram"](#).

1.CHECK STEERING SWITCH CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect combination meter harness connector M76 and spiral cable harness connector M30.
3. Check continuity between combination meter harness connector M76 and spiral cable harness connector M30.

Combination meter		Spiral cable		Continuity
Connector	Terminal	Connector	Terminal	
M76	21	M30	14	Yes
	22		8	
	23		15	

4. Check continuity between combination meter harness connector M76 and ground.

Combination meter		Ground	Continuity
Connector	Terminal		
M76	21	Ground	No
	22		
	23		

Is the inspection result normal?

- YES >> Inspection End.
NO >> Repair or replace harness or connector.

Component Inspection

INFOID:0000000010336435

1.CHECK STEERING SWITCH RESISTANCE

Check resistance between the following steering switch terminals.

Terminal		Signal name	Condition	Resistance (Ω) (Approx.)
18	19	Display	Depress DISP switch.	2023
		Back	Depress  switch.	723
25		Enter	Depress ENTER switch.	2023
		Menu Up	Depress  switch.	121
		Menu Down	Depress  switch.	321

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Replace steering wheel switch. Refer to [AV-65, "Removal and Installation"](#).

STEERING SWITCH

< DTC/CIRCUIT DIAGNOSIS >

2.CHECK SPIRAL CABLE

Check continuity between the following spiral cable terminals.

Terminals		Continuity
18	15	Yes
25	8	
19	14	

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace spiral cable. Refer to [SR-15, "Removal and Installation"](#).

WASHER LEVEL SWITCH SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

WASHER LEVEL SWITCH SIGNAL CIRCUIT

Description

INFOID:0000000010336426

Transmits the washer fluid level switch signal to the combination meter.

Diagnosis Procedure

INFOID:0000000010336427

Regarding Wiring Diagram information, refer to [MWI-32, "Wiring Diagram"](#).

1.CHECK WASHER FLUID LEVEL SWITCH SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect combination meter harness connector M76 and washer fluid level switch harness connector E82.
3. Check continuity between combination meter harness connector M76 and washer fluid level switch harness connector E82.

Combination meter		Washer fluid level switch		Continuity
Connector	Terminal	Connector	Terminal	
M76	24	E82	1	Yes

4. Check continuity between combination meter harness connector and ground.

Combination meter		Ground	Continuity
Connector	Terminal		
M76	24		No

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness or connector.

2.CHECK WASHER FLUID LEVEL SWITCH GROUND CIRCUIT

Check continuity between washer fluid level switch connector and ground.

Washer fluid level switch		Ground	Continuity
Connector	Terminal		
E82	2		Yes

Is the inspection result normal?

YES >> Inspection End.

NO >> Repair or replace harness or connector.

Component Inspection

INFOID:0000000010336428

1.CHECK WASHER FLUID LEVEL SWITCH

1. Turn ignition switch OFF.
2. Disconnect washer fluid level switch connector.
3. Check washer fluid level switch.

Washer fluid level switch		Condition	Continuity
Terminals			
1	2	Washer fluid level switch ON	Yes
		Washer fluid level switch OFF	No

Is the inspection result normal?

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P

WASHER LEVEL SWITCH SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

YES >> Inspection End.

NO >> Replace washer fluid level switch. Refer to [WW-58, "Removal and Installation"](#).

THE FUEL GAUGE DOES NOT MOVE

< SYMPTOM DIAGNOSIS >

SYMPTOM DIAGNOSIS

THE FUEL GAUGE DOES NOT MOVE

Description

INFOID:000000009799823

Fuel gauge does not move from a certain position.

Diagnosis Procedure

INFOID:000000009799824

1.CONDUCTING THE COMBINATION METER SELF-DIAGNOSIS MODE

Perform the self-diagnosis mode of combination meter, and then check that the fuel gauge operates normally.
Refer to [MWI-19, "Description"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace combination meter. Refer to [MWI-82, "Removal and Installation"](#).

2.CHECK FLOAT INTERFERENCE

Check that the float arm interferes with or binds to other components in the fuel tank.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace malfunctioning part.

3.CHECK FUEL LEVEL SENSOR SIGNAL CIRCUIT

Check the fuel level sensor signal circuit. Refer to [MWI-62, "Component Function Check"](#).

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

NO >> Repair or replace malfunctioning parts.

A
B
C
D
E
F
G
H
I
J
K
L
M
O
P

MWI

THE OIL PRESSURE WARNING CONTINUES DISPLAYING, OR DOES NOT DISPLAY

< SYMPTOM DIAGNOSIS >

THE OIL PRESSURE WARNING CONTINUES DISPLAYING, OR DOES NOT DISPLAY

Description

INFOID:0000000010336436

- The low oil pressure warning message stays on when oil pressure is normal.
- The low oil pressure warning message stays off when oil pressure is low.

Diagnosis Procedure

INFOID:0000000010336437

1. CHECK COMBINATION METER INPUT

1. Start the engine and select "METER/M&A" on CONSULT.
2. Observe "OIL W/L" in "Data Monitor" and the operation of the low oil pressure warning message in the information display.

Monitor Item	Condition	CONSULT
OIL W/L	Engine running	OFF

Is the inspection result normal?

- YES >> Perform "Self Diagnosis" of "ECM". Refer to [EC-67, "CONSULT Function"](#).
- NO >> Replace combination meter. Refer to [MWI-82, "Removal and Installation"](#).

THE PARKING BRAKE RELEASE WARNING CONTINUES DISPLAYING, OR DOES NOT DISPLAY

< SYMPTOM DIAGNOSIS >

THE PARKING BRAKE RELEASE WARNING CONTINUES DISPLAYING, OR DOES NOT DISPLAY

Description

INFOID:0000000010336438

- The parking brake warning is displayed during vehicle travel even though the parking brake is released.
- The parking brake warning is not displayed even though driving the vehicle with the parking brake applied.

Diagnosis Procedure

INFOID:0000000010336439

1.CHECK PARKING BRAKE WARNING LAMP OPERATION

1. Start engine.
2. Check the operation of the brake warning lamp while operating the parking brake.

Condition	Warning lamp status
Parking brake applied	ON
Parking brake released	OFF

Is the inspection result normal?

- YES >> Replace combination meter. Refer to [MWI-82, "Removal and Installation"](#).
NO >> GO TO 2.

2.CHECK PARKING BRAKE SWITCH SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Check the parking brake switch signal circuit. Refer to [MWI-64, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace harness or connector.

3.CHECK PARKING BRAKE SWITCH UNIT

Check the parking brake switch. Refer to [MWI-64, "Component Inspection"](#).

Is the inspection result normal?

- YES >> Replace combination meter. Refer to [MWI-82, "Removal and Installation"](#).
NO >> Replace parking brake switch. Refer to [PB-7, "Exploded View"](#).

MWI

THE LOW WASHER FLUID WARNING CONTINUES DISPLAYING, OR DOES NOT DISPLAY

< SYMPTOM DIAGNOSIS >

THE LOW WASHER FLUID WARNING CONTINUES DISPLAYING, OR DOES NOT DISPLAY

Description

INFOID:0000000010336440

- The warning is still displayed even after washer fluid is added.
- The warning is not displayed even though the washer tank is empty.

Diagnosis Procedure

INFOID:0000000010336441

1.CHECK WASHER FLUID LEVEL SWITCH SIGNAL CIRCUIT

Check the washer fluid level switch signal circuit. Refer to [MWI-71, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> GO TO 2.
- NO >> Repair or replace harness or connector.

2.CHECK WASHER FLUID LEVEL SWITCH UNIT

Check the washer fluid level switch. Refer to [MWI-71, "Component Inspection"](#).

Is the inspection result normal?

- YES >> Replace combination meter. Refer to [MWI-82, "Removal and Installation"](#).
- NO >> Replace washer fluid level switch. Refer to [WW-58, "Removal and Installation"](#).

THE DOOR OPEN WARNING CONTINUES DISPLAYING, OR DOES NOT DISPLAY

< SYMPTOM DIAGNOSIS >

THE DOOR OPEN WARNING CONTINUES DISPLAYING, OR DOES NOT DISPLAY

Description

INFOID:0000000010336442

- The door open warning is displayed even though all of the doors are closed.
- The door open warning is not displayed even though a door is ajar.

Diagnosis Procedure

INFOID:0000000010336443

1.CHECK BCM INPUT SIGNAL

Check the BCM input signal. Refer to [DLK-149. "Component Function Check"](#) (with Intelligent Key system) or [DLK-319. "Component Function Check"](#) (without Intelligent Key system).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> GO TO 3.

2.CHECK COMBINATION METER INPUT SIGNAL

Select the "METER/M&A" "Data Monitor" and check the "DOOR W/L" monitor value while opening and closing the door.

Monitor item	Condition	Status
DOOR W/L	Door open	On
	Door closed	Off

Is the inspection result normal?

- YES >> Replace combination meter. Refer to [MWI-82. "Removal and Installation"](#).
NO >> Replace BCM. Refer to [BCS-75. "Removal and Installation"](#) (with Intelligent Key system) or [BCS-135. "Removal and Installation"](#) (without Intelligent Key system).

3.CHECK DOOR SWITCH SIGNAL CIRCUIT

Check the door switch signal circuit. Refer to [DLK-149. "Diagnosis Procedure"](#) (with Intelligent Key system) or [DLK-319. "Diagnosis Procedure"](#) (without Intelligent Key system).

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Repair or replace harness or connector.

4.CHECK DOOR SWITCH

Check the door switch. Refer to [DLK-150. "Component Inspection"](#) (with Intelligent Key system) or [DLK-320. "Component Inspection"](#) (without Intelligent Key system).

Is the inspection result normal?

- YES >> Replace combination meter. Refer to [MWI-82. "Removal and Installation"](#).
NO >> Replace applicable door switch. Refer to [DLK-269. "Removal and Installation"](#) (with Intelligent Key system) or [DLK-385. "Removal and Installation"](#) (without Intelligent Key system).

THE LIFTGATE OPEN WARNING CONTINUES DISPLAYING, OR DOES NOT DISPLAY

< SYMPTOM DIAGNOSIS >

THE LIFTGATE OPEN WARNING CONTINUES DISPLAYING, OR DOES NOT DISPLAY

Description

INFOID:0000000010336444

- The liftgate open warning is displayed continuously even though the liftgate is closed.
- The liftgate open warning is not displayed even though the liftgate is open.

Diagnosis Procedure

INFOID:0000000010336445

1.CHECK BCM INPUT SIGNAL

Check the BCM input signal. Refer to [DLK-149, "Component Function Check"](#) (with Intelligent Key system) or [DLK-319, "Component Function Check"](#) (without Intelligent Key system).

Is the inspection result normal?

- YES >> GO TO 2.
- NO >> GO TO 3.

2.CHECK COMBINATION METER INPUT SIGNAL

Select the "METER/M&A" "Data Monitor" and check the "DOOR W/L" monitor value while opening and closing the back door.

Monitor item	Condition	Status
DOOR W/L	Back door open	On
	Back door closed	Off

Is the inspection result normal?

- YES >> Replace combination meter. Refer to [MWI-82, "Removal and Installation"](#).
- NO >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#) (with Intelligent Key system) or [BCS-135, "Removal and Installation"](#) (without Intelligent Key system).

3.CHECK BACK DOOR SWITCH SIGNAL CIRCUIT

Check the back door switch signal circuit. Refer to [DLK-151, "Diagnosis Procedure \(With Automatic Back Door\)"](#) or [DLK-152, "Diagnosis Procedure \(Without Automatic Back Door\)"](#).

Is the inspection result normal?

- YES >> GO TO 4.
- NO >> Repair or replace harness or connector.

4.CHECK BACK DOOR SWITCH

Check the back door switch. Refer to [DLK-153, "Component Inspection \(With Automatic Back Door\)"](#) or [DLK-154, "Component Inspection \(Without Automatic Back Door\)"](#).

Is the inspection result normal?

- YES >> Replace combination meter. Refer to [MWI-82, "Removal and Installation"](#).
- NO >> Replace back door switch. Refer to [DLK-263, "DOOR LOCK : Removal and Installation"](#).

THE METER CONTROL SWITCH IS INOPERATIVE

< SYMPTOM DIAGNOSIS >

THE METER CONTROL SWITCH IS INOPERATIVE

Description

INFOID:0000000010336452

The meter control switches are inoperative when pressed.

Diagnosis Procedure

INFOID:0000000010336453

1.CHECK METER CONTROL SWITCH SIGNAL

Check the meter control switch signal. Refer to [MWI-67, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness or connector.

2.CHECK METER CONTROL SWITCH

Check the meter control switch. Refer to [MWI-68, "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace combination meter. Refer to [MWI-82, "Removal and Installation"](#).

NO >> Replace meter control switch. Refer to [MWI-83, "Removal and Installation"](#).

A
B
C
D
E
F
G
H
I
J
K
L
M
O
P

MWI

THE STEERING SWITCHES ARE INOPERATIVE

< SYMPTOM DIAGNOSIS >

THE STEERING SWITCHES ARE INOPERATIVE

Description

INFOID:0000000010336446

One or more of the steering switches to control the information display are inoperative.

Diagnosis Procedure

INFOID:0000000010336447

1.CHECK STEERING SWITCH CIRCUIT

Check steering switch circuit. Refer to [MWI-69, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness or connector.

2.CHECK STEERING SWITCH RESISTANCE

Check steering switch resistance. Refer to [MWI-69, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace steering switch. Refer to [AV-65, "Removal and Installation"](#).

3.CHECK SPIRAL CABLE

Check spiral cable for continuity. Refer to [MWI-69, "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace combination meter. Refer to [MWI-82, "Removal and Installation"](#).

NO >> Replace spiral cable. Refer to [SR-15, "Removal and Installation"](#).

THE AMBIENT TEMPERATURE DISPLAY IS INCORRECT

< SYMPTOM DIAGNOSIS >

THE AMBIENT TEMPERATURE DISPLAY IS INCORRECT

Description

INFOID:0000000010336457

- The displayed outside air temperature is higher than the actual temperature.
- The displayed outside air temperature is lower than the actual temperature.
- Outside air temperature is not indicated.

Diagnosis Procedure

INFOID:0000000010336458

1.CHECK AMBIENT SENSOR SIGNAL CIRCUIT

Check the ambient sensor signal circuit. Refer to [MWI-65, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness or connector.

2.CHECK AMBIENT SENSOR

Check the ambient sensor. Refer to [MWI-65, "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace combination meter. Refer to [MWI-82, "Removal and Installation"](#).

NO >> Replace ambient sensor. Refer to [HAC-104, "Removal and Installation"](#).

A
B
C
D
E
F
G
H
I
J
K
L
M
O
P

MWI

COMBINATION METER

< REMOVAL AND INSTALLATION >

REMOVAL AND INSTALLATION

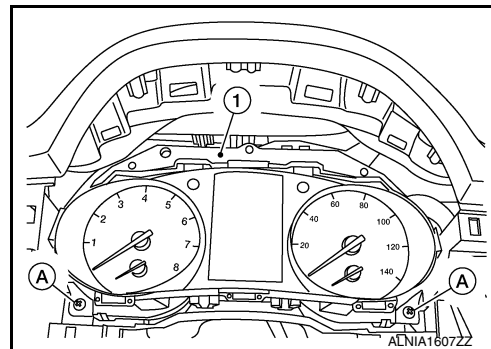
COMBINATION METER

Removal and Installation

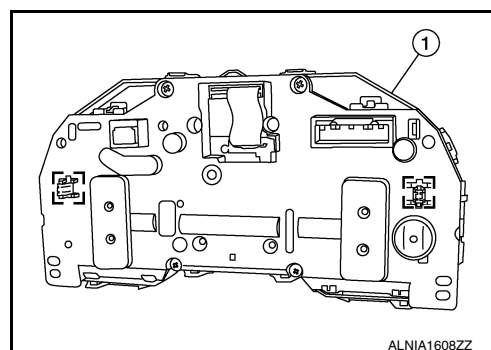
INFOID:000000009799833

REMOVAL

1. Disconnect the negative battery terminal. Refer to [PG-77. "Removal and Installation"](#).
2. Remove the cluster lid A. Refer to [IP-20. "Removal and Installation"](#).
3. Remove screws (A), from the combination meter (1).



4. Release the clips and remove the combination meter (1) from the instrument panel.
[]: Clips
5. Disconnect the harness connectors from the combination meter and remove.



INSTALLATION

Installation is in the reverse order of removal.

METER CONTROL SWITCH

< REMOVAL AND INSTALLATION >

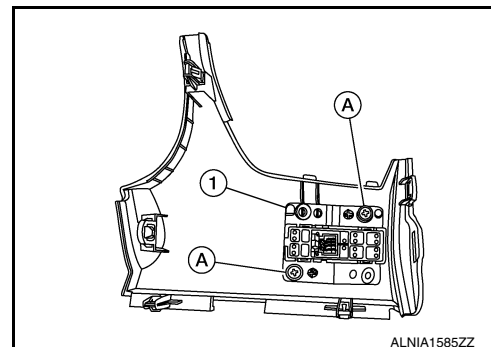
METER CONTROL SWITCH

Removal and Installation

INFOID:0000000010256120

REMOVAL

1. Remove the instrument finisher (A). Refer to [IP-14. "Exploded View"](#).
2. Remove the screws (A) and the meter control switch (1).



INSTALLATION

Installation is in the reverse order of removal.

A
B
C
D
E
F
G
H
I
J
K
L
M
O
P

MWI

COMBINATION METER

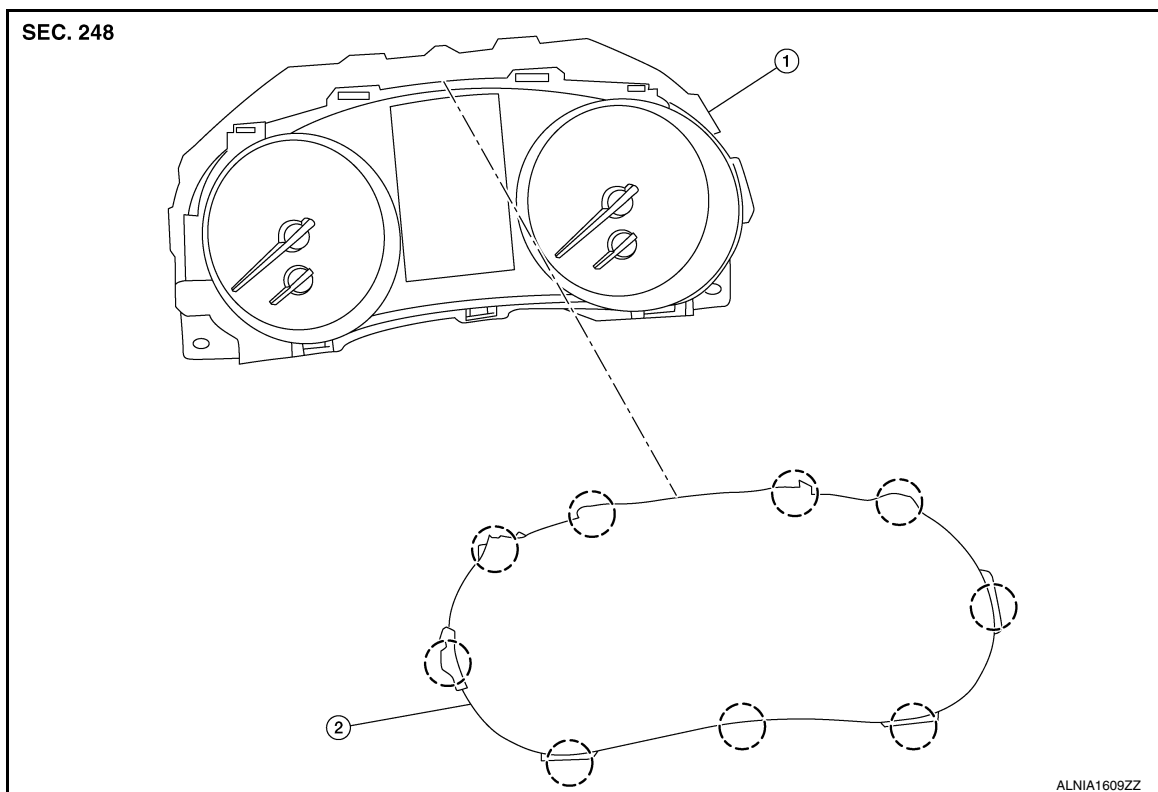
< UNIT DISASSEMBLY AND ASSEMBLY >

UNIT DISASSEMBLY AND ASSEMBLY

COMBINATION METER

Exploded View

INFOID:0000000010282437



1. Combination meter

2. Combination meter lens

3. Pawl

Disassembly and Assembly

INFOID:0000000010282438

CAUTION:

- Do not touch the display, pointer, inside of combination meter or the printed area of the dial during disassembly or assembly.
- Keep away from magnetic sources.
- Do not damage the combination meter lens.

DISASSEMBLY

1. Remove the combination meter. Refer to [MWI-82, "Removal and Installation"](#).
2. Release pawls and remove the combination meter lens.

ASSEMBLY

Assembly is in the reverse order of disassembly.

SECTION

PB

PARKING BRAKE SYSTEM

CONTENTS

PRECAUTION	2	Removal and Installation	7	PB
PRECAUTIONS	2	PARKING BRAKE FRONT CABLE	8	
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	2	Removal and Installation	8	G
PREPARATION	3	PARKING BRAKE REAR CABLE	9	
PREPARATION	3	Removal and Installation	9	H
Commercial Service Tool	3	PARKING BRAKE SWITCH	10	
PERIODIC MAINTENANCE	4	Removal and Installation	10	I
PARKING BRAKE SYSTEM	4	PARKING BRAKE SHOE	11	
Inspection and Adjustment	4	Exploded View	11	J
PARKING BRAKE SHOE	6	Removal and Installation	11	
Inspection and Adjustment	6	Inspection	12	K
REMOVAL AND INSTALLATION	7	SERVICE DATA AND SPECIFICATIONS (SDS)	14	
PARKING BRAKE CONTROL	7	SERVICE DATA AND SPECIFICATIONS (SDS)	14	L
Exploded View	7	Parking Drum Brake	14	
		Parking Brake Control	14	M

PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010284146

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

PREPARATION

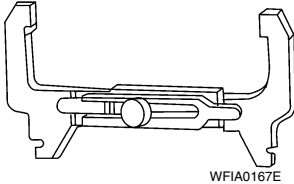
< PREPARATION >

PREPARATION

PREPARATION

Commercial Service Tool

INFOID:000000009797751

Tool name	Description
Brake drum clearance gauge 	Measuring rear rotor drum inner diameter
Power tool 	Loosening nuts, screws and bolts

PARKING BRAKE SYSTEM

< PERIODIC MAINTENANCE >

PERIODIC MAINTENANCE

PARKING BRAKE SYSTEM

Inspection and Adjustment

INFOID:000000009797752

INSPECTION

Pedal Stroke

- Operate the parking brake pedal with a force of 196 N (20.0 kg-f, 44.1 lb-f). Check that the pedal stroke is within the specified number of notches. (Check it by listening to the clicks of the ratchet.)

Number of notches : Refer to [PB-14, "Parking Brake Control"](#).

- When brake warning lamp turns ON, check that the pedal stroke is within the specified number of notches. (Check it by listening to the clicks of the ratchet.)

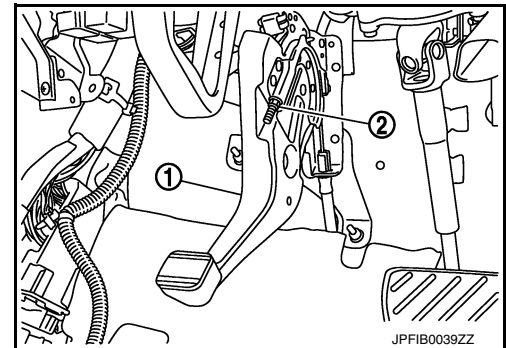
Number of notches : Refer to [PB-14, "Parking Brake Control"](#).

Inspect Components

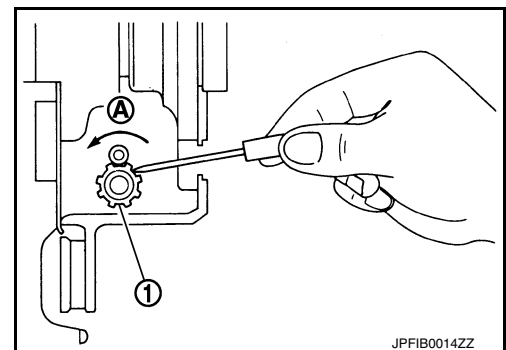
- Check each component for installation condition such as looseness.
- Check the parking brake components for bends, wear, cracks and or damage. Replace if damage is noted.
- Check the parking brake switch, and replace it if necessary. Refer to [PB-7, "Exploded View"](#).

ADJUSTMENT

1. Secure the disc brake rotor using wheel nuts.
2. Remove the instrument lower panel (LH). Refer to [IP-22, "Removal and Installation"](#).
3. Release the parking brake pedal (1) by turning the adjusting nut (2) using a suitable tool and loosening the cable.



4. Remove the adjusting hole plug from the disc brake rotor. Turn the adjuster (1) in the direction (A) as shown using a suitable tool until the disc rotor is locked.
5. Turn back the adjuster 6 - 7 notches from the locked position.
6. Rotate the disc brake rotor to check that there is no drag. Install the adjusting hole plug.
7. Adjust the cable with the following procedure.
 - a. Operate the parking brake pedal with a force of 490 N (50.0 kg-f, 110.2 lb-f) for more than 30 minutes.
 - b. Adjust the parking brake pedal stroke by turning the adjusting nut using a suitable tool.



CAUTION:

Do not reuse the adjusting nut if the nut is removed.

- c. Operate the parking brake pedal with a force of 196 N (20.0 kg-f, 44.1 lb-f). Check that the pedal stroke is within the specified number of notches. (Check it by listening to the clicks of the ratchet.)

Number of notches : Refer to [PB-14, "Parking Brake Control"](#).

- d. Rotate the disc brake rotor with the parking brake pedal released and check that there is no drag.

CAUTION:

PARKING BRAKE SYSTEM

< PERIODIC MAINTENANCE >

If any drag is found, verify the parking brake components are installed and adjusted correctly.

A

B

C

D

E

PB

G

H

I

J

K

L

M

N

O

P

PARKING BRAKE SHOE

< PERIODIC MAINTENANCE >

PARKING BRAKE SHOE

Inspection and Adjustment

INFOID:000000009797753

1. Adjust parking brake pedal stroke. Refer to [PB-4, "Inspection and Adjustment"](#).
2. Perform parking brake break-in (drag on) operation by driving vehicle under the following conditions:
 - Drive forward
 - Vehicle speed: Approx. 40 km/h (25 MPH) set (constant and forward)
 - Parking brake operating force: Approx. 160 +30.0 N (16.3 +3.1 kg-f, 36.0 +6.7 lb-f)
 - Time: Approx. 10 +5.0 seconds.

CAUTION:

To prevent lining from getting too hot, allow a cool off period of approximately 5 minutes after every break-in operation.

3. After the break-in procedure, check parking pedal stroke of parking brake.

CAUTION:

If it is out of the specification, adjust again. Refer to [PB-4, "Inspection and Adjustment"](#).

ADJUSTMENT AFTER INSTALLATION

1. Adjust the parking brake pedal stroke. Refer to [PB-4, "Inspection and Adjustment"](#).
2. Rotate the disc brake rotor with the parking brake pedal released and check that there is no drag.

CAUTION:

If any drag is found, verify the parking brake components are installed and adjusted correctly.

PARKING BRAKE CONTROL

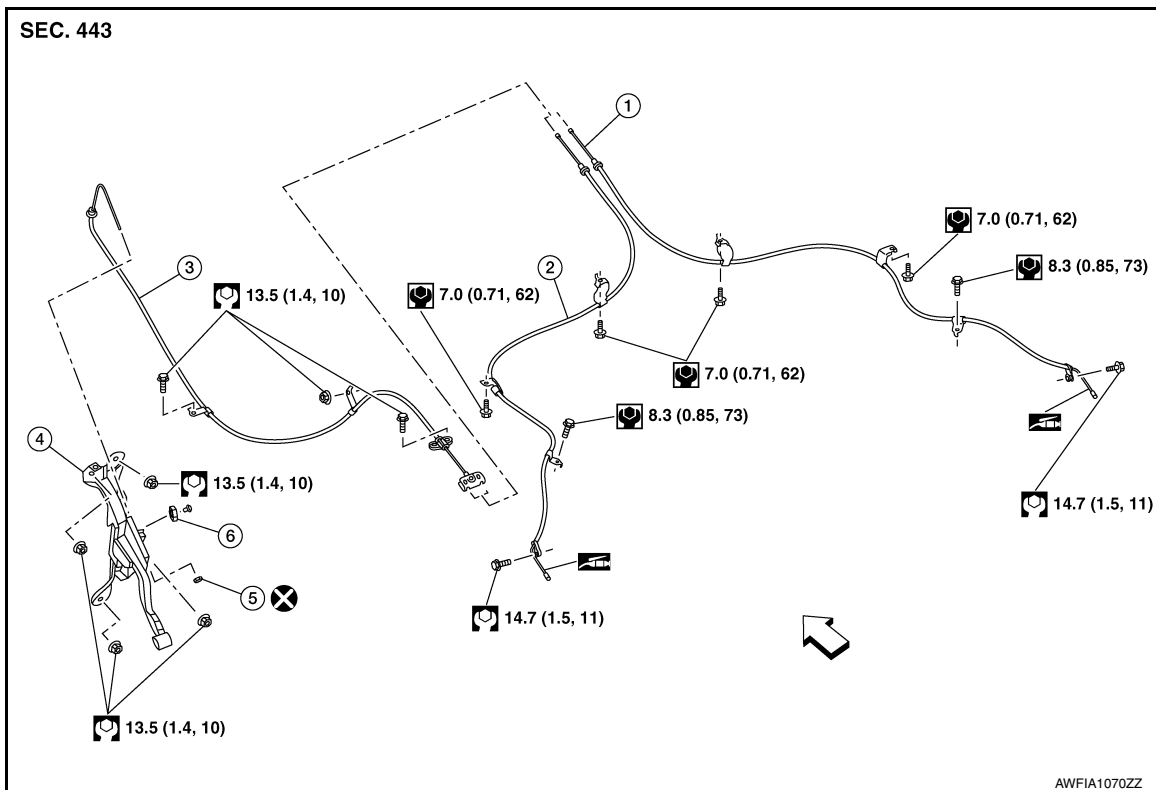
< REMOVAL AND INSTALLATION >

REMOVAL AND INSTALLATION

PARKING BRAKE CONTROL

Exploded View

INFOID:000000009797754



- | | | |
|----------------------------------|----------------------------------|------------------------------|
| 1. Parking brake rear cable (RH) | 2. Parking brake rear cable (LH) | 3. Parking brake front cable |
| 4. Parking brake control | 5. Adjusting nut | 6. Parking brake switch |

Removal and Installation

INFOID:000000009797755

REMOVAL

1. Remove instrument lower panel LH. Refer to [IP-22, "Removal and Installation"](#).
2. Remove the knee protector. Refer to [IP-14, "Exploded View"](#).
3. Disconnect the harness connector from the parking brake switch.
4. Remove the parking brake switch.
5. Remove the parking brake control nuts and remove the parking brake control.
6. Remove adjusting nut from parking brake control.
7. Disconnect the parking brake front cable from the parking brake control.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

Do not reuse the adjusting nut.

PARKING BRAKE FRONT CABLE

< REMOVAL AND INSTALLATION >

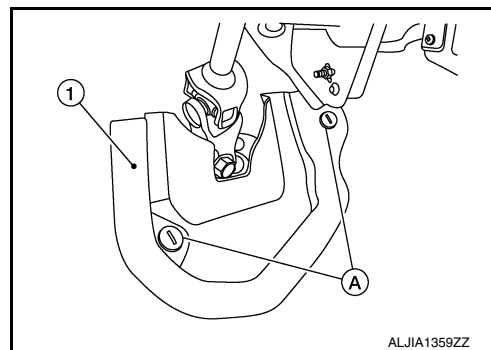
PARKING BRAKE FRONT CABLE

Removal and Installation

INFOID:0000000010350718

REMOVAL

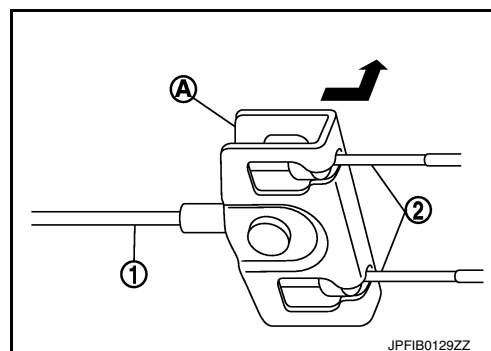
1. Remove the instrument lower panel LH. Refer to [IP-22, "Removal and Installation"](#).
2. Remove driver seat (LH). Refer to [SE-32, "DRIVER SIDE : Removal and Installation"](#).
3. Remove the center console. Refer to [IP-18, "Removal and Installation"](#).
4. Remove the parking brake control. Refer to [PB-7, "Removal and Installation"](#).
5. Remove front door welts (LH). Refer to [INT-23, "BODY SIDE WELT : Removal and Installation - Front Door Welt"](#).
6. Remove dash side finisher (LH). Refer to [INT-24, "DASH SIDE FINISHER : Removal and Installation"](#).
7. Remove shift selector. Refer to [TM-194, "Removal and Installation"](#).
8. Remove the front floor connecting ducts (LH/RH). Refer to [VTL-10, "FRONT FLOOR DUCT : Removal and Installation - Front Floor Connecting Duct"](#).
9. Remove the front floor duct. Refer to [VTL-11, "FRONT FLOOR DUCT : Removal and Installation - Front Floor Duct"](#).
10. Remove the rear center ventilator duct. Refer to [VTL-11, "REAR CENTER VENTILATOR DUCT : Removal and Installation"](#).
11. Release clips (A) using a suitable tool and remove steering joint floor cover (1).



12. Place front floor trim aside and remove the front floor spacer. Refer to [INT-26, "Exploded View"](#).
13. Remove the bolts from the parking brake front cable mount. Refer to [PB-7, "Exploded View"](#).
14. Pull equalizer (A) of the parking brake front cable (1) in a rearward direction and then push upward to separate each parking brake rear cable (2) from the parking brake front cable (1).

CAUTION:

To prevent damage to the parts, do not bend the parking brake cables.



15. Remove the parking brake front cable.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

Do not reuse the adjusting nut.

- Inspect and adjust the parking brake pedal. Refer to [PB-4, "Inspection and Adjustment"](#).

PARKING BRAKE REAR CABLE

< REMOVAL AND INSTALLATION >

PARKING BRAKE REAR CABLE

Removal and Installation

INFOID:000000010350526

REMOVAL

1. Remove the center console assembly. Refer to [IP-18, "Removal and Installation"](#).
2. Remove shift selector. Refer to [TM-194, "Removal and Installation"](#).
3. Remove the bolts from the parking brake front cable mount. Refer to [PB-7, "Exploded View"](#).
4. Loosen the adjusting nut. Refer to [PB-7, "Exploded View"](#).

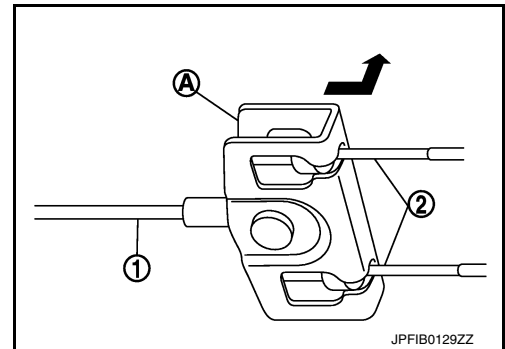
NOTE:

It is not necessary to remove the parking brake front cable.

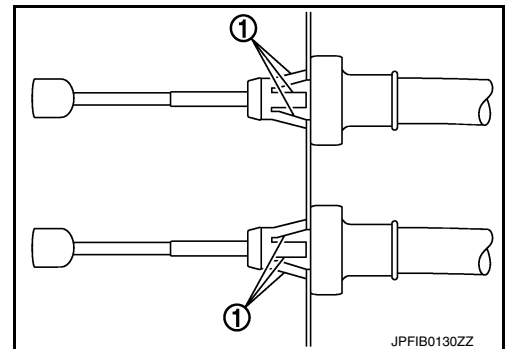
5. Pull equalizer (A) of the parking brake front cable (1) in a rearward direction and then push upward to separate each parking brake rear cable (2) from the parking brake front cable (1).

CAUTION:

To prevent damage to the parts, do not bend the parking brake cables.



6. Press the pawl (1) to remove each parking brake rear cable from the vehicle.



7. Remove the parking brake shoes, and separate the parking brake rear cable from the toggle lever. Refer to [PB-11, "Removal and Installation"](#).

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

Do not reuse the adjusting nut if the nut is removed.

- Inspect and adjust the parking brake pedal. Refer to [PB-4, "Inspection and Adjustment"](#).
- Inspect and adjust the parking brake shoes. Refer to [PB-6, "Inspection and Adjustment"](#).

PARKING BRAKE SWITCH

< REMOVAL AND INSTALLATION >

PARKING BRAKE SWITCH

Removal and Installation

INFOID:0000000010350462

REMOVAL

1. Remove the instrument lower panel LH. Refer to [IP-22, "Removal and Installation"](#).
2. Disconnect the harness connector from the parking brake switch. Refer to [PB-7, "Exploded View"](#).
3. Remove the screw and remove the parking brake switch. Refer to [PB-7, "Exploded View"](#).

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

Replace the parking brake switch if it has been dropped or sustained an impact.

Adjust the parking brake cable if necessary. Refer to [PB-4, "Inspection and Adjustment"](#).

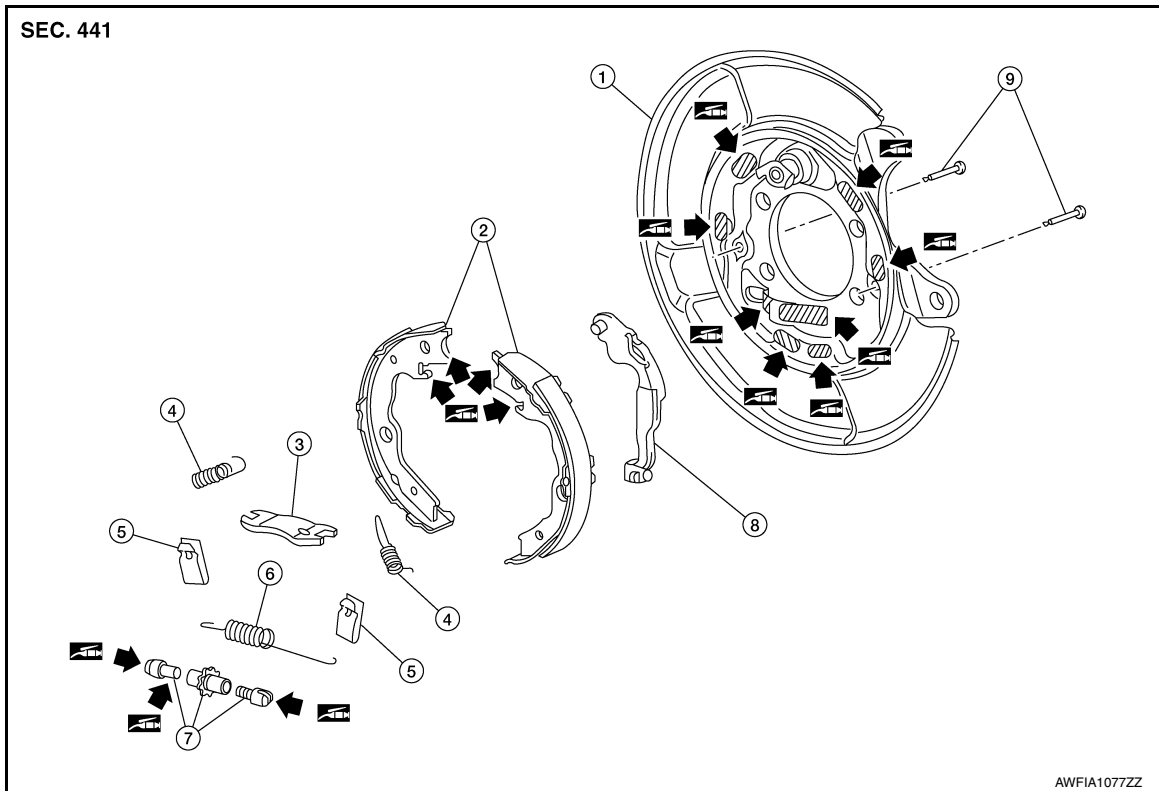
PARKING BRAKE SHOE

< REMOVAL AND INSTALLATION >

PARKING BRAKE SHOE

Exploded View

INFOID:000000009797757



- | | | |
|------------------|-----------------------|---------------------------------|
| 1. Back plate | 2. Parking brake shoe | 3. Brake strut |
| 4. Return spring | 5. Spring | 6. Return spring to brake strut |
| 7. Adjuster | 8. Toggle lever | 9. Anti-rattle pin |

 Apply PBC (Poly Butyl Cuprysil) grease or silicone-based grease.

Removal and Installation

INFOID:000000009797758

REMOVAL

WARNING:

Clean dust on the parking brake shoes with a vacuum dust collector to minimize the hazard of airborne particles or other materials.

1. Remove the rear wheel and tire using power tool. Refer to [WT-60, "Removal and Installation"](#).
2. Remove the brake caliper torque member bolts, leaving the brake hose attached. Position the caliper aside with wire. Refer to [BR-43, "BRAKE CALIPER ASSEMBLY : Removal and Installation"](#).

CAUTION:

Do not depress the brake pedal while the caliper assembly is removed.

3. Put alignment marks on the disc brake rotor and on the wheel hub and bearing and remove the disc brake rotor.

CAUTION:

Do not drop the disc brake rotor.

4. If disc brake rotor cannot be removed, remove as follows:
 - a. Secure the disc brake rotor with wheel nuts and remove the adjusting hole plug.

PARKING BRAKE SHOE

< REMOVAL AND INSTALLATION >

- b. Using suitable tool, rotate adjuster (1) in direction (B) to retract and loosen parking brake shoe.
5. Remove anti-rattle pins, springs, and return springs.

CAUTION:

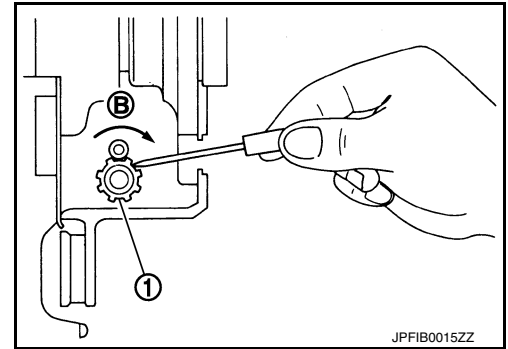
Do not drop the removed parts.

6. Remove brake strut, adjuster, parking brake shoes and toggle lever.

CAUTION:

- The leading parking brake shoes are made of different materials than the trailing parking brake shoes. Do not misidentify them when removing.
- Do not drop the removed parts.

7. Remove the back plate. Refer to [RAX-7, "Removal and Installation"](#) (FWD) or [RAX-16, "Removal and Installation"](#) (AWD).
8. Inspect the components. Refer to [PB-12, "Inspection"](#).



INSTALLATION

Installation is in the reverse order of the removal.

- Apply PBC (Poly Butyl Cuprysil) grease or silicone-based grease to the back plate and brake shoe.

CAUTION:

The leading parking brake shoes are made of different materials than the trailing parking brake shoes. Do not misidentify them when installing.

- Assemble adjusters so that threaded part is expanded when rotating it in the direction shown by arrow.

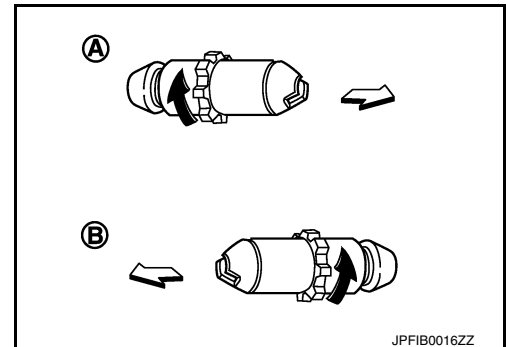
A: For RH brake

B: For LH brake

↔: Vehicle front

←: Adjuster expands

- Shorten adjuster by rotating it.
- When assembling, apply PBC (Poly Butyl Cuprysil) grease or silicone-based grease to threads.
- Check parking brake shoe lining surface and drum inner surface for grease. Wipe off any grease on the surfaces.
- Inspect the parking brake system. Adjust the parking brake system if necessary. Refer to [PB-4, "Inspection and Adjustment"](#).



Inspection

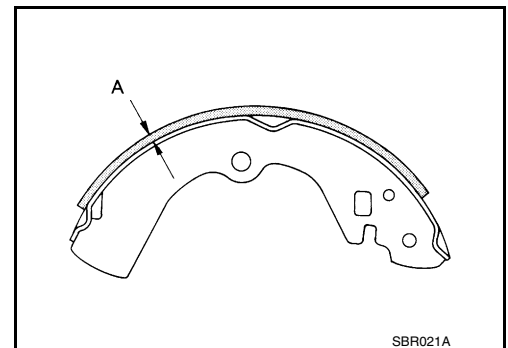
INFOID:000000009797759

INSPECTION AFTER REMOVAL

Brake Lining Thickness Inspection

- Check thickness (A) of brake lining.

Limit (A) : Refer to [PB-14, "Parking Drum Brake"](#).



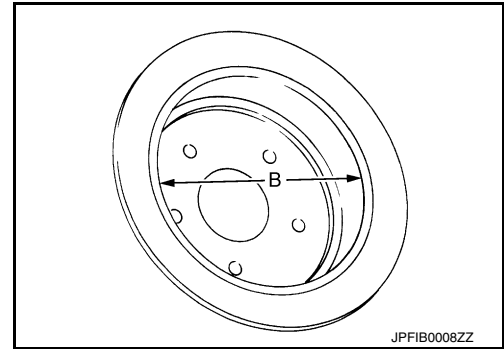
Drum Inner Diameter Inspection

PARKING BRAKE SHOE

< REMOVAL AND INSTALLATION >

- Check inner diameter (B) of drum using suitable tool.

Limit (B) : Refer to **PB-14, "Parking Drum Brake"**.



Other Inspections

- Check brake lining for excessive wear, damage, and peeling. Replace if necessary.
- Check parking brake shoe for excessive wear and damage. Replace if necessary.
- Check anti-rattle pin for excessive wear, damage and rust. Replace if necessary.
- Check adjuster spring, anti-rattle spring and return springs for settling, excessive wear, damage, and rust. Replace if necessary.
- Check brake strut for excessive wear, damage and rust. Replace if necessary.
- Check toggle lever for excessive wear, damage and rust. Replace if necessary.
- Visually check inside of the drum for rust, cracks, damage or excessive wear with a suitable tool. Replace if necessary.

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

Parking Drum Brake

INFOID:0000000009797760

Unit: mm (in)

Item		Limit
Brake lining	Thickness	3.2 (0.126)
	Wear thickness	1.5 (0.059)
Drum	Inner diameter	172 (6.77)
	Wear limit of inner diameter	173 (6.81)

Parking Brake Control

INFOID:0000000009797761

Item	Standard
Number of notches [under force of 196 N (20.0 kg-f, 44.1 lb-f)]	6 – 7 notches
Number of notches when brake warning lamp turns ON	1 notch

PCS

SECTION

POWER CONTROL SYSTEM

CONTENTS

IPDM E/R		IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)24	
PRECAUTION 3		Wiring Diagram24	
PRECAUTIONS 3		DTC/CIRCUIT DIAGNOSIS30	
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"3		U1000 CAN COMM CIRCUIT30	
SYSTEM DESCRIPTION 4		Description30	
COMPONENT PARTS 4		DTC Logic30	
Component Parts Location4		Diagnosis Procedure30	
SYSTEM 5		B120E IPDM E/R31	
RELAY CONTROL SYSTEM5		DTC Logic31	
RELAY CONTROL SYSTEM : System Description5		Diagnosis Procedure31	
RELAY CONTROL SYSTEM : Fail-safe6		B20DD IGNITION RELAY ON CIRCUIT32	
SMART FIELD-EFFECT TRANSISTOR (FET)7		DTC Logic32	
SMART FIELD-EFFECT TRANSISTOR (FET) : System Description7		Diagnosis Procedure32	
POWER CONSUMPTION CONTROL SYSTEM7		B20DE IGNITION RELAY OFF CIRCUIT33	
POWER CONSUMPTION CONTROL SYSTEM : System Description7		DTC Logic33	
DIAGNOSIS SYSTEM (IPDM E/R) 9		Diagnosis Procedure33	
CONSULT Function (IPDM E/R)9		POWER SUPPLY AND GROUND CIRCUIT34	
ECU DIAGNOSIS INFORMATION12		Diagnosis Procedure34	
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)12		REMOVAL AND INSTALLATION35	
Reference Value12		IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)35	
Fail-safe19		Exploded View35	
DTC Index20		Removal and Installation35	
WIRING DIAGRAM24		POWER DISTRIBUTION SYSTEM	
		PRECAUTION38	
		PRECAUTIONS38	
		Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"38	
		SYSTEM DESCRIPTION39	

COMPONENT PARTS	39	WITH INTELLIGENT KEY : DTC Logic	61
Component Parts Location	39	WITH INTELLIGENT KEY : Diagnosis Procedure...	61
SYSTEM	40	WITHOUT INTELLIGENT KEY	61
POWER DISTRIBUTION SYSTEM	40	WITHOUT INTELLIGENT KEY : Description	61
POWER DISTRIBUTION SYSTEM : System De- scription	40	WITHOUT INTELLIGENT KEY : DTC Logic	61
WITH INTELLIGENT KEY	41	WITHOUT INTELLIGENT KEY : Diagnosis Proce- dure	62
WITH INTELLIGENT KEY : Fail Safe	41	U1010 CONTROL UNIT (CAN)	63
WITHOUT INTELLIGENT KEY	42	WITH INTELLIGENT KEY	63
WITHOUT INTELLIGENT KEY : Fail Safe	42	WITH INTELLIGENT KEY : DTC Logic	63
DIAGNOSIS SYSTEM (BCM) (WITH INTELLI- GENT KEY SYSTEM)	43	WITH INTELLIGENT KEY : Diagnosis Procedure...	63
COMMON ITEM	43	WITHOUT INTELLIGENT KEY	63
COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)	43	WITHOUT INTELLIGENT KEY : DTC Logic	63
INTELLIGENT KEY	43	WITHOUT INTELLIGENT KEY : Diagnosis Proce- dure	63
INTELLIGENT KEY : CONSULT Function (BCM - INTELLIGENT KEY)	44	B2614 ACC RELAY CIRCUIT	64
DIAGNOSIS SYSTEM (BCM) (WITHOUT IN- TELLIGENT KEY SYSTEM)	46	DTC Logic	64
COMMON ITEM	46	Diagnosis Procedure	64
COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)	46	B2615 BLOWER RELAY CIRCUIT	66
MULTI REMOTE ENT	46	DTC Logic	66
MULTI REMOTE ENT : CONSULT Function (BCM - MULTI REMOTE ENT)	47	Diagnosis Procedure	66
ECU DIAGNOSIS INFORMATION	48	B2616 IGNITION RELAY CIRCUIT	68
BCM	48	DTC Logic	68
List of ECU Reference	48	Diagnosis Procedure	68
WIRING DIAGRAM	49	B261A PUSH-BUTTON IGNITION SWITCH	70
POWER DISTRIBUTION SYSTEM	49	DTC Logic	70
Wiring Diagram	49	Diagnosis Procedure	70
BASIC INSPECTION	58	PUSH-BUTTON IGNITION SWITCH	72
DIAGNOSIS AND REPAIR WORK FLOW	58	Component Function Check	72
Work Flow	58	Diagnosis Procedure	72
DTC/CIRCUIT DIAGNOSIS	61	Component Inspection	73
U1000 CAN COMM CIRCUIT	61	SYMPTOM DIAGNOSIS	75
WITH INTELLIGENT KEY	61	PUSH-BUTTON IGNITION SWITCH DOES NOT OPERATE	75
WITH INTELLIGENT KEY : Description	61	Description	75
		Diagnosis Procedure	75
		REMOVAL AND INSTALLATION	76
		BCM (BODY CONTROL MODULE)	76
		Removal and Installation	76
		PUSH-BUTTON IGNITION SWITCH	77
		Removal and Installation	77

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010197023

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

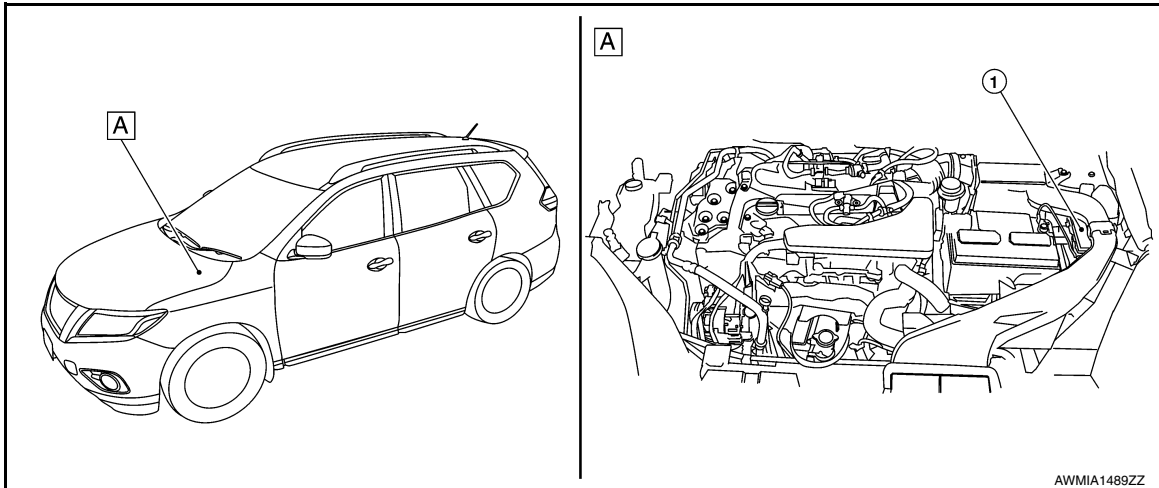
PCS

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:0000000010228204



- 1. IPDM E/R
- A. Engine compartment (LH)

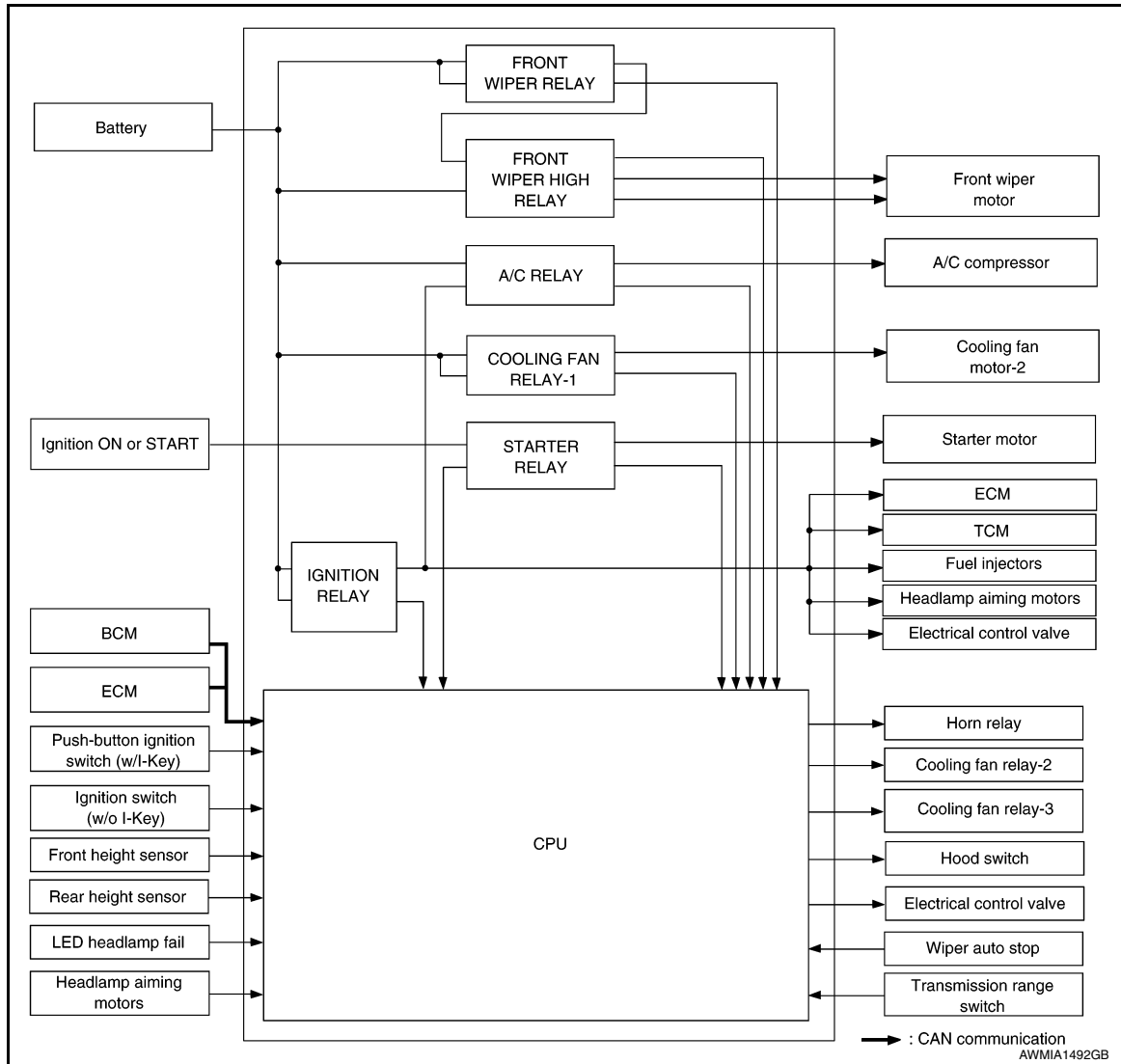
SYSTEM

RELAY CONTROL SYSTEM

RELAY CONTROL SYSTEM : System Description

INFOID:0000000010228205

SYSTEM DIAGRAM



DESCRIPTION

IPDM E/R activates the internal control circuit to perform the relay ON-OFF control according to the input signals from various sensors and the request signals received from control units via CAN communication.

CAUTION:

IPDM E/R integrated relays cannot be removed.

Control relay	Input/output	Transmit unit	Control part	Reference page
- Front wiper relay - Front wiper high relay	Front wiper request signal	BCM (CAN)	Front wiper motor	WW-8
	Front wiper stop position signal	Front wiper motor		
Starter relay	Starter relay signal	BCM (CAN)	Starter motor	STR-6
	Transmission range switch signal	Transmission range switch		
Cooling fan relay-1	Cooling fan speed request signal	ECM (CAN)	Cooling fan	EC-46

SYSTEM

< SYSTEM DESCRIPTION >

[IPDM E/R]

Control relay	Input/output	Transmit unit	Control part	Reference page
A/C relay	A/C compressor request signal	ECM (CAN)	A/C compressor (Magnet clutch)	HAC-10 (automatic air conditioning) HAC-118 (manual air conditioning)
Ignition relay-1	Ignition switch ON signal	BCM (CAN)	Each control unit, sensor, actuator and relay (Ignition power supply)	EC-39
	Vehicle speed signal (Meter)	Combination meter (CAN)		
	Push-button ignition switch signal (with Intelligent Key system)	Push-button ignition switch (with Intelligent Key system)		
	Ignition switch signal (without Intelligent Key system)	Ignition switch (without Intelligent Key system)		

RELAY CONTROL SYSTEM : Fail-safe

INFOID:0000000010246770

CAN COMMUNICATION CONTROL

When CAN communication with ECM and BCM is impossible, IPDM E/R performs fail-safe control. After CAN communication recovers normally, it also returns to normal control.

If No CAN Communication Is Available With ECM

Control part	Fail-safe operation
Cooling fan	- The cooling fan relay-1 turn ON when the ignition switch is turned ON (Cooling fan HI operation) - The cooling fan relay-1 turn OFF when the ignition switch is turned OFF
A/C compressor	A/C relay OFF

If No CAN Communication Is Available With BCM

Control part	Fail-safe operation
Front wiper motor	- The status just before activation of fail-safe control is maintained until the ignition switch is turned OFF while the front wiper is operating at LO or HI speed. - The wiper is operated at LO speed until the ignition switch is turned OFF if the fail-safe control is activated while the front wiper is set in the INT mode and the front wiper motor is operating. - Returns automatically wiper to stop position when ignition switch is turned ON if fail-safe control is activated while front wiper motor is operated and wiper stop in the other position than stop position.
Horn	Horn OFF
Ignition relay-1	The status just before activation of fail-safe is maintained.
Starter motor	Starter relay OFF

IGNITION RELAY MALFUNCTION DETECTION FUNCTION

- IPDM E/R monitors the voltage at the contact circuit and excitation coil circuit of the ignition relay-1 inside it.
- IPDM E/R judges the ignition relay-1 error if the voltage differs between the contact circuit and the excitation coil circuit.

DTC	Ignition switch	Ignition relay
B20DD: IGNITION RELAY ON CIRCUIT	OFF	ON
B20DE: IGNITION RELAY OFF CIRCUIT	ON	OFF

FRONT WIPER CONTROL

IPDM E/R detects front wiper stop position by a front wiper auto stop signal.

When a front wiper auto stop signal is in the conditions listed below, IPDM E/R stops power supply to wiper after repeating a front wiper 10 second activation and 20 second stop five times.

SYSTEM

< SYSTEM DESCRIPTION >

[IPDM E/R]

Ignition switch	Front wiper switch	Auto stop signal
ON	OFF	Front wiper stop position signal cannot be input 10 seconds.
	ON	The signal does not change for 10 seconds.

NOTE:

This operation status can be confirmed on the IPDM E/R “Data Monitor” that displays “BLOCK” for the item “WIP PROT” while the wiper is stopped.

STARTER MOTOR PROTECTION FUNCTION

IPDM E/R turns OFF the starter relay to protect the starter motor when the starter relay remains active for 90 seconds.

SMART FIELD-EFFECT TRANSISTOR (FET)

SMART FIELD-EFFECT TRANSISTOR (FET) : System Description

INFOID:000000010246865

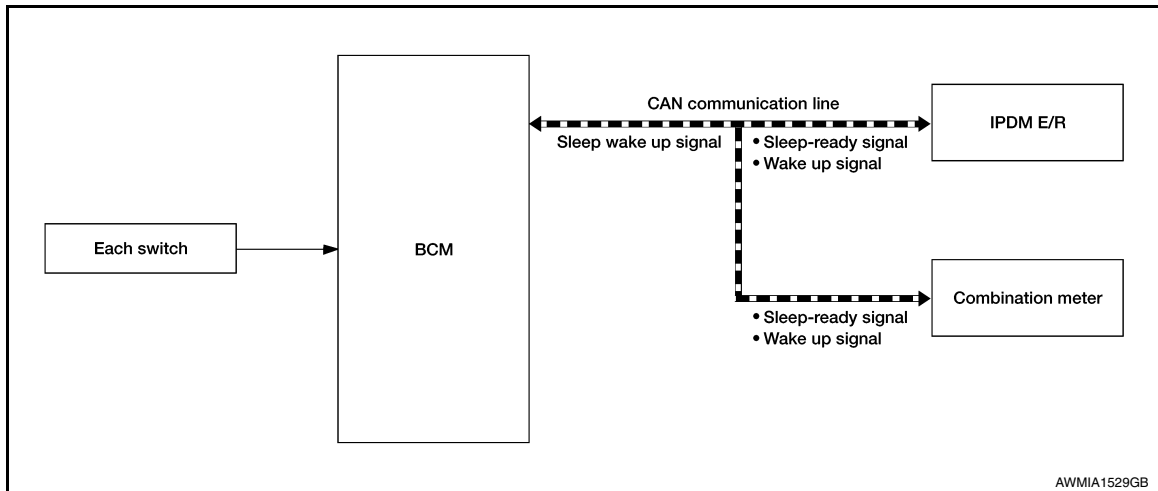
A smart Field-Effect Transistor (FET) is a transistor used to monitor and control current flow on module outputs. The IPDM E/R uses a smart FET protection strategy to prevent module damage in the event of excessive current flow. The smart FET protection strategy monitors its outputs for excessive current, and when a fault occurs, shuts down the output and records a DTC.

POWER CONSUMPTION CONTROL SYSTEM

POWER CONSUMPTION CONTROL SYSTEM : System Description

INFOID:000000010228207

SYSTEM DIAGRAM



AWMIA1529GB

DESCRIPTION

Outline

- IPDM E/R incorporates a power consumption control function that reduces the power consumption according to the vehicle status.
- IPDM E/R changes its status (control mode) with the sleep wake up signal received from BCM via CAN communication.

Normal mode (wake-up)

- CAN communication is normally performed with other control units.
- Individual unit control by IPDM E/R is normally performed.

Low power consumption mode (sleep)

- Low power consumption control is active.
- CAN transmission is stopped.

Sleep Mode Activation

- IPDM E/R judges that the sleep-ready conditions are fulfilled when the ignition switch is OFF and none of the conditions below are present. Then it transmits a sleep-ready signal (ready) to BCM via CAN communication.

< SYSTEM DESCRIPTION >

- Outputting signals to actuators
- Switches or relays operating
- Output requests are being received from control units via CAN communication.
- IPDM E/R stops CAN communication and enters the low power consumption mode when it receives a sleep wake up signal (sleep) from BCM and the sleep-ready conditions are fulfilled.

Wake-up Operation

- IPDM E/R changes from the low power consumption mode to the normal mode when it receives a sleep wake-up signal (wake up) from BCM or any of the following conditions is fulfilled. In addition, it transmits a sleep-ready signal (not-ready) to BCM via CAN communication to report the CAN communication start.
- Ignition switch ON
- An output request is received from a control unit via CAN communication.

DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

[IPDM E/R]

DIAGNOSIS SYSTEM (IPDM E/R)

CONSULT Function (IPDM E/R)

INFOID:000000010228209

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with IPDM E/R.

Direct Diagnostic Mode	Description
Ecu Identification	The IPDM E/R part number is displayed.
Self Diagnostic Result	The IPDM E/R self diagnostic results are displayed.
Data Monitor	The IPDM E/R input/output data is displayed in real time.
Active Test	The IPDM E/R activates outputs to test components.
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.

ECU IDENTIFICATION

The IPDM E/R part number is displayed.

SELF DIAGNOSTIC RESULT

Refer to [PCS-20, "DTC Index"](#).

DATA MONITOR

Monitor Item [Unit]	Description
REVERSE SIGNAL [Open/Close]	Indicates condition of transmission range switch R (Reverse) position.
IGN RELAY [Open/Close]	Indicates condition of ignition relay-1.
PUSH SW [Open/Close]	Indicates condition of push-button ignition switch.
INTERLOCK/PNP SW [Open/Close]	Indicates condition of transmission range switch P (Park) and N (Neutral) positions.
OIL PRESSURE SW [Open/Close]	Indicates condition of oil pressure switch.
HOOD SW [Open/Close]	Indicates condition of hood switch.
COMPRESSOR [OFF/ON]	Indicates condition of A/C compressor.
HORN RELAY [OFF/ ON]	Indicates condition of horn relay.
COOLING FAN [OFF/ON]	Indicates condition of cooling fan relay-1.
FRONT WIPER HI/LO RELAY [OFF/ON]	Indicates condition of front wiper high relay.
FRONT WIPER RELAY [OFF/ON]	Indicates condition of front wiper relay.
IGN RELAY OFF STATUS [OFF/ON]	Indicates condition of ignition relay-1 OFF status.
IGN RELAY ON STATUS [OFF/ON]	Indicates condition of ignition relay-1 ON status.
COOLING FAN RELAY 1 [OFF/ON]	Indicates condition of cooling fan relay-1.
STARTER RELAY [OFF/ON]	Indicates condition of starter relay.
COMP ECV DUTY [%]	Indicates condition of A/C compressor.
COOLING FAN RELAY 2 [%]	Indicates condition of cooling fan relay-2.
FR FOG LAMP LH [%]	Indicates condition of front fog lamp LH.
FR FOG LAMP RH [%]	Indicates condition of front fog lamp RH.
PARKING LAMP [%]	Indicates condition of parking lamp.
TAIL LAMP LH [%]	Indicates condition of tail lamp LH.
TAIL LAMP RH [%]	Indicates condition of tail lamp RH.
DAYTIME RUNNING LIGHT LH [%]	Indicates condition of daytime running light LH.
DAYTIME RUNNING LIGHT RH [%]	Indicates condition of daytime running light RH.
HEADLAMP (HI) LH [%]	Indicates condition of headlamp high beam LH.

DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

[IPDM E/R]

Monitor Item [Unit]	Description
HEADLAMP (HI) RH [%]	Indicates condition of headlamp high beam RH.
HEADLAMP (LO) LH [%]	Indicates condition of headlamp low beam LH.
HEADLAMP (LO) RH [%]	Indicates condition of headlamp low beam RH.
A/C RELAY STUCK [NG/OK]	Indicates condition of A/C relay.
A/C RELAY [Off/On]	Indicates condition of A/C relay.
COMP ECV STATUS [NG/OK]	Indicates condition of A/C compressor.
VEHICLE SECURITY HORN [Off/On]	Indicates condition of horn relay.
BATTERY CURRENT SENSOR [NG/OK]	Indicates condition of battery current sensor.
FRONT FOG LAMP [Off/On]	Indicates condition of front fog lamps.
COMP ECV CURRENT [A]	Indicates condition of A/C compressor current.
BATTERY VOLTAGE [V]	Indicates condition of battery voltage.
COOLING FAN DUTY [%]	Indicates condition of cooling fans.
HOOD SW (CAN) [OPEN/CLOSE]	Indicates condition of hood switch.
FRONT WIPER [STOP/LOW/HIGH]	Indicates condition of front wiper motor.
FR WIPER STOP POSITION [STOP P/ACTIVE P]	Indicates condition of front wiper motor stop.
HEADLAMP (HI) [Off/On]	Indicates condition of headlamp high beams.
HEADLAMP (LO) [Off/On]	Indicates condition of headlamp low beams.
IGNITION RELAY STATUS [Off/On]	Indicates condition of ignition relay-1.
IGN RELAY MONITOR [Off/On]	Indicates condition of ignition relay-1 feedback.
IGNITION POWER SUPPLY [Off/On]	Indicates condition of ignition relay-1.
INTERLOCK/PNP SW (CAN) [Off/On]	Indicates condition of transmission range switch P (Park) and N (Neutral) positions.
PUSH-BUTTON IGN SW (CAN) [Off/On]	Indicates condition of push-button ignition switch.
TAIL LAMP [Off/On]	Indicates condition of tail lamps.
REVERSE SIGNAL (CAN) [Off/On]	Indicates condition of transmission range switch R (Reverse) position.
ST&ST CONT RELAY STATUS [Off/ST R On]	Indicates condition of starter cut and starter relays.
STARTER MOTOR STATUS [Off/On]	Indicates condition of starter motor.
STARTER RELAY (CAN) [LOW/HIGH]	Indicates condition of starter relay.
IPDM NOT SLEEP [NO RDY/RDY]	Indicates condition of IPDM E/R sleep status.
AFTER COOLING TIME [No request/Request]	Indicates condition of cooling fan request.
AFTER COOLING SPEED [%]	Indicates condition of cooling fans.
COOLING FAN TYPE [NISSAN/RENAULT]	Indicates cooling fan type.
COMPRESSOR REQ1 [Off/On]	Indicates condition of A/C compressor request.
VHCL SECURITY HORN REQ [Off/On]	Indicates condition of horn relay request.
DTRL REQ [Off/On]	Indicates condition of daytime running light request.
SLEEP/WAKE UP [WAKEUP/SLEEP]	Indicates condition of IPDM E/R sleep/wake.
CRANKING ENABLE-TCM [NG/OK]	Indicates condition of crank enable from TCM.
CRANKING ENABLE-ECM [NG/OK]	Indicates condition of crank enable from ECM.
CAN DIAGNOSIS [NG/OK]	Indicates condition of CAN diagnosis.
FRONT FOG LAMP REQ [Off/On]	Indicates condition of front fog lamp request.
HIGH BEAM REQ [Off/On]	Indicates condition of headlamp high beam request.
HORN CHIRP [Off/On]	Indicates condition of horn relay request.
COOLING FAN REQ [%]	Indicates condition of cooling fan request.
ENGINE STATUS [STOP/RUN/IDLING]	Indicates condition of engine status.

DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

[IPDM E/R]

Monitor Item [Unit]	Description
TURN SIGNAL REQ [Off/LH/RH]	Indicates condition of turn signal request.
FR WIPER REQ [RETURN/LOW/HIGH]	Indicates condition of front wiper motor request.
SHIFT POSITION [P/R/N/D/L]	Indicates condition of transmission range switch positions.
LOW BEAM REQ [Off/On]	Indicates condition of headlamp low beam request.
POSITION LIGHT REQ [Off/On]	Indicates condition of parking lamp request.
COMPRESSOR REQ2 [Off/On]	Indicates condition of A/C compressor request.
IGNITION SW [Off/On]	Indicates condition of ignition switch.
VEHICLE SPEED (METER) [mph/km/h]	Indicates vehicle speed.
BAT DISCHARGE COUNT [0-100]	Indicates condition of battery discharge.
BATTERY STATUS [NG/OK]	Indicates battery status.

ACTIVE TEST

Test item	Description
HORN	This test is able to check horn operation [Off/On].
FRONT WIPER	This test is able to check wiper motor operation [Off/Low/High].
COMPRESSOR	This test is able to check A/C compressor operation [Off/On].
COOLING FAN (DUAL)	This test is able to check cooling fan operation [Off/LO/HI].
HEADLAMP (HI)	This test is able to check headlamp high beam operation [Off/3/5].
HEADLAMP (LO)	This test is able to check headlamp low beam operation [Off/3/5].
FRONT FOG LAMP	This test is able to check front fog lamp operation [Off/3/5].
DAYTIME RUNNING LAMP	This test is able to check daytime running lamp operation [Off/3/5].
PARKING LAMP	This test is able to check parking lamp operation [Off/3/5].
TAIL LAMP	This test is able to check tail lamp operation [Off/3/5].

CAN DIAG SUPPORT MNTR

Refer to [LAN-14, "CAN Diagnostic Support Monitor"](#).

PCS

ECU DIAGNOSIS INFORMATION

IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

Reference Value

INFOID:0000000010228210

VALUES ON THE DIAGNOSIS TOOL

Monitor Item	Condition	Value/Status
REVERSE SIGNAL	Selector lever in any position except R (Reverse).	Open
	Selector lever in R (Reverse) position.	Close
IGN RELAY	Push-button ignition switch (with Intelligent Key system) or Ignition switch (without Intelligent Key system) OFF.	Open
	Push-button ignition switch (with Intelligent Key system) or Ignition switch (without Intelligent Key system) ON.	Close
PUSH SW	Push-button ignition switch OFF.	Open
	Push-button ignition switch ON.	Close
INTERLOCK/PNP SW	Selector lever in P (Park) or N (Neutral) position.	Open
	Selector lever in any position except P (Park) or N (Neutral).	Close
OIL PRESSURE SW	Push-button ignition switch (with Intelligent Key system) or Ignition switch (without Intelligent Key system) ON.	Open
	Push-button ignition switch (with Intelligent Key system) or Ignition switch (without Intelligent Key system) OFF.	Close
HOOD SW	Hood open.	Open
	Hood closed.	Close
COMPRESSOR	A/C OFF.	OFF
	A/C ON.	ON
HORN RELAY	Horn switch released.	OFF
	Horn switch pressed.	ON
COOLING FAN	Cooling fan relay-1 not energized.	OFF
	Cooling fan relay-1 energized.	ON
FRONT WIPER HI/LO RELAY	Wiper switch in any position except HIGH.	OFF
	Wiper switch in HIGH position.	ON
FRONT WIPER RELAY	Wiper switch in OFF position.	OFF
	Wiper switch in any position except OFF.	ON
IGN RELAY OFF STATUS	Push-button ignition switch (with Intelligent Key system) or Ignition switch (without Intelligent Key system) ON.	OFF
	Push-button ignition switch (with Intelligent Key system) or Ignition switch (without Intelligent Key system) OFF.	ON
IGN RELAY ON STATUS	Push-button ignition switch (with Intelligent Key system) or Ignition switch (without Intelligent Key system) OFF.	OFF
	Push-button ignition switch (with Intelligent Key system) or Ignition switch (without Intelligent Key system) ON.	ON
COOLING FAN RELAY 1	Cooling fan relay-1 not energized.	OFF
	Cooling fan relay-1 energized.	ON
STARTER RELAY	Starter relay not energized.	OFF
	Starter relay energized.	ON
COMP ECV DUTY	A/C compressor operation.	0–100%

IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

< ECU DIAGNOSIS INFORMATION >

[IPDM E/R]

Monitor Item	Condition	Value/Status	
COOLING FAN RELAY 2	Cooling fan relay-2 operation.	0–100%	A
FR FOG LAMP LH	Front fog lamp switch OFF.	0%	B
	Front fog lamp switch ON.	100%	
FR FOG LAMP RH	Front fog lamp switch OFF.	0%	C
	Front fog lamp switch ON.	100%	
PARKING LAMP	Parking lamp switch OFF.	0%	D
	Parking lamp switch ON.	100%	
TAIL LAMP LH	Parking lamp switch OFF.	0%	E
	Parking lamp switch ON.	100%	
TAIL LAMP RH	Parking lamp switch OFF.	0%	F
	Parking lamp switch ON.	100%	
DAYTIME RUNNING LIGHT LH	Push-button ignition switch (with Intelligent Key system) or Ignition switch (without Intelligent Key system) OFF.	0%	G
	Push-button ignition switch (with Intelligent Key system) or Ignition switch (without Intelligent Key system) ON.	100%	
DAYTIME RUNNING LIGHT RH	Push-button ignition switch (with Intelligent Key system) or Ignition switch (without Intelligent Key system) OFF.	0%	H
	Push-button ignition switch (with Intelligent Key system) or Ignition switch (without Intelligent Key system) ON.	100%	
HEADLAMP (HI) LH	HI BEAM switch OFF.	0%	I
	HI BEAM switch ON.	100%	
HEADLAMP (HI) RH	HI BEAM switch OFF.	0%	J
	HI BEAM switch ON.	100%	
HEADLAMP (LO) LH	Headlamp switch OFF.	0%	K
	Headlamp switch ON.	100%	
HEADLAMP (LO) RH	Headlamp switch OFF.	0%	L
	Headlamp switch ON.	100%	
A/C RELAY STUCK	A/C relay failure.	NG	PCS
	A/C relay operating normally.	OK	
A/C RELAY	A/C relay not energized.	Off	N
	A/C relay energized.	On	
COMP ECV STATUS	A/C switch OFF.	NG	O
	A/C switch ON.	OK	
VEHICLE SECURITY HORN	Horn relay not energized.	Off	P
	Horn relay energized.	On	
BATTERY CURRENT SENSOR	Battery current failure.	NG	
	Battery current operating normally.	OK	
FRONT FOG LAMP	Front fog lamp switch OFF.	Off	
	Front fog lamp switch ON.	On	
COMP ECV CURRENT	A/C compressor operating.	Amperage (A)	
BATTERY VOLTAGE	Battery voltage.	Voltage (V)	
COOLING FAN DUTY	Cooling fans PWM signal.	0–100%	
HOOD SW (CAN)	Hood open.	OPEN	
	Hood closed.	CLOSE	

IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

< ECU DIAGNOSIS INFORMATION >

[IPDM E/R]

Monitor Item	Condition	Value/Status
FRONT WIPER	Wiper switch in OFF position.	STOP
	Wiper switch in LOW position.	LOW
	Wiper switch in HIGH position.	HIGH
FR WIPER STOP POSITION	Wiper switch in OFF position.	STOP P
	Wiper switch in any position except OFF.	ACTIVE P
HEADLAMP (HI)	HI BEAM switch OFF.	Off
	HI BEAM switch ON.	On
HEADLAMP (LO)	Headlamp switch OFF.	Off
	Headlamp switch ON.	On
IGNITION RELAY STATUS	Ignition relay-1 not energized.	Off
	Ignition relay-1 energized.	On
IGN RELAY MONITOR	Ignition relay-1 not energized.	Off
	Ignition relay-1 energized.	On
IGNITION POWER SUPPLY	Push-button ignition switch (with Intelligent Key system) or Ignition switch (without Intelligent Key system) OFF.	Off
	Push-button ignition switch (with Intelligent Key system) or Ignition switch (without Intelligent Key system) ON.	On
INTERLOCK/PNP SW (CAN)	Selector lever in any position except P (Park) or N (Neutral).	Off
	Selector lever in P (Park) or N (Neutral) position.	On
PUSH-BUTTON IGN SW (CAN)	Push-button ignition switch OFF.	Off
	Push-button ignition switch ON.	On
TAIL LAMP	Parking lamp switch OFF.	Off
	Parking lamp switch ON.	On
REVERSE SIGNAL (CAN)	Selector lever in any position except R (Reverse).	Off
	Selector lever in R (Reverse) position.	On
ST&ST CONT RELAY STATUS	Starter cut relay and starter relay not energized.	Off
	Starter cut relay and starter relay energized.	ST R On
STARTER MOTOR STATUS	Starter motor idle.	Off
	Starter motor energized.	On
STARTER RELAY (CAN)	Starter relay not energized.	LOW
	Starter relay energized.	HIGH
IPDM NOT SLEEP	Battery saver timer not expired.	NO RDY
	Battery saver timer expired.	RDY
AFTER COOLING TIME	Cooling fans not requested.	No request
	Cooling fans requested.	Request
AFTER COOLING SPEED	Cooling fans PWM signal.	0–100%
COOLING FAN TYPE	Nissan type cooling fan installed.	NISSAN
	Renault type cooling fan installed.	RENAULT
COMPRESSOR REQ1	A/C switch OFF.	Off
	A/C switch ON.	On
VHCL SECURITY HORN REQ	Horn relay not energized.	Off
	Horn relay energized.	On
DTRL REQ	Push-button ignition switch (with Intelligent Key system) or Ignition switch (without Intelligent Key system) OFF.	Off
	Push-button ignition switch (with Intelligent Key system) or Ignition switch (without Intelligent Key system) ON.	On

IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

< ECU DIAGNOSIS INFORMATION >

[IPDM E/R]

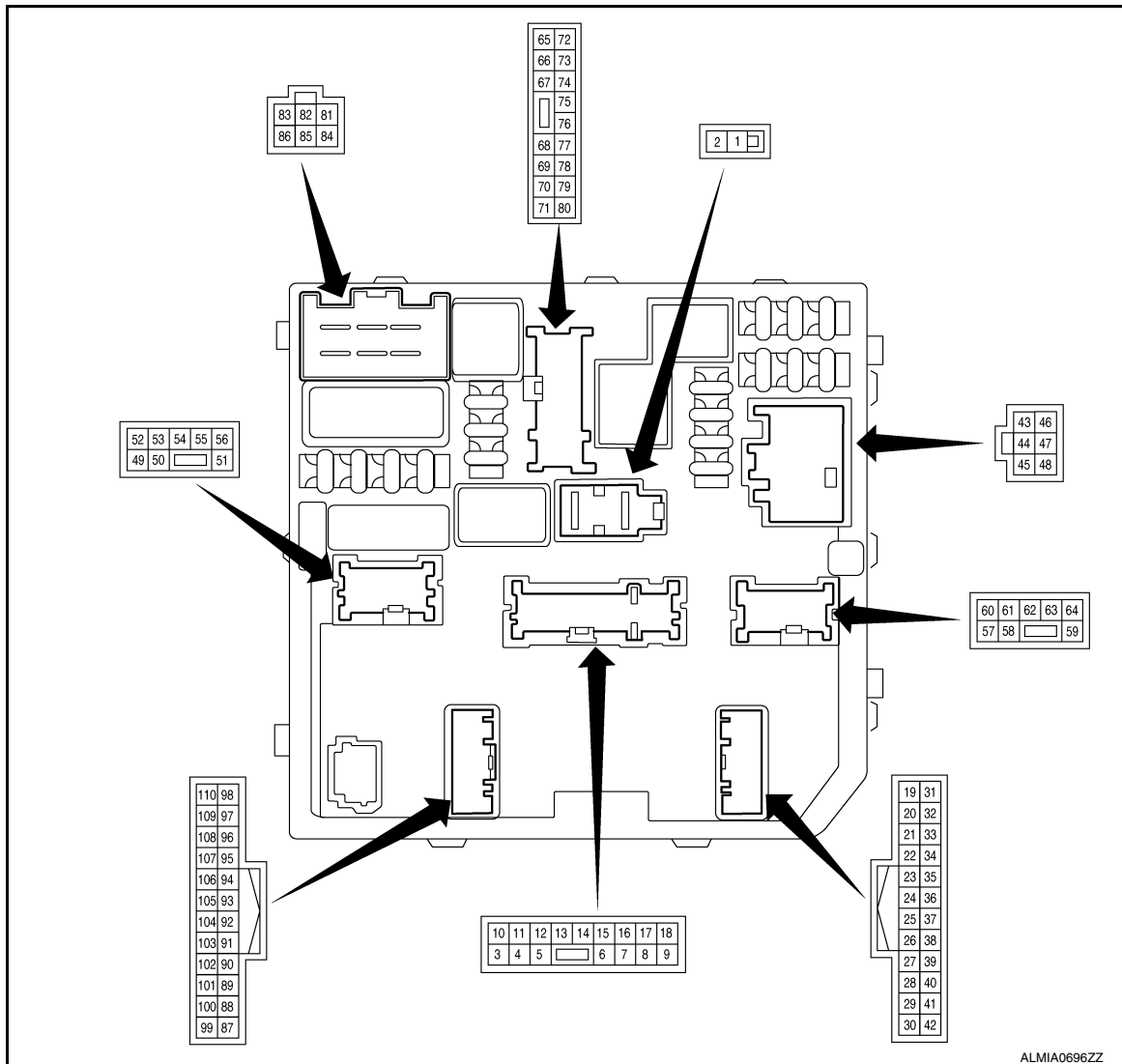
Monitor Item	Condition	Value/Status	
SLEEP/WAKE UP	Battery saver wake up signal received.	WAKEUP	A
	Battery saver timer expired.	SLEEP	
CRANKING ENABLE-TCM	TCM sends CAN signal prohibiting engine start.	NG	B
	TCM sends CAN signal permitting engine start.	OK	
CRANKING ENABLE-ECM	ECM sends CAN signal prohibiting engine start.	NG	C
	ECM sends CAN signal permitting engine start.	OK	
CAN DIAGNOSIS	CAN system failure.	NG	D
	CAN system operating normally.	OK	
FRONT FOG LAMP REQ	Front fog lamp switch OFF.	Off	E
	Front fog lamp switch ON.	On	
HIGH BEAM REQ	HI BEAM switch OFF.	Off	F
	HI BEAM switch ON.	On	
HORN CHIRP	No Intelligent Key (with Intelligent Key system) or keyfob (without Intelligent Key system) operation.	Off	G
	Door locking with Intelligent Key (with Intelligent Key system) or keyfob (without Intelligent Key system).	On	
COOLING FAN REQ	Cooling fans PWM signal.	0–100%	H
ENGINE STATUS	Engine OFF.	STOP	I
	Engine immediately after start.	RUN	
	Engine at idle.	IDLING	
TURN SIGNAL REQ	Turn signal switch OFF.	Off	J
	Turn signal switch LH.	LH	
	Turn signal switch RH.	RH	
FR WIPER REQ	Wiper switch in OFF position.	RETURN	K
	Wiper switch in LOW position.	LOW	
	Wiper switch in HIGH position.	HIGH	
SHIFT POSITION	Selector lever position.	P, R, N, D, L	L
LOW BEAM REQ	Headlamp switch OFF.	Off	PCS
	Headlamp switch ON.	On	
POSITION LIGHT REQ	Parking lamp switch OFF.	Off	N
	Parking lamp switch ON.	On	
COMPRESSOR REQ2	A/C switch OFF.	Off	O
	A/C switch ON.	On	
IGNITION SW	Push-button ignition switch (with Intelligent Key system) or Ignition switch (without Intelligent Key system) OFF.	Off	P
	Push-button ignition switch (with Intelligent Key system) or Ignition switch (without Intelligent Key system) ON.	On	
VEHICLE SPEED (METER)	While driving, equivalent to speedometer reading.	mph, km/h	
BAT DISCHARGE COUNT	Battery discharge value.	Numeric	
BATTERY STATUS	Battery state of charge.	0–100%	

IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

< ECU DIAGNOSIS INFORMATION >

[IPDM E/R]

TERMINAL LAYOUT



PHYSICAL VALUES

Terminal	Wire color	Circuit	Input/ Output	Ignition switch	Condition	Value
1	R	Battery power supply	Supply	OFF	—	Battery voltage
2	L	Battery power supply	Supply	OFF	—	Battery voltage
4	Y	Illumination power supply	Output		Lighting switch OFF	0 – 1 V
					Lighting switch 1ST	Battery voltage
8	BG	VSCV power supply	Output	—	—	—
9	L	Horn relay control	Output		Horn is not activated	Battery voltage
					Horn is activated	0 – 1 V
12	B	Signal ground	Ground	—	—	—
16	G	Reverse lamp power supply	Output	ON	Selector lever in any position other than R	0 – 1 V
					Selector Lever in R	Battery voltage
17	W	Tail lamps power supply	Output		Lighting switch OFF	0 – 1 V
					Lighting switch 1ST	Battery voltage

IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

< ECU DIAGNOSIS INFORMATION >

[IPDM E/R]

Terminal	Wire color	Circuit	Input/Output	Ignition switch	Condition	Value
19	LG	ECM ignition power supply	Output	OFF	—	0 – 1 V
				ON	—	Battery voltage
20	W	Front height sensor signal	Input	—	—	—
21	SB	Rear height sensor signal	Input	—	—	—
22	P	CAN-L	Input/Output	—	—	—
24	L	CAN-H	Input/Output	—	—	—
25	SB	Height sensors power supply	Supply	ON	—	5 V
26	SB	Height sensors ground	Ground	—	—	—
31	B	Signal ground 2	Ground	—	—	—
32 ¹	GR	Push-button ignition switch signal	Input	—	Push-button ignition switch pressed	0 – 1 V
					Push button ignition switch released	Battery voltage
32 ²	GR	Ignition switch signal	Input	—	Ignition switch ON	0 – 1 V
					Ignition switch OFF	Battery voltage
33	BR	Front wiper motor stop position	Input	ON	Front wiper stop position	0 – 1 V
					Any position other than front wiper stop position	Battery voltage
39	L	CAN-H	Input/Output	—	—	—
40	P	CAN-L	Input/Output	—	—	—
43	LG	Fuel injectors power supply	Output	OFF	—	0 – 1 V
				ON	—	Battery voltage
44	R	ECM power supply	Supply	OFF	—	Battery voltage
45	V	Front wiper motor HI power supply	Output	ON	Front wiper switch OFF	0 – 1 V
					Front wiper switch HI	Battery voltage
46	W	Fuel pump power supply	Output	ON RUN	Approximately 1 second after turning the ignition switch ON	Battery voltage
				ON	Approximately 1 second after turning the ignition switch ON	0 - 1 V
47	B	Power ground	Ground	—	—	—
48	Y	Front wiper motor LO power supply	Output	ON	Front wiper switch OFF	0 – 1 V
					Front wiper switch LO	Battery voltage
49	R	Daytime running lamp LH power supply	Output		Lighting switch OFF	0 – 1 V
					Lighting switch 1ST	Battery voltage
50	L	Headlamp LO LH power supply	Output		Lighting switch OFF	0 – 1 V
					Lighting switch 2ND	Battery voltage
51	V	Front fog lamp LH power supply	Output		Front fog lamp switch OFF	Battery voltage
					Front fog lamp switch ON	0 – 1 V

A

B

C

D

E

F

G

H

I

J

K

L

PCS

N

O

P

IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

< ECU DIAGNOSIS INFORMATION >

[IPDM E/R]

Terminal	Wire color	Circuit	Input/Output	Ignition switch	Condition	Value
52	W	Hood switch signal	Output		Hood closed	0 – 1 V
					Hood open	Battery voltage
53	GR	LED headlamp fail signal LH	Input	—	—	—
54	LG	Headlamp HI RH power supply	Output		Lighting switch other than HI and PASS	0 – 1 V
					Lighting switch HI Lighting switch PASS	Battery voltage
55	SB	Headlamp aiming motors power supply	Output	OFF		0 – 1 V
				ON		Battery voltage
56	BG	Parking lamp LH power supply	Output		Lighting switch OFF	0 – 1 V
					Lighting switch 1ST	Battery voltage
57	W	Front fog lamp RH power supply	Output		Front fog lamp switch OFF	Battery voltage
					Front fog lamp switch ON	0 – 1 V
58	R	Daytime running lamp RH power supply	Output		Lighting switch OFF	0 – 1 V
					Lighting switch 1ST	Battery voltage
59	G	Headlamp HI LH power supply	Output		Lighting switch other than HI and PASS	0 – 1 V
					Lighting switch HI Lighting switch PASS	Battery voltage
60	Y	LED headlamp fail signal RH	Input	—	—	—
61	GR	Parking lamp RH power supply	Output		Lighting switch OFF	0 – 1 V
					Lighting switch 1ST	Battery voltage
62	SB	Headlamp LO RH power supply	Output		Lighting switch OFF	0 – 1 V
					Lighting switch 2ND	Battery voltage
63	B	Headlamp aiming motors ground	Ground	—	—	—
64	V	Headlamp aiming motors signal	Output	—	—	—
65	P	A/C compressor power supply	Output	RUN	A/C switch OFF	0 – 1 V
					A/C switch ON (A/C compressor operating)	Battery voltage
66	R	Ignition coils power supply	Output	—	—	—
67	V	Throttle control motor relay control	Input	ON → OFF		0 – 1 V ↓ Battery voltage ↓ 0 – 1 V
				ON		0 – 1 V
70	BG	TCM ignition power supply	Output	OFF	—	0 – 1 V
				ON	—	Battery voltage
71	SB	Electrical control valve power supply	Output	OFF		0 – 1 V
				ON		Battery voltage

IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

< ECU DIAGNOSIS INFORMATION >

[IPDM E/R]

Terminal	Wire color	Circuit	Input/Output	Ignition switch	Condition	Value
72	GR	Throttle control motor relay power supply	Supply	OFF	More than a few seconds after turning ignition switch OFF	0 – 1 V
				ON OFF	For a few seconds after turning ignition switch OFF	Battery voltage
73	Y	VBR and ECPVCS power supply	Output	—	—	—
75	BR	HO2S 2 and A/F sensor 1 power supply	Output	—	—	—
76	P	Fuel pump relay control	Input	ON RUN	Approximately 1 second after turning the ignition switch ON	0 – 1 V
				ON	Approximately 1 second or more after turning the ignition switch	Battery voltage
78	L	ILTCS, EVTCS, ECVCV and IVTCS power supply	Output	—	—	—
79	G	TCM R range sw signal	Input	—	—	—
81	L	ECM relay power supply	Supply	OFF	—	Battery voltage
83	G	Starter motor power supply	Output	OFF		0 – 1 V
				START		Battery voltage
84	LG	Cooling fan relay-1 power supply	Input	—	—	Battery voltage
85	P	Cooling fan relay-2 power supply	Output	ON or START	Cooling fan OFF	0V
					Cooling fan LO	Battery voltage
86	GR	Starter relay power supply	Input	ON or START	—	Battery voltage
87	L	CAN-H	Input/Output	—	—	—
88	P	CAN-L	Input/Output	—	—	—
92	GR	Starter relay control	Input	—	—	—
93	P	ECM relay control	Input	—	—	—
98	Y	Electrical control valve control	Output	OFF	—	—
106	BR	Cooling fan relay-3 control	Output	—	—	—
107	V	Cooling fan relay-2 control	Output	—	—	—

¹: With Intelligent Key system

²: With remote keyless entry

Fail-safe

INFOID:000000010228211

CAN COMMUNICATION CONTROL

When CAN communication with ECM and BCM is impossible, IPDM E/R performs fail-safe control. After CAN communication recovers normally, it also returns to normal control.

If No CAN Communication Is Available With ECM

IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

< ECU DIAGNOSIS INFORMATION >

[IPDM E/R]

Control part	Fail-safe operation
Cooling fan	- The cooling fan relay-1 turn ON when the ignition switch is turned ON (Cooling fan HI operation) - The cooling fan relay-1 turn OFF when the ignition switch is turned OFF
A/C compressor	A/C relay OFF

If No CAN Communication Is Available With BCM

Control part	Fail-safe operation
Front wiper motor	- The status just before activation of fail-safe control is maintained until the ignition switch is turned OFF while the front wiper is operating at LO or HI speed. - The wiper is operated at LO speed until the ignition switch is turned OFF if the fail-safe control is activated while the front wiper is set in the INT mode and the front wiper motor is operating. - Returns automatically wiper to stop position when ignition switch is turned ON if fail-safe control is activated while front wiper motor is operated and wiper stop in the other position than stop position.
Horn	Horn OFF
Ignition relay-1	The status just before activation of fail-safe is maintained.
Starter motor	Starter relay OFF

IGNITION RELAY MALFUNCTION DETECTION FUNCTION

- IPDM E/R monitors the voltage at the contact circuit and excitation coil circuit of the ignition relay-1 inside it.
- IPDM E/R judges the ignition relay-1 error if the voltage differs between the contact circuit and the excitation coil circuit.

DTC	Ignition switch	Ignition relay
B20DD: IGNITION RELAY ON CIRCUIT	OFF	ON
B20DE: IGNITION RELAY OFF CIRCUIT	ON	OFF

FRONT WIPER CONTROL

IPDM E/R detects front wiper stop position by a front wiper auto stop signal.

When a front wiper auto stop signal is in the conditions listed below, IPDM E/R stops power supply to wiper after repeating a front wiper 10 second activation and 20 second stop five times.

Ignition switch	Front wiper switch	Auto stop signal
ON	OFF	Front wiper stop position signal cannot be input 10 seconds.
	ON	The signal does not change for 10 seconds.

NOTE:

This operation status can be confirmed on the IPDM E/R “Data Monitor” that displays “BLOCK” for the item “WIP PROT” while the wiper is stopped.

STARTER MOTOR PROTECTION FUNCTION

IPDM E/R turns OFF the starter relay to protect the starter motor when the starter relay remains active for 90 seconds.

DTC Index

INFOID:0000000010228212

CONSULT display		Fail-safe	TIME ^{NOTE}		Refer to
No DTC is detected. Further testing may be required.		—	—	—	—
U1000	CAN COMM CIRCUIT	×	CRNT	1 – 39	PCS-30
B120E	IPDM E/R [SYSTEM INTERNAL FAILURE]	—	CRNT	1 – 39	PCS-31
	IPDM E/R [NOT CONFIGURED]				

IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

< ECU DIAGNOSIS INFORMATION >

[IPDM E/R]

CONSULT display		Fail-safe	TIME ^{NOTE}		Refer to
B121A	FR FOG LAMP LH PWR SPLY CIRC [CIRC SHORT TO GRND]	—	CRNT	1 – 39	EXL-96 (halogen headlamp) EXL-234 (LED headlamp)
B1231	DTRL RH PWR SPLY CIRC [CIRC SHORT TO GRND]	—	CRNT	1 – 39	EXL-97 (halogen headlamp) EXL-235 (LED headlamp)
B1256	FR FOG LAMP RH PWR SPLY CIRC [CIRC SHORT TO GRND]	—	CRNT	1 – 39	EXL-98 (halogen headlamp) EXL-236 (LED headlamp)
B1C00	HEIGHT SENSOR PWR SPLY CIRC [CIRC SHORT TO GRND]	—	CRNT	1 – 39	EXL-237 (LED headlamp)
	HEIGHT SENSOR PWR SPLY CIRC [CIRC SHORT TO BATTERY]				
B1C01	FR HEIGHT SENSOR SIGNAL [CIRC SHORT TO BATTERY]	—	CRNT	1 – 39	EXL-239 (LED headlamp)
	FR HEIGHT SENSOR SIGNAL [CIRC SHORT TO GROUND OR OPEN]				
	FR HEIGHT SENSOR SIGNAL [CIRC VOLTAGE OUT OF RANGE]				
B1C02	RR HEIGHT SENSOR SIGNAL [CIRC SHORT TO BATTERY]	—	CRNT	1 – 39	EXL-241 (LED headlamp)
	RR HEIGHT SENSOR SIGNAL [CIRC SHORT TO GROUND OR OPEN]				
	RR HEIGHT SENSOR SIGNAL [CIRC VOLTAGE OUT OF RANGE]				
B1C07	AIMING MOTOR DRIVE SIGNAL [CIRC SHORT TO GRND]	—	CRNT	1 – 39	EXL-243 (LED headlamp)
	AIMING MOTOR DRIVE SIGNAL [CIRC SHORT TO BATTERY]				
	AIMING MOTOR DRIVE SIGNAL [SIGNAL COMPARE FAILURE]				
B20CB	DTRL LH PWR SPLY CIRC [CIRC SHORT TO GRND]	—	CRNT	1 – 39	EXL-99 (halogen headlamp) EXL-245 (LED headlamp)
B20CE	HL (HI) LH PWR SPLY CIRC [CIRC SHORT TO GRND]	—	CRNT	1 – 39	EXL-100 (halogen headlamp) EXL-246 (LED headlamp)

A

B

C

D

E

F

G

H

I

J

K

L

PCS

N

O

P

IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

< ECU DIAGNOSIS INFORMATION >

[IPDM E/R]

CONSULT display		Fail-safe	TIME ^{NOTE}		Refer to
B20CF	HL (HI) RH PWR SPLY CIRC [CIRC SHORT TO GRND]	—	CRNT	1 – 39	EXL-101 (halogen headlamp) EXL-247 (LED headlamp)
B20D0	HL (LO) LH PWR SPLY CIRC [CIRC SHORT TO GRND]	—	CRNT	1 – 39	EXL-102 (halogen headlamp) EXL-248 (LED headlamp)
B20D1	HL (LO) RH PWR SPLY CIRC [CIRC SHORT TO GRND]	—	CRNT	1 – 39	EXL-103 (halogen headlamp) EXL-249 (LED headlamp)
B20D2	PARKING LAMP PWR SPLY CIRC [CIRC SHORT TO GRND]	—	CRNT	1 – 39	EXL-104 (halogen headlamp) EXL-250 (LED headlamp)
B20D4	TAIL LAMP LH PWR SPLY CIRC [CIRC SHORT TO GRND]	—	CRNT	1 – 39	EXL-105 (halogen headlamp) EXL-251 (LED headlamp)
B20D5	TAIL LAMP RH PWR SPLY CIRC [CIRC SHORT TO GRND]	—	CRNT	1 – 39	EXL-106 (halogen headlamp) EXL-252 (LED headlamp)
B20DB	HEIGHT SENS INITIALIZE NOT DONE [MISSING CALIBRATION]	—	CRNT	1 – 39	EXL-253 (LED headlamp)
	HEIGHT SENS INITIALIZE NOT DONE [NOT CONFIGURED]				
B20DD	IGN RELAY ON CIRC [CIRC SHORT TO BATTERY]	×	CRNT	1 – 39	PCS-32
B20DE	IGN RELAY OFF CIRC [CIRC SHORT TO GROUND OR OPEN]	—	CRNT	1 – 39	PCS-33
B20DF	STARTER RELAY OFF CIRC [CIRC SHORT TO GROUND OR OPEN]	—	CRNT	1 – 39	SEC-96 (with Intelligent Key system) SEC-161 (without Intelligent Key system)
B20E2	LED HEADLAMP RH [CMPNENT INTERNAL MLFNCTN]	—	CRNT	1 – 39	EXL-254 (LED headlamp)
B20E3	LED HEADLAMP LH [CMPNENT INTERNAL MLFNCTN]	—	CRNT	1 – 39	EXL-255 (LED headlamp)

NOTE:

The details of TIME display are as follows.

IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

< ECU DIAGNOSIS INFORMATION >

[IPDM E/R]

- CRNT: The malfunctions that are detected now
- 1 - 39: The number is indicated when it is normal at present and a malfunction was detected in the past. It increases like 0 → 1 → 2 ... 38 → 39 after returning to the normal condition whenever IGN OFF → ON. It is fixed to 39 until the self-diagnosis results are erased if it is over 39. It returns to 0 when a malfunction is detected again in the process.

A

B

C

D

E

F

G

H

I

J

K

L

PCS

N

O

P

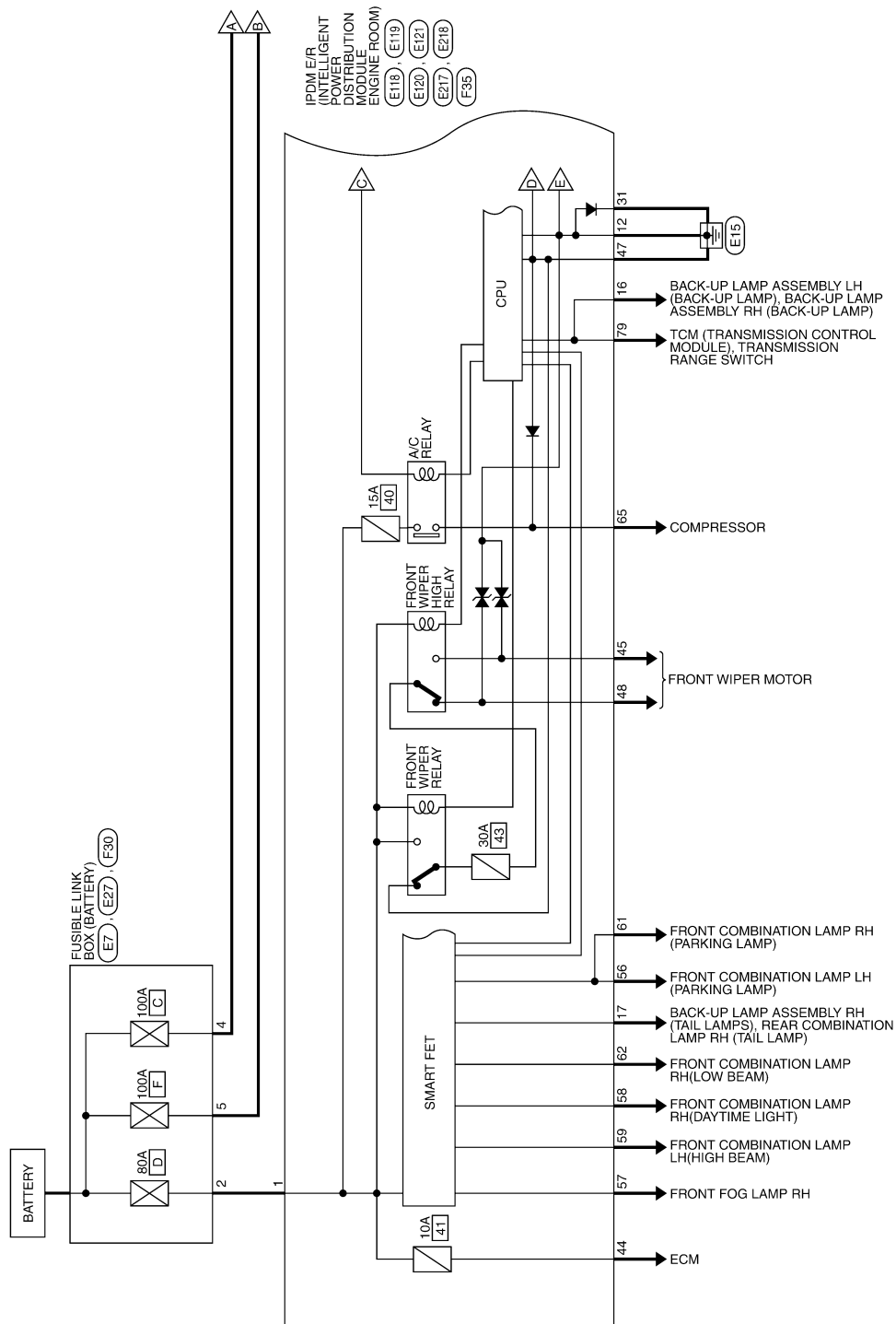
WIRING DIAGRAM

IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

Wiring Diagram

INFOID:000000010228213

IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

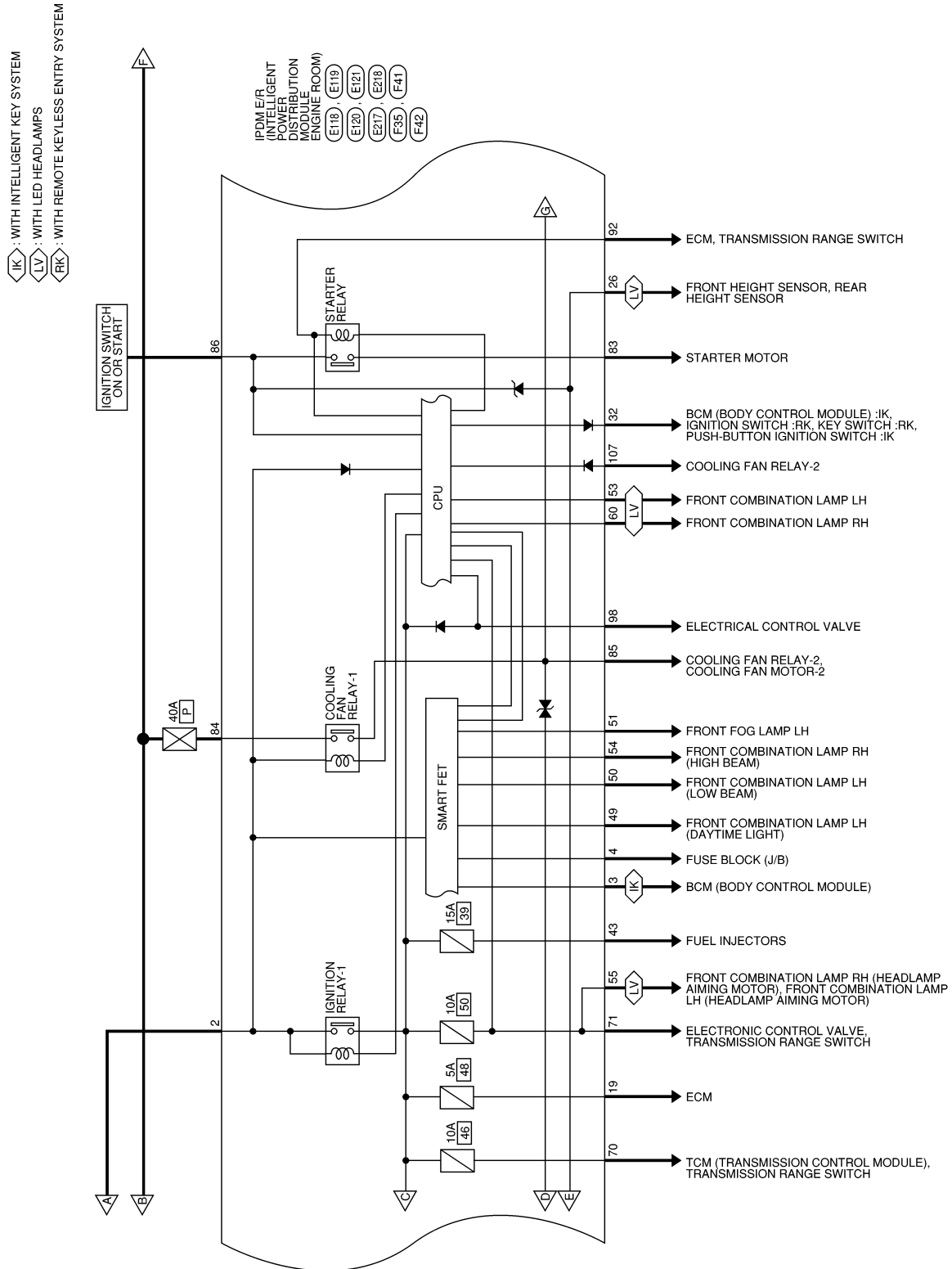


AAMWA1014GB

IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

< WIRING DIAGRAM >

[IPDM E/R]



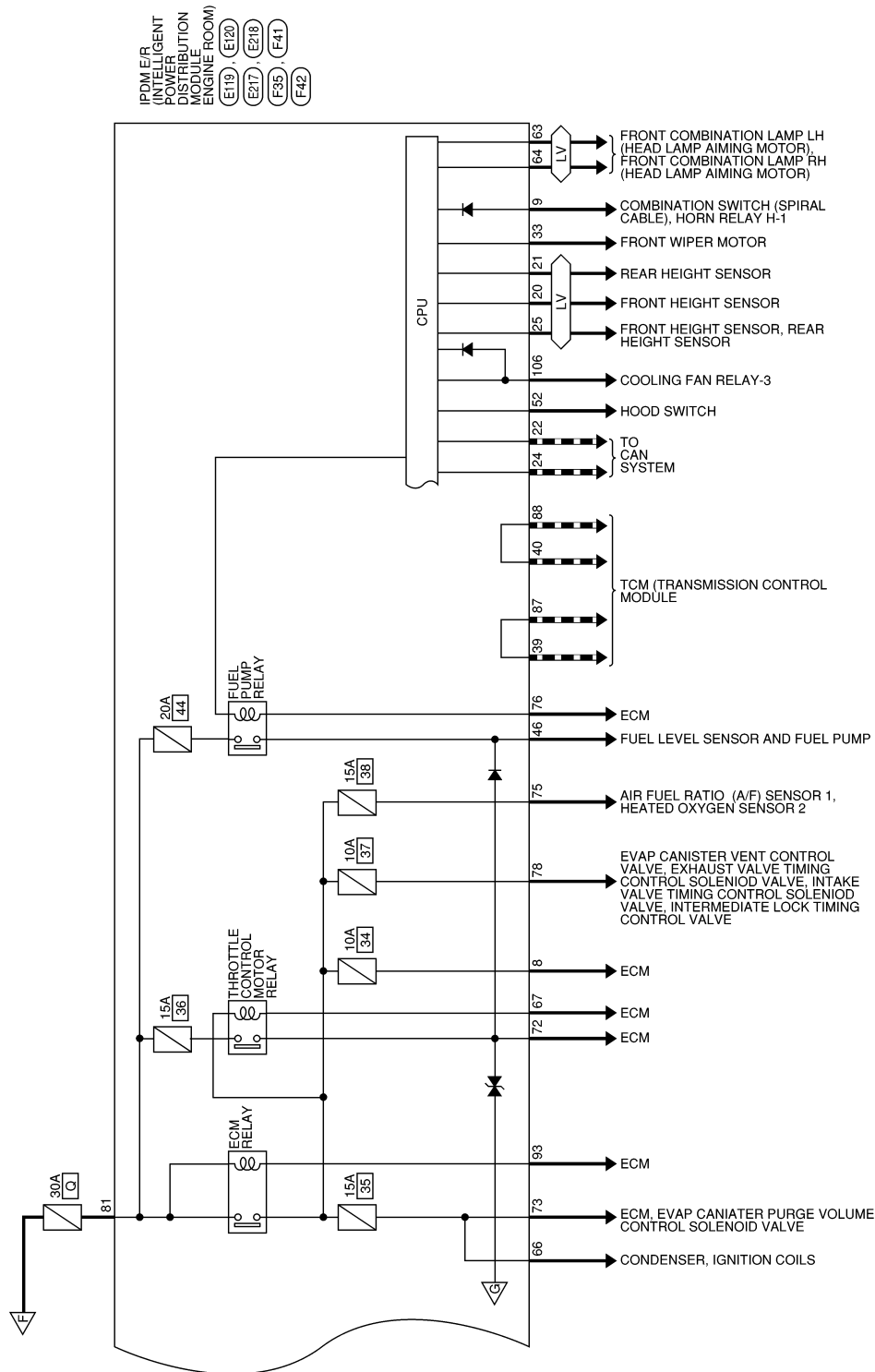
AAMWA1015GB

IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

< WIRING DIAGRAM >

[IPDM E/R]

LV : WITH LED HEADLAMPS



AAMWA1016GB

IPDM E/R - CONNECTORS (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

Connector No.	E7	Connector No.	E27	Connector No.	E118
Connector Name	FUSIBLE LINK BOX (BATTERY)	Connector Name	FUSIBLE LINK BOX (BATTERY)	Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY	Connector Color	BROWN	Connector Color	BLACK
 			 		
Terminal No.	4	Terminal No.	2	Terminal No.	1
Color of Wire	L	Color of Wire	R	Color of Wire	R
Signal Name	-	Signal Name	-	Signal Name	FL BAT 2
					2
					L
					FL BAT 1

Terminal No.	13	Color of Wire	-	Signal Name	-
	14		-		-
	15		-		-
	16	G	O LIGHT REVERSE LAMP		
	17	W	O LIGHT POSITION REAR RH		
	18	-	-		-

Connector No.	E119
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY

9	8	7	6	5	4	3
18	17	16	15	14	13	12
						11
						10

Terminal No.	3	Color of Wire	P	Signal Name	O IGN NOT COLUMN LOCK
	4		Y		O LIGHT POSITION REAR LH
	5		-		-
	6		-		-
	7	L	LO WASHER		
	8	BG	O ACTUATOR4 CABIN (3FB4)		
	9	L	LO HORN RLY		
	10	-	-		-
	11	-	-		-
	12	B	SIGNAL GROUND		

AAMIA2092GB

PCS

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

< WIRING DIAGRAM >

[IPDM E/R]

Connector No.	E121
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	RED



45	44	43
48	47	46

Terminal No.	Color of Wire	Signal Name
43	LG	O IGN LCS CABIN
44	R	O BAT ABS VALVE
45	V	O FR WIPER HI
46	W	O FUEL PUMP
47	B	POWER GROUND
48	Y	O FR WIPER LO

Terminal No.	Color of Wire	Signal Name
26	B	O HEIGHT SENSOR GROUND
27	-	-
28	-	-
29	-	-
30	-	-
31	B	2ND SIGNAL GROUND
32	GR	MOTOR CABIN 6
33	BR	MOTOR CABIN 7
34	-	-
35	-	-
36	-	-
37	-	-
38	-	-
39	L	-
40	P	-
41	-	-
42	-	-

Connector No.	E120
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



30	29	28	27	26	25	24	23	22	21	20	19
42	41	40	39	38	37	36	35	34	33	32	31

Terminal No.	Color of Wire	Signal Name
19	LG	O IGN ECM
20	W	I HEIGHT FRONT
21	SB	I HEIGHT REAR
22	P	CAN-L
23	-	-
24	L	CAN-H
25	G	O HEIGHT SENSOR SUPPLY

Terminal No.	Color of Wire	Signal Name
53	GR	LI LED DETECTION 2
54	LG	O LIGHT HBEAM RH
55	SB	O IGN REVERSE SW AC VALVE 1
56	BG	O LIGHT CLEARANCE FR LH

Connector No.	E217
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BROWN



51	50	49
56	55	54
53	52	

Terminal No.	Color of Wire	Signal Name
49	R	O LIGHT DTRL LH
50	L	O LIGHT LBEAM LH
51	V	O LIGHT FR FOG LAMPS LH
52	W	LI HOOD SW

AAMIA2093GB

IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

< WIRING DIAGRAM >

[IPDM E/R]

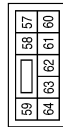
Connector No.	F30
Connector Name	FUSIBLE LINK BOX (BATTERY)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
5	W	-

Terminal No.	Color of Wire	Signal Name
61	GR	O LIGHT CLEARANCE FR RH
62	SB	O LIGHT LBEAM RH
63	B	I LEVELIZER DC MOTOR GROUND
64	V	O LEVELIZER DC MOTOR

Connector No.	E218
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
57	W	O LIGHT FR FOG LAMPS RH
58	R	O LIGHT DTRL RH
59	G	O LIGHT HBEAM LH
60	Y	LI LED DETECTION 1

Connector No.	F41
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
81	L	FL ECM USM SUPPLY
82	-	-
83	G	O STARTER
84	LG	I BATT MOTOR FAN LO
85	P	O MOTOR FAN LO
86	GR	FL STARTER

Terminal No.	Color of Wire	Signal Name
71	SB	O IGN REVERSE SW AC VALVE
72	GR	O ACTUATOR5 (3FBA)
73	Y	O ACTUATOR1 2 (3FB)
74	-	-
75	BR	O ACTUATOR3 (3FB3)
76	P	LI FUEL PUMP DRIVER
77	-	-
78	L	O ACTUATOR2 (3FB2)
79	G	LI LIGHT REVERSE SW
80	-	-

Connector No.	F35
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
65	P	O AC CLUTCH
66	R	O ACTUATOR 1
67	V	LI ECM ACT5 DRIVER
68	-	-
69	-	-
70	BG	O IGN AT LPG

AAMIA2094GB

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

PCS

U1000 CAN COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[IPDM E/R]

DTC/CIRCUIT DIAGNOSIS

U1000 CAN COMM CIRCUIT

Description

INFOID:0000000010256033

Refer to [LAN-8, "System Description"](#).

DTC Logic

INFOID:0000000010256034

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
CAN COMM CIRCUIT [U1000]	When IPDM E/R cannot communicate with CAN communication signal continuously for 2 seconds or more.	In CAN communication system, any item (or items) of the following listed below is malfunctioning: • Transmission • Receiving (ECM) • Receiving (BCM) • Receiving (Combination meter)

Diagnosis Procedure

INFOID:0000000010256035

1. PERFORM SELF DIAGNOSTIC RESULT

1. Turn ignition switch ON and wait for 2 second or more.
2. Check "SELF-DIAG RESULTS" of "IPDM E/R".

Is "CAN COMM CIRCUIT" displayed?

- YES >> Refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).
NO >> Refer to [GI-41, "Intermittent Incident"](#).

B120E IPDM E/R

DTC Logic

INFOID:0000000010246863

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
USM ECU Not configured [B120E]	The IPDM E/R detects 0V for greater than 2 seconds. ECU internal failure.	IPDM E/R

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION

1. Turn ignition switch ON.
2. Turn ignition switch OFF and wait 1 second or more.
3. Turn ignition switch ON.
4. Perform "Self Diagnostic Result" of "IPDM E/R" using CONSULT.

Is DTC B120E displayed?

- YES >> Refer to [PCS-32, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010246864

1. PERFORM SELF DIAGNOSTIC RESULT

Perform "Self Diagnostic Result" of "IPDM E/R" using CONSULT.

Is display history of DTC B120E CRNT?

- YES >> Replace IPDM E/R. Refer to [PCS-35, "Removal and Installation"](#).
NO >> Refer to [GI-41, "Intermittent Incident"](#).

B20DD IGNITION RELAY ON CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[IPDM E/R]

B20DD IGNITION RELAY ON CIRCUIT

DTC Logic

INFOID:0000000010228217

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
IGN RELAY ON [B20DD]	The ignition relay ON is detected for 1 second at ignition switch OFF (CPU monitors the status at the contact and excitation coil circuits of the ignition relay inside it).	IPDM E/R

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION

1. Turn ignition switch ON.
2. Turn ignition switch OFF and wait 1 second or more.
3. Turn ignition switch ON.
4. Perform "Self Diagnostic Result" of "IPDM E/R" using CONSULT.

Is DTC B20DD displayed?

- YES >> Refer to [PCS-32, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010228218

1. PERFORM SELF DIAGNOSTIC RESULT

Perform "Self Diagnostic Result" of "IPDM E/R" using CONSULT.

Is display history of DTC B20DD CRNT?

- YES >> Replace IPDM E/R. Refer to [PCS-35, "Removal and Installation"](#).
NO >> Refer to [GI-41, "Intermittent Incident"](#).

B20DE IGNITION RELAY OFF CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[IPDM E/R]

B20DE IGNITION RELAY OFF CIRCUIT

DTC Logic

INFOID:0000000010228219

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
IGN RELAY OFF [B20DE]	The ignition relay OFF is detected for 1 second at ignition switch ON (CPU monitors the status at the contact and excitation coil circuits of the ignition relay inside it).	IPDM E/R

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION

1. Turn ignition switch ON.
2. Turn ignition switch OFF and wait 1 second or more.
3. Turn ignition switch ON.
4. Perform "Self Diagnostic Result" of "IPDM E/R" using CONSULT.

Is DTC B20DE displayed?

- YES >> Refer to [PCS-33, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010228220

1. PERFORM SELF DIAGNOSTIC RESULT

Perform "Self Diagnostic Result" of "IPDM E/R" using CONSULT.

Is display history of DTC B20DE CRNT?

- YES >> Replace IPDM E/R. Refer to [PCS-35, "Removal and Installation"](#).
NO >> Refer to [GI-41, "Intermittent Incident"](#).

PCS

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[IPDM E/R]

POWER SUPPLY AND GROUND CIRCUIT

Diagnosis Procedure

INFOID:0000000010228221

Regarding Wiring Diagram information, refer to [PCS-24, "Wiring Diagram"](#).

1. CHECK FUSE AND FUSIBLE LINKS

Check that the following IPDM E/R fuse or fusible links are not blown.

Terminal No.	Signal name	Fuse and fusible link Nos.
1	Battery power supply	D (80A)
2		C (100A)

Is the fuse blown?

YES >> Replace the blown fuse or fusible link after repairing the affected circuit.

NO >> GO TO 2.

2. CHECK BATTERY POWER SUPPLY CIRCUIT

1. Disconnect IPDM E/R connector E118.
2. Check voltage between IPDM E/R connector E118 and ground.

IPDM E/R		Ground	Voltage (Approx.)
Connector	Terminal		
E118	1	—	Battery voltage
	2		

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

3. CHECK GROUND CIRCUIT

1. Disconnect IPDM E/R connectors E119, E120 and E121.
2. Check continuity between IPDM E/R connectors and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		
E119	12	Ground	Yes
E120	31		
E121	47		

Is the inspection result normal?

YES >> Inspection End.

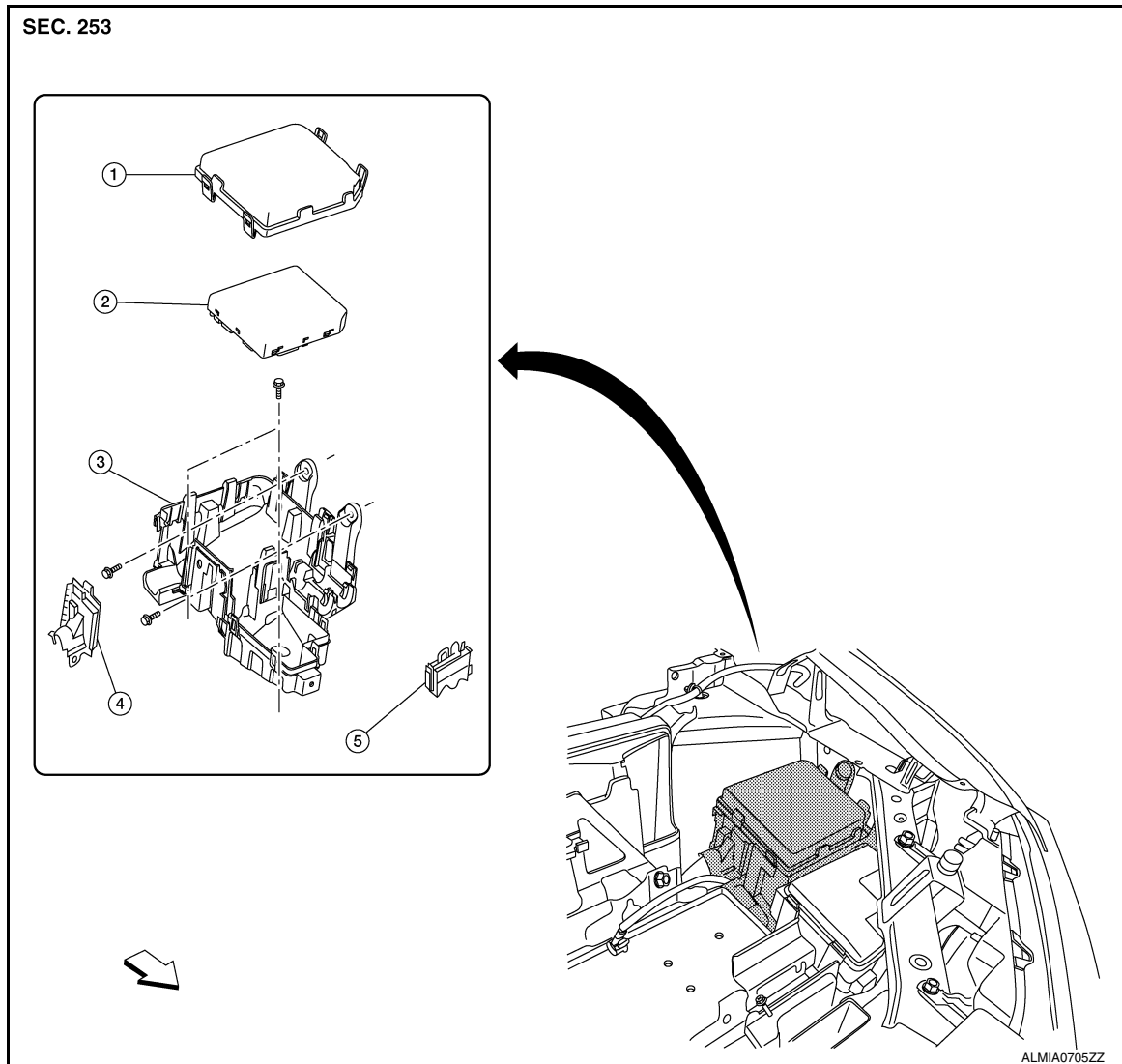
NO >> Repair or replace harness or connectors.

REMOVAL AND INSTALLATION

IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

Exploded View

INFOID:000000009794838



Removal and Installation

INFOID:000000009794839

CAUTION:
IPDM E/R integrated relays are not serviceable parts, do not remove from the IPDM E/R.

REMOVAL

1. Disconnect the negative battery terminal. Refer to [PG-75, "Removal and Installation \(Battery\)"](#).
2. Remove air duct (inlet). Refer to [EM-24, "Exploded View"](#).

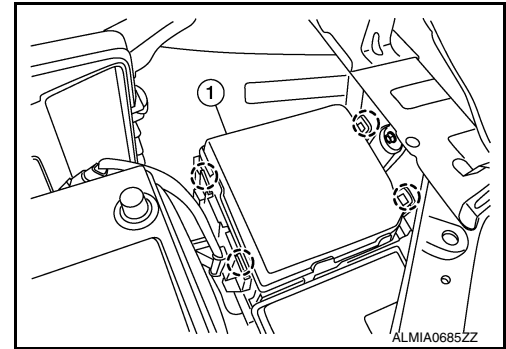
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

< REMOVAL AND INSTALLATION >

[IPDM E/R]

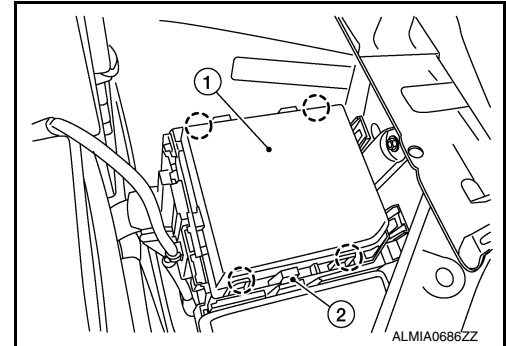
3. Release pawls on IPDM E/R cover (1) and remove.

(○): Pawls



4. Release pawls and remove IPDM E/R (1) from the IPDM E/R case (2).

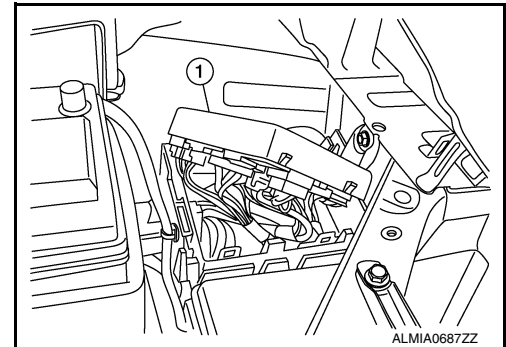
(○): Pawls



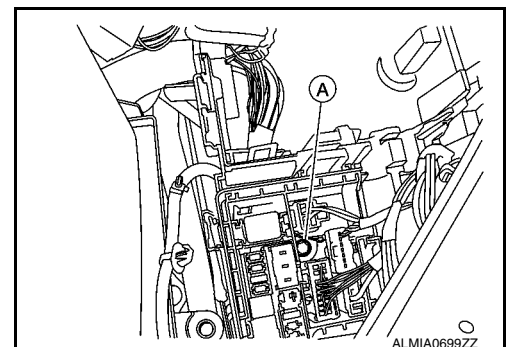
5. Disconnect the harness connectors from IPDM E/R (1).

CAUTION:

Replace the IPDM E/R if it has been dropped or sustained an impact.



6. Release the negative battery cable and harness clips from the IPDM E/R case.
7. Release the pawls on the IPDM/ E/R harness covers A, B and remove from the IPDM E/R case.
8. Remove the bolts from the IPDM E/R case.
9. Remove the bolt (A) from the fusible link box (battery).



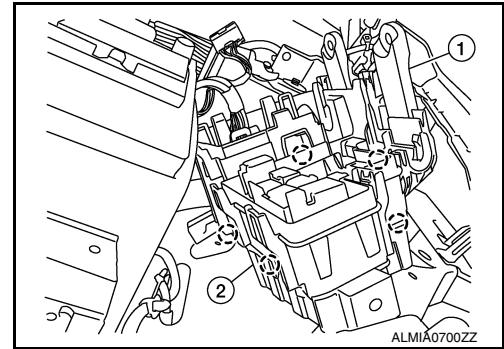
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

< REMOVAL AND INSTALLATION >

[IPDM E/R]

10. Release the pawls on the fusible link box (battery) case (2) and remove from the IPDM E/R case (1).

(○): Pawls



INSTALLATION

Installation is in the reverse order of removal.

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

PCS

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010228164

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

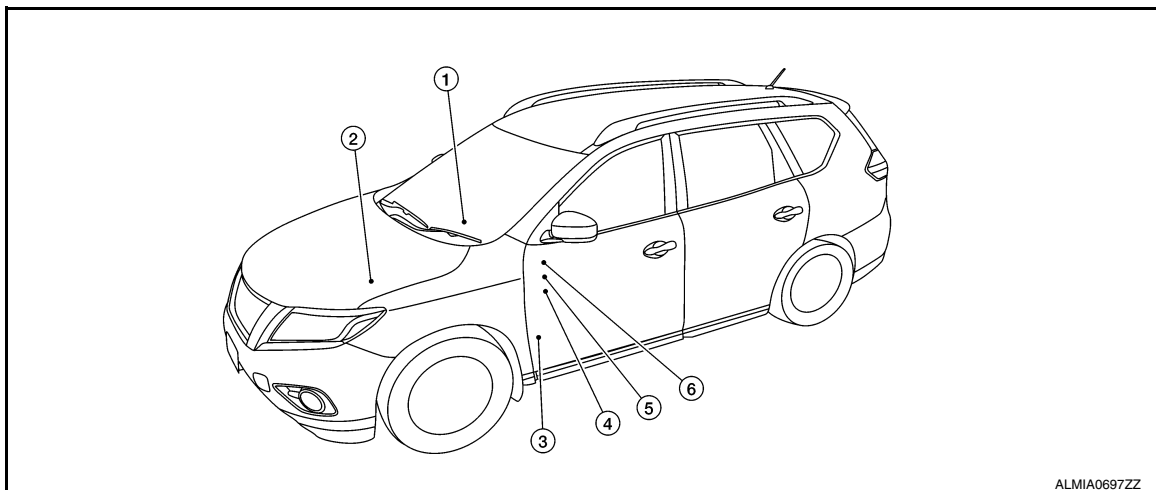
- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:0000000010228165



ALMIA0697ZZ

No.	Component	Description
1.	Push-button ignition switch ¹	Push-button ignition switch (push switch) is pressed (ON), and transmits status signal to BCM and IPDM E/R.
	Ignition switch ²	Ignition switch is turned to ON, and transmits status signal to BCM and IPDM E/R.
2.	IPDM E/R	- IPDM E/R detects push-button ignition switch¹ or ignition switch² status, and transmits ignition switch status signal (CAN) to BCM. - IPDM E/R receives ignition relay-1 (IPDM E/R) control signal and ignition switch ON signal (CAN) from BCM, and controls ignition relay-1 (built into IPDM E/R)
3.	BCM	- BCM controls power distribution system. - BCM judges ignition position and vehicle condition. - BCM checks ignition position internally.
4.	Ignition relay-2 (in fuse block)	- Ignition relay-2 is controlled by BCM. - Ignition relay-2 supplies ignition ON power supply or ignition ON signal to each ECU and system when ignition is turned ON. - BCM compares status of ignition relay-2 control signal and ignition position judged by BCM. - BCM monitors ignition relay-2 operating status by ignition relay-2 feedback signal.
5.	Front blower motor relay (in fuse block)	- Front blower motor relay is controlled by BCM. - Front blower motor supplies ignition ON power supply or ignition ON signal to air conditioning system when ignition is turned ON. - BCM compares status of front blower motor relay control signal and ignition position judged by BCM.
6.	Accessory relay-1 (in fuse block)	- Accessory relay-1 is controlled by BCM. - Accessory relay-1 supplies accessory power supply or ignition ON signal to each ECU when ignition is turned ON. - BCM compares status of accessory relay-1 control signal, and ignition position judged by BCM.

¹: With Intelligent Key system

²: With remote keyless entry system

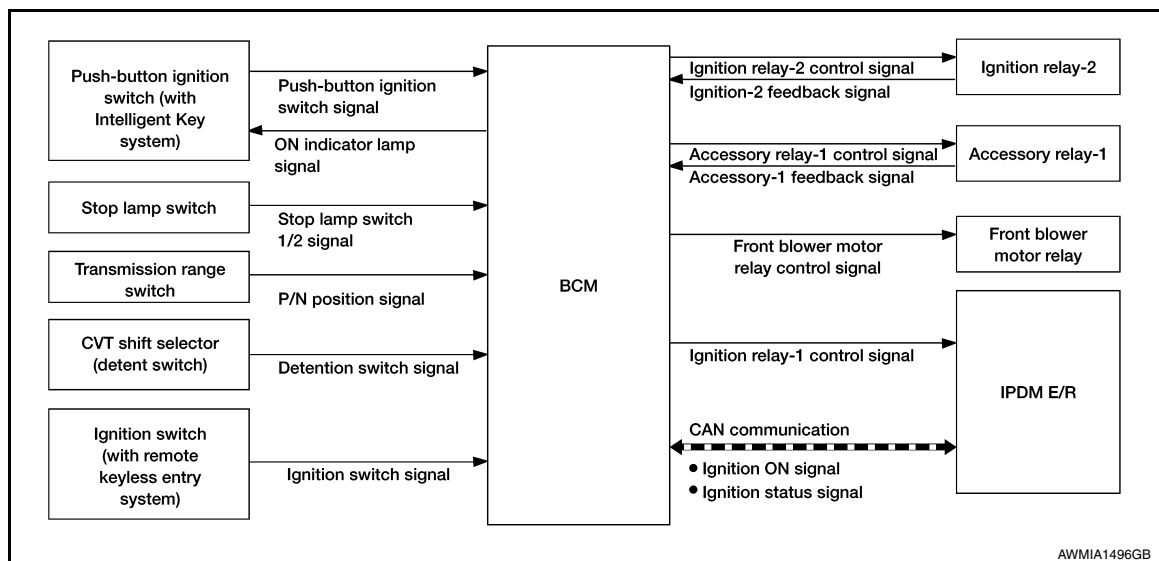
SYSTEM

POWER DISTRIBUTION SYSTEM

POWER DISTRIBUTION SYSTEM : System Description

INFOID:0000000010228166

SYSTEM DIAGRAM



SYSTEM DESCRIPTION

With Intelligent Key System

- PDS (POWER DISTRIBUTION SYSTEM) is the system that the BCM controls with the operation of the push-button ignition switch to perform the power distribution to each power circuit. This system is used instead of the mechanical power supply changing mechanism with the operation of the conventional key cylinder.
- The push-button ignition switch can be operated when Intelligent Key is in the following conditions:
 - Intelligent Key is in the detection area of the inside key antenna.
 - Intelligent Key backside is contacted to push-button ignition switch.
- The push-button ignition switch operation is input to BCM as a signal. BCM changes the power supply position according to the status and operates the following relays to supply power to each power circuit.
 - Ignition relay-1
 - Ignition relay-2
 - Accessory relay-1
 - Front blower motor relay

NOTE:

- The engine switch operation changes due to the conditions of brake pedal, selector lever and vehicle speed.
- The power supply position can be confirmed with the lighting of the indicator in the push-button ignition switch.

With Remote Keyless Entry System

- PDS (POWER DISTRIBUTION SYSTEM) is the system that the BCM controls with the operation of the ignition switch to perform the power distribution to each power circuit.
- The ignition switch operation is input to the BCM as a signal. BCM changes the power supply position according to the status and operates the following relays to supply power to each power circuit:
 - Ignition relay-1
 - Ignition relay-2
 - Accessory relay-1
 - Front blower motor relay

IGNITION BATTERY SAVER SYSTEM

When all the following conditions are met for 30 minutes, the ignition battery saver system will cut off the power supply to prevent battery discharge.

- The ignition is in the ON position
- All doors are closed

SYSTEM

< SYSTEM DESCRIPTION >

[POWER DISTRIBUTION SYSTEM]

- Selector lever is in the P (park) position

Reset Condition of Ignition Battery Saver System

In order to prevent the battery from discharging, the ignition battery saver system will cut off the power supply when all doors are closed, the selector lever is in P (park) position and the ignition is left in the ON position for 30 minutes.

- Opening any door
- Operating door request switch on door handle
- Operating Intelligent Key (with Intelligent Key system)
- Operating keyfob (with remote keyless entry system)

POWER SUPPLY POSITION CHANGE TABLE BY PUSH-BUTTON IGNITION SWITCH OPERATION (WITH INTELLIGENT KEY SYSTEM)

The power supply position changing operation can be performed with the following operations.

NOTE:

- When an Intelligent Key is within the detection area of inside key antenna and when Intelligent Key backside is contacted to push-button ignition switch, it is equivalent to the operations below.
- When starting the engine, the BCM monitors under the engine start conditions:
 - Brake pedal operating condition
 - Selector lever position
 - Vehicle speed

Vehicle speed: less than 4 km/h (2.5 MPH)

Power supply position	Engine start/stop condition		Push-button ignition switch operation frequency
	Selector lever position	Brake pedal condition	
OFF → ON	—	Released	1
OFF → ON → OFF	—	Released	2
OFF → START ON → START	P (Park) or N (Neutral)	Depressed	1
Engine is running → OFF	—	—	1

Vehicle speed: 4 km/h (2.5 MPH) or more

Power supply position	Engine start/stop condition		Push-button ignition switch operation frequency
	Selector lever position	Brake pedal condition	
Engine is running → OFF	—	—	Emergency stop operation
Engine stall return operation while driving	N (Neutral)	Released	1

Emergency stop operation

- Press and hold the push-button ignition switch for 2 seconds or more.
- Press the push-button ignition switch 3 times or more within 1.5 seconds.

WITH INTELLIGENT KEY

WITH INTELLIGENT KEY : Fail Safe

INFOID:0000000010257100

CONSULT Display	Fail-safe	Cancellation
B2192: ID DISCORD BCM-ECM	Inhibit engine cranking	Erase DTC
B2193: CHAIN OF BCM-ECM	Inhibit engine cranking	Erase DTC
B2562: LOW VOLTAGE	Inhibit engine cranking	100 ms after the power supply voltage increases to more than 8.8 V
B260F: ECM CAN COMM	Inhibit engine cranking	When any of the following conditions are fulfilled: • Ignition switch changes to ON • Receives engine status signal (CAN)
B261E: FUEL MIS CONFIG	Inhibit engine cranking	BCM initialization

SYSTEM

< SYSTEM DESCRIPTION >

[POWER DISTRIBUTION SYSTEM]

WITHOUT INTELLIGENT KEY

WITHOUT INTELLIGENT KEY : Fail Safe

INFOID:0000000010257111

CONSULT Display	Fail-safe	Cancellation
B2192: ID DISCORD BCM-ECM	Inhibit engine cranking	Erase DTC
B2193: CHAIN OF BCM-ECM	Inhibit engine cranking	Erase DTC
B2562: LOW VOLTAGE	Inhibit engine cranking	100 ms after the power supply voltage increases to more than 8.8 V
B260F: ECM CAN COMM	Inhibit engine cranking	When any of the following conditions are fulfilled • Ignition switch changes to ON • Receives engine status signal (CAN)
B261E: FUEL MIS CONFIG	Inhibit engine cranking	BCM initialization

DIAGNOSIS SYSTEM (BCM) (WITH INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

[POWER DISTRIBUTION SYSTEM]

DIAGNOSIS SYSTEM (BCM) (WITH INTELLIGENT KEY SYSTEM)

COMMON ITEM

COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)

INFOID:0000000010257112

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with BCM.

Direct Diagnostic Mode	Description
Ecu Identification	The BCM part number is displayed.
Self Diagnostic Result	The BCM self diagnostic results are displayed.
Data Monitor	The BCM input/output data is displayed in real time.
Active Test	The BCM activates outputs to test components.
Work support	The settings for BCM functions can be changed.
Configuration	- The vehicle specification can be read and saved. - The vehicle specification can be written when replacing BCM.
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.

SYSTEM APPLICATION

BCM can perform the following functions.

System	Sub System	Direct Diagnostic Mode						
		Ecu Identification	Self Diagnostic Result	Data Monitor	Active Test	Work support	Configuration	CAN Diag Support Mntr
Door lock	DOOR LOCK		×	×	×	×		
Rear window defogger	REAR DEFOGGER			×	×	×		
Warning chime	BUZZER			×	×			
Interior room lamp timer	INT LAMP			×	×	×		
Exterior lamp	HEADLAMP			×	×	×		
Wiper and washer	WIPER			×	×	×		
Turn signal and hazard warning lamps	FLASHER			×	×			
Intelligent Key system	INTELLIGENT KEY		×	×	×	×		
Combination switch	COMB SW			×				
BCM	BCM	×	×			×	×	×
Immobilizer	IMMU		×	×	×			
Interior room lamp battery saver	BATTERY SAVER			×	×			
Back door open	TRUNK			×				
Vehicle security system	THEFT ALM			×	×	×		
RAP system	RETAINED PWR			×				
Signal buffer system	SIGNAL BUFFER			×				
TPMS	AIR PRESSURE MONITOR		×	×	×	×		

INTELLIGENT KEY

DIAGNOSIS SYSTEM (BCM) (WITH INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

[POWER DISTRIBUTION SYSTEM]

INTELLIGENT KEY : CONSULT Function (BCM - INTELLIGENT KEY)

INFOID:0000000010257113

SELF DIAGNOSTIC RESULT

Refer to [BCS-48, "DTC Index"](#).

DATA MONITOR

Monitor Item [Unit]	Main	Description
REQ SW -DR [On/Off]	×	Indicates condition of door request switch LH.
REQ SW -AS [On/Off]	×	Indicates condition of door request switch RH.
REQ SW -BD/TR [On/Off]	×	Indicates condition of back door request switch.
PUSH SW [On/Off]		Indicates condition of push-button ignition switch.
BRAKE SW 1 [On/Off]	×	Indicates condition of brake pedal position switch.
BRAKE SW 2 [On/Off]		Indicates condition of stop lamp switch.
DETE/CANCL SW [On/Off]	×	Indicates condition of park position switch.
PUSH SW -IPDM [On/Off]		Indicates condition of push-button ignition switch received from IPDM E/R on CAN communication line.
IGN RLY1 -F/B [On/Off]		Indicates condition of ignition relay 1 received from IPDM E/R on CAN communication line.
NEUTRAL SW -IPDM [On/Off]		Indicates condition of transmission range switch received from IPDM E/R on CAN communication line.
SFT PN -IPDM [On/Off]		Indicates condition of P (park) or N (neutral) position from TCM on CAN communication line.
STARTER RELAY -IPDM [On/Off]		Indicates condition of starter relay received from IPDM E/R on CAN communication line.
ENGINE STATE [STOP/START/CRANK/RUN]	×	Indicates condition of engine state from ECM on CAN communication line.
REVERSE SIGNAL -IPDM [On/Off]		Indicates condition of transmission range switch received from IPDM E/R on CAN communication line.
CRANKING PERMIT -ECM [PERMIT]		Indicates condition of engine start possibility from ECM on CAN communication line.
IS STATUS -ECM [On/Off]		Indicates IS status from ECM on CAN communication line.
STARTER CUT RELAY -ECM [On/Off]		Indicates condition of starter cut relay from ECM on CAN communication line.
VEH SPEED 1 [mph/km/h]	×	Indicates condition of vehicle speed signal received from ABS on CAN communication line.
VEH SPEED 2 [mph/km/h]	×	Indicates condition of vehicle speed signal received from combination meter on CAN communication line.
IGN REQ -IPDM [On/Off]		Indicates condition of ignition request from IPDM E/R on CAN communication line.
STARTER REQ -IPDM [On/Off]		Indicates condition of starter request received from IPDM E/R on CAN communication line.
DOOR STAT -DR [LOCK/READY/UNLK]	×	Indicates condition of driver side door status.
DOOR STAT -AS [LOCK/READY/UNLK]	×	Indicates condition of passenger side door status.
DOOR STAT -RR [LOCK/READY/UNLK]	×	Indicates condition of rear right side door status.
DOOR STAT -RL [LOCK/READY/UNLK]	×	Indicates condition of rear left side door status.
BK DOOR STATE [LOCK/READY/UNLK]	×	Indicates condition of back door status.
ID OK FLAG [Set/Reset]		Indicates condition of Intelligent Key ID.
PRMT ENG STRT [Set/Reset]		Indicates condition of engine start possibility.
PRMT RKE STRT [Set/Reset]		Indicates condition of engine start possibility from Intelligent Key.
I-KEY OK FLAG [Key ON/Key OFF]	×	Indicates condition of Intelligent Key OK flag.
PRBT ENG STRT [Set/Reset]		Indicates condition of engine start prohibit.

DIAGNOSIS SYSTEM (BCM) (WITH INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

[POWER DISTRIBUTION SYSTEM]

Monitor Item [Unit]	Main	Description
ID AUTHENT CANCEL TIMER [STOP]		Indicates condition of Intelligent Key ID authentication.
ACC BATTERY SAVER [STOP]		Indicates condition of battery saver.
CRNK PRBT TMR [On/Off]		Indicates condition of crank prohibit timer.
AUT CRNK TMR [On/Off]		Indicates condition of automatic engine crank timer from Intelligent Key.
CRNK PRBT TME [sec]		Indicates condition of engine crank prohibit time.
AUTO CRNK TME [sec]		Indicates condition of automatic engine crank time from Intelligent Key.
CRANKING TME [sec]		Indicates condition of engine cranking time from Intelligent Key.
RKE OPE COUN1 [0-19]	×	When remote keyless entry receiver receives the signal transmitted while operating on Intelligent Key, the numerical value start changing.
RKE OPE COUN2 [0-19]	×	When remote keyless entry receiver receives the signal transmitted while operating on Intelligent Key, the numerical value start changing.
RKE-LOCK [On/Off]		Indicates condition of lock signal from Intelligent Key.
RKE-UNLOCK [On/Off]		Indicates condition of unlock signal from Intelligent Key.
RKE-TR/BD [On/Off]		Indicates condition of back door open signal from Intelligent Key.
RKE-PANIC [On/Off]		Indicates condition of panic signal from Intelligent Key.
RKE-MODE CHG [On/Off]		Indicates condition of mode change signal from Intelligent Key.
RKE PBD [On/Off]		Indicates condition of automatic back door signal from Intelligent Key.

ACTIVE TEST

Test Item	Description
OUTSIDE BUZZER	This test is able to check Intelligent Key warning buzzer operation [On/Off].
INSIDE BUZZER	This test is able to check combination meter warning chime operation [Take Out/Knob/Key/Off].
INDICATOR	This test is able to check combination meter warning lamp operation [KEY ON/KEY IND/Off].
ENGINE SW ILLUMI	This test is able to check push-button ignition switch START indicator operation [On/Off].
IGNITION RELAY	This test is able to check ignition relay operation [On/Off].

WORK SUPPORT

Support Item	Setting	Description
SHORT CRANKING OUTPUT	Start	70 msec
		100 msec
		200 msec
	End	—
INSIDE ANT DIAGNOSIS	—	This function allows inside key antenna self-diagnosis.

DIAGNOSIS SYSTEM (BCM) (WITHOUT INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

[POWER DISTRIBUTION SYSTEM]

DIAGNOSIS SYSTEM (BCM) (WITHOUT INTELLIGENT KEY SYSTEM) COMMON ITEM

COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)

INFOID:0000000010257114

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with BCM.

Direct Diagnostic Mode	Description
Ecu Identification	The BCM part number is displayed.
Self Diagnostic Result	The BCM self diagnostic results are displayed.
Data Monitor	The BCM input/output data is displayed in real time.
Active Test	The BCM activates outputs to test components.
Work support	The settings for BCM functions can be changed.
Configuration	- The vehicle specification can be read and saved. - The vehicle specification can be written when replacing BCM.
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.

SYSTEM APPLICATION

BCM can perform the following functions.

System	Sub System	Direct Diagnostic Mode						
		Ecu Identification	Self Diagnostic Result	Data Monitor	Active Test	Work support	Configuration	CAN Diag Support Mntr
Door lock	DOOR LOCK			x	x	x		
Rear window defogger	REAR DEFOGGER			x	x	x		
Warning chime	BUZZER			x	x			
Interior room lamp timer	INT LAMP			x	x	x		
Remote keyless entry system	MULTI REMOTE ENT					x		
Exterior lamp	HEADLAMP			x	x			
Wiper and washer	WIPER			x	x	x		
Turn signal and hazard warning lamps	FLASHER			x	x			
Combination switch	COMB SW			x				
BCM	BCM	x	x			x	x	x
Immobilizer	IMMU		x		x			
Interior room lamp battery saver	BATTERY SAVER			x	x			
Back door open	TRUNK			x				
Vehicle security system	THEFT ALM			x	x	x		
RAP system	RETAINED PWR			x				
TPMS	AIR PRESSURE MONITOR		x	x	x	x		

MULTI REMOTE ENT

DIAGNOSIS SYSTEM (BCM) (WITHOUT INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

[POWER DISTRIBUTION SYSTEM]

MULTI REMOTE ENT : CONSULT Function (BCM - MULTI REMOTE ENT)

INFOID:0000000010257115

WORK SUPPORT

Support Item	Setting	Description
REMO CONT ID CONFIR	—	Keyfob ID code registration is displayed.

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

PCS

ECU DIAGNOSIS INFORMATION

BCM

List of ECU Reference

INFOID:0000000010228170

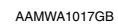
ECU	Reference
BCM (with Intelligent Key system)	BCS-28, "Reference Value"
	BCS-47, "Fail Safe"
	BCS-47, "DTC Inspection Priority Chart"
	BCS-48, "DTC Index"
BCM (without Intelligent Key system)	BCS-96, "Reference Value"
	BCS-107, "Fail Safe"
	BCS-107, "DTC Inspection Priority Chart"
	BCS-108, "DTC Index"

[POWER DISTRIBUTION SYSTEM]

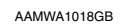
WIRING DIAGRAM

Wiring Diagram

A
B
C
D
E
F
G
H
I
J
K
L
PCS
N
O
P



[POWER DISTRIBUTION SYSTEM]



POWER DISTRIBUTION SYSTEM

< WIRING DIAGRAM >

[POWER DISTRIBUTION SYSTEM]

POWER DISTRIBUTION CONNECTORS

Connector No.	M6
Connector Name	JOINT CONNECTOR-M01
Connector Color	GRAY



4	3	2	1
8	7	6	5
12	11	10	9
16	15	14	13
20	19	18	17
24	23	22	21

Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY



20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21

Terminal No.	Color of Wire	Signal Name
25	BR	O BAT TEMP1 RL
27	Y	O IGN1 RL
28	LA/W	O IGN2 RL

Connector No.	M14
Connector Name	JOINT CONNECTOR-M30
Connector Color	WHITE



4	3	2	1
---	---	---	---

Terminal No.	Color of Wire	Signal Name
1	Y	-
2	Y	-
3	Y	-
4	Y	-

Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



100	99	98	97	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81
120	119	118	117	116	115	114	113	112	111	110	109	108	107	106	105	104	103	102	101

Terminal No.	Color of Wire	Signal Name
81	L	I KEY SW
82	LA/R	I STARTER SW (WITHOUT INTELLIGENT KEY SYSTEM)
88	W	O START SW BACKLIGHT LED
95	V	I SHORTING PIN
101	-	I START SW
105	Y	I IGN SW (WITHOUT INTELLIGENT KEY SYSTEM)

Connector No.	M17
Connector Name	PUSH-BUTTON IGNITION SWITCH
Connector Color	WHITE



4	3	2	1
8	7	6	5

Terminal No.	Color of Wire	Signal Name
4	B	-
5	Y	-
7	B	-
8	W	-

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BROWN



167	166	165	164
176	175	174	173
172	171	170	169
168			

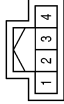
Terminal No.	Color of Wire	Signal Name
161	W	I PWR ECU
169	GR	I PWR STOP LAMP
170	B	I GND 1
171	B	I GND 2

POWER DISTRIBUTION SYSTEM

< WIRING DIAGRAM >

[POWER DISTRIBUTION SYSTEM]

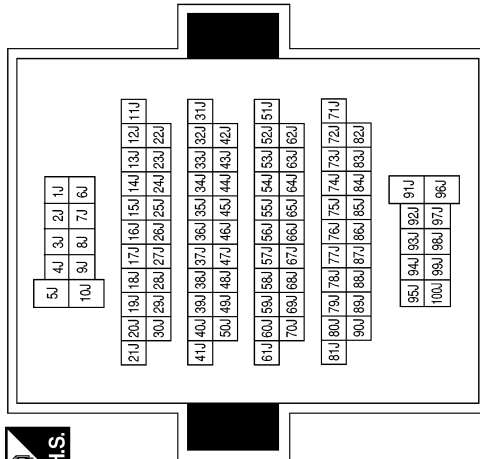
Connector No.	M32
Connector Name	IGNITION SWITCH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	Y	—
3	B	—
4	LA/R	—

Terminal No.	Color of Wire	Signal Name
37J	Y	—
61J	L	—
62J	P	—

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE

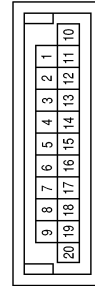


Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



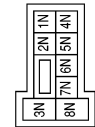
Terminal No.	Color of Wire	Signal Name
3P	Y	—
7P	Y	—
16P	LA/W	—

Connector No.	M43
Connector Name	JOINT CONNECTOR-M02
Connector Color	BLUE



Terminal No.	Color of Wire	Signal Name
1	L	—
2	L	—
11	P	—
12	P	—

Connector No.	M33
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1N	L	—
3N	Y	—
7N	BR	—
8N	SB	—

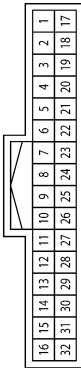
AAMIA2096GB

POWER DISTRIBUTION SYSTEM

< WIRING DIAGRAM >

[POWER DISTRIBUTION SYSTEM]

Connector No.	M69
Connector Name	WIRE TO WIRE
Connector Color	WHITE

Terminal No.	Color of Wire	Signal Name
24	P	-
25	L	-

Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN



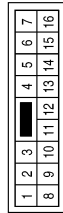

Terminal No.	Color of Wire	Signal Name
3R	V	-
6R	LA/L	-
10R	GR	-
14R	W	-
16R	GR	-

Connector No.	M65
Connector Name	JOINT CONNECTOR-M26
Connector Color	WHITE




Terminal No.	Color of Wire	Signal Name
1	B	-
5	B	-

Connector No.	E19
Connector Name	WIRE TO WIRE
Connector Color	BROWN

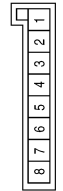
Terminal No.	Color of Wire	Signal Name
7	G	-

Connector No.	E2
Connector Name	WIRE TO WIRE
Connector Color	WHITE




Terminal No.	Color of Wire	Signal Name
1	L	-

Connector No.	M170
Connector Name	JOINT CONNECTOR-M29
Connector Color	WHITE

Terminal No.	Color of Wire	Signal Name
1	B	-
2	B	-
5	B	-

AAMIA2097GB

A
B
C
D
E
F
G
H
I
J
K
L
PCS
N
O
P

POWER DISTRIBUTION SYSTEM

< WIRING DIAGRAM >

[POWER DISTRIBUTION SYSTEM]

Connector No.	E38
Connector Name	STOP LAMP SWITCH
Connector Color	WHITE



3	4
1	2

Terminal No.	Color of Wire	Signal Name
1	V	-
2	LG	-

Connector No.	E29
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



132	131	130	128	127	126	125	124	123	122	121
144	143	142	141	140	138	137	136	135	134	133

Terminal No.	Color of Wire	Signal Name
125	LG	I BRAKE SW 2
139	G	O STCUT RL

Connector No.	E28
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



4M	3M	2M	1M
10M	9M	8M	7M
6M	5M		

Terminal No.	Color of Wire	Signal Name
5M	V	-

Connector No.	E120
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



30	29	28	27	26	25	24	23	22	21	20	19
42	41	40	39	38	37	36	35	34	33	32	31

Terminal No.	Color of Wire	Signal Name
22	P	CAN-L
24	L	CAN-H
31	B	MOTOR CABIN 5
32	GR	MOTOR CABIN 6

Connector No.	E119
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



9	8	7	6	5	4	3
18	17	16	15	14	13	12
11	10					

Terminal No.	Color of Wire	Signal Name
12	B	SIGNAL GROUND

Connector No.	E44
Connector Name	JOINT CONNECTOR-E01
Connector Color	WHITE



4	3	2	1
8	7	6	5
12	11	10	9
16	15	14	13
20	19	18	17
24	23	22	21
28	27	26	25

Terminal No.	Color of Wire	Signal Name
5	L	-
6	P	-
9	L	-
10	P	-
23	LG	-
27	LG	-

AAMIA2098GB

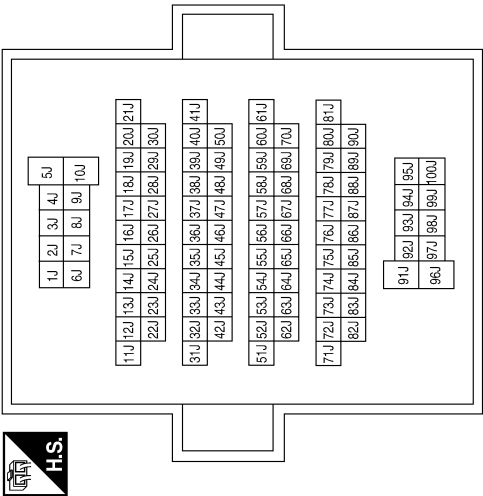
POWER DISTRIBUTION SYSTEM

< WIRING DIAGRAM >

[POWER DISTRIBUTION SYSTEM]

Terminal No.	Color of Wire	Signal Name
37J	GR	-
61J	L	-
62J	P	-

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	E121
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	RED



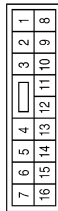
Terminal No.	Color of Wire	Signal Name
47	B	POWER GROUND

Connector No.	F35
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
70	BG	O IGN AT LPG

Connector No.	F33
Connector Name	WIRE TO WIRE
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
7	G	-

Connector No.	F32
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	L	-

AAMIA2099GB

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

PCS

[POWER DISTRIBUTION SYSTEM]

[POWER DISTRIBUTION SYSTEM]



Terminal No.	Color of Wire	Signal Name
7	BG	-
10	GR	-

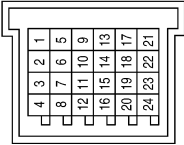
2014 Rogue NAM

POWER DISTRIBUTION SYSTEM

< WIRING DIAGRAM >

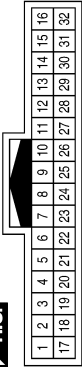
[POWER DISTRIBUTION SYSTEM]

Connector No.	B63
Connector Name	JOINT CONNECTOR-B01
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

Connector No.	B41
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
24	P	-
25	L	-

AAMIA2101GB

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

PCS

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[POWER DISTRIBUTION SYSTEM]

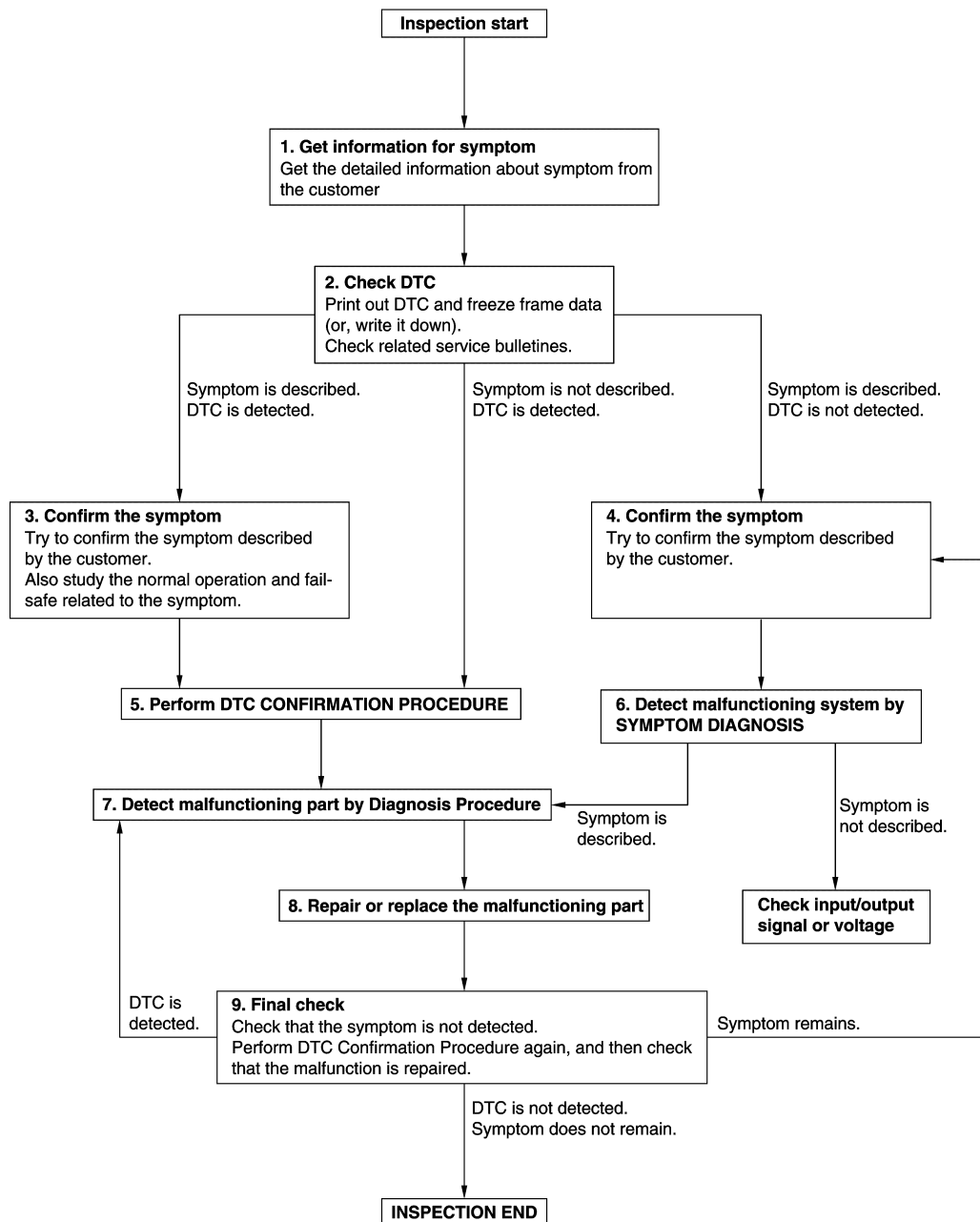
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

INFOID:0000000010228172

OVERALL SEQUENCE



JMKIA8652GB

DETAILED FLOW

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[POWER DISTRIBUTION SYSTEM]

1.GET INFORMATION FOR SYMPTOM

1. Get detailed information from the customer about the symptom (the condition and the environment when the incident/malfunction occurs).
2. Check operation condition of the component or system that is malfunctioning.

>> GO TO 2.

2.CHECK DTC

1. Check DTC.
2. Perform the following procedure if DTC is detected.
 - Record DTC and freeze frame data (Print them out using CONSULT).
 - Erase DTC.
 - Study the relationship between the cause detected by DTC and the symptom described by the customer.
3. Check related service bulletins for information.

Are any symptoms described and any DTC detected?

Symptom is described, DTC is detected>>GO TO 3.

Symptom is described, DTC is not detected>>GO TO 4.

Symptom is not described, DTC is detected>>GO TO 5.

3.CONFIRM THE SYMPTOM

Try to confirm the symptom described by the customer.

Also study the normal operation and fail-safe related to the symptom.

Verify relation between the symptom and the condition when the symptom is detected.

>> GO TO 5.

4.CONFIRM THE SYMPTOM

Try to confirm the symptom described by the customer.

Verify relation between the symptom and the condition when the symptom is detected.

NOTE:

Freeze frame data is useful if the DTC is not detected.

>> GO TO 6.

5.PERFORM DTC CONFIRMATION PROCEDURE

Perform DTC CONFIRMATION PROCEDURE for the detected DTC, and then check that DTC is detected again. At this time, always connect CONSULT to the vehicle, and check self diagnostic results in real time.

If two or more DTCs are detected, refer to [BCS-47, "DTC Inspection Priority Chart"](#), and determine trouble diagnosis order.

Is DTC detected?

YES >> GO TO 7.

NO >> Refer to [GI-41, "Intermittent Incident"](#).

6.DETECT MALFUNCTIONING SYSTEM BY SYMPTOM DIAGNOSIS

Detect malfunctioning system according to SYMPTOM DIAGNOSIS based on the confirmed symptom in step 4, and determine the trouble diagnosis order based on possible causes and symptom.

Is the symptom described?

YES >> GO TO 7.

NO >> Monitor input data from related sensors or check voltage of related module terminals using CONSULT.

7.DETECT MALFUNCTIONING PART BY DIAGNOSIS PROCEDURE

Inspect according to Diagnosis Procedure of the system.

Is malfunctioning part detected?

YES >> GO TO 8.

NO >> Refer to [GI-41, "Intermittent Incident"](#).

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[POWER DISTRIBUTION SYSTEM]

8. REPAIR OR REPLACE THE MALFUNCTIONING PART

1. Repair or replace the malfunctioning part.
2. Reconnect parts or connectors disconnected during Diagnosis Procedure again after repair and replacement.
3. Check DTC. If DTC is detected, erase it.

>> GO TO 9.

9. FINAL CHECK

When DTC is detected in step 2, perform DTC CONFIRMATION PROCEDURE again, and then check that the malfunction is repaired securely.

When symptom is described by the customer, refer to confirmed symptom in step 3 or 4, and check that the symptom is not detected.

Is DTC detected and does symptom remain?

YES-1 >> DTC is detected: GO TO 7.

YES-2 >> Symptom remains: GO TO 4.

NO >> Inspection End.

U1000 CAN COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

DTC/CIRCUIT DIAGNOSIS

U1000 CAN COMM CIRCUIT WITH INTELLIGENT KEY

WITH INTELLIGENT KEY : Description

INFOID:0000000010257101

Refer to [LAN-8. "System Description"](#).

WITH INTELLIGENT KEY : DTC Logic

INFOID:0000000010257102

DTC DETECTION LOGIC

NOTE:

U1000 can be set if a module harness was disconnected and reconnected, perhaps during a repair. Confirm that there are actual CAN diagnostic symptoms and a present DTC by performing the Self Diagnostic Result procedure.

CONSULT Display	DTC Detection Condition	Possible cause
CAN COMM CIRCUIT [U1000]	When any listed module cannot communicate with CAN communication signal continuously for 2 seconds or more with ignition switch ON.	In CAN communication system, any item (or items) of the following listed below is malfunctioning. • Transmission • Receiving (ECM) • Receiving (VDC/TCS/ABS) • Receiving (METER/M&A) • Receiving (TCM) • Receiving (IPDM E/R)

WITH INTELLIGENT KEY : Diagnosis Procedure

INFOID:0000000010257103

1. PERFORM SELF DIAGNOSTIC

1. Turn ignition switch ON and wait for 2 second or more.
2. Check "SELF- DIAG RESULTS".

Is "CAN COMM CIRCUIT" displayed?

YES >> Perform CAN Diagnosis as described in DIAGNOSIS section of CONSULT Operation Manual.

NO >> Refer to [GI-41. "Intermittent Incident"](#).

WITHOUT INTELLIGENT KEY

WITHOUT INTELLIGENT KEY : Description

INFOID:0000000010257108

Refer to [LAN-8. "System Description"](#).

WITHOUT INTELLIGENT KEY : DTC Logic

INFOID:0000000010257109

DTC DETECTION LOGIC

NOTE:

U1000 can be set if a module harness was disconnected and reconnected, perhaps during a repair. Confirm that there are actual CAN diagnostic symptoms and a present DTC by performing the Self Diagnostic Result procedure.

CONSULT Display	DTC Detection Condition	Possible cause
CAN COMM CIRCUIT [U1000]	When any listed module cannot communicate with CAN communication signal continuously for 2 seconds or more with ignition switch ON.	In CAN communication system, any item (or items) of the following listed below is malfunctioning. • Transmission • Receiving (ECM) • Receiving (VDC/TCS/ABS) • Receiving (METER/M&A) • Receiving (TCM) • Receiving (IPDM E/R)

U1000 CAN COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

WITHOUT INTELLIGENT KEY : Diagnosis Procedure

INFOID:0000000010257110

1. PERFORM SELF DIAGNOSTIC

1. Turn ignition switch ON and wait for 2 second or more.
2. Check "SELF- DIAG RESULTS".

Is "CAN COMM CIRCUIT" displayed?

- YES >> Perform CAN Diagnosis as described in DIAGNOSIS section of CONSULT Operation Manual.
- NO >> Refer to [GI-41, "Intermittent Incident"](#).

U1010 CONTROL UNIT (CAN)

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

U1010 CONTROL UNIT (CAN)

WITH INTELLIGENT KEY

WITH INTELLIGENT KEY : DTC Logic

INFOID:0000000010257104

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
CAN COMM CIRCUIT [U1010]	BCM detected internal CAN communication circuit mal-function.	BCM

WITH INTELLIGENT KEY : Diagnosis Procedure

INFOID:0000000010257105

1. REPLACE BCM

When DTC U1010 is detected, replace BCM.

>> Replace BCM. Refer to [BCS-75. "Removal and Installation"](#).

WITHOUT INTELLIGENT KEY

WITHOUT INTELLIGENT KEY : DTC Logic

INFOID:0000000010257106

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
CAN COMM CIRCUIT [U1010]	BCM detected internal CAN communication circuit mal-function.	BCM

WITHOUT INTELLIGENT KEY : Diagnosis Procedure

INFOID:0000000010257107

1. REPLACE BCM

When DTC U1010 is detected, replace BCM.

>> Replace BCM. Refer to [BCS-135. "Removal and Installation"](#).

PCS

B2614 ACC RELAY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

B2614 ACC RELAY CIRCUIT

DTC Logic

INFOID:0000000010228178

DTC DETECTION LOGIC

CONSULT Display	DTC detecting condition	Possible cause
ACC RELAY CIRCUIT [B2614]	An immediate operation of accessory relay-1 is requested by BCM, but there is no response for more than 1 second.	• Harness or connectors • Accessory relay-1 • BCM

DTC CONFIRMATION PROCEDURE

1.PERFORM SELF DIAGNOSTIC RESULT

1. Turn ignition switch to ON, and wait for 1 second or more.
2. Check "Self Diagnosis Result" of "BCM" with CONSULT.

Is DTC B2614 detected?

- YES >> Go to [PCS-64, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010228179

Regarding Wiring Diagram information, refer to [PCS-49, "Wiring Diagram"](#).

1.CHECK ACCESSORY RELAY-1 CONTROL SIGNAL VOLTAGE

1. Remove accessory relay-1.
2. Check voltage between accessory relay-1 connector J-3 and ground.

Accessory relay-1		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
J-3	2	—	Ignition: OFF	0 V
			Ignition: ON	Battery voltage

Is the inspection result normal?

- YES >> GO TO 3.
NO >> GO TO 2.

2.CHECK ACCESSORY RELAY-1 CONTROL SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector M18.
3. Check continuity between BCM connector M18 and accessory relay-1 connector J-3.

BCM		Accessory relay-1		Continuity
Connector	Terminal	Connector	Terminal	
M18	25	J-3	2	Yes

4. Check continuity between BCM connector M18 and ground.

BCM		Ground	Continuity
Connector	Terminal		
M18	25		No

Is the inspection result normal?

- YES >> Replace BCM. Refer to [PCS-76, "Removal and Installation"](#).
NO >> Repair or replace harness or connectors.

B2614 ACC RELAY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

3.CHECK ACCESSORY RELAY-1 GROUND CIRCUIT

Check continuity between accessory relay-1 connector J-3 and ground.

Accessory relay-1		Ground	Continuity
Connector	Terminal		
J-3	1		Yes

Is the inspection result normal?

YES >> Replace accessory relay-1.

NO >> Repair or replace harness or connectors.

A

B

C

D

E

F

G

H

1

J

K

L

PCS

N

O

P

B2615 BLOWER RELAY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

B2615 BLOWER RELAY CIRCUIT

DTC Logic

INFOID:0000000010228180

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
BLOWER RELAY CIRCUIT [B2615]	An immediate operation of front blower motor relay is requested by BCM, but there is no response for more than 1 second.	• Harness or connectors • Front blower motor relay • Fuse block J/B • BCM

DTC CONFIRMATION PROCEDURE

1.PERFORM SELF DIAGNOSTIC RESULT

1. Turn ignition switch to ON, and wait for 1 second or more.
2. Check "Self Diagnosis Result" of "BCM" with CONSULT.

Is DTC B2615 detected?

- YES >> Go to [PCS-68, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010228181

Regarding Wiring Diagram information, refer to [PCS-49, "Wiring Diagram"](#).

1.CHECK FRONT BLOWER MOTOR RELAY CONTROL SIGNAL VOLTAGE

1. Remove front blower motor relay.
2. Check voltage between front blower motor relay connector J-4 and ground.

Front blower motor relay		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
J-4	2	—	Ignition: OFF	0 V
			Ignition: ON	Battery voltage

Is the inspection result normal?

- YES >> GO TO 3.
NO >> GO TO 2.

2.CHECK FRONT BLOWER MOTOR RELAY CONTROL SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector M18.
3. Check continuity between BCM connector M18 and front blower motor relay connector J-4.

BCM		Front blower motor relay		Continuity
Connector	Terminal	Connector	Terminal	
M18	28	J-4	2	Yes

4. Check continuity between BCM connector M18 and ground.

BCM		Ground	Continuity
Connector	Terminal		
M18	28		No

Is the inspection result normal?

- YES >> Replace BCM. Refer to [PCS-76, "Removal and Installation"](#).
NO >> Repair or replace harness or connectors.

B2615 BLOWER RELAY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

3.CHECK FRONT BLOWER MOTOR RELAY GROUND CIRCUIT

Check continuity between front blower motor relay connector J-4 and ground.

Front blower motor relay		Ground	Continuity
Connector	Terminal		
J-4	1		Yes

Is the inspection result normal?

YES >> Replace front blower motor relay.

NO >> Repair or replace harness or connectors.

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

PCS

B2616 IGNITION RELAY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

B2616 IGNITION RELAY CIRCUIT

DTC Logic

INFOID:0000000010228182

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
IGNITION RELAY CIRCUIT [B2616]	An immediate operation of ignition relay-2 is requested by BCM, but there is no response for more than 1 second.	• Harness or connectors • Ignition relay-2 • Fuse block J/B • BCM

DTC CONFIRMATION PROCEDURE

1. PERFORM SELF DIAGNOSTIC RESULT

1. Turn ignition switch to ON, and wait for 1 second or more.
2. Check "Self Diagnosis Result" of "BCM" with CONSULT.

Is DTC B2616 detected?

- YES >> Refer to [PCS-68, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010228183

Regarding Wiring Diagram information, refer to [PCS-49, "Wiring Diagram"](#).

1. CHECK IGNITION RELAY-2 CONTROL SIGNAL VOLTAGE

1. Remove ignition relay-2.
2. Check voltage between ignition relay-2 connector J-1 and ground.

Ignition relay-2		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
J-1	1	—	Ignition: OFF	0 V
			Ignition: ON	Battery voltage

Is the inspection result normal?

- YES >> GO TO 3.
NO >> GO TO 2.

2. CHECK IGNITION RELAY-2 CONTROL SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector M18.
3. Check continuity between BCM connector M18 and ignition relay-2 connector J-1.

BCM		Ignition relay-2		Continuity
Connector	Terminal	Connector	Terminal	
M18	27	J-1	1	Yes

4. Check continuity between BCM connector M18 and ground.

BCM		Ground	Continuity
Connector	Terminal		
M18	27		No

Is the inspection result normal?

- YES >> Replace BCM. Refer to [PCS-76, "Removal and Installation"](#).
NO >> Repair or replace harness or connectors.

B2616 IGNITION RELAY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

3.CHECK IGNITION RELAY-2 GROUND CIRCUIT

Check continuity between ignition relay-2 connector J-1 and ground.

Ignition relay-2		Ground	Continuity
Connector	Terminal		
J-1	2		Yes

Is the inspection result normal?

YES >> Replace ignition relay-2.

NO >> Repair or replace harness or connectors.

A

B

C

D

E

F

G

H

I

J

K

L

PCS

N

O

P

B261A PUSH-BUTTON IGNITION SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

B261A PUSH-BUTTON IGNITION SWITCH

DTC Logic

INFOID:0000000010228186

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
PUSH-BUTTONIGNITION SWITCH [B261A]	BCM detects a difference of signal for 1 second or more between the following information: • Power supply position by push-button ignition switch. • Power supply position from IPDM E/R (CAN).	• Harness or connectors • Push-button ignition switch • BCM

DTC CONFIRMATION PROCEDURE

1. PERFORM SELF DIAGNOSTIC RESULT

1. Turn ignition switch to ON, and wait for 1 second or more.
2. Check "Self Diagnosis Result" of "BCM" with CONSULT.

Is DTC B261A detected?

- YES >> Refer to [PCS-70, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010228187

Regarding Wiring Diagram information, refer to [PCS-49, "Wiring Diagram"](#).

1. CHECK PUSH-BUTTON IGNITION SWITCH OUTPUT SIGNAL (PUSH-BUTTON IGNITION SWITCH)

1. Disconnect push-button ignition switch connector.
2. Check voltage between push-button ignition switch connector M17 and ground.

Push-button ignition switch		Ground	Voltage (Approx.)
Connector	Terminal		
M17	5	—	Battery voltage

Is the inspection result normal?

- YES >> GO TO 2.
NO >> GO TO 4.

2. CHECK PUSH-BUTTON IGNITION SWITCH OUTPUT SIGNAL (IPDM E/R)

Check voltage between IPDM E/R connector E120 and ground.

IPDM E/R		Ground	Voltage (Approx.)
Connector	Terminal		
E120	32	—	Battery voltage

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Replace IPDM E/R. Refer to [PCS-35, "Removal and Installation"](#).

3. CHECK PUSH-BUTTON IGNITION SWITCH CIRCUIT (IPDM E/R)

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector E120 and BCM connector M19.
3. Check continuity between IPDM E/R connector E120 and push-button ignition switch connector M17.

B261A PUSH-BUTTON IGNITION SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

IPDM E/R		Push-button ignition switch		Continuity
Connector	Terminal	Connector	Terminal	
E120	32	M17	5	Yes

4. Check continuity between IPDM E/R connector E120 and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		
E120	32	—	No

Is the inspection result normal?

YES >> Refer to [GI-41, "Intermittent Incident"](#).

NO >> Repair or replace harness or connectors.

4. CHECK IGNITION SWITCH OUTPUT SIGNAL (BCM)

Check voltage between BCM connector M19 and ground.

BCM		Ground	Voltage (Approx.)
Connector	Terminal		
M19	101	—	Battery voltage

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace BCM. Refer to [PCS-76, "Removal and Installation"](#).

5. CHECK PUSH-BUTTON IGNITION SWITCH CIRCUIT (BCM)

1. Turn ignition switch OFF.
2. Disconnect BCM connector M19 and IPDM E/R connector E120.
3. Check continuity between BCM connector M19 and push-button ignition switch connector M17.

BCM		Push-button ignition switch		Continuity
Connector	Terminal	Connector	Terminal	
M19	101	M17	5	Yes

4. Check continuity between BCM connector M19 and ground.

BCM		Ground	Continuity
Connector	Terminal		
M19	101	—	No

Is the inspection result normal?

YES >> Refer to [GI-41, "Intermittent Incident"](#).

NO >> Repair or replace harness or connectors.

PUSH-BUTTON IGNITION SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

PUSH-BUTTON IGNITION SWITCH

Component Function Check

INFOID:0000000010228194

1. CHECK FUNCTION

1. Select "PUSH SW" in "Data Monitor" of "BCM" with CONSULT.
2. Check the push-button ignition switch signal under the following conditions.

Test item	Condition	Status
PUSH SW	Push-button ignition switch is pressed	On
	Push-button ignition switch is not pressed	Off

Is the indication normal?

- YES >> Inspection End.
NO >> Go to [PCS-72, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010228195

Regarding Wiring Diagram information, refer to [PCS-49, "Wiring Diagram"](#).

1. CHECK PUSH-BUTTON IGNITION SWITCH OUTPUT SIGNAL (PUSH-BUTTON IGNITION SWITCH)

1. Turn ignition switch OFF.
2. Disconnect push-button ignition switch connector and IPDM E/R connector E120.
3. Check voltage between push-button ignition switch connector M17 and ground.

Push-button ignition switch		Ground	Voltage (Approx.)
Connector	Terminal		
M17	5	—	Battery voltage

Is the inspection result normal?

- YES >> GO TO 3.
NO >> GO TO 2.

2. CHECK PUSH-BUTTON IGNITION SWITCH CIRCUIT (BCM)

1. Disconnect BCM connector M19.
2. Check continuity between BCM connector M19 and push-button ignition switch connector M17.

BCM		Push-button ignition switch		Continuity
Connector	Terminal	Connector	Terminal	
M19	101	M17	5	Yes

3. Check continuity between BCM connector M19 and ground.

BCM		Ground	Continuity
Connector	Terminal		
M19	101	—	No

Is the inspection result normal?

- YES >> Replace BCM. Refer to [PCS-76, "Removal and Installation"](#).
NO >> Repair or replace harness or connectors.

3. CHECK IGNITION SWITCH OUTPUT SIGNAL (IPDM E/R)

Check voltage between IPDM E/R connector E120 and ground.

PUSH-BUTTON IGNITION SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

IPDM E/R		Ground	Voltage (Approx.)
Connector	Terminal		
E120	32	—	Battery voltage

Is the inspection result normal?

YES >> GO TO 5.

NO >> GO TO 4.

4. CHECK PUSH-BUTTON IGNITION SWITCH CIRCUIT (IPDM E/R)

1. Disconnect BCM connector M19.
2. Check continuity between IPDM E/R connector E120 and push-button ignition switch connector M17.

IPDM E/R		Push-button ignition switch		Continuity
Connector	Terminal	Connector	Terminal	
E120	32	M17	5	Yes

3. Check continuity between IPDM E/R connector E120 and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		
E120	32	—	No

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to [PCS-35, "Removal and Installation"](#).

NO >> Repair or replace harness or connectors.

5. CHECK PUSH-BUTTON IGNITION SWITCH GROUND CIRCUIT

Check continuity between push-button ignition switch connector M17 and ground.

Push-button ignition switch		Ground	Continuity
Connector	Terminal		
M17	4	—	Yes

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace harness or connectors.

6. CHECK PUSH-BUTTON IGNITION SWITCH

Refer to [PCS-73, "Component Inspection"](#).

Is the inspection result normal?

YES >> Refer to [GI-41, "Intermittent Incident"](#).

NO >> Replace push-button ignition switch. Refer to [PCS-77, "Removal and Installation"](#).

Component Inspection

INFOID:0000000010228196

1. CHECK PUSH-BUTTON IGNITION SWITCH

1. Turn ignition switch OFF.
2. Disconnect push-button ignition switch connector.
3. Check continuity between push-button ignition switch terminals.

Push-button ignition switch terminals	Condition	Continuity
4 – 5	Pressed	Yes
	Not pressed	No

Is the inspection result normal?

YES >> Inspection End.

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

PUSH-BUTTON IGNITION SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

NO >> Replace push-button ignition switch.

PUSH-BUTTON IGNITION SWITCH DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

SYMPTOM DIAGNOSIS

PUSH-BUTTON IGNITION SWITCH DOES NOT OPERATE

Description

INFOID:0000000010228197

Check that vehicle Operating Conditions are as listed in “Conditions of Vehicle” below before starting Diagnosis Procedure. Make sure to check each symptom in Diagnosis Procedure.

NOTE:

The engine start function, door lock function, power distribution system, and NATS-NVIS in the Intelligent Key system are closely related to each other regarding control. The vehicle security function can operate only when the door lock and power distribution system are operating normally.

Conditions of Vehicle (Operating Conditions)

One or more of Intelligent Keys with registered Intelligent Key ID is in the vehicle.

Diagnosis Procedure

INFOID:0000000010228198

1.PERFORM WORK SUPPORT

Perform “INSIDE ANT DIAGNOSIS” in “Work Support” of “INTELLIGENT KEY” with CONSULT. Refer to [PCS-44, "INTELLIGENT KEY : CONSULT Function \(BCM - INTELLIGENT KEY\)"](#).

>> GO TO 2.

2.PERFORM SELF DIAGNOSTIC RESULT

Perform “Self Diagnostic Result” of “BCM” with CONSULT.

Are any DTCs detected?

YES >> Refer to [BCS-48, "DTC Index"](#).

NO >> GO TO 3.

3.CHECK PUSH-BUTTON IGNITION SWITCH

Check push-button ignition switch. Refer to [PCS-73, "Component Inspection"](#).

Is the inspection result normal?

YES >> Refer to [GI-41, "Intermittent Incident"](#).

NO >> Repair or replace malfunctioning parts.

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

PCS

REMOVAL AND INSTALLATION

BCM (BODY CONTROL MODULE)

Removal and Installation

INFOID:0000000010228199

For removal and installation of the BCM (Body Control Module), refer to [BCS-75, "Removal and Installation"](#).

PUSH-BUTTON IGNITION SWITCH

< REMOVAL AND INSTALLATION >

[POWER DISTRIBUTION SYSTEM]

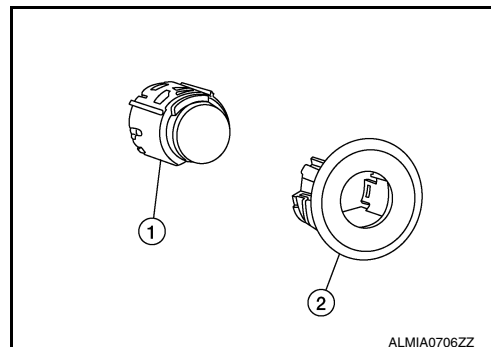
PUSH-BUTTON IGNITION SWITCH

Removal and Installation

INFOID:000000010228200

REMOVAL

1. Remove NATS antenna amp. Refer to [SEC-110. "Removal and Installation"](#).
2. Release pawls and remove the push-button ignition switch (1) from NATS antenna amp. (2).



INSTALLATION

Installation is in the reverse order of removal.

PCS

SECTION **PG**

POWER SUPPLY, GROUND & CIRCUIT ELEMENTS

CONTENTS

PRECAUTION	2	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)	68
PRECAUTIONS	2	IPDM E/R Terminal Arrangement	68
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	2	BASIC INSPECTION	69
PREPARATION	3	BATTERY	69
PREPARATION	3	How to Handle Battery	69
Special Service Tool	3	Work Flow	69
Commercial Service Tool	3	INSPECTION AND ADJUSTMENT	72
DTC/CIRCUIT DIAGNOSIS	4	ADDITIONAL SERVICE WHEN REMOVING BATTERY NEGATIVE TERMINAL	72
POWER SUPPLY ROUTING CIRCUIT	4	ADDITIONAL SERVICE WHEN REMOVING BATTERY NEGATIVE TERMINAL : Special Repair Requirement	72
Wiring Diagram — Battery Power Supply —	4	FUSE INSPECTION	73
Wiring Diagram — Accessory Power Supply —	11	How To Check	73
Wiring Diagram — Ignition Power Supply —	15	FUSIBLE LINK INSPECTION	74
Fuse	25	How To Check	74
Fusible Link	25	REMOVAL AND INSTALLATION	75
GROUND	26	BATTERY	75
Ground Distribution	26	Exploded View	75
HARNESS	34	Removal and Installation (Battery)	75
Harness Layout	34	Removal and Installation (Battery Tray)	76
ELECTRICAL UNITS LOCATION	56	BATTERY TERMINAL WITH FUSIBLE LINK ...	77
Electrical Units Location	56	Exploded View	77
HARNESS CONNECTOR	59	Removal and Installation	77
Description	59	SERVICE DATA AND SPECIFICATIONS (SDS)	78
STANDARDIZED RELAY	62	SERVICE DATA AND SPECIFICATIONS (SDS)	78
Description	62	Battery	78
FUSE BLOCK - JUNCTION BOX (J/B)	64		
Terminal Arrangement	64		
FUSE, FUSIBLE LINK AND RELAY BOX	65		
Terminal Arrangement	65		

PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010256012

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

PREPARATION

< PREPARATION >

PREPARATION

PREPARATION

Special Service Tool

INFOID:0000000010256013

The actual shape of the tools may differ from those illustrated here.

Tool number (TechMate No.) Tool name	Description
— (165-GR8-1200KIT-NI) Multitasking battery and electrical diagnostic station	Testing batteries, starting and charging systems and charges batteries. For operating instructions, refer to diagnostic station instruction manual.
— (165-EXP-800 NI) Battery and electrical diagnostic analyzer	Testing batteries and charging systems. For operating instructions, refer to diagnostic analyzer instruction manual.

Commercial Service Tool

INFOID:0000000010256014

Tool name	Description
Power tool	Loosening nuts, screws and bolts

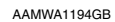
< DTC/CIRCUIT DIAGNOSIS >

POWER SUPPLY ROUTING CIRCUIT

INFOID:0000000010290318

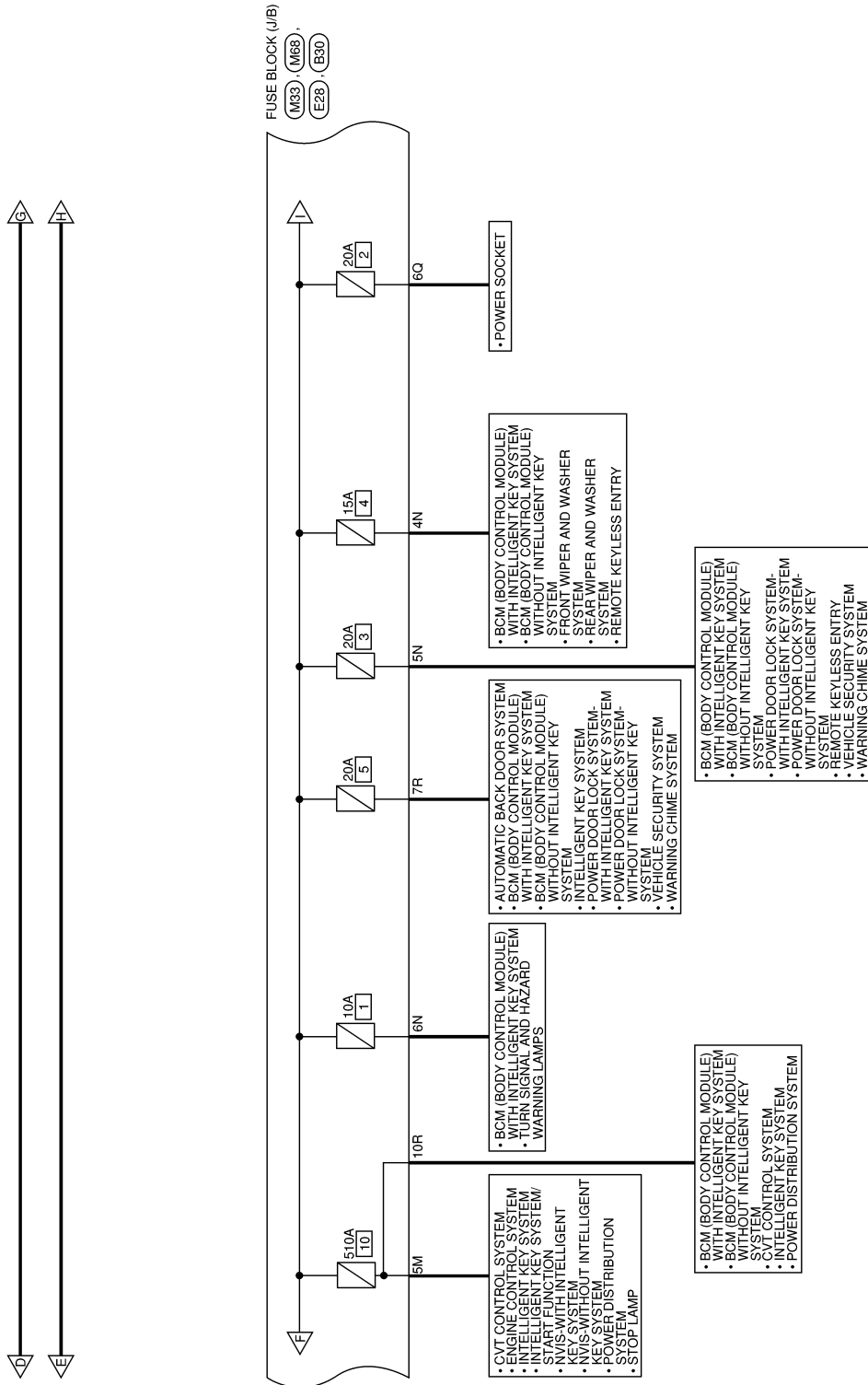


< DTC/CIRCUIT DIAGNOSIS >



POWER SUPPLY ROUTING CIRCUIT

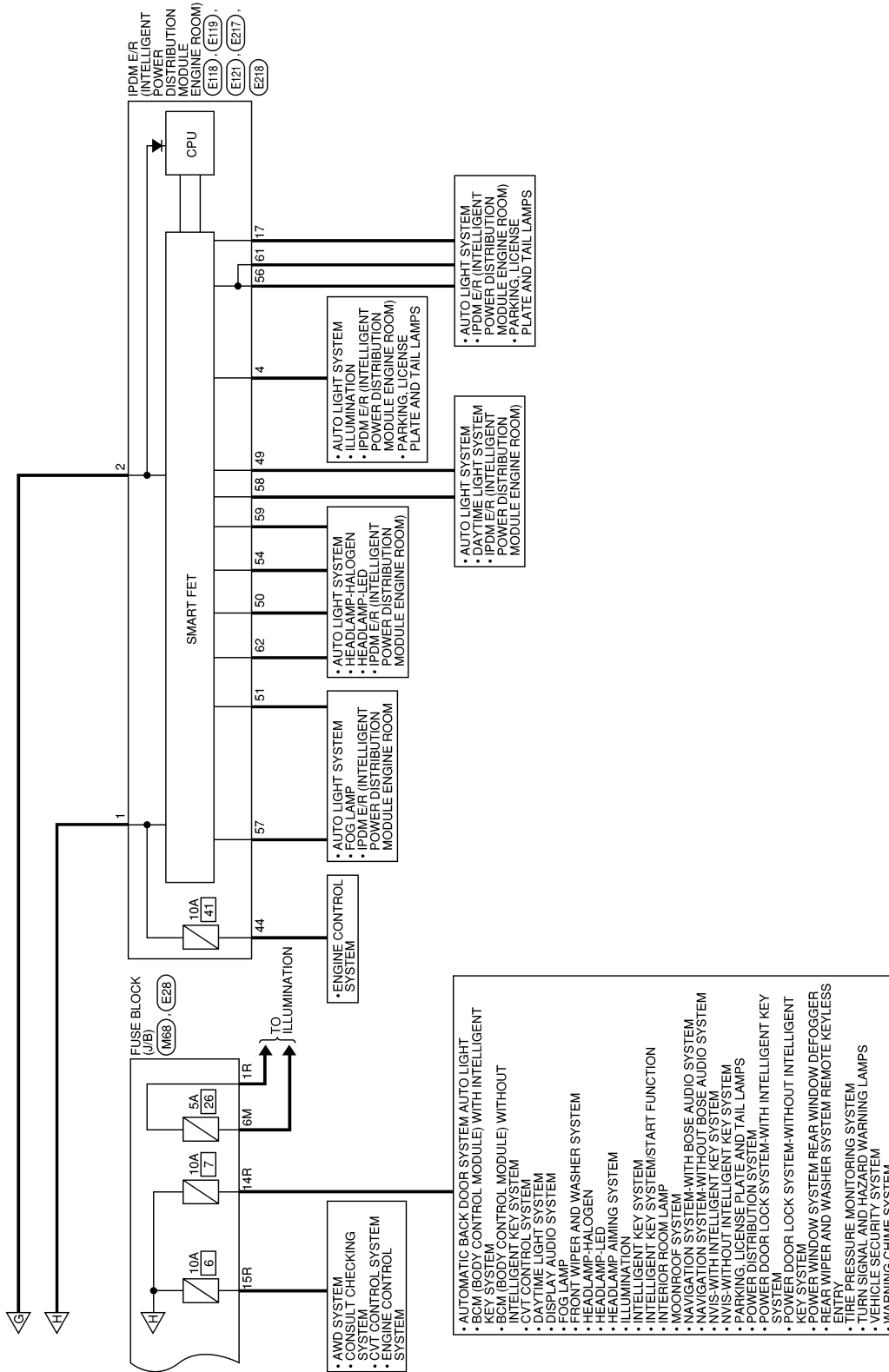
< DTC/CIRCUIT DIAGNOSIS >



AAMWA1195GB

POWER SUPPLY ROUTING CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >



AAMWA1196GB

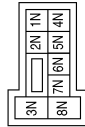
A
B
C
D
E
F
G
H
I
J
K
L
PG
N
O
P

POWER SUPPLY ROUTING CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

BATTERY POWER SUPPLY - CONNECTORS

Connector No.	M33
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
2N	LG	-
4N	LG	-
5N	R	-
6N	BG	-

Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
13P	LA/G	-
14P	SB	-
15P	L	-

Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
1R	V	-
3R	V	-
5R	L	-
7R	LA/V	-
10R	GR	-
12R	BR	-
14R	W	-
15R	W	-

Connector No.	E7
Connector Name	FUSIBLE LINK BOX (BATTERY)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
3	W	-
4	L	-

Connector No.	E13
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1S	G	-

Connector No.	E42
Connector Name	FUSIBLE LINK BOX (BATTERY)
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
1	G	-
2	R	-

POWER SUPPLY ROUTING CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

Connector No.	E119
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY

9	8	7	6	5	4	3		
18	17	16	15	14	13	12	11	10



Terminal No.	Color of Wire	Signal Name
4	Y	O LIGHT POSITION REAR LH
17	W	O LIGHT POSITION REAR RH

Connector No.	E118
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK

1	2
---	---



Terminal No.	Color of Wire	Signal Name
1	R	FL BAT 2
2	L	FL BAT 1

Connector No.	E28
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE

4M	3M		2M	1M
10M	9M		7M	6M
			8M	5M



Terminal No.	Color of Wire	Signal Name
5M	V	-
6M	Y	-

Connector No.	E218
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE

59		58	57	
64	63	62	61	60



Terminal No.	Color of Wire	Signal Name
57	W	O LIGHT FR FOG LAMPS RH
58	R	O LIGHT DTRL RH
59	G	O LIGHT HBEAM LH
61	GR	O LIGHT CLEARANCE FR RH
62	SB	O LIGHT LBEAM RH

Connector No.	E217
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BROWN

51		50	49
56	55	54	53
			52



Terminal No.	Color of Wire	Signal Name
49	R	O LIGHT DTRL LH
50	L	O LIGHT LBEAM LH
51	V	O LIGHT FR FOG LAMPS LH
54	LG	O HBEAM RH
56	BG	O LIGHT CLEARANCE FR LH

Connector No.	E121
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	RED

45	44	43
48	47	46



Terminal No.	Color of Wire	Signal Name
44	R	O BAT ABS VALVE

AAMIA2334GB

POWER SUPPLY ROUTING CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

Connector No.	F36
Connector Name	STARTER MOTOR
Connector Color	—



Terminal No.	Color of Wire	Signal Name
B	B/R	—

Connector No.	F29
Connector Name	FUSIBLE LINK BOX (BATTERY)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
5	W	—

Connector No.	F29
Connector Name	GENERATOR
Connector Color	—



Terminal No.	Color of Wire	Signal Name
1	B/R	—

Connector No.	B30
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
6Q	R	—

Connector No.	B29
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
6T	L/L	—

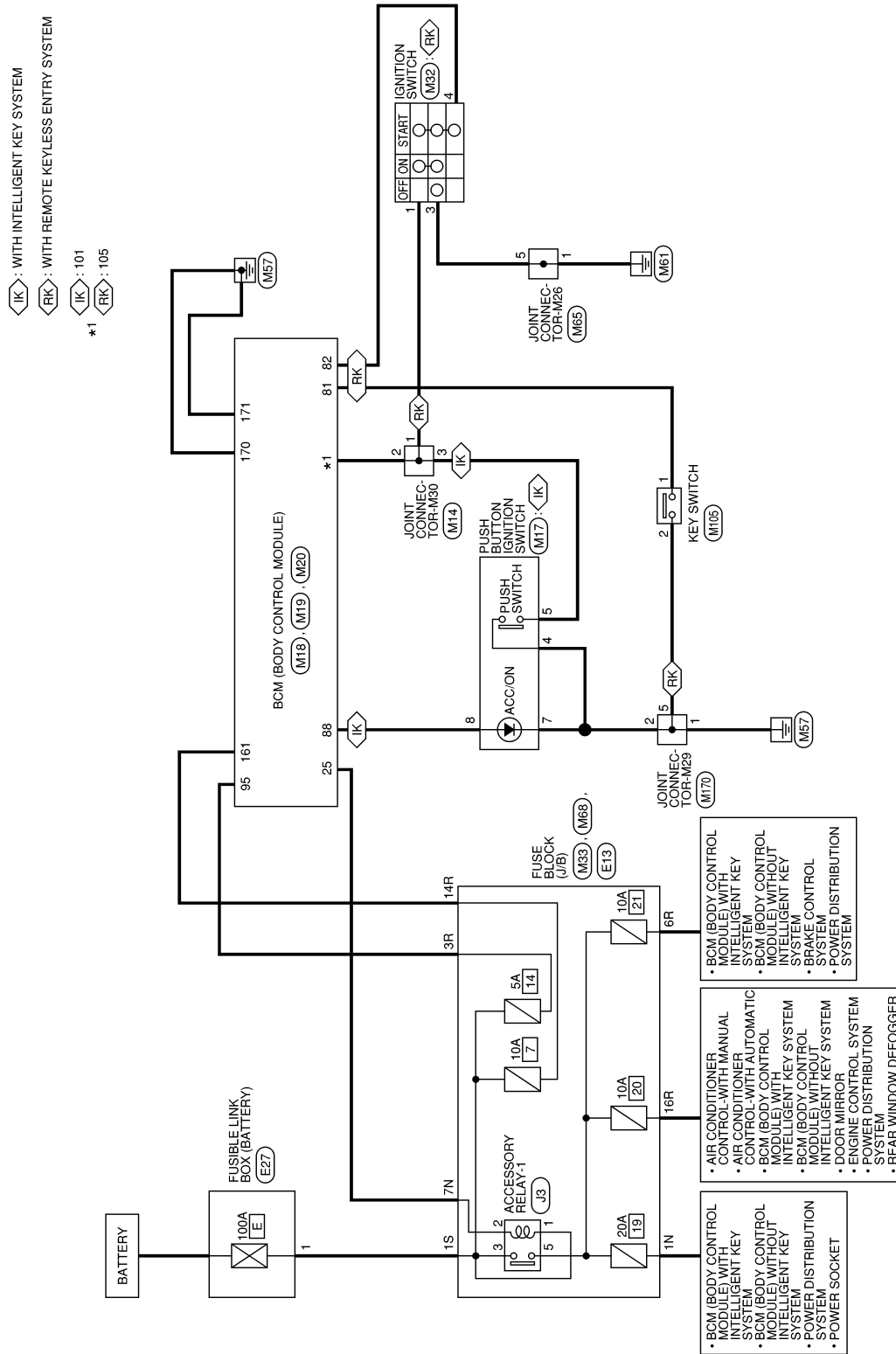
Connector No.	F39
Connector Name	FUSIBLE LINK BOX (BATTERY)
Connector Color	—



Terminal No.	Color of Wire	Signal Name
6	B/R	—

AAMIA2335GB

ACCESSORY POWER SUPPLY



AAMWA1197GB

POWER SUPPLY ROUTING CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

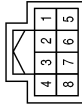
ACCESSORY POWER SUPPLY CONNECTORS

Connector No.	M14
Connector Name	JOINT CONNECTOR-M30
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	Y	-
2	Y	-
3	Y	-

Connector No.	M17
Connector Name	PUSH-BUTTON IGNITION SWITCH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
4	B	-
5	Y	-
7	B	-
8	W	-

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY



20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21

Terminal No.	Color of Wire	Signal Name
25	BR	O BAT TEMP1 RL

Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



100	99	98	97	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81
120	119	118	117	116	115	114	113	112	111	110	109	108	107	106	105	104	103	102	101

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BROWN

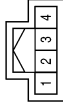


167	166	165	164	163	162	161
176	175	174	173	172	171	170
169	168	167	166	165	164	163

Terminal No.	Color of Wire	Signal Name
81	L	I KEY SW
82	LA/R	I STARTER SW (WITHOUT INTELLIGENT KEY SYSTEM)
88	W	O START SW BACKLIGHT LED
95	V	I SHORTING PIN
101	Y	I START SW
105	Y	I GN SW

Terminal No.	Color of Wire	Signal Name
161	W	I PWR ECU
170	B	GND 1
171	B	GND 2

Connector No.	M32
Connector Name	IGNITION SWITCH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	Y	-
3	B	-
4	LA/R	-

POWER SUPPLY ROUTING CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN



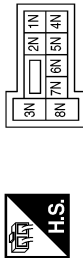
Terminal No.	Color of Wire	Signal Name
3R	V	-
6R	LA/L	-
14R	W	-
16R	GR	-

Connector No.	M65
Connector Name	JOINT CONNECTOR-M26
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	B	-
5	B	-

Connector No.	M33
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1N	L	-
7N	BR	-

Connector No.	E13
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1S	G	-

Connector No.	M170
Connector Name	JOINT CONNECTOR-M29
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	B	-
2	B	-

Connector No.	M105
Connector Name	KEY SWITCH
Connector Color	WHITE

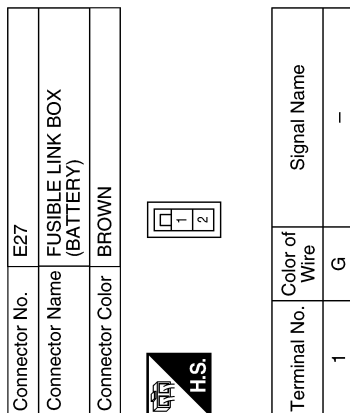
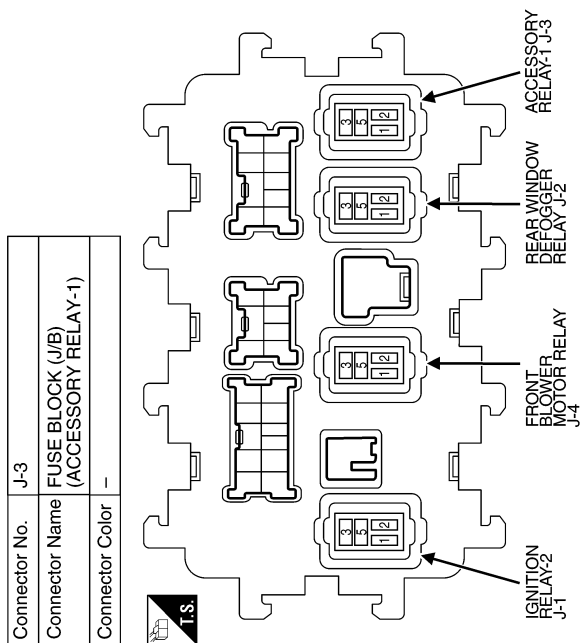


Terminal No.	Color of Wire	Signal Name
1	L	-
2	B	-

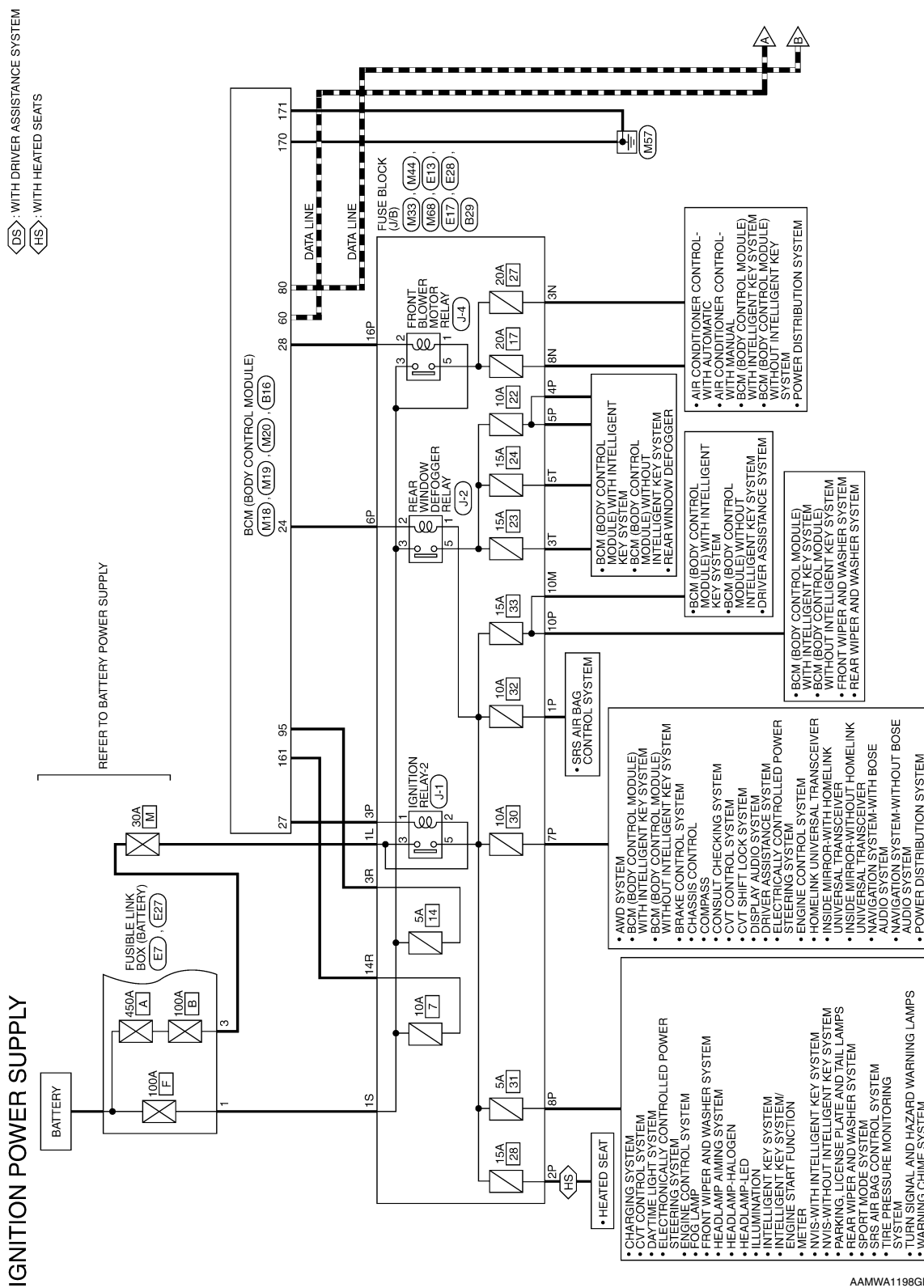
AAMIA2337GB

POWER SUPPLY ROUTING CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >



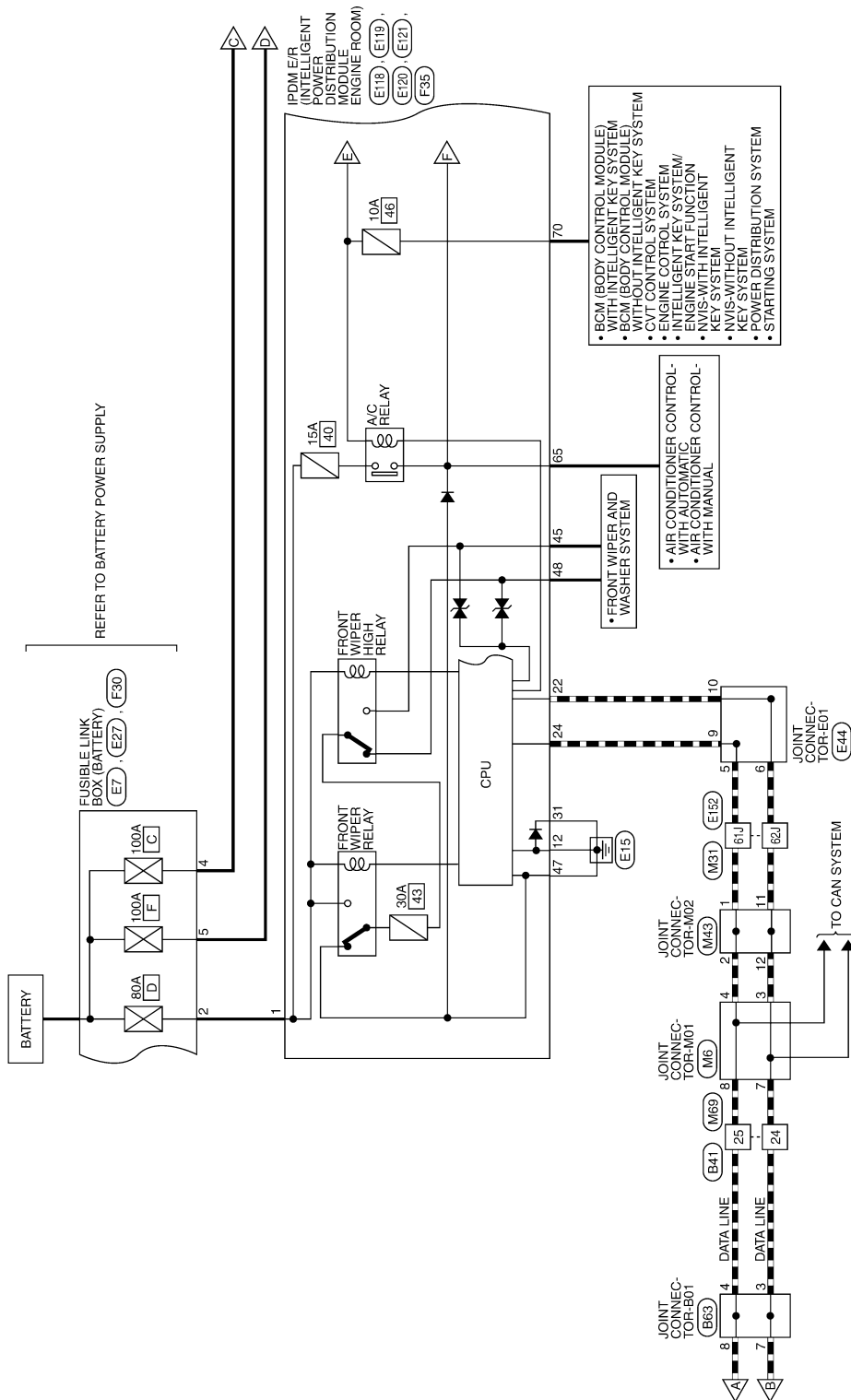
AAMIA2338GB



AAMWA1198GB

POWER SUPPLY ROUTING CIRCUIT

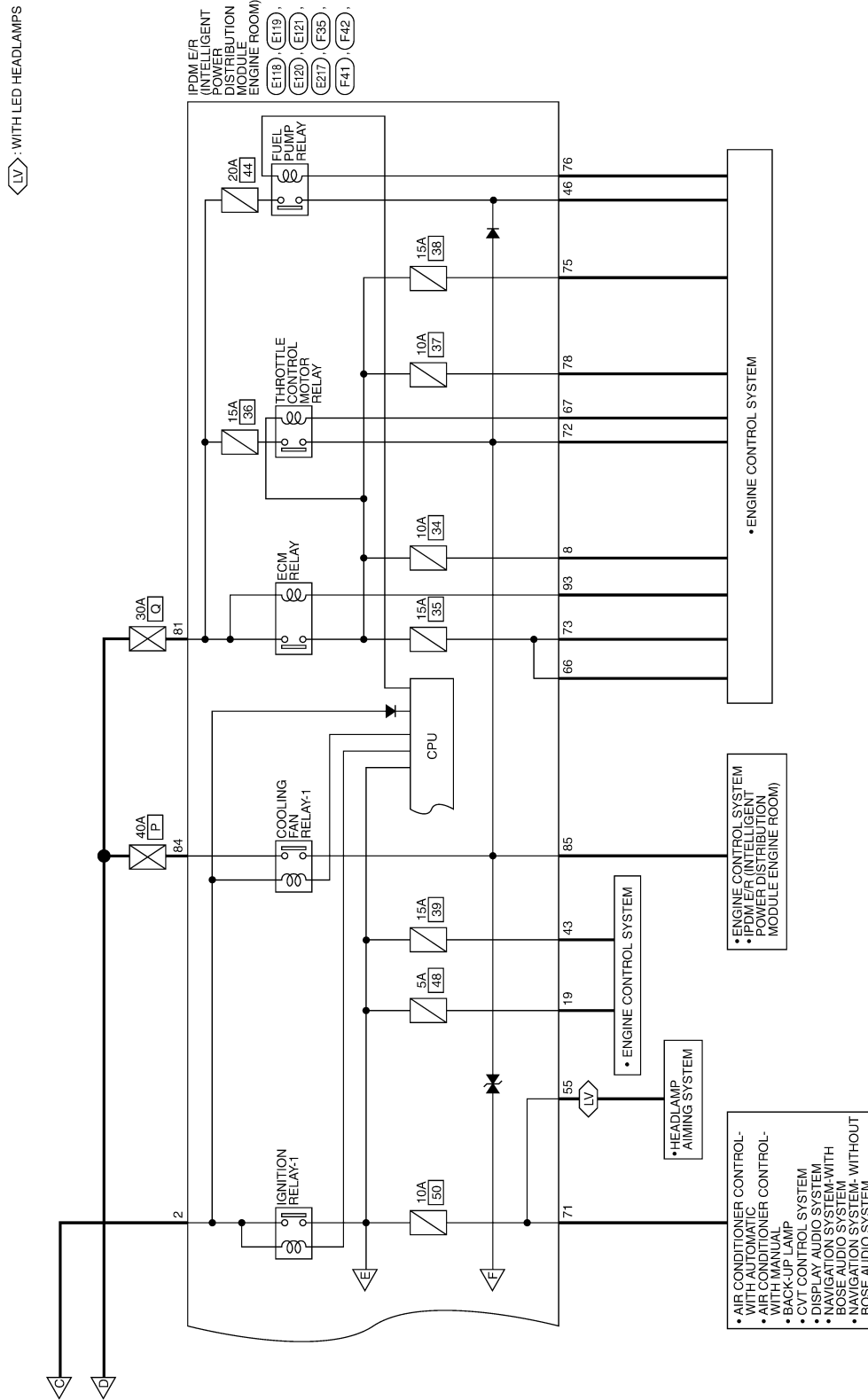
< DTC/CIRCUIT DIAGNOSIS >



AAMWA1199GB

POWER SUPPLY ROUTING CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >



AAMWA1200GB

< DTC/CIRCUIT DIAGNOSIS >

Connector No.	M6
Connector Name	JOINT CONNECTOR-M01
Connector Color	GRAY



4	3	2	1
8	7	6	5
12	11	10	9
16	15	14	13
20	19	18	17
24	23	22	21



20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21

Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

Terminal No.	Color of Wire	Signal Name
24	LA/R	O DEFROSTER RL D
27	Y	O IGN1 RL
28	LA/W	O IGN2 RL

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY



100	99	98	97	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81
120	119	118	117	116	115	114	113	112	111	110	109	108	107	106	105	104	103	102	101

Terminal No.	Color of Wire	Signal Name
95	V	I SHORTING PIN

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BROWN



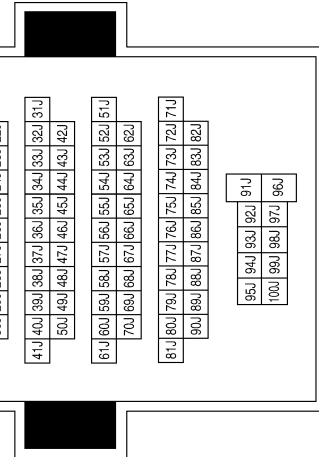
167	166	165	164		163	162	161
176	175	174	173	172	171	170	169
168							

Terminal No.	Color of Wire	Signal Name
161	W	I PWR ECU
170	B	I GND 1
171	B	I GND 2



Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE

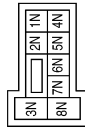
Terminal No.	Color of Wire	Signal Name
61J	L	-
62J	P	-



POWER SUPPLY ROUTING CIRCUIT

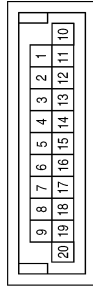
< DTC/CIRCUIT DIAGNOSIS >

Connector No.	M33
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
3N	Y	-
8N	SB	-

Connector No.	M43
Connector Name	JOINT CONNECTOR-M02
Connector Color	BLUE



Terminal No.	Color of Wire	Signal Name
1	L	-
2	L	-
11	P	-
12	P	-

Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



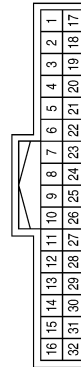
Terminal No.	Color of Wire	Signal Name
1P	R	-
2P	G	-
3P	Y	-
4P	LG	-
5P	GR	-
6P	LA/R	-
7P	Y	-
8P	LA/BR	-
10P	LG	-
16P	LA/W	-

Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
3R	V	-
14R	W	-

Connector No.	M69
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
24	P	-
25	L	-

Connector No.	E7
Connector Name	FUSIBLE LINK BOX (BATTERY)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
3	W	-
4	L	-

AAMIA2343GB

POWER SUPPLY ROUTING CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

Connector No.	E13
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1S	G	—

Connector No.	E17
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1L	L	—

Connector No.	E27
Connector Name	FUSIBLE LINK BOX (BATTERY)
Connector Color	BROWN



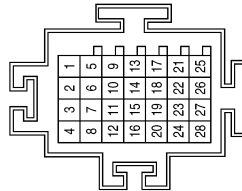
Terminal No.	Color of Wire	Signal Name
1	G	—
2	R	—

Connector No.	E28
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
10M	L	—

Connector No.	E44
Connector Name	JOINT CONNECTOR-E01
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
5	L	—
6	P	—
9	L	—
10	P	—

Connector No.	E118
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	R	FL BAT 2
2	L	FL BAT 1

POWER SUPPLY ROUTING CIRCUIT

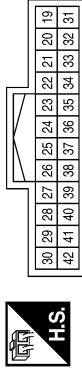
< DTC/CIRCUIT DIAGNOSIS >

Connector No.	E121
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	RED



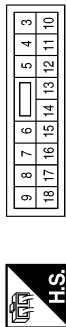
Terminal No.	Color of Wire	Signal Name
43	LG	O IGN LCS CABIN
45	V	O FR WIPER HI
46	W	O FUEL PUMP
47	B	POWER GROUND
48	Y	O FR WIPER LO

Connector No.	E120
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



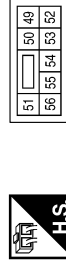
Terminal No.	Color of Wire	Signal Name
19	LG	O IGN ECM
22	P	CAN-L
24	L	CAN-H
31	B	2ND SIGNAL GROUND

Connector No.	E119
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
8	BG	O ACTUATOR 4 CABIN
12	B	SIGNAL GROUND

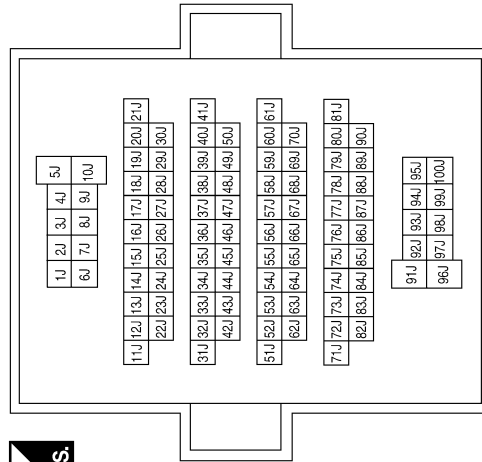
Connector No.	E217
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
55	SB	O IGN REVERSE SW AC VALVE 1

Terminal No.	Color of Wire	Signal Name
61J	L	-
62J	P	-

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE



AAMIA2345GB

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

POWER SUPPLY ROUTING CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

Connector No.	F30
Connector Name	FUSIBLE LINK BOX (BATTERY)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
5	W	-

Connector No.	F35
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE



71	70	69	68	67	66	65
80	79	78	77	76	75	74
73	72					

Terminal No.	Color of Wire	Signal Name
65	P	O AC CLUTCH
66	R	O ACTUATOR1 1
67	V	LI ECM ACT5 DRIVER
70	BG	O IGN AT LPG
71	SB	O IGN REVERSE SW AC VALVE
72	GR	O ACTUATOR5 (3FBA)
73	Y	O ACTUATOR1 2 (3FB)
75	BR	O ACTUATOR3 (3FB3)
76	P	LI FUEL PUMP DRIVER
78	L	O ACTUATOR2 (3FB2)

Connector No.	F41
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



83	82	81
86	85	84

Terminal No.	Color of Wire	Signal Name
81	L	FL ECM USM SUPPLY
84	LG	I BATT MOTOR FAN LO
85	P	O MOTOR FAN LO

Connector No.	F42
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK



98	97	96	95	94	93	92	91	90	89	88	87
110	109	108	107	106	105	104	103	102	101	100	99

Terminal No.	Color of Wire	Signal Name
93	P	LI ECM DRIVER

Connector No.	B16
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GREEN



60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41
80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61

Terminal No.	Color of Wire	Signal Name
60	L	CAN-H
80	P	CAN-L

Connector No.	B29
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



2T	1T
6T	5T
4T	3T

Terminal No.	Color of Wire	Signal Name
3T	G	-
5T	G	-

POWER SUPPLY ROUTING CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

Connector No.	B63
Connector Name	JOINT CONNECTOR-B01
Connector Color	GRAY



4	3	2	1
8	7	6	5
12	11	10	9
16	15	14	13
20	19	18	17
24	23	22	21

Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

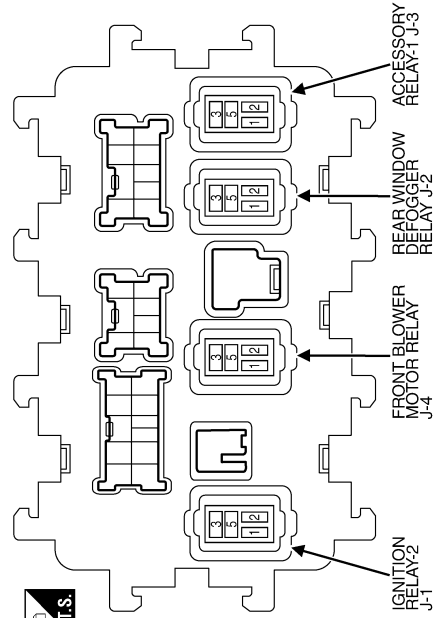
Connector No.	B41
Connector Name	WIRE TO WIRE
Connector Color	WHITE



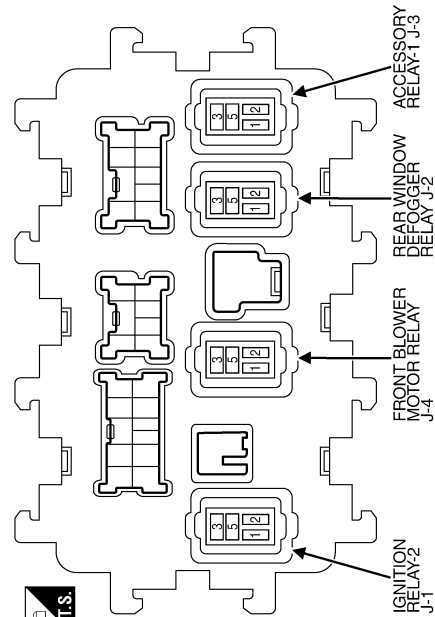
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Terminal No.	Color of Wire	Signal Name
24	P	-
25	L	-

Connector No.	J-2
Connector Name	FUSE BLOCK (J/B) (REAR WINDOW DEFOGGER)
Connector Color	-



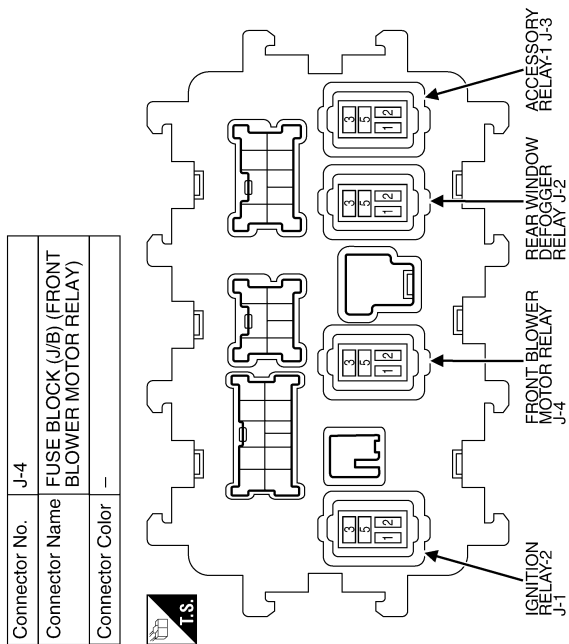
Connector No.	J-1
Connector Name	FUSE BLOCK (J/B) (IGNITION RELAY-2)
Connector Color	-



AAMIA2347GB

POWER SUPPLY ROUTING CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >



AAMIA2348GB

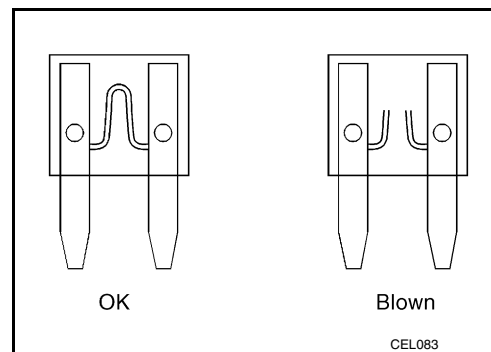
POWER SUPPLY ROUTING CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

Fuse

INFOID:000000010290321

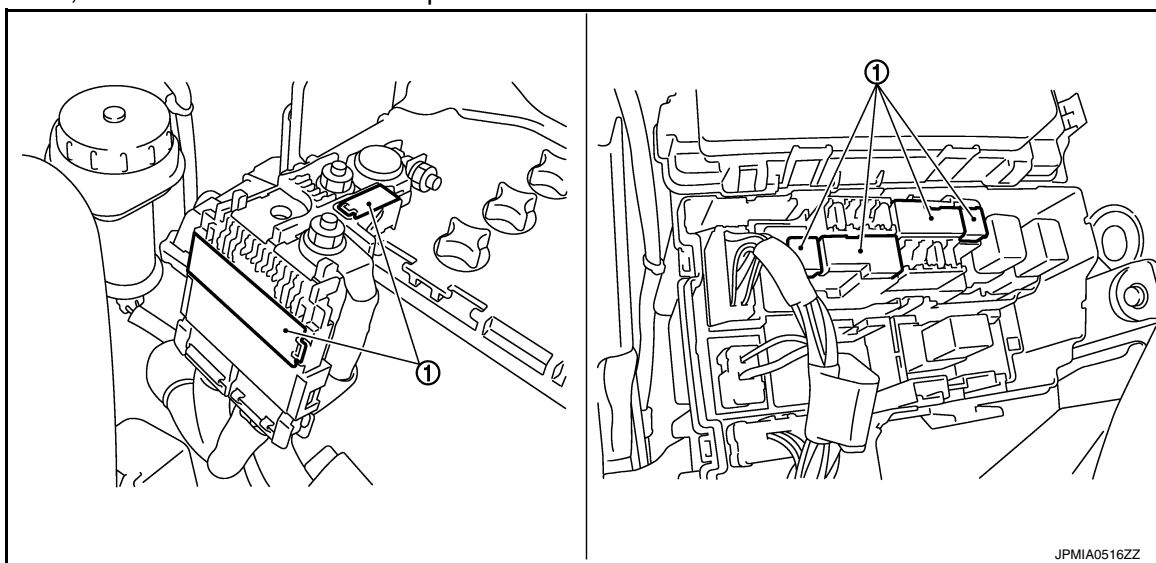
- If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse.
- Use fuse of specified rating. Never use fuse of more than specified rating.
- Do not partially install fuse; always insert it into fuse holder properly.
- Remove fuse for "ELECTRICAL PARTS (BAT)" if vehicle is not used for a long period of time.



Fusible Link

INFOID:000000010290322

A melted fusible link can be detected either by visual inspection or by feeling with finger tip. If its condition is questionable, use circuit tester or test lamp.



1 : Fusible link

CAUTION:

- If fusible link should melt, it is possible that critical circuit (power supply or large current carrying circuit) is shorted. In such a case, carefully check and eliminate cause of malfunction.
- Never wrap outside of fusible link with vinyl tape. Important: Never let fusible link touch any other wiring harness, vinyl or rubber parts.

GROUND

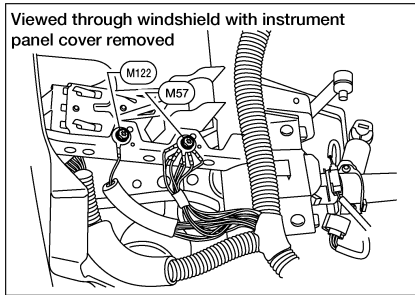
< DTC/CIRCUIT DIAGNOSIS >

GROUND

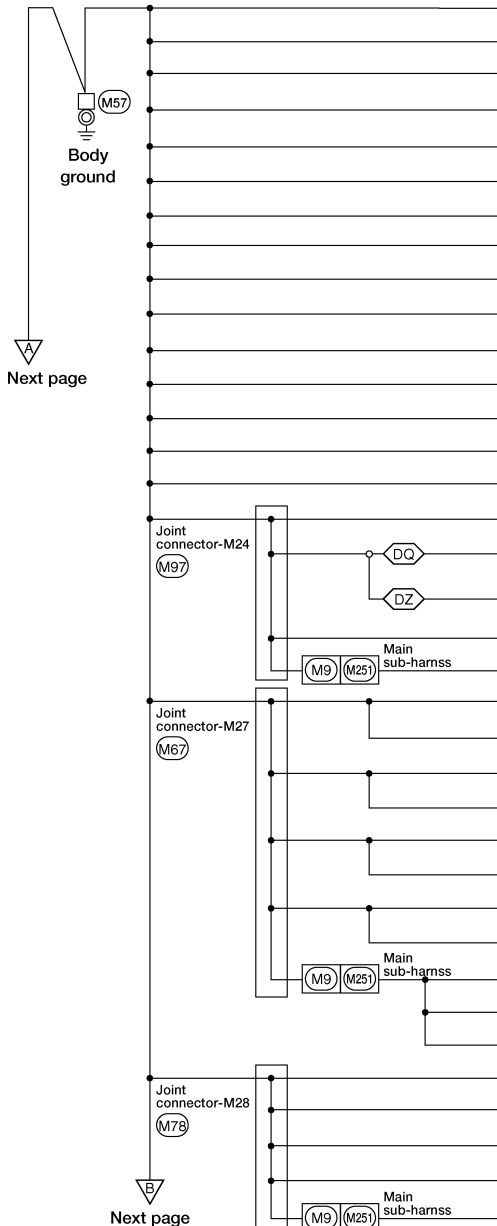
Ground Distribution

INFOID:000000010290323

MAIN HARNESS



◇DQ◇ : WITH DRIVER ASSISTANCE SYSTEM
◇DZ◇ : WITHOUT DRIVER ASSISTANCE SYSTEM

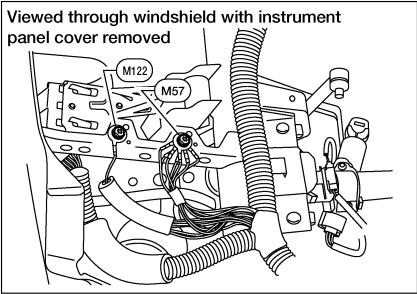


CONNECTOR NUMBER	CONNECT TO
(M4)	NATS antenna amp. (without Intelligent Key System)
(M5)	Dongle unit
(M20)	BCM (body control module) (Terminal No. 170)
(M20)	BCM (body control module) (Terminal No. 171)
(M28)	Combination switch
(M50)	Front air control (Terminal No. 19)
(M51)	A/C switch
(M56)	Steering angle sensor
(M62)	Front power socket
(M63)	Console power socket
(M83)	Audio unit (Terminal No. 20)
(M101)	AV control unit (Terminal No. 20) (without BOSE audio system)
(M108)	AV control unit (Terminal No. 20) (with BOSE audio system)
(M196)	Front heated seat switch RH (Terminal No. 3)
(M197)	Front heated seat switch LH (Terminal No. 3)
(M87)	Audio unit (Terminal No. 52)
(M103)	Around view monitor control unit (Terminal No. 1) (without driver assistance system)
(M113)	Around view monitor control unit (Terminal No. 1) (with driver assistance system)
(M120)	Warning system buzzer
(M253)	Warning system switch
(M24)	Automatic back door switch (Terminal No. 3)
(M24)	Automatic back door switch (Terminal No. 4)
(M79)	VDC OFF switch (Terminal No. 4)
(M79)	VDC OFF switch (Terminal No. 8)
(M178)	Automatic back door main switch (Terminal No. 2)
(M178)	Automatic back door main switch (Terminal No. 3)
(M196)	Front heated seat switch RH (Terminal No. 2)
(M197)	Front heated seat switch LH (Terminal No. 2)
(M252)	AWD lock switch
(M254)	Hill descent switch (Terminal No. 4)
(M254)	Hill descent switch (Terminal No. 6)
(M2)	Sport mode switch (Terminal No. 4)
(M2)	Sport mode switch (Terminal No. 8)
(M26)	Hazard switch (Terminal No. 3)
(M26)	Hazard switch (Terminal No. 4)
(M253)	Warning systems switch (Terminal No. 4)

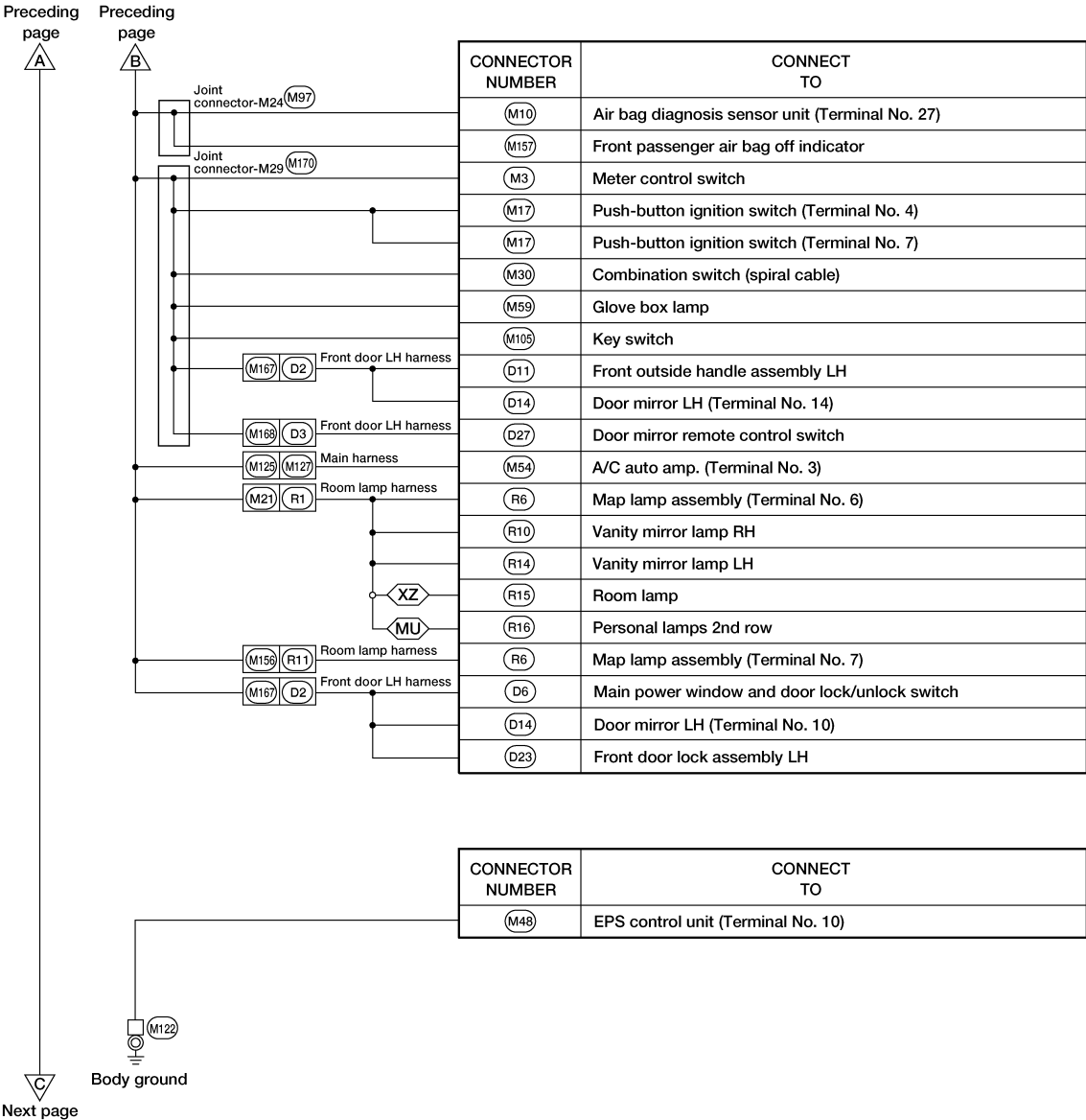
AAMIA2312GB

GROUND

< DTC/CIRCUIT DIAGNOSIS >



: WITH MOONROOF
 : WITHOUT MOONROOF

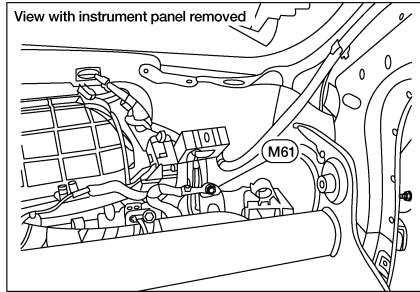


AAMIA2313GB

A
B
C
D
E
F
G
H
I
J
K
L
PG
N
O
P

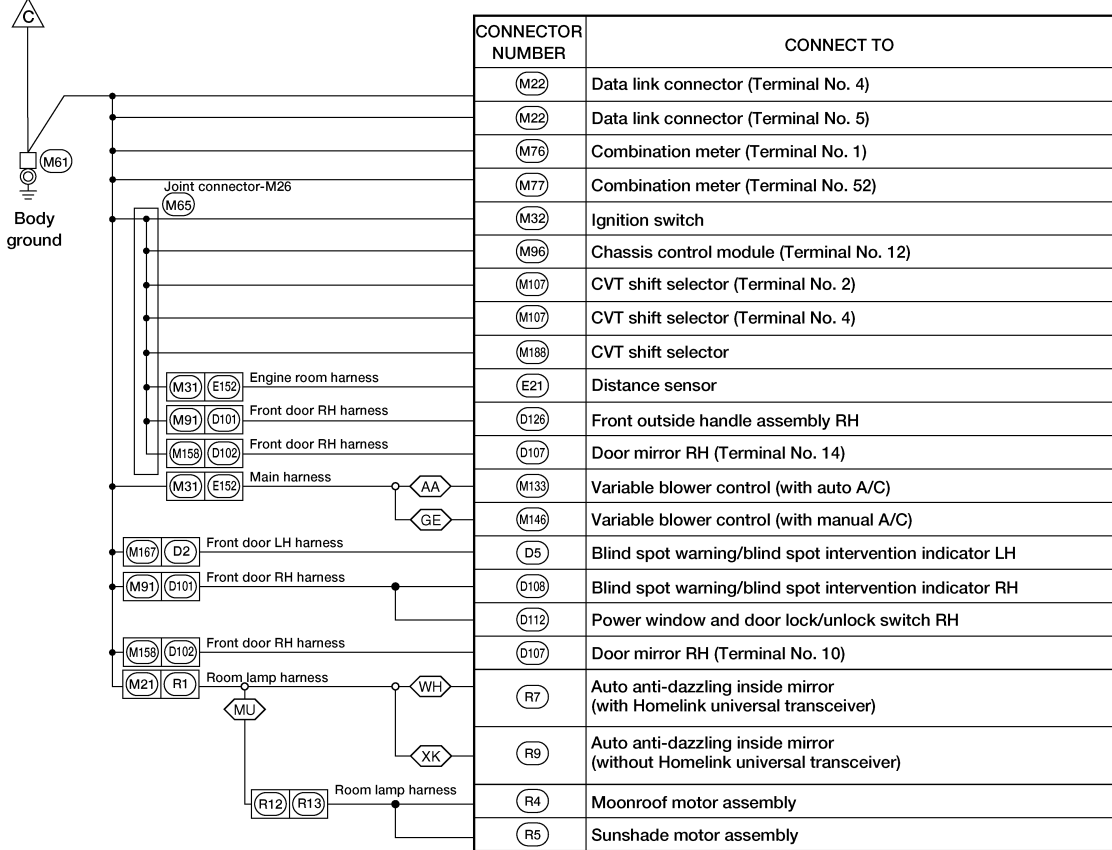
GROUND

< DTC/CIRCUIT DIAGNOSIS >



- AA : WITH AUTO A/C
- GE : WITH MANUAL A/C
- MU : WITH MOONROOF
- WH : WITH HOMELINK UNIVERSAL TRANSCEIVER
- XK : WITHOUT HOMELINK UNIVERSAL TRANSCEIVER

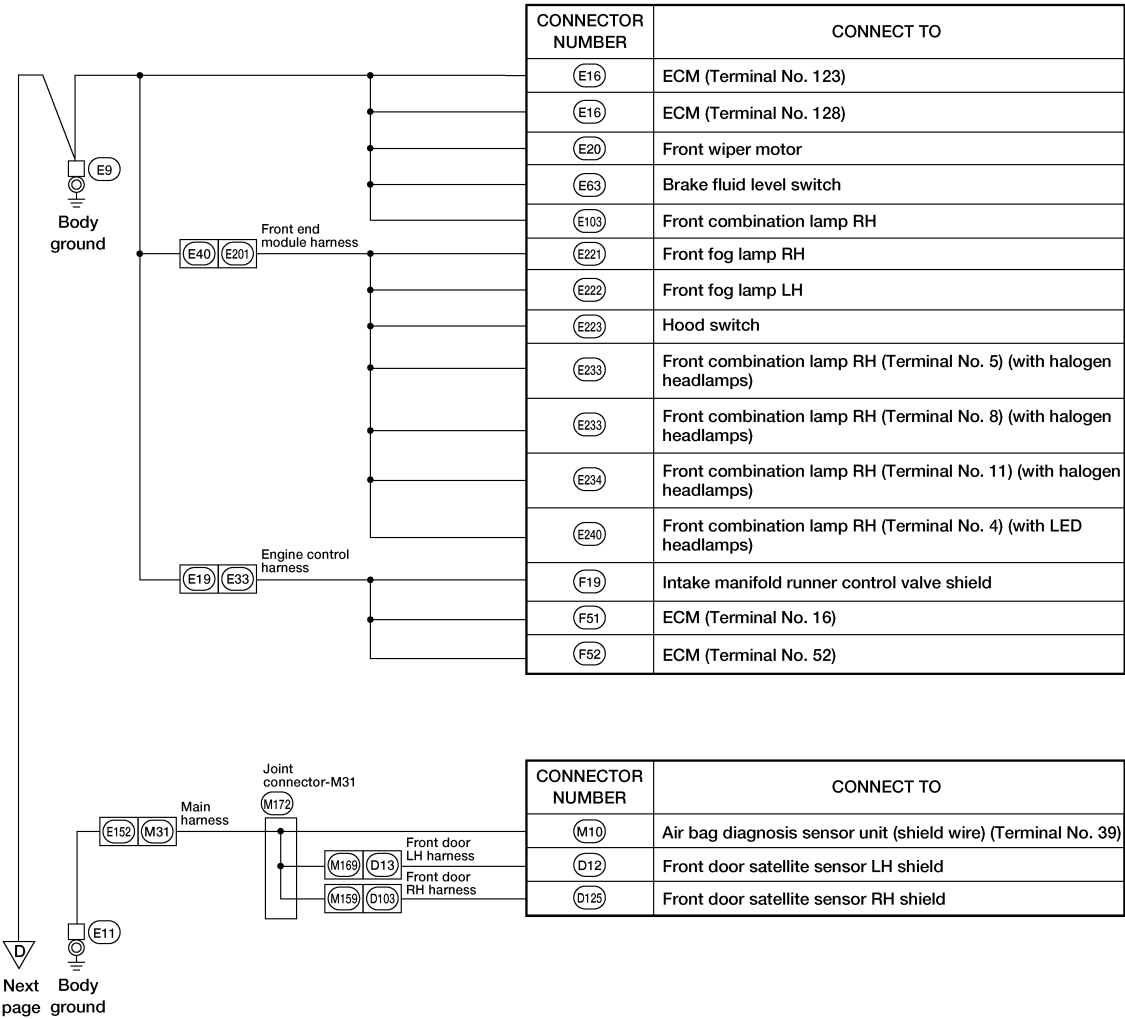
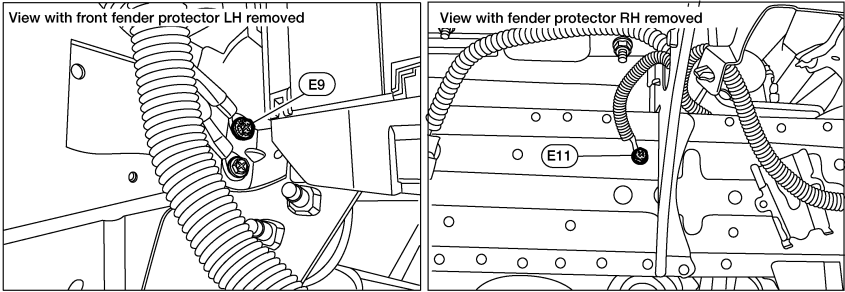
Preceding
page



AAMIA2314GB

GROUND

< DTC/CIRCUIT DIAGNOSIS > ENGINE ROOM HARNESS



AAMIA2315GB

PG

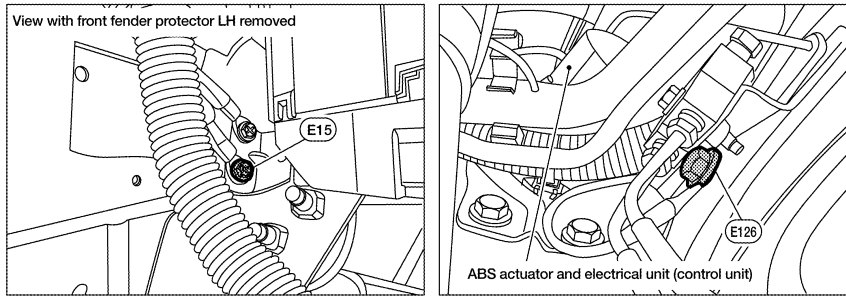
N

O

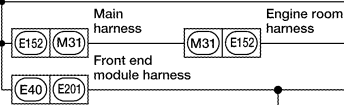
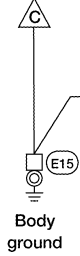
P

GROUND

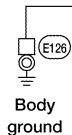
< DTC/CIRCUIT DIAGNOSIS >



Preceding
page



CONNECTOR NUMBER	CONNECT TO
E20	Front wiper motor
E46	Horn
E48	Horn (low)
E50	Horn (high)
E82	Washer fluid level switch
E105	Front combination lamp LH
E119	IPDM E/R (intelligent power distribution module engine room) (Terminal No. 12)
E120	IPDM E/R (intelligent power distribution module engine room) (Terminal No. 31)
E121	IPDM E/R (intelligent power distribution module engine room) (Terminal No. 47)
E24	Intelligent key warning buzzer
E234	Front combination lamp RH (Terminal No. 14) (with halogen headlamps)
E235	Front combination lamp LH (Terminal No. 5) (with halogen headlamps)
E235	Front combination lamp LH (Terminal No. 8) (with halogen headlamps)
E236	Front combination lamp LH (Terminal No. 11) (with halogen headlamps)
E236	Front combination lamp LH (Terminal No. 14) (with halogen headlamps)
E239	Front combination lamp LH (Terminal No. 4) (with LED headlamps)
E239	Front combination lamp LH (Terminal No. 11) (with LED headlamps)
E240	Front combination lamp RH (Terminal No. 11) (with LED headlamps)

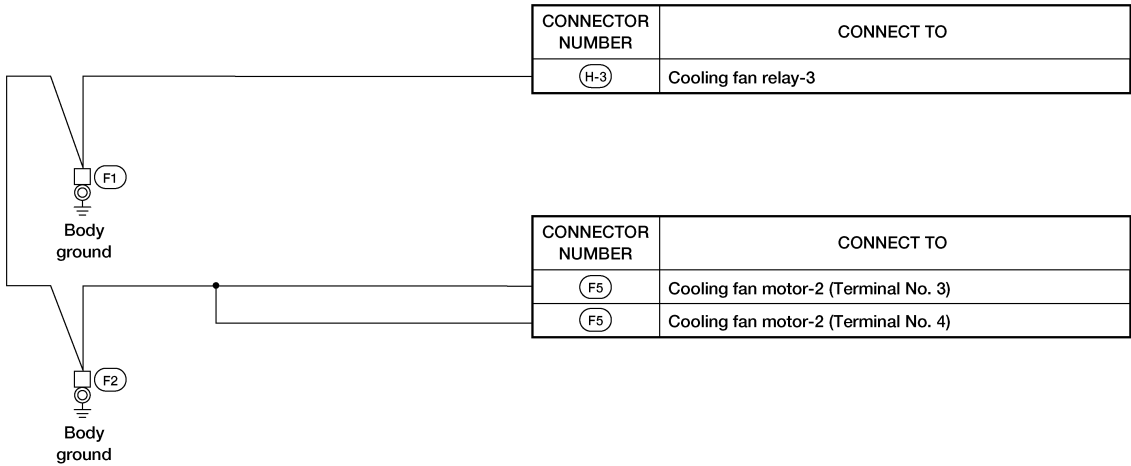
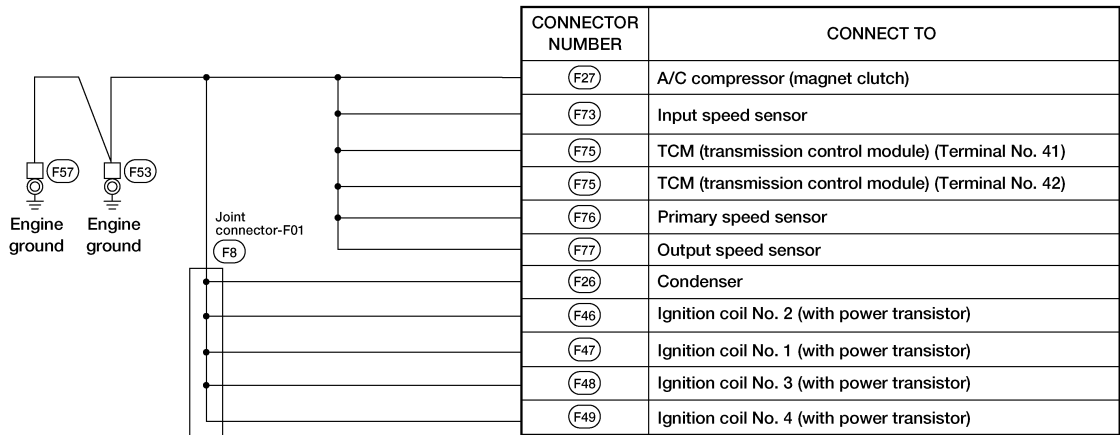
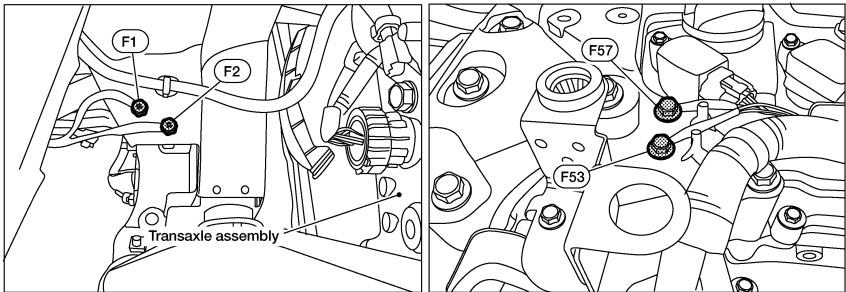


CONNECTOR NUMBER	CONNECT TO
E125	ABS actuator and electric unit (control unit) (Terminal No. 13)
E125	ABS actuator and electric unit (control unit) (Terminal No. 38)

AAMIA2316GB

GROUND

< DTC/CIRCUIT DIAGNOSIS >
ENGINE CONTROL HARNESS



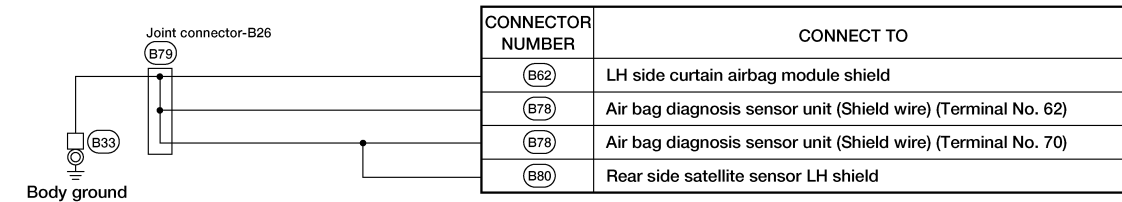
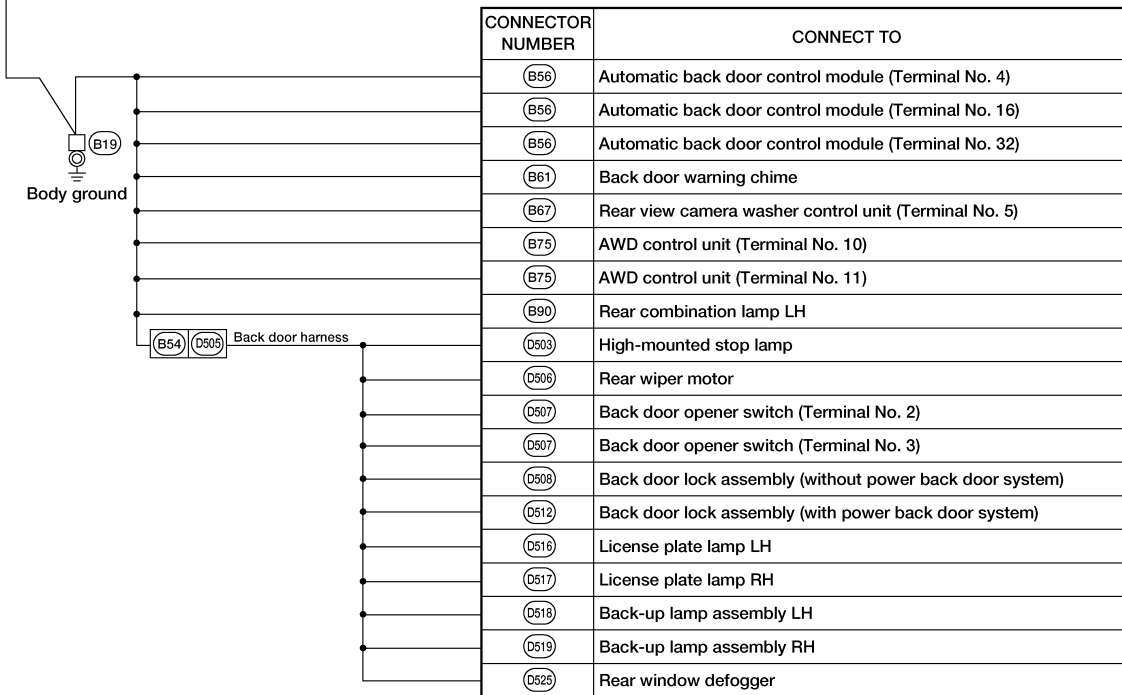
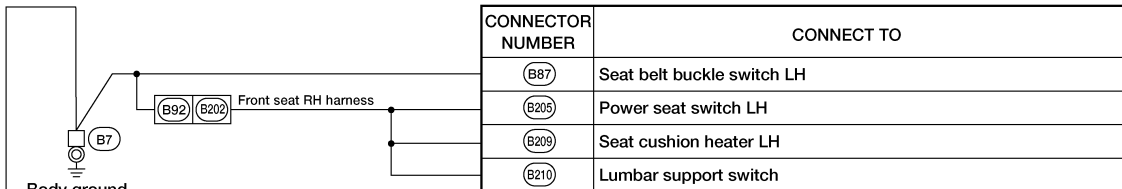
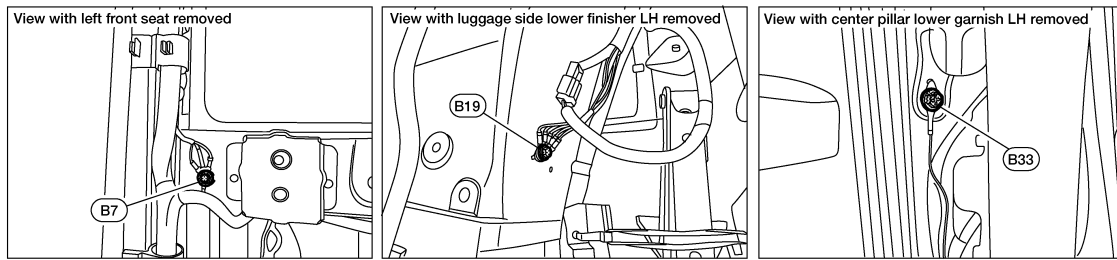
AAMIA2317GB

A
B
C
D
E
F
G
H
I
J
K
L
PG
N
O
P

GROUND

< DTC/CIRCUIT DIAGNOSIS >

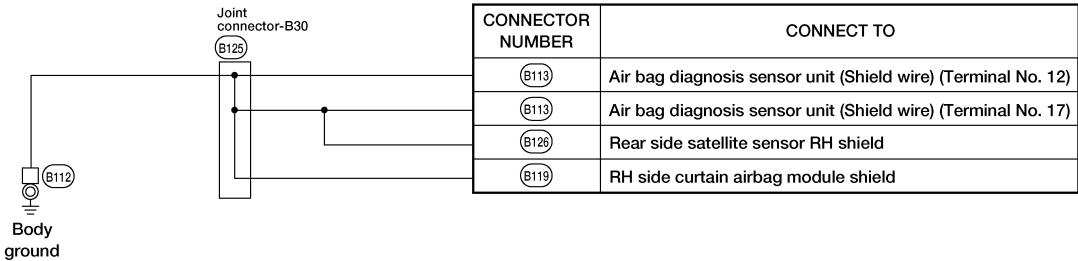
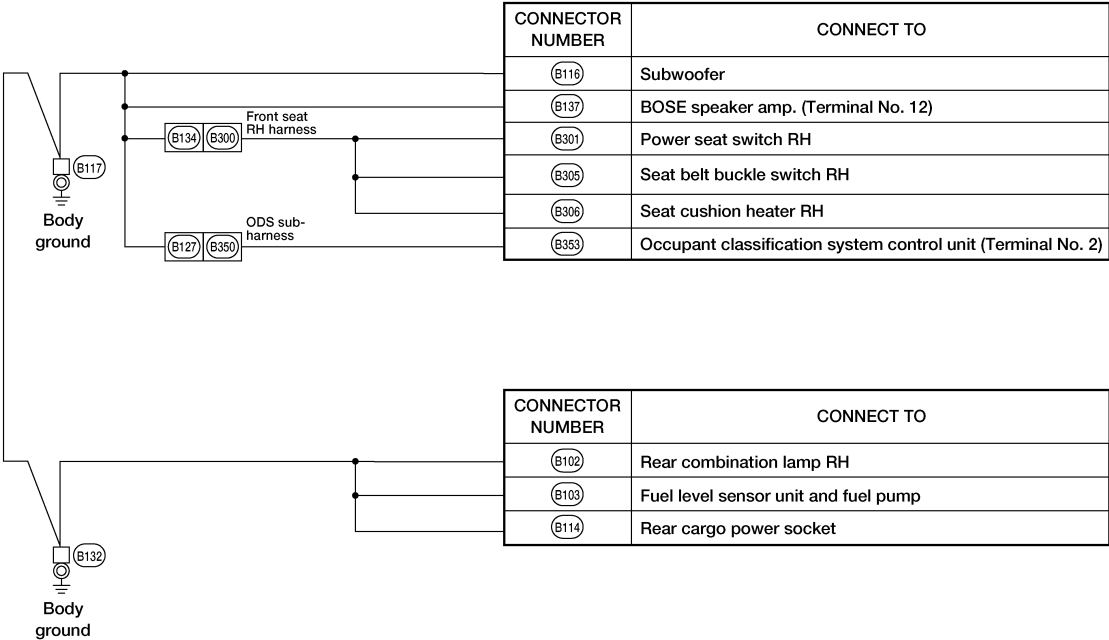
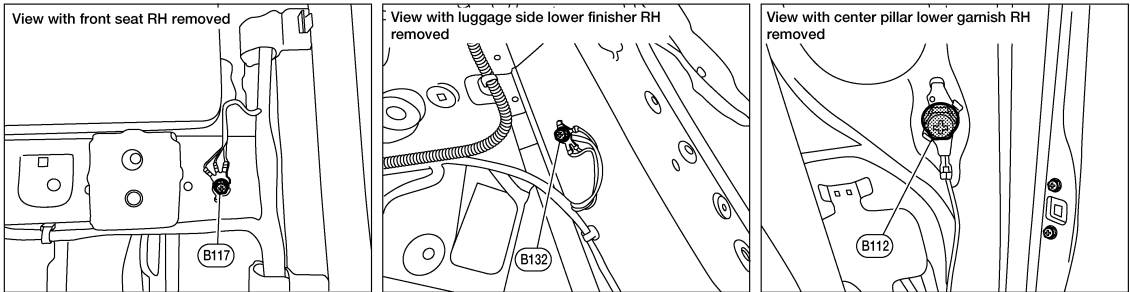
BODY HARNESS



AAMIA2318GB

GROUND

< DTC/CIRCUIT DIAGNOSIS >
BODY NO. 2 HARNESS



AAMIA2319GB

PG

HARNESS

< DTC/CIRCUIT DIAGNOSIS >

HARNESS

Harness Layout

INFOID:000000010290324

HOW TO READ HARNESS LAYOUT

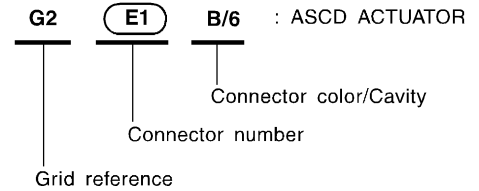
The following Harness Layouts use a map style grid to help locate connectors on the drawings:

- Main Harness and Main Sub Harness
- Engine Room Harness
- Engine Room Harness (Passenger Compartment)
- Front End Module Harness
- Engine Control Harness
- Body Harness
- Body No. 2 Harness
- Room Lamp Harness

To use the grid reference

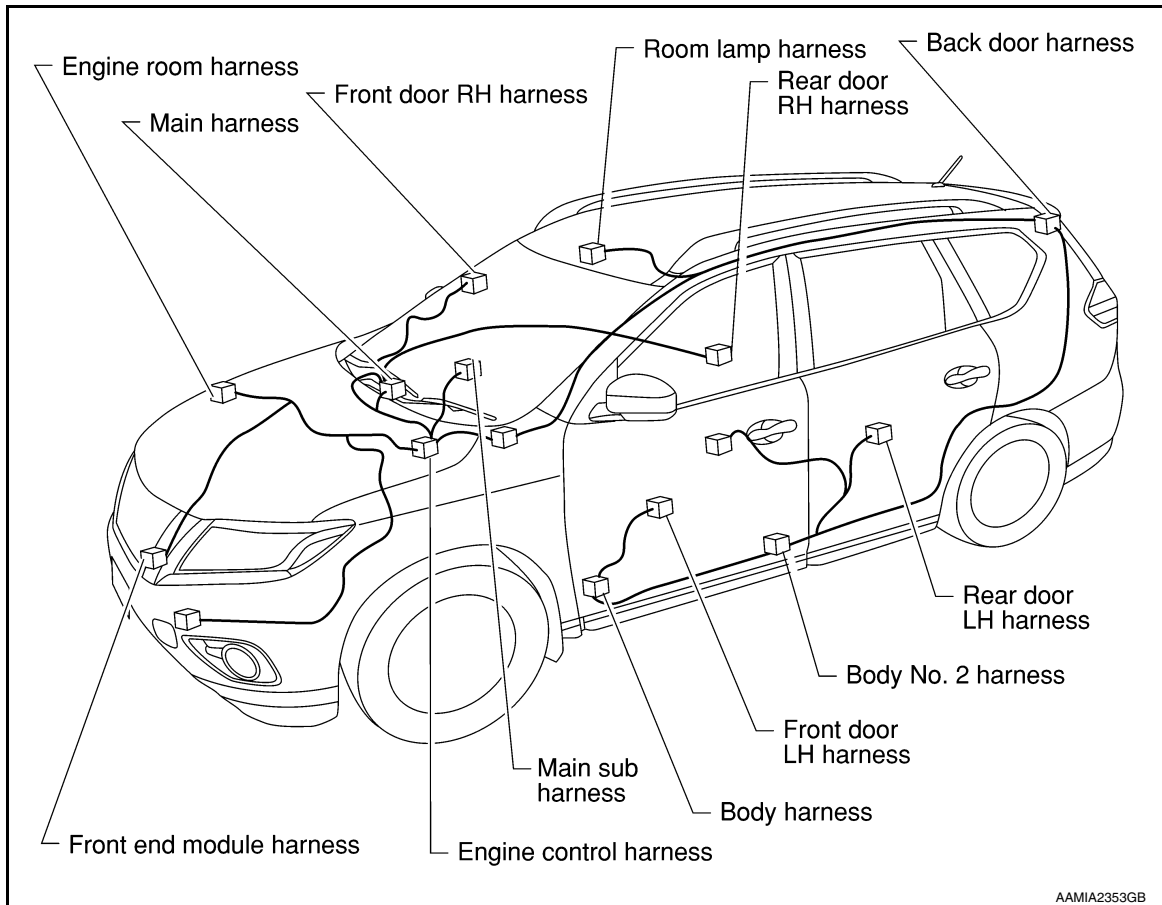
1. Find the desired connector number on the connector list.
2. Find the grid reference.
3. On the drawing, find the crossing of the grid reference letter column and number row.
4. Find the connector number in the crossing zone.
5. Follow the line (if used) to the connector.

Example:



SEL252V

OUTLINE

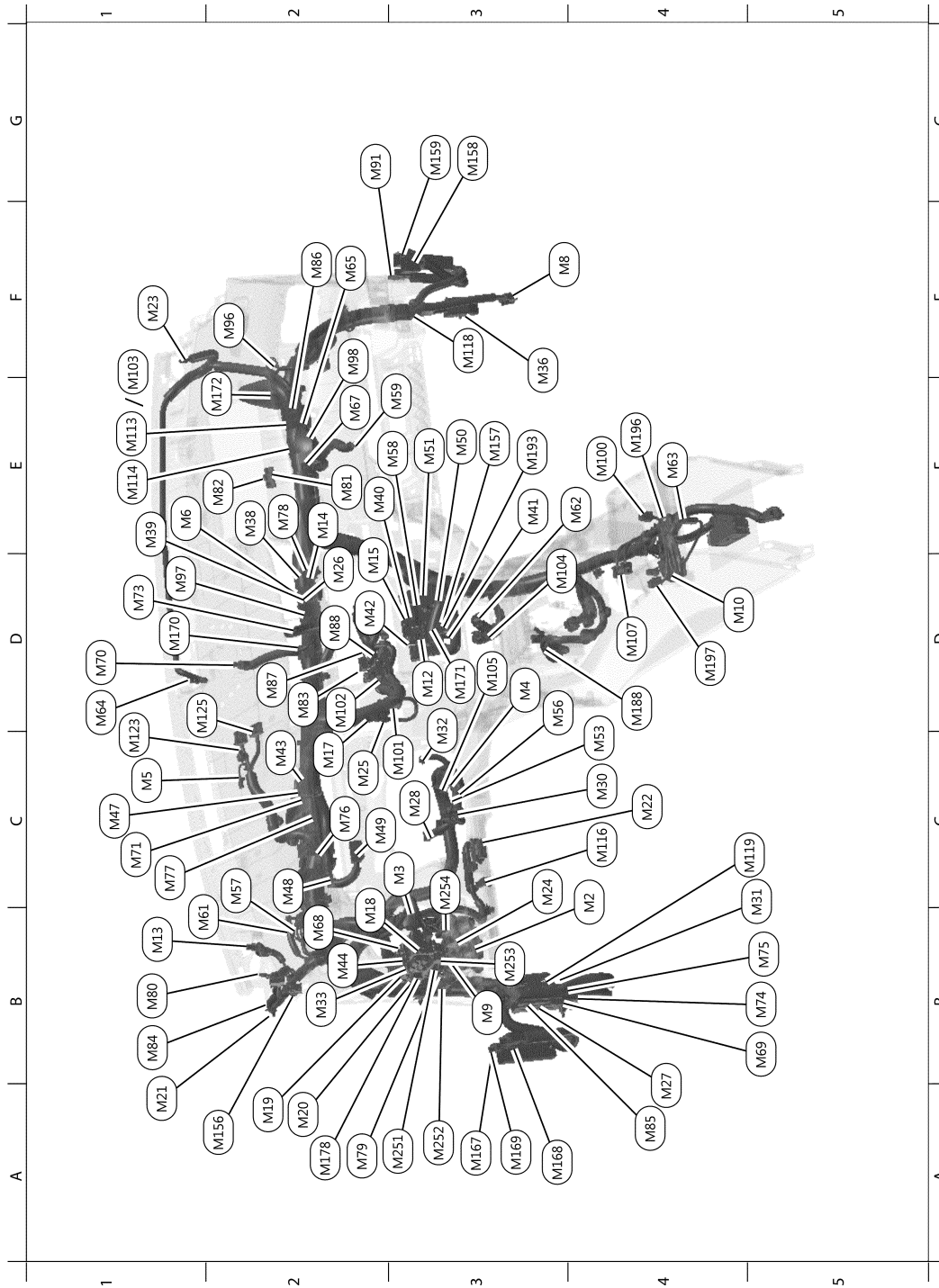


AAMIA2353GB

HARNESS

< DTC/CIRCUIT DIAGNOSIS >

MAIN HARNESS



AAMIA0254ZZ

C4	M2	B/8	: Sport mode switch	C1	M71	B/20	: Joint connector-M03
C3	M3	W/8	: Meter control switch	D1	M73	W/8	: Joint connector-M23
D3	M4	W/4	: NATS antenna amp. (With Intelligent Key system)	B5	M74	W/16	: To B52
C1	M5	W/4	: Dongle unit	B5	M75	B/2	: T0 E36
E1	M6	GR/24	: Joint connector-M01	C2	M76	W/40	: Combination meter

HARNESS

< DTC/CIRCUIT DIAGNOSIS >

F3	M8	W/6	: To B106	C1	M77	W/12	: Combination meter
B3	M9	W/16	: To M251	E2	M78	W/8	: Joint connector-M28
D4	M10	Y/28	: Air bag diagnosis sensor unit	A2	M79	B/8	: VDC off switch
D3	M12	B/4	: Room lamp relay	B1	M80	W/2	: Front tweeter LH
B1	M13	W/3	: Optical sensor	E2	M81	O/2	: Front passenger air bag module
E2	M14	W/4	: Joint connector-M30	E2	M82	B/2	: Front passenger air bag module
D2	M15	W/3	: Optical sensor	D2	M83	W/20	: Audio unit
C2	M17	W/8	: Push-button ignition switch	B1	M84	W/4	: Joint connector-M32
B2	M18	GR/40	: BCM (Body control module)	A4	M85	W/8	: Joint connector-M33
A2	M19	B/40	: BCM (Body control module)	F2	M86	W/8	: Joint connector-M34
A2	M20	BR/16	: BCM (Body control module)	D2	M87	W/32	: Audio unit
A1	M21	W/8	: To R1	D2	M88	W/8	: Audio unit
C4	M22	W/16	: Data link connector	G2	M91	W/24	: To D101
F1	M23	W/2	: Front tweeter RH	F2	M96	W/24	: Chassis control module
C3	M24	G/8	: Automatic back door switch	D1	M97	W/8	: Joint connector-M24
C2	M25	W/3	: NATS antenna amp. (With Intelligent Key system)	F2	M98	W/8	: Joint connector-M22
D2	M26	W/4	: Hazard switch	E4	M100	W/8	: AWD shift switch
A4	M27	W/8	: Joint connector-M13	C3	M101	W/20	: AV control unit (Without BOSE audio system)
C3	M28	W/16	: Combination switch	D2	M102	W/24	: AV control unit (Without BOSE audio system)
C4	M30	W/12	: Combination switch (Spiral cable)	F1	M103	W/40	: Around view monitor control unit (Without driver assistance system)
C5	M31	SMJ	: To E152	D3	M104	W/4	: Aux in jack
D3	M32	W/4	: Ignition switch	D3	M105	W/2	: Key switch
B2	M33	W/8	: Fuse block (J/B)	D4	M107	W/16	: CVT shift selector
F3	M36	SMJ	: To B136	E1	M113	W/40	: Around view monitor control unit (With driver assistance system)
E2	M38	W/6	: Joint connector-M05	E1	M114	W/32	: Around view monitor control unit (With driver assistance system)
E1	M39	W/6	: Joint connector-M06	C4	M116	W/8	: Calibration control
E2	M40	W/2	: Circuit breaker-1	F3	M118	W/12	: Option connector 11
E3	M41	W/2	: In-vehicle sensor	C5	M119	W/12	: Option connector 10
D2	M42	W/2	: Circuit breaker-2	C1	M123	W/6	: To M132
C2	M43	B/20	: Joint connector-M02	D1	M125	W/32	: To M127
B2	M44	W/16	: Fuse block (J/B)	A2	M156	W/24	: To R11
C1	M47	B/20	: Joint connector-M04	E3	M157	B/4	: Front passenger air bag off indicator
C2	M48	B/2	: EPS control unit	G3	M158	W/16	: To D102
C2	M49	W/8	: EPS control unit	G3	M159	Y/4	: To D103
E3	M50	W/32	: Front air control	A3	M167	W/16	: To D2
E3	M51	B/8	: A/C switch	A3	M168	W/24	: To D3
C4	M53	Y/4	: Combination switch (Spiral cable)	A3	M169	Y/4	: To D13
D3	M56	GR/8	: Steering angle sensor	D1	M170	W/8	: Joint connector-M29
C2	M57	—	: Ground	D3	M171	W/4	: Joint connector-M25
E3	M58	B/4	: Power window relay	E2	M172	W/4	: Joint connector-M31
E3	M59	W/2	: Glove box lamp	A2	M178	B/8	: Automatic back door main switch

HARNESS

< DTC/CIRCUIT DIAGNOSIS >

B1	M61	—	: Ground	D4	M188	BR/2	: CVT shift selector
E4	M62	B/3	: Front power socket	E3	M193	W/8	: Joint connector-M18
E4	M63	B/3	: Console power socket	E4	M196	BR/6	: Front heated seat switch RH
D1	M64	B/2	: Sunload sensor	D4	M197	W/6	: Front heated seat switch LH
F2	M65	W/8	: Joint connector-M26	Main sub harness			
E2	M67	W/8	: Joint connector-M27	A3	M251	W/16	: To M9
B2	M68	BR/16	: Fuse block (J/B)	A3	M252	W/10	: AWD lock switch
B5	M69	W/32	: To B41	B3	M253	W/8	: Warning system switch
D1	M70	BR/2	: Center speaker	C3	M254	GR/10	: Hill descent control switch

A

B

C

D

E

F

G

H

I

J

K

L

PG

N

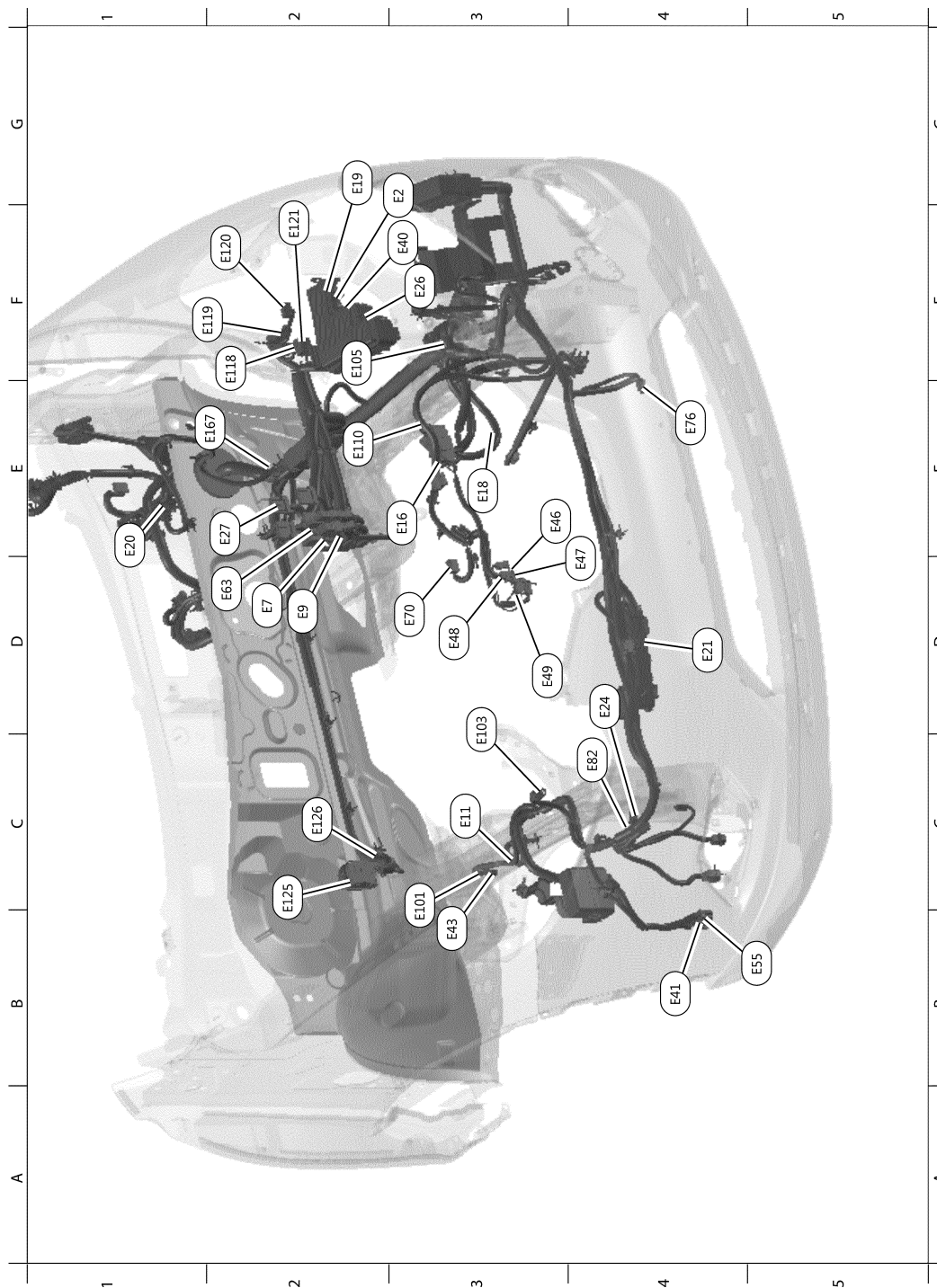
O

P

HARNESS

< DTC/CIRCUIT DIAGNOSIS >

ENGINE ROOM HARNESS



AAMIA0255ZZ

G3	E2	W/2	: To F32	D3	E49	BR/1	: Horn (Low)
D2	E7	GR/2	: Fusible link box (Battery)	B5	E55	B/2	: Rear view camera washer motor
D2	E9	—	: Ground	D2	E63	B/2	: Brake fluid level switch
C3	E11	—	: Ground	D3	E70	Y/2	: Crash zone sensor
E3	E16	B/32	: ECM	E4	E76	B/2	: Ambient sensor

HARNESS

< DTC/CIRCUIT DIAGNOSIS >

E3	E18	GR/2	: Front wheel sensor LH	C4	E82	W/2	: Washer fluid level switch
G2	E19	BR/16	: To F33	C3	E101	W/3	: Anti-theft horn relay
E1	E20	GR/5	: Front wiper motor	D3	E103	GR/3	: Front combination lamp RH
D4	E21	B/8	: Distance sensor	F2	E105	GR/3	: Front combination lamp LH
D4	E24	BR/3	: Intelligent Key warning buzzer	E2	E110	B/3	: Front height sensor
F3	E26	W/24	: To E209	F2	E118	B/2	: IPDM E/R (Intelligent power distribution module engine room)
E2	E27	BR/2	: Fusible link box (Battery)	F2	E119	GR/16	: IPDM E/R (Intelligent power distribution module engine room)
F3	E40	W/4	: To E40	F2	E120	GR/24	: IPDM E/R (Intelligent power distribution module engine room)
B4	E41	B/2	: Front and rear washer motor	F2	E121	R/6	: IPDM E/R (Intelligent power distribution module engine room)
B3	E43	GR/2	: Front wheel sensor RH	C2	E125	B/37	: ABS actuator and electric unit (Control unit)
E3	E46	B/1	: Horn	C2	E126	—	: Ground
E4	E47	B/1	: Horn	E2	E167	B/3	: Vacuum sensor
D3	E48	B/1	: Horn (Low)				

A

B

C

D

E

F

G

H

I

J

K

L

PG

N

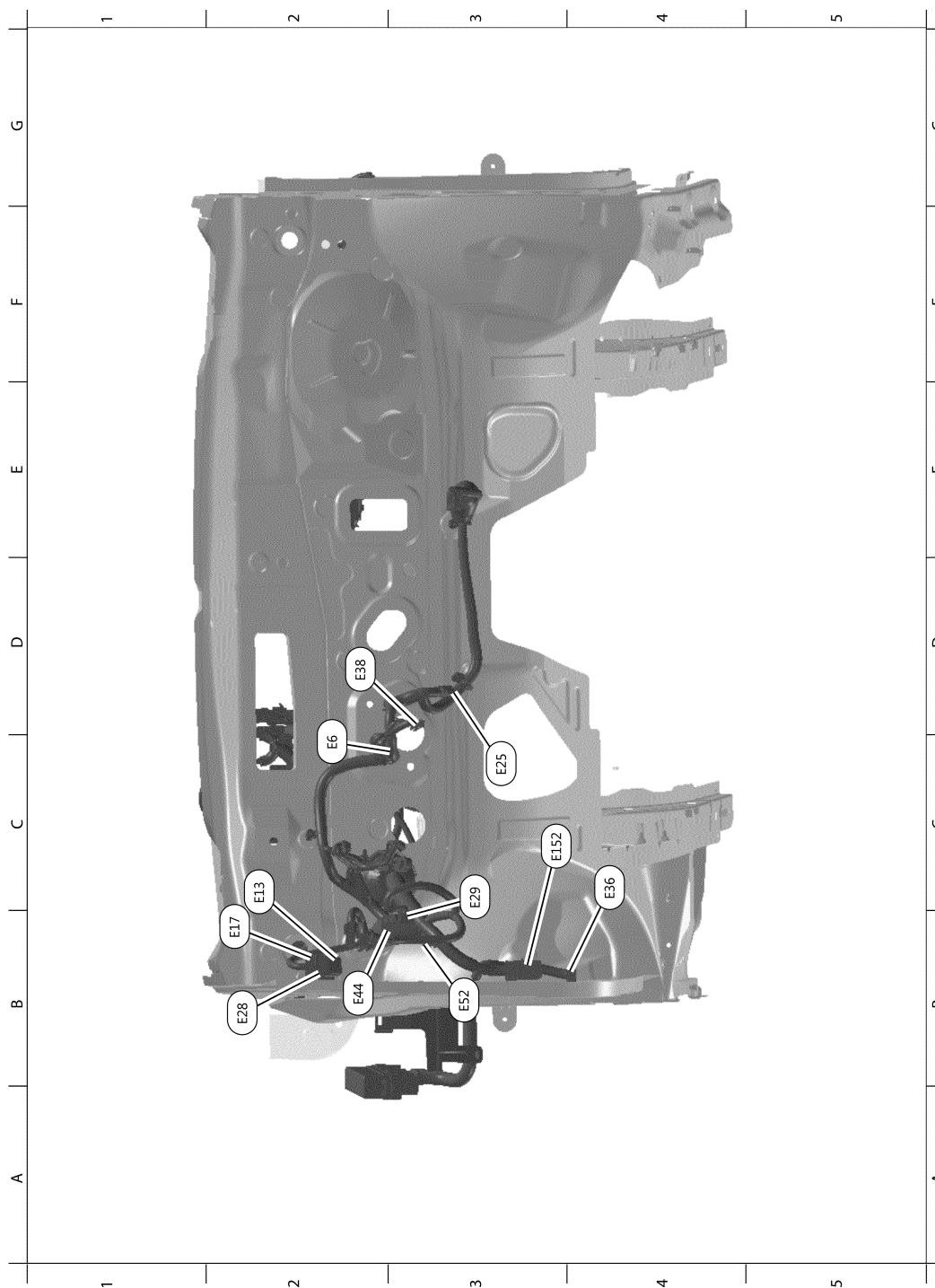
O

P

HARNESS

< DTC/CIRCUIT DIAGNOSIS >

ENGINE ROOM HARNESS (PASSENGER COMPARTMENT)



AAMIA0256ZZ

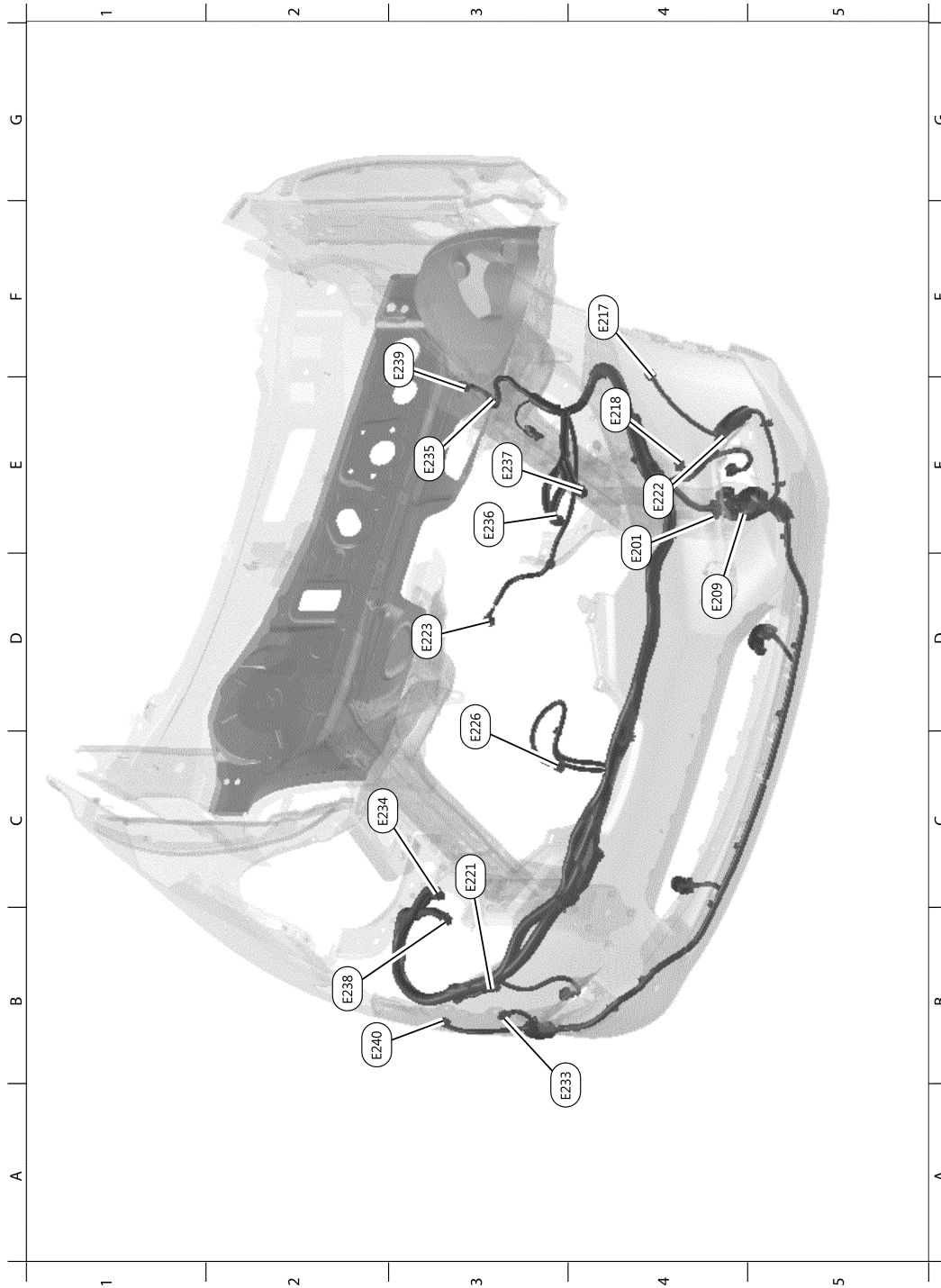
C2	E6	BR/2	: Brake pedal position switch	C4	E36	B/2	: To M75
C2	E13	W/1	: Fuse block (J/B)	D2	E38	W/4	: Stop lamp switch
B2	E17	W/1	: Fuse block (J/B)	B2	E44	W/28	: Joint connector-E01
C3	E25	B/6	: Accelerator pedal position (APP) sensor	B3	E52	B/1	: Parking brake switch

HARNESS

< DTC/CIRCUIT DIAGNOSIS >

B2	E28	W/10	: Fuse block (J/B)	C3	E152	SMJ	: To M31
C3	E29	B/24	: BCM (Body control module)				

FRONT END MODULE HARNESS



AAMIA0265ZZ

E4	E201	W/4	: To E40	A3	E233	B/6	: Front combination lamp RH (With halogen headlamps)
D4	E209	W/24	: To E26	C2	E234	GR/6	: Front combination lamp RH (With halogen headlamps)

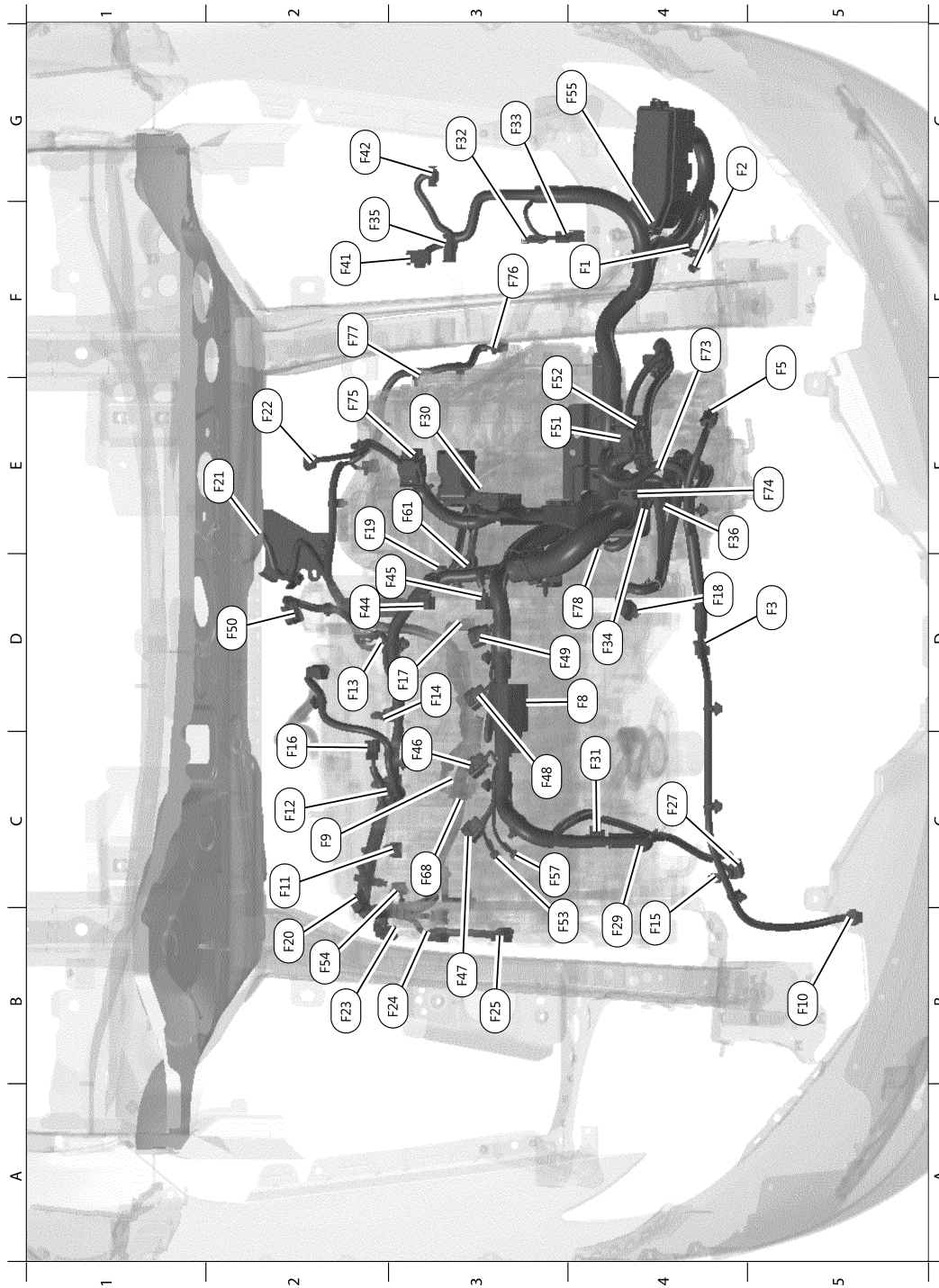
HARNESS

< DTC/CIRCUIT DIAGNOSIS >

F4	E217	BR/8	: IPDM E/R (Intelligent power distribution module engine room)	E3	E235	B/6	: Front combination lamp LH (With halogen headlamps)
E4	E218	W/8	: IPDM E/R (Intelligent power distribution module engine room)	E3	E236	GR/6	: Front combination lamp LH (With halogen headlamps)
C3	E221	B/2	: Front fog lamp RH	E3	E237	B/3	: Front combination lamp LH(Head lamp aiming motor)
E4	E222	B/2	: Front fog lamp LH	B2	E238	B/3	: Front combination lamp RH(Head lamp aiming motor)
D3	E223	GR/2	: Hood switch	F3	E239	B/8	: Front combination lamp LH (With LED headlamps)
D3	E226	B/6	: Front camera	B2	E240	B/8	: Front combination lamp RH (With LED headlamps)

HARNESS

< DTC/CIRCUIT DIAGNOSIS > ENGINE CONTROL HARNESS



AAMIA0257ZZ

F4	F1	—	: Engine ground	G3	F33	BR/16	: To E19
G4	F2	—	: Engine ground	D4	F34	—	: Starter motor
D5	F3	GR/4	: Cooling fan motor-1	F2	F35	W/16	: IPDM E/R (Intelligent power distribution module engine room)
F5	F5	GR/4	: Cooling fan motor-2	E4	F36	—	: Starter motor

HARNESS

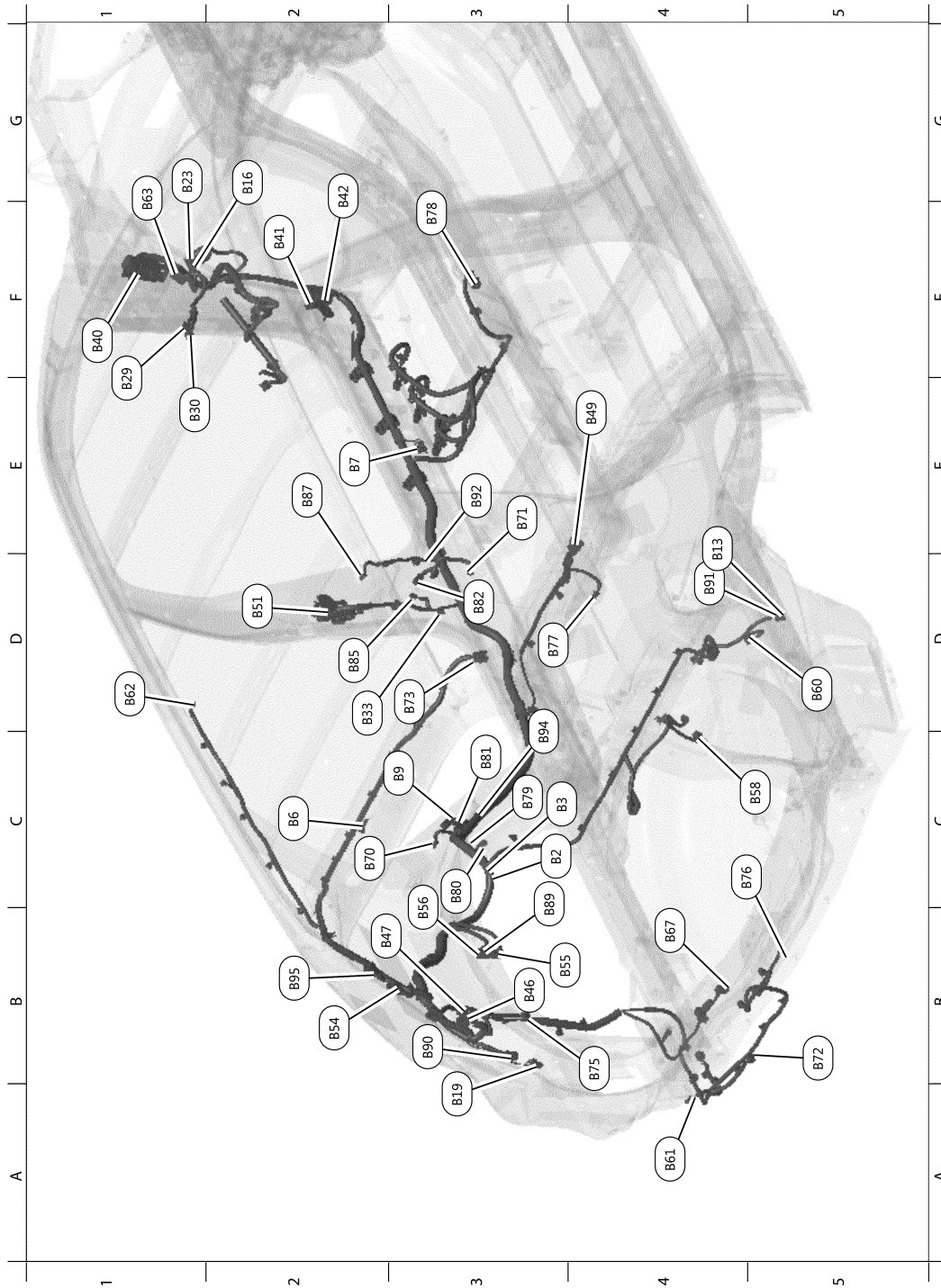
< DTC/CIRCUIT DIAGNOSIS >

D4	F8	B/10	: Joint connector-F01	F2	F41	GR/6	: IPDM E/R (Intelligent power distribution module engine room)
C2	F9	GR/2	: Knock sensor	G2	F42	B/24	: IPDM E/R (Intelligent power distribution module engine room)
B5	F10	B/3	: Refrigerant pressure sensor	D2	F44	B/3	: Camshaft position sensor
C2	F11	GR/2	: Fuel injector no.1	D3	F45	B/3	: Exhaust position sensor
C2	F12	GR/2	: Fuel injector no.2	C3	F46	GR/3	: Ignition coil no.2
D2	F13	GR/2	: Fuel injector no.4	B3	F47	GR/3	: Ignition coil no.1
D3	F14	GR/2	: Fuel injector no.3	C3	F48	GR/3	: Ignition coil no.3
B4	F15	GR/2	: A/C compressor (Electrical control valve)	D3	F49	GR/3	: Ignition coil no.4
C2	F16	B/2	: EVAP canister purge volume control solenoid valve	D2	F50	B/6	: Electric throttle control actuator
D3	F17	B/3	: Crankshaft position sensor	E3	F51	B/48	: ECM
D4	F18	GR/4	: Air fuel ratio (A/F) sensor 1	F3	F52	BR/48	: ECM
E2	F19	B/2	: Intake manifold runner control valve	B3	F53	—	: Engine ground
B2	F20	B/3	: Intake manifold runner control valve position sensor	B2	F54	B/3	: Engine oil pressure sensor
E2	F21	B/4	: Heated oxygen sensor 2	G4	F55	B/4	: Starter cut relay
E2	F22	B/4	: Mass air flow sensor	C3	F57	—	: Engine ground
B2	F23	GR/2	: Intermediate lock timing control solenoid valve	E3	F61	GR/2	: Engine coolant temperature sensor
B3	F24	GR/2	: Exhaust valve timing control solenoid valve	C3	F68	GR/2	: Engine oil temperature sensor
B3	F25	GR/2	: Intake valve timing control solenoid valve	F4	F73	B/3	: Input speed sensor
C4	F27	B/2	: A/C compressor (Magnet clutch)	E5	F74	GR/22	: CVT unit
B4	F29	—	: Generator	E2	F75	B/48	: TCM (Transmission control module)
E3	F30	B/1	: Fusible link box (Battery)	F3	F76	B/3	: Primary speed sensor
C4	F31	B/2	: Generator	F2	F77	B/3	: Output speed sensor
G3	F32	W/2	: To E2	D4	F78	B/10	: Transmission range switch

HARNESS

< DTC/CIRCUIT DIAGNOSIS >

BODY HARNESS



AAMIA0258ZZ

C3	B2	W/4	: Joint connector-B27	D1	B62	Y/2	: LH side curtain air bag module
C3	B3	W/4	: Joint connector-B03	G1	B63	GR/24	: Joint connector-B01
C2	B6	B/1	: Rear window defogger condenser	B4	B67	W/12	: Rear view camera washer control unit
E2	B7	—	: Ground	C2	B70	W/4	: Rear door switch LH
C3	B9	O/2	: Front LH seat belt pre-tensioner (Lap belt)	E3	B71	W/4	: Front door switch LH

HARNESS

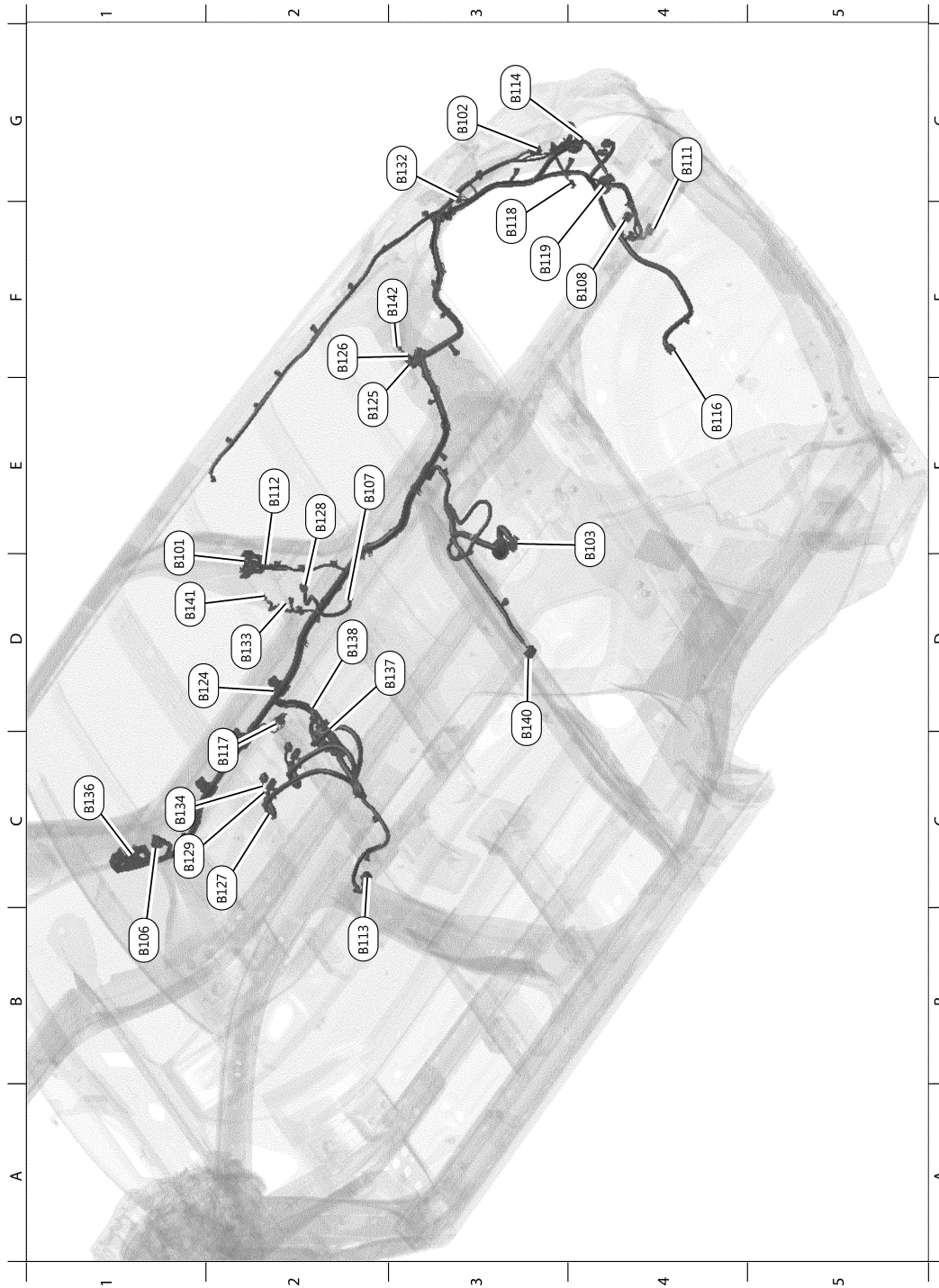
< DTC/CIRCUIT DIAGNOSIS >

E4	B13	B/2	: To C13	B5	B72	B/2	: Rear view camera air pump motor
G2	B16	G/40	: BCM (Body control module)	D3	B73	W/8	: Power back door spindle unit RH
A3	B19	—	: Ground	B4	B75	W/16	: AWD control module
E1	B29	W/6	: Fuse block (J/B)	C5	B76	GR/2	: Outside key antenna (Rear bumper)
E1	B30	W/8	: Fuse block (J/B)	D3	B77	GR/2	: Inside key antenna (Console)
D2	B33	—	: Body ground	F3	B78	Y/22	: Air bag diagnosis sensor unit
F1	B40	GR/100	: To E34	C3	B79	W/4	: Joint connector-B26
F2	B41	W/32	: To M69	C3	B80	Y/2	: Rear side satellite sensor LH
G2	B42	W/16	: To M74	C3	B81	Y/2	: Front side air bag satellite sensor LH
B3	B46	W/32	: To D501	D3	B82	Y/2	: Front LH side air bag module
B2	B47	W/16	: To D501	D2	B85	Y/2	: Front LH seat belt pre-tensioner (Shoulder belt)
E4	B49	W/12	: To B140	E2	B87	W/4	: Seat belt buckle switch (Driver seat)
D2	B51	W/12	: To D201	C3	B89	W/4	: Joint connector-B25
B2	B54	W/2	: To D505	B3	B90	W/4	: Rear combination lamp LH
B3	B55	B/24	: Automatic back door control module	D4	B91	B/3	: Rear height sensor
C3	B56	GR/14	: Automatic back door control module	E3	B92	W/6	: To B202
C5	B58	B/2	: Rear wheel sensor LH	D3	B94	W/4	: Joint connector-B24
D5	B60	B/2	: Rear wheel sensor RH	B2	B95	W/8	: Spindle unit LH
A4	B61	BR/2	: Automatic back door warning chime	G1	B23	GR/16	: BCM (Body control module)

HARNESS

< DTC/CIRCUIT DIAGNOSIS >

BODY NO. 2 HARNESS



AAMIA0266ZZ

E1	B101	W/12	: To D301	E2	B125	W/4	: Joint connector-B30
G3	B102	W/4	: Rear combination lamp RH	F2	B126	Y/2	: Rear side satellite sensor RH
E4	B103	GR/6	: Fuel level sensor unit and fuel pump (Main)	C2	B127	W/4	: To B350
B1	B106	W/6	: To M8	E2	B128	Y/2	: Front side air bag satellite sensor RH

HARNESS

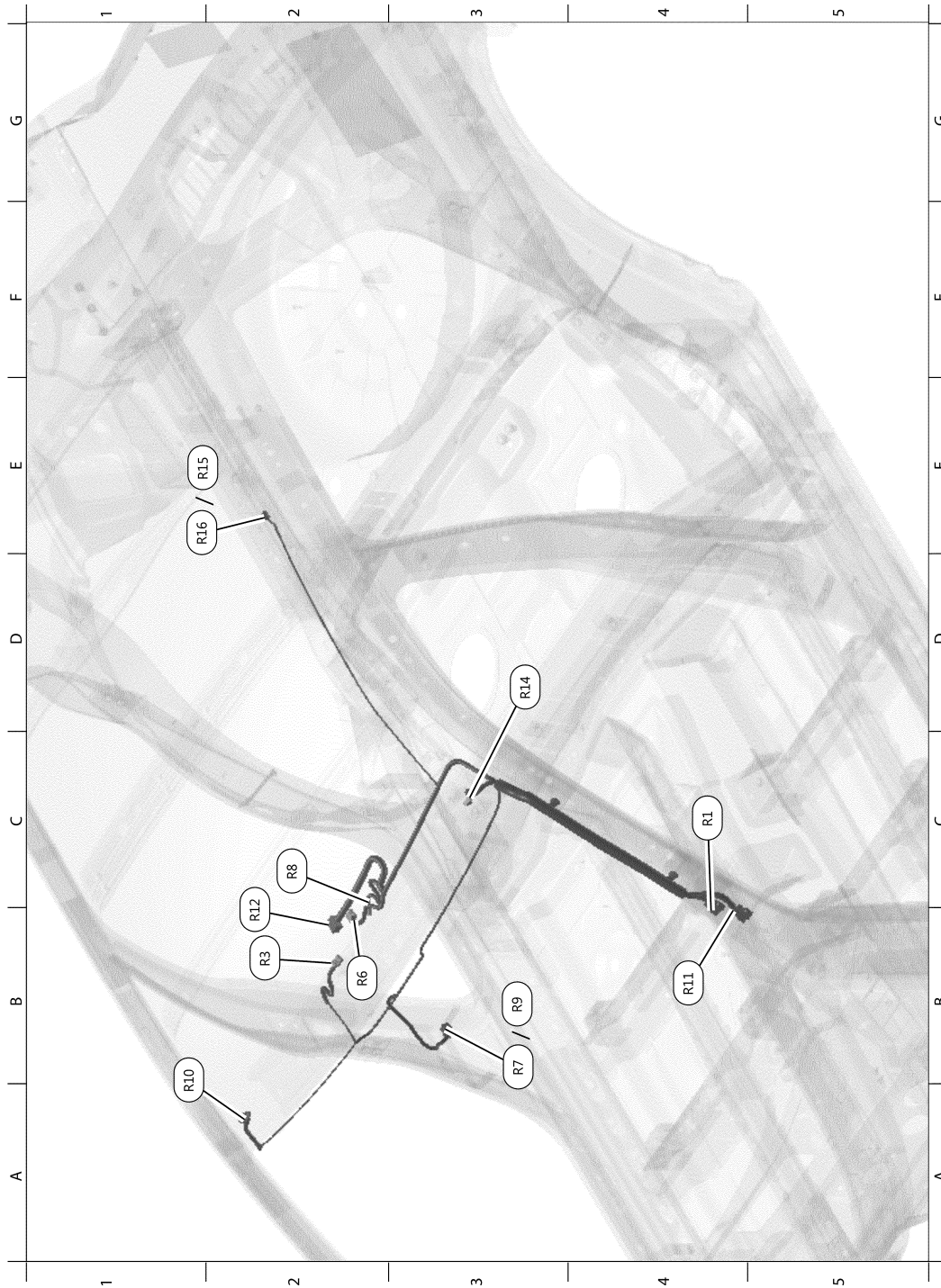
< DTC/CIRCUIT DIAGNOSIS >

E2	B107	O/2	: Front RH seat belt pre-tensioner (Lap belt)	C1	B129	Y/2	: Front RH side air bag moudle
F4	B108	B/2	: EVAP canister vent control valve	G3	B132	—	: Ground
G4	B111	GR/3	: EVAP control system pressure sensor	D2	B133	Y/2	: Front RH seat belt pre-tensioner (Shoulder belt)
E2	B112	—	: Body ground	C1	B134	W/6	: To B300
B2	B113	Y/22	: Air bag diagnosis sensor unit	C1	B136	SMJ	: To M36
G3	B114	B/3	: Rear cargo power socket	D3	B137	BR/14	: BOSE speaker amp.
E4	B116	GR/6	: Subwoofer	D2	B138	BR/23	: BOSE speaker amp.
C2	B117	—	: Ground	D3	B140	W/12	: To B49
F3	B118	W/2	: Luggage room lamp	D1	B141	W/4	: Front door switch RH
F3	B119	Y/2	: RH side curtain air bag module	F3	B142	W/4	: Rear door switch RH
D1	B124	W/4	: Joint connector-B29				

HARNESS

< DTC/CIRCUIT DIAGNOSIS >

ROOM LAMP HARNESS



AAMIA0259ZZ

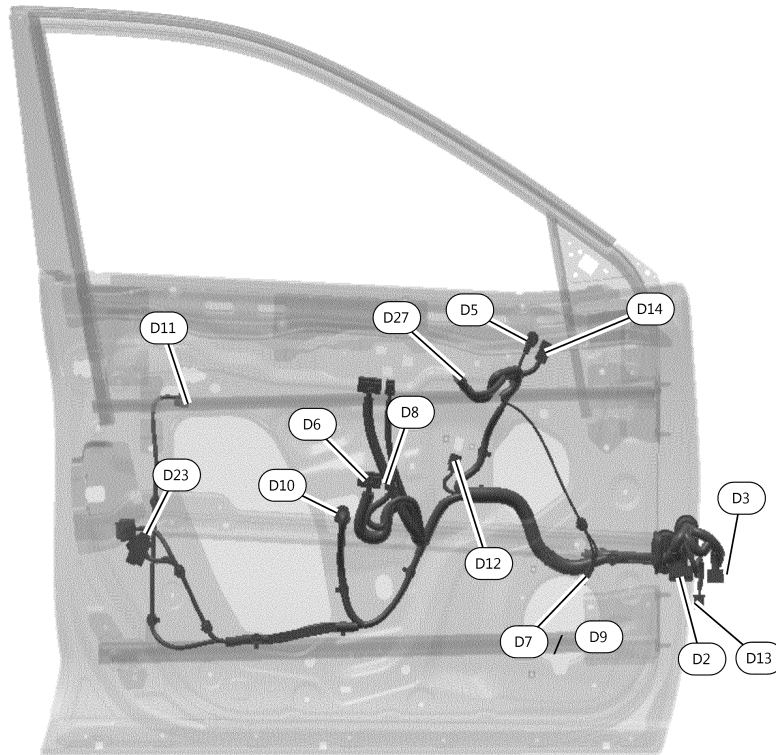
C4	R1	W/8	: To M21	B1	R10	W/2	: Vanity lamp RH
B2	R3	W/12	: Moonroof switch	B4	R11	W/24	: To M156
B2	R6	W/8	: Map lamp assembly	C2	R12	W/12	: To R13
B3	R7	B/10	: Auto anti-dazzling inside mirror (With homelink universal transceiver)	D3	R14	W/2	: Vanity lamp LH

HARNESS

< DTC/CIRCUIT DIAGNOSIS >

C2	R8	W/6	: Microphone	E1	R15	W/3	: Room lamp
B3	R9	B/7	: Auto anti-dazzling inside mirror (Without universal transceiver)	E1	R16	W/4	: Personal lamp 2nd row

FRONT DOOR LH HARNESS

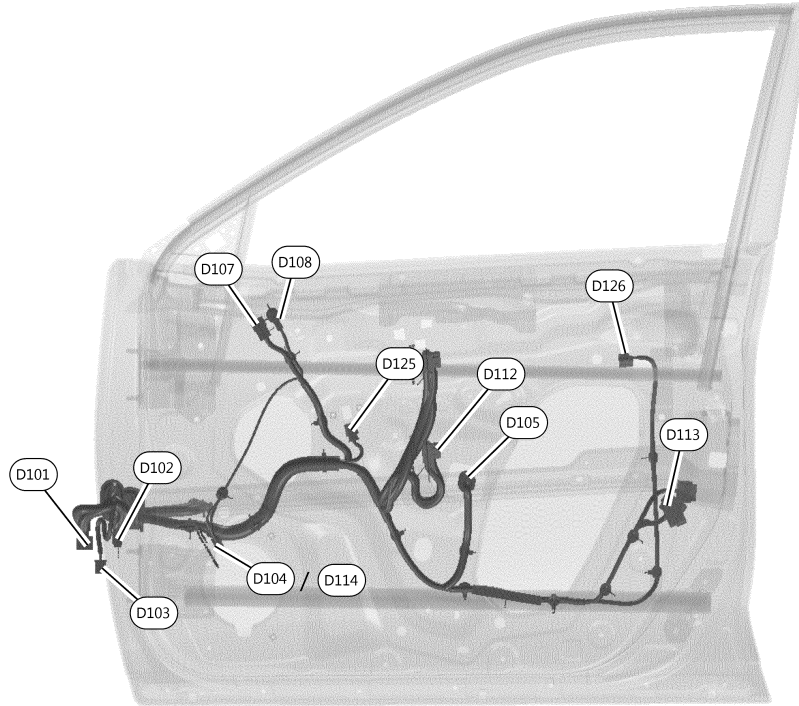


AAMIA0260ZZ

D2	W/16	: To M167	D10	G/6	: Front power window motor LH
D3	W/24	: To M168	D11	W/2	: Front step lamp (Driver side)
D5	W/4	: Blind spot warning/blind spot intervention indicator LH	D12	Y/2	: Front door satellite sensor LH
D6	W/16	: Main power window and door lock/unlock switch	D13	Y/4	: To M169
D7	W/2	: Front door speaker LH (Without BOSE audio system)	D14	W/16	: Door mirror LH
D8	W/3	: Main power window and door lock/unlock switch	D23	GR/6	: Front door lock assembly LH
D9	BR/2	: Front door speaker LH (With BOSE audio system)	D27	B/16	: Door mirror remote control switch

HARNESS

< DTC/CIRCUIT DIAGNOSIS > FRONT DOOR RH HARNESS



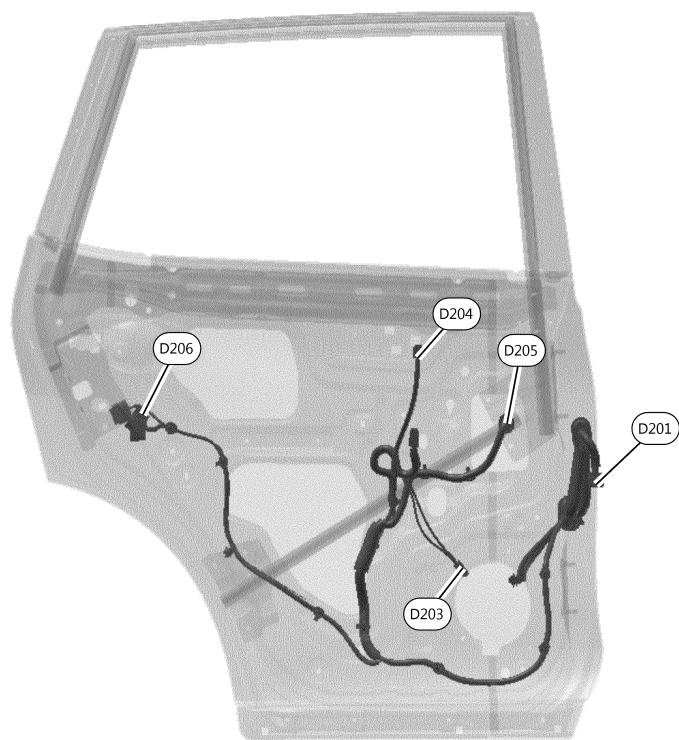
AAMIA0261ZZ

D101	W/24	: To M91	D108	W/4	: Blind spot warning/blind spot intervention indicator RH
D102	W/16	: To M158	D112	W/12	: Power window and door lock/unlock switch RH
D103	Y/4	: To M159	D113	GR/6	: Front door lock actuator RH
D104	W/2	: Front door speaker RH (Without BOSE audio system)	D114	BR/2	: Front door speaker RH (With BOSE audio system)
D105	G/6	: Front power window motor RH	D125	Y/2	: Front door satellite sensor RH
D107	W/16	: Door mirror RH	D126	B/4	: Front outside handle assembly RH

PG

HARNESS

< DTC/CIRCUIT DIAGNOSIS > REAR DOOR LH HARNESS

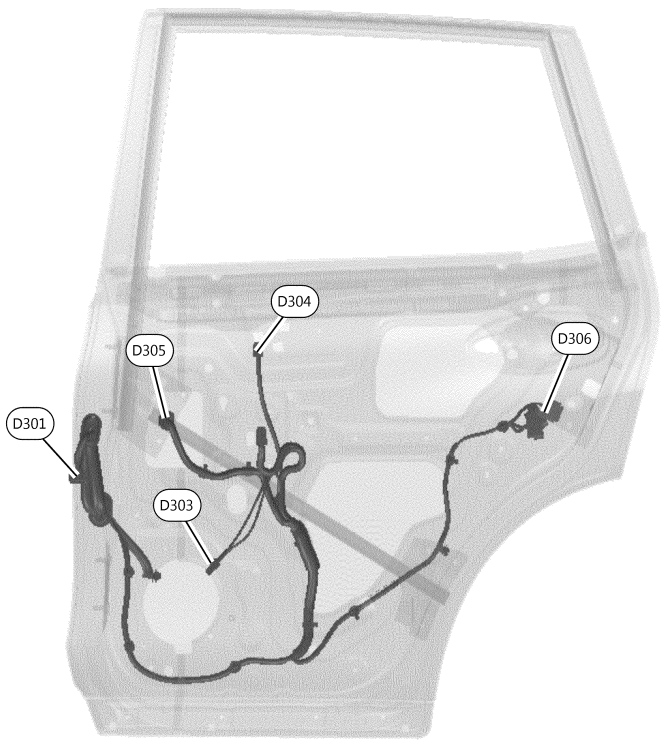


AAMIA0262ZZ

D201	W/12	: To B51	D205	G/5	: Rear power window motor LH
D203	W/2	: Rear door speaker LH	D206	GR/6	: Rear door lock actuator LH
D204	W/8	: Rear power window switch LH			

HARNESS

< DTC/CIRCUIT DIAGNOSIS >
REAR DOOR RH HARNESS



AAMIA0263ZZ

D301	W/12	: To B101	D305	G/6	: Rear power window motor RH
D303	W/2	: Rear door speaker RH	D306	GR/6	: Rear door lock actuator RH
D304	W/8	: Rear power window switch RH			

PG

N

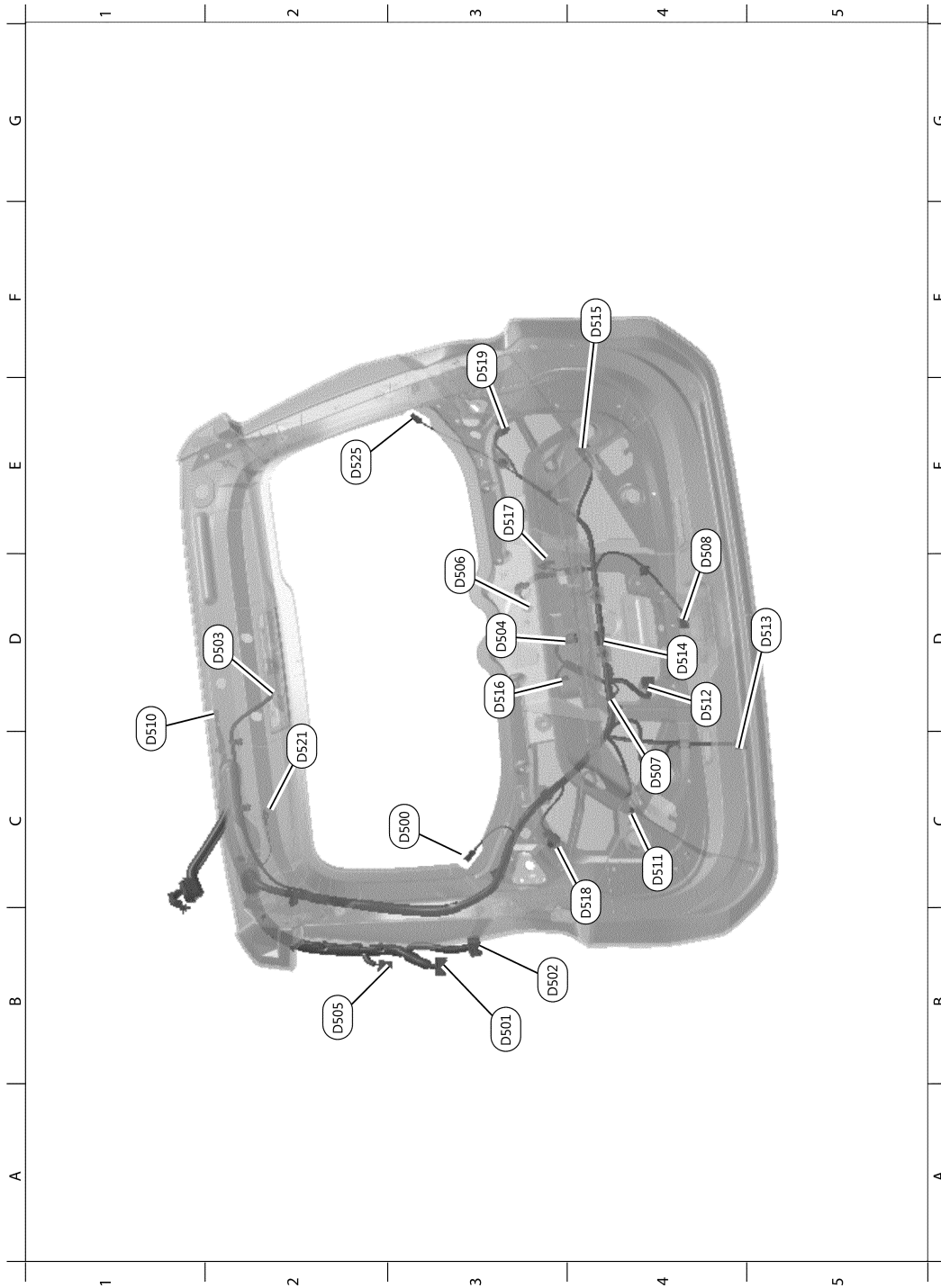
O

P

HARNESS

< DTC/CIRCUIT DIAGNOSIS >

BACK DOOR HARNESS



AAMIA0264ZZ

C3	D500	B/1	: Rear window defogger condenser	D4	D512	W/8	: Back door lock assembly (With power back door system)
B3	D501	W/32	: To B46	D5	D513	GR/6	: Automatic back door close switch
B3	D502	W/16	: To B47	D4	D514	W/8	: Rear view camera (With driver assistance system)
D2	D503	W/2	: High-Mounted stop lamp	F4	D515	W/2	: Touch sensor RH

HARNESS

< DTC/CIRCUIT DIAGNOSIS >

D3	D504	B/6	: Rear view camera (Without driver assistance system)	D3	D516	W/2	: License plate lamp LH
B2	D505	W/2	: To B54	E3	D517	BR/2	: License plate lamp RH
D3	D506	W/3	: Rear wiper motor	C4	D518	W/3	: Back-up lamp assembly LH
C4	D507	W/4	: Back door opener switch	F3	D519	W/3	: Back-up lamp assembly RH
E4	D508	W/4	: Back door lock assembly (Without power back door system)	C2	D521	—	: Ground
D1	D510	B/1	: Rear window defogger	E2	D525	B/1	: Rear window defogger
C4	D511	W/2	: Touch sensor LH				

A

B

C

D

E

F

G

H

I

J

K

L

PG

N

O

P

ELECTRICAL UNITS LOCATION

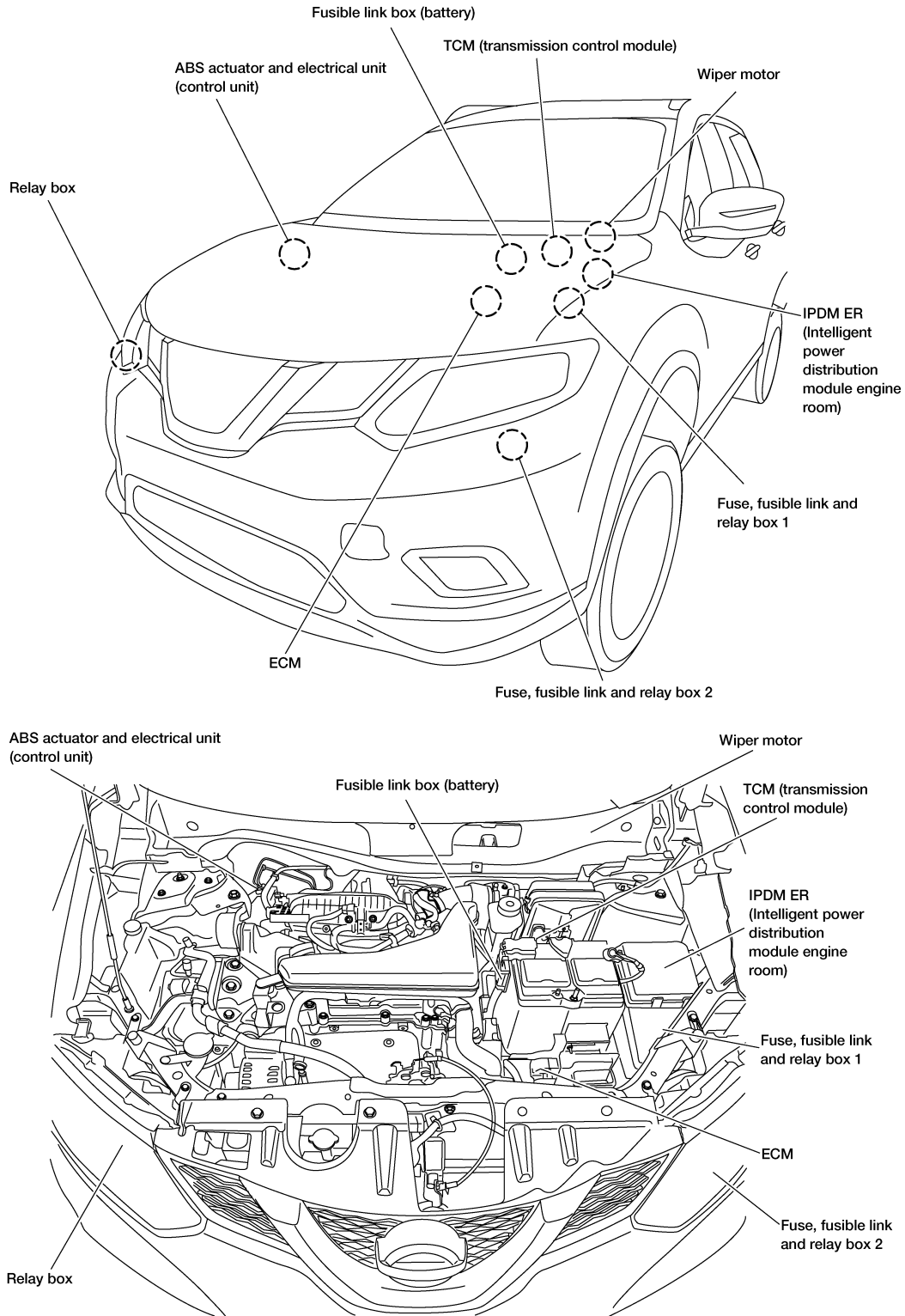
< DTC/CIRCUIT DIAGNOSIS >

ELECTRICAL UNITS LOCATION

Electrical Units Location

INFOID:000000010290325

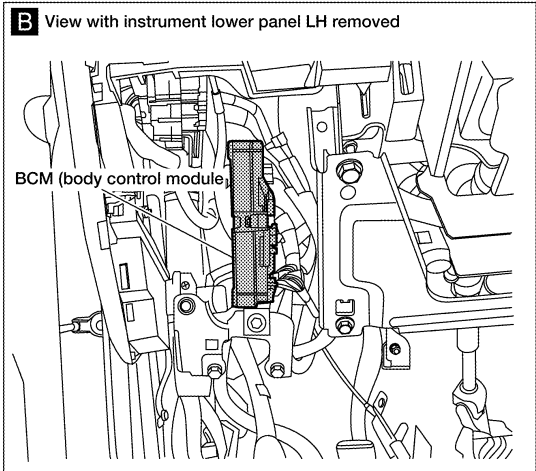
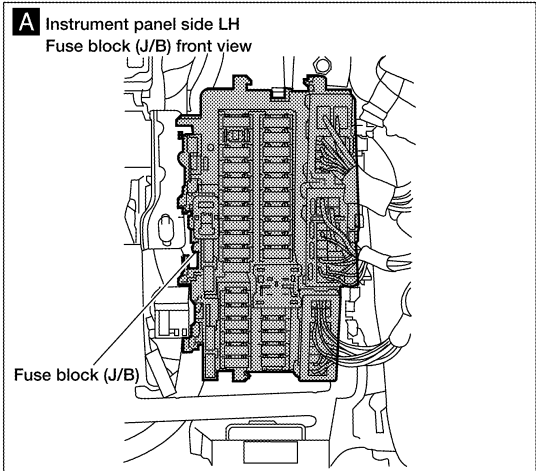
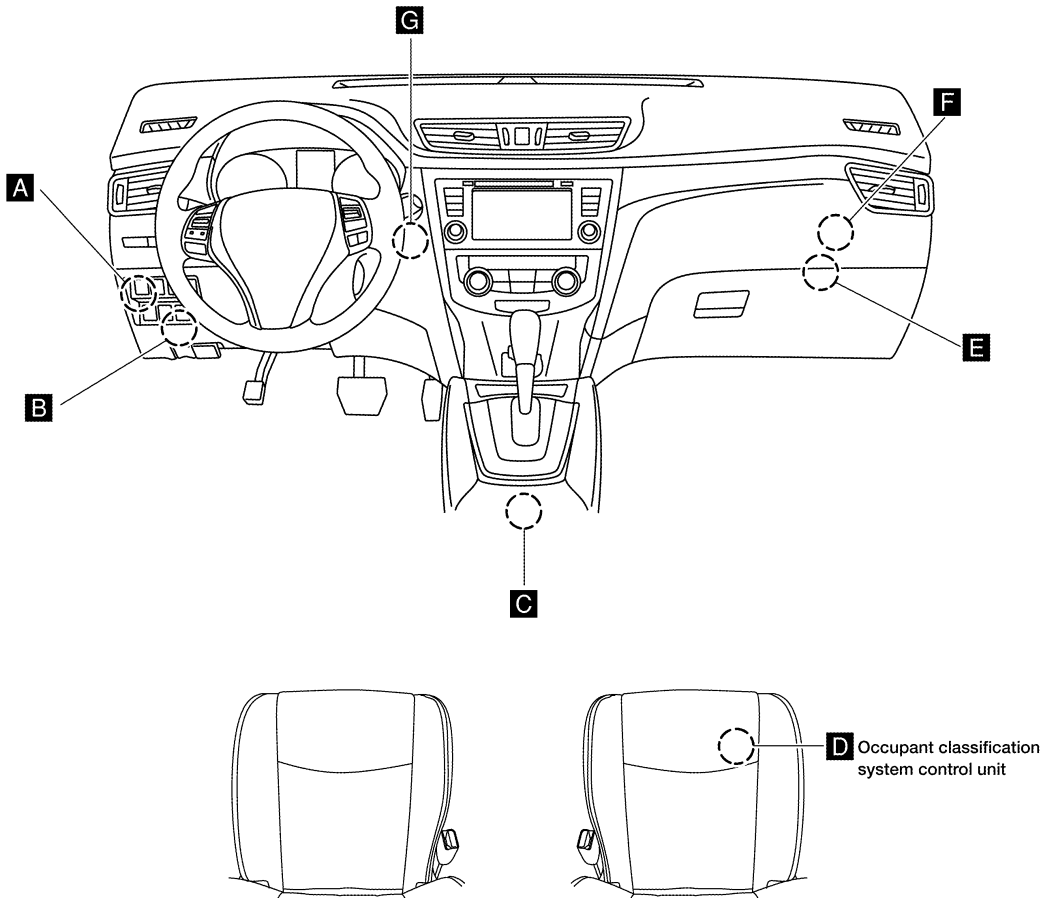
ENGINE COMPARTMENT



AAMIA2339GB

ELECTRICAL UNITS LOCATION

< DTC/CIRCUIT DIAGNOSIS >
PASSENGER COMPARTMENT

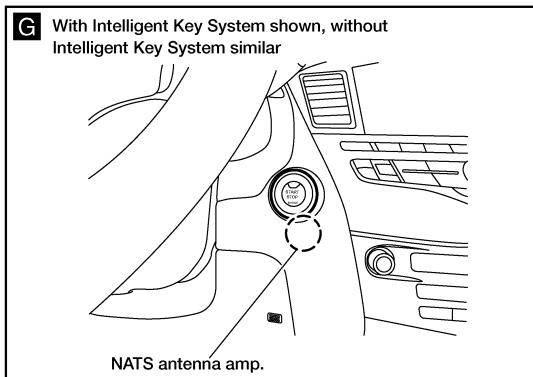
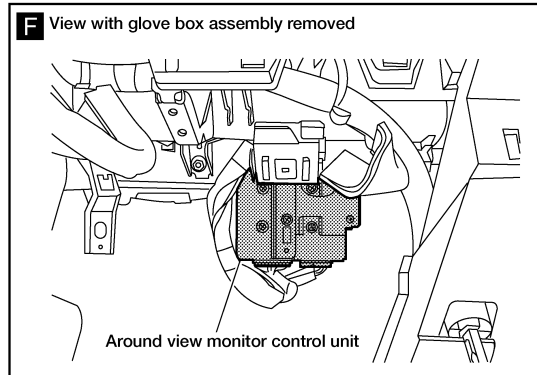
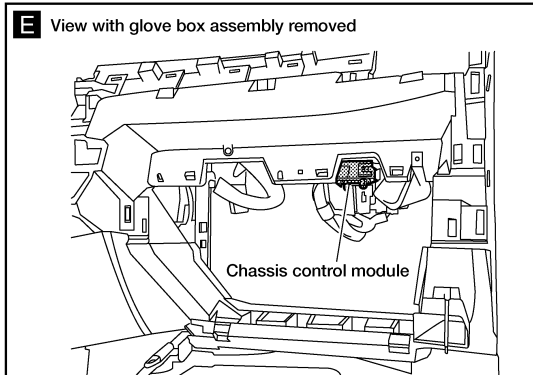
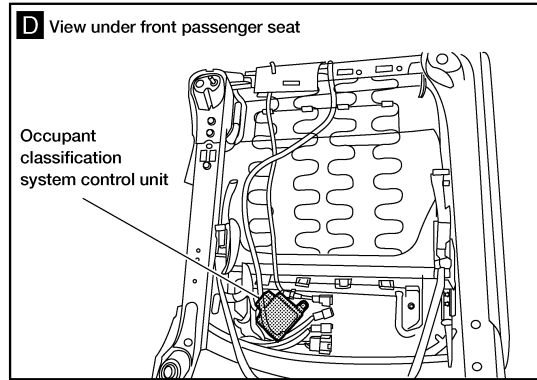
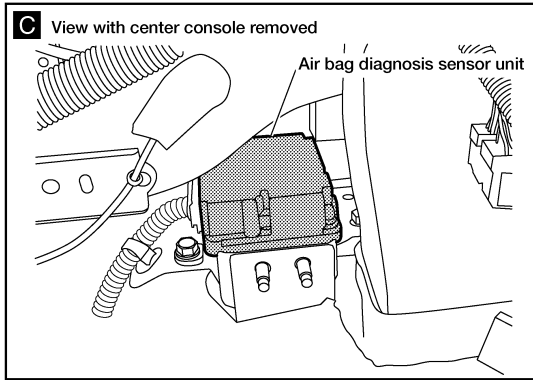


AAMIA2340GB

A
B
C
D
E
F
G
H
I
J
K
L
PG
N
O
P

ELECTRICAL UNITS LOCATION

< DTC/CIRCUIT DIAGNOSIS >



AAMIA2341GB

HARNESS CONNECTOR

< DTC/CIRCUIT DIAGNOSIS >

HARNESS CONNECTOR

Description

INFOID:0000000010290326

HARNESS CONNECTOR (TAB-LOCKING TYPE)

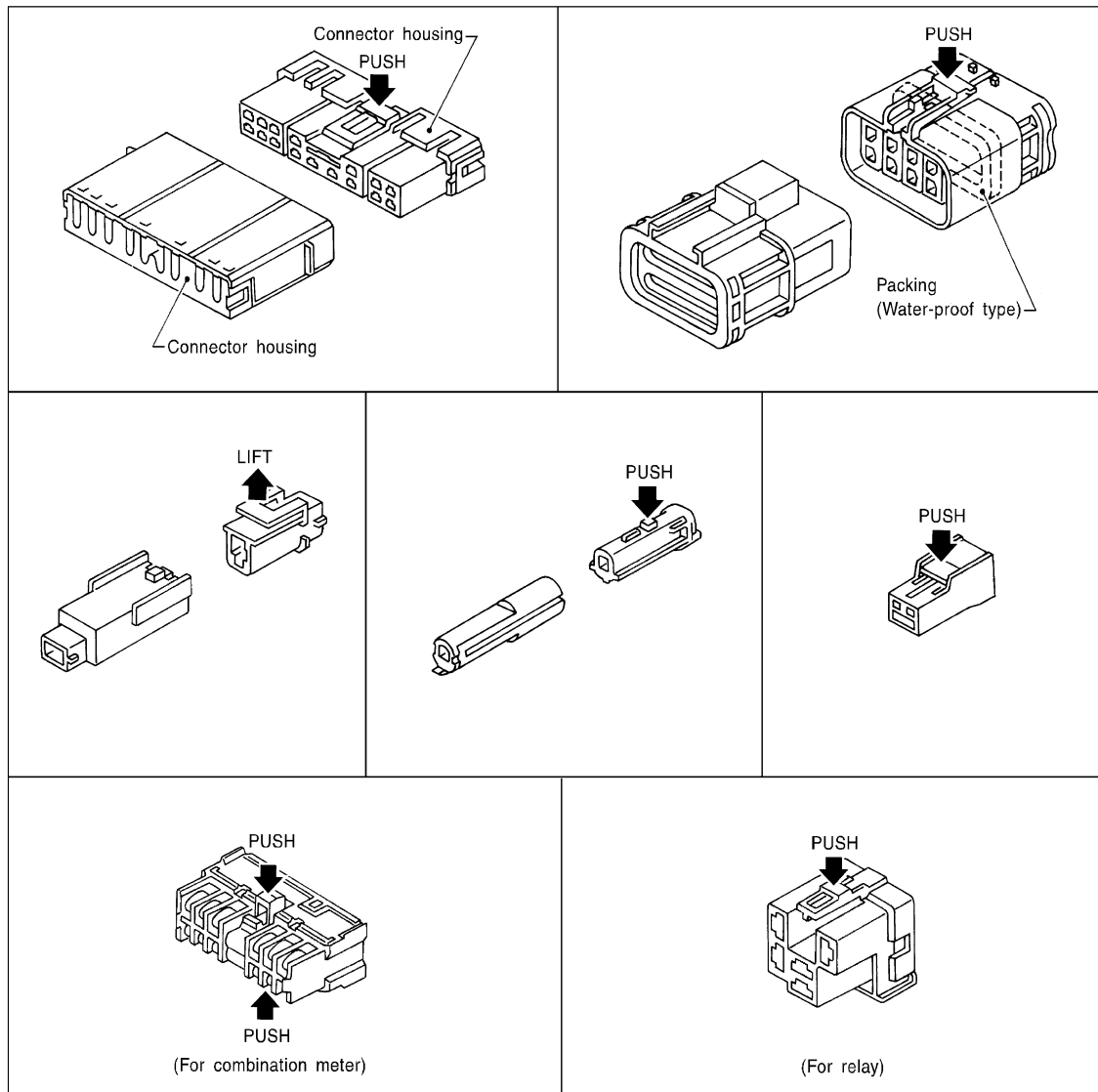
- The tab-locking type connectors help prevent accidental looseness or disconnection.
- The tab-locking type connectors are disconnected by pushing or lifting the locking tab(s). Refer to the figure below.

Refer to the next page for description of the slide-locking type connector.

CAUTION:

Do not pull the harness or wires when disconnecting the connector.

[Example]



SEL769DA

HARNESS CONNECTOR (SLIDE-LOCKING TYPE)

- A new style slide-locking type connector is used on certain systems and components, especially those related to OBD.
- The slide-locking type connectors help prevent incomplete locking and accidental looseness or disconnection.

HARNESS CONNECTOR

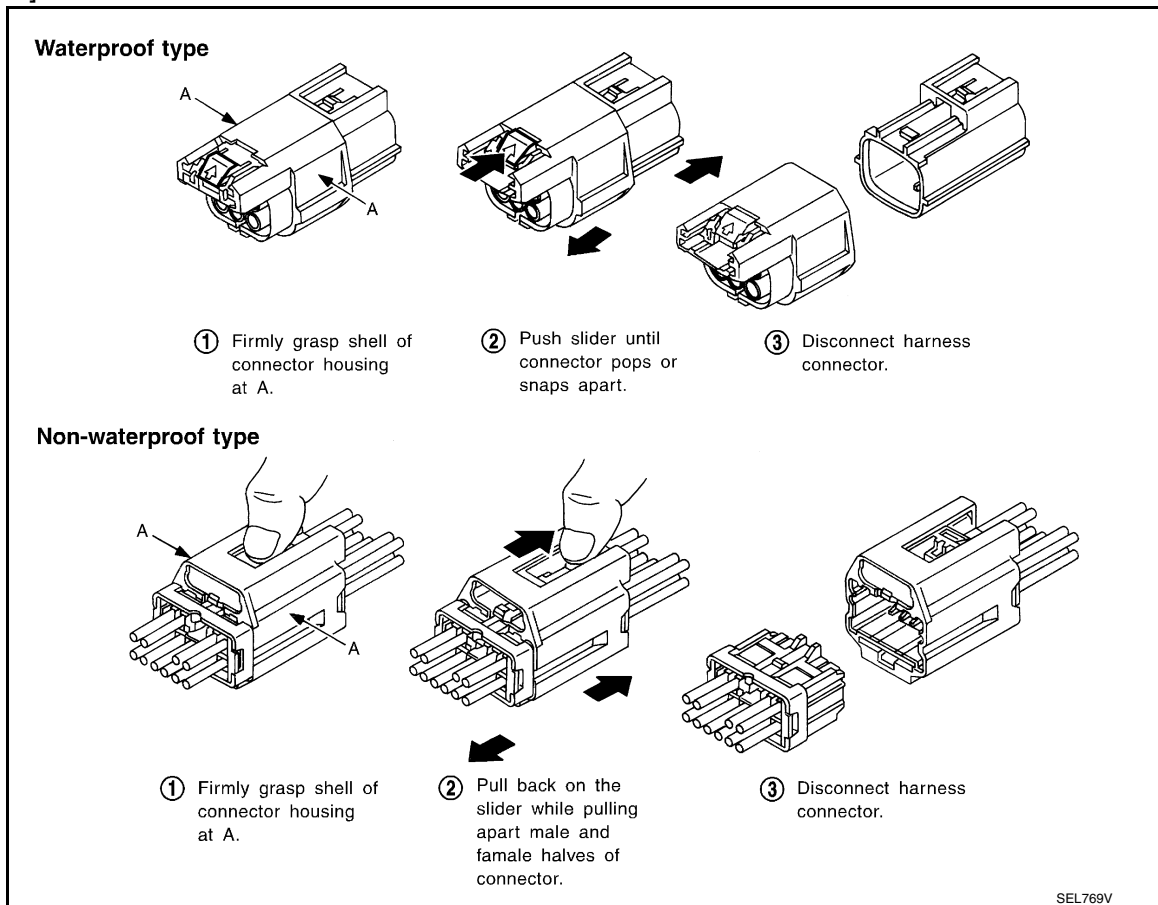
< DTC/CIRCUIT DIAGNOSIS >

- The slide-locking type connectors are disconnected by pushing or pulling the slider. Refer to the figure below.

CAUTION:

- Do not pull the harness or wires when disconnecting the connector.
- Be careful not to damage the connector support bracket when disconnecting the connector.

[Example]



HARNESS CONNECTOR (LEVER LOCKING TYPE)

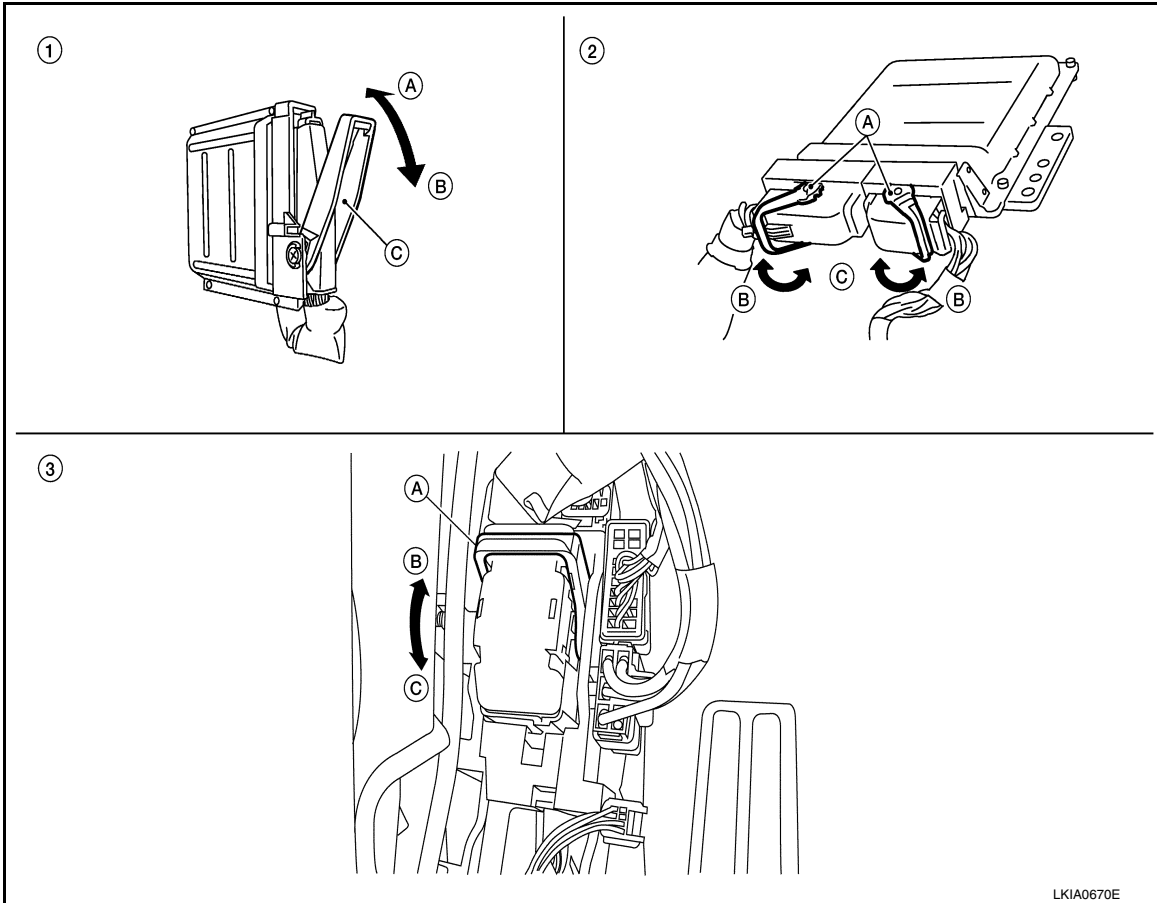
- Lever locking type harness connectors are used on certain control units and control modules such as ECM, ABS actuator and electric unit (control unit), etc.
- Lever locking type harness connectors are also used on super multiple junction (SMJ) connectors.
- Always confirm the lever is fully locked in place by moving the lever as far as it will go to ensure full connection.

CAUTION:

HARNESS CONNECTOR

< DTC/CIRCUIT DIAGNOSIS >

- Always confirm the lever is fully released (loosened) before attempting to disconnect or connect these connectors to avoid damage to the connector housing or terminals.



1. Control unit with single lever

- A. Fasten
- B. Loosen
- C. Lever

2. Control unit with dual lever

- A. Lever
- B. Fasten
- C. Loosen

3. SMJ connector

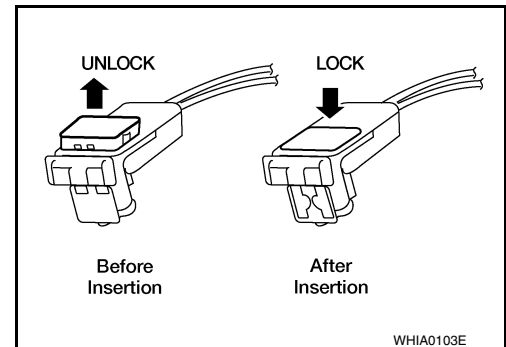
- A. Lever
- B. Fasten
- C. Loosen

HARNESS CONNECTOR (DIRECT-CONNECT SRS COMPONENT TYPE)

- SRS direct-connect type harness connectors are used on certain SRS components such as air bag modules and seat belt pre-tensioners.
- Always pull up to release black locking tab prior to removing connector from SRS components.
- Always push down to lock black locking tab after installing connector to SRS components. When locked, the black locking tab is level with the connector housing.

CAUTION:

- Do not pull the harness or wires when removing connectors from SRS components.



STANDARDIZED RELAY

< DTC/CIRCUIT DIAGNOSIS >

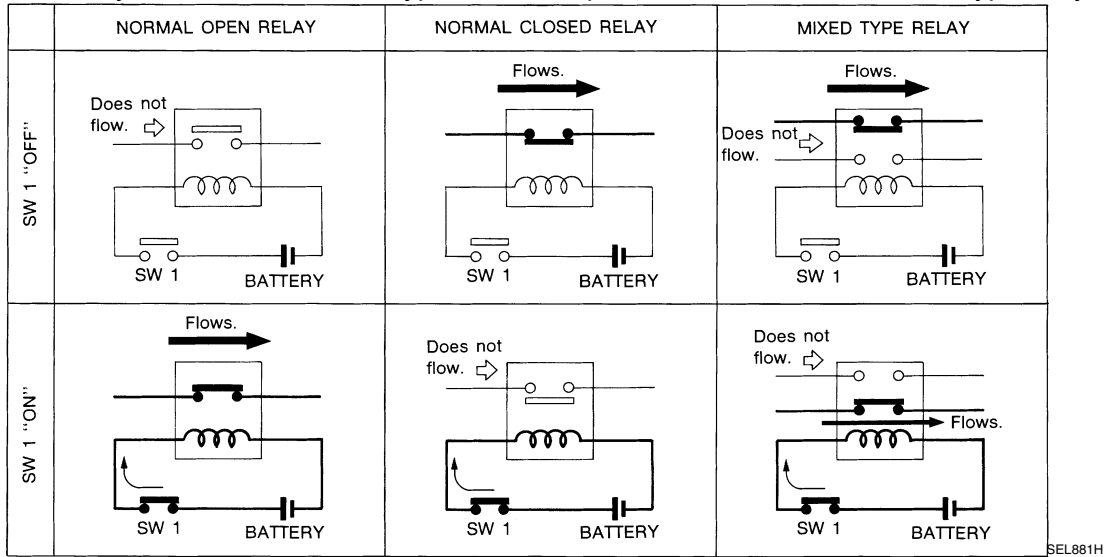
STANDARDIZED RELAY

Description

INFOID:000000010290327

NORMAL OPEN, NORMAL CLOSED AND MIXED TYPE RELAYS

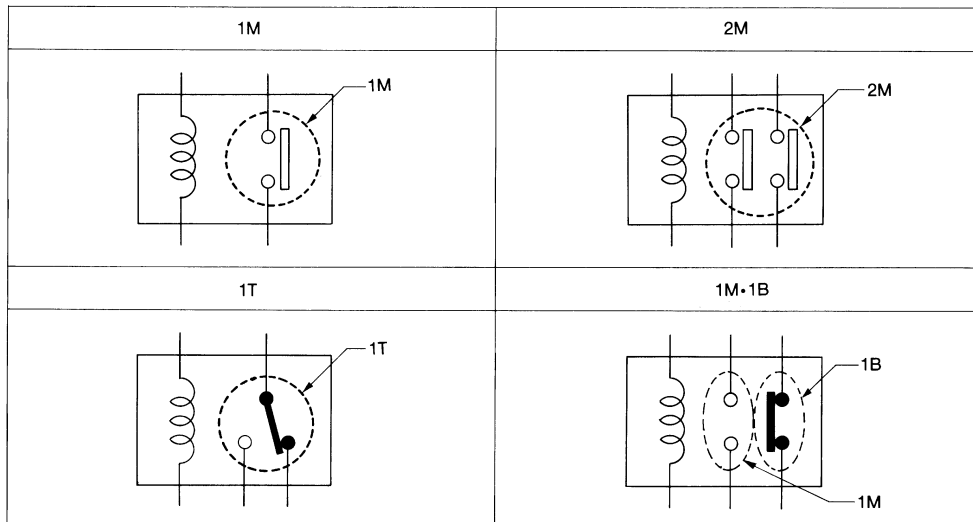
Relays can mainly be divided into three types: normal open, normal closed and mixed type relays.



SEL881H

TYPE OF STANDARDIZED RELAYS

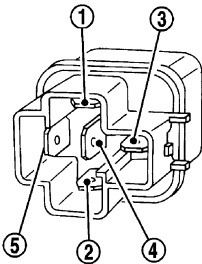
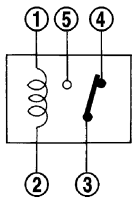
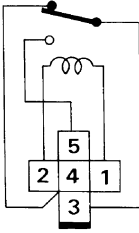
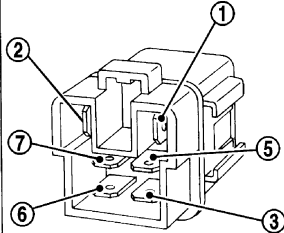
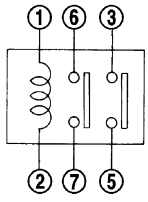
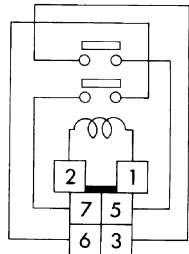
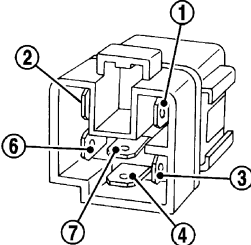
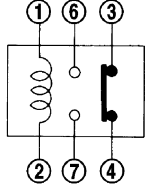
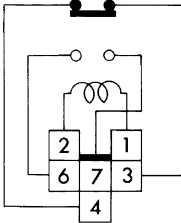
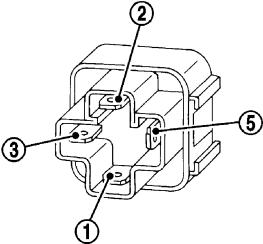
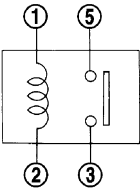
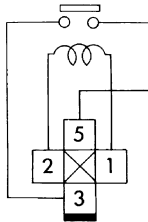
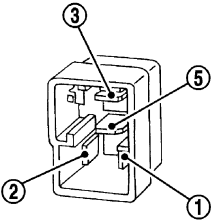
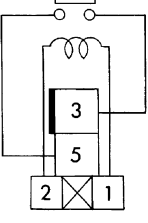
1M 1 Make 2M 2 Make
 1T 1 Transfer 1M·1B 1 Make 1 Break



SEL882H

STANDARDIZED RELAY

< DTC/CIRCUIT DIAGNOSIS >

Type	Outer view	Circuit	Connector symbol and connection	Case color
1T				BLACK
2M				BROWN
1M•1B				GRAY
1M				BLUE
				

The arrangement of terminal numbers on the actual relays may differ from those shown above.

SEL188W

A
B
C
D
E
F
G
H
I
J
K
L
PG
N
O
P

PG

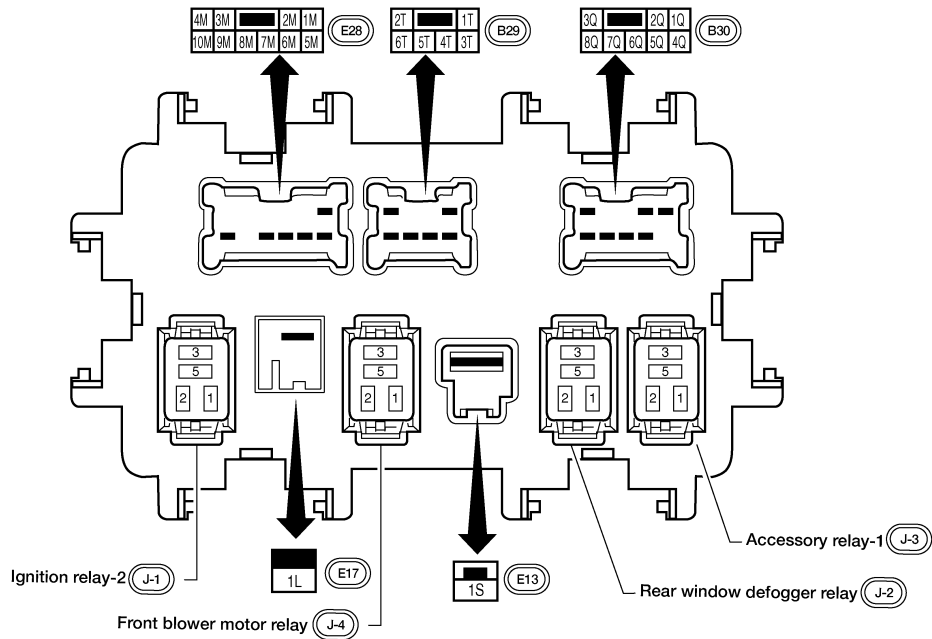
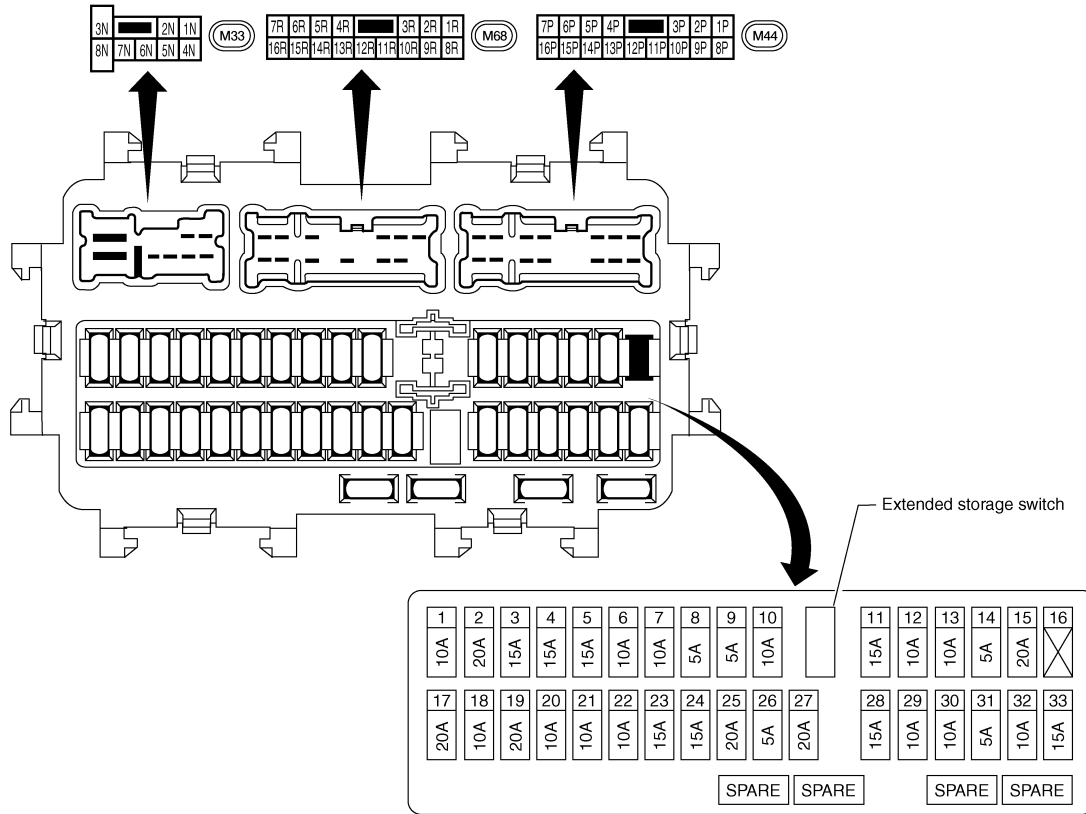
FUSE BLOCK - JUNCTION BOX (J/B)

< DTC/CIRCUIT DIAGNOSIS >

FUSE BLOCK - JUNCTION BOX (J/B)

Terminal Arrangement

INFOID:000000010290328



AAMIA2349GB

FUSE, FUSIBLE LINK AND RELAY BOX

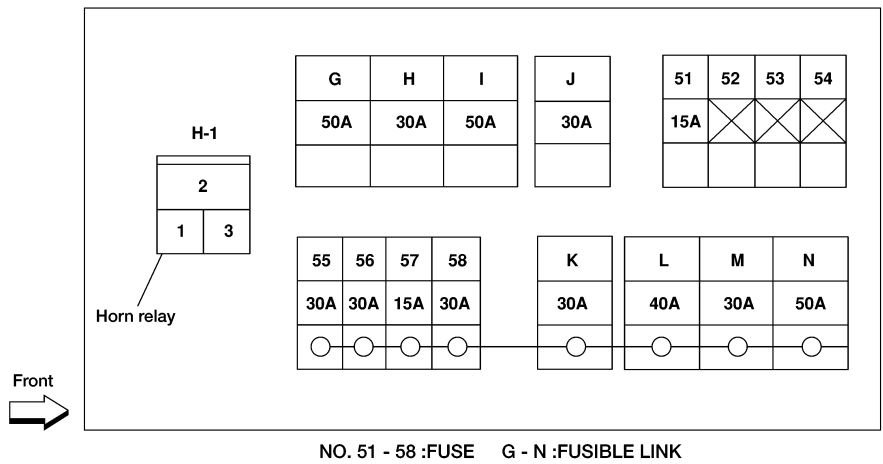
< DTC/CIRCUIT DIAGNOSIS >

FUSE, FUSIBLE LINK AND RELAY BOX

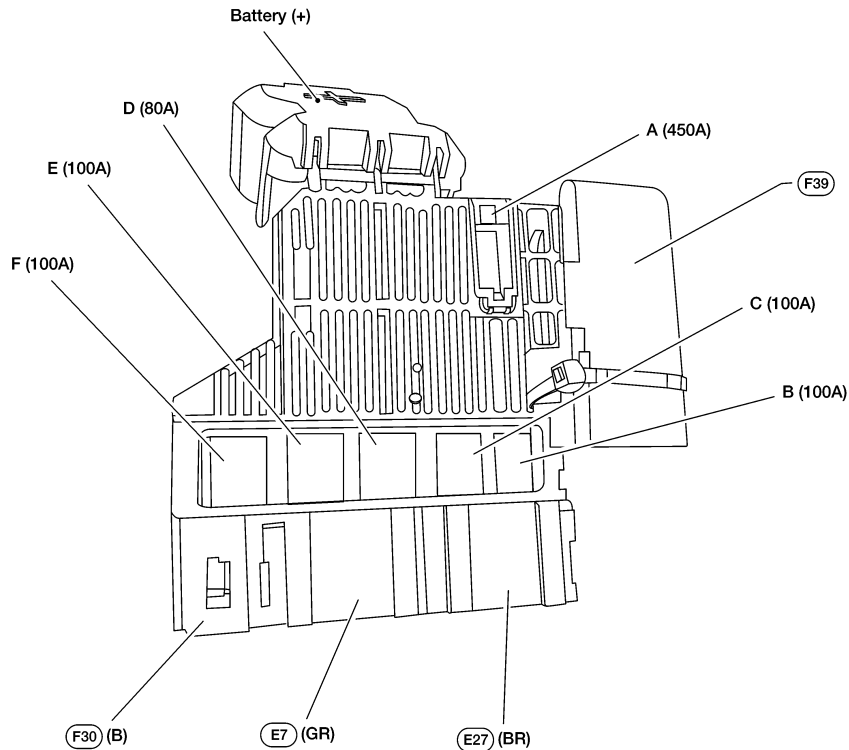
Terminal Arrangement

INFOID:0000000010290329

FUSE, FUSIBLE LINK AND RELAY BOX 1



FUSIBLE LINK BOX (BATTERY)



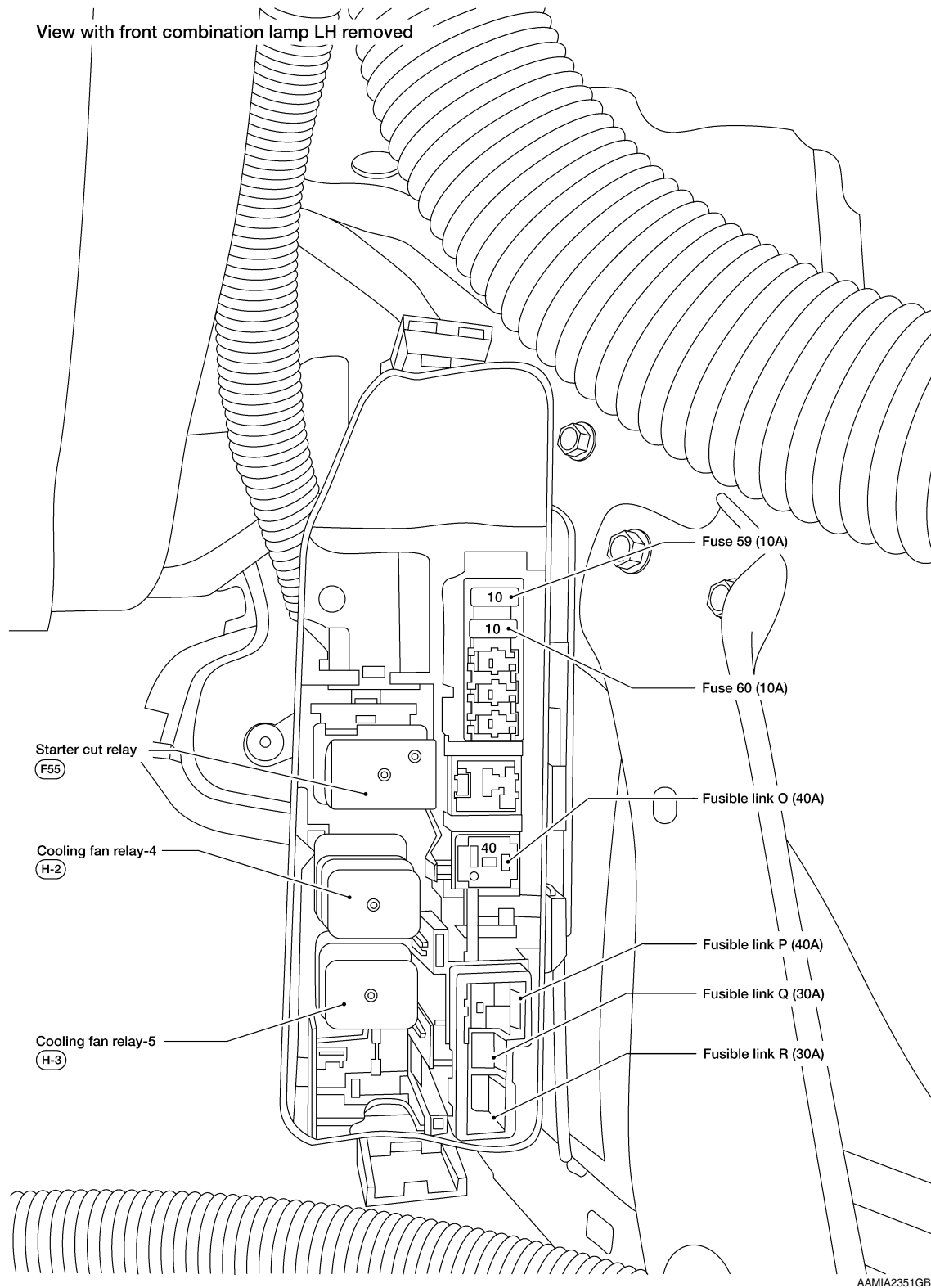
AAMIA2350GB

A
B
C
D
E
F
G
H
I
J
K
L
PG
N
O
P

FUSE, FUSIBLE LINK AND RELAY BOX

< DTC/CIRCUIT DIAGNOSIS >

FUSE, FUSIBLE LINK AND RELAY BOX 2

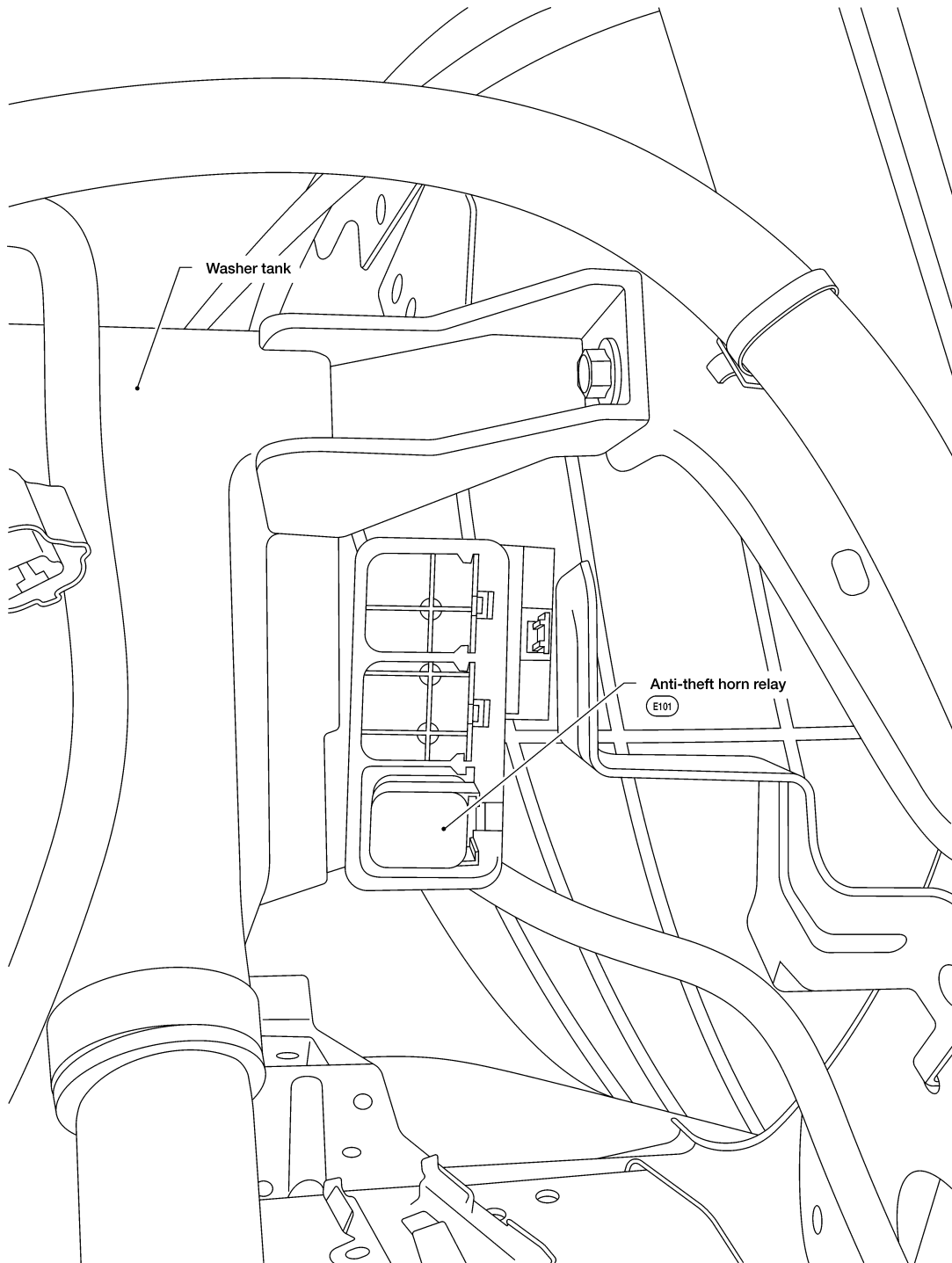


FUSE, FUSIBLE LINK AND RELAY BOX

< DTC/CIRCUIT DIAGNOSIS >

RELAY BOX

View with front combination lamp RH removed



AAMIA2352GB

A
B
C
D
E
F
G
H
I
J
K
L
PG
N
O
P

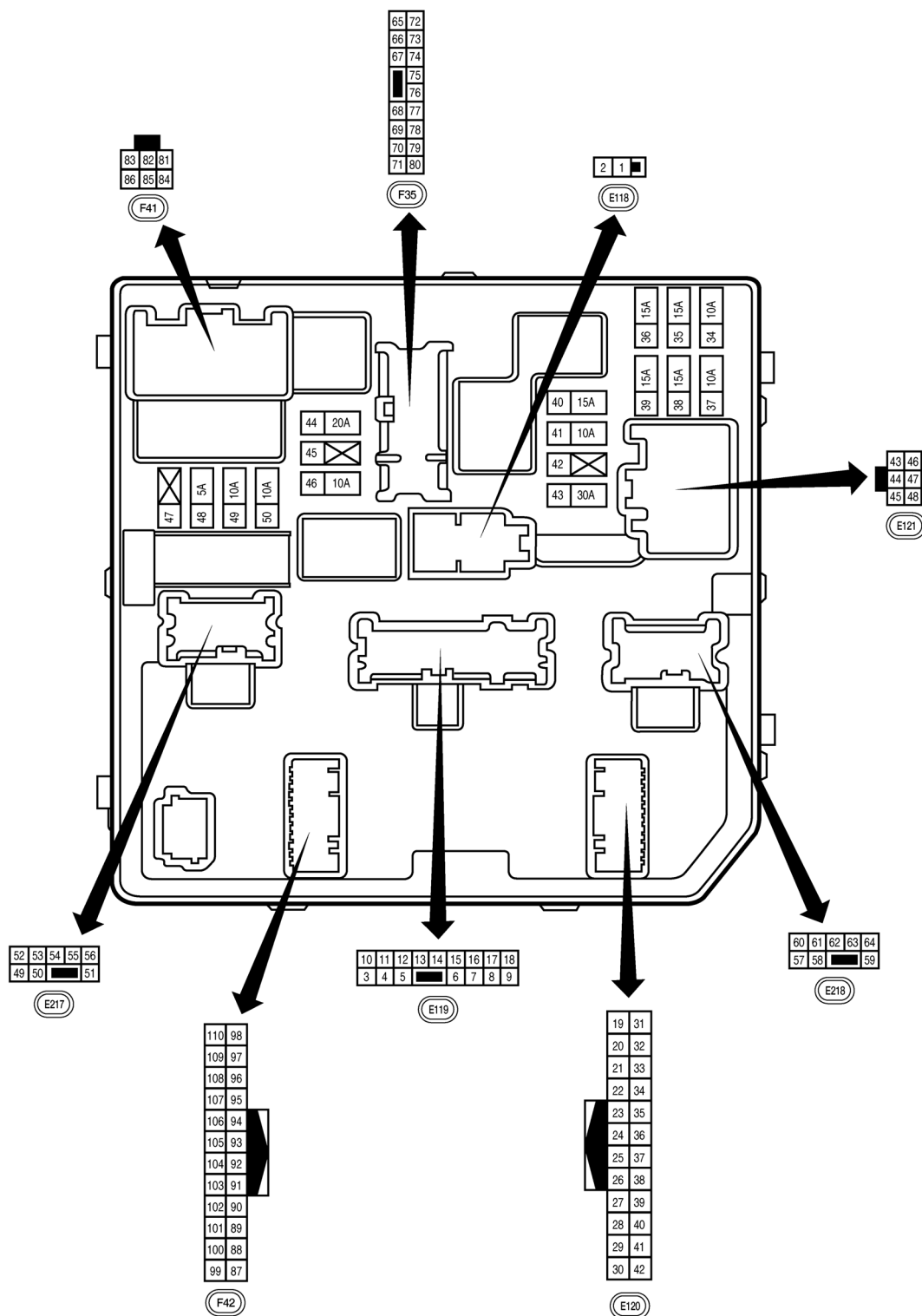
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

< DTC/CIRCUIT DIAGNOSIS >

IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

IPDM E/R Terminal Arrangement

INFOID:000000010290330



AAMIA0267ZZ

BATTERY

< BASIC INSPECTION >

BASIC INSPECTION

BATTERY

How to Handle Battery

INFOID:0000000010290331

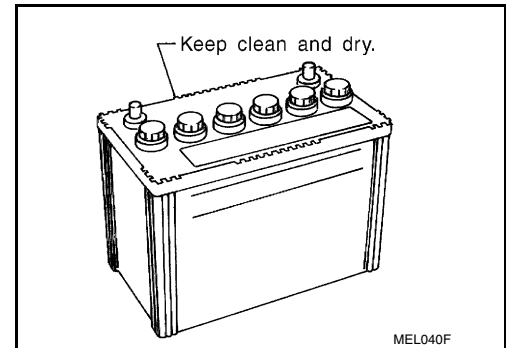
CAUTION:

- If it becomes necessary to start the engine with a booster battery and jumper cables, use a 12-volt booster battery.
- After connecting battery cables, ensure that they are tightly clamped to battery terminals for good contact.
- Never add distilled water through the hole used to check specific gravity.

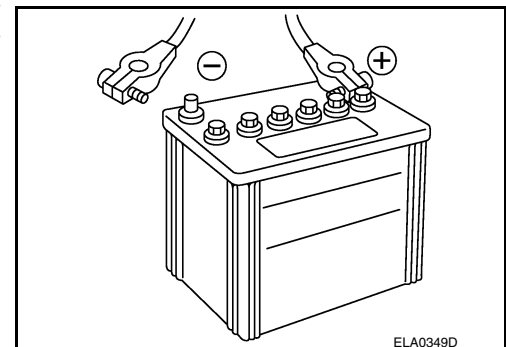
METHODS OF PREVENTING OVER-DISCHARGE

The following precautions must be taken to prevent over-discharging a battery.

- The battery surface (particularly its top) should always be kept clean and dry.
- The terminal connections should be clean and tight.
- At every routine maintenance, check the electrolyte level.
This also applies to batteries designated as "low maintenance" and "maintenance-free".



- When the vehicle is not going to be used over a long period of time, disconnect the battery cable from the negative terminal. (If the vehicle has an extended storage switch, turn it off.)



Work Flow

INFOID:0000000010290332

BATTERY DIAGNOSIS WITH EXP-800 NI OR GR8-1200 NI

To diagnose and confirm the condition of the battery, use the following special service tools:

- EXP-800 NI Battery and electrical diagnostic analyzer
- GR8-1200 NI Multitasking battery and electrical diagnostic station

NOTE:

Refer to the applicable Instruction Manual for proper battery diagnosis procedures.

BATTERY DIAGNOSIS WITHOUT EXP-800 NI OR GR8-1200 NI

Checking Electrolyte Level

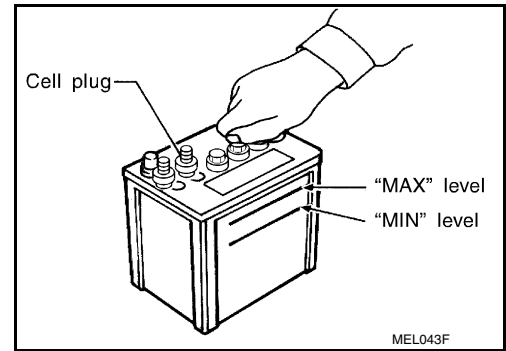
WARNING:

Never allow battery fluid to come in contact with skin, eyes, fabrics, or painted surfaces. After touching a battery, never touch or rub your eyes until you have thoroughly washed your hands. If acid contacts eyes, skin or clothing, immediately flush with water for 15 minutes and seek medical attention. Failure to do this may cause personal injury or damage to clothing or the painted surfaces.

BATTERY

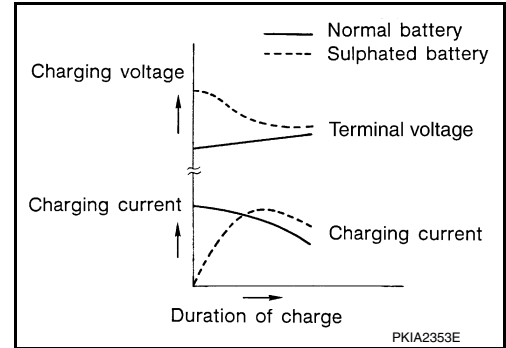
< BASIC INSPECTION >

- Remove the cell plug using a suitable tool.
- Add distilled water up to the MAX level.



SULFATION

- **A battery will be completely discharged if it is left unattended for a long time and the specific gravity will become less than 1.100. This may result in sulfation on the cell plates.**
- **To determine if a battery has been “sulfated”, note its voltage and current when charging it. As shown in the figure, less current and higher voltage are observed in the initial stage of charging sulfated batteries.**
- **A sulfated battery may sometimes be brought back into service by means of a long, slow charge, 12 hours or more, followed by a battery capacity test.**



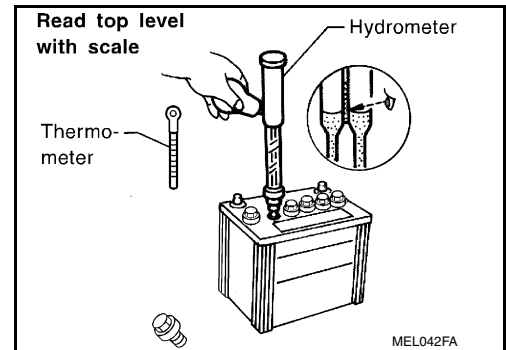
Specific Gravity Check

NOTE:

Check the charge condition of the battery.

Periodically check the specific gravity of the electrolyte. Keep a close check on charge condition to prevent over-discharge.

1. Read hydrometer and thermometer indications at eye level.
2. Use the chart below to correct your hydrometer reading according to electrolyte temperature.



Hydrometer Temperature Correction

Battery electrolyte temperature [°C (°F)]	Add to specific gravity reading
71 (160)	0.032
66 (150)	0.028
60 (140)	0.024
54 (130)	0.020
49 (120)	0.016
43 (110)	0.012
38 (100)	0.008
32 (90)	0.004
27 (80)	0
21 (70)	-0.004
16 (60)	-0.008
10 (50)	-0.012

BATTERY

< BASIC INSPECTION >

Battery electrolyte temperature [°C (°F)]	Add to specific gravity reading
4 (40)	-0.016
-1 (30)	-0.020
-7 (20)	-0.024
-12 (10)	-0.028
-18 (0)	-0.032

Corrected specific gravity	Approximate charge condition
1.260 - 1.280	Fully charged
1.230 - 1.250	3/4 charged
1.200 - 1.220	1/2 charged
1.170 - 1.190	1/4 charged
1.140 - 1.160	Almost discharged
1.110 - 1.130	Completely discharged

Charging The Battery

CAUTION:

- **Never “quick charge” a fully discharged battery.**
- **Keep the battery away from open flame while it is being charged.**
- **When connecting the charger, connect the leads first, then turn on the charger. Never turn on the charger first, as this may cause a spark.**
- **If battery electrolyte temperature rises above 55 °C (131 °F), stop charging. Always charge battery at a temperature below 55 °C (131 °F).**

Charging Rates (Standard Charge)

Approximate charge condition	Charge current (A)	Charge time (h)
Fully charged	7	2
3/4 charged		2.5
1/2 charged		5
1/4 charged		7.5
Almost discharged		9
Completely discharged		10

Charging Rates (Quick Charge)

Approximate charge condition	Charge current (A)	Charge time (h)
Fully charged	—	—
3/4 charged	16	0.5
1/2 charged	33	
1/4 charged		
Almost discharged		
Completely discharged	—	—

NOTE:

The ammeter reading on your battery charger will automatically decrease as the battery charges. This indicates that the voltage of the battery is increasing normally as the state of charge improves. The charging amps indicated above refer to initial charge rate.

- If, after charging, the specific gravity of any two cells varies more than 0.050, the battery should be replaced.

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

INSPECTION AND ADJUSTMENT

< BASIC INSPECTION >

INSPECTION AND ADJUSTMENT

ADDITIONAL SERVICE WHEN REMOVING BATTERY NEGATIVE TERMINAL

ADDITIONAL SERVICE WHEN REMOVING BATTERY NEGATIVE TERMINAL : Special Repair Requirement

INFOID:0000000010290333

Required Procedure After Battery Disconnection

System	Item	Reference
Engine Control System	Idle Air Volume Learning	EC-141
Door & Lock	Calibration Of Automatic Back Door Position Information	DLK-103
Power Window Control System	Power Window System Initialization	PWC-27
Roof	Moonroof Memory Reset/Initialization Sunshade Memory Reset/Initialization	RF-24
Heater & Air Conditioning Control System	Temperature Setting Trimmer	HAC-50 (Automatic air conditioning)
	Foot Position Setting Trimmer	HAC-50 (Automatic air conditioning)
	Inlet Port Memory Function (FRE)	HAC-50 (Automatic air conditioning)
	Inlet Port Memory Function (REC)	HAC-51 (Automatic air conditioning)
	Target Evaporator Temp Upper Limit	HAC-51 (Automatic air conditioning) HAC-150 (Manual air conditioning)
Audio, Visual and Navigation System	Audio (Radio Preset)	Refer to Owner's Manual.
	Navigation System	Refer to Owner's Manual.

FUSE INSPECTION

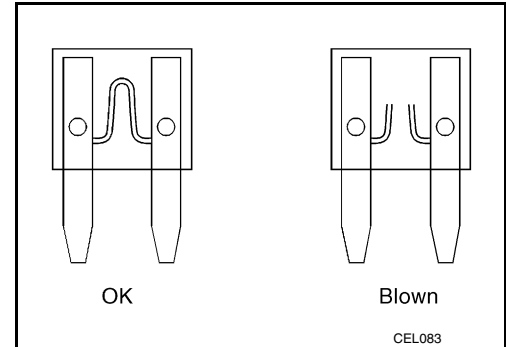
< BASIC INSPECTION >

FUSE INSPECTION

How To Check

- If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse.
- Use fuse of specified rating. Never use fuse of more than specified rating.
- Do not partially install fuse; always insert it into fuse holder properly.
- Remove fuse for "ELECTRICAL PARTS (BAT)" if vehicle is not used for a long period of time.

INFOID:0000000010290334



A
B
C
D
E
F
G
H
I
J
K
L
PG
N
O
P

FUSIBLE LINK INSPECTION

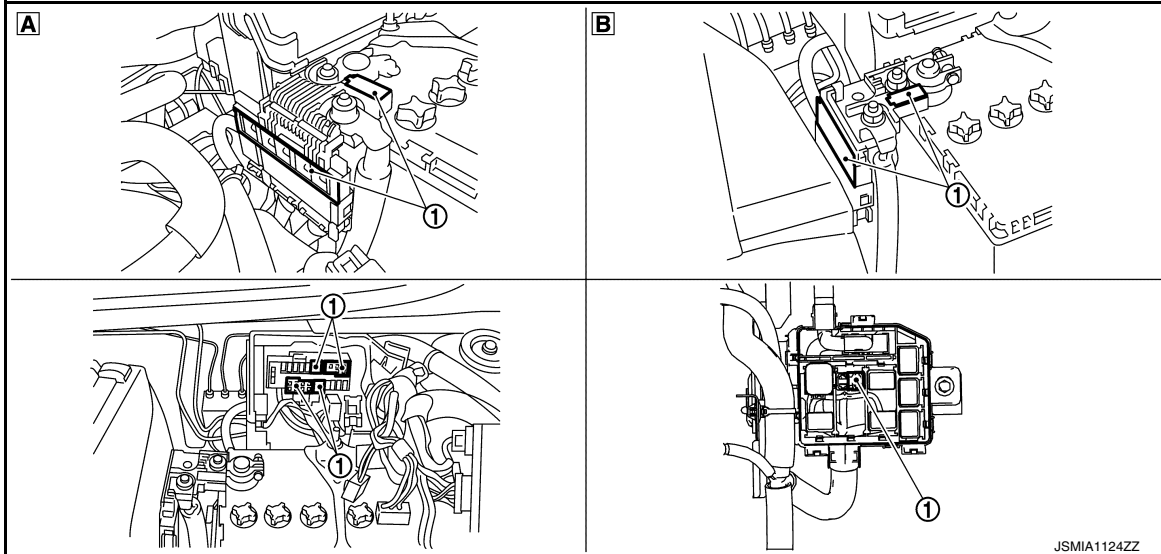
< BASIC INSPECTION >

FUSIBLE LINK INSPECTION

How To Check

INFOID:000000010290335

A melted fusible link can be detected either by visual inspection or by feeling with finger tip. If its condition is questionable, use circuit tester or test lamp.



① Fusible link

A With stop/start system

B Without stop/start system*

*: Not applicable

CAUTION:

- If fusible link should melt, it is possible that critical circuit (power supply or large current carrying circuit) is shorted. In such a case, carefully check and eliminate cause of malfunction.
- Never wrap outside of fusible link with vinyl tape. Important: Never let fusible link touch any other wiring harness, vinyl or rubber parts.

BATTERY

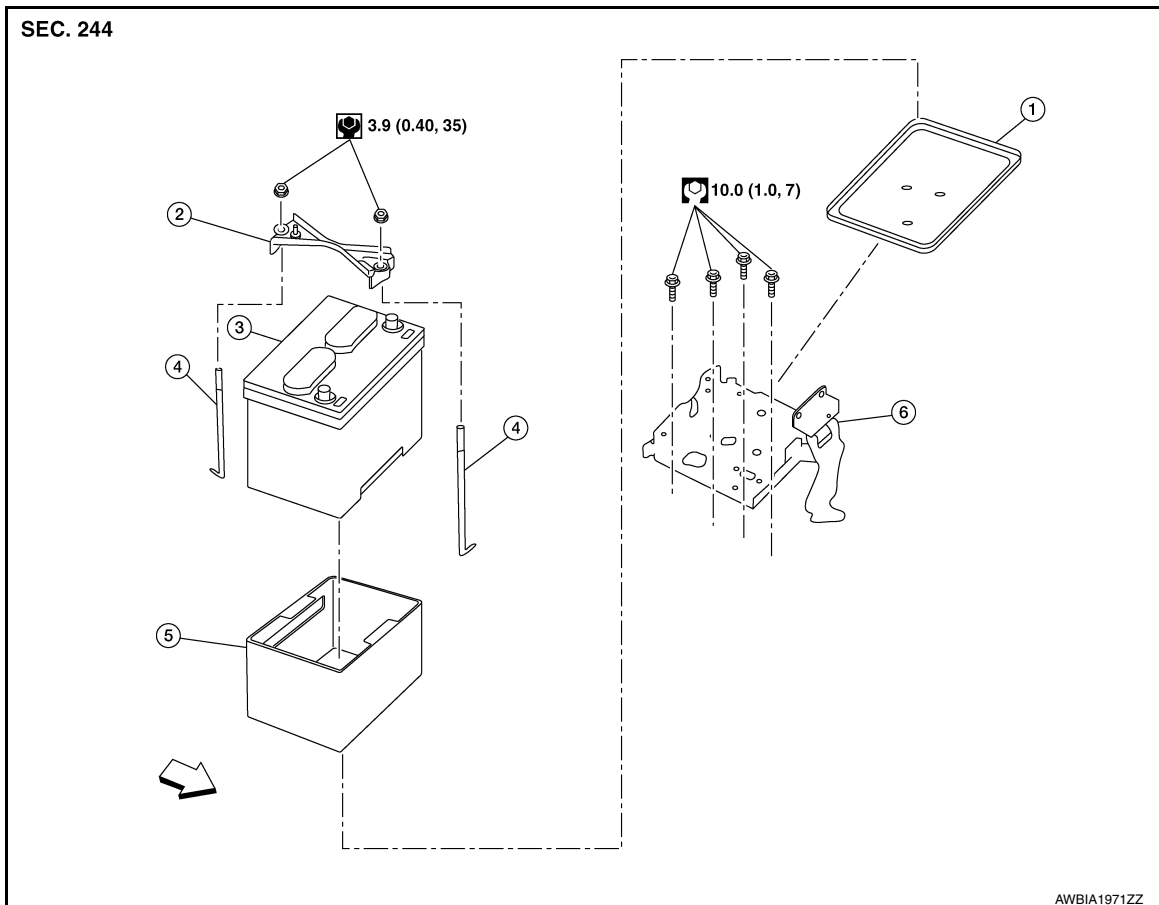
< REMOVAL AND INSTALLATION >

REMOVAL AND INSTALLATION

BATTERY

Exploded View

INFOID:0000000010256016



- | | | |
|-----------------------|------------------|-----------------|
| 1. Battery tray liner | 2. Battery frame | 3. Battery |
| 4. Battery rod | 5. Battery cover | 6. Battery tray |
| ⇐ Front | | |

Removal and Installation (Battery)

INFOID:0000000010256017

REMOVAL

1. Pull back cover of battery positive terminal.
2. Loosen the battery terminal nuts and disconnect the battery negative and positive terminals.
CAUTION:
To prevent damage to the parts, disconnect the battery negative terminal first.
3. Remove battery frame nuts, battery frame and battery rods.
4. Remove battery cover and battery.

INSTALLATION

Installation is in the reverse order of removal.

- CAUTION:**
- Make sure battery tray liner is clean prior to installing new battery.
 - To prevent damage to the parts, connect the battery positive terminal first.
 - Make sure battery cables are tightly clamped to battery terminals for good contact.
 - Check battery terminal for poor connection caused by corrosion.

BATTERY

< REMOVAL AND INSTALLATION >

WARNING:

Do not allow battery fluid to come into contact with skin, eyes, fabrics, or painted surfaces. After touching a battery, never touch or rub your eyes until you have thoroughly washed your hands. If acid contacts eyes, skin or clothing, immediately flush with water for 15 minutes and seek medical attention. Failure to do this may cause personal injury or damage to clothing or the painted surfaces.

Battery terminal nut : 5.0 N·m (0.51 kg-m, 44 in-lb)

Reset electronic systems as necessary. Refer to [.PG-72, "ADDITIONAL SERVICE WHEN REMOVING BATTERY NEGATIVE TERMINAL : Special Repair Requirement"](#)

Removal and Installation (Battery Tray)

INFOID:0000000010256018

REMOVAL

1. Remove battery. Refer to [PG-75, "Removal and Installation \(Battery\)"](#).
2. Remove air cleaner and air duct. Refer to [EM-24, "Removal and Installation"](#).
3. Disconnect harness connector from TCM.
4. Remove wiring harness retainers.
5. Disconnect harness connectors from ECM.
6. Remove battery tray. Refer to [PG-75, "Exploded View"](#)
7. Remove TCM bracket from battery tray (if necessary).
8. Remove ECM bracket from battery tray (if necessary).

INSTALLATION

Installation is in the reverse order of removal.

Reset electronic systems as necessary. Refer to [PG-72, "ADDITIONAL SERVICE WHEN REMOVING BATTERY NEGATIVE TERMINAL : Special Repair Requirement"](#).

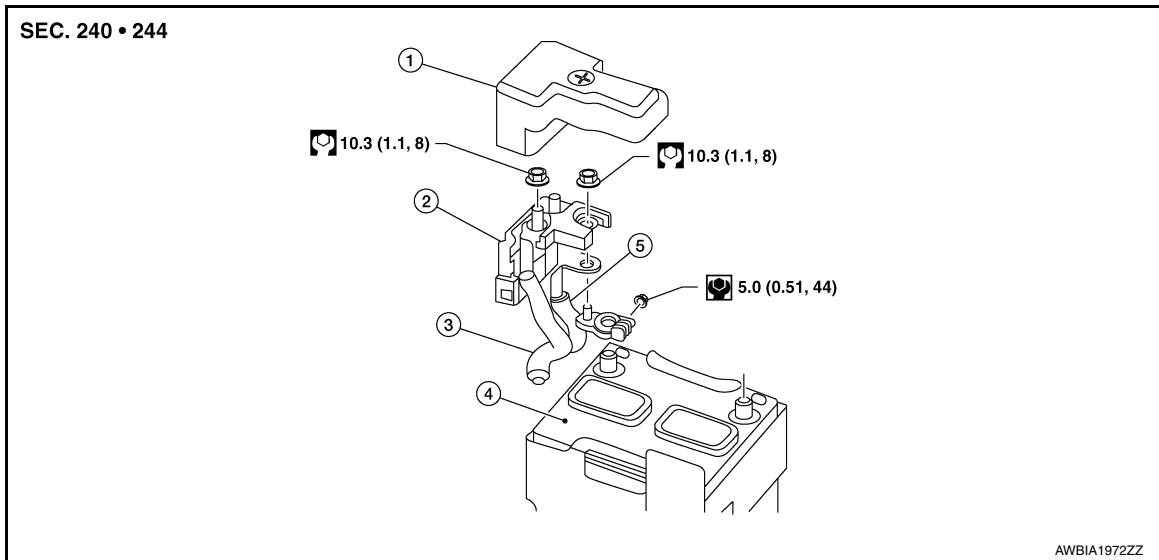
BATTERY TERMINAL WITH FUSIBLE LINK

< REMOVAL AND INSTALLATION >

BATTERY TERMINAL WITH FUSIBLE LINK

Exploded View

INFOID:0000000010256019



- | | | |
|------------|-------------------------------|-------------------|
| 1. Cover | 2. Fusible link box (battery) | 3. Positive cable |
| 4. Battery | 5. Harness connector | ⇐ Front |

Removal and Installation

INFOID:0000000010256020

REMOVAL

- Loosen battery terminal nuts and disconnect both negative and positive terminals from the battery.
CAUTION:
To prevent damage to the parts, disconnect the battery negative terminal first.
- Disconnect positive cable from fusible link box (battery).
- Disconnect harness connectors from fusible link box (battery) and remove fusible link box (battery).

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

Replace the fusible link box battery if it has been dropped or sustained and impact.

To install the battery, carefully read the following instructions:

- To prevent damage to the parts, connect the battery cable to the positive terminal first.**
 - After connecting battery cables, to securely supply battery voltage, ensure that they are tightly clamped to battery terminals for good contact.**
 - To securely supply battery voltage, check battery terminal for poor connection caused by corrosion.**
- Reset electronic systems as necessary. Refer to [PG-72. "ADDITIONAL SERVICE WHEN REMOVING BATTERY NEGATIVE TERMINAL : Special Repair Requirement"](#).

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

Battery

INFOID:000000009794795

Type*	GR35
Capacity (20HR) minimum V-AH	12-60
Cold cranking current A @ -18°C (0°F)	550

*: Always check with the Parts Department for the latest parts information.

PWC

SECTION

POWER WINDOW CONTROL SYSTEM

CONTENTS

PRECAUTION	4	RETAINED PWR	12
PRECAUTIONS	4	RETAINED PWR : CONSULT Function (BCM -	
Precaution for Supplemental Restraint System		RETAINED PWR)	12
(SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	4	ECU DIAGNOSIS INFORMATION	14
Precaution for Work	4	BCM (BODY CONTROL MODULE)	14
PREPARATION	5	List of ECU Reference	14
PREPARATION	5	MAIN POWER WINDOW AND DOOR LOCK/	
Special Service Tool	5	UNLOCK SWITCH	15
Commercial Service Tools	5	Reference Value	15
SYSTEM DESCRIPTION	6	WIRING DIAGRAM	17
COMPONENT PARTS	6	POWER WINDOW SYSTEM	17
Component Parts Location	6	Wiring Diagram	17
Power Window Main Switch	7	BASIC INSPECTION	25
Power Window Switch	7	DIAGNOSIS AND REPAIR WORKFLOW	25
Power Window Motor	7	Work Flow	25
SYSTEM	8	INSPECTION AND ADJUSTMENT	27
System Description	8	ADDITIONAL SERVICE WHEN REMOVING BATTERY	
Fail Safe	9	NEGATIVE TERMINAL	27
DIAGNOSIS SYSTEM (BCM) (WITH INTELLIGENT KEY SYSTEM)	10	ADDITIONAL SERVICE WHEN REMOVING	
COMMON ITEM	10	BATTERY NEGATIVE TERMINAL : Description	27
COMMON ITEM : CONSULT Function (BCM -		ADDITIONAL SERVICE WHEN REMOVING	
COMMON ITEM)	10	BATTERY NEGATIVE TERMINAL : Special Repair Requirement	27
RETAINED PWR	10	ADDITIONAL SERVICE WHEN REPLACING	
RETAINED PWR : CONSULT Function (BCM -		CONTROL UNIT	27
RETAINED PWR)	11	ADDITIONAL SERVICE WHEN REPLACING	
DIAGNOSIS SYSTEM (BCM) (WITHOUT INTELLIGENT KEY SYSTEM)	12	CONTROL UNIT : Description	27
COMMON ITEM	12	ADDITIONAL SERVICE WHEN REPLACING	
COMMON ITEM : CONSULT Function (BCM -		CONTROL UNIT : Special Repair Requirement	27
COMMON ITEM)	12	DTC/CIRCUIT DIAGNOSIS	29
		POWER SUPPLY AND GROUND CIRCUIT	29

BCM (BODY CONTROL SYSTEM) (WITH INTELLIGENT KEY SYSTEM)	29	REAR RH : Component Inspection	44
BCM (BODY CONTROL SYSTEM) (WITH INTELLIGENT KEY SYSTEM) : Diagnosis Procedure	29	ENCODER CIRCUIT	45
BCM (BODY CONTROL SYSTEM) (WITHOUT INTELLIGENT KEY SYSTEM)	29	Description	45
BCM (BODY CONTROL SYSTEM) (WITHOUT INTELLIGENT KEY SYSTEM) : Diagnosis Procedure	29	Component Function Check	45
POWER WINDOW MAIN SWITCH	30	Diagnosis Procedure	45
POWER WINDOW MAIN SWITCH : Diagnosis Procedure	30	POWER WINDOW RELAY	48
FRONT POWER WINDOW SWITCH (PASSENGER SIDE)	31	Description	48
FRONT POWER WINDOW SWITCH (PASSENGER SIDE) : Diagnosis Procedure	31	Component Function Check	48
REAR POWER WINDOW SWITCH	32	Diagnosis Procedure	48
REAR POWER WINDOW SWITCH : Diagnosis Procedure	32	Component Inspection	49
FRONT POWER WINDOW SWITCH (PASSENGER SIDE)	34	DOOR SWITCH	50
Description	34	WITH INTELLIGENT KEY	50
Component Function Check	34	WITH INTELLIGENT KEY :	
Diagnosis Procedure	34	Component Function Check	50
Component Inspection	35	WITH INTELLIGENT KEY : Diagnosis Procedure	50
REAR POWER WINDOW SWITCH	36	WITH INTELLIGENT KEY : Component Inspection	51
Description	36	WITHOUT INTELLIGENT KEY	51
Component Function Check	36	WITHOUT INTELLIGENT KEY : Description	51
Diagnosis Procedure	36	WITHOUT INTELLIGENT KEY :	
Component Inspection	37	Component Function Check	51
POWER WINDOW MOTOR	38	WITHOUT INTELLIGENT KEY : Diagnosis Procedure	52
DRIVER SIDE	38	WITHOUT INTELLIGENT KEY : Component Inspection	53
DRIVER SIDE : Description	38	SYMPTOM DIAGNOSIS	54
DRIVER SIDE : Component Function Check	38	POWER WINDOW CONTROL SYSTEM	
DRIVER SIDE : Diagnosis Procedure	38	SYMPTOMS	54
DRIVER SIDE : Component Inspection	39	Symptom Table	54
PASSENGER SIDE	39	NONE OF THE POWER WINDOWS CAN BE OPERATED USING ANY SWITCH	55
PASSENGER SIDE : Description	39	Diagnosis Procedure	55
PASSENGER SIDE : Component Function Check	39	DRIVER SIDE POWER WINDOW DOES NOT OPERATE	56
PASSENGER SIDE : Diagnosis Procedure	39	Diagnosis Procedure	56
PASSENGER SIDE : Component Inspection	40	FRONT PASSENGER SIDE POWER WINDOW DOES NOT OPERATE	57
REAR LH	41	WITH BOTH POWER WINDOW MAIN SWITCH AND FRONT PASSENGER SIDE POWER WINDOW SWITCH	57
REAR LH : Description	41	WITH BOTH POWER WINDOW MAIN SWITCH AND FRONT PASSENGER SIDE POWER WINDOW SWITCH : Diagnosis Procedure	57
REAR LH : Component Function Check	41	WITH FRONT POWER WINDOW SWITCH ONLY ...	57
REAR LH : Diagnosis Procedure	41	WITH FRONT POWER WINDOW SWITCH ONLY : Diagnosis Procedure	57
REAR LH : Component Inspection	42	REAR LH SIDE POWER WINDOW DOES NOT OPERATE	58
REAR RH	42		
REAR RH : Description	42		
REAR RH : Component Function Check	42		
REAR RH : Diagnosis Procedure	43		

WITH BOTH POWER WINDOW MAIN SWITCH AND REAR POWER WINDOW SWITCH LH	58	POWER WINDOW RETAINED POWER OP- ERATION DOES NOT OPERATE PROPERLY	61	A
WITH BOTH POWER WINDOW MAIN SWITCH AND REAR POWER WINDOW SWITCH LH : Di- agnosis Procedure	58	Diagnosis Procedure	61	
WITH REAR POWER WINDOW SWITCH LH ONLY	58	AUTO OPERATION DOES NOT OPERATE BUT MANUAL OPERATE NORMALLY (DRIVER SIDE)	62	B
WITH REAR POWER WINDOW SWITCH LH ONLY : Diagnosis Procedure	58	Diagnosis Procedure	62	C
REAR RH SIDE POWER WINDOW DOES NOT OPERATE	59	POWER WINDOW LOCK SWITCH DOES NOT FUNCTION	63	D
		Diagnosis Procedure	63	
WITH BOTH POWER WINDOW MAIN SWITCH AND REAR POWER WINDOW SWITCH RH	59	REMOVAL AND INSTALLATION	64	E
WITH BOTH POWER WINDOW MAIN SWITCH AND REAR POWER WINDOW SWITCH RH : Di- agnosis Procedure	59	MAIN POWER WINDOW AND DOOR LOCK/ UNLOCK SWITCH	64	F
		Removal and Installation	64	
WITH REAR POWER WINDOW SWITCH RH ONLY	59	POWER WINDOW AND DOOR LOCK/UN- LOCK SWITCH RH	65	G
WITH REAR POWER WINDOW SWITCH RH ONLY : Diagnosis Procedure	59	Removal and Installation	65	
ANTI-PINCH SYSTEM DOES NOT OPERATE NORMALLY (DRIVER SIDE)	60	REAR POWER WINDOW SWITCH	66	H
Diagnosis Procedure	60	Removal and Installation	66	I
				J
				L
				M
				N
				O
				P

PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010335222

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Precaution for Work

INFOID:0000000010336465

- When removing or disassembling each component, be careful not to damage or deform it. If a component may be subject to interference, be sure to protect it with a shop cloth.
- When removing (disengaging) components with a screwdriver or similar tool, be sure to wrap the component with a shop cloth or vinyl tape to protect it.
- Protect the removed parts with a shop cloth and prevent them from being dropped.
- Replace a deformed or damaged clip.
- If a part is specified as a non-reusable part, always replace it with a new one.
- Be sure to tighten bolts and nuts securely to the specified torque.
- After installation is complete, be sure to check that each part works properly.
- Follow the steps below to clean components:
 - Water soluble dirt:
 - Dip a soft cloth into lukewarm water, wring the water out of the cloth and wipe the dirty area.
 - Then rub with a soft, dry cloth.
 - Oily dirt:
 - Dip a soft cloth into lukewarm water with mild detergent (concentration: within 2 to 3%) and wipe the dirty area.
 - Then dip a cloth into fresh water, wring the water out of the cloth and wipe the detergent off.
 - Then rub with a soft, dry cloth.
 - Do not use organic solvent such as thinner, benzene, alcohol or gasoline.
 - For genuine leather seats, use a genuine leather seat cleaner.

PREPARATION

< PREPARATION >

PREPARATION

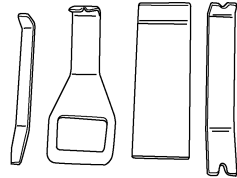
PREPARATION

Special Service Tool

INFOID:0000000010336464

The actual shape of the tools may differ from those illustrated here.

Tool number (TechMate No.) Tool name	Description
— (J-46534) Trim Tool Set	Removing trim components



AWJIA0483ZZ

Commercial Service Tools

INFOID:0000000010335223

(TechMate No.) Tool name	Description
(—) Power tool	Loosening nuts, screws and bolts



PIIB1407E

PWC

COMPONENT PARTS

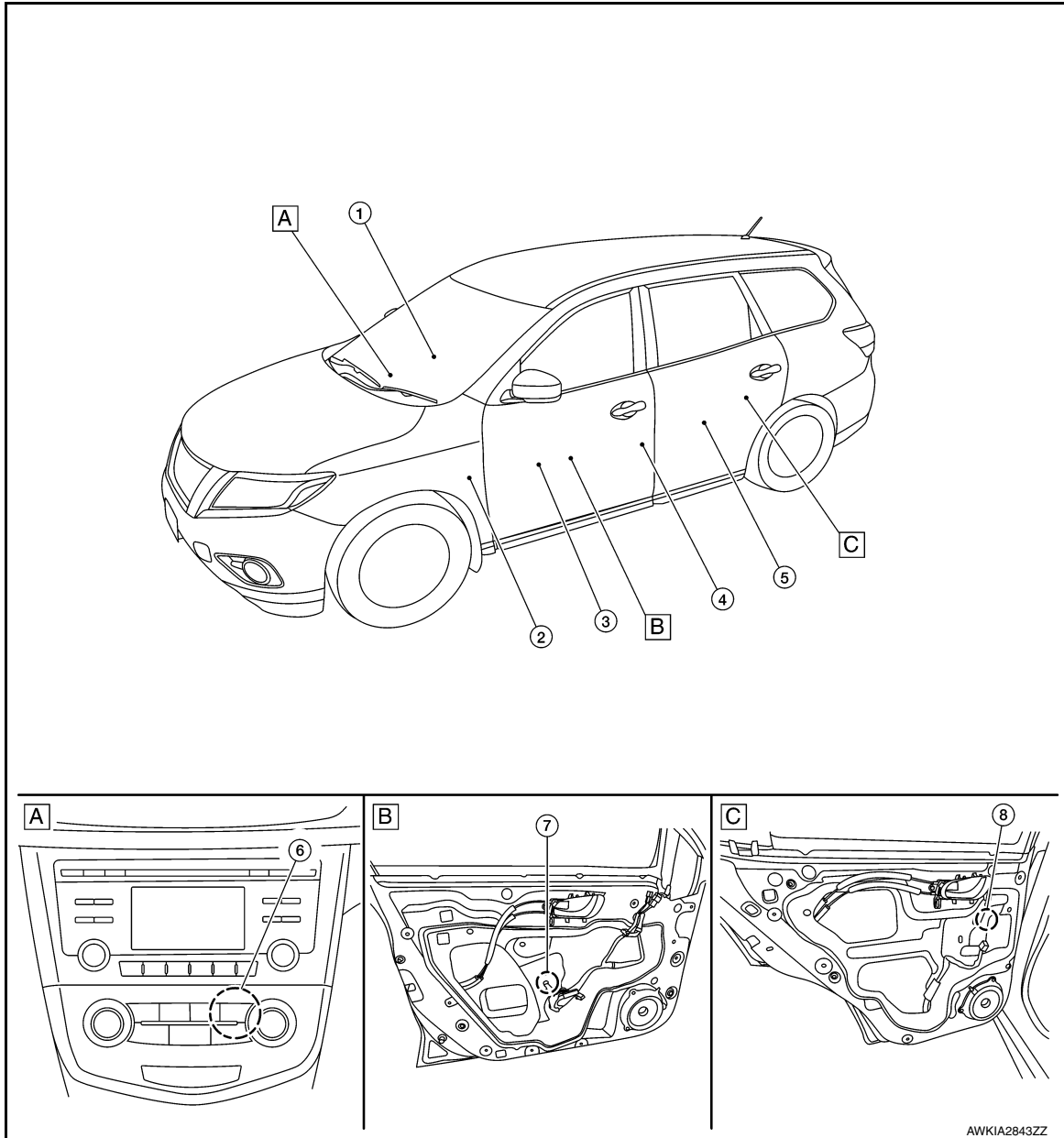
< SYSTEM DESCRIPTION >

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:0000000010227738



A. A/C switch assembly

B. View with front door finisher removed

C. View with rear door finisher removed

No.	Component parts	Function
1.	Front power window switch	Refer to PWC-7, "Power Window Switch" .
2.	BCM	- Supplies power supply to power window relay. - Controls retained power. - Refer to BCS-7, "BODY CONTROL SYSTEM : Component Parts Location" for detailed installation location.
3.	Main power window and door lock/unlock switch	Refer to PWC-7, "Power Window Main Switch" .

COMPONENT PARTS

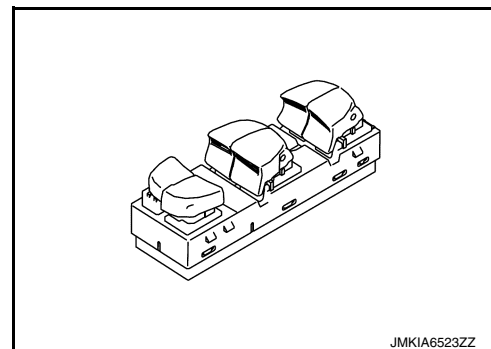
< SYSTEM DESCRIPTION >

No.	Component parts	Function
4.	Front door switch LH (RH similar)	- Inputs door open/close condition to BCM. - Refer to DLK-24, "Front Door Switch".
5.	Rear power window switch LH (RH similar)	Refer to PWC-7, "Power Window Switch" .
6.	Power window relay	Operates the power window system with the control signal from the BCM.
7.	Front power window motor LH (RH similar)	Refer to PWC-7, "Power Window Motor" .
8.	Rear power window motor LH (RH similar)	Refer to PWC-7, "Power Window Motor" .

Power Window Main Switch

INFOID:0000000010227739

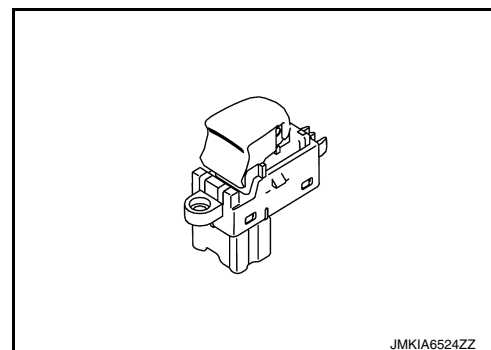
- Main power window and door lock/unlock switch controls all power windows.
- Main power window and door lock/unlock switch integrates UP/DOWN switch, power window lock switch, and door lock/unlock switch.
- Main power window and door lock/unlock switch controls power window lock function, AUTO UP/DOWN function, and anti-pinch function.



Power Window Switch

INFOID:0000000010227740

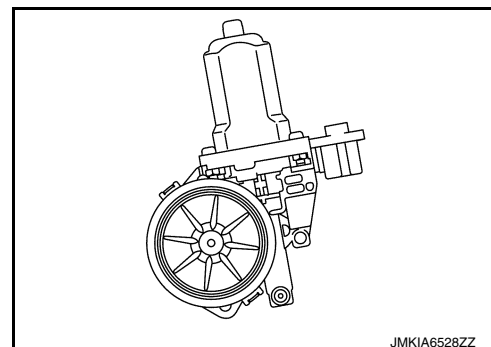
- Each power window switch transmits UP/DOWN signal to each motor.
- Each power window switch transmits UP/DOWN signal from power window main switch to each motor.



Power Window Motor

INFOID:0000000010227741

- Integrates the encoder and power window motor (front driver side).
- Starts operation according to signals from main power window and door lock/unlock switch.
- Transmits front power window motor (driver side) rotation as a pulse signal to power window main switch.
- Excepting power window motor for driver door, starts operation according to signals from main power window and door lock/unlock switch or each power window switches.



SYSTEM

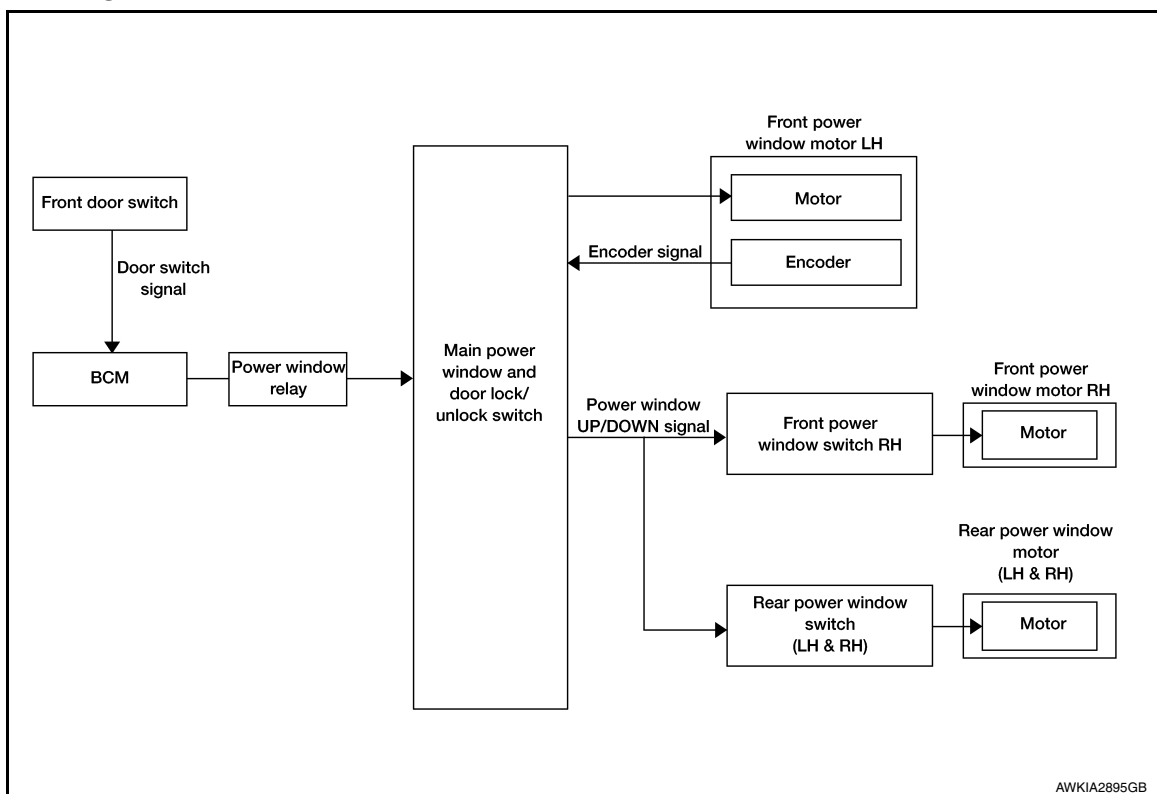
< SYSTEM DESCRIPTION >

SYSTEM

System Description

INFOID:000000010227742

SYSTEM DIAGRAM



POWER WINDOW OPERATION

- Main power window and door lock/unlock switch can open/close all windows.
- Front and rear power window switches can open/close the corresponding windows.

POWER WINDOW AUTO-OPERATION (FRONT DRIVER SIDE)

- AUTO UP/DOWN operation can be performed when main power window and door lock/unlock switch turns to AUTO.
- Encoder continues detecting the movement of power window motor and transmits to power window switch as the encoder pulse signal while power window motor is operating.
- Power window switch reads the changes of encoder signal and stops AUTO operation when door glass is at fully opened/closed position.
- Power window motor is operable in case encoder is malfunctioning.

RETAINED POWER OPERATION

Retained power operation is an additional power supply function that enables power window system to operate for 45 seconds even when power switch is turned OFF.

RETAINED POWER CANCEL CONDITIONS

- Front door CLOSE (door switch OFF) → OPEN (door switch ON).
- When power switch is ON again.
- When timer time passes (45 seconds).

POWER WINDOW LOCK

Ground circuit inside main power window and door lock/unlock switch shuts off when power window lock switch is ON. This inhibits power window switch operation except with the main power window and door lock/unlock switch.

ANTI-PINCH SYSTEM (FRONT DRIVER SIDE)

- Pinch foreign material in the door glass during AUTO-UP operation, and it is the anti-pinch function that lowers the door glass 150 mm (5.9 in.) when detected.

SYSTEM

< SYSTEM DESCRIPTION >

- Encoder continues detecting the movement of front power window motor (driver side) and transmits to main power window and door lock/unlock switch as the encoder pulse signal while front power window motor (driver side) is operating. A
- Resistance is applied to the front power window motor (driver side) rotation that changes the frequency of encoder pulse signal if foreign material is trapped in the door glass. B
- Main power window and door lock/unlock switch controls to lower the window glass for 150 mm (5.9 in) after it detects encoder pulse signal frequency change.

OPERATION CONDITION

- When front door glass (driver side) AUTO-UP operation is performed (anti-pinch function does not operate just before the door glass closes and is fully closed). C

NOTE:

Depending on environment and driving conditions, if a similar impact or load is applied to the door glass, it may lower. D

Fail Safe

INFOID:0000000010227743

FAIL-SAFE CONTROL

Switches to fail-safe control when malfunction is detected in encoder signal that detects up/down speed and direction of door glass. Switches to fail-safe control when error beyond regulation value is detected between the fully closed position and the actual position of the glass. F

Error	Error condition	G
Pulse sensor malfunction	When only one side of pulse signal is being detected for more than the specified value.	
Both pulse sensors malfunction	When both pulse signals have not been detected for more than the specified value during glass open/close operation.	H
Pulse direction malfunction	When the pulse signal that is detected during glass open/close operation detects the opposite condition of power window motor operating direction.	
Glass recognition position malfunction 1	When it detects the error between glass fully closed position in power window switch memory and actual fully closed position during glass open/close operation is more than the specified value.	I
Glass recognition position malfunction 2	When it detects pulse count more than the value of glass full stroke during glass open/close operation.	J

It changes to condition before initialization and the following functions do not operate when switched to fail-safe control.

- Auto-up operation
- Anti-pinch function
- Retained power function

PWC

Perform initial operation to recover when switched to fail-safe mode. However, it switches back to fail-safe control when malfunction is found in power window switch or in the motor. L

M

N

O

P

DIAGNOSIS SYSTEM (BCM) (WITH INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (BCM) (WITH INTELLIGENT KEY SYSTEM) COMMON ITEM

COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)

INFOID:0000000010288480

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with BCM.

Direct Diagnostic Mode	Description
Ecu Identification	The BCM part number is displayed.
Self Diagnostic Result	The BCM self diagnostic results are displayed.
Data Monitor	The BCM input/output data is displayed in real time.
Active Test	The BCM activates outputs to test components.
Work support	The settings for BCM functions can be changed.
Configuration	- The vehicle specification can be read and saved. - The vehicle specification can be written when replacing BCM.
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.

SYSTEM APPLICATION

BCM can perform the following functions.

System	Sub System	Direct Diagnostic Mode						
		Ecu Identification	Self Diagnostic Result	Data Monitor	Active Test	Work support	Configuration	CAN Diag Support Mntr
Door lock	DOOR LOCK		×	×	×	×		
Rear window defogger	REAR DEFOGGER			×	×	×		
Warning chime	BUZZER			×	×			
Interior room lamp timer	INT LAMP			×	×	×		
Exterior lamp	HEADLAMP			×	×	×		
Wiper and washer	WIPER			×	×	×		
Turn signal and hazard warning lamps	FLASHER			×	×			
Intelligent Key system	INTELLIGENT KEY		×	×	×	×		
Combination switch	COMB SW			×				
BCM	BCM	×	×			×	×	×
Immobilizer	IMMU		×	×	×			
Interior room lamp battery saver	BATTERY SAVER			×	×			
Back door open	TRUNK			×				
Vehicle security system	THEFT ALM			×	×	×		
RAP system	RETAINED PWR			×				
Signal buffer system	SIGNAL BUFFER			×				
TPMS	AIR PRESSURE MONITOR		×	×	×	×		

RETAINED PWR

DIAGNOSIS SYSTEM (BCM) (WITH INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

RETAINED PWR : CONSULT Function (BCM - RETAINED PWR)

INFOID:0000000010288481

DATA MONITOR

Monitor Item [Unit]	Description
DOOR SW-DR [On/Off]	Indicates condition of front door switch LH.
DOOR SW-AS [On/Off]	Indicates condition of front door switch RH.

A

B

C

D

E

F

G

H

I

J

PWC

L

M

N

O

P

DIAGNOSIS SYSTEM (BCM) (WITHOUT INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (BCM) (WITHOUT INTELLIGENT KEY SYSTEM) COMMON ITEM

COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)

INFOID:0000000010288482

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with BCM.

Direct Diagnostic Mode	Description
Ecu Identification	The BCM part number is displayed.
Self Diagnostic Result	The BCM self diagnostic results are displayed.
Data Monitor	The BCM input/output data is displayed in real time.
Active Test	The BCM activates outputs to test components.
Work support	The settings for BCM functions can be changed.
Configuration	- The vehicle specification can be read and saved. - The vehicle specification can be written when replacing BCM.
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.

SYSTEM APPLICATION

BCM can perform the following functions.

System	Sub System	Direct Diagnostic Mode						
		Ecu Identification	Self Diagnostic Result	Data Monitor	Active Test	Work support	Configuration	CAN Diag Support Mntr
Door lock	DOOR LOCK			x	x	x		
Rear window defogger	REAR DEFOGGER			x	x	x		
Warning chime	BUZZER			x	x			
Interior room lamp timer	INT LAMP			x	x	x		
Remote keyless entry system	MULTI REMOTE ENT					x		
Exterior lamp	HEADLAMP			x	x			
Wiper and washer	WIPER			x	x	x		
Turn signal and hazard warning lamps	FLASHER			x	x			
Combination switch	COMB SW			x				
BCM	BCM	x	x			x	x	x
Immobilizer	IMMU		x		x			
Interior room lamp battery saver	BATTERY SAVER			x	x			
Back door open	TRUNK			x				
Vehicle security system	THEFT ALM			x	x	x		
RAP system	RETAINED PWR			x				
TPMS	AIR PRESSURE MONITOR		x	x	x	x		

RETAINED PWR

RETAINED PWR : CONSULT Function (BCM - RETAINED PWR)

INFOID:0000000010288483

DATA MONITOR

DIAGNOSIS SYSTEM (BCM) (WITHOUT INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

Monitor Item [Unit]	Description
DOOR SW-DR [On/Off]	Indicates condition of front door switch LH.
DOOR SW-AS [On/Off]	Indicates condition of front door switch RH.

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

PWC

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

ECU DIAGNOSIS INFORMATION

BCM (BODY CONTROL MODULE)

List of ECU Reference

INFOID:0000000010228070

ECU	Reference
BCM (with Intelligent Key system)	BCS-28, "Reference Value"
	BCS-47, "Fail Safe"
	BCS-47, "DTC Inspection Priority Chart"
	BCS-48, "DTC Index"
BCM (without Intelligent Key system)	BCS-96, "Reference Value"
	BCS-107, "Fail Safe"
	BCS-107, "DTC Inspection Priority Chart"
	BCS-108, "DTC Index"

MAIN POWER WINDOW AND DOOR LOCK/UNLOCK SWITCH

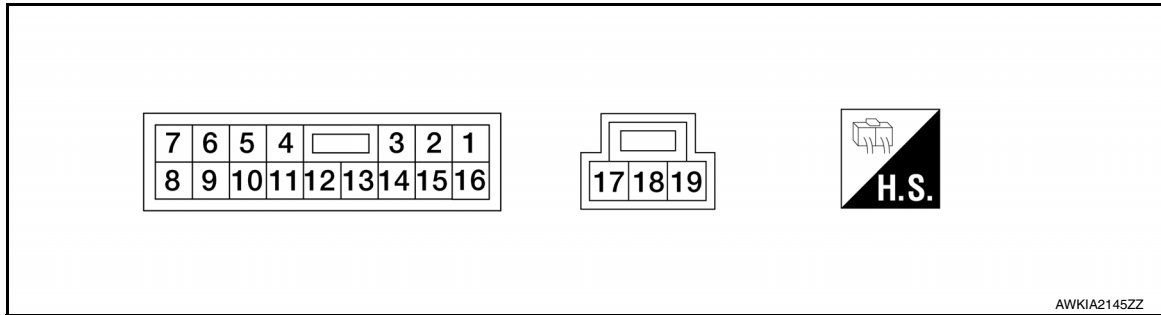
< ECU DIAGNOSIS INFORMATION >

MAIN POWER WINDOW AND DOOR LOCK/UNLOCK SWITCH

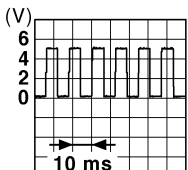
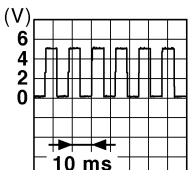
Reference Value

INFOID:000000010290244

TERMINAL LAYOUT



PHYSICAL VALUES

Terminal No. (Wire color)		Description		Condition	Voltage (Approx.)
+	-	Signal name	Input/ Output		
1 (B)	Ground	Ground	—	—	0
2 (LA/GR)	16 (LA/SB)	Front power window motor RH DOWN signal	Output	When front RH switch in power window main switch is operated DOWN.	Battery voltage
4 (R)	12 (Y)	Encoder pulse signal 2	Input	When power window motor operates.	 JMKIA0070GB
5 (W)	12 (Y)	Encoder pulse signal 1	Input	When power window motor operates.	 JMKIA0070GB
6 (P)	Ground	Rear power window motor RH DOWN signal	Output	When rear RH switch in power window main switch is operated DOWN.	Battery voltage
7 (LG)	Ground	Rear power window motor RH UP signal	Output	When rear RH switch in power window main switch is operated UP.	Battery voltage
8 (LA/Y)	Ground	Rear power window motor LH DOWN signal	Output	When rear LH switch in power window main switch is operated DOWN.	Battery voltage
9 (LA/W)	Ground	Rear power window motor LH UP signal	Output	When rear LH switch in power window main switch is operated UP.	Battery voltage

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

PWC

MAIN POWER WINDOW AND DOOR LOCK/UNLOCK SWITCH

< ECU DIAGNOSIS INFORMATION >

Terminal No. (Wire color)		Description		Condition	Voltage (Approx.)
+	-	Signal name	Input/ Output		
10 (SB)	Ground	RAP signal	Input	IGN SW ON	Battery voltage
				Within 45 second after ignition switch is turned to OFF.	Battery voltage
				When driver side or pas- senger side door is opened during retained power operation.	0
12 (Y)	Ground	Encoder ground	—	—	0
14 (G)	Ground	Encoder power supply	Output	When ignition switch ON or power window timer operates.	10
16 (LA/SB)	2 (LA/GR)	Front power window motor RH UP signal	Output	When front RH switch in power window main switch is operated UP.	Battery voltage
17 (LA/L)	19 (LA/BR)	Front power window motor LH UP signal	Output	When front LH switch in power window main switch is operated UP.	Battery voltage
18 (LA/R)	Ground	Battery power supply	Input	—	Battery voltage
19 (LA/BR)	17 (LA/L)	Front power window motor LH DOWN signal	Output	When front LH switch in power window main switch is operated DOWN.	Battery voltage

POWER WINDOW SYSTEM CONNECTORS

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY



20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21



100	99	98	97	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81
120	119	118	117	116	115	114	113	112	111	110	109	108	107	106	105	104	103	102	101



Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



167	166	165	164	163	162	161
176	175	174	173	172	171	170
169	168	167	166	165	164	163



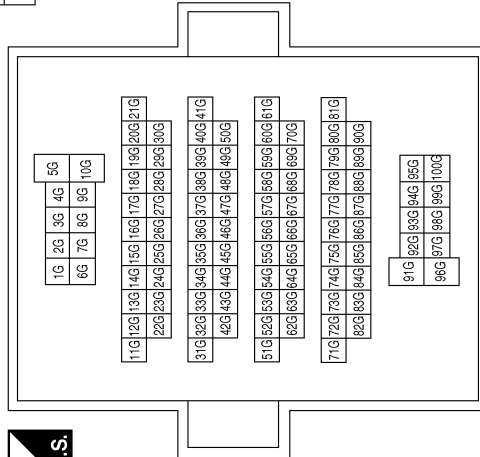
Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BROWN

Terminal No.	Color of Wire	Signal Name
23	G	0 WL AUTHORIZATION RL

Terminal No.	Color of Wire	Signal Name
95	V	I SHORTING PIN

Terminal No.	Color of Wire	Signal Name
161	W	I PWR ECU
170	B	I GND1
171	B	I GND2

Connector No.	M36
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
2G	W	-
3G	Y	-
4G	BG	-



Connector No.	M42
Connector Name	CIRCUIT BREAKER-2
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	W	-
2	P	-

AAK1A1793GB

POWER WINDOW SYSTEM

< WIRING DIAGRAM >

Connector No.	M74
Connector Name	WIRE TO WIRE
Connector Color	WHITE



7	6	5	4	3	2	1		
16	15	14	13	12	11	10	9	8

Terminal No.	Color of Wire	Signal Name
9	G	-
10	R	-
11	LG	-

Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN



7R	6R	5R	4R	3R	2R	1R		
16R	15R	14R	13R	12R	11R	10R	9R	8R

Terminal No.	Color of Wire	Signal Name
3R	V	-
14R	W	-

Connector No.	M58
Connector Name	POWER WINDOW RELAY
Connector Color	BLUE



Terminal No.	Color of Wire	Signal Name
1	G	-
2	W	-
3	L	-
5	P	-

Connector No.	M158
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3		4	5	6	7	
8	9	10	11	12	13	14	15	16

Terminal No.	Color of Wire	Signal Name
8	SB	-
9	BR	-
10	GR	-

Connector No.	M91
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12
13	14	15	16	17	18	19	20	21	22	23	24

Terminal No.	Color of Wire	Signal Name
2	GR	-

Connector No.	M75
Connector Name	WIRE TO WIRE
Connector Color	BLACK



1	2
---	---

Terminal No.	Color of Wire	Signal Name
2	W	-

AAKIA1794GB

POWER WINDOW SYSTEM

< WIRING DIAGRAM >

Connector No.	B16
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GREEN



60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41
80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61

Terminal No.	Color of Wire	Signal Name
53	SB	I AS DOOR2 SW
57	SB	I DR DOOR2 SW

Connector No.	E36
Connector Name	WIRE TO WIRE
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
2	W	-

Connector No.	M167
Connector Name	WIRE TO WIRE
Connector Color	WHITE



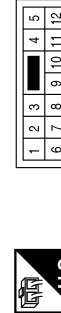
Terminal No.	Color of Wire	Signal Name
8	L	-
9	BR	-
10	GR	-
11	Y	-
12	BG	-
13	G	-
14	R	-
15	P	-
16	B	-

Connector No.	B51
Connector Name	WIRE TO WIRE
Connector Color	WHITE



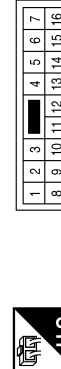
Terminal No.	Color of Wire	Signal Name
1	P	-
2	R	-
3	LA/V	-

Connector No.	B49
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
6	SB	-

Connector No.	B42
Connector Name	WIRE TO WIRE
Connector Color	WHITE

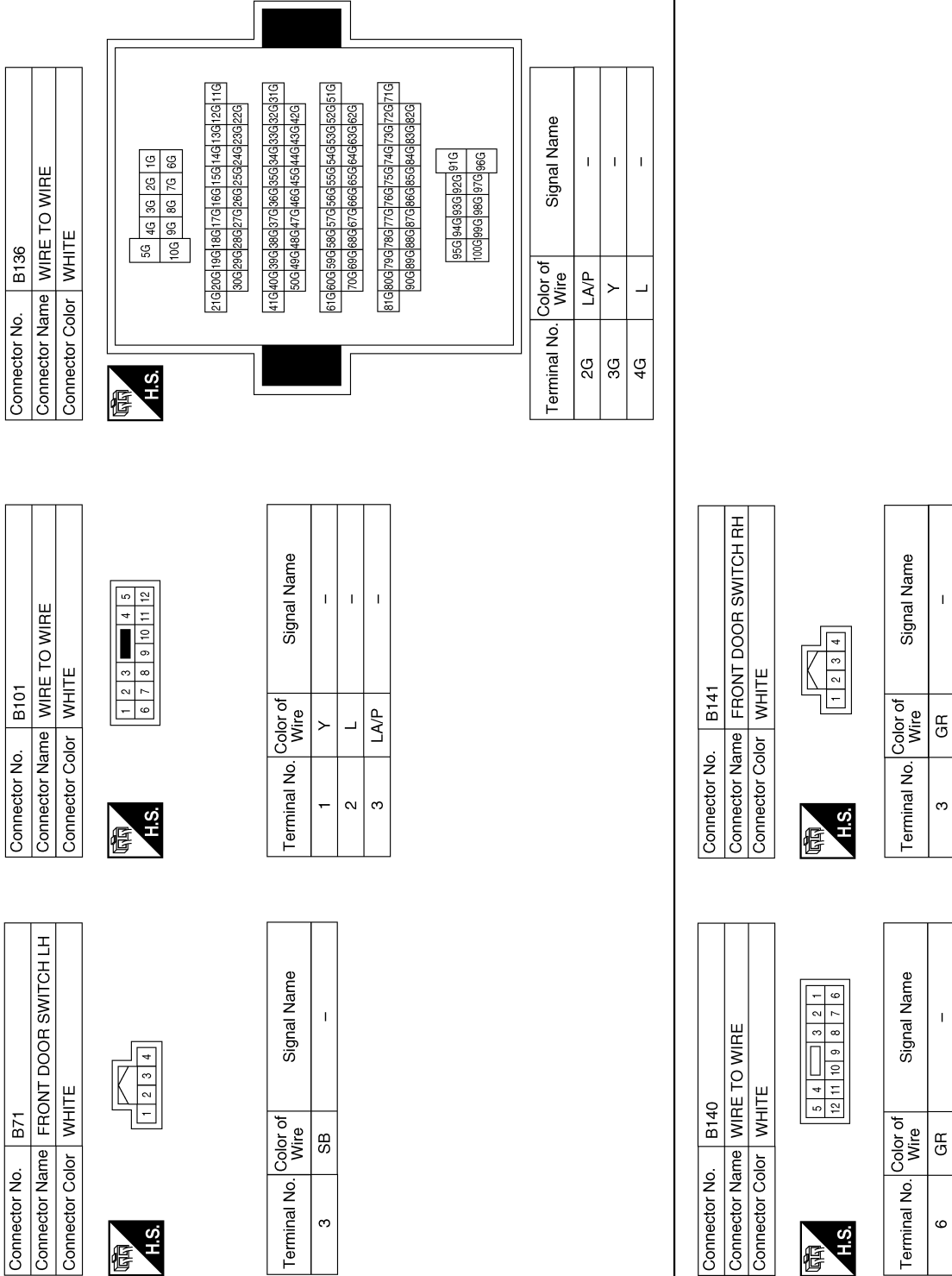


Terminal No.	Color of Wire	Signal Name
9	P	-
10	R	-
11	LA/V	-

AAKIA1795GB

POWER WINDOW SYSTEM

< WIRING DIAGRAM >



AAKIA1796GB

A B C D E F G H I J L M N O P

PWC

POWER WINDOW SYSTEM

< WIRING DIAGRAM >

Connector No.	D2
Connector Name	WIRE TO WIRE
Connector Color	WHITE

7	6	5	4	3	2	1		
16	15	14	13	12	11	10	9	8



Terminal No.	Color of Wire	Signal Name
8	SB	-
9	LA/GR	-
10	LA/SB	-
11	P	-
12	LG	-
13	LA/Y	-
14	LA/W	-
15	LA/R	-
16	B	-

Connector No.	D6
Connector Name	MAIN POWER WINDOW AND DOOR LOCK/UNLOCK SWITCH
Connector Color	WHITE

7	6	5	4	3	2	1		
8	9	10	11	12	13	14	15	16



Terminal No.	Color of Wire	Signal Name
1	B	GND
2	LA/GR	MOTOR AS DOWN
3	-	-
4	R	ENCODER SIG-2 (ULP)
5	W	ENCODER SIG-1 (DLP)
6	P	MOTOR RR DOWN
7	LG	MOTOR RR UP
8	LA/Y	MOTOR RL DOWN
9	LA/W	MOTOR RL UP
10	SB	IGN
11	-	-
12	Y	ENCODER GND
13	-	-
14	G	ENCODER +
15	-	-
16	LA/SB	MOTOR AS UP

Connector No.	D10
Connector Name	FRONT POWER WINDOW MOTOR LH
Connector Color	GREEN

3	2	1
6	5	4



Terminal No.	Color of Wire	Signal Name
1	LA/BR	-
2	G	-
3	LA/L	-
4	R	-
5	W	-
6	Y	-

Connector No.	D8
Connector Name	MAIN POWER WINDOW AND DOOR LOCK/UNLOCK SWITCH
Connector Color	WHITE

																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								</
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	----



Terminal No.	Color of Wire	Signal Name
17	LA/L	MOTOR DR UP
18	LA/R	B+
19	LA/BR	MOTOR DR DOWN

Connector No.	D101
Connector Name	WIRE TO WIRE
Connector Color	WHITE

12	11	10	9	8	7	6	5	4	3	2	1
24	23	22	21	20	19	18	17	16	15	14	13



Terminal No.	Color of Wire	Signal Name
2	B	-

POWER WINDOW SYSTEM

< WIRING DIAGRAM >

Connector No.	D112
Connector Name	POWER WINDOW AND DOOR LOCK/UNLOCK SWITCH RH
Connector Color	WHITE

1	2	3	4	5
6	7	8	9	10
11	12			



Terminal No.	Color of Wire	Signal Name
3	B	-
6	LA/L	-
7	LA/R	-
8	LA/GR	-
11	LA/Y	-
12	LA/BR	-

Connector No.	D105
Connector Name	FRONT POWER WINDOW MOTOR RH (WITH LEFT FRONT ONLY AUTO UP/DOWN)
Connector Color	GREEN

3	2	1
6	5	4



Terminal No.	Color of Wire	Signal Name
1	LA/R	-
2	-	-
3	LA/L	-
4	-	-
5	-	-
6	-	-

Connector No.	D102
Connector Name	WIRE TO WIRE
Connector Color	WHITE

7	6	5	4	3	2	1
16	15	14	13	12	11	10
9	8					



Terminal No.	Color of Wire	Signal Name
8	LA/GR	-
9	LA/Y	-
10	LA/BR	-

Connector No.	D205
Connector Name	REAR POWER WINDOW MOTOR LH
Connector Color	GREEN

3	2	1
6	5	4



Terminal No.	Color of Wire	Signal Name
1	R	-
2	-	-
3	G	-
4	-	-
5	-	-
6	-	-

Connector No.	D204
Connector Name	REAR POWER WINDOW SWITCH LH
Connector Color	WHITE

3	2	1
8	7	6
5	4	



Terminal No.	Color of Wire	Signal Name
1	LA/GR	-
2	LA/BR	-
3	LA/Y	-
4	G	-
5	R	-
6	-	-
7	-	-
8	-	-

Connector No.	D201
Connector Name	WIRE TO WIRE
Connector Color	WHITE

5	4	3	2	1
12	11	10	9	8
7	6			



Terminal No.	Color of Wire	Signal Name
1	LA/Y	-
2	LA/BR	-
3	LA/GR	-

AAKIA1798GB

A
B
C
D
E
F
G
H
I
J
PWC
L
M
N
O
P

POWER WINDOW SYSTEM

< WIRING DIAGRAM >

Connector No.	D305
Connector Name	REAR POWER WINDOW MOTOR RH
Connector Color	GREEN



3	2	1
6	5	4

Terminal No.	Color of Wire	Signal Name
1	R	-
2	-	-
3	G	-
4	-	-
5	-	-
6	-	-

Connector No.	D304
Connector Name	REAR POWER WINDOW SWITCH RH
Connector Color	WHITE



3	2	1
8	7	6
5	4	

Terminal No.	Color of Wire	Signal Name
1	LA/GR	-
2	LA/BR	-
3	LA/Y	-
4	G	-
5	R	-
6	-	-
7	-	-
8	-	-

Connector No.	D301
Connector Name	WIRE TO WIRE
Connector Color	WHITE



5	4	3	2	1
12	11	10	9	8
7	6			

Terminal No.	Color of Wire	Signal Name
1	LA/Y	-
2	LA/BR	-
3	LA/GR	-

AAKIA1804GB

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

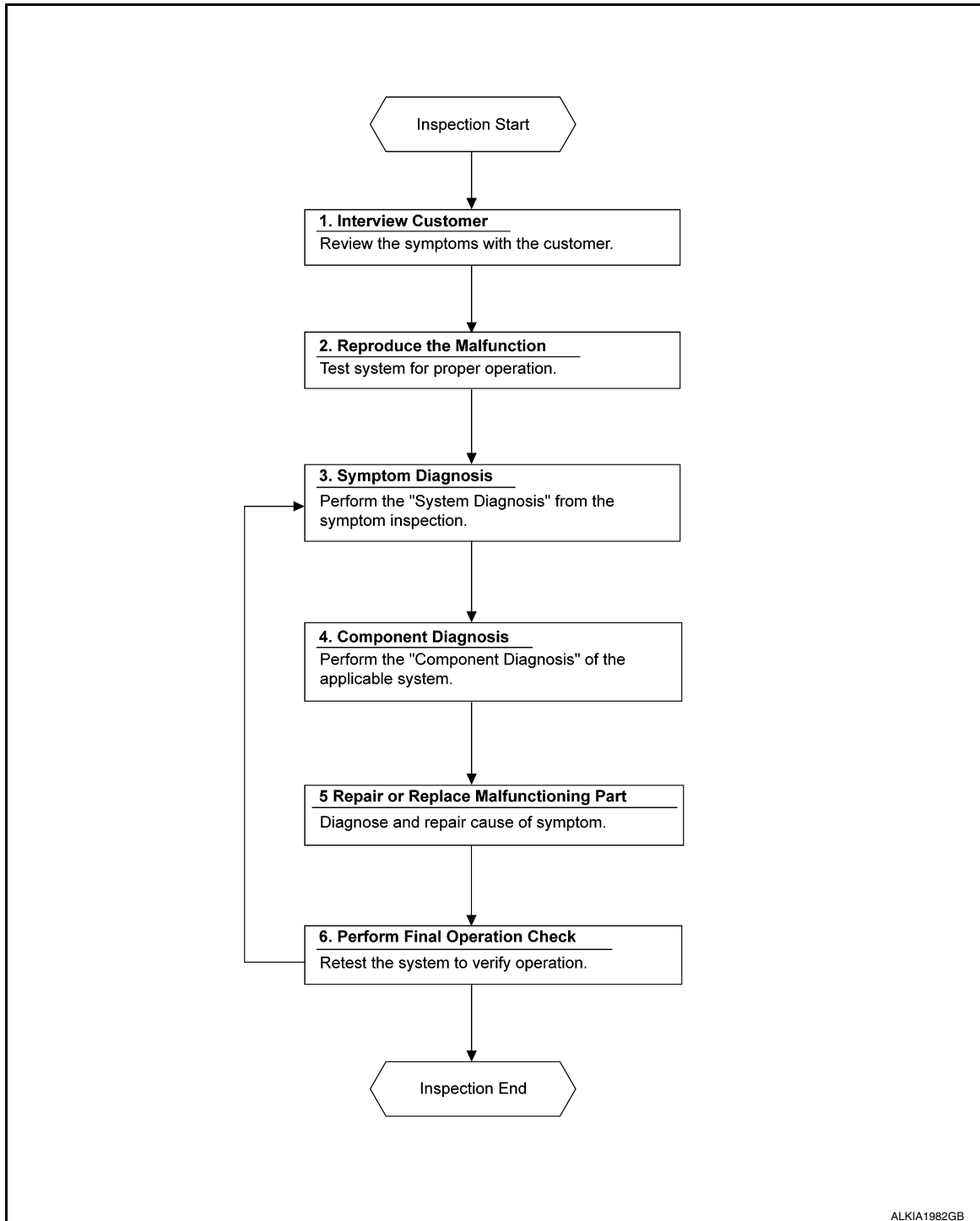
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:000000010223739

OVERALL SEQUENCE



DETAILED FLOW

1. OBTAIN INFORMATION ABOUT SYMPTOM

Interview the customer to obtain as much information as possible about the conditions and environment under which the malfunction occurred.

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

>> GO TO 2.

2. CONFIRM THE SYMPTOM

Check the malfunction on the vehicle that the customer describes.
Inspect the relation of the symptoms and the condition when the symptoms occur.

>> GO TO 3.

3. IDENTIFY THE MALFUNCTIONING SYSTEM WITH SYMPTOM DIAGNOSIS

Use Symptom diagnosis from the symptom inspection result in step 2 and then identify where to start performing the diagnosis based on possible causes and symptoms.

>> GO TO 4.

4. PERFORM THE COMPONENT DIAGNOSIS OF THE OF THE APPLICABLE SYSTEM

Perform the diagnosis with Component diagnosis of the applicable system.

>> GO TO 5.

5. REPAIR OR REPLACE THE MALFUNCTIONING PARTS

Repair or replace the specified malfunctioning parts.

>> GO TO 6.

6. FINAL CHECK

Check that malfunctions are not reproduced when obtaining the malfunction information from the customer, referring to the symptom inspection result in step 2.

Are the malfunctions corrected?

YES >> Inspection End.

NO >> GO TO 3.

INSPECTION AND ADJUSTMENT

< BASIC INSPECTION >

INSPECTION AND ADJUSTMENT

ADDITIONAL SERVICE WHEN REMOVING BATTERY NEGATIVE TERMINAL

ADDITIONAL SERVICE WHEN REMOVING BATTERY NEGATIVE TERMINAL : Description

INFOID:000000009798769

If any of the following work has been done Initial setting is necessary.

- Power supply to the main power window and door lock/unlock switch or power window motor is cut off by the removal of battery terminal or the battery fuse is blown.
- Disconnection and connection of main power window and door lock/unlock switch harness connector.
- Removal and installation of motor from regulator assembly.
- Operation of regulator assembly as an independent unit.
- Removal and installation of glass.
- Removal and installation of door glass run.

The following specified operations can not be performed under the non-initialized condition.

- Auto-up operation
- Anti-pinch function

ADDITIONAL SERVICE WHEN REMOVING BATTERY NEGATIVE TERMINAL : Special Repair Requirement

INFOID:000000009798770

INITIALIZATION PROCEDURE

1. Disconnect battery minus terminal or main power and window door lock/unlock switch connector. Reconnect it after a minute or more.
2. Turn ignition switch ON.
3. Operate power window switch to fully open the window. (This operation is unnecessary if the window is already fully open)
4. Continue pulling the power window switch UP (AUTO-UP operation). Even after glass stops at fully closed position, keep pulling the switch for 2 seconds or more.
5. Initializing procedure is completely.
6. Inspect anti-pinch function.

CHECK ANTI-PINCH FUNCTION

1. Fully open the door window.
 2. Place a piece of wood near fully closed position.
 3. Close door glass completely with AUTO-UP.
- Check that glass lowers for approximately 150 mm (5.9 in) without pinching piece of wood and stops.
 - Check that glass does not rise when operating the main power and door lock/unlock switch while lowering.

CAUTION:

- **Perform initial setting when auto-up operation or anti-pinch function does not operate normally.**
- **Check that AUTO-UP operates before inspection when system initialization is performed.**
- **Do not check with hands and other body parts because they may be pinched. Do not get pinched.**
- **It may switch to fail-safe mode if open/close operation is performed continuously without full close. Perform initial setting in that situation. Refer to [BCS-47, "Fail Safe"](#)**
- **Finish initial setting. Otherwise, next operation cannot be done.**

1. Auto-up operation
2. Anti-pinch function

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Description

INFOID:000000009798771

Refer to [PWC-27, "ADDITIONAL SERVICE WHEN REMOVING BATTERY NEGATIVE TERMINAL : Description"](#).

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Re-

INSPECTION AND ADJUSTMENT

< BASIC INSPECTION >

quirement

INFOID:000000009798772

Refer to [PWC-27. "ADDITIONAL SERVICE WHEN REMOVING BATTERY NEGATIVE TERMINAL : Special Repair Requirement"](#) for initialization procedure and check anti-pinch function.

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

DTC/CIRCUIT DIAGNOSIS

POWER SUPPLY AND GROUND CIRCUIT

BCM (BODY CONTROL SYSTEM) (WITH INTELLIGENT KEY SYSTEM)

BCM (BODY CONTROL SYSTEM) (WITH INTELLIGENT KEY SYSTEM) : Diagnosis Procedure

INFOID:0000000010288550

Regarding Wiring Diagram information, refer to [BCS-50, "Wiring Diagram"](#).

1. CHECK FUSE

Check that the following fuse is not blown.

Terminal No.	Signal name	Fuse No.
161	BCM power supply	7 (10A)

Is the fuse blown?

YES >> Replace the blown fuse after repairing the affected circuit.

NO >> GO TO 2.

2. CHECK POWER SUPPLY CIRCUIT

1. Disconnect BCM connector M20.
2. Check voltage between BCM connector M20 and ground.

BCM		Ground	Voltage (Approx.)
Connector	Terminal		
M20	161	—	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

3. CHECK GROUND CIRCUIT

Check continuity between BCM connector M20 and ground.

BCM		Ground	Continuity
Connector	Terminal		
M20	170	—	Yes
	171		

Is the inspection result normal?

YES >> Inspection End.

NO >> Repair or replace harness or connectors.

BCM (BODY CONTROL SYSTEM) (WITHOUT INTELLIGENT KEY SYSTEM)

BCM (BODY CONTROL SYSTEM) (WITHOUT INTELLIGENT KEY SYSTEM) : Diagnosis Procedure

INFOID:0000000010288551

Regarding Wiring Diagram information, refer to [BCS-110, "Wiring Diagram"](#).

1. CHECK FUSE

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

Check that the following fuse is not blown.

Terminal No.	Signal name	Fuse No.
161	BCM power supply	7 (10A)

Is the fuse blown?

- YES >> Replace the blown fuse after repairing the affected circuit.
NO >> GO TO 2.

2. CHECK POWER SUPPLY CIRCUIT

1. Disconnect BCM connector M20.
2. Check voltage between BCM connector M20 and ground.

BCM		Ground	Voltage (Approx.)
Connector	Terminal		
M20	161	—	Battery voltage

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace harness or connectors.

3. CHECK GROUND CIRCUIT

Check continuity between BCM connector M20 and ground.

BCM		Ground	Continuity
Connector	Terminal		
M20	170	—	Yes
	171		

Is the inspection result normal?

- YES >> Inspection End.
NO >> Repair or replace harness or connectors.

POWER WINDOW MAIN SWITCH

POWER WINDOW MAIN SWITCH : Diagnosis Procedure

INFOID:000000009798779

1. CHECK POWER SUPPLY CIRCUIT 1

1. Turn ignition OFF.
2. Disconnect main power window and door lock/unlock switch connector.
3. Turn ignition switch ON.
4. Check voltage between main power window and door lock/unlock switch harness connector and ground.

(+) Main power window and door lock/unlock switch		(-)	Voltage (Approx.)
Connector	Terminal		
D6	10	Ground	Battery voltage

Is the inspection result normal?

- YES >> GO TO 2.
NO >> GO TO 4.

2. CHECK POWER SUPPLY CIRCUIT 2

1. Check voltage between main power window and door lock/unlock switch harness connector and ground.

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

(+)		(-)	Voltage (Approx.)
Main power window and door lock/unlock switch			
Connector	Terminal		
D6	18	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair power supply circuit.

3.CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check continuity between main power window and door lock/unlock switch harness connector and ground.

Main power window and door lock/unlock switch		Ground	Continuity
Connector	Terminal		
D6	1		Yes

Is the inspection result normal?

YES >> Inspection End.

NO >> Repair or replace harness.

4.CHECK HARNESS CONTINUITY 1

1. Turn ignition switch OFF.
2. Disconnect power window relay connector.
3. Check continuity between power window relay harness connector and main power window and door lock/unlock switch harness connector.

Power window relay		Main power window and door lock/unlock switch		Continuity
Connector	Terminal	Connector	Terminal	
M58	3	D6	10	Yes

4. Check continuity between power window relay harness connector and ground.

Power window relay		Ground	Continuity
Connector	Terminal		
M58	3		No

Is the inspection result normal?

YES >> Refer to [PWC-48. "Diagnosis Procedure"](#).

NO >> Repair or replace harness.

FRONT POWER WINDOW SWITCH (PASSENGER SIDE)

FRONT POWER WINDOW SWITCH (PASSENGER SIDE) : Diagnosis Procedure

INFOID:000000009798780

1.CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect front power window switch RH connector.
3. Turn ignition switch ON.
4. Check voltage between front power window switch RH harness connector and ground.

(+)		(-)	Condition	Voltage (Approx.)
Front power window switch RH				
Connector	Terminal			
D112	8	Ground	Ignition switch ON	Battery voltage

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

Is the inspection result normal?

YES >> Inspection End.

NO >> GO TO 2.

2.CHECK HARNESS CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect power window relay connector.
3. Check continuity between power window relay harness connector and front power window switch RH harness connector.

Power window relay		Front power window switch RH		Continuity
Connector	Terminal	Connector	Terminal	
M58	3	D112	8	Yes

4. Check continuity between the power window relay harness connector and ground.

Power window relay		Ground	Continuity
Connector	Terminal		
M58	3		No

Is the inspection result normal?

YES >> Refer to [PWC-48, "Diagnosis Procedure"](#).

NO >> Repair or replace harness.

REAR POWER WINDOW SWITCH

REAR POWER WINDOW SWITCH : Diagnosis Procedure

INFOID:000000009798781

1.CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect rear power window switch connector.
3. Turn ignition switch ON.
4. Check voltage between rear power window switch harness connector and ground.

(+)		(-)	Condition	Voltage (Approx.)	
Rear power window switch					
Connector	Terminal				
LH	D204	1	Ground	Ignition switch ON	Battery voltage
RH	D304				

Is the inspection result normal?

YES >> Inspection End.

NO >> GO TO 2.

2.CHECK HARNESS CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect power window relay connector.
3. Check continuity between power window relay harness connector and rear power window switch harness connector.

Power window relay		Rear power window switch		Continuity
Connector	Terminal	Connector	Terminal	
M58	3	LH	D204	Yes
		RH	D304	

4. Check continuity between power window relay harness connector and ground.

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

Power window relay		Ground	Continuity
Connector	Terminal		
M58	3		No

Is the inspection result normal?

- YES >> Refer to [PWC-48, "Diagnosis Procedure"](#).
- NO >> Repair or replace harness.

FRONT POWER WINDOW SWITCH (PASSENGER SIDE)

< DTC/CIRCUIT DIAGNOSIS >

FRONT POWER WINDOW SWITCH (PASSENGER SIDE)

Description

INFOID:000000009798782

Front power window motor RH will be operated if front power window switch RH is operated.

Component Function Check

INFOID:000000009798783

1. CHECK FRONT POWER WINDOW SWITCH RH FUNCTION

Check front power window motor RH operation with front power window switch RH.

Is the inspection result normal?

- YES >> Front power window switch RH is OK.
NO >> Refer to [PWC-34, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000009798784

1.CHECK FRONT POWER WINDOW SWITCH RH INPUT SIGNAL

1. Turn ignition switch OFF.
2. Disconnect front power window switch RH connector.
3. Turn ignition switch ON.
4. Check voltage between front power window switch RH harness connector and ground.

(+)		(-)	Condition		Voltage (Approx.)
Front power window switch RH					
Connector	Terminal				
D112	12	Ground	Power window main switch RH	UP	Battery voltage
				DOWN	0
	11			UP	0
				DOWN	Battery voltage

Is the inspection result normal?

- YES >> GO TO 2.
NO >> GO TO 3.

2.CHECK FRONT POWER WINDOW SWITCH RH

Check front power window switch RH.

Refer to [PWC-35, "Component Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Replace front power window switch RH. Refer to [PWC-65, "Removal and Installation"](#).

3.CHECK FRONT POWER WINDOW SWITCH RH CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect main power window and door lock/unlock switch connector.
3. Check continuity between main power window and door lock/unlock switch harness connector and front power window switch RH harness connector.

Main power window and door lock/unlock switch		Front power window switch RH		Continuity
Connector	Terminal	Connector	Terminal	
D6	16	D112	12	Yes
	2		11	

4. Check continuity between main power window and door lock/unlock switch harness connector and ground.

FRONT POWER WINDOW SWITCH (PASSENGER SIDE)

< DTC/CIRCUIT DIAGNOSIS >

Main power window and door lock/unlock switch		Ground	Continuity
Connector	Terminal		
D6	16		No
	2		

Is the inspection result normal?

YES >> Replace main power window and door lock/unlock switch. Refer to [PWC-64. "Removal and Installation"](#).

NO >> Repair or replace harness.

4.CHECK INTERMITTENT INCIDENT

Refer to [GI-41. "Intermittent Incident"](#).

>> Inspection End.

Component Inspection

INFOID:000000009798785

1.CHECK FRONT POWER WINDOW SWITCH RH

1. Turn ignition OFF.
2. Disconnect front power window switch RH connector.
3. Check front power window switch RH.

Front power window switch RH	Terminal		Front power window switch condition	Continuity
D112	8	7	DOWN	Yes
	11	6		
	11	6	NEUTRAL	
	12	7		
	8	6	UP	
	12	7		

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace front power window switch RH. Refer to [PWC-65. "Removal and Installation"](#).

PWC

REAR POWER WINDOW SWITCH

< DTC/CIRCUIT DIAGNOSIS >

REAR POWER WINDOW SWITCH

Description

INFOID:000000009798786

Rear power window motor will be operated if rear power window switch is operated.

Component Function Check

INFOID:000000009798787

1. CHECK REAR POWER WINDOW SWITCH FUNCTION

Check rear power window motor operation with rear power window switch.

Is the inspection result normal?

- YES >> Rear power window switch is OK.
NO >> Refer to [PWC-36, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000009798788

1. CHECK REAR POWER WINDOW SWITCH INPUT SIGNAL

1. Turn ignition switch OFF.
2. Disconnect rear power window switch connector.
3. Turn ignition switch ON.
4. Check voltage between rear power window switch harness connector and ground.

(+)Rear power window switch		(-)	Condition		Voltage (Approx.)
Connector	Terminal				
LH: D204	2	Ground	Power window main switch: LH	UP	Battery voltage
				DOWN	0
	3			UP	0
				DOWN	Battery voltage
RH: D304	2		Power window main switch: RH	UP	Battery voltage
				DOWN	0
	3			UP	0
				DOWN	Battery voltage

Is the inspection result normal?

- YES >> GO TO 2.
NO >> GO TO 3.

2. CHECK REAR POWER WINDOW SWITCH

Check rear power window switch.

Refer to [PWC-37, "Component Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Replace rear power window switch. Refer to [PWC-65, "Removal and Installation"](#).

3. CHECK REAR POWER WINDOW SWITCH CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect main power window and door lock/unlock switch connector.
3. Check continuity between main power window and door lock/unlock switch harness connector and rear power window switch harness connector.

REAR POWER WINDOW SWITCH

< DTC/CIRCUIT DIAGNOSIS >

Main power window and door lock/unlock switch		Rear power window switch			Continuity
Connector	Terminal	Connector		Terminal	
D6	9	LH	D204	2	Yes
	8			3	
	6	RH	D304	3	
	7			2	

4. Check continuity between main power and door lock/unlock switch harness connector and ground.

Main power window and door lock/unlock switch		Ground	Continuity
Connector	Terminal		
D6	9	Ground	No
	8		
	6		
	7		

Is the inspection result normal?

- YES >> Replace main power window and door lock/unlock switch. Refer to [PWC-64, "Removal and Installation"](#).
 NO >> Repair or replace harness.

4.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> Inspection End.

Component Inspection

INFOID:000000009798789

1.CHECK REAR POWER WINDOW SWITCH

- Turn ignition switch OFF.
- Disconnect rear power window switch connector.
- Check rear power window switch terminals under the following conditions.

Terminal		Rear power window switch condition	Continuity
1	5	DOWN	Yes
3	4		
3	4	NEUTRAL	
2	5		
1	4	UP	
2	5		

Is the inspection result normal?

- YES >> Inspection End.
 NO >> Replace rear power window switch. Refer to [PWC-66, "Removal and Installation"](#).

POWER WINDOW MOTOR

< DTC/CIRCUIT DIAGNOSIS >

POWER WINDOW MOTOR DRIVER SIDE

DRIVER SIDE : Description

INFOID:000000009798790

Door glass moves UP/DOWN by receiving the signal from main power window and door lock/unlock switch.

DRIVER SIDE : Component Function Check

INFOID:000000009798791

1. CHECK FRONT POWER WINDOW MOTOR LH OPERATION

Check front power window motor LH operation with main power window and door lock/unlock switch.

Is the inspection result normal?

YES >> Front power window motor LH is OK.

NO >> Refer to [PWC-38. "DRIVER SIDE : Diagnosis Procedure"](#).

DRIVER SIDE : Diagnosis Procedure

INFOID:000000009798792

1. CHECK POWER WINDOW MOTOR LH INPUT SIGNAL

1. Turn ignition switch OFF.
2. Disconnect front power window motor LH connector.
3. Turn ignition switch ON.
4. Check voltage between power window motor LH harness connector and ground.

(+)		(-)	Condition		Voltage (Approx.)
Power window motor LH					
Connector	Terminal				
D10	3	Ground	Main power win- dow and door lock/ unlock switch	UP	Battery voltage
				DOWN	0
	1			UP	0
				DOWN	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 2.

2. CHECK POWER WINDOW MOTOR CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect main power window and door lock/unlock switch connector.
3. Check continuity between main power window and door lock/unlock switch harness connector and front power window motor LH harness connector.

Main power window and door lock/unlock switch		Front power window motor LH		Continuity
Connector	Terminal	Connector	Terminal	
D8	17	D10	3	Yes
	19		1	

4. Check continuity between main power window and door lock/unlock switch harness connector and ground.

Main power window and door lock/unlock switch		Ground	Continuity
Connector	Terminal		
D8	17		No
	19		

Is the inspection result normal?

POWER WINDOW MOTOR

< DTC/CIRCUIT DIAGNOSIS >

- YES >> Replace main power window and door lock/unlock switch. Refer to [PWC-64, "Removal and Installation"](#).
- NO >> Repair or replace harness.

3. CHECK FRONT POWER WINDOW MOTOR LH

Check front power window motor LH.

Refer to [PWC-39, "DRIVER SIDE : Component Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 4.
- NO >> Replace front power window motor LH. Refer to [GW-16, "Removal and Installation"](#).

4. CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> Inspection End.

DRIVER SIDE : Component Inspection

INFOID:000000009798793

1. CHECK FRONT POWER WINDOW MOTOR LH

1. Turn ignition switch OFF.
2. Disconnect front power window motor LH connector.
3. Check motor operate by connecting the battery voltage directly to front power window motor LH connector.

Front power window motor LH connector	Terminal		Motor condition
	(+)	(-)	
D10	1	3	DOWN
	3	1	UP

Is the inspection result normal?

- YES >> Inspection End.
- NO >> Replace front power window motor LH. Refer to [GW-16, "Removal and Installation"](#).

PASSENGER SIDE

PASSENGER SIDE : Description

INFOID:000000009798794

Door glass moves UP/DOWN by receiving the signal from main power window and door lock/unlock switch or front power window switch (passenger side).

PASSENGER SIDE : Component Function Check

INFOID:000000009798795

1. CHECK FRONT POWER WINDOW MOTOR RH OPERATION

Check front power window motor RH operation with main power window and door lock/unlock switch or front power window switch RH.

Is the inspection result normal?

- YES >> Front power window motor RH is OK.
- NO >> Refer to [PWC-39, "PASSENGER SIDE : Diagnosis Procedure"](#).

PASSENGER SIDE : Diagnosis Procedure

INFOID:000000009798796

1. CHECK FRONT POWER WINDOW MOTOR RH INPUT SIGNAL

1. Turn ignition switch OFF.
2. Disconnect front power window motor RH connector.
3. Turn ignition switch ON.
4. Check voltage between front power window motor RH harness connector and ground.

POWER WINDOW MOTOR

< DTC/CIRCUIT DIAGNOSIS >

(+)		(-)	Condition		Voltage (Approx.)
Front power window motor RH					
Connector	Terminal				
D105	7	Ground	Front power window switch RH	UP	Battery voltage
				DOWN	0
	6			UP	0
				DOWN	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 2.

2.CHECK FRONT POWER WINDOW MOTOR RH CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect front power window switch RH connector.
3. Check continuity between front power window switch RH harness connector and front power window motor RH harness connector.

Front power window switch RH		Front power window motor RH		Continuity
Connector	Terminal	Connector	Terminal	
D112	6	D105	3	Yes
	7		1	

4. Check continuity between front power window switch RH harness connector and ground.

Front power window switch RH		Ground	Continuity
Connector	Terminal		
D112	6		No
	7		

Is the inspection result normal?

YES >> Replace front power window switch RH. Refer to [PWC-65, "Removal and Installation"](#).

NO >> Repair or replace harness.

3.CHECK FRONT POWER WINDOW MOTOR RH

Check front power window motor RH.

Refer to [PWC-40, "PASSENGER SIDE : Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace front power window motor RH. Refer to [GW-16, "Removal and Installation"](#).

4.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> Inspection End.

PASSENGER SIDE : Component Inspection

INFOID:000000009798797

1.CHECK FRONT POWER WINDOW MOTOR RH

1. Turn ignition switch OFF.
2. Disconnect front power window motor RH connector.
3. Check motor operate by connecting the battery voltage directly to front power window motor RH connector.

POWER WINDOW MOTOR

< DTC/CIRCUIT DIAGNOSIS >

Front power window motor RH connector	Terminal		Motor condition
	(+)	(-)	
D105	1	3	DOWN
	3	1	UP

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace front power window motor RH. Refer to [GW-16, "Removal and Installation"](#).

REAR LH

REAR LH : Description

INFOID:0000000009798798

Door glass moves UP/DOWN by receiving the signal from main power window and door lock/unlock switch or rear power window switch LH.

REAR LH : Component Function Check

INFOID:0000000009798799

1.CHECK REAR POWER WINDOW MOTOR LH OPERATION

Check rear power window motor LH operation with main power window and door lock/unlock switch or rear power window switch LH.

Is the inspection result normal?

YES >> Rear power window motor LH is OK.

NO >> Refer to [PWC-41, "REAR LH : Diagnosis Procedure"](#)

REAR LH : Diagnosis Procedure

INFOID:0000000009798800

1.CHECK REAR POWER WINDOW MOTOR LH INPUT SIGNAL

1. Turn ignition switch OFF.
2. Disconnect rear power window motor LH connector.
3. Turn ignition switch ON.
4. Check voltage between rear power window motor LH harness connector and ground.

(+) Rear power window motor LH		(-)	Condition		Voltage (Approx.)
Connector	Terminal				
D205	1	Ground	Rear power window switch LH	UP	Battery voltage
				DOWN	0
	3			UP	0
				DOWN	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 2.

2.CHECK REAR POWER WINDOW MOTOR LH CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect rear power window switch LH connector.
3. Check continuity between rear power window switch LH harness connector and rear power window motor LH harness connector.

Rear power window switch LH		Rear power window motor LH		Continuity
Connector	Terminal	Connector	Terminal	
D204	4	D205	3	Yes
	5		1	

4. Check continuity between rear power window switch LH connector and ground.

POWER WINDOW MOTOR

< DTC/CIRCUIT DIAGNOSIS >

Rear power window switch LH		Ground	Continuity
Connector	Terminal		
D204	4		No
	5		

Is the inspection result normal?

YES >> Replace rear power window switch LH. Refer to [PWC-65, "Removal and Installation"](#).

NO >> Repair or replace harness.

3. CHECK REAR POWER WINDOW MOTOR LH

Check rear power window motor LH.

Refer to [PWC-42, "REAR LH : Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace rear power window motor LH. Refer to [GW-22, "Removal and Installation"](#).

4. CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> Inspection End.

REAR LH : Component Inspection

INFOID:000000009798801

COMPONENT INSPECTION

1. CHECK REAR POWER WINDOW MOTOR LH

1. Turn ignition switch OFF.
2. Disconnect rear power window motor LH connector.
3. Check motor operation by connecting the battery voltage directly to rear power window motor LH connector.

Rear power window motor LH connector	Terminal		Motor condition
	(+)	(-)	
D205	3	1	DOWN
	1	3	UP

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace rear power window motor LH. Refer to [GW-22, "Removal and Installation"](#).

REAR RH

REAR RH : Description

INFOID:000000009798802

Door glass moves UP/DOWN by receiving the signal from main power window and door lock/unlock switch or rear power window switch RH.

REAR RH : Component Function Check

INFOID:000000009798803

1. CHECK REAR POWER WINDOW MOTOR RH OPERATION

Check rear power window motor RH operation with main power window and door lock/unlock switch or rear power window switch RH.

Is the inspection result normal?

YES >> Rear power window motor RH is OK.

NO >> Refer to [PWC-43, "REAR RH : Diagnosis Procedure"](#).

POWER WINDOW MOTOR

< DTC/CIRCUIT DIAGNOSIS >

REAR RH : Diagnosis Procedure

INFOID:000000009798804

1.CHECK REAR POWER WINDOW MOTOR RH INPUT SIGNAL

1. Turn ignition switch OFF.
2. Disconnect rear power window motor RH connector.
3. Turn ignition switch ON.
4. Check voltage between rear power window motor RH harness connector and ground.

(+)Rear power window motor RH		(−)	Condition		Voltage (Approx.)
Connector	Terminal				
D305	1	Ground	Rear power window switch RH	UP	Battery voltage
				DOWN	0
	3			UP	0
				DOWN	Battery voltage

Is the inspection result normal?

- YES >> GO TO 3.
NO >> GO TO 2.

2.CHECK REAR POWER WINDOW MOTOR RH CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect rear power window switch RH connector.
3. Check continuity between rear power window switch RH harness connector and rear power window motor RH harness connector.

Rear power window switch RH		Rear power window motor RH		Continuity
Connector	Terminal	Connector	Terminal	
D304	4	D305	3	Yes
	5		1	

4. Check continuity between rear power window switch RH harness connector and ground.

Rear power window switch RH		Ground	Continuity
Connector	Terminal		
D304	4		No
	5		

Is the inspection result normal?

- YES >> Replace rear power window switch RH. Refer to [PWC-66, "Removal and Installation"](#).
NO >> Repair or replace harness.

3.CHECK REAR POWER WINDOW MOTOR RH

Check rear power window motor RH.
Refer to [PWC-44, "REAR RH : Component Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Replace rear power window motor RH. Refer to [GW-22, "Removal and Installation"](#).

4.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> Inspection End.

POWER WINDOW MOTOR

< DTC/CIRCUIT DIAGNOSIS >

REAR RH : Component Inspection

INFOID:000000009798805

COMPONENT INSPECTION

1. CHECK REAR POWER WINDOW MOTOR RH

1. Turn ignition switch OFF.
2. Disconnect rear power window motor RH connector.
3. Check motor operation by connecting the battery voltage directly to rear power window motor RH connector.

Rear power window motor RH connector	Terminal		Motor condition
	(+)	(-)	
D305	3	1	DOWN
	1	3	UP

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace rear power window motor RH. Refer to [GW-22. "Removal and Installation"](#).

ENCODER CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

ENCODER CIRCUIT

Description

INFOID:000000009798806

Detects condition of the front power window motor LH operation and transmits to main power window and door lock/unlock switch as pulse signal.

Component Function Check

INFOID:000000009798807

1.CHECK ENCODER OPERATION

Check front driver side door glass perform AUTO open/close operation normally when main power window and door lock/unlock switch.

Is the inspection result normal?

- YES >> Encoder operation is OK.
NO >> Refer to [PWC-45, "Diagnosis Procedure"](#)

Diagnosis Procedure

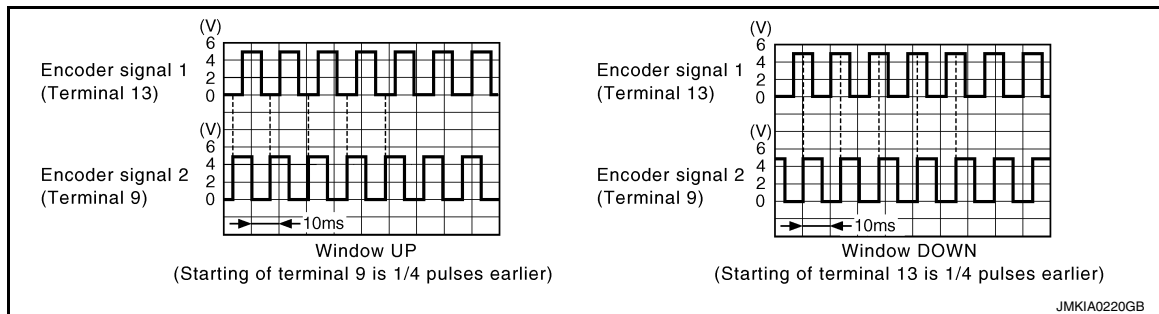
INFOID:000000009798808

Encoder Circuit Check

1.CHECK ENCODER OPERATION

- Turn ignition switch ON.
- Check signal between main power window and door lock/unlock switch harness connector and ground with oscilloscope.

(+) Main power window and door lock/unlock switch		(-)	Signal (Reference value)
Connector	Terminal		
D6	4	Ground	Refer to following signal
	5		



Is the inspection result normal?

- YES >> GO TO 7.
NO >> GO TO 2.

2.CHECK ENCODER SIGNAL CIRCUIT

- Turn ignition switch OFF.
- Disconnect main power window and door lock/unlock switch connector and front power window motor LH connector.
- Check continuity between main power window and door lock/unlock switch harness connector and front power window motor LH harness connector.

Main power window and door lock/unlock switch		Front power window motor LH		Continuity
Connector	Terminal	Connector	Terminal	
D6	4	D10	4	Yes
	5		5	

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

PWC

ENCODER CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

4. Check continuity between main power window and door lock/unlock switch harness connector and ground.

Main power window and door lock/unlock switch		Ground	Continuity
Connector	Terminal		
D6	4		No
	5		

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness.

3.CHECK ENCODER POWER SUPPLY CIRCUIT

1. Connect main power window and door lock/unlock switch connector.
2. Turn ignition switch ON.
3. Check voltage between front power window motor LH harness connector and ground.

(+) Front power window motor LH		(-) Ground	Voltage (Approx.)
Connector	Terminal		
D10	2		Battery voltage

Is the inspection result normal?

YES >> GO TO 4.

NO >> GO TO 5.

4.CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check continuity between front power window motor LH harness connector and ground.

Front power window motor LH		Ground	Continuity
Connector	Terminal		
D10	6		Yes

Is the inspection result normal?

YES >> GO TO 7.

NO >> GO TO 6.

5.CHECK HARNESS CONTINUITY 1

1. Turn ignition switch OFF.
2. Check continuity between main power window and door lock/unlock switch harness connector and front power window motor LH harness connector.

Main power window and door lock/unlock switch		Front power window motor LH		Continuity
Connector	Terminal	Connector	Terminal	
D6	12	D10	6	Yes

3. Check continuity between main power window and door lock/unlock switch harness connector and ground.

Main power window and door lock/unlock switch		Ground	Continuity
Connector	Terminal		
D6	12		No

Is the inspection result normal?

YES >> Replace main power window and door lock/unlock switch. Refer to [PWC-65, "Removal and Installation"](#).

NO >> Repair or replace harness.

ENCODER CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

6.CHECK HARNESS CONTINUITY 2

1. Disconnect main power window and door lock/unlock switch connector.
2. Check continuity between main power window and door lock/unlock switch harness connector and front power window motor LH harness connector.

Main power window and door lock/unlock switch		Front power window motor LH		Continuity
Connector	Terminal	Connector	Terminal	
D6	14	D10	2	Yes

Is the inspection result normal?

YES >> Replace main power window and door lock/unlock switch. Refer to [PWC-65. "Removal and Installation"](#).

NO >> Repair or replace harness.

7.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> Inspection End.

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

PWC

POWER WINDOW RELAY

< DTC/CIRCUIT DIAGNOSIS >

POWER WINDOW RELAY

Description

INFOID:0000000010288636

Power is supplied to the main power window and door lock/unlock with BCM control.

Component Function Check

INFOID:0000000010288637

1. CHECK POWER WINDOW RELAY POWER SUPPLY CIRCUIT

Check that an operation noise of power window relay [located behind the A/C switch assembly (automatic A/C) or Front air control (manual A/C)] can be heard when turning the main power window and door lock/unlock switch ON.

Is the inspection result normal?

YES >> Power window relay power supply circuit is OK.

NO >> Refer to [PWC-48, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010288638

Regarding Wiring Diagram information, refer to [PWC-17, "Wiring Diagram"](#).

1. CHECK POWER WINDOW RELAY CONTROL CIRCUIT

1. Disconnect BCM connector.
2. Turn ignition switch ON.
3. Check voltage between BCM connector and ground.

(+)		(-)	Voltage (Approx.)
Connector	Terminal	Ground	Battery voltage
M18	23		

Is the inspection result normal?

YES >> Replace the BCM. Refer to [BCS-75, "Removal and Installation"](#) (with Intelligent Key system) or [BCS-135, "Removal and Installation"](#) (without Intelligent Key system).

NO >> GO TO 2.

2. CHECK HARNESS CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect BCM and power window relay.
3. Check continuity between BCM connector and power window relay connector.

BCM		Power window relay		Continuity
Connector	Terminal	Connector	Terminal	
M18	23	M58	1	Yes

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness.

3. CHECK POWER WINDOW RELAY

Check power window relay.

Refer to [PWC-49, "Component Inspection"](#).

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

NO >> Replace power window relay.

POWER WINDOW RELAY

< DTC/CIRCUIT DIAGNOSIS >

Component Inspection

INFOID:0000000010288639

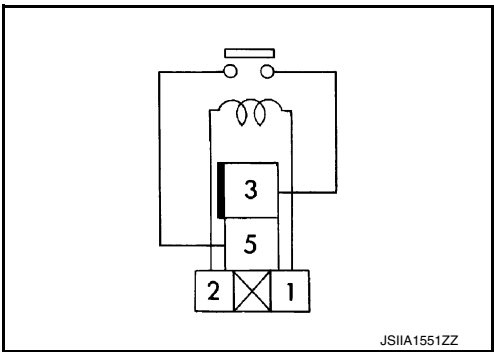
1. CHECK POWER WINDOW RELAY

Check power window relay.

Terminal		Condition	Continuity
Power window relay			
3	5	12V direct current supply between terminals 1 and 2.	Yes
		No current supply	No

Is the inspection result normal?

YES >> Inspection End.
NO >> Replace power window relay.



A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

PWC

DOOR SWITCH

< DTC/CIRCUIT DIAGNOSIS >

DOOR SWITCH WITH INTELLIGENT KEY

WITH INTELLIGENT KEY : Component Function Check

INFOID:0000000010310167

1.CHECK FUNCTION

1. Select "DOOR LOCK" of "BCM" using CONSULT.
2. Select "DOOR SW-DR", "DOOR SW-AS", "DOOR SW-RL", "DOOR SW-RR", in "Data Monitor" mode.
3. Check that the function operates normally according to the following conditions.

Monitor item	Condition		Status
DOOR SW-DR	Driver side door	Open	On
		Closed	Off
DOOR SW-AS	Passenger side door	Open	On
		Closed	Off
DOOR SW-RL	Rear door LH	Open	On
		Closed	Off
DOOR SW-RR	Rear door RH	Open	On
		Closed	Off

Is the inspection result normal?

YES >> Door switch is OK.

NO >> Refer to [PWC-50, "WITH INTELLIGENT KEY : Diagnosis Procedure"](#).

WITH INTELLIGENT KEY : Diagnosis Procedure

INFOID:0000000010310168

Regarding Wiring Diagram information, refer to [DLK-69, "Wiring Diagram"](#).

1.CHECK DOOR SWITCH INPUT SIGNAL

1. Turn ignition switch OFF.
2. Disconnect malfunctioning door switch connector.
3. Check signal between malfunctioning door switch harness connector and ground using oscilloscope.

(+)		(-)	Signal (Reference value)
Door switch			
Connector	Terminal	Ground	</

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 2.

2.CHECK DOOR SWITCH CIRCUIT

1. Disconnect BCM connector.
2. Check continuity between door switch harness connector and BCM harness connector.

DOOR SWITCH

< DTC/CIRCUIT DIAGNOSIS >

Door switch		BCM		Continuity
Connector	Terminal	Connector	Terminal	
Front LH	B71	B16	57	Yes
Front RH	B141		53	
Rear LH	B70		52	
Rear RH	B142		50	

3. Check continuity between door switch harness connector and ground.

Door switch		Ground	Continuity
Connector	Terminal		
Front LH	B71	3	No
Front RH	B141		
Rear LH	B70		
Rear RH	B142		

Is the inspection result normal?

YES >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#).

NO >> Repair or replace harness.

3.CHECK DOOR SWITCH

Refer to [PWC-51, "WITH INTELLIGENT KEY : Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace malfunctioning door switch. Refer to [DLK-269, "Removal and Installation"](#).

4.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> Inspection End.

WITH INTELLIGENT KEY : Component Inspection

INFOID:0000000010310169

PWC

1.CHECK DOOR SWITCH

1. Turn ignition switch OFF.
2. Disconnect malfunctioning door switch connector.
3. Check continuity between door switch terminals.

Door switch		Condition		Continuity
Terminal				
3	Ground contact is part of the switch.	Door switch	Pressed	No
			Released	Yes

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace malfunctioning door switch. Refer to [DLK-269, "Removal and Installation"](#).

WITHOUT INTELLIGENT KEY

WITHOUT INTELLIGENT KEY : Description

INFOID:0000000010310170

Detects door open/close condition.

WITHOUT INTELLIGENT KEY : Component Function Check

INFOID:0000000010310171

1.CHECK FUNCTION

DOOR SWITCH

< DTC/CIRCUIT DIAGNOSIS >

1. Select "DOOR LOCK" of BCM using CONSULT.
2. Select "DOOR SW-DR", "DOOR SW-AS", "DOOR SW-RL", "DOOR SW-RR", in Data Monitor mode.
3. Check that the function operates normally according to the following conditions.

Monitor item	Condition		Status
DOOR SW-DR	Driver side door	Open	On
		Closed	Off
DOOR SW-AS	Passenger side door	Open	On
		Closed	Off
DOOR SW-RL	Rear door LH	Open	On
		Closed	Off
DOOR SW-RR	Rear door RH	Open	On
		Closed	Off

Is the inspection result normal?

YES >> Door switch is OK.

NO >> Refer to [DLK-319, "Diagnosis Procedure"](#).

WITHOUT INTELLIGENT KEY : Diagnosis Procedure

INFOID:0000000010310172

Regarding Wiring Diagram information, refer to [DLK-293, "Wiring Diagram"](#).

1.CHECK DOOR SWITCH INPUT SIGNAL

1. Turn ignition switch OFF.
2. Disconnect malfunctioning door switch connector.
3. Check signal between malfunctioning door switch harness connector and ground using oscilloscope.

(+)		Terminal	(-)	Signal (Reference value)
Door switch				
Connector		3	Ground	<

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 2.

2.CHECK DOOR SWITCH CIRCUIT

1. Disconnect BCM connector.
2. Check continuity between door switch harness connector and BCM harness connector.

DOOR SWITCH

< DTC/CIRCUIT DIAGNOSIS >

Door switch		BCM		Continuity
Connector	Terminal	Connector	Terminal	
Front LH	B71	B16	57	Yes
Front RH	B141		53	
Rear LH	B70		52	
Rear RH	B142		50	

3. Check continuity between door switch harness connector and ground.

Door switch		Ground	Continuity
Connector	Terminal		
Front LH	B71	3	No
Front RH	B141		
Rear LH	B70		
Rear RH	B142		

Is the inspection result normal?

YES >> Replace BCM. Refer to [BCS-135, "Removal and Installation"](#).

NO >> Repair or replace harness.

3.CHECK DOOR SWITCH

Refer to [DLK-150, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace malfunctioning door switch. Refer to [DLK-385, "Removal and Installation"](#).

4.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> Inspection End.

WITHOUT INTELLIGENT KEY : Component Inspection

INFOID:000000010310173

PWC

1.CHECK DOOR SWITCH

1. Turn ignition switch OFF.
2. Disconnect door switch connector.
3. Check door switch.

Terminal		Door switch condition	Continuity
Door switch			
3	Ground part of door switch	Pressed	No
		Released	Yes

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace malfunctioning door switch. Refer to [DLK-385, "Removal and Installation"](#).

POWER WINDOW CONTROL SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

SYMPTOM DIAGNOSIS

POWER WINDOW CONTROL SYSTEM SYMPTOMS

Symptom Table

INFOID:000000010223693

Symptom	Reference page
None of the power windows can be operated using any switch.	Refer to PWC-55, "Diagnosis Procedure" .
Driver side power window alone does not operate.	Refer to PWC-56, "Diagnosis Procedure" .
Front passenger side power window does not operate (with both power window main switch and front passenger side power window switch).	Refer to PWC-57, "WITH BOTH POWER WINDOW MAIN SWITCH AND FRONT PASSENGER SIDE POWER WINDOW SWITCH : Diagnosis Procedure" .
Front passenger side power window does not operate (with front power window switch only).	Refer to PWC-57, "WITH FRONT POWER WINDOW SWITCH ONLY : Diagnosis Procedure" .
Rear LH side power window does not operate (with both power window main switch and rear power window switch LH).	Refer to PWC-58, "WITH BOTH POWER WINDOW MAIN SWITCH AND REAR POWER WINDOW SWITCH LH : Diagnosis Procedure" .
Rear LH side power window does not operate (with rear power window switch LH only).	Refer to PWC-58, "WITH REAR POWER WINDOW SWITCH LH ONLY : Diagnosis Procedure" .
Rear RH side power window does not operate (with both power window main switch and rear power window switch RH).	Refer to PWC-59, "WITH BOTH POWER WINDOW MAIN SWITCH AND REAR POWER WINDOW SWITCH RH : Diagnosis Procedure" .
Rear RH side power window does not operate (with rear power window switch RH only).	Refer to PWC-59, "WITH REAR POWER WINDOW SWITCH RH ONLY : Diagnosis Procedure" .
Anti-pinch system does not operate normally (drivers side).	Refer to PWC-60, "Diagnosis Procedure" .
Power window retained power operation does not operate properly.	Refer to PWC-61, "Diagnosis Procedure" .
Auto operation does not operate manual operate normally (driver side).	Refer to PWC-62, "Diagnosis Procedure" .
Power window lock switch does not function.	Refer to PWC-63, "Diagnosis Procedure" .

NONE OF THE POWER WINDOWS CAN BE OPERATED USING ANY SWITCH

< SYMPTOM DIAGNOSIS >

NONE OF THE POWER WINDOWS CAN BE OPERATED USING ANY SWITCH

Diagnosis Procedure

INFOID:000000009798817

1.CHECK BCM POWER SUPPLY AND GROUND CIRCUIT

Check BCM power supply and ground circuit.

Refer to [BCS-68. "Diagnosis Procedure"](#) (with Intelligent Key system) or [BCS-128. "Diagnosis Procedure"](#) (without Intelligent Key system).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning parts.

2.CHECK MAIN POWER WINDOW AND DOOR LOCK/UNLOCK SWITCH POWER SUPPLY AND GROUND CIRCUIT

Check main power window and door lock/unlock switch power supply and ground circuit.

Refer to [PWC-30. "POWER WINDOW MAIN SWITCH : Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace the malfunctioning parts.

3.CONFIRM THE OPERATION

Confirm the operation again.

Is the result normal?

YES >> Check intermittent incident. Refer to [GI-41. "Intermittent Incident"](#).

NO >> GO TO 1.

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

PWC

DRIVER SIDE POWER WINDOW DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

DRIVER SIDE POWER WINDOW DOES NOT OPERATE

Diagnosis Procedure

INFOID:000000009798818

1.CHECK FRONT POWER WINDOW MOTOR LH

Check power window motor.

Refer to [PWC-38, "DRIVER SIDE : Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning parts.

2.CONFIRM THE OPERATION

Confirm the operation again.

Is the result normal?

YES >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

NO >> GO TO 1.

FRONT PASSENGER SIDE POWER WINDOW DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

FRONT PASSENGER SIDE POWER WINDOW DOES NOT OPERATE
WITH BOTH POWER WINDOW MAIN SWITCH AND FRONT PASSENGER SIDE
POWER WINDOW SWITCH

WITH BOTH POWER WINDOW MAIN SWITCH AND FRONT PASSENGER SIDE
POWER WINDOW SWITCH : Diagnosis Procedure

INFOID:000000009798819

1.CHECK FRONT POWER WINDOW SWITCH RH

Check front power window switch RH.

Refer to [PWC-34, "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning parts

2.CHECK FRONT POWER WINDOW MOTOR RH

Check front power window motor RH.

Refer to [PWC-39, "PASSENGER SIDE : Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace the malfunctioning parts.

3.CONFIRM THE OPERATION

Confirm the operation again.

Is the result normal?

YES >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

NO >> GO TO 1.

WITH FRONT POWER WINDOW SWITCH ONLY

WITH FRONT POWER WINDOW SWITCH ONLY : Diagnosis Procedure

INFOID:000000009798820

1.CHECK FRONT POWER WINDOW SWITCH RH POWER SUPPLY AND GROUND CIRCUIT

Check front power window switch RH power supply and ground circuit.

Refer to [PWC-31, "FRONT POWER WINDOW SWITCH \(PASSENGER SIDE\) : Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning parts.

2.CHECK FRONT POWER WINDOW SWITCH RH

Check front power window switch RH.

Refer to [PWC-34, "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace the malfunctioning parts

3.CONFIRM THE OPERATION

Confirm the operation again.

Is the result normal?

YES >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

NO >> GO TO 1.

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

PWC

REAR LH SIDE POWER WINDOW DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

REAR LH SIDE POWER WINDOW DOES NOT OPERATE

WITH BOTH POWER WINDOW MAIN SWITCH AND REAR POWER WINDOW SWITCH LH

WITH BOTH POWER WINDOW MAIN SWITCH AND REAR POWER WINDOW SWITCH LH : Diagnosis Procedure

INFOID:000000009798821

1.CHECK REAR POWER WINDOW SWITCH

Check rear power window switch.

Refer to [PWC-36, "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning parts.

2.CHECK REAR POWER WINDOW MOTOR LH

Check rear power window motor LH.

Refer to [PWC-41, "REAR LH : Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace the malfunctioning parts.

3.CONFIRM THE OPERATION

Confirm the operation again.

Is the result normal?

YES >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

NO >> GO TO 1.

WITH REAR POWER WINDOW SWITCH LH ONLY

WITH REAR POWER WINDOW SWITCH LH ONLY : Diagnosis Procedure

INFOID:000000009798822

1.CHECK REAR POWER WINDOW SWITCH POWER SUPPLY AND GROUND CIRCUIT

Check rear power window switch power supply and ground circuit.

Refer to [PWC-32, "REAR POWER WINDOW SWITCH : Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning parts.

2.CHECK REAR POWER WINDOW SWITCH

Check rear power window switch.

Refer to [PWC-36, "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace the malfunctioning parts.

3.CONFIRM THE OPERATION

Confirm the operation again.

Is the result normal?

YES >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

NO >> GO TO 1.

REAR RH SIDE POWER WINDOW DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

REAR RH SIDE POWER WINDOW DOES NOT OPERATE
WITH BOTH POWER WINDOW MAIN SWITCH AND REAR POWER WINDOW
SWITCH RH

WITH BOTH POWER WINDOW MAIN SWITCH AND REAR POWER WINDOW
SWITCH RH : Diagnosis Procedure

INFOID:000000009798823

1.CHECK REAR POWER WINDOW SWITCH

Check rear power window switch.

Refer to [PWC-36, "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning parts.

2.CHECK REAR POWER WINDOW MOTOR RH

Check rear power window motor RH.

Refer to [PWC-42, "REAR RH : Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace the malfunctioning parts.

3.CONFIRM THE OPERATION

Confirm the operation again.

Is the result normal?

YES >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

NO >> GO TO 1.

WITH REAR POWER WINDOW SWITCH RH ONLY

WITH REAR POWER WINDOW SWITCH RH ONLY : Diagnosis Procedure

INFOID:000000009798824

1.CHECK REAR POWER WINDOW SWITCH POWER SUPPLY AND GROUND CIRCUIT

Check rear power window switch power supply and ground circuit.

Refer to [PWC-32, "REAR POWER WINDOW SWITCH : Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning parts.

2.CHECK REAR POWER WINDOW SWITCH

Check rear power window switch.

Refer to [PWC-36, "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace the malfunctioning parts.

3.CONFIRM THE OPERATION

Confirm the operation again.

Is the result normal?

YES >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

NO >> GO TO 1.

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

PWC

ANTI-PINCH SYSTEM DOES NOT OPERATE NORMALLY (DRIVER SIDE)

< SYMPTOM DIAGNOSIS >

ANTI-PINCH SYSTEM DOES NOT OPERATE NORMALLY (DRIVER SIDE)

Diagnosis Procedure

INFOID:000000009798825

1.PERFORM INITIALIZATION PROCEDURE

Initialization procedure is executed and operation is confirmed.

Refer to [PWC-27. "ADDITIONAL SERVICE WHEN REMOVING BATTERY NEGATIVE TERMINAL : Special Repair Requirement"](#).

Is the inspection result normal?

YES >> Inspection End.

NO >> GO TO 2.

2.CHECK ENCODER CIRCUIT

Check encoder circuit.

Refer to [PWC-45. "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace the malfunctioning parts.

3.CONFIRM THE OPERATION

Confirm the operation again.

Is the result normal?

YES >> Check intermittent incident. Refer to [GI-41. "Intermittent Incident"](#).

NO >> GO TO 1.

POWER WINDOW RETAINED POWER OPERATION DOES NOT OPERATE PROPERLY

< SYMPTOM DIAGNOSIS >

POWER WINDOW RETAINED POWER OPERATION DOES NOT OPERATE PROPERLY

Diagnosis Procedure

INFOID:000000009798826

1.CHECK DOOR SWITCH

Check door switch.

Refer to [DLK-149, "Component Function Check"](#) (with Intelligent Key system) or [DLK-319, "Component Function Check"](#) (without Intelligent Key system).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning parts.

2.CONFIRM THE OPERATION

Confirm the operation again.

Is the result normal?

YES >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

NO >> GO TO 1.

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

PWC

AUTO OPERATION DOES NOT OPERATE BUT MANUAL OPERATE NORMALLY (DRIVER SIDE)

< SYMPTOM DIAGNOSIS >

AUTO OPERATION DOES NOT OPERATE BUT MANUAL OPERATE NORMALLY (DRIVER SIDE)

Diagnosis Procedure

INFOID:000000009798827

1.PERFORM INITIALIZATION PROCEDURE

Initialization procedure is executed and operation is confirmed.

Refer to [PWC-27. "ADDITIONAL SERVICE WHEN REMOVING BATTERY NEGATIVE TERMINAL : Special Repair Requirement"](#).

Is the inspection result normal?

YES >> Inspection End.

NO >> GO TO 2.

2.CHECK ENCODER

Check encoder.

Refer to [PWC-45. "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace the malfunctioning parts.

3.CONFIRM THE OPERATION

Confirm the operation again.

Is the result normal?

YES >> Check intermittent incident. Refer to [GI-41. "Intermittent Incident"](#).

NO >> GO TO 1.

POWER WINDOW LOCK SWITCH DOES NOT FUNCTION

< SYMPTOM DIAGNOSIS >

POWER WINDOW LOCK SWITCH DOES NOT FUNCTION

Diagnosis Procedure

INFOID:000000009798828

1. REPLACE MAIN POWER WINDOW AND DOOR LOCK/UNLOCK SWITCH

Replace main power window and door lock/unlock switch.

>> Refer to [PWC-65. "Removal and Installation"](#).

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

PWC

MAIN POWER WINDOW AND DOOR LOCK/UNLOCK SWITCH

< REMOVAL AND INSTALLATION >

REMOVAL AND INSTALLATION

MAIN POWER WINDOW AND DOOR LOCK/UNLOCK SWITCH

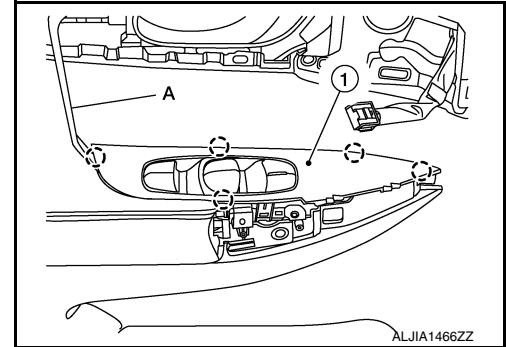
Removal and Installation

INFOID:0000000010331185

REMOVAL

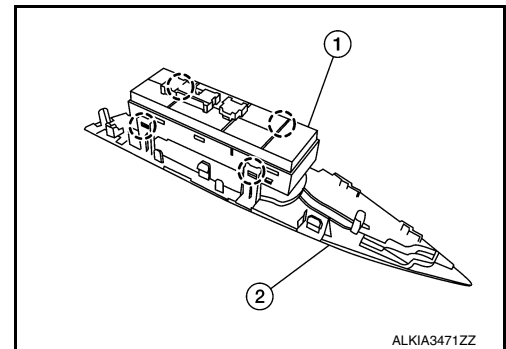
1. Remove the front door pull handle bracket (LH). Refer to [INT-15, "Removal and Installation"](#).
2. Release pawls using a suitable tool (A) and remove main power window and door lock/unlock switch finisher (1).

○: Pawl



3. Disconnect the harness connectors from the main power window and door lock/unlock switch.
4. Release the pawls, then separate the main power window and door lock/unlock switch (1) from the switch finisher (2).

○: Pawl



INSTALLATION

Installation is in the reverse order of removal.

NOTE:

When the main power window and door lock/unlock switch is removed or replaced, it is necessary to perform the initialization procedure. Refer to [PWC-25, "Work Flow"](#).

POWER WINDOW AND DOOR LOCK/UNLOCK SWITCH RH

< REMOVAL AND INSTALLATION >

POWER WINDOW AND DOOR LOCK/UNLOCK SWITCH RH

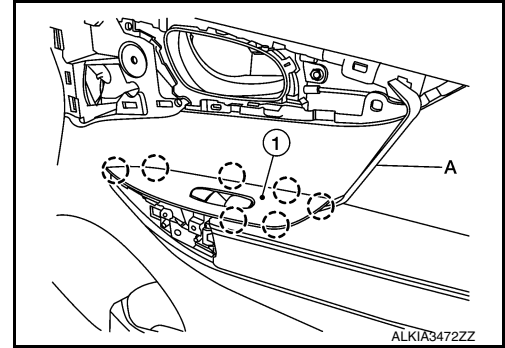
Removal and Installation

INFOID:0000000010331186

REMOVAL

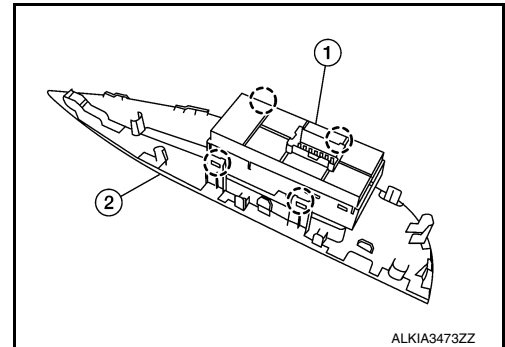
1. Remove the front door pull handle bracket (RH). Refer to [INT-15. "Removal and Installation"](#).
2. Release pawls using a suitable tool (A) and remove front door power window and door lock/unlock switch finisher (RH) (1).

(○): Pawl



3. Disconnect the harness connector from the front door power window and door lock/unlock switch (RH).
4. Release pawls, then separate front power window and door lock/unlock switch (RH) (1) from switch finisher (2).

(○): Pawl



INSTALLATION

Installation is in the reverse order of removal.

NOTE:

When the front power window and door lock/unlock switch (RH) is removed or replaced, it is necessary to perform the initialization procedure. Refer to [PWC-25. "Work Flow"](#).

PWC

REAR POWER WINDOW SWITCH

< REMOVAL AND INSTALLATION >

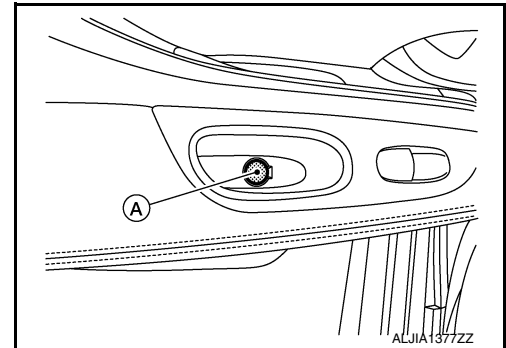
REAR POWER WINDOW SWITCH

Removal and Installation

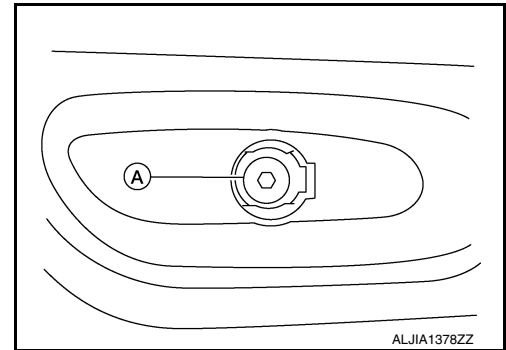
INFOID:000000010331187

REMOVAL

1. Remove screw cover (1).

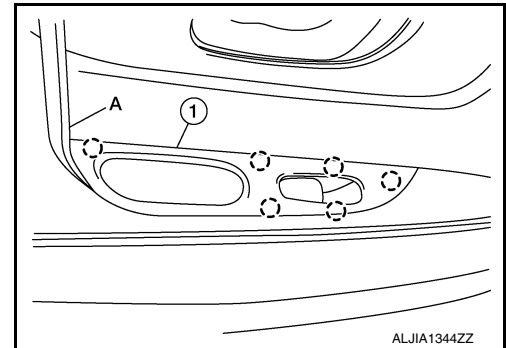


2. Remove screw (A).



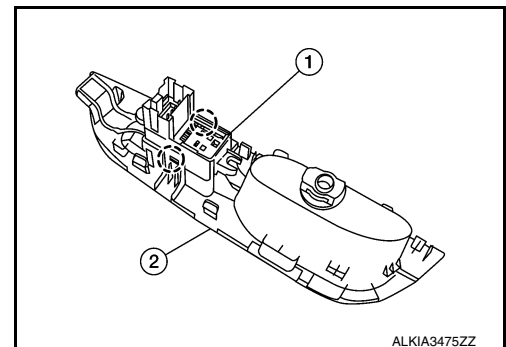
3. Release pawls using a suitable tool (A) and remove rear power window switch finisher (1).

(○): Pawl



4. Disconnect harness connector from rear power window switch.
5. Release the pawls, then separate the rear power window switch (1) from the switch finisher (2).

(○): Pawl



INSTALLATION

Installation is in the reverse order of removal.

SECTION

PWO

POWER OUTLET

A

B

C

CONTENTS

E

PRECAUTION	2	POWER SOCKET	4	F
PRECAUTIONS	2	Wiring Diagram	4	
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	2	REMOVAL AND INSTALLATION	7	G
SYSTEM DESCRIPTION	3	POWER SOCKET	7	
COMPONENT PARTS	3	Removal and Installation	7	H
Component Parts Location	3	SERVICE DATA AND SPECIFICATIONS (SDS)	8	I
WIRING DIAGRAM	4	SERVICE DATA AND SPECIFICATIONS (SDS)	8	
		Power Socket	8	J

PWO

N

O

P

PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010330282

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

COMPONENT PARTS

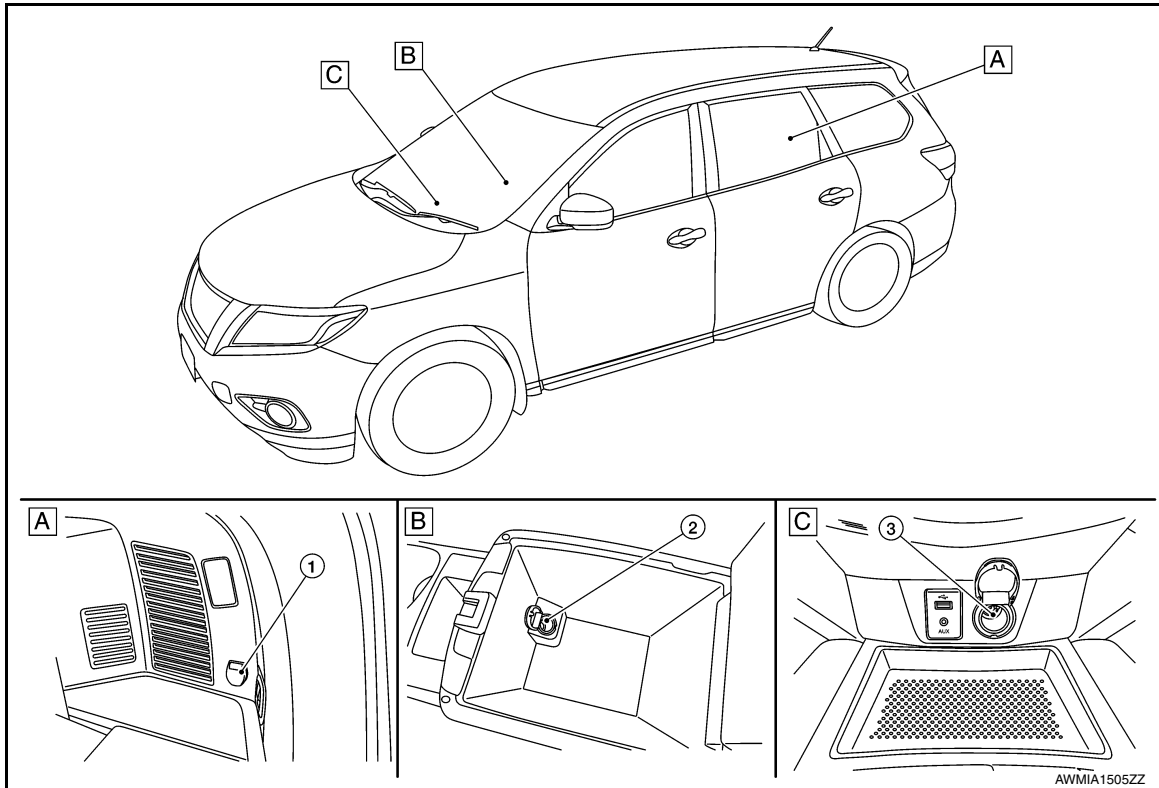
< SYSTEM DESCRIPTION >

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:0000000010284234



A. Luggage side lower finisher RH

B. Center console

C. Cluster lid C

1. Rear cargo power socket

2. Console power socket

3. Front power socket

PWO

POWER SOCKET

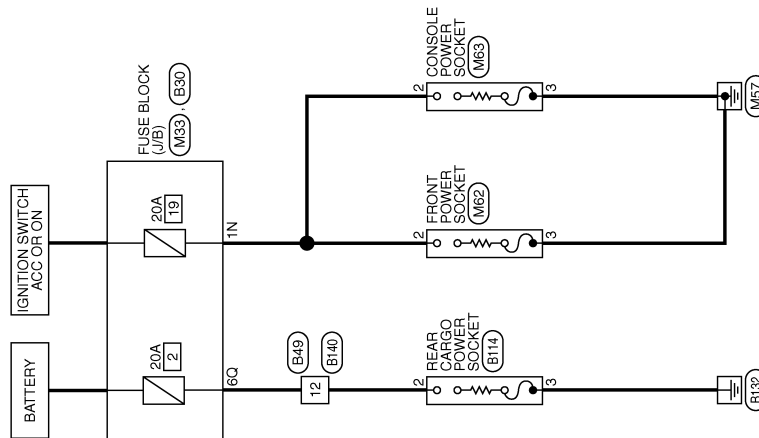
< WIRING DIAGRAM >

WIRING DIAGRAM

POWER SOCKET

Wiring Diagram

INFOID:0000000010223834



POWER SOCKET

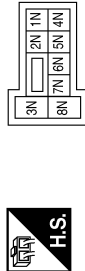
AAMWA1013GB

POWER SOCKET

< WIRING DIAGRAM >

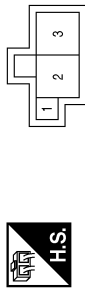
POWER SOCKET CONNECTORS

Connector No.	M33
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



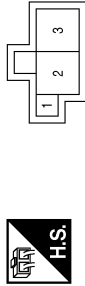
Terminal No.	1N	Color of Wire	L	Signal Name	-
--------------	----	---------------	---	-------------	---

Connector No.	M62
Connector Name	FRONT POWER SOCKET
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
2	L	-
3	B	-

Connector No.	M63
Connector Name	CONSOLE POWER SOCKET
Connector Color	BLACK



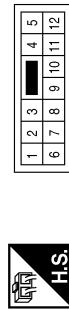
Terminal No.	Color of Wire	Signal Name
2	Y	-
3	B	-

Connector No.	B30
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



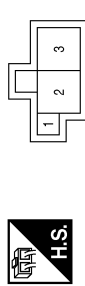
Terminal No.	6Q	Color of Wire	R	Signal Name	-
--------------	----	---------------	---	-------------	---

Connector No.	B49
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	12	Color of Wire	R	Signal Name	-
--------------	----	---------------	---	-------------	---

Connector No.	B114
Connector Name	REAR CARGO POWER SOCKET
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
2	R	-
3	B	-

POWER SOCKET

< WIRING DIAGRAM >

Connector No.	B140
Connector Name	WIRE TO WIRE
Connector Color	WHITE

	<table><tr><td>5</td><td>4</td><td></td><td>3</td><td>2</td><td>1</td></tr><tr><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td></tr></table>	5	4		3	2	1	12	11	10	9	8	7	6
5	4		3	2	1									
12	11	10	9	8	7	6								

Terminal No.	Color of Wire	Signal Name
12	R	—

AAMIA2114GB

POWER SOCKET

< REMOVAL AND INSTALLATION >

REMOVAL AND INSTALLATION

POWER SOCKET

Removal and Installation

INFOID:0000000010330261

FRONT POWER SOCKET

Removal

1. Remove cluster lid C. Refer to [IP-21, "Removal and Installation"](#).
2. Release the pawls on the power socket and remove from the cluster lid C.

Installation

Installation is in the reverse order of removal.

CONSOLE POWER SOCKET

Removal

1. Remove center console assembly. Refer to [IP-18, "Removal and Installation"](#).
2. Release the pawls on the console power socket and remove from the center console.

Installation

Installation is in the reverse order of removal.

REAR CARGO POWER SOCKET

Removal

1. Remove luggage side lower finisher RH. Refer to [INT-34, "LUGGAGE SIDE LOWER FINISHER : Removal and Installation - With Third Row Seat"](#).
2. Release the pawls on the rear cargo power socket and remove from the luggage side lower finisher RH.

Installation

Installation is in the reverse order of removal.

A
B
C
D
E
F
G
H
I
J
K
L
N
O
P

PWO

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

Power Socket

INFOID:0000000010336463

Rated voltage	DC 12 V
Maximum electric capacity	120 W or less (Total)
Maximum current	10 A or less (Total)

SECTION RAX

REAR AXLE

A
B
C

RAX

CONTENTS

E

FWD		
PRECAUTION	3	
PRECAUTIONS	3	
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	3	
Precautions for Drive Shaft	3	
PREPARATION	4	
PREPARATION	4	
Commercial Service Tool	4	
SYMPTOM DIAGNOSIS	5	
NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING	5	
NVH Troubleshooting Chart	5	
PERIODIC MAINTENANCE	6	
REAR WHEEL HUB AND HOUSING	6	
Inspection	6	
REMOVAL AND INSTALLATION	7	
REAR WHEEL HUB	7	
Exploded View	7	
Removal and Installation	7	
Inspection	8	
SERVICE DATA AND SPECIFICATIONS (SDS)	9	
SERVICE DATA AND SPECIFICATIONS (SDS)	9	
Wheel Bearing	9	
AWD		
PRECAUTION	10	
PRECAUTIONS	10	
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	10	
Precautions for Drive Shaft	10	
PREPARATION	11	
PREPARATION	11	
Special Service Tool	11	
Commercial Service Tool	11	
SYMPTOM DIAGNOSIS	13	
NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING	13	
NVH Troubleshooting Chart	13	
PERIODIC MAINTENANCE	14	
REAR WHEEL HUB AND HOUSING	14	
Inspection	14	
REAR DRIVE SHAFT	15	
Inspection	15	
REMOVAL AND INSTALLATION	16	
REAR WHEEL HUB AND HOUSING	16	
Exploded View	16	
Removal and Installation	16	
Inspection	18	
REAR DRIVE SHAFT	19	
Exploded View	19	
Removal and Installation	19	
Inspection	20	
UNIT DISASSEMBLY AND ASSEMBLY ...	21	
REAR DRIVE SHAFT	21	
Exploded View	21	
Disassembly and Assembly	21	

F

G

H

I

J

K

L

M

N

O

P

SERVICE DATA AND SPECIFICATIONS	
(SDS)	27

SERVICE DATA AND SPECIFICATIONS	
(SDS)	27
Wheel Bearing	27
Drive Shaft	27

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010250266

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Precautions for Drive Shaft

INFOID:0000000010250267

Observe the following precautions when disassembling and assembling drive shaft:

- Do not disassemble joint sub-assembly because it is non-overhaul parts.
- Perform work in a location which is as dust-free as possible.
- Clean the parts before disassembling and assembling.
- Prevent the entry of foreign objects during disassembly.
- Reassemble disassembled parts carefully in the correct order. If work is interrupted, a clean cover must be placed over parts.
- Use paper shop cloths. Fabric shop cloths must not be used because of the danger of lint adhering to parts.
- Clean disassembled parts (except for rubber parts) with kerosene which shall be removed by blowing with air or wiping with shop cloths.

PREPARATION

< PREPARATION >

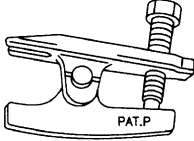
[FWD]

PREPARATION

PREPARATION

Commercial Service Tool

INFOID:000000009794936

Tool name	Description
Ball joint remover  NT146	Removing wheel stud
Power tools  PIIB1407E	Loosening nuts, screws, and bolts

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

< SYMPTOM DIAGNOSIS >

[FWD]

SYMPTOM DIAGNOSIS

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

NVH Troubleshooting Chart

INFOID:000000009794935

Use chart below to find the cause of the symptom. If necessary, repair or replace these parts.

Reference			RAX-7	I	RAX-6	RSU-4	WT-55	WT-55	BR-6
Possible cause and SUSPECTED PARTS			Improper installation, looseness	Parts interference	Wheel bearing damage	REAR SUSPENSION	TIRE	ROAD WHEEL	BRAKE
Symptom	REAR AXLE	Noise	x	x	x	x	x	x	x
		Shake	x	x	x	x	x	x	x
		Vibration	x	x	x	x	x		
		Shimmy	x	x		x	x	x	x
		Shudder	x			x	x	x	x
		Poor quality ride or handling	x	x		x	x	x	

x: Applicable

PERIODIC MAINTENANCE

REAR WHEEL HUB AND HOUSING

Inspection

INFOID:000000009794937

INSPECTION

Make sure the conditions (looseness, back lash) of each component and component conditions (wear, damage) are normal.

WHEEL HUB AND BEARING INSPECTION

- Move wheel hub and bearing in the axial direction by hand. Make sure there is no looseness of wheel bearing.

Axial end play : Refer to [RAX-9, "Wheel Bearing"](#).

- Rotate wheel hub, and make sure there is no unusual noise or other irregular conditions. If there is any of irregular conditions, replace wheel hub and bearing.

REAR WHEEL HUB

< REMOVAL AND INSTALLATION >

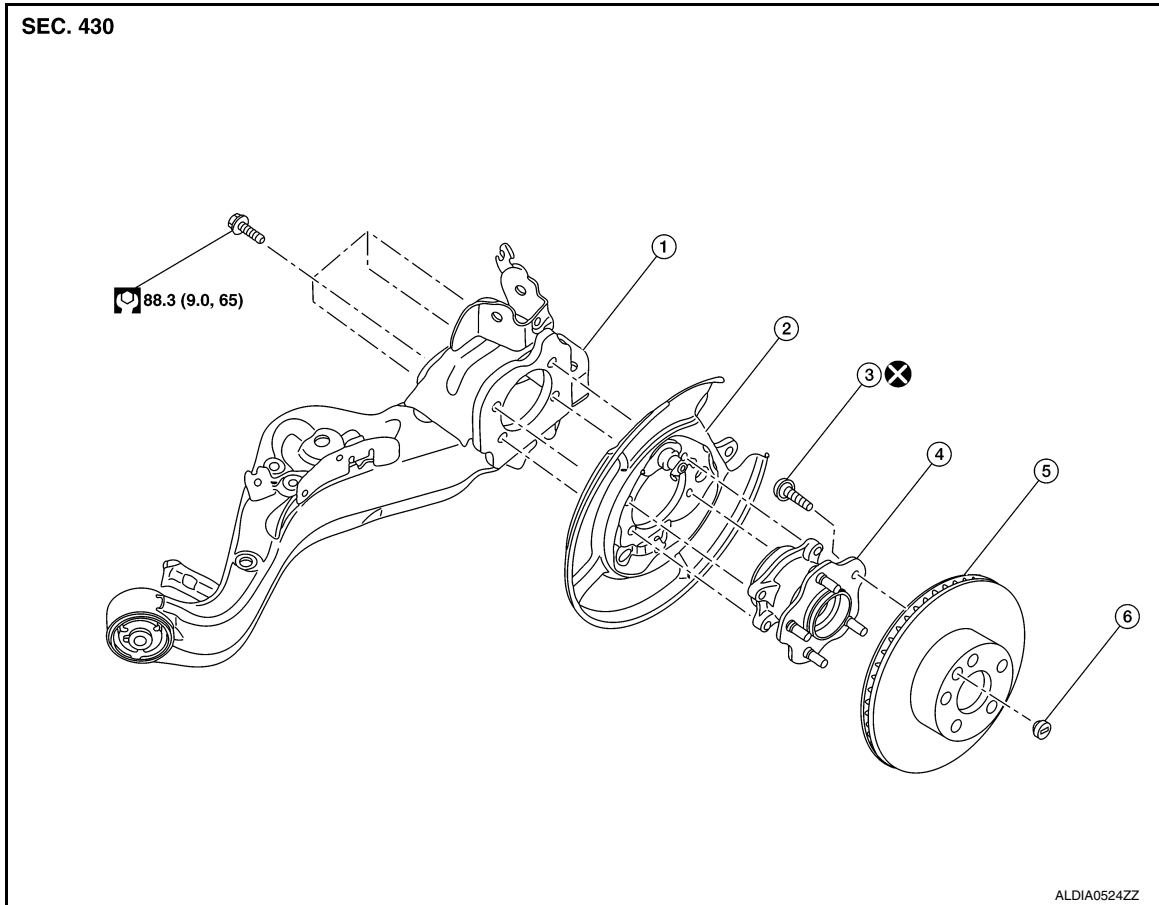
[FWD]

REMOVAL AND INSTALLATION

REAR WHEEL HUB

Exploded View

INFOID:000000009794938



- | | | |
|--------------------------|---------------------|---------------|
| 1. Suspension arm | 2. Back plate | 3. Wheel stud |
| 4. Wheel hub and bearing | 5. Disc brake rotor | 6. Plug |

Removal and Installation

INFOID:000000009794939

REMOVAL

Wheel Hub and Bearing

1. Remove the wheel and tire using power tool. Refer to [WT-57, "Adjustment"](#).
2. Remove the bolt and separate the rear wheel sensor from the wheel hub and bearing. Refer to [BRC-133, "REAR WHEEL SENSOR : Exploded View"](#).
CAUTION:
 - Failure to separate the rear wheel sensor from the wheel hub and bearing may result in damage to the rear wheel sensor.
 - Pull out the rear wheel sensor, being careful to turn it as little as possible. Do not pull on wheel sensor harness.
3. Remove torque member bolts using power tool, leaving the brake hose attached. Position brake caliper aside with wire. Refer to [BR-42, "BRAKE CALIPER ASSEMBLY : Exploded View"](#).
CAUTION:
Do not depress brake pedal while brake caliper is removed.
4. Put alignment marks on the disc brake rotor and on the wheel hub and bearing. Remove the disc brake rotor. Remove disc brake rotor.

REAR WHEEL HUB

< REMOVAL AND INSTALLATION >

[FWD]

CAUTION:

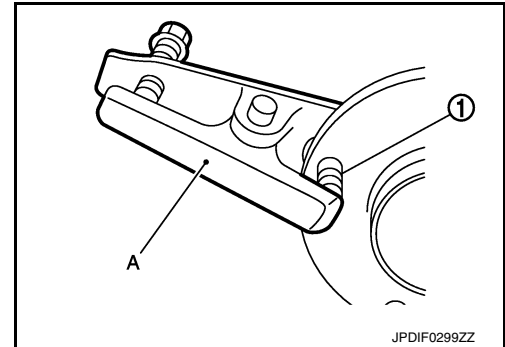
Do not drop disc brake rotor.

5. Remove the hub bolts and the wheel hub and bearing.
6. If necessary, remove the wheel studs (1) from the wheel hub and bearing using a suitable tool (A).

CAUTION:

- Remove the wheel studs only when necessary.
- Do not hammer the wheel studs or damage to the wheel hub and bearing may occur.
- Pull out the wheel studs in a direction perpendicular to the wheel hub and bearing.

7. Inspect the components. Refer to [RAX-8, "Inspection"](#).



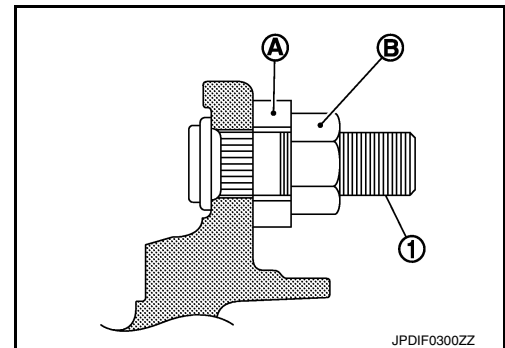
INSTALLATION

Installation is in the reverse order of removal.

- Place a washer (A) as shown to install the wheel studs (1) by using the tightening force of the nut (B).

CAUTION:

- Do not reuse the wheel stud.
 - Check that there is no clearance between the wheel stud and the wheel hub and bearing.
 - Before installing, make sure there is no foreign material such as iron fragments adhered to the pick-up part of the rear wheel sensor.
 - When installing, make sure there is no foreign material such as iron fragments on and in the hole in the wheel hub and bearing for the rear wheel sensor. Make sure no foreign material has been caught in the sensor rotor. Remove any foreign material and clean the mount.
- Install the rear wheel sensor to the wheel hub and bearing. Refer to [BRC-133, "REAR WHEEL SENSOR : Exploded View"](#).
 - Align the matching marks made during removal when reusing the disc brake rotor.
 - Check that the wheel hub and bearing operates smoothly.
 - Perform the inspection after installation. Refer to [RAX-8, "Inspection"](#).



Inspection

INFOID:0000000009794940

INSPECTION AFTER REMOVAL

Check wheel hub and bearing for wear, cracks, and damage. Replace if necessary.

INSPECTION AFTER INSTALLATION

1. Adjust parking brake operation (stroke). Refer to [PB-4, "Inspection and Adjustment"](#).
2. Check wheel alignment. Refer to [RSU-6, "Inspection"](#).
3. Adjust neutral position of steering angle sensor. Refer to [BRC-70, "Work Procedure"](#).

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

[FWD]

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

Wheel Bearing

INFOID:000000009794941

Item	Standard
Axial end play	0.05 mm (0.002 in) or less

A
B
C
RAX
E
F
G
H
I
J
K
L
M
N
O
P

RAX

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010250268

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Precautions for Drive Shaft

INFOID:0000000010250269

Observe the following precautions when disassembling and assembling drive shaft:

- Do not disassemble joint sub-assembly because it is non-overhaul parts.
- Perform work in a location which is as dust-free as possible.
- Clean the parts before disassembling and assembling.
- Prevent the entry of foreign objects during disassembly.
- Reassemble disassembled parts carefully in the correct order. If work is interrupted, a clean cover must be placed over parts.
- Use paper shop cloths. Fabric shop cloths must not be used because of the danger of lint adhering to parts.
- Clean disassembled parts (except for rubber parts) with kerosene which shall be removed by blowing with air or wiping with shop cloths.

PREPARATION

< PREPARATION >

[AWD]

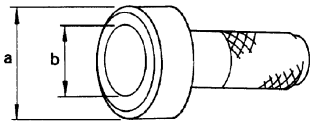
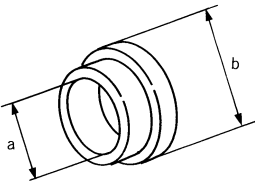
PREPARATION

PREPARATION

Special Service Tool

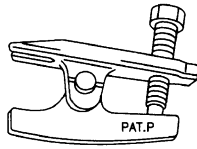
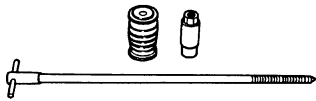
INFOID:000000009794944

The actual shape of the tools may differ from those illustrated here.

Tool number (TechMate No.) Tool name	Description
KV38100500 (—) Drift	Installing sensor rotor a: 80 mm (3.15 in) dia. b: 60 mm (2.36 in) dia.
 ZZA0701D	
KV40101840 (—) Collar	Installing sensor rotor a: 67 mm (2.64 in) dia. b: 85 mm (3.35 in) dia.
 ZZA1113D	

Commercial Service Tool

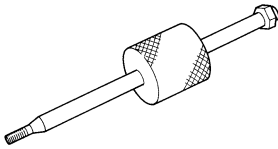
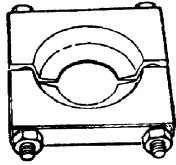
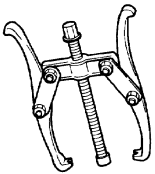
INFOID:0000000009794945

Tool name	Description
Ball joint remover	Removing wheel stud
 NT146	
Power tools	Loosening nuts, screws, and bolts
 PIIB1407E	
Drive shaft puller	Removing drive shaft joint sub assembly
 JPDIG0152ZZ	

PREPARATION

< PREPARATION >

[AWD]

Sliding hammer	 ZZA0023D	Removing drive shaft
Replacer	 ZZA0700D	Removing sensor rotor
Puller	 ZZA0119D	Removing sensor rotor

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

< SYMPTOM DIAGNOSIS >

[AWD]

SYMPTOM DIAGNOSIS

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

NVH Troubleshooting Chart

INFOID:000000009794942

Use chart below to find the cause of the symptom. If necessary, repair or replace these parts.

Reference			—	RAX-20	—	RAX-14	—	DLN-97	DLN-110	FAX-6 or FAX-37 and RAX-5 or RAX-13	RAX-5 or RAX-13	WT-55	WT-55	RAX-5	BR-6
Possible cause and SUSPECTED PARTS			Excessive joint angle	Joint sliding resistance	Imbalance	Improper installation, looseness	Parts interference	PROPELLER SHAFT	DIFFERENTIAL	REAR AXLE AND REAR SUSPENSION	REAR AXLE	TIRE	ROAD WHEEL	DRIVE SHAFT	BRAKE
Symptom	DRIVE SHAFT	Noise	x	x				x	x	x	x	x	x		x
		Shake	x		x			x		x	x	x	x		x
	REAR AXLE	Noise				x	x	x	x	x		x	x	x	x
		Shake				x	x	x		x		x	x	x	x
		Vibration				x	x	x		x		x		x	
		Shimmy				x	x			x		x	x		x
		Shudder				x				x		x	x		x
		Poor quality ride or handling				x	x			x		x	x		

x: Applicable

PERIODIC MAINTENANCE

REAR WHEEL HUB AND HOUSING

Inspection

INFOID:000000009794946

INSPECTION

Make sure the conditions (looseness, back lash) of each component and component conditions (wear, damage) are normal.

WHEEL HUB AND BEARING INSPECTION

- Move wheel hub and bearing in the axial direction by hand. Make sure there is no looseness of wheel bearing.

Axial end play : Refer to [RAX-9, "Wheel Bearing"](#).

- Rotate wheel hub, and make sure there is no unusual noise or other irregular conditions. If there is any of irregular conditions, replace wheel hub and bearing.

REAR DRIVE SHAFT

Inspection

INFOID:000000009794947

Check the following items and replace parts as necessary:

- Check drive shaft mounting point and joint for looseness and other damage.
- Check boot for cracks and other damage.

CAUTION:

Replace entire drive shaft when noise or vibration occurs from drive shaft.

A
B
C
E
F
G
H
I
J
K
L
M
N
O
P

RAX

REAR WHEEL HUB AND HOUSING

< REMOVAL AND INSTALLATION >

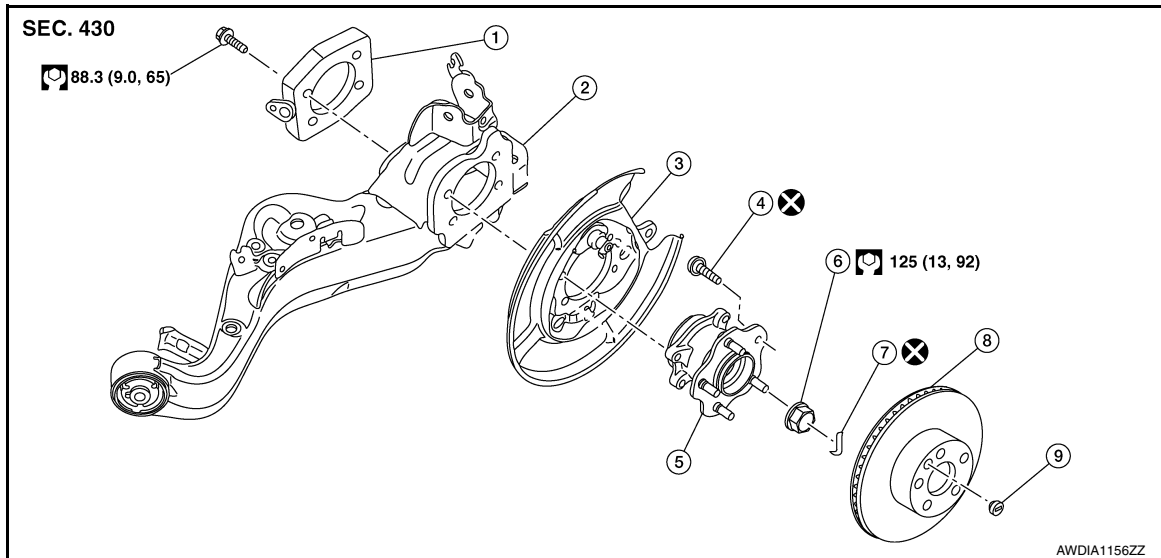
[AWD]

REMOVAL AND INSTALLATION

REAR WHEEL HUB AND HOUSING

Exploded View

INFOID:000000009794948



- | | | |
|-----------------|--------------------------|-----------------------|
| 1. Axle housing | 2. Suspension arm | 3. Back plate |
| 4. Hub bolt | 5. Wheel hub and bearing | 6. Wheel hub lock nut |
| 7. Cotter pin | 8. Disc brake rotor | 9. Plug |

Removal and Installation

INFOID:000000009794949

REMOVAL

1. Remove the wheel and tire using power tool. Refer to [WT-57, "Adjustment"](#).
2. Remove the bolt and separate the rear wheel sensor from the axle housing. Position the rear wheel sensor and the harness aside. Refer to [BRC-134, "REAR WHEEL SENSOR : Removal and Installation"](#).
CAUTION:
 - Pull out the rear wheel sensor, being careful to turn it as little as possible. Do not pull on the wheel sensor harness.
 - Failure to remove the rear speed sensor from the axle housing may result in damage to the rear wheel sensor.
3. Remove torque member bolts using power tool, leaving the brake hose attached. Position brake caliper aside with wire. Refer to [BR-42, "BRAKE CALIPER ASSEMBLY : Exploded View"](#).
CAUTION:
Do not depress brake pedal while brake caliper is removed.
4. Put alignment marks on the disc brake rotor and on the wheel hub and bearing. Remove the disc brake rotor.
CAUTION:
Do not drop disc brake rotor.
5. Remove the cotter pin.
6. Loosen, but do not remove, the wheel hub lock nut from the drive shaft using power tool.

REAR WHEEL HUB AND HOUSING

< REMOVAL AND INSTALLATION >

[AWD]

7. Tap the wheel hub lock nut with a piece of wood to disengage the drive shaft from the wheel hub and bearing.

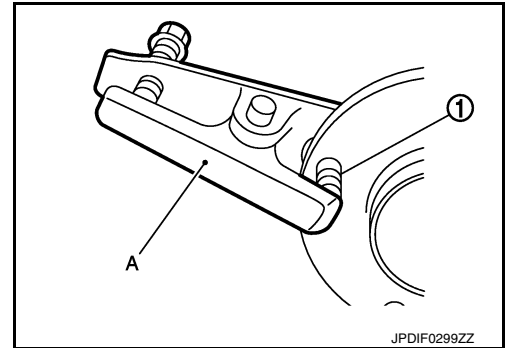
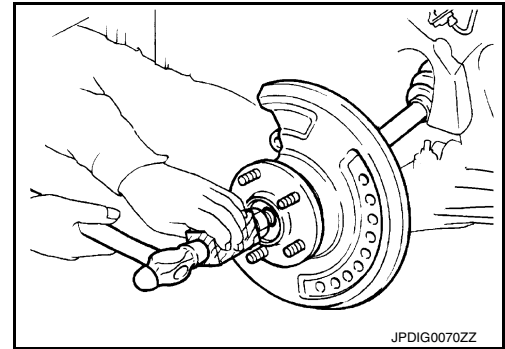
CAUTION:

- Do not place drive shaft joint at an extreme angle. Be careful not to overextend slide joint.
- Do not allow drive shaft to hang without support.

NOTE:

Use a suitable puller if drive shaft cannot be separated from the wheel hub and bearing.

8. Remove the wheel hub lock nut.
9. Remove the hub bolts and the wheel hub and bearing.
10. Position the parking brake and back plate aside with wire.
11. Remove the coil spring and spring seats. Refer to [RSU-10, "Removal and Installation - AWD"](#).
12. Remove the axle housing.
13. If necessary, remove the wheel studs (1) from the wheel hub and bearing using a suitable tool (A).
- CAUTION:**
- Remove the wheel studs only when necessary.
 - Do not hammer the wheel studs or damage to the wheel hub and bearing may occur.
 - Pull out the wheel studs in a direction perpendicular to the wheel hub and bearing.
14. Inspect the components. Refer to [RAX-14, "Inspection"](#).



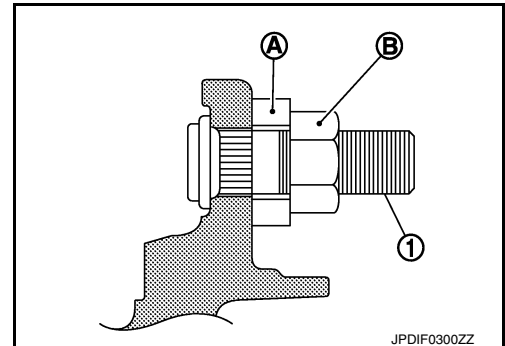
INSTALLATION

Installation is in the reverse order of removal.

- Place a washer (A) as shown to install the wheel studs (1) by using the tightening force of the nut (B).

CAUTION:

- Check that there is no clearance between wheel stud and the wheel hub and bearing.
- Do not reuse wheel stud.



- Clean the mating surfaces of the wheel hub lock nut and the wheel hub and bearing.

CAUTION:

Do not apply lubricating oil to these mating surface.

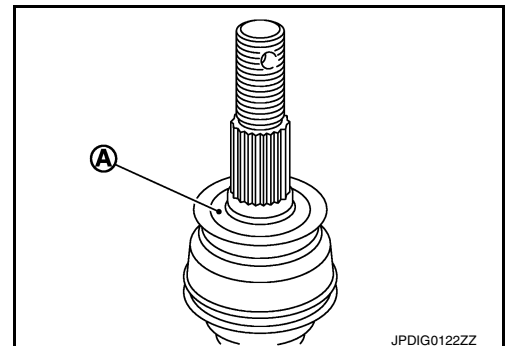
- Clean the mating surfaces of the joint sub-assembly and the wheel hub and bearing. Apply Molykote M77 lubricant to the surface (A) of the joint sub-assembly.

CAUTION:

Apply lubricant to cover the entire flat surface of joint sub-assembly.

NOTE:

Always check with the Parts Department for the latest parts information.



Amount of lubricant : [RAX-27, "Drive Shaft"](#)

- Hold the wheel hub and bearing. Tighten the wheel hub lock nut.

CAUTION:

REAR WHEEL HUB AND HOUSING

[AWD]

< REMOVAL AND INSTALLATION >

- Since the drive shaft is assembled by press-fitting, use a torque wrench to tighten the wheel hub lock nut. Do not use a power tool.
- Too much torque causes axle noise. Too little torque causes wheel bearing looseness. Tighten the wheel hub lock nut to the specification.
- When installing a cotter pin, securely bend the cotter pin to prevent rattles.

CAUTION:

Do not reuse cotter pin.

- Install the rear wheel sensor to the axle housing. Refer to [BRC-134, "REAR WHEEL SENSOR : Removal and Installation"](#).

CAUTION:

- Before installing, make sure there is no foreign material such as iron fragments adhered to the pick-up part of the rear wheel sensor.
- When installing, make sure there is no foreign material such as iron fragments adhered to the pick-up part of the rear wheel sensor. Make sure no foreign material has been caught in the sensor rotor. Remove any foreign material and clean the mount.
- Check that the wheel hub and bearing operates smoothly.
- Align the matching marks on the disc brake rotor and on the wheel hub and bearing.
- Perform the inspection after installation. Refer to [RAX-14, "Inspection"](#).
- Perform the final tightening of each part under unladen conditions, which were removed when removing wheel hub and bearing.

Inspection

INFOID:000000009794950

INSPECTION AFTER REMOVAL

Wheel Hub and Bearing

Check the wheel hub and bearing for wear, cracks, and damage. Replace if necessary.

Axle Housing

Check the axle housing for wear, cracks and damage. Replace if necessary.

Ball Joint Inspection

Check for boot breakage, axial looseness, and torque of suspension arm ball joint. Refer to [RSU-5, "Inspection and Adjustment"](#).

INSPECTION AFTER INSTALLATION

1. Adjust parking brake operation (stroke). Refer to [PB-4, "Inspection and Adjustment"](#).
2. Check the wheel alignment. Refer to [FSU-7, "Inspection"](#).
3. Adjust neutral position of steering angle sensor. Refer to [BRC-70, "Work Procedure"](#).

REAR DRIVE SHAFT

< REMOVAL AND INSTALLATION >

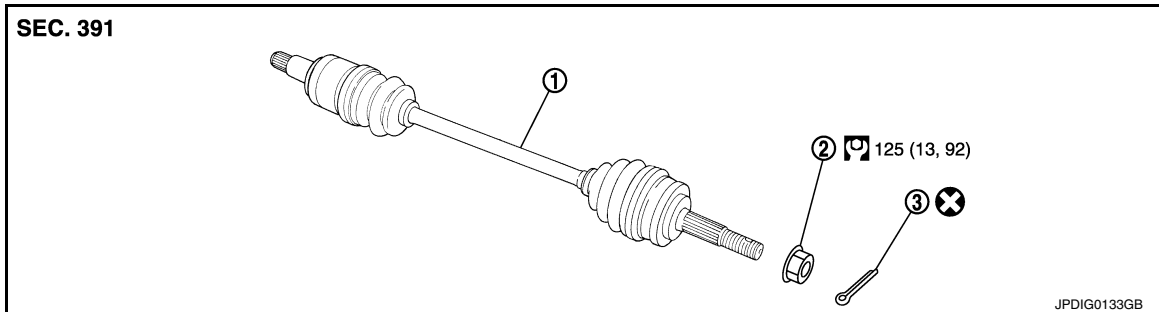
[AWD]

REAR DRIVE SHAFT

Exploded View

INFOID:000000009794951

REMOVAL

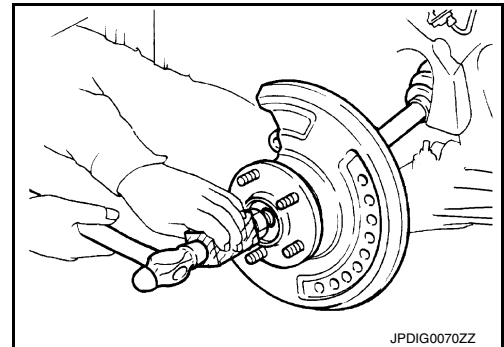


Removal and Installation

INFOID:000000009794952

REMOVAL

1. Remove the wheel and tire using power tool. Refer to [WT-60, "Exploded View"](#).
2. Remove the bolt and separate the rear wheel sensor from the axle housing. Position the rear wheel sensor and the harness aside. Refer to [BR-42, "BRAKE CALIPER ASSEMBLY : Exploded View"](#).
CAUTION:
 - Failure to remove the rear speed sensor from the axle housing may result in damage to the rear wheel sensor.
 - Pull out the rear wheel sensor, being careful to turn it as little as possible. do not pull on wheel sensor harness.
3. Remove torque member bolts using power tool, leaving the brake hose attached. Position brake caliper aside with wire. Refer to [BR-43, "BRAKE CALIPER ASSEMBLY : Removal and Installation"](#).
CAUTION:
Do not depress brake pedal while brake caliper is removed.
4. Put alignment marks on the disc brake rotor and the wheel hub and bearing. Remove the disc brake rotor.
CAUTION:
Do not drop the disc brake rotor.
5. Remove the cotter pin.
6. Loosen but do not remove, the wheel hub lock nut from the drive shaft using power tool.
7. Tap the wheel hub lock nut with a piece of wood to disengage the drive shaft from the wheel hub and bearing.
CAUTION:
 - Do not place drive shaft joint at an extreme angle. Be careful not to overextend slide joint.
 - Do not allow the drive shaft to hang without support.**NOTE:**
Use a suitable puller if the drive shaft cannot be separated from the wheel hub and bearing.
8. Remove the wheel hub lock nut.
9. Remove the coil spring and spring seats. Refer to [BRC-133, "REAR WHEEL SENSOR : Exploded View"](#).
10. Remove the bolts and the suspension member stay. Refer to [RSU-21, "Exploded View"](#).
11. Remove drive shaft from final drive.



INSTALLATION

Installation is in the reverse order of removal.

REAR DRIVE SHAFT

[AWD]

< REMOVAL AND INSTALLATION >

- Clean the mating surfaces of the joint sub-assembly and the wheel hub and bearing. Apply Molykote M77 lubricant to surface (A) of joint sub-assembly.

CAUTION:

Apply lubricant to cover entire flat mating surface of joint sub-assembly.

NOTE:

Always check with the Parts Department for the latest parts information.

Amount of lubricant : [RAX-27, "Drive Shaft"](#)

Hold the wheel hub and bearing. Tighten the wheel hub lock nut.

CAUTION:

- **Since the drive shaft is assembled by press-fitting, use a torque wrench to tighten the wheel hub lock nut. Do not use a power tool.**
- **Too much torque causes axle noise. Too little torque causes wheel bearing looseness. Tighten the wheel hub lock nut to the specification.**
- When installing the cotter pin, securely bend the cotter pin to prevent rattles.

CAUTION:

Do not reuse cotter pin.

- Install the rear wheel sensor to the axle housing Refer to [BRC-133, "REAR WHEEL SENSOR : Exploded View"](#).

CAUTION:

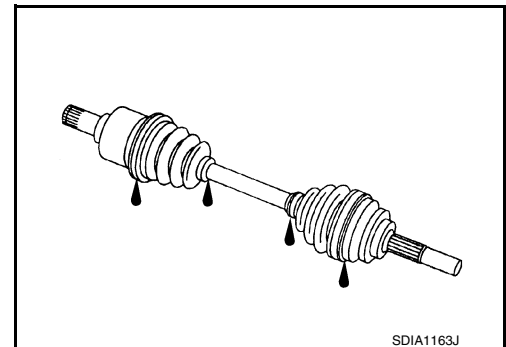
- **Before installing, make sure there is no foreign material such as iron fragments adhered to the pick-up part of the rear wheel sensor.**
- **When installing, make sure there is no foreign material such as iron fragments on and in the hole in the axle housing for the rear wheel sensor. Make sure no foreign material has been caught in the sensor rotor. Remove any foreign material and clean the mount.**
- Perform the final tightening of each of parts under unladen conditions, which were removed when removing wheel hub and bearing.
- Check that the hub and bearing operates smoothly.
- Align the matching marks on the disc brake rotor and on the wheel hub and bearing.
- Perform the inspection after installation. Refer to [RAX-14, "Inspection"](#).

Inspection

INFOID:000000009794954

INSPECTION AFTER REMOVAL

- Move joint up/down, left/right, and in the axial direction. Check for motion that is not smooth and for significant looseness.
- Check boot for cracks or other damage, and also for grease leakage.
- If a malfunction is found, disassemble drive shaft, and then replace components as necessary.



REAR DRIVE SHAFT

< UNIT DISASSEMBLY AND ASSEMBLY >

[AWD]

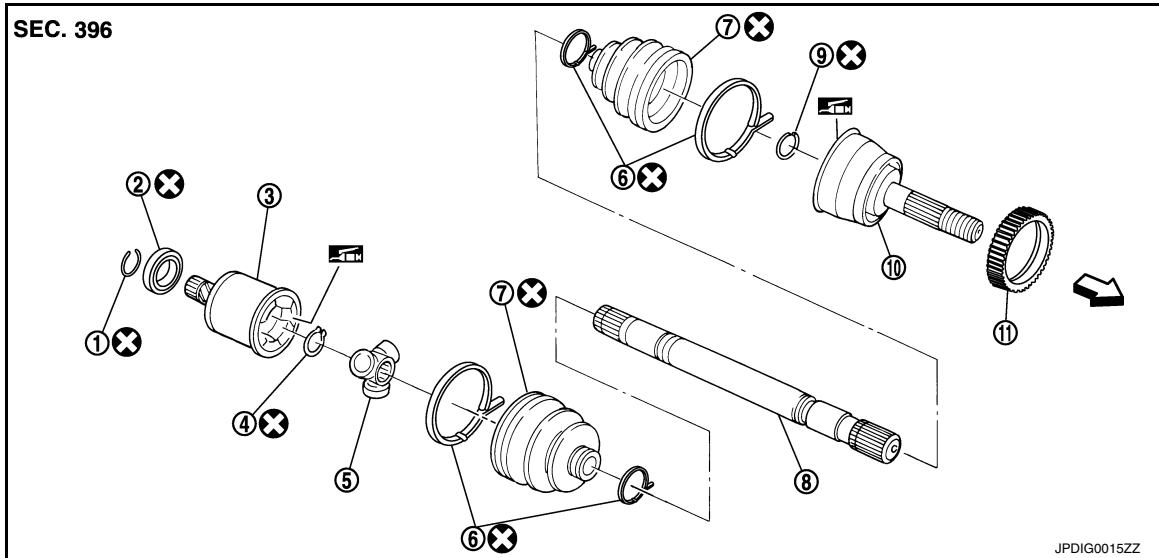
UNIT DISASSEMBLY AND ASSEMBLY

REAR DRIVE SHAFT

Exploded View

INFOID:0000000010346391

DISASSEMBLY



- | | | |
|------------------------|--------------------|------------------------|
| 1. Circular clip | 2. Dust shield | 3. Slide joint housing |
| 4. Snap ring | 5. Spider assembly | 6. Boot band |
| 7. Boot | 8. Shaft | 9. Circular clip |
| 10. Joint sub-assembly | 11. Sensor rotor | |

⇐: Wheel side

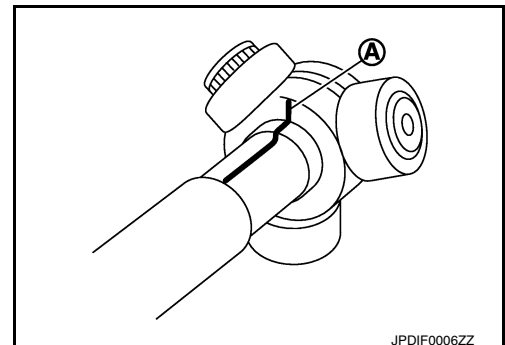
Disassembly and Assembly

INFOID:0000000010340314

DISASSEMBLY

Final Drive Side

- Place drive shaft in a vise.
CAUTION:
When placing drive shaft in a vise, always use copper or aluminum plates between vise and shaft.
- Remove boot bands and slide boot back.
- Put matching marks on slide joint housing and shaft, and then pull out slide joint housing from shaft.
CAUTION:
Use paint or an equivalent for matching marks. Do not scratch the surface.
- Put matching marks (A) on the spider assembly and shaft.
CAUTION:
Use paint or an equivalent for matching marks. Do not scratch the surface.

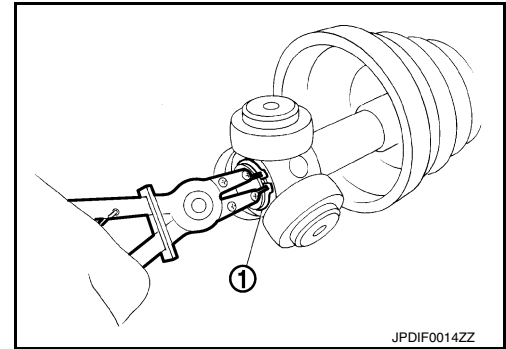


REAR DRIVE SHAFT

< UNIT DISASSEMBLY AND ASSEMBLY >

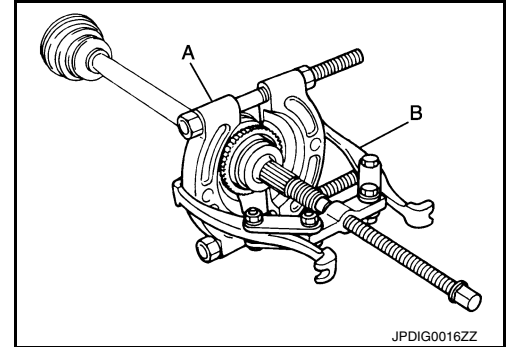
[AWD]

5. Remove snap ring (1).
6. Remove spider assembly from shaft.
7. Remove boot from shaft.
8. Remove circular clip from housing.
9. Remove dust shield from housing.
10. Remove old grease from housing using paper waste.



Wheel Side

1. Remove sensor rotor using suitable tools (A) and (B).



2. Place drive shaft in a vise.

CAUTION:

When placing drive shaft in a vise, always use aluminum or copper plates between the vise and the drive shaft.

3. Remove boot bands and slide boot back.
4. Install suitable tool (A) 30 mm (1.18 in) or more into the thread of joint sub-assembly, and pull joint sub-assembly with suitable tool (B) from shaft.

CAUTION:

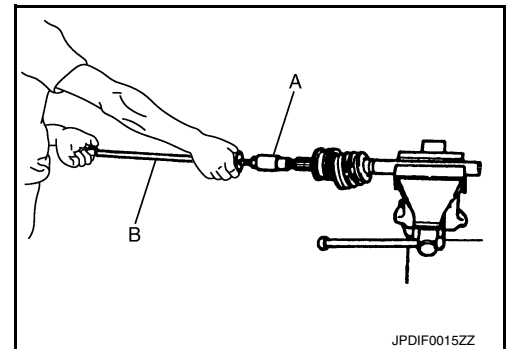
- Align sliding hammer and drive shaft and remove them by pulling forcibly.
- If joint sub-assembly cannot be removed after five or more unsuccessful attempts, replace shaft and joint sub-assembly as a set.

5. Remove circular clip from shaft.

CAUTION:

Do not reuse circular clip.

6. Remove boot from shaft.
7. Clean old grease from joint sub-assembly while rotating ball cage.



INSPECTION AFTER DISASSEMBLY

Shaft

Check shaft for runout, cracks, or other damage. Replace components as necessary.

Joint Sub-Assembly (Wheel Side)

Check the following:

- Joint sub-assembly for rough rotation and excessive axial looseness.
- The inside of the joint sub-assembly for entry of foreign material.
- Joint sub-assembly for compression scars, cracks, and fractures inside of joint sub-assembly.

Replace joint sub-assembly if necessary.

Slide joint housing and spider assembly (Final Drive Side)

Replace slide joint housing and spider assembly if there is scratching or wear on the slide joint housing roller contact surface or spider roller contact surface.

NOTE:

REAR DRIVE SHAFT

< UNIT DISASSEMBLY AND ASSEMBLY >

[AWD]

Slide joint housing and spider assembly are used in a set.

ASSEMBLY

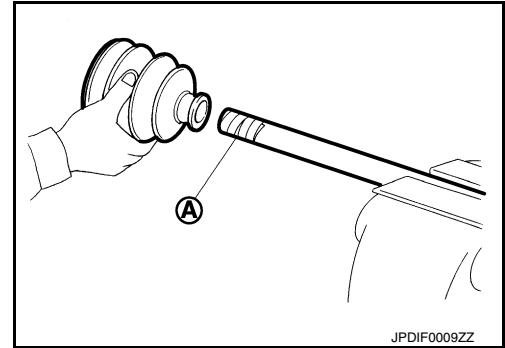
Final Drive Side

1. Install new boot and new small boot band to shaft.

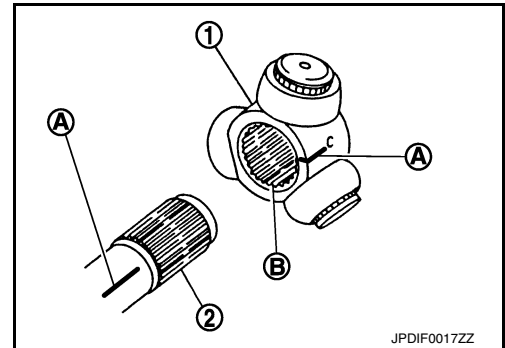
CAUTION:

- Cover drive shaft serration with tape to prevent damage to boot during installation.
- Do not reuse boot or boot band.

2. Remove the tape wrapped around the serration on shaft.



3. Align the matching marks (A) on the spider assembly (1) with the matching mark on the shaft (2). Install the spider assembly to the shaft with the chamfer (B) facing the shaft.



4. Install new snap ring (1) using suitable tool onto shaft.

CAUTION:

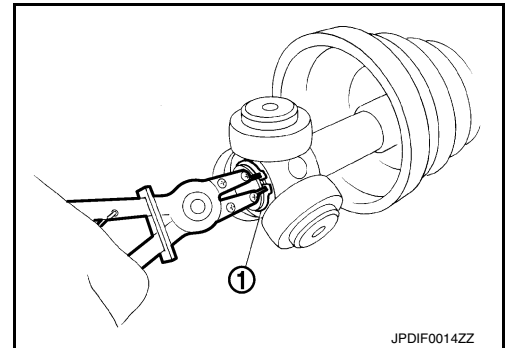
Do not reuse snap ring.

5. Apply the appropriate amount of grease (Genuine NISSAN Grease or equivalent) onto the spider assembly and the sliding surface of the slide joint housing.

NOTE:

Always check with the Parts Department for the latest parts information.

6. Install the slide joint housing onto the spider assembly and apply the balance of the specified amount of grease into the slide joint housing.



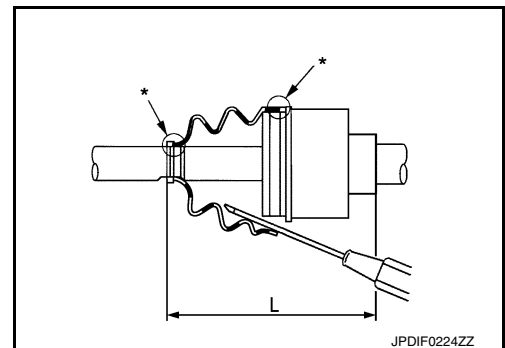
Grease amount : Refer to [RAX-27, "Drive Shaft"](#).

7. Align the matching mark on the slide joint housing with the matching mark on the shaft.
8. Install boot securely into grooves (indicated by "*" marks) as shown.

CAUTION:

If there is grease on boot mounting surfaces (indicated by "*" marks) on shaft or slide joint housing, the boot may come off. Clean all grease from the boot mounting surfaces.

9. Make sure the boot installation length (L) is correct. Insert a suitable tool into large end of boot. Bleed air from boot to prevent boot deformation.



REAR DRIVE SHAFT

< UNIT DISASSEMBLY AND ASSEMBLY >

[AWD]

Boot installation length (L) : Refer to [RAX-27, "Drive Shaft"](#).

CAUTION:

- The boot may break if boot installation length is not correct.
- Be careful not to touch the inside of the boot with the tip of suitable tool.

10. Install new boot bands securely.

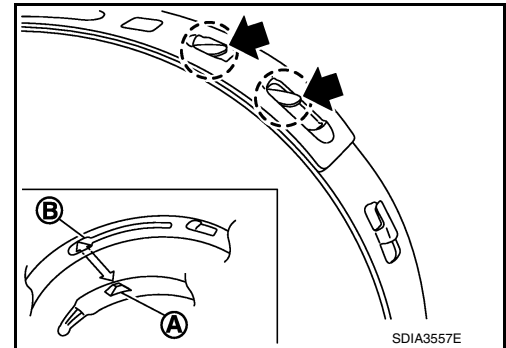
CAUTION:

Do not reuse boot band.

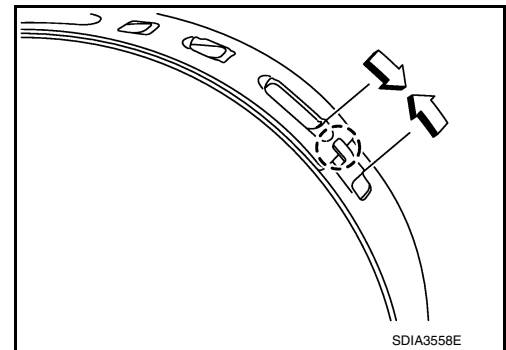
- a. Put boot band in the groove on drive shaft boot. Then fit pawls (➡) into holes for temporary installation.

NOTE:

For the large diameter side, fit projection (A) and guide slit (B) at first.



- b. Pinch projection on the band with suitable pliers to tighten band.
c. Insert tip of band below end of pawl.



11. Attempt to rotate boot to check whether or not the boot bands are securing the boot. If the boot is not secure, remove the boot bands, reposition the boot, and install new boot bands.

12. Install dust shield to slide joint housing.

CAUTION:

Do not reuse dust shield.

13. Install circular clip to slide joint housing.

CAUTION:

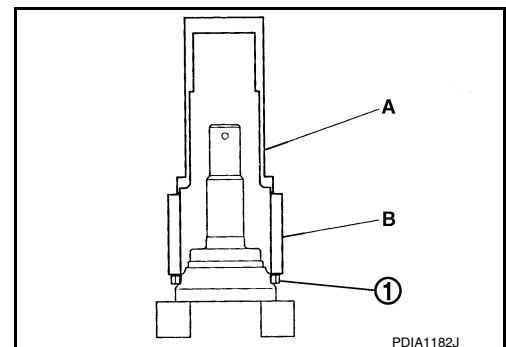
Do not reuse circular clip.

Wheel Side

1. Install sensor rotor (1) using Tool (A), Tool (B) and a press.

Tool (A) number : KV38100500 (-)

Tool (B) number : KV40101840 (-)



REAR DRIVE SHAFT

< UNIT DISASSEMBLY AND ASSEMBLY >

[AWD]

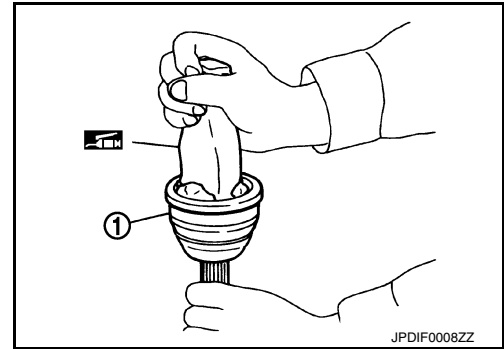
- Fill the serration slot on the joint sub-assembly (1) with grease (Genuine NISSAN Grease or equivalent) until the serration slot and ball groove become full to the brim.

CAUTION:

After applying the grease, use a paper shop cloth to wipe off the grease that has oozed out.

NOTE:

Always check with the Parts Department for the latest parts information.



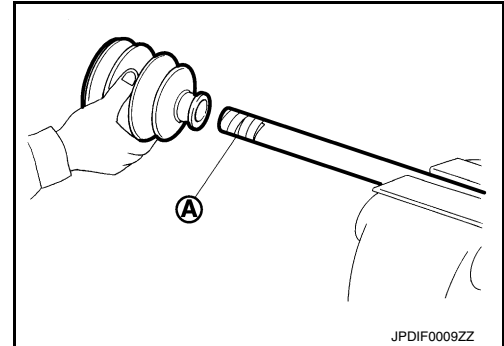
- Install new boot and new small boot band to shaft.

CAUTION:

• **Cover drive shaft serration with tape to prevent damage to boot during installation.**

• **Do not reuse boot and boot band.**

- Remove protective tape wrapped around the serration part on shaft.



- Install a new circular clip to shaft. Position the circular clip in the shaft groove.

CAUTION:

Do not reuse circular clip.

NOTE:

A drive joint inserter is recommended when installing the circular clip.

- Align the center axle with the shaft edge and the joint sub-assembly. Assemble the shaft with the joint-sub assembly while holding the circular clip.

CAUTION:

Confirm that joint sub-assembly is correctly engaged while rotating drive shaft.

- Install the joint sub-assembly to the shaft using a suitable tool.

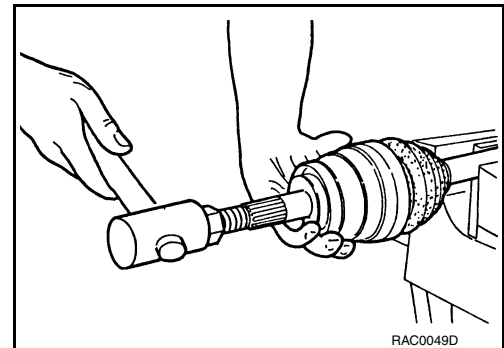
CAUTION:

• **Make sure the circular clip is properly positioned on the groove of the joint sub-assembly.**

• **Confirm that the joint sub-assembly is correctly engaged while rotating the drive shaft.**

- Apply the balance of the specified amount of grease to the inside of the boot from the large diameter side of the boot.

Grease amount : Refer to [RAX-27, "Drive Shaft"](#).

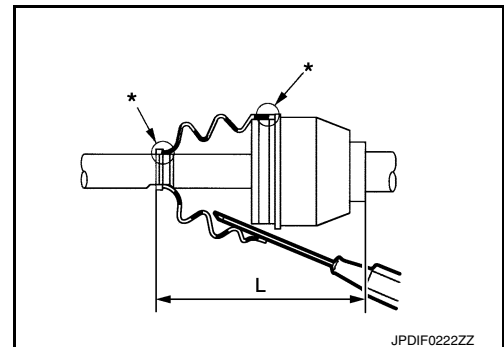


- Install the boot securely into grooves (indicated by "*" marks) as shown.

CAUTION:

If there is grease on the boot mounting surfaces (indicated by "*" marks) on the shaft or joint sub-assembly, the boot may come off. Remove all grease from the boot mounting surfaces.

- Make sure boot installation length (L) is correct. Insert a suitable tool into the large end of the boot. Bleed air from boot to prevent boot deformation.



Boots installation length (L) : Refer to [RAX-27, "Drive Shaft"](#).

REAR DRIVE SHAFT

< UNIT DISASSEMBLY AND ASSEMBLY >

[AWD]

- **CAUTION:**

The boot may break if the boot installation length is not correct.

11. Install new boot bands securely.

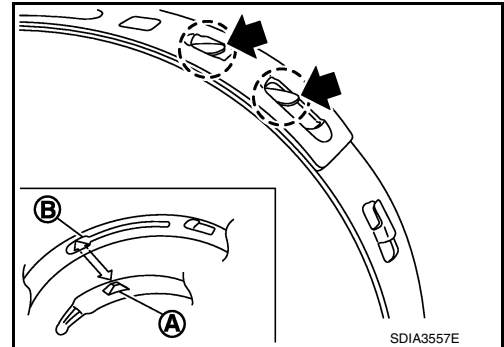
- **CAUTION:**

Do not reuse boot band.

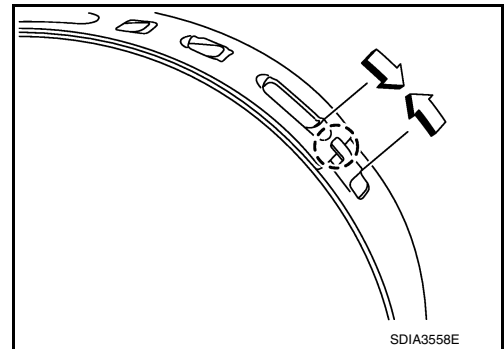
- a. Put boot band in the groove on drive shaft boot. Then fit pawls (↔) into holes for temporary installation.

- **NOTE:**

For the large diameter side, fit projection (A) and guide slit (B) at first.



- b. Pinch projection on the band with suitable pliers to tighten band.
- c. Insert tip of band below end of pawl.



12. Attempt to rotate boot to check whether or not the boot bands are securing the boot. If the boot is not secure, remove the boot bands, reposition the boot, and install new boot bands.

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

[AWD]

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

Wheel Bearing

INFOID:0000000009794955

Item	Standard
Axial end play	0.05 mm (0.002 in) or less

Drive Shaft

INFOID:0000000009794956

Item	Standard	
Joint	Wheel side	Final drive side
Grease quantity	55 – 65 g (1.94 – 2.29 oz)	85 – 95 g (3.00 – 3.35 oz)
Boots installed length (L)	95.3 mm (3.75 in)	—

SECTION **RF** ROOF

CONTENTS

PRECAUTION	3	COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)	11
PRECAUTIONS	3	RETAINED PWR	11
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	3	RETAINED PWR : CONSULT Function (BCM - RETAINED PWR)	11
Precaution for Work	3	ECU DIAGNOSIS INFORMATION	13
PREPARATION	4	BCM	13
PREPARATION	4	List of ECU Reference	13
Special Service Tool	4	MOONROOF MOTOR ASSEMBLY	14
Commercial Service Tools	4	Reference Value	14
SYSTEM DESCRIPTION	5	SUNSHADE MOTOR ASSEMBLY	16
COMPONENT PARTS	5	Reference Value	16
MOONROOF	5	WIRING DIAGRAM	17
MOONROOF : Component Parts Location	5	MOONROOF SYSTEM	17
MOONROOF : Component Description	5	Wiring Diagram	17
SYSTEM	7	BASIC INSPECTION	22
MOONROOF	7	DIAGNOSIS AND REPAIR WORKFLOW	22
MOONROOF : System Diagram	7	Work Flow	22
MOONROOF : System Description	7	INSPECTION AND ADJUSTMENT	24
DIAGNOSIS SYSTEM (BCM) (WITH INTELLIGENT KEY SYSTEM)	9	ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT	24
COMMON ITEM	9	ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement	24
COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)	9	DTC/CIRCUIT DIAGNOSIS	25
RETAINED PWR	9	POWER SUPPLY AND GROUND CIRCUIT	25
RETAINED PWR : CONSULT Function (BCM - RETAINED PWR)	10	BCM (BODY CONTROL SYSTEM) (WITH INTELLIGENT KEY SYSTEM)	25
DIAGNOSIS SYSTEM (BCM) (WITHOUT INTELLIGENT KEY SYSTEM)	11	BCM (BODY CONTROL SYSTEM) (WITH INTELLIGENT KEY SYSTEM) : Diagnosis Procedure	25
COMMON ITEM	11		

BCM (BODY CONTROL SYSTEM) (WITHOUT INTELLIGENT KEY SYSTEM)	25	AUTO OPERATION DOES NOT OPERATE ...	40
BCM (BODY CONTROL SYSTEM) (WITHOUT INTELLIGENT KEY SYSTEM) : Diagnosis Procedure	25	MOONROOF	40
MOONROOF MOTOR ASSEMBLY	26	MOONROOF : Diagnosis Procedure	40
MOONROOF MOTOR ASSEMBLY : Description...	26	SUNSHADE	40
MOONROOF MOTOR ASSEMBLY : Component Function Check	26	SUNSHADE : Diagnosis Procedure	40
MOONROOF MOTOR ASSEMBLY : Diagnosis Procedure	26	ANTI-PINCH FUNCTION DOES NOT OPERATE	41
MOONROOF MOTOR ASSEMBLY : Special Repair Requirement	29	MOONROOF	41
SUNSHADE MOTOR ASSEMBLY	29	MOONROOF : Diagnosis Procedure	41
SUNSHADE MOTOR ASSEMBLY : Description ...	29	SUNSHADE	41
SUNSHADE MOTOR ASSEMBLY : Component Function Check	29	SUNSHADE : Diagnosis Procedure	41
SUNSHADE MOTOR ASSEMBLY : Diagnosis Procedure	29	RETAINED POWER OPERATION DOES NOT OPERATE PROPERLY	42
MOONROOF SWITCH	31	Diagnosis Procedure	42
Description	31	SQUEAK AND RATTLE TROUBLE DIAGNOSES	43
Diagnosis Procedure	31	Work Flow	43
Component Inspection	32	Generic Squeak and Rattle Troubleshooting	44
DOOR SWITCH	34	Diagnostic Worksheet	47
WITH INTELLIGENT KEY	34	REMOVAL AND INSTALLATION	49
WITH INTELLIGENT KEY : Component Function Check	34	GLASS LID	49
WITH INTELLIGENT KEY : Diagnosis Procedure..	34	Exploded View	49
WITH INTELLIGENT KEY : Component Inspection	35	Removal and Installation	49
WITHOUT INTELLIGENT KEY	35	PANORAMIC ROOF GLASS	51
WITHOUT INTELLIGENT KEY : Description	35	Exploded View	51
WITHOUT INTELLIGENT KEY : Component Function Check	35	Removal and Installation	51
WITHOUT INTELLIGENT KEY : Diagnosis Procedure	36	MOONROOF MOTOR ASSEMBLY	53
WITHOUT INTELLIGENT KEY : Component Inspection	37	Exploded View	53
SYMPTOM DIAGNOSIS	38	Removal and Installation	53
MOONROOF DOES NOT OPERATE PROPERLY	38	MOONROOF UNIT ASSEMBLY	55
Diagnosis Procedure	38	Inspection	55
SUNSHADE SYSTEM DOES NOT OPERATE PROPERLY	39	Exploded View	59
Diagnosis Procedure	39	Removal and Installation	59
		SUNSHADE	61
		Removal and Installation	61
		SUNSHADE MOTOR ASSEMBLY	62
		Removal and Installation	62
		WIND DEFLECTOR	63
		Removal and Installation	63
		MOONROOF SWITCH	64
		Removal and Installation	64

PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010308754

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Precaution for Work

INFOID:0000000010308753

- When removing or disassembling each component, be careful not to damage or deform it. If a component may be subject to interference, be sure to protect it with a shop cloth.
- When removing (disengaging) components with a screwdriver or similar tool, be sure to wrap the component with a shop cloth or vinyl tape to protect it.
- Protect the removed parts with a shop cloth and prevent them from being dropped.
- Replace a deformed or damaged clip.
- If a part is specified as a non-reusable part, always replace it with a new one.
- Be sure to tighten bolts and nuts securely to the specified torque.
- After installation is complete, be sure to check that each part works properly.
- Follow the steps below to clean components:
 - Water soluble dirt:
 - Dip a soft cloth into lukewarm water, wring the water out of the cloth and wipe the dirty area.
 - Then rub with a soft, dry cloth.
 - Oily dirt:
 - Dip a soft cloth into lukewarm water with mild detergent (concentration: within 2 to 3%) and wipe the dirty area.
 - Then dip a cloth into fresh water, wring the water out of the cloth and wipe the detergent off.
 - Then rub with a soft, dry cloth.
 - Do not use organic solvent such as thinner, benzene, alcohol or gasoline.
 - For genuine leather seats, use a genuine leather seat cleaner.

PREPARATION

< PREPARATION >

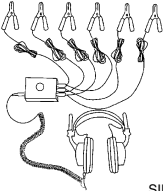
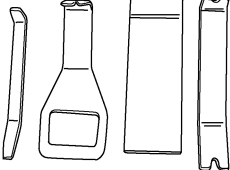
PREPARATION

PREPARATION

Special Service Tool

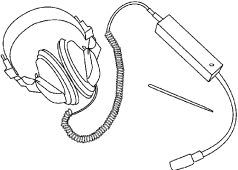
INFOID:0000000010308758

The actual shape of the tools may differ from those illustrated here.

Tool number (TechMate No.) Tool name	Description
— (J-39570) Chassis Ear  SIIA0993E	Locating the noise
— (J-50397) NISSAN Squeak and Rattle Kit  ALJIA1232ZZ	Repairing the cause of noise
— (J-46534) Trim Tool Set  AWJIA0483ZZ	Removing trim components

Commercial Service Tools

INFOID:0000000010308759

(TechMate No.) Tool name	Description
(J-39565) Engine Ear  SIIA0995E	Locating the noise
(—) Power tool  PIIB1407E	Loosening nuts, screws and bolts

COMPONENT PARTS

< SYSTEM DESCRIPTION >

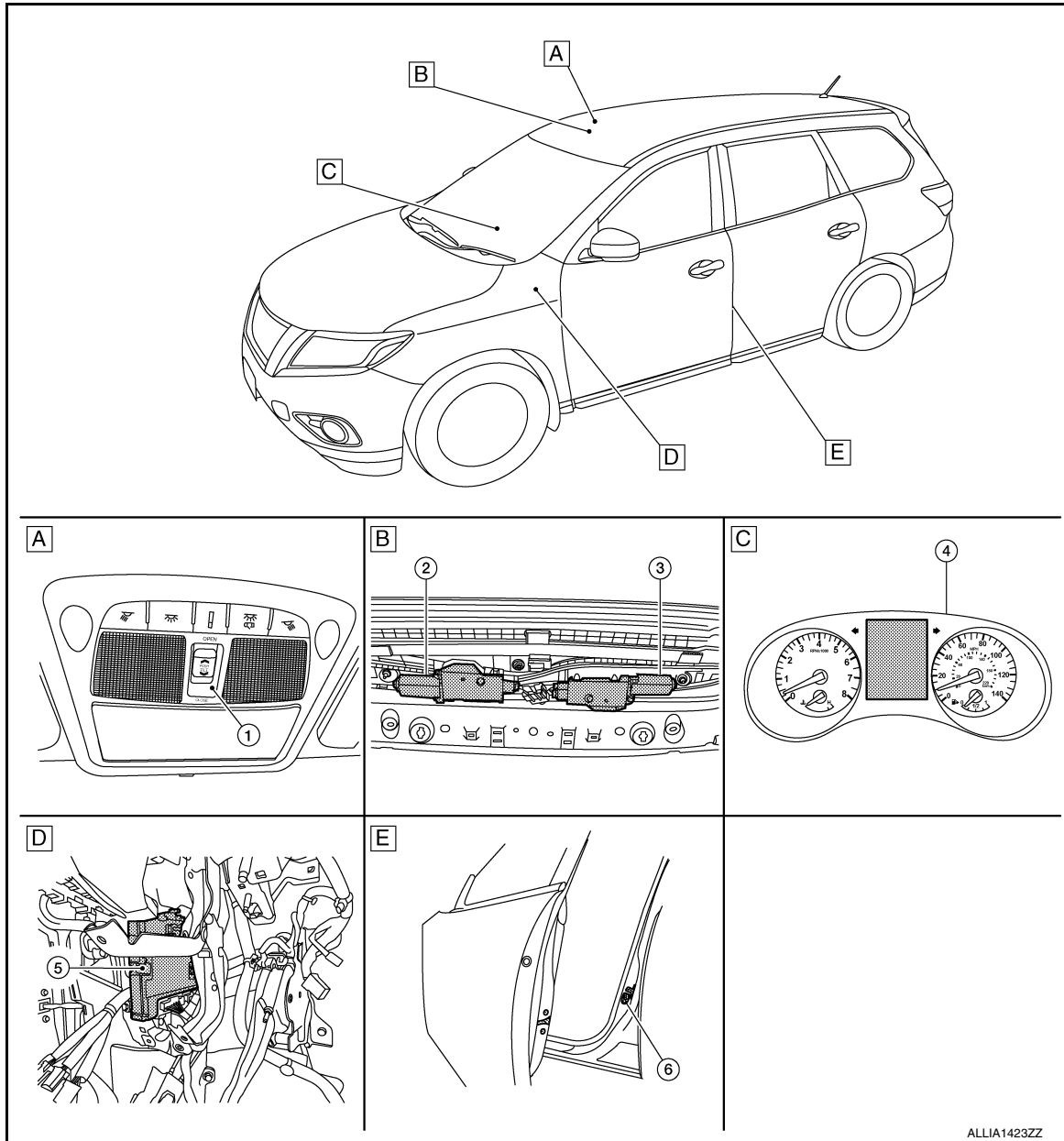
SYSTEM DESCRIPTION

COMPONENT PARTS

MOONROOF

MOONROOF : Component Parts Location

INFOID:0000000010247856



- A. Moonroof switch
 B. View with headliner removed
 C. Combination meter
 D. Behind instrument panel (LH)
 E. View with LH door open (RH similar)

MOONROOF : Component Description

INFOID:0000000010247857

No.	Component	Function
1.	Moonroof switch	Transmits open/close operation signal to the moonroof and sunshade motor assembly.
2.	Sunshade motor	The sunshade motor and CPU are integrated into one unit that opens/closes by input from the moonroof switch operation.

COMPONENT PARTS

< SYSTEM DESCRIPTION >

No.	Component	Function
3.	Moonroof motor	The moonroof motor and CPU are integrated into one unit that opens/closes by input from the moonroof switch operation.
4.	Combination meter	Transmits the vehicle speed signal to BCM via CAN communication.
5.	BCM	Supplies the power supply to the moonroof & sunshade motor assembly.
6.	Front door switch LH	Detects door open/close condition and transmits to BCM.

SYSTEM

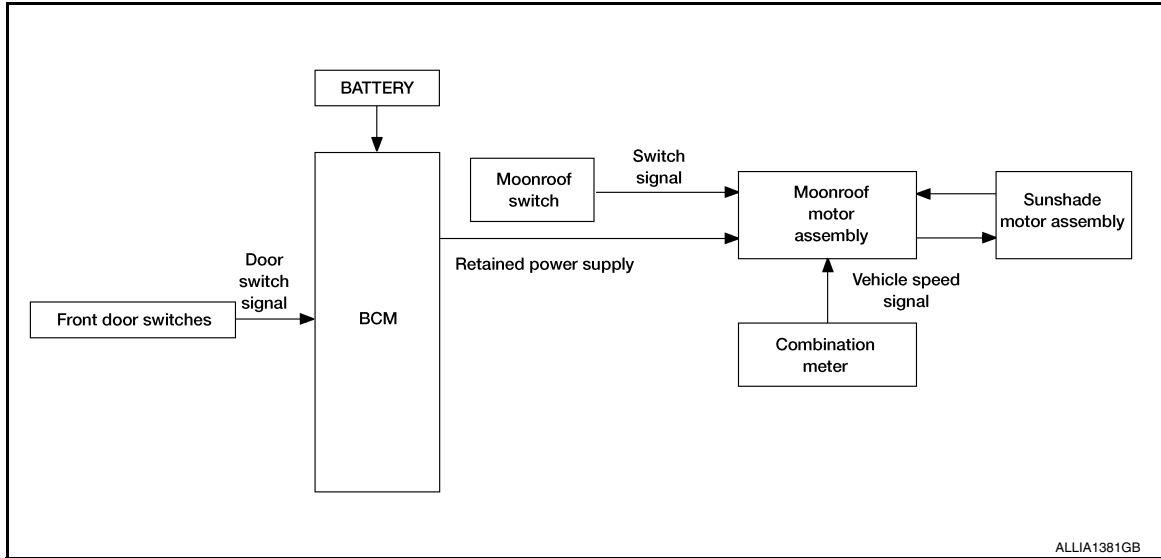
< SYSTEM DESCRIPTION >

SYSTEM MOONROOF

MOONROOF : System Diagram

INFOID:0000000010247860

MOONROOF & SUNSHADE



MOONROOF : System Description

INFOID:0000000010247861

MOONROOF SYSTEM INPUT/OUTPUT SIGNAL CHART

Item	Input signal to moonroof motor assembly	Moonroof motor function	Actuator
Moonroof switch	Moonroof signal (tilt up/down or slide open/close)	Receives signal and moves the moonroof and sunshade assembly to the correct position.	Moonroof motor and/or Sunshade motor
	Sunshade signal (slide open/close)		
Combination meter	Vehicle speed signal	Receives speed signal and determines the amount of torque the motor requires.	
BCM	RAP signal	Retained power after the key is turned off and the front doors stay closed.	

MOONROOF AND SUNSHADE OPERATION

- Moonroof motor and sunshade motor assembly operates with the power supply that is output from the BCM while the ignition switch is ON or retained power is operating.
- Tilt up/down & slide open/close signals from the moonroof switch enable the moonroof motor and sunshade motor to move.
- Moonroof motor assembly receives a vehicle speed signal from the combination meter and controls the moonroof motor torque of tilt down at the time of high speed operation.

AUTO OPERATION

Moonroof and Sunshade AUTO feature makes it possible to slide open and slide closed the moonroof and sunshade without holding the moonroof switch in the slide open/close position.

RETAINED POWER OPERATION

- Retained power operation is an additional power supply function that enables the moonroof and sunshade system to operate for 45 seconds after the ignition switch is turned off and the front doors remain closed.

Retained power function cancel conditions

SYSTEM

< SYSTEM DESCRIPTION >

- Door CLOSE (door switch OFF)→OPEN (door switch ON).
- When ignition switch is ON again.
- When timer time passes (45 seconds).

ANTI-PINCH FUNCTION

The moonroof and sunshade motor's built in CPU monitors the moonroof motor and sunshade motor operation and position.

If a restriction is detected during the slide closed operation the moonroof/sunshade motor will move the glass/sunshade in the open positions.

DIAGNOSIS SYSTEM (BCM) (WITH INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (BCM) (WITH INTELLIGENT KEY SYSTEM) COMMON ITEM

COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)

INFOID:0000000010291450

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with BCM.

Direct Diagnostic Mode	Description
Ecu Identification	The BCM part number is displayed.
Self Diagnostic Result	The BCM self diagnostic results are displayed.
Data Monitor	The BCM input/output data is displayed in real time.
Active Test	The BCM activates outputs to test components.
Work support	The settings for BCM functions can be changed.
Configuration	- The vehicle specification can be read and saved. - The vehicle specification can be written when replacing BCM.
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.

SYSTEM APPLICATION

BCM can perform the following functions.

System	Sub System	Direct Diagnostic Mode						
		Ecu Identification	Self Diagnostic Result	Data Monitor	Active Test	Work support	Configuration	CAN Diag Support Mntr
Door lock	DOOR LOCK		×	×	×	×		
Rear window defogger	REAR DEFOGGER			×	×	×		
Warning chime	BUZZER			×	×			
Interior room lamp timer	INT LAMP			×	×	×		
Exterior lamp	HEADLAMP			×	×	×		
Wiper and washer	WIPER			×	×	×		
Turn signal and hazard warning lamps	FLASHER			×	×			
Intelligent Key system	INTELLIGENT KEY		×	×	×	×		
Combination switch	COMB SW			×				
BCM	BCM	×	×			×	×	×
Immobilizer	IMMU		×	×	×			
Interior room lamp battery saver	BATTERY SAVER			×	×			
Back door open	TRUNK			×				
Vehicle security system	THEFT ALM			×	×	×		
RAP system	RETAINED PWR			×				
Signal buffer system	SIGNAL BUFFER			×				
TPMS	AIR PRESSURE MONITOR		×	×	×	×		

RETAINED PWR

DIAGNOSIS SYSTEM (BCM) (WITH INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

RETAINED PWR : CONSULT Function (BCM - RETAINED PWR)

INFOID:0000000010377882

DATA MONITOR

Monitor Item [Unit]	Description
DOOR SW-DR [On/Off]	Indicates condition of front door switch LH.
DOOR SW-AS [On/Off]	Indicates condition of front door switch RH.

DIAGNOSIS SYSTEM (BCM) (WITHOUT INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (BCM) (WITHOUT INTELLIGENT KEY SYSTEM) COMMON ITEM

COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)

INFOID:0000000010291452

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with BCM.

Direct Diagnostic Mode	Description
Ecu Identification	The BCM part number is displayed.
Self Diagnostic Result	The BCM self diagnostic results are displayed.
Data Monitor	The BCM input/output data is displayed in real time.
Active Test	The BCM activates outputs to test components.
Work support	The settings for BCM functions can be changed.
Configuration	- The vehicle specification can be read and saved. - The vehicle specification can be written when replacing BCM.
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.

SYSTEM APPLICATION

BCM can perform the following functions.

System	Sub System	Direct Diagnostic Mode						
		Ecu Identification	Self Diagnostic Result	Data Monitor	Active Test	Work support	Configuration	CAN Diag Support Mntr
Door lock	DOOR LOCK			x	x	x		
Rear window defogger	REAR DEFOGGER			x	x	x		
Warning chime	BUZZER			x	x			
Interior room lamp timer	INT LAMP			x	x	x		
Remote keyless entry system	MULTI REMOTE ENT					x		
Exterior lamp	HEADLAMP			x	x			
Wiper and washer	WIPER			x	x	x		
Turn signal and hazard warning lamps	FLASHER			x	x			
Combination switch	COMB SW			x				
BCM	BCM	x	x			x	x	x
Immobilizer	IMMU		x		x			
Interior room lamp battery saver	BATTERY SAVER			x	x			
Back door open	TRUNK			x				
Vehicle security system	THEFT ALM			x	x	x		
RAP system	RETAINED PWR			x				
TPMS	AIR PRESSURE MONITOR		x	x	x	x		

RETAINED PWR

RETAINED PWR : CONSULT Function (BCM - RETAINED PWR)

INFOID:0000000010377883

DATA MONITOR

DIAGNOSIS SYSTEM (BCM) (WITHOUT INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

Monitor Item [Unit]	Description
DOOR SW-DR [On/Off]	Indicates condition of front door switch LH.
DOOR SW-AS [On/Off]	Indicates condition of front door switch RH.

ECU DIAGNOSIS INFORMATION

BCM

List of ECU Reference

INFOID:0000000010291449

ECU	Reference
BCM (with Intelligent Key system)	BCS-28, "Reference Value"
	BCS-47, "Fail Safe"
	BCS-47, "DTC Inspection Priority Chart"
	BCS-48, "DTC Index"
BCM (without Intelligent Key system)	BCS-96, "Reference Value"
	BCS-107, "Fail Safe"
	BCS-107, "DTC Inspection Priority Chart"
	BCS-108, "DTC Index"

A
B
C
D
E
F
G
H
I
J
RF
L
M
N
O
P

MOONROOF MOTOR ASSEMBLY

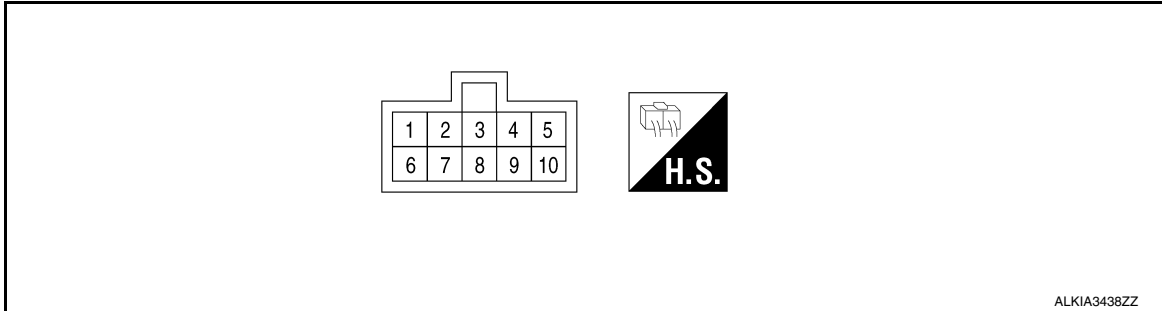
< ECU DIAGNOSIS INFORMATION >

MOONROOF MOTOR ASSEMBLY

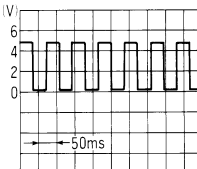
Reference Value

INFOID:000000010247867

TERMINAL LAYOUT



PHYSICAL VALUES

Terminal No. (Wire color)		Description		Condition	Voltage (Approx.)
+	-	Signal name	Input/ Output		
1 (B)	Ground	Ground	—	—	0
2 (BR)	Ground	Sunshade open/close switch (second click) signal	Output	Moonroof switch in following (second click) position • OPEN • CLOSE	0
3 (Y)	Ground	Ign power supply from BCM	Input	—	Battery voltage
4 (W)	Ground	RAP signal	Input	Ignition switch ON	Battery voltage
				Within 45 seconds after ignition switch is turned to OFF.	Battery voltage
				When driver side or passenger side door is opened during re- tained power operation.	0
5 (L)	Ground	Moonroof OPEN switch signal	Input	Moonroof switch in following po- sition • TILT DOWN • SLIDE OPEN	0
				Other than above	Battery voltage
6 (R)	Ground	Moonroof power supply	Input	—	Battery voltage
7 (GR)	Ground	Serial communication line (between moonroof & sunshade motor)	Input/ Output	—	-
8 (G)	Ground	Vehicle speed signal	Input	Speedometer operated [When vehicle speed is approx.40km/ h (25MPH)]	

ELF1080D

MOONROOF MOTOR ASSEMBLY

< ECU DIAGNOSIS INFORMATION >

Terminal No. (Wire color)		Description		Condition	Voltage (Approx.)
+	-	Signal name	Input/ Output		
10 (LG)	Ground	Moonroof CLOSE switch signal	Input	Moonroof switch in following po- sition • TILT UP • SLIDE CLOSE	0
				Other than above	Battery voltage

A
B
C
D
E
F
G
H
I
J
RF
L
M
N
O
P

SUNSHADE MOTOR ASSEMBLY

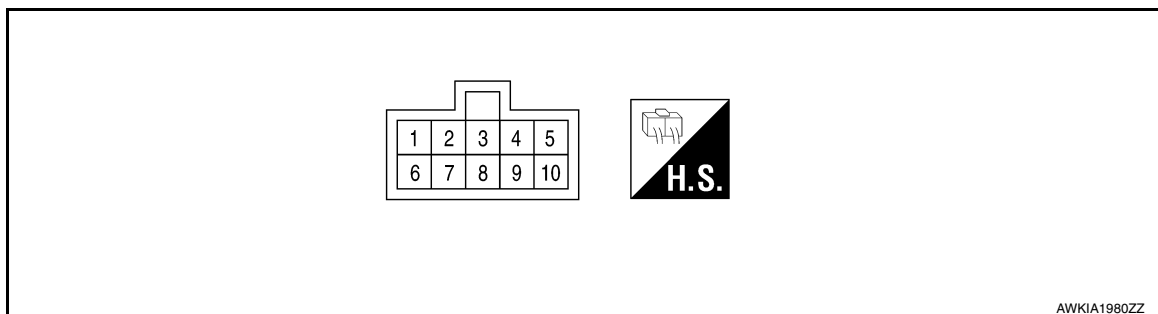
< ECU DIAGNOSIS INFORMATION >

SUNSHADE MOTOR ASSEMBLY

Reference Value

INFOID:0000000010247868

TERMINAL LAYOUT



PHYSICAL VALUES

Terminal No. (Wire color)		Description		Condition	Voltage (Approx.)
+	-	Signal name	Input/ Output		
1 (P)	Ground	Ground	—	—	0
3 (Y)	Ground	Ign power supply	Input	Within 45 seconds after the ignition is turned off	Battery voltage
				When the driver side or passenger side door is opened during retained power operation.	0
6 (V)	Ground	Bat + power supply	—	—	Battery voltage
7 (GR)	Ground	Sunshade open/close switch signal	Input/ Output	Sunshade switch is in the open/close position	0
				Other than above	Battery voltage

MOONROOF SYSTEM

< WIRING DIAGRAM >

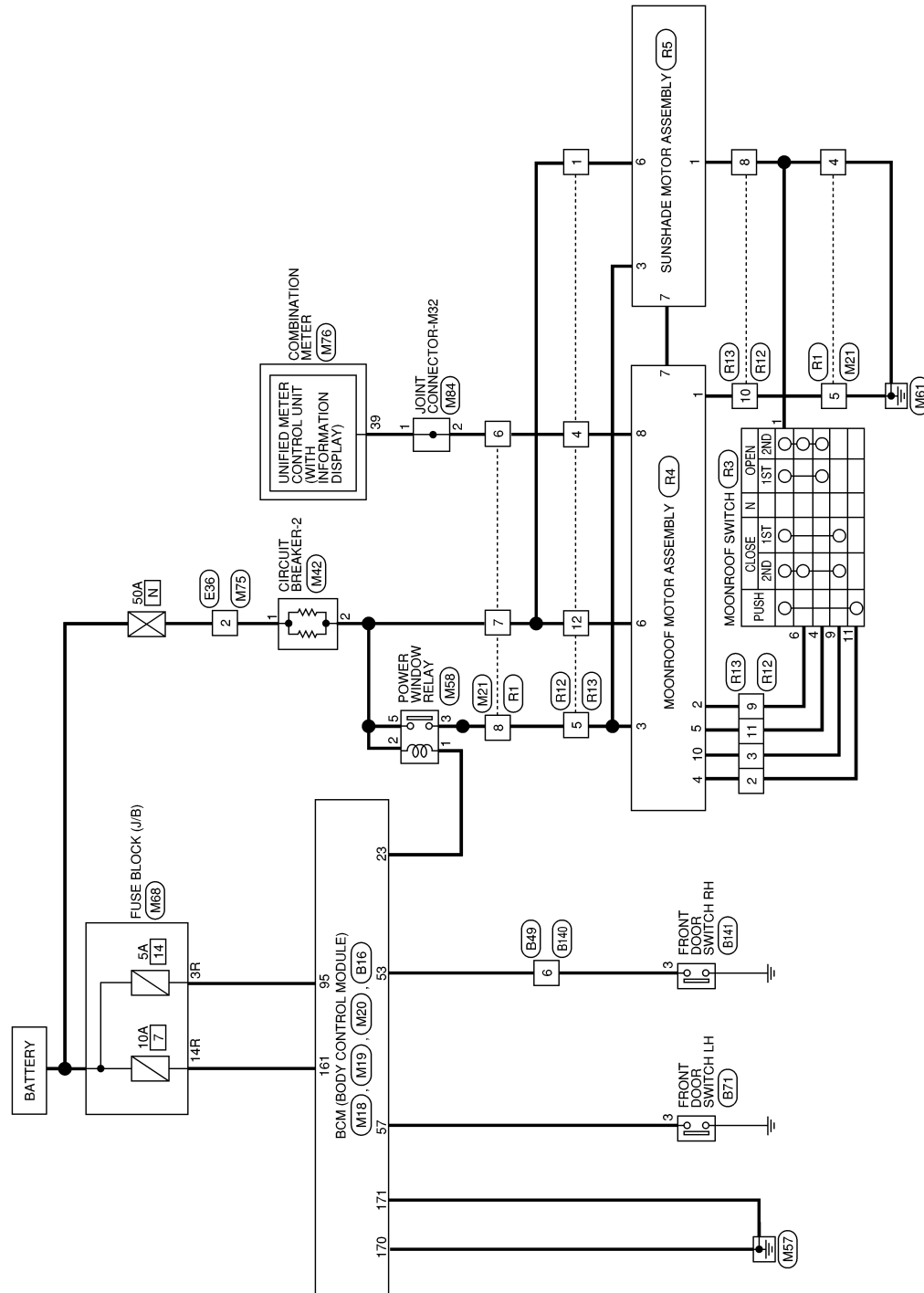
WIRING DIAGRAM

MOONROOF SYSTEM

Wiring Diagram

INFOID:0000000010247869

MOONROOF SYSTEM



AAKWA0757GB

MOONROOF SYSTEM

< WIRING DIAGRAM >

MOONROOF SYSTEM CONNECTORS

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY



20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21

Terminal No.	Color of Wire	Signal Name
23	G	O WL AUTHORIZATION RL

Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



100	99	98	97	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81
120	119	118	117	116	115	114	113	112	111	110	109	108	107	106	105	104	103	102	101

Terminal No.	Color of Wire	Signal Name
95	V	I SHORTING PIN

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BROWN



167	166	165	164	163	162	161
176	175	174	173	172	171	170
169	168					

Terminal No.	Color of Wire	Signal Name
161	W	I PWR ECU
170	B	I GND1
171	B	I GND2

Connector No.	M21
Connector Name	WIRE TO WIRE
Connector Color	WHITE



3	2	1
8	7	6
5	4	

Terminal No.	Color of Wire	Signal Name
4	B	-
5	B	-
6	W	-
7	R	-
8	Y	-

Connector No.	M42
Connector Name	CIRCUIT BREAKER-2
Connector Color	WHITE



1	2
---	---

Terminal No.	Color of Wire	Signal Name
1	W	-
2	P	-

Connector No.	M58
Connector Name	POWER WINDOW RELAY
Connector Color	BLUE



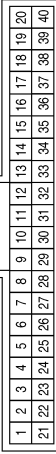
3	2	1	5
---	---	---	---

Terminal No.	Color of Wire	Signal Name
1	G	-
2	W	-
3	L	-
5	P	-

MOONROOF SYSTEM

< WIRING DIAGRAM >

Connector No.	M76
Connector Name	COMBINATION METER
Connector Color	WHITE

Terminal No.	Color of Wire	Signal Name
39	W	2P/R OUTPUT

Connector No.	M75
Connector Name	WIRE TO WIRE
Connector Color	BLACK



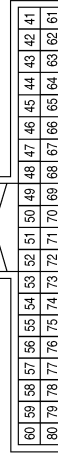

Terminal No.	Color of Wire	Signal Name
2	W	-

Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN




Terminal No.	Color of Wire	Signal Name
3R	V	-
14R	W	-

Connector No.	B16
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GREEN

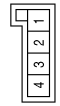
Terminal No.	Color of Wire	Signal Name
53	SB	I AS DOOR2 SW
57	SB	I DR DOOR2 SW

Connector No.	E36
Connector Name	WIRE TO WIRE
Connector Color	BLACK




Terminal No.	Color of Wire	Signal Name
2	W	-

Connector No.	M84
Connector Name	JOINT CONNECTOR-M32
Connector Color	WHITE

Terminal No.	Color of Wire	Signal Name
1	W	-
2	W	-

AAKIA1762GB

MOONROOF SYSTEM

< WIRING DIAGRAM >

Connector No.	B140
Connector Name	WIRE TO WIRE
Connector Color	WHITE

5	4	3	2	1
12	11	10	9	8
7	6			



Terminal No.	6	Color of Wire	GR	Signal Name	—
--------------	---	---------------	----	-------------	---

Connector No.	B71
Connector Name	FRONT DOOR SWITCH LH
Connector Color	WHITE

1	2	3	4
---	---	---	---



Terminal No.	3	Color of Wire	SB	Signal Name	—
--------------	---	---------------	----	-------------	---

Connector No.	B49
Connector Name	WIRE TO WIRE
Connector Color	WHITE

1	2	3	4	5
6	7	8	9	10
11	12			



Terminal No.	6	Color of Wire	SB	Signal Name	—
--------------	---	---------------	----	-------------	---

Connector No.	R3
Connector Name	MOONROOF SWITCH
Connector Color	WHITE

1	2	3	4	5	6
7	8	9	10	11	12



Terminal No.	1	Color of Wire	B	Signal Name	—
	4		G		—
	6		LG		—
	9		W		—
	11		P		—

Connector No.	R1
Connector Name	WIRE TO WIRE
Connector Color	WHITE

1	2	3
4	5	6
7	8	



Terminal No.	4	Color of Wire	B	Signal Name	—
	5		B		—
	6		W		—
	7		Y		—
	8		R		—

Connector No.	B141
Connector Name	FRONT DOOR SWITCH RH
Connector Color	WHITE

1	2	3	4
---	---	---	---



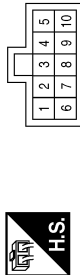
Terminal No.	3	Color of Wire	GR	Signal Name	—
--------------	---	---------------	----	-------------	---

AAKIA1763GB

MOONROOF SYSTEM

< WIRING DIAGRAM >

Connector No.	R4
Connector Name	MOONROOF MOTOR ASSEMBLY
Connector Color	GRAY



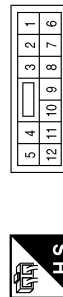
Terminal No.	Color of Wire	Signal Name
1	B	-
2	BR	-
3	Y	-
4	W	-
5	L	-
6	R	-
7	GR	-
8	G	-
10	LG	-

Connector No.	R5
Connector Name	SUNSHADE MOTOR ASSEMBLY
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
1	P	-
3	Y	-
6	V	-
7	GR	-

Connector No.	R12
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	R13
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	Y	-
2	P	-
3	W	-
4	W	-
5	R	-
8	B	-
9	LG	-
10	B	-
11	G	-
12	Y	-

Terminal No.	Color of Wire	Signal Name
1	V	-
2	W	-
3	LG	-
4	G	-
5	Y	-
8	P	-
9	BR	-
10	B	-
11	L	-
12	R	-

AAKIA1764GB

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

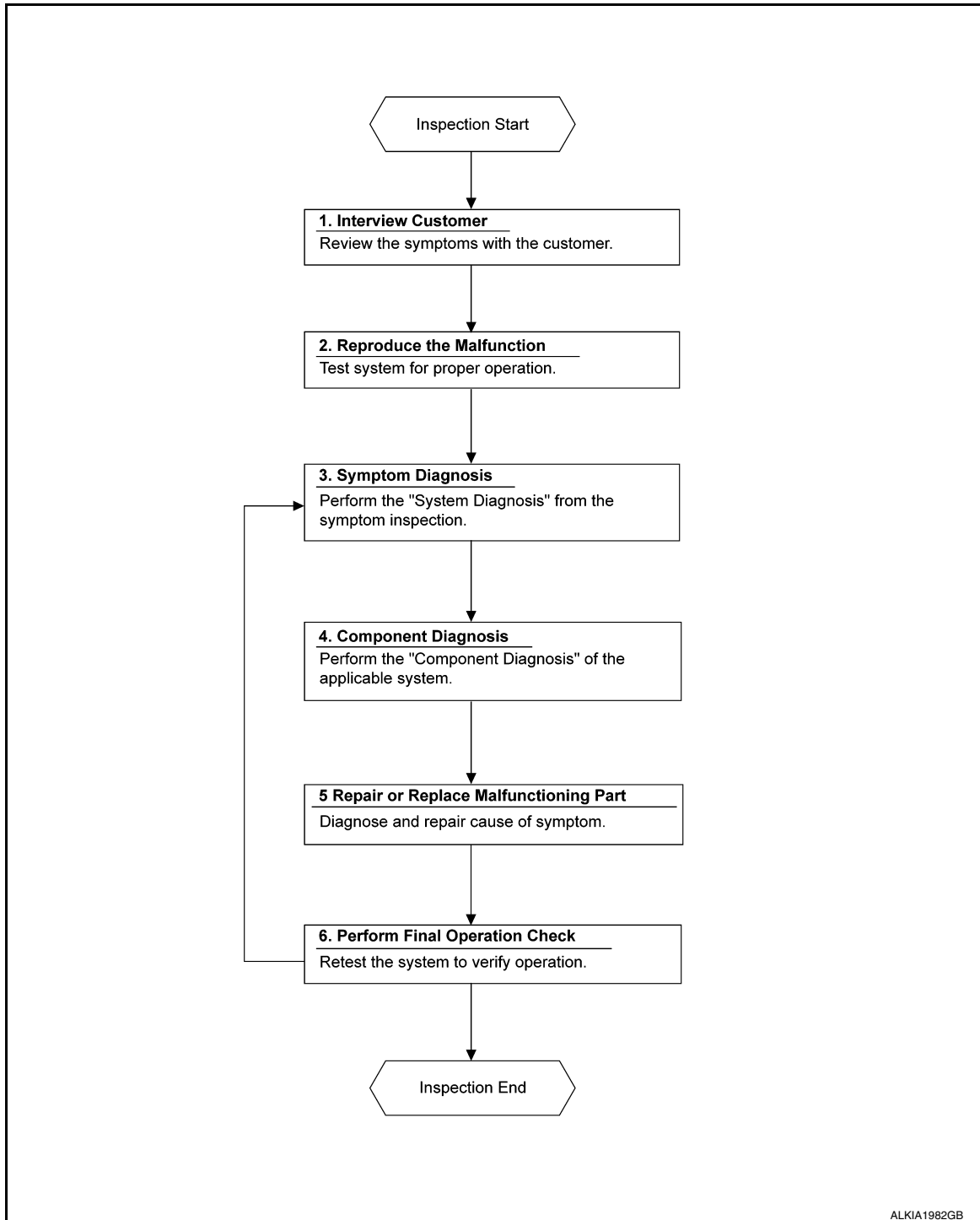
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:000000010247870

OVERALL SEQUENCE



DETAILED FLOW

1. OBTAIN INFORMATION ABOUT SYMPTOM

Interview the customer to obtain as much information as possible about the conditions and environment under which the malfunction occurred.

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

>> GO TO 2.

2. CONFIRM CONCERN

Check the malfunction on the vehicle that the customer describes.
Inspect the relation of the symptoms and the condition when the symptoms occur.

>> GO TO 3.

3. IDENTIFY THE MALFUNCTIONING SYSTEM WITH SYMPTOM DIAGNOSIS

Use Symptom diagnosis from the symptom inspection result in step 2 and then identify where to start performing the diagnosis based on possible causes and symptoms.

>> GO TO 4.

4. PERFORM THE COMPONENT DIAGNOSIS OF THE APPLICABLE SYSTEM

Perform the diagnosis with Component diagnosis of the applicable system.

>> GO TO 5.

5. REPAIR OR REPLACE THE MALFUNCTIONING PARTS

Repair or replace the specified malfunctioning parts.

>> GO TO 6.

6. FINAL CHECK

Check that malfunctions are not reproduced when obtaining the malfunction information from the customer, referring to the symptom inspection result in step 2.

Are the malfunctions corrected?

YES >> Inspection End.

NO >> GO TO 3.

A

B

C

D

E

F

G

H

I

J

RF

L

M

N

O

P

INSPECTION AND ADJUSTMENT

< BASIC INSPECTION >

INSPECTION AND ADJUSTMENT

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement

INFOID:0000000010282994

INITIALIZATION PROCEDURE

Moonroof

If the moonroof does not open or close automatically, use the following procedure to return moonroof operation to normal.

1. Turn ignition switch ON.
2. Push and hold the moonroof switch forward until the moonroof and sunshade stop and bounce back.
3. Release the moonroof switch.
4. Press and hold the moonroof switch within 6 seconds.
5. The roof glass and shade will move to full open and back to full close.
6. Release the switch, initialization is complete if the moonroof operates normally.

ANTI-PINCH FUNCTION

Moonroof/Sunshade

1. Fully open the moonroof to the full open position.
2. Place a piece of wood at the fully closed position.
3. Close the moonroof completely with auto-slide close function.
4. Moonroof should make contact and then tilt up or travel in reverse.

CAUTION:

- Do not test the anti-pinch function with your hands or other body parts because they may be pinched.
- Depending on the environment and driving conditions, if a similar impact or load is applied to the moonroof it may lower.
- Test the auto-slide operation before inspection when the initialization procedure is performed.
- Perform the initialization procedure when the auto-slide operation or anti-pinch function does not operate normally.

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

DTC/CIRCUIT DIAGNOSIS

POWER SUPPLY AND GROUND CIRCUIT

BCM (BODY CONTROL SYSTEM) (WITH INTELLIGENT KEY SYSTEM)

BCM (BODY CONTROL SYSTEM) (WITH INTELLIGENT KEY SYSTEM) : Diagnosis Procedure

INFOID:0000000010377886

Regarding Wiring Diagram information, refer to [BCS-50, "Wiring Diagram"](#).

1. CHECK FUSE

Check that the following fuse is not blown.

Terminal No.	Signal name	Fuse No.
161	BCM power supply	7 (10A)

Is the fuse blown?

YES >> Replace the blown fuse after repairing the affected circuit.

NO >> GO TO 2.

2. CHECK POWER SUPPLY CIRCUIT

1. Disconnect BCM connector M20.
2. Check voltage between BCM connector M20 and ground.

BCM		Ground	Voltage (Approx.)
Connector	Terminal		
M20	161	—	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

3. CHECK GROUND CIRCUIT

Check continuity between BCM connector M20 and ground.

BCM		Ground	Continuity
Connector	Terminal		
M20	170	—	Yes
	171		

Is the inspection result normal?

YES >> Inspection End.

NO >> Repair or replace harness or connectors.

BCM (BODY CONTROL SYSTEM) (WITHOUT INTELLIGENT KEY SYSTEM)

BCM (BODY CONTROL SYSTEM) (WITHOUT INTELLIGENT KEY SYSTEM) : Diagnosis Procedure

INFOID:0000000010377887

Regarding Wiring Diagram information, refer to [BCS-110, "Wiring Diagram"](#).

1. CHECK FUSE

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

Check that the following fuse is not blown.

Terminal No.	Signal name	Fuse No.
161	BCM power supply	7 (10A)

Is the fuse blown?

- YES >> Replace the blown fuse after repairing the affected circuit.
NO >> GO TO 2.

2. CHECK POWER SUPPLY CIRCUIT

1. Disconnect BCM connector M20.
2. Check voltage between BCM connector M20 and ground.

BCM		Ground	Voltage (Approx.)
Connector	Terminal		
M20	161	—	Battery voltage

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace harness or connectors.

3. CHECK GROUND CIRCUIT

Check continuity between BCM connector M20 and ground.

BCM		Ground	Continuity
Connector	Terminal		
M20	170	—	Yes
	171		

Is the inspection result normal?

- YES >> Inspection End.
NO >> Repair or replace harness or connectors.

MOONROOF MOTOR ASSEMBLY

MOONROOF MOTOR ASSEMBLY : Description

INFOID:0000000010301061

- BCM supplies the moonroof motor assembly with power.
- CPU is integrated in moonroof motor assembly.
- Tilts up/down & slides open/close by moonroof switch operation.
- In order to close the moonroof during high speed driving, the Combination meter will send a speed signal to the moonroof CPU to adjust the torque of the motor during the tilt-down operation.

MOONROOF MOTOR ASSEMBLY : Component Function Check

INFOID:0000000010301062

1. CHECK MOONROOF MOTOR FUNCTION

Does the tilt up/down & slide open/close functions operate normally with moonroof switch?

Is the inspection result normal?

- YES >> Moonroof motor assembly is OK.
NO >> Refer to [RF-26, "MOONROOF MOTOR ASSEMBLY : Diagnosis Procedure"](#).

MOONROOF MOTOR ASSEMBLY : Diagnosis Procedure

INFOID:0000000010301063

Regarding Wiring Diagram information, refer to [RF-17, "Wiring Diagram"](#).

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

MOONROOF MOTOR ASSEMBLY

1. CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the moonroof motor assembly connector.
3. Turn ignition switch ON.
4. Check voltage between moonroof motor assembly connector and ground.

Terminal			Voltage (Approx.)
(+)		(-)	
Moonroof motor assembly connector	Terminal		
R4	3	Ground	Battery voltage
	6		

Is the inspection result normal?

YES >> GO TO 2.

NO >> GO TO 3.

2. CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check continuity between moonroof motor assembly connector and ground.

Moonroof motor assembly connector	Terminal	Ground	Continuity
R4	1		Yes

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace harness.

3. CHECK HARNESS CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect power window relay connector.
3. Check continuity between power window relay harness connector and moonroof motor assembly harness connector.

Power window relay		Main power window and door lock/unlock switch		Continuity
Connector	Terminal	Connector	Terminal	
M58	3	R4	3	Yes

4. Check continuity between power window relay harness connector and ground.

Power window relay		Ground	Continuity
Connector	Terminal		
M58	3		No

Is the inspection result normal?

YES >> Refer to [PWC-48. "Diagnosis Procedure"](#).

NO >> Repair or replace harness.

4. CHECK MOONROOF SWITCH INPUT SIGNAL

1. Connect moonroof motor assembly.
2. Turn ignition switch ON.
3. Check voltage between the moonroof motor assembly connector and ground.

Moonroof motor assembly connector	Terminals		Condition	Voltage (Approx.)
	(+)	(-)		

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

R4	5	Ground	Moonroof switch is operated TILT DOWN or SLIDE OPEN	0
			Other than above	Battery voltage
	10		Moonroof switch is operated TILT UP or SLIDE CLOSE	0
			Other than above	Battery voltage

Is the inspection result normal?

YES >> GO TO 8.

NO >> GO TO 6.

5. CHECK MOONROOF SWITCH CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the moonroof motor assembly and moonroof switch.
3. Check continuity between the moonroof motor assembly connector and moonroof switch connector.

Moonroof motor assembly connector	Terminal	Moonroof switch connector	Terminal	Continuity
R4	5	R3	4	Yes
	10		9	

4. Check continuity between the moonroof motor assembly connector and ground.

Moonroof motor assembly connector	Terminal	Ground	Continuity
R4	5		No
	10		

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace harness.

6. CHECK MOONROOF SWITCH GROUND CIRCUIT

1. Connect moonroof motor assembly.
2. Check continuity between the moonroof switch connector and ground.

Moonroof switch connector	Terminal	Ground	Continuity
R3	1		Yes

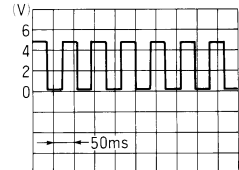
Is the inspection result normal?

YES >> Refer to [RF-32, "Component Inspection"](#).

NO >> Repair or replace harness.

7. CHECK COMBINATION METER SIGNAL

1. Connect the moonroof motor assembly connector.
2. Turn ignition switch ON.
3. Check the signal between the moonroof motor assembly connector and ground with oscilloscope.

Terminals		Condition	Signal (Reference value)
(+)	(-)		
Moonroof motor assembly connector	Terminal		
R4	8	Ground	
		Speedometer operated [When vehicle speed is approx.40km/h (25MPH)]	

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

Is the inspection result normal?

- YES >> Replace moonroof motor assembly. Refer to [RF-53, "Removal and Installation"](#). After that, refer to [RF-24, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#).
- NO >> GO TO 9.

8. CHECK COMBINATION METER CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect combination meter.
3. Check continuity between the combination meter connector and the moonroof motor assembly connector.

Combination meter connector	Terminal	Moonroof motor assembly connector	Terminal	Continuity
M76	39	R4	8	Yes

4. Check continuity between the combination meter connector and ground.

Combination meter connector	Terminal	Ground	Continuity
M76	39		No

Is the inspection result normal?

- YES >> Replace combination meter. Refer to [BCS-76, "Removal and Installation"](#).
- NO >> Repair or replace harness.

MOONROOF MOTOR ASSEMBLY : Special Repair Requirement

INFOID:0000000010301064

1. PERFORM INITIALIZATION PROCEDURE

Perform the initialization procedure.

Refer to [RF-29, "MOONROOF MOTOR ASSEMBLY : Special Repair Requirement"](#).

>> GO TO 2.

2. CHECK ANTI-PINCH OPERATION

Check the anti-pinch operation.

Refer to [RF-29, "MOONROOF MOTOR ASSEMBLY : Special Repair Requirement"](#).

Is the inspection result normal?

- YES >> Inspection End.
- NO >> Check fitting adjustment.

SUNSHADE MOTOR ASSEMBLY

SUNSHADE MOTOR ASSEMBLY : Description

INFOID:0000000010306816

- BCM supplies the sunshade motor assembly with power.
- CPU is integrated in sunshade motor assembly.
- Slide open/close controlled by the moonroof switch operation.

SUNSHADE MOTOR ASSEMBLY : Component Function Check

INFOID:0000000010306817

1. CHECK SUNSHADE MOTOR FUNCTION

Does the slide open and close functions operate normally with the moonroof switch?

Is the inspection result normal?

- YES >> Sunshade motor assembly is OK.
- NO >> Refer to [RF-29, "SUNSHADE MOTOR ASSEMBLY : Diagnosis Procedure"](#).

SUNSHADE MOTOR ASSEMBLY : Diagnosis Procedure

INFOID:0000000010306818

Regarding Wiring Diagram information, refer to [RF-17, "Wiring Diagram"](#).

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

1.CHECK POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect sunshade motor assembly connector.
3. Turn ignition switch ON.
4. Check voltage between sunshade motor assembly harness connector and ground.

(+) Sunshade motor assembly		(-)	Voltage (Approx.)
Connector	Terminal		
R5	3	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 2.

NO >> GO TO 3.

2.CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check continuity between sunshade motor assembly harness connector and ground.

Sunshade motor assembly		Ground	Continuity
Connector	Terminal		
R5	1		Yes

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace the harness.

3.CHECK HARNESS CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect power window relay connector.
3. Check continuity between power window relay harness connector and moonroof motor assembly harness connector.

Power window relay		Moonroof motor assembly		Continuity
Connector	Terminal	Connector	Terminal	
M58	3	R4	3	Yes

4. Check continuity between power window relay harness connector and ground.

Power window relay		Ground	Continuity
Connector	Terminal		
M58	3		No

Is the inspection result normal?

YES >> Refer to [PWC-48. "Diagnosis Procedure"](#).

NO >> Repair or replace harness.

MOONROOF SWITCH

< DTC/CIRCUIT DIAGNOSIS >

MOONROOF SWITCH

Description

INFOID:0000000010247880

Transmits switch operation signal to moonroof motor and sunshade motor assembly.

Diagnosis Procedure

INFOID:0000000010247881

Regarding Wiring Diagram information, refer to [RF-17, "Wiring Diagram"](#).

1.CHECK MOONROOF SWITCH INPUT SIGNAL

1. Turn ignition switch ON.
2. Check voltage between moonroof motor assembly harness connector and ground.

(+) Moonroof motor assembly		(-)	Condition	Voltage (Approx.)
Connector	Terminals			
R4	5	Ground	Moonroof switch is operated OPEN (1st)	0
			Other than above	Battery voltage
	10		Moonroof switch is operated CLOSE (2nd)	0
			Other than above	Battery voltage
	2		Moonroof switch is operated OPEN (2nd click to open sunshade)	0
			Other than above	Battery voltage
	2		Moonroof switch is operated CLOSE (2nd click to close sunshade)	0
			Other than above	Battery voltage

Is the inspection result normal?

YES >> Inspection End.

NO >> GO TO 2.

2.CHECK MOONROOF SWITCH CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect moonroof motor assembly connector and moonroof switch connector.
3. Check continuity between moonroof motor assembly harness connector and moonroof switch harness connector.

Moonroof motor assembly		Moonroof switch		Continuity
Connector	Terminal	Connector	Terminal	
R4	2	R3	6	Yes
	4		11	
	5		4	
	10		9	

4. Check continuity between moonroof motor assembly harness connector and ground.

MOONROOF SWITCH

< DTC/CIRCUIT DIAGNOSIS >

Moonroof motor assembly			Continuity
Connector	Terminal		
R4	2	Ground	No
	4		
	5		
	10		

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace the harness.

3.CHECK MOONROOF SWITCH GROUND CIRCUIT

Check continuity between moonroof switch harness connector and ground.

Moonroof switch			Continuity
Connector	Terminal		
R3	1	Ground	Yes

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace the harness.

4.CHECK MOONROOF SWITCH

Check moonroof switch.

Refer to [RF-32, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace moonroof switch. Refer to [RF-64, "Removal and Installation"](#).

5.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> Inspection End.

Component Inspection

INFOID:0000000010247882

MOONROOF SWITCH

1. CHECK MOONROOF SWITCH

1. Turn ignition switch OFF.
2. Disconnect moonroof switch.
3. Check continuity between moonroof switch terminals.

Terminals		Condition	Continuity
4	1	Moonroof switch is operated - OPEN	Yes
		Other than above	No
9		Moonroof switch is operated - CLOSE	Yes
		Other than above	No
6		Moonroof switch is operated - HOLD OPEN or HOLD CLOSE	Yes
		Other than above	No
11		Moonroof switch is operated - HOLD OPEN or HOLD CLOSE	Yes
		Other than above	No

Is the inspection result normal?

YES >> Moonroof switch is OK.

MOONROOF SWITCH

< DTC/CIRCUIT DIAGNOSIS >

NO >> Replace moonroof switch. Refer to [RF-64. "Removal and Installation"](#).

A

B

C

D

E

F

G

H

I

J

RF

L

M

N

O

P

DOOR SWITCH

< DTC/CIRCUIT DIAGNOSIS >

DOOR SWITCH WITH INTELLIGENT KEY

WITH INTELLIGENT KEY : Component Function Check

INFOID:0000000010377888

1.CHECK FUNCTION

1. Select "DOOR LOCK" of "BCM" using CONSULT.
2. Select "DOOR SW-DR", "DOOR SW-AS", "DOOR SW-RL", "DOOR SW-RR", in "Data Monitor" mode.
3. Check that the function operates normally according to the following conditions.

Monitor item	Condition		Status
DOOR SW-DR	Driver side door	Open	On
		Closed	Off
DOOR SW-AS	Passenger side door	Open	On
		Closed	Off
DOOR SW-RL	Rear door LH	Open	On
		Closed	Off
DOOR SW-RR	Rear door RH	Open	On
		Closed	Off

Is the inspection result normal?

YES >> Door switch is OK.

NO >> Refer to [RF-34, "WITH INTELLIGENT KEY : Diagnosis Procedure"](#).

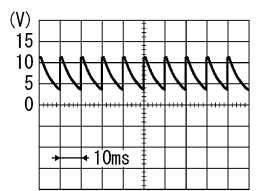
WITH INTELLIGENT KEY : Diagnosis Procedure

INFOID:0000000010377889

Regarding Wiring Diagram information, refer to [DLK-69, "Wiring Diagram"](#).

1.CHECK DOOR SWITCH INPUT SIGNAL

1. Turn ignition switch OFF.
2. Disconnect malfunctioning door switch connector.
3. Check signal between malfunctioning door switch harness connector and ground using oscilloscope.

(+)		Terminal	(-)	Signal (Reference value)
Door switch				
Connector				
Driver side	B71	3	Ground	 PKIB4960J 7.0 - 8.0 V
Passenger side	B141			
Rear LH	B70			
Rear RH	B142			

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 2.

2.CHECK DOOR SWITCH CIRCUIT

1. Disconnect BCM connector.
2. Check continuity between door switch harness connector and BCM harness connector.

DOOR SWITCH

< DTC/CIRCUIT DIAGNOSIS >

Door switch		BCM		Continuity
Connector	Terminal	Connector	Terminal	
Front LH	B71	3	B16	Yes
Front RH	B141			
Rear LH	B70			
Rear RH	B142			

3. Check continuity between door switch harness connector and ground.

Door switch		Ground	Continuity
Connector	Terminal		
Front LH	B71	3	No
Front RH	B141		
Rear LH	B70		
Rear RH	B142		

Is the inspection result normal?

YES >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#).

NO >> Repair or replace harness.

3.CHECK DOOR SWITCH

Refer to [RF-35, "WITH INTELLIGENT KEY : Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace malfunctioning door switch. Refer to [DLK-269, "Removal and Installation"](#).

4.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> Inspection End.

WITH INTELLIGENT KEY : Component Inspection

INFOID:0000000010377890

RF

1.CHECK DOOR SWITCH

1. Turn ignition switch OFF.
2. Disconnect malfunctioning door switch connector.
3. Check continuity between door switch terminals.

Door switch		Condition		Continuity
Terminal				
3	Ground contact is part of the switch.	Door switch	Pressed	No
			Released	Yes

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace malfunctioning door switch. Refer to [DLK-269, "Removal and Installation"](#).

WITHOUT INTELLIGENT KEY

WITHOUT INTELLIGENT KEY : Description

INFOID:0000000010377891

Detects door open/close condition.

WITHOUT INTELLIGENT KEY : Component Function Check

INFOID:0000000010377892

1.CHECK FUNCTION

DOOR SWITCH

< DTC/CIRCUIT DIAGNOSIS >

1. Select "DOOR LOCK" of BCM using CONSULT.
2. Select "DOOR SW-DR", "DOOR SW-AS", "DOOR SW-RL", "DOOR SW-RR", in Data Monitor mode.
3. Check that the function operates normally according to the following conditions.

Monitor item	Condition		Status
DOOR SW-DR	Driver side door	Open	On
		Closed	Off
DOOR SW-AS	Passenger side door	Open	On
		Closed	Off
DOOR SW-RL	Rear door LH	Open	On
		Closed	Off
DOOR SW-RR	Rear door RH	Open	On
		Closed	Off

Is the inspection result normal?

YES >> Door switch is OK.

NO >> Refer to [RF-36, "WITHOUT INTELLIGENT KEY : Diagnosis Procedure"](#).

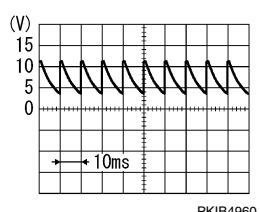
WITHOUT INTELLIGENT KEY : Diagnosis Procedure

INFOID:0000000010377893

Regarding Wiring Diagram information, refer to [DLK-293, "Wiring Diagram"](#).

1.CHECK DOOR SWITCH INPUT SIGNAL

1. Turn ignition switch OFF.
2. Disconnect malfunctioning door switch connector.
3. Check signal between malfunctioning door switch harness connector and ground using oscilloscope.

(+)		Terminal	(-)	Signal (Reference value)
Door switch				
Connector				
Front LH	B71	3	Ground	
Front RH	B141			
Rear LH	B70			
Rear RH	B142			

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 2.

2.CHECK DOOR SWITCH CIRCUIT

1. Disconnect BCM connector.
2. Check continuity between door switch harness connector and BCM harness connector.

DOOR SWITCH

< DTC/CIRCUIT DIAGNOSIS >

Door switch		BCM		Continuity
Connector	Terminal	Connector	Terminal	
Front LH	B71	B16	57	Yes
Front RH	B141		53	
Rear LH	B70		52	
Rear RH	B142		50	

3. Check continuity between door switch harness connector and ground.

Door switch		Ground	Continuity
Connector	Terminal		
Front LH	B71	3	No
Front RH	B141		
Rear LH	B70		
Rear RH	B142		

Is the inspection result normal?

YES >> Replace BCM. Refer to [BCS-135, "Removal and Installation"](#).

NO >> Repair or replace harness.

3.CHECK DOOR SWITCH

Refer to [RF-35, "WITH INTELLIGENT KEY : Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace malfunctioning door switch. Refer to [DLK-385, "Removal and Installation"](#).

4.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> Inspection End.

WITHOUT INTELLIGENT KEY : Component Inspection

INFOID:0000000010377894

RF

1.CHECK DOOR SWITCH

1. Turn ignition switch OFF.
2. Disconnect door switch connector.
3. Check door switch.

Terminal		Door switch condition	Continuity
Door switch			
3	Ground part of door switch	Pressed	No
		Released	Yes

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace malfunctioning door switch. Refer to [DLK-385, "Removal and Installation"](#).

MOONROOF DOES NOT OPERATE PROPERLY

< SYMPTOM DIAGNOSIS >

SYMPTOM DIAGNOSIS

MOONROOF DOES NOT OPERATE PROPERLY

Diagnosis Procedure

INFOID:000000010247889

1. CHECK BCM POWER SUPPLY AND GROUND CIRCUIT

Check BCM power supply and ground circuit.

Refer to [BCS-68, "Diagnosis Procedure"](#) (with Intelligent Key System), [BCS-128, "Diagnosis Procedure"](#) (without Intelligent Key System)

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace malfunctioning parts.

2. CHECK MOONROOF MOTOR ASSEMBLY POWER SUPPLY AND GROUND CIRCUIT

Check moonroof motor assembly power supply and ground circuit.

Refer to [RF-38, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

NO >> Repair or replace malfunctioning parts.

SUNSHADE SYSTEM DOES NOT OPERATE PROPERLY

< SYMPTOM DIAGNOSIS >

SUNSHADE SYSTEM DOES NOT OPERATE PROPERLY

Diagnosis Procedure

INFOID:000000010247890

1.CHECK BCM POWER SUPPLY AND GROUND CIRCUIT

Check BCM power supply and ground circuit.

Refer to [BCS-68. "Diagnosis Procedure"](#) (with Intelligent Key System), [BCS-128. "Diagnosis Procedure"](#) (without Intelligent Key System).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning parts.

2.CHECK SUNSHADE MOTOR ASSEMBLY POWER SUPPLY AND GROUND CIRCUIT

Check sunshade motor assembly power supply and ground circuit.

Refer to [RF-29. "SUNSHADE MOTOR ASSEMBLY : Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace the malfunctioning parts.

3.CONFIRM THE OPERATION

Confirm the operation again.

Is the result normal?

YES >> Check intermittent incident. Refer to [GI-41. "Intermittent Incident"](#).

NO >> GO TO 1.

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

RF

AUTO OPERATION DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

AUTO OPERATION DOES NOT OPERATE MOONROOF

MOONROOF : Diagnosis Procedure

INFOID:0000000010247891

1. PERFORM INITIALIZATION PROCEDURE

Perform initialization procedure.

Refer to [RF-24, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#).

Is the inspection result normal?

YES >> Moonroof system is normal.

NO >> GO TO 2.

2. CHECK MOONROOF SWITCH

Check moonroof switch.

Refer to [RF-31, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace the malfunctioning parts.

3. CONFIRM THE OPERATION

Confirm the operation again.

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

NO >> GO TO 1.

SUNSHADE

SUNSHADE : Diagnosis Procedure

INFOID:0000000010247892

1. PERFORM INITIALIZATION PROCEDURE

Refer to [RF-24, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#).

Is the inspection result normal?

YES >> Sunshade system is normal.

NO >> GO TO 2.

2. CHECK MOONROOF SWITCH

Check moonroof switch.

Refer to [RF-31, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace the malfunctioning parts.

3. CONFIRM THE OPERATION

Confirm the operation again.

Is the result normal?

YES >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

NO >> GO TO 1.

ANTI-PINCH FUNCTION DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

ANTI-PINCH FUNCTION DOES NOT OPERATE MOONROOF

MOONROOF : Diagnosis Procedure

INFOID:0000000010247893

1. PERFORM INITIALIZATION PROCEDURE

Perform initialization procedure.

Refer to [RF-24, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Perform basic inspection. Refer to [RF-22, "Work Flow"](#).

2. RETEST THE ANTI-PINCH FUNCTION

Check anti-pinch operation. Refer to [RF-24, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#).

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace the moonroof motor assembly. Refer to [RF-53, "Removal and Installation"](#).

SUNSHADE

SUNSHADE : Diagnosis Procedure

INFOID:0000000010247894

1. CHECK SUNSHADE MECHANISM

Check the following:

- Operation malfunction caused by sunshade mechanism deformation, pinched harness or other foreign materials
- Operation malfunction and interference with other parts by poor installation

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning parts.

2. PERFORM INITIALIZATION PROCEDURE

Perform anti-pinch procedure.

Refer to [RF-24, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 1.

3. RETEST THE ANTI-PINCH FUNCTION

Check anti-pinch operation. Refer to [RF-24, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#).

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace the sunshade motor assembly. Refer to [RF-62, "Removal and Installation"](#).

RETAINED POWER OPERATION DOES NOT OPERATE PROPERLY

< SYMPTOM DIAGNOSIS >

RETAINED POWER OPERATION DOES NOT OPERATE PROPERLY

Diagnosis Procedure

INFOID:0000000010247895

1.CHECK FRONT DOOR SWITCH

Check (LH and RH) front door switches.

Refer to [DLK-24, "Front Door Switch"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning parts.

2.CONFIRM THE OPERATION

Confirm the operation again.

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

NO >> GO TO 1.

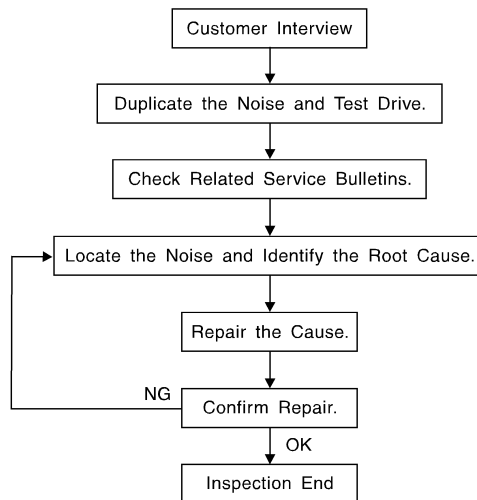
SQUEAK AND RATTLE TROUBLE DIAGNOSES

< SYMPTOM DIAGNOSIS >

SQUEAK AND RATTLE TROUBLE DIAGNOSES

Work Flow

INFOID:000000010308755



SBT842

CUSTOMER INTERVIEW

Interview the customer if possible, to determine the conditions that exist when the noise occurs. Use the Diagnostic Worksheet during the interview to document the facts and conditions when the noise occurs and any customer's comments; refer to [RF-47, "Diagnostic Worksheet"](#). This information is necessary to duplicate the conditions that exist when the noise occurs.

- The customer may not be able to provide a detailed description or the location of the noise. Attempt to obtain all the facts and conditions that exist when the noise occurs (or does not occur).
- If there is more than one noise in the vehicle, be sure to diagnose and repair the noise that the customer is concerned about. This can be accomplished by test driving the vehicle with the customer.
- After identifying the type of noise, isolate the noise in terms of its characteristics. The noise characteristics are provided so the customer, service adviser and technician are all speaking the same language when defining the noise.
- Squeak —(Like tennis shoes on a clean floor)
Squeak characteristics include the light contact/fast movement/brought on by road conditions/hard surfaces = higher pitch noise/softer surfaces = lower pitch noises/edge to surface = chirping.
- Creak—(Like walking on an old wooden floor)
Creak characteristics include firm contact/slow movement/twisting with a rotational movement/pitch dependent on materials/often brought on by activity.
- Rattle—(Like shaking a baby rattle)
Rattle characteristics include the fast repeated contact/vibration or similar movement/loose parts/missing clip or fastener/incorrect clearance.
- Knock —(Like a knock on a door)
Knock characteristics include hollow sounding/sometimes repeating/often brought on by driver action.
- Tick—(Like a clock second hand)
Tick characteristics include gentle contacting of light materials/loose components/can be caused by driver action or road conditions.
- Thump—(Heavy, muffled knock noise)
Thump characteristics include softer knock/dead sound often brought on by activity.
- Buzz—(Like a bumble bee)
Buzz characteristics include high frequency rattle/firm contact.
- Often the degree of acceptable noise level will vary depending upon the person. A noise that you may judge as acceptable may be very irritating to the customer.
- Weather conditions, especially humidity and temperature, may have a great effect on noise level.

DUPLICATE THE NOISE AND TEST DRIVE

If possible, drive the vehicle with the customer until the noise is duplicated. Note any additional information on the Diagnostic Worksheet regarding the conditions or location of the noise. This information can be used to duplicate the same conditions when you confirm the repair.

SQUEAK AND RATTLE TROUBLE DIAGNOSES

< SYMPTOM DIAGNOSIS >

If the noise can be duplicated easily during the test drive, to help identify the source of the noise, try to duplicate the noise with the vehicle stopped by doing one or all of the following:

- 1) Close a door.
 - 2) Tap or push/pull around the area where the noise appears to be coming from.
 - 3) Rev the engine.
 - 4) Use a floor jack to recreate vehicle "twist".
 - 5) At idle, apply engine load (electrical load, half-clutch on M/T model, drive position on CVT and A/T models).
 - 6) Raise the vehicle on a hoist and hit a tire with a rubber hammer.
- Drive the vehicle and attempt to duplicate the conditions the customer states exist when the noise occurs.
 - If it is difficult to duplicate the noise, drive the vehicle slowly on an undulating or rough road to stress the vehicle body.

CHECK RELATED SERVICE BULLETINS

After verifying the customer concern or symptom, check ASIST for Technical Service Bulletins (TSBs) related to that concern or symptom.

If a TSB relates to the symptom, follow the procedure to repair the noise.

LOCATE THE NOISE AND IDENTIFY THE ROOT CAUSE

1. Narrow down the noise to a general area. To help pinpoint the source of the noise, use a listening tool (Chassis Ear: J-39570, Engine Ear: J-39565 and mechanic's stethoscope).
2. Narrow down the noise to a more specific area and identify the cause of the noise by:
 - removing the components in the area that you suspect the noise is coming from.
Do not use too much force when removing clips and fasteners, otherwise clips and fasteners can be broken or lost during the repair, resulting in the creation of new noise.
 - tapping or pushing/pulling the component that you suspect is causing the noise.
Do not tap or push/pull the component with excessive force, otherwise the noise will be eliminated only temporarily.
 - feeling for a vibration with your hand by touching the component(s) that you suspect is (are) causing the noise.
 - placing a piece of paper between components that you suspect are causing the noise.
 - looking for loose components and contact marks.Refer to [RF-44, "Generic Squeak and Rattle Troubleshooting"](#).

REPAIR THE CAUSE

- If the cause is a loose component, tighten the component securely.
- If the cause is insufficient clearance between components:
 - separate components by repositioning or loosening and retightening the component, if possible.
 - insulate components with a suitable insulator such as urethane pads, foam blocks, felt cloth tape or urethane tape. A NISSAN Squeak and Rattle Kit (J-50397) is available through your authorized NISSAN Parts Department.

CAUTION:

Do not use excessive force as many components are constructed of plastic and may be damaged.

NOTE:

- Always check with the Parts Department for the latest parts information.
- The materials contained in the NISSAN Squeak and Rattle Kit (J-50397) are listed on the inside cover of the kit; and can each be ordered separately as needed.
- The following materials not found in the kit can also be used to repair squeaks and rattles.
 - SILICONE GREASE: Use instead of UHMW tape that will be visible or does not fit. The silicone grease will only last a few months.
 - SILICONE SPRAY: Use when grease cannot be applied.
 - DUCT TAPE: Use to eliminate movement.

CONFIRM THE REPAIR

Confirm that the cause of a noise is repaired by test driving the vehicle. Operate the vehicle under the same conditions as when the noise originally occurred. Refer to the notes on the Diagnostic Worksheet.

Generic Squeak and Rattle Troubleshooting

INFOID:0000000010308756

Refer to Table of Contents for specific component removal and installation information.

INSTRUMENT PANEL

Most incidents are caused by contact and movement between:

SQUEAK AND RATTLE TROUBLE DIAGNOSES

< SYMPTOM DIAGNOSIS >

1. Cluster lid A and the instrument panel
2. Acrylic lens and combination meter housing
3. Instrument panel to front pillar finisher
4. Instrument panel to windshield
5. Instrument panel pins
6. Wiring harnesses behind the combination meter
7. A/C defroster duct and duct joint

These incidents can usually be located by tapping or moving the components to duplicate the noise or by pressing on the components while driving to stop the noise. Most of these incidents can be repaired by applying felt cloth tape or silicone spray (in hard to reach areas). Urethane pads can be used to insulate wiring harness.

CAUTION:

Do not use silicone spray to isolate a squeak or rattle. If you saturate the area with silicone, you will not be able to recheck the repair.

CENTER CONSOLE

Components to pay attention to include:

1. Shift selector assembly cover to finisher
2. A/C control unit and cluster lid C
3. Wiring harnesses behind audio and A/C control unit

The instrument panel repair and isolation procedures also apply to the center console.

DOORS

Pay attention to the:

1. Finisher and inner panel making a slapping noise
2. Inside handle escutcheon to door finisher
3. Wiring harnesses tapping
4. Door striker out of alignment causing a popping noise on starts and stops

Tapping or moving the components or pressing on them while driving to duplicate the conditions can isolate many of these incidents. You can usually insulate the areas with felt cloth tape or insulator foam blocks from the NISSAN Squeak and Rattle Kit (J-50397) to repair the noise.

TRUNK

Trunk noises are often caused by a loose jack or loose items put into the trunk by the owner.

In addition look for:

1. Trunk lid bumpers out of adjustment
2. Trunk lid striker out of adjustment
3. The trunk lid torsion bars knocking together
4. A loose license plate or bracket

Most of these incidents can be repaired by adjusting, securing or insulating the item(s) or component(s) causing the noise.

SUNROOF/HEADLINING

Noises in the sunroof/headlining area can often be traced to one of the following:

1. Sunroof lid, rail, linkage or seals making a rattle or light knocking noise
2. Sun visor shaft shaking in the holder
3. Front or rear windshield touching headlining and squeaking

Again, pressing on the components to stop the noise while duplicating the conditions can isolate most of these incidents. Repairs usually consist of insulating with felt cloth tape.

OVERHEAD CONSOLE (FRONT AND REAR)

Overhead console noises are often caused by the console panel clips not being engaged correctly. Most of these incidents are repaired by pushing up on the console at the clip locations until the clips engage.

In addition look for:

1. Loose harness or harness connectors.
2. Front console map/reading lamp lens loose.

A
B
C
D
E
F
G
H
I
J
RF
L
M
N
O
P

SQUEAK AND RATTLE TROUBLE DIAGNOSES

< SYMPTOM DIAGNOSIS >

3. Loose screws at console attachment points.

SEATS

When isolating seat noise it's important to note the position the seat is in and the load placed on the seat when the noise is present. These conditions should be duplicated when verifying and isolating the cause of the noise.

Cause of seat noise include:

1. Headrest rods and holder
2. A squeak between the seat pad cushion and frame
3. The rear seatback lock and bracket

These noises can be isolated by moving or pressing on the suspected components while duplicating the conditions under which the noise occurs. Most of these incidents can be repaired by repositioning the component or applying urethane tape to the contact area.

UNDERHOOD

Some interior noise may be caused by components under the hood or on the engine wall. The noise is then transmitted into the passenger compartment.

Causes of transmitted underhood noise include:

1. Any component installed to the engine wall
2. Components that pass through the engine wall
3. Engine wall mounts and connectors
4. Loose radiator installation pins
5. Hood bumpers out of adjustment
6. Hood striker out of adjustment

These noises can be difficult to isolate since they cannot be reached from the interior of the vehicle. The best method is to secure, move or insulate one component at a time and test drive the vehicle. Also, engine rpm or load can be changed to isolate the noise. Repairs can usually be made by moving, adjusting, securing, or insulating the component causing the noise.

SQUEAK AND RATTLE TROUBLE DIAGNOSES

< SYMPTOM DIAGNOSIS >

Diagnostic Worksheet

INFOID:000000010308757

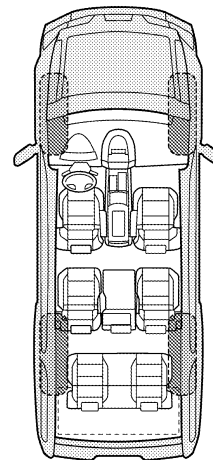
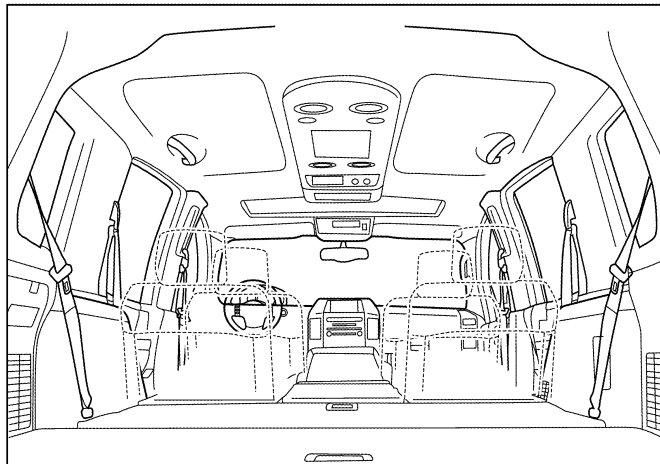
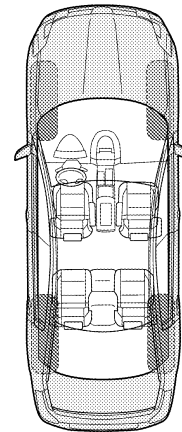
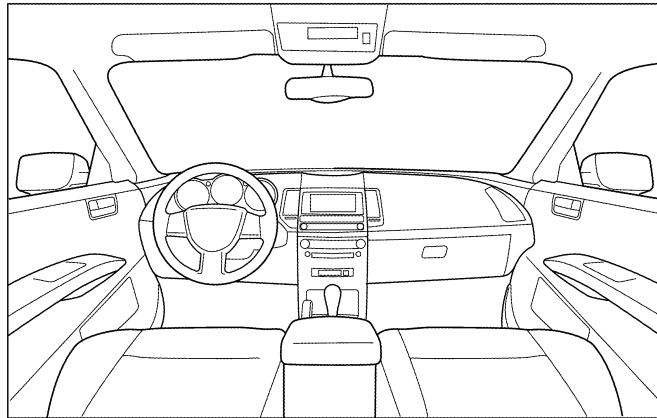
Dear Customer:

We are concerned about your satisfaction with your vehicle. Repairing a squeak or rattle sometimes can be very difficult. To help us fix your vehicle right the first time, please take a moment to note the area of the vehicle where the squeak or rattle occurs and under what conditions. You may be asked to take a test drive with a service advisor or technician to ensure we confirm the noise you are hearing.

SQUEAK & RATTLE DIAGNOSTIC WORKSHEET

I. WHERE DOES THE NOISE COME FROM? (circle the area of the vehicle)

The illustrations are for reference only, and may not reflect the actual configuration of your vehicle.



Continue to page 2 of the worksheet and briefly describe the location of the noise or rattle. In addition, please indicate the conditions which are present when the noise occurs.

SQUEAK AND RATTLE TROUBLE DIAGNOSES

< SYMPTOM DIAGNOSIS >

SQUEAK & RATTLE DIAGNOSTIC WORKSHEET - page 2

Briefly describe the location where the noise occurs:

II. WHEN DOES IT OCCUR? (please check the boxes that apply)

- | | |
|---|--|
| ☐ Anytime | ☐ After sitting out in the rain |
| ☐ 1st time in the morning | ☐ When it is raining or wet |
| ☐ Only when it is cold outside | ☐ Dry or dusty conditions |
| ☐ Only when it is hot outside | ☐ Other: |

III. WHEN DRIVING:

- ☐ Through driveways
- ☐ Over rough roads
- ☐ Over speed bumps
- ☐ Only about ____ mph
- ☐ On acceleration
- ☐ Coming to a stop
- ☐ On turns: left, right or either (circle)
- ☐ With passengers or cargo
- ☐ Other: _____
- ☐ After driving ____ miles or ____ minutes

IV. WHAT TYPE OF NOISE

- ☐ Squeak (like tennis shoes on a clean floor)
- ☐ Creak (like walking on an old wooden floor)
- ☐ Rattle (like shaking a baby rattle)
- ☐ Knock (like a knock at the door)
- ☐ Tick (like a clock second hand)
- ☐ Thump (heavy muffled knock noise)
- ☐ Buzz (like a bumble bee)

TO BE COMPLETED BY DEALERSHIP PERSONNEL

Test Drive Notes:

	YES	NO	Initials of person performing
Vehicle test driven with customer	☐	☐	_____
- Noise verified on test drive	☐	☐	_____
- Noise source located and repaired	☐	☐	_____
- Follow up test drive performed to confirm repair	☐	☐	_____

VIN: _____ Customer Name _____
W.O.# _____ Date: _____

This form must be attached to Work Order

LAIA0071E

GLASS LID

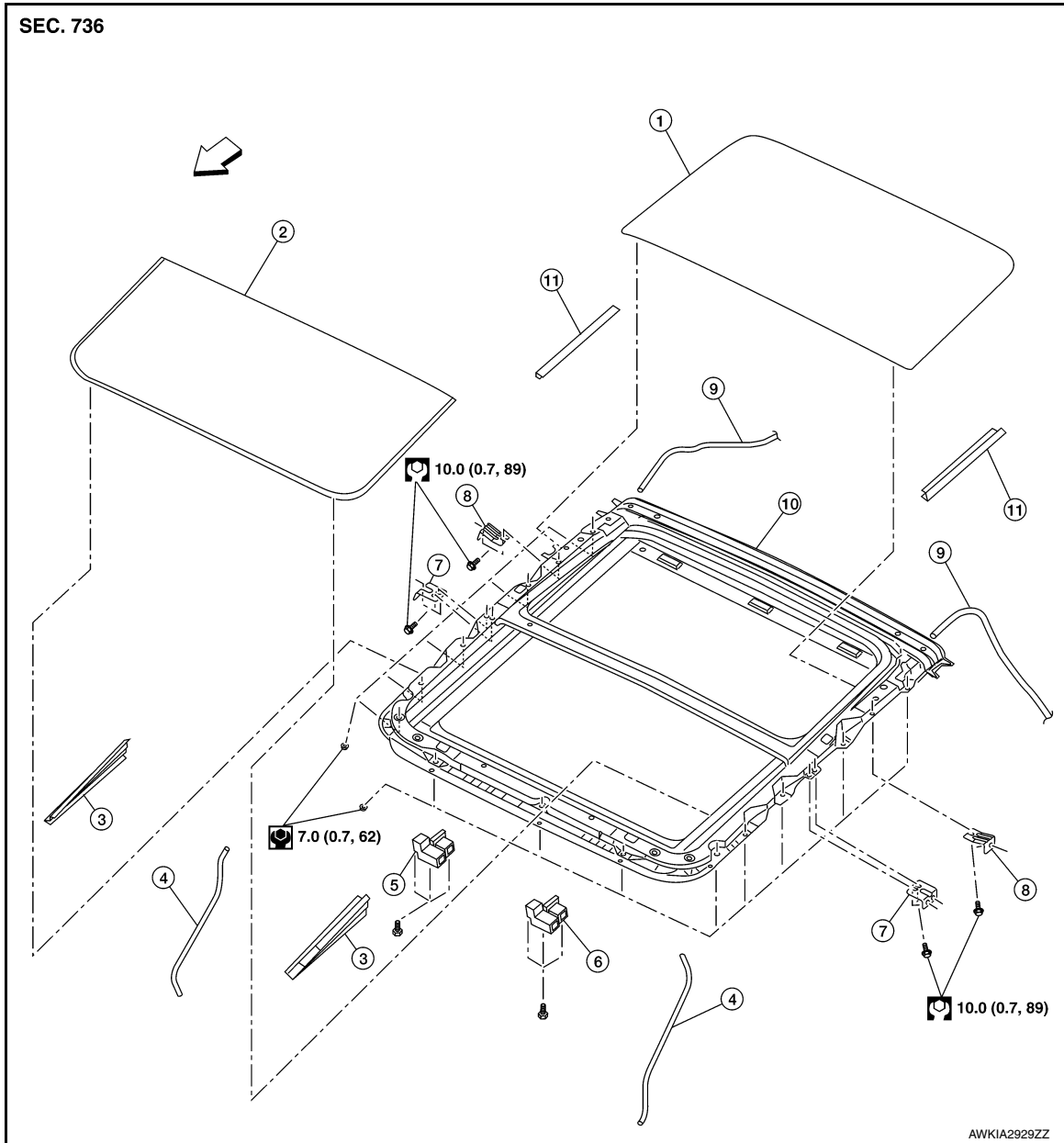
< REMOVAL AND INSTALLATION >

REMOVAL AND INSTALLATION

GLASS LID

Exploded View

INFOID:000000009795003



- | | | |
|-----------------------------------|----------------------------------|-----------------------------|
| 1. Panoramic roof glass | 2. Glass lid | 3. Side trim covers (LH/RH) |
| 4. Front drain hose (LH/RH) | 5. Moonroof motor assembly | 6. Sunshade motor assembly |
| 7. Moonroof front bracket (LH/RH) | 8. Moonroof rear bracket (LH/RH) | 9. Rear drain hose (LH/RH) |
| 10. Moonroof unit assembly | 11. Rear trim covers (LH/RH) | ⇐ Front |

Removal and Installation

INFOID:0000000010309518

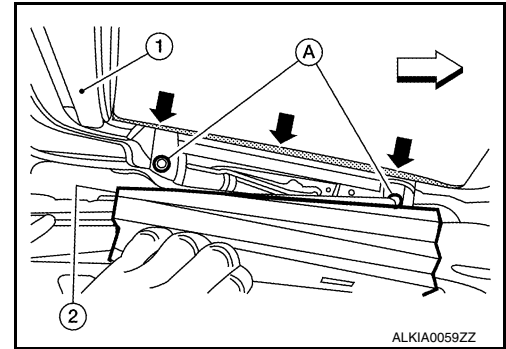
CAUTION:
Handle glass lid with care to prevent damage.

REMOVAL

GLASS LID

< REMOVAL AND INSTALLATION >

1. Open sunshade (1) and close glass lid.
⇐ Front
2. Slide the side trim covers (2) (LH/RH) inward, then release from the glass lid inside edge and set aside.
3. Remove the glass lid bolts (A) on the (LH/RH) sides.



4. Remove glass lid from moonroof unit assembly.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- **First tighten left front bolt, then right rear bolt to prevent uneven alignment while tightening remaining bolt.**
- **After installing glass lid, check gap/height adjustments and operation. Refer to [RF-55. "Inspection"](#).**

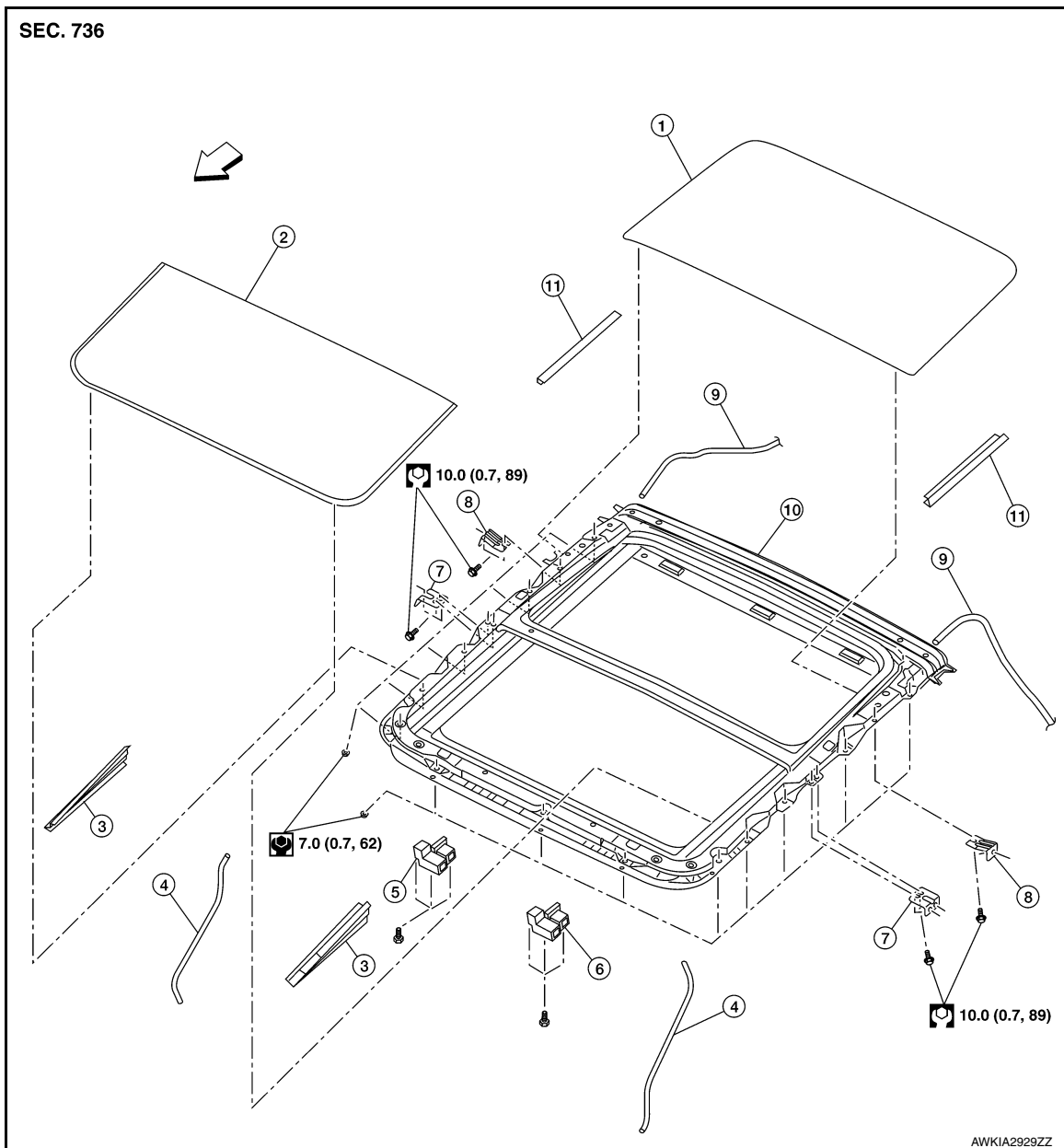
PANORAMIC ROOF GLASS

< REMOVAL AND INSTALLATION >

PANORAMIC ROOF GLASS

Exploded View

INFOID:0000000010325983



- | | | |
|-----------------------------------|----------------------------------|-----------------------------|
| 1. Panoramic roof glass | 2. Glass lid | 3. Side trim covers (LH/RH) |
| 4. Front drain hose (LH/RH) | 5. Moonroof motor assembly | 6. Sunshade motor assembly |
| 7. Moonroof front bracket (LH/RH) | 8. Moonroof rear bracket (LH/RH) | 9. Rear drain hose (LH/RH) |
| 10. Moonroof unit assembly | 11. Rear trim covers (LH/RH) | ⇐ Front |

Removal and Installation

INFOID:0000000010325984

CAUTION:

Handle panoramic roof glass with care to prevent damage.

REMOVAL

1. Remove moonroof motor assembly. Refer to [RF-53, "Removal and Installation"](#).
2. Remove four screws and panoramic glass.

PANORAMIC ROOF GLASS

< REMOVAL AND INSTALLATION >

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- First tighten left front screw, then right rear screw to prevent uneven alignment while tightening remaining screws.
- After installing panoramic roof glass, check gap/height adjustments and operation. Refer to [RF-55, "Inspection"](#).

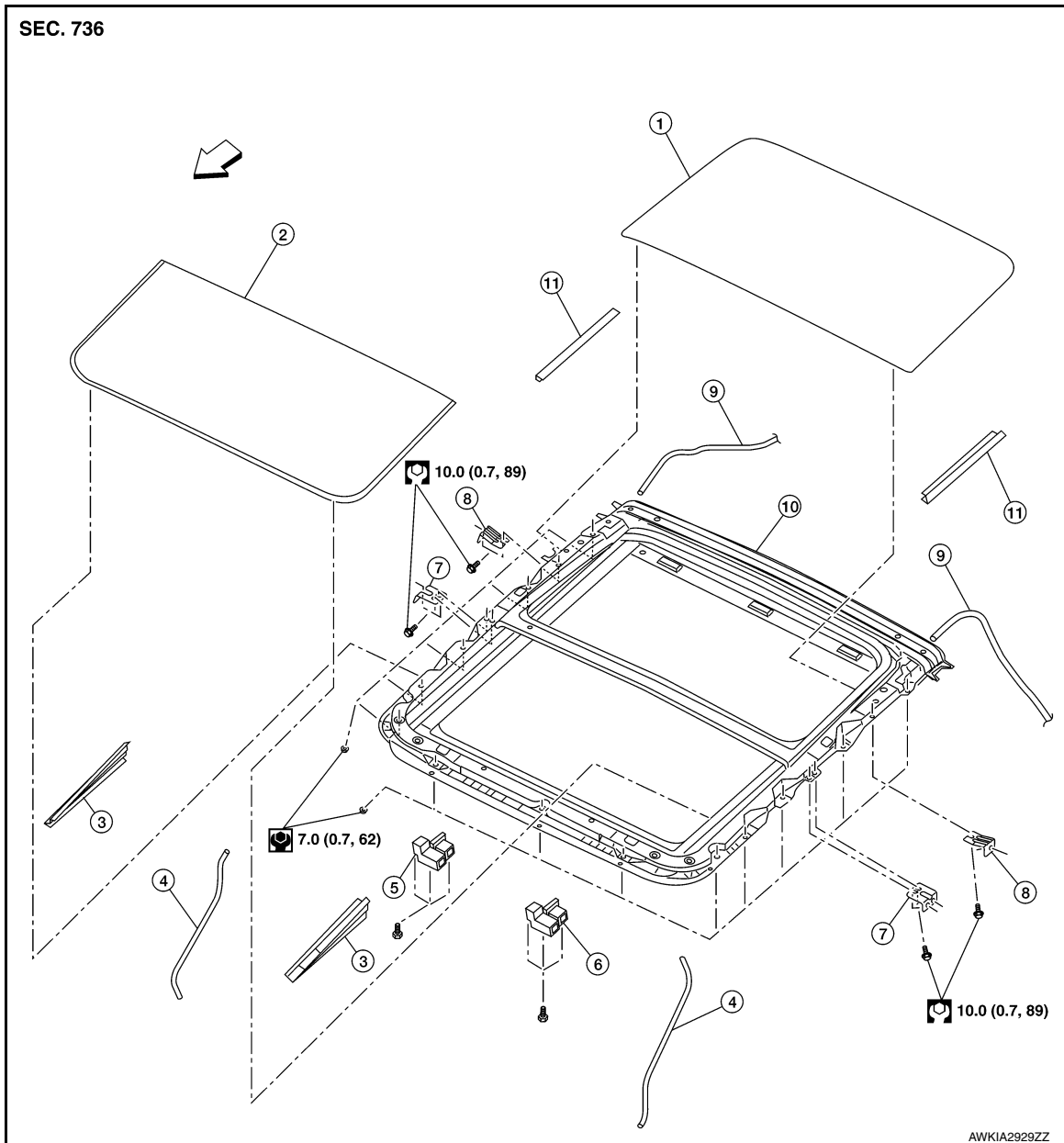
MOONROOF MOTOR ASSEMBLY

< REMOVAL AND INSTALLATION >

MOONROOF MOTOR ASSEMBLY

Exploded View

INFOID:000000009795006



- | | | |
|-----------------------------------|----------------------------------|-----------------------------|
| 1. Panoramic roof glass | 2. Glass lid | 3. Side trim covers (LH/RH) |
| 4. Front drain hose front (LH/RH) | 5. Moonroof motor assembly | 6. Sunshade motor assembly |
| 7. Moonroof front bracket (LH/RH) | 8. Moonroof rear bracket (LH/RH) | 9. Drain hose rear (LH/RH) |
| 10. Moonroof unit assembly | 11. Rear trim (LH/RH) | ⇐ Front |

Removal and Installation

INFOID:0000000010309519

REMOVAL

1. Close glass lid.
2. Remove the headlining. Refer to [INT-30, "Removal and Installation"](#).

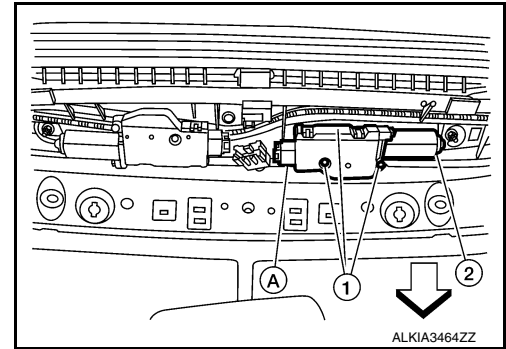
MOONROOF MOTOR ASSEMBLY

< REMOVAL AND INSTALLATION >

3. Remove moonroof motor assembly screws (1).
⇐ Front
4. Disconnect harness connector (A) and remove moonroof motor assembly (2) from moonroof unit assembly front end rail.

CAUTION:

Do not run the removed moonroof motor assembly as a single unit.



INSTALLATION

1. Move moonroof motor assembly laterally little by little so that the gear is completely engaged into the wire on the moonroof unit assembly, and the mounting surfaces become parallel. Install the moonroof motor assembly screws and tighten.

CAUTION:

Before installing the motor, be sure to place the link and wire assembly in the symmetrical and fully closed position.

NOTE:

If necessary, insert a suitable tool into the drive key and rotate right or left slightly to assist in complete moonroof motor gear alignment.

2. Remainder of installation is in the reverse order of removal.
3. Synchronize moonroof motor assembly with moonroof unit assembly. Refer to [RF-24, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#).

MOONROOF UNIT ASSEMBLY

< REMOVAL AND INSTALLATION >

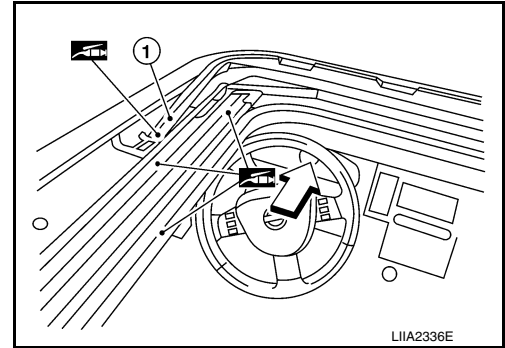
MOONROOF UNIT ASSEMBLY

Inspection

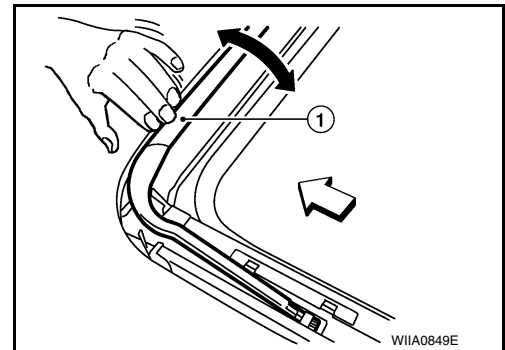
INFOID:000000010309520

WIND DEFLECTOR

1. Open glass lid fully.
2. Visually check for proper installation, damaged/deteriorated components, or foreign objects within mechanism. Correct as required for smooth operation.
3. Check for grease at the wind deflector arm (1) and pivot areas. If necessary, apply a sufficient amount of grease for non-binding operation.
⇨ Front



4. Check that the wind deflector (1) moves freely within the moonroof unit assembly while manually pressing down and releasing. If a malfunction is detected, remove the moonroof unit assembly and visually inspect. If damage is found, replace either wind deflector (1) or moonroof unit assembly as required. Refer to [RF-63, "Removal and Installation"](#) (WIND DEFLECTOR) or [RF-59, "Removal and Installation"](#) (MOONROOF UNIT ASSEMBLY).
⇨ Front



LINK AND WIRE ASSEMBLY

NOTE:

Before replacing a suspect part, make sure it is the source of noise being experienced.

1. Check link to determine if coating film has peeled off excessively enough that substrate is visible. Check also to determine if link is the source of noise. Replace as necessary.
2. Visually check to determine if a sufficient amount of grease has been applied to wire or rail groove. If not, add grease as required.
3. Check wire for any damage or deterioration. If any damage is found, replace moonroof unit assembly. Refer to [RF-59, "Removal and Installation"](#)

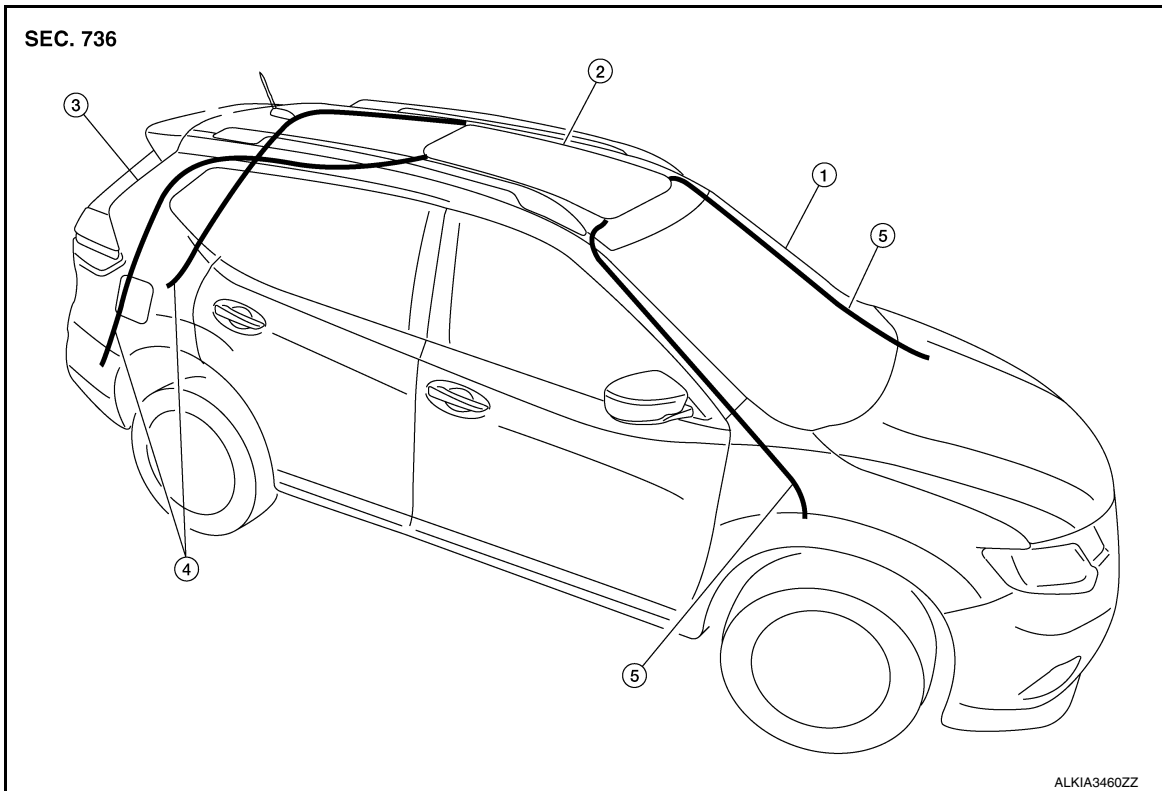
WEATHERSTRIP

1. Visually check weatherstrip for damage, deterioration, or deformation.
 - Open glass lid partially to inspect front edge of weatherstrip.
 - Tilt up glass lid fully to inspect sides and rear edge of weatherstrip.If any area of the weatherstrip is found to be damaged, replace the glass lid. Refer to [RF-49, "Removal and Installation"](#).
2. Check for leaks around glass lid.
 - Close glass lid.
 - Pour water around surface to determine area of concern.
 - For gaps or misalignment, adjust glass lid to specifications. Refer to ADJUSTMENT in this section.
 - For damaged sealing surfaces, either replace glass lid, refer to [RF-49, "Removal and Installation"](#) or repair the panel.

DRAIN HOSES

MOONROOF UNIT ASSEMBLY

< REMOVAL AND INSTALLATION >

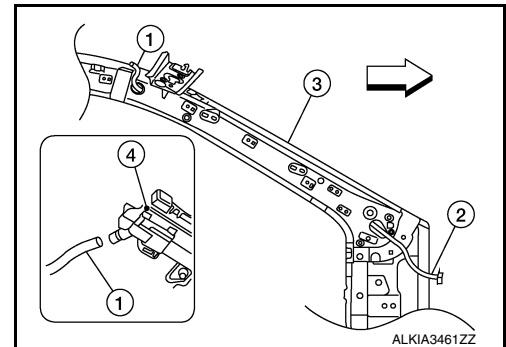


- | | | |
|-----------------------------|------------------------------|----------------|
| 1. Front pillar | 2. Moonroof unit assembly | 3. Rear pillar |
| 4. Rear drain hoses (LH/RH) | 5. Front drain hoses (LH/RH) | |

1. Remove the headlining. Refer to [INT-30, "Removal and Installation"](#).

2. From the inside front pillar (3) visually check drain hoses (1) for:
- Proper connection at moonroof unit assembly (4) and drain hose connection at the exit base (2).
 - Damage, pinch, cracks, deterioration.

⇐ Front

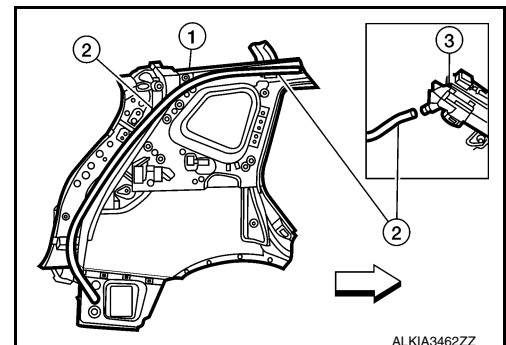


3. Pour water through drain hoses to determine watertight performance.
If damaged or leaking portions in any drain hose is found, replace entire drain hose as necessary.

4. From the inside of the rear quarter panel (1) visually check drain hoses (2) for damage, pinching, cracks, or deterioration.

5. Check for proper connection at moonroof unit assembly (3) and drain hose (2) and for proper routing along the rear inner quarter panel (1).

⇐ Front



ADJUSTMENT

CAUTION:

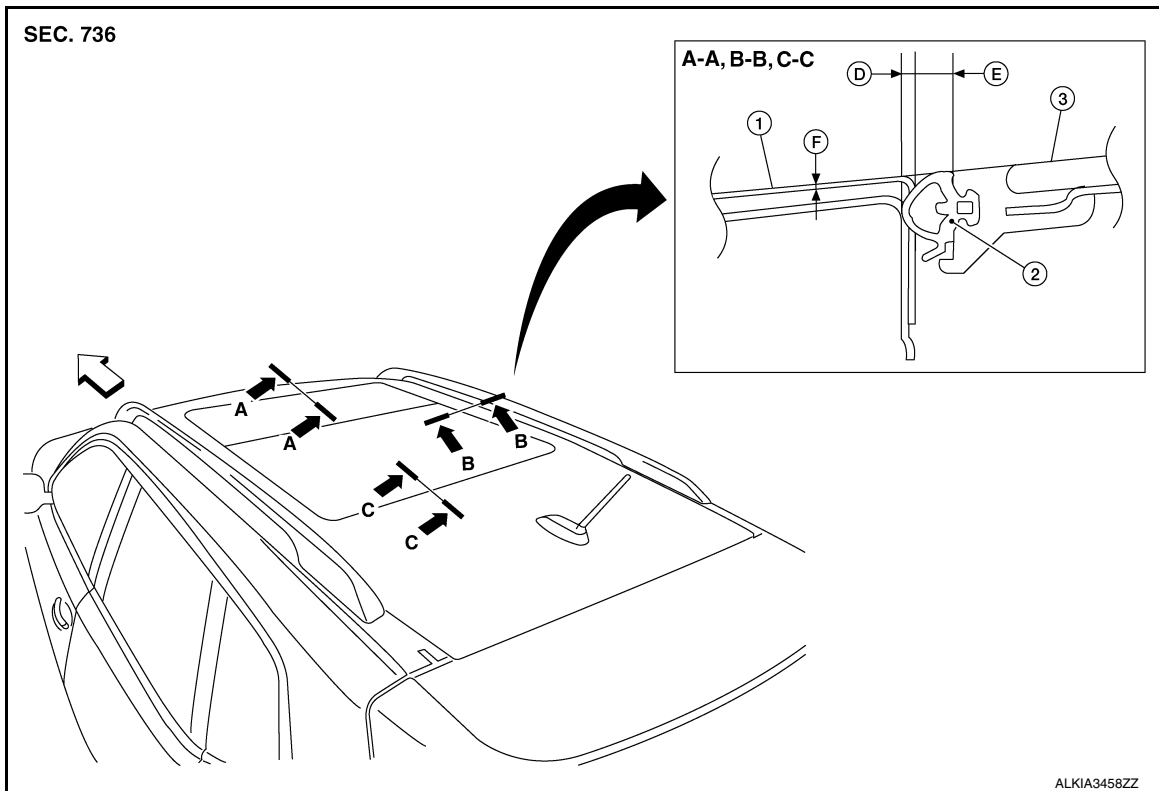
MOONROOF UNIT ASSEMBLY

< REMOVAL AND INSTALLATION >

- Always work with a helper.
- Handle glass lid with care to prevent damage.

NOTE:

- For easier and more accurate installation, always mark each point before removal.
- After any adjustment, check moonroof operation and glass lid alignment.



Unit: mm (in)

Portion	Gap		Surface height difference
	D	E	F
A-A	1.4 ± 0.8 (0.06 $\pm$ 0.03)	7.3 ± 0.8 (0.29 $\pm$ 0.03)	0.7 ± 1.5 (0.03 $\pm$ 0.06)
B-B	1.4 ± 0.8 (0.06 $\pm$ 0.03)	7.3 ± 0.8 (0.29 $\pm$ 0.03)	0.7 ± 1.5 (0.03 $\pm$ 0.06)
C-C	1.4 ± 0.8 (0.06 $\pm$ 0.03)	7.3 ± 0.8 (0.29 $\pm$ 0.03)	0.7 ± 1.5 (0.03 $\pm$ 0.06)

Gap adjustment (Front and Rear)

1. Open sunshade (1).
↔ Front
2. Tilt glass lid up, then release side trim cover (2) on each side and set aside.

NOTE:

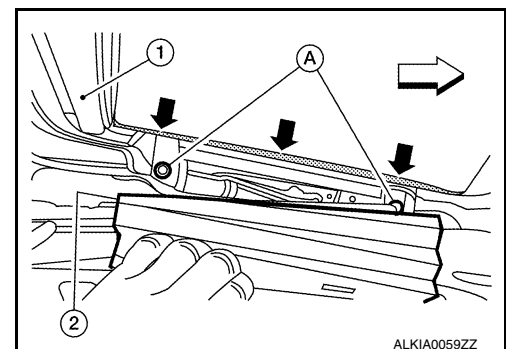
LH side shown; RH similar.

3. Loosen glass lid bolts (A) (two each on LH and RH side), then tilt glass lid down.
4. Manually adjust glass lid from outside of vehicle until gaps A-A and C-C are within specification.

NOTE:

Temporarily loosely tighten glass lid bolts to prevent movement between each adjustment.

5. Tilt glass lid up and down several times using moonroof switch to check that it operates smoothly.



MOONROOF UNIT ASSEMBLY

< REMOVAL AND INSTALLATION >

6. Tilt glass lid up and tighten bolts.

NOTE:

First tighten left front bolt, then right rear bolt on glass lid to prevent uneven torque while tightening remaining bolts.

7. Attach side trim covers (LH/RH), then tilt glass lid down.

Gap Adjustment (Sides)

The moonroof unit assembly is mounted on locator pins and adjustment from side to side cannot be performed.

Surface Height Adjustment

1. Tilt glass lid up and down several times using moonroof switch to check that it operates smoothly.
2. Check height difference between roof surface and glass lid surface, then compare to specifications.
3. If necessary, adjust height difference by using the following procedure.

- Loosen glass lid bolts.
- Manually raise/lower glass lid until height difference is within specification.

NOTE:

If necessary, shims may be added between moonroof unit assembly and roof to increase adjustment range. Refer to [RF-49, "Removal and Installation"](#).

Temporarily loosely tighten moonroof unit assembly bolts to prevent movement between each adjustment.

- Tilt glass lid up and down several times using moonroof switch to check that it operates smoothly.
- Tighten glass lid and moonroof side bracket bolts.

NOTE:

First tighten left front bolt, then right rear bolt on glass lid to prevent uneven torque while tightening remaining bolts.

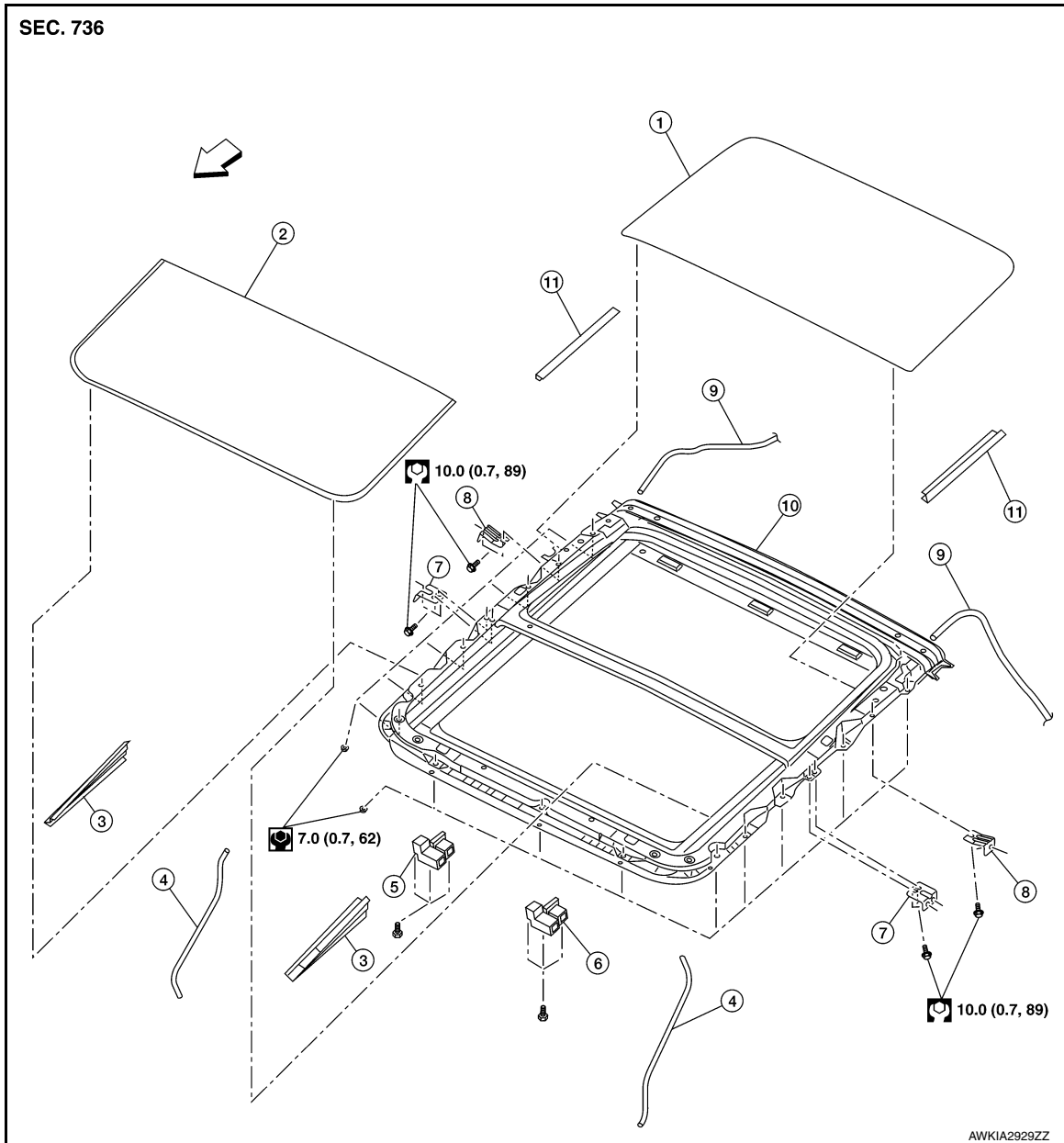
- After any adjustment, check moonroof operation and glass lid alignment.

MOONROOF UNIT ASSEMBLY

< REMOVAL AND INSTALLATION >

Exploded View

INFOID:000000010309521



- | | | |
|-----------------------------------|----------------------------------|-----------------------------|
| 1. Panoramic roof glass | 2. Glass lid | 3. Side trim covers (LH/RH) |
| 4. Front drain hose (LH/RH) | 5. Moonroof motor assembly | 6. Sunshade motor assembly |
| 7. Moonroof front bracket (LH/RH) | 8. Moonroof rear bracket (LH/RH) | 9. Rear drain hose (LH/RH) |
| 10. Moonroof unit assembly | 11. Rear trim covers (LH/RH) | ⇐ Front |

Removal and Installation

INFOID:000000010309517

REMOVAL

CAUTION:

- Always work with a helper.
- When taking moonroof unit assembly out, use cloths to protect the seats and trim from damage.

1. Remove headlining. Refer to [INT-30, "Removal and Installation"](#).
2. Disconnect drain hoses (front/rear) from moonroof unit assembly. Refer to [RF-55, "Inspection"](#).
3. Disconnect harness connectors from moonroof motor assembly and sunshade motor assembly.

MOONROOF UNIT ASSEMBLY

< REMOVAL AND INSTALLATION >

4. Remove nuts, then using a helper carefully lift each side and remove moonroof unit assembly out back of vehicle.

WARNING:

Bodily injury may occur if moonroof unit assembly is not supported properly when removing.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

After installing the moonroof unit assembly, perform the leak test and check that there is no air or water intrusion. Refer to [RF-55, "Inspection"](#).

SUNSHADE

< REMOVAL AND INSTALLATION >

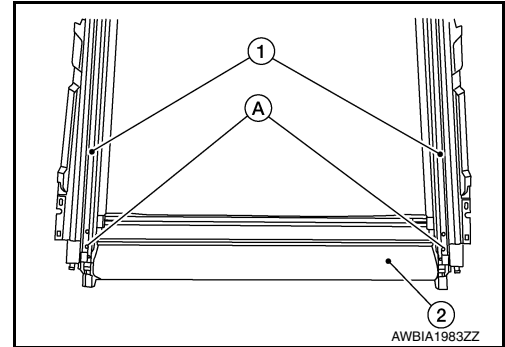
SUNSHADE

Removal and Installation

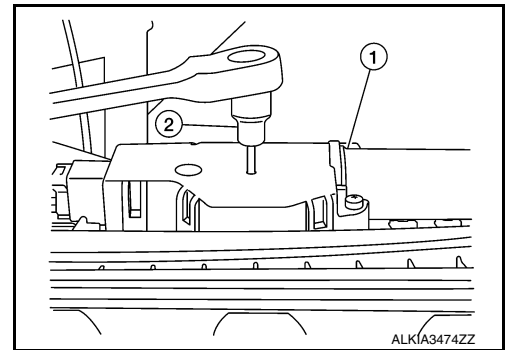
INFOID:0000000010309536

REMOVAL

1. Remove the moonroof unit assembly. Refer to [RF-53, "Removal and Installation"](#).
2. Place the moonroof unit assembly (1) on a flat surface upside down and remove sunshade (2) screws (A).



3. Manually move sunshade motor (1) using suitable tool (2).



4. After manually moving sunshade with suitable tool, gently pull reward on sunshade to reveal cable.
5. While holding black plastic part on the cable end push sunshade toward opposite end releasing from the cable.
6. Remove sunshade.

INSTALLATION

Installation is in the reverse order of removal.

SUNSHADE MOTOR ASSEMBLY

< REMOVAL AND INSTALLATION >

SUNSHADE MOTOR ASSEMBLY

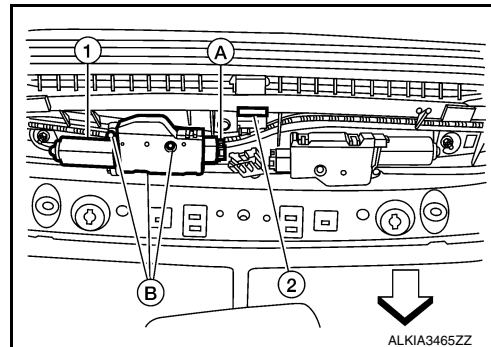
Removal and Installation

INFOID:000000010309523

REMOVAL

1. Remove the headlining. Refer to. [INT-30, "Removal and Installation"](#).
2. Disconnect the harness connector (A) from the sunshade motor assembly (1).
3. Remove sunshade motor assembly screws (B).
4. Remove the sunshade motor assembly from the moonroof unit assembly (2).

↔ Front



INSTALLATION

Installation is in the reverse order of removal.

- Synchronize sunshade motor assembly with moonroof unit assembly. Refer to [RF-24, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#).

WIND DEFLECTOR

< REMOVAL AND INSTALLATION >

WIND DEFLECTOR

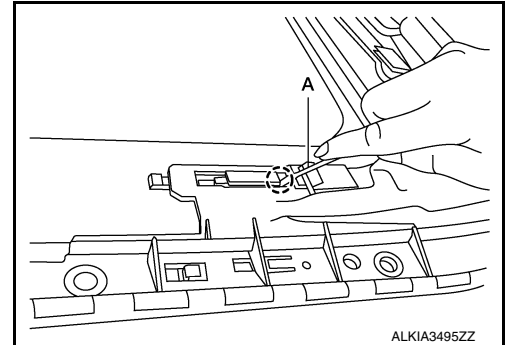
Removal and Installation

INFOID:000000010309524

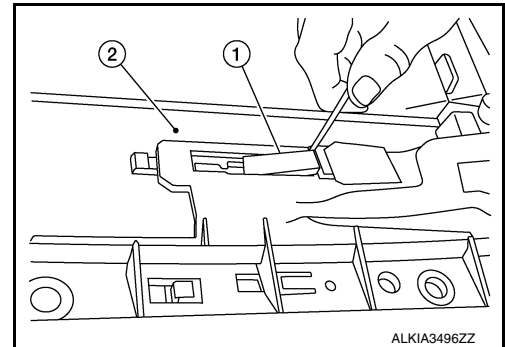
REMOVAL

1. Remove headlining Refer to [INT-30. "Removal and Installation"](#).
2. Open the glass lid to view the wind deflector.
3. Use suitable tool (A) release pawl on LH/RH side of wind deflector.

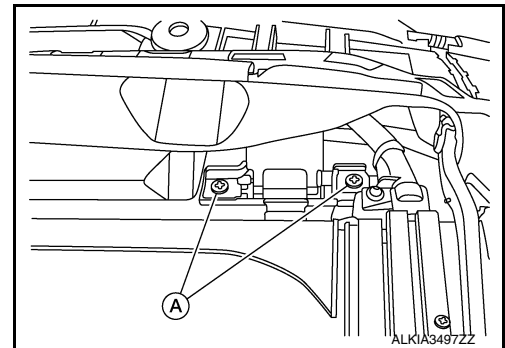
⊖: Pawl



4. Release wind deflector retainer (1) from moonroof unit (2).



5. Remove screws (A) on both LH/RH sides of wind deflector.



INSTALLATION

Installation is in the reverse order of removal.

MOONROOF SWITCH

< REMOVAL AND INSTALLATION >

MOONROOF SWITCH

Removal and Installation

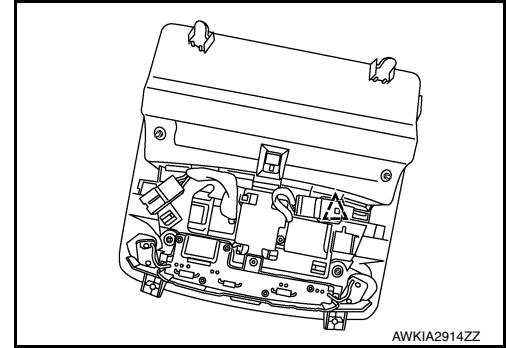
INFOID:000000010309525

REMOVAL

1. Remove map lamp assembly. Refer to [INL-55, "Removal and Installation"](#).

2. Using a suitable tool release clip from harness connector.

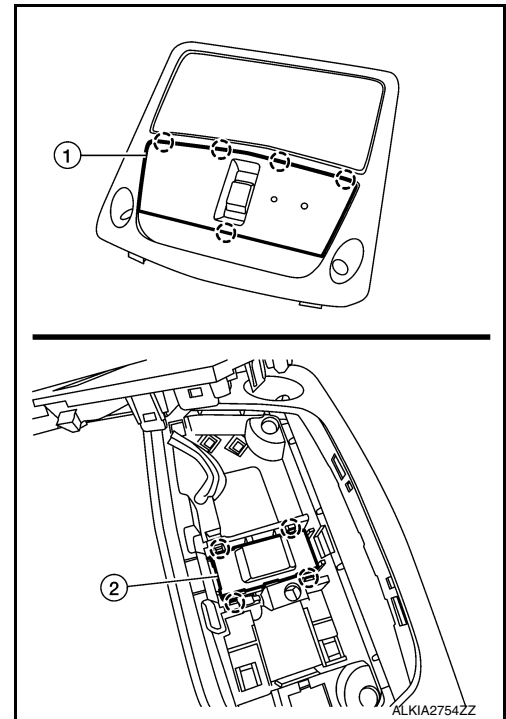
△: Clip



3. Using a suitable tool release pawls and remove moonroof switch finisher (1).

4. Using a suitable tool release pawls and remove moonroof switch (2) from the front room/map lamp.

○: Pawl



INSTALLATION

Installation is in the reverse order of removal.

SECTION RSU

REAR SUSPENSION

CONTENTS

A
B
C
D

RSU

PRECAUTION	2	Inspection	14	F
PRECAUTIONS	2	Disposal	15	
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	2	REAR SUSPENSION ARM	16	G
Precautions for Suspension	2	Exploded View	16	
PREPARATION	3	Removal and Installation	16	H
PREPARATION	3	Inspection	16	
Special Service Tool	3	LOWER LINK	17	I
Commercial Service Tool	3	Exploded View	17	
SYMPTOM DIAGNOSIS	4	Removal and Installation	17	
NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING	4	Inspection	17	J
NVH Troubleshooting Chart	4	UPPER LINK	19	
PERIODIC MAINTENANCE	5	Exploded View	19	K
REAR SUSPENSION ASSEMBLY	5	Removal and Installation	19	
Inspection and Adjustment	5	Inspection	20	L
WHEEL ALIGNMENT	6	REAR STABILIZER	21	
Inspection	6	Exploded View	21	
Adjustment	6	Removal and Installation	21	
REMOVAL AND INSTALLATION	8	Inspection	21	M
COIL SPRING	8	UNIT REMOVAL AND INSTALLATION	22	
Exploded View	8	REAR SUSPENSION MEMBER	22	N
Removal and Installation - FWD	8	Exploded View	22	
Removal and Installation - AWD	10	Removal and Installation - FWD	22	
Inspection	13	Removal and Installation - AWD	23	
REAR SHOCK ABSORBER	14	Inspection	23	O
Exploded View	14	SERVICE DATA AND SPECIFICATIONS (SDS)	24	
Removal and Installation	14	SERVICE DATA AND SPECIFICATIONS (SDS)	24	P
		Wheel Alignment (Unladen*1)	24	
		Wheelarch Height (Unladen*)	24	

PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010269528

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Precautions for Suspension

INFOID:0000000009797547

- When installing rubber bushings, the final tightening must be carried out under unladen conditions with tires on ground. Spilled oil might shorten the life of rubber bushings. Be sure to wipe off any spilled oil.
- Unladen conditions mean that fuel, engine coolant and lubricants are full. Spare tire, jack, hand tools and mats are in designated positions.
- After servicing suspension parts, be sure to check wheel alignment.
- Self-lock nuts are not reusable. Always use new ones when installing. Since new self-lock nuts are pre-oiled, tighten as they are.

PREPARATION

< PREPARATION >

PREPARATION

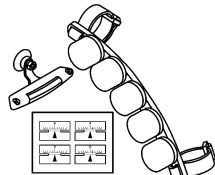
PREPARATION

Special Service Tool

INFOID:0000000010350107

The actual shape of the tools may differ from those illustrated here.

Tool number (TechMate No.) Tool name	Description
— (J-49286) Drift and Pull gauge	Measuring drift and pull



AWEIA0156ZZ

Commercial Service Tool

INFOID:0000000009797548

Tool name	Description
Power tool	Loosening nuts, screws and bolts



PIIB1407E

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

< SYMPTOM DIAGNOSIS >

SYMPTOM DIAGNOSIS

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

NVH Troubleshooting Chart

INFOID:000000009797546

Use chart below to find the cause of the symptom. If necessary, repair or replace these parts.

Reference			Possible cause and SUSPECTED PARTS														
Symptom	REAR SUSPENSION	Noise	x	x	x	x	x	x			x	x	x	x	x	x	x
		Shake	x	x	x	x		x			x		x	x	x	x	x
		Vibration	x	x	x	x	x				x		x	x		x	
		Shimmy	x	x	x	x			x				x	x	x		x
		Shudder	x	x	x								x	x	x		x
		Poor quality ride or handling	x	x	x	x	x		x	x			x	x	x		
			RSU-8, RSU-14, RSU-16, RSU-17, RSU-19, RSU-21	RSU-14	—	—	—	RSU-8, RSU-14, RSU-16, RSU-17, RSU-19, RSU-21	RSU-6	RSU-21	DLN-9Z	DLN-11Q	RAX-5 (FWD) and RAX-13 (AWD)	WT-55	WT-55	RAX-13 (AWD)	BR-6
			Improper installation, looseness	Shock absorber deformation, damage or deflection	Bushing or mount deterioration	Parts interference	Spring fatigue	Suspension looseness	Incorrect wheel alignment	Stabilizer bar fatigue	PROPELLER SHAFT (AWD)	DIFFERENTIAL (AWD)	REAR AXLE	TIRE	WHEEL	DRIVE SHAFT (AWD)	BRAKE

x: Applicable

REAR SUSPENSION ASSEMBLY

< PERIODIC MAINTENANCE >

PERIODIC MAINTENANCE

REAR SUSPENSION ASSEMBLY

Inspection and Adjustment

INFOID:0000000009797549

COMPONENT PART

Check the conditions (looseness, backlash) of each component and component conditions (wear, damage) are normal.

SHOCK ABSORBER

Check the shock absorber for oil leaks or damage. Replace the components if necessary.

RSU

WHEEL ALIGNMENT

< PERIODIC MAINTENANCE >

WHEEL ALIGNMENT

Inspection

INFOID:000000009797550

DESCRIPTION

- Measure wheel alignment under unladen conditions.

NOTE:

"Unladen conditions" means that fuel, engine coolant, and lubricants are full. Spare tire, jack, hand tools and mats are in designated positions.

PRELIMINARY CHECK

Check the following:

- Tires for improper air pressure and wear. Refer to [WT-65, "Tire Air Pressure"](#).
- Wheels for runout, deformation, cracks, or other damage. Refer to [WT-56, "Inspection"](#).
- Wheel bearings for axial end play. Refer to [RAX-8, "Inspection"](#) (FWD), [RAX-18, "Inspection"](#) (AWD).
- Shock absorbers for proper operation.
- Each suspension component for cracks, looseness, deformation, and other damages.
- Wheelarch height. Refer to [RSU-24, "Wheelarch Height \(Unladen*\)"](#).

GENERAL INFORMATION AND RECOMMENDATIONS

- A four-wheel thrust alignment should be performed.
- This type of alignment is recommended for any NISSAN/INFINITI vehicle.
- The four-wheel "thrust" process helps ensure that the vehicle is properly aligned and the steering wheel is centered.
- The alignment rack itself should be capable of accepting any NISSAN/INFINITI vehicle.
- The rack should be checked to ensure that it is level.
- Make sure the machine is properly calibrated.
- Your alignment equipment should be regularly calibrated in order to give correct information.
- Check with the manufacturer of your specific equipment for their recommended Service/Calibration Schedule.

ALIGNMENT PROCESS

IMPORTANT:

Use only the alignment specifications listed in this Service Manual [RSU-24, "Wheel Alignment \(Unladen*1\)"](#).

- When displaying the alignment settings, many alignment machines use "indicators": (Green/red, plus or minus, Go/No Go). **Do not use these indicators.**
- The alignment specifications programmed into your machine that operate these indicators may not be correct.
- This may result in an ERROR.
- Most camera-type alignment machines are equipped with both "Rolling Compensation" method and optional "Jacking Compensation" method to "compensate" the alignment targets or head units. "Rolling Compensation" is the preferred method.
- If using the "Rolling Compensation" method, after installing the alignment targets or head units, push or pull on the rear wheel to move the vehicle. **Do not push or pull on the vehicle body.**
- If using the "Jacking Compensation" method, after installing the alignment targets or head units, raise the vehicle and rotate the wheels 1/2 turn both ways.

NOTE:

- Do not use the "Rolling Compensation" method if you are using sensor-type alignment equipment.
- Follow all instructions for the alignment machine you're using for more information.

Adjustment

INFOID:0000000009797551

CAMBER

WHEEL ALIGNMENT

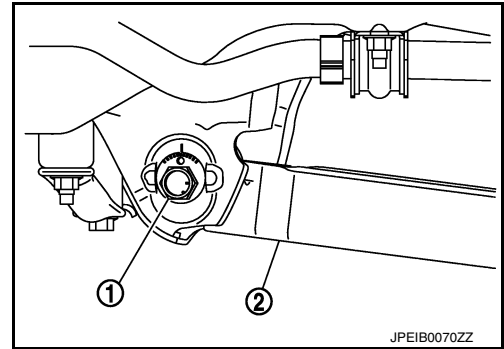
< PERIODIC MAINTENANCE >

If camber is outside the standard value, adjust with adjusting bolt (1) in lower link (2).

Camber: Refer to [RSU-6, "Adjustment"](#).

CAUTION:

After adjusting camber, be sure to check toe-in.



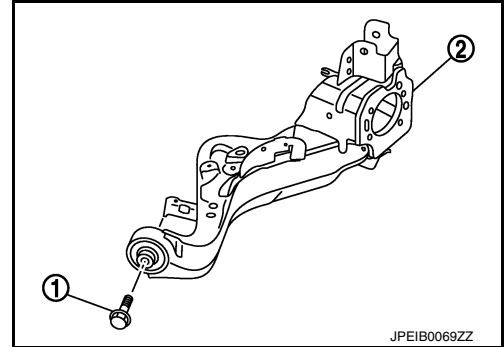
TOE-IN

- If toe-in is not within the specification, adjust with adjusting bolt (1) in suspension arm (2).

Toe-In: Refer to [RSU-6, "Adjustment"](#).

CAUTION:

- Be sure to adjust equally on RH and LH side with adjusting bolt.
- When tightening the nut firmly and checking the torque, use a wrench to prevent the turning of the bolt.
- If toe-in is not still within the specification, inspect and replace any damaged or worn suspension parts.
- After toe-in adjustment, adjust neutral position of steering angle sensor. Refer to [BRC-70, "Work Procedure"](#).



COIL SPRING

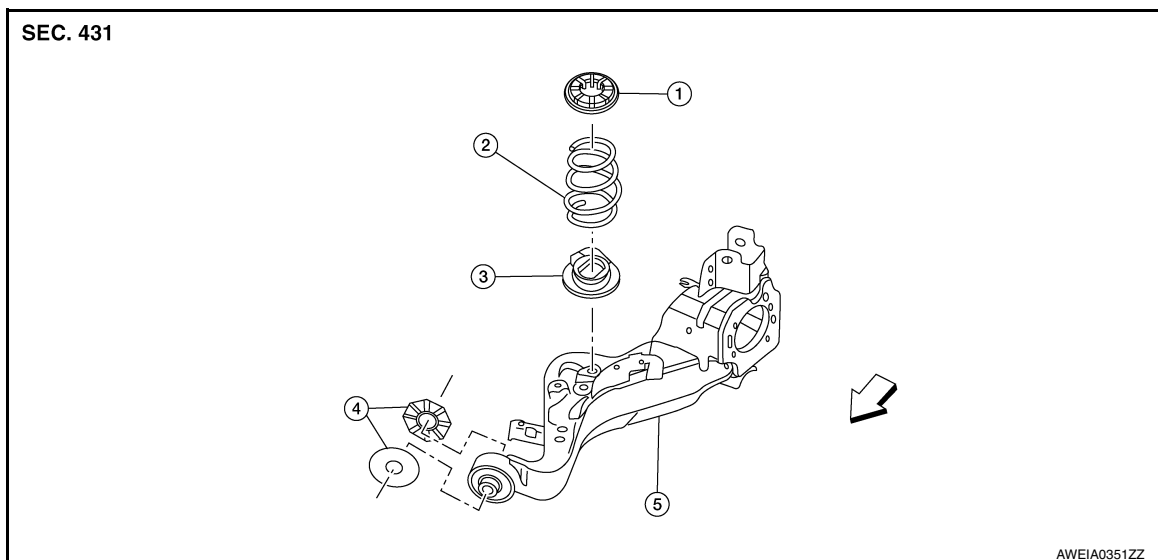
< REMOVAL AND INSTALLATION >

REMOVAL AND INSTALLATION

COIL SPRING

Exploded View

INFOID:000000009797552



Removal and Installation - FWD

INFOID:0000000010346384

REMOVAL

1. Remove the rear wheel and tire using power tool.
2. Remove the bolt and separate the rear wheel sensor from the wheel hub and bearing. Refer to [BRC-133, "REAR WHEEL SENSOR : Exploded View"](#).
CAUTION:
 - Failure to separate the rear wheel sensor from the wheel hub and bearing may result in damage to the rear wheel sensor.
 - Pull out the rear wheel sensor, being careful to turn it as little as possible. Do not pull on wheel sensor harness.
3. Remove torque member bolts, leaving the brake hose attached. Position brake caliper aside with wire. Refer to [BR-42, "BRAKE CALIPER ASSEMBLY : Exploded View"](#).
CAUTION:
Do not depress brake pedal while brake caliper is removed.
4. Put alignment marks on the disc brake rotor and on wheel hub and bearing. Remove the disc brake rotor.
CAUTION:
Do not drop the disc brake rotor.
5. Support the rear suspension arm using a suitable jack.
CAUTION:
Do not damage the rear suspension arm with the suitable jack.
6. Remove the stabilizer connecting rod. Refer to [RSU-17, "Exploded View"](#).
7. Separate the parking brake cable from the rear suspension arm. Refer to [PB-7, "Exploded View"](#).
8. Remove the rear height sensor (if equipped). Refer to [EXL-271, "Removal and Installation - Rear Height Sensor"](#).
9. Remove the rear shock absorber lower bolt and nut. Separate the rear shock absorber from the rear suspension arm. Refer to [RSU-8, "Exploded View"](#).

COIL SPRING

< REMOVAL AND INSTALLATION >

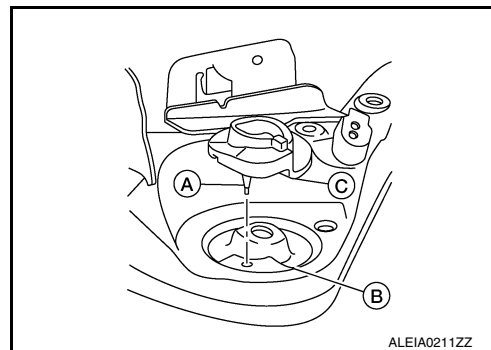
10. Remove the upper link bolt and nut from the rear suspension arm. Separate the upper link from the rear suspension arm. Refer to [RSU-16. "Exploded View"](#).
11. Loosen the lower link nut at the rear suspension member. Remove the lower link bolt and nut from the rear suspension arm. Separate the lower link from the rear suspension arm. Refer to [RSU-16. "Exploded View"](#).
12. Separate the brake tube from the rear suspension arm. Refer to [BR-24. "REAR : Exploded View"](#).
13. Slowly lower the suitable jack supporting the rear suspension arm. Remove the upper seat, the coil spring and the lower seat.

INSTALLATION

1. Align the lower seat indentations (C) with rear suspension arm grooves (B). Install the lower seat protrusion (A) into the hole in the rear suspension arm.

CAUTION:

The lower rubber seat protrusion must be securely inserted into the hole of rear suspension arm.

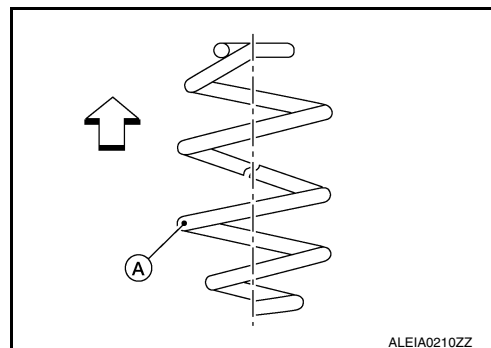


2. Identify the upper side of the coil spring.

NOTE:

- The top of the coil spring has a flat shape.
- The paint identification mark (A) is 1.75 turns from the bottom of the coil spring.

⇐ : Upper side

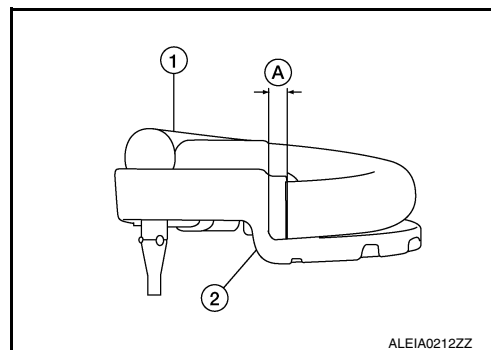


3. Align the coil spring (1) to the lower seat (2). Install coil spring to lower seat.

Maximum distance (A) : 5mm (0.20 in)

CAUTION:

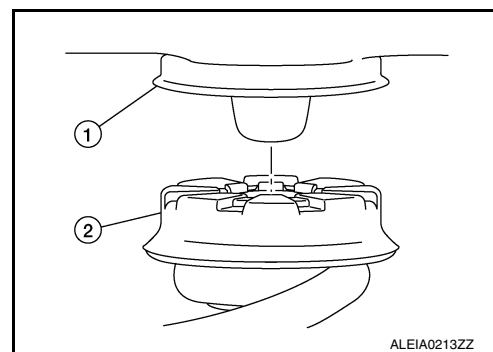
Assemble coil spring so that spring lower end is located in the spring end holding section of lower rubber seat.



COIL SPRING

< REMOVAL AND INSTALLATION >

4. Align upper seat (2) to the body (1). Slowly raise the suitable jack supporting the rear suspension arm to install the upper seat to the body.



5. Install brake tube to rear suspension arm. Refer to [BR-24, "REAR : Exploded View"](#).
6. Install lower link with bolt and nut to the rear suspension arm. Refer to [RSU-16, "Exploded View"](#).
NOTE:
The final tightening of nuts and bolts is under unladen conditions with tires on level ground.
7. Install upper link with bolt and nut to rear suspension arm. Refer to [RSU-16, "Exploded View"](#).
8. Install rear shock absorber with bolt and nut to rear suspension arm. Refer to [RSU-8, "Exploded View"](#).
9. Install height sensor (if equipped) to rear suspension arm. Refer to [EXL-271, "Removal and Installation - Rear Height Sensor"](#).
10. Install parking brake cable to rear suspension arm. Refer to [PB-7, "Exploded View"](#).
11. Install the stabilizer connecting rod. Refer to [EXL-271, "Removal and Installation - Rear Height Sensor"](#).
12. Install the rear wheel sensor to the axle housing. Refer to [BRC-133, "REAR WHEEL SENSOR : Exploded View"](#).
CAUTION:
 - Before installing, make sure there is no foreign material such as iron fragments adhered to the pick-up part of the rear wheel sensor.
 - When installing, make sure there is no foreign material such as iron fragments on and in the hole in the wheel hub and bearing for the rear wheel sensor. Make sure no foreign material has been caught in the sensor rotor. Remove and foreign material and clean the mount.
13. Align the matching marks on the disc brake rotor and on the wheel hub and bearing. Install the disc brake rotor.
14. Install the brake caliper and the torque member bolts. Refer to [BR-42, "BRAKE CALIPER ASSEMBLY : Exploded View"](#).
15. Install the wheel and tire. Refer to [WT-60, "Removal and Installation"](#).
16. Perform the final tightening of nuts and bolts under unladen conditions with tires on level ground.
17. Perform the inspection after installation. Refer to [RSU-13, "Inspection"](#).

Removal and Installation - AWD

INFOID:000000009797553

REMOVAL

1. Remove wheel and tire using power tool.
2. Remove the bolt and separate the rear wheel sensor from the axle housing. Position the rear wheel sensor and harness aside. Refer to [BRC-133, "REAR WHEEL SENSOR : Exploded View"](#).
CAUTION:
 - Failure to remove the rear speed sensor from the axle housing may result in damage to the rear wheel sensor.
 - Pull out the rear wheel sensor, being careful to turn it as little as possible. Do not pull on wheel sensor harness.
3. Remove torque member bolts using power tool, leaving the brake hose attached. Position brake caliper aside with wire. Refer to [BRC-133, "REAR WHEEL SENSOR : Exploded View"](#).
CAUTION:
Do not depress brake pedal while brake caliper is removed.
4. Put alignment marks on the disc brake rotor and on the wheel hub and bearing. Remove the disc brake rotor.
CAUTION:
Do not drop disc brake rotor.

COIL SPRING

< REMOVAL AND INSTALLATION >

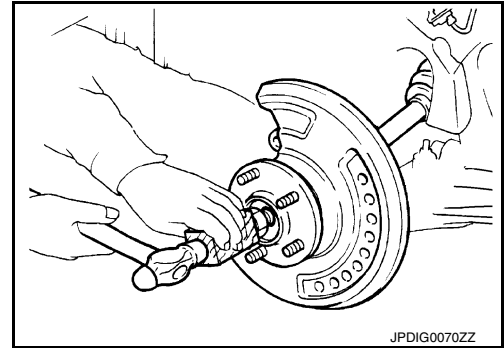
5. Remove the cotter pin.
6. Loosen, but do not remove, the wheel hub and bearing lock nut from the drive shaft using power tool.
7. Tap the wheel hub and bearing lock nut with a piece of wood to disengage the drive shaft from the wheel hub and bearing.

CAUTION:

- Do not place the drive shaft joint at an extreme angle. Be careful not to overextend the slide joint.
- Do not allow the drive shaft to hang without support.

NOTE:

Use a suitable puller if the drive shaft cannot be separated from the wheel hub and bearing.



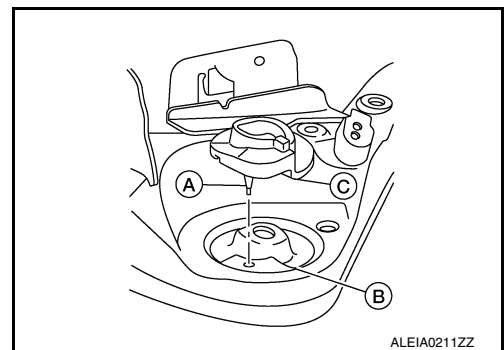
8. Remove the wheel hub and bearing lock nut.
9. Support the rear suspension arm using a suitable jack.
CAUTION:
Do not damage the rear suspension arm with suitable jack.
10. Remove stabilizer connecting rod. Refer to [RSU-21, "Exploded View"](#).
11. Separate the parking brake cable from the rear suspension arm. Refer to [PB-7, "Exploded View"](#).
12. Remove the height sensor (if equipped). Refer to [EXL-271, "Removal and Installation - Rear Height Sensor"](#).
13. Remove the rear shock absorber lower bolt and nut. Separate the rear shock absorber from the rear suspension arm. Refer to [RSU-14, "Exploded View"](#).
14. Remove the upper link bolt and nut from the rear suspension arm. separate the upper link from the rear suspension arm. Refer to [RSU-19, "Exploded View"](#).
15. Loosen the lower link nut at the rear suspension member. Remove the lower link bolt and nut from the rear suspension arm. Separate the lower link from the rear suspension arm. Refer to [RSU-17, "Exploded View"](#).
16. Separate the brake tube from the rear suspension arm. Refer to [BR-24, "REAR : Exploded View"](#).
17. Slowly lower the suitable jack supporting the suspension arm. Remove the upper seat, coil spring and lower seat.

INSTALLATION

1. Align the lower seat indentations (C) with rear suspension arm grooves (B). Install the lower seat protrusion (A) into the hole in the suspension arm.

CAUTION:

The lower rubber seat protrusion must be securely inserted into the hole of rear suspension arm.



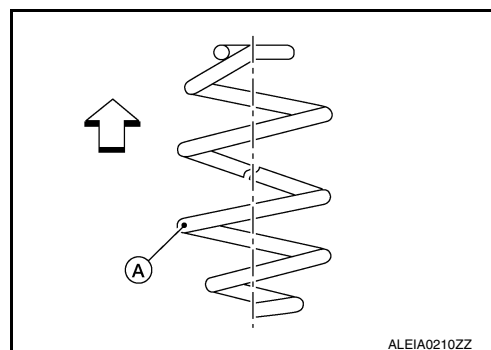
2. Identify the upper side of the coil spring.
NOTE:
 - The top of the coil spring has a flat shape.

COIL SPRING

< REMOVAL AND INSTALLATION >

- The paint identification mark (A) is 1.75 turns from the bottom of the coil spring.

↶ : Upper side

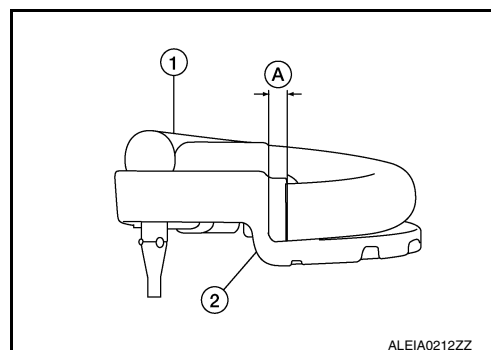


- Align the coil spring (1) to the lower seat (2). Install coil spring to lower seat.

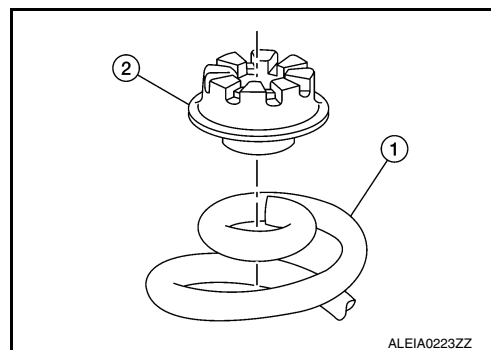
Maximum distance (A) : 5mm (0.20 in)

CAUTION:

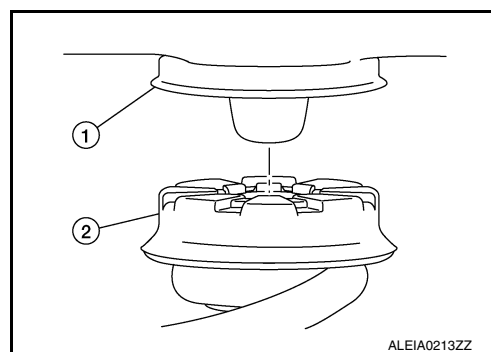
Assemble coil spring so that spring lower end is located in the spring end holding section of lower rubber seat.



- Align the coil spring (1) to the upper seat (2). Install the upper seat to the coil spring.



- Align upper seat (2) to the body (1). Slowly raise the suitable jack supporting the rear suspension arm to install the upper seat to the body.



- Install the brake tube to the rear suspension arm. Refer to [BR-24, "REAR : Exploded View"](#).
 - Install the lower link with the bolt and nut to the rear suspension arm. Refer to [RSU-16, "Exploded View"](#).
- NOTE:**
The final tightening of nuts and bolts is under unladen conditions with tires on level ground.
- Install the upper link with the bolt and nut to the rear suspension arm. Refer to [RSU-16, "Exploded View"](#).
 - Install the rear shock absorber with the bolt and nut to the rear suspension arm. Refer to [RSU-8, "Exploded View"](#).
 - Install the height sensor (if equipped) to the rear suspension arm. Refer to [EXL-271, "Removal and Installation - Rear Height Sensor"](#).
 - Install parking brake cable to rear suspension arm. Refer to [PB-7, "Exploded View"](#).

COIL SPRING

< REMOVAL AND INSTALLATION >

12. Install the stabilizer connecting rod. Refer to [EXL-271, "Removal and Installation - Rear Height Sensor"](#).
13. Install the rear wheel sensor to the axle housing. Refer to [BRC-133, "REAR WHEEL SENSOR : Exploded View"](#).
CAUTION:
 - Before installing, make sure there is no foreign material such as iron fragments adhered to the pick-up part of the rear wheel sensor.
 - When installing, make sure there is no foreign material such as iron fragments on and in the hole in the axle housing for the rear wheel sensor. Make sure no foreign material has been caught in the sensor rotor. Remove and foreign material and clean the mount.
14. Align the matching marks on the disc brake rotor and on the wheel hub and bearing. Install the disc brake rotor.
15. Install the brake caliper and the torque member bolts. Refer to [BR-42, "BRAKE CALIPER ASSEMBLY : Exploded View"](#).
16. Install the wheel and tire. Refer to [WT-60, "Removal and Installation"](#).
17. Perform the final tightening of nuts and bolts under unladen conditions with tires on level ground.
18. Perform the inspection after installation. Refer to [RSU-13, "Inspection"](#).

Inspection

INFOID:0000000009797554

INSPECTION AFTER REMOVAL

Check lower link, bushing and coil spring for deformation, crack, and damage. Replace components if necessary.

INSPECTION AFTER INSTALLATION

- Check wheel alignment. Refer to [RSU-6, "Inspection"](#).
- Adjust the neutral position of the steering angle sensor. Refer to [BRC-70, "Work Procedure"](#).
- Initialize the headlamp level control unit. Refer to [EXL-115, "Aiming Adjustment Procedure"](#) (HALOGEN HEADLAMP) or [EXL-264, "Aiming Adjustment Procedure"](#) (LED HEADLAMP).

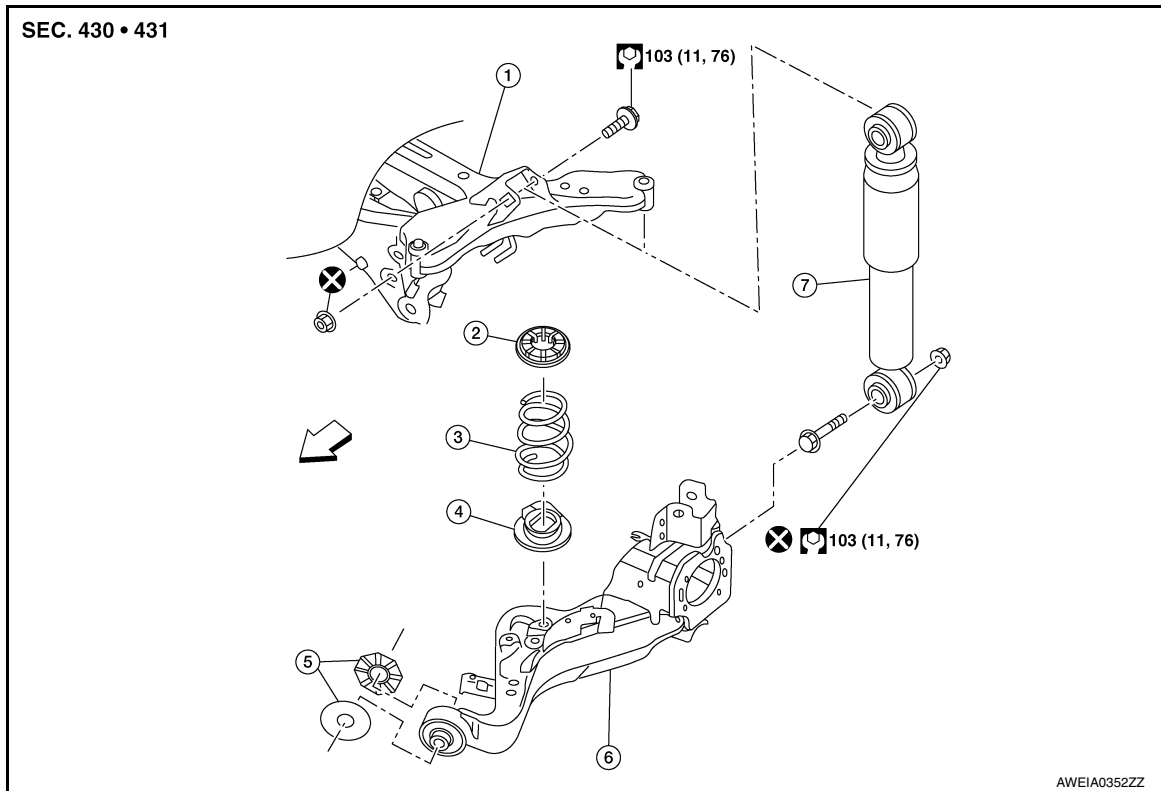
REAR SHOCK ABSORBER

< REMOVAL AND INSTALLATION >

REAR SHOCK ABSORBER

Exploded View

INFOID:000000009797555



- | | | |
|---------------------------|--------------------------|------------------------|
| 1. Rear suspension member | 2. Upper seat | 3. Coil spring |
| 4. Lower seat | 5. Rubber washer (LH/RH) | 6. Rear suspension arm |
| 7. Rear shock absorber | ↩ Front | |

Removal and Installation

INFOID:000000009797556

REMOVAL

1. Support the rear suspension arm using a suitable jack.
CAUTION:
Do not damage the rear suspension arm with the suitable jack.
2. Remove the lower shock absorber bolt and nut. Separate the shock absorber from the rear suspension arm.
3. Remove the upper bolt, nut, and shock absorber.
4. Inspect the components. Refer to [RSU-5. "Inspection and Adjustment"](#).

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

Do not reuse the lower shock absorber nut.

- Perform the final tightening of nuts and bolts under unladen conditions with tires on level ground.

Inspection

INFOID:000000009797557

INSPECTION AFTER REMOVAL

- Check shock absorber for deformation, cracks, damage. Replace it if necessary.
- Check welded and sealed areas for oil leaks. Replace it if necessary.

REAR SHOCK ABSORBER

< REMOVAL AND INSTALLATION >

Disposal

INFOID:000000009797558

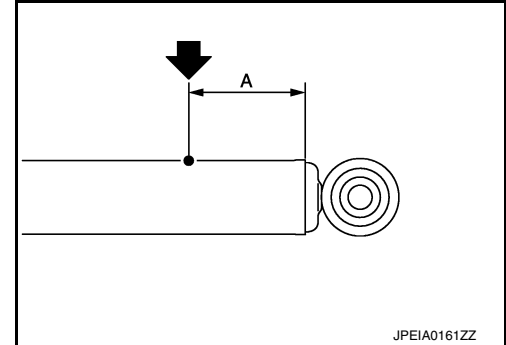
1. Set shock absorber horizontally to the ground with the piston rod fully extracted.
2. Drill 2 – 3 mm (0.08 – 0.12 in) hole at the position (●) from top as shown in the figure to release gas gradually.

CAUTION:

- Wear eye protection (safety glasses).
- Wear gloves.
- Be careful with metal chips or oil blown out by the compressed gas.

NOTE:

- Drill vertically in this direction (←) directly into the outer tube avoiding brackets.
- The gas is clear, colorless, odorless, and harmless.



A: 20 – 30 mm (0.79 – 1.18 in)

3. Position the drilled hole downward and drain oil by moving the piston rod several times.

CAUTION:

Dispose of drained oil according to the law and local regulations.

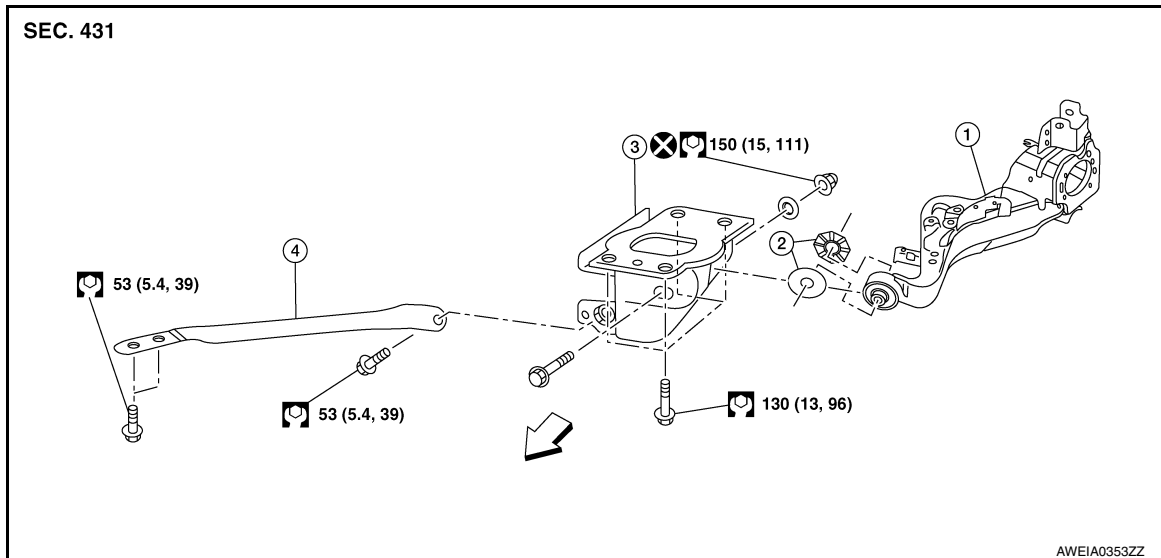
REAR SUSPENSION ARM

< REMOVAL AND INSTALLATION >

REAR SUSPENSION ARM

Exploded View

INFOID:000000009797559



- | | | |
|-----------------------------|--------------------------|--------------------------------|
| 1. Rear suspension arm | 2. Rubber washer (LH/RH) | 3. Rear suspension arm bracket |
| 4. Rear suspension arm stay | ↔ Front | |

Removal and Installation

INFOID:000000009797560

REMOVAL

1. Remove the wheel hub and bearing. Refer to [RAX-16, "Removal and Installation"](#).
2. Remove the coil spring. [RSU-10, "Removal and Installation - AWD"](#).
3. Separate the brake tube and hose from the rear suspension arm. [BR-24, "REAR : Exploded View"](#).
4. Remove the nut, bolt, rubber washer (LH/RH), and rear suspension arm.
5. Inspect the components. Refer to [RSU-14, "Inspection"](#).

INSTALLATION

Installation is in the reverse order of removal.

- Align the matching marks made during removal when reusing the disc brake rotor.
- After installation, perform the air bleeding. Refer to [BR-16, "Bleeding Brake System"](#).
- Perform final tightening of rear suspension member at its installation position under unladen conditions with tires on level ground.
- Perform the inspection after installation. Refer to [RSU-16, "Inspection"](#).

Inspection

INFOID:000000009797561

INSPECTION AFTER REMOVAL

Visual Inspection

Check rear suspension arm and bushing for deformation, cracks or damage. Replace it if necessary.

INSPECTION AFTER INSTALLATION

1. Adjust parking brake operation (stroke). Refer to [PB-4, "Inspection and Adjustment"](#).
2. Check wheel alignment. Refer to [RSU-6, "Inspection"](#).

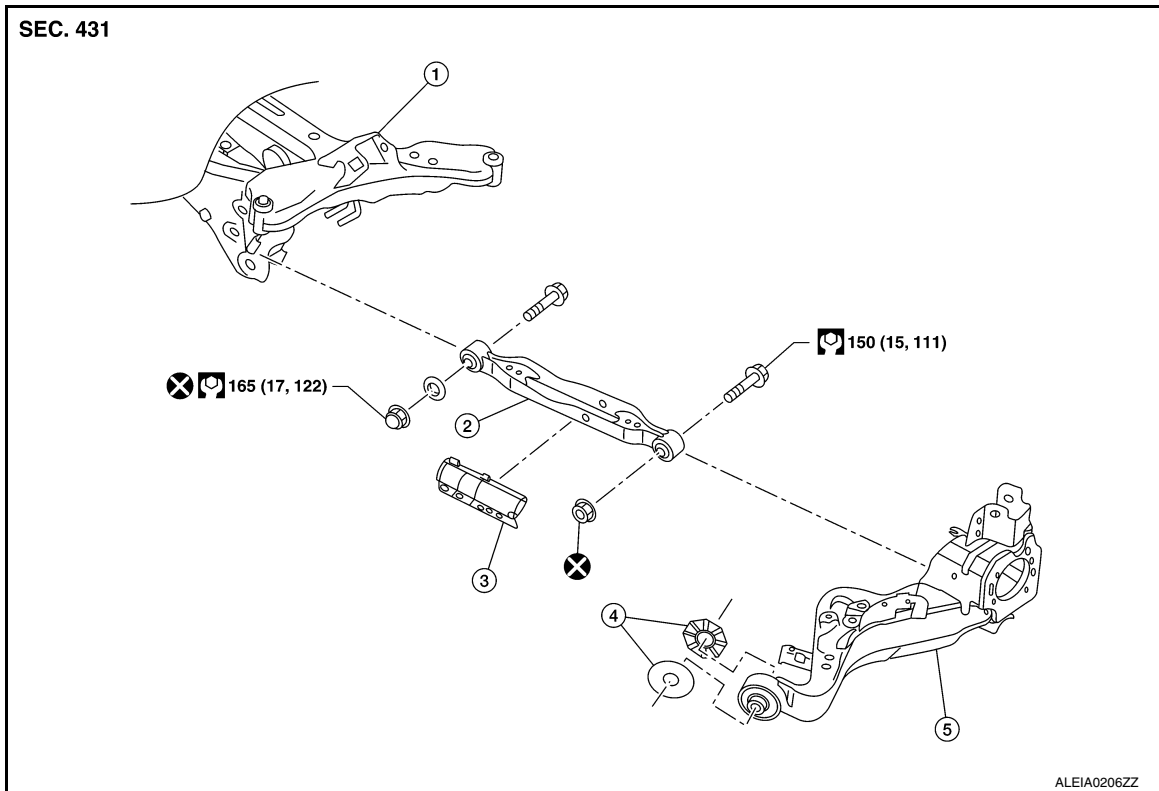
LOWER LINK

< REMOVAL AND INSTALLATION >

LOWER LINK

Exploded View

INFOID:000000009797562



- | | | |
|---------------------------|------------------------|-------------------------|
| 1. Rear suspension member | 2. Lower link | 3. Lower link deflector |
| 4. Rubber washer (LH/RH) | 5. Rear suspension arm | ← Front |

Removal and Installation

INFOID:000000009797563

REMOVAL

1. Remove wheel and tire using power tool. Refer to [WT-60, "Exploded View"](#).
2. Remove connecting rod. Refer to [RSU-21, "Exploded View"](#).
3. Remove rear height sensor (if equipped). Refer to [EXL-271, "Removal and Installation - Rear Height Sensor"](#).
4. Set suitable jack under rear suspension arm to relieve the coil spring tension.
5. Remove lower link, nut, and bolt from rear suspension arm with power tool.
6. Remove lower link, nut, washer, and bolt from rear suspension member with power tool.
7. Remove lower link protector (if necessary).
8. Perform the inspection after removal. Refer to [RSU-17, "Inspection"](#).

INSTALLATION

Installation is in the reverse order of removal.

- Perform final tightening of rear suspension member and axle installation position under unladen conditions with tires on level ground.
- After installation, perform headlamp initialization. Refer to [EXL-223, "Diagnosis Procedure"](#).
- Adjust the neutral position of the steering angle sensor. Refer to [BRC-70, "Work Procedure"](#).
- Perform the inspection after installation. Refer to [RSU-17, "Inspection"](#).

Inspection

INFOID:000000009797564

INSPECTION AFTER REMOVAL

LOWER LINK

< REMOVAL AND INSTALLATION >

Check lower link and bushing for any deformation, cracks, or damage. Replace it if necessary.

INSPECTION AFTER INSTALLATION

Check wheel alignment. Refer to [RSU-6, "Inspection"](#).

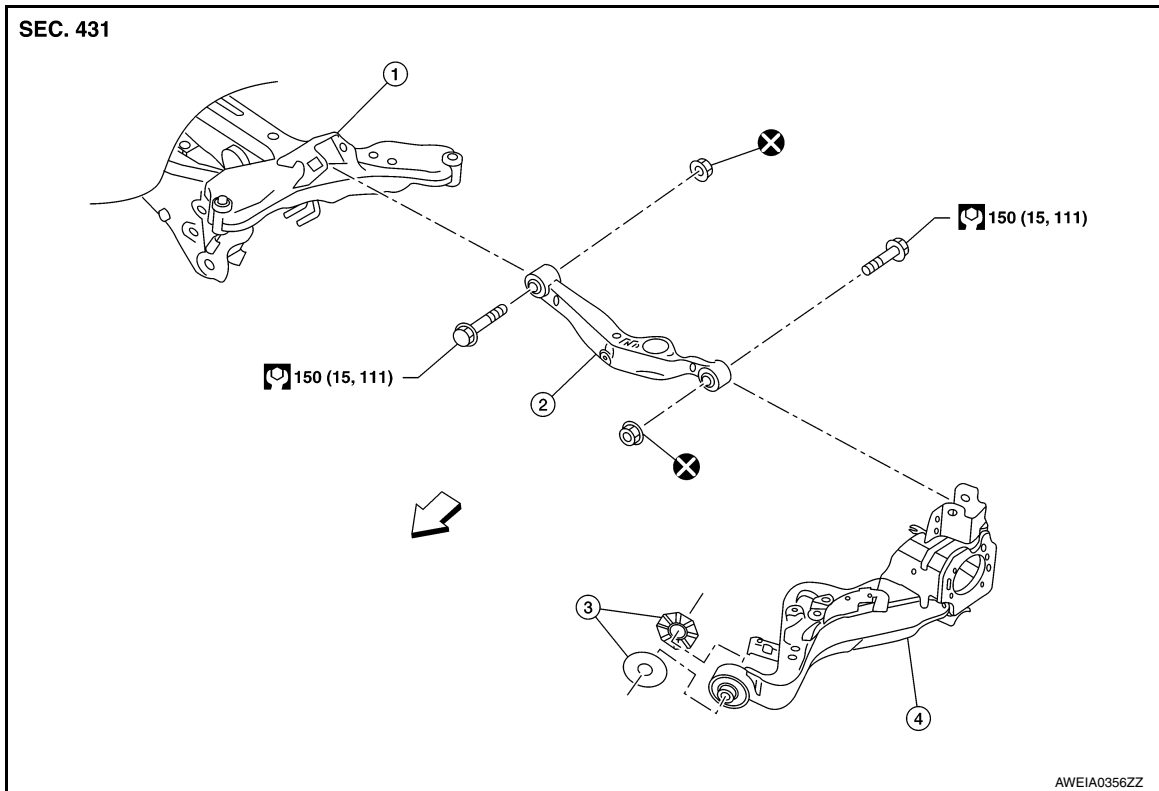
UPPER LINK

< REMOVAL AND INSTALLATION >

UPPER LINK

Exploded View

INFOID:000000009797565



- | | | |
|---------------------------|---------------|--------------------------|
| 1. Rear suspension member | 2. Upper link | 3. Rubber washer (LH/RH) |
| 4. Rear suspension arm | ← Front | |

Removal and Installation

INFOID:000000009797566

REMOVAL

1. Remove wheel and tire using power tool. Refer to [WT-60, "Exploded View"](#)
2. Remove rear wheel sensor and harness from rear suspension arm. Refer to [BRC-133, "REAR WHEEL SENSOR : Exploded View"](#).
CAUTION:
Do not pull on rear wheel sensor harness. Refer to [BRC-135, "REAR SENSOR ROTOR : Removal and Installation - Rear Sensor Rotor"](#)
3. Remove height sensor (if equipped).
4. Disconnect harness connector from the height sensor (if equipped). Refer to [EXL-271, "Removal and Installation - Rear Height Sensor"](#).
5. Set suitable jack under rear suspension arm to relieve the coil spring tension.
6. Remove upper link, nut, and bolt from suspension arm with power tool.
7. Remove upper link, nut, and bolt from suspension member with power tool.
8. Perform the inspection after removal. Refer to [RSU-20, "Inspection"](#).

INSTALLATION

Installation is in the reverse order of removal.

- Perform final tightening of rear suspension member and axle installation position under unladen conditions with tires on level ground.
- After installation, perform headlamp initialization. Refer to [EXL-223, "Diagnosis Procedure"](#).
- Adjust the neutral position of the steering angle sensor. Refer to [BRC-70, "Work Procedure"](#).
- Perform the inspection after installation. Refer to [RSU-20, "Inspection"](#).

UPPER LINK

< REMOVAL AND INSTALLATION >

Inspection

INFOID:000000009797567

INSPECTION AFTER REMOVAL

Check upper link and bushing for any deformation, cracks, or damage. Replace it if necessary.

INSPECTION AFTER INSTALLATION

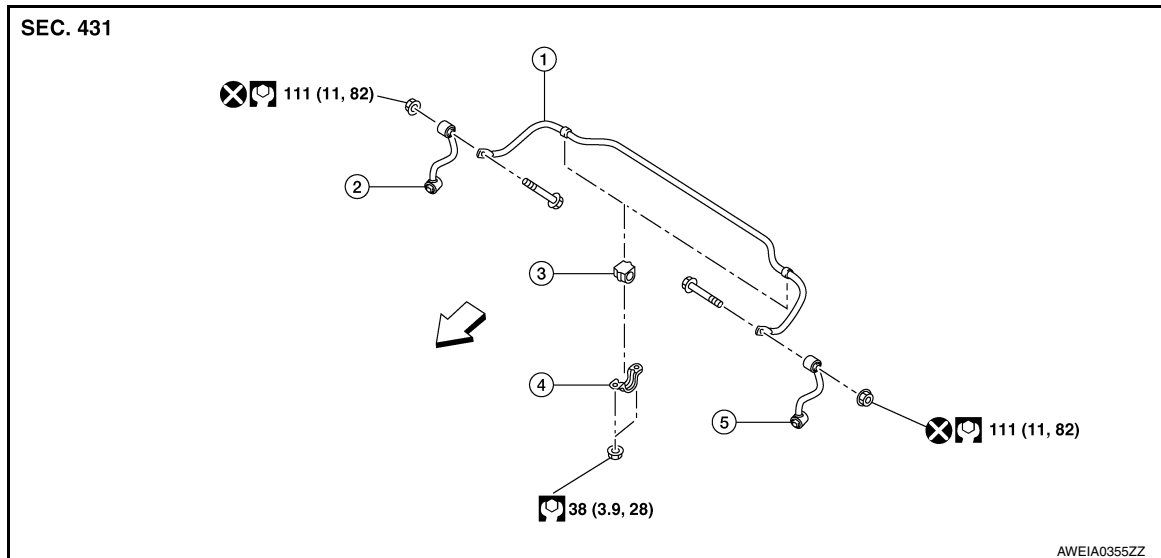
Check wheel alignment. Refer to [RSU-6, "Inspection"](#).

< REMOVAL AND INSTALLATION >

REAR STABILIZER

Exploded View

INFOID:000000009797568



1. Rear stabilizer bar 2. Connecting rod (RH) 3. Rear stabilizer bar bushing
4. Rear stabilizer bar clamp 5. Connecting rod (LH) Front

Removal and Installation

INFOID:0000000009797569

REMOVAL

1. Disconnect rear stabilizer links from rear stabilizer bar.
2. Remove nuts on rear stabilizer clamp.
3. Remove rear stabilizer bar from rear suspension member.
4. Remove rear stabilizer bushings from rear stabilizer bar (if necessary).
5. Perform the inspection after removal. Refer to [RSU-21, "Inspection"](#).

INSTALLATION

Installation is in the reverse order of removal.

Inspection

INFOID:000000009797570

INSPECTION AFTER REMOVAL

Check rear stabilizer bar, rear stabilizer link, rear stabilizer bushing and rear stabilizer clamp for deformation, cracks or damage. Replace it if necessary.

REAR SUSPENSION MEMBER

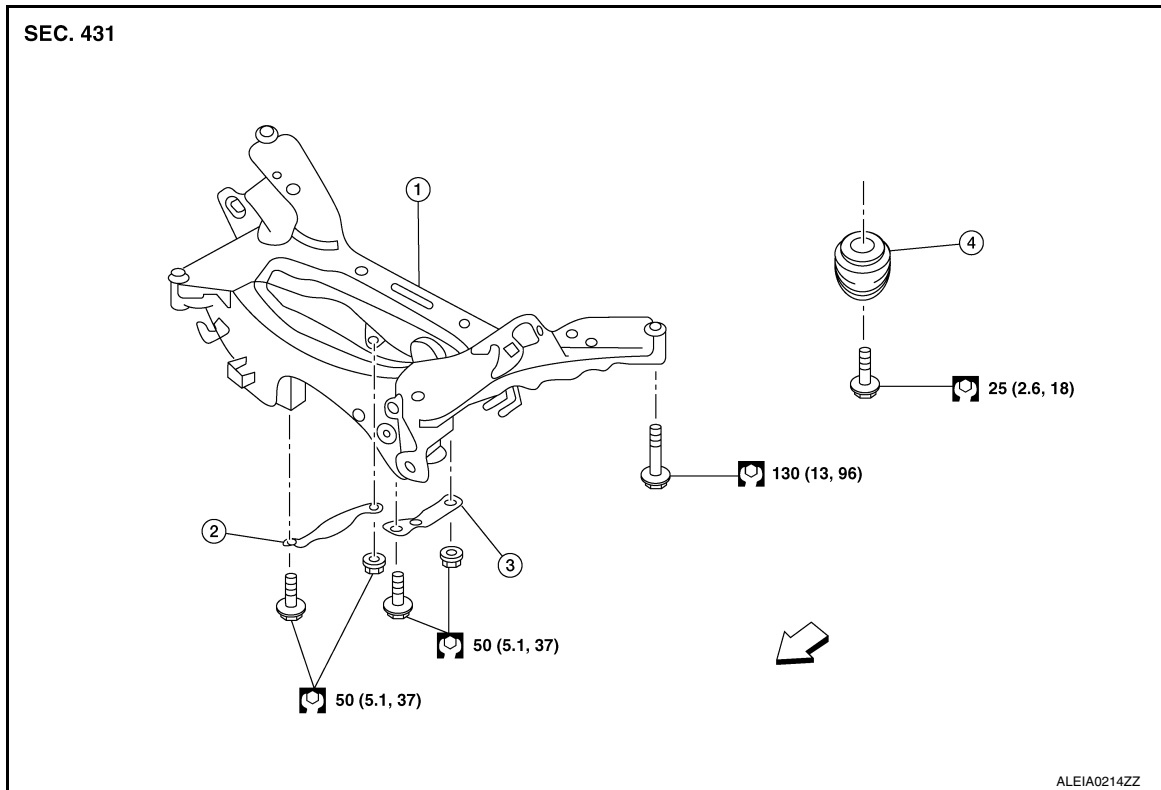
< UNIT REMOVAL AND INSTALLATION >

UNIT REMOVAL AND INSTALLATION

REAR SUSPENSION MEMBER

Exploded View

INFOID:000000009797571



- | | | |
|---------------------------|--------------------------------|--------------------------------|
| 1. Rear suspension member | 2. Suspension member stay (RH) | 3. Suspension member stay (LH) |
| 4. Bound bumper | ↔ Front | |

Removal and Installation - FWD

INFOID:0000000010350731

REMOVAL

1. Remove wheel and tires using power tool. Refer to [WT-60, "Exploded View"](#).
2. Remove muffler assembly. Refer to [EX-5, "Exploded View"](#).
3. Remove coil spring. Refer to [RSU-8, "Removal and Installation - FWD"](#).
4. Remove lower link. Refer to [RSU-17, "Removal and Installation"](#).
5. Remove upper link. Refer to [BR-43, "BRAKE CALIPER ASSEMBLY : Removal and Installation"](#).
6. Remove rear stabilizer bar. Refer to [RSU-21, "Removal and Installation"](#).
7. Remove rear shock absorber. Refer to [RSU-14, "Removal and Installation"](#).
8. Set suitable jack under rear suspension member.
9. Remove bolts from rear suspension member.
10. Slowly lower suitable jack and remove rear suspension member.

CAUTION:

Secure suspension assembly to a suitable jack while removing it.

INSTALLATION

Installation is in the reverse order of the removal.

- When installing suspension member stay, face each arrow on the part toward the inside of the vehicle.
- Align the matching marks made during removal when reusing the disc brake rotor.

REAR SUSPENSION MEMBER

< UNIT REMOVAL AND INSTALLATION >

- Perform the final tightening of each parts removed when removing rear suspension assembly under unladen conditions.
- Check wheel sensor harness for proper connection. Refer to [BRC-133, "REAR WHEEL SENSOR : Exploded View"](#).

Removal and Installation - AWD

INFOID:000000009797572

REMOVAL

1. Remove wheel and tires using power tool. Refer to [WT-60, "Exploded View"](#).
2. Remove muffler assembly. Refer to [EX-5, "Exploded View"](#).
3. Remove coil spring. Refer to [RSU-10, "Removal and Installation - AWD"](#).
4. Remove lower link. Refer to [RSU-17, "Removal and Installation"](#).
5. Remove upper link. Refer to [BR-43, "BRAKE CALIPER ASSEMBLY : Removal and Installation"](#).
6. Remove rear stabilizer bar. Refer to [RSU-21, "Removal and Installation"](#).
7. Remove rear drive shaft. Refer to [RAX-19, "Removal and Installation"](#).
8. Remove rear propeller shaft. Refer to [DLN-99, "Removal and Installation"](#).
9. Remove rear final drive. Refer to [DLN-119, "Removal and Installation"](#).
10. Remove rear shock absorber. Refer to [RSU-14, "Removal and Installation"](#).
11. Set suitable jack under rear suspension member.
12. Remove bolts from rear suspension member.
13. Slowly lower suitable jack and remove rear suspension member.

CAUTION:

Secure suspension assembly to a suitable jack while removing it.

14. Perform the inspection after removal. Refer to [RSU-23, "Inspection"](#).

INSTALLATION

Installation is in the reverse order of the removal.

- When installing suspension member stay, face each arrow on the part toward the inside of the vehicle.
- Align the matching marks made during removal when reusing the disc brake rotor.
- Perform the final tightening of each parts removed when removing rear suspension assembly under unladen conditions.
- Check wheel sensor harness for proper connection. Refer to [BRC-133, "REAR WHEEL SENSOR : Exploded View"](#).
- Perform the inspection after installation. Refer to [RSU-20, "Inspection"](#).

Inspection

INFOID:000000009797573

INSPECTION AFTER REMOVAL

Check rear suspension member for deformation, cracks, or any other damage. Replace it if necessary.

INSPECTION AFTER INSTALLATION

1. Adjust parking brake operation. Refer to [PB-4, "Inspection and Adjustment"](#).
2. Check wheel alignment. Refer to [RSU-6, "Inspection"](#).

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

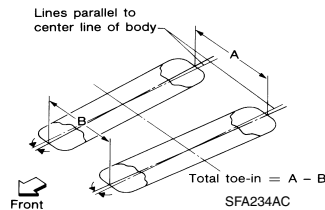
SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

Wheel Alignment (Unladen*¹)

INFOID:0000000010275666

Drive Type		FWD	AWD
Camber Degree minute (Decimal degree)	Minimum	-0° 10' (-0.17°)	0° 10' (0.17°)
	Nominal	-0° 55' (-0.92°)	-0° 35' (-0.58°)
	Maximum	-1° 40' (-1.67°)	-1° 20' (-1.33°)



Total toe-in	Distance (A - B)	Minimum	In 2 mm (In 0.08 in)	
		Nominal	In 4 mm (In 0.12 in)	In 2.0 mm (0.08 in)
		Maximum	In 6 mm (In 0.24 in)	
	Angle (LH and RH)* ² Degree minute (Decimal degree)	Minimum	In 0° 10' (In 0.17°)	Out 0° 15' (Out 0.25°)
		Nominal	In 0° 20' (In 0.33°)	In 0° 10' (In 0.17°)
		Maximum	In 0° 30' (In 0.50°)	In 0° 35' (In 0.58°)

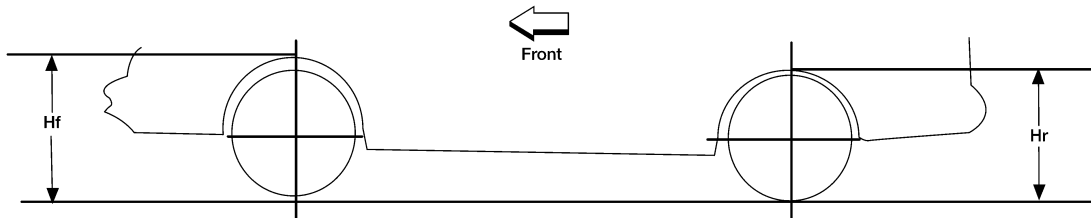
*1: Fuel, engine coolant, and lubricants are full. Spare tire, jack, hand tools, and mats are in designated positions.

*2: Since an adjustment mechanism is not included, the value of the left and right wheels must be used as the standard value.

Wheelarch Height (Unladen*)

INFOID:0000000010275667

Unit: mm (in)



LEIA0085E

Axle type Body type	FWD			AWD		
	2 ROW		3 ROW	2 ROW		3 ROW
Tire size	225/65R17	225/60R18	225/65R17 RF	225/65R17	225/60R18	225/65R17 RF
Front (Hf)	788 (31.02)	792 (31.18)	791 (31.14)	798 (31.42)	801 (31.54)	801 (31.54)
Rear (Hr)	787 (30.98)	789 (31.06)	787 (30.98)	796 (31.34)	798 (31.42)	796 (31.34)

*: Fuel, engine coolant, and lubricants are full. Spare tire, jack, hand tools, and mats are in designated positions.

SECTION **SB** SEAT BELT

CONTENTS

PRECAUTION	2	
PRECAUTIONS	2	
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	2	
Precaution for Seat Belt Service	2	
Precaution for Work	2	
PREPARATION	4	
PREPARATION	4	
Special Service Tool	4	
BASIC INSPECTION	5	
COMPONENT INSPECTION	5	
Inspection	5	
REMOVAL AND INSTALLATION	8	
FRONT SEAT BELT	8	
Exploded View	8	
SEAT BELT RETRACTOR	8	
SEAT BELT RETRACTOR : Removal and Installation	8	
SEAT BELT HEIGHT ADJUSTER	10	
SEAT BELT HEIGHT ADJUSTER : Removal and Installation	10	
FRONT SEAT BELT BUCKLE	10	
FRONT SEAT BELT BUCKLE : Removal and Installation	11	
SECOND ROW SEAT BELT	12	
Exploded View	12	
SEAT BELT RETRACTOR	12	
SEAT BELT RETRACTOR : Removal and Installation	12	
SEAT BELT BUCKLE	14	
SEAT BELT BUCKLE : Removal and Installation....	14	
THIRD ROW SEAT BELT	17	
Exploded View	17	
SEAT BELT RETRACTOR	17	
SEAT BELT RETRACTOR : Removal and Installation	17	
SEAT BELT BUCKLE	18	
SEAT BELT BUCKLE : Removal and Installation....	18	
LATCH (LOWER ANCHORS AND TETHER FOR CHILDREN) SYSTEM	19	
Removal and Installation	19	
TOP TETHER STRAP CHILD RESTRAINT	20	
Removal and Installation	20	

PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010308711

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Precaution for Seat Belt Service

INFOID:0000000010195843

CAUTION:

- Before removing the seat belt pre-tensioner assembly, turn the ignition switch OFF, disconnect both battery terminals and wait at least three minutes. For approximately three minutes after the battery terminals have been removed, it is still possible for the air bag and seat belt pre-tensioner to deploy. Therefore, do not attempt work on any SRS connectors or wires until at least three minutes have passed.
- After replacing or reinstalling seat belt pre-tensioner assembly or reconnecting seat belt pre-tensioner assembly connector, make sure entire SRS operates properly. Refer to [SRC-16, "On Board Diagnosis Function"](#).
- Do not disassemble buckle or seat belt assembly.
- Replace anchor bolts if they are deformed or worn out.
- Do not oil tongue or buckle.
- If any component of seat belt assembly is questionable, do not repair. Replace the whole seat belt assembly.
- If webbing is cut, frayed or damaged, replace seat belt assembly.
- When replacing seat belt assembly, use a genuine NISSAN seat belt assembly.

Precaution for Work

INFOID:0000000010195844

- When removing or disassembling each component, be careful not to damage or deform it. If a component may be subject to interference, be sure to protect it with a shop cloth.
- When removing (disengaging) components with a screwdriver or similar tool, be sure to wrap the component with a shop cloth or vinyl tape to protect it.
- Protect the removed parts with a shop cloth and prevent them from being dropped.
- Replace a deformed or damaged clip.
- If a part is specified as a non-reusable part, always replace it with a new one.
- Be sure to tighten bolts and nuts securely to the specified torque.
- After installation is complete, be sure to check that each part works properly.

PRECAUTIONS

< PRECAUTION >

- Follow the steps below to clean components:
- Water soluble dirt:
 - Dip a soft cloth into lukewarm water, wring the water out of the cloth and wipe the dirty area.
 - Then rub with a soft, dry cloth.
- Oily dirt:
 - Dip a soft cloth into lukewarm water with mild detergent (concentration: within 2 to 3%) and wipe the dirty area.
 - Then dip a cloth into fresh water, wring the water out of the cloth and wipe the detergent off.
 - Then rub with a soft, dry cloth.
- Do not use organic solvent such as thinner, benzene, alcohol or gasoline.
- For genuine leather seats, use a genuine leather seat cleaner.

A

B

C

D

E

F

G

SB

I

J

K

L

M

N

O

P

PREPARATION

< PREPARATION >

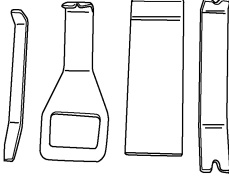
PREPARATION

PREPARATION

Special Service Tool

INFOID:0000000010195845

The actual shape of the tools may differ from those illustrated here.

Tool number (TechMate No.) Tool name	Description
— (J-46534) Trim Tool Set  AWJIA0483ZZ	Removing trim components

BASIC INSPECTION

COMPONENT INSPECTION

Inspection

INFOID:0000000010308708

AFTER A COLLISION

WARNING:

Inspect all seat belt assemblies including retractors and attaching hardware after any collision. NISSAN/INFINITI recommends that all seat belt assemblies in use during a collision be replaced unless the collision was minor and the belts show no damage and continue to operate properly. Failure to do so could result in serious personal injury in an accident. Seat belt assemblies not in use during a collision should also be replaced if either damage or improper operation is noted. Seat belt pre-tensioners should be replaced even if the seat belts are not in use during a frontal collision in which the air bags are deployed.

Replace any seat belt assembly (including anchor bolts) if:

- The seat belt was in use at the time of a collision (except for minor collisions and the belts, retractors and buckles show no damage and continue to operate properly).
- The seat belt was damaged in an accident (i.e. torn webbing, bent retractor or guide, etc.).
- The seat belt attaching point is damaged in an accident. Inspect the seat belt attaching area for damage or distortion and repair if necessary before installing a new seat belt assembly.
- Anchor bolts are deformed or worn out.
- The seat belt pre-tensioner should be replaced even if the seat belts are not in use during the collision in which the air bags are deployed.

PRELIMINARY CHECKS

1. Check the seat belt warning lamp for proper operation per the following:
 - a. Turn ignition switch ON. The seat belt warning lamp should illuminate.
 - b. Fasten driver seat belt. The seat belt warning lamp should turn OFF.
 2. If the air bag warning lamp is blinking, perform self-diagnosis with CONSULT and air bag warning lamp. Refer to [SRC-18, "Trouble Diagnosis with CONSULT"](#).
 3. Check that the seat belt retractor, seat belt anchor and buckle bolts are tightened firmly.
 4. Check the shoulder seat belt guide and shoulder belt height adjuster for front seats. Check that guide swivels freely and that webbing lays flat and does not bind in guide. Check that height adjuster operates properly and holds securely.
 5. Check retractor operation:
 - a. Fully extend the seat belt webbing and check for twists, tears or other damage.
 - b. Allow the seat belt to retract. Check that webbing returns smoothly and completely into the retractor. If the seat belt does not return smoothly, wipe the inside of the loops with a clean paper cloth. Dirt build-up in the loops of the upper anchors can cause the seat belts to retract slowly.
 - c. Fasten the seat belt. Check that seat belt returns smoothly and completely to the retractor. If the webbing does not return smoothly, the cause may be an accumulation of dust or dirt. Use the "SEAT BELT TAPE SET" and perform the following steps.
 - d. Inspect the front seat belt D-ring anchor
 1. Pull the seat belt out to a length of 500 mm (19.69 in) or more.
 2. Hold the seat belt at the center pillar webbing opening with a clip or other device.
 3. Pass a thin wire through the D-ring anchor webbing opening. Hold both ends of the wire and pull it tightly while moving it up and down several times along the webbing opening surface to remove dirt stuck there.
 4. Any dirt that cannot be removed with the wire can be removed by cleaning the opening with a clean cloth.
 5. Apply tape at the point where the webbing contacts the D-ring anchor webbing opening.
- NOTE:**
Apply the tape so that there is no slack or wrinkling.
6. Remove the clip holding the seat belt and check that the webbing returns smoothly.
 6. Repeat steps above if necessary to check the other seat belts.

COMPONENT INSPECTION

< BASIC INSPECTION >

SEAT BELT RETRACTOR ON-VEHICLE CHECK

Emergency Locking Retractors (ELR) and Automatic Locking Retractors (ALR)

NOTE:

All seat belt retractors are Emergency Locking Retractors (ELR) type. In an emergency (sudden stop) the retractor will lock and prevent the webbing from extending any further. All 3-point type seat belt retractors except the driver seat belt also have an Automatic Locking Retractors (ALR) mode. The ALR mode (also called child restraint mode) is used when installing child seats. The ALR mode is activated when the seat belt is fully extended. When the webbing is then retracted partially, the ALR mode automatically locks the seat belt in a specific position so the webbing cannot be extended any further. To cancel the ALR mode, allow the seat belt to fully wind back into the retractor.

Check the seat belt retractors with the following test(s) to determine if a retractor assembly is operating properly.

ELR Function Stationary Check

Grasp the shoulder webbing and pull forward quickly. The retractor should lock and prevent the belt from extending further.

ALR Function Stationary Check

1. Pull out the entire length of seat belt from retractor until a click is heard.
2. Retract the webbing partially. A clicking noise should be heard as the webbing retracts, indicating that the retractor is in the Automatic Locking Retractors (ALR) mode.
3. Grasp the seat belt and try to pull out the retractor. The webbing must lock and not extend any further. If it does not operate normally, replace the retractor assembly.
4. Allow the entire length of the webbing to retract to cancel the automatic locking mode.

ELR Function Moving Check

WARNING:

Perform the following test in a safe, open area clear of other vehicles and obstructions (for example, a large, empty parking lot). Road surface must be paved and dry. Do not perform the following test on wet or gravel roads or on public streets and highways. This could result in an accident and serious personal injury. The driver and passenger must be prepared to brace themselves in the event that the retractor does not lock.

1. Fasten driver seat belt. Buckle a passenger into the seat for the belt that is to be tested.
2. Proceed to the designated safe area.
3. Drive the vehicle at approximately 16 km/h (10 mph). Notify any passengers of a pending sudden stop and the driver and passenger must be prepared to brace themselves in the event that the retractor does not lock. Apply brakes firmly and make a very hard stop.

During stopping, seat belts should lock and not be extended. If the seat belt retractor assembly does not lock, perform the retractor off-vehicle check.

FRONT SEAT BELT RETRACTOR OFF-VEHICLE CHECK

1. Remove the front seat belt retractor. Refer to [SB-8, "SEAT BELT RETRACTOR : Removal and Installation"](#).
2. Slowly pull out webbing while tilting the seat belt retractor forward from the mounted position without twisting the seat belt retractor as shown.

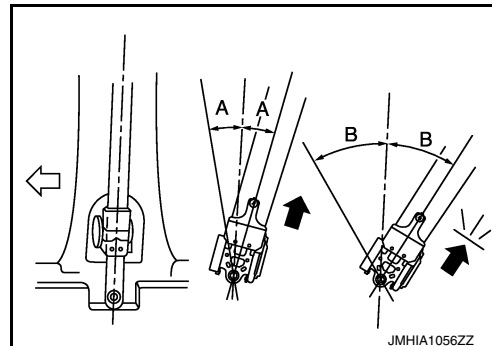
A : The webbing can be pulled out if the retractor is tilted 12° degree or less.

B : The webbing can not be pulled out if the retractor is tilted 27° degrees or more.

NOTE:

A and B show tilting angles.

⇐: Front



3. Replace the seat belt retractor if it does not operate within specifications.

COMPONENT INSPECTION

< BASIC INSPECTION >

REAR SEAT BELT (LH/RH) RETRACTOR OFF-VEHICLE CHECK

1. Remove the seat belt retractor. Refer to [SB-12, "SEAT BELT RETRACTOR : Removal and Installation"](#).
2. Slowly pull out webbing while tilting the seat belt retractor forward from the mounted position without twisting the seat belt retractor as shown.

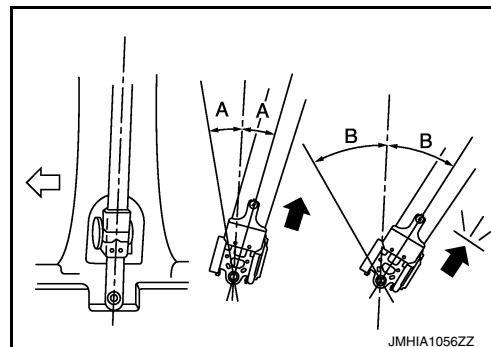
A : The webbing can be pulled out if the retractor is tilted 12° degree or less.

B : The webbing can not be pulled out if the retractor is tilted 27° degrees or more.

NOTE:

A and B show tilting angles.

⇐: Front



3. Replace the seat belt retractor if it does not operate within specifications.

REAR SEAT BELT RETRACTOR (Center) OFF-VEHICLE CHECK

1. Remove the seat belt retractor. Refer to [SB-12, "SEAT BELT RETRACTOR : Removal and Installation"](#).
2. Slowly pull out webbing while tilting the seat belt retractor forward from the mounted position without twisting the seat belt retractor as shown.

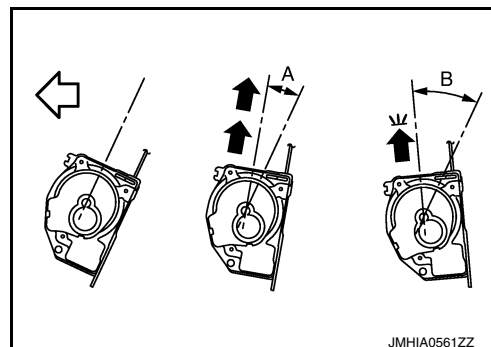
A : The webbing can be pulled out if the retractor is tilted 12° degree or less.

B : The webbing can not be pulled out if the retractor is tilted 27° degrees or more.

NOTE:

A and B show tilting angles.

⇐: Front



3. Replace the seat belt retractor if it does not operate within specifications.

THIRD ROW SEAT BELT (LH/RH) RETRACTOR OFF-VEHICLE CHECK

1. Remove the seat belt retractor. Refer to [SB-17, "SEAT BELT RETRACTOR : Removal and Installation"](#).
2. Slowly pull out webbing while tilting the seat belt retractor forward from the mounted position without twisting the seat belt retractor as shown.

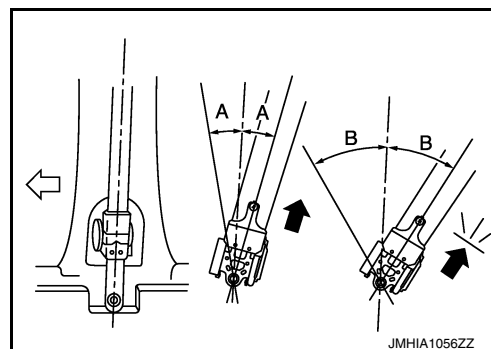
A : The webbing can be pulled out if the retractor is tilted 12° degree or less.

B : The webbing can not be pulled out if the retractor is tilted 27° degrees or more.

NOTE:

A and B show tilting angles.

⇐: Front



3. Replace the seat belt retractor if it does not operate within specifications.

FRONT SEAT BELT

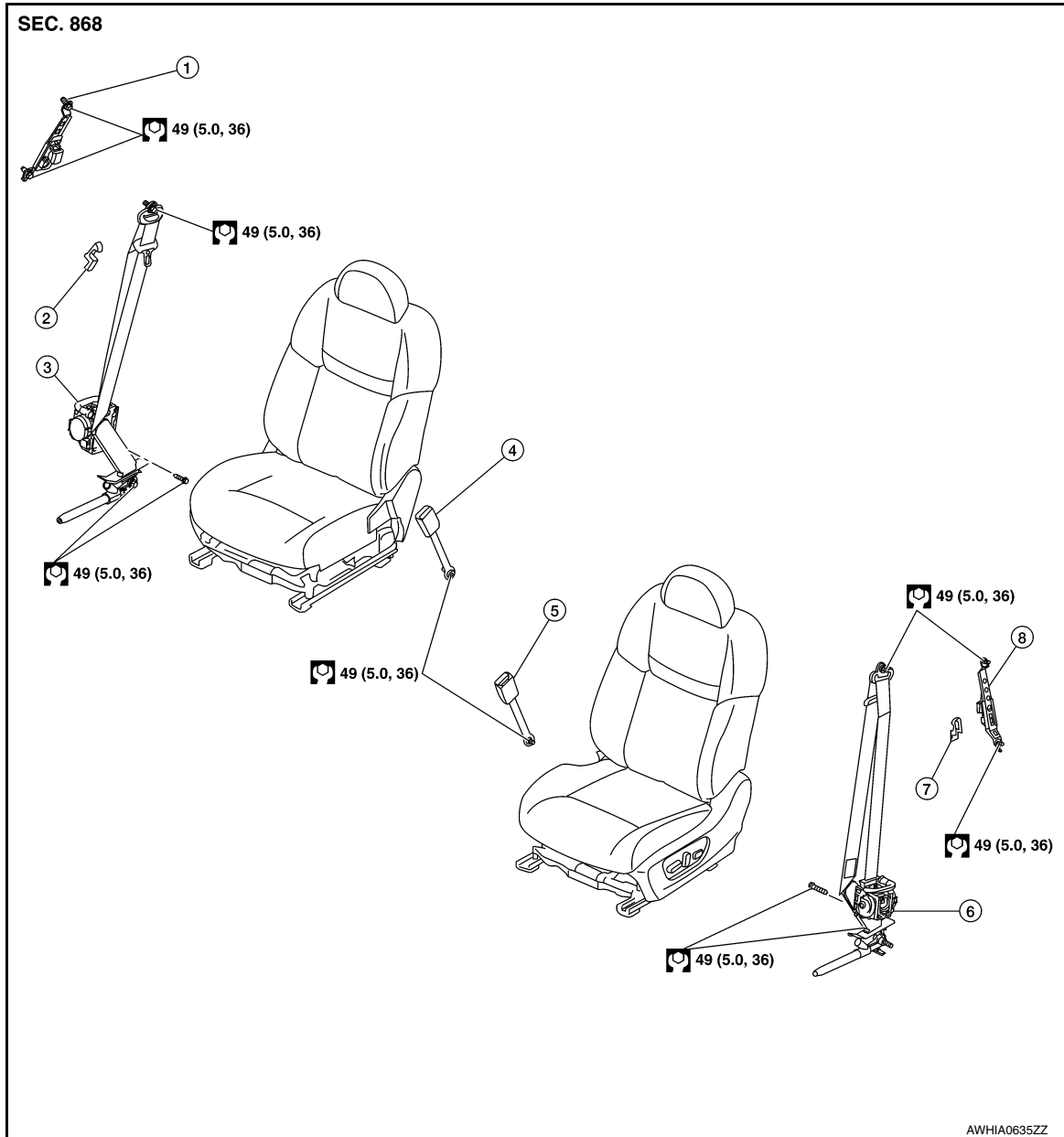
< REMOVAL AND INSTALLATION >

REMOVAL AND INSTALLATION

FRONT SEAT BELT

Exploded View

INFOID:000000009796104



SEAT BELT RETRACTOR

SEAT BELT RETRACTOR : Removal and Installation

INFOID:000000009796105

REMOVAL

WARNING:

FRONT SEAT BELT

< REMOVAL AND INSTALLATION >

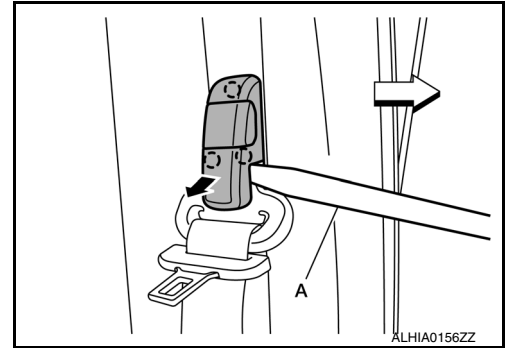
- Before servicing the SRS, turn the ignition switch off, disconnect both battery terminals then wait at least three minutes.
- Do not drop the seat belt retractor. Always handle it with care.
- Always point pre-tensioner cylinder away from body when handling.

1. Remove front seat. Refer to [SE-32, "DRIVER SIDE : Removal and Installation"](#) (Driver side) or [SE-35, "PASSENGER SIDE : Removal and Installation"](#) (Passenger side).
2. Remove the center pillar lower finisher. Refer to [INT-22, "CENTER PILLAR LOWER FINISHER : Removal and Installation"](#).

3. Release pawls, using a suitable tool (A) and remove the shoulder anchor cover.

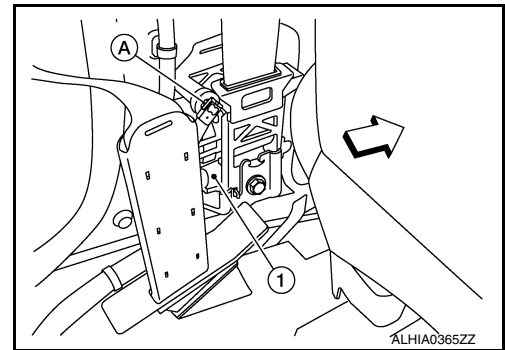
⦿: Pawl

⇨: Front



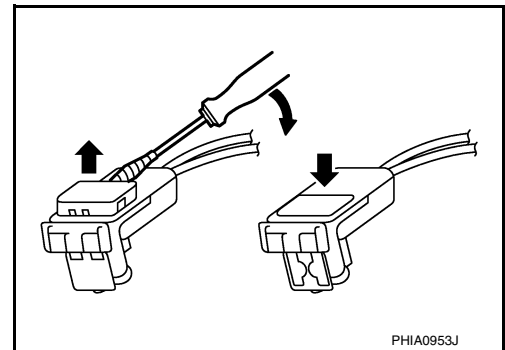
4. Remove the D-ring anchor bolt.
5. Disconnect the harness connector (A) from the seat belt pre-tensioner (1).

⇨: Front



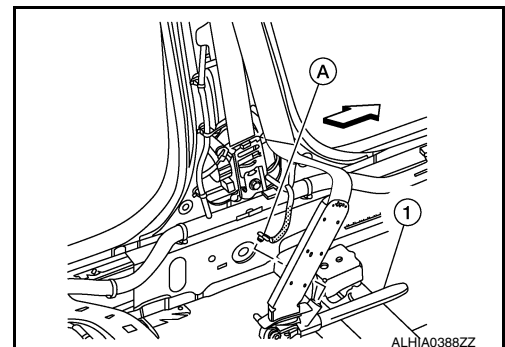
CAUTION:

- For removing/installing the shoulder belt pre-tensioner harness connector, insert a thin screwdriver wrapped in tape into the notch, then lift the lock and remove the harness connector as shown.
- Install the harness connector with the lock raised, and push the lock into the harness connector as shown.
- After installing the harness connector, check that the lock is pushed in securely.



6. Disconnect the harness connector (A) from the lap belt pre-tensioner (1).

⇨: Front

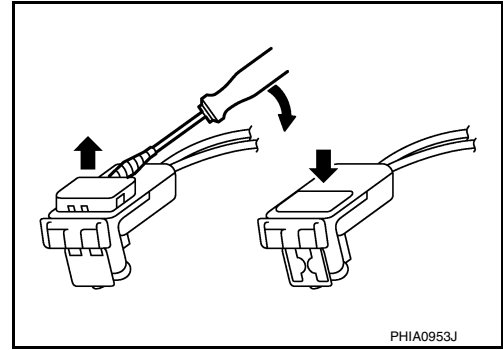


FRONT SEAT BELT

< REMOVAL AND INSTALLATION >

CAUTION:

- For removing/installing the lap belt pre-tensioner harness connector, insert a thin screwdriver wrapped in tape into the notch, then lift the lock and remove the harness connector as shown.
- Install the harness connector with the lock raised, and push the lock into the harness connector as shown.
- After installing the harness connector, check that the lock is pushed in securely.



7. Remove seat belt retractor bolt and lap belt pre-tensioner bolt and remove seat belt retractor.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Tighten the D-ring Anchor bolt and seat belt retractor bolts to specification. Refer to [SB-8, "Exploded View"](#).
- Tighten the lap belt pre-tensioner bolts to specification. Refer to [SB-8, "Exploded View"](#).
- Make sure that the seat belt height adjuster is locked in the lowest position and is aligned with the center pillar upper finisher opening during installation.
- Make sure both the D-ring anchor and seat belt height adjuster operate freely.
- Always perform an inspection after repair to make sure the system is functioning within specifications. Refer to [SB-5, "Inspection"](#).

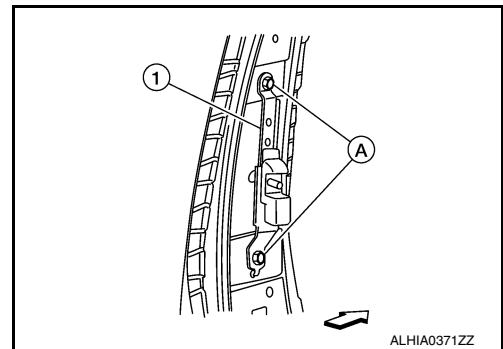
SEAT BELT HEIGHT ADJUSTER

SEAT BELT HEIGHT ADJUSTER : Removal and Installation

INFOID:000000010245790

REMOVAL

1. Remove center pillar upper finisher. Refer to [INT-21, "CENTER PILLAR UPPER FINISHER : Removal and Installation"](#).
2. Remove the seat belt height adjuster bolts (A) and seat belt height adjuster (1).
↳ Front



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Make sure that the seat belt height adjuster is locked in the lowest position and is aligned with the center pillar upper finisher opening during installation.
- Tighten the D-ring anchor bolt and seat belt height adjuster bolts to specification. Refer to [SB-8, "Exploded View"](#).
- Make sure both the D-ring anchor and seat belt height adjuster operate freely.
- Always perform an inspection after repair to make sure the system is functioning within specifications. Refer to [SB-5, "Inspection"](#).

FRONT SEAT BELT BUCKLE

FRONT SEAT BELT

< REMOVAL AND INSTALLATION >

FRONT SEAT BELT BUCKLE : Removal and Installation

INFOID:000000009796108

REMOVAL

1. Remove front seat. Refer to [SE-32, "DRIVER SIDE : Removal and Installation"](#) (Driver side) or [SE-35, "PASSENGER SIDE : Removal and Installation"](#) (Passenger side).
2. Disconnect seat belt buckle harness connector.
3. Remove seat belt buckle anchor bolt and seat belt buckle.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Tighten the seat belt buckle anchor bolt to specification. Refer to [SB-8, "Exploded View"](#).
- Always perform an inspection after repair to make sure the system is functioning within specifications. Refer to [SB-5, "Inspection"](#).

A
B
C
D
E
F
G
SB
I
J
K
L
M
N
O
P

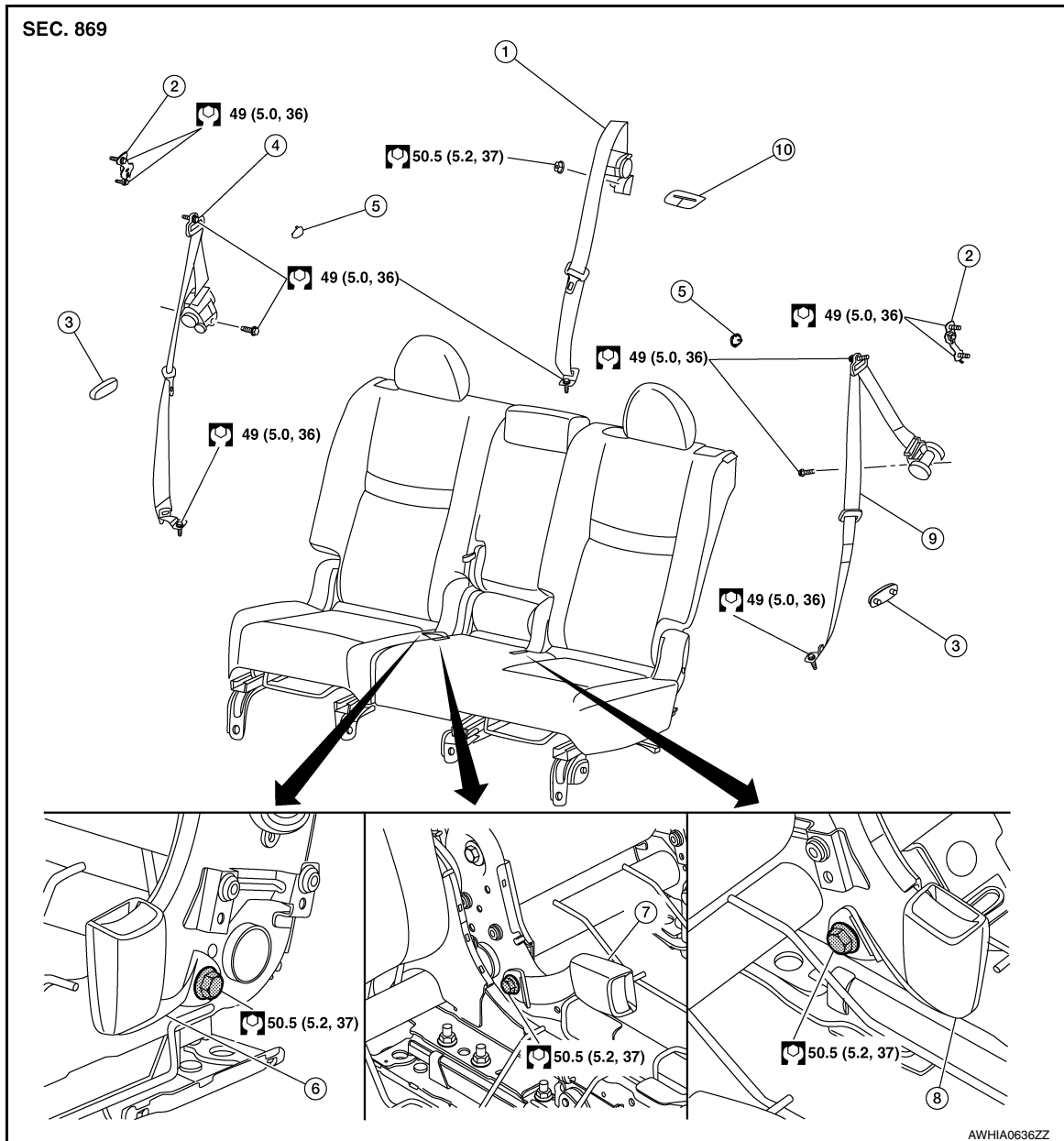
SECOND ROW SEAT BELT

< REMOVAL AND INSTALLATION >

SECOND ROW SEAT BELT

Exploded View

INFOID:000000009796110



SEAT BELT RETRACTOR

SEAT BELT RETRACTOR : Removal and Installation

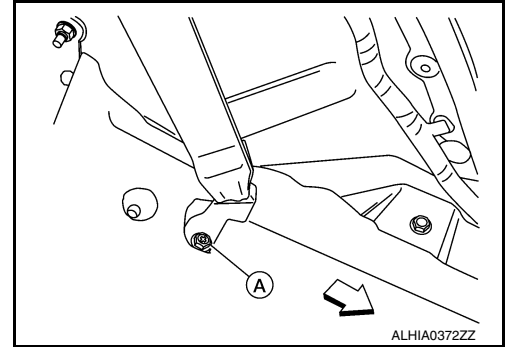
INFOID:000000009796111

SEAT BELT RETRACTOR - (LH/RH)

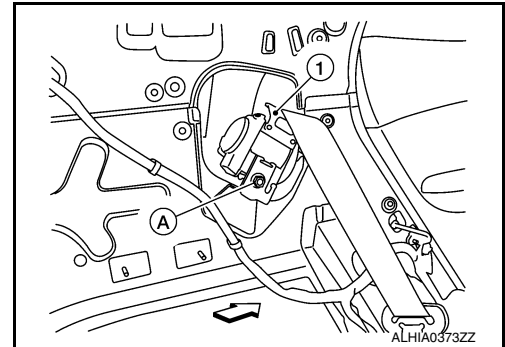
SECOND ROW SEAT BELT

< REMOVAL AND INSTALLATION >

1. Remove luggage side upper finisher. Refer to [INT-36. "LUGGAGE SIDE UPPER FINISHER : Removal and Installation"](#).
2. Remove second row seat. Refer to [SE-39. "Removal and Installation"](#).
3. Remove lower anchor bolt (A).
⇐: Front



4. Remove seat belt retractor bolt (A) and remove seat belt retractor (1).
⇐: Front



INSTALLATION

Installation is in the reverse order of removal.

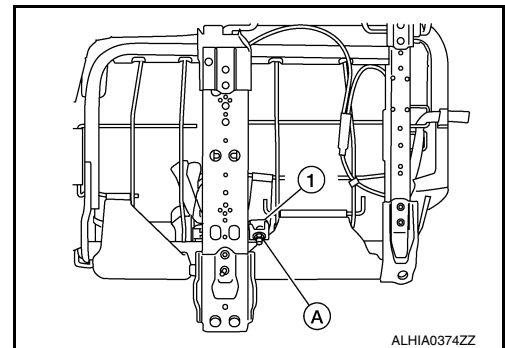
CAUTION:

- Tighten the D-ring anchor bolt, seat belt retractor bolt, and lower anchor bolt to specification. Refer to [SB-12. "Exploded View"](#).
- Make sure the D-ring anchor operates freely.
- Always perform an inspection after repair to make sure the system is functioning within specifications. Refer to [SB-5. "Inspection"](#).

SEAT BELT RETRACTOR - (CENTER)

Removal

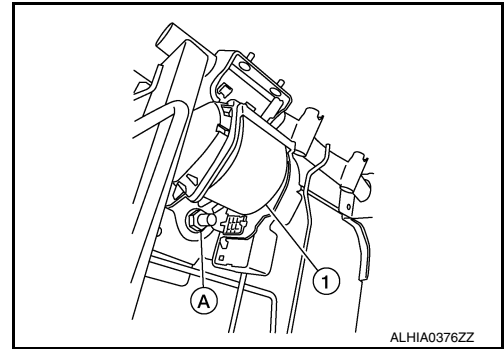
1. Remove seatback pad and seatback trim (LH). Refer to [SE-65. "LH SEAT : Seatback"](#).
2. Remove seat belt retractor lower anchor nut (A), then route seat belt retractor (1) through seat cushion (LH).



SECOND ROW SEAT BELT

< REMOVAL AND INSTALLATION >

3. Remove seat belt retractor nut (A) and remove seat belt retractor (1) from rear seatback frame (LH).



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Tighten the D-ring anchor bolt, seat belt retractor bolt, and lower anchor bolt to specification. Refer to [SB-12, "Exploded View"](#).
- Make sure the D-ring anchor operates freely.
- Always perform an inspection after repair to make sure the system is functioning within specifications. Refer to [SB-5, "Inspection"](#).

SEAT BELT BUCKLE

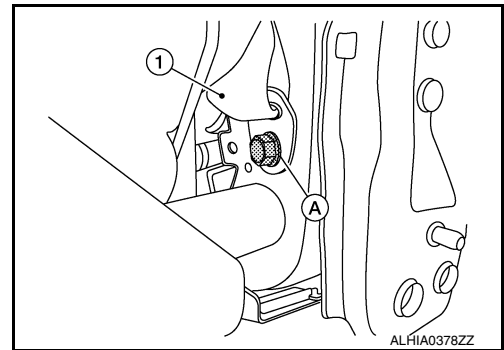
SEAT BELT BUCKLE : Removal and Installation

INFOID:000000009796114

SEAT BELT BUCKLE - (LH)

Removal

1. Remove second row seat (LH). Refer to [SE-39, "Removal and Installation"](#).
2. Remove seat belt buckle (LH) anchor bolt (A), then route seat belt buckle (LH) (1) through seat cushion opening and remove.



Installation

Installation is in the reverse order of removal.

CAUTION:

- Tighten the seat belt buckle anchor bolt to specification. Refer to [SB-12, "Exploded View"](#).
- Always perform an inspection after repair to make sure the system is functioning within specifications. Refer to [SB-5, "Inspection"](#).

SEAT BELT BUCKLE - (CENTER)

Removal

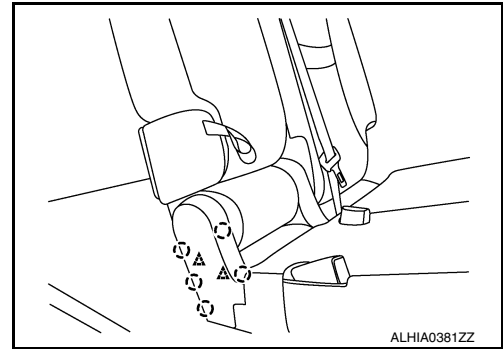
1. Remove second row seat (LH). Refer to [SE-39, "Removal and Installation"](#).

SECOND ROW SEAT BELT

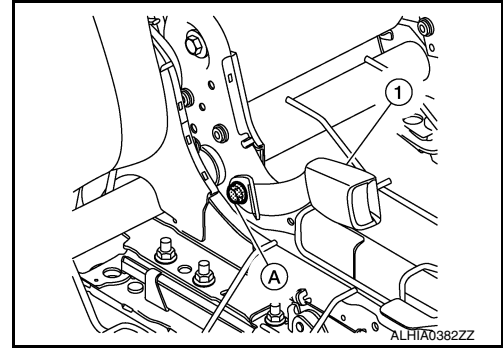
< REMOVAL AND INSTALLATION >

- Using a suitable tool, release clips and pawls, then remove seat cushion outer finisher (RH).

△: Clip
○: Pawl



- Remove second row seat (LH) (center) seat belt buckle anchor bolt (A), then route seat belt buckle (center) (1) through seat cushion opening and remove.



Installation

Installation is in the reverse order of removal.

CAUTION:

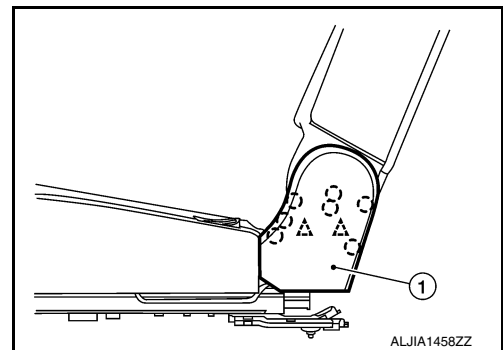
- Tighten the seat belt buckle anchor bolt to specification. Refer to [SB-12, "Exploded View"](#).
- Always perform an inspection after repair to make sure the system is functioning within specifications. Refer to [SB-5, "Inspection"](#).

SEAT BELT BUCKLE - (RH)

Removal

- Remove second row seat (RH). Refer to [SE-39, "Removal and Installation"](#).
- Using a suitable tool release clips and pawls and remove seat cushion outer finisher (LH) (1).

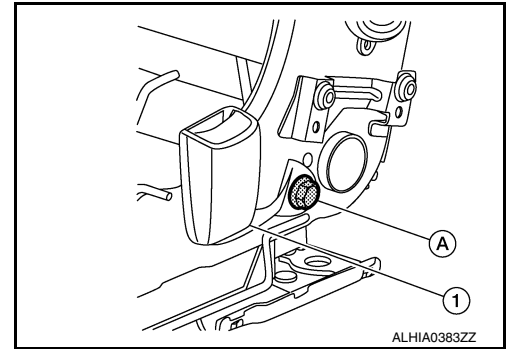
△: Clip
○: Pawl



SECOND ROW SEAT BELT

< REMOVAL AND INSTALLATION >

3. Remove seat belt buckle anchor bolt (A), then route seat belt buckle (RH) (1) through seat cushion and remove.



Installation

Installation is in the reverse order of removal.

CAUTION:

- Tighten the seat belt buckle anchor bolt to specification. Refer to [SB-12, "Exploded View"](#).
- Always perform an inspection after repair to make sure the system is functioning within specifications. Refer to [SB-5, "Inspection"](#).

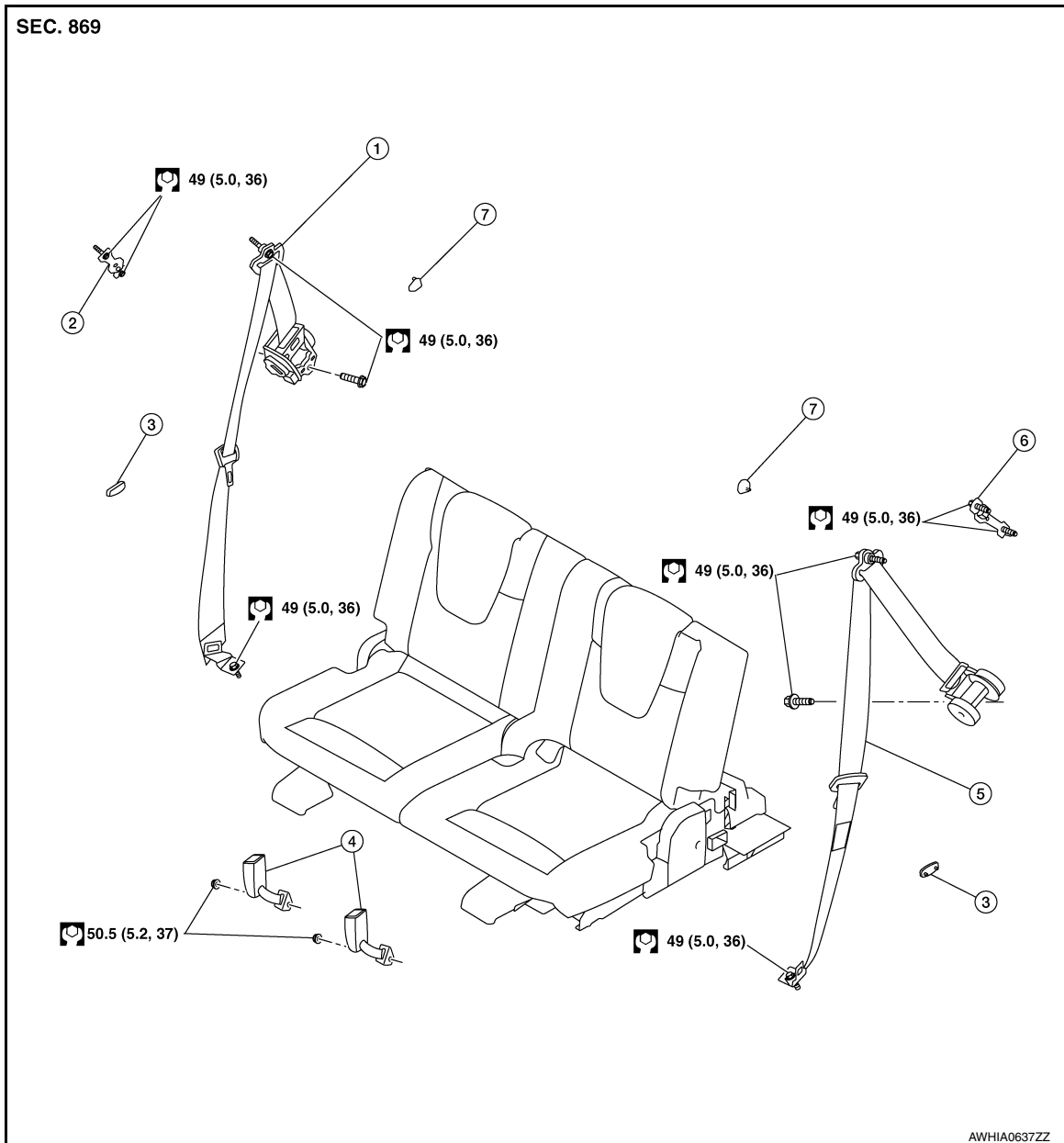
THIRD ROW SEAT BELT

< REMOVAL AND INSTALLATION >

THIRD ROW SEAT BELT

Exploded View

INFOID:000000010195848



- | | | |
|--|----------------------------------|----------------------------------|
| 1. Seat belt retractor (RH) | 2. Seat belt D-ring bracket (RH) | 3. Seat belt hook (LH/RH) |
| 4. Seat belt buckle (LH/RH) | 5. Seat belt retractor (LH) | 6. Seat belt D-ring bracket (LH) |
| 7. Seat belt D-ring bolt cover (LH/RH) | | |

SEAT BELT RETRACTOR

SEAT BELT RETRACTOR : Removal and Installation

INFOID:000000010195849

REMOVAL

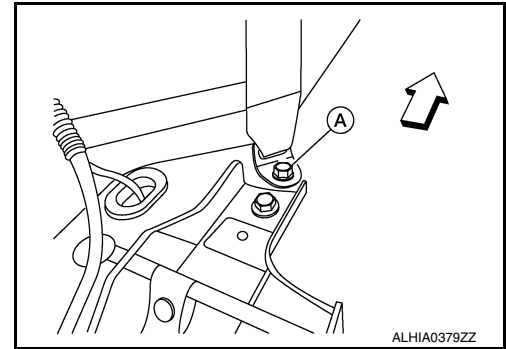
1. Remove luggage side upper finisher. Refer to [INT-36. "LUGGAGE SIDE UPPER FINISHER : Removal and Installation"](#).
2. Pull third row seat striker release straps and raise third row seat.

THIRD ROW SEAT BELT

< REMOVAL AND INSTALLATION >

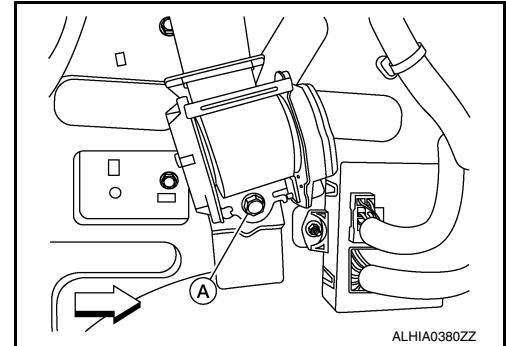
3. Remove lower anchor bolt (A).

⇐: Front



4. Remove seat belt retractor bolt (A) and remove the seat belt retractor (1).

⇐: Front



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Tighten the D-ring anchor bolt, seat belt retractor bolt, and lower anchor bolt to specification. Refer to [SB-17, "Exploded View"](#).
- Make sure the D-ring anchor operates freely.
- Always perform an inspection after repair to make sure the system is functioning within specifications. Refer to [SB-5, "Inspection"](#).

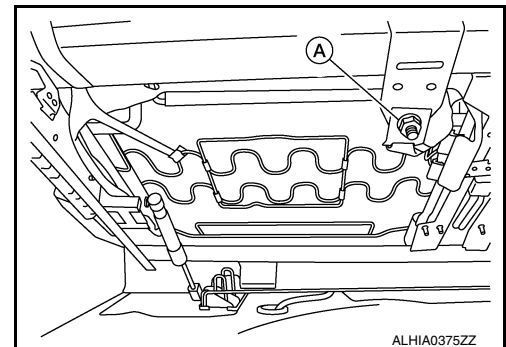
SEAT BELT BUCKLE

SEAT BELT BUCKLE : Removal and Installation

INFOID:000000010195852

REMOVAL

1. Pull third row seat striker release straps and raise third row seat.
2. Remove seat belt buckle anchor nut (A) (LH), then route seat belt buckle through seat cushion and trim and remove.



INSTALLATION

Installation is in the reverse order of removal.

LATCH (LOWER ANCHORS AND TETHER FOR CHILDREN) SYSTEM

< REMOVAL AND INSTALLATION >

LATCH (LOWER ANCHORS AND TETHER FOR CHILDREN) SYSTEM

Removal and Installation

INFOID:0000000010335221

The LATCH (Lower Anchors and Tether for CHildren) system is not serviceable.

A
B
C
D
E
F
G
SB
I
J
K
L
M
N
O
P

TOP TETHER STRAP CHILD RESTRAINT

< REMOVAL AND INSTALLATION >

TOP TETHER STRAP CHILD RESTRAINT

Removal and Installation

INFOID:000000009796116

Removal and Installation

The Top Tether Strap Child Restraint system is not serviceable.

SECTION SE SEAT

CONTENTS

PRECAUTION	3	DRIVER SIDE	29
PRECAUTIONS	3	DRIVER SIDE : Exploded View	29
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	3	DRIVER SIDE : Removal and Installation	32
Precaution for Work	3	PASSENGER SIDE	32
PREPARATION	4	PASSENGER SIDE : Exploded View	33
PREPARATION	4	PASSENGER SIDE : Removal and Installation	35
Special Service Tool	4	SECOND ROW SEATS	37
Commercial Service Tool	4	Exploded View	37
CLIP LIST	5	Removal and Installation	39
Descriptions for Clips	5	THIRD ROW SEATS	42
WIRING DIAGRAM	9	Exploded View	42
POWER SEAT FOR DRIVER SIDE	9	Removal and Installation	43
Wiring Diagram	9	Third Row Seat Cross Member	44
POWER SEAT FOR PASSENGER SIDE	12	POWER SEAT SWITCH	46
Wiring Diagram	12	Exploded View	46
LUMBAR SUPPORT SYSTEM	16	Removal and Installation	46
Wiring Diagram	16	LUMBAR SUPPORT SWITCH	48
HEATED SEAT SYSTEM	19	Exploded View	48
Wiring Diagram	19	Removal and Installation	48
SYMPTOM DIAGNOSIS	23	HEATED SEAT SWITCH	49
SQUEAK AND RATTLE TROUBLE DIAGNOSES	23	Exploded View	49
Work Flow	23	Removal and Installation	49
Generic Squeak and Rattle Troubleshooting	24	UNIT DISASSEMBLY AND ASSEMBLY ...	50
Diagnostic Worksheet	27	FRONT SEAT	50
REMOVAL AND INSTALLATION	29	Exploded View	50
FRONT SEAT	29	Seatback	55
		Seat Cushion	59
		Lumbar Support	61
		SECOND ROW SEAT	63
		Exploded View	63
		LH SEAT	65
		LH SEAT : Seatback	65
		LH SEAT : Seat Cushion	67

LH SEAT : Armrest Assembly	69	RH SEAT : Seat Cushion	77
LH SEAT : EZ Entry Cable	71		
LH SEAT : Seat Slide Release Cable	73	THIRD ROW SEAT	80
RH SEAT	75	Exploded View	80
RH SEAT : Seatback	75	Seatback	81
		Seat Cushion	83

PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010283470

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Precaution for Work

INFOID:0000000010283471

- When removing or disassembling each component, be careful not to damage or deform it. If a component may be subject to interference, be sure to protect it with a shop cloth.
- When removing (disengaging) components with a screwdriver or similar tool, be sure to wrap the component with a shop cloth or vinyl tape to protect it.
- Protect the removed parts with a shop cloth and prevent them from being dropped.
- Replace a deformed or damaged clip.
- If a part is specified as a non-reusable part, always replace it with a new one.
- Be sure to tighten bolts and nuts securely to the specified torque.
- After installation is complete, be sure to check that each part works properly.
- Follow the steps below to clean components:
 - Water soluble dirt:
 - Dip a soft cloth into lukewarm water, wring the water out of the cloth and wipe the dirty area.
 - Then rub with a soft, dry cloth.
 - Oily dirt:
 - Dip a soft cloth into lukewarm water with mild detergent (concentration: within 2 to 3%) and wipe the dirty area.
 - Then dip a cloth into fresh water, wring the water out of the cloth and wipe the detergent off.
 - Then rub with a soft, dry cloth.
 - Do not use organic solvent such as thinner, benzene, alcohol or gasoline.
 - For genuine leather seats, use a genuine leather seat cleaner.

PREPARATION

< PREPARATION >

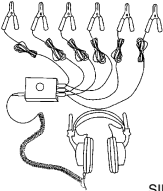
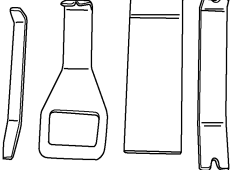
PREPARATION

PREPARATION

Special Service Tool

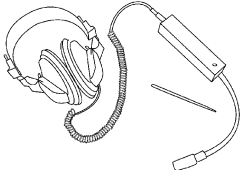
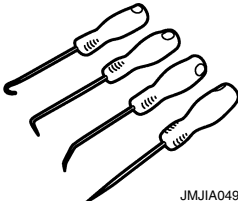
INFOID:0000000010283472

The actual shape of the tools may differ from those illustrated here.

Tool number (TechMate No.) Tool name	Description
— (J-39570) Chassis Ear  SIIA0993E	Locating the noise
— (J-50397) NISSAN Squeak and Rattle Kit  ALJIA1232ZZ	Repairing the cause of noise
— (J-46534) Trim Tool Set  AWJIA0483ZZ	Removing trim components

Commercial Service Tool

INFOID:0000000010283473

(TechMate No.) Tool name	Description
(J-39565) Engine Ear  SIIA0995E	Locating the noise
(—) Hook and Pick Tool  JMJIA0490ZZ	Removes snap rings

CLIP LIST

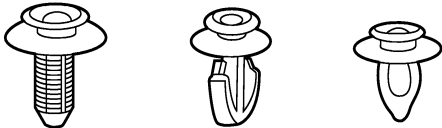
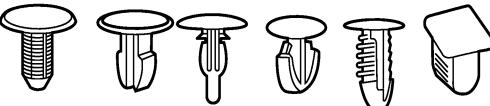
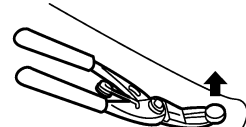
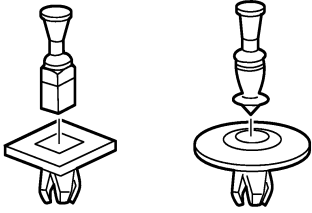
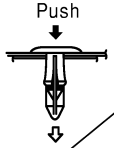
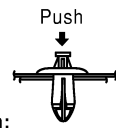
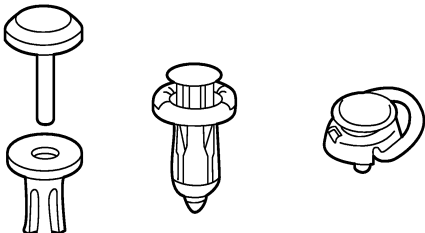
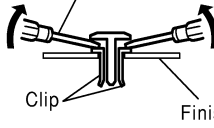
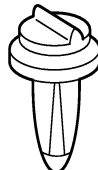
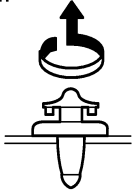
< PREPARATION >

CLIP LIST

Descriptions for Clips

INFOID:000000010283474

Replace any clips which are damaged during removal or installation.

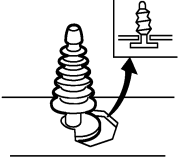
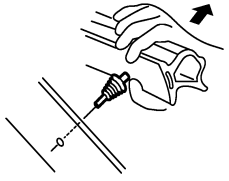
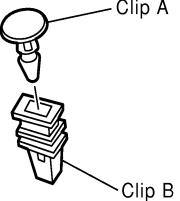
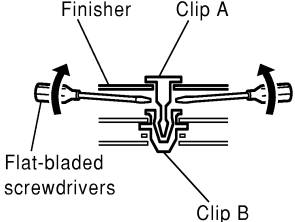
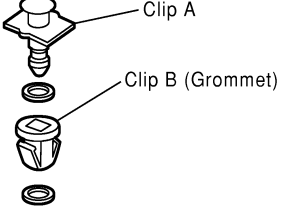
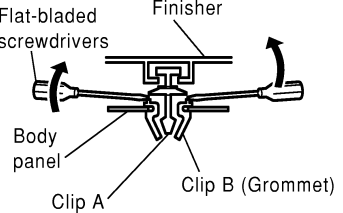
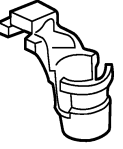
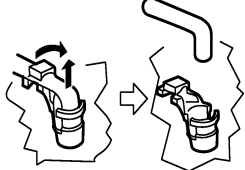
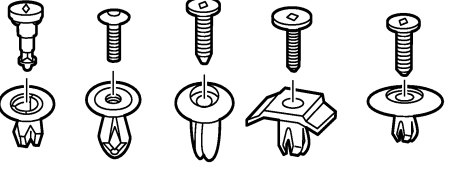
Symbol No.	Shapes	Removal & Installation
C101 		Removal: Remove by bending up with flat-bladed screwdrivers or clip remover. 
C103 		 Removal: Remove with a clip remover.
C203 		Removal: Push center pin to catching position. (Do not remove center pin by hitting it.)  Installation: 
C205 		Removal: Flat-bladed screwdriver  Clip Finisher
C206 		Removal: 

SIIA0315E

A
B
C
D
E
F
G
H
I
SE
K
L
M
N
O
P

CLIP LIST

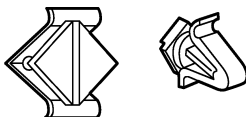
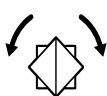
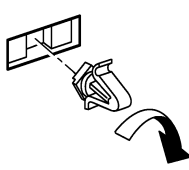
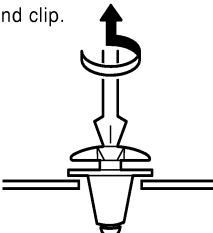
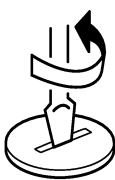
< PREPARATION >

Symbol No.	Shapes	Removal & Installation
CE103 		Removal: 
CF110 		Removal: 
CF118 		Removal: 
CR103 		Removal: Holder portion of clip must be spread out to remove rod. 
CS101 		Removal: 1. Screw out with a Phillips screwdriver. 2. Remove female portion with flat-bladed screwdriver. 

SIIA0316E

CLIP LIST

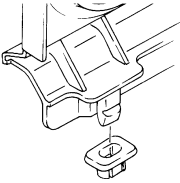
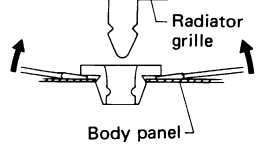
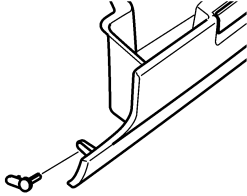
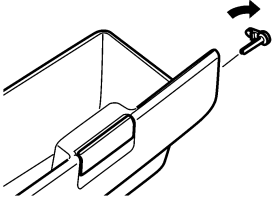
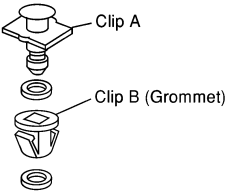
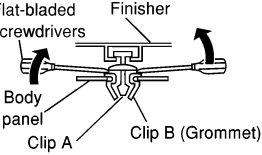
< PREPARATION >

Symbol No.	Shapes	Removal & Installation	
CG101 		Removal:  Rotate 45° to remove	Installation: 
		 Removal:	
CS102 			
CS113 		Removal: Disconnect upper connection of clip with a flat-bladed screwdriver, then remove clip while inserting a flat-bladed screwdriver between body panel and clip. 	
C111 			

SIIA0317E

CLIP LIST

< PREPARATION >

Symbol No.	Shapes	Removal & Installation
CG104 		Removal: Remove by bending up with flat-bladed screwdrivers. 
CE114 		
CF118 		Removal: Flat-bladed screwdrivers 

ALJIA0564GB

POWER SEAT FOR DRIVER SIDE

< WIRING DIAGRAM >

POWER SEAT FOR DRIVER SIDE CONNECTORS

Connector No.	M42
Connector Name	CIRCUIT BREAKER-2
Connector Color	WHITE



Connector No.	M74
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	M75
Connector Name	WIRE TO WIRE
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	W	-
2	P	-

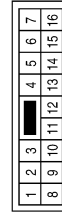
Terminal No.	Color of Wire	Signal Name
8	BR	-

Terminal No.	Color of Wire	Signal Name
2	W	-

Connector No.	E36
Connector Name	WIRE TO WIRE
Connector Color	BLACK



Connector No.	B42
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	B92
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
2	W	-

Terminal No.	Color of Wire	Signal Name
8	LA/G	-

Terminal No.	Color of Wire	Signal Name
1	LA/G	-
2	LA/B	-

AAJIA0455GB

POWER SEAT FOR DRIVER SIDE

< WIRING DIAGRAM >

Connector No.	B202
Connector Name	WIRE TO WIRE
Connector Color	WHITE

1	2
3	4
5	6



Terminal No.	Color of Wire	Signal Name
1	R	-
2	B	-

Connector No.	B205
Connector Name	POWER SEAT SWITCH LH
Connector Color	WHITE

1	2	3	4
5	6	7	8
9	10		



Terminal No.	Color of Wire	Signal Name
1	B	-
2	R	-
3	-	-
4	-	-
5	BR	-
6	V	-
7	R	-
8	L	-
9	SB	-
10	P	-

Connector No.	B206
Connector Name	SLIDING MOTOR LH
Connector Color	BLACK



1	2	3	4	5
---	---	---	---	---

Terminal No.	Color of Wire	Signal Name
1	L	-
2	-	-
3	-	-
4	-	-
5	SB	-

Connector No.	B207
Connector Name	RECLINING MOTOR LH
Connector Color	BLACK

1	2	3	4	5
---	---	---	---	---



Terminal No.	Color of Wire	Signal Name
1	BR	-
2	-	-
3	-	-
4	-	-
5	P	-

Connector No.	B208
Connector Name	TILT MOTOR LH
Connector Color	BLACK

1	2	3	4	5
---	---	---	---	---



Terminal No.	Color of Wire	Signal Name
1	V	-
2	-	-
3	-	-
4	-	-
5	R	-

AAJIA0456GB

POWER SEAT FOR PASSENGER SIDE

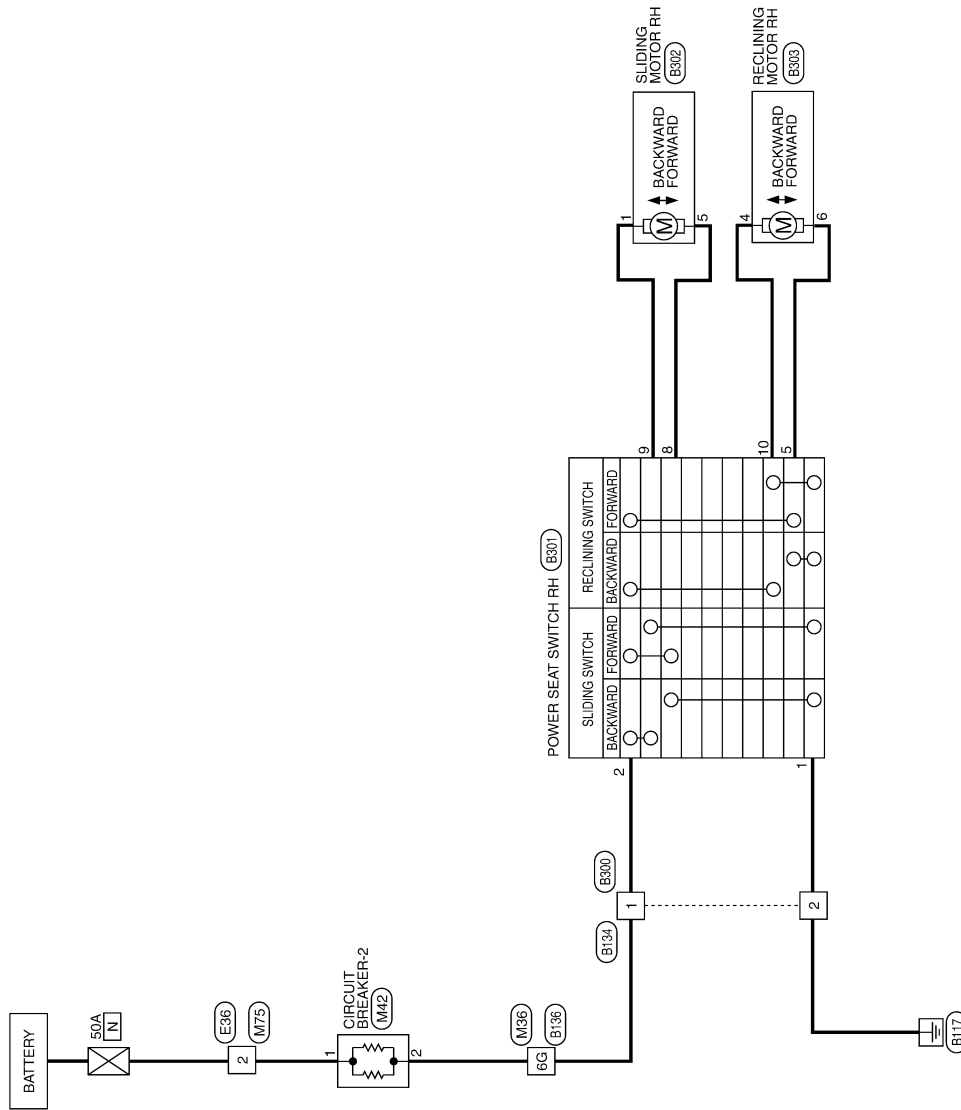
< WIRING DIAGRAM >

POWER SEAT FOR PASSENGER SIDE

Wiring Diagram

INFOID:0000000010012166

POWER SEAT FOR PASSENGER SIDE



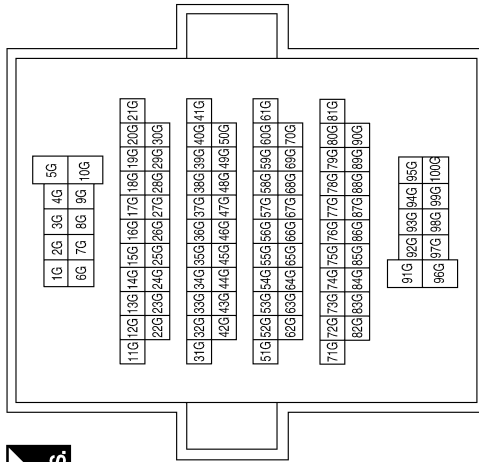
AAJWA0187GB

POWER SEAT FOR PASSENGER SIDE

< WIRING DIAGRAM >

POWER SEAT FOR PASSENGER SIDE CONNECTORS

Connector No.	M36
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	6G
Color of Wire	SB
Signal Name	-

Connector No.	M42
Connector Name	CIRCUIT BREAKER-2
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	W	-
2	P	-

Connector No.	M75
Connector Name	WIRE TO WIRE
Connector Color	BLACK



Connector No.	E36
Connector Name	WIRE TO WIRE
Connector Color	BLACK



Connector No.	B134
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	2
Color of Wire	W
Signal Name	-

Terminal No.	2
Color of Wire	W
Signal Name	-

Terminal No.	Color of Wire	Signal Name
1	LA/BR	—
2	LA/B	—

AAJIA0457GB

POWER SEAT FOR PASSENGER SIDE

< WIRING DIAGRAM >

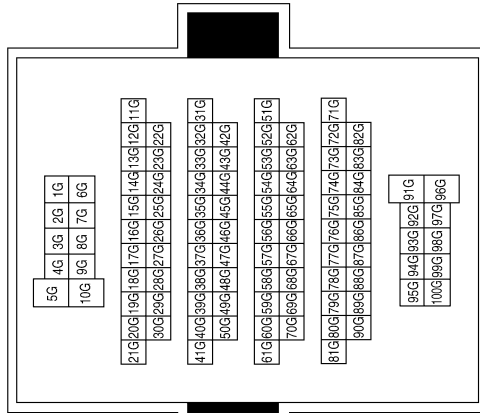
Connector No.	B300
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2
3	4
5	6

Terminal No.	Color of Wire	Signal Name
6G	LA/BR	-

Connector No.	B136
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	R	-
2	B	-

Connector No.	B302
Connector Name	SLIDING MOTOR RH
Connector Color	BLACK



1	2	3	4	5
---	---	---	---	---

Terminal No.	Color of Wire	Signal Name
5	P	-
6	-	-
7	-	-
8	L	-
9	SB	-
10	BR	-

Connector No.	B301
Connector Name	POWER SEAT SWITCH RH
Connector Color	WHITE



1	2	3	4
5	6	7	8
9	10		

Terminal No.	Color of Wire	Signal Name
1	L	-
2	-	-
3	-	-
4	-	-
5	SB	-

Terminal No.	Color of Wire	Signal Name
1	B	-
2	R	-
3	-	-
4	-	-

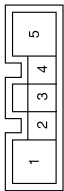
AAJIA0458GB

POWER SEAT FOR PASSENGER SIDE

< WIRING DIAGRAM >

A
B
C
D
E
F
G
H
I
SE
K
L
M
N
O
P

Connector No.	B303
Connector Name	RECLINING MOTOR RH
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	BR	-
2	-	-
3	-	-
4	-	-
5	P	-

AAJIA0459GB

LUMBAR SUPPORT SYSTEM

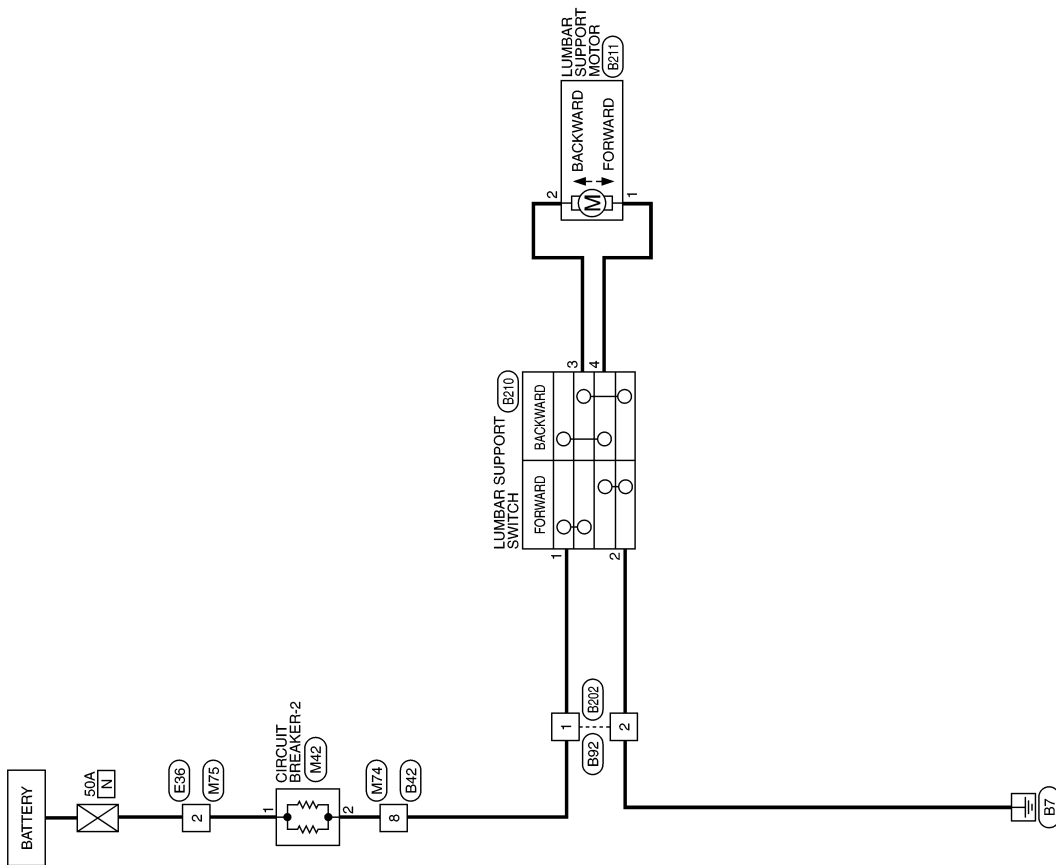
< WIRING DIAGRAM >

LUMBAR SUPPORT SYSTEM

Wiring Diagram

INFOID:0000000010012164

LUMBAR SUPPORT SYSTEM



AAJWA0188GB

LUMBAR SUPPORT SYSTEM

< WIRING DIAGRAM >

LUMBAR SUPPORT SYSTEM CONNECTORS

Connector No.	M42
Connector Name	CIRCUIT BREAKER-1
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	W	—
2	W	—

Connector No.	M74
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
8	BR	—

Connector No.	M75
Connector Name	WIRE TO WIRE
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
2	W	—

Connector No.	E36
Connector Name	WIRE TO WIRE
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
2	W	—

Connector No.	B42
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
8	LA/G	—

Connector No.	B92
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	LA/G	—
2	LA/B	—

AAJIA0453GB

LUMBAR SUPPORT SYSTEM

< WIRING DIAGRAM >

Connector No.	B211
Connector Name	LUMBAR MOTOR
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	G	-
2	Y	-

Connector No.	B210
Connector Name	POWER LUMBAR SWITCH
Connector Color	BROWN



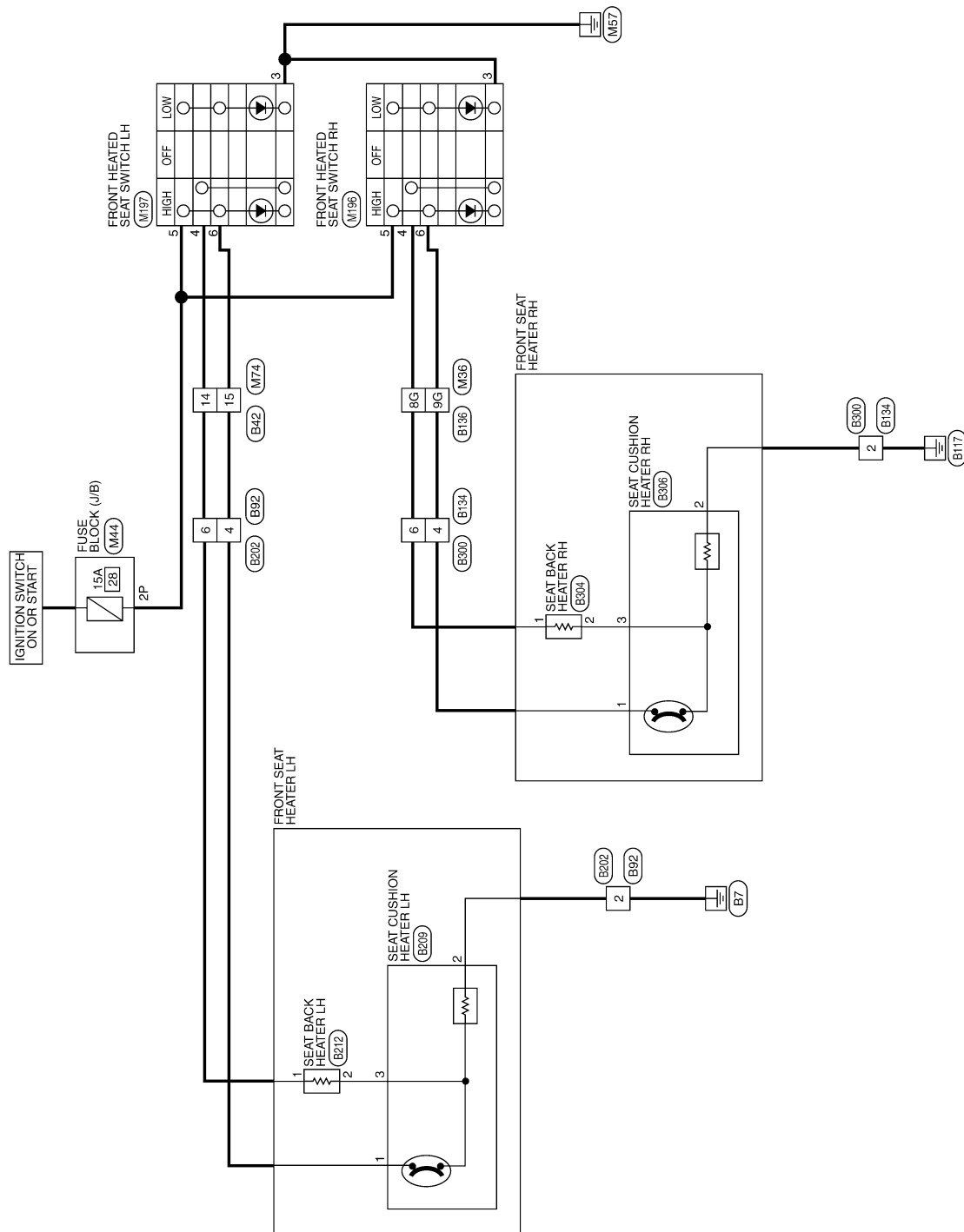
Terminal No.	Color of Wire	Signal Name
1	R	-
2	B	-
3	Y	-
4	G	-

Connector No.	B202
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	R	-
2	B	-

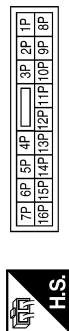
AAJIA0454GB



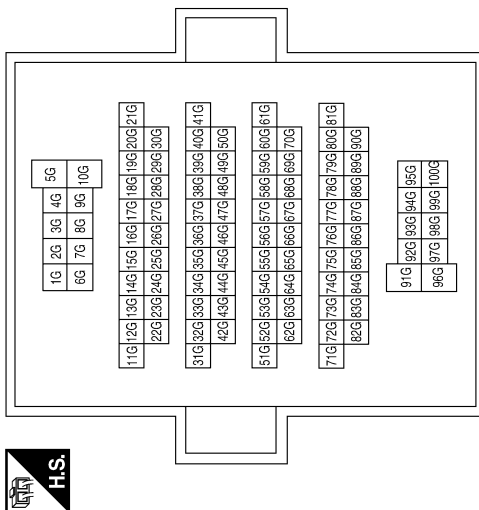
< WIRING DIAGRAM >

Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE

Terminal No.	Color of Wire	Signal Name
8G	LA/Y	—
9G	LA/W	—



Terminal No.	Color of Wire	Signal Name
2P	G	-



Connector No.	M197
Connector Name	FRONT HEATED SEAT SWITCH LH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
3	B	-
4	LA/L	-
5	G	-
6	LA/BR	-

Connector No.	M36
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	M74
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
14	LA/L	-
15	LA/BR	-

HEATED SEAT SYSTEM

< WIRING DIAGRAM >

Connector No.	B134
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2
3	4
5	6

Terminal No.	Color of Wire	Signal Name
2	LA/B	-
4	LA/R	-
6	LA/L	-

Connector No.	B92
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2
3	4
5	6

Terminal No.	Color of Wire	Signal Name
2	LA/B	-
4	LA/BR	-
6	LA/BG	-

Connector No.	B42
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16					

Terminal No.	Color of Wire	Signal Name
14	LA/BG	-
15	LA/BR	-

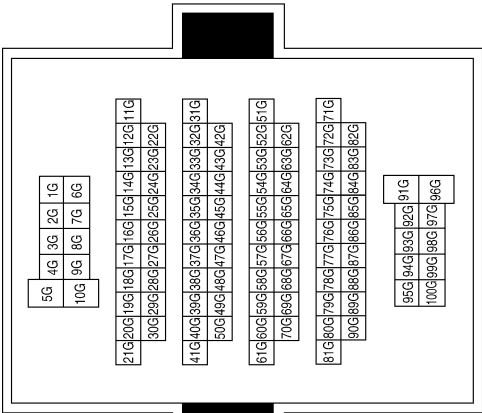
Connector No.	B202
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2
3	4
5	6

Terminal No.	Color of Wire	Signal Name
8G	LA/L	-
9G	LA/R	-

Connector No.	B136
Connector Name	WIRE TO WIRE
Connector Color	WHITE



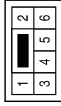
AAJIA0451GB

A
B
C
D
E
F
G
H
I
SE
K
L
M
N
O
P

HEATED SEAT SYSTEM

< WIRING DIAGRAM >

Connector No.	B300
Connector Name	WIRE TO WIRE
Connector Color	WHITE



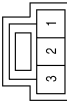
Terminal No.	Color of Wire	Signal Name
2	B	-
4	R	-
6	LG	-

Connector No.	B212
Connector Name	SEAT BACK HEATER LH
Connector Color	BLACK



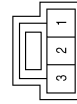
Terminal No.	Color of Wire	Signal Name
1	W	-
2	Y	-

Connector No.	B209
Connector Name	SEAT CUSHION HEATER LH
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	G	-
2	B	-
3	Y	-

Connector No.	B306
Connector Name	SEAT CUSHION HEATER RH
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	R	-
2	B	-
3	W	-

Connector No.	B304
Connector Name	SEAT BACK HEATER RH
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	LG	-
2	W	-

AAJIA0452GB

SQUEAK AND RATTLE TROUBLE DIAGNOSES

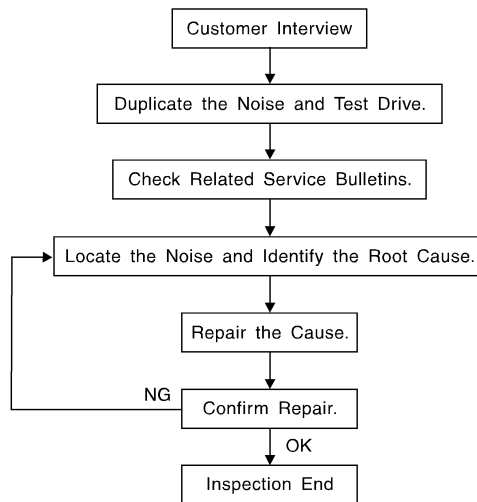
< SYMPTOM DIAGNOSIS >

SYMPTOM DIAGNOSIS

SQUEAK AND RATTLE TROUBLE DIAGNOSES

Work Flow

INFOID:0000000010284097



SBT842

CUSTOMER INTERVIEW

Interview the customer if possible, to determine the conditions that exist when the noise occurs. Use the Diagnostic Worksheet during the interview to document the facts and conditions when the noise occurs and any customer's comments; refer to [SE-27, "Diagnostic Worksheet"](#). This information is necessary to duplicate the conditions that exist when the noise occurs.

- The customer may not be able to provide a detailed description or the location of the noise. Attempt to obtain all the facts and conditions that exist when the noise occurs (or does not occur).
- If there is more than one noise in the vehicle, be sure to diagnose and repair the noise that the customer is concerned about. This can be accomplished by test driving the vehicle with the customer.
- After identifying the type of noise, isolate the noise in terms of its characteristics. The noise characteristics are provided so the customer, service adviser and technician are all speaking the same language when defining the noise.
- Squeak —(Like tennis shoes on a clean floor)
Squeak characteristics include the light contact/fast movement/brought on by road conditions/hard surfaces = higher pitch noise/softer surfaces = lower pitch noises/edge to surface = chirping.
- Creak—(Like walking on an old wooden floor)
Creak characteristics include firm contact/slow movement/twisting with a rotational movement/pitch dependent on materials/often brought on by activity.
- Rattle—(Like shaking a baby rattle)
Rattle characteristics include the fast repeated contact/vibration or similar movement/loose parts/missing clip or fastener/incorrect clearance.
- Knock —(Like a knock on a door)
Knock characteristics include hollow sounding/sometimes repeating/often brought on by driver action.
- Tick—(Like a clock second hand)
Tick characteristics include gentle contacting of light materials/loose components/can be caused by driver action or road conditions.
- Thump—(Heavy, muffled knock noise)
Thump characteristics include softer knock/dead sound often brought on by activity.
- Buzz—(Like a bumble bee)
Buzz characteristics include high frequency rattle/firm contact.
- Often the degree of acceptable noise level will vary depending upon the person. A noise that you may judge as acceptable may be very irritating to the customer.
- Weather conditions, especially humidity and temperature, may have a great effect on noise level.

DUPLICATE THE NOISE AND TEST DRIVE

SQUEAK AND RATTLE TROUBLE DIAGNOSES

< SYMPTOM DIAGNOSIS >

If possible, drive the vehicle with the customer until the noise is duplicated. Note any additional information on the Diagnostic Worksheet regarding the conditions or location of the noise. This information can be used to duplicate the same conditions when you confirm the repair.

If the noise can be duplicated easily during the test drive, to help identify the source of the noise, try to duplicate the noise with the vehicle stopped by doing one or all of the following:

- 1) Close a door.
 - 2) Tap or push/pull around the area where the noise appears to be coming from.
 - 3) Rev the engine.
 - 4) Use a floor jack to recreate vehicle "twist".
 - 5) At idle, apply engine load (electrical load, half-clutch on M/T model, drive position on CVT and A/T models).
 - 6) Raise the vehicle on a hoist and hit a tire with a rubber hammer.
- Drive the vehicle and attempt to duplicate the conditions the customer states exist when the noise occurs.
 - If it is difficult to duplicate the noise, drive the vehicle slowly on an undulating or rough road to stress the vehicle body.

CHECK RELATED SERVICE BULLETINS

After verifying the customer concern or symptom, check ASIST for Technical Service Bulletins (TSBs) related to that concern or symptom.

If a TSB relates to the symptom, follow the procedure to repair the noise.

LOCATE THE NOISE AND IDENTIFY THE ROOT CAUSE

1. Narrow down the noise to a general area. To help pinpoint the source of the noise, use a listening tool (Chassis Ear: J-39570, Engine Ear: J-39565 and mechanic's stethoscope).
2. Narrow down the noise to a more specific area and identify the cause of the noise by:
 - removing the components in the area that you suspect the noise is coming from.
Do not use too much force when removing clips and fasteners, otherwise clips and fasteners can be broken or lost during the repair, resulting in the creation of new noise.
 - tapping or pushing/pulling the component that you suspect is causing the noise.
Do not tap or push/pull the component with excessive force, otherwise the noise will be eliminated only temporarily.
 - feeling for a vibration with your hand by touching the component(s) that you suspect is (are) causing the noise.
 - placing a piece of paper between components that you suspect are causing the noise.
 - looking for loose components and contact marks.Refer to [SE-24. "Generic Squeak and Rattle Troubleshooting"](#).

REPAIR THE CAUSE

- If the cause is a loose component, tighten the component securely.
- If the cause is insufficient clearance between components:
 - separate components by repositioning or loosening and retightening the component, if possible.
 - insulate components with a suitable insulator such as urethane pads, foam blocks, felt cloth tape or urethane tape. A NISSAN Squeak and Rattle Kit (J-50397) is available through your authorized NISSAN Parts Department.

CAUTION:

Do not use excessive force as many components are constructed of plastic and may be damaged.

NOTE:

- Always check with the Parts Department for the latest parts information.
- The materials contained in the NISSAN Squeak and Rattle Kit (J-50397) are listed on the inside cover of the kit; and can each be ordered separately as needed.
- The following materials not found in the kit can also be used to repair squeaks and rattles.
 - SILICONE GREASE: Use instead of UHMW tape that will be visible or does not fit. The silicone grease will only last a few months.
 - SILICONE SPRAY: Use when grease cannot be applied.
 - DUCT TAPE: Use to eliminate movement.

CONFIRM THE REPAIR

Confirm that the cause of a noise is repaired by test driving the vehicle. Operate the vehicle under the same conditions as when the noise originally occurred. Refer to the notes on the Diagnostic Worksheet.

Generic Squeak and Rattle Troubleshooting

INFOID:0000000010284098

Refer to Table of Contents for specific component removal and installation information.

SQUEAK AND RATTLE TROUBLE DIAGNOSES

< SYMPTOM DIAGNOSIS >

INSTRUMENT PANEL

Most incidents are caused by contact and movement between:

1. Cluster lid A and the instrument panel
2. Acrylic lens and combination meter housing
3. Instrument panel to front pillar finisher
4. Instrument panel to windshield
5. Instrument panel pins
6. Wiring harnesses behind the combination meter
7. A/C defroster duct and duct joint

These incidents can usually be located by tapping or moving the components to duplicate the noise or by pressing on the components while driving to stop the noise. Most of these incidents can be repaired by applying felt cloth tape or silicone spray (in hard to reach areas). Urethane pads can be used to insulate wiring harness.

CAUTION:

Do not use silicone spray to isolate a squeak or rattle. If you saturate the area with silicone, you will not be able to recheck the repair.

CENTER CONSOLE

Components to pay attention to include:

1. Shift selector assembly cover to finisher
2. A/C control unit and cluster lid C
3. Wiring harnesses behind audio and A/C control unit

The instrument panel repair and isolation procedures also apply to the center console.

DOORS

Pay attention to the:

1. Finisher and inner panel making a slapping noise
2. Inside handle escutcheon to door finisher
3. Wiring harnesses tapping
4. Door striker out of alignment causing a popping noise on starts and stops

Tapping or moving the components or pressing on them while driving to duplicate the conditions can isolate many of these incidents. You can usually insulate the areas with felt cloth tape or insulator foam blocks from the NISSAN Squeak and Rattle Kit (J-50397) to repair the noise.

TRUNK

Trunk noises are often caused by a loose jack or loose items put into the trunk by the owner.

In addition look for:

1. Trunk lid bumpers out of adjustment
2. Trunk lid striker out of adjustment
3. The trunk lid torsion bars knocking together
4. A loose license plate or bracket

Most of these incidents can be repaired by adjusting, securing or insulating the item(s) or component(s) causing the noise.

SUNROOF/HEADLINING

Noises in the sunroof/headlining area can often be traced to one of the following:

1. Sunroof lid, rail, linkage or seals making a rattle or light knocking noise
2. Sun visor shaft shaking in the holder
3. Front or rear windshield touching headlining and squeaking

Again, pressing on the components to stop the noise while duplicating the conditions can isolate most of these incidents. Repairs usually consist of insulating with felt cloth tape.

OVERHEAD CONSOLE (FRONT AND REAR)

Overhead console noises are often caused by the console panel clips not being engaged correctly. Most of these incidents are repaired by pushing up on the console at the clip locations until the clips engage.

In addition look for:

SQUEAK AND RATTLE TROUBLE DIAGNOSES

< SYMPTOM DIAGNOSIS >

1. Loose harness or harness connectors.
2. Front console map/reading lamp lens loose.
3. Loose screws at console attachment points.

SEATS

When isolating seat noise it's important to note the position the seat is in and the load placed on the seat when the noise is present. These conditions should be duplicated when verifying and isolating the cause of the noise.

Cause of seat noise include:

1. Headrest rods and holder
2. A squeak between the seat pad cushion and frame
3. The rear seatback lock and bracket

These noises can be isolated by moving or pressing on the suspected components while duplicating the conditions under which the noise occurs. Most of these incidents can be repaired by repositioning the component or applying urethane tape to the contact area.

UNDERHOOD

Some interior noise may be caused by components under the hood or on the engine wall. The noise is then transmitted into the passenger compartment.

Causes of transmitted underhood noise include:

1. Any component installed to the engine wall
2. Components that pass through the engine wall
3. Engine wall mounts and connectors
4. Loose radiator installation pins
5. Hood bumpers out of adjustment
6. Hood striker out of adjustment

These noises can be difficult to isolate since they cannot be reached from the interior of the vehicle. The best method is to secure, move or insulate one component at a time and test drive the vehicle. Also, engine rpm or load can be changed to isolate the noise. Repairs can usually be made by moving, adjusting, securing, or insulating the component causing the noise.

SQUEAK AND RATTLE TROUBLE DIAGNOSES

< SYMPTOM DIAGNOSIS >

Diagnostic Worksheet

INFOID:000000010284099

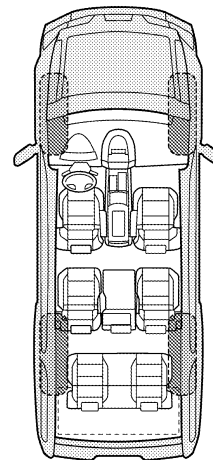
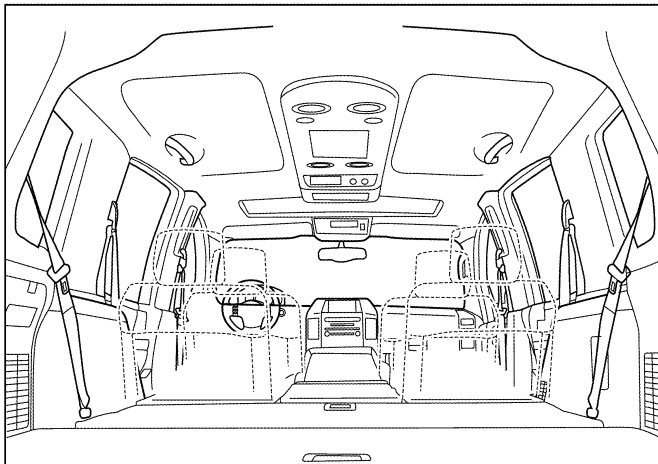
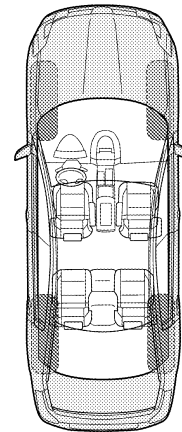
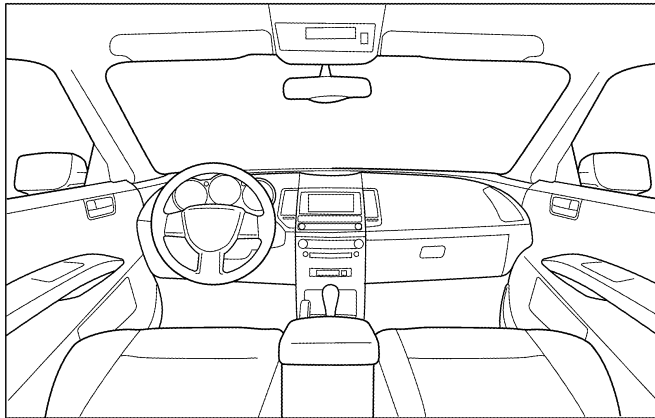
Dear Customer:

We are concerned about your satisfaction with your vehicle. Repairing a squeak or rattle sometimes can be very difficult. To help us fix your vehicle right the first time, please take a moment to note the area of the vehicle where the squeak or rattle occurs and under what conditions. You may be asked to take a test drive with a service advisor or technician to ensure we confirm the noise you are hearing.

SQUEAK & RATTLE DIAGNOSTIC WORKSHEET

I. WHERE DOES THE NOISE COME FROM? (circle the area of the vehicle)

The illustrations are for reference only, and may not reflect the actual configuration of your vehicle.



Continue to page 2 of the worksheet and briefly describe the location of the noise or rattle. In addition, please indicate the conditions which are present when the noise occurs.

SQUEAK AND RATTLE TROUBLE DIAGNOSES

< SYMPTOM DIAGNOSIS >

SQUEAK & RATTLE DIAGNOSTIC WORKSHEET - page 2

Briefly describe the location where the noise occurs:

II. WHEN DOES IT OCCUR? (please check the boxes that apply)

- | | |
|---|--|
| ☐ Anytime | ☐ After sitting out in the rain |
| ☐ 1st time in the morning | ☐ When it is raining or wet |
| ☐ Only when it is cold outside | ☐ Dry or dusty conditions |
| ☐ Only when it is hot outside | ☐ Other: |

III. WHEN DRIVING:

- ☐ Through driveways
- ☐ Over rough roads
- ☐ Over speed bumps
- ☐ Only about ____ mph
- ☐ On acceleration
- ☐ Coming to a stop
- ☐ On turns: left, right or either (circle)
- ☐ With passengers or cargo
- ☐ Other: _____
- ☐ After driving ____ miles or ____ minutes

IV. WHAT TYPE OF NOISE

- ☐ Squeak (like tennis shoes on a clean floor)
- ☐ Creak (like walking on an old wooden floor)
- ☐ Rattle (like shaking a baby rattle)
- ☐ Knock (like a knock at the door)
- ☐ Tick (like a clock second hand)
- ☐ Thump (heavy muffled knock noise)
- ☐ Buzz (like a bumble bee)

TO BE COMPLETED BY DEALERSHIP PERSONNEL

Test Drive Notes:

	YES	NO	Initials of person performing
Vehicle test driven with customer	☐	☐	_____
- Noise verified on test drive	☐	☐	_____
- Noise source located and repaired	☐	☐	_____
- Follow up test drive performed to confirm repair	☐	☐	_____

VIN: _____ Customer Name _____
W.O.# _____ Date: _____

This form must be attached to Work Order

LAIA0071E

FRONT SEAT

< REMOVAL AND INSTALLATION >

REMOVAL AND INSTALLATION

FRONT SEAT

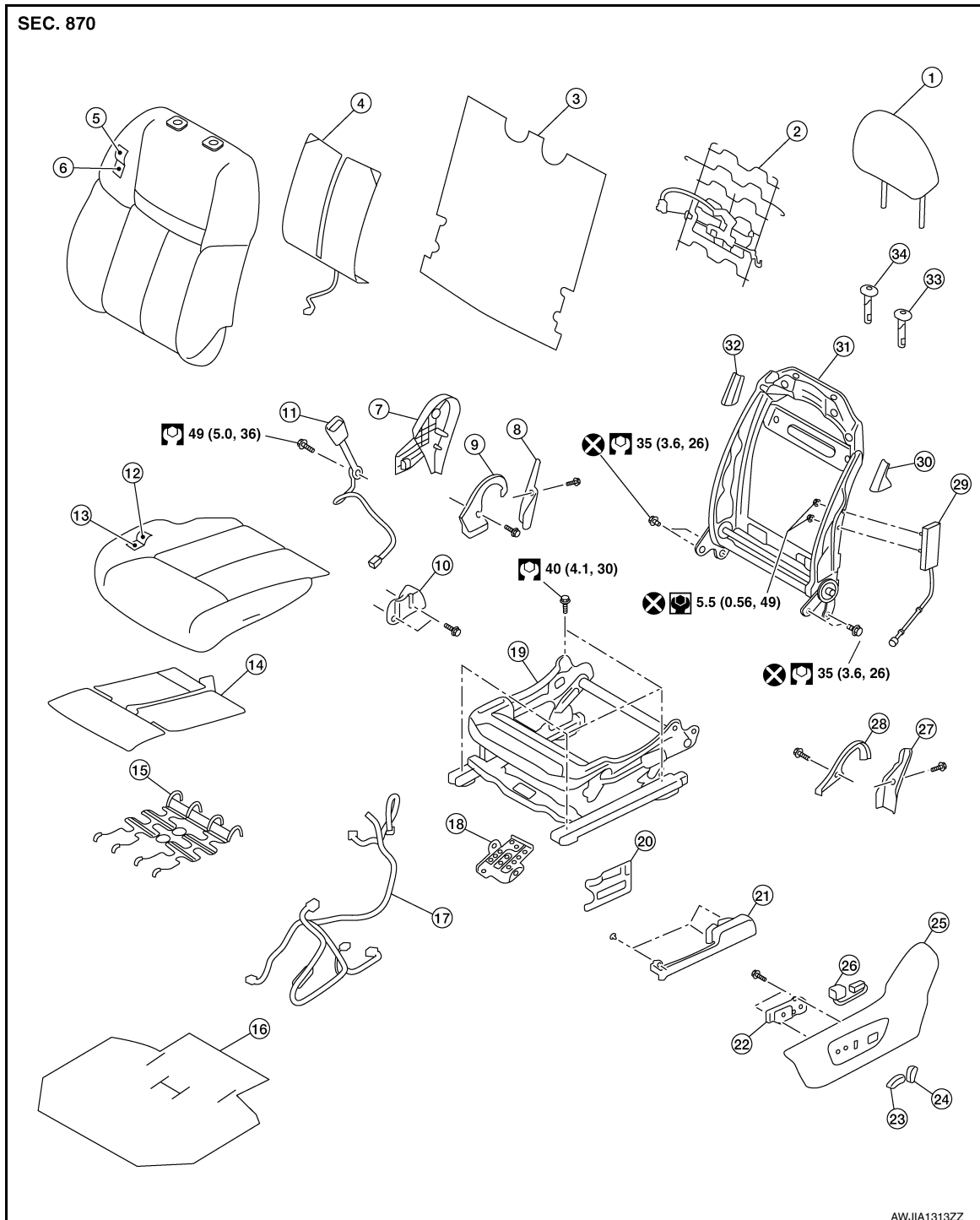
DRIVER SIDE

DRIVER SIDE : Exploded View

INFOID:000000009796587

POWER SEAT

SEC. 870



- | | | |
|----------------------------------|---------------------|-------------------|
| 1. Headrest | 2. Seatback support | 3. Seatback board |
| 4. Seatback heater (if equipped) | 5. Seatback trim | 6. Seatback pad |

FRONT SEAT

< REMOVAL AND INSTALLATION >

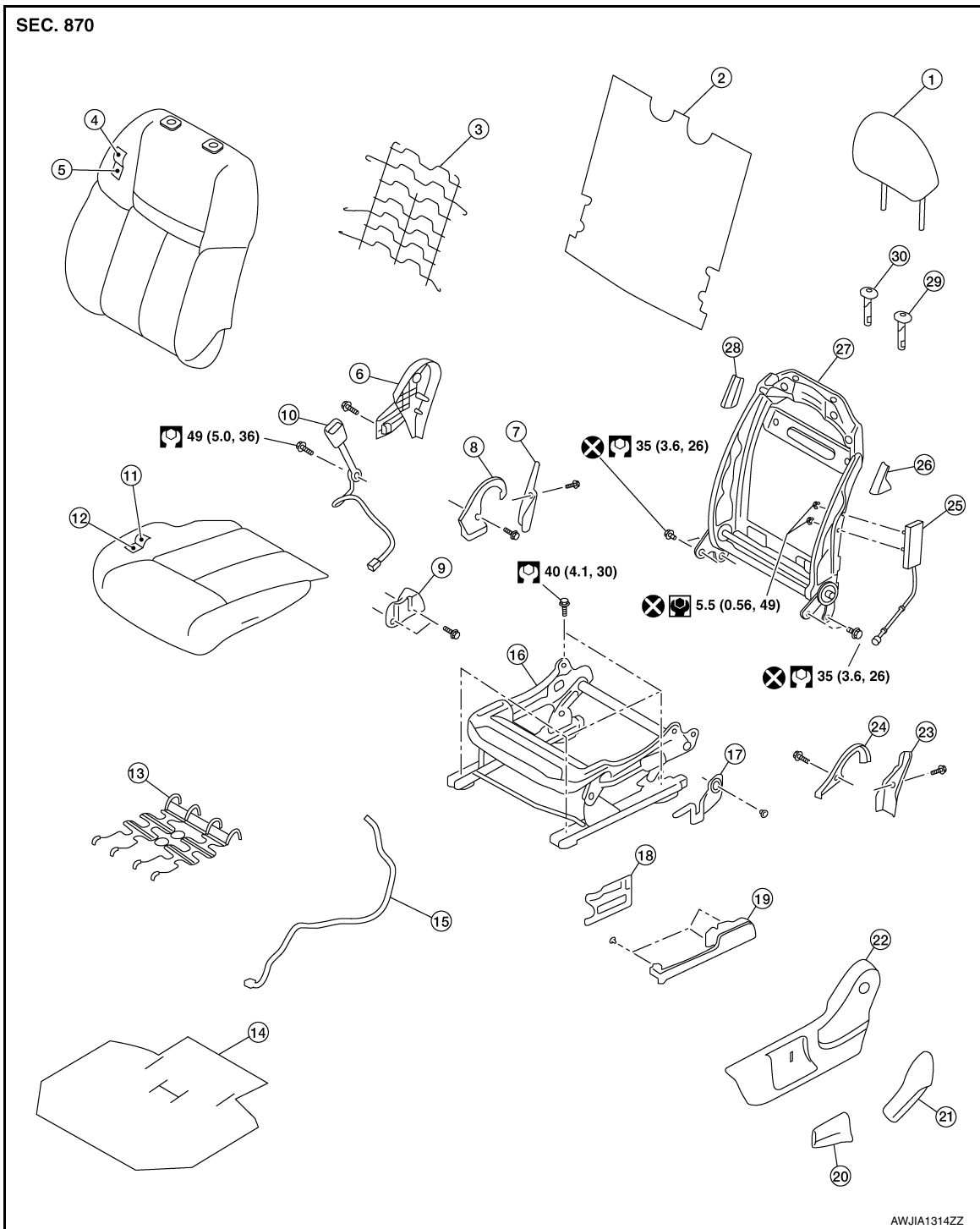
- | | | |
|--------------------------------------|---|-------------------------------------|
| 7. Seat cushion outer finisher (RH) | 8. Seat cushion rear finisher (RH) | 9. Seat cushion inner finisher (RH) |
| 10. Seat slide finisher (RH) | 11. Seat belt buckle | 12. Seat cushion trim |
| 13. Seat cushion pad | 14. Seat cushion heater (if equipped) | 15. Seat cushion support |
| 16. Seat cushion silencer | 17. Seat harness | 18. Seat harness bracket |
| 19. Seat cushion frame | 20. Seat slide finisher bracket (LH) | 21. Seat slide finisher (LH) |
| 22. Power seat switch | 23. Seat slide knob | 24. Side recline knob |
| 25. Seat cushion outer finisher (LH) | 26. Lumbar support switch | 27. Seat cushion rear finisher (LH) |
| 28. Seat cushion inner finisher (LH) | 29. Side air bag module (not serviceable) | 30. Seatback bracket (LH) |
| 31. Seatback frame | 32. Seatback bracket (RH) | 33. Headrest holder (locked) |
| 34. Headrest holder (free) | | |

FRONT SEAT

< REMOVAL AND INSTALLATION >

MANUAL SEAT

SEC. 870



- | | | |
|--------------------------------------|-------------------------------------|--------------------------------------|
| 1. Headrest | 2. Seatback board | 3. Seatback support |
| 4. Seatback trim | 5. Seatback pad | 6. Seat cushion outer finisher |
| 7. Seat cushion rear finisher (RH) | 8. Seat cushion inner finisher (RH) | 9. Seat slide finisher (RH) |
| 10. Seat belt buckle | 11. Seat cushion trim | 12. Seat cushion pad |
| 13. Seat cushion support | 14. Seat cushion silencer | 15. Seat harness |
| 16. Seat cushion frame | 17. Recline switch | 18. Seat slide finisher bracket (LH) |
| 19. Seat slide finisher (LH) | 20. Lift lever | 21. Recline lever |
| 22. Seat cushion outer finisher (LH) | 23. Seat cushion rear finisher (LH) | 24. Seat cushion inner finisher (LH) |

FRONT SEAT

< REMOVAL AND INSTALLATION >

- | | | |
|--|------------------------------|------------------------|
| 25. Side air bag module (not service-able) | 26. Seatback bracket (LH) | 27. Seatback frame |
| 28. Seatback bracket (RH) | 29. Headrest holder (locked) | Headrest holder (free) |

DRIVER SIDE : Removal and Installation

INFOID:000000009796588

REMOVAL

WARNING:

Do not leave any objects (screwdrivers, tools, etc.) on the seat during seatback repair. It can lead to personal injury if the side air bag module should accidentally deploy.

CAUTION:

- When removing or installing the seat trim, handle it carefully to keep dirt out and to avoid damage.
- When checking the power seat circuit for continuity using a circuit tester, do not confuse its connector with the side air bag module connector. Such an error may cause the air bag module to deploy.
- Do not drop, tilt, or bump the side air bag module while installing the seat. Always handle it with care.
- After front side air bag module inflates, the front seatback assembly must be replaced.
- When removing and installing the seat, use shop cloths to protect components from damage.
- Before removing the front seat, turn the ignition switch OFF, disconnect both battery cables then wait at least three minutes.

1. Slide the seat to the full rearward position.
2. Disconnect negative and positive battery terminals, then wait at least three minutes. Refer to [PG-77, "Removal and Installation"](#) (power seat only).
3. Disconnect harness connector from side air bag module.
4. Remove front bolts.
5. Connect negative and positive battery terminals, then slide the seat to the full forward position. Refer to [PG-77, "Removal and Installation"](#) (power seat only).
6. Slide the seat to the full forward position.
7. Disconnect negative and positive battery terminals, then wait at least three minutes. Refer to [PG-77, "Removal and Installation"](#) (power seat only).
8. Remove rear bolts.
9. Tilt the seat rearward and disconnect the harness connectors from the seat.

NOTE:

Take note of harness routing and attachment locations for correct installation.

10. Remove the seat from the vehicle.

INSTALLATION

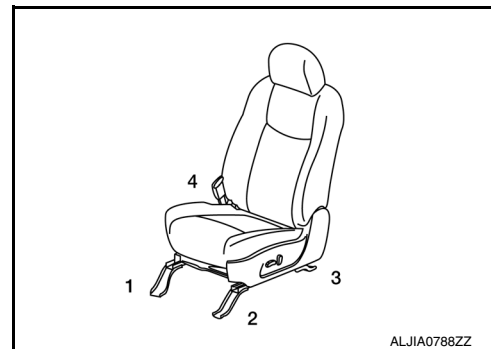
Installation is in the reverse order of removal.

CAUTION:

Make sure that the seat harness or the floor carpet is not damaged during installation.

NOTE:

- When installing the front seat (LH), tighten the bolts in the order shown.
- Tighten the seat bolts to specification. Refer to [SE-29, "DRIVER SIDE : Exploded View"](#).

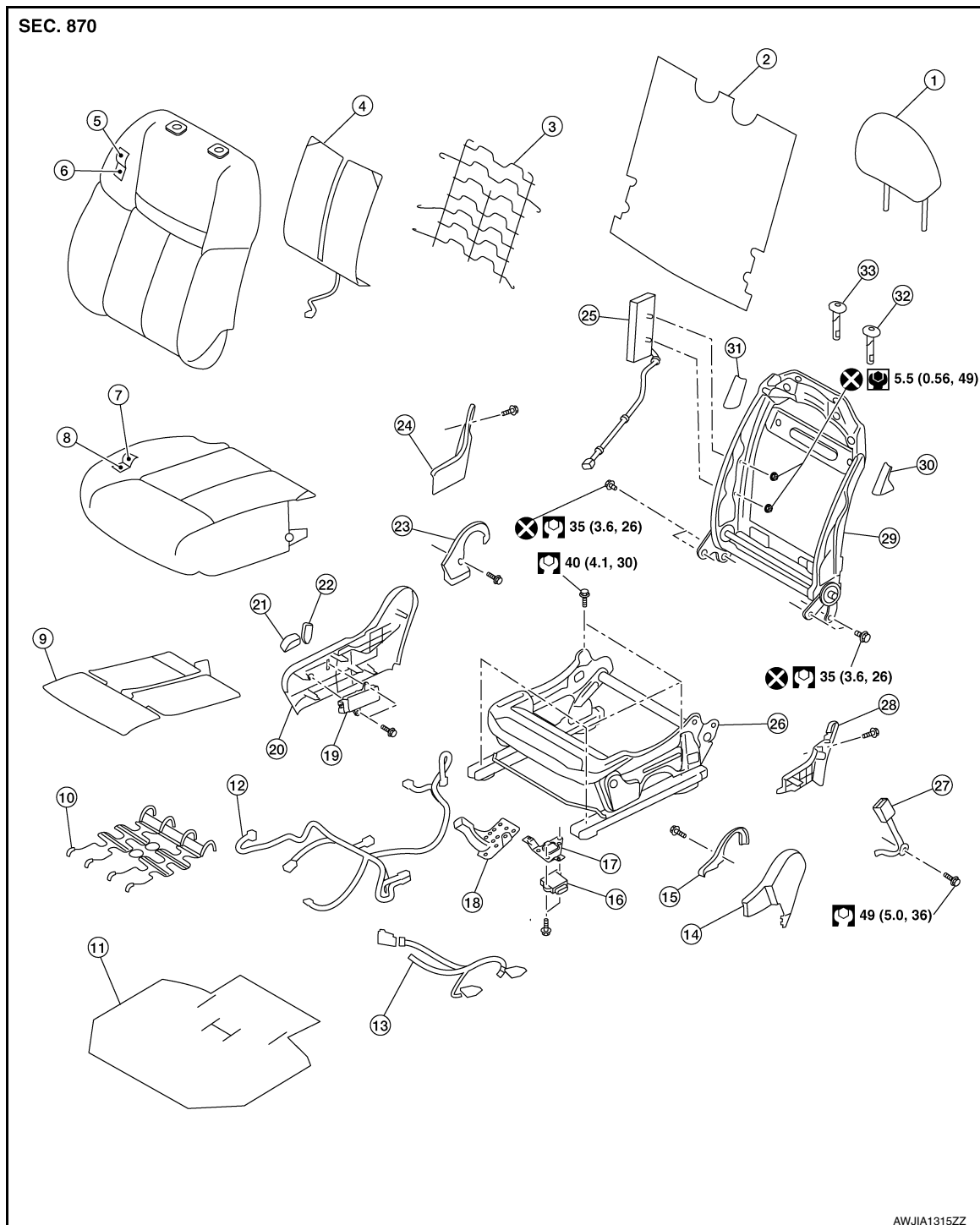


ALJIA0788ZZ

PASSENGER SIDE

INFOID:0000000010284558

SEC. 870



- 2014 Rogue NAM

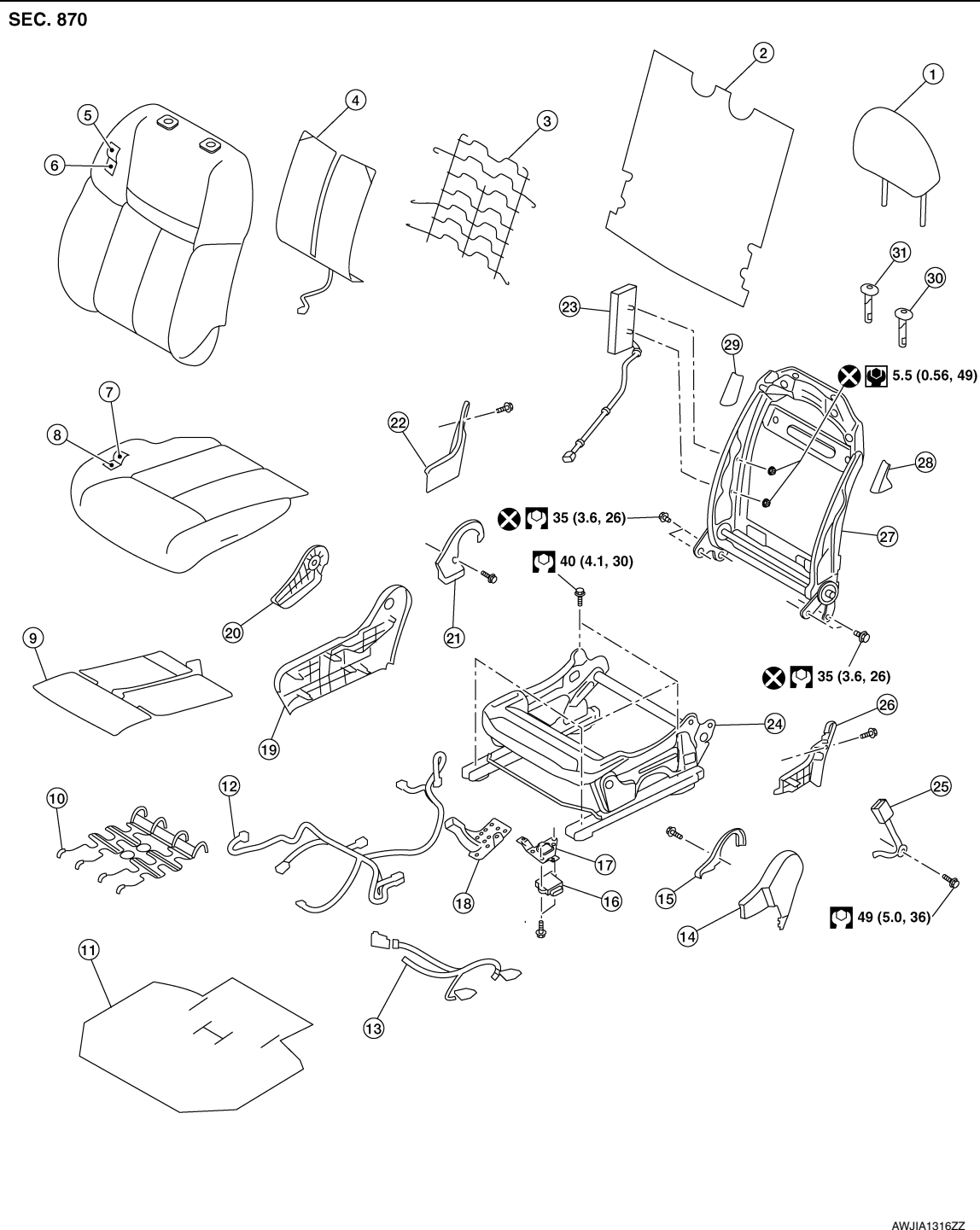
A
B
C
D
E
F
G
H
I
SE
K
L
M
N
O
P

FRONT SEAT

< REMOVAL AND INSTALLATION >

- | | | |
|---|--|-------------------------------------|
| 16. Occupant classification system control unit | 17. Occupant classification system bracket | 18. Wiring harness bracket |
| 19. Power seat switch | 20. Seat cushion outer finisher (RH) | 21. Seat slide knob |
| 22. Seat recline knob | 23. Seat cushion inner finisher (RH) | 24. Seat cushion rear finisher (RH) |
| 25. Side air bag module (not serviceable) | 26. Seat cushion frame | 27. Seat belt buckle |
| 28. Seat cushion rear finisher (LH) | 29. Seatback frame | 30. Seatback bracket (LH) |
| 31. Seatback bracket (RH) | 32. Headrest holder (locked) | 33. Headrest holder (free) |

MANUAL SEAT



FRONT SEAT

< REMOVAL AND INSTALLATION >

- | | | | |
|---|---|--------------------------------------|---|
| 1. Headrest | 2. Seatback board | 3. Seatback support | A |
| 4. Seatback heater (if equipped) | 5. Seatback trim | 6. Seatback pad | |
| 7. Seat cushion trim | 8. Seat cushion pad | 9. Seat cushion heater (if equipped) | B |
| 10. Seat cushion support | 11. Seat cushion silencer | 12. Seat harness | |
| 13. Occupant classification system harness | 14. Seat cushion outer finisher (LH) | 15. Seat cushion inner finisher (LH) | C |
| 16. Occupant classification system control unit | 17. Occupant classification system control unit bracket | 18. Wiring harness bracket | |
| 19. Seat cushion outer finisher | 20. Recline lever | 21. Seat cushion inner finisher (RH) | D |
| 22. Seat cushion rear finisher (RH) | 23. Side air bag module (not serviceable) | 24. Seat cushion frame | |
| 25. Seat belt buckle | 26. Seat cushion rear finisher (LH) | 27. Seatback frame | E |
| 28. Seatback bracket (LH) | 29. Seatback bracket (RH) | 30. Headrest holder (free) | |
| 31. Headrest holder (locking) | | | |

PASSENGER SIDE : Removal and Installation

INFOID:0000000010284559

REMOVAL

WARNING:

Do not leave any objects (screwdrivers, tools, etc.) on the seat during seatback repair. It can lead to personal injury if the side air bag module should accidentally deploy.

CAUTION:

- When removing or installing the seat trim, handle it carefully to keep dirt out and to avoid damage.
- When checking the power seat circuit for continuity using a circuit tester, do not confuse its connector with the side air bag module connector. Such an error may cause the air bag module to deploy.
- Do not drop, tilt, or bump the side air bag module while installing the seat. Always handle it with care.
- After front side air bag module inflates, the front seatback assembly must be replaced.
- When removing and installing the seat, use shop cloths to protect components from damage.
- Before removing the front seat, turn the ignition switch OFF, disconnect both battery cables then wait at least three minutes.

1. Slide the seat to the full rearward position.
2. Disconnect negative and positive battery terminals, then wait at least three minutes. Refer to [PG-77, "Removal and Installation"](#) (power seat only).
3. Disconnect harness connector from side air bag module.
4. Remove front bolts.
5. Connect negative and positive battery terminals, then slide the seat to the full forward position. Refer to [PG-77, "Removal and Installation"](#) (power seat only).
6. Slide the seat to the full forward position.
7. Disconnect negative and positive battery terminals, then wait at least three minutes. Refer to [PG-77, "Removal and Installation"](#) (power seat only).
8. Remove rear bolts.
9. Tilt the seat rearward and disconnect the harness connectors from the seat.

NOTE:

Take note of harness routing and attachment locations for correct installation.

10. Remove the seat from the vehicle.

INSTALLATION

Installation is in the reverse order of removal.

WARNING:

- Perform additional services when installing front passenger seat. Refer to [SRC-42, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Description"](#).
- Zero point reset must be performed every time the front passenger seat is removed from the vehicle.
- Zero point reset is done after the front passenger seat is installed in vehicle and all bolts are tightened to specification.

FRONT SEAT

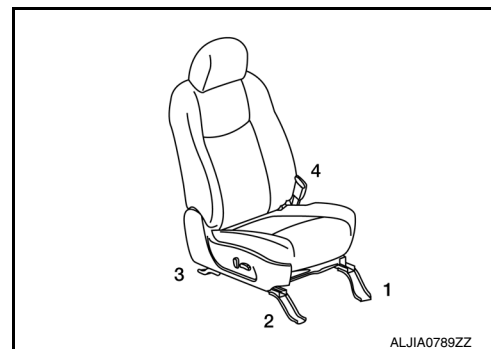
< REMOVAL AND INSTALLATION >

CAUTION:

Make sure that the seat harness or the floor carpet is not damaged during installation.

NOTE:

- When installing the front seat (RH), tighten the bolts in the order shown.
- Tighten the seat bolts to specification. Refer to [SE-33, "PASSENGER SIDE : Exploded View"](#).



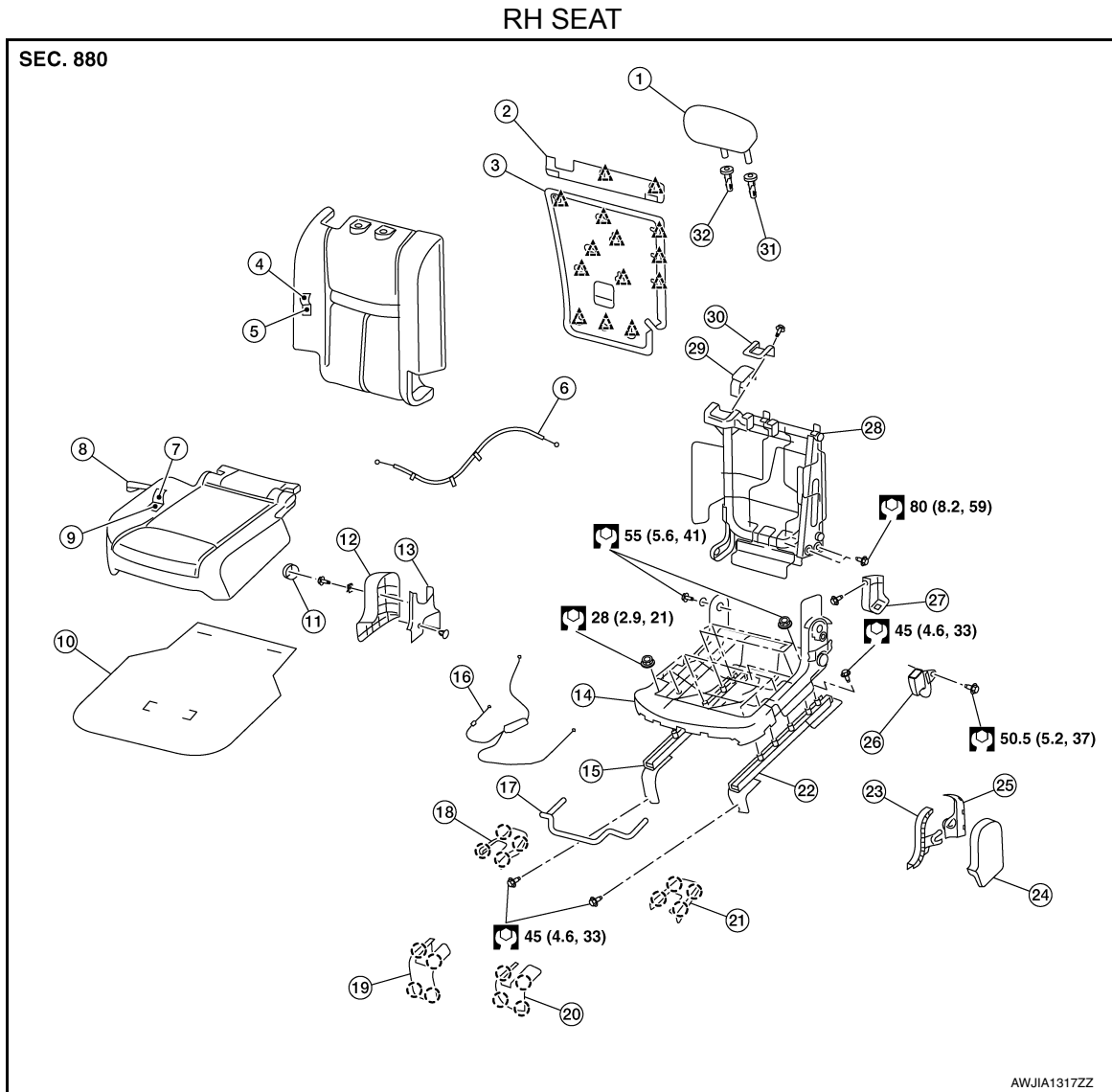
SECOND ROW SEATS

< REMOVAL AND INSTALLATION >

SECOND ROW SEATS

Exploded View

INFOID:000000009796590



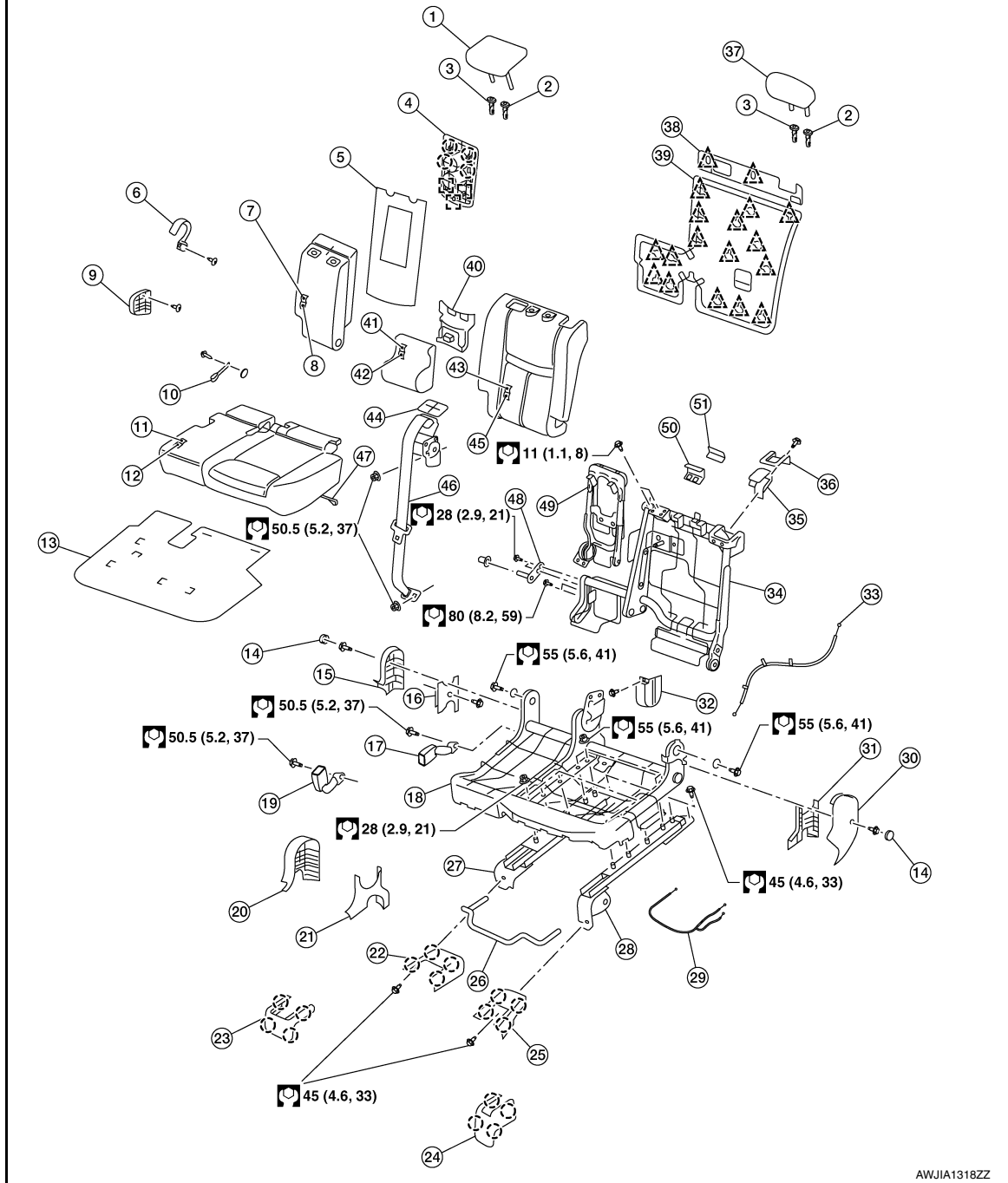
- | | | |
|--------------------------------------|--------------------------------------|--|
| 1. Headrest | 2. Seatback upper luggage board | 3. Seatback luggage board |
| 4. Seatback trim | 5. Seatback pad | 6. Recline release cable |
| 7. Seat cushion trim | 8. Fold flat strap | 9. Seat cushion pad |
| 10. Seat cushion silencer | 11. Bolt cover | 12. Seat cushion outer finisher (RH) |
| 13. Seat cushion inner finisher (RH) | 14. Seat cushion frame | 15. Seat cushion slide (RH) |
| 16. Seat cushion slide cable | 17. Seat slide control lever | 18. Rear bolt cover (RH) (with third row seat) |
| 19. Front bolt cover (RH) | 20. Front bolt cover (LH) | 21. Rear bolt cover (LH) (with third row seat) |
| 22. Seat cushion slide (LH) | 23. Seat cushion inner finisher (LH) | 24. Seat cushion outer finisher (LH) |
| 25. Seat cushion rear finisher (LH) | 26. Seat belt buckle | 27. Recline lever finisher |
| 28. Seatback frame | 29. Recline device | 30. Recline device cover |
| 31. Headrest holder (locked) | 32. Headrest holder (free) | △ Clip |
| ○ Pawl | | |

SECOND ROW SEATS

< REMOVAL AND INSTALLATION >

LH SEAT

SEC. 869 • 880



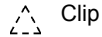
AWJIA1318ZZ

- | | | |
|--|---------------------------------------|---------------------------------------|
| 1. Headrest (center) | 2. Headrest holder (locked) | 3. Headrest holder (free) |
| 4. Cup holder | 5. Armrest board | 6. Armrest inner finisher |
| 7. Armrest trim | 8. Armrest pad | 9. Armrest outer finisher |
| 10. Armrest fold flat strap | 11. Seat cushion trim | 12. Seat cushion pad |
| 13. Seat cushion silencer | 14. Bolt cover | 15. Seat cushion outer finisher (RH) |
| 16. Seat cushion inner finisher (RH) | 17. Seat belt buckle (center) | 18. Seat cushion frame |
| 19. Seat belt buckle (LH) | 20. Seat cushion center finisher (RH) | 21. Seat cushion center finisher (LH) |
| 22. Rear bolt cover (RH) (with third row seat) | 23. Front bolt cover (RH) | 24. Front bolt cover (LH) |

SECOND ROW SEATS

< REMOVAL AND INSTALLATION >

- | | | |
|--|--|--|
| 25. Rear bolt cover (LH) (with third row seat) | 26. Seat slide control lever | 27. Seat cushion slide (RH) |
| 28. Seat cushion slide (LH) | 29. Seat cushion slide cable | 30. Seat cushion outer finisher (LH) |
| 31. Seat cushion inner finisher (LH) | 32. Armrest inner finisher | 33. Recline release cable |
| 34. Seatback frame | 35. Recline device | 36. Recline device finisher |
| 37. Headrest (LH) | 38. Seatback luggage upper board | 39. Seatback luggage board |
| 40. Armrest lower pad | 41. Seatback center trim | 42. Seatback center pad |
| 43. Seatback trim | 44. Seat belt retractor finisher | 45. Seatback pad |
| 46. Seat belt retractor (center) | 47. Fold flat strap | 48. Armrest bracket |
| 49. Armrest frame | 50. Seat belt retractor inner finisher | 51. Seat belt retractor outer finisher |



Clip



Pawl

Removal and Installation

INFOID:000000009796591

LH SEAT

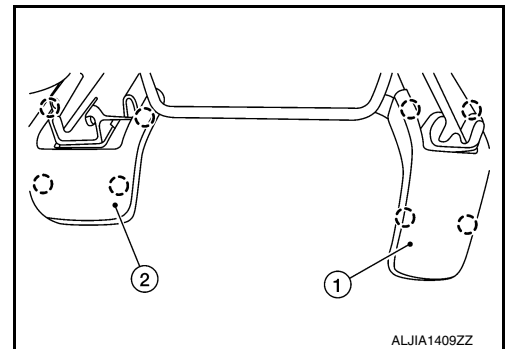
CAUTION:

During removal and installation, an assistant is required to protect against injury or damage.

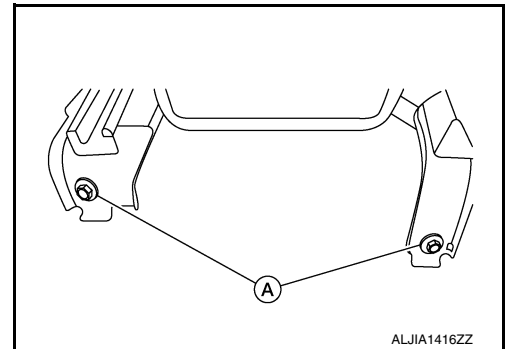
Removal

- Using a suitable tool release pawls and remove front bolt covers RH (2) and LH (1).

:Pawl

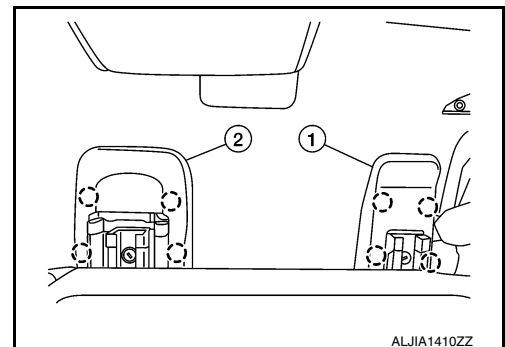


- Remove the seat front bolts (A).



- Slide the seat to the full forward position.
- Using a suitable tool release pawls and remove rear bolt covers RH (2) and LH (1) (with third row seat).

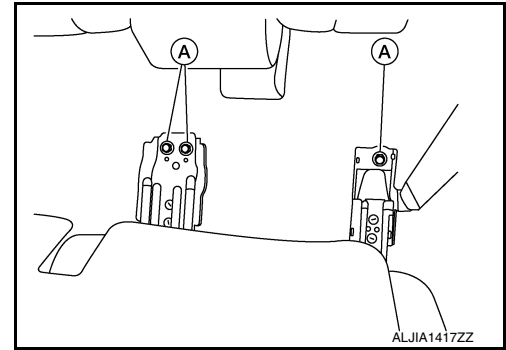
:Pawl



SECOND ROW SEATS

< REMOVAL AND INSTALLATION >

5. Remove the seat rear bolts (A).



6. Fold the seatback to the flat position, then remove the seat from the vehicle.

INSTALLATION

Installation is in the reverse order of removal.

RH SEAT

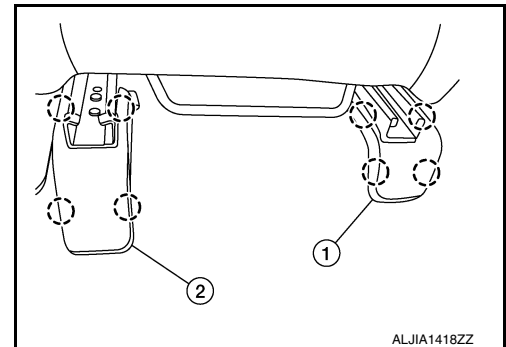
CAUTION:

During removal and installation, an assistant is required to protect against injury or damage.

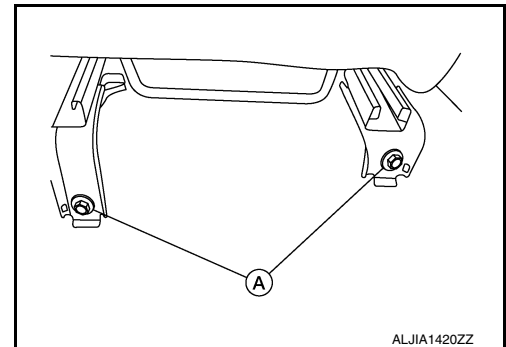
Removal

1. Using a suitable tool release pawls and remove front bolt covers LH (1) and RH (2).

○:Pawl

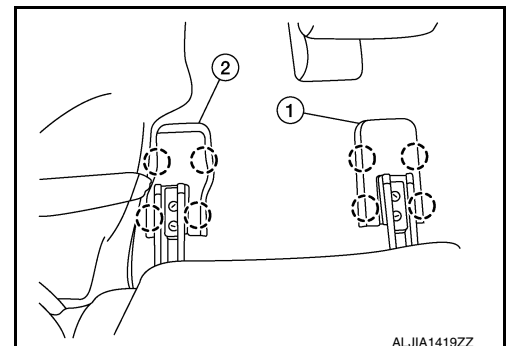


2. Remove the seat front bolts (A).



3. Slide the seat to the full forward position.
4. Using a suitable tool release pawls and remove rear bolt covers RH (2) and LH (1) (with third row seat).

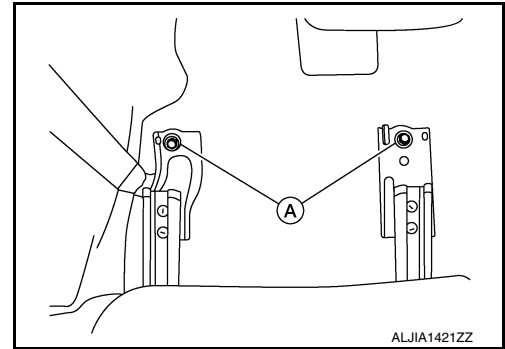
○:Pawl



SECOND ROW SEATS

< REMOVAL AND INSTALLATION >

5. Remove the seat rear bolts (A).



6. Fold the seatback to the flat position, then remove the seat from the vehicle.

INSTALLATION

Installation is in the reverse order of removal.

A
B
C
D
E
F
G
H
I
SE
K
L
M
N
O
P

THIRD ROW SEATS

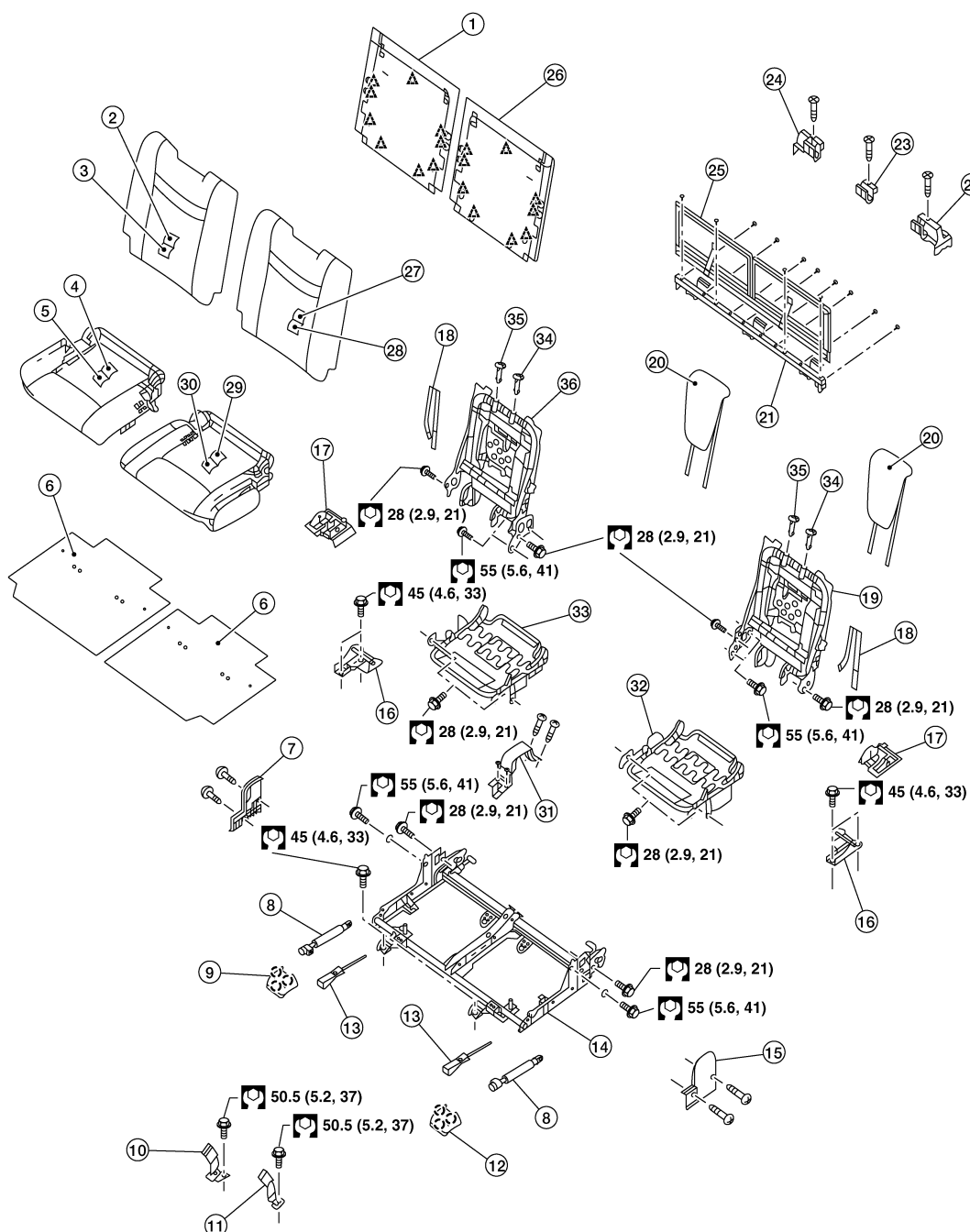
< REMOVAL AND INSTALLATION >

THIRD ROW SEATS

Exploded View

INFOID:000000010284103

SEC. 882



- | | | |
|-----------------------------|--------------------------|----------------------------------|
| 1. Seatback board (RH) | 2. Seatback trim (RH) | 3. Seatback pad (RH) |
| 4. Seat cushion trim (RH) | 5. Seat cushion pad (RH) | 6. Seat cushion silencer (LH/RH) |
| 7. Seat hinge finisher (RH) | 8. Gas stay | 9. Bolt cover (RH) |

THIRD ROW SEATS

< REMOVAL AND INSTALLATION >

- | | | |
|---|---|---|
| 10. Seat belt buckle (RH) | 11. Seat belt buckle (LH) | 12. Bolt cover (LH) |
| 13. Stopper pin | 14. Seat frame support | 15. Seat hinge finisher (LH) |
| 16. Seat striker (LH/RH) | 17. Seat striker finisher (LH/RH) | 18. Seatback pull strap (LH/RH) |
| 19. Seatback frame (LH) | 20. Headrest (LH/RH) | 21. Third row seat cross member |
| 22. Third row seat cross member finisher (LH) | 23. Third row seat cross member finisher (center) | 24. Third row seat cross member finisher (RH) |
| 25. Third row luggage floor | 26. Seatback board (LH) | 27. Seatback trim (LH) |
| 28. Seatback pad (LH) | 29. Seat cushion trim (LH) | 30. Seat cushion pad (LH) |
| 31. Seat frame finisher (center) | 32. Seat cushion frame (LH) | 33. Seat cushion frame (RH)) |
| 34. Headrest holder (locked) | 35. Headrest holder (free) | 36. Seatback frame (RH) |
-  Clip
  Pawl

Removal and Installation

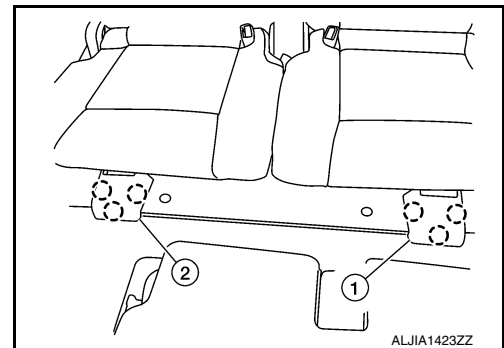
INFOID:000000010284104

CAUTION:

During removal and installation, an assistant is required to protect against injury or damage.

REMOVAL

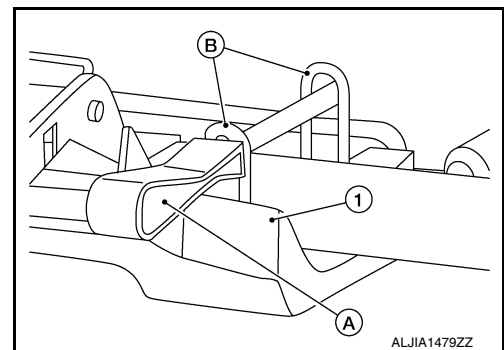
- Using a suitable tool release pawls and remove front bolt covers RH (2) and LH (1).



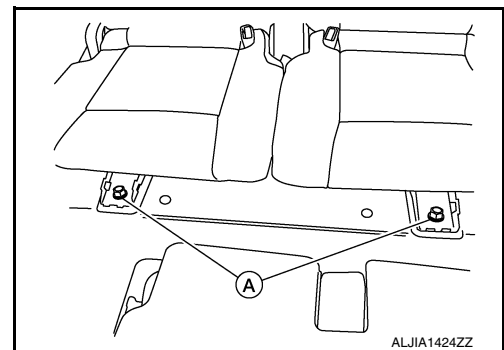
- Insert a suitable tool (A) through both U wires (B) of third row seat legs (1) (LH/RH).

WARNING:

Do not remove seat front bolts without inserting a suitable tool through both U wires to protect against personal injury.



- Remove the seat front bolts (A).

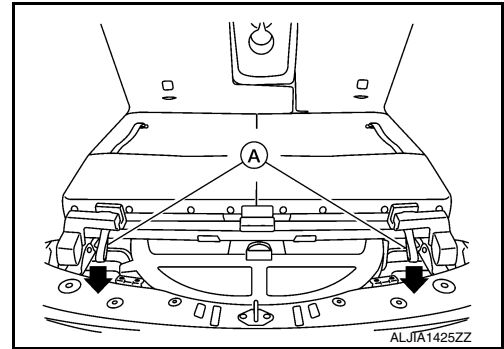


- Fold the seatback to the flat position and open back door.

THIRD ROW SEATS

< REMOVAL AND INSTALLATION >

5. Release seat latches by pulling straps (A) rearward, then lift seat from seat strikers (LH/RH) and remove.



INSTALLATION

Installation is in the reverse order of removal.

WARNING:

Do not remove suitable tool from U wires before installing seat front bolts or personal injury may occur.

NOTE:

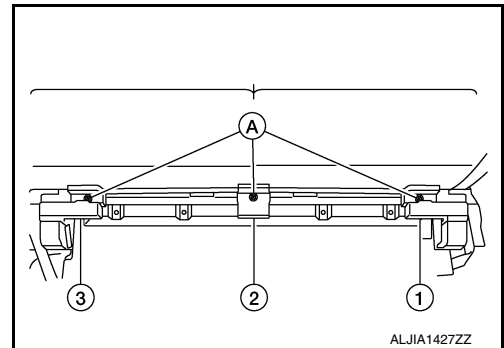
1. Two people are required to position the seat so the seat latches are over the seat striker locations.
2. Place rear seat legs on strikers, make sure to latch.
3. Check that the rear seat latch and striker do not interfere, then tighten bolts to specification. Refer to [SE-42, "Exploded View"](#).

Third Row Seat Cross Member

INFOID:0000000010290313

REMOVAL

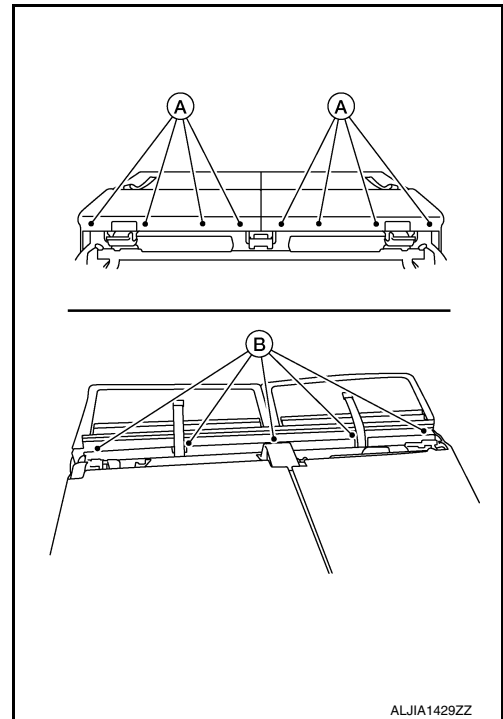
1. Remove the third row seat. Refer to [SE-43, "Removal and Installation"](#).
2. Remove screws (A) and third row seat cross member finishers (1, 2, 3).



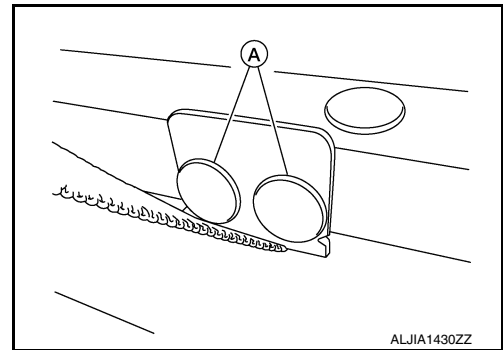
THIRD ROW SEATS

< REMOVAL AND INSTALLATION >

3. Release third row luggage board outer clips (A) and inner clips (B) using a suitable tool.



4. Release third row luggage board retainer strap clips (A) (LH/RH) using a suitable tool and remove third row luggage board.



5. Remove bolts and remove third row seat cross member.

INSTALLATION

Installation is in the reverse order of removal.

NOTE:

- Tighten the third row seat cross member to specification. Refer to [SE-80, "Exploded View"](#).

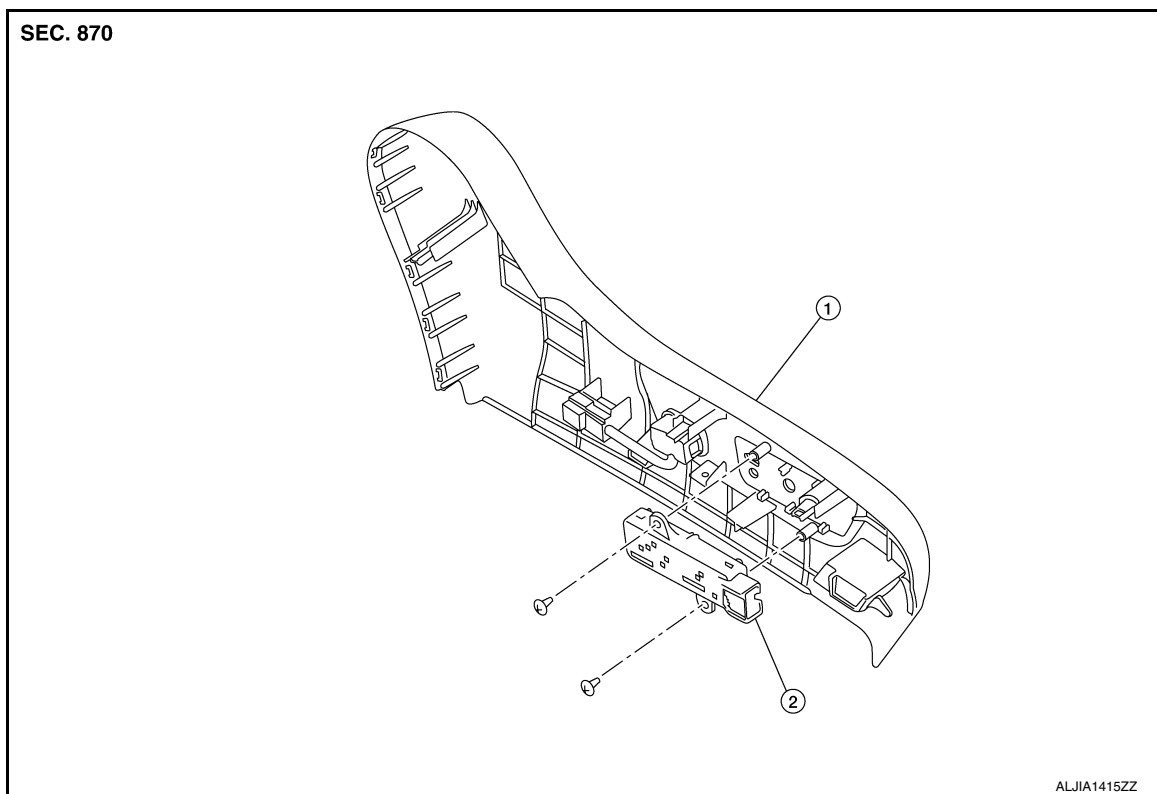
POWER SEAT SWITCH

< REMOVAL AND INSTALLATION >

POWER SEAT SWITCH

Exploded View

INFOID:000000009796593



Removal and Installation

INFOID:000000009796594

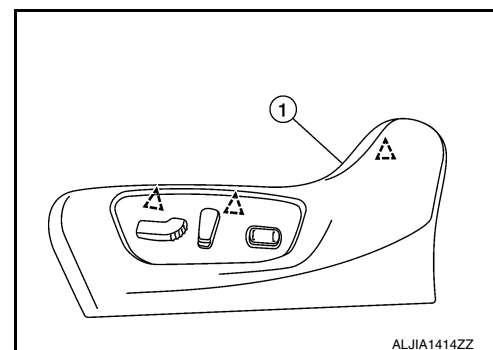
REMOVAL

NOTE:

LH shown, RH similar.

1. Using a suitable tool release clips and remove seat cushion outer finisher (1).

△: Clip



2. Disconnect harness connector from power seat switch.
3. Remove screws and power seat switch.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Visually check the clips for deformation and damage during installation. Replace with new ones if necessary.

POWER SEAT SWITCH

< REMOVAL AND INSTALLATION >

- When installing seat cushion outer finisher, check that clips are securely placed into seat cushion frame holes.

A

B

C

D

E

F

G

H

I

SE

K

L

M

N

O

P

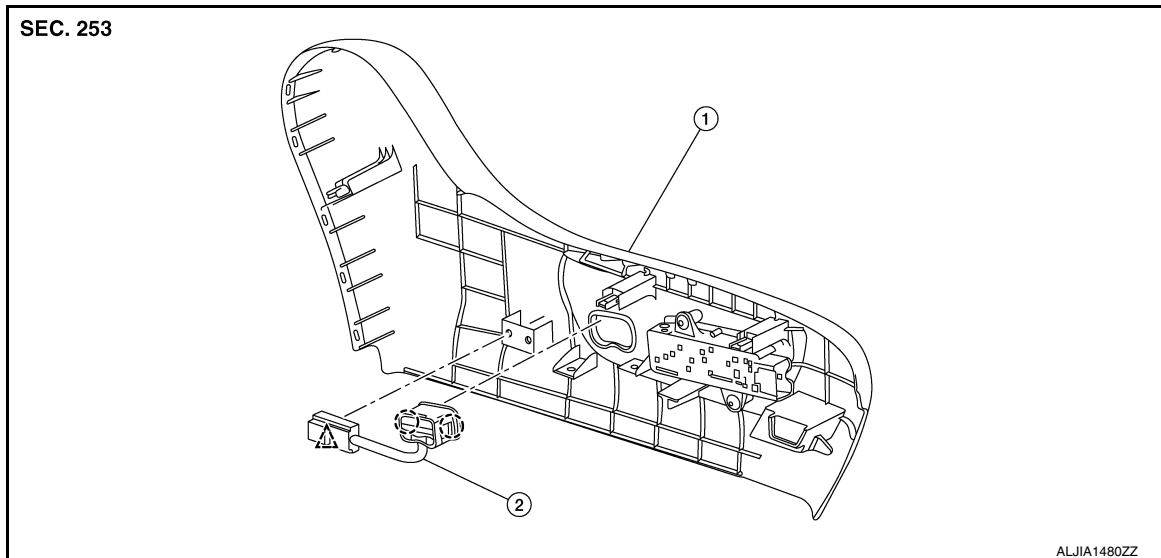
LUMBAR SUPPORT SWITCH

< REMOVAL AND INSTALLATION >

LUMBAR SUPPORT SWITCH

Exploded View

INFOID:0000000010351342



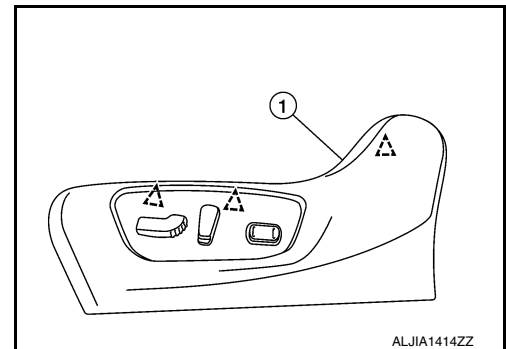
Removal and Installation

INFOID:0000000010351343

REMOVAL

1. Using a suitable tool release clips and remove seat cushion outer finisher (1).

△: Clip



2. Disconnect harness connector from lumbar support switch.
3. Using a suitable tool release clip and pawls and remove lumbar support switch.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Visually check the clips and pawls for deformation and damage during installation. Replace with new ones if necessary.
- When installing seat cushion outer finisher, check that clips are securely placed into seat cushion frame holes.

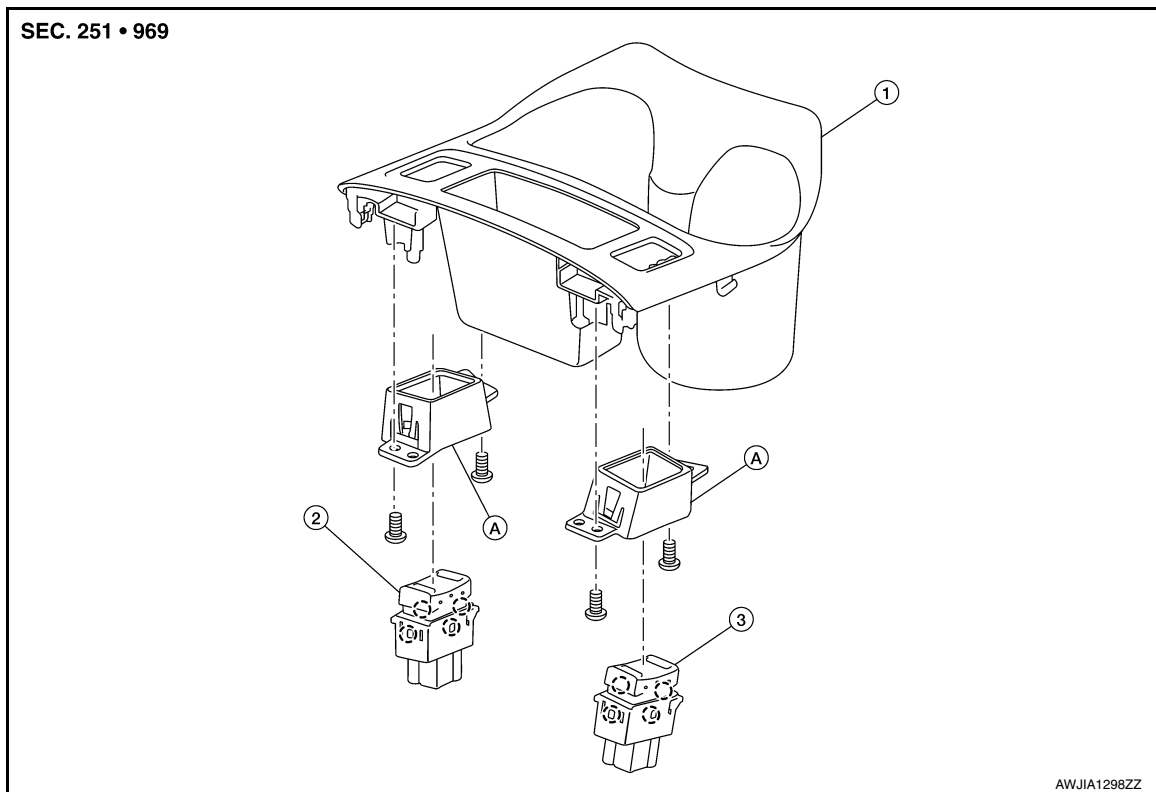
HEATED SEAT SWITCH

< REMOVAL AND INSTALLATION >

HEATED SEAT SWITCH

Exploded View

INFOID:000000009796595



- 1. Center console cup holder
- 2. Driver heated seat switch
- 3. Passenger heated seat switch
- A. Switch carrier
- Pawl

Removal and Installation

INFOID:000000009796596

REMOVAL

1. Remove the center console cup holder. Refer to [IP-18, "Exploded View"](#).
2. Remove screws from switch carrier and remove switch carrier.
3. Release pawls and remove heated seat switch.

INSTALLATION

Installation is in the reverse order of removal.

FRONT SEAT

< UNIT DISASSEMBLY AND ASSEMBLY >

UNIT DISASSEMBLY AND ASSEMBLY

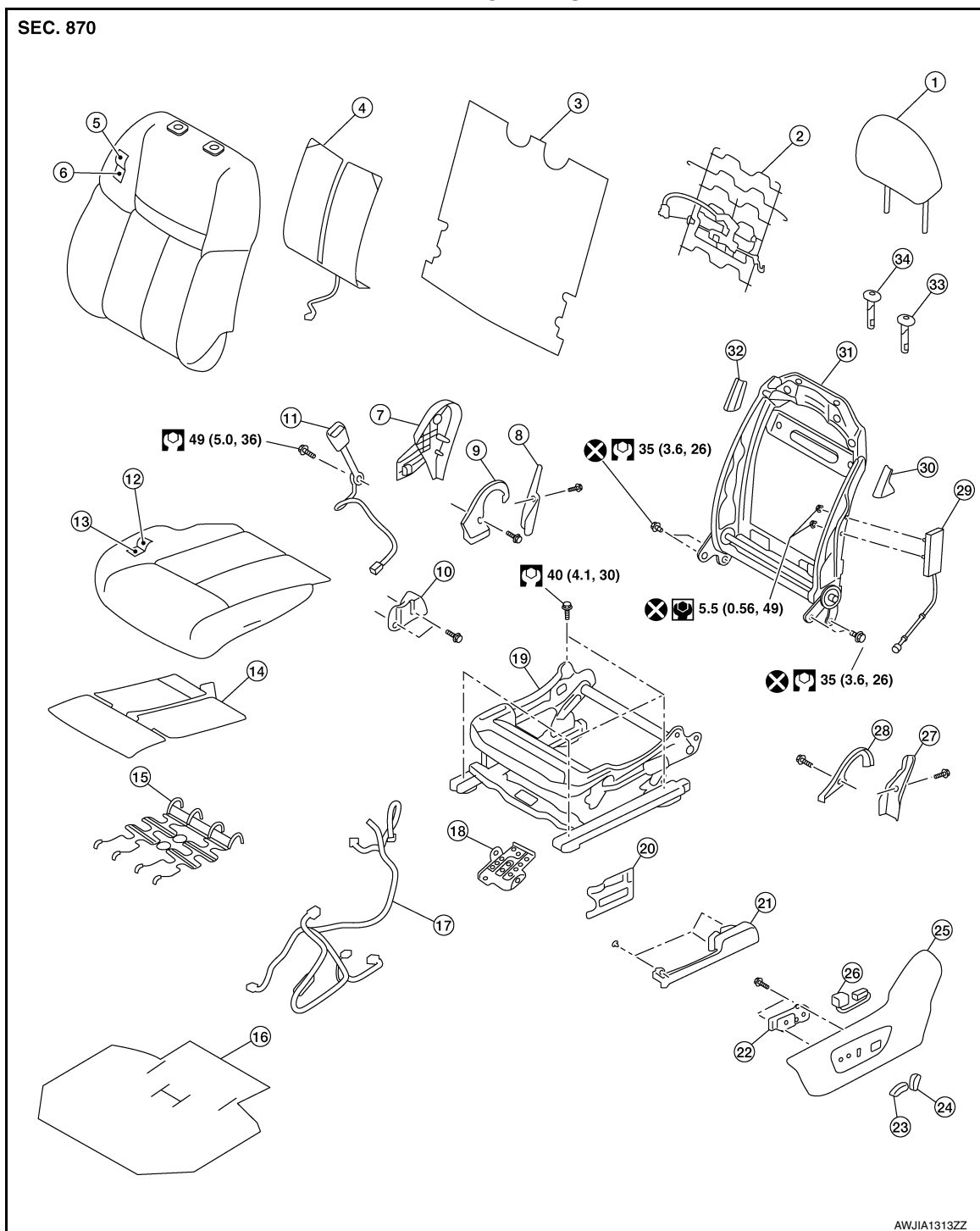
FRONT SEAT

Exploded View

INFOID:000000010308703

DRIVER POWER SEAT

SEC. 870



- | | | |
|----------------------------------|---------------------|-------------------|
| 1. Headrest | 2. Seatback support | 3. Seatback board |
| 4. Seatback heater (if equipped) | 5. Seatback trim | 6. Seatback pad |

FRONT SEAT

< UNIT DISASSEMBLY AND ASSEMBLY >

- | | | | |
|--------------------------------------|---|-------------------------------------|---|
| 7. Seat cushion outer finisher (RH) | 8. Seat cushion rear finisher (RH) | 9. Seat cushion inner finisher (RH) | A |
| 10. Seat slide finisher (RH) | 11. Seat belt buckle | 12. Seat cushion trim | |
| 13. Seat cushion pad | 14. Seat cushion heater (if equipped) | 15. Seat cushion support | B |
| 16. Seat cushion silencer | 17. Seat harness | 18. Seat harness bracket | |
| 19. Seat cushion frame | 20. Seat slide finisher bracket (LH) | 21. Seat slide finisher (LH) | C |
| 22. Power seat switch | 23. Seat slide knob | 24. Side recline knob | |
| 25. Seat cushion outer finisher (LH) | 26. Lumbar support switch | 27. Seat cushion rear finisher (LH) | |
| 28. Seat cushion inner finisher (LH) | 29. Side air bag module (not serviceable) | 30. Seatback bracket (LH) | D |
| 31. Seatback frame | 32. Seatback bracket (RH) | 33. Headrest holder (locked) | |
| 34. Headrest holder (free) | | | E |

A
B
C
D
E
F
G
H
I
K
L
M
N
O
P

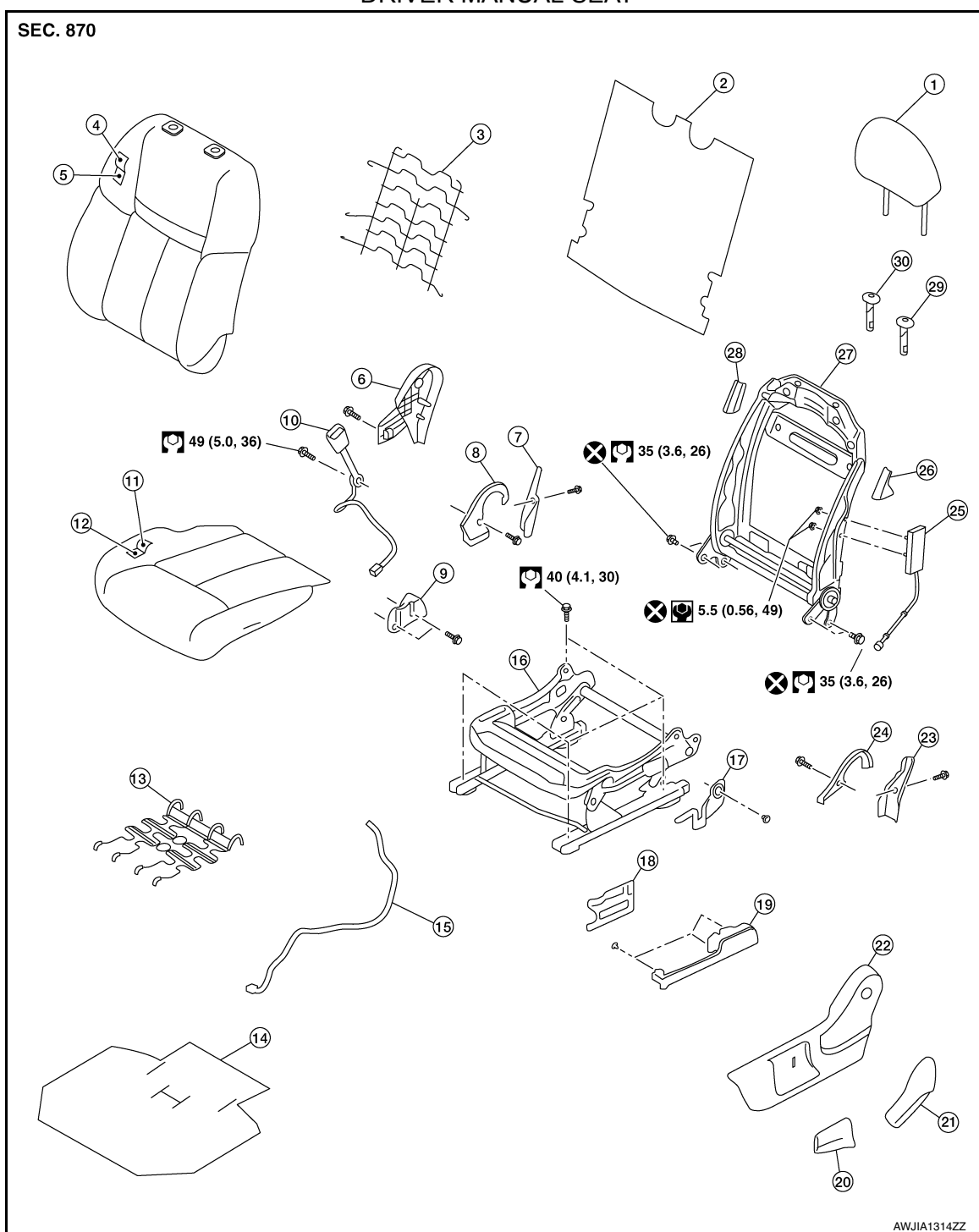
SE

FRONT SEAT

< UNIT DISASSEMBLY AND ASSEMBLY >

DRIVER MANUAL SEAT

SEC. 870



AWJIA1314ZZ

- | | | |
|--------------------------------------|-------------------------------------|--------------------------------------|
| 1. Headrest | 2. Seatback board | 3. Seatback support |
| 4. Seatback trim | 5. Seatback pad | 6. Seat cushion outer finisher |
| 7. Seat cushion rear finisher (RH) | 8. Seat cushion inner finisher (RH) | 9. Seat slide finisher (RH) |
| 10. Seat belt buckle | 11. Seat cushion trim | 12. Seat cushion pad |
| 13. Seat cushion support | 14. Seat cushion silencer | 15. Seat harness |
| 16. Seat cushion frame | 17. Recline switch | 18. Seat slide finisher bracket (LH) |
| 19. Seat slide finisher (LH) | 20. Lift lever | 21. Recline lever |
| 22. Seat cushion outer finisher (LH) | 23. Seat cushion rear finisher (LH) | 24. Seat cushion inner finisher (LH) |

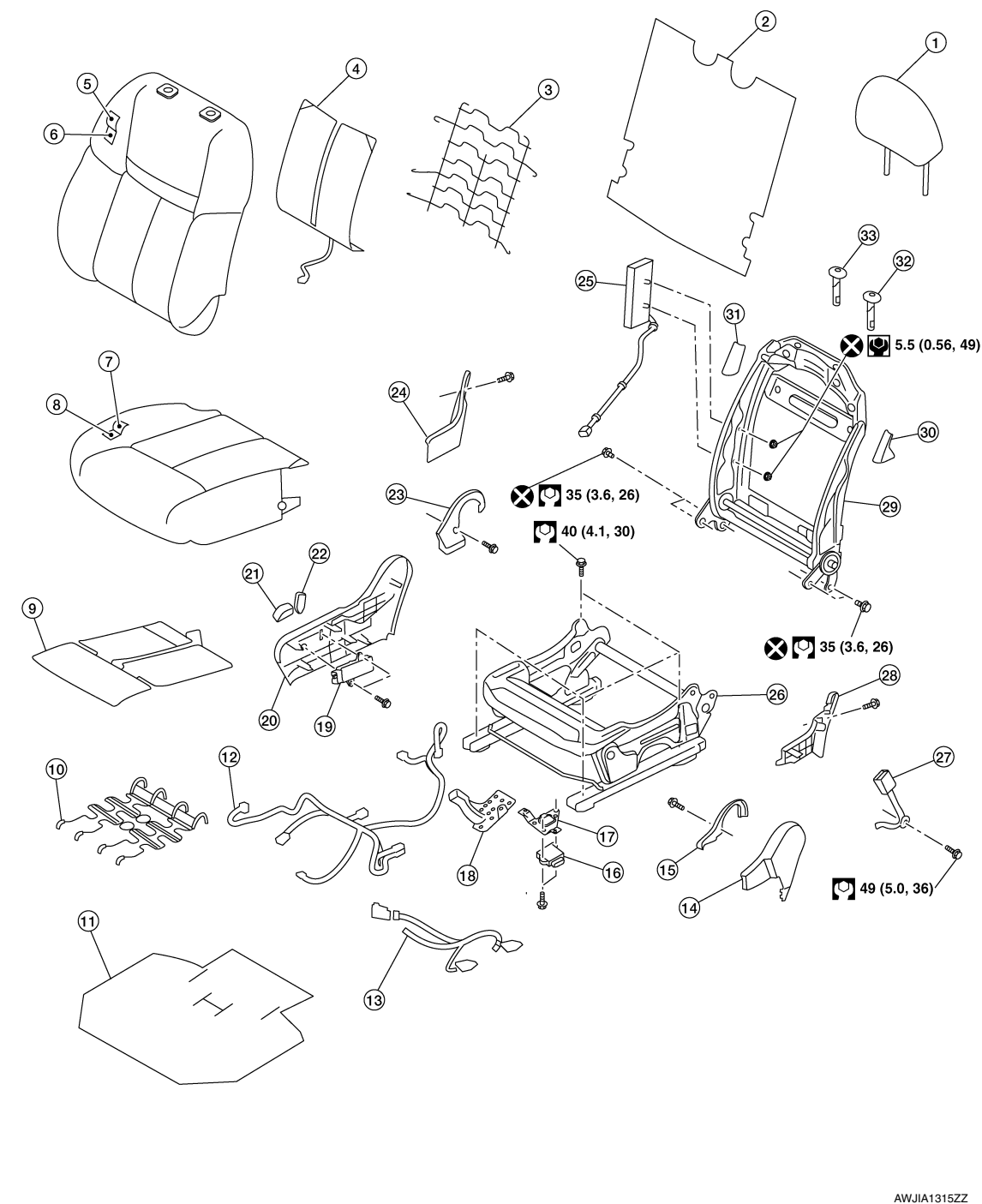
FRONT SEAT

< UNIT DISASSEMBLY AND ASSEMBLY >

- | | | |
|--|------------------------------|------------------------|
| 25. Side air bag module (not service-able) | 26. Seatback bracket (LH) | 27. Seatback frame |
| 28. Seatback bracket (RH) | 29. Headrest holder (locked) | Headrest holder (free) |

PASSENGER POWER SEAT

SEC. 870



- | | | |
|--|--------------------------------------|--------------------------------------|
| 1. Headrest | 2. Seatback board | 3. Seatback support |
| 4. Seatback heater unit | 5. Seat cushion trim | 6. Seat cushion pad |
| 7. Seat cushion trim | 8. Seat cushion pad | 9. Seat cushion heater unit |
| 10. Seat cushion support | 11. Seat cushion silencer | 12. Seat harness |
| 13. Occupant classification system harness | 14. Seat cushion outer finisher (LH) | 15. Seat cushion inner finisher (LH) |

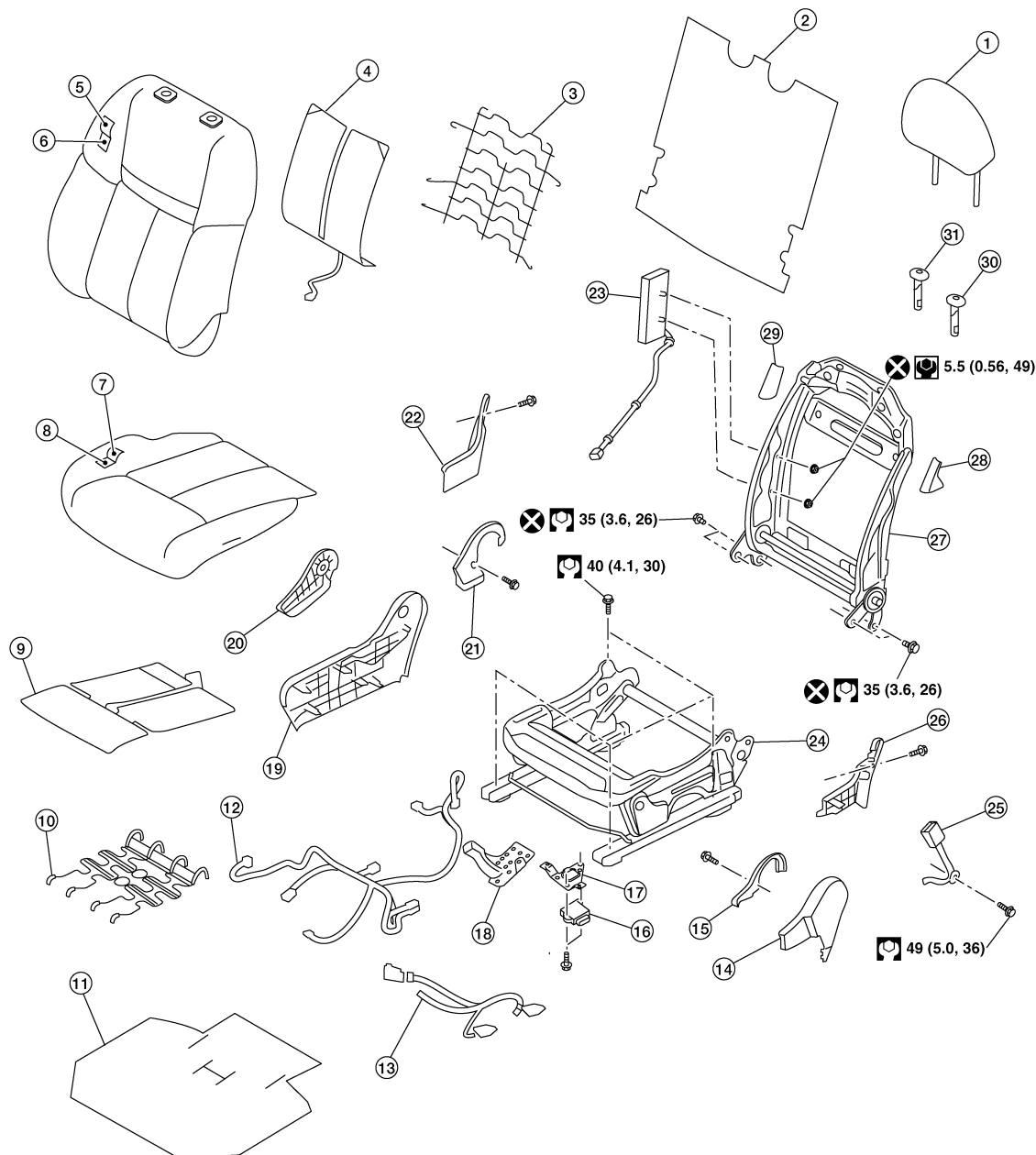
FRONT SEAT

< UNIT DISASSEMBLY AND ASSEMBLY >

- | | | |
|---|--|-------------------------------------|
| 16. Occupant classification system control unit | 17. Occupant classification system bracket | 18. Wiring harness bracket |
| 19. Power seat switch | 20. Seat cushion outer finisher (RH) | 21. Seat slide knob |
| 22. Seat recline knob | 23. Seat cushion inner finisher (RH) | 24. Seat cushion rear finisher (RH) |
| 25. Side air bag module (not service-able) | 26. Seat cushion frame | 27. Seat belt buckle |
| 28. Seat cushion rear finisher (LH) | 29. Seatback frame | 30. Seatback bracket (LH) |
| 31. Seatback bracket (RH) | 32. Headrest holder (locked) | 33. Headrest holder (free) |

PASSENGER MANUAL SEAT

SEC. 870



AWJIA1316ZZ

FRONT SEAT

< UNIT DISASSEMBLY AND ASSEMBLY >

- | | | |
|---|---|---|
| 1. Headrest | 2. Seatback board | 3. Seatback support |
| 4. Seatback heater unit (if equipped) | 5. Seatback trim | 6. Seatback pad |
| 7. Seat cushion trim | 8. Seat cushion pad | 9. Seat cushion heater unit (if equipped) |
| 10. Seat cushion support | 11. Seat cushion silencer | 12. Seat harness |
| 13. Occupant classification system harness | 14. Seat cushion outer finisher (LH) | 15. Seat cushion inner finisher (LH) |
| 16. Occupant classification system control unit | 17. Occupant classification system control unit bracket | 18. Wiring harness bracket |
| 19. Seat cushion outer finisher | 20. Recline lever | 21. Seat cushion inner finisher (RH) |
| 22. Seat cushion rear finisher (RH) | 23. Side air bag module (not serviceable) | 24. Seat cushion frame |
| 25. Seat belt buckle | 26. Seat cushion rear finisher (LH) | 27. Seatback frame |
| 28. Seatback bracket (LH) | 29. Seatback bracket (RH) | 30. Headrest holder (free) |
| 31. Headrest holder (locking) | | |

Seatback

INFOID:0000000010283515

DISASSEMBLY

WARNING:

Do not leave any objects (screwdrivers, tools, etc.) on the seat during seatback repair. It can lead to personal injury if the side air bag module should accidentally deploy.

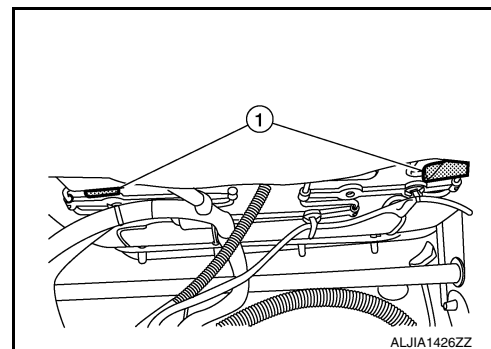
CAUTION:

- Before servicing, turn the ignition switch OFF, disconnect both battery terminals then wait at least three minutes.
- Always work from the side or back of the seatback, do not work in front of seat.
- Do not use air tools or electric tools for servicing the seat assembly.
- Do not insert any objects into the side air bag module.
- Do not attempt to disassemble the side air bag module.
- Do not expose the side air bag module to temperatures exceeding 93°C (199°F).
- Do not expose the side air bag module to any oil, grease, detergent or water.
- During disassembly, do not damage the seatback board, connectors, retainers, clips, module harness or the side air bag module.

NOTE:

- If the vehicle has been involved in a collision and the side air bag module has deployed, the seat trim must be replaced.
- Front seat (LH) shown, front seat (RH) similar.

1. Remove driver side front seat or front seat passenger side. Refer to [SE-32, "DRIVER SIDE : Removal and Installation"](#) (DRIVER SIDE), [SE-35, "PASSENGER SIDE : Removal and Installation"](#) (PASSENGER SIDE).
2. Release J-hooks (1) fastener (LH/RH).



3. Press the headrest holder lock button, then lift headrest up and remove.

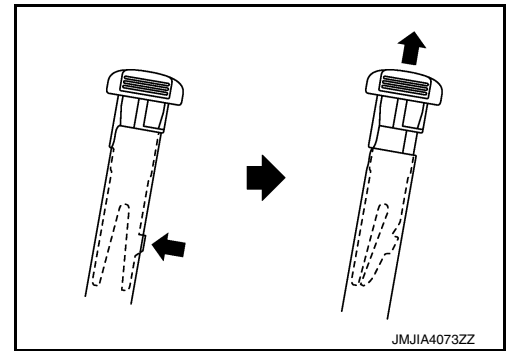
FRONT SEAT

< UNIT DISASSEMBLY AND ASSEMBLY >

4. Release headrest holder locks as shown and remove headrest holders.

CAUTION:

Before removing/installing the headrest holder, check its orientation (front/rear and right/left).



5. Release side air bag module harness clips from seat frame.

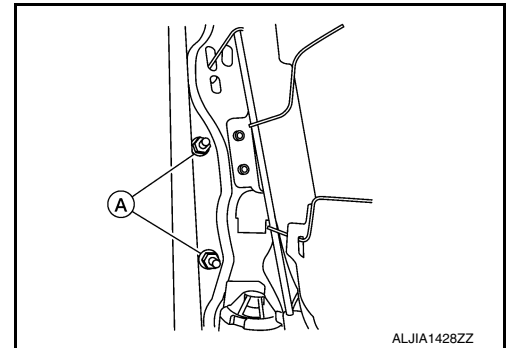
NOTE:

Take note of harness routing and attachment location for correct installation.

6. Remove side air bag module harness nuts (A).

CAUTION:

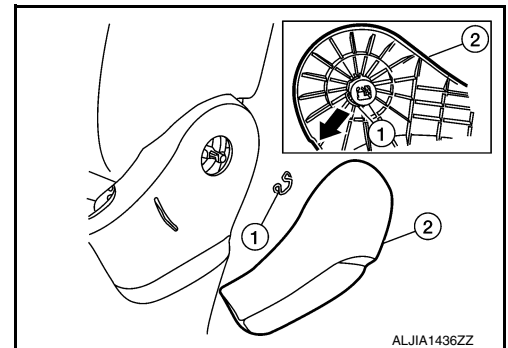
Do not reuse side air bag module nuts.



7. Remove seat cushion outer finisher (LH).

- a. For manual seat:

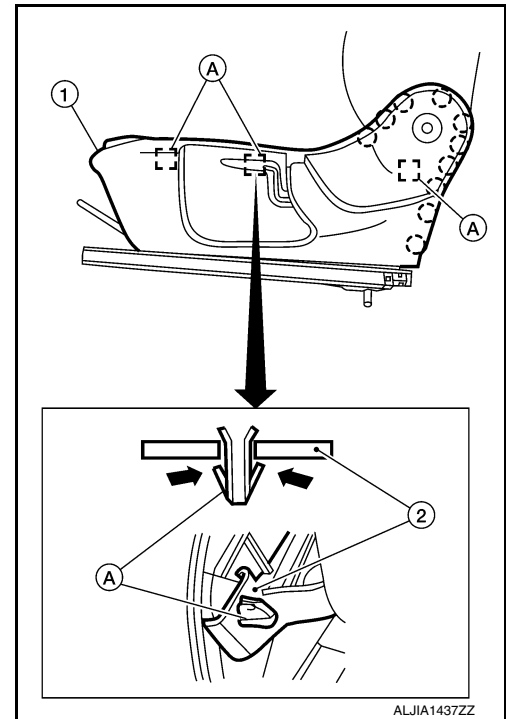
- i. Remove snap ring (1) as shown (←) using a suitable tool, then remove the recline lever (2).



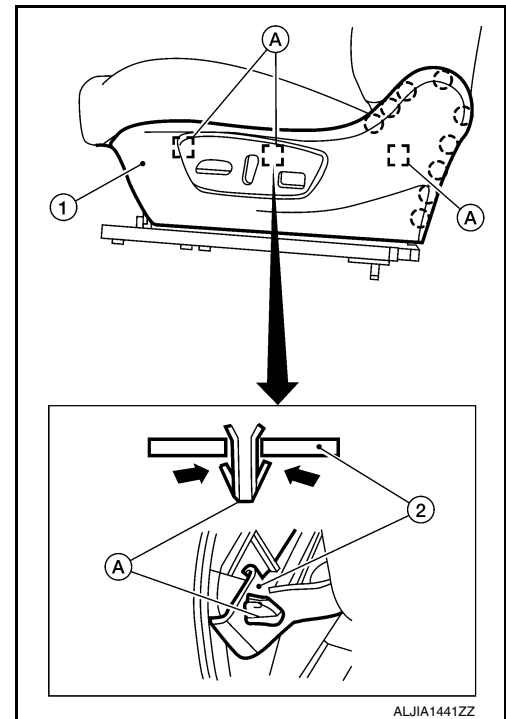
FRONT SEAT

< UNIT DISASSEMBLY AND ASSEMBLY >

- ii. Release pawl and remove lift lever.
 - iii. Release metal clips (A) from seat cushion frame as shown (←).
 - iv. Release remaining pawls then remove seat cushion outer finisher (LH) (1).
- []: Metal clip
 ○: Pawl



- b. For power seat:
 - i. Remove the seat cushion outer finisher (LH) (1).
 - ii. Release metal clips (A) from seat frame (2), as shown.
 - iii. Release pawls and remove.
- []: Metal clip
 ○: Pawl



- iv. Disconnect harness connectors from the power seat switch and lumbar support switch.

FRONT SEAT

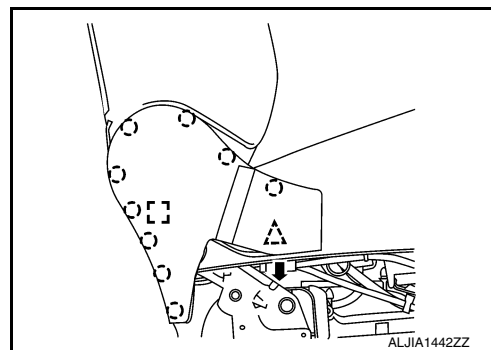
< UNIT DISASSEMBLY AND ASSEMBLY >

8. Release pawls and clips, and remove seat cushion outer finisher (RH) in the direction shown (←).

○: Pawl

□: Metal clip

△: Clip



9. Release clips and remove side air bag module harness from seat frame.

NOTE:

Take note of harness routing and attachment location for correct installation.

10. Disconnect the harness connector from lumbar support motor (if equipped) and release harness from seatback assembly.

NOTE:

Take note of harness routing and attachment location for correct installation.

11. Disconnect the harness connector for the front seat heater (if equipped).

NOTE:

Take note of harness routing and attachment location for correct installation.

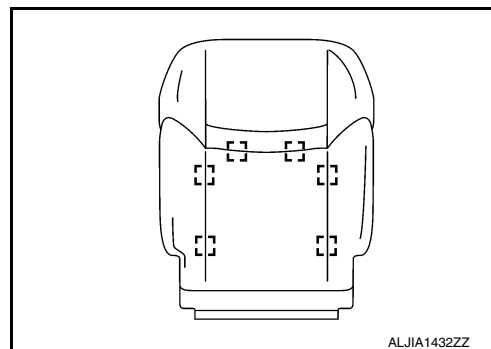
12. Remove seatback trim and pad.

13. Release fastener and remove hog rings, then separate seatback trim from seatback pad.

NOTE:

Remove all pieces of hog rings and discard them.

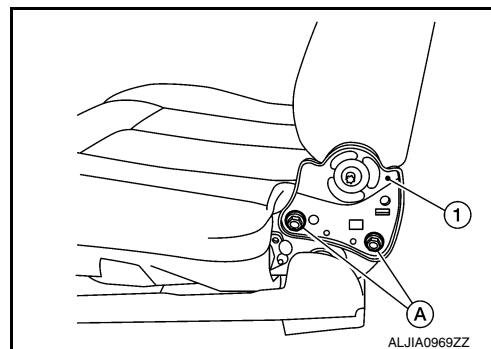
□: Hog ring



14. Remove screws (A) on both sides of the seatback frame (1).

CAUTION:

Do not reuse seatback frame screws. Replace with new ones.

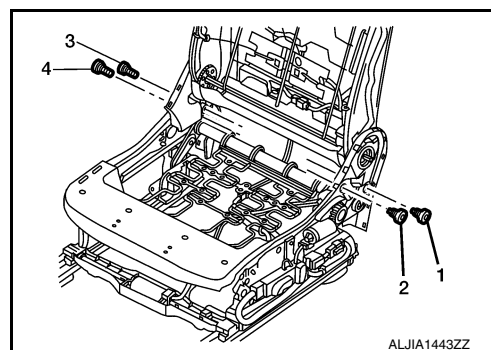


ASSEMBLY

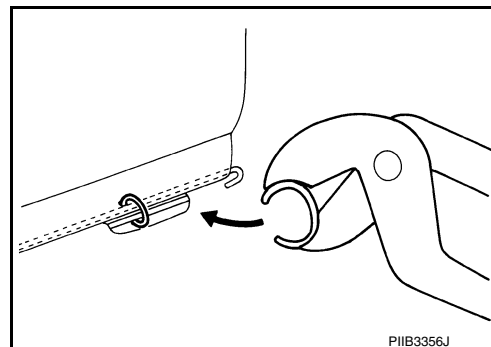
FRONT SEAT

< UNIT DISASSEMBLY AND ASSEMBLY >

- First tighten screws by hand in the order shown.
- Tighten the seatback assembly screws to specification. Refer to [SE-50, "Exploded View"](#).



- Install new hog rings on the seatback trim in original positions.
- Use only one hog ring in each designated location.
- Make sure hog rings are correctly fastened around both the seat back trim and seatback pad wires.
- Use NISSAN standard hog rings and tools to assemble.
- Make sure hook fastener is pressed into place after seatback trim is assembled.
- Smooth out all wrinkles during assembly.



CAUTION:

- Do not reuse seatback frame bolts, replace with new ones.
- Always route side air bag module harness in original location. Replace any deformed or damaged clips with same type and color. Always install clips in the original location in the harness.
- After work is completed, check that no system malfunction is detected causing the air bag warning lamp to illuminate.
- If a malfunction is detected by the air bag warning lamp after repair or replacement of the malfunction parts, perform the SRS final check. Refer to [SRC-16, "Description"](#).

Seat Cushion

INFOID:0000000010283516

DISASSEMBLY

WARNING:

Do not leave any objects (screwdrivers, tools, etc.) on the seat during seat cushion repair. It can lead to personal injury if the side air bag module should accidentally deploy.

CAUTION:

- Before servicing, turn the ignition switch OFF, disconnect both battery terminals and wait at least three minutes.
- Always work from the side or back of the seatback assembly, do not work in front of seat.
- Do not use air tools or electric tools for servicing the seat assembly.

NOTE:

Front seat (LH) shown, front seat (RH) similar.

1. Remove the front seat driver side or front seat passenger side. Refer to [SE-32, "DRIVER SIDE : Removal and Installation"](#) (DRIVER SIDE), [SE-35, "PASSENGER SIDE : Removal and Installation"](#) (PASSENGER SIDE).

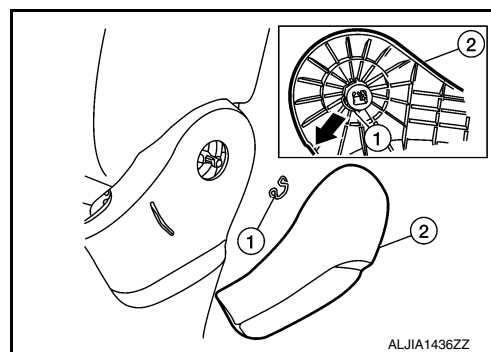
FRONT SEAT

< UNIT DISASSEMBLY AND ASSEMBLY >

2. Remove seat cushion outer finisher (LH).

a. For manual seat:

- i. Remove snap ring (1) as shown (↩) using a suitable tool, then remove the recline lever (2).



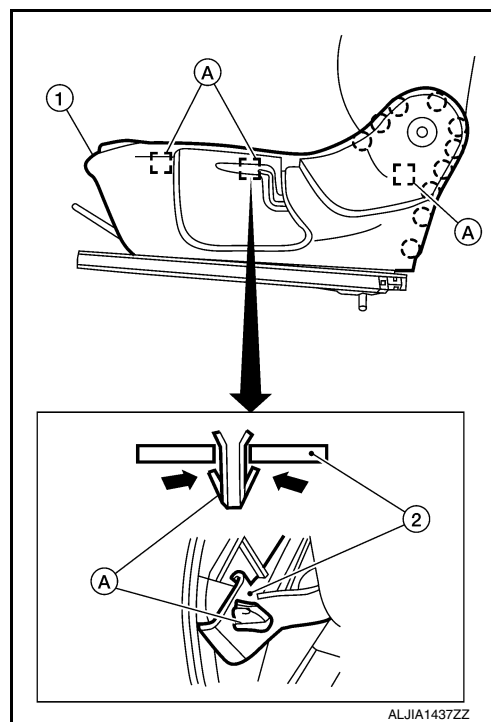
ii. Release pawl and remove lift lever.

iii. Release metal clips (A) from seat cushion frame as shown (↩).

[]: Metal clip

iv. Release remaining pawls then remove seat cushion outer finisher (LH) (1).

(○): Pawl



b. For power seat:

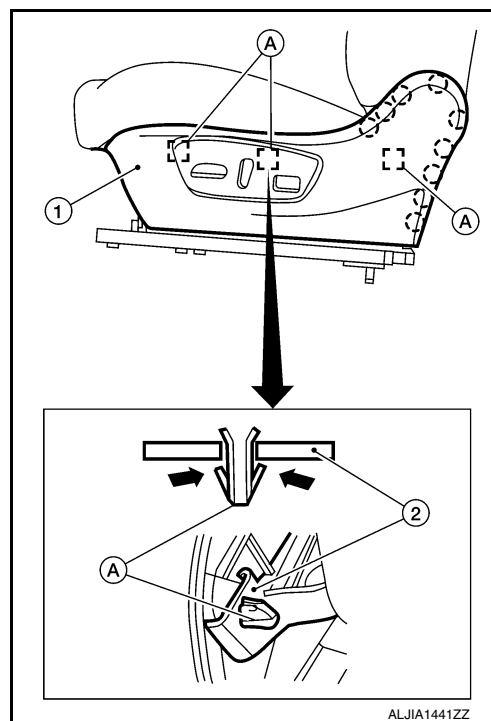
i. Remove the seat cushion outer finisher (LH) (1).

ii. Release metal clips (A) from seat frame (2), as shown (↩).

[]: Metal clip

iii. Release pawls and remove.

(○): Pawl

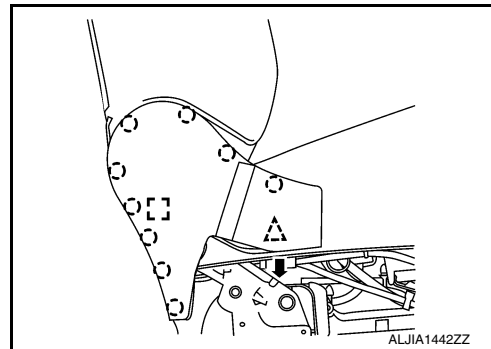


FRONT SEAT

< UNIT DISASSEMBLY AND ASSEMBLY >

- iv. Disconnect harness connectors from the power seat switch and lumbar support switch.
3. Release pawls and clips, and remove seat cushion outer finisher (RH) in the direction shown (←).

- : Pawl
- : Metal clip
- △: Clip



4. Release two seatback J-clip retainers from the seat frame.
5. Partially release seatback fasteners (LH/RH).
6. Release ten seat cushion J-clips holding the seat cushion trim to the seat frame.
7. Remove seat cushion trim and seat cushion pad as an assembly from the seat frame.
8. Remove hog rings and separate seat cushion trim and seat cushion pad.

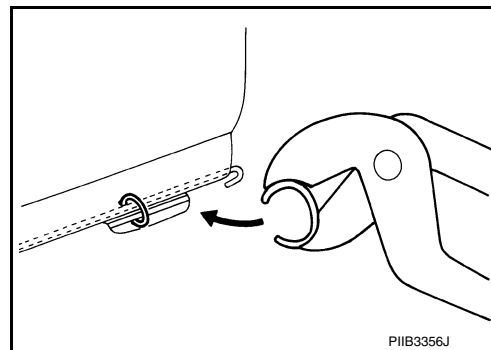
NOTE:

Remove all pieces of hog rings and discard them.

ASSEMBLY

Assembly is in the reverse order of disassembly.

- Install new hog rings on the seat cushion trim in original positions.
- Use only one hog ring in each designated location.
- Make sure hog rings are correctly fastened around both the seat cushion trim and seat cushion pad wires.
- Use NISSAN standard hog rings and tools to assemble.
- Make sure hook fastener is pressed into place after seat cushion trim is assembled.
- Smooth out all wrinkles during assembly.



CAUTION:

- Always route side air bag module harness in original location. Replace any deformed or damaged clips with same type and color. Always install clips in the original location in the harness.
- After work is completed, check that no system malfunction is detected causing the air bag warning lamp to illuminate.
- If a malfunction is detected by the air bag warning lamp after repair or replacement of the malfunction parts, perform the SRS final check. Refer to [SRC-18, "Trouble Diagnosis with CONSULT"](#).

Lumbar Support

INFOID:0000000010310432

DISASSEMBLY

WARNING:

Do not leave any objects (screwdrivers, tools, etc.) on the seat during seatback repair. It can lead to personal injury if the side air bag module should accidentally deploy.

CAUTION:

- Before servicing, turn the ignition switch OFF, disconnect both battery terminals, then wait at least three minutes.
- Handle the side air bag module carefully. During disassembly, always hold the side air bag module, do not let it hang by the wire harness.
- Always work from the side or back of the seatback, do not work in front of seat.
- Do not use air tools or electric tools for servicing the seat.
- Replace the side air bag module if it has been dropped or sustained an impact.
- Do not insert any objects into the side air bag module.

FRONT SEAT

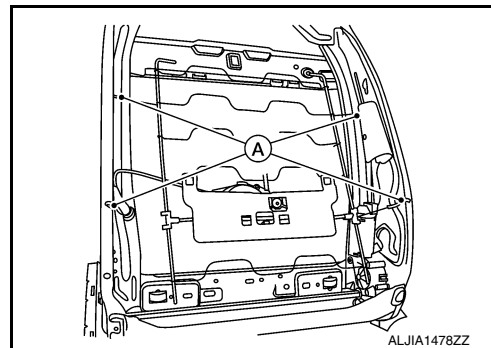
< UNIT DISASSEMBLY AND ASSEMBLY >

- Do not attempt to disassemble the side air bag module.
- Do not expose the side air bag module to temperatures exceeding 93°C (199°F).
- Do not expose the side air bag module to any oil, grease, detergent or water.
- During disassembly, do not damage the seatback board, chutes, connectors, retainers, clips, module harness or the side air bag module.

NOTE:

If the vehicle has been involved in a collision and the side air bag module has deployed, the seatback pad and seatback trim must be replaced.

1. Remove the seatback. Refer to [SE-55, "Seatback"](#).
2. Release hooks (A) from seatback frame and remove lumbar support.



ASSEMBLY

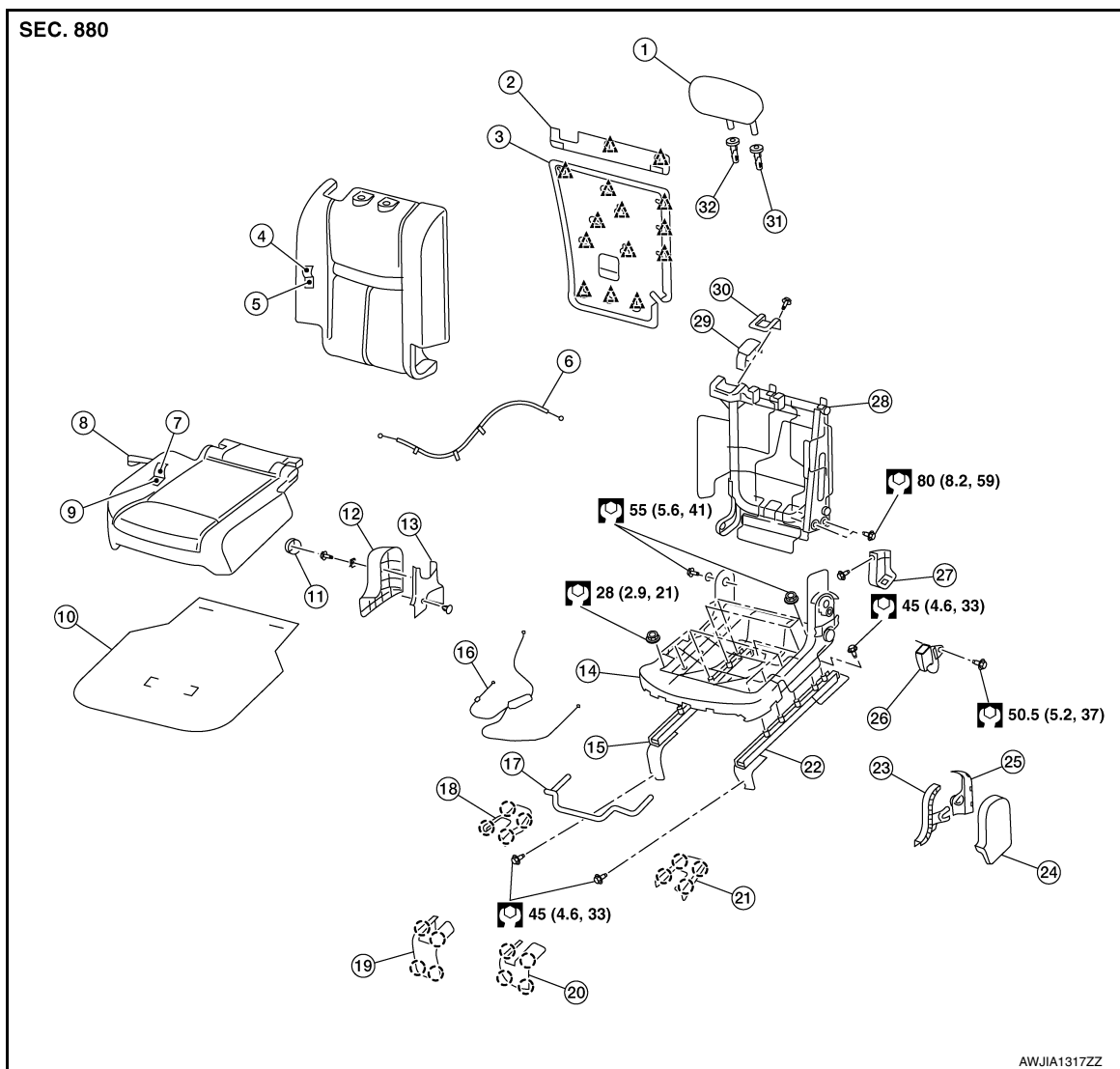
Assembly is in the reverse order of disassembly.

CAUTION:

- Do not reuse the side air bag module nuts.
- Inspect seatback pad, seatback trim and seatback trim chutes. Replace if damaged.
- Smooth out all wrinkles during assembly.
- Always route side air bag module harness in original location. Replace any deformed or damaged clips with same type and color. Always install clips in the original location in the harness.
- After work is completed, check that no system malfunction is detected causing the air bag warning lamp to illuminate.
- If a malfunction is detected by the air bag warning lamp after repair or replacement of the malfunction parts, perform the SRS final check. Refer to [SRC-18, "Trouble Diagnosis with CONSULT"](#).
- When installing the side air bag module, make sure there are no wrinkles and the chute is not folded, twisted or pinched.

INFOID:0000000010330255

SEC. 880



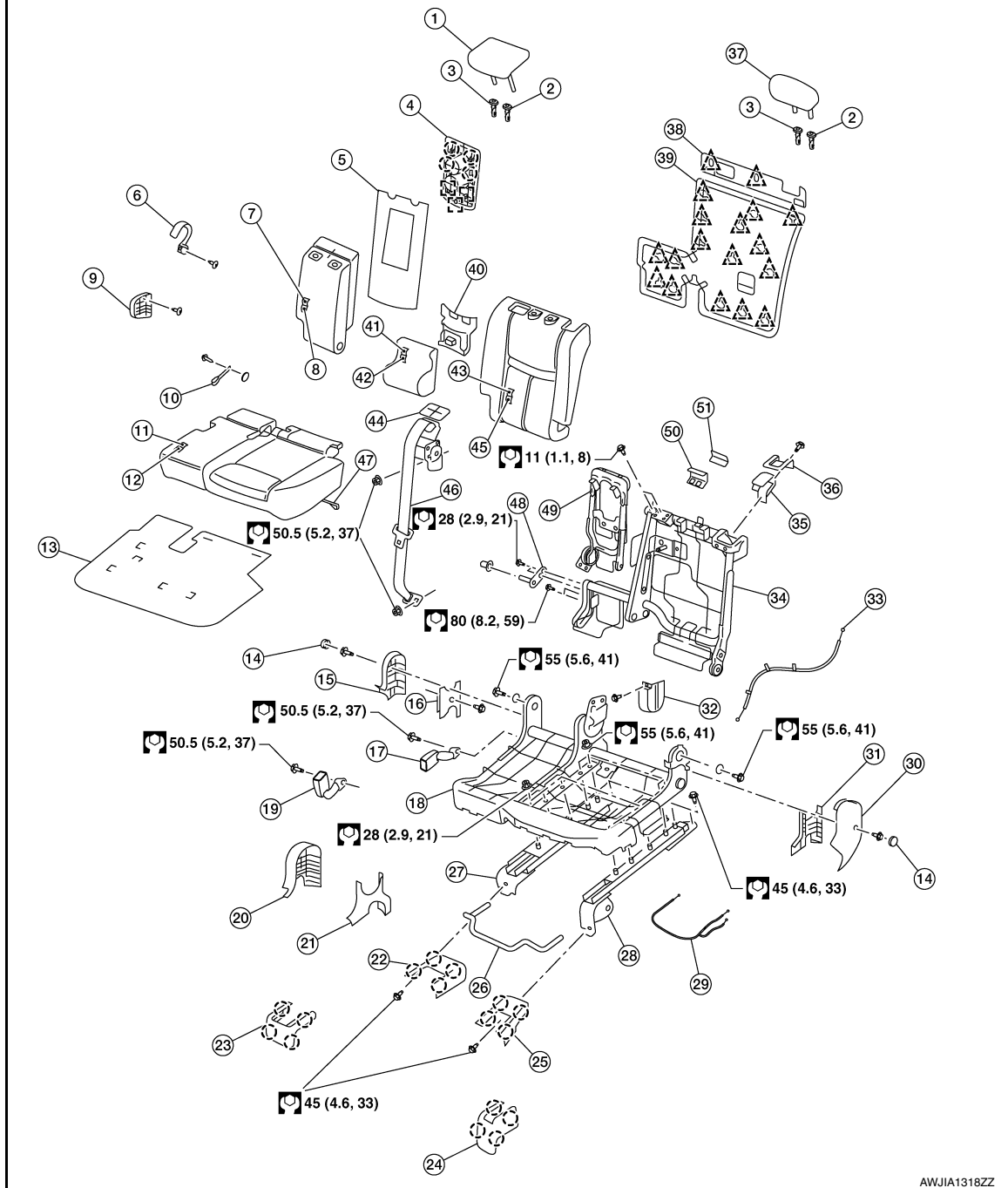
- | | | |
|--|--------------------------------------|--|
| 1. Headrest | 2. Seatback upper luggage board | 3. Seatback luggage board |
| 4. Seatback trim | 5. Seatback pad | 6. Recline release cable |
| 7. Seat cushion trim | 8. Fold flat strap | 9. Seat cushion pad |
| 10. Seat cushion silencer | 11. Bolt cover | 12. Seat cushion outer finisher (RH) |
| 13. Seat cushion inner finisher (RH) | 14. Seat cushion frame | 15. Seat cushion slide (RH) |
| 16. Seat cushion slide cable | 17. Seat slide control lever | 18. Rear bolt cover (RH) (with third row seat) |
| 19. Front bolt cover (RH) | 20. Front bolt cover (LH) | 21. Rear bolt cover (LH) (with third row seat) |
| 22. Seat cushion slide (LH) | 23. Seat cushion inner finisher (LH) | 24. Seat cushion outer finisher (LH) |
| 25. Seat cushion rear finisher (LH) | 26. Seat belt buckle | 27. Recline lever finisher |
| 28. Seatback frame | 29. Recline device | 30. Recline device cover |
| 31. Headrest holder (locked) | 32. Headrest holder (free) |  Clip |
|  Pawl | | |

SECOND ROW SEAT

< UNIT DISASSEMBLY AND ASSEMBLY >

LH SEAT

SEC. 869 • 880

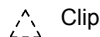


- | | | |
|--|---------------------------------------|---------------------------------------|
| 1. Headrest (center) | 2. Headrest holder (locked) | 3. Headrest holder (free) |
| 4. Cup holder | 5. Armrest board | 6. Armrest inner finisher |
| 7. Armrest trim | 8. Armrest pad | 9. Armrest outer finisher |
| 10. Armrest fold flat strap | 11. Seat cushion trim | 12. Seat cushion pad |
| 13. Seat cushion silencer | 14. Bolt cover | 15. Seat cushion outer finisher (RH) |
| 16. Seat cushion inner finisher (RH) | 17. Seat belt buckle (center) | 18. Seat cushion frame |
| 19. Seat belt buckle (LH) | 20. Seat cushion center finisher (RH) | 21. Seat cushion center finisher (LH) |
| 22. Rear bolt cover (RH) (with third row seat) | 23. Front bolt cover (RH) | 24. Front bolt cover (LH) |

SECOND ROW SEAT

< UNIT DISASSEMBLY AND ASSEMBLY >

- | | | |
|--|--|--|
| 25. Rear bolt cover (LH) (with third row seat) | 26. Seat slide control lever | 27. Seat cushion slide (RH) |
| 28. Seat cushion slide (LH) | 29. Seat cushion slide cable | 30. Seat cushion outer finisher (LH) |
| 31. Seat cushion inner finisher (LH) | 32. Armrest inner finisher | 33. Recline release cable |
| 34. Seatback frame | 35. Recline device | 36. Recline device finisher |
| 37. Headrest (LH) | 38. Seatback luggage upper board | 39. Seatback luggage board |
| 40. Armrest lower pad | 41. Seatback center trim | 42. Seatback center pad |
| 43. Seatback trim | 44. Seat belt retractor finisher | 45. Seatback pad |
| 46. Seat belt retractor (center) | 47. Fold flat strap | 48. Armrest bracket |
| 49. Armrest frame | 50. Seat belt retractor inner finisher | 51. Seat belt retractor outer finisher |



Clip



Pawl

LH SEAT

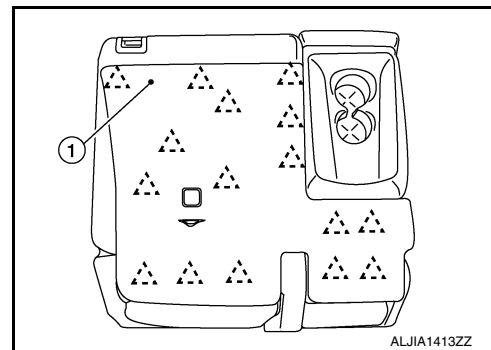
LH SEAT : Seatback

INFOID:000000010283518

DISASSEMBLY

- Remove second row seat LH. Refer to [SE-39, "Removal and Installation"](#).
- Using a suitable tool release clips and remove seatback board (1).

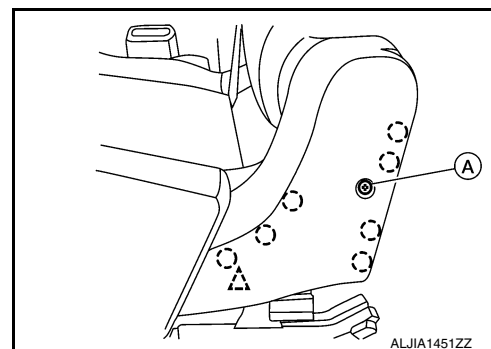
△: Clip



- Remove screw (A), then using a suitable tool release clip and pawls, then remove seat cushion outside finisher (LH).

△: Clip

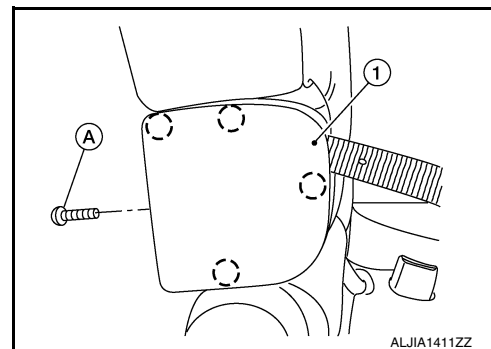
○: Pawl



- Remove screw (A), then using a suitable tool release clips and pawls and remove armrest finisher (1).

△: Clip

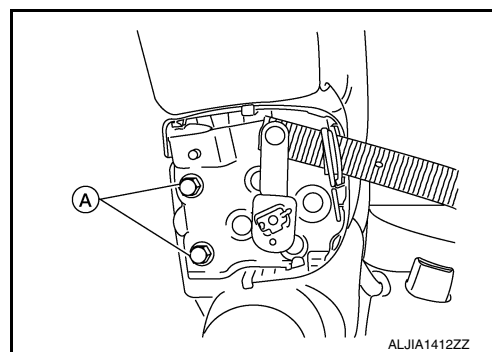
○: Pawl



SECOND ROW SEAT

< UNIT DISASSEMBLY AND ASSEMBLY >

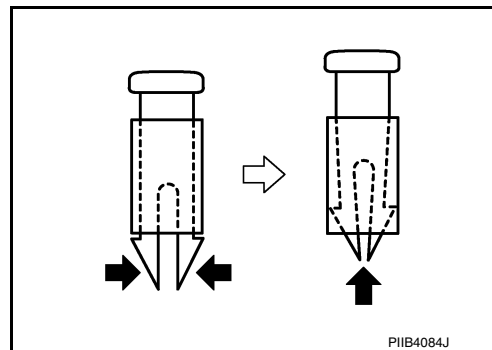
5. Remove bolts (A) and armrest.



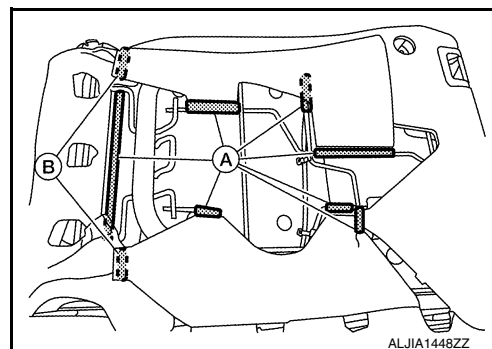
6. Press the headrest holder lock button, then lift headrest up and remove.
7. Reach up behind the seatback pad, release the headrest holder locks as shown and remove the headrest holders.

CAUTION:

Before removing/installing headrest holder, check its orientation (front/rear and right/left).



8. Release pawls and remove recline handle finisher.
9. Release pawls and remove seatbelt retractor outer finisher.
10. Release J-hooks (A) then release fastener (B) and remove seatback pad and seatback trim.

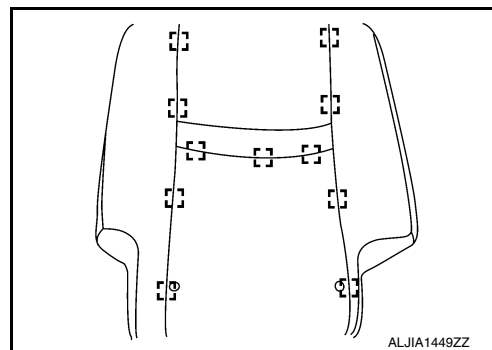


11. Remove seat belt retractor (center) bottom anchor bolt then route seat belt retractor (center) through rear seat cushion and seatback.
12. Remove hog rings, then separate seatback trim from seatback pad.

NOTE:

Remove all pieces of hog rings and discard them.

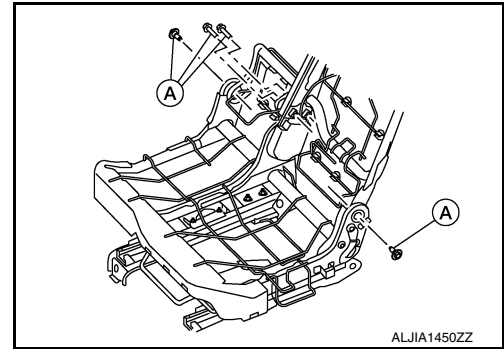
[]: Hog ring



SECOND ROW SEAT

< UNIT DISASSEMBLY AND ASSEMBLY >

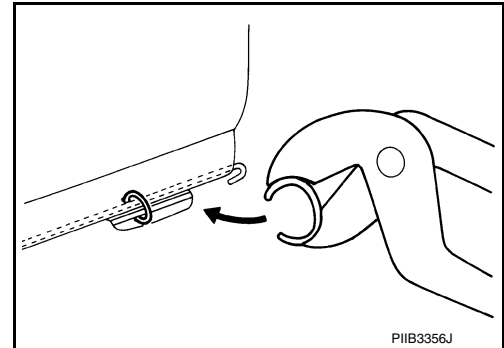
13. Remove bolts (A) and seatback frame from seat cushion frame.



ASSEMBLY

Assembly is in the reverse order of disassembly.

- Install new hog rings on the seatback trim in original positions.
- Use only one hog ring in each designated location.
- Make sure hog rings are correctly fastened around both the seatback trim and seatback pad wires.
- Use NISSAN standard hog rings and tools to assemble.
- Make sure hook fastener is pressed into place after seatback trim is assembled.
- Smooth out all wrinkles during assembly.



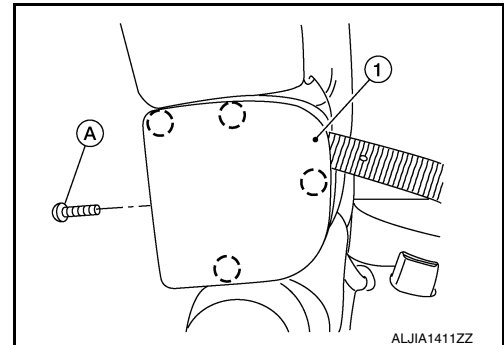
LH SEAT : Seat Cushion

INFOID:0000000010283519

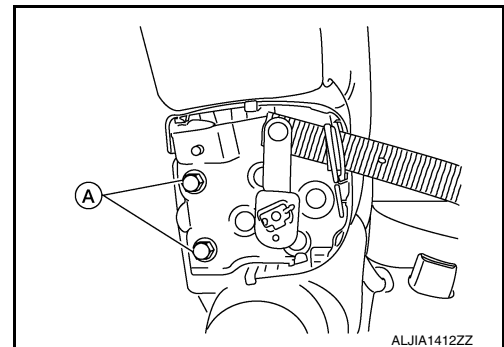
DISASSEMBLY

1. Remove second row seat LH. Refer to [SE-39, "Removal and Installation"](#).
2. Remove screw (A), then using a suitable tool release pawls and remove armrest finisher (1).

○: Pawl



3. Remove bolts (A) and armrest.

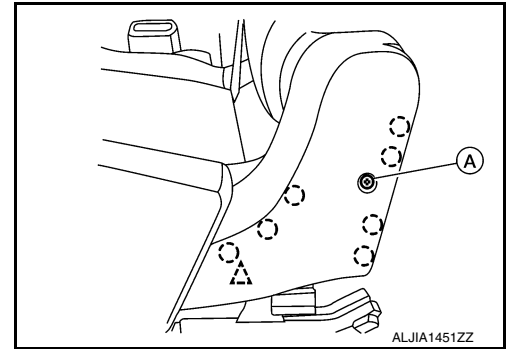


SECOND ROW SEAT

< UNIT DISASSEMBLY AND ASSEMBLY >

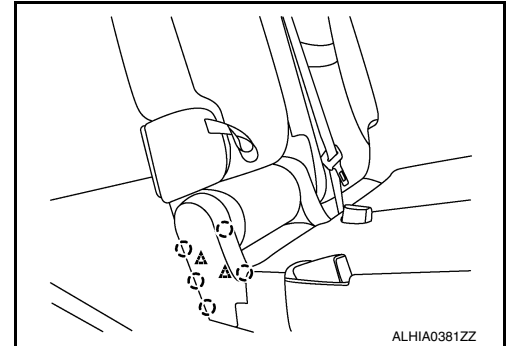
4. Remove screw (A), then using a suitable tool release clips and pawls and remove seat cushion outside finisher (LH).

△: Clip
○: Pawl

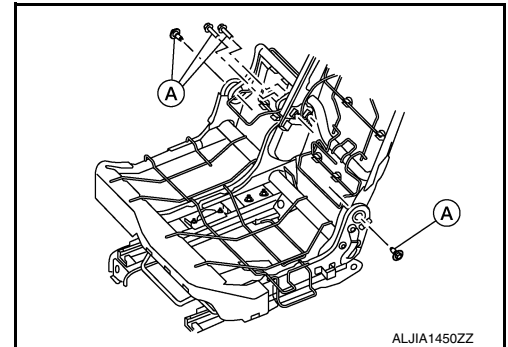


5. Using a suitable tool, release clips and pawls, then remove seat cushion outer finisher (RH)

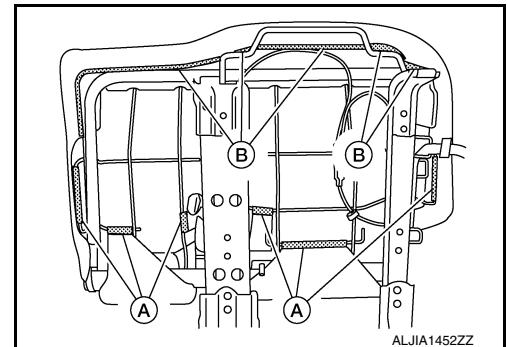
△: Clip
○: Pawl



6. Remove bolts (A) and seatback frame.



7. Release J-hooks (A) and fasteners (B), then route seatbelt buckles through seat cushion and remove seat cushion pad and seat cushion trim.



SECOND ROW SEAT

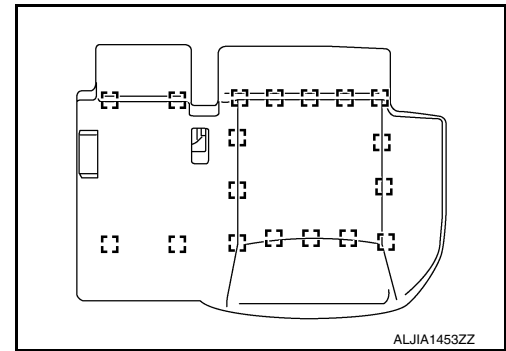
< UNIT DISASSEMBLY AND ASSEMBLY >

- Remove hog rings, then separate seatback trim from seatback pad.

□: Hog ring

NOTE:

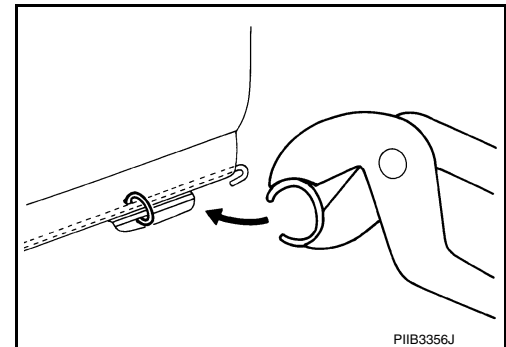
Remove all pieces of hog rings and discard them.



ASSEMBLY

Assembly is in the reverse order of disassembly.

- Install new hog rings on the seat cushion trim in original positions.
- Use only one hog ring in each designated location.
- Make sure hog rings are correctly fastened around both the seat cushion trim and seat cushion pad wires.
- Use NISSAN standard hog rings and tools to assemble.
- Make sure hook fastener is pressed into place after seat cushion trim is assembled.
- Smooth out all wrinkles during assembly.



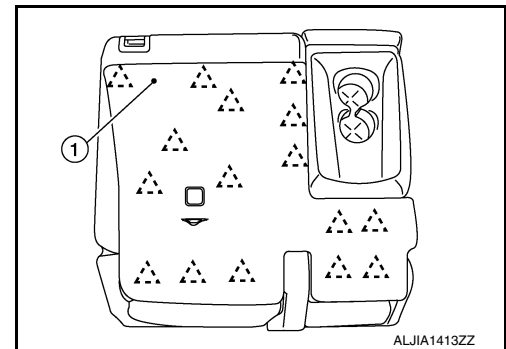
LH SEAT : Armrest Assembly

INFOID:000000010290314

DISASSEMBLY

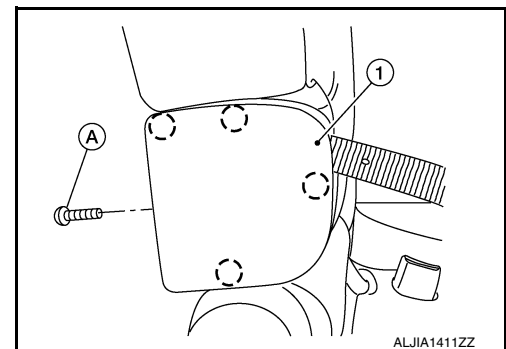
- Remove second row seat LH. Refer to [SE-39, "Removal and Installation"](#).
- Using a suitable tool release clips and remove seatback board (1).

△: Clip



- Remove screw (A), then release pawls and remove armrest finisher (1).

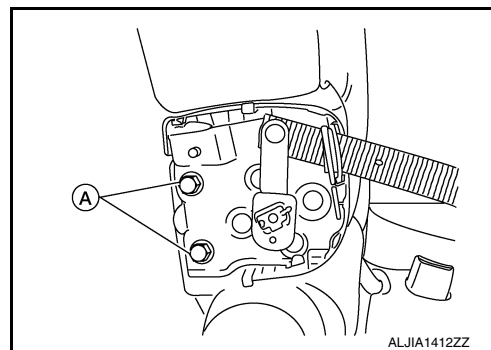
○: Pawl



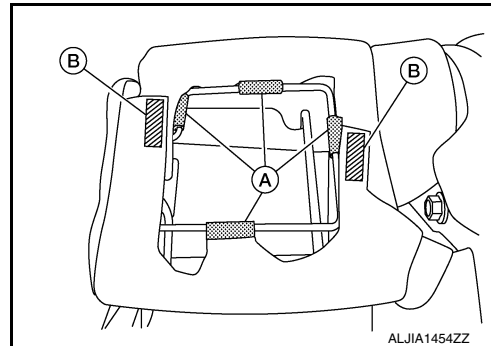
SECOND ROW SEAT

< UNIT DISASSEMBLY AND ASSEMBLY >

4. Remove bolts (A) and armrest.



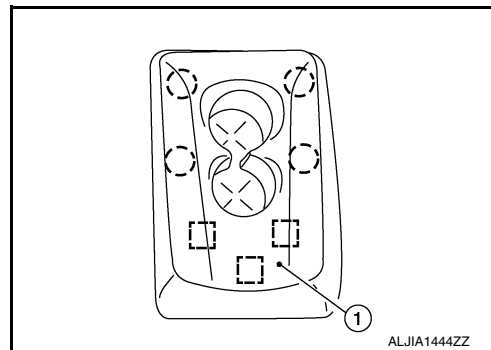
5. Release J-Hooks (A) and fasteners (B), then remove seatback center trim from seatback center pad.



6. Using a suitable tool release metal clips and pawls and remove cup holder (1).

□: Metal clip

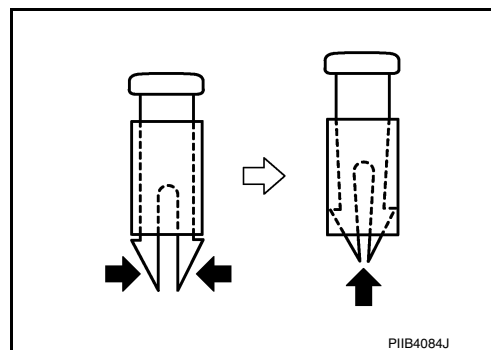
○: Pawl



7. Press the headrest holder lock button, then lift headrest up and remove.
8. Reach up behind the armrest assembly, release the headrest holder locks as shown and remove the headrest holders.

CAUTION:

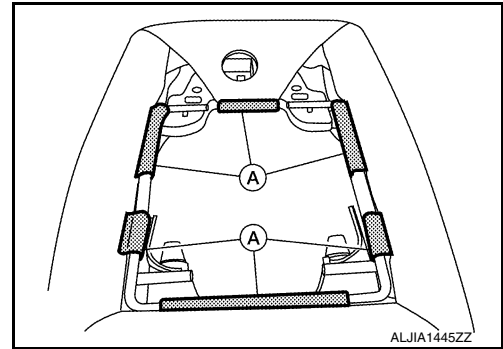
Before removing/installing headrest holder, check its orientation (front/rear and right/left).



SECOND ROW SEAT

< UNIT DISASSEMBLY AND ASSEMBLY >

9. Release J-Hooks (A) from armrest frame and remove armrest lower pad.



10. Remove armrest trim, then remove armrest pad.

ASSEMBLY

Assembly is in the reverse order of disassembly.

- Make sure fastener is pressed into place after armrest trim is assembled.
- Smooth out all wrinkles during assembly.

LH SEAT : EZ Entry Cable

INFOID:0000000010290316

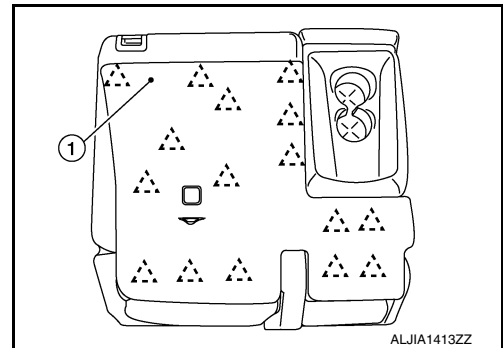
DISASSEMBLY

NOTE:

LH shown : RH similar

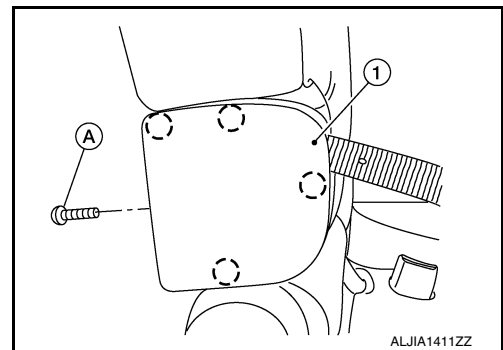
1. Remove second row seat LH. Refer to [SE-39, "Removal and Installation"](#).
2. Using a suitable tool release clips and remove seatback board (1).

△: Clip



3. Remove screw (A), then using a suitable tool release pawls and remove armrest finisher (1).

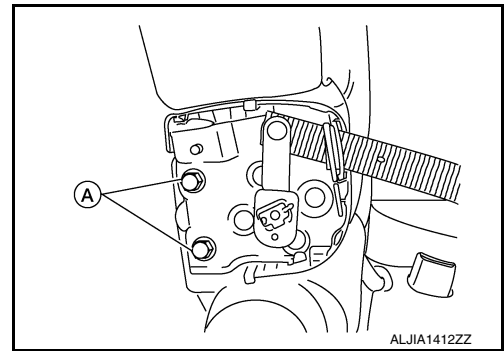
○: Pawl



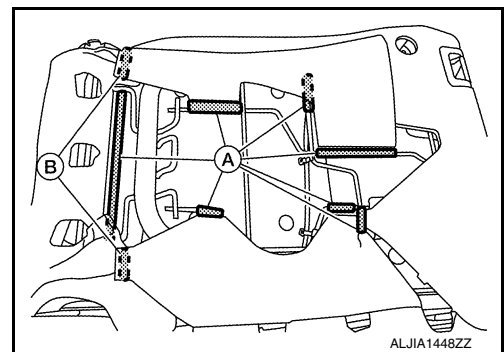
SECOND ROW SEAT

< UNIT DISASSEMBLY AND ASSEMBLY >

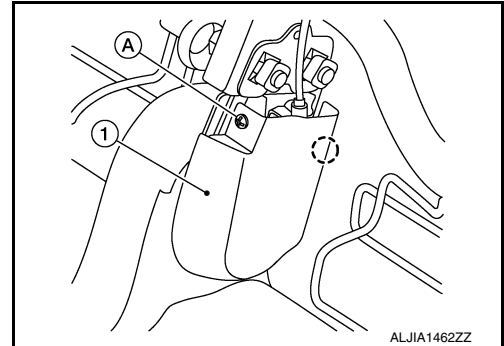
4. Remove bolts (A) and armrest.



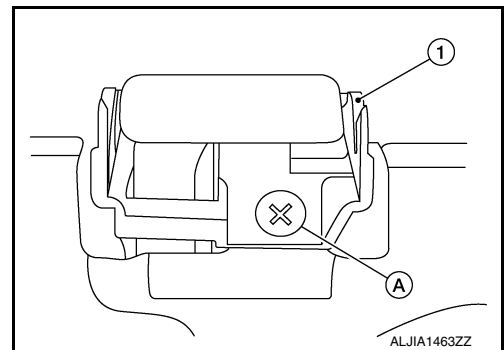
5. Release pawls and remove recline handle finisher.
6. Release pawls and remove seatbelt retractor outer finisher.
7. Remove seat belt retractor (center) bottom anchor bolt then route seat belt retractor (center) through second row seat cushion and seatback.
8. Release J-hooks (A) then release fastener (B) and remove seatback pad and seatback trim.



9. Remove screw (A), then using a suitable tool release pawl and remove the armrest inner finisher (1).
⊗: Pawl



10. Remove screw (A), then remove recline device (1) from seatback frame.



SECOND ROW SEAT

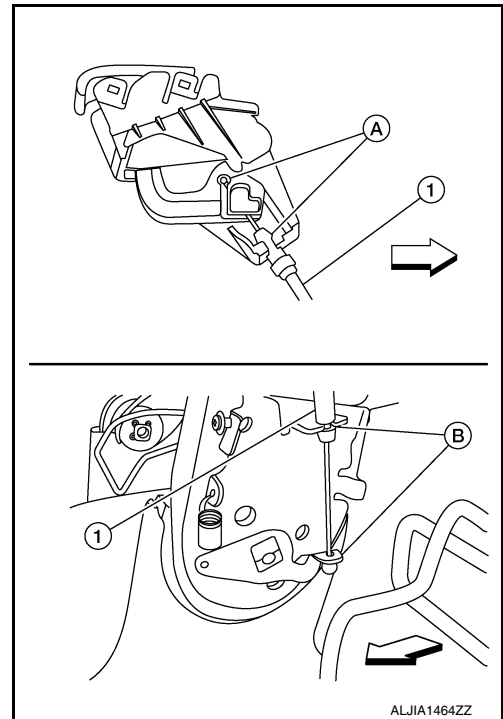
< UNIT DISASSEMBLY AND ASSEMBLY >

11. Release EZ entry cable (1) from recline device (A) and seatback frame (B), then remove the EZ entry cable.

CAUTION:

Note the cable routing for correct installation.

⇐: Front



ASSEMBLY

Assembly is in reverse order of disassembly.

CAUTION:

Make sure to route cables correctly for proper function.

LH SEAT : Seat Slide Release Cable

INFOID:0000000010290317

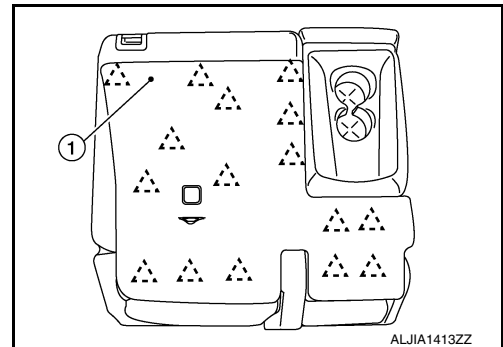
DISASSEMBLY

NOTE:

LH seat shown, RH seat similar.

1. Remove second row seat. Refer to [SE-39. "Removal and Installation"](#).
2. Using a suitable tool release clips and remove seatback board (1).

△: Clip

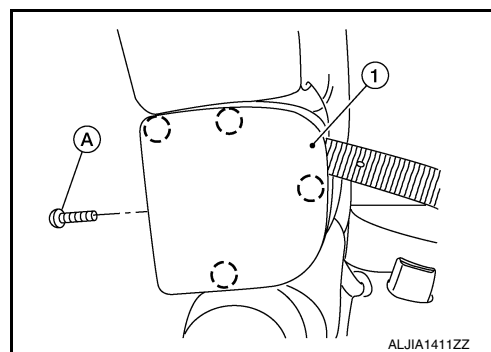


SECOND ROW SEAT

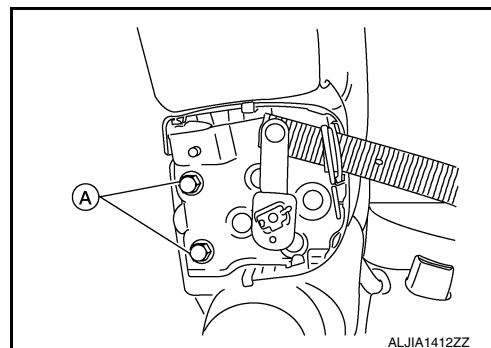
< UNIT DISASSEMBLY AND ASSEMBLY >

3. Remove screw (A), then using a suitable tool release clips and pawls and remove armrest finisher (1).

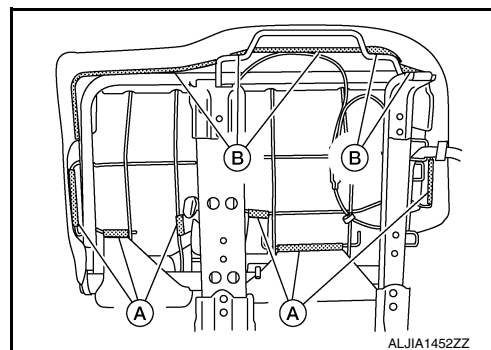
△: Clip
○: Pawl



4. Remove bolts (A) and armrest.



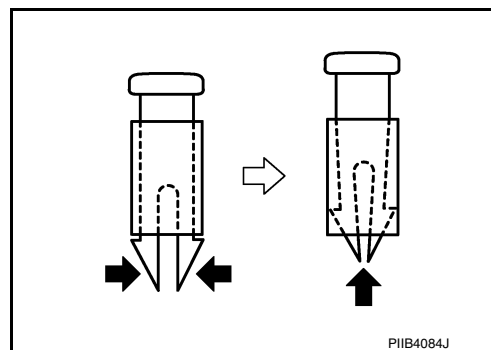
5. Release J-Hooks (A) and fasteners (B), then route seatbelt buckles through seat cushion and remove seat cushion pad and seat cushion trim.



6. Press headrest holder lock button, then lift headrest up and remove.
7. Reach up behind the seatback pad, release the headrest holder locks as shown and remove the headrest holders.

CAUTION:

Before removing/installing headrest holder, check its orientation (front/rear and right/left).

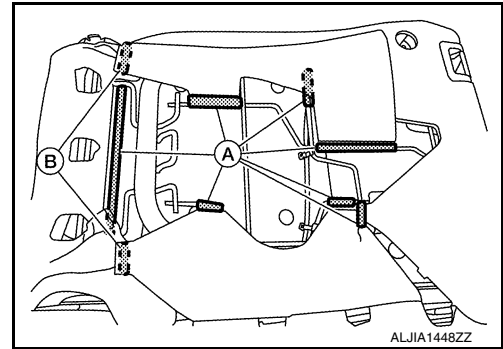


8. Release pawls and remove recline handle finisher.
9. Release pawls and remove seatbelt retractor outer finisher.

SECOND ROW SEAT

< UNIT DISASSEMBLY AND ASSEMBLY >

10. Release J-hooks (A) then release fastener (B) and remove seat-back pad and seatback trim.

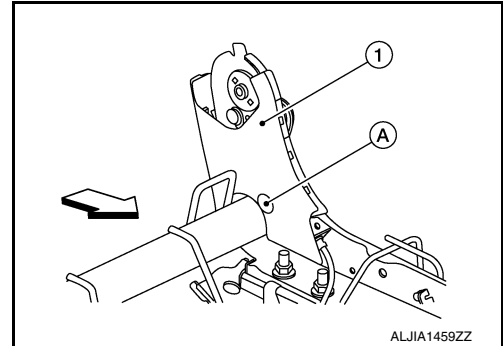


11. Using a suitable tool release clip (A) and remove the seat cushion inner finisher LH (1).

NOTE:

Seatback frame removed for clarity.

⇐: Front

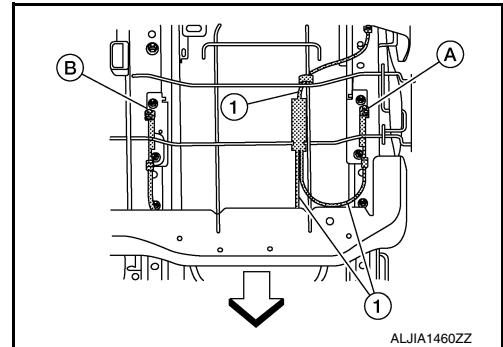


12. Release seat slide release cable (1) ends from both LH side (A) and RH side (B) of seat frame.

CAUTION:

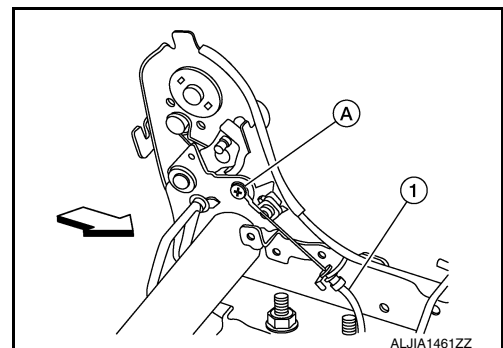
Note the cable routing for correct installation.

⇐: Front



13. Remove screw (A) and unclip seat cushion slide cable (1) from seat cushion frame.

⇐: Front



14. Unclip seat slide release cable clips from seat cushion frame and remove.

ASSEMBLY

Assembly is in reverse order of disassembly.

CAUTION:

Make sure to route cables correctly for proper function.

RH SEAT

RH SEAT : Seatback

DISASSEMBLY

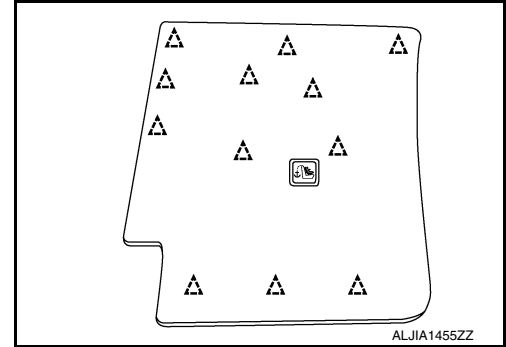
INFOID:0000000010283520

SECOND ROW SEAT

< UNIT DISASSEMBLY AND ASSEMBLY >

1. Remove second row seat RH. Refer to [SE-39, "Removal and Installation"](#).
2. Using a suitable tool release clips and remove seatback board.

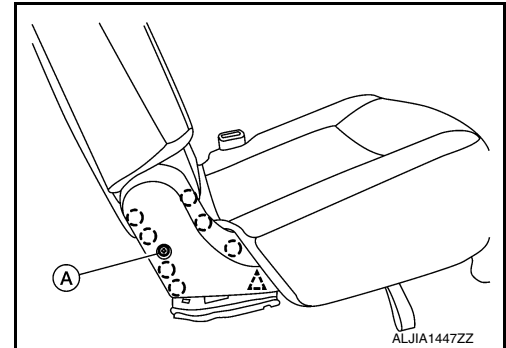
△: Clip



3. Remove screw (A) then using a suitable tool release clips and pawls and remove seat cushion outer finisher (RH).

△: Clip

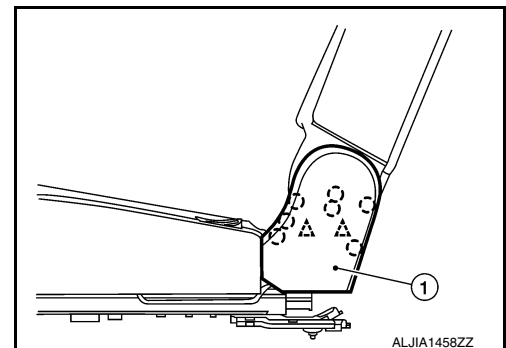
○: Pawl



4. Using a suitable tool release clips and pawls and remove seat cushion outer finisher (LH).

△: Clip

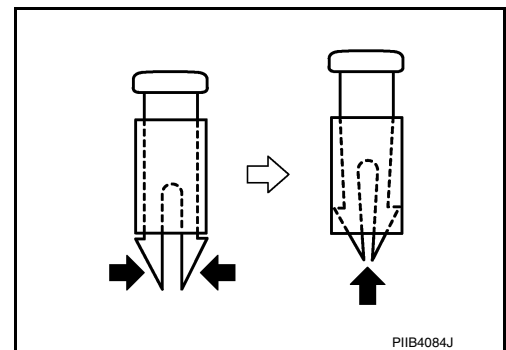
○: Pawl



5. Press headrest holder lock button, then lift headrest up and remove.
6. Reach up behind the seatback pad, release the headrest holder locks as shown and remove the headrest holders.

CAUTION:

Before removing/installing headrest holder, check its orientation (front/rear and right/left).



7. Release pawls and remove recline handle finisher.
8. Release pawls and remove seatbelt retractor outer finisher.
9. Release J-hooks then release fasteners and remove seatback pad and seatback trim from seatback frame.

SECOND ROW SEAT

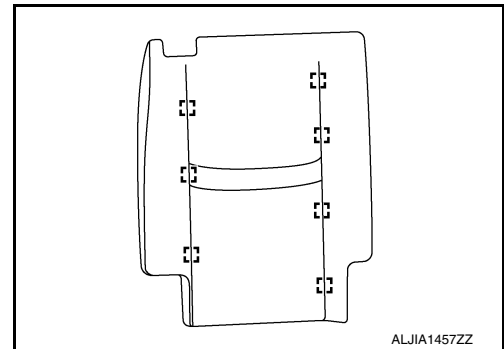
< UNIT DISASSEMBLY AND ASSEMBLY >

10. Remove hog rings, then separate seatback trim from seatback pad.

NOTE:

Remove all pieces of hog rings and discard them.

□: Hog ring

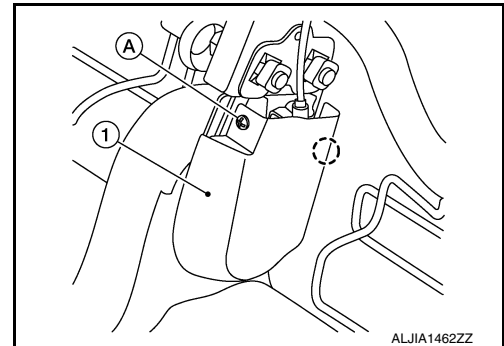


11. Remove screw (A), then using a suitable tool release pawl and remove the armrest inner finisher (1).

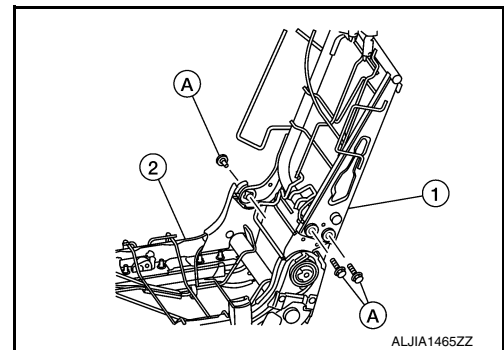
NOTE:

LH shown, RH similar.

⊖: Pawl



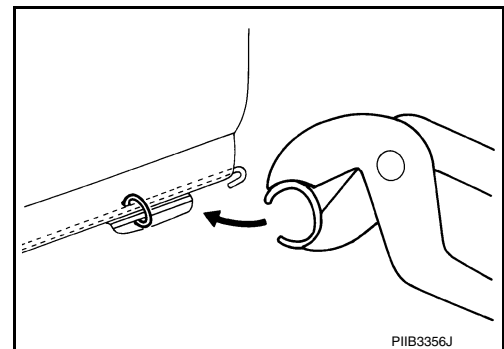
12. Remove bolts (A) and seatback frame (1) from seat cushion frame (2).



ASSEMBLY

Assembly is in the reverse order of disassembly.

- Install new hog rings on the seat cushion trim in original positions.
- Use only one hog ring in each designated location.
- Make sure hog rings are correctly fastened around both the seat cushion trim and seat cushion pad wires.
- Use NISSAN standard hog rings and tools to assemble.
- Smooth out all wrinkles during assembly.



RH SEAT : Seat Cushion

INFOID:000000010283521

DISASSEMBLY

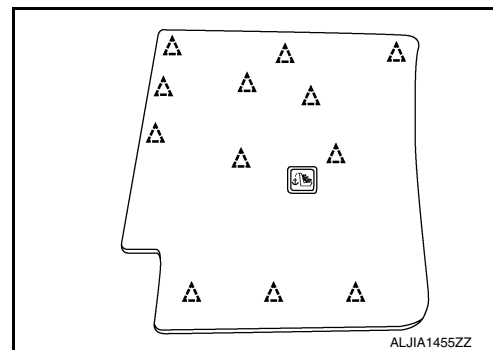
1. Remove second row seat RH. Refer to [SE-39. "Removal and Installation"](#).

SECOND ROW SEAT

< UNIT DISASSEMBLY AND ASSEMBLY >

2. Using a suitable tool release clips and remove seatback board.

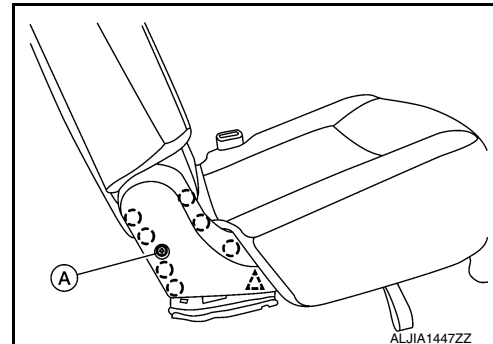
△: Clip



3. Remove screw (A) then using a suitable tool release clip and pawls and remove seat cushion outer finisher (RH).

△: Clip

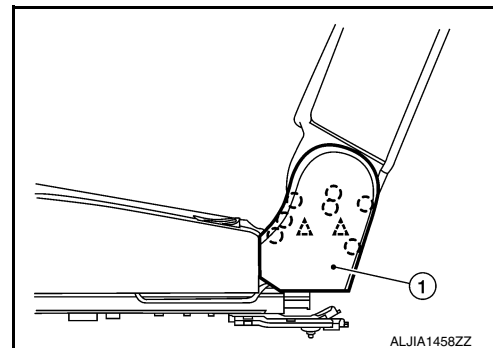
○: Pawl



4. Using a suitable tool release clips and pawls and remove seat cushion outer finisher (LH) (1).

△: Clip

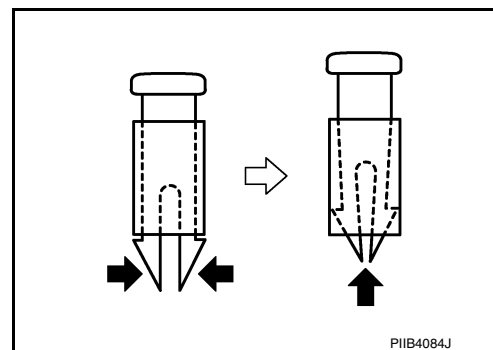
○: Pawl



5. Press headrest holder lock button, then lift headrest up and remove.
6. Reach up behind the seatback pad, release the headrest holder locks as shown and remove the headrest holders.

CAUTION:

Before removing/installing headrest holder, check its orientation (front/rear and right/left).



7. Release pawls and remove recline handle finisher.
8. Release pawls and remove seatbelt retractor outer finisher.
9. Release J-hooks then release fasteners and remove seatback pad and seatback trim from seatback frame.
10. Route seat belt buckle through seat cushion.
11. Release J-hooks and remove the seat cushion pad and seat cushion trim.

SECOND ROW SEAT

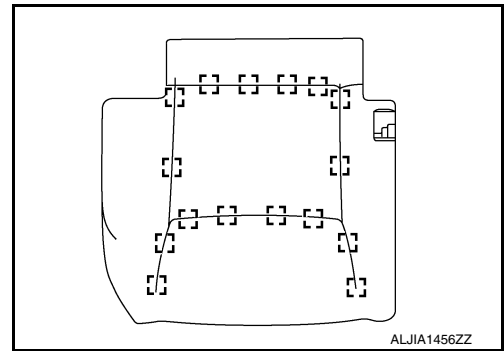
< UNIT DISASSEMBLY AND ASSEMBLY >

12. Remove hog rings, then separate seat cushion trim from seat cushion pad.

NOTE:

Remove all pieces of hog rings and discard them.

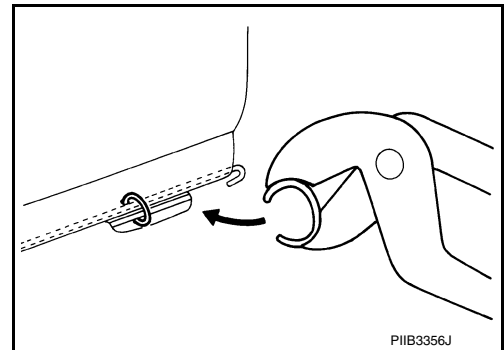
[]: Hog ring



ASSEMBLY

Assembly is in the reverse order of disassembly.

- Install new hog rings on the seat cushion trim in original positions.
- Use only one hog ring in each designated location.
- Make sure hog rings are correctly fastened around both the seat cushion trim and seat cushion pad wires.
- Use NISSAN standard hog rings and tools to assemble.
- Smooth out all wrinkles during assembly.



A

B

C

D

E

F

G

H

I

SE

K

L

M

N

O

P

THIRD ROW SEAT

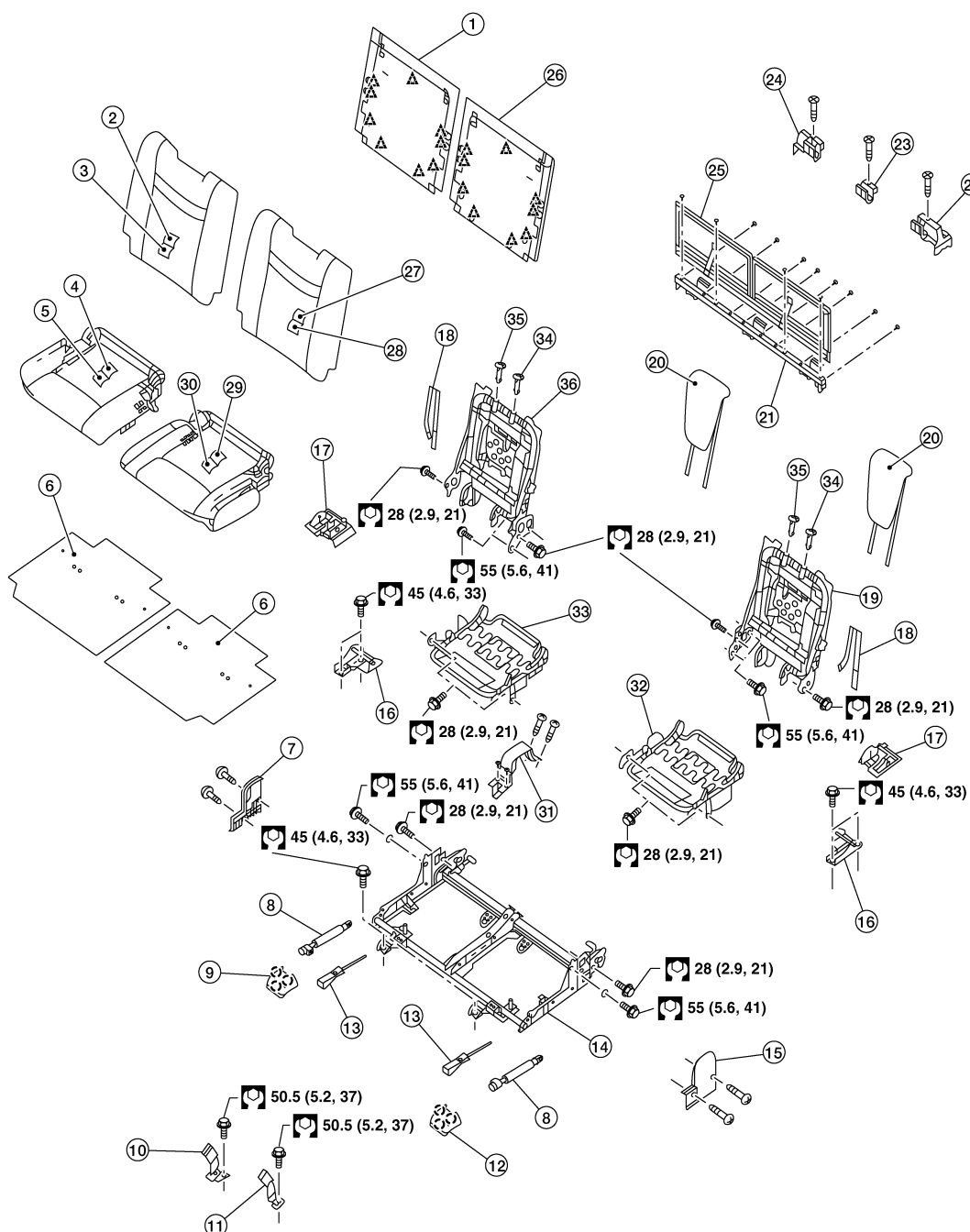
< UNIT DISASSEMBLY AND ASSEMBLY >

THIRD ROW SEAT

Exploded View

INFOID:000000010310296

SEC. 882



AWJIA1319ZZ

- | | | |
|-----------------------------|--------------------------|----------------------------------|
| 1. Seatback board (RH) | 2. Seatback trim (RH) | 3. Seatback pad (RH) |
| 4. Seat cushion trim (RH) | 5. Seat cushion pad (RH) | 6. Seat cushion silencer (LH/RH) |
| 7. Seat hinge finisher (RH) | 8. Gas stay | 9. Bolt cover (RH) |

THIRD ROW SEAT

< UNIT DISASSEMBLY AND ASSEMBLY >

10. Seat belt buckle (RH)	11. Seat belt buckle (LH)	12. Bolt cover (LH)
13. Stopper pin	14. Seat frame support	15. Seat hinge finisher (LH)
16. Seat striker (LH/RH)	17. Seat striker finisher (LH/RH)	18. Seatback pull strap (LH/RH)
19. Seatback frame (LH)	20. Headrest (LH/RH)	21. Third row seat cross member
22. Third row seat cross member finisher (LH)	23. Third row seat cross member finisher (center)	24. Third row seat cross member finisher (RH)
25. Third row luggage floor	26. Seatback board (LH)	27. Seatback trim (LH)
28. Seatback pad (LH)	29. Seat cushion trim (LH)	30. Seat cushion pad (LH)
31. Seat frame finisher (center)	32. Seat cushion frame (LH)	33. Seat cushion frame (RH))
34. Headrest holder (locked)	35. Headrest holder (free)	36. Seatback frame (RH)
 Clip	 Pawl	

Seatback

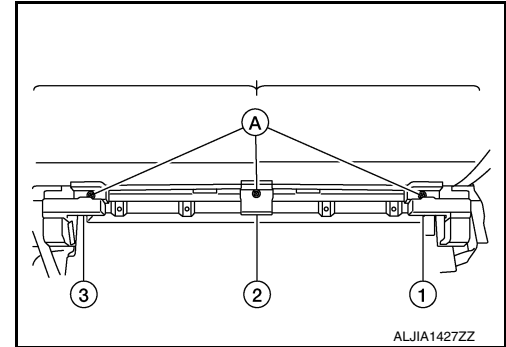
INFOID:0000000010283523

DISASSEMBLY

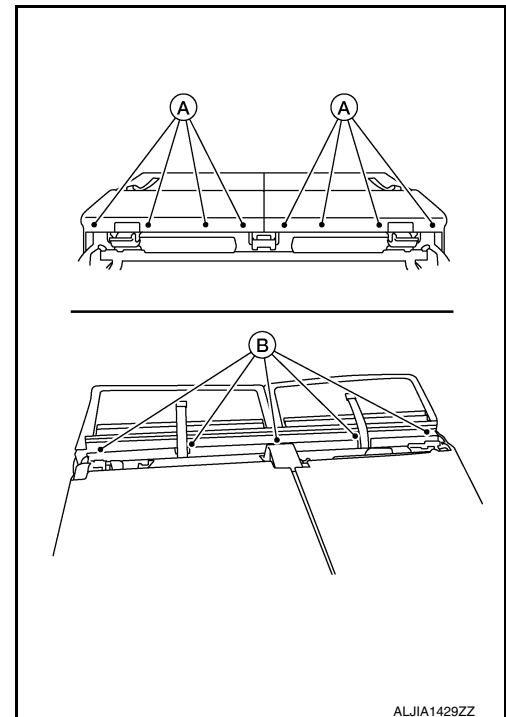
NOTE:

LH shown : RH similar

1. Remove third row seat. Refer to [SE-43, "Removal and Installation"](#).
2. Remove headrest.
3. Remove screws (A) and third row seat cross member finishers (1, 2, 3).



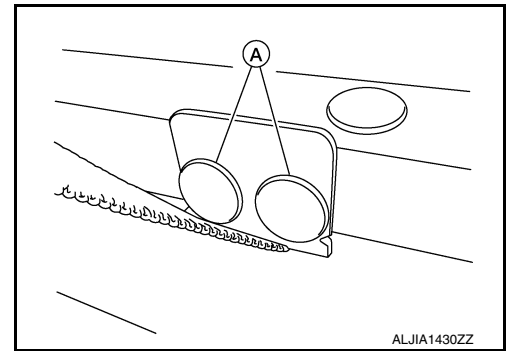
4. Release seatback pull strap stop using a suitable tool.
5. Release third row luggage board outer clips (A) and inner clips (B) using a suitable tool.



THIRD ROW SEAT

< UNIT DISASSEMBLY AND ASSEMBLY >

6. Release third row luggage board retainer strap clips (A) (LH/RH) using a suitable tool and remove third row luggage board.

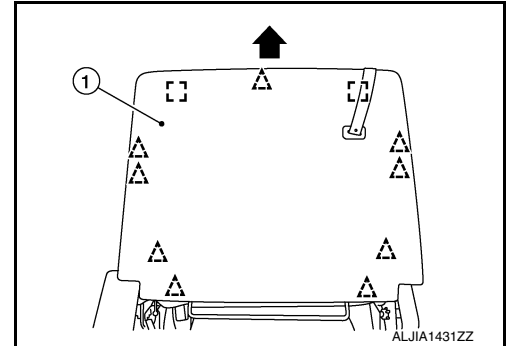


7. Release clips using a suitable tool then gently pull seatback board (1) forward and out and remove as shown (←).

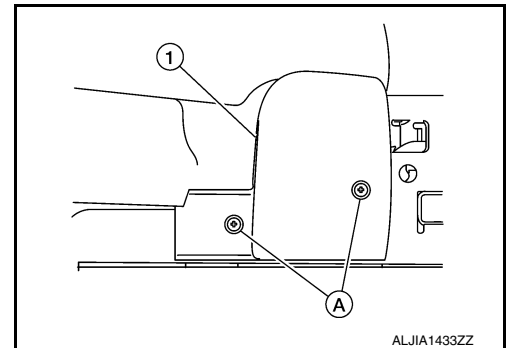
CAUTION:

After removing the seatback board, check the orientation of clips. Improper installation of clips could result in damage to the seatback board.

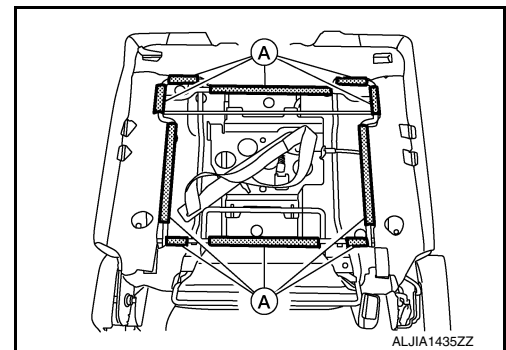
△△: Clip



8. Reinstall clips in proper locations on the seatback board.
9. Remove screws (A) and remove seat hinge finisher (1).



10. Release J-hooks from seat frame and remove seatback trim and seatback pad as an assembly.



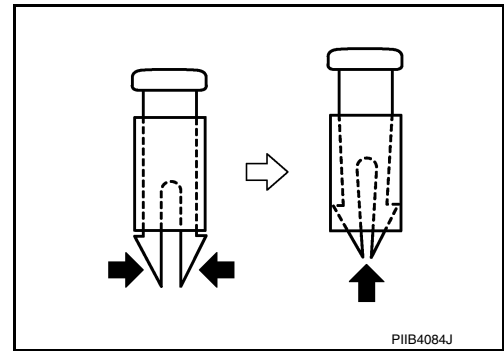
THIRD ROW SEAT

< UNIT DISASSEMBLY AND ASSEMBLY >

11. Reach up behind the seatback pad, release the headrest holder locks as shown and remove the headrest holders.

CAUTION:

Before removing/installing headrest holder, check its orientation (front/rear and right/left).

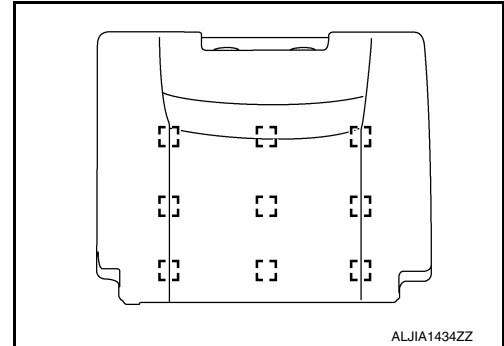


12. Release hook and loop finisher and remove hog rings, then separate seatback trim from seatback pad.

NOTE:

Remove all pieces of hog rings and discard them.

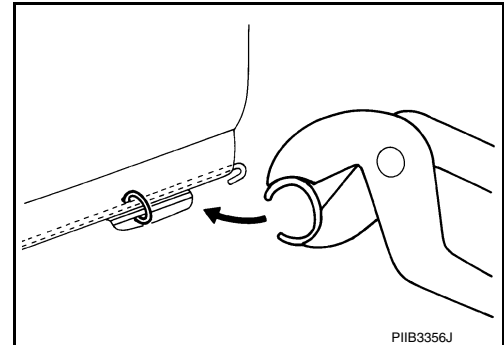
[] Hog ring



ASSEMBLY

Assembly is in the reverse order of disassembly.

- Install new hog rings on the seatback trim in original positions.
- Use only one hog ring in each designated location.
- Make sure hog rings are correctly fastened around both the seatback trim and seatback pad wires.
- Use NISSAN standard hog rings and tools to assemble.
- Make sure hook fastener is pressed into place after seatback trim is assembled.
- Smooth out all wrinkles during assembly.



Seat Cushion

INFOID:0000000010283524

DISASSEMBLY

NOTE:

LH shown, RH similar.

1. Remove third row seat. Refer to [SE-43. "Removal and Installation"](#).
2. Remove third row seat cross member. Refer to [SE-44. "Third Row Seat Cross Member"](#).

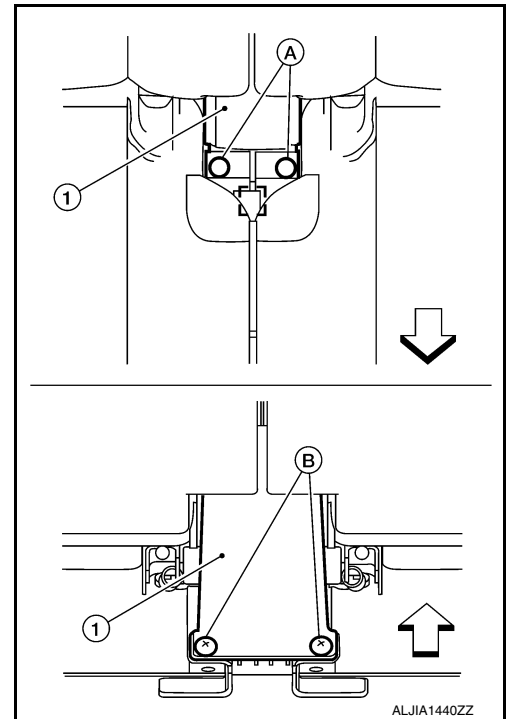
THIRD ROW SEAT

< UNIT DISASSEMBLY AND ASSEMBLY >

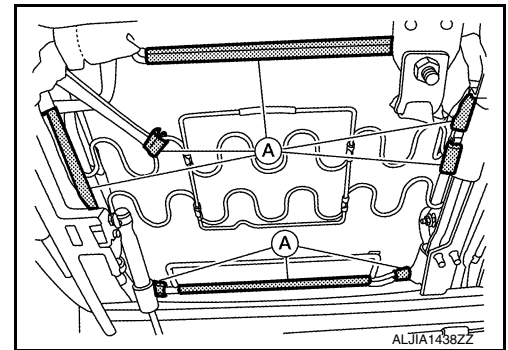
- Using a suitable tool, release seat cushion trim clips (A) and remove rear screws (B). Then, release metal clip and remove the center seat frame finisher (1).

[A]: Metal clip

[1]: Front



- Release J-hooks (A) from seat frame and remove seat cushion trim and seat cushion pad.



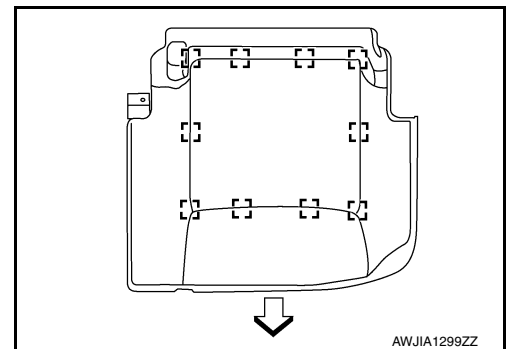
- Remove hog rings and separate the seat cushion trim from the seat cushion pad.

NOTE:

Remove all pieces of hog rings and discard them.

[A]: Hog ring

[1]: Front



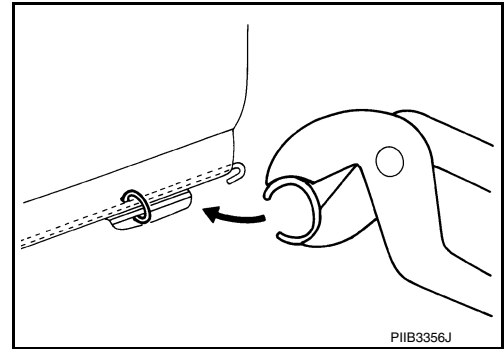
ASSEMBLY

Assembly is in the reverse order of disassembly.

THIRD ROW SEAT

< UNIT DISASSEMBLY AND ASSEMBLY >

- Install new hog rings on the seat cushion trim in original positions.
- Use only one hog ring in each designated location.
- Make sure hog rings are correctly fastened around both the seat cushion trim and seat cushion pad wires.
- Use NISSAN standard hog rings and tools to assemble.
- Make sure hook fastener is pressed into place after seat cushion trim is assembled.
- Smooth out all wrinkles during assembly.



A

B

C

D

E

F

G

H

I

SE

K

L

M

N

O

P

SECTION **SEC** SECURITY CONTROL SYSTEM

CONTENTS

WITH INTELLIGENT KEY SYSTEM	
PRECAUTION	5
PRECAUTIONS	5
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	5
SYSTEM DESCRIPTION	6
COMPONENT PARTS	6
Component Parts Location	6
NATS Antenna Amp.	8
Hood Switch	8
SYSTEM	9
INTELLIGENT KEY SYSTEM/ENGINE START FUNCTION	9
INTELLIGENT KEY SYSTEM/ENGINE START FUNCTION : System Diagram	9
INTELLIGENT KEY SYSTEM/ENGINE START FUNCTION : System Description	9
NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS...	11
NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS : System Diagram	12
NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS : System Description	12
VEHICLE SECURITY SYSTEM	14
VEHICLE SECURITY SYSTEM : System Diagram	14
VEHICLE SECURITY SYSTEM : System Description	14
DIAGNOSIS SYSTEM (BCM)	18
COMMON ITEM	18
COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)	18
INTELLIGENT KEY	18
INTELLIGENT KEY : CONSULT Function (BCM - INTELLIGENT KEY)	19
IMMU	20
IMMU : CONSULT Function (BCM - IMMU)	20
THEFT ALM	21
THEFT ALM : CONSULT Function (BCM - THEFT ALM)	21
DIAGNOSIS SYSTEM (IPDM E/R)	22
CONSULT Function (IPDM E/R)	22
ECU DIAGNOSIS INFORMATION	25
ECM, IPDM E/R, BCM	25
List of ECU Reference	25
WIRING DIAGRAM	26
ENGINE START FUNCTION	26
Wiring Diagram	26
NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS	39
Wiring Diagram	39
VEHICLE SECURITY SYSTEM	49
Wiring Diagram	49
BASIC INSPECTION	62
DIAGNOSIS AND REPAIR WORK FLOW	62
Work Flow	62
ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT	65
ECM	65
ECM : Description	65
ECM : Work Procedure	65
BCM	65

BCM : Description	65	Description	85
BCM : Work Procedure	65	DTC Description	85
DTC/CIRCUIT DIAGNOSIS	67	Diagnosis Procedure	85
P1610 LOCK MODE	67	B261E VEHICLE TYPE	87
Description	67	Description	87
DTC Logic	67	DTC Logic	87
Diagnosis Procedure	67	Diagnosis Procedure	87
P1611 ID DISCORD, IMMU-ECM	68	B26FC KEY REGISTRATION	89
DTC Logic	68	DTC Logic	89
Diagnosis Procedure	68	Diagnosis Procedure	89
P1612 CHAIN OF ECM-IMMU	69	B27D1 START CUT RELAY OFF	90
DTC Logic	69	DTC Logic	90
Diagnosis Procedure	69	Diagnosis Procedure	90
P161D IMMOBILIZER	70	Component Inspection	92
DTC Logic	70	B27D2 START CUT RELAY ON	93
Diagnosis Procedure	70	DTC Logic	93
P161E IMMOBILIZER	71	Diagnosis Procedure	93
DTC Logic	71	Component Inspection	95
Diagnosis Procedure	71	B20DF STARTER RELAY OFF CIRCUIT	96
P161F IMMOBILIZER	72	DTC Logic	96
DTC Logic	72	Diagnosis Procedure	96
Diagnosis Procedure	72	HEADLAMP FUNCTION	98
B2192 ID DISCORD, IMMU-ECM	73	Component Function Check	98
DTC Logic	73	Diagnosis Procedure	98
Diagnosis Procedure	73	HOOD SWITCH	99
B2193 CHAIN OF ECM-IMMU	74	Component Function Check	99
DTC Logic	74	Diagnosis Procedure	99
Diagnosis Procedure	74	Component Inspection	100
B2196 DONGLE UNIT	75	HORN FUNCTION	101
Description	75	Component Function Check	101
DTC Logic	75	Component Inspection	101
Diagnosis Procedure	75	SECURITY INDICATOR LAMP	102
B2198 NATS ANTENNA AMP.	77	Component Function Check	102
DTC Logic	77	Diagnosis Procedure	102
Diagnosis Procedure	77	SYMPTOM DIAGNOSIS	104
B2556 PUSH-BUTTON IGNITION SWITCH	79	ENGINE DOES NOT START WHEN INTELLI- GENT KEY IS INSIDE OF VEHICLE	104
DTC Logic	79	Description	104
Diagnosis Procedure	79	Diagnosis Procedure	104
Component Inspection	80	SECURITY INDICATOR LAMP DOES NOT TURN ON OR BLINK	105
B2557 VEHICLE SPEED	81	Description	105
DTC Logic	81	Diagnosis Procedure	105
Diagnosis Procedure	81	VEHICLE SECURITY SYSTEM CANNOT BE SET	106
B2602 SHIFT POSITION	82	INTELLIGENT KEY	106
DTC Logic	82	INTELLIGENT KEY : Description	106
Diagnosis Procedure	82	INTELLIGENT KEY : Diagnosis Procedure	106
Component Inspection	84		
B260F ENGINE STATUS	85		

DOOR REQUEST SWITCH	106	COMMON ITEM : CONSULT Function (BCM -	
DOOR REQUEST SWITCH : Description	106	COMMON ITEM)	121
DOOR REQUEST SWITCH : Diagnosis Procedure	106		
DOOR KEY CYLINDER	107	IMMU	121
DOOR KEY CYLINDER : Description	107	IMMU : CONSULT Function (BCM - IMMU)	121
DOOR KEY CYLINDER : Diagnosis Procedure ...	107		
VEHICLE SECURITY ALARM DOES NOT		THEFT ALM	122
ACTIVATE	108	THEFT ALM : CONSULT Function (BCM - THEFT	
Description	108	ALM)	122
Diagnosis Procedure	108		
PANIC ALARM FUNCTION DOES NOT OP-		DIAGNOSIS SYSTEM (IPDM E/R)	123
ERATE	109	CONSULT Function (IPDM E/R)	123
Description	109		
Diagnosis Procedure	109	ECU DIAGNOSIS INFORMATION	126
REMOVAL AND INSTALLATION	110	ECM, IPDM E/R, BCM	126
		List of ECU Reference	126
NATS ANTENNA AMP.	110	WIRING DIAGRAM	127
Exploded View	110		
Removal and Installation	110	NVIS	127
		Wiring Diagram	127
PUSH-BUTTON IGNITION SWITCH	112	VEHICLE SECURITY SYSTEM	137
Exploded View	112	Wiring Diagram	137
Removal and Installation	112		
WITHOUT INTELLIGENT KEY SYSTEM		BASIC INSPECTION	150
PRECAUTION	114	DIAGNOSIS AND REPAIR WORKFLOW	150
		Work Flow	150
PRECAUTIONS	114	INSPECTION AND ADJUSTMENT	153
Precaution for Supplemental Restraint System			
(SRS) "AIR BAG" and "SEAT BELT PRE-TEN-		ADDITIONAL SERVICE WHEN REPLACING	
SIONER"	114	CONTROL UNIT	153
		ADDITIONAL SERVICE WHEN REPLACING	
SYSTEM DESCRIPTION	115	CONTROL UNIT : Special Repair Requirement ...	153
COMPONENT PARTS	115	ECM RE-COMMUNICATING FUNCTION	153
Component Parts Location	115	ECM RE-COMMUNICATING FUNCTION : De-	
NATS Antenna Amp.	116	scription	153
Hood Switch	116	ECM RE-COMMUNICATING FUNCTION : Spe-	
		cial Repair Requirement	153
SYSTEM	117		
NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS.	117	KEYFOB ID REGISTRATION	154
NISSAN VEHICLE IMMOBILIZER SYSTEM-		Description	154
NATS : System Diagram	117	Work Procedure	154
NISSAN VEHICLE IMMOBILIZER SYSTEM-			
NATS : System Description	117	DTC/CIRCUIT DIAGNOSIS	155
VEHICLE SECURITY SYSTEM	118		
VEHICLE SECURITY SYSTEM : System Dia-		P1610 LOCK MODE	155
gram	118	Description	155
VEHICLE SECURITY SYSTEM : System Descrip-		DTC Logic	155
tion	118	Diagnosis Procedure	155
DIAGNOSIS SYSTEM (BCM)	121	P1611 ID DISCORD, IMMU-ECM	156
COMMON ITEM	121	DTC Logic	156
		Diagnosis Procedure	156
		P1612 CHAIN OF ECM-IMMU	157
		DTC Logic	157
		Diagnosis Procedure	157

P161D IMMOBILIZER	158	B261E VEHICLE TYPE	176
DTC Logic	158	Description	176
Diagnosis Procedure	158	DTC Logic	176
P161E IMMOBILIZER	159	Diagnosis Procedure	176
DTC Logic	159	B27D1 START CUT RELAY OFF	178
Diagnosis Procedure	159	DTC Logic	178
P161F IMMOBILIZER	160	Diagnosis Procedure	178
DTC Logic	160	Component Inspection	180
Diagnosis Procedure	160	B27D2 START CUT RELAY ON	181
B20DF STARTER RELAY OFF CIRCUIT	161	DTC Logic	181
DTC Logic	161	Diagnosis Procedure	181
Diagnosis Procedure	161	Component Inspection	183
B2192 ID DISCORD, IMMU-ECM	163	HEADLAMP FUNCTION	184
DTC Logic	163	Component Function Check	184
Diagnosis Procedure	163	Diagnosis Procedure	184
B2193 CHAIN OF ECM-IMMU	164	HOOD SWITCH	185
DTC Logic	164	Component Function Check	185
Diagnosis Procedure	164	Diagnosis Procedure	185
B2196 DONGLE UNIT	165	Component Inspection	186
Description	165	HORN FUNCTION	187
DTC Logic	165	Component Function Check	187
Diagnosis Procedure	165	Component Inspection	187
B2198 NATS ANTENNA AMP.	167	SECURITY INDICATOR LAMP	188
DTC Logic	167	Component Function Check	188
Diagnosis Procedure	167	Diagnosis Procedure	188
B2557 VEHICLE SPEED	170	SYMPTOM DIAGNOSIS	190
DTC Logic	170	NISSAN VEHICLE IMMOBILIZER SYSTEM-	
Diagnosis Procedure	170	NATS SYMPTOMS	190
B2602 SHIFT POSITION	171	Symptom Table	190
DTC Logic	171	VEHICLE SECURITY SYSTEM	191
Diagnosis Procedure	171	Symptom Table	191
Component Inspection	173	REMOVAL AND INSTALLATION	192
B260F ENGINE STATUS	174	NATS ANTENNA AMP.	192
Description	174	Removal and Installation	192
DTC Description	174		
Diagnosis Procedure	174		

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010287273

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

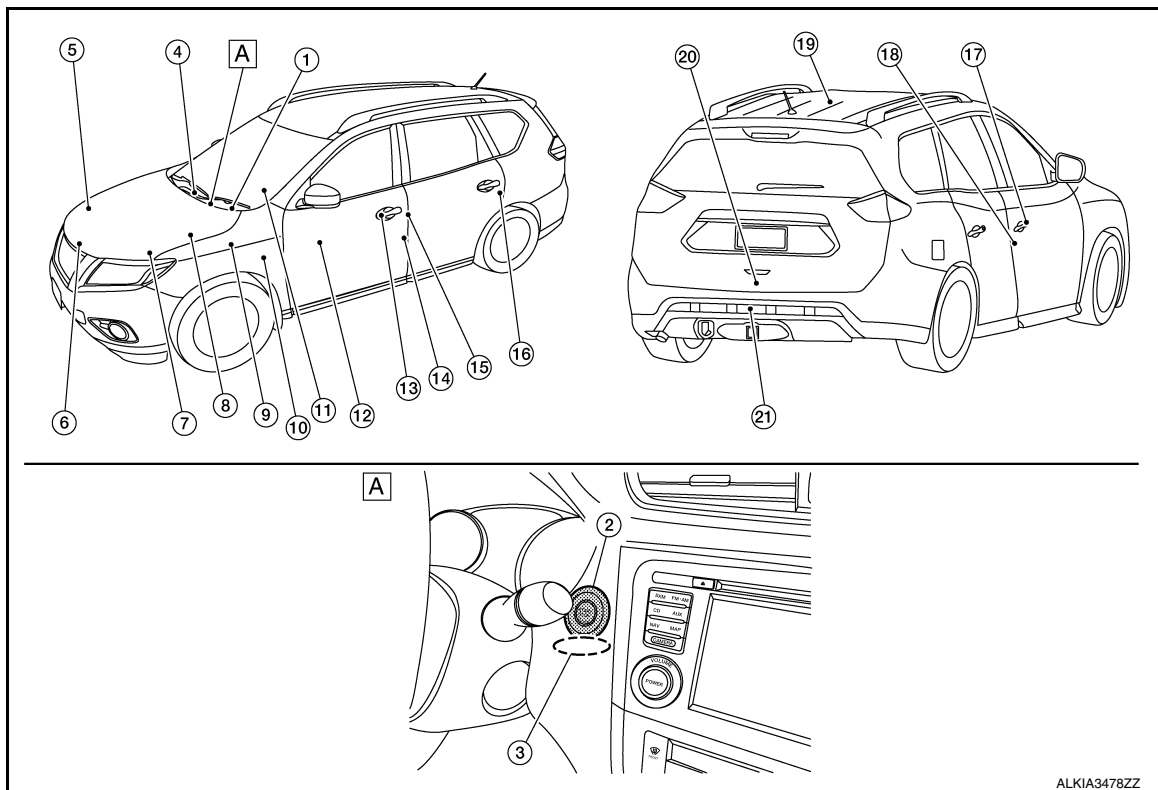
SEC

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:0000000010340301



A. View right of steering column.

No.	Component	Function
1.	Combination meter	Combination meter transmits the vehicle speed signal to BCM via CAN communication. BCM also receives the vehicle speed signal from ABS actuator and electric unit (control unit) via CAN communication. BCM compares both signals to detect the vehicle speed. Security indicator lamp is located on combination meter. Security indicator lamp blinks when ignition switch is in any position other than ON to warn that NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS [NVIS (NATS)] is on board. Refer to MWI-6, "METER SYSTEM : Component Parts Location" .
2.	Push-button ignition switch	Push-button ignition switch has push switch inside which detects that push-button ignition switch is pressed, and then transmits ON/OFF signal to BCM. BCM changes the ignition switch position with the operation of push-button ignition switch. BCM maintains the ignition switch position status while push-button ignition switch is not operated.
3.	NATS antenna amp.	Refer to SEC-8, "NATS Antenna Amp." .
4.	Inside key antenna (instrument center)	Inside key antenna (instrument center) detects whether Intelligent Key is inside the vehicle or not, and then transmits the signal to the BCM. Refer to DLK-22, "Inside Key Antenna (Instrument Center)" .
5.	Horn	Horn is operated when the panic button on the Intelligent Key is pressed or the alarm is activated.
6.	Hood switch	Hood switch inputs the hood position open/closed to the IPDM E/R.

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

No.	Component	Function
7.	Transmission range switch	Refer to TM-14, "CVT CONTROL SYSTEM : Transmission Range Switch" .
8.	IPDM E/R	Refer to PCS-4, "Component Parts Location" .
9.	Stop lamp switch	Refer to BRC-12, "Stop Lamp Switch" .
10.	BCM	BCM controls INTELLIGENT KEY SYSTEM (ENGINE START FUNCTION), NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS [NVIS (NATS)] and VEHICLE SECURITY SYSTEM. BCM performs the ID verification between BCM and Intelligent Key when the Intelligent Key is carried into the detection area of inside key antenna, and push-button ignition switch is pressed. If the ID verification result is OK, ignition switch operation is available. Then, when the ignition switch is turned ON, BCM performs ID verification between BCM and ECM. If the ID verification result is OK, ECM can start engine. Refer to BCS-7, "BODY CONTROL SYSTEM : Component Parts Location" for detailed installation location.
11.	CVT shift selector	Refer to TM-20, "SHIFT LOCK SYSTEM : Component Parts Location" .
12.	Main power window and door lock/unlock switch (Front power window and door lock/unlock switch RH similar)	Door lock and unlock switch is integrated into the power window main switch. Door lock and unlock switch transmits door lock/unlock operation signal to BCM. Refer to PWC-7, "Power Window Main Switch" .
13.	Outside key antenna LH	Outside key antenna (LH) detects whether Intelligent Key is outside the vehicle or not, and then transmits the signal to the BCM. Refer to DLK-23, "Outside Key Antenna (LH)" .
14.	Front door lock assembly LH	Door key cylinder switch is integrated into front door lock assembly (driver side). Door key cylinder switch detects door LOCK/UNLOCK operation using mechanical key, and then transmits the operation signal to BCM. Refer to DLK-25, "Front Door Lock Assembly (LH)" .
15.	Front door switch LH	Door switch detects door open/close condition and then transmits ON/OFF signal to BCM.
16.	Rear door switch LH (rear door switch RH similar)	Door switch detects door open/close condition and then transmits ON/OFF signal to BCM.
17.	Outside key antenna RH	Outside key antenna (RH) detects whether Intelligent Key is outside the vehicle or not, and then transmits the signal to the BCM. Refer to DLK-23, "Outside Key Antenna (RH)" .
18.	Front door switch RH	Door switch detects door open/close condition and then transmits ON/OFF signal to BCM.
19.	Inside key antenna (console)	Inside key antenna (console) detects whether Intelligent Key is inside the vehicle or not, and then transmits the signal to the BCM. Refer to DLK-23, "Inside Key Antenna (Console)" .
20.	Back door lock assembly	Back door lock actuator locks/unlocks the back door latch assembly.
21.	Outside key antenna (rear bumper)	Outside key antenna (Rear bumper) detects whether Intelligent Key is outside the vehicle or not, and then transmits the signal to the BCM. Refer to DLK-23, "Outside Key Antenna (Rear Bumper)" .

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

SEC

COMPONENT PARTS

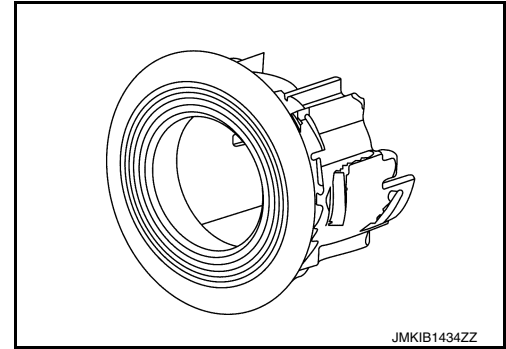
< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

NATS Antenna Amp.

INFOID:0000000010340300

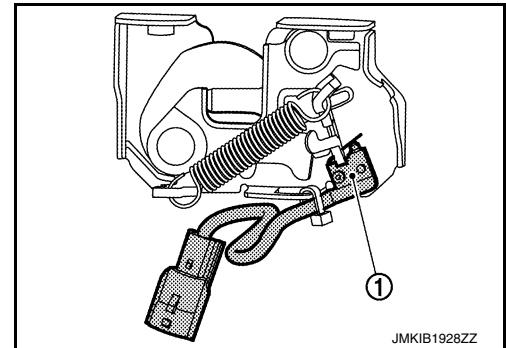
The ID verification is performed between BCM and transponder integrated into Intelligent Key via NATS antenna amp. when Intelligent Key backside is contacted to push-button ignition switch in case that Intelligent Key battery is discharged. If the ID verification result is OK, the operation of ignition switch is available.



Hood Switch

INFOID:0000000010340299

Hood switch ① detects that hood is open, and then transmits ON/OFF signal to IPDM E/R. IPDM E/R transmits hood switch signal to BCM via CAN communication. Hood switch is integrated into hood lock assembly LH.

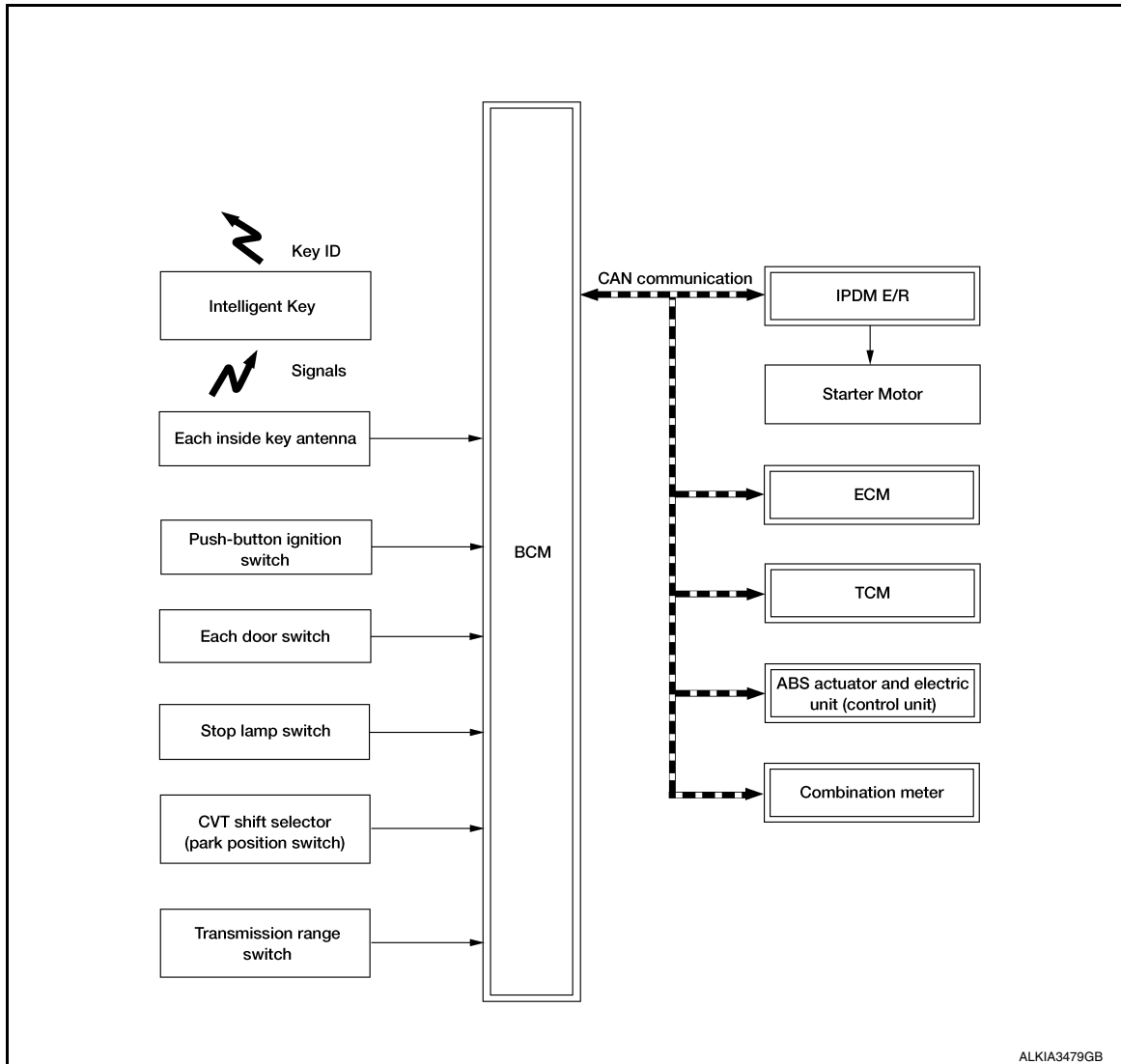


SYSTEM

INTELLIGENT KEY SYSTEM/ENGINE START FUNCTION

INTELLIGENT KEY SYSTEM/ENGINE START FUNCTION : System Diagram

INFOID:000000010284327



INTELLIGENT KEY SYSTEM/ENGINE START FUNCTION : System Description

INFOID:000000010284328

SYSTEM DESCRIPTION

- The engine start function of Intelligent Key system makes it possible to start and stop the engine without using the key, based on the electronic ID verification. The electronic ID verification is performed between BCM and Intelligent Key when the push-button ignition switch is pressed while the Intelligent Key is within the detection area of inside key antenna.

NOTE:

The driver should carry the Intelligent Key at all times.

- Intelligent Key has 2 IDs [Intelligent Key ID and NVIS (NATS) ID]. It can perform the door lock/unlock operation and the push-button ignition switch operation when the registered Intelligent Key is carried.
- When Intelligent Key battery is discharged, engine can be started by operating push-button ignition switch after contacting Intelligent Key backside to push-button ignition switch. At that time, the NVIS (NATS) ID verification is performed.
- If the ID is successfully verified, when push-button ignition switch is pressed, the engine can be started.
- Up to 4 Intelligent Keys can be registered (Including the standard Intelligent Key) upon request from the customer.

NOTE:

Refer to [SEC-12, "NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS : System Description"](#) for any functions other than engine start function of Intelligent Key system.

PRECAUTIONS FOR INTELLIGENT KEY SYSTEM

The transponder [the chip for NVIS (NATS) ID verification] is integrated into the Intelligent Key. In that case, the NVIS (NATS) ID verification can be performed when Intelligent Key backside is contacted to push-button ignition switch. If verification result is OK, engine can be started.

OPERATION WHEN INTELLIGENT KEY IS CARRIED

1. When the push-button ignition switch is pressed, the BCM activates the inside key antenna and transmits the request signal to the Intelligent Key.
2. The Intelligent Key receives the request signal and transmits the Intelligent Key ID signal to the BCM.
3. BCM receives the Intelligent Key ID signal and verifies it with the registered ID.
4. BCM turns ACC relay ON and transmits the ignition power supply ON signal to IPDM E/R.
5. IPDM E/R turns the ignition relay ON and starts the ignition power supply.
6. BCM detects that the selector lever position and brake pedal operating condition.
7. BCM transmits the starter request signal to IPDM E/R and turns the starter relay in IPDM E/R ON if BCM judges that the engine start condition* is satisfied.
8. IPDM E/R turns the starter control relay ON when receiving the starter request signal.
9. Power supply is supplied through the starter relay and the starter control relay to operate the starter motor.

CAUTION:

If a malfunction is detected in the Intelligent Key system, the "KEY" warning lamp in the combination meter illuminates. At that time, the engine cannot be started.

10. When BCM receives feedback signal from ECM indicating that the engine is started, the BCM transmits a stop signal to IPDM E/R and stops cranking by turning OFF the starter motor relay. (If engine start is unsuccessful, cranking stops automatically within 5 seconds.)

CAUTION:

When the Intelligent Key is carried outside of the vehicle (inside key antenna detection area) while the power supply is in the ACC or ON position, even if the engine start condition* is satisfied, the engine cannot be started.

*: For the engine start condition, refer to the table below "POWER SUPPLY POSITION CHANGE TABLE BY PUSH-BUTTON IGNITION SWITCH OPERATION".

OPERATION RANGE

Engine can be started when Intelligent Key is inside the vehicle. However, sometimes engine may not start when Intelligent Key is on instrument panel or in glove box.

ENGINE START OPERATION WHEN INTELLIGENT KEY IS CONTACTED TO PUSH-BUTTON IGNITION SWITCH

When Intelligent Key battery is discharged, the NVIS (NATS) ID verification between transponder in Intelligent Key and BCM is performed when Intelligent Key backside is contacted to push-button ignition switch. If the verification result is OK, engine can be started.

POWER SUPPLY POSITION CHANGE TABLE BY PUSH-BUTTON IGNITION SWITCH OPERATION

The power supply position changing operation can be performed with the following operations.

NOTE:

- When an Intelligent Key is within the detection area of inside key antenna and when Intelligent Key backside is contacted to push-button ignition switch, it is equivalent to the operations below.
- When starting the engine, the BCM monitors under the engine start conditions:
 - Brake pedal operating condition
 - Selector lever position
 - Vehicle speed

Vehicle speed: less than 4 km/h (2.5 MPH)

SYSTEM

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

Power supply position	Engine start/stop condition		Push-button ignition switch operation frequency
	Selector lever	Brake pedal operation condition	
LOCK → ACC	—	Not depressed	1
LOCK → ACC → ON	—	Not depressed	2
LOCK → ACC → ON → OFF	—	Not depressed	3
LOCK → START ACC → START ON → START	P or N position	Depressed	1
Engine is running → OFF	—	—	1

Vehicle speed: 4 km/h (2.5 MPH) or more

Power supply position	Engine start/stop condition		Push-button ignition switch operation frequency
	Selector lever	Brake pedal operation condition	
Engine is running → ACC	—	—	Emergency stop operation
Engine stall return operation while driving	N position	Not depressed	1

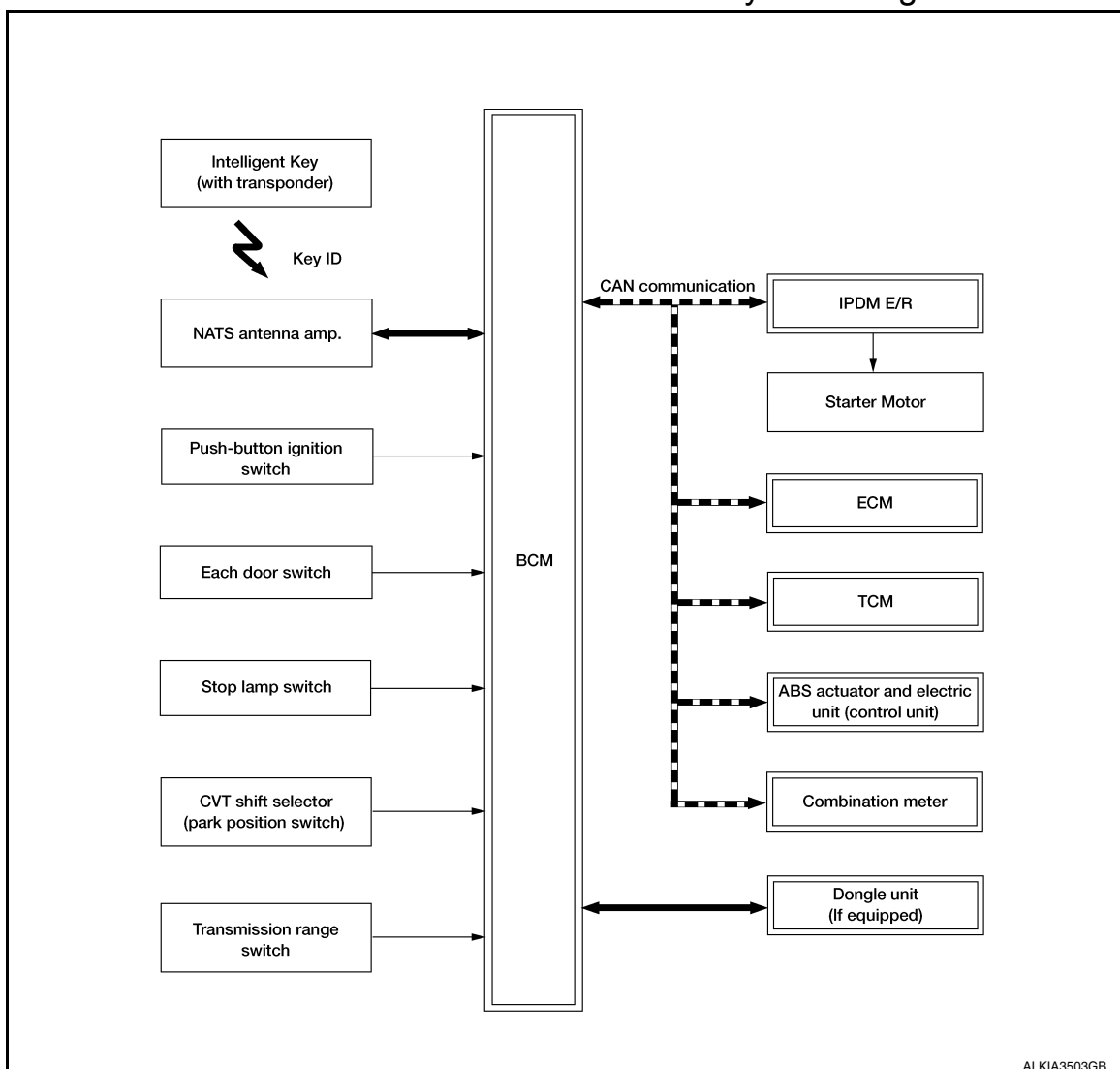
Emergency stop operation

- Press and hold the push-button ignition switch for 2 seconds or more.
- Press the push-button ignition switch 3 times or more within 1.5 seconds.

NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS

NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS : System Diagram

INFOID:000000010284329



NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS : System Description

INFOID:000000010284330

SYSTEM DESCRIPTION

- The NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS [NVIS (NATS)] prevents the engine from being started by Intelligent Key whose ID is not registered to the vehicle (BCM). It has higher protection against auto theft involving the duplication of mechanical keys.
- The ignition key integrated in the Intelligent Key cannot start the engine. When the Intelligent Key battery is discharged, the NVIS (NATS) ID verification is performed between the transponder integrated with Intelligent Key and BCM via NATS antenna amp. when the Intelligent Key backside is contacted to push-button ignition switch. If the verification results are OK, the engine start operation can be performed by the push-button ignition switch operation.
- Locate the security indicator lamp and apply the anti-theft system equipment sticker that warns that the NVIS (NATS) is on-board the model.
- Security indicator lamp always blinks when the power supply position is any position other than ON.
- Up to 4 Intelligent Keys can be registered (including the standard ignition key) upon request from the owner.
- Specified registration is required when replacing ECM, BCM or Intelligent Key.
- Possible symptom of NVIS (NATS) malfunction is "Engine cannot start". The engine can not be started because of other than NVIS (NATS) malfunction, so start the trouble diagnosis according to [SEC-62, "Work Flow"](#).
- If ECM other than genuine part is installed, the engine cannot be started. For ECM replacement procedure, refer to [EC-499, "Removal and Installation"](#).

< SYSTEM DESCRIPTION >

PRECAUTIONS FOR KEY REGISTRATION

- The ID registration is a procedure that erases the current NVIS (NATS) ID once, and then reregisters a new ID. Therefore before starting the registration operation, collect all registered Intelligent Keys from the customer.
- When registering the Intelligent Key, perform only one procedure to simultaneously register both ID [NVIS (NATS) ID and Intelligent Key ID].

SECURITY INDICATOR LAMP

- Warns that the vehicle is equipped with NVIS (NATS).
- Security indicator lamp always blinks when the power supply position is any position other than ON.

NOTE:

Because security indicator lamp is highly efficient, the battery is barely affected.

ENGINE START OPERATION WHEN INTELLIGENT KEY IS CONTACTED TO PUSH-BUTTON IGNITION SWITCH

1. When brake pedal is depressed while selector lever is in the P (Park) position, BCM activates NATS antenna amp. that is located behind push-button ignition switch.
2. When Intelligent Key (transponder built-in) backside is contacted to push-button ignition switch, BCM starts NVIS (NATS) ID verification between BCM and Intelligent Key (transponder built-in) via NATS antenna amp.
3. When the NVIS (NATS) ID verification result is OK, buzzer in combination meter sounds and BCM transmits the result to ECM.
4. BCM turns ACC relay ON and transmits ignition power supply ON signal to IPDM E/R.
5. IPDM E/R turns the ignition relay ON and starts the ignition power supply.
6. BCM detects that the selector lever position is P (Park) or N (Neutral).
7. BCM transmits starter request signal to IPDM E/R and turns the starter relay in IPDM E/R ON if BCM judges that the engine start condition* is satisfied.
8. IPDM E/R turns the starter control relay ON when receiving the starter request signal.
9. Power supply is supplied through the starter relay and the starter control relay to operate the starter motor.
10. When BCM receives feedback signal from ECM indicating that the engine is started, BCM transmits a stop signal to IPDM E/R and stops cranking by turning off the starter motor relay. (If engine start is unsuccessful, cranking stops automatically within 5 seconds.)

*: For the engine start condition, refer to the table "POWER SUPPLY POSITION CHANGE TABLE BY PUSH-BUTTON IGNITION SWITCH OPERATION" below.

POWER SUPPLY POSITION CHANGE TABLE BY PUSH-BUTTON IGNITION SWITCH OPERATION

The power supply position changing operation can be performed with the following operations.

NOTE:

- When an Intelligent Key is within the detection area of inside key antenna and when Intelligent Key backside is contacted to push-button ignition switch, it is equivalent to the operations below.
- When starting the engine, the BCM monitors under the engine start conditions:
 - Brake pedal operating condition
 - Selector lever position
 - Vehicle speed

Vehicle speed: less than 4 km/h (2.5 MPH)

Power supply position	Engine start/stop condition		Push-button ignition switch operation frequency
	Selector lever	Brake pedal operation condition	
LOCK → ACC	—	Not depressed	1
LOCK → ACC → ON	—	Not depressed	2
LOCK → ACC → ON → OFF	—	Not depressed	3

SYSTEM

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

Power supply position	Engine start/stop condition		Push-button ignition switch operation frequency
	Selector lever	Brake pedal operation condition	
LOCK → START ACC → START ON → START	P (Park) or N (Neutral) position	Depressed	1
Engine is running → OFF	—	—	1

Vehicle speed: 4 km/h (2.5 MPH) or more

Power supply position	Engine start/stop condition		Push-button ignition switch operation frequency
	Selector lever	Brake pedal operation condition	
Engine is running → ACC	—	—	Emergency stop operation
Engine stall return operation while driving	N (Neutral) position	Not depressed	1

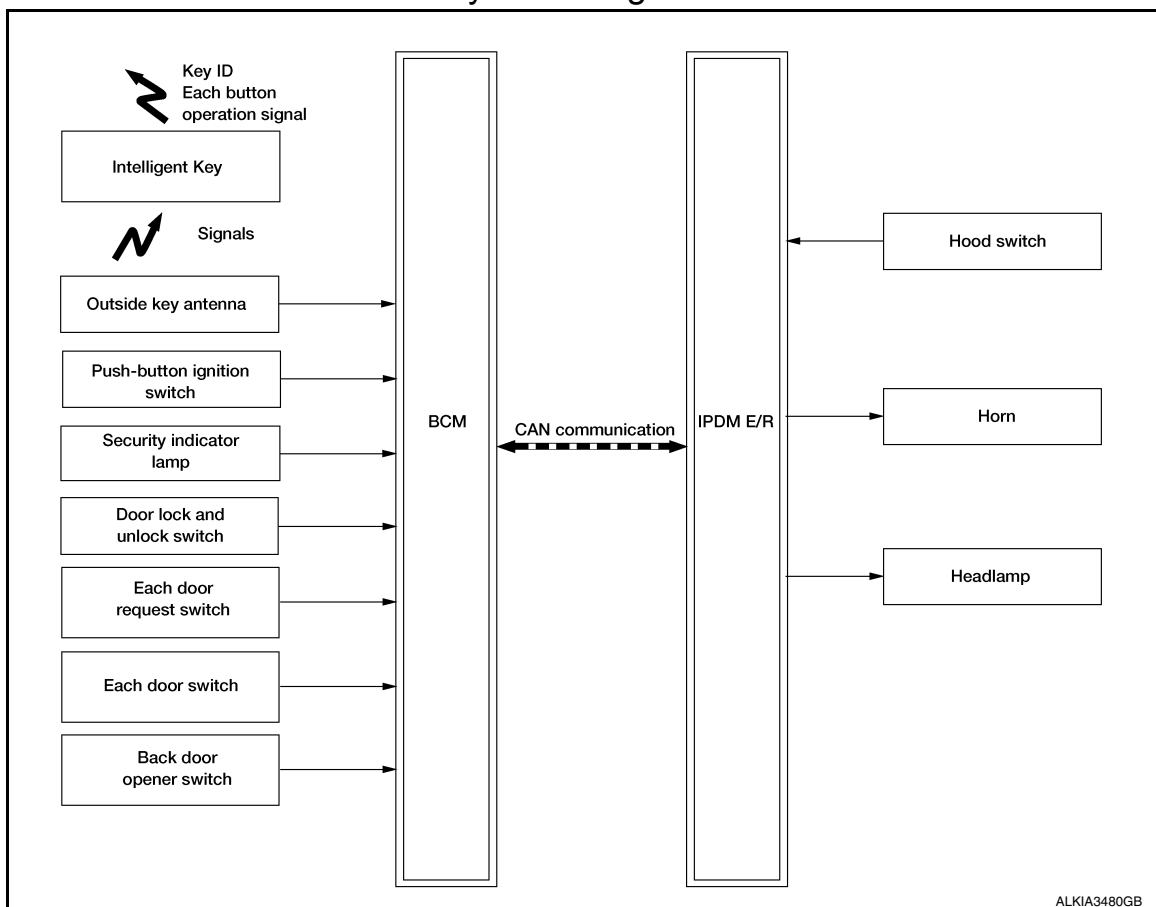
Emergency stop operation

- Press and hold the push-button ignition switch for 2 seconds or more.
- Press the push-button ignition switch 3 times or more within 1.5 seconds.

VEHICLE SECURITY SYSTEM

VEHICLE SECURITY SYSTEM : System Diagram

INFOID:0000000010284331



VEHICLE SECURITY SYSTEM : System Description

INFOID:0000000010284332

- The vehicle security system has two alarm functions (theft warning alarm and panic alarm) and reduces the possibility of a theft or mischief by activating horns and headlamps intermittently.

SYSTEM

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

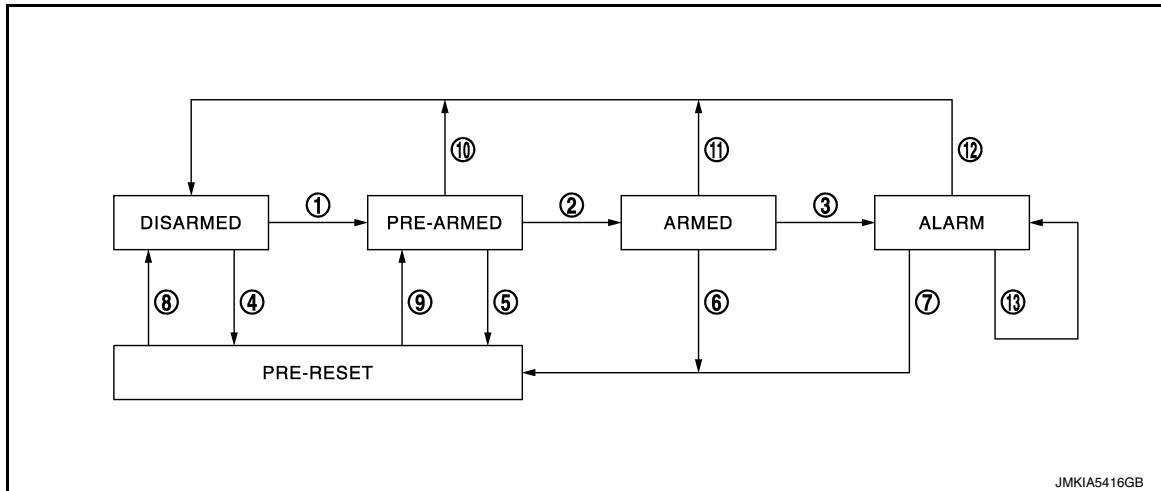
- The panic alarm does not start when the theft warning alarm is activating and the panic alarm stops when the theft warning alarm is activated.
- The priority of the functions are as per the following.

Priority	Function
1	Theft warning alarm
2	Panic alarm

THEFT WARNING ALARM

- The theft warning alarm function activates horns and headlamps intermittently when BCM detects that any door or hood is opened by unauthorized means while the system is in the ARMED state.
- Security indicator lamp on combination meter always blinks when power supply position is any position other than ON. Security indicator lamp blinking warns that the vehicle is equipped with a vehicle security system.

Operation Flow



No.	System state	Switching condition		
1	DISARMED to PRE-ARMED	When all conditions of A and one condition of B is satisfied.	A	B
			- Power supply position: OFF/LOCK - All doors: Closed - Hood: Closed	All doors are locked by: - Door key cylinder LOCK switch - LOCK button of Intelligent Key - Door request switch
2	PRE-ARMED to ARMED	When all of the following conditions are satisfied for 30 seconds.	- Power supply position: OFF/LOCK - All doors: Locked - Hood: Closed	
3	ARMED to ALARM	When one condition of A and one condition of B are satisfied.	A	B
			Intelligent Key: Not used	- Any door: Open - Hood: Open
4	DISARMED to PRE-RESET	When all conditions of A and one condition of B is satisfied.	A	B
			- Power supply position: OFF/LOCK - All doors: Closed - Hood: Open	All doors are locked by: - Door key cylinder LOCK switch - LOCK button of Intelligent Key - Door request switch
5	PRE-ARMED to PRE-RESET	When one of the following conditions is satisfied.	Hood: Open	
6	ARMED to PRE-RESET	No conditions.		
7	ALARM to PRE-RESET			

SYSTEM

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

No.	System state	Switching condition	
8	PRE-RESET to DISARMED	When one of the following conditions is satisfied.	- Power supply position: ACC/ON/CRANKING/RUN - Door key cylinder UNLOCK switch: ON - UNLOCK button of Intelligent Key: ON - Door request switch: ON - Back door opener switch: ON - UNLOCK switch of door lock and unlock switch: ON - Any door: Open
9	PRE-RESET to PRE-ARMED	When all of the following conditions are satisfied.	- Power supply position: OFF/LOCK - All doors: Closed - Hood: Closed
10	PRE-ARMED to DISARMED	When one of the following conditions is satisfied.	- Power supply position: ACC/ON/CRANKING/RUN - Door key cylinder UNLOCK switch: ON - UNLOCK button of Intelligent Key: ON - AUTO BACK DOOR button of Intelligent Key: ON - Door request switch: ON - Back door opener switch: ON - Any door: Open
11	ARMED to DISARMED	When one of the following conditions is satisfied.	- Power supply position: ACC/ON/CRANKING/RUN - Door key cylinder UNLOCK switch: ON - UNLOCK button of Intelligent Key: ON - AUTO BACK DOOR button of Intelligent Key: ON - Door request switch: ON - Back door opener switch: ON
12	ALARM to DISARMED		
13	RE-ALARM	When one of the following conditions is satisfied after the ALARM operation is finished.	- Any door: Open - Hood: Open

NOTE:

- BCM ignores the door key cylinder UNLOCK switch signal input for 1 second after the door key cylinder LOCK switch signal input.
- To lock/unlock all doors by operating remote controller button of Intelligent Key or door request switch, Intelligent Key must be within the detection area of outside key antenna. For details, refer to [SEC-9, "INTELLIGENT KEY SYSTEM/ENGINE START FUNCTION : System Description"](#).
- To open back door by operating back door opener switch, Intelligent Key must be within the detection area of outside key antenna. For details, refer to [SEC-9, "INTELLIGENT KEY SYSTEM/ENGINE START FUNCTION : System Description"](#).

DISARMED Phase

The vehicle security system is not set in the DISARMED phase. The vehicle security system stays in this phase while any door is open because it is assumed that the owner is inside or nearby the vehicle. Security indicator lamp blinks every 2.4 seconds.

When the vehicle security system is reset, each phase switches to the DISARMED phase directly.

PRE-ARMED Phase

The PRE-ARMED phase is the transient state between the DISARMED phase and the ARMED phase. This phase is maintained for 30 seconds so that the owner can reset the setting due to a mis-operation. This phase switches to the ARMED phase when vehicle conditions are not changed for 30 seconds. Security indicator lamp illuminates while being in this phase.

To reset the PRE-ARMED phase, refer to the switching condition of No. 10 in the table above.

ARMED Phase

The vehicle security system is set and BCM monitors all necessary inputs. If any door or hood is opened without using Intelligent Key, vehicle security system switches to the ALARM phase. Security indicator lamp blinks every 2.4 seconds.

To reset the ARMED phase, refer to the switching condition of No. 11 in the table above.

ALARM Phase

BCM transmits "Theft Warning Horn Request" signal and "High Beam Request" signal intermittently to IPDM E/R via CAN communication. In this phase, horns and headlamps are activated intermittently for approximately 50 seconds to warn that the vehicle is accessed by unauthorized means. ON/OFF timing of horns and headlamps are synchronized. After 50 seconds, the vehicle security system returns to the ARMED phase. At this time, if BCM still detects unauthorized access to the vehicle, the system is switched to the ALARM phase again. This RE-ALARM operation is carried out a maximum of 2 times.

To cancel the ALARM operation, refer to the switching condition of No. 12 in the table above.

NOTE:

If a battery terminal is disconnected during the ALARM phase, theft warning alarm stops. But when the battery terminal is reconnected, theft warning alarm is activated again.

PRE-RESET Phase

The PRE-RESET phase is the transient state between each phase and DISARMED phase. If only the condition of hood is not satisfied, the system switches to the PRE-RESET phase. Then, when any condition is changed, the system switches to the DISARMED phase or PRE-ARMED phase.

PANIC ALARM

- The panic alarm function activates horns and headlamps intermittently when the owner presses the PANIC ALARM button of Intelligent Key outside the vehicle while the power supply position is OFF or LOCK.
- When BCM receives panic alarm signal from Intelligent Key, BCM transmits "Theft Warning Horn Request" signal and "High Beam Request" signal intermittently to IPDM E/R via CAN communication. To prevent the activation due to mis-operation of Intelligent Key by owner, the panic alarm function is activated when BCM receives the signal for 0.4 - 0.6 seconds.
- Panic alarm operation is maintained for 25 seconds.
- Panic alarm operation is cancelled when BCM receives one of the following signals:
 - LOCK button of Intelligent Key: ON
 - UNLOCK button of Intelligent Key: ON
 - PANIC ALARM button of Intelligent Key: Long pressed
 - Any door request switch: ON

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

SEC

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

DIAGNOSIS SYSTEM (BCM)

COMMON ITEM

COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)

INFOID:0000000010336412

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with BCM.

Direct Diagnostic Mode	Description
Ecu Identification	The BCM part number is displayed.
Self Diagnostic Result	The BCM self diagnostic results are displayed.
Data Monitor	The BCM input/output data is displayed in real time.
Active Test	The BCM activates outputs to test components.
Work support	The settings for BCM functions can be changed.
Configuration	- The vehicle specification can be read and saved. - The vehicle specification can be written when replacing BCM.
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.

SYSTEM APPLICATION

BCM can perform the following functions.

System	Sub System	Direct Diagnostic Mode						
		Ecu Identification	Self Diagnostic Result	Data Monitor	Active Test	Work support	Configuration	CAN Diag Support Mntr
Door lock	DOOR LOCK		×	×	×	×		
Rear window defogger	REAR DEFOGGER			×	×	×		
Warning chime	BUZZER			×	×			
Interior room lamp timer	INT LAMP			×	×	×		
Exterior lamp	HEADLAMP			×	×	×		
Wiper and washer	WIPER			×	×	×		
Turn signal and hazard warning lamps	FLASHER			×	×			
Intelligent Key system	INTELLIGENT KEY		×	×	×	×		
Combination switch	COMB SW			×				
BCM	BCM	×	×			×	×	×
Immobilizer	IMMU		×	×	×			
Interior room lamp battery saver	BATTERY SAVER			×	×			
Back door open	TRUNK			×				
Vehicle security system	THEFT ALM			×	×	×		
RAP system	RETAINED PWR			×				
Signal buffer system	SIGNAL BUFFER			×				
TPMS	AIR PRESSURE MONITOR		×	×	×	×		

INTELLIGENT KEY

DIAGNOSIS SYSTEM (BCM)

[WITH INTELLIGENT KEY SYSTEM]

< SYSTEM DESCRIPTION >

INTELLIGENT KEY : CONSULT Function (BCM - INTELLIGENT KEY)

INFOID:000000010336413

SELF DIAGNOSTIC RESULT

Refer to [BCS-48, "DTC Index"](#).

DATA MONITOR

Monitor Item [Unit]	Main	Description
REQ SW -DR [On/Off]	×	Indicates condition of door request switch LH.
REQ SW -AS [On/Off]	×	Indicates condition of door request switch RH.
REQ SW -BD/TR [On/Off]	×	Indicates condition of back door request switch.
PUSH SW [On/Off]		Indicates condition of push-button ignition switch.
BRAKE SW 1 [On/Off]	×	Indicates condition of brake pedal position switch.
BRAKE SW 2 [On/Off]		Indicates condition of stop lamp switch.
DETE/CANCL SW [On/Off]	×	Indicates condition of park position switch.
PUSH SW -IPDM [On/Off]		Indicates condition of push-button ignition switch received from IPDM E/R on CAN communication line.
IGN RLY1 -F/B [On/Off]		Indicates condition of ignition relay 1 received from IPDM E/R on CAN communication line.
NEUTRAL SW -IPDM [On/Off]		Indicates condition of transmission range switch received from IPDM E/R on CAN communication line.
SFT PN -IPDM [On/Off]		Indicates condition of P (park) or N (neutral) position from TCM on CAN communication line.
STARTER RELAY -IPDM [On/Off]		Indicates condition of starter relay received from IPDM E/R on CAN communication line.
ENGINE STATE [STOP/START/CRANK/RUN]	×	Indicates condition of engine state from ECM on CAN communication line.
REVERSE SIGNAL -IPDM [On/Off]		Indicates condition of transmission range switch received from IPDM E/R on CAN communication line.
CRANKING PERMIT -ECM [PERMIT]		Indicates condition of engine start possibility from ECM on CAN communication line.
IS STATUS -ECM [On/Off]		Indicates IS status from ECM on CAN communication line.
STARTER CUT RELAY -ECM [On/Off]		Indicates condition of starter cut relay from ECM on CAN communication line.
VEH SPEED 1 [mph/km/h]	×	Indicates condition of vehicle speed signal received from ABS on CAN communication line.
VEH SPEED 2 [mph/km/h]	×	Indicates condition of vehicle speed signal received from combination meter on CAN communication line.
IGN REQ -IPDM [On/Off]		Indicates condition of ignition request from IPDM E/R on CAN communication line.
STARTER REQ -IPDM [On/Off]		Indicates condition of starter request received from IPDM E/R on CAN communication line.
DOOR STAT -DR [LOCK/READY/UNLK]	×	Indicates condition of driver side door status.
DOOR STAT -AS [LOCK/READY/UNLK]	×	Indicates condition of passenger side door status.
DOOR STAT -RR [LOCK/READY/UNLK]	×	Indicates condition of rear right side door status.
DOOR STAT -RL [LOCK/READY/UNLK]	×	Indicates condition of rear left side door status.
BK DOOR STATE [LOCK/READY/UNLK]	×	Indicates condition of back door status.
ID OK FLAG [Set/Reset]		Indicates condition of Intelligent Key ID.
PRMT ENG STRT [Set/Reset]		Indicates condition of engine start possibility.
PRMT RKE STRT [Set/Reset]		Indicates condition of engine start possibility from Intelligent Key.
I-KEY OK FLAG [Key ON/Key OFF]	×	Indicates condition of Intelligent Key OK flag.
PRBT ENG STRT [Set/Reset]		Indicates condition of engine start prohibit.

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

Monitor Item [Unit]	Main	Description
ID AUTHENT CANCEL TIMER [STOP]		Indicates condition of Intelligent Key ID authentication.
ACC BATTERY SAVER [STOP]		Indicates condition of battery saver.
CRNK PRBT TMR [On/Off]		Indicates condition of crank prohibit timer.
AUT CRNK TMR [On/Off]		Indicates condition of automatic engine crank timer from Intelligent Key.
CRNK PRBT TME [sec]		Indicates condition of engine crank prohibit time.
AUTO CRNK TME [sec]		Indicates condition of automatic engine crank time from Intelligent Key.
CRANKING TME [sec]		Indicates condition of engine cranking time from Intelligent Key.
RKE OPE COUN1 [0-19]	×	When remote keyless entry receiver receives the signal transmitted while operating on Intelligent Key, the numerical value start changing.
RKE OPE COUN2 [0-19]	×	When remote keyless entry receiver receives the signal transmitted while operating on Intelligent Key, the numerical value start changing.
RKE-LOCK [On/Off]		Indicates condition of lock signal from Intelligent Key.
RKE-UNLOCK [On/Off]		Indicates condition of unlock signal from Intelligent Key.
RKE-TR/BD [On/Off]		Indicates condition of back door open signal from Intelligent Key.
RKE-PANIC [On/Off]		Indicates condition of panic signal from Intelligent Key.
RKE-MODE CHG [On/Off]		Indicates condition of mode change signal from Intelligent Key.
RKE PBD [On/Off]		Indicates condition of automatic back door signal from Intelligent Key.

ACTIVE TEST

Test Item	Description
OUTSIDE BUZZER	This test is able to check Intelligent Key warning buzzer operation [On/Off].
INSIDE BUZZER	This test is able to check combination meter warning chime operation [Take Out/Knob/Key/Off].
INDICATOR	This test is able to check combination meter warning lamp operation [KEY ON/KEY IND/Off].
ENGINE SW ILLUMI	This test is able to check push-button ignition switch START indicator operation [On/Off].
IGNITION RELAY	This test is able to check ignition relay operation [On/Off].

WORK SUPPORT

Support Item	Setting	Description
SHORT CRANKING OUTPUT	Start	70 msec
		100 msec
		200 msec
	End	—
INSIDE ANT DIAGNOSIS	—	This function allows inside key antenna self-diagnosis.

IMMU

IMMU : CONSULT Function (BCM - IMMU)

INFOID:0000000010336415

SELF DIAGNOSTIC RESULT

Refer to [BCS-48, "DTC Index"](#).

DATA MONITOR

Monitor Item [Unit]	Description
PUSH SW [On/Off]	Indicates condition of push-button ignition switch.

ACTIVE TEST

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

Test Item	Description
THEFT IND	This test is able to check security indicator operation [On/Off].

WORK SUPPORT

Support Item	Setting	Description
CONFIRM DONGLE ID	—	Dongle ID can be checked.

THEFT ALM

THEFT ALM : CONSULT Function (BCM - THEFT ALM)

INFOID:000000010336414

DATA MONITOR

Monitored Item	Description
REQ SW -DR [On/Off]	Indicates condition of door request switch LH.
REQ SW -AS [On/Off]	Indicates condition of door request switch RH.
REQ SW-BD/TR [On/Off]	Indicates condition of back door request switch.
PUSH SW [On/Off]	Indicates condition of push-button ignition switch.
DOOR SW-DR [On/Off]	Indicates condition of front door switch LH.
DOOR SW-AS [On/Off]	Indicates condition of front door switch RH.
DOOR SW-RR [On/Off]	Indicates condition of rear door switch RH.
DOOR SW-RL [On/Off]	Indicates condition of rear door switch LH.
DOOR SW-BK [On/Off]	Indicates condition of back door switch.
CDL LOCK SW [On/Off]	Indicates condition of lock signal from door lock and unlock switch.
CDL UNLOCK SW [On/Off]	Indicates condition of unlock signal from door lock and unlock switch.
KEY CYL LK-SW [On/Off]	Indicates condition of lock signal from door key cylinder switch.
KEY CYL UN-SW [On/Off]	Indicates condition of unlock signal from door key cylinder switch.
RKE-LOCK [On/Off]	Indicates condition of lock signal from Intelligent Key.
RKE-UNLOCK [On/Off]	Indicates condition of unlock signal from Intelligent Key.
RKE-TR/BD [On/Off]	Indicates condition of back door open signal from Intelligent Key.

ACTIVE TEST

Test Item	Description
FLASHER	This test is able to check turn signal lamp operation [LH/RH/Off].
THEFT IND	This test is able to check security indicator lamp operation [On/Off].
VEHICLE SECURITY HORN	This test is able to check vehicle security horn operation [On].
HEADLAMP(HI)	This test is able to check vehicle security lamp operation [On].

WORK SUPPORT

Support Item	Setting	Description
SECURITY ALARM SET	On	Security alarm ON.
	Off	Security alarm OFF.

DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

DIAGNOSIS SYSTEM (IPDM E/R)

CONSULT Function (IPDM E/R)

INFOID:0000000010336418

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with IPDM E/R.

Direct Diagnostic Mode	Description
Ecu Identification	The IPDM E/R part number is displayed.
Self Diagnostic Result	The IPDM E/R self diagnostic results are displayed.
Data Monitor	The IPDM E/R input/output data is displayed in real time.
Active Test	The IPDM E/R activates outputs to test components.
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.

ECU IDENTIFICATION

The IPDM E/R part number is displayed.

SELF DIAGNOSTIC RESULT

Refer to [PCS-20. "DTC Index"](#).

DATA MONITOR

Monitor Item [Unit]	Description
REVERSE SIGNAL [Open/Close]	Indicates condition of transmission range switch R (Reverse) position.
IGN RELAY [Open/Close]	Indicates condition of ignition relay-1.
PUSH SW [Open/Close]	Indicates condition of push-button ignition switch.
INTERLOCK/PNP SW [Open/Close]	Indicates condition of transmission range switch P (Park) and N (Neutral) positions.
OIL PRESSURE SW [Open/Close]	Indicates condition of oil pressure switch.
HOOD SW [Open/Close]	Indicates condition of hood switch.
COMPRESSOR [OFF/ON]	Indicates condition of A/C compressor.
HORN RELAY [OFF/ ON]	Indicates condition of horn relay.
COOLING FAN [OFF/ON]	Indicates condition of cooling fan relay-1.
FRONT WIPER HI/LO RELAY [OFF/ON]	Indicates condition of front wiper high relay.
FRONT WIPER RELAY [OFF/ON]	Indicates condition of front wiper relay.
IGN RELAY OFF STATUS [OFF/ON]	Indicates condition of ignition relay-1 OFF status.
IGN RELAY ON STATUS [OFF/ON]	Indicates condition of ignition relay-1 ON status.
COOLING FAN RELAY 1 [OFF/ON]	Indicates condition of cooling fan relay-1.
STARTER RELAY [OFF/ON]	Indicates condition of starter relay.
COMP ECV DUTY [%]	Indicates condition of A/C compressor.
COOLING FAN RELAY 2 [%]	Indicates condition of cooling fan relay-2.
FR FOG LAMP LH [%]	Indicates condition of front fog lamp LH.
FR FOG LAMP RH [%]	Indicates condition of front fog lamp RH.
PARKING LAMP [%]	Indicates condition of parking lamp.
TAIL LAMP LH [%]	Indicates condition of tail lamp LH.
TAIL LAMP RH [%]	Indicates condition of tail lamp RH.
DAYTIME RUNNING LIGHT LH [%]	Indicates condition of daytime running light LH.
DAYTIME RUNNING LIGHT RH [%]	Indicates condition of daytime running light RH.
HEADLAMP (HI) LH [%]	Indicates condition of headlamp high beam LH.

DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

Monitor Item [Unit]	Description	
HEADLAMP (HI) RH [%]	Indicates condition of headlamp high beam RH.	A
HEADLAMP (LO) LH [%]	Indicates condition of headlamp low beam LH.	
HEADLAMP (LO) RH [%]	Indicates condition of headlamp low beam RH.	B
A/C RELAY STUCK [NG/OK]	Indicates condition of A/C relay.	
A/C RELAY [Off/On]	Indicates condition of A/C relay.	
COMP ECV STATUS [NG/OK]	Indicates condition of A/C compressor.	C
VEHICLE SECURITY HORN [Off/On]	Indicates condition of horn relay.	
BATTERY CURRENT SENSOR [NG/OK]	Indicates condition of battery current sensor.	D
FRONT FOG LAMP [Off/On]	Indicates condition of front fog lamps.	
COMP ECV CURRENT [A]	Indicates condition of A/C compressor current.	
BATTERY VOLTAGE [V]	Indicates condition of battery voltage.	E
COOLING FAN DUTY [%]	Indicates condition of cooling fans.	
HOOD SW (CAN) [OPEN/CLOSE]	Indicates condition of hood switch.	F
FRONT WIPER [STOP/LOW/HIGH]	Indicates condition of front wiper motor.	
FR WIPER STOP POSITION [STOP P/ACTIVE P]	Indicates condition of front wiper motor stop.	
HEADLAMP (HI) [Off/On]	Indicates condition of headlamp high beams.	G
HEADLAMP (LO) [Off/On]	Indicates condition of headlamp low beams.	
IGNITION RELAY STATUS [Off/On]	Indicates condition of ignition relay-1.	
IGN RELAY MONITOR [Off/On]	Indicates condition of ignition relay-1 feedback.	H
IGNITION POWER SUPPLY [Off/On]	Indicates condition of ignition relay-1.	
INTERLOCK/PNP SW (CAN) [Off/On]	Indicates condition of transmission range switch P (Park) and N (Neutral) positions.	I
PUSH-BUTTON IGN SW (CAN) [Off/On]	Indicates condition of push-button ignition switch.	
TAIL LAMP [Off/On]	Indicates condition of tail lamps.	J
REVERSE SIGNAL (CAN) [Off/On]	Indicates condition of transmission range switch R (Reverse) position.	
ST&ST CONT RELAY STATUS [Off/ST R On]	Indicates condition of starter cut and starter relays.	SEC
STARTER MOTOR STATUS [Off/On]	Indicates condition of starter motor.	
STARTER RELAY (CAN) [LOW/HIGH]	Indicates condition of starter relay.	
IPDM NOT SLEEP [NO RDY/RDY]	Indicates condition of IPDM E/R sleep status.	L
AFTER COOLING TIME [No request/Request]	Indicates condition of cooling fan request.	
AFTER COOLING SPEED [%]	Indicates condition of cooling fans.	M
COOLING FAN TYPE [NISSAN/RENAULT]	Indicates cooling fan type.	
COMPRESSOR REQ1 [Off/On]	Indicates condition of A/C compressor request.	
VHCL SECURITY HORN REQ [Off/On]	Indicates condition of horn relay request.	N
DTRL REQ [Off/On]	Indicates condition of daytime running light request.	
SLEEP/WAKE UP [WAKEUP/SLEEP]	Indicates condition of IPDM E/R sleep/wake.	O
CRANKING ENABLE-TCM [NG/OK]	Indicates condition of crank enable from TCM.	
CRANKING ENABLE-ECM [NG/OK]	Indicates condition of crank enable from ECM.	
CAN DIAGNOSIS [NG/OK]	Indicates condition of CAN diagnosis.	P
FRONT FOG LAMP REQ [Off/On]	Indicates condition of front fog lamp request.	
HIGH BEAM REQ [Off/On]	Indicates condition of headlamp high beam request.	
HORN CHIRP [Off/On]	Indicates condition of horn relay request.	
COOLING FAN REQ [%]	Indicates condition of cooling fan request.	
ENGINE STATUS [STOP/RUN/IDLING]	Indicates condition of engine status.	

DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

[WITH INTELLIGENT KEY SYSTEM]

Monitor Item [Unit]	Description
TURN SIGNAL REQ [Off/LH/RH]	Indicates condition of turn signal request.
FR WIPER REQ [RETURN/LOW/HIGH]	Indicates condition of front wiper motor request.
SHIFT POSITION [P/R/N/D/L]	Indicates condition of transmission range switch positions.
LOW BEAM REQ [Off/On]	Indicates condition of headlamp low beam request.
POSITION LIGHT REQ [Off/On]	Indicates condition of parking lamp request.
COMPRESSOR REQ2 [Off/On]	Indicates condition of A/C compressor request.
IGNITION SW [Off/On]	Indicates condition of ignition switch.
VEHICLE SPEED (METER) [mph/km/h]	Indicates vehicle speed.
BAT DISCHARGE COUNT [0-100]	Indicates condition of battery discharge.
BATTERY STATUS [NG/OK]	Indicates battery status.

ACTIVE TEST

Test item	Description
HORN	This test is able to check horn operation [Off/On].
FRONT WIPER	This test is able to check wiper motor operation [Off/Low/High].
COMPRESSOR	This test is able to check A/C compressor operation [Off/On].
COOLING FAN (DUAL)	This test is able to check cooling fan operation [Off/LO/HI].
HEADLAMP (HI)	This test is able to check headlamp high beam operation [Off/3/5].
HEADLAMP (LO)	This test is able to check headlamp low beam operation [Off/3/5].
FRONT FOG LAMP	This test is able to check front fog lamp operation [Off/3/5].
DAYTIME RUNNING LAMP	This test is able to check daytime running lamp operation [Off/3/5].
PARKING LAMP	This test is able to check parking lamp operation [Off/3/5].
TAIL LAMP	This test is able to check tail lamp operation [Off/3/5].

CAN DIAG SUPPORT MNTR

Refer to [LAN-14, "CAN Diagnostic Support Monitor"](#).

ECU DIAGNOSIS INFORMATION

ECM, IPDM E/R, BCM

List of ECU Reference

INFOID:0000000010284338

ECU		Reference
ECM	Reference Value	EC-77, "Reference Value"
	Fail-safe	EC-89, "Fail Safe"
	DTC Inspection Priority Chart	EC-92, "DTC Inspection Priority Chart"
	DTC Index	EC-93, "DTC Index"
IPDM E/R	Reference Value	PCS-12, "Reference Value"
	Fail-safe	PCS-19, "Fail-safe"
	DTC Index	PCS-20, "DTC Index"
BCM	Reference Value	BCS-28, "Reference Value"
	Fail-safe	BCS-47, "Fail Safe"
	DTC Inspection Priority Chart	BCS-47, "DTC Inspection Priority Chart"
	DTC Index	BCS-48, "DTC Index"

A

B

C

D

E

F

G

H

I

J

SEC

L

M

N

O

P

ENGINE START FUNCTION

< WIRING DIAGRAM >

[WITH INTELLIGENT KEY SYSTEM]

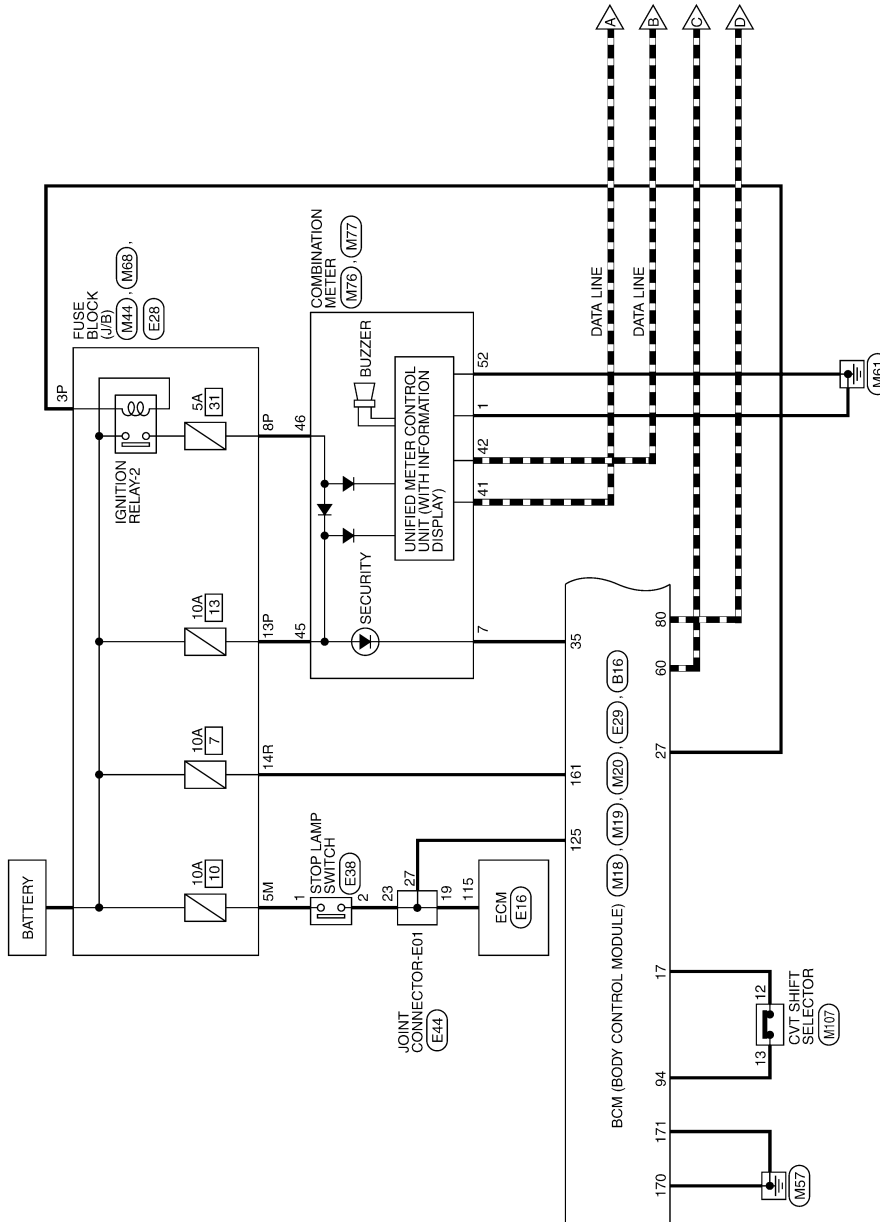
WIRING DIAGRAM

ENGINE START FUNCTION

Wiring Diagram

INFOID:0000000010284339

INTELLIGENT KEY SYSTEM/ENGINE START FUNCTION

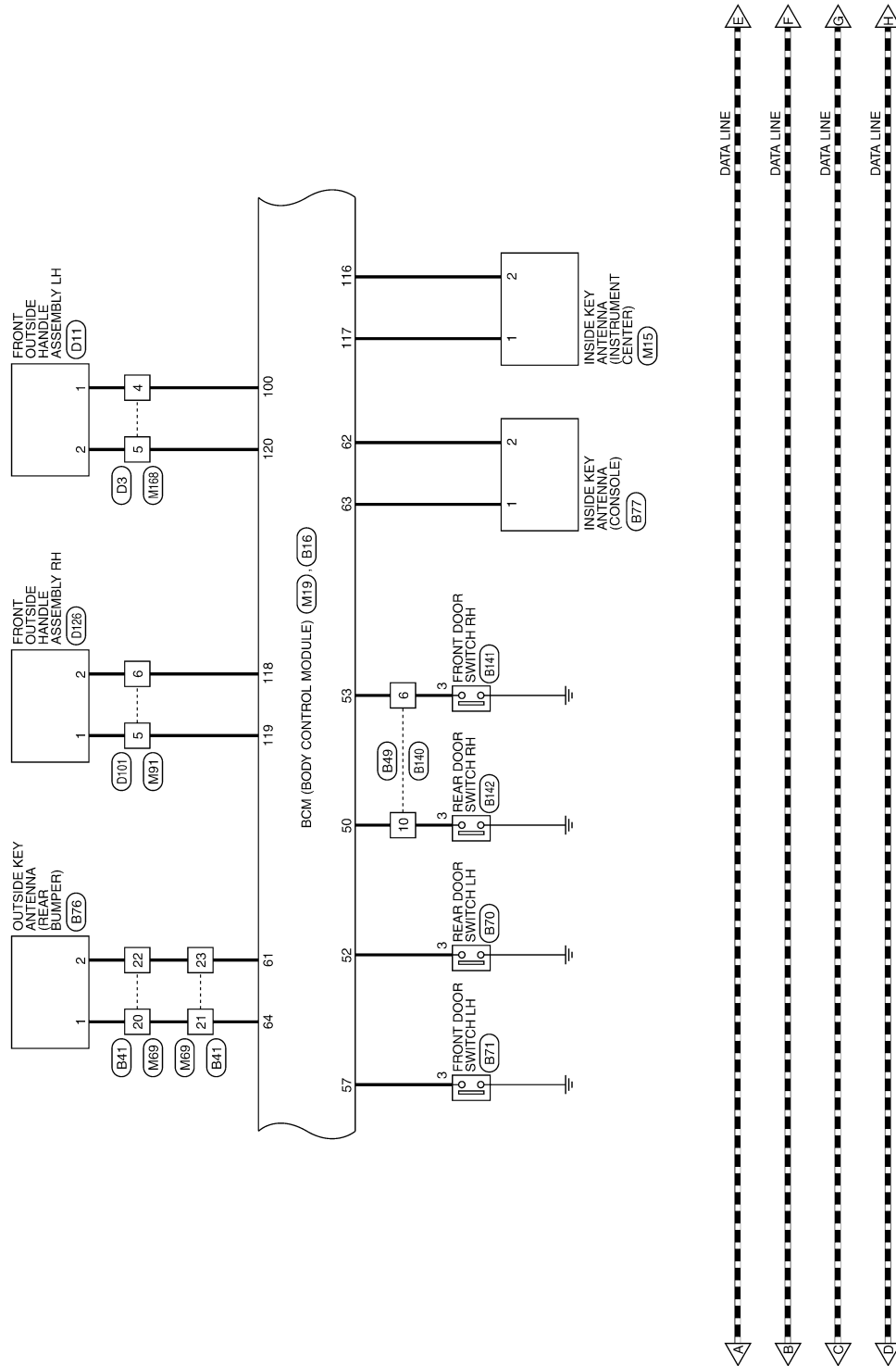


AAKWA0781GB

ENGINE START FUNCTION

< WIRING DIAGRAM >

[WITH INTELLIGENT KEY SYSTEM]



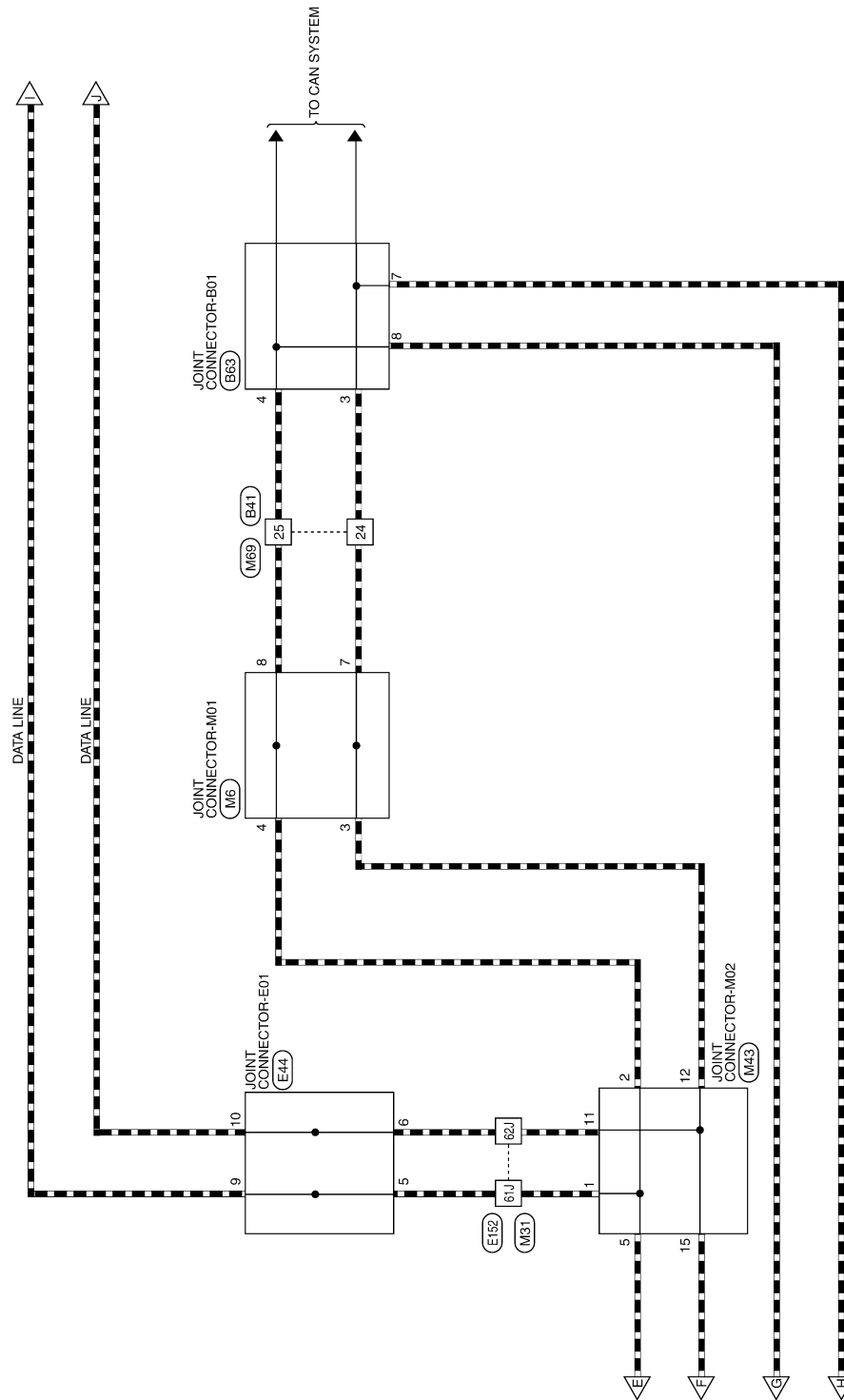
AAKWA0782GB

A
B
C
D
E
F
G
H
I
J
SEC
L
M
N
O
P

ENGINE START FUNCTION

< WIRING DIAGRAM >

[WITH INTELLIGENT KEY SYSTEM]

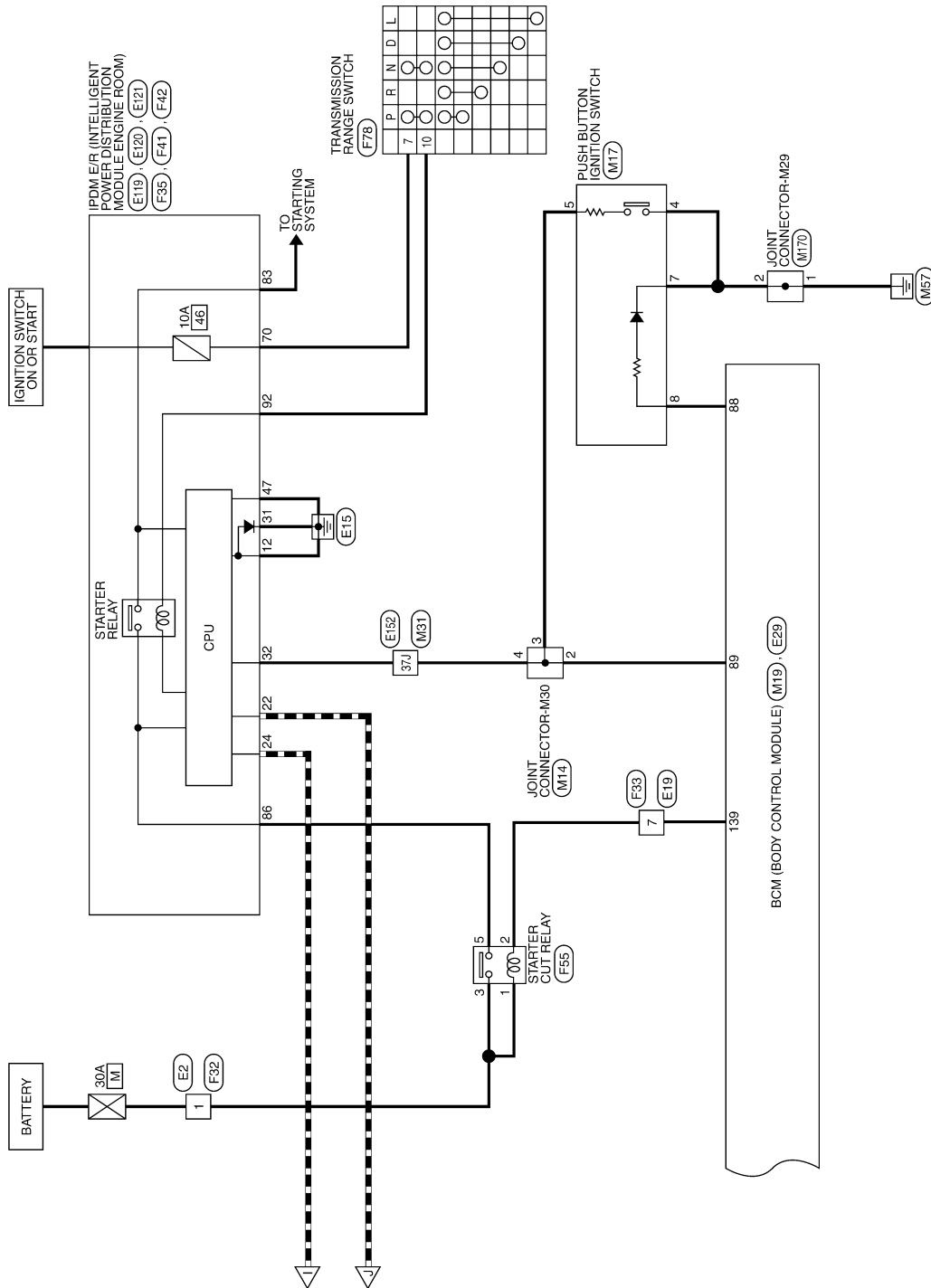


AAKWA0783GB

ENGINE START FUNCTION

[WITH INTELLIGENT KEY SYSTEM]

< WIRING DIAGRAM >



AAKWA0784GB

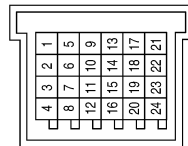
ENGINE START FUNCTION

[WITH INTELLIGENT KEY SYSTEM]

< WIRING DIAGRAM >

INTELLIGENT KEY SYSTEM ENGINE START FUNCTION CONNECTORS

Connector No.	M6
Connector Name	JOINT CONNECTOR-M01
Connector Color	GRAY



Connector No.	M14
Connector Name	JOINT CONNECTOR-M30
Connector Color	WHITE

Connector No.	M15
Connector Name	INSIDE KEY ANTENNA (INSTRUMENT CENTER)
Connector Color	GRAY

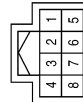


Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

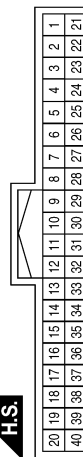
Terminal No.	Color of Wire	Signal Name
2	Y	-
3	Y	-
4	Y	-

Terminal No.	Color of Wire	Signal Name
1	GR	-
2	BG	-

Connector No.	M17
Connector Name	PUSH BUTTON IGNITION SWITCH
Connector Color	WHITE



Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
4	B	-
5	Y	-
7	B	-
8	W	-

Terminal No.	Color of Wire	Signal Name
17	L	O PWR ATDVC
27	Y	O IGN1 RL
35	BG	O SECURITY LED

AAKIA1828GB

ENGINE START FUNCTION

< WIRING DIAGRAM >

[WITH INTELLIGENT KEY SYSTEM]

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BROWN



167	168	169	164	163	162	161
178	179	174	173	172	171	170

Terminal No.	Color of Wire	Signal Name
161	W	I PWR ECU
170	B	I GND1
171	B	I GND2

Terminal No.	Color of Wire	Signal Name
94	G	I AT LOCKED IN PARK SW
100	V	SES EXT DR ANTENNA A
116	BG	SES INT FRONT ANTENNA B
117	GR	SES INT FRONT ANTENNA A
118	SB	SES EXT AS ANTENNA B
119	P	SES EXT AS ANTENNA A
120	BR	SES EXT DR ANTENNA B

Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



100	99	98	97	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81
120	119	118	117	116	115	114	113	112	111	110	109	108	107	106	105	104	103	102	101

Terminal No.	Color of Wire	Signal Name
88	W	O START SW BACKLIGHT LED
89	Y	I START WO ESCL SW

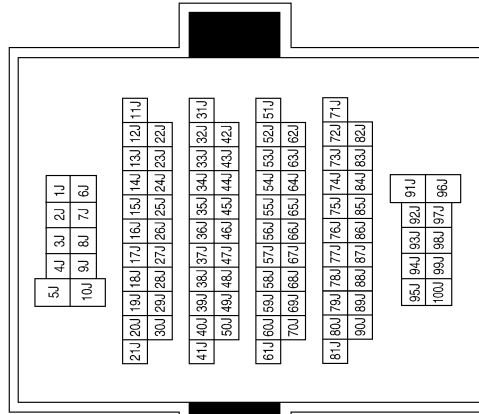
Connector No.	M43
Connector Name	JOINT CONNECTOR-M02
Connector Color	BLUE



9	8	7	6	5	4	3	2	1
20	19	18	17	16	15	14	13	12
11	10							

Terminal No.	Color of Wire	Signal Name
37J	Y	-
61J	L	-
62J	P	-

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE



AAKIA1829GB

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

SEC

ENGINE START FUNCTION

[WITH INTELLIGENT KEY SYSTEM]

< WIRING DIAGRAM >

Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



7P	6P	5P	4P	3P	2P	1P
16P	15P	14P	13P	12P	11P	10P
9P	8P					

Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN



7R	6R	5R	4R	3R	2R	1R
16R	15R	14R	13R	12R	11R	10R
9R	8R					

Connector No.	M69
Connector Name	WIRE TO WIRE
Connector Color	WHITE



16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17

Terminal No.	Color of Wire	Signal Name
3P	Y	-
8P	LA/BR	-
13P	LA/G	-

Terminal No.	Color of Wire	Signal Name
14R	W	-

Terminal No.	Color of Wire	Signal Name
20	BG	-
21	BG	-
22	GR	-
23	GR	-
24	P	-
25	L	-

Connector No.	M76
Connector Name	COMBINATION METER
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

Connector No.	M77
Connector Name	COMBINATION METER
Connector Color	WHITE



41	42	43	44	45	46
47	48	49	50	51	52

Connector No.	M91
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12
13	14	15	16	17	18	19	20	21	22	23	24

Terminal No.	Color of Wire	Signal Name
1	B	GND1
7	BG	SECURITY

Terminal No.	Color of Wire	Signal Name
41	L	CAN-H
42	P	CAN-L
45	LA/G	BAT
46	LA/BR	IGN
52	B	GND2

Terminal No.	Color of Wire	Signal Name
5	P	-
6	SB	-

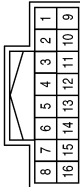
AAKIA1830GB

ENGINE START FUNCTION

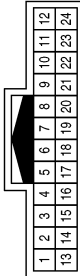
< WIRING DIAGRAM >

[WITH INTELLIGENT KEY SYSTEM]

Connector No.	M107
Connector Name	CVT SHIFT SELECTOR
Connector Color	WHITE

Connector No.	M168
Connector Name	WIRE TO WIRE
Connector Color	WHITE

Connector No.	M170
Connector Name	JOINT CONNECTOR-M29
Connector Color	WHITE




Terminal No.	Color of Wire	Signal Name
12	L	-
13	G	-

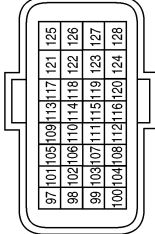
Terminal No.	Color of Wire	Signal Name
4	V	-
5	BR	-

Terminal No.	Color of Wire	Signal Name
1	B	-
2	B	-

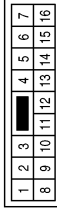
Connector No.	E2
Connector Name	WIRE TO WIRE
Connector Color	WHITE




Connector No.	E16
Connector Name	ECM
Connector Color	BLACK

Connector No.	E19
Connector Name	WIRE TO WIRE
Connector Color	BROWN

Terminal No.	Color of Wire	Signal Name
1	L	-

Terminal No.	Color of Wire	Signal Name
115	V	BRAKE

Terminal No.	Color of Wire	Signal Name
7	G	-

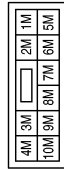
AAKIA1831GB

ENGINE START FUNCTION

< WIRING DIAGRAM >

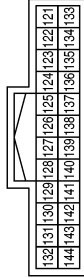
[WITH INTELLIGENT KEY SYSTEM]

Connector No.	E28
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
5M	V	—

Connector No.	E29
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



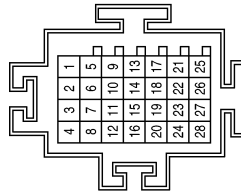
Terminal No.	Color of Wire	Signal Name
125	LG	I BRAKE SW2
139	G	O STCUT RL

Connector No.	E38
Connector Name	STOP LAMP SWITCH
Connector Color	WHITE



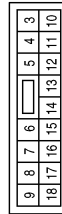
Terminal No.	Color of Wire	Signal Name
1	V	—
2	LG	—

Connector No.	E44
Connector Name	JOINT CONNECTOR-E01
Connector Color	WHITE



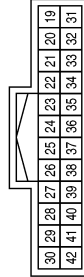
Terminal No.	Color of Wire	Signal Name
5	L	—
6	P	—
9	L	—
10	P	—
19	V	—
23	LG	—
27	LG	—

Connector No.	E119
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
12	B	SIGNAL GROUND

Connector No.	E120
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
22	P	CAN-L
24	L	CAN-H
31	B	2ND SIGNAL GROUND
32	GR	LI PUSH SW

AAKIA1832GB

ENGINE START FUNCTION

< WIRING DIAGRAM >

[WITH INTELLIGENT KEY SYSTEM]

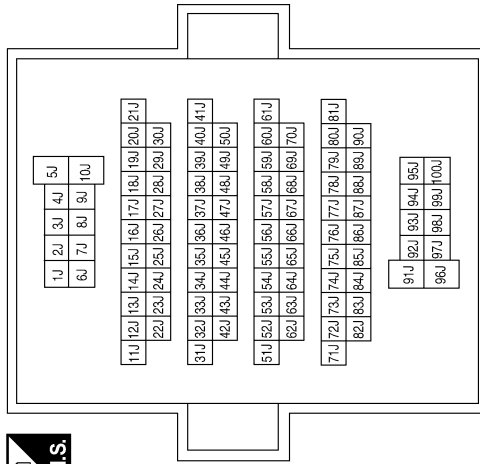
Connector No.	E121
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	RED



45	44	43
48	47	46

Terminal No.	Color of Wire	Signal Name
47	B	POWER GROUND

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
37J	GR	-
61J	L	-
62J	P	-

Connector No.	F33
Connector Name	WIRE TO WIRE
Connector Color	BROWN



7	6	5	4	3	2	1
16	15	14	13	12	11	10
9	8					

Terminal No.	Color of Wire	Signal Name
7	G	-

Connector No.	F35
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE



71	70	69	68	67	66	65
80	79	78	77	76	75	74
73	72					

Terminal No.	Color of Wire	Signal Name
70	BG	O IGN AT LPG

Connector No.	F41
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



83	82	81
86	85	84

Terminal No.	Color of Wire	Signal Name
83	G	O STARTER
86	GR	FL STARTER

AAKIA1833GB

A B C D E F G H I J L M N O P

SEC

ENGINE START FUNCTION

[WITH INTELLIGENT KEY SYSTEM]

< WIRING DIAGRAM >

Connector No.	F42
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK

98	97	96	95	94	93	92	91	90	89	88	87
110	109	108	107	106	105	104	103	102	101	100	99



Terminal No.	Color of Wire	Signal Name
92	GR	LI NP SW

Connector No.	F55
Connector Name	STARTER CUT RELAY
Connector Color	BLUE

3	5
2	1



Terminal No.	Color of Wire	Signal Name
1	SB	-
2	G	-
3	L	-
5	GR	-

Connector No.	F78
Connector Name	TRANSMISSION RANGE SWITCH
Connector Color	BLACK

6	5	4	3	2	1
10	9	8	7		



Terminal No.	Color of Wire	Signal Name
7	BG	-
10	GR	-

Connector No.	B16
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GREEN

60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41
80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61



Terminal No.	Color of Wire	Signal Name
50	W	I RR DOOR SW
52	R	I RL DOOR SW
53	SB	I AS DOOR2 SW
57	SB	I DR DOOR2 SW
60	L	CAN-H
61	BR	SES EXT REAR ANTENNA B
62	Y	SES INT MIDDLE ANTENNA B
63	L	SES INT MIDDLE ANTENNA A
64	G	SES EXT REAR ANTENNA A
80	P	CAN-L

Connector No.	B41
Connector Name	WIRE TO WIRE
Connector Color	WHITE

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32



Terminal No.	Color of Wire	Signal Name
20	LG	-
21	G	-
22	V	-
23	BR	-
24	P	-
25	L	-

Connector No.	B49
Connector Name	WIRE TO WIRE
Connector Color	WHITE

1	2	3	4	5
6	7	8	9	10
11	12			



Terminal No.	Color of Wire	Signal Name
6	SB	-
10	W	-

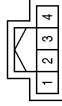
AAKIA1834GB

ENGINE START FUNCTION

< WIRING DIAGRAM >

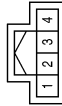
[WITH INTELLIGENT KEY SYSTEM]

Connector No.	B71
Connector Name	FRONT DOOR SWITCH LH
Connector Color	WHITE



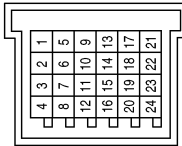
Terminal No.	Color of Wire	Signal Name
3	SB	—

Connector No.	B70
Connector Name	REAR DOOR SWITCH LH
Connector Color	WHITE



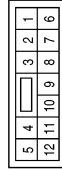
Terminal No.	Color of Wire	Signal Name
3	R	—

Connector No.	B63
Connector Name	JOINT CONNECTOR-B01
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
3	P	—
4	L	—
7	P	—
8	L	—

Connector No.	B140
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
6	GR	—
10	W	—

Connector No.	B77
Connector Name	INSIDE KEY ANTENNA (CONSOLE)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
1	L	—
2	Y	—

Connector No.	B76
Connector Name	OUTSIDE KEY ANTENNA (REAR BUMPER)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
1	LG	—
2	V	—

AAKIA1835GB

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

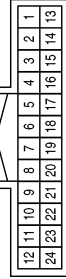
SEC

ENGINE START FUNCTION

< WIRING DIAGRAM >

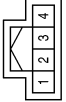
[WITH INTELLIGENT KEY SYSTEM]

Connector No.	D3
Connector Name	WIRE TO WIRE
Connector Color	WHITE

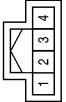
Terminal No.	Color of Wire	Signal Name
4	V	—
5	SB	—

Connector No.	B142
Connector Name	REAR DOOR SWITCH RH
Connector Color	WHITE

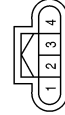
Terminal No.	Color of Wire	Signal Name
3	W	—

Connector No.	B141
Connector Name	FRONT DOOR SWITCH RH
Connector Color	WHITE

Terminal No.	Color of Wire	Signal Name
3	GR	—

Connector No.	D126
Connector Name	FRONT OUTSIDE HANDLE ASSEMBLY RH
Connector Color	BLACK

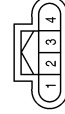
Terminal No.	Color of Wire	Signal Name
1	R	—
2	SB	—

Connector No.	D101
Connector Name	WIRE TO WIRE
Connector Color	WHITE




Terminal No.	Color of Wire	Signal Name
5	R	—
6	SB	—

Connector No.	D11
Connector Name	FRONT OUTSIDE HANDLE ASSEMBLY LH
Connector Color	BLACK

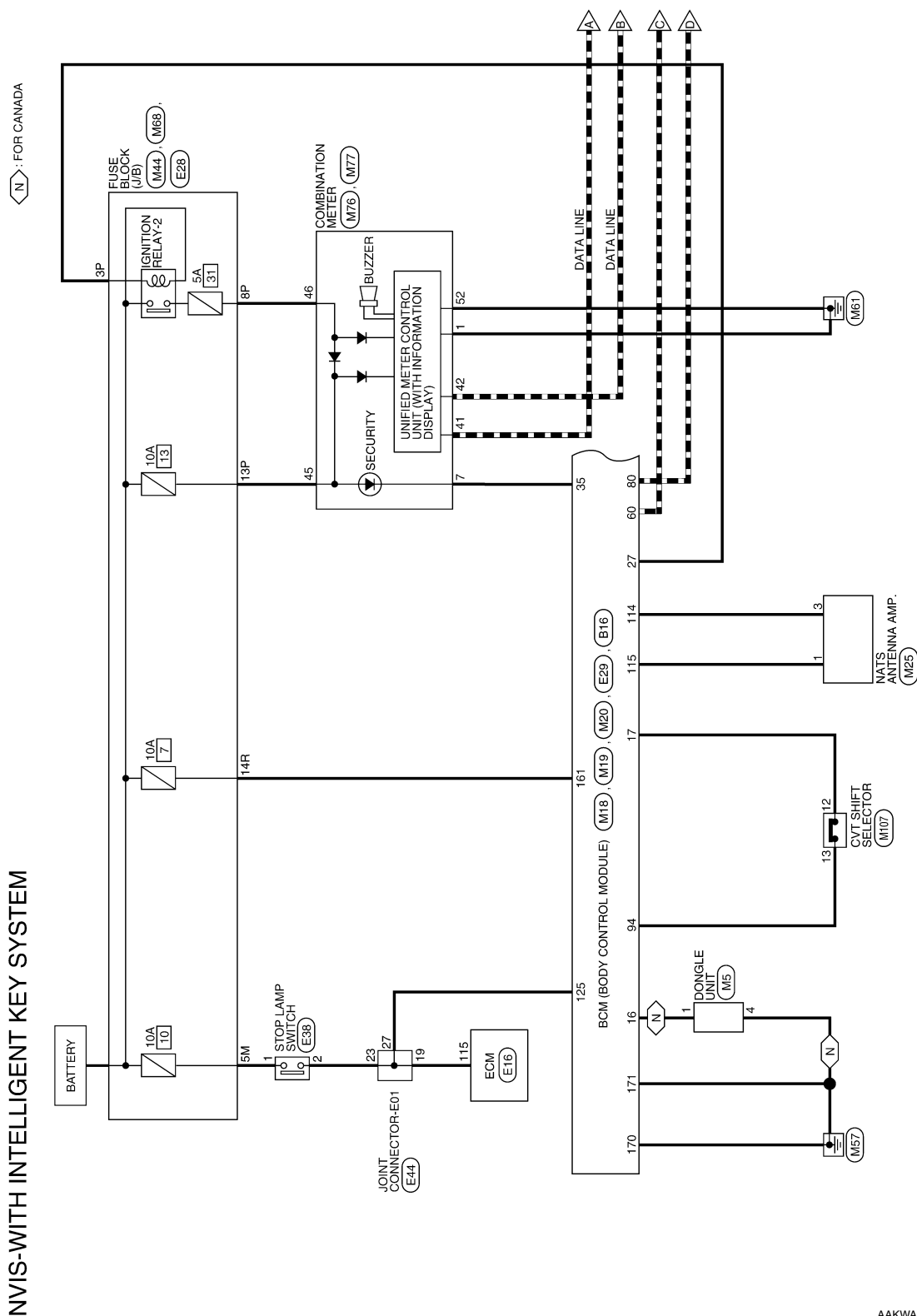
Terminal No.	Color of Wire	Signal Name
1	V	—
2	SB	—

AAKIA1836GB

[WITH INTELLIGENT KEY SYSTEM]

Wiring Diagram

INFOID:0000000010284340

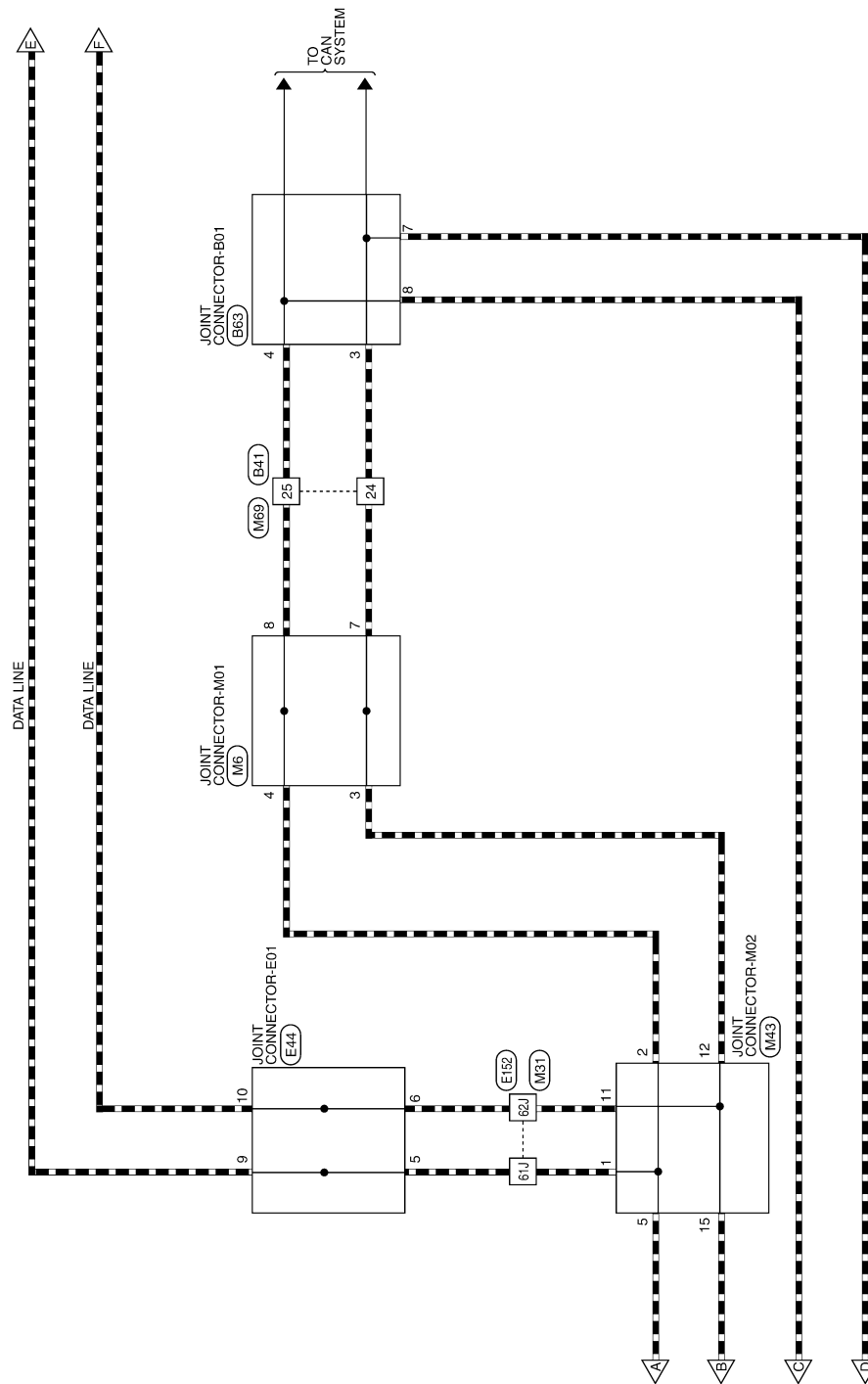


AAKWA0761GB

NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS

< WIRING DIAGRAM >

[WITH INTELLIGENT KEY SYSTEM]

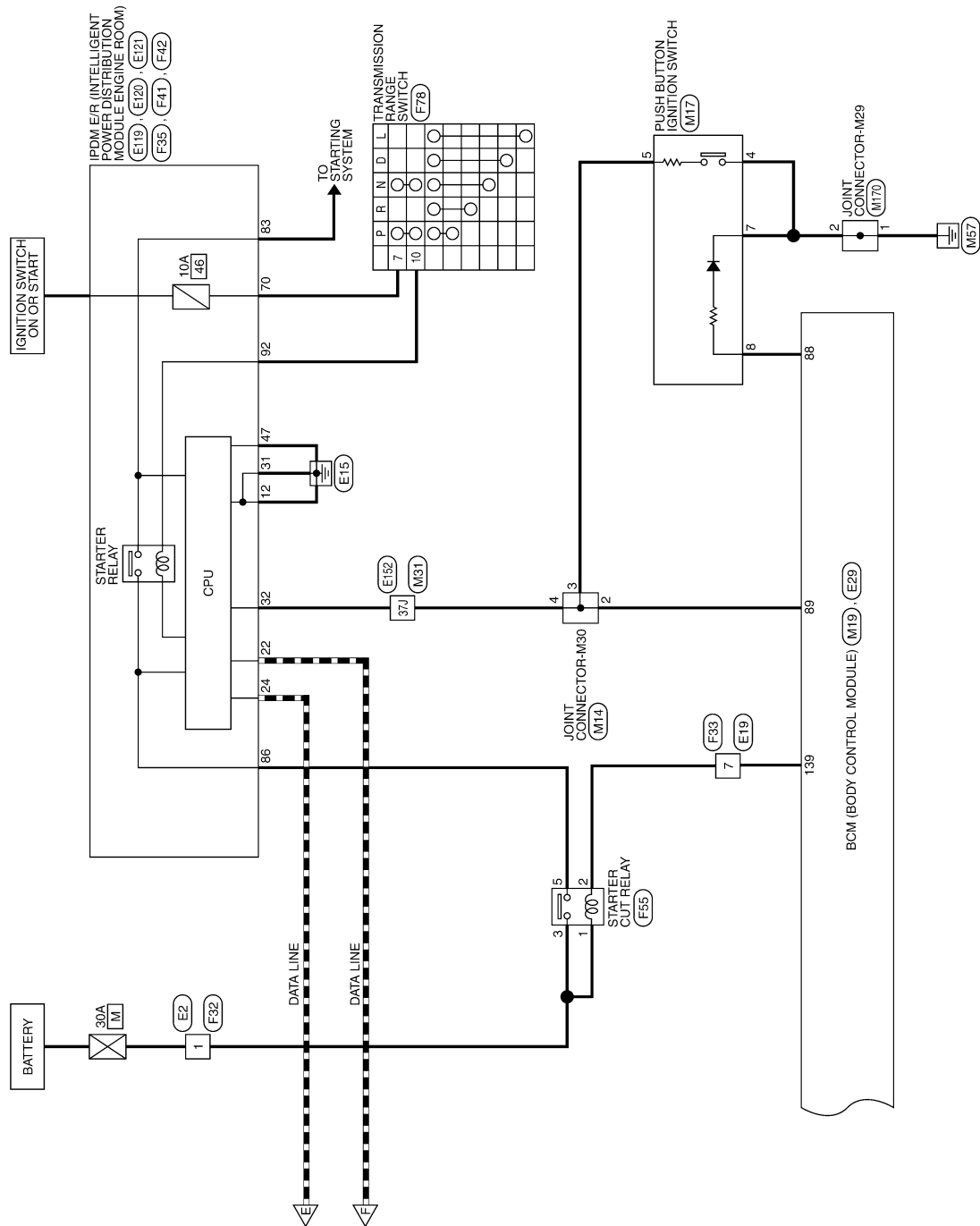


AAKWA0762GB

NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS

< WIRING DIAGRAM >

[WITH INTELLIGENT KEY SYSTEM]



AAKWA0763GB

[WITH INTELLIGENT KEY SYSTEM]

NVIS - WITH INTELLIGENT KEY SYSTEM CONNECTORS

1
2
3
4

Terminal No.	Color of Wire	Signal Name
2	Y	-
3	Y	-
4	Y	-

H.S.	100	99	98	97	96	95	94	93	92	91	90	89
	120	119	118	117	116	115	114	113	112	111	110	109

Terminal No.	Color of Wire	Signal Name
88	W	O START SW BACKLIGHT LED
89	Y	I START WO ESCL SW
94	G	I AT LOCKED IN PARK SW
114	Y	O IMMOBILIZER KAZASHI B
115	W	O IMMOBILIZER KAZASHI A

2014 Rogue NAM

NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS

< WIRING DIAGRAM >

[WITH INTELLIGENT KEY SYSTEM]

Connector No.	M25
Connector Name	NATS ANTENNA AMP. (WITH INTELLIGENT KEY SYSTEM)
Connector Color	WHITE

1	2	3
---	---	---



Terminal No.	Color of Wire	Signal Name
1	W	-
3	Y	-

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BROWN

167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----



Terminal No.	Color of Wire	Signal Name
161	W	I PWR ECU
170	B	I GND 1
171	B	I GND 2

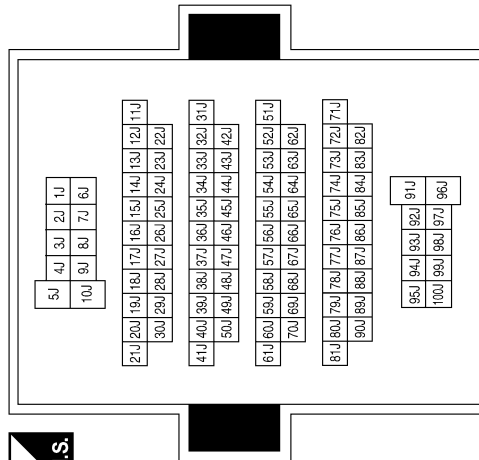
Connector No.	M43
Connector Name	JOINT CONNECTOR-M02
Connector Color	BLUE

																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															</
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	----



Terminal No.	Color of Wire	Signal Name
37J	Y	-
61J	L	-
62J	P	-

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE



AAKIA1815GB

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

SEC

NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS

< WIRING DIAGRAM >

[WITH INTELLIGENT KEY SYSTEM]

Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



7P	6P	5P	4P	3P	2P	1P
16P	15P	14P	13P	12P	11P	10P
9P	8P					

Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN



7R	6R	5R	4R	3R	2R	1R
16R	15R	14R	13R	12R	11R	10R
9R	8R					

Connector No.	M69
Connector Name	WIRE TO WIRE
Connector Color	WHITE



16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17

Terminal No.	Color of Wire	Signal Name
3P	Y	—
8P	LA/BR	—
13P	LA/G	—

Terminal No.	Color of Wire	Signal Name
14R	W	—

Terminal No.	Color of Wire	Signal Name
24	P	—
25	L	—

Connector No.	M76
Connector Name	COMBINATION METER
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

Connector No.	M77
Connector Name	COMBINATION METER
Connector Color	WHITE



41	42	43	44	45	46
47	48	49	50	51	52

Connector No.	M107
Connector Name	CVT SHIFT SELECTOR
Connector Color	WHITE



8	7	6	5	4	3	2	1
16	15	14	13	12	11	10	9

Terminal No.	Color of Wire	Signal Name
1	B	GND1
7	BG	SECURITY

Terminal No.	Color of Wire	Signal Name
41	L	CAN-H
42	P	CAN-L
45	LA/G	BAT
46	LA/BR	IGN
52	B	GND2

Terminal No.	Color of Wire	Signal Name
12	L	—
13	G	—

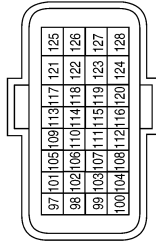
AAK1A1816GB

NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS

< WIRING DIAGRAM >

[WITH INTELLIGENT KEY SYSTEM]

Connector No.	E16
Connector Name	ECM
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
115	V	BRAKE

Connector No.	E2
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	L	-

Connector No.	M170
Connector Name	JOINT CONNECTOR-M29
Connector Color	WHITE



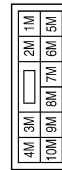
Terminal No.	Color of Wire	Signal Name
1	B	-
2	B	-

Connector No.	E29
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



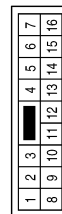
Terminal No.	Color of Wire	Signal Name
125	LG	I BRAKE SW2
139	G	O STCUT RL

Connector No.	E28
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
5M	V	-

Connector No.	E19
Connector Name	WIRE TO WIRE
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
7	G	-

AAKIA1817GB

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

SEC

NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS

< WIRING DIAGRAM >

[WITH INTELLIGENT KEY SYSTEM]

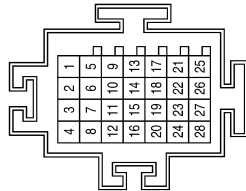
Connector No.	E119
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



9	8	7	6	5	4	3
18	17	16	15	14	13	12
11	10	9	8	7	6	5

Terminal No.	Color of Wire	Signal Name
12	B	SIGNAL GROUND

Connector No.	E44
Connector Name	JOINT CONNECTOR-E01
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
5	L	-
6	P	-
9	L	-
10	P	-
19	V	-
23	LG	-
27	LG	-

Connector No.	E38
Connector Name	STOP LAMP SWITCH
Connector Color	WHITE



3	4
1	2

Terminal No.	Color of Wire	Signal Name
1	V	-
2	LG	-

Connector No.	E121
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	RED



45	44	43
48	47	46

Terminal No.	Color of Wire	Signal Name
47	B	POWER GROUND

Connector No.	E120
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



30	29	28	27	26	25	24	23	22	21	20	19
42	41	40	39	38	37	36	35	34	33	32	31

Terminal No.	Color of Wire	Signal Name
22	P	CAN-L
24	L	CAN-H
31	B	2ND SIGNAL GROUND
32	GR	LI PUSH SW

AAKIA1818GB

NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS

< WIRING DIAGRAM >

[WITH INTELLIGENT KEY SYSTEM]

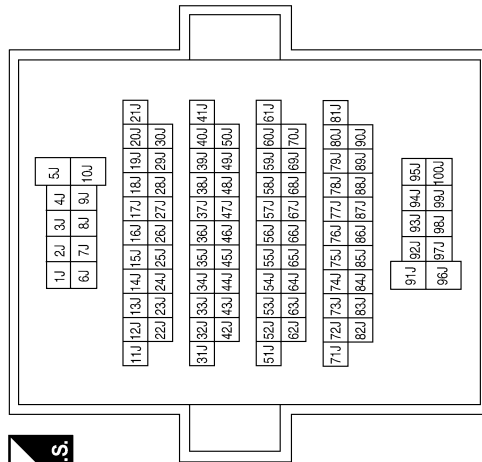
Connector No.	F32
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	L	-

Terminal No.	Color of Wire	Signal Name
37J	GR	-
61J	L	-
62J	P	-

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	F41
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
83	G	O STARTER
86	GR	FL STARTER

Connector No.	F35
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
70	BG	O IGN AT LPG

Connector No.	F33
Connector Name	WIRE TO WIRE
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
7	G	-

AAKIA1819GB

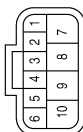
A B C D E F G H I J SEC L M N O P

NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS

< WIRING DIAGRAM >

[WITH INTELLIGENT KEY SYSTEM]

Connector No.	F78
Connector Name	TRANSMISSION RANGE SWITCH
Connector Color	BLACK



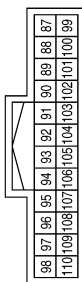
Terminal No.	Color of Wire	Signal Name
7	BG	-
10	GR	-

Connector No.	F55
Connector Name	STARTER CUT RELAY
Connector Color	BLUE



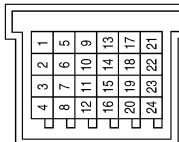
Terminal No.	Color of Wire	Signal Name
1	SB	-
2	G	-
3	L	-
5	GR	-

Connector No.	F42
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK



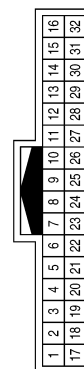
Terminal No.	Color of Wire	Signal Name
92	GR	L/NP SW

Connector No.	B63
Connector Name	JOINT CONNECTOR-B01
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

Connector No.	B41
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
24	P	-
25	L	-

Connector No.	B16
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GREEN



Terminal No.	Color of Wire	Signal Name
60	L	CAN-H
80	P	CAN-L

AAKIA1820GB

VEHICLE SECURITY SYSTEM

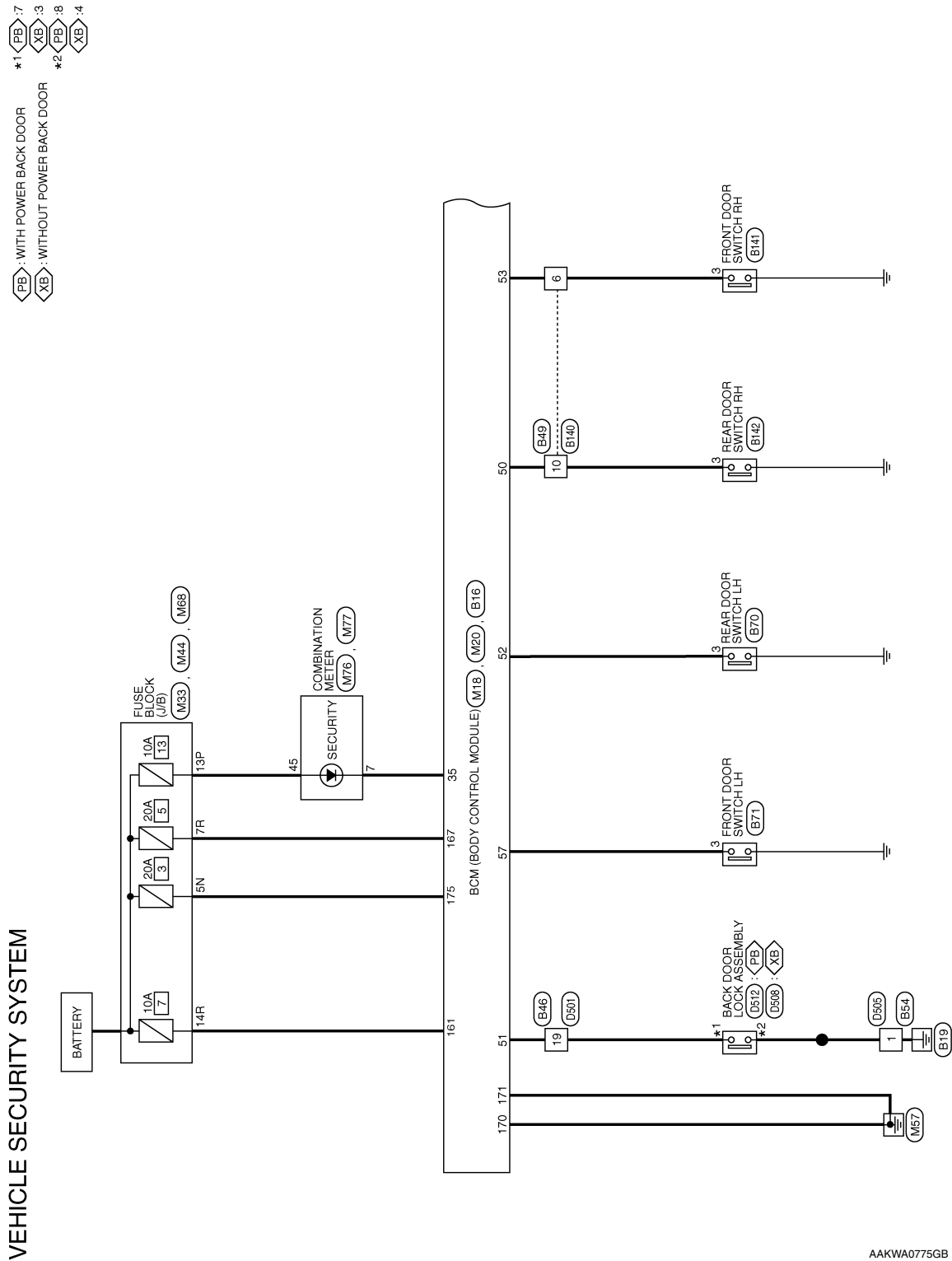
< WIRING DIAGRAM >

[WITH INTELLIGENT KEY SYSTEM]

VEHICLE SECURITY SYSTEM

Wiring Diagram

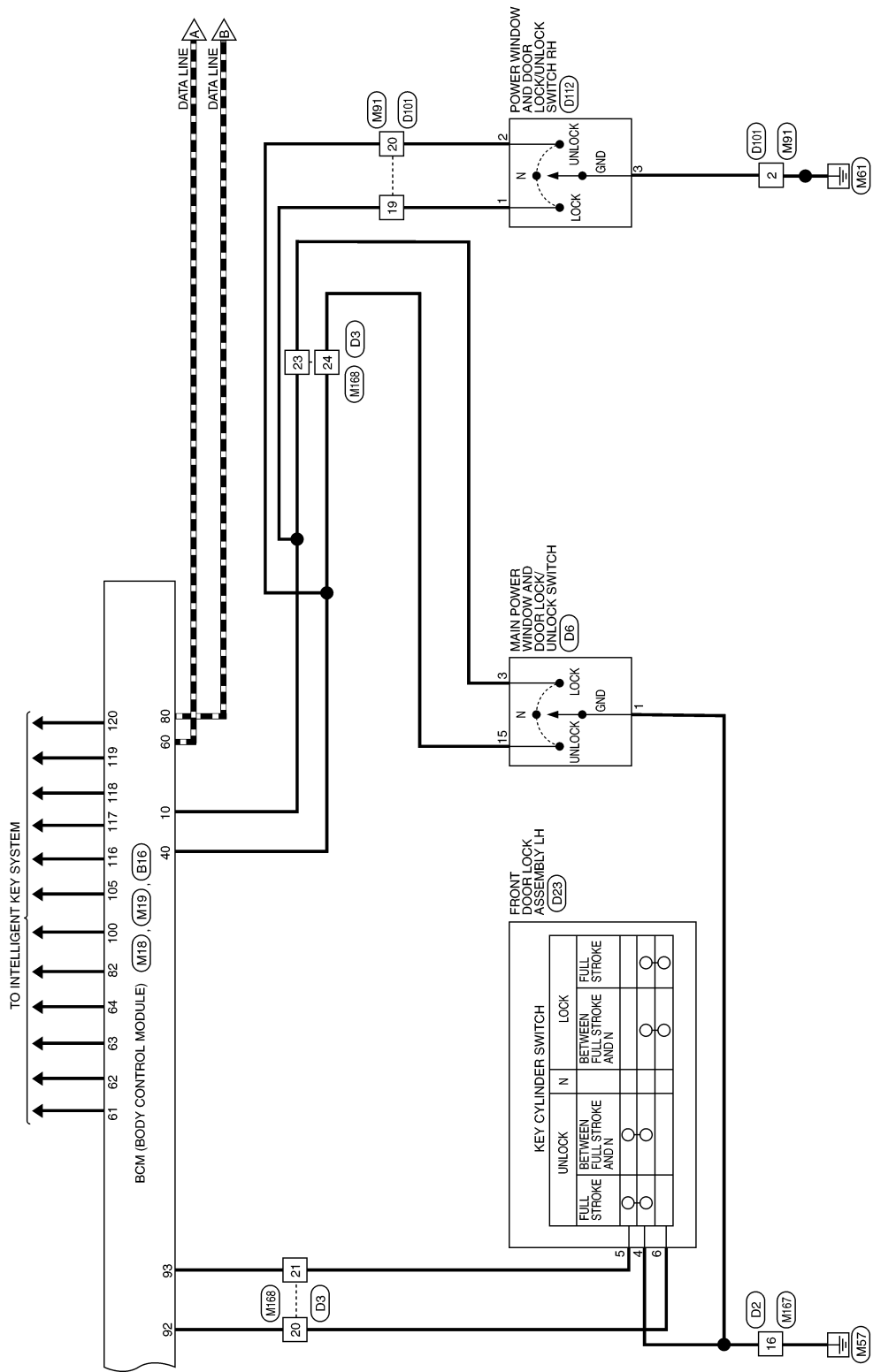
INFOID:000000010284341



VEHICLE SECURITY SYSTEM

< WIRING DIAGRAM >

[WITH INTELLIGENT KEY SYSTEM]

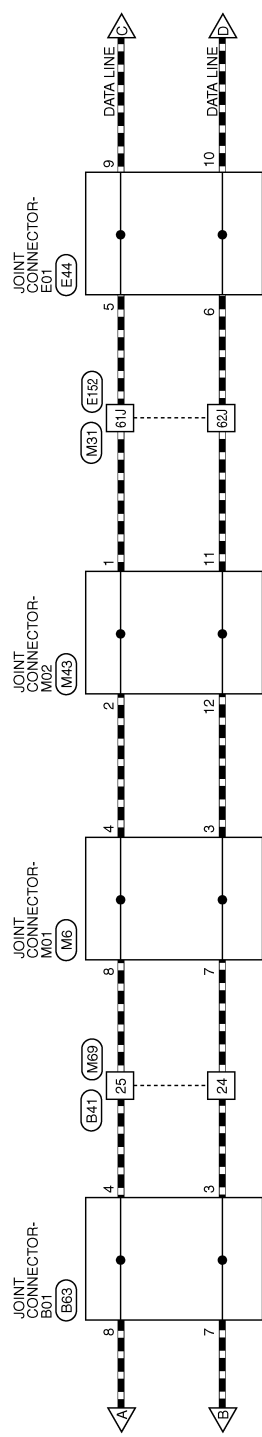


AAKWA0776GB

VEHICLE SECURITY SYSTEM

< WIRING DIAGRAM >

[WITH INTELLIGENT KEY SYSTEM]



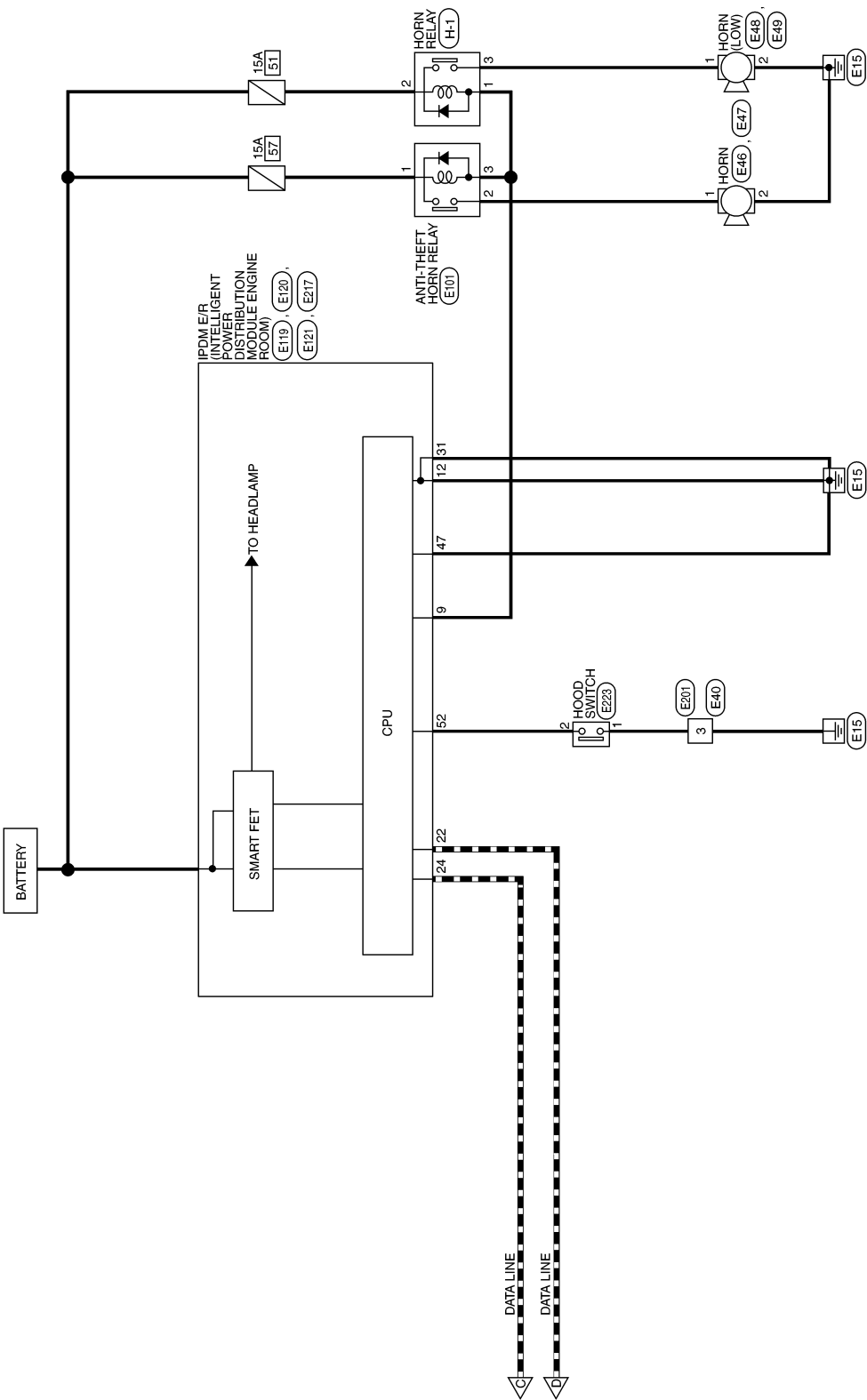
A
B
C
D
E
F
G
H
I
J
SEC
L
M
N
O
P

AAKWA0777GB

VEHICLE SECURITY SYSTEM

< WIRING DIAGRAM >

[WITH INTELLIGENT KEY SYSTEM]



AAKWA0778GB

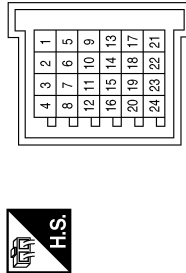
VEHICLE SECURITY SYSTEM

[WITH INTELLIGENT KEY SYSTEM]

< WIRING DIAGRAM >

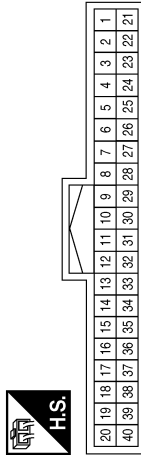
VEHICLE SECURITY SYSTEM CONNECTORS

Connector No.	M6
Connector Name	JOINT CONNECTOR-M01
Connector Color	GRAY



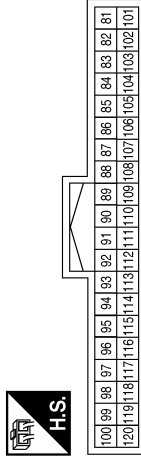
Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
10	BG	I DOORLOCK SW
35	BG	O SECURITY LED
40	SB	I DOORUNLOCK SW

Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
82	W	I SES AS HANDLE BUTTON SW
92	BR	I-KEY CYLINDER LOCK SW
93	P	I-KEY CYLINDER UNLOCK SW
100	V	SES EXT DR ANTENNA A
105	Y	I SES DR HANDLE BUTTON
116	BG	SES INT FRONT ANTENNA B
117	GR	SES INT FRONT ANTENNA A
118	SB	SES EXT AS ANTENNA B
119	P	SES EXT AS ANTENNA A
120	BR	SES EXT DR ANTENNA B

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
161	W	I PWR ECU
167	LA/V	I PWR DOORLOCK1
170	B	I GND1
171	B	I GND2
175	R	I PWR DOORLOCK2

AAKIA1805GB

A B C D E F G H I J L M N O P

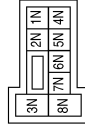
SEC

VEHICLE SECURITY SYSTEM

< WIRING DIAGRAM >

[WITH INTELLIGENT KEY SYSTEM]

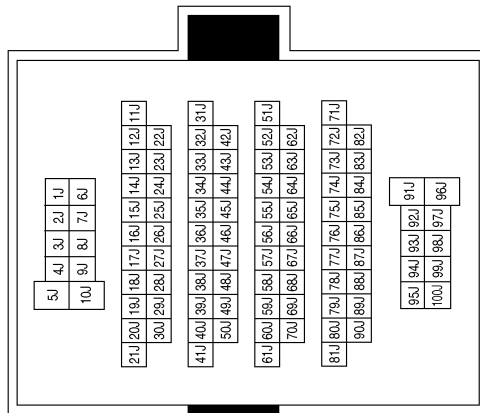
Connector No.	M33
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	5N
Color of Wire	R
Signal Name	—

Terminal No.	61J
Color of Wire	L
Signal Name	—

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN



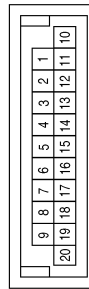
Terminal No.	7R
Color of Wire	LAV
Signal Name	—

Terminal No.	13P
Color of Wire	LA/G
Signal Name	—



Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE

Connector No.	M43
Connector Name	JOINT CONNECTOR-M02
Connector Color	BLUE



Terminal No.	1
Color of Wire	L
Signal Name	—

AAKIA1806GB

VEHICLE SECURITY SYSTEM

< WIRING DIAGRAM >

[WITH INTELLIGENT KEY SYSTEM]

Connector No.	M77
Connector Name	COMBINATION METER
Connector Color	WHITE



41	42	43	44	45	46
47	48	49	50	51	52

Connector No.	M76
Connector Name	COMBINATION METER
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

Connector No.	M69
Connector Name	WIRE TO WIRE
Connector Color	WHITE



16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17

Terminal No.	Color of Wire	Signal Name
45	LA/G	BAT

Terminal No.	Color of Wire	Signal Name
7	BG	SECURITY

Terminal No.	Color of Wire	Signal Name
24	P	-
25	L	-

Connector No.	M168
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12
13	14	15	16	17	18	19	20	21	22	23	24

Connector No.	M167
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16					

Connector No.	M91
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12
13	14	15	16	17	18	19	20	21	22	23	24

Terminal No.	Color of Wire	Signal Name
20	BR	-
21	P	-
23	BG	-
24	SB	-

Terminal No.	Color of Wire	Signal Name
16	B	-

Terminal No.	Color of Wire	Signal Name
2	GR	-
19	LG	-
20	BR	-

AAKIA1807GB

A
B
C
D
E
F
G
H
I
J
SEC
L
M
N
O
P

VEHICLE SECURITY SYSTEM

< WIRING DIAGRAM >

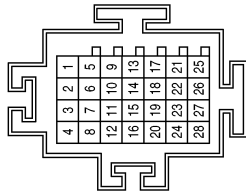
[WITH INTELLIGENT KEY SYSTEM]

Connector No.	E46
Connector Name	HORN
Connector Color	BLACK



Terminal No.	2
Color of Wire	B
Signal Name	—

Connector No.	E44
Connector Name	JOINT CONNECTOR-E01
Connector Color	WHITE



Terminal No.	5
Color of Wire	L
Signal Name	—
Terminal No.	6
Color of Wire	P
Signal Name	—
Terminal No.	9
Color of Wire	L
Signal Name	—
Terminal No.	10
Color of Wire	P
Signal Name	—

Connector No.	E40
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	3
Color of Wire	B
Signal Name	—

Connector No.	E49
Connector Name	HORN (LOW)
Connector Color	BROWN



Terminal No.	1
Color of Wire	R
Signal Name	—

Connector No.	E48
Connector Name	HORN (LOW)
Connector Color	BLACK



Terminal No.	2
Color of Wire	B
Signal Name	—

Connector No.	E47
Connector Name	HORN
Connector Color	BROWN



Terminal No.	1
Color of Wire	R
Signal Name	—

AAKIA1808GB

VEHICLE SECURITY SYSTEM

[WITH INTELLIGENT KEY SYSTEM]

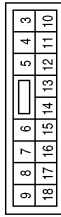
< WIRING DIAGRAM >

Connector No.	E101
Connector Name	ANTI-THEFT HORN RELAY
Connector Color	WHITE



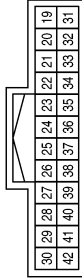
Terminal No.	Color of Wire	Signal Name
1	L	—
2	R	—
3	GR	—

Connector No.	E119
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
9	L	LO HRN RLY
12	B	SIGNAL GROUND

Connector No.	E120
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



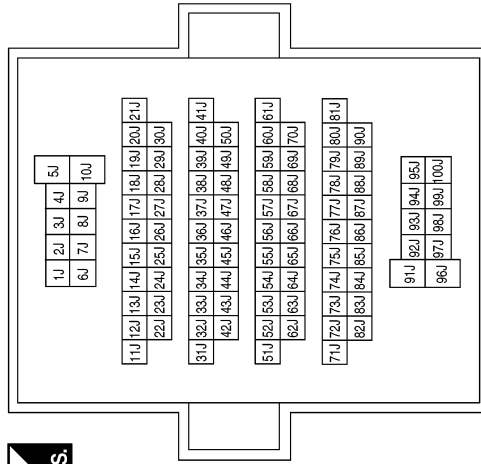
Terminal No.	Color of Wire	Signal Name
22	P	CAN-L
24	L	CAN-H
31	B	2ND SIGNAL GROUND

Connector No.	E121
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	RED



Terminal No.	Color of Wire	Signal Name
47	B	POWER GROUND

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
61J	L	—
62J	P	—

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

SEC

VEHICLE SECURITY SYSTEM

< WIRING DIAGRAM >

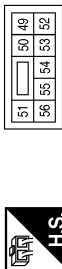
[WITH INTELLIGENT KEY SYSTEM]

Connector No.	E201
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	3	Color of Wire	B	Signal Name	—
--------------	---	---------------	---	-------------	---

Connector No.	E217
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BROWN



Terminal No.	52	Color of Wire	W	Signal Name	LI HOOD SW
--------------	----	---------------	---	-------------	------------

Connector No.	E223
Connector Name	HOOD SWITCH
Connector Color	GRAY



Terminal No.	1	Color of Wire	B	Signal Name	—
Terminal No.	2	Color of Wire	W	Signal Name	—

Connector No.	B16
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GREEN



60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41
80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61

Terminal No.	Color of Wire	Signal Name
50	W	I RR DOOR SW
51	LG	I TGATESW
52	R	I RL DOOR SW
53	SB	I AS DOOR2 SW
57	SB	I DR DOOR2 SW
60	L	CAN-H
61	BR	SES EXT REAR ANTENNA B
62	Y	SES INT MIDDLE ANTENNA B
63	L	SES INT MIDDLE ANTENNA A
64	G	SES EXT REAR ANTENNA A
80	P	CAN-L

Connector No.	B41
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Terminal No.	24	Color of Wire	P	Signal Name	—
Terminal No.	25	Color of Wire	L	Signal Name	—

Connector No.	B46
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Terminal No.	19	Color of Wire	LG	Signal Name	—
--------------	----	---------------	----	-------------	---

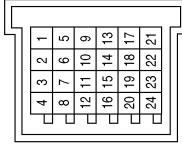
AAKIA1810GB

VEHICLE SECURITY SYSTEM

< WIRING DIAGRAM >

[WITH INTELLIGENT KEY SYSTEM]

Connector No.	B63
Connector Name	JOINT CONNECTOR-B01
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

Connector No.	B54
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	B	-

Connector No.	B49
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
6	SB	-
10	W	-

Connector No.	B140
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
6	GR	-
10	W	-

Connector No.	B71
Connector Name	FRONT DOOR SWITCH LH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
3	SB	-

Connector No.	B70
Connector Name	REAR DOOR SWITCH LH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
3	R	-

AAKIA1811GB

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

SEC

VEHICLE SECURITY SYSTEM

[WITH INTELLIGENT KEY SYSTEM]

< WIRING DIAGRAM >

Connector No.	D2
Connector Name	WIRE TO WIRE
Connector Color	WHITE



7	6	5	4	3	2	1
16	15	14	13	12	11	10
9	8					

Terminal No.	16
Color of Wire	B
Signal Name	—

Connector No.	B142
Connector Name	REAR DOOR SWITCH RH
Connector Color	WHITE



1	2	3	4
---	---	---	---

Terminal No.	3
Color of Wire	R
Signal Name	—

Connector No.	B141
Connector Name	FRONT DOOR SWITCH RH
Connector Color	WHITE



1	2	3	4
---	---	---	---

Terminal No.	3
Color of Wire	GR
Signal Name	—

Connector No.	D23
Connector Name	FRONT DOOR LOCK ASSEMBLY LH
Connector Color	GRAY



1	2	3	4	5	6
---	---	---	---	---	---

Terminal No.	4
Color of Wire	B
Signal Name	—
Terminal No.	5
Color of Wire	P
Signal Name	—
Terminal No.	6
Color of Wire	BR
Signal Name	—

Connector No.	D6
Connector Name	MAIN POWER WINDOW AND DOOR LOCK/UNLOCK SWITCH
Connector Color	WHITE



7	6	5	4	3	2	1
8	9	10	11	12	13	14
15	16					

Terminal No.	1
Color of Wire	B
Signal Name	—
Terminal No.	3
Color of Wire	L
Signal Name	—
Terminal No.	15
Color of Wire	BG
Signal Name	—

Connector No.	D3
Connector Name	WIRE TO WIRE
Connector Color	WHITE



12	11	10	9	8	7	6	5	4	3	2	1
24	23	22	21	20	19	18	17	16	15	14	13

Terminal No.	20
Color of Wire	BR
Signal Name	—
Terminal No.	21
Color of Wire	P
Signal Name	—
Terminal No.	23
Color of Wire	L
Signal Name	—
Terminal No.	24
Color of Wire	BG
Signal Name	—

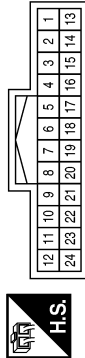
AAKIA1812GB

VEHICLE SECURITY SYSTEM

[WITH INTELLIGENT KEY SYSTEM]

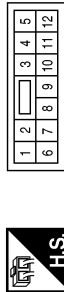
< WIRING DIAGRAM >

Connector No.	D101
Connector Name	WIRE TO WIRE
Connector Color	WHITE



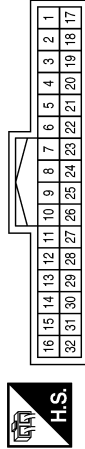
Terminal No.	Color of Wire	Signal Name
2	B	-
19	LG	-
20	BR	-

Connector No.	D112
Connector Name	FRONT POWER WINDOW SWITCH RH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	LG	-
2	BR	-
3	B	-

Connector No.	D501
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
19	W	-

Connector No.	D505
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	B	-

Connector No.	D508
Connector Name	BACK DOOR LOCK ASSEMBLY (WITHOUT POWER BACK DOOR SYSTEM)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
3	W	-
4	GR	-
15	BG	-

Connector No.	D512
Connector Name	BACK DOOR LOCK ASSEMBLY (WITH POWER BACK DOOR SYSTEM)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
7	W	-
8	B	-

AAKIA1813GB

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

SEC

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[WITH INTELLIGENT KEY SYSTEM]

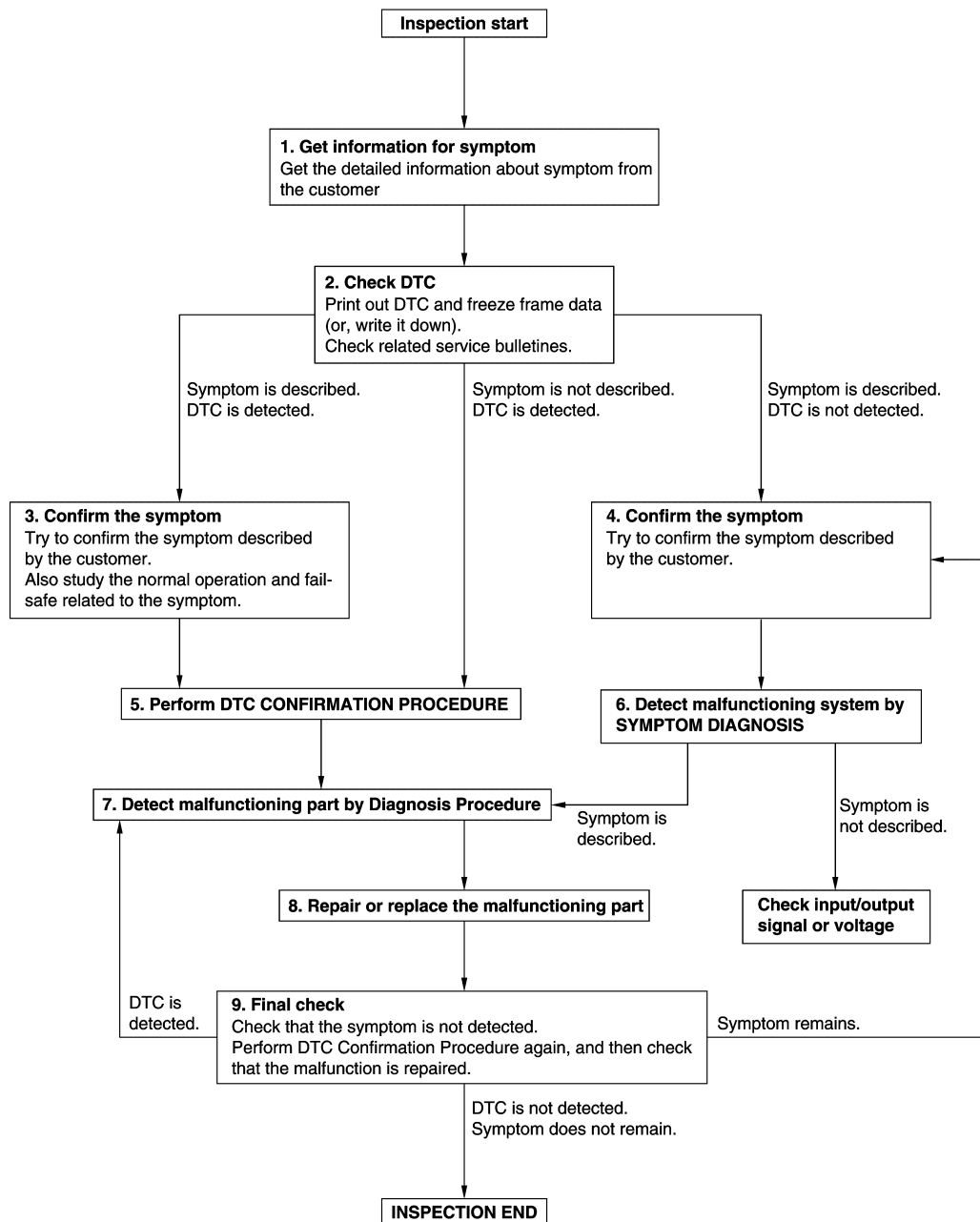
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

INFOID:0000000010284342

OVERALL SEQUENCE



JMKIA8652GB

DETAILED FLOW

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[WITH INTELLIGENT KEY SYSTEM]

1.GET INFORMATION FOR SYMPTOM

1. Get detailed information from the customer about the symptom (the condition and the environment when the incident/malfunction occurs).
2. Check operation condition of the function that is malfunctioning.

>> GO TO 2.

2.CHECK DTC

1. Check DTC.
2. Perform the following procedure if DTC is detected.
 - Record DTC and freeze frame data (Print them out using CONSULT.)
 - Erase DTC.
 - Study the relationship between the cause detected by DTC and the symptom described by the customer.
3. Check related service bulletins for information.

Are any symptoms described and any DTC detected?

Symptom is described, DTC is detected>>GO TO 3.

Symptom is described, DTC is not detected>>GO TO 4.

Symptom is not described, DTC is detected>>GO TO 5.

3.CONFIRM THE SYMPTOM

Try to confirm the symptom described by the customer.

Also study the normal operation and fail-safe related to the symptom.

Verify relation between the symptom and the condition when the symptom is detected.

>> GO TO 5.

4.CONFIRM THE SYMPTOM

Try to confirm the symptom described by the customer.

Verify relation between the symptom and the condition when the symptom is detected.

>> GO TO 6.

5.PERFORM DTC CONFIRMATION PROCEDURE

Perform DTC CONFIRMATION PROCEDURE for the detected DTC, and then check that DTC is detected again. At this time, always connect CONSULT to the vehicle, and check self diagnostic results in real time. If two or more DTCs are detected, refer to [BCS-107. "DTC Inspection Priority Chart"](#) and determine trouble diagnosis order.

NOTE:

- Freeze frame data is useful if the DTC is not detected.
- Perform Component Function Check if DTC CONFIRMATION PROCEDURE is not included on Service Manual. This simplified check procedure is an effective alternative though DTC cannot be detected during this check.

If the result of Component Function Check is NG, it is the same as the detection of DTC by DTC CONFIRMATION PROCEDURE.

Is DTC detected?

YES >> GO TO 7.

NO >> Check according to [GI-41. "Intermittent Incident"](#).

6.DETECT MALFUNCTIONING SYSTEM BY SYMPTOM DIAGNOSIS

Detect malfunctioning system according to SYMPTOM DIAGNOSIS based on the confirmed symptom in step 4, and determine the trouble diagnosis order based on possible causes and symptom.

Is the symptom described?

YES >> GO TO 7.

NO >> Monitor input data from related sensors or check voltage of related module terminals using CONSULT.

7.DETECT MALFUNCTIONING PART BY DIAGNOSIS PROCEDURE

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[WITH INTELLIGENT KEY SYSTEM]

Inspect according to Diagnosis Procedure of the system.

Is malfunctioning part detected?

YES >> GO TO 8.

NO >> Check according to [GI-41, "Intermittent Incident"](#).

8. REPAIR OR REPLACE THE MALFUNCTIONING PART

1. Repair or replace the malfunctioning part.
2. Reconnect parts or connectors disconnected during Diagnosis Procedure again after repair and replacement.
3. Check DTC. If DTC is detected, erase it.

>> GO TO 9.

9. FINAL CHECK

When DTC is detected in step 2, perform DTC CONFIRMATION PROCEDURE again, and then check that the malfunction is repaired securely.

When symptom is described by the customer, refer to confirmed symptom in step 3 or 4, and check that the symptom is not detected.

Is DTC detected and does symptom remain?

YES-1 >> DTC is detected: GO TO 7.

YES-2 >> Symptom remains: GO TO 4.

NO >> Before returning the vehicle to the customer, always erase DTC.

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT

< BASIC INSPECTION >

[WITH INTELLIGENT KEY SYSTEM]

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT

ECM

ECM : Description

INFOID:0000000010284343

Performing the following procedure can automatically activate recommunication of ECM and BCM, but only when the ECM is replaced with a new one*.

*: New one means an ECM that has never been energized on-board.

(In this step, initialization procedure by CONSULT is not necessary)

NOTE:

- If multiple keys are attached to the key holder, separate them before beginning work.
- Distinguish keys with unregistered key IDs from those with registered IDs.

ECM : Work Procedure

INFOID:0000000010284344

1.PERFORM ECM RECOMMUNICATING FUNCTION

1. Install ECM.
2. Contact backside of registered Intelligent key* to push-button ignition switch, then turn ignition switch to ON.
*: To perform this step, use the key that is used before performing ECM replacement.
3. Maintain ignition switch in the ON position for at least 5 seconds.
4. Turn ignition switch to OFF.
5. Check that the engine starts.

>> GO TO 2.

2.PERFORM ADDITIONAL SERVICE WHEN REPLACING ECM

Perform [EC-136. "Work Procedure"](#).

>> Inspection End.

BCM

BCM : Description

INFOID:0000000010284345

BEFORE REPLACEMENT

When replacing BCM, save or print current vehicle specification with CONSULT configuration before replacement.

NOTE:

If "READ CONFIGURATION" can not be used, use the "WRITE CONFIGURATION - Manual selection" after replacing BCM.

AFTER REPLACEMENT

CAUTION:

When replacing BCM, always perform "WRITE CONFIGURATION" with CONSULT. Or not doing so, BCM control function does not operate normally.

- Complete the procedure of "WRITE CONFIGURATION" in order.
- Configuration is different for each vehicle model. Confirm configuration of each vehicle model.
- If you set incorrect "WRITE CONFIGURATION", incidents might occur.

NOTE:

When replacing BCM, perform the system initialization (NATS). Refer to the CONSULT Immobilizer mode and follow the on-screen instructions.

BCM : Work Procedure

INFOID:0000000010284346

1.SAVING VEHICLE SPECIFICATION

 CONSULT Configuration

Perform "READ CONFIGURATION" to save or print current vehicle specification. Refer to [BCS-121, "CONFIGURATION \(BCM\) : Description"](#).

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT

< BASIC INSPECTION >

[WITH INTELLIGENT KEY SYSTEM]

NOTE:

If "READ CONFIGURATION" can not be used, use the "WRITE CONFIGURATION - Manual selection" after replacing BCM.

>> GO TO 2.

2.REPLACE BCM

Replace BCM. Refer to [BCS-135, "Removal and Installation"](#).

>> GO TO 3.

3.WRITING VEHICLE SPECIFICATION

ⒺCONSULT Configuration

Perform "WRITE CONFIGURATION - Config file" or "WRITE CONFIGURATION - Manual selection" to write vehicle specification. Refer to [BCS-121, "CONFIGURATION \(BCM\) : Work Procedure"](#).

>> GO TO 4.

4.INITIALIZE BCM (NATS)

Perform BCM initialization. (NATS) Refer to the CONSULT Immobilizer mode and follow the on-screen instructions.

>> Inspection End.

DTC/CIRCUIT DIAGNOSIS

P1610 LOCK MODE

Description

INFOID:0000000010284347

ECM forcibly switches to the mode that inhibits engine start, when engine start operation is performed 5 times or more while communication between ECM and BCM is not normal.

DTC Logic

INFOID:0000000010284348

DTC DETECTION LOGIC

NOTE:

- If DTC B1610 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [BCS-64, "DTC Logic"](#).
- If DTC B1610 is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [BCS-65, "DTC Logic"](#).

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
P1610	LOCK MODE	When ECM detects a communication malfunction between ECM and BCM 5 times or more.	—

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Check DTC in "Self-Diagnostic Result" mode of "ENGINE" using CONSULT.

Is DTC detected?

- YES >> Go to [SEC-67, "Diagnosis Procedure"](#).
 NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010284349

1.CHECK ENGINE START FUNCTION

1. Check that there are no DTC's except for DTC P1610 detected.
If detected, erase the DTC after fixing.
2. Turn ignition switch OFF.
3. Contact the registered Intelligent Key backside to push-button ignition switch and wait 5 seconds.
4. Turn ignition switch ON.
5. Turn ignition switch OFF and wait 5 seconds.
6. Repeat steps 3 and 5 twice (a total of 3 times).
7. Check that engine can start.

>> Inspection End.

SEC

P1611 ID DISCORD, IMMU-ECM

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

P1611 ID DISCORD, IMMU-ECM

DTC Logic

INFOID:0000000010284350

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
P1611	ID DISCORD, IMMU-ECM	The ID verification results between BCM and ECM are NG.	• Harness or connectors (The CAN communication line is open or shorted.) • BCM • ECM

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Check DTC in "Self-Diagnostic Result" mode of "ENGINE" using CONSULT.

Is DTC detected?

- YES >> Go to [SEC-68, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010284351

1.PERFORM INITIALIZATION

Perform initialization of BCM and reregistration of all Intelligent Keys using CONSULT. Refer to the CONSULT Immobilizer mode and follow the on-screen instructions.

Can the system be initialized and can the engine be started with reregistered Intelligent Key?

- YES >> Inspection End.
NO >> GO TO 2.

2.CHECK SELF DIAGNOSTIC RESULT

1. Select "Self Diagnostic Result" mode of "ENGINE" using CONSULT.
2. Erase DTC.
3. Perform DTC CONFIRMATION PROCEDURE for DTC P1611. Refer to [SEC-68, "DTC Logic"](#).

Is DTC detected?

- YES >> GO TO 3.
NO >> Inspection End.

3.REPLACE BCM

1. Replace BCM. Refer to [BCS-75, "Removal and Installation"](#).
2. Perform initialization of BCM and registration of all Intelligent Keys using CONSULT. Refer to the CONSULT Immobilizer mode and follow the on-screen instructions.

Can the system be initialized and can the engine be started with registered Intelligent Key?

- YES >> Inspection End.
NO >> GO TO 4.

4.REPLACE ECM

1. Replace ECM. Refer to [EC-499, "Removal and Installation"](#).
2. Perform "ADDITIONAL SERVICE WHEN REPLACING ECM". Refer to [EC-136, "Work Procedure"](#).

>> Inspection End.

P1612 CHAIN OF ECM-IMMU

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

P1612 CHAIN OF ECM-IMMU

DTC Logic

INFOID:0000000010284352

DTC DETECTION LOGIC

NOTE:

- If DTC P1612 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [BCS-64, "DTC Logic"](#).
- If DTC P1612 is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [BCS-65, "DTC Logic"](#).

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
P1612	CHAIN OF BCM-ECM	Inactive communication between BCM and ECM	• Harness or connectors (The CAN communication line is open or shorted.) • ECM • BCM

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Check DTC in "Self-Diagnostic Result" mode of "BCM" using CONSULT.

Is DTC detected?

- YES >> Go to [SEC-69, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010284353

NOTE:

- If DTC P1612 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [BCS-64, "DTC Logic"](#).
- If DTC P1612 is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [BCS-65, "DTC Logic"](#).

1.CHECK BCM POWER SUPPLY AND GROUND CIRCUIT.

Check BCM power supply and ground circuit. Refer to [BCS-68, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace the harness.

2.CHECK ECM POWER SUPPLY AND GROUND CIRCUIT.

Check ECM power supply and ground circuit. Refer to [EC-165, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace the harness.

3.PERFORM DTC CONFIRMATION PROCEDURE.

Perform the DTC confirmation procedure. Refer to [SEC-69, "DTC Logic"](#).

Does the DTC return?

- YES >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#)
NO >> Inspection End.

P161D IMMOBILIZER

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

P161D IMMOBILIZER

DTC Logic

INFOID:0000000010374886

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
P161D	IMMOBILIZER	When immobilizer detects a malfunction, and prohibits the engine start.	BCM

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Check DTC in "Self Diagnostic Result" mode of "ENGINE" using CONSULT.

Is DTC detected?

- YES >> Refer to [SEC-72, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010374887

1.REPLACE BCM

Replace BCM. Refer to [BCS-75, "Removal and Installation"](#).

>> Inspection End.

P161E IMMOBILIZER

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

P161E IMMOBILIZER

DTC Logic

INFOID:0000000010374888

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
P161E	IMMOBILIZER	After replacing the ECM, when the ECM is not registered to the vehicle by using the CONSULT.	• BCM • ECM

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Check DTC in "Self Diagnostic Result" mode of "ENGINE" using CONSULT.

Is DTC detected?

- YES >> Refer to [SEC-72, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010374889

1.PERFORM REGISTRATION OF ECM

Perform registration of ECM using CONSULT.

Is DTC detected?

- YES >> Inspection End.
NO >> GO TO 2.

2.REPLACE BCM

Replace BCM. Refer to [BCS-75, "Removal and Installation"](#).

Is DTC detected?

- YES >> GO TO 3.
NO >> Inspection End.

3.REPLACE ECM

Replace ECM. Refer to [EC-499, "Removal and Installation"](#).

>> Inspection End.

P161F IMMOBILIZER

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

P161F IMMOBILIZER

DTC Logic

INFOID:0000000010374890

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
P161F	IMMOBILIZER	When immobilizer detects a malfunction, and prohibits the engine start.	ECM

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Check DTC in "Self Diagnostic Result" mode of "ENGINE" using CONSULT.

Is DTC detected?

- YES >> Refer to [SEC-72, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010374891

1.REPLACE ECM

Replace ECM. Refer to [EC-499, "Removal and Installation"](#).

>> Inspection End.

B2192 ID DISCORD, IMMU-ECM

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

B2192 ID DISCORD, IMMU-ECM

DTC Logic

INFOID:0000000010284380

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B2192	ID DISCORD BCM-ECM	The ID verification results between BCM and ECM are NG.	• Harness or connectors (The CAN communication line is open or shorted.) • BCM • ECM

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Check DTC in "Self-Diagnostic Result" mode of "BCM" using CONSULT.

Is DTC detected?

- YES >> GO TO [SEC-73, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010284381

1.PERFORM INITIALIZATION

Perform initialization of BCM and reregistration of all Intelligent Keys using CONSULT. Refer to the CONSULT Immobilizer mode and follow the on-screen instructions.

Can the system be initialized and can the engine be started with reregistered Intelligent Key?

- YES >> Inspection End.
NO >> GO TO 2.

2.CHECK SELF-DIAGNOSTIC RESULT

1. Select "Self Diagnostic Result" mode of "BCM" using CONSULT.
2. Erase DTC.
3. Perform DTC CONFIRMATION PROCEDURE for DTC B2192. Refer to [SEC-73, "DTC Logic"](#).

Is DTC detected?

- YES >> GO TO 3.
NO >> Inspection End.

3.REPLACE BCM

1. Replace BCM. Refer to [BCS-75, "Removal and Installation"](#).
2. Perform initialization of BCM and reregistration of all Intelligent Keys using CONSULT. Refer to the CONSULT Immobilizer mode and follow the on-screen instructions.

Can the system be initialized and can the engine be started with registered Intelligent Key?

- YES >> Inspection End.
NO >> GO TO 4.

4.REPLACE ECM

1. Replace ECM. Refer to [EC-499, "Removal and Installation"](#).
2. Perform "ADDITIONAL SERVICE WHEN REPLACING ECM". Refer to [EC-136, "Work Procedure"](#).

>> Inspection End.

B2193 CHAIN OF ECM-IMMU

DTC Logic

INFOID:0000000010284382

DTC DETECTION LOGIC

NOTE:

- If DTC B2193 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [BCS-64, "DTC Logic"](#).
- If DTC B2193 is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [BCS-65, "DTC Logic"](#).

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B2193	CHAIN OF BCM-ECM	Inactive communication between BCM and ECM	• Harness or connectors (The CAN communication line is open or shorted.) • ECM • BCM

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Check DTC in "Self-Diagnostic Result" mode of "BCM" using CONSULT.

Is DTC detected?

- YES >> GO TO [SEC-74, "Diagnosis Procedure"](#).
 NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010284383

NOTE:

- If DTC B2193 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [BCS-64, "DTC Logic"](#).
- If DTC B2193 is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [BCS-65, "DTC Logic"](#).

1.CHECK BCM POWER SUPPLY AND GROUND CIRCUIT.

Check BCM power supply and ground circuit. Refer to [BCS-68, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> GO TO 2.
 NO >> Repair or replace the harness.

2.CHECK ECM POWER SUPPLY AND GROUND CIRCUIT.

Check ECM power supply and ground circuit. Refer to [EC-165, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> Replace ECM. Refer to [EC-499, "Removal and Installation"](#). GO TO 3.
 NO >> Repair or replace the harness.

3.PERFORM DTC CONFIRMATION PROCEDURE.

Perform the DTC confirmation procedure. Refer to [SEC-74, "DTC Logic"](#).

Does the DTC return?

- YES >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#).
 NO >> Inspection End.

B2196 DONGLE UNIT

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

B2196 DONGLE UNIT

Description

INFOID:0000000010284386

BCM performs ID verification between BCM and dongle unit.
When verification result is OK, BCM permits cranking.

DTC Logic

INFOID:0000000010284387

DTC DETECTION LOGIC

NOTE:

- If DTC B2196 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [BCS-64, "DTC Logic"](#).
- If DTC B2196 is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [BCS-65, "DTC Logic"](#).

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B2196	DONGLE NG	The ID verification results between BCM and dongle unit is NG.	• Harness or connectors (Dongle unit circuit is open or shorted.) • Dongle unit

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Turn ignition switch OFF.
3. Turn ignition switch ON.
4. Check "Self-diagnostic Result" of "BCM" using CONSULT.

Is the DTC detected?

- YES >> Refer to [SEC-75, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010284388

Regarding Wiring Diagram information, refer to [SEC-39, "Wiring Diagram"](#).

1.PERFORM INITIALIZATION

1. Perform initialization of BCM and reregistration of all Intelligent Keys using CONSULT. Refer to the CONSULT Immobilizer mode and follow the on-screen instructions.
2. Start the engine.

Dose the engine start?

- YES >> Inspection End.
NO >> GO TO 2.

2.CHECK DONGLE UNIT CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector and dongle unit connector.
3. Check continuity between BCM harness connector and dongle unit harness connector.

BCM		Dongle unit		Continuity
Connector	Terminal	Connector	Terminal	
M18	16	M5	1	Yes

4. Check continuity between BCM harness connector and ground.

B2196 DONGLE UNIT

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

BCM		Ground	Continuity
Connector	Terminal		
M18	16		No

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness.

3.CHECK DONGLE UNIT GROUND CIRCUIT

Check continuity between dongle unit harness connector and ground.

Dongle unit		Ground	Continuity
Connector	Terminal		
M5	4		Yes

Is the inspection result normal?

YES >> Replace dongle unit.

NO >> Repair or replace harness.

B2198 NATS ANTENNA AMP.

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

B2198 NATS ANTENNA AMP.

DTC Logic

INFOID:0000000010284389

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B2198	NATS ANTENNA AMP	Inactive communication between NATS antenna amp. and BCM.	• Harness or connectors (The NATS antenna amp. circuit is open or shorted) • NATS antenna amp. • BCM

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE 1

1. Contact Intelligent Key back side to push-button ignition switch.
2. Check DTC in "Self-Diagnostic Result" mode of "BCM" using CONSULT.

Is DTC detected?

- YES >> GO TO [SEC-77. "Diagnosis Procedure"](#).
NO >> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE 2

1. Press the push-button ignition switch.
2. Check DTC in "Self-Diagnostic Result" mode of "BCM" using CONSULT.

Is DTC detected?

- YES >> GO TO [SEC-77. "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010284390

Regarding Wiring Diagram information, refer to [SEC-39. "Wiring Diagram"](#).

SEC

1.CONNECTOR INSPECTION

1. Disconnect BCM and NATS antenna amp.
2. Check connectors and terminals for deformation, disconnection, looseness or damage.

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace as necessary.

2.CHECK NATS ANTENNA AMP. CIRCUIT

1. Disconnect BCM connector and NATS antenna amp. connector.
2. Check continuity between BCM harness connector and NATS antenna amp. harness connector.

BCM		NATS antenna amp.		Continuity
Connector	Terminal	Connector	Terminal	
M19	114	M25	3	Yes
	115		1	

3. Check continuity between BCM harness connector and ground.

B2198 NATS ANTENNA AMP.

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

BCM		Ground	Continuity
Connector	Terminal		
M19	114		No
	115		

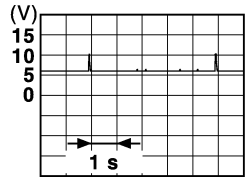
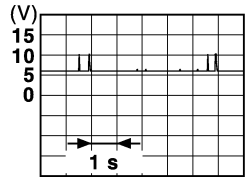
Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness.

3. CHECK NATS ANTENNA AMP INPUT SIGNAL 1

1. Turn ignition switch ON.
2. Check signal between BCM harness connector and ground using oscilloscope.

(+) BCM		(-)	Condition	Signal (Reference value)
Connector	Terminal			
M19	114, 115	Ground	When Intelligent Key is in the antenna detection area	 JMKIA3839GB
			When Intelligent Key is not in the antenna detection area	 JMKIA5951GB

Is the inspection result normal?

YES >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#).

NO >> Replace NATS antenna amp. Refer to [SEC-110, "Removal and Installation"](#).

B2556 PUSH-BUTTON IGNITION SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

B2556 PUSH-BUTTON IGNITION SWITCH

DTC Logic

INFOID:0000000010284394

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B2556	PUSH-BTN IGN SW	BCM detects the push-button ignition switch stuck at ON for 100 seconds or more.	• Harness or connectors (Push-button ignition switch circuit is shorted.) • Push-button ignition switch • BCM

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Press push-button ignition switch under the following condition:
 - Brake pedal: Not depressed
2. Release push-button ignition switch and wait 100 seconds or more.
3. Check DTC in "Self-Diagnostic Result" mode of "BCM" using CONSULT.

Is DTC detected?

- YES >> GO TO [SEC-79. "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010284395

Regarding Wiring Diagram information, refer to [SEC-26. "Wiring Diagram"](#).

1.CHECK PUSH-BUTTON IGNITION SWITCH INPUT SIGNAL

1. Turn ignition switch OFF.
2. Disconnect push-button ignition switch connector.
3. Check voltage between push-button ignition switch harness connector and ground.

(+)		(-)	Voltage (V) (Approx.)
Push-button ignition switch			
Connector	Terminal		
M17	5	Ground	Battery voltage

Is the inspection result normal?

- YES >> GO TO 4.
NO >> GO TO 2.

2.CHECK PUSH-BUTTON IGNITION SWITCH CIRCUIT

1. Disconnect BCM connector and IPDM E/R connector.
2. Check continuity between push-button ignition switch harness connector and BCM harness connector.

Push-button ignition switch		BCM		Continuity
Connector	Terminal	Connector	Terminal	
M17	5	M19	89	Yes

3. Check continuity between push-button ignition switch harness connector and ground.

Push-button ignition switch		Ground	Continuity
Connector	Terminal		
M17	5		No

B2556 PUSH-BUTTON IGNITION SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace harness.

3.REPLACE BCM

1. Replace BCM. Refer to [BCS-75. "Removal and Installation"](#).
2. Perform initialization of BCM and registration of all Intelligent Keys using CONSULT. Refer to the CONSULT Immobilizer mode and follow the on-screen instructions.

>> Inspection End.

4.CHECK PUSH-BUTTON IGNITION SWITCH

Refer to [SEC-80. "Component Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 5.
NO >> Replace push-button ignition switch. Refer to [SEC-112. "Removal and Installation"](#).

5.CHECK INTERMITTENT INCIDENT

Refer to [GI-41. "Intermittent Incident"](#).

>> Inspection End.

Component Inspection

INFOID:0000000010284396

1.CHECK PUSH-BUTTON IGNITION SWITCH

1. Turn ignition switch OFF.
2. Disconnect push-button ignition switch connector.
3. Check continuity between push-button ignition switch terminals.

Push-button ignition switch		Condition		Continuity
Terminal				
4	5	Push-button ignition switch	Pressed	Yes
			Not pressed	No

Is the inspection result normal?

- YES >> Inspection End.
NO >> Replace push-button ignition switch. Refer to [SEC-112. "Removal and Installation"](#).

B2557 VEHICLE SPEED

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

B2557 VEHICLE SPEED

DTC Logic

INFOID:0000000010284397

DTC DETECTION LOGIC

NOTE:

- If DTC B2557 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [BCS-64, "DTC Logic"](#).
- If DTC B2557 is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [BCS-65, "DTC Logic"](#).

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible causes
B2557	VEHICLE SPEED	BCM detects one of the following conditions for 10 seconds continuously. • Vehicle speed signal from combination meter is 10 km/h (6.2 MPH) or more, and vehicle speed signal from ABS actuator and electric unit (control unit) is 4 km/h (2.5 MPH) or less. • Vehicle speed signal from combination meter is 4 km/h (2.5 MPH) or less, and vehicle speed signal from ABS actuator and electric unit (control unit) is 10 km/h (6.2 MPH) or more.	• Harness or connectors (The CAN communication line is open or shorted.) • Combination meter • ABS actuator and electric unit (control unit)

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine and wait 10 seconds or more.
2. Drive the vehicle at a vehicle speed of 10 km/h (6.2 MPH) or more for 10 seconds or more.
3. Check DTC in "Self-Diagnostic Result" mode of "BCM" using CONSULT.

Is DTC detected?

- YES >> GO TO [SEC-81, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010284398

1.CHECK DTC OF "ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)"

Check DTC in "Self-Diagnostic Result" mode of "ABS" using CONSULT.

Is DTC detected?

- YES >> Perform the trouble diagnosis related to the detected DTC. Refer to [BRC-55, "DTC Index"](#).
NO >> GO TO 2.

2.CHECK DTC OF "COMBINATION METER"

Check DTC in "Self-Diagnostic Result" mode of "METER/M&A" using CONSULT.

Is DTC detected?

- YES >> Perform the trouble diagnosis related to the detected DTC. Refer to [MWI-30, "DTC Index"](#).
NO >> GO TO 3.

3.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#) .

>> Inspection End.

B2602 SHIFT POSITION

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

B2602 SHIFT POSITION

DTC Logic

INFOID:0000000010284405

DTC DETECTION LOGIC

NOTE:

- If DTC B2602 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [BCS-64, "DTC Logic"](#).
- If DTC B2602 is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [BCS-65, "DTC Logic"](#).

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B2602	SHIFT POSITION	BCM detects the following status for 10 seconds. • Selector lever is in the P (Park) position • Vehicle speed is 4 km/h (2.5 MPH) or more • Ignition switch is in the ON position	• Harness or connectors (CAN communication line is open or shorted.) • Harness or connectors [CVT shift selector (park position switch) circuit is open or shorted.] • CVT shift selector (park position switch) • Combination meter • BCM

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Drive vehicle at a speed of 4 km/h (2.5 MPH) or more for 10 seconds or more.
3. Check DTC in "Self-Diagnostic Result" mode of "BCM" using CONSULT.

Is DTC detected?

- YES >> Go to [SEC-82, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010284406

Regarding Wiring Diagram information, refer to [SEC-26, "Wiring Diagram"](#).

1.CHECK CVT SHIFT SELECTOR SWITCH FUNCTION

1. Turn ignition switch ON.
2. Select "DETE/CANCEL SW" and "VEH SPEED 1" in "Data Monitor" mode with CONSULT.
3. Check "DETE/CANCEL SW" and "VEH SPEED 1" indication under the following conditions.

Monitor item	Condition		Indication
DETE/CANCEL SW	CVT Shift selector	In any position other than P (Park)	OFF
		P (Park)	ON
VEH SPEED 1	Vehicle not moving		0
	Vehicle moving		Varies

Is the inspection result normal?

- YES >> Refer to [GI-41, "Intermittent Incident"](#).
NO-1 >> If "DETE/CANCEL SW" is incorrect. GO TO 4.
NO-2 >> If "VEH SPEED 1" is incorrect. GO TO 2.

2.CHECK DTC OF COMBINATION METER

Check DTC in "Self-Diagnostic Result" mode of "METER/M&A" using CONSULT.

B2602 SHIFT POSITION

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

Is DTC detected?

- YES >> Perform the trouble diagnosis related to the detected DTC. Refer to [MWI-30, "DTC Index"](#).
NO >> GO TO 3.

3.CHECK DTC OF ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

Check DTC in "Self-Diagnostic Result" mode of "ABS" using CONSULT.

Is DTC detected?

- YES >> Perform the trouble diagnosis related to the detected DTC. Refer to [BRC-55, "DTC Index"](#).
NO >> GO TO 6.

4.CHECK CVT SHIFT SELECTOR CIRCUIT

1. Disconnect BCM connector and CVT shift selector connector.
2. Check continuity between CVT shift selector (park position switch) harness connector and BCM harness connector.

CVT shift selector (park position switch)		BCM		Continuity
Connector	Terminal	Connector	Terminal	
M107	13	M19	94	Yes

3. Check continuity between CVT shift selector (park position switch) harness connector and ground.

CVT shift selector (park position switch)		Ground	Continuity
Connector	Terminal		
M107	13		No

Is the inspection result normal?

- YES >> GO TO 5.
NO >> Repair or replace harness.

5.CHECK CVT SHIFT SELECTOR CIRCUIT

1. Disconnect BCM connector and CVT shift selector connector.
2. Check continuity between CVT shift selector (park position switch) harness connector and BCM harness connector.

CVT shift selector (park position switch)		BCM		Continuity
Connector	Terminal	Connector	Terminal	
M107	12	M18	17	Yes

3. Check continuity between CVT shift selector (park position switch) harness connector and ground.

CVT shift selector (park position switch)		Ground	Continuity
Connector	Terminal		
M107	12		No

Is the inspection result normal?

- YES >> GO TO 6.
NO >> Repair or replace harness.

6.CHECK CVT SHIFT SELECTOR (PARK POSITION SWITCH)

Refer to [SEC-84, "Component Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 7.
NO >> Replace CVT shift selector. Refer to [TM-194, "Removal and Installation"](#).

7.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> Inspection End.

B2602 SHIFT POSITION

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

Component Inspection

INFOID:0000000010284407

1. CHECK CVT SHIFT SELECTOR (PARK POSITION SWITCH)

1. Turn ignition switch OFF.
2. Disconnect CVT shift selector connector.
3. Check continuity between CVT shift selector (park position switch) terminals.

CVT shift selector (park position switch)		Condition		Continuity
Terminal				
12	13	Selector lever	P (Park) position	No
			Other than above	Yes

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace CVT shift selector. Refer to [TM-194, "Removal and Installation"](#).

B260F ENGINE STATUS

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

B260F ENGINE STATUS

Description

INFOID:0000000010336848

BCM receives the engine status signal from ECM via CAN communication.

DTC Description

INFOID:0000000010336849

DTC DETECTION LOGIC

DTC No.	CONSULT screen items (Trouble diagnosis content)	DTC detecting condition
B260F	ENG STATE SIG LOST (Engine state signal lost)	BCM has not yet received the engine status signal from ECM when ignition switch is in the ON position.

POSSIBLE CAUSE

- Harness or connectors
(The CAN communication line is open or shorted.)
- ECM

FAIL-SAFE

Inhibit engine cranking

DTC CONFIRMATION PROCEDURE

1.CHECK DTC PRIORITY

If DTC B260F is displayed with DTC U1000 or U1010, first perform the trouble diagnosis for DTC U1000 or U1010.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable. U1000: Refer to [BCS-64, "DTC Logic"](#). U1010: Refer to [BCS-65, "DTC Logic"](#).

NO >> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON and wait 2 seconds or more.
2. Check DTC in "Self Diagnostic Result" mode of "BCM" using CONSULT.

Is DTC detected?

YES >> Refer to [SEC-85, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000010336850

1.CHECK DTC PRIORITY

If DTC B260F is displayed with DTC U1000 or U1010, first perform the trouble diagnosis for DTC U1000 or U1010.

Is applicable DTC detected?

YES >> Perform diagnosis of applicable. U1000: Refer to [BCS-64, "DTC Logic"](#). U1010: Refer to [BCS-65, "DTC Logic"](#).

NO >> GO TO 2.

2.INSPECTION START

1. Turn ignition switch ON.
2. Select "Self Diagnostic Result" mode of "BCM" using CONSULT.
3. Touch "ERASE".
4. Perform DTC CONFIRMATION PROCEDURE for DTC B260F. Refer to [SEC-85, "DTC Description"](#).

Is DTC detected?

YES >> GO TO 3.

NO >> Inspection End.

B260F ENGINE STATUS

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

3.REPLACE ECM

Replace ECM. Refer [EC-499. "Removal and Installation"](#).

>> Inspection End

B261E VEHICLE TYPE

Description

INFOID:0000000010284420

There are two types of vehicles.

- HEV
- Conventional

DTC Logic

INFOID:0000000010284421

DTC DETECTION LOGIC

NOTE:

- If DTC B261E is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [BCS-64, "DTC Logic"](#).
- If DTC B261E is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [BCS-65, "DTC Logic"](#).

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B261E	VEHICLE TYPE	Difference of BCM configuration.	• BCM mis-configuration • Wrong ECM installed

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION PROCEDURE

- Turn ignition switch ON under the following conditions.
 - Shift selector lever is in the P (Park) or N (Neutral) position
 - Do not depress brake pedal
- Check "Self-Diagnostic Result" of "BCM" using CONSULT.

Is DTC detected?

- YES >> GO TO [SEC-87, "Diagnosis Procedure"](#).
 NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010284422

1. INSPECTION START

- Turn ignition switch ON.
- Check "Self-diagnostic result" of "BCM" using CONSULT.
- Touch "ERASE".
- Perform DTC Confirmation Procedure. Refer to [SEC-87, "DTC Logic"](#).

Is the 1st trip DTC B261E displayed again?

- YES >> GO TO 2.
 NO >> Inspection End.

2. PERFORM BCM CONFIGURATION.

Perform the BCM configuration. Refer to [BCS-60, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT \(BCM\) : Work Procedure"](#).

>> GO TO 3.

3. INSPECTION START

- Turn ignition switch ON.
- Check "Self-diagnostic result" of "BCM" using CONSULT.
- Touch "ERASE".
- Perform DTC Confirmation Procedure.
Refer to [SEC-87, "DTC Logic"](#).

Is the 1st trip DTC B261E displayed again?

- YES >> GO TO 4.
 NO >> Inspection End.

B261E VEHICLE TYPE

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

4. CONFIRM ECM PART NUMBER.

Confirm the part number of the installed ECM is correct.

Is the ECM part number correct?

- YES >> Replace BCM. Refer to [BCS-75. "Removal and Installation"](#).
- NO >> Replace ECM. Refer to [EC-499. "Removal and Installation"](#).

B26FC KEY REGISTRATION

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

B26FC KEY REGISTRATION

DTC Logic

INFOID:0000000010336845

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B26FC	KEY REGISTRATION	Intelligent Key that does not match the vehicle is registered.	- Improper registration operation - Intelligent Key - BCM

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Perform initialization of BCM and registration of all Intelligent Keys using CONSULT. Refer to the CONSULT Immobilizer mode and follow the on-screen instructions.
2. Check DTC in "Self Diagnostic Result" mode of "BCM" using CONSULT.

Is DTC detected?

- YES >> Go to [SEC-89, "Diagnosis Procedure"](#)
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010336846

1.REPLACE INTELLIGENT KEY

1. Prepare Intelligent Key that matches the vehicle.
2. Perform initialization of BCM and registration of all Intelligent Keys using CONSULT. Refer to the CONSULT Immobilizer mode and follow the on-screen instructions.
3. Check DTC in "Self Diagnostic Result" mode of "BCM" using CONSULT.

Is DTC detected?

- YES >> GO TO 2.
NO >> Inspection End.

2.REPLACE BCM

1. Replace BCM. Refer to [BCS-75, "Removal and Installation"](#).
2. Perform initialization of BCM and registration of all Intelligent Keys using CONSULT. Refer to the CONSULT Immobilizer mode and follow the on-screen instructions.

>> Inspection End.

B27D1 START CUT RELAY OFF

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

B27D1 START CUT RELAY OFF

DTC Logic

INFOID:0000000010338519

DTC DETECTION LOGIC

NOTE:

- If DTC B27D1 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [BCS-64, "DTC Logic"](#).
- If DTC B27D1 is displayed with DTC B2605, first perform the trouble diagnosis for DTC B2605. Refer to [BCS-65, "DTC Logic"](#).

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B27D1	STARTER CUT RELAY OFF	When comparing the starter cut relay signal (CAN) from IPDM E/R, BCM detects that starter cut relay is stuck in the OFF position for 1 second or more.	• Harness or connectors (The CAN communication line is open or shorted.) • Harness or connector (Starter cut relay circuit is open or shorted.) • IPDM E/R • BCM • Starter cut relay

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Press push-button ignition switch under the following conditions to start engine, and wait 1 second or more.
 - Selector lever: In the P position
 - Brake pedal: Depressed
2. Check DTC in "Self Diagnostic Result" mode of "BCM" using CONSULT.

Is DTC detected?

- YES >> Go to [SEC-90, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010338520

Regarding Wiring Diagram information, refer to [SEC-26, "Wiring Diagram"](#).

1.CHECK STARTER CUT RELAY POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect starter cut relay.
3. Check voltage between starter cut relay harness connector and ground.

(+)		(-)	Voltage (V) (Approx.)
Starter cut relay			
Connector	Terminal		
F55	1	Ground	Battery voltage
	3		

Is the inspection result normal?

- YES >> GO TO 2.
NO-1 >> Check 30 A fusible link [M, located in the fuse block (J/B)].
NO-2 >> Check harness for open or short between starter cut relay and fusible link.

2.CHECK STARTER CUT RELAY CONTROL

1. Reconnect starter cut relay.

B27D1 START CUT RELAY OFF

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

2. Check voltage between BCM harness connector and ground.

(+)		(-)	Condition		Voltage (V) (Approx.)
BCM					
Connector	Terminal				
E29	139	Ground	CVT shift selector lever	N or P position	Battery voltage
				Other than above	0

Is the inspection result normal?

YES >> GO TO 4.

NO >> GO TO 3.

3.CHECK STARTER CUT RELAY CONTROL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector.
3. Disconnect starter cut relay.
4. Check continuity between BCM harness connector and starter cut relay harness connector.

BCM		Starter cut relay		Continuity
Connector	Terminal	Connector	Terminal	
E29	139	F55	2	Yes

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness.

4.CHECK STARTER CUT RELAY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector.
3. Check continuity between IPDM E/R harness connector and starter cut relay harness connector.

IPDM E/R		Starter cut relay		Continuity
Connector	Terminal	Connector	Terminal	
F41	86	F55	5	Yes

4. Check continuity between BCM harness connector and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		
F41	86		No

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace harness.

5.CHECK STARTER CUT RELAY

Refer to [SEC-92. "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 6.

NO >> Replace starter cut relay.

6.REPLACE BCM

1. Replace BCM. Refer to [BCS-75. "Removal and Installation"](#).
2. Perform initialization of BCM and registration of all Intelligent Keys using CONSULT.
3. Perform DTC CONFIRMATION PROCEDURE for DTC B27D1. Refer to [SEC-90. "DTC Logic"](#).

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace IPDM E/R. Refer to [PCS-35. "Removal and Installation"](#).

B27D1 START CUT RELAY OFF

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

Component Inspection

INFOID:0000000010338521

1. CHECK STARTER CUT RELAY

1. Turn ignition switch OFF.
2. Disconnect starter cut relay.
3. Check continuity between starter cut relay terminals.

Starter cut relay		Condition	Continuity
Terminal			
3	5	12 V direct current supply between terminals 1 and 2	Yes
		No current supply	No

Is the inspection result normal?

- YES >> Inspection End.
NO >> Replace starter cut relay.

B27D2 START CUT RELAY ON

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

B27D2 START CUT RELAY ON

DTC Logic

INFOID:0000000010339843

DTC DETECTION LOGIC

NOTE:

- If DTC B27D2 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [BCS-64, "DTC Logic"](#).
- If DTC B27D2 is displayed with DTC B2605, first perform the trouble diagnosis for DTC B2605. Refer to [BCS-65, "DTC Logic"](#).

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B27D2	STARTER CUT RELAY ON	When comparing the starter cut relay signal (CAN) from IPDM E/R, BCM detects that starter cut relay is stuck in the ON position for 1 second or more.	• Harness or connectors (The CAN communication line is open or shorted.) • Harness or connector (Starter cut relay circuit is open or shorted.) • IPDM E/R • BCM • Starter cut relay

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Press push-button ignition switch under the following conditions to start engine, and wait 1 second or more.
 - Selector lever: In the P position
 - Brake pedal: Depressed
2. Check DTC in "Self Diagnostic Result" mode of "BCM" using CONSULT.

Is DTC detected?

- YES >> Go to [SEC-93, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010339844

SEC

Regarding Wiring Diagram information, refer to [SEC-26, "Wiring Diagram"](#).

1.CHECK STARTER CUT RELAY POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect starter cut relay.
3. Check voltage between starter cut relay harness connector and ground.

(+)		(-)	Voltage (V) (Approx.)
Starter cut relay			
Connector	Terminal		
F55	1	Ground	Battery voltage
	3		

Is the inspection result normal?

- YES >> GO TO 2.
NO-1 >> Check 30 A fusible link [M, located in the fuse block (J/B)].
NO-2 >> Check harness for open or short between starter cut relay and fusible link.

2.CHECK STARTER CUT RELAY CONTROL

1. Reconnect starter cut relay.

B27D2 START CUT RELAY ON

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

2. Check voltage between BCM harness connector and ground.

(+)		(-)	Condition		Voltage (V) (Approx.)
BCM					
Connector	Terminal				
E29	139	Ground	CVT shift selector lever	N or P position	Battery voltage
				Other than above	0

Is the inspection result normal?

YES >> GO TO 4.

NO >> GO TO 3.

3.CHECK STARTER CUT RELAY CONTROL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector.
3. Disconnect starter cut relay.
4. Check continuity between BCM harness connector and starter cut relay harness connector.

BCM		Starter cut relay		Continuity
Connector	Terminal	Connector	Terminal	
E29	139	F55	2	Yes

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness.

4.CHECK STARTER CUT RELAY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector.
3. Check continuity between IPDM E/R harness connector and starter cut relay harness connector.

IPDM E/R		Starter cut relay		Continuity
Connector	Terminal	Connector	Terminal	
F41	86	F55	5	Yes

4. Check continuity between BCM harness connector and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		
F41	86		No

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace harness.

5.CHECK STARTER CUT RELAY

Refer to [SEC-95, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 6.

NO >> Replace starter cut relay.

6.REPLACE BCM

1. Replace BCM. Refer to [BCS-75, "Removal and Installation"](#).
2. Perform initialization of BCM and registration of all Intelligent Keys using CONSULT.
3. Perform DTC CONFIRMATION PROCEDURE for DTC B27D2. Refer to [SEC-93, "DTC Logic"](#).

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace IPDM E/R. Refer to [PCS-35, "Removal and Installation"](#).

B27D2 START CUT RELAY ON

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

Component Inspection

INFOID:0000000010339845

1.CHECK STARTER CUT RELAY

1. Turn ignition switch OFF.
2. Disconnect starter cut relay.
3. Check continuity between starter cut relay terminals.

Starter cut relay		Condition	Continuity
Terminal			
3	5	12 V direct current supply between terminals 1 and 2	Yes
		No current supply	No

Is the inspection result normal?

- YES >> Inspection End.
NO >> Replace starter cut relay.

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

SEC

B20DF STARTER RELAY OFF CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

B20DF STARTER RELAY OFF CIRCUIT

DTC Logic

INFOID:0000000010351311

DTC DETECTION LOGIC

NOTE:

- If DTC B20DF is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [BCS-64, "DTC Logic"](#).
- If DTC B20DF is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [BCS-65, "DTC Logic"](#).

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B20DF	STARTER RELAY OFF	When comparing the starter relay signal (CAN) from BCM, IPDM E/R detects that starter relay is stuck in the OFF position for 1 second or more.	• Harness or connectors (The CAN communication line is open or shorted.) • Harness or connector (Starter relay circuit is open or shorted.) • IPDM E/R • BCM • Starter relay

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch under the following conditions to start engine, and wait 1 second or more.
 - Selector lever: In the P position
2. Check DTC in "Self Diagnostic Result" mode of "BCM" using CONSULT.

Is DTC detected?

- YES >> Go to [SEC-96, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010351312

Regarding Wiring Diagram information, refer to [SEC-26, "Wiring Diagram"](#).

1.CHECK STARTER RELAY POWER SUPPLY CIRCUIT (SWITCH SIDE)

1. Turn ignition switch ON.
2. Brake pedal pressed.
3. Place transmission in park or neutral.
4. Check voltage between IPDM E/R harness connector and ground.

(+)		(-)	Voltage (V) (Approx.)
IPDM E/R			
Connector	Terminal		
F41	86	Ground	Battery voltage

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Refer to [SEC-90, "Diagnosis Procedure"](#).

2.CHECK STARTER RELAY POWER SUPPLY CIRCUIT (COIL SIDE)

1. Turn ignition switch ON.
2. Place transmission in park or neutral.
3. Check voltage between IPDM E/R harness connector and ground.

B20DF STARTER RELAY OFF CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

(+) IPDM E/R		(-)	Voltage (V) (Approx.)
Connector	Terminal		
F42	92	Ground	Battery voltage

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to [PCS-35, "Removal and Installation"](#).
NO >> Refer to [SEC-82, "Diagnosis Procedure"](#).

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

SEC

HEADLAMP FUNCTION

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

HEADLAMP FUNCTION

Component Function Check

INFOID:0000000010284431

1.CHECK FUNCTION

1. Perform "HEAD LAMP(HI)" in "Active Test" mode of "THEFT ALM" of "BCM" using CONSULT.
2. Check headlamps operation.

Test item		Description	
HEAD LAMP (HI)	ON	Headlamps (Hi)	Light
	OFF		Does not light

Is the inspection result normal?

- YES >> Inspection End.
NO >> Refer to [SEC-98, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010284432

1.CHECK HEADLAMP FUNCTION

Refer to [SEC-98, "Component Function Check"](#).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace the malfunctioning parts.

2.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> Inspection End.

HOOD SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

HOOD SWITCH

Component Function Check

INFOID:000000010284433

1.CHECK FUNCTION

1. Select "HOOD SW" in "Data Monitor" mode of "IPDM E/R" using CONSULT.
2. Check "HOOD SW" indication under the following condition.

Monitor item	Condition		Indication
HOOD SW	Hood	Open	ON
		Close	OFF

Is the indication normal?

- YES >> Hood switch is OK.
NO >> Go to [SEC-99, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000010284434

Regarding Wiring Diagram information, refer to [SEC-49, "Wiring Diagram"](#).

1.CHECK HOOD SWITCH SIGNAL CIRCUITS

1. Turn ignition switch OFF.
2. Disconnect hood switch connector.
3. Check voltage between hood switch harness connector and ground.

(+)		(-)	Voltage (V)
Hood switch			
Connector	Terminal		
E223	2	Ground	Battery voltage

Is the inspection result normal?

- YES >> GO TO 3.
NO >> GO TO 2.

2.CHECK HOOD SWITCH SIGNAL CIRCUITS

1. Disconnect IPDM E/R connector.
2. Check continuity between IPDM E/R harness connector and hood switch harness connector.

IPDM E/R		Hood switch		Continuity
Connector	Terminal	Connector	Terminal	
E217	52	E223	2	Yes

3. Check continuity between IPDM E/R harness connector and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		
E217	52		No

Is the inspection result normal?

- YES >> Replace IPDM E/R. Refer to [PCS-35, "Removal and Installation"](#).
NO >> Repair or replace harness.

3.CHECK HOOD SWITCH GROUND CIRCUIT

Check continuity between hood switch harness connector and ground.

HOOD SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

Hood switch		Ground	Continuity
Connector	Terminal		
E223	1		Yes

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness.

4.CHECK HOOD SWITCH

Refer to [SEC-100. "Component Inspection"](#) .

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace hood switch. Refer to [DLK-253. "HOOD LOCK : Removal and Installation"](#).

5.CHECK INTERMITTENT INCIDENT

Refer to [GI-41. "Intermittent Incident"](#).

>> Inspection End.

Component Inspection

INFOID:0000000010284435

1.CHECK HOOD SWITCH

1. Turn ignition switch OFF.
2. Disconnect hood switch connector.
3. Check continuity between hood switch terminals.

Hood switch		Condition		Continuity
Terminal				
2	1	Hood switch	Press	No
			Release	Yes

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace hood switch. Refer to [DLK-253. "HOOD LOCK : Removal and Installation"](#).

HORN FUNCTION

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

HORN FUNCTION

Component Function Check

INFOID:0000000010284436

1.CHECK FUNCTION 1

1. Perform "VEHICLE SECURITY HORN" in "Active Test" mode of "THEFT ALM" of "BCM" using CONSULT.
2. Check the horn operation.

Test item		Description	
VEHICLE SECURITY HORN	ON	Horn	Sounds (for 0.5 sec)

Is the operation normal?

- YES >> Inspection End.
NO >> Go to [SEC-49. "Wiring Diagram"](#).

Component Inspection

INFOID:0000000010284437

1.CHECK ANTI-THEFT HORN RELAY

1. Turn ignition switch OFF.
2. Disconnect anti-theft horn relay.
3. Check voltage between anti-theft horn relay terminal and ground under the following conditions.

(+)	(-)	Condition	Voltage (V) (Approx.)
Anti-theft horn relay Terminal			
3	Ground	12 V direct current supply between terminals 1 and 3	12
		No current supply	0

Is the inspection result normal?

- YES >> Inspection End.
NO >> Replace anti-theft horn relay.

SEC

SECURITY INDICATOR LAMP

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

SECURITY INDICATOR LAMP

Component Function Check

INFOID:0000000010284438

1.CHECK FUNCTION

1. Perform "THEFT IND" in "Active Test" mode of "IMMU" of "BCM" using CONSULT.
2. Check security indicator lamp operation.

Test item		Description	
THEFT IND	ON	Security indicator lamp	Illuminates
	OFF		Does not illuminate

Is the inspection result normal?

- YES >> Inspection End.
NO >> Go to [SEC-102, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010284439

Regarding Wiring Diagram information, refer to [SEC-49, "Wiring Diagram"](#).

1.CHECK SECURITY INDICATOR LAMP POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect combination meter connector.
3. Check voltage between combination meter harness connector and ground.

(+) Combination meter		(-)	Voltage (V)
Connector	Terminal		
M77	45	Ground	Battery voltage

Is the inspection result normal?

- YES >> GO TO 2.
NO-1 >> Check 10 A fuse [No. 13, located in the fuse block (J/B)].
NO-2 >> Check harness for open or short between combination meter and fuse.

2.CHECK SECURITY INDICATOR LAMP SIGNAL

1. Connect combination meter connector.
2. Disconnect BCM connector.
3. Check voltage between BCM harness connector and ground.

(+) BCM		(-)	Voltage (V)
Connector	Terminal		
M18	35	Ground	Battery voltage

Is the inspection result normal?

- YES >> GO TO 3.
NO >> GO TO 4.

3.REPLACE BCM

1. Replace BCM. Refer to [BCS-75, "Removal and Installation"](#).
2. Perform initialization of BCM and registration of all Intelligent Keys using CONSULT. Refer to the CONSULT Immobilizer mode and follow the on-screen instructions.

>> Inspection End.

SECURITY INDICATOR LAMP

< DTC/CIRCUIT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

4.CHECK SECURITY INDICATOR LAMP CIRCUIT

1. Disconnect combination meter connector.
2. Check continuity between combination meter harness connector and BCM harness connector.

Combination meter		BCM		Continuity
Connector	Terminal	Connector	Terminal	
M76	7	M18	35	Yes

3. Check continuity between combination meter harness connector and ground.

Combination meter		Ground	Continuity
Connector	Terminal		
M76	7		No

Is the inspection result normal?

- YES >> Replace combination meter. Refer to [MWI-82. "Removal and Installation"](#).
NO >> Repair or replace harness.

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

SEC

SYMPTOM DIAGNOSIS

ENGINE DOES NOT START WHEN INTELLIGENT KEY IS INSIDE OF VEHICLE

Description

INFOID:0000000010284440

Engine does not start when push-button ignition switch is pressed while carrying Intelligent Key.

NOTE:

- Check that vehicle is under the condition shown in “Conditions of vehicle” before starting diagnosis, and check each symptom.
- The engine start function, door lock function, power distribution system, and NATS-NVIS in the Intelligent Key system are closely related to each other regarding control. The vehicle security function can operate only when the door lock and power distribution system are operating normally.

Conditions of Vehicle (Operating Conditions)

- “ENGINE START BY I-KEY” in “WORK SUPPORT” is ON when setting on CONSULT.
- One or more of Intelligent Keys with registered Intelligent Key ID is in the vehicle.

Diagnosis Procedure

INFOID:0000000010284441

1.PERFORM WORK SUPPORT

Perform “INSIDE ANT DIAGNOSIS” on “Work support” in “INTELLIGENT KEY”.

Refer to [BCS-21. "INTELLIGENT KEY : CONSULT Function \(BCM - INTELLIGENT KEY\)"](#).

>> GO TO 2.

2.PERFORM SELF-DIAGNOSTIC RESULT

Perform “Self-Diagnostic Result” in “BCM”, and check whether or not DTC of inside key antenna is detected.

Is DTC detected?

YES >> Refer to [BCS-48. "DTC Index"](#).

NO >> GO TO 3.

3.CHECK PUSH-BUTTON IGNITION SWITCH

Check push-button ignition switch.

Refer to [SEC-80. "Component Inspection"](#).

Is the operation normal?

YES >> GO TO 4.

NO >> Repair or replace malfunctioning parts.

4.CONFIRM THE OPERATION

Confirm the operation again.

Is the inspection normal?

YES >> Check intermittent incident. Refer to [GI-41. "Intermittent Incident"](#).

NO >> GO TO 1.

SECURITY INDICATOR LAMP DOES NOT TURN ON OR BLINK

< SYMPTOM DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

SECURITY INDICATOR LAMP DOES NOT TURN ON OR BLINK

Description

INFOID:0000000010284442

Security indicator lamp does not blink when ignition switch is in a position other than ON

NOTE:

- Before performing the diagnosis, check "Work Flow". Refer to [SEC-62, "Work Flow"](#).
- Check that vehicle is under the condition shown in "Conditions of vehicle" before starting diagnosis, and check each symptom.

Conditions of Vehicle (Operating Conditions)

Ignition switch is not in the ON position.

Diagnosis Procedure

INFOID:0000000010284443

1.CHECK SECURITY INDICATOR LAMP

Check security indicator lamp.

Refer to [SEC-102, "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning parts.

2.CONFIRM THE OPERATION

Confirm the operation again.

Is the result normal?

YES >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

NO >> GO TO 1.

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

SEC

VEHICLE SECURITY SYSTEM CANNOT BE SET

< SYMPTOM DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

VEHICLE SECURITY SYSTEM CANNOT BE SET INTELLIGENT KEY

INTELLIGENT KEY : Description

INFOID:0000000010284444

ARMED phase is not activated when door is locked using Intelligent Key.

NOTE:

Check that vehicle is under the condition shown in Conditions of vehicle before starting diagnosis and check each symptom.

CONDITION OF VEHICLE (OPERATING CONDITION)

Confirm the setting of "SECURITY ALARM SET" is "ON" in "WORK SUPPORT" mode of "THEFT ALM" of "BCM" using CONSULT.

INTELLIGENT KEY : Diagnosis Procedure

INFOID:0000000010284445

1.CHECK INTELLIGENT KEY SYSTEM (REMOTE KEYLESS ENTRY FUNCTION)

Lock/unlock door with Intelligent Key.

Refer to [SEC-9. "INTELLIGENT KEY SYSTEM/ENGINE START FUNCTION : System Description"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Check Intelligent Key system (remote keyless entry function).

2.CHECK HOOD SWITCH

Check hood switch.

Refer to [SEC-99. "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace hood switch.

3.CONFIRM THE OPERATION

Confirm the operation again.

Is the result normal?

YES >> Check intermittent incident. Refer to [GI-41. "Intermittent Incident"](#).

NO >> GO TO 1.

DOOR REQUEST SWITCH

DOOR REQUEST SWITCH : Description

INFOID:0000000010284446

ARMED phase is not activated when door is locked using door request switch.

NOTE:

Check that vehicle is under the condition shown in Conditions of vehicle before starting diagnosis, and check each symptom.

CONDITION OF VEHICLE (OPERATING CONDITION)

Confirm the setting of SECURITY ALARM SET is ON in WORK SUPPORT mode of THEFT ALM of BCM using CONSULT.

DOOR REQUEST SWITCH : Diagnosis Procedure

INFOID:0000000010284447

1.CHECK INTELLIGENT KEY SYSTEM (DOOR LOCK FUNCTION)

Lock/unlock door with door request switch.

Refer to [SEC-9. "INTELLIGENT KEY SYSTEM/ENGINE START FUNCTION : System Description"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Check Intelligent Key system (door lock function).

2.CHECK HOOD SWITCH

VEHICLE SECURITY SYSTEM CANNOT BE SET

[WITH INTELLIGENT KEY SYSTEM]

< SYMPTOM DIAGNOSIS >

Check hood switch.

Refer to [SEC-99, "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace hood switch.

3.CONFIRM THE OPERATION

Confirm the operation again.

Is the result normal?

YES >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

NO >> GO TO 1.

DOOR KEY CYLINDER

DOOR KEY CYLINDER : Description

INFOID:0000000010284448

ARMED phase is not activated when door is locked using mechanical key.

NOTE:

Check that vehicle is under the condition shown in Conditions of vehicle before starting diagnosis, and check each symptom.

CONDITION OF VEHICLE (OPERATING CONDITION)

Confirm the setting of SECURITY ALARM SET is ON in WORK SUPPORT mode of THEFT ALM of BCM using CONSULT.

DOOR KEY CYLINDER : Diagnosis Procedure

INFOID:0000000010284449

1.CHECK POWER DOOR LOCK SYSTEM

Lock/unlock door with mechanical key.

Refer to [SEC-14, "VEHICLE SECURITY SYSTEM : System Description"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Check power door lock system.

2.CONFIRM THE OPERATION

Confirm the operation again.

Is the result normal?

YES >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

NO >> GO TO 1.

VEHICLE SECURITY ALARM DOES NOT ACTIVATE

< SYMPTOM DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

VEHICLE SECURITY ALARM DOES NOT ACTIVATE

Description

INFOID:0000000010284450

Alarm does not operate when alarm operating condition is satisfied.

NOTE:

Check that vehicle is under the condition shown in "Conditions of vehicle" before starting diagnosis and check each symptom.

CONDITIONS OF VEHICLE (OPERATING CONDITIONS)

Confirm the setting of "SECURITY ALARM SET" is ON in "Work Support" mode of "THEFT ALM" of "BCM" using CONSULT.

Diagnosis Procedure

INFOID:0000000010284451

1.CHECK DOOR SWITCH

Check door switch.

Refer to [DLK-149, "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the malfunctioning door switch.

2.CHECK HOOD SWITCH

Check hood switch.

Refer to [SEC-99, "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace hood switch.

3.CHECK HORN FUNCTION

Check horn function.

Refer to [SEC-101, "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace the malfunctioning parts.

4.CHECK HEADLAMP FUNCTION

Check headlamp function.

Refer to [SEC-98, "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace the malfunctioning parts.

5.CONFIRM THE OPERATION

Confirm the operation again.

Is the result normal?

YES >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

NO >> GO TO 1.

PANIC ALARM FUNCTION DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

PANIC ALARM FUNCTION DOES NOT OPERATE

Description

INFOID:0000000010284452

NOTE:

- Before performing the diagnosis following procedure, check "Work Flow". Refer to [SEC-62, "Work Flow"](#).
- Check that vehicle is under the condition shown in "Conditions of vehicle" before starting diagnosis and check each symptom.

CONDITIONS OF VEHICLE (OPERATION CONDITIONS)

- Ignition switch is in OFF or LOCK position.
- Intelligent Key is removed from key slot.

Diagnosis Procedure

INFOID:0000000010284453

1.CHECK REMOTE KEYLESS ENTRY FUNCTION

Check remote keyless entry function.

Does door lock/unlock with Intelligent Key button?

YES >> GO TO 2.

NO >> Go to [DLK-176, "Diagnosis Procedure"](#).

2.CHECK VEHICLE SECURITY ALARM OPERATION

Check vehicle security alarm operation.

Does alarm (headlamps and horns) active?

YES >> GO TO 3.

NO >> Go to [SEC-14, "VEHICLE SECURITY SYSTEM : System Description"](#).

3.CHECK "PANIC ALARM SET" SETTING IN "WORK SUPPORT"

Check "PANIC ALARM SET" setting in "Work Support".

Refer to [BCS-21, "INTELLIGENT KEY : CONSULT Function \(BCM - INTELLIGENT KEY\)"](#).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Set "PANIC ALARM SET" setting in "Work Support".

4.CONFIRM THE OPERATION

Confirm the operation again.

Is the result normal?

YES >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

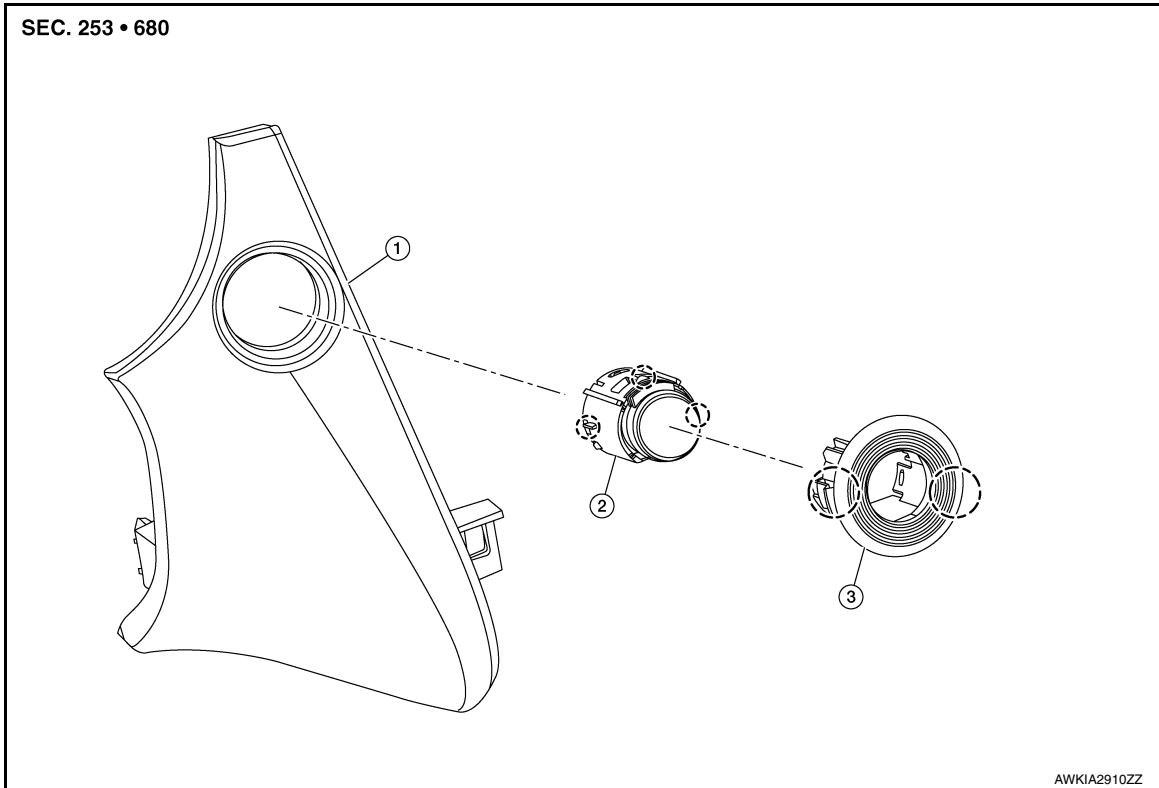
NO >> GO TO 1.

REMOVAL AND INSTALLATION

NATS ANTENNA AMP.

Exploded View

INFOID:0000000010284454



1. Instrument finisher B

2. Push button ignition switch

3. NATS antenna amp.

(○): Pawl

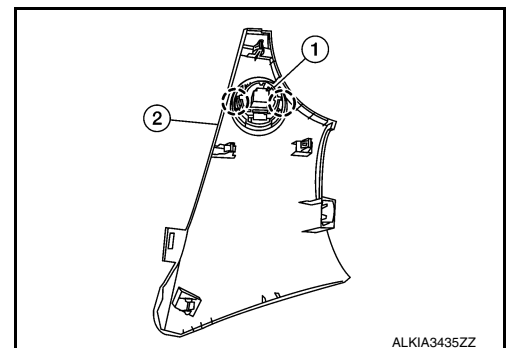
Removal and Installation

INFOID:0000000010284455

REMOVAL

1. Remove the instrument finisher B. Refer to [IP-16. "INSTRUMENT FINISHER B : Removal and Installation"](#).
2. Release pawls and remove NATS antenna amp. (1) from instrument finisher B (2).

(○): Pawl



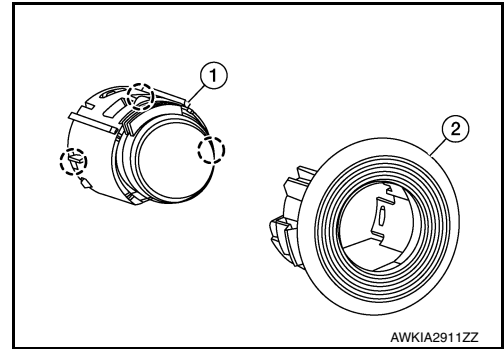
NATS ANTENNA AMP.

< REMOVAL AND INSTALLATION >

[WITH INTELLIGENT KEY SYSTEM]

3. Release pawls and remove NATS antenna amp. (2) from push button ignition switch (1).

(○): Pawl



INSTALLATION

Installation is in the reverse order of removal.

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

SEC

PUSH-BUTTON IGNITION SWITCH

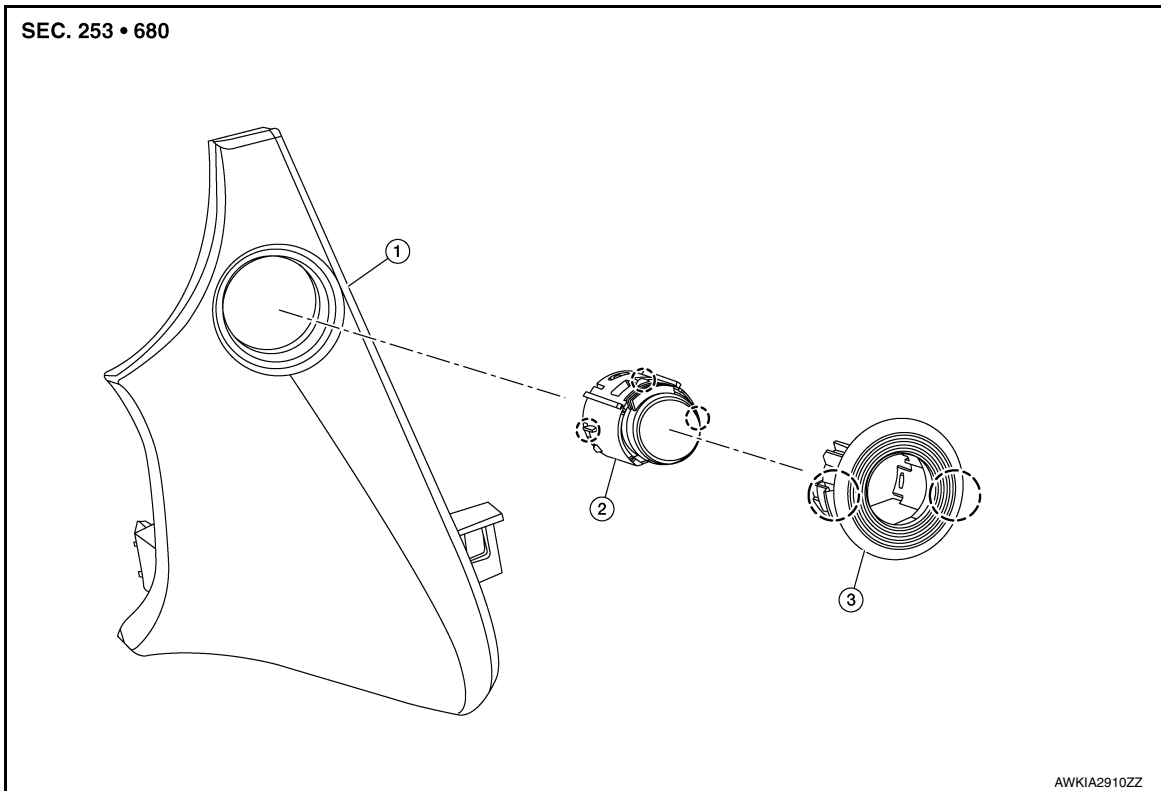
< REMOVAL AND INSTALLATION >

[WITH INTELLIGENT KEY SYSTEM]

PUSH-BUTTON IGNITION SWITCH

Exploded View

INFOID:0000000010284456



1. Instrument finisher B

2. Push button ignition switch

3. NATS antenna amp.

○: Pawl

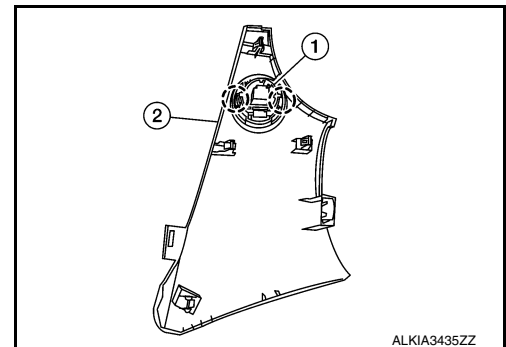
Removal and Installation

INFOID:0000000010284457

REMOVAL

1. Remove the instrument finisher B. Refer to [IP-16, "INSTRUMENT FINISHER B : Removal and Installation"](#).
2. Release pawls and remove NATS antenna amp. (1) from instrument finisher B (2).

○: Pawl



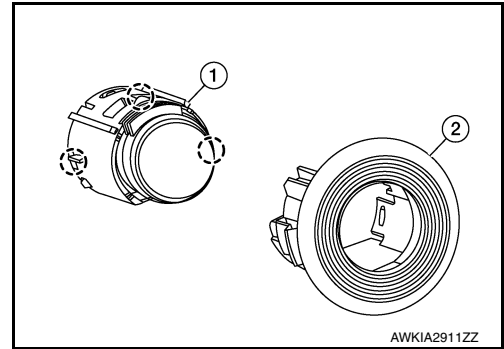
PUSH-BUTTON IGNITION SWITCH

< REMOVAL AND INSTALLATION >

[WITH INTELLIGENT KEY SYSTEM]

3. Release pawls and remove NATS antenna amp. (2) from push button ignition switch (1).

(○): Pawl



INSTALLATION

Installation is in the reverse order of removal.

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

SEC

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010288647

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

COMPONENT PARTS

< SYSTEM DESCRIPTION >

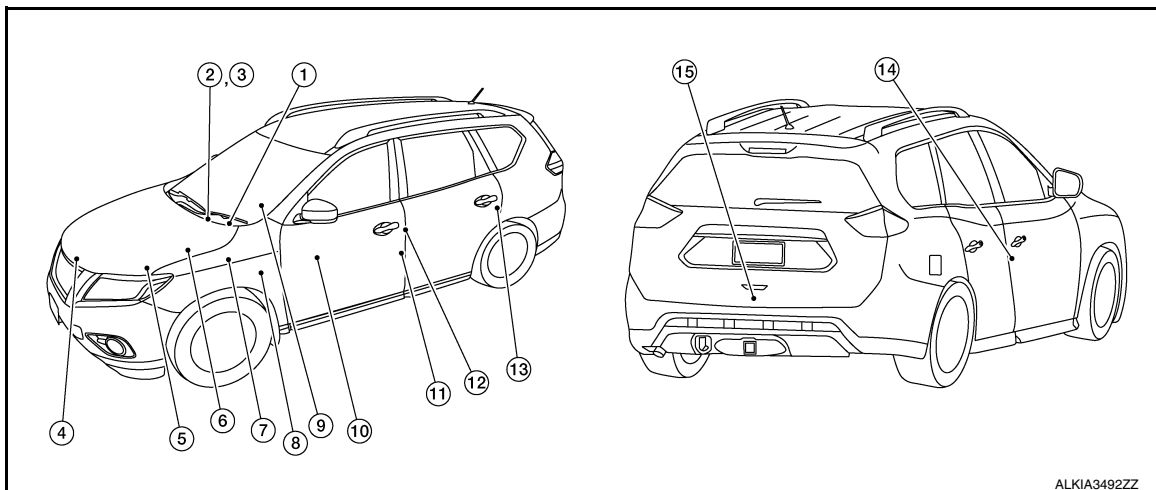
[WITHOUT INTELLIGENT KEY SYSTEM]

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:0000000010340302



No.	Component	Function
1.	Combination meter	Combination meter transmits the vehicle speed signal to BCM via CAN communication. BCM also receives the vehicle speed signal from ABS actuator and electric unit (control unit) via CAN communication. BCM compares both signals to detect the vehicle speed. Security indicator lamp is located on combination meter. Security indicator lamp blinks when ignition switch is in any position other than ON to warn that NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS [NVIS (NATS)] is on board. Refer to MWI-6, "METER SYSTEM : Component Parts Location" .
2.	Ignition switch	Ignition switch transmits ON/OFF signal to BCM. BCM changes the ignition switch position with the operation of ignition switch.
3.	NATS antenna amp.	Refer to SEC-116, "NATS Antenna Amp." .
4.	Hood switch	Hood switch detects Hood open/close condition and then transmits ON/OFF signal to IPDM E/R.
5.	Transmission range switch	Refer to TM-14, "CVT CONTROL SYSTEM : Transmission Range Switch" .
6.	IPDM E/R	Refer to PCS-4, "Component Parts Location" .
7.	Stop lamp switch	Refer to BRC-12, "Stop Lamp Switch" .
8.	BCM	BCM controls NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS [NVIS (NATS)] and VEHICLE SECURITY SYSTEM. Then, when the ignition switch is turned ON, BCM performs ID verification between BCM and ECM. If the ID verification result is OK, ECM can start engine. Refer to BCS-79, "BODY CONTROL SYSTEM : Component Parts Location" for detailed installation location.
9.	CVT shift selector	Refer to TM-12, "CVT CONTROL SYSTEM : Component Parts Location" .
10.	Main power window and door lock/unlock switch	Door lock and unlock switch is integrated into the power window main switch. Door lock and unlock switch transmits door lock/unlock operation signal to BCM. Refer to PWC-7, "Power Window Main Switch" .

COMPONENT PARTS

< SYSTEM DESCRIPTION >

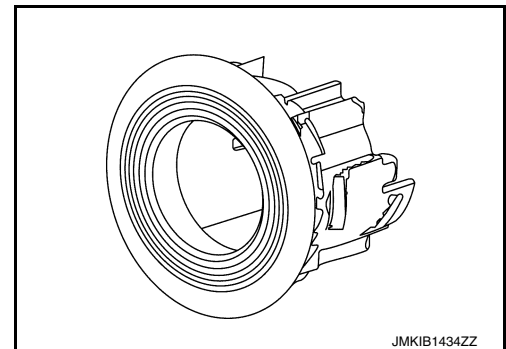
[WITHOUT INTELLIGENT KEY SYSTEM]

No.	Component	Function
11.	Front door lock assembly LH	Door key cylinder switch is integrated into front door lock assembly (driver side). Door key cylinder switch detects door LOCK/UNLOCK operation using mechanical key, and then transmits the operation signal to BCM. Refer to DLK-285. "Front Door Lock Assembly (Driver Side)" .
12.	Front door switch LH	Door switch detects door open/close condition and then transmits ON/OFF signal to BCM.
13.	Rear door switch LH	Door switch detects door open/close condition and then transmits ON/OFF signal to BCM.
14.	Front door switch RH	Door switch detects door open/close condition and then transmits ON/OFF signal to BCM.
15.	Back door lock assembly	Back door lock actuator locks/unlocks the back door latch assembly.

NATS Antenna Amp.

INFOID:0000000010340303

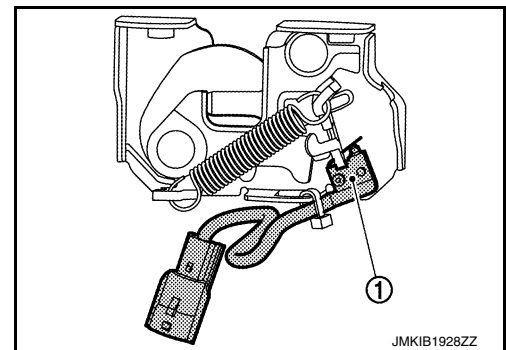
The ID verification is performed between BCM and transponder integrated into key via NATS antenna amp. when key backside is contacted to ignition switch in case that key battery is discharged. If the ID verification result is OK, the operation of ignition switch is available.



Hood Switch

INFOID:0000000010340304

Hood switch ① detects that hood is open, and then transmits ON/OFF signal to IPDM E/R. IPDM E/R transmits hood switch signal to BCM via CAN communication. Hood switch is integrated into hood lock assembly LH.



SYSTEM

< SYSTEM DESCRIPTION >

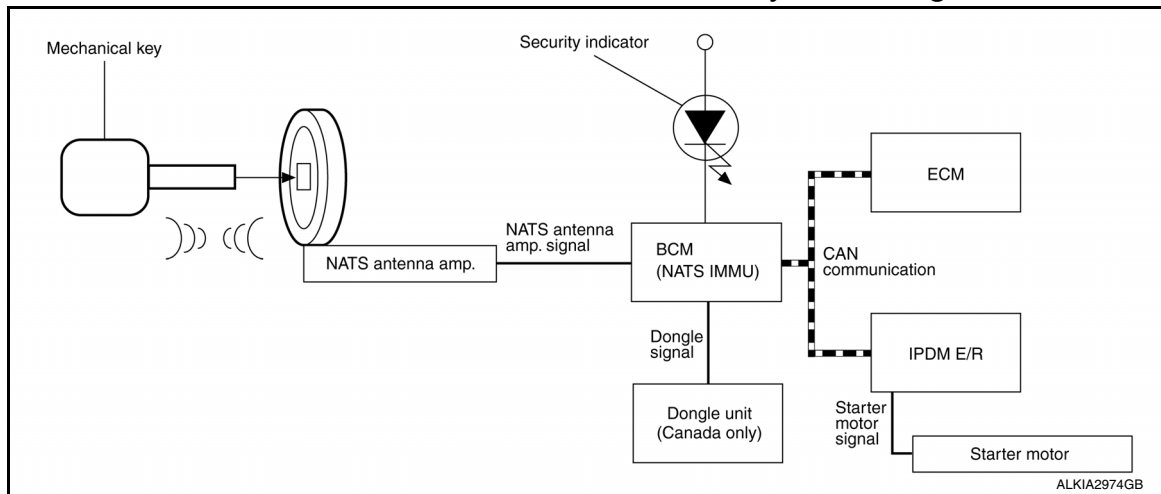
[WITHOUT INTELLIGENT KEY SYSTEM]

SYSTEM

NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS

NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS : System Diagram

INFOID:0000000010284485



NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS : System Description

INFOID:0000000010284486

INPUT/OUTPUT SIGNAL CHART

BCM

Switch/Input signal	Input signal to BCM	BCM function	Actuator/Output signal
NATS antenna amp.	Key ID	NATS	• Security indicator lamp • Starter request
ECM	Engine status signal		

SYSTEM DESCRIPTION

NATS (Nissan Anti-Theft System) has the following immobilizer functions:

- Engine immobilizer shows high anti-theft performance to prevent engine from starting by anyone other than the owner.
- Only a key with key ID registered in BCM and ECM can start engine, and shows high anti-theft performance to prevent key from being copied or stolen.
- Security indicator always flashes with mechanical key removed condition (key switch: OFF) and ignition knob released condition on LOCK position (ignition knob switch: OFF).
- Therefore, NATS warns outsiders that the vehicle is equipped with the anti-theft system.
- If system detects malfunction, security indicator illuminates when ignition switch is turned to ON position.
- If the owner requires, ignition key ID or mechanical key ID can be registered for up to 4 keys.
- During trouble diagnosis or when the following parts have been replaced, and if ignition key is added, registration^{*1} is required.

^{*1}: All keys kept by the owner of the vehicle should be registered with mechanical key.

- ECM
- BCM
- Ignition key
- Remote keyless entry receiver
- NATS trouble diagnosis, system initialization and additional registration of other mechanical key IDs must be carried out using CONSULT.
When NATS initialization has been completed, the ID of the inserted mechanical key or mechanical key IDs can be carried out.
- Possible symptom of NATS malfunction is "Engine cannot start". Identify the possible causes according to "Work Flow", Refer to [SEC-150, "Work Flow"](#).
- If ECM other than Genuine NISSAN is installed, the engine cannot be started. For ECM replacement procedure, refer to [SEC-153, "ECM RE-COMMUNICATING FUNCTION : Description"](#).

SYSTEM

< SYSTEM DESCRIPTION >

[WITHOUT INTELLIGENT KEY SYSTEM]

PRECAUTIONS FOR KEY REGISTRATION

- The key registration is a procedure that erases the current NATS ID once, and then re-registers a new ID. Therefore the registered key is necessary for this procedure. Before starting the registration procedure, collect all registered Keys from the customer.
- The NATS ID registration is the procedure that registers the ID stored into the transponder (integrated in mechanical key) to BCM.
- The key ID registration is the procedure that registers the ID to the BCM.
- When performing the key system registration only, the engine cannot be started by inserting the key into the key cylinder. When performing the NATS registration only, the engine cannot be started by using the ignition key.

SECURITY INDICATOR

- Always flashes with ignition key in the OFF position.

MAINTENANCE INFORMATION

CAUTION:

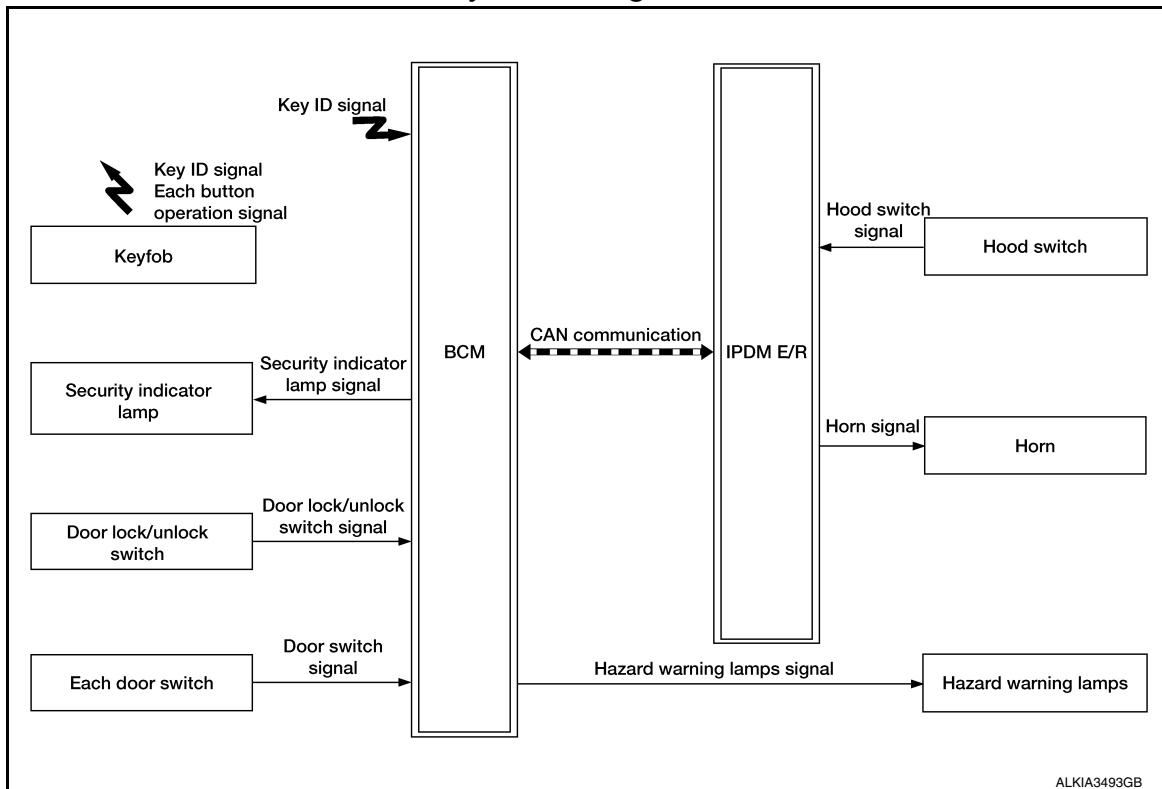
It is necessary to perform NATS ID registration when replacing any of the following parts.
If ID registration is not performed, the electrical system may not operate properly.

- BCM
- ECM
- IPDM E/R
- Ignition key
- NATS antenna amp.
- Combination meter

VEHICLE SECURITY SYSTEM

VEHICLE SECURITY SYSTEM : System Diagram

INFOID:0000000010284487



VEHICLE SECURITY SYSTEM : System Description

INFOID:0000000010284488

- The vehicle security system has two alarm functions (theft warning alarm and panic alarm), and reduces the possibility of a theft or mischief by activating horns (and hazard warning lamps) intermittently.
- The panic alarm does not start when the theft warning alarm is activating, and the panic alarm stops when the theft warning alarm is activated.

SYSTEM

< SYSTEM DESCRIPTION >

[WITHOUT INTELLIGENT KEY SYSTEM]

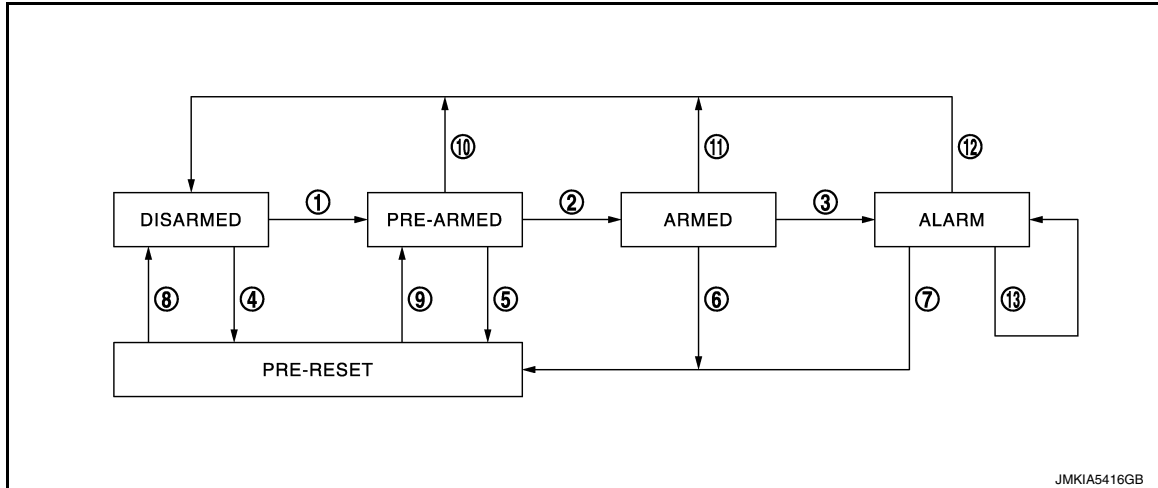
The priority of the functions are as per the following.

Priority	Function
1	Theft warning alarm
2	Panic alarm

THEFT WARNING ALARM

- The theft warning alarm function activates horns and hazard warning lamps intermittently when BCM detects that any door or hood is opened by unauthorized means, while the system is in the ARMED state.
- Security indicator lamp on combination meter always blinks when ignition switch is in any position other than ON. Security indicator lamp blinking warns that the vehicle is equipped with a vehicle security system.

Operation Flow



No.	System state	Switching condition		
1	DISARMED to PRE-ARMED	When all conditions of A and one condition of B are satisfied.	A	B
			- Ignition switch: OFF - All doors: Closed - Hood: Closed	All doors are locked by: - Door lock and unlock switch - LOCK button of Keyfob
2	PRE-ARMED to ARMED	When all of the following conditions are satisfied for 30 seconds.	- Ignition switch: OFF - All doors: Locked - Hood: Closed	
3	ARMED to ALARM	When condition of A and one condition of B are satisfied.	A	B
			Keyfob: Not used	- Any door: Open - Hood: Open
4	DISARMED to PRE-RESET	When all conditions of A and one condition of B are satisfied.	A	B
			- Ignition switch: OFF - All doors: Closed - Hood: Open	All doors are locked by: - Door lock and unlock switch - LOCK button of Keyfob
5	PRE-ARMED to PRE-RESET	When the following condition is satisfied.	Hood: Open	
6	ARMED to PRE-RESET	No conditions.		
7	ALARM to PRE-RESET			
8	PRE-RESET to DISARMED	When one of the following conditions is satisfied.	- Ignition switch: ACC/ON - UNLOCK button of Keyfob: ON - UNLOCK switch of door lock and unlock switch: ON - Any door: Open	
9	PRE-RESET to PRE-ARMED	When all of the following conditions are satisfied.	- Ignition switch: OFF - All doors: Locked - Hood: Closed	

SYSTEM

< SYSTEM DESCRIPTION >

[WITHOUT INTELLIGENT KEY SYSTEM]

No.	System state	Switching condition	
10	PRE-ARMED to DISARMED	When one of the following conditions is satisfied.	- Ignition switch: ACC/ON - UNLOCK button of Keyfob: ON - UNLOCK switch of door lock and unlock switch: ON - Any door: Open
11	ARMED to DISARMED	When the following condition is satisfied.	UNLOCK button of Keyfob: ON
12	ALARM to DISARMED		
13	RE-ALARM	When one of the following condition is satisfied after the ALARM operation is finished.	- Any door: Open - Hood: Open

NOTE:

- To lock/unlock all doors by operating remote controller button of keyfob, the keyfob must be within the detection area of BCM. For details, refer to [DLK-288, "REMOTE KEYLESS ENTRY SYSTEM : System Description"](#).

DISARMED Phase

The vehicle security system is not set in the DISARMED phase. The vehicle security system stays in this phase while any door is open, because it is assumed that the owner is inside or nearby the vehicle. Security indicator lamp blinks every 2.4 seconds.

When the vehicle security system is reset, each phase switches to the DISARMED phase directly.

PRE-ARMED Phase

The PRE-ARMED phase is the transient state between the DISARMED phase and the ARMED phase. This phase is maintained for 30 seconds, so that the owner can reset the setting due to a mis-operation. This phase switches to the ARMED phase when vehicle conditions are not changed for 30 seconds. Security indicator lamp illuminates while being in this phase.

To reset the PRE-ARMED phase, refer to the switching condition of No. 10 in the table above.

ARMED Phase

The vehicle security system is set, and BCM monitors all necessary inputs. If any door or hood is opened without using Keyfob, vehicle security system switches to the ALARM phase. Security indicator lamp blinks every 2.4 seconds.

To reset the ARMED phase, refer to the switching condition of No. 11 in the table above.

ALARM Phase

BCM transmits "Theft Warning Horn Request" signal intermittently to IPDM E/R via CAN communication, and blinks hazard warning lamps. In this phase, horns and hazard warning lamps are activated intermittently for approximately 27.5 seconds to warn that the vehicle is accessed by unauthorized means. After 27.5 seconds, the vehicle security system returns to the ARMED phase. At this time, if BCM still detects unauthorized access to the vehicle, the system is switched to the ALARM phase again. This RE-ALARM operation is carried out a maximum of 3 times.

To cancel the ALARM operation, refer to the switching condition of No. 12 in the table above.

NOTE:

If a battery terminal is disconnected during the ALARM phase, theft warning alarm stops. But when the battery terminal is reconnected, theft warning alarm is activated again.

PRE-RESET Phase

The PRE-RESET phase is the transient state between each phase and DISARMED phase. If only the condition of hood is not satisfied, the system switches to the PRE-RESET phase. Then, when any condition is changed, the system switches to the DISARMED phase or PRE-ARMED phase.

PANIC ALARM

The panic alarm function activates horns intermittently when the owner presses PANIC ALARM button of Keyfob outside the vehicle while ignition switch is OFF.

For details, refer to [SEC-118, "VEHICLE SECURITY SYSTEM : System Description"](#).

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[WITHOUT INTELLIGENT KEY SYSTEM]

DIAGNOSIS SYSTEM (BCM)

COMMON ITEM

COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)

INFOID:0000000010340305

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with BCM.

Direct Diagnostic Mode	Description
Ecu Identification	The BCM part number is displayed.
Self Diagnostic Result	The BCM self diagnostic results are displayed.
Data Monitor	The BCM input/output data is displayed in real time.
Active Test	The BCM activates outputs to test components.
Work support	The settings for BCM functions can be changed.
Configuration	- The vehicle specification can be read and saved. - The vehicle specification can be written when replacing BCM.
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.

SYSTEM APPLICATION

BCM can perform the following functions.

System	Sub System	Direct Diagnostic Mode						
		Ecu Identification	Self Diagnostic Result	Data Monitor	Active Test	Work support	Configuration	CAN Diag Support Mntr
Door lock	DOOR LOCK			x	x	x		
Rear window defogger	REAR DEFOGGER			x	x	x		
Warning chime	BUZZER			x	x			
Interior room lamp timer	INT LAMP			x	x	x		
Remote keyless entry system	MULTI REMOTE ENT					x		
Exterior lamp	HEADLAMP			x	x			
Wiper and washer	WIPER			x	x	x		
Turn signal and hazard warning lamps	FLASHER			x	x			
Combination switch	COMB SW			x				
BCM	BCM	x	x			x	x	x
Immobilizer	IMMU		x		x			
Interior room lamp battery saver	BATTERY SAVER			x	x			
Back door open	TRUNK			x				
Vehicle security system	THEFT ALM			x	x	x		
RAP system	RETAINED PWR			x				
TPMS	AIR PRESSURE MONITOR		x	x	x	x		

IMMU

IMMU : CONSULT Function (BCM - IMMU)

INFOID:0000000010340306

SELF DIAGNOSTIC RESULT

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[WITHOUT INTELLIGENT KEY SYSTEM]

Refer to [BCS-108, "DTC Index"](#).

ACTIVE TEST

Test Item	Description
THEFT IND	This test is able to check security indicator operation [On/Off].

WORK SUPPORT

Support Item	Setting	Description
CONFIRM DONGLE ID	—	Dongle ID can be checked.

THEFT ALM

THEFT ALM : CONSULT Function (BCM - THEFT ALM)

INFOID:0000000010340307

DATA MONITOR

Monitored Item	Description
DOOR SW-DR [On/Off]	Indicates condition of front door switch LH.
DOOR SW-AS [On/Off]	Indicates condition of front door switch RH.
DOOR SW-RR [On/Off]	Indicates condition of rear door switch RH.
DOOR SW-RL [On/Off]	Indicates condition of rear door switch LH.
DOOR SW-BK [On/Off]	Indicates condition of back door switch.
CDL LOCK SW [On/Off]	Indicates condition of lock signal from door lock and unlock switch.
CDL UNLOCK SW [On/Off]	Indicates condition of unlock signal from door lock and unlock switch.
KEY CYL LK-SW [On/Off]	Indicates condition of lock signal from door key cylinder switch.
KEY CYL UN-SW [On/Off]	Indicates condition of unlock signal from door key cylinder switch.
RKE-LOCK [On/Off]	Indicates condition of lock signal from Intelligent Key.
RKE-UNLOCK [On/Off]	Indicates condition of unlock signal from Intelligent Key.

ACTIVE TEST

Test Item	Description
FLASHER	This test is able to check turn signal lamp operation [LH/RH/Off].
THEFT IND	This test is able to check security indicator lamp operation [On/Off].
VEHICLE SECURITY HORN	This test is able to check vehicle security horn operation [On].
HEADLAMP(HI)	This test is able to check vehicle security lamp operation [On].

WORK SUPPORT

Support Item	Setting	Description
SECURITY ALARM SET	On	Security alarm ON.
	Off	Security alarm OFF.

DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

[WITHOUT INTELLIGENT KEY SYSTEM]

DIAGNOSIS SYSTEM (IPDM E/R)

CONSULT Function (IPDM E/R)

INFOID:000000010338172

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with IPDM E/R.

Direct Diagnostic Mode	Description
Ecu Identification	The IPDM E/R part number is displayed.
Self Diagnostic Result	The IPDM E/R self diagnostic results are displayed.
Data Monitor	The IPDM E/R input/output data is displayed in real time.
Active Test	The IPDM E/R activates outputs to test components.
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.

ECU IDENTIFICATION

The IPDM E/R part number is displayed.

SELF DIAGNOSTIC RESULT

Refer to [PCS-20, "DTC Index"](#).

DATA MONITOR

Monitor Item [Unit]	Description
REVERSE SIGNAL [Open/Close]	Indicates condition of transmission range switch R (Reverse) position.
IGN RELAY [Open/Close]	Indicates condition of ignition relay-1.
PUSH SW [Open/Close]	Indicates condition of push-button ignition switch.
INTERLOCK/PNP SW [Open/Close]	Indicates condition of transmission range switch P (Park) and N (Neutral) positions.
OIL PRESSURE SW [Open/Close]	Indicates condition of oil pressure switch.
HOOD SW [Open/Close]	Indicates condition of hood switch.
COMPRESSOR [OFF/ON]	Indicates condition of A/C compressor.
HORN RELAY [OFF/ ON]	Indicates condition of horn relay.
COOLING FAN [OFF/ON]	Indicates condition of cooling fan relay-1.
FRONT WIPER HI/LO RELAY [OFF/ON]	Indicates condition of front wiper high relay.
FRONT WIPER RELAY [OFF/ON]	Indicates condition of front wiper relay.
IGN RELAY OFF STATUS [OFF/ON]	Indicates condition of ignition relay-1 OFF status.
IGN RELAY ON STATUS [OFF/ON]	Indicates condition of ignition relay-1 ON status.
COOLING FAN RELAY 1 [OFF/ON]	Indicates condition of cooling fan relay-1.
STARTER RELAY [OFF/ON]	Indicates condition of starter relay.
COMP ECV DUTY [%]	Indicates condition of A/C compressor.
COOLING FAN RELAY 2 [%]	Indicates condition of cooling fan relay-2.
FR FOG LAMP LH [%]	Indicates condition of front fog lamp LH.
FR FOG LAMP RH [%]	Indicates condition of front fog lamp RH.
PARKING LAMP [%]	Indicates condition of parking lamp.
TAIL LAMP LH [%]	Indicates condition of tail lamp LH.
TAIL LAMP RH [%]	Indicates condition of tail lamp RH.
DAYTIME RUNNING LIGHT LH [%]	Indicates condition of daytime running light LH.
DAYTIME RUNNING LIGHT RH [%]	Indicates condition of daytime running light RH.
HEADLAMP (HI) LH [%]	Indicates condition of headlamp high beam LH.

DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

[WITHOUT INTELLIGENT KEY SYSTEM]

Monitor Item [Unit]	Description
HEADLAMP (HI) RH [%]	Indicates condition of headlamp high beam RH.
HEADLAMP (LO) LH [%]	Indicates condition of headlamp low beam LH.
HEADLAMP (LO) RH [%]	Indicates condition of headlamp low beam RH.
A/C RELAY STUCK [NG/OK]	Indicates condition of A/C relay.
A/C RELAY [Off/On]	Indicates condition of A/C relay.
COMP ECV STATUS [NG/OK]	Indicates condition of A/C compressor.
VEHICLE SECURITY HORN [Off/On]	Indicates condition of horn relay.
BATTERY CURRENT SENSOR [NG/OK]	Indicates condition of battery current sensor.
FRONT FOG LAMP [Off/On]	Indicates condition of front fog lamps.
COMP ECV CURRENT [A]	Indicates condition of A/C compressor current.
BATTERY VOLTAGE [V]	Indicates condition of battery voltage.
COOLING FAN DUTY [%]	Indicates condition of cooling fans.
HOOD SW (CAN) [OPEN/CLOSE]	Indicates condition of hood switch.
FRONT WIPER [STOP/LOW/HIGH]	Indicates condition of front wiper motor.
FR WIPER STOP POSITION [STOP P/ACTIVE P]	Indicates condition of front wiper motor stop.
HEADLAMP (HI) [Off/On]	Indicates condition of headlamp high beams.
HEADLAMP (LO) [Off/On]	Indicates condition of headlamp low beams.
IGNITION RELAY STATUS [Off/On]	Indicates condition of ignition relay-1.
IGN RELAY MONITOR [Off/On]	Indicates condition of ignition relay-1 feedback.
IGNITION POWER SUPPLY [Off/On]	Indicates condition of ignition relay-1.
INTERLOCK/PNP SW (CAN) [Off/On]	Indicates condition of transmission range switch P (Park) and N (Neutral) positions.
PUSH-BUTTON IGN SW (CAN) [Off/On]	Indicates condition of push-button ignition switch.
TAIL LAMP [Off/On]	Indicates condition of tail lamps.
REVERSE SIGNAL (CAN) [Off/On]	Indicates condition of transmission range switch R (Reverse) position.
ST&ST CONT RELAY STATUS [Off/ST R On]	Indicates condition of starter cut and starter relays.
STARTER MOTOR STATUS [Off/On]	Indicates condition of starter motor.
STARTER RELAY (CAN) [LOW/HIGH]	Indicates condition of starter relay.
IPDM NOT SLEEP [NO RDY/RDY]	Indicates condition of IPDM E/R sleep status.
AFTER COOLING TIME [No request/Request]	Indicates condition of cooling fan request.
AFTER COOLING SPEED [%]	Indicates condition of cooling fans.
COOLING FAN TYPE [NISSAN/RENAULT]	Indicates cooling fan type.
COMPRESSOR REQ1 [Off/On]	Indicates condition of A/C compressor request.
VHCL SECURITY HORN REQ [Off/On]	Indicates condition of horn relay request.
DTRL REQ [Off/On]	Indicates condition of daytime running light request.
SLEEP/WAKE UP [WAKEUP/SLEEP]	Indicates condition of IPDM E/R sleep/wake.
CRANKING ENABLE-TCM [NG/OK]	Indicates condition of crank enable from TCM.
CRANKING ENABLE-ECM [NG/OK]	Indicates condition of crank enable from ECM.
CAN DIAGNOSIS [NG/OK]	Indicates condition of CAN diagnosis.
FRONT FOG LAMP REQ [Off/On]	Indicates condition of front fog lamp request.
HIGH BEAM REQ [Off/On]	Indicates condition of headlamp high beam request.
HORN CHIRP [Off/On]	Indicates condition of horn relay request.
COOLING FAN REQ [%]	Indicates condition of cooling fan request.
ENGINE STATUS [STOP/RUN/IDLING]	Indicates condition of engine status.

DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

[WITHOUT INTELLIGENT KEY SYSTEM]

Monitor Item [Unit]	Description
TURN SIGNAL REQ [Off/LH/RH]	Indicates condition of turn signal request.
FR WIPER REQ [RETURN/LOW/HIGH]	Indicates condition of front wiper motor request.
SHIFT POSITION [P/R/N/D/L]	Indicates condition of transmission range switch positions.
LOW BEAM REQ [Off/On]	Indicates condition of headlamp low beam request.
POSITION LIGHT REQ [Off/On]	Indicates condition of parking lamp request.
COMPRESSOR REQ2 [Off/On]	Indicates condition of A/C compressor request.
IGNITION SW [Off/On]	Indicates condition of ignition switch.
VEHICLE SPEED (METER) [mph/km/h]	Indicates vehicle speed.
BAT DISCHARGE COUNT [0-100]	Indicates condition of battery discharge.
BATTERY STATUS [NG/OK]	Indicates battery status.

ACTIVE TEST

Test item	Description
HORN	This test is able to check horn operation [Off/On].
FRONT WIPER	This test is able to check wiper motor operation [Off/Low/High].
COMPRESSOR	This test is able to check A/C compressor operation [Off/On].
COOLING FAN (DUAL)	This test is able to check cooling fan operation [Off/LO/HI].
HEADLAMP (HI)	This test is able to check headlamp high beam operation [Off/3/5].
HEADLAMP (LO)	This test is able to check headlamp low beam operation [Off/3/5].
FRONT FOG LAMP	This test is able to check front fog lamp operation [Off/3/5].
DAYTIME RUNNING LAMP	This test is able to check daytime running lamp operation [Off/3/5].
PARKING LAMP	This test is able to check parking lamp operation [Off/3/5].
TAIL LAMP	This test is able to check tail lamp operation [Off/3/5].

CAN DIAG SUPPORT MNTR

Refer to [LAN-14, "CAN Diagnostic Support Monitor"](#).

SEC

ECU DIAGNOSIS INFORMATION

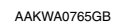
ECM, IPDM E/R, BCM

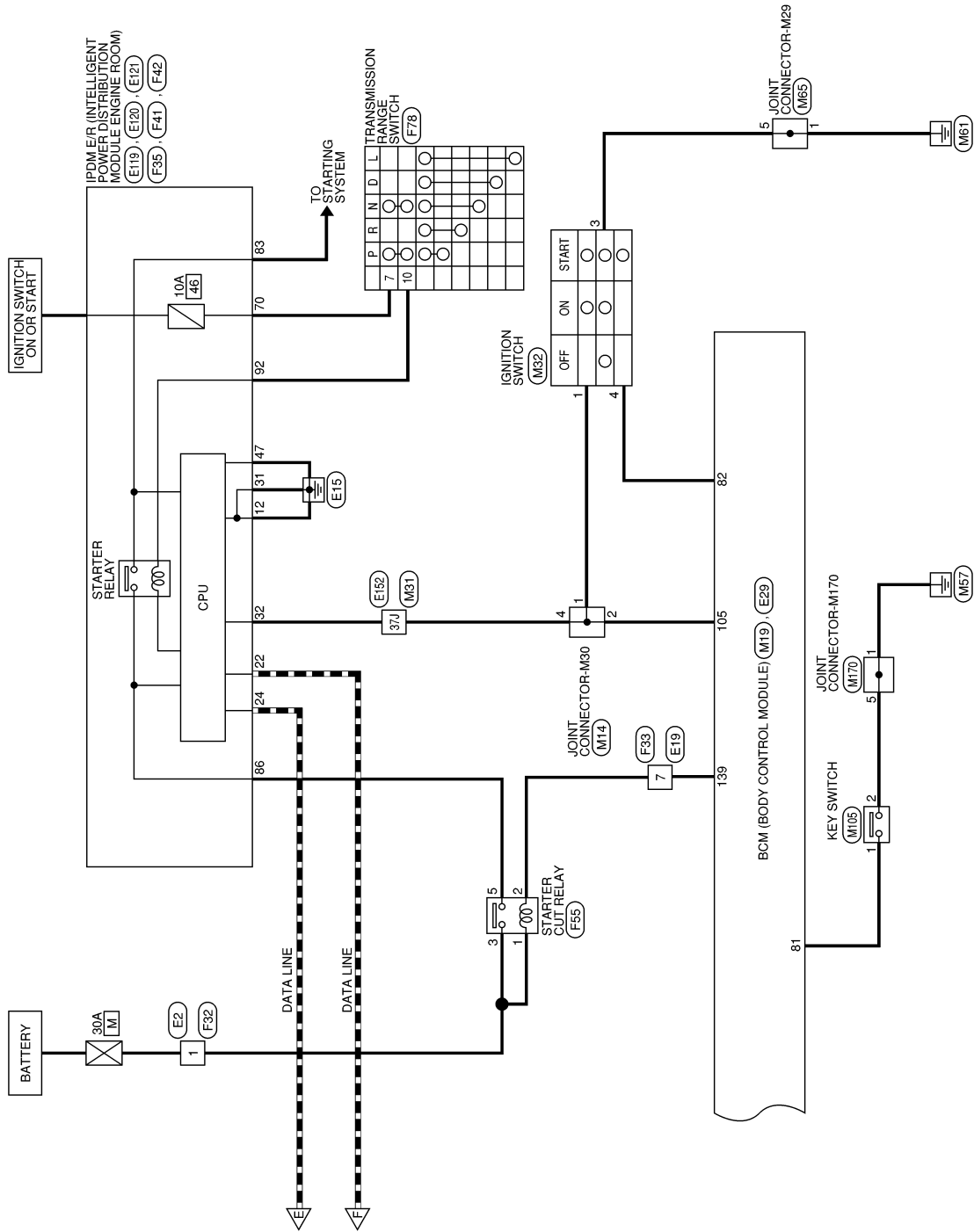
List of ECU Reference

INFOID:0000000010284494

ECU	Reference
ECM	EC-77, "Reference Value"
	EC-89, "Fail Safe"
	EC-92, "DTC Inspection Priority Chart"
	EC-93, "DTC Index"
IPDM E/R	PCS-12, "Reference Value"
	PCS-19, "Fail-safe"
	PCS-20, "DTC Index"
BCM	BCS-96, "Reference Value"
	BCS-107, "Fail Safe"
	BCS-107, "DTC Inspection Priority Chart"
	BCS-108, "DTC Index"







AAKWA0766GB

NVIS-WITHOUT INTELLIGENT KEY SYSTEM CONNECTORS

Connector No.	M4
Connector Name	NATS ANTENNA AMP. (WITHOUT INTELLIGENT KEY SYSTEM)
Connector Color	WHITE



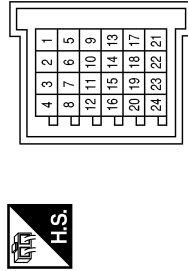
Terminal No.	Color of Wire	Signal Name
1	P	-
2	GR	-
3	BR	-
4	LG	-

Connector No.	M5
Connector Name	DONGLE UNIT
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	P	-
4	B	-

Connector No.	M6
Connector Name	JOINT CONNECTOR-M01
Connector Color	GRAY

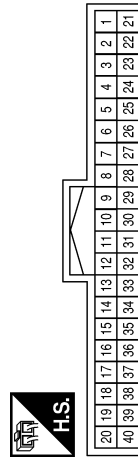


Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

Connector No.	M14
Connector Name	JOINT CONNECTOR-M30
Connector Color	WHITE

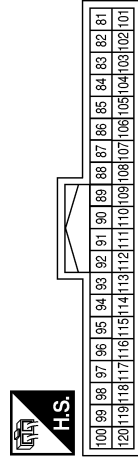


Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
1	Y	-
2	Y	-
4	Y	-

Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
81	L	I KEY SW
82	LA/R	I STARTER SW
94	G	I AT LOCKED IN PARK SW
105	Y	I IGN SW
109	P	O CLK IMMOBILIZER
113	LG	O DATA IMMOBILIZER

Connector No.	M65
Connector Name	JOINT CONNECTOR-M26
Connector Color	WHITE

8	7	6	5	4	3	2	1
---	---	---	---	---	---	---	---



Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN

7R	6R	5R	4R	3R	2R	1R		
16R	15R	14R	13R	12R	11R	10R	9R	8R



Connector No.	M69
Connector Name	WIRE TO WIRE
Connector Color	WHITE

16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17



Terminal No.	Color of Wire	Signal Name
1	B	-
5	B	-

Terminal No.	Color of Wire	Signal Name
12R	BR	-
14R	W	-

Terminal No.	Color of Wire	Signal Name
24	P	-
25	L	-

Connector No.	M76
Connector Name	COMBINATION METER
Connector Color	WHITE

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40



Connector No.	M77
Connector Name	COMBINATION METER
Connector Color	WHITE

41	42	43	44	45	46
47	48	49	50	51	52



Connector No.	M105
Connector Name	KEY SWITCH
Connector Color	WHITE

1	2
---	---



Terminal No.	Color of Wire	Signal Name
1	B	GND1
7	BG	SECURITY

Terminal No.	Color of Wire	Signal Name
41	L	CAN-H
42	P	CAN-L
45	LA/G	ALVUSBAT
46	LA/BR	IGN
52	B	GND2

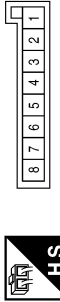
Terminal No.	Color of Wire	Signal Name
1	L	-
2	B	-

Connector No.	E2
Connector Name	WIRE TO WIRE
Connector Color	WHITE



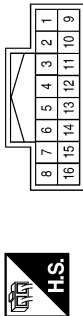
Terminal No.	Color of Wire	Signal Name
1	L	-

Connector No.	M170
Connector Name	JOINT CONNECTOR-M29
Connector Color	WHITE



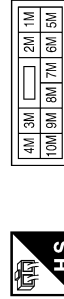
Terminal No.	Color of Wire	Signal Name
1	B	-
5	B	-

Connector No.	M107
Connector Name	CVT SHIFT SELECTOR
Connector Color	WHITE



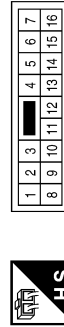
Terminal No.	Color of Wire	Signal Name
12	L	-
13	G	-

Connector No.	E28
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



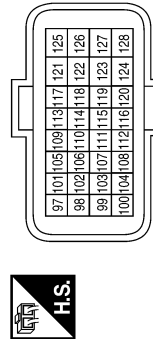
Terminal No.	Color of Wire	Signal Name
5M	V	-

Connector No.	E19
Connector Name	WIRE TO WIRE
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
7	G	-

Connector No.	E16
Connector Name	ECM
Connector Color	BLACK

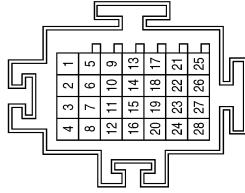


Terminal No.	Color of Wire	Signal Name
115	V	BRAKE

AAKIA1824GB

A
B
C
D
E
F
G
H
I
J
SEC
L
M
N
O
P

Connector No.	E44
Connector Name	JOINT CONNECTOR-E01
Connector Color	WHITE



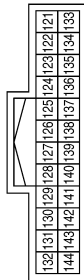
Terminal No.	Color of Wire	Signal Name
5	L	-
6	P	-
9	L	-
10	P	-
19	V	-
23	LG	-
27	LG	-

Connector No.	E38
Connector Name	STOP LAMP SWITCH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	V	-
2	LG	-

Connector No.	E29
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



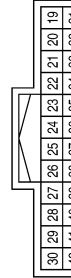
Terminal No.	Color of Wire	Signal Name
125	LG	I BRAKE SW2
139	G	O STCUT RL

Connector No.	E121
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	RED



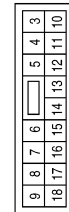
Terminal No.	Color of Wire	Signal Name
47	B	POWER GROUND

Connector No.	E120
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
22	P	CAN-L
24	L	CAN-H
31	B	2ND SIGNAL GROUND
32	GR	LI PUSH SW

Connector No.	E119
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
12	B	SIGNAL GROUND

AAKIA1825GB

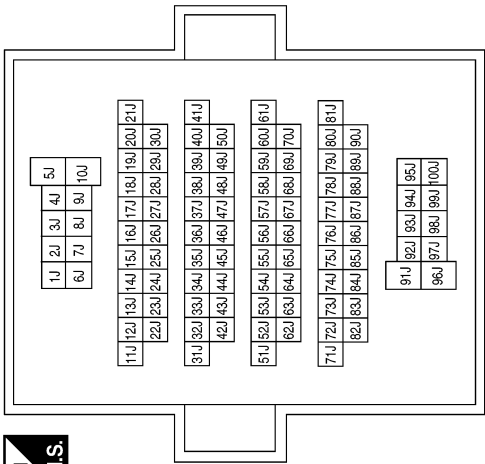
Connector No.	F32
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	L	-

Terminal No.	Color of Wire	Signal Name
37J	GR	-
61J	L	-
62J	P	-

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	F41
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



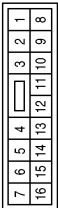
Terminal No.	Color of Wire	Signal Name
83	G	O STARTER
86	GR	FL STARTER

Connector No.	F35
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
70	BG	O IGN AT LPG

Connector No.	F33
Connector Name	WIRE TO WIRE
Connector Color	BROWN



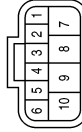
Terminal No.	Color of Wire	Signal Name
7	G	-

AAKIA1826GB

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

SEC

Connector No.	F78
Connector Name	TRANSMISSION RANGE SWITCH
Connector Color	BLACK



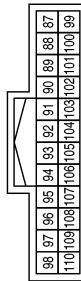
Terminal No.	Color of Wire	Signal Name
7	BG	-
10	GR	-

Connector No.	F55
Connector Name	STARTER CUT RELAY
Connector Color	BLUE



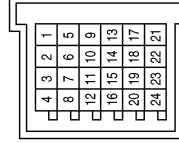
Terminal No.	Color of Wire	Signal Name
1	SB	-
2	G	-
3	L	-
5	GR	-

Connector No.	F42
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK



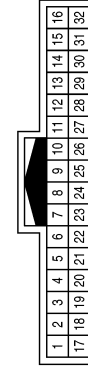
Terminal No.	Color of Wire	Signal Name
92	GR	LINP SW

Connector No.	B63
Connector Name	JOINT CONNECTOR-B01
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

Connector No.	B41
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
24	P	-
25	L	-

Connector No.	B16
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GREEN



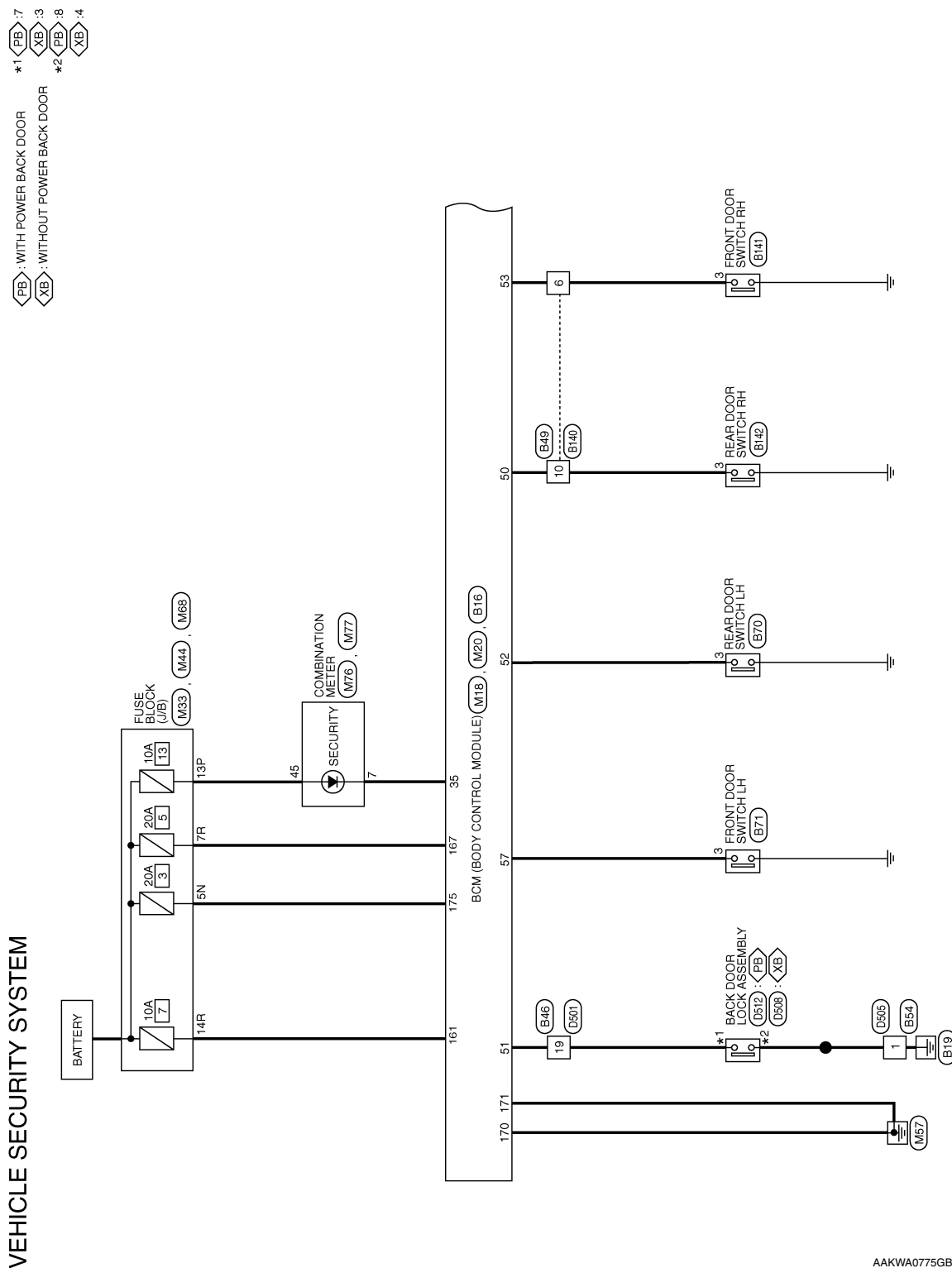
Terminal No.	Color of Wire	Signal Name
60	L	CAN-H
80	P	CAN-L

AAKIA1827GB

[WITHOUT INTELLIGENT KEY SYSTEM]

VEHICLE SECURITY SYSTEM

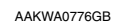
INFOID:0000000010340311



AAKWA0775GB

[WITHOUT INTELLIGENT KEY SYSTEM]

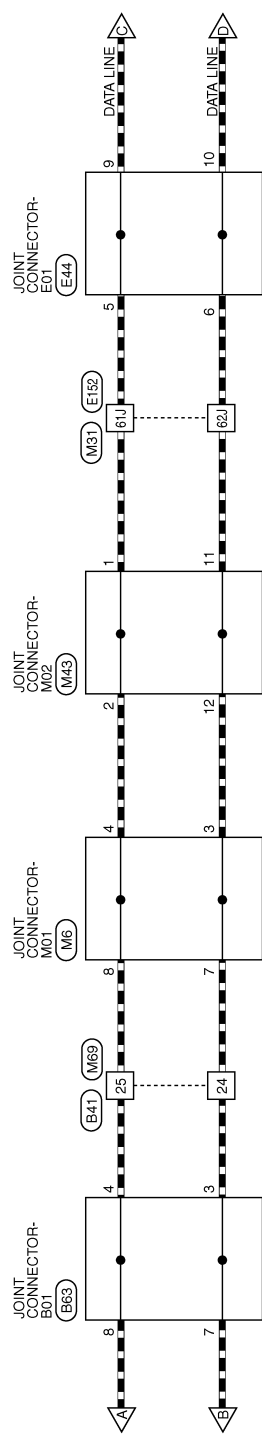
Revision: November 2013



VEHICLE SECURITY SYSTEM

[WITHOUT INTELLIGENT KEY SYSTEM]

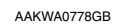
< WIRING DIAGRAM >



AAKWA0777GB

A
B
C
D
E
F
G
H
I
J
SEC
L
M
N
O
P

[WITHOUT INTELLIGENT KEY SYSTEM]



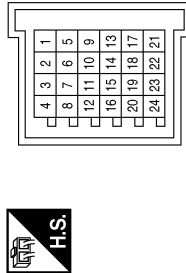
VEHICLE SECURITY SYSTEM

[WITHOUT INTELLIGENT KEY SYSTEM]

< WIRING DIAGRAM >

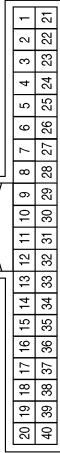
VEHICLE SECURITY SYSTEM CONNECTORS

Connector No.	M6
Connector Name	JOINT CONNECTOR-M01
Connector Color	GRAY



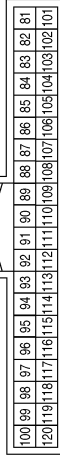
Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
10	BG	I DOORLOCK SW
35	BG	O SECURITY LED
40	SB	I DOORUNLOCK SW

Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
82	W	I SES AS HANDLE BUTTON SW
92	BR	I-KEY CYLINDER LOCK SW
93	P	I-KEY CYLINDER UNLOCK SW
100	V	SES EXT DR ANTENNA A
105	Y	I SES DR HANDLE BUTTON
116	BG	SES INT FRONT ANTENNA B
117	GR	SES INT FRONT ANTENNA A
118	SB	SES EXT AS ANTENNA B
119	P	SES EXT AS ANTENNA A
120	BR	SES EXT DR ANTENNA B

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
161	W	I PWR ECU
167	LA/V	I PWR DOORLOCK1
170	B	I GND1
171	B	I GND2
175	R	I PWR DOORLOCK2

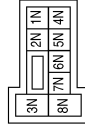
AAKIA1805GB

VEHICLE SECURITY SYSTEM

[WITHOUT INTELLIGENT KEY SYSTEM]

< WIRING DIAGRAM >

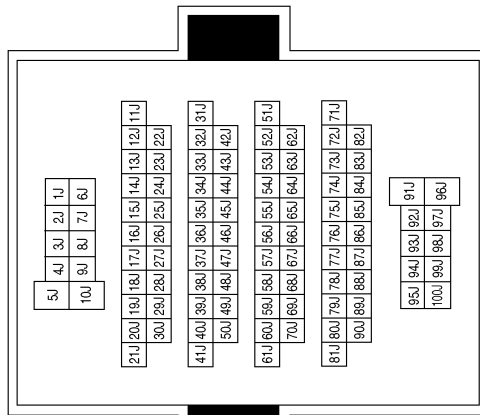
Connector No.	M33
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	5N	Color of Wire	R	Signal Name	—
--------------	----	---------------	---	-------------	---

Terminal No.	61J	Color of Wire	L	Signal Name	—
	62J	P	—	—	—

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN



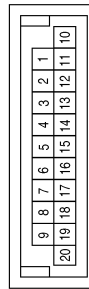
Terminal No.	7R	Color of Wire	LAV	Signal Name	—
	14R	W	—	—	—

Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	13P	Color of Wire	LA/G	Signal Name	—
--------------	-----	---------------	------	-------------	---

Connector No.	M43
Connector Name	JOINT CONNECTOR-M02
Connector Color	BLUE



Terminal No.	1	Color of Wire	L	Signal Name	—
	2	L	—	—	—
	11	P	—	—	—
	12	P	—	—	—

AAKIA1806GB

VEHICLE SECURITY SYSTEM

[WITHOUT INTELLIGENT KEY SYSTEM]

< WIRING DIAGRAM >

Connector No.	M77
Connector Name	COMBINATION METER
Connector Color	WHITE



41	42	43	44	45	46
47	48	49	50	51	52

Connector No.	M76
Connector Name	COMBINATION METER
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

Connector No.	M69
Connector Name	WIRE TO WIRE
Connector Color	WHITE



16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17

Terminal No.	Color of Wire	Signal Name
45	LA/G	BAT

Terminal No.	Color of Wire	Signal Name
7	BG	SECURITY

Terminal No.	Color of Wire	Signal Name
24	P	-
25	L	-

Connector No.	M168
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12
13	14	15	16	17	18	19	20	21	22	23	24

Connector No.	M167
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7		
8	9	10	11	12	13	14	15	16

Connector No.	M91
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12
13	14	15	16	17	18	19	20	21	22	23	24

Terminal No.	Color of Wire	Signal Name
20	BR	-
21	P	-
23	BG	-
24	SB	-

Terminal No.	Color of Wire	Signal Name
16	B	-

Terminal No.	Color of Wire	Signal Name
2	GR	-
19	LG	-
20	BR	-

AAKIA1807GB

A
B
C
D
E
F
G
H
I
J
SEC
L
M
N
O
P

VEHICLE SECURITY SYSTEM

[WITHOUT INTELLIGENT KEY SYSTEM]

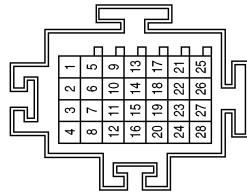
< WIRING DIAGRAM >

Connector No.	E46
Connector Name	HORN
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
2	B	-

Connector No.	E44
Connector Name	JOINT CONNECTOR-E01
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
5	L	-
6	P	-
9	L	-
10	P	-

Connector No.	E40
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
3	B	-

Connector No.	E49
Connector Name	HORN (LOW)
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
1	R	-

Connector No.	E48
Connector Name	HORN (LOW)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
2	B	-

Connector No.	E47
Connector Name	HORN
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
1	R	-

AAKIA1808GB

VEHICLE SECURITY SYSTEM

[WITHOUT INTELLIGENT KEY SYSTEM]

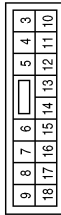
< WIRING DIAGRAM >

Connector No.	E101
Connector Name	ANTI-THEFT HORN RELAY
Connector Color	WHITE



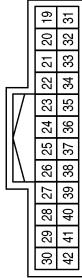
Terminal No.	Color of Wire	Signal Name
1	L	-
2	R	-
3	GR	-

Connector No.	E119
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
9	L	LO HRN RLY
12	B	SIGNAL GROUND

Connector No.	E120
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



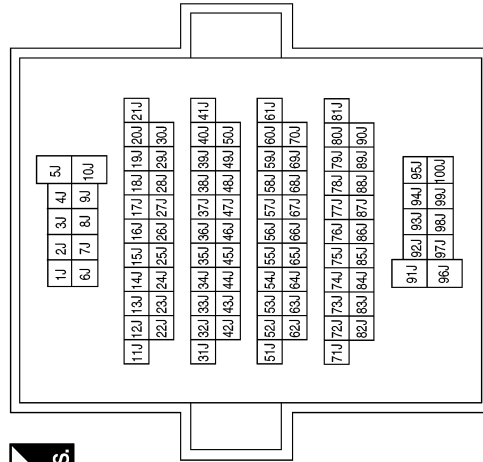
Terminal No.	Color of Wire	Signal Name
22	P	CAN-L
24	L	CAN-H
31	B	2ND SIGNAL GROUND

Connector No.	E121
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	RED



Terminal No.	Color of Wire	Signal Name
47	B	POWER GROUND

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
61J	L	-
62J	P	-

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

SEC

VEHICLE SECURITY SYSTEM

[WITHOUT INTELLIGENT KEY SYSTEM]

< WIRING DIAGRAM >

Connector No.	E201
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	3	Color of Wire	B	Signal Name	—
--------------	---	---------------	---	-------------	---

Connector No.	E217
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BROWN



Terminal No.	52	Color of Wire	W	Signal Name	LI HOOD SW
--------------	----	---------------	---	-------------	------------

Connector No.	E223
Connector Name	HOOD SWITCH
Connector Color	GRAY



Terminal No.	1	Color of Wire	B	Signal Name	—
Terminal No.	2	Color of Wire	W	Signal Name	—

Connector No.	B16
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GREEN



60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41
80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61

Terminal No.	Color of Wire	Signal Name
50	W	I RR DOOR SW
51	LG	I TGATESW
52	R	I RL DOOR SW
53	SB	I AS DOOR2 SW
57	SB	I DR DOOR2 SW
60	L	CAN-H
61	BR	SES EXT REAR ANTENNA B
62	Y	SES INT MIDDLE ANTENNA B
63	L	SES INT MIDDLE ANTENNA A
64	G	SES EXT REAR ANTENNA A
80	P	CAN-L

Connector No.	B41
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Terminal No.	24	Color of Wire	P	Signal Name	—
Terminal No.	25	Color of Wire	L	Signal Name	—

Connector No.	B46
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Terminal No.	19	Color of Wire	LG	Signal Name	—
--------------	----	---------------	----	-------------	---

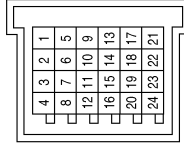
AAKIA1810GB

VEHICLE SECURITY SYSTEM

[WITHOUT INTELLIGENT KEY SYSTEM]

< WIRING DIAGRAM >

Connector No.	B63
Connector Name	JOINT CONNECTOR-B01
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

Connector No.	B54
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	B	-

Connector No.	B49
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
6	SB	-
10	W	-

Connector No.	B140
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
6	GR	-
10	W	-

Connector No.	B71
Connector Name	FRONT DOOR SWITCH LH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
3	SB	-

Connector No.	B70
Connector Name	REAR DOOR SWITCH LH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
3	R	-

AAKIA1811GB

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

SEC

VEHICLE SECURITY SYSTEM

[WITHOUT INTELLIGENT KEY SYSTEM]

< WIRING DIAGRAM >

Connector No.	D2
Connector Name	WIRE TO WIRE
Connector Color	WHITE



7	6	5	4	3	2	1
16	15	14	13	12	11	10
9	8					

Terminal No.	16
Color of Wire	B
Signal Name	—

Connector No.	B142
Connector Name	REAR DOOR SWITCH RH
Connector Color	WHITE



1	2	3	4
---	---	---	---

Terminal No.	3
Color of Wire	R
Signal Name	—

Connector No.	B141
Connector Name	FRONT DOOR SWITCH RH
Connector Color	WHITE



1	2	3	4
---	---	---	---

Terminal No.	3
Color of Wire	GR
Signal Name	—

Connector No.	D23
Connector Name	FRONT DOOR LOCK ASSEMBLY LH
Connector Color	GRAY



1	2	3	4	5	6
---	---	---	---	---	---

Terminal No.	4
Color of Wire	B
Signal Name	—
Terminal No.	5
Color of Wire	P
Signal Name	—
Terminal No.	6
Color of Wire	BR
Signal Name	—

Connector No.	D6
Connector Name	MAIN POWER WINDOW AND DOOR LOCK/UNLOCK SWITCH
Connector Color	WHITE



7	6	5	4	3	2	1
8	9	10	11	12	13	14
15	16					

Terminal No.	1
Color of Wire	B
Signal Name	—
Terminal No.	3
Color of Wire	L
Signal Name	—
Terminal No.	15
Color of Wire	BG
Signal Name	—

Connector No.	D3
Connector Name	WIRE TO WIRE
Connector Color	WHITE



12	11	10	9	8	7	6	5	4	3	2	1
24	23	22	21	20	19	18	17	16	15	14	13

Terminal No.	20
Color of Wire	BR
Signal Name	—
Terminal No.	21
Color of Wire	P
Signal Name	—
Terminal No.	23
Color of Wire	L
Signal Name	—
Terminal No.	24
Color of Wire	BG
Signal Name	—

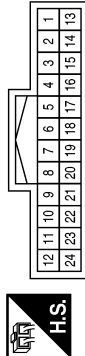
AAKIA1812GB

VEHICLE SECURITY SYSTEM

[WITHOUT INTELLIGENT KEY SYSTEM]

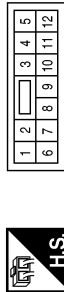
< WIRING DIAGRAM >

Connector No.	D101
Connector Name	WIRE TO WIRE
Connector Color	WHITE



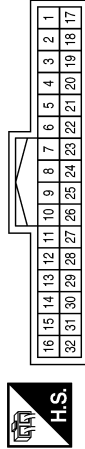
Terminal No.	Color of Wire	Signal Name
2	B	-
19	LG	-
20	BR	-

Connector No.	D112
Connector Name	FRONT POWER WINDOW SWITCH RH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	LG	-
2	BR	-
3	B	-

Connector No.	D501
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
19	W	-

Connector No.	D505
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	B	-

Connector No.	D508
Connector Name	BACK DOOR LOCK ASSEMBLY (WITHOUT POWER BACK DOOR SYSTEM)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
3	W	-
4	GR	-
15	BG	-

Connector No.	D512
Connector Name	BACK DOOR LOCK ASSEMBLY (WITH POWER BACK DOOR SYSTEM)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
7	W	-
8	B	-

AAKIA1813GB

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

SEC

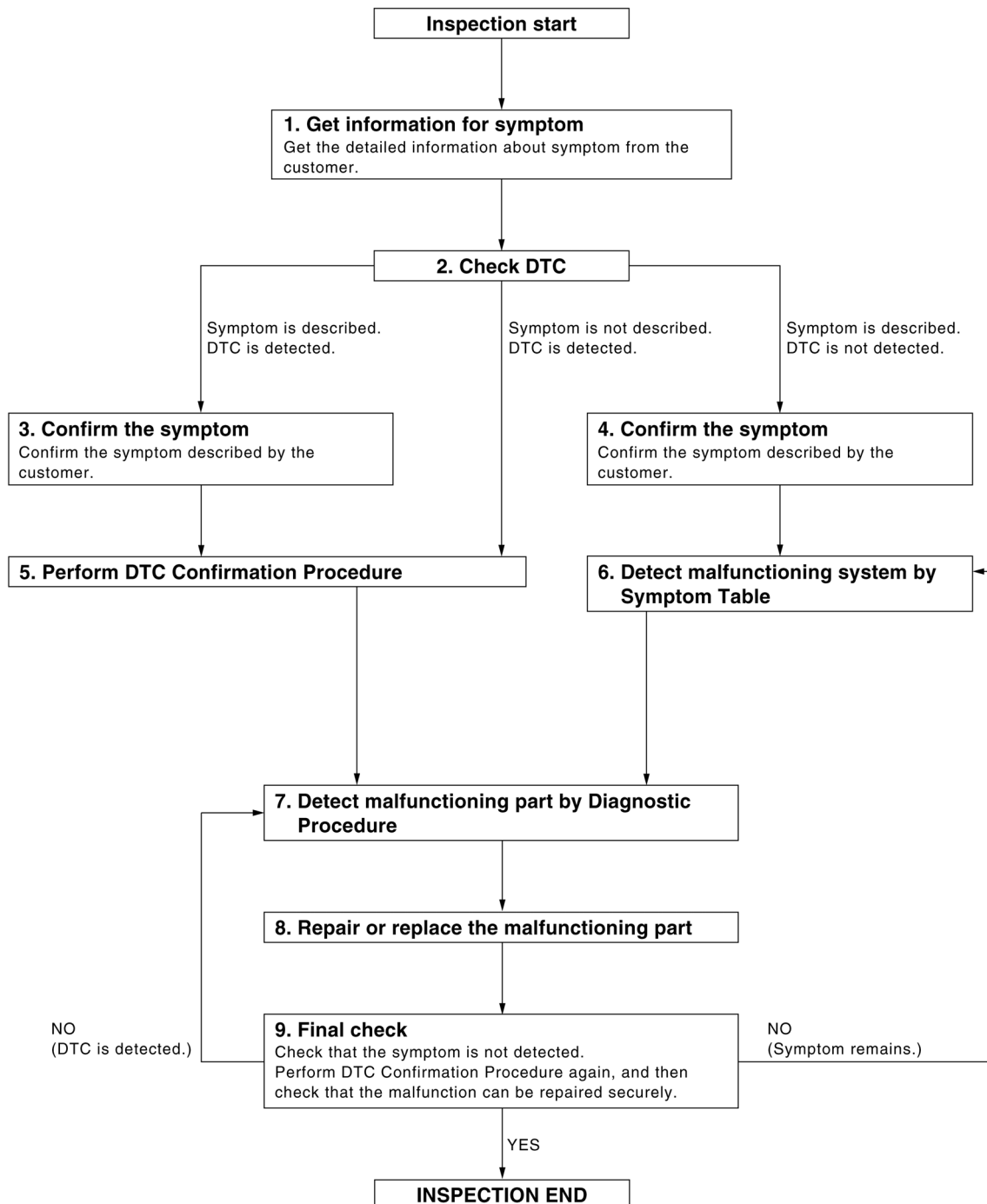
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:0000000010284497

OVERALL SEQUENCE



ALKIA2308GB

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

[WITHOUT INTELLIGENT KEY SYSTEM]

DETAILED FLOW

1.GET INFORMATION FOR SYMPTOM

Get the detailed information from the customer about the symptom (the condition and the environment when the incident/malfunction occurred).

>> GO TO 2.

2.CHECK DTC

1. Check DTC for BCM.
2. Perform the following procedure if DTC is displayed.
 - Erase DTC.
 - Study the relationship between the cause detected by DTC and the symptom described by the customer.
3. Check related service bulletins for information.

Is any symptom described and any DTC detected?

- Symptom is described, DTC is displayed>>GO TO 3.
- Symptom is described, DTC is not displayed>>GO TO 4.
- Symptom is not described, DTC is displayed>>GO TO 5.

3.CONFIRM THE SYMPTOM

Confirm the symptom described by the customer.
Connect CONSULT to the vehicle in "Data Monitor" mode and check real-time diagnosis results.
Verify relation between the symptom and the condition when the symptom is detected.

>> GO TO 5.

4.CONFIRM THE SYMPTOM

Confirm the symptom described by the customer.
Connect CONSULT to the vehicle in "Data Monitor" mode and check real-time diagnosis results.
Verify relation between the symptom and the condition when the symptom is detected.

>> GO TO 6.

5.PERFORM DTC CONFIRMATION PROCEDURE

Perform DTC Confirmation Procedure for the displayed DTC, and then check that DTC is detected again.
If two or more DTCs are detected, refer to [BCS-107, "DTC Inspection Priority Chart"](#) (BCM) and determine trouble diagnosis order.

Is DTC detected?

- YES >> GO TO 7.
- NO >> Refer to [GI-41, "Intermittent Incident"](#).

6.DETECT MALFUNCTIONING SYSTEM BY SYMPTOM TABLE

Detect malfunctioning system according to Symptom Table based on the confirmed symptom in step 4.

>> GO TO 7.

7.DETECT MALFUNCTIONING PART BY DIAGNOSTIC PROCEDURE

Inspect according to Diagnostic Procedure of the system.

NOTE:

The Diagnostic Procedure is described based on open circuit inspection. A short circuit inspection is also required for the circuit check in the Diagnostic Procedure.

>> GO TO 8.

8.REPAIR OR REPLACE THE MALFUNCTIONING PART

1. Repair or replace the malfunctioning part.
2. Reconnect parts or connectors disconnected during Diagnostic Procedure again after repair and replacement.

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

SEC

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

[WITHOUT INTELLIGENT KEY SYSTEM]

3. Check DTC. If DTC is displayed, erase it.

>> GO TO 9.

9.FINAL CHECK

When DTC was detected in step 8, perform DTC Confirmation Procedure or Component Function Check again, and then check that the malfunctions have been fully repaired.

When symptom was described by the customer, refer to the confirmed symptom in step 3 or 4, and check that the symptom is not detected.

Does the symptom reappear?

YES (DTC is detected)>>GO TO 7.

YES (Symptom remains)>>GO TO 6.

NO >> Inspection End.

INSPECTION AND ADJUSTMENT

< BASIC INSPECTION >

[WITHOUT INTELLIGENT KEY SYSTEM]

INSPECTION AND ADJUSTMENT

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement

INFOID:0000000010284498

Refer to the CONSULT Immobilizer mode and follow the on-screen instructions.

ECM RE-COMMUNICATING FUNCTION

ECM RE-COMMUNICATING FUNCTION : Description

INFOID:0000000010284499

Performing following procedure can automatically perform re-communication of ECM and BCM, but only when the ECM has been replaced with a new one (*1).

*1: New one means an ECM which has never been energized on-board.

(In this step, initialization procedure by CONSULT is not necessary)

NOTE:

- **When registering new Key IDs or replacing the ECM that is not brand new, refer to CONSULT Immobilizer mode and follow the on-screen instructions.**
- **If multiple keys are attached to the key holder, separate them before work.**
- **Distinguish keys with unregistered key ID from those with registered ID.**

ECM RE-COMMUNICATING FUNCTION : Special Repair Requirement

INFOID:0000000010284500

1. PERFORM ECM RE-COMMUNICATING FUNCTION

1. Install ECM.
2. Using a registered key (*2), turn ignition switch to "ON".
*2: To perform this step, use the key that has been used before performing ECM replacement.
3. Maintain ignition switch in "ON" position for at least 5 seconds.
4. Turn ignition switch to "OFF".
5. Start engine.

Can engine be started?

YES >> Procedure is completed.

NO >> Initialize control unit. Refer to CONSULT Immobilizer mode and follow the on-screen instructions.

SEC

KEYFOB ID REGISTRATION

< BASIC INSPECTION >

[WITHOUT INTELLIGENT KEY SYSTEM]

KEYFOB ID REGISTRATION

Description

INFOID:0000000010430537

Perform the following procedure after BCM is replaced or when new keyfob ID is registered

Work Procedure

INFOID:0000000010430538

1.STEP 1

Insert the first key into the ignition cylinder.

>> GO TO 2.

2.STEP 2

Turn ON the ignition switch.

>> GO TO 3.

3.STEP 3

Check that the security indicator flashes 5 times after the ignition is turned ON.

>> GO TO 4.

4.STEP 4

Turn the ignition switch OFF for a minimum of 3 seconds.

>> GO TO 5.

5.STEP 5

The first key has been registered.

>> GO TO 6.

6.STEP 6

Remove the first key and insert the next key to be registered.

>> GO TO 7.

7.STEP 7

Repeat steps 2,3 and 4 for each additional key.

>> Registration End.

P1610 LOCK MODE

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

DTC/CIRCUIT DIAGNOSIS

P1610 LOCK MODE

Description

INFOID:0000000010339868

ECM forcibly switches to the mode that inhibits engine start, when engine start operation is performed 5 times or more while communication between ECM and BCM is not normal.

DTC Logic

INFOID:0000000010339869

DTC DETECTION LOGIC

NOTE:

- If DTC B1610 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [DLK-104, "DTC Logic"](#).
- If DTC B1610 is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [DLK-105, "DTC Logic"](#).

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
P1610	LOCK MODE	When ECM detects a communication malfunction between ECM and BCM 5 times or more.	—

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Check DTC in "Self-Diagnostic Result" mode of "ENGINE" using CONSULT.

Is DTC detected?

- YES >> Go to [SEC-155, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010339870

1.CHECK ENGINE START FUNCTION

1. Check that there are no DTC's except for DTC P1610 detected.
If detected, erase the DTC after fixing.
2. Turn ignition switch OFF.
3. Insert the registered key into the ignition switch and wait 5 seconds.
4. Turn ignition switch ON.
5. Turn ignition switch OFF and wait 5 seconds.
6. Repeat steps 3 and 5 twice (a total of 3 times).
7. Check that engine can start.

>> Inspection End.

P1611 ID DISCORD, IMMU-ECM

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

P1611 ID DISCORD, IMMU-ECM

DTC Logic

INFOID:0000000010339871

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
P1611	ID DISCORD, IMMU-ECM	The ID verification results between BCM and ECM are NG.	• Harness or connectors (The CAN communication line is open or shorted.) • BCM • ECM

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Check DTC in "Self-Diagnostic Result" mode of "ENGINE" using CONSULT.

Is DTC detected?

YES >> Go to [SEC-156, "Diagnosis Procedure"](#).

NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010339872

1.PERFORM INITIALIZATION

Perform initialization of BCM and reregistration of all keys using CONSULT. Refer to the CONSULT Immobilizer mode and follow the on-screen instructions.

Can the system be initialized and can the engine be started with reregistered key?

YES >> Inspection End.

NO >> GO TO 2.

2.CHECK SELF DIAGNOSTIC RESULT

1. Select "Self Diagnostic Result" mode of "ENGINE" using CONSULT.
2. Erase DTC.
3. Perform DTC CONFIRMATION PROCEDURE for DTC P1611. Refer to [SEC-156, "DTC Logic"](#).

Is DTC detected?

YES >> GO TO 3.

NO >> Inspection End.

3.REPLACE BCM

1. Replace BCM. Refer to [BCS-135, "Removal and Installation"](#).
2. Perform initialization of BCM and registration of all keys using CONSULT. Refer to the CONSULT Immobilizer mode and follow the on-screen instructions.

Can the system be initialized and can the engine be started with registered key?

YES >> Inspection End.

NO >> GO TO 4.

4.REPLACE ECM

1. Replace ECM. Refer to [EC-499, "Removal and Installation"](#).
2. Perform "ADDITIONAL SERVICE WHEN REPLACING ECM". Refer to [EC-136, "Work Procedure"](#).

>> Inspection End.

P1612 CHAIN OF ECM-IMMU

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

P1612 CHAIN OF ECM-IMMU

DTC Logic

INFOID:0000000010339873

DTC DETECTION LOGIC

NOTE:

- If DTC P1612 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [DLK-104, "DTC Logic"](#).
- If DTC P1612 is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [DLK-105, "DTC Logic"](#).

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
P1612	CHAIN OF BCM-ECM	Inactive communication between BCM and ECM	• Harness or connectors (The CAN communication line is open or shorted.) • ECM • BCM

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Check DTC in "Self-Diagnostic Result" mode of "BCM" using CONSULT.

Is DTC detected?

- YES >> Go to [SEC-157, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010339874

NOTE:

- If DTC P1612 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [DLK-104, "DTC Logic"](#).
- If DTC P1612 is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [DLK-105, "DTC Logic"](#).

1.CHECK BCM POWER SUPPLY AND GROUND CIRCUIT.

Check BCM power supply and ground circuit. Refer to [BCS-128, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace the harness.

2.CHECK ECM POWER SUPPLY AND GROUND CIRCUIT.

Check ECM power supply and ground circuit. Refer to [EC-165, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace the harness.

3.PERFORM DTC CONFIRMATION PROCEDURE.

Perform the DTC confirmation procedure. Refer to [SEC-157, "DTC Logic"](#).

Does the DTC return?

- YES >> Replace BCM. Refer to [BCS-135, "Removal and Installation"](#).
NO >> Inspection End.

P161D IMMOBILIZER

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

P161D IMMOBILIZER

DTC Logic

INFOID:0000000010375273

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
P161D	IMMOBILIZER	When immobilizer detects a malfunction, and prohibits the engine start.	BCM

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Check DTC in "Self Diagnostic Result" mode of "ENGINE" using CONSULT.

Is DTC detected?

- YES >> Refer to [SEC-160, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010375274

1.REPLACE BCM

Replace BCM. Refer to [BCS-135, "Removal and Installation"](#).

>> Inspection End.

P161E IMMOBILIZER

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

P161E IMMOBILIZER

DTC Logic

INFOID:0000000010375275

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
P161E	IMMOBILIZER	After replacing the ECM, when the ECM is not registered to the vehicle by using the CONSULT.	• BCM • ECM

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Check DTC in "Self Diagnostic Result" mode of "ENGINE" using CONSULT.

Is DTC detected?

- YES >> Refer to [SEC-160, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010375276

1.PERFORM REGISTRATION OF ECM

Perform registration of ECM using CONSULT.

Is DTC detected?

- YES >> Inspection End.
NO >> GO TO 2.

2.REPLACE BCM

Replace BCM. Refer to [BCS-135, "Removal and Installation"](#).

Is DTC detected?

- YES >> GO TO 3.
NO >> Inspection End.

3.REPLACE ECM

Replace ECM. Refer to [EC-499, "Removal and Installation"](#).

>> Inspection End.

P161F IMMOBILIZER

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

P161F IMMOBILIZER

DTC Logic

INFOID:0000000010375277

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
P161F	IMMOBILIZER	When immobilizer detects a malfunction, and prohibits the engine start.	ECM

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Check DTC in "Self Diagnostic Result" mode of "ENGINE" using CONSULT.

Is DTC detected?

- YES >> Refer to [SEC-160. "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010375278

1.REPLACE ECM

Replace ECM. Refer to [EC-499. "Removal and Installation"](#).

>> Inspection End.

B20DF STARTER RELAY OFF CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

B20DF STARTER RELAY OFF CIRCUIT

DTC Logic

INFOID:0000000010351320

DTC DETECTION LOGIC

NOTE:

- If DTC B20DF is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [BCS-124, "DTC Logic"](#).
- If DTC B20DF is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [BCS-125, "DTC Logic"](#).

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B20DF	STARTER RELAY OFF	When comparing the starter relay signal (CAN) from BCM, IPDM E/R detects that starter relay is stuck in the OFF position for 1 second or more.	• Harness or connectors (The CAN communication line is open or shorted.) • Harness or connector (Starter relay circuit is open or shorted.) • IPDM E/R • BCM • Starter relay

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch under the following conditions to start engine, and wait 1 second or more.
 - Selector lever: In the P position
2. Check DTC in "Self Diagnostic Result" mode of "BCM" using CONSULT.

Is DTC detected?

- YES >> Go to [SEC-161, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010351321

Regarding Wiring Diagram information, refer to [SEC-127, "Wiring Diagram"](#).

1.CHECK STARTER RELAY POWER SUPPLY CIRCUIT (SWITCH SIDE)

1. Turn ignition switch ON.
2. Brake pedal pressed.
3. Place transmission in park or neutral.
4. Check voltage between IPDM E/R harness connector and ground.

(+)		(-)	Voltage (V) (Approx.)
IPDM E/R			
Connector	Terminal		
F41	86	Ground	Battery voltage

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Refer to [SEC-90, "Diagnosis Procedure"](#).

2.CHECK STARTER RELAY POWER SUPPLY CIRCUIT (COIL SIDE)

1. Turn ignition switch ON.
2. Place transmission in park or neutral.
3. Check voltage between IPDM E/R harness connector and ground.

B20DF STARTER RELAY OFF CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

(+)		(-)	Voltage (V) (Approx.)
IPDM E/R			
Connector	Terminal		
F42	92	Ground	Battery voltage

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to [PCS-35, "Removal and Installation"](#).
NO >> Refer to [SEC-82, "Diagnosis Procedure"](#).

B2192 ID DISCORD, IMMU-ECM

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

B2192 ID DISCORD, IMMU-ECM

DTC Logic

INFOID:0000000010339875

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B2192	ID DISCORD BCM-ECM	The ID verification results between BCM and ECM are NG.	• Harness or connectors (The CAN communication line is open or shorted.) • BCM • ECM

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Check DTC in "Self-Diagnostic Result" mode of "BCM" using CONSULT.

Is DTC detected?

- YES >> GO TO [SEC-163, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010339876

1.PERFORM INITIALIZATION

Perform initialization of BCM and reregistration of all keys using CONSULT. Refer to the CONSULT Immobilizer mode and follow the on-screen instructions.

Can the system be initialized and can the engine be started with reregistered key?

- YES >> Inspection End.
NO >> GO TO 2.

2.CHECK SELF-DIAGNOSTIC RESULT

1. Select "Self Diagnostic Result" mode of "BCM" using CONSULT.
2. Erase DTC.
3. Perform DTC CONFIRMATION PROCEDURE for DTC B2192. Refer to [SEC-163, "DTC Logic"](#).

Is DTC detected?

- YES >> GO TO 3.
NO >> Inspection End.

3.REPLACE BCM

1. Replace BCM. Refer to [BCS-135, "Removal and Installation"](#).
2. Perform initialization of BCM and reregistration of all keys using CONSULT. Refer to the CONSULT Immobilizer mode and follow the on-screen instructions.

Can the system be initialized and can the engine be started with registered key?

- YES >> Inspection End.
NO >> GO TO 4.

4.REPLACE ECM

1. Replace ECM. Refer to [EC-499, "Removal and Installation"](#).
2. Perform "ADDITIONAL SERVICE WHEN REPLACING ECM". Refer to [EC-136, "Work Procedure"](#).

>> Inspection End.

B2193 CHAIN OF ECM-IMMU

DTC Logic

INFOID:0000000010339877

DTC DETECTION LOGIC

NOTE:

- If DTC B2193 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [BCS-124, "DTC Logic"](#).
- If DTC B2193 is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [BCS-125, "DTC Logic"](#).

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B2193	CHAIN OF BCM-ECM	Inactive communication between BCM and ECM	• Harness or connectors (The CAN communication line is open or shorted.) • ECM • BCM

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Check DTC in "Self-Diagnostic Result" mode of "BCM" using CONSULT.

Is DTC detected?

- YES >> GO TO [SEC-164, "Diagnosis Procedure"](#).
 NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010339878

NOTE:

- If DTC B2193 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [BCS-124, "DTC Logic"](#).
- If DTC B2193 is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [BCS-125, "DTC Logic"](#).

1.CHECK BCM POWER SUPPLY AND GROUND CIRCUIT.

Check BCM power supply and ground circuit. Refer to [BCS-128, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> GO TO 2.
 NO >> Repair or replace the harness.

2.CHECK ECM POWER SUPPLY AND GROUND CIRCUIT.

Check ECM power supply and ground circuit. Refer to [EC-165, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> Replace ECM. Refer to [EC-499, "Removal and Installation"](#). GO TO 3.
 NO >> Repair or replace the harness.

3.PERFORM DTC CONFIRMATION PROCEDURE.

Perform the DTC confirmation procedure. Refer to [SEC-164, "DTC Logic"](#).

Does the DTC return?

- YES >> Replace BCM. Refer to [BCS-135, "Removal and Installation"](#)
 NO >> Inspection End.

B2196 DONGLE UNIT

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

B2196 DONGLE UNIT

Description

INFOID:0000000010339879

BCM performs ID verification between BCM and dongle unit.
When verification result is OK, BCM permits cranking.

DTC Logic

INFOID:0000000010339880

DTC DETECTION LOGIC

NOTE:

- If DTC B2196 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [BCS-124, "DTC Logic"](#).
- If DTC B2196 is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [BCS-125, "DTC Logic"](#).

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B2196	DONGLE NG	The ID verification results between BCM and dongle unit is NG.	• Harness or connectors (Dongle unit circuit is open or shorted.) • Dongle unit

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Turn ignition switch OFF.
3. Turn ignition switch ON.
4. Check "Self-diagnostic result" of "BCM" using CONSULT.

Is the DTC detected?

- YES >> Refer to [SEC-165, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010339881

Regarding Wiring Diagram information, refer to [SEC-127, "Wiring Diagram"](#).

1.PERFORM INITIALIZATION

1. Perform initialization of BCM and reregistration of all keys using CONSULT. Refer to the CONSULT Immobilizer mode and follow the on-screen instructions.
2. Start the engine.

Dose the engine start?

- YES >> Inspection End.
NO >> GO TO 2.

2.CHECK DONGLE UNIT CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector and dongle unit connector.
3. Check continuity between BCM harness connector and dongle unit harness connector.

BCM		Dongle unit		Continuity
Connector	Terminal	Connector	Terminal	
M18	16	M5	1	Yes

4. Check continuity between BCM harness connector and ground.

B2196 DONGLE UNIT

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

BCM		Ground	Continuity
Connector	Terminal		
M18	16		No

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness.

3.CHECK DONGLE UNIT GROUND CIRCUIT

Check continuity between dongle unit harness connector and ground.

Dongle unit		Ground	Continuity
Connector	Terminal		
M5	4		Yes

Is the inspection result normal?

YES >> Replace dongle unit.

NO >> Repair or replace harness.

B2198 NATS ANTENNA AMP.

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

B2198 NATS ANTENNA AMP.

DTC Logic

INFOID:0000000010339921

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B2198	NATS ANTENNA AMP	Inactive communication between NATS antenna amp. and BCM is detected when BCM enters in the low power consumption mode (BCM sleep condition)	• Harness or connectors (NATS antenna amp. circuit is open or shorted.) • NATS antenna amp. • BCM

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Make the conditions that BCM enters in the low power consumption mode (BCM sleep condition). Refer to [BCS-84, "POWER CONSUMPTION CONTROL SYSTEM : System Description"](#).
2. Turn ignition switch ON.
3. Check DTC in "Self Diagnostic Result" mode of "BCM" using CONSULT.

Is DTC detected?

- YES >> Go to [SEC-167, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010339922

Regarding Wiring Diagram information, refer to [SEC-127, "Wiring Diagram"](#).

1.CHECK FUSE

1. Turn power switch OFF.
2. Check that the following fuse in fuse block (J/B) is not blown.

Signal name	Fuse No.
Battery power supply	9 (5 A)

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Replace the blown fuse after repairing the affected circuit.

2.CHECK NATS ANTENNA AMP. POWER SUPPLY

1. Disconnect NATS antenna amp. connector.
2. Check voltage between NATS antenna amp. harness connector and ground.

(+)		(-)	Voltage (V) (Approx.)
NATS antenna amp.			
Connector	Terminal		
M4	3	Ground	Battery voltage

Is the inspection result normal?

- YES >> GO TO 4.
NO >> GO TO 3.

3.CHECK NATS ANTENNA AMP. POWER SUPPLY CIRCUIT

1. Disconnect fuse block (J/B) connector.
2. Check continuity between fuse block (J/B) harness connector and NATS antenna amp. connector.

B2198 NATS ANTENNA AMP.

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

Fuse block (J/B)		NATS antenna amp.		Continuity
Connector	Terminal	Connector	Terminal	
M44	12 R	M4	3	Yes

Is the inspection result normal?

YES >> Replace fuse block (J/B).

NO >> Repair or replace harness.

4.CHECK NATS ANTENNA AMP. GROUND CIRCUIT

Check continuity between NATS antenna amp. harness connector and ground.

NATS antenna amp.		Ground	Continuity
Connector	Terminal		
M4	2		Yes

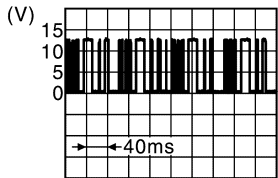
Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace harness.

5.CHECK NATS ANTENNA AMP. COMMUNICATION SIGNAL 1

Check voltage signal between NATS antenna amp. harness connector and ground using an oscilloscope.

(+) NATS antenna amp.		(-)	Condition		Voltage (V) (Approx.)
Connector	Terminal				
M4	1	Ground	Key: Key battery is removed	Brake pedal: Depressed NOTE: Waveform varies each time when brake pedal is depressed	
				Brake pedal: Not depressed	Battery voltage

Is the inspection result normal?

YES >> GO TO 7.

NO >> GO TO 6.

6.CHECK NATS ANTENNA AMP. OUTPUT SIGNAL CIRCUIT 1

1. Disconnect BCM connector.
2. Check continuity between NATS antenna amp. harness connector and BCM connector.

NATS antenna amp.		BCM		Continuity
Connector	Terminal	Connector	Terminal	
M4	1	M19	109	Yes

3. Check continuity between NATS antenna amp. harness connector and ground.

NATS antenna amp.		Ground	Continuity
Connector	Terminal		
M4	1		No

Is the inspection result normal?

YES >> GO TO 9.

NO >> Repair or replace harness.

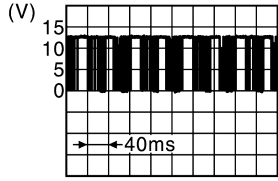
7.CHECK NATS ANTENNA AMP. COMMUNICATION SIGNAL 2

B2198 NATS ANTENNA AMP.

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

Check voltage signal between NATS antenna amp. harness connector and ground using an oscilloscope.

(+) NATS antenna amp.		(-)	Condition		Voltage (V) (Approx.)
Connector	Terminal				
M4	4	Ground	Key: Key battery is removed	Brake pedal: Depressed NOTE: Waveform varies each time when brake pedal is depressed	
				Brake pedal: Not depressed	Battery voltage

Is the inspection result normal?

YES >> Replace NATS antenna amp. Refer to [SEC-192, "Removal and Installation"](#).

NO >> GO TO 8.

8. CHECK NATS ANTENNA AMP. OUTPUT SIGNAL CIRCUIT 2

1. Disconnect BCM connector.
2. Check continuity between NATS antenna amp. harness connector and BCM connector.

NATS antenna amp.		BCM		Continuity
Connector	Terminal	Connector	Terminal	
M4	4	M19	113	Yes

3. Check continuity between NATS antenna amp. harness connector and ground.

NATS antenna amp.		Ground	Continuity
Connector	Terminal		
M4	4		No

Is the inspection result normal?

YES >> GO TO 9.

NO >> Repair or replace harness.

9. REPLACE BCM

1. Replace BCM. Refer to [BCS-135, "Removal and Installation"](#).
2. Perform initialization of BCM and registration of all keys using CONSULT.

>> Inspection End

B2557 VEHICLE SPEED

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

B2557 VEHICLE SPEED

DTC Logic

INFOID:0000000010339887

DTC DETECTION LOGIC

NOTE:

- If DTC B2557 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [BCS-124, "DTC Logic"](#).
- If DTC B2557 is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [BCS-125, "DTC Logic"](#).

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible causes
B2557	VEHICLE SPEED	BCM detects one of the following conditions for 10 seconds continuously. • Vehicle speed signal from combination meter is 10 km/h (6.2 MPH) or more, and vehicle speed signal from ABS actuator and electric unit (control unit) is 4 km/h (2.5 MPH) or less. • Vehicle speed signal from combination meter is 4 km/h (2.5 MPH) or less, and vehicle speed signal from ABS actuator and electric unit (control unit) is 10 km/h (6.2 MPH) or more.	• Harness or connectors (The CAN communication line is open or shorted.) • Combination meter • ABS actuator and electric unit (control unit)

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine and wait 10 seconds or more.
2. Drive the vehicle at a vehicle speed of 10 km/h (6.2 MPH) or more for 10 seconds or more.
3. Check DTC in "Self-Diagnostic Result" mode of "BCM" using CONSULT.

Is DTC detected?

- YES >> GO TO [SEC-170, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010339888

1.CHECK DTC OF "ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)"

Check DTC in "Self-Diagnostic Result" mode of "ABS" using CONSULT.

Is DTC detected?

- YES >> Perform the trouble diagnosis related to the detected DTC. Refer to [BRC-55, "DTC Index"](#).
NO >> GO TO 2.

2.CHECK DTC OF "COMBINATION METER"

Check DTC in "Self-Diagnostic Result" mode of "METER/M&A" using CONSULT.

Is DTC detected?

- YES >> Perform the trouble diagnosis related to the detected DTC. Refer to [MWI-30, "DTC Index"](#).
NO >> GO TO 3.

3.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#) .

>> Inspection End.

B2602 SHIFT POSITION

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

B2602 SHIFT POSITION

DTC Logic

INFOID:0000000010339889

DTC DETECTION LOGIC

NOTE:

- If DTC B2602 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [BCS-124, "DTC Logic"](#).
- If DTC B2602 is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [BCS-125, "DTC Logic"](#).

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B2602	SHIFT POSITION	BCM detects the following status for 10 seconds. • Selector lever is in the P (Park) position • Vehicle speed is 4 km/h (2.5 MPH) or more • Ignition switch is in the ON position	• Harness or connectors (CAN communication line is open or shorted.) • Harness or connectors [CVT shift selector (park position switch) circuit is open or shorted.] • CVT shift selector (park position switch) • Combination meter • BCM

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Drive vehicle at a speed of 4 km/h (2.5 MPH) or more for 10 seconds or more.
3. Check DTC in "Self-Diagnostic Result" mode of "BCM" using CONSULT.

Is DTC detected?

- YES >> Go to [SEC-171, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010339890

Regarding Wiring Diagram information, refer to [SEC-127, "Wiring Diagram"](#).

1.CHECK CVT SHIFT SELECTOR SWITCH FUNCTION

1. Turn ignition switch ON.
2. Select "DETE/CANCEL SW" and "VEH SPEED 1" in "Data Monitor" mode with CONSULT.
3. Check "DETE/CANCEL SW" and "VEH SPEED 1" indication under the following conditions.

Monitor item	Condition		Indication
DETE/CANCEL SW	CVT Shift selector	In any position other than P (Park)	OFF
		P (Park)	ON
VEH SPEED 1	Vehicle not moving		0
	Vehicle moving		Varies

Is the inspection result normal?

- YES >> Refer to [GI-41, "Intermittent Incident"](#).
NO-1 >> If DETE/CANCEL SW is incorrect. GO TO 4.
NO-2 >> If VEH SPEED 1 is incorrect. GO TO 2.

2.CHECK DTC OF COMBINATION METER

Check DTC in "Self-Diagnostic Result" mode of "METER/M&A" using CONSULT.

B2602 SHIFT POSITION

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

Is DTC detected?

- YES >> Perform the trouble diagnosis related to the detected DTC. Refer to [MWI-30, "DTC Index"](#).
NO >> GO TO 3.

3.CHECK DTC OF ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

Check DTC in "Self-Diagnostic Result" mode of "ABS" using CONSULT.

Is DTC detected?

- YES >> Perform the trouble diagnosis related to the detected DTC. Refer to [BRC-55, "DTC Index"](#).
NO >> GO TO 6.

4.CHECK CVT SHIFT SELECTOR CIRCUIT

1. Disconnect BCM connector and CVT shift selector connector.
2. Check continuity between CVT shift selector (park position switch) harness connector and BCM harness connector.

CVT shift selector (park position switch)		BCM		Continuity
Connector	Terminal	Connector	Terminal	
M107	13	M19	94	Yes

3. Check continuity between CVT shift selector (park position switch) harness connector and ground.

CVT shift selector (park position switch)		Ground	Continuity
Connector	Terminal		
M107	13		No

Is the inspection result normal?

- YES >> GO TO 5.
NO >> Repair or replace harness.

5.CHECK CVT SHIFT SELECTOR CIRCUIT

1. Disconnect BCM connector and CVT shift selector connector.
2. Check continuity between CVT shift selector (park position switch) harness connector and BCM harness connector.

CVT shift selector (park position switch)		BCM		Continuity
Connector	Terminal	Connector	Terminal	
M107	12	M18	17	Yes

3. Check continuity between CVT shift selector (park position switch) harness connector and ground.

CVT shift selector (park position switch)		Ground	Continuity
Connector	Terminal		
M107	12		No

Is the inspection result normal?

- YES >> GO TO 6.
NO >> Repair or replace harness.

6.CHECK CVT SHIFT SELECTOR (PARK POSITION SWITCH)

Refer to [SEC-173, "Component Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 7.
NO >> Replace CVT shift selector. Refer to [TM-194, "Removal and Installation"](#).

7.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> Inspection End.

B2602 SHIFT POSITION

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

Component Inspection

INFOID:0000000010339891

1. CHECK CVT SHIFT SELECTOR (PARK POSITION SWITCH)

1. Turn ignition switch OFF.
2. Disconnect CVT shift selector connector.
3. Check continuity between CVT shift selector (park position switch) terminals.

CVT shift selector (park position switch)		Condition		Continuity
Terminal				
12	13	Selector lever	P (Park) position	No
			Other than above	Yes

Is the inspection result normal?

- YES >> Inspection End.
NO >> Replace CVT shift selector. Refer to [TM-194, "Removal and Installation"](#).

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

SEC

B260F ENGINE STATUS

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

B260F ENGINE STATUS

Description

INFOID:0000000010339892

BCM receives the engine status signal from ECM via CAN communication.

DTC Description

INFOID:0000000010339893

DTC DETECTION LOGIC

DTC No.	CONSULT screen items (Trouble diagnosis content)	DTC detecting condition
B260F	ENG STATE SIG LOST (Engine state signal lost)	BCM has not yet received the engine status signal from ECM when ignition switch is in the ON position.

POSSIBLE CAUSE

- Harness or connectors
(The CAN communication line is open or shorted.)
- ECM

FAIL-SAFE

Inhibit engine cranking

DTC CONFIRMATION PROCEDURE

1.CHECK DTC PRIORITY

If DTC B260F is displayed with DTC U1000 or U1010, first perform the trouble diagnosis for DTC U1000 or U1010.

Is applicable DTC detected?

- YES >> Perform diagnosis of applicable. U1000: Refer to [BCS-124, "DTC Logic"](#). U1010: Refer to [BCS-125, "DTC Logic"](#).
- NO >> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON and wait 2 seconds or more.
2. Check DTC in "Self Diagnostic Result" mode of "BCM" using CONSULT.

Is DTC detected?

- YES >> Refer to [SEC-174, "Diagnosis Procedure"](#).
- NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).
- NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000010339894

1.CHECK DTC PRIORITY

If DTC B260F is displayed with DTC U1000 or U1010, first perform the trouble diagnosis for DTC U1000 or U1010.

Is applicable DTC detected?

- YES >> Perform diagnosis of applicable. U1000: Refer to [BCS-124, "DTC Logic"](#). U1010: Refer to [BCS-125, "DTC Logic"](#).
- NO >> GO TO 2.

2.INSPECTION START

1. Turn ignition switch ON.
2. Select "Self Diagnostic Result" mode of "BCM" using CONSULT.
3. Touch "ERASE".
4. Perform DTC CONFIRMATION PROCEDURE for DTC B260F. Refer to [SEC-174, "DTC Description"](#).

Is DTC detected?

- YES >> GO TO 3.
- NO >> Inspection End.

B260F ENGINE STATUS

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

3.REPLACE ECM

Replace ECM. Refer [EC-499. "Removal and Installation"](#).

>> Inspection End.

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

SEC

B261E VEHICLE TYPE

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

B261E VEHICLE TYPE

Description

INFOID:0000000010339895

There are two types of vehicles.

- HEV
- Conventional

DTC Logic

INFOID:0000000010339896

DTC DETECTION LOGIC

NOTE:

- If DTC B261E is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [BCS-124, "DTC Logic"](#).
- If DTC B261E is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [BCS-125, "DTC Logic"](#).

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B261E	VEHICLE TYPE	Difference of BCM configuration.	• BCM mis-configuration • Wrong ECM installed

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON under the following conditions.
 - Shift selector lever is in the P (Park) or N (Neutral) position
 - Do not depress brake pedal
2. Check "Self-Diagnostic Result" of "BCM" using CONSULT.

Is DTC detected?

- YES >> GO TO [SEC-176, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010339897

1.INSPECTION START

1. Turn ignition switch ON.
2. Check "Self-diagnostic result" of "BCM" using CONSULT.
3. Touch "ERASE".
4. Perform DTC Confirmation Procedure. Refer to [SEC-176, "DTC Logic"](#).

Is the 1st trip DTC B261E displayed again?

- YES >> GO TO 2.
NO >> Inspection End.

2.PERFORM BCM CONFIGURATION.

Perform the BCM configuration. Refer to [BCS-121, "CONFIGURATION \(BCM\) : Work Procedure"](#).

>> GO TO 3.

3.INSPECTION START

1. Turn ignition switch ON.
2. Check "Self-diagnostic result" of "BCM" using CONSULT.
3. Touch "ERASE".
4. Perform DTC Confirmation Procedure.
Refer to [SEC-176, "DTC Logic"](#).

Is the 1st trip DTC B261E displayed again?

- YES >> GO TO 4.
NO >> Inspection End.

B261E VEHICLE TYPE

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

4.CONFIRM ECM PART NUMBER.

Confirm the part number of the installed ECM is correct.

Is the ECM part number correct?

- YES >> Replace BCM. Refer to [BCS-135. "Removal and Installation"](#).
- NO >> Replace ECM. Refer to [EC-499. "Removal and Installation"](#).

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

SEC

B27D1 START CUT RELAY OFF

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

B27D1 START CUT RELAY OFF

DTC Logic

INFOID:0000000010339900

DTC DETECTION LOGIC

NOTE:

- If DTC B27D1 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [BCS-124, "DTC Logic"](#).
- If DTC B27D1 is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [BCS-125, "DTC Logic"](#).

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B27D1	STARTER CUT RELAY OFF	When comparing the starter cut relay signal (CAN) from IPDM E/R, BCM detects that starter cut relay is stuck in the OFF position for 1 second or more.	• Harness or connectors (The CAN communication line is open or shorted.) • Harness or connector (Starter cut relay circuit is open or shorted.) • IPDM E/R • BCM • Starter cut relay

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch under the following conditions to start engine, and wait 1 second or more.
 - Selector lever: In the P position
2. Check DTC in "Self Diagnostic Result" mode of "BCM" using CONSULT.

Is DTC detected?

YES >> Go to [SEC-178, "Diagnosis Procedure"](#).

NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010339901

Regarding Wiring Diagram information, refer to [SEC-127, "Wiring Diagram"](#).

1.CHECK STARTER CUT RELAY POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect starter cut relay.
3. Check voltage between starter cut relay harness connector and ground.

(+)		(-)	Voltage (V) (Approx.)
Starter cut relay			
Connector	Terminal		
F55	1	Ground	Battery voltage
	3		

Is the inspection result normal?

YES >> GO TO 2.

NO-1 >> Check 30 A fusible link [M, located in the fuse block (J/B)].

NO-2 >> Check harness for open or short between starter cut relay and fusible link.

2.CHECK STARTER CUT RELAY CONTROL

1. Reconnect starter cut relay.
2. Check voltage between BCM harness connector and ground.

B27D1 START CUT RELAY OFF

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

(+)		(-)	Condition		Voltage (V) (Approx.)
BCM					
Connector	Terminal				
E29	139	Ground	CVT shift selector lever	N or P position	Battery voltage
				Other than above	0

Is the inspection result normal?

YES >> GO TO 4.

NO >> GO TO 3.

3.CHECK STARTER CUT RELAY CONTROL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector.
3. Disconnect starter cut relay.
4. Check continuity between BCM harness connector and starter cut relay harness connector.

BCM		Starter cut relay		Continuity
Connector	Terminal	Connector	Terminal	
E29	139	F55	2	Yes

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness.

4.CHECK STARTER CUT RELAY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector.
3. Check continuity between IPDM E/R harness connector and starter cut relay harness connector.

IPDM E/R		Starter cut relay		Continuity
Connector	Terminal	Connector	Terminal	
F41	86	F55	5	Yes

4. Check continuity between BCM harness connector and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		
F41	86		No

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace harness.

5.CHECK STARTER CUT RELAY

Refer to [SEC-180. "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 6.

NO >> Replace starter cut relay.

6.REPLACE BCM

1. Replace BCM. Refer to [BCS-135. "Removal and Installation"](#).
2. Perform initialization of BCM and registration of all keys using CONSULT.
3. Perform DTC CONFIRMATION PROCEDURE for DTC B27D1. Refer to [SEC-178. "DTC Logic"](#).

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace IPDM E/R. Refer to [PCS-35. "Removal and Installation"](#).

B27D1 START CUT RELAY OFF

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

Component Inspection

INFOID:0000000010339902

1.CHECK STARTER CUT RELAY

1. Turn ignition switch OFF.
2. Disconnect starter cut relay.
3. Check continuity between starter cut relay terminals.

Starter cut relay		Condition	Continuity
Terminal			
3	5	12 V direct current supply between terminals 1 and 2	Yes
		No current supply	No

Is the inspection result normal?

- YES >> Inspection End.
NO >> Replace starter cut relay.

B27D2 START CUT RELAY ON

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

B27D2 START CUT RELAY ON

DTC Logic

INFOID:0000000010339903

DTC DETECTION LOGIC

NOTE:

- If DTC B27D2 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [BCS-124, "DTC Logic"](#).
- If DTC B27D2 is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [BCS-125, "DTC Logic"](#).

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B27D2	STARTER CUT RELAY ON	When comparing the starter cut relay signal (CAN) from IPDM E/R, BCM detects that starter cut relay is stuck in the ON position for 1 second or more.	• Harness or connectors (The CAN communication line is open or shorted.) • Harness or connector (Starter cut relay circuit is open or shorted.) • IPDM E/R • BCM • Starter cut relay

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch under the following conditions to start engine, and wait 1 second or more.
 - Selector lever: In the P position
2. Check DTC in "Self Diagnostic Result" mode of "BCM" using CONSULT.

Is DTC detected?

- YES >> Go to [SEC-181, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010339904

Regarding Wiring Diagram information, refer to [SEC-127, "Wiring Diagram"](#).

1.CHECK STARTER CUT RELAY POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect starter cut relay.
3. Check voltage between starter cut relay harness connector and ground.

(+)		(-)	Voltage (V) (Approx.)
Starter cut relay			
Connector	Terminal		
F55	1	Ground	Battery voltage
	3		

Is the inspection result normal?

- YES >> GO TO 2.
NO-1 >> Check 30 A fusible link [M, located in the fuse block (J/B)].
NO-2 >> Check harness for open or short between starter cut relay and fusible link.

2.CHECK STARTER CUT RELAY CONTROL

1. Reconnect starter cut relay.
2. Check voltage between BCM harness connector and ground.

B27D2 START CUT RELAY ON

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

(+)		(-)	Condition		Voltage (V) (Approx.)
BCM					
Connector	Terminal				
E29	139	Ground	CVT shift selector lever	N or P position	Battery voltage
				Other than above	0

Is the inspection result normal?

YES >> GO TO 4.

NO >> GO TO 3.

3.CHECK STARTER CUT RELAY CONTROL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector.
3. Disconnect starter cut relay.
4. Check continuity between BCM harness connector and starter cut relay harness connector.

BCM		Starter cut relay		Continuity
Connector	Terminal	Connector	Terminal	
E29	139	F55	2	Yes

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness.

4.CHECK STARTER CUT RELAY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector.
3. Check continuity between IPDM E/R harness connector and starter cut relay harness connector.

IPDM E/R		Starter cut relay		Continuity
Connector	Terminal	Connector	Terminal	
F41	86	F55	5	Yes

4. Check continuity between BCM harness connector and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		
F41	86		No

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace harness.

5.CHECK STARTER CUT RELAY

Refer to [SEC-183. "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 6.

NO >> Replace starter cut relay.

6.REPLACE BCM

1. Replace BCM. Refer to [BCS-135. "Removal and Installation"](#).
2. Perform initialization of BCM and registration of all keys using CONSULT.
3. Perform DTC CONFIRMATION PROCEDURE for DTC B27D2. Refer to [SEC-181. "DTC Logic"](#).

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace IPDM E/R. Refer to [PCS-35. "Removal and Installation"](#).

B27D2 START CUT RELAY ON

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

Component Inspection

INFOID:0000000010339905

1.CHECK STARTER CUT RELAY

1. Turn ignition switch OFF.
2. Disconnect starter cut relay.
3. Check continuity between starter cut relay terminals.

Starter cut relay		Condition	Continuity
Terminal			
3	5	12 V direct current supply between terminals 1 and 2	Yes
		No current supply	No

Is the inspection result normal?

- YES >> Inspection End.
NO >> Replace starter cut relay.

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

SEC

HEADLAMP FUNCTION

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

HEADLAMP FUNCTION

Component Function Check

INFOID:0000000010339906

1.CHECK FUNCTION

1. Perform "HEAD LAMP(HI)" in "Active Test" mode of "THEFT ALM" of "BCM" using CONSULT.
2. Check headlamps operation.

Test item		Description	
HEAD LAMP (HI)	ON	Headlamps (Hi)	Light
	OFF		Does not light

Is the inspection result normal?

YES >> Inspection End.

NO >> Refer to [SEC-184, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010339907

1.CHECK HEADLAMP FUNCTION

Refer to [SEC-184, "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning parts.

2.CHECK INTERMITTENT INCIDENT

Refer to [GI-41, "Intermittent Incident"](#).

>> Inspection End.

HOOD SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

HOOD SWITCH

Component Function Check

INFOID:000000010339908

1.CHECK FUNCTION

1. Select "HOOD SW" in "Data Monitor" mode of "IPDM E/R" using CONSULT.
2. Check "HOOD SW" indication under the following condition.

Monitor item	Condition		Indication
HOOD SW	Hood	Open	ON
		Close	OFF

Is the indication normal?

YES >> Hood switch is OK.

NO >> Go to [SEC-185, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000010339909

Regarding Wiring Diagram information, refer to [SEC-137, "Wiring Diagram"](#).

1.CHECK HOOD SWITCH SIGNAL CIRCUITS

1. Turn ignition switch OFF.
2. Disconnect hood switch connector.
3. Check voltage between hood switch harness connector and ground.

(+)		(-)	Voltage (V)
Hood switch			
Connector	Terminal		
E223	2	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 2.

2.CHECK HOOD SWITCH SIGNAL CIRCUITS

1. Disconnect IPDM E/R connector.
2. Check continuity between IPDM E/R harness connector and hood switch harness connector.

IPDM E/R		Hood switch		Continuity
Connector	Terminal	Connector	Terminal	
E217	52	E223	2	Yes

3. Check continuity between IPDM E/R harness connector and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		
E217	52		No

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to [PCS-35, "Removal and Installation"](#).

NO >> Repair or replace harness.

3.CHECK HOOD SWITCH GROUND CIRCUIT

Check continuity between hood switch harness connector and ground.

HOOD SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

Hood switch		Ground	Continuity
Connector	Terminal		
E223	1		Yes

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness.

4.CHECK HOOD SWITCH

Refer to [SEC-186. "Component Inspection"](#) .

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace hood switch. Refer to [DLK-370. "HOOD LOCK : Removal and Installation"](#).

5.CHECK INTERMITTENT INCIDENT

Refer to [GI-41. "Intermittent Incident"](#).

>> Inspection End.

Component Inspection

INFOID:0000000010339910

1.CHECK HOOD SWITCH

1. Turn ignition switch OFF.
2. Disconnect hood switch connector.
3. Check continuity between hood switch terminals.

Hood switch		Condition		Continuity
Terminal				
2	1	Hood switch	Press	No
			Release	Yes

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace hood switch. Refer to [DLK-370. "HOOD LOCK : Removal and Installation"](#).

HORN FUNCTION

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

HORN FUNCTION

Component Function Check

INFOID:0000000010339911

1.CHECK FUNCTION 1

1. Perform "VEHICLE SECURITY HORN" in "Active Test" mode of "THEFT ALM" of "BCM" using CONSULT.
2. Check the horn operation.

Test item		Description	
VEHICLE SECURITY HORN	ON	Horn	Sounds (for 0.5 sec)

Is the operation normal?

- YES >> Inspection End.
NO >> Go to [SEC-137. "Wiring Diagram"](#).

Component Inspection

INFOID:0000000010339912

1.CHECK ANTI-THEFT HORN RELAY

1. Turn ignition switch OFF.
2. Disconnect anti-theft horn relay.
3. Check voltage between anti-theft horn relay terminal and ground under the following conditions.

(+)	(-)	Condition	Voltage (V) (Approx.)
Anti-theft horn relay Terminal			
2	Ground	12 V direct current supply between terminals 1 and 3	12
		No current supply	0

Is the inspection result normal?

- YES >> Inspection End.
NO >> Replace anti-theft horn relay.

SEC

SECURITY INDICATOR LAMP

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

SECURITY INDICATOR LAMP

Component Function Check

INFOID:0000000010339913

1.CHECK FUNCTION

1. Perform "THEFT IND" in "Active Test" mode of "IMMU" of "BCM" using CONSULT.
2. Check security indicator lamp operation.

Test item		Description	
THEFT IND	ON	Security indicator lamp	Illuminates
	OFF		Does not illuminate

Is the inspection result normal?

- YES >> Inspection End.
NO >> Go to [SEC-188, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010339914

Regarding Wiring Diagram information, refer to [SEC-137, "Wiring Diagram"](#).

1.CHECK SECURITY INDICATOR LAMP POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect combination meter connector.
3. Check voltage between combination meter harness connector and ground.

(+) Combination meter		(-)	Voltage (V)
Connector	Terminal		
M77	45	Ground	Battery voltage

Is the inspection result normal?

- YES >> GO TO 2.
NO-1 >> Check 10 A fuse [No. 13, located in the fuse block (J/B)].
NO-2 >> Check harness for open or short between combination meter and fuse.

2.CHECK SECURITY INDICATOR LAMP SIGNAL

1. Connect combination meter connector.
2. Disconnect BCM connector.
3. Check voltage between BCM harness connector and ground.

(+) BCM		(-)	Voltage (V)
Connector	Terminal		
M18	35	Ground	Battery voltage

Is the inspection result normal?

- YES >> GO TO 3.
NO >> GO TO 4.

3.REPLACE BCM

1. Replace BCM. Refer to [BCS-135, "Removal and Installation"](#).
2. Perform initialization of BCM and registration of all Intelligent Keys using CONSULT. Refer to the CONSULT Immobilizer mode and follow the on-screen instructions.

>> Inspection End.

SECURITY INDICATOR LAMP

< DTC/CIRCUIT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

4.CHECK SECURITY INDICATOR LAMP CIRCUIT

1. Disconnect combination meter connector.
2. Check continuity between combination meter harness connector and BCM harness connector.

Combination meter		BCM		Continuity
Connector	Terminal	Connector	Terminal	
M76	7	M18	35	Yes

3. Check continuity between combination meter harness connector and ground.

Combination meter		Ground	Continuity
Connector	Terminal		
M76	7		No

Is the inspection result normal?

- YES >> Replace combination meter. Refer to [MWI-82. "Removal and Installation"](#).
NO >> Repair or replace harness.

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

SEC

NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS SYMPTOMS

< SYMPTOM DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

SYMPTOM DIAGNOSIS

NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS SYMPTOMS

Symptom Table

INFOID:0000000010284533

NOTE:

- Before performing the diagnosis in the following table, check "[SEC-150. "Work Flow"](#)".
- Check that vehicle is under the condition shown in "Conditions of vehicle" before starting diagnosis, and check each symptom.
- If the following symptoms are detected, check systems shown in the "Diagnosis/service procedure" column in this order.

CONDITIONS OF VEHICLE (OPERATING CONDITIONS)

- Mechanical key is not inserted into key cylinder.
- Ignition knob switch is not depressed.

Symptom	Diagnosis/service procedure	Reference page
Security indicator does not turn ON or flash.	1. Check vehicle security indicator	SEC-188
	2. Check Intermittent Incident	GI-41

VEHICLE SECURITY SYSTEM

< SYMPTOM DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

VEHICLE SECURITY SYSTEM

Symptom Table

INFOID:000000010284534

Procedure			Diagnostic procedure	Refer to page
Symptom				
1	Vehicle security system cannot be set by	Door switch	Check door switch (front door LH, front door RH, rear door LH, rear door RH)	DLK-319
		—	Check Intermittent Incident	GI-41
	Security indicator does not turn ON.		Check vehicle security indicator	SEC-188
			Check Intermittent Incident	GI-41
2	* Vehicle security system does not sound alarm when	Any door is opened.	Check door switch (front door LH, front door RH, rear door LH, rear door RH)	DLK-319
		—	Check Intermittent Incident	GI-41
3	Vehicle security alarm does not activate.	Horn alarm	Check horn switch	DLK-335
			Check Intermittent Incident	GI-41
		Headlamp flash	Check headlamp switch	DLK-337
			Check Intermittent Incident	GI-41

*: Check the system is in the armed phase.

A
B
C
D
E
F
G
H
I
J
L
M
N
O
P

SEC

REMOVAL AND INSTALLATION

NATS ANTENNA AMP.

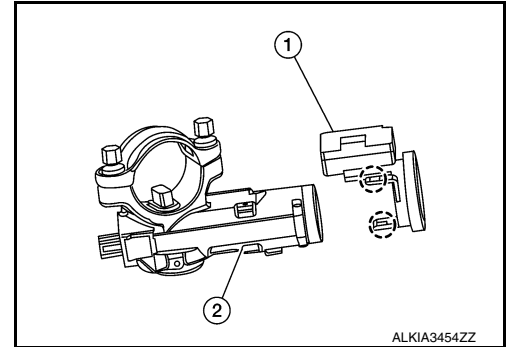
Removal and Installation

INFOID:0000000010284535

REMOVAL

1. Remove the steering column covers. Refer to [JP-17, "Removal and Installation"](#).
2. Disconnect the harness connector from the NATS antenna amp.
3. Release pawls and remove NATS antenna amp. (1) from the ignition switch (2).

(○): Pawl



INSTALLATION

Installation is in the reverse order of removal.

NOTE:

- If NATS antenna amp. is not installed correctly, NVIS (NATS) system will not operate properly and "SELF-DIAG RESULTS" on CONSULT screen will show "LOCK MODE" or "CHAIN OF IMMU-KEY".
- Initialization is not necessary when only the NATS antenna amp. is replaced with a new one.

SECTION **SR** SRS AIRBAG

CONTENTS

PRECAUTION	2	SPIRAL CABLE	15
PRECAUTIONS	2	Exploded View	15
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	2	Removal and Installation	15
Service	2	FRONT PASSENGER AIR BAG MODULE	17
Precaution for Work	2	Exploded View	17
PREPARATION	4	Removal and Installation	17
PREPARATION	4	SIDE CURTAIN AIR BAG MODULE	19
Special Service Tools	4	Exploded View	19
BASIC INSPECTION	5	Removal and Installation	19
COLLISION DIAGNOSIS	5	FRONT SIDE AIR BAG MODULE	21
FOR FRONTAL COLLISION	5	Removal and Installation	21
FOR FRONTAL COLLISION : When SRS is activated in a collision	5	CRASH ZONE SENSOR	22
FOR FRONTAL COLLISION : When SRS is not activated in a collision	6	Exploded View	22
FOR SIDE AND ROLLOVER COLLISION	7	Removal and Installation	22
FOR SIDE AND ROLLOVER COLLISION : When SRS is activated in a collision	7	SIDE AIR BAG (SATELLITE) SENSOR	23
FOR SIDE AND ROLLOVER COLLISION : When SRS is not activated in a collision	8	Exploded View	23
REMOVAL AND INSTALLATION	12	Removal and Installation	24
DRIVER AIR BAG MODULE	12	AIR BAG DIAGNOSIS SENSOR UNIT	26
Exploded View	12	Exploded View	26
Removal and Installation	12	Removal and Installation	26
		FRONT SEAT BELT PRE-TENSIONER	28
		Removal and Installation	28
		FRONT SEAT BELT BUCKLE SWITCH	29
		Removal and Installation	29
		OCCUPANT CLASSIFICATION SYSTEM CONTROL UNIT	30
		Removal and Installation	30

PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010198950

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Service

INFOID:0000000009796142

- Do not use electrical test equipment to check SRS circuits unless instructed to in this Service Manual.
- Before servicing the SRS, turn ignition switch OFF, disconnect battery negative terminal and wait at least three minutes.
For approximately three minutes after the cables are removed, it is still possible for the air bag and seat belt pre-tensioner to deploy. Therefore, do not work on any SRS connectors or wires until at least three minutes have elapsed.
- Diagnosis sensor unit must always be installed with their arrow marks "⇐" pointing towards the front of the vehicle for proper operation. Also check diagnosis sensor unit for cracks, deformities or rust before installation and replace as required.
- The spiral cable must be aligned in the neutral position since its rotations are limited. Do not turn steering wheel and column after removal of steering gear.
- Handle air bag module carefully. Always place driver and front passenger air bag modules with the pad side facing upward and seat mounted front side air bag module standing with the stud bolt side facing down.
- Conduct self-diagnosis to check entire SRS for proper functioning after replacing any components.
- After air bag inflates, the front instrument panel assembly should be replaced if damaged.
- Always replace instrument panel pad following front passenger air bag deployment.

Precaution for Work

INFOID:0000000010198943

- When removing or disassembling each component, be careful not to damage or deform it. If a component may be subject to interference, be sure to protect it with a shop cloth.
- When removing (disengaging) components with a screwdriver or similar tool, be sure to wrap the component with a shop cloth or vinyl tape to protect it.
- Protect the removed parts with a shop cloth and prevent them from being dropped.
- Replace a deformed or damaged clip.
- If a part is specified as a non-reusable part, always replace it with a new one.
- Be sure to tighten bolts and nuts securely to the specified torque.
- After installation is complete, be sure to check that each part works properly.

PRECAUTIONS

< PRECAUTION >

- Follow the steps below to clean components:
- Water soluble dirt:
 - Dip a soft cloth into lukewarm water, wring the water out of the cloth and wipe the dirty area.
 - Then rub with a soft, dry cloth.
- Oily dirt:
 - Dip a soft cloth into lukewarm water with mild detergent (concentration: within 2 to 3%) and wipe the dirty area.
 - Then dip a cloth into fresh water, wring the water out of the cloth and wipe the detergent off.
 - Then rub with a soft, dry cloth.
- Do not use organic solvent such as thinner, benzene, alcohol or gasoline.
- For genuine leather seats, use a genuine leather seat cleaner.

A

B

C

D

E

F

G

SR

I

J

K

L

M

N

O

P

PREPARATION

< PREPARATION >

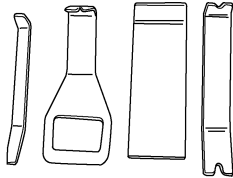
PREPARATION

PREPARATION

Special Service Tools

INFOID:0000000010198954

The actual shape of the tools may differ from those illustrated here.

Tool number (TechMate No.) Tool name	Description
— (J-46534) Trim Tool Set  AWJIA0483ZZ	Removing trim components

COLLISION DIAGNOSIS

< BASIC INSPECTION >

BASIC INSPECTION

COLLISION DIAGNOSIS FOR FRONTAL COLLISION

FOR FRONTAL COLLISION : When SRS is activated in a collision

INFOID:000000009796145

CAUTION:

Due to varying models and option levels, not all parts listed in the chart below apply to all vehicles.

WORK PROCEDURE

1. Before performing any of the following steps, ensure that all vehicle body and structural repairs have been completed.
2. Replace the diagnosis sensor unit.
3. Remove the front air bag modules, crash zone sensor, bracket and seat belt pre-tensioner assemblies.
4. Check the SRS components using the table below:
Replace any SRS components showing visible signs of damage. (dents, cracks and deformation, etc.)
5. Install new front air bag modules, crash zone sensor assembly, bracket and seat belt pre-tensioner assemblies.
6. Perform self-diagnosis using CONSULT or air bag warning lamp. Refer to [SRC-16, "Description"](#) for details. Ensure entire SRS operates properly.
7. After the work is completed, perform self-diagnosis to check that no malfunction is detected. Refer to [SRC-16, "Description"](#).

SRS INSPECTION (FOR FRONTAL COLLISION)

Part	Inspection
Driver air bag module	If the driver air bag has deployed: REPLACE Install with new fasteners.
Front passenger air bag module (if equipped)	If the front passenger air bag has deployed: REPLACE Install with new fasteners.
Crash zone sensor	If any of the front air bags or seat belt pre-tensioners* have been activated: REPLACE the crash zone sensor and bracket with new fasteners. *: Confirm seat belt pre-tensioner activation using CONSULT only.
Seat belt pre-tensioner assemblies (All applicable locations: buckle, retractor, lap outer)	If either the driver or passenger seat belt pre-tensioner* has been activated: REPLACE all seat belt pre-tensioner assemblies with new fasteners. *: Confirm seat belt pre-tensioner activation using CONSULT only.
Diagnosis sensor unit	If any of the SRS components have been activated: REPLACE the diagnosis sensor unit. Install with new fasteners.
Steering wheel	1. Visually check steering wheel for deformities. 2. Check harness (built into steering wheel) and connectors for damage, and terminals for deformities. 3. Install driver air bag module into the steering wheel to check fit and alignment with the wheel. 4. Check steering wheel for excessive free play. 5. If no damage is found, reinstall. 6. If damaged – REPLACE.
Spiral cable	If the driver front air bag has deployed: REPLACE the spiral cable.

COLLISION DIAGNOSIS

< BASIC INSPECTION >

Part	Inspection
Occupant classification system (Passenger seat)	1. Remove passenger seat assembly. 2. Check control unit case for dents, cracks or deformities. 3. Check connectors and pressure sensor tube for damage, and terminals for deformities. 4. Check seat frame and cushion pan for dents or deformities. 5. If no damage is found, reinstall seat with new fasteners. 6. If damaged – REPLACE seat cushion assembly with new fasteners. 7. Perform zero point reset function after front passenger seat is installed in the vehicle and all bolts are tightened to specification. Refer to SRC-42, "ZERO POINT RESET : Description".
Harness and connectors	1. Check connectors for poor connection, damage, and terminals for deformities. 2. Check harness for binding, chafing, cuts, or deformities. 3. If no damage is found, reinstall the harness and connectors. 4. If damaged – REPLACE the damaged harness. Do not attempt to repair, splice or modify any SRS harness.
Instrument panel assembly	If the front passenger air bag has deployed: REPLACE the instrument panel assembly. (integrated type)

FOR FRONTAL COLLISION : When SRS is not activated in a collision

INFOID:000000009796146

CAUTION:

Due to varying models and option levels, not all parts listed in the chart below apply to all vehicles.

WORK PROCEDURE

1. Before performing any of the following steps, ensure that all vehicle body and structural repairs have been completed.
2. Check the SRS components using the table below:
Replace any SRS components showing visible signs of damage. (dents, cracks and deformation, etc.)
3. Perform self-diagnosis using CONSULT or air bag warning lamp. Refer to [SRC-16, "Description"](#) for details. Ensure entire SRS operates properly.
4. After the work is completed, perform self-diagnosis to check that no malfunction is detected. Refer to [SRC-16, "Description"](#).

SRS INSPECTION (FOR FRONTAL COLLISION)

Part	Inspection
Driver air bag module	If the driver air bag has NOT been deployed: 1. Remove driver air bag module. Check harness cover and connectors for damage, terminals for deformities, and harness for binding. 2. Install driver air bag module into the steering wheel to check fit and alignment with the wheel. 3. If no damage is found, reinstall with new fasteners. 4. If damaged – REPLACE. Install driver air bag module with new fasteners.
Front passenger air bag module (if equipped)	If the front passenger air bag has NOT been deployed: 1. Remove front passenger air bag module. Check harness cover and connectors for damage, terminals for deformities, and harness for binding. 2. Install front passenger air bag module into the instrument panel to check fit with the instrument panel. 3. If no damage is found, reinstall with new fasteners. 4. If damaged – REPLACE. Install front passenger air bag modules with new fasteners.
Crash zone sensor	If the front air bags or seat belt pre-tensioners have NOT been activated: 1. Remove the crash zone sensor. Check harness connectors for damage, terminals for deformities, and harness for binding. 2. Check for visible signs of damage (dents, cracks, deformation, etc.) of the crash zone sensor and bracket. 3. Install the crash zone sensor to check fit. 4. If no damage is found, reinstall with new fasteners. 5. If damaged – REPLACE the crash zone sensor and bracket with new fasteners.

COLLISION DIAGNOSIS

< BASIC INSPECTION >

Part	Inspection	
Seat belt pre-tensioner assemblies (All applicable locations: buckle, retractor, lap outer)	If the pre-tensioners have NOT been activated: 1. Remove seat belt pre-tensioners. Check harness cover and connectors for damage, terminals for deformities, and harness for binding. 2. Check belts for damage and anchors for loose mounting. 3. Check retractor for smooth operation. 4. Check seat belt adjuster for damage. 5. Check for deformities of the center pillar inner. 6. If the center pillar inner has no damage, REPLACE the seat belt pre-tensioner assembly. 7. If no damage is found, reinstall seat belt pre-tensioner assembly. 8. If damaged – REPLACE. Install the seat belt pre-tensioners with new fasteners.	A
Diagnosis sensor unit	If none of the SRS components have been activated: 1. Check case for dents, cracks or deformities. 2. Check connectors for damage, and terminals for deformities. 3. If no damage is found, reinstall with new fasteners. 4. If damaged – REPLACE. Install diagnosis sensor unit with new fasteners.	B
Steering wheel	1. Visually check steering wheel for deformities. 2. Check harness (built into steering wheel) and connectors for damage, and terminals for deformities. 3. Install driver air bag module into the steering wheel to check fit and alignment with the wheel. 4. Check steering wheel for excessive free play. 5. If no damage is found, reinstall. 6. If damaged – REPLACE.	C
Spiral cable	If the driver front air bag has not deployed: 1. Visually check spiral cable and combination switch for damage. 2. Check connectors and protective tape for damage. 3. Check steering wheel for noise, binding or heavy operation. 4. If no damage is found, reinstall. 5. If damaged – REPLACE.	D
Occupant classification system (Passenger seat)	1. Remove passenger seat assembly. 2. Check control unit case for dents, cracks or deformities. 3. Check connectors and pressure sensor tube for damage, and terminals for deformities. 4. Check seat frame and cushion pan for dents or deformities. 5. If no damage is found, reinstall seat with new fasteners. 6. If damaged – REPLACE seat cushion assembly with new fasteners. 7. Perform zero point reset function after front passenger seat is installed in the vehicle and all bolts are tightened to specification. Refer to SRC-42. "ZERO POINT RESET : Description".	E
Harness and connectors	1. Check connectors for poor connection, damage, and terminals for deformities. 2. Check harness for binding, chafing, cuts, or deformities. 3. If no damage is found, reinstall the harness and connectors. 4. If damaged – REPLACE the damaged harness. Do not attempt to repair, splice or modify any SRS harness.	F
Instrument panel assembly	If the front passenger air bag has NOT deployed: 1. Visually check instrument panel assembly for damage. 2. If no damage is found, reinstall the instrument panel assembly. 3. If damaged – REPLACE the instrument panel assembly.	G

SR

FOR SIDE AND ROLLOVER COLLISION

FOR SIDE AND ROLLOVER COLLISION : When SRS is activated in a collision

INFOID:000000009796147

CAUTION:

Due to varying models and option levels, not all parts listed in the chart below apply to all vehicles.

WORK PROCEDURE

1. Before performing any of the following steps, ensure that all vehicle body and structural repairs have been completed.
2. Replace the following components:
 - Front seat back assembly (on the side on which side air bag is activated)
 - Door finisher (on the side on which door-mounted curtain air bag is activated)
 - Pop-up roll bar assemblies and pop-up roll bar covers

COLLISION DIAGNOSIS

< BASIC INSPECTION >

- Side air bag (satellite) sensor LH/RH (on the side on which side air bag is activated)
 - Diagnosis sensor unit
 - Seat belt pre-tensioner assemblies
3. Check the SRS components and the related parts using the following table.
Replace any SRS components and the related parts showing visible signs of damage. (dents, cracks, deformation, etc.)
 4. Perform self-diagnosis using CONSULT and “AIR BAG” warning lamp. Refer to [SRC-16. "Description"](#) for details. Make sure entire SRS operates properly.
 5. After the work is completed, perform self-diagnosis to check that no malfunction is detected. Refer to [SRC-16. "Description"](#).

SRS INSPECTION (FOR SIDE AND ROLLOVER COLLISION)

Part	Inspection
Side curtain air bag module LH	If the side curtain air bag LH has deployed: REPLACE the side curtain air bag module LH. Install with new fasteners.
Side curtain air bag module RH	If the side curtain air bag RH has deployed: REPLACE the side curtain air bag module RH. Install with new fasteners.
Front side air bag module LH	If the front side air bag LH has deployed: REPLACE front seatback assembly LH.
Front side air bag module RH	If the front side air bag RH has deployed: REPLACE front seatback assembly RH.
Side air bag (satellite) sensor (LH or RH)	If any of the SRS components have deployed: REPLACE the side air bag (satellite) sensor on the collision side with new fasteners.
Diagnosis sensor unit	If any of the SRS components have deployed: REPLACE the diagnosis sensor unit with new fasteners.
Seat belt pre-tensioner assemblies (All applicable locations: buckle, retractor, lap outer)	If either the driver or passenger seat belt pre-tensioner* has been activated: REPLACE all seat belt pre-tensioner assemblies with new fasteners. *: Confirm seat belt pre-tensioner activation using CONSULT only.
Center inner pillar	1. Check the center inner pillar on the collision side for damage (dents, cracks, deformation, etc.). 2. If damaged – REPAIR the center inner pillar.
Trim/headlining	1. Check for visible signs of damage (dents, cracks, deformation, etc.) of the interior trim on the collision side. 2. If damaged – REPLACE the damaged trim parts.
Door-mounted curtain air bag module LH	If the door-mounted curtain air bag module LH has deployed: REPLACE the door finisher LH and door-mounted curtain air bag module. Install with new fasteners.
Door-mounted curtain air bag module RH	If the door-mounted curtain air bag module RH has deployed: REPLACE the door finisher RH and door-mounted curtain air bag module. Install with new fasteners.
Occupant classification system (Passenger seat)	1. Remove passenger seat assembly. 2. Check control unit case for dents, cracks or deformities. 3. Check connectors and pressure sensor tube for damage, and terminals for deformities. 4. Check seat frame and cushion pan for dents or deformities. 5. If no damage is found, reinstall seat with new fasteners. 6. If damaged – REPLACE seat cushion assembly with new fasteners. 7. Perform zero point reset function after front passenger seat is installed in the vehicle and all bolts are tightened to specification. Refer to SRC-42. "ZERO POINT RESET : Description" .
Pop-up roll bar assemblies	If the pop-up roll bar has deployed: REPLACE pop-up roll bar assemblies and pop-up roll bar covers. Install with new fasteners.

FOR SIDE AND ROLLOVER COLLISION : When SRS is not activated in a collision

INFOID:000000009796148

CAUTION:

COLLISION DIAGNOSIS

< BASIC INSPECTION >

Due to varying models and option levels, not all parts listed in the chart below apply to all vehicles.

WORK PROCEDURE

1. Before performing any of the following steps, ensure that all vehicle body and structural repairs have been completed.
2. Check the SRS components and the related parts using the following table.
 - If the front seat back assembly is damaged, the front seat back assembly must be replaced.
 - If the door finisher assembly is damaged, the door finisher assembly and door-mounted curtain air bag module must be replaced.
3. Perform self-diagnosis using CONSULT and "AIR BAG" warning lamp. Refer to [SRC-16, "Description"](#) for details. Make sure entire SRS operates properly.
4. After the work is completed, perform self-diagnosis to check that no malfunction is detected. Refer to [SRC-16, "Description"](#).

SRS INSPECTION (FOR SIDE AND ROLLOVER COLLISION)

Part	Inspection
Side curtain air bag module LH	If the side curtain air bag LH has NOT deployed: 1. Check for visible signs of damage (dents, tears, deformation, etc.) of the center pillar on the collision side. 2. If damaged – Remove the side curtain air bag module LH. 3. Check for visible signs of damage (tears etc.) of the side curtain air bag module LH. 4. Check harness and connectors for damage, and terminals for deformities. 5. If no damage is found, reinstall the side curtain air bag module LH with new fasteners. 6. If damaged – REPLACE the side curtain air bag module LH with new fasteners.
Side curtain air bag module RH	If the side curtain air bag RH has NOT deployed: 1. Check for visible signs of damage (dents, tears, deformation, etc.) of the center pillar on the collision side. 2. If damaged – Remove the side curtain air bag module RH. 3. Check for visible signs of damage (tears etc.) of the side curtain air bag module RH. 4. Check harness and connectors for damage, and terminals for deformities. 5. If no damage is found, reinstall the side curtain air bag module RH with new fasteners. 6. If damaged – REPLACE the side curtain air bag module RH with new fasteners.
Front side air bag module LH	If the front side air bag LH has NOT deployed: 1. Check for visible signs of damage (dents, tears, deformation, etc.) of the seat back on the collision side. 2. Check harness and connectors for damage, and terminals for deformities. 3. If damaged – REPLACE the front seatback assembly LH.
Front side air bag module RH	If the front side air bag RH has NOT deployed: 1. Check for visible signs of damage (dents, tears, deformation, etc.) of the seat back on the collision side. 2. Check harness and connectors for damage, and terminals for deformities. 3. If damaged – REPLACE the front seatback assembly RH.
Side air bag (satellite) sensor (LH or RH)	If none of the SRS components have been activated: 1. Remove the side air bag (satellite) sensor (LH or RH) on the collision side. Check harness connectors for damage, terminals for deformities, and harness for binding. 2. Check for visible signs of damage (dents, cracks, deformation, etc.) of the side air bag (satellite) sensor (LH or RH). 3. Install the side air bag (satellite) sensor (LH or RH) to check fit. 4. If no damage is found, reinstall the side air bag (satellite) sensor (LH or RH) with new fasteners. 5. If damaged – REPLACE the side air bag (satellite) sensor (LH or RH) with new fasteners.
Diagnosis sensor unit	If none of the SRS components have been activated: 1. Check case and bracket for dents, cracks or deformities. 2. Check connectors for damage, and terminals for deformities. 3. If no damage is found, reinstall the diagnosis sensor unit with new fasteners. 4. If damaged – REPLACE the diagnosis sensor unit with new fasteners.

COLLISION DIAGNOSIS

< BASIC INSPECTION >

Part	Inspection
Seat belt pre-tensioner assemblies (All applicable locations: buckle, retractor, lap outer)	If the pre-tensioners have NOT been activated: 1. Remove seat belt pre-tensioners. Check harness cover and connectors for damage, terminals for deformities, and harness for binding. 2. Check belts for damage and anchors for loose mounting. 3. Check retractor for smooth operation. 4. Check seat belt adjuster for damage. 5. Check for deformities of the center pillar inner. 6. If the center pillar inner has no damage, REPLACE the seat belt pre-tensioner assembly. 7. If no damage is found, reinstall seat belt pre-tensioner assembly. 8. If damaged – REPLACE. Install the seat belt pre-tensioners with new fasteners.
Seat (with front side air bag)	If the front LH or front RH side air bag modules have NOT deployed: 1. Visually check the seat on the collision side. 2. Remove the seat on the collision side and check the following for damage and deformities. - Harness, connectors and terminals - Frame and recliner (for front and rear seat), and also adjuster and slides (for front seat) 3. If no damage is found, reinstall the seat. 4. If damaged – REPLACE the damaged seat parts using new fasteners. If the front seat back is damaged, the front seat back assembly must be replaced.
Center inner pillar	1. Check the center inner pillar on the collision side for damage (dents, cracks, deformation, etc.). 2. If damaged – REPAIR the center inner pillar.
Trim/headlining	1. Check for visible signs of damage (dents, cracks, deformation, etc.) of the interior trim on the collision side. 2. If damaged – REPLACE the damaged trim parts.
Door-mounted curtain air bag module LH	If the door-mounted curtain air bag LH has NOT deployed: 1. Check for visible signs of damage (dents, tears, deformation, etc.) of the door finisher on the collision side. 2. If damaged – REPLACE the door finisher LH with new fasteners. 3. Check for visible signs of damaged (tears etc.) of the door-mounted curtain air bag module LH. 4. Check harness and connectors for damage, and terminals for deformities. 5. If no damage is found, reinstall door finisher. CAUTION: When removing door-mounted curtain air bag module from door finisher, never reuse door finisher. 6. If damaged – REPLACE the door finisher LH and door-mounted curtain air bag module LH with new fasteners.
Door-mounted curtain air bag module RH	If the door-mounted curtain air bag RH has NOT deployed: 1. Check for visible signs of damage (dents, tears, deformation, etc.) of the door finisher on the collision side. 2. If damaged – REPLACE the door finisher RH with new fasteners. 3. Check for visible signs of damage (tears etc.) of the door-mounted curtain air bag module RH. 4. Check harness and connectors for damage, and terminals for deformities. 5. If no damage is found, reinstall door finisher. CAUTION: When removing door-mounted curtain air bag module from door finisher, never reuse door finisher. 6. If damaged – REPLACE the door finisher RH and door-mounted curtain air bag module RH with new fasteners.

COLLISION DIAGNOSIS

< BASIC INSPECTION >

Part	Inspection
Occupant classification system (Passenger seat)	1. Remove passenger seat assembly.
	2. Check control unit case for dents, cracks or deformities.
	3. Check connectors and pressure sensor tube for damage, and terminals for deformities.
	4. Check seat frame and cushion pan for dents or deformities.
	5. If no damage is found, reinstall seat with new fasteners.
	6. If damaged – REPLACE seat cushion assembly with new fasteners.
	7. Perform zero point reset function after front passenger seat is installed in the vehicle and all bolts are tightened to specification. Refer to SRC-42, "ZERO POINT RESET : Description" .
Pop-up roll bar	If the pop-up roll bar has NOT deployed:
	1. Check for visible signs of damage (dents, tears, deformation, etc.) of the pop-up roll bar.
	2. If damaged – REPLACE the pop-up roll bar with new fasteners.
	3. Check harness and connectors for damage, and terminals for deformities.
	4. If no damage is found, reinstall the pop-up roll bar with new fasteners.
	5. Check for visible signs of damage (dents, cracks, deformation, etc.) of the seatback support brace assembly.
	6. If damaged – REPAIR the seatback support brace assembly.

A

B

C

D

E

F

G

SR

I

J

K

L

M

N

O

P

DRIVER AIR BAG MODULE

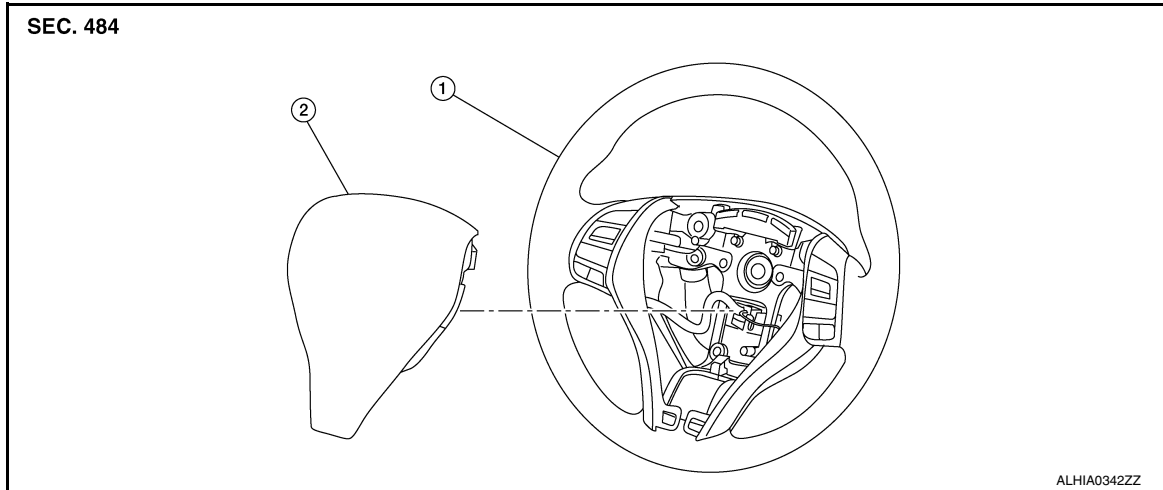
< REMOVAL AND INSTALLATION >

REMOVAL AND INSTALLATION

DRIVER AIR BAG MODULE

Exploded View

INFOID:000000009796149



1. Steering wheel

2. Driver air bag module

Removal and Installation

INFOID:000000009796150

WARNING:

- Before servicing the SRS, turn ignition switch OFF, disconnect both battery terminals then wait at least three minutes.
- Always work from the side of driver air bag module. Do not work in front of it.
- Do not use the air tools or electric tools for servicing.

REMOVAL

1. Disconnect negative and positive battery terminals, then wait at least three minutes. Refer to [PG-77](#), "[Removal and Installation](#)".
2. Release driver air bag module hooks.

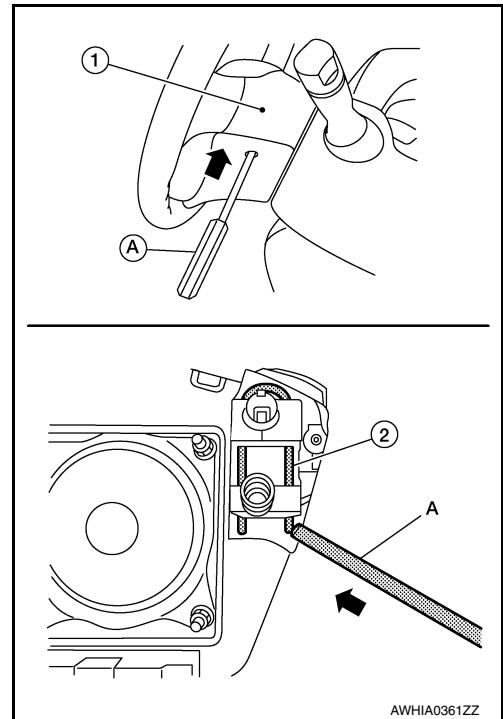
DRIVER AIR BAG MODULE

< REMOVAL AND INSTALLATION >

- a. Locate the access hole on RH side of steering wheel rear finisher (1) and insert (➡) a 5.0 mm (0.20 in) diameter suitable tool (A).
- b. Push suitable tool (A) inward (➡) and make sure the tool contacts the spring (2) as shown. Push on the upper right of the driver air bag module while pressing on the spring to release the driver air bag module hook (RH). Repeat procedure for driver air bag module hook (LH).

NOTE:

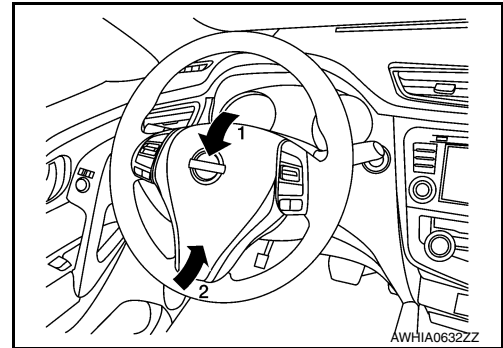
Driver air bag module removed for clarity.



3. Lift driver air bag module as shown, then disconnect harness connectors from the driver air bag module.

CAUTION:

- For installing/removing the driver air bag module harness connector, insert thin screwdriver wrapped in tape into notch, lift lock and remove the connector.
- Install the connector with lock raised, and push lock into the connector.
- After installing the connector, check that the lock is pushed securely into it.

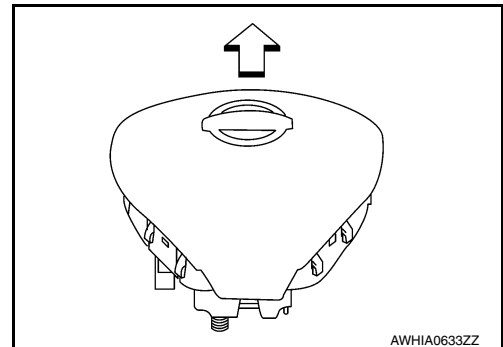


4. Remove the driver air bag module.

CAUTION:

- Always place the driver air bag module with pad side facing upward.

↕: Upward



DRIVER AIR BAG MODULE

< REMOVAL AND INSTALLATION >

- Do not strike or impact the driver air bag module.
- Replace the driver air bag module if it has been dropped or sustained an impact.



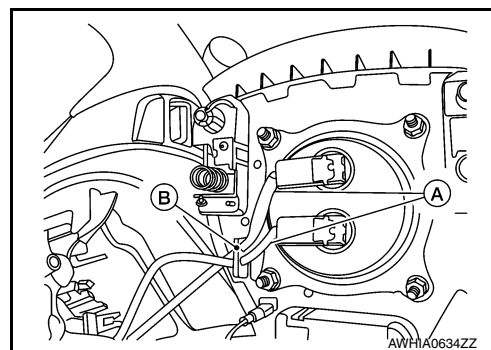
- Do not insert any foreign objects (screwdriver, etc.) into the driver air bag module.
- Do not disassemble the driver air bag module.
- Do not expose the driver air bag module to temperatures exceeding 93°C (199°F).
- Do not allow oil, grease, detergent, or water to come in contact with the driver air bag module.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Always connect the driver air bag module harnesses (A) and route through the hook (B) as shown.



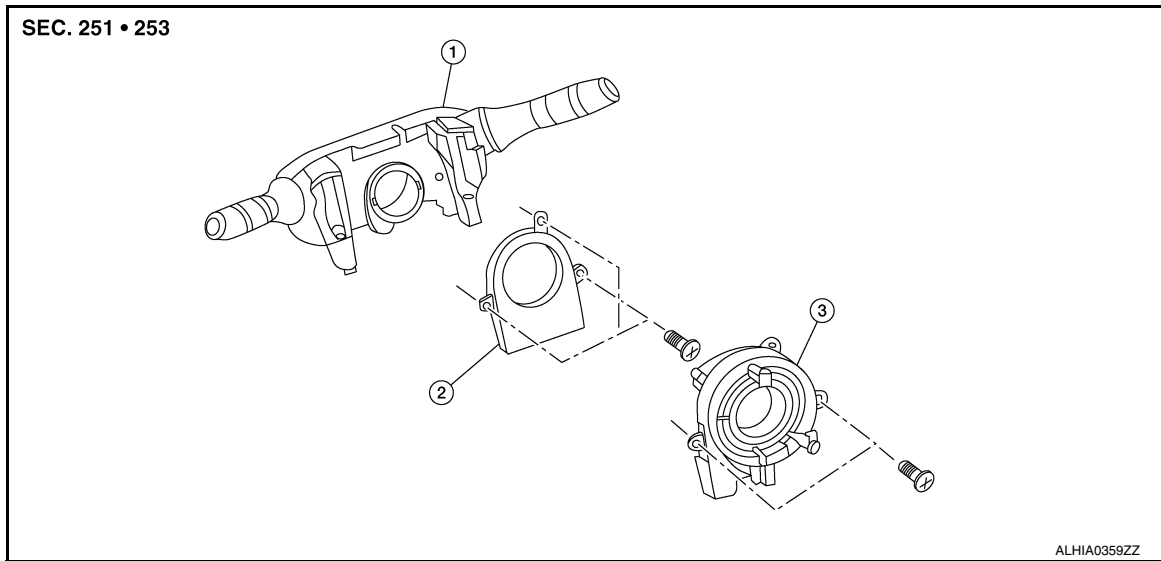
- If driver air bag module is being replaced due to deployment, the spiral cable must also be replaced. Refer to [SR-15, "Removal and Installation"](#).
- Do not pinch or damage the harnesses while installing.
- If a malfunction is indicated by the air bag warning lamp after repair or replacement of the malfunctioning parts, perform the SRS Final Check. Refer to [SRC-18, "Trouble Diagnosis with CONSULT"](#).
- After installation is complete, check that no system malfunction is detected causing the air bag warning lamp to illuminate.

SPIRAL CABLE

< REMOVAL AND INSTALLATION >

SPIRAL CABLE

Exploded View



1. Combination switch

2. Steering angle sensor

3. Spiral cable

Removal and Installation

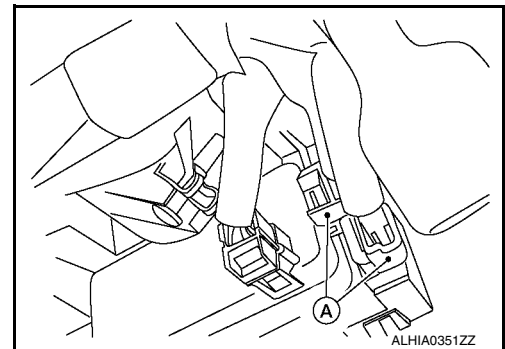
INFOID:000000009796152

WARNING:

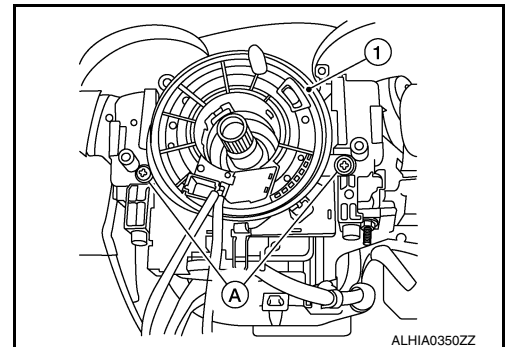
- Before servicing the SRS, turn ignition switch OFF, disconnect both battery terminals then wait at least three minutes.
- Do not use the air tools or electric tools for servicing.

REMOVAL

1. Disconnect the negative and positive battery terminals, then wait at least three minutes. Refer to [PG-77, "Removal and Installation"](#).
2. Remove the steering wheel. Refer to [ST-11, "Removal and Installation"](#).
3. Remove the steering column upper and lower cover. Refer to [JP-17, "Removal and Installation"](#).
4. Disconnect harness connectors (A).



5. Remove screws (A) and then remove spiral cable (1).



SPIRAL CABLE

< REMOVAL AND INSTALLATION >

CAUTION:

- Do not strike or drop the spiral cable.
- Do not turn the spiral cable quickly or beyond the limit number of turns (approximately 2.5 turns from the neutral position), this may cause the cable to snap.
- Replace the spiral cable if it has been dropped or sustained an impact.
- Do not disassemble the spiral cable.
- Do not allow oil, grease, detergent, or water to come in contact with the spiral cable.



INSTALLATION

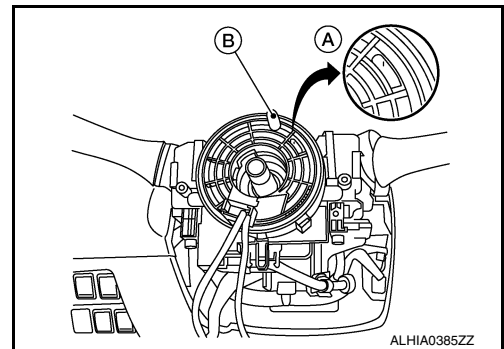
Installation is in the reverse order of removal.

- The turn signal lever must be in the neutral position for spiral cable installation.
- Set the spiral cable neutral position by carefully turning the spiral cable clockwise to the end position. Turn the spiral cable counter-clockwise 2.5 turns stopping when the locating pin (B) is at the top most position and confirm that a yellow indicator with a vertical black line will be shown in the window (A).

NOTE:

If a new service part is installed, the neutral position is already set with a stopper clip in place and should not be adjusted after the stopper clip is removed. Make sure the stopper is removed before installing the steering wheel.

- During steering wheel installation, make sure the locating pin hole is aligned with the locating pin (B) of the spiral cable.
- Adjust the neutral position of the steering angle sensor. Refer to [BRC-70, "Work Procedure"](#).



CAUTION:

- The spiral cable may snap during steering operation if the spiral cable is installed in an improper position.
- Do not overturn the spiral cable or go beyond the maximum number of turns allowed. This will cause the cable to snap.
- The turn signal lever must be in the neutral position for spiral cable installation.
- Do not apply lubricant to the spiral cable.
- Do not allow oil, grease, detergent or water to come in contact with the spiral cable.
- After installation is complete, check that no system malfunction is detected causing the air bag warning lamp to illuminate.
- If a malfunction is indicated by the air bag warning lamp after repair or replacement of the malfunctioning parts, perform the SRS Final Check. Refer to [SRC-18, "Trouble Diagnosis with CONSULT"](#).

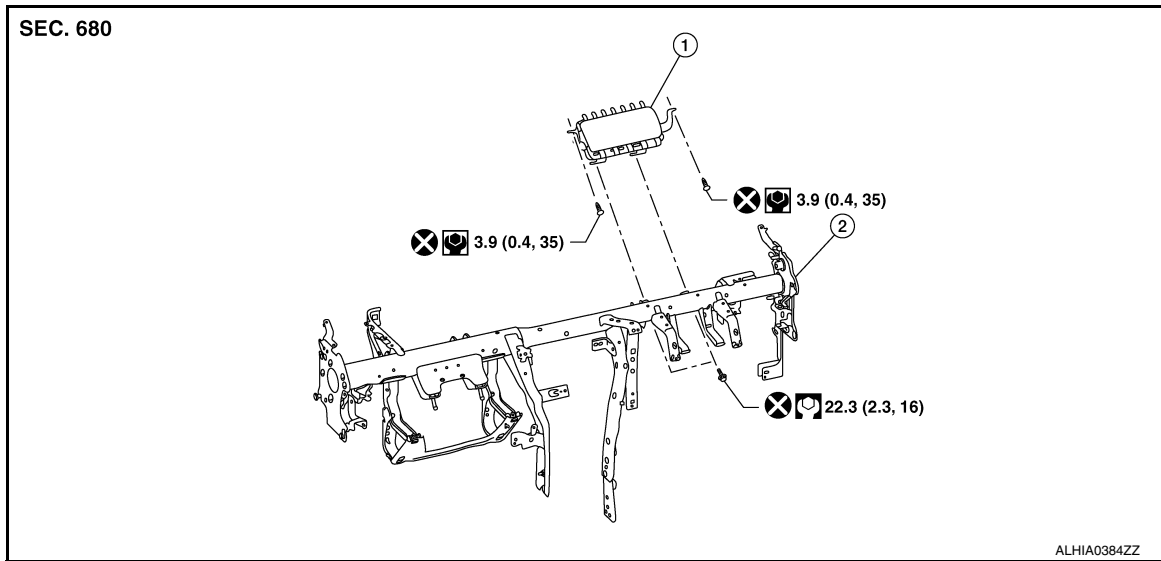
FRONT PASSENGER AIR BAG MODULE

< REMOVAL AND INSTALLATION >

FRONT PASSENGER AIR BAG MODULE

Exploded View

INFOID:000000009796153



1. Front passenger air bag module 2. Steering member

Removal and Installation

INFOID:000000009796154

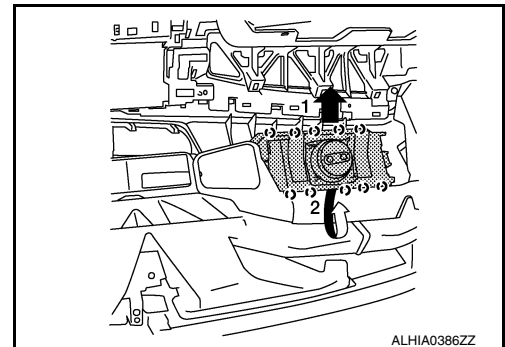
WARNING:

- Before servicing the SRS, turn ignition switch OFF, disconnect both battery terminals then wait at least three minutes.
- Always work from the side of air bag module. Do not work in front of it.
- Do not use air tools or electric tools for servicing.

REMOVAL

1. Remove the Instrument panel assembly. Refer to [IP-14, "INSTRUMENT PANEL ASSEMBLY : Removal and Installation"](#).
2. Remove front passenger air bag module screws.
3. Release the pawls by removing the front passenger air bag module (1) as shown.

(○): Pawl

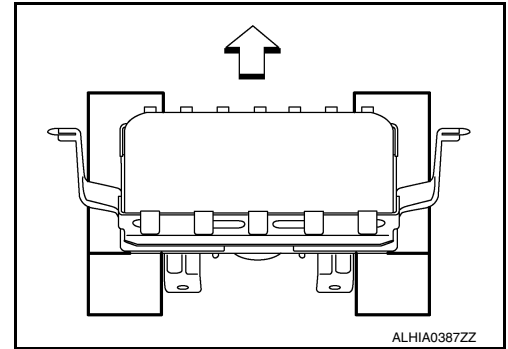


CAUTION:

FRONT PASSENGER AIR BAG MODULE

< REMOVAL AND INSTALLATION >

- Always place the front passenger air bag module with pad side facing upward as shown.
⇐: Upward



- Replace the front passenger air bag module if it has been dropped or sustained an impact.
- Do not strike the front passenger air bag module.



- Do not insert any foreign objects (screwdriver, etc.) into the passenger air bag module.
- Do not disassemble the passenger air bag module.
- Do not expose the passenger air bag module to temperatures exceeding 90°C (194°F).
- Do not allow oil, grease, detergent, or water to come in contact with the front passenger air bag module.

INSTALLATION

Note the following items, and then install in the reverse order of removal.

CAUTION:

- Do not reuse the front passenger air bag module bolts.
- Do not damage the front passenger air bag module harness during installation.
- After installation is complete, check that no system malfunction is detected causing the air bag warning lamp to illuminate.
- If a malfunction is indicated by the air bag warning lamp after repair or replacement of the malfunctioning parts, perform the SRS final check. Refer to [SRC-18, "Trouble Diagnosis with CONSULT"](#).

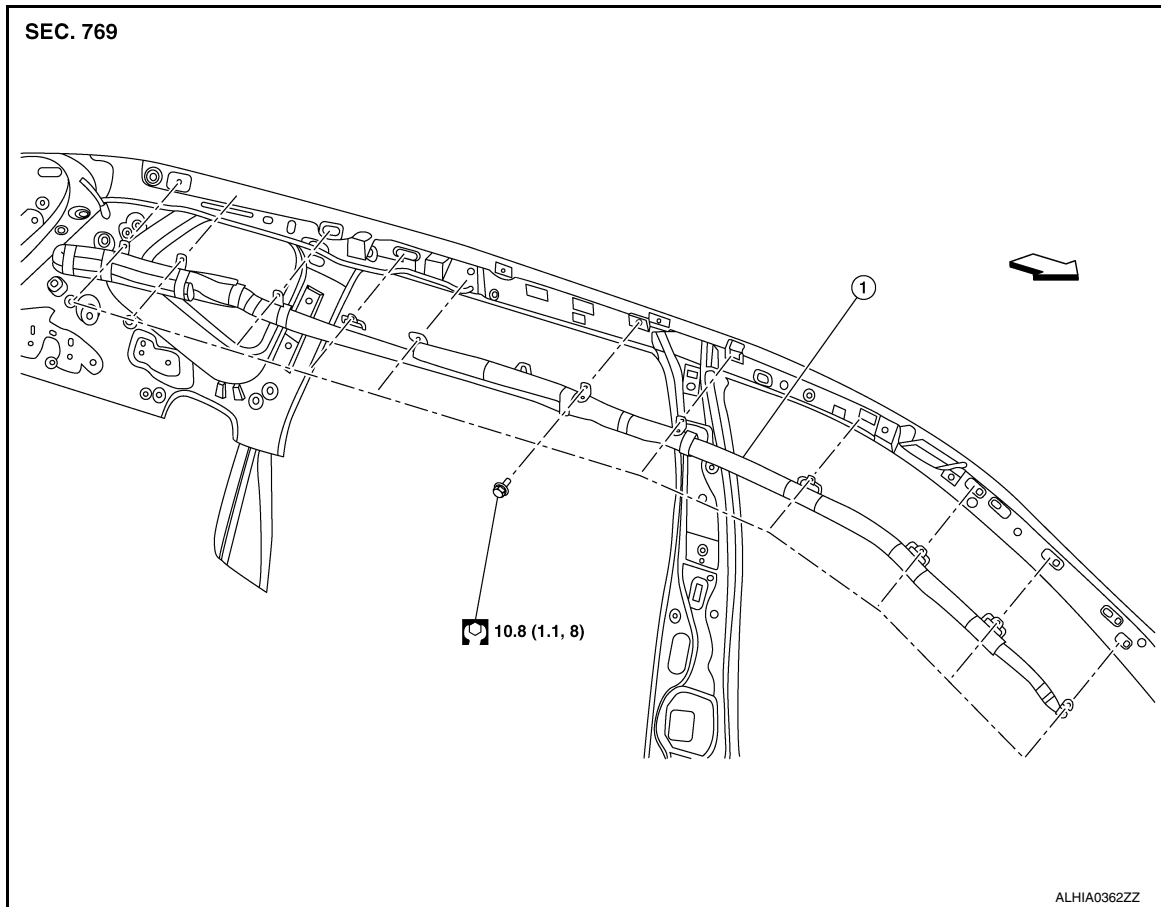
SIDE CURTAIN AIR BAG MODULE

< REMOVAL AND INSTALLATION >

SIDE CURTAIN AIR BAG MODULE

Exploded View

INFOID:000000009796155



1. Side curtain air bag module ⇐ Front

Removal and Installation

INFOID:000000009796156

WARNING:

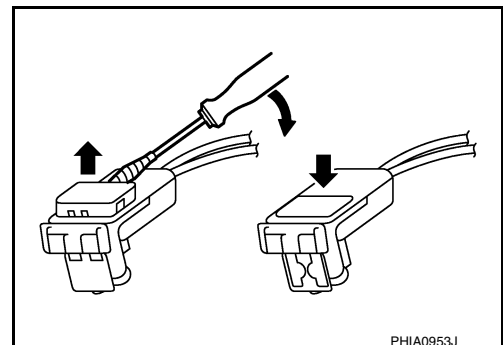
- Before servicing the SRS, turn ignition switch OFF, disconnect both battery terminals then wait at least three minutes.
- Always work from the side of air bag module. Do not work in front of it.
- Do not use air tools or electric tools for servicing.

REMOVAL

1. Disconnect negative and positive battery terminals, then wait at least three minutes. Refer to [PG-77. "Removal and Installation"](#).
2. Remove the headlining. Refer to [INT-30. "Removal and Installation"](#).
3. Disconnect the harness connector from the side curtain air bag module.

CAUTION:

- For removing/installing the side curtain air bag module harness connector, insert a thin screwdriver wrapped in tape into the notch, lift the lock and remove the harness connector as shown.
- Install the harness connector with the lock raised, and push the lock into the harness connector as shown.
- After installing the harness connector, check that the lock is pushed in securely.



SIDE CURTAIN AIR BAG MODULE

< REMOVAL AND INSTALLATION >

4. Remove bolts, and side curtain air bag module.

CAUTION:

- Replace the side curtain air bag module if it has been dropped or sustained an impact.
- Do not strike the side curtain air bag module.
- Do not insert any foreign objects (screwdriver, etc.) into the side curtain air bag module.
- Do not disassemble the side curtain air bag module.
- Do not expose the side curtain air bag module to temperatures exceeding 90 °C (194 °F).
- Do not allow oil, grease, detergent or water to come in contact with the side curtain air bag module.

INSTALLATION

Note the following items, and then install in the reverse order of removal.

CAUTION:

- Do not damage the harness while installing the side curtain air bag module.
- Make sure that the side curtain air bag module bracket supporting hooks are securely seated into the body slots before releasing the side curtain air bag module during installation to avoid damaging the side curtain air bag module.
- Make sure that the anti-twist stripe (black for RH side, blue for LH side) is visible along entire length of side curtain air bag module.
- If a malfunction is indicated by the air bag warning lamp after repair or replacement of the malfunctioning parts, perform the SRS final check. Refer to [SRC-18, "Trouble Diagnosis with CONSULT"](#).
- After installation is complete, check that no system malfunction is detected causing the air bag warning lamp to illuminate.

FRONT SIDE AIR BAG MODULE

< REMOVAL AND INSTALLATION >

FRONT SIDE AIR BAG MODULE

Removal and Installation

INFOID:0000000010282399

The front side air bag module is part of the front seatback. For removal and installation of the front seatback, refer to [SE-55. "Seatback"](#).

- A
- B
- C
- D
- E
- F
- G
- SR
- I
- J
- K
- L
- M
- N
- O
- P

SR

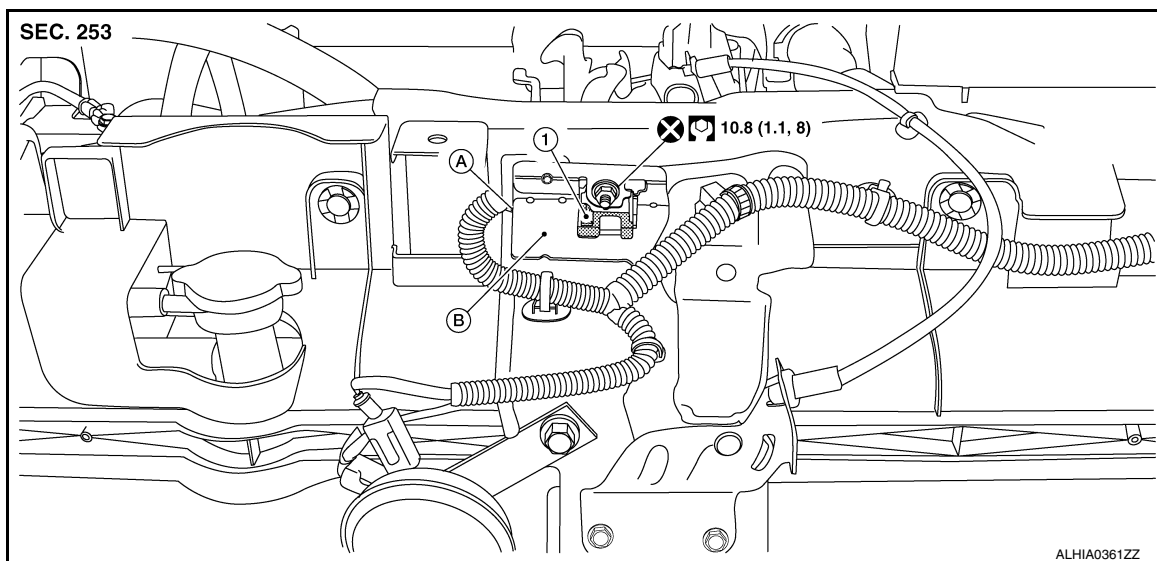
CRASH ZONE SENSOR

< REMOVAL AND INSTALLATION >

CRASH ZONE SENSOR

Exploded View

INFOID:000000009796157



Removal and Installation

INFOID:000000009796158

WARNING:

- Before servicing the SRS, turn ignition switch OFF, disconnect both battery terminals then wait at least three minutes.
- Do not use air tools or electric tools for servicing.

REMOVAL

1. Disconnect negative and positive battery terminals, then wait at least three minutes. Refer to [PG-77, "Removal and Installation"](#).
2. Remove front grille. Refer to [EXT-23, "Removal and Installation"](#).
3. Remove crash zone sensor nut.

CAUTION:

Do not reuse the crash zone sensor nut.

4. Disconnect crash zone sensor harness connector, and remove crash zone sensor and bracket.

CAUTION:

- Replace the crash zone sensor if it has been dropped or sustained an impact.
- Do not strike the crash zone sensor.
- Replace the crash zone sensor if either the driver air bag or the front passenger air bag has been deployed.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Do not reuse the crash zone sensor nut.
- Do not damage the harness connector during installation.
- After installation is complete, check that no system malfunction is detected causing the air bag warning lamp to illuminate.
- If a malfunction is indicated by the air bag warning lamp after repair or replacement of the malfunctioning parts, perform the SRS final check. Refer to [SRC-18, "Trouble Diagnosis with CONSULT"](#).

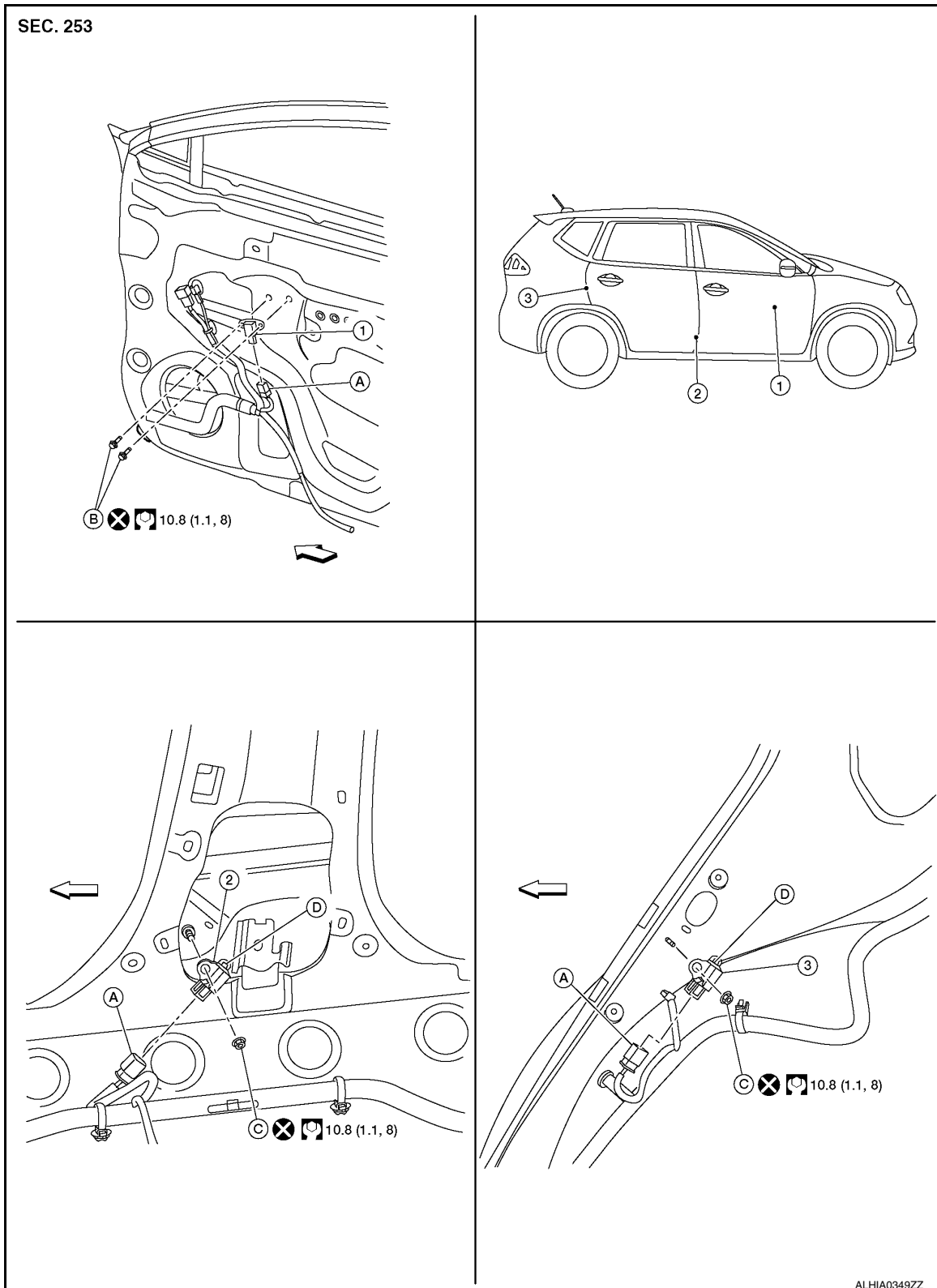
SIDE AIR BAG (SATELLITE) SENSOR

< REMOVAL AND INSTALLATION >

SIDE AIR BAG (SATELLITE) SENSOR

Exploded View

INFOID:000000010197478



1. Front door satellite sensor 2. Front side air bag satellite sensor 3. Rear side satellite sensor

SIDE AIR BAG (SATELLITE) SENSOR

< REMOVAL AND INSTALLATION >

- | | | |
|---------------------------------------|---------|--------|
| A. Satellite sensor harness connector | B Bolt | C. Nut |
| D. Pawl | ⇐ Front | |

NOTE:

RH side shown, LH side similar.

Removal and Installation

INFOID:0000000010197479

WARNING:

- Before servicing the SRS, turn ignition switch OFF, disconnect both battery terminals then wait at least three minutes.
- Do not use air tools or electric tools for servicing.

FRONT SIDE AIR BAG SATELLITE SENSOR

Removal

1. Disconnect negative and positive battery terminals, then wait at least three minutes. Refer to [PG-77, "Removal and Installation"](#).
2. Place aside the front seat belt retractor.
3. Remove the front side air bag satellite sensor nut.
CAUTION:
Do not reuse the front side air bag satellite sensor nut.
4. Disconnect the harness connector from the front side air bag satellite sensor and remove.
CAUTION:
 - Replace the front side air bag satellite sensor if it has been dropped or sustained an impact.
 - Do not strike the front side air bag satellite sensor.

Installation

Installation is in the reverse order of removal.

- Position the front side air bag satellite sensor using the pawl before tightening the nut to specification.

CAUTION:

- Do not reuse the front side air bag satellite sensor nut.
- Do not damage the harness connector during installation.
- After installation is complete, check that no system malfunction is detected causing the air bag warning lamp to illuminate.
- If a malfunction is indicated by the air bag warning lamp after repair or replacement of the malfunctioning parts, perform the SRS final check. Refer to [SRC-18, "Trouble Diagnosis with CONSULT"](#).

REAR SIDE AIR BAG SATELLITE SENSOR

Removal

1. Disconnect negative and positive battery terminals, then wait at least three minutes. Refer to [PG-77, "Removal and Installation"](#).
2. Remove the luggage side lower finisher. Refer to [INT-34, "LUGGAGE SIDE LOWER FINISHER : Removal and Installation - With Third Row Seat"](#) (WITH THIRD ROW SEAT), [INT-34, "LUGGAGE SIDE LOWER FINISHER : Removal and Installation - With Third Row Seat"](#) (WITHOUT THIRD ROW SEAT).
3. Remove the rear side air bag satellite sensor bolt.
CAUTION:
Do not reuse the rear side air bag satellite sensor bolt.
4. Disconnect the harness connector from the rear side air bag satellite sensor and remove.
CAUTION:
 - Replace the rear side air bag satellite sensor if it has been dropped or sustained an impact.
 - Do not strike the rear side air bag satellite sensor.

Installation

Installation is in the reverse order of removal.

- Position the rear side air bag satellite sensor using the pawl before tightening the bolt to specification.

CAUTION:

- Do not reuse the rear side air bag satellite sensor bolt.
- Do not damage the harness connector during installation.

SIDE AIR BAG (SATELLITE) SENSOR

< REMOVAL AND INSTALLATION >

- After installation is complete, check that no system malfunction is detected causing the air bag warning lamp to illuminate.
- If a malfunction is indicated by the air bag warning lamp after repair or replacement of the malfunctioning parts, perform the SRS final check. Refer to [SRC-18, "Trouble Diagnosis with CONSULT"](#).

FRONT DOOR SATELLITE SENSOR

Removal

1. Disconnect negative and positive battery terminals, then wait at least three minutes. Refer to [PG-77, "Removal and Installation"](#).
2. Remove the front door finisher. Refer to [INT-15, "Removal and Installation"](#).
3. Partially remove front door vapor barrier.
4. Remove the front door satellite sensor bolts.
CAUTION:
Do not reuse the front door satellite sensor bolts.
5. Disconnect the harness connector from the front door satellite sensor and remove.
CAUTION:
 - Replace the front door satellite sensor if it has been dropped or sustained an impact.
 - Do not strike the front door satellite sensor.

Installation

Installation is in the reverse order of removal.

CAUTION:

- Do not reuse the front door satellite sensor bolts.
- Do not damage the harness connector during installation.
- After installation is complete, check that no system malfunction is detected causing the air bag warning lamp to illuminate.
- If a malfunction is indicated by the air bag warning lamp after repair or replacement of the malfunctioning parts, perform the SRS final check. Refer to [SRC-18, "Trouble Diagnosis with CONSULT"](#).

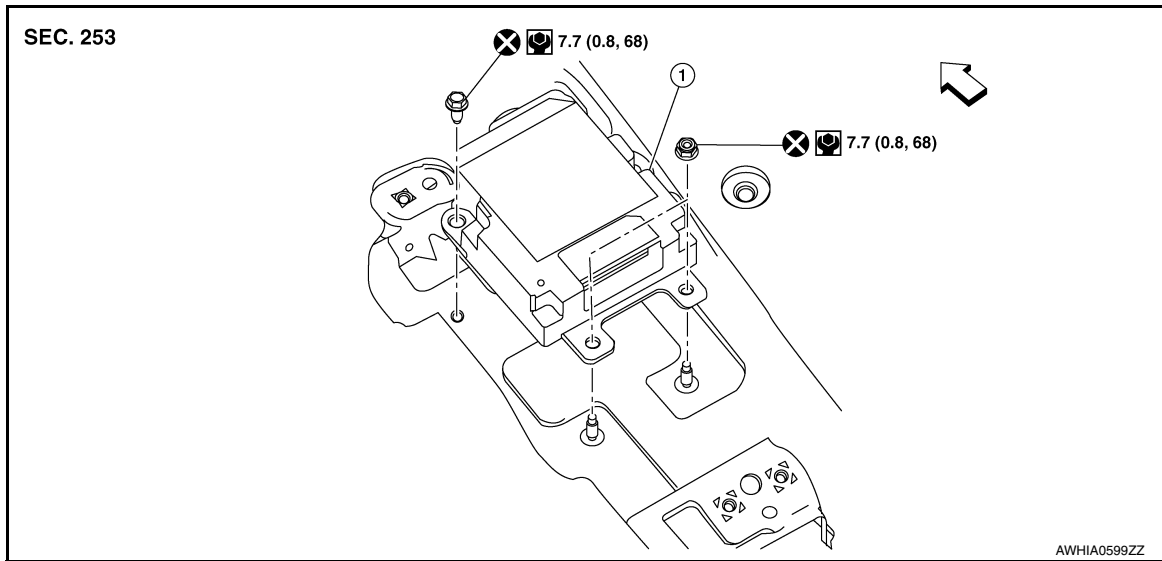
AIR BAG DIAGNOSIS SENSOR UNIT

< REMOVAL AND INSTALLATION >

AIR BAG DIAGNOSIS SENSOR UNIT

Exploded View

INFOID:000000009796161



1. Diagnosis sensor unit

Front

Removal and Installation

INFOID:000000009796162

WARNING:

- Before servicing the SRS, turn ignition switch OFF, disconnect both battery terminals then wait at least three minutes.
- Before disconnecting the air bag diagnosis sensor unit harness connectors, be sure to disconnect each harness connector of the side curtain air bag modules, front seat belt pre-tensioner, and front side air bag module, to prevent accidental air bag deployment by static electricity and seat belt pre-tensioner operation.
- Do not use the air tools or electric tools for servicing.
- When replacing the air bag diagnosis sensor unit, always check with the parts department for the latest parts information. Installing an incorrect air bag diagnosis sensor unit may or may not cause the air bag warning lamp to illuminate and may cause incorrect deployment of the supplemental air bags and seat belt pre-tensioners in a collision resulting in serious personal injury or death.

REMOVAL

1. Always check the air bag diagnosis sensor unit ECU discriminated number (identification number) or part number using CONSULT.
2. Disconnect negative and positive battery terminals, then wait at least three minutes. Refer to [PG-77, "Removal and Installation"](#).
3. Remove center console assembly. Refer to [IP-18, "Removal and Installation"](#).
4. Disconnect the harness connectors for the following SRS components: [SR-19, "Removal and Installation"](#) (side curtain air bag modules), [SR-28, "Removal and Installation"](#) (front seat belt pre-tensioner) and [SR-17, "Removal and Installation"](#) (front side air bag module).
5. Disconnect the harness connectors from the diagnosis sensor unit.
6. Remove bolt and nuts, then remove the air bag diagnosis sensor unit.

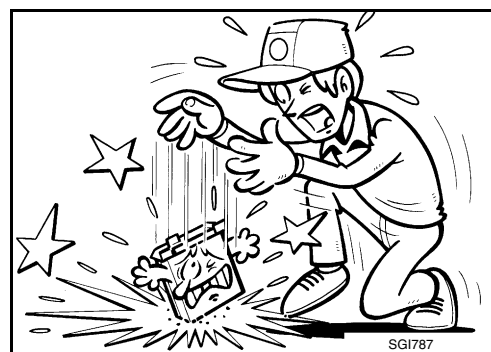
CAUTION:

- Do not reuse the air bag diagnosis sensor unit bolts.
- Replace the air bag diagnosis sensor unit if any SRS air bag has been deployed or if any front seat belt pre-tensioner has been deployed.

AIR BAG DIAGNOSIS SENSOR UNIT

< REMOVAL AND INSTALLATION >

- Replace the air bag diagnosis sensor unit if it has been dropped or sustained an impact.
- Do not strike the air bag diagnosis sensor unit.



INSTALLATION

Install air bag diagnosis sensor unit in the reverse order of removal.

CAUTION:

- Do not reuse the air bag diagnosis sensor unit bolts.
- The air bag diagnosis sensor unit must always be installed with the label arrow mark "←" pointing toward the front of the vehicle for proper operation.
- Do not damage the air bag diagnosis sensor unit harness connectors during installation.
- After installation is complete, check that no system malfunction is detected causing the air bag warning lamp to illuminate.
- If a malfunction is indicated by the air bag warning lamp after repair or replacement of the malfunctioning parts, perform the SRS final check. Refer to [SRC-18, "Trouble Diagnosis with CONSULT"](#).
- After replacing the air bag diagnosis sensor unit, confirm using CONSULT that the ECU discriminated number (identification number) or part number of the new replacement air bag diagnosis sensor unit matches the ECU discriminated number (identification number) or part number of the replaced (old) air bag diagnosis sensor unit.

NOTE:

If the ECU discriminated number or part number of the new replacement air bag diagnosis sensor unit differs from the ECU discriminated number or part number of the replaced air bag diagnosis sensor unit, reconfirm the parts information and verify that the correct air bag diagnosis sensor unit was installed.

FRONT SEAT BELT PRE-TENSIONER

< REMOVAL AND INSTALLATION >

FRONT SEAT BELT PRE-TENSIONER

Removal and Installation

INFOID:000000009796163

The front seat belt has two pre-tensioners. One pre-tensioner is part of the seat belt retractor and the other is a lap belt pre-tensioner. For removal and installation refer to [SB-8, "SEAT BELT RETRACTOR : Removal and Installation"](#) (seat belt retractor) and [SB-8, "Exploded View"](#) (lap belt pretensioner).

FRONT SEAT BELT BUCKLE SWITCH

< REMOVAL AND INSTALLATION >

FRONT SEAT BELT BUCKLE SWITCH

Removal and Installation

INFOID:0000000010282418

The front seat belt buckle switch is part of the front seat belt buckle. For removal and installation of the front seat belt buckle, refer to [SB-11, "FRONT SEAT BELT BUCKLE : Removal and Installation"](#).

A
B
C
D
E
F
G
SR
I
J
K
L
M
N
O
P

OCCUPANT CLASSIFICATION SYSTEM CONTROL UNIT

< REMOVAL AND INSTALLATION >

OCCUPANT CLASSIFICATION SYSTEM CONTROL UNIT

Removal and Installation

INFOID:000000009796164

OCCUPANT CLASSIFICATION SYSTEM CONTROL UNIT

WARNING:

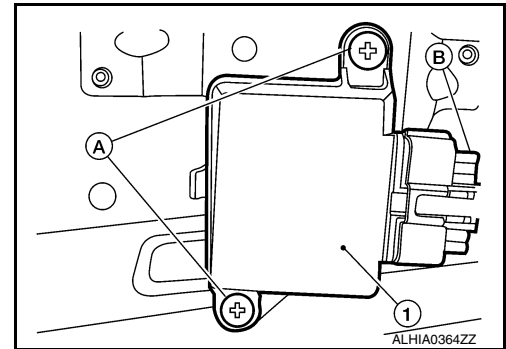
- Before servicing the SRS, turn ignition switch OFF, disconnect both battery terminals then wait at least three minutes.
- Do not use air tools or electric tools for servicing.

Removal

1. Remove occupant classification system control unit screws (A).
2. Disconnect the harness connector (B) and remove occupant classification system control unit (1).

CAUTION:

- Replace the occupant classification control unit if it has been dropped or sustained an impact.
- Do not strike the occupant classification control unit.



Installation

Installation is in the reverse order of removal.

WARNING:

- Zero point reset must be performed every time the occupant classification system control unit is removed/replaced.

CAUTION:

- Do not damage the harness connector during installation.
- After installation is complete, check that no system malfunction is detected causing the air bag warning lamp to illuminate.
- If a malfunction is indicated by the air bag warning lamp after repair or replacement of the malfunctioning parts, perform the SRS final check. Refer to [SRC-18, "Trouble Diagnosis with CONSULT"](#).

OCCUPANT CLASSIFICATION SYSTEM SENSORS

Removal

The occupant classification sensors are part of the front passenger seat frame. For removal and installation of the front passenger seat frame. Refer to [SE-35, "PASSENGER SIDE : Removal and Installation"](#).

SECTION **SRC**

SRS AIRBAG CONTROL SYSTEM

CONTENTS

PRECAUTION	4	ECU DIAGNOSIS INFORMATION	19
PRECAUTIONS	4	DIAGNOSIS SENSOR UNIT	19
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TEN- SIONER"	4	DTC Index	19
Service	4	Flash Code Index	23
Occupant Classification System Precaution	4	WIRING DIAGRAM	26
SYSTEM DESCRIPTION	5	SRS AIR BAG SYSTEM	26
COMPONENT PARTS	5	Wiring Diagram	26
Component Parts Location	6	BASIC INSPECTION	39
Driver Air Bag Module	9	DIAGNOSIS AND REPAIR WORK FLOW	39
Front Passenger Air Bag Module	9	Work Flow	39
Front Side Air Bag Module	9	INSPECTION AND ADJUSTMENT	42
Side Curtain Air Bag Module	9	ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT	42
Front Seat Belt Pre-tensioner	10	ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Description	42
Air Bag Diagnosis Sensor Unit	10	ZERO POINT RESET	42
Crash Zone Sensor	10	ZERO POINT RESET : Description	42
Front Side Air Bag Satellite Sensor	10	ZERO POINT RESET : Special Repair Require- ment	42
Rear Side Air Bag Satellite Sensor	11	CONFIGURATION	43
Front Door Satellite Sensor	11	CONFIGURATION : Description	43
SYSTEM	12	CONFIGURATION : Work Procedure	43
SRS AIR BAG SYSTEM	12	INTERMITTENT INCIDENT	45
SRS AIR BAG SYSTEM : System Description	12	Inspection Procedure	45
OCCUPANT CLASSIFICATION SYSTEM	12	DTC/CIRCUIT DIAGNOSIS	46
OCCUPANT CLASSIFICATION SYSTEM : Sys- tem Description	13	B0001, B0002 DRIVER AIRBAG MODULE	46
SEAT BELT WARNING LAMP SYSTEM	14	DTC Logic	46
SEAT BELT WARNING LAMP SYSTEM : System Description	14	Diagnosis Procedure	47
DIAGNOSIS SYSTEM (AIR BAG)	16	B0010, B0011 PASSENGER AIRBAG MOD- ULE	49
Description	16		
On Board Diagnosis Function	16		
Trouble Diagnosis with CONSULT	18		
CONSULT Function (AIR BAG)	18		

DTC Logic	49	B0096 FRONT SIDE AIR BAG SATELLITE	
Diagnosis Procedure	49	SENSOR RH	77
B0020 SIDE AIRBAG MODULE LH	51	Description	77
Description	51	DTC Logic	77
DTC Logic	51	Diagnosis Procedure	78
Diagnosis Procedure	51	B0092 REAR SIDE AIR BAG SATELLITE	
B0028 SIDE AIRBAG MODULE RH	53	SENSOR LH	80
Description	53	Description	80
DTC Logic	53	DTC Logic	80
Diagnosis Procedure	53	Diagnosis Procedure	81
B0021 SIDE CURTAIN AIR BAG MODULE LH		B0097 REAR SIDE AIR BAG SATELLITE	
.....	55	SENSOR RH	83
DTC Logic	55	Description	83
Diagnosis Procedure	55	DTC Logic	83
B0029 SIDE CURTAIN AIR BAG MODULE		Diagnosis Procedure	84
RH	57	B00A0 OCS SYSTEM	86
DTC Logic	57	Description	86
Diagnosis Procedure	57	DTC Logic	86
B1430 SEAT BELT PRE-TENSIONER	59	Diagnosis Procedure	87
DTC Logic	59	B14XX AIR BAG DIAGNOSIS SENSOR UNIT..	89
Diagnosis Procedure	59	Description	89
B1431 SEAT BELT PRE-TENSIONER	61	DTC Logic	89
DTC Logic	61	Diagnosis Procedure	89
Diagnosis Procedure	61	B00D5 FRONT PASSENGER AIR BAG OFF	
B1428 SEAT BELT BUCKLE SWITCH LH	63	INDICATOR	91
Description	63	DTC Logic	91
DTC Logic	63	Diagnosis Procedure	91
Diagnosis Procedure	63	B142A IGNITION VOLTAGE	93
B1429 SEAT BELT BUCKLE SWITCH RH	66	Description	93
Description	66	DTC Logic	93
DTC Logic	66	Diagnosis Procedure	93
Diagnosis Procedure	66	U1000 CAN COMM CIRCUIT	95
B0094 CRASH ZONE SENSOR	68	Description	95
DTC Logic	68	DTC Logic	95
Diagnosis Procedure	68	Diagnosis Procedure	95
B0093 FRONT DOOR SATELLITE SENSOR		U1010 CONTROL UNIT (CAN)	96
LH	70	Description	96
DTC Logic	70	DTC Logic	96
Diagnosis Procedure	70	Diagnosis Procedure	96
B0098 FRONT DOOR SATELLITE SENSOR		B142X COLLISION DETECTION	97
RH	72	Description	97
DTC Logic	72	DTC Logic	97
Diagnosis Procedure	72	Diagnosis Procedure	97
B0091 FRONT SIDE AIR BAG SATELLITE		SYMPTOM DIAGNOSIS	98
SENSOR LH	74	SRS AIR BAG WARNING LAMP DOES NOT	
Description	74	TURN ON	98
DTC Logic	74	AIR BAG Warning Lamp Does Not Turn On	98
Diagnosis Procedure	75	SRS AIR BAG WARNING LAMP DOES NOT	
		TURN OFF	99

AIR BAG Warning Lamp Does Not Turn Off99

SEAT BELT WARNING SYSTEM 100

Seat Belt Warning System Does Not Function100

A

B

C

D

E

F

G

SRC

I

J

K

L

M

N

O

P

PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010346332

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Service

INFOID:0000000009798191

- Do not use electrical test equipment to check SRS circuits unless instructed to in this Service Manual.
- Before servicing the SRS, turn ignition switch OFF, disconnect both battery cables and wait at least 3 minutes.
For approximately 3 minutes after the cables are removed, it is still possible for the air bag and seat belt pretensioner to deploy. Therefore, do not work on any SRS connectors or wires until at least 3 minutes have elapsed.
- Diagnosis sensor unit must always be installed with their arrow marks "⇐" pointing towards the front of the vehicle for proper operation. Also check diagnosis sensor unit for cracks, deformities or rust before installation and replace as required.
- The spiral cable must be aligned in the neutral position since its rotations are limited. Do not turn steering wheel and column after removal of steering gear.
- Handle air bag module carefully. Always place driver and front passenger air bag modules with the pad side facing upward and seat mounted front side air bag module standing with the stud bolt side facing down.
- Conduct self-diagnosis to check entire SRS for proper functioning after replacing any components.
- After air bag inflates, the front instrument panel assembly should be replaced if damaged.
- Always replace instrument panel pad following front passenger air bag deployment.

Occupant Classification System Precaution

INFOID:0000000009798192

- Replace occupant classification system control unit and passenger front seat cushion as an assembly. Refer to [SE-32, "DRIVER SIDE : Removal and Installation"](#).

COMPONENT PARTS

< SYSTEM DESCRIPTION >

SYSTEM DESCRIPTION

COMPONENT PARTS

A

B

C

D

E

F

G

SRC

I

J

K

L

M

N

O

P

COMPONENT PARTS

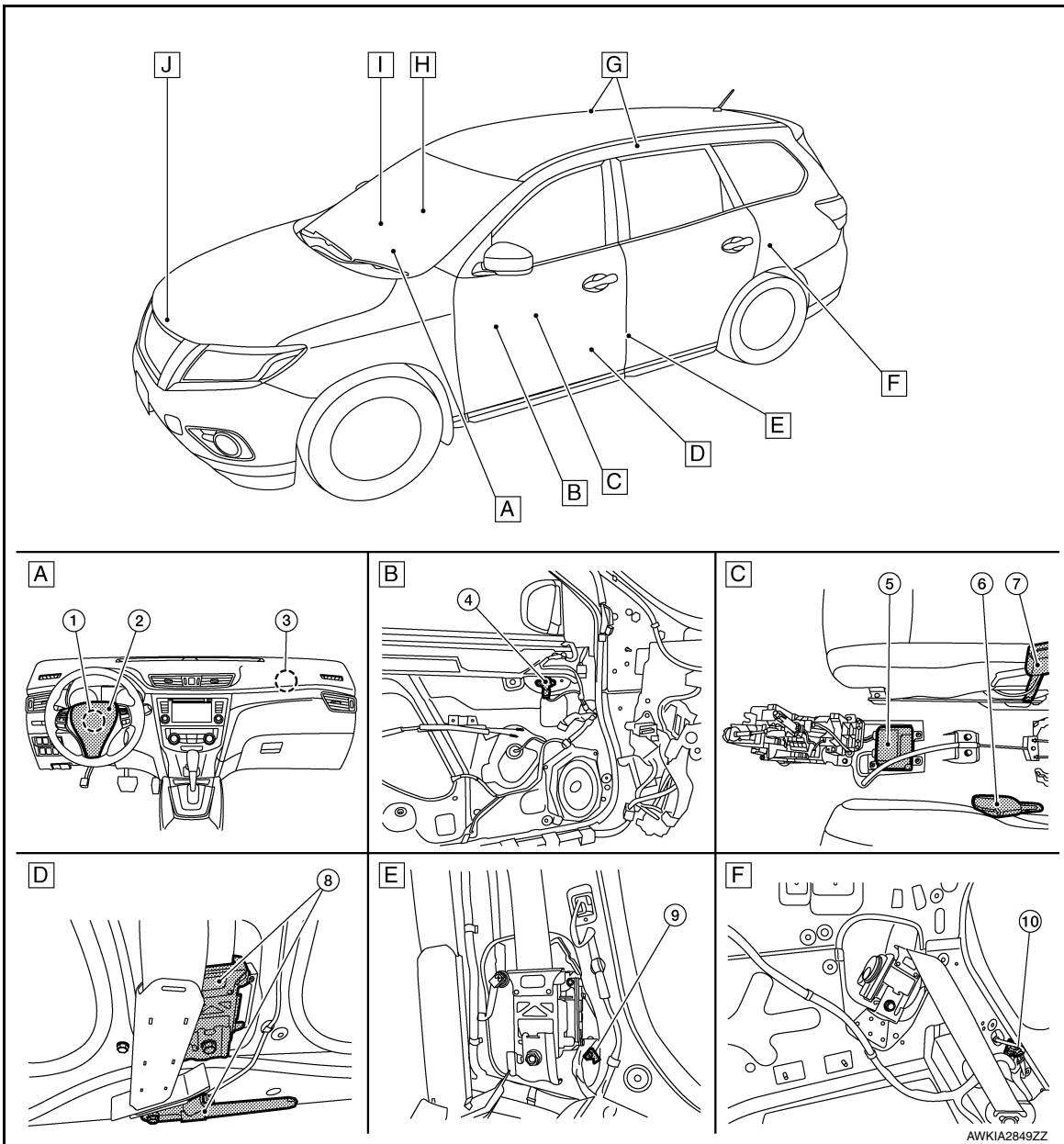
< SYSTEM DESCRIPTION >

Component Parts Location

INFOID:0000000010246022

COMPONENT PARTS

< SYSTEM DESCRIPTION >

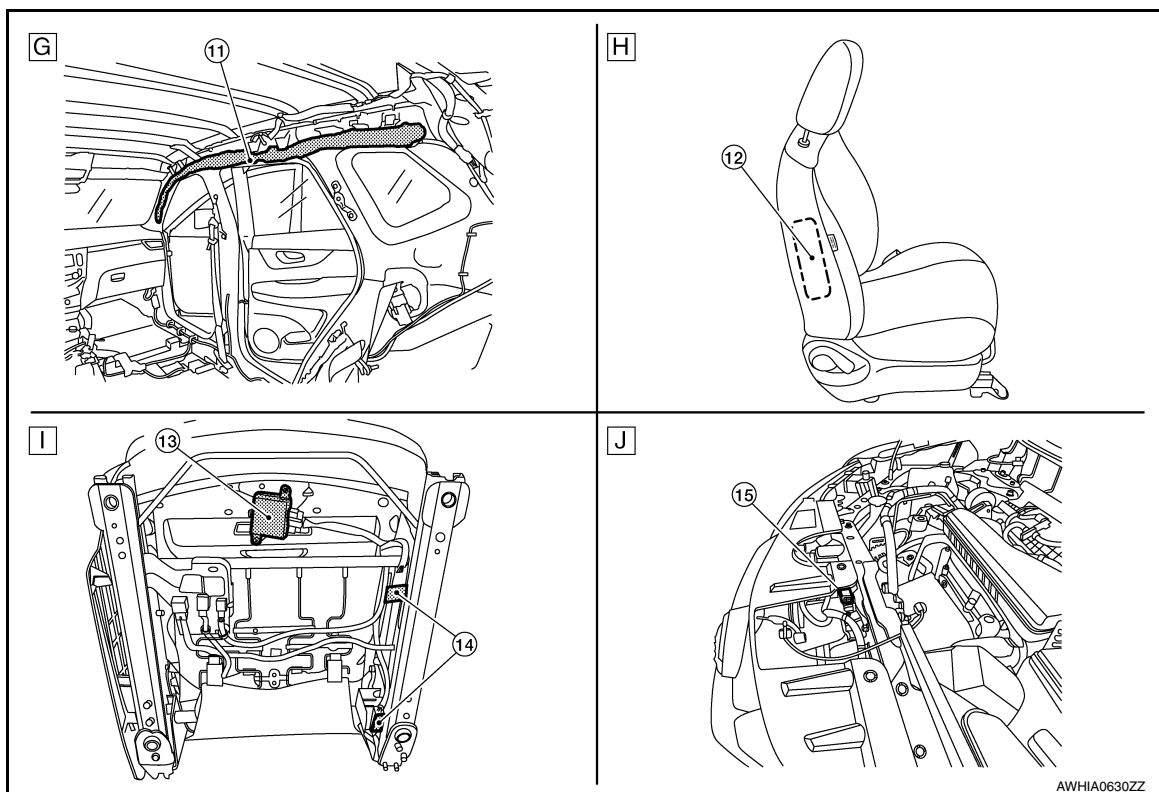


A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P

SRC

COMPONENT PARTS

< SYSTEM DESCRIPTION >



- A. Instrument panel B. View with drivers door finisher removed C. View with center console removed
D. View with the lower B-pillar trim removed E. View with the lower B-pillar trim removed F. View with LH rear lower luggage finisher removed
G. View with headlining removed H. RH front passenger seat I. Occupant classification system
J. Radiator core support assembly

No.	Component	Function
1.	Spiral cable	The spiral cable provides a rotating physical connection to the driver air bag module.
2.	Drivers air bag module	Refer to SRC-9, "Driver Air Bag Module" .
3.	Front passenger air bag module	Refer to SRC-9, "Front Passenger Air Bag Module" .
4.	Front door satellite sensor	Refer to SRC-11, "Front Door Satellite Sensor" .
5.	Air bag diagnosis sensor unit	Refer to SRC-10, "Air Bag Diagnosis Sensor Unit" .
6.	Seat belt buckle switch (driver seat)	The seat belt buckle switch LH provides the seat belt buckle signals to the air bag diagnosis sensor unit and the combination meter.
7.	Seat belt buckle switch (passenger seat)	The seat belt buckle switch RH provides the seat belt buckle signals to the air bag diagnosis sensor unit and the combination meter.
8.	Front LH seat belt pre-tensioner (RH similar)	Refer to SRC-10, "Front Seat Belt Pre-tensioner" .
9.	Front side air bag satellite sensor	Refer to SRC-10, "Front Side Air Bag Satellite Sensor" .
10.	Rear side air bag satellite sensor LH (RH similar)	Refer to SRC-11, "Rear Side Air Bag Satellite Sensor" .
11.	RH side curtain air bag module (LH similar)	Refer to SRC-9, "Side Curtain Air Bag Module" .
12.	Front RH side air bag module (LH similar)	Refer to SRC-9, "Front Side Air Bag Module" .
13.	Occupant classification system control unit	Refer to SRC-13, "OCCUPANT CLASSIFICATION SYSTEM : System Description" .
14.	Occupant classification system sensors	Refer to SRC-13, "OCCUPANT CLASSIFICATION SYSTEM : System Description" .
15.	Crash zone sensor	Refer to SRC-10, "Crash Zone Sensor" .

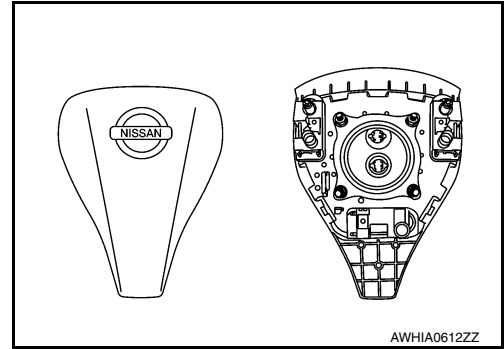
COMPONENT PARTS

< SYSTEM DESCRIPTION >

Driver Air Bag Module

INFOID:000000010246023

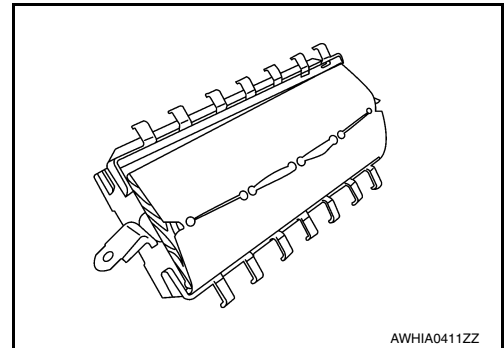
The driver air bag module is dual stage and located in the steering wheel assembly. It operates with the SRS system in a frontal collision exceeding a specified level.



Front Passenger Air Bag Module

INFOID:000000010246024

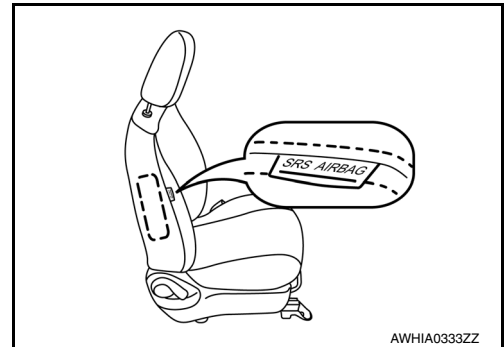
The front passenger air bag module is dual stage and is located behind the instrument panel assembly. It operates with the SRS system in a frontal collision exceeding a specified level. Refer to [SRC-12, "SRS AIR BAG SYSTEM : System Description"](#) for more information.



Front Side Air Bag Module

INFOID:000000010246025

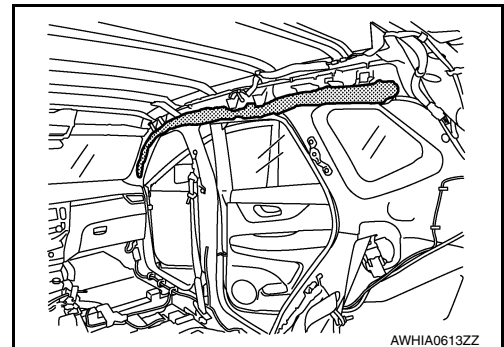
Front side air bag modules are built into the front seatback assemblies. Vehicles with side air bags are equipped with labels as shown.



Side Curtain Air Bag Module

INFOID:000000010246026

Side curtain air bag modules are located above the vehicle headlining. Vehicles with side curtain air bags are equipped with labels on the pillar upper finishers.



COMPONENT PARTS

< SYSTEM DESCRIPTION >

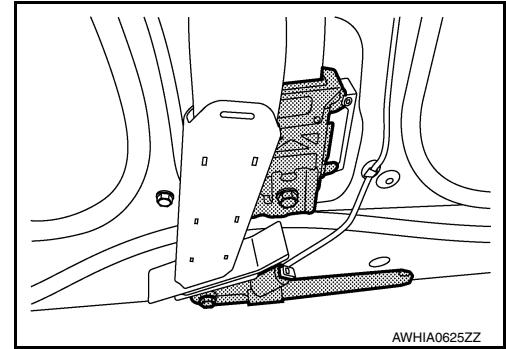
Front Seat Belt Pre-tensioner

INFOID:000000010246027

The seat belt pre-tensioner system with load limiter is installed for both the driver's seat and the front passenger's seat. It operates simultaneously with the SRS air bag system in the event of a frontal collision with an impact exceeding a specified level.

When the frontal collision with an impact exceeding a specified level occurs, seat belt slack resulting from clothing or other factors is immediately taken up by the shoulder belt pre-tensioner as well as the lap belt pre-tensioner. Vehicle passengers are securely restrained.

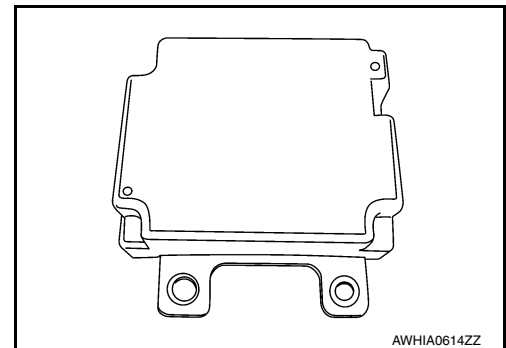
When passengers in a vehicle are thrown forward in a collision and the restraining force of the seat belt exceeds a specified level, the load limiter permits the specified extension of the seat belt by the twisting of the ELR shaft, and a relaxation of the chest-area seat belt web tension while maintaining force.



Air Bag Diagnosis Sensor Unit

INFOID:000000010246028

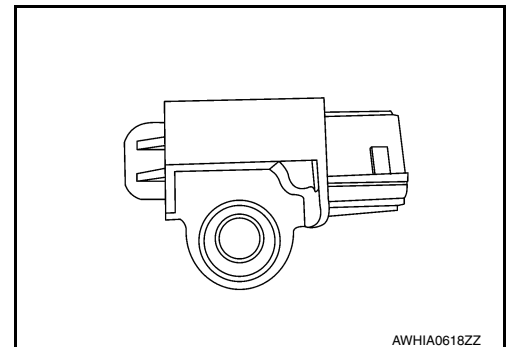
The air bag diagnosis sensor unit is located under the center console assembly. The air bag diagnosis sensor unit receives signals from multiple SRS sensors and controls the deployment of the air bags. The deployment of the air bags depends on the type and severity of the collision. The air bag diagnosis sensor unit has self-diagnosis capability through the use of the CONSULT as well as flash codes displayed by the air bag warning lamp.



Crash Zone Sensor

INFOID:000000010246029

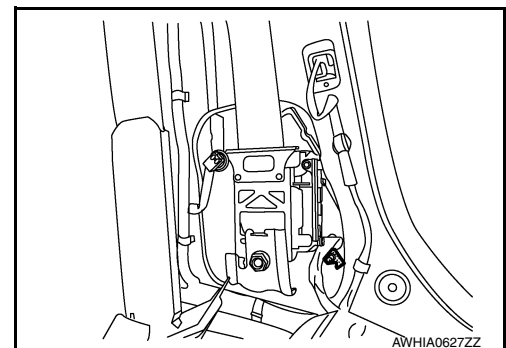
The crash zone sensor is located in front of the radiator. The crash zone sensor sends signals to the air bag diagnosis sensor unit during a frontal collision. This sensor may be identified by a yellow connector.



Front Side Air Bag Satellite Sensor

INFOID:000000010246030

The front side air bag satellite sensors are located on the front center pillar LH and RH next to the seat belt pretensioners. The front side air bag satellite sensors send signals to the air bag diagnosis sensor unit during a side collision. These sensors may be identified by yellow connectors.



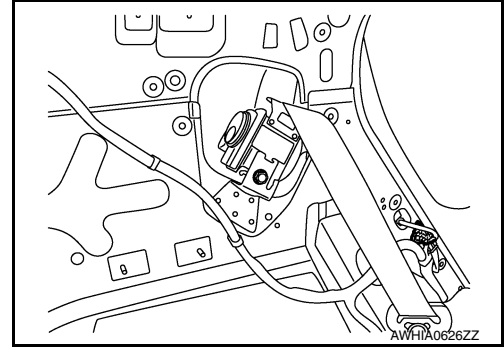
COMPONENT PARTS

< SYSTEM DESCRIPTION >

Rear Side Air Bag Satellite Sensor

INFOID:0000000010246031

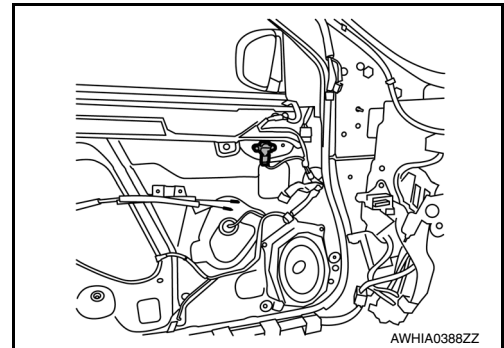
The rear side air bag satellite sensors are located behind the luggage side lower finisher LH and RH. The rear side air bag satellite sensors send signals to the air bag diagnosis sensor unit during a side collision. These sensors may be identified by yellow connectors.



Front Door Satellite Sensor

INFOID:0000000010336843

The front door satellite sensors are located in the driver and passenger doors. The front door satellite sensors send signals to the air bag diagnosis sensor unit during a side collision. These sensors may be identified by yellow connectors.



A
B
C
D
E
F
G
SRC
I
J
K
L
M
N
O
P

SYSTEM

< SYSTEM DESCRIPTION >

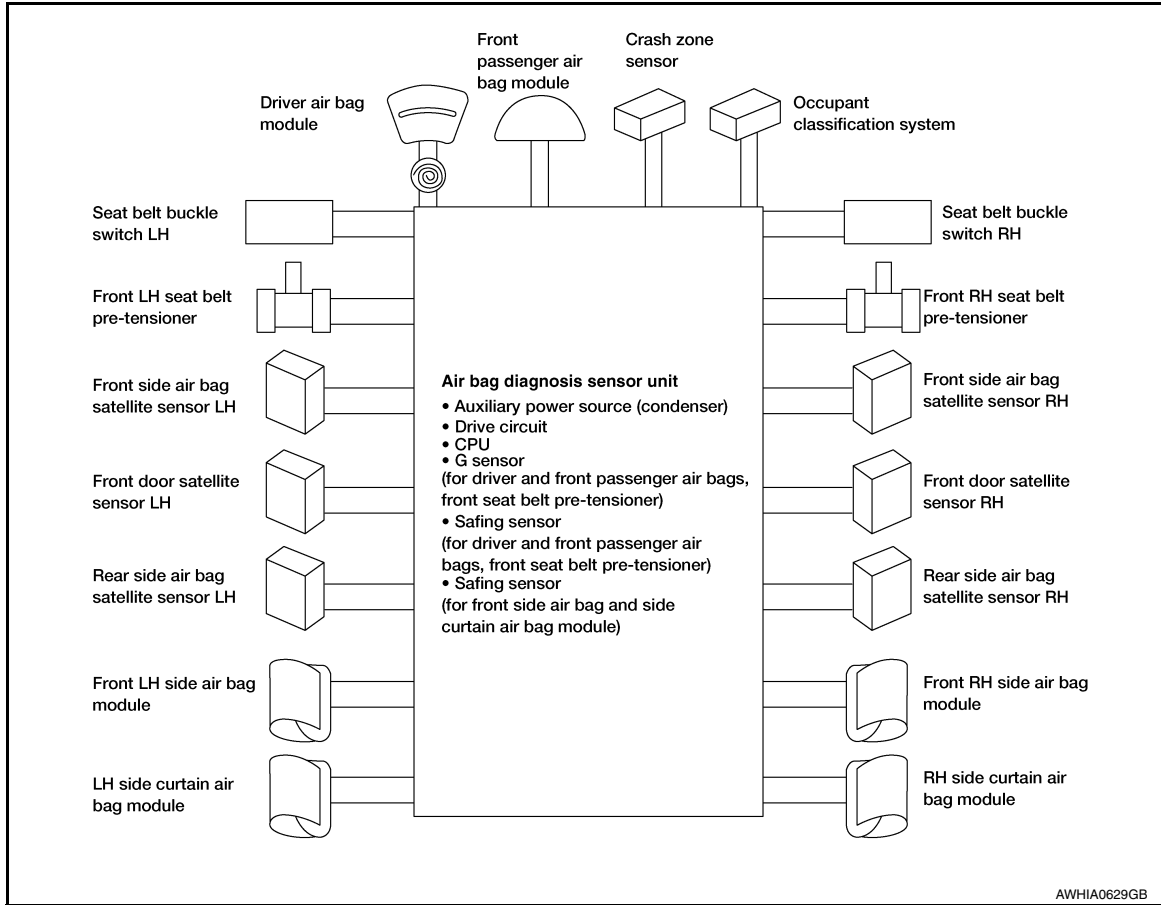
SYSTEM

SRS AIR BAG SYSTEM

SRS AIR BAG SYSTEM : System Description

INFOID:0000000010246034

SYSTEM DIAGRAM



DESCRIPTION

- The air bag deploys if the air bag diagnosis sensor unit is activated while the ignition switch is in the ON or START position.
- The collision modes for which supplemental restraint systems are activated are different among the SRS systems. For example, the driver air bag module, front passenger air bag module and front seat belt pre-tensioners are activated in a frontal collision but not in a side collision.

SRS Collision Modes

SRS configuration	Frontal collision	Left side collision	Right side collision
Driver air bag module	x	—	—
Front passenger air bag module	x	—	—
Front LH seat belt pre-tensioner	x	—	—
Front RH seat belt pre-tensioner	x	—	—
Front LH side air bag module	—	x	—
Front RH side air bag module	—	—	x
LH side curtain air bag module	—	x	—
RH side curtain air bag module	—	—	x

OCCUPANT CLASSIFICATION SYSTEM

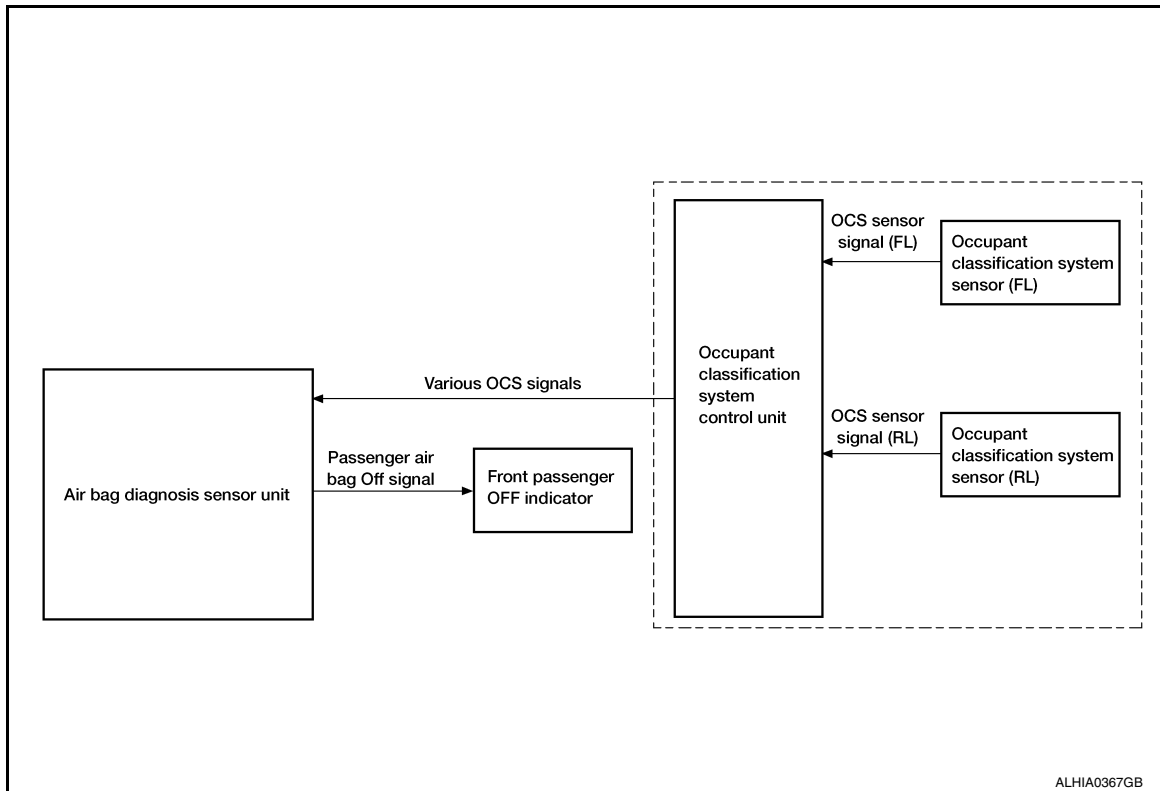
SYSTEM

< SYSTEM DESCRIPTION >

OCCUPANT CLASSIFICATION SYSTEM : System Description

INFOID:0000000010246035

SYSTEM DIAGRAM



DESCRIPTION

The occupant classification system (OCS) identifies different size occupants, out of position occupants, and detects if child seat is present in the front passenger seat. The OCS control unit (2) receives inputs from the occupant classification sensors (1) (located on the passenger seat track assembly). Depending on classification of the passenger, the OCS sends a signal to the air bag diagnosis sensor unit. The air bag diagnosis sensor unit uses this signal and the seat belt buckle switch RH signal to determine deployment or non deployment of the passenger front air bag in the event of a collision. Depending on the signals received, the air bag diagnosis sensor unit can disable the passenger front air bag completely. The OCS (weight sensors) must be set to zero point using CONSULT after servicing the OCS system.

NOTE:

- CONSULT can be used to confirm when “zero point reset” for OCS is complete.
- Always perform zero point reset after the removal and installation of the seat or when disconnecting the OCS control unit harness connector even if zero point reset has been completed in the past.
- If zero point reset is incomplete, the passenger air bag will be disabled and the passenger air bag off indicator will be ON.
- In case of customer concern, CONSULT can be used to confirm the passenger air bag status (readiness).

Passenger Air Bag Status Conditions

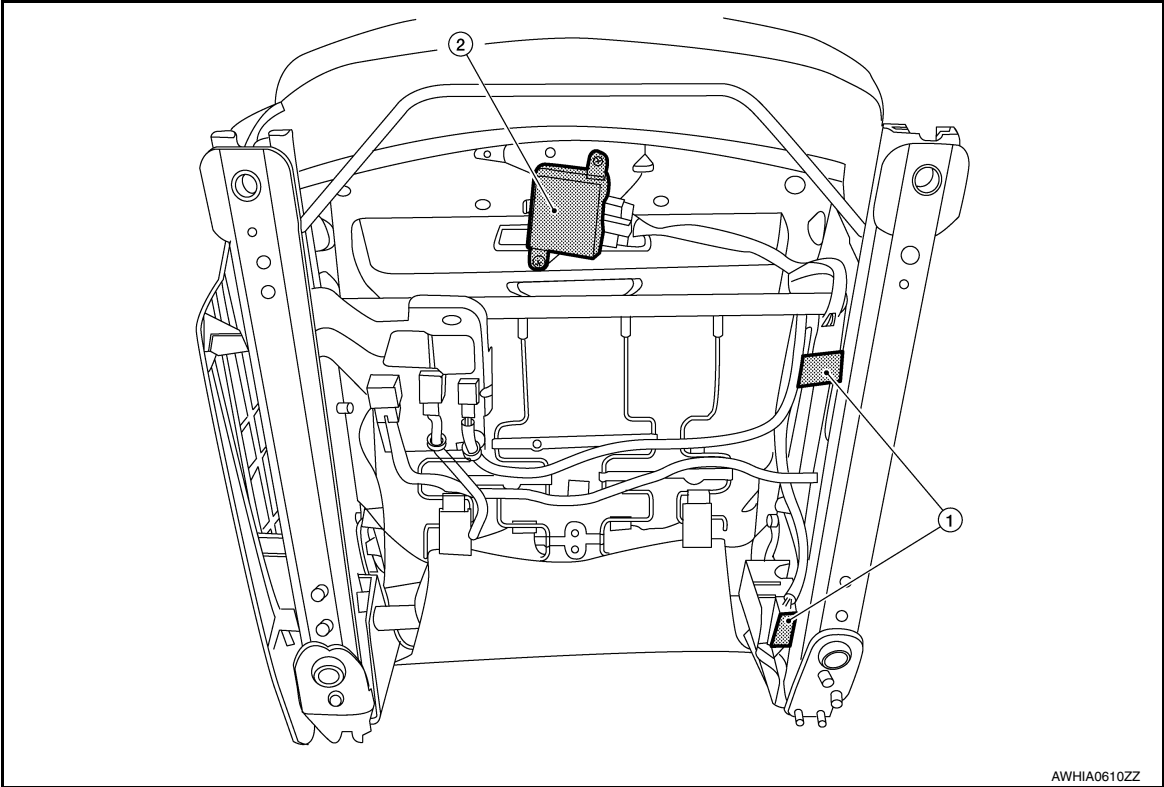
Front Passenger Seat (Condition)	PASS AIR BAG OFF Indicator (Status)	Passenger Air Bag Status (Readiness)	CONSULT Display
Seat occupied	OFF	Active (enabled)	ON
Seat occupied ^{NOTE}	ON	Deactivated (disabled)	OFF
Seat empty	OFF	Deactivated (disabled)	OFF

NOTE:

SYSTEM

< SYSTEM DESCRIPTION >

Passenger does not meet Occupant Classification System specifications for passenger air bag activation.

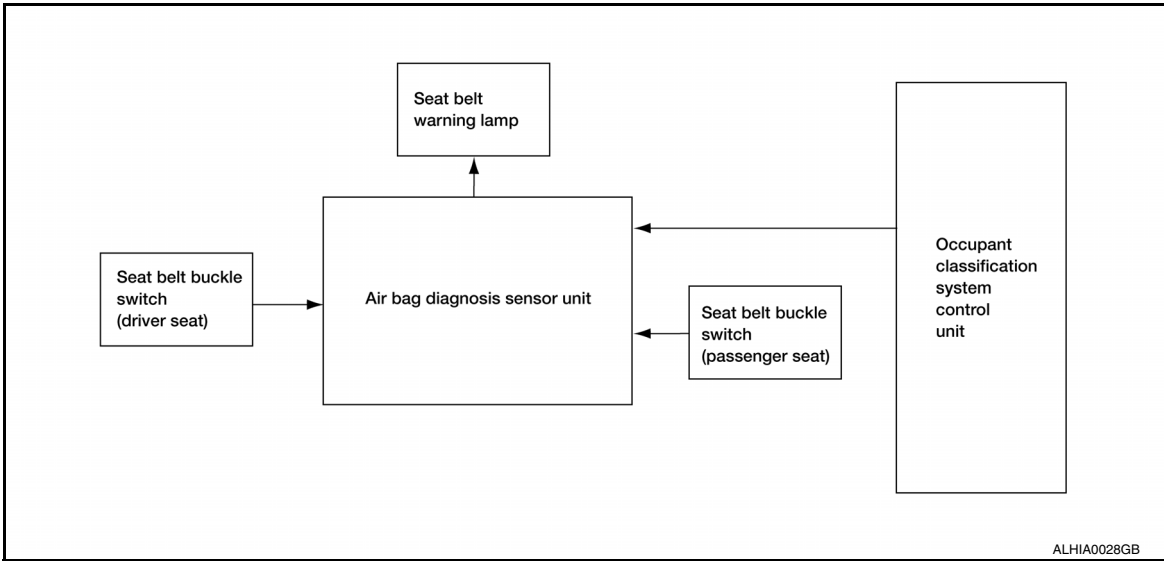


SEAT BELT WARNING LAMP SYSTEM

SEAT BELT WARNING LAMP SYSTEM : System Description

INFOID:0000000010246036

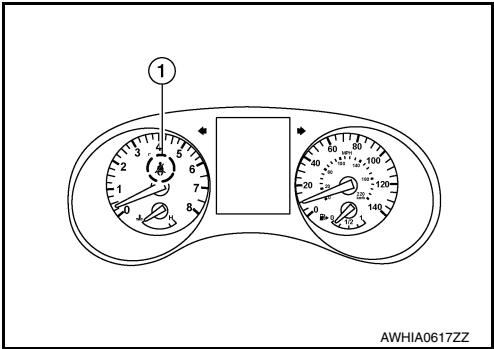
SYSTEM DIAGRAM



SYSTEM

< SYSTEM DESCRIPTION >

The seat belt warning lamp (1) will remind the driver if the driver or front passenger seat belt should be buckled. The system works in conjunction with the occupant classification system. Refer to [SRC-13, "OCCUPANT CLASSIFICATION SYSTEM : System Description"](#).



Seat Belt Warning System Operation

Driver seat status (Ignition switch ON)	Passenger seat status	Seat belt buckle switch LH status	Seat belt buckle switch RH status	Seat belt warning lamp
Seat occupied	Seat occupied	Buckled	Buckled	Off
			Unbuckled	On
	Seat unoccupied	Unbuckled	—	Off
	—			On

SRC

I
J
K
L
M
N
O
P

DIAGNOSIS SYSTEM (AIR BAG)

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (AIR BAG)

Description

INFOID:0000000010246037

CAUTION:

- **Never use electrical test equipment on any circuit related to the SRS unless instructed in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.**
- **Never repair, splice or modify the SRS wiring harness. If the harness is damaged, replace it with a new one.**
- **Keep ground portion clean.**

DIAGNOSIS FUNCTION

- The SRS self-diagnostic results can be read with air bag warning lamp and/or CONSULT.
- The user mode is exclusively prepared for the customer (driver). This mode warns the driver of a system malfunction through the operation of the air bag warning lamp.
- The diagnosis mode allows the technician to locate and inspect the malfunctioning part.
- The mode applications for the air bag warning lamp and CONSULT are as per the following items.

×: Application, —: Not application

Diagnosis tool	User mode	Diagnosis mode
Air bag warning lamp	×	×
CONSULT	—	×

On Board Diagnosis Function

INFOID:0000000010246038

ON-BOARD DIAGNOSIS

There are two self diagnosis functions with air bag warning lamp per the following items.

- USER MODE
- DIAGNOSIS MODE

METHOD OF STARTING

- Diagnosis mode changes from user mode to diagnosis mode when changing operation is performed.
- In user mode, when SRS air bag warning lamp is not turning ON, changing to diagnosis mode by ignition switch operation is not possible.
- In diagnosis mode, when repair is complete and system is normal, the mode changes to user mode when ignition switch is turned from OFF to ON.

Procedure to Change Diagnosis Mode

1. Turn ignition switch from OFF to ON.
2. SRS air bag lamp turns ON for 7 seconds and turns OFF, then turn ignition switch OFF within 2 seconds after the lamp turns OFF.

NOTE:

When in Diagnosis Mode, the air bag warning lamp may illuminate for more than 7 seconds after the ignition switch is turned ON. If this is the case, the ignition switch must still be cycled OFF after 7 seconds.

3. After turning ignition switch OFF, wait for 3 seconds or more.
4. Repeat operation 1 to 3 for 2 times so that operation 1 to 3 is repeated for 3 times in total.
5. Turn ignition switch from OFF to ON. Diagnosis mode changes.

USER MODE

In USER MODE, air bag warning lamp on combination meter turns ON when a malfunction is detected and warns the customer (driver).

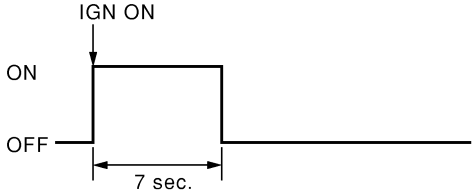
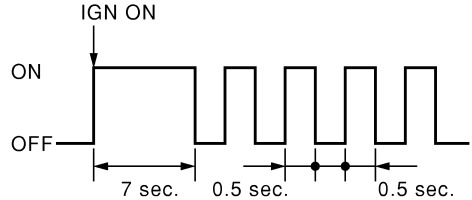
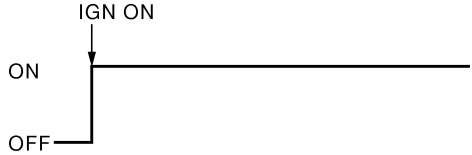
How to Read Air Bag Warning Lamp

1. Turn the ignition switch from OFF to ON, and check that the air bag warning lamp turns ON.
2. Compare the air bag warning lamp operation pattern with the examples.

Air Bag Warning Lamp Examples:

DIAGNOSIS SYSTEM (AIR BAG)

< SYSTEM DESCRIPTION >

Air bag warning lamp flashing pattern (User Mode)		
Warning lamp	SRS condition	Reference item
 SHIA0011E	- No malfunction is detected. - No further action is necessary.	—
 SHIA0012E	The system is malfunctioning and needs to be repaired.	Refer to SRC-18, "Trouble Diagnosis with CONSULT" or SRC-16, "On Board Diagnosis Function" .
 SHIA0013E	- Air bag is deployed. - Seat belt pre-tensioner is deployed.	Refer to Frontal collision: SR-5, "FOR FRONTAL COLLISION : When SRS is activated in a collision" , SR-6, "FOR FRONTAL COLLISION : When SRS is not activated in a collision" or Side and rollover collision: SR-7, "FOR SIDE AND ROLLOVER COLLISION : When SRS is activated in a collision" , SR-8, "FOR SIDE AND ROLLOVER COLLISION : When SRS is not activated in a collision" .
 SHIA0014E	- Air bag diagnosis sensor unit is malfunctioning. - Air bag power supply circuit is malfunctioning. - SRS air bag warning lamp circuit is malfunctioning.	Refer to SRC-99, "AIR BAG Warning Lamp Does Not Turn Off" .
 SHIA0015E	- Air bag diagnosis sensor unit is malfunctioning. - Air bag warning lamp circuit is malfunctioning.	Refer to SRC-98, "AIR BAG Warning Lamp Does Not Turn On" .

DIAGNOSIS MODE

NOTE:

Diagnosis Mode can not be entered if a malfunction is not detected in User Mode.

- Turn ignition switch ON.
- After AIR BAG warning lamp lights for 7 seconds, turn ignition switch OFF within 1 second.

DIAGNOSIS SYSTEM (AIR BAG)

< SYSTEM DESCRIPTION >

3. Wait more than 3 seconds.
 4. Repeat steps 1 to 3 two more times (3 times total).
 5. Turn ignition switch ON.
- SRS is now in Diagnosis Mode. Refer to [SRC-23, "Flash Code Index"](#).

Trouble Diagnosis with CONSULT

INFOID:0000000010246039

1. Connect CONSULT.
2. DTC is displayed on SELF-DIAG RESULTS.

NOTE:

If a malfunction is not detected on SELF-DIAG RESULTS [CURRENT], but a malfunction is detected during SRS Operation Check, the following cases may exist:

- SELF-DIAG [PAST] memory might not be erased. Refer to [SRC-16, "On Board Diagnosis Function"](#).
- SRS system malfunctions intermittently. Refer to [SRC-45, "Inspection Procedure"](#).

DIAGNOSIS MODE

1. Connect CONSULT.
2. Confirm that zero point reset of OCS is complete.
3. If no DTCs are detected on "SELF-DIAG RESULTS [CURRENT]", repair of SRS is completed. Go to step 4.
If any DTCs are detected on "SELF-DIAG RESULTS [CURRENT]", the malfunction has not been repaired completely or another malfunction is being detected. Perform SRS Operation Check again. Refer to [SRC-16, "On Board Diagnosis Function"](#).
4. Touch "ERASE".

NOTE:

Touching "ERASE" will clear the SRS memory of the malfunction ("SELF-DIAG [PAST]"). If "SELF-DIAG [PAST]" is not erased, User Mode may show the previous system malfunction even if the malfunction has been repaired completely.

5. Check that no malfunction is detected in "SELF-DIAG [PAST]".
6. Exit Diagnosis Mode and disconnect the CONSULT.
7. Perform SRS Operation Check. Refer to [SRC-16, "On Board Diagnosis Function"](#).

SRS HISTORY CHECK

1. Check repair history of the SRS. If no repairs have been made, perform [SRC-16, "On Board Diagnosis Function"](#). If repairs have been made, GO TO step 2.
2. Erase "SELF-DIAG [PAST]" after repair. Refer to [SRC-16, "On Board Diagnosis Function"](#).

CONSULT Function (AIR BAG)

INFOID:0000000010246040

CONSULT can display each diagnostic item using the diagnostic test modes shown following.

Diagnostic Test Mode	Diagnostic Item	Description
Self Diagnostic Result	SELF-DIAG RESULT [CURRENT]	A current Self-diagnosis result (also indicated by the number of warning lamp flashes in the Diagnosis mode) is displayed on the CONSULT screen in real time. This refers to a malfunctioning part requiring repairs.
Data Monitor	DATA MONITOR	Displays air bag diagnosis sensor unit input/output data in real time.
ECU Identification	ECU DISCRIMINATED NO.	Air bag diagnosis sensor unit ECU discriminated number (identification number) or part number is displayed. Air bag diagnosis sensor unit has individual ECU discriminated number (identification number) or part number based on model and equipment.
Trouble Diagnostic Record	TROUBLE DIAG RECORD [PAST]	With TROUBLE DIAG RECORD, diagnosis results previously erased by a reset operation can be displayed on the CONSULT screen.

DIAGNOSIS SENSOR UNIT

< ECU DIAGNOSIS INFORMATION >

ECU DIAGNOSIS INFORMATION

DIAGNOSIS SENSOR UNIT

DTC Index

INFOID:0000000010246011

DIAGNOSTIC CODE CHART

NOTE:

Follow the procedures in numerical order when repairing malfunctioning parts. Confirm whether malfunction is eliminated using air bag warning lamp or CONSULT each time repair is finished. If malfunction is still observed, proceed to the next step. When malfunction is eliminated, further repair work is not required.

CONSULT name	DTC	DTC detecting condition	Repair order
DRIVER AIRBAG MODULE CIRCUIT [OPEN]	B0001	Driver air bag module circuit (DR1) is open (including the spiral cable).	Refer to SRC-47, "Diagnosis Procedure" .
DRIVER AIRBAG MODULE CIRCUIT [VB-SHORT]		Driver air bag module circuit (DR1) is shorted to a power supply circuit (including the spiral cable).	
DRIVER AIRBAG MODULE CIRCUIT [GND-SHORT]		Driver air bag module circuit (DR1) is shorted to ground (including the spiral cable).	
DRIVER AIRBAG MODULE CIRCUIT [SHORT]		Driver air bag module circuits (DR1) are shorted to each other (including the spiral cable).	
DRIVER AIRBAG MODULE 2ND CIRCUIT [OPEN]	B0002	Driver air bag module circuit (DR2) is open (including the spiral cable).	
DRIVER AIRBAG MODULE 2ND CIRCUIT [VB-SHORT]		Driver air bag module circuit (DR2) is shorted to a power supply circuit (including the spiral cable).	
DRIVER AIRBAG MODULE 2ND CIRCUIT [GND-SHORT]		Driver air bag module circuit (DR2) is shorted to ground (including the spiral cable).	
DRIVER AIRBAG MODULE 2ND CIRCUIT [SHORT]		Driver air bag module circuits (DR2) are shorted to each other (including the spiral cable).	
ASSIST AIRBAG MODULE CIRCUIT [OPEN]	B0010	Front passenger air bag module circuit (AS1) is open.	Refer to SRC-49, "Diagnosis Procedure" .
ASSIST AIRBAG MODULE CIRCUIT [VB-SHORT]		Front passenger air bag module circuit (AS1) is shorted to a power supply circuit.	
ASSIST AIRBAG MODULE CIRCUIT [GND-SHORT]		Front passenger air bag module circuit (AS1) is shorted to ground.	
ASSIST AIRBAG MODULE CIRCUIT [SHORT]		Front passenger air bag module circuits (AS1) are shorted to each other.	
ASSIST AIRBAG MODULE 2ND CIRCUIT [OPEN]	B0011	Front passenger air bag module circuit (AS2) is open.	
ASSIST AIRBAG MODULE 2ND CIRCUIT [VB-SHORT]		Front passenger air bag module circuit (AS2) is shorted to a power supply circuit.	
ASSIST AIRBAG MODULE 2ND CIRCUIT [GND-SHORT]		Front passenger air bag module circuit (AS2) is shorted to ground.	
ASSIST AIRBAG MODULE 2ND CIRCUIT [SHORT]		Front passenger air bag module circuits (AS2) are shorted to each other.	

DIAGNOSIS SENSOR UNIT

< ECU DIAGNOSIS INFORMATION >

CONSULT name	DTC	DTC detecting condition	Repair order
SIDE AIRBAG MODULE LH CIRCUIT [OPEN]	B0020	Front LH side air bag module circuit is open.	Refer to SRC-51. "Diagnosis Procedure" .
SIDE AIRBAG MODULE LH CIRCUIT [VB-SHORT]		Front LH side air bag module circuit is shorted to a power supply circuit.	
SIDE AIRBAG MODULE LH CIRCUIT [GND-SHORT]		Front LH side air bag module circuit is shorted to ground.	
SIDE AIRBAG MODULE LH CIRCUIT [SHORT]		Front LH side air bag module circuits are shorted to each other.	
SIDE AIRBAG MODULE RH CIRCUIT [OPEN]	B0028	Front RH side air bag module circuit is open.	Refer to SRC-53. "Diagnosis Procedure" .
SIDE AIRBAG MODULE RH CIRCUIT [VB-SHORT]		Front RH side air bag module circuit is shorted to a power supply circuit.	
SIDE AIRBAG MODULE RH CIRCUIT [GND-SHORT]		Front RH side air bag module circuit is shorted to ground.	
SIDE AIRBAG MODULE RH CIRCUIT [SHORT]		Front RH side air bag module circuits are shorted to each other.	
CURTAIN AIRBAG MODULE LH CIRCUIT [OPEN]	B0021	LH side curtain air bag module circuit is open.	Refer to SRC-55. "Diagnosis Procedure" .
CURTAIN AIRBAG MODULE LH CIRCUIT [VB-SHORT]		LH side curtain air bag module circuit is shorted to a power supply circuit.	
CURTAIN AIRBAG MODULE LH CIRCUIT [GND-SHORT]		LH side curtain air bag module circuit is shorted to ground.	
CURTAIN AIRBAG MODULE LH CIRCUIT [SHORT]		LH side curtain air bag module circuits are shorted to each other.	
CURTAIN AIRBAG MODULE RH CIRCUIT [OPEN]	B0029	RH side curtain air bag module circuit is open.	Refer to SRC-57. "Diagnosis Procedure" .
CURTAIN AIRBAG MODULE RH CIRCUIT [VB-SHORT]		RH side curtain air bag module circuit is shorted to a power supply circuit.	
CURTAIN AIRBAG MODULE RH CIRCUIT [GND-SHORT]		RH side curtain air bag module circuit is shorted to ground.	
CURTAIN AIRBAG MODULE RH CIRCUIT [SHORT]		RH side curtain air bag module circuits are shorted to each other.	
FRONT PRE-TEN LH CIRCUIT [OPEN]	B1430	Front LH seat belt pre-tensioner circuit is open.	Refer to SRC-59. "Diagnosis Procedure" .
FRONT PRE-TEN LH CIRCUIT [VB-SHORT]		Front LH seat belt pre-tensioner circuit is shorted to a power supply circuit.	
FRONT PRE-TEN LH CIRCUIT [GND-SHORT]		Front LH seat belt pre-tensioner circuit is shorted to ground.	
FRONT PRE-TEN LH CIRCUIT [SHORT]		Front LH seat belt pre-tensioner circuits are shorted to each other.	
FRONT PRE-TEN RH CIRCUIT [OPEN]	B1431	Front RH seat belt pre-tensioner circuit is open.	Refer to SRC-61. "Diagnosis Procedure" .
FRONT PRE-TEN RH CIRCUIT [VB-SHORT]		Front RH seat belt pre-tensioner circuit is shorted to a power supply circuit.	
FRONT PRE-TEN RH CIRCUIT [GND-SHORT]		Front RH seat belt pre-tensioner circuit is shorted to ground.	
FRONT PRE-TEN RH CIRCUIT [SHORT]		Front RH seat belt pre-tensioner circuits are shorted to each other.	

DIAGNOSIS SENSOR UNIT

< ECU DIAGNOSIS INFORMATION >

CONSULT name	DTC	DTC detecting condition	Repair order
SEAT BELT BUCKLE SW LH CIRCUIT [OPEN]	B1428	Seat belt buckle switch (driver side) circuit is open.	Refer to SRC-63, "Diagnosis Procedure" .
SEAT BELT BUCKLE SW LH CIRCUIT [VB-SHORT]		Seat belt buckle switch (driver side) circuit is shorted to a power supply circuit.	
SEAT BELT BUCKLE SW LH CIRCUIT [GND-SHORT]		Seat belt buckle switch (driver side) circuit is shorted to ground.	
SEAT BELT BUCKLE SW LH CIRCUIT [UNDEFINED]		Seat belt buckle switch (driver side) circuit malfunction.	
SEAT BELT BUCKLE SW RH CIRCUIT [OPEN]	B1429	Seat belt buckle switch (passenger side) circuit is open.	Refer to SRC-66, "Diagnosis Procedure" .
SEAT BELT BUCKLE SW RH CIRCUIT [VB-SHORT]		Seat belt buckle switch (passenger side) circuit is shorted to a power supply circuit.	
SEAT BELT BUCKLE SW RH CIRCUIT [GND-SHORT]		Seat belt buckle switch (passenger side) circuit is shorted to ground.	
SEAT BELT BUCKLE SW RH CIRCUIT [UNDEFINED]		Seat belt buckle switch (passenger side) circuit malfunction.	
CRASH ZONE SENSOR [SENSOR FAIL]	B0094	Crash zone sensor has malfunctioned.	Refer to SRC-68, "Diagnosis Procedure" .
CRASH ZONE SENSOR [COMM FAIL]		Crash zone sensor communication error.	
CRASH ZONE SENSOR [DISCONNECT]		Crash zone sensor is disconnected.	
CRASH ZONE SENSOR [UNMATCH]		Crash zone sensor is out of specification.	
CRASH ZONE SENSOR [GND-SHORT]		Crash zone sensor circuit is shorted to ground.	
DOOR SATELLITE SENSOR LH [SENSOR FAIL]	B0093	Front door satellite sensor LH has malfunctioned.	Refer to SRC-70, "Diagnosis Procedure" .
DOOR SATELLITE SENSOR LH [COMM FAIL]		Front door satellite sensor LH communication error.	
DOOR SATELLITE SENSOR LH [DISCONNECT]		Front door satellite sensor LH is disconnected.	
DOOR SATELLITE SENSOR LH [UNMATCH]		Front door satellite sensor LH is out of specification.	
DOOR SATELLITE SENSOR LH [GND-SHORT]		Front door satellite sensor LH circuit is shorted to ground.	
DOOR SATELLITE SENSOR RH [SENSOR FAIL]	B0098	Front door satellite sensor RH has malfunctioned.	Refer to SRC-72, "Diagnosis Procedure" .
DOOR SATELLITE SENSOR RH [COMM FAIL]		Front door satellite sensor RH communication error.	
DOOR SATELLITE SENSOR RH [DISCONNECT]		Front door satellite sensor RH is disconnected.	
DOOR SATELLITE SENSOR RH [UNMATCH]		Front door satellite sensor RH is out of specification.	
DOOR SATELLITE SENSOR RH [GND-SHORT]		Front door satellite sensor RH circuit is shorted to ground.	

A
B
C
D
E
F
G
I
J
K
L
M
N
O
P

SRC

DIAGNOSIS SENSOR UNIT

< ECU DIAGNOSIS INFORMATION >

CONSULT name	DTC	DTC detecting condition	Repair order
B-PILLAR SATELLITE SENSOR LH [SENSOR FAIL]	B0091	Front side air bag satellite sensor LH has malfunctioned.	Refer to SRC-75, "Diagnosis Procedure" .
B-PILLAR SATELLITE SENSOR LH [COMM FAIL]		Front side air bag satellite sensor LH communication error.	
B-PILLAR SATELLITE SENSOR LH [DISCONNECT]		Front side air bag satellite sensor LH is disconnected.	
B-PILLAR SATELLITE SENSOR LH [UNMATCH]		Front side air bag satellite sensor LH is out of specification.	
B-PILLAR SATELLITE SENSOR LH [GND-SHORT]		Front side air bag satellite sensor LH circuit is shorted to ground.	
B-PILLAR SATELLITE SENSOR RH [SENSOR FAIL]	B0096	Front side air bag satellite sensor RH has malfunctioned.	Refer to SRC-78, "Diagnosis Procedure" .
B-PILLAR SATELLITE SENSOR RH [COMM FAIL]		Front side air bag satellite sensor RH communication error.	
B-PILLAR SATELLITE SENSOR RH [DISCONNECT]		Front side air bag satellite sensor RH is disconnected.	
B-PILLAR SATELLITE SENSOR RH [UNMATCH]		Front side air bag satellite sensor RH is out of specification.	
B-PILLAR SATELLITE SENSOR RH [GND-SHORT]		Front side air bag satellite sensor RH circuit is shorted to ground.	
C-PILLAR SATELLITE SENSOR LH [SENSOR FAIL]	B0092	Rear side satellite sensor LH has malfunctioned.	Refer to SRC-81, "Diagnosis Procedure" .
C-PILLAR SATELLITE SENSOR LH [COMM FAIL]		Rear side satellite sensor LH communication error.	
C-PILLAR SATELLITE SENSOR LH [DISCONNECT]		Rear side satellite sensor LH is disconnected.	
C-PILLAR SATELLITE SENSOR LH [UNMATCH]		Rear side satellite sensor LH is out of specification.	
C-PILLAR SATELLITE SENSOR LH [GND-SHORT]		Rear side satellite sensor LH circuit is shorted to ground.	
C-PILLAR SATELLITE SENSOR RH [SENSOR FAIL]	B0097	Rear side satellite sensor RH has malfunctioned.	Refer to SRC-84, "Diagnosis Procedure" .
C-PILLAR SATELLITE SENSOR RH [COMM FAIL]		Rear side satellite sensor RH communication error.	
C-PILLAR SATELLITE SENSOR RH [DISCONNECT]		Rear side satellite sensor RH is disconnected.	
C-PILLAR SATELLITE SENSOR RH [UNMATCH]		Rear side satellite sensor RH is out of specification.	
C-PILLAR SATELLITE SENSOR RH [GND-SHORT]		Rear side satellite sensor RH circuit is shorted to ground.	

DIAGNOSIS SENSOR UNIT

< ECU DIAGNOSIS INFORMATION >

CONSULT name	DTC	DTC detecting condition	Repair order
OCCUPANT DETECTION SENSOR UNIT [UNIT FAIL]	B00A0	The OCS control unit is malfunctioning.	Refer to SRC-87, "Diagnosis Procedure" .
OCCUPANT DETECTION SENSOR UNIT [NO DATA]			
OCCUPANT DETECTION SENSOR UNIT [UNDEFINED]			
OCCUPANT DETECTION SENSOR UNIT [RESET FAIL]			
OCCUPANT DETECTION SENSOR UNIT [COMM FAIL]		Communication between the OCS control unit and the air bag diagnosis sensor unit is interrupted.	
OCCUPANT DETECTION SENSOR [UNIT FAIL]		The OCS sensor is malfunctioning.	
OCCUPANT DETECTION SENSOR [POWER FAIL]		The OCS sensor circuit is malfunctioning.	
CONTROL UNIT [UNIT FAIL]	B14XX	Air bag diagnosis sensor unit is malfunctioning.	Refer to SRC-89, "Diagnosis Procedure" .
PASSENGER AIRBAG INDICATOR CIRCUIT [FAIL]	B00D5	Front passenger air bag OFF indicator is malfunctioning.	Refer to SRC-91, "Diagnosis Procedure" .
PASSENGER AIRBAG INDICATOR CIRCUIT [OPEN]		Front passenger air bag OFF indicator circuit is open.	
PASSENGER AIRBAG INDICATOR CIRCUIT [VB-SHORT]		Front passenger air bag OFF indicator is shorted to a power supply circuit.	
PASSENGER AIRBAG INDICATOR CIRCUIT [GND-SHORT]		Front passenger air bag OFF indicator is shorted to ground.	
IGN VOLTAGE [LOW]	B142A	Ignition voltage to the air bag diagnosis sensor unit is low.	Refer to SRC-93, "Diagnosis Procedure" .
IGN VOLTAGE [HIGH]		Ignition voltage to the air bag diagnosis sensor unit is high.	
CAN COMMUNICATION FAILURE	U1000	CAN system communication failure.	Refer to SRC-95, "Diagnosis Procedure" .
CAN COMMUNICATION FAILURE [CONTROL UNIT]	U1010	CAN system (control unit) failure.	Refer to SRC-96, "Diagnosis Procedure" .
FRONTAL COLLISION DETECTION	B1421	Frontal collision detected. Driver and/or front passenger air bag modules are deployed.	Refer to SR-5, "FOR FRONTAL COLLISION : When SRS is activated in a collision" or SR-6, "FOR FRONTAL COLLISION : When SRS is not activated in a collision" .
SIDE COLLISION DETECTION	B1422	Side collision detected. Curtain air bag module and seat belt pre-tensioner are deployed.	Refer to SR-7, "FOR SIDE AND ROLLOVER COLLISION : When SRS is activated in a collision" or SR-8, "FOR SIDE AND ROLLOVER COLLISION : When SRS is not activated in a collision" .

Flash Code Index

INFOID:000000010246012

WARNING LAMP FLASH CODE CHART

How to read flash codes

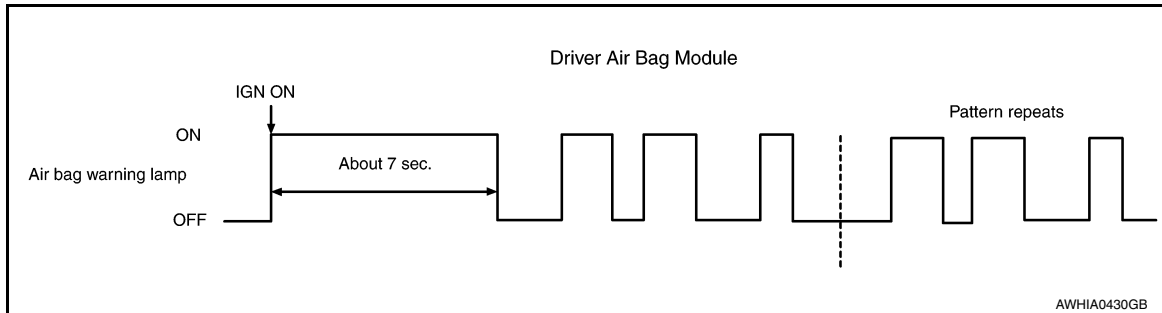
DIAGNOSIS SENSOR UNIT

< ECU DIAGNOSIS INFORMATION >

1. Put the vehicle in Diagnosis Mode. Refer to [SRC-16, "On Board Diagnosis Function"](#).
2. All codes are preceded by a seven second "holding" flash.
3. Identify how many primary flashes are displayed as well as the length of each primary flash.
4. Refer to the tables and examples below to determine which SRS subsystem the code belongs to.
5. Count the short secondary flashes that follow the primary flashes.
6. Match the correct flashing pattern to the malfunctioning component and perform the Diagnosis Procedure.

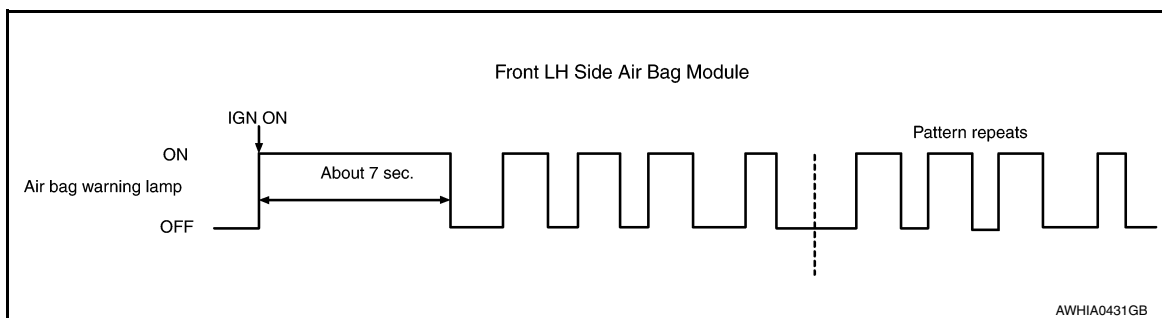
Refer to the illustrations below for an example of each flashing pattern.

Front subsystem



Flashes (Primary)	Flash Length (seconds)	Flashes (Secondary)	Malfunctioning Component or Circuit	Reference
2	1.5	1	Driver air bag module	SRC-47, "Diagnosis Procedure"
		2	Passenger air bag module	SRC-49, "Diagnosis Procedure"
		3	Front LH seat belt pre-tensioner	SRC-59, "Diagnosis Procedure"
		4	Front RH seat belt pre-tensioner	SRC-61, "Diagnosis Procedure"

Side subsystem

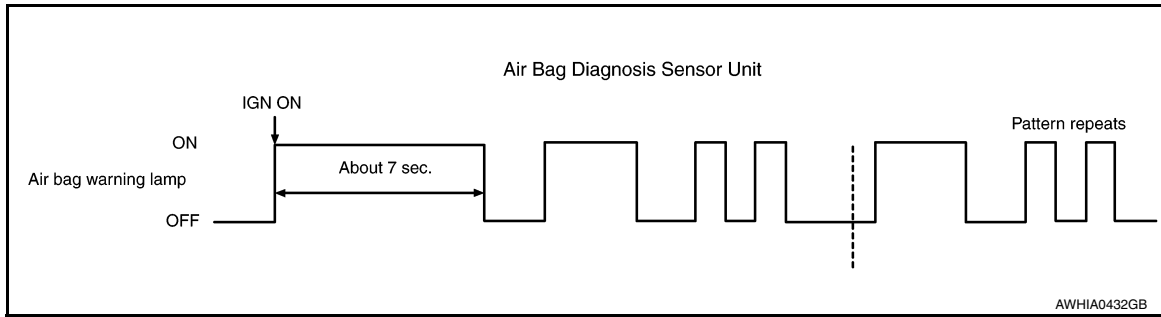


Flashes (Primary)	Flash Length (seconds)	Flashes (Secondary)	Malfunctioning Component or Circuit	Reference
3	1.5	1	Front LH side air bag module	SRC-51, "Diagnosis Procedure"
		2	Front RH side air bag module	SRC-53, "Diagnosis Procedure"
		3	LH side curtain air bag module	SRC-55, "Diagnosis Procedure"
		4	RH side curtain air bag module	SRC-57, "Diagnosis Procedure"

DIAGNOSIS SENSOR UNIT

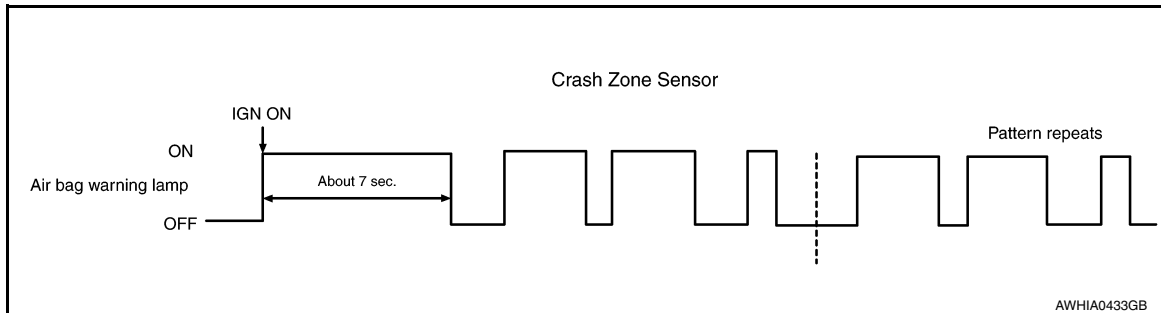
< ECU DIAGNOSIS INFORMATION >

Air bag subsystem



Flashes (Primary)	Flash Length (seconds)	Flashes (Secondary)	Malfunctioning Component or Circuit	Reference
1	3	1	Collision detection	SRC-97, "Diagnosis Procedure"
		2	Air bag diagnosis sensor unit	SRC-89, "Diagnosis Procedure"
		3	Passenger air bag OFF indicator	SRC-91, "Diagnosis Procedure"
		4	Occupant classification system	SRC-87, "Diagnosis Procedure"

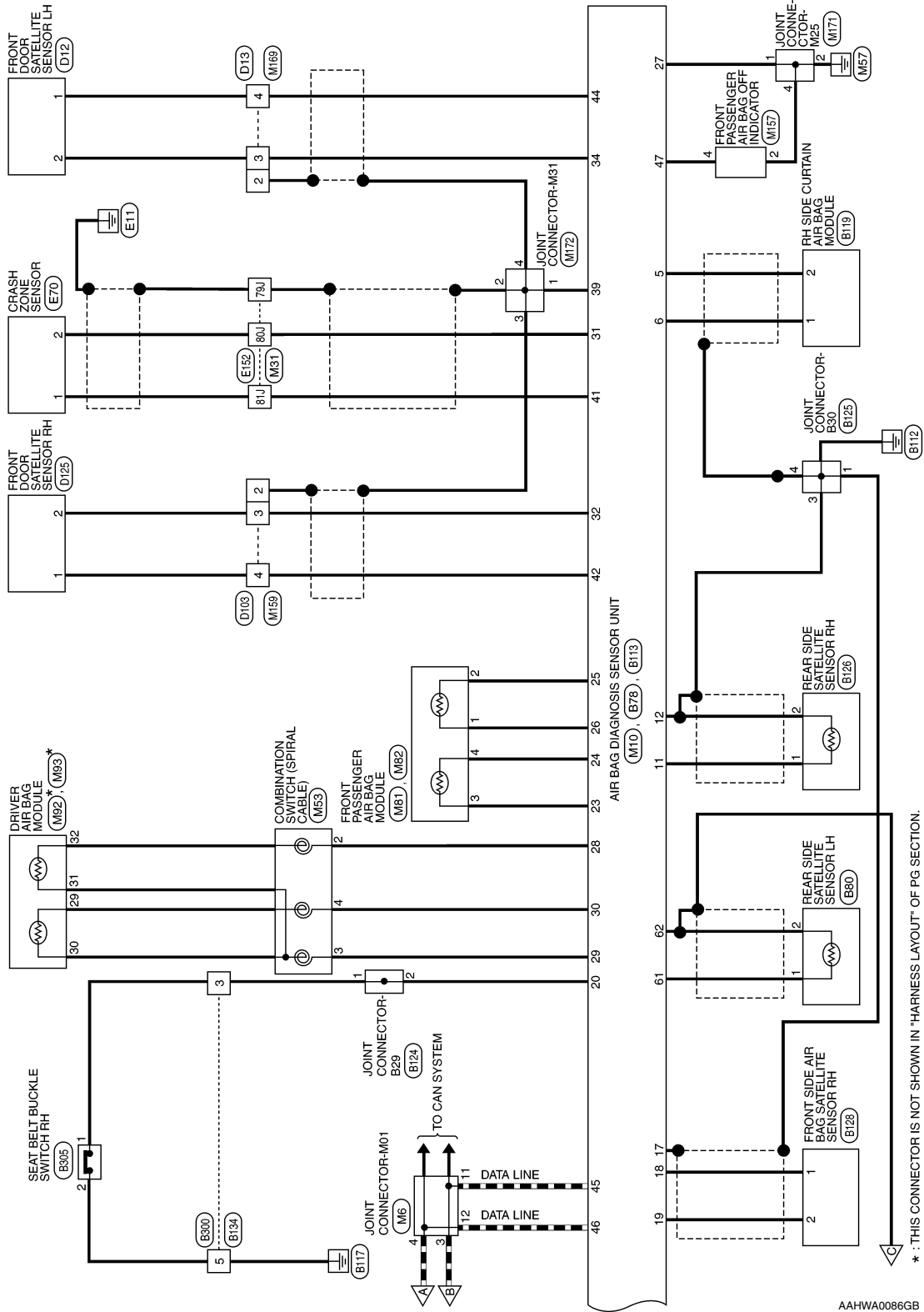
Sensor subsystem



Flashes (Primary)	Flash Length (seconds)	Flashes (Secondary)	Malfunctioning Component or Circuit	Reference
2	3	1	Crash zone sensor	SRC-68, "Diagnosis Procedure"
		2	Front side air bag satellite sensor LH	SRC-75, "Diagnosis Procedure"
		3	Front side air bag satellite sensor RH	SRC-78, "Diagnosis Procedure"
		4	Rear side satellite sensor LH	SRC-81, "Diagnosis Procedure"
		5	Rear side satellite sensor RH	SRC-84, "Diagnosis Procedure"
		6	Front door satellite sensor LH	SRC-70, "Diagnosis Procedure"
		7	Front door satellite sensor RH	SRC-72, "Diagnosis Procedure"
		8	Seat belt buckle switch LH	SRC-63, "Diagnosis Procedure"
		9	Seat belt buckle switch RH	SRC-66, "Diagnosis Procedure"

SRS AIR BAG SYSTEM

< WIRING DIAGRAM >



A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P

SRC

SRS AIR BAG SYSTEM

< WIRING DIAGRAM >

SRS AIR BAG CONTROL SYSTEM CONNECTORS

Connector No.	M6
Connector Name	JOINT CONNECTOR-M01
Connector Color	GRAY



4	3	2	1
8	7	6	5
12	11	10	9
16	15	14	13
20	19	18	17
24	23	22	21

Connector No.	M10
Connector Name	AIR BAG DIAGNOSIS SENSOR UNIT
Connector Color	YELLOW



23	24	25	26
27	28	29	30
31	32	33	34
35	36	37	38
39	40	41	42
43	44	45	46
47	48	49	50

Terminal No.	Color of Wire	Signal Name
1	GR	-
2	R	-
3	P	-
4	L	-
9	GR	-
10	R	-
11	P	-
12	L	-

Terminal No.	Color of Wire	Signal Name
23	L	AS2+
24	BG	AS2-
25	LG	AS1-
26	SB	AS1+
27	B	GND
28	V	DR2+
29	V	DR1- & DR2-
30	G	DR1+

Connector No.	M22
Connector Name	DATA LINK CONNECTOR
Connector Color	WHITE



9	10	11	12	13	14	15	16
1	2	3	4	5	6	7	8

Terminal No.	Color of Wire	Signal Name
7	GR	-

Terminal No.	Color of Wire	Signal Name
31	B	ECZS-
32	BR	RH DOOR-SAT-
33	-	-
34	G	LH DOOR-SAT-
35	-	-
36	-	-
37	-	-
38	-	-
39	B	GND
40	-	-
41	W	ECZS+
42	Y	RH DOOR-SAT+
43	-	-
44	R	LH DOOR-SAT+
45	P	CAN-L
46	L	CAN-H
47	GR	TELLTALE LAMP OFF
48	-	-
49	-	-
50	R	IGN

AAHIA0265GB

SRS AIR BAG SYSTEM

< WIRING DIAGRAM >

Connector No.	M43
Connector Name	JOINT CONNECTOR-M02
Connector Color	BLUE

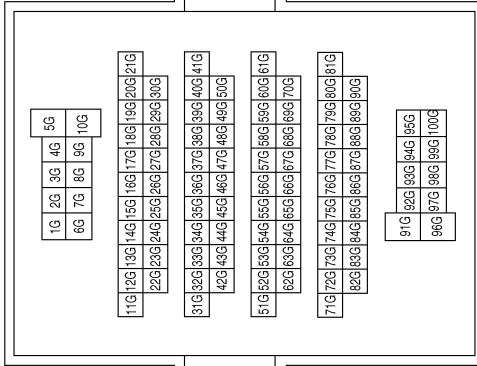
																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				</
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	----



Terminal No.	Color of Wire	Signal Name
2	L	-
5	L	-
12	P	-
15	P	-

Connector No.	M36
Connector Name	WIRE TO WIRE
Connector Color	WHITE

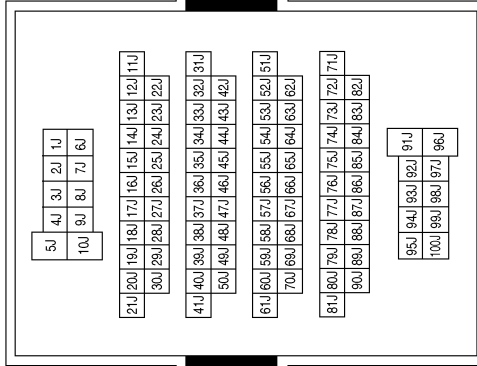
1G	2G	3G	4G	5G
6G	7G	8G	9G	10G



Terminal No.	Color of Wire	Signal Name
60G	GR	-
61G	BR	-

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE

5J	4J	3J	2J	1J
10J	9J	8J	7J	6J



Terminal No.	Color of Wire	Signal Name
79J	SHIELD	-
80J	B	-
81J	W	-

Connector No.	M69
Connector Name	WIRE TO WIRE
Connector Color	WHITE



16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17

Terminal No.	Color of Wire	Signal Name
10	Y	-

Connector No.	M53
Connector Name	COMBINATION SWITCH (SPIRAL CABLE)
Connector Color	YELLOW

4	3	2	1
---	---	---	---



Terminal No.	Color of Wire	Signal Name
2	V	-
3	Y	-
4	G	-

Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE

7P	6P	5P	4P	3P	2P	1P		
16P	15P	14P	13P	12P	11P	10P	9P	8P



Terminal No.	Color of Wire	Signal Name
1P	R	-
8P	LA/BR	-
13P	LA/G	-

AAHIA0266GB

SRS AIR BAG SYSTEM

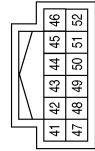
< WIRING DIAGRAM >

Connector No.	M81
Connector Name	FRONT PASSENGER AIR BAG MODULE
Connector Color	ORANGE



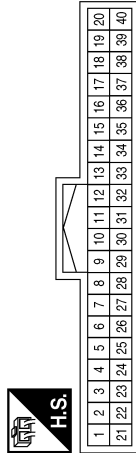
Terminal No.	Color of Wire	Signal Name
1	SB	–
2	LG	–

Connector No.	M77
Connector Name	COMBINATION METER
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
41	L	CAN-H
42	P	CAN-L
45	LA/G	BAT
46	LA/BR	IGN
52	B	G1

Connector No.	M76
Connector Name	COMBINATION METER
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	B	GND1
28	Y	DR BELT SW

Connector No.	M93
Connector Name	DRIVER AIR BAG MODULE
Connector Color	ORANGE



Terminal No.	Color of Wire	Signal Name
31	L	–
32	R	–

Connector No.	M92
Connector Name	DRIVER AIR BAG MODULE
Connector Color	YELLOW



Terminal No.	Color of Wire	Signal Name
29	G	–
30	Y	–

Connector No.	M82
Connector Name	FRONT PASSENGER AIR BAG MODULE
Connector Color	BLACK



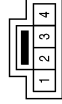
Terminal No.	Color of Wire	Signal Name
3	L	–
4	BG	–

AAHIA0267GB

SRS AIR BAG SYSTEM

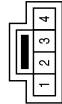
< WIRING DIAGRAM >

Connector No.	M169
Connector Name	WIRE TO WIRE
Connector Color	YELLOW



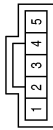
Terminal No.	Color of Wire	Signal Name
2	SHIELD	-
3	G	-
4	R	-

Connector No.	M159
Connector Name	WIRE TO WIRE
Connector Color	YELLOW



Terminal No.	Color of Wire	Signal Name
2	SHIELD	-
3	BR	-
4	Y	-

Connector No.	M157
Connector Name	FRONT PASSENGER AIR BAG OFF INDICATOR
Connector Color	BLACK



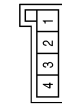
Terminal No.	Color of Wire	Signal Name
2	B	-
4	GR	-

Connector No.	E70
Connector Name	CRASH ZONE SENSOR
Connector Color	YELLOW



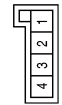
Terminal No.	Color of Wire	Signal Name
1	W	-
2	B	-

Connector No.	M172
Connector Name	JOINT CONNECTOR-M31
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	B	-
2	SHIELD	-
3	SHIELD	-
4	SHIELD	-

Connector No.	M171
Connector Name	JOINT CONNECTOR-M25
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	B	-
2	B	-
4	B	-

AAHIA0268GB

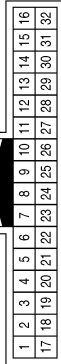
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P

SRC

SRS AIR BAG SYSTEM

< WIRING DIAGRAM >

Connector No.	B41
Connector Name	WIRE TO WIRE
Connector Color	WHITE

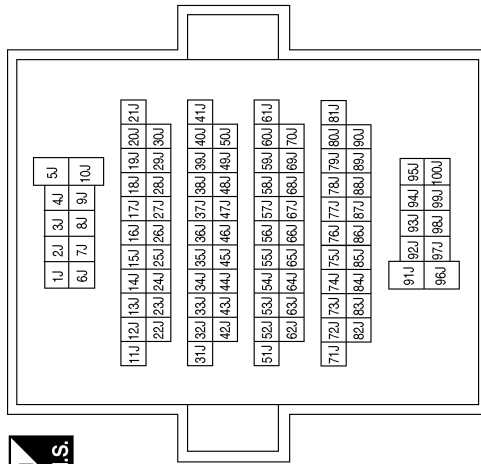
Terminal No.	Color of Wire	Signal Name
10	LA/Y	—

Connector No.	B9
Connector Name	FRONT LH SEAT BELT PRE-TENSIONER (LAP BELT)
Connector Color	ORANGE




Terminal No.	Color of Wire	Signal Name
3	G	—
4	R	—

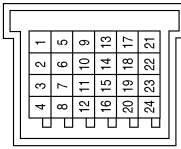
Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE

Terminal No.	Color of Wire	Signal Name
79J	SHIELD	—
80J	B	—
81J	W	—

Terminal No.	Color of Wire	Signal Name
13	LA/Y	—
17	LA/Y	—
21	SB	—

Connector No.	B63
Connector Name	JOINT CONNECTOR-B01
Connector Color	GRAY

Connector No.	B62
Connector Name	LH SIDE CURTAIN AIRBAG MODULE
Connector Color	YELLOW




Terminal No.	Color of Wire	Signal Name
1	Y	—
2	BR	—

AAHIA0269GB

SRS AIR BAG SYSTEM

< WIRING DIAGRAM >

Connector No.	B79
Connector Name	JOINT CONNECTOR-B26
Connector Color	WHITE



4	3	2	1
---	---	---	---

Terminal No.	Color of Wire	Signal Name
61	L	LH C-SAT+
62	P	LH C-SAT-
63	-	-
64	-	-
65	P	P-LH+
66	GR	P-LH-
67	SB	LH BUCKLE SW
68	G	LH B-SAT-
69	R	LH B-SAT+
70	SHIELD	GND
71	-	-
72	-	-

Connector No.	B78
Connector Name	AIR BAG DIAGNOSIS SENSOR UNIT
Connector Color	YELLOW



51	52	53	54	55	56
57	58	59	60	61	62
63	64	65	66	67	68
69	70	71	72		

Terminal No.	Color of Wire	Signal Name
51	G	LH SQUIB #1+
52	R	LH SQUIB #1-
53	V	LH SQUIB #2+
54	LG	LH SQUIB #2-
55	BR	LH SQUIB #3-
56	Y	LH SQUIB #3+
57	-	-
58	-	-
59	-	-
60	-	-

Connector No.	B82
Connector Name	FRONT LH SIDE AIR BAG MODULE
Connector Color	YELLOW



1	2
---	---

Connector No.	B81
Connector Name	FRONT AIR BAG SATELLITE SENSOR LH
Connector Color	YELLOW



1	2
---	---

Connector No.	B80
Connector Name	REAR SIDE SATELLITE SENSOR LH
Connector Color	YELLOW



1	2
---	---

Terminal No.	Color of Wire	Signal Name
1	V	-
2	LG	-

Terminal No.	Color of Wire	Signal Name
1	R	-
2	G	-

Terminal No.	Color of Wire	Signal Name
1	L	-
2	P	-

AAHIA0270GB

SRS AIR BAG SYSTEM

< WIRING DIAGRAM >

Connector No.	B85
Connector Name	FRONT LH SEAT BELT PRE-TENSIONER (SHOULDER BELT)
Connector Color	YELLOW



Terminal No.	Color of Wire	Signal Name
1	P	-
2	GR	-

Connector No.	B87
Connector Name	SEAT BELT BUCKLE SWITCH LH
Connector Color	WHITE



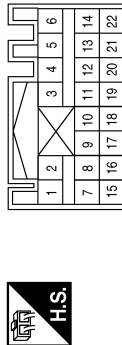
Terminal No.	Color of Wire	Signal Name
1	LA/Y	-
2	B	-

Connector No.	B107
Connector Name	FRONT RH SEAT BELT PRE-TENSIONER (LAP BELT)
Connector Color	ORANGE



Terminal No.	Color of Wire	Signal Name
3	Y	-
4	L	-

Connector No.	B113
Connector Name	AIR BAG DIAGNOSIS SENSOR UNIT
Connector Color	YELLOW



Terminal No.	Color of Wire	Signal Name
1	Y	RH SQUIB #1+
2	L	RH SQUIB #1-
3	V	RH SQUIB #2+
4	P	RH SQUIB #2-

Terminal No.	Color of Wire	Signal Name
5	B	RH SQUIB #3-
6	W	RH SQUIB #3+
7	-	-
8	-	-
9	BG	ODS
10	-	-
11	BR	RH C-SAT+
12	Y	RH C-SAT-
13	-	-
14	-	-
15	-	-
16	-	-
17	SHIELD	GND
18	R	RH B-SAT+
19	G	RH B-SAT-
20	SB	RH BUCKLE SW +
21	V	P-RH1-
22	LG	P-RH1+

Connector No.	B119
Connector Name	RH SIDE CURTAIN AIRBAG MODULE
Connector Color	YELLOW



Terminal No.	Color of Wire	Signal Name
1	W	-
2	B	-

AAHIA0271GB

SRS AIR BAG SYSTEM

< WIRING DIAGRAM >

Connector No.	B126
Connector Name	REAR SIDE SATELLITE SENSOR RH
Connector Color	YELLOW



Terminal No.	Color of Wire	Signal Name
1	BR	-
2	Y	-

Connector No.	B125
Connector Name	JOINT CONNECTOR-B30
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	SHIELD	-
2	B	-
3	SHIELD	-
4	SHIELD	-

Connector No.	B124
Connector Name	JOINT CONNECTOR-B29
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	SB	-
2	SB	-

Connector No.	B129
Connector Name	FRONT RH SIDE AIR BAG MODULE
Connector Color	YELLOW



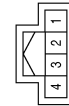
Terminal No.	Color of Wire	Signal Name
1	V	-
2	P	-

Connector No.	B128
Connector Name	FRONT SIDE AIR BAG SATELLITE SENSOR RH
Connector Color	YELLOW



Terminal No.	Color of Wire	Signal Name
1	R	-
2	G	-

Connector No.	B127
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	GR	-
2	B	-
3	BG	-
4	V	-

AAHIA0272GB

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P

SRC

SRS AIR BAG SYSTEM

< WIRING DIAGRAM >

Connector No.	B133
Connector Name	FRONT RH SEATBELT PRE-TENSIONER (SHOULDER BELT)
Connector Color	YELLOW



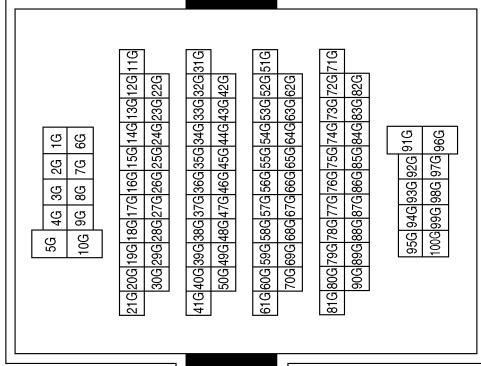
Terminal No.	Color of Wire	Signal Name
1	LG	-
2	V	-

Connector No.	B134
Connector Name	WIRE TO WIRE
Connector Color	WHITE



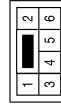
Terminal No.	Color of Wire	Signal Name
3	SB	-
5	B	-

Connector No.	B136
Connector Name	WIRE TO WIRE
Connector Color	WHITE



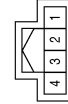
Terminal No.	Color of Wire	Signal Name
60G	GR	-
61G	V	-

Connector No.	B300
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
3	BR	-
5	P	-

Connector No.	B305
Connector Name	SEAT BELT BUCKLE SWITCH RH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	BR	-
2	P	-

Connector No.	B350
Connector Name	WIRE TO WIRE
Connector Color	WHITE

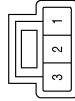


Terminal No.	Color of Wire	Signal Name
1	GR	-
2	B	-
3	BR/W	-
4	W	-

SRS AIR BAG SYSTEM

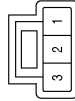
< WIRING DIAGRAM >

Connector No.	B352
Connector Name	OCCUPANT CLASSIFICATION SYSTEM SENSOR RL
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	W/L	-
2	SB	-
3	Y	-

Connector No.	B351
Connector Name	OCCUPANT CLASSIFICATION SYSTEM SENSOR FL
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	R/B	-
2	LG	-
3	R	-

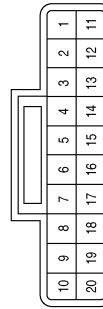
Connector No.	D12
Connector Name	FRONT DOOR SATELLITE SENSOR LH
Connector Color	YELLOW



Terminal No.	Color of Wire	Signal Name
1	G	-
2	R	GND

Terminal No.	Color of Wire	Signal Name
9	W	IGN
12	BR/W	ACU COMM
13	-	-
14	-	-
15	W/L	LOAD SENSOR REAR INNER GND
16	SB	LOAD SENSOR REAR INNER SIGNAL
17	R	LOAD SENSOR FRONT INNER VCC
19	Y	LOAD SENSOR REAR INNER VCC
20	-	-

Connector No.	B353
Connector Name	OCCUPANT CLASSIFICATION SYSTEM CONTROL UNIT
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	-	-
2	B	GND
3	LG	LOAD SENSOR FRONT INNER SIGNAL
4	R/B	LOAD SENSOR FRONT INNER GND
5	-	-
6	-	-
7	GR	K-LINE

AAHIA0274GB

SRS AIR BAG SYSTEM

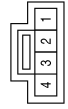
< WIRING DIAGRAM >

Connector No.	D125
Connector Name	FRONT DOOR SATELLITE SENSOR RH
Connector Color	YELLOW



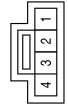
Terminal No.	Color of Wire	Signal Name
1	Y	-
2	BR	-

Connector No.	D103
Connector Name	WIRE TO WIRE
Connector Color	YELLOW



Terminal No.	Color of Wire	Signal Name
3	BR	-
4	Y	-

Connector No.	D13
Connector Name	WIRE TO WIRE
Connector Color	YELLOW



Terminal No.	Color of Wire	Signal Name
3	R	-
4	G	-

AAHIA0275GB

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

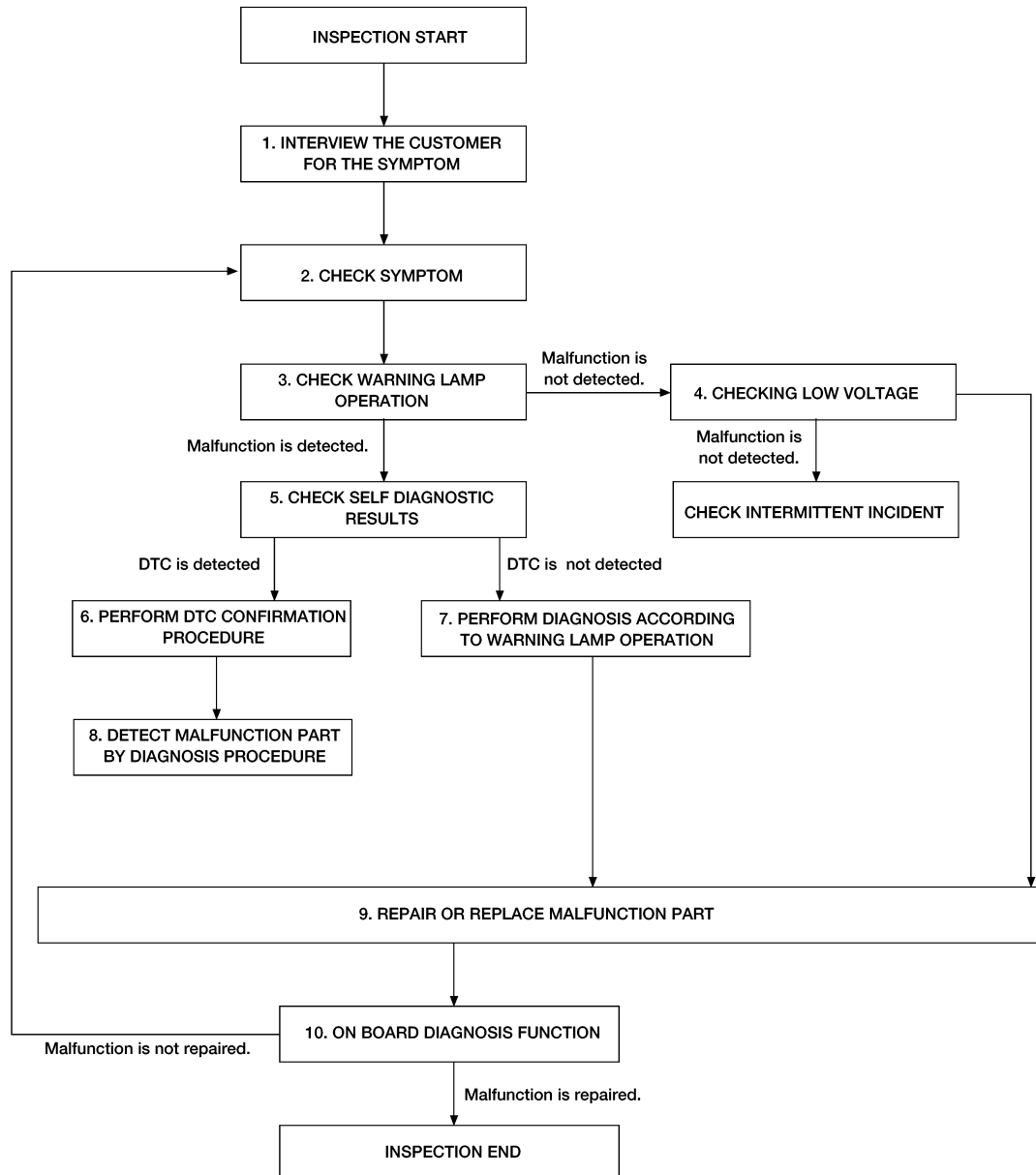
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

INFOID:000000010246013

OVERALL SEQUENCE



SRC

AWHIA0555GB

DETAILED FLOW

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

1. INTERVIEW THE CUSTOMER FOR THE SYMPTOM

Interview the customer for the symptom (the condition and the environment when the incident/malfunction occurs).

>> GO TO 2.

2. CHECK SYMPTOM

Check the symptom from the customer information.

>> GO TO 3.

3. CHECK WARNING LAMP OPERATION

Check air bag warning lamp operation in the user mode.

Are any malfunction detected?

YES >> GO TO 5.

NO >> GO TO 4.

4. CHECK LOW VOLTAGE

Check low voltage with CONSULT.

Are any malfunction detected?

YES >> GO TO 9.

NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

5. CHECK SELF DIAGNOSTIC RESULTS

Check self diagnostic result with CONSULT or diagnosis mode.

If it is impossible to switch to diagnosis mode, follow the same procedure that DTC is not detected.

NOTE:

Perform the following procedure if DTC is detected.

- Record DTC (Print them out with CONSULT.)
- Erase self diagnostic result.
- Study the relationship between the malfunction that DTC or air bag warning lamp indicates and the symptom that the customer describes.
- Check related service bulletins for information.

Is DTC detected?

YES >> GO TO 6.

NO >> GO TO 7.

6. PERFORM DTC CONFIRMATION PROCEDURE

Perform DTC CONFIRMATION PROCEDURE for the DTC.

>> GO TO 8.

7. PERFORM DIAGNOSIS ACCORDING TO WARNING LAMP OPERATION

1. Check air bag warning lamp operation in the user mode.
2. Perform Diagnosis Procedure for the air bag warning lamp operation.

>> GO TO 9.

8. DETECT MALFUNCTIONING PART BY DIAGNOSTIC PROCEDURE

Inspect according to Diagnostic Procedure of the DTC.

>> GO TO 9.

9. REPAIR OR REPLACE THE MALFUNCTION PART

Repair or replace the malfunctioning part.

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

>> GO TO 10.

10.ON BOARD DIAGNOSIS FUNCTION

Check self diagnostic result and air bag warning lamp operation in the user mode.

Is the malfunction repaired?

YES >> Inspection End.

NO >> GO TO 2.

A

B

C

D

E

F

G

SRC

I

J

K

L

M

N

O

P

INSPECTION AND ADJUSTMENT

< BASIC INSPECTION >

INSPECTION AND ADJUSTMENT

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Description

INFOID:0000000010246014

- When replacing the occupant classification system control unit, perform zero point reset procedure. Refer to [SRC-42, "ZERO POINT RESET : Special Repair Requirement"](#).
- When replacing the air bag diagnosis sensor unit configuration of the air bag diagnosis sensor unit is required. Refer to [SRC-43, "CONFIGURATION : Work Procedure"](#).

ZERO POINT RESET

ZERO POINT RESET : Description

INFOID:0000000010246016

Always perform zero point reset using CONSULT when removing and installing the passenger seat or servicing the occupant classification system. If zero point reset is not performed the OCS may not operate normally, which may increase the risk of serious injury in a collision. Zero point reset is an initializing procedure for occupant detection sensor that must be performed when replacing or removing and installing passenger seat. If zero point reset is not performed, the initialization is incomplete and Occupant Detection System does not operate normally.

NOTE:

- When zero point reset is performed once after removal and installation of passenger seat, CONSULT displays "complete".
- When reinstalling passenger seat after removal, the initial value for occupant detection sensor changes, and Occupant Detection System does not operate normally.
- Always perform zero point reset after performing the work as per the following.
 - Reinstallation of passenger seat
 - Installation of passenger seat that is zero point reset complete
 - Installation of passenger seat that is zero point reset in complete

ZERO POINT RESET : Special Repair Requirement

INFOID:0000000010325960

1.PERFORM ZERO POINT RESET

1. Perform zero point reset.

NOTE:

When performing zero point reset, be careful of the items described as per the following:

- Perform zero point reset after installing passenger seat to the vehicle
 - Do not put any objects on passenger seat
 - Do not apply excessive vibration to the vehicle
 - Do not touch the vehicle
 - Do not tilt the vehicle
2. Select start on "Zero point reset function" screen from, WORK SUPPORT of CONSULT "OCCUPANT DETECTION".
 3. "Zero point reset" starts.

>> GO TO 2.

2.CONFIRMATION OF SETTING

1. Proceed to "Zero point reset function" screen from work support of CONSULT "OCCUPANT DETECTION".
2. Check that "Complete" or "Incomplete" is displayed on "Zero point reset status".

CAUTION:

- "Complete" is displayed on "zero point reset current status" if the seat is reinstalled by seat removal and installation, or "zero point reset" is already performed.
- "Zero point reset current status" displays "Incomplete" if a new seat is installed. When turning key switch ON without performing zero point reset, front passenger air bag OFF indicator turns ON. When zero point reset is performed, front passenger air bag OFF indicator turns OFF.
- Air bag warning lamp blinks in user mode only.

INSPECTION AND ADJUSTMENT

< BASIC INSPECTION >

- **Air bag sensor unit does not record whether or not zero point reset is performed.**

Is condition "ALREADY PERFORMED"?

YES >> Print out "ZERO POINT RESET CURRENT STATUS" screen, and inspection end.

NO >> Check condition as per the following, and perform zero point reset again.

- Passenger seat is occupied by an object.
- Excessive vibration is applied while performing zero point reset.
- Occupant detection system is malfunctioning.

NOTE:

If "Incomplete" is displayed on "zero point reset current status", zero point reset is not completed normally. Check the condition as per the following and perform zero point reset again.

- Passenger seat is occupied by an object.
- Excessive vibration is applied while performing zero point reset.
- Occupant detection system is malfunctioning.

CONFIGURATION

CONFIGURATION : Description

INFOID:0000000010321314

When replacing air bag diagnosis sensor unit, save or print current vehicle specification with CONSULT configuration before replacement.

NOTE:

If "Before Replace ECU" cannot be used, use the "After Replace ECU" or "Manual Configuration" after replacing air bag diagnosis sensor unit.

CONFIGURATION : Work Procedure

INFOID:0000000010321315

CAUTION:

- **When replacing ECU, you must perform "Write Configuration" with CONSULT.**
- **Complete the procedure of "Write Configuration" in order.**
- **If you set incorrect "Write Configuration", incidents might occur.**
- **Configuration is different for each vehicle model. Confirm configuration of each vehicle model.**
- **Never perform "Write Configuration" except for new air bag diagnosis sensor unit.**
- **When replacing BCM, perform the system initialization (NATS).**

CONFIGURATION

Vehicle specification needs to be written with CONSULT because it is not written after replacing air bag diagnosis sensor unit.

Configuration has three functions as follows:

Function	Description
"Before Replace ECU"	• Reads the vehicle configuration of current air bag diagnosis sensor unit. • Saves the read vehicle configuration.
"After Replace ECU"	Writes the vehicle configuration with manual selection.
"Select Saved Data List"	Writes the vehicle configuration with saved data.

CAUTION:

- **When replacing air bag diagnosis sensor unit, you must perform "Select Saved Data List" or "After Replace ECU" with CONSULT.**
- **Complete the procedure of "Select Saved Data List" or "After Replace ECU" in order.**
- **If you set incorrect "Select Saved Data List" or "After Replace ECU", incidents might occur.**
- **Configuration is different for each vehicle model. Confirm configuration of each vehicle model.**
- **Never perform "Select Saved Data List" or "After Replace ECU" except for new air bag diagnosis sensor unit.**

1. SAVING VEHICLE SPECIFICATION

CONSULT

Enter "Re/Programming, Configuration" and perform "Before Replace ECU" to save or print current vehicle specification.

NOTE:

If "Before Replace ECU" cannot be used, use the "After Replace ECU" or "Manual Configuration" after replacing BCM.

INSPECTION AND ADJUSTMENT

< BASIC INSPECTION >

>> GO TO 2.

2. REPLACE AIR BAG DIAGNOSIS SENSOR UNIT

Replace air bag diagnosis sensor unit. Refer to [SR-26. "Removal and Installation"](#).

>> GO TO 3.

3. WRITING VEHICLE SPECIFICATION

CONSULT

1. Enter "Re/Programming, Configuration".
2. If "Before Replace ECU" operation was performed, automatically an "Operation Log Selection" screen will be displayed. Select the applicable file from the "Saved Data List" and press "Confirm" to write vehicle specification.
3. If "Before Replace ECU" operation was not performed, select "After Replace ECU" or "Manual Configuration" to write vehicle specification.
 - Select "After Replace ECU" or "Manual Configuration".
 - Identify the correct model and configuration list.
 - Confirm and/or change setting value for each item.

CAUTION:

Thoroughly read and understand the vehicle specification. ECU control may not operate normally if the setting is not correct.

- Select "Next".

CAUTION:

Make sure to select "Next", confirm each setting value and press "OK" even if the indicated configuration of brand new air bag diagnosis sensor unit is same as the desirable configuration. If not, configuration which is set automatically by selecting vehicle model cannot be memorized.

- When "Completed", select "End".

>> GO TO 4.

4. OPERATION CHECK

Confirm that each function controlled by air bag diagnosis sensor unit.

>> Work End.

INTERMITTENT INCIDENT

< BASIC INSPECTION >

INTERMITTENT INCIDENT

Inspection Procedure

INFOID:0000000010246018

INTERMITTENT TROUBLE

An intermittent incident may have occurred in the past but is not being detected currently. This DTC will not be detected on SELF-DIAG [CURRENT], but may be viewed on SELF-DIAG [PAST] if the DTC has not been erased. Refer to [SRC-18. "Trouble Diagnosis with CONSULT"](#).

A
B
C
D
E
F
G
I
J
K
L
M
N
O
P

SRC

B0001, B0002 DRIVER AIRBAG MODULE

< DTC/CIRCUIT DIAGNOSIS >

DTC/CIRCUIT DIAGNOSIS

B0001, B0002 DRIVER AIRBAG MODULE

DTC Logic

INFOID:0000000010245949

DTC DETECTION LOGIC

CONSULT name	DTC	DTC detecting condition	Repair order
DRIVER AIRBAG MODULE CIRCUIT [OPEN]	B0001	Driver air bag module circuit (DR1) is open (including the spiral cable).	Refer to SRC-47, "Diagnosis Procedure" .
DRIVER AIRBAG MODULE CIRCUIT [VB-SHORT]		Driver air bag module circuit (DR1) is shorted to a power supply circuit (including the spiral cable).	
DRIVER AIRBAG MODULE CIRCUIT [GND-SHORT]		Driver air bag module circuit (DR1) is shorted to ground (including the spiral cable).	
DRIVER AIRBAG MODULE CIRCUIT [SHORT]		Driver air bag module circuits (DR1) are shorted to each other (including the spiral cable).	
DRIVER AIRBAG MODULE 2ND CIRCUIT [OPEN]	B0002	Driver air bag module circuit (DR2) is open (including the spiral cable).	
DRIVER AIRBAG MODULE 2ND CIRCUIT [VB-SHORT]		Driver air bag module circuit (DR2) is shorted to a power supply circuit (including the spiral cable).	
DRIVER AIRBAG MODULE 2ND CIRCUIT [GND-SHORT]		Driver air bag module circuit (DR2) is shorted to ground (including the spiral cable).	
DRIVER AIRBAG MODULE 2ND CIRCUIT [SHORT]		Driver air bag module circuits (DR2) are shorted to each other (including the spiral cable).	

DTC CONFIRMATION PROCEDURE (With CONSULT)

1. CHECK SELF-DIAG RESULT

- Turn ignition switch ON.
- Check for DTC using CONSULT.

Is the DTC detected?

YES (Current DTC)>>Refer to [SRC-47, "Diagnosis Procedure"](#).
YES (Past DTC)>>GO TO 2.
NO >> Inspection End.

2. ERASE SELF-DIAG RESULT

Erase the DTC using CONSULT.

Can the DTC be erased?

YES >> Inspection End.
NO >> Refer to [SRC-47, "Diagnosis Procedure"](#).

DTC CONFIRMATION PROCEDURE (Without CONSULT)

1. CHECK SELF-DIAG RESULT

- Turn ignition switch ON.
- Check the air bag warning lamp status. Refer to [SRC-16, "On Board Diagnosis Function"](#).

NOTE:

SRS will not enter diagnosis mode if no malfunction is detected in user mode.

B0001, B0002 DRIVER AIRBAG MODULE

< DTC/CIRCUIT DIAGNOSIS >

Is the DTC detected?

- YES >> Refer to [SRC-47, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010245950

WARNING:

- Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)
- Never use unspecified tester or other measuring device.

1. HARNESS CONNECTOR

Visually inspect all applicable harness connectors for the following:

- Visible damage to connector or terminal
- Loose terminal
- Poor connection

NOTE:

All harness connectors should be inspected from the air bag diagnosis unit to the end component (including any in-line connectors).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Perform one of the following repairs:
 - Visible damage: Replace the harness.
 - Loose terminal: Secure the terminal.
 - Poor connection: Secure the connection.

2. CONFIRM DTC

1. Reconnect all harness connectors.
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

- YES >> GO TO 3.
NO >> Refer to [GI-41, "Intermittent Incident"](#).

3. WIRING HARNESS

Check the wiring harness for visible damage.

NOTE:

The entire wiring harness should be inspected from the air bag diagnosis sensor unit to the end component (including any in-line connectors).

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Replace the harness.

4. CHECK SPIRAL CABLE CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect driver air bag module harness connector and combination switch (spiral cable) harness connector.
3. Check continuity between driver air bag module harness connector and combination switch (spiral cable) harness connector.

Driver air bag module		Combination switch (spiral cable)		Continuity
Connector	Terminal	Connector	Terminal	
B92	29	M53	4	Yes
	30		3	
B93	32		2	
	31		3	

4. Check continuity between driver air bag module harness connector and ground.

B0001, B0002 DRIVER AIRBAG MODULE

< DTC/CIRCUIT DIAGNOSIS >

Driver side air bag module		Ground	Continuity
Connector	Terminal		
B92	29		No
	30		
B93	32		
	31		

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace combination switch (spiral cable). Refer to [SR-15, "Removal and Installation"](#).

5.CONFIRM DTC

1. Reconnect all harness connectors.
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

YES >> GO TO 6.

NO >> Refer to [GI-41, "Intermittent Incident"](#).

6.AIR BAG DIAGNOSIS SENSOR UNIT

1. Replace the air bag diagnosis sensor unit. Refer to [SR-26, "Removal and Installation"](#).
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

YES >> GO TO 7.

NO >> Clear DTC. Inspection End.

7.DRIVER AIR BAG MODULE

1. Replace the driver air bag module. Refer to [SR-12, "Removal and Installation"](#).
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

YES >> GO TO 8.

NO >> Clear DTC. Inspection End.

8.RELATED HARNESS

Replace the related harness.

>> **END**

B0010, B0011 PASSENGER AIRBAG MODULE

< DTC/CIRCUIT DIAGNOSIS >

B0010, B0011 PASSENGER AIRBAG MODULE

DTC Logic

INFOID:0000000010245951

DTC DETECTION LOGIC

CONSULT name	DTC	DTC detecting condition	Repair order
ASSIST AIRBAG MODULE CIRCUIT [OPEN]	B0010	Front passenger air bag module circuit (AS1) is open.	Refer to SRC-49. "Diagnosis Procedure" .
ASSIST AIRBAG MODULE CIRCUIT [VB-SHORT]		Front passenger air bag module circuit (AS1) is shorted to a power supply circuit.	
ASSIST AIRBAG MODULE CIRCUIT [GND-SHORT]		Front passenger air bag module circuit (AS1) is shorted to ground.	
ASSIST AIRBAG MODULE CIRCUIT [SHORT]		Front passenger air bag module circuits (AS1) are shorted to each other.	
ASSIST AIRBAG MODULE 2ND CIRCUIT [OPEN]	B0011	Front passenger air bag module circuit (AS2) is open.	
ASSIST AIRBAG MODULE 2ND CIRCUIT [VB-SHORT]		Front passenger air bag module circuit (AS2) is shorted to a power supply circuit.	
ASSIST AIRBAG MODULE 2ND CIRCUIT [GND-SHORT]		Front passenger air bag module circuit (AS2) is shorted to ground.	
ASSIST AIRBAG MODULE 2ND CIRCUIT [SHORT]		Front passenger air bag module circuits (AS2) are shorted to each other.	

DTC CONFIRMATION PROCEDURE (With CONSULT)

1.CHECK SELF-DIAG RESULT

1. Turn ignition switch ON.
2. Check for DTC using CONSULT.

Is the DTC detected?

YES (Current DTC)>>Refer to [SRC-49. "Diagnosis Procedure"](#).

YES (Past DTC)>>GO TO 2.

NO >> Inspection End.

2.ERASE SELF-DIAG RESULT

Erase the DTC using CONSULT.

Can the DTC be erased?

YES >> Inspection End.

NO >> Refer to [SRC-49. "Diagnosis Procedure"](#).

DTC CONFIRMATION PROCEDURE (Without CONSULT)

1.CHECK SELF-DIAG RESULT

1. Turn ignition switch ON.
2. Check the air bag warning lamp status. Refer to [SRC-16. "On Board Diagnosis Function"](#).

NOTE:

SRS will not enter diagnosis mode if no malfunction is detected in user mode.

Is the DTC detected?

YES >> Refer to [SRC-49. "Diagnosis Procedure"](#).

NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010245952

1.HARNESS CONNECTOR

Visually inspect all applicable harness connectors for the following:

B0010, B0011 PASSENGER AIRBAG MODULE

< DTC/CIRCUIT DIAGNOSIS >

- Visible damage to connector or terminal
- Loose terminal
- Poor connection

NOTE:

All harness connectors should be inspected from the air bag diagnosis unit to the end component (including any in-line connectors).

Is the inspection result normal?

YES >> GO TO 2.

- NO >> Perform one of the following repairs:
- Visible damage: Replace the harness.
 - Loose terminal: Secure the terminal.
 - Poor connection: Secure the connection.

2.CONFIRM DTC

1. Reconnect all harness connectors.
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

YES >> GO TO 3.

NO >> Refer to [GI-41, "Intermittent Incident"](#).

3.WIRING HARNESS

Check the wiring harness for visible damage.

NOTE:

The entire wiring harness should be inspected from the air bag diagnosis sensor unit to the end component (including any in-line connectors).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace the harness.

4.CONFIRM DTC

1. Reconnect all harness connectors.
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

YES >> GO TO 5.

NO >> Refer to [GI-41, "Intermittent Incident"](#).

5.AIR BAG DIAGNOSIS SENSOR UNIT

1. Replace the air bag diagnosis sensor unit. Refer to [SR-26, "Removal and Installation"](#).
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

YES >> GO TO 6.

NO >> Clear DTC. Inspection End.

6.FRONT PASSENGER AIR BAG MODULE

1. Replace the front passenger air bag module. Refer to [SR-17, "Removal and Installation"](#).
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

YES >> GO TO 7.

NO >> Clear DTC. Inspection End.

7.RELATED HARNESS

Replace the related harness.

>> **END**

B0020 SIDE AIRBAG MODULE LH

< DTC/CIRCUIT DIAGNOSIS >

B0020 SIDE AIRBAG MODULE LH

Description

INFOID:0000000010245953

DTC B0020 FRONT LH SIDE AIR BAG MODULE

The front LH side air bag module is wired to the air bag diagnosis sensor unit. The air bag diagnosis sensor unit will monitor for opens and shorts in detected lines to the front LH side air bag module.

PART LOCATION

Refer to [SRC-6, "Component Parts Location"](#).

DTC Logic

INFOID:0000000010245954

DTC DETECTION LOGIC

With CONSULT

CONSULT name	DTC	DTC detecting condition	Repair order
SIDE AIRBAG MODULE LH CIRCUIT [OPEN]	B0020	Front LH side air bag module circuit is open.	Refer to SRC-51, "Diagnosis Procedure" .
SIDE AIRBAG MODULE LH CIRCUIT [VB-SHORT]		Front LH side air bag module circuit is shorted to a power supply circuit.	
SIDE AIRBAG MODULE LH CIRCUIT [GND-SHORT]		Front LH side air bag module circuit is shorted to ground.	
SIDE AIRBAG MODULE LH CIRCUIT [SHORT]		Front LH side air bag module circuits are shorted to each other.	

DTC CONFIRMATION PROCEDURE (With CONSULT)

1.CHECK SELF-DIAG RESULT

1. Turn ignition switch ON.
2. Check for DTC using CONSULT.

Is the DTC detected?

YES (Current DTC)>>Refer to [SRC-51, "Diagnosis Procedure"](#).

YES (Past DTC)>>GO TO 2.

NO >> Inspection End.

2.ERASE SELF-DIAG RESULT

Erase the DTC using CONSULT.

Can the DTC be erased?

YES >> Inspection End.

NO >> Refer to [SRC-51, "Diagnosis Procedure"](#).

DTC CONFIRMATION PROCEDURE (Without CONSULT)

1.CHECK SELF-DIAG RESULT

1. Turn ignition switch ON.
2. Check the air bag warning lamp status. Refer to [SRC-16, "On Board Diagnosis Function"](#).

NOTE:

SRS will not enter diagnosis mode if no malfunction is detected in user mode.

Is the DTC detected?

YES >> Refer to [SRC-51, "Diagnosis Procedure"](#).

NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010245955

1.HARNESS CONNECTOR

Visually inspect all applicable harness connectors for the following:

B0020 SIDE AIRBAG MODULE LH

< DTC/CIRCUIT DIAGNOSIS >

- Visible damage to connector or terminal
- Loose terminal
- Poor connection

NOTE:

All harness connectors should be inspected from the air bag diagnosis unit to the end component (including any in-line connectors).

Is the inspection result normal?

YES >> GO TO 2.

- NO >> Perform one of the following repairs:
- Visible damage: Replace the harness.
 - Loose terminal: Secure the terminal.
 - Poor connection: Secure the connection.

2.CONFIRM DTC

1. Reconnect all harness connectors.
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

YES >> GO TO 3.

NO >> Refer to [GI-41, "Intermittent Incident"](#).

3.WIRING HARNESS

Check the wiring harness for visible damage.

NOTE:

The entire wiring harness should be inspected from the air bag diagnosis sensor unit to the end component (including any in-line connectors).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace the harness.

4.CONFIRM DTC

1. Reconnect all harness connectors.
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

YES >> GO TO 5.

NO >> Refer to [GI-41, "Intermittent Incident"](#).

5.AIR BAG DIAGNOSIS SENSOR UNIT

1. Replace the air bag diagnosis sensor unit. Refer to [SR-26, "Removal and Installation"](#).
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

YES >> GO TO 6.

NO >> Clear DTC. Inspection End.

6.SIDE AIRBAG MODULE LH

1. Replace the side airbag module LH. Refer to [SR-21, "Removal and Installation"](#).
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

YES >> GO TO 7.

NO >> Clear DTC. Inspection End.

7.RELATED HARNESS

Replace the related harness.

>> **END**

B0028 SIDE AIRBAG MODULE RH

< DTC/CIRCUIT DIAGNOSIS >

B0028 SIDE AIRBAG MODULE RH

Description

INFOID:0000000010245956

DTC B0028 FRONT RH SIDE AIR BAG MODULE

The front RH side air bag module is wired to the air bag diagnosis sensor unit. The air bag diagnosis sensor unit will monitor for opens and shorts in detected lines to the front RH side air bag module.

PART LOCATION

Refer to [SRC-6, "Component Parts Location"](#).

DTC Logic

INFOID:0000000010245957

DTC DETECTION LOGIC

With CONSULT

CONSULT name	DTC	DTC detecting condition	Repair order
SIDE AIRBAG MODULE RH CIRCUIT [OPEN]	B0028	Front RH side air bag module circuit is open.	Refer to SRC-53, "Diagnosis Procedure" .
SIDE AIRBAG MODULE RH CIRCUIT [VB-SHORT]		Front RH side air bag module circuit is shorted to a power supply circuit.	
SIDE AIRBAG MODULE RH CIRCUIT [GND-SHORT]		Front RH side air bag module circuit is shorted to ground.	
SIDE AIRBAG MODULE RH CIRCUIT [SHORT]		Front RH side air bag module circuits are shorted to each other.	

DTC CONFIRMATION PROCEDURE (With CONSULT)

1.CHECK SELF-DIAG RESULT

1. Turn ignition switch ON.
2. Check for DTC using CONSULT.

Is the DTC detected?

YES (Current DTC)>>Refer to [SRC-53, "Diagnosis Procedure"](#).

YES (Past DTC)>>GO TO 2.

NO >> Inspection End.

2.ERASE SELF-DIAG RESULT

Erase the DTC using CONSULT.

Can the DTC be erased?

YES >> Inspection End.

NO >> Refer to [SRC-53, "Diagnosis Procedure"](#).

DTC CONFIRMATION PROCEDURE (Without CONSULT)

1.CHECK SELF-DIAG RESULT

1. Turn ignition switch ON.
2. Check the air bag warning lamp status. Refer to [SRC-16, "On Board Diagnosis Function"](#).

NOTE:

SRS will not enter diagnosis mode if no malfunction is detected in user mode.

Is the DTC detected?

YES >> Refer to [SRC-53, "Diagnosis Procedure"](#).

NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010245958

1.HARNESS CONNECTOR

Visually inspect all applicable harness connectors for the following:

B0028 SIDE AIRBAG MODULE RH

< DTC/CIRCUIT DIAGNOSIS >

- Visible damage to connector or terminal
- Loose terminal
- Poor connection

NOTE:

All harness connectors should be inspected from the air bag diagnosis unit to the end component (including any in-line connectors).

Is the inspection result normal?

YES >> GO TO 2.

- NO >> Perform one of the following repairs:
- Visible damage: Replace the harness.
 - Loose terminal: Secure the terminal.
 - Poor connection: Secure the connection.

2.CONFIRM DTC

1. Reconnect all harness connectors.
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

YES >> GO TO 3.

NO >> Refer to [GI-41, "Intermittent Incident"](#).

3.WIRING HARNESS

Check the wiring harness for visible damage.

NOTE:

The entire wiring harness should be inspected from the air bag diagnosis sensor unit to the end component (including any in-line connectors).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace the harness.

4.CONFIRM DTC

1. Reconnect all harness connectors.
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

YES >> GO TO 5.

NO >> Refer to [GI-41, "Intermittent Incident"](#).

5.AIR BAG DIAGNOSIS SENSOR UNIT

1. Replace the air bag diagnosis sensor unit. Refer to [SR-26, "Removal and Installation"](#).
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

YES >> GO TO 6.

NO >> Clear DTC. Inspection End.

6.SIDE AIRBAG MODULE RH

1. Replace the side airbag module RH. Refer to [SR-21, "Removal and Installation"](#).
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

YES >> GO TO 7.

NO >> Clear DTC. Inspection End.

7.RELATED HARNESS

Replace the related harness.

>> **END**

B0021 SIDE CURTAIN AIR BAG MODULE LH

< DTC/CIRCUIT DIAGNOSIS >

B0021 SIDE CURTAIN AIR BAG MODULE LH

DTC Logic

INFOID:0000000010245959

DTC DETECTION LOGIC

CONSULT name	DTC	DTC detecting condition	Repair order
CURTAIN AIRBAG MODULE LH CIRCUIT [OPEN]	B0021	LH side curtain air bag module circuit is open.	Refer to SRC-55, "Diagnosis Procedure" .
CURTAIN AIRBAG MODULE LH CIRCUIT [VB-SHORT]		LH side curtain air bag module circuit is shorted to a power supply circuit.	
CURTAIN AIRBAG MODULE LH CIRCUIT [GND-SHORT]		LH side curtain air bag module circuit is shorted to ground.	
CURTAIN AIRBAG MODULE LH CIRCUIT [SHORT]		LH side curtain air bag module circuits are shorted to each other.	

DTC CONFIRMATION PROCEDURE (With CONSULT)

1.CHECK SELF-DIAG RESULT

1. Turn ignition switch ON.
2. Check for DTC using CONSULT.

Is the DTC detected?

YES (Current DTC)>>Refer to [SRC-55, "Diagnosis Procedure"](#).

YES (Past DTC)>>GO TO 2.

NO >> Inspection End.

2.ERASE SELF-DIAG RESULT

Erase the DTC using CONSULT.

Can the DTC be erased?

YES >> Inspection End.

NO >> Refer to [SRC-55, "Diagnosis Procedure"](#).

DTC CONFIRMATION PROCEDURE (Without CONSULT)

1.CHECK SELF-DIAG RESULT

1. Turn ignition switch ON.
2. Check the air bag warning lamp status. Refer to [SRC-16, "On Board Diagnosis Function"](#).

NOTE:

SRS will not enter diagnosis mode if no malfunction is detected in user mode.

Is the DTC detected?

YES >> Refer to [SRC-55, "Diagnosis Procedure"](#).

NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010245960

1.HARNESS CONNECTOR

Visually inspect all applicable harness connectors for the following:

- Visible damage to connector or terminal
- Loose terminal
- Poor connection

NOTE:

All harness connectors should be inspected from the air bag diagnosis unit to the end component (including in-line connectors).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Perform one of the following repairs:

- Visible damage: Replace the harness.

B0021 SIDE CURTAIN AIR BAG MODULE LH

< DTC/CIRCUIT DIAGNOSIS >

- Loose terminal: Secure the terminal.
- Poor connection: Secure the connection.

2.CONFIRM DTC

1. Reconnect all harness connectors.
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

- YES >> GO TO 3.
NO >> Refer to [GI-41, "Intermittent Incident"](#).

3.WIRING HARNESS

Check the wiring harness for visible damage.

NOTE:

The entire wiring harness should be inspected from the air bag diagnosis sensor unit to the end component (including any in-line connectors).

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Replace the harness.

4.CONFIRM DTC

1. Reconnect all harness connectors.
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

- YES >> GO TO 5.
NO >> Refer to [GI-41, "Intermittent Incident"](#).

5.AIR BAG DIAGNOSIS SENSOR UNIT

1. Replace the air bag diagnosis sensor unit. Refer to [SR-26, "Removal and Installation"](#).
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

- YES >> GO TO 6.
NO >> Clear DTC. Inspection End.

6.SIDE CURTAIN AIR BAG MODULE LH

1. Replace the side curtain air bag module LH. Refer to [SR-21, "Removal and Installation"](#).
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

- YES >> GO TO 7.
NO >> Clear DTC. Inspection End.

7.RELATED HARNESS

Replace the related harness.

>> **END**

B0029 SIDE CURTAIN AIR BAG MODULE RH

< DTC/CIRCUIT DIAGNOSIS >

B0029 SIDE CURTAIN AIR BAG MODULE RH

DTC Logic

INFOID:0000000010245961

DTC DETECTION LOGIC

CONSULT name	DTC	DTC detecting condition	Repair order
CURTAIN AIRBAG MODULE RH CIRCUIT [OPEN]	B0029	RH side curtain air bag module circuit is open.	Refer to SRC-57, "Diagnosis Procedure" .
CURTAIN AIRBAG MODULE RH CIRCUIT [VB-SHORT]		RH side curtain air bag module circuit is shorted to a power supply circuit.	
CURTAIN AIRBAG MODULE RH CIRCUIT [GND-SHORT]		RH side curtain air bag module circuit is shorted to ground.	
CURTAIN AIRBAG MODULE RH CIRCUIT [SHORT]		RH side curtain air bag module circuits are shorted to each other.	

DTC CONFIRMATION PROCEDURE (With CONSULT)

1.CHECK SELF-DIAG RESULT

1. Turn ignition switch ON.
2. Check for DTC using CONSULT.

Is the DTC detected?

YES (Current DTC)>>Refer to [SRC-57, "Diagnosis Procedure"](#).

YES (Past DTC)>>GO TO 2.

NO >> Inspection End.

2.ERASE SELF-DIAG RESULT

Erase the DTC using CONSULT.

Can the DTC be erased?

YES >> Inspection End.

NO >> Refer to [SRC-57, "Diagnosis Procedure"](#).

DTC CONFIRMATION PROCEDURE (Without CONSULT)

1.CHECK SELF-DIAG RESULT

1. Turn ignition switch ON.
2. Check the air bag warning lamp status. Refer to [SRC-16, "On Board Diagnosis Function"](#).

NOTE:

SRS will not enter diagnosis mode if no malfunction is detected in user mode.

Is the DTC detected?

YES >> Refer to [SRC-57, "Diagnosis Procedure"](#).

NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010245962

1.HARNESS CONNECTOR

Visually inspect all applicable harness connectors for the following:

- Visible damage to connector or terminal
- Loose terminal
- Poor connection

NOTE:

All harness connectors should be inspected from the air bag diagnosis unit to the end component (including in-line connectors).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Perform one of the following repairs:

- Visible damage: Replace the harness.

B0029 SIDE CURTAIN AIR BAG MODULE RH

< DTC/CIRCUIT DIAGNOSIS >

- Loose terminal: Secure the terminal.
- Poor connection: Secure the connection.

2.CONFIRM DTC

1. Reconnect all harness connectors.
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

- YES >> GO TO 3.
NO >> Refer to [GI-41, "Intermittent Incident"](#).

3.WIRING HARNESS

Check the wiring harness for visible damage.

NOTE:

The entire wiring harness should be inspected from the air bag diagnosis sensor unit to the end component (including any in-line connectors).

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Replace the harness.

4.CONFIRM DTC

1. Reconnect all harness connectors.
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

- YES >> GO TO 5.
NO >> Refer to [GI-41, "Intermittent Incident"](#).

5.AIR BAG DIAGNOSIS SENSOR UNIT

1. Replace the air bag diagnosis sensor unit. Refer to [SR-26, "Removal and Installation"](#).
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

- YES >> GO TO 6.
NO >> Clear DTC. Inspection End.

6.SIDE CURTAIN AIR BAG MODULE RH

1. Replace the side curtain air bag module RH. Refer to [SR-19, "Removal and Installation"](#).
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

- YES >> GO TO 7.
NO >> Clear DTC. Inspection End.

7.RELATED HARNESS

Replace the related harness.

>> **END**

B1430 SEAT BELT PRE-TENSIONER

< DTC/CIRCUIT DIAGNOSIS >

B1430 SEAT BELT PRE-TENSIONER

DTC Logic

INFOID:000000010245963

DTC DETECTION LOGIC

CONSULT name	DTC	DTC detecting condition	Repair order
FRONT PRE-TEN LH CIRCUIT [OPEN]	B1430	Front LH seat belt pre-tensioner circuit is open.	Refer to SRC-59, "Diagnosis Procedure" .
FRONT PRE-TEN LH CIRCUIT [VB-SHORT]		Front LH seat belt pre-tensioner circuit is shorted to a power supply circuit.	
FRONT PRE-TEN LH CIRCUIT [GND-SHORT]		Front LH seat belt pre-tensioner circuit is shorted to ground.	
FRONT PRE-TEN LH CIRCUIT [SHORT]		Front LH seat belt pre-tensioner circuits are shorted to each other.	

DTC CONFIRMATION PROCEDURE (With CONSULT)

1.CHECK SELF-DIAG RESULT

1. Turn ignition switch ON.
2. Check for DTC using CONSULT.

Is the DTC detected?

YES (Current DTC)>>Refer to [SRC-59, "Diagnosis Procedure"](#).

YES (Past DTC)>>GO TO 2.

NO >> Inspection End.

2.ERASE SELF-DIAG RESULT

Erase the DTC using CONSULT.

Can the DTC be erased?

YES >> Inspection End.

NO >> Refer to [SRC-59, "Diagnosis Procedure"](#).

DTC CONFIRMATION PROCEDURE (Without CONSULT)

1.CHECK SELF-DIAG RESULT

1. Turn ignition switch ON.
2. Check the air bag warning lamp status. Refer to [SRC-16, "On Board Diagnosis Function"](#).

NOTE:

SRS will not enter diagnosis mode if no malfunction is detected in user mode.

Is the DTC detected?

YES >> Refer to [SRC-59, "Diagnosis Procedure"](#).

NO >> Inspection End.

Diagnosis Procedure

INFOID:000000010245964

1.HARNESS CONNECTOR

Check the harness connector for the following:

- Visible damage to connector or terminal
- Loose terminal
- Poor connection

Is the inspection result normal?

YES >> GO TO 2.

NO >> Perform one of the following repairs:

- Visible damage: Replace the harness.
- Loose terminal: Secure the terminal.
- Poor connection: Secure the connection.

2.CONFIRM DTC

B1430 SEAT BELT PRE-TENSIONER

< DTC/CIRCUIT DIAGNOSIS >

1. Reconnect all harness connectors.
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

YES >> GO TO 3.

NO >> Refer to [GI-41, "Intermittent Incident"](#).

3. WIRING HARNESS

Check the wiring harness for visible damage.

NOTE:

The entire wiring harness should be inspected from the air bag diagnosis sensor unit to the end component (including any in-line connectors).

Is the inspection result normal?

YES >> GO TO 4

NO >> Replace the harness.

4. CONFIRM DTC

1. Reconnect all harness connectors.
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

YES >> GO TO 5.

NO >> Refer to [GI-41, "Intermittent Incident"](#).

5. AIR BAG DIAGNOSIS SENSOR UNIT

1. Replace the air bag diagnosis sensor unit. Refer to [SR-26, "Removal and Installation"](#).
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

YES >> GO TO 6.

NO >> Clear DTC. Inspection End.

6. FRONT LH SEAT BELT PRE-TENSIONER

1. Replace the front LH seat belt pre-tensioner. Refer to [SR-28, "Removal and Installation"](#).
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

YES >> GO TO 7.

NO >> Clear DTC. Inspection End.

7. RELATED HARNESS

Replace the related harness.

>> **END**

B1431 SEAT BELT PRE-TENSIONER

< DTC/CIRCUIT DIAGNOSIS >

B1431 SEAT BELT PRE-TENSIONER

DTC Logic

INFOID:0000000010245965

DTC DETECTION LOGIC

CONSULT name	DTC	DTC detecting condition	Repair order
FRONT PRE-TEN RH CIRCUIT [OPEN]	B1431	RH seat belt pre-tensioner circuit is open.	Refer to SRC-61, "Diagnosis Procedure" .
FRONT PRE-TEN RH CIRCUIT [VB-SHORT]		RH seat belt pre-tensioner circuit is shorted to a power supply circuit.	
FRONT PRE-TEN RH CIRCUIT [GND-SHORT]		RH seat belt pre-tensioner circuit is shorted to ground.	
FRONT PRE-TEN RH CIRCUIT [SHORT]		RH seat belt pre-tensioner circuits are shorted to each other.	

DTC CONFIRMATION PROCEDURE (With CONSULT)

1.CHECK SELF-DIAG RESULT

- Turn ignition switch ON.
- Check for DTC using CONSULT.

Is the DTC detected?

YES (Current DTC)>>Refer to [SRC-61, "Diagnosis Procedure"](#).

YES (Past DTC)>>GO TO 2.

NO >> Inspection End.

2.ERASE SELF-DIAG RESULT

Erase the DTC using CONSULT.

Can the DTC be erased?

YES >> Inspection End.

NO >> Refer to [SRC-61, "Diagnosis Procedure"](#).

DTC CONFIRMATION PROCEDURE (Without CONSULT)

1.CHECK SELF-DIAG RESULT

- Turn ignition switch ON.
- Check the air bag warning lamp status. Refer to [SRC-16, "On Board Diagnosis Function"](#).

NOTE:

SRS will not enter diagnosis mode if no malfunction is detected in user mode.

Is the DTC detected?

YES >> Refer to [SRC-61, "Diagnosis Procedure"](#).

NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010245966

1.HARNESS CONNECTOR

Check the harness connector for the following:

- Visible damage to connector or terminal
- Loose terminal
- Poor connection

Is the inspection result normal?

YES >> GO TO 2.

- NO >> Perform one of the following repairs:
- Visible damage: Replace the harness.
 - Loose terminal: Secure the terminal.
 - Poor connection: Secure the connection.

B1431 SEAT BELT PRE-TENSIONER

< DTC/CIRCUIT DIAGNOSIS >

2.CONFIRM DTC

1. Reconnect all harness connectors.
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

YES >> GO TO 3.

NO >> Refer to [GI-41, "Intermittent Incident"](#).

3.WIRING HARNESS

Check the wiring harness for visible damage.

NOTE:

The entire wiring harness should be inspected from the air bag diagnosis sensor unit to the end component (including any in-line connectors).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace the harness.

4.CONFIRM DTC

1. Reconnect all harness connectors.
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

YES >> GO TO 5.

NO >> Refer to [GI-41, "Intermittent Incident"](#).

5.AIR BAG DIAGNOSIS SENSOR UNIT

1. Replace the air bag diagnosis sensor unit. Refer to [SR-26, "Removal and Installation"](#).
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

YES >> GO TO 6.

NO >> Clear DTC. Inspection End.

6.SEAT BELT PRE-TENSIONER RH

1. Replace the seat belt pre-tensioner RH. Refer to [SR-28, "Removal and Installation"](#).
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

YES >> GO TO 7.

NO >> Clear DTC. Inspection End.

7.RELATED HARNESS

Replace the related harness.

>> **END**

B1428 SEAT BELT BUCKLE SWITCH LH

< DTC/CIRCUIT DIAGNOSIS >

B1428 SEAT BELT BUCKLE SWITCH LH

Description

INFOID:0000000010245967

DTC B1428 SEAT BELT BUCKLE SWITCH LH

The air bag diagnosis sensor unit monitors the seat belt buckle switch LH status. If the control unit detects an open or short condition in the circuit, it will set the DTC.

PART LOCATION

Refer to [SRC-6, "Component Parts Location"](#).

DTC Logic

INFOID:0000000010245968

DTC DETECTION LOGIC

With CONSULT

CONSULT name	DTC	DTC detecting condition	Repair order
SEAT BELT BUCKLE SW LH CIRCUIT [OPEN]	B1428	Seat belt buckle switch LH circuit is open.	Refer to SRC-63, "Diagnosis Procedure" .
SEAT BELT BUCKLE SW LH CIRCUIT [VB-SHORT]		Seat belt buckle switch LH circuit is shorted to a power supply circuit.	
SEAT BELT BUCKLE SW LH CIRCUIT [GND-SHORT]		Seat belt buckle switch LH circuit is shorted to ground.	
SEAT BELT BUCKLE SW LH CIRCUIT [UNDEFINED]		Seat belt buckle switch LH circuit is malfunctioning.	

DTC CONFIRMATION PROCEDURE (With CONSULT)

1.CHECK SELF-DIAG RESULT

1. Turn ignition switch ON.
2. Check for DTC using CONSULT.

Is the DTC detected?

YES (Current DTC)>>Refer to [SRC-63, "Diagnosis Procedure"](#).

YES (Past DTC)>>GO TO 2.

NO >> Inspection End.

2.ERASE SELF-DIAG RESULT

Erase the DTC using CONSULT.

Can the DTC be erased?

YES >> Inspection End.

NO >> Refer to [SRC-63, "Diagnosis Procedure"](#).

DTC CONFIRMATION PROCEDURE (Without CONSULT)

1.CHECK SELF-DIAG RESULT

1. Turn ignition switch ON.
2. Check the air bag warning lamp status. Refer to [SRC-16, "On Board Diagnosis Function"](#).

NOTE:

SRS will not enter diagnosis mode if no malfunction is detected in user mode.

Is the DTC detected?

YES >> Refer to [SRC-63, "Diagnosis Procedure"](#).

NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010245969

1.HARNESS CONNECTOR

B1428 SEAT BELT BUCKLE SWITCH LH

< DTC/CIRCUIT DIAGNOSIS >

Visually inspect all applicable harness connectors for the following:

- Visible damage to connector or terminal
- Loose terminal
- Poor connection

NOTE:

All harness connectors should be inspected from the air bag diagnosis sensor unit to the end component (including any in-line connectors).

Is the inspection result normal?

YES >> GO TO 2.

- NO >> Perform one of the following repairs:
- Visible damage: Replace the harness.
 - Loose terminal: Secure the terminal.
 - Poor connection: Secure the connection.

2.CONFIRM DTC

1. Reconnect all harness connectors.
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

YES >> GO TO 3.

NO >> Refer to [GI-41, "Intermittent Incident"](#).

3.WIRING HARNESS

Check the wiring harness for visible damage.

NOTE:

The entire wiring harness should be inspected from the air bag diagnosis sensor unit to the end component (including any in-line connectors).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace the harness.

4.CONFIRM DTC

1. Reconnect all harness connectors.
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

YES >> GO TO 5.

NO >> Refer to [GI-41, "Intermittent Incident"](#).

5.SEAT BELT BUCKLE SWITCH LH

1. Replace the seat buckle switch LH. Refer to [SR-29, "Removal and Installation"](#).
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

YES >> GO TO 6.

NO >> Clear DTC. Inspection End.

6.AIR BAG DIAGNOSIS SENSOR UNIT

1. Replace the air bag diagnosis sensor unit. Refer to [SR-26, "Removal and Installation"](#).
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

YES >> GO TO 7.

NO >> Clear DTC. Inspection End.

7.RELATED HARNESS

Replace the related harness.

B1428 SEAT BELT BUCKLE SWITCH LH

< DTC/CIRCUIT DIAGNOSIS >

>> **END**

A

B

C

D

E

F

G

SRC

I

J

K

L

M

N

O

P

B1429 SEAT BELT BUCKLE SWITCH RH

< DTC/CIRCUIT DIAGNOSIS >

B1429 SEAT BELT BUCKLE SWITCH RH

Description

INFOID:0000000010245970

DTC B1429 SEAT BELT BUCKLE SWITCH RH

The air bag diagnosis sensor unit monitors the seat belt buckle switch RH status. If the control unit detects an open or short condition in the circuit, it will set the DTC.

PART LOCATION

Refer to [SRC-6, "Component Parts Location"](#).

DTC Logic

INFOID:0000000010245971

DTC DETECTION LOGIC

With CONSULT

CONSULT name	DTC	DTC detecting condition	Repair order
SEAT BELT BUCKLE SW RH CIRCUIT [OPEN]	B1429	Seat belt buckle switch RH circuit is open.	Refer to SRC-66, "Diagnosis Procedure" .
SEAT BELT BUCKLE SW RH CIRCUIT [VB-SHORT]		Seat belt buckle switch RH circuit is shorted to a power supply circuit.	
SEAT BELT BUCKLE SW RH CIRCUIT [GND-SHORT]		Seat belt buckle switch RH circuit is shorted to ground.	
SEAT BELT BUCKLE SW RH CIRCUIT [UNDEFINED]		Seat belt buckle switch RH circuit is malfunctioning.	

DTC CONFIRMATION PROCEDURE (With CONSULT)

1.CHECK SELF-DIAG RESULT

1. Turn ignition switch ON.
2. Check for DTC using CONSULT.

Is the DTC detected?

YES (Current DTC)>>Refer to [SRC-57, "Diagnosis Procedure"](#).

YES (Past DTC)>>GO TO 2.

NO >> Inspection End.

2.ERASE SELF-DIAG RESULT

Erase the DTC using CONSULT.

Can the DTC be erased?

YES >> Inspection End.

NO >> Refer to [SRC-57, "Diagnosis Procedure"](#).

DTC CONFIRMATION PROCEDURE (Without CONSULT)

1.CHECK SELF-DIAG RESULT

1. Turn ignition switch ON.
2. Check the air bag warning lamp status. Refer to [SRC-16, "On Board Diagnosis Function"](#).

NOTE:

SRS will not enter diagnosis mode if no malfunction is detected in user mode.

Is the DTC detected?

YES >> Refer to [SRC-57, "Diagnosis Procedure"](#).

NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010245972

1.HARNESS CONNECTOR

Visually inspect all applicable harness connectors for the following:

B1429 SEAT BELT BUCKLE SWITCH RH

< DTC/CIRCUIT DIAGNOSIS >

- Visible damage to connector or terminal
- Loose terminal
- Poor connection

A

NOTE:

All harness connectors should be inspected from the air bag diagnosis sensor unit to the end component (including any in-line connectors).

B

Is the inspection result normal?

YES >> GO TO 2.

C

NO >> Perform one of the following repairs:

- Visible damage: Replace the harness.
- Loose terminal: Secure the terminal.
- Poor connection: Secure the connection.

D

2.CONFIRM DTC

1. Reconnect all harness connectors.
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

E

Is DTC still current?

YES >> GO TO 3.

F

NO >> Refer to [GI-41, "Intermittent Incident"](#).

3.WIRING HARNESS

G

Check the wiring harness for visible damage.

NOTE:

The entire wiring harness should be inspected from the air bag diagnosis sensor unit to the end component (including any in-line connectors).

SRC

Is the inspection result normal?

YES >> GO TO 4.

I

NO >> Replace the harness.

4.CONFIRM DTC

1. Reconnect all harness connectors.
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

J

Is DTC still current?

YES >> GO TO 5.

K

NO >> Refer to [GI-41, "Intermittent Incident"](#).

5.SEAT BELT BUCKLE RH

L

1. Replace the seat buckle RH. Refer to [SR-29, "Removal and Installation"](#).
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

M

Is DTC still current?

YES >> GO TO 6.

N

NO >> Clear DTC. Inspection End.

6.AIR BAG DIAGNOSIS SENSOR UNIT

1. Replace the air bag diagnosis sensor unit. Refer to [SR-26, "Removal and Installation"](#).
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

O

Is DTC still current?

P

YES >> GO TO 7.

NO >> Clear DTC. Inspection End.

7.RELATED HARNESS

Replace the related harness.

>> END

B0094 CRASH ZONE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

B0094 CRASH ZONE SENSOR

DTC Logic

INFOID:0000000010245973

DTC DETECTION LOGIC

CONSULT name	DTC	DTC detecting condition	Repair order
CRASH ZONE SENSOR [SENSOR FAIL]	B0094	Crash zone sensor has malfunctioned.	Refer to SRC-68, "Diagnosis Procedure" .
CRASH ZONE SENSOR [COMM FAIL]		Crash zone sensor communication error.	
CRASH ZONE SENSOR [DISCONNECT]		Crash zone sensor is disconnected.	
CRASH ZONE SENSOR [UNMATCH]		Crash zone sensor is out of specification.	
CRASH ZONE SENSOR [GND-SHORT]		Crash zone sensor circuit is shorted to ground.	

DTC CONFIRMATION PROCEDURE (With CONSULT)

1.CHECK SELF-DIAG RESULT

1. Turn ignition switch ON.
2. Check for DTC using CONSULT.

Is the DTC detected?

YES (Current DTC)>>Refer to [SRC-68, "Diagnosis Procedure"](#).

YES (Past DTC)>>GO TO 2.

NO >> Inspection End.

2.ERASE SELF-DIAG RESULT

Erase the DTC using CONSULT.

Can the DTC be erased?

YES >> Inspection End.

NO >> Refer to [SRC-68, "Diagnosis Procedure"](#).

DTC CONFIRMATION PROCEDURE (Without CONSULT)

1.CHECK SELF-DIAG RESULT

1. Turn ignition switch ON.
2. Check the air bag warning lamp status. Refer to [SRC-16, "On Board Diagnosis Function"](#).

NOTE:

SRS will not enter diagnosis mode if no malfunction is detected in user mode.

Is the DTC detected?

YES >> Refer to [SRC-68, "Diagnosis Procedure"](#).

NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010245974

1.HARNESS CONNECTOR

Visually inspect all applicable harness connectors for the following:

- Visible damage to connector or terminal
- Loose terminal
- Poor connection

NOTE:

All harness connectors should be inspected from the air bag diagnosis unit to the end component (including any in-line connectors).

Is the inspection result normal?

YES >> GO TO 2.

B0094 CRASH ZONE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

- NO >> Perform one of the following repairs:
- Visible damage: Replace the harness.
 - Loose terminal: Secure the terminal.
 - Poor connection: Secure the connection.

2.CONFIRM DTC

1. Reconnect all harness connectors.
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

- YES >> GO TO 3.
- NO >> Refer to [GI-41, "Intermittent Incident"](#).

3.WIRING HARNESS

Check the wiring harness for visible damage.

NOTE:

The entire wiring harness should be inspected from the air bag diagnosis sensor unit to the end component (including any in-line connectors).

Is the inspection result normal?

- YES >> GO TO 4.
- NO >> Replace the harness.

4.CONFIRM DTC

1. Reconnect all harness connectors.
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

- YES >> GO TO 5.
- NO >> Refer to [GI-41, "Intermittent Incident"](#).

5.CRASH ZONE SENSOR

1. Replace the crash zone sensor. Refer to [SR-22, "Removal and Installation"](#).
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

- YES >> GO TO 6.
- NO >> Clear DTC. Inspection End.

6.AIR BAG DIAGNOSIS SENSOR UNIT

1. Replace the air bag diagnosis sensor unit. Refer to [SR-26, "Removal and Installation"](#).
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

- YES >> GO TO 7.
- NO >> Clear DTC. Inspection End.

7.RELATED HARNESS

Replace the related harness.

>> **END**

A
B
C
D
E
F
G
I
J
K
L
M
N
O
P

SRC

B0093 FRONT DOOR SATELLITE SENSOR LH

< DTC/CIRCUIT DIAGNOSIS >

B0093 FRONT DOOR SATELLITE SENSOR LH

DTC Logic

INFOID:0000000010245975

DTC DETECTION LOGIC

With CONSULT

CONSULT name	DTC	DTC detecting condition	Repair order
DOOR SATELLITE SENSOR LH [SENSOR FAIL]	B0093	Front door satellite sensor LH has malfunctioned.	Refer to SRC-70, "Diagnosis Procedure" .
DOOR SATELLITE SENSOR LH [COMM FAIL]		Front door satellite sensor LH communication error.	
DOOR SATELLITE SENSOR LH [DISCONNECT]		Front door satellite sensor LH is disconnected.	
DOOR SATELLITE SENSOR LH [UNMATCH]		Front door satellite sensor LH is out of specification.	
DOOR SATELLITE SENSOR LH [GND-SHORT]		Front door satellite sensor LH circuit is shorted to ground.	

DTC CONFIRMATION PROCEDURE (With CONSULT)

1. CHECK SELF-DIAG RESULT

1. Turn ignition switch ON.
2. Check for DTC using CONSULT.

Is the DTC detected?

YES (Current DTC)>>Refer to [SRC-70, "Diagnosis Procedure"](#).

YES (Past DTC)>>GO TO 2.

NO >> Inspection End.

2. ERASE SELF-DIAG RESULT

Erase the DTC using CONSULT.

Can the DTC be erased?

YES >> Inspection End.

NO >> Refer to [SRC-70, "Diagnosis Procedure"](#).

DTC CONFIRMATION PROCEDURE (Without CONSULT)

1. CHECK SELF-DIAG RESULT

1. Turn ignition switch ON.
2. Check the air bag warning lamp status. Refer to [SRC-16, "On Board Diagnosis Function"](#).

NOTE:

SRS will not enter diagnosis mode if no malfunction is detected in user mode.

Is the DTC detected?

YES >> Refer to [SRC-70, "Diagnosis Procedure"](#).

NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010245976

Recheck SRS after each replacement.

1. HARNESS CONNECTOR

Visually inspect all applicable harness connectors for the following:

- Visible damage to connector or terminal
- Loose terminal
- Poor connection

NOTE:

All harness connectors should be inspected from the air bag diagnosis sensor unit to the end component (including any in-line connectors).

B0093 FRONT DOOR SATELLITE SENSOR LH

< DTC/CIRCUIT DIAGNOSIS >

Is the inspection result normal?

- YES >> GO TO 2.
- NO >> Perform one of the following repairs:
- Visible damage: Replace the harness.
 - Loose terminal: Secure the terminal.
 - Poor connection: Secure the connection.

2.CONFIRM DTC

1. Reconnect all harness connectors.
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

- YES >> GO TO 3.
- NO >> Refer to [GI-41, "Intermittent Incident"](#).

3.WIRING HARNESS

Check the wiring harness for visible damage.

NOTE:

The entire wiring harness should be inspected from the air bag diagnosis sensor unit to the end component (including any in-line connectors).

Is the inspection result normal?

- YES >> GO TO 4.
- NO >> Replace the harness.

4.CONFIRM DTC

1. Reconnect all harness connectors.
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

- YES >> GO TO 5.
- NO >> Refer to [GI-41, "Intermittent Incident"](#).

5.FRONT DOOR SATELLITE SENSOR LH

1. Replace the front door satellite sensor LH. Refer to [SR-24, "Removal and Installation"](#).
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

- YES >> GO TO 6.
- NO >> Clear DTC. Inspection End.

6.AIR BAG DIAGNOSIS SENSOR UNIT

1. Replace the air bag diagnosis sensor unit. Refer to [SR-26, "Removal and Installation"](#).
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

- YES >> GO TO 7.
- NO >> Clear DTC. Inspection End.

7.RELATED HARNESS

Replace the related harness.

>> **END**

A
B
C
D
E
F
G
SRC
I
J
K
L
M
N
O
P

B0098 FRONT DOOR SATELLITE SENSOR RH

< DTC/CIRCUIT DIAGNOSIS >

B0098 FRONT DOOR SATELLITE SENSOR RH

DTC Logic

INFOID:0000000010245977

DTC DETECTION LOGIC

With CONSULT

CONSULT name	DTC	DTC detecting condition	Repair order
DOOR SATELLITE SENSOR RH [SENSOR FAIL]	B0098	Front door satellite sensor RH has malfunctioned.	Refer to SRC-72, "Diagnosis Procedure" .
DOOR SATELLITE SENSOR RH [COMM FAIL]		Front door satellite sensor RH communication error.	
DOOR SATELLITE SENSOR RH [DISCONNECT]		Front door satellite sensor RH is disconnected.	
DOOR SATELLITE SENSOR RH [UNMATCH]		Front door satellite sensor RH is out of specification.	
DOOR SATELLITE SENSOR RH [GND-SHORT]		Front door satellite sensor RH circuit is shorted to ground.	

DTC CONFIRMATION PROCEDURE (With CONSULT)

1.CHECK SELF-DIAG RESULT

1. Turn ignition switch ON.
2. Check for DTC using CONSULT.

Is the DTC detected?

YES (Current DTC)>>Refer to [SRC-72, "Diagnosis Procedure"](#).

YES (Past DTC)>>GO TO 2.

NO >> Inspection End.

2.ERASE SELF-DIAG RESULT

Erase the DTC using CONSULT.

Can the DTC be erased?

YES >> Inspection End.

NO >> Refer to [SRC-72, "Diagnosis Procedure"](#).

DTC CONFIRMATION PROCEDURE (Without CONSULT)

1.CHECK SELF-DIAG RESULT

1. Turn ignition switch ON.
2. Check the air bag warning lamp status. Refer to [SRC-16, "On Board Diagnosis Function"](#).

NOTE:

SRS will not enter diagnosis mode if no malfunction is detected in user mode.

Is the DTC detected?

YES >> Refer to [SRC-72, "Diagnosis Procedure"](#).

NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010245978

Recheck SRS after each replacement.

1.HARNESS CONNECTOR

Visually inspect all applicable harness connectors for the following:

- Visible damage to connector or terminal
- Loose terminal
- Poor connection

NOTE:

All harness connectors should be inspected from the air bag diagnosis sensor unit to the end component (including any in-line connectors).

B0098 FRONT DOOR SATELLITE SENSOR RH

< DTC/CIRCUIT DIAGNOSIS >

Is the inspection result normal?

- YES >> GO TO 2.
- NO >> Perform one of the following repairs:
- Visible damage: Replace the harness.
 - Loose terminal: Secure the terminal.
 - Poor connection: Secure the connection.

2.CONFIRM DTC

1. Reconnect all harness connectors.
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

- YES >> GO TO 3.
- NO >> Refer to [GI-41, "Intermittent Incident"](#).

3.WIRING HARNESS

Check the wiring harness for visible damage.

NOTE:

The entire wiring harness should be inspected from the air bag diagnosis sensor unit to the end component (including any in-line connectors).

Is the inspection result normal?

- YES >> GO TO 4.
- NO >> Replace the harness.

4.CONFIRM DTC

1. Reconnect all harness connectors.
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

- YES >> GO TO 5.
- NO >> Refer to [GI-41, "Intermittent Incident"](#).

5.FRONT DOOR SATELLITE SENSOR LH

1. Replace the front door satellite sensor LH. Refer to [SR-24, "Removal and Installation"](#).
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

- YES >> GO TO 6.
- NO >> Clear DTC. Inspection End.

6.AIR BAG DIAGNOSIS SENSOR UNIT

1. Replace the air bag diagnosis sensor unit. Refer to [SR-26, "Removal and Installation"](#).
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

- YES >> GO TO 7.
- NO >> Clear DTC. Inspection End.

7.RELATED HARNESS

Replace the related harness.

>> **END**

A
B
C
D
E
F
G
SRC
I
J
K
L
M
N
O
P

B0091 FRONT SIDE AIR BAG SATELLITE SENSOR LH

< DTC/CIRCUIT DIAGNOSIS >

B0091 FRONT SIDE AIR BAG SATELLITE SENSOR LH

Description

INFOID:0000000010245979

DTC B0091 FRONT SATELLITE SENSOR LH

The front side air bag satellite sensor LH is wired to the air bag diagnosis sensor unit. The air bag diagnosis sensor unit will monitor the front side air bag satellite sensor LH for internal failures and its circuits for communication errors.

PART LOCATION

Refer to [SRC-6. "Component Parts Location"](#).

DTC Logic

INFOID:0000000010245980

DTC DETECTION LOGIC

With CONSULT

CONSULT name	DTC	DTC detecting condition	Repair order
B-PILLAR SATELLITE SENSOR LH [SENSOR FAIL]	B0091	Front side air bag satellite sensor LH has malfunctioned.	Refer to SRC-75. "Diagnosis Procedure" .
B-PILLAR SATELLITE SENSOR LH [COMM FAIL]		Front side air bag satellite sensor LH communication error.	
B-PILLAR SATELLITE SENSOR LH [DISCONNECT]		Front side air bag satellite sensor LH is disconnected.	
B-PILLAR SATELLITE SENSOR LH [UNMATCH]		Front side air bag satellite sensor LH is out of specification.	
B-PILLAR SATELLITE SENSOR LH [GND-SHORT]		Front side air bag satellite sensor LH circuit is shorted to ground.	

DTC CONFIRMATION PROCEDURE (With CONSULT)

1.CHECK SELF-DIAG RESULT

1. Turn ignition switch ON.
2. Check for DTC using CONSULT.

Is the DTC detected?

YES (Current DTC)>>Refer to [SRC-75. "Diagnosis Procedure"](#).

YES (Past DTC)>>GO TO 2.

NO >> Inspection End.

2.ERASE SELF-DIAG RESULT

Erase the DTC using CONSULT.

Can the DTC be erased?

YES >> Inspection End.

NO >> Refer to [SRC-75. "Diagnosis Procedure"](#).

DTC CONFIRMATION PROCEDURE (Without CONSULT)

1.CHECK SELF-DIAG RESULT

1. Turn ignition switch ON.
2. Check the air bag warning lamp status. Refer to [SRC-16. "On Board Diagnosis Function"](#).

NOTE:

SRS will not enter diagnosis mode if no malfunction is detected in user mode.

Is the DTC detected?

YES >> Refer to [SRC-75. "Diagnosis Procedure"](#).

NO >> Inspection End.

B0091 FRONT SIDE AIR BAG SATELLITE SENSOR LH

< DTC/CIRCUIT DIAGNOSIS >

Diagnosis Procedure

INFOID:000000010245981

1. HARNESS CONNECTOR

Visually inspect all applicable harness connectors for the following:

- Visible damage to connector or terminal
- Loose terminal
- Poor connection

NOTE:

All harness connectors should be inspected from the air bag diagnosis unit to the end component (including any in-line connectors).

Is the inspection result normal?

YES >> GO TO 2.

- NO >> Perform one of the following repairs:
- Visible damage: Replace the harness.
 - Loose terminal: Secure the terminal.
 - Poor connection: Secure the connection.

2. CONFIRM DTC

1. Reconnect all harness connectors.
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

YES >> GO TO 3.

NO >> Refer to [GI-41, "Intermittent Incident"](#).

3. WIRING HARNESS

Check the wiring harness for visible damage.

NOTE:

The entire wiring harness should be inspected from the air bag diagnosis sensor unit to the end component (including any in-line connectors).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace the harness.

4. CONFIRM DTC

1. Reconnect all harness connectors.
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

YES >> GO TO 5.

NO >> Refer to [GI-41, "Intermittent Incident"](#).

5. FRONT SIDE AIR BAG SATELLITE SENSOR LH

1. Replace the front side air bag satellite sensor LH. Refer to [SR-24, "Removal and Installation"](#).
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

YES >> GO TO 6.

NO >> Clear DTC. Inspection End.

6. AIR BAG DIAGNOSIS SENSOR UNIT

1. Replace the air bag diagnosis sensor unit. Refer to [SR-26, "Removal and Installation"](#).
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

YES >> GO TO 7.

NO >> Clear DTC. Inspection End.

A
B
C
D
E
F
G
I
J
K
L
M
N
O
P

SRC

B0091 FRONT SIDE AIR BAG SATELLITE SENSOR LH

< DTC/CIRCUIT DIAGNOSIS >

7.RELATED HARNESS

Replace the related harness.

>> END

B0096 FRONT SIDE AIR BAG SATELLITE SENSOR RH

< DTC/CIRCUIT DIAGNOSIS >

B0096 FRONT SIDE AIR BAG SATELLITE SENSOR RH

Description

INFOID:0000000010245982

DTC B0096 FRONT SATELLITE SENSOR RH

The front side air bag satellite sensor RH is wired to the air bag diagnosis sensor unit. The air bag diagnosis sensor unit will monitor the front side air bag satellite sensor RH for internal failures and its circuits for communication errors.

PART LOCATION

Refer to [SRC-6, "Component Parts Location"](#).

DTC Logic

INFOID:0000000010245983

DTC DETECTION LOGIC

With CONSULT

CONSULT name	DTC	DTC detecting condition	Repair order
B-PILLAR SATELLITE SENSOR RH [SENSOR FAIL]	B0096	Front side air bag satellite sensor RH has malfunctioned.	Refer to SRC-78, "Diagnosis Procedure" .
B-PILLAR SATELLITE SENSOR RH [COMM FAIL]		Front side air bag satellite sensor RH communication error.	
B-PILLAR SATELLITE SENSOR RH [DISCONNECT]		Front side air bag satellite sensor RH is disconnected.	
B-PILLAR SATELLITE SENSOR RH [UNMATCH]		Front side air bag satellite sensor RH is out of specification.	
B-PILLAR SATELLITE SENSOR RH [GND-SHORT]		Front side air bag satellite sensor RH circuit is shorted to ground.	

DTC CONFIRMATION PROCEDURE (With CONSULT)

1.CHECK SELF-DIAG RESULT

1. Turn ignition switch ON.
2. Check for DTC using CONSULT.

Is the DTC detected?

YES (Current DTC)>>Refer to [SRC-78, "Diagnosis Procedure"](#).

YES (Past DTC)>>GO TO 2.

NO >> Inspection End.

2.ERASE SELF-DIAG RESULT

Erase the DTC using CONSULT.

Can the DTC be erased?

YES >> Inspection End.

NO >> Refer to [SRC-78, "Diagnosis Procedure"](#).

DTC CONFIRMATION PROCEDURE (Without CONSULT)

1.CHECK SELF-DIAG RESULT

1. Turn ignition switch ON.
2. Check the air bag warning lamp status. Refer to [SRC-16, "On Board Diagnosis Function"](#).

NOTE:

SRS will not enter diagnosis mode if no malfunction is detected in user mode.

Is the DTC detected?

YES >> Refer to [SRC-78, "Diagnosis Procedure"](#).

NO >> Inspection End.

B0096 FRONT SIDE AIR BAG SATELLITE SENSOR RH

< DTC/CIRCUIT DIAGNOSIS >

Diagnosis Procedure

INFOID:0000000010245984

1. HARNESS CONNECTOR

Visually inspect all applicable harness connectors for the following:

- Visible damage to connector or terminal
- Loose terminal
- Poor connection

NOTE:

All harness connectors should be inspected from the air bag diagnosis unit to the end component (including any in-line connectors).

Is the inspection result normal?

YES >> GO TO 2.

- NO >> Perform one of the following repairs:
- Visible damage: Replace the harness.
 - Loose terminal: Secure the terminal.
 - Poor connection: Secure the connection.

2. CONFIRM DTC

1. Reconnect all harness connectors.
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

YES >> GO TO 3.

NO >> Refer to [GI-41, "Intermittent Incident"](#).

3. WIRING HARNESS

Check the wiring harness for visible damage.

NOTE:

The entire wiring harness should be inspected from the air bag diagnosis sensor unit to the end component (including any in-line connectors).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace the harness.

4. CONFIRM DTC

1. Reconnect all harness connectors.
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

YES >> GO TO 5.

NO >> Refer to [GI-41, "Intermittent Incident"](#).

5. FRONT SIDE AIR BAG SATELLITE SENSOR RH

1. Replace the front side air bag satellite sensor RH. Refer to [SR-24, "Removal and Installation"](#).
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

YES >> GO TO 6.

NO >> Clear DTC. Inspection End.

6. AIR BAG DIAGNOSIS SENSOR UNIT

1. Replace the air bag diagnosis sensor unit. Refer to [SR-26, "Removal and Installation"](#).
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

YES >> GO TO 7.

B0096 FRONT SIDE AIR BAG SATELLITE SENSOR RH

< DTC/CIRCUIT DIAGNOSIS >

NO >> Clear DTC. Inspection End.

7.RELATED HARNESS

Replace the related harness.

>> **END**

A

B

C

D

E

F

G

SRC

I

J

K

L

M

N

O

P

B0092 REAR SIDE AIR BAG SATELLITE SENSOR LH

< DTC/CIRCUIT DIAGNOSIS >

B0092 REAR SIDE AIR BAG SATELLITE SENSOR LH

Description

INFOID:0000000010245985

DTC B0092 REAR SATELLITE SENSOR LH

The rear side air bag satellite sensor LH is wired to the air bag diagnosis sensor unit. The air bag diagnosis sensor unit will monitor the rear side air bag satellite sensor LH for internal failures and its circuits for communication errors.

PART LOCATION

Refer to [SRC-6, "Component Parts Location"](#).

DTC Logic

INFOID:0000000010245986

DTC DETECTION LOGIC

With CONSULT

CONSULT name	DTC	DTC detecting condition	Repair order
C-PILLAR SATELLITE SENSOR LH [SENSOR FAIL]	B0092	Rear side satellite sensor LH has malfunctioned.	Refer to SRC-81, "Diagnosis Procedure" .
C-PILLAR SATELLITE SENSOR LH [COMM FAIL]		Rear side satellite sensor LH communication error.	
C-PILLAR SATELLITE SENSOR LH [DISCONNECT]		Rear side satellite sensor LH is disconnected.	
C-PILLAR SATELLITE SENSOR LH [UNMATCH]		Rear side satellite sensor LH is out of specification.	
C-PILLAR SATELLITE SENSOR LH [GND-SHORT]		Rear side satellite sensor LH circuit is shorted to ground.	

DTC CONFIRMATION PROCEDURE (With CONSULT)

1.CHECK SELF-DIAG RESULT

1. Turn ignition switch ON.
2. Check for DTC using CONSULT.

Is the DTC detected?

YES (Current DTC)>>Refer to [SRC-81, "Diagnosis Procedure"](#).

YES (Past DTC)>>GO TO 2.

NO >> Inspection End.

2.ERASE SELF-DIAG RESULT

Erase the DTC using CONSULT.

Can the DTC be erased?

YES >> Inspection End.

NO >> Refer to [SRC-81, "Diagnosis Procedure"](#).

DTC CONFIRMATION PROCEDURE (Without CONSULT)

1.CHECK SELF-DIAG RESULT

1. Turn ignition switch ON.
2. Check the air bag warning lamp status. Refer to [SRC-16, "On Board Diagnosis Function"](#).

NOTE:

SRS will not enter diagnosis mode if no malfunction is detected in user mode.

Is the DTC detected?

YES >> Refer to [SRC-81, "Diagnosis Procedure"](#).

NO >> Inspection End.

B0092 REAR SIDE AIR BAG SATELLITE SENSOR LH

< DTC/CIRCUIT DIAGNOSIS >

Diagnosis Procedure

INFOID:0000000010245987

1. HARNESS CONNECTOR

Visually inspect all applicable harness connectors for the following:

- Visible damage to connector or terminal
- Loose terminal
- Poor connection

NOTE:

All harness connectors should be inspected from the air bag diagnosis unit to the end component (including any in-line connectors).

Is the inspection result normal?

YES >> GO TO 2.

- NO >> Perform one of the following repairs:
- Visible damage: Replace the harness.
 - Loose terminal: Secure the terminal.
 - Poor connection: Secure the connection.

2. CONFIRM DTC

1. Reconnect all harness connectors.
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

YES >> GO TO 3

NO >> Refer to [GI-41, "Intermittent Incident"](#).

3. WIRING HARNESS

Check the wiring harness for visible damage.

NOTE:

The entire wiring harness should be inspected from the air bag diagnosis sensor unit to the end component (including any in-line connectors).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace the harness.

4. CONFIRM DTC

1. Reconnect all harness connectors.
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

YES >> GO TO 5.

NO >> Refer to [GI-41, "Intermittent Incident"](#).

5. REAR SIDE SATELLITE SENSOR LH

1. Replace the rear side satellite sensor LH. Refer to [SR-24, "Removal and Installation"](#).
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

YES >> GO TO 6.

NO >> Clear DTC. Inspection End.

6. AIR BAG DIAGNOSIS SENSOR UNIT

1. Replace the air bag diagnosis sensor unit. Refer to [SR-26, "Removal and Installation"](#).
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

YES >> GO TO 7.

NO >> Clear DTC. Inspection End.

A
B
C
D
E
F
G
I
J
K
L
M
N
O
P

SRC

B0092 REAR SIDE AIR BAG SATELLITE SENSOR LH

< DTC/CIRCUIT DIAGNOSIS >

7.RELATED HARNESS

Replace the related harness.

>> **END**

B0097 REAR SIDE AIR BAG SATELLITE SENSOR RH

< DTC/CIRCUIT DIAGNOSIS >

B0097 REAR SIDE AIR BAG SATELLITE SENSOR RH

Description

INFOID:0000000010245988

DTC B0097 REAR SATELLITE SENSOR RH

The rear side air bag satellite sensor RH is wired to the air bag diagnosis sensor unit. The air bag diagnosis sensor unit will monitor the rear side air bag satellite sensor RH for internal failures and its circuits for communication errors.

PART LOCATION

Refer to [SRC-6, "Component Parts Location"](#).

DTC Logic

INFOID:0000000010245989

DTC DETECTION LOGIC

With CONSULT

CONSULT name	DTC	DTC detecting condition	Repair order
C-PILLAR SATELLITE SENSOR RH [SENSOR FAIL]	B0097	Rear side satellite sensor RH has malfunctioned.	Refer to SRC-84, "Diagnosis Procedure" .
C-PILLAR SATELLITE SENSOR RH [COMM FAIL]		Rear side satellite sensor RH communication error.	
C-PILLAR SATELLITE SENSOR RH [DISCONNECT]		Rear side satellite sensor RH is disconnected.	
C-PILLAR SATELLITE SENSOR RH [UNMATCH]		Rear side satellite sensor RH is out of specification.	
C-PILLAR SATELLITE SENSOR RH [GND-SHORT]		Rear side satellite sensor RH circuit is shorted to ground.	

DTC CONFIRMATION PROCEDURE (With CONSULT)

1.CHECK SELF-DIAG RESULT

1. Turn ignition switch ON.
2. Check for DTC using CONSULT.

Is the DTC detected?

YES (Current DTC)>>Refer to [SRC-84, "Diagnosis Procedure"](#).

YES (Past DTC)>>GO TO 2.

NO >> Inspection End.

2.ERASE SELF-DIAG RESULT

Erase the DTC using CONSULT.

Can the DTC be erased?

YES >> Inspection End.

NO >> Refer to [SRC-84, "Diagnosis Procedure"](#).

DTC CONFIRMATION PROCEDURE (Without CONSULT)

1.CHECK SELF-DIAG RESULT

1. Turn ignition switch ON.
2. Check the air bag warning lamp status. Refer to [SRC-16, "On Board Diagnosis Function"](#).

NOTE:

SRS will not enter diagnosis mode if no malfunction is detected in user mode.

Is the DTC detected?

YES >> Refer to [SRC-84, "Diagnosis Procedure"](#).

NO >> Inspection End.

B0097 REAR SIDE AIR BAG SATELLITE SENSOR RH

< DTC/CIRCUIT DIAGNOSIS >

Diagnosis Procedure

INFOID:000000010245990

1. HARNESS CONNECTOR

Visually inspect all applicable harness connectors for the following:

- Visible damage to connector or terminal
- Loose terminal
- Poor connection

NOTE:

All harness connectors should be inspected from the air bag diagnosis unit to the end component (including any in-line connectors).

Is the inspection result normal?

YES >> GO TO 2.

- NO >> Perform one of the following repairs:
- Visible damage: Replace the harness.
 - Loose terminal: Secure the terminal.
 - Poor connection: Secure the connection.

2. CONFIRM DTC

1. Reconnect all harness connectors.
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

YES >> GO TO 3

NO >> Refer to [GI-41, "Intermittent Incident"](#).

3. WIRING HARNESS

Check the wiring harness for visible damage.

NOTE:

The entire wiring harness should be inspected from the air bag diagnosis sensor unit to the end component (including any in-line connectors).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace the harness.

4. CONFIRM DTC

1. Reconnect all harness connectors.
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

YES >> GO TO 5.

NO >> Refer to [GI-41, "Intermittent Incident"](#).

5. REAR SIDE SATELLITE SENSOR RH

1. Replace the rear side satellite sensor RH. Refer to [SR-24, "Removal and Installation"](#).
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

YES >> GO TO 6.

NO >> Clear DTC. Inspection End.

6. AIR BAG DIAGNOSIS SENSOR UNIT

1. Replace the air bag diagnosis sensor unit. Refer to [SR-26, "Removal and Installation"](#).
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

YES >> GO TO 7.

NO >> Clear DTC. Inspection End.

B0097 REAR SIDE AIR BAG SATELLITE SENSOR RH

< DTC/CIRCUIT DIAGNOSIS >

7. RELATED HARNESS

Replace the related harness.

>> **END**

A

B

C

D

E

F

G

SRC

I

J

K

L

M

N

O

P

B00A0 OCS SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

B00A0 OCS SYSTEM

Description

INFOID:0000000010245991

DTC B1017, B1018, B1020, B1021, B1022, B1025, B1032, B1048 OCCUPANT CLASSIFICATION SYSTEM (OCS)

The OCS control unit is wired to the air bag diagnosis sensor unit. The air bag diagnosis sensor unit will monitor the OCS for failures and interruptions in communication between the OCS control unit and the air bag diagnosis sensor unit.

PART LOCATION

Refer to [SRC-6, "Component Parts Location"](#).

DTC Logic

INFOID:0000000010245992

DTC DETECTION LOGIC

With CONSULT

CONSULT name	DTC	DTC detecting condition	Repair order
OCCUPANT DETECTION SENSOR UNIT [UNIT FAIL]	B00A0	The OCS control unit is malfunctioning.	Refer to SRC-87, "Diagnosis Procedure" .
OCCUPANT DETECTION SENSOR UNIT [NO DATA]			
OCCUPANT DETECTION SENSOR UNIT [UNDEFINED]			
OCCUPANT DETECTION SENSOR UNIT [RESET FAIL]			
OCCUPANT DETECTION SENSOR [UNIT FAIL]		The OCS sensor is malfunctioning.	
OCCUPANT DETECTION SENSOR [POWER FAIL]		The OCS sensor circuit is malfunctioning.	
OCCUPANT DETECTION SENSOR UNIT [COMM FAIL]		Communication between the OCS control unit and the air bag diagnosis sensor unit is interrupted.	

DTC CONFIRMATION PROCEDURE (With CONSULT)

1.CHECK SELF-DIAG RESULT

1. Turn ignition switch ON.
2. Check for DTC using CONSULT.

Is the DTC detected?

YES (Current DTC)>>Refer to [SRC-87, "Diagnosis Procedure"](#).

YES (Past DTC)>>GO TO 2.

NO >> Inspection End.

2.ERASE SELF-DIAG RESULT

Erase the DTC using CONSULT.

Can the DTC be erased?

YES >> Inspection End.

NO >> Refer to [SRC-87, "Diagnosis Procedure"](#).

DTC CONFIRMATION PROCEDURE (Without CONSULT)

1.CHECK SELF-DIAG RESULT

1. Turn ignition switch ON.
2. Check the air bag warning lamp status. Refer to [SRC-16, "On Board Diagnosis Function"](#).

B00A0 OCS SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

NOTE:

SRS will not enter diagnosis mode if no malfunction is detected in user mode.

Is the DTC detected?

- YES >> Refer to [SRC-87, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010245993

Recheck SRS after each corrective action.

1. HARNESS CONNECTOR

Visually inspect all applicable harness connectors for the following:

- Visible damage to connector or terminal
- Loose terminal
- Poor connection

NOTE:

All harness connectors should be inspected from the air bag diagnosis unit to the end component (including any in-line connectors).

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Perform one of the following repairs:
 - Visible damage: Replace the harness.
 - Loose terminal: Secure the terminal.
 - Poor connection: Secure the connection.

2. CONFIRM DTC

1. Reconnect all harness connectors.
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

- YES >> GO TO 3.
NO >> Refer to [GI-41, "Intermittent Incident"](#).

3. WIRING HARNESS

Check the wiring harness for visible damage.

NOTE:

The entire wiring harness should be inspected from the air bag diagnosis sensor unit to the end component (including any in-line connectors).

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Replace the harness.

4. CONFIRM DTC

1. Reconnect all harness connectors.
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

- YES >> GO TO 5.
NO >> Refer to [GI-41, "Intermittent Incident"](#).

5. REPLACE OCCUPANT DETECTION SYSTEM CONTROL UNIT

1. Replace the occupant detection system control unit. Refer to [SR-30, "Removal and Installation"](#).
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

- YES >> GO TO 6.
NO >> Clear DTC. Inspection End.

6. AIR BAG DIAGNOSIS SENSOR UNIT

A
B
C
D
E
F
G
I
J
K
L
M
N
O
P

SRC

B00A0 OCS SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

1. Replace the air bag diagnosis sensor unit. Refer to [SR-26. "Removal and Installation"](#).
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

YES >> GO TO 7.

NO >> Clear DTC. Inspection End.

7.RELATED HARNESS

Replace the related harness.

>> **END**

B14XX AIR BAG DIAGNOSIS SENSOR UNIT

< DTC/CIRCUIT DIAGNOSIS >

B14XX AIR BAG DIAGNOSIS SENSOR UNIT

Description

INFOID:0000000010245994

DTC B1XXX AIR BAG DIAGNOSIS SENSOR UNIT

The air bag diagnosis sensor unit will run self diagnostics when the ignition switch is turned ON. It has the potential to set many diagnostic trouble codes which will conform to the B1XXX format, but will not match any other SRS diagnostic trouble codes. Refer to [SRC-18, "CONSULT Function \(AIR BAG\)"](#).

DTC Logic

INFOID:0000000010245995

DTC DETECTION LOGIC

With CONSULT

CONSULT name	DTC	DTC detecting condition	Repair order
CONTROL UNIT [UNIT FAIL]	B14XX	Air bag diagnosis sensor unit is malfunctioning.	Refer to SRC-89, "Diagnosis Procedure" .
AIRBAG DISPOSAL COMPLETION			

DTC CONFIRMATION PROCEDURE (With CONSULT)

1.CHECK SELF-DIAG RESULT

1. Turn ignition switch ON.
2. Check for DTC using CONSULT.

Is the DTC detected?

YES (Current DTC)>>Refer to [SRC-89, "Diagnosis Procedure"](#).

YES (Past DTC)>>GO TO 2.

NO >> Inspection End.

2.ERASE SELF-DIAG RESULT

Erase the DTC using CONSULT.

Can the DTC be erased?

YES >> Inspection End.

NO >> Refer to [SRC-89, "Diagnosis Procedure"](#).

DTC CONFIRMATION PROCEDURE (Without CONSULT)

1.CHECK SELF-DIAG RESULT

1. Turn ignition switch ON.
2. Check the air bag warning lamp status. Refer to [SRC-16, "On Board Diagnosis Function"](#).

NOTE:

SRS will not enter diagnosis mode if no malfunction is detected in user mode.

Is the DTC detected?

YES >> Refer to [SRC-89, "Diagnosis Procedure"](#).

NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010245996

1.HARNESS CONNECTOR

Visually inspect all applicable harness connectors for the following:

- Visible damage to connector or terminal
- Loose terminal
- Poor connection

NOTE:

All harness connectors should be inspected from the air bag diagnosis sensor unit to the end component (including any in-line connectors).

B14XX AIR BAG DIAGNOSIS SENSOR UNIT

< DTC/CIRCUIT DIAGNOSIS >

Is the inspection result normal?

YES >> GO TO 2.

NO >> Perform one of the following repairs:

- Visible damage: Replace the harness.
- Loose terminal: Secure the terminal.
- Poor connection: Secure the connection.

2.CONFIRM DTC

1. Reconnect all harness connectors.
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

YES >> GO TO 3.

NO >> Refer to [GI-41, "Intermittent Incident"](#).

3.WIRING HARNESS

Check the wiring harness for visible damage.

NOTE:

The entire wiring harness should be inspected from the air bag diagnosis sensor unit to the end component (including any in-line connectors).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace the harness.

4.CONFIRM DTC

1. Reconnect all harness connectors.
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

YES >> GO TO 5.

NO >> Refer to [GI-41, "Intermittent Incident"](#).

5.AIR BAG DIAGNOSIS SENSOR UNIT

1. Replace the air bag diagnosis sensor unit. Refer to [SR-26, "Removal and Installation"](#).
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

YES >> GO TO 6.

NO >> Clear DTC. Inspection End.

6.RELATED HARNESS

Replace the related harness.

>> **END**

B00D5 FRONT PASSENGER AIR BAG OFF INDICATOR

< DTC/CIRCUIT DIAGNOSIS >

B00D5 FRONT PASSENGER AIR BAG OFF INDICATOR

DTC Logic

INFOID:000000010245997

DTC DETECTION LOGIC

With CONSULT

CONSULT name	DTC	DTC detecting condition	Repair order
PASSENGER AIRBAG INDICATOR CIRCUIT [FAIL]	B00D5	Front passenger air bag OFF indicator is malfunctioning.	Refer to SRC-91, "Diagnosis Procedure" .
PASSENGER AIRBAG INDICATOR CIRCUIT [OPEN]		Front passenger air bag OFF indicator circuit is open.	
PASSENGER AIRBAG INDICATOR CIRCUIT [VB-SHORT]		Front passenger air bag OFF indicator is shorted to a power supply circuit.	
PASSENGER AIRBAG INDICATOR CIRCUIT [GND-SHORT]		Front passenger air bag OFF indicator is shorted to ground.	

DTC CONFIRMATION PROCEDURE (With CONSULT)

1.CHECK SELF-DIAG RESULT

1. Turn ignition switch ON.
2. Check for DTC using CONSULT.

Is the DTC detected?

YES (Current DTC)>>Refer to [SRC-91, "Diagnosis Procedure"](#).

YES (Past DTC)>>GO TO 2.

NO >> Inspection End.

2.ERASE SELF-DIAG RESULT

Erase the DTC using CONSULT.

Can the DTC be erased?

YES >> Inspection End.

NO >> Refer to [SRC-91, "Diagnosis Procedure"](#).

DTC CONFIRMATION PROCEDURE (Without CONSULT)

1.CHECK SELF-DIAG RESULT

1. Turn ignition switch ON.
2. Check the air bag warning lamp status. Refer to [SRC-16, "On Board Diagnosis Function"](#).

NOTE:

SRS will not enter diagnosis mode if no malfunction is detected in user mode.

Is the DTC detected?

YES >> Refer to [SRC-91, "Diagnosis Procedure"](#).

NO >> Inspection End.

Diagnosis Procedure

INFOID:000000010245998

1.HARNESS CONNECTOR

Visually inspect all applicable harness connectors for the following:

- Visible damage to connector or terminal
- Loose terminal
- Poor connection

NOTE:

All harness connectors should be inspected from the air bag diagnosis sensor unit to the end component (including any in-line connectors).

Is the inspection result normal?

B00D5 FRONT PASSENGER AIR BAG OFF INDICATOR

< DTC/CIRCUIT DIAGNOSIS >

- YES >> GO TO 2.
NO >> Perform one of the following repairs:
- Visible damage: Replace the harness.
 - Loose terminal: Secure the terminal.
 - Poor connection: Secure the connection.

2.CONFIRM DTC

1. Reconnect all harness connectors.
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

- YES >> GO TO 3.
NO >> Refer to [GI-41, "Intermittent Incident"](#).

3.WIRING HARNESS

Check the wiring harness for visible damage.

NOTE:

The entire wiring harness should be inspected from the air bag diagnosis sensor unit to the end component (including any in-line connectors).

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Replace the harness.

4.CONFIRM DTC

1. Reconnect all harness connectors.
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

- YES >> GO TO 5.
NO >> Refer to [GI-41, "Intermittent Incident"](#).

5.FRONT PASSENGER AIR BAG OFF INDICATOR

1. Replace the front passenger air bag off indicator.
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

- YES >> GO TO 6.
NO >> Clear DTC. Inspection End.

6.AIR BAG DIAGNOSIS SENSOR UNIT

1. Replace the air bag diagnosis sensor unit. Refer to [SR-26, "Removal and Installation"](#).
2. Turn ignition switch ON.
3. Check for DTC using CONSULT.

Is DTC still current?

- YES >> GO TO 7.
NO >> Clear DTC. Inspection End.

7.RELATED HARNESS

Replace the related harness.

>> **END**

B142A IGNITION VOLTAGE

< DTC/CIRCUIT DIAGNOSIS >

B142A IGNITION VOLTAGE

Description

INFOID:0000000010245999

DTC B142A IGNITION VOLTAGE

Ignition voltage is supplied to the air bag diagnosis sensor unit when the ignition is in the ON position. The air bag diagnosis sensor unit will monitor for low or high ignition voltage.

PART LOCATION

Refer to [SRC-6, "Component Parts Location"](#).

DTC Logic

INFOID:0000000010246000

DTC DETECTION LOGIC

With CONSULT

CONSULT name	DTC	DTC detecting condition	Repair order
IGN VOLTAGE [LOW]	B142A	Ignition voltage low at air bag diagnosis sensor unit.	Refer to SRC-93, "Diagnosis Procedure" .
IGN VOLTAGE [HIGH]		Ignition voltage high at air bag diagnosis sensor unit.	

DTC CONFIRMATION PROCEDURE (With CONSULT)

1.INSPECTION START

Turn ignition switch ON.

>> GO TO 2.

2.CHECK SELF-DIAG RESULT

Check for the DTC on CONSULT.

Is the DTC detected?

YES >> Refer to [SRC-93, "Diagnosis Procedure"](#).

NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010246001

NOTE:

Follow the procedures in numerical order when repairing malfunctioning parts. Confirm whether malfunction is eliminated using air bag warning lamp each time repair is finished. If malfunction is still observed, proceed to the next step. When malfunction is eliminated, further repair work is not required.

1.HARNESS CONNECTOR

Is there any visible damage to the connector?

YES or NO

YES >> Replace the harness.

NO >> GO TO 2

2.WIRING HARNESS

Is there any visible damage to the harness?

YES or NO

YES >> Replace the harness.

NO >> GO TO 3

3.AIR BAG DIAGNOSIS SENSOR UNIT

B142A IGNITION VOLTAGE

< DTC/CIRCUIT DIAGNOSIS >

Replace the air bag diagnosis sensor unit. Refer to [SR-26. "Removal and Installation"](#).

>> GO TO 4

4. RELATED HARNESS

Replace the related harness.

>> **END**

U1000 CAN COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

U1000 CAN COMM CIRCUIT

Description

INFOID:0000000010246002

CAN (Controller Area Network) is a serial communication system for real time application. It is an on-vehicle multiplex communication system with high data communication speed and excellent error detection ability. Many electronic control units are equipped into vehicles, and each control unit shares information and links with other control units during operation. With CAN communication, control units are connected with two communication lines (CAN-H line, CAN-L line) allowing a high rate of information transmission with less wiring. Each control unit transmits and receives data but selectively reads required data only. Refer to [LAN-32, "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart"](#).

DTC Logic

INFOID:0000000010246003

DTC DETECTION LOGIC

CONSULT name	DTC	DTC detecting condition	Repair order
CAN COMMUNICATION FAILURE	U1000	When air bag diagnosis sensor unit is not transmitting or receiving CAN communication signals for 2 or more seconds.	Refer to SRC-95, "Diagnosis Procedure" .

DTC CONFIRMATION PROCEDURE

1.PERFORM SELF-DIAGNOSIS

1. Turn ignition switch ON and wait for 7 seconds or more.
2. Using CONSULT, perform SELF-DIAGNOSIS RESULTS of AIR BAG.
3. Check if any DTC is displayed in the self-diagnosis results.

Is DTC detected?

- YES >> Refer to [SRC-95, "Diagnosis Procedure"](#).
NO >> Refer to [GI-41, "Intermittent Incident"](#).

Diagnosis Procedure

INFOID:0000000010246004

1.CHECK CAN COMMUNICATION SYSTEM

Check CAN communication system. Refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).

>> Inspection End.

U1010 CONTROL UNIT (CAN)

< DTC/CIRCUIT DIAGNOSIS >

U1010 CONTROL UNIT (CAN)

Description

INFOID:0000000010246005

Air bag diagnosis sensor performs self-tests on key ON. If CAN communication failure within control unit is detected, DTC is set.

DTC Logic

INFOID:0000000010246006

DTC DETECTION LOGIC

CONSULT name	DTC	DTC detecting condition	Repair order
CAN CONTROL UNIT FAILURE	U1010	CAN communication error is detected in control unit.	Refer to SRC-96. "Diagnosis Procedure" .

DTC CONFIRMATION PROCEDURE

1.PERFORM SELF-DIAGNOSIS

1. Turn ignition switch ON.
2. Using CONSULT, perform SELF DIAGNOSIS RESULTS of AIR BAG.
3. Check if DTC is displayed in the self-diagnosis results.

Is DTC detected?

- YES >> Refer to [SRC-96. "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010246007

1.REPLACE AIR BAG DIAGNOSIS SENSOR UNIT

Replace air bag diagnosis sensor unit. Refer to [SR-26. "Removal and Installation"](#).

>> Inspection End.

B142X COLLISION DETECTION

< DTC/CIRCUIT DIAGNOSIS >

B142X COLLISION DETECTION

Description

INFOID:0000000010246008

DTC B1209 - B1211 COLLISION DETECTION

The air bag diagnosis sensor unit will set this DTC if it has detected a collision which has resulted in a deployment of one or more air bags or pre-tensioners. If this DTC is detected after a SRS repair, the air bag diagnosis sensor unit has not yet been replaced. This DTC can not be erased.

PART LOCATION

Refer to [SRC-6, "Component Parts Location"](#).

DTC Logic

INFOID:0000000010246009

DTC DETECTION LOGIC

With CONSULT

CONSULT name	DTC	DTC detecting condition	Repair order
FRONTAL COLLISION DETECTION	B1421	Frontal collision detected. Driver and/or front passenger air bag modules are deployed.	Refer to SR-5, "FOR FRONTAL COLLISION : When SRS is activated in a collision" or SR-6, "FOR FRONTAL COLLISION : When SRS is not activated in a collision" .
SIDE COLLISION DETECTION	B1422	Side collision detected. Curtain air bag module and seat belt pre-tensioner are deployed.	Refer to SR-7, "FOR SIDE AND ROLLOVER COLLISION : When SRS is activated in a collision" or SR-8, "FOR SIDE AND ROLLOVER COLLISION : When SRS is not activated in a collision" .

DTC CONFIRMATION PROCEDURE (With CONSULT)

1.INSPECTION START

Turn ignition switch ON.

>> GO TO 2.

2.CHECK SELF-DIAG RESULT

Check for the DTC on CONSULT.

Is the DTC detected?

- YES >> Refer to [SRC-97, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010246010

Refer to Frontal collision: [SR-5, "FOR FRONTAL COLLISION : When SRS is activated in a collision"](#), [SR-6, "FOR FRONTAL COLLISION : When SRS is not activated in a collision"](#) or [SR-7, "FOR SIDE AND ROLLOVER COLLISION : When SRS is activated in a collision"](#) or Side and rollover collision: [SR-8, "FOR SIDE AND ROLLOVER COLLISION : When SRS is not activated in a collision"](#)

SRS AIR BAG WARNING LAMP DOES NOT TURN ON

< SYMPTOM DIAGNOSIS >

SYMPTOM DIAGNOSIS

SRS AIR BAG WARNING LAMP DOES NOT TURN ON

AIR BAG Warning Lamp Does Not Turn On

INFOID:0000000010245941

1. CHECK METER FUSE

Check the 10A fuse [No. 13, located in the fuse block (J/B)].

Is the fuse blown?

YES >> GO TO 2.

NO >> GO TO 3.

2. REPLACE METER FUSE AND CHECK AGAIN

Replace 10A fuse [No. 13, located in the fuse block (J/B)] and turn ignition switch ON.

Does the fuse blow again?

YES >> Replace fuse and harness.

NO >> Inspection End.

3. CHECK HARNESS CONNECTIONS BETWEEN AIR BAG DIAGNOSIS SENSOR UNIT AND COMBINATION METER

Inspect the harness and connectors between the air bag diagnosis sensor unit and the combination meter.

Do the harness or connectors have any visible damage?

YES >> Replace harness.

NO >> GO TO 4.

4. CHECK COMBINATION METER

Disconnect the air bag diagnosis sensor unit harness connectors and turn ignition switch ON.

Does AIR BAG warning lamp turn on?

YES >> Replace the air bag diagnosis sensor unit. Refer to [SR-26. "Removal and Installation"](#).

NO >> Replace the combination meter. Refer to [MWI-82. "Removal and Installation"](#).

SRS AIR BAG WARNING LAMP DOES NOT TURN OFF

< SYMPTOM DIAGNOSIS >

SRS AIR BAG WARNING LAMP DOES NOT TURN OFF

AIR BAG Warning Lamp Does Not Turn Off

INFOID:000000010245942

1.CHECK CONDITION OF AIR BAG MODULE

Inspect for any deployed air bag modules or seat belt pre-tensioners.

Are any air bag modules or seat belt pre-tensioners deployed?

YES >> Refer to Frontal collision: [SR-5, "FOR FRONTAL COLLISION : When SRS is activated in a collision"](#), [SR-6, "FOR FRONTAL COLLISION : When SRS is not activated in a collision"](#) or Side and rollover collision: [SR-7, "FOR SIDE AND ROLLOVER COLLISION : When SRS is activated in a collision"](#), [SR-8, "FOR SIDE AND ROLLOVER COLLISION : When SRS is not activated in a collision"](#).

NO >> GO TO 2.

2.CHECK THE AIR BAG FUSE

Check 10A fuse [No. 32, located in the fuse block (J/B)].

Is the fuse blown?

YES >> GO TO 3.

NO >> GO TO 4.

3.CHECK AIR BAG FUSE AGAIN

Replace 10A fuse [No. 32, located in the fuse block (J/B)] and turn ignition switch ON.

Does the fuse blow again?

YES >> Replace fuse and harness.

NO >> Inspection End.

4.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Connect CONSULT.

Is "AIR BAG" displayed on CONSULT?

YES >> GO TO 5.

NO >> Visually inspect the air bag diagnosis sensor unit harness connections. If the connections are OK, replace the air bag diagnosis sensor unit. Refer to [SR-26, "Removal and Installation"](#).

5.CHECK HARNESS CONNECTION

Check for loose connections between the combination meter and the air bag diagnosis sensor unit.

Are there any loose connections?

YES >> Properly connect the combination meter and air bag diagnosis sensor unit harness connectors. If AIR BAG warning lamp still does not turn off, replace the wiring harness.

NO >> Replace air bag diagnosis sensor unit. Refer to [SR-26, "Removal and Installation"](#).

SEAT BELT WARNING SYSTEM

< SYMPTOM DIAGNOSIS >

SEAT BELT WARNING SYSTEM

Seat Belt Warning System Does Not Function

INFOID:000000010245943

1. SEAT BELT WARNING LIGHT

Turn ignition switch ON.

Does the seat belt warning lamp come ON?

YES >> GO TO 2.

- NO >> • Check 10A fuse [No. 13, located in the fuse block (J/B)].
- Check seat belt buckle switch (driver seat).
 - Check harness between combination meter and seat belt buckle switch (driver seat).
 - Check combination meter. Refer to [MWI-29, "Fail-safe"](#).

2. SEAT BELT BUCKLE (DRIVER SEAT)

Fasten the seat belt buckle (driver seat).

Does the seat belt warning lamp go OFF?

YES >> GO TO 3.

- NO >> • Check seat belt buckle switch (driver seat).
- Check harness between combination meter and seat belt buckle switch (driver seat).

3. OCCUPANT CLASSIFICATION SYSTEM

Have a helper sit in the passenger seat.

Does the seat belt warning lamp go ON?

YES >> GO TO 4.

- NO >> • Check occupant classification system. Refer to [SRC-13, "OCCUPANT CLASSIFICATION SYSTEM: System Description"](#).
- Check harness between occupant classification control unit and air bag diagnosis sensor unit.

4. SEAT BELT BUCKLE (PASSENGER SEAT)

Fasten the seat belt buckle (passenger seat).

Does the seat belt warning lamp go OFF?

YES >> System OK.

- NO >> • Check seat belt buckle switch (passenger seat).
- Check harness between seat belt buckle switch (passenger seat) and air bag diagnosis sensor unit.
 - Replace air bag diagnosis sensor unit. Refer to [SR-26, "Removal and Installation"](#).

SECTION **ST**

STEERING SYSTEM

CONTENTS

PRECAUTION	2	REMOVAL AND INSTALLATION	11	F
PRECAUTIONS	2	STEERING WHEEL	11	ST
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	2	Exploded View	11	
Service Notice or Precautions for Steering System	2	Removal and Installation	11	
Precaution for Work	2	STEERING COLUMN	12	H
PREPARATION	4	Exploded View	12	
PREPARATION	4	Removal and Installation	12	I
Special Service Tools	4	Inspection	13	
Commercial Service Tools	4	STEERING GEAR AND LINKAGE	14	J
SYMPTOM DIAGNOSIS	6	Exploded View	14	
NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING	6	Removal and Installation	14	K
NVH Troubleshooting Chart	6	Inspection	15	
BASIC INSPECTION	7	UNIT DISASSEMBLY AND ASSEMBLY ...	16	L
STEERING WHEEL	7	STEERING GEAR AND LINKAGE	16	
Inspection	7	Exploded View	16	
STEERING COLUMN	9	Disassembly and Assembly	16	
Inspection	9	SERVICE DATA AND SPECIFICATIONS (SDS)	18	M
STEERING GEAR AND LINKAGE	10	SERVICE DATA AND SPECIFICATIONS (SDS)	18	N
Inspection	10	Steering Wheel	18	
		Steering Angle	18	
		Steering Column	18	
		Steering Gear	19	O

PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010359152

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Service Notice or Precautions for Steering System

INFOID:0000000010359150

- In case of removing steering gear, make the final tightening with grounded and unloaded vehicle condition, and then check wheel alignment.
- Observe the following precautions when disassembling.
 - Before disassembly, thoroughly clean the outside of the unit.
 - Disassembly should be done in a clean work area. It is important to prevent the internal parts from becoming contaminated by dirt or other foreign matter.
 - For easier and proper assembly, place disassembled parts in order on a parts rack.
 - Use nylon cloth or paper towels to clean the parts; common shop rags can leave lint that might interfere with their operation.
 - Do not reuse non-reusable parts.
 - Before assembling, apply the specified grease to the directed parts.
- During quick steering, rasping noise may be heard from around the steering wheel. This is not a malfunction. The noise is an operating noise of the EPS system under normal conditions. If the rasping noise occurs during slow steering, this may not be an operating noise of the system. In this case, it is necessary to find out the location of the noise and repair, if necessary.
- Do not repeat static steering. (Motor and EPS control unit could be heated.)

Precaution for Work

INFOID:0000000010359151

- When removing or disassembling each component, be careful not to damage or deform it. If a component may be subject to interference, be sure to protect it with a shop cloth.
- When removing (disengaging) components with a screwdriver or similar tool, be sure to wrap the component with a shop cloth or vinyl tape to protect it.
- Protect the removed parts with a shop cloth and prevent them from being dropped.
- Replace a deformed or damaged clip.
- If a part is specified as a non-reusable part, always replace it with a new one.
- Be sure to tighten bolts and nuts securely to the specified torque.
- After installation is complete, be sure to check that each part works properly.

PRECAUTIONS

< PRECAUTION >

- Follow the steps below to clean components:
- Water soluble dirt:
 - Dip a soft cloth into lukewarm water, wring the water out of the cloth and wipe the dirty area.
 - Then rub with a soft, dry cloth.
- Oily dirt:
 - Dip a soft cloth into lukewarm water with mild detergent (concentration: within 2 to 3%) and wipe the dirty area.
 - Then dip a cloth into fresh water, wring the water out of the cloth and wipe the detergent off.
 - Then rub with a soft, dry cloth.
- Do not use organic solvent such as thinner, benzene, alcohol or gasoline.
- For genuine leather seats, use a genuine leather seat cleaner.

A

B

C

D

E

F

ST

H

I

J

K

L

M

N

O

P

PREPARATION

< PREPARATION >

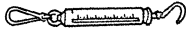
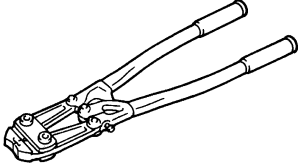
PREPARATION

PREPARATION

Special Service Tools

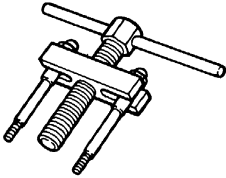
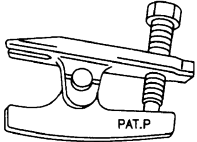
INFOID:000000009795700

The actual shape of the tools may differ from those illustrated here.

Tool number (TechMate No.) Tool name	Description
— (J-44372) Pull gauge	Measuring steering wheel turning force, rack sliding force and ball joint swinging force
 LST024	
KV40107300 (—) Boot Band crimping tool	Installing boot bands (large diameter)
 ZZA1229D	

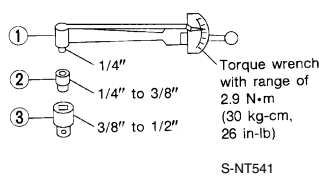
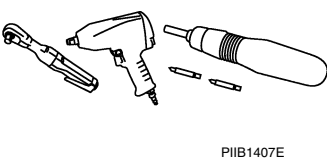
Commercial Service Tools

INFOID:000000009795701

Tool name	Description
Steering wheel puller	Removing steering wheel
 ZZA0819D	
Ball joint remover	Removing ball joint
 PAT.P NT146	

PREPARATION

< PREPARATION >

Tool name	Description
ST3127S000 (J-25765-A) Preload gauge 1. GG9103000 (J-25765-A) Torque wrench 2. HT62940000 (-) Socket adapter 3. HT62900000 (-) Socket adapter	Inspecting of rotating torque for ball joint and steering column 
Power tool 	Loosening nuts, screws and bolts

A
B
C
D
E
F
ST
H
I
J
K
L
M
N
O
P

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

< SYMPTOM DIAGNOSIS >

SYMPTOM DIAGNOSIS

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

NVH Troubleshooting Chart

INFOID:000000009795695

Use the chart below to find the cause of the symptom. If necessary, repair or replace these parts.

Reference			ST-10	ST-10	ST-10	ST-7	ST-7	—	ST-7	ST-9	ST-9	ST-10	DLN-97	DLN-110	FSU-5	FAX-6	WT-55	FAX-37	BR-6
Possible cause and SUSPECTED PARTS			Outer/inner socket ball joint swinging torque	Outer/inner socket ball joint rotating torque	Outer/inner socket ball joint end play	Steering wheel play	Improper steering wheel	Improper installation or looseness of tilt lock lever	Mounting looseness	Steering column deformation or damage	Improper installation or looseness of steering column	Steering linkage looseness	PROPELLER SHAFT (AWD)	DIFFERENTIAL (AWD)	SUSPENSION	AXLE	WHEEL AND TIRE	DRIVE SHAFT	BRAKE
Symptom	Steering	Noise	x	x	x	x				x	x		x	x	x	x	x	x	x
		Shake					x	x	x				x		x	x	x	x	x
		Vibration					x	x	x	x	x		x		x	x		x	
		Shimmy					x		x			x			x	x	x		x
		Shudder						x	x			x			x	x	x		x

x: Applicable

STEERING WHEEL

< BASIC INSPECTION >

BASIC INSPECTION

STEERING WHEEL

Inspection

INFOID:000000009795702

STEERING WHEEL AXIAL END PLAY

1. Check installation conditions of steering gear, front suspension assembly, axle and steering column.
2. Check if movement exists when steering wheel is moved up and down, to the left and right and to the axial direction.

Steering wheel axial end play : Refer to [ST-18, "Steering Wheel"](#).

3. Check the following items when steering wheel axial end play is out of the standard.
 - Check the steering column condition. Refer to [ST-12, "Exploded View"](#).
 - Check steering gear condition for looseness. Refer to [ST-14, "Exploded View"](#).

STEERING WHEEL PLAY

1. Turn steering wheel so that front wheels come to the straight-ahead position.
2. Start engine and lightly turn steering wheel to the left and right until front wheels start to move.
3. Measure steering wheel movement on the outer circumference.

Steering wheel play : Refer to [ST-18, "Steering Wheel"](#).

4. Check the following items when steering wheel play is out of the standard.
 - Check backlash for each joint of steering column.
 - Check installation condition of steering gear.

NEUTRAL POSITION STEERING WHEEL

1. Make sure that steering gear, steering column and steering wheel are installed in the correct position.
2. Perform neutral position inspection after wheel alignment. Refer to [FSU-7, "Inspection"](#).
3. Set vehicle to the straight-ahead position and confirm steering wheel is in the neutral position.
4. Loosen outer socket lock nut and turn inner socket to left and right equally to make fine adjustments if steering wheel is not in the neutral position.

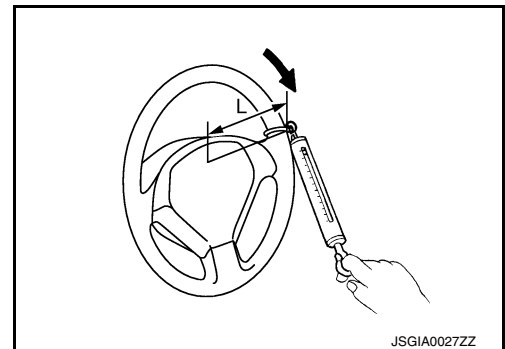
STEERING WHEEL TURNING FORCE

1. Park vehicle on a level and dry surface, set parking brake.
2. Tires need to be inflated normal pressure. Refer to [WT-65, "Tire Air Pressure"](#).
3. Start engine.
4. Check steering wheel turning force when steering wheel has been turned 360° from neutral position.

Steering wheel turning force : Refer to [ST-18, "Steering Wheel"](#).

NOTE:

Multiply the distance (L) from the hook of spring balance to the center of steering wheel by the measurement value with a spring balance.



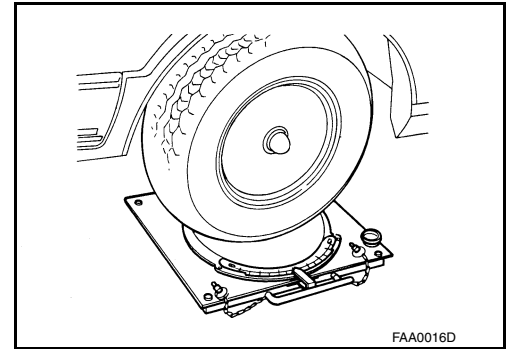
FRONT WHEEL TURNING ANGLE

1. Check front wheel turning angle after toe-in inspection. Refer to [FSU-7, "Inspection"](#).

STEERING WHEEL

< BASIC INSPECTION >

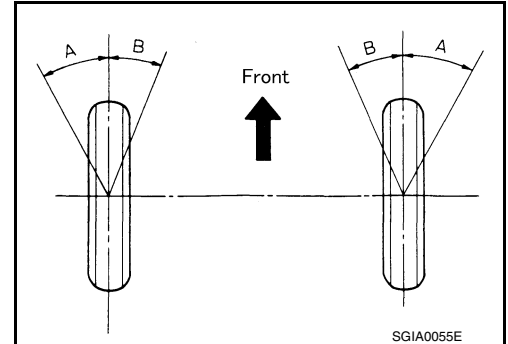
2. Place front wheels on turning radius gauges and rear wheels on stands, so that vehicle can be level.
3. Check the maximum inner and outer wheel turning angles for LH and RH road wheels.



4. With the engine at idle, turn steering wheel from full left stop to full right stop and measure the turning angles.

Inner wheel (Angle: A) : Refer to [ST-18, "Steering Angle"](#).

Outer wheel (Angle: B) : Refer to [ST-18, "Steering Angle"](#).

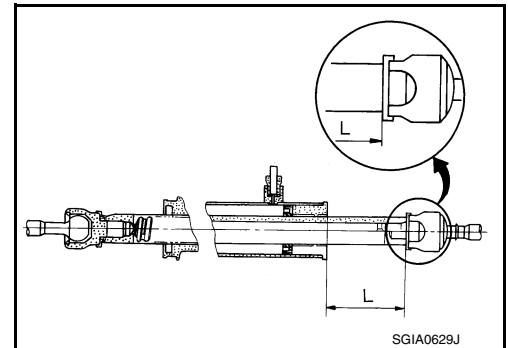


5. Check the following items when turning angle is out of the standard.

- a. Check the neutral position of the rack stroke (L).

L : Refer to [ST-18, "Steering Column"](#).

- b. Disassemble steering gear to check the cause that rack stroke is outside of the standard.
 - Steering angles are not adjustable. Check steering gear, steering column and front suspension components for wear or damage if any of the turning angles are different from the specified value. Replace any of them, if any non-standard condition exists.



STEERING COLUMN

< BASIC INSPECTION >

STEERING COLUMN

Inspection

INFOID:000000010355870

HOLE COVER SEAL, HOLE COVER AND LOWER SHAFT

Check each part of hole cover seal, hole cover and steering column and lower shaft for damage or other malfunctions. Replace if necessary.

STEERING COLUMN

- Check each part of steering column for damage or other malfunctions. Replace entire steering column if any parts are damaged.
- Measure the steering column length (with the steering wheel and airbag module installed) if vehicle has been involved in a minor collision. Replace steering column if outside the specifications.

**Steering column length
(with steering wheel and air
bag module installed)** : Refer to [ST-18, "Steering
Column"](#).

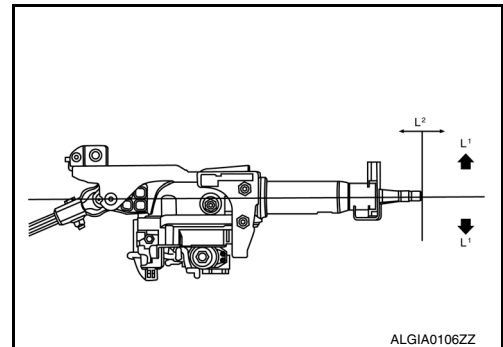
- Measure steering column rotating torque using suitable tool. Replace steering column if outside the standard.

Rotating torque : Refer to [ST-18, "Steering Column"](#).

- Check tilt and telescopic mechanism operating range (L^1), (L^2) as shown.

Tilt operating range (L^1) : Refer to [ST-18, "Steering
Column"](#).

**Telescopic operating range
(L^2)** : Refer to [ST-18, "Steering
Column"](#).



STEERING GEAR AND LINKAGE

< BASIC INSPECTION >

STEERING GEAR AND LINKAGE

Inspection

INFOID:0000000010355871

BOOT

Check boot for cracks. Replace if any damage is found.

OUTER SOCKET AND INNER SOCKET

Boot

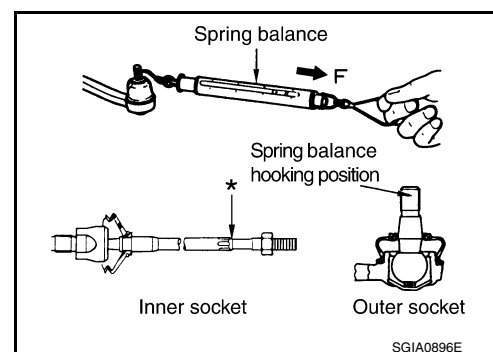
- Check boot for cracks, and replace it if a malfunction is detected.

Gear Housing

- Check gear housing for damage and scratches (inner wall). Replace if there are any abnormal conditions.
- Ball joint swinging torque
- Hook a spring balance to the ball stud and inner socket measuring point (*) and pull the spring balance. Make sure that the spring balance reads the specified value when ball stud and inner socket start to move. Replace outer socket and inner socket if they are outside the specification.

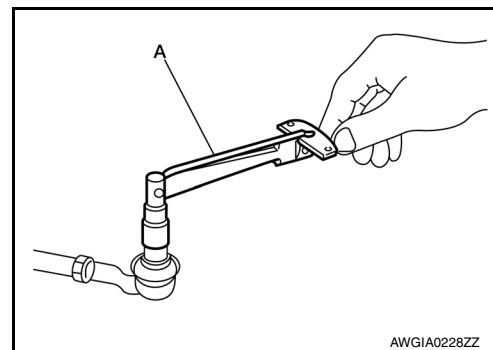
Tool number : — (J-44372)

Swinging torque : Refer to [ST-19, "Steering Gear"](#).



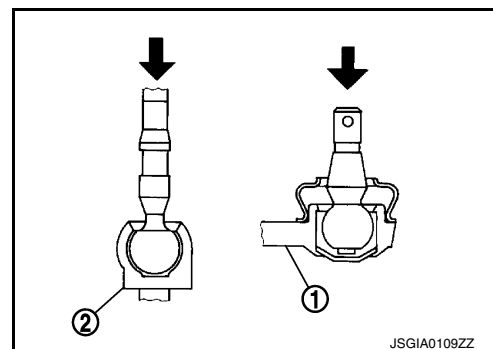
- Ball joint rotating torque
- Make sure that the reading is within the following specified range using suitable tool. Replace outer socket if the reading is outside the specification.

Rotating torque : Refer to [ST-19, "Steering Gear"](#)



- Ball joint axial end play
- Apply an axial load of 490 N (50 kg, 111 lb) to ball stud. Measuring the amount of stud movement using a dial gauge, make sure that the value is within specification. Replace outer socket (A) and inner socket (B) if the measured value is outside specification.

Axial end play : Refer to [ST-19, "Steering Gear"](#).



STEERING WHEEL

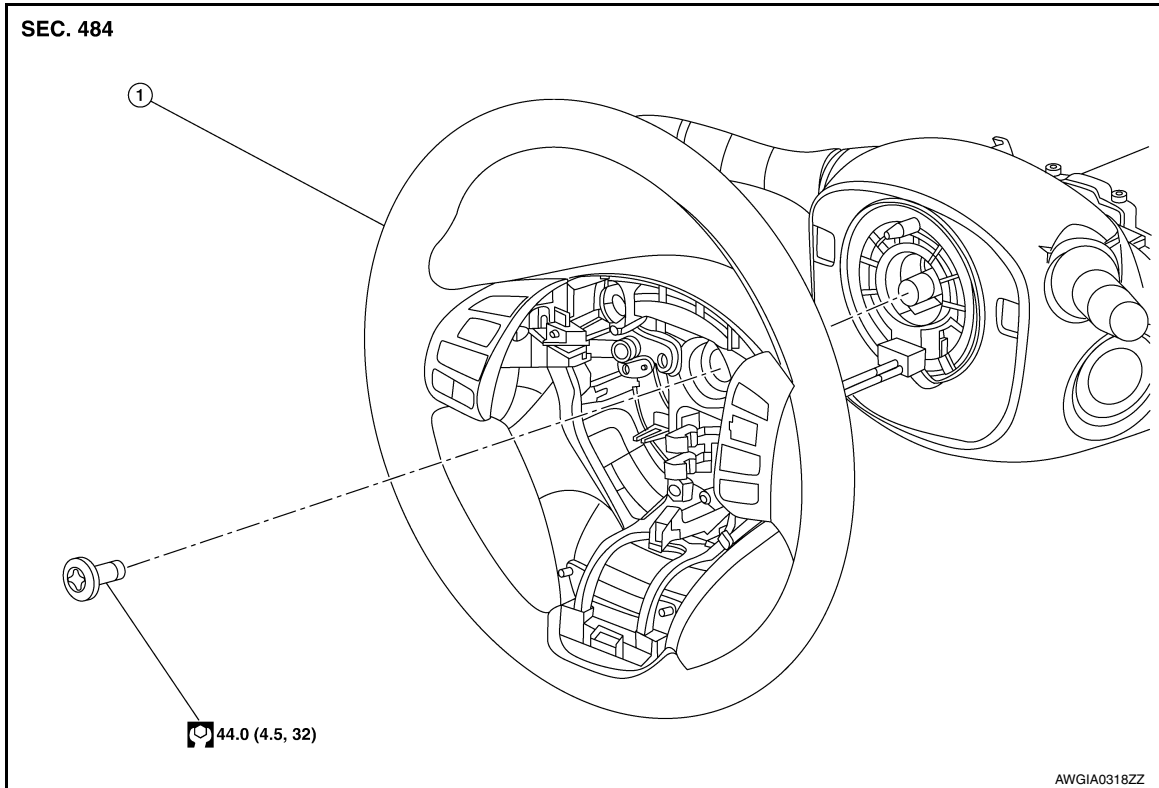
< REMOVAL AND INSTALLATION >

REMOVAL AND INSTALLATION

STEERING WHEEL

Exploded View

INFOID:000000009795703



1. Steering wheel

Removal and Installation

INFOID:000000009795704

REMOVAL

1. Set the front wheels and tires in the straight-ahead position.
2. Remove driver air bag module. Refer to [SR-12, "Removal and Installation"](#).
3. Remove steering wheel bolt.
4. Disconnect harness connector for steering wheel switches.
5. Remove steering wheel using suitable tool.

CAUTION:

Place a piece of tape across the spiral cable so it will not be rotated out of position.

NOTE:

Put paint marks on the steering wheel and the column shaft head for supporting accurate positioning during the installation procedure.

6. Inspect steering wheel near the puller holes for damage. Replace as necessary.

INSTALLATION

Installation is in the reverse order of removal.

- Align spiral cable correctly before installing steering wheel. Make sure that the spiral cable is in the neutral position. Refer to [SR-15, "Removal and Installation"](#).
- Adjust the neutral position of the steering angle sensor. Refer to [BRC-70, "Work Procedure"](#).
- Tighten steering wheel center bolt to specification. Refer to [ST-11, "Exploded View"](#).

CAUTION:

The spiral cable may snap due to steering operation if the spiral cable is not installed in the correct position.

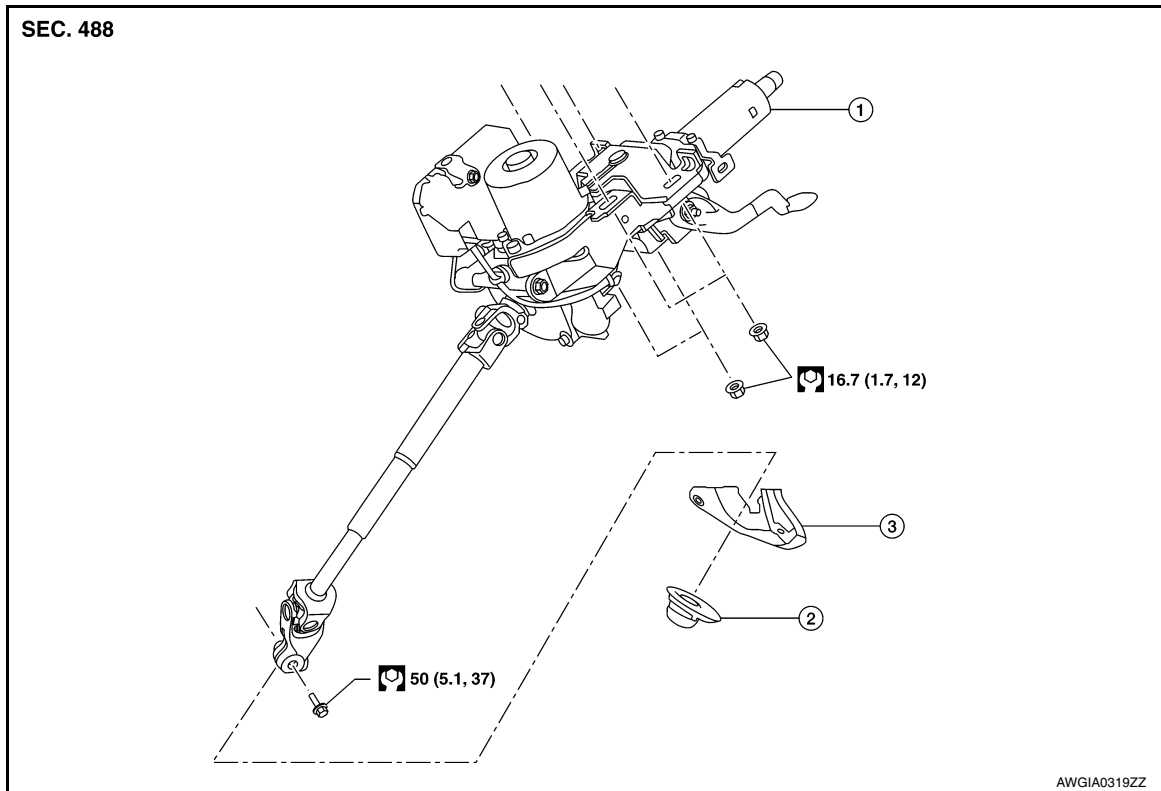
STEERING COLUMN

< REMOVAL AND INSTALLATION >

STEERING COLUMN

Exploded View

INFOID:000000009795705



1. Steering column

2. Floor cover

3. Floor seal

Removal and Installation

INFOID:000000009795706

CAUTION:

- Any time the ignition switch has been disconnected, removed or installed, the keys must be re-registered in the BCM. Refer to **CONSULT** operations manual.
- Do not cause impact to the steering column during removal and installation.

REMOVAL

1. Set front wheels and tires in the straight-ahead position.
2. Place the tilt to the highest level.
3. Remove combination switch. Refer to [BCS-76, "Removal and Installation"](#) (WITH INTELLIGENT KEY SYSTEM), [BCS-136, "Removal and Installation"](#) (WITHOUT INTELLIGENT KEY SYSTEM).
4. Remove instrument lower panel LH. Refer to [IP-22, "Removal and Installation"](#).
5. Disconnect the harness connectors from the steering column.
6. Remove bolt and separate steering column from steering gear pinion shaft.

CAUTION:

Do not move the steering gear during removal and installation of the steering column.

7. Remove nuts and remove steering column.

INSTALLATION

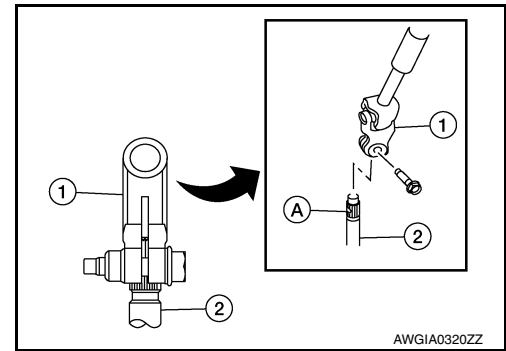
Installation is in the reverse order of removal.

CAUTION:

STEERING COLUMN

< REMOVAL AND INSTALLATION >

- When connecting the steering column yoke (1) to the steering gear pinion shaft (2), make sure that the groove (A) lines up with the steering column yoke hole.
- Make sure the bolt is in the correct direction, as shown, and engages the steering gear pinion shaft groove (A).



- When installing the steering column, finger-tighten all of the lower bracket and joint retaining bolts; then tighten them to specification. Do not apply undue stress to the steering column.
- Replace the steering column if it has been dropped or sustained an impact.
- After installation, turn steering wheel to make sure it moves smoothly while turning to the left and right stops. Make sure the number of turns are the same from the straight-forward position to left and right stops. Make sure that the steering wheel is in a neutral position when driving straight ahead.
- When installing steering column to steering member, install nut from front of vehicle.
- After installing the steering column, check the tilt mechanism for proper operation.
- Adjust the neutral position of the steering angle sensor. Refer to [BRC-70, "Work Procedure"](#).

Inspection

INFOID:000000009795707

INSPECTION AFTER REMOVAL

- Check each part of steering column for damage or other malfunctions. Replace if there are any abnormal conditions. Refer to [ST-9, "Inspection"](#).

INSPECTION AFTER INSTALLATION

- Check each part of steering column for damage or other malfunctions. Replace if there are any abnormal conditions. Refer to [ST-9, "Inspection"](#).
- Check the steering wheel play, neutral position steering wheel, steering wheel turning force, and front wheel turning angle. Refer to [ST-7, "Inspection"](#).

STEERING GEAR AND LINKAGE

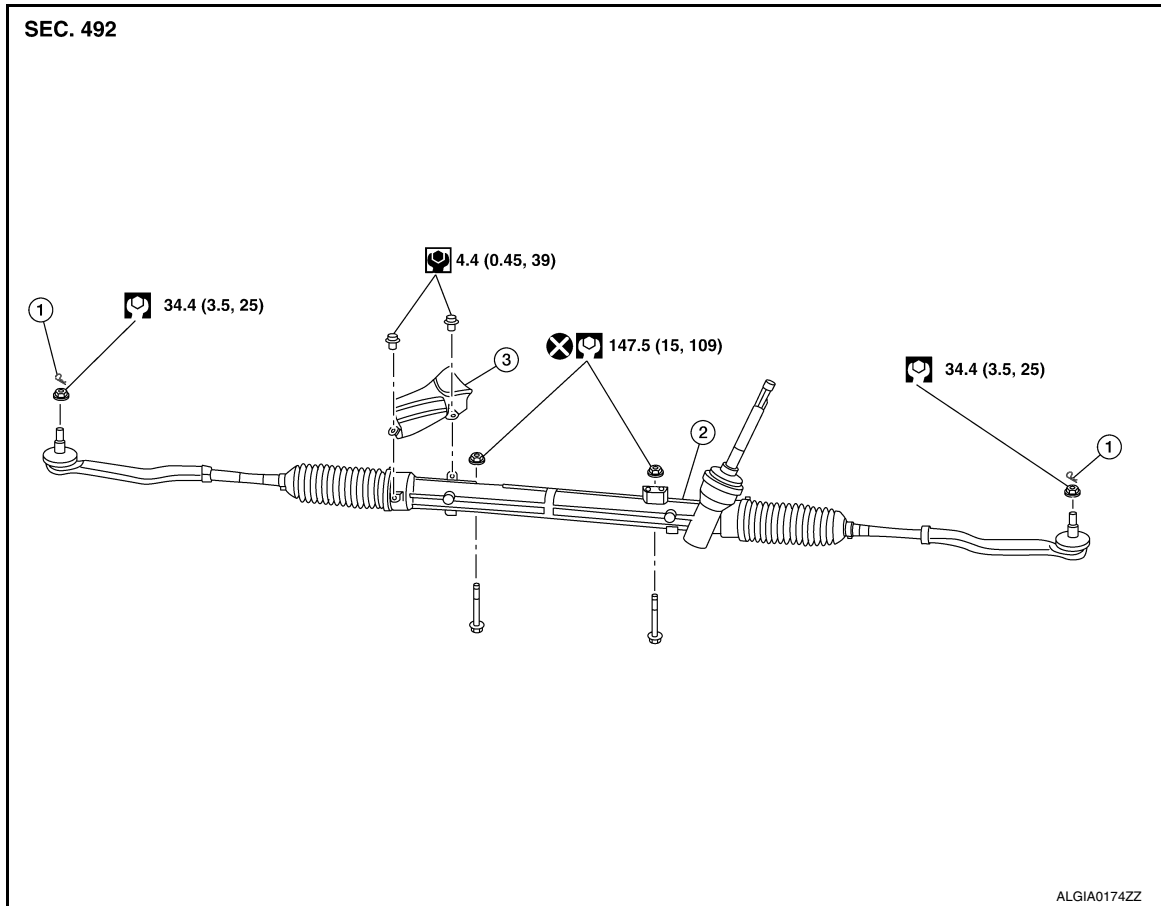
< REMOVAL AND INSTALLATION >

STEERING GEAR AND LINKAGE

Exploded View

INFOID:000000009795708

REMOVAL AND INSTALLATION



1. Cotter pin 2. Steering gear 3. Heat shield

Removal and Installation

INFOID:000000009795709

REMOVAL

1. Set the front wheels and tires to the straight-ahead position.
2. Remove the floor cover. Refer to [ST-12, "Exploded View"](#).
3. Remove the floor seal. Refer to [ST-12, "Exploded View"](#).
4. Remove the joint retaining bolt and separate the steering column yoke from the steering gear pinion shaft. Refer to [ST-12, "Exploded View"](#).
5. Remove the cotter pins (LH/RH), nuts (LH/RH) and disconnect the outer sockets (LH/RH).
6. Separate the stabilizer connecting rods (LH/RH) from the stabilizer bar. Refer to [FSU-20, "Exploded View"](#).
7. Disconnect the harness connector for oxygen sensor 2. Refer to [EX-5, "Exploded View"](#).
8. Remove the front exhaust tube. Refer to [EX-5, "Exploded View"](#).
9. Remove the center exhaust tube. Refer to [EX-5, "Exploded View"](#).
10. Remove the lower torque rod. Refer to [EM-81, "Exploded View"](#).
11. Remove front suspension member stay and support the front suspension using a suitable jack. Refer to [FSU-20, "Exploded View"](#).
12. Remove bolts and remove the steering gear.

STEERING GEAR AND LINKAGE

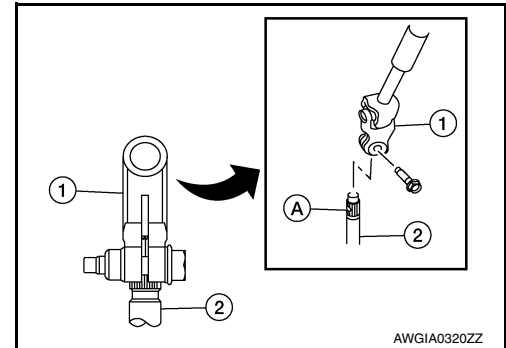
< REMOVAL AND INSTALLATION >

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- With the steering linkage disconnected, the spiral cable may snap by turning the steering wheel beyond the limited number of turns.
- When connecting the steering column yoke (1) to the steering gear pinion shaft (2), be sure that gap (A) lines up with the joint retaining bolt hole.



- When installing the steering column, finger-tighten all of the lower bracket and joint retaining bolts; then tighten them to specification. Do not apply undue stress to the steering column.
- Do not reuse steering gear nuts.
- Check wheel alignment. Refer to [FSU-7, "Inspection"](#).
- Adjust the neutral position of the steering angle sensor. Refer to [BRC-70, "Work Procedure"](#).

Inspection

INFOID:0000000009795711

INSPECTION AFTER INSTALLATION

- Check if steering wheel turns smoothly when it is turned several times fully to the end of the left and right.
- Check the steering wheel play, neutral position steering wheel, steering wheel turning force, and front wheel turning angle. Refer to [ST-7, "Inspection"](#).

STEERING GEAR AND LINKAGE

< UNIT DISASSEMBLY AND ASSEMBLY >

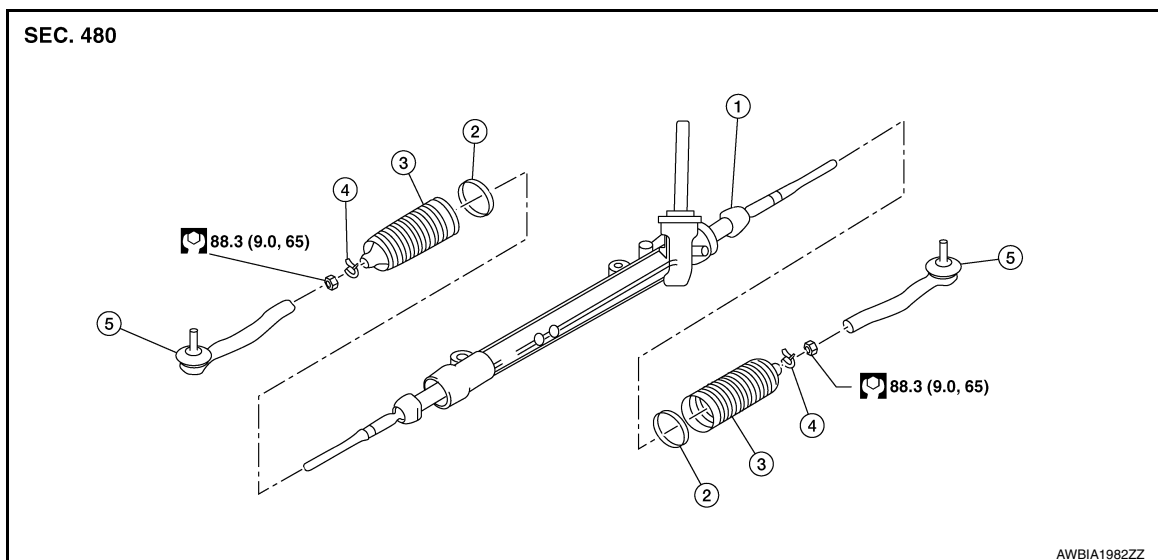
UNIT DISASSEMBLY AND ASSEMBLY

STEERING GEAR AND LINKAGE

Exploded View

INFOID:0000000010338567

DISASSEMBLY AND ASSEMBLY



- | | | |
|---------------------|---------------------|---------|
| 1. Steering gear | 2. Inner boot clamp | 3. Boot |
| 4. Outer boot clamp | 5. Outer socket | |

Disassembly and Assembly

INFOID:0000000009795710

DISASSEMBLY

1. Remove outer socket lock nut and remove outer socket.
2. Remove inner and outer boot clamps and remove boot.

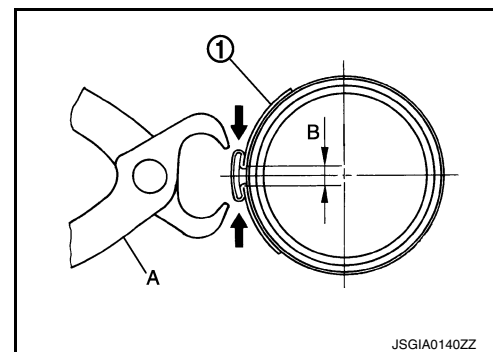
ASSEMBLY

1. Apply recommended grease to inner socket.
2. Install boot to steering gear.
3. Install inner boot clamp (1) to boot and secure using Tool (A).

Tool number : (KV40107300) (—)

CAUTION:

- Install inner boot clamp (1) securely to boot groove, and crimp it so as to have clearance (B) of 3 mm (0.12 in) or less as shown.
- Inspect boot clamps and replace as necessary.



4. Install outer boot clamp to boot.

CAUTION:

Inspect boot and replace as necessary.

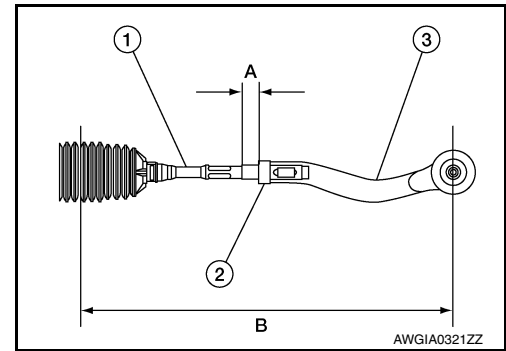
STEERING GEAR AND LINKAGE

< UNIT DISASSEMBLY AND ASSEMBLY >

5. Install outer socket (3) and lock nut (2) to achieve length (A). Check that inner socket (1) and outer socket (3) measure to standard length (B), then tighten lock nut (2) to the specified torque. Check length again after tightening lock nut (2).

B

: Refer to [ST-19, "Steering Gear"](#).



CAUTION:

- Adjust toe-in after this procedure. Length achieved after toe-in adjustment is not necessary the value above.
- When tightening lock nut, be sure to fix outer socket with a wrench or equivalent to prevent ball joint from getting contact with knuckle.

A
B
C
D
E
F
ST
H
I
J
K
L
M
N
O
P

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

Steering Wheel

INFOID:0000000009795713

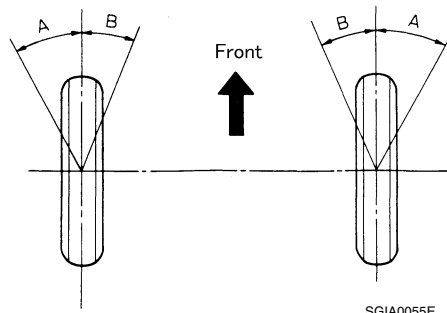
Unit: mm (in)

Item	Standard
Steering wheel axial end play	0 (0)
Steering wheel play	0 - 35 (0 - 1.38)
Steering wheel turning force	34 (3.5, 7.64) or less

Steering Angle

INFOID:0000000009795715

Unit: Degree minute (Decimal degree)



Inner wheel angle (A)	Minimum	33°25' (33.42°)
	Nominal	36°25' (36.42°)
	Maximum	37°25' (37.42°)
Outer wheel angle (B)	Nominal	30°45' (30.75°)

Steering Column

INFOID:0000000009795716

STEERING COLUMN LENGTH

Unit: mm (in)

Steering column length (with steering wheel installed)	Length (L)	577.2 (27.7)
	Telescopic maximum	602.2 (23.7)
	Telescopic minimum	552.2 (27.7)

STEERING COLUMN ROTATING TORQUE

Unit: N·m (kg·m, in-lb)

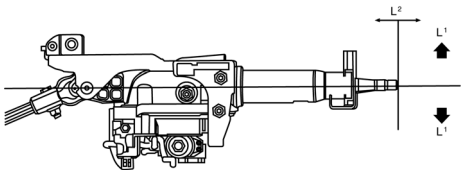
Rotating torque	1.9 (0.19, 17)
-----------------	----------------

TILT MECHANISM OPERATING RANGE

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

Unit: mm (in)



ALGIA0106ZZ

Tilt operating range (L ¹)	44 (1.7)
Telescopic operating range (L ²)	50 (2.0)

Steering Gear

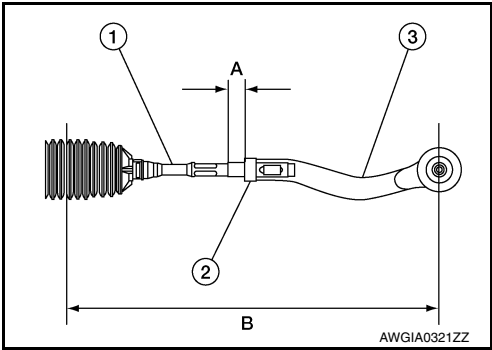
INFOID:000000009795717

STEERING OUTER SOCKET AND INNER SOCKET

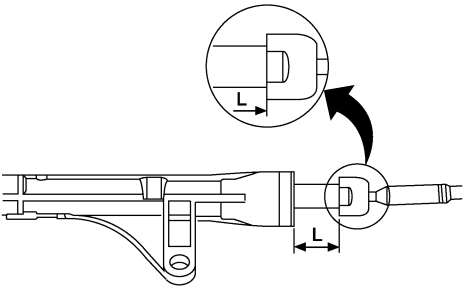
Outer socket	Rocking torque	0.3 - 2.9 N·m (0.03 - 0.29 kg-m, 3.0 - 25 in-lb)
	Rotating torque	0.3 - 2.0 N·m (0.03 - 0.2 kg-m, 3.0 - 18 in-lb)
	Axial end play	0.4 mm (0.020 in) or less
Inner socket	Rocking torque	7.8 - 16.7 N·m (0.80 - 1.7 kg-m, 69 - 148 in-lb)
	Axial end play	0.2 mm (0.008 in) or less

INNER AND OUTER SOCKET LENGTH

Inner and outer socket length	A	17 mm (0.67 in)
	B	329.9 mm (15.5 in)



RACK STROKE



AWGIA0003GB

Rack stroke in neutral position (L)	74 mm (2.9 in)
-------------------------------------	----------------

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

RACK SLIDING FORCE

Rack sliding force	115 - 175 N-f (11.7 - 17.9 kg-f, 25.9 - 39.3 lb-f)
--------------------	--

STC

SECTION

STEERING CONTROL SYSTEM

CONTENTS

PRECAUTION	3	Work Flow	19
PRECAUTIONS	3	DTC/CIRCUIT DIAGNOSIS	20
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	3	C1601 BATTERY POWER SUPPLY	20
Service Notice or Precautions for EPS System	3	DTC Logic	20
SYSTEM DESCRIPTION	5	Diagnosis Procedure	20
COMPONENT PARTS	5	C1604 TORQUE SENSOR	23
Component Parts Location	5	DTC Logic	23
EPS Control Unit	6	Diagnosis Procedure	23
EPS Motor, Torque Sensor, Reduction Gear	6	C1606 EPS MOTOR	24
SYSTEM	7	DTC Logic	24
EPS SYSTEM	7	Diagnosis Procedure	24
EPS SYSTEM : System Description	7	C1607, C1608 EPS CONTROL UNIT	25
EPS SYSTEM : Fail-Safe	8	DTC Logic	25
EPS SYSTEM : Protection Function	8	Diagnosis Procedure	25
DIAGNOSIS SYSTEM (EPS CONTROL UNIT)	9	C1609 VEHICLE SPEED SIGNAL	26
CONSULT Function	9	DTC Logic	26
ECU DIAGNOSIS INFORMATION	11	Diagnosis Procedure	26
EPS CONTROL UNIT	11	U1000 CAN COMM CIRCUIT	27
Reference Value	11	Description	27
Fail-Safe	13	DTC Logic	27
Protection Function	13	Diagnosis Procedure	27
DTC Inspection Priority Chart	13	EPS WARNING LAMP	28
DTC Index	13	Component Function Check	28
WIRING DIAGRAM	14	Diagnosis Procedure	28
EPS SYSTEM	14	SYMPTOM DIAGNOSIS	29
Wiring Diagram	14	EPS WARNING LAMP DOES NOT TURN ON...	29
BASIC INSPECTION	19	Description	29
DIAGNOSIS AND REPAIR WORKFLOW	19	Diagnosis Procedure	29
		EPS WARNING LAMP DOES NOT TURN OFF	30
		Description	30
		Diagnosis Procedure	30

STEERING WHEEL TURNING FORCE IS HEAVY OR LIGHT	31	UNBALANCE STEERING WHEEL TURNING FORCE (TORQUE VARIATION)	34
Description	31	Description	34
Diagnosis Procedure	31	Diagnosis Procedure	34
UNBALANCE STEERING WHEEL TURNING FORCE AND RETURN BETWEEN RIGHT AND LEFT	33	REMOVAL AND INSTALLATION	36
Description	33	EPS CONTROL UNIT	36
Diagnosis Procedure	33	Removal and Installation	36

PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010223740

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

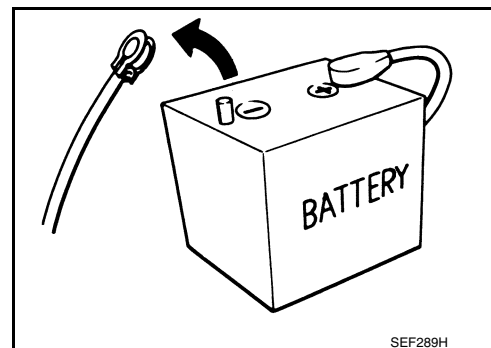
Service Notice or Precautions for EPS System

INFOID:0000000010215227

CAUTION:

Check the following item when performing the trouble diagnosis.

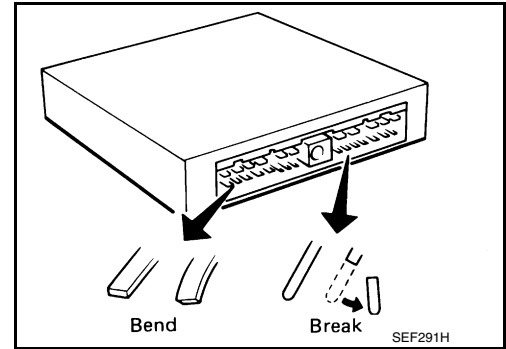
- Check any possible causes by interviewing the symptom and it's condition from the customer if any malfunction, such as EPS warning lamp is turned ON, occurs.
- Check if air pressure and size of tires are proper, the specified part is used for the steering wheel, and control unit is genuine part.
- Check if the connection of steering column assembly and steering gear assembly is proper (there is not looseness of mounting bolts, damage of rods, boots or sealants, and leakage of grease, etc).
- Check if the wheel alignment is adjusted properly.
- Check if there is any damage or modification to suspension or body resulting in increased weight or altered ground clearance.
- Check if installation conditions of each link and suspension are proper.
- Check if the battery voltage is proper.
- Check connection conditions of each connector are proper.
- Before connecting or disconnecting the EPS control unit harness connector, turn ignition switch "OFF" and disconnect battery ground cable. Because battery voltage is applied to EPS control unit even if ignition switch is turned "OFF".



PRECAUTIONS

< PRECAUTION >

- When connecting or disconnecting pin connectors into or from EPS control unit, take care not to damage pin terminals (bend or break).
When connecting pin connectors, make sure that there are no bends or breaks on EPS control unit pin terminal.



COMPONENT PARTS

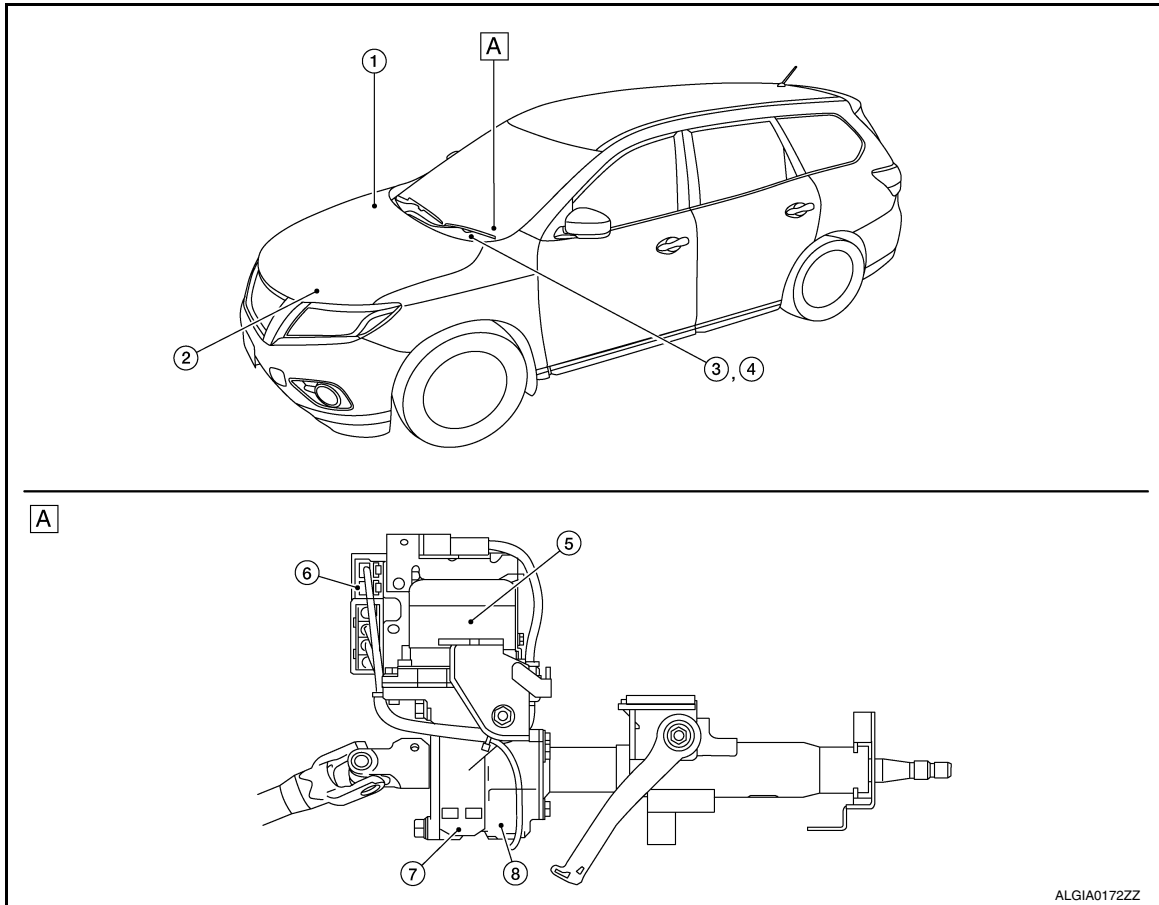
< SYSTEM DESCRIPTION >

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:0000000010204973



A. Steering column assembly

No.	Component	Function
1.	ABS actuator and electric unit (control unit)	- Transmits the following signal to EPS control unit via CAN communication. - Vehicle speed signal (ABS)
2.	ECM	- Transmits the following signal to EPS control unit via CAN communication. - Engine status signal
3.	Combination meter	- Transmits the following signal to EPS control unit via CAN communication. - Vehicle speed signal (Meter)
4.	EPS warning lamp	Turns ON the EPS warning lamp according to the signal from EPS control unit via CAN communication.
5.	EPS motor	STC-7, "EPS SYSTEM : System Description"
6.	EPS control unit	STC-6, "EPS Motor, Torque Sensor, Reduction Gear"
7.	Reduction gear	STC-6, "EPS Motor, Torque Sensor, Reduction Gear"
8.	Torque sensor	STC-6, "EPS Motor, Torque Sensor, Reduction Gear"

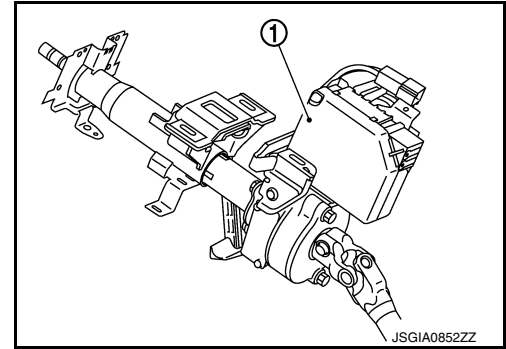
COMPONENT PARTS

< SYSTEM DESCRIPTION >

EPS Control Unit

INFOID:0000000010204974

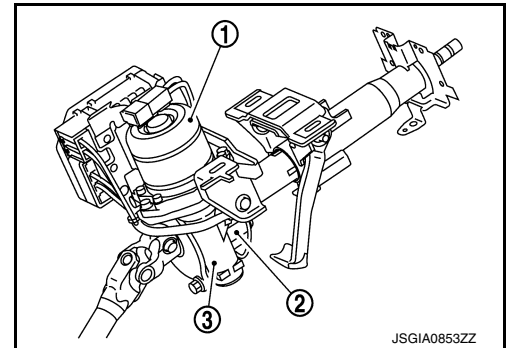
- EPS control unit (1) is installed to steering column assembly.
- EPS control unit performs an arithmetical operation on data, such as steering wheel turning force (sensor signal) from the torque sensor, vehicle speed signal, etc. Then it generates an optimum assist torque signal to the EPS motor according to the driving condition.
- EPS control unit decreases the output signal to EPS motor during continuous extreme use of the power steering function (e.g., full steering) for protection of the EPS motor and EPS control unit (Overload protection control).



EPS Motor, Torque Sensor, Reduction Gear

INFOID:0000000010204975

EPS motor (1), torque sensor (2) and reduction gear (3) are installed to steering column assembly.



EPS MOTOR

EPS motor provides assist torque in proportion to the control signal from the EPS control unit.

TORQUE SENSOR

Torque sensor detects the steering torque and transmits the signal to the EPS control unit.

REDUCTION GEAR

Reduction gear increases the assist torque provided from the EPS motor, and outputs to the column shaft.

SYSTEM

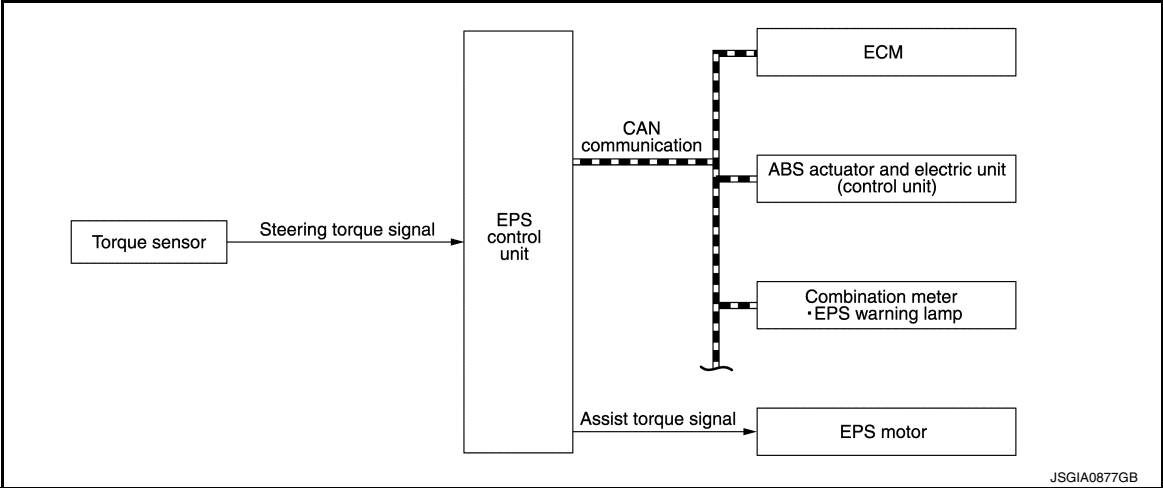
< SYSTEM DESCRIPTION >

SYSTEM
EPS SYSTEM

EPS SYSTEM : System Description

INFOID:0000000010204976

SYSTEM DIAGRAM



INPUT/OUTPUT SIGNAL

Communicates the signal from each control unit via CAN communication.

Control unit	Signal status
ECM	• Transmits the following signal to EPS control unit via CAN communication. - Engine status signal
ABS actuator and electric unit (control unit)	• Transmits the following signal to EPS control unit via CAN communication. - Vehicle speed signal (ABS)
Combination meter	• Transmits the following signal to EPS control unit via CAN communication. - Vehicle speed signal (Meter) • Receives the following signal from EPS control unit via CAN communication. - EPS warning lamp signal

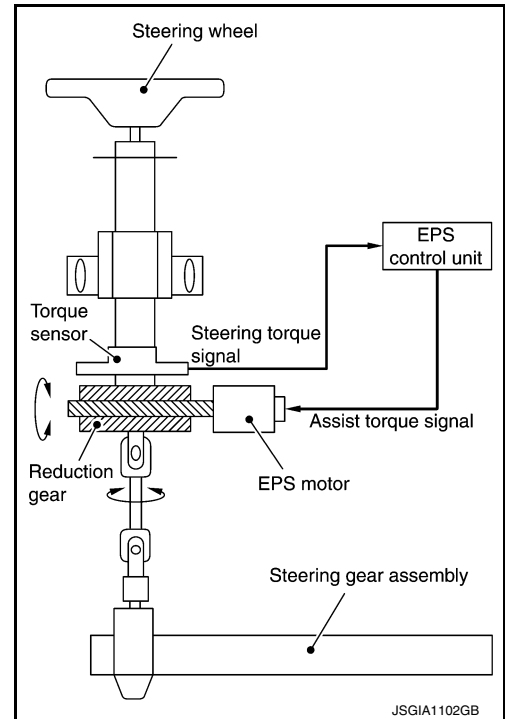
DESCRIPTION

A
B
C
D
E
F
STC
H
I
J
K
L
M
N
O
P

SYSTEM

< SYSTEM DESCRIPTION >

- EPS control unit performs an arithmetical operation on data, such as steering wheel turning force (sensor signal) from the torque sensor, vehicle speed signal, etc. Then it generates an optimum assist torque signal to the EPS motor according to the driving condition.
- In case of an error in the electrical system, the fail-safe function stops output signals to the EPS motor. Refer to [STC-8. "EPS SYSTEM : Fail-Safe"](#).
- EPS control unit decreases the output signal to EPS motor during extreme use of the power steering function (e.g., full steering) for protection of the EPS motor and EPS control unit (Overload protection control).
- Extensive steering at low speed will cause the EPS control unit and EPS motor to heat up. Once temperature reaches the critical point, the EPS control unit will reduce current to reduce heat up. System will recover as temperature lowers (reduced or no assistance).



EPS WARNING LAMP INDICATION

- Turns ON when there is a malfunction in the EPS system. If ON, fail-safe mode is engaged and the system enters a manual steering state (turning force at steering wheel becomes heavy).
- Also turns ON when ignition switch is turned ON, for purpose of lamp check. Turns OFF after the engine starts, if system is normal.

Condition	EPS warning lamp
Ignition switch ON. (Lamp check)	ON
Engine running.	OFF
EPS system malfunction [Other diagnostic item]	ON

CAUTION:

EPS warning lamp also turns ON due to data reception error, CAN communication error etc.

EPS SYSTEM : Fail-Safe

INFOID:0000000010204978

- If any malfunction occurs in the system and the control unit detects the malfunction, the EPS warning lamp in the combination meter turns ON to indicate system malfunction.
- When EPS warning lamp is ON, the system enters into a manual steering state. (turning force at steering wheel becomes heavy.)
- Under abnormal vehicle speed signal conditions, vehicle speed is judged as constant.

EPS SYSTEM : Protection Function

INFOID:0000000010204979

While overload protection control is activated, assist torque gradually decreases and the steering wheel turning force becomes heavy. Assist torque returns to normal if the steering wheel is not turned for a while.

DIAGNOSIS SYSTEM (EPS CONTROL UNIT)

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (EPS CONTROL UNIT)

CONSULT Function

INFOID:0000000010204980

FUNCTION

CONSULT can display each diagnostic item using the diagnostic test modes shown following.

Diagnostic test mode	Function
ECU identification	The part number stored in the control unit can be read.
Self diagnostic result	Self-diagnostic results and freeze frame data can be read and erased quickly.*
Data monitor	Input/Output data in the EPS control unit can be read.

*: The following diagnosis information is erased by erasing.

- DTC
- Freeze frame data (FFD)

ECU IDENTIFICATION

Displays the part number stored in the control unit.

SELF-DIAG RESULTS MODE

Refer to [STC-13, "DTC Index"](#).

When "CRNT" is displayed on self-diagnosis result.

- The system is presently malfunctioning.

When "PAST" is displayed on self-diagnosis result.

- System malfunction in the past is detected, but the system is presently normal.

FREEZE FRAME DATA (FFD)

The following vehicle status is recorded when DTC is detected and is displayed on CONSULT.

Item name	Display item
IGN COUNTER (0 – 39)	The number of times that ignition switch is turned ON after the DTC is detected is displayed. • When "0" is displayed: It indicates that the system is presently malfunctioning. • When except "0" is displayed: It indicates that system malfunction in the past is detected, but the system is presently normal. NOTE: Each time when ignition switch is turned OFF to ON, numerical number increases in 1→2→3...38→39. When the operation number of times exceeds 39, the number do not increase and "39" is displayed until self-diagnosis is erased.

DATA MONITOR MODE

NOTE:

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

Monitor item (Unit)	Remarks
BATTERY VOLT (V)	Displays the power supply voltage for EPS control unit.
TORQUE SENSOR (Nm)	Displays steering wheel turning force detected by torque sensor.
MOTOR CURRENT (A)	Displays the current value consumed by EPS motor.* ¹
MOTOR SIG (A)	Displays the current commanded value to EPS motor.
ASSIST TORQUE (Nm)	Displays assist torque of EPS motor being output by the electric power steering.
C/U TEMP (°C) or (°F)	Displays the temperature of the EPS control unit.
ASSIST LEVEL (%)	Normally displays 100%. In case of an excessive stationary steering, the assist curvature gradually falls. However, it return to 100% when left standing.* ²
VEHICLE SPEED (km/h) or (MPH)	Vehicle speed is displayed from vehicle speed signal via CAN communication.* ³
WARNING LAMP (On/Off)	EPS warning lamp control status is displayed.
ENGINE STATUS (Stop/Run)	Engine speed is displayed from engine status signal via CAN communication.

DIAGNOSIS SYSTEM (EPS CONTROL UNIT)

< SYSTEM DESCRIPTION >

- *1: Almost in accordance with the value of "MOTOR SIG". It is not a malfunction though these values are not accorded when steering quickly.
- *2: Normally displays 100%. In case of an excessive stationary steering, the assist curvature gradually falls. However, it returns to 100% when left standing.
- *3: It is not a malfunction, though it might not be corresponding just after ignition switch in turned ON.

EPS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

ECU DIAGNOSIS INFORMATION

EPS CONTROL UNIT

Reference Value

INFOID:0000000010204981

VALUES ON THE DIAGNOSIS TOOL

CAUTION:

The output signal indicates the EPS control unit calculation data. The normal values will be displayed even in the event that the output circuit (harness) is open.

NOTE:

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

Monitor item	Data monitor	
	Condition	Display value
BATTERY VOLT	Ignition switch: ON	Battery voltage
TORQUE SENSOR	Engine running	Steering wheel: Not steering (There is no steering force)
		Approx. 0 Nm
		Steering wheel: Right turn
		Positive value (Nm)
		Steering wheel: Left turn
		Negative value (Nm)
MOTOR CURRENT	Engine running	Steering wheel: Not steering (There is no steering force)
		Approx. 0 A
		Steering wheel: Right or left turn
		Displays consumption current of EPS motor (A) ^{*1}
MOTOR SIG	Engine running	Steering wheel: Not steering (There is no steering force)
		Approx. 0 A
		Steering wheel: Right turn
		Positive value (A)
		Steering wheel: Left turn
		Negative value (A)
ASSIST TORQUE	Engine running	Steering wheel: Not steering (There is no steering force)
		Approx. 0 Nm
		Steering wheel: Right or left turn
		Displays assist torque of EPS motor (Nm)
C/U TEMP	Ignition switch ON or engine running	Displays temperature of inside of EPS control unit (°C) or (°F)
ASSIST LEVEL	Engine running	100 % ^{*2}
VEHICLE SPEED	Vehicle stopped	0 km/h (0 mph)
	While driving	Approximately equal to the indication on speedometer ^{*3} (inside of ±10%)
WARNING LAMP	EPS warning lamp: ON	On
	EPS warning lamp: OFF	Off
ENGINE STATUS	Engine not running	Stop
	Engine running	Run

*1: Almost in accordance with the value of "MOTOR SIG". It is not a malfunction though these values are not accorded when steering quickly.

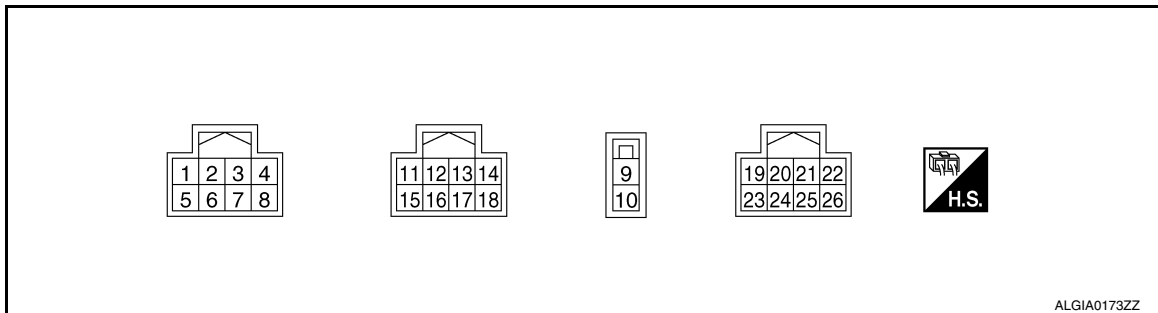
*2: Normally displays 100%. In case of an excessive stationary steering, the assist curvature gradually falls. However, it returns to 100% when left standing.

*3: It is not a malfunction, though it might not be corresponding just after ignition switch in turned ON.

EPS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

TERMINAL LAYOUT



PHYSICAL VALUES

Terminal No. (Wire Color)		Description		Condition		Value (Approx.)
+	—	Signal name	Input/Output			
1 (P)	—	CAN-L	Input/Output	—		—
2 (L)	—	CAN-H	Input/Output	—		—
4 (LG)	Ground	Ignition power supply	Input	Ignition switch: ON		Battery voltage
				Ignition switch: OFF		0 V
9 (R)	Ground	Battery power supply	Input	Always		Battery voltage
10 (B)	Ground	Ground	—	Always		0 V
11 (B)	Ground	Torque sensor ground	Input	Always		0 V
12 (Y)	Ground	Torque sub sensor signal	Input	Ignition switch: ON	Steering wheel: Not steering (There is no steering force)	2.5 V
				Engine running	Steering wheel: steering	1.6 V – 3.4 V (The value is changed according to steering left or right)
14 (R)	Ground	Torque sensor power supply	Output	Ignition switch: ON		10 V
15 (G)	Ground	Torque main sensor signal	Input	Ignition switch: ON	Steering wheel: Not steering (There is no steering force)	2.5 V
				Engine running	Steering wheel: steering	1.6 V – 3.4 V (The value is changed according to steering left or right)
17 (W)	Ground	Torque sensor reference voltage	Output	Ignition switch: ON		3.3 V
19 (W)	Ground	Reference signal R1	Input	Ignition switch: ON	Steering wheel: Not steering (There is no steering force)	—
				Engine running	Steering wheel: steering	—
21 (B)	Ground	Ground	—	Always		0 V

EPS CONTROL UNIT

< ECU DIAGNOSIS INFORMATION >

Terminal No. (Wire Color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/Output			
24 (Y)	Ground	Position signal S2 (Sine)	Input	Ignition switch: ON	Steering wheel: Not steering (There is no steering force)	—
				Engine running	Steering wheel: steering	—
26 (R)	Ground	Position signal S (Co-sine)	Input	Ignition switch: ON	Steering wheel: Not steering (There is no steering force)	—
				Engine running	Steering wheel: steering	—

Fail-Safe

INFOID:0000000010204982

- If any malfunction occurs in the system and the control unit detects the malfunction, the EPS warning lamp in the combination meter turns ON to indicate system malfunction.
- When EPS warning lamp is ON, the system enters into a manual steering state. (turning force at steering wheel becomes heavy.)
- Under abnormal vehicle speed signal conditions, vehicle speed is judged as constant.

Protection Function

INFOID:0000000010204983

EPS control unit decreases the output signal to EPS motor during continuous extreme use of the power steering function (e.g., full steering) for protection of the EPS motor and EPS control unit (Overload protection control).

DTC Inspection Priority Chart

INFOID:0000000010204984

When multiple DTCs are detected simultaneously, check one by one depending on the following priority list.

Priority	Priority order item (DTC)
1	U1000 CAN COMM CIRCUIT
2	C1609 CAN VHCL SPEED
3	C1601 BATTERY VOLT
4	Other than the above

DTC Index

INFOID:0000000010204985

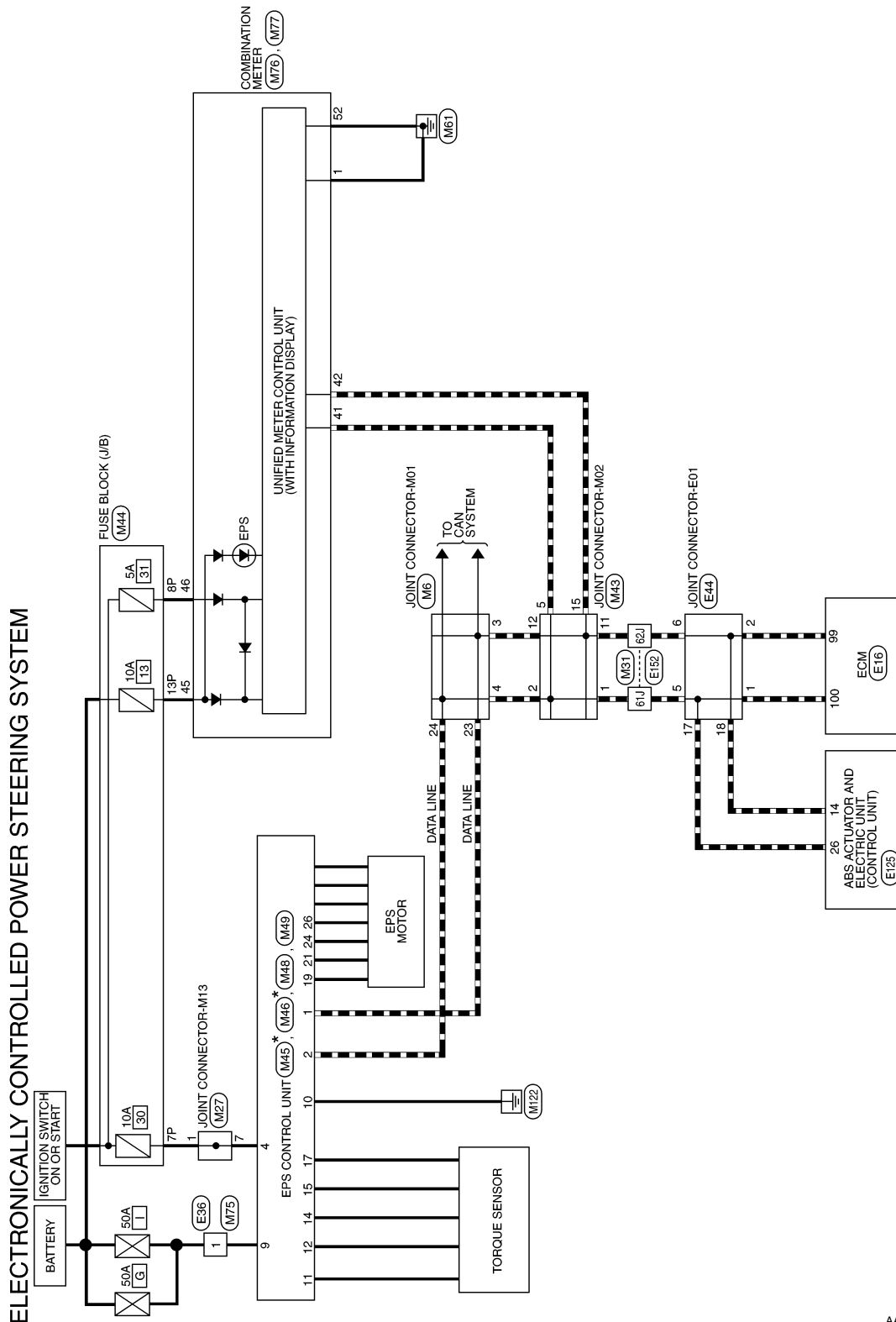
DTC	Items (CONSULT screen terms)	Reference
C1601	BATTERY VOLT	STC-20. "DTC Logic"
C1604	TORQUE SENSOR	STC-23. "DTC Logic"
C1606	EPS MOTOR	STC-24. "DTC Logic"
C1607	EEPROM	STC-25. "DTC Logic"
C1608	CONTROL UNIT	STC-25. "DTC Logic"
C1609	CAN VHCL SPEED	STC-26. "DTC Logic"
U1000	CAN COMM CIRCUIT	STC-27. "DTC Logic"

WIRING DIAGRAM

EPS SYSTEM

Wiring Diagram

INFOID:0000000010201310

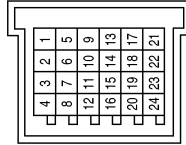


* : THIS CONNECTOR IS NOT SHOWN IN "HARNES LAYOUT" OF PG SECTION.

AAGWA0048GB

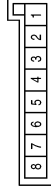
ELECTRONICALLY CONTROLLED POWER STEERING SYSTEM

Connector No.	M6
Connector Name	JOINT CONNECTOR-M01
Connector Color	GRAY



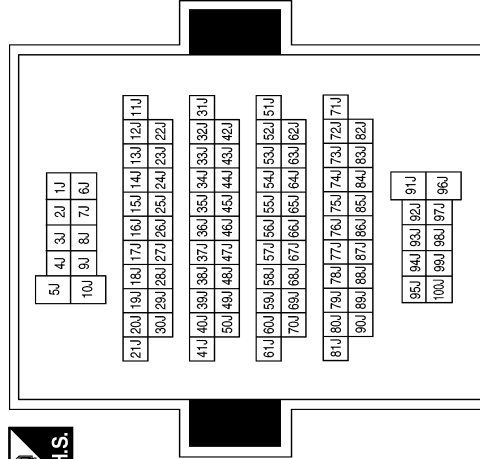
Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
23	P	-
24	L	-

Connector No.	M27
Connector Name	JOINT CONNECTOR-M13
Connector Color	WHITE

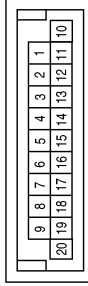


Terminal No.	Color of Wire	Signal Name
1	SB	-
7	SB	-

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	M43
Connector Name	JOINT CONNECTOR-M02
Connector Color	BLUE



Terminal No.	Color of Wire	Signal Name
1	L	-
2	L	-
5	L	-
11	P	-
12	P	-
15	P	-

Terminal No.	Color of Wire	Signal Name
7P	Y	-
8P	LA/BR	-
13P	LA/G	-

Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



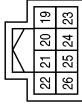
AAGIA0132GB

Terminal No.	Color of Wire	Signal Name
61J	L	-
62J	P	-

EPS SYSTEM

< WIRING DIAGRAM >

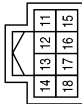
Connector No.	M46
Connector Name	EPS CONTROL UNIT
Connector Color	BLACK

Terminal No.	Color of Wire	Signal Name
19	W	REFERENCE SIGNAL R1
21	B	GND
24	Y	POSITION SIGNAL S2 (SINE)
26	R	POSITION SIGNAL S1 (COSINE)

Terminal No.	Color of Wire	Signal Name
16	–	–
17	W	TORQUE SENSOR REFERENCE VOLTAGE
18	–	–

Connector No.	M45
Connector Name	EPS CONTROL UNIT
Connector Color	GRAY

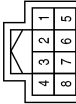
Terminal No.	Color of Wire	Signal Name
11	B	TORQUE SENSOR GND
12	Y	TORQUE SUB SENSOR SIGNAL
13	–	–
14	R	TORQUE SENSOR POWER SUPPLY
15	G	TORQUE MAIN SENSOR SIGNAL

Connector No.	M75
Connector Name	WIRE TO WIRE
Connector Color	BLACK




Terminal No.	Color of Wire	Signal Name
1	R	–

Connector No.	M49
Connector Name	EPS CONTROL UNIT
Connector Color	WHITE

Terminal No.	Color of Wire	Signal Name
1	P	CAN-L
2	L	CAN-H
3	–	–
4	SB	IG SIGNAL
5	–	–
6	–	–
7	–	–
8	–	–

Connector No.	M48
Connector Name	EPS CONTROL UNIT
Connector Color	BLACK



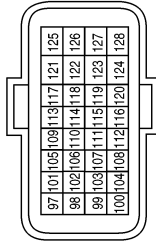

Terminal No.	Color of Wire	Signal Name
9	R	BATTERY +
10	B	GND

AAGIA0133GB

EPS SYSTEM

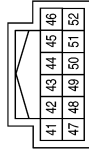
< WIRING DIAGRAM >

Connector No.	E16
Connector Name	ECM
Connector Color	BLACK



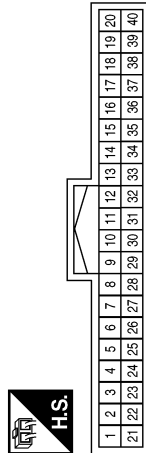
Terminal No.	Color of Wire	Signal Name
99	P	CAN-L
100	L	CAN-H

Connector No.	M77
Connector Name	COMBINATION METER
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
41	L	CAN-H
42	P	CAN-L
45	LA/G	ALVUSBAT
46	LA/BR	IGN
52	B	GND2

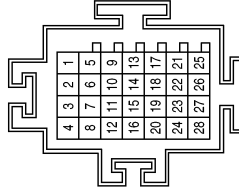
Connector No.	M76
Connector Name	COMBINATION METER
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	B	GND1

Terminal No.	Color of Wire	Signal Name
1	L	-
2	P	-
5	L	-
6	P	-
17	L	-
18	P	-

Connector No.	E44
Connector Name	JOINT CONNECTOR-E01
Connector Color	WHITE



Connector No.	E36
Connector Name	WIRE TO WIRE
Connector Color	BLACK



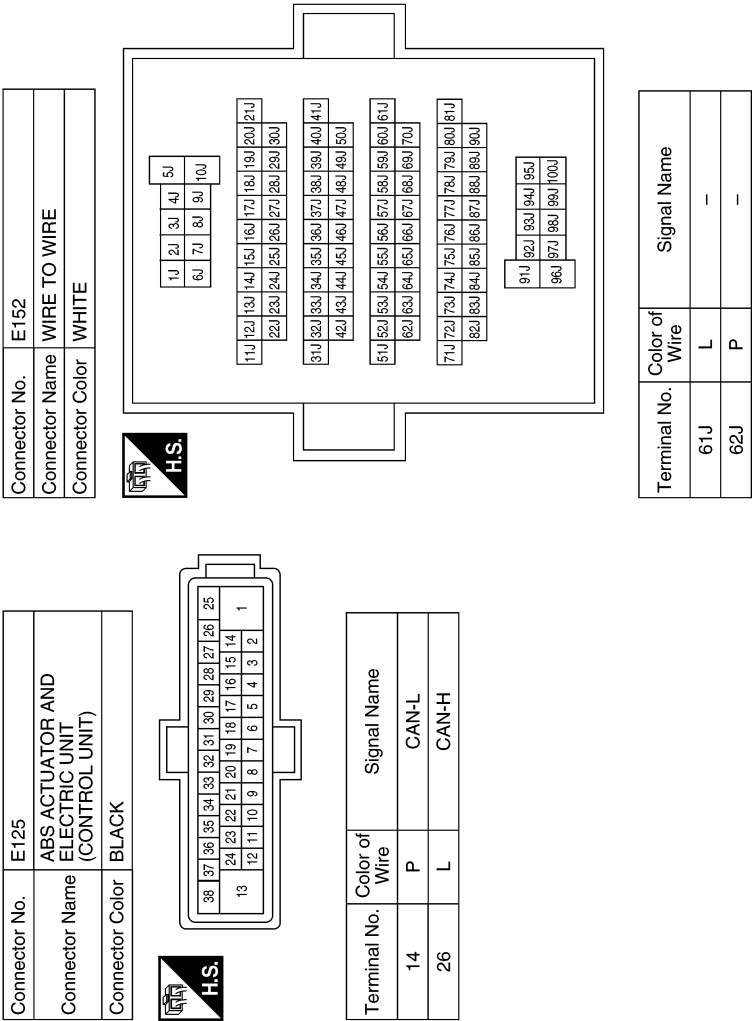
Terminal No.	Color of Wire	Signal Name
1	R	-

AAGIA0134GB

A
B
C
D
E
F
H
I
J
K
L
M
N
O
P

STC

< WIRING DIAGRAM >



DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:000000009796044

DETAILED FLOW

1.COLLECT THE INFORMATION FROM THE CUSTOMER

Get the detailed information from the customer about the symptom (the condition and the environment when the incident/malfunction occurred) using the diagnosis worksheet.

>> GO TO 2.

2.PERFORM THE SELF-DIAGNOSIS

Check the DTC display with the self-diagnosis function. Refer to [STC-9, "CONSULT Function"](#).

Is there any DTC displayed?

YES >> Record or print DTC and freeze frame data (FFD). GO TO 3.

NO >> GO TO 4.

3.PERFORM THE SYSTEM DIAGNOSIS

Perform the diagnosis applicable to the displayed DTC. Refer to [STC-13, "DTC Index"](#).

>> GO TO 6.

4.CHECK THE WARNING LAMP FOR ILLUMINATION

Check that the warning lamp illuminate.

Is ON/OFF timing normal?

YES >> GO TO 5.

NO >> GO TO 2.

5.PERFORM THE DIAGNOSIS BY SYMPTOM

Perform the diagnosis applicable to the symptom.

>> GO TO 6.

6.REPAIR OR REPLACE THE MALFUNCTIONING PARTS

Repair or replace the specified malfunctioning parts.

>> GO TO 7.

7.FINAL CHECK

Perform the self-diagnosis again, and check that the malfunction is repaired completely. After checking, erase the self-diagnosis memory. Refer to [STC-9, "CONSULT Function"](#).

Is no other DTC present and the repair completed?

YES >> Inspection End.

NO >> GO TO 3.

C1601 BATTERY POWER SUPPLY

< DTC/CIRCUIT DIAGNOSIS >

DTC/CIRCUIT DIAGNOSIS

C1601 BATTERY POWER SUPPLY

DTC Logic

INFOID:0000000010204986

DTC DETECTION LOGIC

DTC	Display item	Malfunction detected condition	Possible cause
C1601	BATTERY VOLT	When a power supply voltage to the EPS control unit is maintained at 18.2 V or more or at less than 9 V continuously for five second or more.	• Harness or connector • EPS control unit • Fuse • Power supply system • Battery

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2.DTC REPRODUCTION PROCEDURE

With CONSULT

1. Turn the ignition switch OFF to ON.
2. Perform "EPS" self-diagnosis.

Is DTC "C1601" detected?

- YES >> Proceed to diagnosis procedure. Refer to [STC-20, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010204987

Regarding Wiring Diagram information, refer to [STC-14, "Wiring Diagram"](#).

1.CHECK EPS CONTROL UNIT GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect EPS control unit harness connector.
3. Check continuity between EPS control unit harness connector terminal and ground.

EPS control unit		—	Continuity
Connector	Terminal		
M48	10	Ground	Yes

4. Connect EPS control unit harness connector.

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair open circuit or short to ground or short to power in harness or connectors.

2.CHECK EPS CONTROL UNIT POWER SUPPLY CIRCUIT (1)

1. Check voltage between EPS control unit harness connector terminals and ground.

C1601 BATTERY POWER SUPPLY

< DTC/CIRCUIT DIAGNOSIS >

EPS control unit		—	Voltage (Approx.)
Connector	Terminal		
M49	4	Ground	0 V

- Turn ignition switch ON.
CAUTION:
Never start the engine.
- Check voltage between EPS control unit harness connector and ground.

EPS control unit		—	Voltage (Approx.)
Connector	Terminal		
M49	4	Ground	Battery voltage

Is the inspection result normal?

- YES >> GO TO 4.
NO >> GO TO 3.

3.CHECK EPS CONTROL UNIT POWER SUPPLY CIRCUIT (2)

- Turn ignition switch OFF.
- Check the 10A fuse 30.
- Check the harness for open or short between EPS control unit harness connector terminal 4 and the 10A fuse 30.

Is the inspection result normal?

- YES >> Perform the trouble diagnosis for ignition power supply circuit. Refer to [PG-4, "Wiring Diagram — Battery Power Supply —"](#).
NO >> Repair or replace malfunctioning parts.

4.CHECK EPS CONTROL UNIT POWER SUPPLY CIRCUIT (3)

- Turn ignition switch OFF.
- Check voltage between EPS control unit harness connector and ground.

EPS control unit		—	Voltage (Approx.)
Connector	Terminal		
M48	9	Ground	Battery voltage

- Turn ignition switch ON.
CAUTION:
Never start the engine.
- Check voltage between EPS control unit harness connector and ground.

EPS control unit		—	Voltage (Approx.)
Connector	Terminal		
M48	9	Ground	Battery voltage

Is the inspection result normal?

- YES >> GO TO 6.
NO >> GO TO 5.

5.CHECK EPS CONTROL UNIT POWER SUPPLY CIRCUIT (4)

- Turn ignition switch OFF.
- Check the 50A fusible links G and I.
- Check the harness for open or short between EPS control unit harness connector terminal 9 and the 50A fusible links G and I.

Is the inspection result normal?

- YES >> Perform the trouble diagnosis for power supply circuit. Refer to [PG-4, "Wiring Diagram — Battery Power Supply —"](#).

C1601 BATTERY POWER SUPPLY

< DTC/CIRCUIT DIAGNOSIS >

NO >> Repair or replace malfunctioning parts.

6.CHECK TERMINALS AND HARNESS CONNECTORS

Check the EPS control unit pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> EPS control unit is malfunctioning. Replace steering column assembly. Refer to [STC-36](#).
["Removal and Installation"](#).

NO >> Repair or replace malfunctioning parts.

C1604 TORQUE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

C1604 TORQUE SENSOR

DTC Logic

INFOID:0000000010204988

DTC DETECTION LOGIC

DTC	Display item	Malfunction detected condition	Possible cause
C1604	TORQUE SENSOR	When torque sensor output signal is malfunctioning.	• Harness or connector • Torque sensor • EPS control unit

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2.DTC REPRODUCTION PROCEDURE

With CONSULT

1. Turn the ignition switch OFF to ON.
2. Perform "EPS" self-diagnosis.

Is DTC "C1604" detected?

- YES >> Proceed to diagnosis procedure. Refer to [STC-23, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010204989

1.CHECK TERMINALS AND HARNESS CONNECTORS

Check EPS control unit pin terminals for damage or loose connection with harness connector. If any items are damaged, repair or replace malfunctioning parts.

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace malfunctioning parts.

2.PERFORM SELF-DIAGNOSIS

With CONSULT

1. Erase self-diagnostic results for "EPS".
2. Turn the ignition switch OFF, and then wait 10 seconds and more.
3. Perform self-diagnosis for "EPS".

Is DTC "C1604" detected?

- YES >> Torque sensor is malfunctioning. Replace steering column assembly. Refer to [ST-12, "Removal and Installation"](#).
NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

C1606 EPS MOTOR

< DTC/CIRCUIT DIAGNOSIS >

C1606 EPS MOTOR

DTC Logic

INFOID:0000000010204990

DTC DETECTION LOGIC

DTC	Display item	Malfunction detected condition	Possible cause
C1606	EPS MOTOR	When the motor driver malfunction of EPS control unit or EPS motor malfunction is detected.	• Harness or connector • EPS motor • EPS control unit

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2.DTC REPRODUCTION PROCEDURE

With CONSULT

1. Turn the ignition switch OFF to ON.
2. Perform "EPS" self-diagnosis.

Is DTC "C1606" detected?

- YES >> Proceed to diagnosis procedure. Refer to [STC-24, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010204991

1.PERFORM SELF-DIAGNOSIS

With CONSULT

1. Erase self-diagnostic results for "EPS".
2. Turn the ignition switch OFF, and then wait 10 seconds and more.
3. Perform self-diagnosis for "EPS".

Is DTC "C1606" detected?

- YES >> EPS motor is malfunctioning. Replace steering column assembly. Refer to [ST-12, "Removal and Installation"](#).
NO >> Check EPS control unit pin terminals for damage or loose connection with harness connector. If any items are damaged, repair or replace malfunctioning parts.

C1607, C1608 EPS CONTROL UNIT

< DTC/CIRCUIT DIAGNOSIS >

C1607, C1608 EPS CONTROL UNIT

DTC Logic

INFOID:0000000010204992

DTC DETECTION LOGIC

DTC	Display item	Malfunction detected condition	Possible cause
C1607	EEPROM	When the memory (EEPROM) system malfunction is detected in EPS control unit.	EPS control unit
C1608	CONTROL UNIT	When the internal malfunction is detected in EPS control unit.	

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If “DTC CONFIRMATION PROCEDURE” has been previously conducted, always turn ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2.DTC REPRODUCTION PROCEDURE

With CONSULT

1. Turn the ignition switch OFF to ON.
2. Perform “EPS” self-diagnosis.

Is DTC “C1607” or “C1608” detected?

- YES >> Proceed to diagnosis procedure. Refer to [STC-25. "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010204993

1.CHECK TERMINALS AND HARNESS CONNECTORS

Check EPS control unit pin terminals for damage or loose connection with harness connector. If any items are damaged, repair or replace malfunctioning parts.

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace malfunctioning parts.

2.PERFORM SELF-DIAGNOSIS

With CONSULT

1. Erase self-diagnostic results for “EPS”.
2. Turn the ignition switch OFF, and then wait 10 seconds and more.
3. Perform self-diagnosis for “EPS”.

Is DTC “C1607” or “C1608” detected?

- YES >> EPS control unit is malfunctioning. Replace steering column assembly. Refer to [STC-36. "Removal and Installation"](#).
NO >> Check intermittent incident. Refer to [GI-41. "Intermittent Incident"](#).

C1609 VEHICLE SPEED SIGNAL

< DTC/CIRCUIT DIAGNOSIS >

C1609 VEHICLE SPEED SIGNAL

DTC Logic

INFOID:0000000010204994

DTC DETECTION LOGIC

DTC	Display item	Malfunction detected condition	Possible cause
C1609	CAN VHCL SPEED	- Malfunction is detected in vehicle speed signal that is output from ABS actuator and electric unit (control unit) via CAN communication. - ABS actuator and electric unit (control unit) input signal error is detected.	- Harness or connector (CAN communication line) - EPS control unit - ABS malfunction - Vehicle speed signal error

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2. DTC REPRODUCTION PROCEDURE

With CONSULT

- Turn the ignition switch OFF to ON.
- Perform "EPS" self-diagnosis.

Is DTC "C1609" detected?

- YES >> Proceed to diagnosis procedure. Refer to [STC-26, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010204995

1. PERFORM ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS

With CONSULT

- Turn the ignition switch OFF to ON.
- Perform "ABS" self-diagnosis.

Is any DTC detected?

- YES >> Check the DTC. Refer to [BRC-55, "DTC Index"](#).
NO >> GO TO 2.

2. CHECK TERMINALS AND HARNESS CONNECTORS

Check EPS control unit pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace malfunctioning parts.

3. PERFORM SELF-DIAGNOSIS

With CONSULT

Perform "EPS" self-diagnosis.

Is DTC "C1609" detected?

- YES >> EPS control unit is malfunctioning. Replace steering column assembly. Refer to [STC-36, "Removal and Installation"](#).
NO >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

U1000 CAN COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

U1000 CAN COMM CIRCUIT

Description

INFOID:0000000010204996

CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN-H line, CAN-L line) allowing a high rate of information transmission with less wiring. Each control unit communicate data but selectively reads required data only.

DTC Logic

INFOID:0000000010204997

DTC DETECTION LOGIC

DTC	Display item	Malfunction detected condition	Possible cause
U1000	CAN COMM CIRCUIT	EPS control unit is not transmitting/receiving CAN communication signal for 2 seconds or more.	- CAN communication error - EPS control unit

DTC CONFIRMATION PROCEDURE

1.PRECONDITIONING

If "DTC CONFIRMATION PROCEDURE" has been previously conducted, always turn ignition switch OFF and wait at least 10 seconds before conducting the next test.

>> GO TO 2.

2.DTC REPRODUCTION PROCEDURE

With CONSULT

- Turn the ignition switch OFF to ON.
- Perform "EPS" self-diagnosis.

Is DTC "U1000" detected?

- YES >> Proceed to diagnosis procedure. Refer to [STC-27, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010204998

Proceed to [LAN-17, "Trouble Diagnosis Flow Chart"](#).

EPS WARNING LAMP

< DTC/CIRCUIT DIAGNOSIS >

EPS WARNING LAMP

Component Function Check

INFOID:0000000010204999

1.CHECK THE ILLUMINATION OF THE EPS WARNING LAMP

Check that the EPS warning lamp turns ON when ignition switch turns ON. Then, EPS warning lamp turns OFF after the engine is started.

Is the inspection result normal?

YES >> Inspection End.

NO >> Perform trouble diagnosis. Refer to [STC-28, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010205000

1.PERFORM SELF-DIAGNOSIS

With CONSULT

1. Turn the ignition switch OFF to ON.
2. Perform "EPS" self-diagnosis.

Is any DTC detected?

YES >> Check the DTC. Refer to [STC-13, "DTC Index"](#).

NO >> GO TO 2.

2.CHECK EPS WARNING LAMP SIGNAL

With CONSULT

1. Turn the ignition switch ON.

CAUTION:

Never start the engine.

2. Select "DATA MONITOR" of "EPS" and select "WARNING LAMP".
3. Check that the EPS warning lamp is turned ON.
4. Start the engine.

CAUTION:

Never drive the vehicle.

5. Check that the EPS warning lamp is turned OFF.

Is the inspection result normal?

YES >> Perform the trouble diagnosis for combination meter power supply circuit. Refer to [WCS-39, "COMBINATION METER : Diagnosis Procedure"](#).

NO >> EPS control unit is malfunctioning. Replace steering column assembly. Refer to [STC-36, "Removal and Installation"](#).

EPS WARNING LAMP DOES NOT TURN ON

< SYMPTOM DIAGNOSIS >

SYMPTOM DIAGNOSIS

EPS WARNING LAMP DOES NOT TURN ON

Description

INFOID:0000000010205001

EPS warning lamp does not turn ON when turning ignition switch ON from OFF. (Check the illumination of the EPS warning lamp.)

Diagnosis Procedure

INFOID:0000000010205002

1.CHECK EPS WARNING LAMP

Perform the trouble diagnosis of EPS warning lamp. Refer to [STC-28, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> Check that there is no malfunction in each harness connector pin terminal or disconnection.
- NO >> Repair or replace the specific malfunctioning part.

STC

EPS WARNING LAMP DOES NOT TURN OFF

< SYMPTOM DIAGNOSIS >

EPS WARNING LAMP DOES NOT TURN OFF

Description

INFOID:0000000010205003

EPS warning lamp does not turn OFF several seconds after engine started.

Diagnosis Procedure

INFOID:0000000010205004

1.PERFORM SELF-DIAGNOSIS

With CONSULT

1. Turn the ignition switch OFF to ON.
2. Perform "EPS" self-diagnosis.

Is any DTC detected?

- YES >> Check the DTC. Refer to [STC-13, "DTC Index"](#).
NO >> GO TO 2.

2.CHECK EPS WARNING LAMP

Perform the trouble diagnosis of EPS warning lamp. Refer to [STC-28, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace the specific malfunctioning part.

3.CHECK EPS CONTROL UNIT POWER SUPPLY AND GROUND CIRCUIT

Perform the trouble diagnosis of EPS control unit power supply and ground. Refer to [STC-20, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> Check that there is no malfunction in each harness connector pin terminal or disconnection.
NO >> Repair or replace the specific malfunctioning part.

STEERING WHEEL TURNING FORCE IS HEAVY OR LIGHT

< SYMPTOM DIAGNOSIS >

STEERING WHEEL TURNING FORCE IS HEAVY OR LIGHT

Description

INFOID:0000000010205005

Steering wheel turning force is heavy or light.

Diagnosis Procedure

INFOID:0000000010205006

1.PERFORM SELF-DIAGNOSIS

With CONSULT

1. Turn the ignition switch OFF to ON.
2. Perform "EPS" self-diagnosis.

Is any DTC detected?

- YES >> Check the DTC. Refer to [STC-13, "DTC Index"](#).
NO >> GO TO 2.

2.CHECK THE ILLUMINATION OF THE EPS WARNING LAMP

Check that the EPS warning lamp turns ON when ignition switch turns ON. Then, EPS warning lamp turns OFF after the engine is started.

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Perform trouble diagnosis of EPS warning lamp. Refer to [STC-28, "Diagnosis Procedure"](#).

3.CHECK EPS CONTROL UNIT SIGNAL (1)

With CONSULT

1. Start the engine.

CAUTION:

Never drive the vehicle.

2. Select "ASSIST LEVEL" in "DATA MONITOR" in "EPS".

Dose the item in "DATA MONITOR" indicate "100%"?

- YES >> GO TO 6.
NO >> GO TO 4.

4.CHECK EPS CONTROL UNIT SIGNAL (2)

With CONSULT

Select "BATTERY VOLT" in "DATA MONITOR" in "EPS".

Dose the item in "DATA MONITOR" indicate "10.5 V" or more?

- YES >> GO TO 5.
NO >> Perform trouble diagnosis of EPS control unit power supply and ground. Refer to [STC-20, "Diagnosis Procedure"](#).

5.CHECK EPS CONTROL UNIT SIGNAL (3)

With CONSULT

1. Select "ASSIST LEVEL" in "DATA MONITOR" in "EPS".
2. Stop the EPS system until the item in "DATA MONITOR" becomes "100%" or less.

NOTE:

While stopping the EPS system, do not turn steering wheel.

3. Check that the symptom continues.

Dose the symptom continue?

- YES >> GO TO 6.
NO >> The assist torque decreases because of protection function. This is not malfunction. Inspection End.

6.CHECK EPS CONTROL UNIT SIGNAL (4)

With CONSULT

1. Start the engine.

CAUTION:

STEERING WHEEL TURNING FORCE IS HEAVY OR LIGHT

< SYMPTOM DIAGNOSIS >

Never drive the vehicle.

2. Turn steering wheel from full left stop to full right stop.
3. Select "TORQUE SENSOR" in "DATA MONITOR" in "EPS".

Monitor item	Condition	Display value
TORQUE SENSOR	Steering wheel: Not steering (There is no steering force)	Approx. 0 Nm
	Steering wheel: Right turn	Positive value (Nm)
	Steering wheel: Left turn	Negative value (Nm)

Is the inspection result normal?

YES >> GO TO 8.

NO >> GO TO 7.

7.CHECK EPS MOTOR

Perform the trouble diagnosis of EPS motor. Refer to [STC-24, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 8.

NO >> Repair or replace the specific malfunctioning part.

8.CHECK STEERING WHEEL TURNING FORCE

Check the steering wheel turning force. Refer to [ST-7, "Inspection"](#).

Is the inspection result normal?

YES >> Inspection End.

NO >> Check the steering wheel turning force for mechanical malfunction. Refer to [ST-7, "Inspection"](#).

UNBALANCE STEERING WHEEL TURNING FORCE AND RETURN BETWEEN RIGHT AND LEFT

< SYMPTOM DIAGNOSIS >

UNBALANCE STEERING WHEEL TURNING FORCE AND RETURN BETWEEN RIGHT AND LEFT

Description

INFOID:0000000010205007

Unbalance steering wheel turning force and return between right and left.

Diagnosis Procedure

INFOID:0000000010205008

1.CHECK THE ILLUMINATION OF THE EPS WARNING LAMP

Check the EPS warning lamp while engine is running.

Does the EPS warning lamp turn OFF?

YES >> GO TO 2.

NO >> Refer to [STC-30, "Diagnosis Procedure"](#).

2.CHECK WHEEL ALIGNMENT

1. Check the wheel alignment. Refer to [FSU-8, "Adjustment"](#).

2. Perform "EPS" self-diagnosis.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Adjustment of wheel alignment. Refer to [FSU-8, "Adjustment"](#).

3.CHECK EPS CONTROL UNIT SIGNAL

With CONSULT

1. Start the engine.

CAUTION:

Never drive the vehicle.

2. Turn steering wheel from full left stop to full right stop.

3. Select "DATA MONITOR" of "EPS" and select "TORQUE SENSOR".

4. Perform the torque sensor inspection.

Monitor item	Condition	Display value
TORQUE SENSOR	Steering wheel: Not steering (There is no steering force)	Approx. 0 Nm
	Steering wheel: Right turn	Positive value (Nm)
	Steering wheel: Left turn	Negative value (Nm)

Is the inspection result normal?

YES >> GO TO 5.

NO >> GO TO 4.

4.CHECK EPS MOTOR

Perform the trouble diagnosis of EPS motor. Refer to [STC-24, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace the specific malfunctioning part.

5.CHECK STEERING WHEEL TURNING FORCE

Check the steering wheel turning force. Refer to [ST-7, "Inspection"](#).

Is the inspection result normal?

YES >> Inspection End.

NO >> Check the steering wheel turning force for mechanical malfunction. Refer to [ST-7, "Inspection"](#).

UNBALANCE STEERING WHEEL TURNING FORCE (TORQUE VARIATION)

< SYMPTOM DIAGNOSIS >

UNBALANCE STEERING WHEEL TURNING FORCE (TORQUE VARIATION)

Description

INFOID:0000000010205009

Unbalance steering wheel turning force (torque variation).

Diagnosis Procedure

INFOID:0000000010205010

1.PERFORM SELF-DIAGNOSIS

With CONSULT

1. Turn the ignition switch OFF to ON.
2. Perform "EPS" self-diagnosis.

Is any DTC detected?

- YES >> Check the DTC. Refer to [STC-13, "DTC Index"](#).
NO >> GO TO 2.

2.CHECK THE ILLUMINATION OF THE EPS WARNING LAMP

Check the EPS warning lamp while the engine is started.

Does the EPS warning lamp turn OFF?

- YES >> GO TO 3.
NO >> Refer to [STC-28, "Diagnosis Procedure"](#).

3.CHECK STEERING COLUMN AND STEERING GEAR

Check the steering column assembly and steering gear assembly.

- Steering column assembly. Refer to [ST-9, "Inspection"](#).
- Steering gear assembly. Refer to [ST-10, "Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Repair or replace the specific malfunctioning part.

4.CHECK EPS CONTROL UNIT SIGNAL (1)

With CONSULT

1. Start the engine.

CAUTION:

Never drive the vehicle.

2. Turn steering wheel from full left stop to full right stop.
3. Select "ASSIST LEVEL" in "DATA MONITOR" in "EPS".

Dose the item in "DATA MONITOR" maintain "100%"?

- YES >> GO TO 7.
NO >> GO TO 5.

5.CHECK EPS CONTROL UNIT SIGNAL (2)

With CONSULT

Select "BATTERY VOLT" in "DATA MONITOR" in "EPS".

Dose the item in "DATA MONITOR" indicate "10.5 V" or more?

- YES >> GO TO 6.
NO >> Perform trouble diagnosis of EPS control unit power supply and ground. Refer to [STC-20, "Diagnosis Procedure"](#).

6.CHECK EPS CONTROL UNIT SIGNAL (3)

With CONSULT

1. Select "ASSIST LEVEL" in "DATA MONITOR" in "EPS".
2. Stop the EPS system until the item in "DATA MONITOR" becomes "100%" or less.

NOTE:

While stopping the EPS system, do not turn steering wheel.

3. Check that the symptom continues.

UNBALANCE STEERING WHEEL TURNING FORCE (TORQUE VARIATION)

< SYMPTOM DIAGNOSIS >

Dose the symptom continue?

YES >> GO TO 7.

NO >> The assist torque decreases because of protection function. This is not malfunction. Inspection End.

7.CHECK EPS CONTROL UNIT SIGNAL (4)

With CONSULT

1. Start the engine.

CAUTION:

Never drive the vehicle.

2. Turn steering wheel from full left stop to full right stop.

3. Select "TORQUE SENSOR" in "DATA MONITOR" in "EPS".

4. Perform the torque sensor inspection.

Monitor item	Condition	Display value
TORQUE SENSOR	Steering wheel: Not steering (There is no steering force)	Approx. 0 Nm
	Steering wheel: Right turn	Positive value (Nm)
	Steering wheel: Left turn	Negative value (Nm)

Is the inspection result normal?

YES >> GO TO 9.

NO >> GO TO 8.

8.CHECK EPS MOTOR

Perform the trouble diagnosis of EPS motor. Refer to [STC-24, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 9.

NO >> Repair or replace the specific malfunctioning part.

9.CHECK STEERING WHEEL TURNING FORCE

Check the steering wheel turning force. Refer to [ST-7, "Inspection"](#).

Is the inspection result normal?

YES >> Inspection End.

NO >> Check the steering wheel turning force for mechanical malfunction. Refer to [ST-7, "Inspection"](#).

EPS CONTROL UNIT

< REMOVAL AND INSTALLATION >

REMOVAL AND INSTALLATION

EPS CONTROL UNIT

Removal and Installation

INFOID:000000009796098

CAUTION:

Disconnect the battery negative terminal before removing the EPS control unit.

The EPS control unit is an integral part of the steering column. If the replacement of the EPS control unit is necessary, replace the steering column. Refer to [ST-12, "Removal and Installation"](#).

TM

SECTION

TRANSAXLE & TRANSMISSION

A

B

C

TM

CONTENTS

E

CVT: RE0F10D

PRECAUTION 6

PRECAUTIONS 6

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	6
Precaution for Procedure without Cowl Top Cover.....	6
Precaution for TCM and Transaxle Assembly Replacement	6
General Precautions	7
On Board Diagnosis (OBD) System of CVT and Engine	7
Removal and Installation Procedure for CVT Unit Connector	8

PREPARATION 10

PREPARATION 10

Special Service Tools	10
Commercial Service Tools	10

SYSTEM DESCRIPTION 12

COMPONENT PARTS 12

CVT CONTROL SYSTEM 12

CVT CONTROL SYSTEM : Component Parts Location	12
CVT CONTROL SYSTEM : TCM	13
CVT CONTROL SYSTEM : Transmission Range Switch	14
CVT CONTROL SYSTEM : Primary Speed Sensor	14
CVT CONTROL SYSTEM : Output Speed Sensor...	15
CVT CONTROL SYSTEM : Input Speed Sensor	15
CVT CONTROL SYSTEM : CVT Fluid Temperature Sensor	16
CVT CONTROL SYSTEM : Primary Pressure Sensor	16

CVT CONTROL SYSTEM : Secondary Pressure Sensor	17
--	----

CVT CONTROL SYSTEM : Primary Pressure Solenoid Valve	17
--	----

CVT CONTROL SYSTEM : Secondary Pressure Solenoid Valve	18
--	----

CVT CONTROL SYSTEM : Select Solenoid Valve	18
--	----

CVT CONTROL SYSTEM : Torque Converter Clutch Solenoid Valve	18
---	----

CVT CONTROL SYSTEM : Line Pressure Solenoid Valve	18
---	----

CVT CONTROL SYSTEM : Overdrive Control Switch	19
---	----

CVT CONTROL SYSTEM : O/D OFF Indicator Lamp	19
---	----

CVT CONTROL SYSTEM : Shift Position Indicator	20
---	----

SHIFT LOCK SYSTEM 20

SHIFT LOCK SYSTEM : Component Parts Location	20
--	----

STRUCTURE AND OPERATION 22

TRANSAXLE 22

TRANSAXLE : Cross-Sectional View	22
TRANSAXLE : Operation Status	23
TRANSAXLE : Transaxle Mechanism	23
TRANSAXLE : Oil Pressure System	26
TRANSAXLE : Component Description	27

FLUID COOLER & FLUID WARMER SYSTEM 27

FLUID COOLER & FLUID WARMER SYSTEM : System Description	28
---	----

SHIFT LOCK SYSTEM 28

SHIFT LOCK SYSTEM : System Description	29
--	----

KEY LOCK SYSTEM 30

KEY LOCK SYSTEM : System Description	30
--	----

SYSTEM 31

F

G

H

I

J

K

L

M

N

O

P

CVT CONTROL SYSTEM	31	ADDITIONAL SERVICE WHEN REPLACING	
CVT CONTROL SYSTEM : System Description ...	31	TCM	82
CVT CONTROL SYSTEM : Fail-safe	32	Description	82
CVT CONTROL SYSTEM : Protection Control	35	Work Procedure	82
LINE PRESSURE CONTROL	36	ADDITIONAL SERVICE WHEN REPLACING	
LINE PRESSURE CONTROL : System Description	36	TRANSAXLE ASSEMBLY	84
		Description	84
SHIFT CONTROL	37	Work Procedure	84
SHIFT CONTROL : System Description	37	ADDITIONAL SERVICE WHEN REPLACING	
SELECT CONTROL	39	TCM AND TRANSAXLE ASSEMBLY	86
SELECT CONTROL : System Description	39	Description	86
LOCK-UP CONTROL	40	Work Procedure	86
LOCK-UP CONTROL : System Description	40	CVT FLUID COOLER SYSTEM	88
SPORT MODE CONTROL	40	Cleaning	88
SPORT MODE CONTROL : System Description ...	41	STALL TEST	91
WARNING/INDICATOR/CHIME LIST	43	Work Procedure	91
WARNING/INDICATOR/CHIME LIST : Warning		CVT POSITION	92
Lamp/Indicator Lamp	43	Inspection	92
ON BOARD DIAGNOSTIC (OBD) SYSTEM	44	Adjustment	92
Diagnosis Description	44	HOW TO ERASE PERMANENT DTC	94
GST (Generic Scan Tool)	44	Description	94
DIAGNOSIS SYSTEM (TCM)	45	DTC/CIRCUIT DIAGNOSIS	95
DIAGNOSIS DESCRIPTION	45	U0073 COMMUNICATION BUS A OFF	95
DIAGNOSIS DESCRIPTION : 1 Trip Detection Di-		DTC Description	95
agnosis and 2 Trip Detection Diagnosis	45	Diagnosis Procedure	95
DIAGNOSIS DESCRIPTION : DTC and DTC of		U0100 LOST COMMUNICATION (ECM A)	96
1st Trip	45	DTC Description	96
DIAGNOSIS DESCRIPTION : Malfunction Indica-		Diagnosis Procedure	96
tor Lamp (MIL)	45	U0102 LOST COMMUNICATION (TRANS-	
DIAGNOSIS DESCRIPTION : Counter System	45	FER)	97
CONSULT Function	47	DTC Description	97
ECU DIAGNOSIS INFORMATION	52	Diagnosis Procedure	97
TCM	52	U0140 LOST COMMUNICATION (BCM)	98
Reference Value	52	DTC Description	98
Fail-safe	58	Diagnosis Procedure	98
Protection Control	61	U0141 LOST COMMUNICATION (BCM A)	99
DTC Inspection Priority Chart	62	DTC Description	99
DTC Index	63	Diagnosis Procedure	99
WIRING DIAGRAM	65	U0155 LOST COMMUNICATION (IPC)	100
CVT CONTROL SYSTEM	65	DTC Description	100
Wiring Diagram	65	Diagnosis Procedure	100
CVT SHIFT LOCK SYSTEM	75	U0300 CAN COMMUNICATION DATA	101
Wiring Diagram	75	DTC Description	101
BASIC INSPECTION	79	Diagnosis Procedure	101
DIAGNOSIS AND REPAIR WORK FLOW	79	U1000 CAN COMM CIRCUIT	102
Work Flow	79	Description	102
Diagnostic Work Sheet	80	DTC Description	102

Diagnosis Procedure	102	DTC Description	135	
U110F LOST COMMUNICATION (ECM)	103	Diagnosis Procedure	136	A
DTC Description	103	P0746 PRESSURE CONTROL SOLENOID A. 137		
Diagnosis Procedure	103	DTC Description	137	B
U1111 LOST COMMUNICATION (CHASSIS CONTROL MODULE)	104	Diagnosis Procedure	138	
DTC Description	104	P0776 PRESSURE CONTROL SOLENOID B. 139		C
Diagnosis Procedure	104	DTC Description	139	
U1117 LOST COMMUNICATION (ABS)	105	Diagnosis Procedure	140	
DTC Description	105	P0778 PRESSURE CONTROL SOLENOID B. 141		TM
Diagnosis Procedure	105	DTC Description	141	
P062F EEPROM	106	Diagnosis Procedure	141	
Description	106	P0779 PRESSURE CONTROL SOLENOID B. 143		E
DTC Description	106	DTC Description	143	
Diagnosis Procedure	106	Diagnosis Procedure	143	
P0705 TRANSMISSION RANGE SENSOR A. 107		P0841 TRANSMISSION FLUID PRESSURE SEN/SW A	145	F
DTC Description	107	DTC Description	145	
Diagnosis Procedure	107	Diagnosis Procedure	145	G
Component Inspection	111	P0847 TRANSMISSION FLUID PRESSURE SEN/SW B	146	
P0706 TRANSMISSION RANGE SENSOR A. 113		DTC Description	146	H
DTC Description	113	Diagnosis Procedure	146	
Diagnosis Procedure	113	P0848 TRANSMISSION FLUID PRESSURE SEN/SW B	148	I
Component Inspection	115	DTC Description	148	
P0711 TRANSMISSION FLUID TEMPERATURE SENSOR A	116	Diagnosis Procedure	148	J
DTC Description	116	P084C TRANSMISSION FLUID PRESSURE SEN/SW H	150	
Diagnosis Procedure	119	DTC Description	150	K
P0712 TRANSMISSION FLUID TEMPERATURE SENSOR A	121	Diagnosis Procedure	150	
DTC Description	121	P084D TRANSMISSION FLUID PRESSURE SEN/SW H	152	L
Diagnosis Procedure	121	DTC Description	152	
P0713 TRANSMISSION FLUID TEMPERATURE SENSOR A	123	Diagnosis Procedure	152	M
DTC Description	123	P0863 TCM COMMUNICATION	154	
Diagnosis Procedure	123	DTC Description	154	N
P0715 INPUT SPEED SENSOR A	125	Diagnosis Procedure	154	
DTC Description	125	P0890 TCM	155	O
Diagnosis Procedure	126	DTC Description	155	
P0717 INPUT SPEED SENSOR A	128	Diagnosis Procedure	155	
DTC Description	128	P0962 PRESSURE CONTROL SOLENOID A. 157		P
Diagnosis Procedure	129	DTC Description	157	
P0740 TORQUE CONVERTER	131	Diagnosis Procedure	157	
DTC Description	131	P0963 PRESSURE CONTROL SOLENOID A. 159		
Diagnosis Procedure	132	DTC Description	159	
P0743 TORQUE CONVERTER	133	Diagnosis Procedure	159	
DTC Description	133	P0965 PRESSURE CONTROL SOLENOID B. 161		
Diagnosis Procedure	134	DTC Description	161	
P0744 TORQUE CONVERTER	135			

Diagnosis Procedure	162
P0966 PRESSURE CONTROL SOLENOID B.	163
DTC Description	163
Diagnosis Procedure	163
P0967 PRESSURE CONTROL SOLENOID B.	165
DTC Description	165
Diagnosis Procedure	165
P2765 INPUT SPEED SENSOR B	167
DTC Description	167
Diagnosis Procedure	168
P2813 SELECT SOLENOID	170
DTC Description	170
Diagnosis Procedure	171
P2814 SELECT SOLENOID	172
DTC Description	172
Diagnosis Procedure	172
P2815 SELECT SOLENOID	174
DTC Description	174
Diagnosis Procedure	174
MAIN POWER SUPPLY AND GROUND CIR- CUIT	176
Diagnosis Procedure	176
OVERDRIVE CONTROL SWITCH	178
Component Function Check	178
Diagnosis Procedure	178
Component Inspection	179
O/D OFF INDICATOR LAMP	181
Component Function Check	181
Diagnosis Procedure	181
SHIFT POSITION INDICATOR CIRCUIT	182
Component Parts Function Inspection	182
Diagnosis Procedure	182
SHIFT LOCK SYSTEM	183
Component Function Check	183
Diagnosis Procedure	183
Component Inspection (CVT Shift Selector As- sembly)	184
Component Inspection (Stop Lamp Switch)	185
SYMPTOM DIAGNOSIS	186
CVT CONTROL SYSTEM	186
Symptom Table	186
PERIODIC MAINTENANCE	190
CVT FLUID	190
Inspection	190
Replacement	190
Adjustment	192

REMOVAL AND INSTALLATION	194
CVT SHIFT SELECTOR	194
Exploded View	194
Removal and Installation	194
Inspection	196
CONTROL CABLE	197
Exploded View	197
Removal and Installation	197
Inspection and Adjustment	199
KEY INTERLOCK CABLE	200
Exploded View	200
Removal and Installation	200
Inspection	201
TCM	202
Exploded View	202
Removal and Installation	202
Adjustment	203
AIR BREATHER	204
Exploded View	204
Removal and Installation	204
OIL PAN	205
Exploded View	205
Removal and Installation	205
Inspection	206
INPUT SPEED SENSOR	207
Exploded View	207
Removal and Installation	207
Inspection and Adjustment	207
PRIMARY SPEED SENSOR	208
Exploded View	208
Removal and Installation	208
Inspection and Adjustment	208
OUTPUT SPEED SENSOR	209
Exploded View	209
Removal and Installation	209
Inspection and Adjustment	209
DIFFERENTIAL SIDE OIL SEAL	210
Exploded View	210
Removal and Installation	210
Inspection and Adjustment	211
WATER HOSE	212
Exploded View	212
Removal and Installation	212
Inspection	213
FLUID COOLER HOSE	215
Exploded View	215
Removal and Installation	215
Inspection	216
CVT OIL WARMER	217

Exploded View	217	
Removal and Installation	217	
Inspection	218	
PLUG	219	
Description	219	
Exploded View	219	
Removal and Installation	219	
Inspection and Adjustment	219	
UNIT REMOVAL AND INSTALLATION ...	220	
TRANSAXLE ASSEMBLY	220	
Exploded View	220	
Removal and Installation	220	
Inspection and Adjustment	222	
UNIT DISASSEMBLY AND ASSEMBLY .	223	
TORQUE CONVERTER AND CONVERTER HOUSING OIL SEAL	223	A
Exploded View	223	
Disassembly	223	B
Assembly	223	
Inspection	224	
SERVICE DATA AND SPECIFICATIONS (SDS)	226	C
SERVICE DATA AND SPECIFICATIONS (SDS)	226	TM
General Specification	226	
Shift Characteristics	226	
Stall Speed	226	E
Torque Converter	226	
Heater Thermostat	226	F
		G
		H
		I
		J
		K
		L
		M
		N
		O
		P

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010321289

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

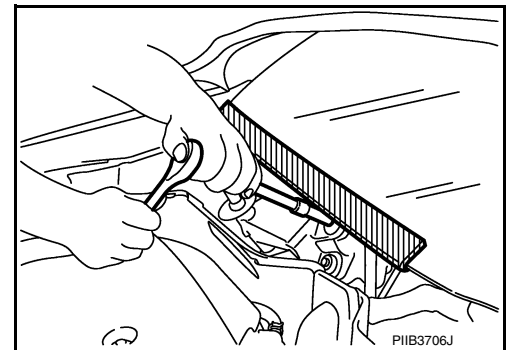
WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Precaution for Procedure without Cowl Top Cover

INFOID:0000000009982045

When performing the procedure after removing cowl top cover, cover the lower end of windshield with urethane, etc to prevent damage to windshield.



Precaution for TCM and Transaxle Assembly Replacement

INFOID:0000000009982046

CAUTION:

- To replace TCM, refer to [TM-82, "Description"](#).
- To replace transaxle assembly, refer to [TM-84, "Description"](#).

PRECAUTIONS

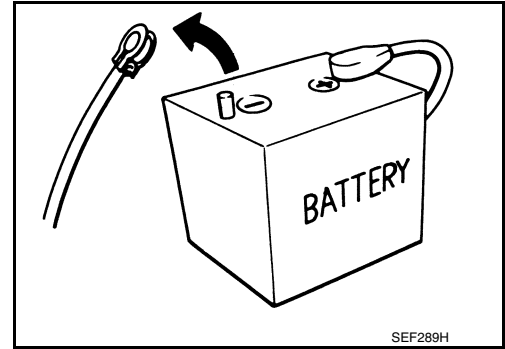
< PRECAUTION >

[CVT: RE0F10D]

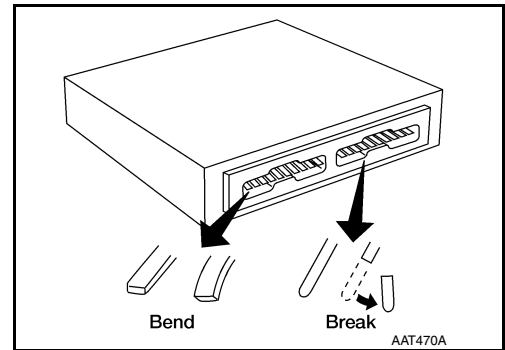
General Precautions

INFOID:000000009982047

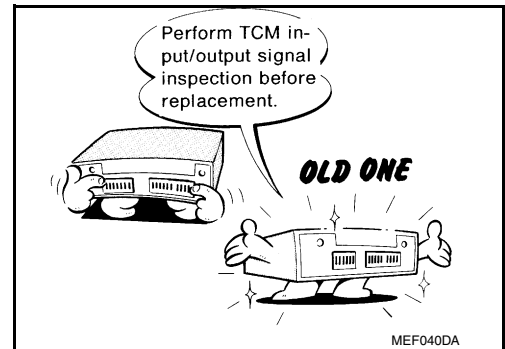
- Turn ignition switch OFF and disconnect the battery cable from the negative terminal before connecting or disconnecting the CVT assembly harness connector. Because battery voltage is applied to TCM even if ignition switch is turned OFF.



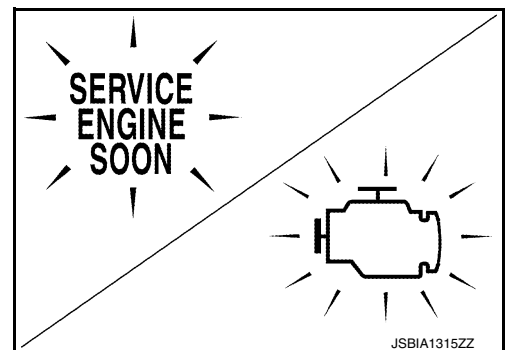
- When connecting or disconnecting pin connectors into or from TCM, do not damage pin terminals (bend or break). Check that there are not any bends or breaks on TCM pin terminal, when connecting pin connectors.



- Perform TCM input/output signal inspection and check whether TCM functions normally or not before replacing TCM. Refer to [TM-52, "Reference Value"](#).



- Perform "DTC (Diagnostic Trouble Code) CONFIRMATION PROCEDURE". If the repair is completed DTC should not be displayed in the "DTC CONFIRMATION PROCEDURE".



- Always use the specified brand of CVT fluid. Refer to [MA-11, "Fluids and Lubricants"](#).
- Use lint-free paper not cloth rags during work.
- Dispose of the waste oil using the methods prescribed by law, ordinance, etc. after replacing the CVT fluid.

On Board Diagnosis (OBD) System of CVT and Engine

INFOID:000000009982048

The TCM and ECM have an on board diagnostic system. It will light up the malfunction indicator lamp (MIL) to warn the driver of a malfunction causing emission deterioration.

PRECAUTIONS

< PRECAUTION >

[CVT: RE0F10D]

CAUTION:

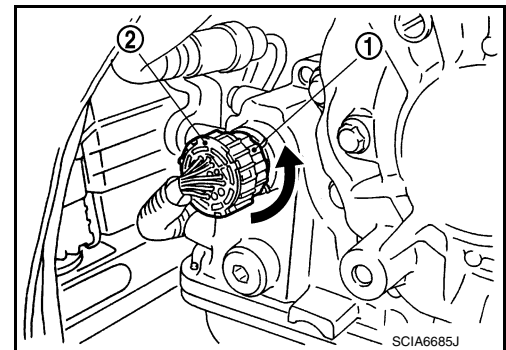
- Be sure to turn the ignition switch OFF and disconnect the battery cable from the negative terminal before any repair or inspection work. The open/short circuit of related switches, sensors, solenoid valves, etc. will cause the MIL to light up.
- Be sure to connect and lock the connectors securely after work. A loose (unlocked) connector will cause the MIL to light up due to an open circuit. (Be sure the connector is free from water, grease, dirt, bent terminals, etc.)
- Be sure to route and secure the harnesses properly after work. Interference of the harness with a bracket, etc. may cause the MIL to light up due to a short circuit.
- Be sure to connect rubber tubes properly after work. A misconnected or disconnected rubber tube may cause the MIL to light up due to a malfunction of the EGR system or fuel injection system, etc.
- Be sure to erase the unnecessary malfunction information (repairs completed) from the TCM and ECM before returning the vehicle to the customer.

Removal and Installation Procedure for CVT Unit Connector

INFOID:000000009982049

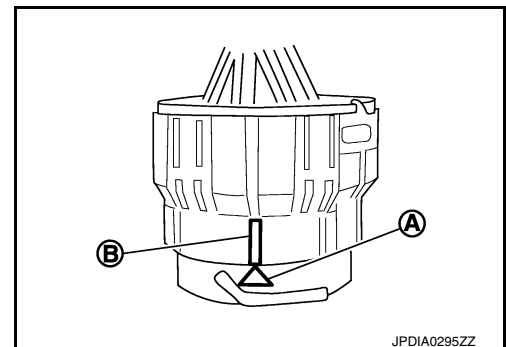
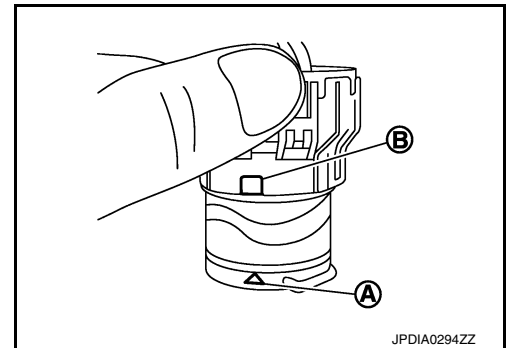
REMOVAL

- Rotate bayonet ring ① counterclockwise. Pull out CVT unit harness connector ② upward and remove it.



INSTALLATION

1. Align marking (A) on CVT unit harness connector terminal with marking (B) on bayonet ring. Insert CVT unit harness connector.
2. Rotate bayonet ring clockwise.
3. Rotate bayonet ring clockwise until marking (A) on CVT unit harness connector terminal body is aligned with the slit (B) on bayonet ring as shown in the figure (correctly fitting condition).



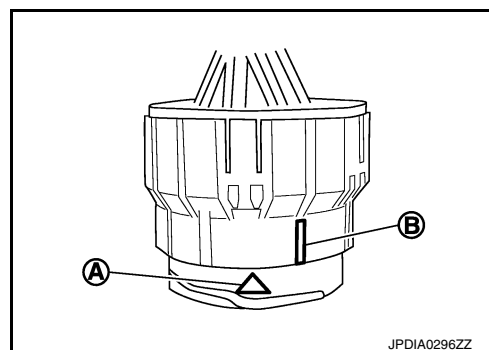
CAUTION:

PRECAUTIONS

< PRECAUTION >

[CVT: RE0F10D]

- Securely align marking ① on CVT unit harness connector terminal body with bayonet ring slit ②. Then, be careful not to make a half fit condition as shown in the figure.
- Never mistake the slit of bayonet ring for other dent portion.



A

B

C

TM

E

F

G

H

I

J

K

L

M

N

O

P

PREPARATION

< PREPARATION >

[CVT: RE0F10D]

PREPARATION

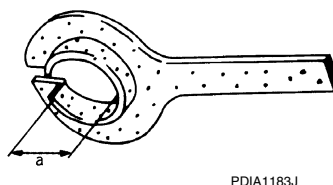
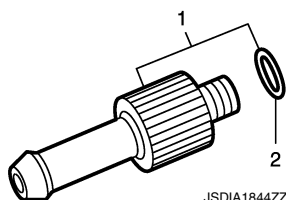
PREPARATION

Special Service Tools

INFOID:000000009982050

The actual shapes of TechMate tools may differ from those of special service tools illustrated here.

Tool number (TechMate No.) Tool name	Description
1. KV311039S0 (—) Charging pipe set 2. KV31103920* (—) O-ring	CVT fluid changing and adjustment
KV38107900 (—) Protector a: 32 mm (1.26 in) dia.	Installing drive shaft

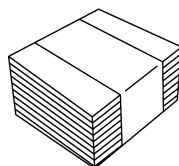
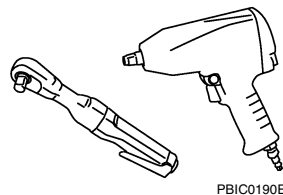


*: The O-ring as a unit part is set as a SST.

Commercial Service Tools

INFOID:000000009982051

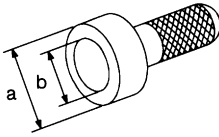
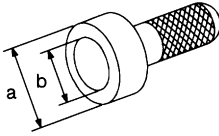
Tool number Tool name	Description
Power tool	Loosening nuts and bolts
Lint-free paper	Cleaning transaxle



PREPARATION

< PREPARATION >

[CVT: RE0F10D]

Tool number Tool name	Description
Drift a: 56 mm (2.20 in) dia. b: 50 mm (1.97 in) dia.  NT115	Installing differential side oil seal
Drift a: 65 mm (2.56 in) dia. b: 60 mm (2.36 in) dia.  NT115	Installing converter housing oil seal

A

B

C

TM

E

F

G

H

I

J

K

L

M

N

O

P

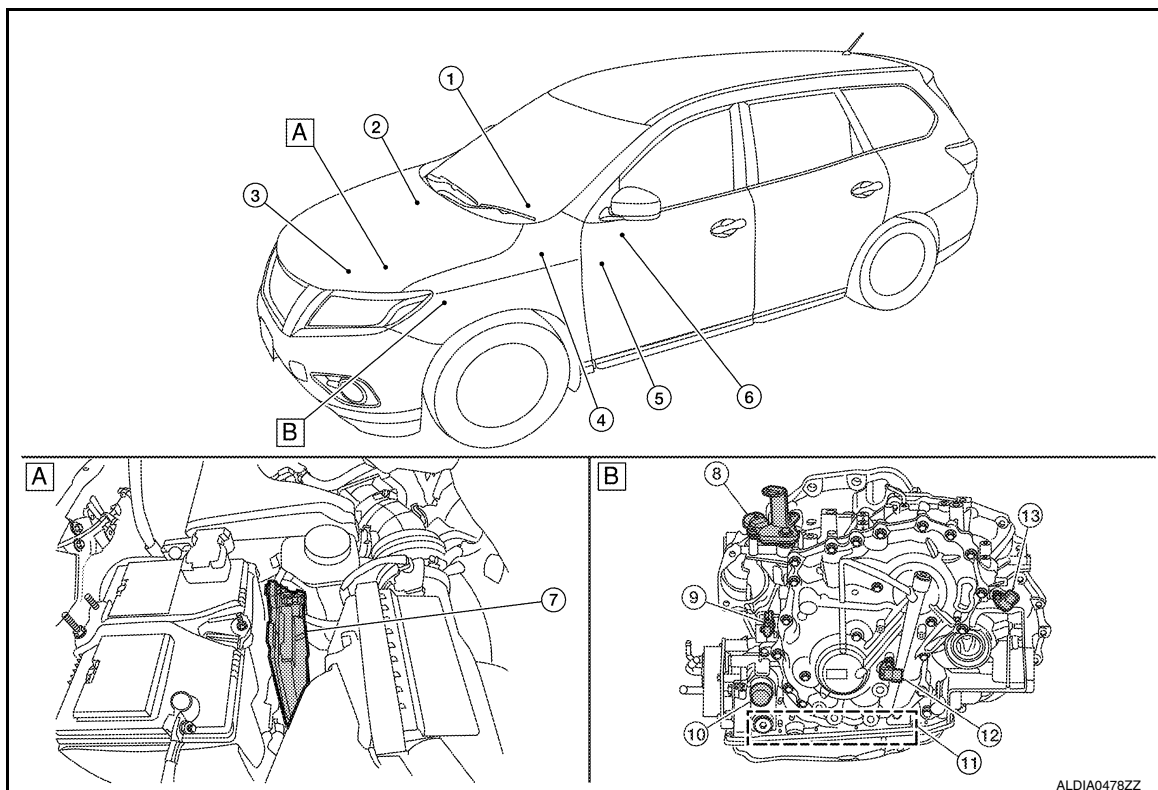
SYSTEM DESCRIPTION

COMPONENT PARTS

CVT CONTROL SYSTEM

CVT CONTROL SYSTEM : Component Parts Location

INFOID:000000009982052



[A] Engine room, LH

[B] Transaxle assembly

No.	Component	Function
①	Combination meter	Mainly transmits the following signal to TCM via CAN communication. • Overdrive control switch signal • SPORT mode switch signal Mainly receives the following signals from TCM via CAN communication. • O/D OFF indicator lamp signal • Shift position signal Refer to MWI-6, "METER SYSTEM : Component Parts Location" for detailed installation location.
②	ABS actuator and electric unit (control unit)	Mainly transmits the following signal to TCM via CAN communication. • ABS operation signal • TCS operation signal • VDC operation signal • ABS malfunction signal • Vehicle speed signal • G sensor signal Refer to BRC-8, "Component Parts Location" for detailed installation location.

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[CVT: RE0F10D]

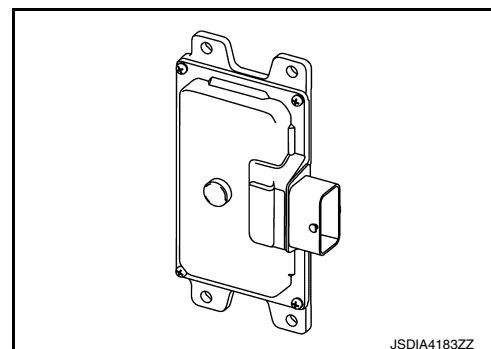
No.	Component		Function
③	ECM		Mainly transmits the following signal to TCM via CAN communication. - Engine and CVT integrated control signal NOTE: General term for the communication (torque-down permission, torque-down request, etc.) exchanged between the ECM and TCM. - Engine speed signal - Engine coolant temperature signal - Accelerator pedal position signal - Closed throttle position signal Mainly receives the following signals from TCM via CAN communication. - Malfunctioning indicator lamp signal Refer to EC-14, "Component Parts Location" for detailed installation location.
④	BCM		Mainly transmits the following signal to TCM via CAN communication. Stop lamp switch signal Refer to BCS-7, "BODY CONTROL SYSTEM : Component Parts Location" for detailed installation location.
⑤	SPORT mode switch		DMS-4, "SPORT Mode Switch"
⑥	Overdrive control switch		TM-19, "CVT CONTROL SYSTEM : Overdrive Control Switch"
⑦	TCM		TM-13, "CVT CONTROL SYSTEM : TCM"
⑧	Transmission range switch		TM-14, "CVT CONTROL SYSTEM : Transmission Range Switch"
⑨	Input speed sensor		TM-15, "CVT CONTROL SYSTEM : Input Speed Sensor"
⑩	CVT unit connector		—
⑪	Control valve	CVT fluid temperature sensor*	TM-16, "CVT CONTROL SYSTEM : CVT Fluid Temperature Sensor"
		Primary pressure sensor*	TM-16, "CVT CONTROL SYSTEM : Primary Pressure Sensor"
		Secondary pressure sensor*	TM-17, "CVT CONTROL SYSTEM : Secondary Pressure Sensor"
		Line pressure solenoid valve*	TM-18, "CVT CONTROL SYSTEM : Line Pressure Solenoid Valve"
		Primary pressure solenoid valve*	TM-17, "CVT CONTROL SYSTEM : Primary Pressure Solenoid Valve"
		Secondary pressure solenoid valve*	TM-18, "CVT CONTROL SYSTEM : Secondary Pressure Solenoid Valve"
		Torque converter clutch solenoid valve*	TM-18, "CVT CONTROL SYSTEM : Torque Converter Clutch Solenoid Valve"
		Select solenoid valve*	TM-18, "CVT CONTROL SYSTEM : Select Solenoid Valve"
⑫	Primary speed sensor		TM-14, "CVT CONTROL SYSTEM : Primary Speed Sensor"
⑬	Output speed sensor		TM-15, "CVT CONTROL SYSTEM : Output Speed Sensor"

*: These components are included in control valve assembly.

CVT CONTROL SYSTEM : TCM

INFOID:000000009982053

- The TCM consists of a microcomputer and connectors for signal input and output and for power supply.
- The vehicle driving status is judged based on the signals from the sensors, switches, and other control units, and the optimal transaxle control is performed.
- For TCM control items, refer to [TM-31, "CVT CONTROL SYSTEM : System Description"](#).



COMPONENT PARTS

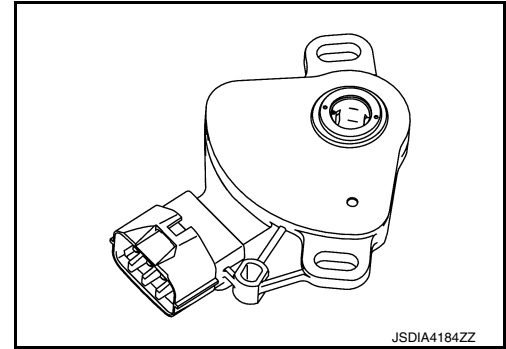
< SYSTEM DESCRIPTION >

[CVT: RE0F10D]

CVT CONTROL SYSTEM : Transmission Range Switch

INFOID:000000009982054

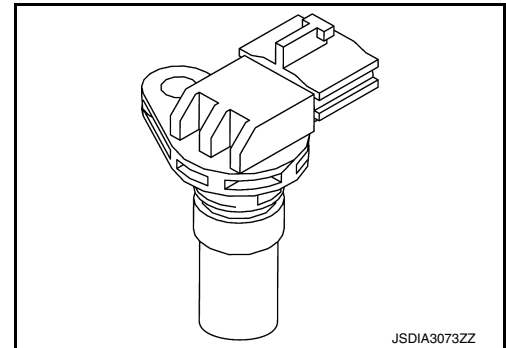
- The transmission range switch is installed to upper part of transaxle case.
- The transmission range switch detects the selector lever position.



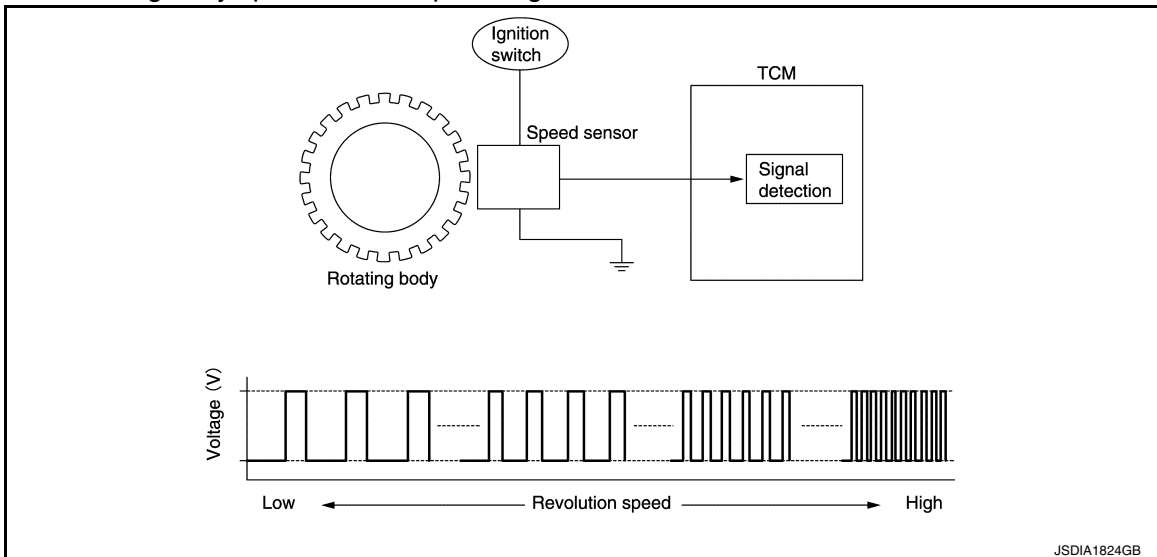
CVT CONTROL SYSTEM : Primary Speed Sensor

INFOID:000000009982055

- The primary speed sensor is installed to side cover of transaxle.
- The primary speed sensor detects primary pulley speed.



- The primary speed sensor generates an ON-OFF pulse signal according to the rotating body speed. TCM judges the rotating body speed from the pulse signal.



COMPONENT PARTS

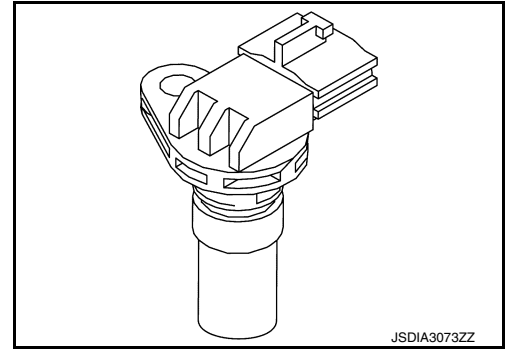
< SYSTEM DESCRIPTION >

[CVT: RE0F10D]

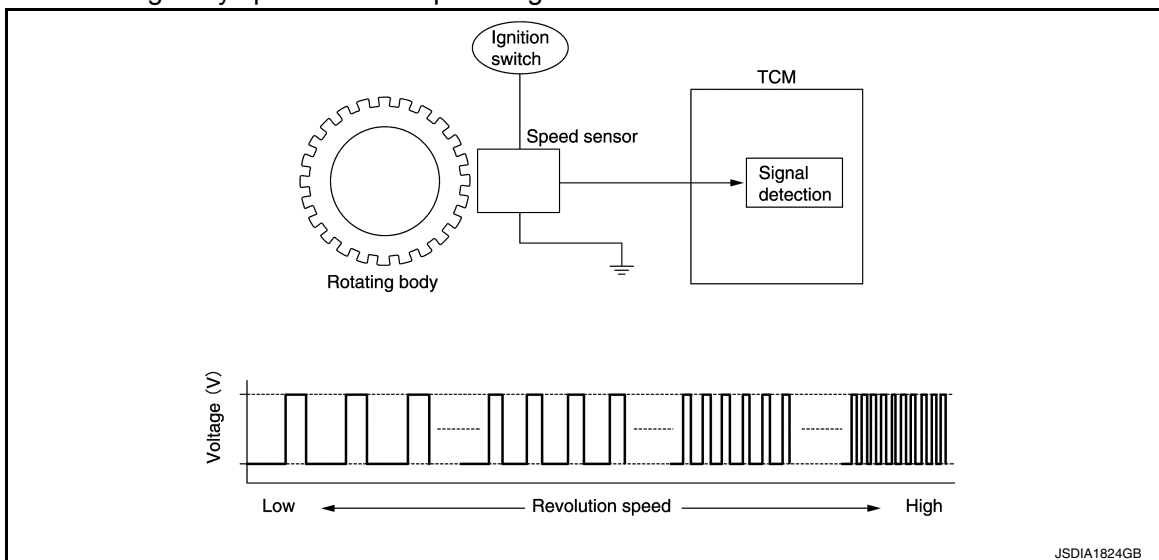
CVT CONTROL SYSTEM : Output Speed Sensor

INFOID:000000009982056

- The output speed sensor is installed to back side of transaxle.
- The output speed sensor detects final gear speed.



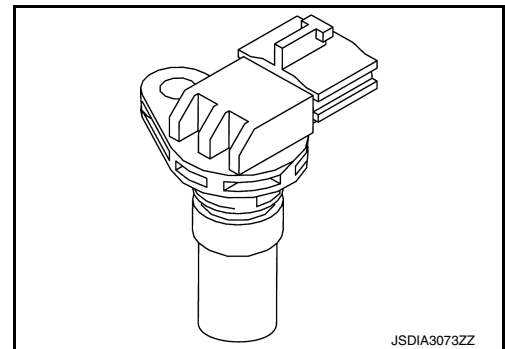
- The output speed sensor generates an ON-OFF pulse signal according to the rotating body speed. TCM judges the rotating body speed from the pulse signal.



CVT CONTROL SYSTEM : Input Speed Sensor

INFOID:000000009982057

- The input speed sensor is installed to the front side of transaxle case.
- The input speed sensor detects input shaft speed.

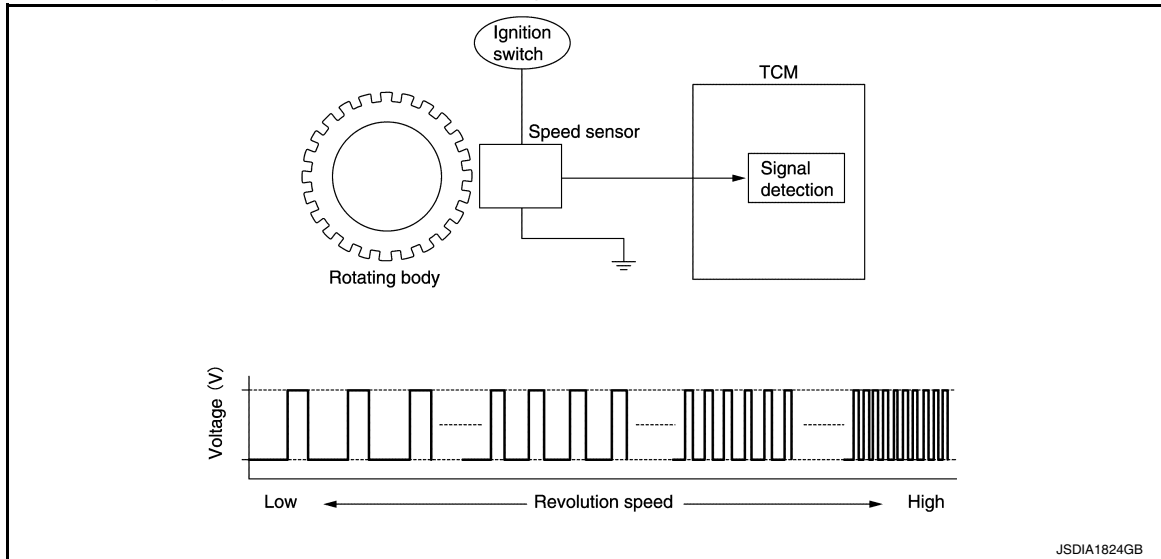


COMPONENT PARTS

< SYSTEM DESCRIPTION >

[CVT: RE0F10D]

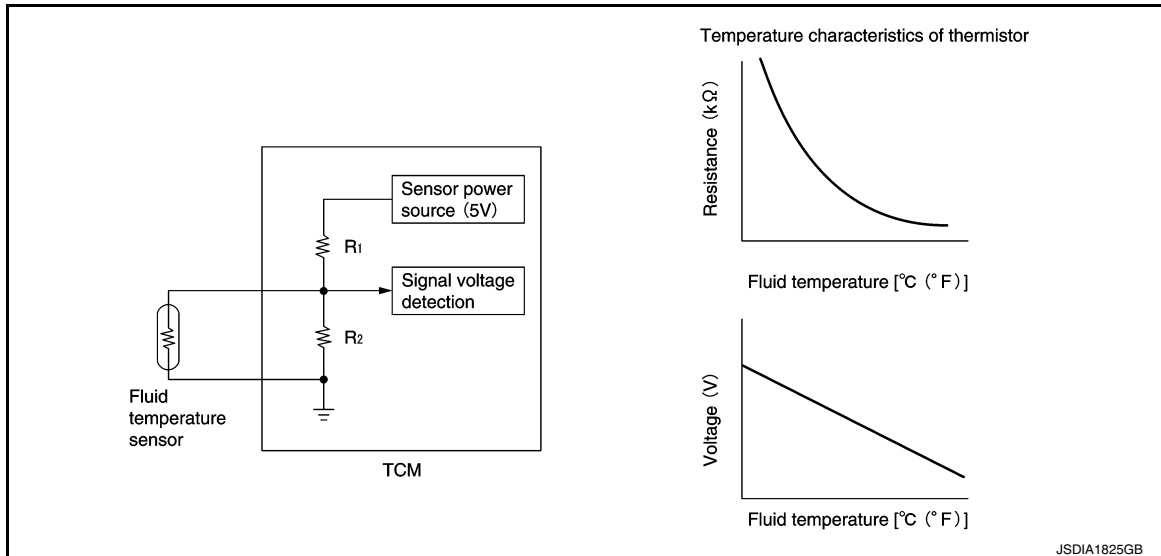
- The input speed sensor generates an ON-OFF pulse signal according to the rotating body speed. TCM judges the rotating body speed from the pulse signal.



CVT CONTROL SYSTEM : CVT Fluid Temperature Sensor

INFOID:000000009982058

- The CVT fluid temperature sensor is installed to control valve.
- The CVT fluid temperature sensor detects CVT fluid temperature in oil pan.
- The fluid temperature sensor uses a thermistor, and changes the signal voltage by converting changes in the CVT fluid temperature to a resistance value. TCM evaluates the CVT fluid temperature from the signal voltage value.



CVT CONTROL SYSTEM : Primary Pressure Sensor

INFOID:000000009982059

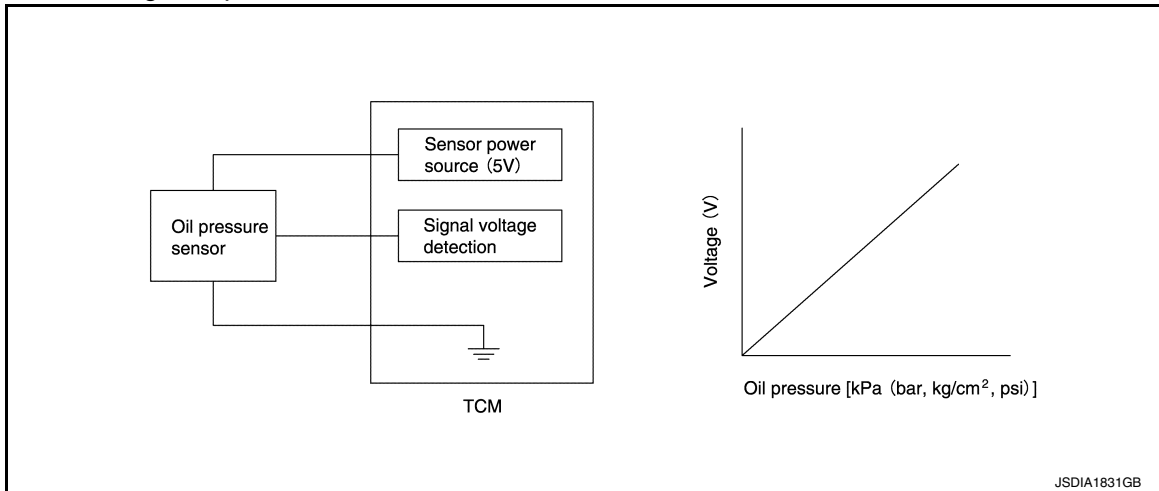
- The primary pressure sensor is installed to control valve.
- The primary pressure sensor detects the pressure applied to the primary pulley.

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[CVT: RE0F10D]

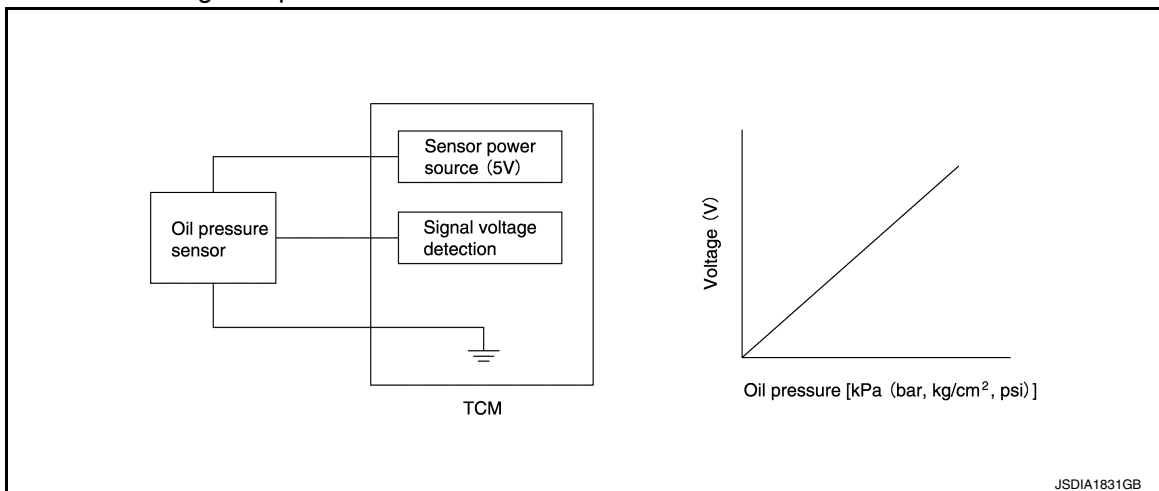
- When pressure is applied to the ceramic device in the primary pressure sensor, the ceramic device is deformed, resulting in voltage change. TCM evaluates the primary pressure from its voltage change. Voltage is increased along with pressure increase.



CVT CONTROL SYSTEM : Secondary Pressure Sensor

INFOID:0000000009982060

- The secondary pressure sensor is installed to control valve.
- The secondary pressure sensor detects the pressure applied to the secondary pulley.
- When pressure is applied to the metal diaphragm in the secondary pressure sensor, the metal diaphragm is deformed, resulting in voltage change. TCM evaluates the secondary pressure from its voltage change. Voltage is increased along with pressure increase.



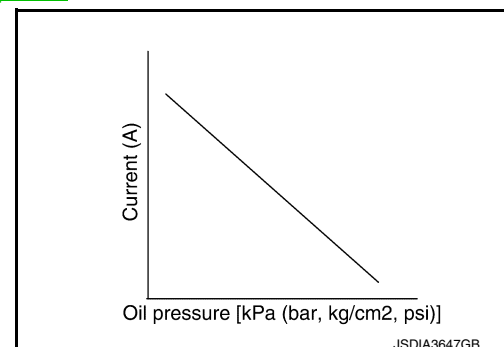
CVT CONTROL SYSTEM : Primary Pressure Solenoid Valve

INFOID:0000000009982061

- The primary pressure solenoid valve is installed to control valve.
- The primary pressure solenoid valve controls the primary reducing valve. For information about the primary reducing valve, refer to [TM-27, "TRANSAXLE : Component Description"](#).
- The primary pressure solenoid valve uses the linear solenoid valve [N/H (normal high) type].

NOTE:

- The principle of the linear solenoid valve utilizes the fact that the force pressing on the valve spool installed inside the coil increases nearly in proportion to the current. This allows it to produce a fluid pressure that is proportional to this pressing force.
- The N/H (normal high) produces hydraulic control when the coil is not energized.



COMPONENT PARTS

< SYSTEM DESCRIPTION >

[CVT: RE0F10D]

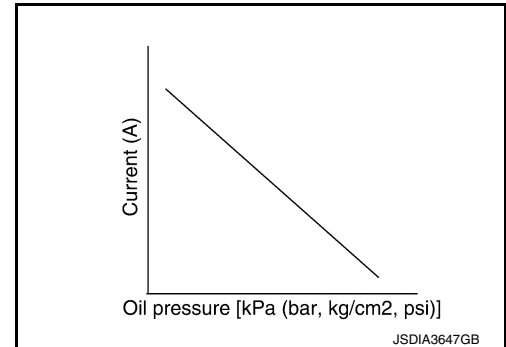
CVT CONTROL SYSTEM : Secondary Pressure Solenoid Valve

INFOID:000000009982062

- The secondary pressure solenoid valve is installed to control valve.
- The secondary pressure solenoid valve controls the secondary reducing valve. For information about the secondary reducing valve, refer to [TM-27, "TRANSAXLE : Component Description"](#).
- The secondary pressure solenoid valve uses the linear solenoid valve [N/H (normal high) type].

NOTE:

- The principle of the linear solenoid valve utilizes the fact that the force pressing on the valve spool installed inside the coil increases nearly in proportion to the current. This allows it to produce a fluid pressure that is proportional to this pressing force.
- The N/H (normal high) produces hydraulic control when the coil is not energized.



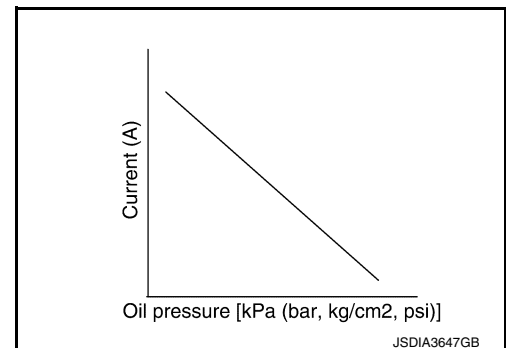
CVT CONTROL SYSTEM : Select Solenoid Valve

INFOID:000000009982063

- The select solenoid valve is installed to control valve.
- The select solenoid valve adjusts the forward clutch engaging pressure and the reverse brake engaging pressure. For information about the forward clutch and reverse brake, refer to [TM-27, "TRANSAXLE : Component Description"](#).
- The select solenoid valve uses the linear solenoid valve [N/H (normal high) type].

NOTE:

- The principle of the linear solenoid valve utilizes the fact that the force pressing on the valve spool installed inside the coil increases nearly in proportion to the current. This allows it to produce a fluid pressure that is proportional to this pressing force.
- The N/H (normal high) type produces hydraulic control when the coil is not energized.



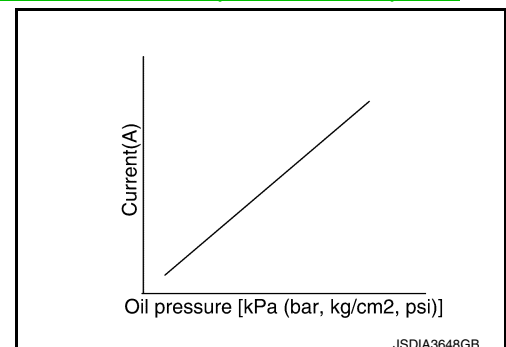
CVT CONTROL SYSTEM : Torque Converter Clutch Solenoid Valve

INFOID:000000009982064

- The torque converter clutch solenoid valve is installed to control valve.
- The torque converter clutch solenoid valve controls the torque converter clutch control valve. For information about the torque converter clutch control valve, refer to [TM-27, "TRANSAXLE : Component Description"](#).
- The torque converter clutch solenoid valve utilizes a linear solenoid valve [N/L (normal low) type].

NOTE:

- The principle of the linear solenoid valve utilizes the fact that the force pressing on the valve spool installed inside the coil increases nearly in proportion to the current. This allows it to produce a fluid pressure that is proportional to this pressing force.
- The N/L (normal low) type does not produce hydraulic control when the coil is not energized.



CVT CONTROL SYSTEM : Line Pressure Solenoid Valve

INFOID:000000009982065

- The line pressure solenoid valve is installed to control valve.
- The line pressure solenoid valve controls the pressure regulator valve. For information about the pressure regulator valve, refer to [TM-27, "TRANSAXLE : Component Description"](#).

COMPONENT PARTS

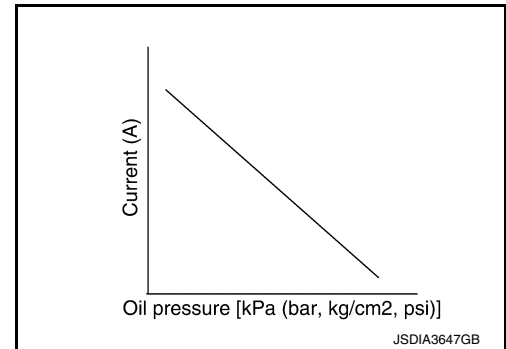
< SYSTEM DESCRIPTION >

[CVT: RE0F10D]

- The line pressure solenoid valve uses the linear solenoid valve [N/H (normal high) type].

NOTE:

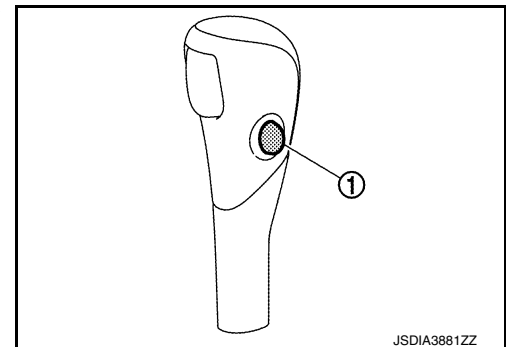
- The principle of the linear solenoid valve utilizes the fact that the force pressing on the valve spool installed inside the coil increases nearly in proportion to the current. This allows it to produce a fluid pressure that is proportional to this pressing force.
- The N/H (normal high) produces hydraulic control when the coil is not energized.



CVT CONTROL SYSTEM : Overdrive Control Switch

INFOID:000000009982066

- The overdrive control switch ① is installed to the shift selector knob.
- When the O/D OFF indicator lamp on the combination meter is OFF and the overdrive control switch is pressed, the O/D OFF is active and the O/D OFF indicator lamp is ON.
- When the O/D OFF indicator lamp on the combination meter is ON and the overdrive control switch is pressed, the O/D OFF is cancelled and the O/D OFF indicator lamp is OFF.

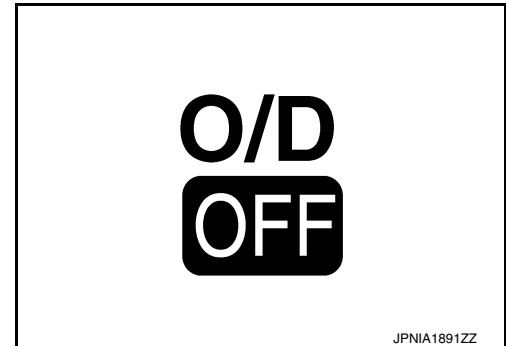


CVT CONTROL SYSTEM : O/D OFF Indicator Lamp

INFOID:0000000010347377

DESIGN/PURPOSE

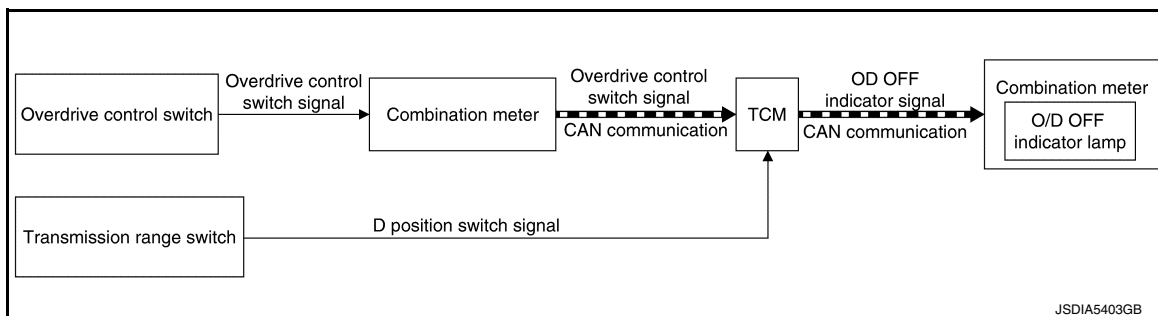
The O/D OFF indicator lamp notifies the driver that the shift control of transaxle is in O/D OFF.



BULB CHECK

For two seconds after the ignition switch is turned ON.

SYSTEM DIAGRAM



SIGNAL PATH

- When overdrive control switch signal is input to the combination meter, the combination meter transmits the overdrive control switch signal to the TCM via CAN communication.

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[CVT: RE0F10D]

- When all of the following conditions are satisfied, the TCM transmits OD OFF indicator lamp signal to the combination meter via CAN communication. The combination meter turns ON the O/D OFF indicator lamp on the combination meter, according to the signal.
- TCM receives overdrive control switch via CAN communication from combination meter.
- Selector lever: D position.

LIGHTING CONDITION

When all of the following conditions are satisfied.

- Ignition switch: ON
- Selector lever: D position
- Overdrive control switch is pressed when the O/D OFF indicator lamp is OFF.

SHUTOFF CONDITION

When any of the conditions listed below is satisfied.

- Ignition switch: Other than ON
- Overdrive control switch is pressed when the O/D OFF indicator lamp is ON.
- Selector lever is shifted to other than D position when the O/D OFF indicator lamp is ON.

CVT CONTROL SYSTEM : Shift Position Indicator

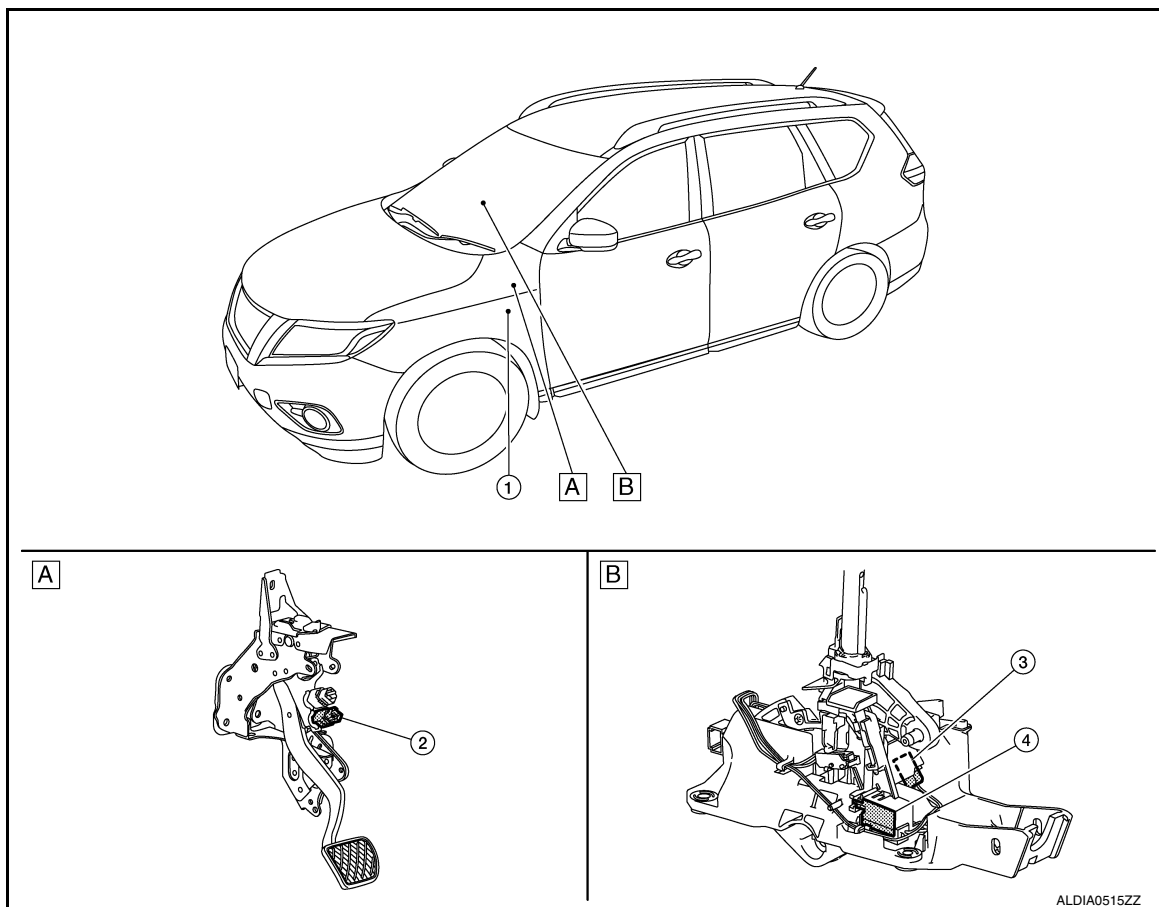
INFOID:000000009982068

TCM transmits shift position signal to combination meter via CAN communication. The actual shift position is displayed on combination meter according to the signal.

SHIFT LOCK SYSTEM

SHIFT LOCK SYSTEM : Component Parts Location

INFOID:000000009982069



A Brake pedal, upper

B CVT shift selector assembly

COMPONENT DESCRIPTION

COMPONENT PARTS

< SYSTEM DESCRIPTION >

[CVT: RE0F10D]

No.	Component	Function
1.	BCM	When the stop lamp switch signal is input to the BCM, the BCM outputs the shift lock solenoid operating signal. Refer to BCS-7, "BODY CONTROL SYSTEM : Component Parts Location" for detailed installation location.
2.	Stop lamp switch	• The stop lamp switch turns ON when the brake pedal is depressed. • When the stop lamp switch turns ON, the BCM is energized.
3.	Park position switch	The park position switch detects that the selector lever is in "P" position.
4.	Shift lock solenoid	The shift lock solenoid operates according to the signal from the BCM and moves the lock lever.

A

B

C

TM

E

F

G

H

I

J

K

L

M

N

O

P

STRUCTURE AND OPERATION

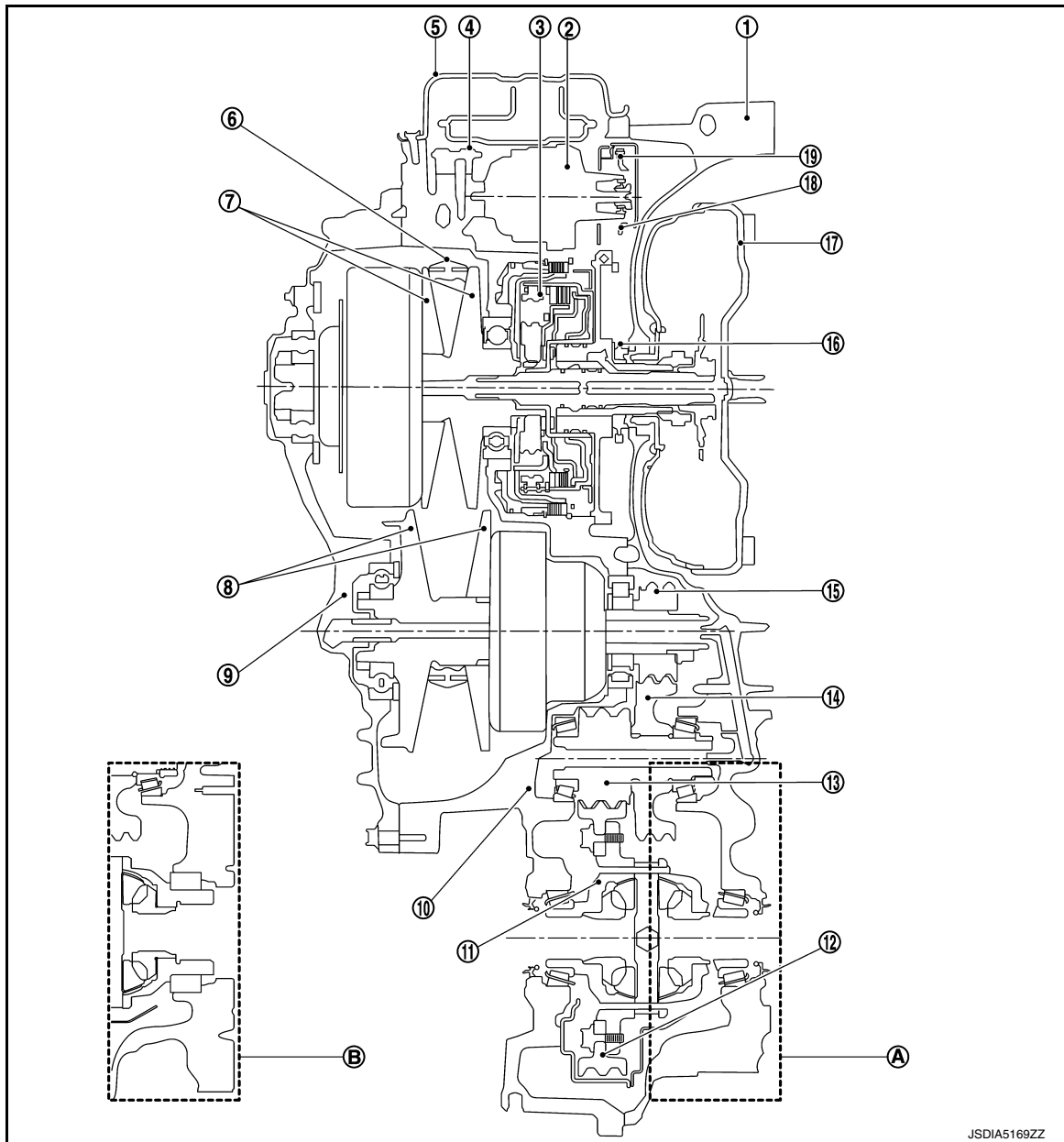
< SYSTEM DESCRIPTION >

[CVT: RE0F10D]

STRUCTURE AND OPERATION TRANSAXLE

TRANSAXLE : Cross-Sectional View

INFOID:000000009982070



JSDIA5169ZZ

- | | | |
|---------------------|---------------------|-------------------|
| ① Converter housing | ② Oil pump | ③ Planetary gear |
| ④ Control valve | ⑤ Oil pan | ⑥ Steel belt |
| ⑦ Primary pulley | ⑧ Secondary pulley | ⑨ Side cover |
| ⑩ Transaxle case | ⑪ Differential case | ⑫ Final gear |
| ⑬ Reduction gear | ⑭ Idler gear | ⑮ Output gear |
| ⑯ Drive sprocket | ⑰ Torque converter | ⑱ Driven sprocket |
| ⑲ Oil pump chain | | |
| Ⓐ FWD | Ⓑ AWD | |

STRUCTURE AND OPERATION

< SYSTEM DESCRIPTION >

[CVT: RE0F10D]

TRANSAXLE : Operation Status

INFOID:000000009982071

×: Engaged or applied.

Selector lever position	Parking mechanism	Forward clutch	Reverse brake	Primary pulley	Secondary pulley	Steel belt	Final drive
P	×						
R			×	×	×	×	×
N							
D		×		×	×	×	×
L		×		×	×	×	×

TRANSAXLE : Transaxle Mechanism

INFOID:000000009982072

TORQUE CONVERTER (WITH LOCK-UP FUNCTION)

In the same way as a conventional A/T, the torque converter is a system that increases the engine torque and transmits the torque to the transaxle. A symmetrical 3-element, 1-stage, 2-phase type is used here.

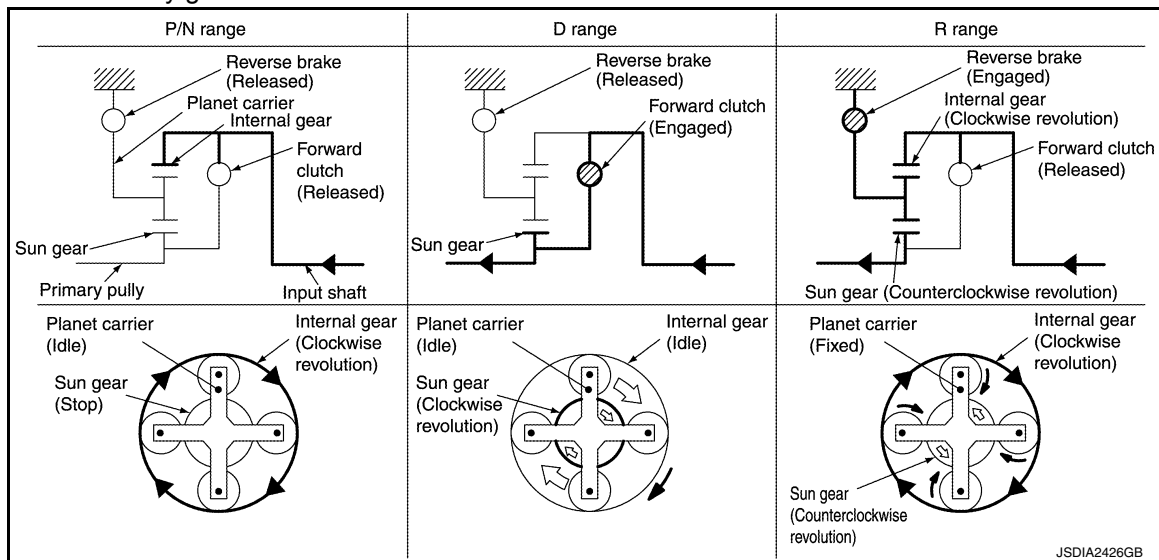
OIL PUMP

Utilizes a vane-type oil pump that is driven by the engine through the oil pump drive chain in order to increase efficiency of pump discharge volume in low-speed zone and optimize pump discharge volume in high-speed zone. Discharged oil from oil pump is transmitted to control valve. It is used as the oil of primary and secondary pulley operation, the oil of clutch operation, and the lubricant for each part.

PLANETARY GEAR

- A planetary gear type of forward/reverse selector mechanism is installed between the torque converter and primary pulley.
- The power from the torque converter is input via the input shaft, operating a wet multi-plate clutch by means of hydraulic pressure to switch between forward and reverse driving.

Operation of Planetary gear



BELT & PULLEY

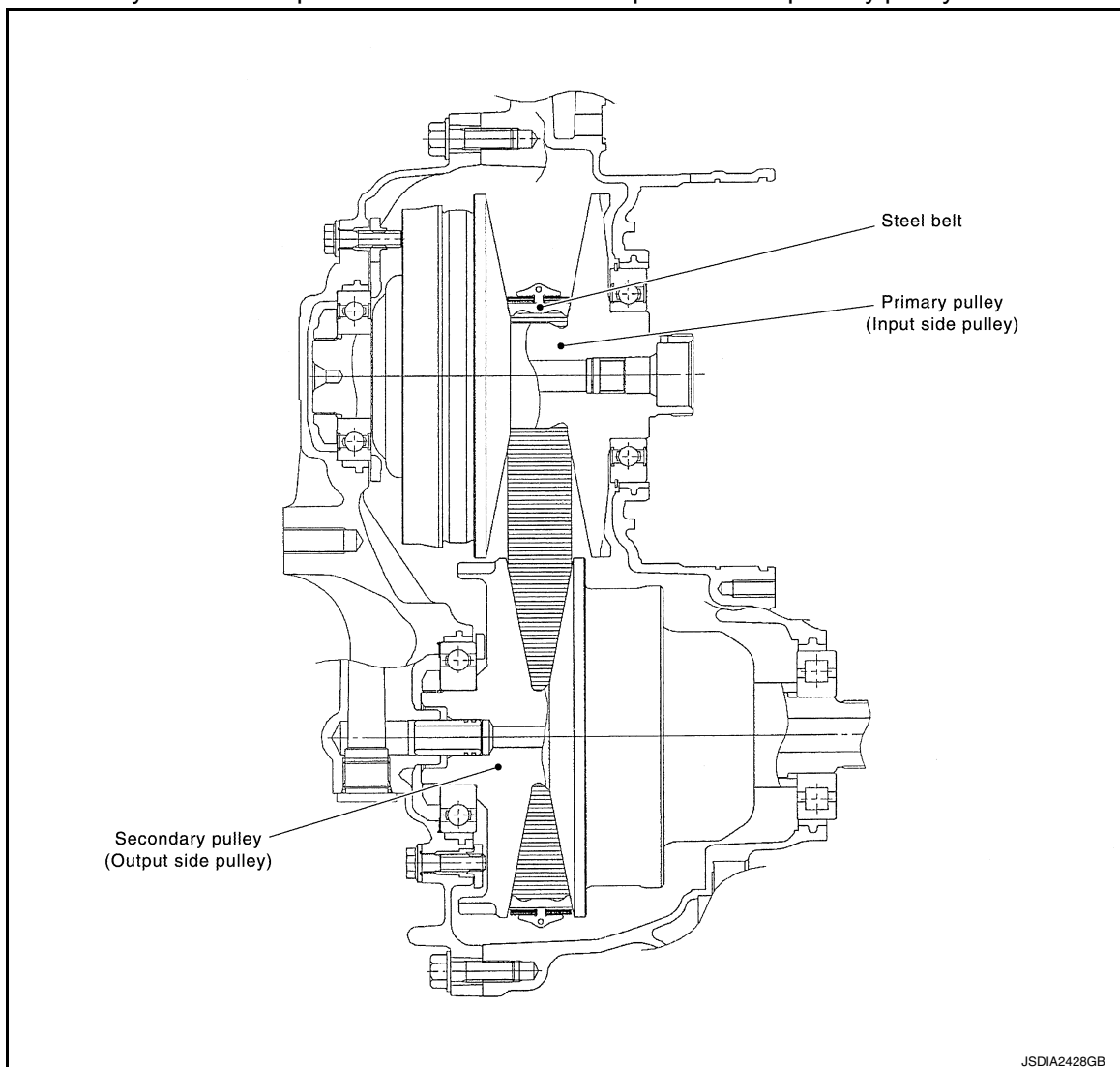
It is composed of a pair of pulleys (the groove width is changed freely in the axial direction) and the steel belt (the steel plates are placed continuously and the belt is guided with the multilayer steel rings on both sides).

STRUCTURE AND OPERATION

< SYSTEM DESCRIPTION >

[CVT: RE0F10D]

The groove width changes according to wrapping radius of steel belt and pulley from low status to overdrive status continuously with non-step. It is controlled with the oil pressures of primary pulley and secondary pulley.



Steel Belt

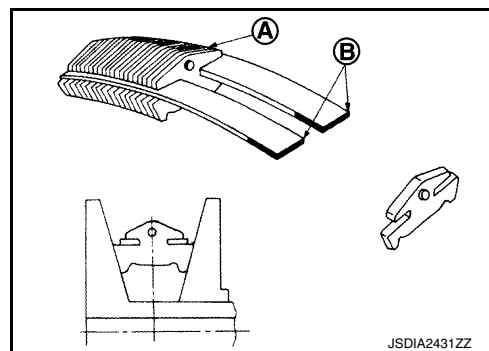
It is composed of multiple steel plates (A) and two steel rings (B) stacked to a several number. The feature of this steel belt transmits power with compression of the steel plate in contrast with transmission of power in pulling with a rubber belt. Friction force is required with the pulley slope to transmit power from the steel plate. The force is generated with the following mechanism:

Oil pressure applies to the secondary pulley to nip the plate. ⇒The plate is pushed and extended outward. ⇒The steel ring shows with-stands. ⇒Pulling force is generated on the steel ring. ⇒The plate of the primary pulley is nipped between the pulley. ⇒Friction force is generated between the steel belt and the pulley.

Therefore, responsibilities are divided by the steel plate that transmits the power with compression and the steel ring that maintains necessary friction force. In this way, the tension of the steel ring is distributed on the entire surface and stress variation is limited, resulting in good durability.

Pulley

The primary pulley (input shaft side) and the secondary pulley (output shaft side) have the shaft with slope (fixed cone surface), movable sheave (movable cone surface that can move in the axial direction) and oil pressure chamber at the back of the movable sheave.

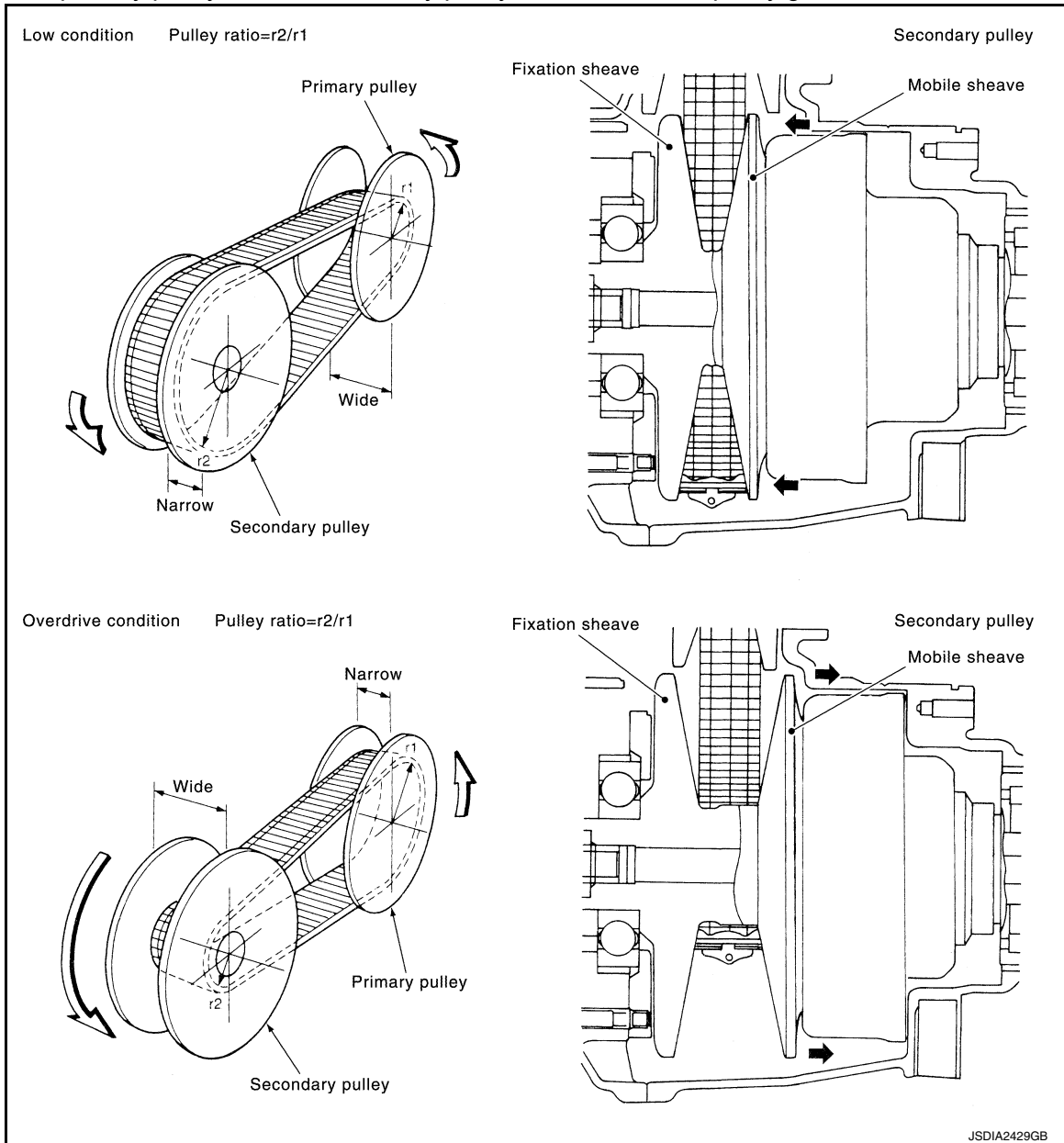


STRUCTURE AND OPERATION

< SYSTEM DESCRIPTION >

[CVT: RE0F10D]

The movable sheave slides on the shaft to change the groove width of the pulley. Input signals of engine load (accelerator pedal opening), primary pulley speed and secondary pulley speed change the operation pressures of the primary pulley and the secondary pulley, and controls the pulley groove width.



FINAL DRIVE AND DIFFERENTIAL

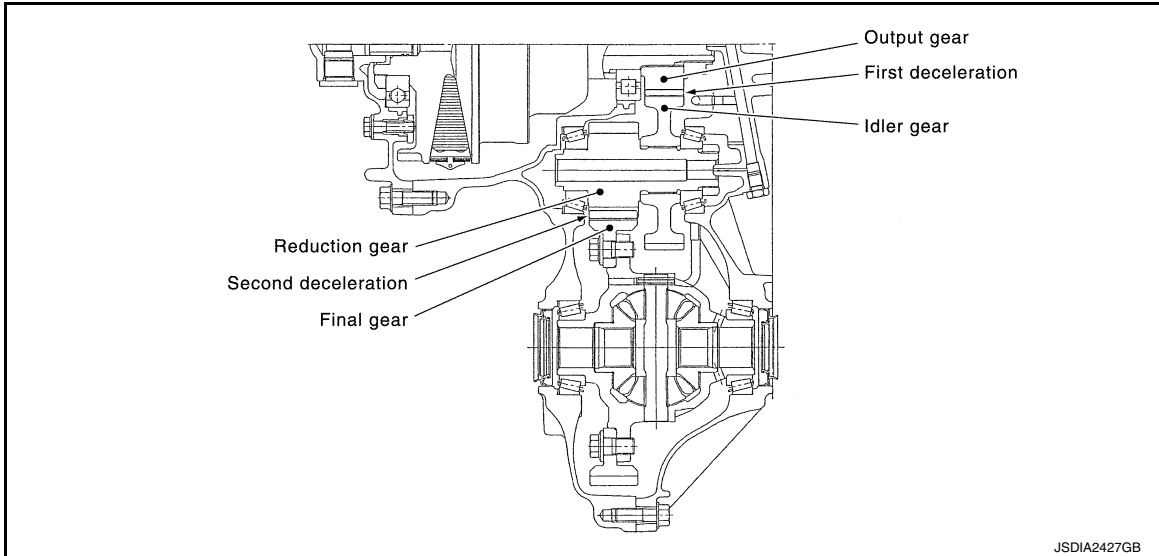
The deceleration gears are composed of 2 stages: primary deceleration (output gear, idler gear pair) and secondary deceleration (reduction gear, final gear pair). All of these gears are helical gears.

STRUCTURE AND OPERATION

< SYSTEM DESCRIPTION >

[CVT: RE0F10D]

The lubrication oil is the same as the CVT fluid which lubricates the entire transaxle.

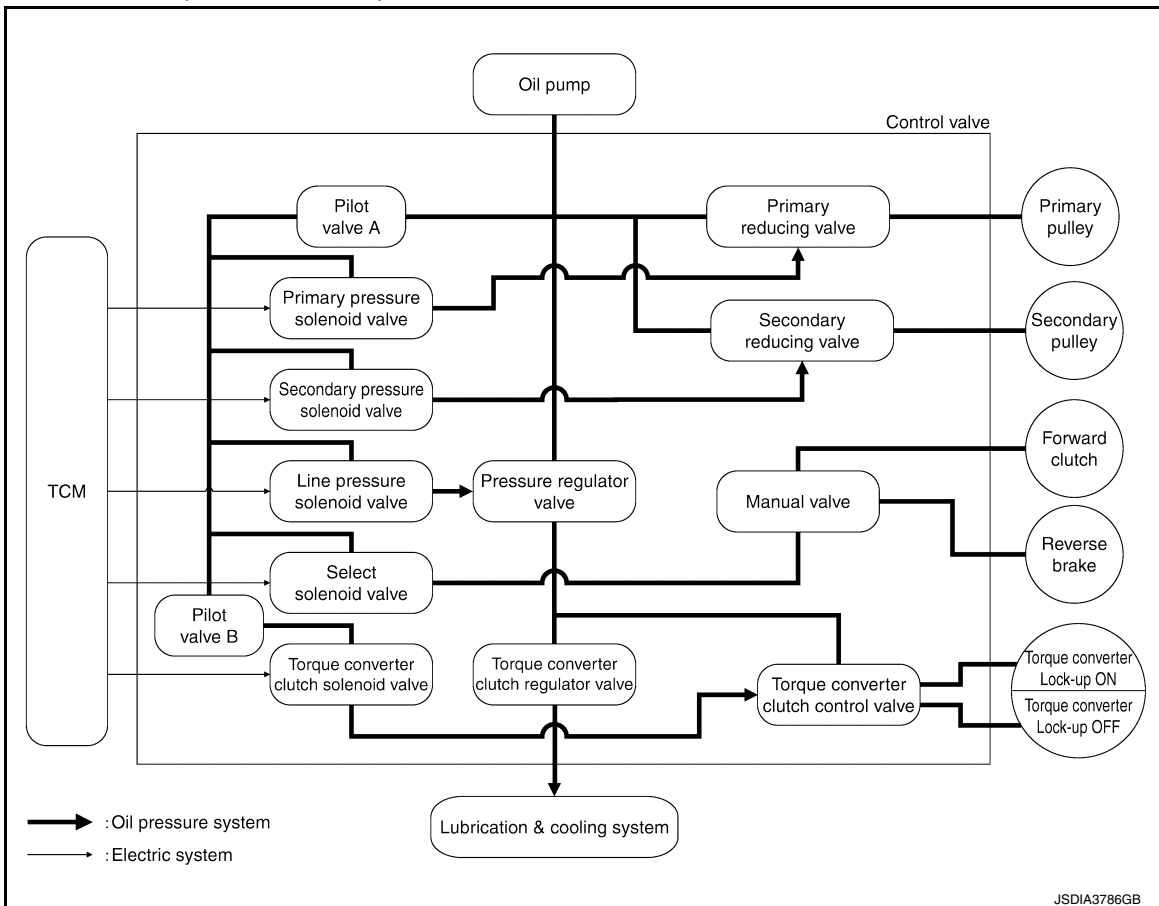


JSDIA2427GB

TRANSAXLE : Oil Pressure System

INFOID:000000009982073

Oil pressure required for operation of the transaxle transmission mechanism is generated by oil pump, oil pressure control valve, solenoid valve, etc.



JSDIA3786GB

STRUCTURE AND OPERATION

< SYSTEM DESCRIPTION >

[CVT: RE0F10D]

TRANSAXLE : Component Description

INFOID:000000009982074

Part name	Function
Torque converter	Increases engine torque and transmits it to the transaxle.
Oil pump	Utilizes a vane-type oil pump that is driven by the engine through the oil pump drive chain in order to increase efficiency of pump discharge volume in low-speed zone and optimize pump discharge volume in high-speed zone. Discharged oil from oil pump is transmitted to control valve. It is used as the oil of primary and secondary pulley operation, the oil of clutch operation, and the lubricant for each part.
Forward clutch	The forward clutch is wet and multiple plate type clutch that consists of clutch drum, piston, drive plate, and driven plate. It is a clutch to move the vehicle forward by activating piston hydraulically, engaging plates, and directly connecting sun gear and input shaft.
Reverse brake	The reverse brake is a wet multiple-plate type brake that consists of transaxle case, piston, drive plate, and driven plate. It is a brake to move the vehicle in reverse by activating piston hydraulically, engaging plates, and fixing planetary gear.
Internal gear	The internal gear is directly connected to forward clutch drum. It is a gear that moves the outer edge of pinion planet of planet carrier. It transmits power to move the vehicle in reverse when the planet carrier is fixed.
Planet carrier	Composed of a carrier, pinion planet, and pinion shaft. This gear fixes and releases the planet carrier in order to switch between forward and reverse driving.
Sun gear	Sun gear is a set part with planet carrier and internal gear. It transmits transmitted force to primary fixed sheave. It rotates in forward or reverse direction according to activation of either forward clutch or reverse brake.
Input shaft	The input shaft is directly connected to forward clutch drum and transmits traction force from torque converter. In shaft center, there are holes for hydraulic distribution to primary pulley and hydraulic distribution for lockup ON/OFF.
Primary pulley	It is composed of a pair of pulleys (the groove width is changed freely in the axial direction) and the steel belt. The groove width changes according to wrapping radius of steel belt and pulley from low status to overdrive status continuously with non-step. It is controlled with the oil pressures of primary pulley and secondary pulley.
Secondary pulley	
Steel belt	
Manual shaft	When the manual shaft is in the P position, the parking rod that is linked to the manual shaft rotates the parking pole. When the parking pole rotates, it engages with the parking gear, fixing the parking gear. As a result, the secondary pulley that is integrated with the parking gear is fixed.
Parking rod	
Parking pawl	
Parking gear	
Output gear	The deceleration gears are composed of 2 stages: primary deceleration (output gear, idler gear pair) and secondary deceleration (reduction gear, final gear pair). All of these gears are helical gears.
Idler gear	
Reduction gear	
Differential	
Torque converter regulator valve	Adjusts the feed pressure to the torque converter to the optimum pressure corresponding to the driving condition.
Pressure regulator valve	Adjusts the discharge pressure from the oil pump to the optimum pressure (line pressure) corresponding to the driving condition.
Torque converter clutch control valve	Adjusts the torque converter engage and disengage pressures.
Manual valve	Distributes the clutch operation pressure to each circuit according to the selector lever position.
Secondary reducing valve	Reduces line pressure and adjusts secondary pressure.
Primary reducing valve	Reduces line pressure and adjusts primary pressure.
Pilot valve A	Reduces line pressure and adjusts pilot pressure to the solenoid valves listed below. • Primary pressure solenoid valve • Secondary pressure solenoid valve • Select solenoid valve • Line pressure solenoid valve
Pilot valve B	Reduces pilot pressure and adjusts pilot pressure to the torque converter clutch solenoid valve.

FLUID COOLER & FLUID WARMER SYSTEM

STRUCTURE AND OPERATION

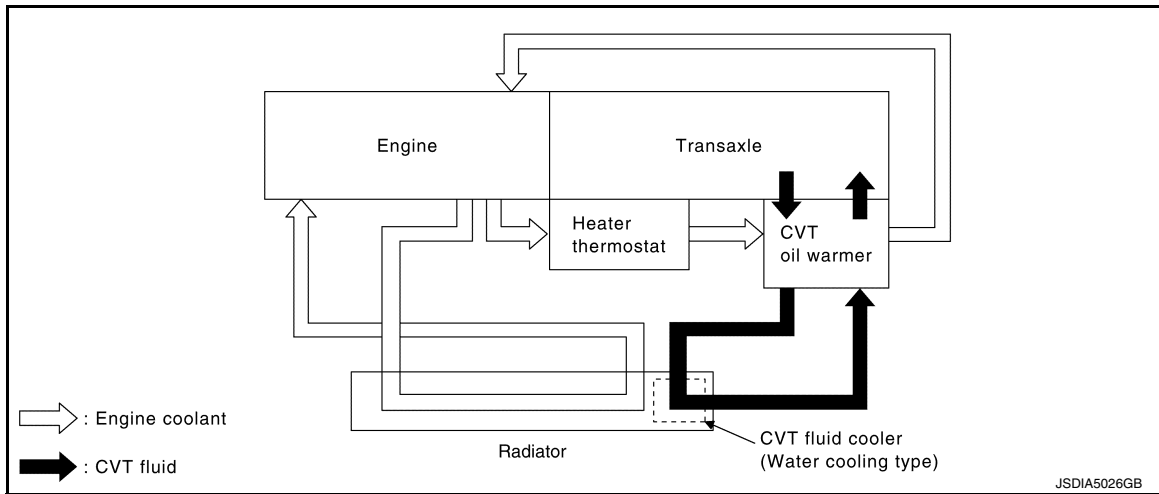
< SYSTEM DESCRIPTION >

[CVT: RE0F10D]

FLUID COOLER & FLUID WARMER SYSTEM : System Description

INFOID:000000009982075

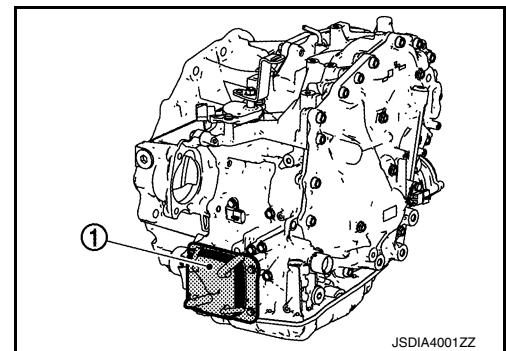
CVT FLUID COOLER SCHEMATIC



COMPONENT DESCRIPTION

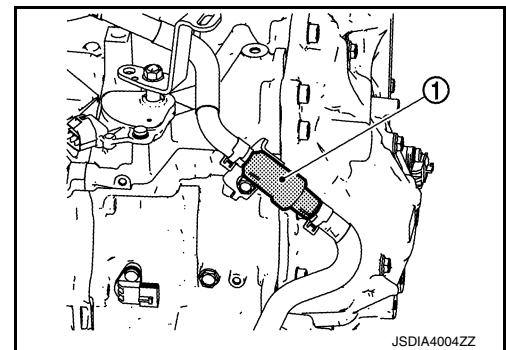
CVT Oil Warmer

- The CVT oil warmer ① is installed on the front part of transaxle assembly.
- When engine is started while engine and CVT are cold, engine coolant temperature rises more quickly than CVT fluid temperature. CVT oil warmer is provided with two circuits for CVT and engine coolant respectively so that warmed engine coolant warms CVT quickly. This helps shorten CVT warming up time, improving fuel economy.
- A cooling effect is obtained when CVT fluid temperature is high.



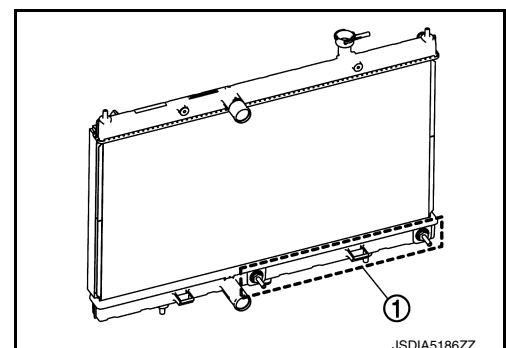
Heater Thermostat

- The heater thermostat ① is installed on the front part of transaxle assembly.
- The heater thermostat open and close with set temperature.



CVT Fluid Cooler (Water Cooling Type)

- The CVT fluid cooler (water cooling type) ① is installed in the lower part of radiator.
- CVT fluid is cooled by engine coolant to flow through the radiator.



SHIFT LOCK SYSTEM

SHIFT LOCK SYSTEM : System Description

INFOID:000000009982076

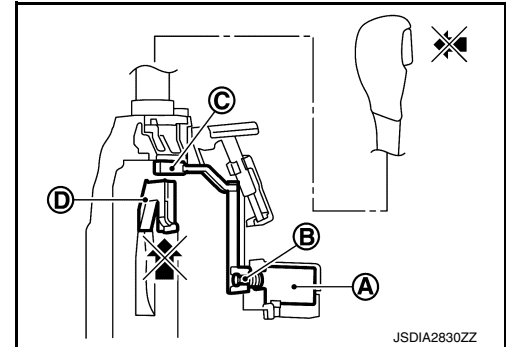
- The shift lock system prevents the select lever from being moved from “P” position to other positions due to a driver's improper operation and prevents the occurrence of an abrupt start.
- Shift lock can be released when the following conditions are satisfied.
 - Ignition switch is ON.
 - Brake pedal is depressed. (Stop lamp switch is ON)

SHIFT LOCK OPERATION AT P POSITION

When brake pedal is not depressed (no selector operation allowed)

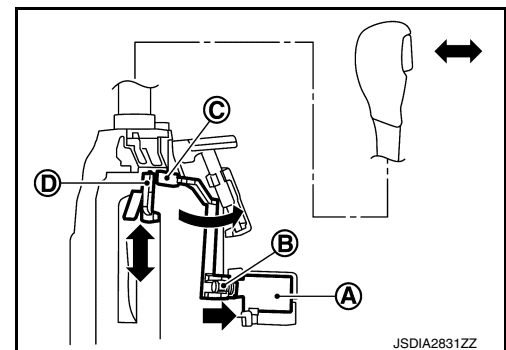
When the brake pedal is not depressed with the ignition switch ON, the shift lock solenoid ① is OFF (not energized) and the solenoid rod ② is extended with spring.

The connecting lock lever ③ is located at the position shown in the figure when the solenoid rod is extended. It prevents the movement of the detent rod ④. The selector lever cannot be shifted from the “P” position for this reason.



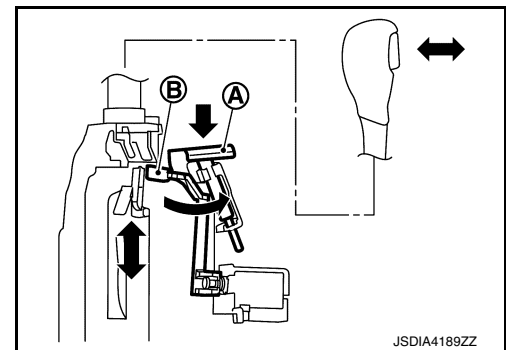
When brake pedal is depressed (selector lever operation allowed)

The shift lock solenoid ① is turned ON (energized) when the brake pedal is depressed with the ignition switch ON. The solenoid rod ② is compressed with the electromagnetic force. The connecting lock lever ③ rotates when the solenoid rod is compressed. Therefore, the detent rod ④ can be moved. The selector lever can be shifted to other positions for this reason.



FORCIBLE RELEASE OF SHIFT LOCK

- When battery voltage decreases or an electrical/mechanical malfunction occurs in the shift lock system, the selector lever cannot be operated in “P” position. When shift lock release rod ① is pressed in this state, lock lever ② is forcibly rotated, and then it becomes possible to release shift lock.



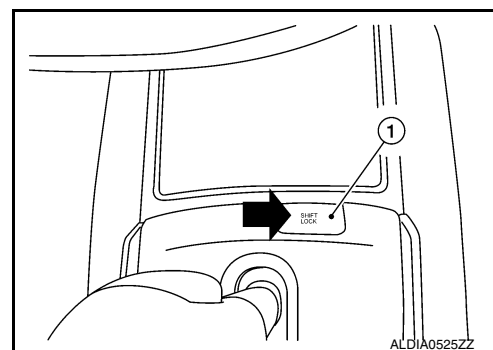
- To release the shift lock forcibly and shift the selector lever from “P” position to other positions, follow the steps below.
 1. Turn ignition switch OFF.
 2. Apply parking brake.

STRUCTURE AND OPERATION

< SYSTEM DESCRIPTION >

[CVT: RE0F10D]

3. Press the shift lock release button ① with suitable tool.
4. Press and hold the selector lever knob button and move the selector lever from "P" position to other positions while press the shift lock release button.



KEY LOCK SYSTEM

KEY LOCK SYSTEM : System Description

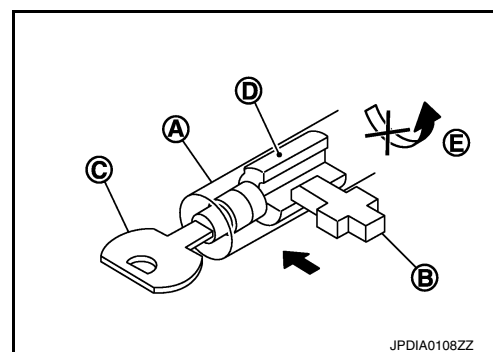
INFOID:000000009992861

KEY LOCK MECHANISM

The key is not set to LOCK when the selector lever is not selected to P position. This prevents the key from being removed from the key cylinder.

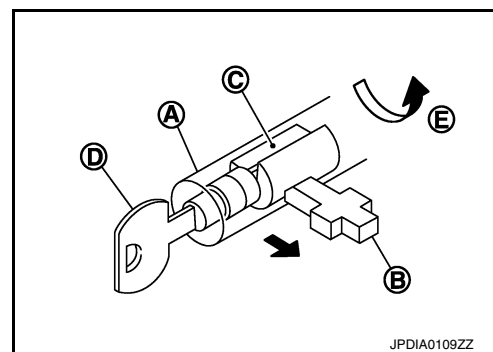
Key lock status

The slider ⑥ in the key cylinder ① is moved to the left side of the figure when the selector lever is in any position other than "P" position. The rotator ④ that rotates together with the key ③ cannot be rotated for this reason. The key cannot be removed from the key cylinder because it cannot be turned to LOCK ⑤.



Key unlock status

The slider ⑥ in the key cylinder ① is moved to the right side of the figure when the selector lever is in "P" position and the finger is removed from the selector button. The rotator ④ can be rotated for this reason. The key ③ can be removed from the key cylinder because it can be turned to LOCK ⑤.



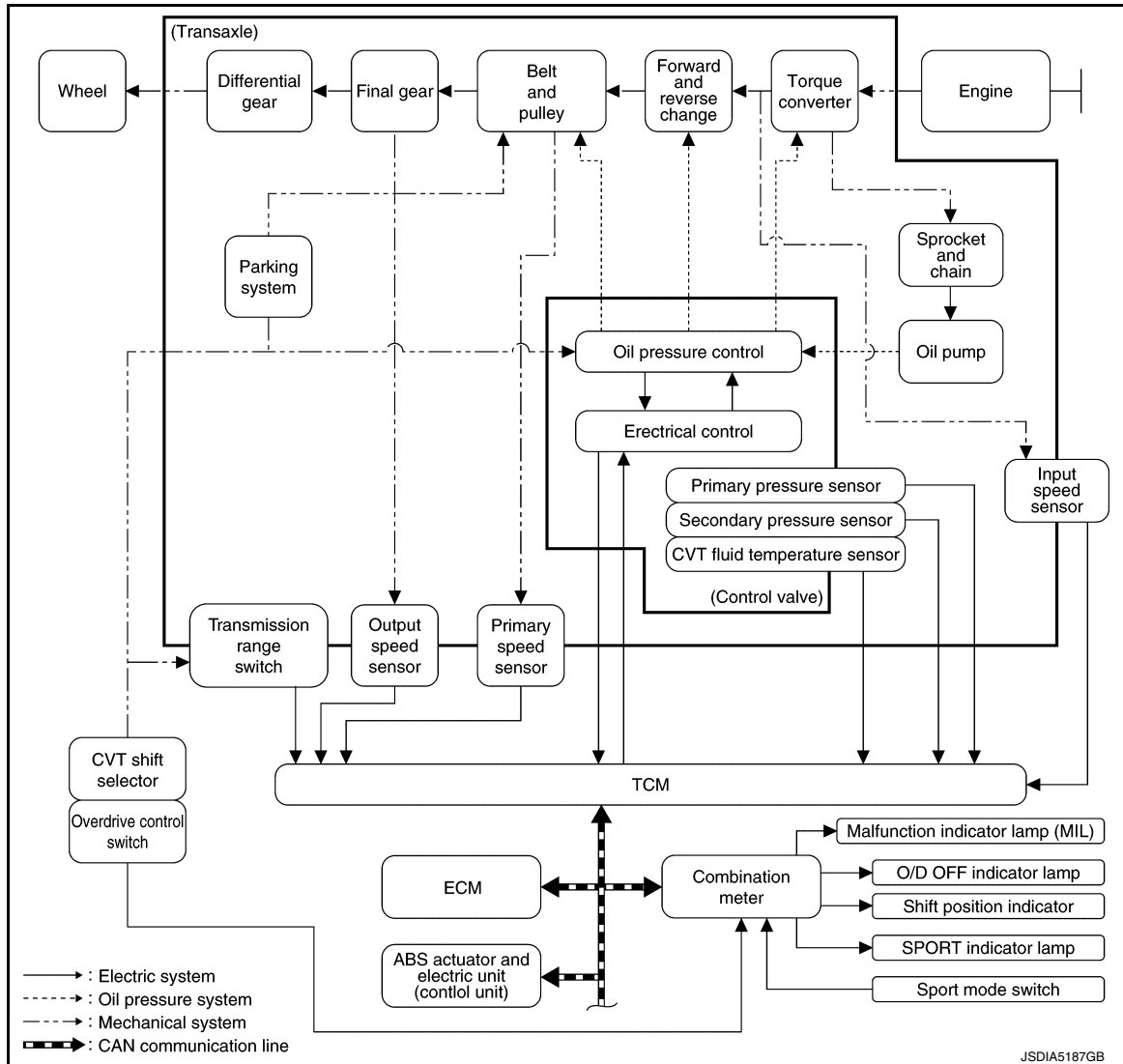
SYSTEM

CVT CONTROL SYSTEM

CVT CONTROL SYSTEM : System Description

INFOID:000000009982077

SYSTEM DIAGRAM



MAIN CONTROL CONTENTS OF TCM

Controls	Reference
Line pressure control	TM-36, "LINE PRESSURE CONTROL : System Description"
Shift control	TM-37, "SHIFT CONTROL : System Description"
Select control	TM-39, "SELECT CONTROL : System Description"
Lock-up control	TM-40, "LOCK-UP CONTROL : System Description"
Sport mode control	TM-41, "SPORT MODE CONTROL : System Description"
Fail-safe	TM-58, "Fail-safe"
Self-diagnosis function	TM-47, "CONSULT Function"
Communication function with CONSULT	TM-47, "CONSULT Function"

LIST OF CONTROL ITEMS AND INPUT/OUTPUT

SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F10D]

Control Item		Shift control	Line pressure control	Select control	Lock-up control	Fail-safe function*
Input	Engine torque signal (CAN communication)	×	×	×	×	×
	Engine speed signal (CAN communication)	×	×	×	×	×
	Accelerator pedal position signal (CAN communication)	×	×	×	×	
	Closed throttle position signal (CAN communication)	×	×		×	
	Stop lamp switch signal (CAN communication)	×	×	×	×	
	Primary pressure sensor					×
	Secondary pressure sensor	×	×			×
	CVT fluid temperature sensor	×	×	×	×	×
	Primary speed sensor	×	×	×	×	×
	Output speed sensor	×	×		×	×
	Input speed sensor	×	×	×	×	×
	Transmission range switch	×	×	×	×	×
	Overdrive control switch (CAN communication)	×	×		×	
	Line pressure solenoid valve	×	×	×		×
Output	Primary pressure solenoid valve	×	×			×
	Torque converter clutch solenoid valve				×	×
	Secondary pressure solenoid valve	×	×			×
	Select solenoid valve	×		×		×
	Shift position indicator (CAN communication)			×		
	O/D OFF indicator lamp (CAN communication)	×				

*: If these input/output signals show errors, TCM activates the fail-safe function.

CVT CONTROL SYSTEM : Fail-safe

INFOID:000000009991179

TCM has a fail-safe mode. The mode functions so that operation can be continued even if the signal circuit of the main electronically controlled input/output parts is damaged.

If the vehicle shows following behaviors including “poor acceleration”, a malfunction of the applicable system is detected by TCM and the vehicle may be in a fail-safe mode. At this time, check the DTC code and perform inspection and repair according to the malfunction diagnosis procedures.

Fail-safe function

DTC	Vehicle behavior	Conditions of vehicle
P062F	Not changed from normal driving	—
P0705	- Shift position indicator on combination meter is not displayed - Selector shock is large - Start is slow - Acceleration is slow - Lock-up is not performed	—

SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F10D]

DTC	Vehicle behavior	Conditions of vehicle	
P0706	• Shift position indicator on combination meter is not displayed	—	A
	• Selector shock is large		B
	• Start is slow		
	• Acceleration is slow		
	• Lock-up is not performed		
P0711	• Start is slow	Engine coolant temperature when engine start: Temp. $\geq 10^{\circ}\text{C}$ (50°F)	C
	• Acceleration is slow		
	• Selector shock is large	Engine coolant temperature when engine start: -35°C (-31°F) $\leq$ Temp. $< 10^{\circ}\text{C}$ (50°F)	TM
P0712	• Start is slow	Engine coolant temperature when engine start: Temp. $< -35^{\circ}\text{C}$ (-31°F)	E
	• Acceleration is slow		
	• Selector shock is large	Engine coolant temperature when engine start: Temp. $\geq 10^{\circ}\text{C}$ (50°F)	F
P0713	• Start is slow	Engine coolant temperature when engine start: -35°C (-31°F) $\leq$ Temp. $< 10^{\circ}\text{C}$ (50°F)	G
	• Acceleration is slow		
	• Selector shock is large	Engine coolant temperature when engine start: Temp. $< -35^{\circ}\text{C}$ (-31°F)	H
P0715	• Start is slow	Engine coolant temperature when engine start: Temp. $\geq 10^{\circ}\text{C}$ (50°F)	I
	• Acceleration is slow		
	• Lock-up is not performed	Engine coolant temperature when engine start: -35°C (-31°F) $\leq$ Temp. $< 10^{\circ}\text{C}$ (50°F)	J
P0717	• Start is slow	Engine coolant temperature when engine start: Temp. $< -35^{\circ}\text{C}$ (-31°F)	K
P0740	• Start is slow	—	L
P0743	• Acceleration is slow	—	M
P0744	• Lock-up is not performed	—	N
P0746	• Start is slow	—	O
	• Acceleration is slow		P
	• Lock-up is not performed		

SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F10D]

DTC	Vehicle behavior	Conditions of vehicle
P0776	• Selector shock is large • Start is slow • Acceleration is slow • Lock-up is not performed • Vehicle speed is not increased	When a malfunction occurs on the low oil pressure side
	• Selector shock is large • Start is slow • Acceleration is slow • Lock-up is not performed	When a malfunction occurs on the high oil pressure side
P0778	• Selector shock is large • Start is slow • Acceleration is slow • Lock-up is not performed	—
P0779	• Selector shock is large • Start is slow • Acceleration is slow • Lock-up is not performed	—
P0841	Not changed from normal driving	—
P0847	Not changed from normal driving	—
P0848	Not changed from normal driving	—
P084C	Not changed from normal driving	—
P084D	Not changed from normal driving	—
P0863	• Selector shock is large • Start is slow • Acceleration is slow • Lock-up is not performed	—
P0890	• Selector shock is large • Start is slow • Acceleration is slow • Lock-up is not performed • Vehicle speed is not increased	—
P0962	• Selector shock is large • Start is slow • Acceleration is slow • Lock-up is not performed	—
P0963	• Selector shock is large • Start is slow • Acceleration is slow • Lock-up is not performed	—
P0965	• Selector shock is large • Start is slow • Acceleration is slow • Lock-up is not performed	When a malfunction occurs on the low oil pressure side
	• Selector shock is large • Lock-up is not performed	When a malfunction occurs on the high oil pressure side
P0966	• Selector shock is large • Start is slow • Acceleration is slow • Lock-up is not performed	—
P0967	• Selector shock is large • Start is slow • Acceleration is slow • Lock-up is not performed	—
P2765	• Start is slow • Acceleration is slow • Lock-up is not performed	—

SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F10D]

DTC	Vehicle behavior	Conditions of vehicle
P2813	- Selector shock is large - Start is slow - Acceleration is slow - Vehicle speed is not increased	When a malfunction occurs on the low oil pressure side
	Selector shock is large	When a malfunction occurs on the high oil pressure side
P2814	Selector shock is large	—
P2815	Selector shock is large	—
U0073	- Selector shock is large - Start is slow - Acceleration is slow - Lock-up is not performed	—
U0100	- Selector shock is large - Start is slow - Acceleration is slow - Lock-up is not performed	—
U0102	Not changed from normal driving	—
U0140	Not changed from normal driving	—
U0141	Not changed from normal driving	—
U0155	Not changed from normal driving	—
U0300	- Selector shock is large - Start is slow - Acceleration is slow - Lock-up is not performed	—
U1000	Not changed from normal driving	—
U110F	Not changed from normal driving	—
U1111	Not changed from normal driving	—
U1117	Not changed from normal driving	—

CVT CONTROL SYSTEM : Protection Control

INFOID:000000009991180

The TCM becomes the protection control status temporarily to protect the safety when the safety of TCM and transmission is lost. It automatically returns to the normal status if the safety is secured.
The TCM has the following protection control.

CONTROL FOR WHEEL SPIN

Control	When a wheel spin is detected, the engine output and gear ratio are limited and the line pressure is increased. Limits engine output when a wheel spin occurs in any of right and left drive wheels.
Vehicle behavior in control	If the accelerator is kept depressing during wheel spin, the engine revolution and vehicle speed are limited to a certain degree.
Normal return condition	Wheel spin convergence returns the control to the normal control.

TORQUE IS REDUCED WHEN DRIVING WITH THE REVERSE GEAR

Control	Engine output is controlled according to a vehicle speed while reversing the vehicle.
Vehicle behavior in control	Power performance may be lowered while reversing the vehicle.
Normal return condition	Torque returns to normal by positioning the selector lever in a range other than "R" position.

CONTROL WHEN FLUID TEMPERATURE IS HIGH

SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F10D]

Control	When the CVT fluid temperature is high, the gear shift permission maximum revolution and the maximum torque are reduced than usual to prevent increase of the oil temperature.
Vehicle behavior in control	Power performance may be lowered, compared to normal control.
Normal return condition	The control returns to the normal control when CVT fluid temperature is lowered.

REVERSE PROHIBIT CONTROL

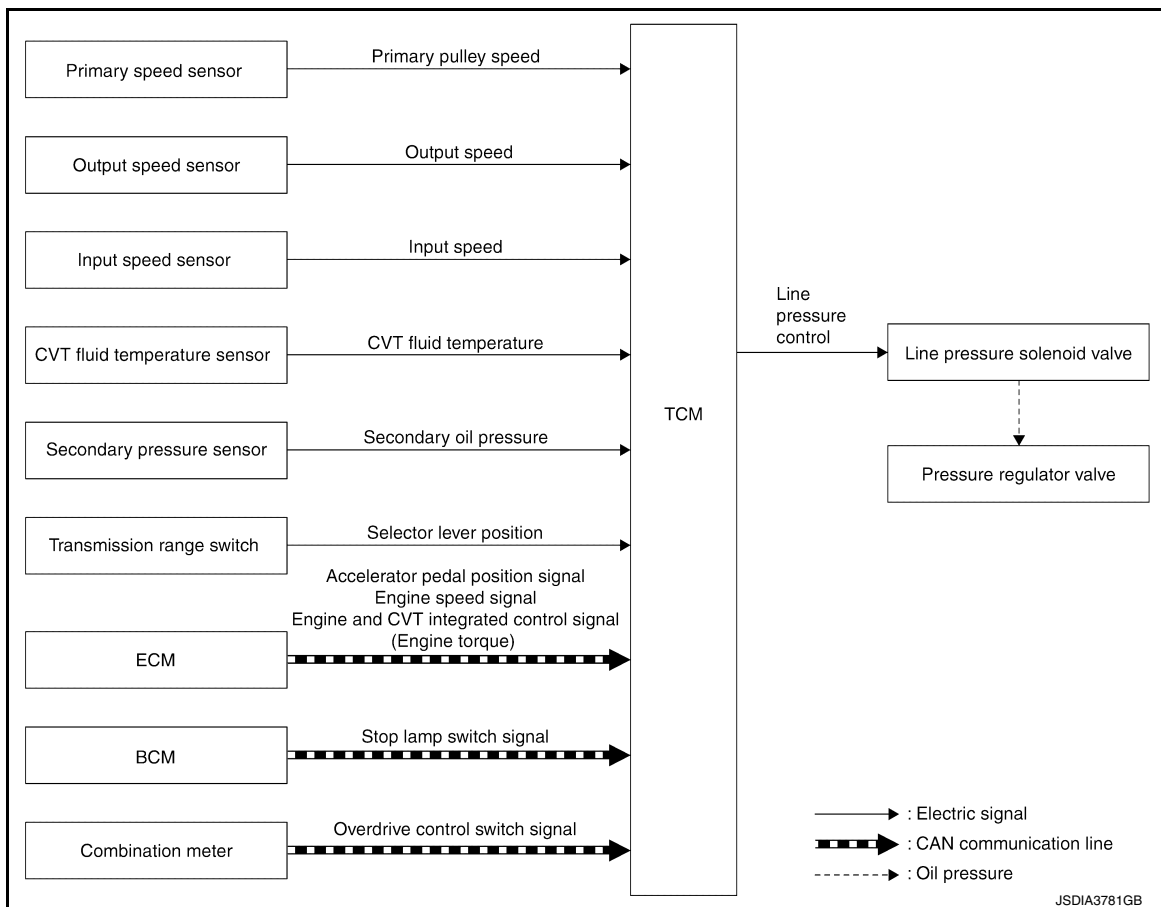
Control	The reverse brake is controlled to avoid becoming engaged when the selector lever is set in "R" position while driving in forward direction at more than the specified speed.
Vehicle behavior in control	If the selector lever is put at "R" position when driving with the forward gear, the gear becomes neutral, not reverse.
Normal return condition	The control returns to normal control when the vehicle is driven at low speeds. (The reverse brake becomes engaged.)

LINE PRESSURE CONTROL

LINE PRESSURE CONTROL : System Description

INFOID:000000009982081

SYSTEM DIAGRAM



DESCRIPTION

Highly accurate line pressure control and secondary pressure control reduces friction for improvement of fuel economy.

Normal Oil Pressure Control

Appropriate line pressure and secondary pressure suitable for driving condition are determined based on the accelerator pedal position, engine speed, primary pulley (input) speed, secondary pulley (output) speed, vehicle speed, input torque, stop lamp switch signal, transmission range switch signal, lock-up signal, power voltage, target shift ratio, oil temperature, oil pressure, and overdrive control switch signal.

Secondary Pressure Feedback Control

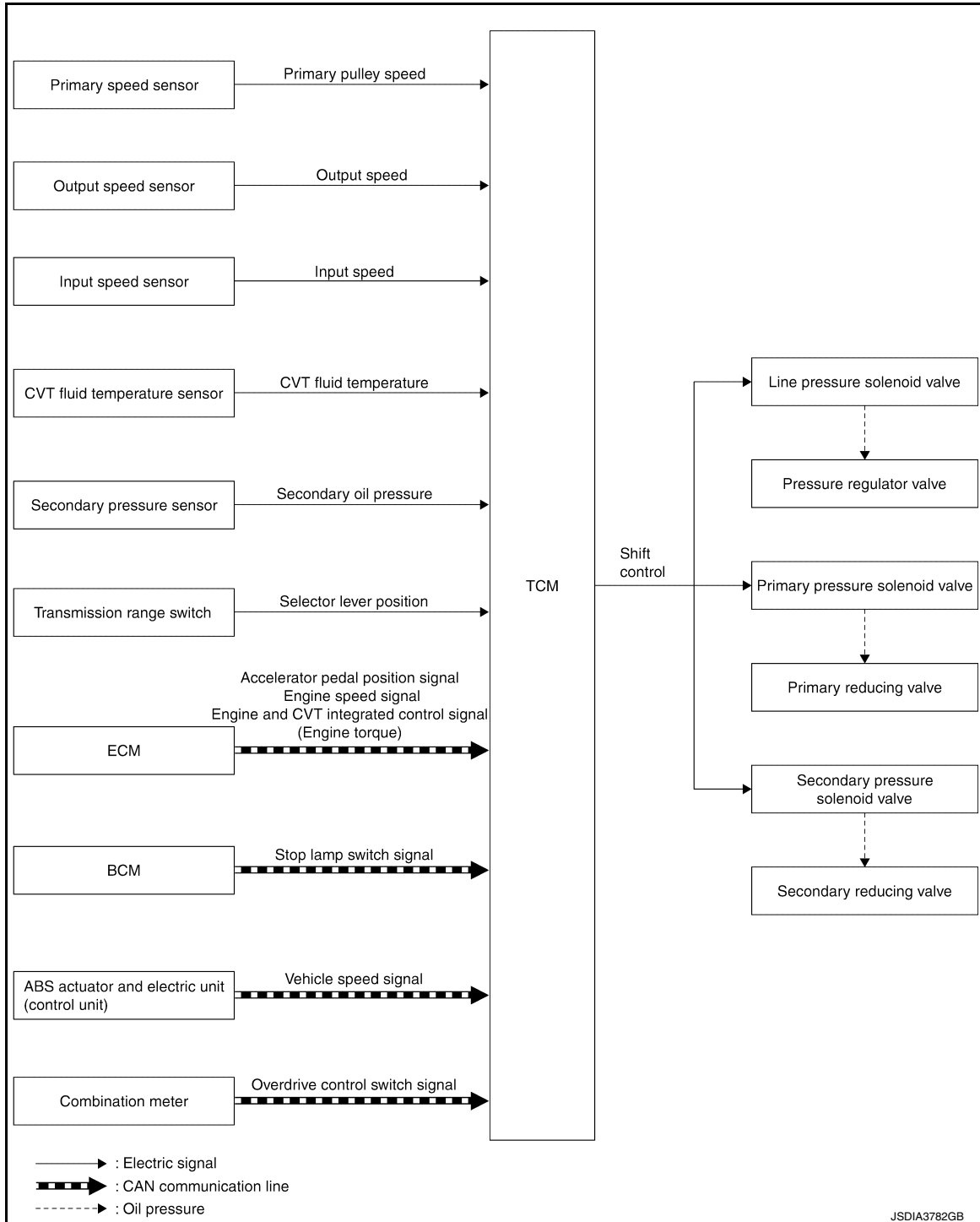
In normal oil pressure control and oil pressure control in shifting, highly accurate secondary pressure is determined by detecting the secondary pressure using an oil pressure sensor and by feedback control.

SHIFT CONTROL

SHIFT CONTROL : System Description

INFOID:000000009982082

SYSTEM DIAGRAM



DESCRIPTION

To select the gear ratio that can give the driving force to meet driver's intent or vehicle situation, the vehicle driving condition such as vehicle speed or accelerator pedal position is detected and the most appropriate gear ratio is selected and the shifting method before reaching the speed is determined. The information is out-

SYSTEM

< SYSTEM DESCRIPTION >

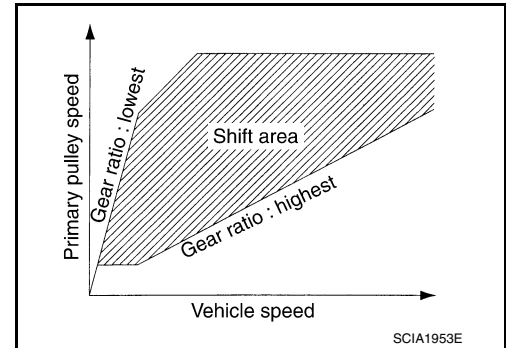
[CVT: RE0F10D]

put to the primary pressure solenoid valve and secondary pressure solenoid valve to control the line pressure input/output to the pulley, to determine the pulley (movable pulley) position and to control the gear position.

Shift Position Function

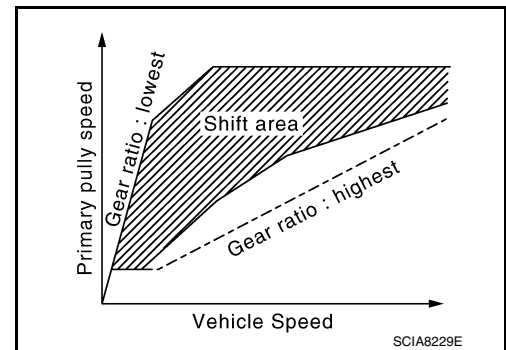
• D Position (Normal)

Gear shifting is performed in all shifting ranges from the lowest to the highest gear ratio.



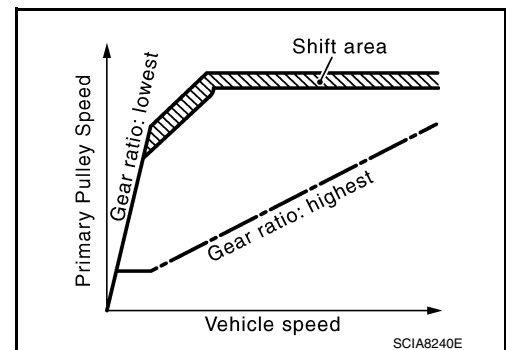
• D Position (O/D OFF)

The gear ratio is generally high by limiting the shifting range on the high side, and this always generates a large driving power.



• L Position

By limiting the shifting range only to the lowest of the gear ratio, a large driving force and engine brake are obtained.

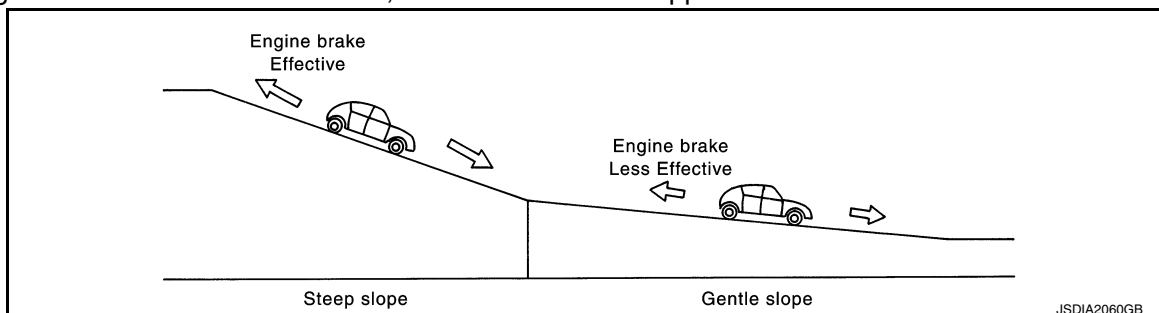


Hill Climbing And Descending Control

If a downhill is detected with the accelerator pedal is released, the system performs downshift to increase the engine brake force so that vehicle may not be accelerated more than necessary. If a climbing hill is detected, the system improves the acceleration performance in re-acceleration by limiting the gear shift range on the high side.

NOTE:

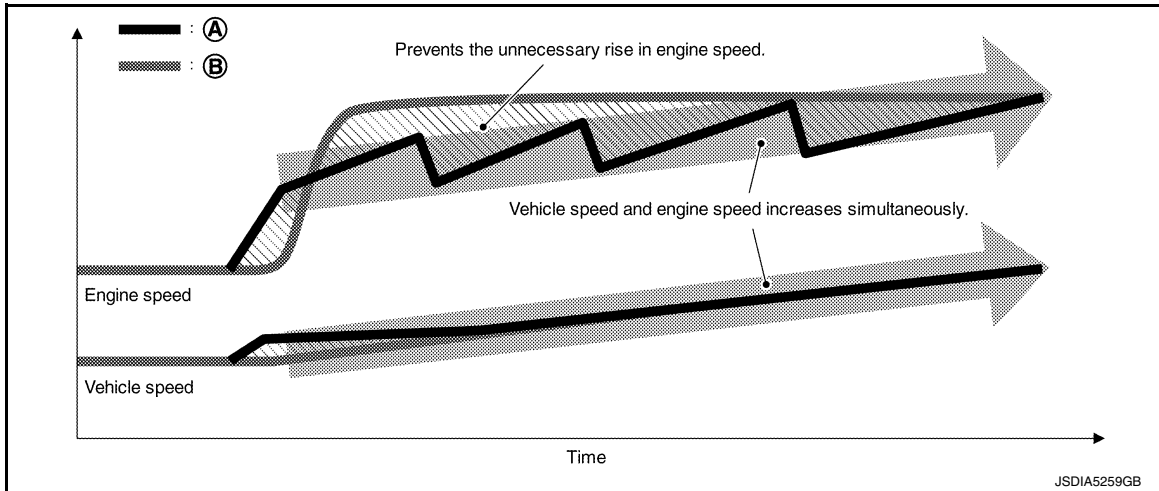
For engine brake control on a downhill, the control can be stopped with CONSULT.



Control In Acceleration

From change of the vehicle speed or accelerator pedal position, the acceleration request level of the driver or driving scene is evaluated. In start or acceleration during driving, the gear shift characteristics with linearity of revolution increase and vehicle speed increase are gained to improve the acceleration feel.

- When the accelerator pedal is depressed 4/8 or more in D position, CVT performs step shifting to allow the vehicle speed and engine speed to increase simultaneously. This improves the feel of acceleration and enables the fuel economy by preventing unnecessary rise in engine speed, compared to the conventional shifting.



Ⓐ Step shift

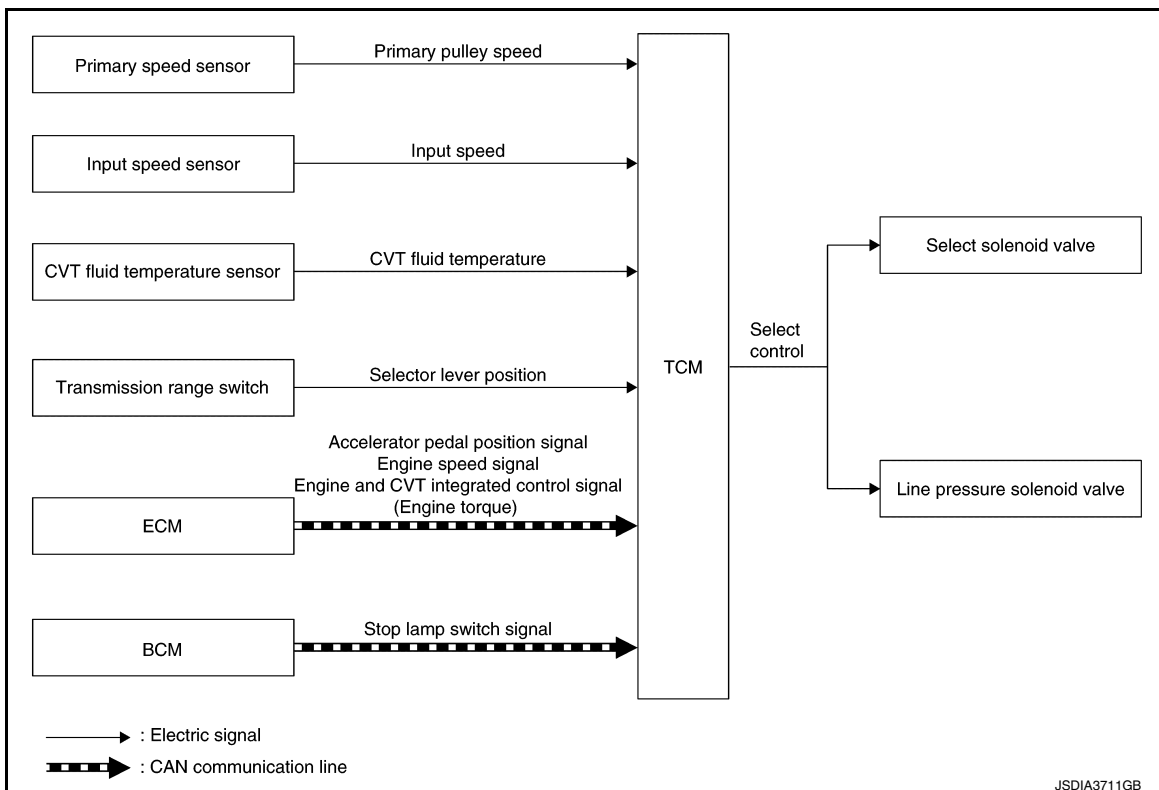
Ⓑ Conventional shift

SELECT CONTROL

SELECT CONTROL : System Description

INFOID:000000009982083

SYSTEM DIAGRAM



DESCRIPTION

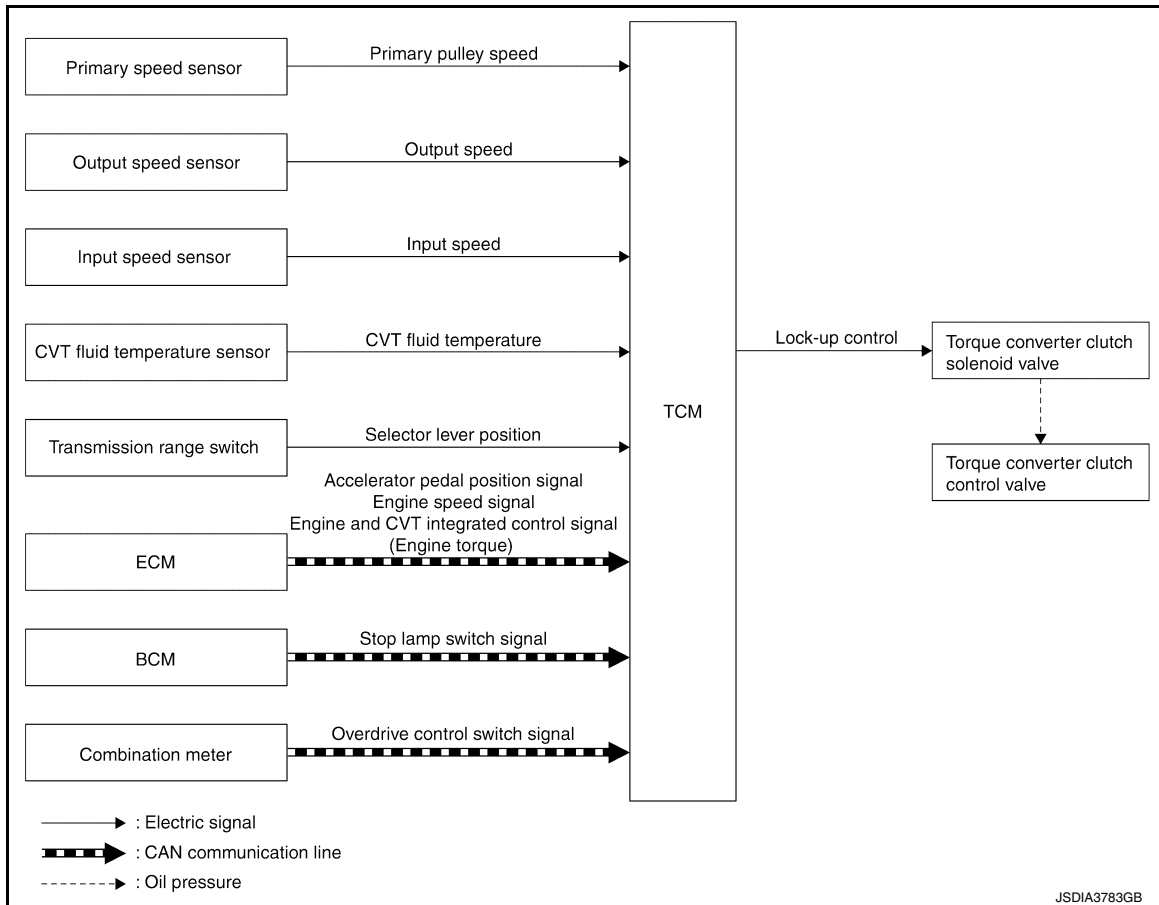
Based on accelerator pedal angle, engine speed, primary pulley speed, and the input speed, the optimum operating pressure is set to reduce impact of a selector lever operation while shifting from “N” (“P”) to “D” (“R”) position.

LOCK-UP CONTROL

LOCK-UP CONTROL : System Description

INFOID:000000009982084

SYSTEM DIAGRAM



DESCRIPTION

- Controls for improvement of the transmission efficiency by engaging the torque converter clutch in the torque converter and eliminating slip of the converter. Achieves comfortable driving with slip control of the torque converter clutch.
- The oil pressure feed circuit for the torque converter clutch piston chamber is connected to the torque converter clutch control valve. The torque converter clutch control valve is switched by the torque converter clutch solenoid valve with the signal from TCM. This controls the oil pressure circuit, which is supplied to the torque converter clutch piston chamber, to the release side or engagement side.
- If the CVT fluid temperature is low or the vehicle is in fail-safe mode due to malfunction, lock-up control is prohibited.

Lock-up engagement

In lock-up engagement, the torque converter clutch solenoid valve makes the torque converter clutch control valve locked up to generate the lock-up apply pressure. This pushes the torque converter clutch piston for engagement.

Lock-up release condition

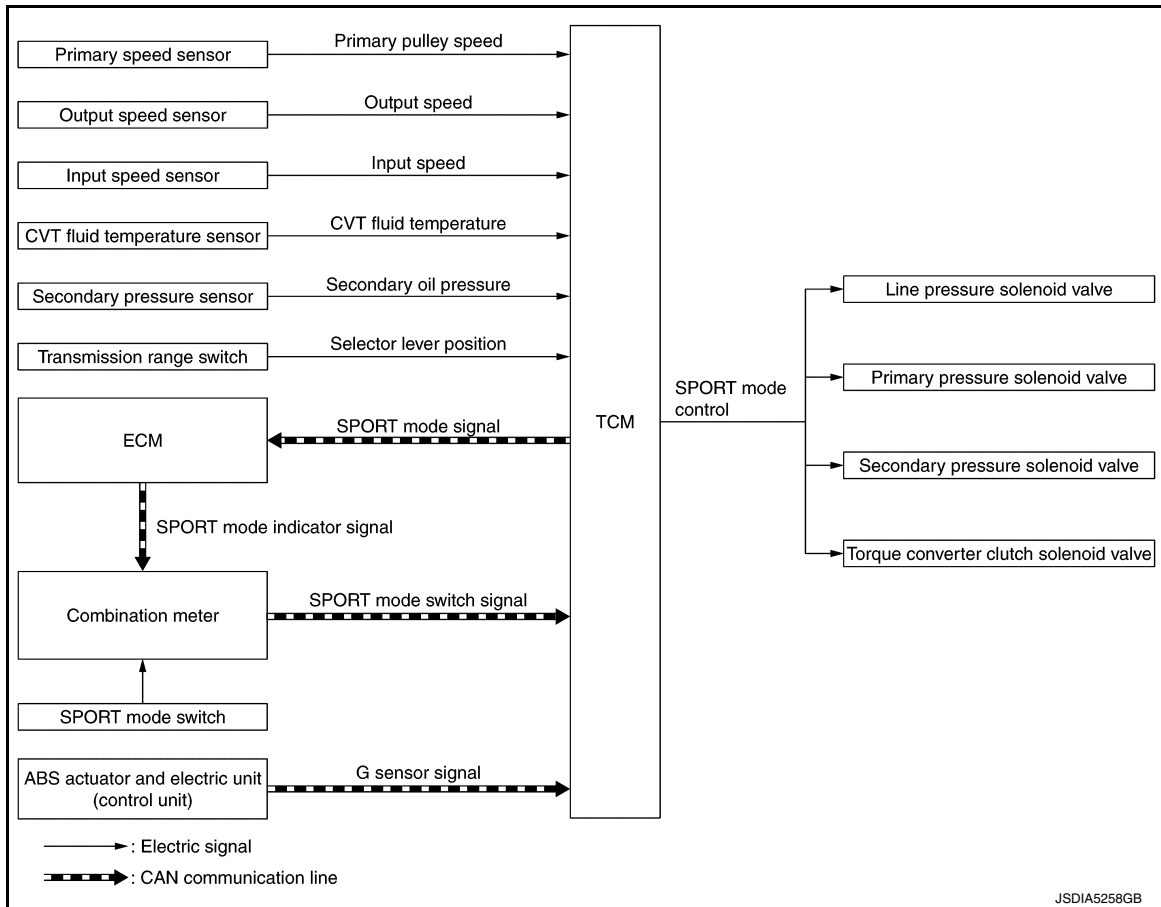
In lock-up release, the torque converter clutch solenoid valve makes the torque converter clutch control valve non-locked up to drain the lock-up apply pressure. This does not engage the torque converter clutch piston.

SPORT MODE CONTROL

SPORT MODE CONTROL : System Description

INFOID:000000009993080

SYSTEM DIAGRAM



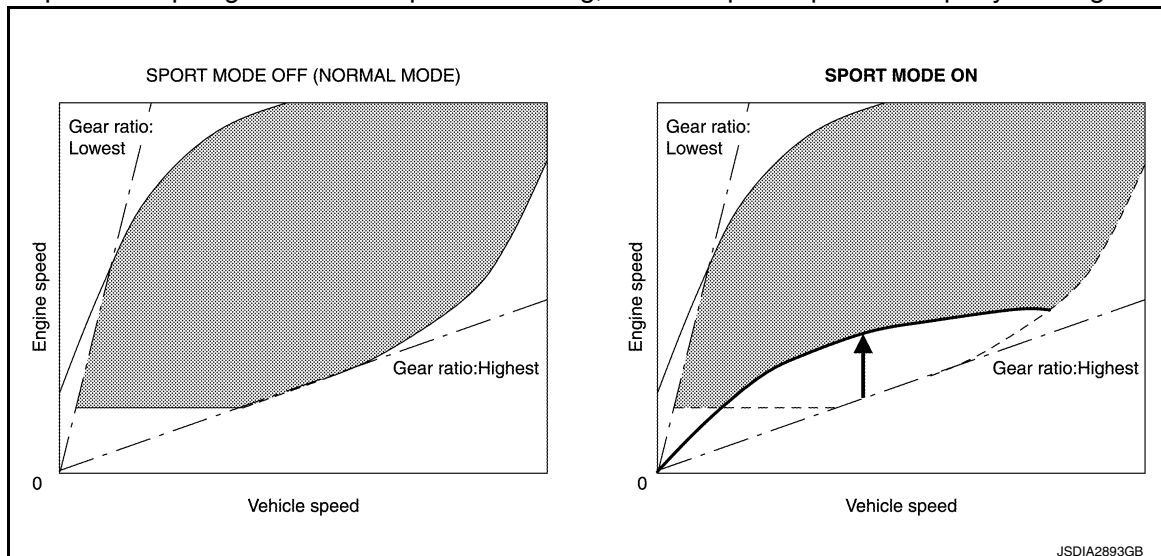
DESCRIPTION

- For a sporty driving on winding roads, establishing sport mode allows the driver to perform a sporty driving different from normal driving performed in D position.
- If overdrive control switch is operated during SPORT mode ON condition, overdrive control operation will take priority.

Sport Mode Function

High Gear Ratio Limit

- Engine speed is kept higher than at D position driving, which helps to operate a “sporty” driving.



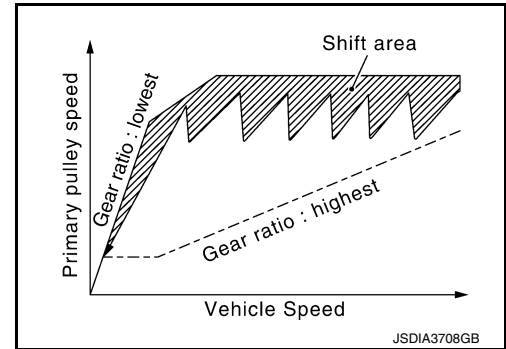
SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F10D]

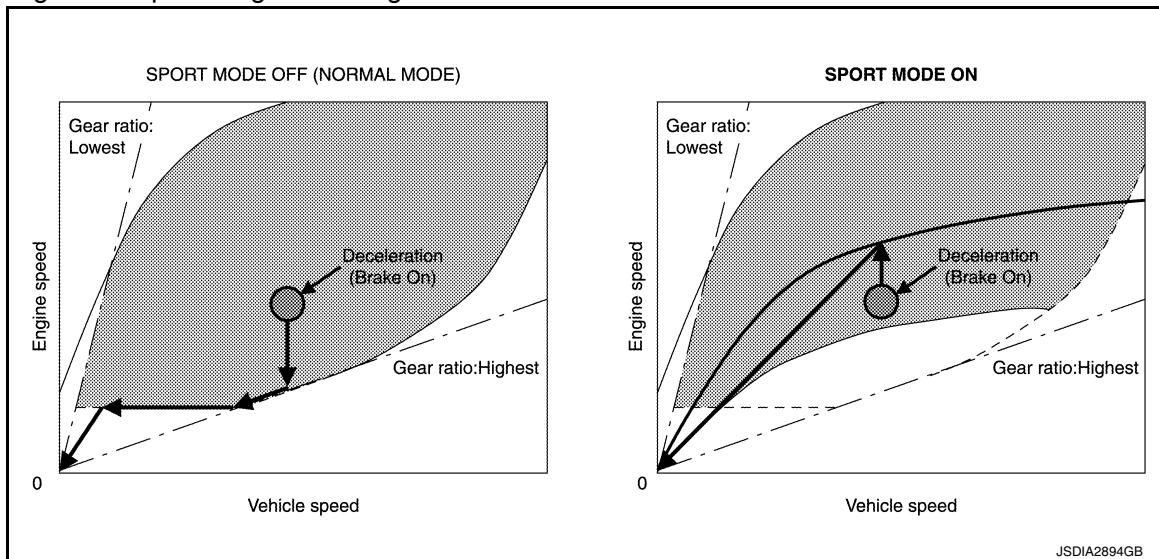
Step Shift

- Pressing down the accelerator pedal allows to drive the vehicle with a feeling of A/T-like gear shifting.



Braking Down Shift

- At a moderate braking operation before corner etc., the engine speed increases according to the deceleration and the transmission shifts down automatically, in order to optimize the response at reacceleration while providing an adequate engine braking.

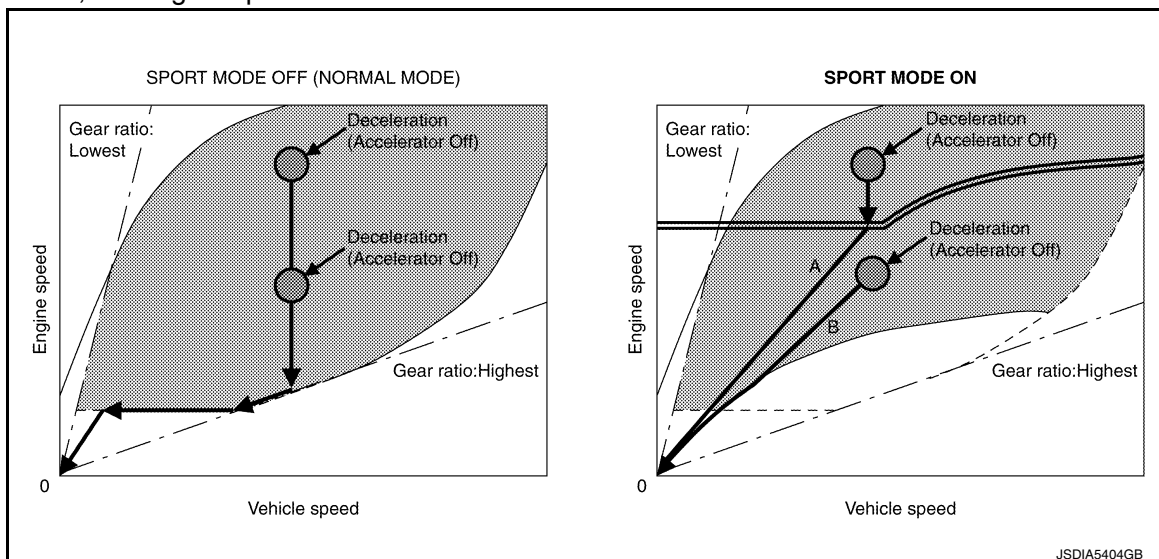


Acceleration Off Ratio Hold

- When the vehicle is decelerated by quickly releasing the foot from accelerator pedal, transmission does not shift up automatically to keep a constant gear ratio, holding the high engine speed.

When the vehicle is decelerated (by accelerator pedal OFF) in upper area of double line in below chart, the engine speed shows a characteristic like "A".

On the other hand, when the vehicle is decelerated (by accelerator pedal OFF) in lower area of double line in below chart, the engine speed shows a characteristic like "B".



SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F10D]

Fail-Safe

If a malfunction occurs in CVT system during SPORT mode ON, SPORT mode indicator extinguishes and the vehicle returns to standard D position driving.

WARNING/INDICATOR/CHIME LIST

WARNING/INDICATOR/CHIME LIST : Warning Lamp/Indicator Lamp

INFOID:000000009982086

Name	Design	Arrangement/Function
O/D OFF indicator lamp		Regarding the arrangement. Refer to MWI-7, "METER SYSTEM : Design" .
		Regarding the function. Refer to TM-19, "CVT CONTROL SYSTEM : O/D OFF Indicator Lamp" .
Malfunction indicator lamp (MIL)		Regarding the arrangement. Refer to MWI-7, "METER SYSTEM : Design" .
		Regarding the function. Refer to EC-49, "WARNING/INDICATOR/CHIME LIST : Malfunction Indicator Lamp (MIL)" .
Sport mode indicator lamp	SPORT	Regarding the arrangement. Refer to MWI-7, "METER SYSTEM : Design" .
		Regarding the function. Refer to DMS-4, "SPORT Mode Indicator Lamp" .

ON BOARD DIAGNOSTIC (OBD) SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F10D]

ON BOARD DIAGNOSTIC (OBD) SYSTEM

Diagnosis Description

INFOID:0000000010335785

This system is an on board diagnostic system that records exhaust emission-related diagnostic information and detects a sensors/actuator-related malfunction. A malfunction is indicated by the malfunction indicator lamp (MIL) and stored in ECU memory as a DTC. The diagnostic information can be obtained with the diagnostic tool (GST: Generic Scan Tool).

GST (Generic Scan Tool)

INFOID:0000000010335786

When GST is connected with a data link connector equipped on the vehicle side, it will communicate with the control module equipped in the vehicle and then enable various kinds of diagnostic tests. Refer to [GI-49, "Description"](#).

NOTE:

Service \$0A is not applied for regions where it is not mandated.

DIAGNOSIS SYSTEM (TCM)

DIAGNOSIS DESCRIPTION

DIAGNOSIS DESCRIPTION : 1 Trip Detection Diagnosis and 2 Trip Detection Diagnosis

INFOID:000000009982090

NOTE:

"Start the engine and turn OFF the ignition switch after warm-up." This is defined as 1 trip.

1 TRIP DETECTION DIAGNOSIS

When initial malfunction is detected, TCM memorizes DTC. In these diagnoses, some illuminate MIL and some do not. Refer to [TM-63, "DTC Index"](#).

2 TRIP DETECTION DIAGNOSIS

When initial malfunction is detected, TCM memorizes DTC of the 1st trip. MIL does not light at this stage. <1 trip>

If the same malfunction is detected again in next driving, TCM memorizes DTC. When DTC is memorized, MIL lights. <2 trip>

"Trip" of the "2 trip detection diagnosis" indicates the driving mode that executes self-diagnosis during driving.

×: Check possible —: Check not possible

Item	DTC at the 1st trip		DTC		MIL	
	Display at the 1st trip	Display at the 2nd trip	Display at the 1st trip	Display at the 2nd trip	Illumination at the 1st trip	Illumination at the 2nd trip
1 trip detection diagnosis (Refer to TM-63, "DTC Index")	—	—	×	—	×	—
2 trip detection diagnosis (Refer to TM-63, "DTC Index")	×	—	—	×	—	×

DIAGNOSIS DESCRIPTION : DTC and DTC of 1st Trip

INFOID:000000009982091

2 TRIP DETECTION DIAGNOSIS THAT ILLUMINATES MIL

- The DTC number of the 1st trip is the same as the DTC number.
- When a malfunction is detected at the 1st trip, TCM memorizes DTC of the 1st trip. MIL does not light at this stage. If the same malfunction is not detected at the 2nd trip (conforming to necessary driving conditions), DTC at the 1st trip is erased from TCM. If the same malfunction is detected at the 2nd trip, TCM memorizes DTC and MIL lights at the same time.
- The DTC of the 1st trip is specified in Service \$01 of SAE J1979/ISO 15031-5. Since detection of DTC at the 1st trip does not illuminate MIL, warning for a problem is not given to a driver.
- For procedure to delete DTC and 1st trip DTC from TCM, refer to [TM-47, "CONSULT Function"](#).
- If DTC of the 1st trip is detected, it is necessary to check the cause according to the "Diagnosis flow". Refer to [TM-79, "Work Flow"](#).

DIAGNOSIS DESCRIPTION : Malfunction Indicator Lamp (MIL)

INFOID:000000009982092

- TCM not only detects DTC, but also sends the MIL signal to ECM through CAN communication. ECM sends the MIL signal to the combination meter through CAN communication according to the signal, and illuminates MIL.
- For malfunction indicator lamp (MIL) description, refer to [EC-49, "WARNING/INDICATOR/CHIME LIST : Malfunction Indicator Lamp \(MIL\)"](#).

DIAGNOSIS DESCRIPTION : Counter System

INFOID:000000009982093

RELATION BETWEEN DTC AT 1ST TRIP/DTC/MIL AND DRIVING CONDITIONS (FOR 2 TRIP DETECTION DIAGNOSIS THAT ILLUMINATES MIL)

- When initial malfunction is detected, TCM memorizes DTC of the 1st trip. MIL does not light at this stage.
- If the same malfunction is detected at the 2nd trip, TCM memorizes DTC and MIL lights at the same time.
- Then, MIL goes after driving the vehicle for 3 trips under "Driving condition B" without malfunction.
- DTC is displayed until 40 trips of "Driving condition A" are satisfied without detecting the same malfunction. DTC is erased when 40 trips are satisfied.

DIAGNOSIS SYSTEM (TCM)

< SYSTEM DESCRIPTION >

[CVT: RE0F10D]

- When the self-diagnosis result is acceptable at the 2nd trip (conforming to driving condition B), DTC of the 1st trip is erased.

COUNTER SYSTEM LIST

Item	Driving condition	Trip
MIL (OFF)	B	3
DTC (clear)	A	40
DTC at 1st trip (clear)	B	1

DRIVING CONDITION

Driving condition A

Driving condition A is the driving condition that provides warm-up.

In specific, count-up is performed when all of the following conditions are satisfied.

- Engine speed is 400 rpm or more.
- After start of the engine, the water temperature increased by 20°C (36°F) or more.
- Water temperature was 70°C (158°F) or more.
- The ignition switch was changed from ON to OFF.

NOTE:

- If the same malfunction is detected regardless of the driving condition, reset the A counter.
- When the above is satisfied without detecting the same malfunction, count up the A counter.
- When MIL goes off due to the malfunction and the A counter reaches 40, the DTC is erased.

Driving condition B

Driving condition B is the driving condition that performs all diagnoses once.

In specific, count-up is performed when all of the following conditions are satisfied.

- Engine speed is 400 rpm or more.
- Water temperature was 70°C (158°F) or more.
- In closed loop control, vehicle speed of 70 – 120 km/h (43 – 75 MPH) continued for 60 seconds or more.
- In closed loop control, vehicle speed of 30 – 60 km/h (19 – 37 MPH) continued for 10 seconds or more.
- In closed loop control, vehicle speed of 4 km/h (2 MPH) or less and idle determination ON continued for 12 seconds or more.
- After start of the engine, 22 minutes or more have passed.
- The condition that the vehicle speed is 10 km/h (6 MPH) or more continued for 10 seconds or more in total.
- The ignition switch was changed from ON to OFF.

NOTE:

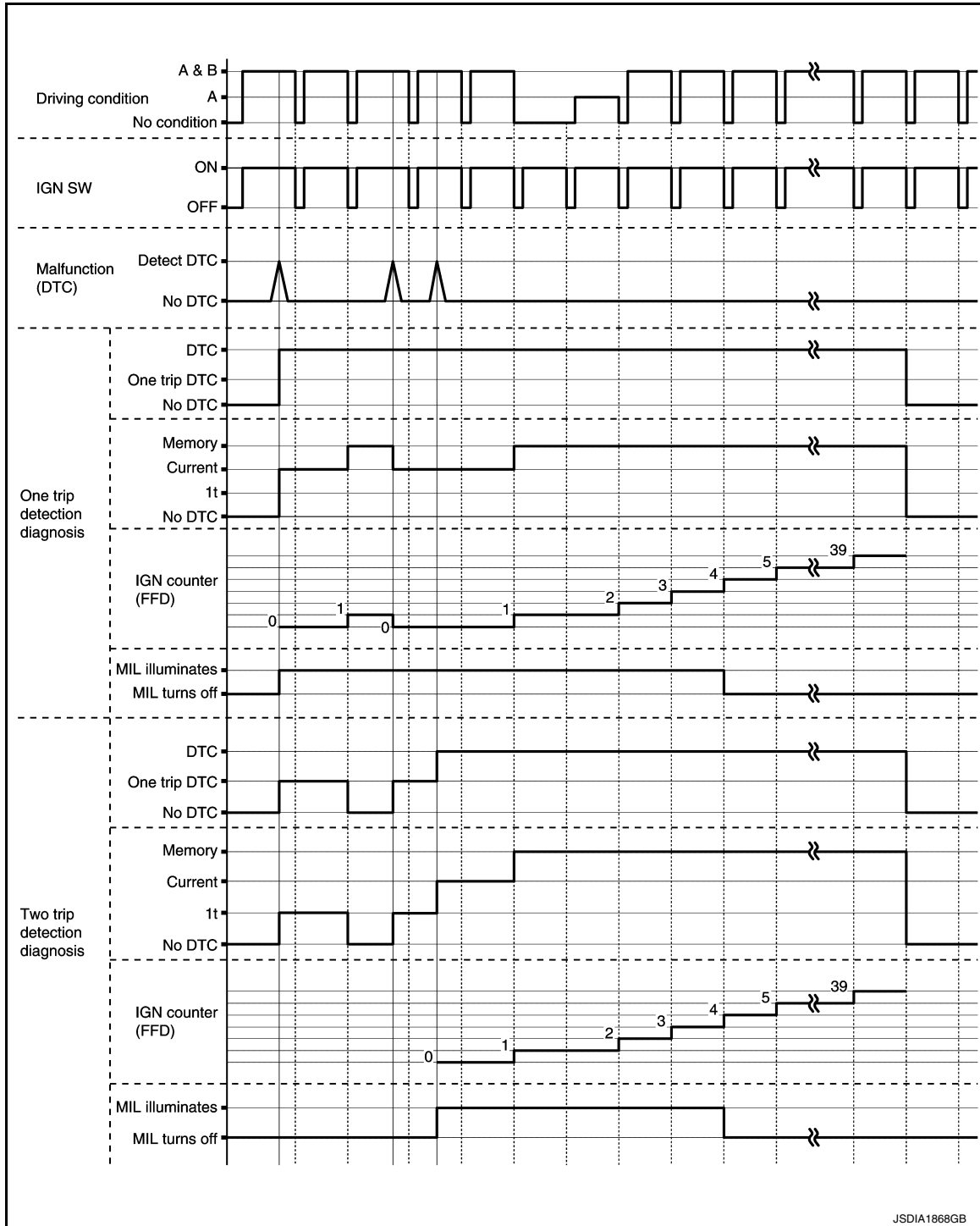
- If the same malfunction is detected regardless of the driving condition, reset the B counter.
- When the above is satisfied without detecting the same malfunction, count up the B counter.
- When the B counter reaches 3 without malfunction, MIL goes off.
- When the B counter is counted once without detecting the same malfunction after TCM memorizes DTC of the 1st trip, DTC of the 1st trip is erased.

DIAGNOSIS SYSTEM (TCM)

< SYSTEM DESCRIPTION >

[CVT: RE0F10D]

TIME CHART



CONSULT Function

INFOID:000000009982094

APPLICABLE ITEM

Conditions	Function
Work Support	The settings for ECU functions can be changed.
Self Diagnostic Results	The ECU self diagnostic results are displayed.
Data Monitor	The ECU input/output data is displayed in real time.
CAN Diagnosis Support Monitor	The result of transmit/receive diagnosis of CAN communication is displayed.

DIAGNOSIS SYSTEM (TCM)

[CVT: RE0F10D]

< SYSTEM DESCRIPTION >

Conditions	Function
ECU Identification	The ECU part number is displayed.
CALIB DATA	The calibration data status of TCM can be checked.

SELF DIAGNOSTIC RESULTS

Refer to [TM-63. "DTC Index"](#).

DTC at 1st trip and method to read DTC

- DTC (P0705, P0712, P0720, etc.) is specified by SAE J2012/ISO 15031-6.
- DTC and DTC at 1st trip are displayed on "Self Diagnostic results" of CONSULT.
When DTC is currently detected, "CRNT" is displayed. If "PAST" is displayed, it shows a malfunction occurred in the past. The trip number of drive without malfunction of concerned DTC can be confirmed with "IGN counter" inside "FFD".
- When the DTC at the 1st trip is detected, "1t" is displayed.

DTC deletion method

NOTE:

If the ignition switch is left ON after repair, turn OFF the ignition switch and wait for 10 seconds or more. Then, turn the ignition ON again. (Engine stop)

1. Touch "TRANSMISSION" of CONSULT.
2. Touch "Self Diagnostic Result".
3. Touch "Erase". (DTC memorized in TCM is erased.)

IGN counter

The ignition counter is displayed in "FFD" and the number of times of satisfied "Driving condition A" is displayed after normal recovery of DTC. Refer to [TM-45. "DIAGNOSIS DESCRIPTION : Counter System"](#).

- If malfunction (DTC) is currently detected, "0" is displayed.
- After normal recovery, every time "Driving condition A" is satisfied, the display value increases from 1 → 2 → 3...38 → 39.
- When MIL turns OFF due to the malfunction and the counter reaches 40, the DTC is erased.

NOTE:

The counter display of "40" cannot be checked.

DATA MONITOR

NOTE:

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

Monitored item	(Unit)	Remarks
VSP SENSOR	(km/h or mph)	Displays the vehicle speed calculated from the CVT output shaft speed.
ESTM VSP SIG	(km/h or mph)	Displays the vehicle speed signal (ABS) received through CAN communication.
INPUT SPEED SENSOR	(rpm)	Displays the input speed calculated from the pulse signal of the input speed sensor.
PRI SPEED SEN	(rpm)	Displays the primary pulley speed calculated from the pulse signal of the primary speed sensor.
SEC REV SENSOR	(rpm)	Displays the secondary pulley speed calculated from the pulse signal of the output speed sensor.
ENG SPEED SIG	(rpm)	Displays the engine speed received through CAN communication.
SEC PRESSURE SEN	(V)	Displays the signal voltage of the secondary pressure sensor.
PRI PRESSURE SEN	(V)	Displays the signal voltage of the primary pressure sensor.
ATF TEMP SEN	(V)	Displays the signal voltage of the CVT fluid temperature sensor.
G SENSOR*	(G)	Displays the signal voltage of the G sensor.
VIGN SEN	(V)	Displays the battery voltage applied to TCM.
PVING VOLT	(V)	Displays the backup voltage of TCM.
VEHICLE SPEED	(km/h or mph)	Displays the vehicle speed recognized by TCM.
INPUT REV	(rpm)	Displays the input shaft speed of CVT recognized by TCM.
PRI SPEED	(rpm)	Displays the primary pulley speed recognized by TCM.

DIAGNOSIS SYSTEM (TCM)

< SYSTEM DESCRIPTION >

[CVT: RE0F10D]

Monitored item	(Unit)	Remarks
SEC SPEED	(rpm)	Displays the secondary pulley speed recognized by TCM.
ENG SPEED	(rpm)	Displays the engine speed recognized by TCM.
SLIP REV	(rpm)	Displays the speed difference between the input shaft speed of CVT and the engine speed.
PULLEY GEAR RATIO		Displays the pulley gear ratio calculated from primary pulley speed/secondary pulley speed.
G SPEED	(G)	Displays the acceleration and deceleration speed of the vehicle calculated from vehicle speed change.
ACCEL POSI SEN 1	(deg)	Displays the estimated throttle position received through CAN communication.
VENG TRQ	(Nm)	Display the engine torque recognized by TCM.
PRI TRQ	(Nm)	Display the input shaft torque of CVT.
TRQ RTO		Display the torque ratio of torque converter.
SEC PRESSURE	(MPa)	Displays the secondary pressure calculated from the signal voltage of the secondary pressure sensor.
PRI PRESSURE	(MPa)	Displays the primary pressure calculated from the signal voltage of the primary pressure sensor.
FLUID TEMP	(°C or °F)	Displays the CVT fluid temperature calculated from the signal voltage of the CVT fluid temperature sensor.
DSR REV	(rpm)	Displays the target primary pulley speed calculated from processing of gear shift control.
TGT PLY GR RATIO		Displays the target gear ratio of the pulley from processing of gear shift control.
LU PRS	(MPa)	Displays the target oil pressure of the torque converter clutch solenoid valve calculated from oil pressure processing of gear shift control.
LINE PRS	(MPa)	Displays the target oil pressure of the line pressure solenoid valve calculated from oil pressure processing of gear shift control.
TRGT PRI PRESSURE	(MPa)	Displays the target oil pressure of the primary pressure solenoid valve calculated from oil pressure processing of gear shift control.
TRGT SELECT PRESSURE	(MPa)	Displays the target oil pressure of the select solenoid valve calculated from oil pressure processing of gear shift control.
TRGT SEC PRESSURE	(MPa)	Displays the target oil pressure of the secondary pressure solenoid valve calculated from oil pressure processing of gear shift control.
ISOLT1	(A)	Displays the command current from TCM to the torque converter clutch solenoid valve.
ISOLT2	(A)	Displays the command current from TCM to the line pressure solenoid valve.
PRI SOLENOID	(A)	Displays the command current from TCM to the primary pressure solenoid valve.
SEC SOLENOID CURRENT	(A)	Displays the command current from TCM to the secondary pressure solenoid valve.
SELECT SOLENOID CURRENT	(A)	Displays the command current from TCM to the select solenoid valve.
SOLMON1	(A)	Monitors the command current from TCM to the torque converter clutch solenoid valve and displays the monitored value.
SOLMON2	(A)	Monitors the command current from TCM to the line pressure solenoid valve and displays the monitored value.
PRI SOL MON	(A)	Monitors the command current from TCM to the primary pressure solenoid valve and displays the monitored value.
SEC SOL MON CURRENT	(A)	Monitors the command current from TCM to the secondary pressure solenoid valve and displays the monitored value.
SELECT SOL MON CURRENT	(A)	Monitors the command current from TCM to the select solenoid valve and displays the monitored value.
D POSITION SW	(On/Off)	Displays the operation status of the transmission range switch (D position).
N POSITION SW	(On/Off)	Displays the operation status of the transmission range switch (N position).

DIAGNOSIS SYSTEM (TCM)

< SYSTEM DESCRIPTION >

[CVT: RE0F10D]

Monitored item	(Unit)	Remarks
R POSITION SW	(On/Off)	Displays the operation status of the transmission range switch (R position).
P POSITION SW	(On/Off)	Displays the operation status of the transmission range switch (P position).
L POSITION SW	(On/Off)	Displays the operation status of the transmission range switch (L position).
DS RANGE SW*	(On/Off)	Displays the operation status of the transmission range switch (Ds position).
BRAKESW	(On/Off)	Displays the reception status of the stop lamp switch signal received through CAN communication.
IDLE SW	(On/Off)	Displays the reception status of the closed throttle position signal received through CAN communication.
SPORT MODE SW	(On/Off)	Displays the reception status of the overdrive control switch signal received through CAN communication.
ECO MODE SW*	(On/Off)	Displays the reception status of the ECO mode switch signal received through CAN communication.
STRDWSW*	(On/Off)	Displays the operation status of the paddle shifter (down switch).
STRUPSW*	(On/Off)	Displays the operation status of the paddle shifter (up switch).
DOWNLVR*	(On/Off)	Displays the operation status of the selector lever (down switch).
UPLVR*	(On/Off)	Displays the operation status of the selector lever (up switch).
NONMMODE*	(On/Off)	Displays if the selector lever position is not at the manual shift gate.
MMODE*	(On/Off)	Displays if the selector lever position is at the manual shift gate.
TOW MODE SW*	(On/Off)	Displays the reception status of the TOW mode switch signal received through CAN communication.
SHIFT IND SIGNAL		Displays the transaxle value of shift position signal transmitted via CAN communication.
CVT LAMP*	(On/Off)	Displays the transaxle status of the CVT warning lamp signal transmitted through CAN communication.
SPORT MODE IND	(On/Off)	Displays the transaxle status of the OD OFF indicator lamp signal transmitted through CAN communication.
MANU MODE SIGNAL*	(On/Off)	Displays the transaxle status of the manual mode signal transmitted through CAN communication.
DS RANGE SIGNAL*	(On/Off)	Displays the shift position signal status from transmission range switch (Ds position).
ECO MODE SIGNAL*	(On/Off)	Displays the transaxle status of the ECO mode signal transmitted through CAN communication.
VDC ON	(On/Off)	Displays the reception status of the VDC operation signal received through CAN communication.
TCS ON	(On/Off)	Displays the reception status of the TCS operation signal received through CAN communication.
ABS FAIL SIGNAL	(On/Off)	Displays the reception status of the ABS malfunction signal received through CAN communication.
ABS ON	(On/Off)	Displays the reception status of the ABS operation signal received through CAN communication.
RANGE		Displays the gear position recognized by TCM.
M GEAR POS*		Display the target gear of manual mode
G SEN SLOPE*	(%)	Displays the gradient angle calculated from the G sensor signal voltage.
G SEN CALIBRATION*	(YET/DONE)	Displays the status of "G SENSOR CALIBRATION" in "Work Support".
N IDLE STATUS*	(On/Off)	Displays idle neutral status.
ENGBRKLVL	(On/Off)	Displays the setting of "ENGINE BRAKE ADJ" in "Work Support".
DRIVE MODE STATS		Displays the drive mode status recognized by TCM.
SNOW MODE*	(On/Off)	Displays whether it is the SNOW mode.
ECO MODE*	(On/Off)	Displays whether it is the ECO mode.

DIAGNOSIS SYSTEM (TCM)

< SYSTEM DESCRIPTION >

[CVT: RE0F10D]

Monitored item	(Unit)	Remarks
NORMAL MODE*	(On/Off)	Displays whether it is the NORMAL mode.
SPORT MODE*	(On/Off)	Displays whether it is the SPORT mode.
AIR BLDING STATE*	(INCOMP/COMP)	Displays the status of "ELECTRIC O.P. AIR BLEEDING" in "Work Support".
ELECTRIC OP DUTY*	(%)	Displays the command signal value (duty) of the electric oil pump transmitted from TCM.
E-OP DUTY MON*	(%)	Monitors the status signal value (duty) transmitted from the electric oil pump and displays the monitored value.
ELECTRIC OP RELAY*	(On/Off)	Displays the command status from TCM to the electric oil pump relay.
E-OP RELAY MON*	(On/Off)	Monitors the command status from TCM to the oil pump relay and displays the monitored value.
CVT-B		- Displays CVT fluid temperature count. - This monitor item does not use.
CVT-A		- Displays CVT fluid temperature count. - This monitor item does not use.

*: Not applicable but displayed.

WORK SUPPORT

Item name	Description
CONFORM CVTF DETERIORTN	Checks the degradation level of the CVT fluid under severe conditions.
ERASE MEMORY DATA	Performs "erasing of the calibration data" and "erasing of the learned value" at the same time.
G SENSOR CALIBRATION	Compensates the G sensor.
ERASE LEARNING VALUE	Erases learning value memorized by TCM.
ENGINE BRAKE ADJ.	Although there is no malfunction on the transaxle and the CVT system, if a customer make a complaint like "I do not feel comfortable with automatic operation of the engine brake on downhill", the engine brake may be cancelled with "engine brake adjustment".
ERASE CALIBRATION DATA	Erases calibration data memorized by TCM.
WRITE IP CHARA - REPLACEMENT AT/CVT	Writes IP characteristics when transaxle assembly is replaced.
READ IP CHARA - REPLACEMENT TCM	Reads IP characteristics when TCM is replaced.
WRITE IP CHARA - REPLACEMENT TCM	Writes IP characteristics when TCM is replaced.

Engine brake adjustment

ENGINE BRAKE LEVEL

ON : Turn ON the engine brake control.

OFF : Turn OFF the engine brake control.

Check the degradation level of the CVT fluid.

CVTF degradation level data

210,000 or more : Replacement of the CVT fluid is required.

Less than 210,000 : Replacement of the CVT fluid is not required.

ECU DIAGNOSIS INFORMATION

TCM

Reference Value

INFOID:000000009982095

CONSULT DATA MONITOR STANDARD VALUE

- In CONSULT, electric shift timing or lock-up timing, i.e. operation timing of each solenoid valve, is displayed. Therefore, if there is an obvious difference between the shift timing estimated from a shift shock (or engine speed variations) and that shown on the CONSULT, the mechanism parts (including the hydraulic circuit) excluding the solenoids and sensors may be malfunctioning. In this case, check the mechanical parts following the appropriate diagnosis procedure.
- Shift point (gear position) displayed on CONSULT slightly differs from shift pattern described in Service Manual. This is due to the following reasons.
 - Actual shift pattern may vary slightly within specified tolerances.
 - While shift pattern described in Service Manual indicates start of each shift, CONSULT shows gear position at end of shift.
 - The solenoid display (ON/OFF) on CONSULT is changed at the start of gear shifting. In contrast, the gear position display is changed at the time when gear shifting calculated in the control unit is completed.

NOTE:

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

Monitor item	Condition	Value/Status (Approx.)
VSP SENSOR	While driving	Almost same as the speedometer display.
ESTM VSP SIG	While driving	Almost same as the speedometer display.
INPUT SPEED SENSOR	In driving (lock-up ON)	Approximately matches the engine speed.
PRI SPEED SEN	In driving (lock-up ON)	Approximately matches the engine speed.
SEC REV SENSOR	While driving	VSP SENSOR × 40
ENG SPEED SIG	Engine running	Almost same reading as tachometer
SEC PRESSURE SEN	• After engine warm up • Selector lever: "N" position • At idle	1.23 – 1.25 V
PRI PRESSURE SEN	• After engine warm up • Selector lever: "N" position • At idle	0.75 – 0.82 V
ATF TEMP SEN	CVT fluid: Approx. 20°C (68°F)	2.01 – 2.05 V
	CVT fluid: Approx. 50°C (122°F)	1.45 – 1.50 V
	CVT fluid: Approx. 80°C (176°F)	0.90 – 0.94 V
G SENSOR	Vehicle is level	0 V
VIGN SEN	Ignition switch: ON	10 – 16 V
PVIGN VOLT	Ignition switch: ON	10 – 16 V
VEHICLE SPEED	While driving	Almost same as the speedometer display.
INPUT REV	In driving (lock-up ON)	Almost same as the engine speed.
PRI SPEED	In driving (lock-up ON)	Approximately matches the engine speed.
SEC SPEED	While driving	VSP SENSOR × 40
ENG SPEED	Engine running	Almost same reading as tachometer
SLIP REV	While driving	Engine speed – Input speed
PULLEY GEAR RATIO	In driving (forward)	2.70 – 0.38
	In driving (reverse)	2.70

TCM

< ECU DIAGNOSIS INFORMATION >

[CVT: RE0F10D]

Monitor item	Condition	Value/Status (Approx.)
G SPEED	Vehicle stopped	0.00 G
	During acceleration	The value changes to the positive side along with acceleration.
	During deceleration	The value changes to the positive side along with deceleration.
ACCEL POSI SEN 1	Accelerator pedal released	0.00 deg
	Accelerator pedal fully depressed	80.00 deg
VENG TRQ	While driving	The value changes along with acceleration/ deceleration.
PRI TRQ	While driving	The value changes along with acceleration/ deceleration.
TRQ RTO	While driving	The value changes along with acceleration/ deceleration.
SEC PRESSURE	- After engine warm up - Selector lever: "N" position - At idle	1.1 MPa
PRI PRESSURE	- After engine warm up - Selector lever: "N" position - At idle	0.4 – 0.45 MPa
FLUID TEMP	Ignition switch ON.	Displays the CVT fluid temperature.
DSR REV	While driving	It varies along with the driving condition.
TGT PLY GR RATIO	In driving (forward)	2.70 – 0.38
	In driving (reverse)	2.70
LU PRS	- Engine started - Vehicle is stopped.	–0.50 MPa
	- Selector lever: "D" position - Accelerator pedal position: 1/8 or less - Vehicle speed: 20 km/h (12 MPH) or more	0.65 MPa
LINE PRS	- After engine warm up - Selector lever: "N" position - At idle	1.1 MPa
TRGT PRI PRESSURE	- After engine warm up - Selector lever: "N" position - At idle	0.4 – 0.45 MPa
TARGET SELECT PRESSURE	- After engine warm up - Selector lever: "N" position - At idle	0 MPa
	- Selector lever: "D" position - At idle	0.3 – 0.5 MPa
TARGET SEC PRESSURE	- After engine warm up - Selector lever: "N" position - At idle	1.1 MPa
ISOLT1*	—	—
ISOLT2 *	—	—
PRI SOLENOID*	—	—
SEC SOLENOID CURRENT*	—	—
SELECT SOLENOID CURRENT*	—	—
SOLMON1*	—	—
SOLMON2*	—	—
PRI SOL MON*	—	—

TCM

< ECU DIAGNOSIS INFORMATION >

[CVT: RE0F10D]

Monitor item	Condition	Value/Status (Approx.)
SEC SOL MON CURRENT*	—	—
SELECT SOL MON CURRENT*	—	—
D POSITION SW	Selector lever: "D" position	On
	Other than the above	Off
N POSITION SW	Selector lever: "N" position	On
	Other than the above	Off
R POSITION SW	Selector lever: "R" position	On
	Other than the above	Off
P POSITION SW	Selector lever: "P" position	On
	Other than the above	Off
L POSITION SW	Selector lever: "L" position	On
	Other than the above	Off
DS RANGE SW	Always	Off
BRAKESW	Brake pedal is depressed	On
	Brake pedal is released	Off
IDLE SW	Accelerator pedal is released	On
	Accelerator pedal is fully depressed	Off
SPORT MODE SW	Press the overdrive control switch	On
	Release the overdrive control switch	Off
ECO MODE SW	Always	Off
STRDWSW	Always	Off
STRUPSW	Always	Off
DOWNLVR	Always	Off
UPLVR	Always	Off
NONMMODE	Always	On
MMODE	Always	Off
TOW MODE SW	Always	Off
SHIFT IND SIGNAL	When the selector lever is positioned in between each position.	OFF
	Selector lever: "P" position	P
	Selector lever: "R" position	R
	Selector lever: "N" position	N
	Selector lever: "D" position	D
	Selector lever: "L" position	L
CVT LAMP	Approx. 2 seconds after ignition switch ON	On
	Other than the above	Off
SPORT MODE IND	In O/D OFF	On
	Other than the above	Off
MANU MODE SIGNAL	Always	Off
DS RANGE SIGNAL	Always	Off
ECO MODE SIGNAL	Always	Off
VDC ON	When VDC malfunction signal is received	On
	Other than the above	Off
TCS ON	When TCS malfunction signal is received	On
	Other than the above	Off

TCM

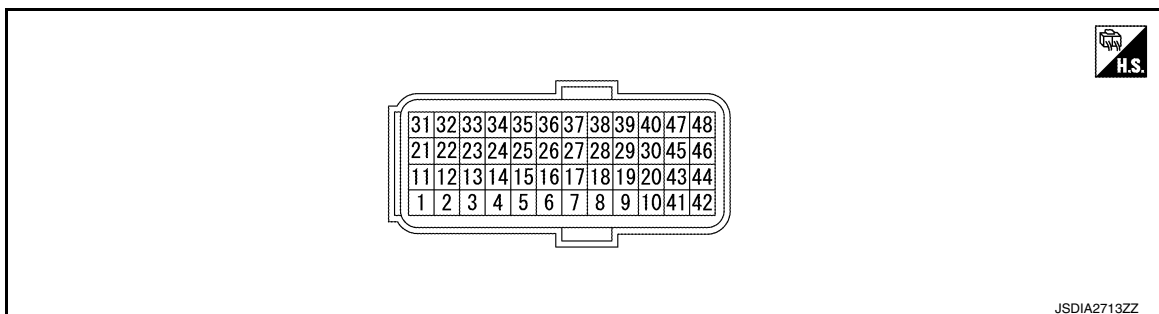
< ECU DIAGNOSIS INFORMATION >

[CVT: RE0F10D]

Monitor item	Condition	Value/Status (Approx.)
ABS FAIL SIGNAL	When ABS malfunction signal is received	On
	Other than the above	Off
ABS ON	ABS is activated	On
	Other than the above	Off
RANGE	Selector lever: "P" and "N" positions	N/P
	Selector lever: "R" position	R
	Selector lever: "D" position (Normal)	D
	Selector lever: "D" position (O/D OFF)	S
	Selector lever: "L" position	L
M GEAR POS	Always	1
G SEN SLOPE	Always	0%
G SEN CALIBRATION	When G sensor calibration is completed	DONE
	When G sensor calibration is not completed	YET
N IDLE STATUS	Always	Off
ENGBRKLVL	When the engine brake level of "ENGINE BRAKE ADJ". in "Work Support" is ON	On
	When the engine brake level of "ENGINE BRAKE ADJ". in "Work Support" is OFF	Off
DRIVE MODE STATS	While driving in SPORT mode	SPORT
	Other than the above	NORMAL
SNOW MODE	Always	Off
ECO MODE	Always	Off
NORMAL MODE	Always	Off
SPORT MODE	Always	Off
AIR BLDING STATE	Always	INCOMP
ELECTRIC OP DUTY	Always	0%
E-OP DUTY MON	Always	0%
ELECTRIC OP RELAY	Always	Off
E-OP RELAY MON	Always	Off
CVT-B*	—	—
CVT-A*	—	—

*: These monitor items do not use.

TERMINAL LAYOUT

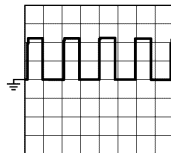


INPUT/OUTPUT SIGNAL STANDARD

TCM

< ECU DIAGNOSIS INFORMATION >

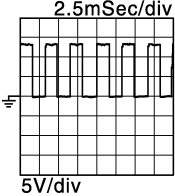
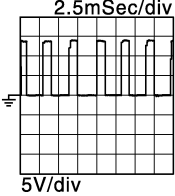
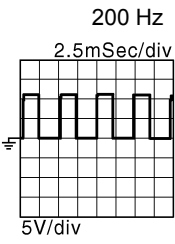
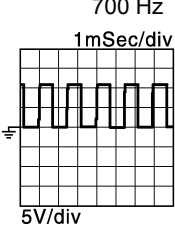
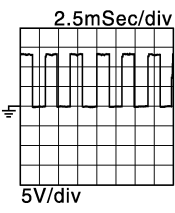
[CVT: RE0F10D]

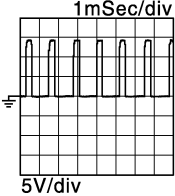
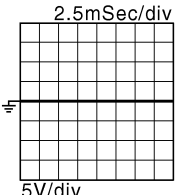
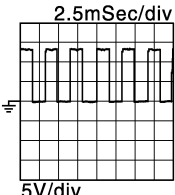
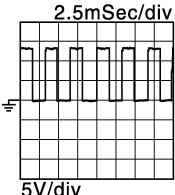
Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal	Input/ Output			
2 (GR)	Ground	L range switch	Input	Ignition switch ON	Selector lever: “L” position	10 – 16 V
					Other than the above	0 V
4 (Y)	Ground	D range switch	Input		Selector lever: “D” position	10 – 16 V
					Other than the above	0 V
5 (BR)	Ground	N range switch	Input		Selector lever: “N” position	10 – 16 V
					Other than the above	0 V
6 (G)	Ground	R range switch	Input		Selector lever: “R” position	10 – 16 V
					Other than the above	0 V
7 (V)	Ground	P range switch	Input		Selector lever: “P” position	10 – 16 V
					Other than the above	0 V
11 (LG)	Ground	Sensor ground	Input	Always		0 V
12 (BR)	Ground	CVT fluid tempera- ture sensor	Output	Ignition switch ON	CVT fluid: Approx. 20°C (68°F)	2.01 – 2.05 V
					CVT fluid: Approx. 50°C (122°F)	1.45 – 1.50 V
					CVT fluid: Approx. 80°C (176°F)	0.90 – 0.94 V
16 (SB)	Ground	Secondary pres- sure sensor	Input	• After engine warm up • Selector lever: “N” position • At idle		1.23 – 1.25 V
17 (R)	Ground	Primary pressure sensor	Input	• After engine warm up • Selector lever: “N” position • At idle		0.75 – 0.82 V
23 (P)	—	CAN-L	Input/ Output	—		—
24 (LG)	Ground	Input speed sensor	Input	• Shift position: “L” position • Vehicle speed: 20 km/h (12 MPH)		880 Hz 1mSec/div  5V/div JSDIA3769GB
26 (BG)	Ground	Sensor power sup- ply	Output	Ignition switch: ON		5.0 V
				Ignition switch: OFF		0 V

TCM

< ECU DIAGNOSIS INFORMATION >

[CVT: RE0F10D]

Terminal No. (Wire color)		Description		Condition	Value (Approx.)
+	-	Signal	Input/ Output		
30 (GR)	Ground	Line pressure solenoid valve	Output	- After engine warming up - Selector lever: "N" position - At idle	
				- After engine warming up - Selector lever: "N" position - Depress the accelerator pedal fully	
33 (L)	—	CAN-H	Input/ Output	—	—
34 (W)	Ground	Output speed sensor	Input	- Shift position: "L" position - Vehicle speed: 20 km/h (12 MPH)	
35 (GR)	Ground	Primary speed sensor	Input	- Shift position: "L" position - Vehicle speed: 20 km/h (12 MPH)	
37 (Y)	Ground	Select solenoid valve	Output	- Engine started - Vehicle is stopped - Selector lever: "N" position	

Terminal No. (Wire color)		Description		Condition	Value (Approx.)
+	–	Signal	Input/ Output		
38 (G)	Ground	Torque converter clutch solenoid valve	Output	- Selector lever: "D" position - Accelerator pedal position: 1/8 or less - Vehicle speed: 20 km/h (12 MPH) or more	
				- Engine started - Vehicle is stopped	
39 (W)	Ground	Secondary pres- sure solenoid valve	Output	- Shift position: "L" position - Vehicle speed: 20 km/h (12 MPH)	
40 (V)	Ground	Primary pressure solenoid valve	Output	- Shift position: "L" position - Vehicle speed: 20 km/h (12 MPH)	
41 (B)	Ground	Ground	Output	Always	0 V
42 (B)	Ground	Ground	Output	Always	0 V
45 (V)	Ground	Battery power sup- ply (Memory back- up)	Input	Always	10 – 16 V
46 (V)	Ground	Battery power sup- ply (Memory back- up)	Input	Always	10 – 16 V
47 (BG)	Ground	Ignition power sup- ply	Input	Ignition switch: ON	10 – 16 V
				Ignition switch: OFF	0 V
48 (BG)	Ground	Ignition power sup- ply	Input	Ignition switch: ON	10 – 16 V
				Ignition switch: OFF	0 V

Fail-safe

INFOID:000000009982096

TCM has a fail-safe mode. The mode functions so that operation can be continued even if the signal circuit of the main electronically controlled input/output parts is damaged.

If the vehicle shows following behaviors including "poor acceleration", a malfunction of the applicable system is detected by TCM and the vehicle may be in a fail-safe mode. At this time, check the DTC code and perform inspection and repair according to the malfunction diagnosis procedures.

Fail-safe function

DTC	Vehicle behavior	Conditions of vehicle
P062F	Not changed from normal driving	—
P0705	- Shift position indicator on combination meter is not displayed - Selector shock is large - Start is slow - Acceleration is slow - Lock-up is not performed	—
P0706	- Shift position indicator on combination meter is not displayed - Selector shock is large - Start is slow - Acceleration is slow - Lock-up is not performed	—
P0711	- Start is slow - Acceleration is slow	Engine coolant temperature when engine start: Temp. $\geq 10^{\circ}\text{C}$ (50°F)
	- Selector shock is large - Start is slow - Acceleration is slow	Engine coolant temperature when engine start: -35°C (-31°F) $\leq$ Temp. $< 10^{\circ}\text{C}$ (50°F)
	- Selector shock is large - Start is slow - Acceleration is slow	Engine coolant temperature when engine start: Temp. $< -35^{\circ}\text{C}$ (-31°F)
P0712	- Start is slow - Acceleration is slow	Engine coolant temperature when engine start: Temp. $\geq 10^{\circ}\text{C}$ (50°F)
	- Selector shock is large - Start is slow - Acceleration is slow	Engine coolant temperature when engine start: -35°C (-31°F) $\leq$ Temp. $< 10^{\circ}\text{C}$ (50°F)
	- Selector shock is large - Start is slow - Acceleration is slow	Engine coolant temperature when engine start: Temp. $< -35^{\circ}\text{C}$ (-31°F)
P0713	- Start is slow - Acceleration is slow	Engine coolant temperature when engine start: Temp. $\geq 10^{\circ}\text{C}$ (50°F)
	- Selector shock is large - Start is slow - Acceleration is slow	Engine coolant temperature when engine start: -35°C (-31°F) $\leq$ Temp. $< 10^{\circ}\text{C}$ (50°F)
	- Selector shock is large - Start is slow - Acceleration is slow	Engine coolant temperature when engine start: Temp. $< -35^{\circ}\text{C}$ (-31°F)
P0715	- Start is slow - Acceleration is slow - Lock-up is not performed	—
P0717	- Start is slow - Acceleration is slow - Lock-up is not performed	—
P0740	- Start is slow - Acceleration is slow - Lock-up is not performed	—
P0743	- Start is slow - Acceleration is slow - Lock-up is not performed	—
P0744	- Start is slow - Acceleration is slow - Lock-up is not performed	—

DTC	Vehicle behavior	Conditions of vehicle
P0746	• Selector shock is large • Start is slow • Acceleration is slow • Lock-up is not performed	—
P0776	• Selector shock is large • Start is slow • Acceleration is slow • Lock-up is not performed • Vehicle speed is not increased	When a malfunction occurs on the low oil pressure side
	• Selector shock is large • Start is slow • Acceleration is slow • Lock-up is not performed	When a malfunction occurs on the high oil pressure side
P0778	• Selector shock is large • Start is slow • Acceleration is slow • Lock-up is not performed	—
P0779	• Selector shock is large • Start is slow • Acceleration is slow • Lock-up is not performed	—
P0841	Not changed from normal driving	—
P0847	Not changed from normal driving	—
P0848	Not changed from normal driving	—
P084C	Not changed from normal driving	—
P084D	Not changed from normal driving	—
P0863	• Selector shock is large • Start is slow • Acceleration is slow • Lock-up is not performed	—
P0890	• Selector shock is large • Start is slow • Acceleration is slow • Lock-up is not performed • Vehicle speed is not increased	—
P0962	• Selector shock is large • Start is slow • Acceleration is slow • Lock-up is not performed	—
P0963	• Selector shock is large • Start is slow • Acceleration is slow • Lock-up is not performed	—
P0965	• Selector shock is large • Start is slow • Acceleration is slow • Lock-up is not performed	When a malfunction occurs on the low oil pressure side
	• Selector shock is large • Lock-up is not performed	When a malfunction occurs on the high oil pressure side
P0966	• Selector shock is large • Start is slow • Acceleration is slow • Lock-up is not performed	—
P0967	• Selector shock is large • Start is slow • Acceleration is slow • Lock-up is not performed	—

TCM

< ECU DIAGNOSIS INFORMATION >

[CVT: RE0F10D]

DTC	Vehicle behavior	Conditions of vehicle
P2765	- Start is slow - Acceleration is slow - Lock-up is not performed	—
P2813	- Selector shock is large - Start is slow - Acceleration is slow - Vehicle speed is not increased	When a malfunction occurs on the low oil pressure side
	Selector shock is large	When a malfunction occurs on the high oil pressure side
P2814	Selector shock is large	—
P2815	Selector shock is large	—
U0073	- Selector shock is large - Start is slow - Acceleration is slow - Lock-up is not performed	—
U0100	- Selector shock is large - Start is slow - Acceleration is slow - Lock-up is not performed	—
U0102	Not changed from normal driving	—
U0140	Not changed from normal driving	—
U0141	Not changed from normal driving	—
U0155	Not changed from normal driving	—
U0300	- Selector shock is large - Start is slow - Acceleration is slow - Lock-up is not performed	—
U1000	Not changed from normal driving	—
U110F	Not changed from normal driving	—
U1111	Not changed from normal driving	—
U1117	Not changed from normal driving	—

Protection Control

INFOID:000000009982097

The TCM becomes the protection control status temporarily to protect the safety when the safety of TCM and transmission is lost. It automatically returns to the normal status if the safety is secured.

The TCM has the following protection control.

CONTROL FOR WHEEL SPIN

Control	When a wheel spin is detected, the engine output and gear ratio are limited and the line pressure is increased. Limits engine output when a wheel spin occurs in any of right and left drive wheels.
Vehicle behavior in control	If the accelerator is kept depressing during wheel spin, the engine revolution and vehicle speed are limited to a certain degree.
Normal return condition	Wheel spin convergence returns the control to the normal control.

TORQUE IS REDUCED WHEN DRIVING WITH THE REVERSE GEAR

Control	Engine output is controlled according to a vehicle speed while reversing the vehicle.
Vehicle behavior in control	Power performance may be lowered while reversing the vehicle.
Normal return condition	Torque returns to normal by positioning the selector lever in a range other than "R" position.

CONTROL WHEN FLUID TEMPERATURE IS HIGH

Control	When the CVT fluid temperature is high, the gear shift permission maximum revolution and the maximum torque are reduced than usual to prevent increase of the oil temperature.
Vehicle behavior in control	Power performance may be lowered, compared to normal control.
Normal return condition	The control returns to the normal control when CVT fluid temperature is lowered.

REVERSE PROHIBIT CONTROL

Control	The reverse brake is controlled to avoid becoming engaged when the selector lever is set in "R" position while driving in forward direction at more than the specified speed.
Vehicle behavior in control	If the selector lever is put at "R" position when driving with the forward gear, the gear becomes neutral, not reverse.
Normal return condition	The control returns to normal control when the vehicle is driven at low speeds. (The reverse brake becomes engaged.)

DTC Inspection Priority Chart

INFOID:000000009982098

If multiple malfunction codes are detected at the same time, check each code according to the DTC check priority list below.

Priority	DTC	Items (CONSULT screen terms)	Reference
1	P0863	CONTROL UNIT (CAN)	TM-154, "DTC Description"
	U0073	COMM BUS A OFF	TM-95, "DTC Description"
	U0100	LOST COMM (ECM A)	TM-96, "DTC Description"
	U0102	LOST COMM (TRANSFER)	TM-97, "DTC Description"
	U0140	LOST COMM (BCM)	TM-98, "DTC Description"
	U0141	LOST COMM (BCM A)	TM-99, "DTC Description"
	U0155	LOST COMM (IPC)	TM-100, "DTC Description"
	U0300	CAN COMM DATA	TM-101, "DTC Description"
	U1000	CAN COMM CIRC	TM-102, "DTC Description"
	U110F	LOST COMM (ECM)	TM-103, "DTC Description"
	U1111	LOST COMM (CHASSIS CONT MDUL)	TM-104, "DTC Description"
	U1117	LOST COMM (ABS)	TM-105, "DTC Description"
2	P0740	TORQUE CONVERTER	TM-131, "DTC Description"
	P0743	TORQUE CONVERTER	TM-133, "DTC Description"
	P0778	PC SOLENOID B	TM-141, "DTC Description"
	P0779	PC SOLENOID B	TM-143, "DTC Description"
	P0962	PC SOLENOID A	TM-157, "DTC Description"
	P0963	PC SOLENOID A	TM-159, "DTC Description"
	P0966	PC SOLENOID B	TM-163, "DTC Description"
	P0967	PC SOLENOID B	TM-165, "DTC Description"
	P2814	SELECT SOLENOID	TM-172, "DTC Description"
	P2815	SELECT SOLENOID	TM-174, "DTC Description"

TCM

< ECU DIAGNOSIS INFORMATION >

[CVT: RE0F10D]

Priority	DTC	Items (CONSULT screen terms)	Reference
3	P062F	EEPROM	TM-106, "DTC Description"
	P0705	T/M RANGE SENSOR A	TM-107, "DTC Description"
	P0706	T/M RANGE SENSOR A	TM-113, "DTC Description"
	P0711	FLUID TEMP SENSOR A	TM-116, "DTC Description"
	P0712	FLUID TEMP SENSOR A	TM-121, "DTC Description"
	P0713	FLUID TEMP SENSOR A	TM-123, "DTC Description"
	P0715	INPUT SPEED SENSOR A	TM-125, "DTC Description"
	P0717	INPUT SPEED SENSOR A	TM-128, "DTC Description"
	P0841	FLUID PRESS SEN/SW A	TM-145, "DTC Description"
	P0847	FLUID PRESS SEN/SW B	TM-146, "DTC Description"
	P0848	FLUID PRESS SEN/SW B	TM-148, "DTC Description"
	P084C	FLUID PRESS SEN/SW H	TM-150, "DTC Description"
	P084D	FLUID PRESS SEN/SW H	TM-152, "DTC Description"
	P0890	TCM	TM-155, "DTC Description"
	P2765	INPUT SPEED SENSOR B	TM-167, "DTC Description"
4	P0744	TORQUE CONVERTER	TM-135, "DTC Description"
	P0746	PC SOLENOID A	TM-137, "DTC Description"
	P0776	PC SOLENOID B	TM-139, "DTC Description"
	P0965	PC SOLENOID B	TM-161, "DTC Description"
	P2813	SELECT SOLENOID	TM-170, "DTC Description"

DTC Index

INFOID:000000009982099

NOTE:

- If multiple malfunction codes are detected at the same time, check each code according to the "DTC check priority list". Refer to [TM-62, "DTC Inspection Priority Chart"](#).
- The ignition counter is displayed in "FFD". Refer to [TM-47, "CONSULT Function"](#).

DTC*1, *2		Items (CONSULT screen terms)	Trip	MIL *3	Perma- nent DTC group *4	Reference
GST	CONSULT (TRANSMISSION)					
P062F	P062F	EEPROM	1	ON	B	TM-106
P0705	P0705	T/M RANGE SENSOR A	2	ON	B	TM-107
P0706	P0706	T/M RANGE SENSOR A	2	ON	B	TM-113
P0711	P0711	FLUID TEMP SENSOR A	2	ON	A	TM-116
P0712	P0712	FLUID TEMP SENSOR A	2	ON	B	TM-121
P0713	P0713	FLUID TEMP SENSOR A	2	ON	B	TM-123
P0715	P0715	INPUT SPEED SENSOR A	2	ON	B	TM-125
P0717	P0717	INPUT SPEED SENSOR A	2	ON	B	TM-128
P0740	P0740	TORQUE CONVERTER	2	ON	B	TM-131
P0743	P0743	TORQUE CONVERTER	2	ON	B	TM-133
P0744	P0744	TORQUE CONVERTER	2	ON	B	TM-135
P0746	P0746	PC SOLENOID A	2	ON	B	TM-137
P0776	P0776	PC SOLENOID B	2	ON	B	TM-139
P0778	P0778	PC SOLENOID B	2	ON	B	TM-141
P0779	P0779	PC SOLENOID B	2	ON	B	TM-143

TCM

< ECU DIAGNOSIS INFORMATION >

[CVT: RE0F10D]

DTC*1, *2		Items (CONSULT screen terms)	Trip	MIL*3	Perma- nent DTC group*4	Reference
GST	CONSULT (TRANSMISSION)					
P0841	P0841	FLUID PRESS SEN/SW A	2	ON	B	TM-145
P0847	P0847	FLUID PRESS SEN/SW B	2	ON	B	TM-146
P0848	P0848	FLUID PRESS SEN/SW B	2	ON	B	TM-148
P084C	P084C	FLUID PRESS SEN/SW H	2	ON	B	TM-150
P084D	P084D	FLUID PRESS SEN/SW H	2	ON	B	TM-152
P0863	P0863	CONTROL UNIT (CAN)	1	ON	B	TM-154
P0890	P0890	TCM	1	ON	B	TM-155
P0962	P0962	PC SOLENOID A	2	ON	B	TM-157
P0963	P0963	PC SOLENOID A	2	ON	B	TM-159
P0965	P0965	PC SOLENOID B	2	ON	B	TM-161
P0966	P0966	PC SOLENOID B	2	ON	B	TM-163
P0967	P0967	PC SOLENOID B	2	ON	B	TM-165
P2765	P2765	INPUT SPEED SENSOR B	2	ON	B	TM-167
P2813	P2813	SELECT SOLENOID	2	ON	B	TM-170
P2814	P2814	SELECT SOLENOID	2	ON	B	TM-172
P2815	P2815	SELECT SOLENOID	2	ON	B	TM-174
U0073	U0073	COMM BUS A OFF	1	ON	B	TM-95
U0100	U0100	LOST COMM (ECM A)	1	ON	B	TM-96
—	U0102	LOST COMM (TRANSFER)	1	—	—	TM-97
—	U0140	LOST COMM (BCM)	1	—	—	TM-98
—	U0141	LOST COMM (BCM A)	1	—	—	TM-99
—	U0155	LOST COMM (IPC)	1	—	—	TM-100
—	U0300	CAN COMM DATA	1	—	—	TM-101
—	U1000	CAN COMM CIRC	1	—	—	TM-102
—	U110F	LOST COMM (ECM)	1	—	—	TM-103
—	U1111	LOST COMM (CHASSIS CONT MDUL)	1	—	—	TM-104
—	U1117	LOST COMM (ABS)	1	—	—	TM-105

*1: These numbers are specified by SAE J2012/ISO 15031-6.

*2: The DTC number of the 1st trip is the same as the DTC number.

*3: Refer to [TM-45](#), "DIAGNOSIS DESCRIPTION : Malfunction Indicator Lamp (MIL)".

*4: Refer to [TM-94](#), "Description".

CVT CONTROL SYSTEM

< WIRING DIAGRAM >

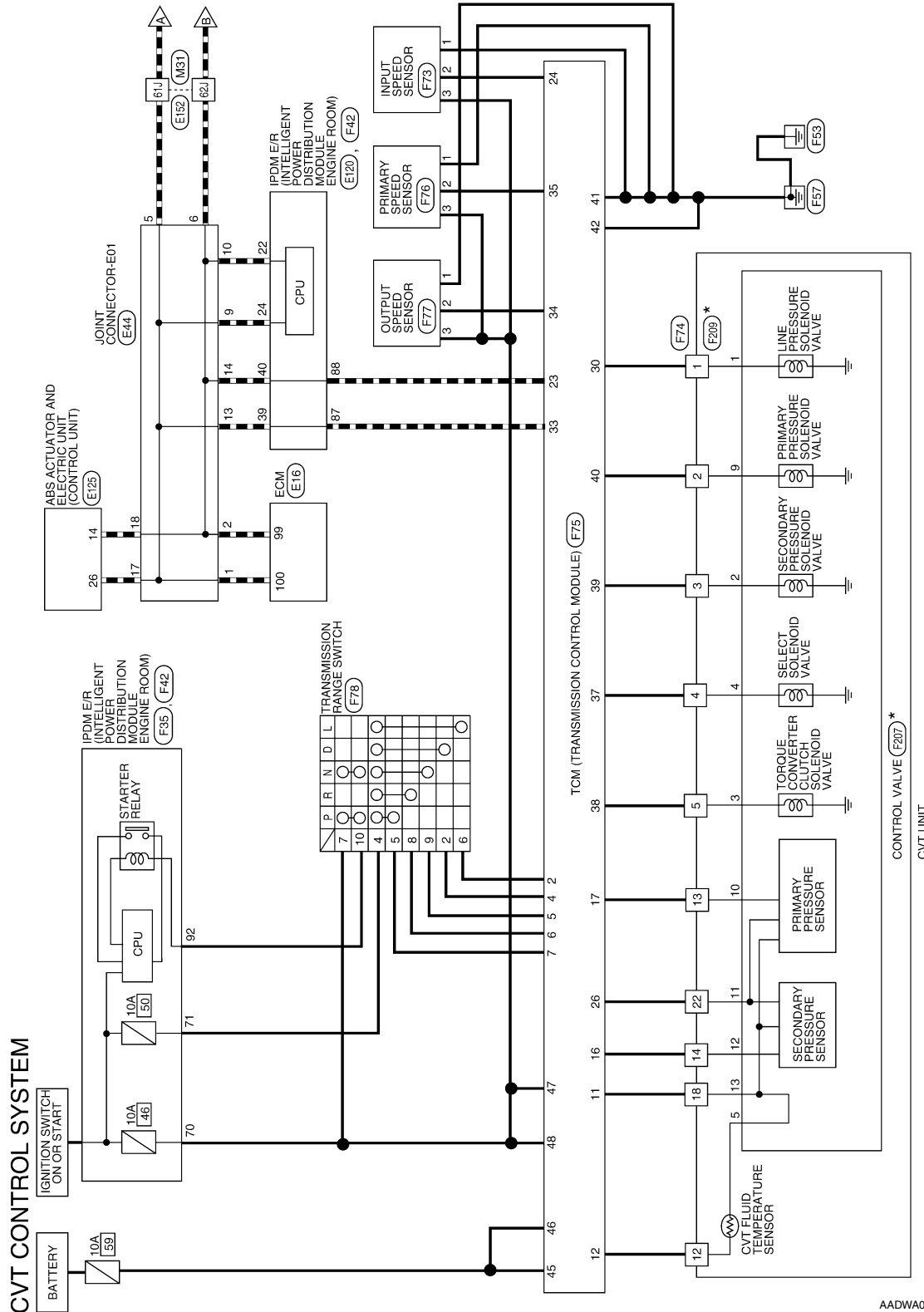
[CVT: RE0F10D]

WIRING DIAGRAM

CVT CONTROL SYSTEM

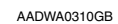
Wiring Diagram

INFOID:000000009982100



[CVT: RE0F10D]

[CVT: RE0F10D]



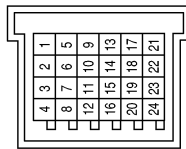
CVT CONTROL SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F10D]

CVT CONTROL SYSTEM CONNECTORS

Connector No.	M6
Connector Name	JOINT CONNECTOR-M01
Connector Color	GRAY



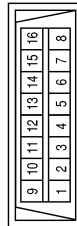
Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BROWN



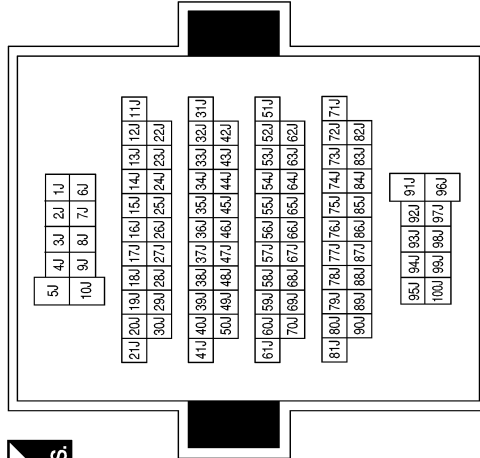
Terminal No.	Color of Wire	Signal Name
161	W	I PWR ECU
169	GR	I PWR STOP LAMP

Connector No.	M22
Connector Name	DATA LINK CONNECTOR
Connector Color	WHITE



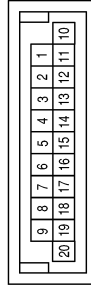
Terminal No.	Color of Wire	Signal Name
4	B	-
5	B	-
6	L	-
8	Y	-
14	P	-
16	W	-

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
61J	L	-
62J	P	-

Connector No.	M43
Connector Name	JOINT CONNECTOR-M02
Connector Color	BLUE



Terminal No.	Color of Wire	Signal Name
1	L	-
2	L	-
3	L	-
5	L	-
11	P	-
12	P	-
13	P	-
15	P	-

AADIA0651GB

CVT CONTROL SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F10D]

Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE

7P 8P 9P 10P 11P 12P 13P 14P 15P 16P



Terminal No.	Color of Wire	Signal Name
7P	Y	--
8P	LA/BR	--
13P	LA/G	--

Connector No.	M73
Connector Name	JOINT CONNECTOR-M26
Connector Color	WHITE

8 7 6 5 4 3 2 1



Terminal No.	Color of Wire	Signal Name
1	B	--
2	B	--

Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN

7R 8R 9R 10R 11R 12R 13R 14R 15R 16R



Terminal No.	Color of Wire	Signal Name
10R	GR	--
14R	W	--
15R	W	--

Connector No.	M69
Connector Name	WIRE TO WIRE
Connector Color	WHITE



16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
--

Terminal No.	Color of Wire	Signal Name
24	P	--
25	L	--

Connector No.	M73
Connector Name	JOINT CONNECTOR-M23
Connector Color	WHITE

8 7 6 5 4 3 2 1



Terminal No.	Color of Wire	Signal Name
1	W	--
2	W	--

Connector No.	M76
Connector Name	COMBINATION METER
Connector Color	WHITE



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
--

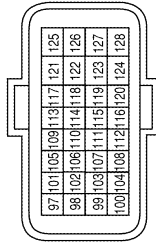
Terminal No.	Color of Wire	Signal Name
1	B	GND1
10	P	O/D OFF SW

CVT CONTROL SYSTEM

< WIRING DIAGRAM >

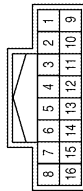
[CVT: RE0F10D]

Connector No.	E16
Connector Name	ECM
Connector Color	BLACK



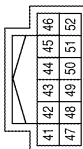
Terminal No.	Color of Wire	Signal Name
99	P	CAN-L
100	L	CAN-H

Connector No.	M107
Connector Name	CVT SHIFT SELECTOR
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	P	-
2	B	-

Connector No.	M77
Connector Name	COMBINATION METER
Connector Color	WHITE



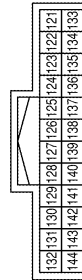
Terminal No.	Color of Wire	Signal Name
41	L	CAN-H
42	P	CAN-L
45	LA/G	ALVUSBAT
46	LA/BR	IGN
52	B	GND2

Connector No.	E38
Connector Name	STOP LAMP SWITCH
Connector Color	WHITE



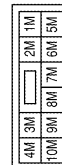
Terminal No.	Color of Wire	Signal Name
1	V	-
2	LG	-

Connector No.	E29
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
125	LG	I BRAKE SW2

Connector No.	E28
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
5M	V	-

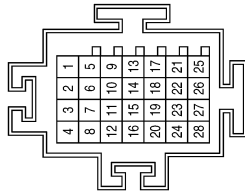
AADIA0653GB

CVT CONTROL SYSTEM

< WIRING DIAGRAM >

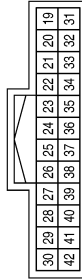
[CVT: RE0F10D]

Connector No.	E44
Connector Name	JOINT CONNECTOR-E01
Connector Color	WHITE



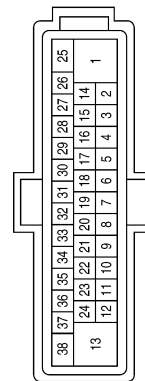
Terminal No.	Color of Wire	Signal Name
1	L	-
2	P	-
5	L	-
6	P	-
9	L	-
10	P	-
13	L	-
14	P	-
17	L	-
18	P	-
23	LG	-
27	LG	-

Connector No.	E120
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



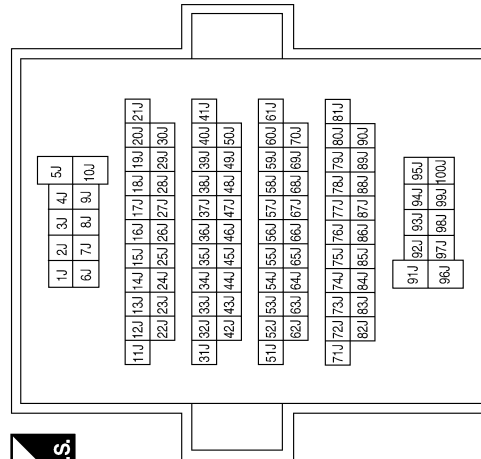
Terminal No.	Color of Wire	Signal Name
22	P	CAN-L
24	L	CAN-H
39	L	CAN-H
40	P	CAN-L

Connector No.	E125
Connector Name	ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
14	P	CAN-L
26	L	CAN-H

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
61J	L	-
62J	P	-

CVT CONTROL SYSTEM

< WIRING DIAGRAM >

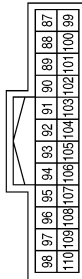
[CVT: RE0F10D]

Connector No.	F73
Connector Name	INPUT SPEED SENSOR
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	GR	—
2	LG	—
3	BR	—

Connector No.	F42
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK



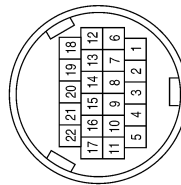
Terminal No.	Color of Wire	Signal Name
87	L	CAN-H
88	P	CAN-L
92	GR	LI NP SW

Connector No.	F35
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
70	BG	O IGN AT LPG
71	SB	O IGN REVERSE SW AC VALVE

Connector No.	F74
Connector Name	CVT UNIT
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
1	GR	—
2	V	—
3	W	—
4	Y	—
5	G	—
6	—	—
7	—	—

Terminal No.	Color of Wire	Signal Name
8	—	—
9	—	—
10	—	—
11	—	—
12	BR	—
13	R	—
14	SB	—
15	—	—
16	—	—
17	—	—
18	LG	—
19	—	—
20	—	—
21	—	—
22	BG	—

AADIA0655GB

CVT CONTROL SYSTEM

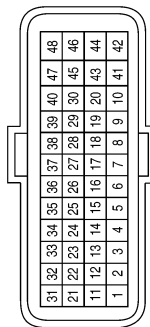
< WIRING DIAGRAM >

[CVT: RE0F10D]

Terminal No.	Color of Wire	Signal Name
35	GR	PRI SPEED SENS
36	—	—
37	Y	SELECT SOL VALVE
38	G	TCC SOLE VALVE
39	W	SEC PRESS SOLE VALVE
40	V	PRI PRESS SOLE VALVE
41	B	GND
42	B	GND
43	—	—
44	—	—
45	V	BATT
46	V	BATT
47	BG	VIGN
48	BG	VIGN

Terminal No.	Color of Wire	Signal Name
13	—	—
14	—	—
15	—	—
16	SB	SEC PRESS SENS
17	R	PRI PRESS SENS
18	—	—
19	—	—
20	—	—
21	—	—
22	—	—
23	P	CAN-L
24	LG	INPUT SPEED SENS
25	—	—
26	BG	SENS PWR SUPPLY
27	—	—
28	—	—
29	—	—
30	GR	LINE PRESS SOLE VALVE
31	—	—
32	—	—
33	L	CAN-H
34	W	OUTPUT SPEED SENS

Connector No.	F75
Connector Name	TCM (TRANSMISSION CONTROL MODULE)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	—	—
2	GR	L RANGE SW
3	—	—
4	Y	D RANGE SW
5	BR	N RANGE SW
6	G	R RANGE SW
7	V	P RANGE SW
8	—	—
9	—	—
10	—	—
11	LG	SENSOR GND
12	BR	CVT FLUID TEMP SENS

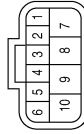
AADIA0656GB

CVT CONTROL SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F10D]

Connector No.	F78
Connector Name	TRANSMISSION RANGE SWITCH
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
2	Y	-
4	W	-
5	V	-
6	GR	-
7	BG	-
8	G	-
9	BR	-
10	GR	-

Connector No.	F77
Connector Name	OUTPUT SPEED SENSOR
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	GR	-
2	W	-
3	BG	-

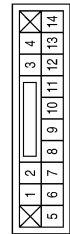
Connector No.	F76
Connector Name	PRIMARY SPEED SENSOR
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	B	-
2	GR	-
3	BR	-

Terminal No.	Color of Wire	Signal Name
6	-	-
7	-	-
8	-	-
9	O	-
10	L	-
11	W	-
12	R	-
13	B/Y	-
14	-	-

Connector No.	F207
Connector Name	CONTROL VALVE
Connector Color	-



Terminal No.	Color of Wire	Signal Name
1	GR	-
2	BR	-
3	Y	-
4	P	-
5	B	-

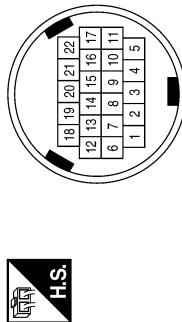
AADIA0657GB

CVT CONTROL SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F10D]

Connector No.	F209
Connector Name	CVT UNIT
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	GR	-
2	O	-
3	BR	-
4	P	-
5	Y	-
6	-	-

Terminal No.	Color of Wire	Signal Name
7	-	-
8	-	-
9	-	-
10	-	-
11	-	-
12	B	-
13	L	-
14	R	-
15	-	-
16	-	-
17	-	-
18	B/Y	-
19	-	-
20	-	-
21	-	-
22	W	-

Connector No.	B16
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GREEN



60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61
----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

Terminal No.	Color of Wire	Signal Name
60	L	CAN-H
80	P	CAN-L

Connector No.	B41
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

Connector No.	B63
Connector Name	JOINT CONNECTOR-B01
Connector Color	GRAY



4	3	2	1	8	7	6	5	12	11	10	9	16	15	14	13	20	19	18	17	24	23	22	21
---	---	---	---	---	---	---	---	----	----	----	---	----	----	----	----	----	----	----	----	----	----	----	----

Connector No.	B75
Connector Name	AWD CONTROL UNIT
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----

Terminal No.	Color of Wire	Signal Name
24	P	CAN-L
25	L	CAN-H

Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-
11	P	-
12	L	-

Terminal No.	Color of Wire	Signal Name
8	L	CAN-H
16	P	CAN-L

AADIA0658GB

CVT SHIFT LOCK SYSTEM

< WIRING DIAGRAM >

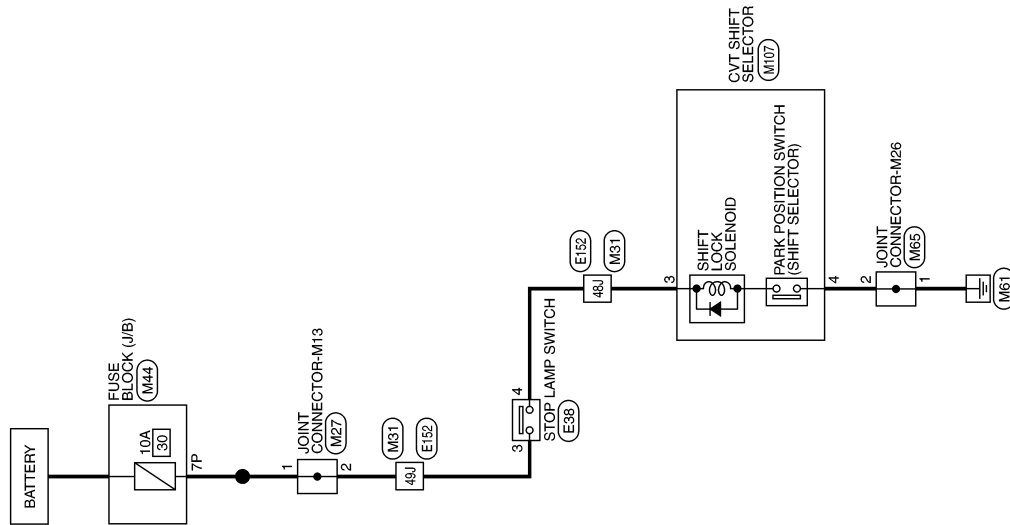
[CVT: RE0F10D]

CVT SHIFT LOCK SYSTEM

Wiring Diagram

INFOID:000000009982101

CVT SHIFT LOCK SYSTEM



AADWA0311GB

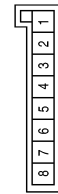
CVT SHIFT LOCK SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F10D]

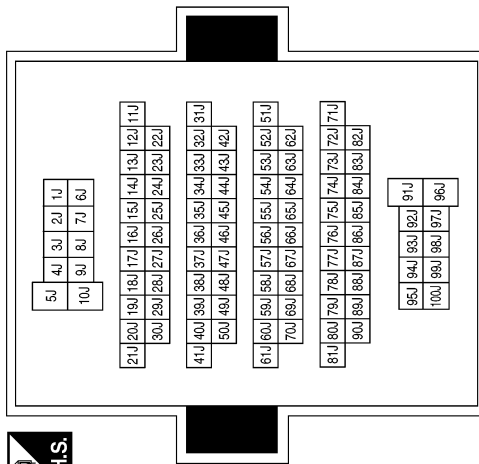
CVT SHIFT LOCK SYSTEM CONNECTORS

Connector No.	M27
Connector Name	JOINT CONNECTOR-M13
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	SB	-
2	SB	-

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE



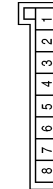
Terminal No.	Color of Wire	Signal Name
48J	R	-
49J	SB	-

Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



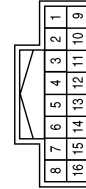
Terminal No.	Color of Wire	Signal Name
7P	Y	-

Connector No.	M65
Connector Name	JOINT CONNECTOR-M26
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	B	-
2	B	-

Connector No.	M107
Connector Name	CVT SHIFT SELECTOR
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
3	R	-
4	B	-

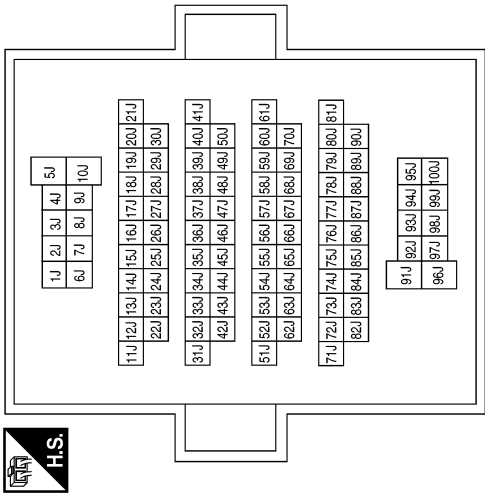
CVT SHIFT LOCK SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F10D]

Terminal No.	Color of Wire	Signal Name
48J	W	-
49J	L	-

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	E38
Connector Name	STOP LAMP SWITCH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
3	L	-
4	W	-

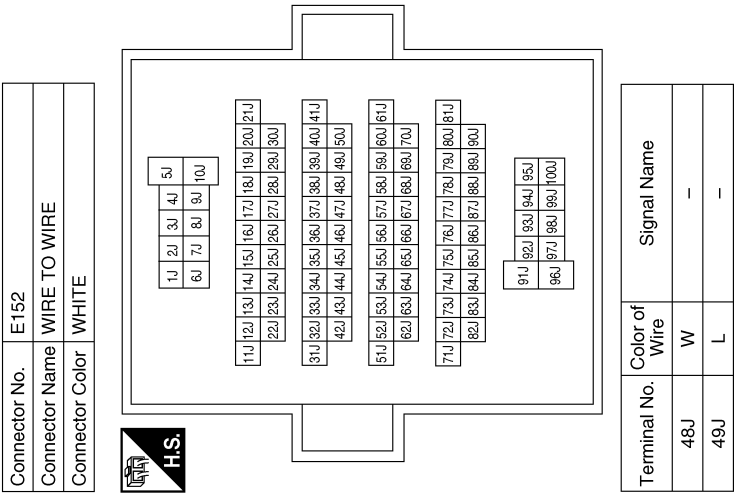
AADIA0649GB

A
B
C
TM
E
F
G
H
I
J
K
L
M
N
O
P

CVT SHIFT LOCK SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F10D]



AADIA0650GB

BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

INFOID:000000009982102

NOTE:

"DTC" includes DTC at the 1st trip.

1.OBTAIN INFORMATION ABOUT SYMPTOM

Refer to [TM-80, "Diagnostic Work Sheet"](#) and interview the customer to obtain the malfunction information (conditions and environment when the malfunction occurred) as much as possible when the customer brings in the vehicle.

>> GO TO 2.

2.CHECK DTC

1. Before checking the malfunction, check whether any DTC exists.
2. If DTC exists, perform the following operations.
 - Records the DTCs. (Print out using CONSULT and affix to the Work Order Sheet.)
 - Erase DTCs.
 - Check the relation between the cause found by DTC and the malfunction information from customer. [TM-186, "Symptom Table"](#) can be used effectively.
3. Check the relevant information including STI, etc.

Do malfunction information and DTC exists?

Malfunction information and DTC exists.>>GO TO 3.

Malfunction information exists but no DTC.>>GO TO 4.

No malfunction information, but DTC exists.>>GO TO 5.

3.REPRODUCE MALFUCTION SYSTEM

Check the malfunction described by the customer on the vehicle.

Check if the behavior is fail safe or normal operation. Refer to [TM-58, "Fail-safe"](#).

Interview sheet can be used effectively when reproduce malfunction conditions. Refer to [TM-80, "Diagnostic Work Sheet"](#).

Verify the relationship between the symptom and the conditions in which the malfunction described by the customer occurs.

>> GO TO 5.

4.REPRODUCE MALFUNCTION SYMPTOM

Check the malfunction described by the customer on the vehicle.

Check if the behavior is fail safe or normal operation. Refer to [TM-58, "Fail-safe"](#).

Interview sheet can be used effectively when reproduce malfunction conditions. Refer to [TM-80, "Diagnostic Work Sheet"](#).

Verify the relationship between the symptom and the conditions in which the malfunction described by the customer occurs.

>> GO TO 6.

5.PERFORM "DTC CONFIRMATION PROCEDURE"

Perform "DTC CONFIRMATION PROCEDURE" of the appropriate DTC to check if DTC is detected again.

Refer to [TM-62, "DTC Inspection Priority Chart"](#) when multiple DTCs are detected, and then determine the order for performing the diagnosis.

Is any DTC detected?

YES >> GO TO 7.

NO >> Follow [GI-41, "Intermittent Incident"](#) to check.

6.IDENTIFY MALFUNCTIONING SYSTEM WITH "DIAGNOSIS CHART BY SYMPTOM"

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[CVT: RE0F10D]

Use [TM-186, "Symptom Table"](#) from the symptom inspection result in step 4. Then identify where to start performing the diagnosis based on possible causes and symptoms.

>> GO TO 8.

7. REPAIR OR REPLACE THE MALFUNCTIONING PARTS

Repair or replace the detected malfunctioning parts.

Reconnect parts or connector after repairing or replacing, and then erase DTC if necessary.

>> GO TO 8.

8. FINAL CHECK

Perform "DTC CONFIRMATION PROCEDURE" again to make sure that the repair is correctly performed. Check that malfunctions are not reproduced when obtaining the malfunction information from the customer, referring to the symptom inspection result in step 3 or 4.

Is DTC or malfunction symptom reproduced?

YES-1 (DTC is reproduced.)>>GO TO 5.

YES-2 (Malfunction is reproduced.)>>GO TO 6.

NO >> Before delivering the vehicle to the customer, make sure that DTC is erased.

Diagnostic Work Sheet

INFOID:000000009982103

DESCRIPTION

There are many operating conditions that may cause a malfunction of the transmission parts. By understanding those conditions properly, a quick and exact diagnosis can be achieved.

In general, perception of a problem varies depending on individuals. Ask the customer about his/her concerns carefully. It is important to understand the phenomenon or status. To systemize all the information for the diagnosis, prepare the question sheet referring to the question points.

In some cases, multiple conditions that appear simultaneously may cause a DTC to be detected.

KEY POINTS

WHAT Vehicle & engine model
WHEN Date, Frequencies
WHERE..... Road conditions
HOW Operating conditions,
 Weather conditions,
 Symptoms

SEF907L

Worksheet Sample

Question sheet						
Customer's name	MR/MS	Registration number		Initial year registration	Year	Month day
		Vehicle type		Chassis No.		
Storage date	Year	Month day	Engine	Mileage		km/mile
Symptom			☐ Vehicle does not start. (☐ R position ☐ D position ☐ L position)			
			☐ Upshifting does not occur. ☐ Downshifting does not occur.			
			☐ Lock-up malfunction			
			☐ Shift point is too high. ☐ Shift point is too low.			
			☐ Shift shock (☐ N⇒D ☐ Lock-up ☐ R, D, and L)			
			☐ Slip (☐ N⇒D ☐ Lock-up ☐ R, D, and L)			
			☐ Noise ☐ Vibration			
			When selector lever position is shifted, shift pattern does not change.			
			☐ Other ()			
First occurrence			☐ Recently (as from month of year)			
Frequency of occurrence			☐ Always ☐ Under certain conditions ☐ Sometimes (time(s)/day)			

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[CVT: RE0F10D]

Question sheet						
Customer's name	MR/MS	Registration number		Initial year registration	Year	Month day
		Vehicle type		Chassis No.		
Storage date	Year	Month day	Engine		Mileage	km/mile
Climate conditions		Irrelevant				
		Weather ☐ Clear ☐ Cloud ☐ Rain ☐ Snow ☐ Others)				
		☐ Hot ☐ Warm ☐ Cool ☐ Cold ☐ Temperature (Approx. °C/°F)				
		☐ High ☐ Moderate ☐ Low				
Transaxle condition		☐ In cold-start ☐ During warm-up (approx. °C/°F) ☐ After warm-up ☐ Engine speed: rpm				
Road conditions		☐ Urban area ☐ Suburb area ☐ Highway ☐ Mountainous road (uphill or downhill)				
Operating condition, etc.		Irrelevant ☐ When engine starts ☐ During idling ☐ During driving ☐ During acceleration ☐ At constant speed driving ☐ During deceleration ☐ During cornering (RH curve or LH curve)				
Other conditions						

A
B
C
TM
E
F
G
H
I
J
K
L
M
N
O
P

ADDITIONAL SERVICE WHEN REPLACING TCM

< BASIC INSPECTION >

[CVT: RE0F10D]

ADDITIONAL SERVICE WHEN REPLACING TCM

Description

INFOID:000000009982104

Always perform the following items when the TCM is replaced.

TCM PROGRAMMING

- Since vehicle specifications are not yet written in a new TCM, it is necessary to write them with CONSULT.

CAUTION:

When replacing TCM, save TCM data on CONSULT before removing TCM.

SAVING AND WRITING OF TCM DATA

- TCM performs accurate control by retrieving data (inherent characteristic value) of each solenoid. For this reason, it is necessary to save data of current TCM in CONSULT before replacing the TCM. After this, the saved data must be written in new TCM.

Work Procedure

INFOID:000000009982105

1.SAVE TCM DATA (IP CHARACTERISTICS VALUE)

NOTE:

Save necessary data stored in TCM in CONSULT according to the following instructions:

With CONSULT

1. Turn ignition switch OFF and wait for 10 seconds.
2. Turn ignition switch ON.
3. Select "Work Support" in "TRANSMISSION".
4. Select "READ IP CHARA - REPLACEMENT TCM".
5. Import data according to the instructions on the CONSULT screen.

>> GO TO 2.

2.SAVE TCM DATA (VEHICLE SPECIFICATIONS)

With CONSULT

1. Turn ignition switch OFF.
2. Turn ignition switch ON.
3. Select "Re/programming, Configuration".
4. Select "AT/CVT".

NOTE:

If "AT/CVT" is not displayed and TCM data cannot be saved on CONSULT, GO TO 3.

5. Select "Programming".
6. Save TCM data on CONSULT according to the CONSULT display.

>> GO TO 3.

3.REPLACE TCM

1. Turn ignition switch OFF and wait for 10 seconds.
2. Replace TCM. Refer to [TM-202. "Removal and Installation"](#).

>> GO TO 4.

4.WRITE TCM DATA (VEHICLE SPECIFICATIONS)

With CONSULT

1. Select "Programming".
2. Perform programming according to the CONSULT display.

>> GO TO 5.

5.WRITE TCM DATA (IP CHARACTERISTICS VALUE)

NOTE:

Write data saved in CONSULT into a new TCM according to the following instructions:

ADDITIONAL SERVICE WHEN REPLACING TCM

< BASIC INSPECTION >

[CVT: RE0F10D]

With CONSULT

1. Turn ignition switch OFF and wait for 10 seconds.
2. Turn ignition switch ON.
3. Select "Work Support" in "TRANSMISSION".
4. Select "WRITE IP CHARA - REPLACEMENT TCM".
5. Write data saved in CONSULT in TCM according to the instructions on the CONSULT screen.

>> WORK END

A

B

C

TM

E

F

G

H

I

J

K

L

M

N

O

P

ADDITIONAL SERVICE WHEN REPLACING TRANSAXLE ASSEMBLY

< BASIC INSPECTION >

[CVT: RE0F10D]

ADDITIONAL SERVICE WHEN REPLACING TRANSAXLE ASSEMBLY

Description

INFOID:000000009982106

Perform the following work after the transaxle assembly is replaced.

WRITING TCM DATA

- TCM performs accurate control by retrieving data (inherent characteristic value) of each solenoid. For this reason, after replacing transaxle assembly, it is necessary to write new data in TCM.

ERASING OF CVT FLUID DEGRADATION LEVEL DATA

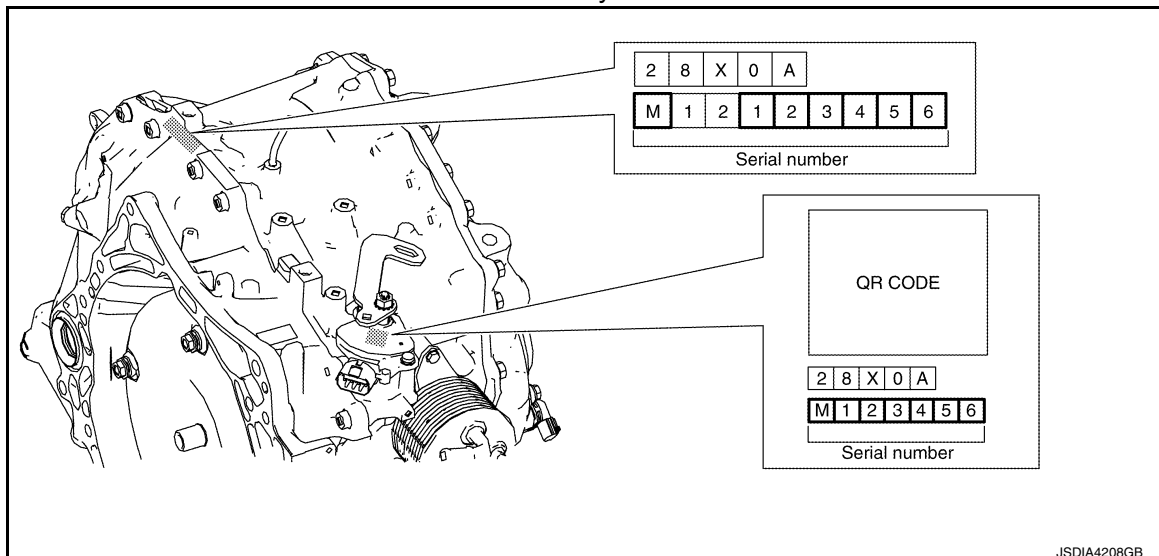
- TCM records the degradation level of the CVT fluid calculated from the vehicle driving status. Therefore, if the transaxle assembly is replaced, it is necessary to erase the CVT fluid degradation level data recorded by TCM.

Work Procedure

INFOID:000000009982107

1.CHECK THE SERIAL NUMBER

Write down the serial number of new transaxle assembly.



>> GO TO 2.

2.WRITE TCM DATA (IP CHARACTERISTICS VALUE)

NOTE:

Write data of new solenoid in TCM according to the following instructions:

With **CONSULT**

CAUTION:

When the work is interrupted, obtain data again from the supplied CD.

1. Shift the selector lever to the P position.
2. Turn ignition switch OFF and wait for 10 seconds.
3. Turn ignition switch ON.
4. Insert the supplied CD into CONSULT.
5. Select "Work Support" in "TRANSMISSION".
6. Select "WRITE IP CHARA - REPLACEMENT AT/CVT".
7. Check that the serial number displayed on CONSULT screen and those written in the memo agree.
8. Write data in TCM according to the instructions on the CONSULT screen.

NOTE:

When writing is complete, the shift position indicator of the combination meter displays P.

>> GO TO 3.

3.ERASE CVT FLUID DEGRADATION LEVEL DATA

ADDITIONAL SERVICE WHEN REPLACING TRANSAXLE ASSEMBLY

< BASIC INSPECTION >

[CVT: RE0F10D]

With CONSULT

1. Select "WORK SUPPORT" in "TRANSMISSION".
2. Select "CONFORM CVTF DETERIORATION".
3. Touch "Clear".

>> WORK END

A

B

C

TM

E

F

G

H

I

J

K

L

M

N

O

P

ADDITIONAL SERVICE WHEN REPLACING TCM AND TRANSAXLE ASSEMBLY

< BASIC INSPECTION >

[CVT: RE0F10D]

ADDITIONAL SERVICE WHEN REPLACING TCM AND TRANSAXLE ASSEMBLY

Description

INFOID:000000010288803

When replacing TCM and transaxle assembly simultaneously, perform the following work.

TCM PROGRAMMING

- Since vehicle specifications are not yet written in a new TCM, it is necessary to write them with CONSULT.

CAUTION:

When replacing TCM, save TCM data on CONSULT before removing TCM.

WRITING TCM DATA

- TCM performs accurate control by retrieving data (inherent characteristic value) of each solenoid. For this reason, after replacing TCM and transaxle assembly, it is necessary to write new data in TCM.

Work Procedure

INFOID:000000010288804

1. SAVE TCM DATA (VEHICLE SPECIFICATIONS)

With CONSULT

1. Turn ignition switch OFF.
2. Turn ignition switch ON.
3. Select "Re/programming, Configuration".
4. Select "AT/CVT".

NOTE:

If "AT/CVT" is not displayed and TCM data cannot be saved on CONSULT, GO TO 2.

5. Select "Programming".
6. Save TCM data on CONSULT according to the CONSULT display.

>> GO TO 2.

2. REPLACE TCM AND TRANSAXLE ASSEMBLY

1. Turn ignition switch OFF and wait for 10 seconds.
2. Replace TCM and transaxle assembly. Refer to [TM-202, "Removal and Installation"](#) (TCM), [TM-220, "Removal and Installation"](#) (Transaxle assembly).

>> GO TO 3.

3. WRITE TCM DATA (VEHICLE SPECIFICATIONS)

With CONSULT

1. Select "Programming".
2. Perform programming according to the CONSULT display.

>> GO TO 4.

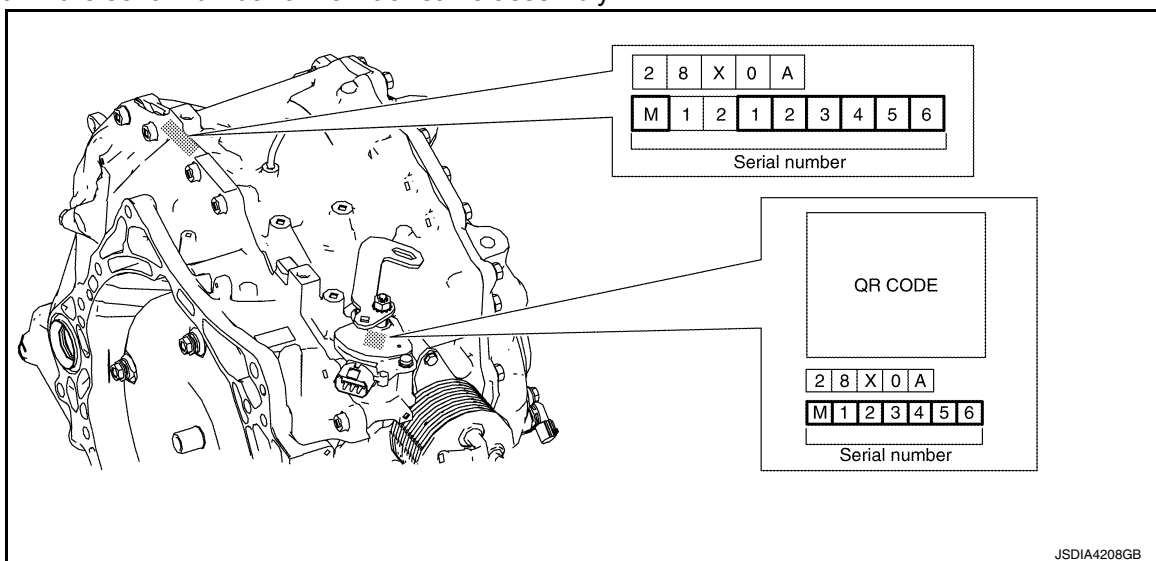
4. CHECK THE SERIAL NUMBER

ADDITIONAL SERVICE WHEN REPLACING TCM AND TRANSAXLE ASSEMBLY

< BASIC INSPECTION >

[CVT: RE0F10D]

Write down the serial number of new transaxle assembly.



>> GO TO 5.

5. WRITE TCM DATA (IP CHARACTERISTICS VALUE)

NOTE:

Write data of new solenoid in TCM according to the following instructions:

With CONSULT

CAUTION:

When the work is interrupted, obtain data again from the supplied CD.

1. Shift the selector lever to the P position.
2. Turn ignition switch OFF and wait for 10 seconds.
3. Turn ignition switch ON.
4. Insert the supplied CD into CONSULT.
5. Select "Work Support" in "TRANSMISSION".
6. Select "WRITE IP CHARA - REPLACEMENT AT/CVT".
7. Check that the serial number displayed on CONSULT screen and those written in the memo agree.
8. Write data in TCM according to the instructions on the CONSULT screen.

NOTE:

When writing is complete, the shift position indicator of the combination meter displays P.

>> WORK END

CVT FLUID COOLER SYSTEM

Cleaning

INFOID:000000009992402

Whenever an automatic transaxle is repaired, overhauled, or replaced, the CVT fluid cooler mounted in the radiator must be inspected and cleaned.

Metal debris and friction material, if present, can be trapped or be deposited in the CVT fluid cooler. This debris can contaminate the newly serviced CVT or, in severe cases, can block or restrict the flow of CVT fluid. In either case, malfunction of the newly serviced CVT may occur.

Debris, if present, may deposit as CVT fluid enters the cooler inlet. It will be necessary to back flush the cooler through the cooler outlet in order to flush out any built up debris.

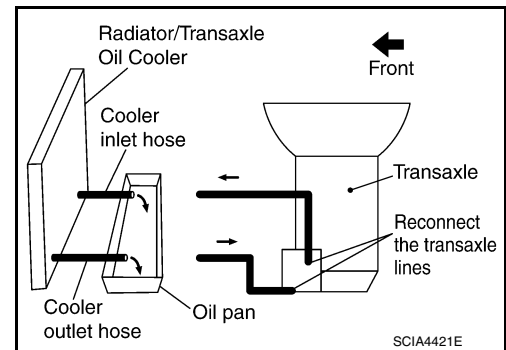
CVT FLUID COOLER CLEANING PROCEDURE

1. Position an oil pan under the transaxle's inlet and outlet cooler hoses.
2. Identify the inlet and outlet fluid cooler hoses.
3. Disconnect the fluid cooler inlet and outlet rubber hoses from the steel cooler tubes or bypass valve.

NOTE:

Replace the cooler hoses if rubber material from the hose remains on the tube fitting.

4. Allow any CVT fluid that remains in the cooler hoses to drain into the oil pan.

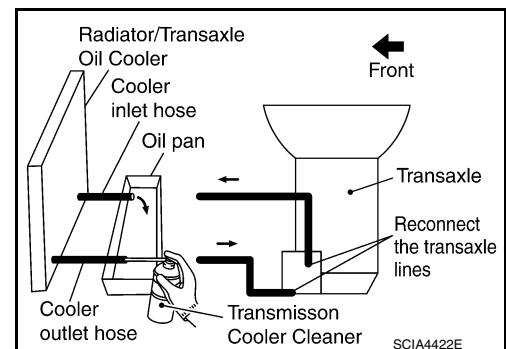


5. Insert the extension adapter hose of a can of Transmission Cooler Cleaner (Nissan P/N 999MP-AM006) into the cooler outlet hose.

CAUTION:

- **Wear safety glasses and rubber gloves when spraying the Transmission Cooler Cleaner.**
- **Spray Transmission Cooler Cleaner only with adequate ventilation.**
- **Avoid contact with eyes and skin.**
- **Never breath vapors or spray mist.**

6. Hold the hose and can as high as possible and spray Transmission Cooler Cleaner in a continuous stream into the cooler outlet hose until CVT fluid flows out of the cooler inlet hose for 5 seconds.



7. Insert the tip of an air gun into the end of the cooler outlet hose.
8. Wrap a shop rag around the air gun tip and end of the cooler outlet hose.

9. Blow compressed air regulated to 5 to 9 kg/cm² (70 to 130 psi) through the cooler outlet hose for 10 seconds to force out any remaining CVT fluid.

10. Repeat steps 5 through 9 three additional times.

11. Position an oil pan under the banjo bolts that connect the CVT fluid cooler steel lines to the transaxle.

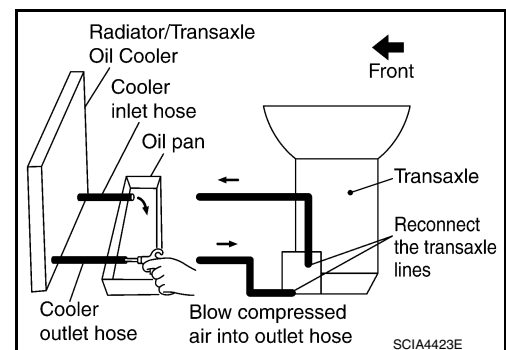
12. Remove the banjo bolts.

13. Flush each steel line from the cooler side back toward the transaxle by spraying Transmission Cooler Cleaner in a continuous stream for 5 seconds.

14. Blow compressed air regulated to 5 to 9 kg/cm² (70 to 130 psi) through each steel line from the cooler side back toward the transaxle for 10 seconds to force out any remaining CVT fluid.

15. Ensure all debris is removed from the steel cooler lines.

16. Ensure all debris is removed from the banjo bolts and fittings.



CVT FLUID COOLER SYSTEM

< BASIC INSPECTION >

[CVT: RE0F10D]

17. Perform "CVT FLUID COOLER DIAGNOSIS PROCEDURE".

CVT FLUID COOLER DIAGNOSIS PROCEDURE

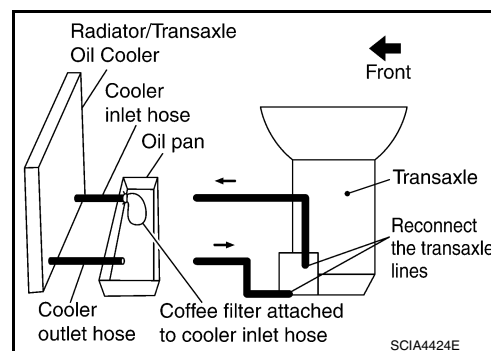
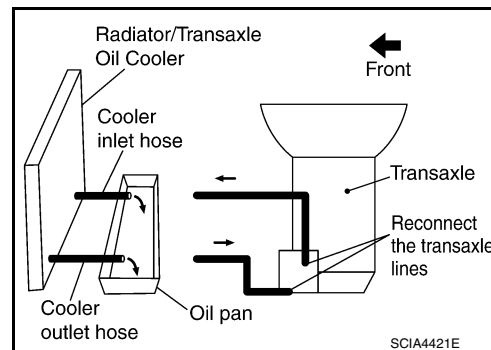
NOTE:

Insufficient cleaning of the cooler inlet hose exterior may lead to inaccurate debris identification.

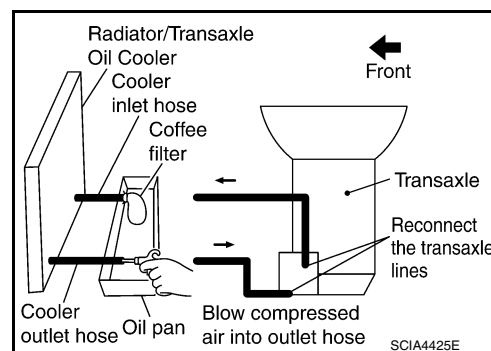
1. Position an oil pan under the transaxle's inlet and outlet cooler hoses.
2. Clean the exterior and tip of the cooler inlet hose.
3. Insert the extension adapter hose of a can of Transmission Cooler Cleaner (Nissan P/N 999MP-AM006) into the cooler outlet hose.

CAUTION:

- **Wear safety glasses and rubber gloves when spraying the Transmission Cooler Cleaner.**
 - **Spray Transmission Cooler Cleaner only with adequate ventilation.**
 - **Avoid contact with eyes and skin.**
 - **Never breath vapors or spray mist.**
4. Hold the hose and can as high as possible and spray Transmission Cooler Cleaner in a continuous stream into the cooler outlet hose until CVT fluid flows out of the cooler inlet hose for 5 seconds.
 5. Tie a common white, basket-type coffee filter to the end of the cooler inlet hose.

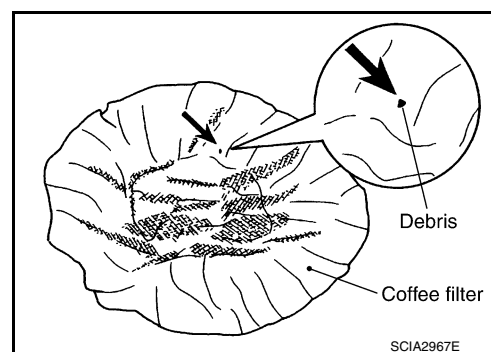


6. Insert the tip of an air gun into the end of the cooler outlet hose.
7. Wrap a shop rag around the air gun tip and end of cooler outlet hose.
8. Blow compressed air regulated to 5 to 9 kg/cm² (70 to 130 psi) through the cooler outlet hose to force any remaining CVT fluid into the coffee filter.
9. Remove the coffee filter from the end of the cooler inlet hose.
10. Perform "CVT FLUID COOLER INSPECTION PROCEDURE".



CVT FLUID COOLER INSPECTION PROCEDURE

1. Inspect the coffee filter for debris.
- a. If small metal debris less than 1 mm (0.040 in) in size or metal powder is found in the coffee filter, this is normal. If normal debris is found, the CVT fluid cooler/radiator can be reused and the procedure is ended.

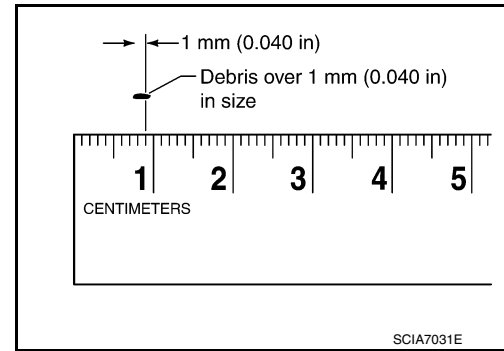


CVT FLUID COOLER SYSTEM

< BASIC INSPECTION >

[CVT: RE0F10D]

- b. If one or more pieces of debris are found that are over 1 mm (0.040 in) in size and/or peeled clutch facing material is found in the coffee filter, the fluid cooler is not serviceable. The radiator/ fluid cooler must be replaced and the inspection procedure is ended.



CVT FLUID COOLER FINAL INSPECTION

After performing all procedures, ensure that all remaining oil is cleaned from all components.

STALL TEST

< BASIC INSPECTION >

[CVT: RE0F10D]

STALL TEST

Work Procedure

INFOID:000000009982108

INSPECTION

1. Check the engine oil level. Replenish if necessary. Refer to [LU-7, "Inspection"](#).
2. Check for leak of the CVT fluid. Refer to [TM-190, "Inspection"](#).
3. Drive for about 10 minutes to warm up the vehicle so that the CVT fluid temperature is 50 to 80°C (122 to 176°F).
4. Be sure to apply the parking brake and block the tires.
5. Start the engine, depress the brake pedal and put the selector lever to the D position.
6. While depressing the brake pedal, depress the accelerator pedal gradually.
7. Read the stall speed quickly. Then, release your foot from the accelerator pedal quickly.

CAUTION:

Do not depress the accelerator pedal for 5 seconds or more during the test.

Stall speed : Refer to [TM-226, "Stall Speed"](#).

8. Place the selector lever in the N position.
9. Cool the CVT fluid.
- CAUTION:**
Run the engine with the idle speed for at least 1 minute.
10. Put the selector lever to the R position and perform Step 6 to Step 9 again.

NARROWING-DOWN MALFUNCTIONING PARTS

	Selector lever position		Possible cause
	D	R	
Stall speed	H	O	• Forward clutch
	O	H	• Reverse brake
	L	L	• Engine • Torque converter one way clutch
	H	H	• Line pressure is low. • Primary pulley • Secondary pulley • Steel belt

O: Within the stall speed standard value.

H: Stall speed is higher than the standard value.

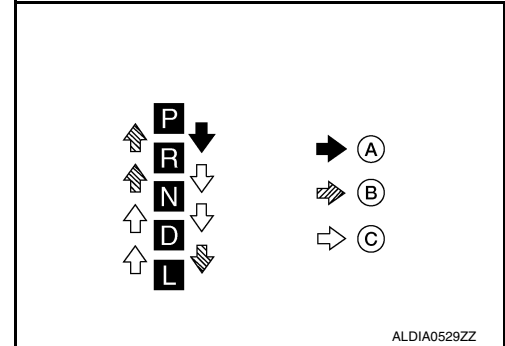
L: Stall speed is lower than the standard value.

CVT POSITION

Inspection

INFOID:000000009982109

1. Turn ON the ignition switch with the shift selector at the "P" position.
2. Press the shift selector button with the brake pedal depressed, and confirm that the shift selector can be moved to positions other than "P". Also confirm that movement is not allowed from the "P" position to other position without depressing the brake pedal.
3. Move the shift selector and check for "excessive effort", "sticking", "noise" or "rattle".
4. Confirm that shift selector stops at each position with the feel of engagement when it is moved through all the positions. Check whether or not the actual position the shift selector is in matches the position shown by the transaxle body.
5. Make sure that the shift selector is moved to all the shift positions in the manner shown.
 - (A): Press shift selector button to operate shift selector, while depressing the brake pedal.
 - (B): Press shift selector button to operate shift selector.
 - (C): Shift selector can be operated without pressing the shift selector button.
6. When the shift selector button is pressed without applying forward/backward force to the shift selector at "P", "R", "N", "D" or "L" positions, there should be no "sticking" on the shift selector button operation.
7. Check that the back-up lamps do not illuminate when the shift selector is in the "P" position.

**CAUTION:****Check the lighting without pressing shift button.**

8. Check that the engine can be started with the shift selector in the "P" and "N" positions only.
9. Check that the transaxle is locked completely when the shift selector is in the "P" position.
10. The relationship between shift selector, engine starting ability, and shift position indicator lighting should satisfy the conditions of the following table.

Shift selector position	Load direction to the shift selector	Applied load to the shift selector	Engine starting ability	Shift position indicator lighting
P	P (over stroke) ← P → R	29.4 N (3.00 kg, 6.61 lb)	Start	P indicator shall be illuminated
R	P ← R		Not start	R indicator shall be illuminated
N	R ← N		—	N indicator shall be illuminated
	—	—	Start	
D	—	—	Not start	D indicator shall be illuminated
L	—	—	Not start	L indicator shall be illuminated

Adjustment

INFOID:000000009982110

1. Move the selector lever to the "P" position.

CAUTION:
Rotate the wheels at least a quarter turn and be certain the Park position mechanism is fully engaged.

CVT POSITION

< BASIC INSPECTION >

[CVT: RE0F10D]

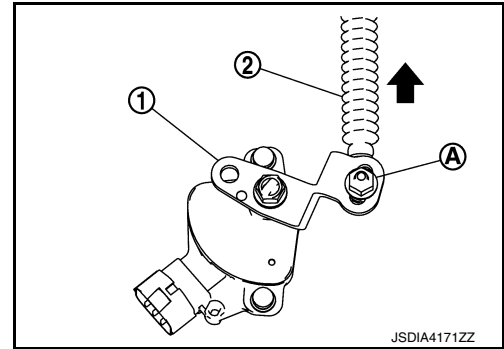
2. Loosen nut (A) and set manual lever (1) to the "P" position.
CAUTION:
Do not apply force to the manual lever.
3. Hold the control cable (2) and push it to direction of the arrow with a specified force.

Specified force : 9.8 N (1.0 kg, 2.2 lb)

4. Temporarily tighten the nut with the control cable loose.
5. Tighten the nut to the specified torque. Refer to [TM-197](#).
"Exploded View".

CAUTION:

Hold the manual lever securely in the "P" position when tightening control cable nut.



A

B

C

TM

E

F

G

H

I

J

K

L

M

N

O

P

HOW TO ERASE PERMANENT DTC

Description

INFOID:0000000010335784

Permanent DTC can be erased by driving each driving pattern. ECM recognizes each driving pattern; it transmits signals to each control module when the driving is complete. Each control module erases permanent DTC based on those signals. For details, refer to [EC-151, "Description"](#).

U0073 COMMUNICATION BUS A OFF

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

DTC/CIRCUIT DIAGNOSIS

U0073 COMMUNICATION BUS A OFF

DTC Description

INFOID:0000000009982111

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition
U0073	COMM BUS A OFF (Control Module Communication Bus A Off)	TCM communication blockage lasts for 2 seconds or more when turning ON the ignition switch. (Communication not established.)

POSSIBLE CAUSE

Harness or connector (CAN communication line is error)

FAIL-SAFE

- Selector shock is large
- Start is slow
- Acceleration is slow
- Lock-up is not performed

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine and wait for at least 5 seconds.
2. Check the DTC.

Is "U0073" detected?

- YES >> Go to [TM-95, "Diagnosis Procedure"](#).
- NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).
- NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000009982112

For the diagnosis procedure, refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).

U0100 LOST COMMUNICATION (ECM A)

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

U0100 LOST COMMUNICATION (ECM A)

DTC Description

INFOID:000000009982113

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition
U0100	LOST COMM (ECM A) (Lost Communication With ECM/PCM A)	When the ignition switch is ON, TCM is unable to receive the CAN communications signal from ECM continuously for 2 seconds or more.

POSSIBLE CAUSE

- ECM
- Harness or connector (CAN communication line is open or shorted)

FAIL-SAFE

- Selector shock is large
- Start is slow
- Acceleration is slow
- Lock-up is not performed

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine and wait for at least 5 seconds.
2. Check the DTC.

Is "U0100" detected?

YES >> Go to [TM-96, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:000000009982114

For the diagnosis procedure, refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).

U0102 LOST COMMUNICATION (TRANSFER)

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

U0102 LOST COMMUNICATION (TRANSFER)

DTC Description

INFOID:0000000010335821

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition
U0102	LOST COMM (TRANSFER) (Lost Communication With Transfer Case Control Module)	When the ignition switch is ON, TCM is unable to receive the CAN communications signal from AWD control unit continuously for 2 seconds or more.

POSSIBLE CAUSE

- AWD control unit
- Harness or connector (CAN communication line is open or shorted)

FAIL-SAFE

Not changed from normal driving

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT

1. Start the engine and wait for at least 5 seconds.
2. Check the DTC.

Is "U0102" detected?

YES >> Go to [TM-104, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010335822

For the diagnosis procedure, refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).

U0140 LOST COMMUNICATION (BCM)

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

U0140 LOST COMMUNICATION (BCM)

DTC Description

INFOID:000000009982115

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition
U0140	LOST COMM (BCM) (Lost Communication With Body Control Module)	When the ignition switch is ON, TCM is unable to receive the CAN communications signal from BCM continuously for 2 seconds or more.

POSSIBLE CAUSE

- BCM
- Harness or connector (CAN communication line is open or shorted)

FAIL-SAFE

Not changed from normal driving

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT

1. Start the engine and wait for at least 5 seconds.
2. Check the DTC.

Is "U0140" detected?

YES >> Go to [TM-98, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:000000009982116

For the diagnosis procedure, refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).

U0141 LOST COMMUNICATION (BCM A)

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

U0141 LOST COMMUNICATION (BCM A)

DTC Description

INFOID:000000009982117

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition
U0141	LOST COMM (BCM A) (Lost Communication With Body Control Module A)	When the ignition switch is turned ON, TCM continues no reception of the CAN communication signal from IPDM E/R for 2 seconds or more.

POSSIBLE CAUSE

- IPDM E/R
- Harness or connector (CAN communication line is open or shorted)

FAIL-SAFE

Not changed from normal driving

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT

1. Start the engine and wait for at least 5 seconds.
2. Check the DTC.

Is "U0141" detected?

- YES >> Go to [TM-99, "Diagnosis Procedure"](#).
- NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).
- NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:000000009982118

For the diagnosis procedure, refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).

U0155 LOST COMMUNICATION (IPC)

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

U0155 LOST COMMUNICATION (IPC)

DTC Description

INFOID:000000009982119

DTC DETECTION LOGIC

DTC	CONSULT screen terms [Trouble diagnosis content]	DTC detection condition
U0155	LOST COMM (IPC) [Lost Communication With Instrument Panel Cluster (IPC) Control Module]	When the ignition switch is ON, TCM is unable to receive the CAN communications signal from the combination meter continuously for 2 seconds or more.

POSSIBLE CAUSE

- Combination meter
- Harness or connector (CAN communication line is open or shorted)

FAIL-SAFE

Not changed from normal driving

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT

1. Start the engine and wait for at least 5 seconds.
2. Check the DTC.

Is "U0155" detected?

YES >> Go to [TM-100, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:000000009982120

For the diagnosis procedure, refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).

U0300 CAN COMMUNICATION DATA

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

U0300 CAN COMMUNICATION DATA

DTC Description

INFOID:000000009982121

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition
U0300	CAN COMM DATA (Internal Control Module Software Incompatibility)	When the ignition switch is ON, the data length transmitted from each control unit is shorter than the specified length and the status continues for 2 seconds or more.

POSSIBLE CAUSE

Control unit other than TCM

FAIL-SAFE

- Selector shock is large
- Start is slow
- Acceleration is slow
- Lock-up is not performed

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2. CHECK DTC DETECTION

With CONSULT

1. Start the engine and wait for 5 seconds or more.
2. Check the DTC.

Is "U0300" detected?

- YES >> Go to [TM-101, "Diagnosis Procedure"](#).
- NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).
- NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:000000009982122

1. CONTROL UNIT CHECK

Check the number of control units replaced before "U0300" is detected.

Is one control unit replaced?

- YES >> The specification of the control unit replaced may be incorrect. Check the part number and the specification.
- NO >> GO TO 2.

2. CONTROL UNIT CHECK

With CONSULT

1. Remove one of the control unit replaced.
2. Assemble the old control unit before replacement.
3. Turn ignition switch ON, and wait for 2 seconds or more.
4. Select "Self Diagnostic Results" in "TRANSMISSION".

Is "U0300" detected?

- YES >> Turn OFF the ignition switch and check other control units in the same manner.
- NO >> The specification of the control unit removed may be incorrect. Check the part number and the specification.

U1000 CAN COMM CIRCUIT

Description

INFOID:000000009982123

CAN (Controller Area Network) is a serial communication line for real-time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent malfunction detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independently). In CAN communication, control units are connected with 2 communication lines (CAN-H line, CAN-L line) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.

DTC Description

INFOID:000000009982124

CAN (Controller Area Network) is a serial communication line for real-time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent malfunction detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independently). In CAN communication, control units are connected with 2 communication lines (CAN-H line, CAN-L line) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition
U1000	CAN COMM CIRCUIT (CAN Communication Line)	When the ignition switch is ON, TCM cannot send the CAN communication signal continuously for 2 seconds or more.

POSSIBLE CAUSE

Harness or connector (CAN communication line is open or shorted)

FAIL-SAFE

Not changed from normal driving

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2. CHECK DTC DETECTION

With CONSULT

1. Start the engine and wait for at least 5 seconds.
2. Check the DTC.

Is "U1000" detected?

YES >> Go to [TM-102, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:000000009982125

For the diagnosis procedure, refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).

U110F LOST COMMUNICATION (ECM)

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

U110F LOST COMMUNICATION (ECM)

DTC Description

INFOID:0000000010335826

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition
U110F	LOST COMM (ECM) (Lost Communication With ECM)	When the ignition switch is ON, TCM is unable to receive the CAN communications signal from ECM continuously for 2 seconds or more.

POSSIBLE CAUSE

- ECM
- Harness or connector (CAN communication line is open or shorted)

FAIL-SAFE

Not changed from normal driving

DTC CONFIRMATION PROCEDURE

1.PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT

1. Start the engine and wait for at least 5 seconds.
2. Check the DTC.

Is "U110F" detected?

- YES >> Go to [TM-104, "Diagnosis Procedure"](#).
- NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).
- NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010335827

For the diagnosis procedure, refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).

U1111 LOST COMMUNICATION (CHASSIS CONTROL MODULE)

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

U1111 LOST COMMUNICATION (CHASSIS CONTROL MODULE)

DTC Description

INFOID:0000000010335828

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition
U1111	LOST COMM (CHASSIS CONT MDUL) (Lost Communication With Chassis Control Module)	When the ignition switch is ON, TCM is unable to receive the CAN communications signal from chassis control module continuously for 2 seconds or more.

POSSIBLE CAUSE

- Chassis control module
- Harness or connector (CAN communication line is open or shorted)

FAIL-SAFE

Not changed from normal driving

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT

1. Start the engine and wait for at least 5 seconds.
2. Check the DTC.

Is "U1111" detected?

- YES >> Go to [TM-104, "Diagnosis Procedure"](#).
- NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).
- NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000010335829

For the diagnosis procedure, refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).

U1117 LOST COMMUNICATION (ABS)

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

U1117 LOST COMMUNICATION (ABS)

DTC Description

INFOID:000000009982126

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition
U1117	LOST COMM (ABS) (Lost Communication With ABS)	When the ignition switch is ON, TCM is unable to receive the CAN communications signal from ABS actuator and electric unit (control unit) continuously for 2 seconds or more.

POSSIBLE CAUSE

- ABS actuator and electric unit (control unit)
- Harness or connector (CAN communication line is open or shorted)

FAIL-SAFE

Not changed from normal driving

DTC CONFIRMATION PROCEDURE

1.PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT

1. Start the engine and wait for 5 seconds or more.
2. Check the DTC.

Is "U1117" detected?

- YES >> Go to [TM-105, "Diagnosis Procedure"](#).
NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:000000009982127

For the diagnosis procedure, refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).

P062F EEPROM**Description**

INFOID:000000009982128

TCM compares the calculated value stored in the flash ROM with the value stored in TCM. If the calculated value does not agree with the stored value, TCM judges this as a malfunction.

DTC Description

INFOID:000000009982129

TCM compares the calculated value stored in the flash ROM with the value stored in TCM. If the calculated value does not agree with the stored value, TCM judges this as a malfunction.

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition
P062F	EEPROM (Internal Control Module EEPROM Error)	Flash ROM error is detected when turning ON the ignition switch.

POSSIBLE CAUSE

- TCM (Flash ROM)
- Harness or connector [TCM power supply (back-up) circuit is open or shorted]

FAIL-SAFE

Not changed from normal driving

DTC CONFIRMATION PROCEDURE**1.PREPARATION BEFORE WORK**

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2.CHECK DTC DETECTION

1. Start the engine.
2. Check the DTC.

Is "P062F" detected?

- YES >> Go to [TM-106, "Diagnosis Procedure"](#).
NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:000000009982130

1.REPLACE TCM

Replace the TCM. Refer to [TM-202, "Removal and Installation"](#).

>> WORK END

P0705 TRANSMISSION RANGE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

P0705 TRANSMISSION RANGE SENSOR A

DTC Description

INFOID:000000009982131

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition
P0705	T/M RANGE SENSOR A [Transmission Range Sensor A Circuit (PRNDL Input)]	When all of the following conditions are satisfied and this state is maintained for 2 seconds: • Two or more range signals simultaneously stay ON continuously • TCM power supply voltage: More than 11 V

POSSIBLE CAUSE

- Harness or connector (Short circuit between transmission range switch and TCM)
- Transmission range switch

FAIL-SAFE

- Shift position indicator on combination meter is not displayed
- Selector shock is large
- Start is slow
- Acceleration is slow
- Lock-up is not performed

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2. CHECK DTC DETECTION

1. Turn ignition switch ON.
2. Shift the selector lever through entire positions from "P" to "L". (Hold the selector lever at each position for 5 seconds or more.)
3. Check the first trip DTC.

Is "P0705" detected?

YES >> Go to [TM-107. "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41. "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:000000009982132

1. CHECK TCM INPUT SIGNALS

With CONSULT

1. Turn ignition switch ON.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "D POSITION SW", "N POSITION SW", "R POSITION SW", "P POSITION SW" and "L RANGE SW".
4. Shift the selector lever through entire positions from "P" to "L" and check ON/OFF of each monitor item.

Monitor item	Condition	Condition
D POSITION SW	Selector lever: "D" position	On
	Other than the above	Off
N POSITION SW	Selector lever: "N" position	On
	Other than the above	Off

P0705 TRANSMISSION RANGE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

Monitor item	Condition	Condition
R POSITION SW	Selector lever: "R" position	On
	Other than the above	Off
P POSITION SW	Selector lever: "P" position	On
	Other than the above	Off
L RANGE SW	Selector lever: "L" position	On
	Other than the above	Off

⊗ Without CONSULT

1. Turn ignition switch OFF.
2. Disconnect TCM connector.
3. Turn ignition switch ON.
4. Shift the selector lever from "P" to "L" and check voltage between TCM harness connector terminals and ground.

+		–	Condition	Voltage
TCM				
Connector	Terminal			
F75	2	Ground	Selector lever: “L” position	10 – 16 V
			Other than the above	Approx. 0 V
	4		Selector lever: “D” position	10 – 16 V
			Other than the above	Approx. 0 V
	5		Selector lever: “N” position	10 – 16 V
			Other than the above	Approx. 0 V
	6		Selector lever: “R” position	10 – 16 V
			Other than the above	Approx. 0 V
	7		Selector lever: “P” position	10 – 16 V
			Other than the above	Approx. 0 V

Is the inspection result normal?

YES >> INSPECTION END

NO-1 ["D POSITION SW" is "ON" when selector is not in "D" position. (Or connector terminal 4 is at power voltage.)]>>GO TO 2.

NO-2 ["N POSITION SW" is "ON" when selector is not in "N" position. (Or connector terminal 5 is at power voltage.)]>>GO TO 4.

NO-3 ["R POSITION SW" is "ON" when selector is not in "R" position. (Or connector terminal 6 is at power voltage.)]>>GO TO 6.

NO-4 ["P POSITION SW" is "ON" when selector is not in "P" position. (Or connector terminal 7 is at power voltage.)]>>GO TO 8.

NO-5 ["L POSITION SW" is "ON" when selector is not in "L" position. (Or connector terminal 2 is at power voltage.)]>>GO TO 10.

2.CHECK D POSITION SW CIRCUIT (PART 1)

1. Turn ignition switch OFF.
2. Disconnect TCM connector.
3. Check continuity between TCM harness connector terminals.

TCM			Continuity
Connector	Terminal		
F75	4	2	Not existed
		5	
		6	
		7	

P0705 TRANSMISSION RANGE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace malfunctioning parts.

3.CHECK D POSITION SW CIRCUIT (PART 2)

1. Disconnect transmission range switch connector.
2. Turn ignition switch ON.
3. Check voltage between TCM harness connector terminal and ground.

+		-	Voltage (Approx.)
TCM			
Connector	Terminal		
F75	4	Ground	0 V

Is the inspection result normal?

- YES >> GO TO 12.
NO >> Repair or replace malfunctioning parts.

4.CHECK N POSITION SW CIRCUIT (PART 1)

1. Turn ignition switch OFF.
2. Disconnect TCM connector.
3. Check continuity between TCM harness connector terminals.

TCM			Continuity
Connector	Terminal		
F75	5	2	Not existed
		4	
		6	
		7	

Is the inspection result normal?

- YES >> GO TO 5.
NO >> Repair or replace malfunctioning parts.

5.CHECK N POSITION SW CIRCUIT (PART 2)

1. Disconnect transmission range switch connector.
2. Turn ignition switch ON.
3. Check voltage between TCM harness connector terminal and ground.

+		-	Voltage (Approx.)
TCM			
Connector	Terminal		
F75	5	Ground	0 V

Is the inspection result normal?

- YES >> GO TO 12.
NO >> Repair or replace malfunctioning parts.

6.CHECK P POSITION SW CIRCUIT (PART 1)

1. Turn ignition switch OFF.
2. Disconnect TCM connector.
3. Check continuity between TCM harness connector terminals.

P0705 TRANSMISSION RANGE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

TCM			Continuity
Connector	Terminal		
F75	7	2	Not existed
		4	
		5	
		6	

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace malfunctioning parts.

7. CHECK P POSITION SW CIRCUIT (PART 2)

1. Disconnect transmission range switch connector.
2. Turn ignition switch ON.
3. Check voltage between TCM harness connector terminal and ground.

+		-	Voltage (Approx.)
TCM			
Connector	Terminal		
F75	7	Ground	0 V

Is the inspection result normal?

YES >> GO TO 12.

NO >> Repair or replace malfunctioning parts.

8. CHECK R POSITION SW CIRCUIT (PART1)

1. Turn ignition switch OFF.
2. Disconnect TCM connector.
3. Check continuity between TCM harness connector terminals.

TCM			Continuity
Connector	Terminal		
F75	6	2	Not existed
		4	
		5	
		7	

Is the inspection result normal?

YES >> GO TO 9.

NO >> Repair or replace malfunctioning parts.

9. CHECK R POSITION SW CIRCUIT (PART 2)

1. Disconnect transmission range switch connector.
2. Turn ignition switch ON.
3. Check voltage between TCM harness connector terminal and ground.

+		-	Voltage (Approx.)
TCM			
Connector	Terminal		
F75	6	Ground	0 V

Is the inspection result normal?

YES >> GO TO 12.

NO >> Repair or replace malfunctioning parts.

P0705 TRANSMISSION RANGE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

10.CHECK L POSITION SWITCH CIRCUIT (PART 1)

1. Turn ignition switch OFF.
2. Disconnect TCM connector.
3. Check continuity between TCM harness connector terminals.

TCM			Continuity
Connector	Terminal		
F75	2	4	Not existed
		5	
		6	
		7	

Is the inspection result normal?

YES >> GO TO 11.

NO >> Repair or replace malfunctioning parts.

11.CHECK L POSITION SWITCH CIRCUIT (PART 2)

1. Disconnect transmission range switch connector.
2. Turn ignition switch ON.
3. Check voltage between TCM harness connector terminal and ground.

+		-	Voltage (Approx.)
TCM			
Connector	Terminal		
F75	2	Ground	0 V

Is the inspection result normal?

YES >> GO TO 12.

NO >> Repair or replace malfunctioning parts.

12.CHECK TRANSMISSION RANGE SWITCH

Check transmission range switch. Refer to [TM-111, "Component Inspection"](#).

Is the check result normal?

YES >> INSPECTION END

NO >> Repair or replace malfunctioning parts.

Component Inspection

INFOID:000000009982133

1.CHECK TRANSMISSION RANGE SWITCH

Check continuity between transmission range switch connector terminals.

Transmission range switch	Condition	Continuity
Terminal		
7 – 10	Manual lever: “P” and “N” positions	Existed
	Other than the above	Not existed
4 – 5	Manual lever: “P” position	Existed
	Other than the above	Not existed
4 – 8	Manual lever: “R” position	Existed
	Other than the above	Not existed
4 – 9	Manual lever: “N” position	Existed
	Other than the above	Not existed

P0705 TRANSMISSION RANGE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

Transmission range switch	Condition	Continuity
Terminal		
4 – 2	Manual lever: "D" position	Existed
	Other than the above	Not existed
4 – 6	Manual lever: "L" position	Existed
	Other than the above	Not existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> There is a malfunction of transmission range switch. Replace transaxle assembly. Refer to [TM-205, "Removal and Installation"](#).

P0706 TRANSMISSION RANGE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

P0706 TRANSMISSION RANGE SENSOR A

DTC Description

INFOID:000000009982134

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition
P0706	T/M RANGE SENSOR A (Transmission Range Sensor A Circuit Range/ Performance)	When all of the following conditions are satisfied and this state is maintained for 30 seconds: • All range signals stay OFF • TCM power supply voltage: More than 11 V

POSSIBLE CAUSE

- Harness or connector (Open circuit between ignition switch and transmission range switch/open circuit between transmission range switch and TCM)
- Transmission range switch
- Control cable

Harness or connector (CAN communication line is error)

FAIL-SAFE

- Shift position indicator on combination meter is not displayed
- Selector shock is large
- Start is slow
- Acceleration is slow
- Lock-up is not performed

DTC CONFIRMATION PROCEDURE

1.PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Shift the selector lever through entire positions from "P" to "L". (Hold the selector lever at each position for 40 seconds or more.)
3. Check the first trip DTC.

Is "P0706" detected?

YES >> Go to [TM-113, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:000000009982135

1.ADJUSTMENT OF CONTROL CABLE

Adjust control cable. Refer to [TM-196, "Inspection"](#).

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT

1. Turn ignition switch ON.
2. Select "Self Diagnostic Results" in "TRANSMISSION".
3. Touch "Erase".
4. Perform "DTC CONFIRMATION PROCEDURE". Refer to [TM-113, "DTC Description"](#).

Is "P0706" detected?

P0706 TRANSMISSION RANGE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

YES >> GO TO 3.
NO >> INSPECTION END

3.CHECK POWER CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect transmission range switch connector.
3. Turn ignition switch ON.
4. Check voltage between transmission range switch harness connector terminal and ground.

+		–	Voltage
Transmission range switch			
Connector	Terminal		
F78	4	Ground	10 – 16 V

Is the inspection result normal?

YES >> GO TO 4.
NO >> GO TO 7.

4.CHECK CIRCUIT BETWEEN TRANSMISSION RANGE SWITCH AND TCM (PART 1)

1. Turn ignition switch OFF.
2. Disconnect TCM connector.
3. Check continuity between transmission range switch harness connector terminals and TCM harness connector terminals.

Transmission range switch		TCM		Continuity
Connector	Terminal	Connector	Terminal	
F78	2	F75	4	Existed
	5		7	
	6		2	
	8		6	
	9		5	

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace malfunctioning parts.

5.CHECK CIRCUIT BETWEEN TRANSMISSION RANGE SWITCH AND TCM (PART 2)

Check continuity between transmission range switch harness connector terminals and ground.

Transmission range switch		—	Continuity
Connector	Terminal		
F78	2	Ground	Not existed
	5		
	6		
	8		
	9		

Is the inspection result normal?

YES >> GO TO 6.
NO >> Repair or replace malfunctioning parts.

6.CHECK TRANSMISSION RANGE SWITCH

Check transmission range switch. Refer to [TM-115. "Component Inspection"](#).

Is the inspection result normal?

YES >> INSPECTION END

P0706 TRANSMISSION RANGE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

NO >> Repair or replace malfunctioning parts.

7.CHECK CIRCUIT BETWEEN IPDM E/R AND TRANSMISSION RANGE SWITCH

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector.
3. Check continuity between IPDM E/R harness connector terminal and transmission range switch harness connector terminal.

IPDM E/R		Transmission range switch		Continuity
Connector	Terminal	Connector	Terminal	
F35	71	F78	4	Existed

Is the check result normal?

YES >> GO TO 8.

NO >> Repair or replace malfunctioning parts.

8.DETECT MALFUNCTIONING ITEMS

Check the following items:

- Open circuit or short circuit in harness between ignition switch and IPDM E/R. Refer to [PG-15, "Wiring Diagram — Ignition Power Supply —"](#).
- Short circuit in harness between IPDM E/R harness connector terminal 71 and transmission range switch harness connector terminal 4.
- 10A fuse (No. 50, located in the IPDM E/R). Refer to [PG-68, "IPDM E/R Terminal Arrangement"](#).
- IPDM E/R

Is the check result normal?

YES >> INSPECTION END

NO >> Repair or replace malfunctioning parts.

Component Inspection

INFOID:0000000009982136

1.CHECK TRANSMISSION RANGE SWITCH

Check continuity between transmission range switch connector terminals.

Transmission range switch	Condition	Continuity
Terminal		
7 – 10	Manual lever: "P" and "N" positions	Existed
	Other than the above	Not existed
4 – 5	Manual lever: "P" position	Existed
	Other than the above	Not existed
4 – 8	Manual lever: "R" position	Existed
	Other than the above	Not existed
4 – 9	Manual lever: "N" position	Existed
	Other than the above	Not existed
4 – 2	Manual lever: "D" position	Existed
	Other than the above	Not existed
4 – 6	Manual lever: "L" position	Existed
	Other than the above	Not existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> There is a malfunction of transmission range switch. Replace transaxle assembly. Refer to [TM-220, "Removal and Installation"](#).

P0711 TRANSMISSION FLUID TEMPERATURE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

P0711 TRANSMISSION FLUID TEMPERATURE SENSOR A

DTC Description

INFOID:0000000010257640

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition
P0711	FLUID TEMP SENSOR A (Transmission Fluid Temperature Sensor A Circuit Range/Performance)	When any of 1 or 2 is satisfied: - Under the following diagnosis conditions, CVT fluid temperature does not rise to 10°C (50°F) after driving for a certain period of time with the TCM-received fluid temperature sensor value between – 40°C (–40°F) and 9°C (48.2°F). - TCM power supply voltage: More than 11 V - CAN communication is normal - Engine speed: 450 rpm or more - Accelerator pedal position: 3 deg. or more - Vehicle speed: 10 km/h (7 MPH) or more - U0100, P0705 and P0706 are not detected. - Selector lever: "D" position - When the condition of the final judgment is satisfied after satisfying that of the provisional judgment: - Provisional judgment: All of the following conditions are satisfied within 2 seconds after the ignition switch is turned ON. • U0073, U0100, P0712 and P0713 are not detected. • CAN communication is normal. • TCM power supply voltage: More than 11 V • The difference between CVT fluid temperature and engine coolant temperature is 55°C (131°F) or more, or –27°C (–16°F) or less. - Final judgment: When all of the following conditions are satisfied and this state is maintained for 300 seconds: • ECM is normal. • Provisional judgment is satisfied.

POSSIBLE CAUSE

CVT fluid temperature sensor

FAIL-SAFE

- Engine coolant temperature when engine start: Temp. $\geq 10^{\circ}\text{C}$ (50°F)
 - Start is slow
 - Acceleration is slow
- Engine coolant temperature when engine start: -35°C (–31°F) $\leq$ Temp. $< 10^{\circ}\text{C}$ (50°F)
 - Selector shock is large
 - Start is slow
 - Acceleration is slow
- Engine coolant temperature when engine start: Temp. $< -35^{\circ}\text{C}$ (–31°F)
 - Selector shock is large
 - Start is slow
 - Acceleration is slow

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2. INSPECTION START

P0711 TRANSMISSION FLUID TEMPERATURE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

Is it necessary to erase permanent DTC?

- YES >> GO TO 3.
NO >> GO TO 7.

3.CHECK DTC (ECM AND TCM)

Check the DTC.

Is any DTC other than "P0711" detected?

- YES >> Check DTC detected item. Refer to [EC-93. "DTC Index"](#) (ECM), [EC-93. "DTC Index"](#) (TCM).
NO >> GO TO 4.

4.PERFORM DTC CONFIRMATION PROCEDURE (PART 1)

TESTING CONDITION:

- While performing the following procedure, do not add fuel.
- Before performing the following procedure, check that fuel level is between 1/4 and 4/4.
- Before performing the following procedure, confirm that battery voltage is 11 V or more at idle.

With CONSULT

1. Move the vehicle to a cool place.

NOTE:

Cool the vehicle in an environment of ambient air temperature between -10°C (14°F) and 35°C (95°F).

2. Turn ignition switch OFF and leave the vehicle for 12 hours.

CAUTION:

Never turn ignition switch ON during this procedure.

NOTE:

The vehicle must be cooled with the hood open.

3. Turn ignition switch ON.

CAUTION:

Never start the engine.

4. Select "Data Monitor" in "TRANSMISSION".

5. Select "FLUID TEMP".

6. Record CVT fluid temperature.

7. Start engine and let it idle for 5 minutes or more.

CAUTION:

Never turn ignition switch OFF during idling.

8. Check 1st trip DTC.

With GST

1. Move the vehicle to a cool place.

NOTE:

Cool the vehicle in an environment of ambient air temperature between -10°C (14°F) and 35°C (95°F).

2. Turn ignition switch OFF and leave the vehicle for 12 hours.

CAUTION:

Never turn ignition switch ON during this procedure.

NOTE:

The vehicle must be cooled with the hood open.

3. Start engine and let it idle for 5 minutes or more.

CAUTION:

Never turn ignition switch OFF during idling.

4. Check 1st trip DTC.

Is "P0711" detected?

- YES >> Go to [TM-119. "Diagnosis Procedure"](#).
NO-1 (With CONSULT)>>GO TO 5.
NO-2 (With GST)>>GO TO 6.

5.CHECK CVT FLUID TEMPERATURE

With CONSULT

1. Select "Data Monitor" in "TRANSMISSION".

2. Select "FLUID TEMP".

Is the value of "FLUID TEMP" 10°C (50°F) or more?

- YES >> INSPECTION END
NO >> GO TO 6.

P0711 TRANSMISSION FLUID TEMPERATURE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

6. PERFORM DTC CONFIRMATION PROCEDURE (PART 2)

With CONSULT

1. Drive the vehicle for the total minutes specified in the Driving time column below with the following conditions satisfied.

Selector lever	: "D" position
Accelerator pedal position	: 1.0/8 or more
Vehicle speed	: 10 km/h (7 MPH) or more

CVT fluid temperature before engine start	Driving time
-40°C (-40°F) – -31°C (-23.8°F)	20 minutes or more
-30°C (-22°F) – -21°C (-5.8°F)	18 minutes or more
-20°C (-4°F) – -11°C (-12.2°F)	14 minutes or more
-10°C (14°F) – -1°C (30.2°F)	10 minutes or more
0°C (32°F) – 9°C (48.2°F)	7 minutes or more

2. Stop the vehicle.
3. Check the first trip DTC.

With GST

1. Drive the vehicle and maintain the following conditions for 20 minutes or more.

Selector lever	: "D" position
Accelerator pedal position	: 1.0/8 or more
Vehicle speed	: 10 km/h (7 MPH) or more

2. Stop the vehicle.
3. Check the first trip DTC.

Is "P0711" detected?

- YES >> Go to [TM-119, "Diagnosis Procedure"](#).
NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).
NO-2 >> Confirmation after repair: INSPECTION END

7. PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT

1. Turn ignition switch OFF and cool the engine.
2. Turn ignition switch ON.
CAUTION:
Never start the engine.
3. Select "Data Monitor" in "TRANSMISSION".
4. Select "FLUID TEMP".
5. Record CVT fluid temperature.
6. Start the engine and wait for at least 2 minutes.
7. Drive the vehicle for the total minutes specified in the Driving time column below with the following conditions satisfied.

Selector lever	: "D" position
Accelerator pedal position	: 1.0/8 or more
Vehicle speed	: 10 km/h (7 MPH) or more

CVT fluid temperature before engine start	Driving time
-40°C (-40°F) – -31°C (-23.8°F)	20 minutes or more
-30°C (-22°F) – -21°C (-5.8°F)	18 minutes or more
-20°C (-4°F) – -11°C (-12.2°F)	14 minutes or more
-10°C (14°F) – -1°C (30.2°F)	10 minutes or more

P0711 TRANSMISSION FLUID TEMPERATURE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

CVT fluid temperature before engine start	Driving time
0°C (32°F) – 9°C (48.2°F)	7 minutes or more
Other than the above	— (Go to "8.CHECK CVT FLUID TEMPERATURE SENSOR")

8. Stop the vehicle.
9. Check the first trip DTC.

With GST

1. Turn ignition switch OFF and cool the engine.
2. Start the engine and wait for at least 2 minutes.
3. Drive the vehicle and maintain the following conditions for 20 minutes or more.

Selector lever	: "D" position
Accelerator pedal position	: 1.0/8 or more
Vehicle speed	: 10 km/h (7 MPH) or more

4. Stop the vehicle.

CAUTION:

Never turn ignition switch OFF

5. Check the first trip DTC.

Is "P0711" detected?

- YES >> Go to [TM-119, "Diagnosis Procedure"](#).
NO >> GO TO 8.

8.CHECK CVT FLUID TEMPERATURE SENSOR

1. Turn ignition switch OFF.
2. Disconnect CVT unit connector.
3. Check resistance between CVT unit connector terminals.

CVT unit	Condition	Resistance (Approx.)
Terminal		
12 – 18	CVT fluid temperature: 20°C (68°F)	6.5 kΩ
	CVT fluid temperature: 50°C (122°F)	2.2 kΩ
	CVT fluid temperature: 80°C (176°F)	0.87 kΩ

Is the inspection result normal?

- YES-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).
YES-2 >> Confirmation after repair: INSPECTION END
NO >> There is a malfunction of CVT fluid temperature sensor. Replace transaxle assembly. Refer to [TM-220, "Removal and Installation"](#).

Diagnosis Procedure

INFOID:0000000010257641

1.CHECK CVT FLUID TEMPERATURE SENSOR

1. Turn ignition switch OFF.
2. Disconnect CVT unit connector.
3. Check resistance between CVT unit connector terminals.

CVT unit		Condition	Resistance (Approx.)
Connector	Terminal		
F209	12 – 18	CVT fluid temperature: 20°C (68°F)	6.5 kΩ
		CVT fluid temperature: 50°C (122°F)	2.2 kΩ
		CVT fluid temperature: 80°C (176°F)	0.87 kΩ

Is the inspection result normal?

- YES >> GO TO 2.
NO >> GO TO 4.

P0711 TRANSMISSION FLUID TEMPERATURE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

2. CHECK CIRCUIT BETWEEN TCM AND CVT UNIT (CVT FLUID TEMPERATURE SENSOR) (PART 1)

1. Disconnect the TCM connector.
2. Check continuity between TCM harness connector terminals and CVT unit harness connector terminals.

TCM		CVT unit		Continuity
Connector	Terminal	Connector	Terminal	
F75	11	F74	18	Existed
	12		12	

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace damaged parts.

3. CHECK CIRCUIT BETWEEN TCM AND CVT UNIT (CVT FLUID TEMPERATURE SENSOR) (PART 2)

Check continuity between TCM harness connector terminals and ground.

TCM		—	Continuity
Connector	Terminal		
F75	11	Ground	Not existed
	12		

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair or replace damaged parts.

4. CHECK DTC (TCM)

With CONSULT

1. Perform "DTC CONFIRMATION PROCEDURE". Refer to [TM-116, "DTC Description"](#).
2. Select "Self Diagnostic Results" in "TRANSMISSION".

Is "P0711" detected?

YES >> There is a malfunction of the CVT fluid temperature sensor. Replace the transaxle assembly.
Refer to [TM-220, "Removal and Installation"](#).

NO >> INSPECTION END

P0712 TRANSMISSION FLUID TEMPERATURE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

P0712 TRANSMISSION FLUID TEMPERATURE SENSOR A

DTC Description

INFOID:000000009982137

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition
P0712	FLUID TEMP SENSOR A (Transmission Fluid Temperature Sensor A Circuit Low)	When all of the following conditions are satisfied and this state is maintained for 5 seconds: • TCM power supply voltage: More than 11 V • Fluid temperature sensor detection voltage: 0.15 V or less

POSSIBLE CAUSE

- Harness or connector (CVT fluid temperature sensor circuit is shorted to ground)
- CVT fluid temperature sensor

FAIL-SAFE

- Engine coolant temperature when engine start: Temp. $\geq 10^{\circ}\text{C}$ (50°F)
 - Start is slow
 - Acceleration is slow
- Engine coolant temperature when engine start: -35°C (-31°F) $\leq$ Temp. $< 10^{\circ}\text{C}$ (50°F)
 - Selector shock is large
 - Start is slow
 - Acceleration is slow
- Engine coolant temperature when engine start: Temp. $< -35^{\circ}\text{C}$ (-31°F)
 - Selector shock is large
 - Start is slow
 - Acceleration is slow

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine and wait for 10 seconds or more.
2. Check the first trip DTC.

Is "P0712" detected?

YES >> Go to [TM-121, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:000000009982138

1. CHECK CIRCUIT BETWEEN TCM AND CVT UNIT

1. Turn ignition switch OFF.
2. Disconnect TCM connector and CVT unit connector.
3. Check continuity between TCM harness connector terminal and ground.

TCM		—	Continuity
Connector	Terminal		
F75	12	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 2.

P0712 TRANSMISSION FLUID TEMPERATURE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

NO >> Repair or replace malfunctioning part.

2.CHECK CVT UNIT TERMINAL CODE ASSEMBLY

Check continuity between CVT unit connector terminal and ground.

CVT unit		—	Continuity
Connector	Terminal		
F74	12	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> There is a malfunction of the CVT unit terminal code assembly. Replace the transaxle assembly.
Refer to [TM-220, "Removal and Installation"](#).

3.CHECK CVT FLUID TEMPERATURE SENSOR

Check resistance between CVT unit connector terminals.

CVT unit		Condition	Resistance (Approx.)
Connector	Terminal		
F209	12 – 18	CVT fluid temperature: 20°C (68°F)	6.5 kΩ
		CVT fluid temperature: 50°C (122°F)	2.2 kΩ
		CVT fluid temperature: 80°C (176°F)	0.87 kΩ

Is the inspection result normal?

YES >> INSPECTION END

NO >> There is a malfunction of the CVT fluid temperature sensor. Replace the transaxle assembly.
Refer to [TM-220, "Removal and Installation"](#).

P0713 TRANSMISSION FLUID TEMPERATURE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

P0713 TRANSMISSION FLUID TEMPERATURE SENSOR A

DTC Description

INFOID:0000000009982139

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition
P0713	FLUID TEMP SENSOR A (Transmission Fluid Temperature Sensor A Circuit High)	When all of the following conditions are satisfied and this state is maintained for 5 seconds: • TCM power supply voltage: More than 11 V • Vehicle speed: More than 10 km/h (7 MPH) • Fluid temperature sensor detection voltage: 2.48 V or more

POSSIBLE CAUSE

- Harness or connector (CVT fluid temperature sensor circuit is open or shorted to power supply)
- CVT fluid temperature sensor

FAIL-SAFE

- Engine coolant temperature when engine start: Temp. $\geq 10^{\circ}\text{C}$ (50°F)
 - Start is slow
 - Acceleration is slow
- Engine coolant temperature when engine start: -35°C (-31°F) $\leq$ Temp. $< 10^{\circ}\text{C}$ (50°F)
 - Selector shock is large
 - Start is slow
 - Acceleration is slow
- Engine coolant temperature when engine start: Temp. $< -35^{\circ}\text{C}$ (-31°F)
 - Selector shock is large
 - Start is slow
 - Acceleration is slow

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Maintain the following condition for 10 seconds or more.

Vehicle speed : 20 km/h (12 MPH) or more

3. Stop the vehicle.
4. Check the first trip DTC.

Is "P0713" detected?

YES >> Go to [TM-123, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000009982140

1. CHECK CIRCUIT BETWEEN TCM AND CVT UNIT (PART 1)

1. Turn ignition switch OFF.
2. Disconnect TCM connector and CVT unit connector.
3. Check continuity between TCM harness connector terminals and CVT unit harness connector terminals.

P0713 TRANSMISSION FLUID TEMPERATURE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

TCM		CVT unit		Continuity
Connector	Terminal	Connector	Terminal	
F75	11	F74	18	Existed
	12		12	

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace malfunctioning parts.

2. CHECK CIRCUIT BETWEEN TCM AND CVT UNIT (PART 2)

1. Turn ignition switch ON.
2. Check voltage between TCM harness connector terminal and ground.

+		-	Voltage (Approx.)
TCM			
Connector	Terminal		
F75	12	Ground	0 V

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace malfunctioning parts.

3. CHECK CVT FLUID TEMPERATURE SENSOR

1. Turn ignition switch OFF.
2. Check resistance between CVT unit connector terminals.

CVT unit		Condition	Resistance (Approx.)
Connector	Terminal		
F209	12 – 18	CVT fluid temperature: 20°C (68°F)	6.5 kΩ
		CVT fluid temperature: 50°C (122°F)	2.2 kΩ
		CVT fluid temperature: 80°C (176°F)	0.87 kΩ

Is the inspection result normal?

YES >> INSPECTION END

NO >> There is a malfunction of the CVT fluid temperature sensor. Replace the transaxle assembly.
Refer to [TM-220, "Removal and Installation"](#).

P0715 INPUT SPEED SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

P0715 INPUT SPEED SENSOR A

DTC Description

INFOID:0000000009982141

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition
P0715	INPUT SPEED SENSOR A (Input/Turbine Speed Sensor A Circuit)	When 1 is satisfied and any of 2, 3 or 4 is satisfied: - When the following conditions are satisfied: - TCM power supply voltage: More than 11 V - After range change completion, it spends 2 seconds or more. - When all of the following conditions are satisfied and this state is maintained for 5 seconds: - Primary pulley speed: Less than 150 rpm - Secondary pulley speed: 500 rpm or more - When all of the following conditions are satisfied and this state is maintained for 0.5 seconds: 10-msec-ago primary pulley speed: 1,000 rpm or more - Now primary pulley speed: 0 rpm - When all of the following conditions are satisfied and this state is maintained for 5 seconds: - Range: D or L - Engine speed: 450 rpm or more - Input speed: 300 rpm or more - Primary pulley speed: 300 rpm or more - Secondary pulley speed: 300 rpm or more - Differences between engine speed and primary pulley speed: More than 1,000 rpm - Differences between primary pulley speed and input speed: More than 1,000 rpm - Differences between engine speed and input speed: 1,000 rpm or less - Lock-up command is being given (except for slip lock-up) - DTC other than the applicable DTC is not detected.

POSSIBLE CAUSE

- Harness or connector (Primary speed sensor circuit is open or shorted)
- Primary speed sensor

FAIL-SAFE

- Start is slow
- Acceleration is slow
- Lock-up is not performed

DTC CONFIRMATION PROCEDURE

CAUTION:

Be careful of the driving speed.

1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2. CHECK DTC DETECTION

1. Start the engine.
2. Drive the vehicle.
3. Maintain the following conditions for 10 seconds or more.

Selector lever : "D" POSITION
Engine speed : 1,200 rpm or more
Vehicle speed : 40 km/h (25 MPH) or more

P0715 INPUT SPEED SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

4. Stop the vehicle.
5. Check the first trip DTC.

Is "P0715" detected?

- YES >> Go to [TM-126, "Diagnosis Procedure"](#).
NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:000000009982142

1. CHECK PRIMARY SPEED SENSOR POWER CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect primary speed sensor connector.
3. Turn ignition switch ON.
4. Check voltage between primary speed sensor harness connector terminal and ground.

+		–	Voltage
Primary speed sensor			
Connector	Terminal		
F76	3	Ground	10 – 16 V

Is the inspection result normal?

- YES >> GO TO 2.
NO >> GO TO 6.

2. CHECK PRIMARY SPEED SENSOR GROUND CIRCUIT

Check continuity between primary speed sensor harness connector terminal and ground.

Primary speed sensor		—	Continuity
Connector	Terminal		
F76	1	Ground	Existed

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace malfunctioning parts.

3. CHECK CIRCUIT BETWEEN PRIMARY SPEED SENSOR AND TCM (PART 1)

1. Turn ignition switch OFF.
2. Disconnect TCM connector.
3. Check continuity between primary speed sensor harness connector terminal and TCM harness connector terminal.

Primary speed sensor		TCM		Continuity
Connector	Terminal	Connector	Terminal	
F76	2	F75	35	Existed

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Repair or replace malfunctioning parts.

4. CHECK CIRCUIT BETWEEN PRIMARY SPEED SENSOR AND TCM (PART 2)

Check continuity between primary speed sensor harness connector terminal and ground.

Primary speed sensor		—	Continuity
Connector	Terminal		
F76	2	Ground	Not existed

Is the inspection result normal?

P0715 INPUT SPEED SENSOR A

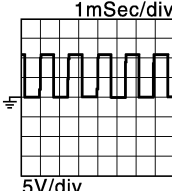
< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

- YES >> GO TO 5.
NO >> Repair or replace malfunctioning parts.

5.CHECK TCM INPUT SIGNALS

1. Connect all of disconnected connectors.
2. Lift the vehicle.
3. Start the engine.
4. Check frequency of primary speed sensor.

+		-	Condition	Frequency (Approx.)
TCM				
Connector	Terminal			
F75	35	Ground	• Shift position: "L" position • Vehicle speed: 20 km/h (12 MPH)	700 Hz 1mSec/div  5V/div JSDIA1905GB

Is the inspection result normal?

- YES >> INSPECTION END
NO >> Replace primary speed sensor. Refer to [TM-208, "Removal and Installation"](#).

6.CHECK CIRCUIT BETWEEN IPDM E/R AND PRIMARY SPEED SENSOR

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector.
3. Check continuity between IPDM E/R harness connector terminal and primary speed sensor harness connector terminal.

IPDM E/R		Primary speed sensor		Continuity
Connector	Terminal	Connector	Terminal	
F35	70	F76	3	Existed

Is the check result normal?

- YES >> GO TO 7.
NO >> Repair or replace malfunctioning parts.

7.DETECT MALFUNCTIONING ITEMS

Check the following items:

- Open circuit or short circuit in harness between ignition switch and IPDM E/R. Refer to [PG-15, "Wiring Diagram — Ignition Power Supply —"](#).
- Short circuit in harness between IPDM E/R harness connector terminal 70 and primary speed sensor harness connector terminal 3.
- 10A fuse (No.46, located in the IPDM E/R). Refer to [PG-68, "IPDM E/R Terminal Arrangement"](#).
- IPDM E/R

Is the check result normal?

- YES >> INSPECTION END
NO >> Repair or replace malfunctioning parts.

P0717 INPUT SPEED SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

P0717 INPUT SPEED SENSOR A

DTC Description

INFOID:000000009982143

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition
P0717	INPUT SPEED SENSOR A (Input/Turbine Speed Sensor "A" Circuit No Signal)	When 1 is satisfied and any of 2, 3 or 4 is satisfied: 1. When the following conditions are satisfied: - TCM power supply voltage: More than 11 V - After range change completion, it spends 2 seconds or more. 2. When all of the following conditions are satisfied and this state is maintained for 5 seconds: - Primary pulley speed: 500 rpm or more - Input speed: Less than 150 rpm - Range: Other than P, N - P0715 is not detected 3. When all of the following conditions are satisfied and this state is maintained for 0.5 seconds: - 10-msec-ago input speed: 1,000 rpm or more - Now input speed: 0 rpm 4. When all of the following conditions are satisfied and this state is maintained for 5 seconds: - Range: D or L - Engine speed: 450 rpm or more - Input speed: 300 rpm or more - Primary pulley speed: 300 rpm or more - Secondary pulley speed: 300 rpm or more - Differences between engine speed and primary pulley speed: 1,000 rpm or less - Differences between primary pulley speed and input speed: More than 1,000 rpm - Differences between engine speed and input speed: More than 1,000 rpm - Lock-up command is being given (except for slip lock-up) - DTC other than the applicable DTC is not detected.

POSSIBLE CAUSE

- Harness or connector (Input speed sensor circuit is open or shorted)
- Input speed sensor

FAIL-SAFE

- Start is slow
- Acceleration is slow
- Lock-up is not performed

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2. CHECK DTC DETECTION

With CONSULT

1. Start the engine.
2. Drive the vehicle.
3. Maintain the following conditions for 10 seconds or more.

P0717 INPUT SPEED SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

Selector lever : "D" position
Engine speed : 1,200 rpm or more
Vehicle speed : 40 km/h (25 MPH) or more

4. Stop the vehicle.
5. Check the first trip DTC.

Is "P0717" detected?

YES >> Go to [TM-129, "Diagnosis Procedure"](#).
NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:000000009982144

1.CHECK INPUT SPEED SENSOR POWER CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect input speed sensor connector.
3. Turn ignition switch ON.
4. Check voltage between input speed sensor harness connector terminal and ground.

+		–	Voltage
Input speed sensor			
Connector	Terminal		
F73	3	Ground	10 – 16 V

Is the inspection result normal?

YES >> GO TO 2.
NO >> GO TO 6.

2.CHECK INPUT SPEED SENSOR GROUND CIRCUIT

Check continuity between input speed sensor harness connector terminal and ground.

Input speed sensor		—	Continuity
Connector	Terminal		
F73	1	Ground	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace malfunctioning parts.

3.CHECK CIRCUIT BETWEEN INPUT SPEED SENSOR AND TCM (PART 1)

1. Turn ignition switch OFF.
2. Disconnect TCM connector.
3. Check continuity between input speed sensor harness connector terminal and TCM harness connector terminal.

Input speed sensor		TCM		Continuity
Connector	Terminal	Connector	Terminal	
F73	2	F75	24	Existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair or replace malfunctioning parts.

4.CHECK CIRCUIT BETWEEN INPUT SPEED SENSOR AND TCM (PART 2)

Check continuity between input speed sensor harness connector terminal and ground.

P0717 INPUT SPEED SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

Input speed sensor		—	Continuity
Connector	Terminal		
F73	2	Ground	Not existed

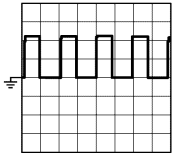
Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace malfunctioning parts.

5.CHECK TCM INPUT SIGNALS

1. Connect all of disconnected connectors.
2. Lift the vehicle.
3. Start the engine.
4. Check frequency of input speed sensor.

+		—	Condition	Frequency (Approx.)
TCM				
Connector	Terminal			
F75	24	Ground	• Shift position: “L” position • Vehicle speed: 20 km/h (12 MPH)	880 Hz 1mSec/div  5V/div JSDIA3769GB

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace input speed sensor. Refer to [TM-207, "Removal and Installation"](#).

6.CHECK CIRCUIT BETWEEN IPDM E/R AND INPUT SPEED SENSOR

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector.
3. Check continuity between IPDM E/R harness connector terminal and input speed sensor harness connector terminals.

IPDM E/R harness connector		Input speed sensor		Continuity
Connector	Terminal	Connector	Terminal	
F35	70	F73	3	Existed

Is the check result normal?

YES >> GO TO 7.

NO >> Repair or replace malfunctioning parts.

7.DETECT MALFUNCTIONING ITEMS

Check the following items:

- Open circuit or short circuit in harness between ignition switch and IPDM E/R. Refer to [PG-15, "Wiring Diagram — Ignition Power Supply —"](#).
- Short circuit in harness between IPDM E/R harness connector terminal 70 and input speed sensor harness connector terminal 3.
- 10A fuse (No.46, located in the IPDM E/R). Refer to [PG-68, "IPDM E/R Terminal Arrangement"](#).
- IPDM E/R

Is the check result normal?

YES >> INSPECTION END

NO >> Repair or replace malfunctioning parts.

P0740 TORQUE CONVERTER

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

P0740 TORQUE CONVERTER

DTC Description

INFOID:000000009982145

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition
P0740	TORQUE CONVERTER (Torque Converter Clutch Circuit/Open)	When all of the following conditions are satisfied and this state is maintained for 5 seconds: • TCM power supply voltage: More than 11 V • P0743 is not detected. • TCM judges that solenoid valve circuit is open.

POSSIBLE CAUSE

- Harness or connector (Torque converter clutch solenoid valve circuit is open or shorted to power supply)
- Torque converter clutch solenoid valve

FAIL-SAFE

- Start is slow
- Acceleration is slow
- Lock-up is not performed

DTC CONFIRMATION PROCEDURE

CAUTION:

Be careful of the driving speed.

1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2. PREPARATION BEFORE OPERATION

With CONSULT

1. Start the engine.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "FLUID TEMP".
4. Confirm that the CVT fluid temperature is in the following range.

FLUID TEMP : 20°C (68°F) or more

With GST

1. Start the engine.
2. Set the CVT fluid to 20°C (68°F) or more.

NOTE:

When the ambient temperature is 20°C (68°F), the CVT fluid usually increases to 50 to 80°C (122 to 176°F) with driving in an urban area for approximately 10 minutes.

Is the CVT fluid 20°C (68°F) or more?

- YES >> GO TO 3.
NO >> 1. Warm the transaxle.
2. GO TO 3.

3. CHECK DTC DETECTION

1. Drive the vehicle.
2. Maintain the following conditions for 10 seconds or more.

Selector lever : "D" position
Vehicle speed : 40 km/h (25 MPH) or more

3. Stop the vehicle.

P0740 TORQUE CONVERTER

[CVT: RE0F10D]

< DTC/CIRCUIT DIAGNOSIS >

4. Check the first trip DTC.

Is "P0740" detected?

YES >> Go to [TM-132, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:000000009982146

1. CHECK CIRCUIT BETWEEN TCM AND CVT UNIT

1. Turn ignition switch OFF.
2. Disconnect TCM connector and CVT unit connector.
3. Check continuity between TCM harness connector terminal and CVT unit harness connector terminal.

TCM		CVT unit		Continuity
Connector	Terminal	Connector	Terminal	
F75	38	F74	5	Existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace malfunctioning parts.

2. CHECK CIRCUIT BETWEEN CVT UNIT AND GROUND

Check resistance between CVT unit harness connector terminal and ground.

CVT unit		—	Condition	Resistance
Connector	Terminal			
F209	5	Ground	CVT fluid temperature: 20°C (68°F)	5.5 – 7.0 Ω
			CVT fluid temperature: 50°C (122°F)	6.0 – 8.0 Ω
			CVT fluid temperature: 80°C (176°F)	6.5 – 8.5 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO >> There is malfunction of torque converter clutch solenoid valve. Replace transaxle assembly. Refer to [TM-220, "Removal and Installation"](#).

P0743 TORQUE CONVERTER

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

P0743 TORQUE CONVERTER

DTC Description

INFOID:000000009982147

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition
P0743	TORQUE CONVERTER (Torque Converter Clutch Circuit Electrical)	When all of the following conditions are satisfied and this state is maintained for 0.48 seconds: • TCM power supply voltage: More than 11 V • TCM judges that solenoid valve circuit is shorted to ground.

POSSIBLE CAUSE

- Harness or connector (Torque converter clutch solenoid valve circuit is shorted to ground)
- Torque converter clutch solenoid valve

FAIL-SAFE

- Start is slow
- Acceleration is slow
- Lock-up is not performed

DTC CONFIRMATION PROCEDURE

CAUTION:

Be careful of the driving speed.

1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2. PREPARATION BEFORE OPERATION

With CONSULT

1. Start the engine.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "FLUID TEMP".
4. Confirm that the CVT fluid temperature is in the following range.

FLUID TEMP : 20°C (68°F) or more

With GST

1. Start the engine.
2. Set the CVT fluid to 20°C (68°F) or more.

NOTE:

When the ambient temperature is 20°C (68°F), the CVT fluid usually increases to 50 to 80°C (122 to 176°F) with driving in an urban area for approximately 10 minutes.

Is the CVT fluid 20°C (68°F) or more?

YES >> GO TO 3.

NO >> 1. Warm the transaxle.
2. GO TO 3.

3. CHECK DTC DETECTION

1. Drive the vehicle.
2. Maintain the following conditions for 10 seconds or more.

Selector lever : "D" position

Vehicle speed : 40 km/h (25 MPH) or more

3. Stop the vehicle.
4. Check the first trip DTC.

P0743 TORQUE CONVERTER

[CVT: RE0F10D]

< DTC/CIRCUIT DIAGNOSIS >

Is "P0743" detected?

YES >> Go to [TM-134, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:000000009982148

1. CHECK CIRCUIT BETWEEN TCM AND CVT UNIT

1. Turn ignition switch OFF.
2. Disconnect TCM connector and CVT unit connector.
3. Check continuity between TCM harness connector terminal and ground.

TCM		—	Continuity
Connector	Terminal		
F75	38	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace malfunctioning parts.

2. CHECK CIRCUIT BETWEEN CVT UNIT AND GROUND

Check resistance between CVT unit harness connector terminal and ground.

CVT unit		—	Condition	Resistance
Connector	Terminal			
F209	5	Ground	CVT fluid temperature: 20°C (68°F)	5.5 – 7.0 Ω
			CVT fluid temperature: 50°C (122°F)	6.0 – 8.0 Ω
			CVT fluid temperature: 80°C (176°F)	6.5 – 8.5 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO >> There is malfunction of torque converter clutch solenoid valve. Replace transaxle assembly. Refer to [TM-220, "Removal and Installation"](#).

P0744 TORQUE CONVERTER

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

P0744 TORQUE CONVERTER

DTC Description

INFOID:000000009982149

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition
P0744	TORQUE CONVERTER (Torque converter clutch circuit intermittent)	When all of the following conditions are satisfied and this state is maintained for 30 seconds: • TCM power supply voltage: More than 11 V • P0717 is not detected. • CAN communication is normal • Torque converter slip speed: (40+vehicle speed/2) rpm • LU pressure: More than 0.2 MPa

POSSIBLE CAUSE

- Torque converter clutch solenoid valve
- Control valve assembly
- Torque converter

FAIL-SAFE

- Start is slow
- Acceleration is slow
- Lock-up is not performed

DTC CONFIRMATION PROCEDURE

CAUTION:

Be careful of the driving speed.

1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2. PREPARATION BEFORE OPERATION

With CONSULT

1. Start the engine.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "FLUID TEMP".
4. Confirm that the CVT fluid temperature is in the following range.

FLUID TEMP : 20°C (68°F) or more

With GST

1. Start the engine.
2. Set the CVT fluid to 20°C (68°F) or more.

NOTE:

When the ambient temperature is 20°C (68°F), the CVT fluid usually increases to 50 to 80°C (122 to 176°F) with driving in an urban area for approximately 10 minutes.

Is the CVT fluid 20°C (68°F) or more?

- YES >> GO TO 3.
NO >> 1. Warm the transaxle.
2. GO TO 3.

3. CHECK DTC DETECTION

1. Drive the vehicle.
2. Maintain the following conditions for 30 seconds or more.

P0744 TORQUE CONVERTER

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

Selector lever : "D" position
Accelerator pedal position : 0.5/8 or more
Vehicle speed : 40 km/h (25 MPH) or more

3. Stop the vehicle.

4. Check the first trip DTC.

Is "P0744" detected?

YES >> Go to [TM-136, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:000000009982150

1.REPLACE TRANSAXLE ASSEMBLY

Replace transaxle assembly. Refer to [TM-220, "Removal and Installation"](#).

>> WORK END

P0746 PRESSURE CONTROL SOLENOID A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

P0746 PRESSURE CONTROL SOLENOID A

DTC Description

INFOID:000000009982151

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition
P0746	PC SOLENOID A (Pressure Control Solenoid A Performance/ Stuck Off)	The detecting condition A or detection condition B is detected twice or more (1 second or more later after detection of the first) in the same DC under the following diagnosis conditions: • Diagnosis conditions - Engine speed: More than 600 rpm - Primary pulley speed: More than 450 rpm - Idle is not being detected. - Acceleration/deceleration speed: -0.49 m/s^2 (-0.05 G) or more - The primary pulley speed experienced 300 rpm or more and the secondary pulley speed experienced 250 rpm or more at least once. - Secondary pulley speed: More than 150 rpm - TCM power supply voltage: More than 11 V • Detection condition A - Status with the shifting ratio of the primary pulley speed/secondary pulley ratio exceeding 2.981 is 0.2 sec. or more continuously. • Detection condition B - Status with the shifting ratio of the primary pulley speed/secondary pulley ratio exceeding 3.781 is 0.1 sec. or more continuously.

NOTE:

DC stands for "DRIVING CYCLE" and indicates a series of driving cycle of "Ignition switch OFF → ON → driving → OFF".

POSSIBLE CAUSE

- Line pressure solenoid valve
- Control valve assembly

FAIL-SAFE

- Selector shock is large
- Start is slow
- Acceleration is slow
- Lock-up is not performed

DTC CONFIRMATION PROCEDURE

CAUTION:

Be careful of the driving speed.

1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2. CHECK DTC DETECTION

1. Start the engine.
2. Drive the vehicle.
3. Maintain the following conditions for 10 seconds or more.

Selector lever	: "D" position
Accelerator pedal position	: 0.5/8 or more
Vehicle speed	: 40 km/h (25 MPH) or more

4. Stop the vehicle.
5. Check the first trip DTC.

P0746 PRESSURE CONTROL SOLENOID A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

Is "P0746" detected?

YES >> Go to [TM-138, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:000000009982152

1. REPLACE TRANSAXLE ASSEMBLY

Replace transaxle assembly. Refer to [TM-220, "Removal and Installation"](#).

>> WORK END

P0776 PRESSURE CONTROL SOLENOID B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

P0776 PRESSURE CONTROL SOLENOID B

DTC Description

INFOID:000000009982153

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition
P0776	PC SOLENOID B (Pressure Control Solenoid "B" Performance/ Stuck Off)	When any of 1 or 2 is satisfied and this state is maintained for 10 seconds: - When all of the following conditions are satisfied: - DTC other than the applicable DTC is not detected. - Engine speed: More than 625 rpm - Selector lever: Other than P/N position - CVT fluid temperature: More than -20°C (-4°F) - TCM power supply: More than 11 V - The difference between instruction pressure of secondary pressure and 10-msec-ago instruction secondary pressure is 0 MPa or more - Instruction pressure of secondary pressure: 0 MPa or more - Instruction pressure of secondary pressure - secondary pressure: More than 1.2 MPa - When all of the following conditions are satisfied and this state is maintained for 5.5 seconds: • DTC other than the applicable DTC is not detected. • CVT fluid temperature: More than -20°C (-4°F) • Selector lever: Other than P/N position • Secondary pressure - instruction pressure of secondary pressure: 1.2 MPa or more - When all of the following conditions are satisfied: - DTC other than the applicable DTC is not detected. - CVT fluid temperature: More than -20°C (-4°F) - Selector lever: Other than P/N position - TCM power supply: More than 11 V - When all of the following conditions are satisfied and this state is maintained for 5.5 seconds: • DTC other than the applicable DTC is not detected. • CVT fluid temperature: More than -20°C (-4°F) • Selector lever: Other than P/N position • Secondary pressure - instruction pressure of secondary pressure: 1.2 MPa or more - The difference between instruction pressure of secondary pressure and 10-msec-ago instruction secondary pressure is 0 MPa or more - Secondary pressure - instruction pressure of secondary pressure: More than 1.2 MPa

POSSIBLE CAUSE

Secondary pressure solenoid valve

FAIL-SAFE

- When a malfunction occurs on the low oil pressure side
 - Selector shock is large
 - Start is slow
 - Acceleration is slow
 - Lock-up is not performed
 - Vehicle speed is not increased
- When a malfunction occurs on the high oil pressure side
 - Selector shock is large
 - Start is slow
 - Acceleration is slow
 - Lock-up is not performed

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

P0776 PRESSURE CONTROL SOLENOID B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2. CHECK DTC DETECTION

1. Start the engine.
2. Drive the vehicle.
3. Maintain the following condition for 20 seconds or more.

Selector lever	: "D" position
Vehicle speed	: 40 km/h (25 MPH) or more
Accelerator pedal position	: 1.0/8 or more

4. Stop the vehicle.
5. Check the first trip DTC.

Is "P0776" detected?

YES >> Go to [TM-140, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000009982154

1. REPLACE TRANSAXLE ASSEMBLY

Replace transaxle assembly. Refer to [TM-220, "Removal and Installation"](#).

>> WORK END

P0778 PRESSURE CONTROL SOLENOID B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

P0778 PRESSURE CONTROL SOLENOID B

DTC Description

INFOID:000000009982155

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition
P0778	PC SOLENOID B (Pressure Control Solenoid "B" Electrical)	When all of the following conditions are satisfied and this state is maintained for 0.48 seconds: • TCM power supply voltage: More than 11 V • TCM judges that solenoid valve circuit is shorted to ground.

POSSIBLE CAUSE

- Harness or connector (Secondary pressure solenoid valve circuit is shorted to ground)
- Secondary pressure solenoid valve

FAIL-SAFE

- Selector shock is large
- Start is slow
- Acceleration is slow
- Lock-up is not performed

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2. CHECK DTC DETECTION

1. Start the engine and wait for 5 seconds or more.
2. Check the first trip DTC.

Is "P0778" detected?

YES >> Go to [TM-141, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:000000009982156

1. CHECK CIRCUIT BETWEEN TCM AND CVT UNIT

1. Turn ignition switch OFF.
2. Disconnect TCM connector and CVT unit connector.
3. Check continuity between TCM harness connector terminal and ground.

TCM		—	Continuity
Connector	Terminal		
F75	39	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace damaged parts.

2. CHECK CIRCUIT BETWEEN CVT UNIT AND GROUND

Check continuity between CVT unit harness connector terminal and ground.

P0778 PRESSURE CONTROL SOLENOID B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

CVT unit		—	Condition	Resistance
Connector	Terminal			
F209	3	Ground	CVT fluid temperature: 20°C (68°F)	5.5 – 7.0 Ω
			CVT fluid temperature: 50°C (122°F)	6.0 – 8.0 Ω
			CVT fluid temperature: 80°C (176°F)	6.5 – 8.5 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO >> There is malfunction of secondary pressure solenoid valve. Replace transaxle assembly. Refer to [TM-220, "Removal and Installation"](#).

P0779 PRESSURE CONTROL SOLENOID B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

P0779 PRESSURE CONTROL SOLENOID B

DTC Description

INFOID:000000009982157

DTC DETECTION LOGIC

DTC	Trouble diagnosis name	DTC detection condition
P0779	Pressure control solenoid B Intermittent	When all of the following conditions are satisfied and this state is maintained for 0.2 seconds: • TCM power supply voltage: More than 11 V • P0778 is not detected • TCM judges that solenoid valve circuit is open or shorted to power supply.

POSSIBLE CAUSE

- Harness or connector (Secondary pressure solenoid valve circuit open or shorted to power supply)
- Secondary pressure solenoid valve

FAIL-SAFE

- Selector shock is large
- Start is slow
- Acceleration is slow
- Lock-up is not performed

DTC CONFIRMATION PROCEDURE

1.PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2.CHECK DTC DETECTION

1. Start the engine.
2. Drive the vehicle.
3. Maintain the following conditions for 5 seconds or more.

Selector lever : "D" position

Vehicle speed : 40 km/h (25 MPH) or more

4. Stop the vehicle.
5. Check the first trip DTC.

Is "P0779" detected?

YES >> Go to [TM-143, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:000000009982158

1.CHECK CIRCUIT BETWEEN TCM AND CVT UNIT

1. Turn ignition switch OFF.
2. Disconnect TCM connector and CVT unit connector.
3. Check continuity between TCM harness connector terminal and CVT unit harness connector terminal.

TCM		CVT unit		Continuity
Connector	Terminal	Connector	Terminal	
F75	39	F74	3	Existed

Is the inspection result normal?

P0779 PRESSURE CONTROL SOLENOID B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

YES >> GO TO 2.

NO >> Repair or replace damaged parts.

2.CHECK CIRCUIT BETWEEN CVT UNIT AND GROUND

Check continuity between CVT unit harness connector terminal and ground.

CVT unit		—	Condition	Resistance
Connector	Terminal			
F209	3	Ground	CVT fluid temperature: 20°C (68°F)	5.5 – 7.0 Ω
			CVT fluid temperature: 50°C (122°F)	6.0 – 8.0 Ω
			CVT fluid temperature: 80°C (176°F)	6.5 – 8.5 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO >> There is malfunction of secondary pressure solenoid valve. Replace transaxle assembly. Refer to [TM-220, "Removal and Installation"](#).

P0841 TRANSMISSION FLUID PRESSURE SEN/SW A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

P0841 TRANSMISSION FLUID PRESSURE SEN/SW A

DTC Description

INFOID:000000009982159

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition
P0841	FLUID PRESS SEN/SW A (Transmission Fluid Pressure Sensor/Switch "A" Circuit Range/Performance)	When all of the following conditions are satisfied and this state is maintained for 5 seconds: • TCM power supply voltage: More than 11 V • DTC other than the applicable DTC is not detected. • Primary pulley speed: 300 rpm or more • Secondary pulley speed: 250 rpm or more • Target speed for shifting: Less than 0.1 seconds • Primary pulley pressure is outside the specified value.

POSSIBLE CAUSE

- Harness or connector (Secondary pressure sensor circuit is open or shorted)
- Harness or connector (Primary pressure sensor circuit is open or shorted)
- Secondary pressure sensor

FAIL-SAFE

Not changed from normal driving

DTC CONFIRMATION PROCEDURE

CAUTION:

Always drive vehicle at a safe speed.

1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2. CHECK DTC DETECTION

1. Start the engine.
2. Drive the vehicle.
3. Maintain the following condition for 10 seconds or more.

Selector lever : "D" position

Vehicle speed : Constant speed of 40 km/h (25 MPH)

CAUTION:

Also keep the accelerator pedal position constant.

4. Stop the vehicle.
5. Check the first trip DTC.

Is "P0841" detected?

YES >> Go to [TM-145, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:000000009982160

1. REPLACE TRANSAXLE ASSEMBLY

Replace transaxle assembly. Refer to [TM-220, "Removal and Installation"](#).

>> WORK END

P0847 TRANSMISSION FLUID PRESSURE SEN/SW B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

P0847 TRANSMISSION FLUID PRESSURE SEN/SW B

DTC Description

INFOID:000000009982161

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition
P0847	FLUID PRESS SEN/SW B (Transmission Fluid Pressure Sensor/Switch B Circuit Low)	When all of the following conditions are satisfied and this state is maintained for 5 seconds: • CVT fluid temperature: More than -20°C (-4°F) • TCM power supply voltage: 11 V or more • Secondary pressure sensor voltage: 0.09 V or less

POSSIBLE CAUSE

- Harness or connector (Secondary pressure sensor circuit is open or shorted to ground)
- Secondary pressure sensor
- Control valve assembly

FAIL-SAFE

Not changed from normal driving

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2. CHECK DTC DETECTION

With CONSULT

1. Start the engine.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "FLUID TEMP".
4. Maintain the following conditions for 10 seconds or more.

FLUID TEMP : -20°C (-4°F)

5. Check the first trip DTC.

With GST

1. Start the engine and wait for at least 10 seconds.

CAUTION:

When the ambient temperature is less than -20°C (-4°F) and the engine is cold, warm up the engine for approximately 5 minutes.

2. Check the first trip DTC.

Is "P0847" detected?

- YES >> Go to [TM-146, "Diagnosis Procedure"](#).
NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:000000009982162

1. CHECK TCM INPUT SIGNALS

1. Turn ignition switch OFF.
2. Start the engine.
3. Check voltage between TCM harness connector terminals.

P0847 TRANSMISSION FLUID PRESSURE SEN/SW B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

+		–	Condition	Voltage
TCM				
Connector	Terminal			
F75	16	Ground	• After engine warm up • Selector lever: “N” position • At idle	1.23 – 1.25 V

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 2.

2.CHECK CIRCUIT BETWEEN TCM AND CVT UNIT (PART 1)

1. Turn ignition switch OFF.
2. Disconnect TCM connector and CVT unit connector.
3. Check continuity between TCM harness connector terminals and CVT unit harness connector terminals.

TCM		CVT unit		Continuity
Connector	Terminal	Connector	Terminal	
F75	11	F74	18	Existed
	16		14	
	26		22	

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace malfunctioning parts.

3.CHECK CIRCUIT BETWEEN TCM AND CVT UNIT (PART 2)

Check continuity between TCM harness connector terminals and ground.

TCM		—	Continuity
Connector	Terminal		
F75	16	Ground	Not existed
	26		

Is the inspection result normal?

YES >> There is malfunction of secondary pressure sensor. Replace transaxle assembly. Refer to [TM-220, "Removal and Installation"](#).

NO >> Repair or replace malfunctioning parts.

P0848 TRANSMISSION FLUID PRESSURE SEN/SW B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

P0848 TRANSMISSION FLUID PRESSURE SEN/SW B

DTC Description

INFOID:000000009982163

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition
P0848	FLUID PRESS SEN/SW B (Transmission Fluid Pressure Sensor/Switch B Circuit Low)	When all of the following conditions are satisfied and this state is maintained for 5 seconds: • CVT fluid temperature: More than -20°C (-4°F) • TCM power supply voltage: More than 11 V • Instruction secondary pressure: 5.7 MPa or less • Secondary pressure sensor voltage: 4.7 V or more

POSSIBLE CAUSE

- Harness or connector (Secondary pressure sensor circuit is shorted to power supply)
- Secondary pressure sensor
- Control valve assembly

FAIL-SAFE

Not changed from normal driving

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, the ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2. CHECK DTC DETECTION

With CONSULT

1. Start the engine.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "FLUID TEMP".
4. Maintain the following conditions for 10 seconds or more.

FLUID TEMP : More than -20°C (-4°F)

5. Check the first trip DTC.

With GST

1. Start the engine and wait for at least 10 seconds.

CAUTION:

When the ambient temperature is less than -20°C (-4°F) and the engine is cold, warm up the engine for approximately 5 minutes.

2. Check the first trip DTC.

Is "P0848" detected?

YES >> Go to [TM-148, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:000000009982164

1. CHECK TCM INPUT SIGNALS

1. Turn ignition switch OFF.
2. Start the engine.
3. Check voltage between TCM harness connector terminals.

P0848 TRANSMISSION FLUID PRESSURE SEN/SW B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

+		–	Condition	Voltage
TCM				
Connector	Terminal			
F75	16	Ground	• After engine warm up • Selector lever: “N” position • At idle	1.23 – 1.25 V

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 2.

2.CHECK SECONDARY PRESSURE SENSOR POWER CIRCUIT

1. Turn ignition switch OFF.
2. Connect TCM connector.
3. Disconnect CVT unit connector.
4. Check voltage between CVT unit harness connector terminal and ground.

+		-	Voltage (Approx.)
CVT unit			
Connector	Terminal		
F74	22	Ground	5.0 V

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace malfunctioning parts.

3.CHECK SECONDARY PRESSURE SENSOR SIGNAL CIRCUIT

Check voltage between CVT unit harness connector terminal and ground.

+		-	Voltage (Approx.)
CVT unit			
Connector	Terminal		
F74	14	Ground	0 V

Is the inspection result normal?

YES >> There is malfunction of secondary pressure sensor. Replace transaxle assembly. Refer to [TM-220, "Removal and Installation"](#).

NO >> Repair or replace malfunctioning parts.

P084C TRANSMISSION FLUID PRESSURE SEN/SW H

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

P084C TRANSMISSION FLUID PRESSURE SEN/SW H

DTC Description

INFOID:000000009982165

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition
P084C	FLUID PRESS SEN/SW H (Transmission Fluid Pressure Sensor/Switch H Circuit Low)	When all of the following conditions are satisfied and this state is maintained for 5 seconds: • CVT fluid temperature: More than -20°C (-4°F) • TCM power supply voltage: More than 11 V • Primary pressure sensor voltage: 0.09 V or less

POSSIBLE CAUSE

- Harness or connector (Primary pressure sensor circuit is open or shorted to ground)
- Primary pressure sensor
- Control valve assembly

FAIL-SAFE

Not changed from normal driving

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2. CHECK DTC DETECTION

With CONSULT

1. Start the engine.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "FLUID TEMP".
4. Maintain the following conditions for 10 seconds or more.

FLUID TEMP : More than -20°C (-4°F)

5. Check the first trip DTC.

With GST

1. Start the engine and wait for at least 10 seconds.

CAUTION:

When the ambient temperature is less than -20°C (-4°F) and the engine is cold, warm up the engine for approximately 5 minutes.

2. Check the first trip DTC.

Is "P084C" detected?

YES >> Go to [TM-150, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:000000009982166

1. CHECK TCM INPUT SIGNALS

1. Turn ignition switch OFF.
2. Start the engine.
3. Check voltage between TCM harness connector terminals.

P084C TRANSMISSION FLUID PRESSURE SEN/SW H

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

+		–	Condition	Voltage
TCM				
Connector	Terminal			
F75	17	Ground	• After engine warm up • Selector lever: “N” position • At idle	0.75 – 0.82 V

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 2.

2.CHECK CIRCUIT BETWEEN TCM AND CVT UNIT (PART 1)

1. Turn ignition switch OFF.
2. Disconnect TCM connector and CVT unit connector.
3. Check continuity between TCM harness connector terminals and CVT unit harness connector terminals.

TCM		CVT unit		Continuity
Connector	Terminal	Connector	Terminal	
F75	11	F74	18	Existed
	17		13	
	26		22	

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace malfunctioning parts.

3.CHECK CIRCUIT BETWEEN TCM AND CVT UNIT (PART 2)

Check continuity between TCM harness connector terminals and ground.

TCM		—	Continuity
Connector	Terminal		
F75	17	Ground	Not existed
	26		

Is the inspection result normal?

YES >> There is malfunction of primary pressure sensor. Replace transaxle assembly. Refer to [TM-220, "Removal and Installation"](#).

NO >> Repair or replace malfunctioning parts.

P084D TRANSMISSION FLUID PRESSURE SEN/SW H

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

P084D TRANSMISSION FLUID PRESSURE SEN/SW H

DTC Description

INFOID:000000009982167

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition
P084D	FLUID PRESS SEN/SW H (Transmission Fluid Pressure Sensor/Switch "H" Circuit High)	When all of the following conditions are satisfied and this state is maintained for 5 seconds: • CVT fluid temperature: More than -20°C (-4°F) • TCM power supply voltage: More than 11 V • Primary pressure sensor voltage: 4.7 V or more

POSSIBLE CAUSE

- Harness or connector (Primary pressure sensor circuit is open or shorted to ground)
- Primary pressure sensor
- Control valve assembly

FAIL-SAFE

Not changed from normal driving

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2. CHECK DTC DETECTION

With CONSULT

1. Start the engine.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "FLUID TEMP".
4. Maintain the following conditions for 10 seconds or more.

FLUID TEMP : More than -20°C (-4°F)

5. Check the first trip DTC.

With GST

1. Start the engine and wait for at least 10 seconds.

CAUTION:

When the ambient temperature is less than -20°C (-4°F) and the engine is cold, warm up the engine for approximately 5 minutes.

2. Check the first trip DTC.

Is "P084D" detected?

- YES >> Go to [TM-152, "Diagnosis Procedure"](#).
NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:000000009982168

1. CHECK TCM INPUT SIGNALS

1. Turn ignition switch OFF.
2. Start the engine.
3. Check voltage between TCM harness connector terminals.

P084D TRANSMISSION FLUID PRESSURE SEN/SW H

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

+		–	Condition	Voltage
TCM				
Connector	Terminal			
F75	17	Ground	• After engine warm up • Selector lever: “N” position • At idle	0.75 – 0.82 V

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 2.

2.CHECK PRIMARY PRESSURE SENSOR POWER CIRCUIT

1. Turn ignition switch OFF.
2. Connect TCM connector.
3. Disconnect CVT unit connector.
4. Check voltage between CVT unit harness connector terminal and ground.

+		-	Voltage (Approx.)
CVT unit			
Connector	Terminal		
F74	22	Ground	5.0 V

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace malfunctioning parts.

3.CHECK PRIMARY PRESSURE SENSOR SIGNAL CIRCUIT

Check voltage between CVT unit harness connector terminal and ground.

+		–	Voltage (Approx.)
CVT unit			
Connector	Terminal		
F74	13	Ground	0 V

Is the inspection result normal?

YES >> There is malfunction of primary pressure sensor. Replace transaxle assembly. Refer to [TM-220](#), "[Removal and Installation](#)".

NO >> Repair or replace malfunctioning parts.

P0863 TCM COMMUNICATION

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

P0863 TCM COMMUNICATION

DTC Description

INFOID:0000000009982169

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition
P0863	CONTROL UNIT (CAN) (TCM Communication Circuit)	An error is detected at the initial CAN diagnosis of TCM.

POSSIBLE CAUSE

TCM

FAIL-SAFE

- Selector shock is large
- Start is slow
- Acceleration is slow
- Lock-up is not performed

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2. CHECK DTC DETECTION

1. Start the engine.
2. Check the DTC.

Is "P0863" detected?

YES >> Go to [TM-154, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000009982170

1. REPLACE TCM

Replace TCM. Refer to [TM-202, "Removal and Installation"](#).

>> WORK END

P0890 TCM

DTC Description

INFOID:000000009982171

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition
P0890	TCM (Transmission Control Module Power Relay Sense Circuit Low)	When all of the following conditions are satisfied and this state is maintained for 0.2 seconds: • TCM power supply voltage: More than 11 V • Battery voltage: Less than 8.4 V

POSSIBLE CAUSE

- Harness or connector [TCM power supply (back-up) circuit is open or shorted]
- TCM

FAIL-SAFE

- Selector shock is large
- Start is slow
- Acceleration is slow
- Lock-up is not performed
- Vehicle speed is not increased

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2. CHECK DTC DETECTION

1. Start the engine and wait for 5 seconds or more.
2. Check the DTC.

Is "P0890" detected?

- YES >> Go to [TM-155, "Diagnosis Procedure"](#).
 NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).
 NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:000000009982172

1. CHECK TCM POWER SUPPLY (BACK-UP) CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect TCM connector.
3. Check voltage between TCM harness connector terminals and ground.

+		–	Voltage
TCM			
Connector	Terminal		
F75	45	Ground	10 – 16 V
	46		

Is the inspection result normal?

- YES >> Replace TCM. Refer to [TM-202, "Removal and Installation"](#).
 NO >> GO TO 2.

2. DETECT MALFUNCTIONING ITEMS

P0890 TCM

[CVT: RE0F10D]

< DTC/CIRCUIT DIAGNOSIS >

Check the following items:

- Open circuit or short circuit in harness between battery positive terminal and TCM connector terminals 45, and 46.
- 10A fuse (No.59, located in the fuse and fusible link block). Refer to [PG-65, "Terminal Arrangement"](#).

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair or replace malfunctioning parts.

P0962 PRESSURE CONTROL SOLENOID A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

P0962 PRESSURE CONTROL SOLENOID A

DTC Description

INFOID:000000009982173

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition
P0962	PC SOLENOID A (Pressure Control Solenoid A Control Circuit Low)	When all of the following conditions are satisfied and this state is maintained for 0.2 seconds: • TCM power supply voltage: More than 11 V • TCM judges that solenoid valve circuit is shorted to ground.

POSSIBLE CAUSE

- Harness or connector (Line pressure solenoid valve circuit is shorted to ground)
- Line pressure solenoid valve

FAIL-SAFE

- Selector shock is large
- Start is slow
- Acceleration is slow
- Lock-up is not performed

DTC CONFIRMATION PROCEDURE

1.PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2.CHECK DTC DETECTION

1. Start the engine and wait for 5 seconds or more.
2. Check the first trip DTC.

Is "P0962" detected?

- YES >> Go to [TM-157. "Diagnosis Procedure"](#).
NO-1 >> To check malfunction symptom before repair: Refer to [GI-41. "Intermittent Incident"](#).
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:000000009982174

1.CHECK CIRCUIT BETWEEN TCM AND CVT UNIT

1. Turn ignition switch OFF.
2. Disconnect TCM connector and CVT unit connector.
3. Check continuity between TCM harness connector terminal and ground.

TCM		—	Continuity
Connector	Terminal		
F75	30	Ground	Not existed

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace damaged parts.

2.CHECK CIRCUIT BETWEEN CVT UNIT AND GROUND

Check continuity between CVT unit harness connector terminal and ground.

P0962 PRESSURE CONTROL SOLENOID A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

CVT unit		—	Condition	Resistance
Connector	Terminal			
F209	1	Ground	CVT fluid temperature: 20°C (68°F)	5.5 – 7.0 Ω
			CVT fluid temperature: 50°C (122°F)	6.0 – 8.0 Ω
			CVT fluid temperature: 80°C (176°F)	6.5 – 8.5 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO >> There is malfunction of line pressure solenoid valve. Replace transaxle assembly. Refer to [TM-220, "Removal and Installation"](#).

P0963 PRESSURE CONTROL SOLENOID A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

P0963 PRESSURE CONTROL SOLENOID A

DTC Description

INFOID:000000009982175

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition
P0963	PC SOLENOID A (Pressure Control Solenoid A Control Circuit High)	When all of the following conditions are satisfied and this state is maintained for 0.2 seconds: • TCM power supply voltage: More than 11 V • P0962 is not detected • TCM judges that solenoid valve circuit is open.

POSSIBLE CAUSE

- Harness or connector (Line pressure solenoid valve circuit is open or shorted to power supply)
- Line pressure solenoid valve

FAIL-SAFE

- Selector shock is large
- Start is slow
- Acceleration is slow
- Lock-up is not performed

DTC CONFIRMATION PROCEDURE

1.PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2.CHECK DTC DETECTION

1. Start the engine and wait for 5 seconds or more.
2. Check the first trip DTC.

Is "P0963" detected?

YES >> Go to [TM-159. "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41. "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:000000009982176

1.CHECK CIRCUIT BETWEEN TCM AND CVT UNIT

1. Turn ignition switch OFF.
2. Disconnect TCM connector and CVT unit connector.
3. Check continuity between TCM harness connector terminal and ground.

TCM		CVT unit		Continuity
Connector	Terminal	Connector	Terminal	
F75	30	F74	1	Existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace damaged parts.

2.CHECK CIRCUIT BETWEEN CVT UNIT AND GROUND

Check continuity between CVT unit harness connector terminal and ground.

P0963 PRESSURE CONTROL SOLENOID A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

CVT unit		—	Condition	Resistance
Connector	Terminal			
F209	1	Ground	CVT fluid temperature: 20°C (68°F)	5.5 – 7.0 Ω
			CVT fluid temperature: 50°C (122°F)	6.0 – 8.0 Ω
			CVT fluid temperature: 80°C (176°F)	6.5 – 8.5 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO >> There is malfunction of line pressure solenoid valve. Replace transaxle assembly. Refer to [TM-220, "Removal and Installation"](#).

P0965 PRESSURE CONTROL SOLENOID B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

P0965 PRESSURE CONTROL SOLENOID B

DTC Description

INFOID:000000009982177

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition
P0965	PC SOLENOID B (Pressure Control Solenoid B Control Circuit Range Performance)	When any of 1 or 2 is satisfied and this state is maintained for 10 seconds: - When all of the following conditions are satisfied: - DTC other than the applicable DTC is not detected. - Engine speed: More than 625 rpm - Selector lever: Other than P/N position - CVT fluid temperature: More than -20°C (-4°F) - TCM power supply: More than 11 V - The difference between instruction pressure of primary pressure and 10-msec-ago instruction primary pressure is 0 MPa or more - Instruction pressure of primary pressure: 0.86 MPa or more - Instruction pressure of primary pressure - primary pressure: More than 1.2 MPa - When all of the following conditions are satisfied and this state is maintained for 1 second: • DTC other than the applicable DTC is not detected. • CVT fluid temperature: More than -20°C (-4°F) • Selector lever: Other than P/N position • Engine speed: More than 625 rpm • Instruction pressure of primary pressure: More than 2 MPa • Primary pressure: 0.4 MPa or less 2. When all of the following conditions are satisfied: - DTC other than the applicable DTC is not detected. - CVT fluid temperature: More than -20°C (-4°F) - Selector lever: Other than P/N position - TCM power supply: More than 11 V When all of the following conditions are satisfied and this state is maintained for 5.5 seconds: • DTC other than the applicable DTC is not detected. • CVT fluid temperature: More than -20°C (-4°F) • Selector lever: Other than P/N position • Primary pressure - instruction pressure of primary pressure: 1.2 MPa or more - The difference between instruction pressure of primary pressure and 10-msec-ago instruction primary pressure is 0 MPa or more - Primary pressure - instruction pressure of primary pressure: More than 1.2 MPa

POSSIBLE CAUSE

- Harness or connector (Primary pressure solenoid valve circuit is open or shorted)
- Primary pressure solenoid valve

FAIL-SAFE

- When a malfunction occurs on the low oil pressure side
 - Selector shock is large
 - Start is slow
 - Acceleration is slow
 - Lock-up is not performed
- When a malfunction occurs on the high oil pressure side
 - Selector shock is large
 - Lock-up is not performed

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

P0965 PRESSURE CONTROL SOLENOID B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2.CHECK DTC DETECTION

1. Start the engine.
2. Drive the vehicle.
3. Maintain the following conditions for 20 seconds or more.

Vehicle speed : 40 km/h (25 MPH) or more

4. Stop the vehicle.
5. Check the first trip DTC.

Is "P0965" detected?

YES >> Go to [TM-162, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:000000009982178

1.REPLACE TRANSAXLE ASSEMBLY

Replace transaxle assembly. Refer to [TM-220, "Removal and Installation"](#).

>> WORK END

P0966 PRESSURE CONTROL SOLENOID B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

P0966 PRESSURE CONTROL SOLENOID B

DTC Description

INFOID:000000009982179

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition
P0966	PC SOLENOID B (Pressure Control Solenoid B Control Circuit Low)	When all of the following conditions are satisfied and this state is maintained for 0.48 seconds: • TCM power supply voltage: More than 11 V • TCM judges that solenoid valve circuit is shorted to ground.

POSSIBLE CAUSE

- Harness or connector (Primary pressure solenoid valve circuit shorted to ground)
- Primary pressure solenoid valve

FAIL-SAFE

- Selector shock is large
- Start is slow
- Acceleration is slow
- Lock-up is not performed

DTC CONFIRMATION PROCEDURE

1.PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2.CHECK DTC DETECTION

1. Start the engine and wait for 5 seconds or more.
2. Check the first trip DTC.

Is "P0966" detected?

- YES >> Go to [TM-163, "Diagnosis Procedure"](#).
NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:000000009982180

1.CHECK CIRCUIT BETWEEN TCM AND CVT UNIT

1. Turn ignition switch OFF.
2. Disconnect TCM connector and CVT unit connector.
3. Check continuity between TCM harness connector terminal and ground.

TCM		—	Continuity
Connector	Terminal		
F75	40	Ground	Not existed

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace damaged parts.

2.CHECK CIRCUIT BETWEEN CVT UNIT AND GROUND

Check continuity between CVT unit harness connector terminal and ground.

P0966 PRESSURE CONTROL SOLENOID B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

CVT unit		—	Condition	Resistance
Connector	Terminal			
F209	2	Ground	CVT fluid temperature: 20°C (68°F)	5.5 – 7.0 Ω
			CVT fluid temperature: 50°C (122°F)	6.0 – 8.0 Ω
			CVT fluid temperature: 80°C (176°F)	6.5 – 8.5 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO >> There is malfunction of primary pressure solenoid valve. Replace transaxle assembly. Refer to [TM-220, "Removal and Installation"](#).

P0967 PRESSURE CONTROL SOLENOID B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

P0967 PRESSURE CONTROL SOLENOID B

DTC Description

INFOID:000000009982181

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition
P0967	PC SOLENOID B (Pressure Control Solenoid B Control Circuit High)	When all of the following conditions are satisfied and this state is maintained for 0.2 seconds: • TCM power supply voltage: More than 11 V • P0966 is not detected • TCM judges that solenoid valve circuit is open.

POSSIBLE CAUSE

- Harness or connector (Primary pressure solenoid valve circuit open or shorted to power supply)
- Primary pressure solenoid valve

FAIL-SAFE

- Selector shock is large
- Start is slow
- Acceleration is slow
- Lock-up is not performed

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2. CHECK DTC DETECTION

1. Start the engine and wait for 5 seconds or more.
2. Check the first trip DTC.

Is "P0967" detected?

YES >> Go to [TM-165, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:000000009982182

1. CHECK CIRCUIT BETWEEN TCM AND CVT UNIT

1. Turn ignition switch OFF.
2. Disconnect TCM connector and CVT unit connector.
3. Check continuity between TCM harness connector terminal and ground.

TCM		CVT unit		Continuity
Connector	Terminal	Connector	Terminal	
F75	40	F74	2	Existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace damaged parts.

2. CHECK CIRCUIT BETWEEN CVT UNIT AND GROUND

Check continuity between CVT unit harness connector terminal and ground.

P0967 PRESSURE CONTROL SOLENOID B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

CVT unit		—	Condition	Resistance
Connector	Terminal			
F209	2	Ground	CVT fluid temperature: 20°C (68°F)	5.5 – 7.0 Ω
			CVT fluid temperature: 50°C (122°F)	6.0 – 8.0 Ω
			CVT fluid temperature: 80°C (176°F)	6.5 – 8.5 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO >> There is malfunction of primary pressure solenoid valve. Replace transaxle assembly. Refer to [TM-220, "Removal and Installation"](#).

P2765 INPUT SPEED SENSOR B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

P2765 INPUT SPEED SENSOR B

DTC Description

INFOID:000000009982183

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition
P2765	INPUT SPEED SENSOR B (Input/Turbine Speed Sensor B Circuit)	When 1 is satisfied and any of 2, 3 or 4 is satisfied and this state is maintained for 5 seconds: - When all of the following conditions are satisfied: - TCM power supply voltage: More than 11 V - After range change completion, it spends 2 seconds or more. - When all of the following conditions are satisfied and this state is maintained for 5 seconds: - Secondary pulley speed: Less than 149 rpm - Primary pulley speed: 1,000 rpm or more - When all of the following conditions are satisfied and this state is maintained for 0.5 seconds: 10-msec-ago secondary pulley speed: 1000 rpm or more - Now secondary pulley speed: 0 rpm - When all of the following conditions are satisfied and this state is maintained for 5 seconds: - Range: D or L - Engine speed: 450 rpm or more - Primary pulley speed: 300 rpm or more - Secondary pulley speed: 300 rpm or more - Input speed: 300 rpm or more - The difference between engine speed and primary pulley speed is 1,000 rpm or less - The difference between engine speed and input speed is 1,000 rpm or less - The difference between primary pulley speed and input speed is 1,000 rpm or less - Lock-up command is being given (except for slip lock-up) - DTC other than the applicable DTC is not detected. - When any of following items are satisfied: - Primary pulley speed/secondary pulley speed: More than 2.9 - Primary pulley speed/secondary pulley speed: Less than 0.3

POSSIBLE CAUSE

- Harness or connector (Output speed sensor circuit is open or shorted)
- Output speed sensor

FAIL-SAFE

- Start is slow
- Acceleration is slow
- Lock-up is not performed

DTC CONFIRMATION PROCEDURE

CAUTION:

Be careful of the driving speed.

1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2. CHECK DTC DETECTION

1. Start the engine.
2. Drive the vehicle.
3. Maintain the following conditions for 10 seconds or more.

P2765 INPUT SPEED SENSOR B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

Selector lever : "D" position
Engine speed : 1,200 rpm or more
Vehicle speed : 55 km/h (34 MPH) or more

4. Stop the vehicle.
5. Check the first trip DTC.

Is "P2765" detected?

YES >> Go to [TM-168, "Diagnosis Procedure"](#).
NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:000000009982184

1. CHECK OUTPUT SPEED SENSOR POWER CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect output speed sensor connector.
3. Turn ignition switch ON.
4. Check voltage between output speed sensor harness connector terminal and ground.

+		–	Voltage
Output speed sensor			
Connector	Terminal		
F77	3	Ground	10 – 16 V

Is the inspection result normal?

YES >> GO TO 2.
NO >> GO TO 6.

2. CHECK OUTPUT SPEED SENSOR GROUND CIRCUIT

Check continuity between output speed sensor harness connector terminal and ground.

Output speed sensor		—	Continuity
Connector	Terminal		
F77	1	Ground	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace malfunctioning parts.

3. CHECK CIRCUIT BETWEEN OUTPUT SPEED SENSOR AND TCM (PART 1)

1. Turn ignition switch OFF.
2. Disconnect TCM connector.
3. Check continuity between output speed sensor harness connector terminal and TCM harness connector terminal.

Output speed sensor		TCM		Continuity
Connector	Terminal	Connector	Terminal	
F77	2	F75	34	Existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair or replace malfunctioning parts.

4. CHECK CIRCUIT BETWEEN OUTPUT SPEED SENSOR AND TCM (PART 2)

Check continuity between output speed sensor harness connector terminal and ground.

P2765 INPUT SPEED SENSOR B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

Output speed sensor		—	Continuity
Connector	Terminal		
F77	2	Ground	Not existed

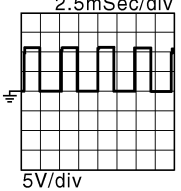
Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace malfunctioning parts.

5.CHECK TCM INPUT SIGNALS

1. Connect all of disconnected connectors.
2. Lift the vehicle.
3. Start the engine.
4. Check frequency of output speed sensor.

+		—	Condition	Frequency (Approx.)
TCM				
Connector	Terminal			
F75	34	Ground	• Shift position: “L” position • Vehicle speed: 20 km/h (12 MPH)	200 Hz 2.5mSec/div  5V/div JSDIA1904GB

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace output speed sensor. Refer to [TM-209, "Removal and Installation"](#).

6.CHECK CIRCUIT BETWEEN IPDM E/R AND OUTPUT SPEED SENSOR

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector.
3. Check continuity between IPDM E/R harness connector terminal and output speed sensor harness connector terminals.

IPDM E/R harness connector		Output speed sensor		Continuity
Connector	Terminal	Connector	Terminal	
F35	70	F77	3	Existed

Is the check result normal?

YES >> GO TO 7.

NO >> Repair or replace malfunctioning parts.

7.DETECT MALFUNCTIONING ITEMS

Check the following items:

- Open circuit or short circuit in harness between ignition switch and IPDM E/R. Refer to [PG-15, "Wiring Diagram — Ignition Power Supply —"](#).
- Short circuit in harness between IPDM E/R harness connector terminal 70 and output speed sensor harness connector terminal 3.
- 10A fuse (No.46, located in the IPDM E/R). Refer to [PG-68, "IPDM E/R Terminal Arrangement"](#).
- IPDM E/R

Is the check result normal?

YES >> INSPECTION END

NO >> Repair or replace malfunctioning parts.

P2813 SELECT SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

P2813 SELECT SOLENOID

DTC Description

INFOID:000000009982185

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition
P2813	SELECT SOLENOID (Select solenoid)	When any of 1, or 2 is satisfied: - When all the following conditions are established three times in 1DC - Precondition • DTC other than the applicable DTC is not detected. • Throttle position: More than 6.27 deg. • Vehicle speed: Less than 3 km/h (1 MPH) • CVT fluid temperature: More than 20°C (68°F) • Selector lever: Other than P, N • Turbine speed when performed N → D, N (P) → R: More than 500 rpm • TCM power supply voltage: More than 11 V - Detection time • N → D: 0.4 seconds • N → R: 0.3 seconds • P → R: 0.3 seconds - When all of the following conditions are satisfied and this state is maintained for 30 seconds: - The counting of time continues while all of the following conditions are satisfied and stops when the conditions become unsatisfied (the count is maintained). When accumulated time reaches 30 seconds (Clutch is judged as engaged and the count is reset.) • Selector lever: Other than P, N • Vehicle speed: Less than 3 km/h (1 MPH) • Differences between primary pulley speed and secondary speed: Less than 120 rpm • Clutch instructions pressure: 0.95 MPa or more • Differences between turbine speed and input speed: Less than 200 rpm • Turbine speed – speed: More than 450 rpm • DTC other than the applicable DTC is not detected. • TCM power supply voltage: More than 11 V

NOTE:

DC stands for "DRIVING CYCLE" and indicates a series of driving cycle of "Ignition switch OFF → ON → driving → OFF".

POSSIBLE CAUSE

Select solenoid valve

FAIL-SAFE

- When a malfunction occurs on the low oil pressure side
 - Selector shock is large
 - Start is slow
 - Acceleration is slow
 - Vehicle speed is not increased
- When a malfunction occurs on the high oil pressure side
 - Selector shock is large

DTC CONFIRMATION PROCEDURE

CAUTION:

Be careful of the driving speed.

1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

P2813 SELECT SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

>> GO TO 2.

2.CHECK DTC DETECTION 1

1. Start the engine.
2. Maintain the following conditions. (Keep 30seconds or more after the selector lever shifted.)

Selector lever : N→ D, N → R, P→ R

3. Check the first trip DTC.

Is "P2813"detected?

YES >> Go to [TM-171. "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41. "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:000000009982186

1.REPLACE TRANSAXLE ASSEMBLY

Replace transaxle assembly. Refer to [TM-220. "Removal and Installation"](#).

>> WORK END

A

B

C

TM

E

F

G

H

I

J

K

L

M

N

O

P

P2814 SELECT SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

P2814 SELECT SOLENOID

DTC Description

INFOID:000000009982187

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition
P2814	SELECT SOLENOID (Select solenoid)	When all of the following conditions are satisfied and this state is maintained for 0.48 seconds: • TCM power supply voltage: 11 V or more • TCM judges that solenoid valve circuit is shorted to ground.

POSSIBLE CAUSE

- Harness or connector (Select solenoid valve circuit shorted to ground)
- Select solenoid valve

FAIL-SAFE

Selector shock is large

DTC CONFIRMATION PROCEDURE

CAUTION:

Be careful of the driving speed.

1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2. CHECK DTC DETECTION

1. Start the engine.
2. Maintain the following conditions. (Keep 5 seconds or more after the selector lever shifted.)

Selector lever : N → D, N → R, P → R

3. Check the first trip DTC.

Is "P2814" detected?

YES >> Go to [TM-172, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:000000009982188

1. CHECK CIRCUIT BETWEEN TCM AND CVT UNIT

1. Turn ignition switch OFF.
2. Disconnect TCM connector and CVT unit connector.
3. Check continuity between TCM harness connector terminal and ground.

TCM		—	Continuity
Connector	Terminal		
F75	37	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace damaged parts.

2. CHECK CIRCUIT BETWEEN CVT UNIT AND GROUND

Check continuity between CVT unit harness connector terminal and ground.

P2814 SELECT SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

CVT unit		—	Condition	Resistance
Connector	Terminal			
F209	4	Ground	CVT fluid temperature: 20°C (68°F)	5.5 – 7.0 Ω
			CVT fluid temperature: 50°C (122°F)	6.0 – 8.0 Ω
			CVT fluid temperature: 80°C (176°F)	6.5 – 8.5 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO >> There is malfunction of select solenoid valve. Replace transaxle assembly. Refer to [TM-220](#),
["Removal and Installation"](#).

P2815 SELECT SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

P2815 SELECT SOLENOID

DTC Description

INFOID:000000009982189

DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis content)	DTC detection condition
P2815	SELECT SOLENOID (Select solenoid)	When all of the following conditions are satisfied and this state is maintained for 0.2 seconds: • TCM power supply voltage: More than 11 V • TCM judges that solenoid valve circuit is open. • P2814 is not detected.

POSSIBLE CAUSE

- Harness or connector (Select solenoid valve circuit open or shorted to power supply)
- Select solenoid valve

FAIL-SAFE

Selector shock is large

DTC CONFIRMATION PROCEDURE

1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

2. CHECK DTC DETECTION

1. Start the engine.
2. Maintain the following conditions. (Keep 5 seconds or more after the selector lever shifted.)

Selector lever : N → D, N → R, P → R

3. Check the first trip DTC.

Is "P2815" detected?

YES >> Go to [TM-174, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-41, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:000000009982190

1. CHECK CIRCUIT BETWEEN TCM AND CVT UNIT

1. Turn ignition switch OFF.
2. Disconnect TCM connector and CVT unit connector.
3. Check continuity between TCM harness connector terminal and ground.

TCM		CVT unit		Continuity
Connector	Terminal	Connector	Terminal	
F75	37	F74	4	Existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace damaged parts.

2. CHECK CIRCUIT BETWEEN CVT UNIT AND GROUND

Check continuity between CVT unit harness connector terminal and ground.

P2815 SELECT SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

CVT unit		—	Condition	Resistance
Connector	Terminal			
F209	4	Ground	CVT fluid temperature: 20°C (68°F)	5.5 – 7.0 Ω
			CVT fluid temperature: 50°C (122°F)	6.0 – 8.0 Ω
			CVT fluid temperature: 80°C (176°F)	6.5 – 8.5 Ω

Is the inspection result normal?

YES >> INSPECTION END

NO >> There is malfunction of select solenoid valve. Replace transaxle assembly. Refer to [TM-220](#),
["Removal and Installation"](#).

MAIN POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

MAIN POWER SUPPLY AND GROUND CIRCUIT

Diagnosis Procedure

INFOID:000000009982191

1.CHECK TCM POWER CIRCUIT (PART 1)

1. Turn ignition switch OFF.
2. Disconnect TCM connector.
3. Check voltage between TCM harness connector terminals and ground.

+		–	Voltage
TCM			
Connector	Terminal		
F75	45	Ground	10 – 16 V
	46		

Is the inspection result normal?

YES >> GO TO 2.

NO >> GO TO 4.

2.CHECK TCM POWER CIRCUIT (PART 2)

Check voltage between TCM harness connector terminals and ground.

+		–	Condition	Voltage
TCM				
Connector	Terminal			
F75	47	Ground	Ignition switch ON	10 – 16 V
			Ignition switch OFF	Approx. 0 V
	48		Ignition switch ON	10 – 16 V
			Ignition switch OFF	Approx. 0 V

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 5.

3.CHECK TCM GROUND CIRCUIT

Check continuity between TCM harness connector terminals and ground.

TCM		—	Continuity
Connector	Terminal		
F75	41	Ground	Existed
	42		

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

NO >> Repair or replace malfunctioning parts.

4.DETECT MALFUNCTION ITEMS (PART 1)

Check the following items:

- Open circuit or short circuit in harness between battery positive terminal and TCM connector terminal 45, and 46.
- 10A fuse (No.59, located in the fuse and fusible link block). Refer to [PG-65, "Terminal Arrangement"](#).

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

NO >> Repair or replace malfunctioning parts.

MAIN POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

5.CHECK CIRCUIT BETWEEN IPDM E/R AND TCM

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector.
3. Check continuity between IPDM E/R harness connector terminal and TCM harness connector terminals.

IPDM E/R		TCM		Continuity
Connector	Terminal	Connector	Terminal	
F35	70	F75	47	Existed
			48	

Is the check result normal?

YES >> GO TO 6.

NO >> Repair or replace malfunctioning parts.

6.DETECT MALFUNCTIONING ITEMS (PART 2)

Check the following items:

- Open circuit or short circuit in harness between ignition switch and IPDM E/R. Refer to [PG-15, "Wiring Diagram — Ignition Power Supply —"](#).
- Short circuit in harness between IPDM E/R harness connector terminal 70 and TCM harness connector terminals 47, and 48.
- 10A fuse (No.46, located in the IPDM E/R). Refer to [PG-68, "IPDM E/R Terminal Arrangement"](#).
- IPDM E/R

Is the check result normal?

YES >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

NO >> Repair or replace malfunctioning parts.

OVERDRIVE CONTROL SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

OVERDRIVE CONTROL SWITCH

Component Function Check

INFOID:000000009982192

1.CHECK O/D OFF INDICATOR LAMP FUNCTION

Check O/D OFF indicator lamp turns ON for approx. 2 seconds when ignition switch turns ON.

Is the inspection results normal?

YES >> GO TO 2.

NO >> Go to [TM-181, "Diagnosis Procedure"](#).

2.CHECK OVERDRIVE CONTROL SWITCH FUNCTION

1. Shift the selector lever to "D" position.

2. Check that O/D OFF indicator lamp turns ON/OFF when overdrive control switch is operated.

Is the inspection results normal?

YES >> INSPECTION END

NO >> Go to [TM-178, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000009982193

1.CHECK OVERDRIVE CONTROL SWITCH CIRCUIT

1. Turn ignition switch OFF.

2. Disconnect CVT shift selector connector.

3. Turn ignition switch ON.

4. Check voltage between CVT shift selector harness connector terminals.

CVT shift selector			Voltage (Approx.)
Connector	+	−	
	Terminal		
M107	1	2	5.0 V

Is the inspection result normal?

YES >> GO TO 2.

NO >> GO TO 4.

2.CHECK CVT SHIFT SELECTOR CIRCUIT

Check continuity between CVT shift selector harness connector terminals.

CVT shift selector	Condition	Continuity
Terminal		
1 - 2	Overdrive control switch is depressed.	Existed
	Overdrive control switch is released.	Not existed

Is the inspection result normal?

YES >> GO TO 7.

NO >> GO TO 3.

3.CHECK OVERDRIVE CONTROL SWITCH

Check overdrive control switch. Refer to [TM-179, "Component Inspection"](#).

Is the inspection result normal?

YES >> Repair CVT shift selector assembly. Refer to [TM-194, "Removal and Installation"](#).

NO >> Replace selector lever knob. Refer to [TM-194, "Removal and Installation"](#).

4.CHECK GROUND CIRCUIT

Check continuity between CVT shift selector harness connector terminal and ground.

OVERDRIVE CONTROL SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

CVT shift selector		—	Continuity
Connector	Terminal		
M107	2	Ground	Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace malfunctioning parts.

5.CHECK CIRCUIT BETWEEN CVT SHIFT SELECTOR AND COMBINATION METER (PART 1)

1. Turn ignition switch OFF.
2. Disconnect combination meter connector.
3. Check continuity between CVT shift selector harness connector terminal and combination meter harness connector terminal.

CVT shift selector		Combination meter		Continuity
Connector	Terminal	Connector	Terminal	
M107	1	M76	10	Existed

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace malfunctioning parts.

6.CHECK CIRCUIT BETWEEN CVT SHIFT SELECTOR AND COMBINATION METER (PART 2)

Check continuity between CVT shift selector harness connector terminal and ground.

CVT shift selector		—	Continuity
Connector	Terminal		
M107	1	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace malfunctioning parts.

7.CHECK COMBINATION METER INPUT/OUTPUT SIGNAL

1. Connect all of disconnected connectors.
2. Turn ignition switch ON.
3. Select "Data Monitor" in "METER/M&A".
4. Select "O/D OFF SW".
5. Check that "O/D OFF SW" turns ON/OFF when overdrive control switch is operated. Refer to [MWI-24, "Reference Value"](#).

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-41, "Intermittent Incident"](#).

NO >> Replace combination meter. Refer to [MWI-82, "Removal and Installation"](#).

Component Inspection

INFOID:000000009982194

1.CHECK OVERDRIVE CONTROL SWITCH

OVERDRIVE CONTROL SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

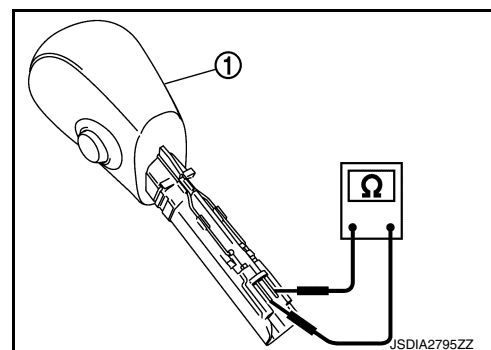
Check continuity between wires of shift selector knob ①.

Condition	Continuity
Overdrive control switch is depressed.	Existed
Overdrive control switch is released.	Not existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace shift selector knob. Refer to [TM-194. "Removal and Installation"](#).



O/D OFF INDICATOR LAMP

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

O/D OFF INDICATOR LAMP

Component Function Check

INFOID:0000000009982195

1.CHECK O/D OFF INDICATOR LAMP FUNCTION

Check O/D OFF indicator lamp turns ON for approx. 2 seconds when ignition switch turns ON.

Is the inspection results normal?

- YES >> INSPECTION END
- NO >> Go to [TM-181, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000009982196

1.CHECK DTC (TCM)

With CONSULT

1. Turn ignition switch ON.
2. Check "Self Diagnostic Results" in "TRANSMISSION".

Is any DTC detected?

- YES >> Check DTC detected item. Refer to [TM-63, "DTC Index"](#).
- NO >> GO TO 2.

2.CHECK DTC (COMBINATION METER)

With CONSULT

Check "Self Diagnostic Results" in "METER/M&A".

Is any DTC detected?

- YES >> Check DTC detected item. Refer to [MWI-30, "DTC Index"](#).
- NO >> GO TO 3.

3.CHECK COMBINATION METER INPUT/OUTPUT SIGNAL

With CONSULT

1. Shift the selector lever to "D" position.
2. Select "Data Monitor" in "METER/M&A".
3. Select "O/D OFF IND".
4. Check that "O/D OFF IND" turns ON/OFF when overdrive control switch is operated. Refer to [MWI-24, "Reference Value"](#).

Is the inspection result normal?

- YES >> Replace combination meter. Refer to [MWI-82, "Removal and Installation"](#).
- NO >> GO TO 4.

4.CHECK TCM INPUT/OUTPUT SIGNAL

With CONSULT

1. Select "Data Monitor" in "TRANSMISSION".
2. Select "SPORT MODE SW".
3. Check that "SPORT MODE SW" turns ON/OFF when overdrive control switch is operated. Refer to [TM-52, "Reference Value"](#).

Is the inspection result normal?

- YES >> Replace combination meter. Refer to [MWI-82, "Removal and Installation"](#).
- NO >> Check overdrive control switch circuit. Refer to [TM-178, "Diagnosis Procedure"](#).

SHIFT POSITION INDICATOR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

SHIFT POSITION INDICATOR CIRCUIT

Component Parts Function Inspection

INFOID:000000009982201

1. CHECK SHIFT POSITION INDICATOR

1. Start the engine.
2. Shift selector lever.
3. Check that the selector lever position and the shift position indicator on the combination meter are identical.

Is the inspection result normal?

- YES >> INSPECTION END
NO >> Go to [TM-182, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000009982202

1. CHECK TCM INPUT/OUTPUT SIGNAL

With CONSULT

1. Start the engine.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "RANGE".
4. Shift selector lever.
5. Check that selector lever position, "RANGE" on CONSULT screen, and shift position indicator display on combination meter are identical.

Is the check result normal?

- YES >> INSPECTION END
NO-1 ("RANGE" is changed but is not displayed on shift position indicator.)>>Check "Self Diagnostic Result" in "TRANSMISSION".
NO-2 ("RANGE" and shift position indicator are different.)>>Check "Self Diagnostic Result" in "TRANSMISSION".
NO-3 (Specific "RANGE" is not displayed on shift position indicator.)>>Check "Self Diagnostic Result" in "METER/M&A".

SHIFT LOCK SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

SHIFT LOCK SYSTEM

Component Function Check

INFOID:000000009982203

1.CHECK SHIFT LOCK OPERATION (PART 1)

1. Turn ignition ON.
2. Shift the selector lever to "P" position.
3. Attempt to shift the selector lever to any other than position with the brake pedal released.

Can the selector lever be shifted to any other position?

- YES >> Go to [TM-183, "Diagnosis Procedure"](#).
NO >> GO TO 2.

2.CHECK SHIFT LOCK OPERATION (PART 2)

Attempt to shift the selector lever to any other than position with the brake pedal depressed.

Can the selector lever be shifted to any other position?

- YES >> Inspection End.
NO >> Go to [TM-183, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000009982204

Regarding Wiring Diagram information, refer to [TM-75, "Wiring Diagram"](#).

1.CHECK STOP LAMP SWITCH

1. Ignition switch ON.
2. Check voltage between stop lamp switch connector E38 terminal 4 and ground.

Stop lamp switch		Ground	Brake pedal	Voltage
Connector	Terminal			
E38	4	Ground	Applied	Battery voltage
			Released	0V

Is the inspection result normal?

- YES >> GO TO 2.
NO >> GO TO 4.

2.CHECK CVT SHIFT SELECTOR

Check voltage between CVT shift selector connector M107 terminal 4 and ground.

CVT shift selector		Ground	Brake pedal	Shift selector	Voltage
Connector	Terminal				
M107	4	Ground	Applied	Park	Battery voltage
				Others	0V

Is the inspection result normal?

- YES >> GO TO 3.
NO >> GO TO 5.

3.CHECK GROUND CIRCUIT

1. Ignition switch OFF.
2. Disconnect CVT shift selector connector.
3. Check continuity between CVT shift selector connector M107 terminal 4 and ground.

SHIFT LOCK SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

CVT shift selector		Ground	Continuity
Connector	Terminal		
M107	4	Ground	Yes

Is the inspection result normal?

- YES >> Replace CVT shift selector. Refer to [TM-194, "Removal and Installation"](#).
NO >> Repair or replace harness.

4.CHECK STOP LAMP SWITCH POWER CIRCUIT

Check voltage between stop lamp switch connector E38 terminal 3 and ground.

Stop lamp switch		Ground	Voltage
Connector	Terminal		
E38	3	Ground	Battery voltage

Is the inspection result normal?

- YES >> Replace stop lamp switch. Refer to [BR-20, "Exploded View"](#).
NO >> Repair or replace harness.

5.CHECK CVT SHIFT SELECTOR POWER CIRCUIT

Check voltage between CVT shift selector connector M107 terminal 3 and ground.

CVT shift selector		Ground	Brake pedal	Voltage
Connector	Terminal			
M107	3	Ground	Applied	Battery voltage

Is the inspection result normal?

- YES >> Replace CVT shift selector. Refer to [TM-194, "Removal and Installation"](#).
NO >> Repair or replace harness or connector.

Component Inspection (CVT Shift Selector Assembly)

INFOID:000000009982205

1.CHECK CVT SHIFT SELECTOR ASSEMBLY (PART 1)

Check continuity between CVT shift selector connector terminals.

CVT shift selector		Condition	Continuity
Terminal			
3 – 4	Shift the selector lever to "P" position.		Yes
	Other than the above.		No

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Replace CVT shift selector assembly. Refer to [TM-194, "Removal and Installation"](#).

2.CHECK CVT SHIFT SELECTOR ASSEMBLY (PART 2)

Apply voltage to terminals of CVT shift selector and check that shift lock solenoid is activated.

CAUTION:

- Connect the fuse between the terminals when applying the voltage.
- Never cause shorting between terminals.

+ (fuse)	-	Condition	Status
Shift lock solenoid			
Terminal			
3	4	• Selector lever: “P” position • Apply 12 V between terminals 3 and 4.	Shift lock solenoid operates

SHIFT LOCK SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

Is the inspection result normal?

YES >> Inspection End

NO >> Replace CVT shift selector assembly. Refer to [TM-194. "Removal and Installation"](#).

Component Inspection (Stop Lamp Switch)

INFOID:0000000009982206

1.CHECK STOP LAMP SWITCH

Check continuity between the stop lamp switch connector terminals.

Stop lamp switch Terminal	Condition	Continuity
3 – 4	Depressed brake pedal	Yes
	Released brake pedal	No

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace stop lamp switch. Refer to [BR-20. "Exploded View"](#).

SYMPTOM DIAGNOSIS

CVT CONTROL SYSTEM

Symptom Table

INFOID:000000009982207

- The diagnosis item number indicates the order of check. Start checking in the order from 1.
- Perform diagnoses of symptom table 1 before symptom table 2.

Symptom Table 1

Symptom		Engine system																Stall test	CVT position	Power supply	Control valve	CVT fluid level and state	Ignition switch and starter
		EC-12Z	TM-63										TM-91	TM-196	TM-176	TM-205	TM-192						
Shift Shock	Large shock (N→D position)	1	4	7					3				6		2		8	5					
	Large shock (N→R position)	1	4	7					3				6		2		8	5					
	Shock is too large for lock-up.	2	3										6		1		5	4					
Slips/Will Not Engage	Vehicle cannot be started from D position.	8	3		5	6	7	9	10	11			4	2	12	13	1						
	Vehicle cannot be started from R position.	8	3		5	6	7	9	10	11			4	2	12	13	1						
	Does not lock-up.	2	6	8	3	4	10	9	11	12	5	7				13	1						
	Does not hold lock-up condition.	2	6	8	3	4	10	9	11	12	5	7				13	1						
	Lock-up is not released.	2	6		3	4					5	7				8	1						
	With selector lever in D position, acceleration is extremely poor.	3	4	5	7	8	9	12	10	11			2	6	13	14	1						
	With selector lever in R position, acceleration is extremely poor.	3	4	5	7	8	9	12	10	11			2	6	13	14	1						
	Slips at lock-up.	2	6	8	3	4	10	9	11	12	5	7				13	1						

CVT CONTROL SYSTEM

< SYMPTOM DIAGNOSIS >

[CVT: RE0F10D]

Symptom		Engine system															
		EC-12Z	TM-63										TM-91	TM-196	TM-176	TM-205	TM-192
		Engine system	CAN communication line	Transmission range switch (P0705, P0706)	Input speed sensor (P0717)	Primary speed sensor (P0715)	Output speed sensor (P2765)	CVT fluid temperature sensor (P0712, P0713)	Primary pressure sensor (P084C, P084D)	Secondary pressure sensor (P0841, P0847, P0848)	Torque converter clutch solenoid valve (P0740, P0743, P0744)	Stall test	CVT position	Power supply	Control valve	CVT fluid level and state	Ignition switch and starter
Other	No creep at all.	2	4	3	7	8	9	10	11	12		5	6	13	14	1	
	Vehicle cannot run in any position.	8		2	5	6	7	9	10	11		3	4	12	13	1	
	With selector lever in D position, driving is not possible.	8		2	5	6	7	9	10	11		3	4	12	13	1	
	With selector lever in R position, driving is not possible.	8		2	5	6	7	9	10	11		3	4	12	13	1	
	Judder occurs during lock-up.	2	6		3	4	5				7				8	1	
	Strange noise in D position.	2	3												4	1	
	Strange noise in R position.	2	3												4	1	
	Strange noise in N position.	2	3												4	1	
	Vehicle does not decelerate by engine brake.	7	3		4	5	6						2		8	1	
	Maximum speed low.	2	3		5	6	7		8	9	11	4			10	1	
	With selector lever in P position, vehicle does not enter parking condition or, with selector lever in another position, parking condition is not cancelled.			1									2				
	Vehicle runs with CVT in P position.			1									3		4	2	
	Vehicle runs with CVT in N position.			1									3		4	2	
	Engine stall.	2	6		3	4			8	9	5	7			10	1	
	Engine stalls when selector lever shifted N → D or R.	2	6		3	4					5				7	1	
	Engine speed does not return to idle.	2	4				3								5	1	
	Engine does not start in N or P position.			3									2				1
	Engine starts in positions other than N or P.			3									2				1

CVT CONTROL SYSTEM

< SYMPTOM DIAGNOSIS >

[CVT: RE0F10D]

Symptom Table 2

Symptom		Torque converter	Transmission range switch	Oil pump	Forward clutch	Reverse brake	Planetary gear	Bearings	Parking mechanism	Stop lamp switch	Shift lock solenoid	CVT shift selector
		TM-223	TM-220							TM-185	TM-183	TM-194
Shift Shock	Large shock (N→D position)		2		1							
	Large shock (N→R position)		2			1						
	Shock is too large for lock-up.	1										
Slips/Will Not Engage	Vehicle cannot be started from D position.		3	1	2							
	Vehicle cannot be started from R position.		4	1		2			3			
	Does not lock-up.	1	3	2								
	Does not hold lock-up condition.	1	3	2								
	Lock-up is not released.	1		2								
	With selector lever in D position, acceleration is extremely poor.	1	3		2							
	With selector lever in R position, acceleration is extremely poor.	1	4	2		3						
	Slips at lock-up.	1		2								

CVT CONTROL SYSTEM

< SYMPTOM DIAGNOSIS >

[CVT: RE0F10D]

Symptom	Torque converter	Transmission range switch	Oil pump	Forward clutch	Reverse brake	Planetary gear	Bearings	Parking mechanism	Stop lamp switch	Shift lock solenoid	CVT shift selector
	TM-223	TM-220							TM-185	TM-183	TM-194
Other	No creep at all.	1	6	2	4	5	3				
	Vehicle cannot run in all positions.	1		2	4	5	3	6			
	With selector lever in D position, driving is not possible.	1		2	4		3	5			
	With selector lever in R position, driving is not possible.	1		2		4	3	5			
	Judder occurs during lock-up.	1									
	Strange noise in D position.	1		2	4		3	5			
	Strange noise in R position.	1		2		4	3				
	Strange noise in N position.	1		2			3				
	Maximum speed low.	1	5	2	4		3				
	With selector lever in P position, vehicle does not enter parking condition or, with selector lever in another position, parking condition is not cancelled.							1			
	Vehicle runs with CVT in P position.					2		1			
	Vehicle runs with CVT in N position.			2	3	1					
	Engine stall.	1									
	Engine stalls when selector lever shifted N → D or R.	1									
	When brake pedal is depressed with ignition switch ON, selector lever cannot be shifted from P position to other position.								1	2	3
	When brake pedal is not depressed with ignition switch ON, selector lever can be shifted from P position to other position.								1	2	3

PERIODIC MAINTENANCE

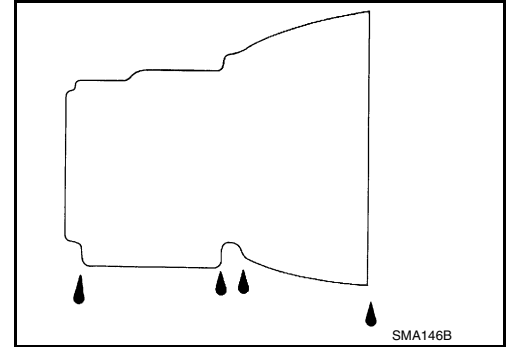
CVT FLUID

Inspection

INFOID:000000009982208

FLUID LEAKAGE

- Check transaxle surrounding area (oil seal and plug etc.) for fluid leakage.
- If anything is found, repair or replace damaged parts and adjust CVT fluid level. Refer to [TM-192, "Adjustment"](#).



Replacement

INFOID:000000009982209

Recommended fluid and fluid capacity : Refer to [TM-226, "General Specification"](#).

CAUTION:

- Always use shop paper. Never use shop cloth.
- Replace a drain plug gasket with new ones at the final stage of the operation when installing.
- Use caution when looking into the drain hole as there is a risk of dripping fluid entering the eye.
- After replacement, always perform CVT fluid leakage check.

1. Select "Data Monitor" in "TRANSMISSION" using CONSULT.
2. Select "FLUID TEMP" and confirm that the CVT fluid temperature is 40°C (104°F) or less.
3. Check that the selector lever is in the "P" position, then completely engage the parking brake.
4. Lift up the vehicle.
5. Remove the drain plug and drain the CVT fluid from the oil pan. Refer to [TM-205, "Exploded View"](#).
6. Install the drain plug to oil pan.

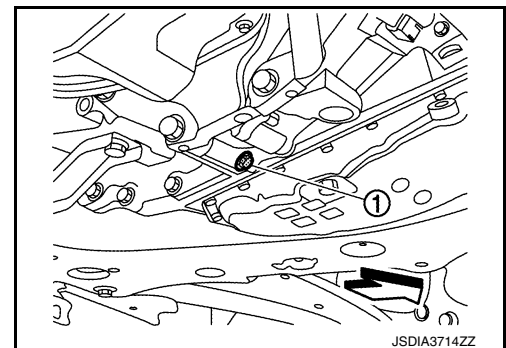
CAUTION:

Drain plug gasket use the old one.

7. Remove the overflow plug ① from converter housing.



: Vehicle front

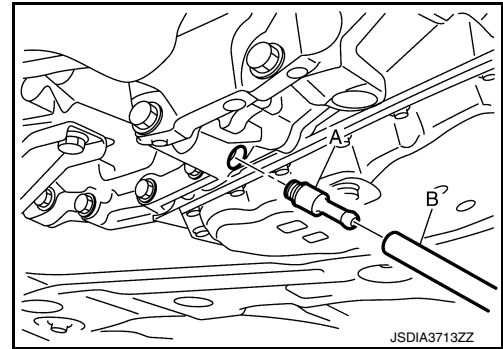


CVT FLUID

< PERIODIC MAINTENANCE >

[CVT: RE0F10D]

8. Install the charging pipe set (KV311039S0) (A) into the overflow plug hole.
CAUTION:
Tighten the charging pipe by hand.
9. Install the ATF changer hose (B) to the charging pipe.
CAUTION:
Press the ATF changer hose all the way onto the charging pipe until it stops.
10. Fill approximately 3 liter (3-1/8 US qt, 2-5/8 Imp qt) of the CVT fluid.
11. Remove the ATF changer hose and charging pipe, then install the overflow plug.
NOTE:
Perform this work quickly because CVT fluid leaks.
12. Lift down the vehicle.
13. Start the engine.
14. While depressing the brake pedal, shift the selector lever to the entire position from "P" to "L", and shift it to the "P" position.
NOTE:
Hold the lever at each position for 5 seconds.
15. Check that the CONSULT "Data Monitor" in "FLUID TEMP" is 35°C (95°F) to 45°C (113°F).
16. Stop the engine.
17. Lift up the vehicle.
18. Remove the drain plug, and then drain CVT fluid from oil pan.
19. Repeat steps 8 to 18 (one time).
20. Tighten the drain plug to the specified torque. Refer to [TM-205, "Exploded View"](#).
21. Remove the overflow plug.
22. Install the charging pipe set (KV311039S0) into the overflow plug hole.
CAUTION:
Tighten the charging pipe by hand.
23. Install the ATF changer hose to the charging pipe.
CAUTION:
Press the ATF changer hose all the way onto the charging pipe until it stops.
24. Fill approximately 3 liter (3-1/8 US qt, 2-5/8 Imp qt) of the CVT fluid.
25. Remove the ATF changer hose and charging pipe, then install the overflow plug.
NOTE:
Perform this work quickly because CVT fluid leaks.
26. Lift down the vehicle.
27. Start the engine.
28. While depressing the brake pedal, shift the selector lever to the entire position from "P" to "L", and shift it to the "P" position.
NOTE:
Hold the lever at each position for 5 seconds.
29. Check that the CONSULT "Data Monitor" in "FLUID TEMP" is 35°C (95°F) to 45°C (113°F).
30. Lift up the vehicle.
31. Remove the overflow plug and confirm that the CVT fluid is drained from the overflow plug hole.
CAUTION:
Perform this work with the vehicle idling.
NOTE:
If the CVT fluid is not drained, refer to "Adjustment" and refill with the CVT fluid.
32. When the flow of CVT fluid slows to a drip, tighten the overflow plug to the specified torque. Refer to [TM-205, "Exploded View"](#).
CAUTION:
Never reuse O-ring.
33. Lift down the vehicle.



34. Select "Data Monitor" in "TRANSMISSION" using CONSULT.
35. Select "CONFORM CVTF DETERIORATION".
36. Select "Erase".
37. Stop the engine.

Adjustment

INFOID:000000009982210

Recommended fluid and fluid capacity : Refer to [TM-226, "General Specification"](#).

CAUTION:

- During adjustment of the CVT fluid level, check CONSULT so that the oil temperature may be maintained from 35 to 45°C (95 to 113°F).
- During adjustment of the CVT fluid level, check that the engine speed is maintaining 500 rpm.
- Use caution when looking into the drain hole as there is a risk of dripping fluid entering the eye.

1. Check that the selector lever is in the "P" position, then completely engage the parking brake.
2. Start the engine.
3. Adjust the CVT fluid temperature to be approximately 40°C (104°F).

NOTE:

The CVT fluid is largely affected by temperature. Therefore be sure to use CONSULT and check the "FLUID TEMP" under "TRANSMISSION" in "Data Monitor" while adjusting.

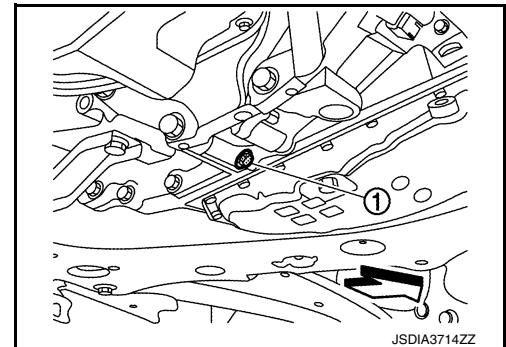
4. While depressing the brake pedal, shift the selector lever to the entire position from "P" to "L", and shift it to the "P" position.

NOTE:

Hold the lever at each position for 5 seconds.

5. Lift up the vehicle.
6. Check that there is no CVT fluid leakage.
7. Remove the overflow plug ① from converter housing.

← : Vehicle front



8. Install the charging pipe set (KV311039S0) (A) into the overflow plug hole.

CAUTION:

Tighten the charging pipe by hand.

9. Install the ATF changer hose (B) to the charging pipe.

CAUTION:

Press the ATF changer hose all the way onto the charging pipe until it stops.

10. Fill approximately 0.5 liter (1/2 US qt, 1/2 Imp qt) of the CVT fluid.

11. Remove the ATF changer hose from the charging pipe, and check that the CVT fluid drains out from the charging pipe. If it does not drain out, perform charging again.

CAUTION:

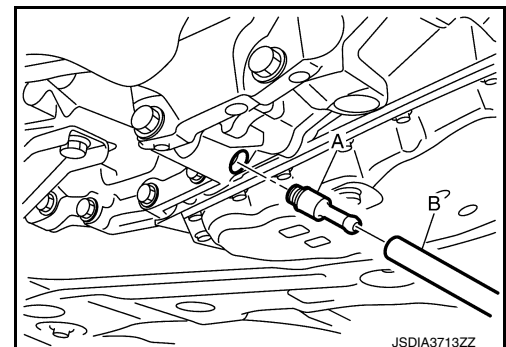
Perform this work with the vehicle idling.

12. When the flow of CVT fluid slows to a drip, remove the charging pipe from the converter housing.

13. Tighten the overflow plug to the specified torque. Refer to [TM-205, "Exploded View"](#).

CAUTION:

Never reuse O-ring.



- 14. Lift down the vehicle.
- 15. Stop the engine.

A
B
C
TM
E
F
G
H
I
J
K
L
M
N
O
P

TM

CVT SHIFT SELECTOR

< REMOVAL AND INSTALLATION >

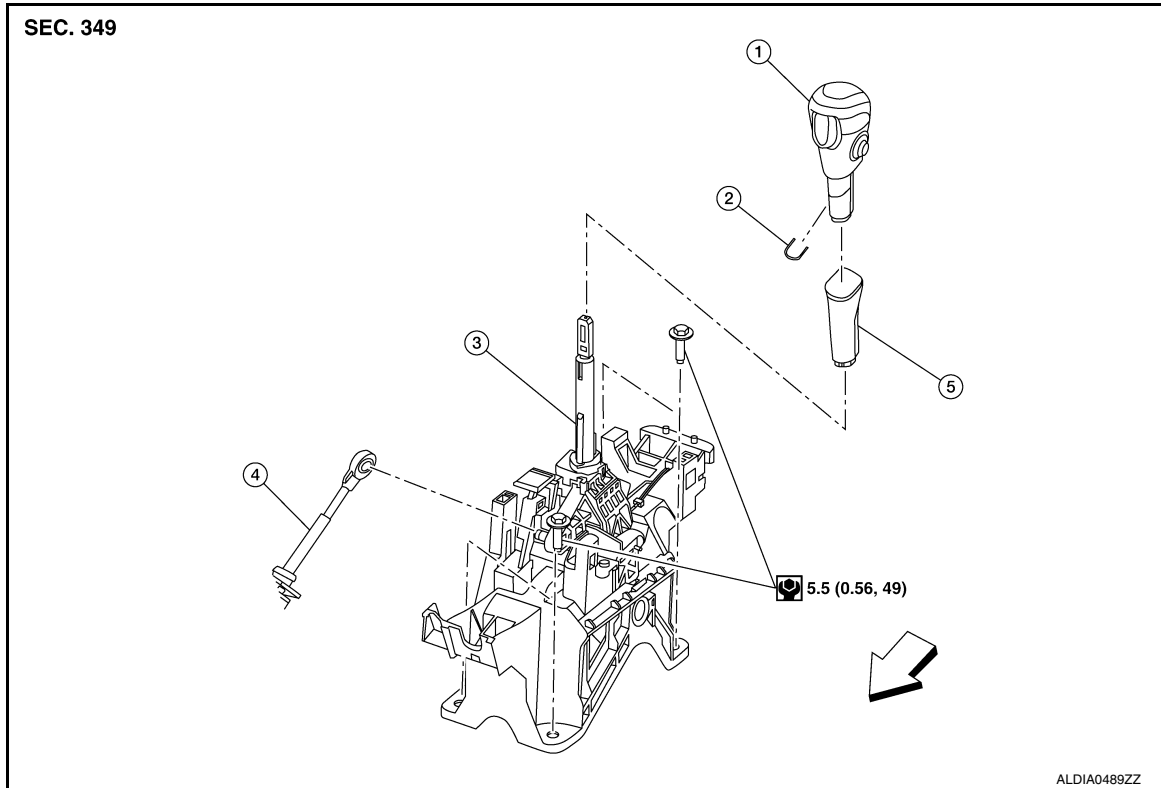
[CVT: RE0F10D]

REMOVAL AND INSTALLATION

CVT SHIFT SELECTOR

Exploded View

INFOID:000000009982211



- | | | |
|------------------------|------------------------------|----------------------------|
| 1. Shift selector knob | 2. Lock pin | 3. Shift selector assembly |
| 4. Control cable | 5. Shift selector knob cover | |

⇐ Front

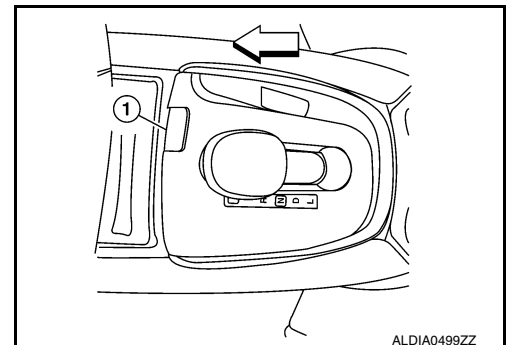
Removal and Installation

INFOID:000000009982212

REMOVAL

1. Apply the parking brake.
CAUTION:
Make sure the vehicle cannot move with the parking brake applied.
2. Move the shift selector with the following procedure.
 - Remove shift lock override button cover (1) using suitable tool.

⇐ : Front



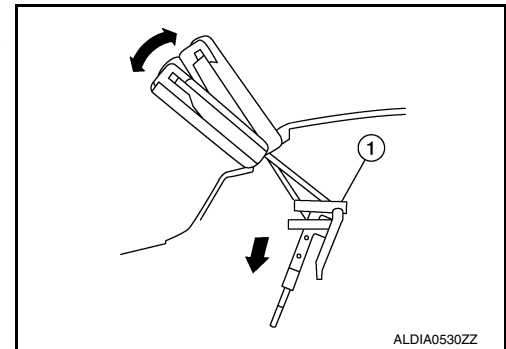
CVT SHIFT SELECTOR

< REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

- Insert suitable tool into opening to depress the shift lock override button (1) in the direction (←) shown. Move shift selector to "N" position while depressing shift lock override button.

← : Front



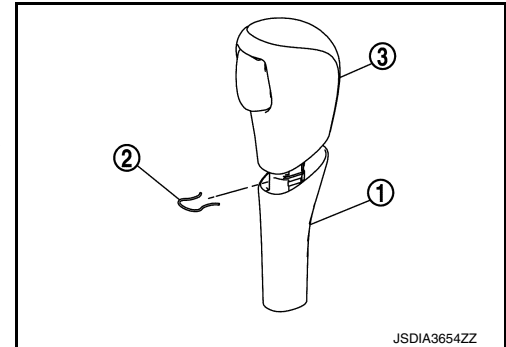
3. Remove the shift selector knob with the following procedure.

- a. Slide the selector lever knob cover (1) down.

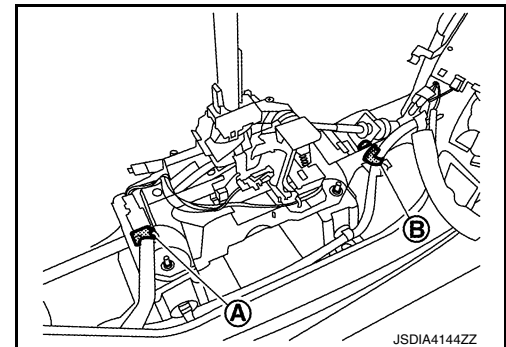
CAUTION:

Do not damage the knob cover.

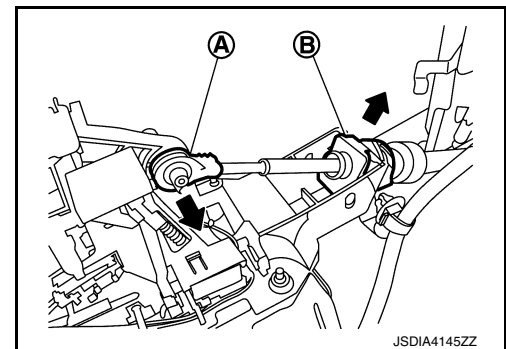
- b. Pull out the lock pin (2) from the selector lever knob (3).
 - c. Pull the selector lever knob and the selector lever knob cover upwards to remove them.
4. Remove the center console assembly. Refer to [IP-18, "Removal and Installation"](#).
 5. Shift the selector lever to "P" position.



6. Disconnect the shift selector connector (A) and remove harness clip (B).



7. Disconnect the tip (A) of control cable and remove socket (B) from the shift selector assembly.

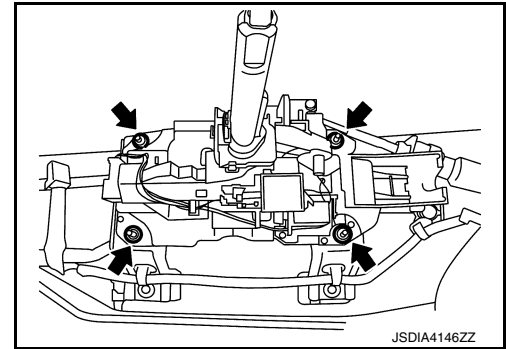


CVT SHIFT SELECTOR

< REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

8. Remove the shift selector assembly nuts (⬅) and remove the shift selector assembly from the vehicle.



INSTALLATION

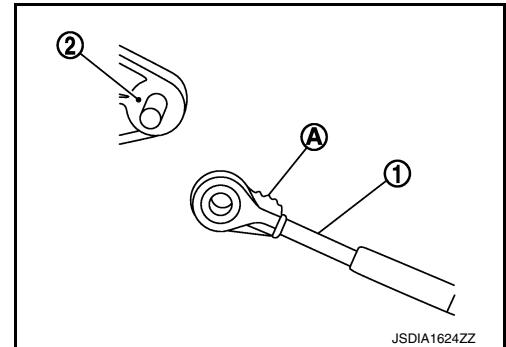
Installation is in the reverse order of removal.

- Pay attention to the following when connecting the control cable to the shift selector assembly.

1. When connecting the control cable (1) to the shift selector assembly (2), face the grooved surface of the rib (A) up and insert the control cable until it stops.

NOTE:

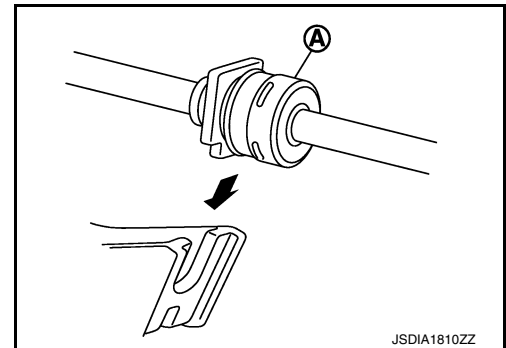
Apply multi-purpose grease to control cable eye before installation.



2. Install the socket (A) onto the shift selector assembly.

CAUTION:

- Place the socket onto the shift selector assembly, then fasten it in place from above.
- Check that the pulling on the socket does not disconnect it.



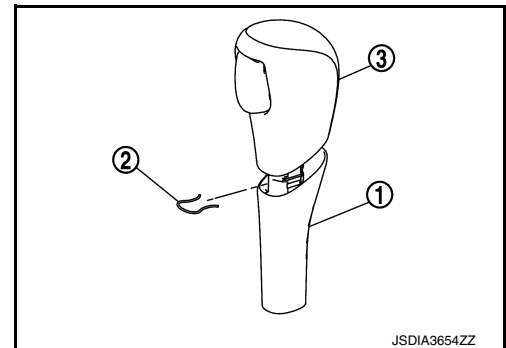
- Follow the procedure below and place the selector lever knob onto the shift selector.

1. Install the lock pin (2) onto the selector lever knob (3).
2. Install the knob cover (1) onto the selector lever knob.
3. Shift the selector lever to "N" position.
4. Insert the selector lever knob into the selector lever until a slight touch is felt.
5. Press and hold the selector lever knob button and insert selector lever knob into selector lever until it clanks.

CAUTION:

Do not strike the selector lever knob to press it into place.

6. After installing selector lever knob, pull the knob to check that it does not become disconnected.



Inspection

INFOID:000000009982213

INSPECTION AFTER INSTALLATION

- Check the shift selector position. Refer to [TM-92, "Inspection"](#).
- Check that shift lock can be forcible release. Refer to [TM-29, "SHIFT LOCK SYSTEM : System Description"](#).

CONTROL CABLE

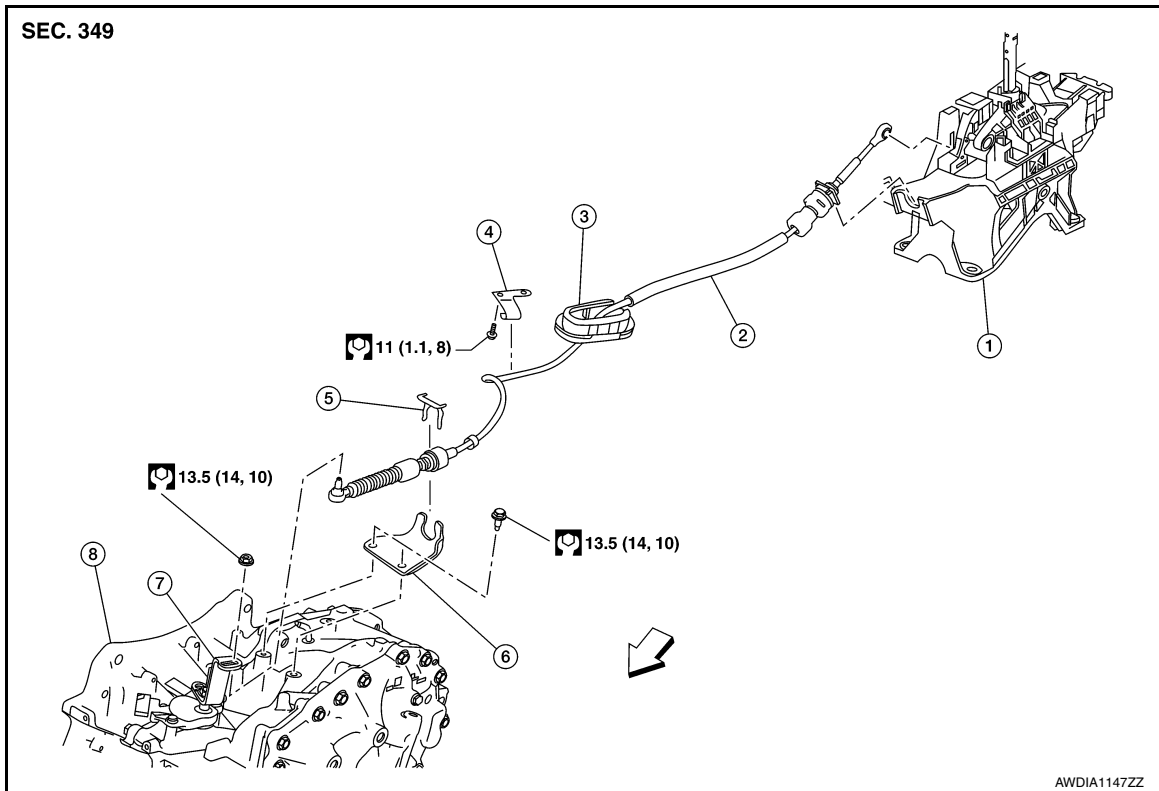
< REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

CONTROL CABLE

Exploded View

INFOID:000000009982214



- | | | |
|-----------------------|------------------|---------------------|
| 1. Shift selector | 2. Control cable | 3. Retainer grommet |
| 4. Lock plate | 5. Bracket | 6. Manual lever |
| 7. Transaxle assembly | ⇐ Front | |

Removal and Installation

INFOID:000000009982215

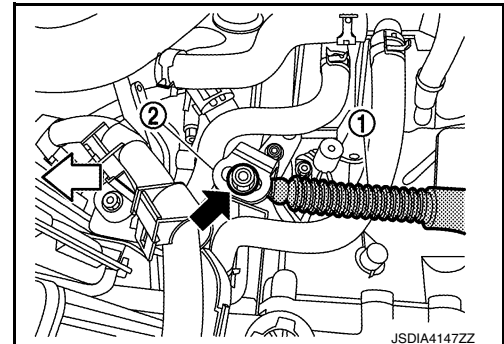
CAUTION:

Always apply the parking brake before performing removal and installation.

REMOVAL

1. Apply the parking brake.
CAUTION:
Make sure the vehicle cannot move with the parking brake applied.
2. Remove battery tray. Refer to [PG-76. "Removal and Installation \(Battery Tray\)"](#).
3. Remove the control cable nut (⇐) and remove the control cable (1) from the manual lever (2).

⇐ : Front



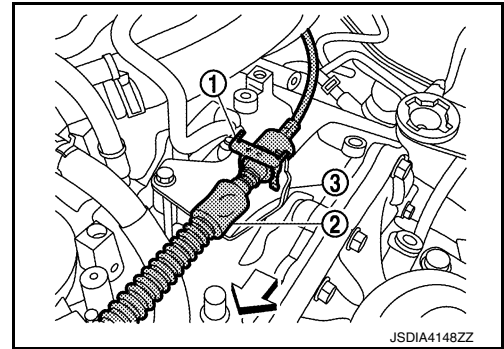
CONTROL CABLE

< REMOVAL AND INSTALLATION >

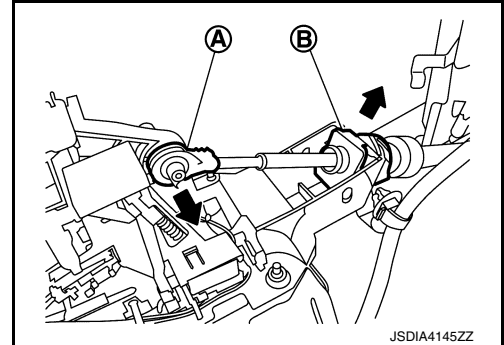
[CVT: RE0F10D]

4. Remove the lock plate (1) and remove the control cable (2) from bracket (3).

⇐ : Front



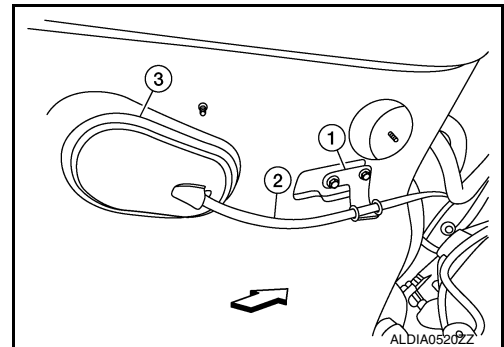
5. Remove the center console assembly. Refer to [IP-18, "Removal and Installation"](#).
6. Disconnect the tip (A) of control cable and remove the socket (B) from the CVT shift selector assembly.



7. Remove the control cable (1) from bracket (2).
8. Remove by pushing retainer grommet (3) upward.

⇐ : Front

9. Remove the control cable.



INSTALLATION

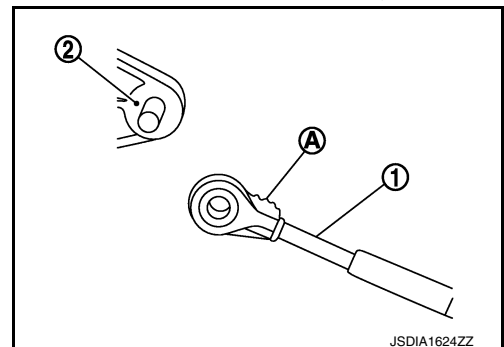
Installation is in the reverse order of removal.

- Pay attention to the following when connecting the control cable to the CVT shift selector assembly.

1. When connecting the control cable (1) to the CVT shift selector assembly (2), face the grooved surface of the rib (A) up and insert the control cable until it stops.

NOTE:

Apply multi-purpose grease to control cable eye before installation.



CONTROL CABLE

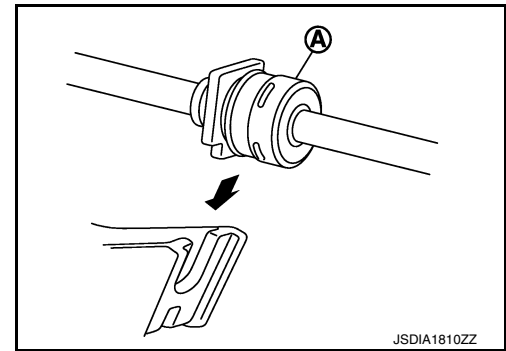
< REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

2. Install the socket (A) onto the CVT shift selector assembly.

CAUTION:

- Place the socket onto the CVT shift selector assembly, then fasten it in place from above.
- Check that the pulling on the socket does not disconnect it.



Inspection and Adjustment

ADJUSTMENT AFTER INSTALLATION

Adjust the CVT position. Refer to [TM-92, "Adjustment"](#).

INSPECTION AFTER ADJUSTMENT

Check the CVT shift selector position after the adjustment. Refer to [TM-92, "Inspection"](#).

INFOID:000000009982216

KEY INTERLOCK CABLE

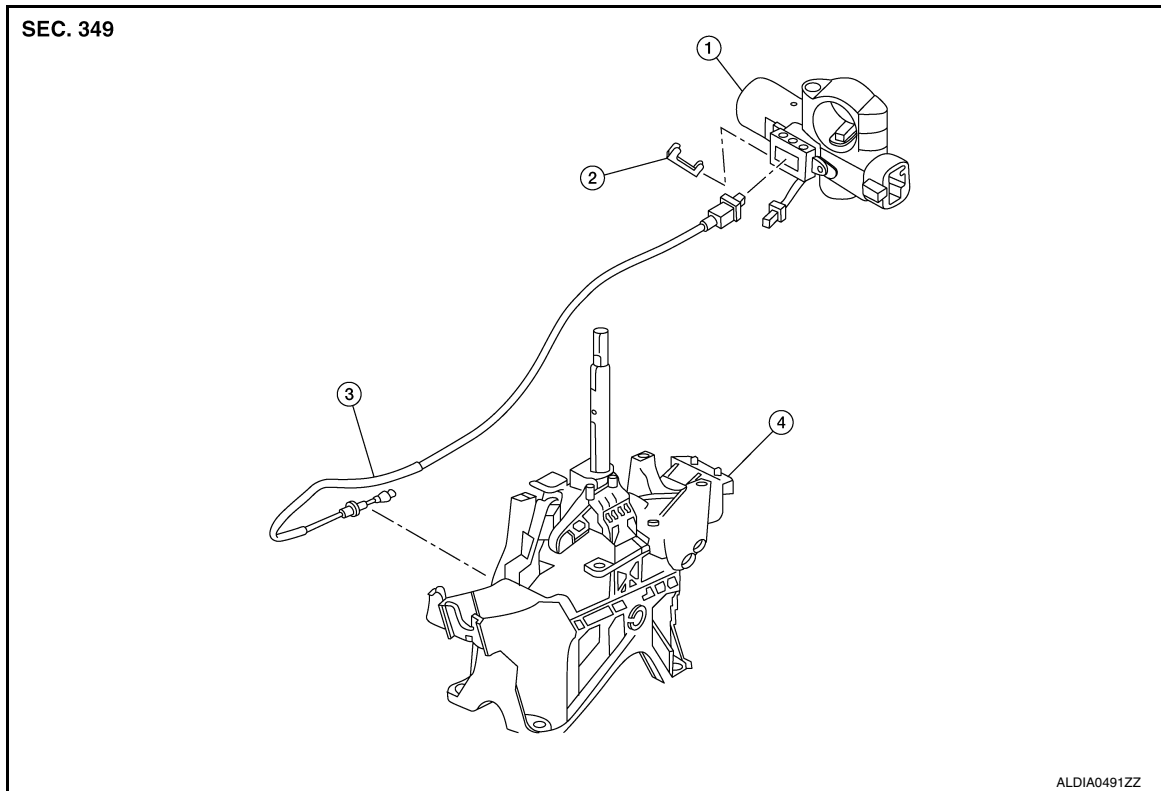
< REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

KEY INTERLOCK CABLE

Exploded View

INFOID:000000009992858



Removal and Installation

INFOID:000000009992859

REMOVAL

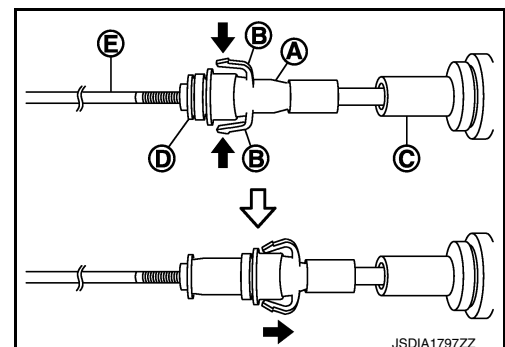
CAUTION:

Always apply the parking brake before performing removal and installation.

1. Move shift selector to the "N" position.
2. Remove the shift selector knob.
3. Move shift selector to the "P" position.
4. Remove the center console assembly. Refer to [IP-18, "Removal and Installation"](#).
5. Press the pawls (B) of the key interlock cable slider (A) while sliding it in the direction of the casing cap (C), and separate the adjusting holder (D) and slider.

(E) :Key interlock rod

6. Remove the key interlock cable from the shift selector.
7. Remove the steering column covers. Refer to [IP-17, "Removal and Installation"](#).



8. Remove instrument lower panel LH. Refer to [IP-22, "Removal and Installation"](#).

KEY INTERLOCK CABLE

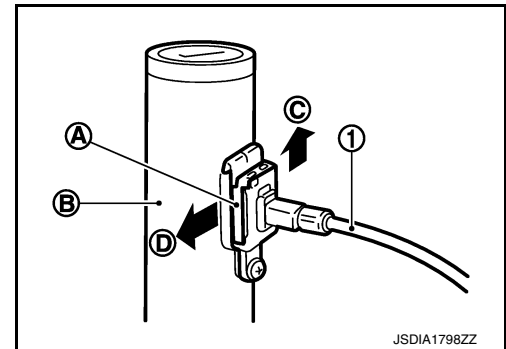
< REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

9. Lift clip (A) in the direction of the arrow (←C) and remove in the direction of the arrow (←D).

- (1) :Key interlock cable
(B) :Key cylinder

10. Disconnect the key interlock cable from the key cylinder.
11. Disengage the clip and disconnect the key interlock cable from the vehicle.



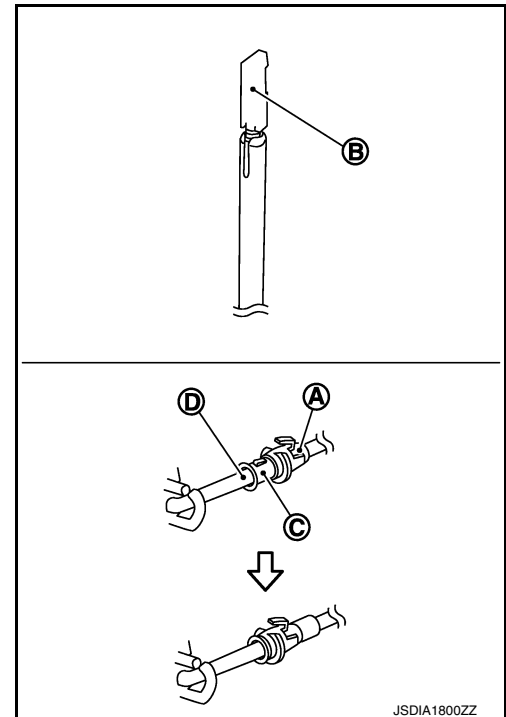
INSTALLATION

Installation is in the reverse order of removal.

- While pressing the detent rod (B) down (⇐), slide the key interlock cable slider (A) toward the key interlock rod (D) side, and install the adjusting holder (C) and key interlock rod.

CAUTION:

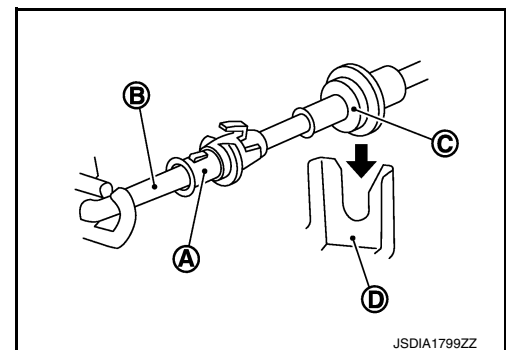
- Do not squeeze the pawls on the key interlock cable slider when holding the slider.
- Do not apply force in a perpendicular direction to the key interlock rod when sliding the slider.



- Install the adjusting holder (A) onto the key interlock rod (B), then install the casing cap (C) onto the shift selector cable bracket (D).

CAUTION:

- When installing the key interlock cable, do not bend or twist the cable forcefully.
- After connecting the key interlock cable to the shift selector cable bracket, be sure to check that the casing cap is completely fastened to the cable bracket. If the casing cap is easily displaced, replace the key interlock cable.



Inspection

INFOID:000000009992860

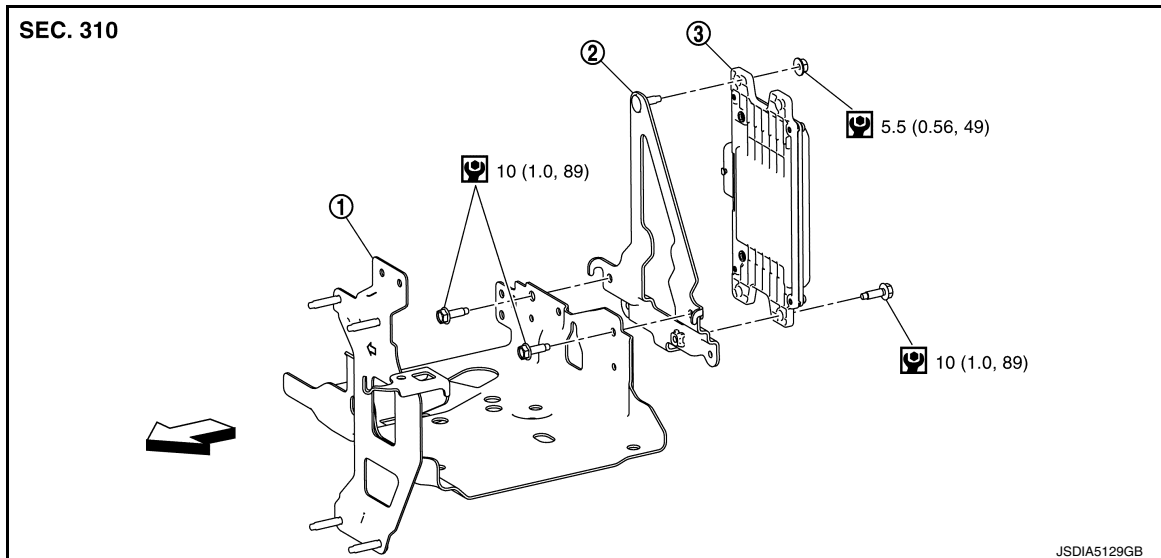
INSPECTION AFTER INSTALLATION

- Check the CVT position. If a malfunction is found, adjust the CVT position. Refer to [TM-92, "Inspection"](#).
- The key can be removed only when the selector lever is in the "P" position.
- It must not be possible to turn the ignition switch to LOCK when the selector lever is not in the "P" position.

TCM

Exploded View

INFOID:000000009982219



① Bracket

② Bracket

③ TCM

⇐ : Vehicle front

⊙ : N·m (kg-m, in-lb)

Removal and Installation

INFOID:000000009982220

CAUTION:

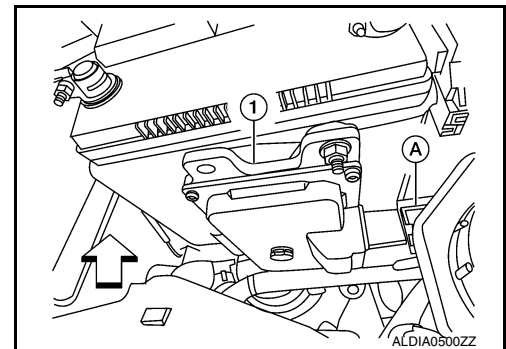
- Do not impact the TCM when removing or installing TCM.
- When replacing TCM and transaxle assembly as a set, replace transaxle assembly first and then replace TCM. Refer to [TM-82, "Description"](#).
- Before replacing TCM, save TCM data using "ADDITIONAL SERVICE WHEN REPLACING TCM". Refer to [TM-82, "Work Procedure"](#).
- When replacing TCM, note the "CVTF DETERIORATION DATE" value displayed on CONSULT "CONFORM CVTF DETERIORATION" in MAINTENANCE BOOKLET, before start the operation.

REMOVAL

1. Disconnect the battery negative terminal. Refer to [PG-75, "Exploded View"](#).
2. Remove the air duct (inlet). Refer to [EM-24, "Exploded View"](#).
3. Disconnect the TCM harness connector (A).

(1) : TCM

⇐ : Front



4. Remove the TCM nuts and remove TCM from bracket.

INSTALLATION

Installation is in the reverse order of removal.

Adjustment

INFOID:0000000009982221

ADJUSTMENT AFTER INSTALLATION

Perform "ADDITIONAL SERVICE WHEN REPLACING TCM". Refer to [TM-82. "Description"](#).

A

B

C

TM

E

F

G

H

I

J

K

L

M

N

O

P

AIR BREATHER

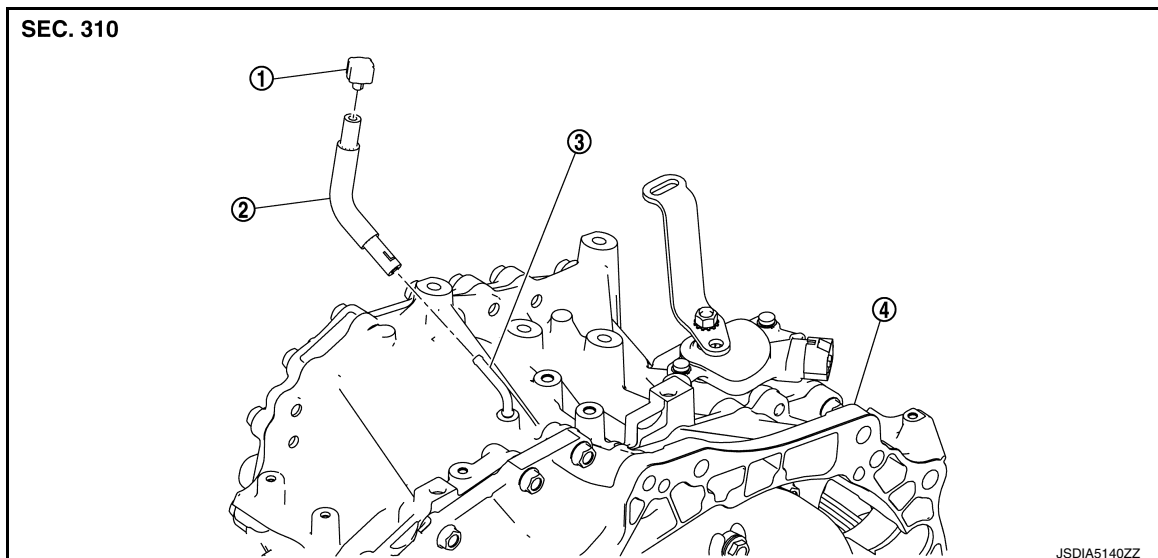
< REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

AIR BREATHER

Exploded View

INFOID:000000009982224



① Air breather

② Air breather hose

③ Air breather tube

④ Transaxle assembly

← : Vehicle front

Removal and Installation

INFOID:000000009982225

REMOVAL

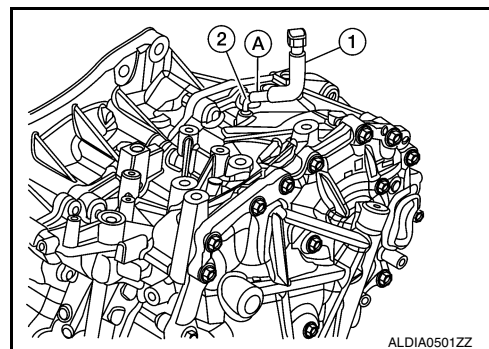
1. Remove air cleaner and air duct. Refer to [EM-24, "Removal and Installation"](#).
2. Remove air breather hose from transaxle assembly.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Do not bend the air breather hose to prevent damage to the hose.
- Insert air breather hose to the end of air breather.
- Insert air breather hose (1) to air breather tube (2) all the way to the curve of the tube.
- Insert air breather hose to air breather tube so that the paint mark (A) is facing upward.



OIL PAN

< REMOVAL AND INSTALLATION >

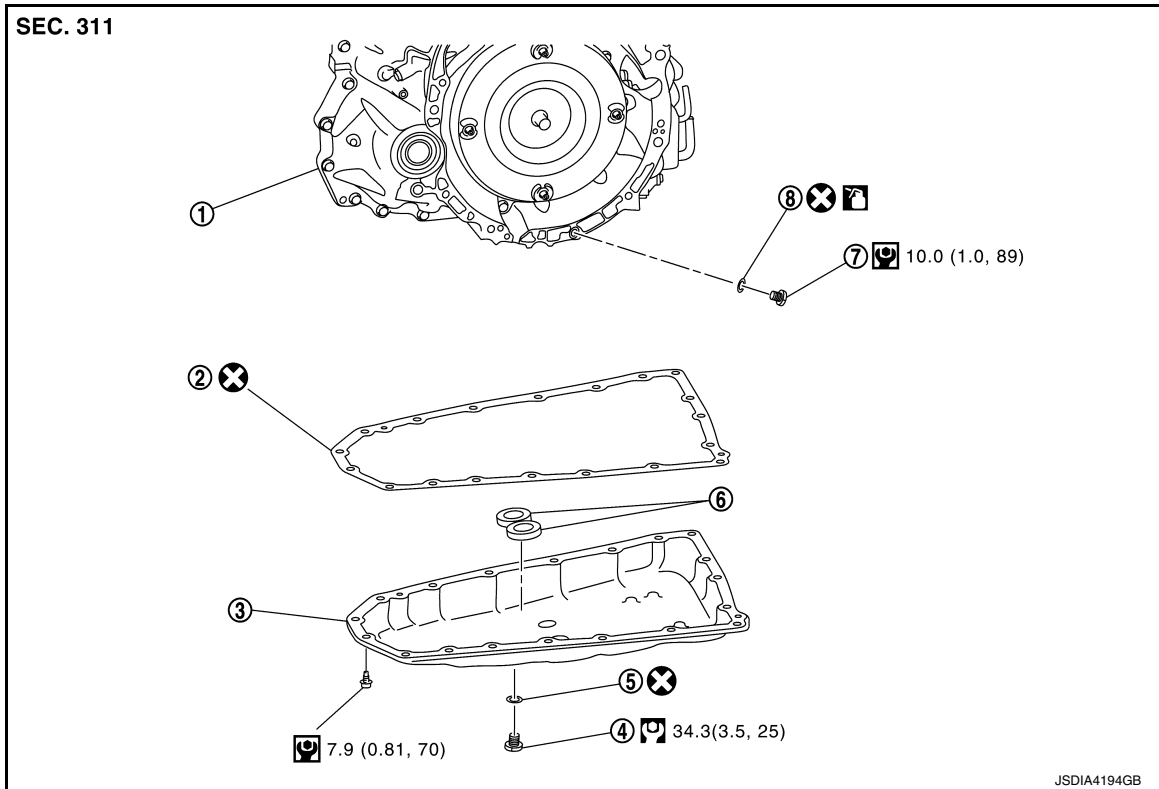
[CVT: RE0F10D]

OIL PAN

Exploded View

INFOID:000000009982226

COMPONENT PARTS LOCATION



- | | | |
|----------------------|---------------------|-----------|
| ① Transaxle assembly | ② Oil pan gasket | ③ Oil pan |
| ④ Drain plug | ⑤ Drain plug gasket | ⑥ Magnet |
| ⑦ Overflow plug | ⑧ O-ring | |

⊗ : Always replace after every disassembly.

⊙ : N·m (kg-m, ft-lb)

⊙ : N·m (kg-m, in-lb)

☞ : Apply CVT fluid

Removal and Installation

INFOID:000000009982227

REMOVAL

1. Remove engine under cover. Refer to [TM-205. "Removal and Installation"](#).
2. Remove drain plug from oil pan and then drain the CVT fluid.
3. Remove drain plug gasket.
4. Remove the oil pan bolts, and then remove the oil pan and oil pan gasket.
5. Remove the magnets from the oil pan.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Do not reuse oil pan gasket.
- Do not reuse drain plug gasket.
- Do not reuse O-ring.

OIL PAN

< REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

- **Completely clean the iron powder from the magnet area of oil pan and the magnets.**

Install the oil pan to the transaxle case with the following procedure.

1. Install the oil pan gasket to the oil pan.

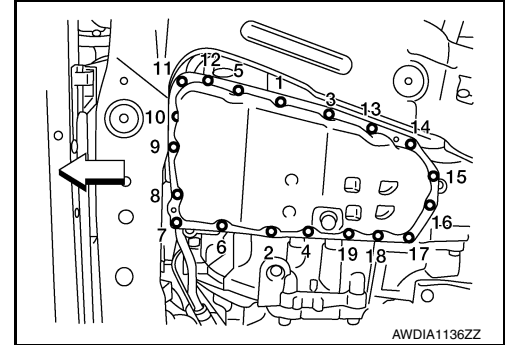
CAUTION:

Completely wipe out any moisture, oil, and old gasket from the oil pan gasket surface and bolt hole of oil pan and transaxle case.

2. Install the oil pan assembly to the transaxle case, and then temporarily tighten the oil pan bolt.
3. Tighten the oil pan bolts in the order shown to the specified torque.

⇐ : Front

4. Tighten the oil pan bolts again clockwise from (1) shown to the specified torque.



INFOID:000000009982228

Inspection

INSPECTION AFTER REMOVAL

Check oil pan for foreign material.

- If a large amount of worn material is found, clutch plate may be worn.
 - If iron powder is found, bearings, gears, or clutch plates may be worn.
 - If aluminum powder is found, bushing may be worn, or chips or burrs of aluminum casting parts may enter.
- Check points where wear is found in all cases.

INSPECTION AFTER INSTALLATION

Check the CVT fluid level and leakage. Refer to [TM-190. "Inspection"](#).

INPUT SPEED SENSOR

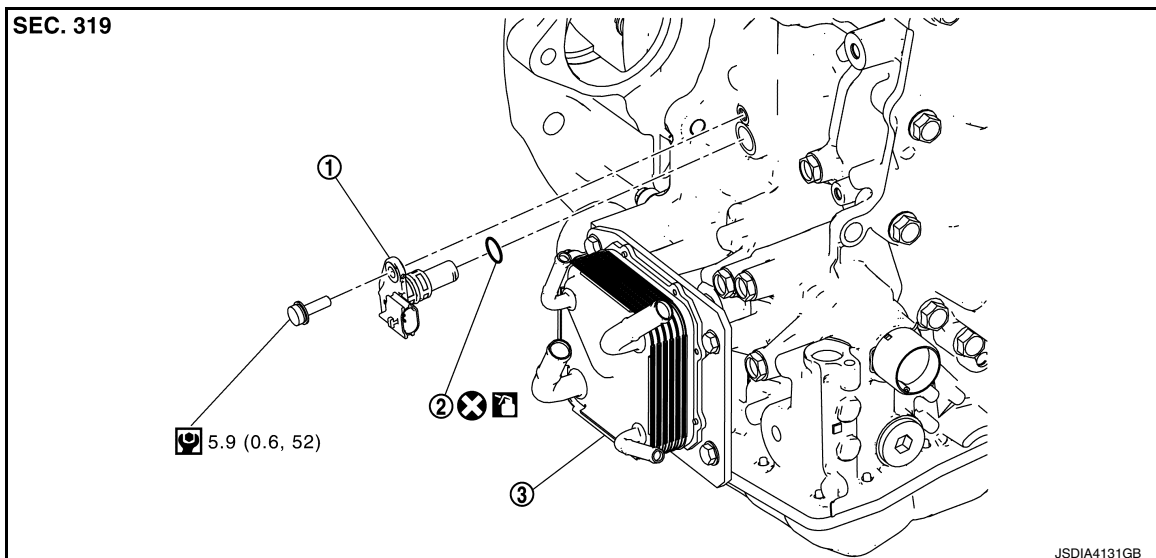
< REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

INPUT SPEED SENSOR

Exploded View

INFOID:0000000009982229



- ① Input speed sensor ② O-ring ③ Transaxle assembly

⊗ : Always replace after every disassembly.

Ⓐ : N·m (kg-m, in-lb)

🔧 : Apply CVT fluid

Removal and Installation

INFOID:0000000009982230

REMOVAL

1. Remove battery tray. Refer to [TM-207, "Removal and Installation"](#).
2. Remove the starter motor. Refer to [STR-21, "Removal and Installation"](#).
3. Disconnect the input speed sensor harness connector.
4. Remove the input speed sensor bolt and remove the input speed sensor.
5. Remove the O-ring from the input speed sensor.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Do not reuse O-ring.
- Apply CVT fluid to the O-ring.

Inspection and Adjustment

INFOID:0000000009982231

INSPECTION AFTER INSTALLATION

Check for CVT fluid leakage. Refer to [TM-190, "Inspection"](#).

ADJUSTMENT AFTER INSTALLATION

Adjust the CVT fluid level. Refer to [TM-192, "Adjustment"](#).

PRIMARY SPEED SENSOR

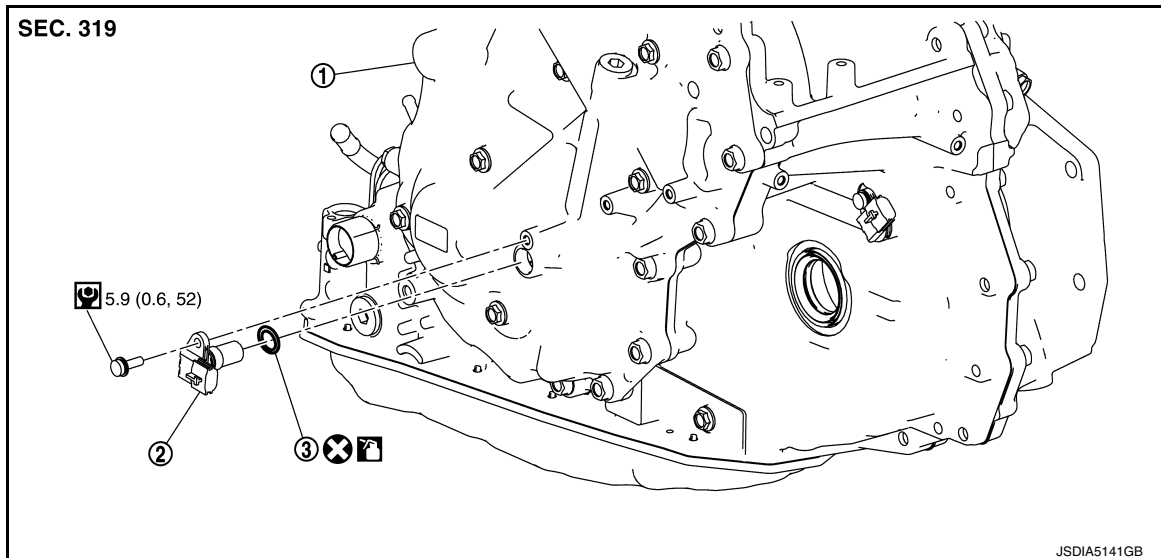
< REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

PRIMARY SPEED SENSOR

Exploded View

INFOID:000000009982232



- ① Transaxle assembly ② O-ring ③ Primary speed sensor

⊗ : Always replace after every disassembly.

⌘ : N·m (kg-m, in-lb)

🔧 : Apply CVT fluid

Removal and Installation

INFOID:000000009982233

REMOVAL

1. Remove the engine undercover. Refer to [EXT-37, "ENGINE UNDER COVER : Removal and Installation"](#).
2. Disconnect the primary speed harness connector.
3. Remove the primary speed sensor bolt and remove the primary speed sensor.
4. Remove the O-ring from the primary speed sensor.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Do not reuse O-ring.
- Apply CVT fluid to the O-ring.

Inspection and Adjustment

INFOID:000000009982234

INSPECTION AFTER INSTALLATION

Check for CVT fluid leakage. Refer to [TM-190, "Inspection"](#).

ADJUSTMENT AFTER INSTALLATION

Adjust the CVT fluid level. Refer to [TM-192, "Adjustment"](#).

OUTPUT SPEED SENSOR

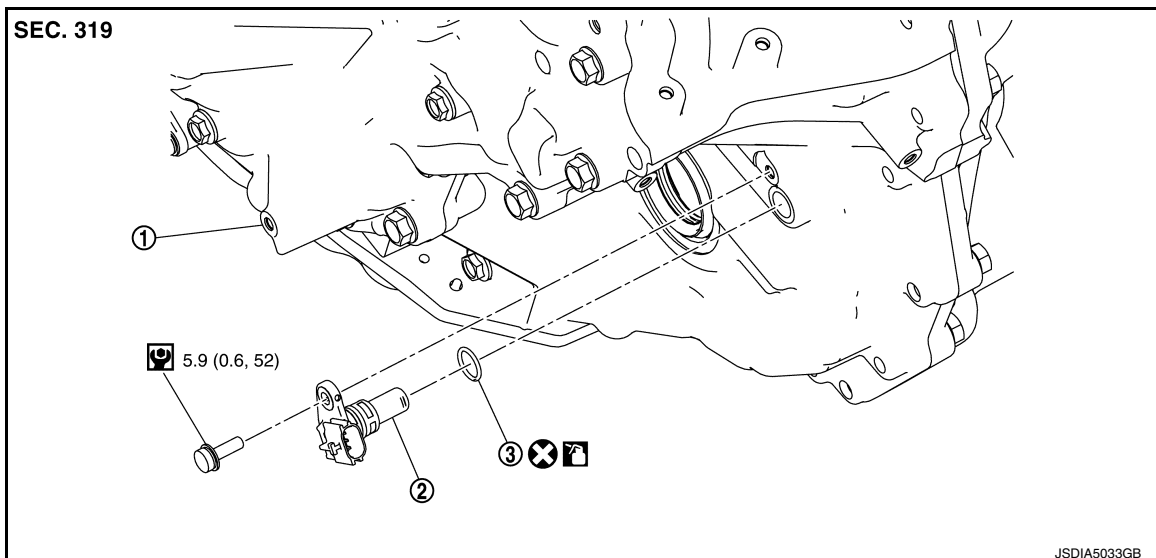
< REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

OUTPUT SPEED SENSOR

Exploded View

INFOID:000000009982235



① Transaxle assembly

② Output speed sensor

③ O-ring

⊗ : Always replace after every disassembly.

⊙ : N·m (kg-m, in-lb)

⌚ : Apply CVT fluid

Removal and Installation

INFOID:000000009982236

REMOVAL

1. Remove engine undercover. Refer to [TM-209, "Removal and Installation"](#).
2. Disconnect the output speed sensor harness connector.
3. Remove the output speed sensor bolt and remove the output speed sensor.
4. Remove the O-ring from the output speed sensor.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Do not reuse O-ring.
- Apply CVT fluid to the O-ring.

Inspection and Adjustment

INFOID:000000009982237

INSPECTION AFTER INSTALLATION

Check for CVT fluid leakage. Refer to [TM-190, "Inspection"](#).

ADJUSTMENT AFTER INSTALLATION

Adjust the CVT fluid level. Refer to [TM-192, "Adjustment"](#).

DIFFERENTIAL SIDE OIL SEAL

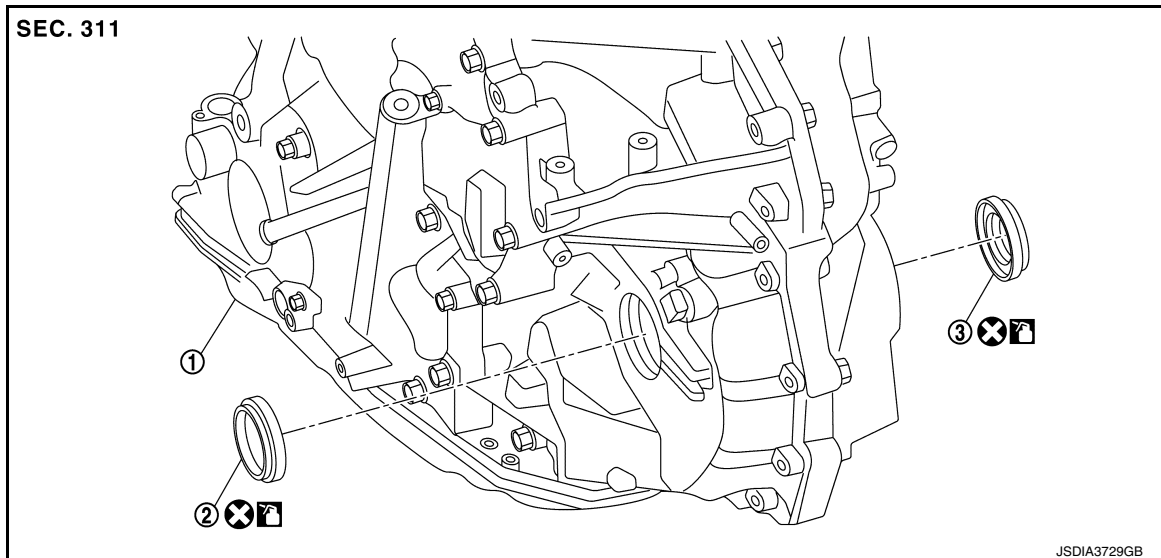
< REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

DIFFERENTIAL SIDE OIL SEAL

Exploded View

INFOID:000000009982238



① Transaxle assembly

② Differential side oil seal (left side)

③ Differential side oil seal (right side)
(FWD models only)

⊗ : Always replace after every disassembly.

🔧 : Apply CVT fluid

Removal and Installation

INFOID:000000009982239

REMOVAL

NOTE:

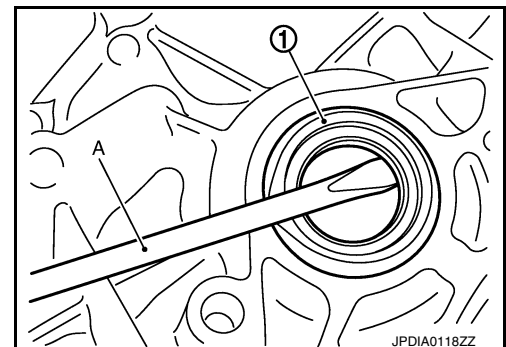
When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid from spilling.

1. Remove front drive shaft. Refer to [FAX-18, "Removal and Installation \(LH\)"](#) (FWD) or [FAX-50, "Removal and Installation \(LH\)"](#) [LH (AWD)] or [FAX-52, "Removal and Installation \(RH\)"](#) [RH (AWD)].

2. Remove differential side oil seal (1) using suitable tool (A).

CAUTION:

Be careful not to scratch transaxle case and converter housing.



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Do not reuse differential side oil seal.
- Apply CVT fluid to differential side oil seals.
- When inserting the drive shaft, be sure to use Tool.

Tool number : KV38107900

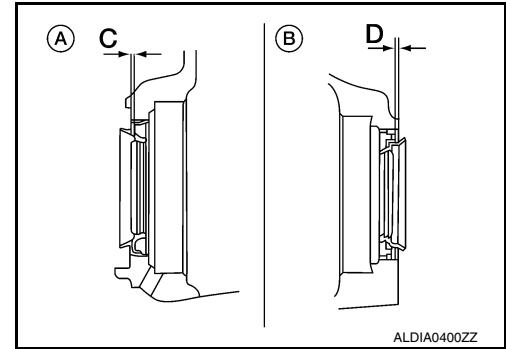
DIFFERENTIAL SIDE OIL SEAL

< REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

Install each differential side oil seal evenly using suitable tool so that differential side oil seal protrudes by the dimension (C) and (D) respectfully.

- (A) : Differential side oil seal (LH)
- (B) : Differential side oil seal (RH) (FWD models only)



Dimension (C) :Height difference from case end surface is within 1.8 ± 0.5 mm (0.071 ± 0.020 in).

Dimension (D) :Height difference from case end surface is within 2.2 ± 0.5 mm (0.087 ± 0.020 in).

NOTE:

The reference is the installation direction of the differential side oil seal.

Drift to be used:

Location	Commercial Service Tools
Transaxle case side	Commercial service tool with outer dia. 56 mm (2.20 in) and inner dia. 50 mm (1.97 in)
Converter housing side	

Inspection and Adjustment

INFOID:000000009982240

INSPECTION AFTER INSTALLATION

Check for CVT fluid leakage. Refer to [TM-190, "Inspection"](#).

ADJUSTMENT AFTER INSTALLATION

Adjust the CVT fluid level. Refer to [TM-192, "Adjustment"](#).

WATER HOSE

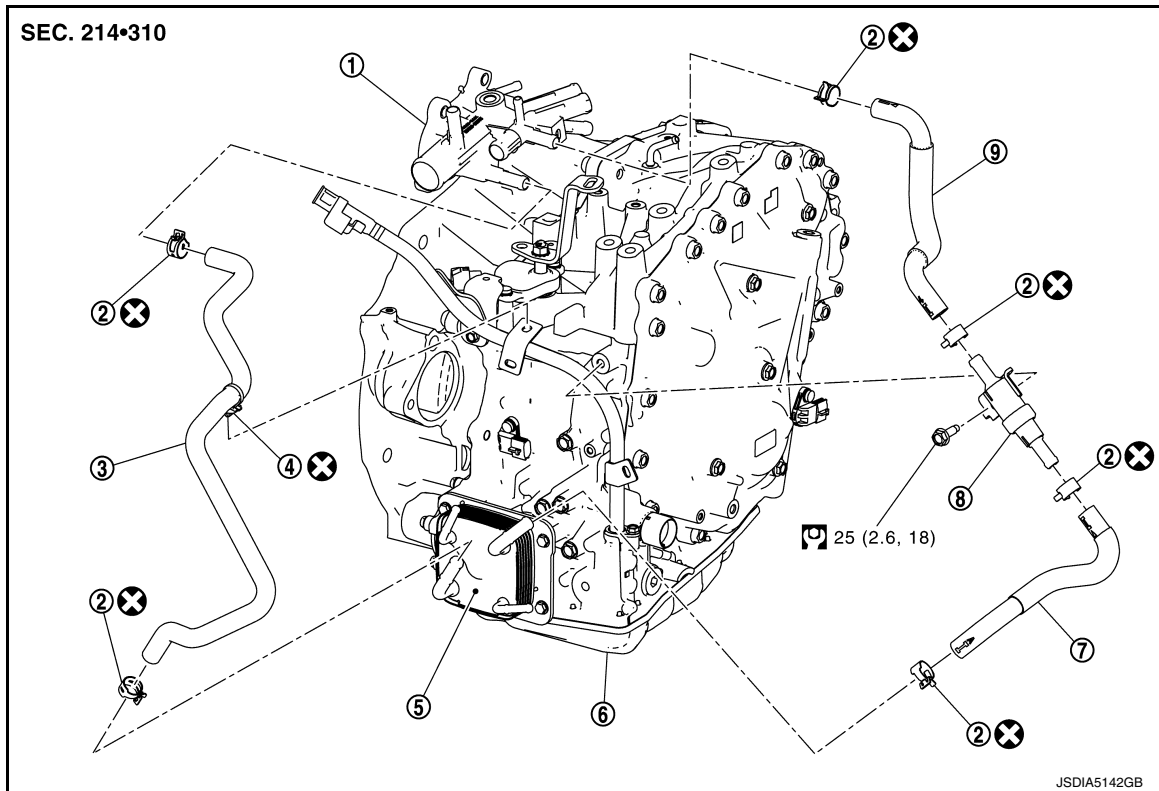
< REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

WATER HOSE

Exploded View

INFOID:000000009982244



- | | | |
|----------------|---------------------|----------------------|
| ① Water outlet | ② Hose clamp | ③ Water hose A |
| ④ Clip | ⑤ CVT oil warmer | ⑥ Transaxle assembly |
| ⑦ Water hose B | ⑧ Heater thermostat | ⑨ Water hose C |

⊗ : Always replace after every disassembly.

⌘ : N·m (kg-m, ft-lb)

Removal and Installation

INFOID:000000009982245

REMOVAL

WARNING:

Do not remove the radiator cap when the engine is hot. Serious burns could occur from high pressure engine coolant escaping from the radiator. Wrap a thick cloth around the cap. Slowly turn it a quarter turn to allow built-up pressure to escape. Carefully remove the cap by turning it all the way.

CAUTION:

Perform when the engine is cold.

NOTE:

When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid from spilling.

1. Remove battery tray. Refer to [PG-76, "Removal and Installation \(Battery Tray\)"](#).
2. Remove engine under cover. Refer to [EXT-16, "Exploded View"](#).
3. Remove CVT fluid charging pipe. Refer to [TM-220, "Exploded View"](#).
4. Remove fender protector side cover. Refer to [EXT-28, "FENDER PROTECTOR : Exploded View"](#).
5. Remove water hose A, B, C, and heater thermostat.

INSTALLATION

Installation is in the reverse order of removal.

WATER HOSE

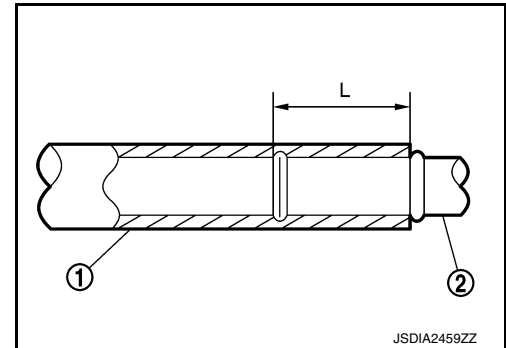
< REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

CAUTION:

- Do not reuse hose clamps.
- Do not reuse hose clip
- Securely install the water hose clip to the bracket hole of charging pipe.
- Refer to the following when installing water hoses.

Water hose (1)	Installation side tube (2)	Direction of paint mark	Hose insertion depth (L)
Water hose A	Water outlet	Upward	End reaches the end of tube.
	CVT oil warmer	Frontward	End reaches the 2-stage bulge.
Water hose B	CVT oil warmer	Frontward	
	Heater thermostat	Align with the mark on the heater thermostat	End reaches the expansion part.
Water hose C	Heater thermostat	Align with the mark on the heater thermostat	
	Water outlet	Upward	End reaches the 2-stage bulge.

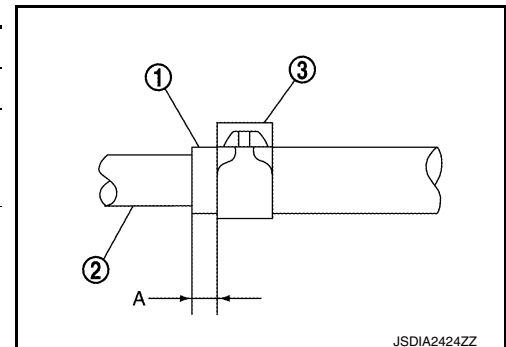


- Refer to the followings when installing hose clamp.

CAUTION:

Hose clamp should not interfere with the bulge of tube.

Water hose (1)	Installation side tube (2)	Hose clamp (3)	
		Direction of tab	Clamping position
Water hose A	Water outlet	Upward	5 – 7 mm (0.20 – 0.28 in) (A) from hose end
	CVT oil warmer	Leftward	
Water hose B	CVT oil warmer	Leftward	5 – 9 mm (0.20 – 0.35 in) (A) from hose end
	Heater thermostat	Align with the mark on the hose	
Water hose C	Heater thermostat	Align with the mark on the hose	
	Water outlet	Forward and 45° upward	



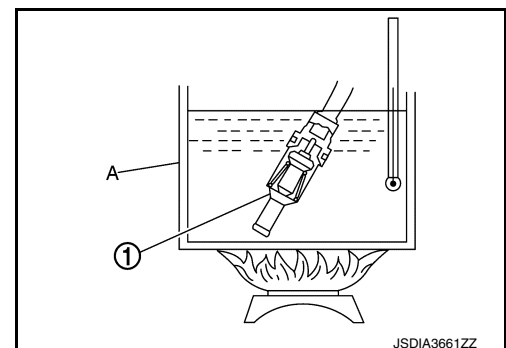
Inspection

INFOID:000000009982246

INSPECTION AFTER REMOVAL

Heater Thermostat

1. Fully immerse the heater thermostat ① in a container (A) filled with water. Continue heating the water while stirring.
2. Continue heating the heater thermostat for 5 minutes or more after bringing the water to a boil.



3. Quickly take the heater thermostat out of the hot water, measure the heater thermostat within 10 seconds.

WATER HOSE

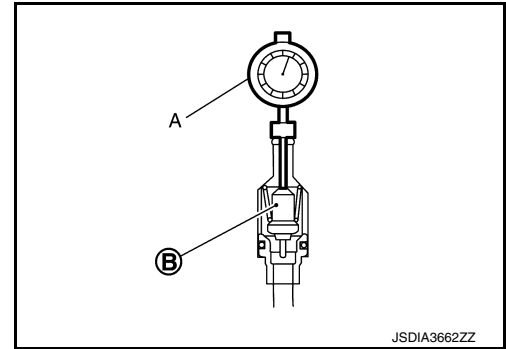
< REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

- Place dial indicator (A) on the pellet ⑥ and measure the elongation from the initial state.

Standard : Refer to [TM-226, "Heater Thermostat"](#).

4. If out of standard, replace heater thermostat.



INSPECTION AFTER INSTALLATION

Start the engine, and check the joints for coolant leakage.

FLUID COOLER HOSE

< REMOVAL AND INSTALLATION >

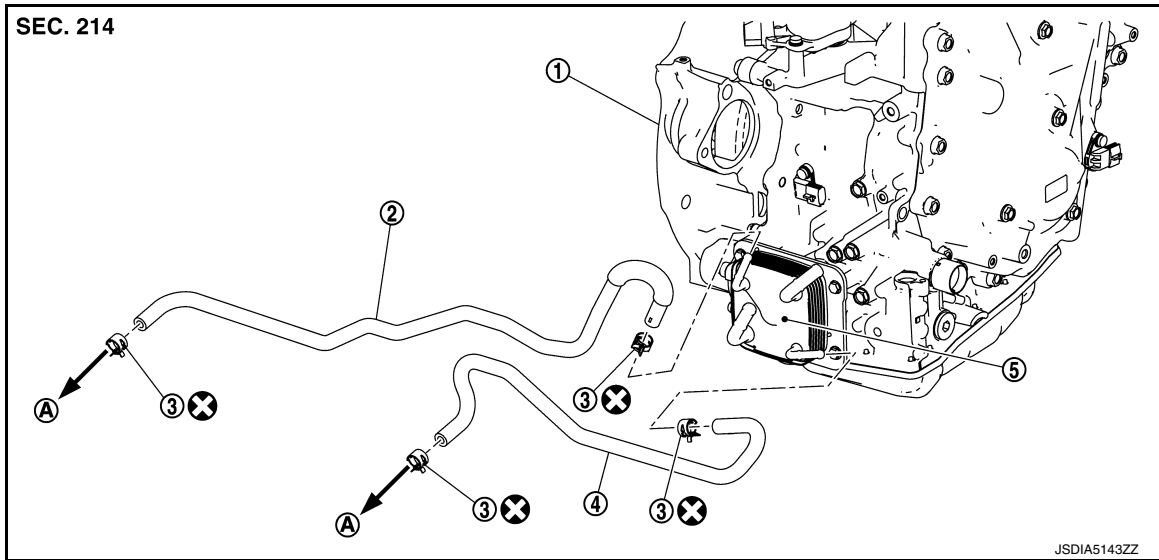
[CVT: RE0F10D]

FLUID COOLER HOSE

Exploded View

INFOID:000000009982247

COMPONENT PARTS LOCATION



- ① Transaxle assembly ② Fluid cooler hose A ③ Hose clamp
④ Fluid cooler hose B ⑤ CVT oil warmer
A To radiator
X : Always replace after every disassembly.

Removal and Installation

INFOID:000000009982248

REMOVAL

NOTE:

When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid from spilling.

1. Remove engine under cover. Refer to [EXT-37, "ENGINE UNDER COVER : Removal and Installation"](#).
2. Remove fender protector side cover. Refer to [EXT-28, "FENDER PROTECTOR : Exploded View"](#).
3. Remove fluid cooler hoses.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

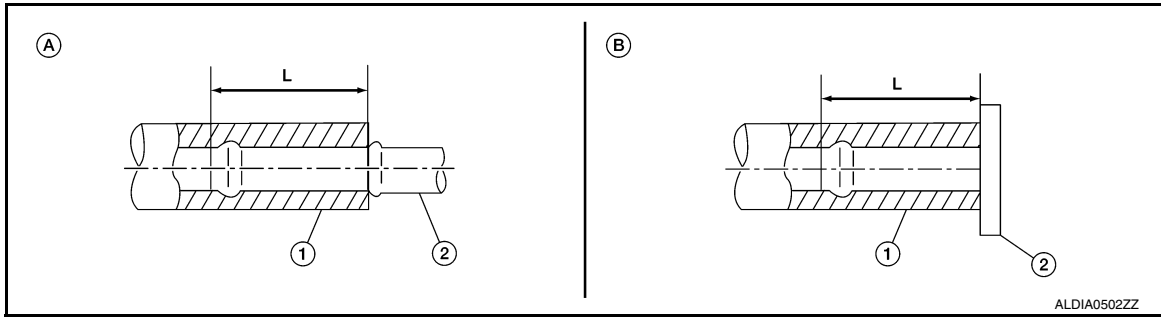
- Do not reuse hose clamp.
- Securely install fluid cooler hose A clip to the radiator core support.
- Refer to the followings when installing fluid cooler hoses.

Fluid cooler hose (1)	Installation side tube (2)	Direction of paint mark	Hose insertion depth (L)
Fluid cooler hose A	CVT oil warmer	Frontward	A: End reaches the 2 step bulge
	Radiator	Downward	B: Insert the hose until hose touches the radiator
Fluid cooler hose B	Radiator	Downward	B: Insert the hose until hose touches the radiator
	CVT oil warmer	Downward	A: End reaches the 2 step bulge

FLUID COOLER HOSE

< REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

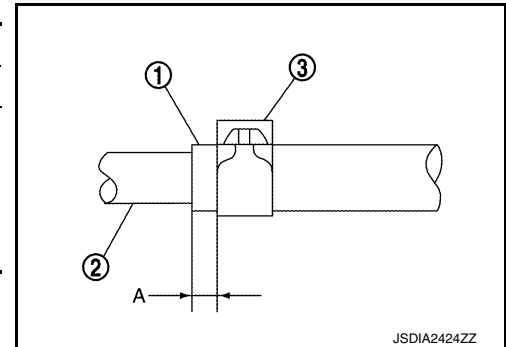


- Refer to the followings when installing hose clamps.

CAUTION:

Hose clamp should not interfere with the bulge of tube.

Fluid cooler hose (1)	Installation side tube (2)	Hose clamp (3)	
		Direction of tab	Clamping position
Fluid cooler hose A	CVT oil warmer	Frontward	5 – 9 mm (0.20 – 0.35 in) (A) from hose end
	Radiator	Downward	
Fluid cooler hose B	Radiator	Downward	
	CVT oil warmer	Downward	



Inspection

INFOID:000000009982249

INSPECTION AFTER INSTALLATION

Check for CVT fluid leakage and check CVT fluid level. Refer to [TM-190. "Inspection"](#).

CVT OIL WARMER

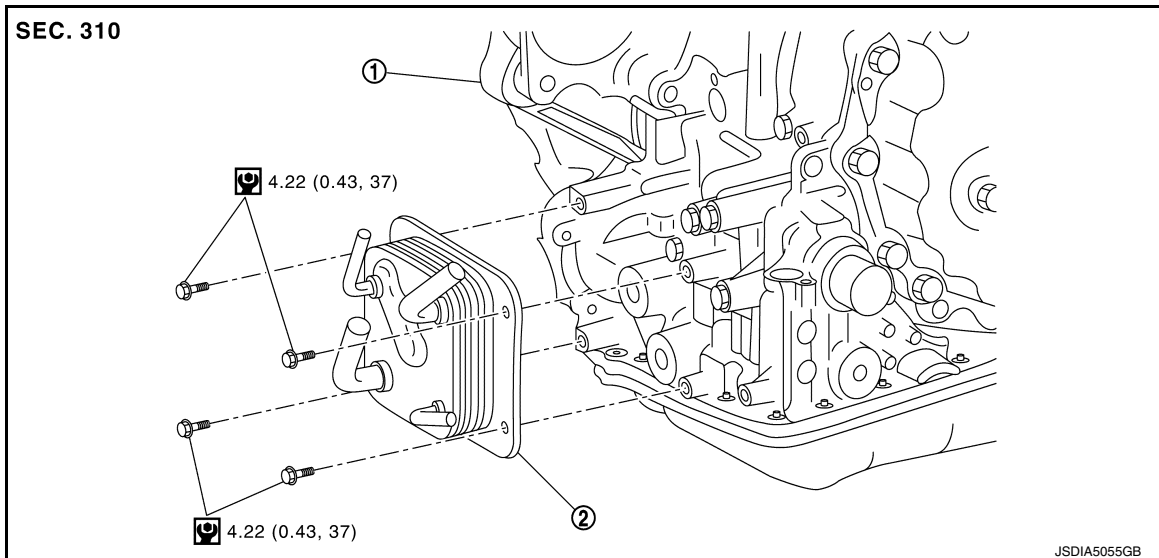
< REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

CVT OIL WARMER

Exploded View

INFOID:000000009982253



① Transaxle assembly

② CVT oil warmer

: N·m (kg-m, in-lb)

Removal and Installation

INFOID:000000009982254

REMOVAL

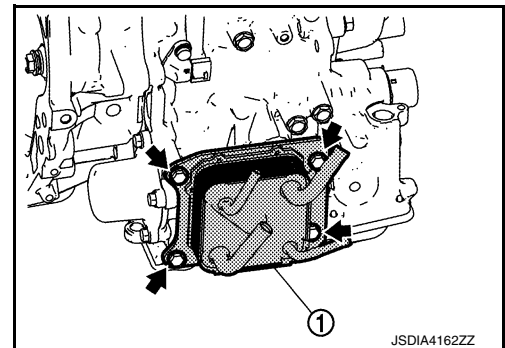
WARNING:

Do not remove the radiator cap when the engine is hot. Serious burns could occur from high pressure engine coolant escaping from the radiator. Wrap a thick cloth around the cap. Slowly turn it a quarter turn to allow built-up pressure to escape. Carefully remove the cap by turning it all the way.

CAUTION:

Perform when the engine is cold.

1. Remove front under cover. Refer to [EXT-16. "Exploded View"](#).
2. Remove engine under cover. Refer to [EXT-37. "ENGINE UNDER COVER : Removal and Installation"](#).
3. Remove fender protector side cover. Refer to [EXT-28. "FENDER PROTECTOR : Exploded View"](#).
4. Disconnect water hoses from CVT oil warmer. Refer to [TM-212. "Exploded View"](#).
5. Disconnect fluid cooler hoses from CVT oil warmer. Refer to [TM-215. "Exploded View"](#).
6. Remove CVT oil warmer bolts () and remove CVT oil warmer (1) from transaxle assembly.



INSTALLATION

Installation is in the reverse order of removal.

CVT OIL WARMER

< REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

Inspection

INFOID:000000009982255

INSPECTION AFTER INSTALLATION

- Check for CVT fluid leakage and check CVT fluid level. Refer to [TM-190. "Inspection"](#).
- Start and warm up the engine. Visually check that there is no leakage of engine coolant and CVT fluid.

PLUG

< REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

PLUG

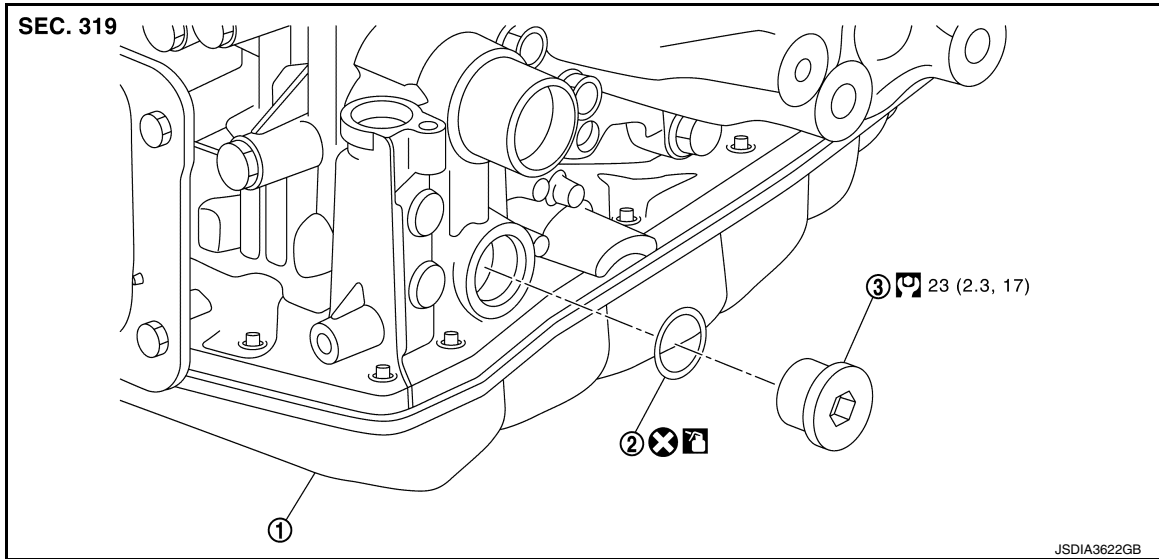
Description

INFOID:0000000009982256

Replace the O-ring if oil leakage or exudes from the plug.

Exploded View

INFOID:0000000009982257



① Transaxle assembly

② O-ring

③ Plug



: Always replace after every disassembly.



: N·m (kg-m, ft-lb)



: Apply CVT fluid

Removal and Installation

INFOID:0000000009982258

REMOVAL

1. Partially remove front fender protector (LH). Refer to [EXT-28, "FENDER PROTECTOR : Exploded View"](#).
2. Remove the plug and O-ring.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Do not reuse O-ring.
- Apply CVT fluid to O-ring.

Inspection and Adjustment

INFOID:0000000009982259

INSPECTION AFTER INSTALLATION

Check for CVT fluid leakage. Refer to [TM-190, "Inspection"](#).

ADJUSTMENT AFTER INSTALLATION

Adjust the CVT fluid level. Refer to [TM-192, "Adjustment"](#).

TRANSAXLE ASSEMBLY

< UNIT REMOVAL AND INSTALLATION >

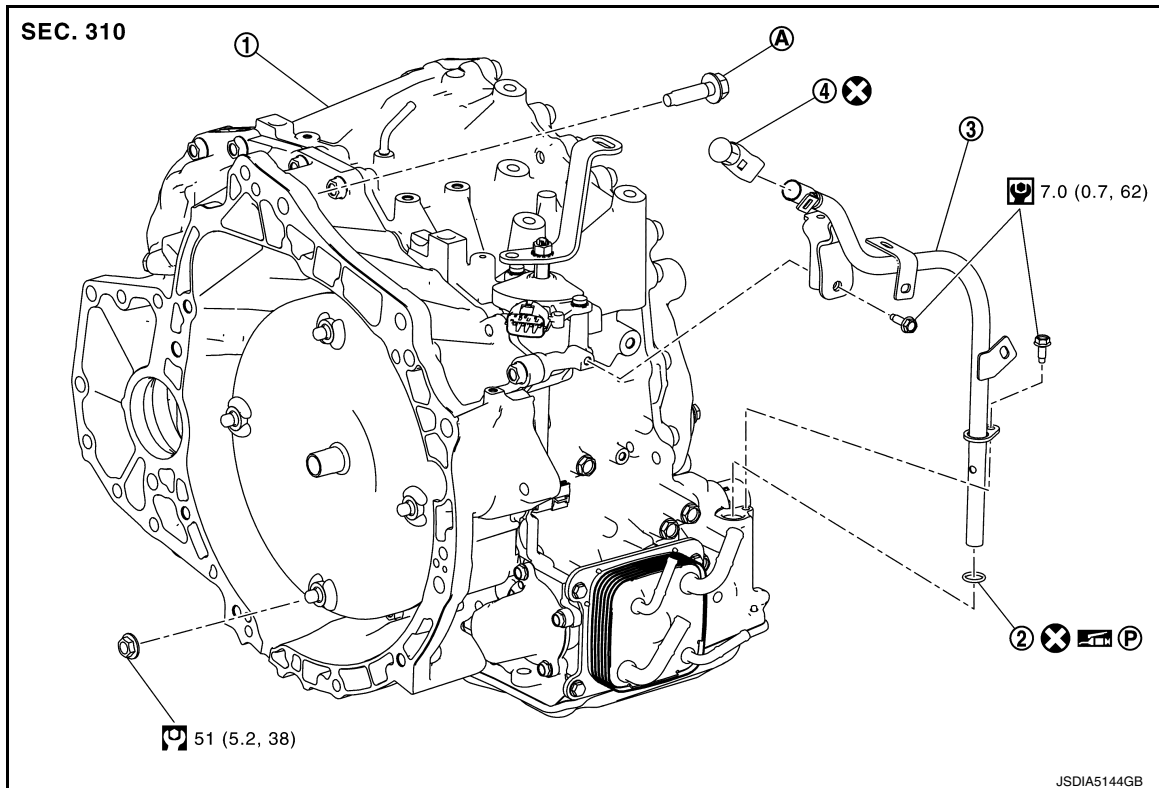
[CVT: RE0F10D]

UNIT REMOVAL AND INSTALLATION

TRANSAXLE ASSEMBLY

Exploded View

INFOID:000000009982260



- ① Transaxle assembly ② O-ring ③ CVT fluid charging pipe
- ④ CVT fluid charging pipe cap
- Ⓐ : For the tightening torque, refer to [TM-220, "Removal and Installation"](#).
- ⊗ : Always replace after every disassembly.
- Ⓜ : N·m (kg-m, ft-lb)
- Ⓟ : N·m (kg-m, in-lb)
- Ⓟ P : Apply petroleum jelly

Removal and Installation

INFOID:000000009982261

REMOVAL

WARNING:

Do not remove the radiator cap when the engine is hot. Serious burns could occur from high pressure engine coolant escaping from the radiator. Wrap a thick cloth around the cap. Slowly turn it a quarter turn to allow built-up pressure to escape. Carefully remove the cap by turning it all the way.

CAUTION:

- Perform when the engine is cold.
- When replacing the TCM and transaxle assembly as a set, replace the transaxle assembly first and then replace the TCM. Refer to [TM-82, "Description"](#).

NOTE:

When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid from spilling.

TRANSAXLE ASSEMBLY

< UNIT REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

1. Remove engine and transaxle assembly. Refer to [EM-81, "Removal and Installation \(FWD\)"](#) (FWD) or [EM-85, "Removal and Installation \(AWD\)"](#) (AWD).
2. Remove the CVT water hoses from engine side. Refer to [TM-212, "Removal and Installation"](#).
3. Remove the transaxle to engine and engine to transaxle bolts.
4. Separate the engine from the transaxle and remove the engine from the front suspension member. Refer to [EM-81, "Removal and Installation \(FWD\)"](#) (FWD) or [EM-85, "Removal and Installation \(AWD\)"](#) (AWD).

NOTE:

Using paint, put matching marks on the drive plate and torque converter when removing the torque converter to drive plate nuts.

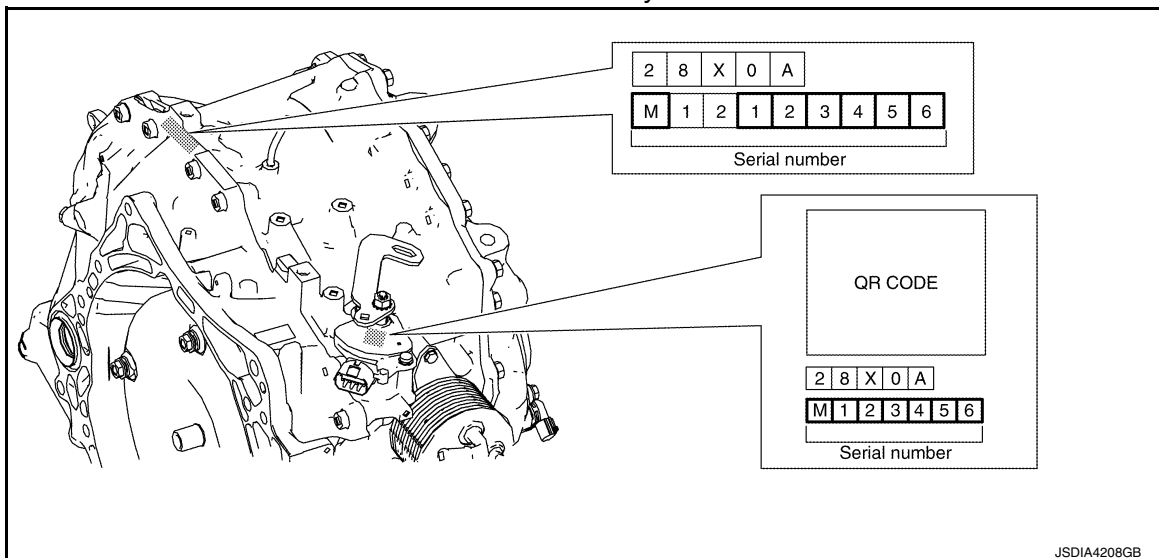
5. Remove following parts from transaxle assembly (if necessary).
 - Control cable bracket (Refer to [TM-197, "Exploded View"](#).)
 - Air breather hose (Refer to [TM-204, "Exploded View"](#).)
 - CVT water hoses and heater thermostat (Refer to [TM-217, "Exploded View"](#).)
 - Charging pipe and O-ring

INSTALLATION

Installation is in the reverse order of removal.

NOTE:

Write down the serial number of the new transaxle assembly.



CAUTION:

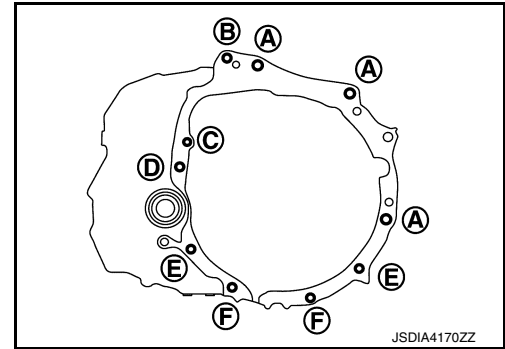
- When replacing an engine or transaxle you must make sure any dowels are installed correctly during re-assembly
 - Improper alignment caused by missing dowels may cause vibration, oil leaks or breakage of drive train components.
 - Do not reuse O-rings or copper sealing washers.
 - When turning crankshaft, turn it clockwise as viewed from the front of the engine.
 - When tightening the nuts for the torque converter while securing the crankshaft pulley bolt, be sure to confirm the tightening torque of the crankshaft pulley bolt. Refer to [EM-45, "Removal and Installation"](#).
 - After converter is installed to drive plate, rotate crankshaft several turns to check that CVT rotates freely without binding.
 - When installing the CVT to the engine, align the matching mark on the drive plate with the matching mark on the torque converter.
-
- When installing the drive plate to torque converter nuts, tighten them temporarily. then tighten the nuts to the specified torque.
 - Install the transaxle assembly and engine assembly mounting bolts according to the following standards.

TRANSAXLE ASSEMBLY

< UNIT REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

Bolt No.	(A)	(B)	(C)	(D)	(E)	(F)
Insertion direction	Transaxle to engine		Engine to transaxle			
Number of bolts	3	1	1	1	2	2
Bolt length "ℓ"mm (in)	45 (1.77)	45 (1.77)	45 (1.77)	45 (1.77)	45 (1.77)	35 (1.38)
Bolt pitch mm	1.75	1.5	1.5	1.75	1.5	—
Tightening torque N·m (kg-m, ft-lb)	74.5 (7.6, 55)	50.0 (5.1, 37)	48 (4.9, 35)	74.5 (7.6, 55)	50.0 (5.1, 37)	



Inspection and Adjustment

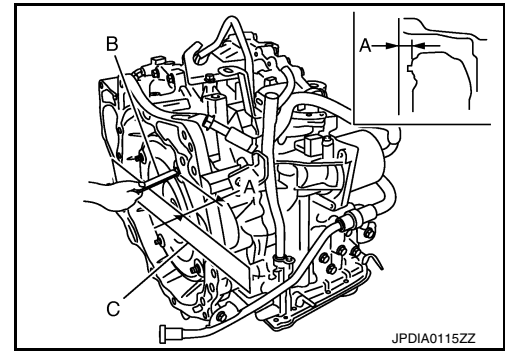
INFOID:000000009982262

INSPECTION BEFORE INSTALLATION

After inserting a torque converter to the CVT, check dimension (A) with in the reference value limit.

- B : Scale
C : Straightedge

Dimension (A) : Refer to [TM-226, "Torque Converter"](#).



INSPECTION AFTER INSTALLATION

Check the following items:

- CVT fluid leakage, refer to [TM-190, "Inspection"](#).
- For CVT position, refer to [TM-196, "Inspection"](#).
- Start the engine and check for coolant leakage from the parts which are removed and reinstalled.

ADJUSTMENT AFTER INSTALLATION

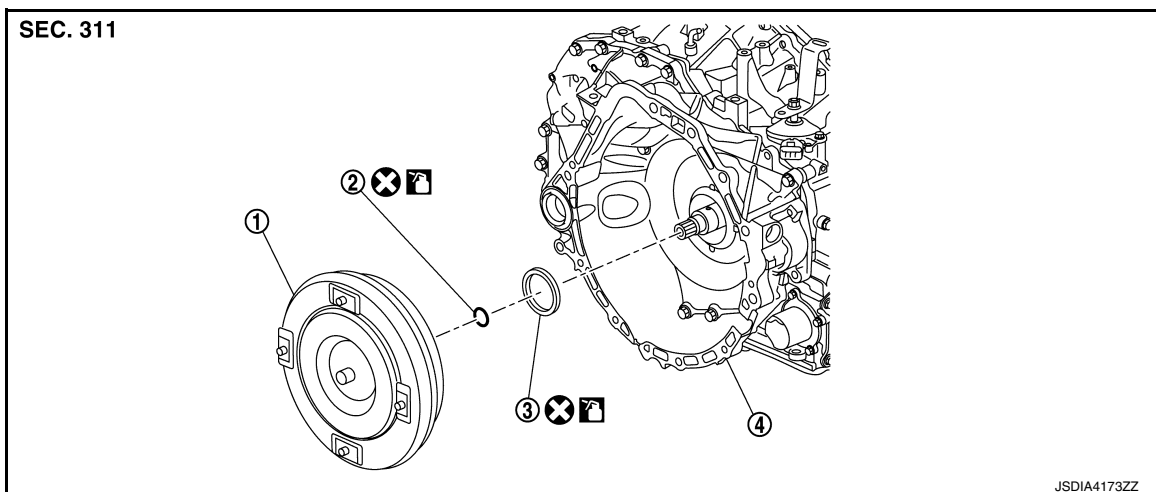
- Adjust the CVT fluid level. Refer to [TM-192, "Adjustment"](#).
- Perform "ADDITIONAL SERVICE WHEN REPLACE TRANSAXLE ASSEMBLY". Refer to [TM-84, "Description"](#).

UNIT DISASSEMBLY AND ASSEMBLY

TORQUE CONVERTER AND CONVERTER HOUSING OIL SEAL

Exploded View

INFOID:0000000009982263



① Torque converter ② O-ring ③ Converter housing oil seal

④ Transaxle assembly

⊗ : Always replace after every disassembly.

🔧 : Apply CVT fluid

Disassembly

INFOID:0000000009982264

1. Remove transaxle assembly. Refer to [TM-220, "Removal and Installation"](#).
2. Remove torque converter from transaxle assembly.

CAUTION:

Never damage the bushing on the inside of torque converter sleeve when removing torque converter.

3. Remove O-ring from input shaft.
4. Remove converter housing oil seal using a suitable tool.

CAUTION:

Be careful not to scratch converter housing.

Assembly

INFOID:0000000009982265

Note the followings and assembly is in the reverse order of disassembly.

CAUTION:

- **Never reuse O-ring.**
- **Never reuse converter housing oil seal.**
- **Apply CVT fluid to O-ring.**
- **Apply CVT fluid to converter housing oil seal.**

TORQUE CONVERTER AND CONVERTER HOUSING OIL SEAL

< UNIT DISASSEMBLY AND ASSEMBLY >

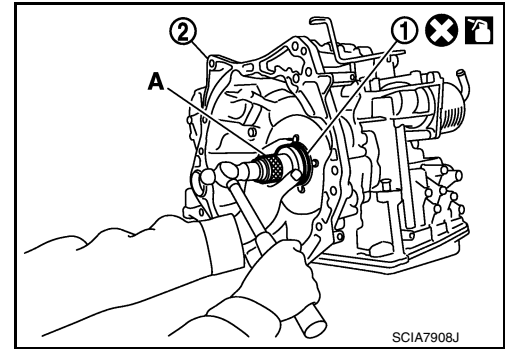
[CVT: RE0F10D]

- Drive converter housing oil seal ① evenly using a drift (A) (commercial service tool) so that converter housing oil seal protrudes by the dimension (B) respectively.

Unit: mm (in)

Commercial service tool: (A)	Outer diameter: 65 (2.56)
	Inner diameter: 60 (2.36)

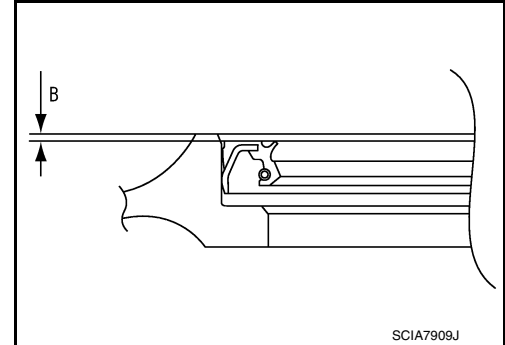
② : Transaxle assembly



Dimension (B) : 1.0 ± 0.5 mm (0.039 ± 0.020 in)

NOTE:

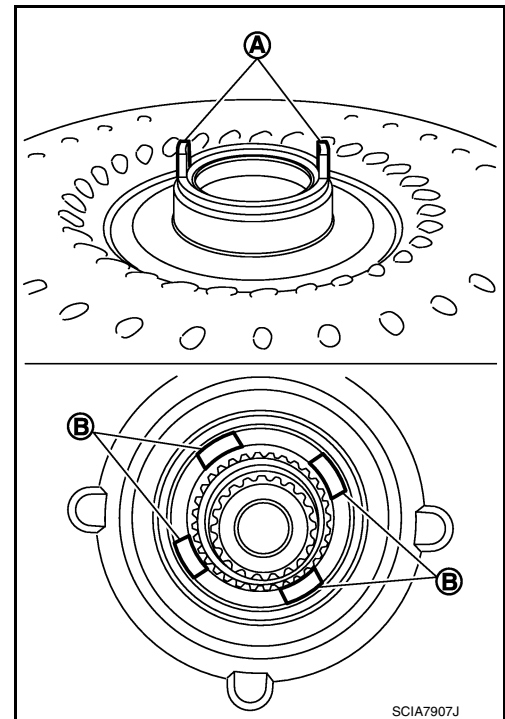
Converter housing oil seal pulling direction is used as the reference.



- Attach the pawl (A) of the torque converter to the drive sprocket hole (B) on the transaxle assembly side.

CAUTION:

- Rotate the torque converter for installing torque converter.
- Never damage the bushing inside the torque converter sleeve when installing the converter housing oil seal.



Inspection

INFOID:000000009982266

INSPECTION AFTER INSTALLATION

TORQUE CONVERTER AND CONVERTER HOUSING OIL SEAL

< UNIT DISASSEMBLY AND ASSEMBLY >

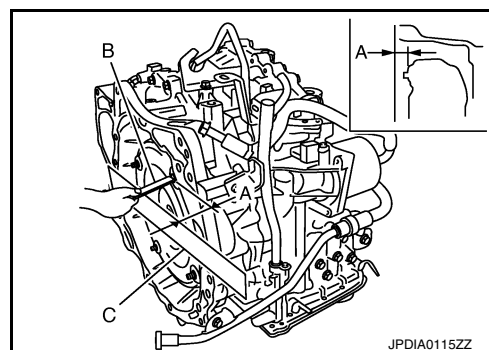
[CVT: RE0F10D]

- After inserting a torque converter to the CVT, check dimension (A) with in the reference value limit.

B : Scale

C : Straightedge

Dimension (A) : Refer to [TM-226, "Torque Converter"](#).



SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

[CVT: RE0F10D]

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

General Specification

INFOID:000000009982267

Applied model	Engine	QR25DE
	Axle	FWD/AWD
Transaxle model		RE0F10D
Transaxle gear ratio	D position	2.648 – 0.380
	R position	0.745
	Final drive	5.694
Recommended fluid		Genuine NISSAN CVT Fluid NS-3 ^{*1}
Fluid capacity liter (US qt, Imp qt)		Approx. 7.9 (8-3/8, 7) ^{*2}

CAUTION:

- Use only Genuine NISSAN CVT Fluid NS-3. Never mix with other fluid.
- Using CVT fluid other than Genuine NISSAN CVT Fluid NS-3 will deteriorate in driveability and CVT durability, and may damage the CVT, which is not covered by the NISSAN new vehicle limited warranty.

*1: Refer to [MA-11, "Fluids and Lubricants"](#).

*2: The CVT fluid capacity is the reference value.

Shift Characteristics

INFOID:000000009982268

Unit: rpm

Throttle position	Shift pattern	CVT input speed	
		At 40 km/h (25 MPH)	At 60 km/h (37 MPH)
2/8	"D" position (Normal)	1,550 – 1,950	1,700 – 2,100
	"D" position (O/D OFF)	1,400 – 1,800	2,100 – 2,500
	"L" position	2,700 – 3,100	3,800 – 4,200
8/8	"D" position (Normal)	4,110 – 4,510	5,580 – 5,980
	"D" position (O/D OFF)	4,310 – 4,710	5,500 – 5,900
	"L" position	4,310 – 4,710	5,500 – 5,900

NOTE:

Lock-up is engaged at the vehicle speed of approximately 18 km/h (12 MPH) to 25 km/h (16 MPH).

Stall Speed

INFOID:000000009982269

Unit: rpm

Stall speed	2,370 – 2,760
-------------	---------------

Torque Converter

INFOID:000000009982270

Unit: mm (in)

Dimension "A" between the converter housing and torque converter	14.4 (0.567)
--	--------------

Heater Thermostat

INFOID:0000000010347547

Valve lift	More than 5.0 mm (0.197 in)
Valve opening temperature	Approx. 71°C (160°F)
Minimum valve lift	5.0 mm/Approx. 85°C (0.197 in/Approx. 203°F)

SECTION **VTL** VENTILATION SYSTEM

CONTENTS

PRECAUTION	2	FRONT FOOT DUCT	10
PRECAUTIONS	2	FRONT FOOT DUCT : Removal and Installation.....	10
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	2	FRONT FLOOR DUCT	10
Procedure without Cowl Top Cover	2	FRONT FLOOR DUCT : Removal and Installation	
Precaution for Work	2	- Front Floor Connecting Duct	10
PREPARATION	4	FRONT FLOOR DUCT : Removal and Installation	
PREPARATION	4	- Front Floor Duct	11
Special Service Tool	4	ADAPTOR DUCT	11
Commercial Service Tool	4	ADAPTOR DUCT : Removal and Installation	11
PERIODIC MAINTENANCE	5	REAR CENTER VENTILATOR DUCT	11
IN-CABIN MICROFILTER	5	REAR CENTER VENTILATOR DUCT : Removal and Installation	11
Removal and Installation	5	Exploded View	12
SYSTEM DESCRIPTION	6	DEFROSTER GRILLE	12
VENTILATION SYSTEM	6	DEFROSTER GRILLE : Removal and Installation.....	12
System Description	6	CENTER VENTILATOR GRILLE	13
REMOVAL AND INSTALLATION	8	CENTER VENTILATOR GRILLE : Removal and Installation	13
DUCTS AND GRILLES	8	SIDE VENTILATOR GRILLE	13
Exploded View	8	SIDE VENTILATOR GRILLE : Removal and Installation	13
DEFROSTER NOZZLE	8	REAR CENTER VENTILATOR GRILLE	15
DEFROSTER NOZZLE : Removal and Installation	8	REAR CENTER VENTILATOR GRILLE : Removal and Installation	15
SIDE DEFROSTER DUCT	9	BLOWER MOTOR	16
SIDE DEFROSTER DUCT : Removal and Installation	9	Exploded View	16
CENTER VENTILATOR DUCT	9	Removal and Installation	16
CENTER VENTILATOR DUCT : Removal and Installation	9	SERVICE DATA AND SPECIFICATIONS (SDS)	17
		SERVICE DATA AND SPECIFICATIONS (SDS)	17
		In-cabin Microfilter	17

PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:000000010177566

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

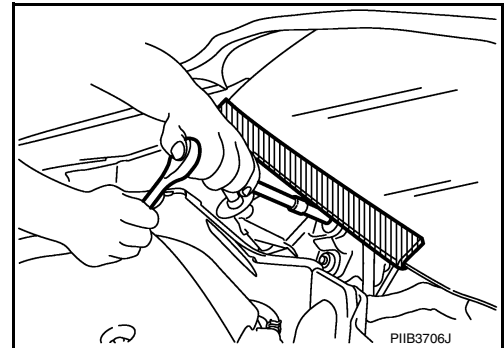
WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Procedure without Cowl Top Cover

INFOID:000000010177564

When performing the procedure after removing cowl top cover, cover the lower end of windshield with urethane, etc. to prevent damage to the windshield.



Precaution for Work

INFOID:000000010177565

- When removing or disassembling each component, be careful not to damage or deform it. If a component may be subject to interference, be sure to protect it with a shop cloth.
- When removing (disengaging) components with a screwdriver or similar tool, be sure to wrap the component with a shop cloth or vinyl tape to protect it.
- Protect the removed parts with a shop cloth and prevent them from being dropped.
- Replace a deformed or damaged clip.
- If a part is specified as a non-reusable part, always replace it with a new one.
- Be sure to tighten bolts and nuts securely to the specified torque.
- After installation is complete, be sure to check that each part works properly.
- Follow the steps below to clean components:
 - Water soluble dirt:
 - Dip a soft cloth into lukewarm water, wring the water out of the cloth and wipe the dirty area.
 - Then rub with a soft, dry cloth.
 - Oily dirt:

PRECAUTIONS

< PRECAUTION >

- Dip a soft cloth into lukewarm water with mild detergent (concentration: within 2 to 3%) and wipe the dirty area.
- Then dip a cloth into fresh water, wring the water out of the cloth and wipe the detergent off.
- Then rub with a soft, dry cloth.
- Do not use organic solvent such as thinner, benzene, alcohol or gasoline.
- For genuine leather seats, use a genuine leather seat cleaner.

A

B

C

D

E

F

G

H

VTL

J

K

L

M

N

O

P

PREPARATION

< PREPARATION >

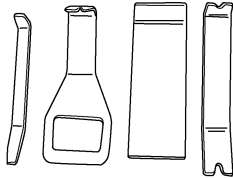
PREPARATION

PREPARATION

Special Service Tool

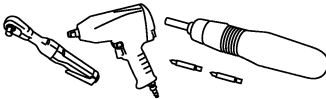
INFOID:0000000010177526

The actual shapes of tools may differ from those illustrated here.

Tool number (TechMate No.) Tool name	Description
— (J-46534) Trim Tool Set	Removing trim components
 AWJIA0483ZZ	

Commercial Service Tool

INFOID:0000000010177527

(TechMate No.) Tool name	Description
(—) Power Tool	Loosening nuts, screws and bolts
 PIIB1407E	

IN-CABIN MICROFILTER

< PERIODIC MAINTENANCE >

PERIODIC MAINTENANCE

IN-CABIN MICROFILTER

Removal and Installation

INFOID:000000010177528

REMOVAL

1. Release the tab and remove the in-cabin microfilter cover (1) from under the RH side of the instrument panel.

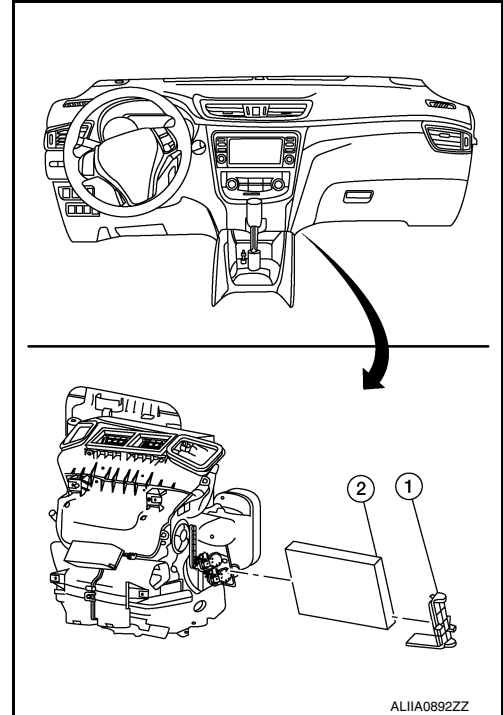
CAUTION:

Use care when lifting up on the tab to avoid damaging it.

2. Remove the in-cabin microfilter (2).

CAUTION:

If the filter is deformed/damaged when removing, replace it with a new one. A deformed or damaged filter may affect the dust collecting performance.



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

When installing, handle the filter with extreme care to avoid deforming or damaging the filter.

VENTILATION SYSTEM

< SYSTEM DESCRIPTION >

SYSTEM DESCRIPTION

VENTILATION SYSTEM

System Description

INFOID:0000000010177529

OUTLINE

Automatic A/C

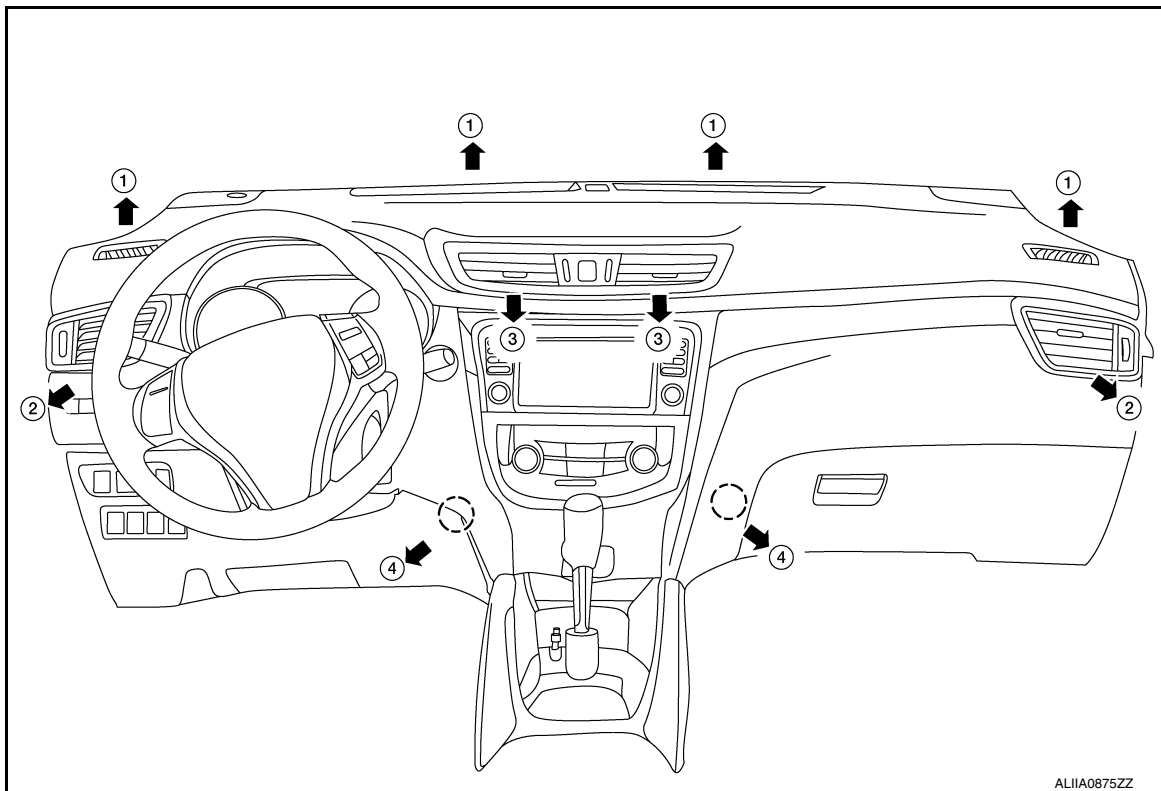
The ventilation system is controlled by the A/C switch assembly. For details of the automatic air conditioner system, refer to [HAC-10. "System Description"](#).

Manual A/C

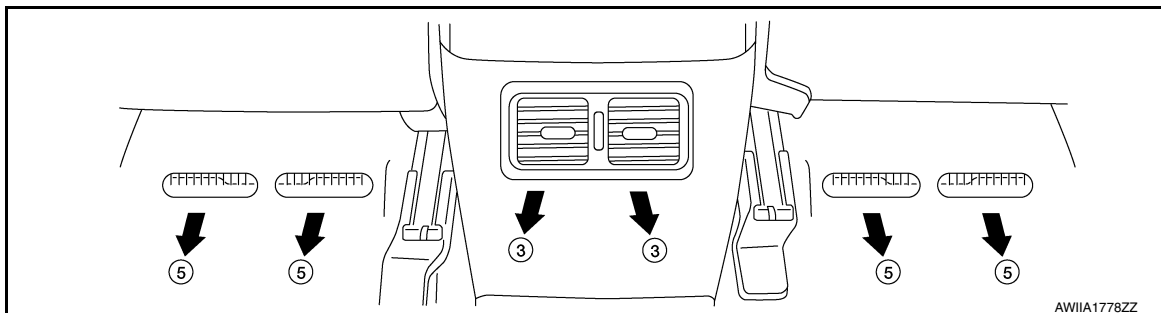
The ventilation system is controlled by the front air control. For details of the manual air conditioner system, refer to [HAC-118. "System Description"](#).

AIR FLOW

Front



Rear



VENTILATION SYSTEM

< SYSTEM DESCRIPTION >

Discharge air flow								
Mode position	Condition			Air outlet / distribution				
				DEF (1)	VENT		FOOT	
					Side (2)	Center (3)	Front (4)	Center (5)
	Upper Vent: ON	Temperature control switch	18°C (60°F)	—	×	×	—	—
			Other than 18°C (60°F)* ¹	—	×	×	—	—
	—			—	×	×	×	×
	—			—	—	—	×	×
	—			×	—	—	×	×
	—			×	—	—	—	—
 *2	—			×	—	—	—	—

- *1: Air flow is also supplied to front foot until passenger room temperature stabilizes when temperature setting is other than 18°C (60°F). At that time, air flowing is the same as 18°C (60°F) setting.
- *2: During automatic defogging control.

DUCTS AND GRILLES

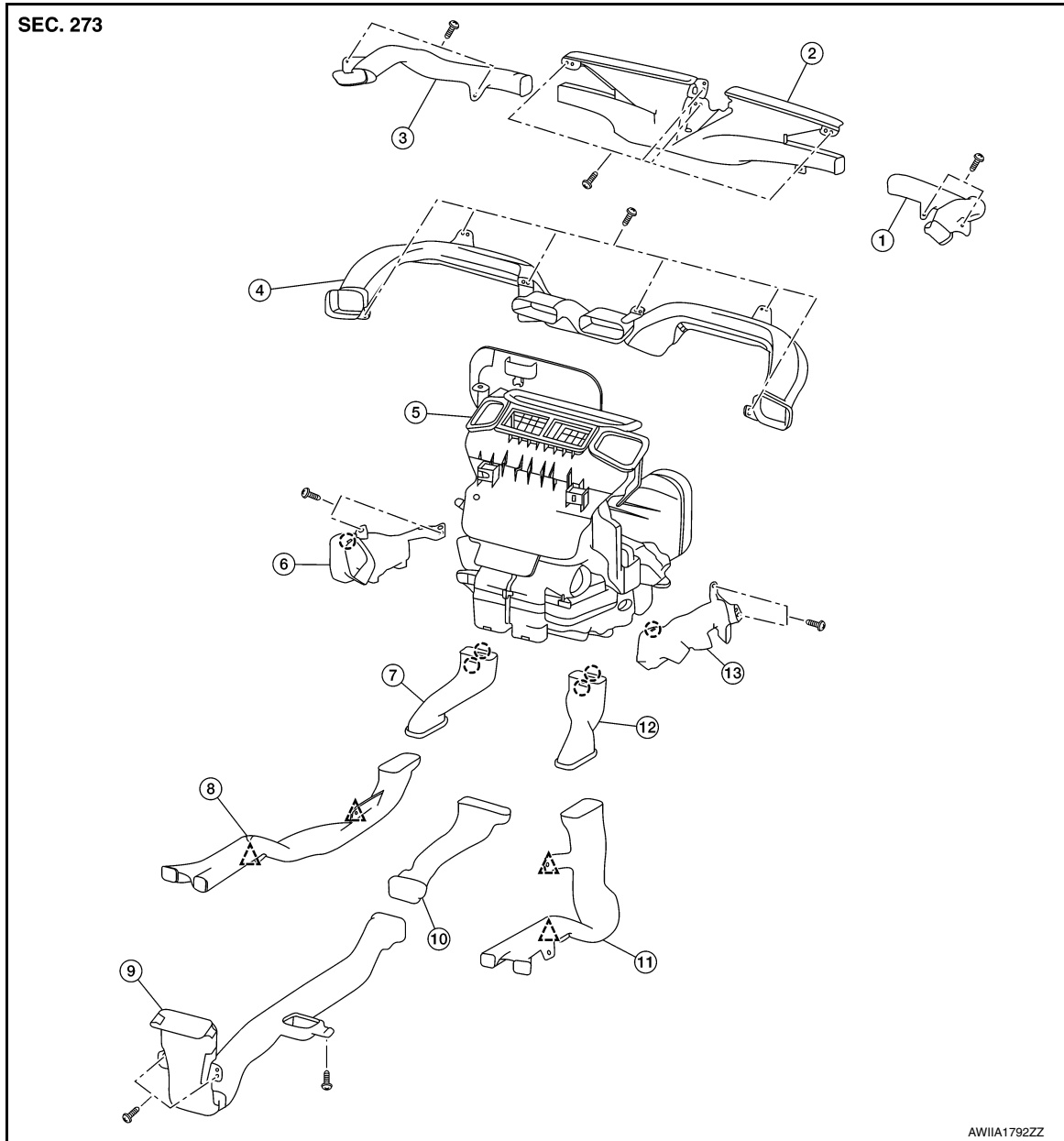
< REMOVAL AND INSTALLATION >

REMOVAL AND INSTALLATION

DUCTS AND GRILLES

Exploded View

INFOID:0000000010177530



- | | | |
|-------------------------------------|--------------------------------------|--------------------------------------|
| 1. Side defroster duct (RH) | 2. Defroster nozzle | 3. Side defroster duct (LH) |
| 4. Center ventilator duct | 5. Heating and cooling unit assembly | 6. Front foot duct (LH) |
| 7. Front floor connecting duct (LH) | 8. Front floor duct (LH) | 9. Rear center ventilator duct |
| 10. Adaptor duct | 11. Front floor duct (RH) | 12. Front floor connecting duct (RH) |
| 13. Front foot duct (RH) | | |

DEFROSTER NOZZLE

DEFROSTER NOZZLE : Removal and Installation

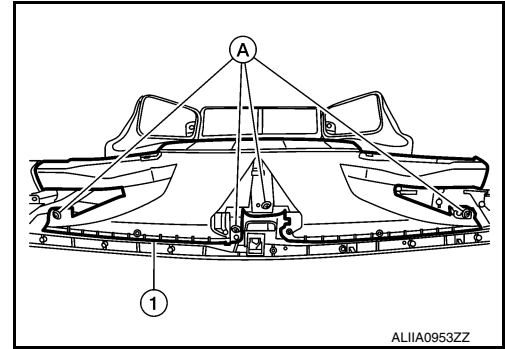
INFOID:0000000010195879

REMOVAL

DUCTS AND GRILLES

< REMOVAL AND INSTALLATION >

1. Remove side defroster ducts (LH/RH). Refer to [VTL-9. "SIDE DEFROSTER DUCT : Removal and Installation"](#).
2. Remove screws (A) and defroster nozzle (1).



INSTALLATION

Installation is in the reverse order of removal.

SIDE DEFROSTER DUCT

SIDE DEFROSTER DUCT : Removal and Installation

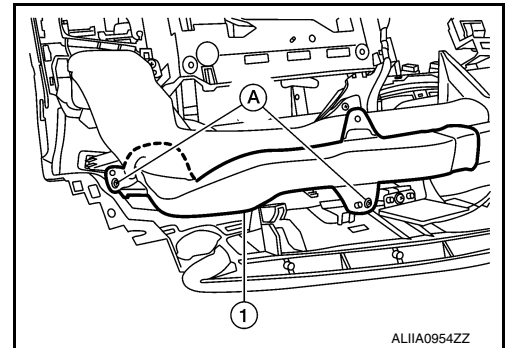
INFOID:0000000010177532

REMOVAL

1. Remove the instrument panel assembly. Refer to [IP-14. "INSTRUMENT PANEL ASSEMBLY : Removal and Installation"](#).
2. Remove the screws (A) and the side defroster duct (1).

NOTE:

LH side shown; RH similar.



INSTALLATION

Installation is in the reverse order of removal.

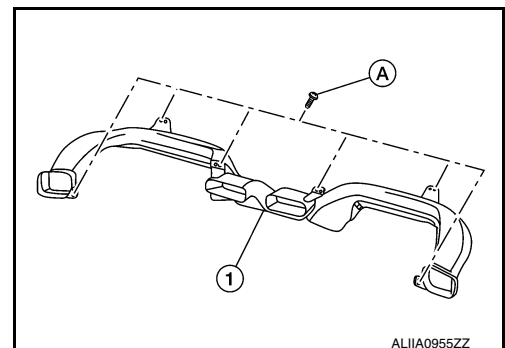
CENTER VENTILATOR DUCT

CENTER VENTILATOR DUCT : Removal and Installation

INFOID:0000000010177531

REMOVAL

1. Remove instrument panel assembly. Refer to [IP-14. "INSTRUMENT PANEL ASSEMBLY : Removal and Installation"](#).
2. Remove screws (A) and center ventilator duct (1).



INSTALLATION

Installation is in the reverse order of removal.

DUCTS AND GRILLES

< REMOVAL AND INSTALLATION >

FRONT FOOT DUCT

FRONT FOOT DUCT : Removal and Installation

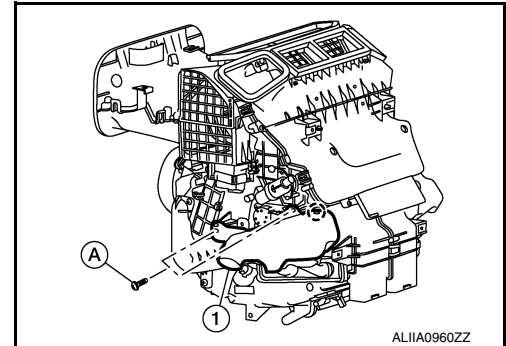
INFOID:0000000010177533

REMOVAL

Front foot duct (LH)

1. Remove instrument lower panel LH. Refer to [IP-22, "Removal and Installation"](#).
2. Remove front foot duct (LH) screws (A).
3. Release the pawl and remove front foot duct (LH) (1).

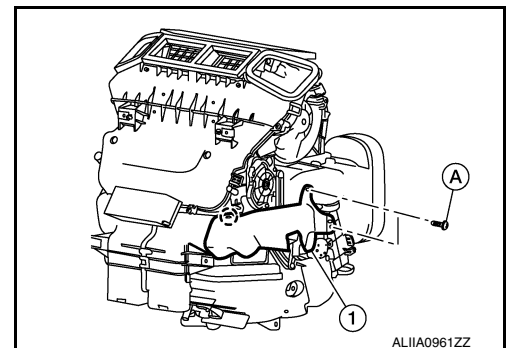
○: Pawl



Front foot duct (RH)

1. Remove glove box assembly. Refer to [IP-23, "Removal and Installation"](#).
2. Remove front foot duct (RH) screws (A).
3. Release the pawl and remove front foot duct (RH) (1).

○: Pawl



INSTALLATION

Installation is in the reverse order of removal.

FRONT FLOOR DUCT

FRONT FLOOR DUCT : Removal and Installation - Front Floor Connecting Duct

INFOID:0000000010177534

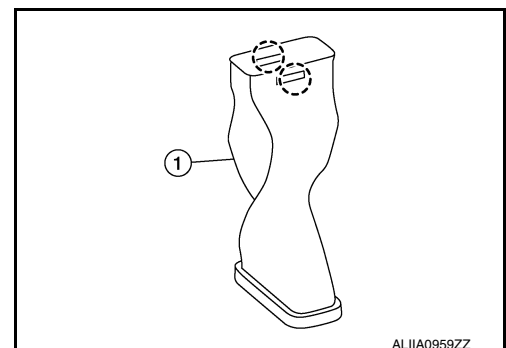
REMOVAL

1. Remove the center console side finisher. Refer to [IP-18, "Exploded View"](#).
2. Release the pawls and remove front floor connecting duct (1).

○: Pawl

NOTE:

LH side shown; RH similar.



INSTALLATION

Installation is in the reverse order of removal.

DUCTS AND GRILLES

< REMOVAL AND INSTALLATION >

FRONT FLOOR DUCT : Removal and Installation - Front Floor Duct

INFOID:0000000010177535

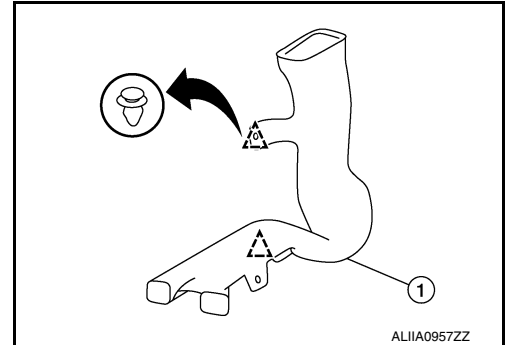
REMOVAL

1. Partially remove front floor trim.
2. Remove front floor duct screws.
3. Release clips using a suitable tool and remove front foot duct (1).

 Clip

NOTE:

RH side shown; LH similar.



INSTALLATION

Installation is in the reverse order of removal.

ADAPTOR DUCT

ADAPTOR DUCT : Removal and Installation

INFOID:0000000010201300

REMOVAL

1. Remove inside key antenna (instrument center). Refer to [DLK-271, "INSTRUMENT CENTER : Removal and Installation"](#).
2. Remove shift selector finisher. Refer to [IP-18, "Exploded View"](#).
3. Remove the adaptor duct.

INSTALLATION

Installation is in the reverse order of removal.

REAR CENTER VENTILATOR DUCT

REAR CENTER VENTILATOR DUCT : Removal and Installation

INFOID:0000000010197005

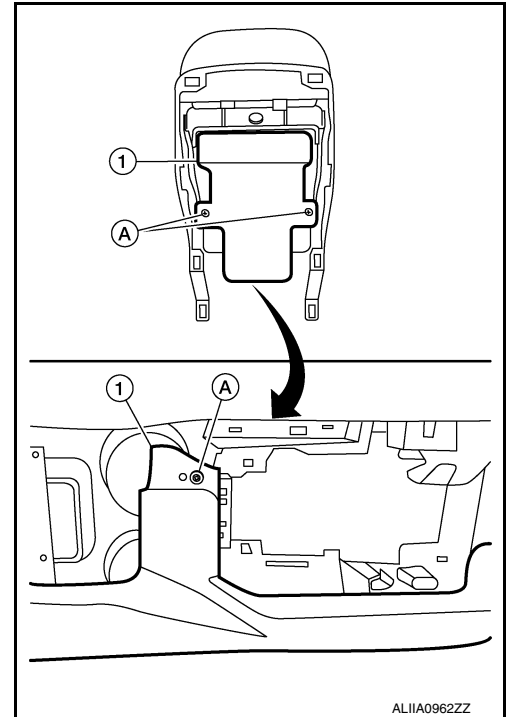
REMOVAL

1. Remove center console assembly. Refer to [IP-18, "Removal and Installation"](#).

DUCTS AND GRILLES

< REMOVAL AND INSTALLATION >

2. Remove screws (A) and rear center ventilator duct (1).

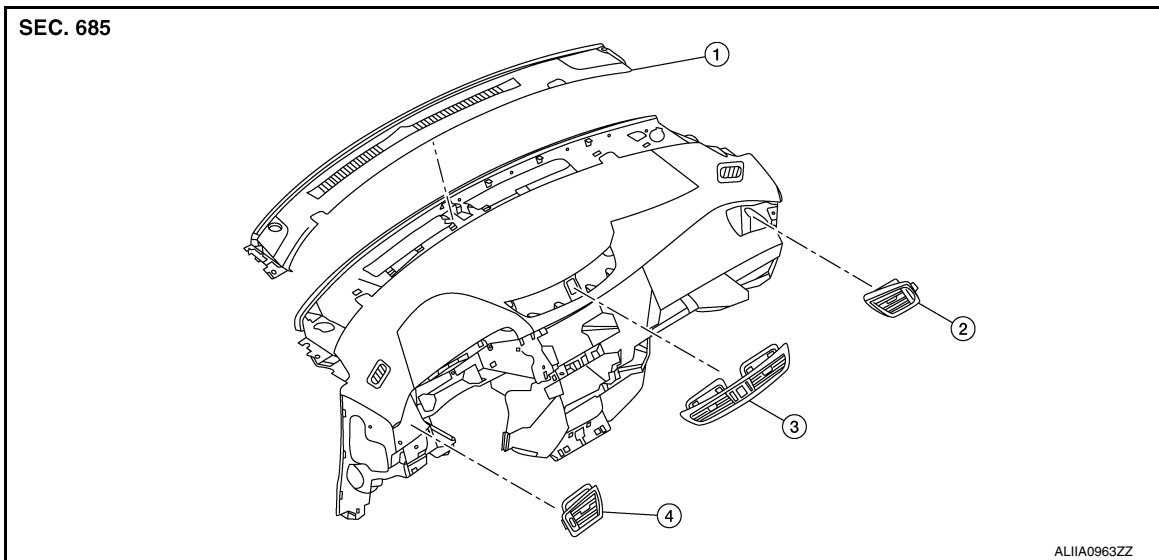


INSTALLATION

Installation is in the reverse order of removal.

Exploded View

INFOID:0000000010177547



1. Defroster grille

2. Side ventilator grille (RH)

3. Center ventilator grille

4. Side ventilator grille (RH)

DEFROSTER GRILLE

DEFROSTER GRILLE : Removal and Installation

INFOID:0000000010197015

REMOVAL

1. Remove front pillar finishers (LH/RH). Refer to [INT-20, "FRONT PILLAR FINISHER : Removal and Installation"](#).
2. Release defroster grille clips using a suitable tool.

DUCTS AND GRILLES

< REMOVAL AND INSTALLATION >

3. Disconnect the harness connectors and remove defroster grille.

INSTALLATION

Installation is in the reverse order of removal.

CENTER VENTILATOR GRILLE

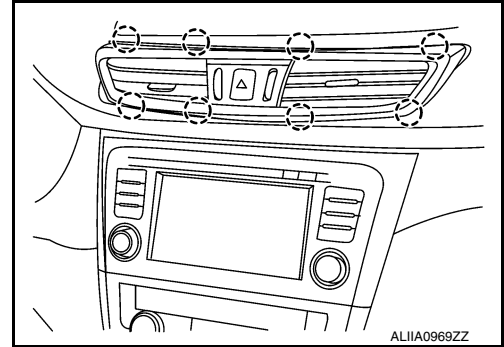
CENTER VENTILATOR GRILLE : Removal and Installation

INFOID:0000000010177548

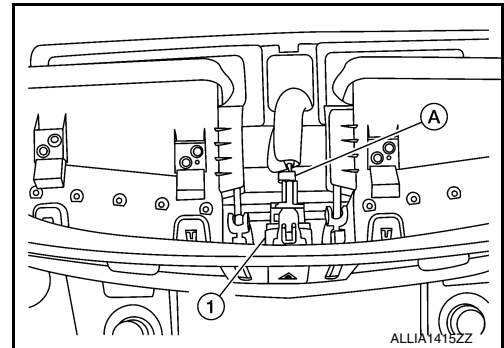
REMOVAL

1. Release the pawls using a suitable tool, disconnect the harness connector and remove center ventilator grille assembly from instrument panel.

○: Pawl

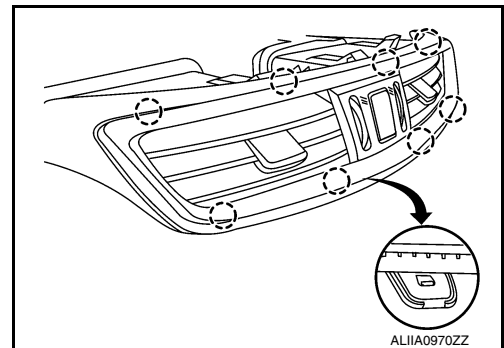


2. Disconnect the harness connector (A) from hazard switch (1).



3. Release the pawls to remove the center ventilator grilles (LH/RH).

○: Pawl



INSTALLATION

Installation is in the reverse order of removal.

SIDE VENTILATOR GRILLE

SIDE VENTILATOR GRILLE : Removal and Installation

INFOID:0000000010177549

REMOVAL

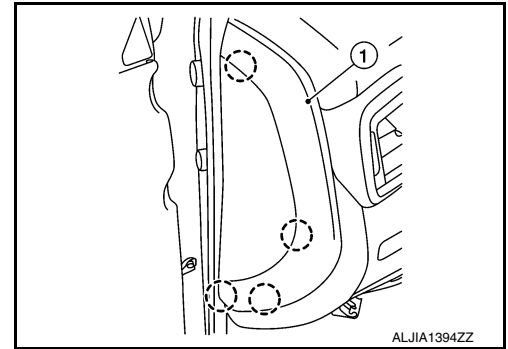
Side ventilator grille (LH)

DUCTS AND GRILLES

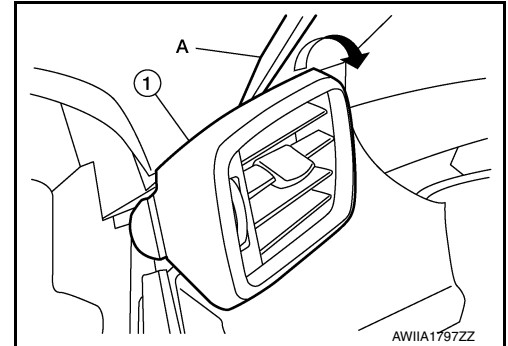
< REMOVAL AND INSTALLATION >

1. Release the pawls using a suitable tool and remove instrument side finisher (LH) (1).

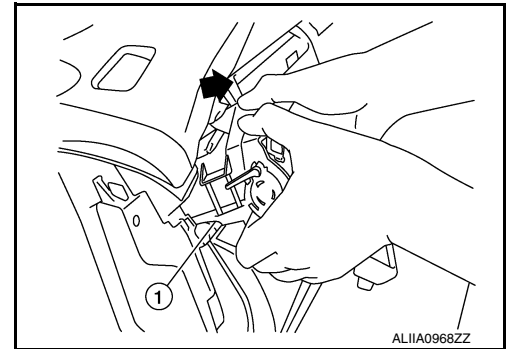
(○): Pawl



2. Insert a suitable tool (A) at the top of the side ventilator grille (1) and release as shown.



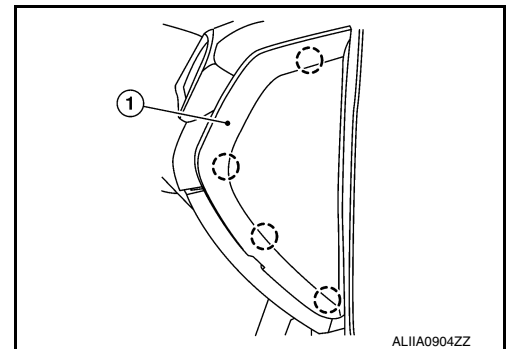
3. Remove side ventilator grille (1) in the direction shown (←).



Side ventilator grille (RH)

1. Release the pawls using a suitable tool and remove instrument side finisher (1).

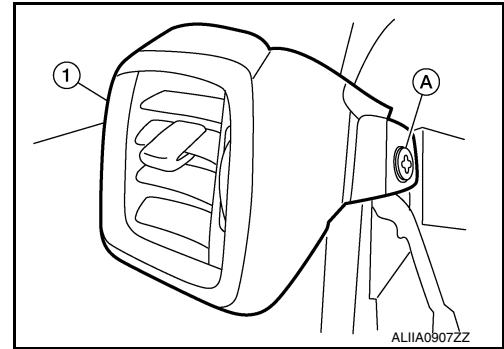
(○): Pawl



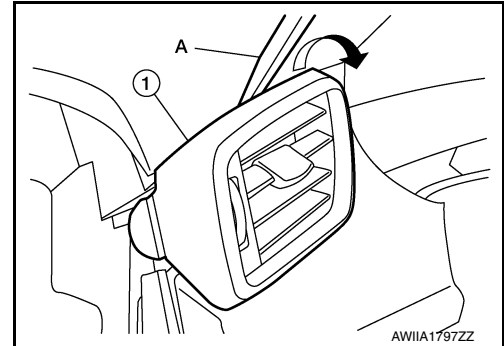
DUCTS AND GRILLES

< REMOVAL AND INSTALLATION >

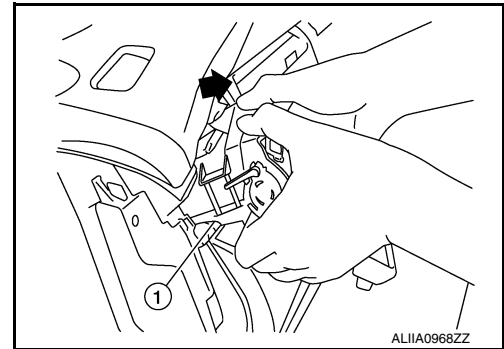
2. Remove side ventilator grille (RH) screw (A).



3. Insert a suitable tool (A) at the top of the side ventilator grille (1) and release as shown.



4. Remove side ventilator grille (1) in the direction shown (←).



INSTALLATION

Installation is in the reverse order of removal.

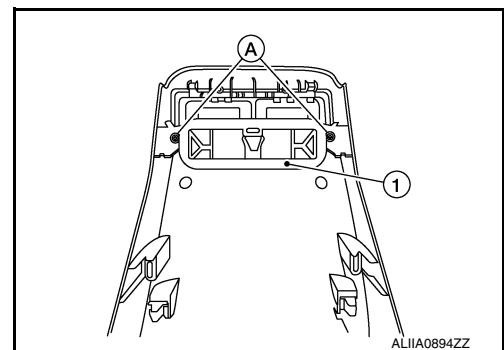
REAR CENTER VENTILATOR GRILLE

REAR CENTER VENTILATOR GRILLE : Removal and Installation

INFOID:000000010177552

REMOVAL

1. Remove center console rear finisher. Refer to [IP-18, "Exploded View"](#).
2. Remove screws (A) and rear center ventilator grille (1).



INSTALLATION

Installation is in the reverse order of removal.

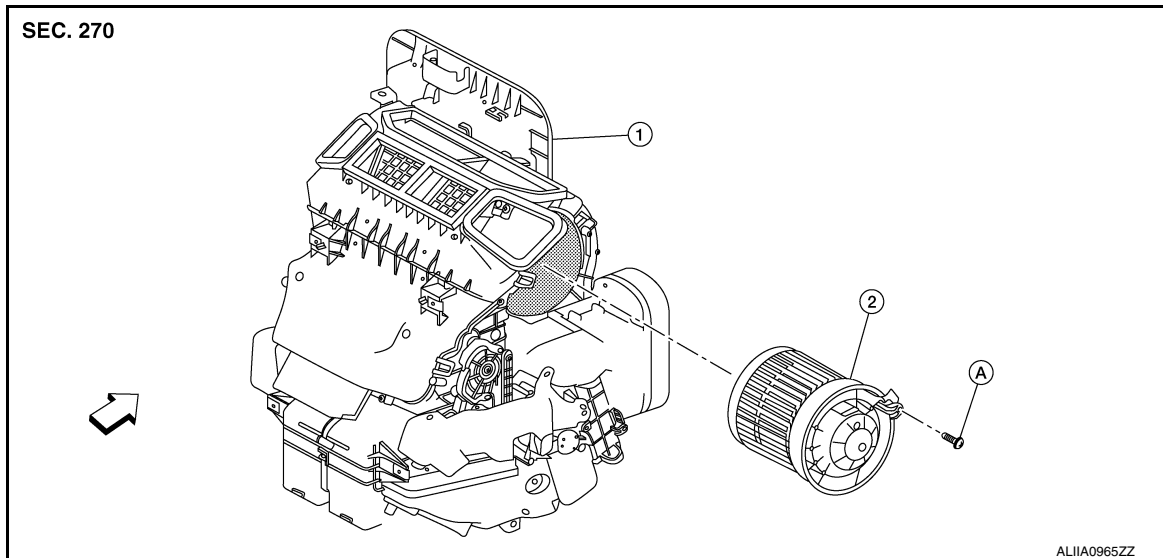
BLOWER MOTOR

< REMOVAL AND INSTALLATION >

BLOWER MOTOR

Exploded View

INFOID:0000000010337008



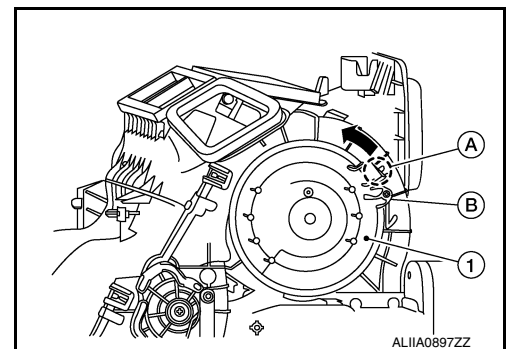
Removal and Installation

INFOID:0000000010197303

REMOVAL

1. Remove glove box assembly. Refer to [IP-23, "Removal and Installation"](#).
2. Disconnect the harness connector from the blower motor.
3. Remove blower motor screw (B).
4. Release hook (A) then rotate the blower motor (1) counterclockwise and remove.

○: Hook



INSTALLATION

Installation is in the reverse order of removal.

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

In-cabin Microfilter

INFOID:0000000010337009

Replacement interval	Refer to MA-7, "Introduction of Periodic Maintenance" .
----------------------	---

A
B
C
D
E
F
G
H
VTL
J
K
L
M
N
O
P

VTL

WCS

SECTION

WARNING CHIME SYSTEM

CONTENTS

PRECAUTION	3	COMMON ITEM	17
PRECAUTIONS	3	COMMON ITEM : CONSULT Function (BCM -	
Precaution for Supplemental Restraint System		COMMON ITEM)	17
(SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	3	BUZZER	17
SYSTEM DESCRIPTION	4	BUZZER : CONSULT Function (BCM - BUZZER)...	18
COMPONENT PARTS	4	DIAGNOSIS SYSTEM (BCM) (WITHOUT INTELLIGENT KEY SYSTEM)	19
Component Parts Location	4	COMMON ITEM	19
Combination Meter	5	COMMON ITEM : CONSULT Function (BCM -	
SYSTEM	6	COMMON ITEM)	19
WARNING CHIME SYSTEM	6	BUZZER	19
WARNING CHIME SYSTEM : System Description	6	BUZZER : CONSULT Function (BCM - BUZZER)...	19
WARNING CHIME SYSTEM : Fail-safe	7	ECU DIAGNOSIS INFORMATION	21
LIGHT REMINDER WARNING CHIME	7	COMBINATION METER	21
LIGHT REMINDER WARNING CHIME : Light Reminder Warning	7	Reference Value	21
PARKING BRAKE RELEASE WARNING CHIME	8	Fail-safe	26
PARKING BRAKE RELEASE WARNING CHIME : Parking Brake Release Warning Chime	8	DTC Index	27
SEAT BELT REMINDER WARNING CHIME	9	BCM (BODY CONTROL MODULE)	28
SEAT BELT REMINDER WARNING CHIME : Seat belt Warning	9	List of ECU Reference	28
KEY WARNING CHIME	10	WIRING DIAGRAM	29
KEY WARNING CHIME : Key Warning Chime	10	WARNING CHIME SYSTEM	29
DIAGNOSIS SYSTEM (COMBINATION METER)	12	Wiring Diagram	29
Description	12	BASIC INSPECTION	37
CONSULT Function (METER/M&A)	14	DIAGNOSIS AND REPAIR WORK FLOW	37
DIAGNOSIS SYSTEM (BCM) (WITH INTELLIGENT KEY SYSTEM)	17	Work Flow	37
		DTC/CIRCUIT DIAGNOSIS	39
		POWER SUPPLY AND GROUND CIRCUIT	39
		COMBINATION METER	39
		COMBINATION METER : Diagnosis Procedure	39

BCM (BODY CONTROL SYSTEM) (WITH INTELLIGENT KEY SYSTEM)	39	Description	47
BCM (BODY CONTROL SYSTEM) (WITH INTELLIGENT KEY SYSTEM) : Diagnosis Procedure	39	Component Function Check	47
BCM (BODY CONTROL SYSTEM) (WITHOUT INTELLIGENT KEY SYSTEM)	40	Diagnosis Procedure	47
BCM (BODY CONTROL SYSTEM) (WITHOUT INTELLIGENT KEY SYSTEM) : Diagnosis Procedure	40	Component Inspection	48
METER BUZZER CIRCUIT	42	SYMPTOM DIAGNOSIS	49
Description	42	WARNING CHIME SYSTEM SYMPTOMS	49
Component Function Check	42	Symptom Table	49
Diagnosis Procedure	42	THE PARKING BRAKE RELEASE WARNING CONTINUES SOUNDING, OR DOES NOT SOUND	50
SEAT BELT BUCKLE SWITCH SIGNAL CIRCUIT	43	Description	50
Description	43	Diagnosis Procedure	50
Component Function Check	43	THE SEAT BELT REMINDER WARNING CONTINUES SOUNDING, OR DOES NOT SOUND	51
Diagnosis Procedure	43	Description	51
Component Inspection	44	Diagnosis Procedure	51
PARKING BRAKE SWITCH SIGNAL CIRCUIT	45	THE LIGHT REMINDER WARNING DOES NOT SOUND	52
Component Function Check	45	Description	52
Diagnosis Procedure	45	Diagnosis Procedure	52
Component Inspection	46	THE KEY WARNING DOES NOT SOUND (WITHOUT INTELLIGENT KEY)	53
KEY SWITCH SIGNAL CIRCUIT (WITHOUT INTELLIGENT KEY)	47	Description	53
		Diagnosis Procedure	53

PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010340080

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

A
B
C
D
E
F
G
H
I
J
K
L
M
O
P

WCS

COMPONENT PARTS

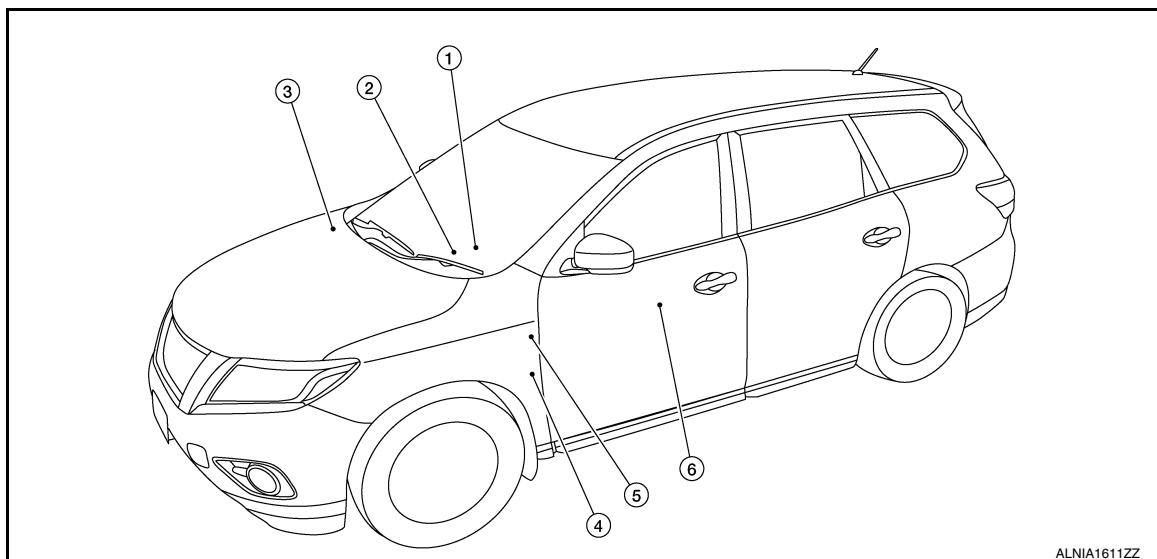
< SYSTEM DESCRIPTION >

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:0000000010338523



ALNIA1611ZZ

No.	Component	Function
1.	Key switch	Transmits the key switch signal to the BCM. Refer to SEC-115, "Component Parts Location" (without Intelligent Key system) for detailed installation location.
2.	Combination meter	- Receives a buzzer output signal from the BCM with CAN communication line and sounds the buzzer. - Controls the following with the vehicle speed signal received from ABS actuator and electric unit (control unit) via CAN communication and the signals from switches: - Seat belt reminder warning chime - Parking brake release warning chime - Key warning chime
3.	ABS actuator and electric unit (control unit)	Transmits the vehicle speed signal to the combination meter via CAN communication. Refer to BRC-8, "Component Parts Location" for detailed installation location.
4.	Parking brake switch	Transmits the parking brake switch signal to the combination meter.
5.	BCM	Based on the signals received from various units and switches, transmits the buzzer output signal to the combination meter via CAN communication. Refer to BCS-7, "BODY CONTROL SYSTEM : Component Parts Location" (with Intelligent Key system) or BCS-79, "BODY CONTROL SYSTEM : Component Parts Location" (without Intelligent Key system) for detailed installation location.
6.	Seat belt buckle switch LH	Transmits a seat belt buckle switch signal LH to the combination meter.

COMPONENT PARTS

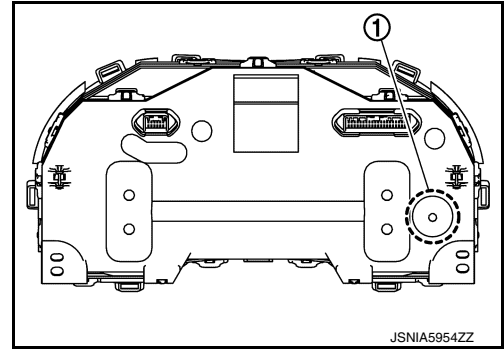
< SYSTEM DESCRIPTION >

Combination Meter

INFOID:0000000010338524

The combination meter has a built-in buzzer (1) and sounds the following warnings, according to signals from each switch and unit:

- Light reminder warning
- Parking brake release warning chime
- Seat belt warning
- Key warning chime



A
B
C
D
E
F
G
H
I
J
K
L
M
O
P

WCS

SYSTEM

< SYSTEM DESCRIPTION >

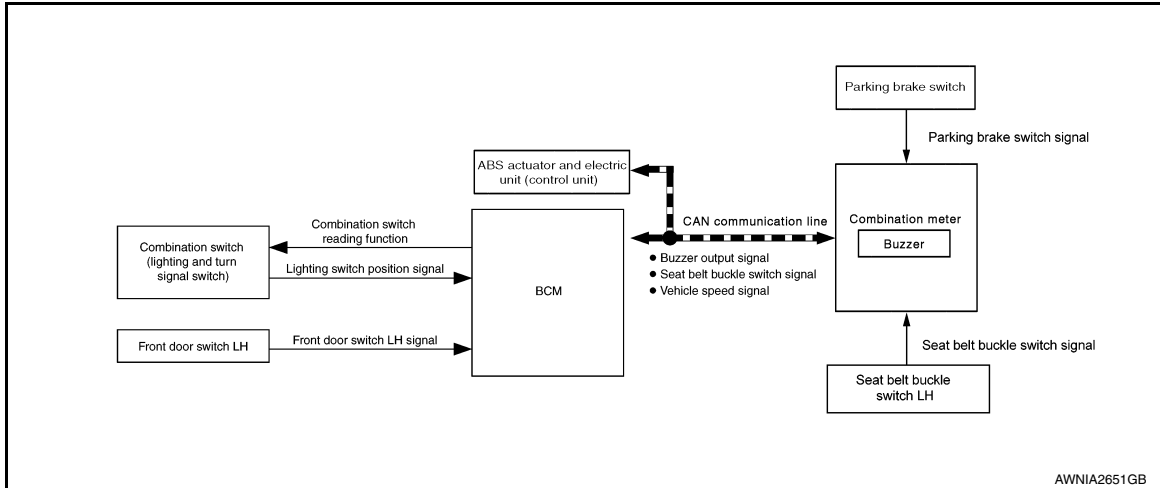
SYSTEM

WARNING CHIME SYSTEM

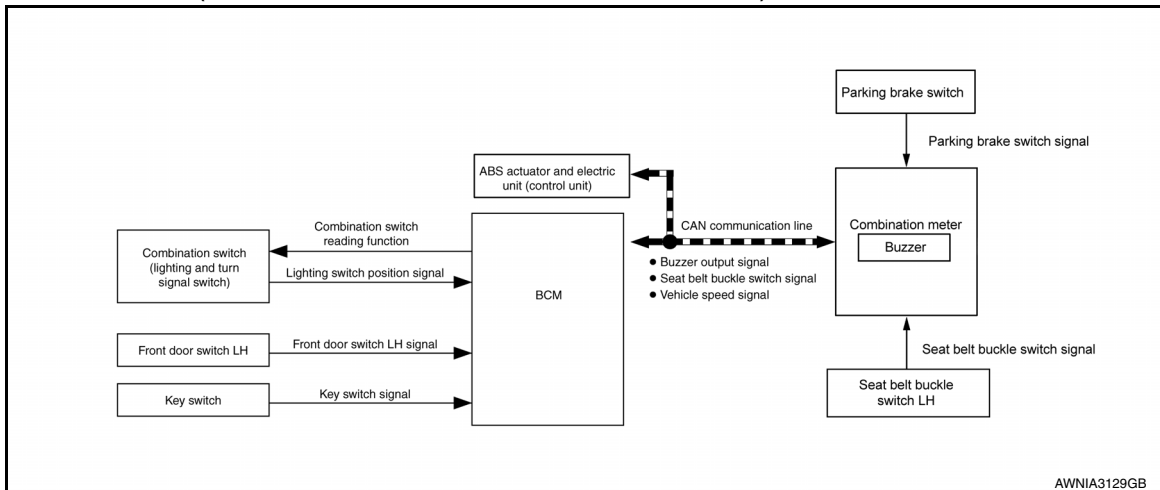
WARNING CHIME SYSTEM : System Description

INFOID:000000010338525

SYSTEM DIAGRAM (WITH INTELLIGENT KEY SYSTEM)



SYSTEM DIAGRAM (WITHOUT INTELLIGENT KEY SYSTEM)



COMBINATION METER INPUT/OUTPUT SIGNAL (CAN COMMUNICATION SIGNAL)

Input signal

Signal name	Transmit unit
Vehicle speed signal	ABS actuator and electric unit (control unit)
Buzzer output signal	BCM

Output signal

Signal name	Reception unit
Vehicle speed signal	BCM

BCM INPUT/OUTPUT SIGNAL (CAN COMMUNICATION SIGNAL)

Input signal

SYSTEM

< SYSTEM DESCRIPTION >

Signal name	Transmit unit
Vehicle speed signal	Combination meter

Output signal

Signal name	Reception unit
Buzzer output signal	Combination meter

DESCRIPTION

Combination Meter

The combination meter sounds the alarm buzzer installed in the combination meter when receiving the buzzer output signal transmitted from each unit.

BCM

BCM receives signals from various units and transmits a buzzer output signal to the combination meter via CAN communication if it judges that the warning buzzer should be activated.

WARNING CHIME FUNCTION LIST

Warning functions	Refer to
Light reminder warning	WCS-7, "LIGHT REMINDER WARNING CHIME : Light Reminder Warning"
Parking brake release warning chime	WCS-8, "PARKING BRAKE RELEASE WARNING CHIME : Parking Brake Release Warning Chime"
Seat belt warning	WCS-9, "SEAT BELT REMINDER WARNING CHIME : Seat belt Warning"
Key warning chime (without Intelligent Key system)	WCS-10, "KEY WARNING CHIME : Key Warning Chime"

WARNING CHIME SYSTEM : Fail-safe

INFOID:0000000010338526

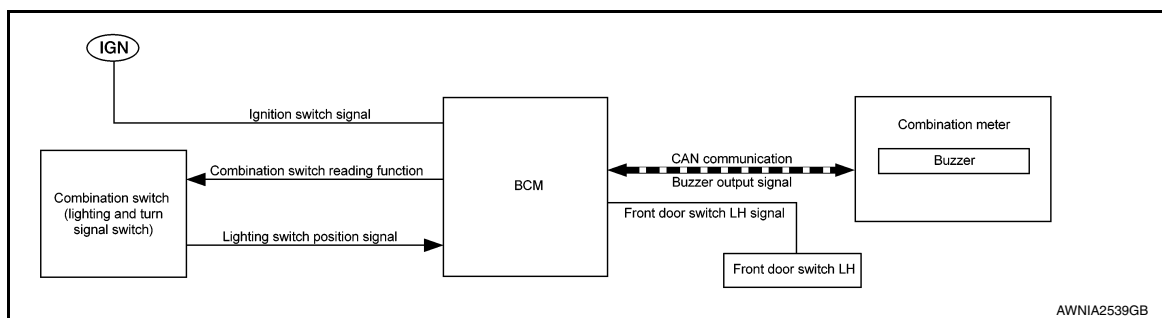
The combination meter activates the fail-safe control if CAN communication with each unit is malfunctioning.

Function	Specifications
Buzzer	The buzzer turns OFF by suspending communication.

LIGHT REMINDER WARNING CHIME

LIGHT REMINDER WARNING CHIME : Light Reminder Warning

INFOID:0000000010338527



WARNING CHIME OPERATION CONDITIONS

If all of the following conditions are fulfilled.

SYSTEM

< SYSTEM DESCRIPTION >

Operation conditions	
Ignition switch	OFF
Combination switch (Lighting switch)	1st or 2nd position
Driver side door	Open [front door switch LH ON]

WARNING CHIME CANCEL CONDITIONS

Warning is canceled if any of the following conditions is fulfilled.

Operation conditions	
Ignition switch	ON
Combination switch (Lighting switch)	OFF or AUTO position
Driver side door	Close [front door switch LH OFF]

SIGNAL PATH

1. BCM requires warning chime output to combination meter when it judges light reminder warning chime is necessary from signals below.

Signal name	Signal source
Ignition switch signal	—
Combination switch signal	Combination switch (Lighting switch) → BCM
Driver door switch signal	Front door switch LH → BCM

2. Combination meter sounds integrated buzzer, following the warning chime output requirement (below signal) from BCM.

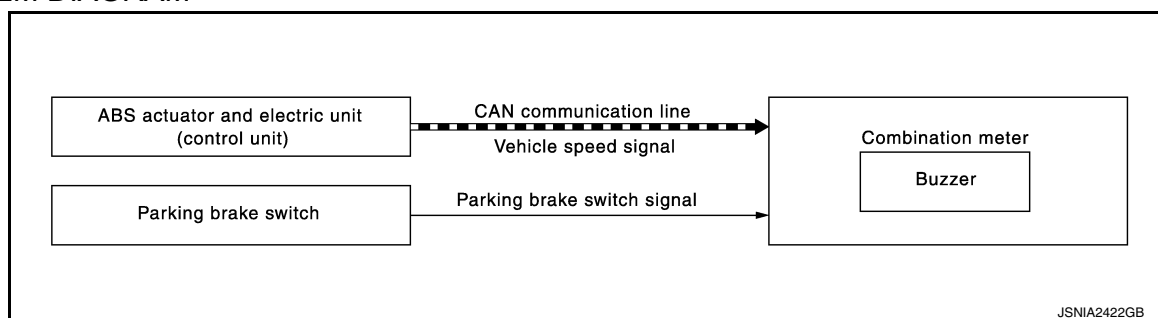
Signal name	Signal source
Buzzer output signal	BCM  Combination meter

PARKING BRAKE RELEASE WARNING CHIME

PARKING BRAKE RELEASE WARNING CHIME : Parking Brake Release Warning Chime

INFOID:0000000010338528

SYSTEM DIAGRAM



WARNING OPERATION CONDITIONS

If all of the following conditions are fulfilled.

Operation conditions	
Ignition switch	ON

SYSTEM

< SYSTEM DESCRIPTION >

Operation conditions	
Parking brake	During the operation (parking brake switch ON)
Vehicle speed	Approximately 4.3 MPH (7 km/h) or more

WARNING CANCEL CONDITIONS

Warning is canceled if any of the following conditions are fulfilled.

Operation conditions	
Ignition switch	OFF
Parking brake	Release condition (parking brake switch OFF)
Vehicle speed	Approximately 1.9 MPH (3 km/h) or less

SIGNAL PATH

Combination meter sounds integrated buzzer when it judges that parking brake release warning chime is necessary from signals below.

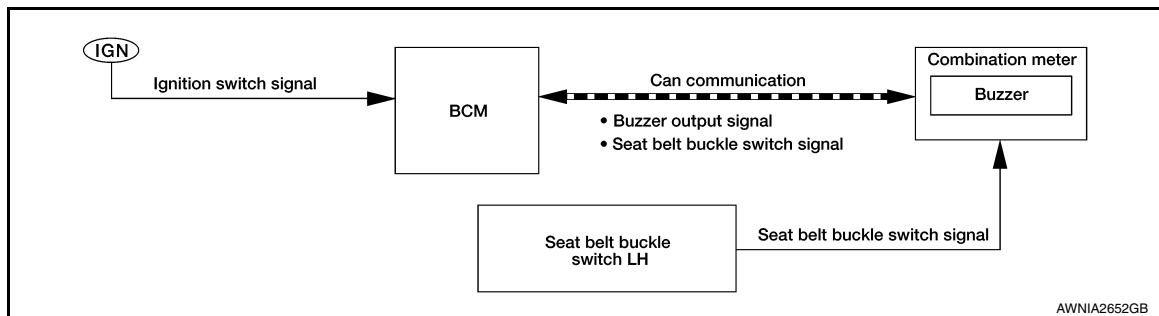
Signal name	Signal source
Ignition switch signal	—
Parking brake switch signal	Parking brake switch → Combination meter
Vehicle speed signal	ABS actuator and electric unit (control unit)  → Combination meter

SEAT BELT REMINDER WARNING CHIME

SEAT BELT REMINDER WARNING CHIME : Seat belt Warning

INFOID:000000010338529

SYSTEM DIAGRAM



WARNING OPERATION CONDITIONS

If all of the following conditions are fulfilled.

Operation conditions	
Ignition switch	ON
Driver seat belt	Unfastened [seat belt buckle switch LH ON]

WARNING CANCEL CONDITIONS

Warning is canceled if any of the following conditions is fulfilled.

Operation conditions	
Ignition switch	OFF
Driver seat belt	Fastened (seat belt buckle switch LH OFF)
6 seconds after the start of warning sound	

SIGNAL PATH

SYSTEM

< SYSTEM DESCRIPTION >

1. BCM requires warning chime output to combination meter when it judges seat belt warning chime is necessary from signals below.

Signal name	Signal source
Ignition switch signal	—
Seat belt buckle switch signal (LH)	Seat belt buckle switch (LH) → Combination meter  BCM

2. Combination meter sounds integrated buzzer, following the warning chime output requirement (below signal) from BCM.

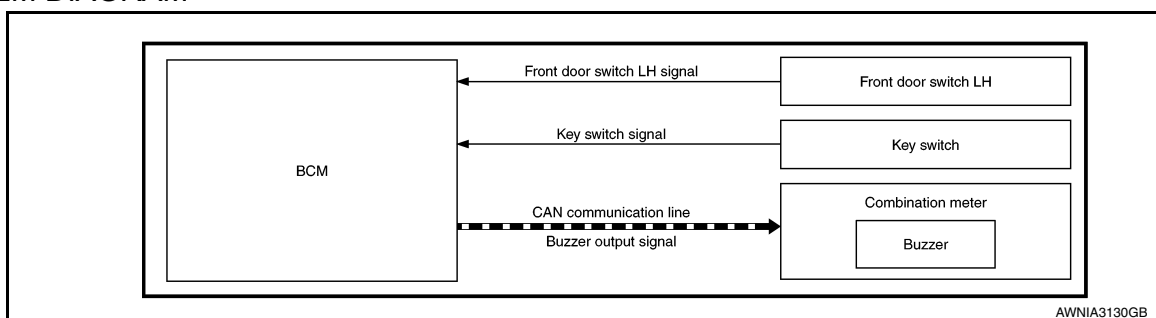
Signal name	Signal source
Buzzer output signal	BCM  Combination meter

KEY WARNING CHIME

KEY WARNING CHIME : Key Warning Chime

INFOID:0000000010338530

SYSTEM DIAGRAM



WARNING CHIME OPERATION CONDITIONS

If all of the following conditions are fulfilled.

Operation conditions	
Ignition switch	OFF
Key switch	ON (key is in key cylinder)
Driver side door	Open [front door switch LH ON]

WARNING CHIME CANCEL CONDITIONS

Warning is canceled if any of the following conditions is fulfilled.

Operation conditions	
Ignition switch	ON
Key switch	ON (key is removed from key cylinder)
Driver side door	Close [front door switch LH OFF]

SIGNAL PATH

1. BCM detects key inserted into the ignition switch, and sends key warning signal to combination meter with CAN communication line.

Signal name	Signal source
Ignition switch signal	—

SYSTEM

< SYSTEM DESCRIPTION >

Signal name	Signal source
Key switch signal	Key switch  BCM
Driver door switch signal	Front door switch LH  BCM

2. Combination meter sounds integrated buzzer, when it receives a buzzer output signal from BCM.

Signal name	Signal source
Buzzer output signal	BCM  Combination meter

A

B

C

D

E

F

G

H

I

J

K

L

M

O

P

WCS

DIAGNOSIS SYSTEM (COMBINATION METER)

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (COMBINATION METER)

Description

INFOID:000000010339915

COMBINATION METER SELF-DIAGNOSIS MODE

The following meter functions can be checked during Combination Meter Self-Diagnosis Mode:

- Pointer sweep of speedometer, tachometer and gauges.
- Illumination of all LCD segments and color patterns for meter displays.
- Illumination of all lamps/LEDs that are controlled by the combination meter (regardless of switch status).

STARTING COMBINATION METER SELF-DIAGNOSIS MODE

NOTE:

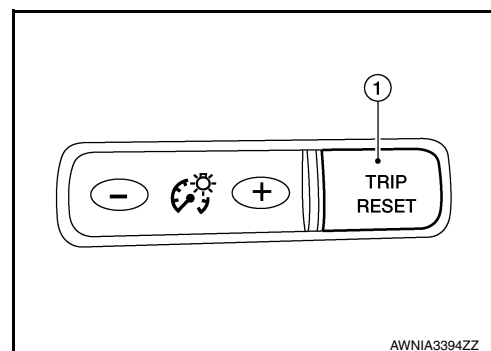
- Check combination meter power supply and ground circuits if self-diagnosis mode does not start. Refer to [MWI-59, "COMBINATION METER : Diagnosis Procedure"](#). Replace combination meter if power supply and ground circuits are found to be normal and self-diagnosis mode does not start. Refer to [MWI-82, "Removal and Installation"](#).
- Combination meter self-diagnosis mode will function with the ignition switch in ON. Combination meter self-diagnosis mode will exit upon turning the ignition switch to OFF.

How to Initiate Self-Diagnosis Mode

1. Turn ignition switch OFF.
2. While pressing the trip reset switch (1), turn ignition switch ON.
3. Keep the trip reset switch for 1 seconds or more.
4. Press the trip reset switch at least 3 times. (Within 7 seconds after the ignition switch is turned ON.)
5. "Work instruction code" is indicated in the top portion of information display and self-diagnosis is started.
6. The mode switches in the order shown below each time the trip reset switch is pressed.

NOTE:

If the trip reset switch is not operated for 20 seconds or more, the self-diagnosis mode is automatically cancelled.



AWNIA3394ZZ

Test order	Test item	Description
1	Work instruction code	This item is displayed, but not used.
2	Part number	
3	Software code	
4	EEPROM code	
5	Hardware code	
6	P.C.B code	
7	Circuit check	The pointer of the following items moves from 0 to MAX twice. • Speedometer • Tachometer • Engine coolant temperature gauge • Fuel gauge NOTE: If any one of the pointers does not sweep, replace combination meter.
8	Color check ^{*1}	Performs the color check of the information display.

DIAGNOSIS SYSTEM (COMBINATION METER)

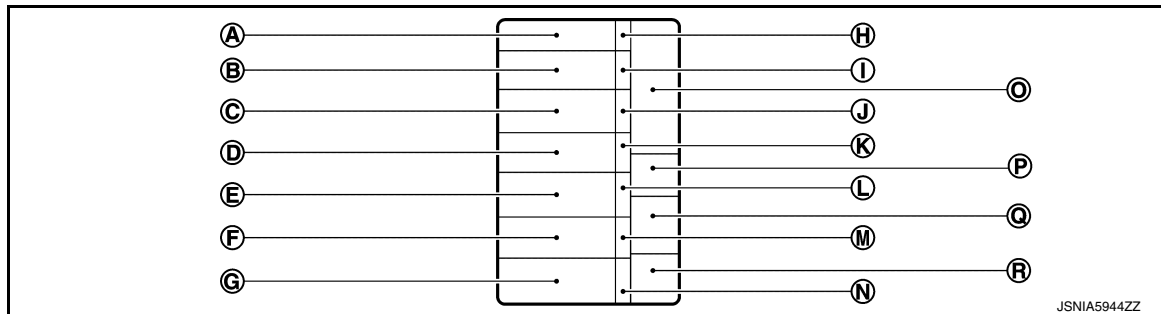
< SYSTEM DESCRIPTION >

Test order	Test item	Description
9	error code*2	Displays the error code of the following items: • Speedometer • Tachometer • Engine coolant temperature gauge • Fuel gauge • Meter control switch
10	Warning/indicator lamp check	All warning/indicator lamp illuminate. NOTE: • When either one of them does not turn ON, replace combination meter. • SRS air bag warning lamp and security indicator lamp are not illuminate.

NOTE:

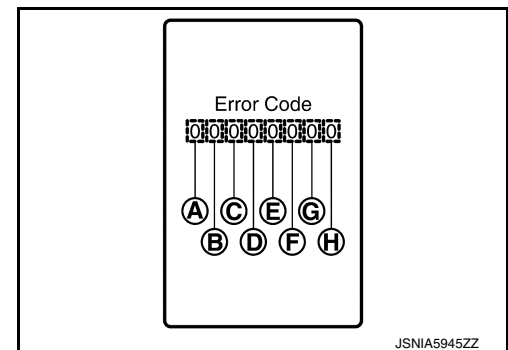
When the trip reset switch is pressed during the indication of Test order “10,” test item returns to Test order “2.”

*1: Color Check



- | | | |
|--------------|--------------|----------|
| Ⓐ Blue | Ⓑ Red | Ⓒ Pink |
| Ⓓ Green | Ⓔ Light blue | Ⓕ Yellow |
| Ⓖ White | Ⓗ White | Ⓖ Black |
| Ⓙ Light blue | Ⓚ Black | Ⓛ Pink |
| Ⓜ Black | Ⓝ Blue | Ⓞ Black |
| Ⓟ Dark blue | Ⓠ White | Ⓡ Blue |

*2: Error Code



Item	Code	Description	Action to take/Reference
Ⓐ Speedometer	0	Normal	—
	1	A vehicle speed signal cannot be received from ABS actuator and electric unit (control unit).	Perform “Self Diagnostic Result” of “ABS.” Refer to BRC-55. "DTC Index" .
	2	A vehicle speed signal received from the ABS actuator and electric unit (control unit) is abnormal.	

DIAGNOSIS SYSTEM (COMBINATION METER)

< SYSTEM DESCRIPTION >

Item		Code	Description	Action to take/Reference
Ⓑ	Tachometer	0	Normal	—
		1	An engine speed signal cannot be received from ECM.	Perform "Self Diagnostic Result" of "ECM." Refer to EC-93, "DTC Index" .
Ⓒ	Fuel gauge	0	Normal	—
		1	Fuel gauge circuit is short.	Refer to MWI-62, "Component Function Check" .
		2	Fuel gauge circuit is open.	
Ⓓ	Engine coolant temperature gauge	0	Normal	—
		1	An engine coolant temperature signal cannot be received from ECM.	Perform "Self Diagnostic Result" of "ECM." Refer to MWI-30, "DTC Index" .
Ⓔ	Meter control switch	0	Normal	—
		1	When judging that the illumination control switch signal circuit is shorted for 5 minutes or more.	Refer to MWI-67, "Diagnosis Procedure" .
		2	When judging that the trip reset switch signal circuit is shorted for 5 minutes or more.	
		3	When judging that the both switch signal circuit is shorted for 5 minutes or more.	
Ⓕ	—	0	Displays "0" constantly.	—
Ⓖ	—	0	Displays "0" constantly.	—
Ⓗ	—	0	Displays "0" constantly.	—

How to Reset Error Code

Error codes stored in combination meter can be reset by following the instructions below:

1. Turn ignition switch OFF.
2. While pressing the trip reset switch, turn ignition switch ON.
3. Keep the trip reset switch for 1 seconds or more.
4. Press the trip reset switch at least 3 times. (Within 7 seconds after the ignition switch is turned ON.)
5. Turn ignition switch OFF.
6. Perform self-diagnosis and check that the error codes are reset.

CONSULT Function (METER/M&A)

INFOID:0000000010339916

APPLICATION ITEMS

CONSULT can display each diagnostic item using the diagnostic test modes shown.

METER/M&A Diagnosis mode	Description
SELF DIAGNOSTIC RESULT	Displays combination meter self-diagnosis results.
DATA MONITOR	Displays combination meter input/output data in real time.
WARNING HISTORY	Lighting history of the warning lamp and indicator lamp can be checked.
CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be read.

SELF DIAG RESULT

Refer to [MWI-30, "DTC Index"](#).

DATA MONITOR

Display Item List

DIAGNOSIS SYSTEM (COMBINATION METER)

< SYSTEM DESCRIPTION >

X: Applicable

Display item [Unit]	MAIN SIGNALS	Description	
SPEED METER	X	Displays the value of vehicle speed signal.	A
SPEED OUTPUT [mph or km/h]	X	Vehicle speed signal value transmitted to other units via CAN communication.	B
ODO OUTPUT [mph or km/h]		Odometer signal value transmitted to other units via CAN communication.	C
TACHO METER [rpm]	X	Value of the engine speed signal received from ECM via CAN communication.	D
FUEL METER [L]	X	Fuel level indicated on combination meter.	E
W TEMP METER [°F] or [°C]	X	Displays the value of engine coolant temperature signal, which is input from ECM.	F
ABS W/L [On/Off]		Displays [On/Off] condition of ABS warning indicator.	G
VDC/TCS IND [On/Off]		Displays [On/Off] condition of VDC OFF indicator lamp.	H
SLIP IND [On/Off]		Displays [On/Off] condition of SLIP indicator lamp.	I
BRAKE W/L [On/Off]		Displays [On/Off] condition of brake warning indicator.	J
DOOR W/L [On/Off]		Displays [On/Off] condition of door or liftgate warning message in the information display.	K
HI-BEAM IND [On/Off]		Displays [On/Off] condition of high beam indicator.	L
TURN IND [On/Off]		Displays [On/Off] condition of turn indicator.	M
LIGHT IND [On/Off]		Displays [On/Off] condition of light indicator.	
FR FOG IND [On/Off]		Displays [On/Off] condition of front fog lamp indicator.	
OIL W/L [On/Off]		Displays [On/Off] condition of low oil pressure warning message in the information display.	
O/D OFF IND [On/Off]		Displays [On/Off] condition of O/D OFF indicator.	
DDS W/L [On/Off]		Displays [On/Off] condition of hill descent control warning indicator.	
MIL [On/Off]		Displays [On/Off] condition of malfunction indicator.	
SPORT IND [On/Off]		Displays [On/Off] condition of SPORT indicator.	
CHAGE W/L [On/Off]		Displays [On/Off] condition of charge warning indicator.	
4WD LOCK IND [On/Off]		Displays [On/Off] condition of AWD LOCK indicator lamp.	
4WD W/L [On/Off]		Displays [On/Off] condition of AWD warning message in the information display.	
FUEL W/L [On/Off]		Displays [On/Off] condition of low-fuel warning message.	
WASHER W/L [On/Off]		Displays [On/Off] condition of low washer fluid warning message.	

A

B

C

D

E

F

G

H

I

J

K

L

M

WCS

O

P

DIAGNOSIS SYSTEM (COMBINATION METER)

< SYSTEM DESCRIPTION >

Display item [Unit]	MAIN SIGNALS	Description
AIR PRES W/L [On/Off]		Displays [On/Off] condition of tire pressure warning lamp.
KEY G/Y W/L [On/Off]		Displays [On/Off] condition of key green warning lamp.
EPS W/L [On/Off]		Displays [On/Off] condition of EPS warning indicator.
LCD		Displays the value of Intelligent Key system message indication.
SHIFT IND [P, R, N, D, L]		Displays shift selector position.
FUEL CAP W/L [On/Off]		Displays [On/Off] condition of loose fuel cap warning message.
O/D OFF SW [On/Off]		Displays [On/Off] condition of O/D Off switch.
PKB SW [On/Off]		Displays [On/Off] condition of parking brake switch.
BUCKLE SW [On/Off]		Displays [On/Off] condition of seat belt buckle switch LH.
PASS BUCKLE SW [On/Off]		Displays [On/Off] condition of seat belt buckle switch RH.
BRAKE OIL SW [On/Off]		Displays [On/Off] condition of brake fluid level switch.
DISTANCE [Mi] or [km]		Displays distance to empty.
OUTSIDE TEMP [°F or °C]		Displays the ambient air temperature which is input from the ambient sensor.
FUEL LOW SIG [On/Off]		Displays [On/Off] condition of low-fuel warning signal.
STRG SW INPUT [SW 1-SW 10, NOT INPUT]		Displays [SW 1-SW 10, NOT INPUT] condition of steering switches.
BUZZER [On/Off]	X	Buzzer status (in the combination meter) is detected from the buzzer output signal received from each unit via CAN communication and the warning output condition of the combination meter.
BSW IND [On/Off]		Displays [On/Off] condition of blind spot warning indicator.
BSW W/L [On/Off]		Displays [On/Off] condition of blind spot warning message in the information display.

SPECIAL FUNCTION

Special menu

Display item	Description
W/L ON HISTORY	Lighting history of warning lamp and indicator lamp can be checked.

W/L ON HISTORY

- “W/L ON HISTORY” indicates the “TIME” when the warning/ indicator lamp is turned on.
- The “TIME” above is:
 - 0: The condition that the warning/indicator lamp has been turned on 1 or more times after starting the engine and waiting for 30 seconds.
 - 1 - 39: The number of times the engine was restarted after the 0 condition.
 - NO W/L ON HISTORY: No warning/indicator lamp history is stored.

NOTE:

- W/L ON HISTORY is not stored for approximately 30 seconds after the engine starts.
- Brake warning lamp does not store any history when the parking brake is applied or the brake fluid level gets low.

DIAGNOSIS SYSTEM (BCM) (WITH INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (BCM) (WITH INTELLIGENT KEY SYSTEM) COMMON ITEM

COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)

INFOID:0000000010339918

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with BCM.

Direct Diagnostic Mode	Description
Ecu Identification	The BCM part number is displayed.
Self Diagnostic Result	The BCM self diagnostic results are displayed.
Data Monitor	The BCM input/output data is displayed in real time.
Active Test	The BCM activates outputs to test components.
Work support	The settings for BCM functions can be changed.
Configuration	- The vehicle specification can be read and saved. - The vehicle specification can be written when replacing BCM.
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.

SYSTEM APPLICATION

BCM can perform the following functions.

System	Sub System	Direct Diagnostic Mode						
		Ecu Identification	Self Diagnostic Result	Data Monitor	Active Test	Work support	Configuration	CAN Diag Support Mntr
Door lock	DOOR LOCK		×	×	×	×		
Rear window defogger	REAR DEFOGGER			×	×	×		
Warning chime	BUZZER			×	×			
Interior room lamp timer	INT LAMP			×	×	×		
Exterior lamp	HEADLAMP			×	×	×		
Wiper and washer	WIPER			×	×	×		
Turn signal and hazard warning lamps	FLASHER			×	×			
Intelligent Key system	INTELLIGENT KEY		×	×	×	×		
Combination switch	COMB SW			×				
BCM	BCM	×	×			×	×	×
Immobilizer	IMMU		×	×	×			
Interior room lamp battery saver	BATTERY SAVER			×	×			
Back door open	TRUNK			×				
Vehicle security system	THEFT ALM			×	×	×		
RAP system	RETAINED PWR			×				
Signal buffer system	SIGNAL BUFFER			×				
TPMS	AIR PRESSURE MONITOR		×	×	×	×		

BUZZER

DIAGNOSIS SYSTEM (BCM) (WITH INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

BUZZER : CONSULT Function (BCM - BUZZER)

INFOID:0000000010339919

DATA MONITOR

Monitor Item [Unit]	Description
PUSH -SW [On/Off]	Indicates condition of push-button ignition switch.
VEH SPEED 1 [km/h]	Indicates vehicle speed signal received from ABS on CAN communication line.
TAIL LAMP SW [On/Off]	Indicates condition of combination switch.
FR FOG SW [On/Off]	Indicates condition of front fog lamp switch.
DOOR SW-DR [On/Off]	Indicates condition of front door switch LH.
CDL LOCK SW [On/Off]	Indicates condition of lock signal from door lock and unlock switch.

ACTIVE TEST

Test Item	Description
SEAT BELT WARN TEST	This test is able to check seat belt warning chime operation [On/Off].
LIGHT WARN ALM	This test is able to check light warning chime operation [On/Off].
REVERSE WARNING	This test is able to check reverse warning chime operation [On/Off].
ID REGIST WARNING	This test is able to check TPMS sensor ID regist warning chime operation [On/Off].

DIAGNOSIS SYSTEM (BCM) (WITHOUT INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (BCM) (WITHOUT INTELLIGENT KEY SYSTEM) COMMON ITEM

COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)

INFOID:0000000010339923

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with BCM.

Direct Diagnostic Mode	Description
Ecu Identification	The BCM part number is displayed.
Self Diagnostic Result	The BCM self diagnostic results are displayed.
Data Monitor	The BCM input/output data is displayed in real time.
Active Test	The BCM activates outputs to test components.
Work support	The settings for BCM functions can be changed.
Configuration	- The vehicle specification can be read and saved. - The vehicle specification can be written when replacing BCM.
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.

SYSTEM APPLICATION

BCM can perform the following functions.

System	Sub System	Direct Diagnostic Mode						
		Ecu Identification	Self Diagnostic Result	Data Monitor	Active Test	Work support	Configuration	CAN Diag Support Mntr
Door lock	DOOR LOCK			x	x	x		
Rear window defogger	REAR DEFOGGER			x	x	x		
Warning chime	BUZZER			x	x			
Interior room lamp timer	INT LAMP			x	x	x		
Remote keyless entry system	MULTI REMOTE ENT					x		
Exterior lamp	HEADLAMP			x	x			
Wiper and washer	WIPER			x	x	x		
Turn signal and hazard warning lamps	FLASHER			x	x			
Combination switch	COMB SW			x				
BCM	BCM	x	x			x	x	x
Immobilizer	IMMU		x		x			
Interior room lamp battery saver	BATTERY SAVER			x	x			
Back door open	TRUNK			x				
Vehicle security system	THEFT ALM			x	x	x		
RAP system	RETAINED PWR			x				
TPMS	AIR PRESSURE MONITOR		x	x	x	x		

BUZZER

BUZZER : CONSULT Function (BCM - BUZZER)

INFOID:0000000010339924

DATA MONITOR

DIAGNOSIS SYSTEM (BCM) (WITHOUT INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

Monitor Item [Unit]	Description
TAIL LAMP SW [On/Off]	Indicates condition of combination switch.
DOOR SW-DR [On/Off]	Indicates condition of front door switch LH.
CDL LOCK SW [On/Off]	Indicates condition of lock signal from door lock and unlock switch.

ACTIVE TEST

Test Item	Description
SEAT BELT WARN TEST	This test is able to check seat belt warning chime operation [On/Off].
LIGHT WARN ALM	This test is able to check light warning chime operation [On/Off].
REVERSE WARNING	This test is able to check reverse warning chime operation [On/Off].
ID REGIST WARNING	This test is able to check TPMS sensor ID regist warning chime operation [On/Off].

COMBINATION METER

< ECU DIAGNOSIS INFORMATION >

ECU DIAGNOSIS INFORMATION

COMBINATION METER

Reference Value

INFOID:0000000010339926

VALUES ON THE DIAGNOSIS TOOL

Monitor Item	Condition		Value/Status
SPEED METER [mph or km/h]	Ignition switch ON	While driving	Input value of vehicle speed signal (CAN communication signal)
SPEED OUTPUT [mph or km/h]	Ignition switch ON	While driving	Output value of vehicle speed signal (CAN communication signal)
ODO OUTPUT [mph or km/h]	Ignition switch ON	—	Output value of odometer signal (CAN communication signal)
TACHO METER [rpm]	Ignition switch ON	Engine running	Input value of engine speed signal (CAN communication signal)
FUEL METER [L]	Ignition switch ON	—	Input value of fuel level sensor signal
W TEMP METER [°F] or [°C]	Ignition switch ON	—	Input value of engine coolant temperature signal (CAN communication signal)
ABS W/L	Ignition switch ON	ABS warning lamp ON	On
		ABS warning lamp OFF	Off
VDC/TCS IND	Ignition switch ON	VDC OFF indicator lamp ON	On
		VDC OFF indicator lamp OFF	Off
SLIP IND	Ignition switch ON	VDC warning lamp ON	On
		VDC warning lamp OFF	Off
BRAKE W/L	Ignition switch ON	Brake warning lamp ON	On*1
		Brake warning lamp OFF	Off
DOOR W/L	Ignition switch ON	Door or lift gate open warning displayed	On
		Other than the above	Off
HI-BEAM IND	Ignition switch ON	High beam indicator lamp ON	On
		High beam indicator lamp OFF	Off
TURN IND	Ignition switch ON	Turn signal indicator lamp ON	On
		Turn signal indicator lamp OFF	Off
FR FOG IND	Ignition switch ON	Front fog lamp indicator lamp ON	On
		Front fog lamp indicator lamp OFF	Off
LIGHT IND	Ignition switch ON	Position lamp indicator lamp ON	On
		Position lamp indicator lamp OFF	Off
OIL W/L	Ignition switch ON	Engine oil pressure warning displayed	On
		Other than the above	Off
O/D OFF IND	Ignition switch ON	O/D OFF indicator lamp ON	On
		Other than the above	Off
DDS W/L	Ignition switch ON	Hill descent warning indicator ON	On
		Other than the above	Off
MIL	Ignition switch ON	Malfunction indicator lamp ON	On
		Malfunction indicator lamp OFF	Off

COMBINATION METER

< ECU DIAGNOSIS INFORMATION >

Monitor Item	Condition		Value/Status
4WD W/L	Ignition switch ON	AWD warning displayed	On
		Other than the above	Off
4WD LOCK IND	Ignition switch ON	AWD LOCK indicator lamp ON	On
		Other than the above	Off
FUEL W/L	Ignition switch ON	Low fuel warning displayed	On
		Low fuel warning lamp OFF	Off
WASHER W/L	Ignition switch ON	Low washer fluid warning displayed	On
		Other than the above	Off
AIR PRES W/L	Ignition switch ON	Low tire pressure warning lamp ON	On
		Low tire pressure warning lamp OFF	Off
KEY G/Y W/L	Ignition switch ON	Intelligent Key system warning indication	On
		Other than the above	Off
EPS W/L	Ignition switch ON	Power steering warning lamp ON	On
		Power steering warning lamp OFF	Off
SPORT IND	Ignition switch ON	Sport mode indicator ON	On
		Sport mode indicator OFF	Off
CHAGE W/L	Ignition switch ON	Charge warning lamp ON	On
		Charge warning lamp OFF	Off
SHIFT IND	Ignition switch ON	Shift position indicator displayed	[P, R, N, D, L]
FUEL CAP W/L	Ignition switch ON	Fuel filler cap warning displayed	On
		Other than the above	Off
O/D OFF SW	Ignition switch ON	O/D off switch ON	On
		O/D off switch OFF	Off
PKB SW	Ignition switch ON	Parking brake switch ON	On
		Parking brake switch OFF	Off
BUCKLE SW	Ignition switch ON	Driver seat belt not fastened	On
		Driver seat belt fastened	Off
PASS BUCKLE SW	Ignition switch ON	Passenger seat belt not fastened	On
		Passenger seat belt fastened	Off
BRAKE OIL SW	Ignition switch ON	Brake fluid level switch ON	On
		Brake fluid level switch OFF	Off
DISTANCE [mi] or [km]	Ignition switch ON	—	Distance to empty
OUTSIDE TEMP [°F] or [°C]	Ignition switch ON	—	Displays the ambient air temperature which is input from the ambient sensor
FUEL LOW SIG	—	Low fuel level warning	On
		Except during low fuel level warning	Off
BUZZER	Ignition switch ON	Buzzer ON	On
		Buzzer OFF	Off
LCD	Ignition switch ON	Engine start information	B&P

COMBINATION METER

< ECU DIAGNOSIS INFORMATION >

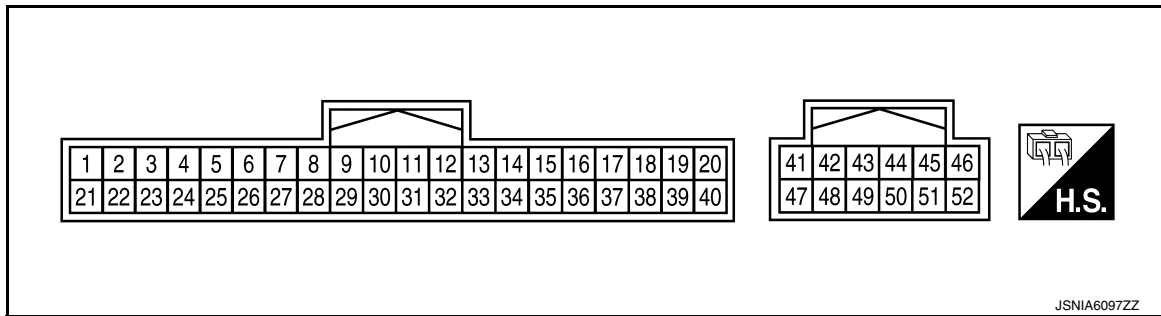
Monitor Item	Condition		Value/Status
STRG SW INPUT	Ignition switch ON	BACK switch is pressed	SW1
		MENU UP switch is pressed	SW2
		MENU DOWN switch is pressed	SW3
		Voice recognition switch is pressed	SW4
		MENU OK switch is pressed	SW5
		VOL DOWN switch is pressed	SW6
		VOL UP switch is pressed	SW7
		TEL switch is pressed	SW8
		Display back switch is pressed	SW9
		Display next switch is pressed	SW10
		Other than above	NO INPUT
BSW IND	Ignition switch ON	Blind spot warning lamp ON	On
		Blind spot warning lamp OFF	Off
BSW W/L	Ignition switch ON	Blind spot warning displayed	On
		Other than above	Off

*: DDS (hill descent control)

NOTE:

Some items are not available according to vehicle specification.

TERMINAL LAYOUT

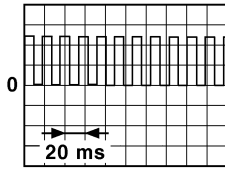


PHYSICAL VALUES

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	—	Signal name	Input/ Output			
1 (B)	Ground	Ground	—	—	—	0 V
7 (BG)	Ground	Security signal	Input	Ignition switch OFF	Security indicator ON	0 V
					Security indicator OFF	Battery voltage
10 (P)	Ground	O/D off switch	—	—	—	—
15 (L)	Ground	Ambient sensor signal	Input	Ignition switch ON	—	(V) 0 1 2 3 4 -10 0 10 20 30 40 [°C] (14) (32) (50) (68) (86) (104) [°F] JSNIA0014GB

COMBINATION METER

< ECU DIAGNOSIS INFORMATION >

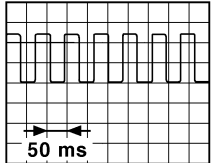
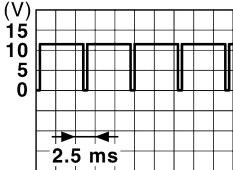
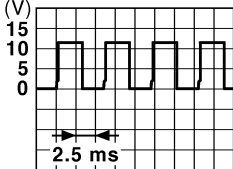
Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	—	Signal name	Input/ Output			
17 (BG)	Ground	Meter control switch ground	—	—	—	0 V
18 (SB)	Ground	Trip/reset signal	Input	Ignition switch OFF or ON	Trip/Reset switch is pressed	0 V
					Other than the above	5.0 V
20 (Y)	Ground	Ambient sensor ground	—	—	—	0 V
21 (L)	Ground	Steering switch ground	—	—	—	0 V
22 (Y)	Ground	Steering switch output 1	—	—	—	—
23 (GR)	Ground	Steering switch output 2	—	—	—	—
24 (V)	Ground	Washer fluid level switch signal	Input	Ignition switch ON	Washer fluid level switch ON	0 V
					Washer fluid level switch OFF	Battery voltage
25 (V)	Ground	Brake fluid level switch signal	Input	Ignition switch ON	Brake fluid level low	0 V
					Brake fluid level normal	Battery voltage
26 (G)	Ground	Parking brake switch signal	Input	Ignition switch ON	Parking brake applied	0 V
					Parking brake released	Battery voltage
28 (Y)	Ground	Seat belt buckle switch signal LH	Input	Ignition switch ON	When driver seat belt is fastened.	Battery voltage
					When driver seat belt is unfastened.	0 V
29 (R)	Ground	Sport mode switch signal	—	—	—	—
36 (GR)	Ground	Illumination control switch signal (+)	Input	Ignition switch OFF or ON	When illumination control switch (+) is pressed	0 V
					Other than the above	5.0 V
37 (V)	Ground	Illumination control switch signal (-)	Input	Ignition switch OFF or ON	When illumination control switch (-) is pressed	0 V
					Other than the above	5.0 V
38 (G)	Ground	Vehicle speed signal (8-pulse)	Output	Ignition switch ON	Speedometer operated [When vehicle speed is approx. 25 MPH (40 km/h)]	NOTE: The maximum voltage varies depending on the specification (destination unit). 

JSNIA0012GB

JSNIA0012GB

COMBINATION METER

< ECU DIAGNOSIS INFORMATION >

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	-	Signal name	Input/ Output			
39 (W)	Ground	Vehicle speed signal (2-pulse)	Output	Ignition switch ON	Speedometer operated [When vehicle speed is approx. 25 MPH (40 km/h)]	NOTE: The maximum voltage varies de- pending on the specification (destination unit).  JSNIA0015GB
41 (L)	Ground	CAN-H	—	—	—	—
42 (P)	Ground	CAN-L	—	—	—	—
43 (W)	Ground	Illumination control sig- nal	Output	Ignition switch ON	- Lighting switch 1st position - When meter illumination is minimum  JSNIA5983GB	
					- Lighting switch 1st position - When meter illumination is step 11  JPNIA1686GB	
					- Lighting switch 1st position - When meter illumination is maximum	0 V
44 (LA/B)	Ground	Fuel level sensor ground	—	Ignition switch ON	—	0 V
45 (LA/G)	Ground	Battery power supply	—	—	—	Battery voltage
46 (LA/ BR)	Ground	Ignition signal	—	Ignition switch ON or START	—	Battery voltage
47 (SB)	Ground	M CAN-H	—	—	—	—
48 (LG)	Ground	M CAN-L	—	—	—	—
51 (LA/L)	Ground	Fuel level sensor signal	—	Ignition switch ON	Fuel gauge indication position	Battery voltage
52 (B)	Ground	Ground	—	—	—	0 V

COMBINATION METER

< ECU DIAGNOSIS INFORMATION >

Fail-safe

INFOID:0000000010339927

The combination meter activates the fail-safe control if the CAN communication lines between each unit are malfunctioning.

Function		Specifications
Speedometer		Reset to zero by suspending communication.
Tachometer		
Engine coolant temperature gauge		
Meter illumination control		When suspending communication, changes to nighttime mode.
Buzzer		Turned off by suspending communication.
Information display	Current fuel consumption	- When reception time of an abnormal signal is 2 seconds or less, the last received datum is used for calculation to indicate the result. - When reception time of an abnormal signal is more than 2 seconds, the last result calculated during normal condition is indicated.
	Average fuel consumption	
	Average vehicle speed	
	Range (Distance to empty)	
	Driving distance	An indicated value is maintained at communications blackout.
	Door open warning	The display turns OFF by suspending communication.
	Lift gate open warning	
	Low tire pressure warning	
	Parking brake release warning	
	Fuel filler cap warning	
	Oil pressure warning	
	CVT warning	
	BSW/LDW warning	
	Odo/trip meter	An indicated value is maintained at communications blackout.
	Shift position indicator	The indicator turns OFF by suspending communication.
Warning lamp/indicator lamp	ABS warning lamp	Turned on by suspending communication.
	Brake warning lamp	
	EPS warning lamp	
	VDC warning lamp	
	AWD warning lamp	
	Malfunction indicator lamp	
	VDC OFF indicator lamp	Turned off by suspending communication.
	SPORT mode indicator lamp	
	AWD LOCK indicator lamp	
	High beam indicator lamp	
	Turn signal indicator lamp	
	Position lamp indicator lamp	
	OD OFF indicator lamp	
	BSW indicator lamp	
	LDW indicator lamp	
	Low tire pressure warning lamp	After blinking for 1 minute, the lamp remains ON.

COMBINATION METER

< ECU DIAGNOSIS INFORMATION >

DTC Index

INFOID:0000000010339928

Display contents of CONSULT	Diagnostic item is detected when...	Refer to
CAN COMM CIRCUIT [U1000]	Combination meter is not transmitting or receiving CAN communication signal for 2 seconds or more.	MWI-54
CONTROL UNIT (CAN) [U1010]	Detecting error during the initial diagnosis of CAN controller of combination meter.	MWI-55
VEHICLE SPEED [B2205]	The abnormal vehicle speed signal is input from ABS actuator and electric unit (control unit) for 2 seconds or more.	MWI-56
ENGINE SPEED [B2267]	ECM continuously transmits abnormal engine speed signals for 2 seconds or more.	MWI-57
WATER TEMP [B2268]	ECM continuously transmits abnormal engine coolant temperature signals for 60 seconds or more.	MWI-58

A

B

C

D

E

F

G

H

I

J

K

L

M

WCS

O

P

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

BCM (BODY CONTROL MODULE)

List of ECU Reference

INFOID:0000000010338540

ECU	Reference
BCM (with Intelligent Key system)	BCS-28, "Reference Value"
	BCS-47, "Fail Safe"
	BCS-47, "DTC Inspection Priority Chart"
	BCS-48, "DTC Index"
BCM (without Intelligent Key system)	BCS-96, "Reference Value"
	BCS-107, "Fail Safe"
	BCS-107, "DTC Inspection Priority Chart"
	BCS-108, "DTC Index"

WARNING CHIME SYSTEM

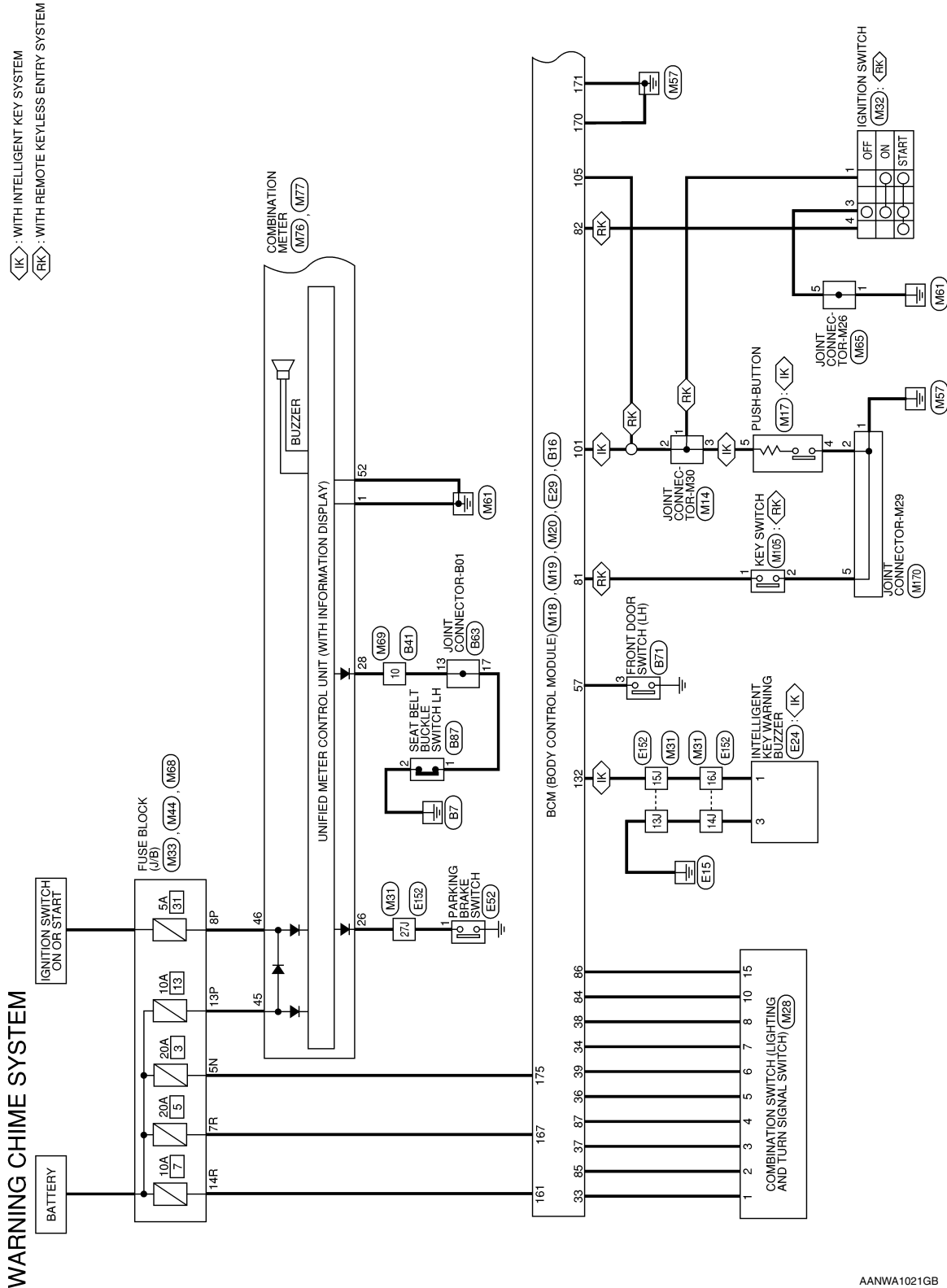
< WIRING DIAGRAM >

WIRING DIAGRAM

WARNING CHIME SYSTEM

Wiring Diagram

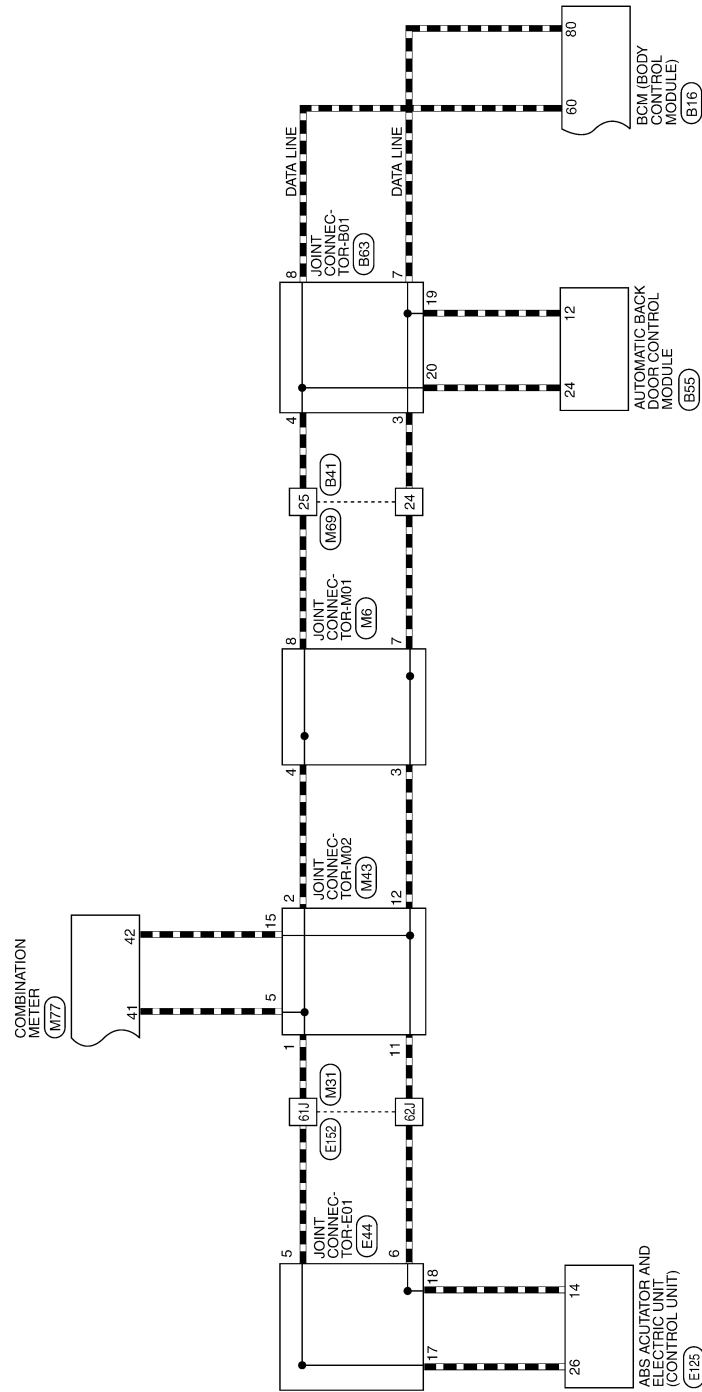
INFOID:000000010338541



AANWA1021GB

WARNING CHIME SYSTEM

< WIRING DIAGRAM >



AANWA1022GB

WARNING CHIME SYSTEM

< WIRING DIAGRAM >

WARNING CHIME SYSTEM CONNECTORS

Connector No.	M6
Connector Name	JOINT CONNECTOR-M01
Connector Color	GRAY



4	3	2	1
8	7	6	5
12	11	10	9
16	15	14	13
20	19	18	17
24	23	22	21

Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

Connector No.	M14
Connector Name	JOINT CONNECTOR-M30
Connector Color	WHITE



4	3	2	1
---	---	---	---

Terminal No.	Color of Wire	Signal Name
1	Y	-
2	Y	-
3	Y	-

Connector No.	M17
Connector Name	PUSH-BUTTON IGNITION SWITCH
Connector Color	WHITE



4	3	2	1
8	7	6	5

Terminal No.	Color of Wire	Signal Name
4	B	-
5	Y	-

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY



20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21

Terminal No.	Color of Wire	Signal Name
33	LG	I CSW 5
34	Y	O CSW 5
36	G	I CSW 3
37	GR	I CSW 4
38	V	I CSW 1
39	W	I CSW 2

Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



100	99	98	97	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81
120	119	118	117	116	115	114	113	112	111	110	109	108	107	106	105	104	103	102	101

Terminal No.	Color of Wire	Signal Name
81	L	I KEY SW
82	LA/R	I STARTER SW (WITHOUT I-KEY)
84	BR	O CSW 2
85	SB	O CSW 1
86	P	O CSW 3
87	BG	O CSW 4
101	Y	I START SW
105	Y	I IGN SW (WITHOUT I-KEY)

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BROWN



167	166	165	164	163	162	161
176	175	174	173	172	171	170
169	168					

Terminal No.	Color of Wire	Signal Name
161	W	I PWR ECU
167	LAV	I PWR DOORLOCK1
170	B	I GND1
171	B	I GND2
175	R	I PWR DOORLOCK2

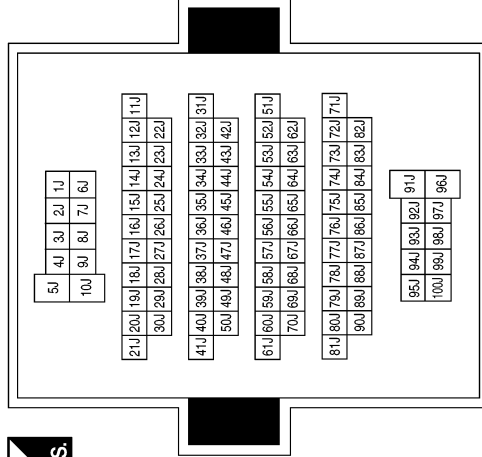
AANIA2459GB

WARNING CHIME SYSTEM

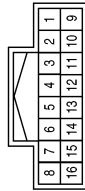
< WIRING DIAGRAM >

Terminal No.	Color of Wire	Signal Name
13J	B	—
14J	B	—
15J	G	—
16J	G	—
27J	G	—
61J	L	—
62J	P	—

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE

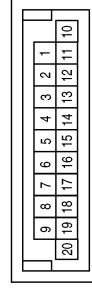


Connector No.	M28
Connector Name	COMBINATION SWITCH
Connector Color	WHITE

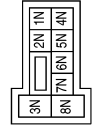


Terminal No.	Color of Wire	Signal Name
1	LG	—
2	SB	—
3	GR	—
4	BG	—
5	G	—
6	W	—
7	Y	—
8	V	—
10	BR	—
15	P	—

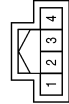
Connector No.	M43
Connector Name	JOINT CONNECTOR-M02
Connector Color	BLUE



Connector No.	M33
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Connector No.	M32
Connector Name	IGNITION SWITCH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	L	—
2	L	—
5	L	—
11	P	—
12	P	—
15	P	—

Terminal No.	Color of Wire	Signal Name
5N	R	—

Terminal No.	Color of Wire	Signal Name
1	Y	—
3	B	—
4	LA/R	—

AANIA2460GB

WARNING CHIME SYSTEM

< WIRING DIAGRAM >

Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN

7R	6R	5R	4R	3R	2R	1R		
16R	15R	14R	13R	12R	11R	10R	9R	8R



Terminal No.	Color of Wire	Signal Name
7R	LA/V	-
14R	W	-

Connector No.	M65
Connector Name	JOINT CONNECTOR-M26
Connector Color	WHITE

8	7	6	5	4	3	2	1
---	---	---	---	---	---	---	---



Terminal No.	Color of Wire	Signal Name
1	B	-
5	B	-

Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE

7P	6P	5P	4P	3P	2P	1P		
16P	15P	14P	13P	12P	11P	10P	9P	8P



Terminal No.	Color of Wire	Signal Name
8P	LA/BR	-
13P	LA/G	-

Connector No.	M77
Connector Name	COMBINATION METER
Connector Color	WHITE

41	42	43	44	45	46
47	48	49	50	51	52



Terminal No.	Color of Wire	Signal Name
41	L	CAN-H
42	P	CAN-L
45	LA/G	BAT
46	LA/BR	IGN
52	B	GND2

Connector No.	M76
Connector Name	COMBINATION METER
Connector Color	WHITE

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40



Terminal No.	Color of Wire	Signal Name
1	B	GND1
26	G	PBK SW
28	Y	DR BELT SW

Connector No.	M69
Connector Name	WIRE TO WIRE
Connector Color	WHITE

16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17



Terminal No.	Color of Wire	Signal Name
10	Y	-
24	P	-
25	L	-

AANIA2461GB

WARNING CHIME SYSTEM

< WIRING DIAGRAM >

Connector No.	M105
Connector Name	KEY SWITCH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	L	-
2	B	-

Connector No.	M170
Connector Name	JOINT CONNECTOR-M29
Connector Color	WHITE



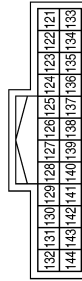
Terminal No.	Color of Wire	Signal Name
1	B	-
2	B	-
5	B	-

Connector No.	E24
Connector Name	INTELLIGENT KEY WARNING BUZZER
Connector Color	BROWN



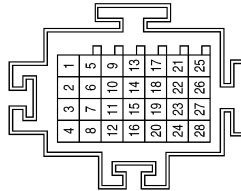
Terminal No.	Color of Wire	Signal Name
1	G	-
3	B	-

Connector No.	E29
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
132	Y	O BUZZER

Connector No.	E44
Connector Name	JOINT CONNECTOR-E01
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
5	L	-
6	P	-
17	L	-
18	P	-

Connector No.	E52
Connector Name	PARKING BRAKE SWITCH
Connector Color	BLACK



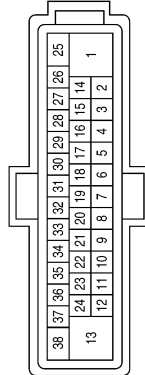
Terminal No.	Color of Wire	Signal Name
1	G	-

AANIA2462GB

WARNING CHIME SYSTEM

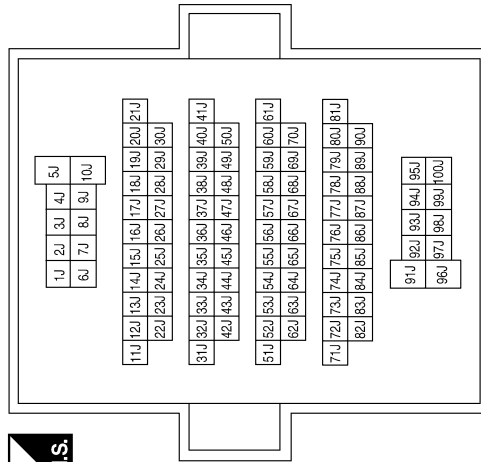
< WIRING DIAGRAM >

Connector No.	E125
Connector Name	ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
14	P	CAN-L
26	L	CAN-H

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE

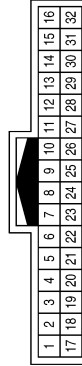


Connector No.	B16
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GREEN



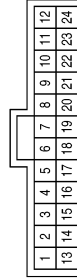
Terminal No.	Color of Wire	Signal Name
57	SB	I DR DOOR2 SW
60	L	CAN-H
80	P	CAN-L

Connector No.	B41
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
10	LAY	-
24	P	-
25	L	-

Connector No.	B55
Connector Name	AUTOMATIC BACK DOOR CONTROL MODULE
Connector Color	BLACK



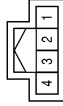
Terminal No.	Color of Wire	Signal Name
12	P	CAN-L
24	L	CAN-H

AANIA2463GB

WARNING CHIME SYSTEM

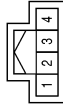
< WIRING DIAGRAM >

Connector No.	B87
Connector Name	SEAT BELT BUCKLE SWITCH LH
Connector Color	WHITE



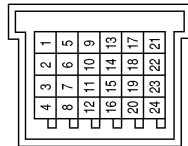
Terminal No.	Color of Wire	Signal Name
1	LA/Y	-
2	B	-

Connector No.	B71
Connector Name	FRONT DOOR SWITCH LH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
3	SB	-

Connector No.	B63
Connector Name	JOINT CONNECTOR-B01
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-
13	LA/Y	-
17	LA/Y	-
19	P	-
20	L	-

AANIA2464GB

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

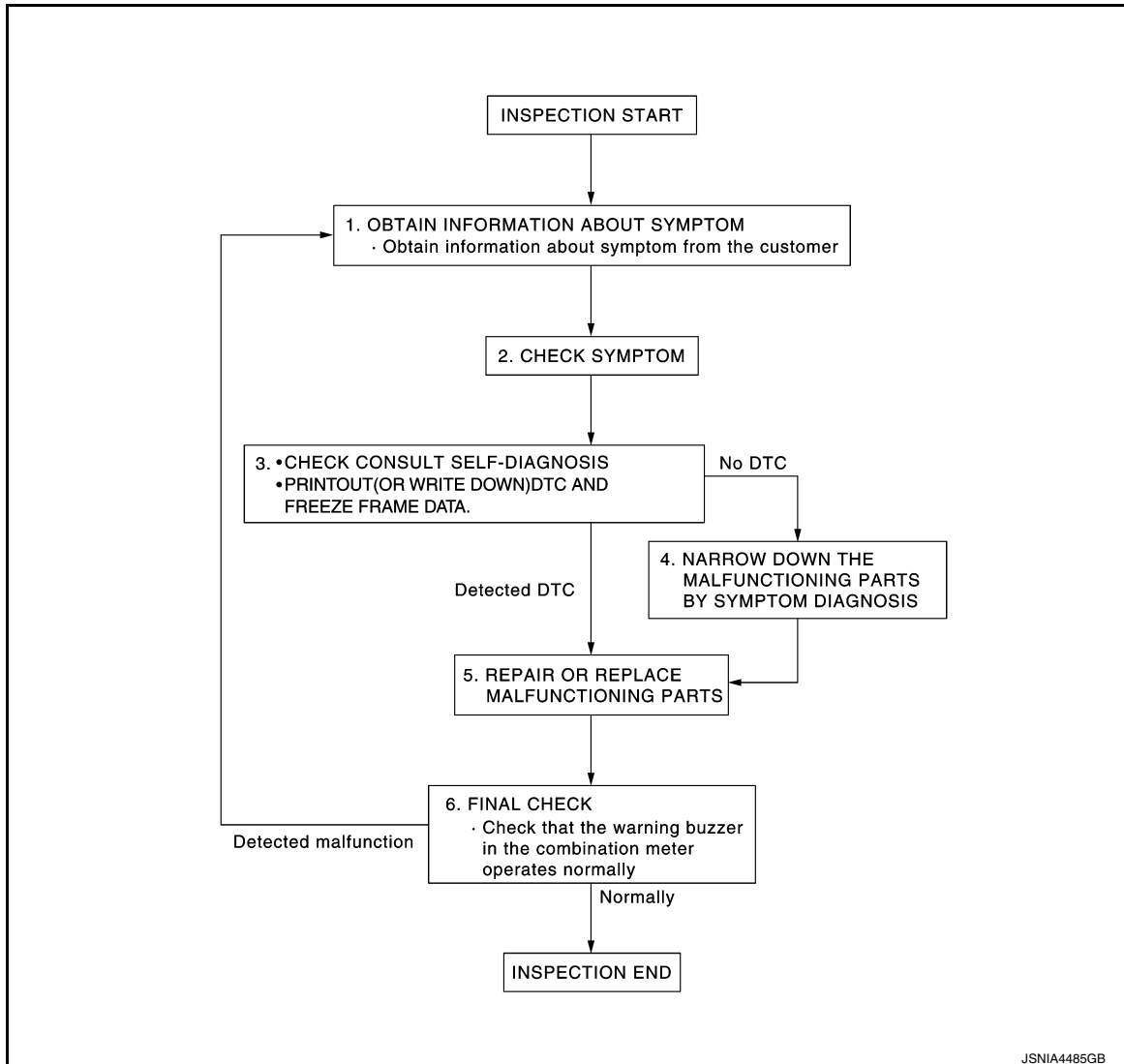
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

INFOID:0000000010338542

OVERALL SEQUENCE



DETAILED FLOW

1.OBTAIN INFORMATION ABOUT SYMPTOM

Interview the customer to obtain as much information as possible about the conditions and environment under which the malfunction occurred.

>> GO TO 2.

2.CHECK SYMPTOM

- Check the symptom based on the information obtained from the customer.
- Check if any other malfunctions are present.

>> GO TO 3.

3.CHECK CONSULT SELF-DIAGNOSIS RESULTS

1. Connect CONSULT and perform "self-diagnosis". Refer to [WCS-27, "DTC Index"](#).

A
B
C
D
E
F
G
H
I
J
K
L
M

WCS

O
P

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

2. When DTC is detected, follow the instructions below:

- Record DTC and Freeze Frame Data.

Are self-diagnosis results normal?

YES >> GO TO 4.

NO >> GO TO 5.

4. NARROW DOWN MALFUNCTIONING PARTS BY SYMPTOM DIAGNOSIS

Perform symptom diagnosis and narrow down the malfunctioning parts.

>> GO TO 5.

5. REPAIR OR REPLACE MALFUNCTIONING PARTS

Repair or replace malfunctioning parts.

NOTE:

If DTC is displayed, erase DTC after repairing or replacing malfunctioning parts.

>> GO TO 6.

6. FINAL CHECK

Check that the warning buzzer in the combination meter operates normally.

Does it operate normally?

YES >> Inspection End.

NO >> GO TO 1.

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

DTC/CIRCUIT DIAGNOSIS

POWER SUPPLY AND GROUND CIRCUIT COMBINATION METER

COMBINATION METER : Diagnosis Procedure

INFOID:0000000010339917

Regarding Wiring Diagram information, refer to [MWI-32, "Wiring Diagram"](#).

1.CHECK FUSES

Check that the following fuses are not blown.

Unit	Power source	Fuse No.
Combination meter	Battery	13
	Ignition switch ON or START	31

Is the fuse blown?

YES >> Replace the blown fuse after repairing the affected circuit.

NO >> GO TO 2.

2.POWER SUPPLY CIRCUIT CHECK

1. Disconnect combination meter connector.
2. Check voltage between combination meter harness connector M77 terminals 45, 46 and ground.

Terminals			Ignition switch position		
(+) (–)		(–)	OFF	ON	START
Connector	Terminal				
M77	45	Ground	Battery voltage	Battery voltage	Battery voltage
	46		0V	Battery voltage	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connector.

3.GROUND CIRCUIT CHECK

1. Turn ignition switch OFF.
2. Check continuity between combination meter harness connector and ground.

Terminals			Continuity
(+)		(-)	
Connector	Terminal		
M76	1	Ground	Yes
M77	52		

Is the inspection result normal?

YES >> Inspection End.

NO >> Repair or replace harness or connector.

BCM (BODY CONTROL SYSTEM) (WITH INTELLIGENT KEY SYSTEM)

BCM (BODY CONTROL SYSTEM) (WITH INTELLIGENT KEY SYSTEM) : Diagnosis Procedure

INFOID:0000000010339920

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

Regarding Wiring Diagram information, refer to [BCS-50, "Wiring Diagram"](#).

1. CHECK FUSE

Check that the following fuse is not blown.

Terminal No.	Signal name	Fuse No.
161	BCM power supply	7 (10A)

Is the fuse blown?

YES >> Replace the blown fuse after repairing the affected circuit.

NO >> GO TO 2.

2. CHECK POWER SUPPLY CIRCUIT

1. Disconnect BCM connector M20.
2. Check voltage between BCM connector M20 and ground.

BCM		Ground	Voltage (Approx.)
Connector	Terminal		
M20	161	—	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

3. CHECK GROUND CIRCUIT

Check continuity between BCM connector M20 and ground.

BCM		Ground	Continuity
Connector	Terminal		
M20	170	—	Yes
	171		

Is the inspection result normal?

YES >> Inspection End.

NO >> Repair or replace harness or connectors.

BCM (BODY CONTROL SYSTEM) (WITHOUT INTELLIGENT KEY SYSTEM)

BCM (BODY CONTROL SYSTEM) (WITHOUT INTELLIGENT KEY SYSTEM) : Diagnosis Procedure

INFOID:0000000010339925

Regarding Wiring Diagram information, refer to [BCS-110, "Wiring Diagram"](#).

1. CHECK FUSE

Check that the following fuse is not blown.

Terminal No.	Signal name	Fuse No.
161	BCM power supply	7 (10A)

Is the fuse blown?

YES >> Replace the blown fuse after repairing the affected circuit.

NO >> GO TO 2.

2. CHECK POWER SUPPLY CIRCUIT

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

1. Disconnect BCM connector M20.
2. Check voltage between BCM connector M20 and ground.

BCM		Ground	Voltage (Approx.)
Connector	Terminal		
M20	161	—	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

3. CHECK GROUND CIRCUIT

Check continuity between BCM connector M20 and ground.

BCM		Ground	Continuity
Connector	Terminal		
M20	170	—	Yes
	171		

Is the inspection result normal?

YES >> Inspection End.

NO >> Repair or replace harness or connectors.

METER BUZZER CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

METER BUZZER CIRCUIT

Description

INFOID:0000000010339861

- The buzzer for the warning chime system is installed in the combination meter.
- The combination meter sounds the buzzer based on the signals transmitted from various units.

Component Function Check

INFOID:0000000010339862

1. CHECK OPERATION OF METER BUZZER

1. Select "BUZZER" of "BCM" on CONSULT.
2. Perform "LIGHT WARN ALM" or "SEAT BELT WARN TEST" of "ACTIVE TEST".

Does meter buzzer activate?

- YES >> Inspection End.
NO >> Refer to [WCS-42, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010339863

1. CHECK COMBINATION METER INPUT SIGNAL

Select the "Data Monitor" for the "METER/M&A" and check the "BUZZER" monitor value.

Monitor item	Condition	Status
BUZZER	Under the condition of buzzer input	On
	Except above	Off

Is the inspection result normal?

- YES >> Replace combination meter. Refer to [MWI-82, "Removal and Installation"](#).
NO >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#) (with Intelligent Key system) or [BCS-135, "Removal and Installation"](#) (without Intelligent Key system).

SEAT BELT BUCKLE SWITCH SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

SEAT BELT BUCKLE SWITCH SIGNAL CIRCUIT

Description

INFOID:0000000010339857

Transmits a seat belt buckle switch signal to the combination meter.

Component Function Check

INFOID:0000000010339858

1. CHECK COMBINATION METER INPUT SIGNAL

1. Ignition ON.
2. Monitor seat belt warning lamp while fastening and unfastening the driver seat belt buckle.

Condition	Warning lamp status
When driver seat belt buckle is unfastened	ON
When driver seat belt buckle is fastened	OFF

Is the inspection result normal?

- YES >> Inspection End.
NO >> Refer to [WCS-43, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010339859

Regarding Wiring Diagram information, refer to [WCS-29, "Wiring Diagram"](#).

1. CHECK COMBINATION METER INPUT SIGNAL

1. Turn ignition switch ON.
2. Check voltage between combination meter harness connector M76 terminal 28 and ground.

Combination meter			Condition	Voltage (Approx.)
Connector	Terminals			
	(+)	(-)		
M76	28	Ground	When seat belt LH is fastened	Battery voltage
			When seat belt LH is unfastened	0 V

Is the inspection result normal?

- YES >> Replace combination meter. Refer to [MWI-82, "Removal and Installation"](#).
NO >> GO TO 2.

2. CHECK SEAT BELT BUCKLE SWITCH LH CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect combination meter harness connector M76 and seat belt buckle switch LH harness connector B87.
3. Check continuity between combination meter harness connector M76 terminal 28 and seat belt buckle switch LH harness connector B87 terminal 1.

Combination meter		Seat belt buckle switch LH		Continuity
Connector	Terminal	Connector	Terminal	
M76	28	B87	1	Yes

4. Check continuity between combination meter harness connector M76 terminal 28 and ground.

SEAT BELT BUCKLE SWITCH SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

Combination meter		Ground	Continuity
Connector	Terminal		
M76	28		No

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connector.

3. CHECK SEAT BELT BUCKLE SWITCH LH GROUND CIRCUIT

Check continuity between seat belt buckle switch LH harness connector B87 terminal 2 and ground.

Seat belt buckle switch LH		Ground	Continuity
Connector	Terminal		
B87	2		Yes

Is the inspection result normal?

YES >> Inspection End.

NO >> Repair or replace harness or connector.

Component Inspection

INFOID:0000000010339860

1. CHECK SEAT BELT BUCKLE SWITCH

1. Turn ignition switch OFF.
2. Disconnect the seat belt buckle switch LH connector.
3. Check continuity between the seat belt buckle switch LH terminals 1 and 2.

Condition	Terminal	Continuity
When seat belt buckle LH is fastened	1– 2	No
When seat belt buckle LH is unfastened		Yes

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace the seat belt buckle switch LH. Refer to [SB-11, "FRONT SEAT BELT BUCKLE : Removal and Installation"](#).

PARKING BRAKE SWITCH SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

PARKING BRAKE SWITCH SIGNAL CIRCUIT

Component Function Check

INFOID:0000000010338552

1.CHECK PARKING BRAKE SWITCH OPERATION

Check that brake warning lamp in combination meter turns ON/OFF when parking brake is actuated.

Is the inspection result normal?

YES >> Inspection End.

NO >> Proceed to diagnosis procedure. Refer to [WCS-45, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010338553

Regarding Wiring Diagram information, refer to [WCS-29, "Wiring Diagram"](#).

1.CONNECTOR INSPECTION

1. Turn ignition switch OFF.
2. Disconnect combination meter and parking brake switch connectors.
3. Check connectors and terminals for deformation, disconnection, looseness or damage.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace as necessary.

2.CHECK PARKING BRAKE SWITCH

Check parking brake switch. Refer to [WCS-46, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace parking brake switch. Refer to [PB-7, "Exploded View"](#).

3.CHECK PARKING BRAKE SWITCH SIGNAL

☞With CONSULT.

1. Connect combination meter connector and parking brake switch connectors.
2. Turn ignition switch ON.
3. In DATA MONITOR select "PKB SW" and check parking brake switch signal.

Condition	DATA MONITOR
Actuate parking brake	On
Release parking brake	Off

Is the inspection result normal?

YES >> Refer to [WCS-37, "Work Flow"](#).

NO >> GO TO 4.

4.CHECK PARKING BRAKE SWITCH CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect combination meter and parking brake switch connectors.
3. Check continuity between combination meter connector M76 terminal 26 and parking brake switch connector E52 terminal 1.

Combination meter		Parking brake switch		Continuity
Connector	Terminal	Connector	Terminal	
M76	26	E52	1	Yes

4. Check continuity between combination meter connector and ground.

PARKING BRAKE SWITCH SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

Combination meter		—	Continuity
Connector	Terminal		
M76	26	Ground	No

Is the inspection result normal?

- YES >> Replace combination meter. Refer to [MWI-82, "Removal and Installation"](#).
NO >> Repair or replace malfunctioning components.

Component Inspection

INFOID:0000000010338554

1. CHECK PARKING BRAKE SWITCH

1. Turn ignition switch OFF.
2. Disconnect parking brake switch connector.
3. Check continuity between parking brake switch terminal 1 and ground.

Parking brake switch terminal	—	Condition	Continuity
1	Ground	Parking brake actuated	Yes
		Parking brake released	No

Is the inspection result normal?

- YES >> Inspection End.
NO >> Replace parking brake switch. Refer to [PB-7, "Exploded View"](#).

KEY SWITCH SIGNAL CIRCUIT (WITHOUT INTELLIGENT KEY)

< DTC/CIRCUIT DIAGNOSIS >

KEY SWITCH SIGNAL CIRCUIT (WITHOUT INTELLIGENT KEY)

Description

INFOID:0000000010338555

Transmits a key switch signal to the BCM.

Component Function Check

INFOID:0000000010338556

1. CHECK BCM INPUT SIGNAL

Select "Data Monitor" for "BCM" and check the "KEY ON SW" monitor value.

Monitor Item	Condition	Status
KEY ON SW	When key is removed from key cylinder	OFF
	When key is inserted into key cylinder	ON

Is the inspection result normal?

YES >> Inspection End.

NO >> Refer to [WCS-47, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010338557

Regarding Wiring Diagram information, refer to [WCS-29, "Wiring Diagram"](#).

1. CHECK BCM INPUT SIGNAL

Check voltage between BCM harness connector M19 terminal 81 and ground.

Terminals			Condition	Voltage (Approx.)
(+)		(−)		
BCM connector	Terminal			
M19	81	Ground	Key is inserted	Battery voltage
			Key is removed	0V

Is the inspection result normal?

YES >> Inspection End.

NO >> GO TO 2.

2. CHECK KEY SWITCH CIRCUIT

1. Disconnect BCM connector M19 and key switch.
2. Check continuity between BCM harness connector M19 terminal 81 and key switch harness connector M105 terminal 1.

BCM		Key switch		Continuity
Connector	Terminal	Connector	Terminal	
M19	81	M105	1	Yes

3. Check continuity between BCM harness connector M19 terminal 81 and ground.

BCM		Ground	Continuity
Connector	Terminal		
M19	81		No

Is the inspection result normal?

YES >> GO TO 3.

A
B
C
D
E
F
G
H
I
J
K
L
M
O
P

KEY SWITCH SIGNAL CIRCUIT (WITHOUT INTELLIGENT KEY)

< DTC/CIRCUIT DIAGNOSIS >

NO >> Repair or replace harness or connector.

3. CHECK KEY SWITCH POWER SUPPLY CIRCUIT

Check voltage between key switch harness connector M105 terminal 1 and ground.

Terminals			Voltage (Approx.)
(+)		(–)	
Key switch	Terminal		
M105	1	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness or connector.

4. CHECK KEY SWITCH GROUND CIRCUIT

Check continuity between key switch harness connector M105 terminal 2 and ground.

Key switch		Ground	Continuity
Connector	Terminal		
M105	2		Yes

Is the inspection result normal?

YES >> Replace key switch.

NO >> Repair or replace harness or connector.

Component Inspection

INFOID:0000000010338558

1. CHECK KEY SWITCH

1. Turn ignition switch OFF.
2. Disconnect key switch.
3. Check continuity between key switch terminals 1 and 2.

Terminal		Condition	Continuity
1	2	When key is removed from key cylinder	No
		When key is inserted into key cylinder	Yes

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace key switch.

WARNING CHIME SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

SYMPTOM DIAGNOSIS

WARNING CHIME SYSTEM SYMPTOMS

Symptom Table

INFOID:0000000010339856

CAUTION:

Perform the self-diagnosis with CONSULT before the symptom diagnosis. Perform the trouble diagnosis if any DTC is detected.

Symptom	Possible cause	Inspection item
The light reminder warning does not sound.	• Harness between BCM and front door switch LH • Front door switch LH • BCM • Combination meter	Refer to WCS-52 .
The parking brake release warning continues sounding or does not sound.	• Harness between combination meter and parking brake switch • Parking brake switch • BCM • Combination meter	Refer to WCS-50 .
The seat belt warning continues sounding or does not sound.	• Harness between combination meter and seat belt buckle switch LH • Seat belt buckle switch LH • BCM • Combination meter	Refer to WCS-51 .
Warning chime does not sound at all.	• BCM • Combination meter	Refer to WCS-42 .

WCS

THE PARKING BRAKE RELEASE WARNING CONTINUES SOUNDING, OR DOES NOT SOUND

< SYMPTOM DIAGNOSIS >

THE PARKING BRAKE RELEASE WARNING CONTINUES SOUNDING, OR DOES NOT SOUND

Description

INFOID:0000000010339848

- The parking brake warning buzzer sounds continuously during vehicle travel though the parking brake is released.
- The parking brake warning buzzer does not sound at all even though driving the vehicle with the parking brake applied.

Diagnosis Procedure

INFOID:0000000010339849

1. CHECK PARKING BRAKE WARNING LAMP

1. Start the engine.
2. Check the operation of the brake warning lamp by operating the parking brake.

Condition	Warning lamp status
Parking brake applied	ON
Parking brake released	OFF

Is the inspection result normal?

YES >> Replace the combination meter. Refer to [MWI-82, "Removal and Installation"](#).

NO >> GO TO 2.

2. CHECK PARKING BRAKE SWITCH SIGNAL CIRCUIT

Check the parking brake switch signal circuit. Refer to [WCS-45, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connector.

3. CHECK PARKING BRAKE SWITCH UNIT

Check the parking brake switch. Refer to [WCS-46, "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace the combination meter. Refer to [MWI-82, "Removal and Installation"](#).

NO >> Replace the parking brake switch. Refer to [PB-7, "Exploded View"](#).

THE SEAT BELT REMINDER WARNING CONTINUES SOUNDING, OR DOES NOT SOUND

< SYMPTOM DIAGNOSIS >

THE SEAT BELT REMINDER WARNING CONTINUES SOUNDING, OR DOES NOT SOUND

Description

INFOID:0000000010339850

- Seat belt warning does not sound even though driver seat belt is not fastened.
- Seat belt warning sounds even though driver seat belt is fastened.

Diagnosis Procedure

INFOID:0000000010339851

1.CHECK WARNING CHIME OPERATION

1. Select "BUZZER" of "BCM" on "CONSULT".
2. Perform "SEAT BELT WARN TEST" of "ACTIVE TEST".

Component	CONSULT	Condition
Buzzer	SEAT BELT WARN TEST	ON
		OFF

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace combination meter. Refer to [MWI-82, "Removal and Installation"](#).

2.CHECK COMBINATION METER INPUT SIGNAL

Check the combination meter input signal. Refer to [WCS-43, "Component Function Check"](#).

Is the inspection result normal?

YES >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#) (with Intelligent Key system) or [BCS-135, "Removal and Installation"](#) (without Intelligent Key system).

NO >> GO TO 3.

3.CHECK SEAT BELT BUCKLE SWITCH LH CIRCUIT

Check the seat belt buckle switch LH circuit. Refer to [WCS-43, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness or connector.

4.CHECK SEAT BELT BUCKLE SWITCH LH

Check the seat belt buckle switch LH. Refer to [WCS-44, "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace the combination meter. Refer to [MWI-82, "Removal and Installation"](#).

NO >> Replace the seat belt buckle switch LH. Refer to [SB-11, "FRONT SEAT BELT BUCKLE : Removal and Installation"](#).

WCS

THE LIGHT REMINDER WARNING DOES NOT SOUND

< SYMPTOM DIAGNOSIS >

THE LIGHT REMINDER WARNING DOES NOT SOUND

Description

INFOID:0000000010339854

Light reminder warning does not sound even though headlamp is illuminated.

Diagnosis Procedure

INFOID:0000000010339855

1.CHECK COMBINATION METER INPUT SIGNAL

Select the "Data Monitor" for the "METER/M&A" and check the "BUZZER" monitor value.

Monitor item	Condition	Status
BUZZER	Under the condition of buzzer input	On
	Except above	Off

Is the inspection result normal?

- YES >> Replace combination meter. Refer to [MWI-82, "Removal and Installation"](#).
NO >> GO TO 2.

2.CHECK FRONT DOOR SWITCH LH SIGNAL CIRCUIT

Check the front door switch LH signal circuit. Refer to [DLK-149, "Diagnosis Procedure"](#) (with Intelligent Key system) or [DLK-319, "Diagnosis Procedure"](#) (without Intelligent Key system).

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace harness or connector.

3.CHECK FRONT DOOR SWITCH LH

Check the front door switch LH. Refer to [DLK-150, "Component Inspection"](#) (with Intelligent Key system) or [DLK-320, "Component Inspection"](#) (without Intelligent Key system).

Is the inspection result normal?

- YES >> Replace the BCM. Refer to [BCS-75, "Removal and Installation"](#) (with Intelligent Key system) or [BCS-135, "Removal and Installation"](#) (without Intelligent Key system).
NO >> Replace the front door switch LH. Refer to [DLK-269, "Removal and Installation"](#) (with Intelligent Key system) or [DLK-385, "Removal and Installation"](#) (without Intelligent Key system).

THE KEY WARNING DOES NOT SOUND (WITHOUT INTELLIGENT KEY)

< SYMPTOM DIAGNOSIS >

THE KEY WARNING DOES NOT SOUND (WITHOUT INTELLIGENT KEY)

Description

INFOID:0000000010339864

The key warning chime does not sound, when all of the following conditions are fulfilled:

- Key inserted into the key cylinder (key switch signal ON).
- Ignition switch is in OFF position (ignition switch signal OFF).
- Driver side door is open (front door switch LH ON)

Diagnosis Procedure

INFOID:0000000010339865

1.CHECK BCM INPUT SIGNAL

1. Connect CONSULT.
2. Select the "DATA MONITOR" of "BCM (BUZZER)" and check the "KEY ON SW" monitor value.

Monitor item	Condition	Status
KEY ON SW	Under the condition of buzzer input	On
	Except above	Off

Is the inspection result normal?

YES >> Replace the BCM. Refer to [BCS-135, "Removal and Installation"](#).

NO >> GO TO 2.

2.CHECK KEY SWITCH SIGNAL CIRCUIT

Check the key switch signal circuit. Refer to [WCS-47, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connector.

3.CHECK KEY SWITCH

Check the key switch. Refer to [WCS-48, "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace the BCM. Refer to [BCS-135, "Removal and Installation"](#).

NO >> Replace key switch.

WCS

WT

SECTION

ROAD WHEELS & TIRES

CONTENTS

PRECAUTION	3	
PRECAUTIONS	3	
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	3	
Service Notice and Precautions for TPMS	3	
Service Notice and Precautions for Road Wheel	3	
PREPARATION	5	
PREPARATION	5	
Special Service Tool	5	
Commercial Service Tool	5	
SYSTEM DESCRIPTION	6	
COMPONENT PARTS	6	
Component Parts Location	6	
BCM	7	
Information Display	7	
Tire Pressure Sensor	7	
SYSTEM	8	
System Description	8	
Easy Fill Tire Alert Function	9	
DIAGNOSIS SYSTEM (BCM)	10	
WITH INTELLIGENT KEY	10	
WITH INTELLIGENT KEY : CONSULT Function (BCM - COMMON ITEM)	10	
WITH INTELLIGENT KEY : CONSULT Function (BCM-AIR PRESSURE MONITOR)	10	
WITHOUT INTELLIGENT KEY	11	
WITHOUT INTELLIGENT KEY : CONSULT Function (BCM - COMMON ITEM)	11	
WITHOUT INTELLIGENT KEY : CONSULT Function (BCM-AIR PRESSURE MONITOR)	12	
ECU DIAGNOSIS INFORMATION	14	
BCM	14	F
List of ECU Reference	14	
WIRING DIAGRAM	15	G
TIRE PRESSURE MONITORING SYSTEM	15	
Wiring Diagram	15	H
BASIC INSPECTION	20	
DIAGNOSIS AND REPAIR WORK FLOW	20	I
Work Flow	20	
ID REGISTRATION PROCEDURE	21	J
Description	21	
Work Procedure	21	
DTC/CIRCUIT DIAGNOSIS	24	K
C1704, C1705, C1706, C1707 LOW TIRE PRESSURE	24	L
DTC Logic	24	
Diagnosis Procedure	24	
C1708, C1709, C1710, C1711 TRANSMITTER (NO DATA)	26	M
DTC Logic	26	
Diagnosis Procedure	26	
C1716, C1717, C1718, C1719 TRANSMITTER (PRESSURE DATA)	29	N
DTC Logic	29	
Diagnosis Procedure	29	
C1729 VEHICLE SPEED SIGNAL	31	P
DTC Logic	31	
Diagnosis Procedure	31	
C1730, C1731, C1732, C1733 FLAT TIRE	32	
DTC Logic	32	
Diagnosis Procedure	32	
C1734 BCM	34	

DTC Logic	34	LOW TIRE PRESSURE WARNING LAMP	
Diagnosis Procedure	34	STAYS ON	50
		Low Tire Pressure Warning Lamp Stays On When	
		Ignition Switch Is Turned On	50
C1735 IGNITION SIGNAL	36	LOW TIRE PRESSURE WARNING LAMP	
DTC Logic	36	BLINKS	51
Diagnosis Procedure	36	Description	51
		Diagnosis Procedure	51
C1765, C1766, C1767, C1768 TIRE PRES-		ID REGISTRATION CANNOT BE COMPLET-	
SURE SENSOR	38	ED	52
DTC Description	38	Description	52
Diagnosis Procedure	38	Diagnosis Procedure	52
C1769 CONFIGURATION SETTING	39	EASY FILL TIRE ALERT DOES NOT ACTI-	
DTC Description	39	VATE	53
Diagnosis Procedure	39	Description	53
		Diagnosis Procedure	53
C1770, C1771, C1772, C1773 G SENSOR	40	NOISE, VIBRATION AND HARSHNESS	
DTC Description	40	(NVH) TROUBLESHOOTING	55
Diagnosis Procedure	40	NVH Troubleshooting Chart	55
U1000 CAN COMM CIRCUIT	41	PERIODIC MAINTENANCE	56
Description	41	WHEEL	56
DTC Logic	41	Inspection	56
Diagnosis Procedure	41	WHEEL AND TIRE	57
		Adjustment	57
U1010 CONTROL UNIT (CAN)	42	REMOVAL AND INSTALLATION	60
DTC Logic	42	WHEEL AND TIRE	60
Diagnosis Procedure	42	Exploded View	60
		Removal and Installation	60
LOW TIRE PRESSURE WARNING LAMP	43	TIRE PRESSURE SENSOR	61
Component Function Check	43	Exploded View	61
Diagnosis Procedure	43	Removal and Installation	61
POWER SUPPLY AND GROUND CIRCUIT	44	REMOTE KEYLESS ENTRY RECEIVER	64
		Removal and Installation	64
WITH INTELLIGENT KEY SYSTEM	44	SERVICE DATA AND SPECIFICATIONS	
WITH INTELLIGENT KEY SYSTEM : Diagnosis		(SDS)	65
Procedure	44	SERVICE DATA AND SPECIFICATIONS	
WITHOUT INTELLIGENT KEY SYSTEM	44	(SDS)	65
WITHOUT INTELLIGENT KEY SYSTEM : Diag-		Wheel	65
nosis Procedure	44	Tire Air Pressure	65
SYMPTOM DIAGNOSIS	46		
TPMS	46		
Symptom Table	46		
LOW TIRE PRESSURE WARNING LAMP			
DOES NOT TURN ON	49		
Low Tire Pressure Warning Lamp Does Not Come			
On When Ignition Switch Is Turned On	49		

PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010244209

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Service Notice and Precautions for TPMS

INFOID:0000000010244210

WARNING:

Radio waves could adversely affect electric medical equipment. Those who use a pacemaker should contact the electric medical equipment manufacturer for the possible influences before use.

- Low tire pressure warning lamp blinks for 1 minute, then turns ON when occurring any malfunction except low tire pressure. Erase the self-diagnosis memories for Tire Pressure Monitoring System (TPMS), or register the ID to turn low tire pressure warning lamp OFF. For ID registration, refer to [WT-20, "Work Flow"](#).
- ID registration is required when replacing or rotating wheels, replacing tire pressure sensor or low tire pressure warning control unit. Refer to [WT-21, "Work Procedure"](#).
- Replace grommet seal, valve core and valve cap of tire pressure sensor in TPMS, when replacing each tire by reaching the wear limit. Refer to [WT-61, "Removal and Installation"](#).
- Because the tire pressure sensor conforms to North America radio law, the following items must be observed.
 - The sensor may be used only in North America.
 - It may not be used in any method other than the specified method.
 - It must not be disassembled or modified.

Service Notice and Precautions for Road Wheel

INFOID:0000000010244211

- Genuine NISSAN aluminum wheel is designed for each type of vehicle. Use it on the specified vehicle only.
- Use Genuine NISSAN parts for the road wheels, valve caps and wheel nuts.
- Always use them after adjusting the wheel balance. For the balance weights, use Genuine NISSAN aluminum wheel weights.
- Use caution when handling the aluminum wheels, because they can be easily scratched. When removing dirt, do not use any abrasives, a wire brush, or other items that may scratch the coating. Use a neutral detergent if a detergent is needed.
- After driving on roads scattered with anti-icing salts, wash off the wheels completely.
- When installing road wheels onto the vehicle, always wipe off any dirt or foreign substances to prevent them from being trapped between the contact surfaces of wheel.

PRECAUTIONS

< PRECAUTION >

- Do not apply oil to nut and bolt threads.
- When tightening the valve cap there is a risk of damaging the valve cap if a tool is used. Tighten by hand.

PREPARATION

< PREPARATION >

PREPARATION

PREPARATION

Special Service Tool

INFOID:000000010244212

The actual shape of the tools may differ from those illustrated here.

Tool number (TechMate No.) Tool name	Description
— (J-50190) Signal Tech II	• Activate and display TPMS transmitter IDs • Display tire pressure reported by the TPMS transmitter • Read TPMS DTCs • Register TPMS transmitter IDs • Test remote keyless entry keyfob relative signal strength • Check Intelligent Key relative signal strength • Confirm vehicle Intelligent Key antenna signal strength • Compatible with future sensors • Equipped with a display
KV48105501 (J-45295-A) Transmitter activation tool	• Activate TPMS transmitter IDs • Compatible with future sensors • Equipped with a display (KV48105501 only)

Commercial Service Tool

INFOID:000000010244213

Tool name	Description
Power tool	Loosening nuts, screws and bolts

COMPONENT PARTS

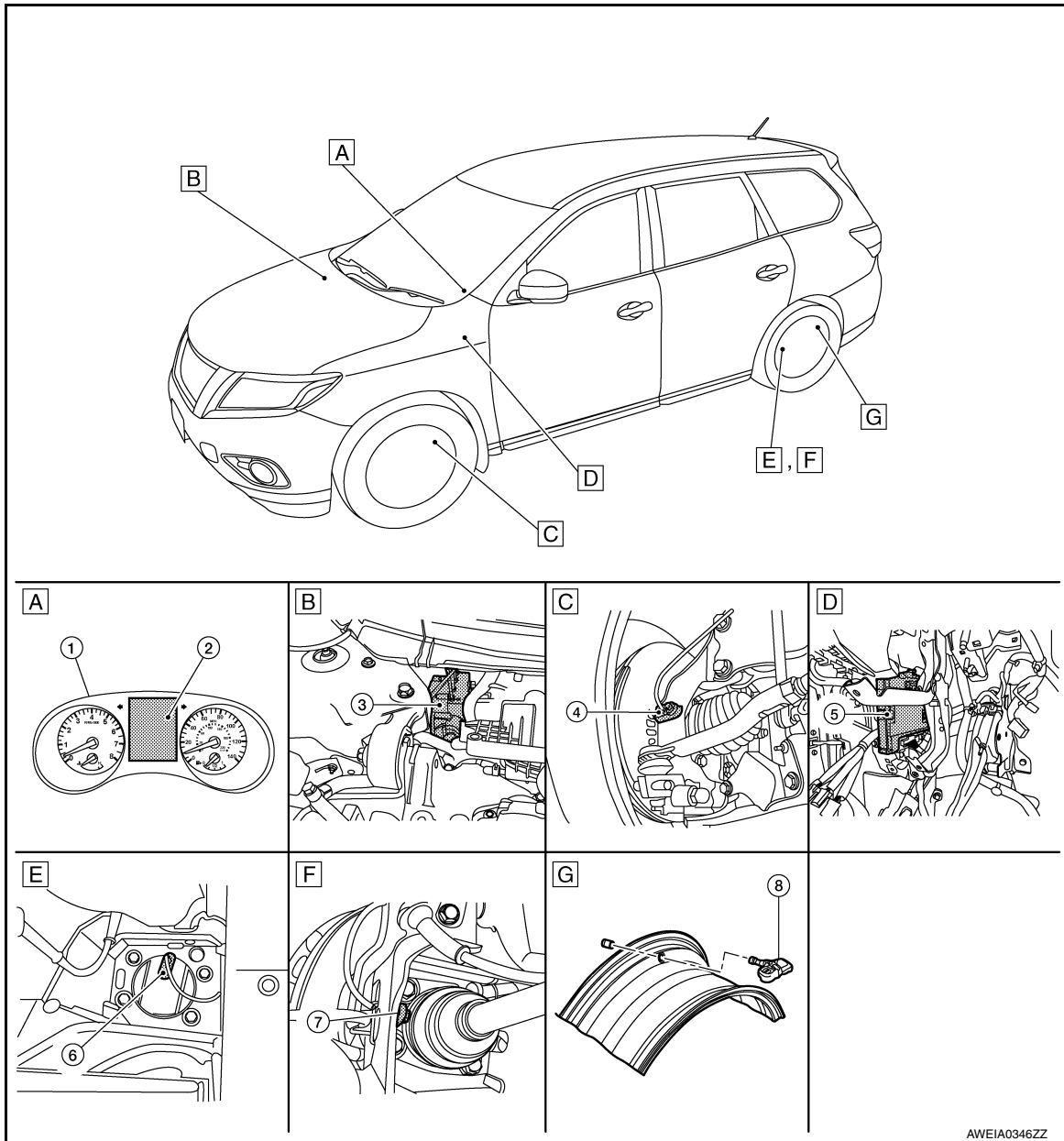
< SYSTEM DESCRIPTION >

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:000000009998803



- | | | |
|---------------------------------|-----------------------------|------------------------------|
| A. Combination meter | B. Engine room (LH) | C. Left front wheel assembly |
| D. Behind instrument panel (LH) | E. Left rear wheel assembly | F. Left rear wheel assembly |
| G. Wheel | | |

No.	Component parts	Function
1.	Combination meter	The combination meter receives tire pressure status from the BCM via CAN communication. The combination meter will display the low tire pressure warning lamp when a low tire pressure or system malfunction is detected by the BCM.
2.	Information display (in combination meter)	Refer to WT-7, "Information Display" .

COMPONENT PARTS

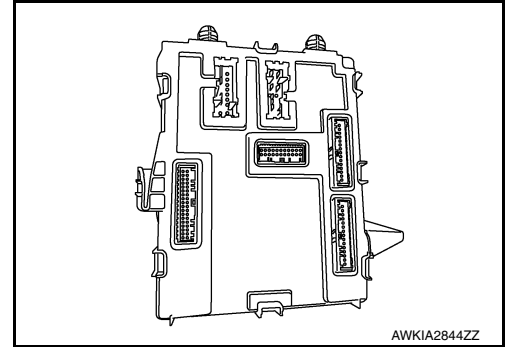
< SYSTEM DESCRIPTION >

No.	Component parts	Function
3.	ABS actuator and electric unit (control unit)	Mainly transmits the following signals to BCM via CAN communication Wheel sensor signal (ABS)
4.	Front wheel sensor LH	Refer to BRC-10, "Wheel Sensor and Sensor Rotor" .
5.	BCM	Refer to WT-7, "BCM" .
6.	Rear wheel sensor LH	Refer to BRC-10, "Wheel Sensor and Sensor Rotor" .
7.	Rear wheel sensor LH (with AWD)	Refer to BRC-10, "Wheel Sensor and Sensor Rotor" .
8.	Tire pressure sensor	Refer to WT-7, "Tire Pressure Sensor" .

BCM

INFOID:000000009998805

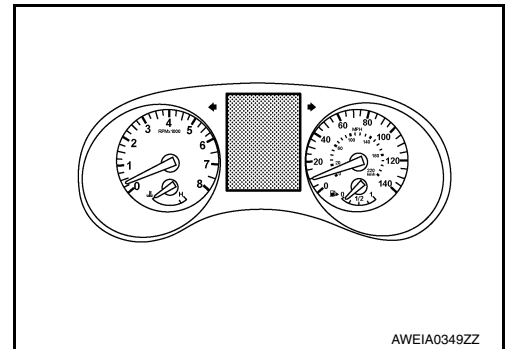
The BCM reads the air pressure signal received by the remote keyless entry receiver (without Intelligent Key System) or intelligent key receiver (with Intelligent Key System). In addition, the BCM also uses the outside key antennas (driver side, passenger side and rear bumper) to identify the location of the tire pressure sensors. The BCM has a self-diagnosis function used to detect system malfunctions.



Information Display

INFOID:0000000010205099

A low tire pressure warning or flat tire warning is shown on the vehicle information display when they are transmitted from BCM to combination meter via CAN communication.



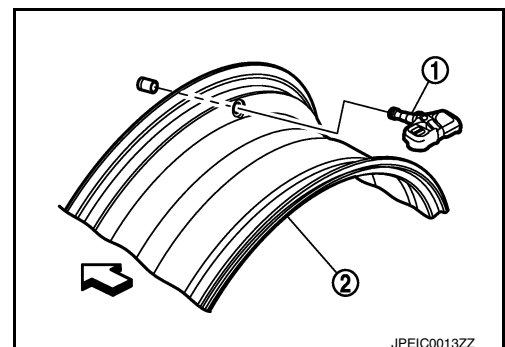
Condition		Vehicle information display
Ignition switch OFF		Not indicated
Ignition switch ON	Low tire pressure warning lamp remains ON after blinking for one minute. [Tire Pressure Monitoring System (TPMS) malfunction.]	Not indicated
Ignition switch ON	Low tire pressure warning lamp remains ON. (low tire pressure)	Indicated
Ignition switch ON	Flat tire warning	Indicated

Tire Pressure Sensor

INFOID:0000000010205098

The tire pressure sensor (1) integrated with a valve is installed on a wheel (2), and transmits a detected air pressure and temperature signal by radio wave.

↔ : Outside



SYSTEM

< SYSTEM DESCRIPTION >

SYSTEM

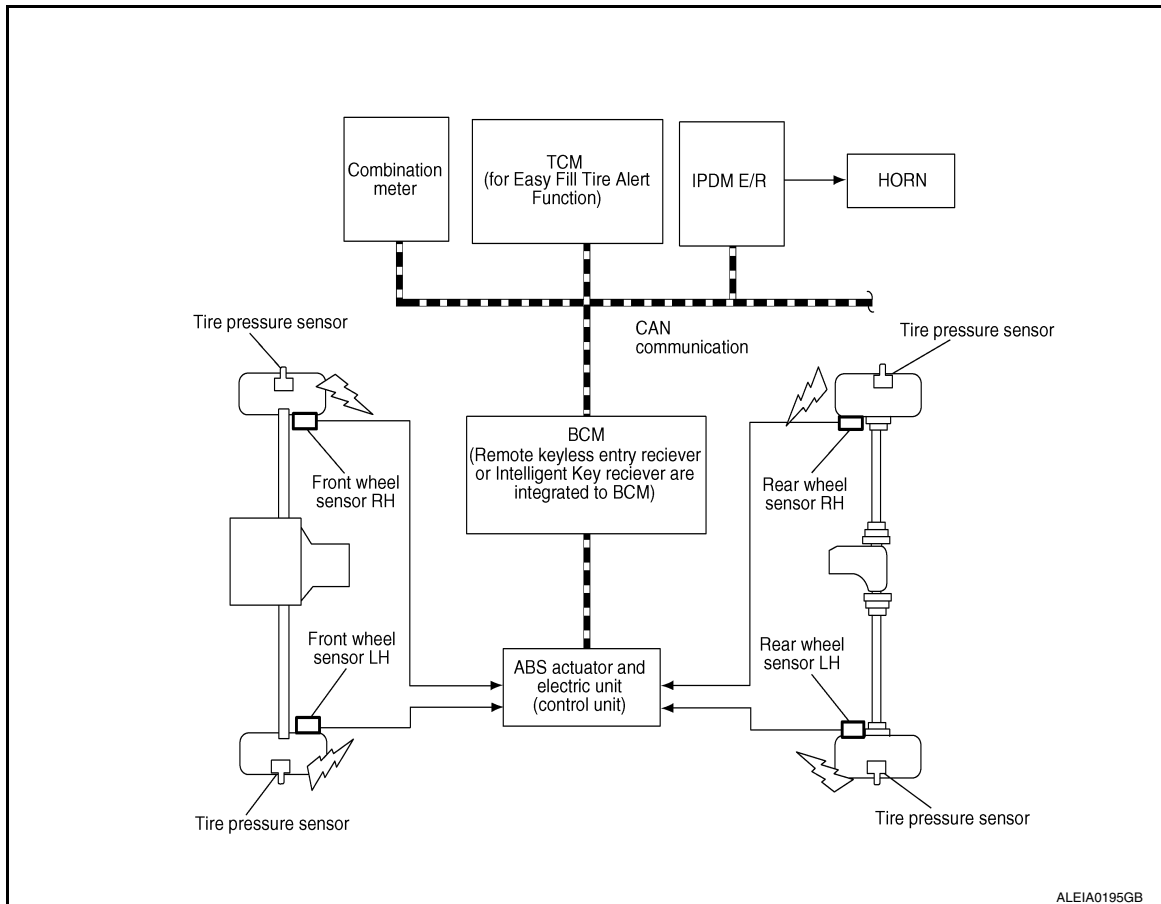
System Description

INFOID:000000010244242

When the vehicle has reached a speed of 40 km/h (25 MPH) or greater, the BCM receives a signal transmitted from the tire pressure sensors installed in each wheel. If the BCM detects low inflation pressure or a system malfunction, it sends a signal to the combination meter via CAN communication to illuminate the low tire pressure warning lamp. In addition, a warning message will be displayed in the vehicle information display. Refer to the Owner's Manual for additional information.

The tire pressure monitoring system (TPMS) has Easy fill tire alert function to aid in tire inflation. Refer to [WT-9. "Easy Fill Tire Alert Function"](#).

SYSTEM DIAGRAM



INPUT/OUTPUT SIGNAL

Major signal transmission between each unit via communication lines is shown in the following table.

Component parts	Signal item
Combination meter	Mainly receives the following signals from BCM via CAN communication. • Low tire pressure warning lamp signal • TPMS malfunction warning lamp signal
ABS actuator and electric unit (control unit)	Mainly transmits the following signals to BCM via CAN communication. • Vehicle speed signal (ABS)
TCM	Mainly transmits the following signals to BCM via CAN communication. • Shift position signal (P range signal)
IPDM E/R	Mainly transmits the following signals to BCM via CAN communication. • Horn reminder signal

LOW TIRE PRESSURE WARNING LAMP INDICATION CONDITION

SYSTEM

< SYSTEM DESCRIPTION >

Uses CAN communication from the BCM to illuminate the low tire pressure warning lamp on the combination meter.

Condition	Low tire pressure warning lamp
Power switch OFF	OFF
Power switch ON (System normal)	Warning lamp turns on for 1second, then turns off.
Low tire pressure	ON
Configuration not performed in tire pressure monitoring system	
Tire pressure sensor ID not registered in BCM	
Tire pressure monitoring system malfunction (Other diagnostic item)	Warning lamp blinks 1 min, then turns on.

HAZARD WARNING LAMP INDICATION CONDITION

The hazard warning lamp blinks under the following conditions.

- When ID registration is completed. Refer to [WT-21, "Work Procedure"](#).
- During the use of the easy fill tire alert function.

HORN CONTROL CONDITION

During the use of easy fill tire alert function.

Easy Fill Tire Alert Function

INFOID:0000000010244243

- This function operates only when the select lever position is in P-range with the power switch ON or with the vehicle set to READY.

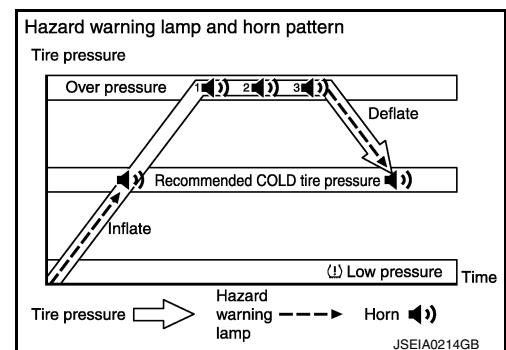
NOTE:

The easy fill tire alert function is recommended to use with the power switch ON.

NOTE:

When beginning tire inflation, it takes a few seconds for the Easy fill tire alert to function. If there is no response for approximately 15 seconds or more, cancel the Easy fill tire alert function and move the vehicle approximately 1 m (3.2 ft) backward or forward to try again.

- The Easy fill tire alert function operates only when the select lever position is in P-range with the ignition switch ON.
- This function informs the driver with a visual and audible indication that the recommended COLD tire pressure has been reached.
- The hazard warning lamps blink when the recommended COLD tire pressure has been reached. After the recommended COLD tire pressure has been reached, the horn sounds once and the hazard warning lamps stop blinking.
- If the tire pressure value is equal to or greater than 30 kPa (0.31 kg/cm², 4 psi) more than the recommended COLD tire pressure, the hazard warning lamps flash and horn sounds three times.
- To return the tire to the recommended COLD tire pressure, deflate the tire until the horn sounds once and the hazard warning lamps stop blinking.



DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (BCM) WITH INTELLIGENT KEY

WITH INTELLIGENT KEY : CONSULT Function (BCM - COMMON ITEM) INFOID:0000000010262887

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with BCM.

Direct Diagnostic Mode	Description
Ecu Identification	The BCM part number is displayed.
Self Diagnostic Result	The BCM self diagnostic results are displayed.
Data Monitor	The BCM input/output data is displayed in real time.
Active Test	The BCM activates outputs to test components.
Work support	The settings for BCM functions can be changed.
Configuration	- The vehicle specification can be read and saved. - The vehicle specification can be written when replacing BCM.
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.

SYSTEM APPLICATION

BCM can perform the following functions.

System	Sub System	Direct Diagnostic Mode						
		Ecu Identification	Self Diagnostic Result	Data Monitor	Active Test	Work support	Configuration	CAN Diag Support Mntr
Door lock	DOOR LOCK		×	×	×	×		
Rear window defogger	REAR DEFOGGER			×	×	×		
Warning chime	BUZZER			×	×			
Interior room lamp timer	INT LAMP			×	×	×		
Exterior lamp	HEADLAMP			×	×	×		
Wiper and washer	WIPER			×	×	×		
Turn signal and hazard warning lamps	FLASHER			×	×			
Intelligent Key system	INTELLIGENT KEY		×	×	×	×		
Combination switch	COMB SW			×				
BCM	BCM	×	×			×	×	×
Immobilizer	IMMU		×	×	×			
Interior room lamp battery saver	BATTERY SAVER			×	×			
Back door open	TRUNK			×				
Vehicle security system	THEFT ALM			×	×	×		
RAP system	RETAINED PWR			×				
Signal buffer system	SIGNAL BUFFER			×				
TPMS	AIR PRESSURE MONITOR		×	×	×	×		

WITH INTELLIGENT KEY : CONSULT Function (BCM-AIR PRESSURE MONITOR)

INFOID:0000000010262890

NOTE:

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

The Signal Tech II Tool (J-50190) can be used to perform the following functions. Refer to the Signal Tech II User Guide for additional information.

- Activate and display TPMS sensor IDs
- Display tire pressure reported by the TPMS sensor
- Read TPMS DTCs
- Register TPMS sensor IDs
- Check Intelligent Key relative signal strength
- Confirm vehicle Intelligent Key antenna signal strength

SELF DIAGNOSTIC RESULT

NOTE:

Before performing Self Diagnostic Result, be sure to register the sensor ID or the actual malfunction may be different from that displayed on CONSULT.

Refer to [BCS-48. "DTC Index"](#).

DATA MONITOR

Monitor Item [Unit]	Description
AIR PRESS FL [kPa, kg/cm ² or Psi]	Indicates air pressure of front LH tire.
AIR PRESS FR [kPa, kg/cm ² or Psi]	Indicates air pressure of front RH tire.
AIR PRESS RR [kPa, kg/cm ² or Psi]	Indicates air pressure of rear RH tire.
AIR PRESS RL [kPa, kg/cm ² or Psi]	Indicates air pressure of rear LH tire.
ID REGST FL1 [Done/Yet]	Indicates ID registration status of front LH sensor.
ID REGST FR1 [Done/Yet]	Indicates ID registration status of front RH sensor.
ID REGST RR1 [Done/Yet]	Indicates ID registration status of rear RH sensor.
ID REGST RL1 [Done/Yet]	Indicates ID registration status of rear LH sensor.
WARNING LAMP [Off/On]	Indicates condition of low tire pressure warning lamp in combination meter.
BUZZER [Off/On]	Indicates condition of buzzer in combination meter.

ACTIVE TEST

Test Item	Description
FLASHER	This test is able to check turn signal lamp operation [Off/LH/RH].
HORN	This test is able to check horn operation [On].
WARNING LAMP	This test is able to check tire pressure warning lamp operation [On/Off].
ID REGIST WARNING	This test is able to check ID regist warning chime operation [On/Off].

WORK SUPPORT

Support Item	Description
ID READ	The registered ID number is displayed.
ID REGIST	Refer to WT-21. "Description" .

WITHOUT INTELLIGENT KEY

WITHOUT INTELLIGENT KEY : CONSULT Function (BCM - COMMON ITEM)

INFOID:0000000010262891

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with BCM.

Direct Diagnostic Mode	Description
Ecu Identification	The BCM part number is displayed.
Self Diagnostic Result	The BCM self diagnostic results are displayed.

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

Direct Diagnostic Mode	Description
Data Monitor	The BCM input/output data is displayed in real time.
Active Test	The BCM activates outputs to test components.
Work support	The settings for BCM functions can be changed.
Configuration	- The vehicle specification can be read and saved. - The vehicle specification can be written when replacing BCM.
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.

SYSTEM APPLICATION

BCM can perform the following functions.

System	Sub System	Direct Diagnostic Mode						
		Ecu Identification	Self Diagnostic Result	Data Monitor	Active Test	Work support	Configuration	CAN Diag Support Mntr
Door lock	DOOR LOCK			x	x	x		
Rear window defogger	REAR DEFOGGER			x	x	x		
Warning chime	BUZZER			x	x			
Interior room lamp timer	INT LAMP			x	x	x		
Remote keyless entry system	MULTI REMOTE ENT					x		
Exterior lamp	HEADLAMP			x	x			
Wiper and washer	WIPER			x	x	x		
Turn signal and hazard warning lamps	FLASHER			x	x			
Combination switch	COMB SW			x				
BCM	BCM	x	x			x	x	x
Immobilizer	IMMU		x		x			
Interior room lamp battery saver	BATTERY SAVER			x	x			
Back door open	TRUNK			x				
Vehicle security system	THEFT ALM			x	x	x		
RAP system	RETAINED PWR			x				
TPMS	AIR PRESSURE MONITOR		x	x	x	x		

WITHOUT INTELLIGENT KEY : CONSULT Function (BCM-AIR PRESSURE MONITOR)

INFOID:000000010262892

NOTE:

The Signal Tech II Tool (J-50190) can be used to perform the following functions. Refer to the Signal Tech II User Guide for additional information.

- Activate and display TPMS sensor IDs
- Display tire pressure reported by the TPMS sensor
- Read TPMS DTCs
- Register TPMS sensor IDs

SELF DIAGNOSTIC RESULT

NOTE:

Before performing Self Diagnostic Result, be sure to register the sensor ID or the actual malfunction may be different from that displayed on CONSULT.

Refer to [BCS-108, "DTC Index"](#).

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

DATA MONITOR

Monitor Item [Unit]	Description
AIR PRESS FL [kPa, kg/cm ² or Psi]	Indicates air pressure of front LH tire.
AIR PRESS FR [kPa, kg/cm ² or Psi]	Indicates air pressure of front RH tire.
AIR PRESS RR [kPa, kg/cm ² or Psi]	Indicates air pressure of rear RH tire.
AIR PRESS RL [kPa, kg/cm ² or Psi]	Indicates air pressure of rear LH tire.
ID REGST FL1 [Done/Yet]	Indicates ID registration status of front LH sensor.
ID REGST FR1 [Done/Yet]	Indicates ID registration status of front RH sensor.
ID REGST RR1 [Done/Yet]	Indicates ID registration status of rear RH sensor.
ID REGST RL1 [Done/Yet]	Indicates ID registration status of rear LH sensor.
WARNING LAMP [Off/On]	Indicates condition of low tire pressure warning lamp in combination meter.
BUZZER [Off/On]	Indicates condition of buzzer in combination meter.

ACTIVE TEST

Test Item	Description
FLASHER	This test is able to check turn signal lamp operation [Off/LH/RH].
HORN	This test is able to check horn operation [On].
WARNING LAMP	This test is able to check tire pressure warning lamp operation [On/Off].
ID REGIST WARNING	This test is able to check ID regist warning chime operation [On/Off].

WORK SUPPORT

Support Item	Description
ID READ	The registered ID number is displayed.
ID REGIST	Refer to WT-21, "Description" .

BCM

< ECU DIAGNOSIS INFORMATION >

ECU DIAGNOSIS INFORMATION

BCM

List of ECU Reference

INFOID:000000009998815

ECU	Reference
BCM (with Intelligent Key system)	BCS-28, "Reference Value"
	BCS-47, "Fail Safe"
	BCS-47, "DTC Inspection Priority Chart"
	BCS-48, "DTC Index"
BCM (without Intelligent Key system)	BCS-96, "Reference Value"
	BCS-107, "Fail Safe"
	BCS-107, "DTC Inspection Priority Chart"
	BCS-108, "DTC Index"

TIRE PRESSURE MONITORING SYSTEM

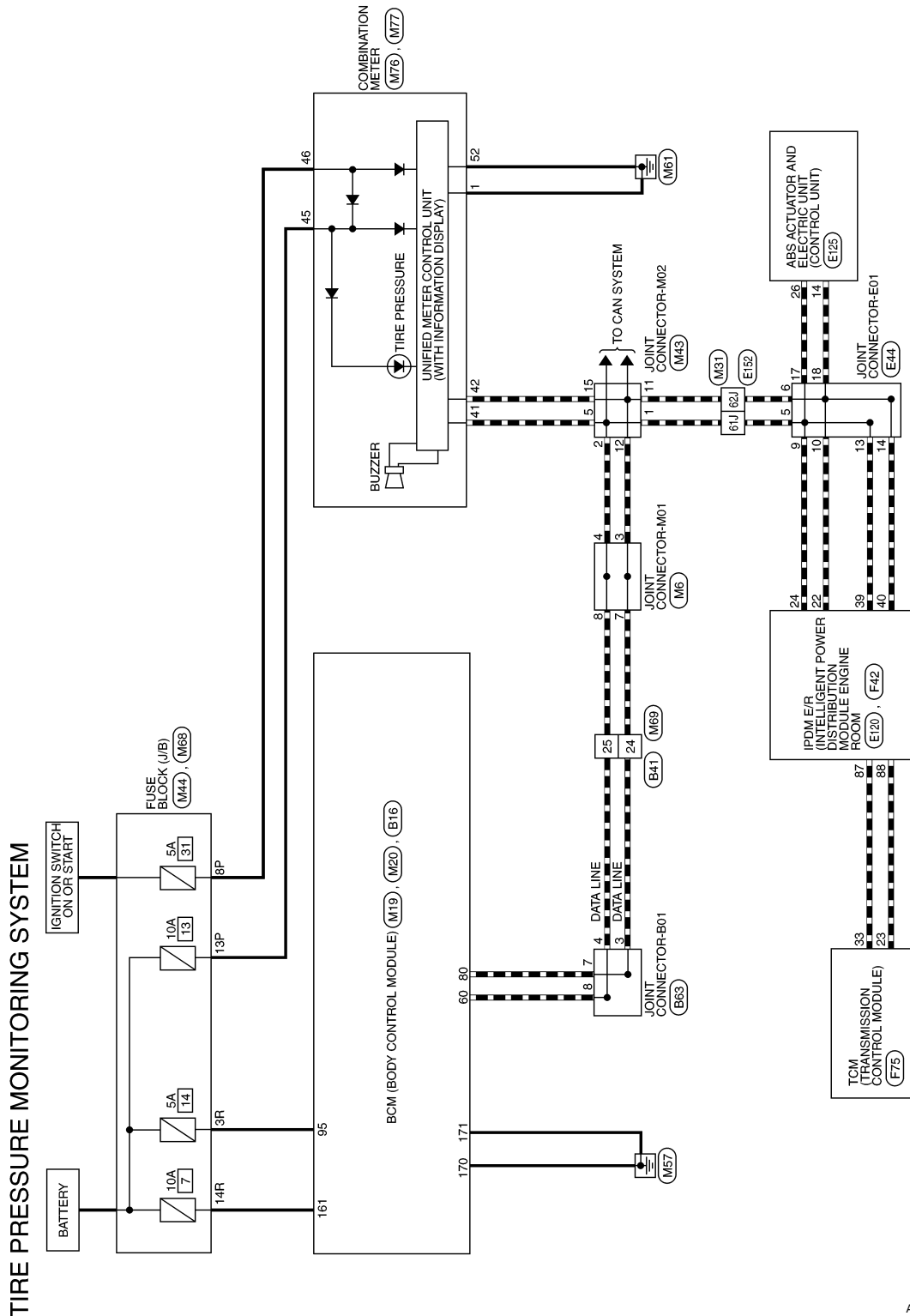
< WIRING DIAGRAM >

WIRING DIAGRAM

TIRE PRESSURE MONITORING SYSTEM

Wiring Diagram

INFOID:000000009998816



AAEWA0052GB

< WIRING DIAGRAM >

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BROWN

Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK

Connector No.	M6
Connector Name	JOINT CONNECTOR-M01
Connector Color	GRAY



100	99	98	97	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81
120	119	118	117	116	115	114	113	112	111	110	109	108	107	106	105	104	103	102	101

Terminal No.	Color of Wire	Signal Name
161	W	I PWR ECU
170	B	I GND1
171	B	I GND2

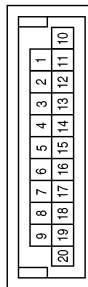
Terminal No.	Color of Wire	Signal Name
95	V	I SHORTING PIN

Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

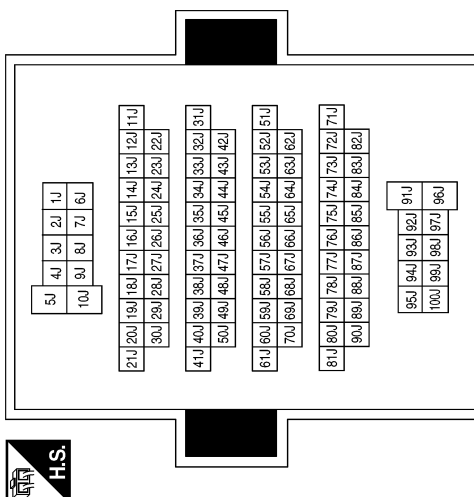
Connector No.	M43
Connector Name	JOINT CONNECTOR-M02
Connector Color	BLUE

Terminal No.	Color of Wire	Signal Name
61J	L	-
62J	P	-

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE



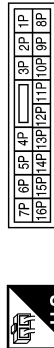
Terminal No.	Color of Wire	Signal Name
1	L	-
2	L	-
5	L	-
11	P	-
12	P	-
15	P	-



TIRE PRESSURE MONITORING SYSTEM

< WIRING DIAGRAM >

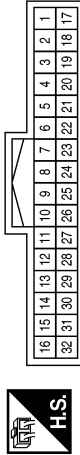
Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN



Connector No.	M69
Connector Name	WIRE TO WIRE
Connector Color	WHITE

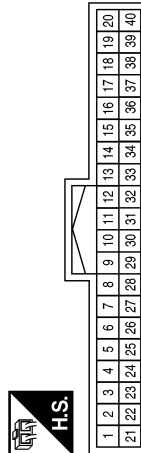


Terminal No.	Color of Wire	Signal Name
8P	LA/BR	-
13P	LA/G	-

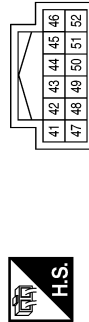
Terminal No.	Color of Wire	Signal Name
3R	V	-
14R	W	-

Terminal No.	Color of Wire	Signal Name
24	P	-
25	L	-

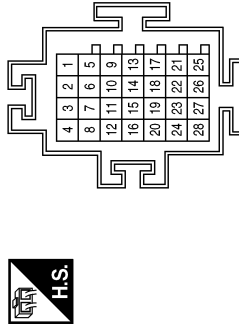
Connector No.	M76
Connector Name	COMBINATION METER
Connector Color	WHITE



Connector No.	M77
Connector Name	COMBINATION METER
Connector Color	WHITE



Connector No.	E44
Connector Name	JOINT CONNECTOR-E01
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	B	GND

Terminal No.	Color of Wire	Signal Name
41	L	CAN-H
42	P	CAN-L
45	LA/G	BAT
46	LA/BR	IGN
52	B	G1

Terminal No.	Color of Wire	Signal Name
5	L	-
6	P	-
9	L	-
10	P	-
13	L	-
14	P	-
17	L	-
18	P	-

AAEIA0123GB

A
B
C
D
WT
F
G
H
I
J
K
L
M
N
O
P

TIRE PRESSURE MONITORING SYSTEM

< WIRING DIAGRAM >

Connector No.	E120
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



30	29	28	27	26	25	24	23	22	21	20	19
42	41	40	39	38	37	36	35	34	33	32	31

Connector No.	E125
Connector Name	ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)
Connector Color	BLACK

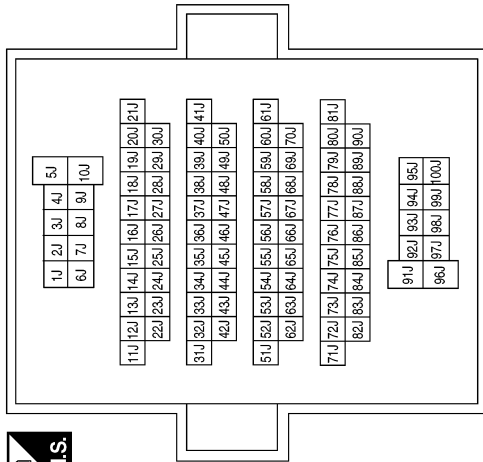


38	37	36	35	34	33	32	31	30	29	28	27	26	25
13	24	23	22	21	20	19	18	17	16	15	14	13	1
12	11	10	9	8	7	6	5	4	3	2			

Terminal No.	Color of Wire	Signal Name
22	P	CAN-L
24	L	CAN-H
39	L	CAN-H
40	P	CAN-L

Terminal No.	Color of Wire	Signal Name
14	P	CAN-L
26	L	CAN-H

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	F42
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK



88	97	96	95	94	93	92	91	90	89	88	87
119	109	108	107	106	105	104	103	102	101	100	99

Terminal No.	Color of Wire	Signal Name
87	L	CAN-H
88	P	CAN-L

AAEIA0124GB

TIRE PRESSURE MONITORING SYSTEM

< WIRING DIAGRAM >

Connector No.	B41
Connector Name	WIRE TO WIRE
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Terminal No.	Color of Wire	Signal Name
24	P	-
25	L	-

Connector No.	B16
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GREEN



60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41
80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61

Terminal No.	Color of Wire	Signal Name
60	L	CAN-H
80	P	CAN-L

Connector No.	F75
Connector Name	TCM (TRANSMISSION CONTROL MODULE)
Connector Color	BLACK



31	32	33	34	35	36	37	38	39	40	47	48
21	22	23	24	25	26	27	28	29	30	45	46
11	12	13	14	15	16	17	18	19	20	43	44
1	2	3	4	5	6	7	8	9	10	41	42

Terminal No.	Color of Wire	Signal Name
23	P	CAN-L
33	L	CAN-H

Connector No.	B63
Connector Name	JOINT CONNECTOR-B01
Connector Color	GRAY



4	3	2	1
8	7	6	5
12	11	10	9
16	15	14	13
20	19	18	17
24	23	22	21

Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

AAEIA0125GB

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

INFOID:000000009998817

NOTE:

The Signal Tech II Tool [- (J-50190)] can be used to perform the following functions. Refer to the Signal Tech II User Guide for additional information.

- Activate and display TPMS sensor IDs
- Display tire pressure reported by the TPMS sensor
- Read TPMS DTCs
- Register TPMS sensor IDs

1. COLLECT INFORMATION FROM CUSTOMER

Get detailed information from the customer about the symptom (the condition and the environment when the incident/malfunction occurred).

>> GO TO 2.

2. TIRE PRESSURE INSPECTION

Check the tire pressure for all wheels. Refer to [WT-65, "Tire Air Pressure"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace tire(s) or wheel(s).

3. CHECK LOW TIRE PRESSURE WARNING LAMP

Check that the low tire pressure warning lamp illuminates for approximately 1 second after the ignition switch is turned ON, then turns OFF.

Does the low tire pressure warning lamp turn OFF?

YES >> Inspection End.

NO >> GO TO 4.

4. PERFORM SELF DIAGNOSTIC RESULT

Perform self diagnostic result. Refer to [BCS-26, "AIR PRESSURE MONITOR : CONSULT Function \(BCM-AIR PRESSURE MONITOR\)"](#) (with Intelligent Key System) or [BCS-94, "AIR PRESSURE MONITOR : CONSULT Function \(BCM-AIR PRESSURE MONITOR\)"](#) (without Intelligent Key System).

Are any DTCs displayed?

YES >> Refer to [BCS-48, "DTC Index"](#). If two or more DTCs are displayed, refer to [BCS-47, "DTC Inspection Priority Chart"](#).

NO >> GO TO 5.

5. PERFORM DIAGNOSIS APPLICABLE TO THE SYMPTOM

Perform diagnosis applicable to the symptom. Refer to [WT-46, "Symptom Table"](#).

>> GO TO 6.

6. FINAL CHECK

Perform self diagnostic result again, and check that the malfunction is repaired. After checking, erase the self diagnosis memory. Refer to [BCS-26, "AIR PRESSURE MONITOR : CONSULT Function \(BCM-AIR PRESSURE MONITOR\)"](#) (with Intelligent Key System) or [BCS-94, "AIR PRESSURE MONITOR : CONSULT Function \(BCM-AIR PRESSURE MONITOR\)"](#) (without Intelligent Key System).

>> Inspection End.

ID REGISTRATION PROCEDURE

< BASIC INSPECTION >

ID REGISTRATION PROCEDURE

Description

INFOID:000000009998818

This procedure must be performed after replacement of a tire pressure sensor or BCM.

Work Procedure

INFOID:000000009998819

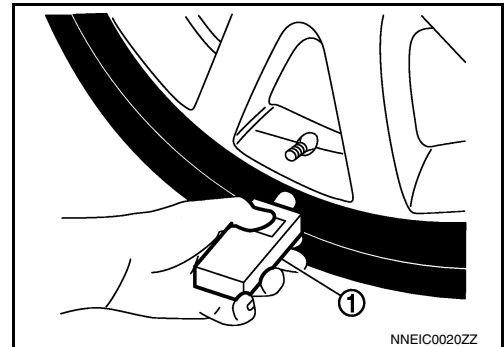
TPMS ID registration can be performed using one of the following procedures:

- Transmitter Activation tool [KV48105501 (J-45295-A)] with CONSULT (preferred method)
- Signal Tech II tool [- (J-50190)] with CONSULT (preferred method)
- Signal Tech II tool [- (J-50190)] without CONSULT
- CONSULT only

TPMS REGISTRATION WITH TRANSMITTER ACTIVATION TOOL [KV48105501 (J-45295-A)]

With CONSULT

1. Turn the ignition switch ON.
2. Using CONSULT, select "AIR PRESSURE MONITOR" "BCM" work support. Then, select "ID REGIST."
3. Select "Start" on "ID REGIST" screen.
4. Hold the transmitter activation tool [KV48105501 (J-45295-A)] (1) against the side of the left front tire, near the valve stem.
5. With the tool held at a 0 to 15 degree angle to the tire, press and hold the transmitter activation tool button until the indicator lamp turns OFF (approximately 5 seconds).
6. Repeat steps 4 and 5 for the remaining tires in this order: right front, right rear and left rear.



7. When ID registration is complete, check the following pattern at each wheel.

Sequence	ID registration position	Turn signal lamp	CONSULT
1	Front LH	2 blinks	"Yet (red)" ↓ "Done (green)"
2	Front RH		
3	Rear RH		
4	Rear LH		

8. After the ID registration procedure for all wheels is complete, press "End" on the CONSULT to finish ID registration.
9. Test drive the vehicle to ensure that the TPMS lamp is OFF and no warning messages are present.

TPMS REGISTRATION WITH SIGNAL TECH II TOOL [- (J-50190)]

NOTE:

The Signal Tech II must be updated with the newest software version in order to perform the below procedures. The Signal Tech II software updates can only be downloaded from a CONSULT unit with ASIST. Other versions of ASIST will not show the updates.

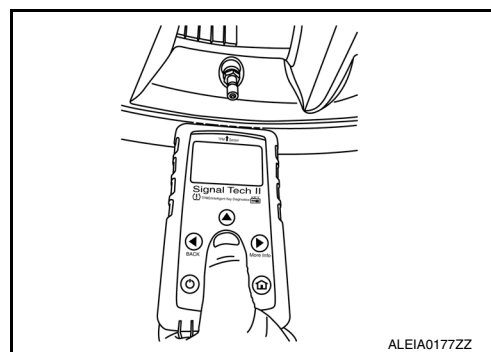
With CONSULT

1. Adjust the tire pressure for all tires to the recommended value. Refer to [WT-65, "Tire Air Pressure"](#).
2. Turn the ignition switch ON.
3. Using CONSULT, select "AIR PRESSURE MONITOR" in "BCM" work support. Then, select "ID REGIST."
4. Select "Start" on "ID REGIST" screen.
5. Turn on the Signal Tech II tool [- (J-50190)].

ID REGISTRATION PROCEDURE

< BASIC INSPECTION >

6. Hold the Signal Tech II against the side of the left front tire, near the valve stem.
7. With the tool held at a 0 to 15 degree angle to the tire, select "Activate Sensor" from the main menu, then press and release the "OK" button to activate the sensor. Once the sensor is activated, the vehicle parking lamps will flash and the sensor ID will appear on the CONSULT screen.
8. Repeat steps 6 and 7 for the remaining tires in this order: right front, right rear and left rear.
9. When ID registration is complete, check the following pattern at each wheel.

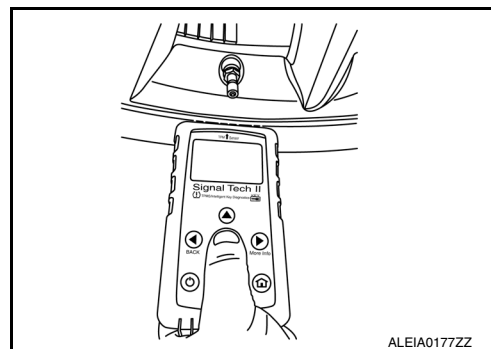


Sequence	ID registration position	Turn signal lamp	CONSULT
1	Front LH	2 blinks	"Yet (red)" ↓ "Done (green)"
2	Front RH		
3	Rear RH		
4	Rear LH		

10. Once all sensors have been activated, select "End" on the CONSULT to finish ID registration.
11. Test drive the vehicle to ensure that the TPMS lamp is OFF and no warning messages are present.

⊗ Without CONSULT

1. Adjust the tire pressure for all tires to the recommended value. Refer to [WT-65, "Tire Air Pressure"](#).
2. Turn on the Signal Tech II tool [- (J-50190)] and select "TPMS Check" from the main menu.
3. Select vehicle model and year.
4. When prompted, hold the Signal Tech II against the side of the left front tire, near the valve stem.
5. With the tool held at a 0 to 15 degree angle to the tire, press and release the "OK" button to activate the sensor. Once the sensor is activated, the tool will sound a tone and the tire pressure will be displayed.
6. Repeat steps 4 and 5 for the remaining tires in this order: right front, right rear and left rear.
7. When prompted, connect the tool to the data link connector. The tool will connect to the BCM, read the VIN, read sensor IDs and check for TPMS DTCs. Along with DTCs detected, one of the following will be displayed next to each wheel:
 - N/A - Not applicable because no ID found by the tool
 - OK - Wheel and sensor are in original position
 - NEW - New ID found compared to BCM
 - RT - Wheel has been rotated
 - Low Press - Low tire pressure
8. If no DTC is present or the repair has been completed, press the "OK" button to register the IDs and clear DTCs.
9. Test drive the vehicle to ensure that the TPMS lamp is OFF and no warning messages are present.
10. Print a Signal Tech II Audit Report for your records. Refer to the Signal Tech II User Guide for instructions.



TPMS REGISTRATION WITH CONSULT ONLY

Ⓟ With CONSULT

1. Adjust the tire pressure for all wheels to match the list below.

Tire position	Tire pressure kPa (kg/cm ² , psi)
Front LH	240 (2.4, 35)
Front RH	220 (2.2, 32)
Rear RH	200 (2.0, 29)
Rear LH	180 (1.8, 26)

ID REGISTRATION PROCEDURE

< BASIC INSPECTION >

2. Turn the ignition switch ON.
3. Using CONSULT, select "AIR PRESSURE MONITOR" in "BCM" work support. Then, select "ID REGIST."
4. Select "Start" on "ID REGIST" screen.
5. Drive the vehicle at a speed greater than 40 km/h (25 MPH) for 3 minutes or more.
6. After ID registration for all wheels is complete, press "End" on the CONSULT to finish ID registration.

ID registration position	CONSULT
Front LH	"Yet (red)" ↓ "Done (green)"
Front RH	
Rear RH	
Rear LH	

7. Adjust the tire pressures for all tires to the recommended value. Refer to [WT-65, "Tire Air Pressure"](#).
8. Test drive the vehicle to ensure that the TPMS lamp is OFF and no warning messages are present.

A

B

C

D

WT

F

G

H

I

J

K

L

M

N

O

P

C1704, C1705, C1706, C1707 LOW TIRE PRESSURE

< DTC/CIRCUIT DIAGNOSIS >

DTC/CIRCUIT DIAGNOSIS

C1704, C1705, C1706, C1707 LOW TIRE PRESSURE

DTC Logic

INFOID:000000009998820

NOTE:

The Signal Tech II Tool [- (J-50190)] can be used to perform the following functions. Refer to the Signal Tech II User Guide for additional information.

- Activate and display TPMS sensor IDs
- Display tire pressure reported by the TPMS sensor
- Read TPMS DTCs
- Register TPMS sensor IDs

DTC DETECTION LOGIC

DTC	Display Item	Malfunction Detected Condition	Possible Cause
C1704	LOW PRESSURE FL	Front LH tire pressure drops to 187.5 kPa (26.5 psi) or less.	• Low tire pressure • Tire pressure sensor
C1705	LOW PRESSURE FR	Front RH tire pressure drops to 187.5 kPa (26.5 psi) or less.	
C1706	LOW PRESSURE RR	Rear RH tire pressure drops to 187.5 kPa (26.5 psi) or less.	
C1707	LOW PRESSURE RL	Rear LH tire pressure drops to 187.5 kPa (26.5 psi) or less.	

DTC CONFIRMATION PROCEDURE

1.PERFORM SELF DIAGNOSTIC RESULT

With CONSULT

1. Check tire pressure for all wheels and adjust to the specified value. Refer to [WT-65, "Tire Air Pressure"](#).
2. Drive at a speed of 40 km/h (25 MPH) or more for 3 minutes, and then drive the vehicle at any speed for 10 minutes.
3. Perform Self Diagnostic Result.

Is DTC C1704, C1705, C1706, or C1707 detected?

- YES >> Proceed to [WT-24, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:000000009998821

NOTE:

The Signal Tech II Tool [- (J-50190)] can be used to perform the following functions. Refer to the Signal Tech II User Guide for additional information.

- Activate and display TPMS sensor IDs
- Display tire pressure reported by the TPMS sensor
- Read TPMS DTCs
- Register TPMS sensor IDs

1.TIRE PRESSURE SENSOR ID REGISTRATION

Perform tire pressure sensor ID registration. Refer to [WT-21, "Work Procedure"](#).

Can the tire pressure sensor ID registration be completed?

- YES >> GO TO 2.
NO >> Replace applicable tire pressure sensor. Refer to [WT-61, "Removal and Installation"](#).

2.CHECK TIRE PRESSURE

Check the air pressure of all wheels. Refer to [WT-65, "Tire Air Pressure"](#).

Is the inspection result normal?

C1704, C1705, C1706, C1707 LOW TIRE PRESSURE

< DTC/CIRCUIT DIAGNOSIS >

- YES >> Perform DTC CONFIRMATION PROCEDURE again. Refer to [WT-24, "DTC Logic"](#).
NO >> GO TO 3.

3.CHECK TIRE PRESSURE SIGNAL

With CONSULT

1. Adjust tire pressure for all wheels to the specified value. Refer to [WT-65, "Tire Air Pressure"](#).
2. Select "AIR PRESSURE MONITOR" of "BCM" Data Monitor.
3. Check that the air pressures match the specified value.

Monitor item	Displayed value
AIR PRESS FL	Approximately equal to value indicated on tire gauge for front LH tire
AIR PRESS FR	Approximately equal to value indicated on tire gauge for front RH tire
AIR PRESS RR	Approximately equal to value indicated on tire gauge for rear RH tire
AIR PRESS RL	Approximately equal to value indicated on tire gauge for rear LH tire

Is the inspection result normal?

- YES >> Inspection End.
NO >> Repair or replace malfunctioning components.

C1708, C1709, C1710, C1711 TRANSMITTER (NO DATA)

< DTC/CIRCUIT DIAGNOSIS >

C1708, C1709, C1710, C1711 TRANSMITTER (NO DATA)

DTC Logic

INFOID:000000009998822

NOTE:

The Signal Tech II Tool [- (J-50190)] can be used to perform the following functions. Refer to the Signal Tech II User Guide for additional information.

- Activate and display TPMS sensor IDs
- Display tire pressure reported by the TPMS sensor
- Read TPMS DTCs
- Register TPMS sensor IDs

DTC DETECTION LOGIC

DTC	Display Item	Malfunction Detected Condition	Possible Cause
C1708	[NO - DATA] - FL	Data signal from the front LH wheel sensor cannot be detected.	• Driving in area with radio interference. • ID registration incomplete • Tire pressure sensor • Harness or connectors • BCM
C1709	[NO - DATA] - FR	Data signal from the front RH wheel sensor cannot be detected.	
C1710	[NO - DATA] - RR	Data signal from the rear RH wheel sensor cannot be detected.	
C1711	[NO - DATA] - RL	Data signal from the rear LH wheel sensor cannot be detected.	

DTC CONFIRMATION PROCEDURE

1.PERFORM SELF DIAGNOSTIC RESULT

With CONSULT

1. Perform tire pressure sensor ID registration. Refer to [WT-21, "Work Procedure"](#).
2. Drive at a speed of 40 km/h (25 MPH) or more for 3 minutes, and then drive the vehicle at any speed for 10 minutes.

NOTE:

Avoid driving in areas with radio interference.

3. Perform Self Diagnostic Result.

Is DTC C1708, C1709, C1710, or C1711 detected?

- YES >> Proceed to [WT-26, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:000000009998823

NOTE:

The Signal Tech II Tool [- (J-50190)] can be used to perform the following functions. Refer to the Signal Tech II User Guide for additional information.

- Activate and display TPMS sensor IDs
- Display tire pressure reported by the TPMS sensor
- Read TPMS DTCs
- Register TPMS sensor IDs

Regarding Wiring Diagram information, refer to [WT-15, "Wiring Diagram"](#).

1.CHECK TIRE PRESSURE SIGNAL

With CONSULT

1. Select "AIR PRESSURE MONITOR" from "BCM" Data Monitor.
2. Check that the air pressures match the specified value.

C1708, C1709, C1710, C1711 TRANSMITTER (NO DATA)

< DTC/CIRCUIT DIAGNOSIS >

Monitor item	Displayed value
AIR PRESS FL	Approximately equal to specified value. Refer to WT-65, "Tire Air Pressure" .
AIR PRESS FR	
AIR PRESS RR	
AIR PRESS RL	

Are all tire pressures displayed 0 kPa (psi)?

YES >> GO TO 2.

NO >> Replace applicable tire pressure sensor. Refer to [WT-61, "Removal and Installation"](#).

2. CHECK BCM POWER CIRCUIT

Check voltage between BCM connector M20 terminal 161 and ground.

BCM		Ground	Voltage (Approx.)
Connector	Terminal		
M20	161	—	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

3. CHECK BCM GROUND CIRCUIT

Check continuity between BCM connector M20 and ground.

BCM		Ground	Continuity
Connector	Terminal		
M20	170	—	Yes
	171		

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness or connectors.

4. TIRE PRESSURE SENSOR ID REGISTRATION

Perform tire pressure sensor ID registration. Refer to [WT-21, "Work Procedure"](#).

Can the tire pressure sensor ID registration be completed?

YES >> GO TO 5.

NO >> Replace applicable tire pressure sensor. Refer to [WT-61, "Removal and Installation"](#).

5. RECHECK TIRE PRESSURE SIGNAL

With CONSULT

- Drive at a speed of 40 km/h (25 MPH) or more for 3 minutes, and then drive the vehicle at any speed for 10 minutes.
- Select "AIR PRESSURE MONITOR" from "BCM" Data Monitor.
- Check that the air pressures match the specified value.

Monitor item	Displayed value
AIR PRESS FL	Approximately equal to specified value. Refer to WT-65, "Tire Air Pressure" .
AIR PRESS FR	
AIR PRESS RR	
AIR PRESS RL	

Does Data Monitor display specified value without turning tire pressure warning lamp ON?

YES >> Inspection End.

C1708, C1709, C1710, C1711 TRANSMITTER (NO DATA)

< DTC/CIRCUIT DIAGNOSIS >

NO >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#) (with Intelligent Key System) or [BCS-135, "Removal and Installation"](#) (without Intelligent Key System).

C1716, C1717, C1718, C1719 TRANSMITTER (PRESSURE DATA)

< DTC/CIRCUIT DIAGNOSIS >

C1716, C1717, C1718, C1719 TRANSMITTER (PRESSURE DATA)

DTC Logic

INFOID:000000009998826

NOTE:

The Signal Tech II Tool [- (J-50190)] can be used to perform the following functions. Refer to the Signal Tech II User Guide for additional information.

- Activate and display TPMS sensor IDs
- Display tire pressure reported by the TPMS sensor
- Read TPMS DTCs
- Register TPMS sensor IDs

DTC DETECTION LOGIC

DTC	Display Item	Malfunction Detection Condition	Possible Cause
C1716	[PRESSDATA ERR] FL	Malfunction in the tire pressure data from the front LH wheel tire pressure sensor.	• Excessive tire pressure • ID registration incomplete • Tire pressure sensor • BCM
C1717	[PRESSDATA ERR] FR	Malfunction in the tire pressure data from the front RH wheel tire pressure sensor.	
C1718	[PRESSDATA ERR] RR	Malfunction in the tire pressure data from the rear RH wheel tire pressure sensor.	
C1719	[PRESSDATA ERR] RL	Malfunction in the tire pressure data from the rear LH wheel tire pressure sensor.	

DTC CONFIRMATION PROCEDURE

1.PERFORM SELF DIAGNOSTIC RESULT

With CONSULT

1. Check tire pressure for all wheels and adjust to the specified value. Refer to [WT-65, "Tire Air Pressure"](#).
2. Drive at a speed of 40 km/h (25 MPH) or more for 3 minutes, and then drive the vehicle at any speed for 10 minutes.
3. Perform Self Diagnostic Result.

Is DTC C1716, C1717, C1718, or C1719 detected?

YES >> Proceed to [WT-29, "Diagnosis Procedure"](#).

NO >> Inspection End.

Diagnosis Procedure

INFOID:000000009998827

NOTE:

The Signal Tech II Tool [- (J-50190)] can be used to perform the following functions. Refer to the Signal Tech II User Guide for additional information.

- Activate and display TPMS sensor IDs
- Display tire pressure reported by the TPMS sensor
- Read TPMS DTCs
- Register TPMS sensor IDs

1.TIRE PRESSURE SENSOR ID REGISTRATION

Perform tire pressure sensor ID registration. Refer to [WT-21, "Work Procedure"](#).

Can the tire pressure sensor ID registration be completed?

YES >> GO TO 2.

NO >> Replace applicable tire pressure sensor. Refer to [WT-61, "Removal and Installation"](#).

2.CHECK TIRE PRESSURE SIGNAL

With CONSULT

1. Adjust tire pressure for all wheels to the specified value. Refer to [WT-65, "Tire Air Pressure"](#).
2. Select "AIR PRESSURE MONITOR" from "BCM".
3. Check that the air pressures match the specified value.

C1716, C1717, C1718, C1719 TRANSMITTER (PRESSURE DATA)

< DTC/CIRCUIT DIAGNOSIS >

Monitor item	Displayed value
AIR PRESS FL	Approximately equal to specified value. Refer to WT-65, "Tire Air Pressure" .
AIR PRESS FR	
AIR PRESS RR	
AIR PRESS RL	

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#) (with Intelligent Key System) or [BCS-135, "Removal and Installation"](#) (without Intelligent Key System).

C1729 VEHICLE SPEED SIGNAL

< DTC/CIRCUIT DIAGNOSIS >

C1729 VEHICLE SPEED SIGNAL

DTC Logic

INFOID:000000009998832

NOTE:

The Signal Tech II Tool [- (J-50190)] can be used to perform the following functions. Refer to the Signal Tech II User Guide for additional information.

- Activate and display TPMS sensor IDs
- Display tire pressure reported by the TPMS sensor
- Read TPMS DTCs
- Register TPMS sensor IDs

DTC DETECTION LOGIC

DTC	Display Item	Malfunction Detected Condition	Possible Cause
C1729	VHCL SPEED SIG ERR	Vehicle speed signal not detected.	• CAN communication • BCM • Combination meter

DTC CONFIRMATION PROCEDURE

1.PERFORM SELF DIAGNOSTIC RESULT

With CONSULT

1. Drive at a speed of 40 km/h (25 MPH) or more for 3 minutes, and then drive the vehicle at any speed for 10 minutes.
2. Perform Self Diagnostic Result.

Is DTC C1729 detected?

- YES >> Proceed to [WT-31, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:000000009998833

NOTE:

The Signal Tech II Tool [- (J-50190)] can be used to perform the following functions. Refer to the Signal Tech II User Guide for additional information.

- Activate and display TPMS sensor IDs
- Display tire pressure reported by the TPMS sensor
- Read TPMS DTCs
- Register TPMS sensor IDs

1.PERFORM SELF DIAGNOSTIC RESULT FOR COMBINATION METER

With CONSULT

Perform Self Diagnostic Result for METER M&A. Refer to [MWI-21, "CONSULT Function \(METER/M&A\)"](#).

Are any DTCs detected?

- YES >> Refer to [BCS-48, "DTC Index"](#) (with Intelligent Key System) or [BCS-108, "DTC Index"](#) (without Intelligent Key System).
NO >> Replace the BCM. Refer to [BCS-75, "Removal and Installation"](#) (with Intelligent Key System) or [BCS-135, "Removal and Installation"](#) (without Intelligent Key System).

C1730, C1731, C1732, C1733 FLAT TIRE

< DTC/CIRCUIT DIAGNOSIS >

C1730, C1731, C1732, C1733 FLAT TIRE

DTC Logic

INFOID:000000009998834

NOTE:

The Signal Tech II Tool [- (J-50190)] can be used to perform the following functions. Refer to the Signal Tech II User Guide for additional information.

- Activate and display TPMS sensor IDs
- Display tire pressure reported by the TPMS sensor
- Read TPMS DTCs
- Register TPMS sensor IDs

DTC DETECTION LOGIC

DTC	Display Item	Malfunction Detected Condition	Possible Cause
C1730	FLAT TIRE FL	Front LH tire pressure is 70 kPa (0.7 kg/cm ² , 10 psi) or less.	• Low tire pressure • Tire pressure sensor
C1731	FLAT TIRE FR	Front RH tire pressure is 70 kPa (0.7 kg/cm ² , 10 psi) or less.	
C1732	FLAT TIRE RR	Rear RH tire pressure is 70 kPa (0.7 kg/cm ² , 10 psi) or less.	
C1733	FLAT TIRE RL	Rear LH tire pressure is 70 kPa (0.7 kg/cm ² , 10 psi) or less.	

DTC CONFIRMATION PROCEDURE

1.PERFORM SELF DIAGNOSTIC RESULT

With CONSULT

1. Drive at a speed of 40 km/h (25 MPH) or more for 3 minutes, and then drive the vehicle at any speed for 10 minutes.
2. Perform Self Diagnostic Result.

Is DTC C1730, C1731, C1732, or C1733 detected?

- YES >> Proceed to [WT-32, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:000000009998835

NOTE:

The Signal Tech II Tool [- (J-50190)] can be used to perform the following functions. Refer to the Signal Tech II User Guide for additional information.

- Activate and display TPMS sensor IDs
- Display tire pressure reported by the TPMS sensor
- Read TPMS DTCs
- Register TPMS sensor IDs

1.TIRE PRESSURE SENSOR ID REGISTRATION

Perform tire pressure sensor ID registration. Refer to [WT-21, "Work Procedure"](#).

Can the tire pressure sensor ID registration be completed?

- YES >> GO TO 2.
NO >> Replace applicable tire pressure sensor. Refer to [WT-61, "Removal and Installation"](#).

2.CHECK TIRE PRESSURE

Check the air pressure of all wheels. Refer to [WT-65, "Tire Air Pressure"](#).

Is the inspection result normal?

- YES >> Perform DTC CONFIRMATION PROCEDURE again. Refer to [WT-32, "DTC Logic"](#).
NO >> GO TO 3.

C1730, C1731, C1732, C1733 FLAT TIRE

< DTC/CIRCUIT DIAGNOSIS >

3. CHECK TIRE PRESSURE SIGNAL

With CONSULT

1. Adjust tire pressure for all wheels to the specified value. Refer to [WT-65, "Tire Air Pressure"](#).
2. Select "AIR PRESSURE MONITOR" from "BCM" Data Monitor.
3. Check that the air pressures match the specified value.

Monitor item	Displayed value
AIR PRESS FL	Approximately equal to value indicated on tire gauge for front LH tire
AIR PRESS FR	Approximately equal to value indicated on tire gauge for front RH tire
AIR PRESS RR	Approximately equal to value indicated on tire gauge for rear RH tire
AIR PRESS RL	Approximately equal to value indicated on tire gauge for rear LH tire

Is the inspection result normal?

- YES >> Inspection End.
NO >> Repair or replace malfunctioning components.

A

B

C

D

WT

F

G

H

I

J

K

L

M

N

O

P

C1734 BCM

< DTC/CIRCUIT DIAGNOSIS >

C1734 BCM

DTC Logic

INFOID:000000009998836

NOTE:

The Signal Tech II Tool [- (J-50190)] can be used to perform the following functions. Refer to the Signal Tech II User Guide for additional information.

- Activate and display TPMS sensor IDs
- Display tire pressure reported by the TPMS sensor
- Read TPMS DTCs
- Register TPMS sensor IDs

DTC DETECTION LOGIC

DTC	Display Item	Malfunction Detected Condition	Possible Cause
C1734	CONTROL UNIT	TPMS malfunction in BCM.	BCM

DTC CONFIRMATION PROCEDURE

1.PERFORM SELF DIAGNOSTIC RESULT

With CONSULT

Perform Self Diagnostic Result.

Is DTC C1734 detected?

- YES >> Proceed to [WT-34, "Diagnosis Procedure"](#).
- NO >> Inspection End.

Diagnosis Procedure

INFOID:000000009998837

NOTE:

The Signal Tech II Tool [- (J-50190)] can be used to perform the following functions. Refer to the Signal Tech II User Guide for additional information.

- Activate and display TPMS sensor IDs
- Display tire pressure reported by the TPMS sensor
- Read TPMS DTCs
- Register TPMS sensor IDs

Regarding Wiring Diagram information, refer to [WT-15, "Wiring Diagram"](#).

1.CHECK BCM HARNESS CONNECTORS

Check BCM harness connectors for damage or loose connections.

Is the inspection result normal?

- YES >> Repair or replace connectors.
- NO >> GO TO 2.

2.CHECK BCM POWER SUPPLY AND GROUND

Check BCM power supply and ground. Refer to [BCS-68, "Diagnosis Procedure"](#) (with Intelligent Key System) or [BCS-128, "Diagnosis Procedure"](#) (without Intelligent Key System).

Is the inspection result normal?

- YES >> GO TO 3.
- NO >> Repair or replace harness or connectors.

3.CHECK BCM INPUT/OUTPUT SIGNALS

Check BCM input/output signals. Refer to [BCS-28, "Reference Value"](#) (with Intelligent Key System) or [BCS-96, "Reference Value"](#) (without Intelligent Key System).

Is the inspection result normal?

- YES >> Inspection End.

C1734 BCM

< DTC/CIRCUIT DIAGNOSIS >

NO >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#) (with Intelligent Key System) or [BCS-135, "Removal and Installation"](#) (without Intelligent Key System).

A

B

C

D

WT

F

G

H

I

J

K

L

M

N

O

P

C1735 IGNITION SIGNAL

< DTC/CIRCUIT DIAGNOSIS >

C1735 IGNITION SIGNAL

DTC Logic

INFOID:000000009998838

NOTE:

The Signal Tech II Tool [- (J-50190)] can be used to perform the following functions. Refer to the Signal Tech II User Guide for additional information.

- Activate and display TPMS sensor IDs
- Display tire pressure reported by the TPMS sensor
- Read TPMS DTCs
- Register TPMS sensor IDs

DTC DETECTION LOGIC

DTC	Display Item	Malfunction Detected Condition	Possible Cause
C1735	IGNITION SIGNAL LINE - BCM/TPMS	BCM has detected a mismatch between IGN ON signals.	BCM

DTC CONFIRMATION PROCEDURE

1.PERFORM SELF DIAGNOSTIC RESULT

With CONSULT

Perform Self Diagnostic Result.

Is DTC C1735 detected?

- YES >> Proceed to [WT-36, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:000000009998839

NOTE:

The Signal Tech II Tool [- (J-50190)] can be used to perform the following functions. Refer to the Signal Tech II User Guide for additional information.

- Activate and display TPMS sensor IDs
- Display tire pressure reported by the TPMS sensor
- Read TPMS DTCs
- Register TPMS sensor IDs

1.CHECK CAN IGNITION SIGNAL

With CONSULT

1. Select "INTELLIGENT KEY" from "BCM" Data Monitor.
2. Check IGN RLY1-F/B value.

Monitor item	Displayed value
IGN RLY1 F/B	On with ignition in ON position

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Check CAN system. Refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).

2.CHECK BCM POWER SUPPLY AND GROUND

Check BCM power supply and ground. Refer to [BCS-68, "Diagnosis Procedure"](#) (with Intelligent Key System) or [BCS-128, "Diagnosis Procedure"](#) (without Intelligent Key System).

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace harness or connectors.

3.DRIVE VEHICLE

Clear DTC and test drive vehicle to check for low tire pressure warning lamp.

C1735 IGNITION SIGNAL

< DTC/CIRCUIT DIAGNOSIS >

Does the vehicle operate without any low tire pressure warning lamp?

YES >> Inspection End.

NO >> Replace BCM. Refer to [BCS-75. "Removal and Installation"](#) (with Intelligent Key System) or [BCS-135. "Removal and Installation"](#) (without Intelligent Key System).

A

B

C

D

WT

F

G

H

I

J

K

L

M

N

O

P

C1765, C1766, C1767, C1768 TIRE PRESSURE SENSOR

< DTC/CIRCUIT DIAGNOSIS >

C1765, C1766, C1767, C1768 TIRE PRESSURE SENSOR

DTC Description

INFOID:0000000010206016

DTC DETECTION LOGIC

DTC	Display Item	Malfunction Detected Condition	Possible Cause
C1765	WHEEL TOP DATA FL (Wheel top data front left)	Malfunction in the wheel top data from the front LH wheel speed sensor.	Wheel speed sensor
C1766	WHEEL TOP DATA FR (Wheel top data front right)	Malfunction in the wheel top data from the front RH wheel speed sensor.	
C1767	WHEEL TOP DATA RR (Wheel top data rear right)	Malfunction in the wheel top data from the rear RH wheel speed sensor.	
C1768	WHEEL TOP DATA RL (Wheel top data rear left)	Malfunction in the wheel top data from the rear LH wheel speed sensor.	

Diagnosis Procedure

INFOID:0000000010206017

1.PERFORM ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) SELF-DIAGNOSIS

When DTC "C1765, C1766, C1767, C1768" is detected, perform ABS system diagnosis.

>> Perform ABS system diagnosis. Refer to [BRC-55, "DTC Index"](#).

C1769 CONFIGURATION SETTING

< DTC/CIRCUIT DIAGNOSIS >

C1769 CONFIGURATION SETTING

DTC Description

INFOID:0000000010206018

This procedure must be performed:

- After replacement of BCM.

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition
C1769	CONFIG SETTING (Configuration setting)	Tire air pressure monitoring system configuration cannot be performed.
		Receiver ID registration cannot be performed.

Diagnosis Procedure

INFOID:0000000010206019

1. TIRE PRESSURE MONITORING SYSTEM CONFIGURATION

Perform configuration.

>> Refer to [WT-21, "Work Procedure"](#), and GO TO 2.

2. TIRE PRESSURE SENSOR ID REGISTRATION

Perform tire pressure sensor ID registration. Refer to [WT-21, "Work Procedure"](#).

Does low tire pressure warning lamp turn OFF?

YES >> Inspection End.

NO >> Configuration setting tire pressure monitoring system. Refer to [WT-21, "Work Procedure"](#).

C1770, C1771, C1772, C1773 G SENSOR

< DTC/CIRCUIT DIAGNOSIS >

C1770, C1771, C1772, C1773 G SENSOR

DTC Description

INFOID:0000000010290341

DTC DETECTION LOGIC

DTC	Display Item	Malfunction Detected Condition	Possible Causes
C1770	G SENSOR FL (G sensor front left)	Malfunction in the G sensor data from front left wheel sensor.	• Tire pressure sensor • Tire pressure receiver
C1771	G SENSOR FR (G sensor front right)	Malfunction in the G sensor data from front right wheel sensor.	
C1772	G SENSOR RL (G sensor rear left)	Malfunction in the G sensor data from rear left wheel sensor.	
C1773	G SENSOR RR (G sensor rear right)	Malfunction in the G sensor data from rear right wheel sensor.	

Diagnosis Procedure

INFOID:0000000010290342

1. REPLACE WHEEL SENSOR

When DTC "C1770, C1771, C1772, C1773" is detected, replace wheel sensor.

>> Replace wheel sensor. Refer to [BRC-132, "FRONT WHEEL SENSOR : Removal and Installation"](#) (front wheel sensor), [BRC-134, "REAR WHEEL SENSOR : Removal and Installation"](#) (rear wheel sensor).

U1000 CAN COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

U1000 CAN COMM CIRCUIT

Description

INFOID:0000000010206022

CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN-H line, CAN-L line) allowing a high rate of information transmission with less wiring. Each control unit communicates data but selectively reads required data only.

DTC Logic

INFOID:0000000010206023

DTC DETECTION LOGIC

DTC	Display item	Malfunction detected condition	Possible cause
U1000	CAN COMM CIRCUIT	Low tire pressure warning control unit is not communicating CAN communication signal for 2 seconds or more.	- CAN communication malfunction - Malfunction of low tire pressure warning control unit

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION

With CONSULT

- Drive for several minutes at a speed of 40 km/h (25 MPH) or more.
- Stop the vehicle.
- Perform "self-diagnosis" for "AIR PRESSURE MONITOR".

Is DTC "U1000" detected?

- YES >> Proceed to [WT-41, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010206024

Proceed to [LAN-30, "CAN COMMUNICATION SYSTEM : CAN System Specification Chart"](#).

U1010 CONTROL UNIT (CAN)

< DTC/CIRCUIT DIAGNOSIS >

U1010 CONTROL UNIT (CAN)

DTC Logic

INFOID:0000000010206025

DTC DETECTION LOGIC

DTC	Display Item	Malfunction Detected Condition	Possible cause
U1010	CONTROL UNIT (CAN)	BCM detected internal CAN communication circuit malfunction.	BCM

Diagnosis Procedure

INFOID:0000000010206026

1. REPLACE BCM

When DTC "U1010" is detected, replace BCM.

>> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#) (with Intelligent Key System) or [BCS-135, "Removal and Installation"](#) (without Intelligent Key System).

LOW TIRE PRESSURE WARNING LAMP

< DTC/CIRCUIT DIAGNOSIS >

LOW TIRE PRESSURE WARNING LAMP

Component Function Check

INFOID:0000000010269532

1.CHECK THE ILLUMINATION OF THE LOW TIRE PRESSURE WARNING LAMP

Check that the low tire pressure warning lamp is turned OFF after illuminating for approximately 1 second, when the ignition switch is turned ON.

Is the inspection result normal?

YES >> Inspection End.

NO >> Perform trouble diagnosis. Refer to [WT-43, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010269533

1.PERFORM SELF DIAGNOSTIC RESULT

With CONSULT

1. Turn the ignition switch ON.
2. Perform "SELF DIAGNOSTIC RESULT".

Are any DTCs detected?

YES >> Refer to [BCS-48, "DTC Index"](#) (with Intelligent Key System) or [BCS-108, "DTC Index"](#) (without Intelligent Key System).

NO >> GO TO 2.

2.CHECK LOW TIRE PRESSURE WARNING LAMP SIGNAL

With CONSULT

1. Turn the ignition switch ON.
2. On "DATA MONITOR" select "WARNING LAMP."
3. Check that the low tire pressure warning lamp is turned OFF after illuminating for approximately 1 second, when the ignition switch is turned ON.

Is the inspection result normal?

YES >> Check the combination meter. Refer to [MWI-21, "CONSULT Function \(METER/M&A\)"](#).

NO >> Replace the BCM. Refer to [BCS-75, "Removal and Installation"](#) (with Intelligent Key System) or [BCS-135, "Removal and Installation"](#) (without Intelligent Key System).

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

POWER SUPPLY AND GROUND CIRCUIT WITH INTELLIGENT KEY SYSTEM

WITH INTELLIGENT KEY SYSTEM : Diagnosis Procedure

INFOID:0000000010269542

Regarding Wiring Diagram information, refer to [BCS-50. "Wiring Diagram"](#).

1. CHECK FUSE

Check that the following fuse is not blown.

Terminal No.	Signal name	Fuse No.
161	BCM power supply	7 (10A)

Is the fuse blown?

- YES >> Replace the blown fuse after repairing the affected circuit.
NO >> GO TO 2.

2. CHECK POWER SUPPLY CIRCUIT

1. Disconnect BCM connector M20.
2. Check voltage between BCM connector M20 and ground.

BCM		Ground	Voltage (Approx.)
Connector	Terminal		
M20	161	—	Battery voltage

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace harness or connectors.

3. CHECK GROUND CIRCUIT

Check continuity between BCM connector M20 and ground.

BCM		Ground	Continuity
Connector	Terminal		
M20	170	—	Yes
	171		

Is the inspection result normal?

- YES >> Inspection End.
NO >> Repair or replace harness or connectors.

WITHOUT INTELLIGENT KEY SYSTEM

WITHOUT INTELLIGENT KEY SYSTEM : Diagnosis Procedure

INFOID:0000000010269543

Regarding Wiring Diagram information, refer to [BCS-110. "Wiring Diagram"](#).

1. CHECK FUSE

Check that the following fuse is not blown.

Terminal No.	Signal name	Fuse No.
161	BCM power supply	7 (10A)

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

Is the fuse blown?

- YES >> Replace the blown fuse after repairing the affected circuit.
NO >> GO TO 2.

2. CHECK POWER SUPPLY CIRCUIT

1. Disconnect BCM connector M20.
2. Check voltage between BCM connector M20 and ground.

BCM		Ground	Voltage (Approx.)
Connector	Terminal		
M20	161	—	Battery voltage

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace harness or connectors.

3. CHECK GROUND CIRCUIT

Check continuity between BCM connector M20 and ground.

BCM		Ground	Continuity
Connector	Terminal		
M20	170	—	Yes
	171		

Is the inspection result normal?

- YES >> Inspection End.
NO >> Repair or replace harness or connectors.

< SYMPTOM DIAGNOSIS >

SYMPTOM DIAGNOSIS

TPMS

Symptom Table

INFOID:0000000010215022

LOW TIRE PRESSURE WARNING LAMP SYMPTOM CHART

TPMS

< SYMPTOM DIAGNOSIS >

Diagnosis items	Symptom (Power switch ON)	Low tire pressure warning lamp	Cause	Action
Low tire pressure warning lamp	The low tire pressure warning lamp illuminates for 1 second, then turns OFF.	 ON 1 sec > stays OFF SEIA0592E	Wake-up operation for all tire pressure sensors at wheels is completed.	No system malfunctions
	The low tire pressure warning lamp repeats blinking ON for 2 seconds and OFF for 0.2 seconds.	 Blinks:  ON 2 sec > OFF 0.2 sec SEIA0593E	Wake-up operation for all tire pressure sensors at wheels is not completed.	Perform the ID registration for all tire pressure sensors at wheels. Refer to WT-21, "Work Procedure" .
	The low tire pressure warning lamp blinks once.	 Blinks 1 time ON 0.3 sec > OFF 1.0 sec JPEIC0090GB	The front left tire pressure sensor is not activated.	Perform the ID registration for the tire pressure sensor at front left wheel. Refer to WT-21, "Work Procedure" .
	The low tire pressure warning lamp repeats blinking twice.	  Blinks 2 times ON 0.3 sec > OFF 0.3 sec SEIA0595E	The front right tire pressure sensor is not activated.	Perform the ID registration for the tire pressure sensor at front right wheel. Refer to WT-21, "Work Procedure" .
	The low tire pressure warning lamp repeats blinking for 3 times.	   Blinks 3 times ON 0.3 sec > OFF 0.3 sec SEIA0596E	The rear right tire pressure sensor is not activated.	Perform the ID registration for the tire pressure sensor at rear right wheel. Refer to WT-21, "Work Procedure" .
	The low tire pressure warning lamp repeats blinking for 4 times.	    Blinks 4 times ON 0.3 sec > OFF 0.3 sec SEIA0597E	The rear left tire pressure sensor is not activated.	Perform the ID registration for the tire pressure sensor at rear left wheel. Refer to WT-21, "Work Procedure" .
	The low tire pressure warning lamp turns ON and stays illuminated.	 Comes ON and stays ON SEIA0598E	Low tire pressure	Check the tire pressure for all wheels and adjust to the specified value. Refer to WT-65, "Tire Air Pressure" .

TPMS

< SYMPTOM DIAGNOSIS >

Diagnosis items	Symptom (Power switch ON)	Low tire pressure warning lamp	Cause	Action
Low tire pressure warning lamp	The low tire pressure warning lamp repeats blinking at 0.5-second intervals for 1 minute, and then stays illuminated.	 Blinks 1 min ON 0.5 sec > OFF 0.5 sec and stays ON SEIA0788E	The combination meter fuse is open or removed (or pulled out).	Check and install the combination meter fuse. If necessary, replace the fuse.
			The BCM harness connector is removed.	Check the connection conditions of the BCM harness connector, and repair if necessary.
			Tire Pressure Monitoring System (TPMS) malfunction.	- Perform CONSULT self-diagnosis. Refer to BCS-26, "AIR PRESSURE MONITOR : CONSULT Function (BCM-AIR PRESSURE MONITOR)"(with Intelligent Key System) or BCS-94, "AIR PRESSURE MONITOR : CONSULT Function (BCM-AIR PRESSURE MONITOR)"(without Intelligent Key System). - If necessary, perform tire pressure sensor ID registration. Refer to WT-21, "Work Procedure".

NOTE:

If tire pressure sensor wake-up operation is not completed for two or more tire pressure sensors, the applicable low tire pressure warning lamp blinking patterns are displayed continuously.
 (Example: Blinks once/OFF/blinks 3 times = Wake-up operation is not completed at the front left wheel and rear right wheel tire pressure sensors.)

LOW TIRE PRESSURE WARNING LAMP DOES NOT TURN ON

< SYMPTOM DIAGNOSIS >

LOW TIRE PRESSURE WARNING LAMP DOES NOT TURN ON

Low Tire Pressure Warning Lamp Does Not Come On When Ignition Switch Is Turned On

INFOID:000000009998841

NOTE:

The Signal Tech II Tool [- (J-50190)] can be used to perform the following functions. Refer to the Signal Tech II User Guide for additional information.

- Activate and display TPMS sensor IDs
- Display tire pressure reported by the TPMS sensor
- Read TPMS DTCs
- Register TPMS sensor IDs

1.PERFORM SELF DIAGNOSTIC RESULT

With CONSULT

Perform Self Diagnostic Result.

Is DTC U1000 detected?

- YES >> Refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).
NO >> GO TO 2.

2.CHECK COMBINATION METER

Check combination meter operation. Refer to [MWI-21, "CONSULT Function \(METER/M&A\)"](#).

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Replace combination meter. Refer to [MWI-82, "Removal and Installation"](#).

3.CHECK LOW TIRE PRESSURE WARNING LAMP

Disconnect BCM harness connector.

Does the low tire pressure warning lamp activate?

- YES >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#) (with Intelligent Key System) or [BCS-135, "Removal and Installation"](#) (without Intelligent Key System).
NO >> Check combination meter operation.

LOW TIRE PRESSURE WARNING LAMP STAYS ON

< SYMPTOM DIAGNOSIS >

LOW TIRE PRESSURE WARNING LAMP STAYS ON

Low Tire Pressure Warning Lamp Stays On When Ignition Switch Is Turned On

INFOID:000000009998842

1. CHECK BCM CONNECTORS

1. Turn ignition switch OFF.
2. Disconnect BCM connectors.
3. Check terminals for damage or loose connections.

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace damaged connectors.

2. BCM POWER SUPPLY AND GROUND CIRCUITS

Check BCM power supply and ground circuits. Refer to [BCS-68. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> Replace BCM. Refer to [BCS-75. "Removal and Installation"](#) (with Intelligent Key System) or [BCS-135. "Removal and Installation"](#) (without Intelligent Key System).
NO >> Repair BCM circuits.

LOW TIRE PRESSURE WARNING LAMP BLINKS

< SYMPTOM DIAGNOSIS >

LOW TIRE PRESSURE WARNING LAMP BLINKS

Description

INFOID:0000000010215016

The low tire pressure warning lamp blinks when the power switch is turned ON.

NOTE:

The position of an inactive tire pressure sensor can be identified by checking the blinking timing of the low tire pressure warning lamp.

Low tire pressure warning lamp blinking timing		Activation tire position
ON 	a : 0.3 sec. b : 1.0 sec.	Front LH
ON 	a : 0.3 sec. b : 1.0 sec.	Front RH
ON 	a : 0.3 sec. b : 1.0 sec.	Rear RH
ON 	a : 0.3 sec. b : 1.0 sec.	Rear LH
ON 	a : 2 sec. b : 0.2 sec.	All tires

JPEIC0089GB

Diagnosis Procedure

INFOID:0000000010215017

1. TIRE PRESSURE SENSOR ID REGISTRATION

Perform tire pressure sensor ID registration. Refer to [WT-21, "Work Procedure"](#).

Is tire pressure sensor ID registration completed?

YES >> Inspection End.

NO >> Perform the "self-diagnosis" for "AIR PRESSURE MONITOR" of "BCM". Refer to [BCS-48, "DTC Index"](#).

ID REGISTRATION CANNOT BE COMPLETED

< SYMPTOM DIAGNOSIS >

ID REGISTRATION CANNOT BE COMPLETED

Description

INFOID:0000000010215018

The ID of the tire pressure sensor installed in each wheel cannot be registered in the tire pressure monitoring system. Inspect the tire pressure sensor or the tire pressure monitoring system circuit.

Diagnosis Procedure

INFOID:0000000010215019

1.CHECK TIRE PRESSURE SENSOR ACTIVATION TOOL

Check tire pressure sensor activation tool.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the battery of tire pressure sensor activation tool or repair/replace the tire pressure sensor activation tool.

2.TIRE PRESSURE SENSOR ID REGISTRATION

Perform tire pressure sensor ID registration. Refer to [WT-21, "Work Procedure"](#).

CAUTION:

To perform ID registration, observe the following points:

- Never register ID in a place where radio waves are interfered (e.g. radio tower).
- Never register ID in a place close to vehicles including TPMS.

Is tire pressure sensor ID registration completed?

YES >> Inspection End.

NO >> GO TO 3.

3.CHECK TIRE PRESSURE SIGNAL

Change the work location and perform ID registration again.

NOTE:

Depending on the tire pressure sensor position*, a blind spot exists, and the tire pressure receiver gets poor reception. If an ID registration is performed under this condition, the registration may not be completed. In such case, follow the instructions below to improve the radio wave receiving environment.

- Rotate tire by 90°, 180°, or 270°. (This Step is to change tire pressure sensor position.)
- Open the door close to the tire of which ID registration is ongoing.

*: Radio wave reception condition depends on vehicle architecture (e.g. body harness layout, tire wheel design) or environment.

When ID registration is performed, which wheels do not react?

All wheels react and ID registration is possible.>>Inspection End.

Only certain wheel(s) do not react.>>Replace applicable tire pressure sensor. Refer to [WT-61, "Removal and Installation"](#).

All wheels do not react.>>Replace BCM. Refer to [BCS-75, "Removal and Installation"](#) (with Intelligent Key System) or [BCS-135, "Removal and Installation"](#) (without Intelligent Key System).

EASY FILL TIRE ALERT DOES NOT ACTIVATE

< SYMPTOM DIAGNOSIS >

EASY FILL TIRE ALERT DOES NOT ACTIVATE

Description

INFOID:0000000010215020

The easy fill tire alert does not function while inflating a tire when the select lever position is in P-range with the power switch ON or with the vehicle set to READY.

NOTE:

- After starting to inflate the tire, it takes a few seconds for the easy fill tire alert to function.
- If there is no response for approximately 15 seconds or more after inflating the tires, cancel the use of the easy fill tire alert function or move the vehicle approximately 1 m (3.2 ft) backward or forward to try again. The air filler pressure may be weak or out of service area.
- For easy fill tire alert, Refer to [WT-9, "Easy Fill Tire Alert Function"](#).

Diagnosis Procedure

INFOID:0000000010215021

1. LOCATION CHANGE

Move the vehicle to other area and repeat the procedure of the easy fill tire alert function. Refer to [WT-9, "Easy Fill Tire Alert Function"](#).

Is the function normal?

- YES >> Normal (the easy fill tire alert may not operate, depending on reception condition.)
NO >> GO TO 2.

2. PERFORM BCM SELF-DIAGNOSIS

With CONSULT

Perform "self-diagnosis" for "AIR PRESSURE MONITOR" of "BCM".

Is any DTC detected?

- YES >> Perform diagnosis for detected DTC. Refer to [BCS-48, "DTC Index"](#).
NO >> GO TO 3.

3. CHECK HAZARD WARNING LAMP OPERATION

Check hazard warning lamp operation with hazard switch.

Does the hazard warning lamp blink?

- YES >> GO TO 4.
NO >> Perform diagnosis for the hazard warning lamp. Refer to [EXL-55, "Wiring Diagram"](#).

4. PERFORM ELECTRIC SHIFT CONTROL MODULE SELF-DIAGNOSIS

With CONSULT

Perform "self-diagnosis" for "SHIFT".

Is any DTC detected?

- YES >> Perform diagnosis for detected DTC. Refer to [BCS-48, "DTC Index"](#).
NO >> GO TO 5.

5. CHECK HORN OPERATION

Check horn operation. Refer to [HRN-3, "Wiring Diagram"](#).

Is the operation normal?

- YES >> GO TO 6.
NO >> Repair or replace malfunctioning components.

6. PERFORM SELF-DIAGNOSIS

With CONSULT

1. Drive for 10 minutes at a speed of 40 km/h (25 MPH) or more.

CAUTION:

Total time driving at a speed of 40 km/h (25 MPH) or more must be 10 minutes.

2. Stop the vehicle.
3. Perform "self-diagnosis" for "AIR PRESSURE MONITOR" of "BCM".

Is any DTC detected?

- YES >> Perform diagnosis for detected DTC. Refer to [BCS-48, "DTC Index"](#).

EASY FILL TIRE ALERT DOES NOT ACTIVATE

< SYMPTOM DIAGNOSIS >

NO >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#) (with Intelligent Key System) or [BCS-135, "Removal and Installation"](#) (without Intelligent Key System).

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

< SYMPTOM DIAGNOSIS >

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

NVH Troubleshooting Chart

INFOID:000000009998845

Use the chart below to find the cause of the symptom. If necessary, repair or replace these parts.

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P

WT

Reference page			WT-60	WT-56	WT-57	WT-65	FSU-8	—	—	WT-65	DLN-97	DLN-110	FAX-6, or FSU-5	RAX-5 or RAX-13	—	—	FAX-6 or FAX-55	BR-6	ST-6
Possible cause and SUSPECTED PARTS			Improper installation, looseness	Out-of-round	Imbalance	Incorrect tire pressure	Uneven tire wear	Deformation or damage	Non-uniformity	Incorrect tire size	PROPELLER SHAFT (if equipped)	DIFFERENTIAL (if equipped)	FRONT AXLE AND FRONT SUSPENSION	REAR AXLE AND REAR SUSPENSION	TIRE	WHEEL	DRIVE SHAFT	BRAKE	STEERING
Symptom	TIRE	Noise	x	x	x	x	x	x	x		x	x	x	x		x	x	x	x
		Shake	x	x	x	x	x	x		x	x		x	x		x	x	x	x
		Vibration				x				x	x		x	x			x		x
		Shimmy	x	x	x	x	x	x	x	x			x	x		x		x	x
		Shudder	x	x	x	x	x	x		x			x	x		x		x	x
		Poor quality ride or handling	x	x	x	x	x	x		x			x		x	x			
	WHEEL	Noise	x	x	x			x			x	x	x	x	x		x	x	x
		Shake	x	x	x			x			x		x	x	x		x	x	x
		Shimmy, Shudder	x	x	x			x					x	x	x			x	x
		Poor quality ride or handling	x	x	x			x					x	x	x				

x: Applicable

WHEEL

< PERIODIC MAINTENANCE >

PERIODIC MAINTENANCE

WHEEL

Inspection

INFOID:0000000010244235

WHEEL

1. Check tires for wear and improper inflation.
2. Check wheels for deformation, cracks and other damage. If deformed, remove wheel and check wheel runout.
 - a. Remove tire from wheel and mount wheel on a balancer machine.
 - b. Set dial indicator as shown.
 - c. Check runout, if runout value exceeds the limit, replace wheel.

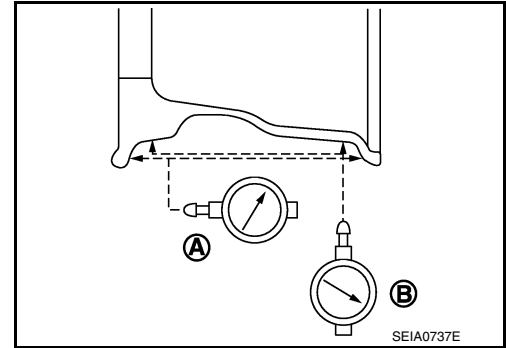
Limit

Axial Runout (A)

Refer to [WT-65, "Wheel"](#).

Radial Runout (B)

Refer to [WT-65, "Wheel"](#).



WHEEL AND TIRE

< PERIODIC MAINTENANCE >

WHEEL AND TIRE

Adjustment

INFOID:000000010244236

BALANCING WHEELS (ADHESIVE WEIGHT TYPE)

Preparation Before Adjustment

Remove inner and outer balance weights from the wheel. Using releasing agent, remove double-faced adhesive tape from the wheel and tire.

CAUTION:

- **Be careful not to scratch the wheel and tire during removal.**
- **After removing double-faced adhesive tape, wipe clean all traces of releasing agent from the wheel and tire.**

Wheel Balance Adjustment

CAUTION:

- **DO NOT use center hole cone-type clamping machines to hold the wheel during tire removal/installation or balancing or damage to the wheel paint, cladding or chrome may result. Use only rim-type or universal lug-type clamping machines to hold the wheel during servicing.**

- If a balancer machine has an adhesive weight mode setting, select the adhesive weight mode setting and skip Step 2 below. If a balancer machine only has the clip-on (rim flange) weight mode setting, follow Step 2 to calculate the correct size adhesive weight.

1. Set wheel and tire on balancer machine using the center hole as a guide. Start the balancer machine.
2. For balancer machines that only have a clip-on (rim flange) weight mode setting, follow this step to calculate the correct size adhesive weight to use. When inner and outer imbalance values are shown on the balancer machine indicator, multiply outer imbalance value by 5/3 (1.67) to determine balance weight that should be used. Select the outer balance weight with a value closest to the calculated value above and install in to the designated outer position of or at the designated angle in relation to the wheel and tire.

- a. Indicated imbalance value $\times 5/3$ (1.67) = balance weight to be installed

Calculation example:

23 g (0.81 oz) $\times 5/3$ (1.67) = 38.33 g (1.35 oz) $\Rightarrow$ 40 g (1.41 oz)
balance weight (closer to calculated balance weight value)

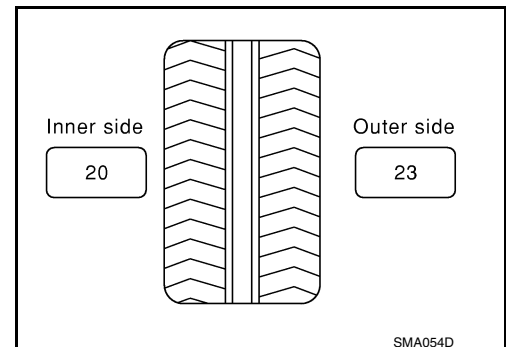
NOTE:

Note that balance weight value must be closer to the calculated balance weight value.

Example:

37.4 $\Rightarrow$ 35 g (1.23 oz)

37.5 $\Rightarrow$ 40 g (1.41 oz)



WHEEL AND TIRE

< PERIODIC MAINTENANCE >

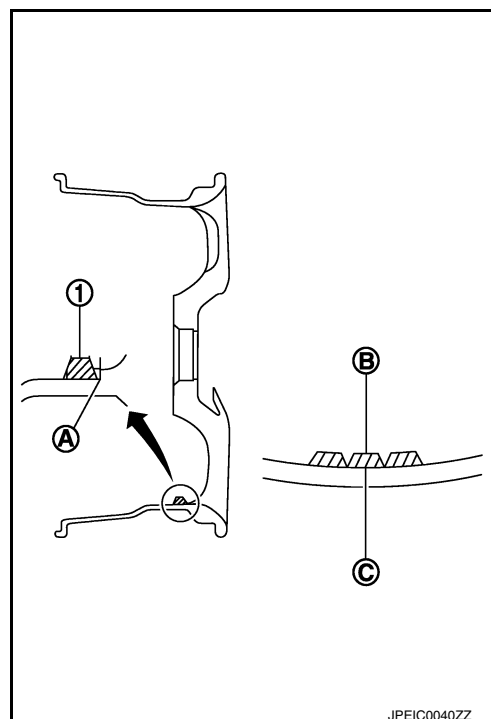
3. Install balance weight in the position shown.

CAUTION:

- Do not install the inner balance weight before installing the outer balance weight.
- Before installing the balance weight, be sure to clean the mating surface of the wheel and tire.
- When installing balance weight (1) to wheel and tire, set it into the grooved area (A) on the inner wall of the wheel and tire as shown so that the balance weight center (B) is aligned with the balancer machine indication position (angle) (C).

CAUTION:

- Always use Genuine NISSAN adhesive balance weights.
- Balance weights are non-reusable; always replace with new ones.
- Do not install more than three sheets of balance weights.



4. If calculated balance weight value exceeds 50 g (1.76 oz), install two balance weight sheets in line with each other as shown.

CAUTION:

Do not install one balance weight sheet on top of another.

5. Start balancer machine again.

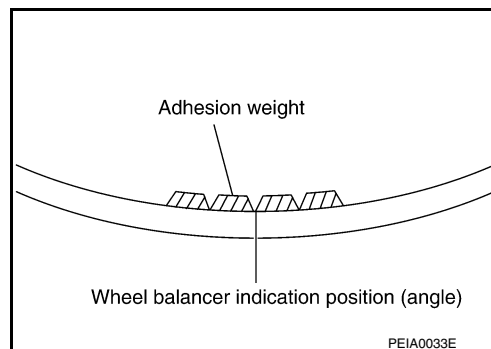
6. Install balance weight on inner side of wheel and tire in the balancer machine indication position (angle).

CAUTION:

Do not install more than two balance weights.

7. Start balancer machine. Make sure that inner and outer residual imbalance values are 5 g (0.17 oz) each or below.

8. If either residual imbalance value exceeds 5 g (0.17 oz), repeat installation procedures.



Wheel balance	Dynamic (At flange)	Static (At flange)
Maximum allowable imbalance	Refer to WT-65, "Wheel" .	

TIRE ROTATION

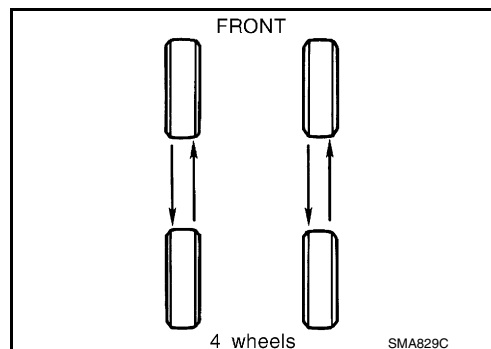
- Follow the maintenance schedule for tire rotation service intervals. Refer to [MA-7, "Introduction of Periodic Maintenance"](#).
- Rotate the wheels and tires front to back in the pattern as shown.
- When installing the wheel, tighten wheel nuts to the specified torque. [MA-7, "Introduction of Periodic Maintenance"](#)

WARNING:

- Do not include the spare tire (if equipped) when rotating tires.
- After rotating tires, check and adjust the tire pressure.

CAUTION:

- When installing wheel nuts, tighten them diagonally by dividing the work two to three times in order to prevent the wheels from developing any distortion.
- Be careful not to tighten the wheel nuts to a torque exceeding specification to prevent strain on the disc brake rotor.
- Use Genuine NISSAN wheel nuts.



WHEEL AND TIRE

< PERIODIC MAINTENANCE >

Wheel nut tightening torque : [WT-65, "Wheel"](#)

- Perform the ID registration after tire rotation. Refer to [WT-21, "Work Procedure"](#).

A
B
C
D
WT
F
G
H
I
J
K
L
M
N
O
P

WHEEL AND TIRE

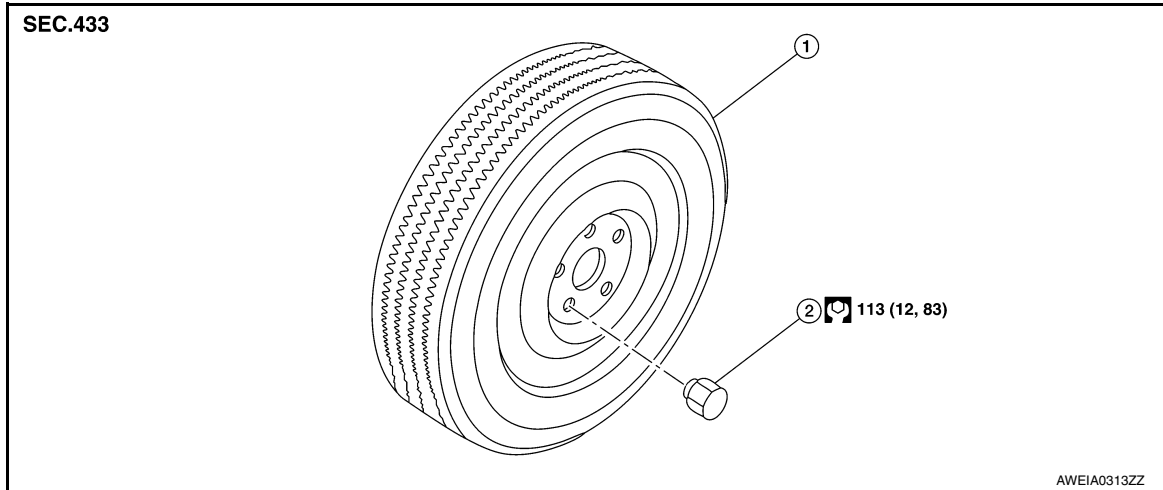
< REMOVAL AND INSTALLATION >

REMOVAL AND INSTALLATION

WHEEL AND TIRE

Exploded View

INFOID:0000000010244248



1. Wheel and tire

2. Wheel nut

Removal and Installation

INFOID:0000000010244249

REMOVAL

1. Remove wheel nuts using power tool.
2. Remove wheel and tire.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- When installing wheel nuts, tighten them diagonally by dividing the work two or three times in order to prevent the wheels from developing any distortion.
- Be careful not to tighten the wheel nuts to a torque exceeding specification to prevent strain on the disc brake rotor.
- Use Genuine NISSAN wheel nuts.

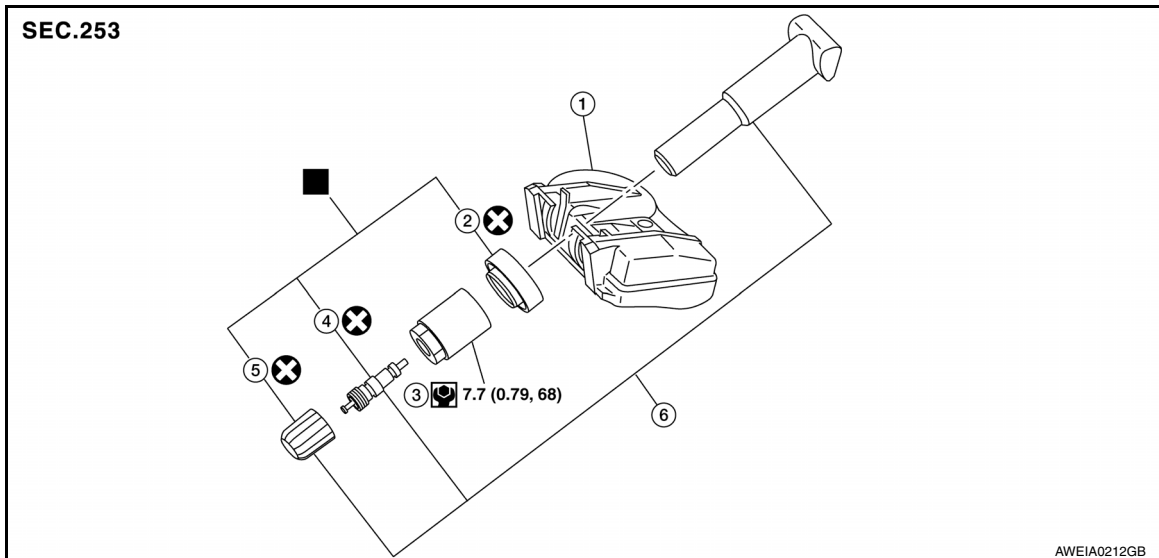
TIRE PRESSURE SENSOR

< REMOVAL AND INSTALLATION >

TIRE PRESSURE SENSOR

Exploded View

INFOID:000000010244259

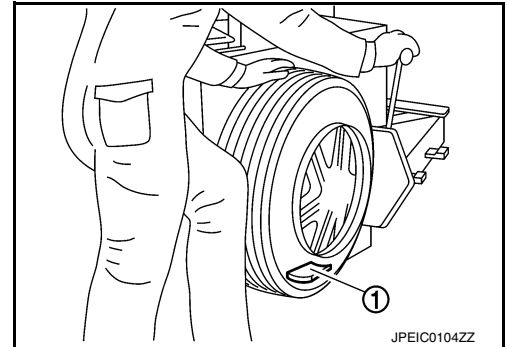


Removal and Installation

INFOID:000000010244260

REMOVAL

1. Remove wheel and tire using power tool.
2. Remove valve cap and valve core to deflate the tire.
NOTE:
If the tire is to be reused, apply a matching mark on the tire in line with the position of the valve stem assembly for the purpose of wheel and tire balance adjustment after installation.
3. Remove the valve stem nut and allow tire pressure sensor (1) to fall into tire.



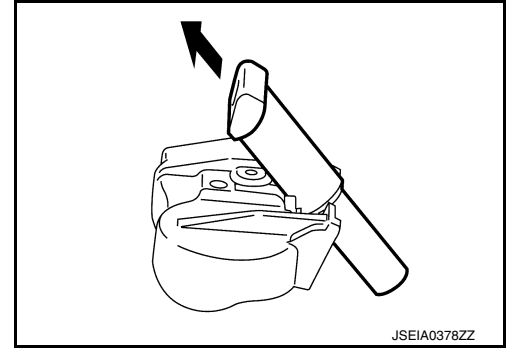
4. Lubricate the tire outside bead well with a suitable non-silicone lubricant, and remove outside of tire from the wheel. Reach inside the tire and remove the tire pressure sensor.
CAUTION:
 - Do not use silicone lubricant. Use of silicone lubricant will deteriorate the tire and wheel.
 - Be sure not to damage the wheel or tire pressure sensor.
 - Do not allow lubricant to make contact with tire pressure sensor.
5. Lubricate the tire inside bead well with a suitable non-silicone lubricant, and remove inside of tire from the wheel.
CAUTION:
 - Do not use silicone lubricant. Use of silicone lubricant will deteriorate the tire and wheel.

TIRE PRESSURE SENSOR

< REMOVAL AND INSTALLATION >

- **Be sure not to damage the wheel.**

6. Remove the valve stem from the tire pressure sensor as shown.



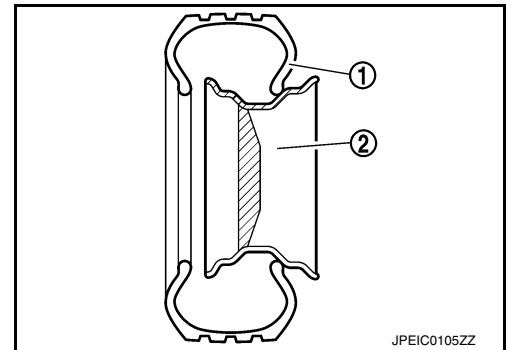
INSTALLATION

1. Apply a suitable non-silicone lubricant to the tire inside bead.

CAUTION:

- **Do not use silicone lubricant. Use of silicone lubricant will deteriorate the tire and wheel.**
- **Do not drop or strike the tire pressure sensor. Replace the tire pressure sensor if it has been dropped from higher than one meter.**

2. Install the tire inside bead (1) onto the wheel (2) in the position shown.

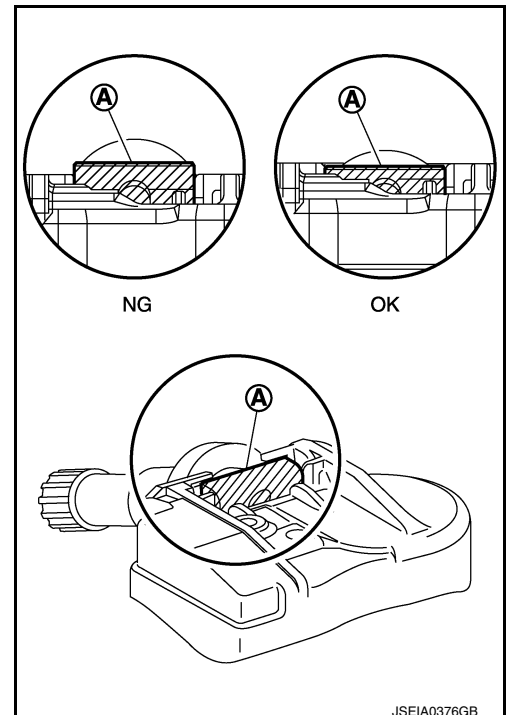


3. Install the valve stem to the tire pressure sensor.

4. Install the O-ring to the tire pressure sensor.

CAUTION:

- **Do not reuse O-ring**
- **Insert O-ring to the base of the tire pressure sensor.**
- **The base of the valve stem (A) must be positioned in the groove of the metal plate as shown.**



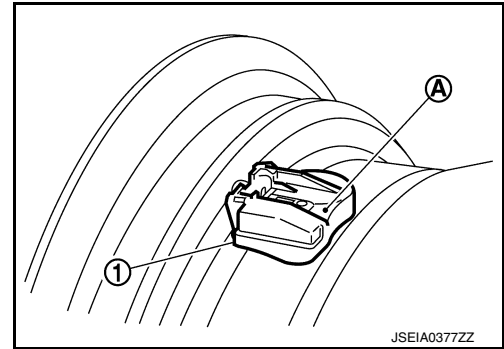
TIRE PRESSURE SENSOR

< REMOVAL AND INSTALLATION >

5. Install tire pressure sensor (1) to wheel while pressing at position (A).

CAUTION:

- Check that O-ring contacts horizontally with wheel.
- Check that the base of the valve stem is positioned in the groove of the metal plate.
- Be sure that no burrs exist in the valve stem hole of the wheel.



6. Install and tighten the valve stem nut to the specified torque.

Valve stem nut tightening torque : [WT-61, "Exploded View"](#)

CAUTION:

Do not use power tool for installation.

7. Place wheel on turntable of tire machine. Ensure that tire pressure sensor (1) is 270 degrees from mounting/dismounting head (2).

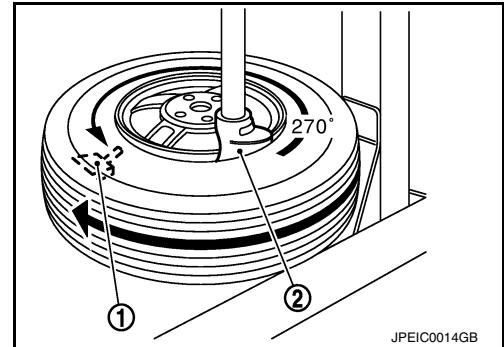
NOTE:

Do not touch tire pressure sensor with mounting head.

8. Apply a suitable non-silicone lubricant to the tire outside bead.

CAUTION:

- Do not use silicone lubricant. Use of silicone lubricant will deteriorate the tire and wheel.
- Do not allow lubricant to make contact with tire pressure sensor.



9. Install the tire outside bead onto the wheel as normal.

NOTE:

If the tire is being reused, align the matching mark applied on the tire with the position of the valve stem assembly for the purpose of wheel and tire balance adjustment after installation. Make sure that the tire does not rotate relative to wheel.

10. Install the valve core and inflate tire.

CAUTION:

Do not reuse valve core.

11. Install the valve cap.

CAUTION:

Do not reuse valve cap.

12. Balance the wheel and tire. Refer to [WT-57, "Adjustment"](#).

13. Install wheel and tire in appropriate wheel position on vehicle. Refer to [WT-60, "Removal and Installation"](#).

NOTE:

If replacing the tire pressure sensor, then tire pressure sensor wake up operation must be performed. Refer to [WT-21, "Work Procedure"](#).

14. Adjust neutral position of steering angle sensor. Refer to [BRC-70, "Work Procedure"](#).

15. Perform the ID registration procedure. Refer to [WT-21, "Work Procedure"](#).

REMOTE KEYLESS ENTRY RECEIVER

< REMOVAL AND INSTALLATION >

REMOTE KEYLESS ENTRY RECEIVER

Removal and Installation

INFOID:0000000010244269

The Remote Keyless Entry Receiver is an integral part of the BCM (BODY CONTROL MODULE). Refer to [BCS-75. "Removal and Installation"](#) (WITH INTELLIGENT KEY SYSTEM) or [BCS-135. "Removal and Installation"](#) (WITHOUT INTELLIGENT KEY SYSTEM).

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

Wheel

INFOID:0000000010244270

ALUMINUM WHEEL

Runout	Axial runout	Less than 0.3 mm (0.012 in)
	Radial runout	
Allowable imbalance	Dynamic (At flange)	Less than 5 g (0.17 oz) (one side)
	Static (At flange)	Less than 10 g (0.35 oz)

STEEL WHEEL

Runout	Axial runout	Less than 0.8 mm (0.031 in)
	Radial runout	Less than 0.5 mm (0.020 in)
Allowable imbalance	Dynamic (At flange)	Less than 5 g (0.17 oz) (one side)
	Static (At flange)	Less than 10 g (0.35 oz)

Tire Air Pressure

INFOID:0000000010244271

Unit: kPa (kg/cm ² , psi)		
Tire position	Size	Cold tire pressure
Front	P225/65R17 102H	230 (2.35, 33)
	P225/65RF17 100H	
	P225/60R18 100H	
Rear	P225/65R17 102H	230 (2.35, 33)
	P225/65RF17 100H	
	P225/60R18 100H	
Spare (if equipped)	T145/90D16 106M	420 (4.28, 60)
	T155/90D17 101M	

SECTION **WW**

WIPER & WASHER

CONTENTS

PRECAUTION	3	COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)	12
PRECAUTIONS	3	WIPER	12
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	3	WIPER : CONSULT Function (BCM - WIPER)	13
Precaution for Procedure without Cowl Top Cover.....	3	DIAGNOSIS SYSTEM (BCM) (WITHOUT INTELLIGENT KEY SYSTEM)	14
Precaution for Work	3	COMMON ITEM	14
PREPARATION	5	COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)	14
PREPARATION	5	WIPER	14
Special Service Tools	5	WIPER : CONSULT Function (BCM - WIPER)	14
SYSTEM DESCRIPTION	6	DIAGNOSIS SYSTEM (IPDM E/R)	16
COMPONENT PARTS	6	CONSULT Function (IPDM E/R)	16
Component Parts Location	6	ECU DIAGNOSIS INFORMATION	21
Front wiper motor	7	BCM	21
Washer pump	7	List of ECU Reference	21
Washer fluid level switch	7	WIRING DIAGRAM	22
Rear wiper motor	7	FRONT WIPER AND WASHER SYSTEM	22
SYSTEM	8	Wiring Diagram	22
FRONT WIPER AND WASHER SYSTEM	8	REAR WIPER AND WASHER SYSTEM	28
FRONT WIPER AND WASHER SYSTEM : System Diagram	8	Wiring Diagram	28
FRONT WIPER AND WASHER SYSTEM : System Description	8	BASIC INSPECTION	33
FRONT WIPER AND WASHER SYSTEM : Fail-Safe	10	DIAGNOSIS AND REPAIR WORKFLOW	33
REAR WIPER AND WASHER SYSTEM	10	Work Flow	33
REAR WIPER AND WASHER SYSTEM : System Description	10	DTC/CIRCUIT DIAGNOSIS	35
REAR WIPER AND WASHER SYSTEM : Fail-safe	11	WIPER AND WASHER FUSE	35
DIAGNOSIS SYSTEM (BCM) (WITH INTELLIGENT KEY SYSTEM)	12	Description	35
COMMON ITEM	12	Diagnosis Procedure	35
		FRONT WIPER MOTOR LO CIRCUIT	36

Component Function Check	36	WASHER FLUID LEVEL SWITCH	58
Diagnosis Procedure	36	Removal and Installation	58
FRONT WIPER MOTOR HI CIRCUIT	38	FRONT WASHER NOZZLE AND TUBE	59
Component Function Check	38	Exploded View	59
Diagnosis Procedure	38	Exploded View	59
FRONT WIPER AUTO STOP SIGNAL CIR- CUIT	40	Removal and Installation - Front Washer Nozzle ...	60
Component Function Check	40	Removal and Installation - Front Washer Tube	60
Diagnosis Procedure	40	Inspection and Adjustment	61
FRONT WIPER MOTOR GROUND CIRCUIT ...	42	FRONT WIPER ARM	63
Diagnosis Procedure	42	Exploded View	63
WASHER MOTOR CIRCUIT	43	Removal and Installation	63
Diagnosis Procedure	43	Adjustment	64
WASHER SWITCH	45	FRONT WIPER BLADE	65
Description	45	Exploded View	65
Component Inspection	45	Removal and Installation	65
REAR WIPER MOTOR CIRCUIT	47	FRONT WIPER DRIVE ASSEMBLY	66
Component Function Check	47	Exploded View	66
Diagnosis Procedure	47	Removal and Installation	66
REAR WIPER AUTO STOP SIGNAL CIRCUIT	49	FRONT WIPER MOTOR	67
Component Function Check	49	Removal and Installation	67
Diagnosis Procedure	49	WIPER AND WASHER SWITCH	68
SYMPTOM DIAGNOSIS	50	Removal and Installation	68
WIPER AND WASHER SYSTEM SYMPTOMS	50	REAR WIPER ARM	69
Symptom Table	50	Exploded View	69
FRONT WIPER DOES NOT OPERATE	53	Removal and Installation	69
Description	53	Adjustment	70
Diagnosis Procedure	53	REAR WIPER MOTOR	71
NORMAL OPERATING CONDITION	55	Exploded View	71
Description	55	Removal and Installation	71
REMOVAL AND INSTALLATION	56	REAR WASHER NOZZLE AND TUBE	72
WASHER TANK	56	Exploded View	72
Exploded View	56	Removal and Installation - Rear Washer Nozzle ...	72
Removal and Installation	56	Removal and Installation - Rear Washer Tube	73
FRONT AND REAR WASHER MOTOR	57	Inspection and Adjustment	73
Exploded View	57	SERVICE DATA AND SPECIFICATIONS (SDS)	75
Removal and Installation	57	SERVICE DATA AND SPECIFICATIONS (SDS)	75
		Specifications	75

PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010350737

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

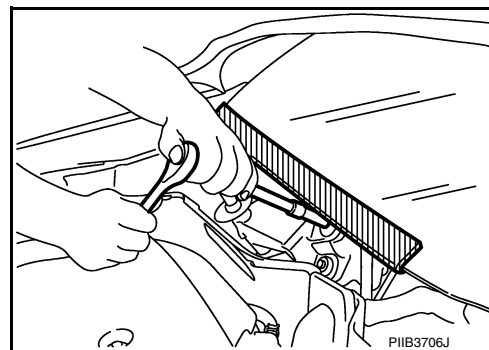
WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

Precaution for Procedure without Cowl Top Cover

INFOID:0000000010350738

When performing the procedure after removing cowl top cover, cover the lower end of windshield with urethane, etc.



Precaution for Work

INFOID:0000000010350739

- When removing or disassembling each component, be careful not to damage or deform it. If a component may be subject to interference, be sure to protect it with a shop cloth.
- When removing (disengaging) components with a screwdriver or similar tool, be sure to wrap the component with a shop cloth or vinyl tape to protect it.
- Protect the removed parts with a shop cloth and prevent them from being dropped.
- Replace a deformed or damaged clip.
- If a part is specified as a non-reusable part, always replace it with a new one.
- Be sure to tighten bolts and nuts securely to the specified torque.
- After installation is complete, be sure to check that each part works properly.
- Follow the steps below to clean components:
 - Water soluble dirt:
 - Dip a soft cloth into lukewarm water, wring the water out of the cloth and wipe the dirty area.
 - Then rub with a soft, dry cloth.
 - Oily dirt:

PRECAUTIONS

< PRECAUTION >

- Dip a soft cloth into lukewarm water with mild detergent (concentration: within 2 to 3%) and wipe the dirty area.
- Then dip a cloth into fresh water, wring the water out of the cloth and wipe the detergent off.
- Then rub with a soft, dry cloth.
- Do not use organic solvent such as thinner, benzene, alcohol or gasoline.
- For genuine leather seats, use a genuine leather seat cleaner.

PREPARATION

< PREPARATION >

PREPARATION

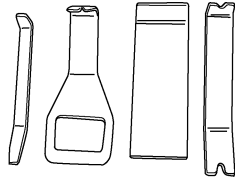
PREPARATION

Special Service Tools

INFOID:0000000010350740

The actual shape of the tools may differ from those illustrated here.

Tool number (TechMate No.) Tool name	Description
— (J-46534) Trim Tool Set	Removing trim components



AWJIA0483ZZ

A
B
C
D
E
F
G
H
I
J
K
WW
M
N
O
P

COMPONENT PARTS

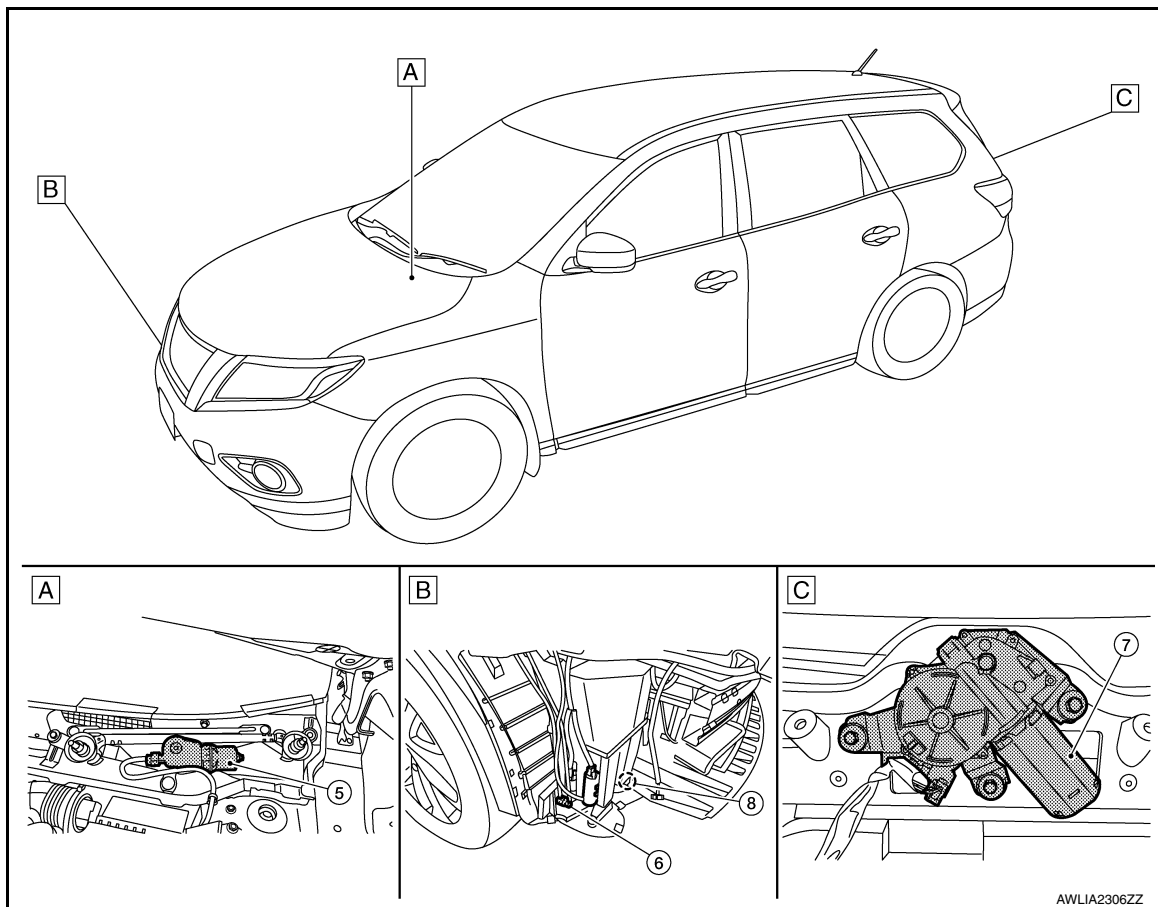
< SYSTEM DESCRIPTION >

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:0000000010244314



- A. View of cowl area (with cowl top cover removed) B. RH front of vehicle (with front bumper fascia removed) C. View with back door finisher removed

No.	Component	Function
1.	Combination switch (Wiper and washer switch)	Refer to WW-8. "FRONT WIPER AND WASHER SYSTEM : System Description" . Refer to BCS-76. "Removal and Installation" .
2.	Combination meter	Transmits the vehicle speed signal to BCM via CAN communication.
3.	IPDM E/R	- Controls the integrated relay according to the request (via CAN communication) from BCM. - Performs the auto stop control of the front wiper. Refer to WW-6. "Component Parts Location" .
4.	BCM	- Judges each switch status by the combination switch reading function. - Requests (via CAN communication) the front wiper relay and the front wiper HI/LO relay ON to IPDM E/R. - Supplies power to the rear wiper motor. - Performs the auto stop control of the rear wiper. Refer to WW-6. "Component Parts Location" .
5.	Front wiper motor	Refer to WW-7. "Front wiper motor" .
6.	Front and rear washer motor	Refer to WW-7. "Washer pump" .
7.	Rear wiper motor	Refer to WW-7. "Rear wiper motor" .
8.	Washer Fluid Level Switch	Transmits the washer fluid level switch signal to the combination meter.

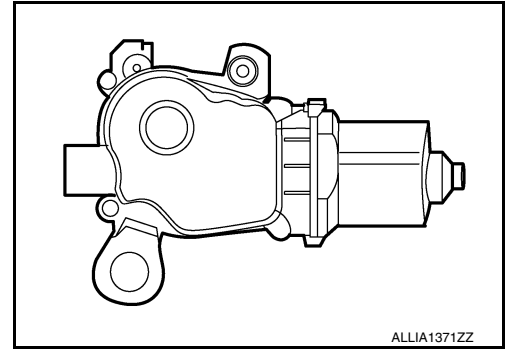
COMPONENT PARTS

< SYSTEM DESCRIPTION >

Front wiper motor

INFOID:000000010244316

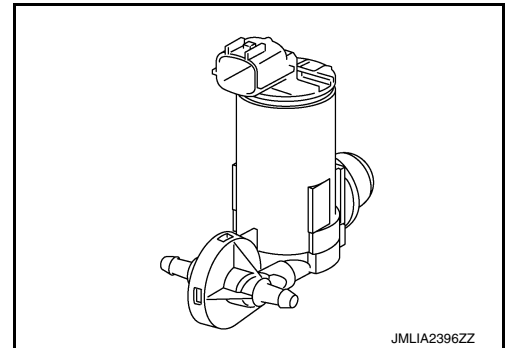
- Controls front wiper operation with IPDM E/R control.
- Transmits front wiper stop position signal to IPDM E/R.



Washer pump

INFOID:000000010244317

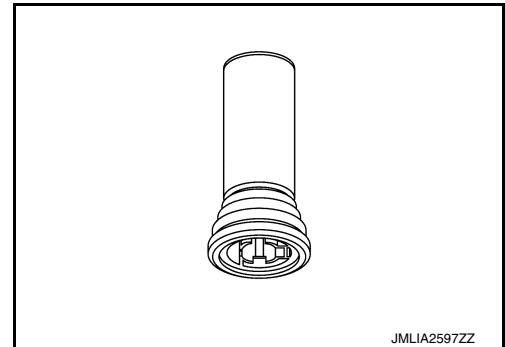
- Washer fluid is sprayed according to washer switch states.
- Switching between front washer and rear washer is performed according to the voltage polarity change to washer pump.



Washer fluid level switch

INFOID:000000010330262

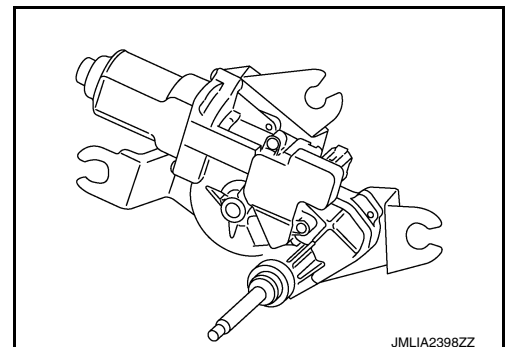
Detects that washer fluid level is low and transmits washer fluid level switch signal to combination meter.



Rear wiper motor

INFOID:000000010244319

- Controls rear wiper operation with BCM control.
- Transmits rear wiper stop position signal to BCM.



SYSTEM

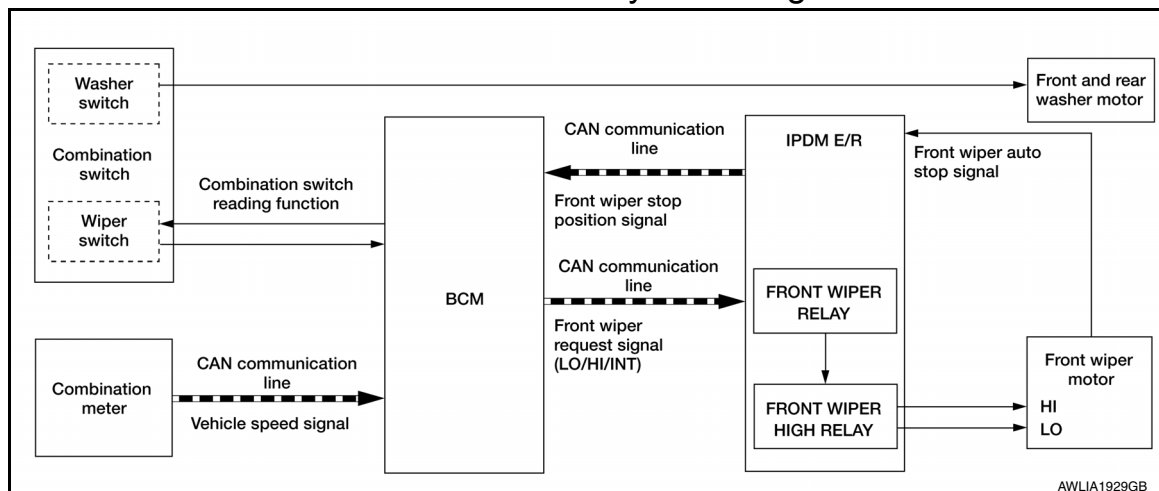
< SYSTEM DESCRIPTION >

SYSTEM

FRONT WIPER AND WASHER SYSTEM

FRONT WIPER AND WASHER SYSTEM : System Diagram

INFOID:000000010244388



FRONT WIPER AND WASHER SYSTEM : System Description

INFOID:000000010245858

OUTLINE

FRONT WIPER CONTROL (BASIC)

1. BCM detects the combination switch position by the combination switch reading function.
2. BCM transmits the front wiper request signal to the IPDM E/R using CAN communication.
3. IPDM E/R controls the integrated front wiper relay and front wiper high relay based on the status of the front wiper request signal.
4. IPDM E/R provides power to operate the front wiper motor.

LOW SPEED OPERATION

1. Ignition switch ON.
2. Front wiper switch in LO or MIST position.
3. BCM reads the combination switch position and transmits the front wiper request signal (LO) to IPDM E/R using CAN communication.
4. IPDM E/R turns ON the front wiper relay.

HIGH SPEED OPERATION

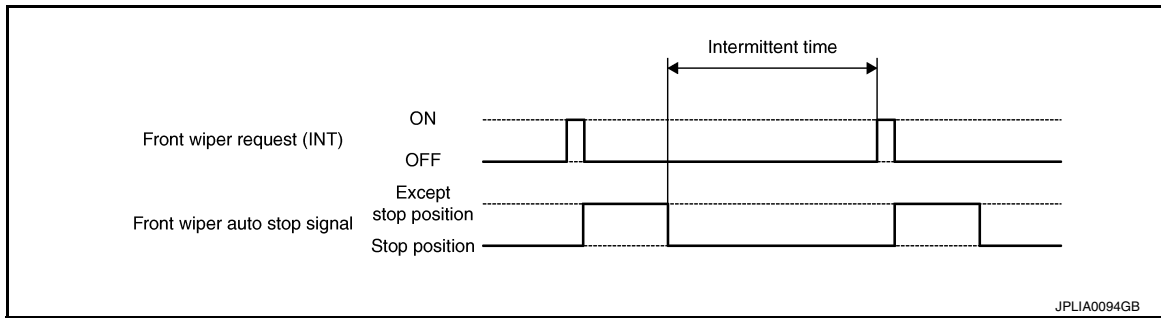
1. Ignition switch ON.
2. Front wiper switch in HI.
3. BCM reads the combination switch position and transmits the front wiper request signal (HI) to IPDM E/R using CAN communication.
4. IPDM E/R turns ON the front wiper relay and the front wiper high relay.

INTERMITTENT OPERATION

1. Ignition switch ON.
2. Front wiper switch INT.
3. BCM reads the combination switch position. BCM calculates the delay interval based on the table below and then transmits the front wiper request signal (INT) to IPDM E/R using CAN communication.
4. IPDM E/R turns ON the front wiper relay only once.
5. BCM detects stop position of the front wiper motor based on the front wiper stop position signal received from the IPDM E/R.
6. BCM transmits the front wiper request signal (INT) again after the delay interval.

SYSTEM

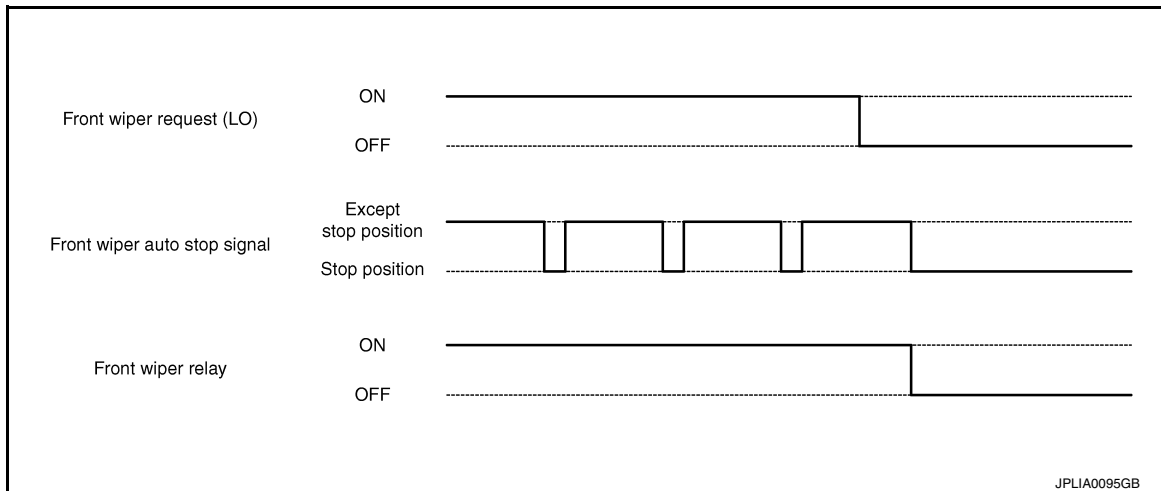
< SYSTEM DESCRIPTION >



Intermittent switch position	Length of delay	Delay interval (s)
7	Short ↑ ↓ Long	0.4
6		1
5		2
4		3
3		5
2		10
1		16

AUTO STOP OPERATION

- Front wiper switch is turned OFF.
- BCM monitors wiper switch position by combination switch reading position function.
- BCM stops transmitting the front wiper request signal to the IPDM E/R.
- IPDM E/R detects the front wiper auto stop signal from the position of the front wiper motor (stop position/ except stop position).
- When the front wiper request signal is stopped, IPDM E/R turns ON the front wiper relay until the front wiper motor returns to the stop position.
- IPDM E/R turns the front wiper relay OFF when the front wiper motor has reached the stop position.



MIST OPERATION

- Ignition switch ON.
- Front washer switch in OFF position.
- Front wiper switch in MIST position.
- BCM reads the combination switch position and transmits the front wiper request signal (LO) to IPDM E/R using CAN communication.
- IPDM E/R turns ON the front wiper relay.
- The front wiper operates once after the front washer operation.

WIPER/WASHER OPERATION

- Ignition switch ON.

SYSTEM

< SYSTEM DESCRIPTION >

2. Front washer switch ON.
3. The front washer switch provides ground for the front and rear washer motor.
4. BCM reads the combination switch position and transmits the front wiper request signal (LO) to IPDM E/R using CAN communication.
5. BCM transmits the front wiper request signal (LO) to IPDM E/R using CAN communication.
6. IPDM E/R turns ON the front wiper relay.
7. The front wiper operates.

NOTE:

BCM transmits the front wiper request signal (LO) so that the front wiper operates approximately 3 times after front washer switch OFF is detected.

FRONT WIPER AND WASHER SYSTEM : Fail-Safe

INFOID:0000000010244409

FAIL-SAFE OPERATION

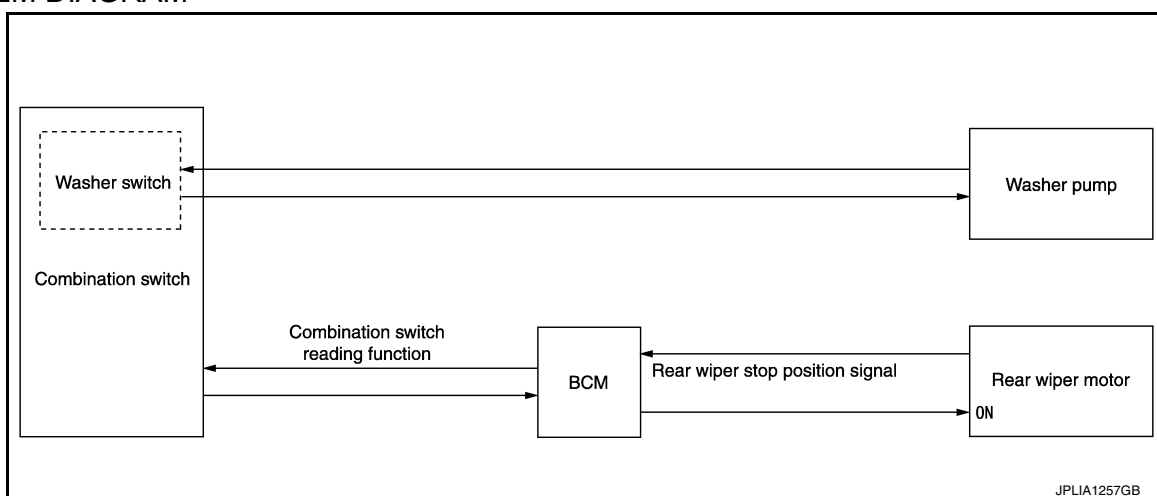
IPDM E/R performs the fail-safe function when the front wiper auto stop circuit is malfunctioning. Refer to [WW-10. "FRONT WIPER AND WASHER SYSTEM : Fail-Safe"](#).

REAR WIPER AND WASHER SYSTEM

REAR WIPER AND WASHER SYSTEM : System Description

INFOID:0000000010244322

SYSTEM DIAGRAM



OUTLINE

The rear wiper is controlled by each function of BCM.

Control by BCM

- Combination switch reading function
- Rear wiper control function

REAR WIPER BASIC OPERATION

- BCM detects the combination switch condition by the combination switch reading function.
- BCM controls the rear wiper to start or stop.

REAR WIPER ON OPERATION

- BCM supplies power to the rear wiper motor according to the rear wiper ON operating condition.

Rear wiper ON operating condition

- Power switch ON
- Rear wiper switch ON

REAR WIPER INT OPERATION

- BCM supplies power to the rear wiper motor according to the INT operating condition.

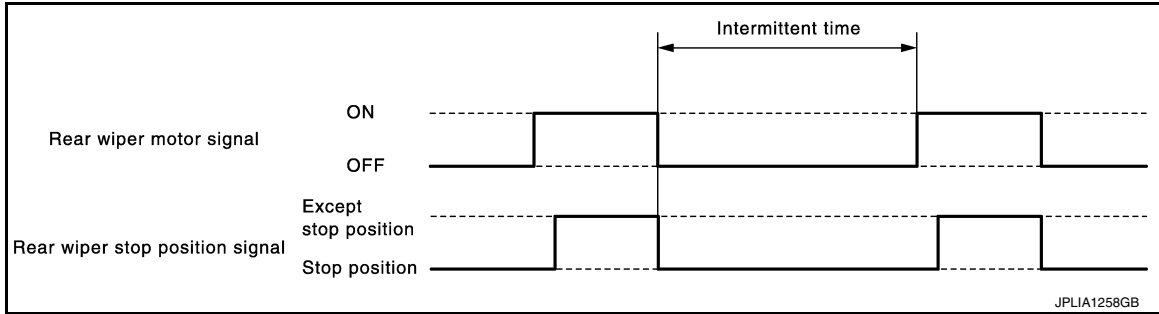
Rear wiper INT operating condition

- Power switch ON

SYSTEM

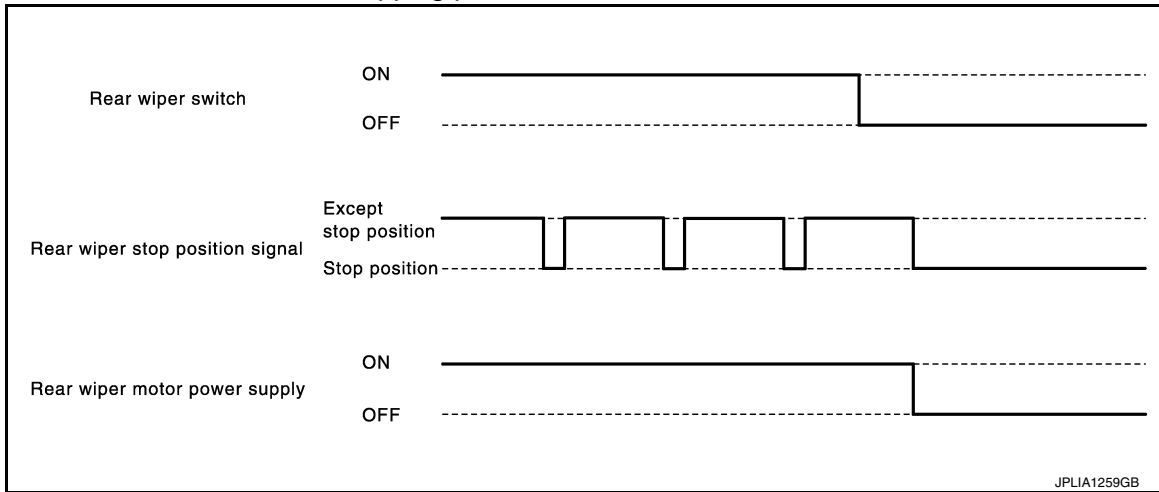
< SYSTEM DESCRIPTION >

- Rear wiper switch INT
- BCM controls the rear wiper to operate once.
- BCM detects the rear wiper motor stopping position.
- BCM supplies power to the rear wiper motor after an intermittent from the stop of the rear wiper motor.



REAR WIPER AUTO STOP OPERATION

- BCM stops supplying power to the rear wiper motor when the rear wiper switch is turned OFF.
- BCM reads a rear wiper stop position signal from the rear wiper motor to detect a rear wiper motor position.
- When the rear wiper motor is at other than the stopping position, BCM continues to supply power to the rear wiper motor until it returns to the stopping position.



NOTE:

BCM stops supplying power to the rear wiper motor when the power switch is turned OFF.

REAR WIPER OPERATION LINKED WITH WASHER

- BCM supplies power to the rear wiper motor according to the washer linked operating condition of rear wiper. When the rear washer switch is turned OFF, BCM controls rear wiper to operate approximately 3 times.

Washer linked operating condition of rear wiper

- Power switch ON
- Rear washer switch ON (0.4 second or more)
- The washer pump is grounded through the combination switch with the rear washer switch ON.

REAR WIPER AND WASHER SYSTEM : Fail-safe

INFOID:0000000010244323

FAIL-SAFE OPERATION

IPDM E/R performs the fail-safe function when the rear wiper auto stop circuit is malfunctioning. Refer to [WW-11, "REAR WIPER AND WASHER SYSTEM : Fail-safe"](#).

DIAGNOSIS SYSTEM (BCM) (WITH INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (BCM) (WITH INTELLIGENT KEY SYSTEM) COMMON ITEM

COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)

INFOID:0000000010350464

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with BCM.

Direct Diagnostic Mode	Description
Ecu Identification	The BCM part number is displayed.
Self Diagnostic Result	The BCM self diagnostic results are displayed.
Data Monitor	The BCM input/output data is displayed in real time.
Active Test	The BCM activates outputs to test components.
Work support	The settings for BCM functions can be changed.
Configuration	- The vehicle specification can be read and saved. - The vehicle specification can be written when replacing BCM.
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.

SYSTEM APPLICATION

BCM can perform the following functions.

System	Sub System	Direct Diagnostic Mode						
		Ecu Identification	Self Diagnostic Result	Data Monitor	Active Test	Work support	Configuration	CAN Diag Support Mntr
Door lock	DOOR LOCK		×	×	×	×		
Rear window defogger	REAR DEFOGGER			×	×	×		
Warning chime	BUZZER			×	×			
Interior room lamp timer	INT LAMP			×	×	×		
Exterior lamp	HEADLAMP			×	×	×		
Wiper and washer	WIPER			×	×	×		
Turn signal and hazard warning lamps	FLASHER			×	×			
Intelligent Key system	INTELLIGENT KEY		×	×	×	×		
Combination switch	COMB SW			×				
BCM	BCM	×	×			×	×	×
Immobilizer	IMMU		×	×	×			
Interior room lamp battery saver	BATTERY SAVER			×	×			
Back door open	TRUNK			×				
Vehicle security system	THEFT ALM			×	×	×		
RAP system	RETAINED PWR			×				
Signal buffer system	SIGNAL BUFFER			×				
TPMS	AIR PRESSURE MONITOR		×	×	×	×		

WIPER

DIAGNOSIS SYSTEM (BCM) (WITH INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

WIPER : CONSULT Function (BCM - WIPER)

INFOID:0000000010350465

DATA MONITOR

Monitor Item [Unit]	Description
PUSH SW [On/Off]	Indicates condition of push-button ignition switch.
VEH SPEED 1 [km/h]	Indicates vehicle speed signal received from ABS on CAN communication line.
FR WIPER HI [On/Off]	Indicates condition of wiper operation of combination switch.
FR WIPER LOW [On/Off]	
FR WASHER SW [On/Off]	
FR WIPER INT [On/Off]	
FR WIPER STOP [On/Off]	Indicates front wiper auto stop signal received from IPDM E/R on CAN communication line.
INT VOLUME [1 – 7]	Indicates condition of intermittent wiper operation of combination switch.
RR WIPER ON [On/Off]	Indicates condition of rear wiper operation of combination switch.
RR WIPER INT [On/Off]	
RR WASHER SW [On/Off]	
RR WIPER STOP [On/Off]	Indicates rear wiper motor auto stop input from rear wiper motor.

ACTIVE TEST

Test Item	Description
FR WIPER	This test is able to check front wiper operation [Hi/Lo/INT/Off].
RR WIPER	This test is able to check rear wiper operation [On/Off].

WORK SUPPORT

Support Item	Setting	Description
WIPER SPEED SETTING	On	Front wiper intermittent time linked with vehicle speed and wiper intermittent dial position.
	Off*	Front wiper intermittent time is not linked with vehicle speed and wiper intermittent dial position.

*: Initial Setting

DIAGNOSIS SYSTEM (BCM) (WITHOUT INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (BCM) (WITHOUT INTELLIGENT KEY SYSTEM) COMMON ITEM

COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)

INFOID:0000000010350466

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with BCM.

Direct Diagnostic Mode	Description
Ecu Identification	The BCM part number is displayed.
Self Diagnostic Result	The BCM self diagnostic results are displayed.
Data Monitor	The BCM input/output data is displayed in real time.
Active Test	The BCM activates outputs to test components.
Work support	The settings for BCM functions can be changed.
Configuration	- The vehicle specification can be read and saved. - The vehicle specification can be written when replacing BCM.
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.

SYSTEM APPLICATION

BCM can perform the following functions.

System	Sub System	Direct Diagnostic Mode						
		Ecu Identification	Self Diagnostic Result	Data Monitor	Active Test	Work support	Configuration	CAN Diag Support Mntr
Door lock	DOOR LOCK			x	x	x		
Rear window defogger	REAR DEFOGGER			x	x	x		
Warning chime	BUZZER			x	x			
Interior room lamp timer	INT LAMP			x	x	x		
Remote keyless entry system	MULTI REMOTE ENT					x		
Exterior lamp	HEADLAMP			x	x			
Wiper and washer	WIPER			x	x	x		
Turn signal and hazard warning lamps	FLASHER			x	x			
Combination switch	COMB SW			x				
BCM	BCM	x	x			x	x	x
Immobilizer	IMMU		x		x			
Interior room lamp battery saver	BATTERY SAVER			x	x			
Back door open	TRUNK			x				
Vehicle security system	THEFT ALM			x	x	x		
RAP system	RETAINED PWR			x				
TPMS	AIR PRESSURE MONITOR		x	x	x	x		

WIPER

WIPER : CONSULT Function (BCM - WIPER)

INFOID:0000000010350467

DATA MONITOR

DIAGNOSIS SYSTEM (BCM) (WITHOUT INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

Monitor Item [Unit]	Description
FR WIPER HI [On/Off]	Indicates condition of wiper operation of combination switch.
FR WIPER LOW [On/Off]	
FR WASHER SW [On/Off]	
FR WIPER INT [On/Off]	
FR WIPER STOP [On/Off]	Indicates front wiper auto stop signal received from IPDM E/R on CAN communication line.
INT VOLUME [1 – 4]	Indicates condition of intermittent wiper operation of combination switch.
RR WIPER ON [On/Off]	Indicates condition of rear wiper operation of combination switch.
RR WIPER INT [On/Off]	
RR WASHER SW [On/Off]	
RR WIPER STOP [On/Off]	Indicates rear wiper motor auto stop input from rear wiper motor.

ACTIVE TEST

Test Item	Description
FR WIPER	This test is able to check front wiper operation [Hi/Lo/INT/Off].
RR WIPER	This test is able to check rear wiper operation [On/Off].

WORK SUPPORT

Support Item	Setting	Description
WIPER SPEED SETTING	On	Front wiper intermittent time linked with vehicle speed and wiper intermittent dial position.
	Off*	Front wiper intermittent time is not linked with vehicle speed and wiper intermittent dial position.

*: Initial Setting

WW

DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (IPDM E/R)

CONSULT Function (IPDM E/R)

INFOID:000000010346177

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with IPDM E/R.

Direct Diagnostic Mode	Description
Ecu Identification	The IPDM E/R part number is displayed.
Self Diagnostic Result	The IPDM E/R self diagnostic results are displayed.
Data Monitor	The IPDM E/R input/output data is displayed in real time.
Active Test	The IPDM E/R activates outputs to test components.
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.

ECU IDENTIFICATION

The IPDM E/R part number is displayed.

SELF DIAGNOSTIC RESULT

Refer to [PCS-20. "DTC Index"](#).

DATA MONITOR

Monitor Item [Unit]	Description
REVERSE SIGNAL [Open/Close]	Indicates Open-Close.
IGN RELAY [Open/Close]	Indicates Open-Close.
PUSH SW [Open/Close]	Indicates Open-Close.
NEUTRAL SW [Open/Close]	Indicates Open-Close.
INTERLOCK/PNP SW [Open/Close]	Indicates Open-Close.
OIL PRESSURE SW [Open/Close]	Indicates Open-Close.
LED H/L RH STATUS [Open/Close]	Indicates Open-Close.
LED H/L LH STATUS [Open/Close]	Indicates Open-Close.
HOOD SW [Open/Close]	Indicates Open-Close.
SS STARTER RLY DIAG [Low/High]	Indicates Low-High.
DI LI RLY EXT CONTROL 1 [Low/High]	Indicates Low-High.
DI LI RLY EXT CONTROL 2 [Low/High]	Indicates Low-High.
EXT MOTOR FAN1 DIAG [Low/High]	Indicates Low-High.
EXT MOTOR FAN2 DIAG [Low/High]	Indicates Low-High.
INTWkup [Awake/Sleep]	Indicates Awake-Sleep.
LO WASHER DIAG [Low/High]	Indicates Low-High.
COMPRESSOR [OFF/ON]	Indicates ON-OFF.
AWAKE SIGNAL [Awake/Sleep]	Indicates Awake-Sleep.
CONTROL LIGHTING [OFF/ON]	Indicates ON-OFF.
HORN RELAY [OFF/ ON]	Indicates ON-OFF.
COOLING FAN [OFF/ON]	Indicates ON-OFF.
FRONT WIPER HI/LO RELAY [OFF/ON]	Indicates ON-OFF.
FRONT WIPER RELAY [OFF/ON]	Indicates ON-OFF.
IGN RELAY OFF STATUS [OFF/ON]	Indicates ON-OFF.
IGN RELAY ON STATUS [OFF/ON]	Indicates ON-OFF.
HEIGHT SENSOR PWR SPLY [OFF/ON]	Indicates ON-OFF.
LEVELIZE GND ENABLE [OFF/ON]	Indicates ON-OFF.

DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

Monitor Item [Unit]	Description	
COOLING FAN RELAY 1 [OFF/ON]	Indicates ON-OFF.	A
OENO [output's mux disabled/output's mux enabled]	Indicates disabled-enabled.	B
VCC LIGHTING ENABLE [OFF/ON]	Indicates ON-OFF.	C
SS STARTER RLY [OFF/ON]	Indicates ON-OFF.	D
STARTER RELAY [OFF/ON]	Indicates ON-OFF.	E
SUPPLY HOOD SW PULL UP [OFF/ON]	Indicates ON-OFF.	F
COMP ECV DUTY [%]	Indicates percentage.	G
COOLING FAN RELAY 2 [%]	Indicates percentage.	H
FR FOG LAMP LH [%]	Indicates percentage.	I
FR FOG LAMP RH [%]	Indicates percentage.	J
LEVELIZER OUTPUT [%]	Indicates percentage.	K
PARKING LAMP [%]	Indicates percentage.	WW
O FBL LH [%]	Indicates percentage.	M
O FBL RH [%]	Indicates percentage.	N
TAIL LAMP LH [%]	Indicates percentage.	O
TAIL LAMP RH [%]	Indicates percentage.	P
DAYTIME RUNNING LIGHT LH [%]	Indicates percentage.	
DAYTIME RUNNING LIGHT RH [%]	Indicates percentage.	
HEADLAMP (HI) LH [%]	Indicates percentage.	
HEADLAMP (HI) RH [%]	Indicates percentage.	
HEADLAMP (LO) LH [%]	Indicates percentage.	
HEADLAMP (LO) RH [%]	Indicates percentage.	
A/C RELAY STUCK [NG/OK]	Indicates CAN output.	
A/C RELAY [Off/On]	Indicates CAN output.	
COMP ECV STATUS [NG/OK]	Indicates CAN output.	
VEHICLE SECURITY HORN [OFF/ON]	Indicates CAN output.	
BATTERY CURRENT SENSOR [NG/OK]	Indicates CAN output.	
BattWarnReq Level Hi USM [No Battery Warning Level-Hi requested/Battery Warning Level-Hi requested]	Indicates CAN output.	
BattWarnReq Level Lo USM [No Battery Warning Level-Lo requested/Battery Warning Level-Lo requested]	Indicates CAN output.	
FRONT FOG LAMP [OFF/ON]	Indicates CAN output.	
COMP ECV CURRENT [A]	Indicates CAN output.	
BatterySetPointGeneratorStatus [nominal mode/default detected/default confirmed/battery disconnected]	Indicates CAN output.	
BATTERY VOLTAGE [V]	Indicates CAN output.	
COOLING FAN DUTY [%]	Indicates CAN output.	
HOOD SW (CAN) [Open/Close]	Indicates CAN output.	
FRONT WIPER [STOP/LO/HI]	Indicates CAN output.	
FR WIPER STOP POSITION [STOP P]	Indicates CAN output.	
HEADLAMP (HI) [OFF/ON]	Indicates CAN output.	
HEADLAMP (LO) [OFF/ON]	Indicates CAN output.	
IGNITION RELAY STATUS [OFF/ON]	Indicates CAN output.	

DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

Monitor Item [Unit]	Description
IGN RELAY MONITOR [OFF/ON]	Indicates CAN output.
IGNITION POWER SUPPLY [OFF/ON]	Indicates CAN output.
INTERLOCK/PNP SW (CAN) [OFF/ON]	Indicates CAN output.
IdleSpeedInhibitionRequest [IdleSpeed Inhibition Requested/IdleSpeed Inhibition not Requested]	Indicates CAN output.
IdleSpeedInhibitionRequest copy [IdleSpeed Inhibition Requested/IdleSpeed Inhibition not Requested]	Indicates CAN output.
NEUTRAL SWITCH (CAN) [NG/OK]	Indicates CAN output.
PUSH-BUTTON IGN SW (CAN) [OFF/ON]	Indicates CAN output.
TAIL LAMP [OFF/ON]	Indicates CAN output.
REVERSE SIGNAL (CAN) [OFF/ON]	Indicates CAN output.
ST CUT/StarterRelayCondition [ST CUT relay off & Starter relay off/ST CUT relay off & Starter relay on/ST CUT relay on]	Indicates CAN output.
STARTER MOTOR STATUS [OFF/ON]	Indicates CAN output.
STARTER RELAY (CAN) [LOW/HIGH]	Indicates CAN output.
IPDM NOT SLEEP [NO RDY/RDY]	Indicates CAN output.
FrontWiperStatus [STOP/LO/HI]	Indicates CAN output.
AFTER COOLING TIME [No request]	Indicates CAN input.
AFTER COOLING SPEED [%]	Indicates CAN input.
COOLING FAN TYPE [NISSAN/RENAULT]	Indicates CAN input.
ACCompClutchActivation [no compressor activation requested/compressor activation requested]	Indicates CAN input.
COMPRESSOR REQ1 [OFF/ON]	Indicates CAN input.
VHCL SECURITY HORN REQ [OFF/ON]	Indicates CAN input.
DTRL REQ [OFF/ON]	Indicates CAN input.
SLEEP/WAKE UP [WAKEUP/SLEEP]	Indicates CAN input.
BrakeInfoStatus [Brake pedal not pressed/Brake pedal pressed/Brake pedal confirmed pressed]	Indicates CAN input.
CRANKING ENABLE-TCM [NG/OK]	Indicates CAN input.
CRANKING ENABLE-ECM [NG/OK]	Indicates CAN input.
DeliveryModelInfo [customer mode/delivery mode]	Indicates CAN input.
CAN DIAGNOSIS [NG/OK]	Indicates CAN input.
FRONT FOG LAMP REQ [OFF/ON]	Indicates CAN input.
PASSING REQ [OFF/ON]	Indicates CAN input.
HIGH BEAM REQ [OFF/ON]	Indicates CAN input.
HORN CHARP [OFF/ON]	Indicates CAN input.
ElectricalPowerCutFreeze [No request/PTC freeze/PTC cut request]	Indicates CAN input.
COOLING FAN REQ [%]	Indicates CAN input.
ENGINE STATUS [STOP/RUN]	Indicates CAN input.
TURN SIGNAL REQ [OFF/ON]	Indicates CAN input.
FR WIPER REQ [RETURN/LOW/HIGH]	Indicates CAN input.
SHIFT POSITION [P/R/N/D/S/L]	Indicates CAN input.

DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

Monitor Item [Unit]	Description	
LOW BEAM REQ [OFF/ON]	Indicates CAN input.	A
POSITION LIGHT REQ [OFF/ON]	Indicates CAN input.	
RSTREQ [no engine start request/engine start request]	Indicates CAN input.	B
COMPRESSOR REQ2 [OFF/ON]	Indicates CAN input.	
PumpActivationRequest BCM [NG/OK]	Indicates CAN input.	C
IGNITION SW [OFF/ON]	Indicates CAN input.	
VEHICLE SPEED (METER) [mph/km/h]	Indicates CAN input.	
BAT DISCHARGE COUNT [Ah]	Indicates CAN input.	D
P LAMP CIRC MALFUNCTN [%]	Indicates CAN input.	
NMB P LAMP CIRC RETRY [%]	Indicates CAN input.	
NMB P LAMP CIRC SHORT [%]	Indicates CAN input.	E
DTRL LH CIRC MALFUNCTN [%]	Indicates CAN input.	
NMB DTRL LH CIRC RETRY [%]	Indicates CAN input.	
NMB DTRL LH CIRC SHORT [%]	Indicates CAN input.	F
DTRL RH CIRC MALFUNCTN [%]	Indicates CAN input.	
NMB DTRL RH CIRC RETRY [%]	Indicates CAN input.	G
NMB DTRL RH CIRC SHORT [%]	Indicates CAN input.	
S K FBL LH NbDealerRsts [%]	Indicates CAN input.	H
S K FBL LH NbOfMissions [%]	Indicates CAN input.	
S K FBL LH RetrPerMiss [%]	Indicates CAN input.	
S K FBL RH NbDealerRsts [%]	Indicates CAN input.	I
S K FBL RH NbOfMissions [%]	Indicates CAN input.	
S K FBL RH RetrPerMiss [%]	Indicates CAN input.	J
F FOG LH CIRC MALFUNCTN [%]	Indicates CAN input.	
NMB F FOG LH CIRC RETRY [%]	Indicates CAN input.	
NMB F FOG LH CIRC SHORT [%]	Indicates CAN input.	K
F FOG RH CIRC MALFUNCTN [%]	Indicates CAN input.	
NMB F FOG RH CIRC RETRY [%]	Indicates CAN input.	
NMB F FOG RH CIRC SHORT [%]	Indicates CAN input.	WW
HL (HI) LH CIRC MALFUNCTN [%]	Indicates CAN input.	
NMB HL (HI) LH CIRC RETRY [%]	Indicates CAN input.	M
NMB HL (HI) LH CIRC SHORT [%]	Indicates CAN input.	
HL (HI) RH CIRC MALFUNCTN [%]	Indicates CAN input.	
NMB HL (HI) RH CIRC RETRY [%]	Indicates CAN input.	N
NMB HL (HI) RH CIRC SHORT [%]	Indicates CAN input.	
HL (LO) LH CIRC MALFUNCTN [%]	Indicates CAN input.	O
NMB HL (LO) LH CIRC RETRY [%]	Indicates CAN input.	
NMB HL (LO) LH CIRC SHORT [%]	Indicates CAN input.	
HL (LO) RH CIRC MALFUNCTN [%]	Indicates CAN input.	P
NMB HL (LO) RH CIRC RETRY [%]	Indicates CAN input.	
NMB HL (LO) RH CIRC SHORT [%]	Indicates CAN input.	
T LAMP LH CIRC MALFUNCTN [%]	Indicates CAN input.	
NMB T LAMP LH CIRC RETRY [%]	Indicates CAN input.	
NMB T LAMP LH CIRC SHORT [%]	Indicates CAN input.	

DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

Monitor Item [Unit]	Description
T LAMP RH CIRC MALFUNCTN [%]	Indicates CAN input.
NMB T LAMP RH CIRC RETRY [%]	Indicates CAN input.
NMB T LAMP RH CIRC SHORT [%]	Indicates CAN input.
BAT CHARGE STATUS [%]	Indicates CAN input.

ACTIVE TEST

Test item	Description
HORN	This test is able to check horn operation [Off/On].
FRONT WIPER	This test is able to check wiper motor operation [Off/Low/High].
COMPRESSOR	This test is able to check A/C compressor operation [Off/On].
COOLING FAN (DUAL)	This test is able to check cooling fan operation [Off/LO/HI].
HEADLAMP (HI)	This test is able to check headlamp high beam operation [Off/3/5].
HEADLAMP (LO)	This test is able to check headlamp low beam operation [Off/3/5].
FRONT FOG LAMP	This test is able to check front fog lamp operation [Off/3/5].
DAYTIME RUNNING LAMP	This test is able to check daytime running lamp operation [Off/3/5].
PARKING LAMP	This test is able to check parking lamp operation [Off/3/5].
TAIL LAMP	This test is able to check tail lamp operation [Off/3/5].
ECV	This test is able to check ECV operation [Off/3/5].
OPTIC AXIS ACTIVE TEST	This test is able to check optic axis operation [Default/Lower].

WORK SUPPORT

Support Item	Description
SENSOR INITIALIZE	
CML B/DCHRG CRNT CLEAR	

*: Initial setting

CAN DIAG SUPPORT MNTR

Refer to [LAN-14, "CAN Diagnostic Support Monitor"](#).

ECU DIAGNOSIS INFORMATION

BCM

List of ECU Reference

INFOID:0000000010346178

ECU	Reference
BCM (with Intelligent Key system)	BCS-28, "Reference Value"
	BCS-47, "Fail Safe"
	BCS-47, "DTC Inspection Priority Chart"
	BCS-48, "DTC Index"
BCM (without Intelligent Key system)	BCS-96, "Reference Value"
	BCS-107, "Fail Safe"
	BCS-107, "DTC Inspection Priority Chart"
	BCS-108, "DTC Index"

A
B
C
D
E
F
G
H
I
J
K
M
N
O
P

FRONT WIPER AND WASHER SYSTEM

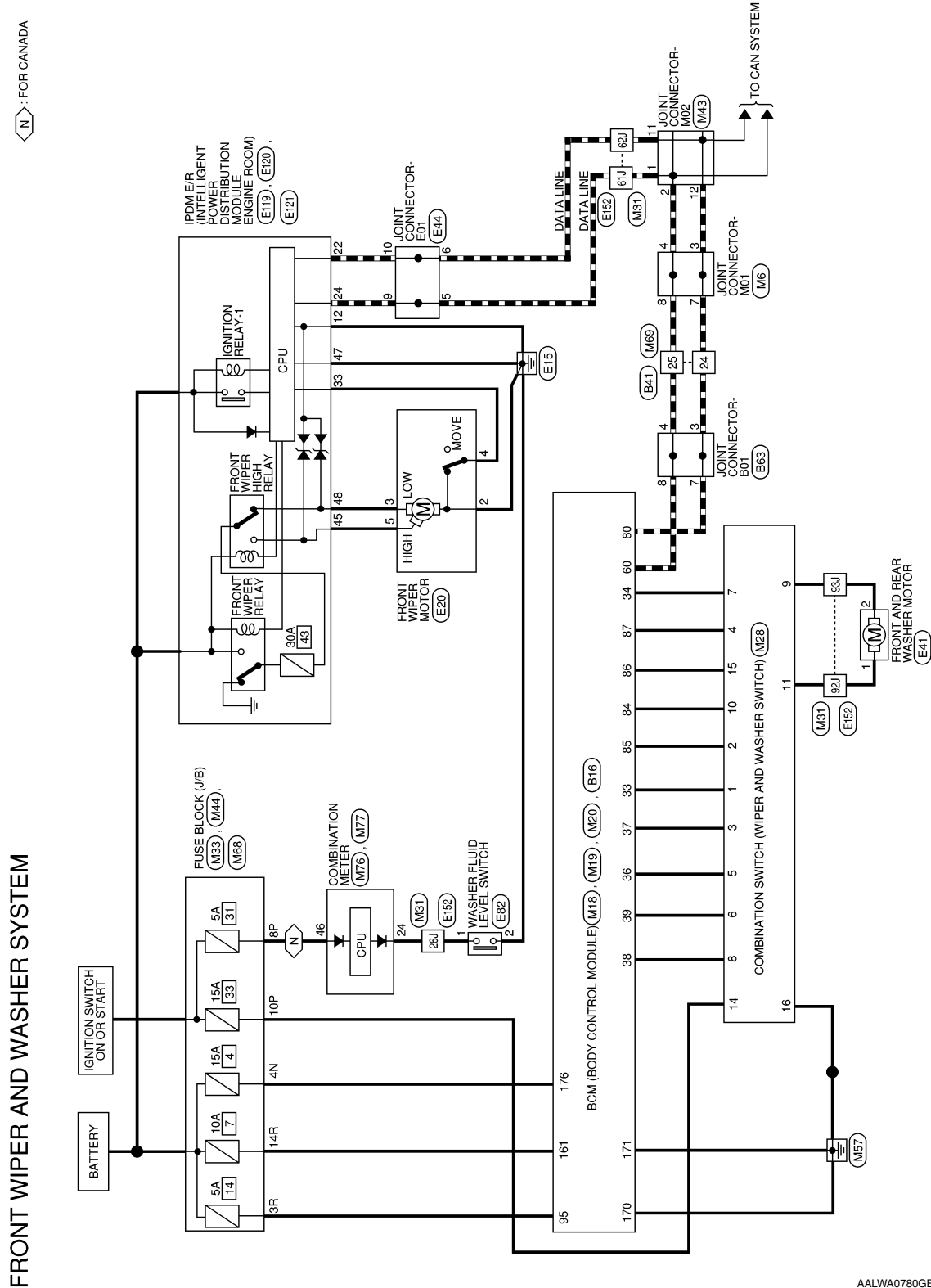
< WIRING DIAGRAM >

WIRING DIAGRAM

FRONT WIPER AND WASHER SYSTEM

Wiring Diagram

INFOID:0000000010288644



AALWA0780GB

FRONT WIPER AND WASHER SYSTEM

< WIRING DIAGRAM >

FRONT WIPER AND WASHER SYSTEM CONNECTORS

Connector No.	M6
Connector Name	JOINT CONNECTOR-M01
Connector Color	GRAY



4	3	2	1
8	7	6	5
12	11	10	9
16	15	14	13
20	19	18	17
24	23	22	21

Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY



20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21

Terminal No.	Color of Wire	Signal Name
33	LG	I CSW 5
34	Y	O CSW 5
36	G	I CSW 3
37	GR	I CSW 4
38	V	I CSW 1
39	W	I CSW 2

Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



100	99	98	97	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81
120	119	118	117	116	115	114	113	112	111	110	109	108	107	106	105	104	103	102	101

Terminal No.	Color of Wire	Signal Name
84	BR	O CSW 2
85	SB	O CSW 1
86	P	O CSW 3
87	BG	O CSW 4
95	V	I SHORTING PIN

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BROWN



167	166	165	164	163	162	161
176	175	174	173	172	171	170

Terminal No.	Color of Wire	Signal Name
161	W	I PWR ECU
170	B	I GND1
171	B	I GND2
176	LG	I PWR WIPER

Connector No.	M28
Connector Name	COMBINATION SWITCH
Connector Color	WHITE



8	7	6	5	4	3	2	1
16	15	14	13	12	11	10	9

Terminal No.	Color of Wire	Signal Name
1	LG	-
2	SB	-
3	GR	-
4	BG	-

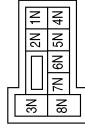
Terminal No.	Color of Wire	Signal Name
5	G	-
6	W	-
7	Y	-
8	V	-
9	G	-
10	BR	-
11	Y	-
14	LG	-
15	P	-
16	GR	-

AALIA2179GB

FRONT WIPER AND WASHER SYSTEM

< WIRING DIAGRAM >

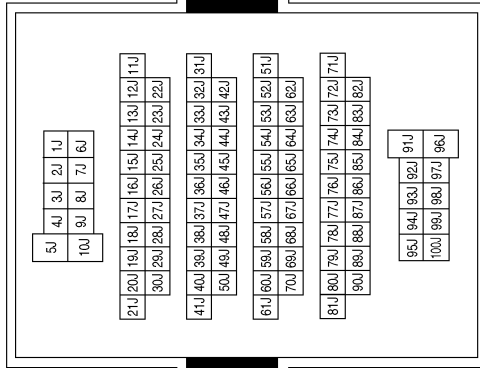
Connector No.	M33
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	4N	Color of Wire	LG	Signal Name	-
--------------	----	---------------	----	-------------	---

Terminal No.	Color of Wire	Signal Name
26J	BR	-
61J	L	-
62J	P	-
92J	Y	-
93J	G	-

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN



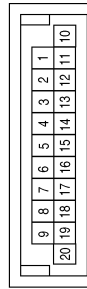
Terminal No.	3R	Color of Wire	V	Signal Name	-
	14R	W	-	-	-

Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	8P	Color of Wire	LA/BR	Signal Name	-
	10P	LG	-	-	-

Connector No.	M43
Connector Name	JOINT CONNECTOR-M02
Connector Color	BLUE



Terminal No.	1	Color of Wire	L	Signal Name	-
	2	L	-	-	-
	11	P	-	-	-
	12	P	-	-	-

AALIA2180GB

FRONT WIPER AND WASHER SYSTEM

< WIRING DIAGRAM >

Connector No.	M69
Connector Name	WIRE TO WIRE
Connector Color	WHITE



16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17

Connector No.	M76
Connector Name	COMBINATION METER
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

Connector No.	M77
Connector Name	COMBINATION METER
Connector Color	WHITE



41	42	43	44	45	46
47	48	49	50	51	52

Terminal No.	Color of Wire	Signal Name
24	P	-
25	L	-

Terminal No.	Color of Wire	Signal Name
24	BR	WASHER SW

Terminal No.	Color of Wire	Signal Name
46	V	IGN

Connector No.	E20
Connector Name	FRONT WIPER MOTOR
Connector Color	GRAY



3	2	1
5	4	

Connector No.	E41
Connector Name	FRONT AND REAR WASHER MOTOR
Connector Color	BLACK



2	1
---	---

Connector No.	E44
Connector Name	JOINT CONNECTOR-E01
Connector Color	WHITE



4	3	2	1
8	7	6	5
12	11	10	9
16	15	14	13
20	19	18	17
24	23	22	21
28	27	26	25

Terminal No.	Color of Wire	Signal Name
1	-	-
2	B	-
3	Y	-
4	BR	-
5	V	-

Terminal No.	Color of Wire	Signal Name
1	LG	-
2	L	-

Terminal No.	Color of Wire	Signal Name
5	L	-
6	P	-
9	L	-
10	P	-

AALIA2181GB

FRONT WIPER AND WASHER SYSTEM

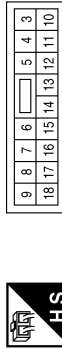
< WIRING DIAGRAM >

Connector No.	E82
Connector Name	WASHER FLUID LEVEL SWITCH
Connector Color	WHITE



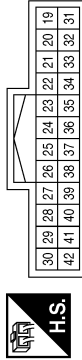
Terminal No.	Color of Wire	Signal Name
1	BR	-
2	B	-

Connector No.	E119
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
12	B	SIGNAL GROUND

Connector No.	E120
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



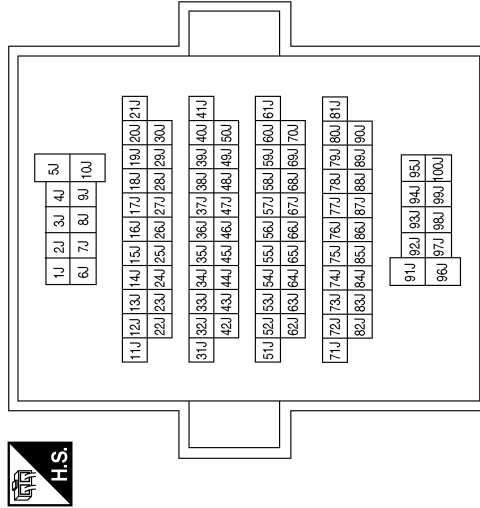
Terminal No.	Color of Wire	Signal Name
22	P	CAN-L
24	L	CAN-H
33	BR	I AUTO STOP WIPER

Connector No.	E121
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	RED



Terminal No.	Color of Wire	Signal Name
45	V	O FR WIPER HI
47	B	POWER GROUND
48	Y	O FR WIPER LO

Connector No.	E152
Connector Name	WIPE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
26J	BR	-
61J	L	-
62J	P	-
92J	LG	-
93J	L	-

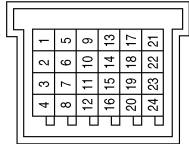
AALIA2182GB

FRONT WIPER AND WASHER SYSTEM

< WIRING DIAGRAM >

A
B
C
D
E
F
G
H
I
J
K
WW
M
N
O
P

Connector No.	B63
Connector Name	JOINT CONNECTOR-B01
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

AALIA2183GB

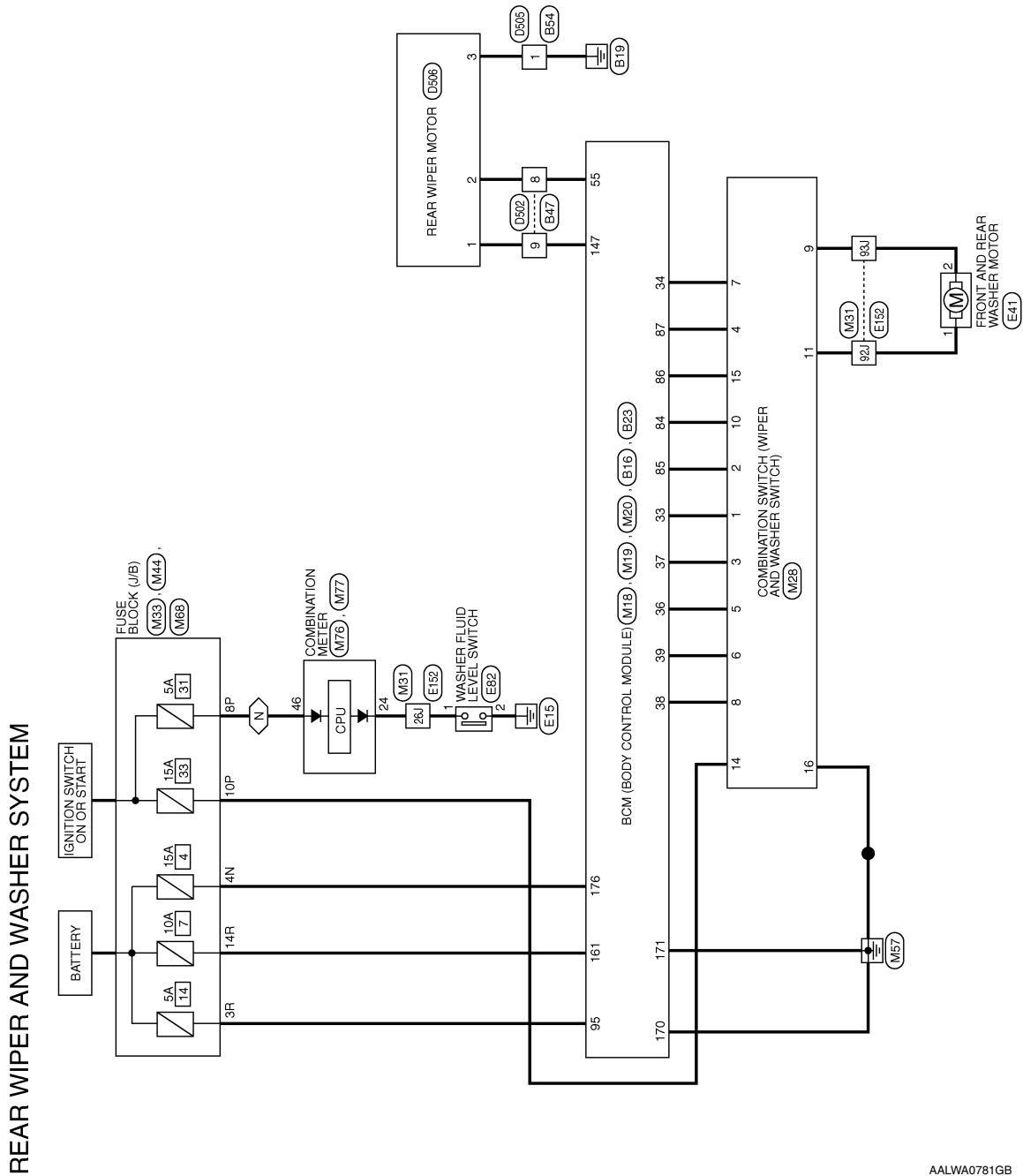
< WIRING DIAGRAM >

REAR WIPER AND WASHER SYSTEM

Wiring Diagram

INFOID:0000000010245874

 : FOR CANADA



AALWA0781GB

REAR WIPER AND WASHER SYSTEM

< WIRING DIAGRAM >

REAR WIPER AND WASHER SYSTEM CONNECTORS

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY



20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21

Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



100	99	98	97	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81
120	119	118	117	116	115	114	113	112	111	110	109	108	107	106	105	104	103	102	101

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BROWN



167	166	165	164
176	175	174	173
172	171	170	169
168			

Terminal No.	Color of Wire	Signal Name
33	LG	I CSW 5
34	Y	0 CSW 5
36	G	I CSW 3
37	GR	I CSW 4
38	V	I CSW 1
39	W	I CSW 2

Terminal No.	Color of Wire	Signal Name
84	BR	0 CSW 2
85	SB	0 CSW 1
86	P	0 CSW 3
87	BG	0 CSW 4
95	V	SHORTING PIN

Terminal No.	Color of Wire	Signal Name
161	W	I PWR ECU
170	B	I GND1
171	B	I GND2
176	LG	I PWR WIPER

Connector No.	M28
Connector Name	COMBINATION SWITCH
Connector Color	WHITE



8	7	6	5	4	3	2	1
16	15	14	13	12	11	10	9

Terminal No.	Color of Wire	Signal Name
5	G	-
6	W	-
7	Y	-
8	V	-
9	G	-
10	BR	-
11	Y	-
14	LG	-
15	P	-
16	GR	-

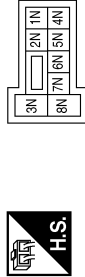
Terminal No.	Color of Wire	Signal Name
1	LG	-
2	SB	-
3	GR	-
4	BG	-

AALIA2205GB

REAR WIPER AND WASHER SYSTEM

< WIRING DIAGRAM >

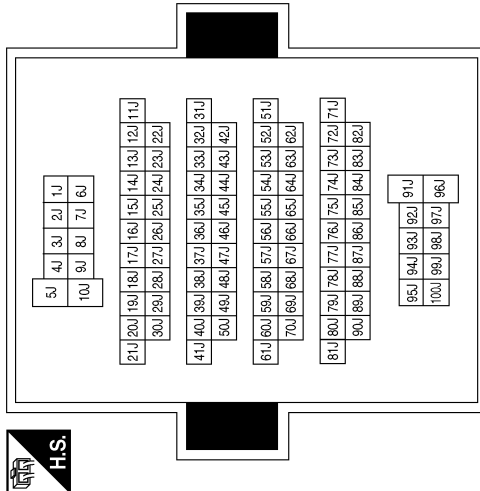
Connector No.	M33
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	4N	Color of Wire	LG	Signal Name	-
--------------	----	---------------	----	-------------	---

Terminal No.	26J	Color of Wire	BR	Signal Name	-
	92J		Y		-
	93J		G		-

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE

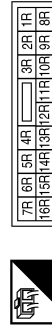


Connector No.	M76
Connector Name	COMBINATION METER
Connector Color	WHITE



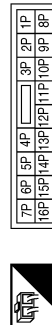
Terminal No.	24	Color of Wire	BR	Signal Name	WASHER SW
--------------	----	---------------	----	-------------	-----------

Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN



Terminal No.	3R	Color of Wire	V	Signal Name	-
	14R		W		-

Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



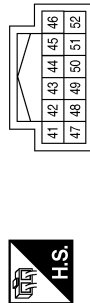
Terminal No.	8P	Color of Wire	LA/BR	Signal Name	-
	10P		LG		-

AALIA2206GB

REAR WIPER AND WASHER SYSTEM

< WIRING DIAGRAM >

Connector No.	M77
Connector Name	COMBINATION METER
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
46	V	IGN

Connector No.	E41
Connector Name	FRONT AND REAR WASHER MOTOR
Connector Color	BLACK



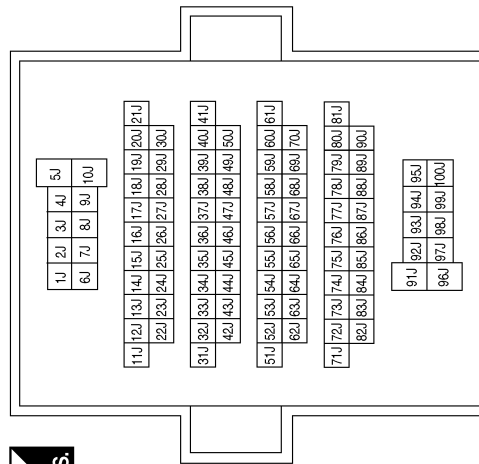
Terminal No.	Color of Wire	Signal Name
1	LG	-
2	L	-

Connector No.	E82
Connector Name	WASHER FLUID LEVEL SWITCH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	BR	-
2	B	-

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	B16
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GREEN



60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41
80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61

Terminal No.	Color of Wire	Signal Name
55	LA/G	I RR AUTOSTOP SW

AALIA2207GB

REAR WIPER AND WASHER SYSTEM

< WIRING DIAGRAM >

Connector No.	B23
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY

151	150	149	148	147	146	145
160	159	158	157	156	155	154
153	152					



Terminal No.	Color of Wire	Signal Name
147	LA/R	0 RR WIPER

Connector No.	B47
Connector Name	WIRE TO WIRE
Connector Color	WHITE

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16					



Terminal No.	Color of Wire	Signal Name
8	LA/G	–
9	LA/R	–

Connector No.	B54
Connector Name	WIRE TO WIRE
Connector Color	WHITE

1	2
---	---



Terminal No.	Color of Wire	Signal Name
1	B	–

Connector No.	D502
Connector Name	WIRE TO WIRE
Connector Color	WHITE

7	6	5	4	3	2	1
16	15	14	13	12	11	10
9	8					



Terminal No.	Color of Wire	Signal Name
8	G	–
9	GR	–

Connector No.	D505
Connector Name	WIRE TO WIRE
Connector Color	WHITE

1	2
---	---



Terminal No.	Color of Wire	Signal Name
1	B	–

Connector No.	D506
Connector Name	REAR WIPER MOTOR
Connector Color	WHITE

1	2	3
---	---	---



Terminal No.	Color of Wire	Signal Name
1	GR	–
2	G	–
3	B	–

AALIA2208GB

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

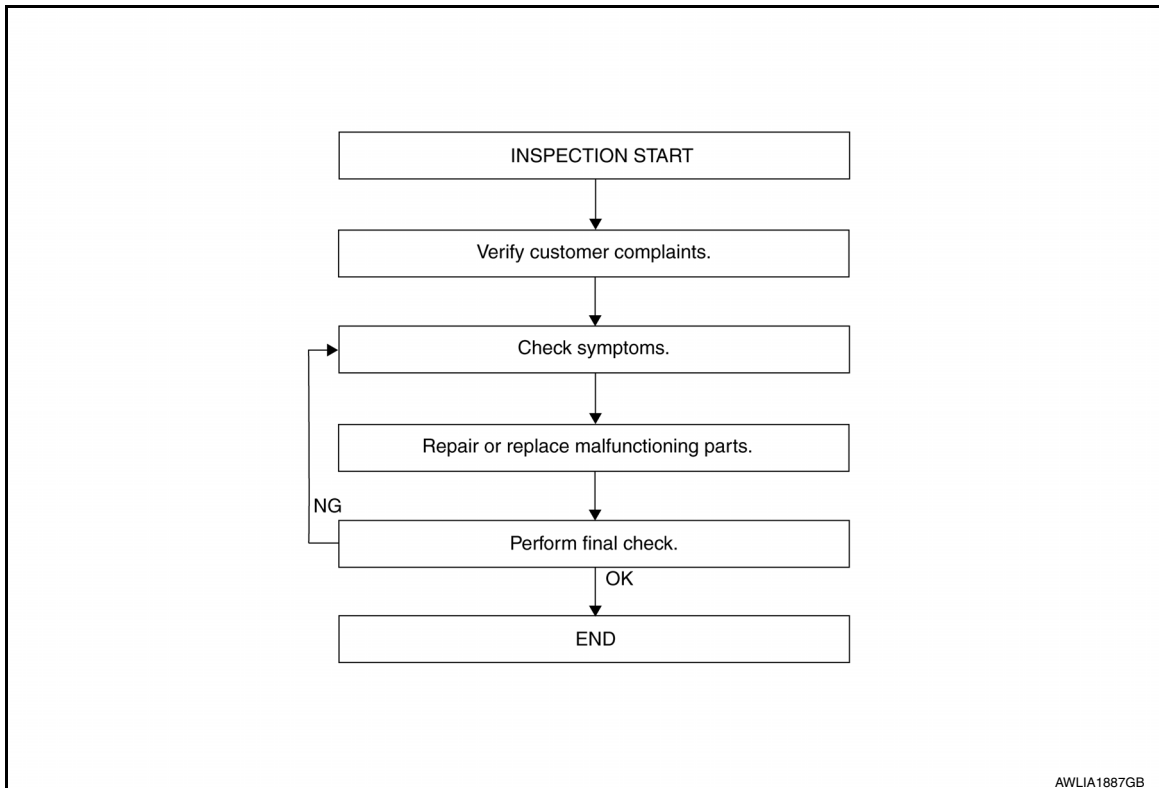
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:0000000010245881

WORK FLOW



DETAILED FLOW

1. REVIEW CUSTOMER COMPLAINT

Review customer complaint. Try to obtain detailed information about the conditions when the symptom occurs.

>> GO TO 2.

2. VERIFY THE SYMPTOM

Verify the symptom by performing an operational check. Refer to [WW-8. "FRONT WIPER AND WASHER SYSTEM : System Description"](#).

>> GO TO 3.

3. PERFORM TROUBLE DIAGNOSIS BY SYMPTOM

Diagnose the vehicle by performing the appropriate trouble diagnosis. Refer to [WW-50. "Symptom Table"](#).

>> GO TO 4.

4. REPAIR OR REPLACE MALFUNCTIONING PARTS

Repair or replace the specific parts.

>> GO TO 5.

5. FINAL CHECK

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

Perform a final inspection of the system.

Is the inspection result normal?

YES >> Inspection End.

NO >> GO TO 2.

WIPER AND WASHER FUSE

< DTC/CIRCUIT DIAGNOSIS >

DTC/CIRCUIT DIAGNOSIS

WIPER AND WASHER FUSE

Description

INFOID:0000000010245886

Component	Capacity	Fuse No.	Location
Front wiper motor	30 A	43	IPDM E/R
Front and rear washer motor	10 A	7	Fuse block (J/B)

Diagnosis Procedure

INFOID:0000000010245887

1. CHECK FUSES

Check that the following fuses are not blown.

Component	Capacity	Fuse No.	Location
Front wiper motor	30 A	43	IPDM E/R
Front and rear washer motor	10 A	7	Fuse block (J/B)

Is the fuse blown?

YES >> Replace the fuse after repairing the affected circuit.
NO >> Inspection End.

WW

FRONT WIPER MOTOR LO CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

FRONT WIPER MOTOR LO CIRCUIT

Component Function Check

INFOID:000000010245888

1. CHECK FRONT WIPER LO OPERATION

CONSULT ACTIVE TEST

1. Select FR WIPER of BCM (WIPER) active test item.
2. Check front wiper operation.

LO : Front wiper (LO) operation

OFF : Front wiper OFF

Is the inspection result normal?

- YES >> Front wiper motor LO circuit is normal.
NO >> Refer to [WW-36, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000010245889

Regarding Wiring Diagram information, refer to [WW-22, "Wiring Diagram"](#).

1. CHECK FRONT WIPER MOTOR FUSE

1. Turn the ignition switch OFF.
2. Check that the following fuse is not blown.

Component	Capacity	Fuse No.	Location
Front wiper motor	30 A	43	IPDM E/R

Is the fuse blown?

- YES >> Replace the fuse after repairing the affected circuit.
NO >> GO TO 2.

2. CHECK FRONT WIPER MOTOR (LO) OUTPUT VOLTAGE

1. Turn the ignition switch ON.
2. Select FR WIPER of BCM (WIPER) active test item.
3. While performing the active test, check voltage between IPDM E/R harness connector and ground.

IPDM E/R		Ground	FRONT WIPER	Voltage (Approx.)
Connector	Terminal		LO	Battery voltage
E121	48		OFF	0V

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Replace IPDM E/R. Refer to [PCS-35, "Removal and Installation"](#).

3. CHECK FRONT WIPER MOTOR (LO) OPEN CIRCUIT

1. Turn the ignition switch OFF.
2. Disconnect IPDM E/R and front wiper motor.
3. Check continuity between IPDM E/R harness connector and front wiper motor harness connector.

IPDM E/R		Front wiper motor		Continuity
Connector	Terminal	Connector	Terminal	
E121	48	E20	3	Yes

Is the inspection result normal?

- YES >> Replace front wiper motor. Refer to [WW-67, "Removal and Installation"](#).

FRONT WIPER MOTOR LO CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

NO >> Repair or replace harness.

A
B
C
D
E
F
G
H
I
J
K
WW
M
N
O
P

WW

FRONT WIPER MOTOR HI CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

FRONT WIPER MOTOR HI CIRCUIT

Component Function Check

INFOID:000000010245890

1. CHECK FRONT WIPER HI OPERATION

CONSULT ACTIVE TEST

1. Select FR WIPER of BCM (WIPER) active test item.
2. Check front wiper operation.

HI : Front wiper (HI) operation

OFF : Front wiper OFF

Is the inspection result normal?

- YES >> Front wiper motor HI circuit is normal.
NO >> Refer to [WW-38, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000010245891

Regarding Wiring Diagram information, refer to [WW-22, "Wiring Diagram"](#).

1. CHECK FRONT WIPER MOTOR FUSE

1. Turn the ignition switch OFF.
2. Check that the following fuse is not blown.

Component	Capacity	Fuse No.	Location
Front wiper motor	30 A	43	IPDM E/R

Is the fuse blown?

- YES >> Replace the fuse after repairing the affected circuit.
NO >> GO TO 2.

2. CHECK FRONT WIPER MOTOR (HI) OUTPUT VOLTAGE

1. Turn the ignition switch ON.
2. Select FR WIPER of BCM (WIPER) active test item.
3. While performing the active test, check voltage between IPDM E/R harness connector and ground.

IPDM E/R		Ground	FRONT WIPER	Voltage (Approx.)
Connector	Terminal		HI	Battery voltage
E121	45		OFF	0V

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Replace IPDM E/R. Refer to [PCS-35, "Removal and Installation"](#).

3. CHECK FRONT WIPER MOTOR (HI) OPEN CIRCUIT

1. Turn the ignition switch OFF.
2. Disconnect IPDM E/R and front wiper motor.
3. Check continuity between IPDM E/R harness connector and front wiper motor harness connector.

IPDM E/R		Front wiper motor		Continuity
Connector	Terminal	Connector	Terminal	
E121	45	E20	5	Yes

Is the inspection result normal?

- YES >> Replace front wiper motor. Refer to [WW-67, "Removal and Installation"](#).

FRONT WIPER MOTOR HI CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

NO >> Repair or replace harness.

A

B

C

D

E

F

G

H

I

J

K

WW

M

N

O

P

FRONT WIPER AUTO STOP SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

FRONT WIPER AUTO STOP SIGNAL CIRCUIT

Component Function Check

INFOID:0000000010245892

1. CHECK FRONT WIPER (AUTO STOP) SIGNAL

1. Select FR WIPER STOP of BCM (WIPER) data monitor item.
2. Operate the front wiper.
3. Check that FR WIPER STOP changes from ON to OFF according to the wiper position.

Data monitor	Condition		Status
FR WIPER STOP	Front wiper motor	Stop position	ON
		Except stop position	OFF

Is the inspection result normal?

- YES >> Front wiper auto stop signal circuit is normal.
NO >> Refer to [WW-40. "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010245893

Regarding Wiring Diagram information, refer to [WW-22. "Wiring Diagram"](#).

1. CHECK FRONT WIPER MOTOR (AUTO STOP) OUTPUT VOLTAGE

1. Turn the ignition switch ON.
2. Check voltage between IPDM E/R harness connector and ground.

IPDM E/R		Ground	FRONT WIPER	Voltage (Approx.)
Connector	Terminal		Except stop position	Battery voltage
E120	33		Stop position	0 V

Is the inspection result normal?

- YES >> Check for intermittent failure.
NO >> GO TO 2.

2. CHECK FRONT WIPER MOTOR (AUTO STOP) SHORT CIRCUIT

1. Turn the ignition switch OFF.
2. Disconnect IPDM E/R and front wiper motor.
3. Check continuity between IPDM E/R harness connector and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		No
E120	33		

Is the inspection result normal?

- YES >> Repair or replace harness.
NO >> GO TO 3.

3. CHECK FRONT WIPER MOTOR (AUTO STOP) CIRCUIT CONTINUITY

Check continuity between IPDM E/R harness connector and front wiper motor harness connector.

IPDM E/R		Front wiper motor		Continuity
Connector	Terminal	Connector	Terminal	
E120	33	E20	4	Yes

Is the inspection result normal?

FRONT WIPER AUTO STOP SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

YES >> Replace front wiper motor. Refer to [WW-67, "Removal and Installation"](#).
NO >> Repair or replace harness.

A
B
C
D
E
F
G
H
I
J
K
WW
M
N
O
P

WW

FRONT WIPER MOTOR GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

FRONT WIPER MOTOR GROUND CIRCUIT

Diagnosis Procedure

INFOID:0000000010245894

Regarding Wiring Diagram information, refer to [WW-22. "Wiring Diagram"](#).

1. CHECK FRONT WIPER MOTOR GROUND CIRCUIT

1. Turn the ignition switch OFF.
2. Disconnect front wiper motor.
3. Check continuity between front wiper motor harness connector and ground.

Front wiper motor		Ground	Continuity
Connector	Terminal		
E20	2		Yes

Is the inspection result normal?

- YES >> Front wiper motor ground circuit is normal.
NO >> Repair or replace harness.

WASHER MOTOR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

WASHER MOTOR CIRCUIT

Diagnosis Procedure

INFOID:000000010244387

Regarding Wiring Diagram information, refer to [WW-22, "Wiring Diagram"](#).

1. CHECK FRONT AND REAR WASHER MOTOR FUSE

1. Turn the ignition switch OFF.
2. Check that the following fuse is not blown.

Unit	Location	Fuse No.	Capacity
Front and rear washer motor	Fuse block (J/B)	33	15A

Is the fuse blown?

- YES >> Replace the blown fuse after repairing the affected circuit.
NO >> GO TO 2.

2. CHECK FRONT AND REAR WASHER MOTOR POWER SUPPLY

1. Disconnect front and rear washer motor.
2. Turn ignition switch ON.
3. Check voltage between front and rear washer motor harness connector and ground.

Front and rear washer motor		Ground	Voltage (Approx.)
Connector	Terminal		
E41	1		Battery voltage

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Repair or replace the harness or connectors.

3. CHECK FRONT AND REAR WASHER MOTOR CIRCUIT CONTINUITY

1. Turn the ignition switch OFF.
2. Disconnect combination switch (wiper and washer switch).
3. Check continuity between combination switch (wiper and washer switch) harness connector and front and rear washer motor.

Combination switch (wiper and washer switch)		Front and rear washer motor		Continuity
Connector	Terminal	Connector	Terminal	
M28	11	E41	1	Yes

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Repair or replace the harness or connectors.

4. CHECK WIPER AND WASHER SWITCH GROUND CIRCUIT

Check continuity between combination switch (wiper and washer switch) harness connector and ground.

Combination switch (wiper and washer switch)		Ground	Continuity
Connector	Terminal		
M28	16		Yes

Is the inspection result normal?

- YES >> GO TO 5.
NO >> Repair or replace the harness or connectors.

5. CHECK WIPER AND WASHER SWITCH

Check wiper and washer switch. Refer to [WW-45, "Component Inspection"](#).

WASHER MOTOR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

Is the inspection result normal?

- YES >> Replace front and rear washer motor. Refer to [WW-57, "Removal and Installation"](#).
NO >> Replace wiper and washer switch. Refer to [BCS-76, "Removal and Installation"](#).

WASHER SWITCH

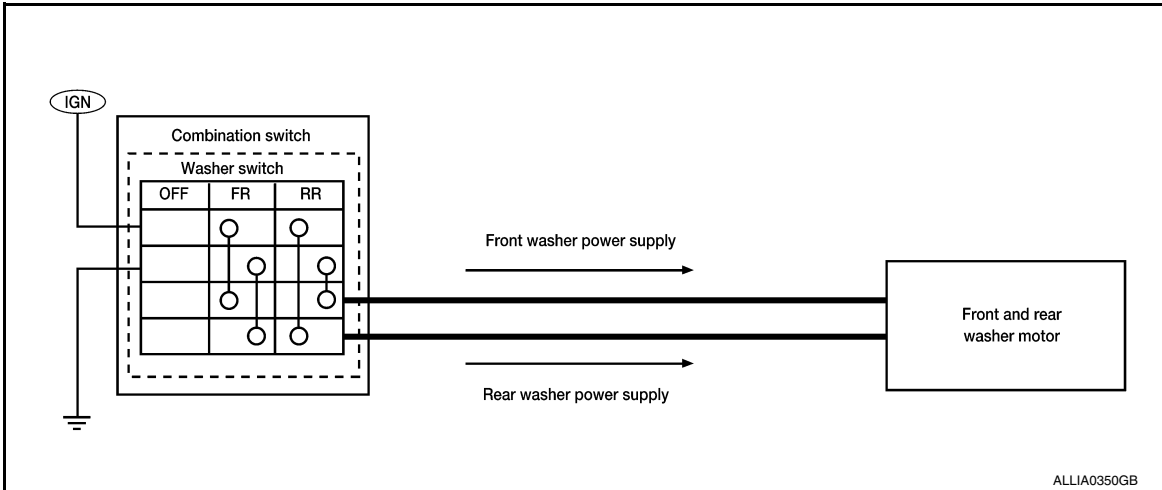
< DTC/CIRCUIT DIAGNOSIS >

WASHER SWITCH

Description

INFOID:0000000010245895

- Washer switch is integrated with the combination switch.
- Combination switch (wiper and washer switch) switches polarity between front washer operating and rear washer operating to supply power and ground to the front and rear washer motor.



Component Inspection

INFOID:0000000010245896

1. CHECK FRONT WASHER SWITCH

1. Turn the ignition switch OFF.
2. Disconnect combination switch (wiper and washer switch).
3. Check continuity between the combination switch (wiper and washer switch) terminals.

A: Terminal 4

B: Terminal 6

C: Terminal 3

D: Terminal 1

	OFF	FR	RR
A		○	○
B		○	○
C		○	○
D		○	○

JPLIA0164GB

WW

Combination switch (wiper and washer switch)		Condition	Continuity
Terminal			
1	6	Front washer switch ON	Yes
3	4		

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace combination switch (wiper and washer switch). Refer to [BCS-76, "Removal and Installation"](#) (with Intelligent Key system) or [BCS-136, "Removal and Installation"](#) (without Intelligent Key system).

2. CHECK REAR WASHER SWITCH

1. Check continuity between the combination switch (wiper and washer switch) terminals.

WASHER SWITCH

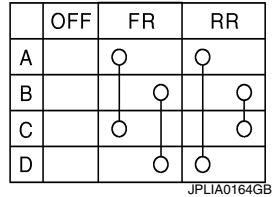
< DTC/CIRCUIT DIAGNOSIS >

A: Terminal 4

B: Terminal 6

C: Terminal 3

D: Terminal 1



Combination switch (wiper and washer switch)		Condition	Continuity
Terminal			
1	4	Rear washer switch ON	Yes
6	3		

Is the inspection result normal?

YES >> Wiper and washer switch is normal.

NO >> Replace combination switch (wiper and washer switch). Refer to [BCS-76, "Removal and Installation"](#) (with Intelligent Key system) or [BCS-136, "Removal and Installation"](#) (without Intelligent Key system).

REAR WIPER MOTOR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

REAR WIPER MOTOR CIRCUIT

Component Function Check

INFOID:000000010245897

1. CHECK REAR WIPER ON OPERATION

CONSULT ACTIVE TEST

1. Select "RR WIPER" of BCM active test item.
2. While operating the test item, check rear wiper operation.

ON : Rear wiper ON operation

OFF : Stop the rear wiper.

Is rear wiper operation normal?

- YES >> Rear wiper motor circuit is normal.
NO >> Refer to [WW-47, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000010245898

Regarding Wiring Diagram information, refer to [WW-28, "Wiring Diagram"](#).

1. CHECK REAR WIPER MOTOR OUTPUT VOLTAGE

CONSULT ACTIVE TEST

1. Turn the ignition switch OFF.
2. Disconnect rear wiper motor.
3. Turn the ignition switch ON.
4. Select RR WIPER of BCM active test item.
5. While operating the test item, check voltage between BCM harness connector and ground.

BCM		Ground	Test item	Voltage (Approx.)
Connector	Terminal		REAR WIPER	
B16	55		ON	Battery voltage
			OFF	0V

Is the inspection result normal?

- YES >> GO TO 2.
NO >> GO TO 3.

2. CHECK REAR WIPER MOTOR GROUND CIRCUIT

1. Turn the ignition switch OFF.
2. Check continuity between rear wiper motor harness connector and ground.

Rear wiper motor		Ground	Continuity
Connector	Terminal		
D506	3		Yes

Is the inspection result normal?

- YES >> Replace rear wiper motor. Refer to [WW-71, "Removal and Installation"](#).
NO >> Repair or replace harness.

3. CHECK REAR WIPER MOTOR OPEN CIRCUIT

Check continuity between BCM harness connector and rear wiper motor harness connector.

REAR WIPER MOTOR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

BCM		Rear wiper motor		Continuity
Connector	Terminal	Connector	Terminal	
B23	147	D506	1	Yes

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness.

4. CHECK REAR WIPER MOTOR SHORT CIRCUIT

Check continuity between BCM harness connector and ground.

BCM		Ground	Continuity
Connector	Terminal		
B16	55		No

Is the inspection result normal?

YES >> Repair or replace harness.

NO >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#) (with Intelligent Key system) or [BCS-135, "Removal and Installation"](#) (without Intelligent Key system).

REAR WIPER AUTO STOP SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

REAR WIPER AUTO STOP SIGNAL CIRCUIT

Component Function Check

INFOID:0000000010245899

1. CHECK REAR WIPER (AUTO STOP) OPERATION

CONSULT DATA MONITOR

1. Select WIPER of BCM data monitor item.
2. Operate the rear wiper.
3. Check that RR WIPER STOP changes to ON and OFF linked with the wiper operation.

Monitor item	Condition		Monitor status
RR WIPER STOP	Rear wiper motor	Stop position	ON
		Except stop position	OFF

Is the inspection result normal?

- YES >> Rear wiper auto stop signal circuit is normal.
NO >> Refer to [WW-49, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000010245900

Regarding Wiring Diagram information, refer to [WW-28, "Wiring Diagram"](#).

1. CHECK REAR WIPER MOTOR AUTO STOP CIRCUITS FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect BCM and rear wiper motor.
3. Check continuity between BCM harness connector terminal and rear wiper motor harness connector terminal.

BCM		Rear wiper motor		Continuity
Connector	Terminal	Connector	Terminal	
B16	55	D506	2	Yes

Is inspection result normal?

- YES >> GO TO 2.
NO >> Repair or replace harness.

2. CHECK AUTO STOP CIRCUITS FOR SHORT TO GROUND

Check continuity between BCM harness connector terminal and ground.

BCM		Ground	Continuity
Connector	Terminal		
B16	55		No

Is inspection result normal?

- YES >> Replace BCM. Refer to [BCS-75, "Removal and Installation"](#) (with Intelligent Key system) or [BCS-135, "Removal and Installation"](#) (with Intelligent Key system).
NO >> Repair or replace harness.

WIPER AND WASHER SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

SYMPTOM DIAGNOSIS

WIPER AND WASHER SYSTEM SYMPTOMS

Symptom Table

INFOID:0000000010245901

CAUTION:

Perform the self-diagnosis with CONSULT before performing the diagnosis by symptom. Perform the diagnosis by DTC if DTC is detected.

Symptom		Possible malfunction	Reference
Front wiper does not operate in...	HI only	- Combination switch (wiper and washer switch) - Harness between combination switch (wiper and washer switch) and BCM - BCM	Combination switch (wiper and washer switch) Refer to BCS-73, "Symptom Table" (with Intelligent Key system) or BCS-133, "Symptom Table" (without Intelligent Key system).
		- IPDM E/R - Harness between IPDM E/R and front wiper motor - Front wiper motor	Front wiper motor (HI) circuit Refer to WW-38, "Component Function Check" .
		Front wiper request signal (IPDM E/R)	Check FR WIP REQ in DATA MONITOR of IPDM E/R. Refer to PCS-9, "CONSULT Function (IPDM E/R)" .
	LO and INT	- Combination switch (wiper and washer switch) - Harness between combination switch (wiper and washer switch) and BCM - BCM	Combination switch (wiper and washer switch) Refer to BCS-73, "Symptom Table" (with Intelligent Key system) or BCS-133, "Symptom Table" (without Intelligent Key system).
		- IPDM E/R - Harness between IPDM E/R and front wiper motor - Front wiper motor	Front wiper motor (LO) circuit Refer to WW-36, "Component Function Check" .
		Front wiper request signal (IPDM E/R)	Check FR WIP REQ in DATA MONITOR of IPDM E/R. Refer to PCS-9, "CONSULT Function (IPDM E/R)" .
	INT only	- Combination switch (wiper and washer switch) - Harness between combination switch (wiper and washer switch) and BCM - BCM	Combination switch (wiper and washer switch) Refer to BCS-73, "Symptom Table" (with Intelligent Key system) or BCS-133, "Symptom Table" (without Intelligent Key system).
		Front wiper request signal (IPDM E/R)	Check FR WIP REQ in DATA MONITOR of IPDM E/R. Refer to PCS-9, "CONSULT Function (IPDM E/R)" .
	Any mode	—	Refer to WW-53, "Diagnosis Procedure" .

WIPER AND WASHER SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

Symptom		Possible malfunction	Reference
Front wiper does not stop in...	Any mode	Front wiper auto stop signal (IPDM E/R)	Refer to WW-40, "Component Function Check" .
		- Combination switch (wiper and washer switch) - BCM	Combination switch (wiper and washer switch) Refer to BCS-73, "Symptom Table" (with Intelligent Key system) or BCS-133, "Symptom Table" (without Intelligent Key system).
Front wiper operates abnormally because...	Intermittent adjustments cannot be made.	- Combination switch (wiper and washer switch) - Harness between combination switch (wiper and washer switch) and BCM - BCM	Combination switch (wiper and washer switch) Refer to BCS-73, "Symptom Table" (with Intelligent Key system) or BCS-133, "Symptom Table" (without Intelligent Key system).
	Wiper/washer will not operate together.	- Combination switch (wiper and washer switch) - Harness between combination switch (wiper and washer switch) and BCM - BCM	Combination switch (wiper and washer switch) Refer to BCS-73, "Symptom Table" (with Intelligent Key system) or BCS-133, "Symptom Table" (without Intelligent Key system).
	Wipers will not return to stop position (repeatedly operates for 10 seconds and then stops for 20 seconds. Wipers then stop operating).	- IPDM E/R - Harness between IPDM E/R and front wiper motor - Front wiper motor	Front wiper auto stop signal circuit Refer to WW-40, "Component Function Check" .
Rear wiper does not operate.	ON only	- Combination switch (wiper and washer switch) - Harness between combination switch (wiper and washer switch) and BCM - BCM	Combination switch (wiper and washer switch) Refer to BCS-73, "Symptom Table" (with Intelligent Key system) or BCS-133, "Symptom Table" (without Intelligent Key system).
	INT only	- Combination switch (wiper and washer switch) - Harness between combination switch (wiper and washer switch) and BCM - BCM	Combination switch (wiper and washer switch) Refer to BCS-73, "Symptom Table" (with Intelligent Key system) or BCS-133, "Symptom Table" (without Intelligent Key system).
	ON and INT	- Combination switch (wiper and washer switch) - Harness between combination switch (wiper and washer switch) and BCM - BCM	Combination switch (wiper and washer switch) Refer to BCS-73, "Symptom Table" (with Intelligent Key system) or BCS-133, "Symptom Table" (without Intelligent Key system).
		- BCM - Harness between rear wiper motor and BCM - Harness between rear wiper motor and ground - Rear wiper motor	Rear wiper motor circuit Refer to WW-47, "Diagnosis Procedure" .

A

B

C

D

E

F

G

H

I

J

K

WW

M

N

O

P

WIPER AND WASHER SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

Symptom		Possible malfunction	Reference
Rear wiper does not stop.	ON only	- Combination switch (wiper and washer switch) - BCM	Rear wiper motor circuit Refer to WW-47, "Diagnosis Procedure" .
	INT only	- Combination switch (wiper and washer switch) - BCM	Combination switch (wiper and washer switch) Refer to BCS-73, "Symptom Table" (with Intelligent Key system) or BCS-133, "Symptom Table" (without Intelligent Key system).
Rear wiper does not operate normally.	Wiper is not linked to the washer operation.	- Combination switch (wiper and washer switch) - Harness between rear wiper motor and BCM - BCM	Combination switch (wiper and washer switch) Refer to BCS-73, "Symptom Table" (with Intelligent Key system) or BCS-133, "Symptom Table" (without Intelligent Key system).
		BCM	—
	Rear wiper does not return to the Stop position (Stops after a five-second operation).	- BCM - Harness between rear wiper motor and BCM - Rear wiper motor	Rear wiper auto stop signal circuit Refer to WW-49, "Diagnosis Procedure" .
Front and rear washer motor does not operate.	Front and rear washer motor does not operate when the washing windshield.	- Combination switch (wiper and washer switch) - Harness between combination switch (wiper and washer switch) and BCM - BCM	Combination switch (wiper and washer switch) Refer to BCS-73, "Symptom Table" (with Intelligent Key system) or BCS-133, "Symptom Table" (without Intelligent Key system).
		- Harness between rear combination switch (wiper and washer switch) and front and rear washer motor. - Front and rear washer motor	Front and rear washer motor circuit Refer to WW-43, "Diagnosis Procedure" .

FRONT WIPER DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

FRONT WIPER DOES NOT OPERATE

Description

INFOID:0000000010245902

The front wiper does not operate under any operation conditions.

Diagnosis Procedure

INFOID:0000000010245903

Regarding Wiring Diagram information, refer to [WW-22, "Wiring Diagram"](#).

1. CHECK WIPER RELAY OPERATION

CONSULT ACTIVE TEST

1. Select FR WIPER of BCM (WIPER) active test item.
2. Check front wiper operation.

LO : Front wiper LO operation

HI : Front wiper HI operation

OFF : Front wiper stop

Is the inspection result normal?

YES >> GO TO 5.

NO >> GO TO 2.

2. CHECK FRONT WIPER MOTOR FUSE

Refer to [WW-35, "Diagnosis Procedure"](#).

Is the fuse blown?

YES >> Replace the fuse after repairing the affected circuit.

NO >> GO TO 3.

3. CHECK FRONT WIPER MOTOR GROUND CIRCUIT

Refer to [WW-42, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness.

4. CHECK FRONT WIPER MOTOR OUTPUT VOLTAGE

1. Turn the ignition switch ON.
2. With CONSULT, select FRONT WIPER of IPDM E/R ACTIVE TEST item.
3. Check voltage between IPDM E/R harness connector and ground while wipers are operating.

IPDM E/R			FRONT WIPER	Voltage (Approx.)
Connector	Terminal			
E121	48	Ground	LO	Battery voltage
			OFF	0 V
	45		HI	Battery voltage
			OFF	0 V

Is the inspection result normal?

YES >> Replace front wiper motor. Refer to [WW-67, "Removal and Installation"](#).

NO >> Replace IPDM E/R. Refer to [PCS-35, "Removal and Installation"](#).

5. CHECK FRONT WIPER REQUEST SIGNAL INPUT

1. With CONSULT, select FR WIP REQ in DATA MONITOR of IPDM E/R.
2. Switch the front wiper switch to HI and LO.
3. Check the status of FR WIP REQ while operating the switch.

FRONT WIPER DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

Data monitor	Condition	Status
FR WIP REQ	Front wiper switch OFF	STOP
	Front wiper switch LO	LOW
	Front wiper switch HI	HI

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to [PCS-35. "Removal and Installation"](#).

NO >> GO TO 6.

6. CHECK COMBINATION SWITCH (WIPER AND WASHER SWITCH)

Check combination switch (wiper and washer switch). Refer to [WW-45. "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace BCM. Refer to [BCS-75. "Removal and Installation"](#) (with Intelligent Key system) or [BCS-135. "Removal and Installation"](#) (without Intelligent Key system).

NO >> Repair or replace the applicable parts.

NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

NORMAL OPERATING CONDITION

Description

INFOID:0000000010245904

FRONT WIPER PROTECTION FUNCTION

IPDM E/R detects front wiper stop position by a front wiper stop position signal.

When a front wiper stop position signal is in the conditions listed below, IPDM E/R stops power supply to wiper after repeating a front wiper 10 seconds activation and 20 seconds stop.

Ignition switch	Front wiper switch	Front wiper stop position signal
ON	OFF	The front wiper stop position signal (stop position) cannot be input for 10 seconds.
	ON	The front wiper stop position signal does not change for 10 seconds.

NOTE:

This operation status can be confirmed on the IPDM E/R “Data Monitor” that displays “BLOCK” for the item “WIP PROT” while the wiper is stopped.

REAR WIPER MOTOR PROTECTION FUNCTION

- BCM may stop rear wiper to protect the rear wiper motor when the rear wiper is stopped for 5 seconds or more due to a snowfall.
- Rear wiper operates normally one minute after the obstacles are removed with rear wiper OFF.

A

B

C

D

E

F

G

H

I

J

K

WW

M

N

O

P

WASHER TANK

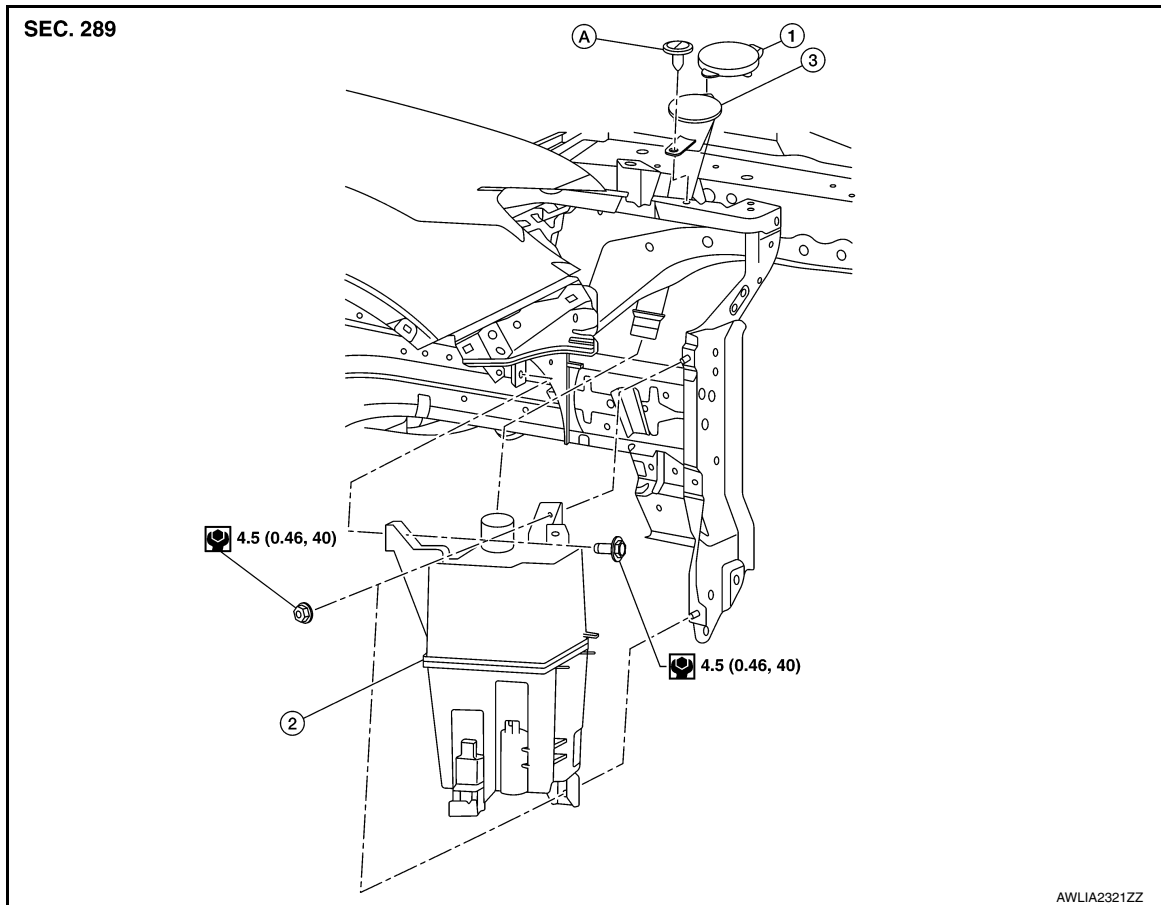
< REMOVAL AND INSTALLATION >

REMOVAL AND INSTALLATION

WASHER TANK

Exploded View

INFOID:0000000010244348



1. Cap
A. Clip

2. Washer tank

3. Washer tank inlet

Removal and Installation

INFOID:0000000010244349

REMOVAL

1. Drain washer fluid.
2. Using a suitable tool release washer tank inlet clip and remove washer tank inlet.
3. Remove engine side cover. Refer [EXT-28, "FENDER PROTECTOR : Exploded View"](#).
4. Remove engine under cover. Refer to [EXT-37, "ENGINE UNDER COVER : Removal and Installation"](#).
5. Remove front fender protector (RH). Refer to [EXT-28, "FENDER PROTECTOR : Exploded View"](#).
6. Disconnect harness connector from rear view camera washer motor then front and rear washer motor.
7. Disconnect washer level switch harness connector (if equipped).
8. Disconnect front and rear washer motor tubes and the rear view camera washer motor tube (if equipped).
9. Remove washer tank nuts and bolt and remove the washer tank.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Add water up to the top of washer tank inlet after installing. Check that no leaks exist.
- Fill washer tank with specified amount of fluid. Refer to [WW-75, "Specifications"](#).

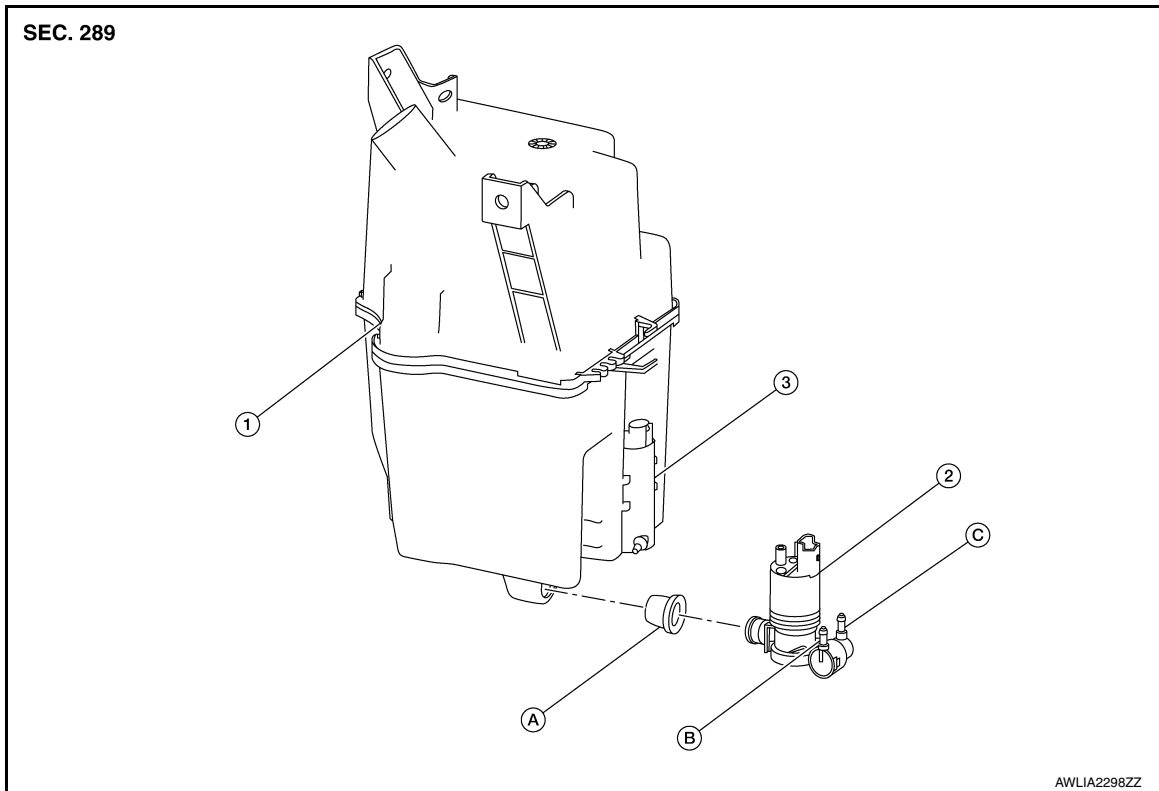
FRONT AND REAR WASHER MOTOR

< REMOVAL AND INSTALLATION >

FRONT AND REAR WASHER MOTOR

Exploded View

INFOID:000000010244350



1. Washer tank
A. Seal

2. Front and rear washer motor
B. Rear washer outlet

3. Rear view camera washer motor
C. Front washer outlet

Removal and Installation

INFOID:000000010244351

REMOVAL

1. Drain washer fluid.
2. Remove front fender protector (RH). Refer to [EXT-28, "FENDER PROTECTOR : Exploded View"](#).
3. Disconnect harness connector from front and rear washer motor.
4. Disconnect front and rear washer outlet tubes.
5. Remove front and rear washer motor from washer tank.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Add water up to the top of washer tank inlet after installing. Check that no leaks exist.
- Fill washer tank with specified amount of fluid. Refer to [WW-75, "Specifications"](#).

WASHER FLUID LEVEL SWITCH

< REMOVAL AND INSTALLATION >

WASHER FLUID LEVEL SWITCH

Removal and Installation

INFOID:0000000010244352

The washer fluid level switch is serviced as a part of the washer tank. Refer to [WW-56, "Removal and Installation"](#).

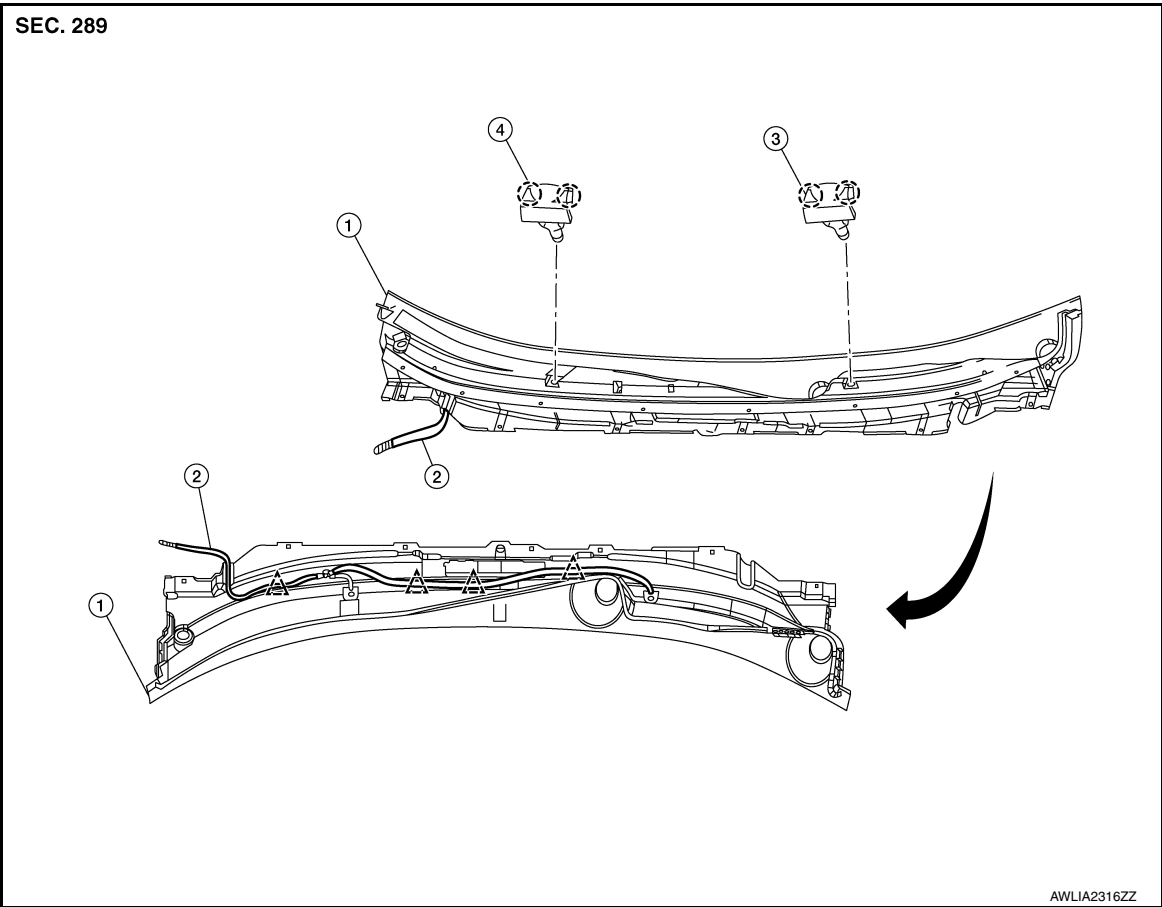
FRONT WASHER NOZZLE AND TUBE

< REMOVAL AND INSTALLATION >

FRONT WASHER NOZZLE AND TUBE

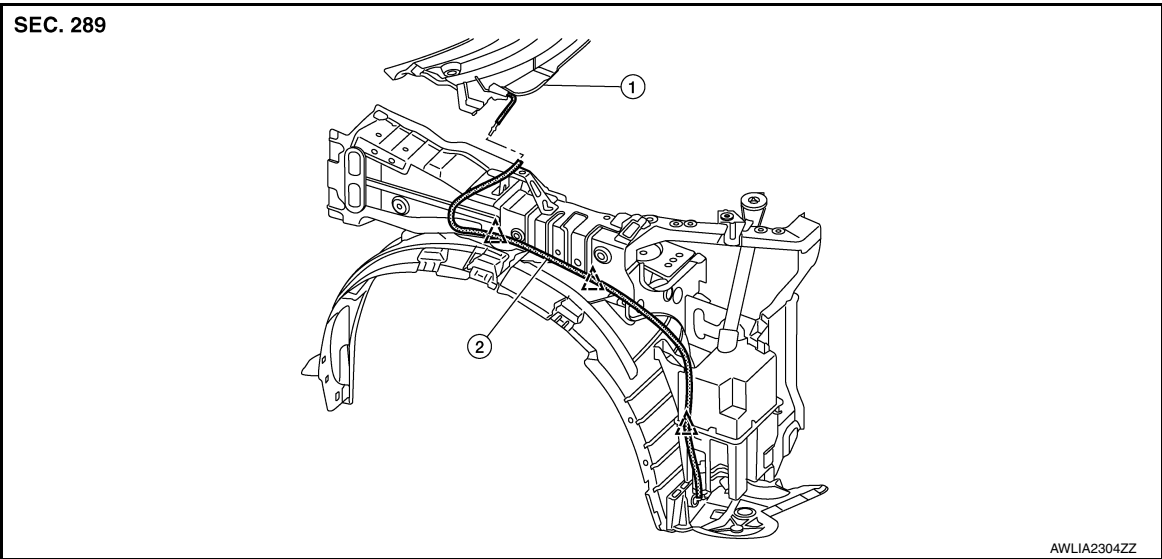
Exploded View

INFOID:0000000010244353



Exploded View

INFOID:0000000010244354



A
B
C
D
E
F
G
H
I
J
K
M
N
O
P

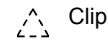
WW

FRONT WASHER NOZZLE AND TUBE

< REMOVAL AND INSTALLATION >

1. Cowl top cover

2. Front washer tube



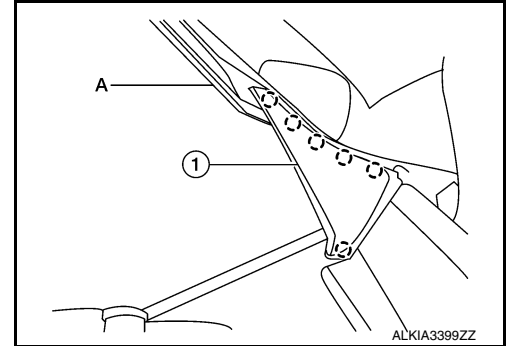
Removal and Installation - Front Washer Nozzle

INFOID:0000000010244355

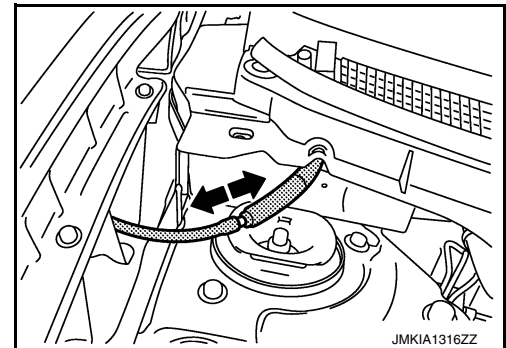
REMOVAL

1. Remove front wiper arms (LH/RH). Refer to [WW-63, "Removal and Installation"](#).
2. Release pawls using suitable tool (A) and remove cowl top side trim cover (1) (LH/RH).

○: Pawl



3. Disconnect front washer tube connector.



4. Release pawls and remove front washer nozzle (LH/RH).

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

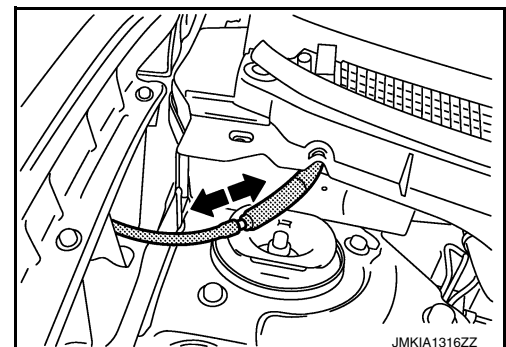
Adjust the nozzle spray pattern. Refer to [WW-61, "Inspection and Adjustment"](#).

Removal and Installation - Front Washer Tube

INFOID:0000000010356790

REMOVAL

1. Disconnect front washer tube connector.



2. Remove engine side cover. Refer to [EXT-28, "FENDER PROTECTOR : Exploded View"](#).
3. Remove engine undercover. Refer to [EXT-37, "ENGINE UNDER COVER : Removal and Installation"](#).
4. Partially remove fender protector. Refer to [EXT-28, "FENDER PROTECTOR : Exploded View"](#).
5. Unclip front washer hose and remove.

INSTALLATION

FRONT WASHER NOZZLE AND TUBE

< REMOVAL AND INSTALLATION >

Installation is in the reverse order of removal.

Inspection and Adjustment

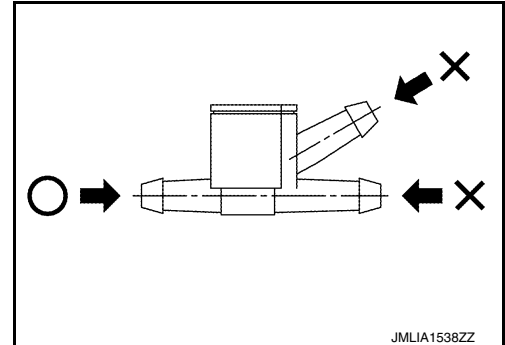
INFOID:000000010244356

WASHER TUBE INSPECTION

Check that air can pass through the check valve splitter by blowing into the check valve splitter and that air cannot flow in the opposite direction.

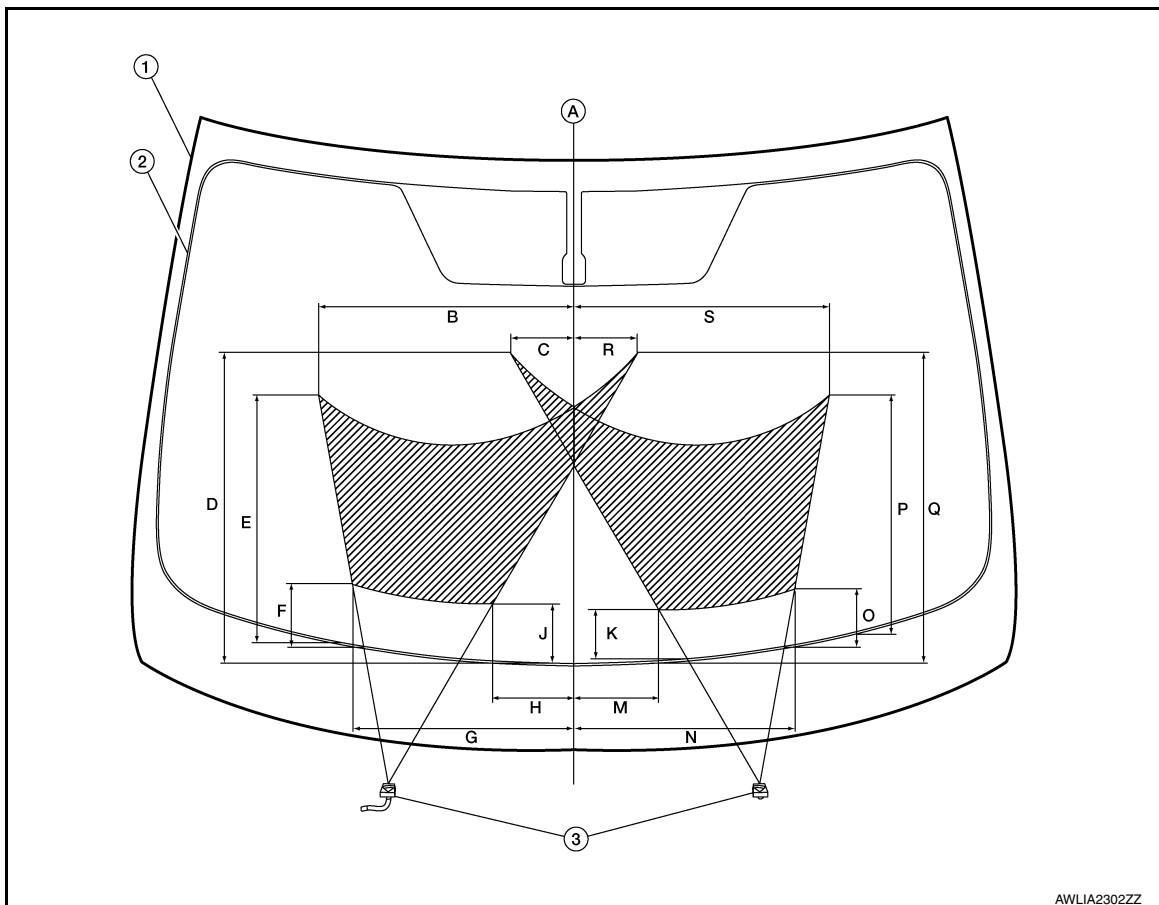
O: Air can flow

X: Air cannot flow



ADJUSTMENT

If operating properly, spray positions should match the positions shown. If spray positions do not match, confirm the rear washer nozzle is properly seated and working properly. If the spray positions still do not match as shown, then replace the front washer nozzle. Refer to [WW-60, "Removal and Installation - Front Washer Nozzle"](#)



- | | | |
|----------------------|----------------------------|--------------------------------|
| 1. Windshield glass | 2. Black printed area line | 3. Front washer nozzle (LH/RH) |
| A. Center line | B. 409 mm (16.10 in) | C. 103 mm (4.06 in) |
| D. 497 mm (19.57 in) | E. 398 mm (15.67 in) | F. 100 mm (3.94 in) |
| G. 356 mm (14.02 in) | H. 127 mm (5.00 in) | J. 93 mm (3.66 in) |

FRONT WASHER NOZZLE AND TUBE

< REMOVAL AND INSTALLATION >

K. 80 mm (3.15 in)
O. 90 mm (3.54 in)
R. 103 mm (4.06 in)

M. 133 mm (5.24 in)
P. 380 mm (14.96 in)
S. 409 mm (16.10 in)

N. 354 mm (13.94 in)
Q. 496 mm (19.53 in)

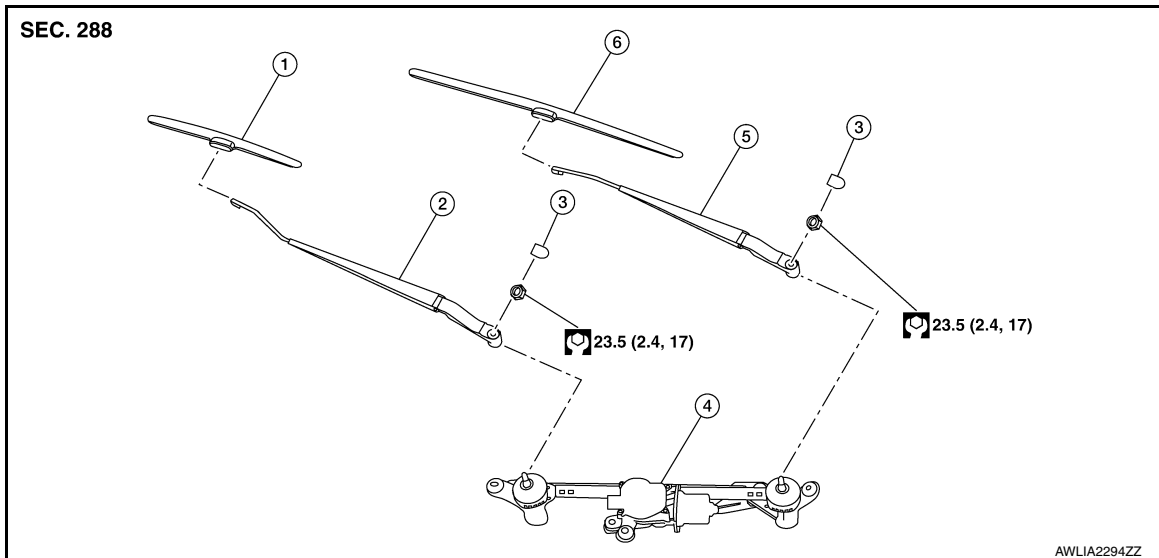
FRONT WIPER ARM

< REMOVAL AND INSTALLATION >

FRONT WIPER ARM

Exploded View

INFOID:0000000010244357



- | | | |
|-------------------------------|-------------------------|---------------------------|
| 1. Front wiper blade (RH) | 2. Front wiper arm (RH) | 3. Front wiper arm cover |
| 4. Front wiper drive assembly | 5. Front wiper arm (LH) | 6. Front wiper blade (LH) |

Removal and Installation

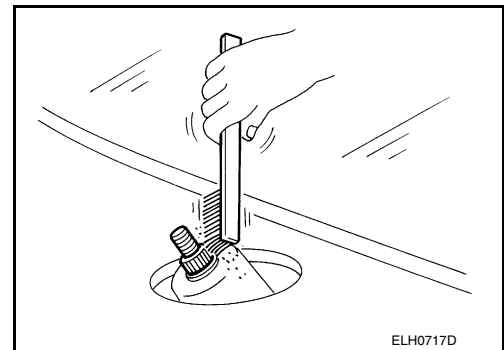
INFOID:0000000010244358

REMOVAL

1. Move front wiper into the service position by turning the ignition switch ON, then quickly push the wiper washer switch to the mist position two times within 0.5 seconds.
2. Turn the ignition switch OFF.
3. Remove front wiper arm covers.
4. Remove nuts and remove front wiper arms.

INSTALLATION

1. Clean wiper arm mount as shown in the figure to prevent nuts from being loosened.



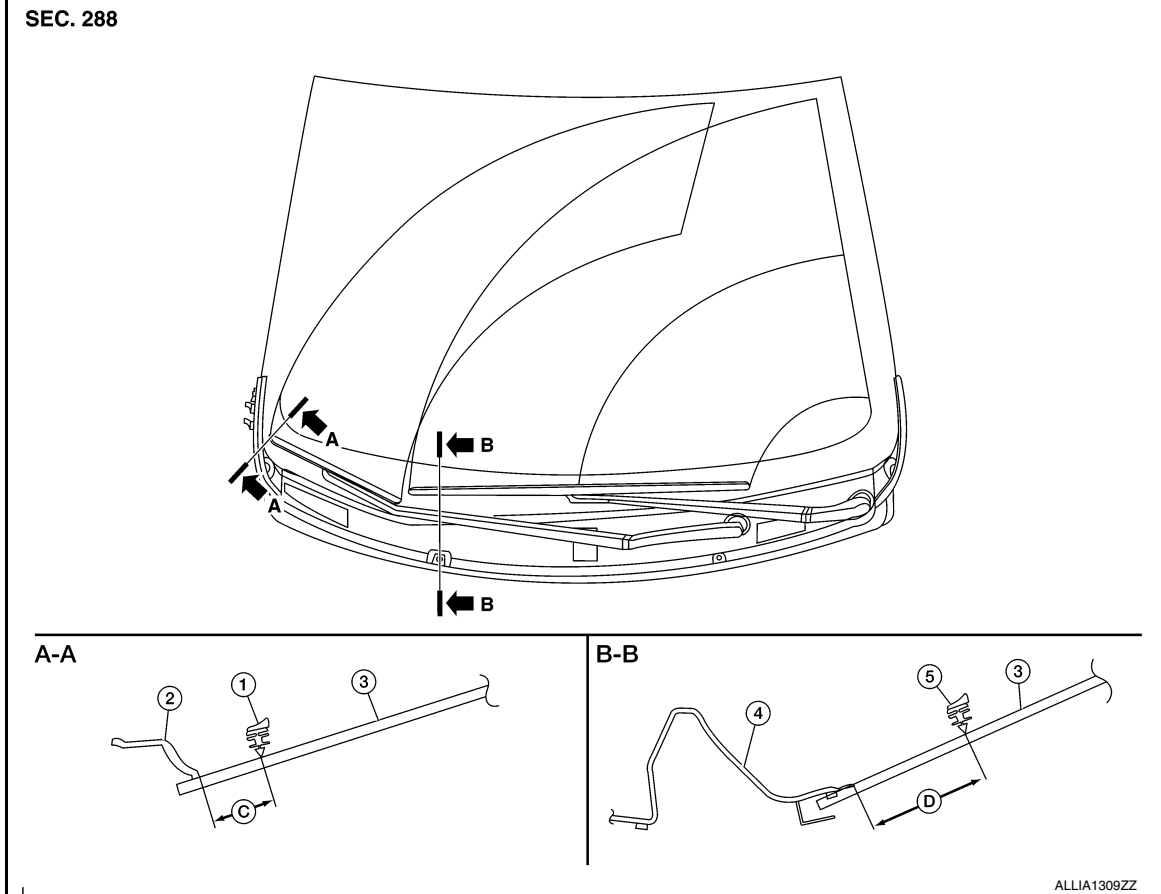
2. Move front wiper into the service position by turning the ignition switch ON, then quickly push the wiper washer switch to the mist position two times within 0.5 seconds.
3. Turn the ignition switch OFF.
4. Adjust front wiper blade position. Refer to [WW-64, "Adjustment"](#).
5. Install front wiper arm by tightening the nuts.
6. Install front wiper arm covers.
7. Check that the front wiper blades stop at the specified position.

FRONT WIPER ARM

< REMOVAL AND INSTALLATION >

Adjustment

INFOID:0000000010244359



- | | | |
|---|----------------------|---|
| 1. Wiper blade (RH) | 2. Front fender (RH) | 3. Windshield glass |
| 4. Cowl top cover | 5. Wiper blade (LH) | C. $34.9 \pm 7.5 \text{ mm}$ ($1.4 \pm 0.3 \text{ in}$) |
| D. $38.2 \pm 7.5 \text{ mm}$ ($1.5 \pm 0.3 \text{ in}$) | | |

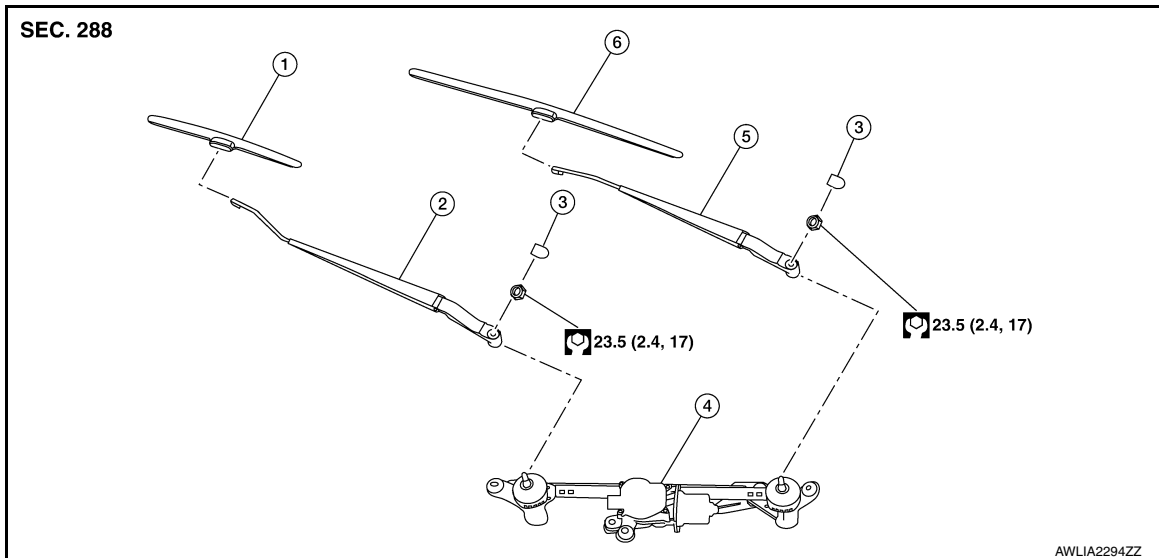
FRONT WIPER BLADE

< REMOVAL AND INSTALLATION >

FRONT WIPER BLADE

Exploded View

INFOID:0000000010244360



- | | | |
|-------------------------------|-------------------|---------------------|
| 1. Wiper blade (RH) | 2. Wiper arm (RH) | 3. Wiper arm cover |
| 4. Front wiper drive assembly | 5. Wiper arm (LH) | 6. Wiper blade (LH) |

Removal and Installation

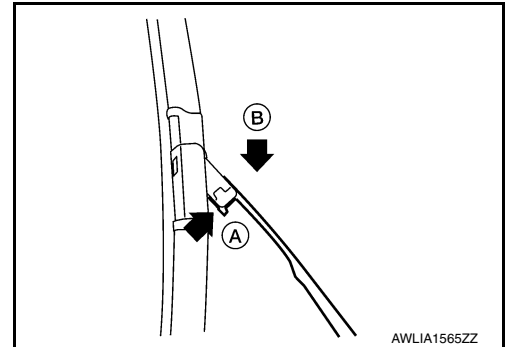
INFOID:0000000010244361

REMOVAL

1. Move front wiper into the service position by turning the ignition switch ON, then quickly push the wiper washer switch to the mist position two times within 0.5 seconds.
2. Turn the ignition switch OFF.
3. Lift the wiper arm and wiper blade away from the windshield glass.
4. Rotate the wiper blade and push the release tab (A), then move the wiper blade down (B) the wiper arm.

CAUTION:

Be careful not to drop the wiper arm onto the windshield glass.



5. Remove the wiper blade.

INSTALLATION

Installation is in the reverse order of removal.

NOTE:

Insert the front wiper blade onto the front wiper arm until it clicks into place.

FRONT WIPER DRIVE ASSEMBLY

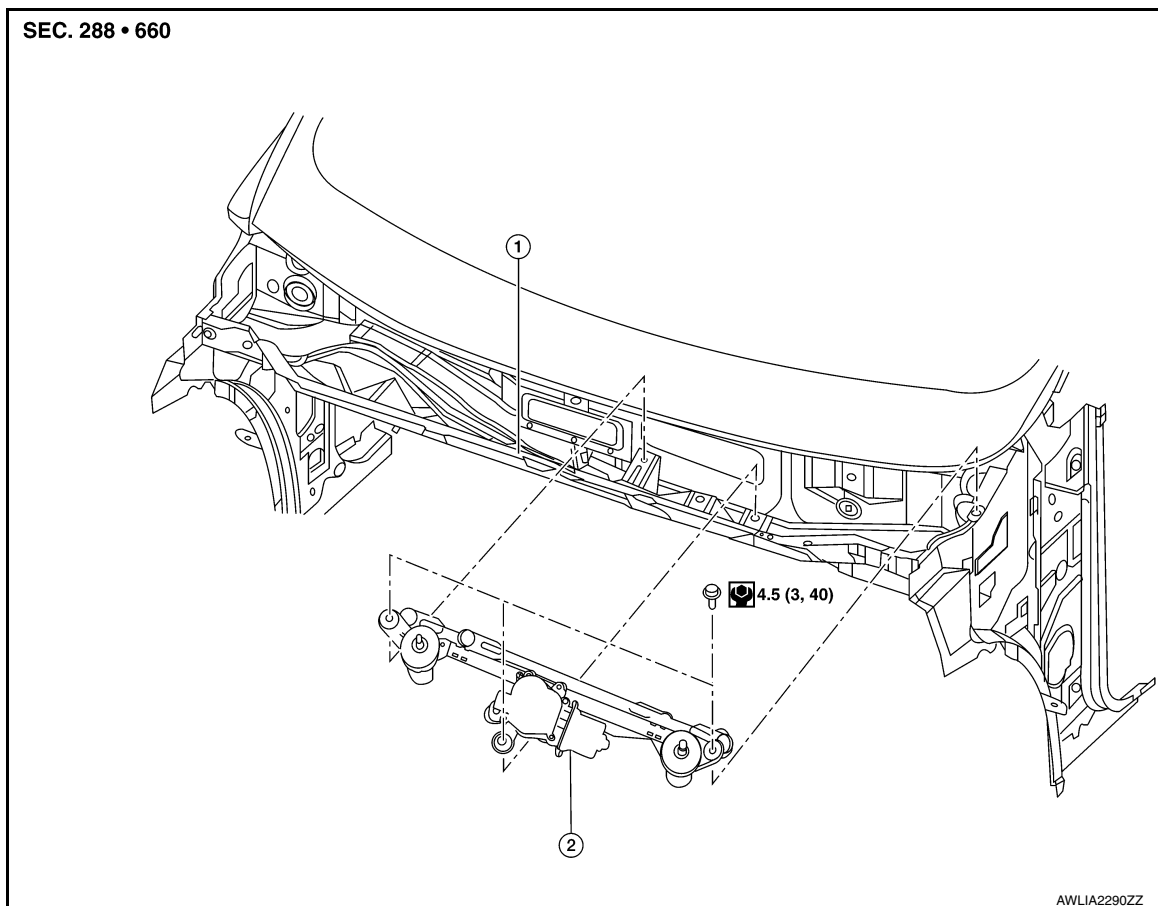
< REMOVAL AND INSTALLATION >

FRONT WIPER DRIVE ASSEMBLY

Exploded View

INFOID:000000010244363

REMOVAL



1. Cowl top

2. Front wiper drive assembly

Removal and Installation

INFOID:000000010244364

REMOVAL

1. Remove cowl top cover. Refer to [EXT-25, "Removal and Installation"](#).
2. Disconnect harness connector from front wiper motor.
3. Remove bolts and front wiper drive assembly.

INSTALLATION

Installation is in the reverse order of removal.

FRONT WIPER MOTOR

< REMOVAL AND INSTALLATION >

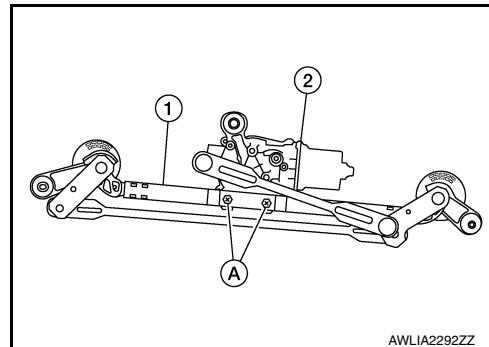
FRONT WIPER MOTOR

Removal and Installation

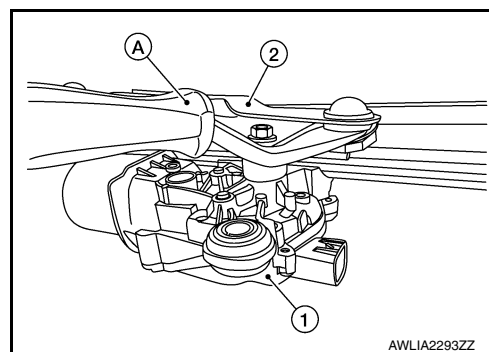
INFOID:0000000010325986

REMOVAL

1. Remove the front drive assembly. Refer to [WW-66. "Removal and Installation"](#).
2. Remove the bolts (A) from the front wiper drive assembly (1) and the front wiper motor (2).



3. Separate the wiper motor (1) from the front wiper drive assembly (2) using suitable tool (A).



4. Remove the front wiper drive assembly.

INSTALLATION

Installation is in the reverse order of removal.

A
B
C
D
E
F
G
H
I
J
K
M
N
O
P

WW

WIPER AND WASHER SWITCH

< REMOVAL AND INSTALLATION >

WIPER AND WASHER SWITCH

Removal and Installation

INFOID:0000000010244366

The wiper and washer switch is serviced as a part of the combination switch. Refer to [BCS-76. "Removal and Installation"](#).

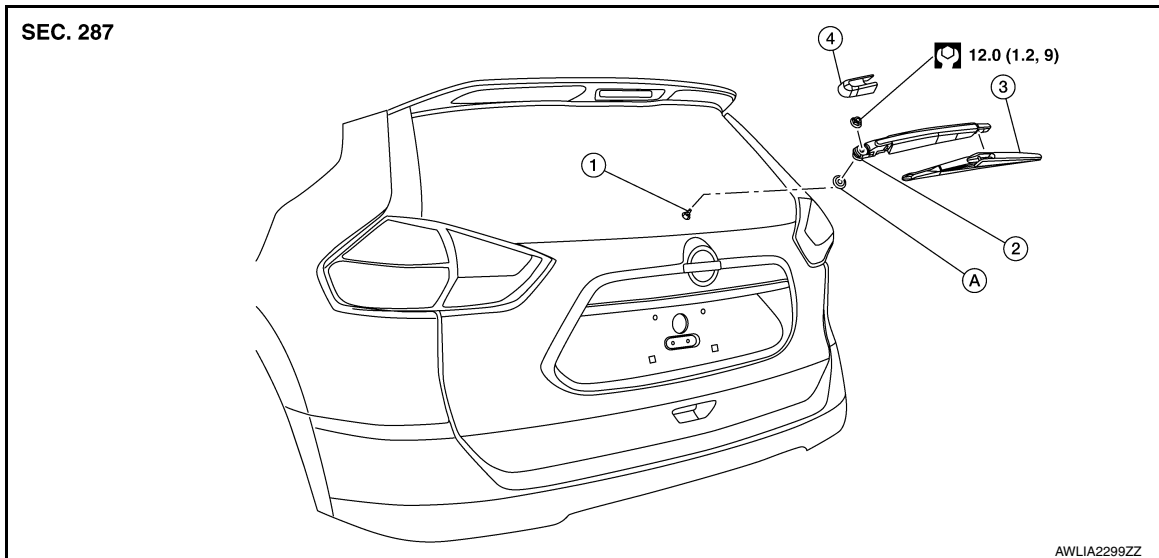
REAR WIPER ARM

< REMOVAL AND INSTALLATION >

REAR WIPER ARM

Exploded View

INFOID:0000000010244367



Removal and Installation

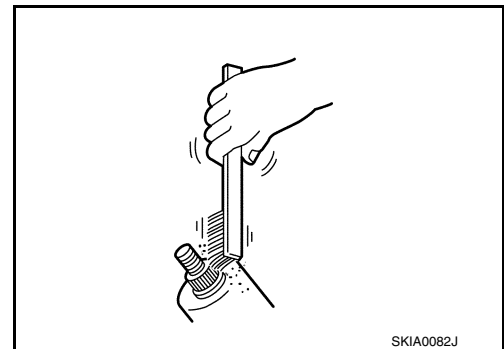
INFOID:0000000010244368

REMOVAL

1. Check that the rear wiper is in the auto stop position.
2. Remove the rear wiper arm cover.
3. Remove the rear wiper arm nut from the rear wiper arm.
4. Remove the rear wiper arm.

INSTALLATION

1. Clean the rear wiper arm mount as shown, to prevent the possibility of rear wiper arm looseness.



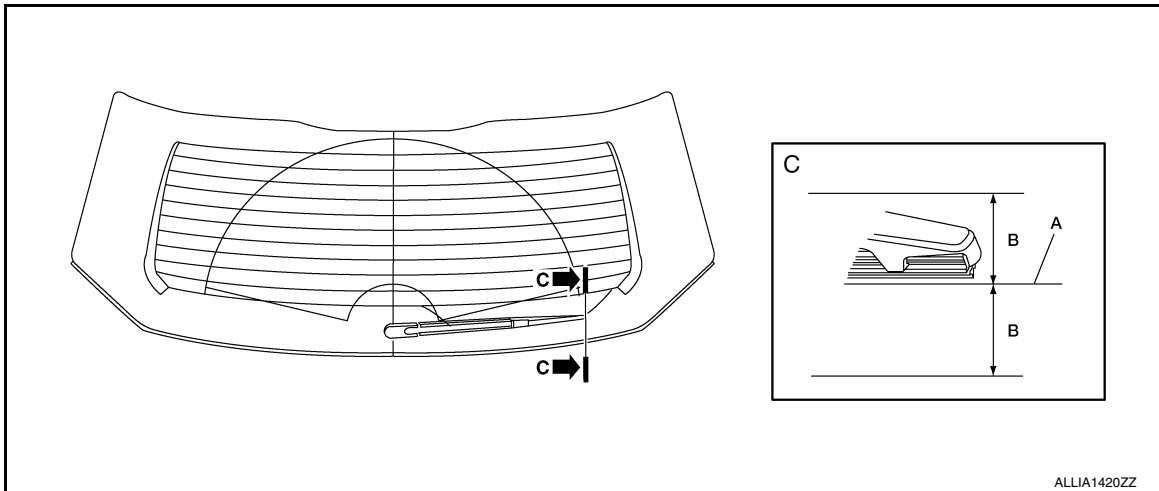
2. Check that the rear wiper is in the auto stop position.
3. Adjust the rear wiper blade position. Refer to [WW-70. "Adjustment"](#).
4. Install the rear wiper arm.
5. Install the rear wiper arm cover.
6. Check that the rear wiper blades stop at the specified position. Refer to [WW-70. "Adjustment"](#).

REAR WIPER ARM

< REMOVAL AND INSTALLATION >

Adjustment

INFOID:0000000010244369



A. Defrosting wire

Position the wiper blade on top of the defrosting wire (A).

B: $\pm 7.5 \text{ mm}$ ($0.787 \pm 0.295 \text{ in}$)

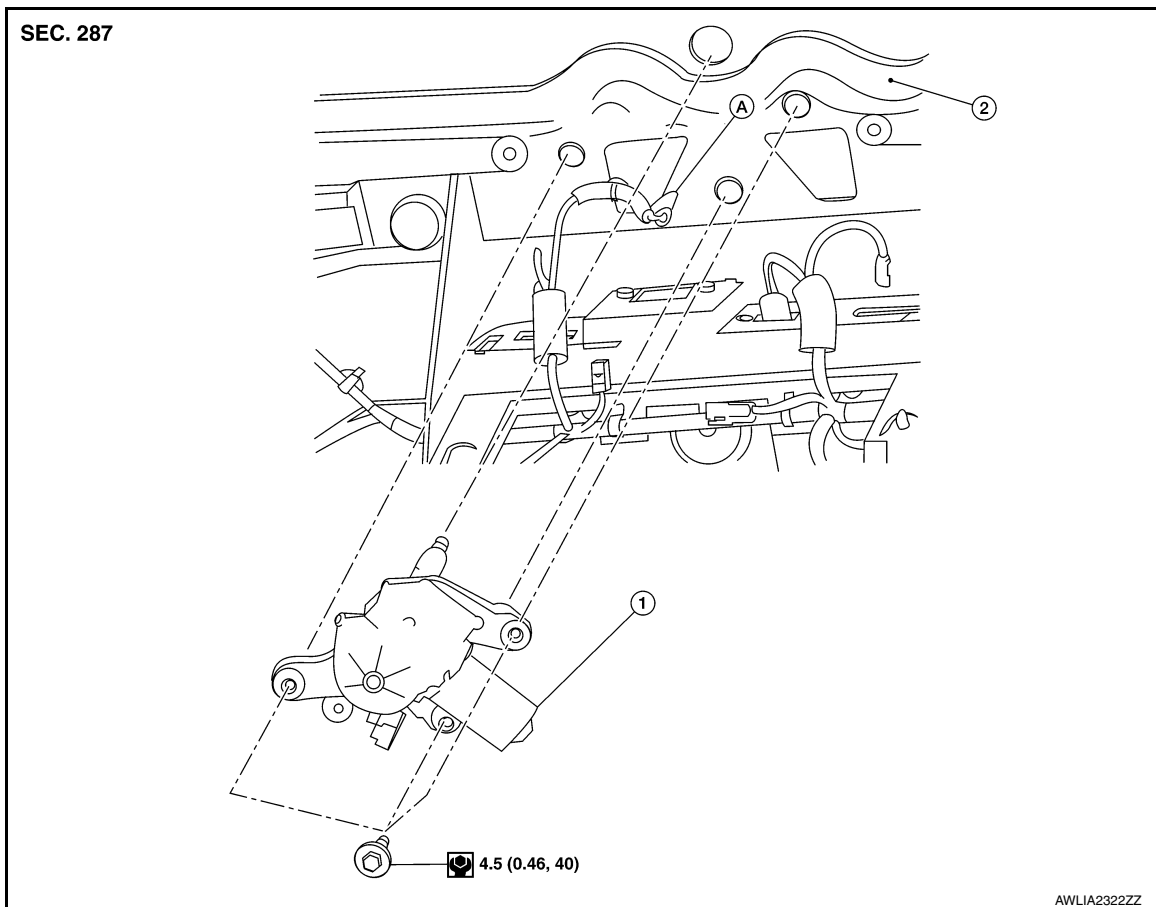
REAR WIPER MOTOR

< REMOVAL AND INSTALLATION >

REAR WIPER MOTOR

Exploded View

INFOID:000000010244370



Removal and Installation

INFOID:000000010244371

REMOVAL

1. Remove rear wiper arm. Refer to [WW-69, "Removal and Installation"](#).
2. Remove back door finisher. Refer to [INT-38, "Removal and Installation"](#).
3. Disconnect the harness connector from the rear wiper motor.
4. Remove bolts and the rear wiper motor.

INSTALLATION

Install in the reverse order of removal.

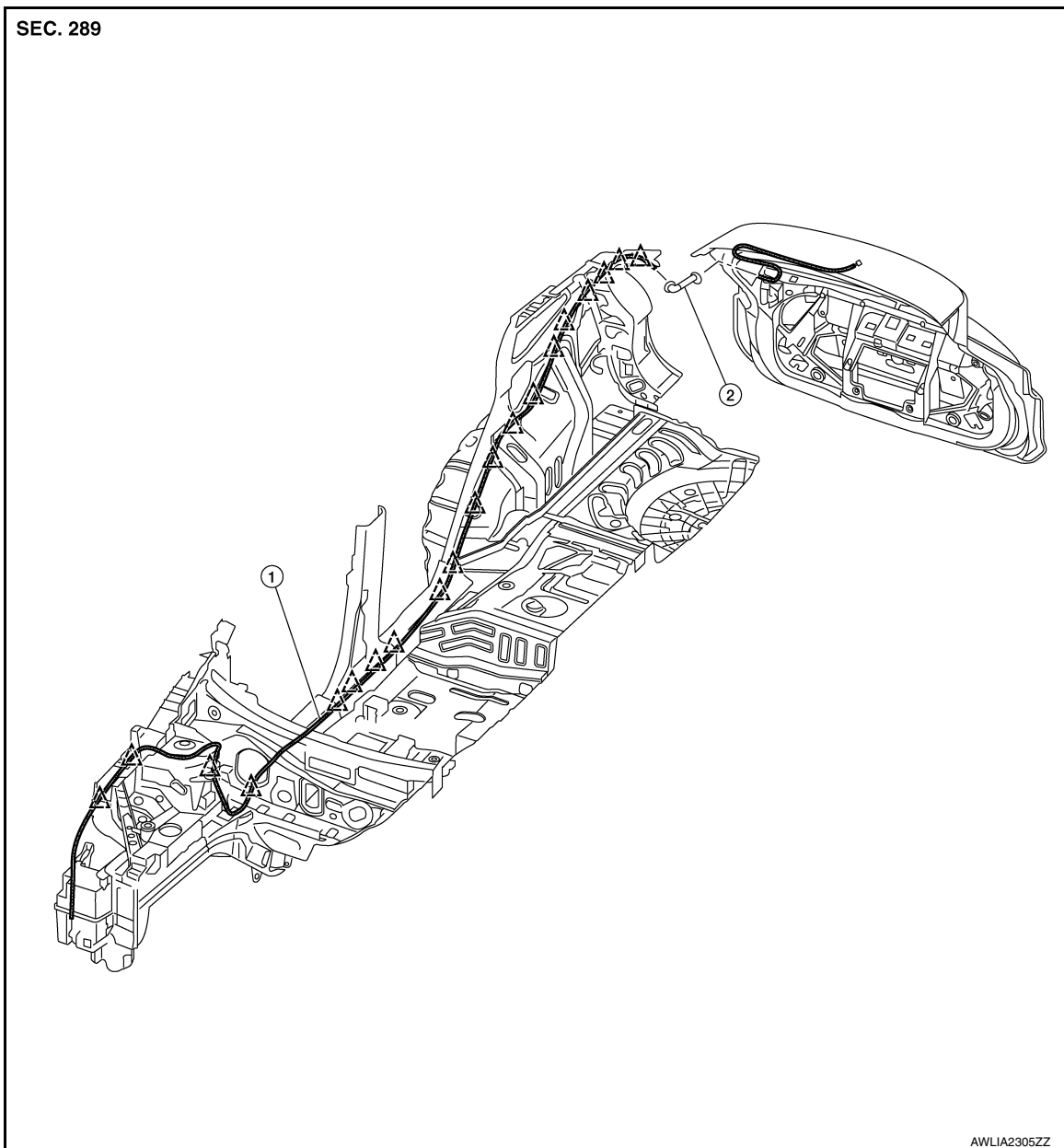
REAR WASHER NOZZLE AND TUBE

< REMOVAL AND INSTALLATION >

REAR WASHER NOZZLE AND TUBE

Exploded View

INFOID:000000010244372



1. Rear washer tube

2. Rear grommet

 Clip

Removal and Installation - Rear Washer Nozzle

INFOID:000000010244373

REMOVAL

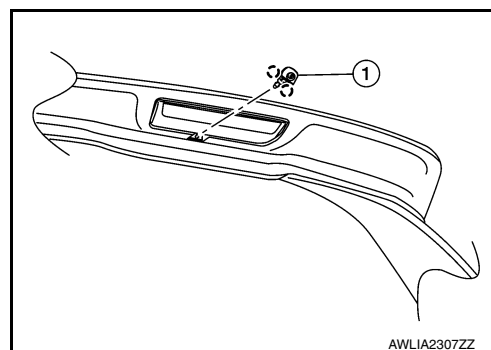
1. Remove rear access panel. Refer to [INT-38, "Exploded View"](#).

REAR WASHER NOZZLE AND TUBE

< REMOVAL AND INSTALLATION >

2. Release pawls and remove rear washer nozzle (1).

○: Pawl



INSTALLATION

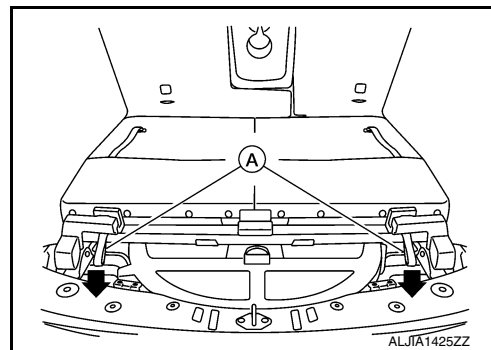
Installation in the reverse order of removal.

Removal and Installation - Rear Washer Tube

INFOID:000000010357384

REMOVAL

1. Remove engine side cover (RH). Refer to [EXT-28, "FENDER PROTECTOR : Exploded View"](#).
2. Release clips and remove front air spoiler.
3. Remove engine under cover. Refer to [EXT-37, "ENGINE UNDER COVER : Removal and Installation"](#).
4. Partially remove fender protector (RH). Refer to [EXT-37, "ENGINE UNDER COVER : Removal and Installation"](#).
5. Release seat latches by pulling straps (A) rearward, then lift seat from seat strikers (LH/RH).



6. Remove dash side finisher (RH). Refer to [INT-24, "DASH SIDE FINISHER : Removal and Installation"](#).
7. Remove center pillar lower finisher (RH). Refer to [INT-22, "CENTER PILLAR LOWER FINISHER : Removal and Installation"](#).
8. Remove luggage rear plate. Refer to [INT-37, "LUGGAGE REAR PLATE : Removal and Installation"](#).
9. Remove luggage side upper finisher (LH/RH). Refer to [INT-36, "LUGGAGE SIDE UPPER FINISHER : Removal and Installation"](#).
10. Release rear clips and partially remove headliner. Refer to [INT-29, "Exploded View"](#).
11. Disconnect rear washer tube from washer tank and rear washer nozzle.
12. Release clips and remove rear washer tube.

INSTALLATION

Installation is in the reverse order of removal.

Inspection and Adjustment

INFOID:000000010244374

INSPECTION

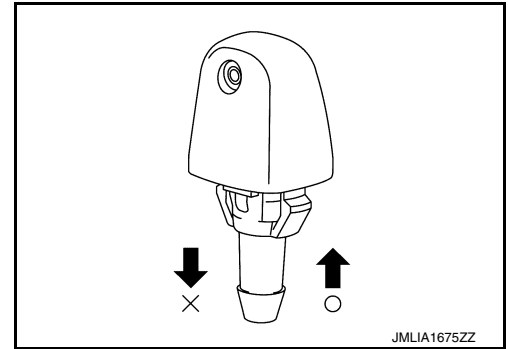
REAR WASHER NOZZLE AND TUBE

< REMOVAL AND INSTALLATION >

Check that air can pass through the nozzle by blowing into the nozzle and that air cannot flow in the opposite direction.

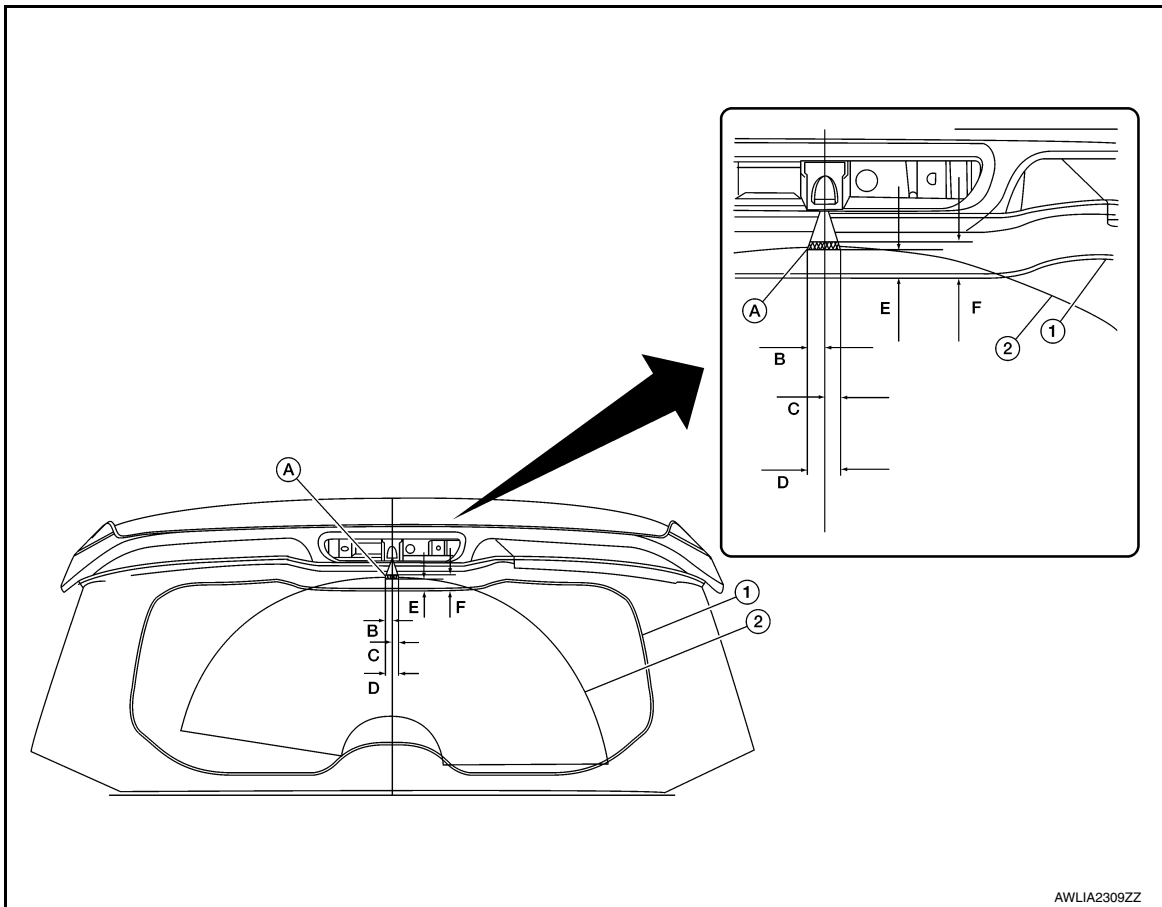
O: Air can go

X: Air cannot go



ADJUSTMENT

If operating properly, spray positions should match the positions shown. If spray positions do not match, confirm the rear washer nozzle is properly seated and working properly. If the spray positions still do not match as shown, then replace the rear washer nozzle. Refer to [WW-72. "Removal and Installation - Rear Washer Nozzle"](#)



1. Black print

B. 12.8

E. 15.6

2. Wiping area

C. 12.8

F. 20.6

A. Spray target area

D. 25.7

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

Specifications

INFOID:0000000010244375

WINDSHIELD WASHER FLUID

Windshield washer fluid capacity (with washer tank inlet)	5.45 ℓ (5 3/4 US qt, 4 3/4 Imp qt)
Windshield washer fluid specification	Refer to MA-11, "Fluids and Lubricants" .