

NISSAN SENTRA SERVICE MANUAL MODE \$06

Nissan Sentra Service Manual: Ecu diagnosis information

Nissan Sentra Service Manual / Engine / Engine control system / Ecu diagnosis information

ECM

Reference Value

VALUES ON THE DIAGNOSIS TOOL

NOTE:

- The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.
- Numerical values in the following table are reference values.
- These values are input/output values that ECM receives/transmits and may differ from actual operations.

Example: The ignition timing shown by the timing light may differ from the ignition timing displayed on the data monitor. This occurs because the timing light shows a value calculated by ECM according to signals received from the cam shaft position sensor and other sensors related to ignition timing.

For outlines of following items, refer to EC-66, "CONSULT Function".

Monitor Item	Condition		Values/Status
ENG SPEED	• Run engine and compare CONSULT value with the tachometer indication.		Almost the same speed as the tachometer indication.
MAS A/F SE-B1	See EC-158, "Diagnosis Procedure" .		
B/FUEL SCHDL	See EC-158, "Diagnosis Procedure" .		
A/F ALPHA-B1	See EC-158, "Diagnosis Procedure" .		
COOLANT TEMP/S	• Engine: After warming up		More than 70°C (158°F)
A/F SEN1 (B1)	• Engine: After warming up	Maintaining engine speed at 2,000 rpm	Fluctuates around 2.2 V
HO2S2 (B1)	<ul style="list-style-type: none"> • Revving engine from idle up to 3,000 rpm quickly after the following conditions are met. - Engine: After warming up - After keeping engine speed between 3,500 and 4,000 rpm for 1 minute and at idle for 1 minute under no load 		0 - 0.3 V ↔ Approx. 0.6 - 1.0 V
HO2S2 MNTR(B1)	<ul style="list-style-type: none"> • Revving engine from idle up to 3,000 rpm quickly after the following conditions are met. - Engine: After warming up - After keeping engine speed between 3,500 and 4,000 rpm for 1 minute and at idle for 1 minute under no load 		LEAN ↔ RICH
VHCL SPEED SE	• Turn drive wheels and compare CONSULT value with the speedometer indication.		Almost the same speed as speedometer indication
BATTERY VOLT	• Ignition switch: ON (Engine stopped)		11 - 14 V
ACCEL SEN 1	• Ignition switch: ON (Engine stopped)	Accelerator pedal: Fully released	0.5 - 1.0 V
		Accelerator pedal: Fully depressed	4.2 - 4.8 V
ACCEL SEN 2*1	• Ignition switch: ON (Engine stopped)	Accelerator pedal: Fully released	0.5 - 1.0 V
		Accelerator pedal: Fully depressed	4.2 - 4.8 V
TP SEN 1-B1	<ul style="list-style-type: none"> • Ignition switch: ON (Engine stopped) • Selector lever: D (CVT) • Shifter lever: 1st (M/T) 	Accelerator pedal: Fully released	More than 0.36 V
		Accelerator pedal: Fully depressed	Less than 4.75 V
TP SEN 2-B1*1	<ul style="list-style-type: none"> • Ignition switch: ON (Engine stopped) • Selector lever: D • Shifter lever: 1st (M/T) 	Accelerator pedal: Fully released	More than 0.36 V
		Accelerator pedal: Fully depressed	Less than 4.75 V
FUEL T/TMP SE	• Ignition switch: ON		Indicates fuel tank temperature
EVAP SYS PRES	• Ignition switch: ON		Approx. 1.8 - 4.8 V
FUEL LEVEL SE	• Ignition switch: ON		Depending on fuel level of fuel tank

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Monitor Item	Condition		Values/Status
START SIGNAL	• Ignition switch ON → START → ON (start switch is released)		Off → On → Off
CLSD THL POS	• Ignition switch: ON (Engine stopped)	Accelerator pedal: Fully released	On
		Accelerator pedal: Slightly depressed	Off
AIR COND SIG	• Engine: After warming up, idle the engine	Air conditioner switch: OFF	Off
		Air conditioner switch: ON (A/C compressor operates)	On
PW/ST SIGNAL	• Engine: After warming up, idle the engine	Steering wheel: Not being turned	Off
		Steering wheel: Being turned	On
LOAD SIGNAL	• Ignition switch: ON	Rear window defogger switch: ON and/or Lighting switch: 2nd position	On
		Rear window defogger switch and lighting switch: OFF	Off
IGNITION SW	• Ignition switch: ON → OFF → ON		On → Off → On
HEATER FAN SW	• Engine: After warming up, idle the engine	Heater fan switch: ON	On
		Heater fan switch: OFF	Off
BRAKE SW	• Ignition switch: ON	Brake pedal: Fully released	Off
		Brake pedal: Slightly depressed	On
INJ PULSE-B1	• Engine: After warming up • Selector lever: P or N • Air conditioner switch: OFF • No load	Idle	2.0 - 3.0 msec
		2,000 rpm	1.9 - 2.9 msec
IGN TIMING	• Engine: After warming up • Selector lever: P or N • Air conditioner switch: OFF • No load	Idle	3° - 13° BTDC
		2,000 rpm	35° - 55° BTDC
CAL/D VALUE	• Engine: After warming up • Selector lever: P or N • Air conditioner switch: OFF • No load	Idle	10% - 35%
		2,500 rpm	10% - 35%
MASS AIRFLOW	• Engine: After warming up • Selector lever: P or N • Air conditioner switch: OFF • No load	Idle	Approx. 2.9 g/s
		2,500 rpm	Approx. 5.5 g/s
PURG VOL C/V	• Engine: After warming up • Selector lever: P or N • Air conditioner switch: OFF • No load	Idle (Accelerator pedal: Not depressed even slightly, after engine starting.)	0%
		2,000 rpm	0% - 90%
INT/V TIM(B1)	• Engine: After warming up • Selector lever: P or N • Air conditioner switch: OFF • No load	Idle	-5° - 5° CA
		2,000 rpm	Approx. 0° - 20° CA
EXH/V TIM B1	• Engine: After warming up • Selector lever: P or N • Air conditioner switch: OFF • No load	Idle	-5° - 5° CA
		2,000 rpm	Approx. 0° - 40° CA
INT/V SOL (B1)	• Engine: After warming up • Selector lever: P or N • Air conditioner switch: OFF • No load	Idle	0% - 2%
		2,000 rpm	Approx. 0% - 90%
SWRL CONT S/V	• Ignition switch: ON • Engine coolant temperature: Between 0°C (32°F) and 45°C (113°F)	Accelerator pedal: Fully released	On
		Accelerator pedal: Fully depressed	Off

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Monitor Item	Condition		Values/Status
VIAS S/V-1	<ul style="list-style-type: none"> Engine: After warming up Selector lever: P or N Air conditioner switch: OFF No load 	When revving engine up to 5,250 rpm quickly and release the accelerator pedal.	Off → On → Off
AIR COND RLY	<ul style="list-style-type: none"> Engine: After warming up, idle the engine 	Air conditioner switch: OFF	Off
		Air conditioner switch: ON (Compressor operates)	On
FUEL PUMP RLY	<ul style="list-style-type: none"> For 1 second after turning ignition switch: ON Engine running or cranking 		On
	<ul style="list-style-type: none"> Except above 		Off
VENT CONT/V	<ul style="list-style-type: none"> Ignition switch: ON 		Off
THRTL RELAY	<ul style="list-style-type: none"> Ignition switch: ON 		On
COOLING FAN	<ul style="list-style-type: none"> Engine: After warming up, idle the engine Air conditioner switch: OFF 	Engine coolant temperature is 97°C (207°F) or less	Off
		Engine coolant temperature between 98°C (208°F) and 99°C (210°F) or more	Low
		Engine coolant temperature between 100°C (212°F) or more	Hi
	<ul style="list-style-type: none"> Engine: After warming up, idle the engine Air conditioner switch: ON Refrigerant pressure is less than 1,280 kPa (12.80 bar, 13.05 kg/cm², 185.6 psi) 	Engine coolant temperature is 97°C (207°F) or less	Low
		Engine coolant temperature between 98°C (208°F) and 99°C (210°F) or more	Low
		Engine coolant temperature between 100°C (212°F) or more	Hi
HO2S2 HTR (B1)	<ul style="list-style-type: none"> Engine speed: Below 3,600 rpm after the following conditions are met. Engine: After warming up Keeping the engine speed between 3,500 and 4,000 rpm for 1 minute and at idle for 1 minute under no load 		On
	<ul style="list-style-type: none"> Engine speed: Above 3,600 rpm 		Off
ALT DUTY SIG	<ul style="list-style-type: none"> Power generation voltage variable control: Operating 		On
	<ul style="list-style-type: none"> Power generation voltage variable control: Not operating 		Off
I/P PULLY SPD	<ul style="list-style-type: none"> Vehicle speed: More than 20 km/h (12 MPH) 		Almost the same speed as the tachometer indication
VEHICLE SPEED	<ul style="list-style-type: none"> Turn drive wheels and compare CONSULT value with the speedometer indication. 		Almost the same speed as the speedometer indication
IDL A/V LEARN	<ul style="list-style-type: none"> Engine: running 	Idle air volume learning has not been performed yet.	YET
		Idle air volume learning has already been performed successfully.	CMPLT
TRVL AFTER MIL	<ul style="list-style-type: none"> Ignition switch: ON 	Vehicle has traveled after MIL has turned ON.	0 - 65,535 km (0 - 40,723 miles)
ENG OIL TEMP	<ul style="list-style-type: none"> Engine: After warming up 		More than 70°C (158°F)
A/F S1 HTR(B1)	<ul style="list-style-type: none"> Engine: After warming up, idle the engine (More than 260 seconds after starting engine.) 		4 - 100%
VHCL SPEED SE	<ul style="list-style-type: none"> Turn drive wheels and compare CONSULT value with the speedometer indication. 		Almost the same speed as the speedometer indication
SET VHCL SPD	<ul style="list-style-type: none"> Engine: Running 	ASCD: Operating	The preset vehicle speed is displayed
MAIN SW	<ul style="list-style-type: none"> Ignition switch: ON 	MAIN switch: Pressed	On
		MAIN switch: Released	Off

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Monitor Item	Condition		Values/Status
CANCEL SW	• Ignition switch: ON	CANCEL switch: Pressed	On
		CANCEL switch: Released	Off
RESUME/ACC SW	• Ignition switch: ON	RESUME/ACCELERATE switch: Pressed	On
		RESUME/ACCELERATE switch: Released	Off
SET SW	• Ignition switch: ON	SET/COAST switch: Pressed	On
		SET/COAST switch: Released	Off
BRAKE SW1	• Ignition switch: ON	Brake pedal: Fully released	On
		Brake pedal: Slightly depressed	Off
BRAKE SW2	• Ignition switch: ON	Brake pedal: Fully released	Off
		Brake pedal: Slightly depressed	On
VHCL SPD CUT	• Ignition switch: ON		Non
LO SPEED CUT	• Ignition switch: ON		Non
AT OD MONITOR	• Ignition switch: ON		Off
AT OD CANCEL	• Ignition switch: ON		Off
CRUISE LAMP	• Ignition switch: ON	MAIN switch: Pressed at the 1st time → at the 2nd time	On → Off
SET LAMP	NOTE: The item is indicated, but not used.		—
ALT DUTY	• Engine speed: Idle		0 - 80%
BAT CUR SEN	<ul style="list-style-type: none"> • Engine speed: Idle • Battery: Fully charged² • Selector lever: P or N (CVT) • Shifter lever: Neutral (M/T) • Air conditioner switch: OFF • No load 		Approx. 2,800 - 3,500 mV
A/F ADJ-B1	• Engine: running		-0.450 - 0.330
TUMBLE POS SEN	<ul style="list-style-type: none"> • Ignition switch: ON • Engine coolant temperature: Between 0°C (32°F) and 45°C (113°F) 	Accelerator pedal: Fully released	Less than 2.4 V
		Accelerator pedal: Fully depressed	More than 3.5 V
P/N POSI SW	• Ignition switch: ON	<ul style="list-style-type: none"> • Selector lever: P or N (CVT) • Shifter lever: Neutral (M/T) 	On
		Selector lever: Except above	Off
INT/A TEMP SE	• Ignition switch: ON		Indicates intake air temperature
AC PRESS SEN	<ul style="list-style-type: none"> • Engine speed: Idle • Both A/C switch and blower fan switch: ON (Compressor operates) 		1.0 - 4.0 V
VTC DTY EX B1	<ul style="list-style-type: none"> • Engine: After warming up • Selector lever: P or N • Air conditioner switch: OFF • No load 	Idle	0 - 2%
		2,000 rpm	Approx. 0- 90%
EVAP LEAK DIAG	• Ignition switch: ON		Indicates the condition of EVAP leak diagnosis.
EVAP DIAG READY	• Ignition switch: ON		Indicates the ready condition of EVAP leak diagnosis.
BAT TEMP SEN	<ul style="list-style-type: none"> • Engine: After warming up, idle the engine • Selector lever: P or N • Air conditioner switch: OFF • No load 		Indicates the temperature around the battery.

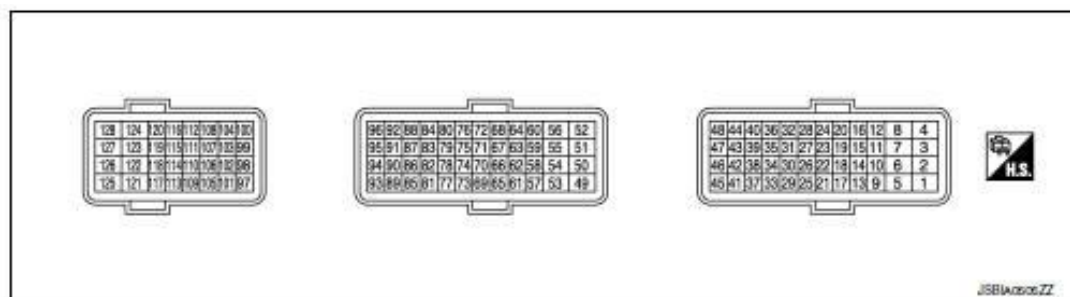
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Monitor Item	Condition		Values/Status
THRTL STK CNT B1	NOTE: The item is indicated, but not used.		—
A/F SEN1 DIAG1 (B1)	DTC P015A and P015B self-diagnosis is incomplete.		INCMP
	DTC P015A and P015B self-diagnosis is complete.		CMPLT
A/F SEN1 DIAG2 (B1)	DTC P014C and P014D self-diagnosis is incomplete.		INCMP
	DTC P014C and P014D self-diagnosis is complete.		CMPLT
A/F SEN1 DIAG3 (B1)	The vehicle condition is not within the diagnosis range of DTC P014C, P014D, P015A or P015B.		ABSNT
	The vehicle condition is within the diagnosis range of DTC P014C, P014D, P015A or P015B.		PRSNT
HO2 S2 DIAG1 (B1)	DTC P0139 self-diagnosis (delayed response) is incomplete.		INCMP
	DTC P0139 self-diagnosis (delayed response) is complete.		CMPLT
HO2 S2 DIAG2 (B1)	DTC P0139 self-diagnosis (slow response) is incomplete.		INCMP
	DTC P0139 self-diagnosis (slow response) is complete.		CMPLT
EOP SENSOR	<ul style="list-style-type: none"> Engine: After warming up Selector lever: P or N (CVT) Shifter lever: Neutral (M/T) Air conditioner switch: OFF No load 	Idle	Approx. 1,450 mV
		2,000 rpm	Approx. 2,850 mV
SPORT MODE SWITCH	ignition switch: ON	Press the sport mode switch	On
		Release the sport mode switch	Off
ECO MODE SWITCH	ignition switch: ON	Press the ECO mode switch	On
		Release the ECO mode switch	Off
A/F-S ATMSPHRC CRCT B1	Engine: After warming up, idle the engine		Varies depending on vehicle environment.
A/F-S ATMSPHRC CRCT UP B1	Engine: Running		Varies depending on the number of updates.

*1: Accelerator pedal position sensor 2 signal and throttle position sensor 2 signal are converted by ECM internally. Thus, they differ from ECM terminals voltage signal.

*2: Before measuring the voltage, confirm that the battery is fully charged. Refer to PG-4, "How to Handle Battery".

Terminal layout



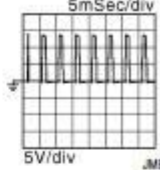
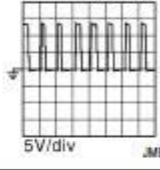
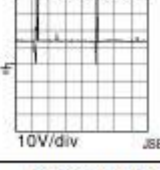
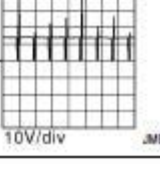
Physical values

NOTE:

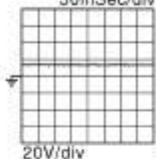
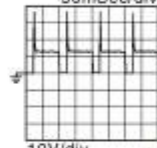
- ECM is located in the engine room left side near battery.
- Specification data are reference values and are measured between each terminal and ground.

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- Pulse signal is measured by CONSULT.

Terminal No. (Wire color)		Description		Condition	Value (Approx.)
+	-	Signal name	Input/ Output		
1 (P)	128 (B/Y)	Throttle control motor (Close)	Output	[Ignition switch: ON] • Engine stopped • Selector lever: D (CVT) • Shifter lever: 1st (M/T) • Accelerator pedal: Fully released	1.8 V ★ 5mSec/div 
2 (G)	128 (B/Y)	Throttle control motor power supply	Input	[Ignition switch: ON]	Battery voltage (11 - 14 V)
3 (W)	128 (B/Y)	Throttle control motor (Open)	Output	[Ignition switch: ON] • Engine stopped • Selector lever: D (CVT) • Shifter lever: 1st (M/T) • Accelerator pedal: Fully depressed	3.2 V ★ 1mSec/div 
4 (W)	8 (B)	Knock sensor	Input	[Engine is running] • Idle speed	2.5 V
5 (G)	128 (B/Y)	Intake manifold tuning valve motor (Close)	Output	[Ignition switch ON] • Engine coolant temperature: Normal operating condition • Accelerator pedal: Depressed → fully released	Battery voltage appears for about 1 second.
6 (R)	128 (B/Y)	Intake manifold tuning valve motor power supply	Input	[Ignition switch: ON]	Battery voltage (11 - 14 V)
7 (R)	128 (B/Y)	Intake manifold tuning valve motor (Open)	Output	[Ignition switch ON] • Engine coolant temperature: normal operating condition • Accelerator pedal: Fully released → depressed	Battery voltage appears for about 1 second.
8 (B)	—	Sensor ground (Knock sensor)	—	—	—
9 (BR) 10 (SB) 13 (O) 14 (V)	128 (B/Y)	Fuel injector No. 4 Fuel injector No. 3 Fuel injector No. 1 Fuel injector No. 2	Output	[Engine is running] • Warm-up condition • Idle speed NOTE: The pulse cycle changes depending on rpm at idle	Battery voltage (11 - 14 V) ★ 50mSec/div 
				[Engine is running] • Warm-up condition • Engine speed: 2,000 rpm	Battery voltage (11 - 14 V) ★ 50mSec/div 


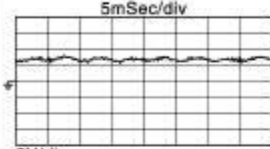
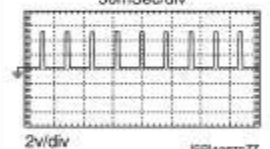
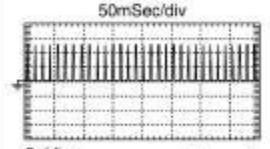
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Terminal No. (Wire color)		Description		Condition	Value (Approx.)
+	-	Signal name	Input/ Output		
12 (B)	—	ECM ground	—	—	—
16 (B)	—	ECM ground	—	—	—
17 (L)	128 (B/Y)	EVAP canister purge volume control solenoid valve	Output	[Engine is running] <ul style="list-style-type: none"> • Idle speed • Accelerator pedal: Not depressed even slightly, after engine starting 	Battery voltage (11 - 14 V)★ 50mSec/div  20V/div JMBIA0007GB
				[Engine is running] <ul style="list-style-type: none"> • Engine speed: About 2,000 rpm (More than 100 seconds after starting engine.) 	10 V★ 50mSec/div  10V/div JMBIA0030GB
18 (GR)	128 (B/Y)	Fuel pump relay	Output	[Ignition switch: ON] <ul style="list-style-type: none"> • For 1 second after turning ignition switch ON [Engine is running]	0 - 1.0 V
				[Ignition switch: ON] <ul style="list-style-type: none"> • More than 1 second after turning ignition switch ON 	Battery voltage (11 - 14 V)
21 (Y)	128 (B/Y)	Throttle control motor relay	Output	[Ignition switch: OFF]	Battery voltage (11 - 14 V)
				[Ignition switch: ON]	0 - 1.0 V
22 (W)	23 (BR)	Heated oxygen sensor 2	Input	[Engine is running] <ul style="list-style-type: none"> • Revving engine from idle to 3,000 rpm quickly after the following conditions are met - Engine: after warming up - Keeping the engine speed between 3,500 and 4,000 rpm for 1 minute and at idle for 1 minute under no load 	0 - 1.0 V
23 (BR)	—	Sensor ground (Heated oxygen sensor 2)	—	—	—
25 (Y)	26 (P)	Engine oil temperature sensor	Input	[Engine is running]	0 - 4.8 V Output voltage varies with engine oil temperature.
26 (P)	—	Sensor ground (Engine oil temperature sensor)	—	—	—
27 (LG)	—	Sensor ground (Engine coolant temperature sensor)	—	—	—
28 (V)	27 (LG)	Engine coolant temperature sensor	Input	[Engine is running]	0 - 4.8 V Output voltage varies with engine coolant temperature.

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Terminal No. (Wire color)		Description		Condition	Value (Approx.)
+	-	Signal name	Input/ Output		
30 (L)	—	Sensor ground [Camshaft position sensor (PHASE)]	—	—	—
31 (BR)	30 (L)	Camshaft position sensor (PHASE)	Input	[Engine is running] <ul style="list-style-type: none"> • Warm-up condition • Idle speed NOTE: The pulse cycle changes depending on rpm at idle	1.0 - 2.0★ 10mSec/div 
				[Engine is running] <ul style="list-style-type: none"> • Engine speed is 2,000 rpm 	1.0 - 2.0★ 10mSec/div 
32 (GR)	—	Sensor power supply [Camshaft position sensor (PHASE)]	—	[Ignition switch: ON]	5.0 V
33 (GR)	34 (W)	Intake air temperature sensor	Input	[Engine is running]	0 - 4.8 V Output voltage varies with intake air temperature.
34 (W)	—	Sensor ground (Mass air flow sensor, intake air temperature sensor)	—	—	—
35 (G)	34 (W)	Mass air flow sensor	Input	[Ignition switch: ON] <ul style="list-style-type: none"> • Engine stopped 	1.27 V
				[Engine is running] <ul style="list-style-type: none"> • Warm-up condition • Idle speed 	1.3 - 1.6 V
				[Engine is running] <ul style="list-style-type: none"> • Warm-up condition • Engine is revving from idle to about 4,000 rpm 	1.3 - 1.6 → 2.6 V (Check for linear voltage rise in response to engine being increased to about 4,000 rpm.)
36 (R)	—	Sensor power supply (Mass air flow sensor, intake air temperature sensor)	—	[Ignition switch: ON]	5.0 V
37 (B)	—	Shield	—	—	—
38 (W)	—	Sensor ground (Engine oil pressure sensor)	—	—	—

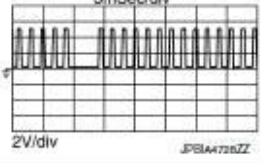
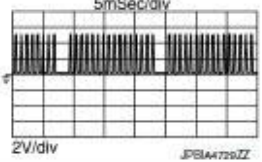
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Terminal No. (Wire color)		Description		Condition	Value (Approx.)
+	-	Signal name	Input/ Output		
39 (G)	38 (W)	Engine oil pressure sensor	Input	[Engine is running] • Warm-up condition • Idle speed	1.3 V★ 5mSec/div  2V/div JPSIA3360ZZ
				[Engine is running] • Warm-up condition • Engine speed is 2,000 rpm	2.7 V★ 5mSec/div  2V/div JPSIA3360ZZ
40 (R)	38 (W)	Sensor power supply (Engine oil pressure sensor)	—	[Ignition switch: ON]	5.0 V
41 (Y)	128 (B/Y)	A/F sensor 1	Input	[Engine running] • Warm-up condition • Engine speed: 2,000 rpm	2.2 V (Output voltage varies with air-fuel ratio)
42 (W)	—	Sensor ground [Exhaust valve timing control position sensor]	—	—	—
43 (P)	42 (W)	Exhaust valve timing control position sensor	Input	[Engine is running] • Warm-up condition • Idle speed NOTE: The pulse cycle changes depending on rpm at idle	1.0★ 50mSec/div  2V/div JSBIA2070ZZ
				[Engine is running] • Engine speed is 2,500 rpm	1.0★ 50mSec/div  2V/div JSBIA2070ZZ
44 (R)	—	Sensor power supply [Exhaust valve timing control position sensor]	—	[Ignition switch: ON]	5 V
45 (BR)	128 (B/Y)	A/F sensor 1	Input	[Engine is running] • Engine speed is 2,000 rpm	2.2 V Output voltage varies with air fuel ratio.
49 (G)	128 (B/Y)	Intake manifold runner control valve motor (Close)	Output	[Ignition switch ON] • Engine coolant temperature: More than 80°C (140°F) • Accelerator pedal: Depressed → fully released	Battery voltage appears for about 1 second.

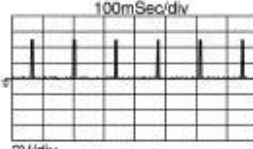
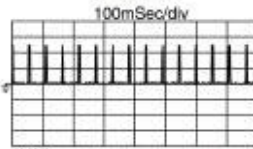
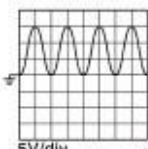
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Terminal No. (Wire color)		Description		Condition	Value (Approx.)
+	-	Signal name	Input/ Output		
50 (R)	128 (B/Y)	Intake manifold runner control valve motor power supply	Input	[Ignition switch: ON]	Battery voltage (11 - 14 V)
51 (R)	128 (B/Y)	Intake manifold runner control valve motor (Open)	Output	[Ignition switch ON] • Engine coolant temperature: More than 80°C (140°F) • Accelerator pedal: Fully released → depressed	Battery voltage appears for about 1 second.
52 (B)	—	ECM ground	—	—	—
53 (G)	128 (B/Y)	A/F sensor 1 heater	Input	[Engine is running] • Warm-up condition • Idle speed (More than 260 seconds after start- ing engine)	<div> <p>10 V★ 100mSec/div</p> <p>5V/div JPBIA4T3Z2</p> </div>
54 (G)	128 (B/Y)	Heated oxygen sensor 2 heater	Output	[Engine is running] • Engine speed: Below 3,600 rpm af- ter the following conditions are met - Engine: after warming up - Keeping the engine speed between 3,500 and 4,000 rpm for 1 minute and at idle for 1 minute under no load	<div> <p>8 V★ 50mSec/div</p> <p>10V/div JMBIA0325B</p> </div>
				[Ignition switch: ON] • Engine stopped [Engine is running] • Engine speed: Above 3,600 rpm	Battery voltage (11 - 14 V)
61 (BG)	62 (BR)	Battery temperature sen- sor	Input	[Engine is running] • Battery temperature: 25°C (°F) • Idle speed	3.3 V
62 (BR)	—	Sensor ground (Battery current sensor, battery temperature sen- sor)	—	—	—
63 (G)	62 (BR)	Battery current sensor	Input	[Engine is running] • Battery: Fully charged* • Idle speed	2.6 - 3.5 V
64 (Y)	—	Sensor power supply (Battery current sensor)	—	[Ignition switch: ON]	5.0 V
70 (W)	—	Sensor ground [Crankshaft position sen- sor (POS)]	—	—	—

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Terminal No. (Wire color)		Description		Condition	Value (Approx.)
+	-	Signal name	Input/ Output		
71 (R)	70 (W)	Crankshaft position sensor (POS)	Input	[Engine is running] • Warm-up condition • Idle speed NOTE: The pulse cycle changes depending on rpm at idle	1.0 V ★ 
				[Engine is running] • Engine speed: 2,000 rpm	1.0 V ★ 
72 (G)	—	Sensor power supply [Crankshaft position sensor (POS)]	—	[Ignition switch: ON]	5.0 V
73 (GR)	—	Shield	—	—	—
77 (W)	78 (R)	Throttle position sensor 2	Input	[Ignition switch: ON] • Engine stopped • Selector lever: D (CVT), 1st (M/T) • Accelerator pedal: Fully released	Less than 4.75 V
				[Ignition switch: ON] • Engine stopped • Selector lever: D (CVT), 1st (M/T) • Accelerator pedal: Fully depressed	More than 0.36 V
78 (R)	—	Sensor ground (Throttle position sensor)	—	—	—
79 (G)	78 (R)	Throttle position sensor 1	Input	[Ignition switch: ON] • Engine stopped • Selector lever: D (CVT), 1st (M/T) • Accelerator pedal: Fully released	More than 0.36 V
				[Ignition switch: ON] • Engine stopped • Selector lever: D (CVT), 1st (M/T) • Accelerator pedal: Fully depressed	Less than 4.75 V
80 (B)	—	Sensor power supply (Throttle position sensor)	—	[Ignition switch: ON]	5.0 V
81 (Y)	128 (B/Y)	Power supply for ECM (Backup)	Input	[Ignition switch: OFF]	Battery voltage (11 - 14 V)
83 (LG)	92 (V)	Intake manifold runner control valve position sensor	Input	[Ignition switch ON] • Engine coolant temperature: Between 0°C (32°F) and 45°C (113°F) • Accelerator pedal: Fully released	Less than 2.4 V
				[Ignition switch ON] • Engine coolant temperature: Between 0°C (32°F) and 45°C (113°F) • Accelerator pedal: Slightly depressed	More than 3.5 V

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Terminal No. (Wire color)		Description		Condition	Value (Approx.)
+	-	Signal name	Input/ Output		
84 (W)	—	Sensor power supply (Intake manifold runner control valve position sen- sor)	—	[Ignition switch: ON]	More than 4.98 V
86 (R)	128 (B/Y)	Ignition signal No. 1	Output	[Engine is running] • Warm-up condition • Idle speed NOTE: The pulse cycle changes depending on rpm at idle	0 - 0.1 V ★ 100mSec/div  2V/div JPBIA4730ZZ
87 (LG)		Ignition signal No. 2			
90 (P)		Ignition signal No. 3			
91 (SB)		Ignition signal No. 4		[Engine is running] • Warm-up condition • Engine speed: 2,000 rpm	0 - 0.2 V ★ 100mSec/div  2V/div JPBIA4734ZZ
89 (GR)	128 (B/Y)	ECM relay (Self shut-off)	Output	[Engine is running] [Ignition switch: OFF] • A few seconds after turning ignition switch OFF	0 - 1.0 V
				[Ignition switch: OFF] • More than a few seconds after turn- ing ignition switch OFF	Battery voltage (11 - 14 V)
92 (LG)	—	Sensor ground (Intake manifold runner control valve position sen- sor)	—	—	—
93 (LG)	128 (B/Y)	Intake valve timing control solenoid valve	Output	[Engine is running] • Warm-up condition • Idle speed	0 V
				[Engine is running] • Warm-up condition • When revving engine up to 2,000 rpm quickly	11 - 14 V ★  5V/div JMBIA1030CS
94 (G)	128 (B/Y)	Exhaust valve timing con- trol solenoid valve	Output	[Engine is running] • Warm-up condition • Idle speed	0 V
				[Engine is running] • Warm-up condition • Engine speed: 2,000 rpm	Battery voltage (11 - 14 V)
97 (BR)	128 (GR)	EVAP canister vent con- trol valve	Output	[Ignition switch: ON]	Battery voltage (11 - 14 V)
99 (P)	—	CAN communication line (CAN-L)	Input/ Output	—	—

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Terminal No. (Wire color)		Description		Condition	Value (Approx.)
+	-	Signal name	Input/ Output		
100 (L)	—	CAN communication line (CAN-H)	Input/ Output	—	—
101 (G)	128 (B/Y)	Starter relay cut off signal	Input/ Output	[Ignition switch: ON] [Engine is running] • Warm-up condition • Idle speed	0 V Battery voltage (11 - 14 V)
103 (P)	124 (Y)	Refrigerant pressure sensor	Input	[Engine is running] • Warm-up condition • Both A/C switch and blower fan motor switch: ON (Compressor operates)	1.0 - 4.0 V
104 (L)	—	Sensor power supply (Refrigerant pressure sensor)	—	[Ignition switch: ON]	5.0 V
105 (V)	128 (B/Y)	Starter motor relay control signal	Output	[Engine is running] • Warm-up condition • Idle speed • Selector lever: D (CVT) • Shift lever: 1st (MT) • Engine speed: Less than 1,500 rpm NOTE: To decrease engine speed, perform the DTC confirmation procedure B in P1850. Refer to EC-399, "DTC Logic" .	0 V (While operating the starter motor)
				[Engine is running] • Warm-up condition • Idle speed	Battery voltage (11 - 14 V)
109 (O)	128 (B/Y)	Ignition switch	Input	[Ignition switch: OFF]	0 V
				[Ignition switch: ON]	Battery voltage (11 - 14 V)
110 (P)	111 (B)	ASCD steering switch	Input	[Ignition switch: ON] • ASCD steering switch: OFF	4 V
				[Ignition switch: ON] • MAIN switch: Pressed	0 V
				[Ignition switch: ON] • CANCEL switch: Pressed	1 V
				[Ignition switch: ON] • ACCEL/RES switch: Pressed	3 V
				[Ignition switch: ON] • COAST/SET switch: Pressed	2 V
111 (B)	—	Sensor ground (ASCD steering switch)	—	—	—
113 (G)	—	Sensor power supply (EVAP control system pressure sensor)	—	[Ignition switch: ON]	5.0 V
114 (P)	124 (SB)	EVAP control system pressure sensor	Input	[Ignition switch: ON]	0.5 - 4.6 V
115 (SB)	128 (B/Y)	Stop lamp switch	Input	[Ignition switch: OFF] • Brake pedal: Fully released	0 V
				[Ignition switch: OFF] • Brake pedal: Slightly depressed	Battery voltage (11 - 14 V)

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Terminal No. (Wire color)		Description		Condition	Value (Approx.)
+	-	Signal name	Input/ Output		
116 (G)	128 (B/Y)	Brake pedal position switch	Input	[Ignition switch: OFF] • Brake pedal: Fully released	Battery voltage (11 - 14 V)
				[Ignition switch: OFF] • Brake pedal: Slightly depressed	0 V
117 (BR)	128 (B/Y)	• PNP signal (CVT) • Neutral switch (M/T)	Input	[Ignition switch: ON] • Selector lever: P or N (CVT) • Shifter lever: Neutral (M/T)	Battery voltage (11 - 14 V)
				[Ignition switch: ON] • Except above	0 V
118 (O)	—	Sensor power supply (Accelerator pedal position sensor 2)	—	[Ignition switch: ON]	5.0 V
119 (W)	120 (Y)	Accelerator pedal position sensor 2	Input	[Ignition switch: ON] • Engine stopped • Accelerator pedal: Fully released	0.3 - 0.6 V
				[Ignition switch: ON] • Engine stopped • Accelerator pedal: Fully depressed	1.95 - 2.4 V
120 (Y)	—	Sensor ground (Accelerator pedal position sensor 2)	—	—	—
121 (G)	128 (B/Y)	Power supply for ECM	Input	[Ignition switch: ON]	Battery voltage (11 - 14 V)
122 (V)	—	Sensor power supply (Accelerator pedal position sensor 1)	—	[Ignition switch: ON]	5.0 V
123 (B/Y)	—	ECM ground	—	—	—
124 (V)	—	Sensor ground (EVAP control system pressure sensor, refrigerant pressure sensor)	—	—	—
126 (R)	127 (GR)	Accelerator pedal position sensor 1	Input	[Ignition switch: ON] • Engine stopped • Accelerator pedal: Fully released	0.6 - 0.9 V
				[Ignition switch: ON] • Engine stopped • Accelerator pedal: Fully depressed	3.9 - 4.7 V
127 (GR)	—	Sensor ground (Accelerator pedal position sensor 1)	—	—	—
128 (B/Y)	—	ECM ground	—	—	—

★: Average voltage for pulse signal

(Actual pulse signal can be confirmed by oscilloscope.)

*Before measuring the terminal voltage, confirm that the battery is fully charged. Refer to PG-4, "How to Handle Battery".

Fail Safe

NON DTC RELATED ITEM

Detected items	Engine operating condition in fail-safe mode	Remarks	Reference page
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When there is an open circuit on MIL circuit, the ECM cannot warn the driver by lighting up MIL when there is malfunction on engine control system.

Therefore, when electrical controlled throttle and part of ECM related diagnoses are continuously detected as NG for 5 trips, ECM warns the driver that engine control system malfunctions and MIL circuit is open by means of operating fail safe function.

Malfunction indicator circuit	Engine speed will not rise more than 2,500 rpm due to the fuel cut	The fail safe function also operates when above diagnoses except MIL circuit are detected and demands the driver to repair the malfunction.	EC-467, "Component Function Check"
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DTC RELATED ITEM

Description

When a DTC is detected, ECM executes a mode (in the Fail-safe mode) applicable to the DTC. The fail-safe mode has the preset traveling control mode (accelerator angle variation and engine output limit) and device fix mode.

Fail safe mode

Vehicle behavior

ECM controls the accelerator pedal depression speed to make it slower than actual speed. This causes a drop in accelerating performance and encourages the driver to repair malfunction.

NOTE:

ECM does not control the accelerator pedal releasing speed.

ECM reduces the engine output, according to the rise in engine speed.

This reduces the vehicle speed to encourage the driver to repair malfunction.

- This mode fixes the IVT control solenoid valve and the EVT control solenoid valve in the reference position.
- The intake manifold runner control valve motor is turned OFF (intake manifold runner control valve opens).

Device fix mode

Fail Safe Pattern

Pattern	Fail safe mode	
A	Traveling control mode	Accelerator angle variation control
B		Engine output control
C	Device fix mode	

Fail Safe List

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x: Applicable —: Not applicable

DTC No.	Detected items	Vehicle behavior			
		Pattern			Others
		A	B	C	
P0075	Intake valve timing control	—	—	x	ECM activates the IVT intermediate lock control solenoid valve to bring the cam sprocket into an intermediate lock condition.
P0078	Exhaust valve timing control	—	—	x	—
P0101 P0102 P0103	Mass air flow sensor circuit	x	x	x	—
P0122 P0123 P0222 P0223 P2135	Throttle position sensor	—	—	—	The ECM controls the electric throttle control actuator in regulating the throttle opening in order for the idle position to be within +10 degrees. The ECM regulates the opening speed of the throttle valve to be slower than the normal condition. So, the acceleration will be poor.

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DTC No.	Detected items	Vehicle behavior									
		Pattern			Others						
		A	B	C							
P0117 P0118	Engine coolant temperature sensor	x	x	—	—						
P0171 P0172	Fuel injection system	x	—	—	—						
P0197 P0198	Engine oil temperature sensor	—	—	—	Exhaust valve timing control does not function.						
P0300 P0301 P0302 P0303 P0304	Misfire	x	—	—	—						
P0500	Vehicle speed sensor	x	—	—	—						
P0524	Engine oil pressure	—	—	—	<ul style="list-style-type: none">ECM illuminates oil pressure warning lamp on the combination meter.Engine speed will not rise more than 4,000rpm due to the fuel cut.Fail-safe is canceled when ignition switch OFF → ON.						
P0603	ECM	x	x	—	—						
P0605	ECM	x	x	—	—						
P0643	Sensor power supply	—	—	—	ECM stops the electric throttle control actuator control, throttle valve is maintained at a fixed opening (approx. 5 degrees) by the return spring.						
P1078	Exhaust valve timing control position sensor circuit	x	—	x	—						
P1650 P1651	Starter relay	x	x	—							
P1805	Brake switch	—	—	—	<div>ECM controls the electric throttle control actuator by regulating the throttle opening to a small range. Therefore, acceleration will be poor.</div> <table><tr><td>Vehicle condition</td><td>Driving condition</td></tr><tr><td>When engine is idling</td><td>Normal</td></tr><tr><td>When accelerating</td><td>Poor acceleration</td></tr></table>	Vehicle condition	Driving condition	When engine is idling	Normal	When accelerating	Poor acceleration
Vehicle condition	Driving condition										
When engine is idling	Normal										
When accelerating	Poor acceleration										
P2100	Throttle control motor relay	—	—	—	ECM stops the electric throttle control actuator control, throttle valve is maintained at a fixed opening (approx. 5 degrees) by the return spring.						
P2101	Electric throttle control function	—	—	—	ECM stops the electric throttle control actuator control, throttle valve is maintained at a fixed opening (approx. 5 degrees) by the return spring.						
P2118	Throttle control motor	—	—	—	ECM stops the electric throttle control actuator control, throttle valve is maintained at a fixed opening (approx. 5 degrees) by the return spring.						
P2119	Electric throttle control actuator	x	x	—	—						
P2122 P2123 P2127 P2128 P2138	Accelerator pedal position sensor	—	—	—	<div>The ECM controls the electric throttle control actuator in regulating the throttle opening in order for the idle position to be within +10 degrees.</div> <div>The ECM regulates the opening speed of the throttle valve to be slower than the normal condition.</div> <div>So, the acceleration will be poor.</div>						

DTC Inspection Priority Chart

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If some DTCs are displayed at the same time, perform inspections one by one based on the following priority chart.

Priority	DTC	Detected items
1	U0101, U1001	CAN communication line
	P0101, P0102, P0103	Mass air flow sensor
	P0112, P0113	Intake air temperature sensor 1
	P0117, P0118	Engine coolant temperature sensor
	P0122, P0123, P0222, P0223, P1225, P2135	Throttle position sensor
	P0197, P0198	Engine oil temperature sensor
	P0327, P0328	Knock sensor
	P0335	Crankshaft position sensor (POS)
	P0340	Camshaft position sensor (PHASE)
	P0500	Vehicle speed sensor
	P0520	Engine oil pressure sensor
	P0603, P0604, P0605, P0606, P0607, P060A, P060B	ECM
	P0643	Sensor power supply
	P0705	Transmission range switch
	P0850	Park/neutral position (PNP) switch
	P1550, P1551, P1552, P1553, P1554	Battery current sensor
	P1556, P1557	Battery temperature sensor
	P1610 - P1615	NATS
	P2122, P2123, P2127, P2128, P2138	Accelerator pedal position sensor
2	P0011	Intake valve timing control
	P0014	Exhaust valve timing control
	P0031, P0032	Air fuel ratio (A/F) sensor 1 heater
	P0037, P0038	Heated oxygen sensor 2 heater
	P0075	Intake valve timing control solenoid valve
	P0078	Exhaust valve timing control solenoid valve
	P0130, P0131, P0132, P014C, P014D	Air fuel ratio (A/F) sensor 1
	P0137, P0138, P0139	Heated oxygen sensor 2
	P0444	EVAP canister purge volume control solenoid valve
	P0710	CVT related sensors, solenoid valves and switches
	P1078	Exhaust valve timing position sensor
	P1217	Engine over temperature (OVERHEAT)
	P1650, P1651, P1652	Starter motor relay
	P1715	CVT related sensors, solenoid valves and switches
	P1800	Intake manifold tuning valve
	P1805	Brake switch
	P2100, P2103	Throttle control motor relay
	P2101	Electric throttle control function
	P2118	Throttle control motor

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Priority	DTC	Detected items
3	P0171, P0172	Fuel injection system function
	P0201 - P0204	Injector
	P0234	Turbocharger system
	P0300 - P0304	Misfire
	P0420	Three way catalyst function
	P0506, P0507	Idle speed control system
	P0524	Engine oil pressure
	P1212	TCS communication line
	P2119	Electric throttle control actuator

DTC Index

x:Applicable —: Not applicable

DTC ^{*1}		Items (CONSULT screen terms)	SRT code	Trip	MIL	Permanent DTC group ^{*4}	Reference page
CON- SULT GST ^{*2}	ECM ^{*3}						
U0101	0101 ^{*5}	LOST COMM (TCM)	—	2	—	B	EC-168
U1001	1001 ^{*5}	CAN COMM CIRCUIT	—	1 or 2	—	—	EC-169
P0000	0000	NO DTC IS DETECTED. FURTHER TESTING MAY BE REQUIRED.	—	—	Flashing ^{*6}	—	—
P0011	0011	INT/V TIM CONT-B1	x	2	x	B	EC-170
P0014	0014	EXH/V TIM CONT-B1	—	2	x	B	EC-173
P0031	0031	A/F SEN1 HTR (B1)	—	2	x	B	EC-176
P0032	0032	A/F SEN1 HTR (B1)	—	2	x	B	EC-176
P0037	0037	HO2 HTR (B1)	—	2	x	B	EC-178
P0038	0038	HO2 HTR (B1)	—	2	x	B	EC-178
P0075	0075	INT/V TIM V/CIR-B1	—	2	x	B	EC-180
P0078	0078	EX V/T ACT/CIRC-B1	—	2	x	B	EC-183
P0101	0101	MAF SEN/CIRCUIT-B1	—	2	x	B	EC-186
P0102	0102	MAF SEN/CIRCUIT-B1	—	1	x	B	EC-186
P0103	0103	MAF SEN/CIRCUIT-B1	—	1	x	B	EC-186
P0111	0111	IAT SENSOR 1 B1	—	2	x	A	EC-192
P0112	0112	IAT SEN/CIRCUIT-B1	—	2	x	B	EC-194
P0113	0113	IAT SEN/CIRCUIT-B1	—	2	x	B	EC-194
P0116	0116	ECT SEN/CIRC	—	2	x	A	EC-196
P0117	0117	ECT SEN/CIRC	—	1	x	B	EC-198
P0118	0118	ECT SEN/CIRC	—	1	x	B	EC-198
P0122	0122	TP SEN 2/CIRC-B1	—	1	x	B	EC-200
P0123	0123	TP SEN 2/CIRC-B1	—	1	x	B	EC-200
P0125	0125	ECT SENSOR	—	2	x	B	EC-203
P0127	0127	IAT SENSOR-B1	—	2	x	B	EC-205
P0128	0128	THERMSTAT FNCTN	—	2	x	A	EC-207
P0130	0130	A/F SENSOR1 (B1)	—	2	x	A	EC-210
P0131	0131	A/F SENSOR1 (B1)	—	2	x	B	EC-214

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DTC ^{*1}		Items (CONSULT screen terms)	SRT code	Trip	MIL	Permanent DTC group ^{*4}	Reference page
CON- SULT GST ^{*2}	ECM ^{*3}						
P0132	0132	A/F SENSOR1 (B1)	—	2	x	B	EC-217
P0137	0137	HO2S2 (B1)	x	2	x	A	EC-220
P0138	0138	HO2S2 (B1)	x	2	x	A	EC-225
P0139	0139	HO2S2 (B1)	x	2	x	A	EC-232
P014C	014C	A/F SENSOR1 (B1)	x	2	x	A	EC-238
P014D	014D	A/F SENSOR1 (B1)	x	2	x	A	EC-238
P015A	015A	A/F SENSOR1 (B1)	x	2	x	A	EC-238
P015B	015B	A/F SENSOR1 (B1)	x	2	x	A	EC-238
P0171	0171	FUEL SYS-LEAN-B1	—	2	x	B	EC-246
P0172	0172	FUEL SYS-RICH-B1	—	2	x	B	EC-250
P0181	0181	FTT SENSOR	—	2	x	A and B	EC-254
P0182	0182	FTT SEN/CIRCUIT	—	2	x	B	EC-258
P0183	0183	FTT SEN/CIRCUIT	—	2	x	B	EC-258
P0196	0196	EOT SENSOR	—	2	x	A and B	EC-261
P0197	0197	EOT SEN/CIRC	—	2	x	B	EC-264
P0198	0198	EOT SEN/CIRC	—	2	x	B	EC-264
P0222	0222	TP SEN 1/CIRC-B1	—	1	x	B	EC-266
P0223	0223	TP SEN 1/CIRC-B1	—	1	x	B	EC-266
P0300	0300	MULTI CYL MISFIRE	—	1 or 2	— or x	B	EC-269
P0301	0301	CYL 1 MISFIRE	—	1 or 2	— or x	B	EC-269
P0302	0302	CYL 2 MISFIRE	—	1 or 2	— or x	B	EC-269
P0303	0303	CYL 3 MISFIRE	—	1 or 2	— or x	B	EC-269
P0304	0304	CYL 4 MISFIRE	—	1 or 2	— or x	B	EC-269
P0327	0327	KNOCK SEN/CIRC-B1	—	2	—	—	EC-275
P0328	0328	KNOCK SEN/CIRC-B1	—	2	—	—	EC-275
P0335	0335	CKP SEN/CIRCUIT	—	2	x	B	EC-277
P0340	0340	CMP SEN/CIRC-B1	—	2	x	B	EC-280
P0420	0420	TW CATALYST SYS-B1	x	2	x	A	EC-283
P0441	0441	EVAP PURG FLOW/MON	x	2	x	A	EC-288
P0443	0443	PURG VOLUME CONT/V	—	2	x	A	EC-293
P0444	0444	PURG VOLUME CONT/V	—	2	x	B	EC-298
P0445	0445	PURG VOLUME CONT/V	—	2	x	B	EC-298
P0447	0447	VENT CONTROL VALVE	—	2	x	B	EC-301
P0448	0448	VENT CONTROL VALVE	—	2	x	B	EC-305
P0451	0451	EVAP SYS PRES SEN	—	2	x	A	EC-309
P0452	0452	EVAP SYS PRES SEN	—	2	x	B	EC-313
P0453	0453	EVAP SYS PRES SEN	—	2	x	B	EC-316
P0456	0456	EVAP VERY SML LEAK	x ^{*7}	2	x	A	EC-320
P0460	0460	FUEL LEV SEN SLOSH	—	2	x	A	EC-326
P0461	0461	FUEL LEVEL SENSOR	—	2	x	B	EC-327
P0462	0462	FUEL LEVL SEN/CIRC	—	2	x	B	EC-329

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DTC ^{*1}		Items (CONSULT screen terms)	SRT code	Trip	MIL	Permanent DTC group ^{*4}	Reference page
CON- SULT GST ^{*2}	ECM ^{*3}						
P0463	0463	FUEL LEVL SEN/CIRC	—	2	×	B	EC-329
P0500	0500	VEHICLE SPEED SEN A ^{*8}	—	2	×	B	EC-330 (CVT models) EC-331 (M/T models)
P0506	0506	ISC SYSTEM	—	2	×	B	EC-334
P0507	0507	ISC SYSTEM	—	2	×	B	EC-336
P050A	050A	COLD START CONTROL	—	2	×	A	EC-338
P050B ^{*9}	050B ^{*9}	COLD START CONTROL	—	2	×	A	EC-338
P050E	050E	COLD START CONTROL	—	2	×	A	EC-338
P0520	0520	EOP SENSOR/SWITCH	—	2	—	—	EC-340
P0524	0524	ENGINE OIL PRESSURE	—	1	—	—	EC-343
P0603	0603	ECM BACK UP/CIRCUIT ^{*10}	—	2	×	B	EC-346
P0604	0604	ECM	—	1	×	B	EC-347
P0605	0605	ECM	—	1 or 2	×	B	EC-348
P0606	0606	CONTROL MODULE	—	1	×	B	EC-349
P0607	0607	ECM	—	1 or 2	×	B	EC-350
P060A	060A	CONTROL MODULE	—	1 or 2	×	B	EC-351
P060B	060B	CONTROL MODULE	—	1	×	B	EC-352
P0643	0643	SENSOR POWER/CIRC	—	1	×	B	EC-353
P0850	0850	P-N POS SW/CIRCUIT	—	2	×	B	EC-355
P1078	1078	EXH TIM SEN/CIRC-B1	—	2	×	B	EC-359
P1148	1148	CLOSED LOOP-B1	—	1	×	A	EC-362
P117A	117A	AIR FUEL RATIO B1	—	2	×	A	EC-363
P1212	1212	TCS/CIRC	—	2	—	—	EC-368
P1217	1217	ENG OVER TEMP	—	1	×	B	EC-369
P1225	1225	CTP LEARNING-B1	—	2	—	—	EC-372
P1226	1226	CTP LEARNING-B1	—	2	—	—	EC-373
P1550	1550	BAT CURRENT SENSOR	—	2	—	—	EC-374
P1551	1551	BAT CURRENT SENSOR	—	2	—	—	EC-377
P1552	1552	BAT CURRENT SENSOR	—	2	—	—	EC-377
P1553	1553	BAT CURRENT SENSOR	—	2	—	—	EC-380
P1554	1554	BAT CURRENT SENSOR	—	2	—	—	EC-383
P1556	1556	BAT TMP SEN/CIRC	—	2	—	—	EC-386
P1557	1557	BAT TMP SEN/CIRC	—	2	—	—	EC-386
P1564	1564	ASCD SW	—	1	—	—	EC-388
P1572	1572	ASCD BRAKE SW	—	1	—	—	EC-391
P1574	1574	ASCD VHL SPD SEN	—	1	—	—	EC-397
P1610	1610	LOCK MODE	—	2	—	—	SEC-83 (With intelligent key system), SEC-178 (Without intelligent key system)

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DTC ¹		Items (CONSULT screen terms)	SRT code	Trip	MIL	Permanent DTC group ⁴	Reference page
CON- SULT GST ²	ECM ³						
P1611	1611	ID DISCORD, IMMU-ECM	—	2	—	—	SEC-64
P1612	1612	CHAIN OF ECM-IMMU	—	2	—	—	SEC-65
P1650	1650	STR MTR RELAY 2	—	2	× or —	B	EC-388
P1651	1651	STR MTR RELAY	—	2	×	B	EC-402
P1652	1652	STR MTR SYS COMM	—	1	×	B	EC-404
P1715	1715	IN PULY SPEED	—	2	—	—	EC-406
P1800	1800	VIA S/V-1	—	2	—	—	EC-408
P1805	1805	BRAKE SW/CIRCUIT	—	2	—	—	EC-410
P2004	2004	TUMBLE CONT/V	—	2	×	B	EC-413
P2014	2014	IN/MANIFOLD RUNNER POS SEN B1	—	2	×	B	EC-416
P2016	2016	IN/MANIFOLD RUNNER POS SEN B1	—	2	×	B	EC-416
P2017	2017	IN/MANIFOLD RUNNER POS SEN B1	—	2	×	B	EC-416
P2018	2018	IN/MANIFOLD RUNNER POS SEN B1	—	2	×	B	EC-416
P2096	2096	POST CAT FUEL TRIM SYS B1	—	2	×	A	EC-419
P2097	2097	POST CAT FUEL TRIM SYS B1	—	2	×	A	EC-419
P2100	2100	ETC MOT PWR-B1	—	1	×	B	EC-423
P2101	2101	ETC FNCTN/CIRC-B1	—	1	×	B	EC-425
P2103	2103	ETC MOT PWR	—	1	×	B	EC-423
P2118	2118	ETC MOT-B1	—	1	×	B	EC-428
P2119	2119	ETC ACTR-B1	—	1	×	B	EC-430
P2122	2122	APP SEN 1/CIRC	—	1	×	B	EC-432
P2123	2123	APP SEN 1/CIRC	—	1	×	B	EC-432
P2127	2127	APP SEN 2/CIRC	—	1	×	B	EC-435
P2128	2128	APP SEN 2/CIRC	—	1	×	B	EC-435
P2135	2135	TP SENSOR-B1	—	1	×	B	EC-438
P2138	2138	APP SENSOR	—	1	×	B	EC-441

1*-1st trip DTC No. is the same as DTC No.

2*-This number is prescribed by SAE J1979/ ISO 15031-5.

3*-In Diagnostic Test Mode II (Self-diagnostic results), this number is controlled by NISSAN.

4*-Refer to EC-151, "Description".

5*-The trouble diagnosis for this DTC needs CONSULT

6*-When the ECM is in the mode that displays SRT status, MIL may blink. For details, Refer to EC-63, "On Board Diagnosis Function".

7*-SRT code will not be set if the self-diagnostic result is NG.

8*-When the fail-safe operations for both self-diagnoses occur, the MIL illuminates.

9*-For CALIFORNIA

10*-This self-diagnosis is not for ECM power supply circuit, even though "ECM BACK UP/CIRCUIT" is displayed on CONSULT screen.

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Test Value and Test Limit

The following is the information specified in Service \$06 of SAE J1979/ISO 15031-5.

The test value is a parameter used to determine whether a system/circuit diagnostic test is OK or NG while being monitored by the ECM during self-diagnosis. The test limit is a reference value which is specified as the maximum or minimum value and is compared with the test value being monitored.

These data (test value and test limit) are specified by On Board Monitor ID (OBDMID), Test ID (TID), Unit and Scaling ID and can be displayed on the GST screen.

The items of the test value and test limit will be displayed with GST screen which items are provided by the ECM. (e.g., if bank 2 is not applied on this vehicle, only the items of bank 1 are displayed)

Item	OBD-MID	Self-diagnostic test item	DTC	Test value and Test limit (GST display)		Description
				TID	Unit and Scaling ID	
HO2S	01H	Air fuel ratio (A/F) sensor 1 (Bank 1)	P0131	83H	0BH	Minimum sensor output voltage for test cycle
			P0131	84H	0BH	Maximum sensor output voltage for test cycle
			P0130	85H	0BH	Minimum sensor output voltage for test cycle
			P0130	86H	0BH	Maximum sensor output voltage for test cycle
			P0133	87H	04H	Response rate: Response ratio (lean to rich)
			P0133	88H	04H	Response rate: Response ratio (rich to lean)
			P2A00 or P2096	89H	84H	The amount of shift in air fuel ratio (too lean)
			P2A00 or P2097	8AH	84H	The amount of shift in air fuel ratio (too rich)
			P0130	8BH	0BH	Difference in sensor output voltage
			P0133	8CH	83H	Response gain at the limited frequency
			P014C	8DH	04H	O2 sensor slow response - Rich to lean bank 1 sensor 1
			P014C	8EH	04H	O2 sensor slow response - Rich to lean bank 1 sensor 1
			P014D	8FH	84H	O2 sensor slow response - Lean to rich bank 1 sensor 1
			P014D	90H	84H	O2 sensor slow response - Lean to rich bank 1 sensor 1
			P015A	91H	01H	O2 sensor delayed response - Rich to lean bank 1 sensor 1
			P015A	92H	01H	O2 sensor delayed response - Rich to lean bank 1 sensor 1
			P015B	93H	01H	O2 sensor delayed response - Lean to rich bank 1 sensor 1
			P015B	94H	01H	O2 sensor delayed response - Lean to rich bank 1 sensor 1
			P0133	95H	04H	Response rate: Response ratio (lean to rich)
			P0133	96H	84H	Response rate: Response ratio (rich to lean)

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Item	OBD-MID	Self-diagnostic test item	DTC	Test value and Test limit (GST display)		Description
				TID	Unit and Scaling ID	
HO2S	02H	Heated oxygen sensor 2 (Bank 1)	P0138	07H	0CH	Minimum sensor output voltage for test cycle
			P0137	08H	0CH	Maximum sensor output voltage for test cycle
			P0138	80H	0CH	Sensor output voltage
			P0139	81H	0CH	Difference in sensor output voltage
			P0139	82H	11H	Rear O2 sensor delay response diagnosis
	03H	Heated oxygen sensor 3 (Bank 1)	P0143	07H	0CH	Minimum sensor output voltage for test cycle
			P0144	08H	0CH	Maximum sensor output voltage for test cycle
			P0146	80H	0CH	Sensor output voltage
			P0145	81H	0CH	Difference in sensor output voltage
	05H	Air fuel ratio (A/F) sensor 1 (Bank 2)	P0151	83H	0BH	Minimum sensor output voltage for test cycle
			P0151	84H	0BH	Maximum sensor output voltage for test cycle
			P0150	85H	0BH	Minimum sensor output voltage for test cycle
			P0150	86H	0BH	Maximum sensor output voltage for test cycle
			P0153	87H	04H	Response rate: Response ratio (lean to rich)
			P0153	88H	04H	Response rate: Response ratio (rich to lean)
			P2A03 or P2098	89H	84H	The amount of shift in air fuel ratio (too lean)
			P2A03 or P2099	8AH	84H	The amount of shift in air fuel ratio (too rich)
			P0150	8BH	0BH	Difference in sensor output voltage
			P0153	8CH	83H	Response gain at the limited frequency
			P014E	8DH	04H	O2 sensor slow response - Rich to lean bank 2 sensor 1
			P014E	8EH	04H	O2 sensor slow response - Rich to lean bank 2 sensor 1
			P014F	8FH	84H	O2 sensor slow response - Lean to rich bank 2 sensor 1
			P014F	90H	84H	O2 sensor slow response - Lean to rich bank 2 sensor 1
			P015C	91H	01H	O2 sensor delayed response - Rich to lean bank 2 sensor 1
			P015C	92H	01H	O2 sensor delayed response - Rich to lean bank 2 sensor 1
			P015D	93H	01H	O2 sensor delayed response - Lean to rich bank 2 sensor 1

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Item	OBD-MID	Self-diagnostic test item	DTC	Test value and Test limit (GST display)		Description
				TID	Unit and Scaling ID	
HO2S	05H	Air fuel ratio (A/F) sensor 1 (Bank 2)	P015D	94H	01H	O2 sensor delayed response - Lean to rich bank 2 sensor 1
			P0153	95H	04H	Response rate: Response ratio (lean to rich)
			P0153	96H	84H	Response rate: Response ratio (rich to lean)
	06H	Heated oxygen sensor 2 (Bank 2)	P0158	07H	0CH	Minimum sensor output voltage for test cycle
			P0157	08H	0CH	Maximum sensor output voltage for test cycle
			P0158	80H	0CH	Sensor output voltage
			P0159	81H	0CH	Difference in sensor output voltage
			P0159	82H	11H	Rear O2 sensor delay response diagnosis
	07H	Heated oxygen sensor 3 (Bank2)	P0163	07H	0CH	Minimum sensor output voltage for test cycle
			P0164	08H	0CH	Maximum sensor output voltage for test cycle
			P0166	80H	0CH	Sensor output voltage
			P0165	81H	0CH	Difference in sensor output voltage
CATALYST	21H	Three way catalyst function (Bank1)	P0420	80H	01H	O2 storage index
			P0420	82H	01H	Switching time lag engine exhaust index value
			P2423	83H	0CH	Difference in 3rd O2 sensor output voltage
			P2423	84H	84H	O2 storage index in HC trap catalyst
	22H	Three way catalyst function (Bank2)	P0430	80H	01H	O2 storage index
			P0430	82H	01H	Switching time lag engine exhaust index value
			P2424	83H	0CH	Difference in 3rd O2 sensor output voltage
			P2424	84H	84H	O2 storage index in HC trap catalyst
EGR SYSTEM	31H	EGR function	P0400	80H	96H	Low flow faults: EGR temp change rate (short term)
			P0400	81H	96H	Low flow faults: EGR temp change rate (long term)
			P0400	82H	96H	Low flow faults: Difference between max EGR temp and EGR temp under idling condition
			P0400	83H	96H	Low flow faults: Max EGR temp
			P1402	84H	96H	High Flow Faults: EGR temp increase rate

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Item	OBD-MID	Self-diagnostic test item	DTC	Test value and Test limit (GST display)		Description
				TID	Unit and Scaling ID	
VVT SYSTEM	35H	VVT Monitor (Bank1)	P0011	80H	9DH	VTC intake function diagnosis (VTC alignment check diagnosis)
			P0014	81H	9DH	VTC exhaust function diagnosis (VTC alignment check diagnosis)
			P0011	82H	9DH	VTC intake function diagnosis (VTC drive failure diagnosis)
			P0014	83H	9DH	VTC exhaust function diagnosis (VTC drive failure diagnosis)
			P100A	84H	10H	VEL slow response diagnosis
			P1090	85H	10H	VEL servo system diagnosis
			P0011	86H	9DH	VTC intake intermediate lock function diagnosis (VTC intermediate position alignment check diagnosis)
			Advanced: P052A Retarded: P052B	87H	9DH	VTC intake intermediate lock system diagnosis (VTC intermediate lock position check diagnosis)
	36H	VVT Monitor (Bank2)	P0021	80H	9DH	VTC intake function diagnosis (VTC alignment check diagnosis)
			P0024	81H	9DH	VTC exhaust function diagnosis (VTC alignment check diagnosis)
			P0021	82H	9DH	VTC intake function diagnosis (VTC drive failure diagnosis)
			P0024	83H	9DH	VTC exhaust function diagnosis (VTC drive failure diagnosis)
			P100B	84H	10H	VEL slow response diagnosis
			P1093	85H	10H	VEL servo system diagnosis
			P0021	86H	9DH	VTC intake intermediate lock function diagnosis (VTC intermediate position alignment check diagnosis)
			Advanced: P052C Retarded: P052D	87H	9DH	VTC intake intermediate lock system diagnosis (VTC intermediate lock position check diagnosis)
EVAP SYSTEM	39H	EVAP control system leak (Cap Off)	P0455	80H	0CH	Difference in pressure sensor output voltage before and after pull down
	3BH	EVAP control system leak (Small leak)	P0442	80H	05H	Leak area index (for more than 0.04 inch)
	3CH	EVAP control system leak (Very small leak)	P0456	80H	05H	Leak area index (for more than 0.02 inch)
			P0456	81H	FDH	Maximum internal pressure of EVAP system during monitoring
			P0456	82H	FDH	Internal pressure of EVAP system at the end of monitoring
	3DH	Purge flow system	P0441	83H	0CH	Difference in pressure sensor output voltage before and after vent control valve close

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Item	OBD-MID	Self-diagnostic test item	DTC	Test value and Test limit (GST display)		Description
				TID	Unit and Scaling ID	
O2 SENSOR HEATER	41H	A/F sensor 1 heater (Bank 1)	Low Input: P0031 High Input: P0032	81H	0BH	Converted value of heater electric current to voltage
	42H	Heated oxygen sensor 2 heater (Bank 1)	Low Input: P0037 High Input: P0038	80H	0CH	Converted value of heater electric current to voltage
	43H	Heated oxygen sensor 3 heater (Bank 1)	P0043	80H	0CH	Converted value of heater electric current to voltage
	45H	A/F sensor 1 heater (Bank 2)	Low Input: P0051 High Input: P0052	81H	0BH	Converted value of heater electric current to voltage
	46H	Heated oxygen sensor 2 heater (Bank 2)	Low Input: P0057 High Input: P0058	80H	0CH	Converted value of heater electric current to voltage
	47H	Heated oxygen sensor 3 heater (Bank 2)	P0063	80H	0CH	Converted value of heater electric current to voltage
SECONDARY AIR	71H	Secondary air system	P0411	80H	01H	Secondary air injection system incorrect flow detected
			Bank1: P0491 Bank2: P0492	81H	01H	Secondary air injection system insufficient flow
			P2445	82H	01H	Secondary air injection system pump stuck off
			P2448	83H	01H	Secondary air injection system high airflow
			Bank1: P2440 Bank2: P2442	84H	01H	Secondary air injection system switching valve stuck open
			P2440	85H	01H	Secondary air injection system switching valve stuck open
			P2444	86H	01H	Secondary air injection system pump stuck on
FUEL SYSTEM	81H	Fuel injection system function (Bank 1)	P0171 or P0172	80H	2FH	Long term fuel trim
			P0171 or P0172	81H	24H	The number of lambda control clamped
			P117A	82H	03H	Cylinder A/F imbalance monitoring
	82H	Fuel injection system function (Bank 2)	P0174 or P0175	80H	2FH	Long term fuel trim
			P0174 or P0175	81H	24H	The number of lambda control clamped
			P117B	82H	03H	Cylinder A/F imbalance monitoring

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Item	OBD-MID	Self-diagnostic test item	DTC	Test value and Test limit (GST display)		Description
				TID	Unit and Scaling ID	
MISFIRE	A1H	Multiple cylinder misfires	P0301	80H	24H	Misfiring counter at 1000 revolution of the first cylinder
			P0302	81H	24H	Misfiring counter at 1000 revolution of the second cylinder
			P0303	82H	24H	Misfiring counter at 1000 revolution of the third cylinder
			P0304	83H	24H	Misfiring counter at 1000 revolution of the fourth cylinder
			P0305	84H	24H	Misfiring counter at 1000 revolution of the fifth cylinder
			P0306	85H	24H	Misfiring counter at 1000 revolution of the sixth cylinder
			P0307	86H	24H	Misfiring counter at 1000 revolution of the seventh cylinder
			P0308	87H	24H	Misfiring counter at 1000 revolution of the eighth cylinder
			P0300	88H	24H	Misfiring counter at 1000 revolution of the multiple cylinders
			P0301	89H	24H	Misfiring counter at 200 revolution of the first cylinder
			P0302	8AH	24H	Misfiring counter at 200 revolution of the second cylinder
			P0303	8BH	24H	Misfiring counter at 200 revolution of the third cylinder
			P0304	8CH	24H	Misfiring counter at 200 revolution of the fourth cylinder
			P0305	8DH	24H	Misfiring counter at 200 revolution of the fifth cylinder
			P0306	8EH	24H	Misfiring counter at 200 revolution of the sixth cylinder
			P0307	8FH	24H	Misfiring counter at 200 revolution of the seventh cylinder
			P0308	90H	24H	Misfiring counter at 200 revolution of the eighth cylinder
			P0300	91H	24H	Misfiring counter at 1000 revolution of the single cylinder
			P0300	92H	24H	Misfiring counter at 200 revolution of the single cylinder
			P0300	93H	24H	Misfiring counter at 200 revolution of the multiple cylinders

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Item	OBD-MID	Self-diagnostic test item	DTC	Test value and Test limit (GST display)		Description
				TID	Unit and Scaling ID	
MISFIRE	A2H	No. 1 cylinder misfire	P0301	0BH	24H	EWMA (Exponential Weighted Moving Average) misfire counts for last 10 driving cycles
			P0301	0CH	24H	Misfire counts for last/current driving cycles
	A3H	No. 2 cylinder misfire	P0302	0BH	24H	EWMA (Exponential Weighted Moving Average) misfire counts for last 10 driving cycles
			P0302	0CH	24H	Misfire counts for last/current driving cycles
	A4H	No. 3 cylinder misfire	P0303	0BH	24H	EWMA (Exponential Weighted Moving Average) misfire counts for last 10 driving cycles
			P0303	0CH	24H	Misfire counts for last/current driving cycles
	A5H	No. 4 cylinder misfire	P0304	0BH	24H	EWMA (Exponential Weighted Moving Average) misfire counts for last 10 driving cycles
			P0304	0CH	24H	Misfire counts for last/current driving cycles
	A6H	No. 5 cylinder misfire	P0305	0BH	24H	EWMA (Exponential Weighted Moving Average) misfire counts for last 10 driving cycles
			P0305	0CH	24H	Misfire counts for last/current driving cycles
	A7H	No. 6 cylinder misfire	P0306	0BH	24H	EWMA (Exponential Weighted Moving Average) misfire counts for last 10 driving cycles
			P0306	0CH	24H	Misfire counts for last/current driving cycles
	A8H	No. 7 cylinder misfire	P0307	0BH	24H	EWMA (Exponential Weighted Moving Average) misfire counts for last 10 driving cycles
			P0307	0CH	24H	Misfire counts for last/current driving cycles
	A9H	No. 8 cylinder misfire	P0308	0BH	24H	EWMA (Exponential Weighted Moving Average) misfire counts for last 10 driving cycles
			P0308	0CH	24H	Misfire counts for last/current driving cycles