SYSTEM CONTROLS

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GENERAL INFORMATION

Description

The Heating, Ventilation and Air Conditioning (HVAC) system uses a combination of electrical and vacuum controls. These controls provide the vehicle operator with a number of setting options to help control the climate and comfort within the vehicle. Refer to the owner's manual in the vehicle glove box for more information on the suggested operation and use of these controls.



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GENERAL INFORMATION

1 - Inlet Shell Shield	21 - Left Outlet
2 - Inlets Shrouds	22 - Right Outlet
3 - Bolt (M6)	23 - Evaporator Assembly Upper Cover
4 - Inlet Shell Assembly	24 - Drain Inner Hose Assembly
5 - Recirculation Door Actuator	25 - Rubber Drain Inside Hose
6 - Mixed Door Lever	26 - Rubber Drain Outside Hose
7 - Defrost Door Lever	27 - Evaporator Assembly Lower Cover
8 - Water Hose Clamp	28 - Evaporator Core
9 - Blower Control Dial	29 - Sealed Gasket
10 - Defrost Door Linkage	30 - Sponge
11 - Mode Door Dial	31 - Expansion Valve
12 - Plastic Washer	32 - Blower Motor Resistor
13 - Mode Door Dial Linkage	33 - Blower Motor
14 - Mode Door Dial Lever	34 - HVAC Filter
15 - Evaporator Assembly	35 - Heater Core
16 - HVAC Control Panel	36 - HVAC Control Panel Bolt
17 - Temperature Control Dial Cable	37 - HVAC Control Panel
18 - Mode Door Cable	38 - Clamp
19 - Outlet Assembly	39 - Water Hose Sealed Gasket
20 - Clamp	40 - Sponge



Operation

The A/C heater control module panel is located on the instrument panel inboard of the steering column and above the radio. The A/C heater control panel contains a rotary-type temperature control dial (1), a rotary-type mode control switch dial (3), a rotary-type blower motor speed control switch (2) and an air conditioning compressor push button switch (6).



	+ - Hear Willdow Delogger Switch
2 - Blower Switch	5 - Recirculation Switch
3 - Mode Control Switch	6 - A/C Switch

Temperature Control Dial

Increases or decreases the set temperature.

Recirculation Switch

- When the recirculation switch is ON, the switch indicator turns ON, and air inlet is set to recirculation.
- When recirculation switch is OFF, air inlet is set to fresh. The recirculation mode can be re-entered by pressing the recirculation switch again.

Rear Window Defogger Switch

Controls the operation of the rear window defogger.

A/C Switch

Controls the A/C compressor ON and OFF function.

Mode Control Dial

Controls the direction of the air flow through the air discharge outlets.

Blower Control Dial

Manually controls the four blower speeds and the ON and OFF function.



Discharge Air Flow





Specifications

Torque Specifications

DESCRIPTION	TORQUE (N·m)
All General Service Screws	5
Recirculation door actuator screws	2

Special Tools





ON-VEHICLE SERVICE

Recirculation Door Actuator

Removal & Installation

- 1. Remove the rod connected to the recirculation door actuator.
- 2. Remove the bolt (1) connecting the recirculation door actuator to the bracket.

(Tighten: Recirculation door actuator bolt to 2 $N{\cdot}m)$

- 3. Remove the recirculation door actuator.
- 4. Installation is in the reverse order of removal.





AIR DISTRIBUTION

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GENERAL INFORMATION

Description

All models are equipped with a common HVAC housing assembly that combines A/C and heating capabilities into a single unit mounted within the passenger compartment. The HVAC housing assembly consists of three separate housings:

- HVAC housing The HVAC housing is mounted to the dash panel behind the instrument panel and contains the A/C evaporator. The HVAC housing has mounting provisions for the air inlet housing, blower motor and the air distribution housing.
- Air distribution housing The air distribution housing is mounted to the rear of the HVAC housing and contains the heater core, blend-air and mode-air doors and door linkage.
- Air inlet housing The air inlet housing is mounted to the passenger side end of the HVAC housing. The air inlet housing contains the recirculation-air door and actuator.

Operation

The A/C system is designed for the use of a non-CFC, R-134a refrigerant and uses an A/C evaporator to cool and dehumidify the incoming air prior to blending it with the heated air. Temperature control determines the discharge air temperature by operating the temperature control cable, which moves the blend-air door. This allows an almost immediate control of the output air temperature of the system. The mode door cable operates the mode-air doors which direct the flow of the conditioned air out the various air outlets, depending on the mode selected. When equipped with A/C, the recirculation door actuator operates the recirculation-air door which closes off the fresh air intake and recirculates the air already inside the vehicle. The electric recirculation door actuator and the blower motor are connected to the vehicle electrical system by the instrument panel wire harness. The blower motor controls the velocity of air flowing through the HVAC housing assembly by spinning the blower wheel within the HVAC housing at the selected speed by use of the blower motor resistor, which is around the blower motor.

The air distribution housing must be removed from the HVAC housing and disassembled for service of the blend-air and mode-air doors. The air inlet housing must be removed from the HVAC housing and disassembled for service of the recirculation-air door. The HVAC housing must be removed from the vehicle and disassembled for service of the A/C evaporator.

Specifications

Torque Specifications

DESCRIPTION	TORQUE (N·m)
All General Service Screws	2
Evaporator Bolts	4
Expansion Valve Bolts	10
Pipeline Stent	4
Refrigerant Lines To A/C Accumulator	6
Condenser Bolts	6
Refrigerant Lines To A/C Compressor Bolt	30
Refrigerant Lines	10
Refrigerant Lines To A/C Evaporator Bolt	25

Special Tools





DIAGNOSIS & TESTING

Blower Motor Electrical Troubleshooting

To determine if an open condition exists within the blower motor circuit wiring, it is necessary to disconnect the negative battery cable and check for continuity within the blower motor circuits using an ohmmeter.

Possible causes of an inoperative blower motor include the following:

- Open fuse
- Inoperative blower motor switch
- Inoperative blower motor resistor
- Inoperative blower motor
- · Inoperative blower motor circuit wiring or wiring harness electrical connectors

Blower Motor Noise

To determine if the blower motor is the source of the noise, simply switch the blower motor from Off to On. To verify that the blower motor is the source of the noise, unplug the blower motor wire harness connector and operate the heater-A/C system. If the noise goes away, possible causes include:

- Foreign material on fresh air inlet screen
- Foreign material in blower wheel
- Foreign material in HVAC housing
- Incorrect blower motor mounting
- Deformed or damaged blower wheel
- Worn blower motor bearings or brushes

Blower Motor Vibration

Possible causes of a blower motor vibration include:

- Incorrect blower motor mounting
- Foreign material in blower wheel
- Deformed or damaged blower wheel
- Worn blower motor bearings

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ON-VEHICLE SERVICE

HVAC Housing

- 1. Evacuate the A/C system (See A/C System Evacuation and Recharge in Section 13 Heating & Air Conditioning).
- 2. Drain the cooling system and then disconnect heater hoses (1). (See Cooling System Draining & Filling in Section 06 Cooling).



- 3. Remove the instrument panel (See Instrument Panel Removal & Installation in Section 15 Body & Accessories).
- 4. Remove the evaporator assembly upper retaining bolts (1).





5. Remove the evaporator assembly lower retaining bolts (1).



- 6. Disconnect the electrical connectors. Remove the evaporator assembly.
- 7. Installation is in the reverse order of removal.

Installation Notes:

- Lubricate new rubber O-ring seals with clean refrigerant oil and install them and new gaskets onto the refrigerant line fittings.
- Use only the specified O-rings as they are made of a special material for the R-134a system.
- Use only refrigerant oil recommended for the A/C compressor in the vehicle.
- Recharge the A/C system (See A/C System Evacuation and Recharge in Section 13 Heating & Air Conditioning).

Blower Motor

Description

The blower motor is mounted in the HVAC housing. The following are blower motor functions:

- The blower motor will operate whenever the ignition switch is in the ON position and the blower motor control is in any position except Off.
- The blower motor can be accessed for service from underneath the instrument panel.
- The blower motor and blower motor wheel are factory balanced as an assembly and cannot be adjusted or repaired and must be replaced if found inoperative or damaged.

Operation

The blower motor is used to control the velocity of air moving through the HVAC housing by spinning the blower wheel within the HVAC air inlet housing at the selected speed. The blower motor is a 12-volt, direct current (DC) motor mounted within a plastic housing with an integral wire harness connector. The blower wheel is secured to the blower motor shaft and is positioned within the air inlet housing on the passenger side of the HVAC housing.



Removal & Installation

NOTE :

The blower motor is located on the bottom of the HVAC housing. The blower motor can be removed from the vehicle without having to remove the HVAC housing.

- 1. Disconnect the blower motor electrical connector.
- 2. Remove the glove box (See Instrument Panel Removal & Installation in Section 15 Body & Accessories).
- 3. Remove the mounting bolts (1) for the blower motor.



- 4. Remove the blower motor.
- 5. Installation is in the reverse order of removal.

SYSTEM PLUMBING

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GENERAL INFORMATION

Description

The A/C refrigerant lines and pipes are used to carry the refrigerant between the various A/C system components.

Any kinks or sharp bends in the refrigerant lines and hoses will reduce the capacity of the entire A/C system and can reduce the flow of refrigerant within the system.

Operation

High pressure is produced in a refrigerant system when the A/C compressor is operating. Extreme care must be exercised to make sure that each of the refrigerant system connections is pressure-tight and leak free. It is a good practice to inspect all flexible hose refrigerant lines at least once a year to make sure they are in good condition and properly routed. Depending on vehicle, model and market application, refrigerant lines are connected to each other or other A/C system components with block-type or quick-connect type fittings. To ensure the integrity of the refrigerant system, O-rings and/or gaskets may be used to seal the refrigerant system connections. The refrigerant lines and hoses cannot be repaired and must be replaced if leaking or damaged.

WARNING!

The A/C system contains refrigerant under high pressure. Repairs should only be performed by qualified service personnel. Serious or fatal injury may result from improper service procedures.

If accidental A/C system discharge occurs, ventilate the work area before resuming service. Large amounts of refrigerant released in a closed work area will displace the oxygen and cause suffocation and serious or fatal injury.

CAUTION:

Never add R-12 to a refrigerant system designed to use R-134a. Do not use R-12 equipment or parts on an R-134a A/C system. These refrigerants are not compatible and damage to the A/C system will result.

CAUTION:

Never use R-12 refrigerant oil in an A/C system designed to use R-134a refrigerant oil. These refrigerant oils are not compatible and damage to the A/C system will result.

CAUTION:

Do not run the engine with a vacuum pump in operation or with a vacuum present within the A/C system. Failure to follow this caution will result in serious A/C compressor damage.

CAUTION:

Do not overcharge the refrigerant system. Overcharging will cause excessive compressor head pressure and can cause compressor noise and A/C system failure.

Specifications

Torque Specifications

DESCRIPTION	TORQUE (N·m)
A/C Compressor Bracket Bolts	40
A/C Compressor Line Bolts	20



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A/C Refrigerant Charge Specifications

DESCRIPTION	CAPACITY (kg)
R-134a Refrigerant	0.700

A/C Oil Specifications

DESCRIPTION	CAPACITY (ml)
Compressor	150
Condenser, Accumulator, Lines	15
Evaporator	30

Special Tools





DIAGNOSIS & TESTING

Mechanical Problems

Possible locations or causes of insufficient heat:

- An obstructed cowl air intake.
- Obstructed heater system outlets.
- A blend door not functioning properly.
- Trapped air in system.

Temperature Control

If the heater outlet air temperature cannot be adjusted with the temperature control knob(s) on the A/C heater control panel, the following could require service:

- The A/C heater control.
- The blend door actuator(s).
- The wire harness circuits for the A/C heater control or the blend door actuator(s).
- The blend door(s).
- Improper engine coolant temperature.

A/C Compressor Noise Testing

When investigating an A/C system related noise, you must first know the conditions under which the noise occurs. These conditions include: weather, vehicle speed, transaxle in gear or neutral, engine speed, engine temperature, and any other special conditions. Noises that develop during A/C operation can often be misleading. For example: what sounds like a failed bearing, may be caused by loose bolts, nuts, mounting brackets or a loose compressor assembly.

NOTE :

The A/C compressor must be replaced if any unusual noise is heard from the compressor itself.

NOTE :

Drive belts are speed sensitive. At different engine speeds and depending upon drive belt tension, drive belts can develop noises that are mistaken for an A/C compressor noise. Improper drive belt tension can cause a misleading noise when the compressor is operating at maximum displacement, which may not occur when the compressor is at minimum displacement.

- 1. Select a quiet area for testing.
- 2. Duplicate the complaint conditions as much as possible.
- 3. Turn the A/C system On and Off several times to clearly identify any compressor noise.
- 4. Listen to the A/C compressor while it is operating at maximum and minimum displacement.
- 5. Probe the A/C compressor with an engine stethoscope or a long screwdriver with the handle held to your ear to better localize the source of the noise.
- To duplicate high-ambient temperature conditions (high head pressure), restrict the air flow through the A/C condenser. Install a manifold gauge set or a scan tool to ensure that the discharge pressure does not exceed 2600 kPa.
- 7. Check the condition of the accessory drive belt.

NOTE: The A/C compressor must be replaced if the drive hub is broken or if the compressor shaft does not rotate smoothly.

- 8. Check the compressor hub and pulley and bearing assembly. Ensure that the hub and pulley are properly aligned and that the pulley bearing is mounted securely to the A/C compressor.
- 9. Check the refrigerant system plumbing for incorrect routing, rubbing or interference, which can cause unusual noises. Also check the refrigerant lines and hoses for kinks or sharp bends that will restrict refrigerant flow, which can cause noises.
- Loosen all of the compressor mounting hardware and retighten.
 CAUTION: Do not run the engine with a vacuum pump in operation or with a vacuum present within the A/C system. Failure to follow this caution will result in serious A/C compressor damage.
- 11. If the noise is from opening and closing the high pressure relief valve, recover, evacuate and recharge the refrigerant system. If the high pressure relief valve still does not seat properly, replace the A/C compressor.



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- 12. If the noise is from liquid refrigerant slugging in the A/C suction line, replace the A/C accumulator and check the refrigerant oil level and the refrigerant system charge.
- 13. If a slugging condition still exists after replacing the A/C accumulator, replace the A/C compressor.

Refrigerant System Leaks

WARNING!

R-134a service equipment or vehicle A/C systems should not be pressure tested or leak tested with compressed air. Mixture of air and R-134a can be combustible at elevated pressures. These mixtures are potentially dangerous and may result in fire or explosion causing property damage, personal injury or death. Avoid breathing A/C refrigerant and lubricant vapor or mist. Exposure may irritate eyes, nose and throat. Use only approved service equipment meeting SAE requirements to discharge an R-134a system. If accidental system discharge occurs, ventilate work area before resuming service.

NOTE :

If the A/C refrigerant system charge is empty or low, a leak in the A/C system is likely. Inspect all A/C lines, fittings and components for an oily residue. Oil residue can be an indicator of an A/C system leak location.

NOTE :

The only way to correctly determine if the refrigerant system is fully charged with R-134a is to completely evacuate and recharge the A/C system.

Refrigerant System Empty

- 1. Evacuate the refrigerant system to the lowest degree of vacuum possible. Determine if the system holds a vacuum for 15 minutes. If vacuum is held, a leak is probably not present. If system will not maintain vacuum level, proceed to STEP 2.
- 2. Prepare and dispense 0.3 kilograms of R-134a refrigerant into the evacuated refrigerant system and proceed to STEP 1 of the System Low procedure.

Refrigerant System Low

- 1. Position the vehicle in a wind-free work area. This will aid in detecting small leaks.
- 2. Operate the heating-A/C system with the engine at idle under the following conditions for at least 5 minutes: Doors or windows open, transaxle in Park or Neutral with the parking brake set (depending on application), A/C-Heater controls set to outside air, full cool, panel mode, high blower and with A/C compressor engaged.
- 3. Shut the vehicle Off and wait 2 7 minutes. Then use an electronic leak detector that is designed to detect R-134a refrigerant and search for leaks. Fittings, lines or components that appear to be oily usually indicate a refrigerant leak. To inspect the A/C evaporator for leaks, insert the leak detector probe into the drain tube opening or an air outlet. A dye for R-134a is available to aid in leak detection. Use only approved refrigerant dye.

CAUTION:

A leak detector only designed for R-12 refrigerant will not detect leaks in an R-134a refrigerant system.

ON-VEHICLE SERVICE

A/C System Evacuation and Recharge

Connecting Refrigerant Recovery/Recycling Station



WARNING!

The A/C system is under high pressure, use caution when servicing the A/C system.



1. Connect the refrigerant recovery/recycling station to the vehicles high and low side A/C line connectors.

NOTE: The refrigerant recovery/recycling station connectors are connected to the vehicle in the following way:

- BLUE connector (1) is connected to the A/C low side fitting.
- RED connector (2) is connected to the A/C high side fitting.



A/C System Evacuation

CAUTION:

Do NOT run the engine with a vacuum pump in operation or with a vacuum present within the A/C system. Failure to follow this caution will result in serious A/C compressor damage.

NOTE :

Special effort must be used to prevent moisture from entering the A/C system oil. Moisture in the oil is very difficult to remove and will cause a reliability problem with the A/C compressor.

If the refrigerant system has been open to the atmosphere, it must be evacuated before the system can be filled. Moisture and air mixed with the refrigerant will raise the compressor high pressure above acceptable operating levels. This will reduce the performance of the A/C system and damage the A/C compressor. Moisture will boil at near room temperature when exposed to vacuum.

NOTE :

When connecting the service equipment coupling to the line fitting, verify that the valve of the coupling is fully closed. This will reduce the amount of effort required to make the connection.

To evacuate the refrigerant system:

- 1. With the engine OFF, connect a suitable charging station, refrigerant recovery machine or a manifold gauge set with vacuum pump and refrigerant recovery equipment. Do not operate the engine with a vacuum on the A/C system.
- 2. Open the suction and discharge valves and start the vacuum pump. The vacuum pump should run a minimum of 45 minutes prior to charge to eliminate all moisture in system. When the suction gauge reads to the lowest degree of vacuum possible for 30 minutes, close all valves and turn off vacuum pump. If the system fails to reach specified vacuum, the refrigerant system likely has a leak that must be corrected. If the refrigerant system maintains specified vacuum for at least 30 minutes, start the vacuum pump, open the suction and discharge valves. Then allow the system to evacuate an additional 10 minutes.
- 3. Close all valves.
- 4. Turn off and disconnect the vacuum pump.
- 5. Charge the refrigerant system.

A/C System Recharge

After all refrigerant system leaks have been repaired and the refrigerant system has been evacuated, a refrigerant charge can be injected into the system.

CAUTION:

A small amount of refrigerant oil is removed from the A/C system each time the refrigerant system is recovered and evacuated. Before charging the A/C system, you MUST replenish any oil lost during the recovery process.

1. Evacuate the refrigerant system (See A/C System Evacuation and Recharge in Section 13 Heating & Air Conditioning).

- 2. A manifold gauge set and an R-134a refrigerant recovery/recycling/charging station that meets SAE standard J2210 should be connected to the refrigerant system.
- 3. Open both the suction and discharge valves, then open the charge valve to allow the refrigerant to flow into the system.
- 4. When the transfer of refrigerant has stopped, close both the suction and discharge valves.
- 5. If all of the refrigerant charge did not transfer from the dispensing device, open all of the windows in the vehicle and set the heating-A/C system controls so that the A/C compressor is operating and the blower motor is running at its lowest speed setting. Run the engine at a steady high idle (about 2000 RPM).
- 6. Open the low-pressure valve to allow the remaining refrigerant to transfer to the refrigerant system.

WARNING!

Take care not to open the discharge (high pressure) valve at this time. Failure to follow this warning could result in possible personal injury or death.

- 7. Disconnect the refrigerant recovery/recycling station from the refrigerant system service ports.
- 8. Reinstall the caps onto the refrigerant system service ports.

Compressor

Description

Vehicles equipped with the 1.6L & 1.8L & 2.0L engine use a SD7V16 clutch-less compressor. The 2.4L equipped vehicles use a V5 clutch-less compressor. The compressor is a variable displacement compressor. The largest displacement is 161.3 ml/r, displacement range of 5% to 100%.

CAUTION:

DON'T run the engine with a vacuum pump in operation or with a vacuum present within the A/C system. Failure to follow this caution will result in serious A/C compressor damage.

NOTE :

The compressor drive hub and the pulley and bearing assembly cannot be serviced separately from the A/C compressor. In the event of drive hub or pulley and bearing assembly damage or failure, the A/C compressor, drive hub and pulley and bearing must be replaced as an assembly.

Operation

The A/C compressor is controlled by the Engine Control Module (ECM), depending on engine application. The ECM calculates compressor displacement required by A/C system load and demand by monitoring vehicle speed, A/C high side pressure, engine speed, evaporator temperature, accelerator pedal position, ambient temperature and A/C-Heater request signals. The ECM then sends a pulse width modulated signal to the A/C compressor control solenoid to increase or decrease refrigerant flow through an orifice located within the compressor housing. The amount of refrigerant allowed to pass through the orifice in the compressor determines the head pressure which controls the angle of the swash plate, which in turn, determines the amount of compressor displacement. When there is no demand for A/C, the swashplate is adjusted to nearly a zero degree angle, which removes compressor torque drag from the engine.

NOTE :

The A/C compressor cannot be repaired and it must be replaced if found inoperative or damaged. If an internal failure of the A/C compressor has occurred, the A/C accumulator and the A/C liquid line must also be replaced.

Removal & Installation - 1.6L & 1.8L & 2.0L

WARNING!

Review safety precautions and warnings in this group before performing this procedure. Failure to follow the warnings and cautions could result in possible personal injury or death.



CAUTION:

The A/C accumulator and the A/C liquid line must be replaced if an internal failure of the A/C compressor has occurred. Failure to replace the A/C accumulator and the A/C liquid line can cause serious damage to the replacement A/C compressor.

NOTE :

When replacing multiple A/C system components, determine how much oil should be removed from the new A/C compressor.

NOTE :

Replacement of the refrigerant line O-ring seals and gaskets is required anytime a refrigerant line is opened. Failure to replace the rubber O-ring seals and metal gaskets could result in a refrigerant system leak.

- 1. Evacuate the A/C system (See A/C System Evacuation and Recharge in Section 13 Heating & Air Conditioning).
- 2. Disconnect the A/C compressor electrical connector.
- 3. Remove the engine drive belt (See Drive Belt Removal & Installation in Section 02 Engine).



- 4. Remove the intake manifold (See Intake Manifold Removal & Installation in Section 02 Engine).
- 5. Remove the A/C compressor line bolt (1) from the A/C compressor.

(Tighten: A/C compressor line bolt to 20 N·m) **NOTE:** After removing the A/C lines plug the A

NOTE: After removing the A/C lines, plug the A/C lines to prevent any debris from entering the A/C system.



6. Loosen the A/C compressor bracket bolt connecting the A/C compressor and bracket. (Tighten: A/C compressor bracket bolt to 40 N·m)



- Remove the A/C compressor bracket bolts (1). (Tighten: A/C compressor bracket bolts to 40 N·m)
- 8. Carefully remove the A/C compressor and bracket assembly.
- 9. Installation is in the reverse order of removal.

- Lubricate new rubber O-ring seals with clean refrigerant oil and install them and new gaskets onto the refrigerant line fittings.
- Use only the specified O-rings as they are made of a special material for the R-134a system.
- Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.



 Recharge the A/C system (See A/C System Evacuation and Recharge in Section 13 Heating & Air Conditioning).

Removal & Installation - 2.4L

- 1. Evacuate the A/C system (See A/C System Evacuation and Recharge in Section 13 Heating & Air Conditioning).
- 2. Disconnect the A/C compressor electrical connector.
- 3. Remove the engine drive belt (See Drive Belt Removal & Installation in Section 02 Engine).
- Remove the A/C compressor low-pressure line bolt (1) and high-pressure line bolt (2) from the A/C compressor. (Tighten: A/C compressor line bolts to 20 N⋅m)



5. Remove the A/C compressor mounting bolts (1). (Tighten: A/C compressor bracket bolt to 40 N·m)



- 6. Carefully remove the A/C compressor assembly.
- 7. Installation is in the reverse order of removal.

Installation Notes:

- Lubricate new rubber O-ring seals with clean refrigerant oil and install them and new gaskets onto the refrigerant line fittings.
- Use only the specified O-rings as they are made of a special material for the R-134a system.



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- Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.
- Recharge the A/C system (See A/C System Evacuation and Recharge in Section 13 Heating & Air Conditioning).

Evaporator

Description

The evaporator core is located in the HVAC housing, under the instrument panel. The evaporator coil is positioned in the HVAC housing so that all air that enters the housing must pass over the fins of the evaporator before it is distributed through the system ducts and outlets. However, air passing over the evaporator core fins will only be conditioned when the compressor is engaged and circulating refrigerant through the evaporator coil tubes.

Operation

Refrigerant enters the evaporator from the orifice tube as a low-temperature, low-pressure liquid. As air flows over the fins of the evaporator, the humidity in the air condenses on the fins, and the heat from the air is absorbed by the refrigerant. Heat absorption causes the refrigerant to boil and vaporize. The refrigerant becomes a low-pressure gas before it leaves the evaporator. The evaporator core housing directs airflow from the blower motor through the evaporator core and heater core. All airflow from the blower motor passes through the evaporator core. The airflow is then directed through or around the heater core by the temperature blend door(s).

Removal & Installation

- 1. Evacuate the A/C system (See A/C System Evacuation and Recharge in Section 13 Heating & Air Conditioning).
- 2. Remove the expansion valve.
- 3. Remove the HVAC housing (See HVAC Housing Removal and Installation in Section 13 Heating & Air Conditioning).
- 4. Remove the retaining bolts and screws.
- 5. Remove the evaporator core.
- 6. Installation is in the reverse order of removal.

Installation Notes:

- Lubricate new rubber O-ring seals with clean refrigerant oil and install them and new gaskets onto the refrigerant line fittings.
- Use only the specified O-rings as they are made of a special material for the R-134a system.
- Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.
- Recharge the A/C system (See A/C System Evacuation and Recharge in Section 13 Heating & Air Conditioning).

Condenser

Description

The condenser is located in the air flow in front of the engine cooling radiator. The condenser transforms the refrigerant from a gas into a liquid. It is attached to the vehicle with bolts and the A/C lines with fittings.

Operation

When the heat is removed from the refrigerant, it condenses. When the refrigerant leaves the condenser, it becomes a high-pressure liquid refrigerant. The volume of air flowing over the condenser fins is critical to the proper cooling performance of the air conditioning system. Therefore, it is important that there are no objects placed in front of the radiator grille openings in the front of the vehicle or foreign material on the condenser fins that might obstruct proper air flow. Also, any factory-installed air seals or shrouds must be properly reinstalled following radiator or condenser service.



Removal & Installation

- 1. Disconnect the negative battery cable.
- 2. Evacuate the A/C system (See A/C System Evacuation and Recharge in Section 13 Heating & Air Conditioning).
- 3. Remove the front bumper (See Front Bumper Removal & Installation in Section 15 Body & Accessories).
- 4. Remove the nut (3) that secures the A/C high-pressure liquid line to the A/C condenser. Remove and discard the O-ring seal and gasket.

NOTE: After removing the A/C lines, plug the A/C lines to prevent any debris from entering the A/C system.

- 5. Remove the nut (2) that secures the A/C high-pressure gas line to the A/C condenser. Remove and discard the O-ring seal and gasket.
- 6. Remove the condenser mounting bolts (1).



- 7. Remove the condenser from the engine compartment.
- 8. Installation is in the reverse order of removal.

Installation Notes:

- Lubricate new rubber O-ring seals with clean refrigerant oil and install them and new gaskets onto the refrigerant line fittings.
- Use only the specified O-rings as they are made of a special material for the R-134a system.
- Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.
- Recharge the A/C system (See A/C System Evacuation and Recharge in Section 13 Heating & Air Conditioning).

Accumulator

Description

The accumulator is connected directly between the condenser and the expansion valve. Accumulator is used on systems that use an orifice tube to meter refrigerants into the evaporator.

Operation

The primary function of the accumulator is to isolate the compressor from any damaging liquid refrigerant. The accumulator removes debris and moisture from the air conditioning system.

- 1. Disconnect the negative battery cable.
- 2. Evacuate the A/C system (See A/C System Evacuation and Recharge in Section 13 Heating & Air Conditioning).





- 3. Remove the nuts (2) connecting the suction lines to the accumulator.
- 4. Remove the accumulator mounting bolts (1).
- 5. Remove the accumulator. Remove and discard the O-ring seals and gaskets.
 - **NOTE:** After removing the A/C lines, plug the A/C lines to prevent any debris from entering the A/C system.
- 6. Installation is in the reverse order of removal.

- Lubricate new rubber O-ring seals with clean refrigerant oil and install them and new gaskets onto the refrigerant line fittings.
- Use only the specified O-rings as they are made of a special material for the R-134a system.
- Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.
- Recharge the A/C system (See A/C System Evacuation and Recharge in Section 13 Heating & Air Conditioning).

Liquid Line

Description

The A/C liquid line connects the A/C condenser to the A/C evaporator.

Operation

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The high pressure A/C liquid line is the refrigerant line that carries refrigerant from the A/C condenser to the A/C accumulator. Air conditioning hoses are designed to control liquid and gas at high pressures and temperatures. The hoses are usually flexible and equipped with special metal fittings at the ends to prevent leaks and provide a sure seal and connection between components.

- 1. Disconnect the negative battery cable.
- 2. Evacuate the A/C system (See A/C System Evacuation and Recharge in Section 13 Heating & Air Conditioning).



- 3. Remove the bolt (2) that secures the A/C liquid and suction line assembly to the A/C expansion valve.
- 4. Remove the lines retaining bolts (1).
- 5. Remove the A/C liquid line assembly from the A/C evaporator to compressor and remove and discard the seals.
- 6. Install plugs in, or tape over the opened refrigerant line fittings and the evaporator ports.
- 7. Remove the A/C liquid line assembly from accumulator to condenser and from accumulator to evaporator.
- 8. Installation is in the reverse order of removal.

- Lubricate new rubber O-ring seals with clean refrigerant oil and install them and new gaskets onto the refrigerant line fittings.
- Use only the specified O-rings as they are made of a special material for the R-134a system.
- Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.
- Recharge the A/C system (See A/C System Evacuation and Recharge in Section 13 Heating & Air Conditioning).

Suction Line

Description

The A/C suction line connects the A/C compressor to the A/C accumulator.

Operation

The low pressure A/C suction line is the refrigerant line that carries refrigerant from the A/C accumulator to the A/C compressor. Air conditioning hoses are designed to control liquid and gas at high pressures and temperatures. The hoses are usually flexible and equipped with special metal fittings at the ends to prevent leaks and provide a sure seal and connection between components.

- 1. Disconnect the negative battery cable.
- 2. Evacuate the A/C system (See A/C System Evacuation and Recharge in Section 13 Heating & Air Conditioning).





- 3. Remove the bolt (2) that secures the A/C liquid and suction line assembly to the A/C expansion valve.
- 4. Remove the nuts (1) that connect the suction lines to the A/C accumulator.
- 5. Remove the lines retaining bolts (3).
- 6. Remove the nut (1) that connect the suction line to the A/C compressor.



- 7. Install plugs in, or tape over the opened refrigerant line fittings and the evaporator ports.
- 8. Remove the A/C suction line assembly from evaporator to compressor.
- 9. Installation is in the reverse order of removal.

- Lubricate new rubber O-ring seals with clean refrigerant oil and install them and new gaskets onto the refrigerant line fittings.
- Use only the specified O-rings as they are made of a special material for the R-134a system.
- Use only refrigerant oil of the type recommended for the A/C compressor in the vehicle.
- Recharge the A/C system (See A/C System Evacuation and Recharge in Section 13 Heating & Air Conditioning).



Heater Core

Description

The heater core is located in the HVAC housing. The heater core is a heat exchanger made of rows of tubes with fins and is positioned within the air distribution housing so that only the selected amount of air entering the housing passes through the heater core before it is distributed through the heating-A/C system ducts and outlets. One end of the heater core is fitted with a tank that includes the fittings for the heater core tubes. The heater core can only be serviced by removing the HVAC housing from the vehicle.

Operation

Engine coolant is circulated through the heater hoses to the heater core at all times. As the coolant flows through the heater core, heat is removed from the engine and is transferred to the heater core tubes and fins. Air directed through the heater core picks up the heat from the heater core fins. The blend-air door allows control of the heater output air temperature by regulating the amount of air flowing through the heater core. The blower motor speed controls the volume of air flowing through the HVAC housing.

Removal & Installation

- 1. Drain the cooling system (See Cooling System Draining Procedure in Section 06 Cooling System).
- 2. Evacuate the A/C system (See A/C System Evacuation and Recharge in Section 13 Heating & Air Conditioning).
- 3. Remove the HVAC housing assembly and place it on a workbench (See HVAC Housing Removal & Installation in Section 13 Heating & Air Conditioning).
- 4. Remove the retaining bolts and clamps.
- 5. Remove the heater core.
- 6. Installation is in the reverse order of removal.

Installation Notes:

• Verify the cooling system is filled to proper specifications.

RESTRAINTS **14**

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GENERAL INFORMATION

Description

Available occupant restraints for this vehicle include both active and passive types. Active restraints are those which require the vehicle occupants to take some action to employ, such as fastening a seat belt; while passive restraints require no action by the vehicle occupants to be employed.

Active Restraints

- Front Seat Belts
- Rear Seat Belts

Passive Restraints

- Driver Airbag
- Passenger Airbag
- Seat Belt Tensioners

Operation

Active Restraints

The primary passenger restraints are the seat belts. Seat belts are referred to as an active restraint because the vehicle occupants are required to physically fasten and properly adjust these restraints in order to benefit from them.

Passive Restraints

The passive restraints are referred to as a supplemental restraint system because they were designed and are intended to enhance the protection for the occupants of the vehicle only when used in conjunction with the seat belts. They are referred to as passive restraints because the vehicle occupants are not required to do anything to make them operate; however, the vehicle occupants must be wearing their seat belts in order to obtain the maximum safety benefit from the supplemental restraint system.

The supplemental restraint system electrical circuits are continuously monitored and controlled by a microprocessor and software contained within the Restraints Control Module (RCM). An airbag indicator in the instrument cluster illuminates for about seven seconds as a bulb test each time the ignition switch is turned to the ON or START positions. Following the bulb test, the airbag indicator is turned ON or OFF by the RCM to indicate the status of the supplemental restraint system. If the airbag indicator comes ON at any time other than during the bulb test, it indicates that there is a problem in the supplemental restraint system electrical circuits. Such a problem may cause airbags not to deploy when required, or to deploy when not required.

Deployment of the supplemental restraints depends upon the angle and severity of an impact. When an impact is severe enough, the microprocessor in the RCM signals the inflator of the appropriate airbag units to deploy their airbag cushions. The front seat belt tensioners are provided with a deployment signal by the RCM in conjunction with the front airbags.

Specifications

Torque Specifications

DESCRIPTION	TORQUE (N·m)
Driver Side Airbag Retaining Bolts	10
Restraints Control Module Retaining Bolts	7-9
Front Passenger Side Airbag Retaining Bolts	10



Special Tools





Electrical Schematics

Airbag Control System (Page 1 of 3)





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Airbag Control System (Page 3 of 3)


PIN	CIRCUIT IDENTIFICATION	PIN	CIRCUIT IDENTIFICATION
1	Driver Seatbelt Pre-tensioner Lo	14	Front Passenger Airbag Lo
2	Driver Seatbelt Pre-tensioner Hi	15	-
3	Front Passenger Seatbelt Pre-tensioner Hi	16	-
4	Front Passenger Seatbelt Pre-tensioner Lo	17	-
5	Ignition Switch	18	-
6	GND	19	-
7	Airbag Lamp	20	-
8	-	21	-
9	Diagnostic Link K	22	-
10	Driver Airbag Lo	23	-
11	Driver Airbag Hi	24	-
12	-	25	-
13	Front Passenger Airbag Hi		

Airbag Control Module Connector Pin-Out Table

DIAGNOSIS & TESTING

Diagnostic Help

- 1. The X-431 scan tool connects to the Data Link Connector (DLC) and communicates with the vehicle electronic modules through the data network.
- 2. Confirm that the malfunction is current and carry-out the diagnostic tests and repair procedures.
- 3. If the DTC cannot be deleted, it is a current fault.
- 4. Use a digital multimeter to perform voltage readings on electronic systems.
- 5. Refer to any Technical Bulletins that may apply to the failure.
- 6. Visually inspect the related wiring harness.
- 7. Inspect and clean all Restraints Control Module (RCM) grounds that are related to DTC.
- 8. If numerous trouble codes were set, use a wiring schematic and look for any common ground circuits or voltage supply circuits that may apply to the DTC.

Intermittent DTC Troubleshooting

If the failure is intermittent perform the following:

- Check for loose connectors.
- Look for any chafed, pierced, pinched, or partially broken wires.
- Monitor the scan tool data relative to this circuit.
- Wiggle the related wiring harness and connectors while looking for an interrupted signal on the affected circuit.
- If possible, try to duplicate the conditions under which the DTC set.
- Look for the data to change or for the DTC to reset during the wiggle test.
- Look for broken, bent, pushed out or corroded terminals.
- Inspect the sensor and mounting area for any condition that would result in an incorrect signal, such as damage, foreign material.
- A data recorder, and/or oscilloscope should be used to help diagnose intermittent conditions.
- Remove the Restraints Control Module (RCM) from the troubled vehicle and install in a new vehicle and test. If the DTC cannot be deleted, the RCM is malfunctioning. If the DTC can be deleted, return the RCM to the original vehicle.

Ground Inspection

Ground connections are very important to the proper operation of electrical and electronic circuits. Ground connections are often exposed to moisture, dirt and other corrosive elements. The corrosion (rust) can become an unwanted resistance. This added resistance can alter the way a circuit works.

Electronically controlled circuits are very sensitive to proper grounding. A loose or corroded ground can drastically affect an electronically controlled circuit. A poor or corroded ground can affect the circuit. Perform the following when inspecting a ground connection:

- 1. Remove the ground bolt or screw.
- 2. Inspect all mating surface for tarnish, dirt, rust, etc.
- 3. Clean as required to assure good contact.
- 4. Reinstall bolt or screw securely.
- 5. Inspect for "add-on" accessories which may be interfering with the ground circuit.
- 6. If several wires are crimped into one ground eyelet terminal, check for proper crimps. Make sure all of the wires are clean, securely fastened and providing a good ground path. If multiple wires are crimped to one eyelet, make sure no excess wire insulation has been crimped creating a bad ground.

Diagnostic Tools

Diagnostic Scan Tool X-431

Read the following when connecting the X-431 scan tool:

- Connect the scan tool to the Data Link Connector (DLC) for communication with the vehicle.
- The DLC is located on the driver side compartment under the steering column (it is attached to the instrument panel and accessible from the driver seat).
- The DLC is rectangular in design and capable of accommodating up to 16 terminals.
- The electrical connector has keying features to allow easy connection.



Airbag Special Load Tool

Use the airbag special load tools to diagnose airbag system faults:

• The airbag special load tools simulates airbag system components.

NOTE :

Using the airbag special load tools will help prevent other airbag DTCs from being set while troubleshooting the system.

Digital Multimeter

Read the following when using the digital multimeter:

- Troubleshoot electrical problems and wiring systems.
- Use a multimeter for basic fault finding and bench testing.
- Use a multimeter to measure voltage, current and resistance.

Diagnostic Trouble Code (DTC) List

Restraints Control Module DTC List

DTC	DTC DEFINITION			
B1101	Battery Voltage High			
B1102	Battery Voltage Low			
B1345	Driver Airbag Open			
B1346	Driver Airbag Resistance Too High (1st Stage)			
B1347	Driver Airbag Resistance Too Low (1st Stage)			
B1348	Driver Airbag Resistance Circuit Short To Ground (1st Stage)			
B1349	Driver Airbag Resistance Circuit Short To Battery (1st Stage)			
B1351	Passenger Airbag Open			
B1352	Passenger Airbag Resistance Too High (1st Stage)			
B1353	Passenger Airbag Resistance Too Low (1st Stage)			
B1354	Passenger Airbag Resistance Circuit Short To Ground (1st Stage)			
B1355	Passenger Airbag Resistance Circuit Short To Battery (1st Stage)			
B1360	Pretensioner Front-Driver Open			
B1361	Pretensioner Front-Driver Resistance Too High			
B1362	Pretensioner Front-Driver Resistance Too Low			
B1363	Pretensioner Front-Driver Resistance Circuit Short To Ground			
B1364	Pretensioner Front-Driver Resistance Circuit Short To Battery			
B1366	Pretensioner Front-Passenger Open			
B1367	Pretensioner Front-Passenger Resistance Too High			
B1368	Pretensioner Front-Passenger Resistance Too Low			
B1369	Pretensioner Front-Passenger Resistance Circuit Short To Ground			
B1370	Pretensioner Front-Passenger Resistance Circuit Short To Battery			
B1406	PPD Front-Passenger Defect			
B1407	PPD Front-Passenger Communication Error			
B1462	Front PPD Open			
B1511	Buckle Switch Driver Open Or Short To Battery			
B1512	Buckle Switch Driver Short Or Short To Ground			
B1513	Buckle Switch Passenger Open Or Short To Battery			
B1514	Buckle Switch Passenger Short Or Short To Ground			



DTC	DTC DEFINITION
B1515	Buckle Switch Driver Defect
B1516	Buckle Switch Passenger Defect
B1527	Passenger Airbag Deactivation Switch Open Or Short To Battery
B1528	Passenger Airbag Deactivation Switch Short Or Short To Ground
B1529	Passenger Airbag Deactivation Switch Defect
B1650	Crash Record In 1st Stage Only (Frontal - Replace ECU)
B1657	Crash Record In Belt Pretensioner Only
B1658	Belt Pretensioner 6 Times Deployment
B1620	Internal Fault - Replace ECU
B2501	Warning Lamp Fault - Open
B2503	Warning Lamp Fault - Short To Ground
B2504	Warning Lamp Fault - Short To Battery
B2505	Passenger Airbag Off Warning Lamp Failure

Diagnostic Trouble Code (DTC) Tests

B1102 - Battery Voltage Low







The Restraints Control Module (RCM) ground pin must be connected to the vehicle chassis in the immediate location of the RCM mounting area.

On Board Diagnostic Logic

• Self-diagnosis detection logic.

DTC NO.	DTC DEFINITION	DTC DETECTION CONDITION	DTC SET CONDITION	POSSIBLE CAUSE
B1102	Battery Voltage Low	Ignition switch: ON	Restraints Control Module (RCM) detected that the battery voltage is excessively low.	 Battery Charge system Harness is open or shorted RCM

DTC Confirmation Procedure:

Before performing the following procedure, confirm that battery voltage is more than 12 V.

- Turn ignition switch off.
- Connect the X-431 scan tool to the Data Link Connector (DLC) use the latest software available.
- Turn ignition switch on.
- With the scan tool, record and erase stored DTCs in the RCM.
- Turn ignition switch off and wait for a few seconds.
- Turn ignition switch on then select view DTC.
- If the DTC is detected, the DTC condition is current. Go to Diagnostic Procedure Step 1.
- If the DTC is not detected, the DTC condition is intermittent (See Diagnostic Help and Intermittent DTC Troubleshooting in Section 14 Restraints for more information).

Diagnostic Guide Lines

Observe the following guide lines while diagnosing this DTC:

- Troubleshoot any Engine Control Module (ECM) charging/cranking DTCs before proceeding.
- If the warning lamp goes out immediately after the warning lamp flashed for 6 7 seconds, this indicates that the system is OK.
- If the warning lamp is on for 6 7 seconds continuously, then goes out, or the warning lamp is on continuously, this indicates that there are history DTCs in the system. Use the Scan Tool to erase the DTCs.
- If any other condition occurs, use the Scan Tool to erase the history DTCs first, then check the warning lamp.
 If the warning lamp does not go out immediately after the warning lamp flashes for 6 7 seconds when using the Scan Tool, erase the history DTCs first.
- In the course of troubleshooting the airbag system, make sure the system power supply is shut off, and wait two minutes for the system capacitor to discharge.
- The squib circuit connectors integrate a "shorting" spring (which prevents the airbag from deploying unintentionally due to static electricity by shorting the positive wire to the negative wire in the squib circuit when the connectors are disconnected). Therefore, if the airbag electrical connector or spiral cable electrical connector is damaged or improperly connected, the shorting spring may not be released when the electrical connector is connected.
- The following tools are required to perform the DTC diagnostic procedure:
 - X-431 Scan Tool
 - Airbag Special Load Tool
 - Digital Multimeter

NOTE :

While performing electrical diagnosis & testing, always refer to the electrical schematics for specific circuit and component information.



Diagnostic Procedure

1. CHECK GROUND CONNECTION

- Turn ignition switch off.
- Disconnect the negative battery cable.
- Loosen and retighten ground screws on the body (See Ground Inspection in Section 14 Restraints for more information).
- Inspect the ground connection C-201 mounting position (See Vehicle Wiring Harness Layout Main Harness in Section 16 Wiring).

Is the ground connection OK?

Yes >> Go to the next step.

No >> Repair or replace ground connection.

2. CHECK RESTRAINTS CONTROL MODULE (RCM) ELECTRICAL CONNECTOR

- Disconnect the Restraints Control Module (RCM) electrical connector (1).
- Inspect the electrical connector for damage.

Is the electrical connector OK?

Yes >> Go to the next step.

No >> Repair or replace the electrical connector as necessary.



3. CHECK RESTRAINTS CONTROL MODULE (RCM) POWER SUPPLY

- Turn ignition switch on.
- Check RCM power supply between terminal 5 and terminal 6 in the RCM electrical connector J-001 terminal side.
- Is the voltage less than 9 V?
- Yes >> Go to step 4.
- No >> Replace the RCM.





4. CHECK SYSTEM VOLTAGE

- Start the engine, raise the engine speed over 1000 RPM.
- Measure the charging voltage with a voltmeter at the battery positive and negative terminals.

Is the voltage less than 9 V?

Yes >> Inspect the charging system.

No >> Go to the next step.

5. CHECK THE BATTERY

- Start the engine, raise the engine speed over 1000 RPM for a few minutes.
- Turn ignition switch off.
- Measure the voltage drop with a voltmeter at the battery positive and negative terminals while cranking the engine.
- Battery voltage should be more than approximate 9.0 V.
- Is the check result normal?
- Yes >> Go to step 6.
- No >> Charge or replace the battery.

6. CHECK RESTRAINTS CONTROL MODULE (RCM) SUPPLY CIRCUIT

- Measure the resistance between RCM terminal 5 and the battery negative connector.
- Continuity should exist.

Is the check result normal?

Yes >> Go to the next step.

No >> Check fuse. Inspect and replace the harness for an open. Check harness connector C-106, J-100. Check correlative components.

7. СНЕСК DTC

- With the X-431 scan tool, read RCM DTCs.
- Refer to "DTC Confirmation Procedure".

Is DTC B1102 still present?

- **Yes** >> Replace the RCM.
- No >> The system is now operating properly. Reassemble the vehicle and road test to verify the customers complaint is repaired.







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The Restraints Control Module (RCM) ground pin must be connected to the vehicle chassis in the immediate location of the RCM mounting area.

WARNING!

After installing the Restraints Control Module (RCM), make sure all of the connectors are firmly connected, and the harness is routed properly. The resistance between the RCM housing and the vehicle body should be less than 100 m Ω .

On Board Diagnostic Logic

• Self-diagnosis detection logic.

DTC NO.	DTC DEFINITION	DTC DETECTION CONDITION	DTC SET CONDITION	POSSIBLE CAUSE
B1346	Driver Airbag Resistance Too High or Open (1st stage)	Ignition switch: ON	Restraints Control Module (RCM) detected that the resistance of RCM connector terminals is out of the specification range.	 Driver airbag module Spiral cable Driver airbag module connector Harness is open between spiral cable and RCM RCM

FIRING LOOP RESISTANCE FOR DRIVER FRONT AIRBAG						
COMPONENT MIN. NOMINAL MAX.						
Squib (Rs)	1.8 Ω	2.0 Ω	2.2 Ω			
Contact Coil (Rc)	0.232 Ω	0.29 Ω	0.348 Ω			
Wiring Harness (Rw)	0 Ω	0 Ω	0.2 Ω			
Connector Terminals (Rt)	0 Ω	0 Ω	0.05 Ω			
Total Resistance	2.032 Ω	2.29 Ω	2.798 Ω			





TEST FOR DRIVER FRONT AIRBAG FIRING LOOP DIAGNOSIS					
RESISTANCE RANGE	DESCRIPTION	FAULT INDICATION			
R(DAB) < 1.06 Ω	Resistance too low or short	Fault definitely detected			
1.80 $\Omega \leq R(DAB) < 4.84 \ \Omega$	Normal	No fault			
7.28 $\Omega \leq R(DAB)$	Resistance too high	Fault definitely detected			
1.06 Ω < R(DAB) < 1.80 Ω 4.84 Ω < R(DAB) < 7.28 Ω	Tolerance	Fault may or may not be detected			

DTC Confirmation Procedure:

Before performing the following procedure, confirm that battery voltage is more than 12 V.

- Turn ignition switch off.
- Connect the X-431 scan tool to the Data Link Connector (DLC) use the latest software available.
- Turn ignition switch on.
- With the scan tool, record and erase stored DTCs in the RCM.
- Turn ignition switch off and wait for a few seconds.
- Turn ignition switch on then select view DTC.
- If the DTC is detected, the DTC condition is current. Go to Diagnostic Procedure Step 1.
- If the DTC is not detected, the DTC condition is intermittent (See Diagnostic Help and Intermittent DTC Troubleshooting in Section 14 Restraints for more information).

Diagnostic Guide Lines

Observe the following guide lines while diagnosing this DTC:

- Troubleshoot any Engine Control Module (ECM) charging/cranking DTCs before proceeding.
- If the warning lamp goes out immediately after the warning lamp flashed for 6 7 seconds, this indicates that the system is OK.
- If the warning lamp is on for 6 7 seconds continuously, then goes out, or the warning lamp is on continuously, this indicates that there are history DTCs in the system. Use the Scan Tool to erase the DTCs.
- If any other condition occurs, use the Scan Tool to erase the history DTCs first, then check the warning lamp. If the warning lamp does not go out immediately after the warning lamp flashes for 6 7 seconds when using the Scan Tool, erase the history DTCs first.
- In the course of troubleshooting the airbag system, make sure the system power supply is shut off, and wait two minutes for the system capacitor to discharge.
- The squib circuit connectors integrate a "shorting" spring (which prevents the airbag from deploying unintentionally due to static electricity by shorting the positive wire to the negative wire in the squib circuit when the connectors are disconnected). Therefore, if the airbag electrical connector or spiral cable electrical connector is damaged or improperly connected, the shorting spring may not be released when the electrical connector is connected.
- The following tools are required to perform the DTC diagnostic procedure:
 - X-431 Scan Tool
 - Airbag Special Load Tool
 - Digital Multimeter

NOTE :

While performing electrical diagnosis & testing, always refer to the electrical schematics for specific circuit and component information.



Diagnostic Procedure

1. СНЕСК ВСМ ДТС

• Perform the DTC confirmation procedure.

Is DTC B1346 present?

- Yes >> Go to the next step.
- No >> Go to Step 6.

2. CHECK DRIVER AIRBAG MODULE

- Turn ignition switch off.
- Disconnect the negative battery cable.

WARNING!

To avoid serious or fatal injury, turn ignition switch off, disconnect the negative battery cable and wait two minutes before proceeding.

• Disconnect the driver airbag module electrical connector J-003.

NOTE :

Check connectors - Clean and repair as necessary.

• Connect the airbag special load tool to the spiral cable side of the vehicle harness (connect the special tool resistor (2 ohms) in place of the passenger airbag module).

WARNING!

To avoid serious or fatal injury, the driver airbag module should not be checked with a multimeter.

NOTE :

If the airbag special load tool is not available, connect a known good driver airbag module.

• Connect the negative battery cable.

WARNING!

To avoid serious or fatal injury, reconnect the battery, then turn ignition switch on.

- Turn ignition switch on.
- With the scan tool, erase the DTC in the RCM.
- Turn ignition switch off, and wait a few seconds, then turn ignition switch on.
- With the scan tool, read the RCM DTCs

Is DTC B1346 present?

Yes >> Go to the next step.

No >> Replace the driver airbag module (See Driver Airbag Module Removal & Installation in Section 14 Restraints). Reassemble the vehicle and road test to verify the customers complaint is repaired.

3. CHECK DRIVER AIRBAG MODULE CONTROL CIRCUITS

WARNING!

To avoid serious or fatal injury, turn the ignition switch off, disconnect the negative battery cable and wait two minutes before proceeding.



- Disconnect the airbag special load tool.
- Disconnect the RCM connector J-001 (1) (See Restraints Control Module (RCM) Removal & Installation in Section 14 Restraints).
- Disconnect the spiral cable electrical connector J-005.

Check connectors - Clean and repair as necessary.

- Check the harness for continuity of the driver airbag circuit between terminal 10 in the RCM electrical connector J-001 terminal side and terminal 1 in the spiral cable electrical connector J-005 terminal side.
- Continuity should exist.



CHECK CONTINUITY					
SPIRAL CABLE TERMINAL	RCM TERMINAL	CONTINUITY			
1	10	Yes	ttsmd140002		

- Check the harness for continuity of the driver airbag circuit between terminal 11 in the RCM electrical connector J-001 and terminal 2 in the spiral cable electrical connector J-005 terminal side.
- Continuity should exist.

CHECK CONTINUITY					
SPIRAL CABLE TERMINAL	RCM TERMINAL	CONTINUITY			
			25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1		
2	11	Yes	[] → → → → ↓ → ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓		

• The resistance should be less than 0.2 $\Omega.$

Is the check result normal?

- Yes >> Go to the next step.
- No >> Replace the cable.



4. CHECK DRIVER AIRBAG MODULE CONTROL CIRCUITS

WARNING!

To avoid serious or fatal injury, turn the ignition switch off, disconnect the negative battery cable and wait two minutes before proceeding.

• Disconnect the driver airbag module connectors.

NOTE :

Check connectors - Clean and repair as necessary.

- Check the harness for continuity of the driver airbag circuit between terminal 1 in the driver airbag module electrical connector J-003 and terminal 1 in the spiral cable electrical connector J-005 terminal side.
- Continuity should exist.



- Check the harness for continuity of the driver airbag circuit between the driver airbag module electrical connector terminal 2 and the spiral cable electrical connector terminal 2.
- Continuity should exist.

CHECK CONTINUITY					
SPIRAL CABLE TERMINAL	DRIVER AIRBAG MODULE TERMINAL	CONTINUITY			
2	2	Yes	l ⊕ Itsmd140005		

Is the check result normal?

Yes >> Go to the next step.

No >> Replace the spiral cable.



5. CHECK CONNECTORS

NOTE :

Diagnose and repair all active codes before diagnosing stored codes (See Restraints Control Module DTC List in Section 14 Restraints).

- With the scan tool, record and erase all RCM DTCs.
- Using the electrical schematic as a guide, inspect the following:
 - Inspect the wiring and connectors of the related airbag system.
 - Look for any chafed, pierced, pinched, or partially broken wires.
 - Look for broken, bent, pushed out or corroded terminals.
 - Verify that there is good pin to terminal contact in the related connectors.

Were any problems found?

Yes >> Repair as necessary.

No >> Go to the next step.

6. снеск отс

- Reconnect all disconnected components and harness connectors.
- With the X-431 scan tool, read RCM DTCs.
- Refer to "DTC Confirmation Procedure".

Is DTC B1346 still present?

- **Yes** >> Replace the RCM.
- No >> The system is now operating properly. Reassemble the vehicle and road test to verify the customers complaint is repaired.







CHERY

The Restraints Control Module (RCM) ground pin must be connected to the vehicle chassis in the immediate location of the RCM mounting area.

WARNING!

After installing the Restraints Control Module (RCM), make sure all of the connectors are firmly connected, and the harness is routed properly. The resistance between the RCM housing and the vehicle body should be less than 100 m Ω .

On Board Diagnostic Logic

• Self-diagnosis detection logic.

DTC NO.	DTC DEFINITION	DTC DETECTION CONDITION	DTC SET CONDITION	POSSIBLE CAUSE
B1352	Passenger Airbag Resistance Too High Or Open (1st Stage)	Ignition switch: ON	Restraints Control Module (RCM) detected that the resistance of RCM connector terminals is out of the specification range.	 Passenger airbag module Spiral cable Passenger airbag module connector Harness is open between passenger airbag module and RCM RCM

FIRING LOOP RESISTANCE FOR PASSENGER FRONT AIRBAG					
COMPONENT	MIN.	NOMINAL	MAX.		
Squib (Rs)	1.7 Ω	2.0 Ω	2.3 Ω		
Wiring Harness (Rw)	0 Ω	0 Ω	0.2 Ω		
Connector Terminals (Rt)	0 Ω	0 Ω	0.05 Ω		
Total Resistance	1.7 Ω	2.0 Ω	2.55 Ω		

TEST FOR PASSENGER FRONT AIRBAG FIRING LOOP DIAGNOSIS				
RESISTANCE RANGE: R(DAB) = Rs + Rt + Rw	DESCRIPTION	FAULT INDICATION		
R(DAB) < 0.4 Ω	Resistance too low or short to GND	Fault definitely detected		
1.60 $\Omega \leq R(DAB) < 4.84 \ \Omega$	Normal	No fault		
7.28 $\Omega \leq R(DAB)$	Resistance too high	Fault definitely detected		
0.4 Ω < R(DAB) < 1.60 Ω 4.84 Ω < R(DAB) < 7.28 Ω	Tolerance	Fault may or may not be detected		





DTC Confirmation Procedure:

Before performing the following procedure, confirm that battery voltage is more than 12 V.

- Turn ignition switch off.
- Connect the X-431 scan tool to the Data Link Connector (DLC) use the latest software available.
- Turn ignition switch on.
- With the scan tool, record and erase stored DTCs in the RCM.
- Turn ignition switch off and wait for a few seconds.
- Turn ignition switch on then select view DTC.
- If the DTC is detected, the DTC condition is current. Go to Diagnostic Procedure Step 1.
- If the DTC is not detected, the DTC condition is intermittent (See Diagnostic Help and Intermittent DTC Troubleshooting in Section 14 Restraints for more information).

Diagnostic Guide Lines

Observe the following guide lines while diagnosing this DTC:

- Troubleshoot any Engine Control Module (ECM) charging/cranking DTCs before proceeding.
- If the warning lamp goes out immediately after the warning lamp flashed for 6 7 seconds, this indicates that the system is OK.
- If the warning lamp is on for 6 7 seconds continuously, then goes out, or the warning lamp is on continuously, this indicates that there are history DTCs in the system. Use the Scan Tool to erase the DTCs.
- If any other condition occurs, use the Scan Tool to erase the history DTCs first, then check the warning lamp. If the warning lamp does not go out immediately after the warning lamp flashes for 6 7 seconds when using the Scan Tool, erase the history DTCs first.
- In the course of troubleshooting the airbag system, make sure the system power supply is shut off, and wait two minutes for the system capacitor to discharge.
- The squib circuit connectors integrate a "shorting" spring (which prevents the airbag from deploying unintentionally due to static electricity by shorting the positive wire to the negative wire in the squib circuit when the connectors are disconnected). Therefore, if the airbag electrical connector or spiral cable electrical connector is damaged or improperly connected, the shorting spring may not be released when the electrical connector is connected.
 - The following tools are required to perform the DTC diagnostic procedure:
 - X-431 Scan Tool
 - Airbag Special Load Tool
 - Digital Multimeter

NOTE :

While performing electrical diagnosis & testing, always refer to the electrical schematics for specific circuit and component information.



Diagnostic Procedure

1. СНЕСК ВСМ ДТС

• With the scan tool X-431, view DTCs in the RCM.

Is DTC B1352 present?

- Yes >> Go to the next step.
- No >> Go to step 6.

2. CHECK FRONT PASSENGER AIRBAG MODULE

- Turn ignition switch off.
- Disconnect the negative battery cable.

WARNING!

To avoid serious or fatal injury, turn ignition switch off, disconnect the negative battery cable and wait two minutes before proceeding.

• Disconnect the passenger airbag module electrical connector.

NOTE :

Check connectors - Clean and repair as necessary.

- Connect the airbag special load tool to the spiral cable side of the vehicle harness (connect the special tool resistor (2 Ω) in place of the passenger airbag module).
- Connect the negative battery cable.

WARNING!

To avoid serious or fatal injury, the passenger airbag module should not be check by multimeter.

NOTE :

If the airbag special load tool is not available, connect a known good passenger airbag module.

WARNING!

To avoid serious or fatal injury, reconnect the battery, then turn ignition switch on.

- Turn ignition switch on.
- With the scan tool, erase the DTC memory.
- Turn ignition switch off, and wait a few seconds, then turn ignition switch on.
- With the scan tool, read the RCM DTCs

Is DTC B1352 present?

Yes >> Go to the next step.

No >> Replace the passenger airbag module (See Passenger Airbag Module Removal & Installation in Section 14 Restraints). Reassemble the vehicle and road test to verify the customers complaint is repaired.

3. CHECK PASSENGER AIRBAG MODULE CONTROL CIRCUITS

WARNING!

To avoid serious or fatal injury, turn ignition switch off, disconnect the negative battery cable and wait two minutes before proceeding.



- Disconnect the airbag special load tool.
- Disconnect the RCM connector (1) (See Restraints Control Module (RCM) Removal & Installation in Section 14 Restraints).

Check connectors - Clean and repair as necessary.

- Check the harness for continuity of the passenger airbag circuit between terminal 13 in the RCM electrical connector J-001 terminal side and terminal 1 in the passenger airbag electrical connector J-002 terminal side.
- Continuity should exist.



CHECK CONTINUITY				
FRONT PASSENGER AIRBAG TERMINAL	RCM TERMINAL	CONTINUITY		
1	13	Yes	Lt ⊖ Itsmd140006	

- Check the harness for continuity of the passenger airbag circuit between terminal 14 in the RCM electrical connector J-001 terminal side and terminal 2 in the passenger airbag electrical connector J-002 terminal side.
- Continuity should exist.

CHECK CONTINUITY					
FRONT PASSENGER AIRBAG TERMINAL	RCM TERMINAL	CONTINUITY			
2	14	Yes	L↓ ⊖Itsmd140007		

Is the check result normal?

Yes >> Go to the next step.

No >> Replace the spiral cable.



4. CHECK CONNECTORS

NOTE :

Diagnose and repair all active codes before diagnosing stored codes (See Restraints Control Module DTC List in Section 14 Restraints).

- With the scan tool, record and erase all RCM DTCs.
- Using the electrical schematic as a guide, inspect the following:
 - Inspect the wiring and connectors of the related airbag system.
 - Look for any chafed, pierced, pinched, or partially broken wires.
 - Look for broken, bent, pushed out or corroded terminals.
 - Verify that there is good pin to terminal contact in the related connectors.

Were any problems found?

Yes >> Repair as necessary.

No >> Go to the next step.

5. снеск отс

- Reconnect all disconnected components and harness connectors.
- With the X-431 scan tool, read RCM DTCs.
- Refer to "DTC Confirmation Procedure".

Is DTC B1352 still present?

- **Yes** >> Replace the RCM.
- No >> The system is now operating properly. Reassemble the vehicle and road test to verify the customers complaint is repaired.





CHERY



The Restraints Control Module (RCM) ground pin must be connected to the vehicle chassis in the immediate location of the RCM mounting area.

WARNING!

After installing the Restraints Control Module (RCM), make sure all of the connectors are firmly connected, and the harness is routed properly. The resistance between the RCM housing and the vehicle body should be less than 100 m Ω .

On Board Diagnostic Logic

• Self-diagnosis detection logic.

DTC NO.	DTC DEFINITION	DTC DETECTION CONDITION	DTC SET CONDITION	POSSIBLE CAUSE
B2501	Warning Lamp Fault - Open	Ignition switch: ON	This DTC will set if the airbag warning lamp driver circuit is shorted to ground or open between the airbag warning lamp and the Restraints Control Module (RCM).	 Instrument cluster Harness is open between instrument cluster and RCM RCM

DTC Confirmation Procedure:

Before performing the following procedure, confirm that battery voltage is more than 12 V.

- Turn ignition switch off.
- Connect the X-431 scan tool to the Data Link Connector (DLC) use the latest software available.
- Turn ignition switch on.
- With the scan tool, record and erase stored DTCs in the RCM.
- Turn ignition switch off and wait for a few seconds.
- Turn ignition switch on then select view DTC.
- If the DTC is detected, the DTC condition is current. Go to Diagnostic Procedure Step 1.
- If the DTC is not detected, the DTC condition is intermittent (See Diagnostic Help and Intermittent DTC Troubleshooting in Section 14 Restraints for more information).

Diagnostic Guide Lines

Observe the following guide lines while diagnosing this DTC:

- Troubleshoot any Engine Control Module (ECM) charging/cranking DTCs before proceeding.
- If the warning lamp goes out immediately after the warning lamp flashed for 6 7 seconds, this indicates that the system is OK.
- If the warning lamp is on for 6 7 seconds continuously, then goes out, or the warning lamp is on continuously, this indicates that there are history DTCs in the system. Use the Scan Tool to erase the DTCs.
- If any other condition occurs, use the Scan Tool to erase the history DTCs first, then check the warning lamp. If the warning lamp does not go out immediately after the warning lamp flashes for 6 7 seconds when using the Scan Tool, erase the history DTCs first.
- In the course of troubleshooting the airbag system, make sure the system power supply is shut off, and wait two minutes for the system capacitor to discharge.
- The squib circuit connectors integrate a "shorting" spring (which prevents the airbag from deploying unintentionally due to static electricity by shorting the positive wire to the negative wire in the squib circuit when the connectors are disconnected). Therefore, if the airbag electrical connector or spiral cable electrical connector is damaged or improperly connected, the shorting spring may not be released when the electrical connector is connected.
- The following tools are required to perform the DTC diagnostic procedure:
 - X-431 Scan Tool
 - Airbag Special Load Tool
 - Digital Multimeter



While performing electrical diagnosis & testing, always refer to the electrical schematics for specific circuit and component information.

Diagnostic Procedure

1. СНЕСК ВСМ ДТС

- Connect the X-431 scan tool to the Data Link Connector (DLC) use the most current software available.
- Turn the ignition switch on, with the scan tool, view and erase stored DTCs in the RCM.
- Turn the ignition switch off, and wait a few seconds, then turn the ignition switch on.
- Wait one minute, and with the scan tool, view active DTCs in the RCM.

Is DTC B2501 present?

Yes >> Go to the next step.

No >> Go to step 5.

2. CHECK WARNING LAMP

- Turn ignition switch off, and wait a few seconds, then turn ignition switch on.
- Observe the airbag warning lamp.

Is the airbag warning lamp not illuminated with the ignition switch ON?

Yes >> Go to the next step.

No >> Go to step 4.

3. CHECK WARNING LAMP CIRCUITS

WARNING!

To avoid serious or fatal injury, turn ignition switch off, disconnect the negative battery cable and wait two minutes before proceeding.

- Disconnect the RCM electrical connector (1) (See Restraints Control Module (RCM) Removal & Installation in Section 14 Restraints).
- Disconnect the instrument cluster electrical connector.
- Disconnect the front fuse and relay box electrical connector B14.

NOTE :

Check connectors - Clean and repair as necessary.

- Check fuse F6.
- Measure the following circuits with a digital multimeter:
 - Harness connector C-106, J-100.

- Harness for an open between the front fuse and relay box electrical connector (terminal B4, B14) and instrument cluster C-001 (terminal 11 and 13).
 Harness for open between the instrument cluster C-001 (terminal 17) and RCM electrical connector J-001
- (terminal 7).
 Check the harness for continuity.



• Continuity should exist.

Is the check result normal?

Yes >> Replace the instrument cluster. If DTC is still present, Go to the next step.

No >> Repair the harness wires between the RCM electrical connector J-001 (terminal 7) and instrument cluster C-001 (terminal 17) and the harness wires between combination meter C-001 (terminal 13) and front fuse and relay box electrical connector (terminal B14) for an open.

4. CHECK CONNECTORS

NOTE :

Diagnose and repair all active codes before diagnosing stored codes (See Restraints Control Module DTC List in Section 14 Restraints).

- With the scan tool, record and erase all RCM DTCs.
- Using the electrical schematic as a guide, inspect the following:
 - Inspect the wiring and connectors of the related airbag system.
 - Look for any chafed, pierced, pinched, or partially broken wires.
 - Look for broken, bent, pushed out or corroded terminals.
 - Verify that there is good pin to terminal contact in the related connectors.

Were any problems found?

- Yes >> Repair as necessary.
- No >> Go to the next step.

5. снеск отс

- Reconnect all disconnected components and harness connectors.
- With the X-431 scan tool, read RCM DTCs.
- Refer to "DTC Confirmation Procedure".

Is DTC B2501 still present?

Yes >> Replace the RCM.

No >> The system is now operating properly. Reassemble the vehicle and road test to verify the customers complaint is repaired.





CHERY



The Restraints Control Module (RCM) ground pin must be connected to the vehicle chassis in the immediate location of the RCM mounting area.

WARNING!

After installing the Restraints Control Module (RCM), make sure all of the connectors are firmly connected, and the harness is routed properly. The resistance between the RCM housing and the vehicle body should be less than 100 m Ω .

On Board Diagnostic Logic

• Self-diagnosis detection logic.

DTC NO.	DTC DEFINITION	DTC DETECTION CONDITION	DTC SET CONDITION	POSSIBLE CAUSE
B2503	Warning Lamp Fault - Short To Ground	Ignition switch: ON	This DTC will set if the airbag warning lamp driver circuit is shorted to ground between the airbag warning lamp and the Restraints Control Module (RCM).	 Instrument cluster Harness is shorted to ground between instrument cluster and RCM RCM

DTC Confirmation Procedure:

Before performing the following procedure, confirm that battery voltage is more than 12 V.

- Turn ignition switch off.
- Connect the X-431 scan tool to the Data Link Connector (DLC) use the latest software available.
- Turn ignition switch on.
- With the scan tool, record and erase stored DTCs in the RCM.
- Turn ignition switch off and wait for a few seconds.
- Turn ignition switch on then select view DTC.
- If the DTC is detected, the DTC condition is current. Go to Diagnostic Procedure Step 1.
- If the DTC is not detected, the DTC condition is intermittent (See Diagnostic Help and Intermittent DTC Troubleshooting in Section 14 Restraints for more information).

Diagnostic Guide Lines

Observe the following guide lines while diagnosing this DTC:

- Troubleshoot any Engine Control Module (ECM) charging/cranking DTCs before proceeding.
- If the warning lamp goes out immediately after the warning lamp flashed for 6 7 seconds, this indicates that the system is OK.
- If the warning lamp is on for 6 7 seconds continuously, then goes out, or the warning lamp is on continuously, this indicates that there are history DTCs in the system. Use the Scan Tool to erase the DTCs.
- If any other condition occurs, use the Scan Tool to erase the history DTCs first, then check the warning lamp. If the warning lamp does not go out immediately after the warning lamp flashes for 6 7 seconds when using the Scan Tool, erase the history DTCs first.
- In the course of troubleshooting the airbag system, make sure the system power supply is shut off, and wait two minutes for the system capacitor to discharge.
- The squib circuit connectors integrate a "shorting" spring (which prevents the airbag from deploying unintentionally due to static electricity by shorting the positive wire to the negative wire in the squib circuit when the connectors are disconnected). Therefore, if the airbag electrical connector or spiral cable electrical connector is damaged or improperly connected, the shorting spring may not be released when the electrical connector is connected.
- The following tools are required to perform the DTC diagnostic procedure:
 - X-431 Scan Tool
 - Airbag Special Load Tool
 - Digital Multimeter



While performing electrical diagnosis & testing, always refer to the electrical schematics for specific circuit and component information.

Diagnostic Procedure

1. СНЕСК ВСМ ДТС

- Connect the X-431 scan tool to the Data Link Connector (DLC) use the most current software available.
- Turn the ignition switch on, with the scan tool, view and erase stored DTCs in the RCM.
- Turn the ignition switch off, and wait a few seconds, then turn the ignition switch on.
- Wait one minute, and with the scan tool, view active DTCs in the RCM.

Is DTC B2503 present?

Yes >> Go to the next step.

No >> Go to step 5.

2. CHECK WARNING LAMP

- Turn ignition switch off, and wait a few seconds, then turn ignition switch on.
- Observe the airbag warning lamp.

Is the airbag warning lamp illuminated constantly with the ignition ON?

Yes >> Go to the next step.

No >> Go to step 4.

3. CHECK WARNING LAMP CIRCUITS

WARNING!

To avoid serious or fatal injury, turn ignition switch off, disconnect the negative battery cable and wait two minutes before proceeding.

- Disconnect the RCM electrical connector (1) (See Restraints Control Module (RCM) Removal & Installation in Section 14 Restraints).
- Disconnect the instrument cluster electrical connector.
- Disconnect the front fuse and relay box electrical connector B14.

NOTE :

Check connectors - Clean and repair as necessary.

- · Check fuse F6.
- Measure the following circuits with a digital multimeter:
 - Harness for a short to ground between the front fuse and relay box electrical connector (terminal B14) and instrument cluster C-001 (terminal 13).
- - Harness for a short to ground between the instrument cluster C-001 (terminal 17) and RCM electrical connector J-001 (terminal 7).
 - Harness connector C-106, J-100.



• The harness continuity between the front fuse and relay box electrical connector (terminal B14) and RCM electrical connector J-001 (terminal 7) should not exists.

Is the check result normal?

- Yes >> Replace the instrument cluster. If DTC is still present, go the next step.
- No >> Repair the harness between the RCM electrical connector J-001 (terminal 7) and instrument cluster C-001 (terminal 17) and the harness between combination meter C-001 (terminal 13) and front fuse and relay box electrical connector (terminal B14) for an short to ground.

4. CHECK CONNECTORS

NOTE :

Diagnose and repair all active codes before diagnosing stored codes (See Restraints Control Module DTC List in Section 14 Restraints).

- With the scan tool, record and erase all RCM DTCs.
- Using the electrical schematic as a guide, inspect the following:
 - Inspect the wiring and connectors of the related airbag system.
 - Look for any chafed, pierced, pinched, or partially broken wires.
 - Look for broken, bent, pushed out or corroded terminals.
 - Verify that there is good pin to terminal contact in the related connectors.

Were any problems found?

Yes >> Repair as necessary.

No >> Go to the next step.

5. снеск отс

- Reconnect all disconnected components and harness connectors.
- With the X-431 scan tool, read RCM DTCs.
- Refer to "DTC Confirmation Procedure".

Is DTC B2503 still present?

No >> The system is now operating properly. Reassemble the vehicle and road test to verify the customers complaint is repaired.



Yes >> Replace the RCM.



CHERY



The Restraints Control Module (RCM) ground pin must be connected to the vehicle chassis in the immediate location of the RCM mounting area.

WARNING!

After installing the Restraints Control Module (RCM), make sure all of the connectors are firmly connected, and the harness is routed properly. The resistance between the RCM housing and the vehicle body should be less than 100 m Ω .

On Board Diagnostic Logic

• Self-diagnosis detection logic.

DTC NO.	DTC DEFINITION	DTC DETECTION CONDITION	DTC SET CONDITION	POSSIBLE CAUSE
B2504	Warning lamp fault - short to battery	Ignition switch: ON	This DTC will set if the airbag warning lamp driver circuit is shorted to ground or open between the airbag warning lamp and the Restraints Control Module (RCM).	 Instrument cluster Harness is open between instrument cluster and RCM RCM

DTC Confirmation Procedure:

Before performing the following procedure, confirm that battery voltage is more than 12 V.

- Turn ignition switch off.
- Connect the X-431 scan tool to the Data Link Connector (DLC) use the latest software available.
- Turn ignition switch on.
- With the scan tool, record and erase stored DTCs in the RCM.
- Turn ignition switch off and wait for a few seconds.
- Turn ignition switch on then select view DTC.
- If the DTC is detected, the DTC condition is current. Go to Diagnostic Procedure Step 1.
- If the DTC is not detected, the DTC condition is intermittent (See Diagnostic Help and Intermittent DTC Troubleshooting in Section 14 Restraints for more information).

Diagnostic Guide Lines

Observe the following guide lines while diagnosing this DTC:

- Troubleshoot any Engine Control Module (ECM) charging/cranking DTCs before proceeding.
- If the warning lamp goes out immediately after the warning lamp flashed for 6 7 seconds, this indicates that the system is OK.
- If the warning lamp is on for 6 7 seconds continuously, then goes out, or the warning lamp is on continuously, this indicates that there are history DTCs in the system. Use the Scan Tool to erase the DTCs.
- If any other condition occurs, use the Scan Tool to erase the history DTCs first, then check the warning lamp. If the warning lamp does not go out immediately after the warning lamp flashes for 6 7 seconds when using the Scan Tool, erase the history DTCs first.
- In the course of troubleshooting the airbag system, make sure the system power supply is shut off, and wait two minutes for the system capacitor to discharge.
- The squib circuit connectors integrate a "shorting" spring (which prevents the airbag from deploying unintentionally due to static electricity by shorting the positive wire to the negative wire in the squib circuit when the connectors are disconnected). Therefore, if the airbag electrical connector or spiral cable electrical connector is damaged or improperly connected, the shorting spring may not be released when the electrical connector is connected.
- The following tools are required to perform the DTC diagnostic procedure:
 - X-431 Scan Tool
 - Airbag Special Load Tool
 - Digital Multimeter



While performing electrical diagnosis & testing, always refer to the electrical schematics for specific circuit and component information.

Diagnostic Procedure

1. CHECK RCM DTC

• Perform the DTC confirmation procedure.

Is DTC B2504 present?

Yes >> Go to the next step.

No >> Go to step 5.

2. CHECK WARNING LAMP

• Turn ignition switch off, and wait a few seconds, then turn ignition switch on.

• Observe SRS warning lamp.

Is the SRS warning lamp not illuminated with ignition switch ON?

Yes >> Go to the next step.

No >> Go to step 4.

3. CHECK WARNING LAMP CIRCUITS

WARNING!

To avoid serious or fatal injury, turn ignition switch off, disconnect the negative battery cable and wait two minutes before proceeding.

- Disconnect the RCM electrical connector (1) (See Restraints Control Module (RCM) Removal & Installation in Section 14 Restraints).
- Disconnect the instrument cluster electrical connector.
- Disconnect the front fuse and relay box electrical connector B14.

NOTE :

Check connectors - Clean and repair as necessary.

- Check fuse F6.
- Measure the following circuits with a digital multimeter:
 - Harness connector C-106, J-100.
- Harness for short to battery between the instrument cluster C-001 (terminal 17) and RCM electrical connector J-001 (terminal 7).

Is the voltage present?

Yes >> Repair the harness wires between the RCM electrical connector J-001 (terminal 7) and instrument cluster C-001 (terminal 17) and the harness wires between combination meter C-001 (terminal 13) and front fuse and relay box electrical connector (terminal B14) for an short to battery.

No >> Replace the instrument cluster.

If DTC is still present, go to the next step.



4. CHECK CONNECTORS

NOTE :

Diagnose and repair all active codes before diagnosing stored codes (See Restraints Control Module DTC List in Section 14 Restraints).

- With the scan tool, record and erase all RCM DTCs.
- Using the electrical schematic as a guide, inspect the following:
 - Inspect the wiring and connectors of the related airbag system.
 - Look for any chafed, pierced, pinched, or partially broken wires.
 - Look for broken, bent, pushed out or corroded terminals.
 - Verify that there is good pin to terminal contact in the related connectors.

Were any problems found?

- Yes >> Repair as necessary.
- No >> Go to the next step.

5. снеск отс

- Reconnect all disconnected components and harness connectors.
- With the X-431 scan tool, read RCM DTCs.
- Refer to "DTC Confirmation Procedure".

Is DTC B2504 still present?

- **Yes** >> Replace the RCM.
- No >> The system is now operating properly. Reassemble the vehicle and road test to verify the customers complaint is repaired.



CHERY




On Board Diagnostic Logic

• Self-diagnosis detection logic.

DTC NO.	DTC DEFINITION	DTC DETECTION CONDITION	DTC SET CONDITION	POSSIBLE CAUSE
B1620	Internal Fault - Replace ECU	Ignition switch on	Restraints Control Module (RCM) detected an internal failure.	• RCM

DTC Confirmation Procedure:

Before performing the following procedure, confirm that battery voltage is more than 12 V.

- Turn ignition switch off.
- Connect the X-431 scan tool to the Data Link Connector (DLC) use the latest software available.
- Turn ignition switch on.
- With the scan tool, record and erase stored DTCs in the RCM.
- Turn ignition switch off and wait for a few seconds.
- Turn ignition switch on then select view DTC.
- If the DTC is detected, the DTC condition is current. Go to Diagnostic Procedure Step 1.
- If the DTC is not detected, the DTC condition is intermittent (See Diagnostic Help and Intermittent DTC Troubleshooting in Section 14 Restraints for more information).

Diagnostic Guide Lines

Observe the following guide lines while diagnosing this DTC:

- Troubleshoot any Engine Control Module (ECM) charging/cranking DTCs before proceeding.
- If the warning lamp goes out immediately after the warning lamp flashed for 6 7 seconds, this indicates that the system is OK.
- If the warning lamp is on for 6 7 seconds continuously, then goes out, or the warning lamp is on continuously, this indicates that there are history DTCs in the system. Use the Scan Tool to erase the DTCs.
- If any other condition occurs, use the Scan Tool to erase the history DTCs first, then check the warning lamp. If the warning lamp does not go out immediately after the warning lamp flashes for 6 7 seconds when using the Scan Tool, erase the history DTCs first.
- In the course of troubleshooting the airbag system, make sure the system power supply is shut off, and wait two minutes for the system capacitor to discharge.
- The squib circuit connectors integrate a "shorting" spring (which prevents the airbag from deploying unintentionally due to static electricity by shorting the positive wire to the negative wire in the squib circuit when the connectors are disconnected). Therefore, if the airbag electrical connector or spiral cable electrical connector is damaged or improperly connected, the shorting spring may not be released when the electrical connector is connected.
 - The following tools are required to perform the DTC diagnostic procedure:
 - X-431 Scan Tool
 - Airbag Special Load Tool
 - Digital Multimeter

NOTE :

While performing electrical diagnosis & testing, always refer to the electrical schematics for specific circuit and component information.



Diagnostic Procedure

1. СНЕСК DTC

• Perform the DTC confirmation procedure.

Is DTC B1620 present?

Yes >> Go to the next step.

No >> The condition that caused this DTC to set is currently not present (See Diagnostic Help and Intermittent DTC Troubleshooting in Section 14 Restraints for more information).

2. CHECK GROUND CONNECTION

- Turn ignition switch off.
- Disconnect the negative battery cable.
- Loosen and retighten ground screws on the body (See Ground Inspection in Section 14 Restraints for more information).
- Inspect the ground connection C-201 mounting position (See Vehicle Wiring Harness Layout Main Harness in Section 16 Wiring).

Is the ground connection OK?

Yes >> Go to the next step.

No >> Repair or replace ground connection.

3. CHECK RESTRAINTS CONTROL MODULE (RCM) ELECTRICAL CONNECTOR

- Disconnect the Restraints Control Module (RCM) electrical connector (1).
- Inspect the electrical connector for damage.

Is the electrical connector OK?

Yes >> Go to the next step.

No >> Repair or replace the electrical connector as necessary.





4. CHECK RESTRAINTS CONTROL MODULE (RCM) POWER SUPPLY

- Turn ignition switch on.
- Check RCM power supply between terminal 5 and terminal 6 in the RCM electrical connector J-001 terminal side.

Is the voltage less than 9 V?

- Yes >> Go to step 5.
- No >> Replace the RCM.



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- With the X-431 scan tool, read RCM DTCs.
- Refer to "DTC Confirmation Procedure".

Is DTC B1620 still present?

- **Yes** >> Replace the RCM.
- No >> The system is now operating properly. Reassemble the vehicle and road test to verify the customers complaint is repaired.



ON-VEHICLE SERVICE

Airbag System Disarming Procedure

Description

WARNING!

The steering column contains the driver's airbag. The airbag system is a sensitive, complex electro-mechanical unit. Before attempting to diagnose, remove or install the airbag system components, you must first disconnect and isolate the negative battery (ground) cable. Then wait two minutes for the system capacitor to discharge. Failure to do so could result in accidental deployment of the airbag and possible personal injury. The fasteners, screws, and bolts, originally used for the airbag components, have special coatings and are specifically designed for the airbag system. They must never be replaced with any substitutes. Anytime a new fastener is needed, replace with the correct fasteners provided in the service package or fasteners listed in the parts books.

- 1. Turn the ignition off.
- 2. Disconnect and isolate the negative battery cable.
- 3. Wait two minutes for the system capacitor to discharge.
- 4. The airbag system can now be serviced safely.

Driver Side Airbag

Removal & Installation

- 1. Turn the ignition off.
- 2. Disconnect the negative battery cable.

WARNING!

Wait two minutes for the airbag system reserve capacitor to discharge before beginning any airbag system or component service. Failure to do so may result in accidental airbag development, serious or fatal injury (See Airbag System Disarming Procedure in Section 14 Restraints).

 Remove the two driver side airbag retaining bolts (1). (Tighten: Driver side airbag retaining bolts to 10 N·m)



- 4. Remove the driver side airbag and disconnect the airbag squib electrical connector.
- 5. Installation is in the reverse order of removal.

Front Passenger Side Airbag

Removal & Installation

- 1. Turn the ignition off.
- 2. Disconnect the negative battery cable.

WARNING!

Wait two minutes for the airbag system reserve capacitor to discharge before beginning any airbag system or component service. Failure to do so may result in accidental airbag development, serious or fatal injury (See Airbag System Disarming Procedure in Section 14 Restraints).

3. Remove the two glove box mounting bolts (1).



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 Remove the front passenger side airbag mounting bolts (1). (Tighten: Front passenger side airbag mounting bolts to 10 N·m)



- 5. Disconnect the front passenger side airbag squib electrical connector.
- 6. Remove the front passenger side airbag from the vehicle.
- 7. Installation is in the reverse order of removal.



Restraints Control Module (RCM)

Removal & Installation

- 1. Turn the ignition off.
- 2. Disconnect the negative battery cable.

WARNING!

Wait two minutes for the airbag system reserve capacitor to discharge before beginning any airbag system or component service. Failure to do so may result in accidental airbag development, serious or fatal injury (See Airbag System Disarming Procedure in Section 14 Restraints).

- 3. Remove the center console (See Center Console Removal & Installation in Section 15 Body & Accessories).
- 4. Disconnect the Restraints Control Module (RCM) electrical connector (1).
- Remove the RCM retaining bolts (2). (Tighten: RCM retaining bolts to 7-9 N·m)



- 6. Remove the RCM from the vehicle.
- 7. Installation is in the reverse order of the removal.

14



SEAT BELT SYSTEM

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GENERAL INFORMATION

Description

The left and right seat belt buckles are bolted to the base frame of the seat. The seat belt buckles are a typical buckle design with a release button on the top to free the seat belt.

Operation

The primary passenger restraints are the seat belts. Seat belts are referred to as an active restraint because the vehicle occupants are required to physically fasten and properly adjust these restraints in order to benefit from them. The passive restraints are referred to as a supplemental restraint system because they were designed and are intended to enhance the protection for the occupants of the vehicle only when used in conjunction with the seat belts.

Specifications

Torque Specifications

DESCRIPTION	TORQUE (N⋅m)
Adjustable Shoulder Belt Anchor Bolts	50
Front Seat Belt Buckle Retaining Bolt	50
Front Seat Belt Pre-Tensioner Lower Retaining Bolt	50
Front Seat Belt Upper Turning Loop Retaining Bolt	50
Rear Seat Belt Pre-Tensioner Upper Retaining Bolt	50
Rear Seat Belt Pre-Tensioner Lower Retaining Bolt	50

Special Tools



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ON-VEHICLE SERVICE

Front Seat Belt and Pre-Tensioner

Removal & Installation

- 1. Turn the ignition off.
- 2. Disconnect the negative battery cable.
- 3. Remove the seat belt upper mounting bolt (1).



- 4. Remove the seat belt lower mounting bolt (1).
- 5. Remove the B-pillar lower trim panel.





 Remove the front seat belt pre-tensioner retaining bolt (1) and screw (2). (Tighten: Front seat belt retaining bolt to 50 N·m)



- 7. Remove the front seat belt and pre-tensioner.
- 8. Installation is in the reverse order of removal.

Seat Belt Slider Track

Removal & Installation

- 1. Turn the ignition off.
- 2. Remove the seat belt upper mounting bolt (1).



3. Remove the B-pillar upper trim panel.



 Remove the two bolts (1) and then remove the seat belt slider track. (Tighten: Adjustable shoulder belt anchor bolts to 50 N·m)



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

Rear Seat Belt and Pre-Tensioner

Removal & Installation

- 1. Turn the ignition off.
- Remove the rear seat belt mounting bolts (1). (Tighten: Rear seat belt mounting bolts to 50 N·m)
- 3. Remove the C-pillar (See C-pillar Trim Panel Remove & Installation in Section 15 Body & Accessories).





ON-VEHICLE SERVICE

4. Remove the pre-tensioner mounting bolt (1) and screw (2).



- 5. Remove the pre-tensioner.
- 6. Installation is in the reverse order of the removal.



BODY & ACCESSORIES **15**

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AUDIO SYSTEM

Description

The audio system consists of the following components:

- Audio Unit
- Front Speakers
- Front Tweeters
- Rear Speakers
- Window Antenna (audio)

The audio system is standard factory-installed equipment. The system uses an ignition switched source of battery current so that the system will operate when the ignition switch is in the LOCK/ACC/ON positions. The system will also operate in the OFF position for one hour.

Operation

With the audio system on, radio signals are received by the window antenna, the audio unit then sends audio signals to front speakers and rear speakers.



Electrical Schematics

Audio System (Page 1 of 3)



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Radio

Removal & Installation

1. Lift one corner of the radio trim cover with a trim stick, and remove the radio trim cover.



 Remove the radio mounting bolts (1) from the radio. (Tighten: Radio mounting bolts to 9 ± 3 N⋅m)





- 3. Disconnect the electrical connectors.
- 4. Remove the radio.
- 5. Installation is in the reverse order of removal.

6 CD Changer

Removal & Installation

- 1. Remove the passenger seat.
- 2. Remove the CD changer 4 mounting bolts (1). (Tighten: CD changer mounting bolts to $9 \pm 3 \text{ N} \cdot \text{m}$)
- 3. Disconnect the CD changer electrical connector (2).



- 4. Remove the CD changer.
- 5. Installation is in the reverse order of removal.



Antenna

Removal & Installation

- 1. Disconnect the negative battery cable.
- 2. Pull the rear edge of the headliner down.
- 3. Disconnect the antenna electrical connector.
- 4. Remove the antenna mounting nut (1).



5. Installation in the reverse order of removal.



BODY INTERIOR TRIM

A-Pillar Trim Panel

Removal & Installation

- 1. Grasp the trim panel and gently pull it away to release the retaining clips.
- 2. Using a trim stick, remove the A-pillar trim panel.
- 3. Installation is in the reverse order of removal.



Installation Notes:

• The A-pillar trim panel retaining clips should be installed to allow the trim panel to fit tightly between the headliner and the weatherstrip.

B-Pillar Lower Trim Panel

Removal & Installation

1. Remove the front seat belt lower mounting bolt (1).



- 2. Using a trim stick, remove the lower trim panel from the B-pillar.
- 3. Installation is in the reverse order of removal.



B-Pillar Upper Trim Panel

Removal & Installation

1. Remove the front seat belt upper mounting bolt (1).



- 2. Using a trim stick, remove the B-pillar upper trim panel.
- 3. Installation is in the reverse order of removal.

C-Pillar Lower Trim Panel

Removal & Installation

- 1. Remove the rear seat belt mounting bolt (2).
- 2. Remove the mounting screws (1) under the panel.



- 3. Remove the storage box.
- 4. Disconnect the power outlet electrical connector.
- 5. Using a trim stick, remove the lower trim panel.
- 6. Installation is in the reverse order of removal.



C-Pillar Upper Trim Panel

Removal & Installation

- 1. Remove the C-Pillar lower trim panel (See C-Pillar Lower Trim Panel Removal & Installation in Section 15 Body & Accessories).
- 2. Remove the rear seat belt mounting bolts (1).



- 3. Using a trim stick, remove the C-Pillar upper trim panel.
- 4. Installation is in the reverse order of removal.

Assist Handle

Removal & Installation

- 1. Remove the assist handle mounting screws trim cover from the assist handles.
- Remove the mounting screws (1). (Tighten: Assist handle screws to 2 N·m)
- 3. Remove the assist handle.
- 4. Installation is in the reverse order of removal.





Scuff Plate

Removal & Installation

- 1. Grasp the scuff plate and gently pull it away to release the retaining clips.
- 2. Using a trim stick, remove the scuff plate from the front door sill.
- 3. Installation is in the reverse order of removal.



Pedal Pad

Removal & Installation

- 1. Remove the pedal pad mounting screws.
- 2. Remove the pedal pad.
- 3. Installation is in the reverse order of removal.

Sun Visor

Removal & Installation

1. Remove the two sun visor mounting screws (1). (Tighten: Sun visor screws to 2 N·m)



2. Remove the sun visor.



3. Installation is in the reverse order of removal.

Headliner

Removal & Installation

- 1. Remove the assist handles (See Assist Handle Removal & Installation in Section 15 Body & Accessories).
- 2. Remove the courtesy lamps.
- 3. Remove the air discharge cover.
- 4. Remove the trim panels from the A, B and C pillars.
- 5. Pry the headliner retainer clips from the mounting brackets.
- 6. Remove the headliner (1).



7. Installation is in the reverse order of removal.

CAN VEHICLE COMMUNICATIONS

Description

Controller Area Network (CAN) communication is a multiplex communication system. The CAN system allows the vehicles electronic modules to transmit and receive data. The following electronic modules are located on the CAN network:

- Transaxle Control Module (TCM)
- Engine Control Module (ECM)
- CAN Converter

Operation

The CAN network uses a twisted pair of circuits to transmit data (+) and data (-). The data (+) and the data (-) circuits are each regulated to approximately 2.5 volts during neutral or rested network traffic. As bus messages are sent on the data (+) circuit, voltage is increased by approximately 1.0 volt. Inversely, the data (-) circuit is reduced by approximately 1.0 volt when a bus message is sent. Multiple bus messages can be sent over the CAN circuits allowing multiple modules to communicate with each other.



Electrical Schematics

CAN Vehicle Communications (Page 1 of 2)



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CAN Vehicle Communications (Page 2 of 2)





CHIME

Description

The chime is located in the Instrument Cluster (IC). The chime warning system is an audible notification to the driver. The chime warning system is designed to alert the driver of a vehicle problem or condition.

Operation

The Instrument Cluster (IC) uses hard wired inputs from various sensors and switches to activate the chime. The sensors and switches are located throughout the vehicle. The following conditions will cause the chime to operate:

- Turn signal on
- Hazard warning flashers on
- Seat belt unbuckled
- Low fuel level
- Low oil pressure
- · Low brake fluid level
- · Doors unlocked



Electrical Schematics

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CHIME

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CHIME

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DOOR LOCKS

Description

The power door locks allow the doors to be locked or unlocked electronically. The power door lock switch is located on the front door trim panel. The power door locks can also be operated by the Remote Keyless Entry (RKE) transmitter.

Operation

The power lock system receives non-switched battery current, so that the power locks remain operational, regardless of the ignition switch position. The power lock system is controlled by BCM.



Electrical Schematics





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Power Door Lock System (Page 2 of 5)





Power Door Lock System (Page 3 of 5)



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Power Door Lock System (Page 4 of 5)





Power Door Lock System (Page 5 of 5)



Door Lock Switch

Removal & Installation

- 1. Turn the ignition switch off.
- 2. Remove the power window and door lock/unlock switch bezel mounting screw (1).



- 3. Using a trim stick, pry out the power window and door lock/unlock switch assembly from the front door.
- 4. Disconnect the power window and door lock/unlock switch electrical connectors.
- 5. Remove the power window and door lock/unlock switch retaining screws to remove the power window and door lock/unlock switch.
- 6. Installation is in the reverse order of removal

Door Lock Assembly

Removal & Installation

NOTE :

The passenger door is shown, all other doors are similar.

- 1. Disconnect the negative battery cable.
- 2. Turn the ignition switch off.
- 3. Using a small trim stick, remove the pull handle cover (1) from the pull handle (2).



- 4. Remove the inner door handle mounting screw (1).
- 5. Remove the pull handle mounting screws (2).



6. Using a small trim stick, remove the inner door handle trim bezel (1).



- 7. Carefully pry the door trim panel clips from the door.
- 8. Disconnect the power window switch and the door lamp electrical connector.
- 9. Remove the door trim panel.
- 10. Disconnect the speaker connector (1).
- 11. Remove the inner door handle assembly mounting screw (2).
- 12. Disconnect the inner door handle cables (3).
- 13. Remove the protective film (4).





- 14. Remove three door lock assembly retaining bolts. (Tighten: Door lock assembly retaining bolts to $9 \pm 1 \text{ N} \cdot \text{m}$)
- 15. Remove the internal unlock cable (1) and lock cable (2).



- 16. Remove the lock buckle with a screwdriver. (Tighten: Lock buckle screws to 12 \pm 2 N·m)
- 17. Installation is in the reverse order of removal.

Door Lock Assembly Inspection

- 1. Using the following table, apply battery voltage to the specified connector terminals.
- 2. Verify that the door lock assembly operates in the lock and unlock position when voltage is applied to the specified terminals.
- 3. If the test results are not as specified, replace the motor.

MEASURING CONDITION	OPERATIONAL DIRECTION
Battery positive (+) to terminal – 1 Battery negative (-) to terminal – 2	Lock
Battery positive (+) to terminal – 2 Battery negative (-) to terminal – 1	Unlock



BODY CONTROL MODULE - BCM

Description

The Body Control Module (BCM) is located behind the glove box. The BCM controls many electrical components and systems for the vehicle electrical system. The BCM is the primary hub that controls functions such as internal and external lighting, power windows and power door locks.

Operation

The Body Control Module (BCM) uses hard wired inputs from various sensors and switches. The sensors and switches are located throughout the vehicle.

The following components are inputs to the BCM:

- Key switch
- Rear defroster switch
- Hazard lamp switch
- Power window switches
- Power door lock switches
- Seat belt switch
- · Vehicle speed
- Door ajar switches
- Turn signal switch

The following components are outputs from the BCM:

- Key lamp
- Stop lamp relay
- Rear defroster grid
- Courtesy lamps
- Power window motor
- Power door lock motor
- Turn signal lamps



FUSE NO.	AMPERAGE RATING	FUNCTION
1	30 A	Front Fog
2	20 A	CNT Lock
3	30 A	Spare
4	15 A	Spare
5	25 A	Spare
6	30 A	Front WIN



Electrical Schematics

Body Control Module (Page 1 of 5)





BODY CONTROL MODULE - BCM

Body Control Module (Page 2 of 5)



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BODY CONTROL MODULE - BCM

Body Control Module (Page 3 of 5)





Body Control Module (Page 4 of 5)



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Body Control Module (Page 5 of 5)



ON-VEHICLE SERVICE

Body Control Module (BCM)

Removal & Installation

- 1. Disconnect the negative battery cable.
- 2. Remove the glove box mounting bolts (1).



- 3. Remove the BCM and ECM mounting bracket retaining bolts.
- Remove the BCM mounting bolts (1). (Tighten: BCM mounting bolts to 5 N·m)
- 5. Disconnect the BCM electrical connector (2).



- 6. Remove the BCM.
- 7. Installation is in the reverse order of removal.

INSTRUMENT PANEL

Removal & Installation

- 1. Remove the steering wheel (See Steering Wheel Removal & Installation in Section 11 Steering).
- 2. Remove the multi-function switch and the wiper switch.
- 3. Remove the instrument cluster (See Instrument Cluster Removal & Installation in Section 15 Body & Accessories).
- 4. Remove the radio (See Radio Removal & Installation in Section 15 Body & Accessories).
- 5. Remove the HVAC control panel (See HVAC Control Panel Removal & Installation in Section 13 Heating & Air Conditioning).
- 6. Remove lower center bezel retaining screws (1).





7. Remove the glove box retaining bolts (1).



8. Remove the bolts (1) under the glove box.





9. Remove the knee bolster mounting screws (1).



10. Remove the knee bolster (1) from the instrument panel.



11. Remove the left trim cover of the instrument panel.

12. Remove the left instrument panel mounting bolt (1).



- 13. Remove the right trim cover of the instrument panel.
- 14. Remove the right instrument panel mounting bolt (1).



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15. Remove two instrument panel mounting nuts (1) and bolts (2) in the glove box.



- 16. Remove the A-pillar trim panel (See A-Pillar Removal & Installation in Section 15 Body & Accessories).
- 17. Remove the lower console (See Lower Console Removal & Installation in Section 15 Body & Accessories).
- 18. Carefully remove the instrument panel.
- 19. Installation is in the reverse order of removal.



Lower Console

Removal & Installation

1. Gently pry the gearshift knob bezel off of the console cover.



2. Remove the console mounting bolts (1) under the gearshift knob bezel.





3. Remove the storage box.



- 4. Remove the bolts (1) under the rubber cushion.
- 5. Remove the lower console.
- 6. Installation is in the reverse order of removal.



Description

The Instrument Cluster (IC) is located in the instrument panel directly in front of the driver. The IC is used to inform the driver of specific vehicle information. The IC uses indicator lamps and gauges to warn the driver of potentially critical operating conditions.



Operation

The Instrument Cluster (IC) uses hard wired inputs from various sensors and switches. The sensors and switches are located throughout the vehicle. The IC displays the following gauges:

- Speedometer The IC displays the vehicle speed as determined by the Engine Control Module (ECM).
- Tachometer The IC displays the engine speed as determined by the Engine Control Module (ECM).
- Temperature Gauge The IC displays the engine coolant temperature as determined by the Engine Control Module (ECM).
- Fuel Gauge The IC displays the amount of fuel in the fuel tank as determined by the fuel level sensor.



Specifications

Torque Specifications

DESCRIPTION	TORQUE (N·m)
Instrument Cluster Bezel Fasteners	2
Instrument Cluster Fasteners	9

Special Tools



Electrical Schematics

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INSTRUMENT CLUSTER

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INSTRUMENT CLUSTER

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Instrument Cluster Connector Pin-Out Table

Instrument Cluster Connector Pin-Out Table

PIN	CIRCUIT IDENTIFICATION	PIN	CIRCUIT IDENTIFICATION
1	Door Lamp	22	N/A (With ACTECO Engine)
	Door Lamp		P (With MITSUBISHI Engine)
2	N/A (With ACTECO Engine)	24	N/A (With ACTECO Engine)
2	GND (With MITSUBISHI Engine)	34	R (With MITSUBISHI Engine)
2		35	N/A (With ACTECO Engine)
	GND (Fower)		N (With MITSUBISHI Engine)
1	DWM Coor Modo	36	N/A (With ACTECO Engine)
4	F WW Geal Wode		Auto Mode (With MITSUBISHI Engine)
5	GND (Sensor)	37	N/A (With ACTECO Engine)
	(Sensor)		4 (With MITSUBISHI Engine)
6	Eront Eog Lamp	38	N/A (With ACTECO Engine)
	Front Fog Lamp		3 (With MITSUBISHI Engine)
7		39	N/A (With ACTECO Engine)
	_		2 (With MITSUBISHI Engine)
0		40	N/A (With ACTECO Engine)
0	Gruise Lamp		1 (With MITSUBISHI Engine)
9	Low Oil Pressure Lamp	41	—
10	Speed Input	42	Rear Fog Lamp
11	Continuous Supply Voltage	43	—
12	Illumination Lamp	44	—
13	Ignition Switch	45	—
14	ABS Lamp	46	_
15	Diagnostic Link K	17	Sport Mode (With ACTECO Engine)
	Diagnostic Link K		N/A (With MITSUBISHI Engine)
16	Charge Lamp	18	Winter Mode (With ACTECO Engine)
10	Charge Lamp	40	N/A (With MITSUBISHI Engine)
17	Airbag Lamp	10	TCM Failure (With ACTECO Engine)
	Alibag Lalip	43	N/A (With MITSUBISHI Engine)
18	Parking Brake Lamp	50	—
19	Seatbelt Lamp	51	—
20	MIL Lamp	52	—
21	Low Fuel Level Lamp	53	—
22	Left Turn Lamp	54	—
23	Coolant Temperature Input	55	—
24	Right Turn Lamp	56	—
25	High Beam Lamp	57	—
26	Low Brake Fluid Level Lamp	58	_
27	Vehicle Speed Input	59	
28	Parking Lamp	60	_
29	EPC Lamp	61	—



INSTRUMENT CLUSTER

PIN	CIRCUIT IDENTIFICATION	PIN	CIRCUIT IDENTIFICATION
30	_	62	—
31	Fuel Consumption Input	63	_
32	_	64	_



DIAGNOSIS & TESTING

Clearing Service Monitor Lamp

Perform the following to clear the service monitor lamp:

- 1. Turn the ignition switch off.
- 2. Press down and hold the Mode switch.
- 3. Turn the ignition switch on.
- 4. Release the Mode switch.
- 5. Press the Mode switch and the Clock switch simultaneously within 30 seconds and hold less than 2 seconds to clear the mileage maintenance identification.

Diagnostic Help

- 1. The X-431 scan tool connects to the Data Link Connector (DLC) and communicates with the vehicle electronic modules through the class two serial data circuit.
- 2. Confirm that the malfunction is current and carry-out the diagnostic tests and repair procedures.
- 3. If the DTC cannot be deleted, it is a current fault.
- 4. Use a digital multimeter to perform voltage readings on electronic systems.
- 5. Refer to any Technical Bulletins that issued.
- 6. Visually inspect the related electrical wiring harness.
- 7. Inspect and clean all Instrument Cluster (IC) grounds that are related to the DTC.
- 8. If numerous trouble codes were set, use the electrical schematic and look for any common ground circuits or voltage supply circuits that may apply to the DTC.

Intermittent DTC Troubleshooting

If the failure is intermittent, perform the following:

- Check for loose connectors.
- Look for any chafed, pierced, pinched, or partially broken wires.
- Monitor the scan tool data relative to this circuit.
- Wiggle the related electrical wiring harness and connectors while looking for an interrupted signal on the affected circuit.
- If possible, try to duplicate the conditions under which the DTC set.
- Look for the data to change or for the DTC to reset during the wiggle test.
- Look for broken, bent, pushed out or corroded terminals.
- Inspect the sensor and mounting area for any condition that would result in an incorrect signal, such as damage or foreign material.
- A data recorder, and/or oscilloscope should be used to help diagnose intermittent conditions.

Ground Inspection

Ground connections are very important to the proper operation of electrical and electronic circuits. Ground connections are often exposed to moisture, dirt and other corrosive elements. The corrosion (rust) can become an unwanted resistance. This added resistance can alter the way a circuit works.

Electronically controlled circuits are very sensitive to proper grounding. A loose or corroded ground can drastically affect an electronically controlled circuit. A poor or corroded ground can effect the circuit. Perform the following when inspecting a ground connection:

- 1. Remove the ground bolt or screw.
- 2. Inspect all mating surface for tarnish, dirt, rust, etc.
- 3. Clean as required to assure good contact.
- 4. Reinstall bolt or screw securely.
- 5. Inspect for "add-on" accessories which may be interfering with the ground circuit.
- 6. If several wires are crimped into one ground eyelet terminal, check for proper crimps. Make sure all of the wires are clean, securely fastened and providing a good ground path. If multiple wires are crimped to one eyelet, make sure no excess wire insulation has been crimped creating a bad ground.



Diagnostic Tools

- Diagnostic Scan Tool X-431Digital Multimeter
- Jumper Wire

Diagnostic Trouble Code (DTC) List

Instrument Cluster DTC List

DTC	DTC DEFINITION
U0303	Fuel Sensor O/C or Shorted To Supply
U0303	Fuel Sensor Shorted To Ground
U040F	Temperature Sensor O/C or Shorted To Supply
U040F	Temperature Sensor Shorted To Ground
U029C	Battery Over Voltage Error
U029C	Battery Under Voltage Error
U050F	EEPROM Checksum Error



Diagnostic Trouble Code (DTC) Tests

U029C - Battery Over Voltage Error U029C - Battery Under Voltage Error



 IC - PWR - 02







ltsmw150038t



On Board Diagnostic Logic

• Self-diagnosis detection logic.

DTC NO.	DTC DEFINITION	DTC DETECTION CONDITION	DTC SET CONDITION	POSSIBLE CAUSE
U029C	Battery over voltage error		Instrument Cluster (IC) detected that the battery voltage is excessively high.	 Charge system Instrument Cluster (IC)
U029C	Battery under voltage error	Turn ignition switch on	Instrument Cluster (IC) detected that the battery voltage is excessively low.	 Battery Charge system Harness or connector Instrument Cluster (IC)

DTC Confirmation Procedure:

Before performing the following procedure, confirm that battery voltage is more than 12 V.

- Turn ignition switch off.
- Connect the X-431 scan tool to the Data Link Connector (DLC) use the most current software available.
- Turn ignition switch on, select view, record and erase DTC.
- Start engine and warm it up to the normal operating temperature.
- Select view DTC and data stream.
- If the DTC is detected, the condition is current. Go to Diagnostic Procedure Step 1.
- If the DTC is not detected, the DTC condition is intermittent (See Diagnostic Help and Intermittent DTC Troubleshooting in Section 15 Body & Accessories for more information).
- •

NOTE :

- Inspect the vehicle for aftermarket accessories that may exceed the Generator System output.
- Inspect the fuses. If an open fuse is found, use the wiring schematics as a guide and inspect the wiring and connectors for damage.
- Troubleshoot any Engine Control Module (ECM) charging/cranking DTCs before proceeding.

NOTE :

While performing electrical diagnosis & testing, always refer to the electrical schematics for specific circuit and component information.



Diagnostic Procedure

1. CHECK GROUND CONNECTION

- Turn ignition switch off.
- Loosen and retighten ground screws on the body (See Ground Inspection in Section 15 Body & Accessories).
- Inspect ground connection C-201 mounting position (See Vehicle Wiring Harness Information Main Harness in Section 16 Wiring).

Is the ground connection OK?

- Yes >> Go to the next step.
- No >> Repair or replace ground harness or connections.

2. CHECK INSTRUMENT CLUSTER (IC) ELECTRICAL CONNECTOR

- Disconnect Instrument Cluster (IC) electrical connector.
- Inspect the electrical connector for damage.

Is the electrical connector OK?

- Yes >> Go to the next step.
- No >> Repair or replace the electrical connector as necessary.

3. CHECK INSTRUMENT CLUSTER (IC) POWER SUPPLY

- Turn ignition switch on.
- If the vehicle is not equipped with Mitsubishi 2.4L engine system, check IC power supply between terminal 11, 13 and terminal 5 in the IC electrical connector C-001 terminal side.



- If the vehicle is equipped with Mitsubishi 2.4L engine system, check IC power supply between terminal 11 and terminal 2 in the IC electrical connector C-001 terminal side.
- Is the voltage between 9 17 V?
- **Yes** >> Replace the IC.
- No >> Go to the next step.





4. CHECK SYSTEM VOLTAGE

- Start the engine, raise the speed over 1000 RPM.
- Measure the charging voltage with the voltmeter at the battery positive and negative terminals.

Is the voltage less than 9 V?

Yes >> Check the charging system.

No >> Go to the next step.

5. CHECK THE BATTERY

- Start the engine, raise the speed over 1000 RPM for a few minutes.
- Turn ignition switch off.
- Measure the voltage drop with the voltmeter at the battery positive and negative terminals while cranking the engine.
- Battery voltage should be more than approximate 9 V.
- Is the check result normal?

Yes >> Go to the next step.

No >> Charge or replace the battery.

6. CHECK INSTRUMENT CLUSTER (IC) SUPPLY CIRCUIT

- Disconnect the battery negative cable.
- Disconnect the battery positive cable.
- Measure the resistance between IC terminal 11, 13 and battery positive cable.
- Continuity should exist.

Is the check result normal?

Yes >> Go to the next step.

No >> Check fuse. Check the harness open or short to ground. Check related components.

7. CHECK SYSTEM VOLTAGE

- Start the engine, raise the speed over 1000 RPM.
- Measure the charging voltage with the voltmeter at the battery positive and negative terminals.

Is the voltage more than 17 V?

Yes >> Replace the AC generator.

No >> Go to the next step.



8. снеск отс

- With the X-431 scan tool, read IC DTCs.
- Refer to "DTC Confirmation Procedure".

Is the DTC U029C still present?

- Yes >> Replace IC.
- No >> The system is now operating properly. Reassemble the vehicle and verify the customers complaint is repaired.

U040F - Temperature Sensor Shorted To Supply U040F - Temperature Sensor Shorted To Ground (With Mitsubishi 2.4L Engine System)





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On Board Diagnostic Logic

• Self-diagnosis detection logic.

DTC NO.	DTC DEFINITION	DTC DETECTION CONDITION	DTC SET CONDITION	POSSIBLE CAUSE
U040F	Temperature sensor open circuit or shorted to supply	Turn ignition switch on	The Instrument Cluster (IC) detects the temperature sensor (for instrument cluster) circuit open or shorted to supply condition.	 Coolant temperature sensor (For Instrument Cluster) Harness or connectors (The sensor circuit is open or short to supply) Instrument cluster
U040F	Temperature sensor shorted to ground		The Instrument Cluster (IC) detects the temperature sensor (for instrument cluster) circuit shorted to ground condition.	 Coolant temperature sensor (For instrument cluster) Harness or connectors (The sensor circuit is short to ground) Instrument cluster

DTC Confirmation Procedure:

Before performing the following procedure, confirm that battery voltage is more than 12 V.

- Turn ignition switch off.
- Connect the X-431 scan tool to the Data Link Connector (DLC) use the most current software available.
- Turn ignition switch on and record and erase DTC.
- Start engine and warm it up to the normal operating temperature.
- Select view DTC and data stream.
- If the DTC is detected, the condition is current. Go to Diagnostic Procedure Step 1.
- If the DTC is not detected, the DTC condition is intermittent (See Diagnostic Help and Intermittent DTC Troubleshooting in Section 15 Body & Accessories for more information).

NOTE :

Before performing any DTC diagnostic procedures, verify the IC power and ground circuits are properly connected.

NOTE :

While performing electrical diagnosis & testing, always refer to the electrical schematics for specific circuit and component information.



Diagnostic Procedure

1. СНЕСК DTC

- Turn ignition switch on, with the scan tool, view and erase stored DTCs in the IC module.
- Turn ignition switch off, and wait a few seconds, then turn ignition switch on.
- With the scan tool, view active DTCs in the IC module.

Is DTC U040F present?

Yes >> Go to the next step.

No >> The conditions that caused this DTC to set are not present at this time (See Intermittent DTC Troubleshooting in Section 15 Body & Accessories for more information).

2. CHECK COOLANT TEMPERATURE SENSOR (FOR INSTRUMENT CLUSTER) ELECTRICAL CONNECTOR

- Turn ignition switch off.
- Disconnect the coolant temperature sensor (for instrument cluster) (1) electrical connector E-084.
- Inspect the electrical connector for damage.

Is the electrical connector OK?

Yes >> Go to the next step.

No >> Repair or replace the electrical connector as necessary.



3. CHECK COOLANT TEMPERATURE SENSOR (FOR INSTRUMENT CLUSTER) REFERENCE VOLTAGE

- Turn ignition switch on.
- Check reference voltage between the coolant temperature sensor (for instrument cluster) connector E-084, terminal 1 and ground.
- Approximately 5 V should exist.

Is the reference voltage normal?

Yes >> Go to step 5.

No >> Go to the next step.





4. CHECK COOLANT TEMPERATURE SENSOR (FOR INSTRUMENT CLUSTER) REFERENCE VOLTAGE

- Turn ignition switch off.
- Disconnect the IC module connector.
- Check harness for a short to ground.
- Check the coolant temperature sensor circuit for voltage.

COOLANT TEMPERATURE SENSOR (FOR INSTRUMENT CLUSTER) TERMINAL	GROUND	
1	Ground	Itsmd150006

• Check the coolant temperature sensor circuit for resistance.

COOLANT TEMPERATURE SENSOR (FOR INSTRUMENT CLUSTER) TERMINAL	IC TERMINAL	CONTINUITY	
1	31	Yes	ltsmd150005

• Check harness for a short to power.

Is the check result normal?

Yes >> Go to the next step.

No >> Repair or replace the coolant temperature sensor (for instrument cluster) supply circuit as necessary.



5. CHECK COOLANT TEMPERATURE METER INDICATOR

- Turn ignition switch off.
- Connect the IC connector.
- Connect the coolant temperature sensor (for instrument cluster) electrical connector E-084.
- Turn ignition switch on.
- With the scan tool, view active DTCs and data stream in the IC.

Is DTC U040F still present?

Yes >> Replace the coolant temperature sensor (for instrument cluster).

- With the scan tool, view active DTCs and data stream in the IC.
- If the DTC U040F is not present, the system is now normal.
- If the DTC U040F is present, go to the next step.
- No >> The system is now operating properly. Reassemble the vehicle and verify the customers complaint is repaired.

6. снеск отс

- With the X-431 scan tool, read IC DTCs.
- Refer to "DTC Confirmation Procedure".
- Is DTC U040F still present?
- **Yes** >> Replace the IC.
- No >> The system is now operating properly. Reassemble the vehicle and verify the customers complaint is repaired.



U050F - EEPROM Checksum Error

On Board Diagnostic Logic

• Self-diagnosis detection logic.

DTC NO.	DTC DEFINITION	DTC DETECTION CONDITION	POSSIBLE CAUSE
U050F	EEPROM checksum error	Instrument Cluster (IC) detected an internal failure	Instrument Cluster (IC)

DTC Confirmation Procedure:

Before performing the following procedure, confirm that battery voltage is more than 12 V.

- Turn ignition switch off.
- Connect the X-431 scan tool to the Data Link Connector (DLC) use the most current software available.
- Turn ignition switch on and record and erase DTC.
- Start engine and warm it up to the normal operating temperature.
- Select view DTC and data stream.
- If the DTC is detected, the condition is current. Go to Diagnostic Procedure Step 1.
- If the DTC is not detected, the DTC condition is intermittent (See Diagnostic Help and Intermittent DTC Troubleshooting in Section 15 Body & Accessories for more information).

NOTE :

While performing electrical diagnosis & testing, always refer to the electrical schematics for specific circuit and component information.



Diagnostic Procedure

1. СНЕСК DTC

• Perform DTC confirmation procedure.

Is DTC U050F present?

Yes >> Go to the next step.

No >> The conditions that caused this DTC to set are not present at this time (See Intermittent DTC Troubleshooting in Section 15 Body & Accessories for more information).

2. CHECK INSTRUMENT CLUSTER (IC) POWER SUPPLY AND GROUND

• Check the Instrument Cluster (IC) supply voltage circuit and ground circuits for open, high resistance or short circuits.

Is the check result normal?

Yes >> Go to the next step.

No >> Repair the circuit for an open or short in harness and connectors.

3. снеск отс

- With the X-431 scan tool, read Instrument Cluster (IC) DTCs.
- Refer to "DTC Confirmation Procedure".

Is DTC U050F present?

- Yes >> The system is now operating properly. Reassemble the vehicle and verify the customers complaint is repaired.
- No >> Replace Instrument Cluster (IC).



U0303 - Fuel Sensor Open Circuit Or Shorted To Supply U0303 - Fuel Sensor Short To Ground



On Board Diagnostic Logic

• Self-diagnosis detection logic.

DTC NO.	DTC DEFINITION	DTC DETECTION CONDITION	DTC SET CONDITION	POSSIBLE CAUSE
U0303	Fuel sensor open circuit or shorted to supply	Turn ignition switch on	The Instrument Cluster (IC) detects the fuel sensor shorted to ground condition.	 Fuel level sensor Harness or connectors (The sensor circuit is open or short to power) Instrument cluster
U0303	Fuel sensor shorted to ground		The Instrument Cluster (IC) detects the fuel sensor circuit open or shorted to voltage condition.	 Fuel level sensor Harness or connectors (The sensor circuit is shorted to ground) Instrument cluster

DTC Confirmation Procedure:

Before performing the following procedure, confirm that battery voltage is more than 12 V.

- Turn ignition switch off.
- Connect the X-431 scan tool to the Data Link Connector (DLC) use the most current software available.
- Turn ignition switch on and record and erase DTC.
- Start engine and warm it up to the normal operating temperature.
- Select view DTC and data stream.
- If the DTC is detected, the condition is current. Go to Diagnostic Procedure Step 1.
- If the DTC is not detected, the DTC condition is intermittent (See Diagnostic Help and Intermittent DTC Troubleshooting in Section 15 Body & Accessories for more information).

NOTE :

Before performing any DTC diagnostic procedures, verify the IC power and ground circuits are properly connected.

NOTE :

While performing electrical diagnosis & testing, always refer to the electrical schematics for specific circuit and component information.



Diagnostic Procedure

1. СНЕСК DTC

- Turn ignition switch on, with the scan tool, view and erase stored DTCs in the IC.
- Turn ignition switch off, and wait a few seconds, then turn ignition switch on.
- With the scan tool, view DTCs in the IC.

Is DTC U0303 present?

Yes >> Go to the next step.

No >> The conditions that caused this DTC to set are not present at this time (See Intermittent DTC Troubleshooting in Section 15 Body & Accessories for more information).

2. CHECK FUEL LEVEL SENSOR ELECTRICAL CONNECTOR

- Turn ignition switch off.
- Disconnect the fuel level sensor and fuel pump assembly electrical connector (3).
- Inspect the electrical connector for damage.

Is the electrical connector OK?

Yes >> Go to the next step.

No >> Repair or replace the electrical connector as necessary.



3. CHECK FUEL LEVEL SENSOR REFERENCE VOLTAGE

- Turn ignition switch on.
- Check the fuel level sensor reference voltage between the fuel level sensor connector B-032, terminal 1 and ground.
- The voltage (less than 1 V) should exist.

Is there voltage present?

- Yes >> Go to step 5.
- No >> Go to the next step.





4. CHECK FUEL LEVEL SENSOR CIRCUIT FOR OPEN OR SHORT

- Turn ignition switch off.
- Disconnect the IC connector.
- Check harness for a short to ground.

FUEL LEVEL SENSOR TERMINAL	GROUND	
1	Ground	tsmd150003

• Check for continuity between the following terminals:

FUEL LEVEL SENSOR TERMINAL	IC TERMINAL	CONTINUITY	
1	21	Yes	 ⊕ ⊖ Itsmd150002

• Continuity should exist.

• Check the harness for a short to power.

Is the check result normal?

Yes >> Go to the next step.

No >> Repair or replace the fuel level sensor supply circuit as necessary.

5. CHECK FUEL LEVEL SENSOR GROUND CIRCUIT

• Using a 12 V test light connected to battery (+), probe fuel level sensor ground circuit. *Does the test light illuminate brightly?*

Yes >> Go to the next step.

No >> Repair or replace the fuel level sensor ground circuit for an open.



6. CHECK FUEL LEVEL SENSOR RESISTANCE

- Turn ignition switch off.
- Check fuel level sensor as follows:

FUEL GAUGE POINTER POSITION	TANK (LITERS)	SENDER RESISTANCE (OHM)	POINTER TOLERANCE
EMPTY	5	283	±3 °
RESERVE	11	189	±3 °
1/4	16.5	137	±3 °
1/2	28	89	±3 °
3/4	39.5	62	±3 °
FULL	51	40	±3°

Is the check result normal?

Yes >> Go to the next step.

No >> Replace the fuel level sensor.

7. СНЕСК DTC

- With the X-431 scan tool, read IC DTCs.
- Refer to "DTC Confirmation Procedure".

Is the DTC U0303 still present?

- Yes >> Replace the IC.
- No >> The system is now operating properly. Reassemble the vehicle and verify the customers complaint is repaired.



ON-VEHICLE SERVICE

Instrument Cluster

Removal & Installation

- 1. Disconnect he negative battery cable.
- 2. Carefully remove the instrument cluster trim panel.
- Remove the instrument cluster screws (1). (Tighten: Instrument cluster screws to 5 N·m)



- 4. Disconnect the instrument cluster electrical connector.
- 5. Remove the instrument cluster.
- 6. Installation is in the reverse order of removal.



INTERIOR LAMPS

Description

The interior lamps consist of the following:

- Key Hole Lamp
- Front Room Lamp
- Middle/Rear Courtesy/Dome Lamp
- Front Step Lamp
- Backlight Adjusting Switch
- Instrument Cluster
- Headlamp Aiming Switch
- Heated Seat Switch (LH)
- Heated Seat Switch (RH)
- Air Control Panel
- Front Fog Lamp Switch
- Rear Fog Lamp Switch
- Console Power Socket (Illumination)
- Door Mirror Remote Control Switch
- Main Power Window And Door Lock/Unlock Switch
- Front Power Window Switch (RH)
- Rear Power Window Switch (LH)
- Rear Power Window Switch (RH)
- Audio

Operation

The key hole lamp and front/middle/rear courtesy lamps are controlled by the BCM. Front step lamps are controlled by the door lock switch. When the door is open, the front step lamp will light up automatically. Other lamps are controlled by the lighting and turn signal switch.



Electrical Schematics

Interior Lamps (Page 1 of 5)





Interior Lamps (Page 2 of 5)



Interior Lamps (Page 3 of 5)



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Interior Lamps (Page 4 of 5)





Interior Lamps (Page 5 of 5)



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Front Room Lamp

Removal & Installation

- 1. Open the overhead eye glass compartment.
- 2. Remove the eye glass compartment screws (1).



- 3. Carefully remove the front room lamp and disconnect the electrical connector.
- 4. Installation is in the reverse order of removal.

Middle/Rear Courtesy/Dome Lamp

Removal & Installation

1. Carefully pry the lamp cover from the lamp housing.





2. Remove the lamp mounting screws (1).



3. Remove the courtesy/dome lamp.

NOTE :

- The rear courtesy/dome lamp is similar to the middle courtesy/dome lamp.
- 4. Installation is in the reverse order of removal.

Key Hole Lamp

Removal & Installation

- 1. Disconnect the negative battery cable.
- 2. Turn the ignition switch off.
- 3. Remove the steering column shroud retaining screws (1).



- 4. Disconnect the key hole lamp electrical connector.
- 5. Remove the key hole lamp.
- 6. Installation is in the reverse order of removal.



POWER OUTLET

Description

There are two 12 V electrical outlets. One is under the center console which is for the cigarette lighter. The other is located on the left lower C-pillar trim panel.

CAUTION:

This power outlet is designed for 12 V (120W) only. Do not use any type of accessory above this rating.

Operation

The power outlets are powered at all times.



Electrical Schematics

Power Outlet (Page 1 of 1)





Removal & Installation

- 1. Disconnect the negative battery cable.
- 2. Remove the power outlet (1).
- 3. Disconnect the power outlet electrical connector.
- 4. Installation is in the reverse order of removal.




POWER WINDOW

Description

The power window system allows each of the door windows to be raised and lowered electrically by actuating a switch on each door trim panel. The driver window switch allows the driver to lock out the front passenger window and rear window from operation. The power window system includes the power window switches on the driver door trim panel, front passenger door and rear doors, and the power window motors.

Operation

The front and rear power window motors are permanent magnet type. A battery positive and negative connection to either of the two motor terminals will cause the motor to rotate in one direction. Reversing current through these same two connections will cause the motor to rotate in the opposite direction. Each individual motor is grounded through the BCM.



Electrical Schematics

Power Window System (Page 1 of 3)





POWER WINDOW

Power Window System (Page 2 of 3)



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POWER WINDOW

Power Window System (Page 3 of 3)



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Power Window Switch

Removal & Installation

- 1. Turn the ignition switch off.
- 2. Remove the power window and door lock/unlock switch bezel mounting screw (1).



- 3. Using a trim stick, pry out the power window and door lock/unlock switch assembly from the front door.
- 4. Disconnect the power window and door lock/unlock switch electrical connectors.
- 5. Remove the power window and door lock/unlock switch retaining screws to remove the power window and door lock/unlock switch.
- 6. Installation is in the reverse order of removal.

Power Window Motor

Removal & Installation

NOTE :

The passenger door is shown, all other doors are similar.

- 1. Turn the ignition switch off.
- 2. Using a small trim stick, remove the pull handle cover (1) from the pull handle (2).





- 3. Remove the inner door handle mounting screw (1).
- 4. Remove the pull handle mounting screws (2).



5. Using a small trim stick, remove the inner door handle trim bezel (1).



- 6. Carefully pry the door trim panel clips from the door.
- 7. Disconnect the power window switch and the door lamp electrical connector.
- 8. Remove the door trim panel.
- 9. Disconnect the speaker connector (1).
- 10. Remove the inner door handle assembly mounting screw (2).
- 11. Disconnect the inner door handle cables (3).
- 12. Remove the protective film (4).



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- 13. Temporarily connect the power window switch.
- 14. Turn the ignition switch on and use the power window switch to move the front door glass to a position so the door glass bolts can be removed.
- 15. Turn the ignition switch off and disconnect the power window switch.
- Remove the two door glass mounting bolts (1). (Tighten: Door glass mounting bolts to 11 N·m)
 NOTE: Properly support the door glass when removing the mounting bolts. The door glass may drop and be damaged.



- 17. Remove the door glass weatherstrip (1).
- 18. Lift the door glass and remove the door glass from the door.

NOTE: Take care not to damage the door glass.



- 19. Disconnect the power window motor electrical connector.
- Remove the six power window regulator mounting bolts (1). (Tighten: Power window regulator mounting bolts to

(Tighten: Power window regulator mounting boits to 11 N·m)



- 21. Carefully remove the power window regulator.
- 22. Remove the power window motor from the regulator.
- 23. Installation is in the reverse order of removal.



Power Window Motor Inspection

- 1. Using the following table, apply battery voltage to the specified connector terminals.
- 2. Verify that the motor operates smoothly when voltage is applied in each direction.
- 3. If the test results are not as specified, replace the motor.

MEASURING CONDITION	OPERATIONAL DIRECTION	INSPECTION DIAGRAM
Battery positive (+) to terminal – 1 Battery negative (-) to terminal – 2	Clockwise rotation	tsm150136
Battery positive (+) to terminal – 2 Battery negative (-) to terminal – 1	Counterclockwise rotation	tsm150138





SEATS

General Information

Description

The seat movement is controlled by an adjustment bar. The seat can be adjusted to six different seating positions. The vehicle may be equipped with heated seats. Heated seats provide comfort and warmth in cold weather. The heaters provide the same heat level for both the seat cushion and back. The driver seat and front passenger seat are heated.

Operation

The manual seat adjustment bar is at the front of the seat, near the floor. Pull the bar upward and slide the seat forward or rearward. Release the bar once the seat is in the desired position. To confirm the seat is locked into place, attempt to move the seat forward and rearward after adjusting the seat. The heated seat controls for each seat are located near the bottom center of the instrument panel. After turning the ignition ON, the seat heater can be activated to High or Low heat settings. When the switch is in the middle position, the seat heater is OFF. Each switch is equipped with LED lights to indicate the level of heat at which each seat is set.



Electrical Schematics





Front Seat

Removal & Installation

1. Move the seat to the furthest forward position and remove the protective cover from the seat guide rail.



 Remove the guide rail mounting bolts (1). (Tighten: Guide rail mounting bolts to 32 N·m)



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- 3. Move seat to the furthest rearward position and remove the protective cover from the guide rail.
- 4. Remove the guide rail mounting bolts (1).
- 5. Disconnect seat heating element electrical connector and remove the front seat.
- 6. Installation is in the reverse order of removal.



Rear Seats

Removal & Installation

- 1. Open the back door.
- 2. Pull the seat release (1) upward to fold the rear seat.



- 3. Press the seat latch rod to separate the back of the seat from the clamp rod.
- 4. Pull up the seat strap behind the seat and unlock the latch in front of the seat.



5. Installation is in the reverse order of removal.



Heated Seat Switch

Removal & Installation



- 1. Using a trim stick, carefully remove the switches (1) from the mounting bezel.
- 2. Disconnect the heated seat switch electrical connector.
- 3. Installation is in the reverse order of removal.

Heated Seat Element

Removal & Installation

- 1. Disconnect the negative battery cable.
- 2. Remove the appropriate seat cushion.
- 3. Disconnect the inoperative heated seat cushion electrical connector.
- 4. Remove the inoperative heating element from the seat.
- 5. Installation is in the reverse order of removal.



IMMOBILIZER CONTROL MODULE

Description

The vehicle security system uses an Immobilizer control module as an anti-theft device that prevents the engine from starting if an incorrect key is inserted into the ignition switch.

Operation

When an incorrect key is inserted into the ignition switch, the vehicle security system senses the incorrect key and sends a signal to the Immobilizer control module. The Engine Control Module (ECM) receives the signal from Immobilizer control module via the R-Line. The ECM then disables the engine from starting.

Electrical Schematics





IMMOBILIZER CONTROL MODULE

Immobilizer Control Module Connector Pin-Out Table

PIN	CIRCUIT IDENTIFICATION	PIN	CIRCUIT IDENTIFICATION
1	Continuous Supply Voltage	7	Diagnostic Link K
2	GND	8	W-Line
3	-	9	Coil (GND)
4	Ignition Switch	10	Coil (ANT B)
5	R-Line	11	Coil (ANT A)
6	-	—	-



DIAGNOSIS & TESTING

Diagnostic Help

- 1. The X-431 scan tool connects to the Data Link Connector (DLC) and communicates with the vehicle electronic modules through the class two serial data circuit.
- 2. Confirm that the malfunction is current and carry-out the diagnostic tests and repair procedures.
- 3. If the DTC cannot be deleted, it is a current fault.
- 4. Use a digital multimeter to perform voltage readings on electronic systems.
- 5. Refer to any Technical Bulletins that issued.
- 6. Visually inspect the related electrical wiring harness.
- 7. Inspect and clean all Immobilizer control module grounds that are related to the DTC.
- 8. If numerous trouble codes were set, use the electrical schematic and look for any common ground circuits or voltage supply circuits that may apply to the DTC.

Intermittent DTC Troubleshooting

If the failure is intermittent, perform the following:

- Check for loose connectors.
- Look for any chafed, pierced, pinched, or partially broken wires.
- Monitor the scan tool data relative to this circuit.
- Wiggle the related electrical wiring harness and connectors while looking for an interrupted signal on the affected circuit.
- If possible, try to duplicate the conditions under which the DTC set.
- Look for the data to change or for the DTC to reset during the wiggle test.
- Look for broken, bent, pushed out or corroded terminals.
- Inspect the sensor and mounting area for any condition that would result in an incorrect signal, such as damage or foreign material.
- A data recorder, and/or oscilloscope should be used to help diagnose intermittent conditions.

Ground Inspection

Ground connections are very important to the proper operation of electrical and electronic circuits. Ground connections are often exposed to moisture, dirt and other corrosive elements. The corrosion (rust) can become an unwanted resistance. This added resistance can alter the way a circuit works.

Electronically controlled circuits are very sensitive to proper grounding. A loose or corroded ground can drastically affect an electronically controlled circuit. A poor or corroded ground can effect the circuit. Perform the following when inspecting a ground connection:

- 1. Remove the ground bolt or screw.
- 2. Inspect all mating surface for tarnish, dirt, rust, etc.
- 3. Clean as required to assure good contact.
- 4. Reinstall bolt or screw securely.
- 5. Inspect for "add-on" accessories which may be interfering with the ground circuit.
- 6. If several wires are crimped into one ground eyelet terminal, check for proper crimps. Make sure all of the wires are clean, securely fastened and providing a good ground path. If multiple wires are crimped to one eyelet, make sure no excess wire insulation has been crimped creating a bad ground.

Diagnostic Tools

- Diagnostic Scan Tool X-431
- Digital Multimeter
- Jumper Wire

Diagnostic Trouble Code (DTC) List

Immobilizer Control Module DTC List

DTC	DTC DEFINITION
B1000	ECU Defect, Internal Errors
B3040	Communication Error On W-Line, ECM Doesn't Answer On Challenge Or Response Requests
B3042	W-Line Short Circuit To Ground
B3043	W-Line Short Circuit To Battery
B3045	DWA Line Short Circuit To Ground Or Open Circuit, DWA Line Malfunction
B3048	DWA Line Short Circuit To Battery
B3050	Relay Extern Line Short Circuit To Ground Or Open Circuit, Relay Extern Line Malfunction
B3053	Relay Extern Line Short Circuit To Battery
B3055	No Transponder Modulation Or No Transponder
B3056	No Transponder Fix Code Programmed
B3057	No Security Code Programmed
B3060	Unprogrammed Transponder Fix Code Received
B3061	Disturbed Or No Challenge / Response Transponder Communication
B3077	Read-Only Transponder Detected



Remote Keyless Entry (RKE) Inoperative

No Response From Remote Keyless Entry (RKE) Transmitter

1. CHECK BATTERY

• Check battery of the RKE transmitter.

Is the battery voltage of the RKE transmitter normal?

Yes >> Go to the next step.

No >> This concern has been caused by the transmitter battery. Go to step 4.

2. CHECK THE IGNITION LOCK CYLINDER CONDITION

• Check the ignition lock cylinder for proper operation.

Is the check result normal?

Yes >> Go to the next step.

No >> Repair or replace the ignition lock cylinder key switch.

3. PERFORM THE RKE TRANSMITTER MATCH PROCEDURE

- · Close all the doors.
- Insert the ignition key into the ignition switch which has lost synchronization in LOCK position.
- Press any button on the RKE transmitter within 5 seconds.
- Pull the ignition key out of the ignition switch.
- Try to operate the RKE transmitter.

Does the RKE transmitter operate properly?

Yes >> Erase all codes before returning the vehicle to the customer.

No >> Go to the next step.



4. PERFORM THE RKE TRANSMITTER MATCH WITH THE X-431

- Replace the RKE transmitter.
- Connect the X-431 scan tool to the Data Link Connector (DLC), press the POWER key to start the X-431 (use the most current software available).
- Turn ignition switch on.
 - Enter the Diagnostic Program.
 - Select Chery main program.
 - Select diagnostic version.
 - Enter download program.
 - Select T11 series, and then select ISU.
 - Select "Remoter Match".



- Press the lock button on the RKE transmitter for less than 2 seconds.
- Pull out the ignition switch.
- Try to operate the RKE transmitter.

Does the RKE transmitter operate properly?

- Yes >> Erase all codes before returning the vehicle to the customer. The concern was caused by the RKE transmitter.
- No >> Replace the FBCM (See FBCM Removal & Installation in Section 15 Body & Accessories). Refer to the RKE transmitter match procedure with X-431 as the description. Perform match between the RKE transmitter and FBCM with X-431.



Diagnostic Trouble Code (DTC) Tests

B1000 - ECU Defect: Internal Errors

CHERY



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On Board Diagnostic Logic

• Self-diagnosis detection logic.

DTC NO.	DTC DEFINITION	DTC DETECTION CONDITION	POSSIBLE CAUSE
B1000	ECU Defect, Internal Errors	Immobilizer control module detects an internal failure.	 Immobilizer control module

DTC Confirmation Procedure:

Before performing the following procedure, confirm that battery voltage is more than 12 V.

- Turn ignition switch off.
- Connect the X-431 scan tool to the Data Link Connector (DLC) use the most current software available.
- Turn ignition switch on, with the scan tool, view and erase stored DTCs in the Immobilizer control module.
- Try to start the engine.
- Turn ignition switch off, and wait a few seconds, then turn ignition switch on.
- With the scan tool, view DTCs in the Immobilizer control module.
- If the DTC is detected, the condition is current. Go to Diagnostic Procedure Step 1.
- If the DTC is not detected, the DTC condition is intermittent (See Diagnostic Help and Intermittent DTC Troubleshooting in Section 15 Body & Accessories for more information).

NOTE :

While performing electrical diagnosis & testing, always refer to the electrical schematics for specific circuit and component information.

Diagnostic Procedure

1. СНЕСК DTC

• Perform DTC confirmation procedure.

Is DTC B1000 present?

Yes >> Go to the next step.

No >> The condition that caused the DTC to set is currently not present (See Diagnosis & Testing Diagnostic Help in Section 15 Body & Accessories).

2. CHECK IMMOBILIZER CONTROL MODULE ELECTRICAL CONNECTOR

- Turn ignition switch off.
- Disconnect the Immobilizer control module electrical connector C-025 (1).
- Inspect the electrical connector for damage.
- Is the electrical connector OK?

Yes >> Go to the next step.

No >> Repair or replace the electrical connector as necessary.





3. CHECK IMMOBILIZER CONTROL MODULE POWER SUPPLY

- Turn ignition switch on.
- Check if voltage is present on the Immobilizer control module connector C-025, pin 4,1 and ground.

IMMOBILIZER CONTROL MODULE TERMINAL	GROUND	
1	Ground	
4	Ground	Itsmd150012

Is 12 V present?

- Yes >> Replace and program the Immobilizer control module. Refer to DTC B3077 Diagnostic Procedure.
- No >> For DTC B3050, go to the next step. For DTC B3053, go to the step 6.

4. CHECK IMMOBILIZER CONTROL MODULE ELECTRICAL CONNECTOR

- Turn ignition switch off.
- Disconnect the Immobilizer control module electrical connector C-026 (1).
- Inspect the electrical connector for damage.

Is the electrical connector OK?

Yes >> Go to the next step.

No >> Repair or replace the electrical connector as necessary.





5. CHECK IMMOBILIZER COIL

• Check the resistance between the Immobilizer coil connector C-026, pin 9 and pin 11.

IMMOBILIZER COIL TERMINAL	IMMOBILIZER COIL TERMINAL	RESISTANCE	
9	11	5 - 20 ohms	Itsmd150015

- The resistance should be 5 to 20 ohms.
- Check the resistance between the Immobilizer coil connector C-026, pin 9 and pin 10.
- Check the resistance between the Immobilizer coil connector C-026, pin 11 and pin 10.



Is the check result normal?

- Yes >> Go to the next step.
- No >> Replace the Immobilizer coil.

6. снеск отс

- With the X-431 scan tool, read the Immobilizer control module DTCs.
- Refer to "DTC Confirmation Procedure".

Is DTC B1000 still present?

- Yes >> Replace and program the Immobilizer control module. Refer to DTC B3077 Diagnostic Procedure.
- No >> The system is now operating properly. Reassemble the vehicle and verify the customers complaint is repaired.



B3042 - W-Line Short Circuit To Ground B3043 - W-Line Short Circuit To Battery

Immobilizer Control Module



Chery Automobile Co., Ltd.

On Board Diagnostic Logic

• Self-diagnosis detection logic.

DTC NO.	DTC DEFINITION	DTC DETECTION CONDITION	DTC SET CONDITION	POSSIBLE CAUSE
B3042	W-line short circuit to ground		The Immobilizer control module detects a short ground condition on the W-Line for at least 3 seconds.	 Harness or connectors Immobilizer control module ECM
B3043	W-Line short circuit to battery	Ignition switch. ON	The Immobilizer control module detects a short battery condition on the W-Line for at least 3 seconds.	 Harness or connectors Immobilizer control module ECM

DTC Confirmation Procedure:

Before performing the following procedure, confirm that battery voltage is more than 12 V.

- Turn ignition switch off.
- Connect the X-431 scan tool to the Data Link Connector (DLC) use the most current software available.
- Turn ignition switch on, with the scan tool, view and erase stored DTCs in the Immobilizer control module.
- Try to start the engine.
- Turn ignition switch off, and wait a few seconds, then turn the ignition switch on.
- With the scan tool, view active DTCs in the Immobilizer control module.
- If the DTC is detected, the condition is current. Go to Diagnostic Procedure Step 1.
- If the DTC is not detected, the DTC condition is intermittent (See Diagnostic Help and Intermittent DTC Troubleshooting in Section 15 Body & Accessories for more information).

NOTE :

While performing electrical diagnosis & testing, always refer to the electrical schematics for specific circuit and component information.

Diagnostic Procedure

1. CHECK GROUND CONNECTION

- Turn ignition switch off.
- Loosen and retighten ground screws on the body (See Ground Inspection in Section 15 Body & Accessories).
- Inspect ground connection C-204 mounting position (See Vehicle Wiring Harness Layout Main Harness in
- Section 16 Wiring).

Is the ground connection OK?

Yes >> Go to the next step.

No >> Repair or replace ground connection.

2. CHECK IMMOBILIZER CONTROL MODULE DTC

• With the scan tool, view DTCs in the Immobilizer control module. Refer to DTC confirmation procedure. *Is the warning light flashing and DTC B3042 or B3043 present?*

Yes >> Go to the next step.

No >> The conditions that caused this code to set are not present at this time (See Diagnostic Help in Section 15 Body & Accessories).



3. CHECK ENGINE CONTROL MODULE (ECM) ELECTRICAL CONNECTOR

- Turn ignition switch off.
- Disconnect the Engine Control Module (ECM) electrical connector E-001 (1).
- Inspect the electrical connector for damage.

Is the electrical connector OK?

Yes >> Go to the next step.

No >> Repair or replace the electrical connector as necessary.



4. CHECK IMMOBILIZER CONTROL MODULE ELECTRICAL CONNECTOR

- Disconnect the Immobilizer control module electrical connectors C-025 and C-026 (1).
- Inspect the electrical connector for damage.

Is the electrical connector OK?

Yes >> Go to the next step.

No >> Repair or replace the electrical connector as necessary.



5. CHECK IMMOBILIZER CONTROL MODULE AND ECM COMMUNICATION CIRCUIT

• For DTC B3042, check the resistance of W-Line between the Immobilizer control module connector C-025, pin 8 and ground.

IMMOBILIZER CONTROL MODULE TERMINAL	TERMINAL	RESULT	
8	Ground	Continuity should not exist	L → ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓

• For DTC B3043, turn ignition switch on, check voltage between the Immobilizer control module connector C-025, pin 8 and ground.

IMMOBILIZER CONTROL MODULE TERMINAL	TERMINAL	RESULT	
8	Ground	12 V should not exist	L ↓ ↓ Itsmd150011

Is the check result normal?

- Yes >> Go to the next step.
- No >> Repair the circuits fault as necessary.

6. REPLACE AND PROGRAM THE IMMOBILIZER CONTROL MODULE

- Replace and program the Immobilizer control module with the X-431.
- Reconnect all disconnected electrical harness connectors.
- With the X-431 scan tool, view the DTCs in the Immobilizer control module.

Is DTC B3042 or B3043 present again?

- Yes >> Go to the next step.
- No >> The system is now operating properly. The DTC was caused by Immobilizer control module.



7. REPLACE AND PROGRAM THE ECM

- With the X-431 scan tool, view active DTCs in the ECM.
- Refer to "DTC Confirmation Procedure".

Is DTC B3042 or B3043 still present?

- Yes >> Replace and program ECM.
- No >> The system is now operating properly. Reassemble the vehicle and verify the customers complaint is repaired.

B3050 - Relay External Line Short Circuit To Ground Or Open Circuit, Relay External Line Malfunction B3053 - Relay External Line Short Circuit To Battery





On Board Diagnostic Logic

• Self-diagnosis detection logic.

DTC NO.	DTC DEFINITION	DTC DETECTION CONDITION	DTC SET CONDITION	POSSIBLE CAUSE
B3050	Relay external line short circuit to ground or open circuit, relay external line malfunction	Ignition switch: ON	The Immobilizer control module detects a short to ground condition on the W-Line for at least 3 seconds.	 Harness or connectors Immobilizer control module
B3053	Relay external line short circuit to battery	Ignition switch: ON	The Immobilizer control module detects a short to battery condition on the relay external line.	 Harness or connectors Immobilizer control module

DTC Confirmation Procedure:

Before performing the following procedure, confirm that battery voltage is more than 12 V.

- Turn ignition switch off.
- Connect the X-431 scan tool to the Data Link Connector (DLC) use the most current software available.
- Turn ignition switch on, with the scan tool, view and erase stored DTCs in the Immobilizer control module.
- Try to start the engine.
- Turn ignition switch off, and wait a few seconds, then turn ignition switch on.
- With the scan tool, view active DTCs in the Immobilizer control module.
- If the DTC is detected, the condition is current. Go to Diagnostic Procedure Step 1.
- If the DTC is not detected, the DTC condition is intermittent (See Diagnostic Help and Intermittent DTC Troubleshooting in Section 15 Body & Accessories for more information).

NOTE :

While performing electrical diagnosis & testing, always refer to the electrical schematics for specific circuit and component information.



Diagnostic Procedure

1. CHECK GROUND CONNECTION

- Turn ignition switch off.
- Loosen and retighten ground screws on the body (See Ground Inspection in Section 15 Body & Accessories).
 Inspect ground connection C-204 mounting position (See Vehicle Wiring Harness Layout Main Harness in
- Section 16 Wiring).

Is the ground connection OK?

- Yes >> Go to the next step.
- No >> Repair or replace ground connection.

2. CHECK IMMOBILIZER CONTROL MODULE DTC

• With the scan tool, view DTCs in the Immobilizer control module. Refer to DTC confirmation procedure. *Is DTC B3050 or B3053 present?*

Yes >> Go to the next step.

No >> The condition that caused the DTC to set is currently not present (See Diagnosis & Testing Diagnostic Help in Section 15 Body & Accessories).

3. CHECK IMMOBILIZER CONTROL MODULE ELECTRICAL CONNECTOR

- Turn ignition switch off.
- Disconnect the Immobilizer control module electrical connectors C-025 (1).
- Inspect the electrical connector for damage.

Is the electrical connector OK?

Yes >> Go to the next step.

No >> Repair or replace the electrical connector as necessary.





4. CHECK IMMOBILIZER CONTROL MODULE POWER SUPPLY

- Turn ignition switch on.
- Check if voltage is present on the Immobilizer control module connector C-025, pin 4,1 and ground.

IMMOBILIZER CONTROL MODULE TERMINAL	GROUND	
1	Ground	
4	Ground	Itsmd150012

Is 12 V present?

- Yes >> Replace and program the Immobilizer control module. Refer to DTC B3077 Diagnostic Procedure.
- No >> For DTC B3050, go to the next step. For DTC B3053, go to the step 6.

5. CHECK IMMOBILIZER CONTROL MODULE POWER SUPPLY CIRCUIT

- Turn ignition switch off.
- Disconnect the negative battery cable.
- Disconnect the body fuse and relay box electrical connector A.
- Check harness continuity between the following terminals:
- Continuity should exist.





- Check for harness continuity between the following terminals:
- Continuity should exist.

BODY FUSE AND RELAY BOX TERMINAL	IMMOBILIZER CONTROL MODULE TERMINAL	CONTINUITY	
A6	4	Yes	Itsmd150014

- Check harness for a short to ground.
- Continuity between Immobilizer control module power supply and ground should not exist.

Is the check result normal?

Yes >> Go to the step 7.

No >> Repair or replace the open or high resistance circuit or short to ground in harness or connectors.

6. CHECK IMMOBILIZER CONTROL MODULE POWER SUPPLY CIRCUIT

- Turn ignition switch off.
- Disconnect the negative battery cable.
- Disconnect the body fuse and relay box electrical connector A.
- Check the resistance between Immobilizer control module ignition switch circuit terminal 4 and Immobilizer control module battery supply circuit terminal 1.

IMMOBILIZER CONTROL MODULE TERMINAL	IMMOBILIZER CONTROL MODULE TERMINAL	CONTINUITY	tsmd150018
1	4	No	

• Check resistance between Immobilizer control module ignition switch circuit and other power circuits. *Is the check result normal?*

Yes >> Go to the step 8.

No >> Repair or replace short to power circuits in harness or connectors.



7. DETECT MALFUNCTIONING PART

- Check the following:
 - Body fuse and relay box
 - Fuse F17 (10A), fuse F26 (10A)
 - Harness between battery and body fuse and relay box

Is the check result normal?

- Yes >> Go to the next step.
- No >> Repair or replace damaged components.

8. REPLACE AND PROGRAM THE IMMOBILIZER CONTROL MODULE

- With the X-431 scan tool, view active DTCs in the Immobilizer control module.
- Refer to "DTC Confirmation Procedure".

Is DTC B3050 or B3053 still present?

- **Yes** >> Replace and program Immobilizer control module.
- No >> The system is now operating properly. Reassemble the vehicle and verify the customers complaint is repaired.


B3055 - No Transponder Modulation Or No Transponder B3056 - No Transponder Fixed Code Programmed





On Board Diagnostic Logic

• Self-diagnosis detection logic.

DTC NO.	DTC DEFINITION	DTC DETECTION CONDITION	DTC SET CONDITION	POSSIBLE CAUSE
B3055	No transponder modulation or no transponder	Ignition switch: ON	The Immobilizer control module detects no transponder or no transponder modulation condition.	 Transponder Harness or connectors Immobilizer control module
B3056	No transponder fixed code programmed	Ignition switch: ON	The Immobilizer control module detects that the transponder is not programmed.	 Transponder Harness or connectors Immobilizer control module

DTC Confirmation Procedure:

Before performing the following procedure, confirm that battery voltage is more than 12 V.

- Turn ignition switch off.
- Connect the X-431 scan tool to the Data Link Connector (DLC) use the most current software available.
- Turn the ignition switch on, with the scan tool, view and erase stored DTCs in the Immobilizer control module.
 Try to start the engine.
- Turn ignition switch off, and wait a few seconds, then turn the ignition switch on.
- With the scan tool, view active DTCs in the Immobilizer control module.
- If the DTC is detected, the condition is current. Go to Diagnostic Procedure Step 1.
- If the DTC is not detected, the DTC condition is intermittent (See Diagnostic Help and Intermittent DTC Troubleshooting in Section 15 Body & Accessories for more information).

NOTE :

While performing electrical diagnosis & testing, always refer to the electrical schematics for specific circuit and component information.

Diagnostic Procedure

1. CHECK GROUND CONNECTION

- Turn ignition switch off.
- Loosen and retighten ground screws on the body (See Ground Inspection in Section 15 Body & Accessories).
- Inspect ground connection C-204 mounting position (See Vehicle Wiring Harness Layout Main Harness in
- Section 16 Wiring).

Is the ground connection OK?

Yes >> Go to the next step.

No >> Repair or replace ground connection.

2. CHECK IMMOBILIZER CONTROL MODULE DTC

• With the scan tool, view DTCs in the Immobilizer control module. Refer to DTC confirmation procedure. *Is DTC B3055 present?*

Yes >> Go to the next step.

No >> The condition that caused the DTC to set is currently not present (See Diagnosis & Testing Diagnostic Help in Section 15 Body & Accessories).



3. CHECK IMMOBILIZER CONTROL MODULE ELECTRICAL CONNECTOR

- Turn ignition switch off.
- Disconnect the Immobilizer control module electrical connectors C-026 (1).
- Inspect the electrical connector for damage.

Is the electrical connector OK?

Yes >> Go to the next step.

No >> Repair or replace the electrical connector as necessary.



4. CHECK IMMOBILIZER COIL

• Check the resistance of the Immobilizer coil between the Immobilizer coil connector C-026, pin 9 and pin 11.

IMMOBILIZER COIL TERMINAL	IMMOBILIZER COIL TERMINAL	
9	11	Itsmd150015

Is the resistance range from 5 to 20 ohms?

Yes >> Go to the next step.

No >> Replace the Immobilizer coil.



5. CHECK IMMOBILIZER COIL

- Check the resistance of the Immobilizer coil between the Immobilizer coil connector C-026, pin 9 and pin 10.
- Check the resistance of the Immobilizer coil between the Immobilizer coil connector C-026, pin 11 and pin 10.

IMMOBILIZER COIL TERMINAL	IMMOBILIZER COIL TERMINAL	CONTINUITY	
9	10	Not	
11	10		ltsmd150016

• Continuity should not exist.

Is the check result normal?

Yes >> Go to the next step.

No >> Replace the Immobilizer coil.

6. REPLACE AND PROGRAM TRANSPONDER

- Reconnect the Immobilizer control module electrical connector C-026.
- Replace the chip (1) with a new one.



- Turn ignition switch on.
- With the X-431 scan tool, choose T11 series.
 - Choose "immobilize".
 - Choose "input code".
 - Input the safety code.
 - Click the small keyboard.
 - Click "OK".
 - Choose "Immobilizer adapt".
 - Choose "Key learning" immediately.
 - Click "OK".



• Try to start the engine.

Is the warning light flashing and DTC B3055 present?

Yes >> Go to the next step.

No >> No problem found at this time. This concern may have been caused by the transponder. Erase all codes before returning the vehicle to the customer.



7. REPLACE AND PROGRAM IMMOBILIZER CONTROL MODULE

- Using the wiring schematic as a guide, inspect the related wiring and connectors of the Immobilizer control module.
- Verify that there is good terminal contact in the related connectors.
- Try to start the engine.
- With the X-431 scan tool, view active DTCs in the Immobilizer control module.

Is the warning light flashing and DTC B3055 or B3056 still present?

Yes >> Replace and match the Immobilizer control module (This concern may have been caused by Immobilizer control module internal fault). Refer to DTC B3077 Diagnostic Procedure.

No >> No problem found at this time.

This concern may have been caused by a loose or corroded terminal or connector. Erase all codes before returning the vehicle to the customer.



B3060 - Unprogrammed Transponder Fixed Code Received

B3061 - Disturbed Or No Challenge/Response Transponder Communication

B3077 - Read-Only Transponder Detected





On Board Diagnostic Logic

• Self-diagnosis detection logic.

DTC NO.	DTC DEFINITION	DTC DETECTION CONDITION	DTC SET CONDITION	POSSIBLE CAUSE
B3060	Unprogrammed transponder fixed code received		The Immobilizer control module detects the received unprogrammed transponder condition.	
B3061	Disturbed or no challenge/response transponder communication	Ignition switch: ON	The Immobilizer control module detects the received unprogrammed transponder condition.	 Iransponder Harness or connectors Immobilizer control module ECM
B3077	Read-only transponder detected		The Immobilizer control module detects a read-only transponder condition.	

DTC Confirmation Procedure:

Before performing the following procedure, confirm that battery voltage is more than 12 V.

- Turn ignition switch off.
- Connect the X-431 scan tool to the Data Link Connector (DLC) use the most current software available.
- Turn the ignition switch on, with the scan tool, view and erase stored DTCs in the Immobilizer control module.
- Try to start the engine.
- Turn the ignition switch off, and wait a few seconds, then turn the ignition switch on.
- With the scan tool, view active DTCs in the Immobilizer control module.
- If the DTC is detected, the condition is current. Go to Diagnostic Procedure Step 1.
- If the DTC is not detected, the DTC condition is intermittent (See Diagnostic Help and Intermittent DTC Troubleshooting in Section 15 Body & Accessories for more information).

NOTE :

While performing electrical diagnosis & testing, always refer to the electrical schematics for specific circuit and component information.



Diagnostic Procedure

1. CHECK GROUND CONNECTION

- Turn ignition switch off.
- Loosen and retighten ground screws on the body (See Ground Inspection in Section 15 Body & Accessories).
 Inspect ground connection C-204 mounting position (See Vehicle Wiring Harness Layout Main Harness in

Section 16 Wiring). Is the ground connection OK?

Yes >> Go to the next step.

No >> Repair or replace ground connection.

2. CHECK IMMOBILIZER CONTROL MODULE DTC

• With the scan tool, view DTCs in the Immobilizer control module. Refer to DTC confirmation procedure. *Is DTC B3060, B3061 or B3077 present?*

Yes >> For DTC B3060, go to step 5. For DTC B3061, go to the next step. For DTC B3077, go to step 6.

No >> The condition that caused the DTC is currently not present. Monitor the scan tool data relative to this circuit while wiggle testing the wiring and connectors and looking for the DTC to reset.

Using the wiring schematic as a guide, inspect the related wiring and connectors of the Immobilizer control module.

Verify that there is good terminal contact in the related connectors.

3. CHECK IMMOBILIZER CONTROL MODULE ELECTRICAL CONNECTOR

- Turn ignition switch off.
- Disconnect the Immobilizer control module electrical connectors C-026 (1).
- Inspect the electrical connector for damage.

Is the electrical connector OK?

Yes >> Go to the next step.

No >> Repair or replace the electrical connector as necessary.



4. CHECK THE IMMOBILIZER COIL

• Check the resistance of the Immobilizer coil between the Immobilizer coil connector C-026, pin 9 and pin 11.

IMMOBILIZER COIL TERMINAL	IMMOBILIZER COIL TERMINAL	
9	11	
		ltsmd150015

Is the resistance range from 5 to 20 ohms?

Yes >> Go to the next step.

No >> Replace the Immobilizer coil.

5. CHECK IMMOBILIZER COIL

- Check the resistance between the Immobilizer coil connector C-026, pin 9 and pin 10.
- Check the resistance between the Immobilizer coil connector C-026, pin 11 and pin 10.

IMMOBILIZER COIL TERMINAL	IMMOBILIZER COIL TERMINAL	CONTINUITY	
9	10	Not	
11	10	Not	ltsmd150016

Is the check result normal?

- **Yes** >> Go to the next step.
- No >> Replace the Immobilizer coil.



6. PROGRAM THE TRANSPONDER

- Turn ignition switch on.
- Using the X-431 scan tool, program the vehicle security system.
- •
- Turn ignition switch on and perform the following:
 - With the X-431 scan tool, choose T11 series.
 - Choose "immobilize".
 - Input the safety code.
 - Click the small keyboard.
 - Click "OK".
 - Choose "Immobilizer adapt".
 - Choose "Key learning" immediately.
 - Click "OK".



- Try to start the engine.
- With the X-431 scan tool, view active DTCs in the Immobilizer control module.

Is DTC B3060, B3061 or B3077 present?

Yes >> Go to the next step.

No >> No problem found at this time. This concern may have been caused by the not programmed transponder. Erase all codes before returning the vehicle to the customer.

7. REPLACE AND PROGRAM THE TRANSPONDER

• Replace the chip (1) with a new one.





- Turn ignition switch on.
- Repeat step 5.
- Try to start the engine.
- With the X-431 scan tool, view DTCs in the Immobilizer control module.

Is DTC B3060, B3061 or B3077 present?

- Yes >> Replace and program the Immobilizer control module (See Immobilizer Control Module Removal & Installation in Chapter 15 Body & Accessories). Go to the next step.
- No >> No problem found at this time. This concern may have been caused by the transponder fault. Erase all codes before returning the vehicle to the customer.



8. VERIFY NEW IMMOBILIZER CONTROL MODULE

- Try to start the engine.
- With the X-431 scan tool, view active DTCs in the Immobilizer control module.

Is DTC B3060, B3061 or B3077 present?

Yes >> Go to the next step.

No >> No problem found at this time. This concern may have been caused by the Immobilizer control module fault. Erase all codes before returning the vehicle to the customer.

9. REPLACE AND MATCH ECM

- Using the wiring schematic as a guide, inspect the related wiring and connectors of the ECM.
- Verify that there is good terminal contact in the related connectors.
- Try to start the engine.
- With the X-431 scan tool, view active DTCs in Immobilizer control module.

Is DTC B3060, B3061 or B3077 still present?

Yes >> Replace the ECM and match the ECM to the Immobilizer control module (See Electronic Control Module Removal & Installation in Section 03 Electronic Engine Controls) (This concern may have been caused by an ECM internal fault).

No >> No problem found at this time.



ON-VEHICLE SERVICE

Immobilizer Control Module

Removal & Installation

- 1. Remove the instrument panel (See Instrument Panel Removal & Installation in Section 15 Body & Accessory).
- 2. Remove the steering column mounting bolts.
- 3. Remove the Immobilizer control module mounting bolt (1).



- 4. Disconnect the Immobilizer control module electrical harness.
- 5. Installation is in the reverse order of removal.

Installation Notes:

•

NOTE :

The Immobilizer control module must be matched to the ECM before the vehicle will start.

Matching Engine Control Module (ECM) To New Immobilizer Control Module

Perform the following to match the ECM to the Immobilizer control module:

- With the X-431 scan tool, choose T11 series.
 - Choose "immobilize".
 - Choose "input code".
 - Input the safety code.
 - Click the small keyboard.
 - Click "OK".
 - Choose "Immobilizer adapt".
 - Choose "read EMS to Immobilizer" immediately.
 - Click "OK".



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BODY DIMENSIONS

Description

- All measurements should be made from the bare metal, remove trim and bumper covers as necessary.
- Repair the badly damaged areas before taking measurements for underbody alignment.
- Monitor the upper body structure for excessive stress or movement while making any corrections to the underbody structure.
- Remove all the necessary glass to prevent breakage.
- All dimensions are shown in millimeters (mm).



Front Body Structure

Dimension of Engine Compartment (Units: mm)



Dimension of Body Openings

Dimension of body, Left-Right.

Uppercase letters indicate the right side of the body, lowercase letters indicate the left side of the body (Rear view).









Front Structure

Dimension of Front Structure (Units: mm)

Body dimension, Left-Right





BODY DIMENSIONS

S/N	CONTROL DIMENSION (mm)	DESCRIPTION		S/N	CONTROL DIMENSION (mm)	DESCRIPTION
AB=PQ	1485.8	Diagonal distance of front windshield				Center distance between the hole
CD	733.2	Distance of front windshield at Y0		FH	270.7	absorber and the installation hole of
		Center distance				
IJ 1491.6	between the right end of upper cover of the lower beam of front windshield and		FG	1126.8	Center distance between the holes of left/right front shock absorber	
	the installation hole of front fender		LM	952.8	Center distance between the holes of left/right engine suspension	
EH	736.1	Center distance between the upper cover hole of the lower beam of front windshield and the installation hole of front fender		KE	690.5	Center distance between the upper cover hole of front windshield beam and the installation hole of radiator

NOTE :

Uppercase letters indicate the left side of the body. Lowercase letters indicate the right side of the body (view from the rear of the vehicle).



Frame







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Vehicle Clearance

Front View





Cross section A1-A1, requirements for clearance and levelness.

Cross section A2-A2, requirements for clearance and levelness.

Cross section A3-A3, requirements for clearance and levelness.



Cross section A4-A4, requirements for clearance and levelness.



Cross section A5-A5, requirements for clearance and levelness.





Cross section A6-A6, requirements for clearance and levelness.



Cross section A7-A7, requirements for clearance and levelness.



Body

Side View





NOTE :

- The levelness from point A to B should be evenly changed from 0 to 1, and the levelness from point C to B should be evenly changed from 1 to 0.
- The clearance from point F to C should be evenly changed from 6 to 7, and the levelness from point G to H should be evenly changed from 1 to 0.
- The levelness from point K to J should be evenly changed from 0 to 1.
- The tolerance of clearance between front and back doors at MN, NP sections should be within 1.2 mm.

Cross section B1-B1, requirements for clearance and levelness.



Cross section B2-B2, requirements for clearance and levelness.



Cross section B3-B3, requirements for clearance and levelness.



1 - Front Door 2 - Fender

Cross section B4-B4, requirements for clearance and levelness.



Cross section B5-B5, requirements for clearance and levelness.





Cross section B6-B6, requirements for clearance and levelness.



1 - Front Door 2 - Back Door

Cross section B7-B7, requirements for clearance and levelness.



Cross section B8-B8, requirements for clearance and levelness.



Cross section B1-B1, requirements for clearance and levelness.



1 - External Plate Of Side Wall

Cross section C1-C1, requirements for clearance and levelness.



Cross section C2-C2, requirements for clearance and levelness.





Cross section C3-C3, requirements for clearance and levelness.



1 - Side Wall	2 - Rear Bumper
1 - Side Wall	2 - Rear Bumper

Cross section C4-C4, requirements for clearance and levelness.



Cross section C5-C5, requirements for clearance and levelness.





Rear View



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Cross section D1-D1, requirements for clearance and levelness.



1 - Rear Back Door 2 - Head Cover

Cross section D2-D2, requirements for clearance and levelness.



Cross section D3-D3, requirements for clearance and levelness.



Cross section D4-D4, requirements for clearance and levelness.



1 - Rear Back Door 2 - Rear Headlight

Cross section D5-D5, requirements for clearance and levelness.





BUMPERS

Front Bumper

Removal & Installation



- 1. Remove the left and right headlamp (See Headlamp Removal & Installation in Section 15 Body & Accessories).
- 2. Remove the three front bumper mounting bolts (1).
- 3. Remove the front bumper side mounting bolts and the connecting bolts (3) from the front wheel house.
- 4. Raise the vehicle and remove the mounting bolts (2) under the front bumper.
- 5. Disconnect the front fog light electrical connectors and remove the front bumper.
- 6. Installation is in the reverse order of removal.



DOORS

Specification

Torque Specifications

DESCRIPTION	TORQUE (N·m)
Left/Right Front Door Upper Hinge to Body Bolts	36 ± 4
Left/Right Front Door Upper Hinge to Door Bolts	36 ± 4
Left/Right Front Door Lower Hinge to Body Bolts	36 ± 4
Left/Right Front Door Lower Hinge to Door Bolts	36 ± 4
Left/Right Rear Door Upper Hinge to Body Bolts	36 ± 4
Left/Right Rear Door Upper Hinge to Door Bolts	36 ± 4
Left/Right Rear Door Lower Hinge to Body Bolts	36 ± 4
Left/Right Rear Door Lower Hinge to Door Bolts	36 ± 4
Back Door Upper Hinge to Body Bolts	36 ± 4
Back Door Upper Hinge to Door Bolts	50 ± 5
Back Door Lower Hinge to Body Bolts	35 ± 3
Back Door Lower Hinge to Door Bolts	50 ± 5
Left Hood Hinge to Body Bolts	23 ± 2
Left Hood Hinge to Hood Bolts	23 ± 2
Right Hood Hinge to Body Bolts	23 ± 2
Right Hood Hinge to Hood Bolts	23 ± 2
Rear Mounting Bracket of Front Fender to Body Bolts	10 ± 1
Left/Right Front Fender to Body Bolts	10 ± 1
Radiator Support to Body Bolts	10 ± 1


Front Door

Removal & Installation

- 1. Disconnect the negative battery cable.
- 2. Disconnect the inner harness electrical connector on the front door.
- 3. Remove the mounting bolts (1) from the front door hinge.
- 4. Remove the front door assembly.



5. Installation is in the reverse order of removal.

Disassembly

- 1. Turn the ignition switch off.
- 2. Using a small trim stick, remove the pull handle cover (1) from the pull handle (2).





- 3. Remove the inner door handle mounting screw (1).
- 4. Remove the pull handle mounting screws (2).



5. Using a small trim stick, remove the inner door handle trim bezel (1).



- 6. Carefully pry the door trim panel clips from the door.
- 7. Disconnect the power window switch and the door lamp electrical connector.
- 8. Remove the door trim panel.
- 9. Disconnect the speaker connector (1).
- 10. Remove the inner door handle assembly mounting screw (2).
- 11. Disconnect the inner door handle cables (3).
- 12. Remove the protective film (4).





- 13. Temporarily connect the power window switch.
- 14. Turn the ignition switch on and use the power window switch to move the front door glass to a position so the door glass bolts can be removed.
- 15. Turn the ignition switch off and disconnect the power window switch.
- Remove the two door glass mounting bolts (1). (Tighten: Door glass mounting bolts to 11 N·m)
 NOTE: Properly support the door glass when removing the mounting bolts. The door glass may drop and be damaged.



- 17. Remove the door glass weatherstrip (1).
- 18. Lift the door glass and remove the door glass from the door.

NOTE: Take care not to damage the door glass.



- 19. Disconnect the power window motor electrical connector.
- 20. Remove the six power window regulator mounting bolts (1).

(Tighten: Power window regulator mounting bolts to 11 $N \cdot m$)



- 21. Carefully remove the power window regulator.
- 22. Remove the power window motor from the regulator.
- 23. Remove three door lock assembly retaining bolts. (Tighten: Door lock assembly retaining bolts to 9 \pm 1 N·m)



24. Remove the internal unlock cable (1) and lock cable (2).



- Remove the lock buckle with screwdriver. (Tighten: Lock buckle screws to 12 ± 2 N·m)
- 26. Remove the front door outside handle.
- 27. Remove the front door panel and then the protective film.
- 28. Pry up on the cover (1) of the outside handle.
- 29. Remove the mounting bolts with hexagon spline wrench.





- 30. Detach the lock from the linkage rod, remove the lock and the cover of left front door.
- 31. Remove the outside handle.



Assembly

Assemble is in the reverse order of disassembly

Front Door Adjustment

- 1. Adjust the door gap with a spacer gauge.
 - The gap of the upper section between the front door and the back door should be 5.5 \pm 0.7 mm
 - The gap of the outboard side should be 5.5 \pm 0.7 mm
 - The gap between the front door and pole A should be 6.5 ± 1 mm
 - The gap of upper section between front door and back door should be 5.5 \pm 0.7 mm
 - The gap between the front/back door and the doorsill should be 6 ± 1 mm
 - The overall levelness when measured with a magnet should be 0-0.5 mm
- 2. Install the bolts (Part Number: T11-6101103, 2 pcs both upper and lower) into the body for 2-3 turns, tighten with pneumatic wrench. Torque: 35 ± 3 N·m.

Check for the following after repair:

- Any scratches from reassembly
- Whether the bolts and nuts are assembled properly
- Whether the bolts and nuts are properly tightened
- Whether the gap and levelness between front door and back door is within the specifications
- Whether the edge height is 0-0.5 mm.

Replacing Front Door Hinge

- 1. Remove the front fender to gain access to the door hinge (See Fender Removal & Installation in Section 15 Body & Accessories).
- 2. Support the door.
- 3. Remove the four retaining bolts from the upper and lower hinges, and then remove the hinges.



Rear Door

Removal & Installation

- 1. Disconnect the negative battery cable.
- 2. Disconnect the inner electrical harness connector on the rear door.
- 3. Remove the mounting bolts (1) from the rear door hinge.
- 4. Remove the rear door assembly.
- 5. Installation is in the reverse order of removal.



Disassembly

- 1. Remove the bolts to remove the bezel for the inside door handle.
- 2. Pry out the window regulator switch and pull out the electrical harness.
- 3. Remove the door trim panel.
- 4. Remove the mounting bolts for the inside door handle to remove the handle.
- 5. Remove the protective film from the rear door.
- 6. Lower the glass to a proper position, remove the set bolts, move the glass to the bottom of the door, and then remove the door glass.
- 7. Remove the mounting bolts for the glass guide rail.



- 8. Remove the mounting bolts (1) from the window regulator.
- 9. Remove the lock mounting screws with an internal spline socket.
- 10. Loosen the pull rod from the door handle, pull out the electrical harness, and then remove the lock.
- 11. Remove the rear door outside handle.
 - Remove the mounting bolts of the handle seat with hexagon spline wrench from one side of the shield.



- 12. Remove the handle seat.Remove the outside handle.
- 13. Remove the weather strip from the door opening.
- 14. Disconnect the inner harness of the door from outside.

Assembly

Assemble in the reverse order of disassembly.

Rear Door Adjustment

- 1. Adjust the door gap with a spacer gauge.
 - The gap between the rear door and the triangle window should be 8 ± 1.5 mm
 - The gap between the rear door and the side fender should be 6 ± 1 mm
 - The gap between the rear door and the doorsill should be 6 \pm 1 mm
 - The overall levelness when measured with a magnet should be 0-0.5 mm as shown by the arrow
- 2. Install the nuts (Part Number: Q32008, 2 pcs both upper and lower) into the body for 2-3 turns, tighten with pneumatic wrench. Torque: 35 ± 3 N·m.

Check for the following after repair:

- Any scratches from reassembly
- Whether the bolts and nuts are assembled properly
- Whether the bolts and nuts are properly tightened
- Whether the gap between rear door and side fender and the levelness are within the specifications
- Whether the edge of back door is 0-0.5 mm higher than the side fender.





Replacing Rear Door Hinge

- 1. Remove the door check bolts.
- 2. Support the door.
- 3. Remove the four retaining bolts from the upper and lower hinges, and then remove the hinges.

Back Cargo Door

Removal & Installation

- Remove the two back cargo door bolts connecting the back door and hinge. (Tighten: Bolts connecting the back door and hinge to 50 ± 5 N·m) (Tighten: Bolts connecting the hinge and body to 36 ± 4 N·m)
- 2. Disconnect the wiring harness electrical connector.
- Remove the two mounting bolts (1) of the back cargo door stopper on body. (Tighten: Bolts connecting the back cargo door stopper bracket and body to 27 N·m)
- 4. Remove the back cargo door.
- 5. Installation is in the reverse order of removal.

Disassembly

- 1. Remove the back cargo door panel.
- Remove the rear wiper motor (See Rear Wiper Motor Removal & Installation in Section 15 Body & Accessories).
- 3. Remove the protective film from the back cargo door.
- 4. Remove mounting bolts, pull out the harness.
- 5. Remove the outside handle mounting bolts (1) from one side of the door panel.



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- 6. Remove the rod from the door handle from the door lock body, remove the outer handle of back cargo door.
- 7. Remove the back cargo door lock.



- 8. Pull out the connector for the wiring harness.
- 9. Remove the lock.
- 10. Remove the high mounted stop lamp assembly (1).



- 11. Remove the rear fog lamp assembly.
- 12. Remove the spare tire support.



Assembly

Assembly is in the reverse order of disassembly.

Back Cargo Door Adjustment

- 1. Adjust the door gap with a spacer gauge.
 - The gap between the back cargo door and the upper part of the side fender should be 5.8 ± 1 mm
 - The gap between the back cargo door and the middle part of the side fender should be 6.4 \pm 1 mm
 - The gap between the back cargo door and the tail lamp should be 6.2 \pm 1 mm
 - The gap between the rear and head cover should be 9.3 \pm 1.5 mm
 - The overall levelness when measured with a magnet should be 0-0.5 mm
- 2. Install the nuts (Part Number: T11-6301011, 2 pcs both upper and lower) into the body for 2-3 turns, tighten with pneumatic wrench. Torque: 50 ± 3 N⋅m.

Check for the following after repair:

- Any scratches from reassembly
- Whether the bolts and nuts are assembled properly
- Whether the bolts and nuts are properly tightened
- Whether the gap and levelness between back cargo door and side fenders are within the specifications

Replacing Rear Door Hinge

- 1. Remove the door check bolts.
- 2. Support the door.
- 3. Remove the four retaining bolts from the upper and lower hinges, and then remove the hinges.



EXTERIOR LAMPS

Description

The exterior lamps consist of the following:

- Headlamps
- Rear Combination Lamps
- Side Repeater Lamps
- Fog Lamps
- Stop Lamps
- Backup Lamps

Operation

- Front Combination Lamp: With the light switch in the 2nd position, the Body Control Module (BCM) receives input requesting head lamp operation. The BCM then supplies power to the head lamps.
- Turn Signal Lamp: When the turn signal switch is in LH or RH position with the ignition switch in the ON posi-• tion, the FBCM detects the RH or LH turn signal request. The BCM supplies power to the respective turn signal lamp.
- Hazard Lamp: When the hazard switch is in the ON position, the BCM detects the hazard switch signal. The BCM outputs the flasher signal (right and left). The BCM then activates the hazard indicator and audible buzzer.
- Fog Lamp: When the front/rear fog lamp switch is in the ON position and also the light switch is in the 1st or 2nd position. The BCM receives input requesting fog lamp operation. The BCM then supplies power to the fog lamps.
- Stop Lamp: When the brake pedal is applied, the stop lamp switch sends the signal to the RBCM. The RBCM then supplies power to the stop lamps.
- Backup Lamp: When the BCM receives the signal from the backup lamp switch, then the BCM supplies power to the backup lamp.

Specification

Torque Specifications

DESCRIPTION	TORQUE (N·m)
Front Combination Lamp Mounting Bolts	6 ± 1
Front Fog Lamp Mounting Bolts	2.0 ± 0.2
Rear Combination Lamp Mounting Bolts	5 ± 1
Front Ceiling Lamp Mounting Screws	2 ± 0.5
Rear Ceiling Lamp Mounting Screws	3 ± 0.5
High-Mounted Stop Lamp Mounting Screws	3 ± 0.5



Electrical Schematics

Headlamp Aiming System (Page 1 of 2)





Headlamp Aiming System (Page 2 of 2)





Parking, License Plate and Tail Lamps (Page 1 of 2)





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Fog Lamps (Page 1 of 2)





Fog Lamps (Page 2 of 2)





Side Turn Signal and Hazard Warning Lamps (Page 1 of 2)









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Stop Lamps (Page 1 of 1)



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CHERY

Backup Lamp (Page 1 of 1)





Front Combination Lamp Assembly

- 1. Open the hood.
- 2. Disconnect the turn signal lamp.
- 3. Disconnect the high/low beam front combination lamp.
- 4. Remove the three front combination lamp assembly mounting bolts (1).



- 5. Carefully remove the front combination lamp assembly.
- 6. Installation is in the reverse order of removal.







Headlamp Adjustment Procedure

NOTE :

Follow all local laws and regulations and verify the following items before adjustment:

- 1. Check the following before starting the headlamp adjustment procedure:
 - All tires are filled to the proper tire pressure.
 - The vehicle is unloaded (except for spare tire and tools, and include driver's weight for sedan).
 - The vehicle should be parked on a level surface.
 - The headlights are clean.
 - The headlights are working properly.
- 2. Park the vehicle on a level surface approximately 10 meters from the vertical wall or screen directly in front of it. **NOTE:** The vertical wall or screen must be a minimum of 2.4 meters wide.
- 3. Use a screwdriver into the two adjustment holes (1) to adjust the headlamp to proper specifications.



Rear Combination Lamp Assembly

- 1. Open the back cargo door.
- 2. Remove the lower C-pillar trim (See Lower C-Pillar Removal & Installation in Section 15 Body & Accessories).
- 3. Remove three mounting nuts (1) from the body.



- 4. Disconnect the rear combination lamp.
- 5. Carefully remove the rear combination lamp assembly.
- 6. Installation is in the reverse order of removal.



1	Tail Lamp Bulb	12 V (21 W)
2	Backup Lamp Bulb	12 V (21 W)
3	Rear Turn Signal Lamp Bulb	12 V (21 W)
4	Stop Lamp Bulb	12 V (21 W)

Headlamp

- 1. Remove the front combination lamp assembly (See Front Combination Lamp Assembly Removal & Installation in Section 15 Body & Accessories).
- 2. Remove the headlamp bulb cover.
- 3. Disconnect the headlamp bulb electrical connector.
- 4. Remove the headlamp bulb clip.



- 5. Carefully remove the bulb (1) for the high/low beam headlamp.
- 6. Replace the bulb with a new bulb as needed.
- 7. Installation is in the reverse order of removal.



Front Fog Lamp

- 1. Remove the front bumper (See Front Bumper Removal & Installation in Section 15 Body & Accessories).
- 2. Disconnect the fog lamp.
- 3. Remove three mounting nuts (1).



- 4. Replace the bulb with a new bulb (1) as needed.
- 5. Installation is in the reverse order of removal.



Rear Fog Lamp

- 1. Remove the cover of the back cargo door.
- 2. Remove the rear fog lamp mounting screws (1).
- 3. Remove the rear fog lamp.
- 4. Disconnect the electrical connector for the rear fog lamp.
- 5. Installation is in the reverse order of removal.





Tail/Backup/Stop Lamp

- 1. Open the plug cover of storage box at rear luggage cabin.
- 2. Use a trim stick and remove the internal protective cover (1).



- 3. Remove the bulbs for tail/backup/stop lamps by hand through the access hole.
- 4. Replace the bulb with a new bulb as needed.
- 5. Installation is in the reverse order of removal.



Turn Signal Lamp

Removal & Installation

- 1. Remove the front combination lamp (See Front Combination Lamp Removal & Installation in Section 15 Body & Accessories).
- 2. Replace the front turn signal lamp bulb (1).



3. Remove the rear combination lamp (See Rear Combination Lamp Removal & Installation in Section 15 Body & Accessories).

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4. Replace the rear turn signal lamp bulb.



- 5. Hold the side turn signal lamp by hand and pull back and remove the lamp slowly.
- 6. Disconnect the side turn signal lamp connector (1).



- 7. Remove the side turn signal lamp assembly.
- 8. Replace the bulb with a new bulb as needed.
- 9. Installation is in the reverse order of removal.



High Mounted Stop Lamp

Removal & Installation

- 1. Remove the high mounted stop lamp cover (1).
- 2. Remove the high mounted stop lamp mounting screws (2).
- 3. Disconnect the electrical connector (3) of the high mounted stop lamp.



- 4. Remove the high mounted stop lamp assembly.
- 5. Replace the bulb with a new bulb as needed.
- 6. Installation is in the reverse order of removal.

License Plate Lamp

Removal & Installation

1. Press the release tab with a flat screwdriver, remove the license plate lamp.



2. Disconnect the license plate lamp electrical connector.



3. Replace the bulb with a new bulb (1) as needed.



4. Installation is in the reverse order of removal.



FENDER

Front Fender

- 1. Remove the mounting bolts (1) as shown.
- 2. Remove the front fender.
- 3. Installation is in the reverse order of removal.



FUEL DOOR

Fuel Door

- 1. Open the fuel door.
- 2. Remove the two fuel door retaining bolts (1). (Tighten: Fuel door bolts to 5 N·m)
- 3. Remove the fuel door.
- 4. Installation is in the reverse order of removal.



GRILLE

Grille

- 1. Open the hood.
- 2. Remove the radiator grille mounting bolts (1).
- 3. Remove the radiator grille.
- 4. Installation is in the reverse order of removal.





HOOD

Hood

Removal & Installation

 Remove the hood mounting bolts (1) and the stay bars (2). (Tighten: Hood mounting bolts to 23 ± 2 N·m)



- 2. Loosen the windshield washer hose.
- 3. Remove the hood.
- 4. Installation is in the reverse order of removal.

Hood Adjustment

- 1. Adjust the hood gap with a spacer gauge.
 - The gap between the hood and the fender should be 5 \pm 0.5 mm
 - The overall levelness when measured with a magnet should be 0-0.5 mm
- 2. Install the nuts (Part Number: Q1400820, 2 pcs both upper and lower) into the body for 2-3 turns, tighten with pneumatic wrench. Torque: 30 ± 4 N·m.

Check for the following after repair:

- Whether the bolts and nuts are assembled properly
- Whether the bolts and nuts are properly tightened
- Whether the gap between the hood and the fender are within specifications
- Whether the horizontal alignment of the front edge of the fenders is within specifications (0-0.5 mm)



Hood Release Cable

- 1. Remove the left lower trim of the instrument panel (See Instrument Panel Removal & Installation in Section 15 Body & Accessories).
- 2. Remove the lining of the left fender (See Fender Removal & Installation in Section 15 Body & Accessories).
- Remove the radiator support (See Radiator Support Removal & Installation in Section 15 Body & Accessories).
 Loosen the hood release cable.



- 5. Remove the hood release cable.
- 6. Installation is in the reverse order of removal.


LUGGAGE RACK

Luggage Rack

Removal & Installation

- 1. Remove the luggage rack bolt cover and then remove the mounting bolts (1).
- 2. Remove the luggage rack.
- 3. Installation is in the reverse order of removal.





SPARE TIRE SUPPORT

Spare Tire Support

Removal & Installation

1. Loosen the spare tire cover clasp (1) and then remove the spare tire cover.



2. Using special tool, remove the spare tire mounting nuts (1) and then remove the spare tire.



3. Remove the spare tire support mounting bolts (1) and then remove the spare tire support.



4. Installation is in the reverse order of removal.



HORN

Description

A dual note electric horn system is installed on this vehicle. The horn system features electromagnetic horns. The horn system includes the following components:

- Horn The horns are located inside the left front bumper.
- Horn Switch The horn switch is located under the driver airbag.

Operation

The horn system circuit is designed so that the system will remain operational, regardless of the ignition switch position.



Electrical Schematics

Horn (Page 1 of 1)



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Horn

Removal & Installation

- 1. Remove the right headlamp assembly.
- 2. Disconnect the horn electrical connector.
- Remove the horn mounting nut (1). (Tighten: Horn mounting nut to 8 N·m)
- 4. Remove the horn.
- 5. Remove the other horn like this horn.
- 6. Installation is in the reverse order of removal.





MIRRORS

Description

The mirrors are controlled by a single switch assembly located on the driver's door trim panel. A three-position switch selects the right or left power mirror for adjustment. A momentary joystick directional switch allows the driver to adjust the selected power mirror in the Up & Down or Right & Left directions. The heated mirror system is controlled by the Body Control Module (BCM). When there is water vapor on the mirrors, the heated mirrors will eliminate the water vapor.

Operation

Use the mirror select switch, located on the driver's door trim panel to adjust the view obtained in the outside mirrors. Rotate the joystick for Left or Right mirror selection. Select a mirror and press the joystick that correspond with the direction that you want the mirror to move.



Electrical Schematics

Power Mirrors (Page 1 of 2)





Power Mirrors (Page 2 of 2)



Heated Mirrors (Page 1 of 2)





Heated Mirrors (Page 2 of 2)



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Outside Mirror

Removal & Installation

- 1. Disconnect the negative battery cable.
- 2. Remove the outside mirror trim cover.
- 3. Remove the outside mirror retaining bolts (1).
- 4. Disconnect the outside mirror electrical connector (2).
- 5. Remove the outside mirror assembly.
- 6. Installation is in the reverse order of removal.

Installation Notes:

• If replacing the outside mirror lens, remove the lens and replace it before reinstalling the mirror.



PAINT

Paint Codes

Paint Codes

NUMBER	COLOR	ITEM CODE
1	Nasdaq Silver	КН
2	Wolfsburg Gray	GF
3	Chery White	ВК
4	Ochre Red	DS
5	Margeret Blue	HW
6	Magic Black	СВ
7	Wild Green	FJ



RADIATOR SUPPORT

Radiator Support

Removal & Installation

1. Remove the radiator support lever retaining bolts (1).



2. Remove the radiator support mounting bolts (1).



- 3. Loosen the hood release cable.
- 4. Installation is in the reverse order of removal



STATIONARY GLASS

Description

The stationary glass is comprised of the following: • Front Windshield

- Rear Window
- Rear Window Defogger



Electrical Schematics

Rear Window Defogger (Page 1 of 1)





Front Windshield

Removal

- 1. Remove the wiper arms and the lower trim panel from the windshield (See Wiper Arm Removal & Installation in Section 15 Body & Accessories).
- 2. Using piano wire, insert the piano wire between the body and the glass. Attach wooden blocks to both ends of the piano wire.

CAUTION:

To prevent vehicle paint damage, use adhesive tape on painted surfaces during windshield removal. Place a plastic cover between the piano wire and the instrument panel to prevent the instrument panel from being scuffed when removing the glass.

Pull the piano wire around the glass, and cut off the bonding agent to remove the glass.

NOTE :

Leave as much bonding agent as possible on the body when removing the bonding portion of the glass.





Installation

1. Remove the rough portions on the body with a knife and clean the cut bonding agent with a rag soaked with cleaning solvent.

CAUTION:

Even if the entire bonding agent has been cleared, you should also clean the body surface. Do not touch the glass surface after cleaning.

- 2. Remove the stopper with a knife.
- 3. Clear the bonding agent adhered to the glass with a scraper and clean the glass with glass cleaner.

NOTE :

Do not touch the glass after cleaning.



- 4. Replace the clamping piece if necessary:
 - Remove the stopper with a knife.
 - Remove the old clamping piece.
 - Replace with a new clamping piece.
- 5. Position the glass:
 - Place the glass in the proper position.
 - Make reference marks on the glass and the body.
 - Remove the glass.
- 6. Clean the contact surface of the glass:
 - Clear any residue around the peripheral contact face of the glass with glass cleaner.

NOTE :

Do not touch the glass surface after cleaning.

- 7. Install the water resistance piece:
 - Install the water resistance piece using double-sided adhesive tape as shown in the figure.
- 8. Apply a layer of primer M on the contact surface of the body and apply a layer of primer M on the contact face of the body with a brush.



Primer M	Primer M	FIIIIel IVI

NOTE :

Allow the primer coat to dry for a minimum of 3 minutes. Do not apply the primer to the bonding agent. Do not save the opened primer M for later use.

- 9. Apply a layer of primer G on the contact surface of the glass:
 - Apply a layer of primer G on the edges and the contact surface of the glass with a brush or sponge.
 - Wipe the excess primer off with a clean rag before it dries.

NOTE :

Allow the primer coat to dry for a minimum of 3 minutes. Do not apply the primer to the bonding agent. Do not save the opened primer G for later use.

10. Mixing the bonding agent:

- Clean a mixing board and a scraper completely with solvent.
- Thoroughly mix 500 grams of host crystal with 75 grams of hardener on a mixing board with a scraper.

NOTE :

Make sure that the molding is installed before the bonding agent has cured.







- 11. Applying the bonding agent:
 - Cut off the pot tip and fill the bonding agent into the pot.
 - Place the pot into the sealant gun.
 - Apply the bonding agent on the glass as shown in the figure.



CAUTION:

Verify that the water resistant piece is adhered to the panel of the body as shown in the figure.

- 12. To install the glass, align the reference marks on the glass and the body and then lightly press the glass into the body opening.
- 13. Apply the bonding agent on the edges of the glass with a scraper.
- 14. Remove any excessive or over flown bonding agent with a scraper.
- 15. Clamp the glass until the bonding agent has hardened.
- 16. Check for water leakage:
 - Perform the leakage test after the hardening period.
 - Seal any leaks with the proper sealant.
- 17. Install the upper molding of the windshield:
 - Install the upper windshield molding on the body and tap it lightly to fasten it.
 - Install the outer windshield molding.

Rear Window

Removal

- 1. Open the back cargo door.
- 2. Remove the back cargo door trim panel.
- 3. Disconnect the defroster grid electrical connector.
- 4. Remove the double-sided adhesive tape at both ends of the molding with a scraper.
- 5. Rear window removal:
 - Using piano wire, insert the piano wire between the body and the glass.
 - Attach wooden blocks to both ends of the piano wire.
 - Pull the piano wire through between the body and the glass from inside of the vehicle.
 - Pull the piano wire along the bonding agent to cut it off.

CAUTION:

Do not let the piano wire damage the two stoppers.

• Remove the rear window.

Installation

- 1. Place the rear window molding around the glass and fit it manually.
- 2. Remove the rough portions on the body with a knife and clean the cut bonding agent with a rag soaked with cleaning solvent.





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CAUTION:

Even if the entire bonding agent has been cleared, you should also clean the body surface. Do not touch the glass surface after cleaning.

- 3. Remove the stopper with a knife.
- 4. Clean the removed rear window:
 - Clean any bonding agent adhered to the glass with a scraper.
 - Remove the stopper with a knife.
 - Clean the glass with glass cleaner.

NOTE :

Do not touch the glass after cleaning

- 5. Position the glass:
 - Place the glass in the proper position.
 - · Make reference marks on the glass and the body.
 - Remove the glass.
- 6. Clean the contact surface of the glass:

NOTE: Do not touch the glass surface after cleaning.

- Clear any residue around the peripheral contact face of the glass with glass cleaner.
- 7. Apply a layer of primer M on the contact surface of the body with a brush.

NOTE :

Allow the primer coat to dry for a minimum of 3 minutes. Do not apply the primer to the bonding agent. Do not save the opened primer M for later use.

- 8. Apply a layer of primer G on the contact surface of the glass:
 - Apply a layer of primer G on the edges and the contact surface of the glass with a brush or sponge.
 - Wipe the excess primer off with a clean rag before it dries.

NOTE :

Allow the primer coat to dry for a minimum of 3 minutes. Do not apply the primer to the bonding agent. Do not save the opened primer G for later use.

- 9. Mixing the bonding agent:
 - Clean a mixing board and a scraper completely with solvent.
 - Thoroughly mix 500 grams of host crystal with 75 grams of hardener on a mixing board with a scraper.

NOTE :

Make sure that the molding is installed within the application period of the bonding agent, and the bonding agent should be mixed within 5 minutes.

10. Applying the bonding agent:

- Cut off the pot tip and fill the bonding agent into the pot.
- Place the pot into the sealant gun.
- Apply the bonding agent on the glass as shown in the figure.



CAUTION:

Verify that the water resistant piece is adhered to the panel of the body as shown in the figure.



- 11. To install the glass, align the reference marks on the glass and the body and then lightly press the glass into the body opening.
- 12. Apply the bonding agent on the edges of the glass with a scraper.
- 13. Remove any excessive or over flown bonding agent with a scraper.
- 14. Clamp the glass until the bonding agent has hardened.
- 15. Check for water leakage:
 - Perform the leakage test after the hardening period.
 - Seal any leaks with the proper sealant.



- 16. Install the rear window molding:
 - Install the rear window outer lower molding on the body and tap it lightly to fasten it.
 - Connect the leads of the rear window defroster.



SUNROOF

Description





The sunroof consists of the following components:

- Sunroof Frame (1)
- Windshield Frame (2)
- Sunroof Central Bracket (3)
- Sunroof Back Bracket (4)
- Rear Roof Frame (5)
- Head Liner (6)
- Sunroof Track (7)
- Sunroof Module (8)
- Sunroof Motor (9)
- Sunroof Deflector (10)
- Sunroof Glass (11)
- Guiding Gutter (12)
- Sun Visor (13)

Operation

The sunroof control module monitors the sunroof switch input. The sunroof control module controls the output of the sunroof motor, to move the sunroof glass to the requested position. The power sunroof will operate with the ignition switch turned to ON.



Electrical Schematics

Sunroof (Page 1 of 2)



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Sunroof (Page 2 of 2)



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DIAGNOSIS & TESTING

Sunroof Memory Relearn

Sunroof Memory Loss

The sunroof should be initialized if any of the following conditions occur:

(1) Sunroof Power Failure

- If power is lost during the operation of sunroof (the Sunroof Control Module will record a malfunction) and the sunroof will need to be initialized.
- If power is lost within five seconds after normal operation has stopped, the Sunroof Control Module will not have enough time to store parameters, and the sunroof will need to be initialized.

(2) Sunroof Mechanical Failure

• If after the sunroof has been used for a period of time, and can not be closed in position (there is a gap between mechanical components). The time is generally about 2 years before the sunroof will need to be initialized.

Sunroof Initialization Steps

- When the sunroof is closed, press and hold the open switch until the sunroof is completely opened, keep pressing the switch for five seconds, then release the switch.
- Press and hold the sunroof close switch within two seconds until the sunroof is completely closed, keep pressing the switch for five seconds, then release the switch.



ON-VEHICLE SERVICE

Sunroof Glass

Removal & Installation

- 1. Operate the sunroof switch to lift the sunroof to the full tilt position.
- 2. Push the inner trim strip (side cover inner LH/RH) rearwards to remove.
- 3. Slowly remove the four retaining bolts (1) and remove the glass.
- 4. Remove the glass.
- 5. Installation is in the reverse order of removal.

Installation Notes:

- Operate the power switch to adjust the sliding mechanism without the glass to the full open position, and then place the glass in the middle of the support bar of the sliding mechanism.
- Loosely install four bolts. Then pull the glass forward slightly and tighten the other bolts slightly from the middle one by one.
- Operate the sunroof to the full closed position.
- Begin to adjust the four glass retaining bolts while pulling the glass slightly forward.
- Turn on the power switch and operate the sunroof to test the operation (check and adjust the height/start-up noise/collision of the glass).
- Move the glass to the full open position again, and then stick the inner trim strip to the support bar of the sliding mechanism.
- Test the on/off operation, starting and running operation as well as the noise of the sunroof after installation to make sure that no abnormal conditions exist.

Sunroof Sun Visor

Removal & Installation

- 1. Remove the sunroof glass (See Sunroof Glass Removal & Installation in Section 15 Body & Accessories).
- 2. Remove the locating clamp (1) as shown in the figure (each at left and right).
- 3. Remove the sun visor rear ward.
- 4. Installation is in the reverse order of removal.







Sunroof Motor

Removal & Installation

- 1. Operate the sunroof to the full closed position before disassembling.
- 2. Remove the roof interior trim/ceiling light.
- 3. Disconnect the sunroof motor electrical connector and the wiring harness between the sunroof motor and the sunroof control module, and then cut off the band retaining the motor electrical harness.
- 4. Remove the sunroof motor retaining bolts (1).
- 5. Remove the sunroof motor.
- 6. Installation is in the reverse order of removal.



Sunroof Control Module

Removal & Installation

- 1. Operate the sunroof to the full closed position before disassembling.
- 2. Remove the roof interior trim/ceiling light.
- 3. Disconnect the sunroof motor electrical connector and the wiring harness between the sunroof motor and the sunroof control module.
- 4. Remove the retaining bolts that attach the sunroof control module to the roof.
- 5. Installation is in the reverse order of removal.



WEATHERSTRIP

Front Door Weatherstrip

Removal & Installation

- 1. Remove the door trim panel (See Front Door Disassembly & Assembly in Section 15 Body & Accessories).
- 2. Remove the front door weatherstrip (1).



3. Installation is in the reverse order of removal.

Installation Notes:

• During the weatherstrip installation, every corner should be fitted in place with no folds. The joint of the weatherstrip should be placed in the lower middle of the door opening. The weatherstrip should have a proper rigidity and should not interfere with the opening and closing of the door after the lock and hinge have been adjusted. The surface of the assembled rubber strip should not have any defects such as deformation and warp.

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Rear Door Weatherstrip

Removal & Installation

- 1. Remove the rear door weatherstrip (1).
- 2. Installation is in the reverse order of removal.

Installation Notes:

• During the weatherstrip installation, every corner should be fitted in place with no folds. The joint of the weatherstrip should be placed in the lower middle of the door opening. The weatherstrip should have a proper rigidity and should not interfere with the opening and closing of the door after the lock and hinge have been adjusted. The surface of the assembled rubber strip should not have any defects such as deformation and warp.





WIPERS AND WASHERS

Description

The wiper system operates the front and rear wipers. The windshield wiper system includes the following components:

- Wiper and Washer Switch
- Front Wiper Motor
- Rear Wiper Motor
- Front Wiper Arm
- Rear Wiper Arm
- Front Wiper Link
- Washer Bottle
- Washer Pump

Operation

The wiper system is controlled by the wiper and washer switch. The wiper and washer system operate with the ignition switch is in the ON position. All wiper and washer functions are controlled by rotating the control knob on the end of the control stalk to the MIST, OFF, INT, LO or HI wiper positions.



Electrical Schematics

Wiper and Washer System (Page 1 of 4)





Wiper and Washer System (Page 2 of 4)





Wiper and Washer System (Page 3 of 4)



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Wiper and Washer System (Page 4 of 4)



Front Wiper Motor

Removal & Installation

- 1. Disconnect the negative battery cable.
- 2. Remove the wiper arm protective caps for the wiper arm mounting nuts.
- 3. Remove the wiper arm mounting nuts (1). (Tighten: Wiper arm mounting nuts to 55 \pm 3 N·m)
- 4. Remove two wiper arms.



- 5. Remove the lower trim panel of the front windshield.
- Remove the wiper arm linkage mechanism mounting bolts (1). (Tighten: Wiper arm linkage mechanism mounting
- bolts to 10 ± 1 N·m)
 7. Disconnect the wiper motor connector (2), and remove the linkage mechanism assembly.



8. Installation is in the reverse order of removal.



Rear Wiper Motor

Removal & Installation

- 1. Disconnect the negative battery cable.
- 2. Remove the rear wiper arm nut protective cap from the rear wiper arm.
- 3. Remove the wiper arm mounting nut (1), and remove the wiper arm, and the rubber ring. (Tighten: Rear wiper arm mounting nut to 20 ± 3 N·m)
- 4. Open the back cargo door.
- 5. Remove the back door panel.



Disconnect the rear wiper motor electrical connector (2), and the rear wiper motor mounting bolts (1).

Tighten: Rear wiper motor mounting bolts to 10 \pm 1 N·m)



- 7. Remove the rear wiper motor.
- 8. Installation is in the reverse order of removal.


Front Wiper Arm

Removal & Installation

- 1. Remove the wiper arm protective caps for the wiper arm mounting nuts (1).
- 2. Remove the wiper arm mounting nuts. (Tighten: Wiper arm mounting nuts to $55 \pm 3 \text{ N} \cdot \text{m}$)
- 3. Remove two wiper arms (1).



Rear Wiper Arm

Removal & Installation

- 1. Remove the rear wiper arm nut protective cap from the rear wiper arm.
- 2. Remove the wiper arm mounting nut (1), and remove the wiper arm, and the rubber ring. (Tighten: Rear wiper arm mounting nut to 20 ± 3 N·m)
- 3. Installation is in the reverse order of removal.





Front Wiper Link

Removal & Installation

- 1. Disconnect the negative battery cable.
- 2. Remove the left lower trim panel of the front windshield.
- Remove the mounting bolts (1) and the front wiper motor electrical connector (2), then remove the wiper link. (Tighten: Wiper arm linkage mechanism mounting

(lighten: wiper arm linkage mechanism mounting bolts to $10 \pm 1 \text{ N} \cdot \text{m}$)

4. Installation is in the reverse order of removal.



Washer Bottle

Removal & Installation

- 1. Disconnect the negative battery cable.
- 2. Remove the front bumper (See Front Bumper Removal & Installation in Section 15 Body & Accessories).
- 3. Disconnect the washer hose and the washer pump electrical connector.
- 4. Remove the mounting bolts (1) as shown to remove the washer bottle.
- 5. Installation is in the reverse order of removal.



Washer Pump

Removal & Installation

- 1. Disconnect the negative battery cable.
- 2. Remove the front bumper (See Front Bumper Removal & Installation in Section 15 Body & Accessories).
- 3. Disconnect the washer hose and the washer pump electrical connector.
- 4. Drain the washer fluid.
- 5. Remove the washer pump assembly.
- 6. Installation is in the reverse order of removal.



Wiper Switch

Removal & Installation

- 1. Disconnect the negative battery cable.
- 2. Remove the steering wheel (See Steering Wheel Removal & Installation in Section 11 Steering).
- 3. Remove the steering column shroud retaining screws (1) and then remove the shroud.



- 4. Disconnect the wiper switch electrical connector.
- 5. Loosen the clamp and remove the wiper switch.



6. Installation is in the reverse order of removal.



wiring

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GENERAL INFORMATION

Description

The wiring information includes wiring diagrams, proper wire and connector repair procedures, details of wire harness routing and retention, connector pin-out information and location views for the various wiring harness components, splices and grounds.

Electrical Schematics

The electrical schematics are grouped into individual service manual chapters. If a component is most likely found in a particular group, it will be shown complete (all wires, connectors, and pins) within that group. For example, the Engine Control Module (ECM) is most likely to be found in Chapter 03 (Electronic Engine Controls), so it is shown there complete. It can, however, be shown partially in another group if it contains some associated wiring.

Chery electrical schematics are designed to provide information regarding the vehicles wiring content. In order to effectively use the wiring diagrams to diagnose and repair Chery vehicles, it is important to understand the following features and characteristics:

- Diagrams are arranged such that the power (B+) side of the circuit is placed near the top of the page, and the ground (B-) side of the circuit is placed near the bottom of the page.
- All switches, components, and modules are shown in the at rest position with the doors closed and the key removed from the ignition switch.
- Components are shown with a solid line around the component.
- It is important to realize that no attempt is made on the diagrams to represent components and wiring as they appear on the vehicle. For example, a short piece of wire is treated the same as a long one.
- Switches and other components are shown as simply as possible, with regard to function only.



International Symbols

International symbols are used throughout the wiring diagrams. These symbols are consistent with those being used around the world. See How to Read Electrical Schematics in Section 01 General Information.



GENERAL INFORMATION

Below is a list of the symbols and their definitions that are used in the electrical schematics.

NUMBER	ITEM	DESCRIPTION
1	Power source	This represents the condition when the system receives battery positive voltage.
2	Fuse	The single line represents that this is a fuse.
3	Current rating	This represents the current rating of the fuse.
4	Fuse location	This represents the location of the fuse in the Power Fuse Box or Front Fuse and Relay Box.
5	Connectors	This represents connector E-101 is female and connector C-101 is male.
6	Terminal number	This represents the terminal number of a connector.
7	Component name	This represents the name of a component.
8	Connector number	This represents the connector number. The letter represents which harness the connector is located in.
9	Splice	The shaded circle represents that the splice is always on the vehicle.
10	Optional splice	The open circle represents that the splice is optional depending on vehicle application.
11	Option abbreviation	This represents that the circuit is optional depending on vehicle application.
12	Ground (GND)	This represents the ground connection. (See Ground Distribution in Section 16 Wiring). Ground connector number has no view face.
13	Page crossing	This arrow represents that the circuit continues to an adjacent page. The "A" corresponds with the "A" on the adjoining page of the electrical schematic.
14	Data link	This represents that the system branches to another system identified by cell data code.
15	Option description	This represents a description of the option abbreviation used on the page.
16	Connector views	This represents the connector information. This component side is described by the connector symbols.
17	Connector color	This shows a code for the color of the connector: B = Black W = White R = Red G = Green L = Blue Y = Yellow BR = Brown O = Orange GR = Gray
18	Shielded line	The line enclosed by broken line circle represents shielded wire.
19	Light-emitting diodes	As an illumination tool, in the circuit and instrument cluster.

ELECTRICAL TROUBLESHOOTING

Troubleshooting Wiring Problems

When troubleshooting wiring problems there are six steps which can aid in the procedure. The steps are listed and explained below. Always check for non-factory equipped components added to the vehicle before doing any diagnosis. If the vehicle is equipped with these items, disconnect them to verify these add-on items are not the cause of the problem.

Perform the following when troubleshooting a wiring problem:

- 1. Verify the problem.
- 2. Verify any related symptoms (do this by performing operational checks on components that are in the same circuit).
- 3. Analyze the symptoms (use the wiring diagrams to determine what the circuit is doing, where the problem most likely is occurring and where the diagnosis will continue).
- 4. Isolate the problem area.
- 5. Repair the problem area.
- 6. Verify the proper operation (for this step, check for proper operation of all items on the repaired circuit).

Testing For Voltage

- 1. Connect the ground lead of a voltmeter to a known good ground.
- 2. Connect the other lead of the voltmeter to the selected test point. The vehicle ignition may need to be turned ON to check voltage. Refer to the appropriate test procedure.

Testing For Continuity

- 1. Remove the fuse for the circuit being checked or, disconnect the battery.
- 2. Connect one lead of the ohmmeter to one side of the circuit being tested.
- 3. Connect the other lead to the other end of the circuit being tested (low or no resistance means good continuity).

Testing For A Short To Ground

- 1. Remove the fuse and disconnect all items involved with the fuse.
- 2. Connect a test light or a voltmeter across the terminals of the fuse.
- 3. Starting at the fuse block, wiggle the wiring harness about six to eight inches apart and watch the voltmeter/test light.
- 4. If the voltmeter registers voltage or the test light glows, there is a short to ground in that general area of the wiring harness.

Intermittent and Poor Connections

Most intermittent electrical problems are caused by faulty electrical connections or wiring. It is also possible for a sticking component or relay to cause a problem. Before condemning a component or wiring assembly, check the following items:

- 1. Connectors are fully seated
- 2. Spread terminals, or terminal push out
- 3. Terminals in the wiring assembly are fully seated into the connector/component and locked into position
- 4. Dirt or corrosion on the terminals (any amount of corrosion or dirt could cause an intermittent problem)
- 5. Damaged connector/component casing exposing the item to dirt or moisture
- 6. Wire insulation that has rubbed through causing a short to ground
- 7. Some or all of the wiring strands broken inside of the insulation
- 8. Wiring broken inside of the insulation

ELECTRICAL TROUBLESHOOTING TOOLS

Jumper Wires

• A jumper wire is used to create a temporary circuit. Connect the jumper wire between the terminals of a circuit to bypass a switch.

CAUTION:

Do not connect a jumper wire from the power source line to a body ground. This may cause burning or other damage to wiring harnesses or electronic components.



Voltmeter

• The DC voltmeter is used to measure circuit voltage. A voltmeter with a range of 15 V or more is used by connecting the positive (+) probe (red lead wire) to the point where voltage will be measured and the negative (-) probe (black lead wire) to a body ground.



Ohmmeter

• The ohmmeter is used to measure the resistance between two points in a circuit and to check for continuity and short circuits.

CAUTION:

Do not connect the ohmmeter to any circuit where voltage is applied. This will damage the ohmmeter.





ELECTRICAL REPAIR

Wire Repair

NOTE :

When splicing a wire, it is important that the correct gage be used.

- 1. Remove one-half (1/2) inch of insulation from each wire that needs to be spliced.
- 2. Place a piece of adhesive lined heat shrink tubing on one side of the wire. Make sure the tubing will be long enough to cover and seal the entire repair area.
- 3. Place the strands of wire overlapping each other inside of the splice clip.
- 4. Using a crimping tool, crimp the splice clip and wires together.

NOTE :

Do not use acid core solder when making wiring repairs.

- 5. Solder the connection together using a soldering iron and rosin core type solder only.
- 6. Center the heat shrink tubing over the joint and heat using a heat gun. Heat the joint until the tubing is tightly sealed and sealant comes out of both ends of the tubing.

Fuse Replacement

- When replacing a fuse, be sure to replace it with one of the same capacity. If a fuse fails again, the circuit probably has a short and the wiring should be checked.
- Be sure the negative battery terminal is disconnected before replacing a main fuse.
- When replacing a pullout fuse, use the fuse puller.





ELECTRICAL COMPONENTS

Battery Cable

• Before disconnecting connectors or removing electrical parts, disconnect the negative battery cable.



Sensors, Switches, and Relays

• Handle sensors, switches and relays carefully. Do not drop them or strike them against other objects.





Connectors

Disconnecting Connectors

• When disconnecting 2 connectors, grasp the connectors, not the wires.



• Connectors can be disconnected by pressing or pulling the lock lever as shown.



Locking Connector

• When locking connectors, listen for a click indicating they are securely locked.



Connector Terminals

• Pull lightly on individual wires to check that they are secured in the terminal.



Connector/Terminal Replacement

- Use the appropriate tools to remove a terminal as shown. While installing a terminal, be sure to insert it until it locks securely.
- Insert a thin piece of metal from the terminal side of the connector and with the terminal locking tab pressed down, pull the terminal out from the connector.



VEHICLE POWER DISTRIBUTION

16-13

Description Operation

ELECTRICAL SCHEMATICS 16-13 16-13

Electrical Schematics



GENERAL INFORMATION

Description

The power distribution system is designed to provide safe, reliable, centralized and convenient access to the distribution of the electrical power required to operate all vehicle electrical and electronic systems.

The following components are used for power distribution:

- Battery
- Power Fuse Box
- Body Fuse and Relay Box
- Front Fuse and Relay Box
- Ignition Switch
- Fuses
- Circuit Breakers
- Relays

Operation

The power distribution system operates all electrical and electronic engine, transmission, chassis, safety, comfort and convenience systems.



Electrical Schematics

The power distribution electrical schematics include all wiring information detailed on the power side of all vehicle circuits. This is helpful when attempting to troubleshoot a specific electrical failure, and shows connector pin-out information and splices.

Power Distribution (Page 1 of 13)



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VEHICLE GROUND DISTRIBUTION

Description Operation 16-28 16-28 16-28

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GENERAL INFORMATION

Description

The ground distribution system is designed to provide centralized and convenient ground locations for the entire vehicle electrical system.

Operation

The ground distribution system provides a grounding path for all electrical and electronic engine, transmission, chassis, safety, comfort and convenience systems.



Electrical Schematics

The ground distribution electrical schematics include all wiring information detailed on the ground side of all vehicle circuits. This is helpful when attempting to troubleshoot a specific electrical failure, and shows connector pin-out information and splices.

Ground Distribution (Page 1 of 8)



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ELECTRICAL SCHEMATICS



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ELECTRICAL SCHEMATICS

Ground Distribution (Page 8 of 8)



VEHICLE FUSE BOX INFORMATION

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GENERAL INFORMATION

Description

In order to ensure the normal operation of the system, every electrical system is equipped with fuses and relays. The fuses and relays are stored in the fuse boxes.

The vehicle fuses and relays are located in the following locations:

- Power Fuse Box
- Front Fuse and Relay Box
- Body Fuse and Relay Box

Operation

When replacing a open fuse, it is important to use only a fuse having the correct amperage rating. The use of a fuse with a rating other than indicated may result in a dangerous electrical system overload. If a properly rated fuse continues to open, it indicates a problem in the circuit that must be corrected.

Power Fuse Box

Description

The power fuse box is located on the side of the battery. All of the electrical current distributed throughout the vehicle is directed through the power fuse box. The power fuse box houses five maxi-type bolt in fuses.

Operation

All of the current from the battery and the generator output enters the power fuse box through the cable and eyelet that are secured with a nut to the power fuse box B(+) terminal stud located on one end of the power fuse box housing. The power fuse box terminal stud cover is unlatched and opened to access the fuses.



Overview

Power Fuse Box





Front Fuse and Relay Box

Description

The front fuse and relay box houses many of the fuses and relays for the vehicles electrical system. The front fuse and relay box is located on the right side of the engine compartment and under the cowl top of windshield. If the fuses and relays cannot be serviced, it must be replaced as a unit.

Operation

When a circuit fails, the fuse will blow and remove current from the circuit. The front fuse and relay box is equipped with a label that identifies each component. The label is printed on the inside of the cover. The power fuse box identifies the rating of each fuse individually. Turn off the ignition switch, and then replace the fuse.



Overview

Front Fuse And Relay Box





Body Fuse and Relay Box

Description

The body fuse and relay box houses many of the fuses and relays for the vehicle's electrical system. The body fuse and relay box is situated on the left front side of the interior of the cabin and under the instrument panel, which is mounted on the cross beam of the instrument panel. All the fuses and relays cannot be serviced it must be replaced as a unit.

Operation

When a circuit fails, the fuse will blow and remove current from the circuit.

Turn off the ignition switch, and then replace the fuse.



Overview

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Body Fuse And Relay Box



VEHICLE WIRING HARNESS LAYOUT

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GENERAL INFORMATION

Description

This section provides illustrations identifying component, ground and splice locations in the vehicle.

To help locate all electrical components on the drawings, the following harness layouts use a map style grid:

- Engine Room Harness (1.6L & 1.8L/2.0L & 2.4L)
- Engine Control Harness (1.6L & 1.8L/2.0L & 2.4L)
- Main Harness
- Body Harness
- Front Door LH Harness
- Front Door RH Harness
- Rear Door LH Harness
- Rear Door RH Harness
- Back Door Harness
- Roof Harness
- Restraints Harness

Operation

Use the wiring harness diagrams in each harness section for component, ground and splice identification. Refer to the appropriate index for the specific vehicle harness.

How To Read Harness Layout Diagrams

- 1. Find the desired connector number on the connector list.
- 2. Find the grid reference.
- 3. On the drawing, find the crossing of the grid reference column letter and row number.
- 4. Find the connector number in the crossing zone.
- 5. Follow the line (if used) to the connector.



Vehicle Harness Layout

Vehicle Harness Layout (Page 1 of 2)





Vehicle Harness Layout (Page 2 of 2)





Engine Control Harness - With 1.6L & 1.8L Engine





A	/1	Power Fuse Box	B3
В	/1	Power Fuse Box	B3
С	/1	Power Fuse Box	B3
D	/1	Power Fuse Box	B4
E	/1	Power Fuse Box	B4
E-001	B/81	ECM	D2
E-002	B/25	ABS Hydraulic Control Module	D2
E-003	B/4	A/C Pressure Switch	D2
E-004	W-O/4	Upstream Oxygen Sensor	D3
E-005	W-O/4	Downstream Oxygen Sensor (With EOBD)	D3
E-006	B/3	Crankshaft Position Sensor	C4
E-007	B/3	Camshaft Position Sensor	C4
E-008	B/3	Generator	C2
E-009	B/5	Air Flow Sensor	C4
E-010	B/2	Fuel Injector No.1	C3
E-011	B/2	Fuel Injector No.2	C3
E-012	B/2	Fuel Injector No.3	C3
E-013	B/2	Fuel Injector No.4	C4
E-014	B/1	Power Steering Switch	B2
E-015	B/2	A/C Compressor	B2
E-016	W/1	Oil Pressure Switch	B2
E-017	B/3	Knock Sensor	B3
E-018	B/1	Starter Motor	B4
E-019	B/2	Engine Coolant Temperature Sensor	C4
E-020	B/4	Ignition Coil	C4
E-021	B/2	Backup Lamp Switch	C4
E-022	B/3	Canister Control Valve	C4
E-023	B/3	Vehicle Speed Sensor	D4
E-024	GR/2	Brake Fluid Level Switch	D4
E-025	GR/5	Front Wiper Motor	D4
E-026	B/2	Siren	D3
E-027	B/6	Electronic Throttle Control Actuator	B3
E-028	B/2	Front Wheel Speed Sensor LH	D5
E-029	B/2	Front Wheel Speed Sensor RH	D1
E-030	B/2	Front Fog Lamp LH	B5
E-033	B/4	Manifold Absolute Pressure Sensor (With 1.6L Engine)	C3
E-034	B/10	Front Combination Lamp LH	C5
E-035	B/3	Accelerator Sensor	C2
E-038	B/3	Side Turn Signal Lamp LH	D5
E-039	B/2	Side Turn Signal Lamp RH	D1
E-040	B/2	Front Fog Lamp RH	B1
E-041	B/4	Downstream Oxygen Sensor (Without EOBD)	D3
E-042	B/10	Front Combination Lamp RH	C1



E-044	B/2	Main Fan Motor	B4
E-045	B/2	Secondary Fan Motor	B3
E-046	B/2	Turn Signal Lamp LH	C5
E-047	B/2	Turn Signal Lamp RH	C1
E-048	B/2	Horn 1	B5
E-049	B/2	Horn 2	B5
E-063	W/14	Body Fuse And Relay Box (H)	D4
E-073	B/1	Body Fuse And Relay Box (C)	D4
E-082	B/2	Front Washer Motor	B1
E-083	W/2	Rear Washer Motor	B1
E-090	W/16	Front Fuse And Relay Box (A)	D2
E-091	W/8	Front Fuse And Relay Box (B)	D2
E-092	W/14	Front Fuse And Relay Box (C)	D2
E-093	B/1	Front Fuse And Relay Box (D)	D2
E-094	B/1	Front Fuse And Relay Box (E)	D2
E-095	W/4	Front Fuse And Relay Box (F)	D2
E-096	W/20	Front Fuse And Relay Box (G)	D2
E-097	B/10	Front Fuse And Relay Box (H)	D2
E-098	B/2	Front Fuse And Relay Box (I)	D2
E-100	W/16	To C-107	E4
E-101	W/18	To C-109	E4
E-102	W/14	To C-102	E2
E-103	W/14	To C-103	D2
E-104	W/18	To B-111	D2
E-202	-	Ground	D5
E-203	-	Ground	D5
E-204	-	Ground	D1
E-205	-	Ground	D1
E-207	-	Ground	D2
E-208	-	Ground	D2



Engine Control Harness - With ACTECO 2.0L Engine



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E-001	B/81	ECM	D2
E-003	B/4	A/C Pressure Switch	D2
E-004	W-O/4	Upstream Oxygen Sensor	D3
E-005	W-O/4	Downstream Oxygen Sensor (With EOBD)	D3
E-006	B/3	Crankshaft Position Sensor	D4
E-007	B/3	Camshaft Position Sensor	C4
E-008	B/3	Generator	C2
E-009	B/5	Air Flow Sensor	C4
E-010	B/2	Fuel Injector No.1	C2
E-011	B/2	Fuel Injector No.2	C3
E-012	B/2	Fuel Injector No.3	C3
E-013	B/2	Fuel Injector No.4	C3
E-014	B/1	Power Steering Switch	B2
E-015	B/2	A/C Compressor	B2
E-016	B/1	Oil Pressure Switch	B2
E-017	B/3	Knock Sensor	C3
E-018	B/1	Starter Motor	C3
E-019	B/2	Engine Coolant Temperature Sensor	C4
E-020	B/4	Ignition Coil	C4
E-022	B/2	Canister Control Valve	C4
E-026	B/2	Siren	D3
E-027	B/6	Electronic Throttle Control Actuator	B3
E-033	B/4	Manifold Absolute Pressure Sensor	C3
E-036	GR/56	TCM (Transmission Control Module)	D2
E-037	GR/33	A/T Assembly	D4
E-041	B/4	Downstream Oxygen Sensor (Without EOBD)	D3
E-043	B/2	Fluid Cooler Flow Control Solenoid Valve	D4
E-102	W/14	To C-102	E2
E-103	B/14	To C-103	E2
E-105	B/16	To A-102	D3
E-108	B/2	To C-108	D2
E-207	-	Ground	D2
E-208	-	Ground	D2



Engine Control Harness - With MITSUBISHI 2.4L Engine





	1	1	1
E-050	B/4	A/C Pressure Switch	D2
E-051	W/26	ECM	D2
E-052	W/16	ECM	D2
E-053	W/12	ECM	D2
E-054	W/22	ECM	D2
E-055	GR/3	Camshaft Position Sensor	D4
E-056	GR/3	Crankshaft Position Sensor	D2
E-058	B/7	Air Flow Sensor	D4
E-059	GR/2	Fuel Injector No.1	C2
E-060	GR/2	Fuel Injector No.2	C3
E-061	GR/2	Fuel Injector No.3	C3
E-062	GR/2	Fuel Injector No.4	C3
E-064	B/6	Idle Air Control Motor	C3
E-065	B/1	Oil Pressure Switch	C3
E-066	BR/2	Knock Sensor	C4
E-067	B/1	Starter Motor	C4
E-068	B/2	Engine Coolant Temperature Sensor	C4
E-069	GR/3	Ignition Coil 1	D2
E-070	GR/3	Ignition Coil 2	D4
E-071	GR/2	Canister Control Valve	D3
E-072	BR/2	EGR Control Solenoid Valve	D3
E-074	B/4	Upstream Oxygen Sensor	C4
E-076	B/4	Throttle Position Sensor	C4
E-077	W/26	TCM (Transmission Control Module)	D1
E-078	W/16	TCM (Transmission Control Module)	D1
E-079	W/22	TCM (Transmission Control Module)	D1
E-081	GR/4	Generator	C2
E-084	B/1	Coolant Temperature Sensor (For Instrument Cluster)	D4
E-086	GR/10	A/T Assembly	C4
E-087	GR/10	Gearshift Switch	C4
E-088	B/3	Input Shaft Sensor	C4
E-089	GR/3	Output Shaft Sensor	C4
E-102	W/14	To C-102	D2
E-103	B/14	To C-103	D2
E-105	B/16	To A-105	D2
E-207	-	Ground	C4
E-208	-	Ground	C4

Engine Room Harness - With 2.0L & 2.4L Engine





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-			
A	/1	Power Fuse Box	B3
В	/1	Power Fuse Box	B3
C	/1	Power Fuse Box	B3
D	/1	Power Fuse Box	B4
E	/1	Power Fuse Box	B4
A-001	B/10	Front Combination Lamp LH	B5
A-002	B/10	Front Combination Lamp RH	B1
A-003	B/2	Front Fog Lamp LH	A5
A-004	B/2	Front Fog Lamp RH	A1
A-005	GR/1	Horn 1	B5
A-006	GR/2	Horn 2	B5
A-007	B/2	Main Fan Motor	B3
A-008	B/2	Secondary Fan Motor	B4
A-011	GR/3	Cooling Fan Control Module	B4
A-017	W/14	Body Fuse And Relay Box (H)	D5
A-018	B/1	Body Fuse And Relay Box (C)	D5
A-020	B/25	ABS Hydraulic Control Module	C2
A-021	B/2	Front Wheel Speed Sensor LH	D5
A-022	B/2	Front Wheel Speed Sensor RH	D1
A-023	B/2	A/C Compressor	B2
A-024	B/1	Power Steering Switch	C2
A-025	W/16	Front Fuse And Relay Box (A)	D2
A-026	W/8	Front Fuse And Relay Box (B)	D2
A-027	W/14	Front Fuse And Relay Box (C)	D2
A-028	B/1	Front Fuse And Relay Box (D)	D2
A-029	B/3	Accelerator Sensor	C2
A-032	B/2	Turn Signal Lamp LH	C5
A-033	B/2	Turn Signal Lamp RH	C1
A-034	B/2	Side Turn Signal Lamp LH	D5
A-035	B/2	Side Turn Signal Lamp RH	D1
A-036	GR/2	Brake Fluid Level Switch	D4
A-037	GR/5	Front Wiper Motor	D4
A-038	W/2	Front Washer Motor	B1
A-039	B/2	Rear Washer Motor	B1
A-040	B/2	Siren	D3
A-041	B/1	A/C Pressure Switch	D2
A-042	B/1	Front Fuse And Relay Box (E)	D2
A-043	W/4	Front Fuse And Relay Box (F)	D2
A-044	W/20	Front Fuse And Relay Box (G)	D2
A-045	B/10	Front Fuse And Relay Box (H)	D2
A-046	B/2	Front Fuse And Relay Box (I)	D2
BB	B/1	BCM (Body Control Module) (Battery)	D2
A-100	W/18	To C-100	D4
A-101	W/18	To C-101	D4



A-102	B/16	To E-105	D3
A-103	W/18	То В-106	D1
A-201	-	Ground	D2
A-202	-	Ground	D5
A-203	-	Ground	D5
A-204	-	Ground	D1
A-205	-	Ground	D1
A-206	-	Ground	D2



Main Harness





C-001	L/32	Instrument Cluster	B1
C-002	G/32	Instrument Cluster	C1
C-003	W/4	Key Switch	B3
C-004	W/2	Key Hole Lamp	B3
C-005	Y/4	Brake Switch	B3
C-006	W/13	Multi-Function Switch	B3
C-007	B/10	Wiper And Washer Switch	B3
C-008	W/2	Blower Motor	F4
C-009	B/6	Accelerator Pedal Position Sensor	C3
C-010	W/6	Front Fog Lamp Switch	A3
C-011	Y/6	Rear Fog Lamp Switch	A3
C-012	W/6	Ignition Switch	B3
C-015	W/3	Console Power Outlet (For Cigarette Lighter)	E4
C-016	W/4	Speed Resistor	F3
C-019	B/6	Dimmer Control Switch	A3
C-020	GR/6	Headlamp Aiming Switch	A3
C-021	W/4	Cruise/Audio Combination Switch	B3
C-022	G/16	Data Link Connector	B4
C-023	GR/2	Security Lamp	D3
C-024	B/2	Clutch Pedal Switch	A3
C-025	B/8	Immobilizer Control Module	C3
C-027	BR/6	Shifter Selector	D3
C-028	L/10	Winter Mode/Shifter Selector Register	D5
C-030	L/32	CAN Converter	B3
C-031	B/16	Audio	C2
C-034	W/2	Console Power Outlet (Illumination)	E4
C-035	W/8	Body Fuse And Relay Box (A)	A3
C-036	W/20	Body Fuse And Relay Box (B)	A3
C-037	B/2	Body Fuse And Relay Box (D)	A3
C-038	W/1	Horn Switch	B3
C-040	L/6	Heated Seat Switch LH	D3
C-041	G/6	Heated Seat Switch RH	D3
C-042	W/4	Body Fuse And Relay Box (E)	A3
C-043	W/16	Body Fuse And Relay Box (F)	A3
C-044	B/5	Recirculation Door Actuator	E3
C-047	B/16	HVAC Control Panel	D3
C-048	W/8	Blower Switch	D3
C-100	W/16	To A-100	A3
C-101	W/18	To A-101	A3
C-102	W/14	To E-102	G4
C-103	W/14	To E-103	G3
C-104	W/22	To B-104	A3
C-105	W/22	To B-105	G4
C-106	W/6	To J-100	A3



C-107	W/16	To E-100	A3
C-108	W/14	To E-108	G3
C-109	W/18	To E-101	A3
C-110	W/10	To F-100	G3
C-112	B/22	To B-112	F3
C-201	B/20	Ground	C4
C-202	-	Ground	E4
C-203	-	Ground	E4
C-204	-	Ground	E4



Body Harness



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B-003	GR/15	BCM (Body Control Module)	D1
B-004	B/12	BCM (Body Control Module)	D1
B-005	B/8	BCM (Body Control Module)	D1
B-006	B/10	Body Fuse And Relay Box (G)	C2
B-008	W/1	Parking Brake Switch	D2
B-011	B/4	Downstream Oxygen Sensor (With MITSUBISHI 2.4L Engine System)	D2
B-012	W/2	Rear Power Outlet LH	D5
B-017	L/6	Driver Seat Assembly	C2
B-018	L/6	Heated Seat RH	D2
B-019	W/6	Rear Combination Lamp LH	D5
B-020	W/6	Rear Combination Lamp RH	D4
B-021	W/2	Rear Wheel Speed Sensor LH	D4
B-022	W/2	Rear Wheel Speed Sensor RH	D3
B-023	B/3	Decelerator Sensor	D2
B-032a	B/4	Fuel Level Sensor And Fuel Pump (With ACTECO Engine System)	D3
B-032b	B/4	Fuel Level Sensor And Fuel Pump (With MITSUBISHI 2.4L Engine System)	D3
B-100	W/18	To D-100	C2
B-101	W/14	To D-101	C2
B-102	W/14	To G-100	D1
B-103	W/10	To G-101	D1
B-104	W/22	To C-104	C2
B-105	W/22	To C-105	D1
B-106	W/18	To A-103	E1
B-107	W/14	To I-100	C4
B-108	W/14	To H-100	D2
B-110	W/14	To L-100	D4
B-111	W/18	To E-104	E1
B-201	-	Ground	D1
B-202	-	Ground	D4
B-203	-	Ground	D2
B-204	-	Ground	D5
B-205	-	Ground (With MITSUBISHI 2.4L Engine System)	D5
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