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

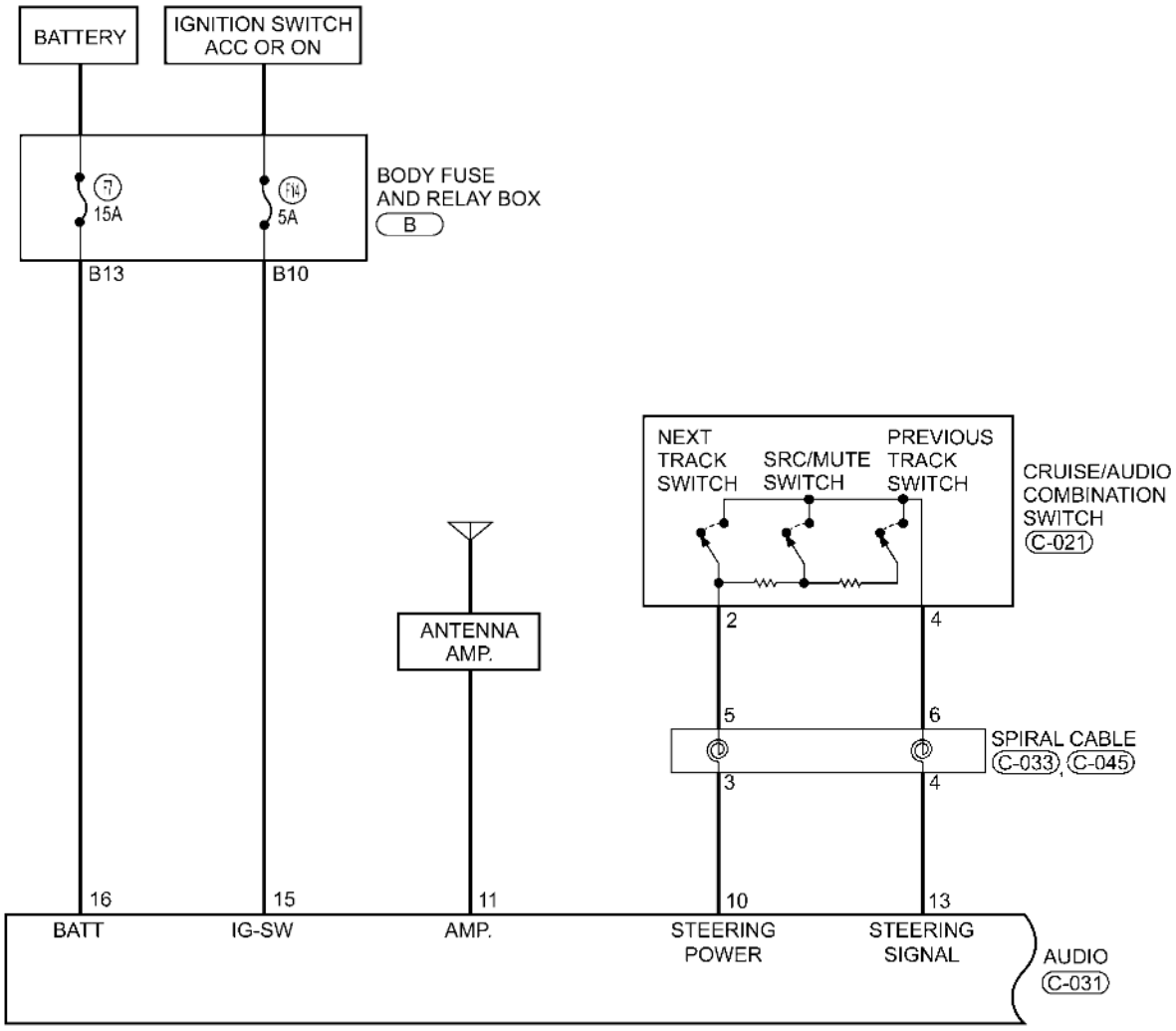
With the audio system on, radio signals are received by the window antenna, the audio unit then sends audio signals to front speakers and rear speakers.

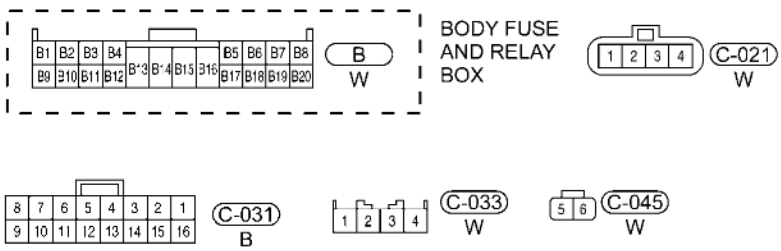
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Electrical Schematics

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AUDIO SYSTEM

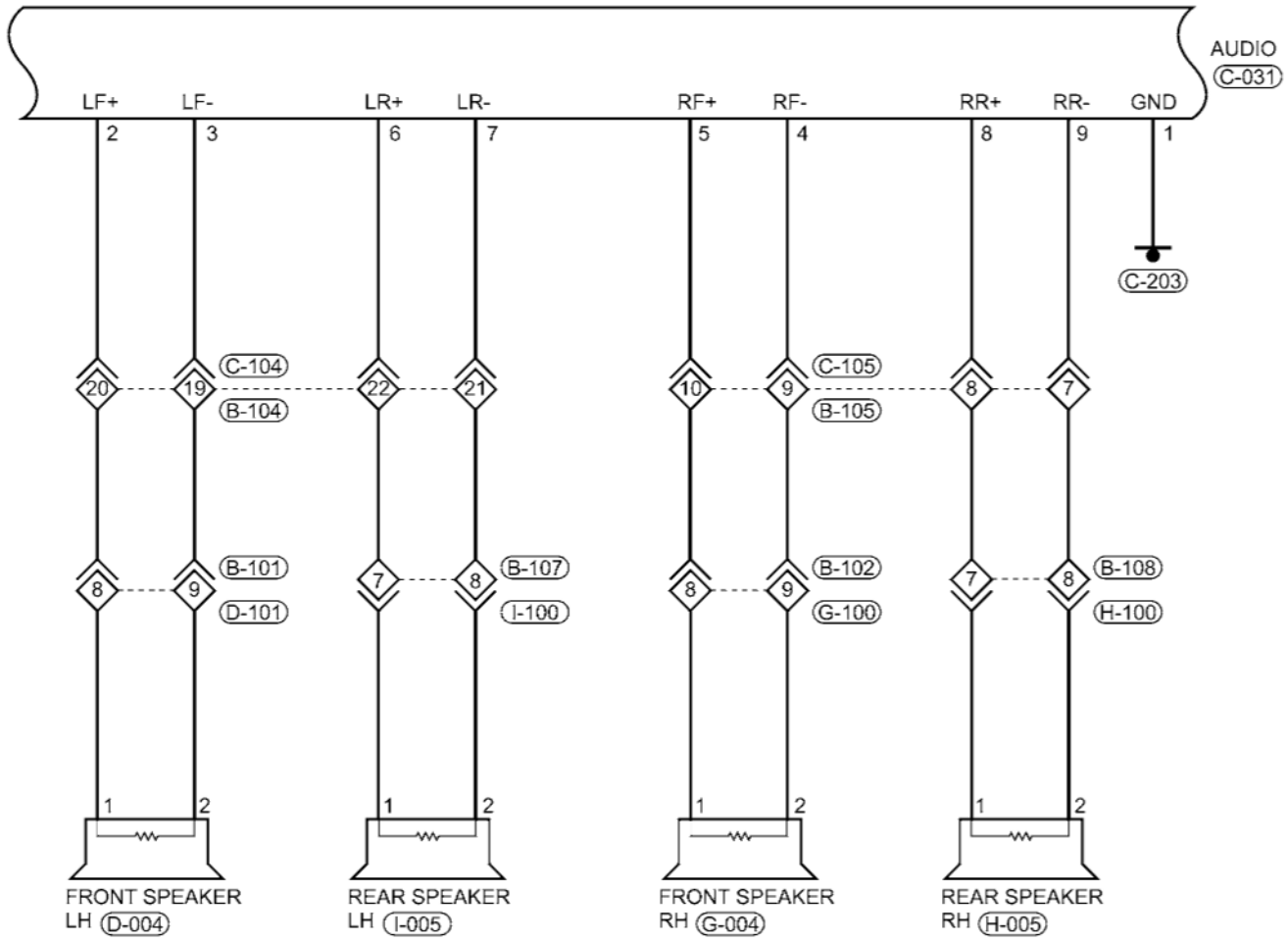


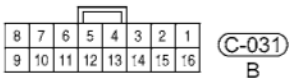


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B


C-104 , C-105
W W

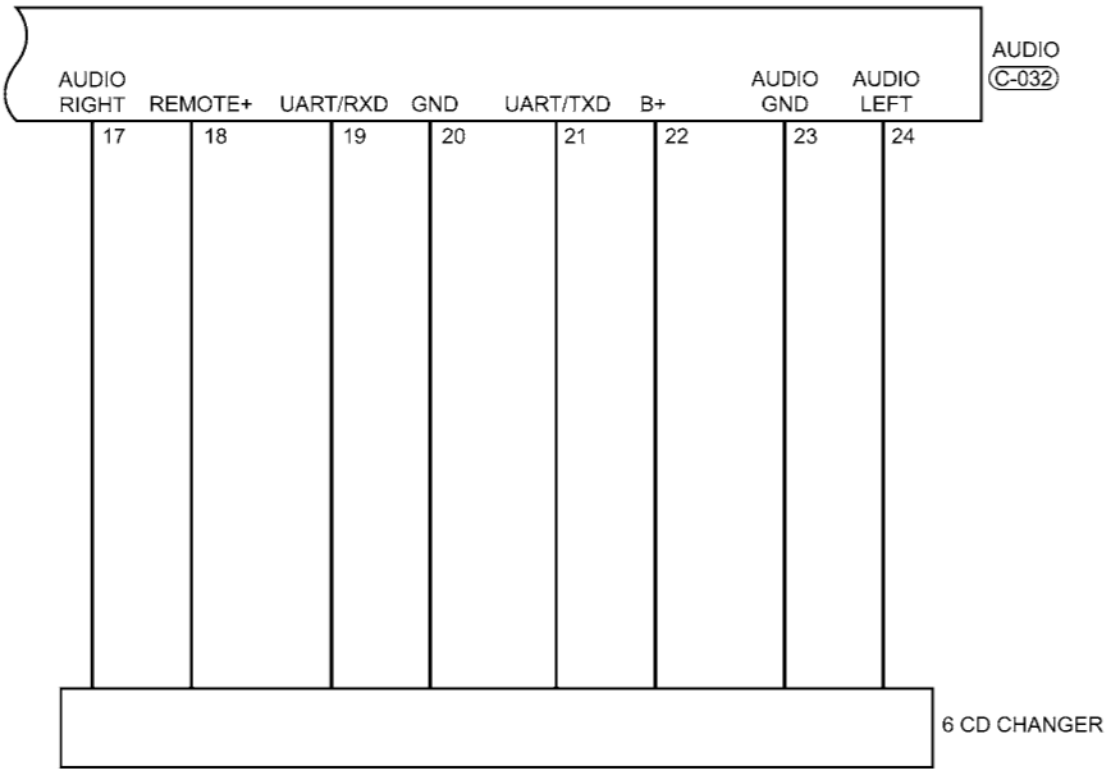

B-101 , B-102 , H-100 , I-100
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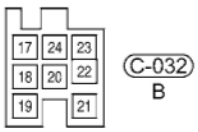

D-004 , G-004 , I-005 , H-005
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C-032
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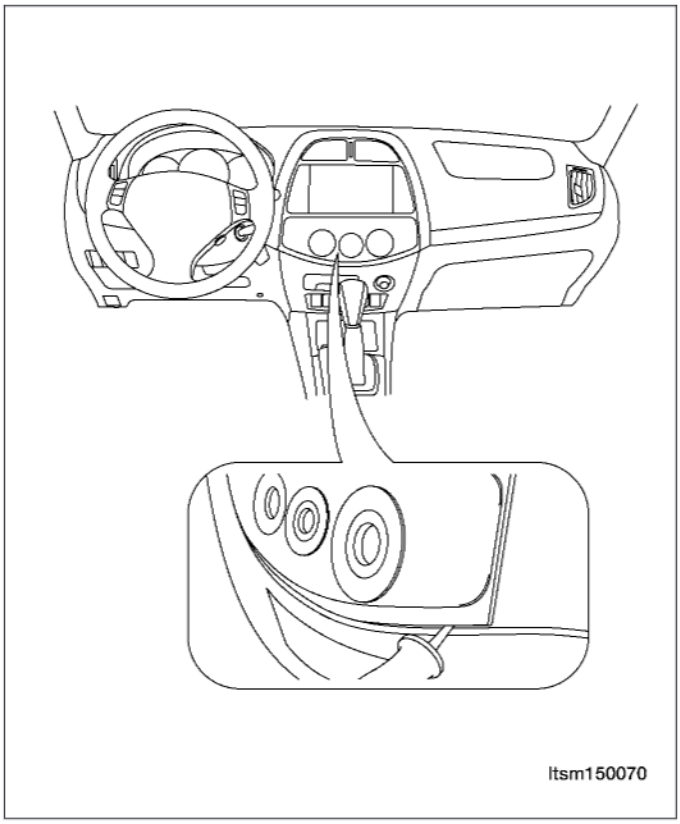
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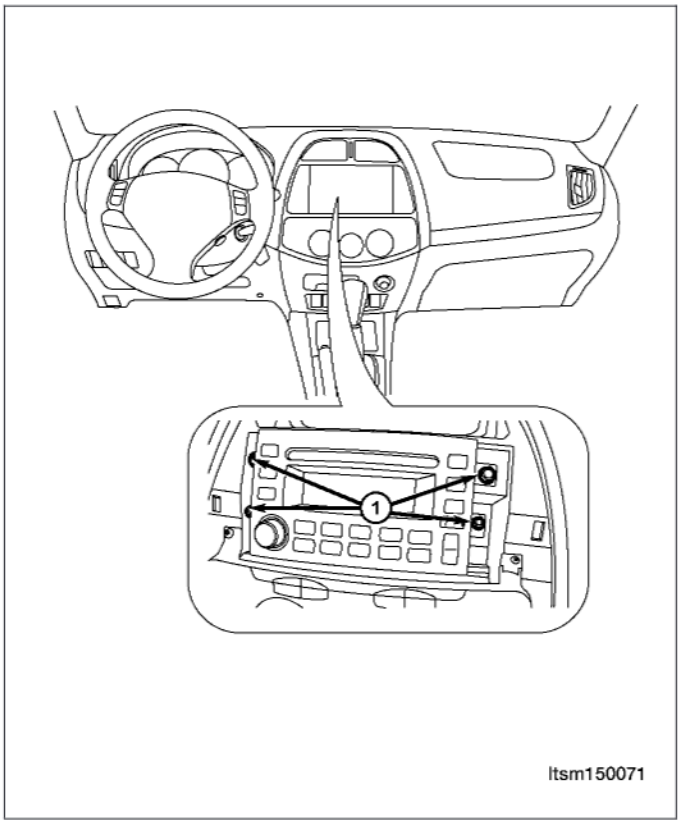
Radio

Removal & Installation

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



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



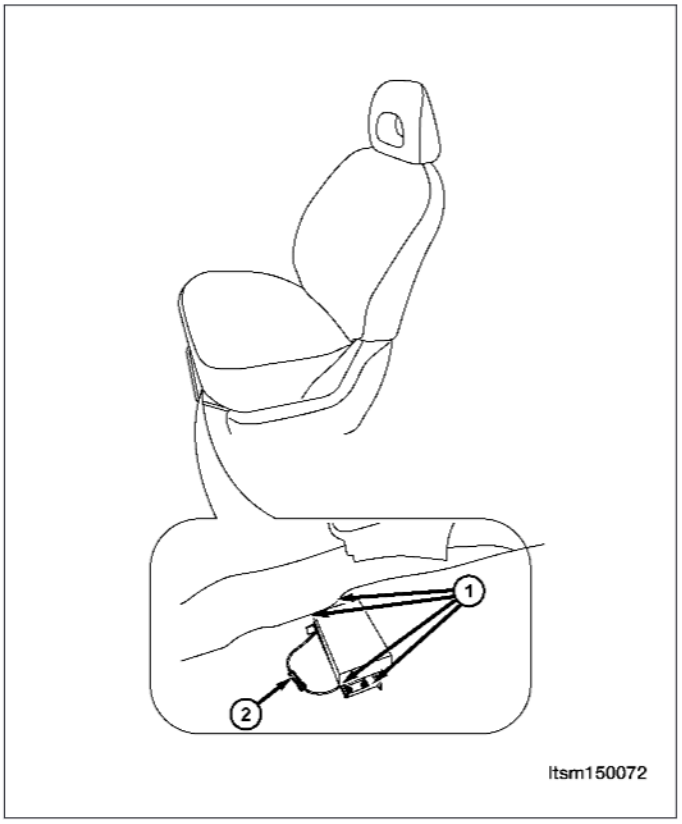
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3. Disconnect the electrical connectors.
4. Remove the radio.
5. Installation is in the reverse order of removal.

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 ± 3 N·m)
3. Disconnect the CD changer electrical connector (2).



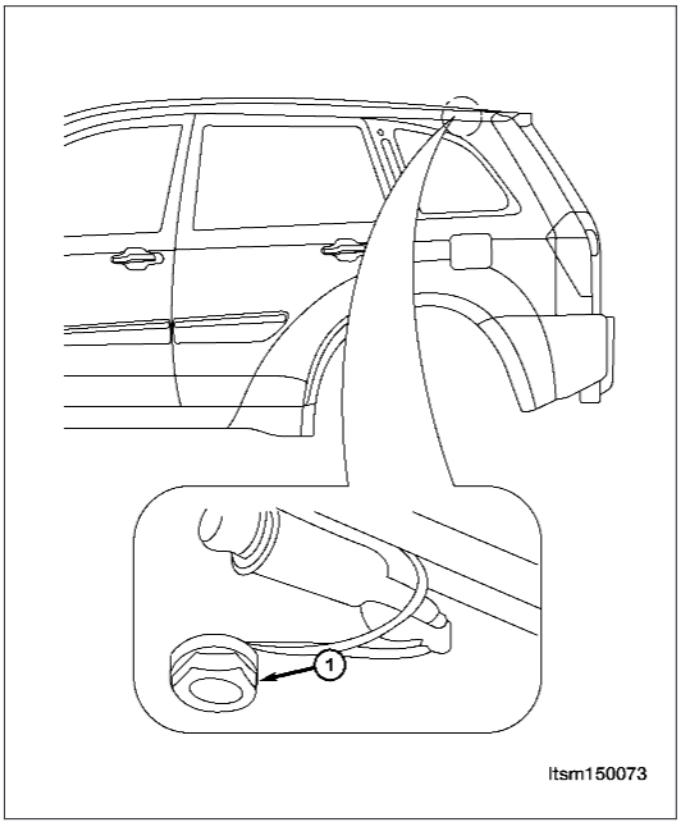
4. Remove the CD changer.
5. Installation is in the reverse order of removal.

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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).



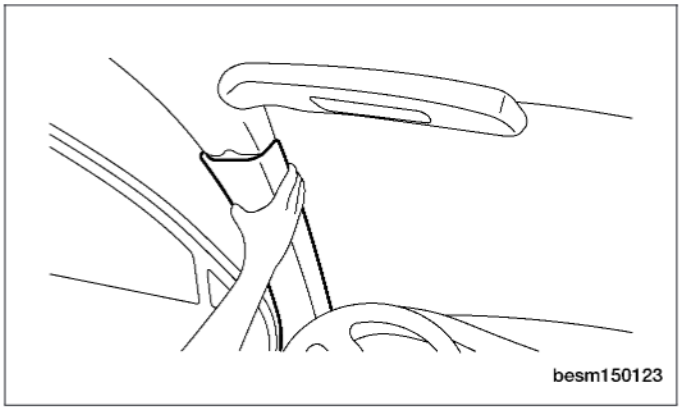
5. Installation in the reverse order of removal.

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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.


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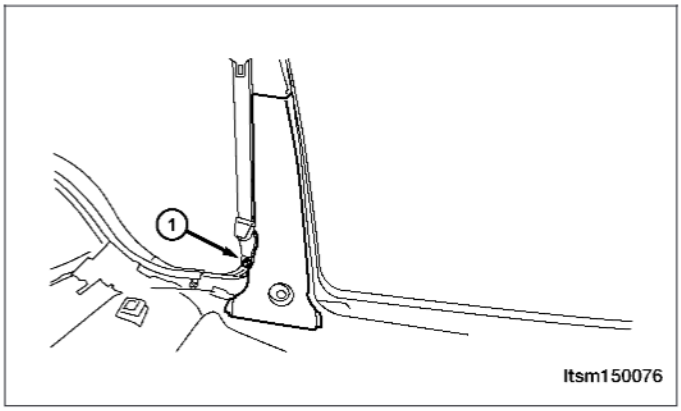
Installation Notes:

- 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).



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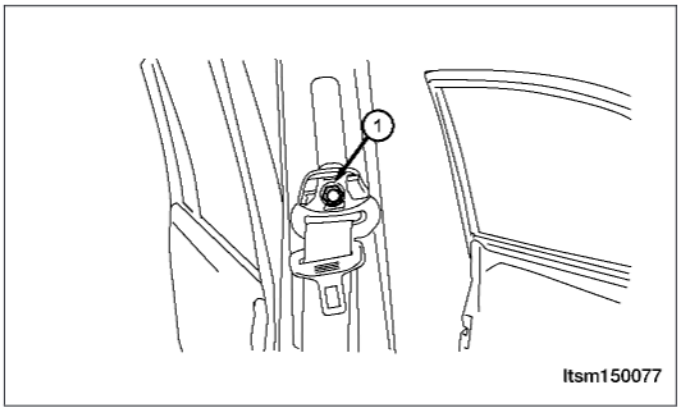
2. Using a trim stick, remove the lower trim panel from the B-pillar.
3. Installation is in the reverse order of removal.

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B-Pillar Upper Trim Panel

Removal & Installation

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

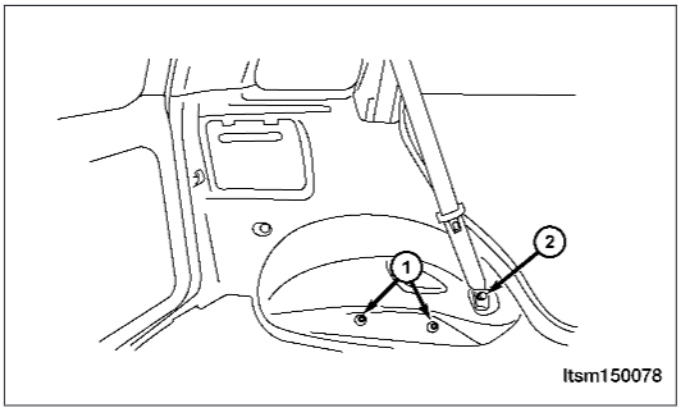


2. Using a trim stick, remove the B-pillar upper trim panel.
3. Installation is in the reverse order of removal.

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.



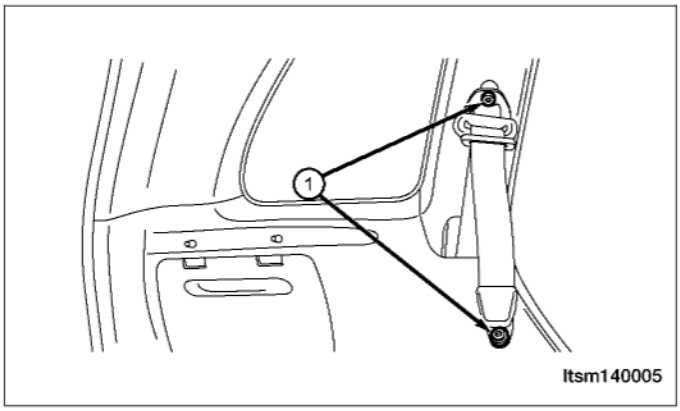
3. Remove the storage box.
4. Disconnect the power outlet electrical connector.
5. Using a trim stick, remove the lower trim panel.
6. Installation is in the reverse order of removal.

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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).

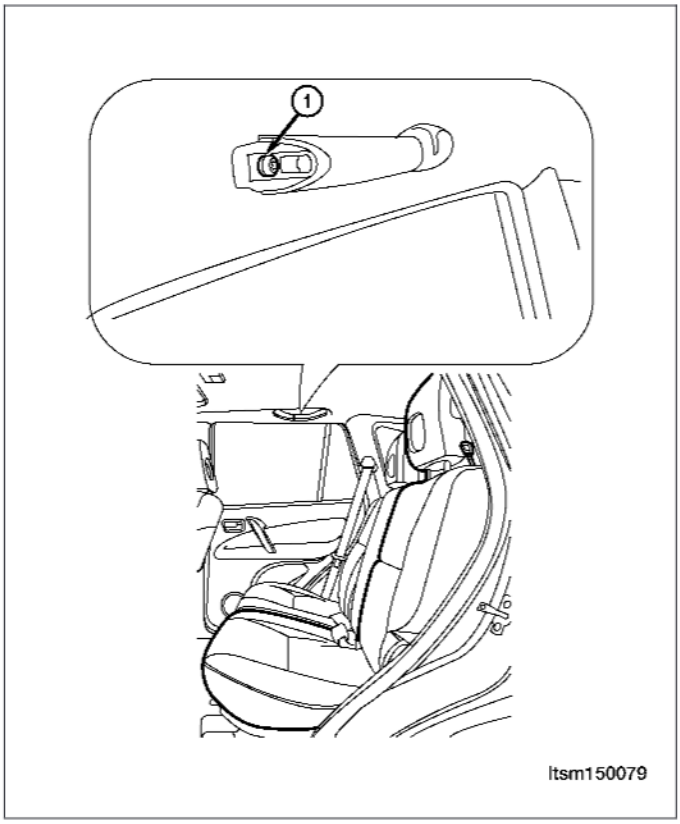


3. Using a trim stick, remove the C-Pillar upper trim panel.
4. Installation is in the reverse order of removal.

Assist Handle

Removal & Installation

1. Remove the assist handle mounting screws trim cover from the assist handles.
2. 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.

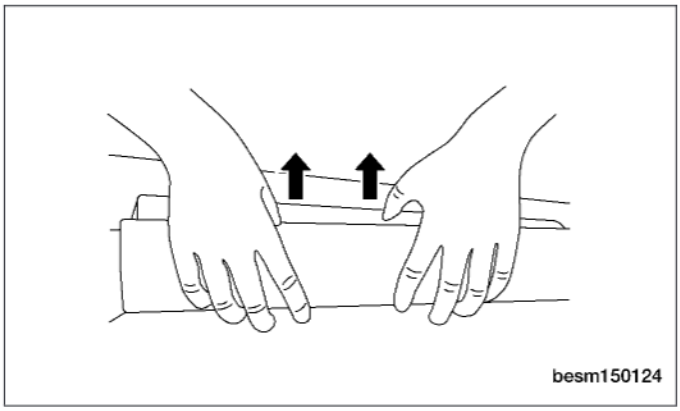


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Scuff Plate

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

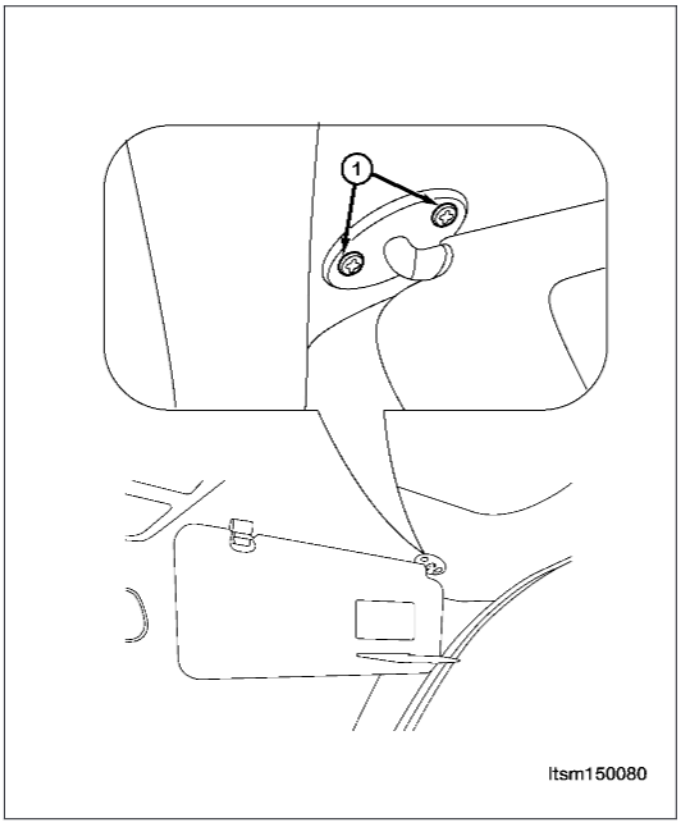
Removal & Installation

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.

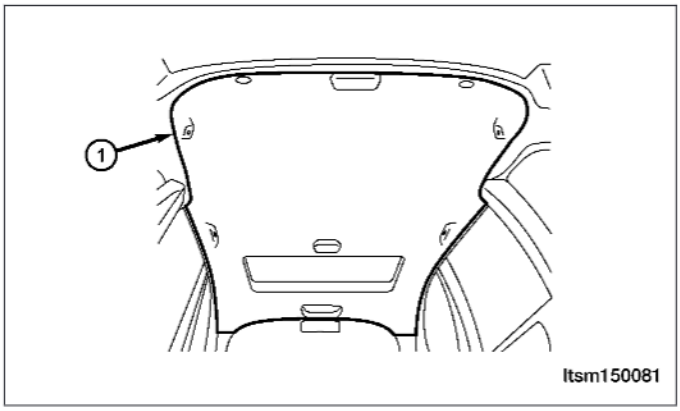
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3. Installation is in the reverse order of removal.

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.

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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

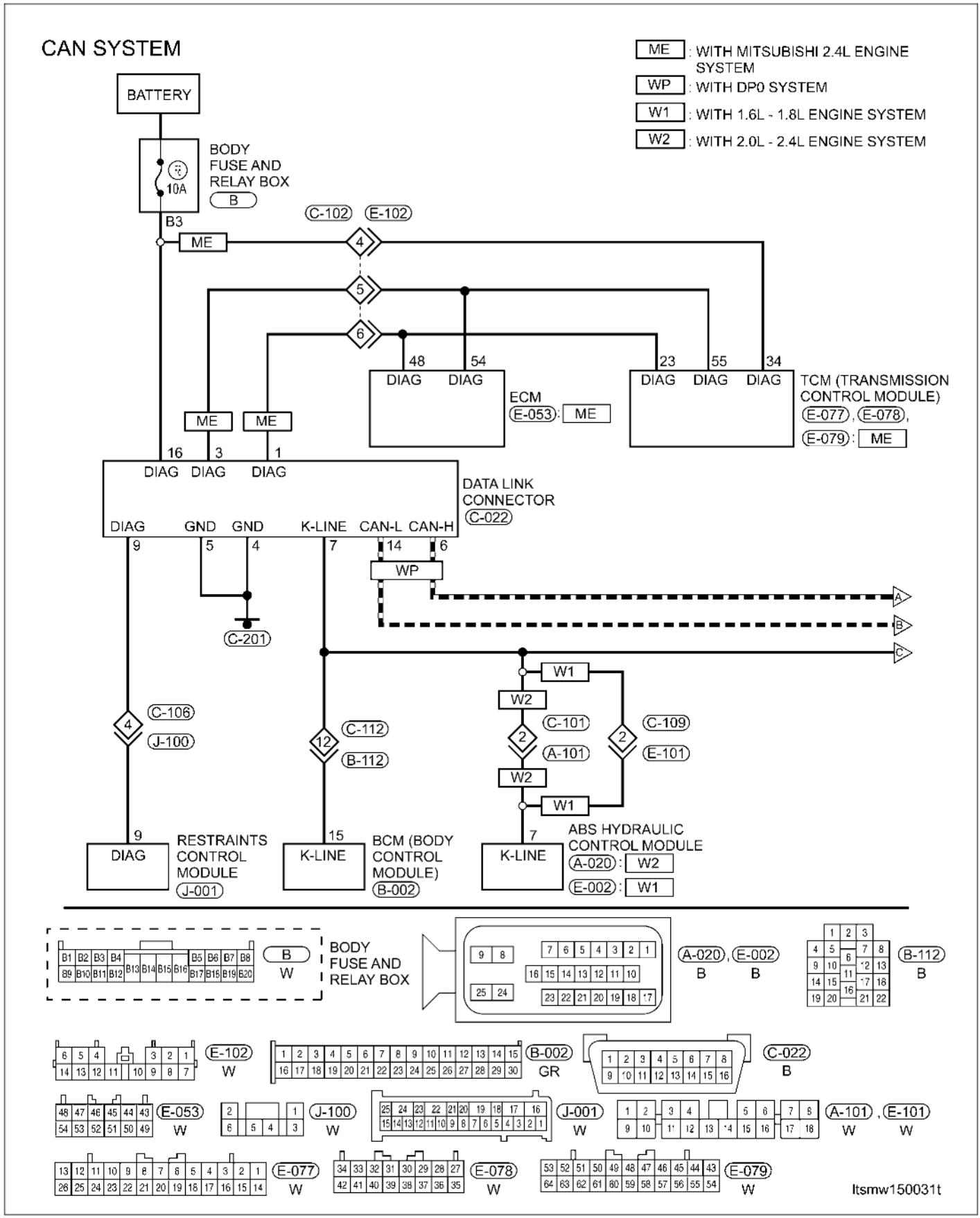
Operation

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.

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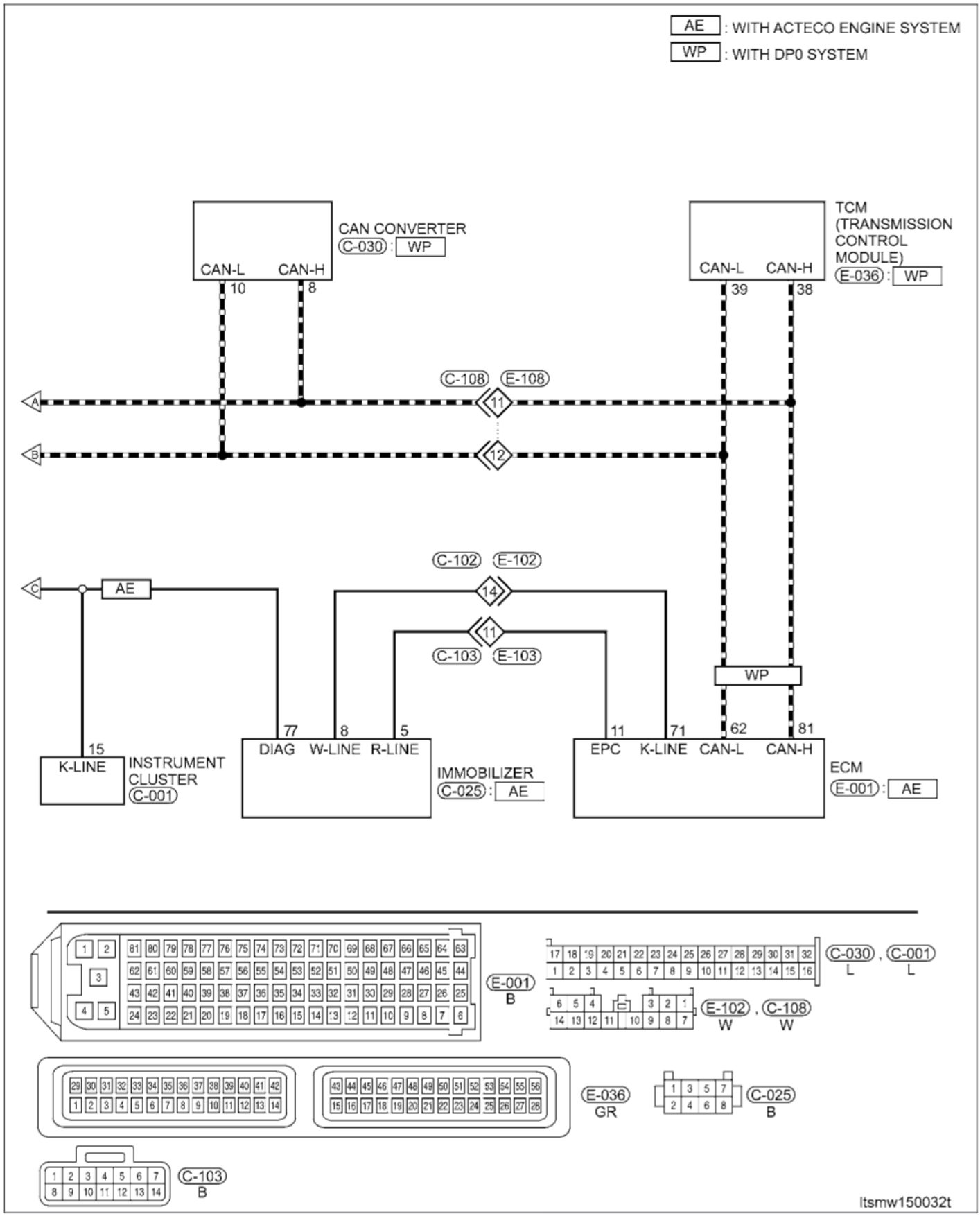
Electrical Schematics

CAN Vehicle Communications (Page 1 of 2)



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CAN Vehicle Communications (Page 2 of 2)



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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

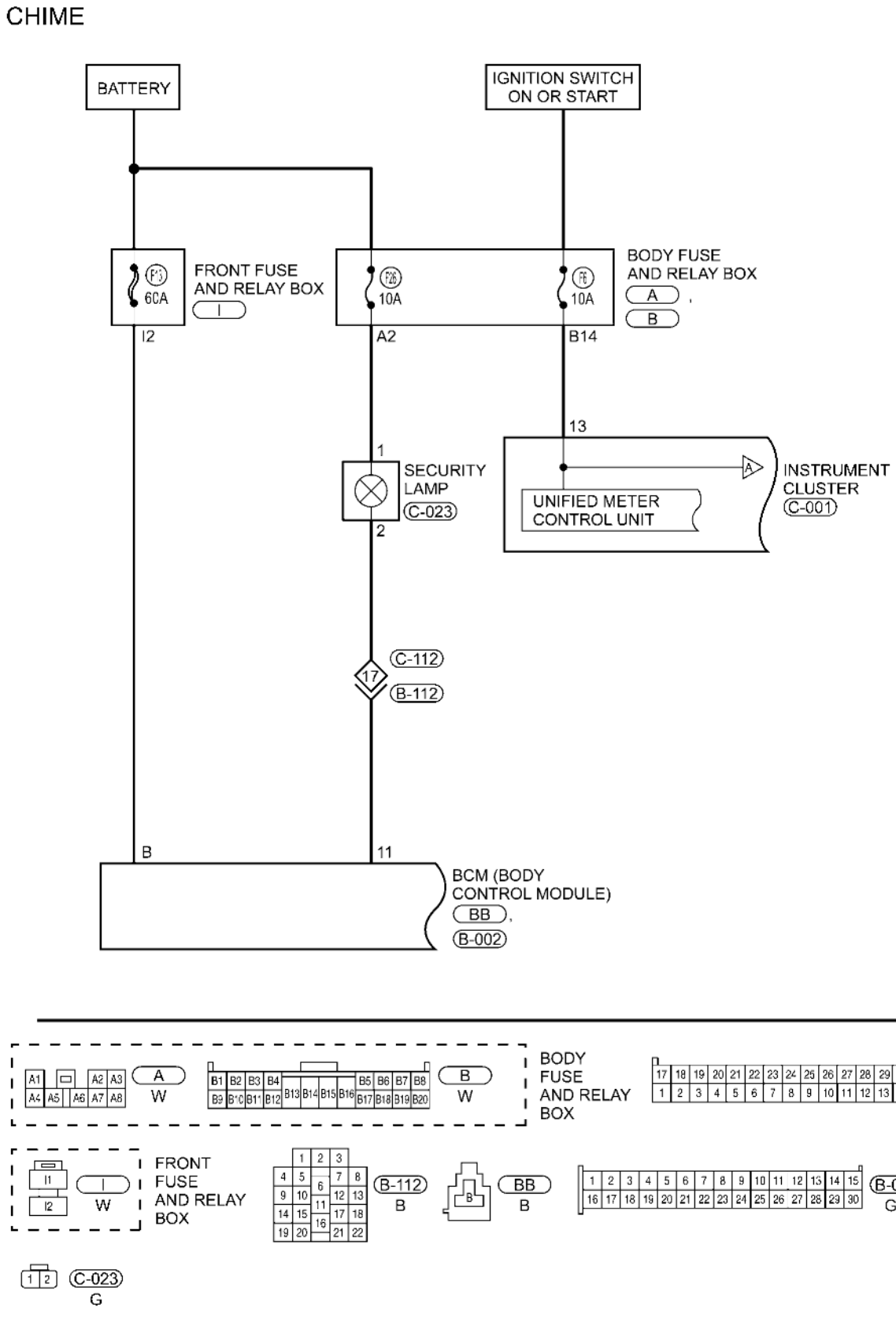
The Instrument Cluster (IC) uses hard wired inputs from various sensors and switches to activate the chime. The sensors and switches are located throughout the vehicle. The following conditions will cause the chime to operate:

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

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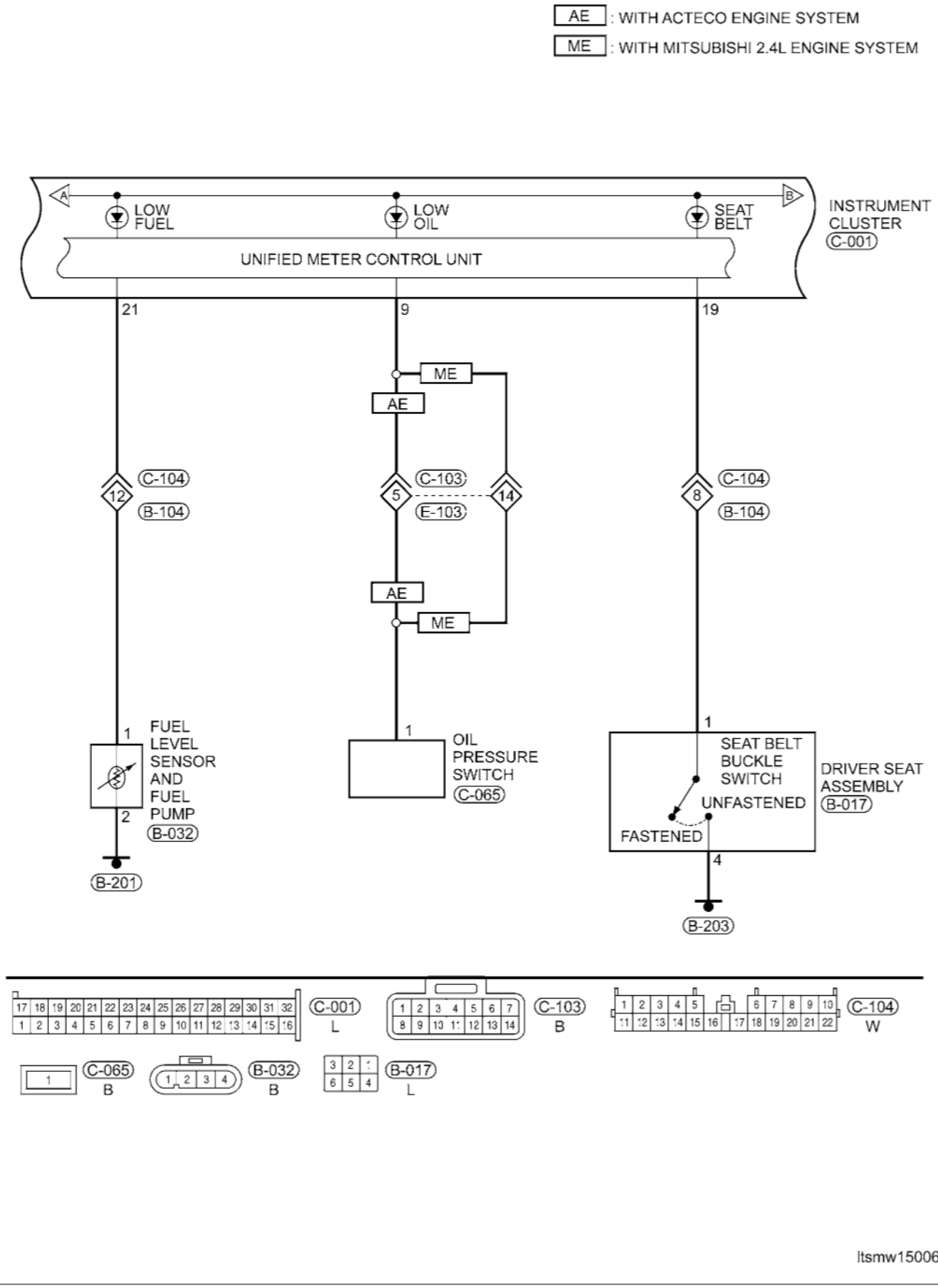
Electrical Schematics

Chime (Page 1 of 9)



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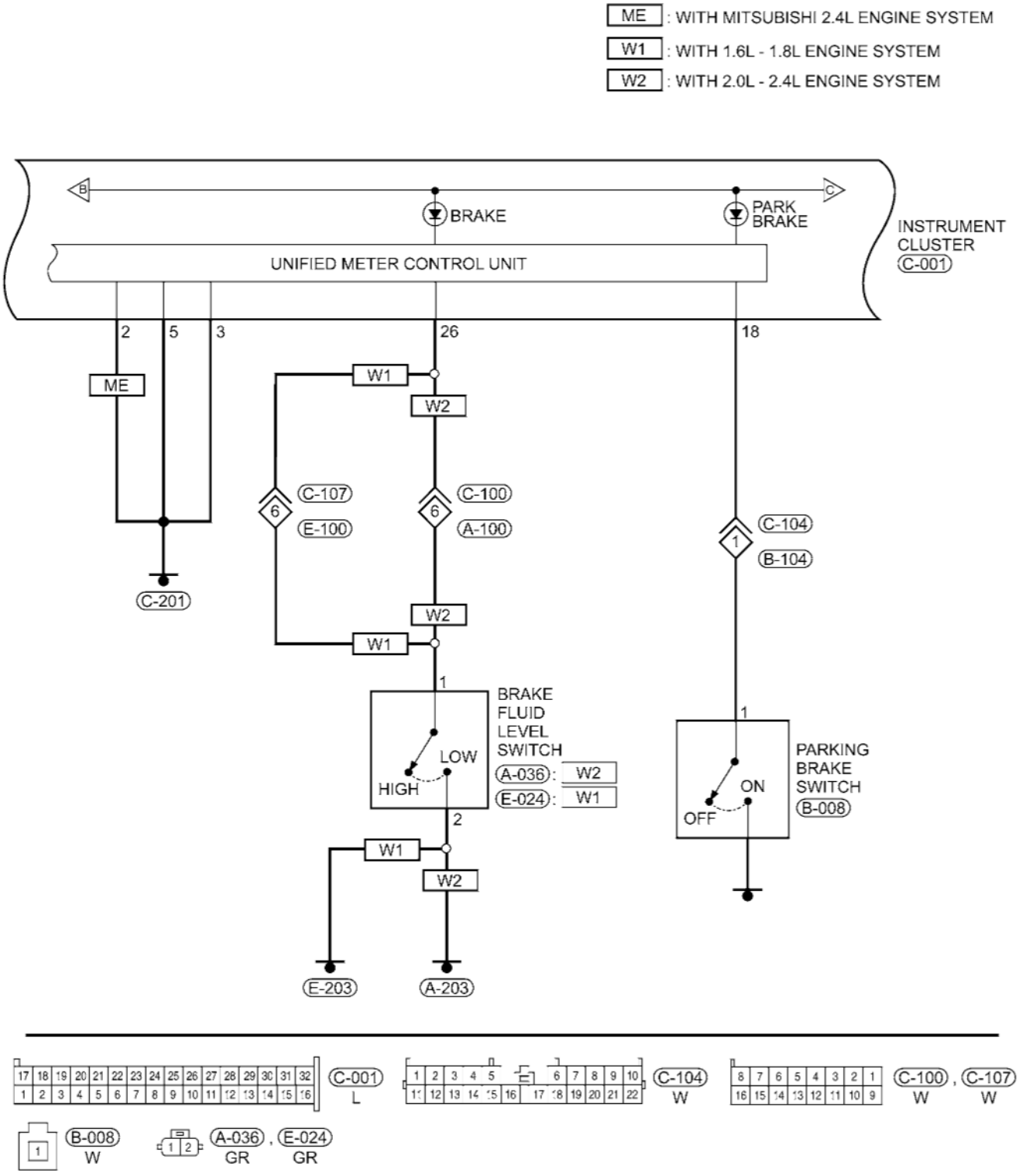
Chime (Page 2 of 9)



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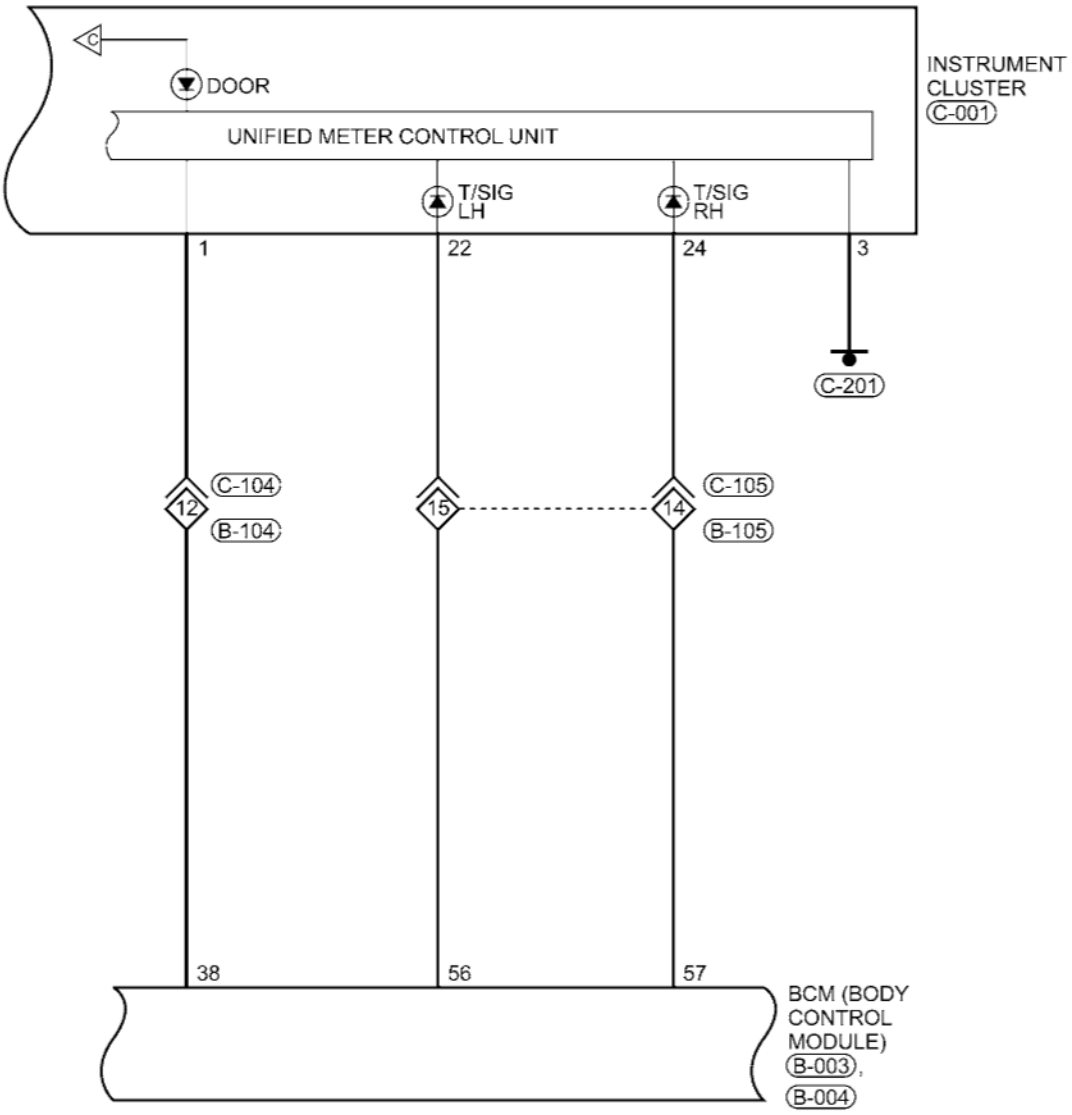
Chime (Page 3 of 9)

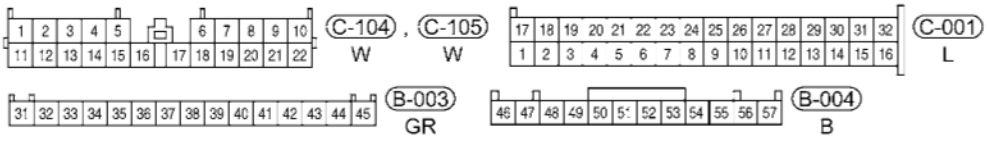


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Chime (Page 4 of 9)

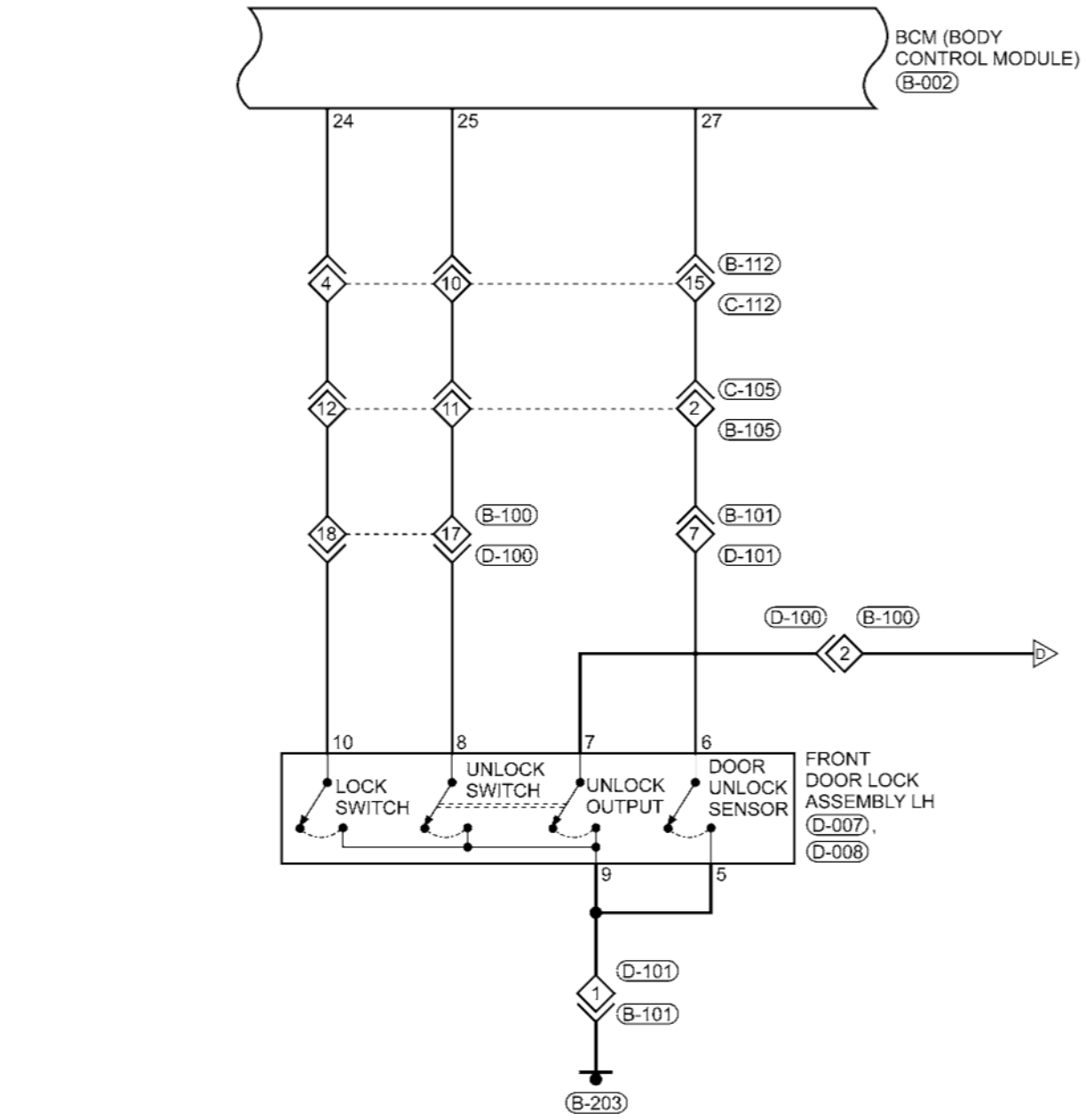




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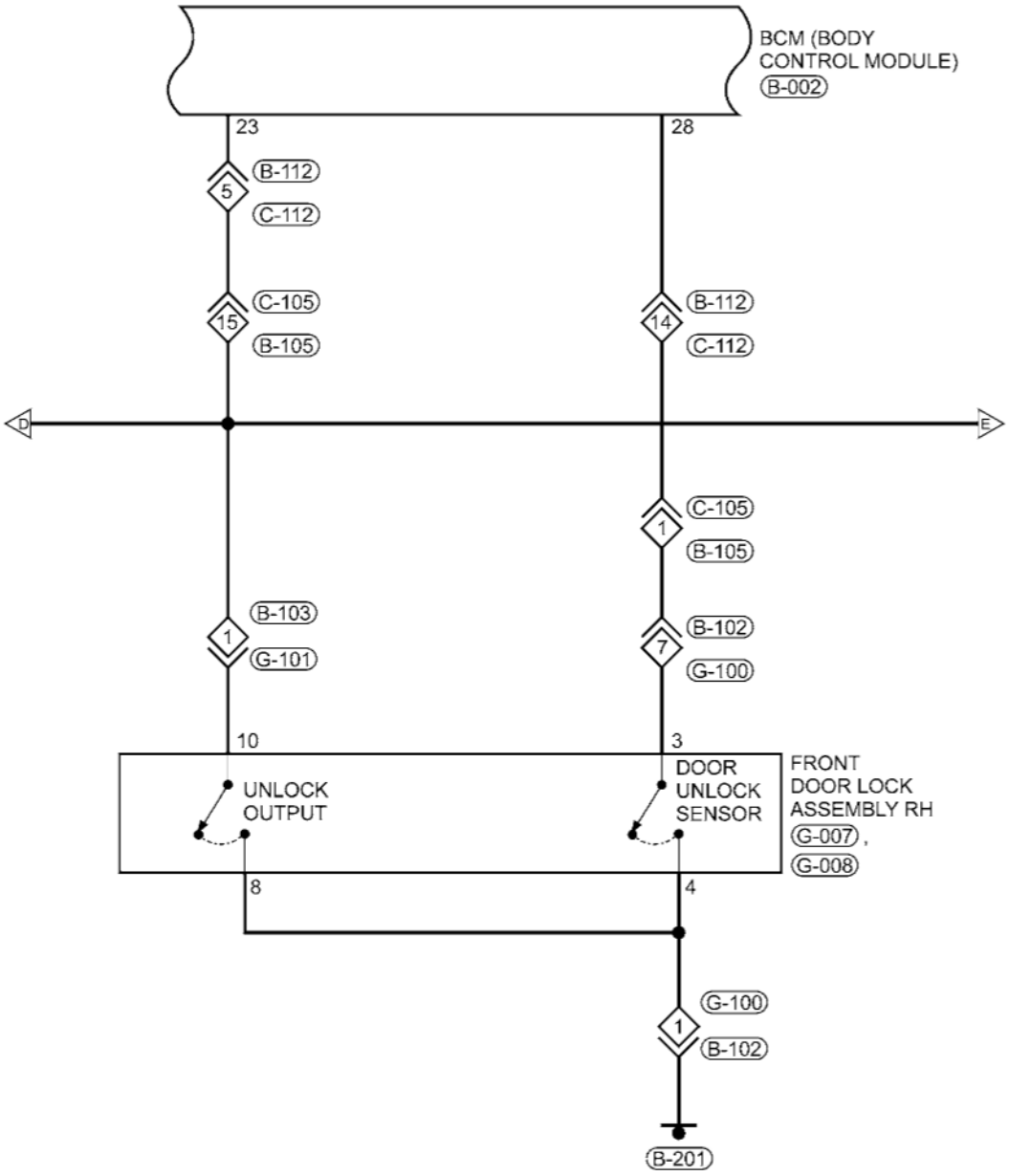
Chime (Page 5 of 9)

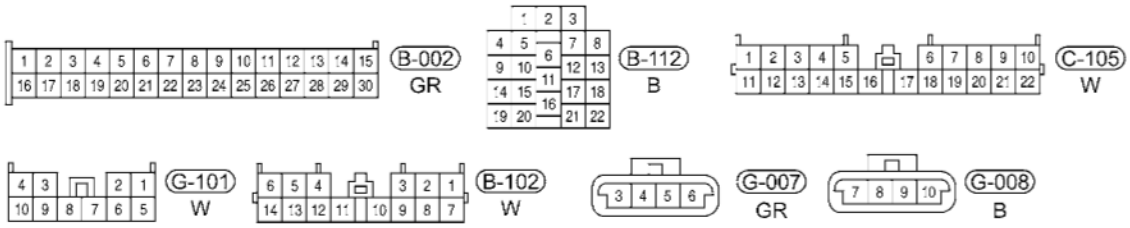


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Chime (Page 6 of 9)

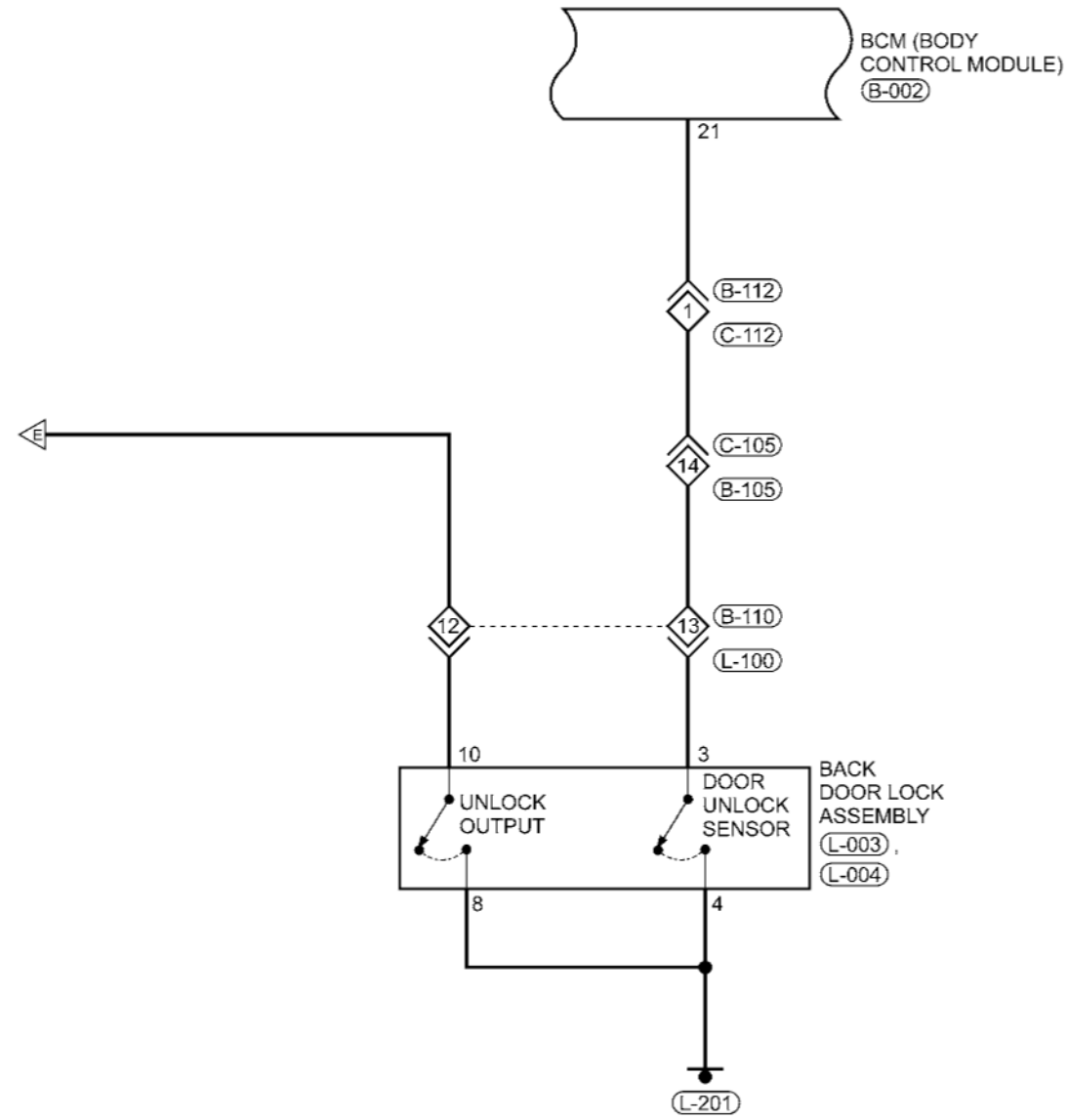


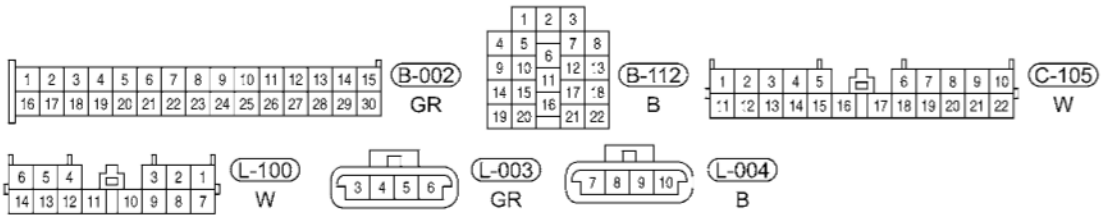


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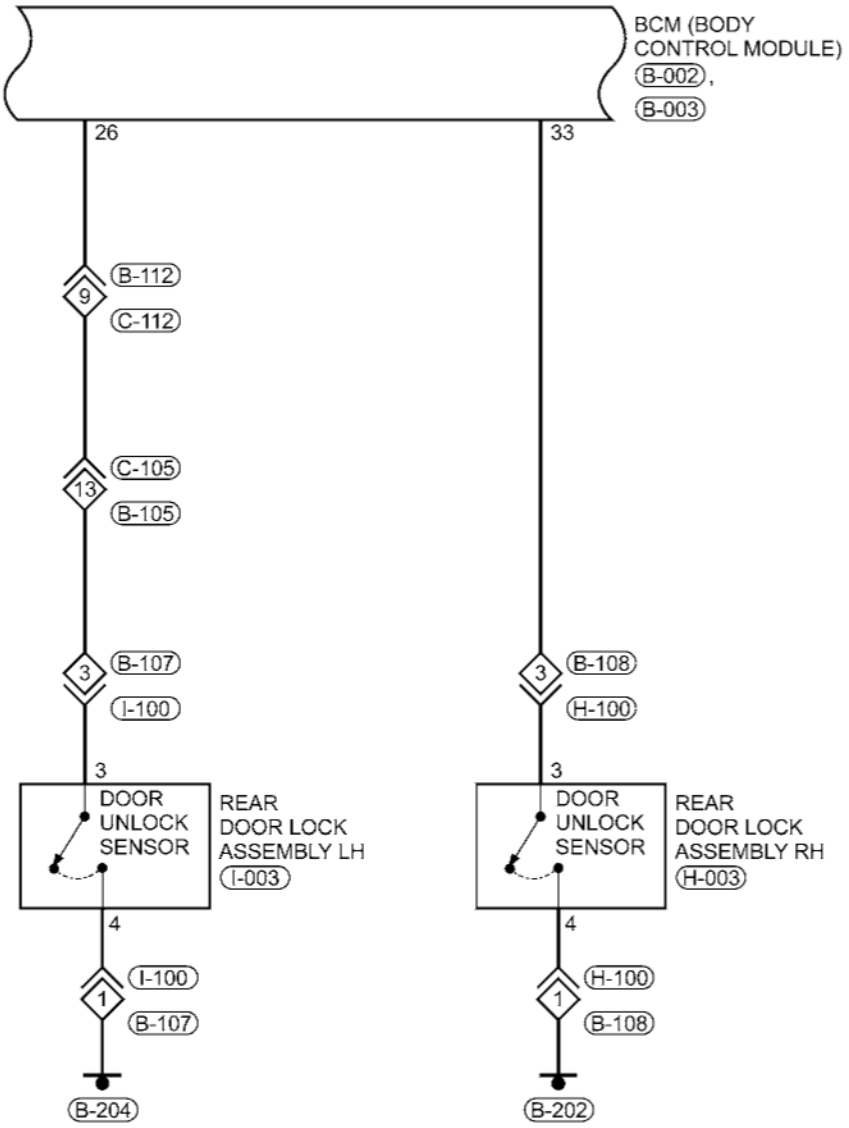


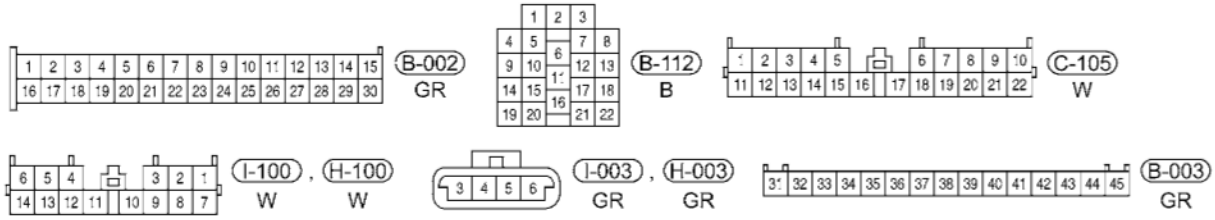


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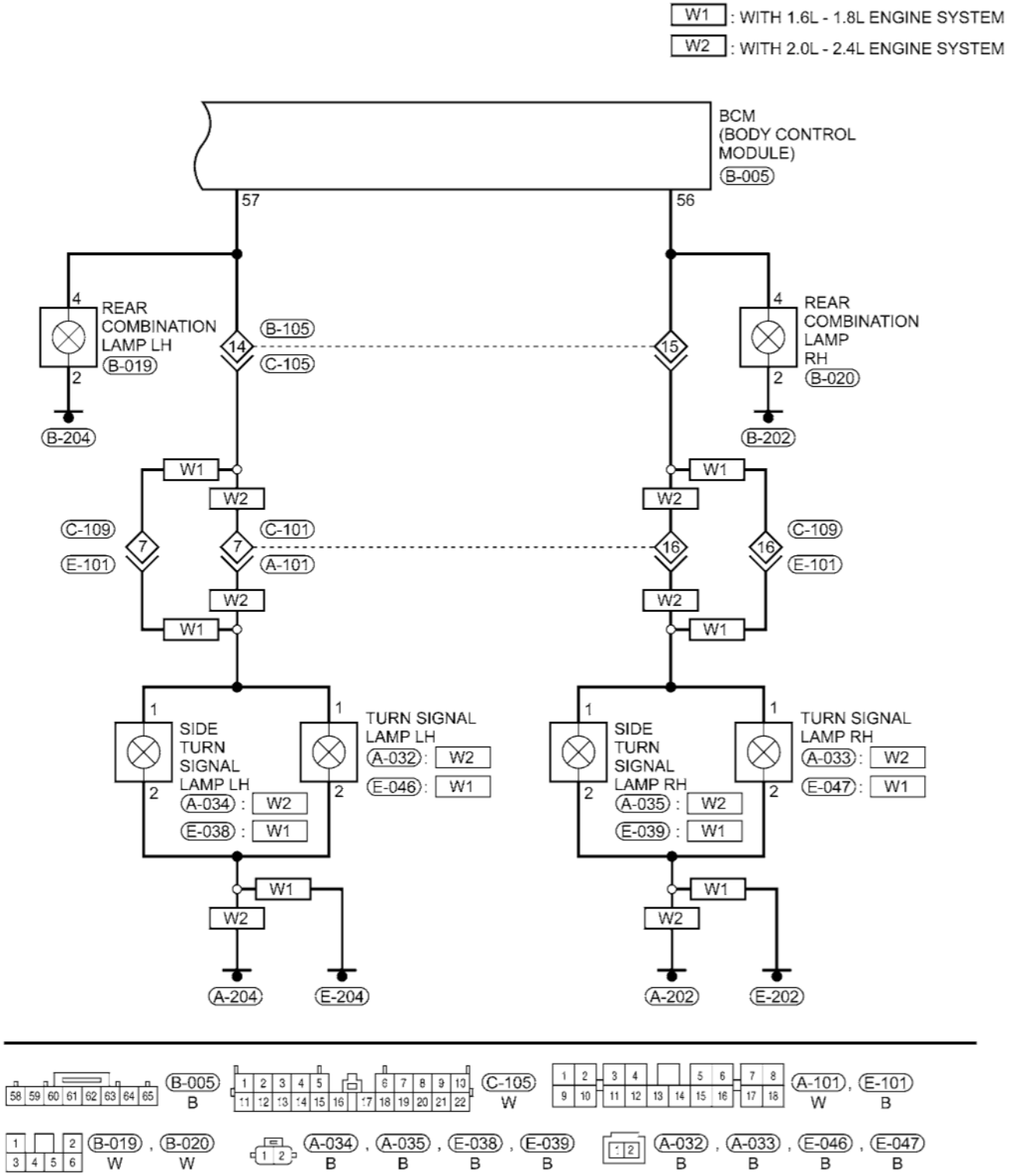




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Chime (Page 9 of 9)



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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.

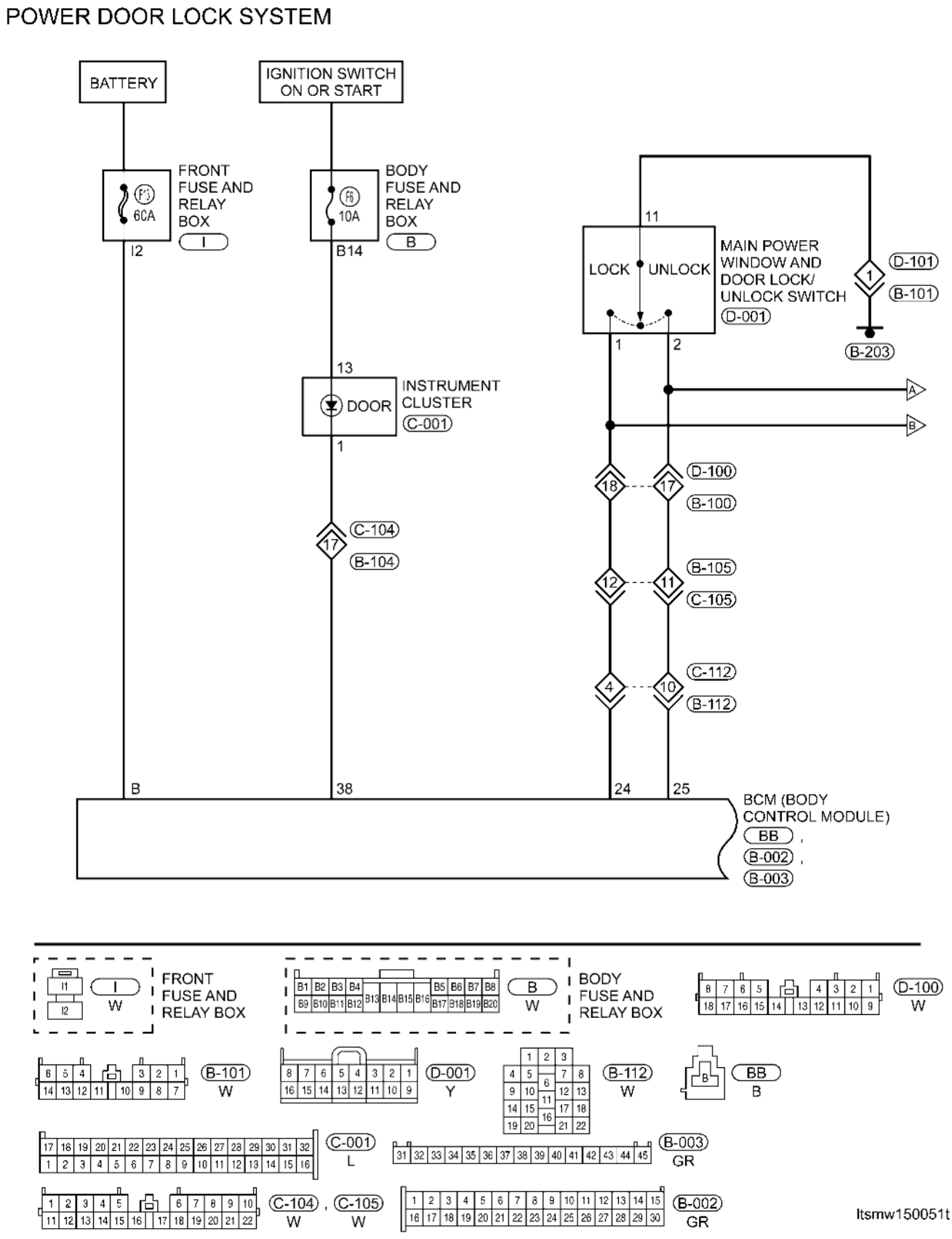
Operation

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.

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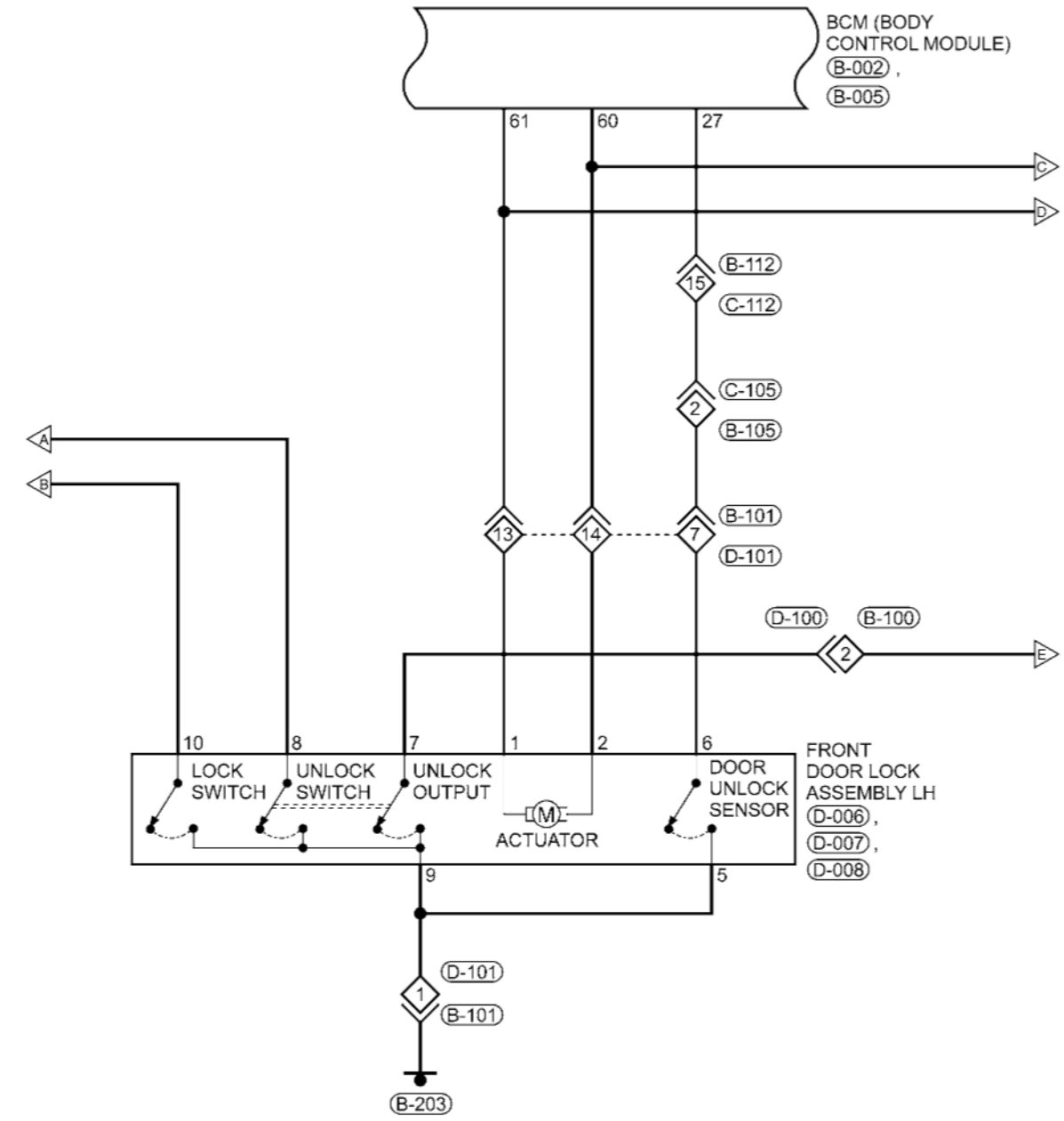
Electrical Schematics

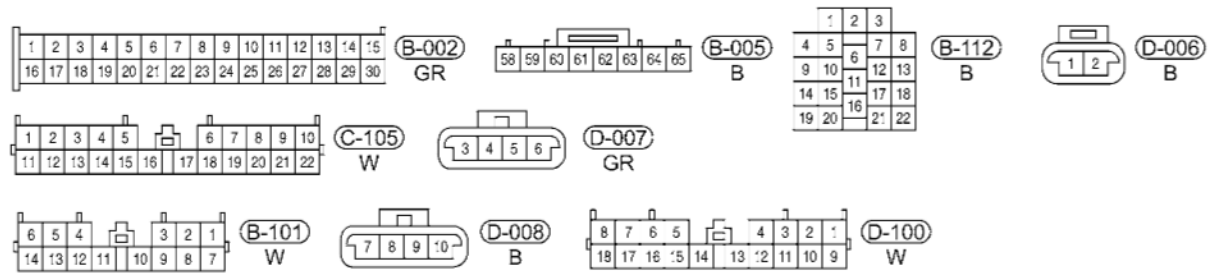
Power Door Lock System (Page 1 of 5)



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Power Door Lock System (Page 2 of 5)

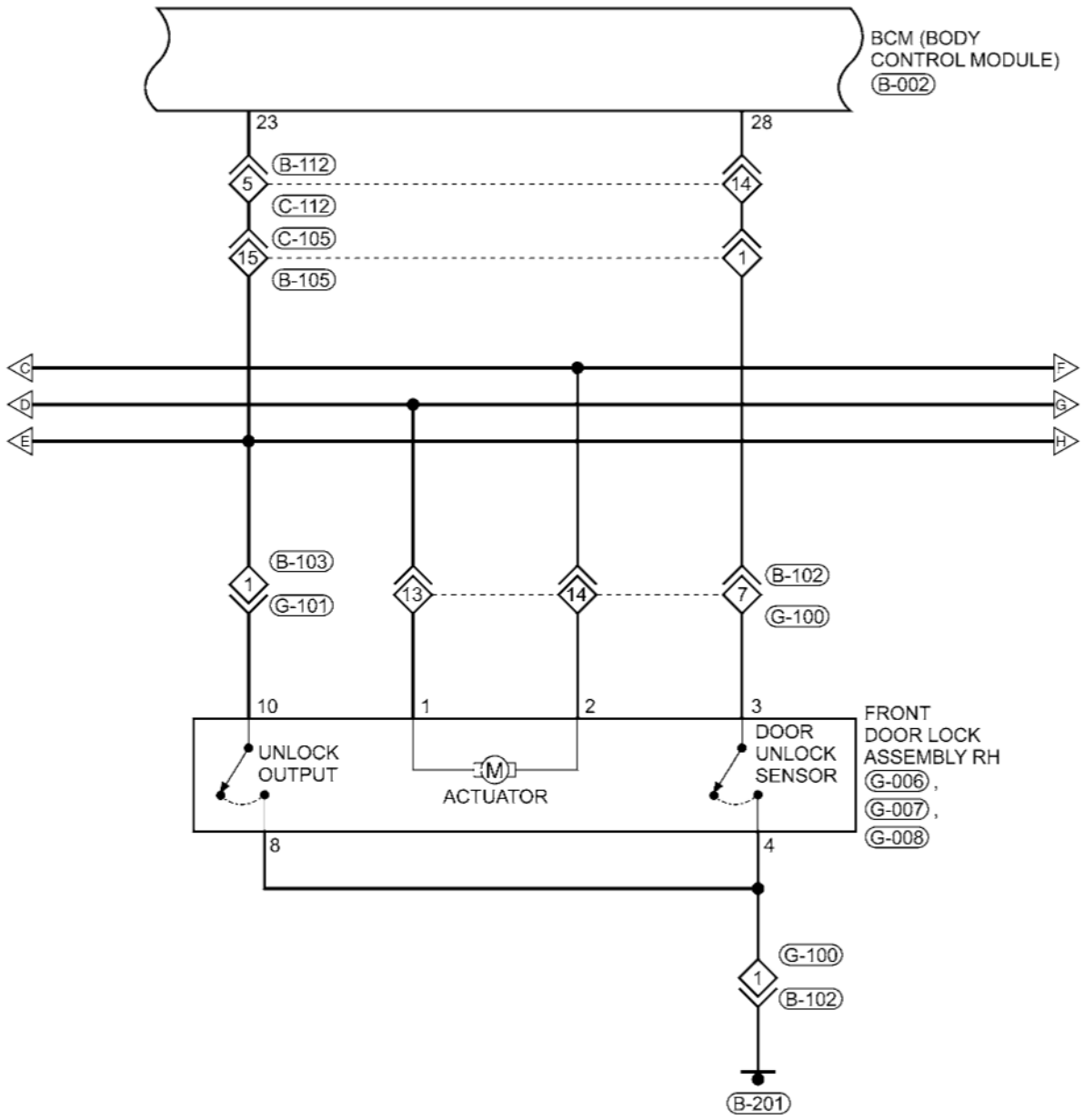


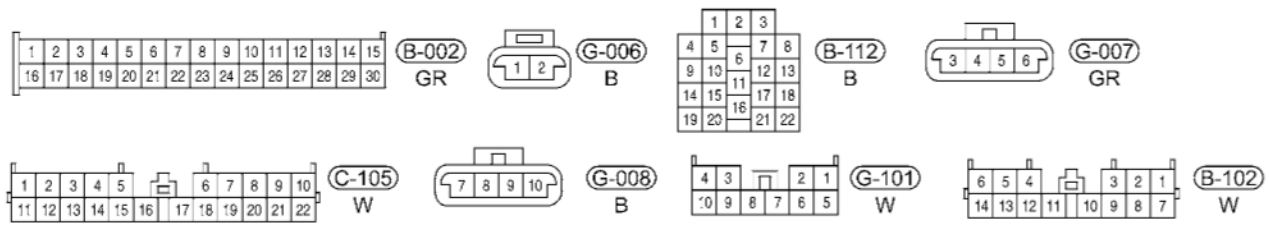


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Power Door Lock System (Page 3 of 5)

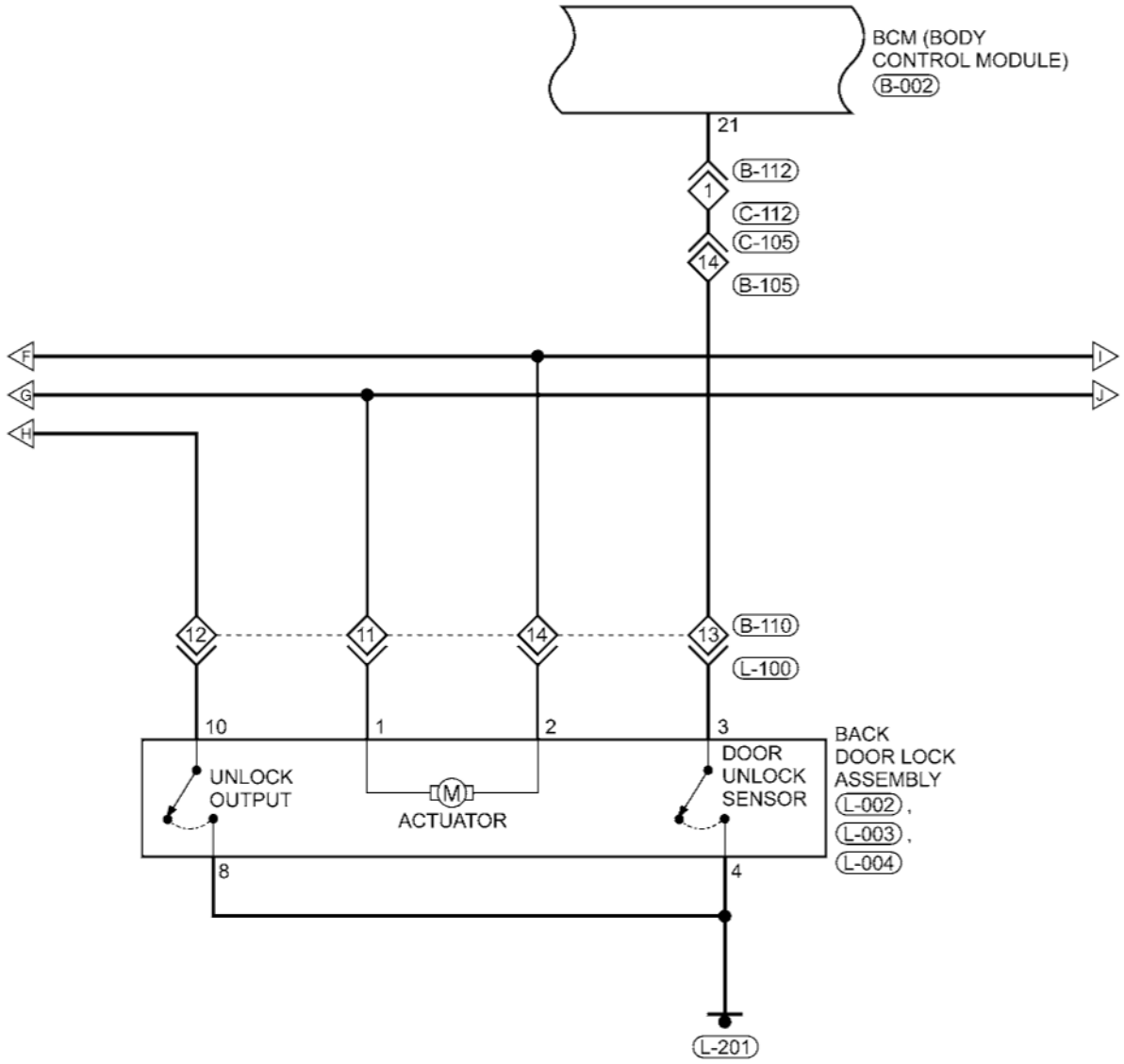


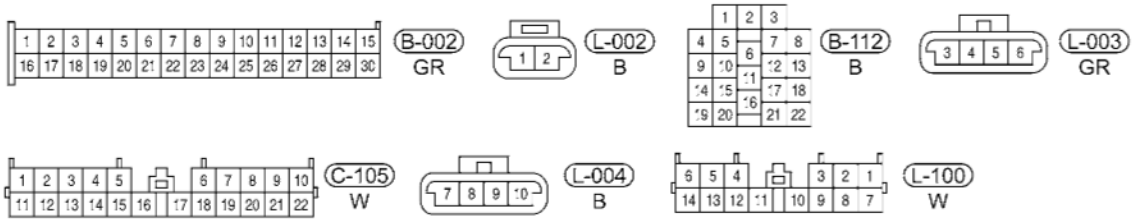


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Power Door Lock System (Page 4 of 5)

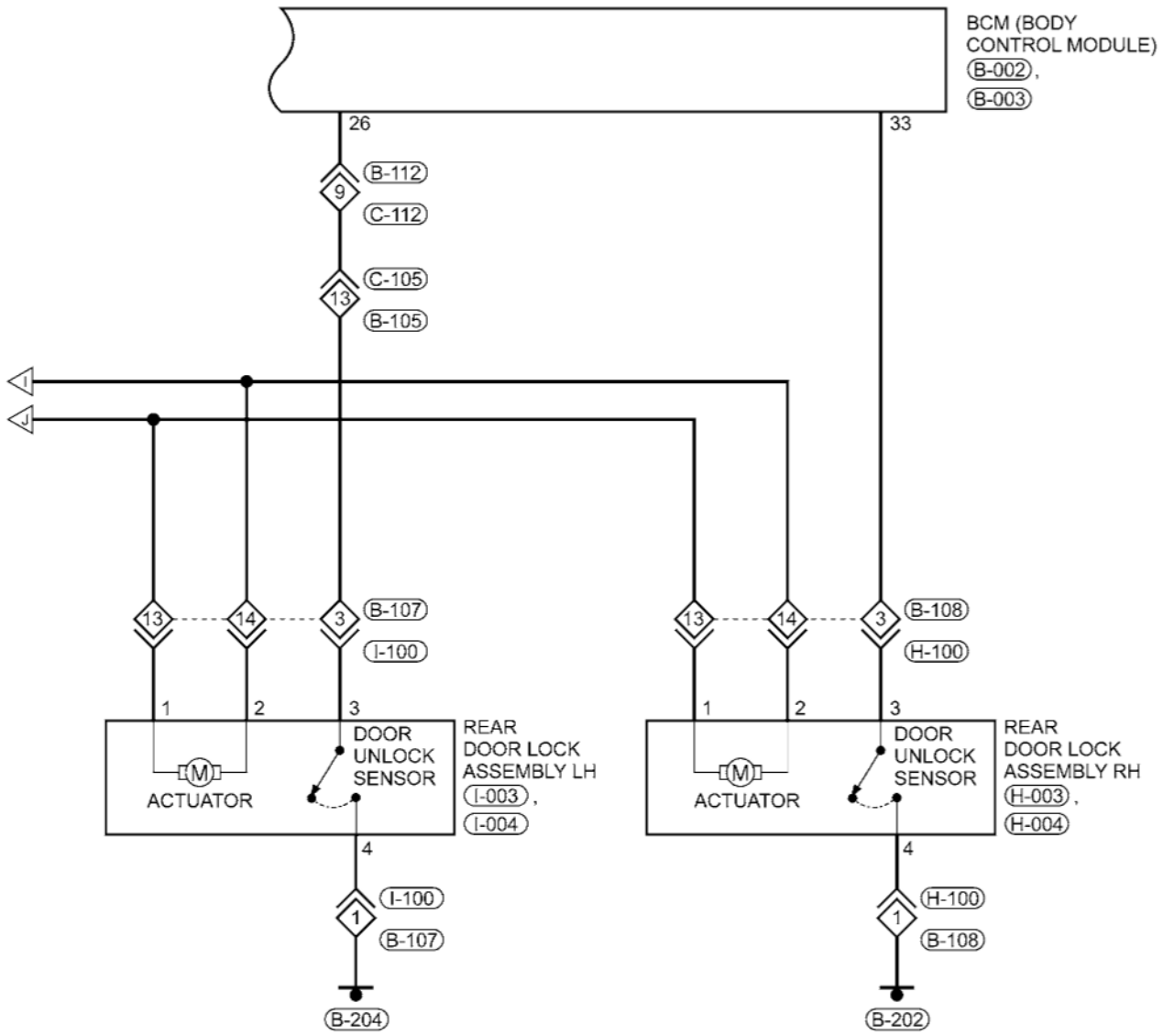


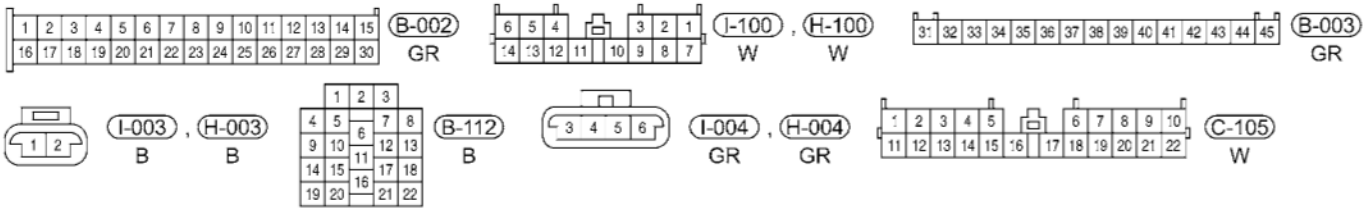


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Power Door Lock System (Page 5 of 5)





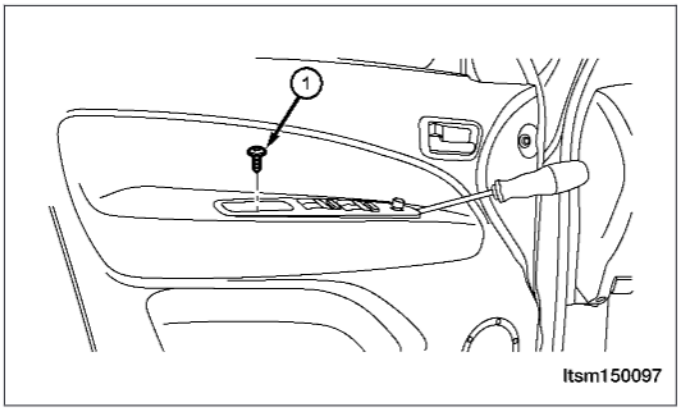
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Door Lock Switch

Removal & Installation

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



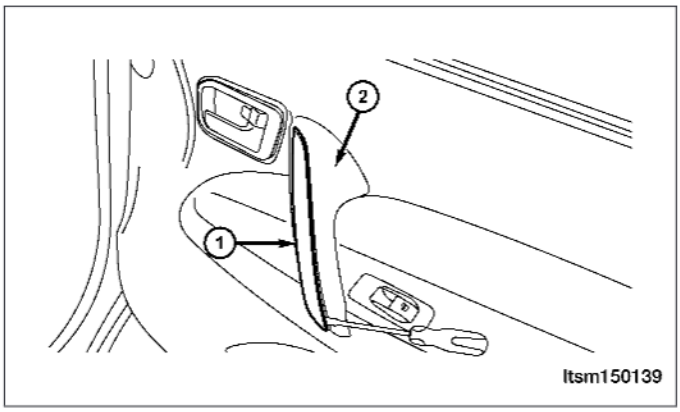
3. Using a trim stick, pry out the power window and door lock/unlock switch assembly from the front door.
4. Disconnect the power window and door lock/unlock switch electrical connectors.
5. Remove the power window and door lock/unlock switch retaining screws to remove the power window and door lock/unlock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

Door Lock Assembly

Removal & Installation

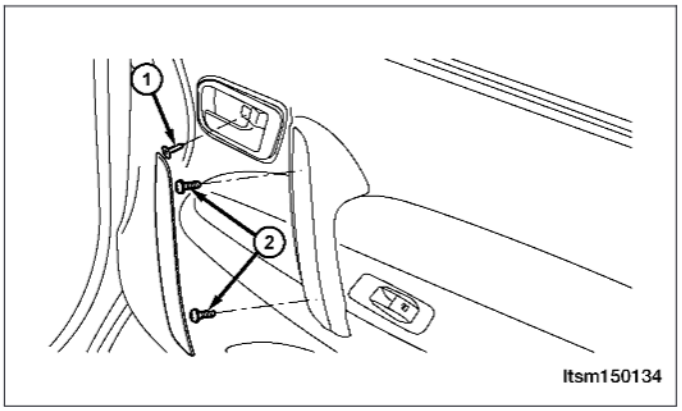
NOTE :
The passenger door is shown, all other doors are similar.

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).

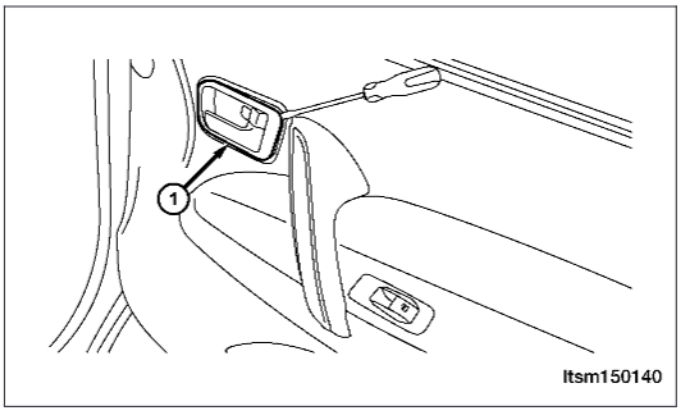


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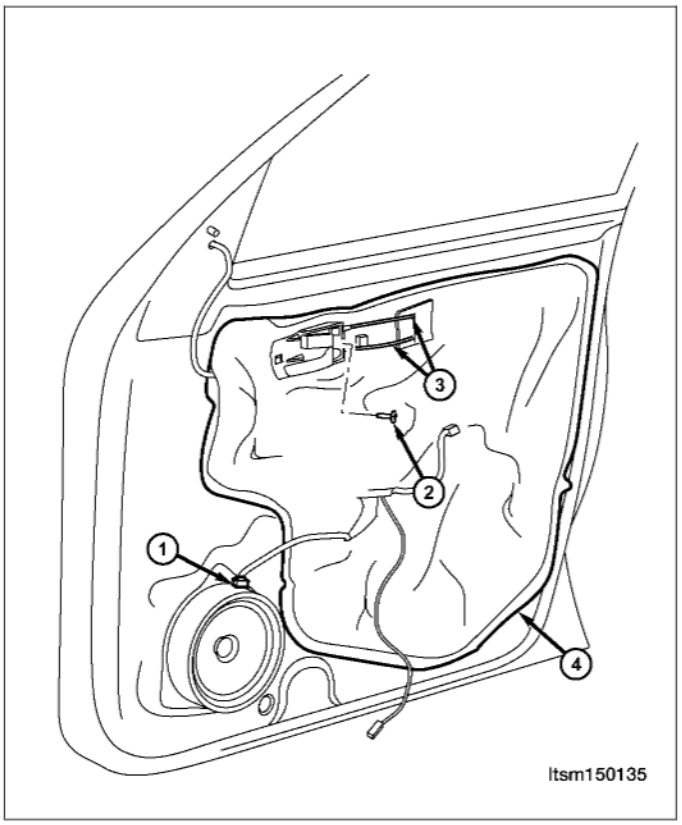
4. Remove the inner door handle mounting screw (1).
5. Remove the pull handle mounting screws (2).



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

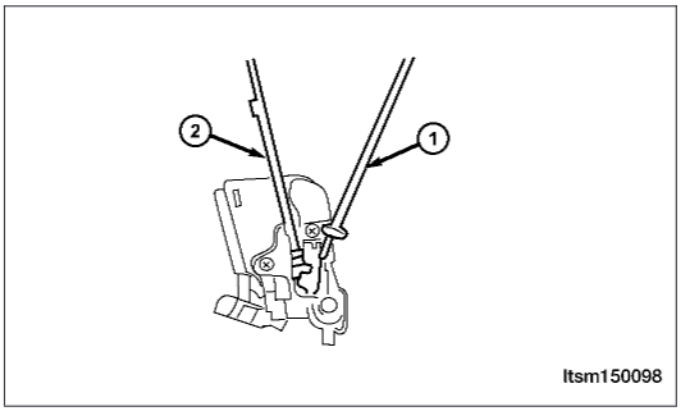


7. Carefully pry the door trim panel clips from the door.
8. Disconnect the power window switch and the door lamp electrical connector.
9. Remove the door trim panel.
10. Disconnect the speaker connector (1).
11. Remove the inner door handle assembly mounting screw (2).
12. Disconnect the inner door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



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14. Remove three door lock assembly retaining bolts.
(Tighten: Door lock assembly retaining bolts to 9 ± 1 N·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 ± 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

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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

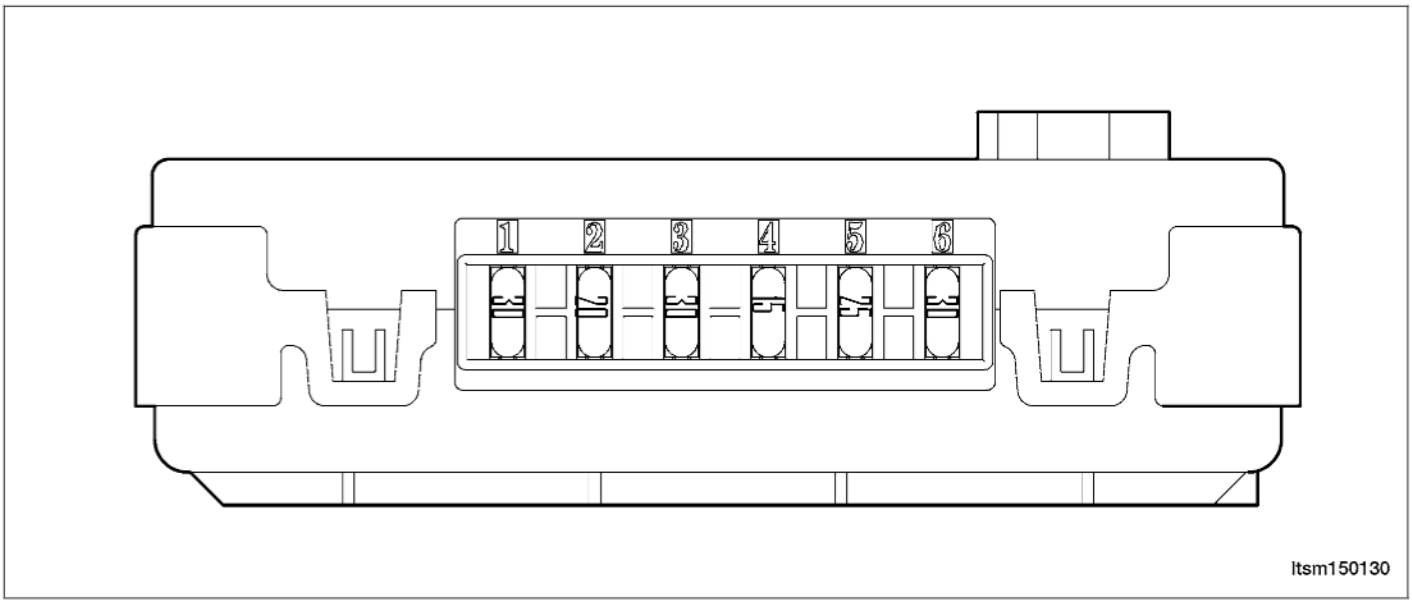
The Body Control Module (BCM) uses hard wired inputs from various sensors and switches. The sensors and switches are located throughout the vehicle.

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

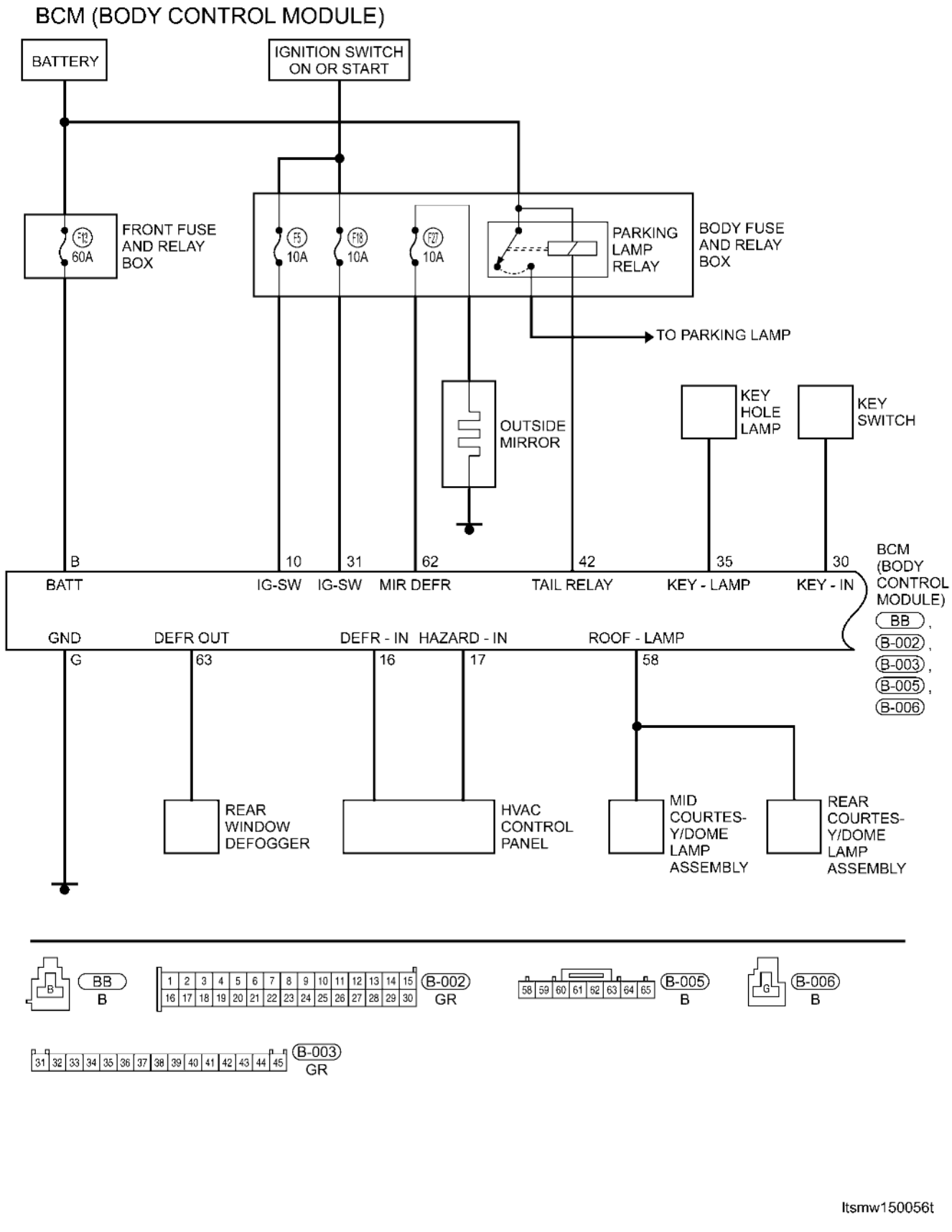


FUSE NO.	AMPERAGE RATING	FUNCTION
1	30 A	Front Fog
2	20 A	CNT Lock
3	30 A	Spare
4	15 A	Spare
5	25 A	Spare
6	30 A	Front WIN

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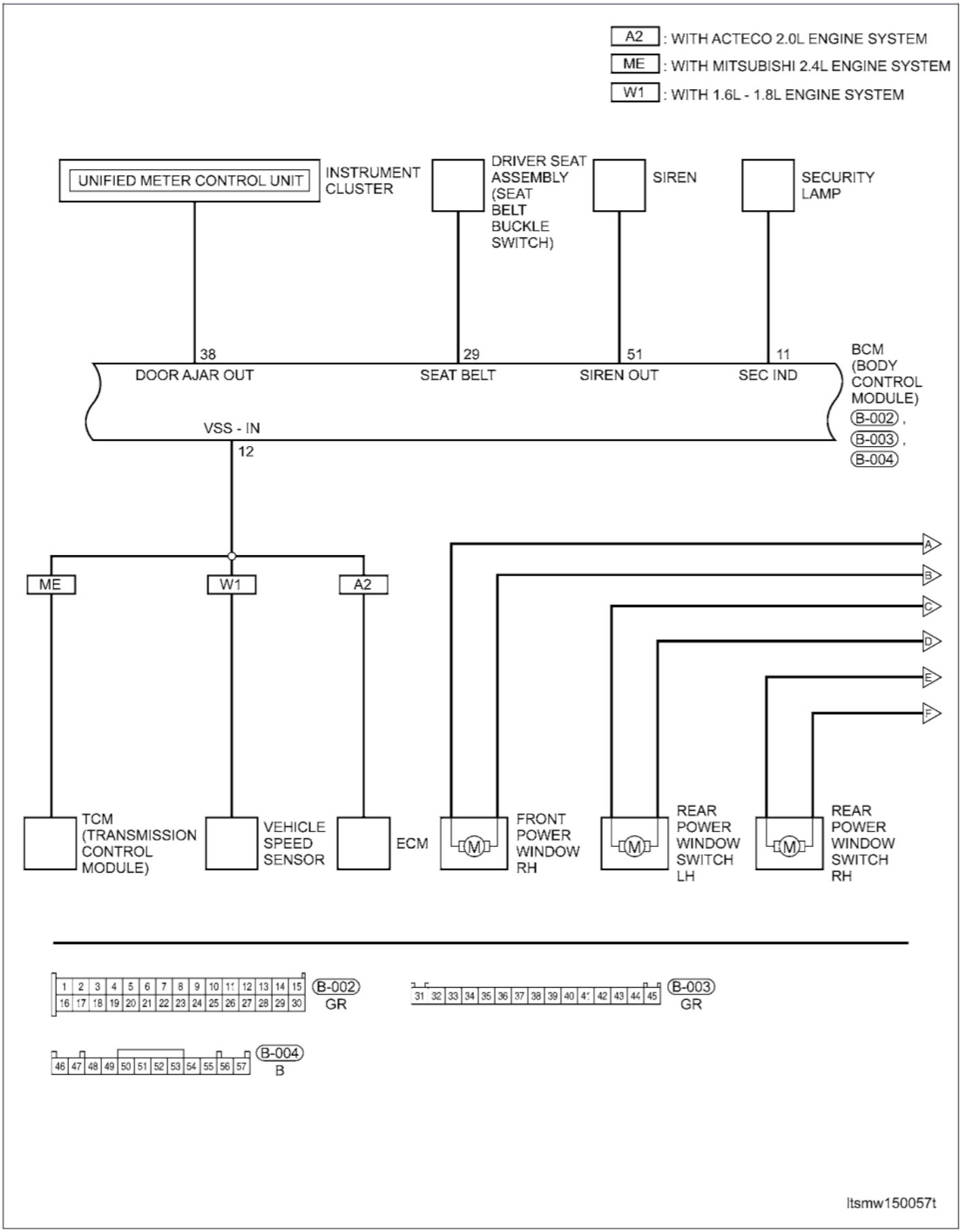
Electrical Schematics

Body Control Module (Page 1 of 5)



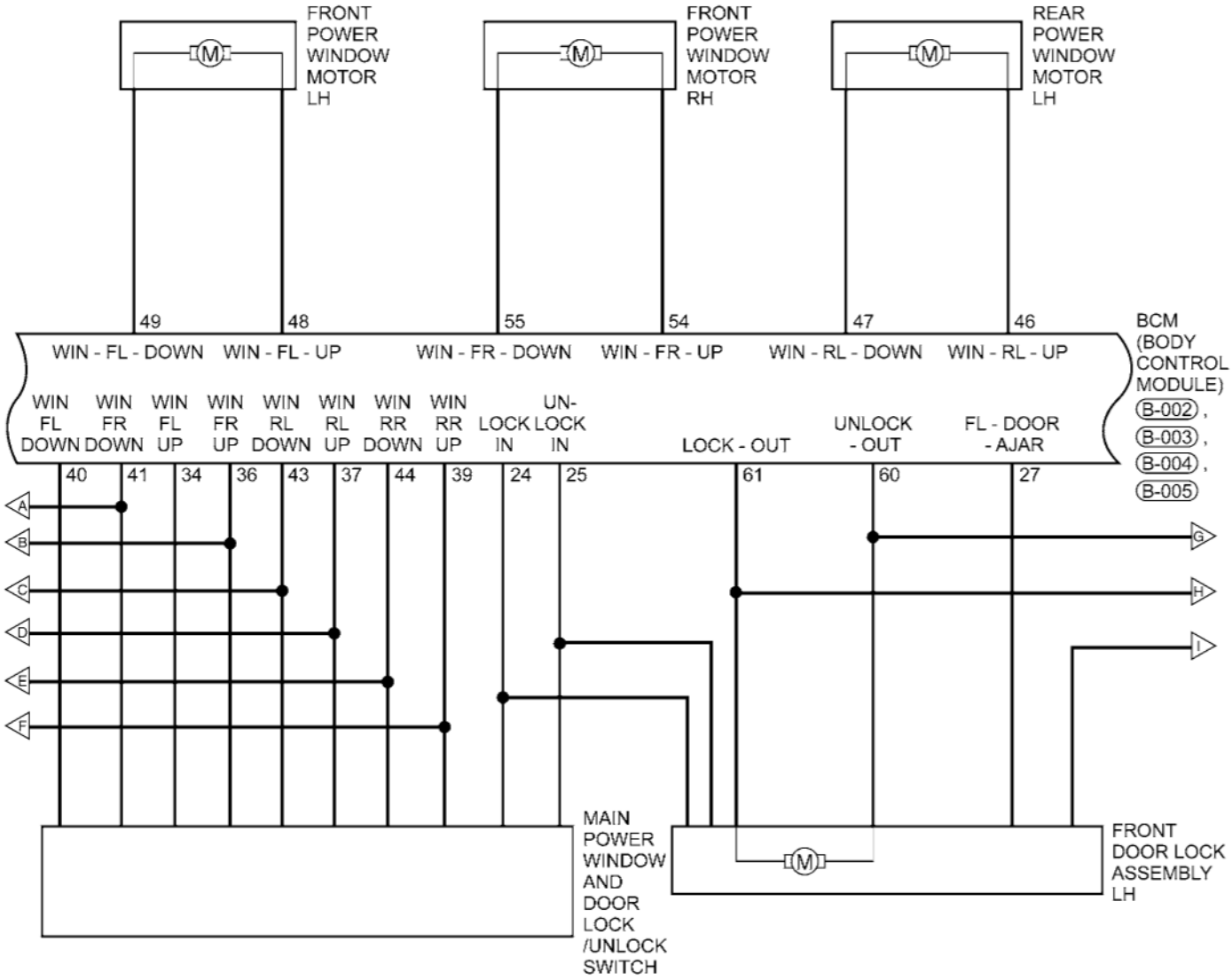
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Body Control Module (Page 2 of 5)



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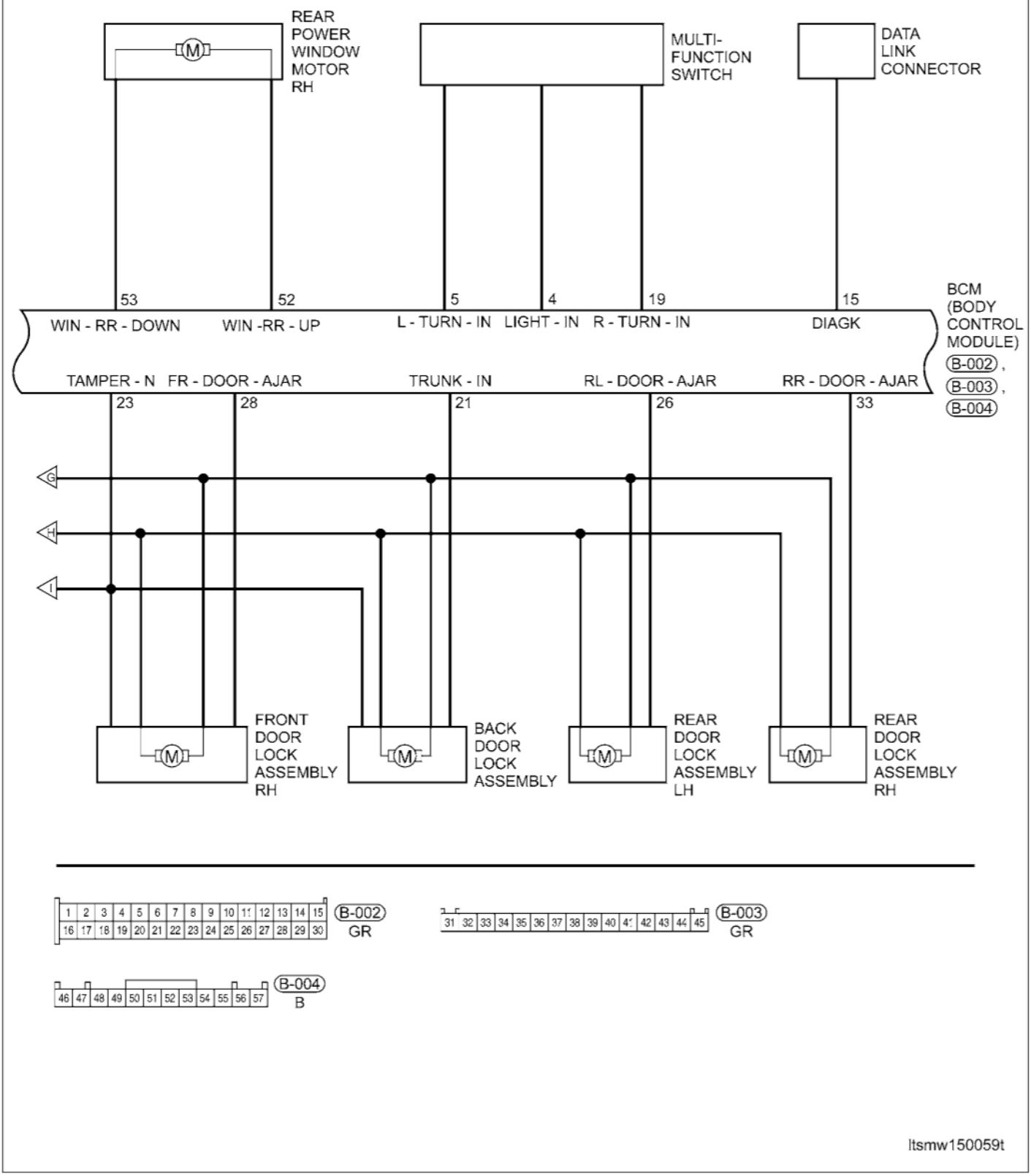
Body Control Module (Page 3 of 5)



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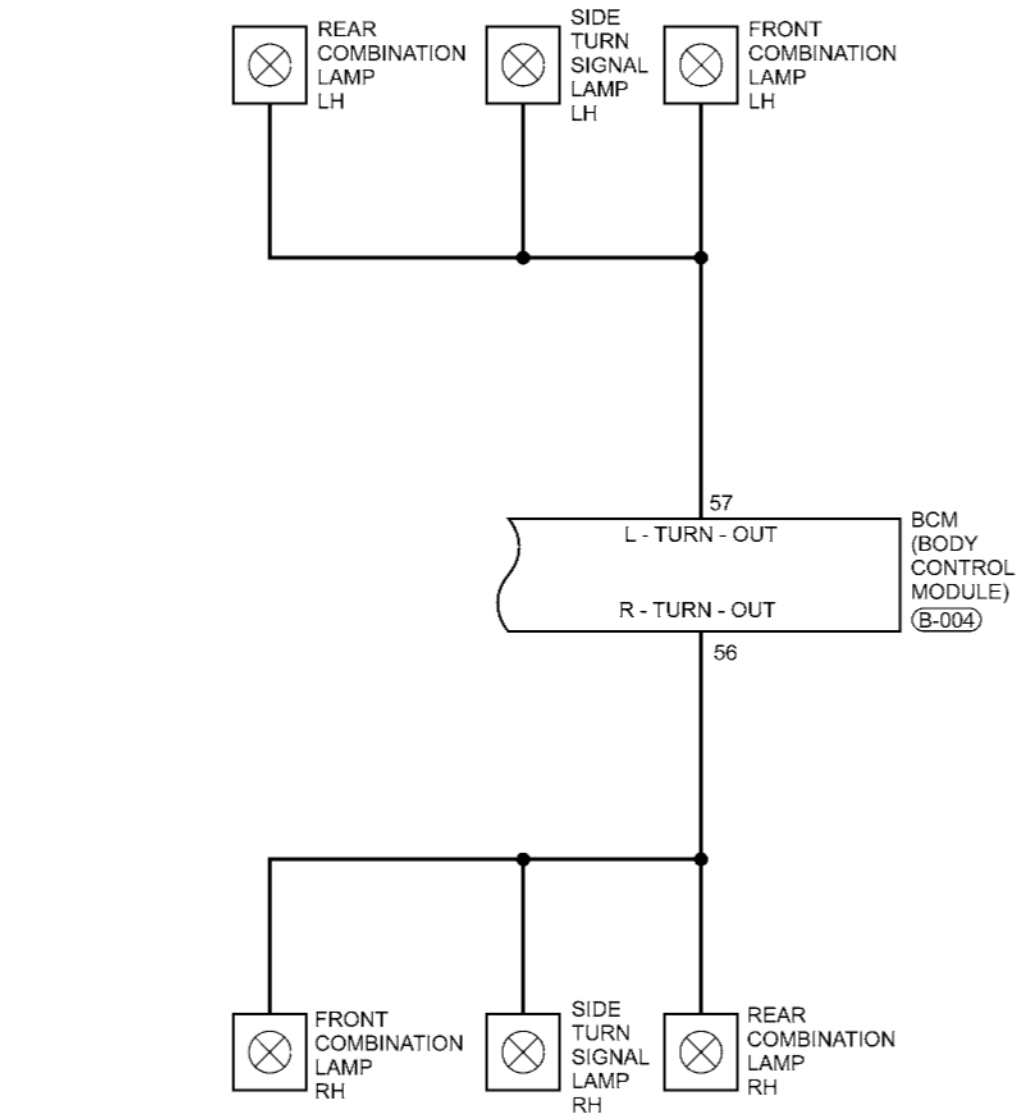
Body Control Module (Page 4 of 5)

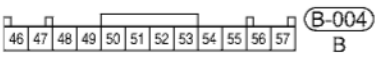


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Body Control Module (Page 5 of 5)





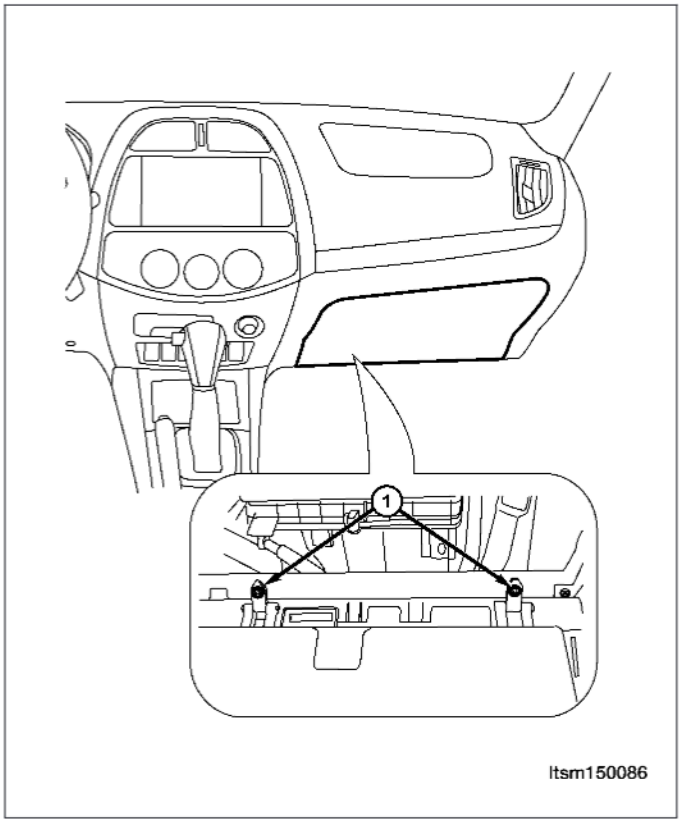
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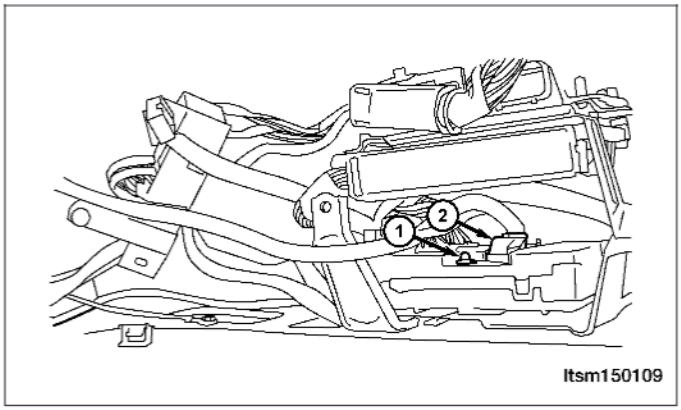
Body Control Module (BCM)

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.
4. Remove the BCM mounting bolts (1).
   (Tighten: BCM mounting bolts to 5 N·m)
5. Disconnect the BCM electrical connector (2).



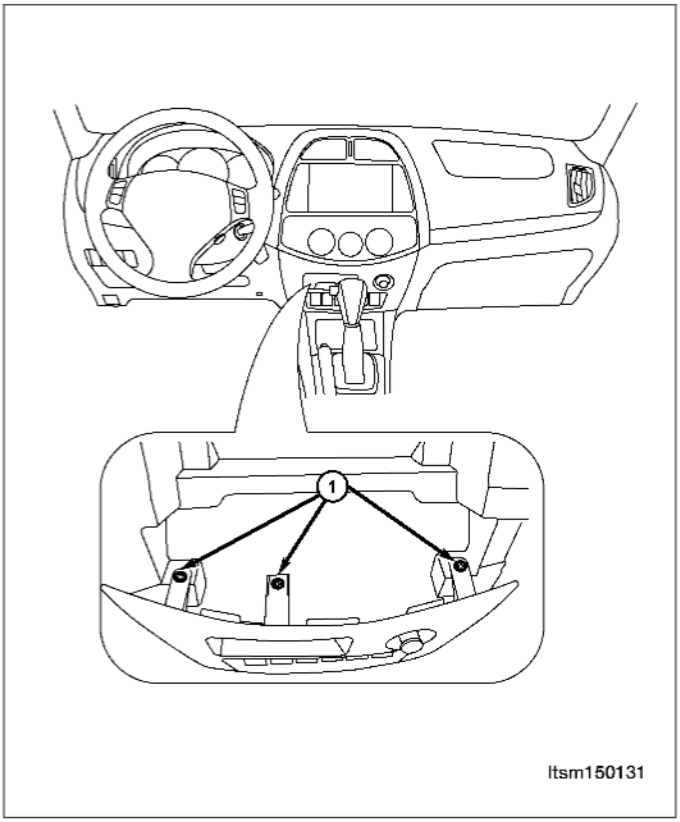
6. Remove the BCM.
7. Installation is in the reverse order of removal.

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INSTRUMENT PANEL

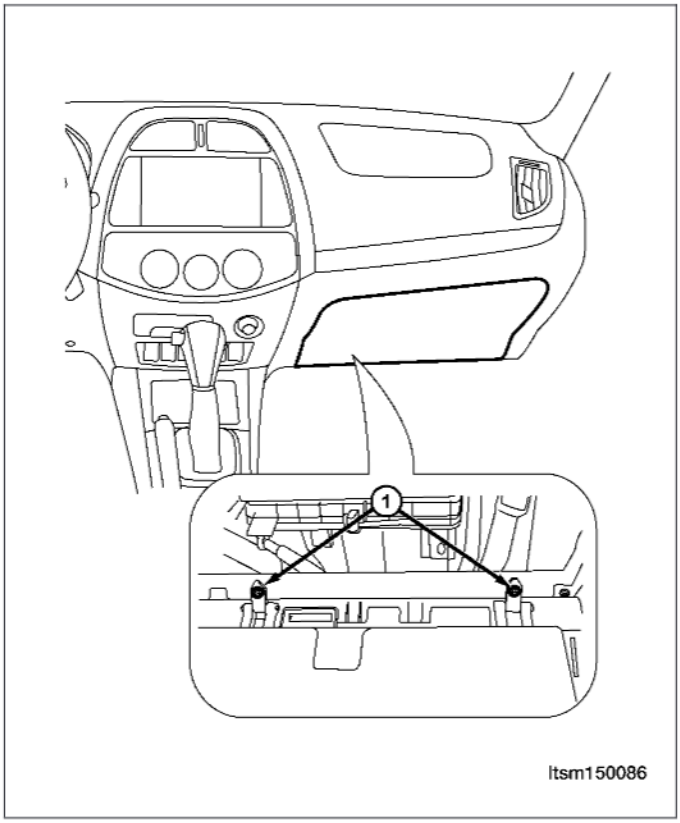
Removal & Installation

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).

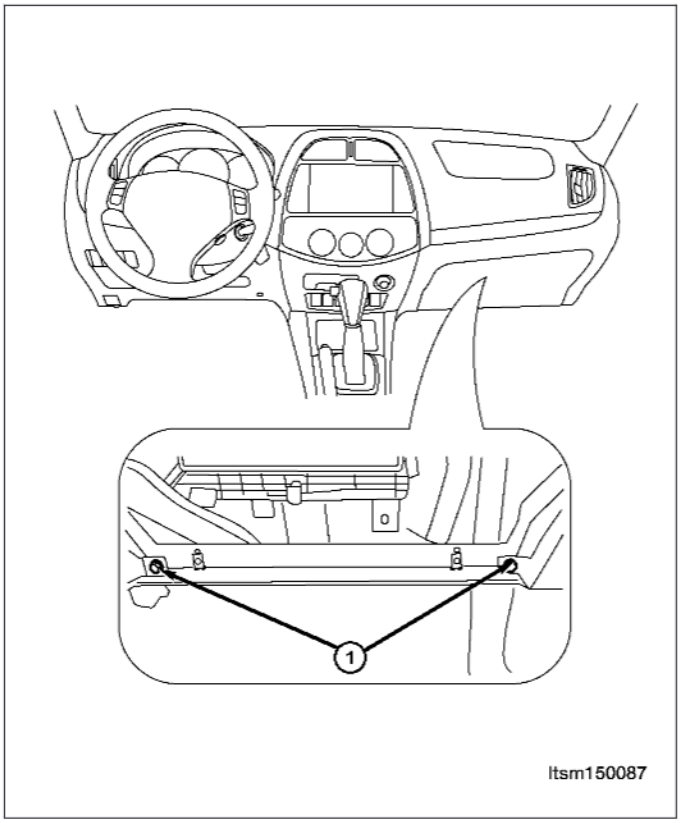


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7. Remove the glove box retaining bolts (1).

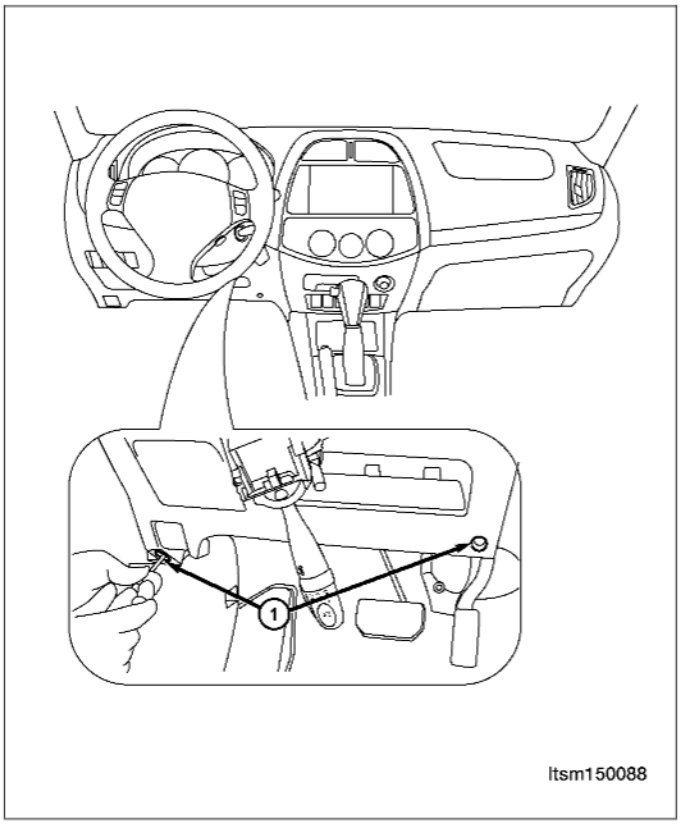


8. Remove the bolts (1) under the glove box.

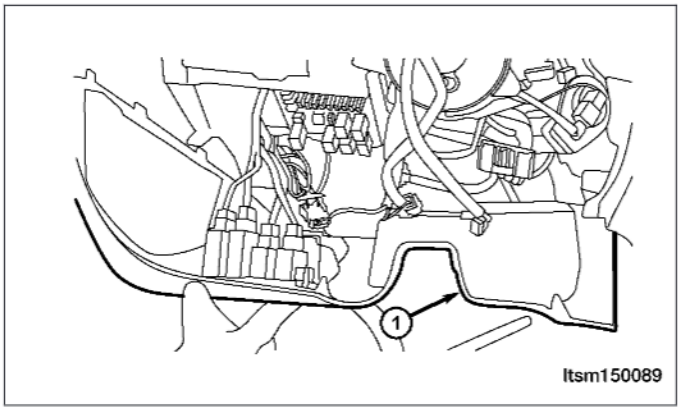


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9. Remove the knee bolster mounting screws (1).



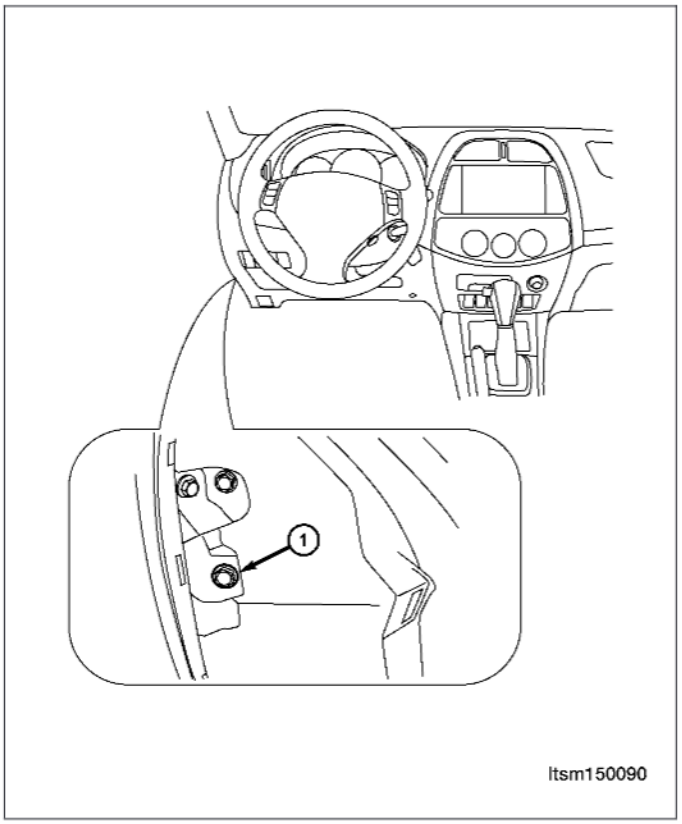
10. Remove the knee bolster (1) from the instrument panel.



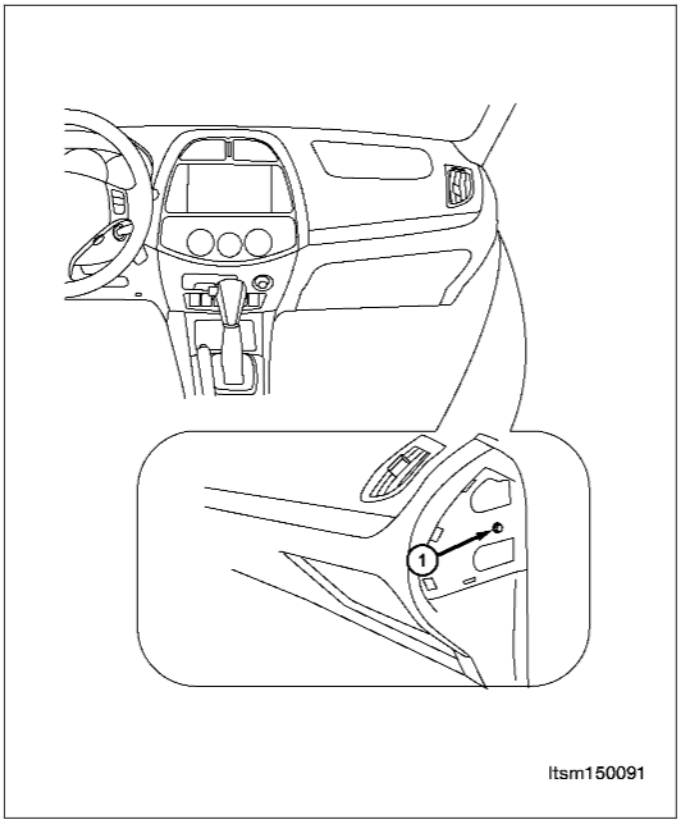
11. Remove the left trim cover of the instrument panel.

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

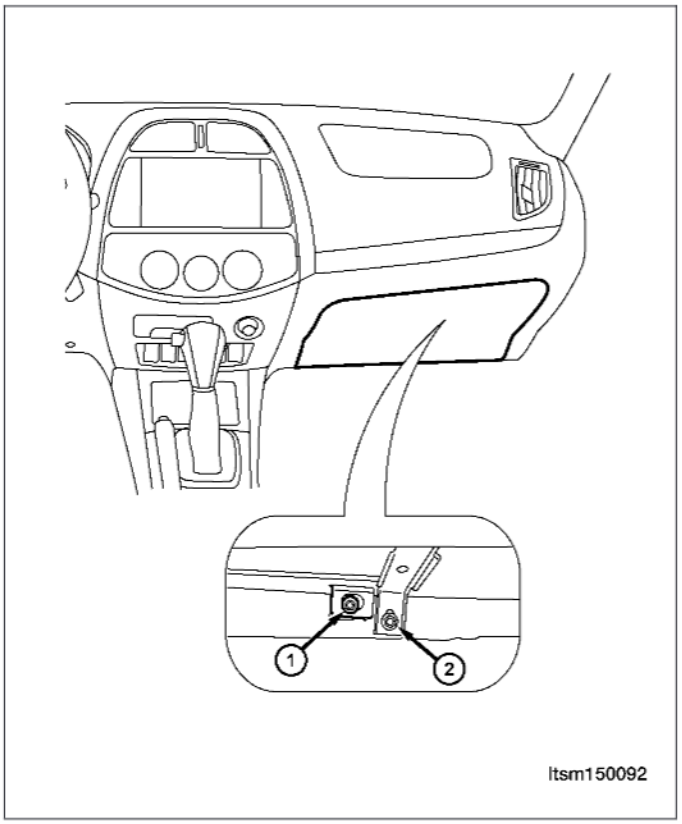


13. Remove the right trim cover of the instrument panel.
14. Remove the right instrument panel mounting bolt (1).



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



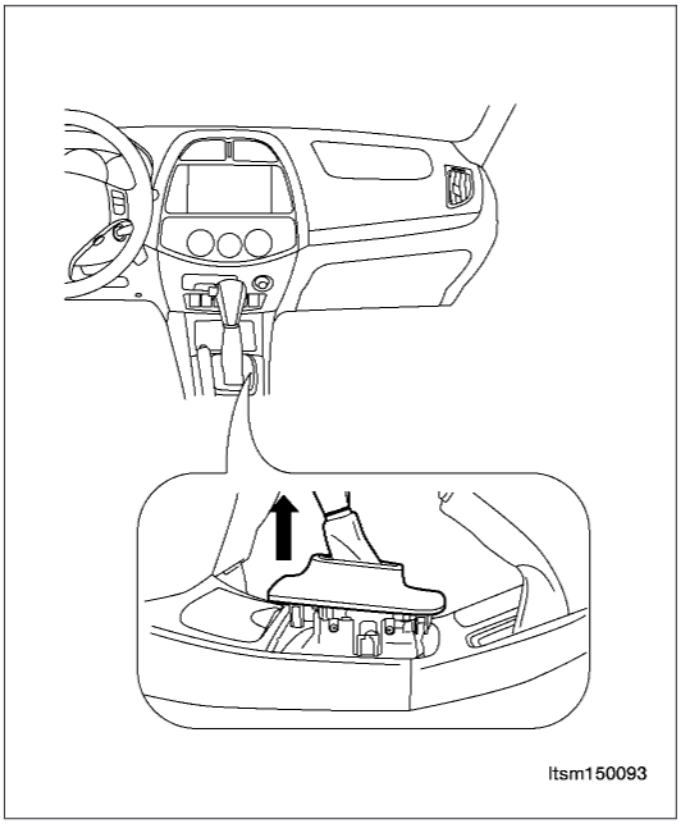
16. Remove the A-pillar trim panel (See A-Pillar Removal & Installation in Section 15 Body & Accessories).
17. Remove the lower console (See Lower Console Removal & Installation in Section 15 Body & Accessories).
18. Carefully remove the instrument panel.
19. Installation is in the reverse order of removal.

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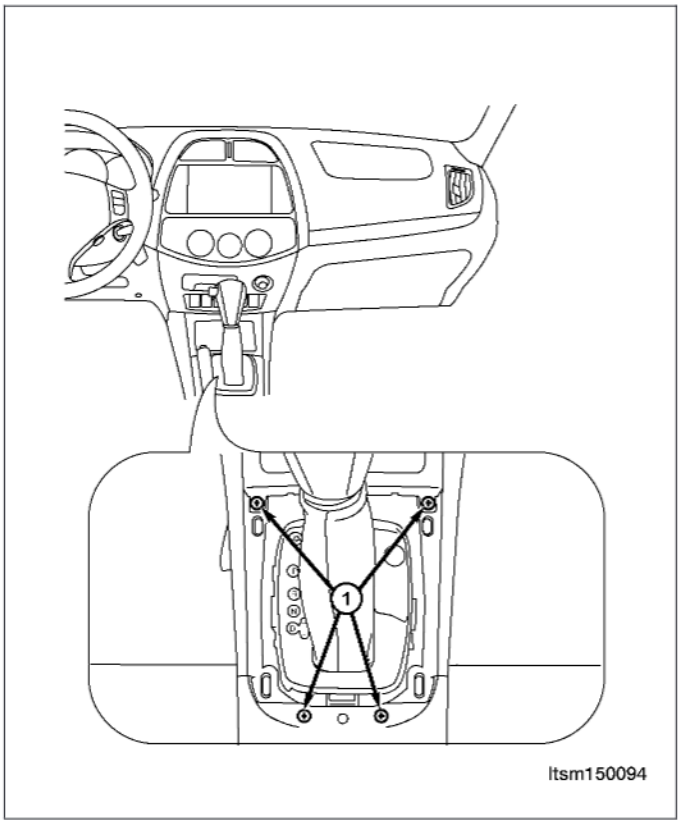
Lower Console

Removal & Installation

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

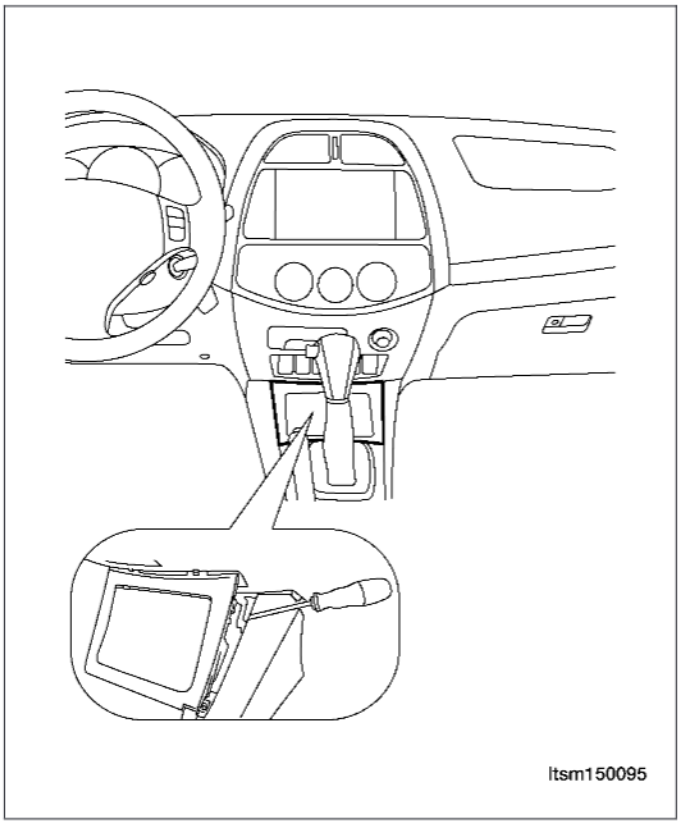


2. Remove the console mounting bolts (1) under the gearshift knob bezel.

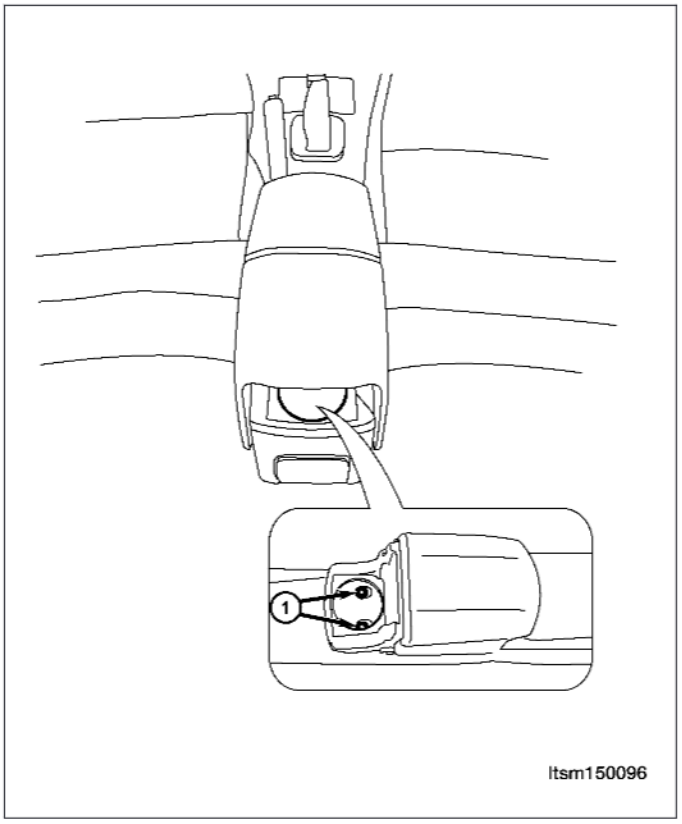


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3. Remove the storage box.



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

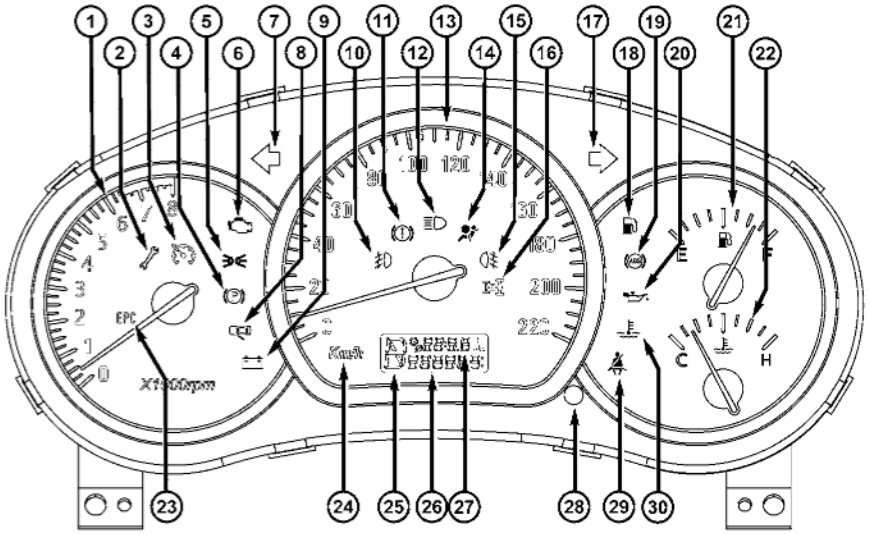


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INSTRUMENT CLUSTER

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.



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1 - Tachometer	16 - 4WD Warning Light (If Equipped)
2 - Maintenance Indicator Light	17 - Right-Turn Light
3 - Cruise Indicator Light	18 - Low Fuel Warning Light
4 - Parking Brake System Warning Light	19 - ABS Warning Light
5 - Parking Light	20 - Oil Pressure Warning Light
6 - Malfunction Indicator Light	21 - Fuel Gauge
7 - Left-Turn Light	22 - Temperature Gauge
8 - Door/Trunk Lid Open Warning Display	23 - Electronic Throttle Control Indicator Light
9 - Charging System Light	24 - Km/h Light
10 - Front Fog Light Indicator Light	25 - Transaxle Range Indicator (If Equipped)
11 - Brake System Warning Light	26 - Odometer/Trip Odometer
12 - High Beam Indicator Light	27 - Digital Clock
13 - Speedometer	28 - Adjust Button
14 - Airbag Light	29 - Seat Belt Reminder Light
15 - Rear Fog Light Indicator Light	30 - Coolant Temperature Warning Light

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.

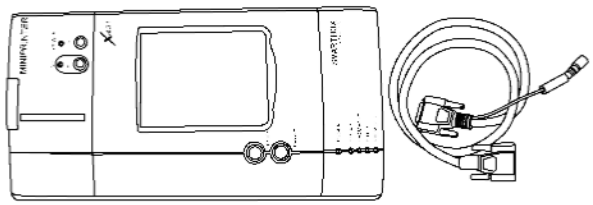
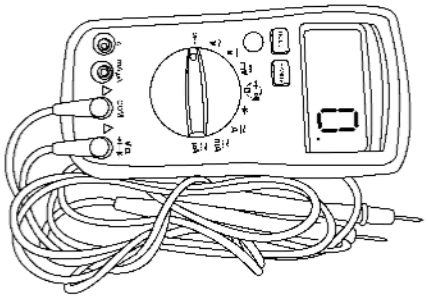
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Specifications

Torque Specifications

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

Special Tools

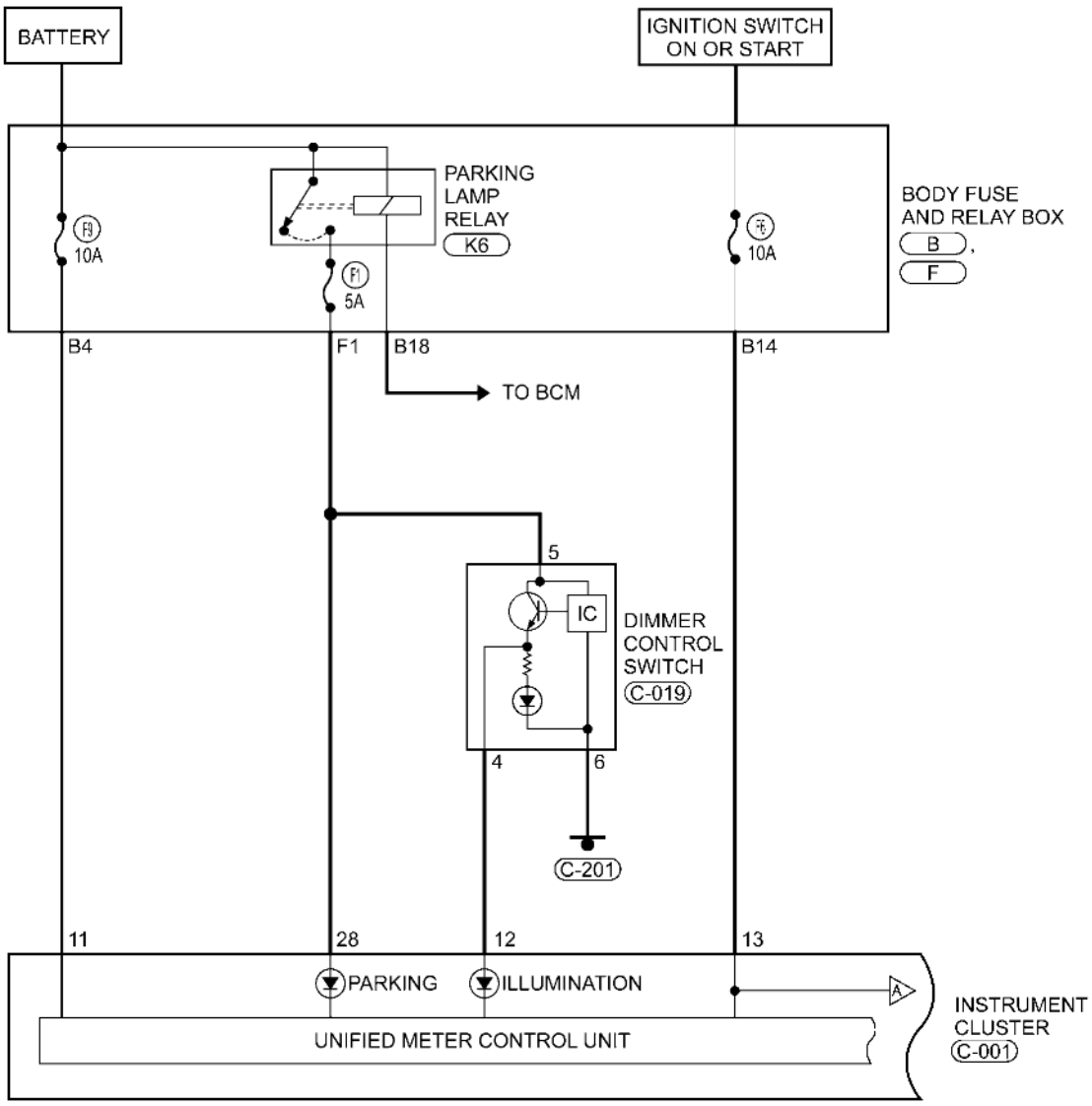
Diagnostic Scan Tool X-431	 besm030001
Digital Multimeter Fluke 15B & 17B	 besm030002

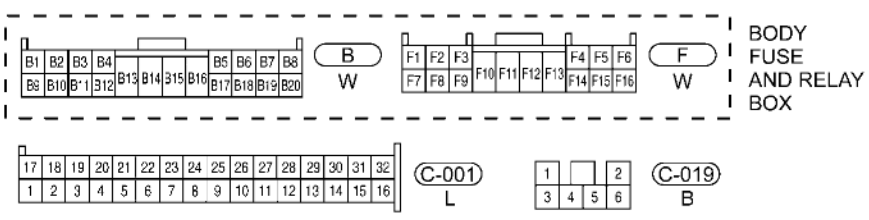
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Electrical Schematics

Instrument Cluster (Page 1 of 8)

INSTRUMENT CLUSTER



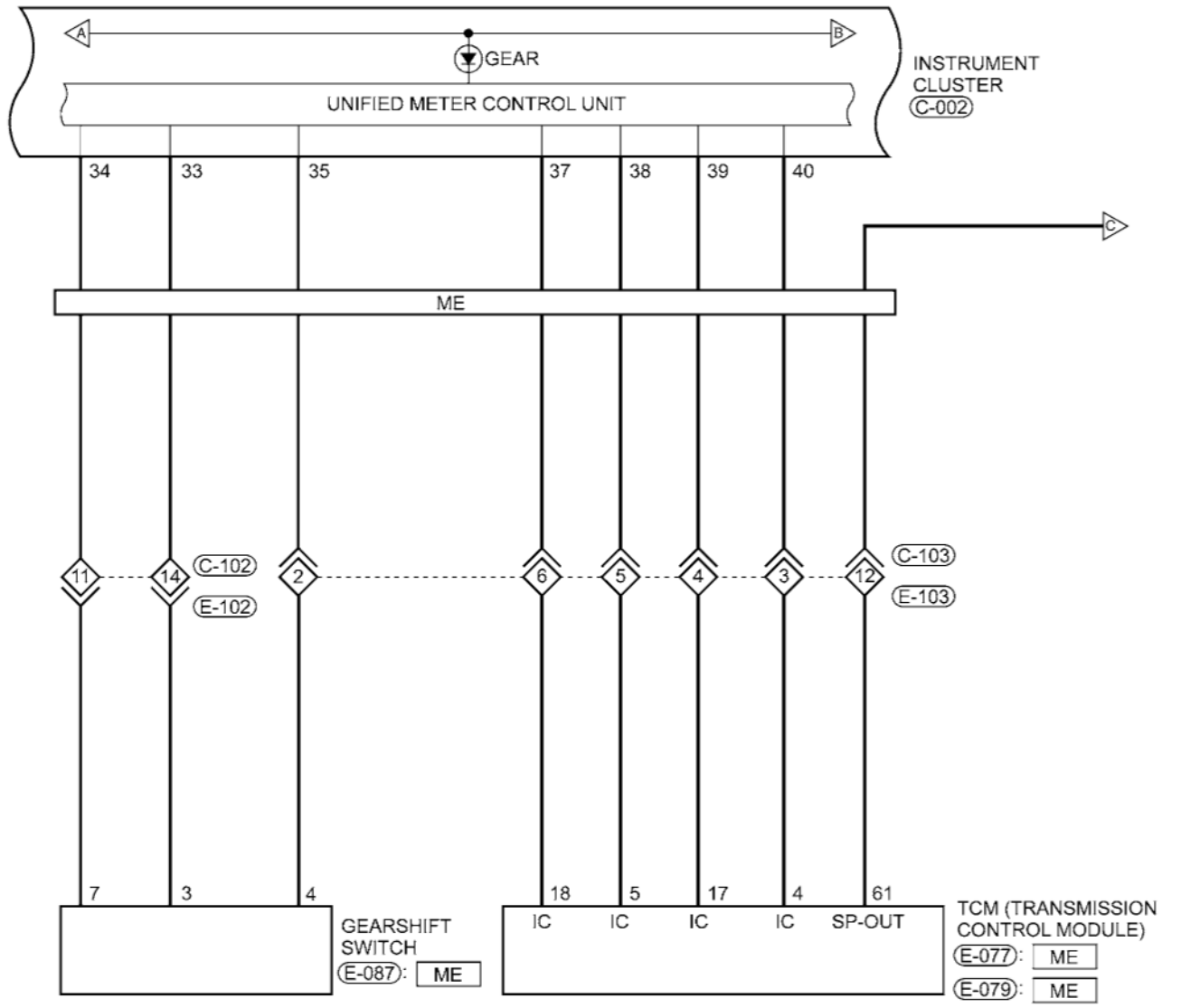


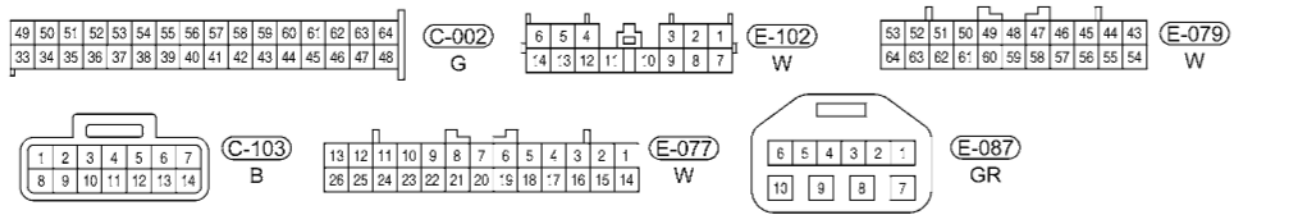
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Instrument Cluster (Page 2 of 8)

ME : WITH MITSUBISHI 2.4L ENGINE SYSTEM

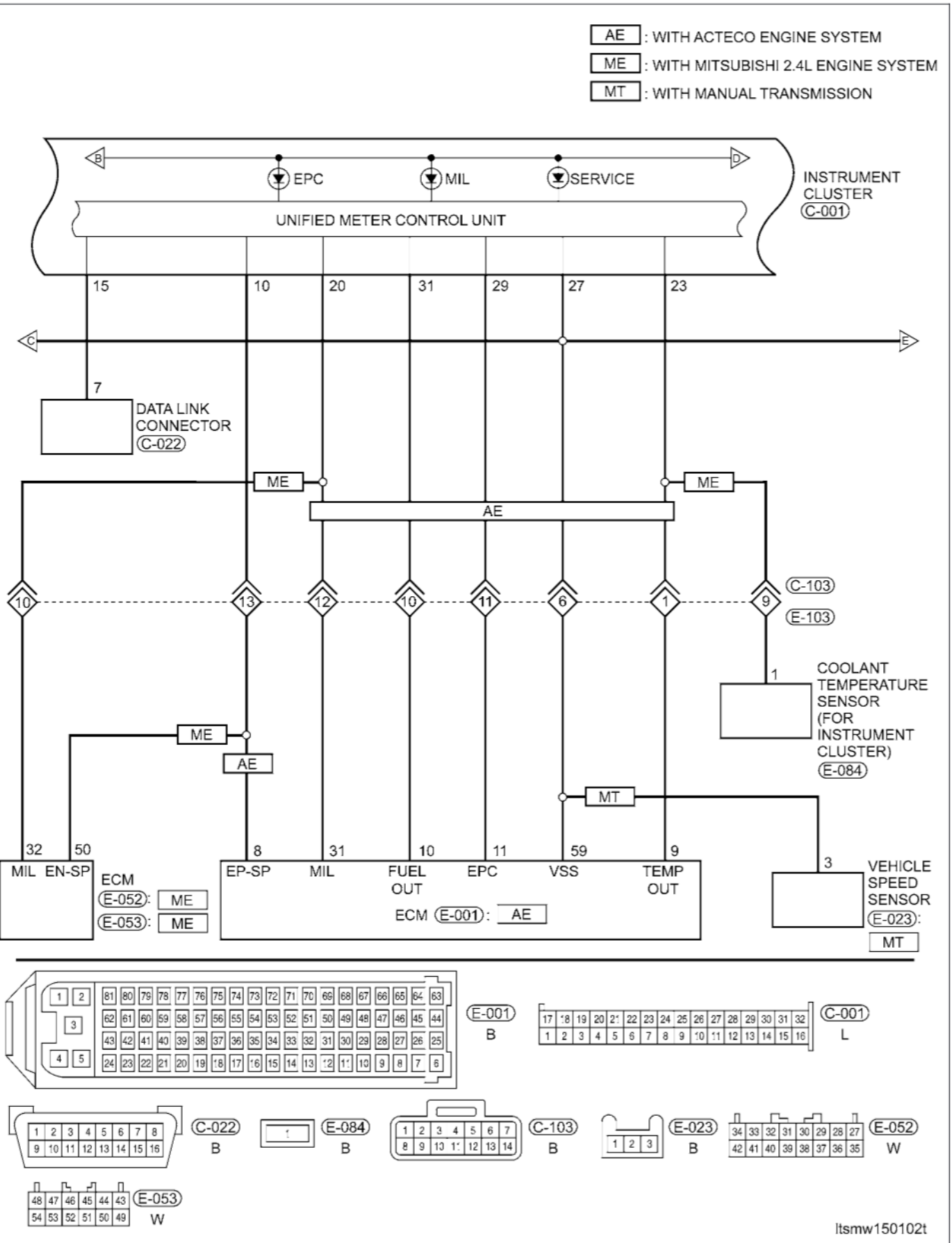




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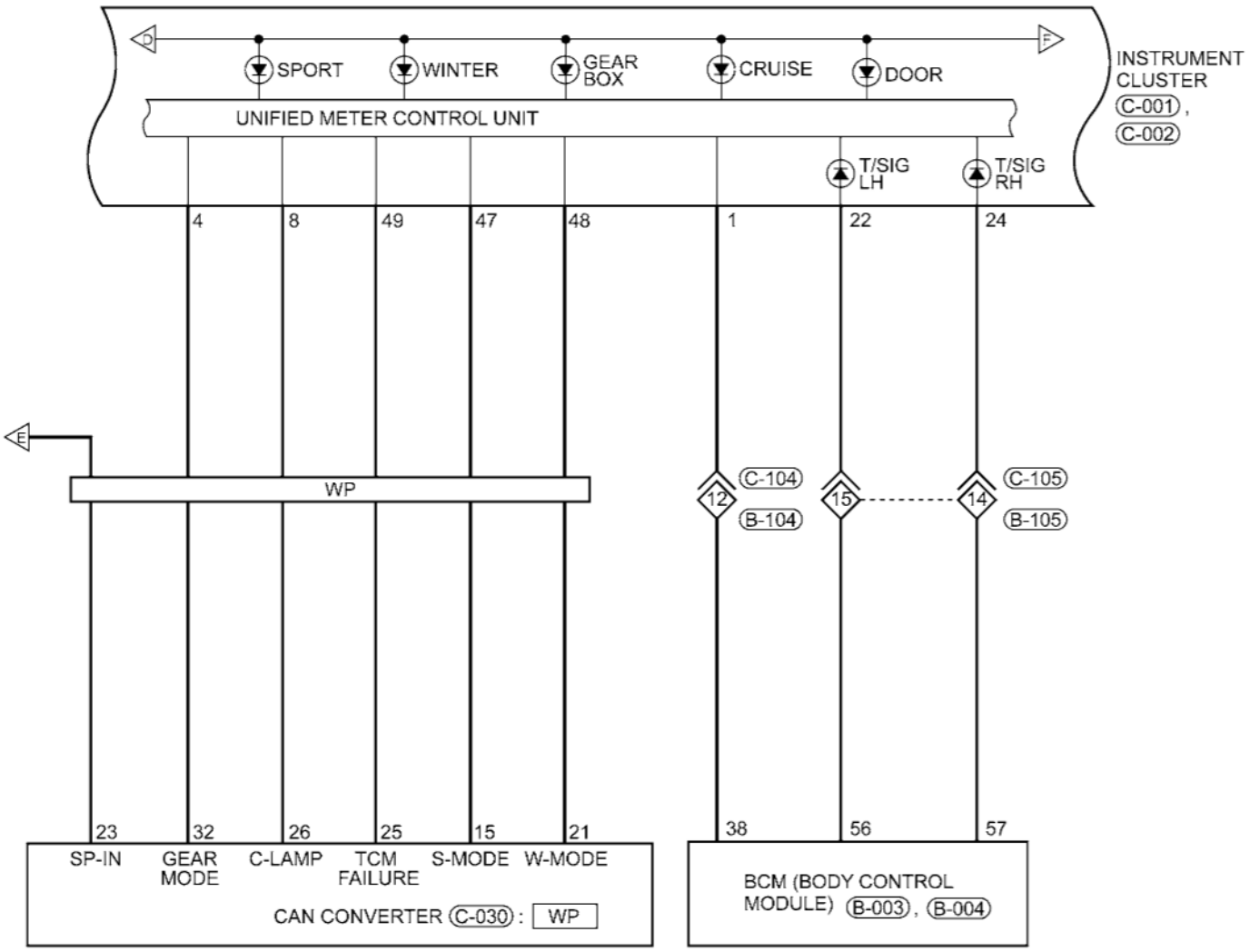
Instrument Cluster (Page 3 of 8)

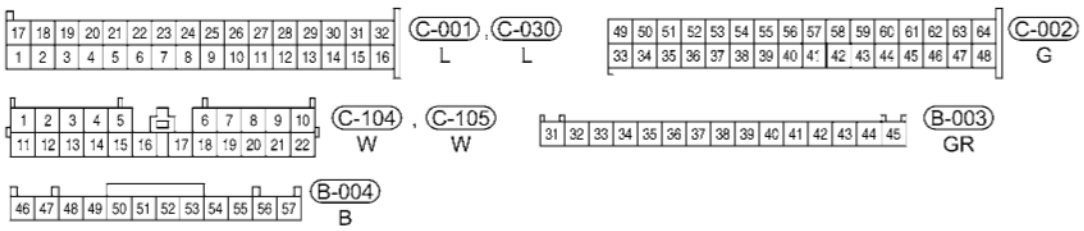


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WP : WITH DP0 SYSTEM

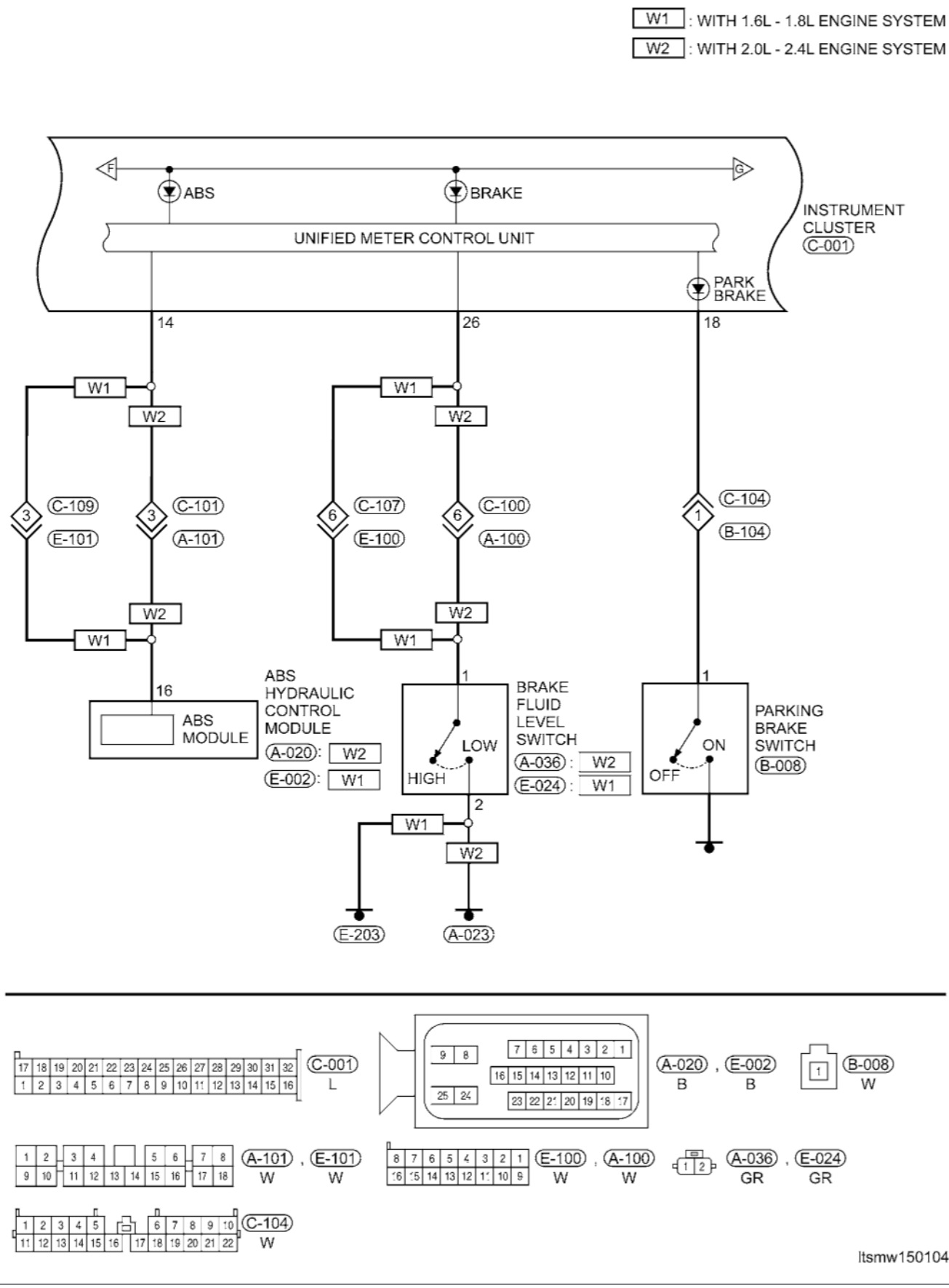




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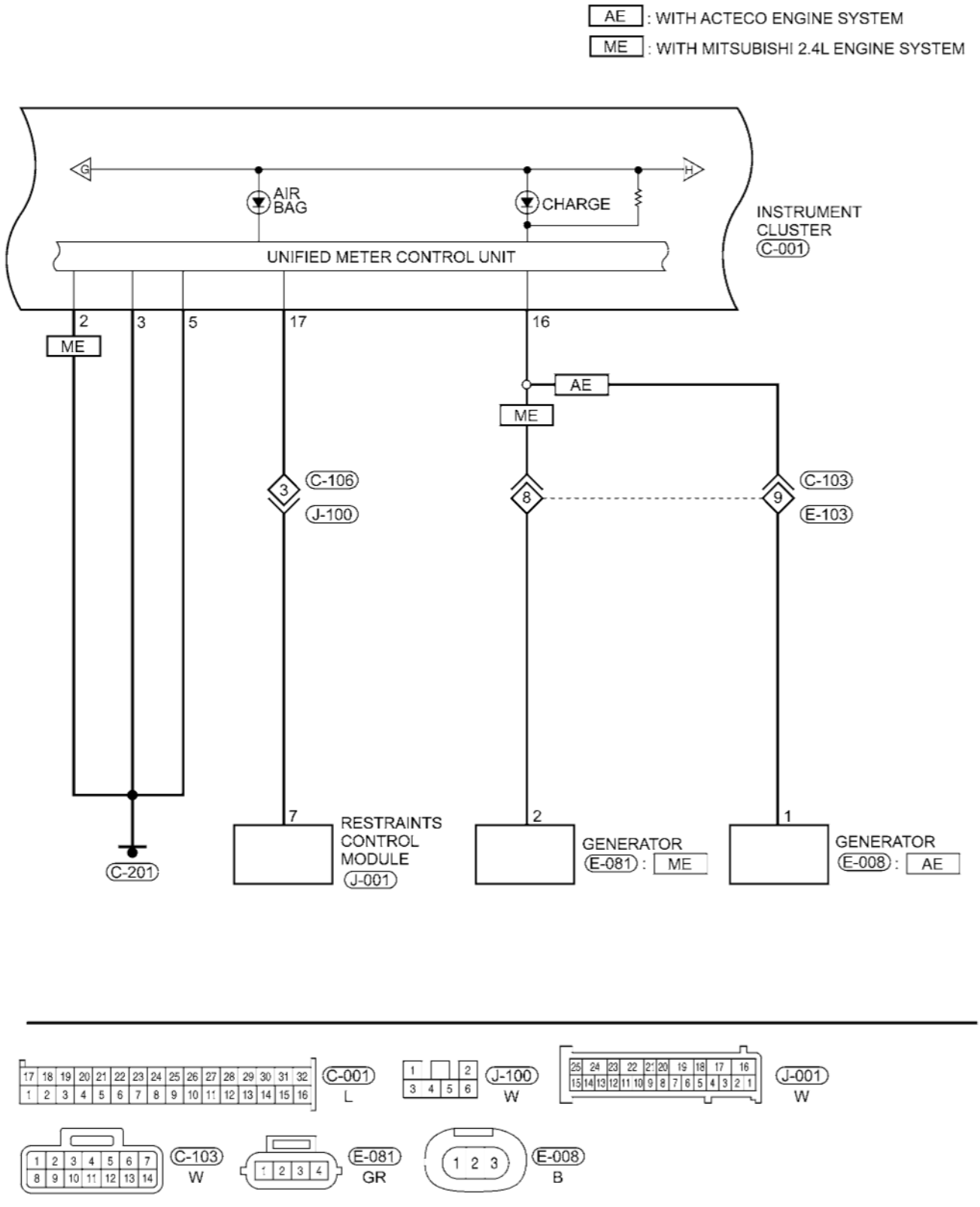
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Instrument Cluster (Page 5 of 8)



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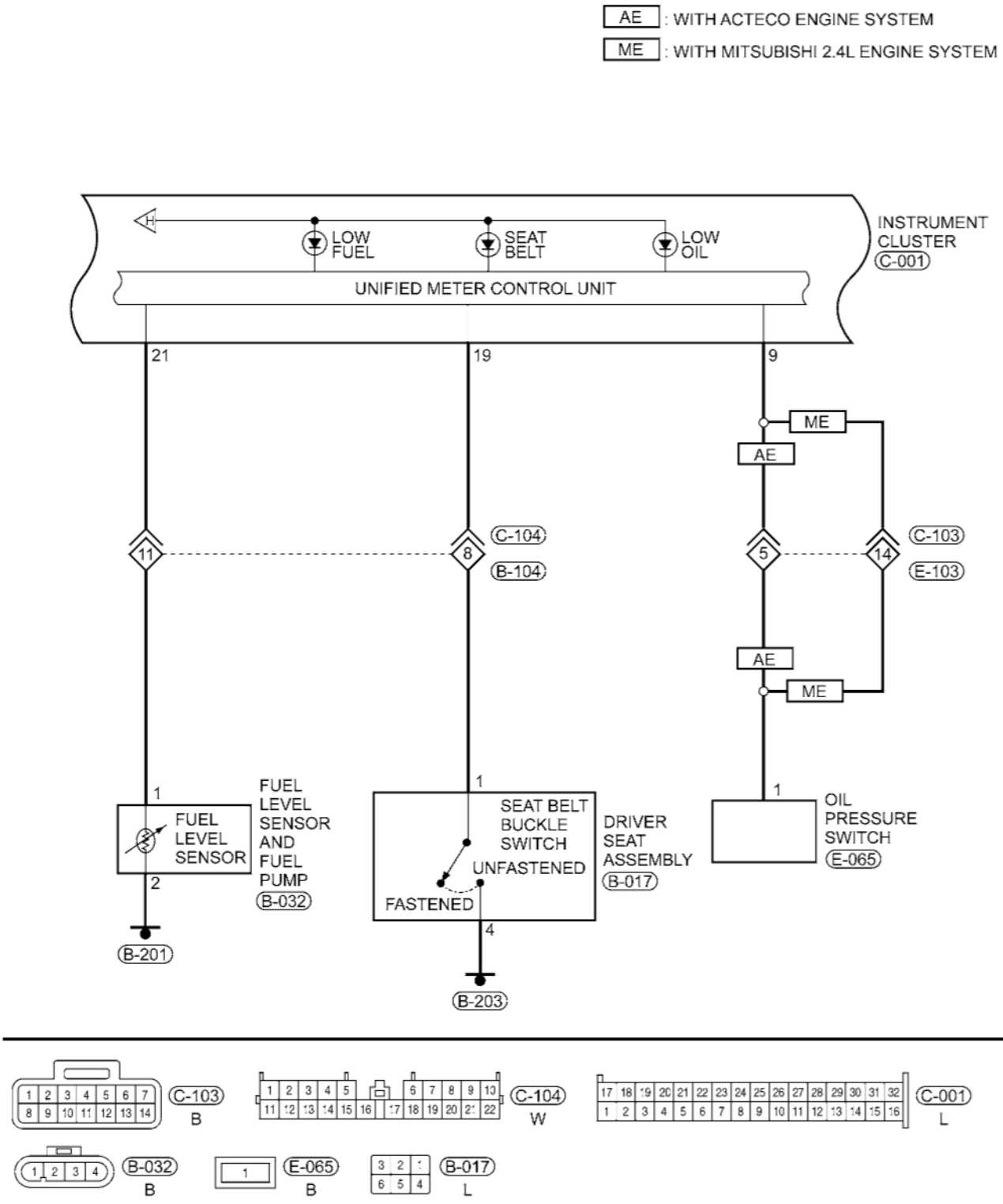
Instrument Cluster (Page 6 of 8)



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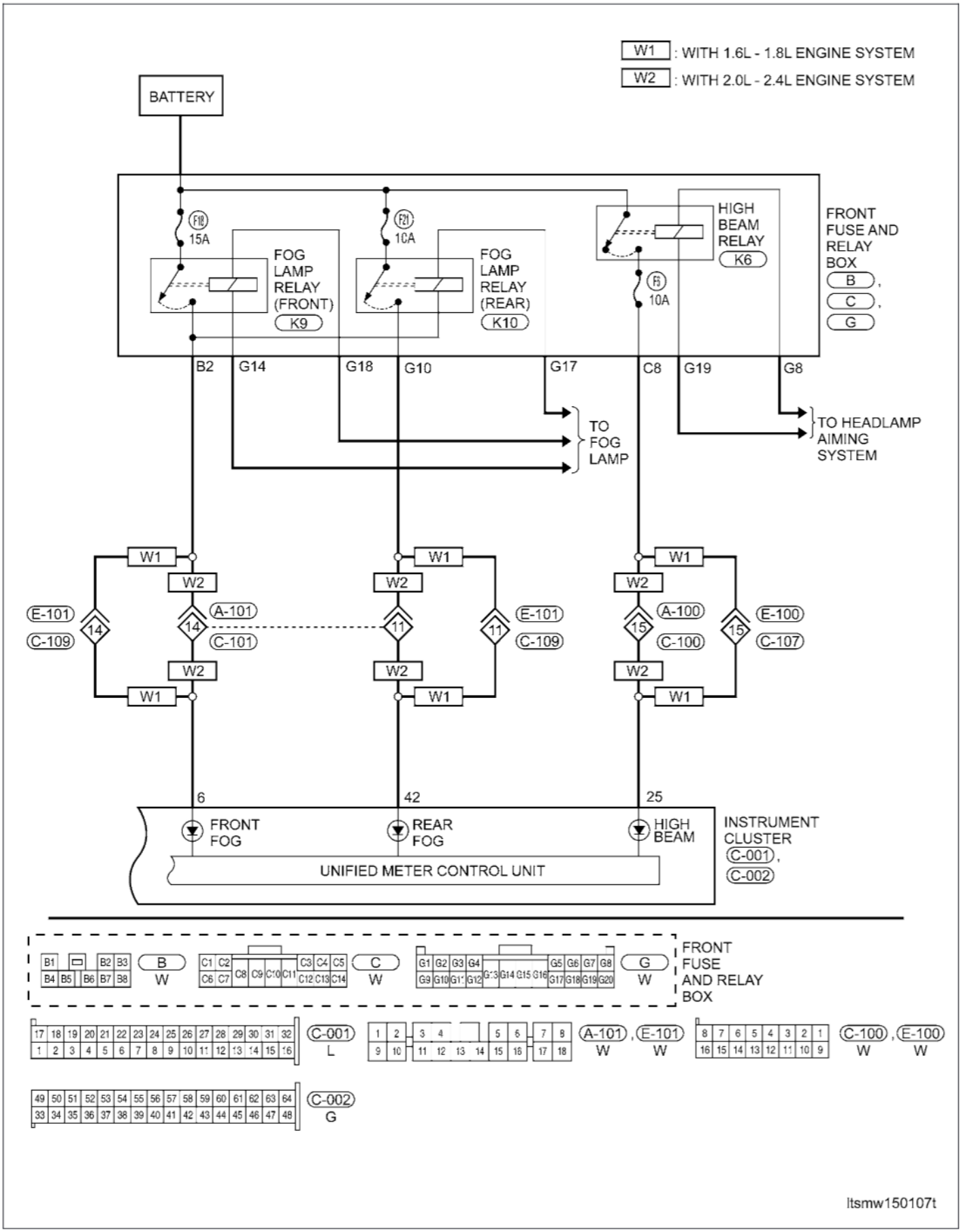
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Instrument Cluster (Page 7 of 8)



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Instrument Cluster (Page 8 of 8)



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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	33	N/A (With ACTECO Engine)
			P (With MITSUBISHI Engine)
2	N/A (With ACTECO Engine)	34	N/A (With ACTECO Engine)
	GND (With MITSUBISHI Engine)		R (With MITSUBISHI Engine)
3	GND (Power)	35	N/A (With ACTECO Engine)
			N (With MITSUBISHI Engine)
4	PWM Gear Mode	36	N/A (With ACTECO Engine)
			Auto Mode (With MITSUBISHI Engine)
5	GND (Sensor)	37	N/A (With ACTECO Engine)
			4 (With MITSUBISHI Engine)
6	Front Fog Lamp	38	N/A (With ACTECO Engine)
			3 (With MITSUBISHI Engine)
7	—	39	N/A (With ACTECO Engine)
			2 (With MITSUBISHI Engine)
8	Cruise Lamp	40	N/A (With ACTECO Engine)
			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	47	Sport Mode (With ACTECO Engine)
			N/A (With MITSUBISHI Engine)
16	Charge Lamp	48	Winter Mode (With ACTECO Engine)
			N/A (With MITSUBISHI Engine)
17	Airbag Lamp	49	TCM Failure (With ACTECO Engine)
			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	—

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

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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.

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Diagnostic Tools

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

Diagnostic Trouble Code (DTC) List

Instrument Cluster DTC List

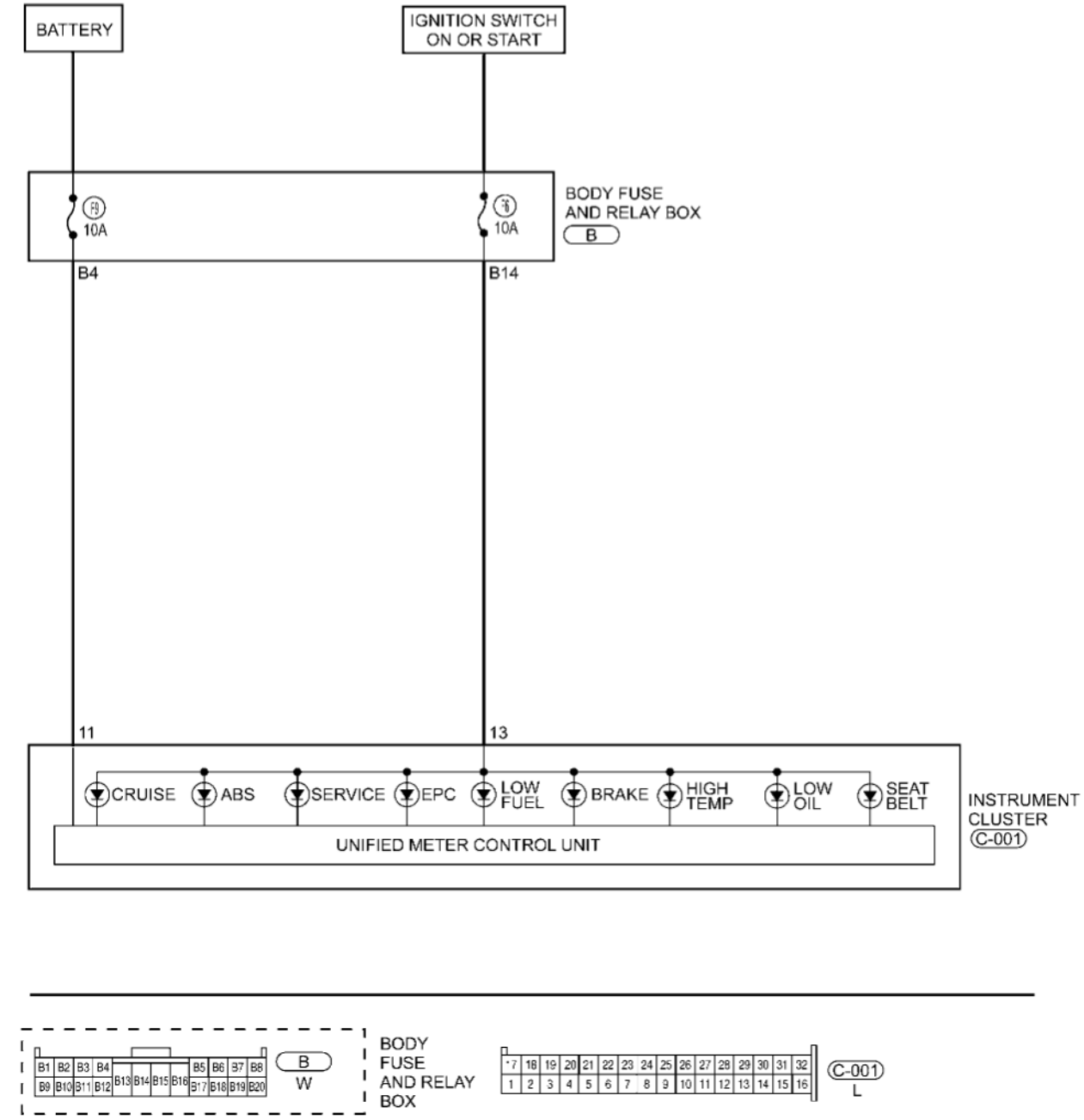
DTC	DTC DEFINITION
U0303	Fuel Sensor O/C or Shorted To Supply
U0303	Fuel Sensor Shorted To Ground
U040F	Temperature Sensor O/C or Shorted To Supply
U040F	Temperature Sensor Shorted To Ground
U029C	Battery Over Voltage Error
U029C	Battery Under Voltage Error
U050F	EEPROM Checksum Error

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Diagnostic Trouble Code (DTC) Tests

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

IC - PWR - 01

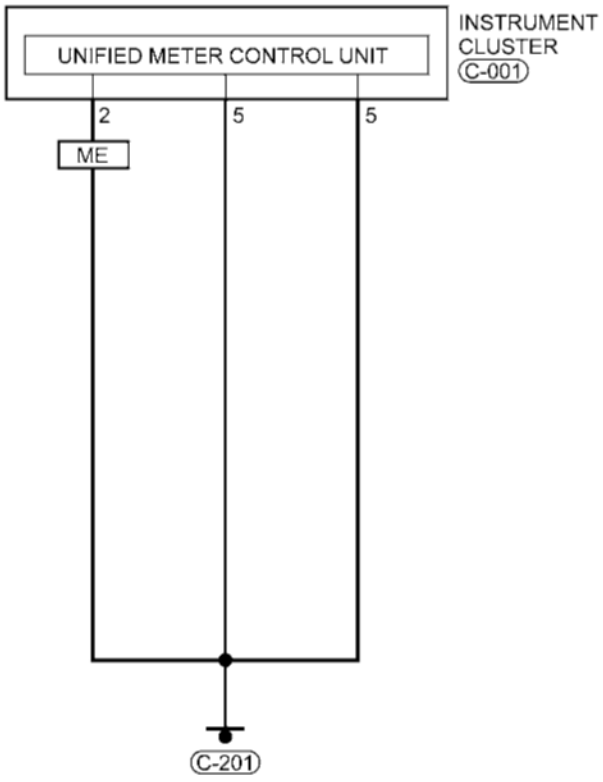


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IC - PWR - 02

ME : 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
U029C	Battery over voltage error	Turn ignition switch on	Instrument Cluster (IC) detected that the battery voltage is excessively high.	• Charge system • Instrument Cluster (IC)
U029C	Battery under voltage error		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.

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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.

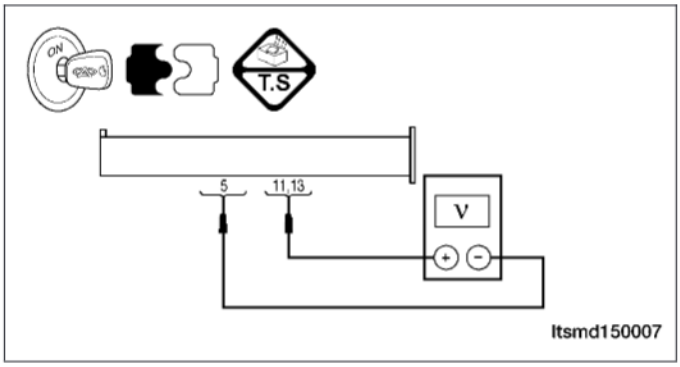
Is the electrical connector OK?

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.

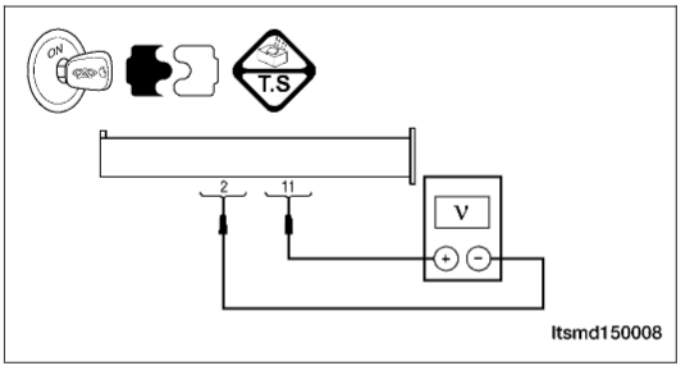


- If the vehicle is equipped with Mitsubishi 2.4L engine system, check IC power supply between terminal 11 and terminal 2 in the IC electrical connector C-001 terminal side.

Is the voltage between 9 - 17 V?

Yes >> Replace the IC.

No >> Go to the next step.



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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.

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8. CHECK DTC

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

Is the DTC U029C still present?

Yes >> Replace IC.

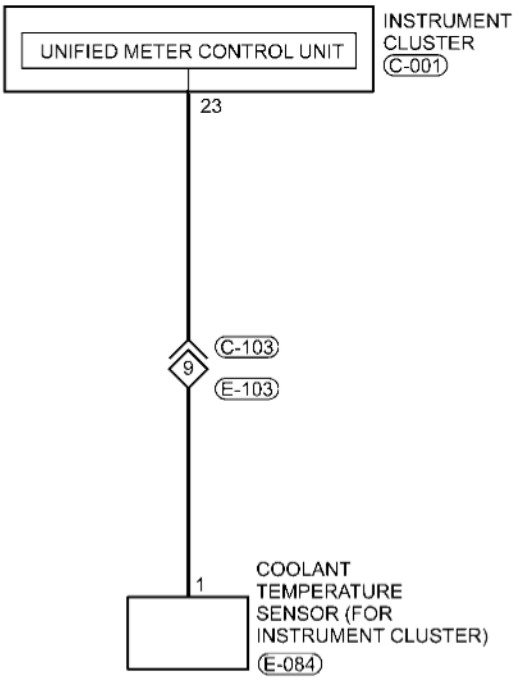
No >> The system is now operating properly.
Reassemble the vehicle and verify the customers complaint is repaired.

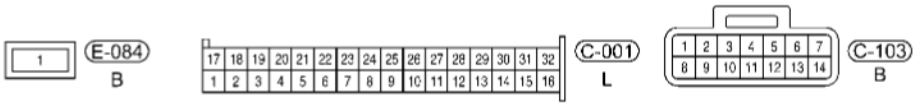
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U040F - Temperature Sensor Shorted To Supply
U040F - Temperature Sensor Shorted To Ground (With Mitsubishi 2.4L Engine System)

Instrument Cluster (IC)

IC - COOL/T - 01 - 2.4L





ltsmw150039t

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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.

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Diagnostic Procedure

1. CHECK 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).

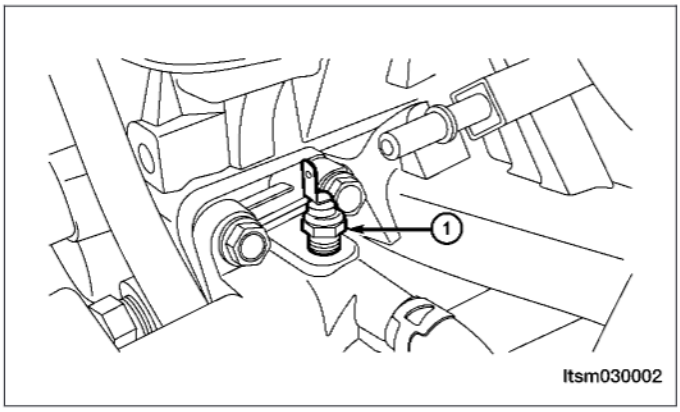
2. CHECK COOLANT TEMPERATURE SENSOR (FOR INSTRUMENT CLUSTER) ELECTRICAL CONNECTOR

- 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.



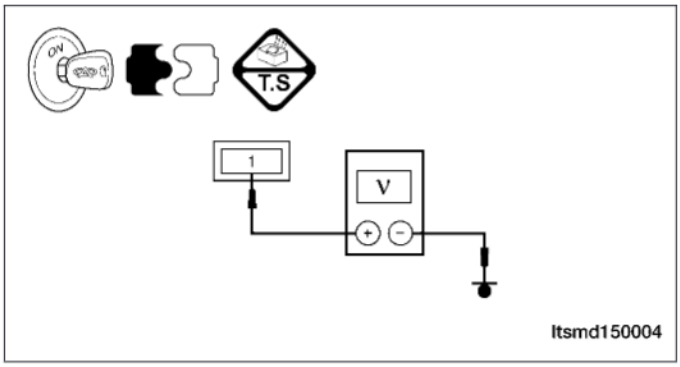
3. CHECK COOLANT TEMPERATURE SENSOR (FOR INSTRUMENT CLUSTER) REFERENCE VOLTAGE

- 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.

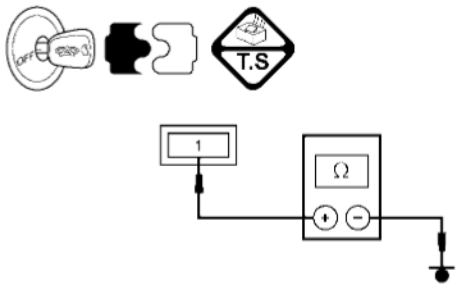
No >> Go to the next step.



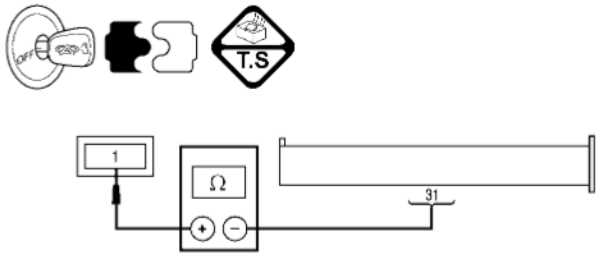
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4. CHECK COOLANT TEMPERATURE SENSOR (FOR INSTRUMENT CLUSTER) REFERENCE VOLTAGE

- 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	 Itsmd150005

- 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.

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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. CHECK DTC

- 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.

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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.

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Diagnostic Procedure

1. CHECK 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. CHECK DTC

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

Is DTC U050F present?

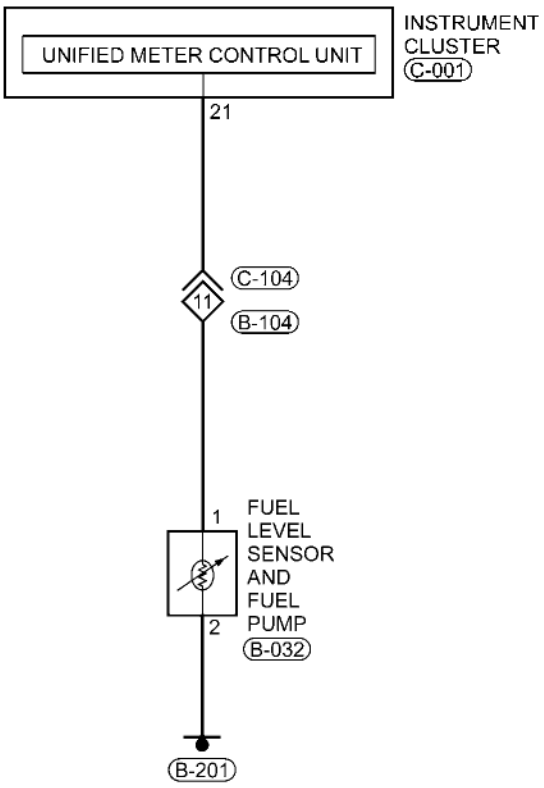
Yes >> The system is now operating properly.
Reassemble the vehicle and verify the customers complaint is repaired.

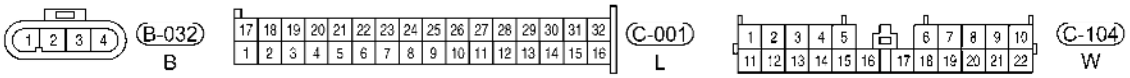
No >> Replace Instrument Cluster (IC).

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

IC - FLS - 01





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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.

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Diagnostic Procedure

1. CHECK 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).

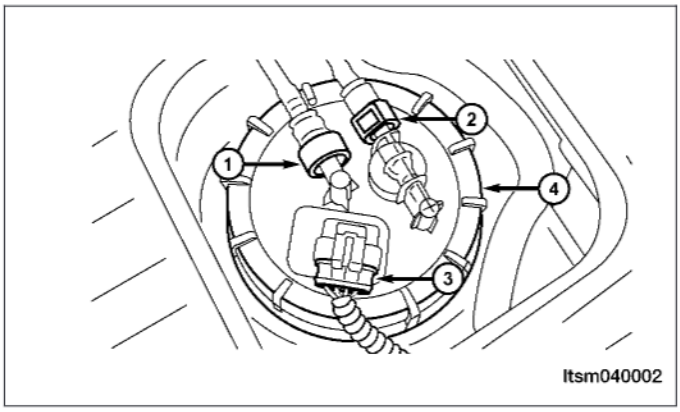
2. CHECK FUEL LEVEL SENSOR ELECTRICAL CONNECTOR

- 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.



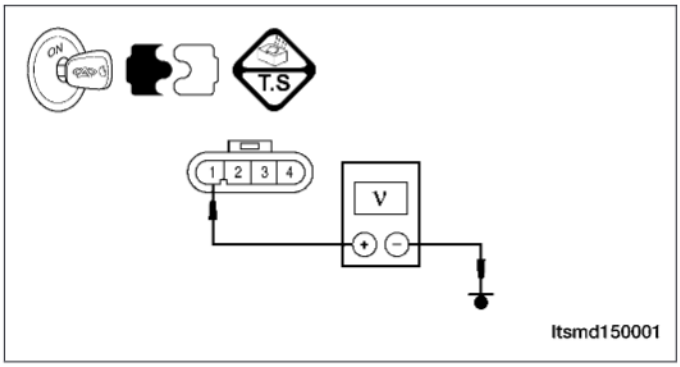
3. CHECK FUEL LEVEL SENSOR REFERENCE VOLTAGE

- 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.

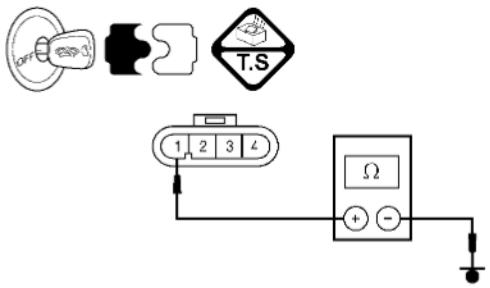
No >> Go to the next step.



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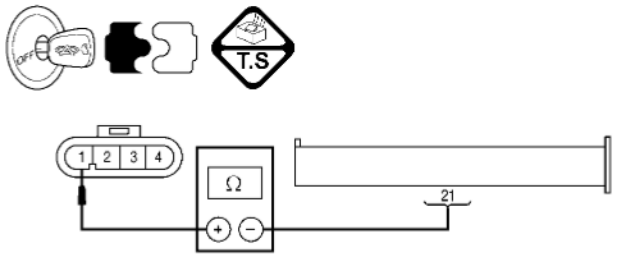
4. CHECK FUEL LEVEL SENSOR CIRCUIT FOR OPEN OR SHORT

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

FUEL LEVEL SENSOR TERMINAL	GROUND	
1	Ground	

ltsmd150003

- Check for continuity between the following terminals:

FUEL LEVEL SENSOR TERMINAL	IC TERMINAL	CONTINUITY	
1	21	Yes	

ltsmd150002

- 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.

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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. CHECK 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.

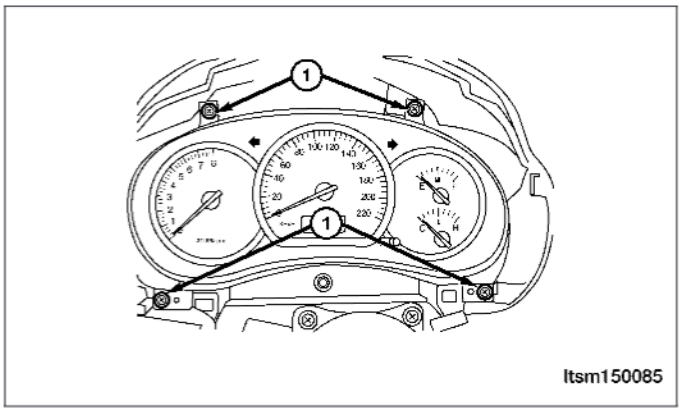
No >> The system is now operating properly.
Reassemble the vehicle and verify the customers complaint is repaired.

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Instrument Cluster

Removal & Installation

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



Itsm150085

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

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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

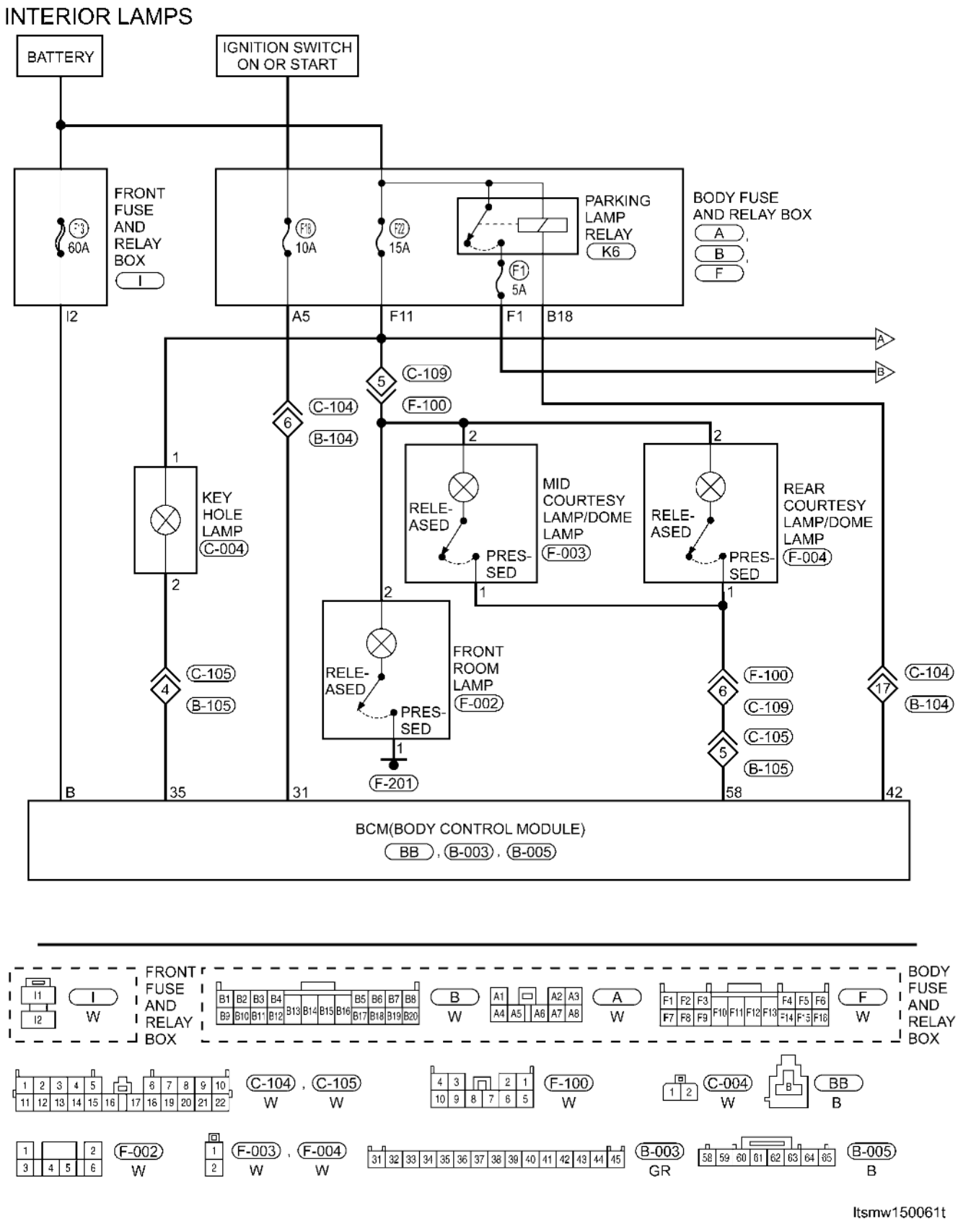
Operation

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.

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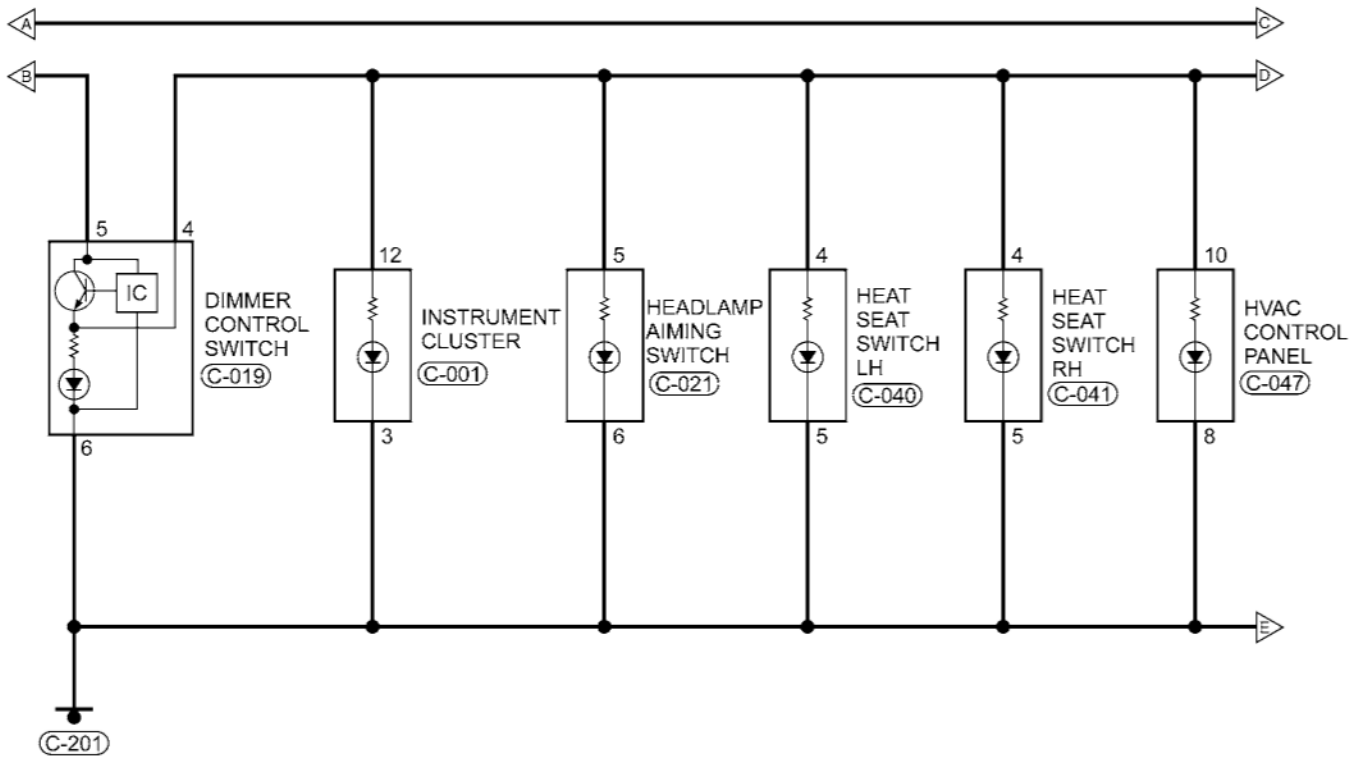
Electrical Schematics

Interior Lamps (Page 1 of 5)



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Interior Lamps (Page 2 of 5)





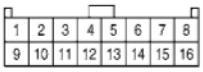
C-019 , C-021 , C-040 , C-041

B GR L G



C-001

L



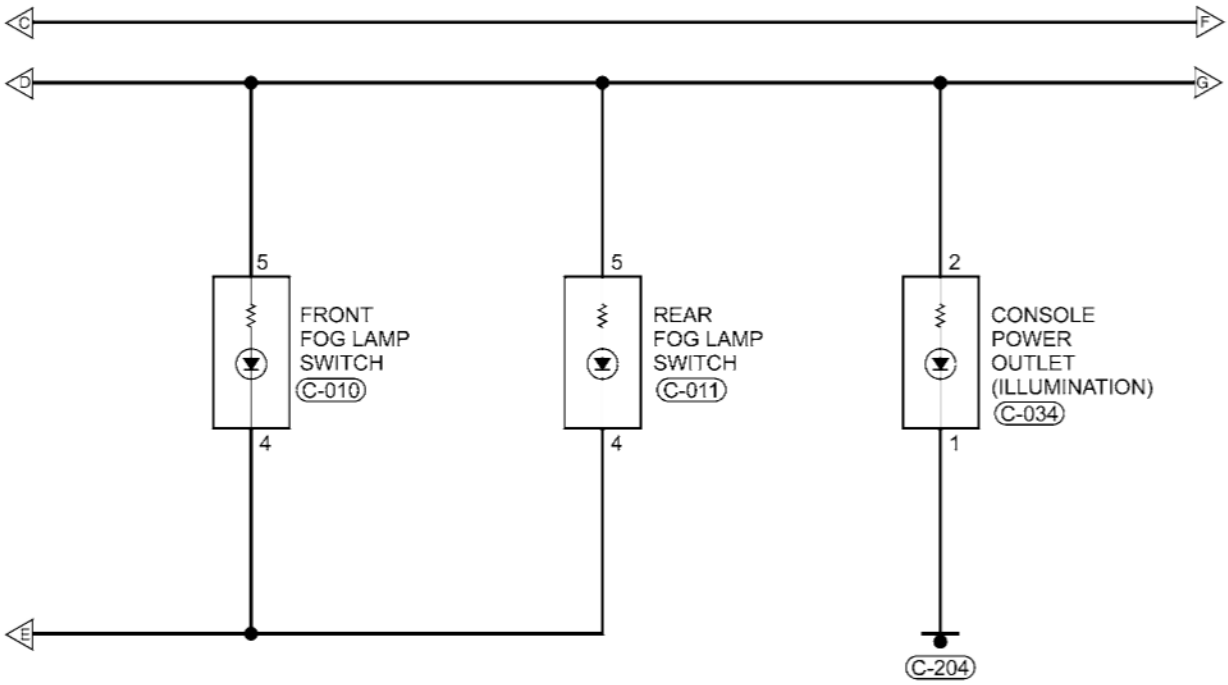
C-047

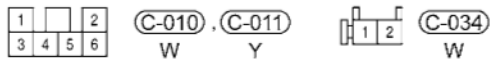
B

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Interior Lamps (Page 3 of 5)

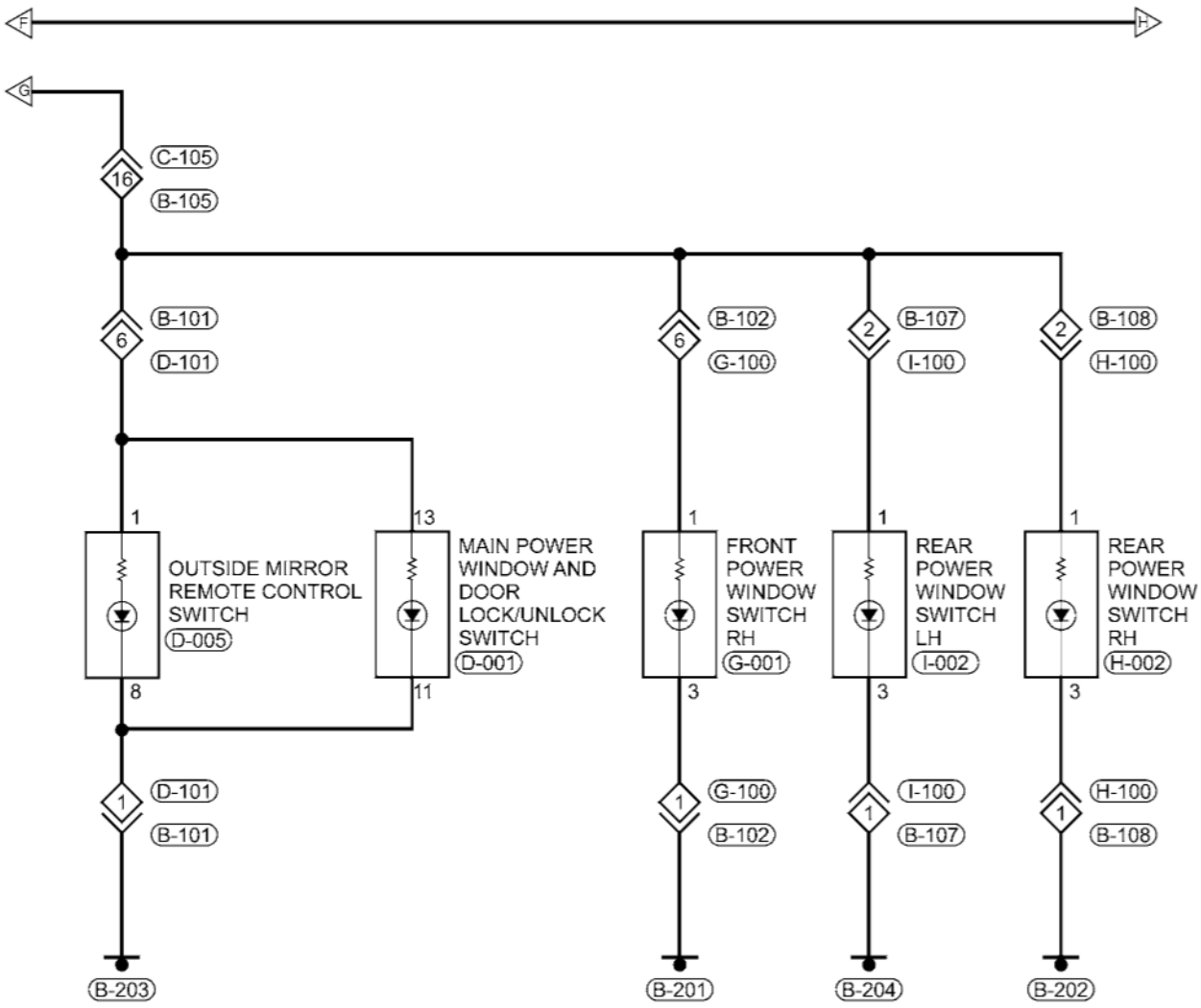




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Interior Lamps (Page 4 of 5)

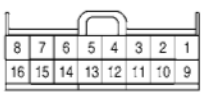




C-105
W



B-101 W, B-102 W, I-100 W, H-100 W



D-001
W

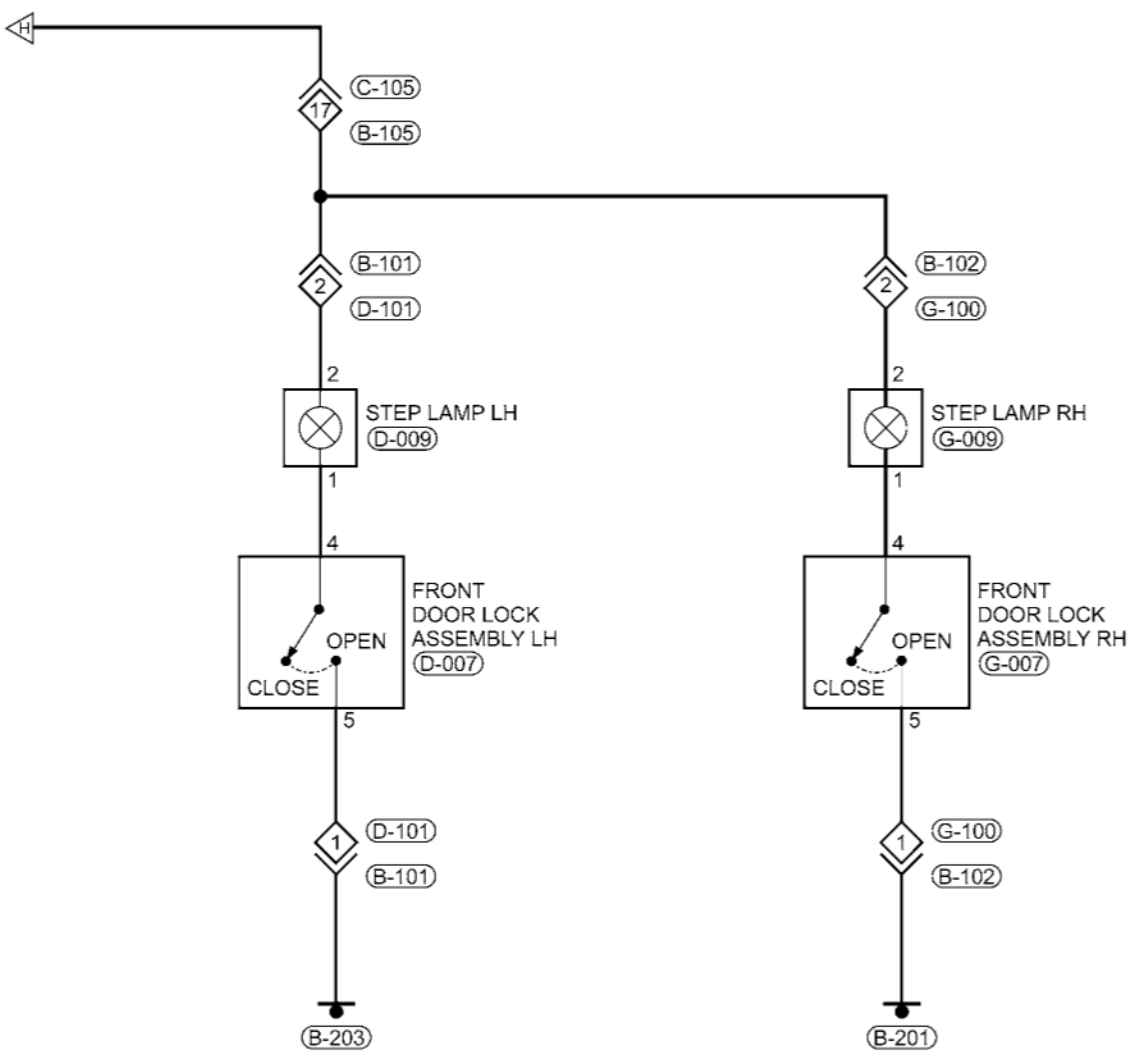


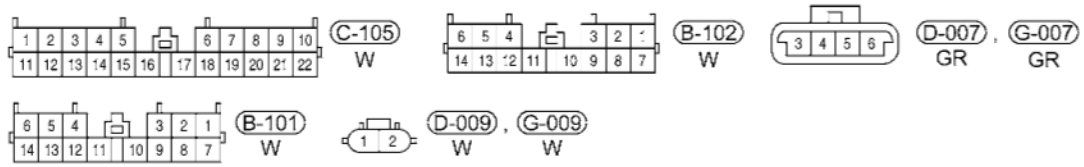
D-005 B, G-001 B, I-002 B, H-002 B

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Interior Lamps (Page 5 of 5)





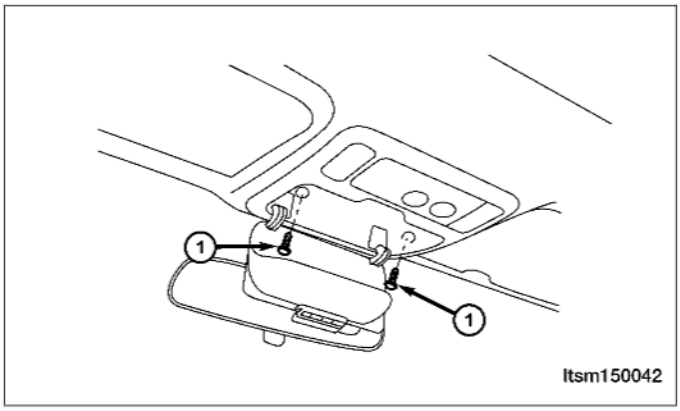
ltsmw150086t

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Front Room Lamp

Removal & Installation

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

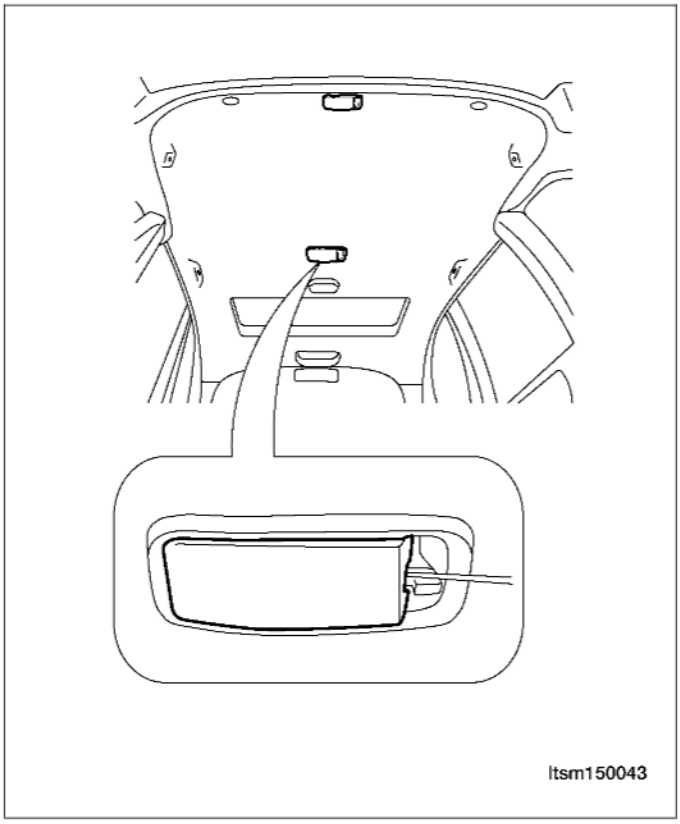


3. Carefully remove the front room lamp and disconnect the electrical connector.
4. Installation is in the reverse order of removal.

Middle/Rear Courtesy/Dome Lamp

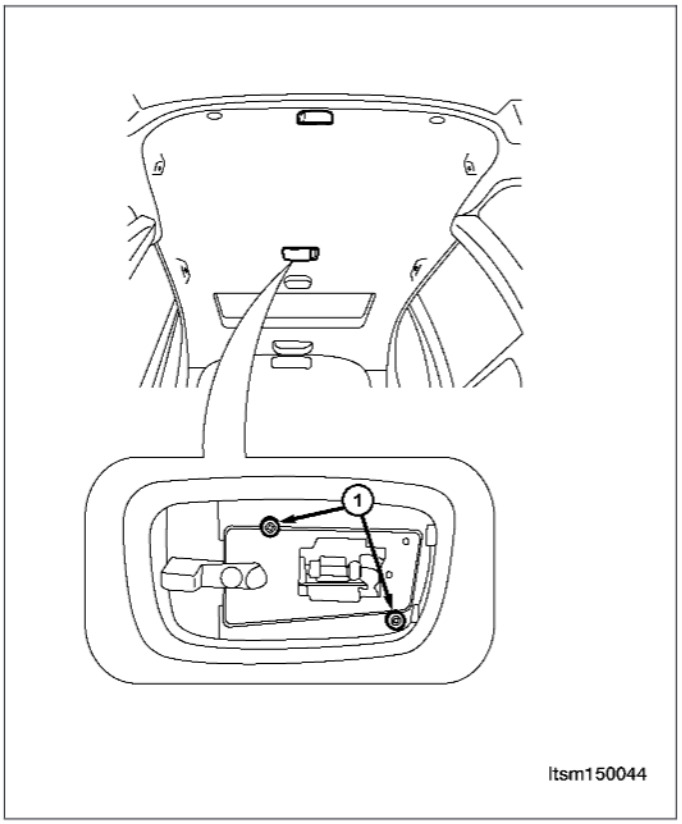
Removal & Installation

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



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2. Remove the lamp mounting screws (1).



3. Remove the courtesy/dome lamp.

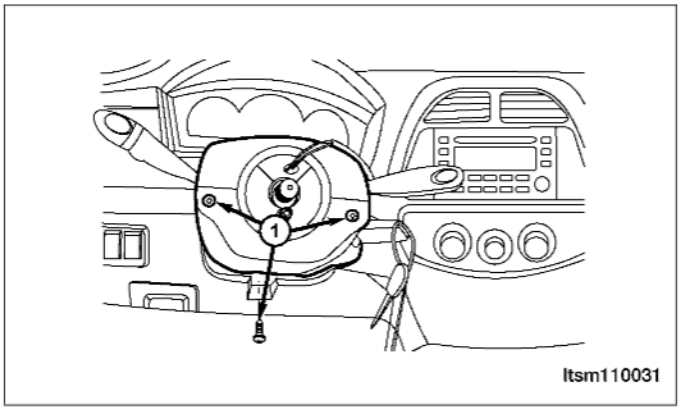
NOTE :
The rear courtesy/dome lamp is similar to the middle courtesy/dome lamp.

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.

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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.

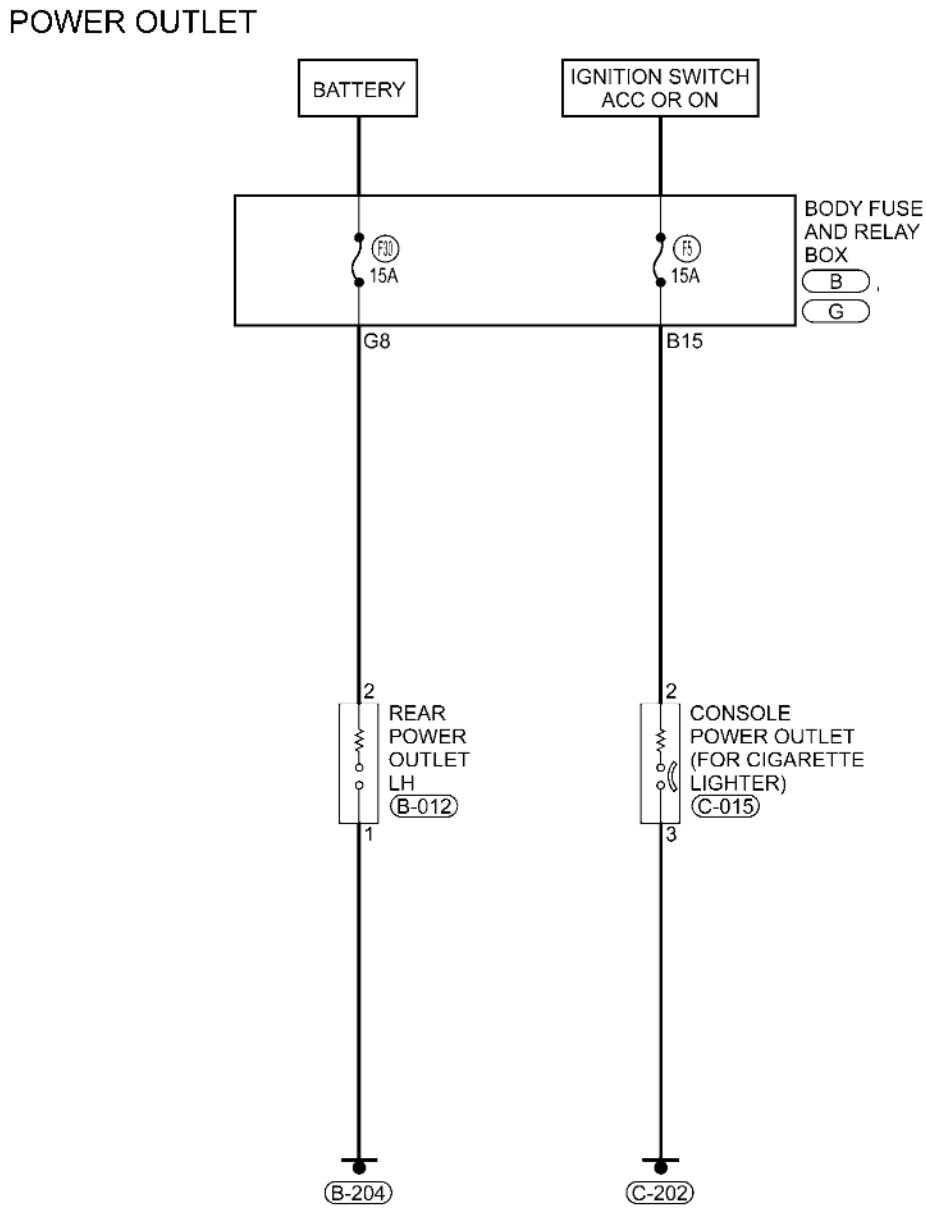
Operation

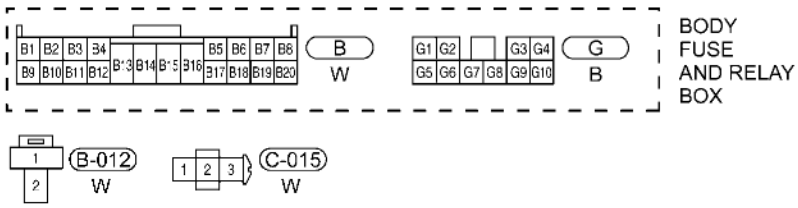
The power outlets are powered at all times.

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Electrical Schematics

Power Outlet (Page 1 of 1)



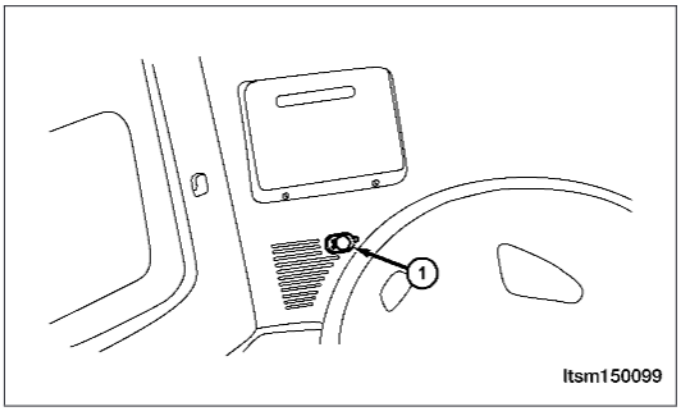


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Removal & Installation

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.



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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.

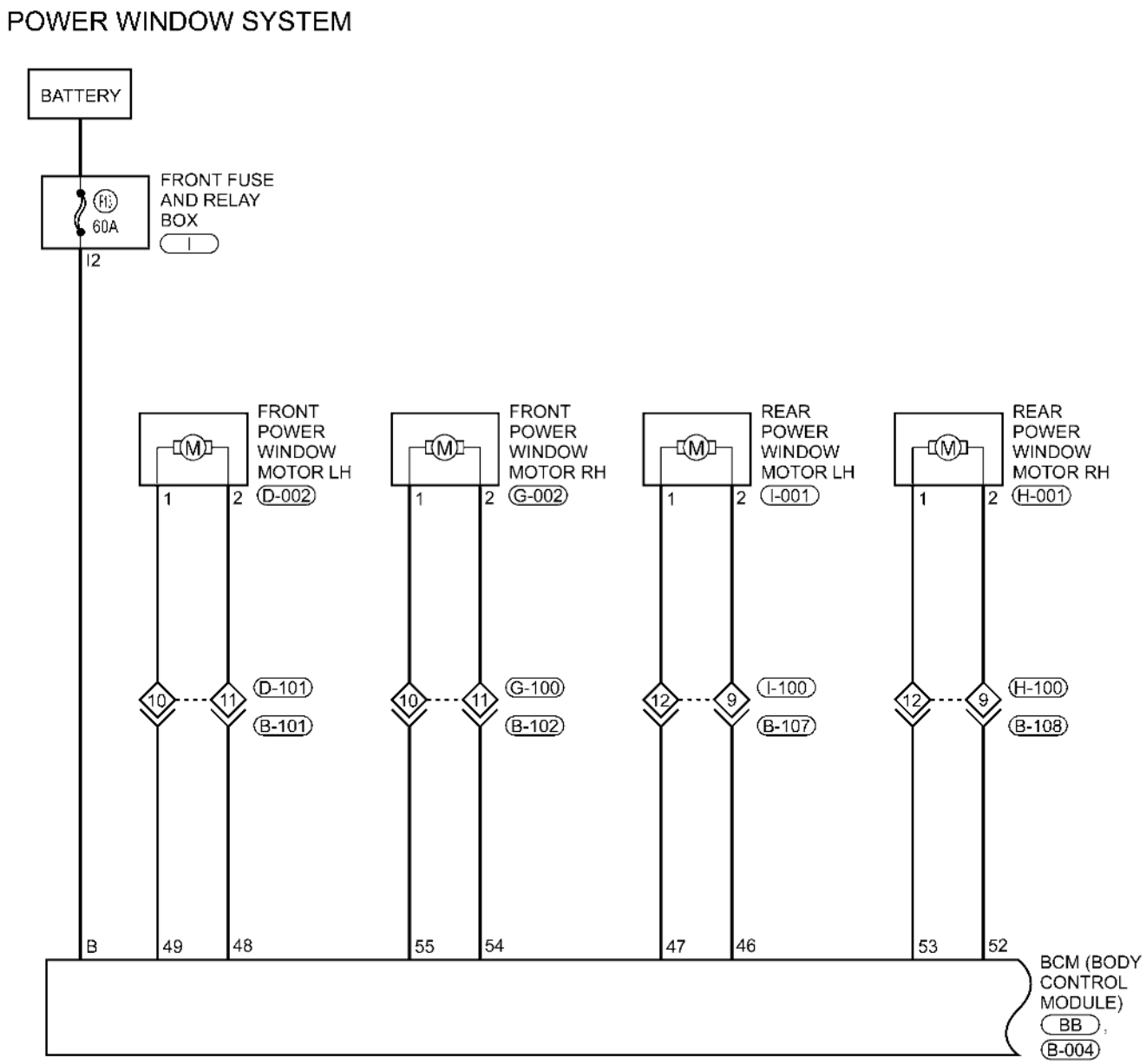
Operation

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.

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Electrical Schematics

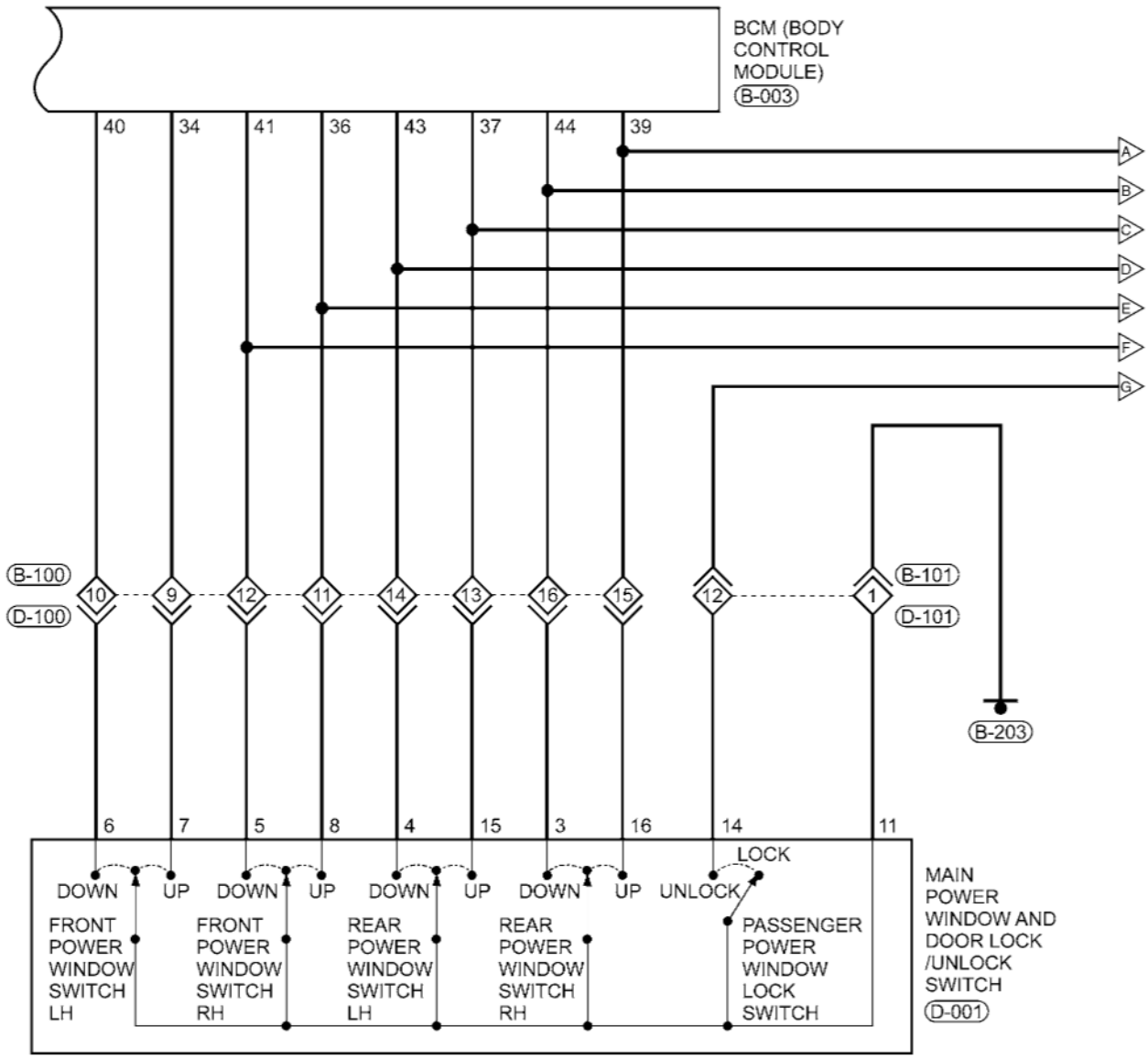
Power Window System (Page 1 of 3)

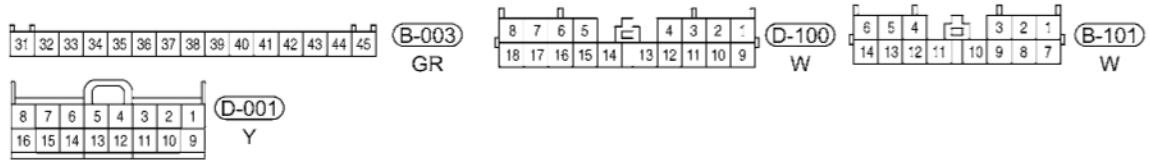


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Power Window System (Page 2 of 3)

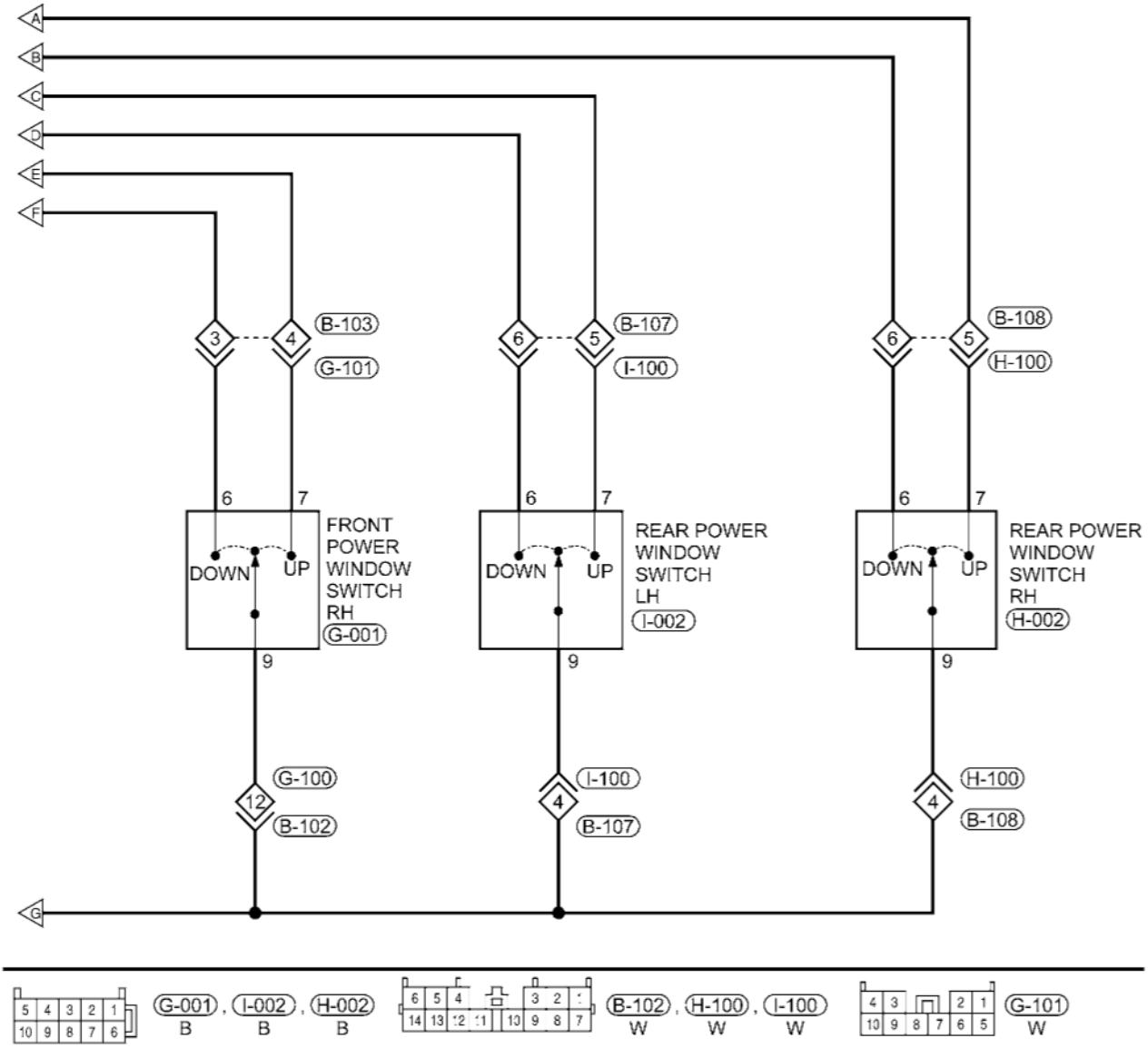




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Power Window System (Page 3 of 3)



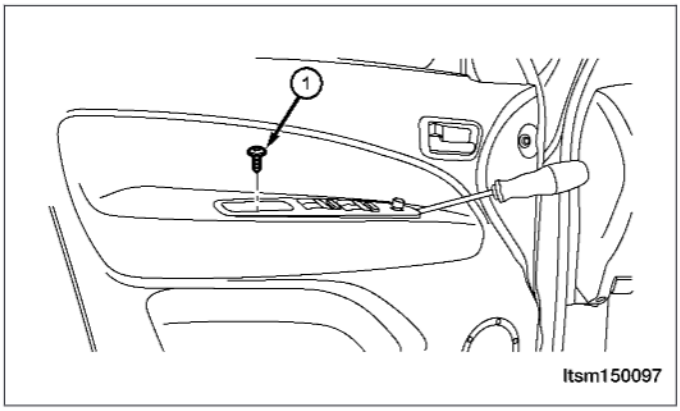
ltsmw150048t

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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).



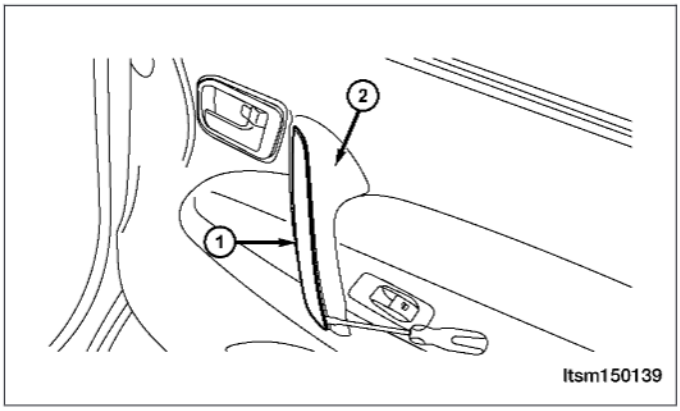
3. Using a trim stick, pry out the power window and door lock/unlock switch assembly from the front door.
4. Disconnect the power window and door lock/unlock switch electrical connectors.
5. Remove the power window and door lock/unlock switch retaining screws to remove the power window and door lock/unlock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

Power Window Motor

Removal & Installation

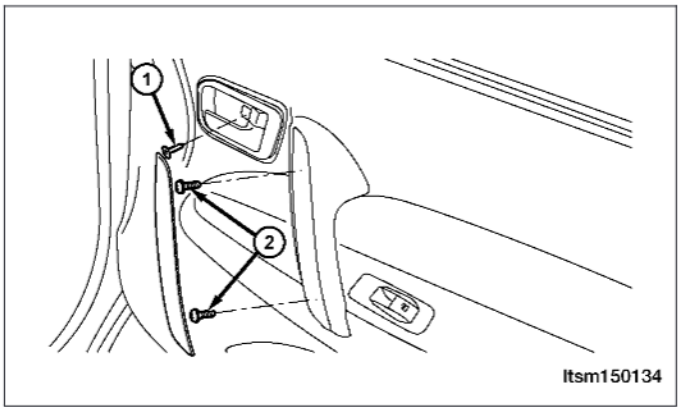
NOTE :
The passenger door is shown, all other doors are similar.

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

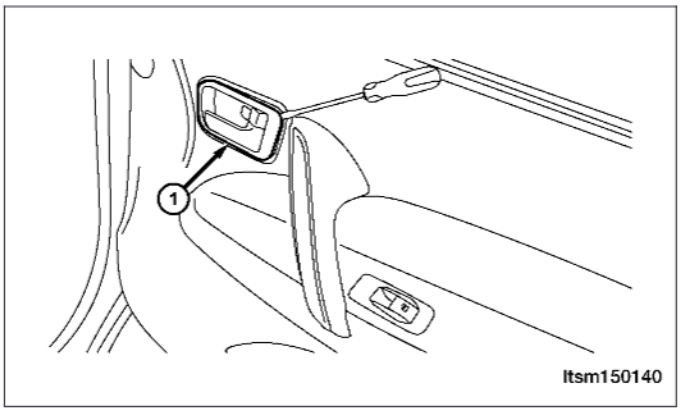


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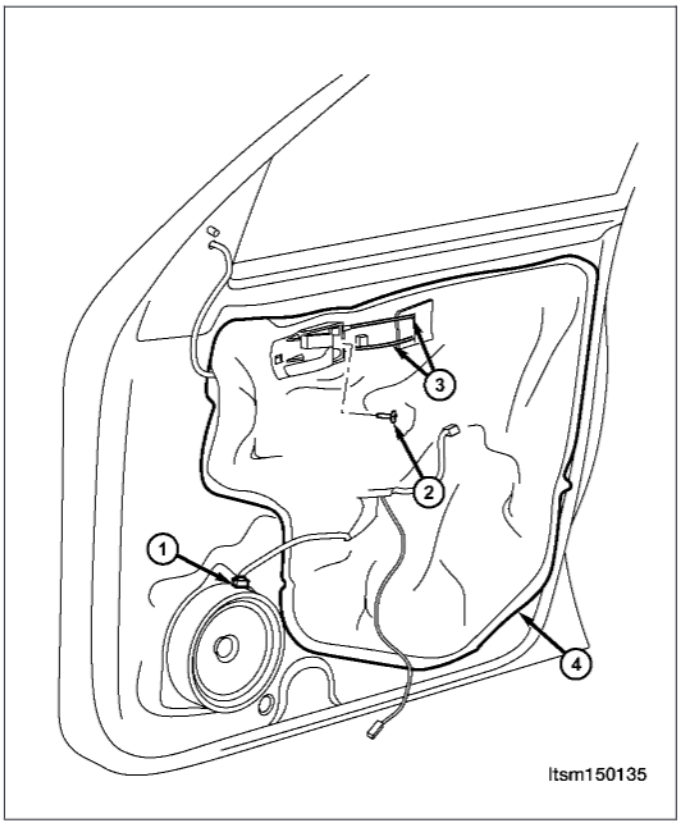
3. Remove the inner door handle mounting screw (1).
4. Remove the pull handle mounting screws (2).



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

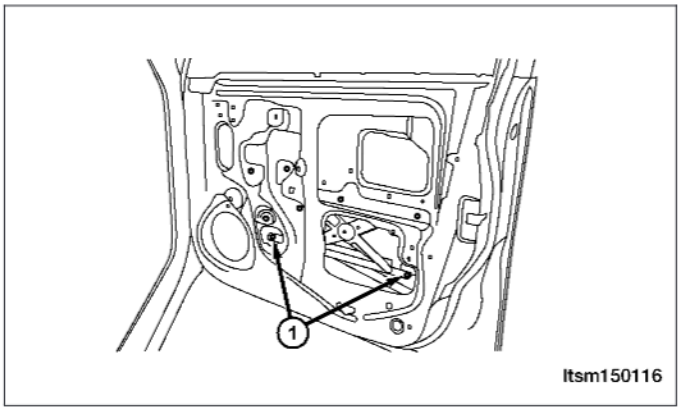


6. Carefully pry the door trim panel clips from the door.
7. Disconnect the power window switch and the door lamp electrical connector.
8. Remove the door trim panel.
9. Disconnect the speaker connector (1).
10. Remove the inner door handle assembly mounting screw (2).
11. Disconnect the inner door handle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

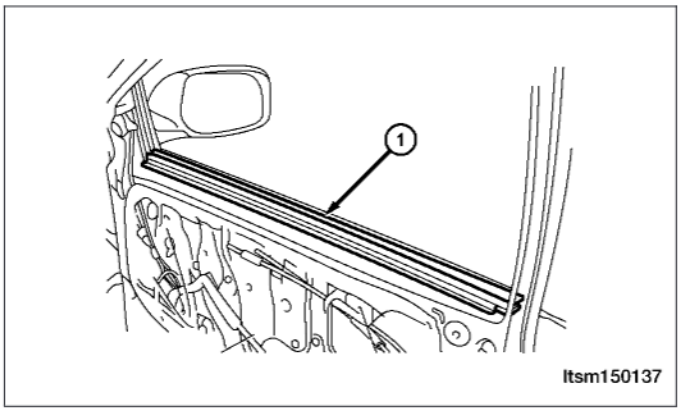


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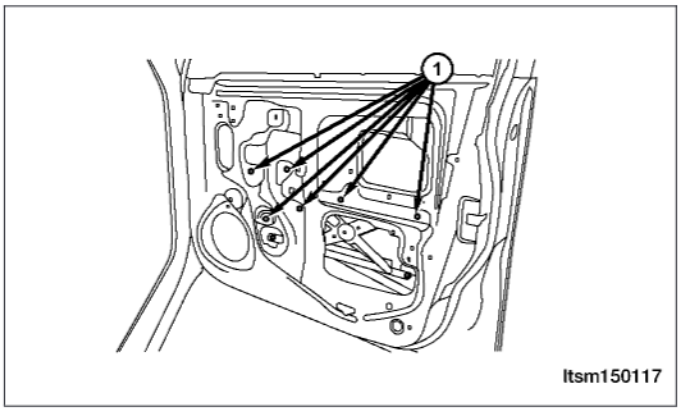
13. Temporarily connect the power window switch.
14. Turn the ignition switch on and use the power window switch to move the front door glass to a position so the door glass bolts can be removed.
15. Turn the ignition switch off and disconnect the power window switch.
16. Remove the two door glass mounting 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·m)

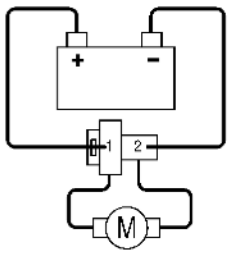
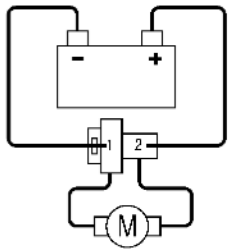


21. Carefully remove the power window regulator.
22. Remove the power window motor from the regulator.
23. Installation is in the reverse order of removal.

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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	 ltsm150136
Battery positive (+) to terminal – 2 Battery negative (-) to terminal – 1	Counterclockwise rotation	 ltsm150138

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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

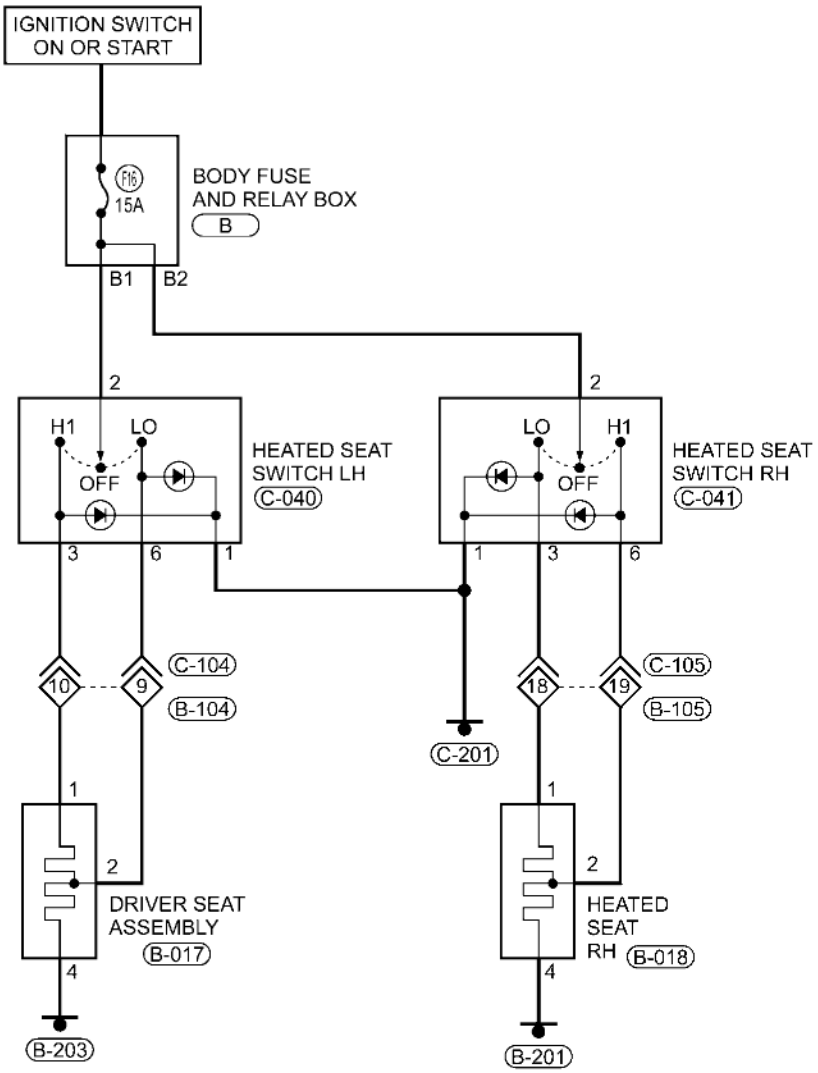
The manual seat adjustment bar is at the front of the seat, near the floor. Pull the bar upward and slide the seat forward or rearward. Release the bar once the seat is in the desired position. To confirm the seat is locked into place, attempt to move the seat forward and rearward after adjusting the 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.

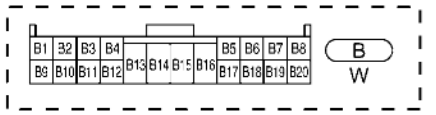
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Electrical Schematics

Heated Seat (Page 1 of 1)

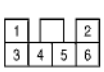
HEATED SEAT





B
W

BODY FUSE AND RELAY BOX



C-040
L

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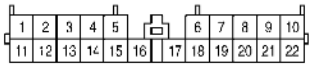
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B-018
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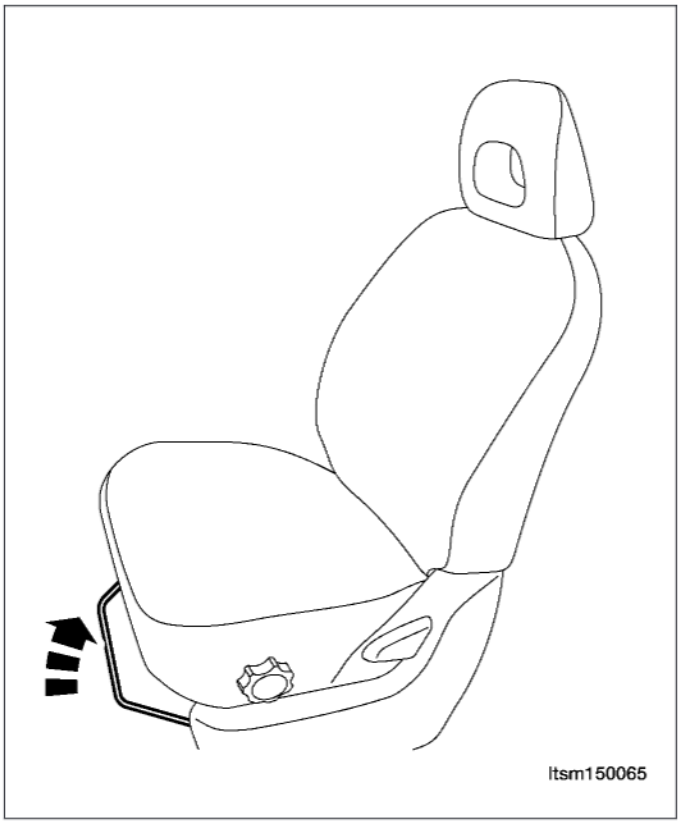
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Front Seat

Removal & Installation

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

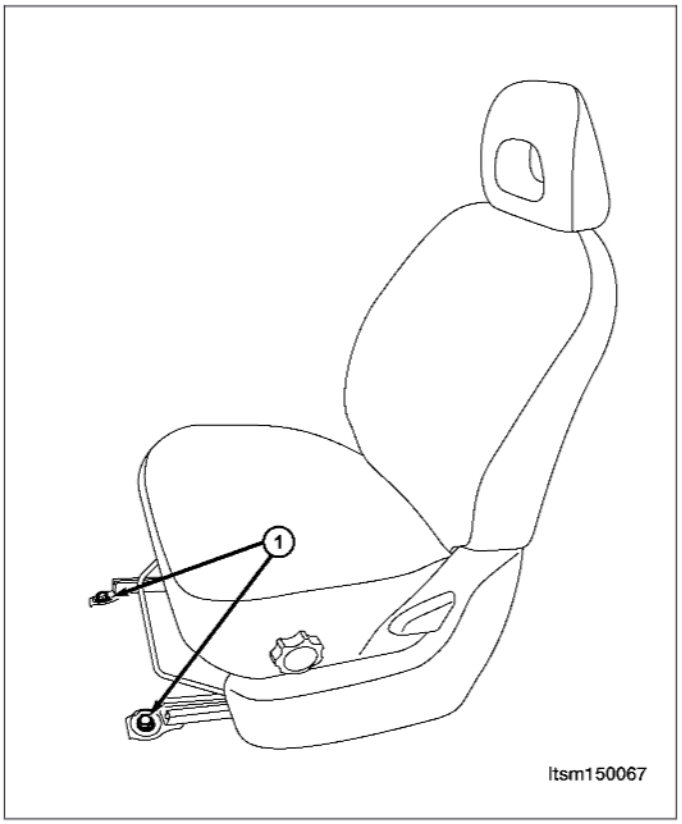


2. Remove the guide rail mounting bolts (1).
(Tighten: Guide rail mounting bolts to 32 N·m)



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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

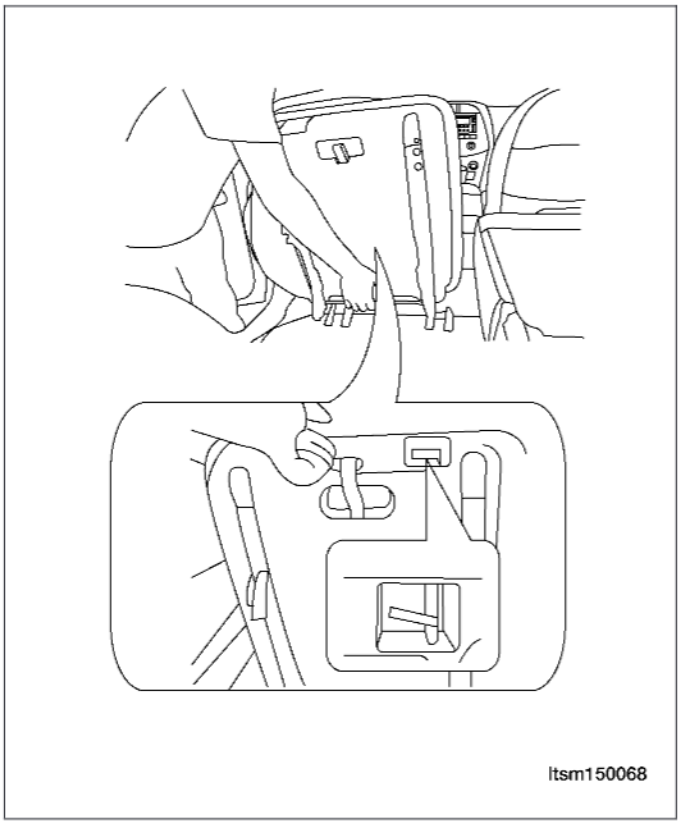
Removal & Installation

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



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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.

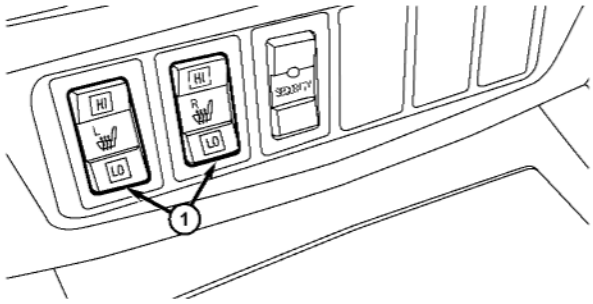


5. Installation is in the reverse order of removal.

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Heated Seat Switch

Removal & Installation



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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.

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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.

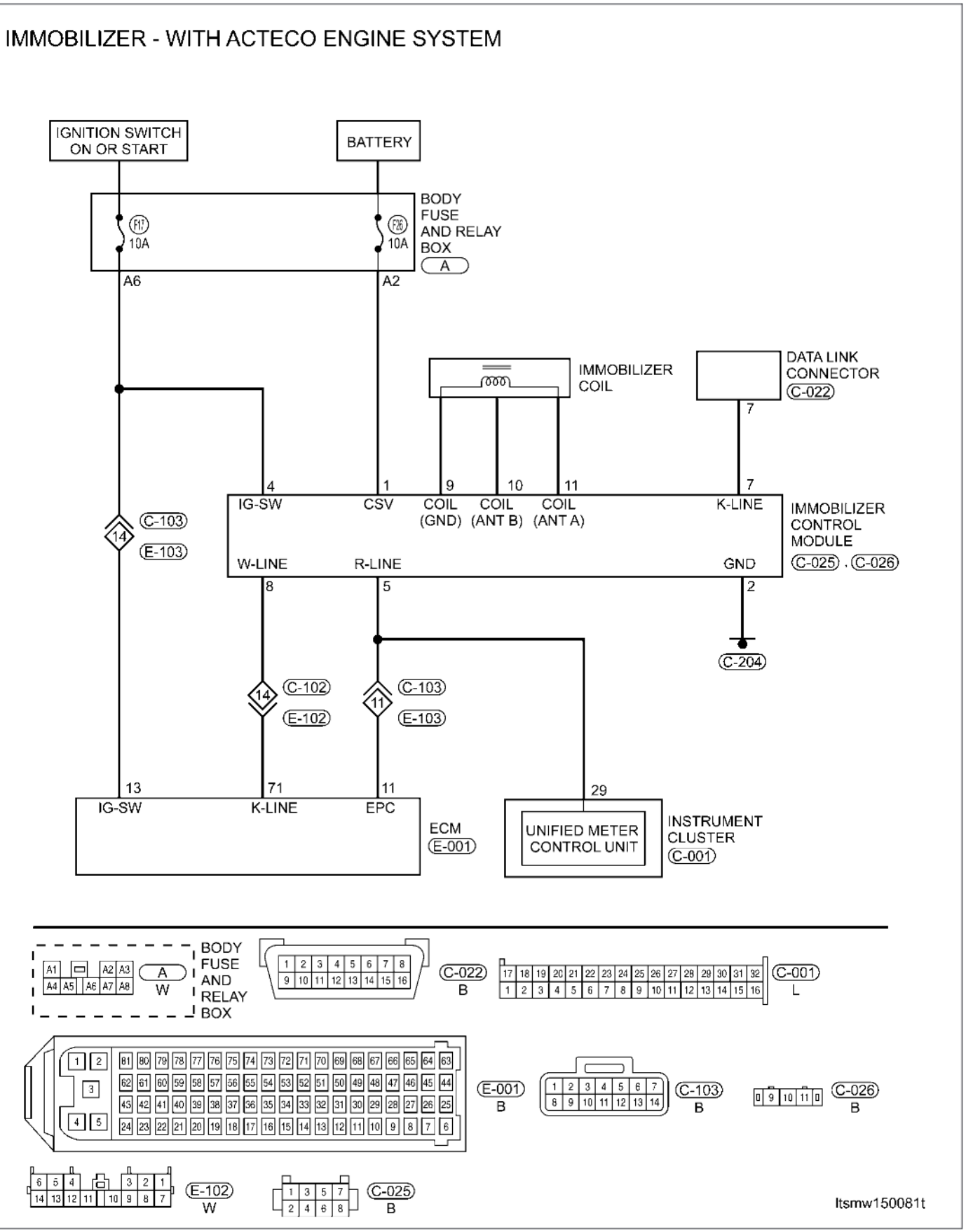
Operation

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.

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Electrical Schematics

Immobilizer Control Module (Page 1 of 1)



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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	-	—	-

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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

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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

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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?

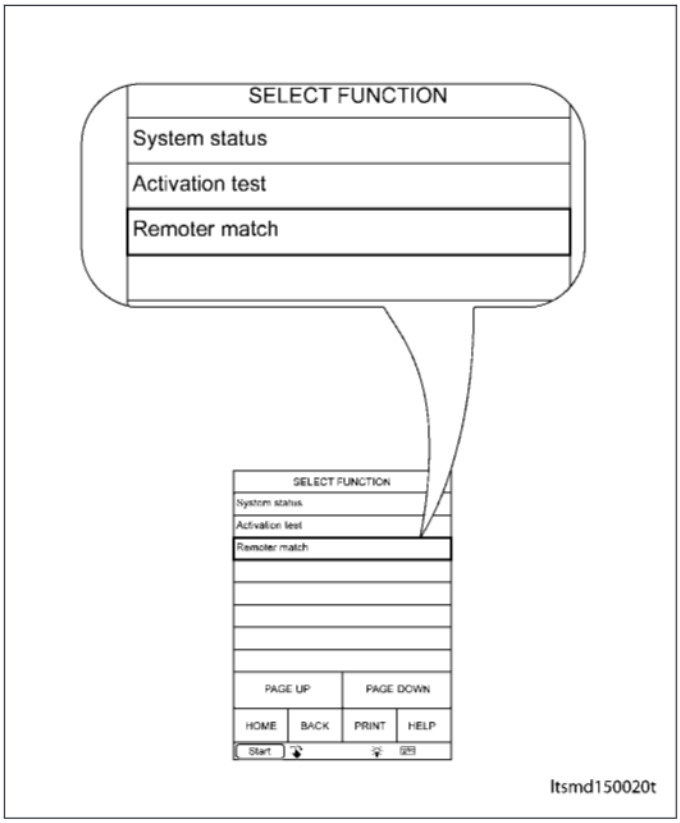
Yes >> Erase all codes before returning the vehicle to the customer.

No >> Go to the next step.

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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.

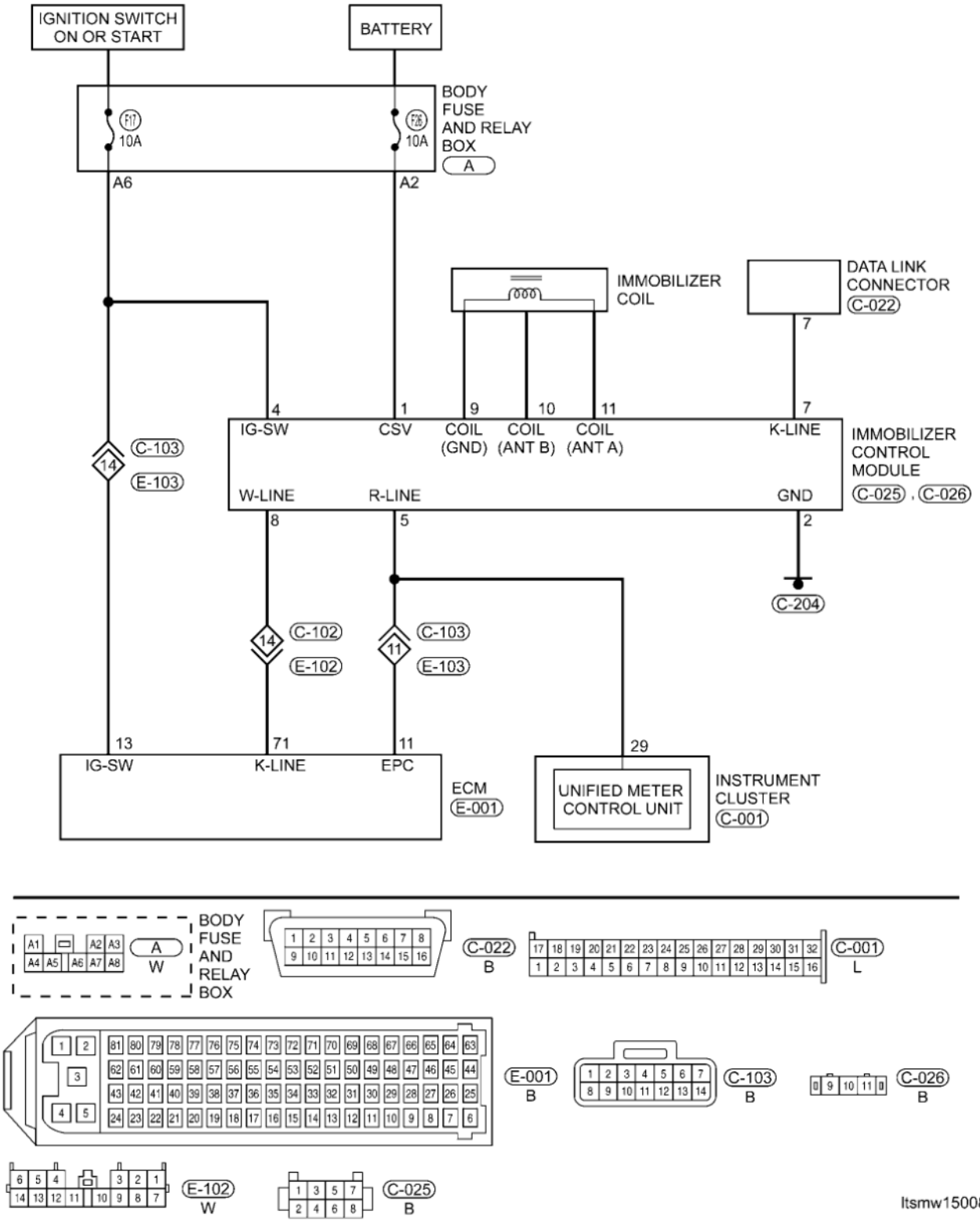
No >> Replace the FBCM (See FBCM Removal & Installation in Section 15 Body & Accessories).
Refer to the RKE transmitter match procedure with X-431 as the description.
Perform match between the RKE transmitter and FBCM with X-431.

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Diagnostic Trouble Code (DTC) Tests

B1000 - ECU Defect: Internal Errors

IMMOBILIZER - WITH ACTECO ENGINE SYSTEM



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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. CHECK 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).

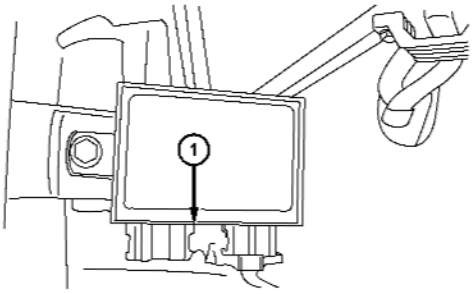
2. CHECK IMMOBILIZER CONTROL MODULE ELECTRICAL CONNECTOR

- 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.

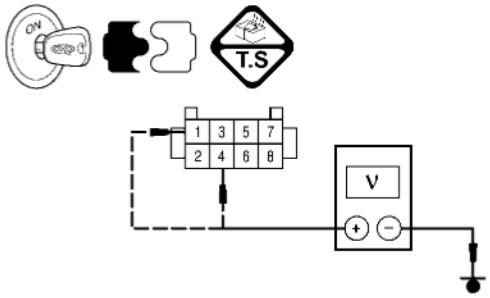


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3. CHECK IMMOBILIZER CONTROL MODULE POWER SUPPLY

- 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		

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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.

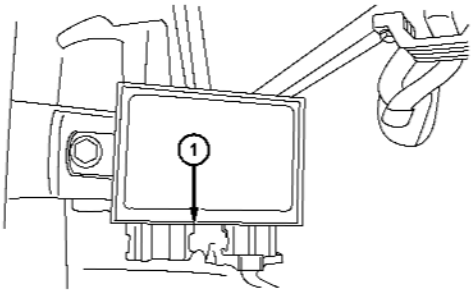
4. CHECK IMMOBILIZER CONTROL MODULE ELECTRICAL CONNECTOR

- 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.

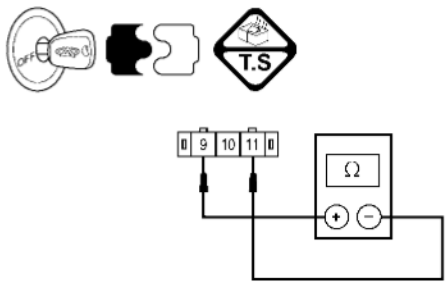


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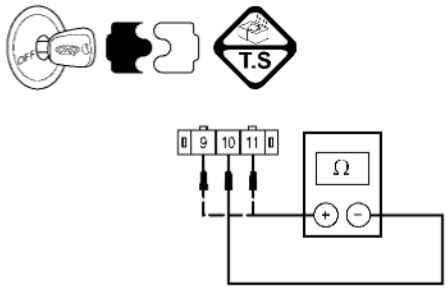
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5. CHECK IMMOBILIZER COIL

- 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.

IMMOBILIZER COIL TERMINAL	IMMOBILIZER COIL TERMINAL	CONTINUITY	
9	10	Not	 Itsmd150016
11	10		

Is the check result normal?

Yes >> Go to the next step.

No >> Replace the Immobilizer coil.

6. CHECK DTC

- 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.

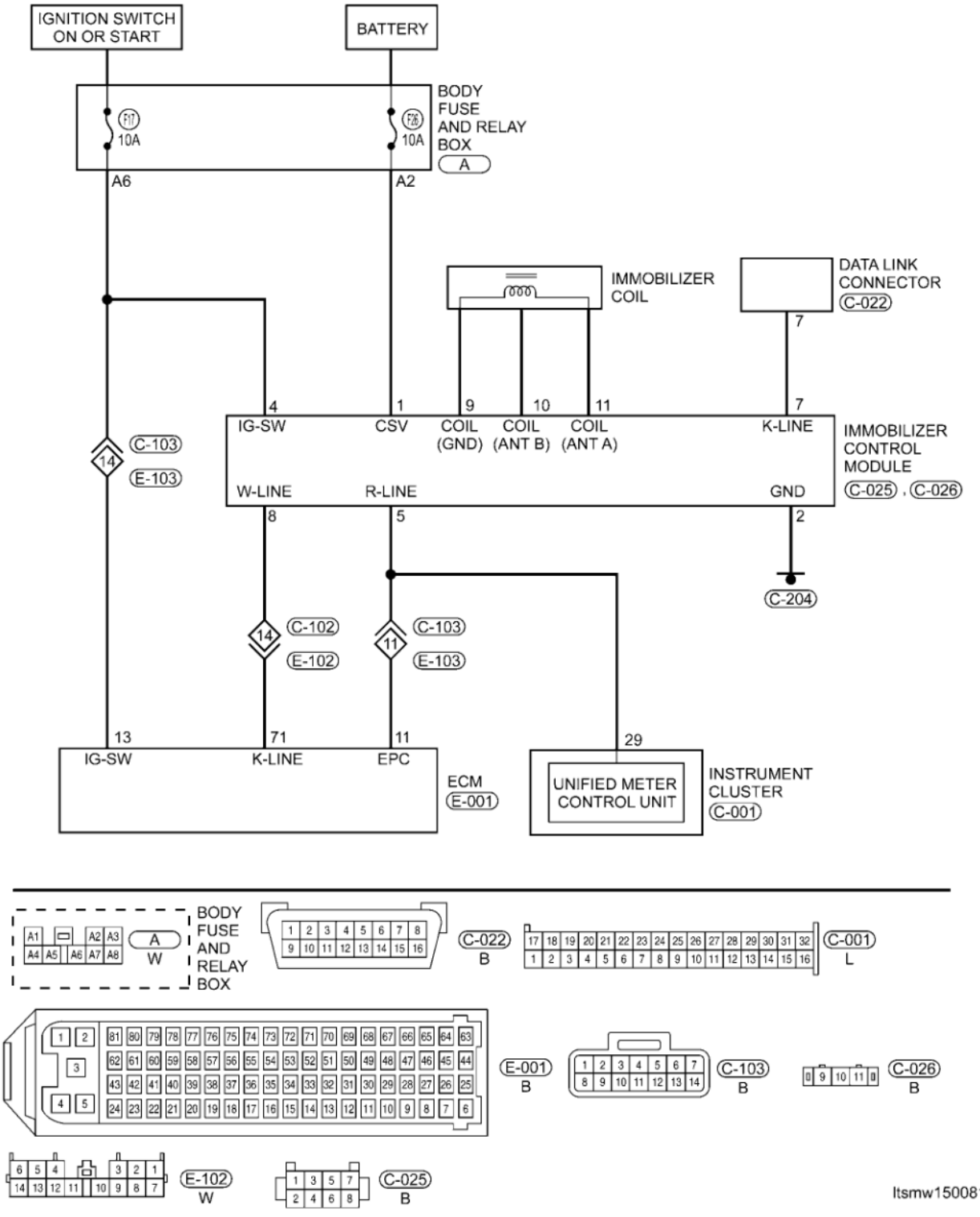
No >> The system is now operating properly.
Reassemble the vehicle and verify the customers complaint is repaired.

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

Immobilizer Control Module

IMMOBILIZER - WITH ACTECO 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
B3042	W-line short circuit to ground	Ignition switch: ON	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		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).

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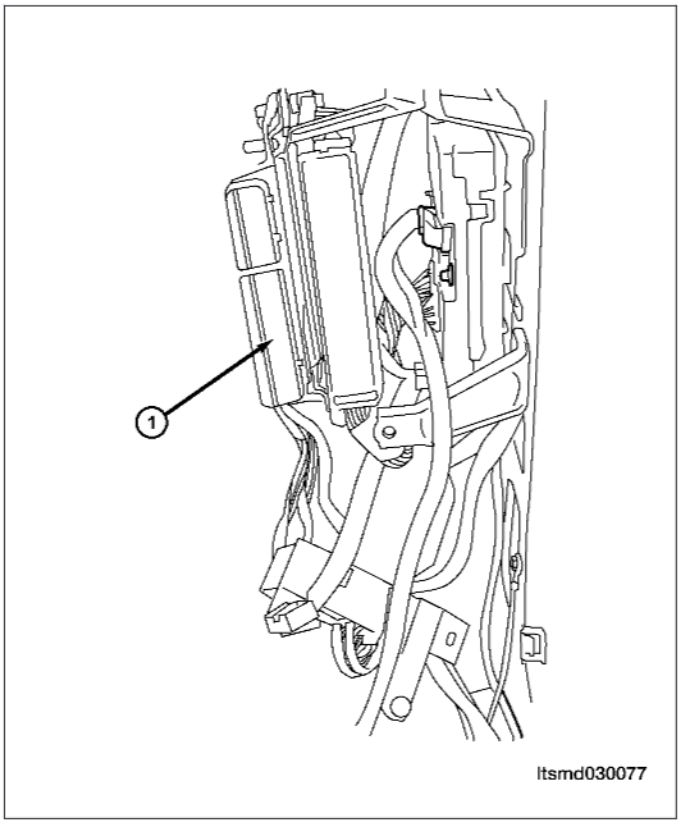
3. CHECK ENGINE CONTROL MODULE (ECM) ELECTRICAL CONNECTOR

- 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.



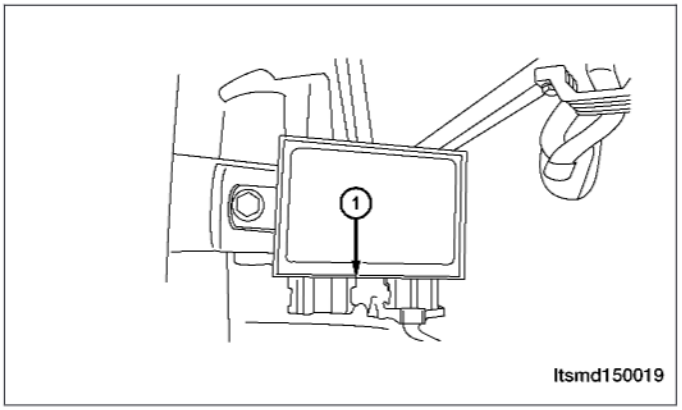
4. CHECK IMMOBILIZER CONTROL MODULE ELECTRICAL CONNECTOR

- 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.

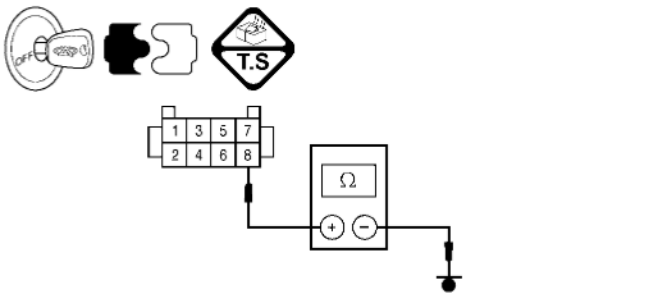
No >> Repair or replace the electrical connector as necessary.



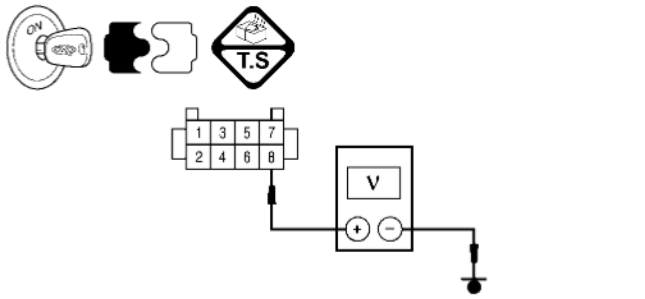
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5. CHECK IMMOBILIZER CONTROL MODULE AND ECM COMMUNICATION CIRCUIT

- 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	

- 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	

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.

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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?

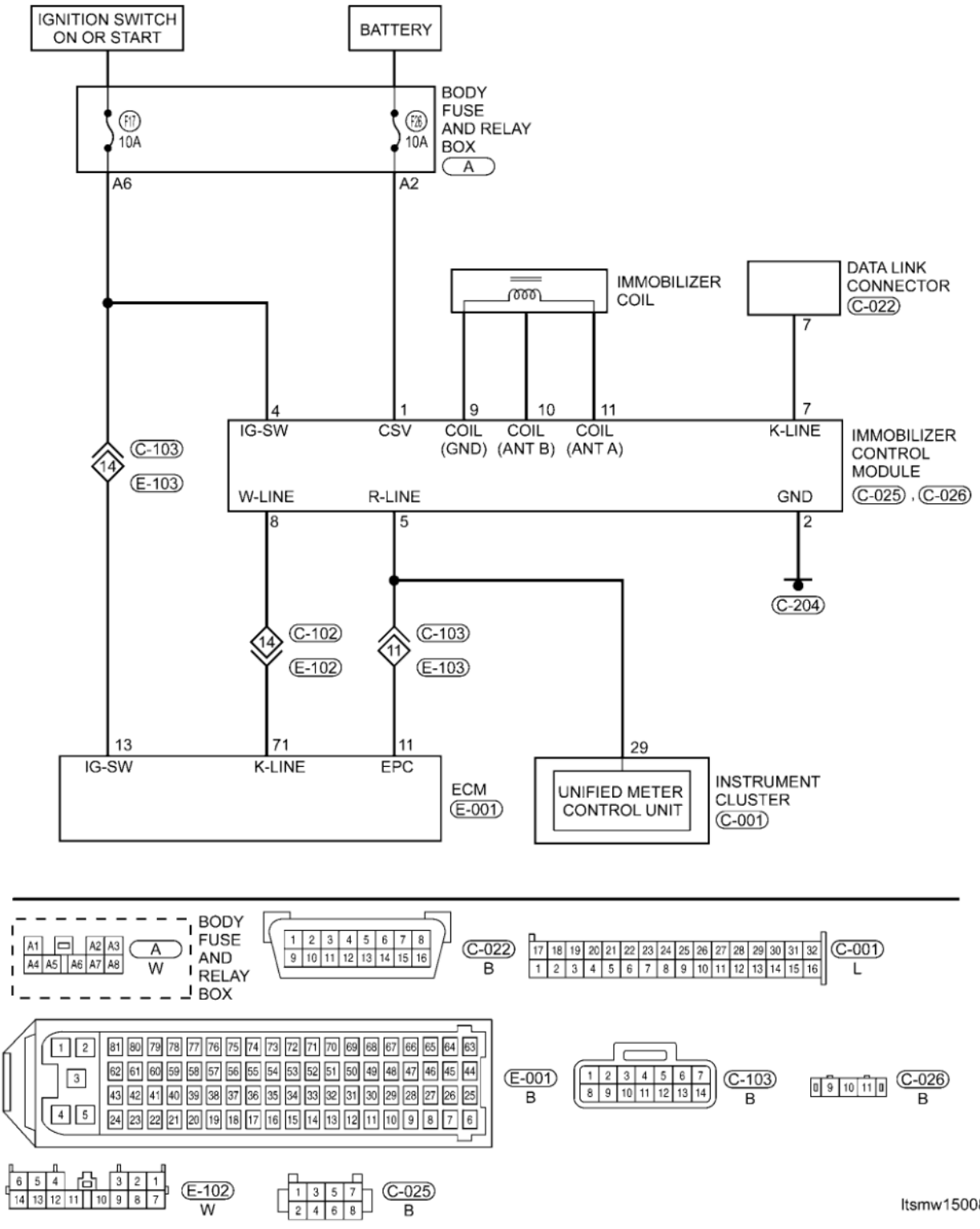
Yes >> Replace and program ECM.

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

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

IMMOBILIZER - WITH ACTECO 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
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.

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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).

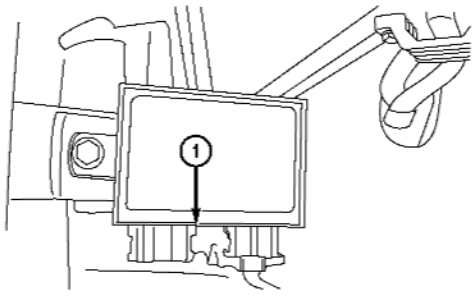
3. CHECK IMMOBILIZER CONTROL MODULE ELECTRICAL CONNECTOR

- 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.

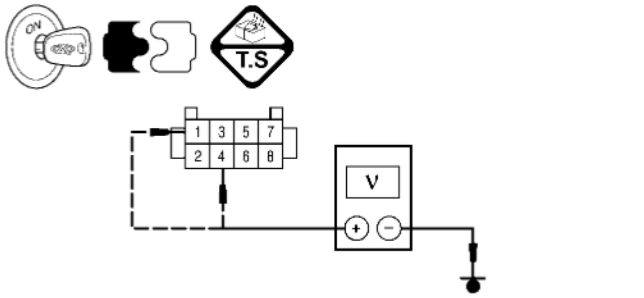


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4. CHECK IMMOBILIZER CONTROL MODULE POWER SUPPLY

- 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		

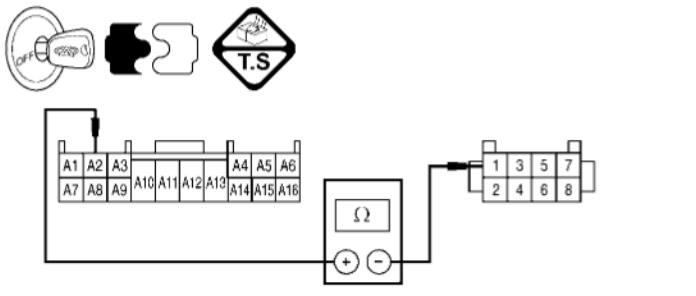
Is 12 V present?

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.

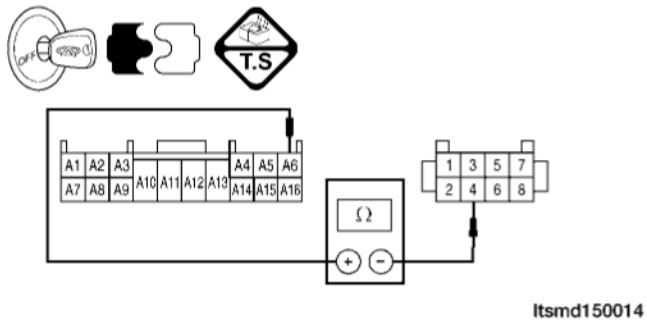
5. CHECK IMMOBILIZER CONTROL MODULE POWER SUPPLY CIRCUIT

- 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.

BODY FUSE AND RELAY BOX TERMINAL	IMMOBILIZER CONTROL MODULE TERMINAL	CONTINUITY	
A2	1	Yes	

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- 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	

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

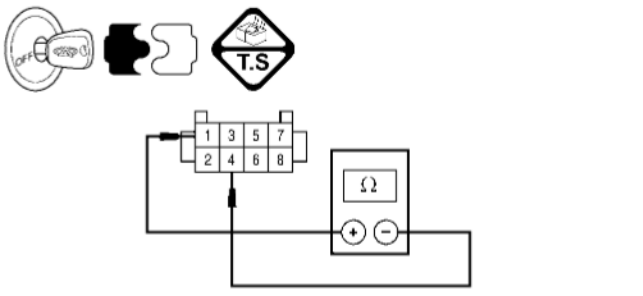
Is the check result normal?

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	
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.

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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?

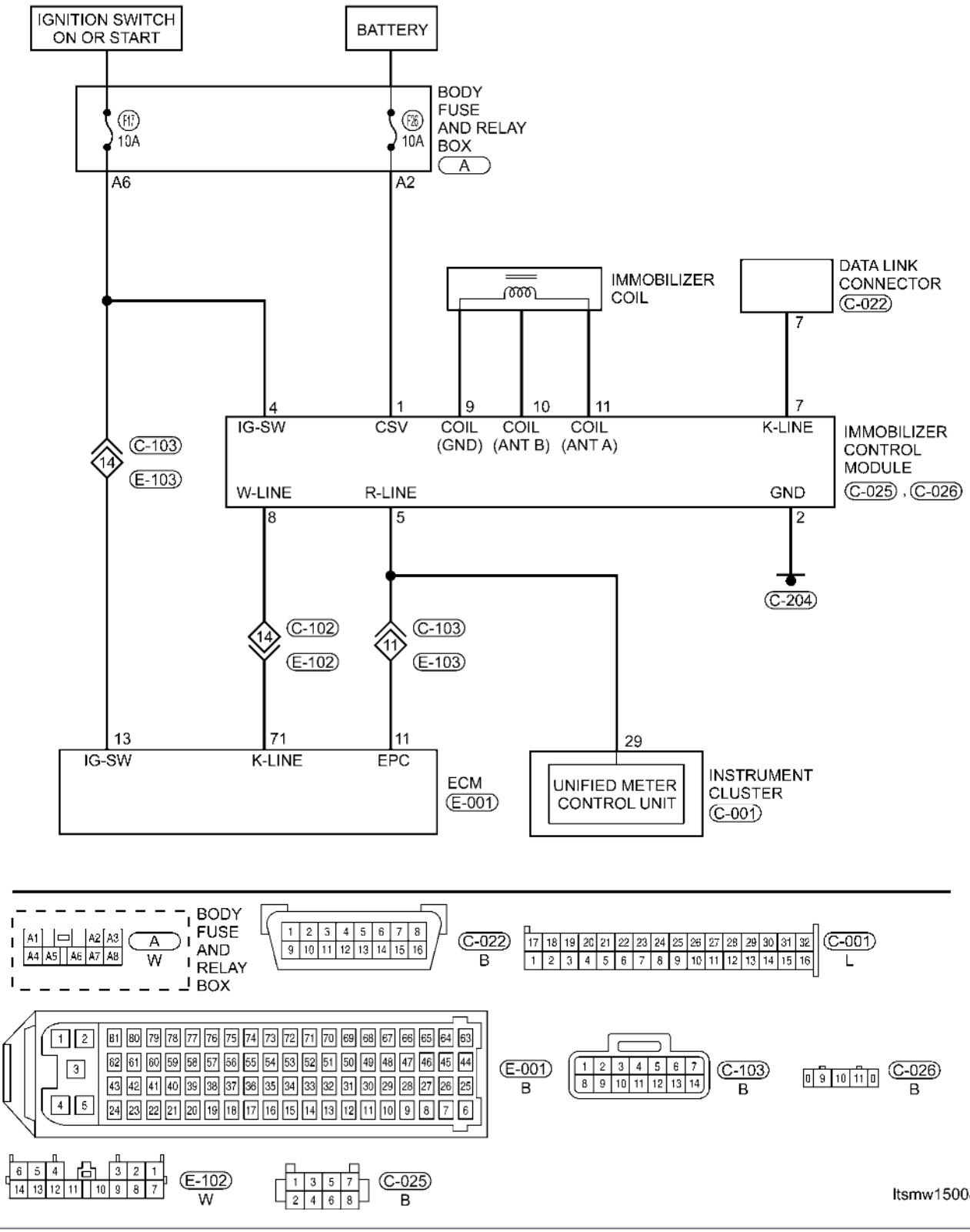
Yes >> Replace and program Immobilizer control module.

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

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

IMMOBILIZER - WITH ACTECO 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
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).

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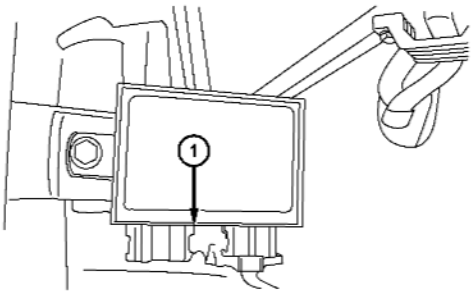
3. CHECK IMMOBILIZER CONTROL MODULE ELECTRICAL CONNECTOR

- 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.

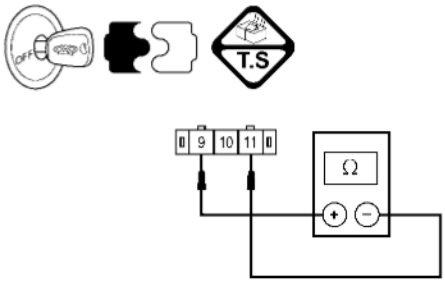


ltsmd150019

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



ltsmd150015

Is the resistance range from 5 to 20 ohms?

Yes >> Go to the next step.

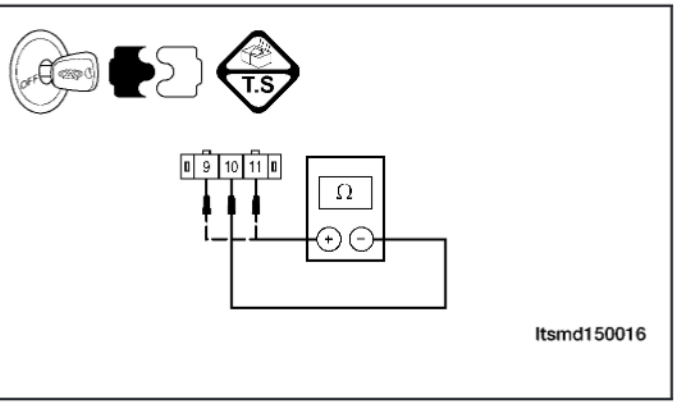
No >> Replace the Immobilizer coil.

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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	



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- Continuity should not exist.

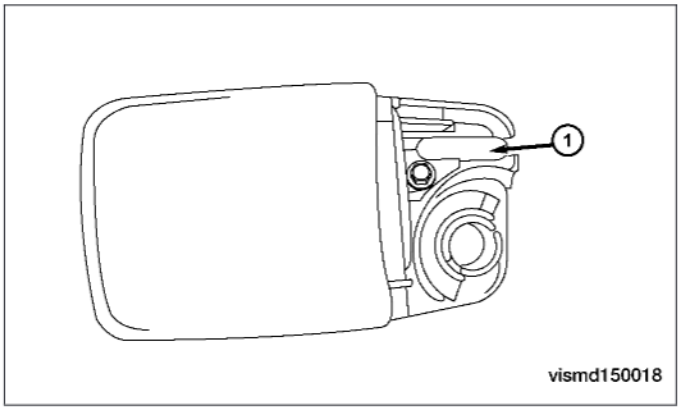
Is the check result normal?

Yes >> Go to the next step.

No >> Replace the Immobilizer coil.

6. REPLACE AND PROGRAM TRANSPONDER

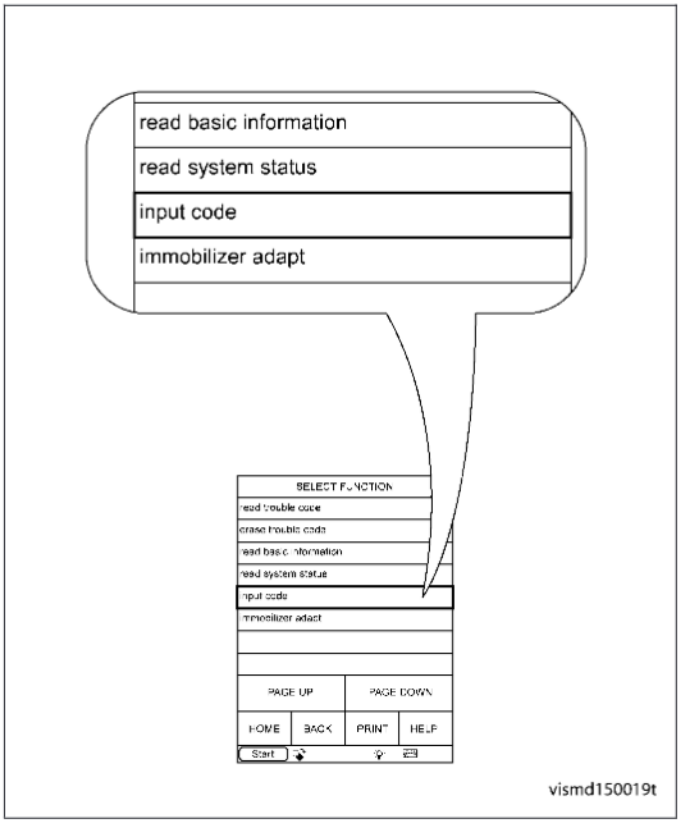
- Reconnect the Immobilizer control module electrical connector C-026.
- Replace the chip (1) with a new one.



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- 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″.

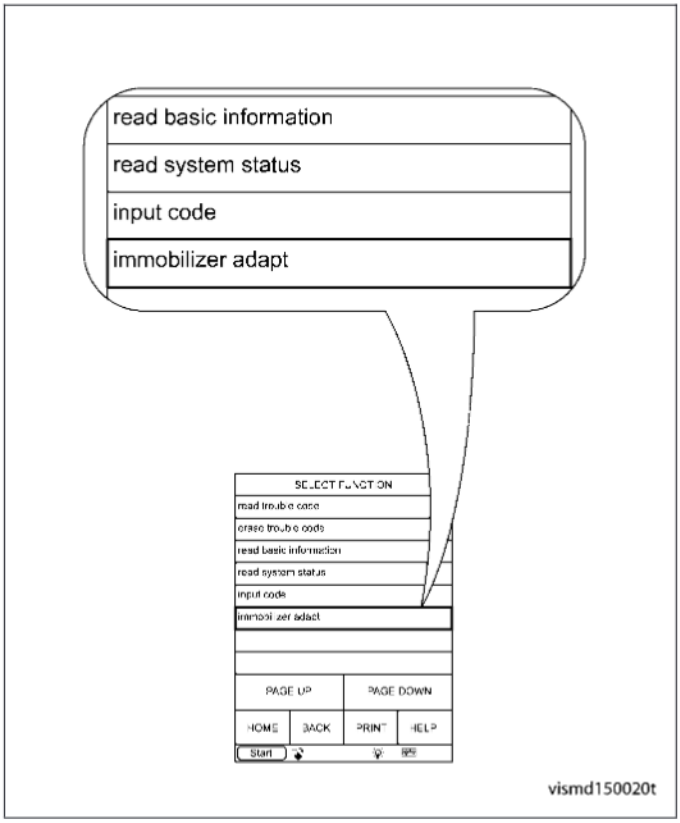


- Try to start the engine.

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.



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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?

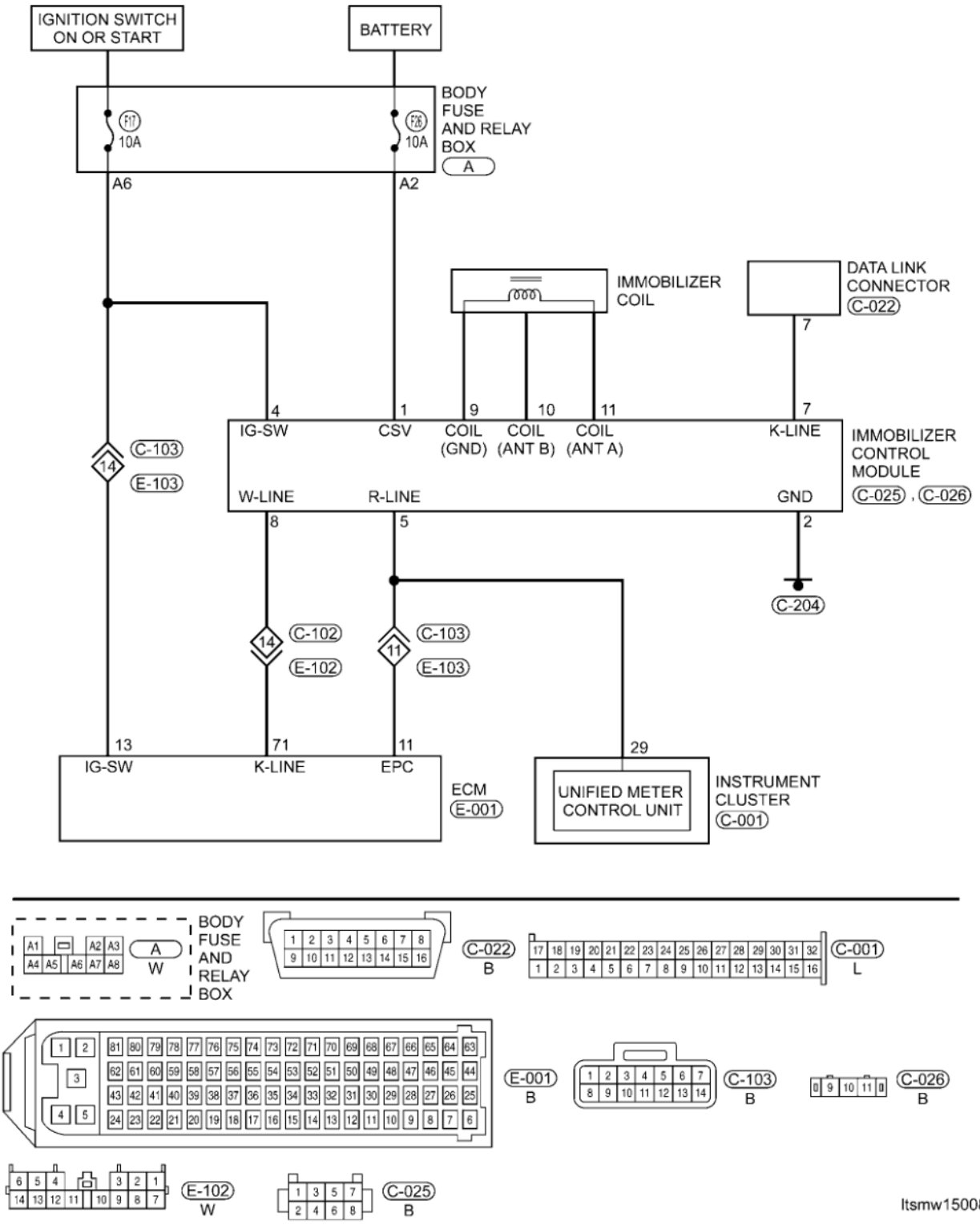
Yes >> Replace and match the Immobilizer control module (This concern may have been caused by Immobilizer control module internal fault). Refer to DTC B3077 Diagnostic Procedure.

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.

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B3060 - Unprogrammed Transponder Fixed Code Received
B3061 - Disturbed Or No Challenge/Response Transponder Communication
B3077 - Read-Only Transponder Detected

IMMOBILIZER - WITH ACTECO 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
B3060	Unprogrammed transponder fixed code received	Ignition switch: ON	The Immobilizer control module detects the received unprogrammed transponder condition.	• Transponder • Harness or connectors • Immobilizer control module • ECM
B3061	Disturbed or no challenge/response transponder communication		The Immobilizer control module detects the received unprogrammed transponder condition.	
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.

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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.

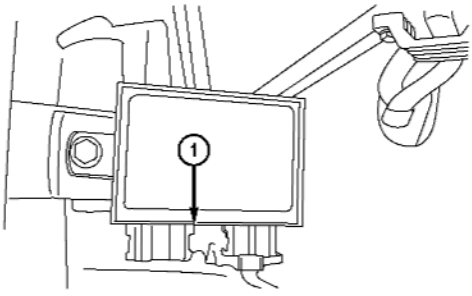
3. CHECK IMMOBILIZER CONTROL MODULE ELECTRICAL CONNECTOR

- 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.

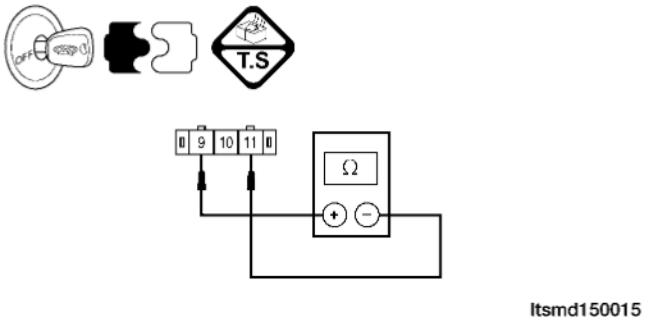


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4. CHECK THE IMMOBILIZER COIL

- 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	

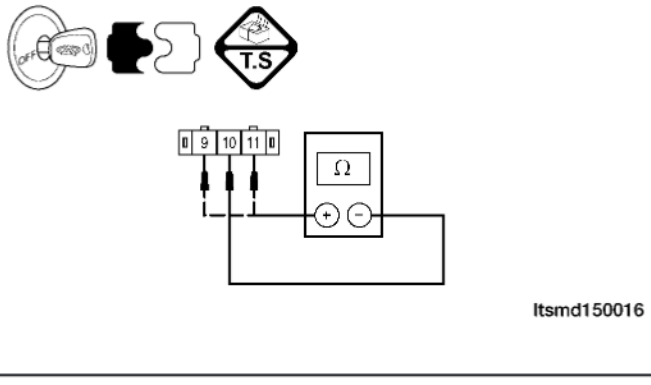
Is the resistance range from 5 to 20 ohms?

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		

Is the check result normal?

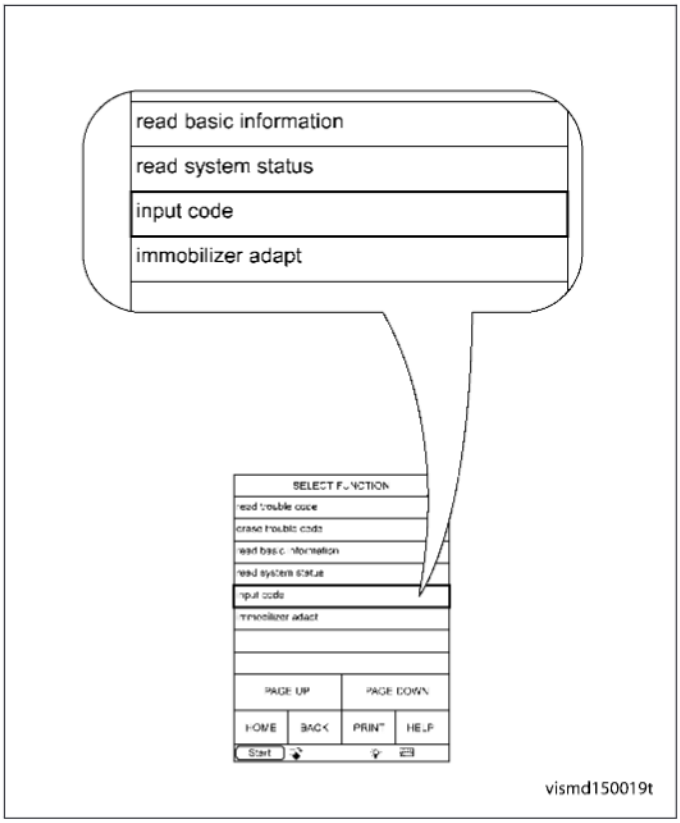
Yes >> Go to the next step.

No >> Replace the Immobilizer coil.

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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.

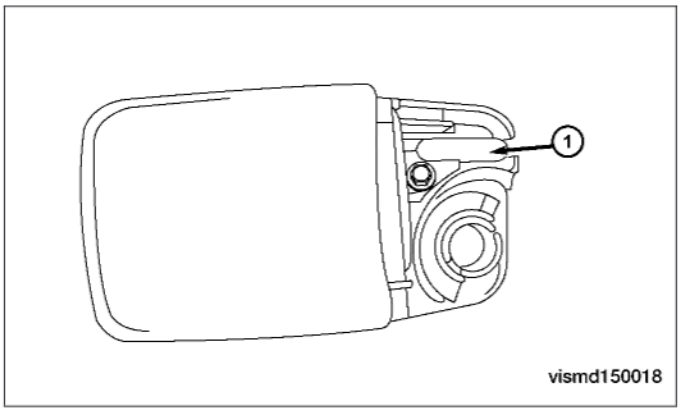
Is DTC B3060, B3061 or B3077 present?

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.



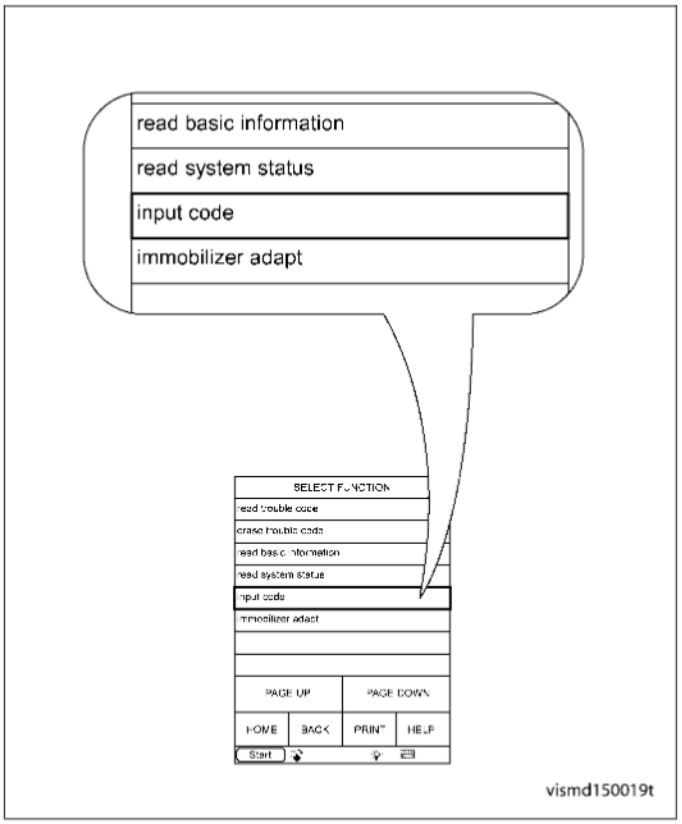
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- Turn ignition switch on.
- Repeat step 5.
- Try to start the engine.
- With the X-431 scan tool, view DTCs in the Immobilizer control module.

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.

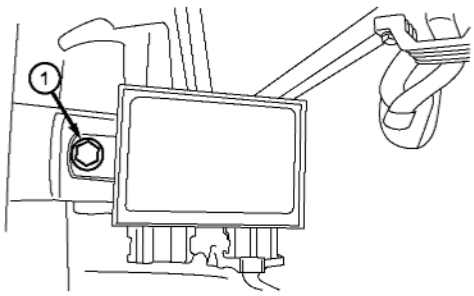
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ON-VEHICLE SERVICE

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).



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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

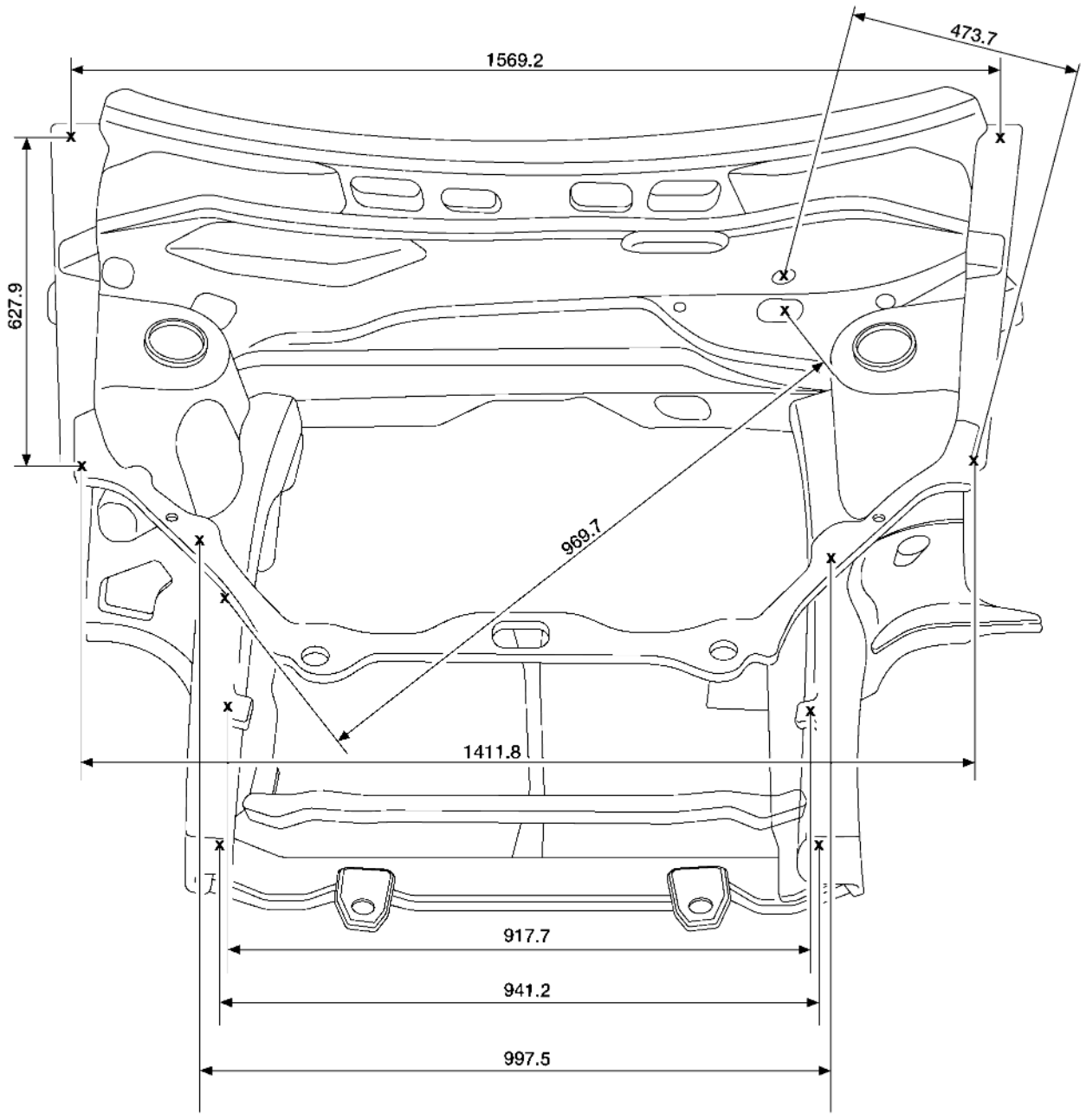
Description

- 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).

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Front Body Structure

Dimension of Engine Compartment (Units: mm)

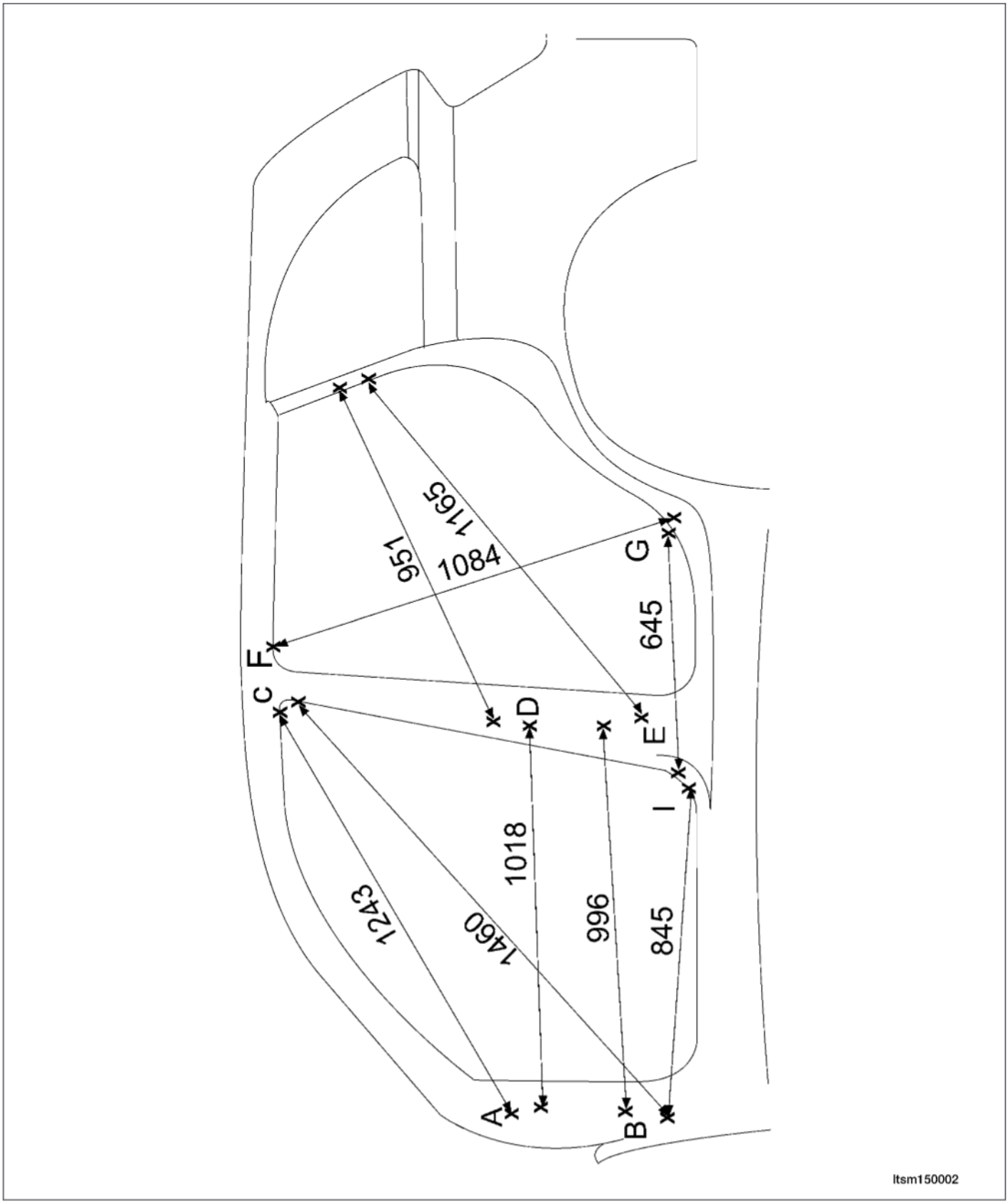


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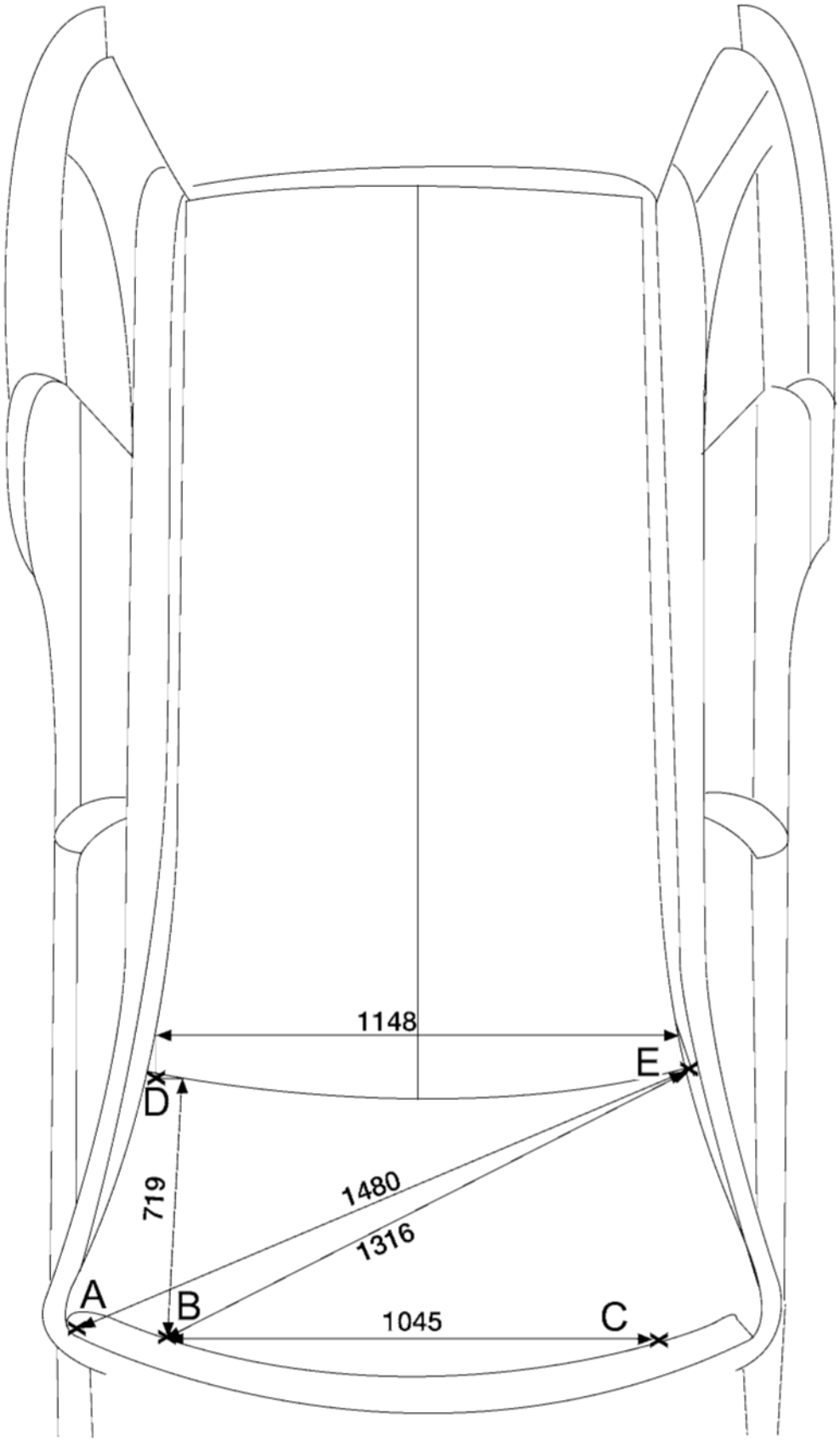
Dimension of Body Openings

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).



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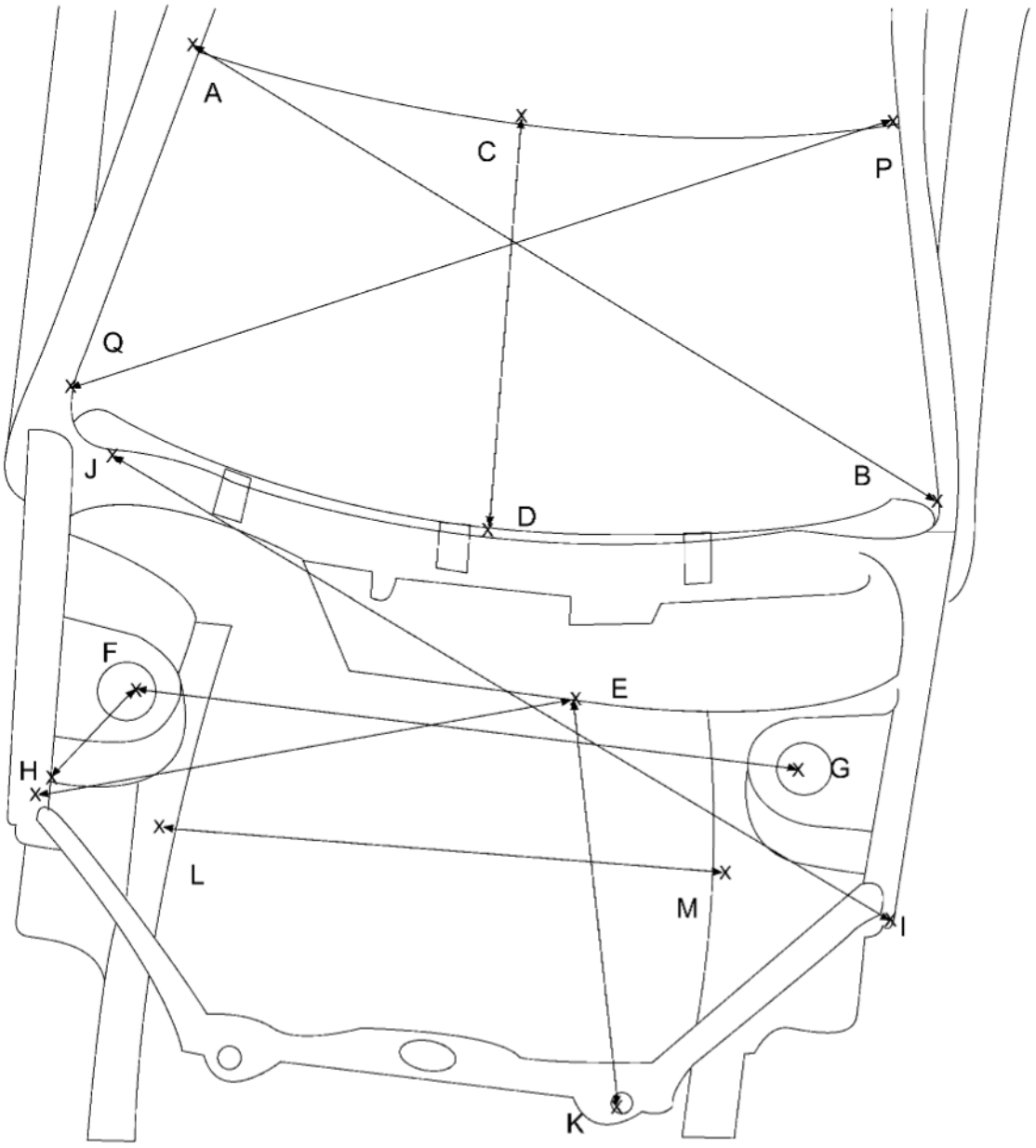


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Front Structure

Dimension of Front Structure (Units: mm)

Body dimension, Left-Right



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S/N	CONTROL DIMENSION (mm)	DESCRIPTION
AB=PQ	1485.8	Diagonal distance of front windshield
CD	733.2	Distance of front windshield at Y0
IJ	1491.6	Center distance between the right end of upper cover of the lower beam of front windshield and the installation hole of front fender
EH	736.1	Center distance between the upper cover hole of the lower beam of front windshield and the installation hole of front fender

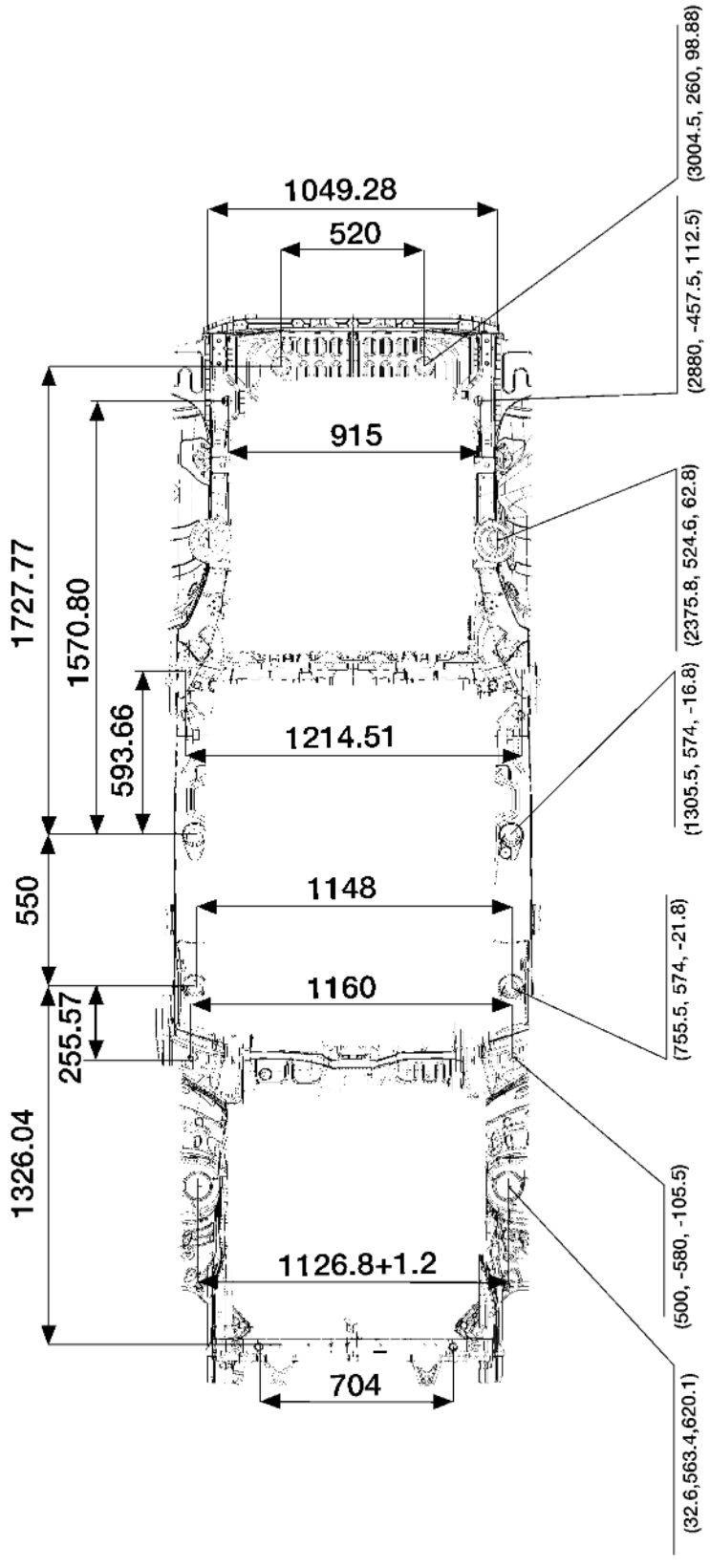
S/N	CONTROL DIMENSION (mm)	DESCRIPTION
FH	270.7	Center distance between the hole of front shock absorber and the installation hole of front fender
FG	1126.8	Center distance between the holes of left/right front shock absorber
LM	952.8	Center distance between the holes of left/right engine suspension
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).

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Frame

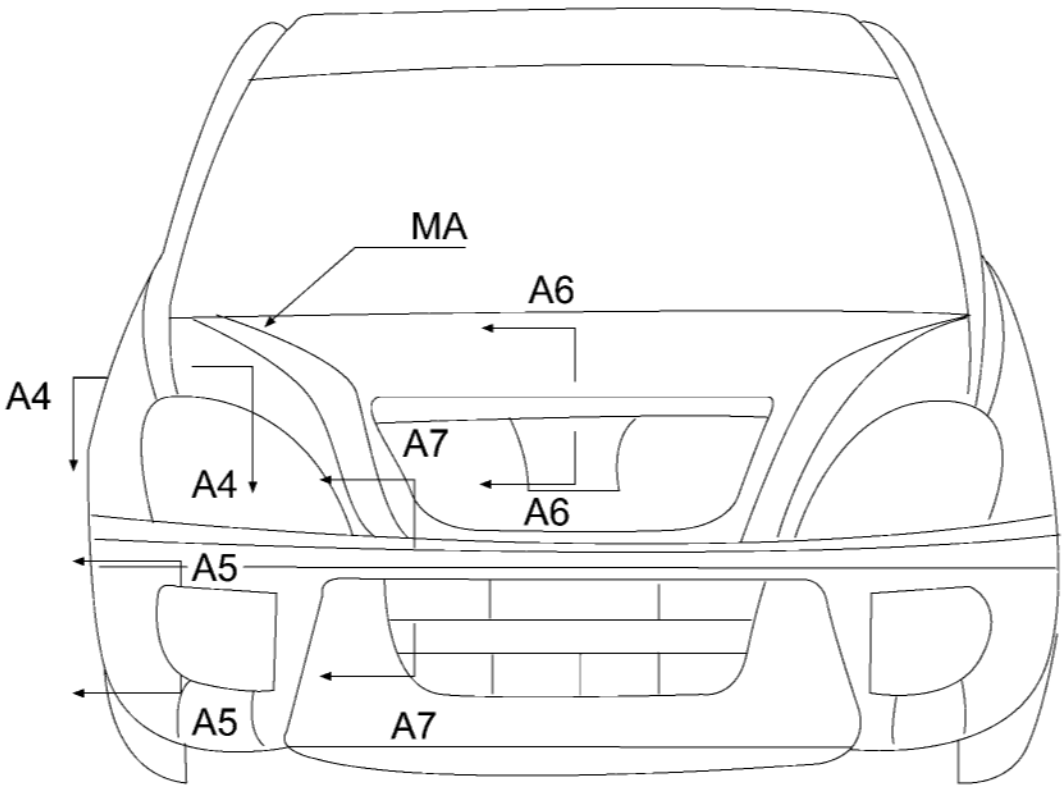
Body Frame Dimensions (Units: mm)



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Vehicle Clearance

Front View



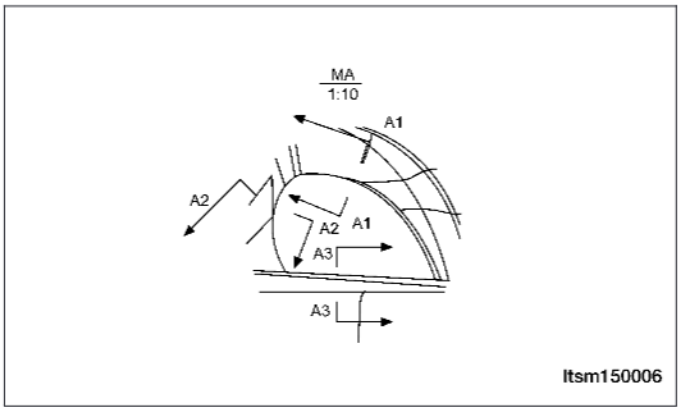
ltsm150005

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

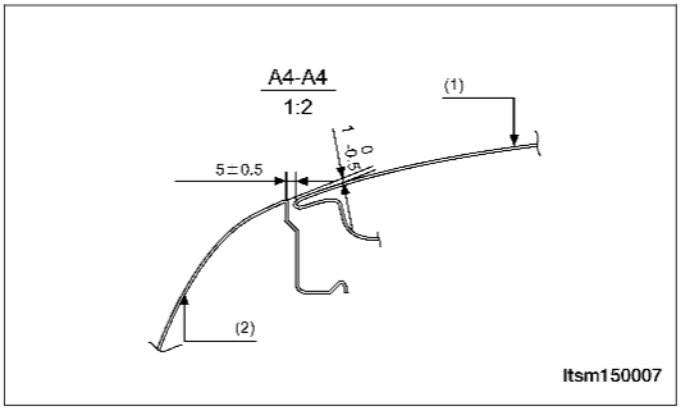
Cross section A2-A2, requirements for clearance and levelness.

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



Itsm150006

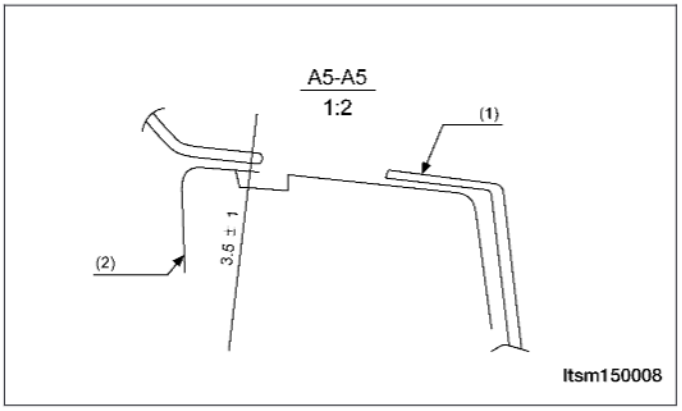
Cross section A4-A4, requirements for clearance and levelness.



Itsm150007

1 - Hood	2 - Fender

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

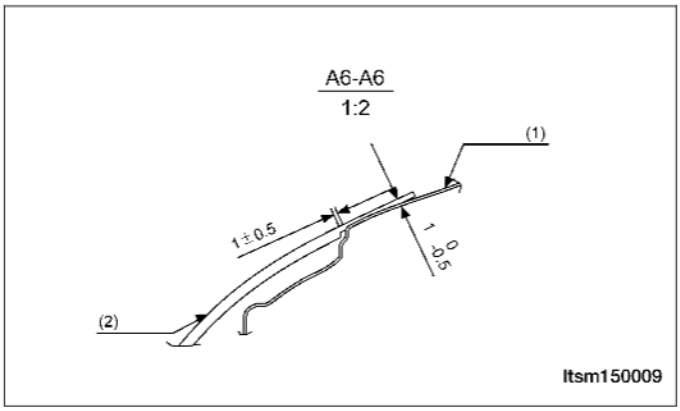


Itsm150008

1 - Fillet	2 - Turning Light

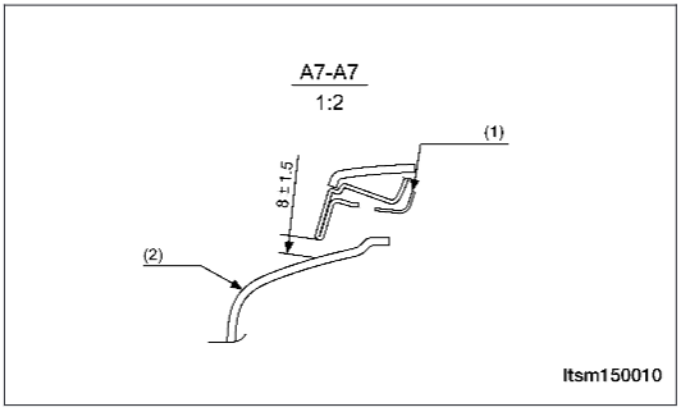
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Cross section A6-A6, requirements for clearance and levelness.



1 - Hood	2 - Cover

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

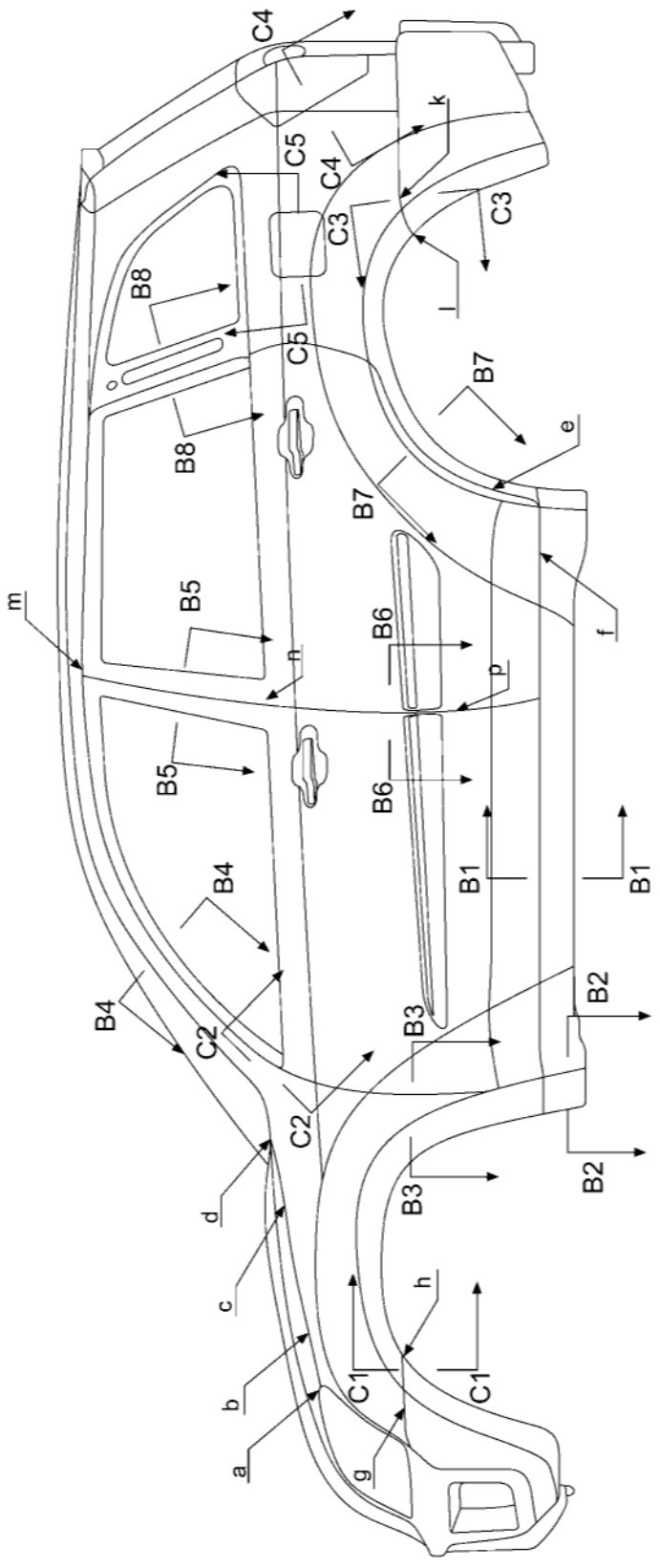


1 - Hood	2 - Front Bumper

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Body

Side View



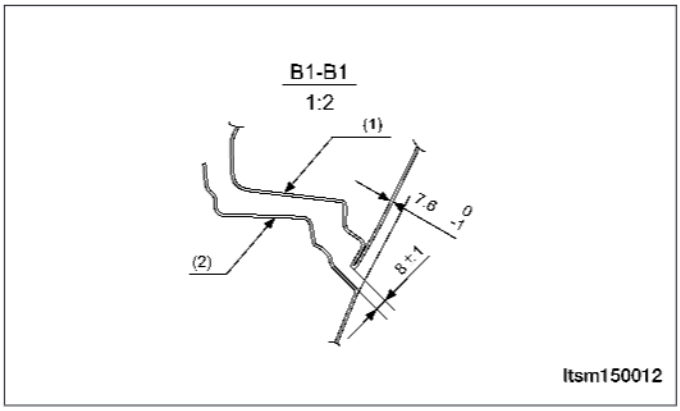
ltsm150011

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NOTE :

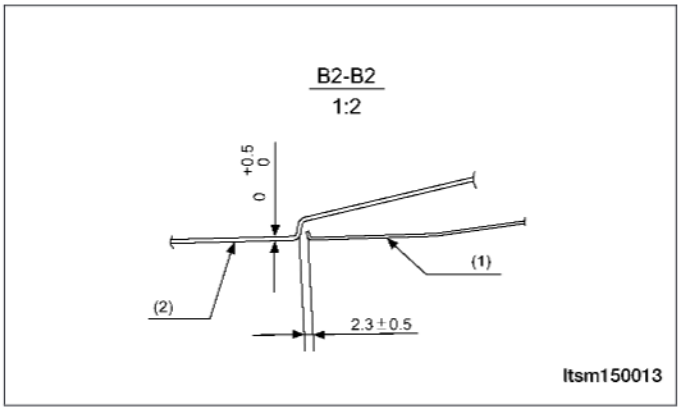
- The levelness from point A to B should be evenly changed from 0 to 1, and the levelness from point C to B should be evenly changed from 1 to 0.
- The clearance from point F to C should be evenly changed from 6 to 7, and the levelness from point G to H should be evenly changed from 1 to 0.
- The levelness 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.



1 - Front Rear Door	2 - Side Wall

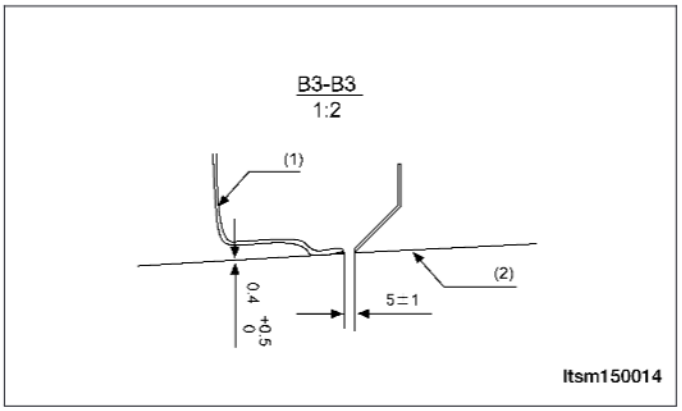
Cross section B2-B2, requirements for clearance and levelness.



1 - Fender	2 - Side Wall

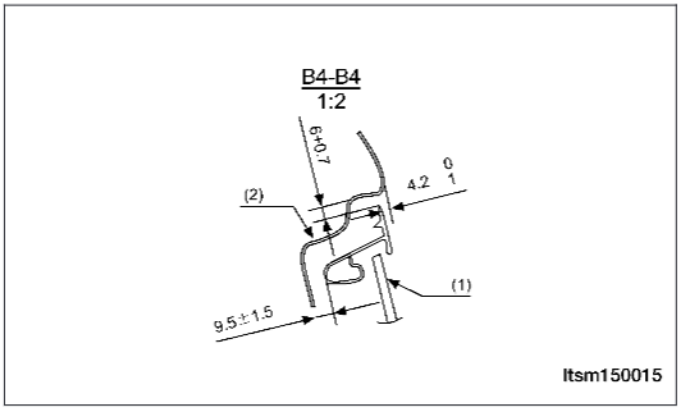
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Cross section B3-B3, requirements for clearance and levelness.



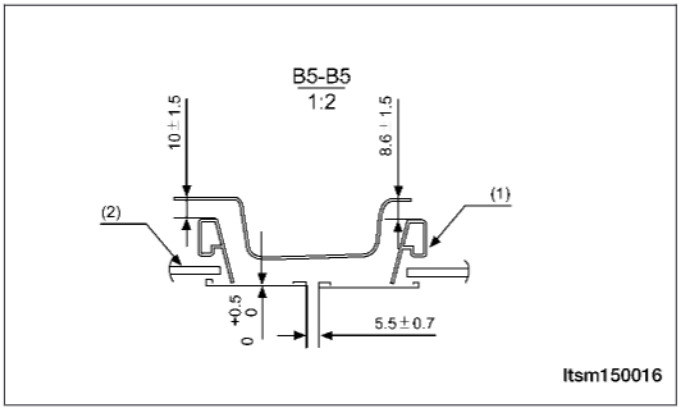
1 - Front Door	2 - Fender

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



1 - Front Rear Door	2 - Side Wall

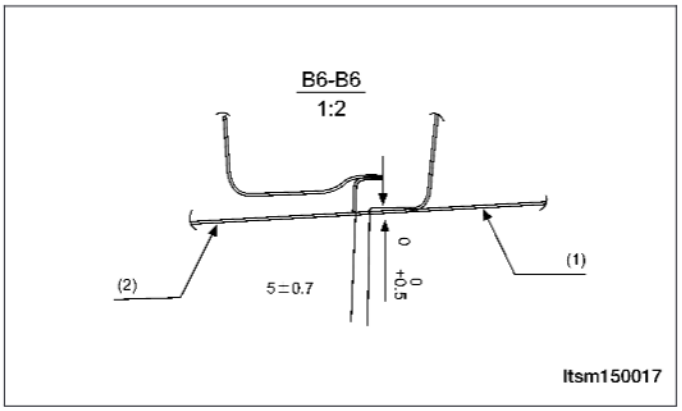
Cross section B5-B5, requirements for clearance and levelness.



1 - Front Door	2 - Back Door

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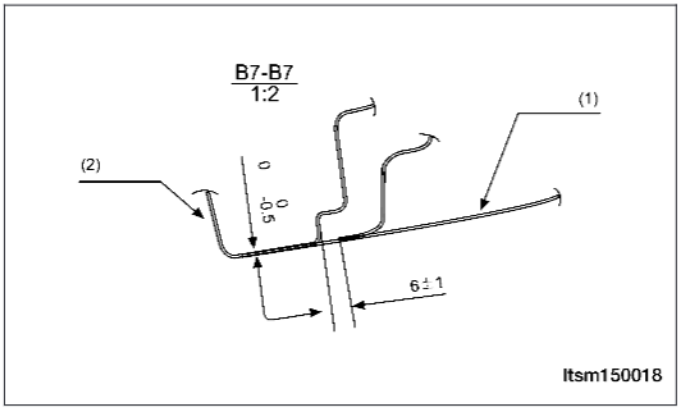
Cross section B6-B6, requirements for clearance and levelness.



Itsm150017

1 - Front Door	2 - Back Door

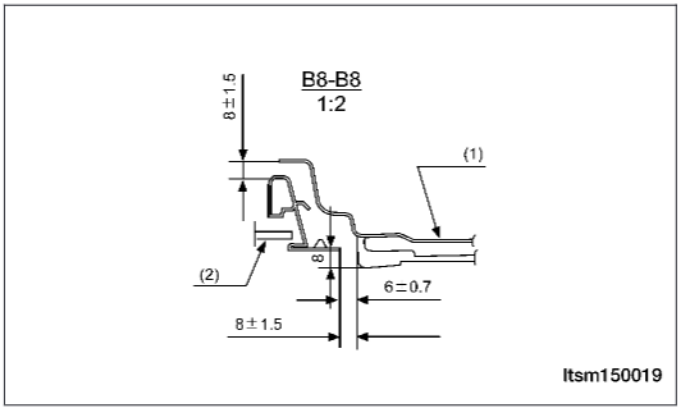
Cross section B7-B7, requirements for clearance and levelness.



Itsm150018

1 - Back Door	2 - Side Wall

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

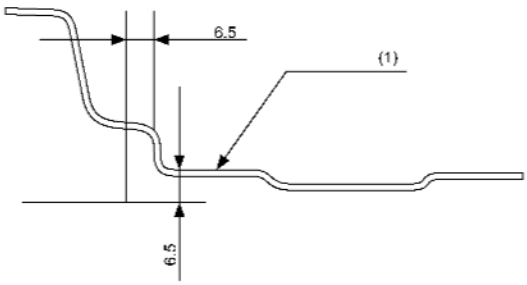


Itsm150019

1 - Rear Triangle Window	2 - Back Door

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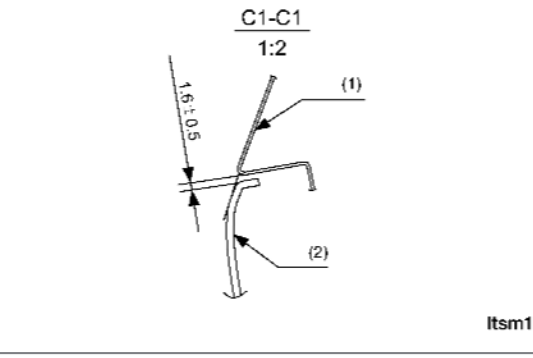
Cross section B1-B1, requirements for clearance and levelness.



ltsm150020

1 - External Plate Of Side Wall

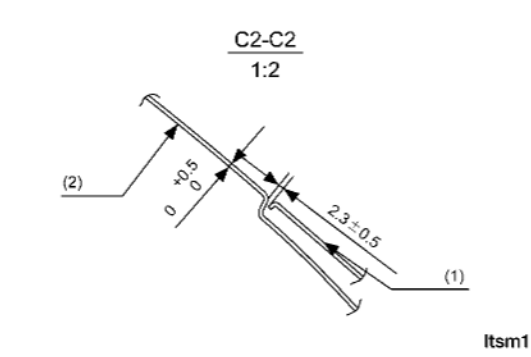
Cross section C1-C1, requirements for clearance and levelness.



ltsm150021

1 - Fender	2 - Front Bumper

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

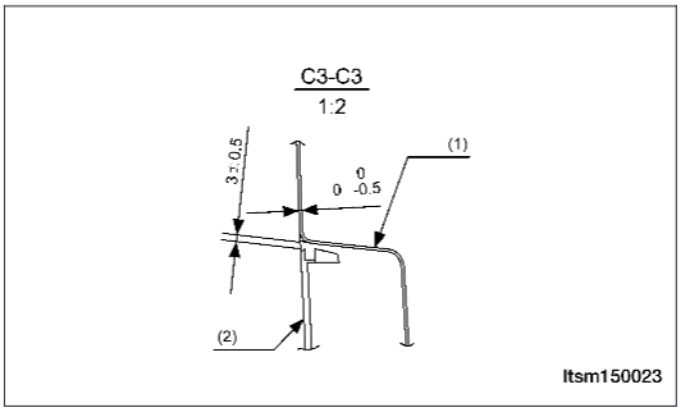


ltsm150022

1 - Fender	2 - Side Wall

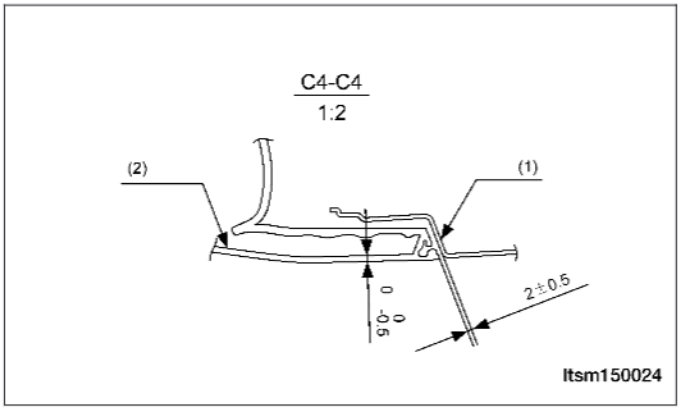
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Cross section C3-C3, requirements for clearance and levelness.



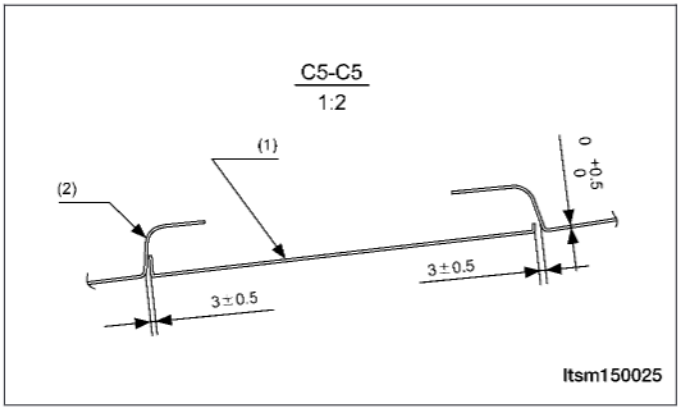
1 - Side Wall	2 - Rear Bumper

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



1 - Side Wall	2 - Rear Headlight

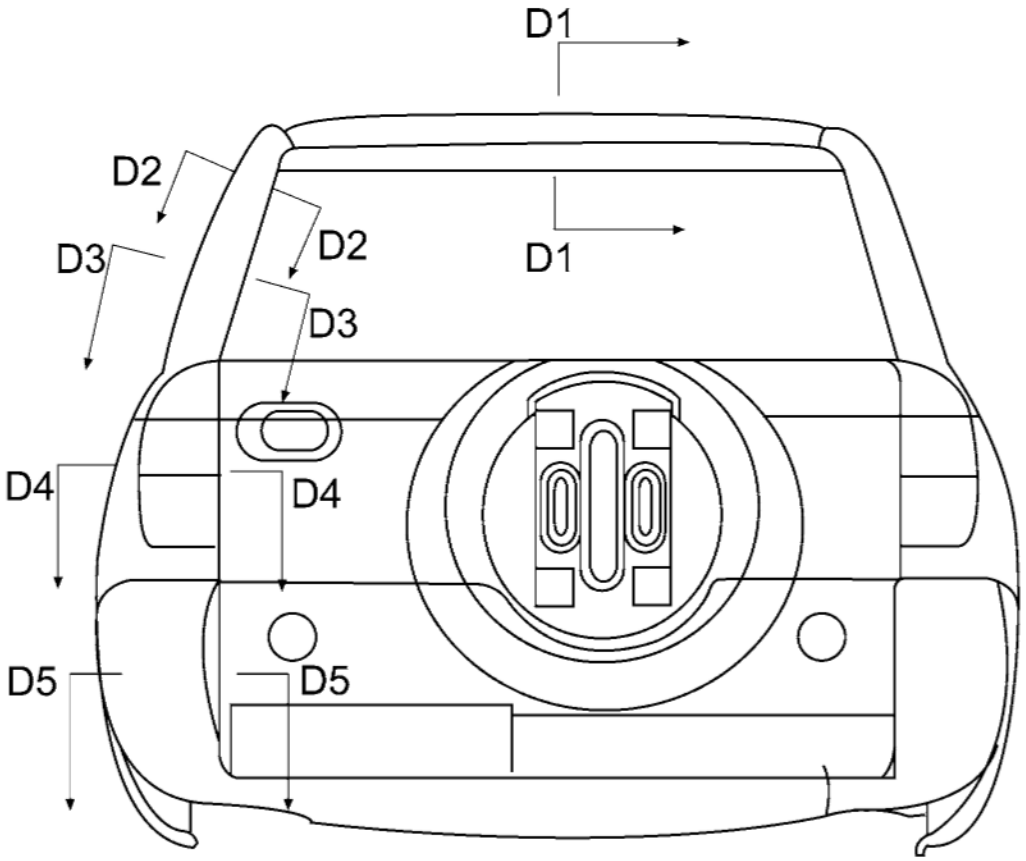
Cross section C5-C5, requirements for clearance and levelness.



1 - Fuel Tank Cover	2 - Side Wall

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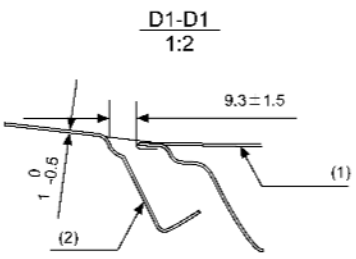
Rear View



ltsm150026

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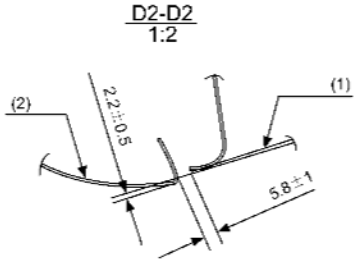
Cross section D1-D1, requirements for clearance and levelness.



Itsm150027

1 - Rear Back Door	2 - Head Cover

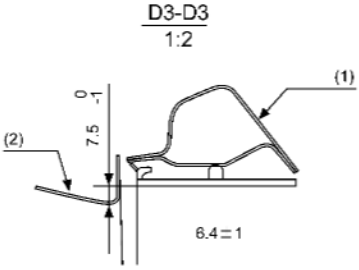
Cross section D2-D2, requirements for clearance and levelness.



Itsm150028

1 - Rear Back Door	2 - Side Wall

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

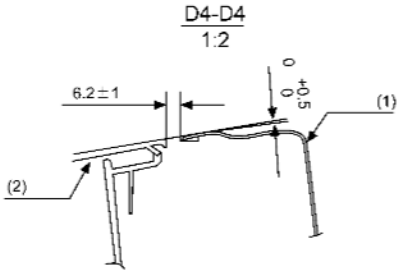


Itsm150029

1 - Rear Back Door	2 - Side Wall

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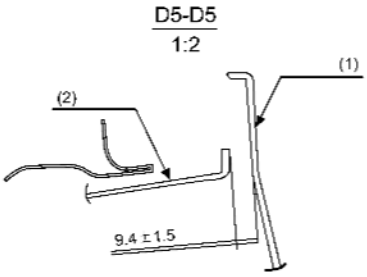
Cross section D4-D4, requirements for clearance and levelness.



Itsm150030

1 - Rear Back Door	2 - Rear Headlight

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



Itsm150031

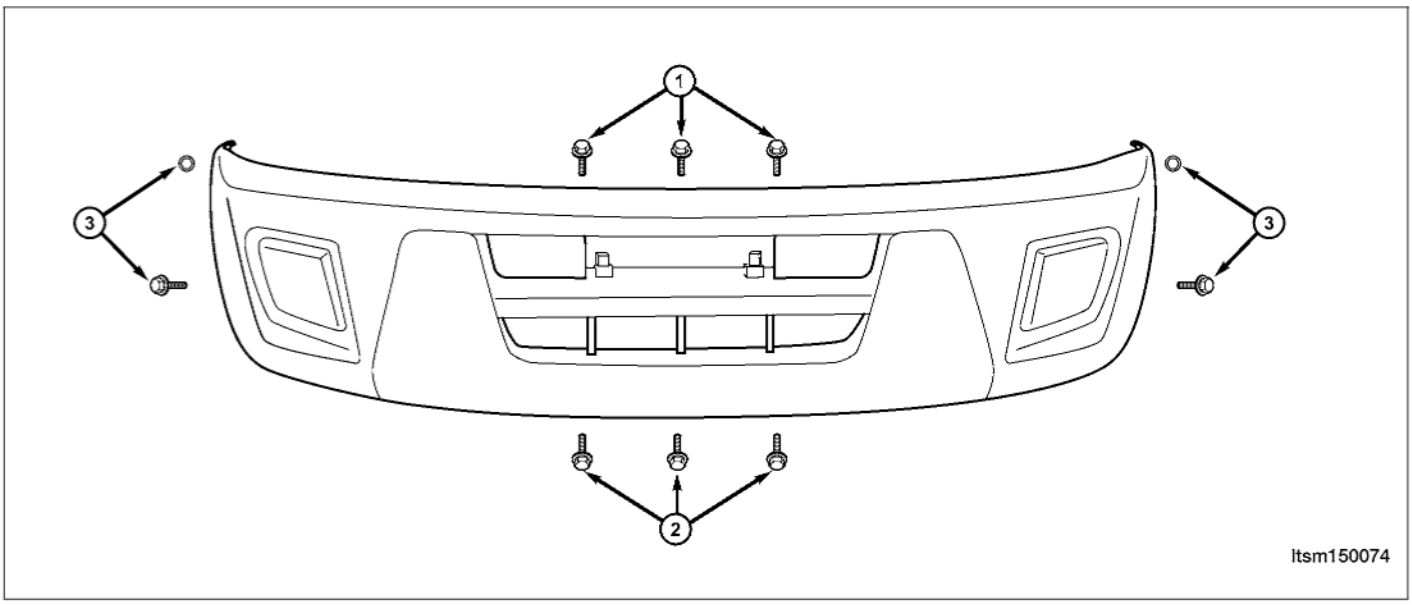
1 - Right Section Of Rear Bumper	2 - Middle Section Of Rear Bumper

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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.

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DOORS

Specification

Torque Specifications

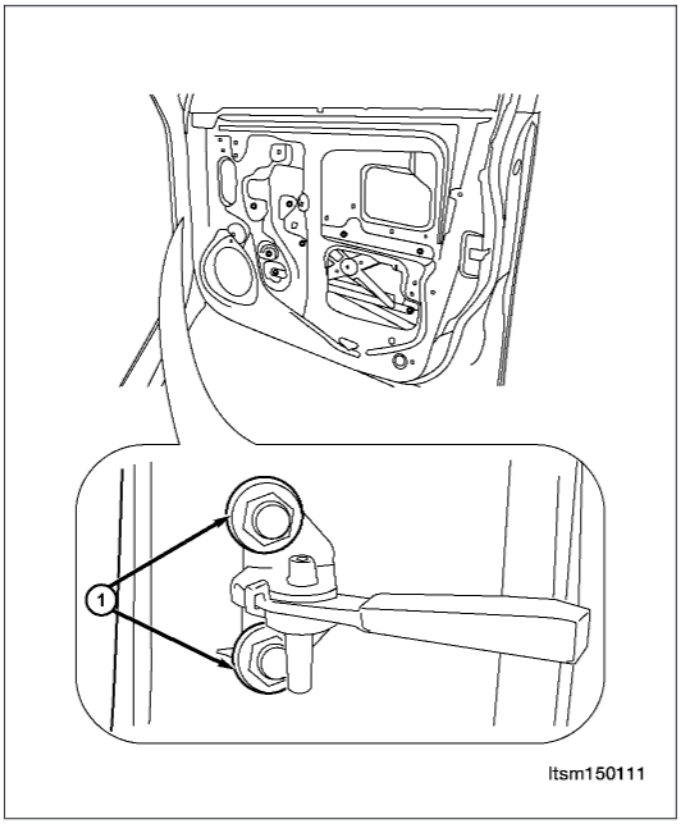
DESCRIPTION	TORQUE (N·m)
Left/Right Front Door Upper Hinge to Body Bolts	36 ± 4
Left/Right Front Door Upper Hinge to Door Bolts	36 ± 4
Left/Right Front Door Lower Hinge to Body Bolts	36 ± 4
Left/Right Front Door Lower Hinge to Door Bolts	36 ± 4
Left/Right Rear Door Upper Hinge to Body Bolts	36 ± 4
Left/Right 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

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Front Door

Removal & Installation

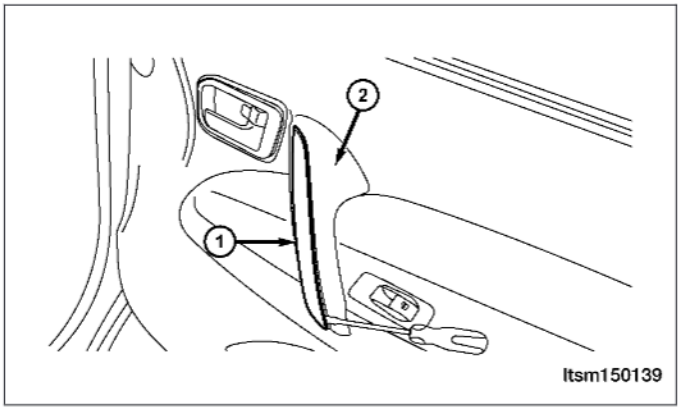
1. Disconnect the negative battery cable.
2. Disconnect the inner harness electrical connector on the front door.
3. Remove the mounting bolts (1) from the front door hinge.
4. Remove the front door assembly.



5. Installation is in the reverse order of removal.

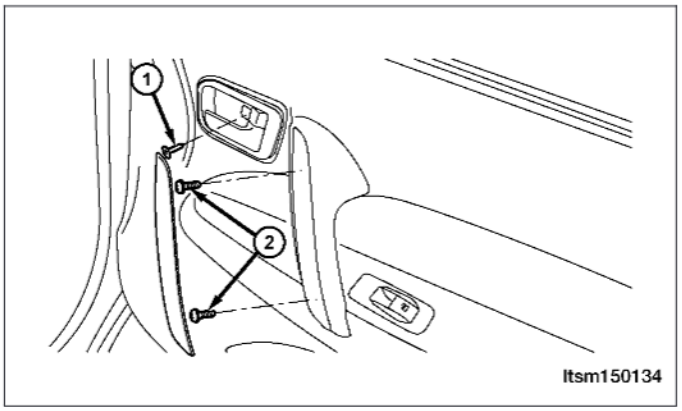
Disassembly

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

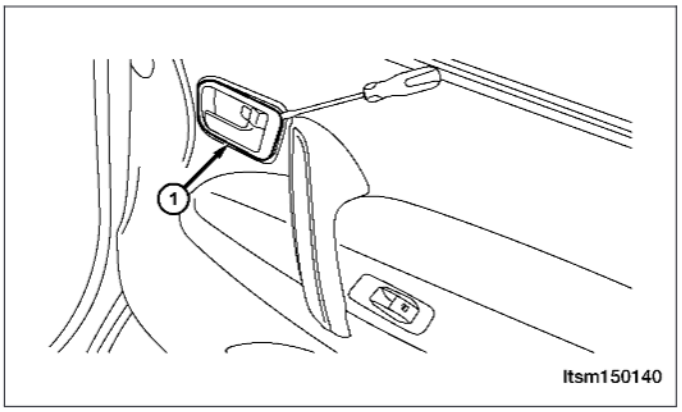


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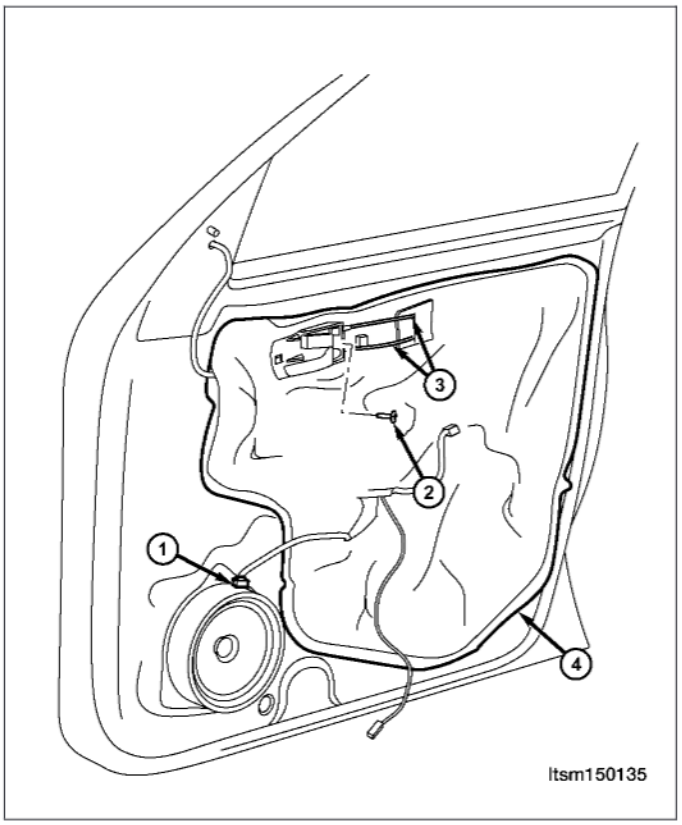
3. Remove the inner door handle mounting screw (1).
4. Remove the pull handle mounting screws (2).



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

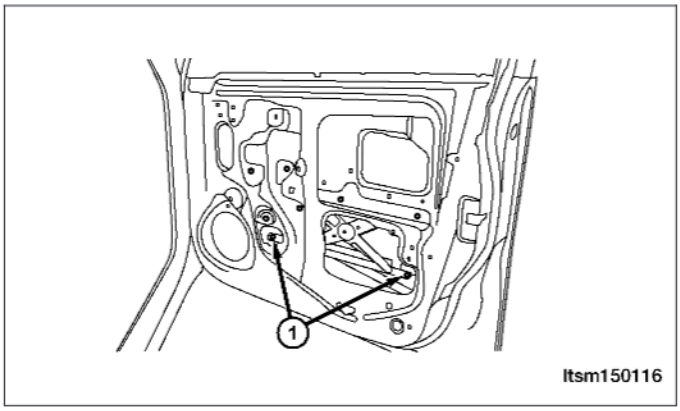


6. Carefully pry the door trim panel clips from the door.
7. Disconnect the power window switch and the door lamp electrical connector.
8. Remove the door trim panel.
9. Disconnect the speaker connector (1).
10. Remove the inner door handle assembly mounting screw (2).
11. Disconnect the inner door handle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



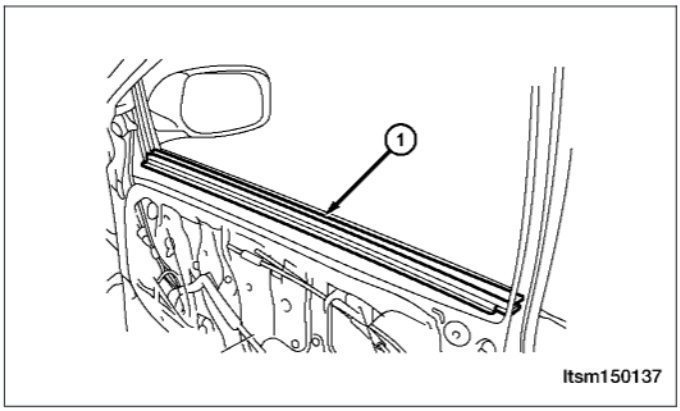
cardiagn.com

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.
16. 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.



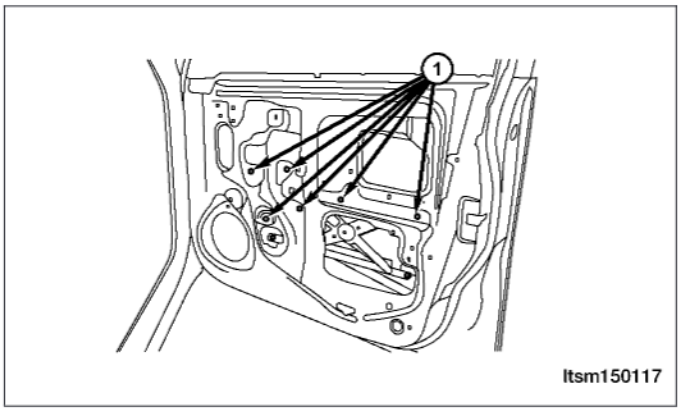
ltsm150116

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.



ltsm150137

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·m)

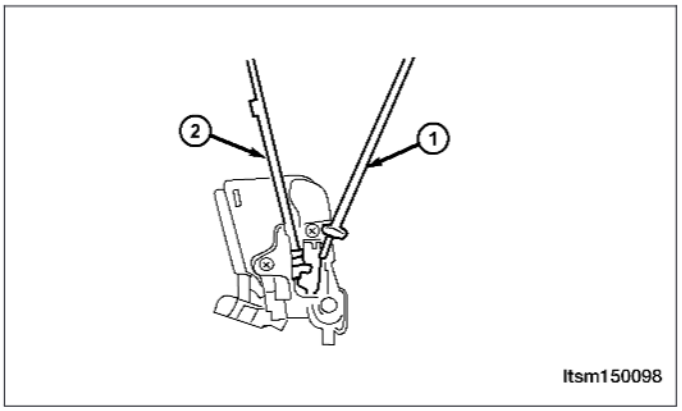


ltsm150117

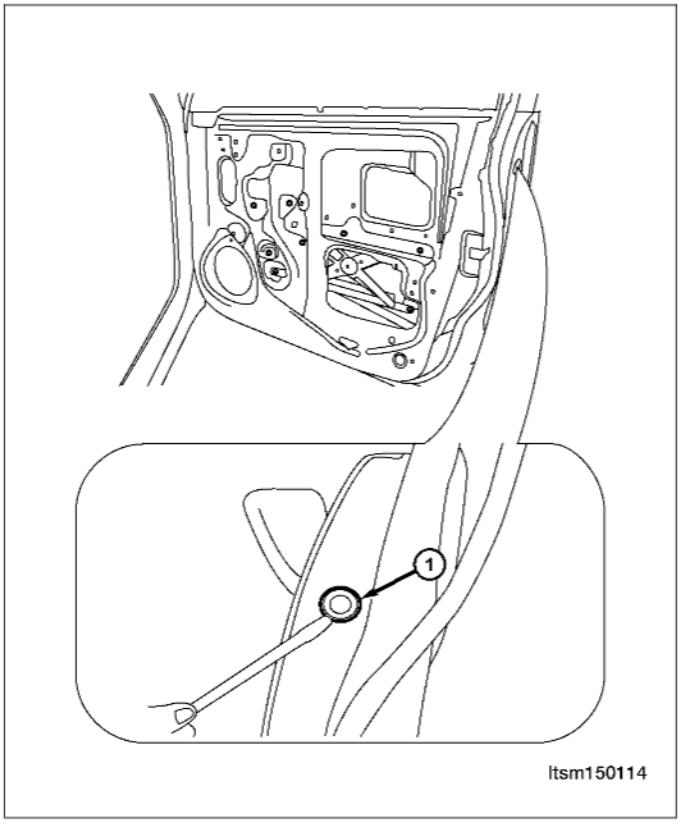
21. Carefully remove the power window regulator.
22. Remove the power window motor from the regulator.
23. Remove three door lock assembly retaining bolts.
    (Tighten: Door lock assembly retaining bolts to 9 ± 1 N·m)

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

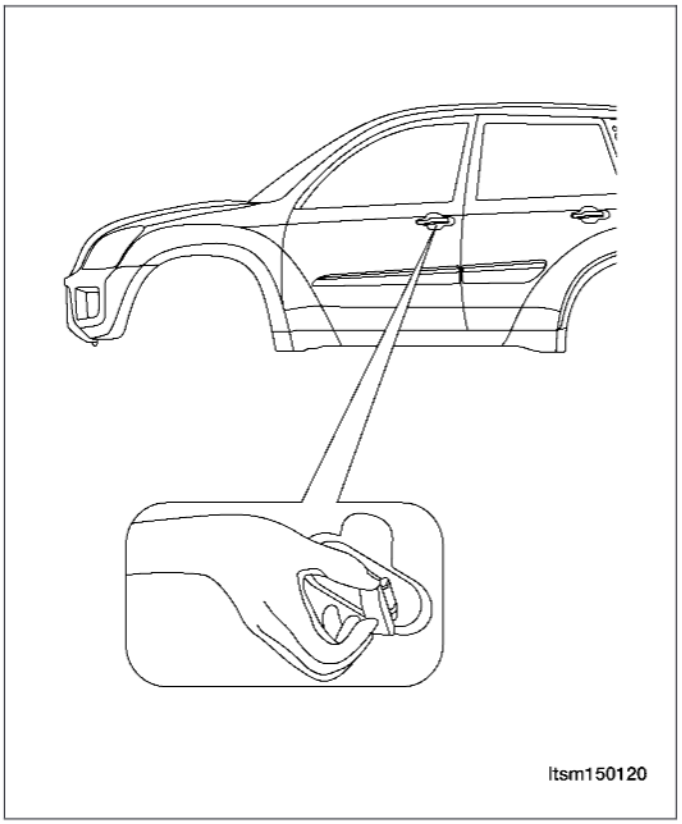


25. Remove the lock buckle with screwdriver. (Tighten: Lock buckle screws to 12 ± 2 N·m)
26. Remove the front door outside handle.
27. Remove the front door panel and then the protective film.
28. Pry up on the cover (1) of the outside handle.
29. Remove the mounting bolts with hexagon spline wrench.



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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 ± 0.7 mm
   - The gap of the outboard side should be 5.5 ± 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 ± 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

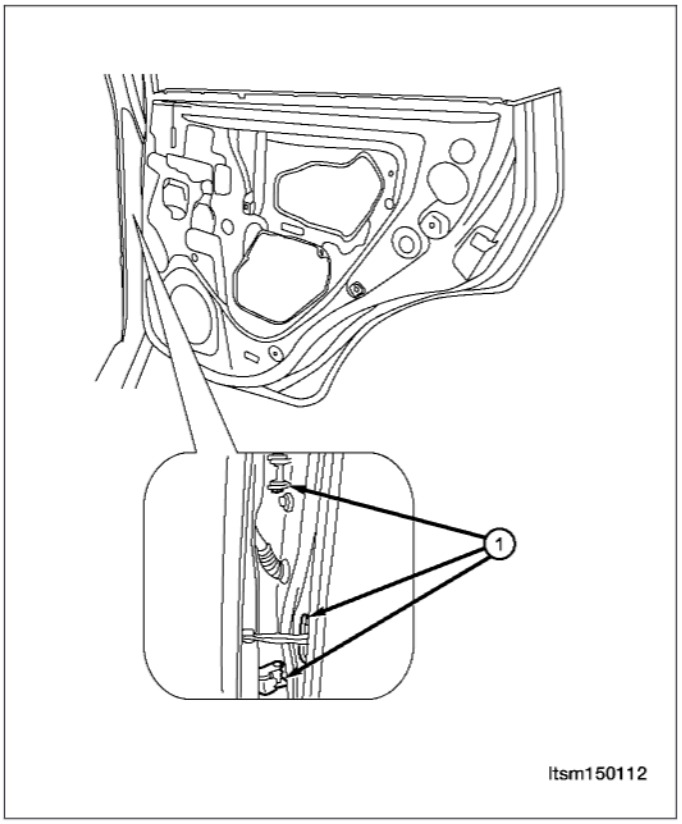
1. Remove the front fender to gain access to the door hinge (See Fender Removal & Installation in Section 15 Body & Accessories).
2. Support the door.
3. Remove the four retaining bolts from the upper and lower hinges, and then remove the hinges.

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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.

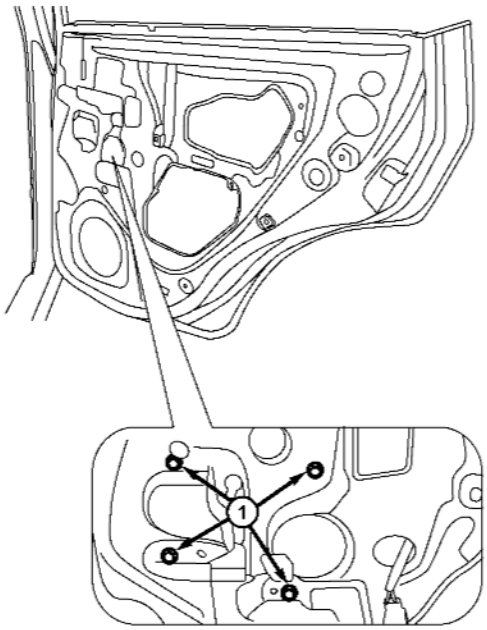


Disassembly

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.

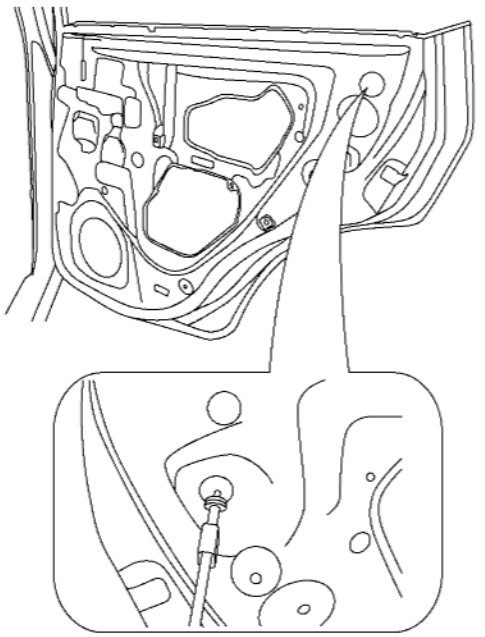
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8. Remove the mounting bolts (1) from the window regulator.
9. Remove the lock mounting screws with an internal spline socket.
10. Loosen the pull rod from the door handle, pull out the electrical harness, and then remove the lock.
11. Remove the rear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



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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.



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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 ± 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.

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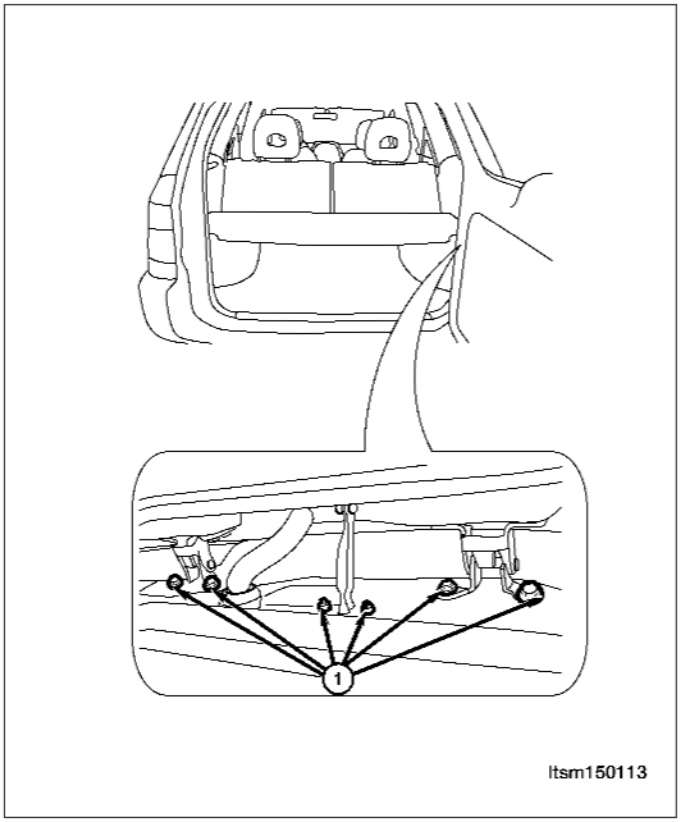
Replacing Rear Door Hinge

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

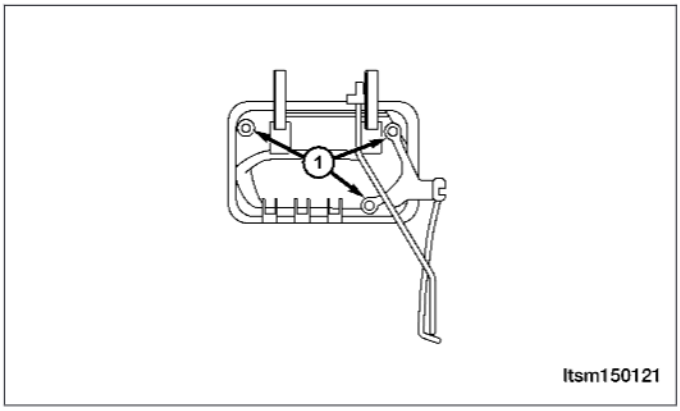
1. Remove the two back cargo door bolts connecting the back door and hinge.
   (Tighten: Bolts connecting the back door and hinge to 50 ± 5 N·m)
   (Tighten: Bolts connecting the hinge and body to 36 ± 4 N·m)
2. Disconnect the wiring harness electrical connector.
3. Remove the two mounting bolts (1) 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.



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Disassembly

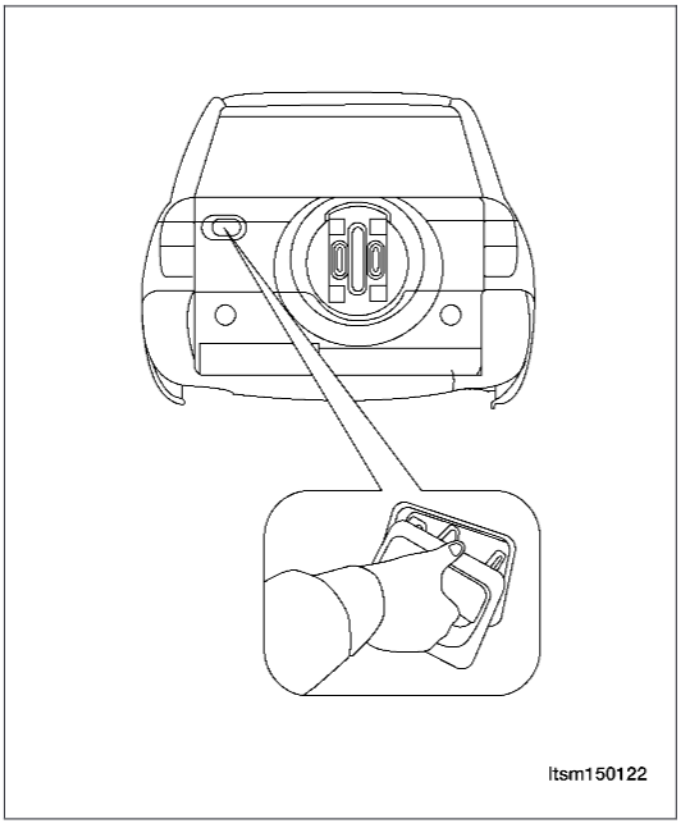
1. Remove the back cargo door panel.
2. Remove the rear wiper motor (See Rear Wiper Motor Removal & Installation in Section 15 Body & Accessories).
3. Remove the protective film from the back cargo door.
4. Remove mounting bolts, pull out the harness.
5. Remove the outside handle mounting bolts (1) from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



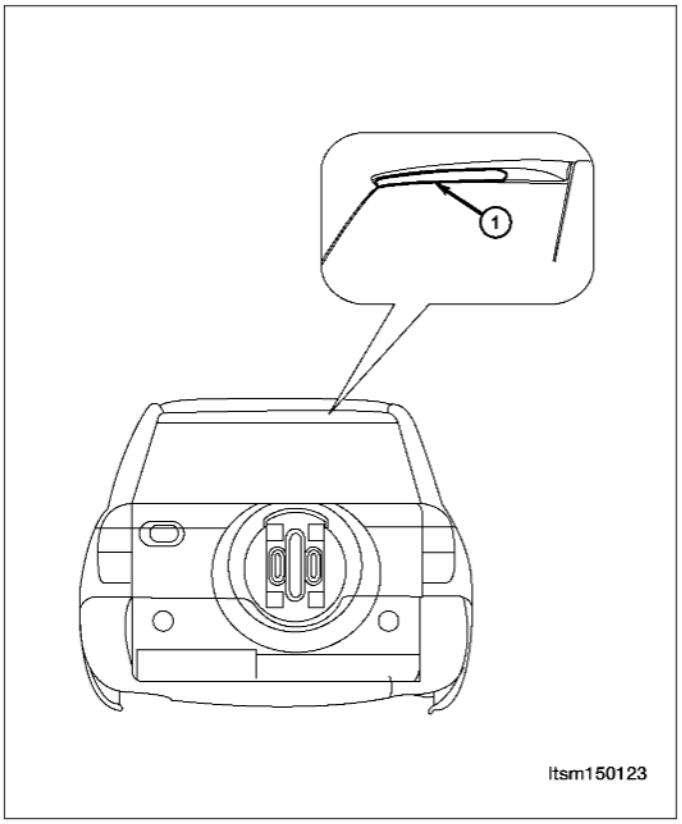
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6. Remove the rod from the door handle from the door lock body, remove the outer handle of back cargo door.
7. Remove the back cargo door lock.



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.

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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 ± 1 mm
   - The gap between the back cargo door and the tail lamp should be 6.2 ± 1 mm
   - The gap between the rear and head cover should be 9.3 ± 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.

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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 position, 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

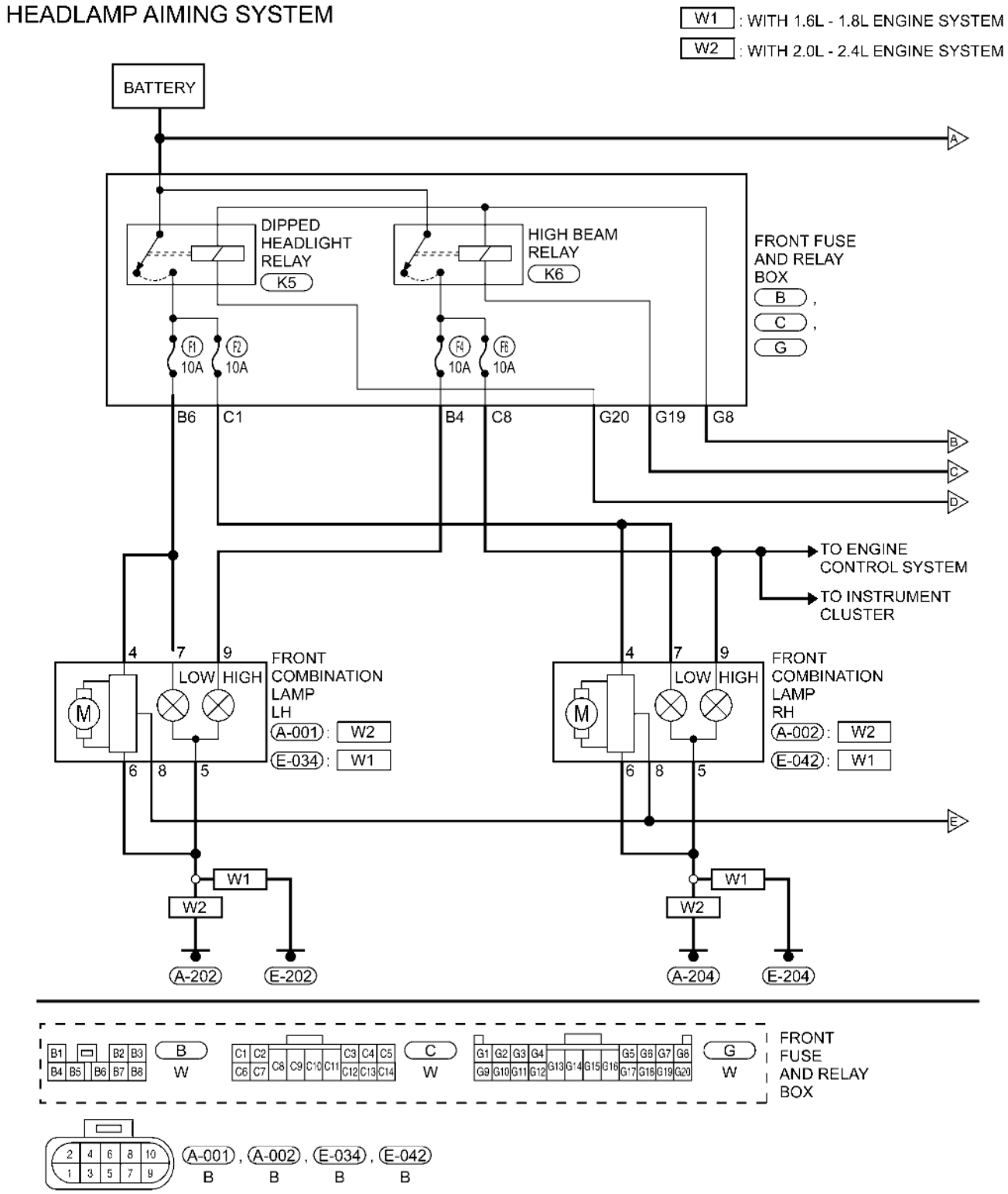
Torque Specifications

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

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Electrical Schematics

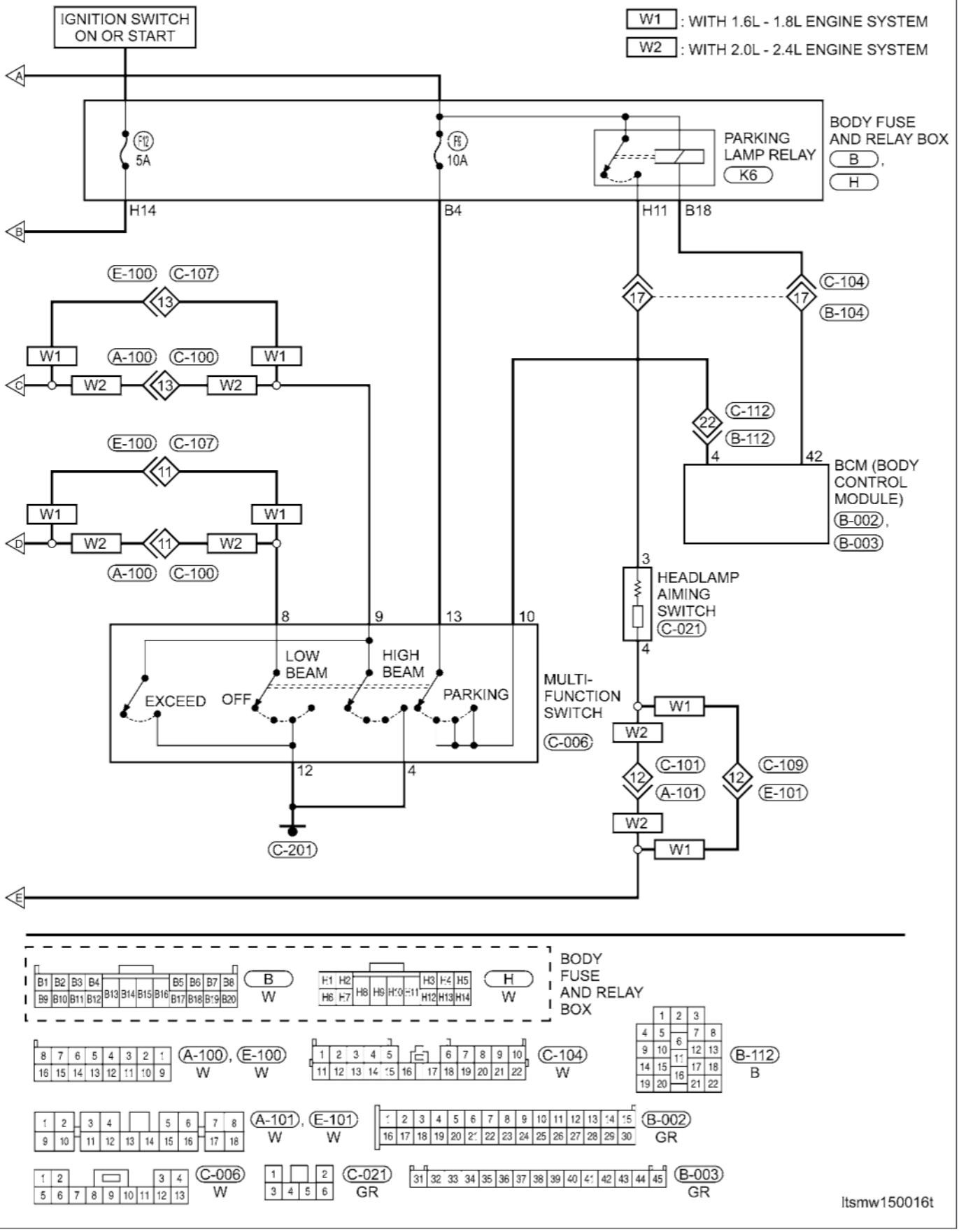
Headlamp Aiming System (Page 1 of 2)



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Headlamp Aiming System (Page 2 of 2)

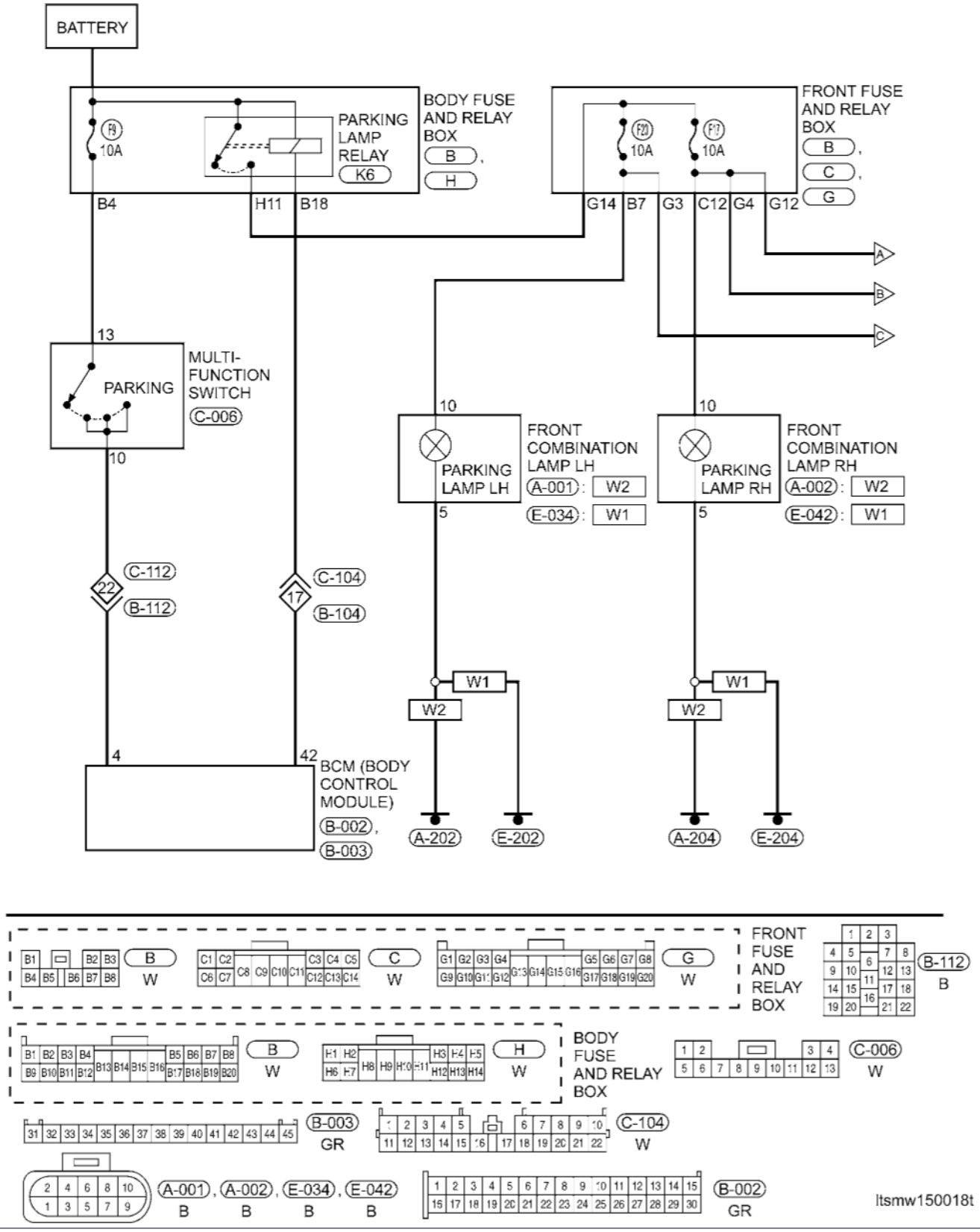


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Parking, License Plate and Tail Lamps (Page 1 of 2)

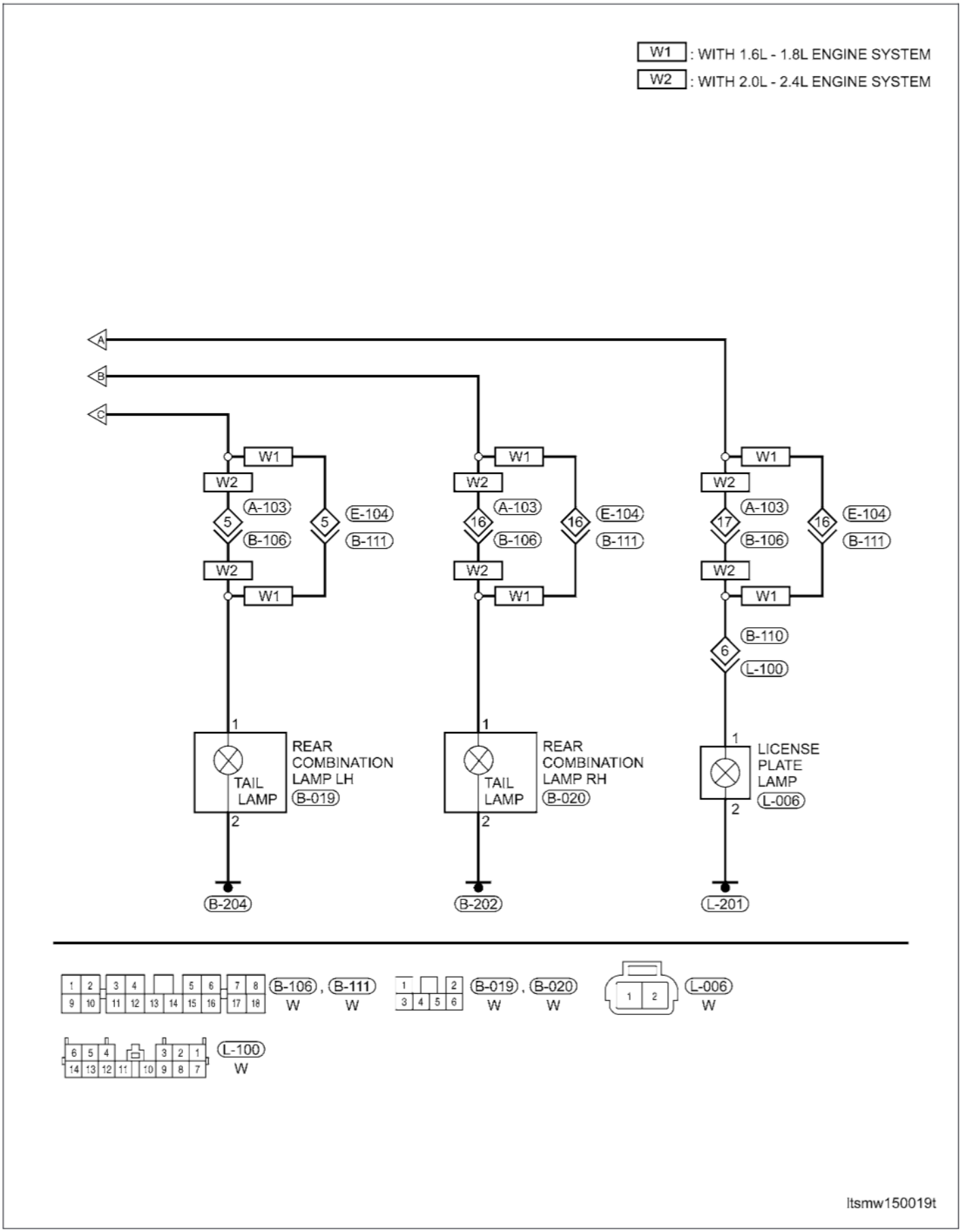
PARKING, LICENSE PLATE AND TAIL LAMPS

W1 : WITH 1.6L - 1.8L ENGINE SYSTEM
W2 : WITH 2.0L - 2.4L ENGINE SYSTEM



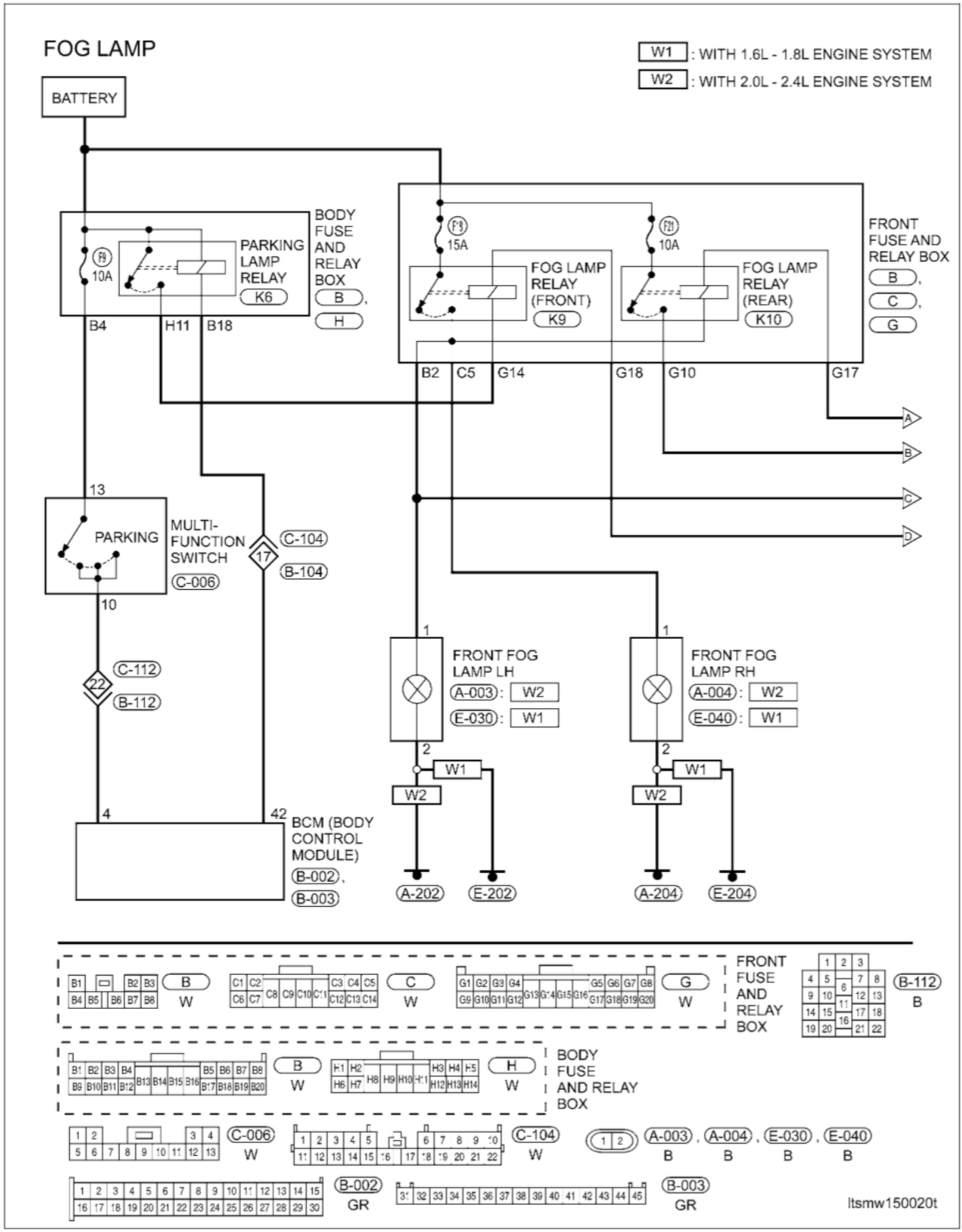
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Parking, License Plate and Tail Lamps (Page 2 of 2)



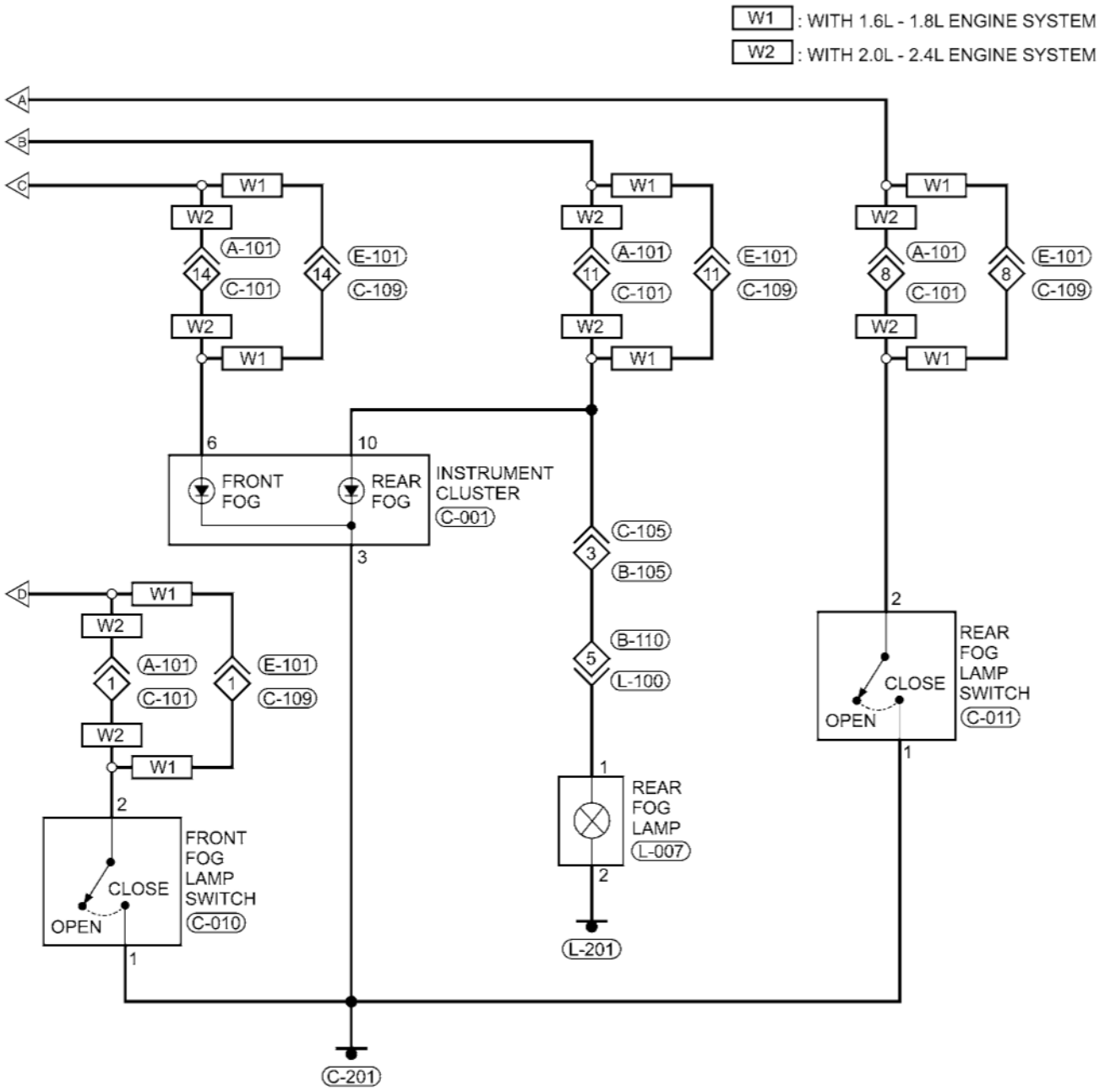
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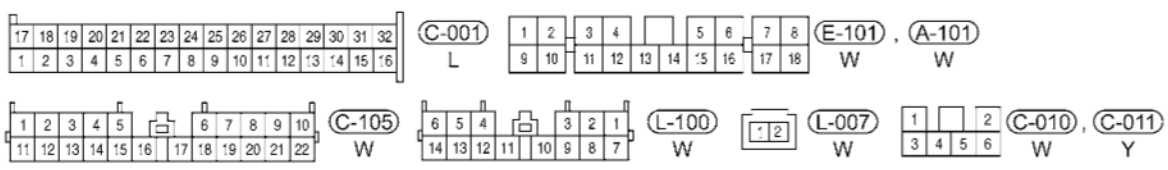
Fog Lamps (Page 1 of 2)



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Fog Lamps (Page 2 of 2)



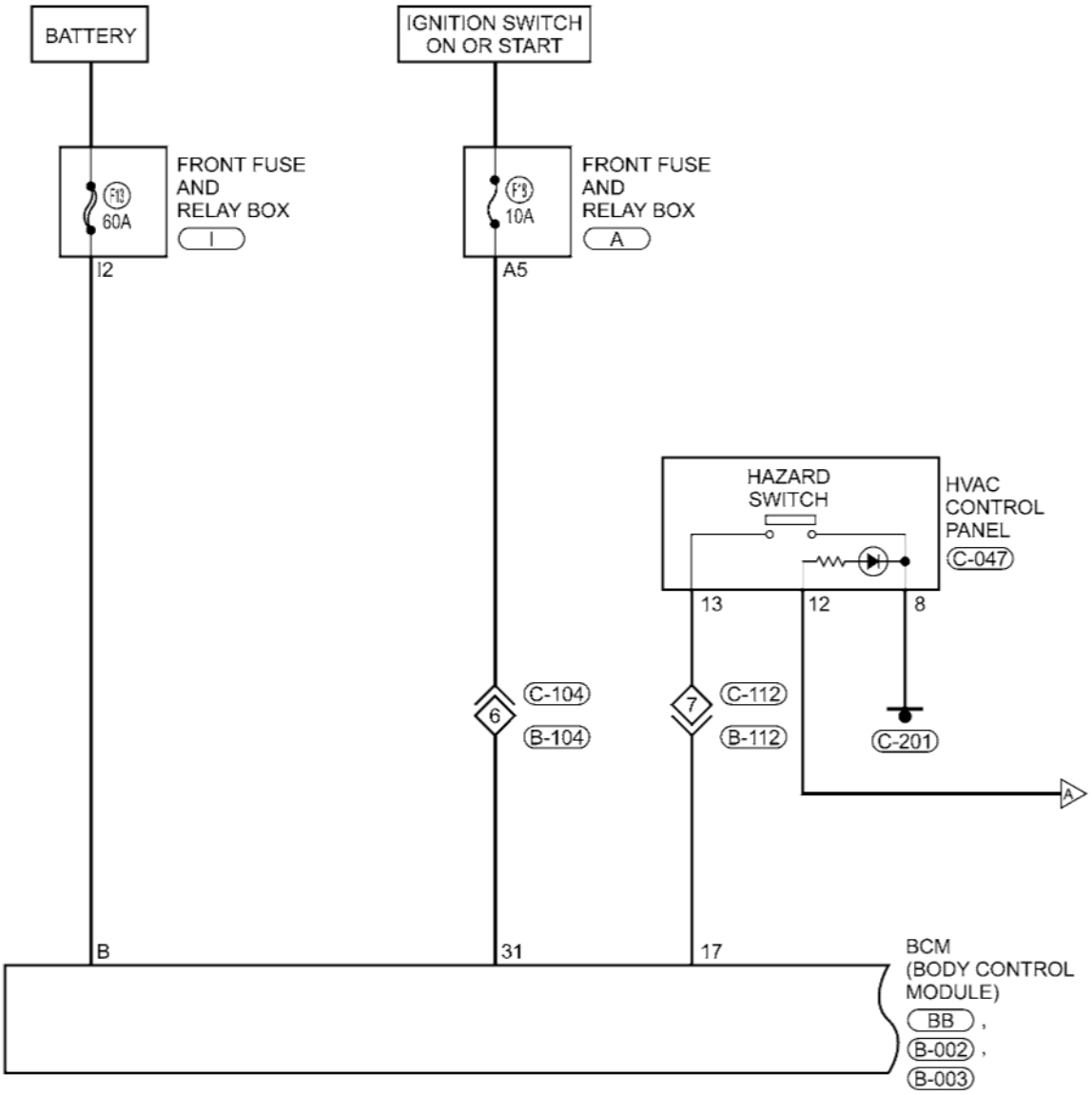


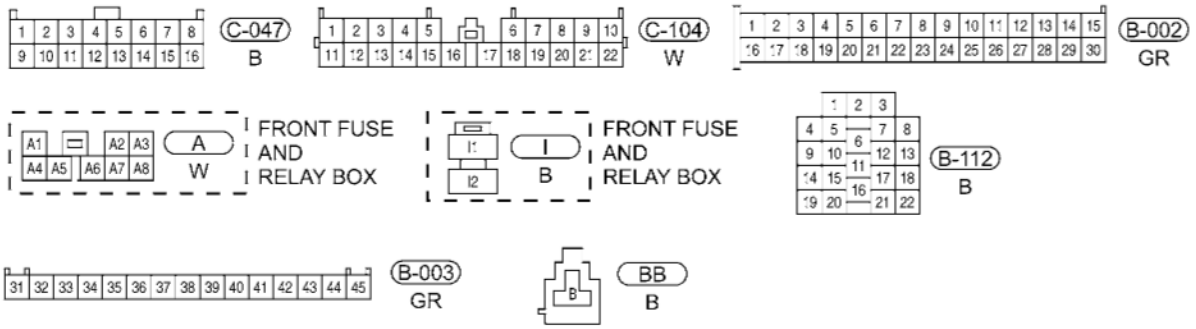
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Side Turn Signal and Hazard Warning Lamps (Page 1 of 2)

TURN SIGNAL AND HAZARD WARNING LAMPS

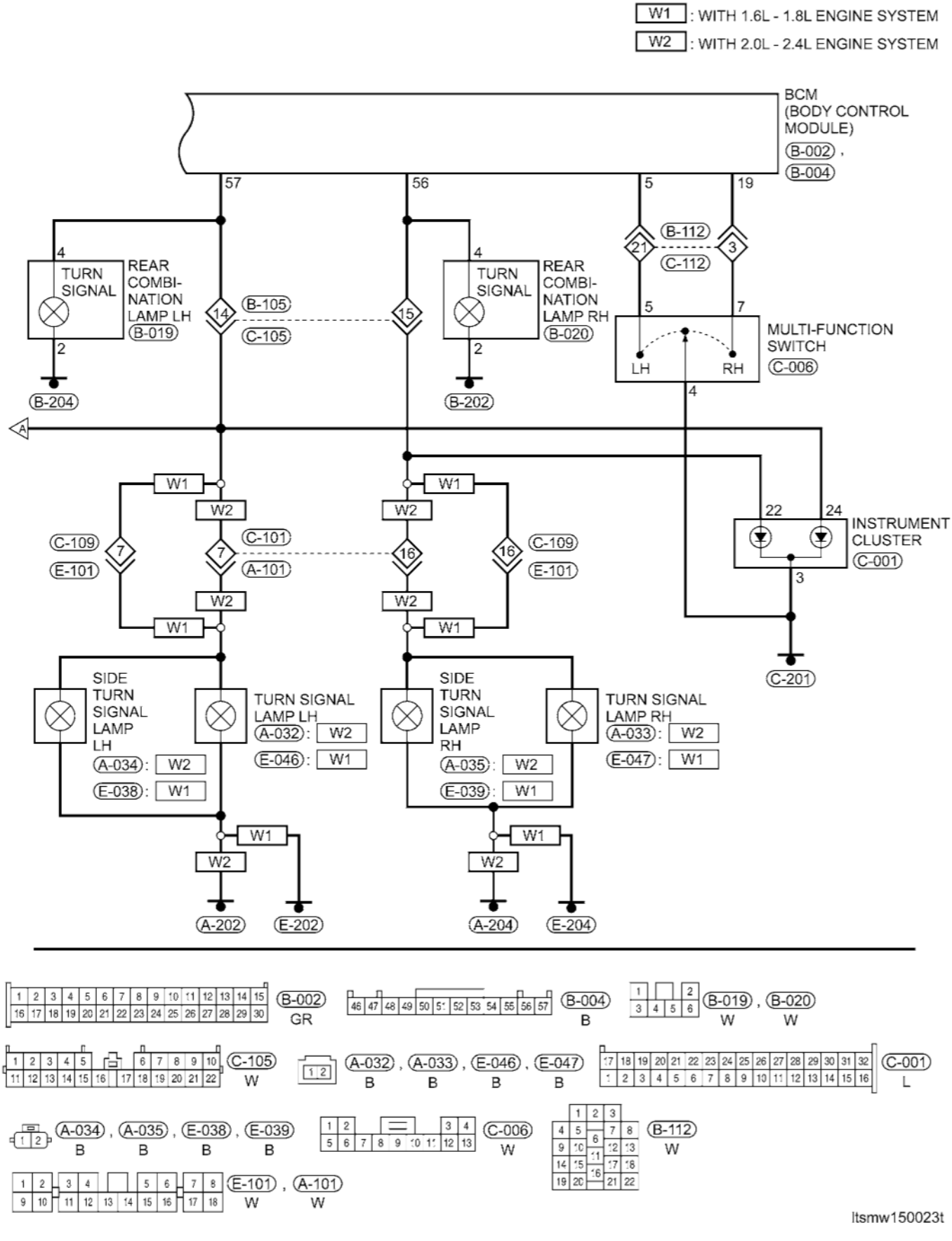




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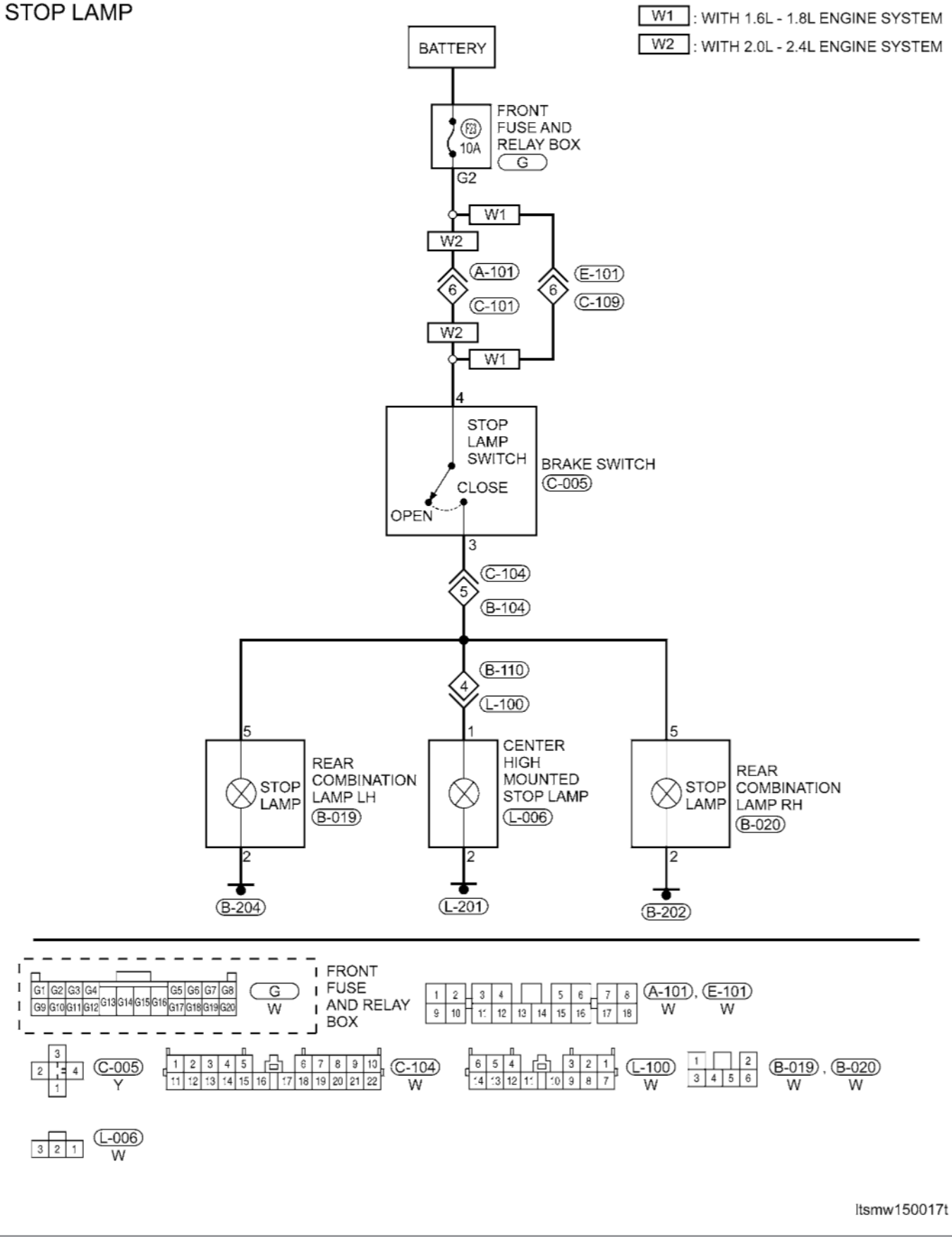
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Turn Signal and Hazard Warning Lamps (Page 2 of 2)



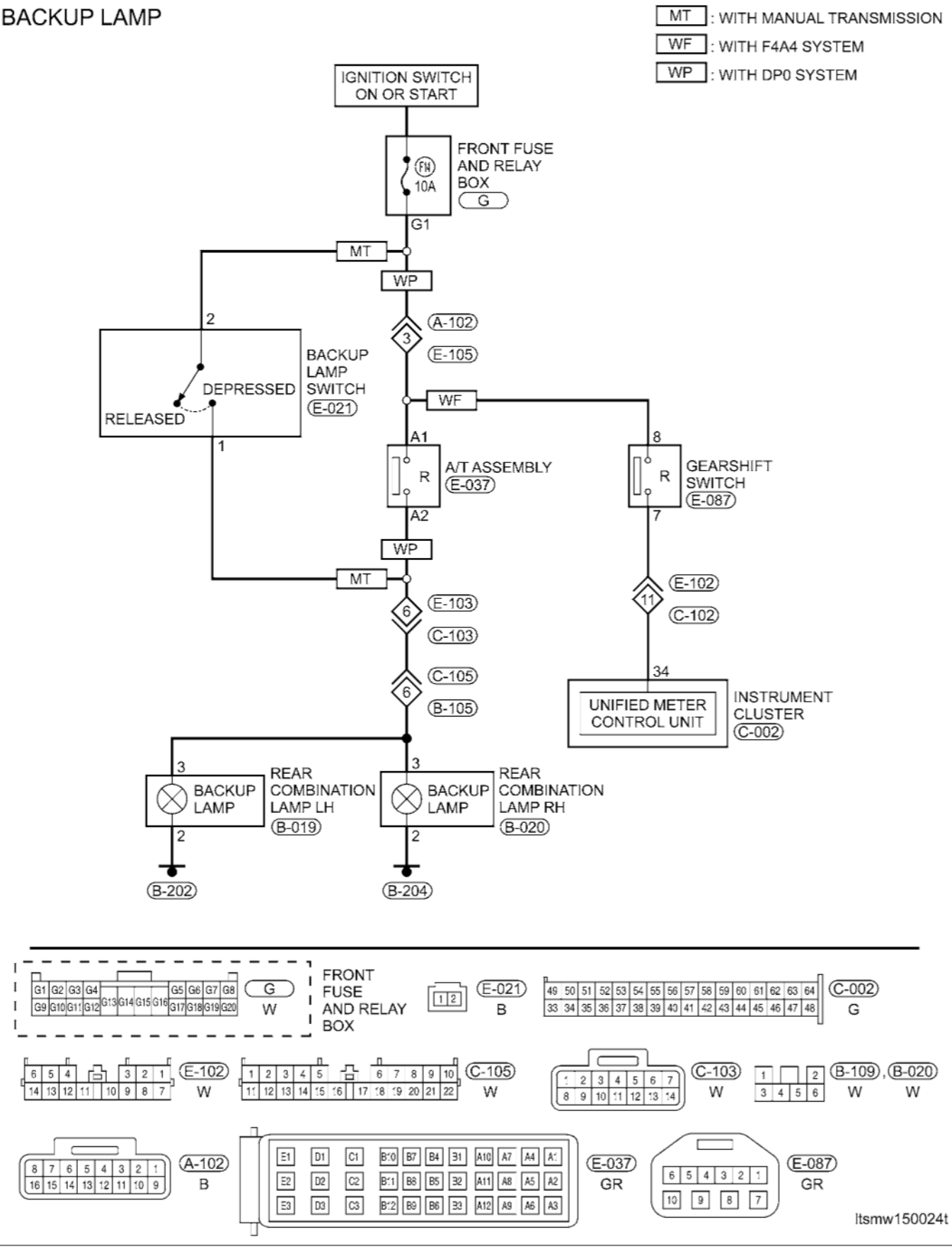
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Stop Lamps (Page 1 of 1)



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Backup Lamp (Page 1 of 1)

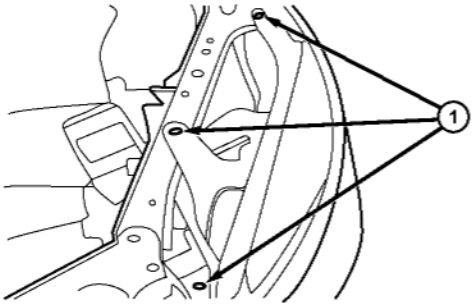


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Front Combination Lamp Assembly

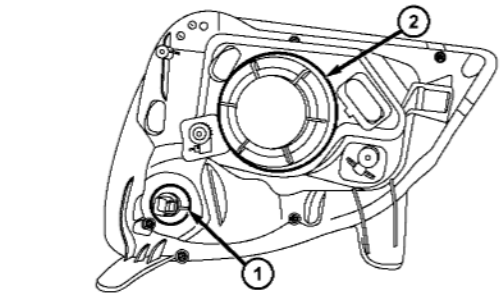
Removal & Installation

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).



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



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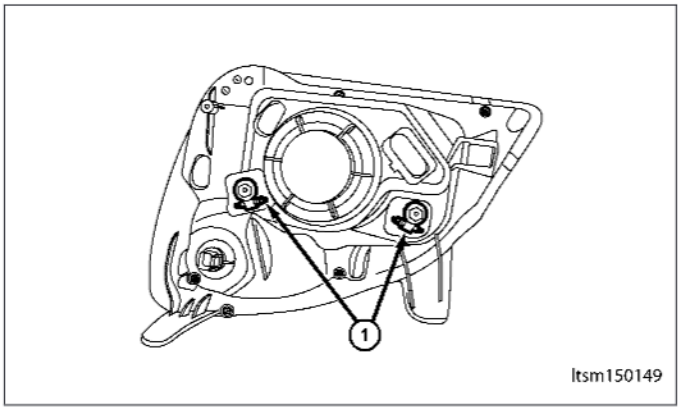
1	Turn Signal Lamp Bulb	12 V (21 W)
2	Headlamp Bulb Front Position Lamp Bulb	12 V (55 W) 12 V (5 W)

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Headlamp Adjustment Procedure

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

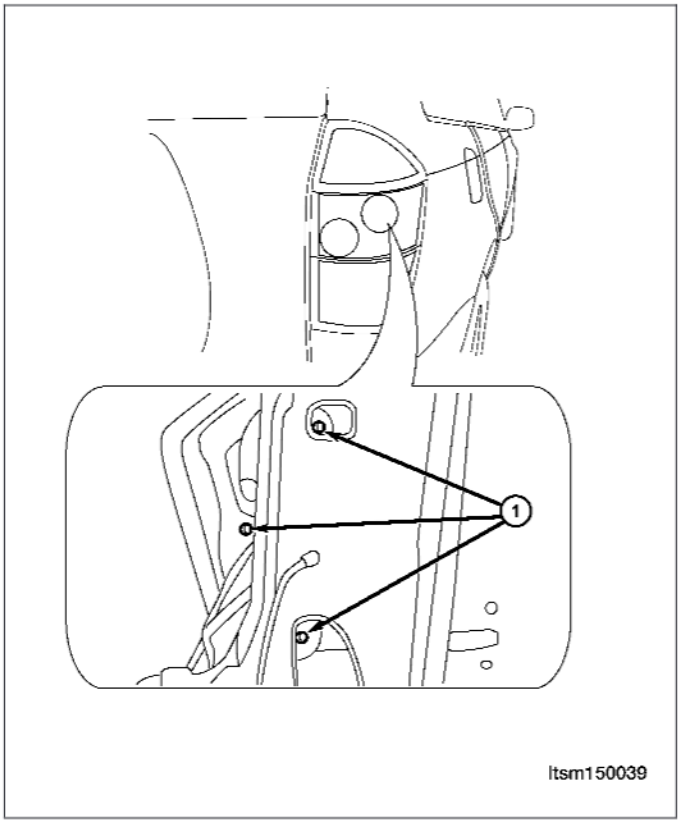
1. Check the following before starting the headlamp adjustment procedure:
   - All tires are filled to the proper tire pressure.
   - The vehicle is unloaded (except for spare tire and tools, and include driver's weight for sedan).
   - The vehicle should be parked on a level surface.
   - The headlights 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

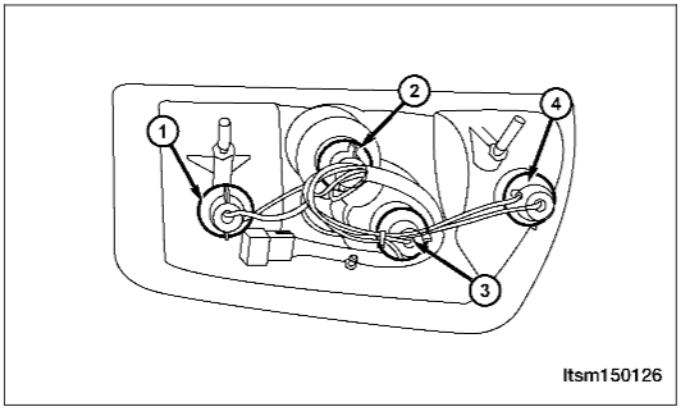
Removal & Installation

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.



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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)

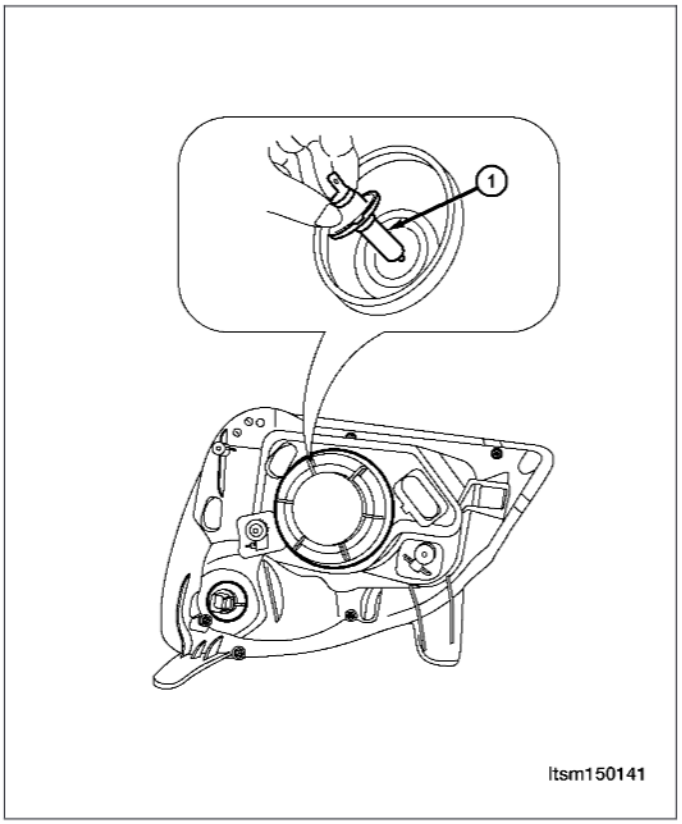
Headlamp

Removal & Installation

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.

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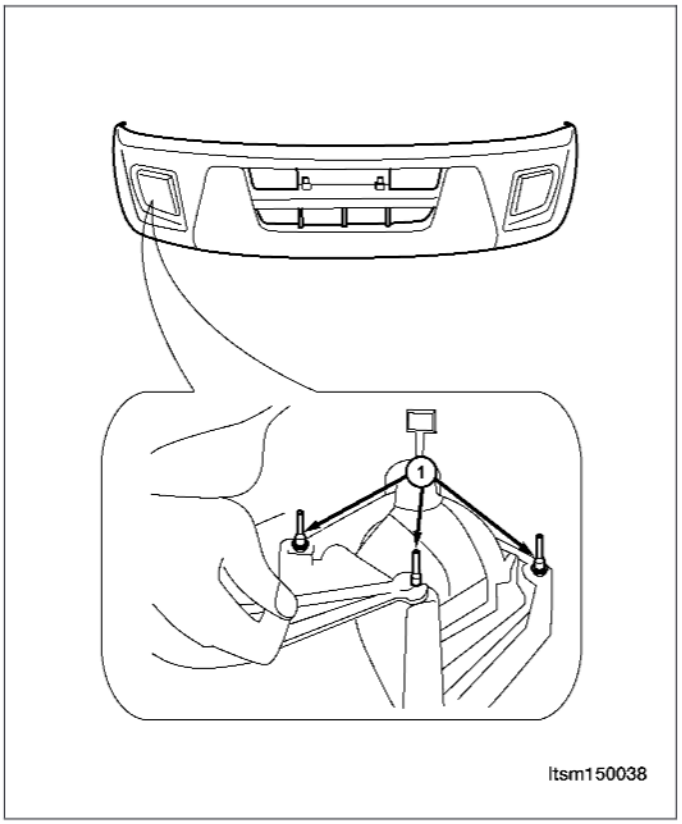
5. Carefully remove the bulb (1) for the high/low beam headlamp.
6. Replace the bulb with a new bulb as needed.
7. Installation is in the reverse order of removal.



Front Fog Lamp

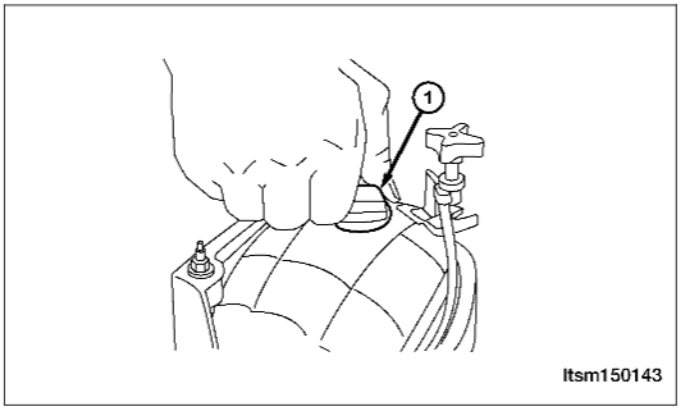
Removal & Installation

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).



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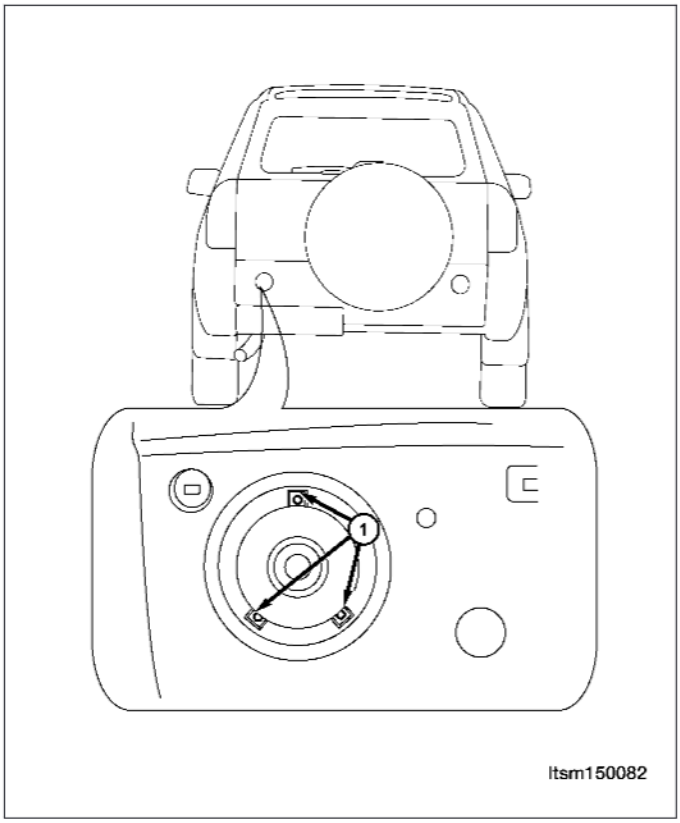
4. Replace the bulb with a new bulb (1) as needed.
5. Installation is in the reverse order of removal.



Rear Fog Lamp

Removal & Installation

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.

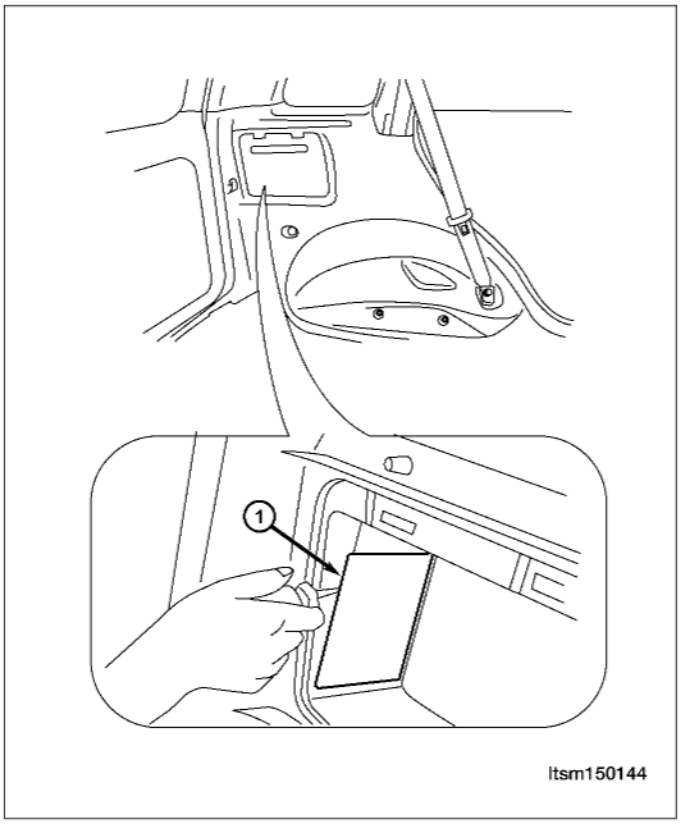


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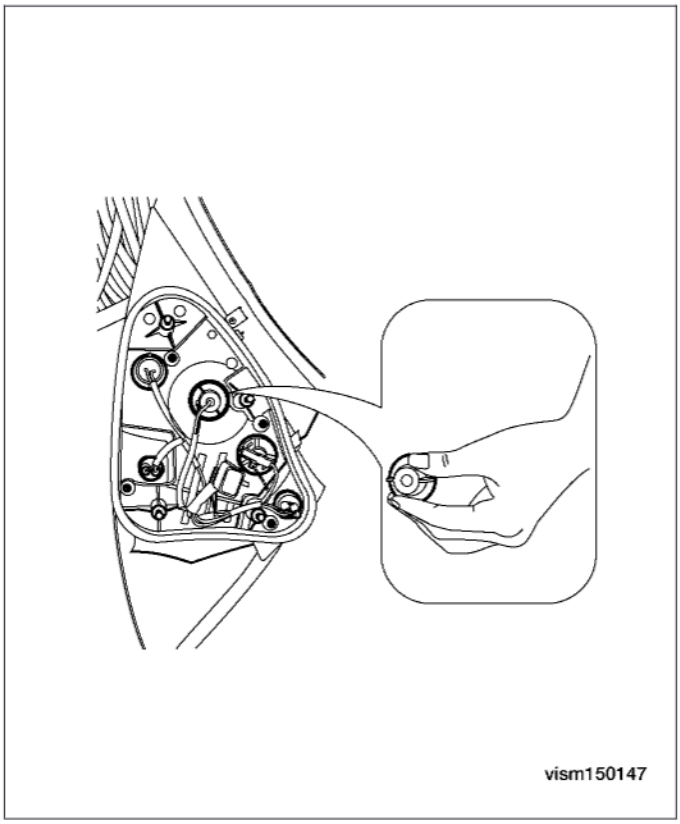
Tail/Backup/Stop Lamp

Removal & Installation

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.

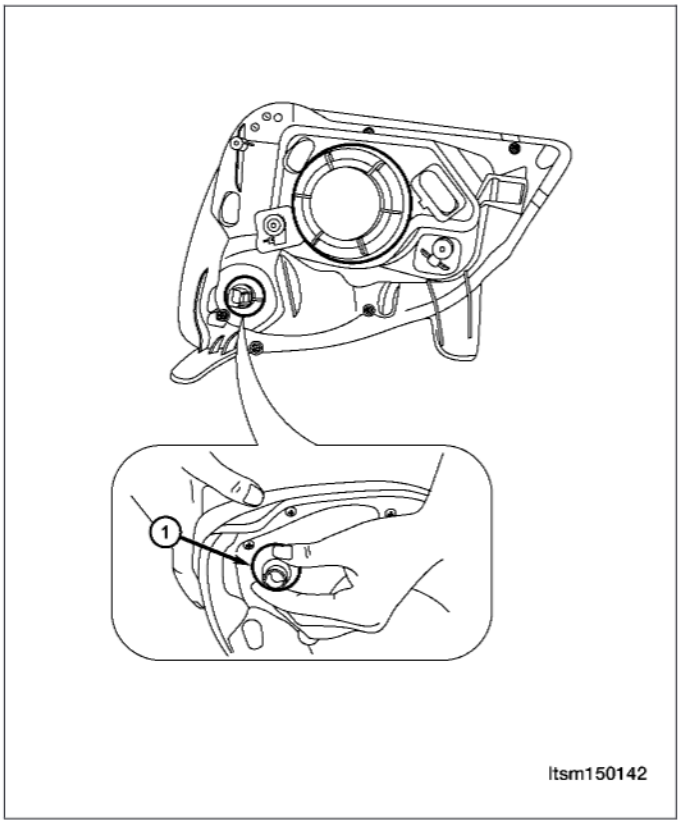


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Turn Signal Lamp

Removal & Installation

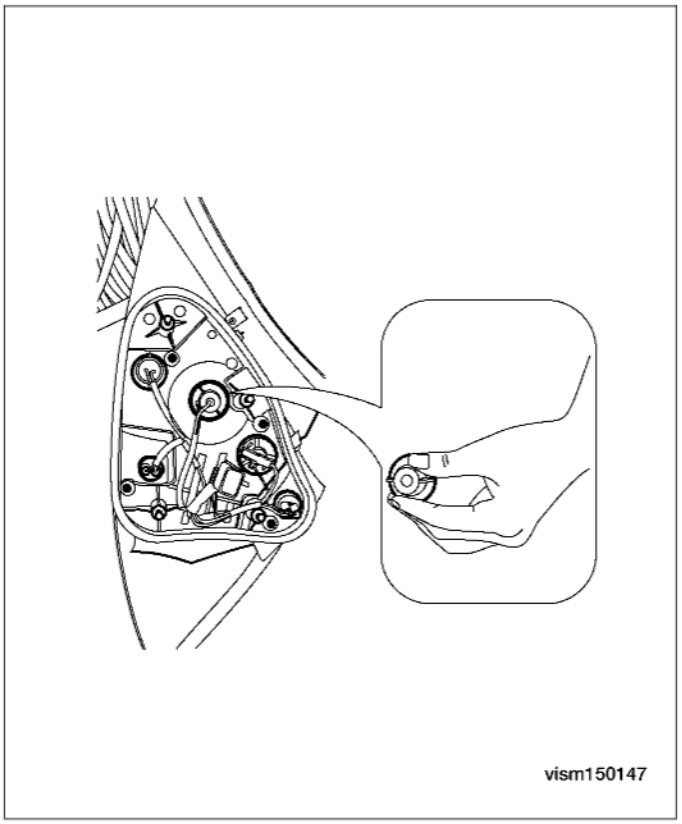
1. Remove the front combination lamp (See Front Combination Lamp Removal & Installation in Section 15 Body & Accessories).
2. Replace the front turn signal lamp bulb (1).



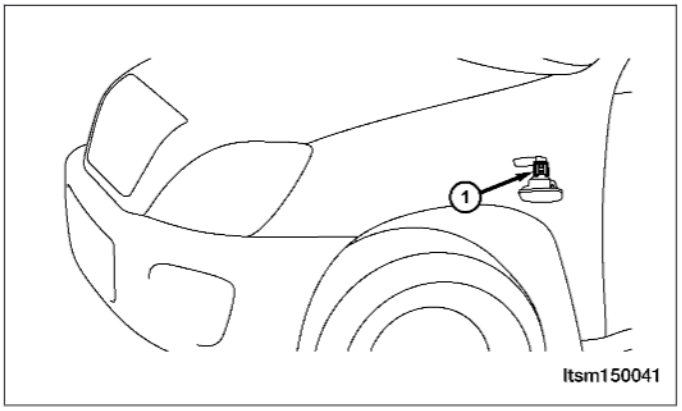
3. Remove the rear combination lamp (See Rear Combination Lamp Removal & Installation in Section 15 Body & Accessories).

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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).



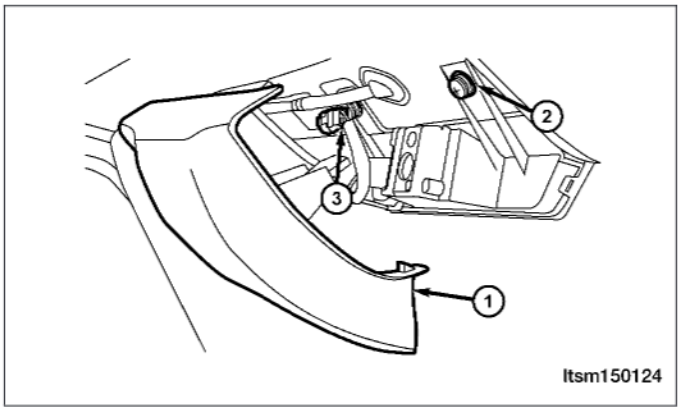
7. Remove the side turn signal lamp assembly.
8. Replace the bulb with a new bulb as needed.
9. Installation is in the reverse order of removal.

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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.

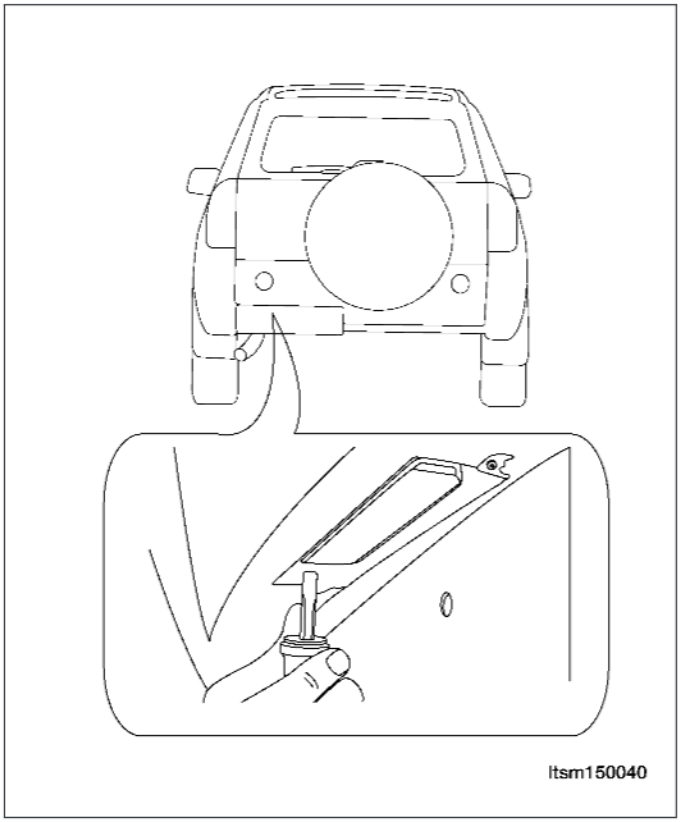


4. Remove the high mounted stop lamp assembly.
5. Replace the bulb with a new bulb as needed.
6. Installation is in the reverse order of removal.

License Plate Lamp

Removal & Installation

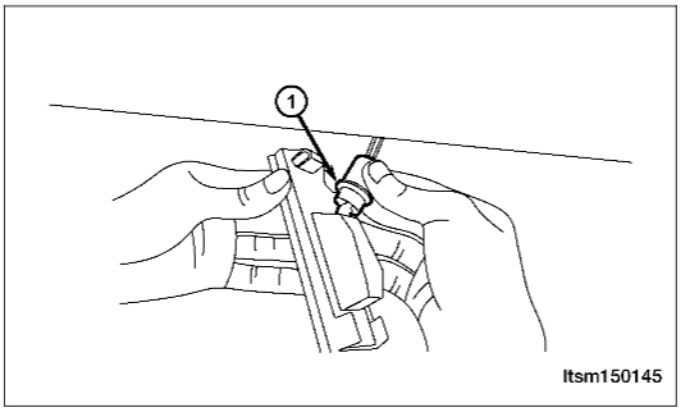
1. Press the release tab with a flat screwdriver, remove the license plate lamp.



2. Disconnect the license plate lamp electrical connector.

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



4. Installation is in the reverse order of removal.

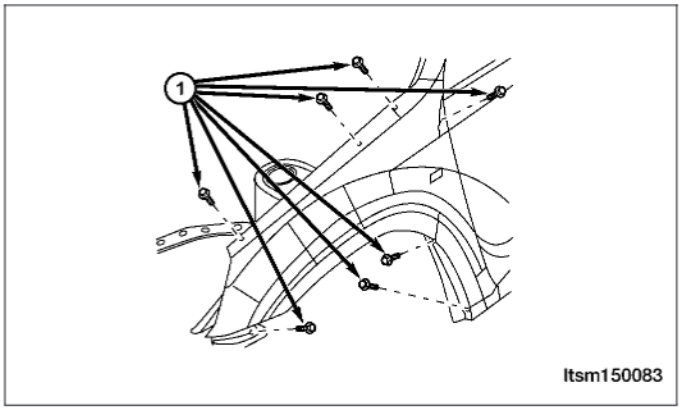
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FENDER

Front Fender

Removal & Installation

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



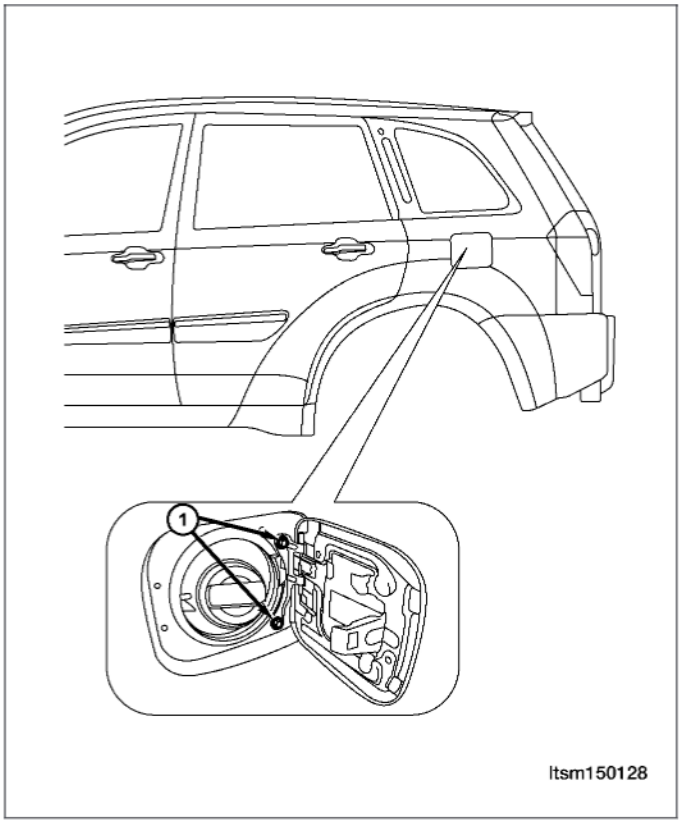
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FUEL DOOR

Fuel Door

Removal & Installation

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.



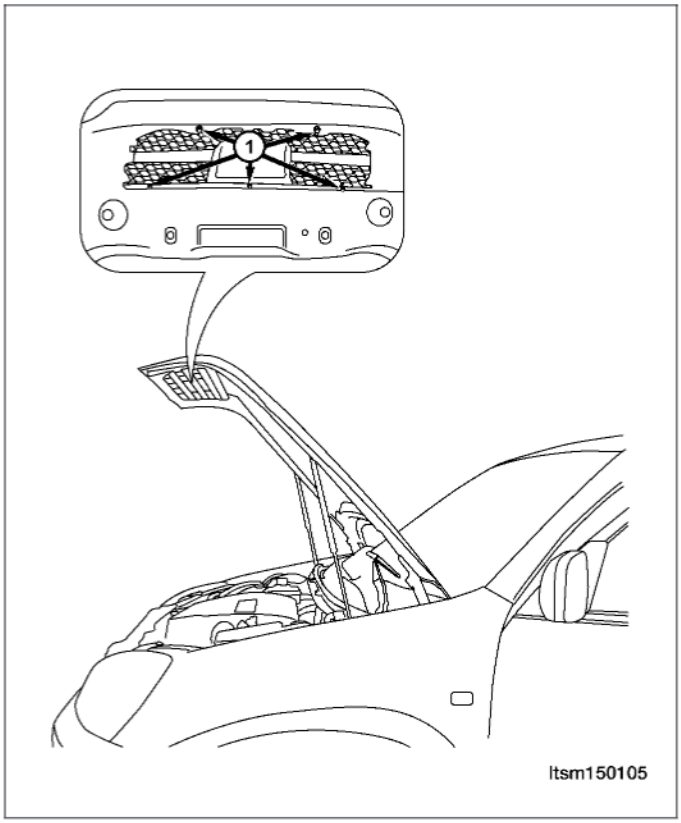
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GRILLE

Grille

Removal & Installation

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.



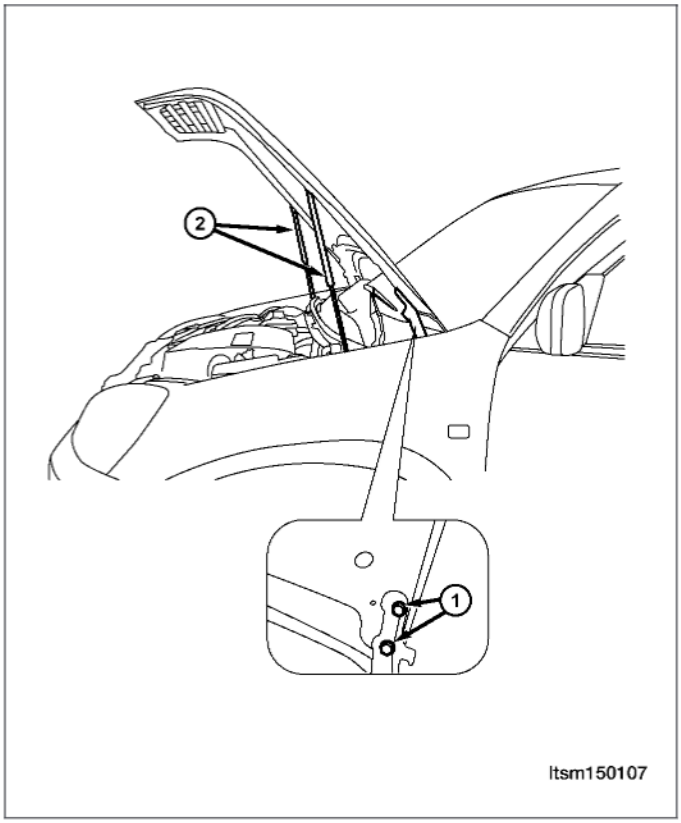
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HOOD

Hood

Removal & Installation

1. 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 ± 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:

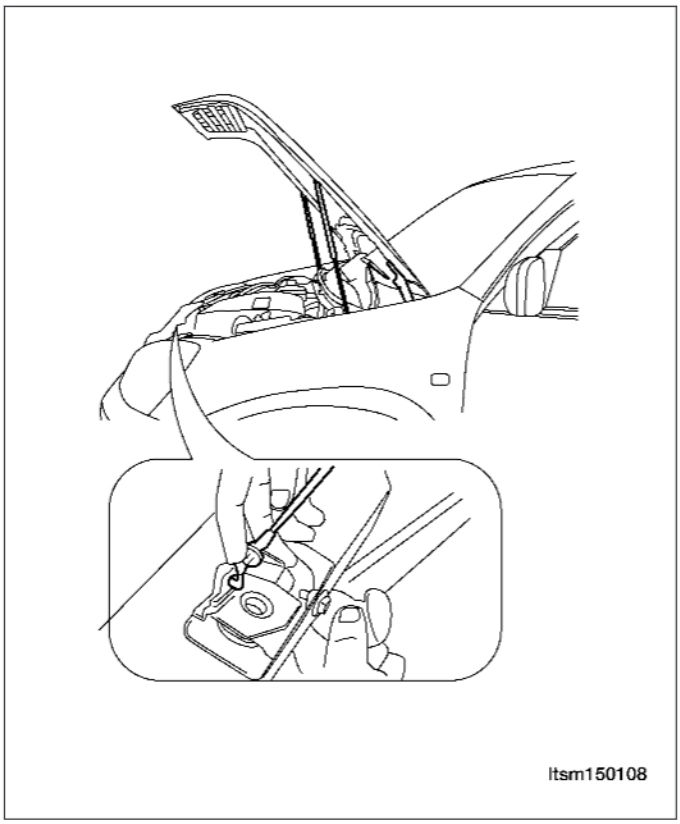
- Whether the bolts and nuts are assembled properly
- Whether the bolts and nuts are properly tightened
- Whether the gap between the hood and the fender are within specifications
- Whether the horizontal alignment of the front edge of the fenders is within specifications (0-0.5 mm)

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Hood Release Cable

Removal & Installation

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).
3. Remove the radiator support (See Radiator Support Removal & Installation in Section 15 Body & Accessories).
4. Loosen the hood release cable.



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

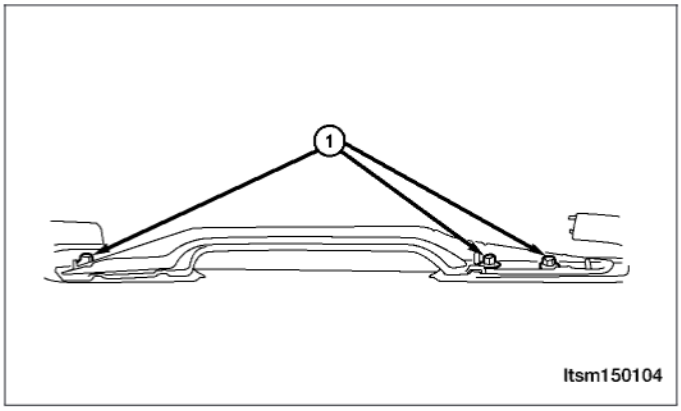
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LUGGAGE RACK

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.



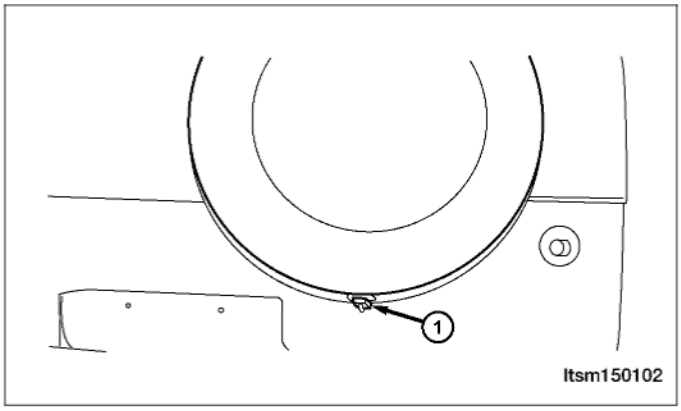
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SPARE TIRE SUPPORT

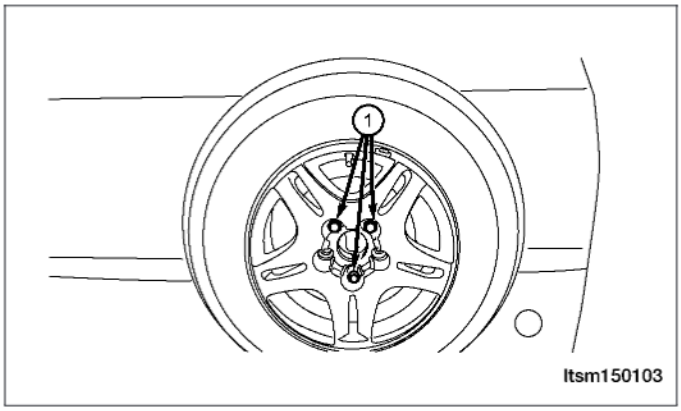
Spare Tire Support

Removal & Installation

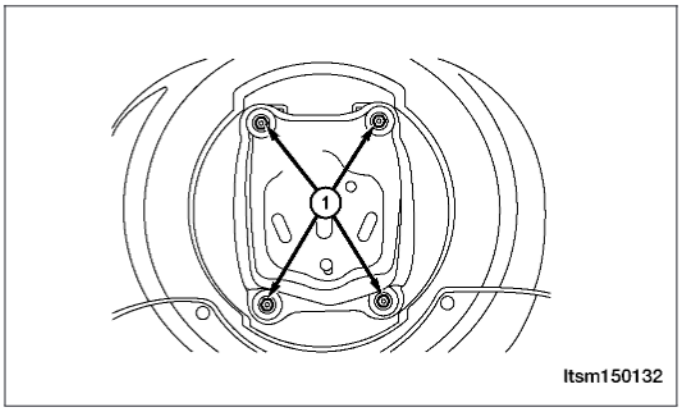
1. Loosen the spare tire cover clasp (1) and then remove the spare tire cover.



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.

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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.

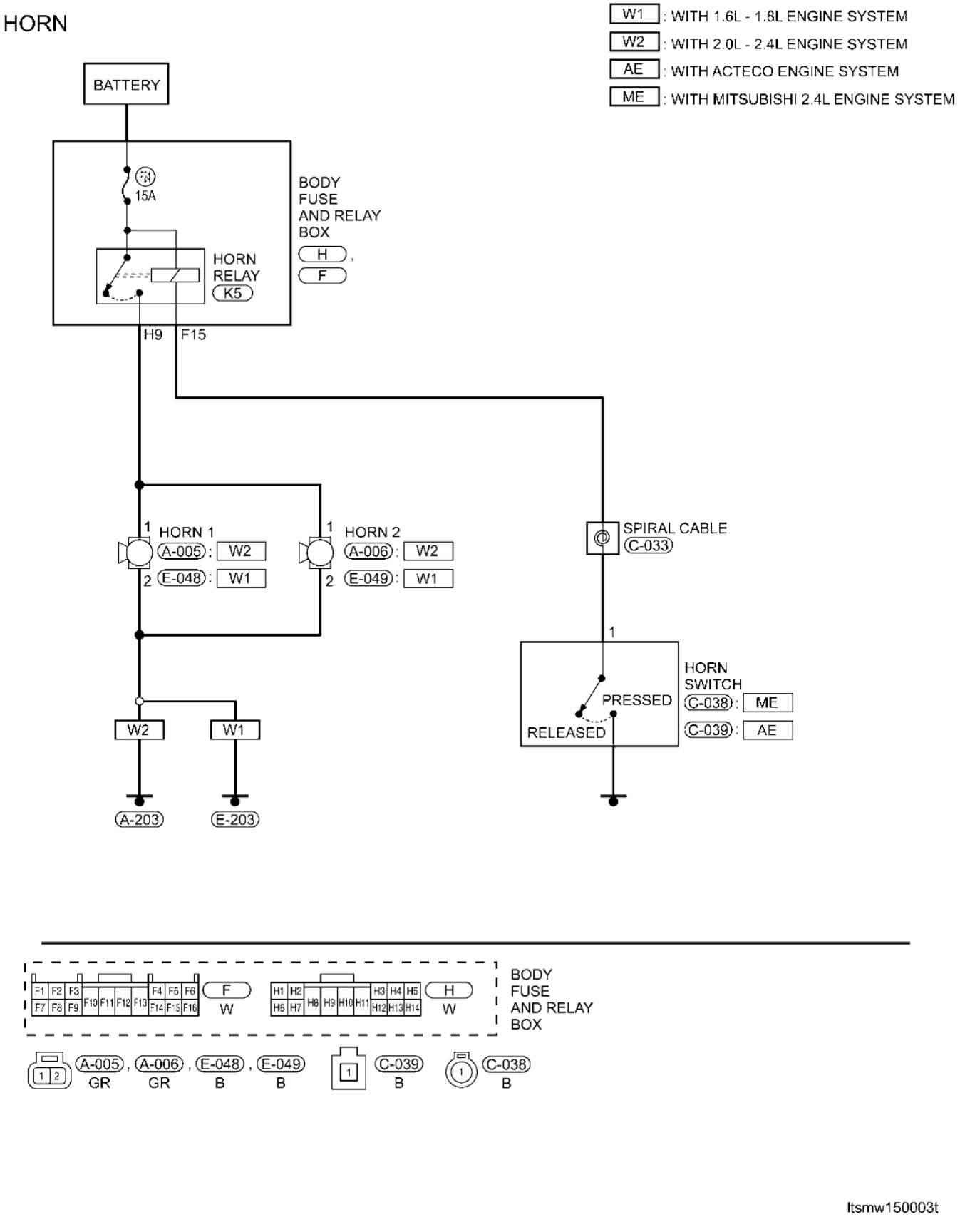
Operation

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

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Electrical Schematics

Horn (Page 1 of 1)

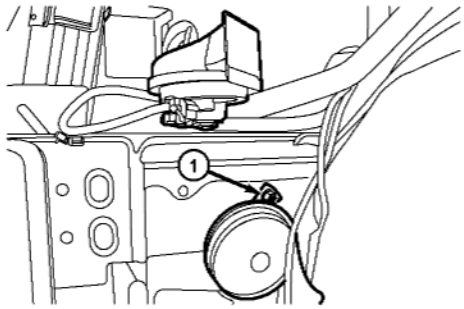


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Horn

Removal & Installation

1. Remove the right headlamp assembly.
2. Disconnect the horn electrical connector.
3. 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.



Itsm150084

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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.

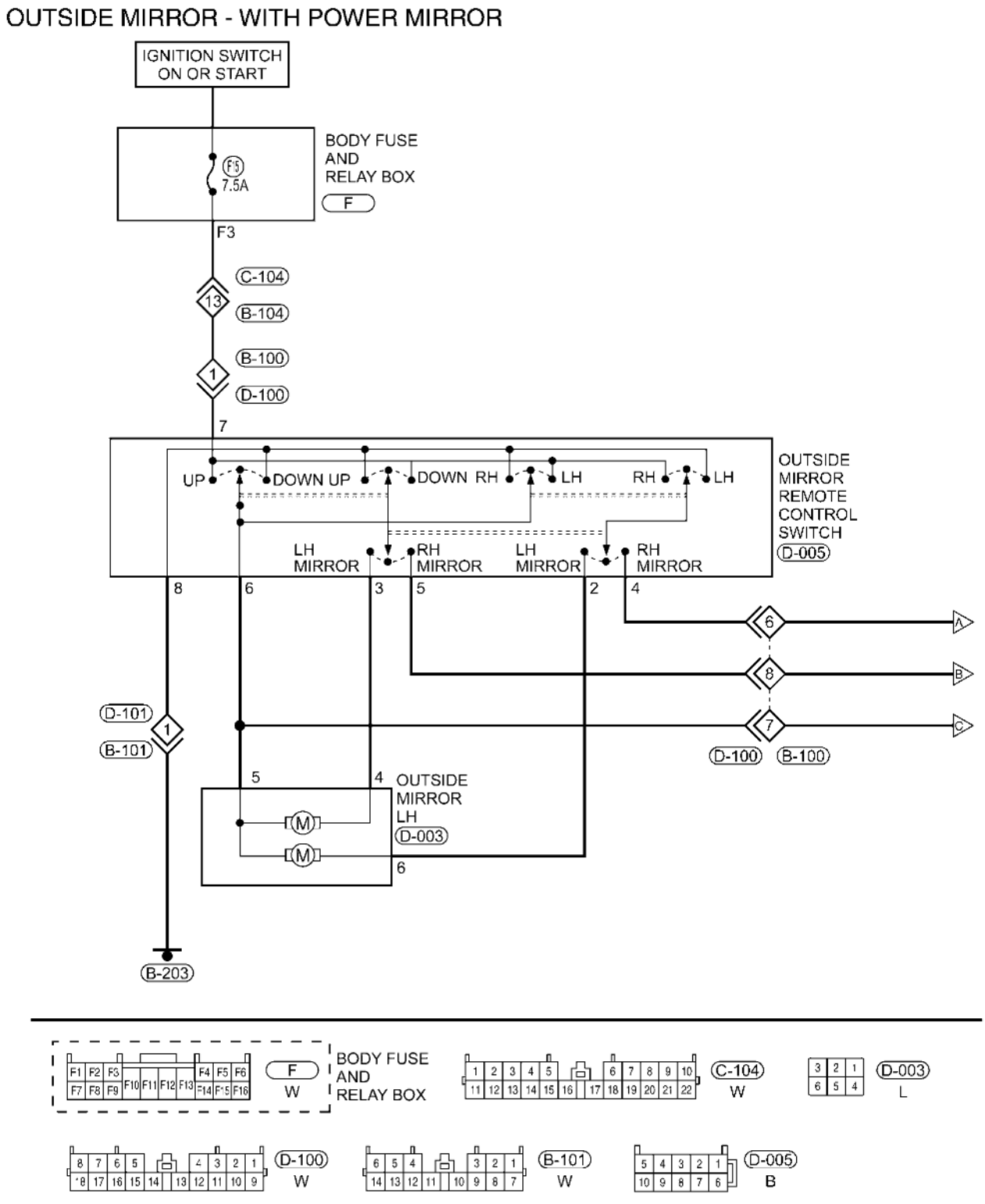
Operation

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.

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Electrical Schematics

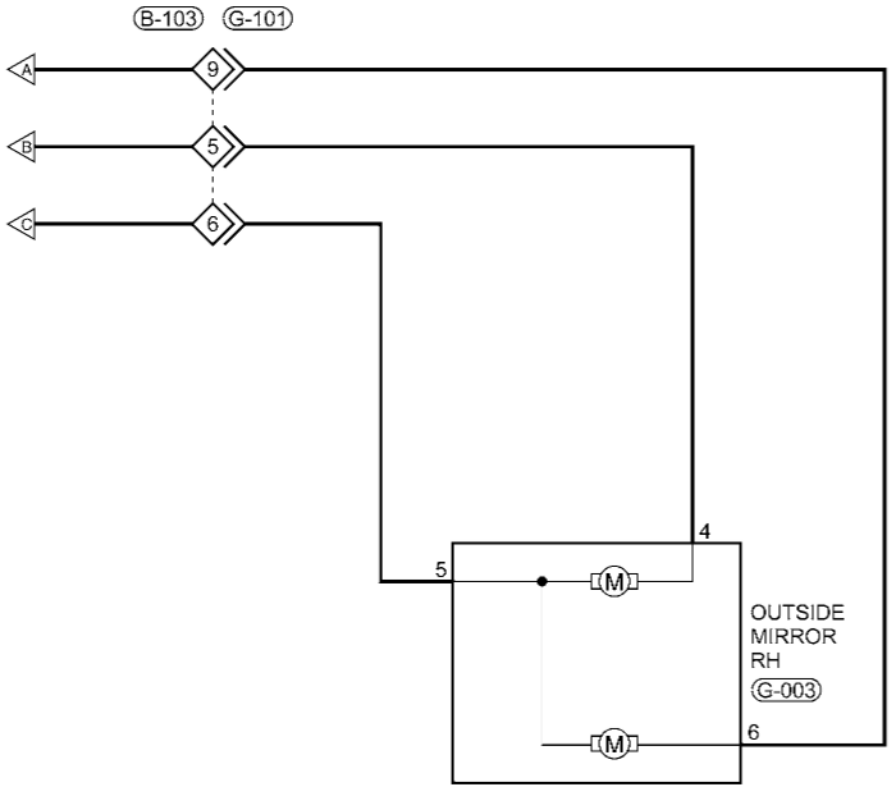
Power Mirrors (Page 1 of 2)

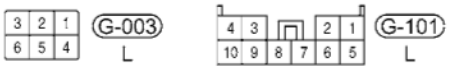


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Power Mirrors (Page 2 of 2)



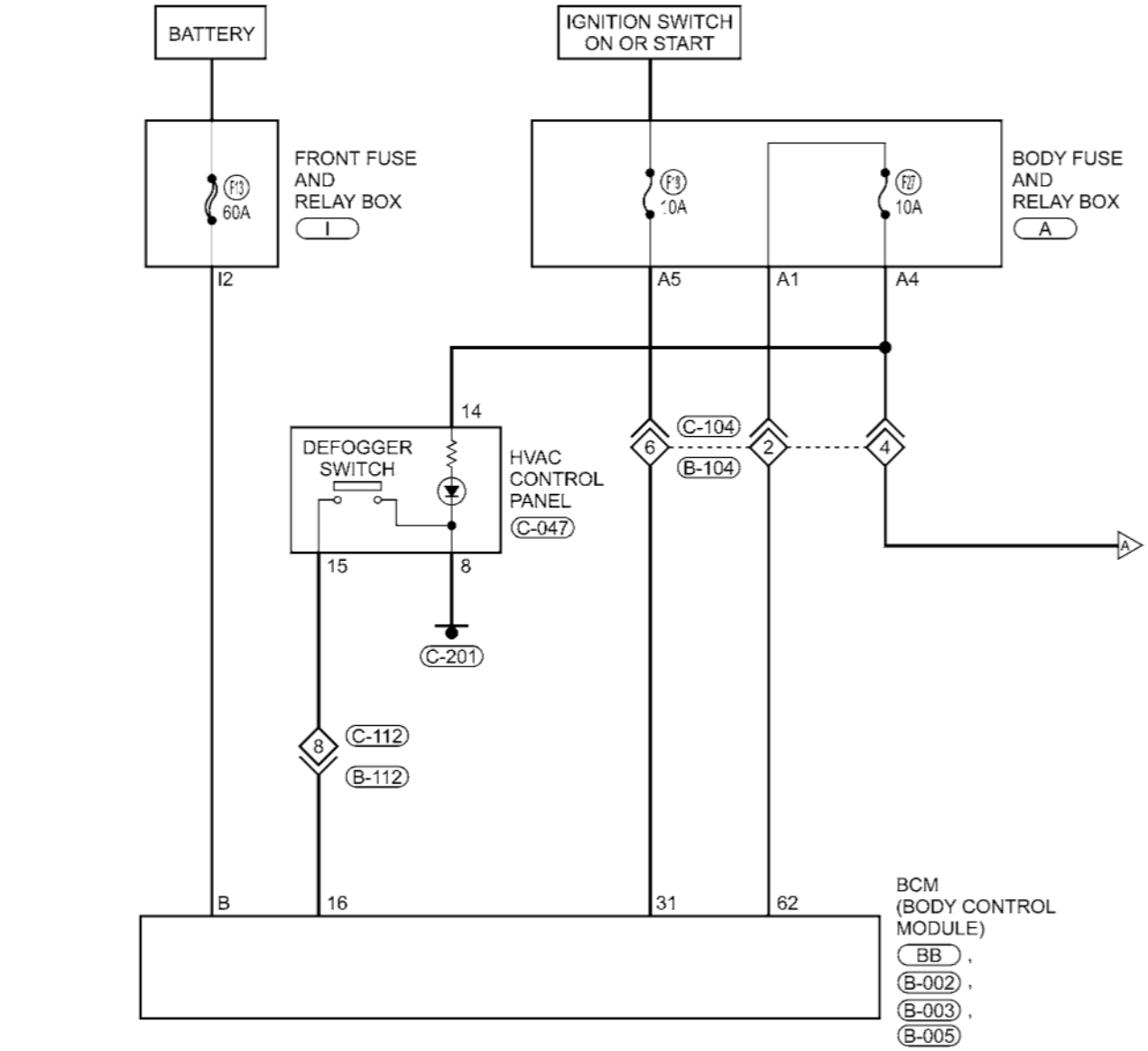


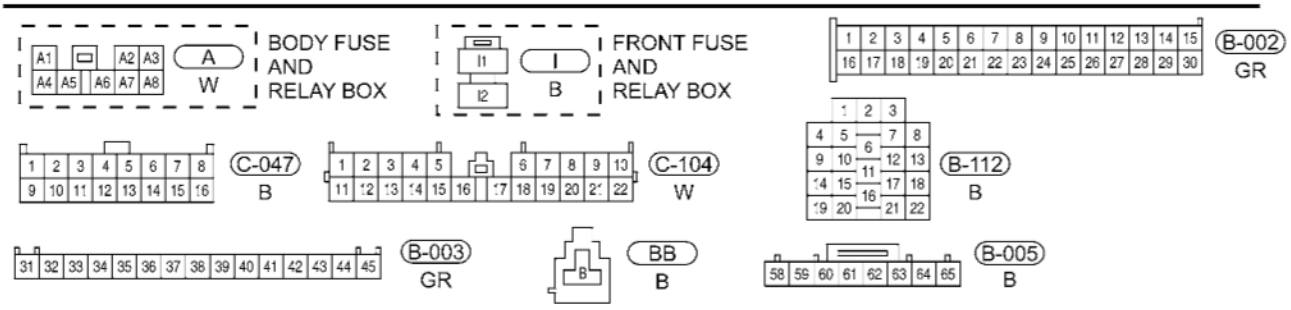
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Heated Mirrors (Page 1 of 2)

OUTSIDE MIRROR - WITH HEATED MIRROR

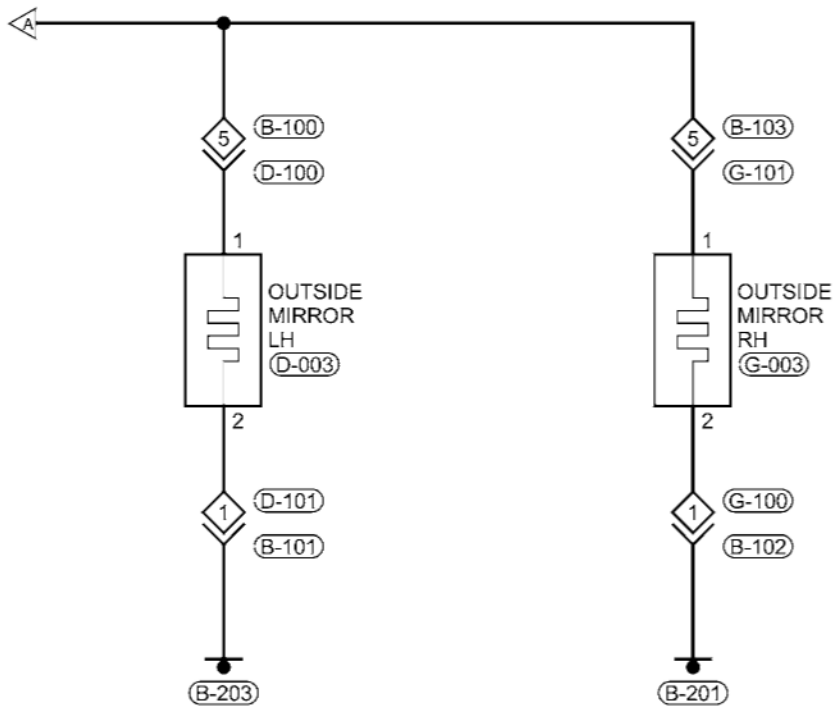


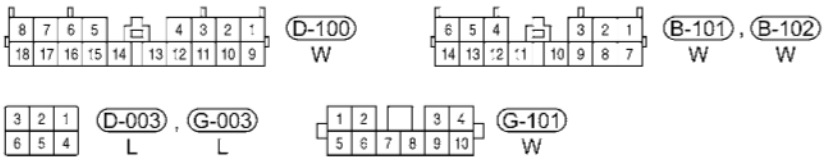


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Heated Mirrors (Page 2 of 2)





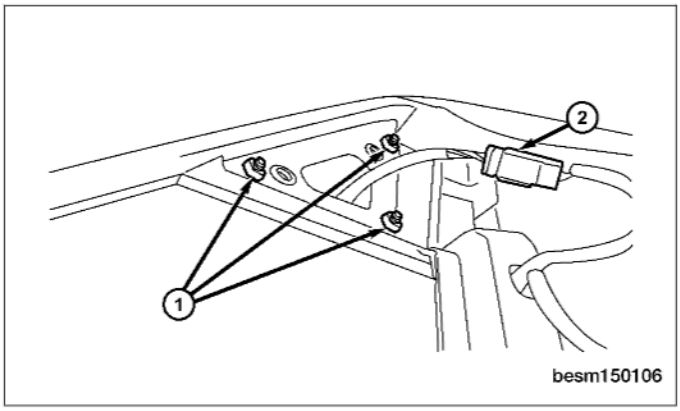
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Outside Mirror

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.

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PAINT

Paint Codes

Paint Codes

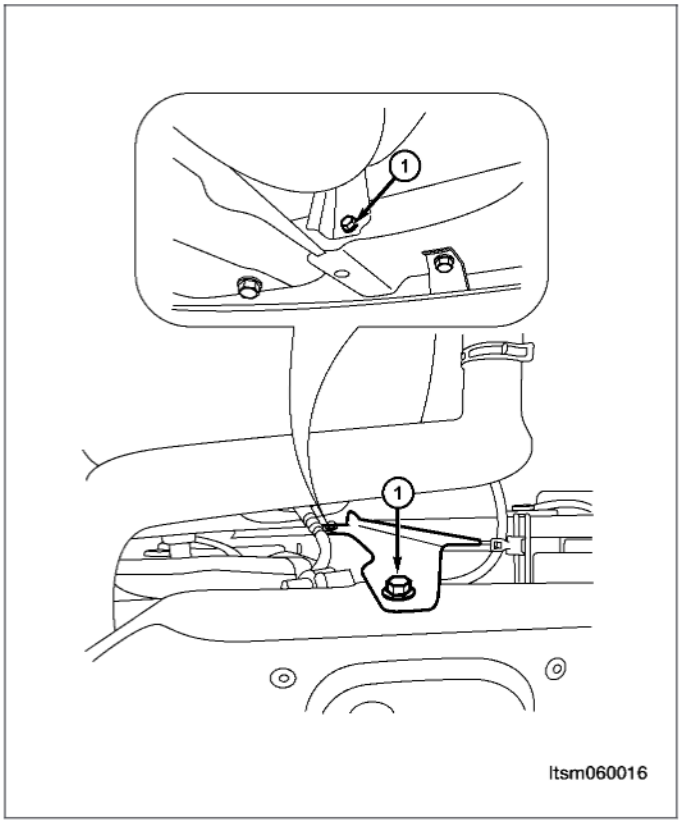
NUMBER	COLOR	ITEM CODE
1	Nasdaq Silver	KH
2	Wolfsburg Gray	GF
3	Chery White	BK
4	Ochre Red	DS
5	Margeret Blue	HW
6	Magic Black	CB
7	Wild Green	FJ

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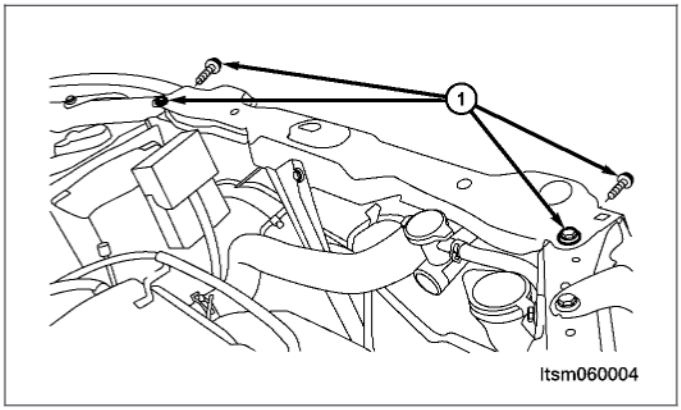
Radiator Support

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

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STATIONARY GLASS

Description

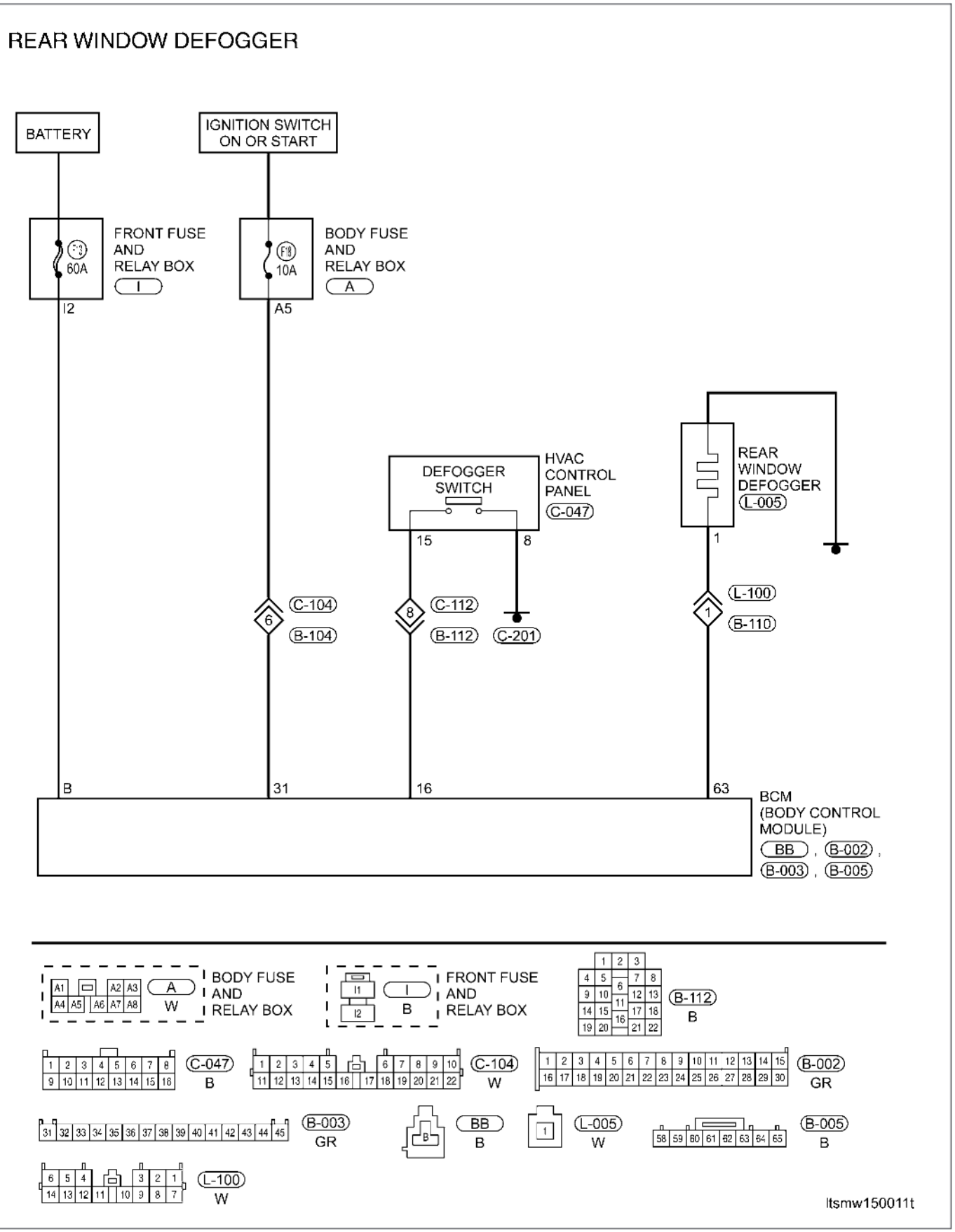
The stationary glass is comprised of the following:

- Front Windshield
- Rear Window
- Rear Window Defogger

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Electrical Schematics

Rear Window Defogger (Page 1 of 1)



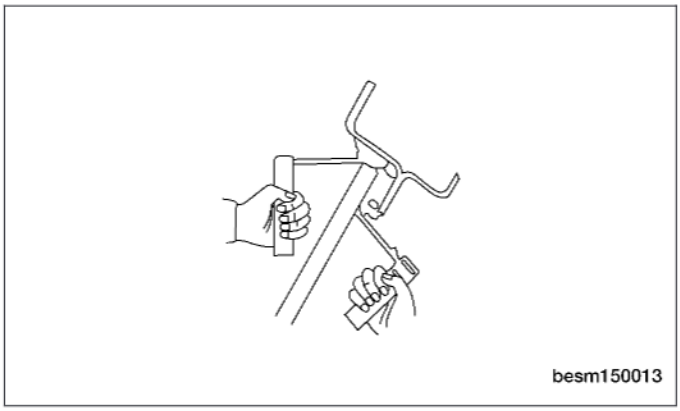
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Front Windshield

Removal

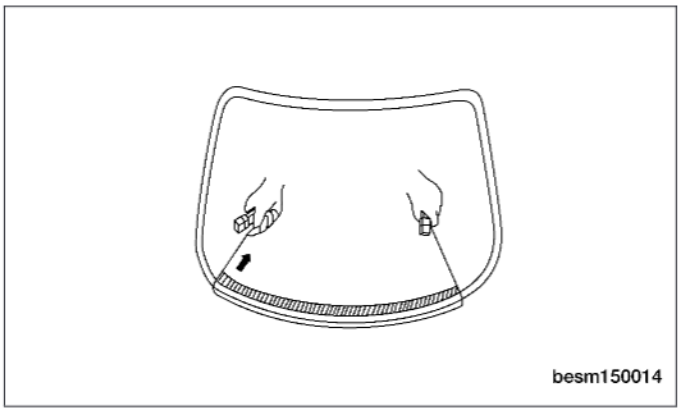
1. Remove the wiper arms and the lower trim panel from the windshield (See Wiper Arm Removal & Installation in Section 15 Body & Accessories).
2. Using piano wire, insert the piano wire between the body and the glass. Attach wooden blocks to both ends of the piano wire.

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.


besm150013

3. 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.


besm150014

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.

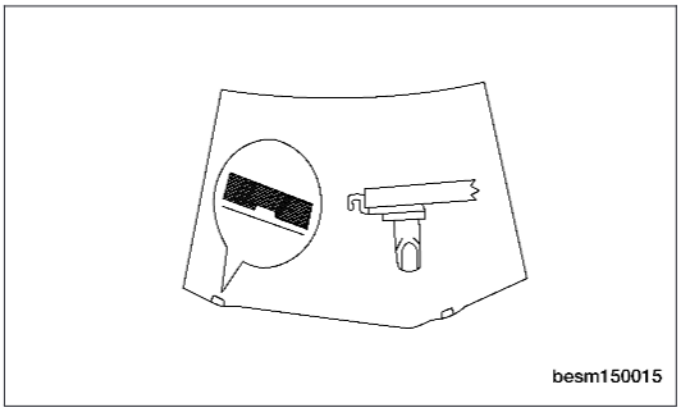
CAUTION:
Even if the entire bonding agent has been cleared, you should also clean the body surface. Do not touch the glass surface after cleaning.

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.

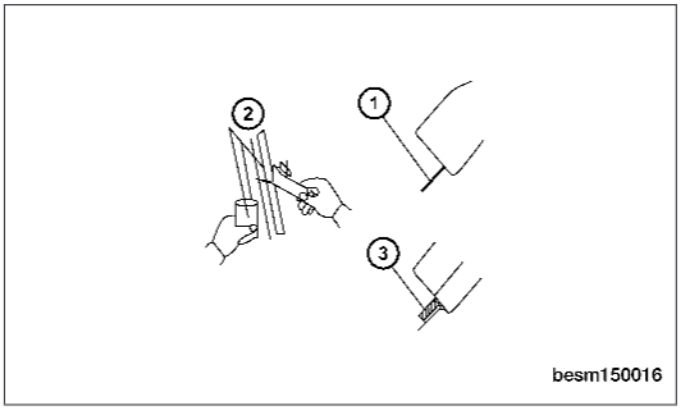
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4. Replace the clamping piece if necessary:
   - Remove the stopper with a knife.
   - Remove the old clamping piece.
   - Replace with a new clamping piece.
5. Position the glass:
   - Place the glass in the proper position.
   - Make reference marks 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.


besm150015

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.



besm150016

Primer M	Primer M	Primer M

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.

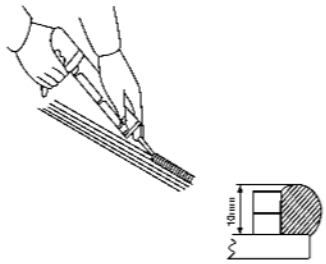
NOTE :
Allow the primer coat to dry for a minimum of 3 minutes. Do not apply the primer to the bonding agent. Do not save the opened primer G for later use.

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.

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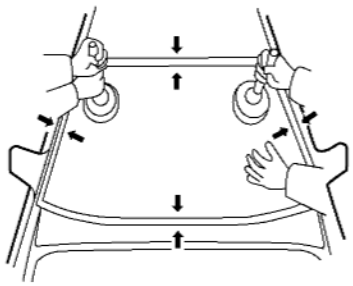
11. Applying the bonding agent:
    - Cut off the pot tip and fill the bonding agent into the pot.
    - Place the pot into the sealant gun.
    - Apply the bonding agent on the glass as shown in the figure.



besm150017

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.


besm150018

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.

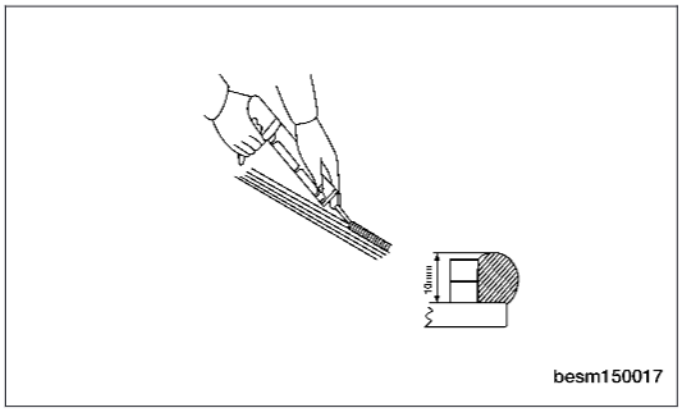
8. Apply a layer of primer G on the contact surface of the glass:
   - Apply a layer of primer G on the edges and the contact surface of the glass with a brush or sponge.
   - Wipe the excess primer off with a clean rag before it dries.

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.

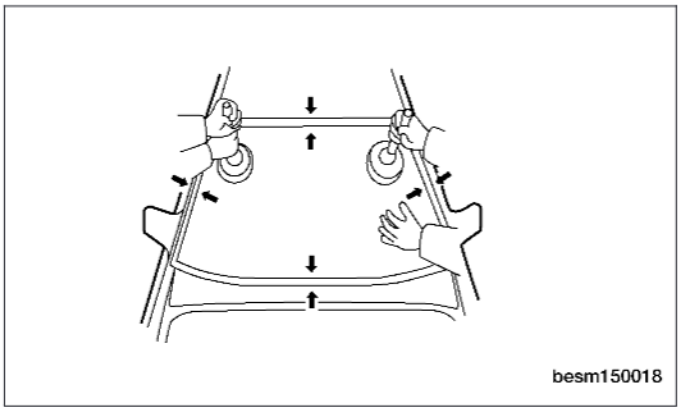
10. Applying the bonding agent:
    - Cut off the pot tip and fill the bonding agent into the pot.
    - Place the pot into the sealant gun.
    - Apply the bonding agent on the glass as shown in the figure.



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

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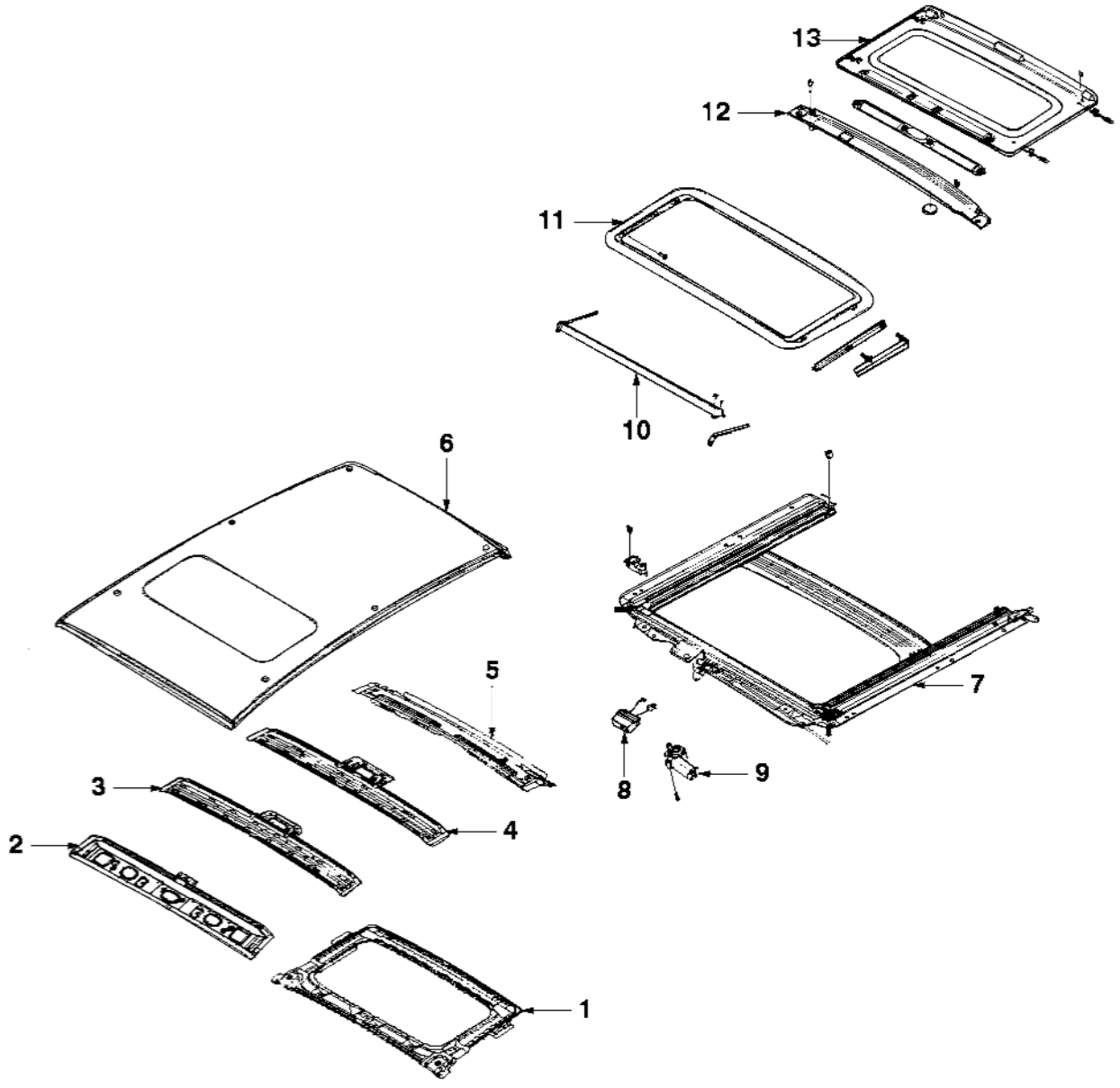
11. To install the glass, align the reference marks on the glass and the body and then lightly press the glass into the body opening.
12. Apply the bonding agent on the edges of the glass with a scraper.
13. Remove any excessive or over flown bonding agent with a scraper.
14. Clamp the glass until the 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.



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SUNROOF

Description



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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

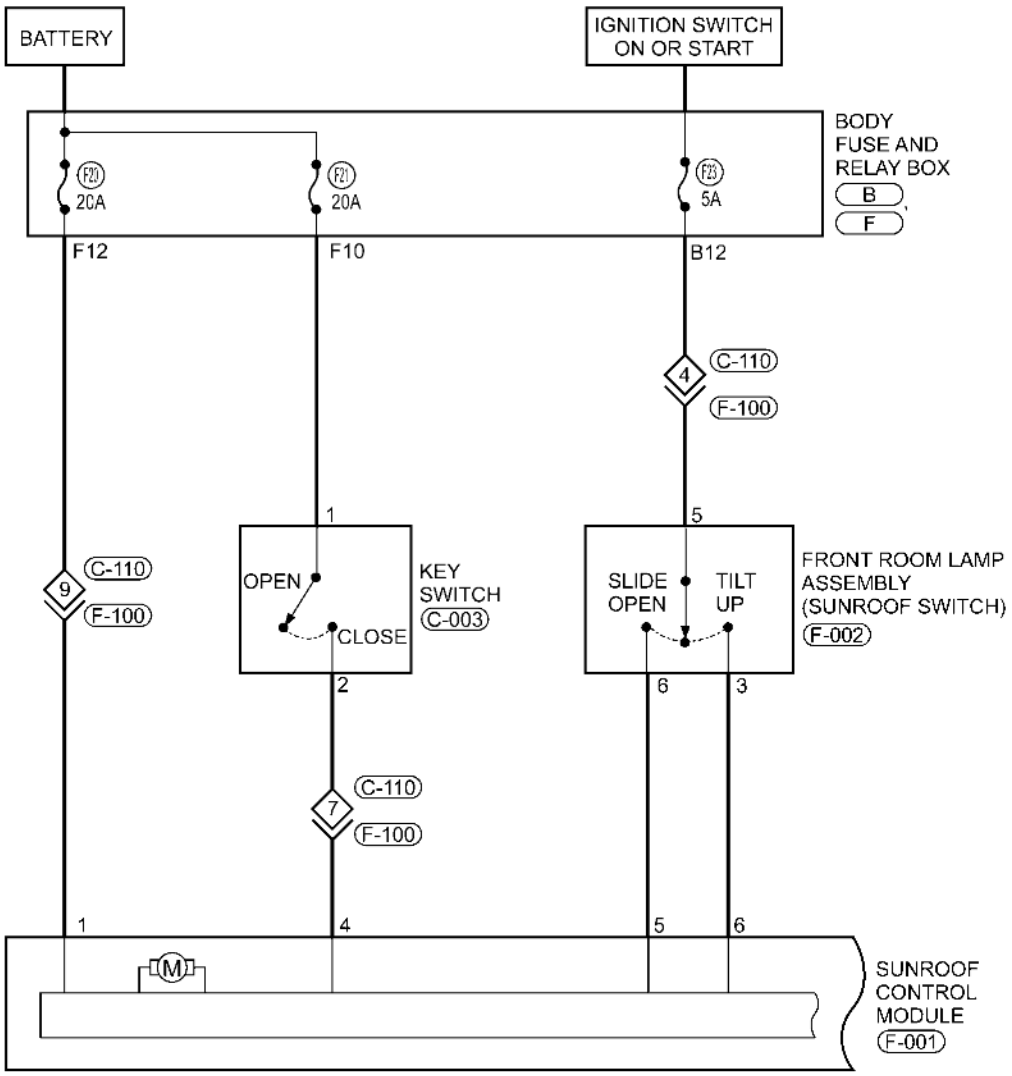
The sunroof control module monitors the sunroof switch input. The sunroof control module controls the output of the sunroof motor, to move the sunroof glass to the requested position. The power sunroof will operate with the ignition switch turned to ON.

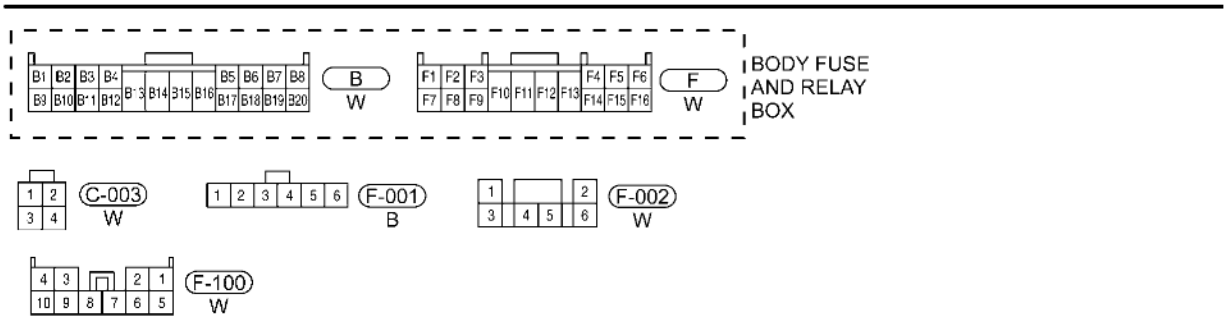
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Electrical Schematics

Sunroof (Page 1 of 2)

SUNROOF

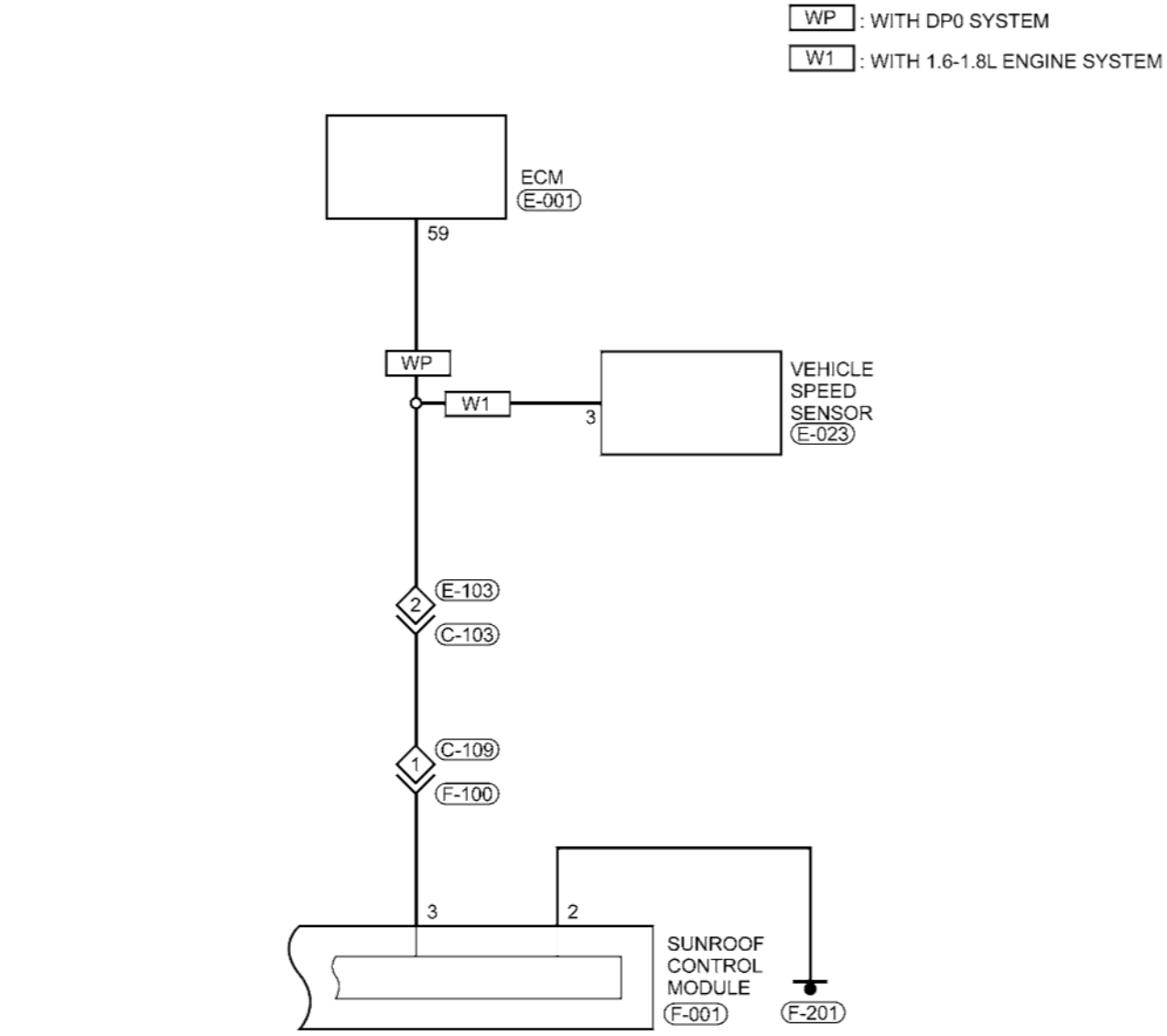


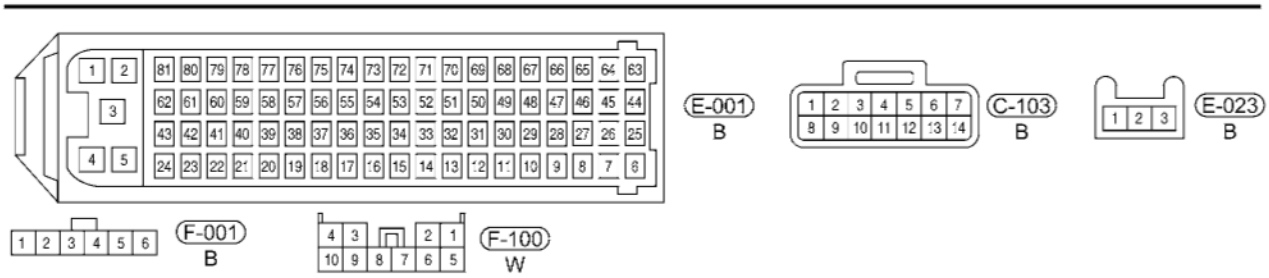


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Sunroof (Page 2 of 2)





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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.

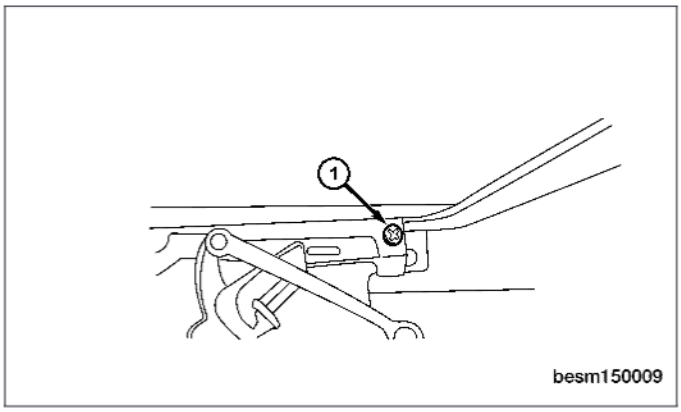
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ON-VEHICLE SERVICE

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.



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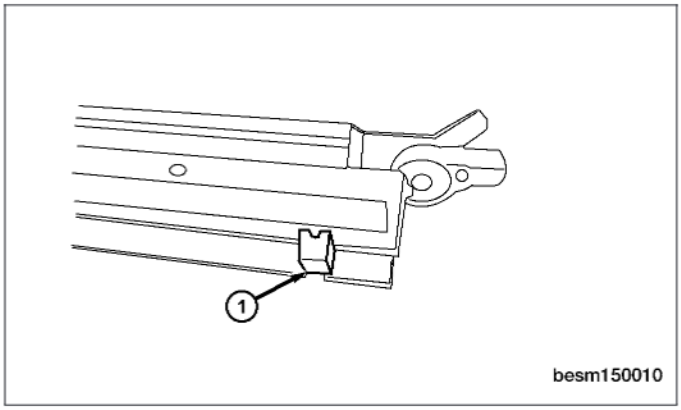
Installation Notes:

- 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.



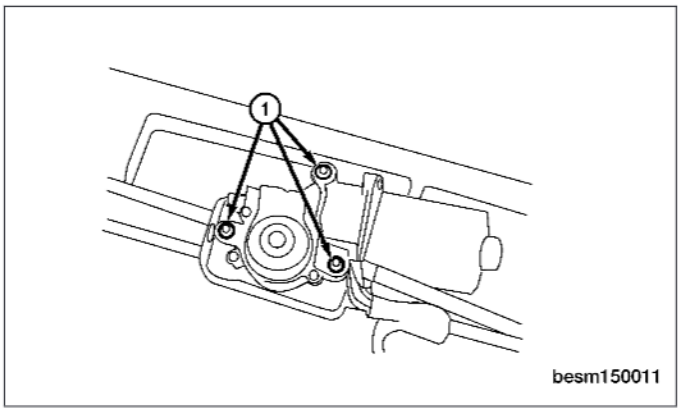
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Sunroof Motor

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.

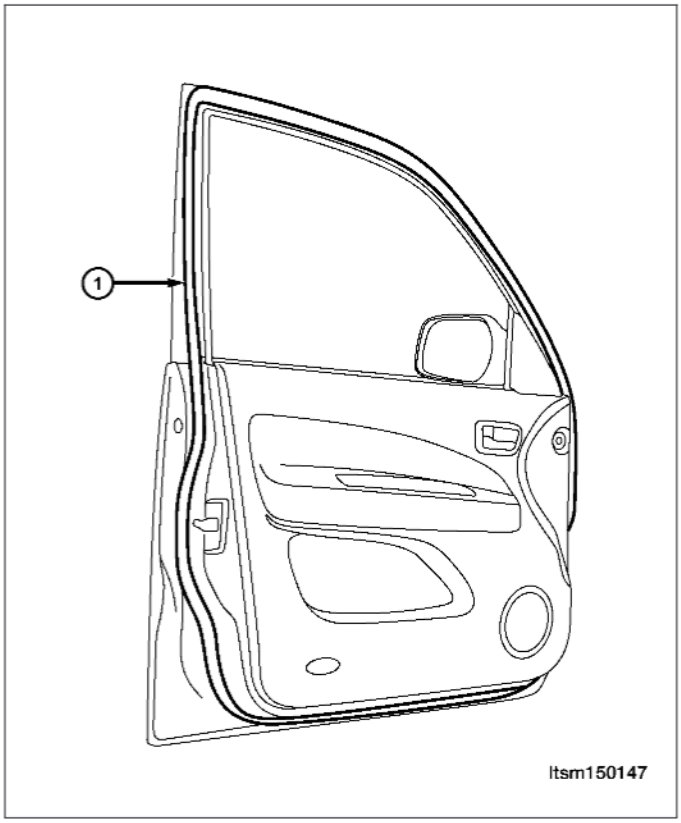
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WEATHERSTRIP

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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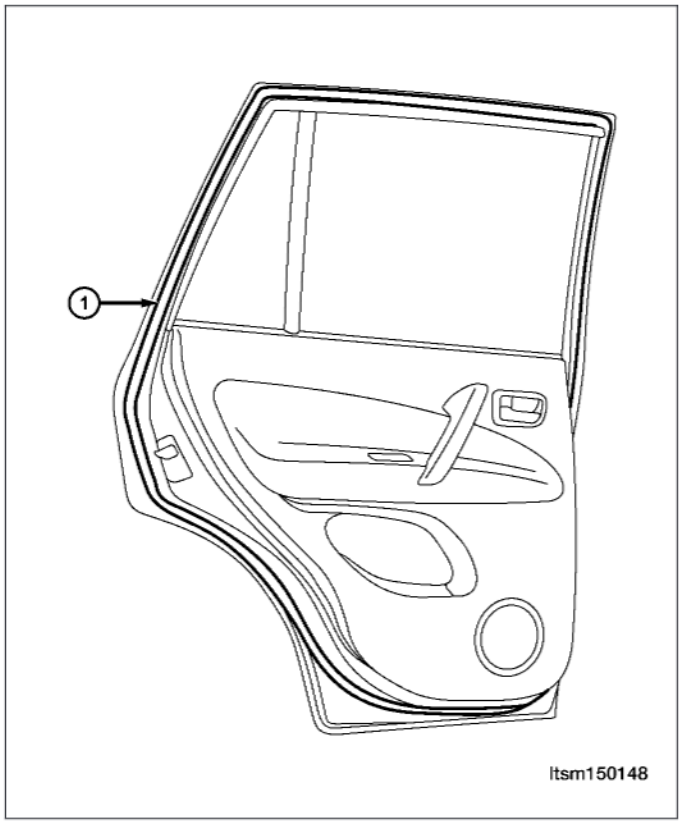
Rear Door Weatherstrip

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.



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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

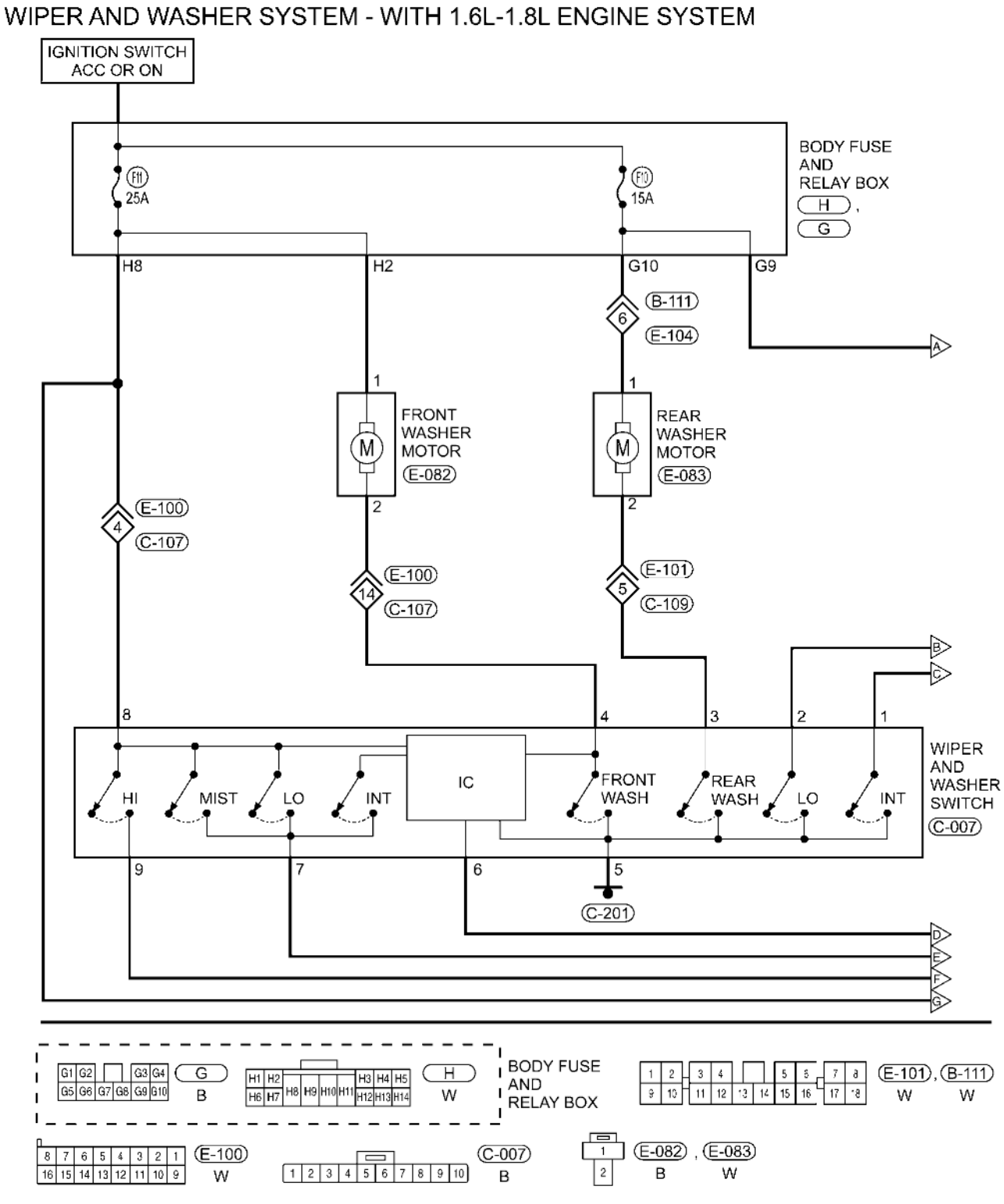
Operation

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.

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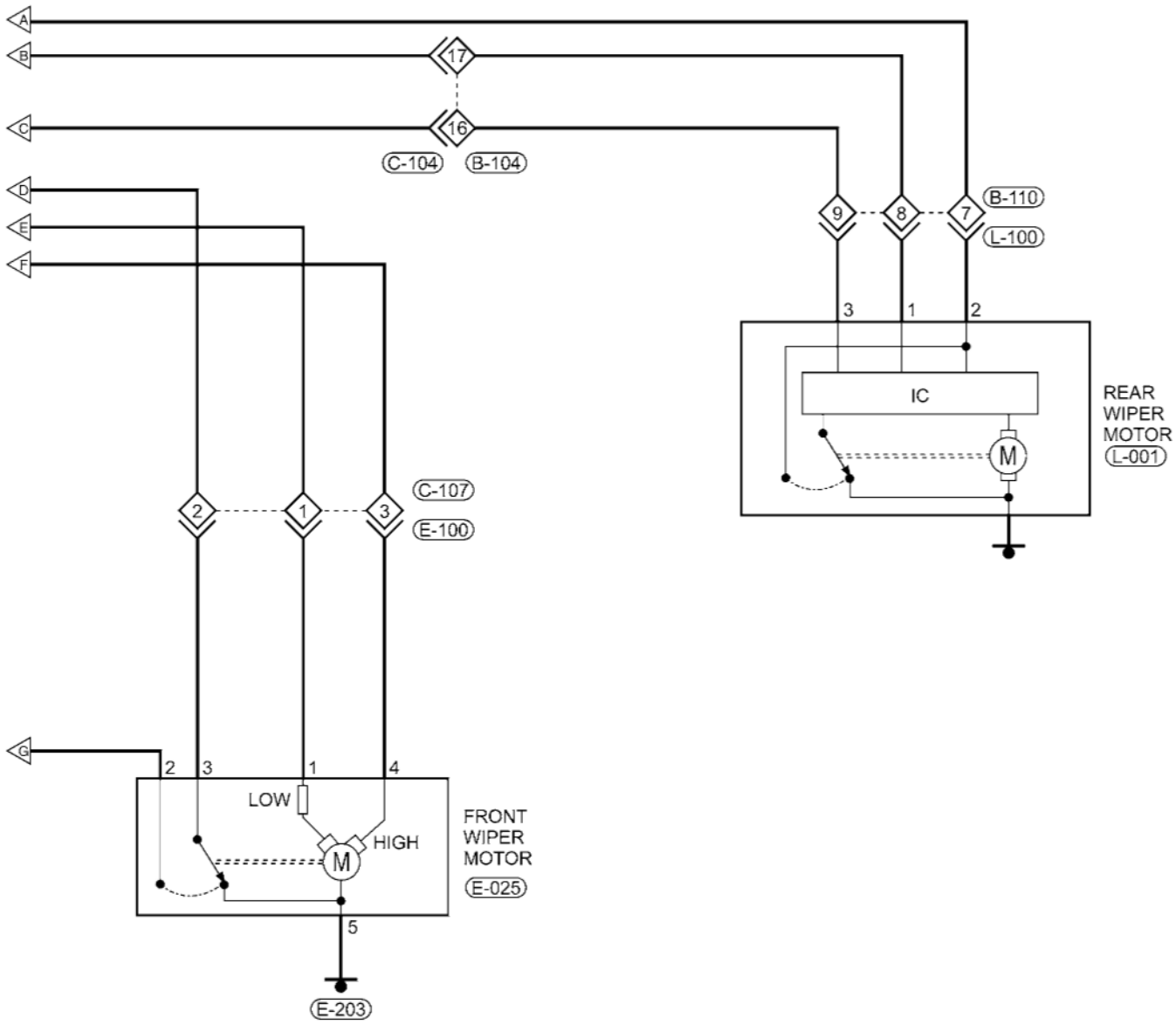
Electrical Schematics

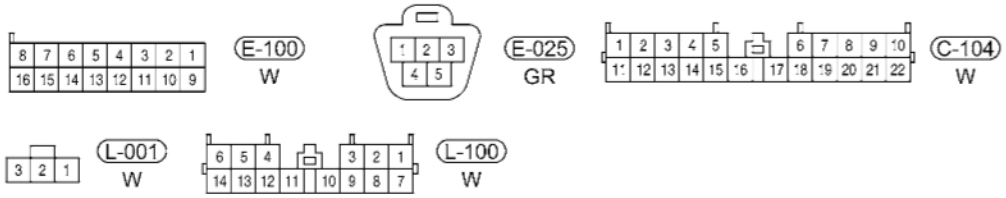
Wiper and Washer System (Page 1 of 4)



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Wiper and Washer System (Page 2 of 4)

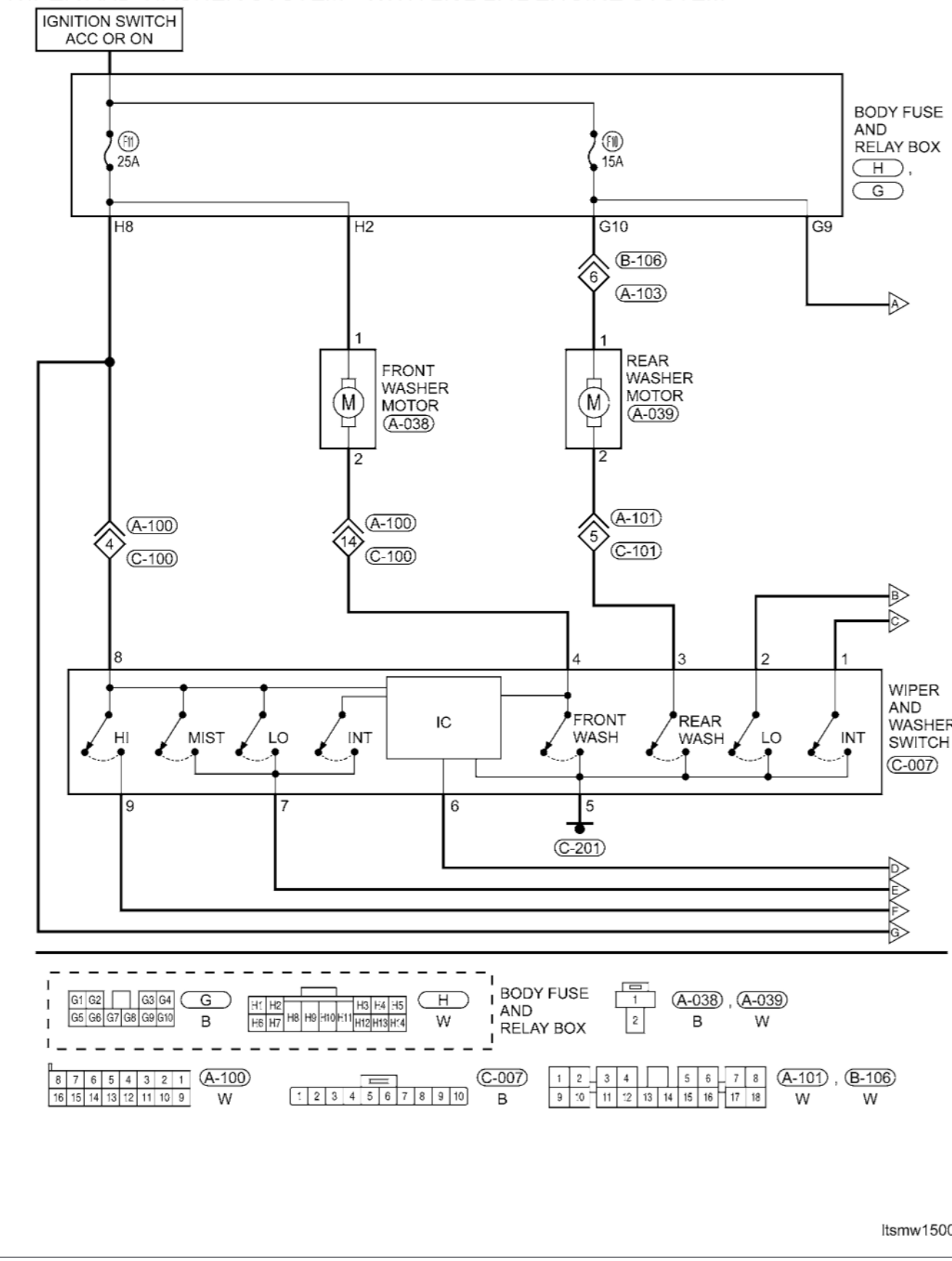




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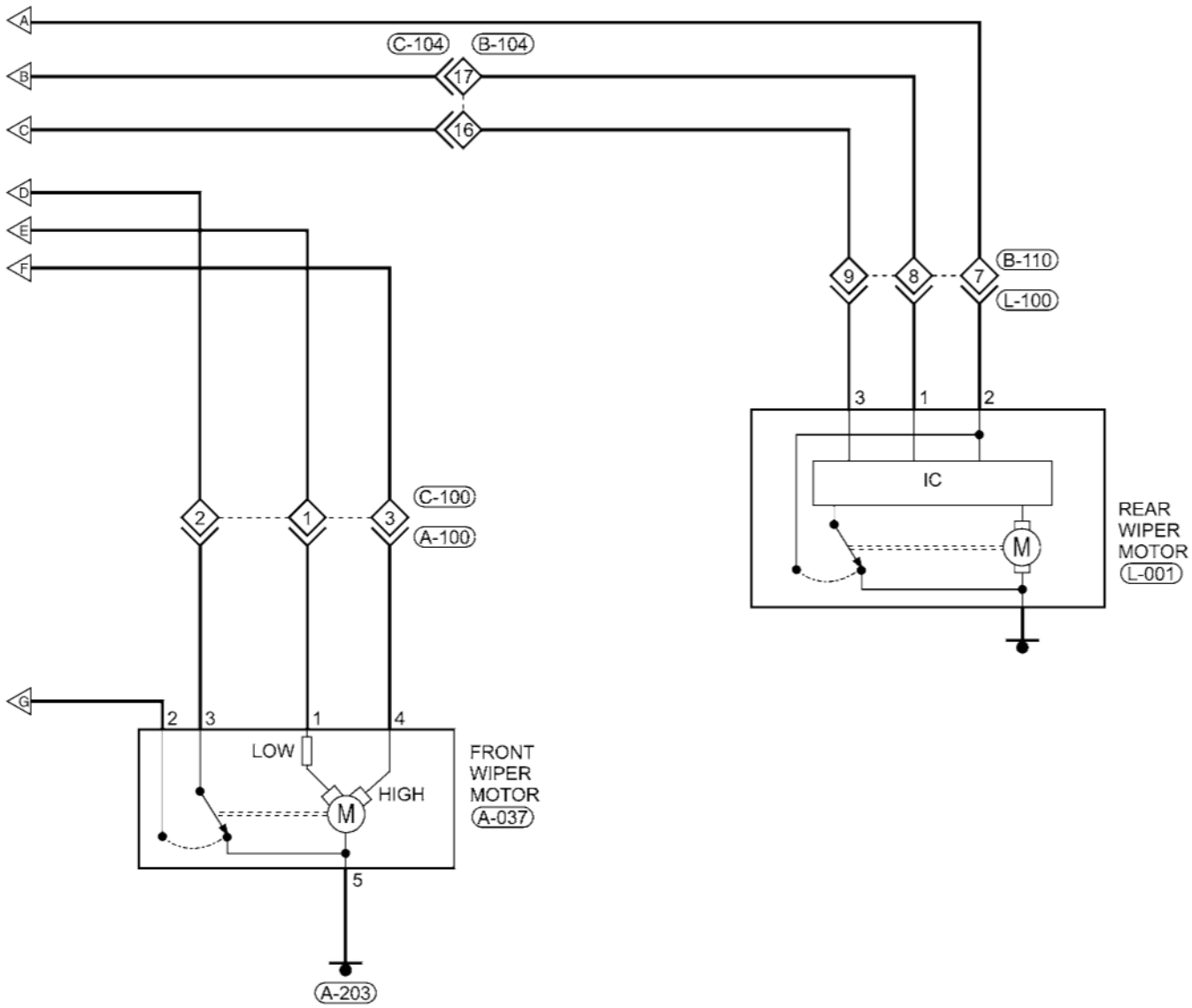
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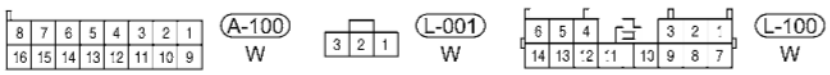
Wiper and Washer System (Page 3 of 4)

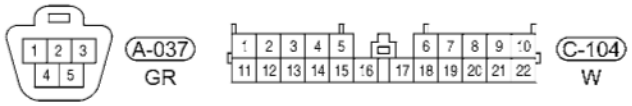


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Wiper and Washer System (Page 4 of 4)







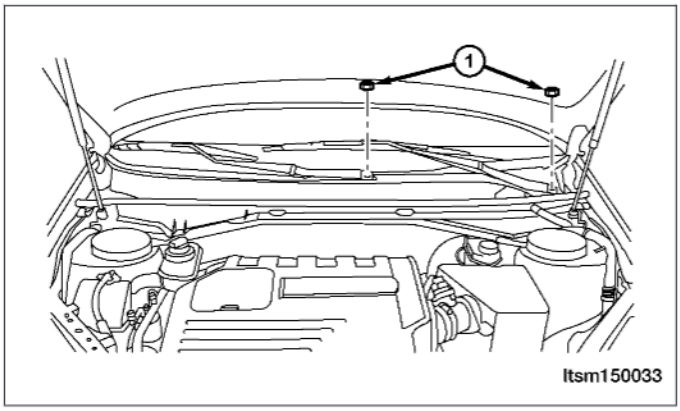
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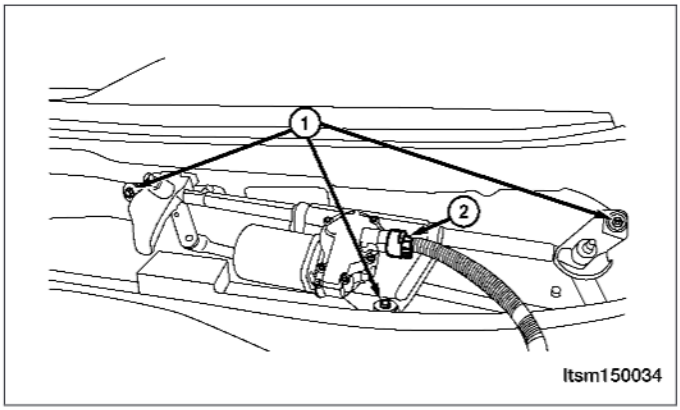
Front Wiper Motor

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 ± 3 N·m)
4. Remove two wiper arms.



5. Remove the lower trim panel of the front windshield.
6. 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.



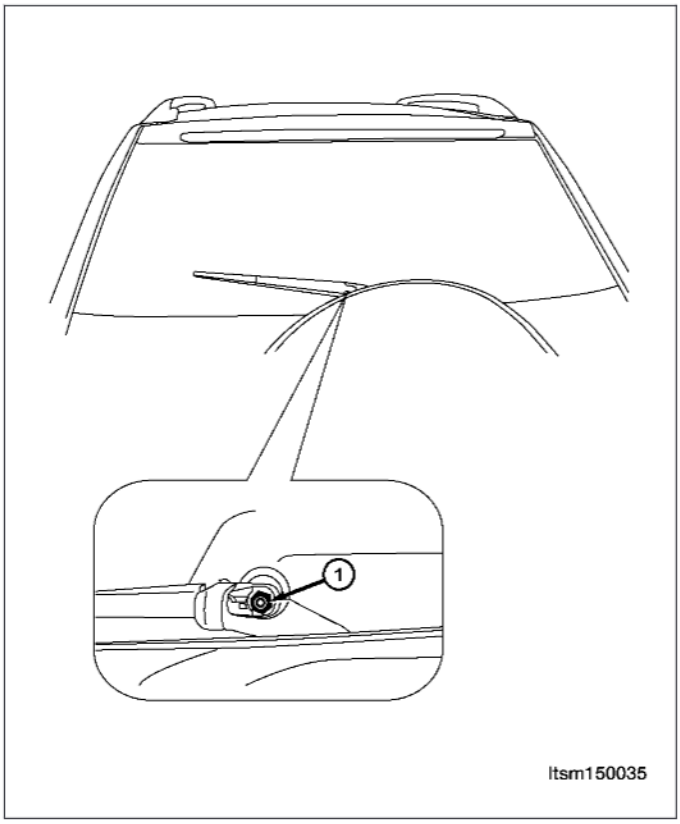
8. Installation is in the reverse order of removal.

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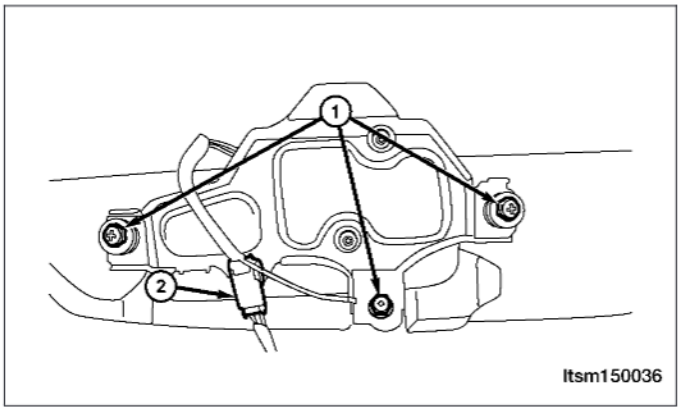
Rear Wiper Motor

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.



6. Disconnect the rear wiper motor electrical connector (2), and the rear wiper motor mounting bolts (1).
   (Tighten: Rear wiper motor mounting bolts to 10 ± 1 N·m)



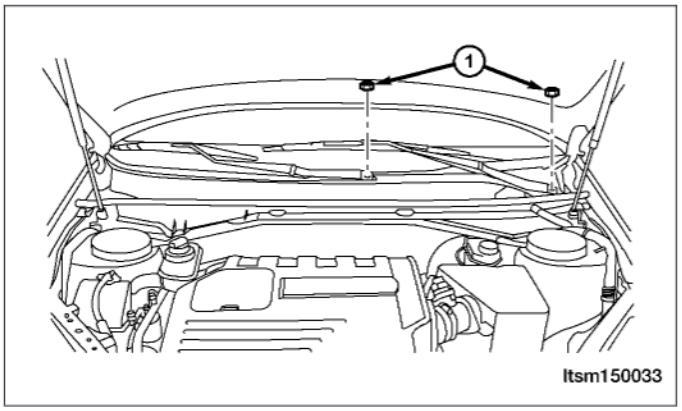
7. Remove the rear wiper motor.
8. Installation is in the reverse order of removal.

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Front Wiper Arm

Removal & Installation

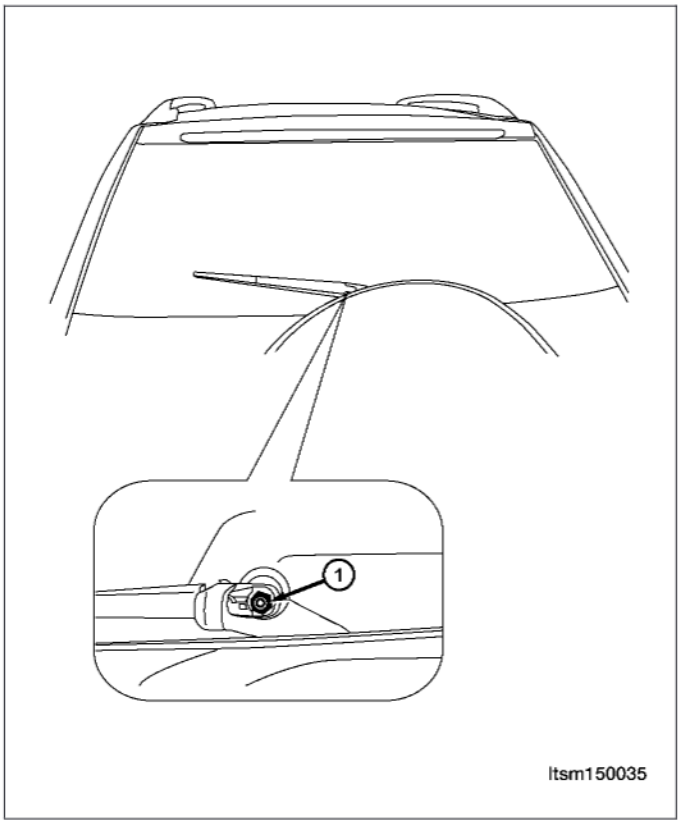
1. Remove the wiper arm protective caps for the wiper arm mounting nuts (1).
2. Remove the wiper arm mounting nuts.
   (Tighten: Wiper arm mounting nuts to 55 ± 3 N·m)
3. Remove two wiper arms (1).



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.

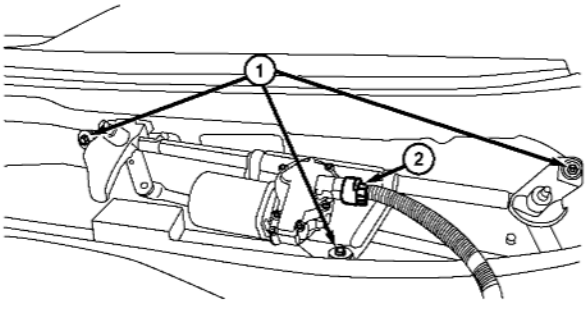


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Front Wiper Link

Removal & Installation

1. Disconnect the negative battery cable.
2. Remove the left lower trim panel of the front windshield.
3. Remove the mounting bolts (1) and the front wiper motor electrical connector (2), then remove the wiper link.
   (Tighten: Wiper arm linkage mechanism mounting bolts to 10 ± 1 N·m)
4. Installation is in the reverse order of removal.

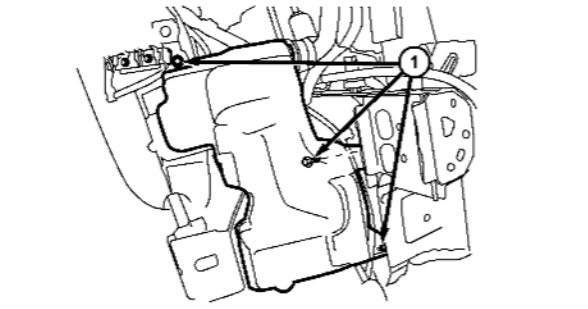


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Washer Bottle

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.



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Washer Pump

Removal & Installation

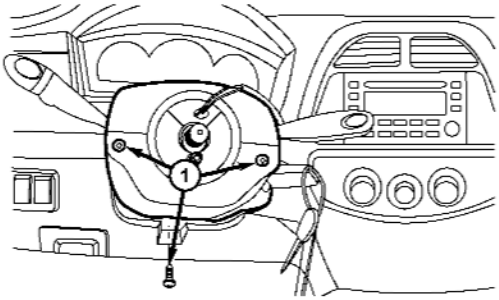
1. Disconnect the negative battery cable.
2. Remove the front bumper (See Front Bumper Removal & Installation in Section 15 Body & Accessories).
3. Disconnect the washer hose and the washer pump electrical connector.
4. Drain the washer fluid.
5. Remove the washer pump assembly.
6. Installation is in the reverse order of removal.

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Wiper Switch

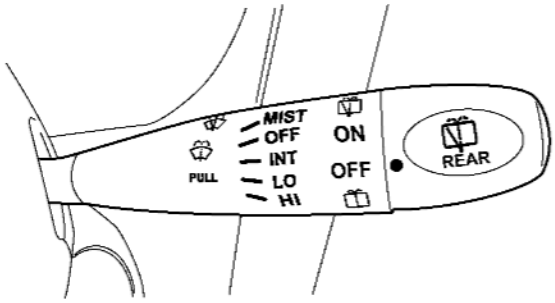
Removal & Installation

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.



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4. Disconnect the wiper switch electrical connector.
5. Loosen the clamp and remove the wiper switch.



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6. Installation is in the reverse order of removal.

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