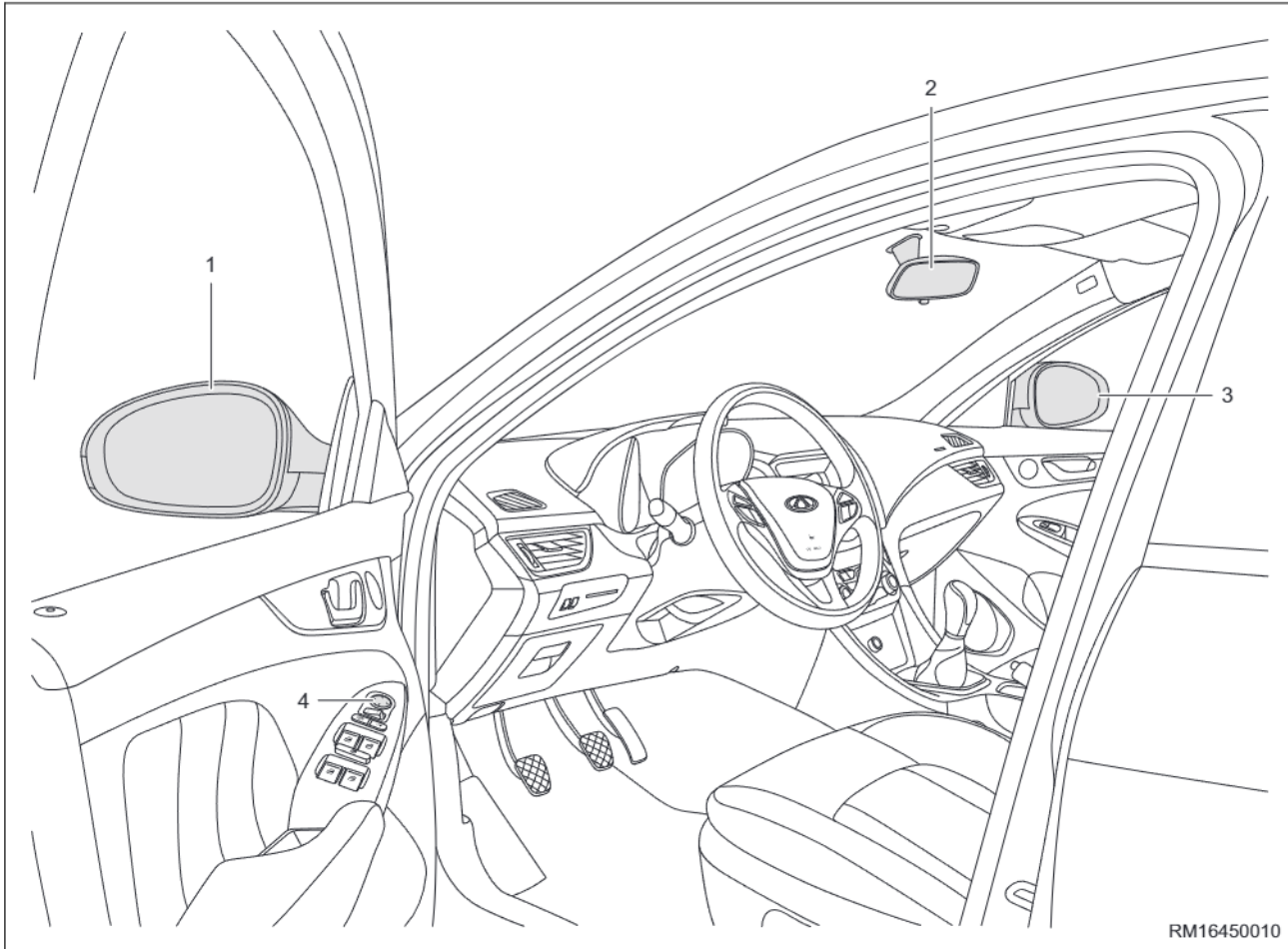


REAR VIEW MIRROR

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GENERAL INFORMATION

Description



RM16450010

1 - Left Outside Rear View Mirror Assembly	2 - Inside Rear View Mirror Assembly
3 - Right Outside Rear View Mirror Assembly	4 - Outside Rear View Mirror Adjustment Switch

45

This vehicle is equipped with power outside rear view mirror assembly and inside rear view mirror assembly.

Power outside rear view mirror assembly: driver can control the rotation of motor by operating the outside rear view mirror adjustment switch in vehicle, thus adjusting the mirror surface to achieve a required visual angle.

Outside rear view mirror adjustment switch is located on the front left door inner protector assembly. With ignition switch ON, press the outside rear view mirror switch to "L" or "R" position to select left or right outside rear view mirror assembly that you want to adjust, and then press the rear view mirror up or down and left or right button to achieve a required visual angle.

It is necessary to adjust the inside rear view mirror assembly manually to the desired direction. When driving at night, the rear view mirror assembly angle can be adjusted by pulling back glare-resistant rod to reduce glare.

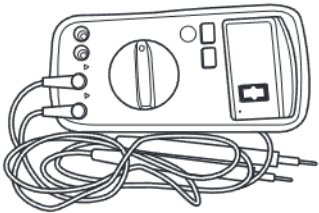
Specification

Torque Specification

Description	Torque (N·m)
Outside Rear View Mirror Assembly Fixing Bolt	6 ± 1

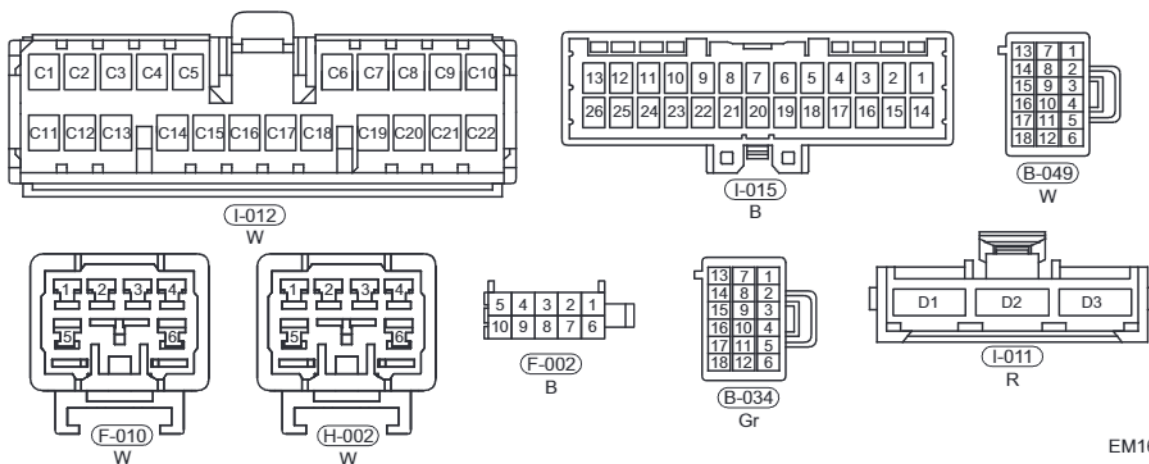
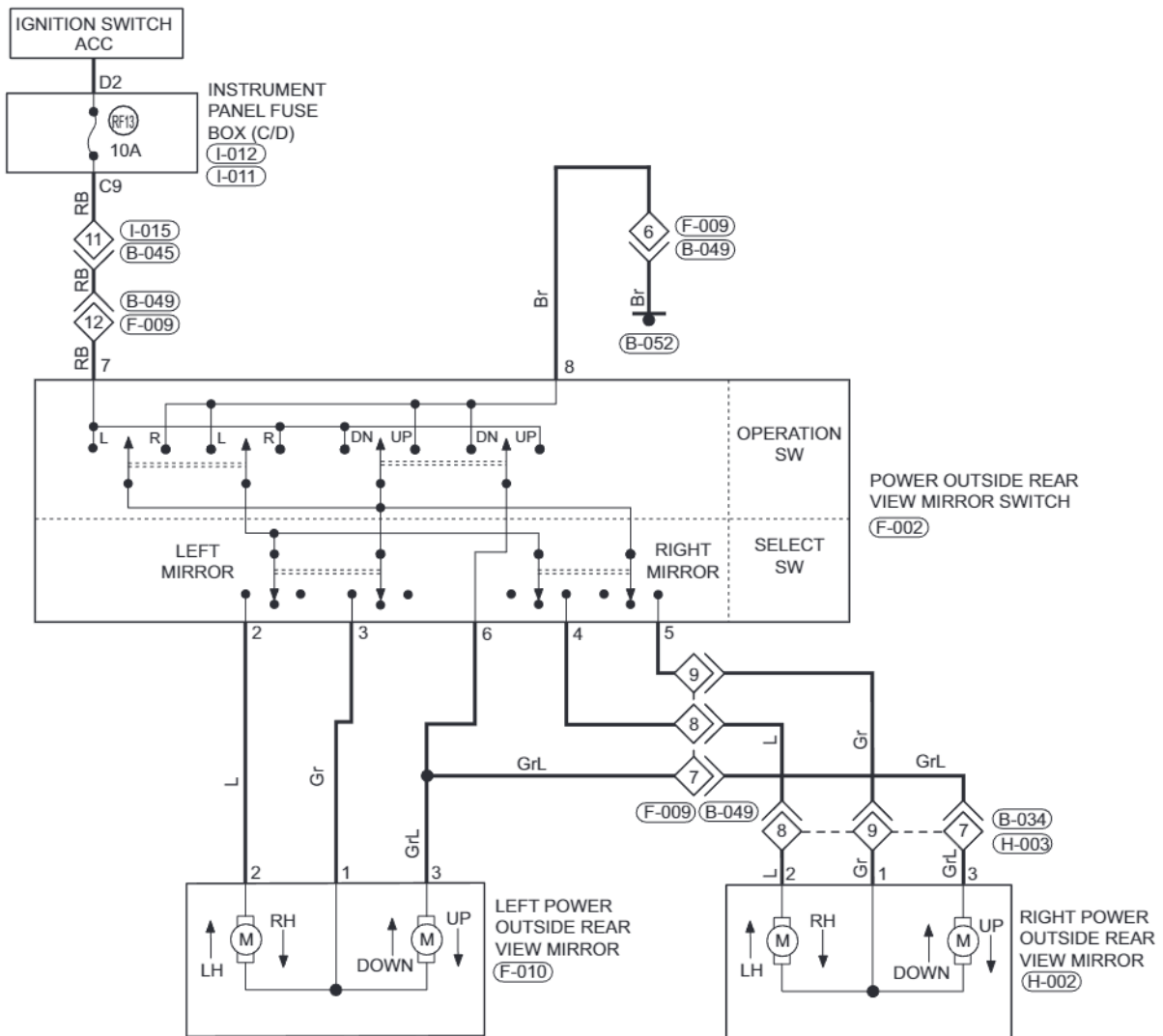
Tool

General Tool

Digital Multimeter	 RCH0000002
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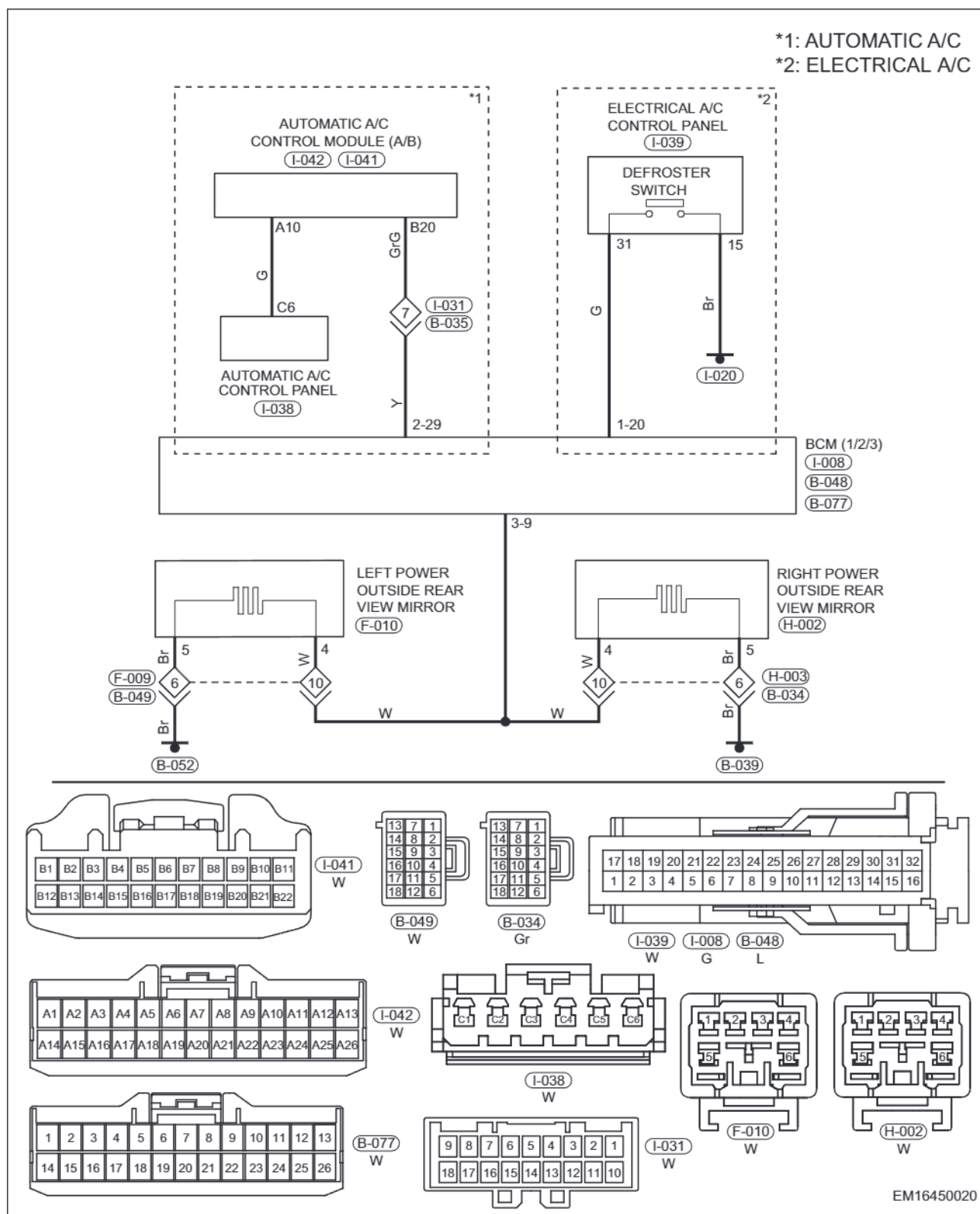
Circuit Diagram

Power Rear View Mirror Control System (Page 1 of 2)



EM16450010

Power Rear View Mirror Control System (Page 2 of 2)



DIAGNOSIS & TESTING

Problem Symptoms Table

HINT:

Use symptoms table below to help determine cause of problem. Check each suspected area in sequence. Repair or adjust faulty components, or replace as necessary.

Symptom	Suspected Area	See page
Outside rear view mirror cannot operate	Fuse	53-39
	Outside rear view mirror adjustment switch	45-23
	Outside rear view mirror assembly	45-18
	Wire harness or connector	-
Outside rear view mirror intermittent malfunction	Ground	53-28
	Wire harness or connector	-

Diagnosis Tools

X-431 3G Diagnostic Tester

When connecting X-431 3G diagnostic tester:

- Connect X-431 3G diagnostic tester (the latest software) to Data Link Connector (DLC) for communication with the vehicle.
- DLC is located at the driver side instrument panel crossmember.
- DLC uses a trapezoidal design which can hold 16 terminals.

Digital Multimeter

When using digital multimeter:

- Troubleshoot electrical malfunctions and wire harness system.
- Check for basic malfunction.
- Measure the voltage, current and resistance.

Diagnostic Help

1. Connect X-431 3G Diagnostic tester (the latest software) to Data Link Connector (DLC), and make it communicate with vehicle electronic module through data network.
2. Confirm that the malfunction is current, and carry out diagnostic test and repair procedures.
3. If DTC cannot be deleted, the malfunction is current.
4. Only use a digital multimeter to measure the voltage of electronic system.
5. Refer to any Technical Bulletin that may apply to the malfunction.
6. Visually check the related wire harness.
7. Check and clean all rear view mirror system ground points related to the latest DTC.
8. If a large number of trouble codes were set, use circuit diagrams and look for any common ground circuit or power supply circuit applied to the DTC.

Intermittent DTC Troubleshooting

If the malfunction is intermittent, perform the followings:

- Check if connectors are loose.
- Check if wire harnesses are worn, pierced, pinched or partially broken.
- Wiggle related wire harnesses and connectors and observe if the signal is interrupted in related circuit.
- If possible, try to duplicate the conditions under which DTC was set.
- Look for the data that has changed or the DTC to reset during the wiggle test.
- Look for broken, bent, protruded or corroded terminals.
- Inspect the mounting areas of rear view mirror assembly, wire harness or wire harness connector, etc. for damage, foreign matter, etc. that will cause incorrect signals.
- Check and clean all wire harness connectors and grounds related to the current DTC.
- Remove the Body Control Module (BCM) from the malfunctioning vehicle and install it to a new vehicle and perform a test. If DTC cannot be cleared, the Body Control Module (BCM) is malfunctioning. If DTC can be cleared, reinstall the Body Control Module (BCM) to the original vehicle.
- If multiple trouble codes were set, refer to the circuit diagrams to look for any common ground circuit or power supply circuit applied to the DTC.
- Refer to the Technical Bulletin that is applied to the malfunction.

Ground Inspection

Ground points in the circuit system are very important to the proper operation of whole circuit system. Whether grounds are normal or not has serious influence to the whole circuit system. Ground points are often exposed to moisture, dirt and other corrosive environments. Corrosion (rust) and oxidation may increase load resistance. This situation will seriously affect the circuit operation. Perform the following operations when checking the ground points:

1. Remove the ground bolt or nut.
2. Check all contact surfaces for tarnish, dirt and rust, etc.
3. Clean as necessary to ensure that the contacting is in good condition.
4. Reinstall the ground bolt or nut securely.
5. Check if add-on accessories interfere with the ground circuit.
6. If several wire harnesses are crimped into one ground eyelet terminal, check if they are installed correctly. Make sure all wire harnesses are clean, securely fastened and providing a good ground path.

45

Diagnosis Procedure

HINT:

Use following procedures to troubleshoot the rear view mirror control system.

1
Vehicle brought to workshop
NEXT
2
Check battery voltage

Standard voltage: 11 to 14 V

If voltage is below 11 V, recharge or replace the battery before proceeding to next step.

NEXT

3 Customer problem analysis

NEXT

4 Check for DTCs (current DTC and history DTC)

**DTC
occurs**

For current DTC, go to step 6

**No
DTC**

For history DTC, go to step 7

5 Problem repair (no DTC), then go to step 8

NEXT

6 Troubleshoot according to Diagnostic Trouble Code (DTC) chart, then go to step 8

NEXT

7 Troubleshoot according to Problem Symptoms Table, then go to step 8

NEXT

8 Adjust, repair or replace

NEXT

9 Conduct test and confirm malfunction has been repaired

NEXT

10 End

45



Diagnostic Trouble Code (DTC) Chart

DTC Code	DTC Definition
B1019-18	Rear Mirror Defroster Control Circuit Circuit Current Below Threshold
B1019-19	Rear Mirror Defroster Control Circuit Circuit Current Above Threshold

Self-diagnosis Detection Logic

DTC Code	DTC Definitions	DTC Detection Condition	Suspected Area
B1019-18	Rear Mirror Defroster Control Circuit Current Below Threshold	Ignition switch ON	• Wire harness or connector • Body Control Module (BCM)
B1019-19	Rear Mirror Defroster Control Circuit Current Above Threshold		

DTC Confirmation Procedure

Confirm that the battery voltage is between 11 to 14 V before performing the following procedures.

- Turn ignition switch to LOCK.
- Connect X-431 3G diagnostic tester (the latest software) to Data Link Connector (DLC), and make it communicate with the vehicle electronic module through data network.
- Turn ignition switch to ON.
- Use X-431 3G diagnostic tester to record and clear the DTCs stored in the Body Control Module (BCM).
- Turn ignition switch to LOCK and wait for a few seconds.
- Turn ignition switch to ON, and then select Read Code.
- If DTC is detected, the malfunction indicated by the DTC is current. Go to the diagnosis procedure - Step 1.
- If DTC is not detected, the malfunction indicated by the DTC is intermittent ([See page 45-8](#)).

 CAUTION

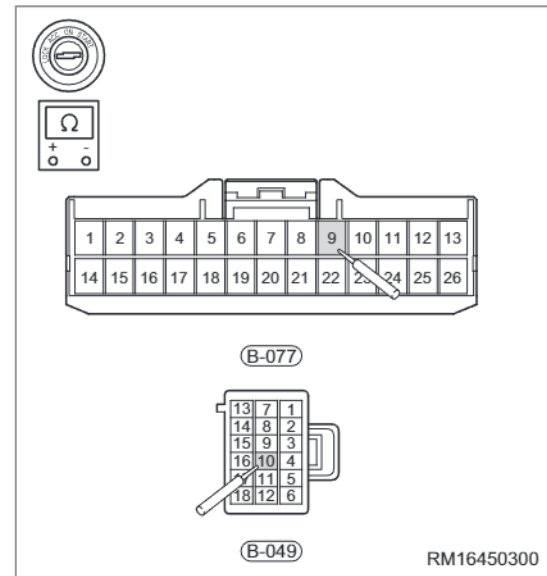
- When performing circuit diagnosis and test, always refer to the circuit diagram for specific circuit and component information.

Diagnosis Procedure

1 Check body wire harness and connector

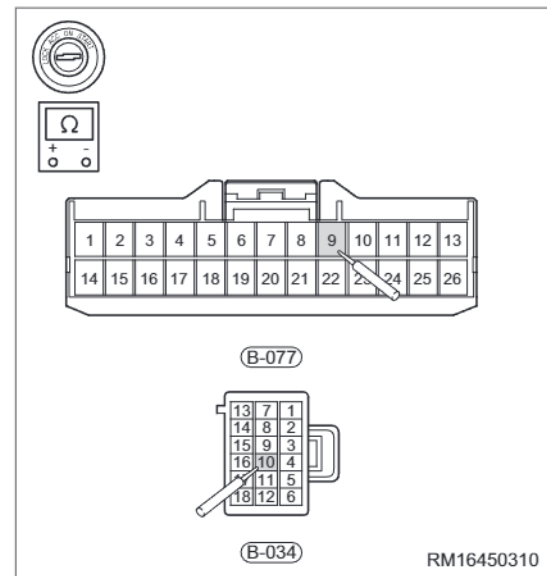
- Turn ignition switch to LOCK.
- Disconnect the negative battery cable.
- Disconnect the body wire harness connectors B-049 and B-077.
- Using a digital multimeter, check for continuity between body wire harness connectors B-049 and B-077 according to the value(s) in the table below.

Multimeter Connection	Condition	Specified Condition
B-049 (10) - B-077 (9)	Always	Continuity



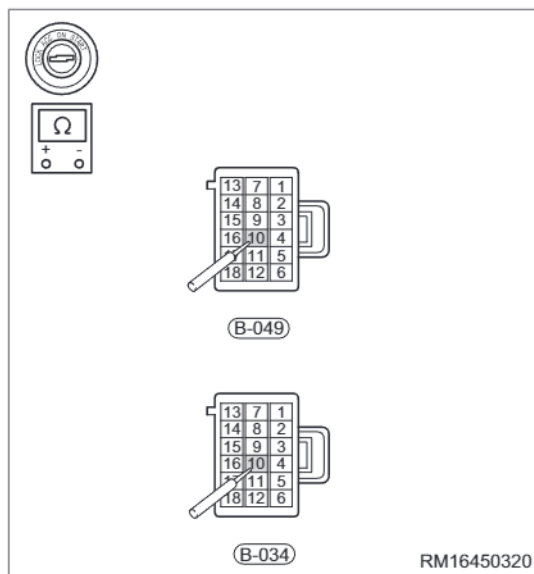
- Disconnect the body wire harness connectors B-034 and B-077.
- Using a digital multimeter, check for continuity between body wire harness connectors B-034 and B-077 according to the value(s) in the table below.

Multimeter Connection	Condition	Specified Condition
B-034 (10) - B-077 (9)	Always	Continuity



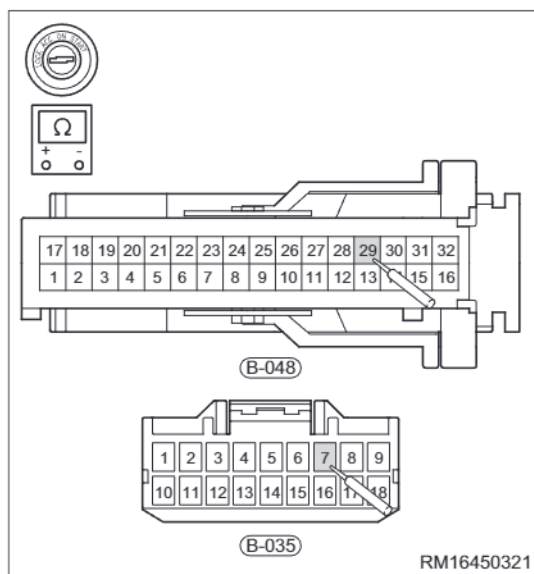
- g. Disconnect the body wire harness connectors B-049 and B-034.
- h. Using a digital multimeter, check for continuity between body wire harness connectors B-049 and B-034 according to the value(s) in the table below.

Multimeter Connection	Condition	Specified Condition
B-049 (10) - B-034 (10)	Always	Continuity



- i. Disconnect the body wire harness connectors B-048 and B-035.
- j. Using a digital multimeter, check for continuity between body wire harness connectors B-048 and B-035 according to the value(s) in the table below.

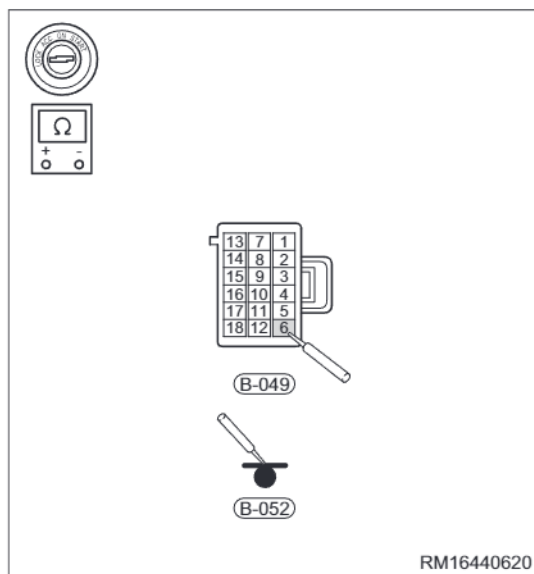
Multimeter Connection	Condition	Specified Condition
B-048 (29) - B-035 (7)	Always	Continuity



45

- k. Disconnect the body wire harness connector B-049 and ground B-052.
- l. Using a digital multimeter, check for continuity between body wire harness connector B-049 and ground point B-052 according to the value(s) in the table below.

Multimeter Connection	Condition	Specified Condition
B-049 (6) - B-052	Always	Continuity

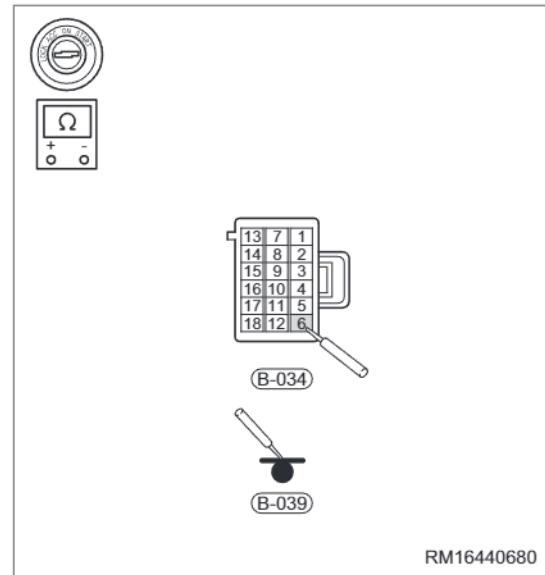


- m. Disconnect the body wire harness connector B-034 and ground B-039.
- n. Using a digital multimeter, check for continuity between body wire harness connector B-034 and ground point B-039 according to the value(s) in the table below.

Multimeter Connection	Condition	Specified Condition
B-034 (6) - B-039	Always	Continuity

NG

Repair or replace body wire harness and connector



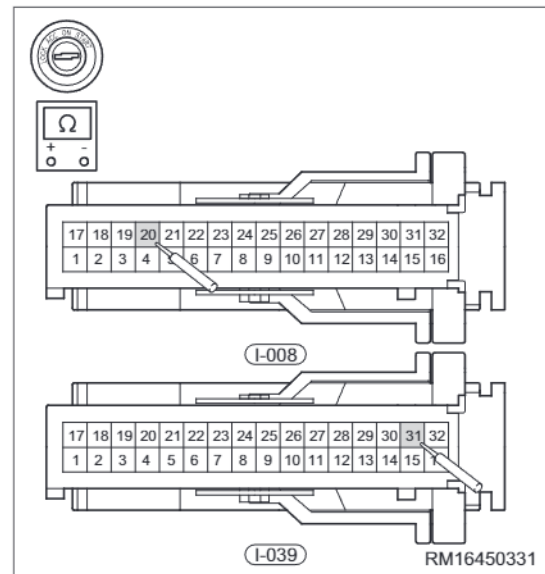
OK

2

Check instrument panel wire harness and connector

- a. Turn ignition switch to LOCK.
- b. Disconnect the negative battery cable.
- c. Disconnect the instrument panel wire harness connectors I-008 and I-039.
- d. Using a digital multimeter, check for continuity between instrument panel wire harness connectors I-008 and I-039 according to the value(s) in the table below.

Multimeter Connection	Condition	Specified Condition
I-008 (20) - I-039 (31)	Always	Continuity

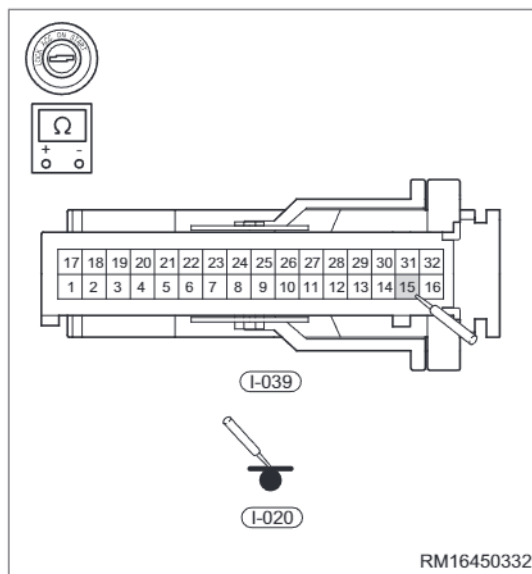


- e. Disconnect the instrument panel wire harness connector I-039 and ground point I-020.
- f. Using a digital multimeter, check for continuity between instrument panel wire harness connectors connector I-039 and ground point I-020 according to the value(s) in the table below.

Multimeter Connection	Condition	Specified Condition
I-039 (15) - I-020	Always	Continuity

NG

Repair or replace instrument panel wire harness and connector



OK

3

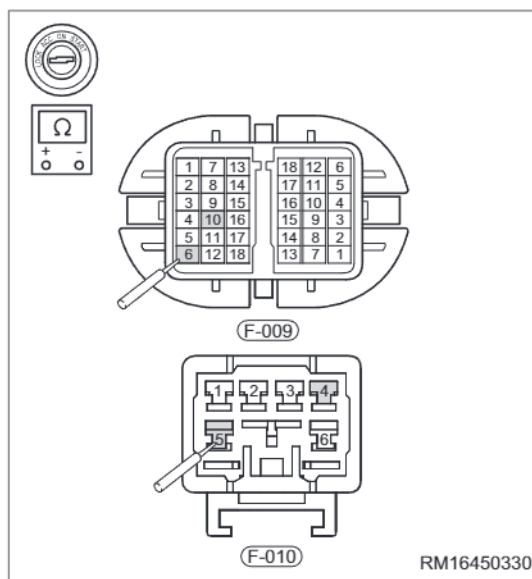
Check front left door wire harness and connector

- a. Turn ignition switch to LOCK.
- b. Disconnect the negative battery cable.
- c. Disconnect the front left door wire harness connectors F-009 and F-010.
- d. Using a digital multimeter, check for continuity between front left door wire harness connectors F-009 and F-010 according to the value(s) in the table below.

Multimeter Connection	Condition	Specified Condition
F-009 (6) - F-010 (5)	Always	Continuity
F-009 (10) - F-010 (4)	Always	Continuity

NG

Repair or replace front left door wire harness and connector



OK

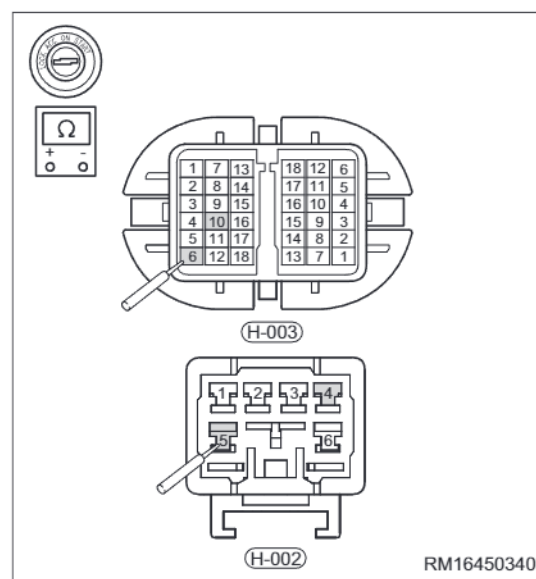
4 Check front right door wire harness and connector

- Turn ignition switch to LOCK.
- Disconnect the negative battery cable.
- Disconnect the front right door wire harness connectors H-002 and H-003.
- Using a digital multimeter, check for continuity between front right door wire harness connectors H-002 and H-003 according to the value(s) in the table below.

Multimeter Connection	Condition	Specified Condition
H-002 (4) - H-003 (10)	Always	Continuity
H-002 (5) - H-003 (6)	Always	Continuity

NG

Repair or replace front right door wire harness and connector



OK

5 Reconfirm DTCs

- Connect all connectors.
- Connect the negative battery cable.
- Turn ignition switch to ON.
- Use X-431 3G diagnostic tester (the latest software) to record and clear DTCs stored in the Body Control Module (BCM).
- Turn ignition switch to LOCK and wait for a few seconds.
- Turn ignition switch to ON.
- Use X-431 3G diagnostic tester (the latest software) to read DTCs stored in the Body Control Module (BCM) again.
- Read the DTCs.

Result	Proceed to
DTC B1019-18 and B1019-19 are output	NG
No DTC is output	OK

NG

Replace Body Control Module (BCM)

OK

System is normal

ON-VEHICLE SERVICE

Outside Rear View Mirror Assembly

Removal

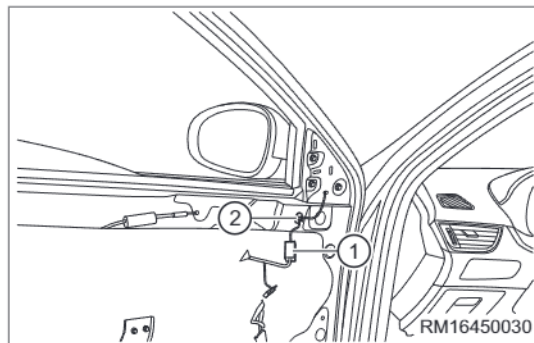
HINT:

- Use same procedures for right and left sides.
- Procedures listed below are for left side.

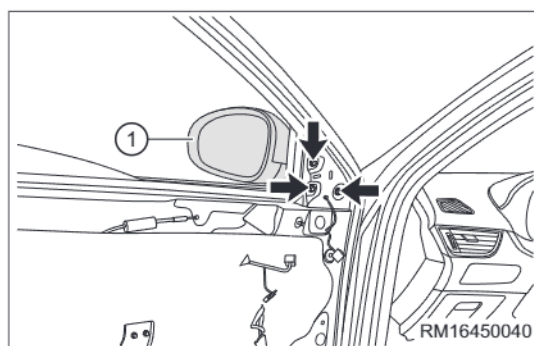
CAUTION

- Be sure to wear safety equipment to prevent accidents, when removing the outside rear view mirror assembly.
- When removing outside rear view mirror assembly, operate carefully to prevent damage to components.
- When removing outside rear view mirror assembly, prevent scratching interior and body paint surface.

1. Turn off all electrical equipment and the ignition switch.
2. Disconnect the negative battery cable.
3. Remove the front left door inner protector assembly ([See page 48-22](#)).
4. Remove the left outside rear view mirror assembly.
 - a. Disconnect the outside rear view mirror assembly connector (1).
 - b. Using a screwdriver wrapped with protective tape, pry off the clip (2) from wire harness connector.



- c. Remove 3 fixing bolts (arrow) from outside rear view mirror assembly, and remove the left outside rear view mirror assembly (1).
(Tightening torque: $6 \pm 1 \text{ N}\cdot\text{m}$)

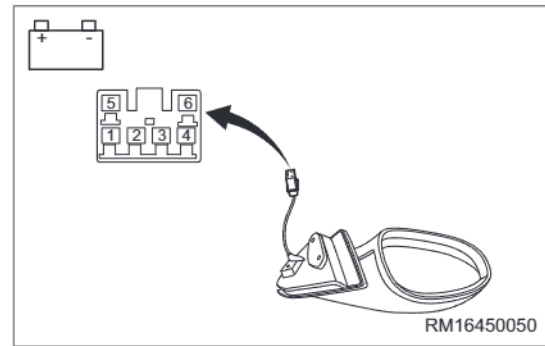


Inspection

1. Check the outside rear view mirror assembly.
 - a. Apply battery voltage to the terminals of outside rear view mirror assembly connector and check the operation of outside rear view mirror assembly according to the table below.

Measurement Condition	Specified Condition
Battery positive (+) → Terminal 3 Battery negative (-) → Terminal 1	UP
Battery positive (+) → Terminal 1 Battery negative (-) → Terminal 3	DOWN
Battery positive (+) → Terminal 1 Battery negative (-) → Terminal 2	LEFT
Battery positive (+) → Terminal 2 Battery negative (-) → Terminal 1	RIGHT

If result is not as specified, replace the outside rear view mirror assembly.



Installation

Installation is in the reverse order of removal.

CAUTION

- Connect connector in place and tighten fixing bolts to the specified torque, when installing the outside rear view mirror assembly.
- Make sure the outside rear view mirror assembly can move smoothly, flexibly and reliably after installing.

Outside Rear View Mirror Lens Assembly

Removal

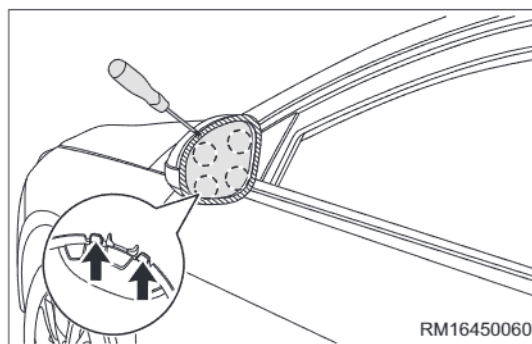
HINT:

- Use same procedures for right and left sides.
- Procedures listed below are for left side.

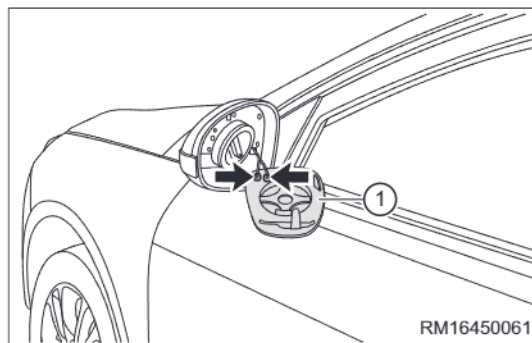
CAUTION

- Avoid breaking claws when removing the outside rear view mirror lens assembly.
- Avoid damaging lens due to dropping when removing the outside rear view mirror lens assembly.
- Prevent body paint surface from being scratched, when removing the outside rear view mirror lens assembly.

1. Turn off all electrical equipment and the ignition switch.
2. Disconnect the negative battery cable.
3. Remove the left outside rear view mirror lens assembly.
 - a. Press the outside rear view mirror surface to tilt it.
 - b. Apply protective tape around the exterior frame of outside rear view mirror.
 - c. Using a screwdriver wrapped with protective tape, pry off the claws (arrow) of outside rear view mirror lens assembly.



- d. Disconnect the connectors (arrow) from rear view mirror lens assembly, and remove the left outside rear view mirror lens assembly (1).

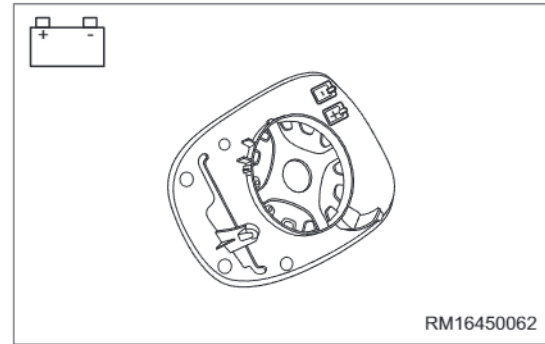


Inspection

1. Check the outside rear view mirror lens assembly.
 - a. Apply battery voltage to the terminals of outside rear view mirror lens assembly connector and check the operation of outside rear view mirror lens assembly according to the table below.

Measurement Condition		Specified Condition
Battery positive (+)	Battery negative (-)	Outside rear view mirror lens becomes warm

If result is not as specified, replace the outside rear view mirror lens assembly.



Installation

Installation is in the reverse order of removal.

CAUTION

- Make sure the outside rear view mirror lens assembly can move smoothly, flexibly and reliably after installing.

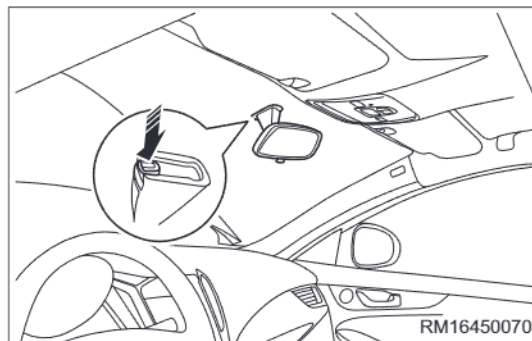
Inside Rear View Mirror Assembly

Removal

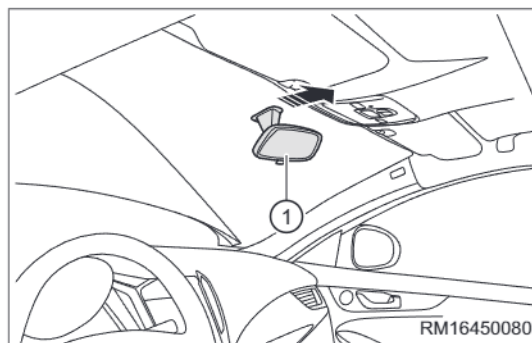
CAUTION

- Appropriate force should be applied when removing the inside rear view mirror assembly. Be careful not to operate roughly.
- Prevent front windshield from being scratched, when removing the inside rear view mirror assembly.

1. Remove the inside rear view mirror assembly.
 - a. Using a screwdriver wrapped with protective tape, press the fixing claw of inside rear view mirror assembly.



- b. Remove the inside rear view mirror assembly (1) in the direction of arrow as shown in the illustration.



Installation

45 Installation is in the reverse order of removal.

CAUTION

- Make sure the inside rear view mirror assembly can move smoothly, flexibly and reliably after installing.

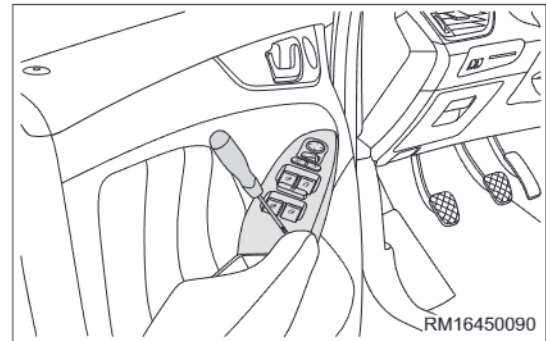
Outside Rear View Mirror Adjustment Switch

Removal

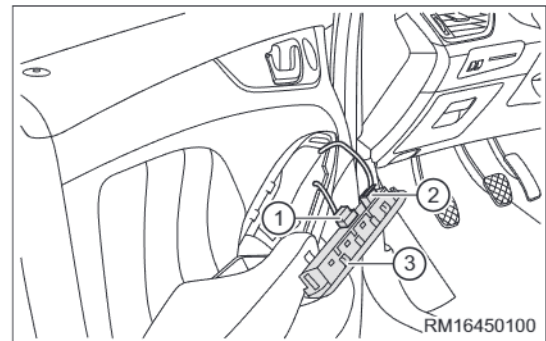
CAUTION

- Be sure to wear safety equipment to prevent accidents, when removing the outside rear view mirror adjustment switch.
- Prevent front left door inner protector assembly from being scratched, when removing the outside rear view mirror adjustment switch.

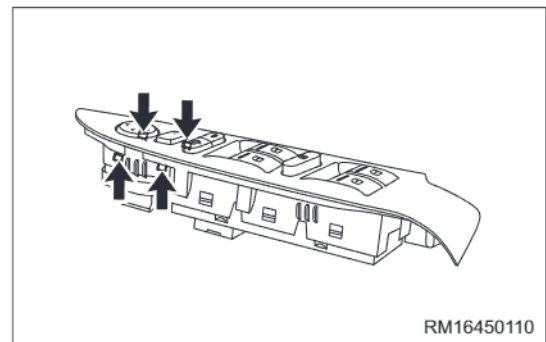
1. Turn off all electrical equipment and the ignition switch.
2. Disconnect the negative battery cable.
3. Remove the outside rear view mirror adjustment switch.
 - a. Using a screwdriver wrapped with protective tape, pry off the power glass regulating control master switch assembly.



- b. Disconnect the power glass regulating control master switch connector (1).
- c. Disconnect the outside rear view mirror adjustment switch connector (2).
- d. Remove the power glass regulating control master switch assembly (3).



- e. Using a screwdriver wrapped with protective tape, detach the claws (arrow) of outside rear view mirror adjustment switch.
- f. Remove the outside rear view mirror adjustment switch from power glass regulating control master switch assembly.

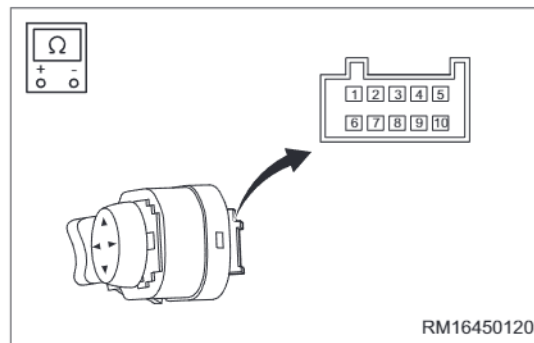


Inspection

1. Check the outside rear view mirror adjustment switch.
 - a. Adjust the outside rear view mirror adjustment switch to "L" position.
 - b. Using a multimeter, check for continuity between terminals of the outside rear view mirror adjustment switch according to the table below.

Multimeter Connection	Switch Condition	Specified Condition
Terminal 6 - Terminal 7	UP	Continuity
	DOWN	No continuity
Terminal 3 - Terminal 8	OFF	No continuity
	DOWN	Continuity
Terminal 3 - Terminal 7	DOWN	Continuity
	OFF	No continuity
Terminal 3 - Terminal 7	LEFT	Continuity
	OFF	No continuity
Terminal 2 - Terminal 8	RIGHT	Continuity
	OFF	No continuity

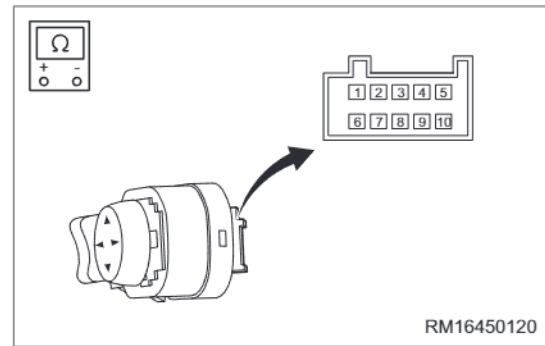
If result is not as specified, replace the outside rear view mirror adjustment switch.



- c. Adjust the outside rear view mirror adjustment switch to "R" position.
- d. Using a multimeter, check for continuity between terminals of the outside rear view mirror adjustment switch according to the table below.

Multimeter Connection	Switch Condition	Specified Condition
Terminal 6 - Terminal 7	UP	Continuity
	DOWN	No continuity
Terminal 5 - Terminal 8	OFF	No continuity
	DOWN	Continuity
Terminal 5 - Terminal 7	DOWN	Continuity
	OFF	No continuity
Terminal 5 - Terminal 7	LEFT	Continuity
	RIGHT	No continuity
Terminal 4 - Terminal 7	RIGHT	Continuity
	OFF	No continuity

If result is not as specified, replace the outside rear view mirror adjustment switch.



Installation

Installation is in the reverse order of removal.

CAUTION

- Operate carefully to prevent damage to other components, when installing the outside rear view mirror adjustment switch.
- Connect connectors in place when installing the outside rear view mirror adjustment switch.
- Check that the switch can operate normally after installing the outside rear view mirror adjustment switch.

