

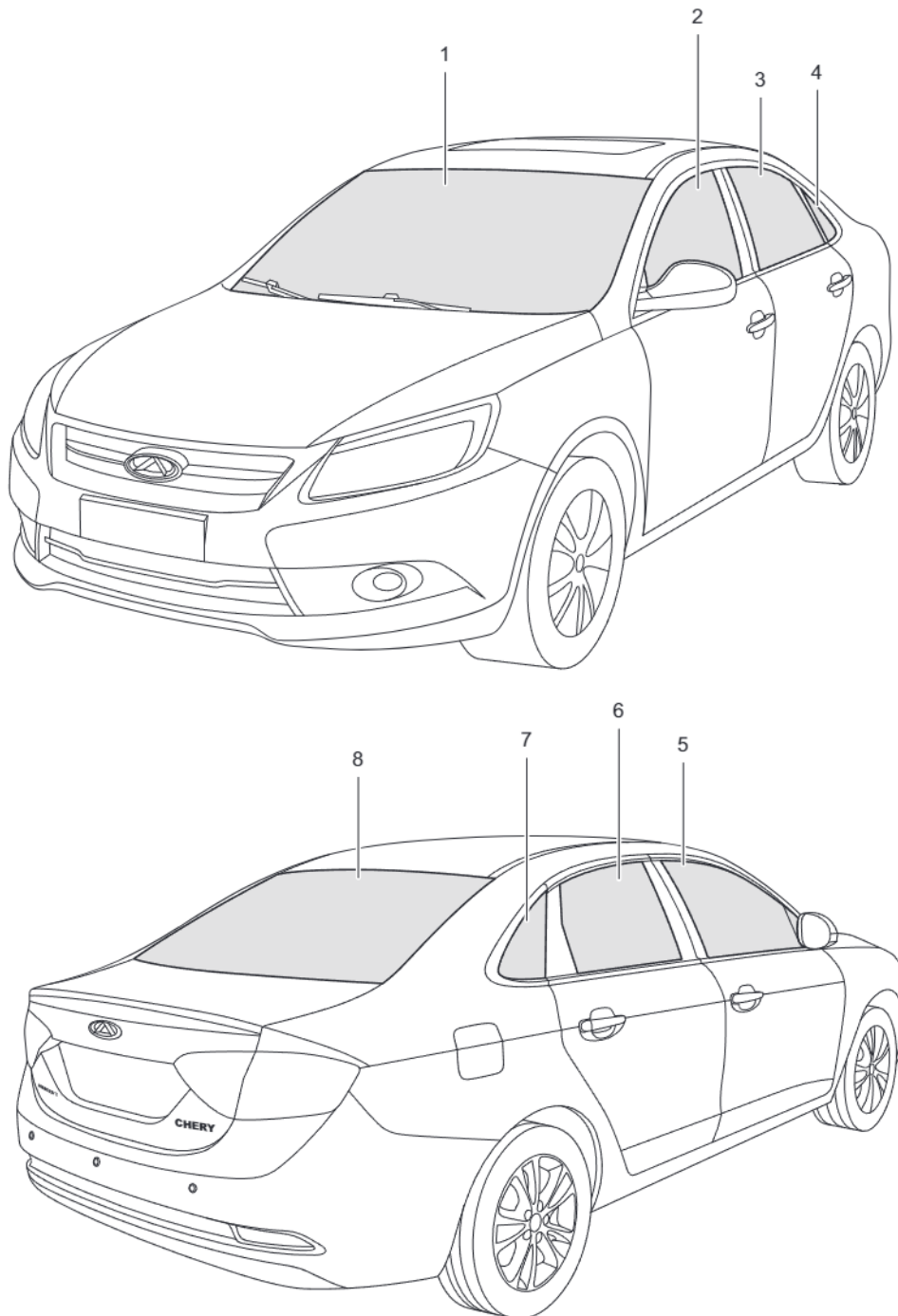
WINDSHIELD/WINDOW GLASS

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GENERAL INFORMATION

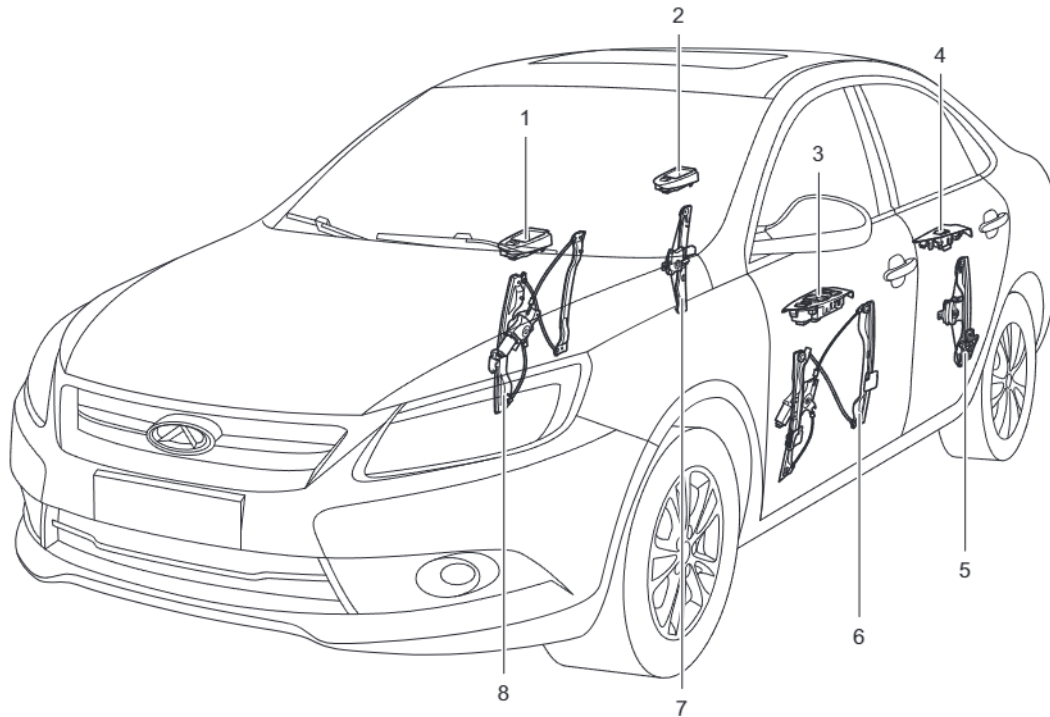
Description



RM16440010

44 - WINDSHIELD/WINDOW GLASS

1 - Front Windshield Assembly	2 - Front Left Door Glass Assembly
3 - Rear Left Door Glass Assembly	4 - Rear Left Door Triangular Window Glass Assembly
5 - Front Right Door Glass Assembly	6 - Rear Right Door Glass Assembly
7 - Rear Right Door Triangular Window Glass Assembly	8 - Rear Windshield Assembly



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1 - Front Right Door Power Glass Regulating Switch Assembly	2 - Rear Right Door Power Glass Regulating Switch Assembly
3 - Left Power Glass Regulating Control Master Switch Assembly	4 - Rear Left Door Power Glass Regulating Switch Assembly
5 - Rear Left Door Power Glass Regulator	6 - Front Left Door Power Glass Regulator
7 - Rear Right Door Power Glass Regulator	8 - Front Right Door Power Glass Regulator

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Power window control system controls each power window glass UP/DOWN function, by operating the power glass regulating control switches on door inner protector assembly. Main control devices of this system include: power glass regulating control master switch (built into driver side door) and power glass regulating switches (built into front and rear passenger side doors). Press the power glass regulating control master switch or any power glass regulating switch, to transmit the UP/DOWN signal to corresponding power glass regulator motor, thus controlling the UP/DOWN operation of corresponding power window glass.

Main Component Function

Component	Description
Power window lock switch	Located on front left door inner protector assembly. It controls the operation of front and rear passenger door power window glass. When power window lock switch is in lock position, UP/DOWN operation of power window glass will be possible only with driver side power glass regulating control master switch.
Power glass regulating switch	Locates on door inner protector assembly. Each power glass regulating switch controls UP/DOWN operation of corresponding power window glass.
Power glass regulator motor	Receives switch signals and converts them to activate power glass regulator motor to change power window glass position.

System Function

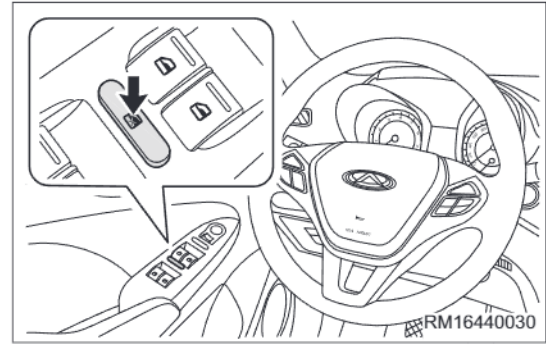
Function	Description
Manual UP function	Available for both power glass regulating control master switch and power glass regulating switches. Power window glass goes up when any of these switches is pulled and held, and stops as the switch is released.
Manual DOWN function	Available for both power glass regulating control master switch and power glass regulating switches. Power window glass goes down when any of these switches is pushed and held, and stops as the switch is released.
Automatic DOWN function	Available for both power glass regulating control master switch and power glass regulating switches. Power window glass goes down when any of these switches is pushed. To stop it partway, push or pull the switch again.
Power window LOCK function	Operation of power window glass is impossible with all passenger side power glass regulating switches when power window lock switch is pressed. At this time, only operation of driver side power window glass is possible. This function can be canceled only when power window lock switch is pressed again.

Operation Inspection

1. Check the power window lock switch.
 - a. Check that front and rear passenger side power window glass cannot be operated with front and rear passenger power glass regulating switches, when power window lock switch is pressed.

OK: Operation of front and rear passenger side power glass regulating switches is impossible.
 - b. Check that front and rear passenger side power window glasses can be operated with front and rear passenger power glass regulating switches, when power window lock switch is pressed again.

OK: Operation of front and rear passenger side power glass regulating switches is possible.



2. Check the manual UP/DOWN function.
 - a. Check that driver side power window glass operates as follows:

OK

Condition	Power Glass Regulating Control Master Switch	Switch Operation	Power Window Glass
Ignition switch ON	Driver side	Pulled	UP (close)
		Pushed	DOWN (open)

- b. Check that power window glass other than driver side power window glass operate as follows:

OK

Condition	Power Glass Regulating Switch	Switch Operation	Power Window Glass
- Ignition switch ON - Window lock switch OFF	Passenger side	Pulled	UP (close)
		Pushed	DOWN (open)
	Rear left side	Pulled	UP (close)
		Pushed	DOWN (open)
	Rear right side	Pulled	UP (close)
		Pushed	DOWN (open)

3. Check the remote manual UP/DOWN function.

- a. Check that driver side power window glass operates as follows:

OK

Condition	Power Glass Regulating Control Master Switch	Switch Operation	Power Window Glass
Ignition switch ON	Driver side	Fully pulled	UP (close)
		Fully pushed	DOWN (open)

- b. Check that power window glass other than driver side power window glass operate as follows:

OK

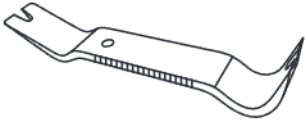
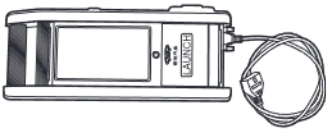
Condition	Power Glass Regulating Switch	Switch Operation	Power Window Glass
- Ignition switch ON - Window lock switch OFF	Passenger side	Pulled	UP (close)
		Pushed	DOWN (open)
	Rear left side	Pulled	UP (close)
		Pushed	DOWN (open)
	Rear right side	Pulled	UP (close)
		Pushed	DOWN (open)

Specifications

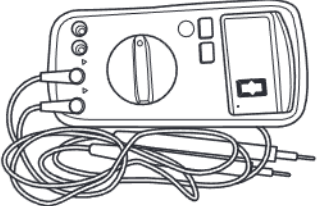
Description	Torque (N·m)
Front Door Cover Plate Fixing Screw	1.5 ± 0.5
Front Door Glass Rear Guide Rail Assembly Fixing Bolt	7 ± 1
Front Door Power Glass Regulator Fixing Bolt	7 ± 1
Front Door Power Glass Regulator Fixing Nut	7 ± 1
Rear Door C-pillar Cover Plate Assembly Fixing Screw	1.5 ± 0.5
Rear Door Cover Plate Fixing Screw	1.5 ± 0.5
Rear Door Glass Front Guide Rail Assembly Fixing Bolt	7 ± 1
Rear Door Glass Rear Guide Rail Assembly Fixing Bolt	7 ± 1
Rear Door Power Glass Regulator Fixing Bolt	7 ± 1
Rear Door Power Glass Regulator Fixing Nut	7 ± 1
Center Control Integration Panel Assembly	1.5 ± 0.5

Tools

Special Tools

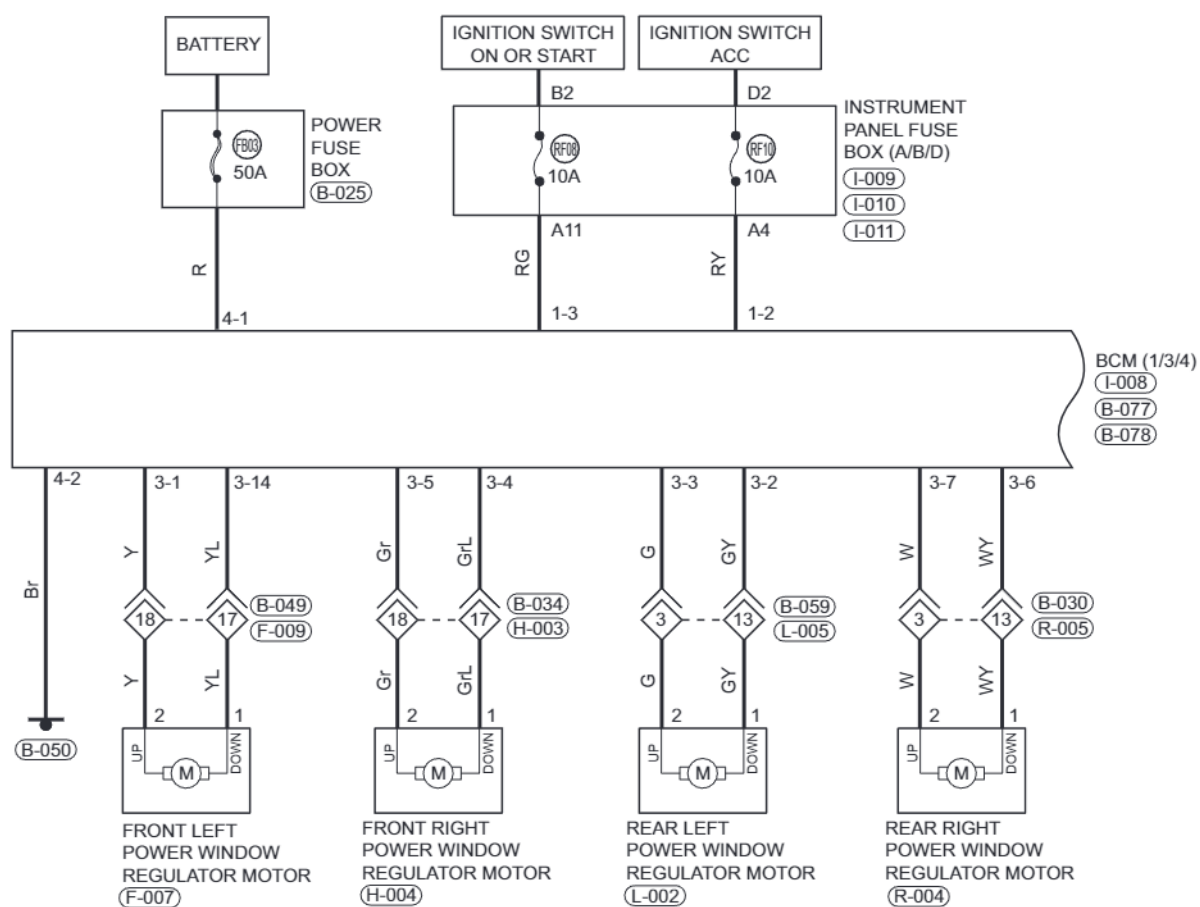
Interior Crow Plate	 RCH0000025
X-431 3G Diagnostic Tester	 RCH0000001

General Tool

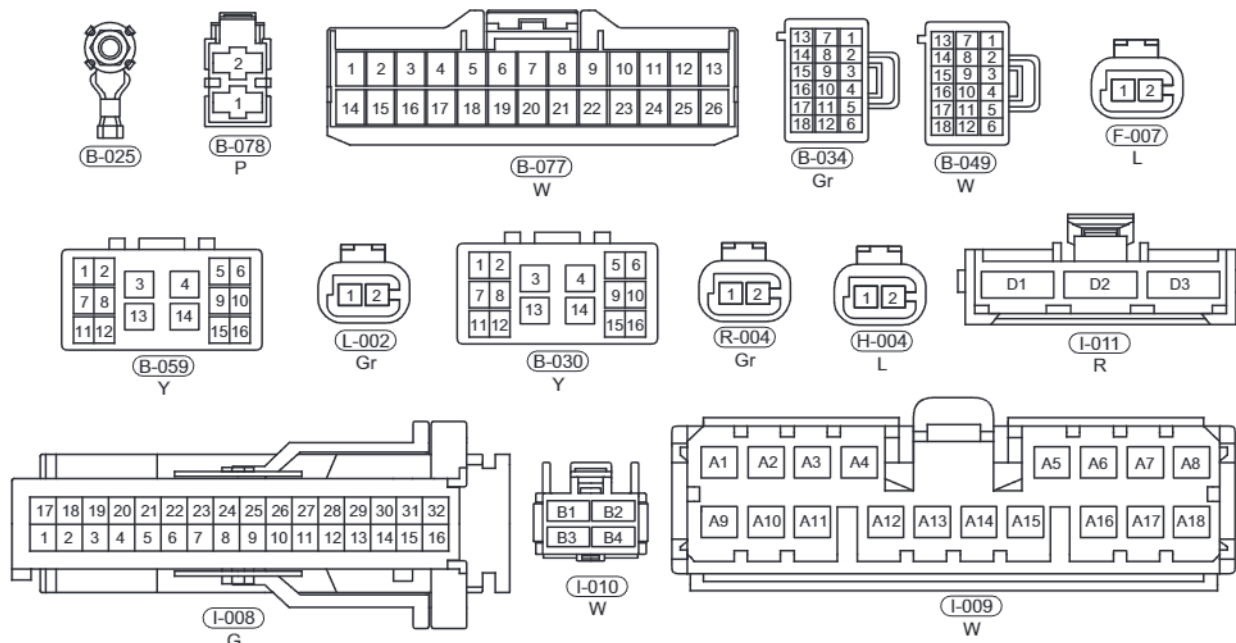
Digital Multimeter	 RCH0000002
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Circuit Diagram

Power Window Control System (Page 1 of 3)

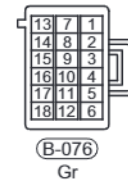
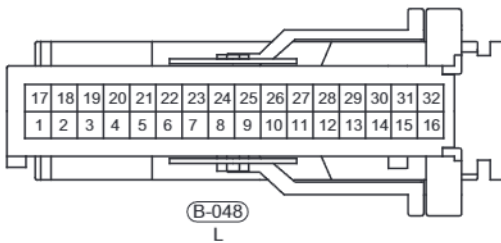
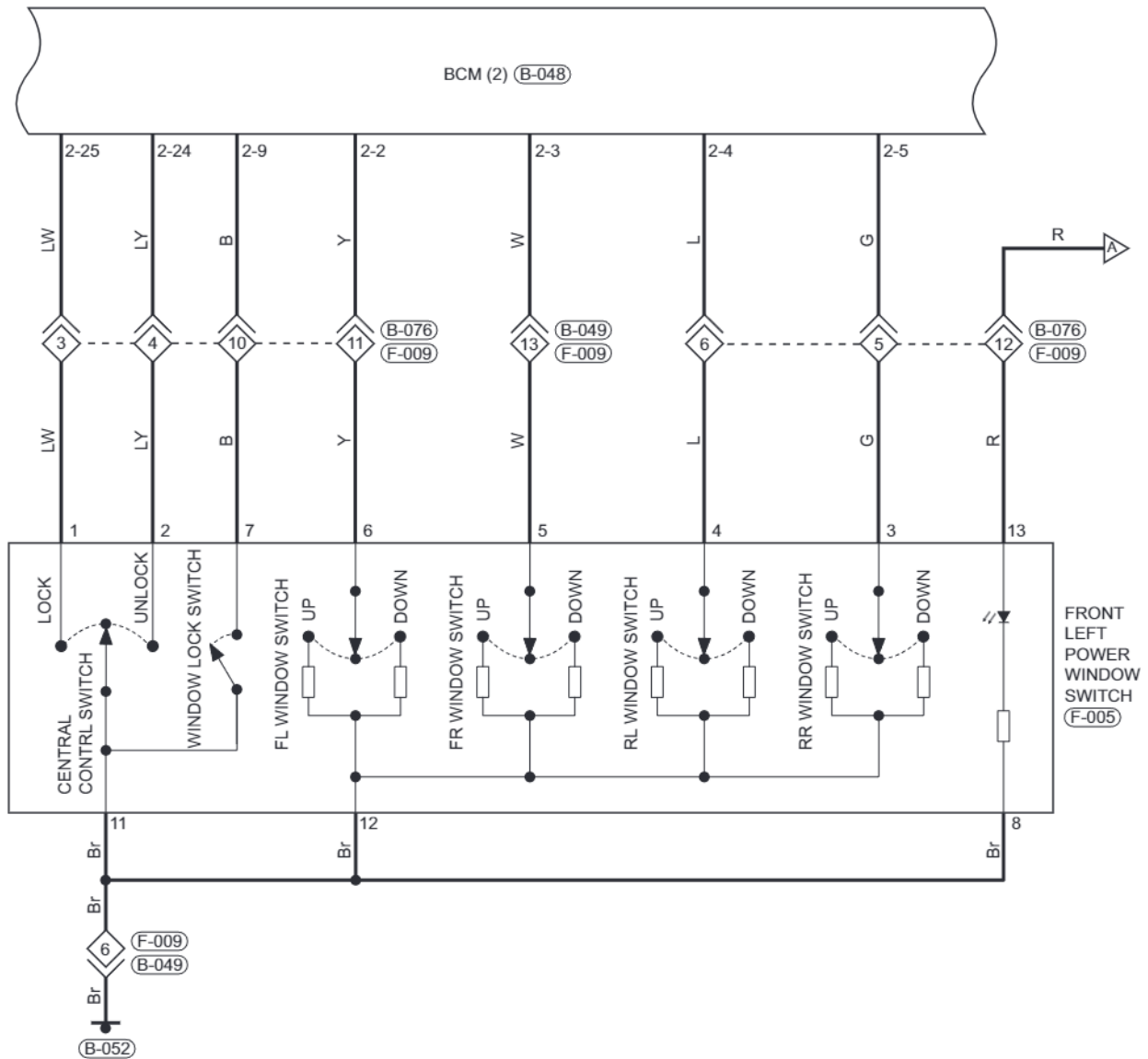


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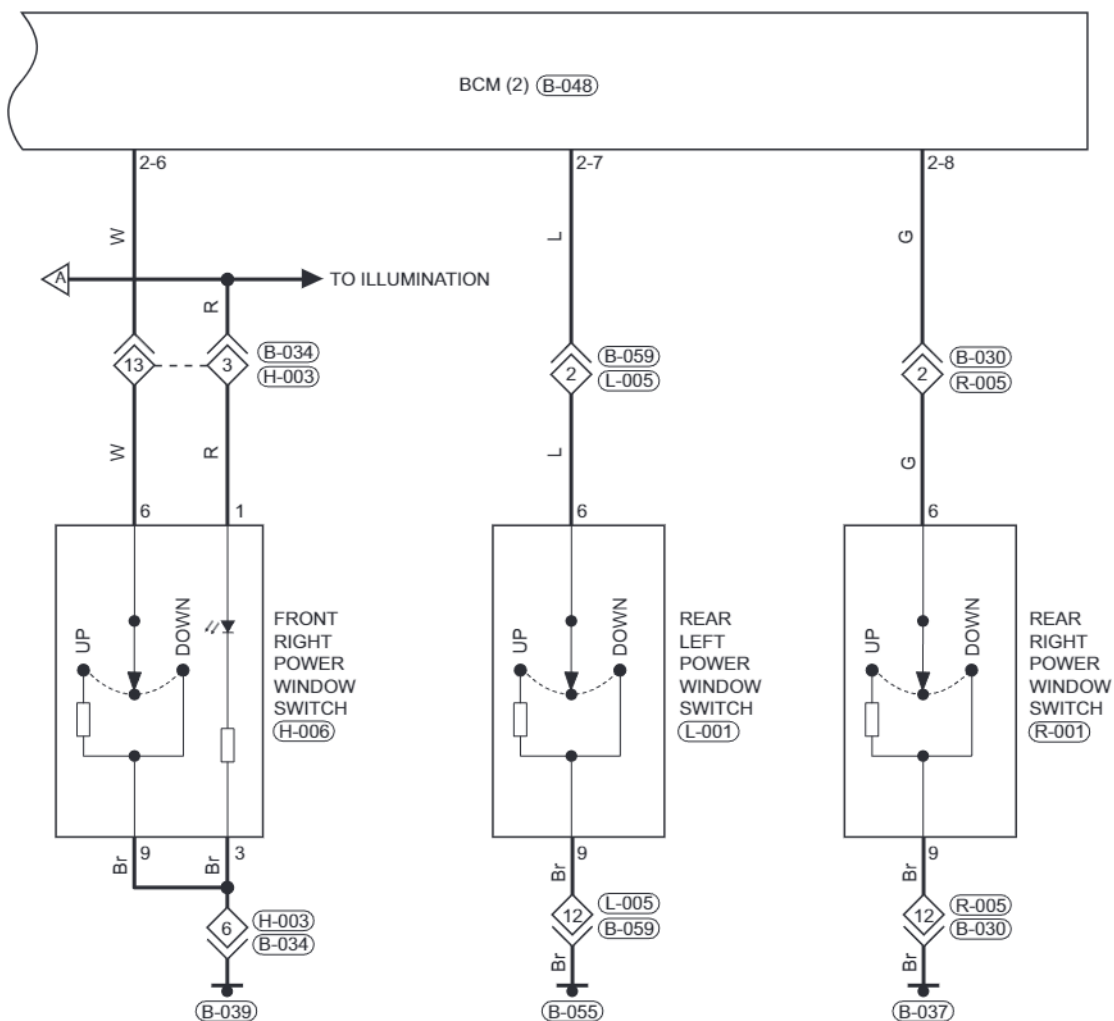
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Power Window Control System (Page 2 of 3)

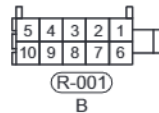
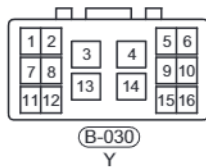
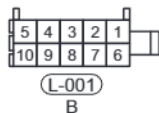
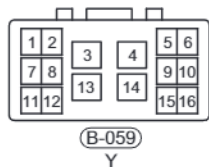
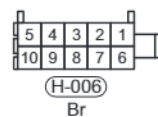
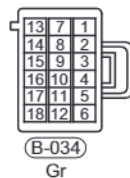
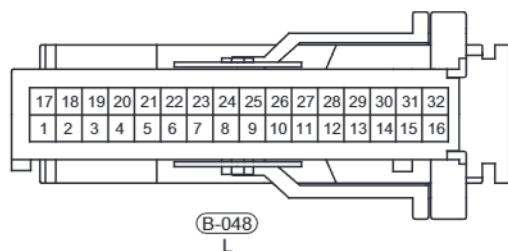


EM16440020

Power Window Control System (Page 3 of 3)



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EM16440030

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
Driver side power glass cannot be operated with driver side power glass regulating control master switch	Fuse	53-36
	Driver side power glass regulating control master switch	44-48
	Driver side power glass regulator	44-58
	Wire harness or connector	-
	Body Control Module (BCM)	-
Passenger side power glass cannot be operated with passenger side power glass regulating switch	Fuse	53-36
	Passenger side power glass regulating switch	44-60
	Passenger side power glass regulator	44-69
	Wire harness or connector	-
	Body Control Module (BCM)	-
Power window glass has intermittent problem	Ground	53-29
	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 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 a digital multimeter:

- Troubleshoot the electrical malfunctions and wire harness system.
- Troubleshoot the basic malfunction.
- Measure 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 malfunction is present, and carry out diagnostic test and repair procedures.
3. If DTC cannot be cleared, the malfunction is present.
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 power glass system ground points related to the latest DTC.
8. If multiple 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 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 related circuit signal is interrupted.
- If possible, try to duplicate the conditions under which the DTC was set.
- Look for the data that has changed or the DTC to reset during wiggle test.
- Look for broken, bent, protruded or corroded terminals.
- Inspect the mounting areas of power window assembly, wire harnesses or wire harness connectors and so on for damage, foreign matter, etc. that will cause incorrect signals.
- Check and clean all wire harness connectors and ground points related to DTC.
- Remove the Body Control Module (BCM) from malfunctioning vehicle, then 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 original vehicle.
- If multiple trouble codes were set, refer to circuit diagrams to look for any common ground circuit or power supply circuit applied to the DTC.
- Refer to any Technical Bulletin that may apply to the malfunction.

44 Ground Inspection

Groundings are very important to entire circuit system, which are normal or not can seriously affect the entire circuit system. Groundings are often exposed to moisture, dirt and other corrosive environments. Corrosion (rust) and oxidation may increase load resistance. In such cases, the normal circuit operation will be seriously affected. Check the ground points as follows:

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 terminal, check for proper crimps. Make sure that all wire harnesses are clean, securely fastened to provide a good ground line.

Diagnosis Procedure

HINT:

Use following procedures to troubleshoot the power glass 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

44



8	Adjust, repair or replace
---	---------------------------

NEXT

9	Conduct test and confirm malfunction has been repaired
---	--

NEXT

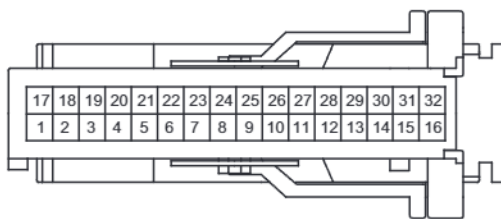
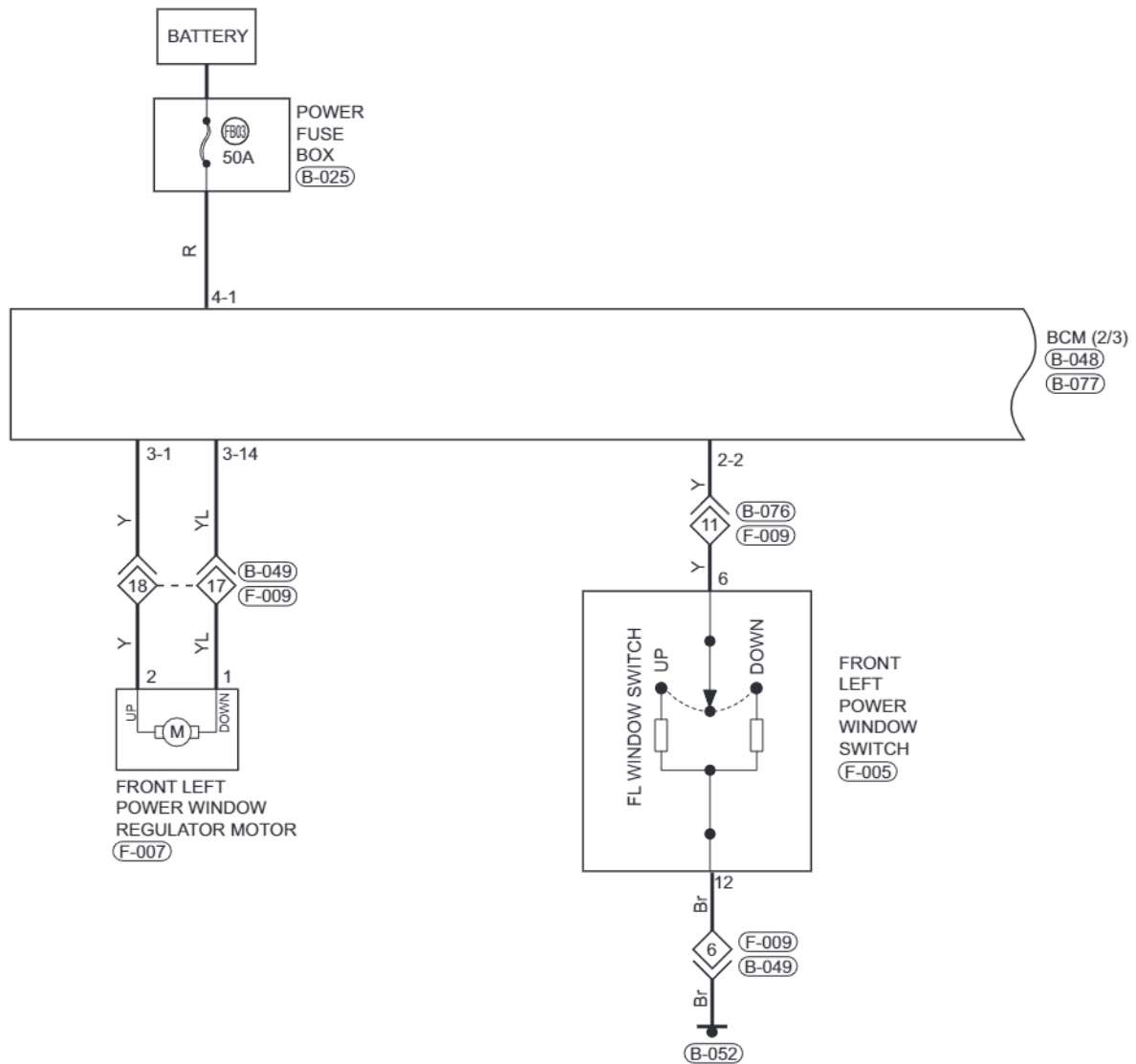
10	End
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Diagnostic Trouble Code (DTC) Chart

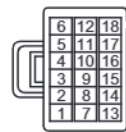
DTC Code	DTC Definition
B100C-18	FL Window Up Control Circuit Current Below Threshold
B100C-19	FL Window Up Control Circuit Current Above Threshold
B100C-71	FL Window Up Control Circuit Actuator Stuck
B100D-18	FL Window Down Control Circuit Current Below Threshold
B100D-19	FL Window Down Control Circuit Current Above Threshold
B100D-71	FL Window Down Control Circuit Actuator Stuck
B100E-18	FR Window Up Control Circuit Current Below Threshold
B100E-19	FR Window Up Control Circuit Current Above Threshold
B100E-71	FR Window Up Control Circuit Actuator Stuck
B100F-18	FR Window Down Control Circuit Current Below Threshold
B100F-19	FR Window Down Control Circuit Current Above Threshold
B100F-71	FR Window Down Control Circuit Actuator Stuck
B1010-18	RL Window Up Control Circuit Current Below Threshold
B1010-19	RL Window Up Control Circuit Current Above Threshold
B1010-71	RL Window Up Control Circuit Actuator Stuck
B1011-18	RL Window Down Control Circuit Current Below Threshold
B1011-19	RL Window Down Control Circuit Current Above Threshold
B1011-71	RL Window Down Control Circuit Actuator Stuck
B1012-18	RR Window Up Control Circuit Current Below Threshold
B1012-19	RR Window Up Control Circuit Current Above Threshold
B1012-71	RR Window Up Control Circuit Actuator Stuck
B1013-18	RR Window Down Control Circuit Current Below Threshold
B1013-19	RR Window Down Control Circuit Current Above Threshold
B1013-71	RR Window Down Control Circuit Actuator Stuck



DTC	B100C-18	FL Window Up Control Circuit Current Below Threshold
DTC	B100C-19	FL Window Up Control Circuit Current Above Threshold
DTC	B100C-71	FL Window Up Control Circuit Actuator Stuck
DTC	B100D-18	FL Window Down Control Circuit Current Below Threshold
DTC	B100D-19	FL Window Down Control Circuit Current Above Threshold
DTC	B100D-71	FL Window Down Control Circuit Actuator Stuck



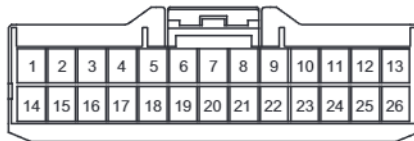
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L



(B-076)
Gr



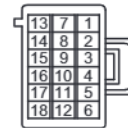
(B-025)



(B-077)
W



(F-005)
Br



(B-049)
W



(F-007)
L

EM16440050

Self-diagnosis Detection Logic

DTC Code	DTC Definition	DTC Detection Condition	Suspected Area
B100C-18	FL Window Up Control Circuit Current Below Threshold	Ignition switch ON	• Glass regulating control master switch • Power glass regulator assembly • Wire harness or connector • Body Control Module (BCM)
B100C-19	FL Window Up Control Circuit Current Above Threshold		
B100C-71	FL Window Up Control Circuit Actuator Stuck		
B100D-18	FL Window Down Control Circuit Current Below Threshold		
B100D-19	FL Window Down Control Circuit Current Above Threshold		
B100D-71	FL Window Down Control Circuit Actuator Stuck		

DTC Confirmation Procedure

Confirm that battery voltage is 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 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 Body Control Module (BCM) system.
- 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 current DTC is present. Go to Diagnosis Procedure - Step 1.
- If DTC is not detected, the malfunction indicated by the DTC is intermittent ([See page 44-14](#)).

 CAUTION

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

Diagnosis Procedure

1

Check power glass regulating control master switch

- Remove the power glass regulating control master switch from malfunctioning vehicle, then install it to a new vehicle and perform a test.
- Connect all connectors.
- Connect the negative battery cable and turn ignition switch to ON.

d. Check the operation of power glass regulating control master switch.

NG

Replace power glass regulating control master switch

OK

2

Check front left door power glass regulator

- Remove the front left door power glass regulator from malfunctioning vehicle, then install it to a new vehicle and perform a test.
- Connect all connectors.
- Connect the negative battery cable and turn ignition switch to ON.
- Check the operation of front left door power glass regulator.

NG

Replace front left door power glass regulator

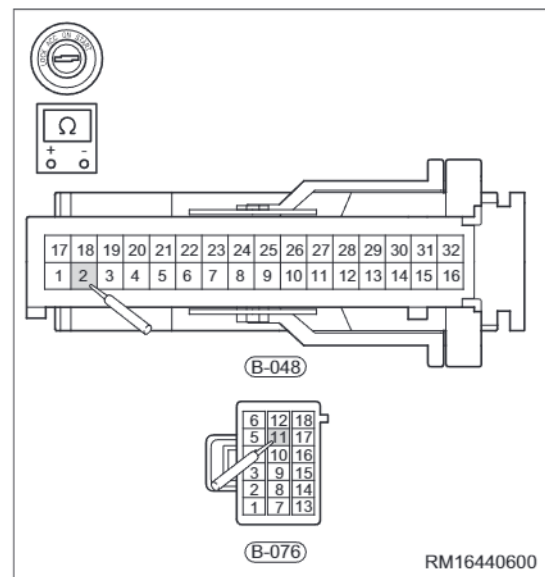
OK

3

Check body wire harness and connector

- Turn ignition switch to LOCK.
- Disconnect the negative battery cable.
- Disconnect the body wire harness connectors B-048 and B-076.
- Using a digital multimeter, check for continuity between body wire harness connectors B-048 and B-076 according to the table below.

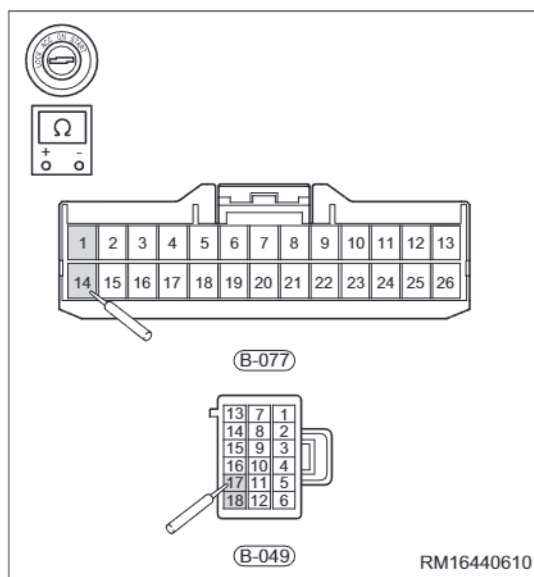
Multimeter Connection	Condition	Specified Condition
B-048 (2) - B-076 (11)	Always	Continuity



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- e. Disconnect the body wire harness connectors B-077 and B-049.
- f. Using a digital multimeter, check for continuity between body wire harness connectors B-077 and B-049 according to the table below.

Multimeter Connection	Condition	Specified Condition
B-077 (1) - B-049 (18)	Always	Continuity
B-077 (14) - B-049 (17)	Always	Continuity

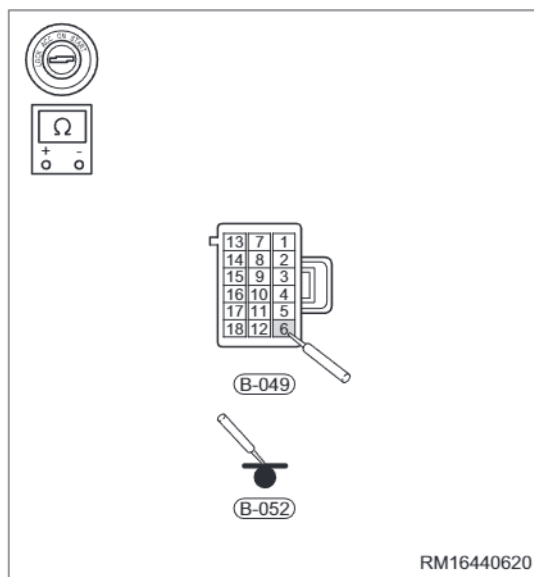


- g. Disconnect the body wire harness connector B-049 and ground point B-052.
- h. Using a digital multimeter, check for continuity between body wire harness connector B-049 and ground point B-052 according to the table below.

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

NG

Repair or replace body wire harness and connector

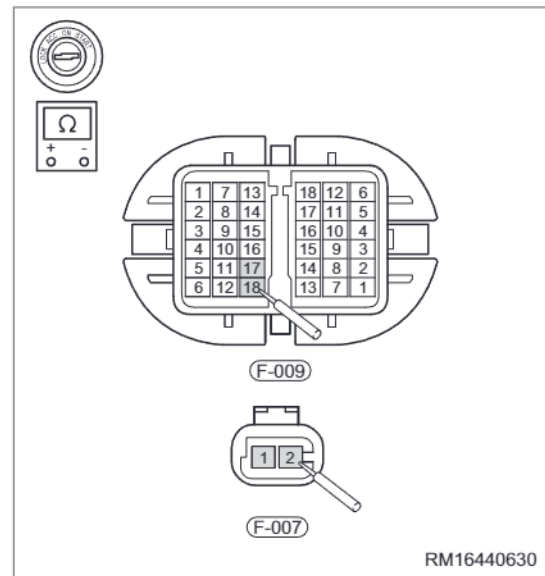


OK

4 Check front left door wire harness and connector

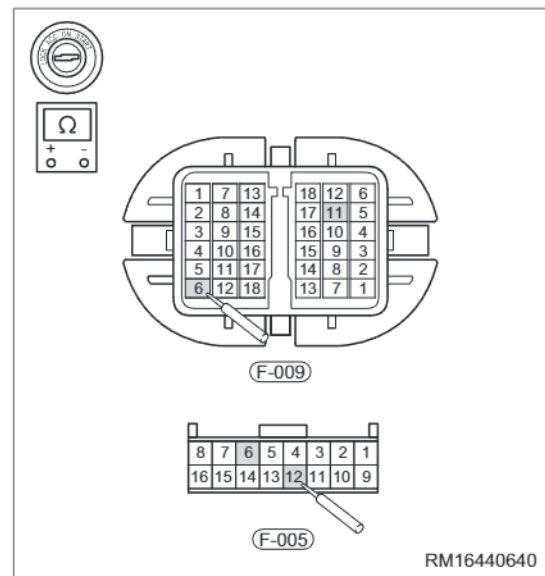
- Turn ignition switch to LOCK.
- Disconnect the negative battery cable.
- Disconnect the front left door wire harness connectors F-007 and F-009.
- Using a digital multimeter, check for continuity between front left door wire harness connectors F-007 and F-009 according to the table below.

Multimeter Connection	Condition	Specified Condition
F-007 (1) - F-009 (17)	Always	Continuity
F-007 (2) - F-009 (18)	Always	Continuity



- Disconnect the front left door wire harness connectors F-005 and F-009.
- Using a digital multimeter, check for continuity between front left door wire harness connectors F-005 and F-009 according to the table below.

Multimeter Connection	Condition	Specified Condition
F-005 (6) - F-009 (11)	Always	Continuity
F-005 (12) - F-009 (6)	Always	Continuity



NG

Repair or replace front left door wire harness and connector

44

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 the DTCs stored in 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 the DTCs stored in Body Control Module (BCM) again.



h. Read the DTCs.

Result	Proceed to
DTCs B100C-18, B100C-19, B100C-71, B100D-18, B100D-19 and B100D-71 are output	NG
No DTC is output	OK

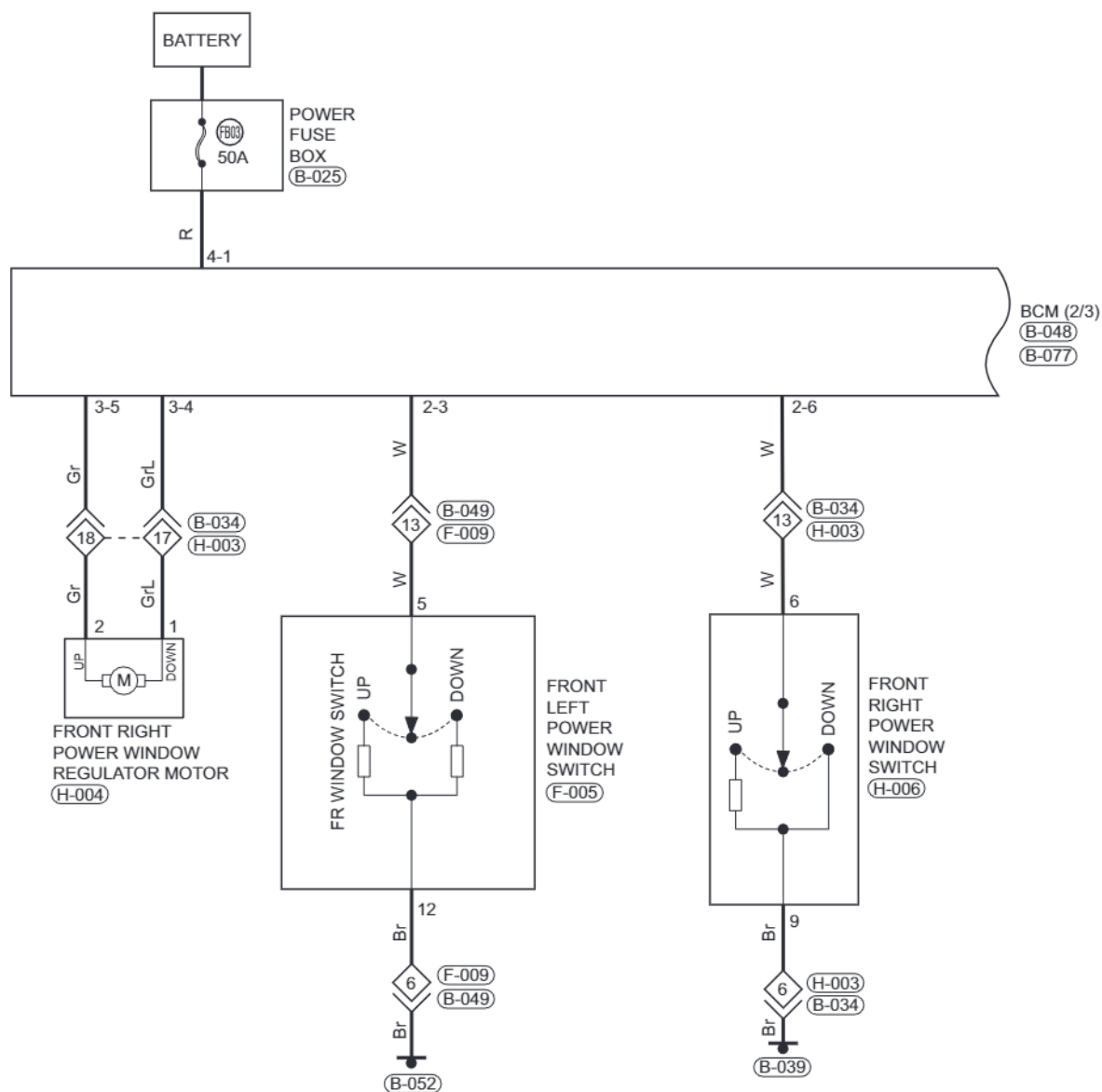
NG

Replace Body Control Module (BCM)

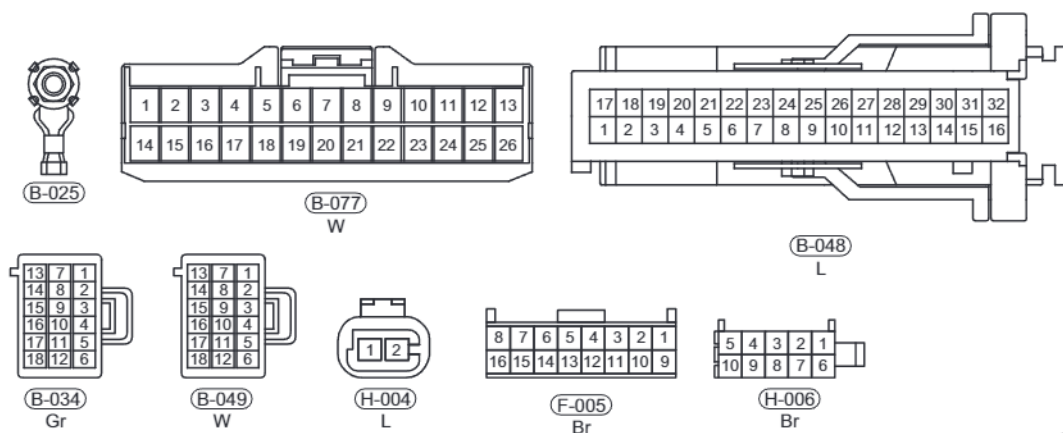
OK

System is normal

DTC	B100E-18	FR Window Up Control Circuit Current Below Threshold
DTC	B100E-19	FR Window Up Control Circuit Current Above Threshold
DTC	B100E-71	FR Window Up Control Circuit Actuator Stuck
DTC	B100F-18	FR Window Down Control Circuit Current Below Threshold
DTC	B100F-19	FR Window Down Control Circuit Current Above Threshold
DTC	B100F-71	FR Window Down Control Circuit Actuator Stuck



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EM16440060

Self-diagnosis Detection Logic

DTC Code	DTC Definition	DTC Detection Condition	Suspected Area
B100E-18	FR Window Up Control Circuit Current Below Threshold	Ignition switch ON	• Glass regulating control master switch • Power glass regulator assembly • Wire harness or connector • Body Control Module (BCM)
B100E-19	FR Window Up Control Circuit Current Above Threshold		
B100E-71	FR Window Up Control Circuit Actuator Stuck		
B100F-18	FR Window Down Control Circuit Current Below Threshold		
B100F-19	FR Window Down Control Circuit Current Above Threshold		
B100F-71	FR Window Down Control Circuit Actuator Stuck		

DTC Confirmation Procedure

Confirm that battery voltage is 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 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 Body Control Module (BCM) system.
- 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 current DTC is present. Go to Diagnosis Procedure - Step 1.
- If DTC is not detected, the malfunction indicated by the DTC is intermittent ([See page 44-14](#)).

CAUTION

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

Diagnosis Procedure**1 Check power glass regulating switch**

- Remove the power glass regulating switch from malfunctioning vehicle, then install it to a new vehicle and perform a test.
- Connect all connectors.
- Connect the negative battery cable and turn ignition switch to ON.



- d. Check the operation of power glass regulating switch.

NG

Replace power glass regulating switch

OK

2	Check front right door power glass regulator
---	--

- Remove the front right door power glass regulator from malfunctioning vehicle, then install it to a new vehicle and perform a test.
- Connect all connectors.
- Connect the negative battery cable and turn ignition switch to ON.
- Check the operation of front right door power glass regulator.

NG

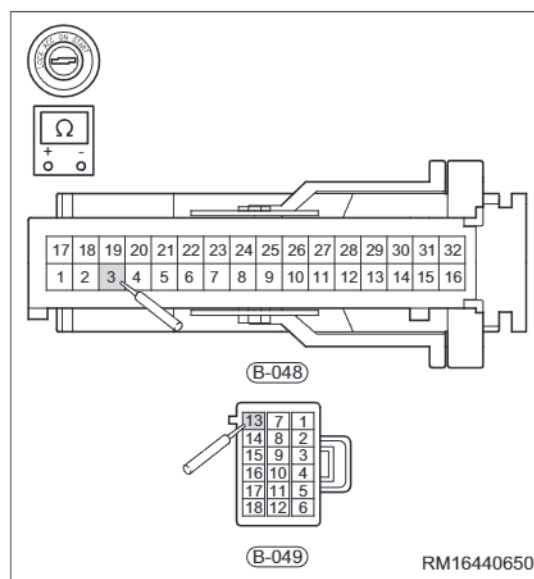
Replace front right door power glass regulator

OK

3	Check body wire harness and connector
---	---------------------------------------

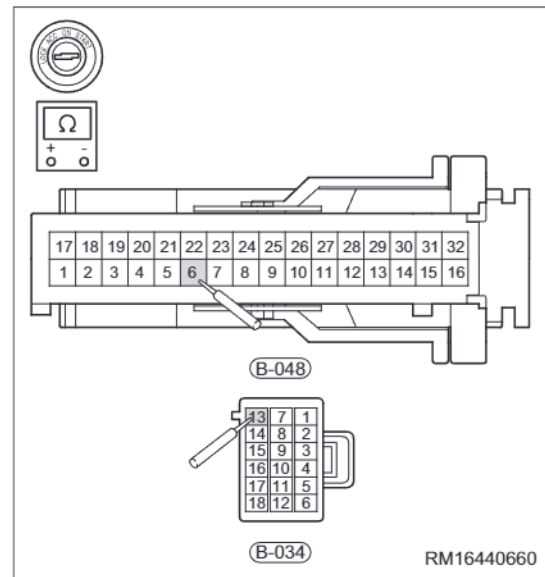
- Turn ignition switch to LOCK.
- Disconnect the negative battery cable.
- Disconnect the body wire harness connectors B-048 and B-049.
- Using a digital multimeter, check for continuity between body wire harness connectors B-048 and B-049 according to the table below.

Multimeter Connection	Condition	Specified Condition
B-048 (3) - B-049 (13)	Always	Continuity



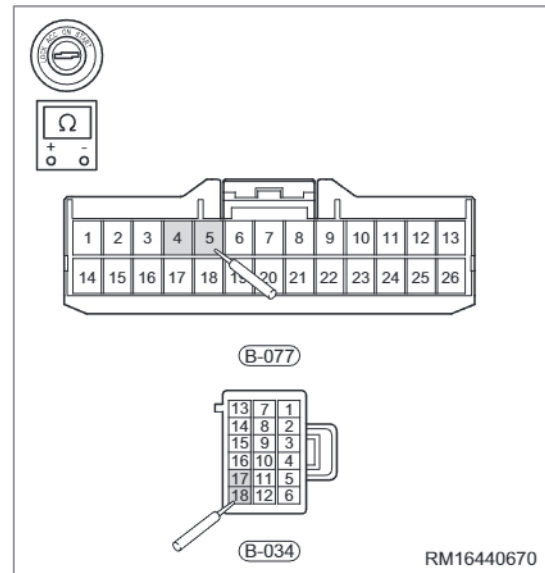
- e. Disconnect the body wire harness connectors B-048 and B-034.
- f. Using a digital multimeter, check for continuity between body wire harness connectors B-048 and B-034 according to the table below.

Multimeter Connection	Condition	Specified Condition
B-048 (6) - B-034 (13)	Always	Continuity



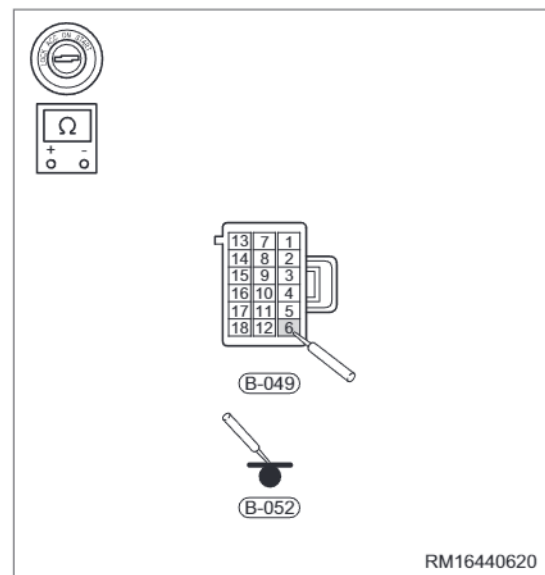
- g. Disconnect the body wire harness connectors B-077 and B-034.
- h. Using a digital multimeter, check for continuity between body wire harness connectors B-077 and B-034 according to the table below.

Multimeter Connection	Condition	Specified Condition
B-077 (4) - B-034 (17)	Always	Continuity
B-077 (5) - B-034 (18)	Always	Continuity



- i. Disconnect the body wire harness connector B-049 and ground point B-052.
- j. Using a digital multimeter, check for continuity between body wire harness connector B-049 and ground point B-052 according to the table below.

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

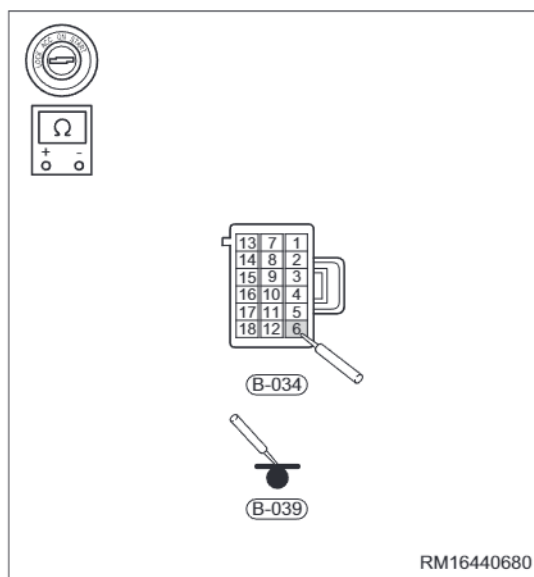


- k. Disconnect the body wire harness connector B-034 and ground B-039.
- l. Using a digital multimeter, check for continuity between body wire harness connector B-034 and ground point B-039 according to the table below.

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

NG

Repair or replace body wire harness and connector



OK

4

Check front left door wire harness and connector

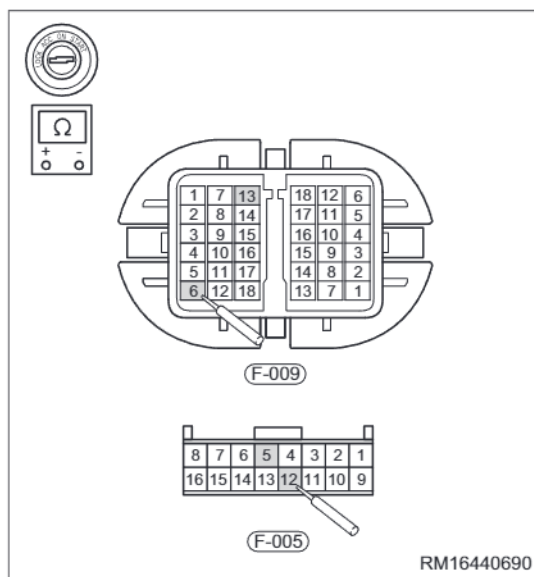
- a. Turn ignition switch to LOCK.
- b. Disconnect the negative battery cable.
- c. Disconnect the front left door wire harness connectors F-005 and F-009.
- d. Using a digital multimeter, check for continuity between front left door wire harness connectors F-005 and F-009 according to the table below.

Multimeter Connection	Condition	Specified Condition
F-005 (5) - F-009 (13)	Always	Continuity
F-005 (12) - F-009 (6)	Always	Continuity

44

NG

Repair or replace front left door wire harness and connector

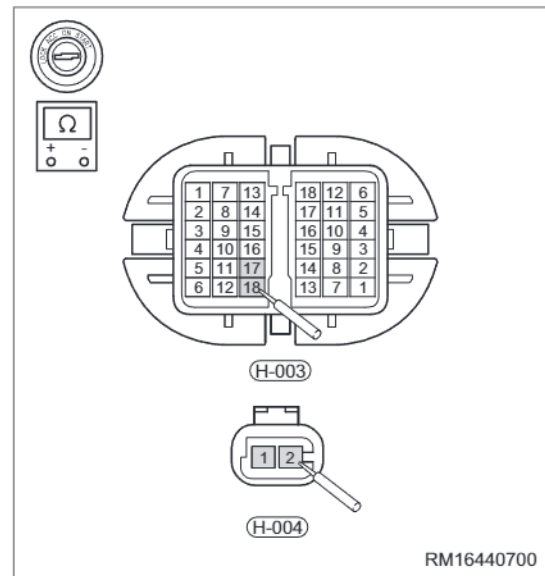


OK

5 Check front right door wire harness and connector

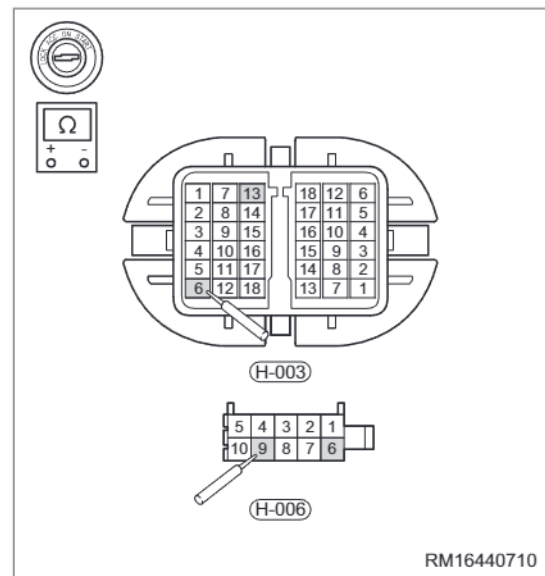
- Turn ignition switch to LOCK.
- Disconnect the negative battery cable.
- Disconnect the front right door wire harness connectors H-003 and H-004.
- Using a digital multimeter, check for continuity between front right door wire harness connectors H-003 and H-004 according to the table below.

Multimeter Connection	Condition	Specified Condition
H-003 (17) - H-004 (1)	Always	Continuity
H-003 (18) - H-004 (2)	Always	Continuity



- Disconnect the front right door wire harness connectors H-003 and H-006.
- Using a digital multimeter, check for continuity between front right door wire harness connectors H-003 and H-006 according to the table below.

Multimeter Connection	Condition	Specified Condition
H-003 (13) - H-006 (6)	Always	Continuity
H-003 (6) - H-006 (9)	Always	Continuity



NG

Repair or replace front right door wire harness and connector

44

OK

6 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 the DTCs stored in 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 the DTCs stored in Body Control Module (BCM) again.



h. Read the DTCs.

Result	Proceed to
DTCs B100E-18, B100E-19, B100E-71, B100F-18, B100F-19 and B100F-71 are output	NG
No DTC is output	OK

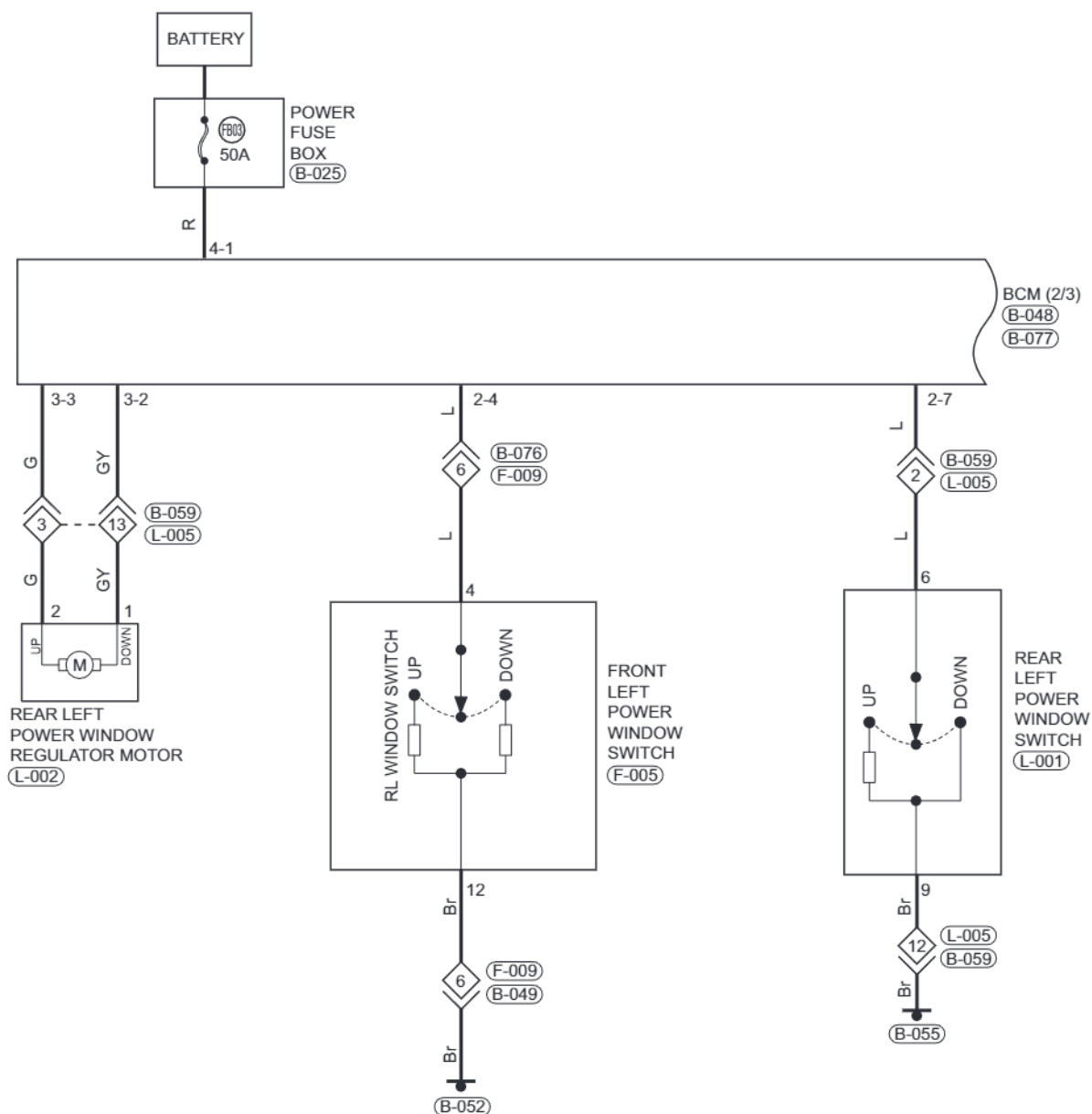
NG

Replace Body Control Module (BCM)

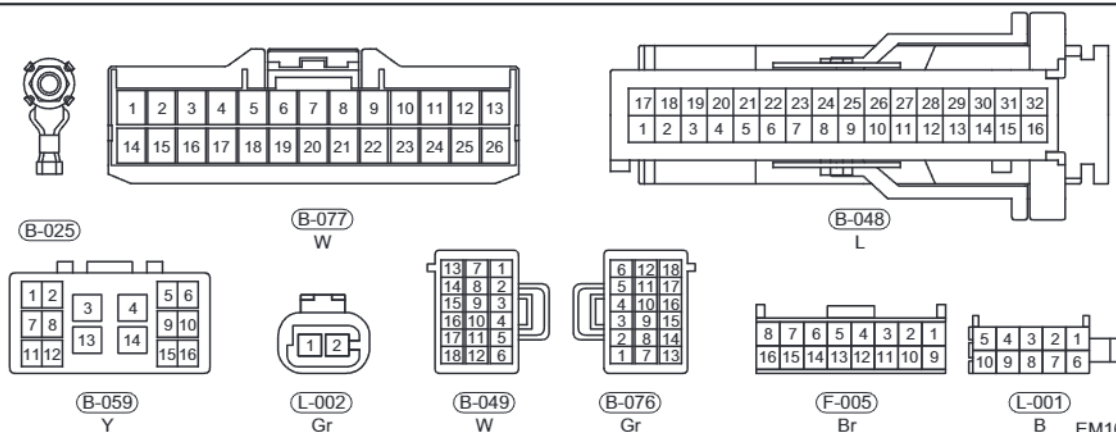
OK

System is normal

DTC	B1010-18	RL Window Up Control Circuit Current Below Threshold
DTC	B1010-19	RL Window Up Control Circuit Current Above Threshold
DTC	B1010-71	RL Window Up Control Circuit Actuator Stuck
DTC	B1011-18	RL Window Down Control Circuit Current Below Threshold
DTC	B1011-19	RL Window Down Control Circuit Current Above Threshold
DTC	B1011-71	RL Window Down Control Circuit Actuator Stuck



44



EM16440070

Self-diagnosis Detection Logic

DTC Code	DTC Definition	DTC Detection Condition	Suspected Area
B1010-18	RL Window Up Control Circuit Current Below Threshold	Ignition switch ON	• Glass regulating switch • Power glass regulator assembly • Wire harness or connector • Body Control Module (BCM)
B1010-19	RL Window Up Control Circuit Current Above Threshold		
B1010-71	RL Window Up Control Circuit Actuator Stuck		
B1011-18	RL Window Down Control Circuit Current Below Threshold		
B1011-19	RL Window Down Control Circuit Current Above Threshold		
B1011-71	RL Window Down Control Circuit Actuator Stuck		

DTC Confirmation Procedure

Confirm that battery voltage is 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 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 Body Control Module (BCM) system.
- 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 current DTC is present. Go to Diagnosis Procedure - Step 1.
- If DTC is not detected, the malfunction indicated by the DTC is intermittent ([See page 44-14](#)).

CAUTION

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

Diagnosis Procedure**1 Check power glass regulating switch**

- Remove the power glass regulating switch from malfunctioning vehicle, then install it to a new vehicle and perform a test.
- Connect all connectors.
- Connect the negative battery cable and turn ignition switch to ON.



- d. Check the operation of power glass regulating switch.

NG

Replace power glass regulating switch

OK

2

Check rear left door power glass regulator

- Remove the rear left door power glass regulator from malfunctioning vehicle, then install it to a new vehicle and perform a test.
- Connect all connectors.
- Connect the negative battery cable and turn ignition switch to ON.
- Check the operation of rear left door power glass regulator.

NG

Replace rear left door power glass regulator

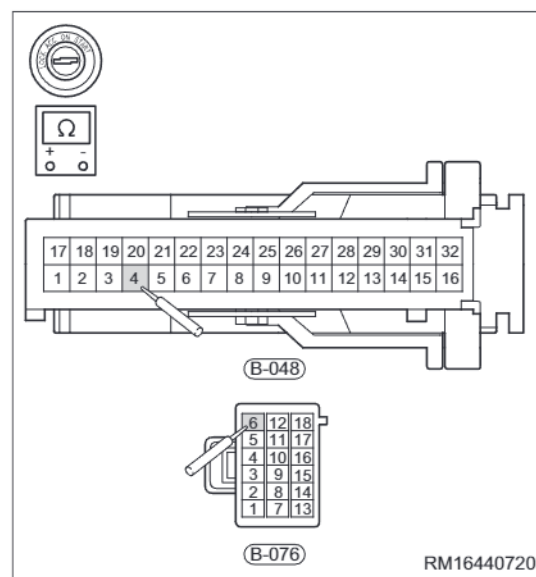
OK

3

Check body wire harness and connector

- Turn ignition switch to LOCK.
- Disconnect the negative battery cable.
- Disconnect the body wire harness connectors B-048 and B-076.
- Using a digital multimeter, check for continuity between body wire harness connectors B-048 and B-076 according to the table below.

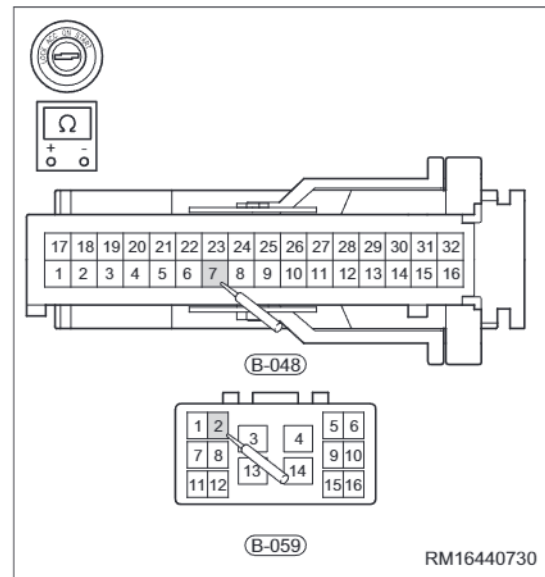
Multimeter Connection	Condition	Specified Condition
B-048 (4) - B-076 (6)	Always	Continuity



RM16440720

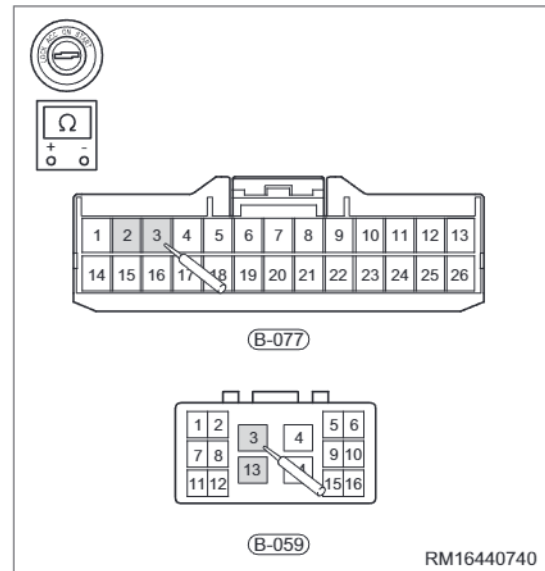
- e. Disconnect the body wire harness connectors B-048 and B-059.
- f. Using a digital multimeter, check for continuity between body wire harness connectors B-048 and B-059 according to the table below.

Multimeter Connection	Condition	Specified Condition
B-048 (7) - B-059 (2)	Always	Continuity



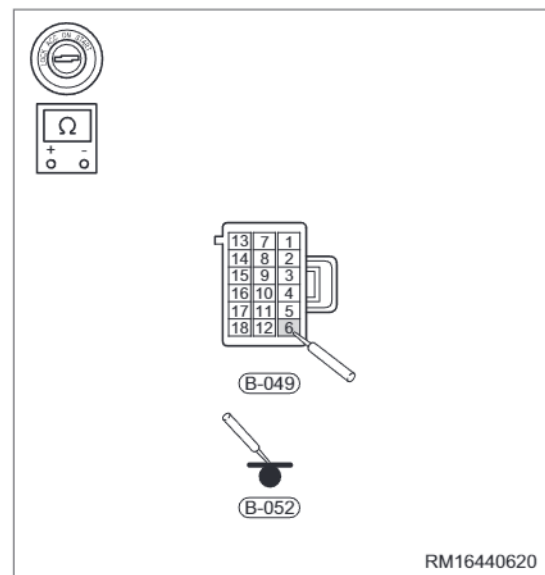
- g. Disconnect the body wire harness connectors B-077 and B-059.
- h. Using a digital multimeter, check for continuity between body wire harness connectors B-077 and B-059 according to the table below.

Multimeter Connection	Condition	Specified Condition
B-077 (2) - B-059 (13)	Always	Continuity
B-077 (3) - B-059 (3)	Always	Continuity



- i. Disconnect the body wire harness connector B-049 and ground point B-052.
- j. Using a digital multimeter, check for continuity between body wire harness connector B-049 and ground point B-052 according to the table below.

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

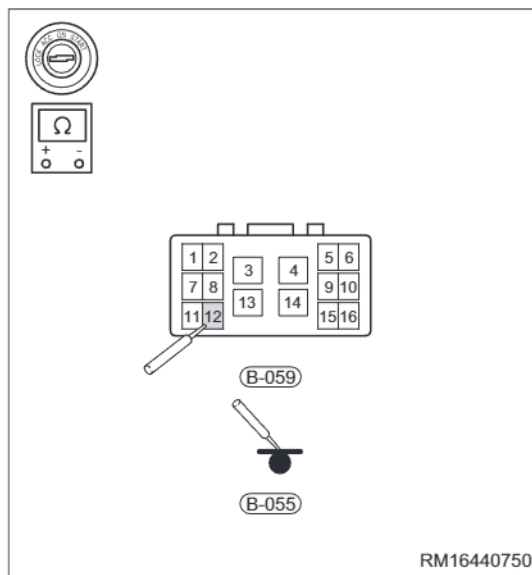


- k. Disconnect the body wire harness connector B-059 and ground point B-055.
- l. Using a digital multimeter, check for continuity between body wire harness connector B-059 and ground point B-055 according to the table below.

Multimeter Connection	Condition	Specified Condition
B-059 (12) - B-055	Always	Continuity

NG

Repair or replace body wire harness and connector



OK

4

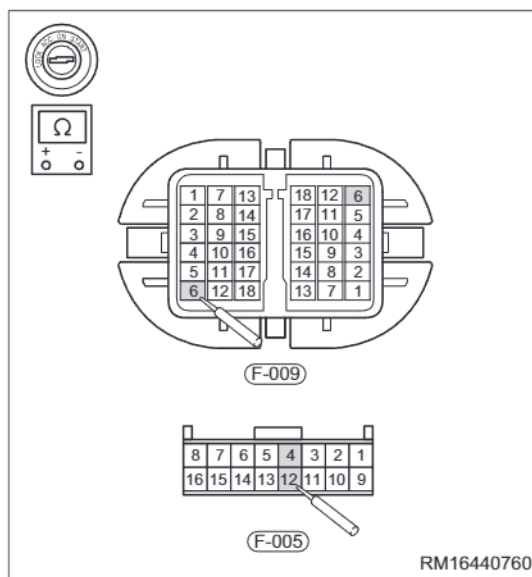
Check front left door wire harness and connector

- a. Turn ignition switch to LOCK.
- b. Disconnect the negative battery cable.
- c. Disconnect the front left door wire harness connectors F-005 and F-009.
- d. Using a digital multimeter, check for continuity between front left door wire harness connectors F-005 and F-009 according to the table below.

Multimeter Connection	Condition	Specified Condition
F-005 (4) - F-009 (6)	Always	Continuity
F-005 (12) - F-009 (6)	Always	Continuity

NG

Repair or replace front left door wire harness and connector



OK

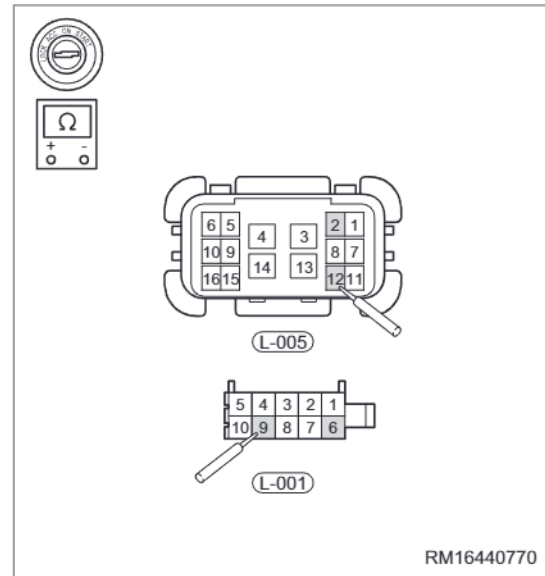
5 Check rear left door wire harness and connector

- Turn ignition switch to LOCK.
- Disconnect the negative battery cable.
- Disconnect the rear left door wire harness connectors L-001 and L-005.
- Using a digital multimeter, check for continuity between rear left door wire harness connectors L-001 and L-005 according to the table below.

Multimeter Connection	Condition	Specified Condition
L-001 (6) - L-005 (2)	Always	Continuity
L-001 (9) - L-005 (12)	Always	Continuity

NG

Repair or replace rear left door wire harness and connector



OK

6 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 the DTCs stored in 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 the DTCs stored in Body Control Module (BCM) again.
- Read the DTCs.

Result	Proceed to
DTCs B1010-18, B1010-19, B1010-71, B1011-18, B1011-19 and B1011-71 are output	NG
No DTC is output	OK

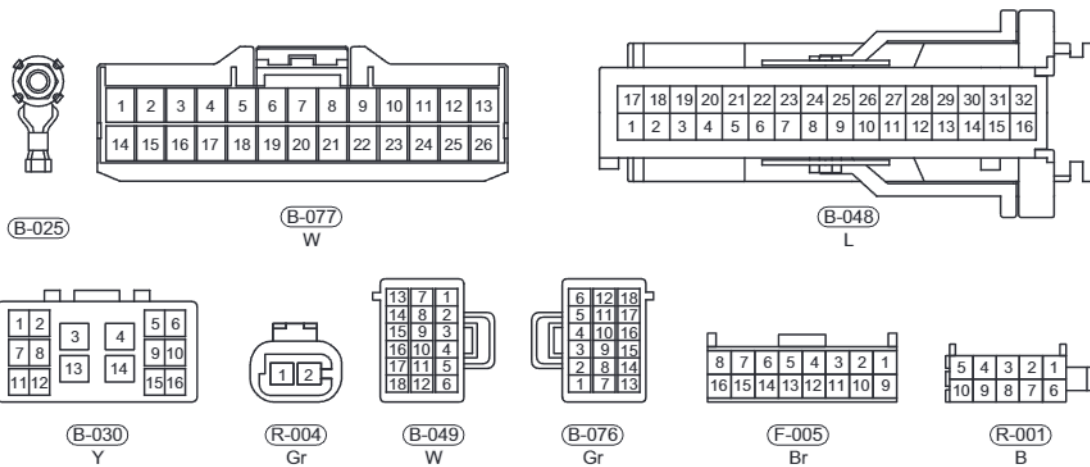
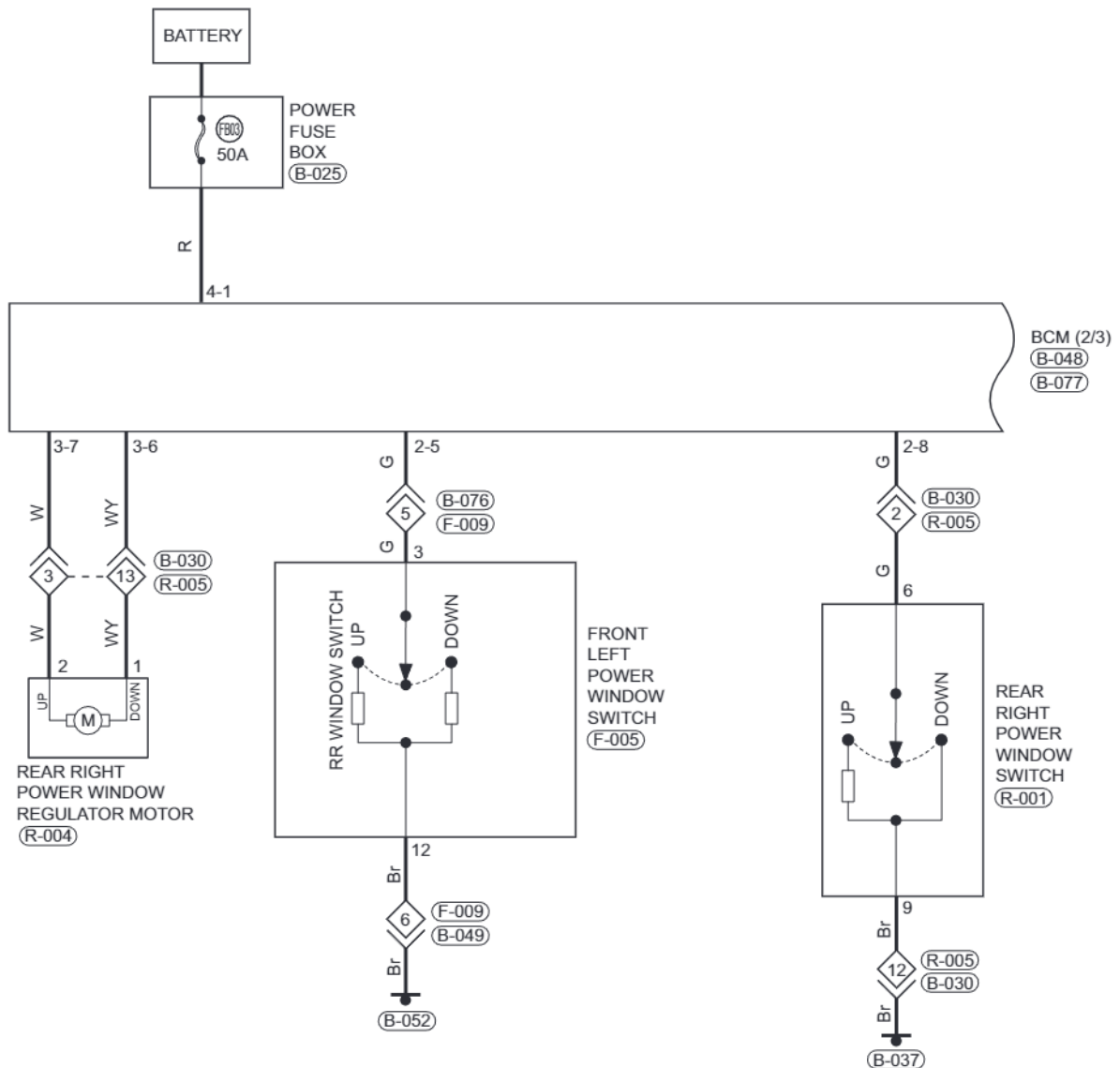
NG

Replace Body Control Module (BCM)

OK

System is normal

DTC	B1012-18	RR Window Up Control Circuit Current Below Threshold
DTC	B1012-19	RR Window Up Control Circuit Current Above Threshold
DTC	B1012-71	RR Window Up Control Circuit Actuator Stuck
DTC	B1013-18	RR Window Down Control Circuit Current Below Threshold
DTC	B1013-19	RR Window Down Control Circuit Current Above Threshold
DTC	B1013-71	RR Window Down Control Circuit Actuator stuck



EM16440080

Self-diagnosis Detection Logic

DTC Code	DTC Definition	DTC Detection Condition	Suspected Area
B1012-18	RR Window Up Control Circuit Current Below Threshold	Ignition switch ON	• Glass regulating switch • Power glass regulator assembly • Wire harness or connector • Body Control Module (BCM)
B1012-19	RR Window Up Control Circuit Current Above Threshold		
B1012-71	RR Window Up Control Circuit Actuator Stuck		
B1013-18	RR Window Down Control Circuit Current Below Threshold		
B1013-19	RR Window Down Control Circuit Current Above Threshold		
B1013-71	RR Window Down Control Circuit Actuator Stuck		

DTC Confirmation Procedure

Confirm that battery voltage is 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 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 Body Control Module (BCM) system.
- 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 current DTC is present. Go to Diagnosis Procedure - Step 1.
- If DTC is not detected, the malfunction indicated by the DTC is intermittent ([See page 44-14](#)).

 CAUTION

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

Diagnosis Procedure

1

Check power glass regulating switch

- Remove the power glass regulating switch from malfunctioning vehicle, then install it to a new vehicle and perform a test.
- Connect all connectors.
- Connect the negative battery cable and turn ignition switch to ON.

- d. Check the operation of power glass regulating switch.

NG

Replace power glass regulating switch

OK

2

Check rear right door power glass regulator

- Remove the rear right door power glass regulator from malfunctioning vehicle, then install it to a new vehicle and perform a test.
- Connect all connectors.
- Connect the negative battery cable and turn ignition switch to ON.
- Check the operation of rear right door power glass regulator.

NG

Replace rear right door power glass regulator

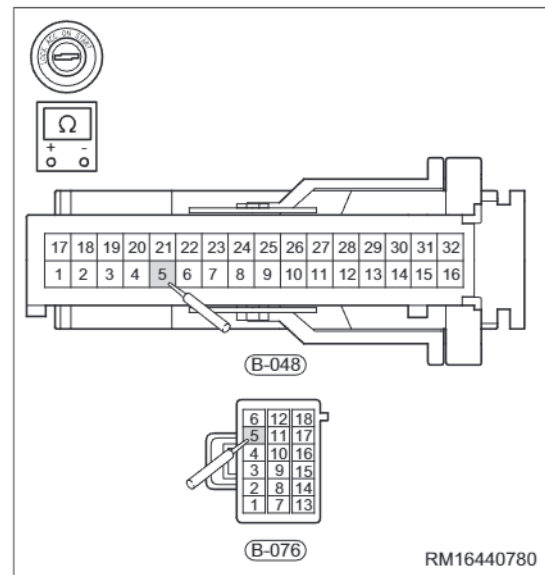
OK

3

Check body wire harness and connector

- Turn ignition switch to LOCK.
- Disconnect the negative battery cable.
- Disconnect the body wire harness connectors B-048 and B-076.
- Using a digital multimeter, check for continuity between body wire harness connectors B-048 and B-076 according to the table below.

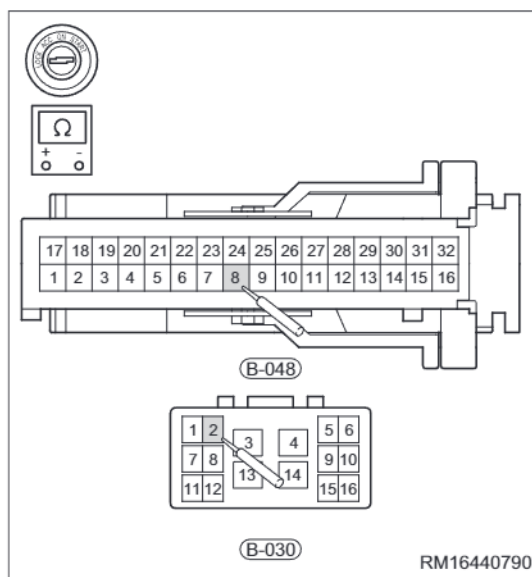
Multimeter Connection	Condition	Specified Condition
B-048 (5) - B-076 (5)	Always	Continuity



44

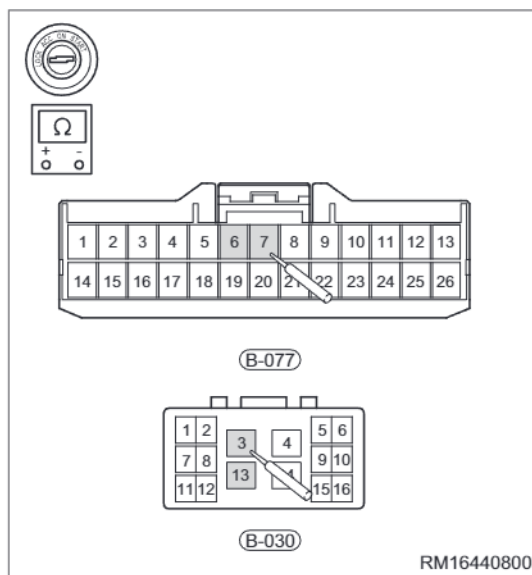
- e. Disconnect the body wire harness connectors B-048 and B-030.
- f. Using a digital multimeter, check for continuity between body wire harness connectors B-048 and B-030 according to the table below.

Multimeter Connection	Condition	Specified Condition
B-048 (8) - B-030 (2)	Always	Continuity



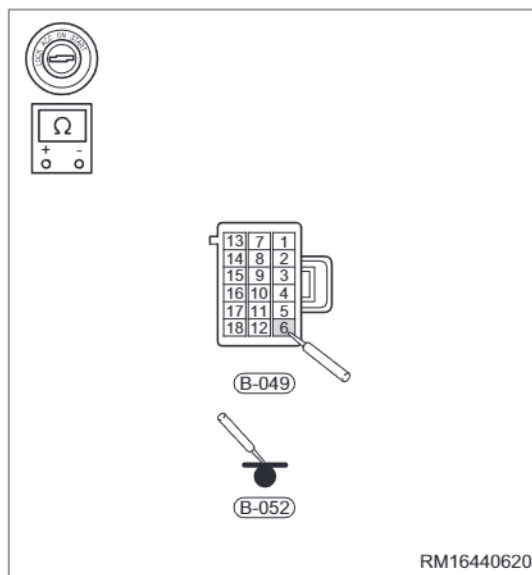
- g. Disconnect the body wire harness connectors B-077 and B-030.
- h. Using a digital multimeter, check for continuity between body wire harness connectors B-077 and B-030 according to the table below.

Multimeter Connection	Condition	Specified Condition
B-077 (6) - B-030 (13)	Always	Continuity
B-077 (7) - B-030 (3)	Always	Continuity



- i. Disconnect the body wire harness connector B-049 and ground point B-052.
- j. Using a digital multimeter, check for continuity between body wire harness connector B-049 and ground point B-052 according to the table below.

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

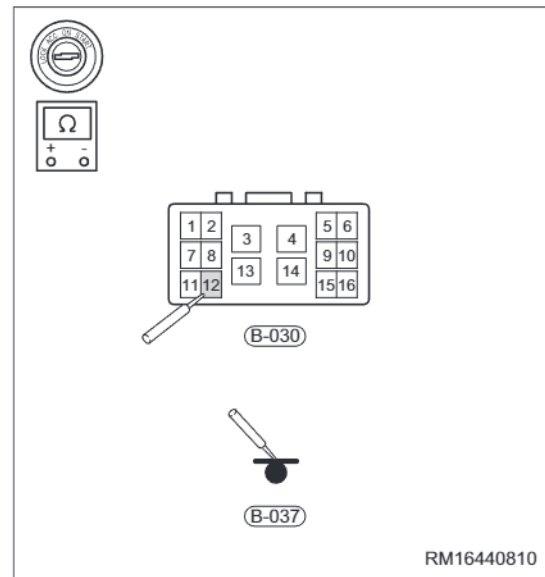


- k. Disconnect the body wire harness connector B-030 and ground point B-037.
- l. Using a digital multimeter, check for continuity between body wire harness connector B-030 and ground point B-037 according to the table below.

Multimeter Connection	Condition	Specified Condition
B-030 (12) - B-037	Always	Continuity

NG

Repair or replace body wire harness and connector



OK

4

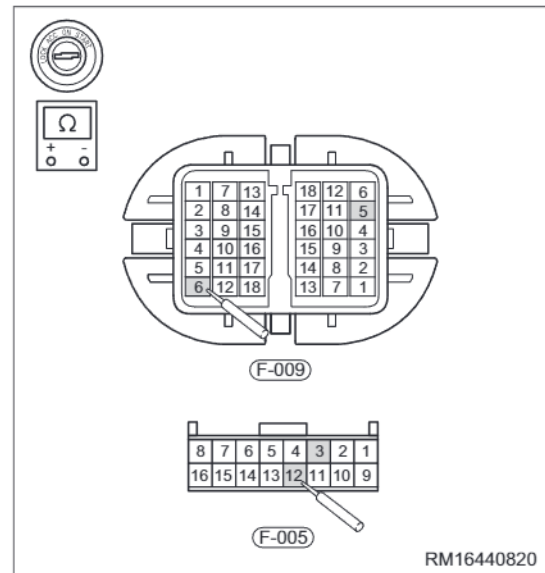
Check front left door wire harness and connector

- a. Turn ignition switch to LOCK.
- b. Disconnect the negative battery cable.
- c. Disconnect the front left door wire harness connectors F-005 and F-009.
- d. Using a digital multimeter, check for continuity between front left door wire harness connectors F-005 and F-009 according to the table below.

Multimeter Connection	Condition	Specified Condition
F-005 (3) - F-009 (5)	Always	Continuity
F-005 (12) - F-009 (6)	Always	Continuity

NG

Repair or replace front left door wire harness and connector

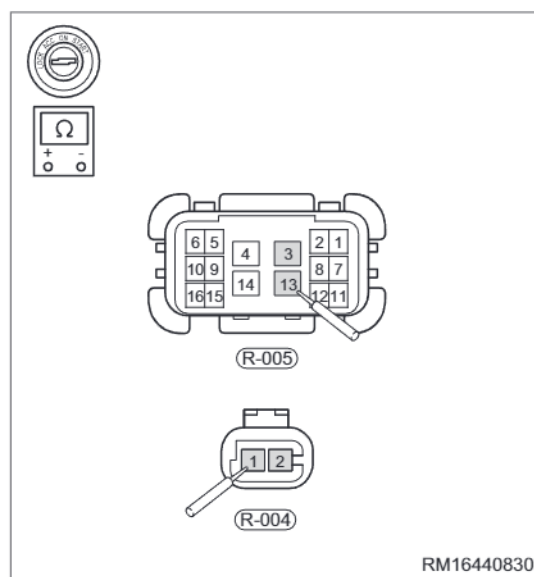


OK

5 Check rear right door wire harness and connector

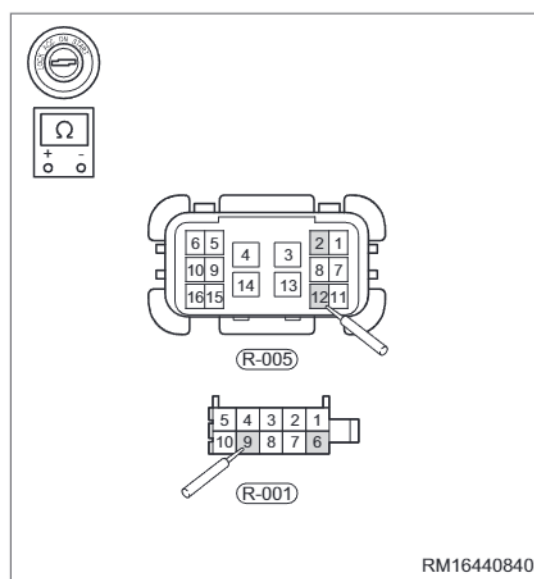
- Turn ignition switch to LOCK.
- Disconnect the negative battery cable.
- Disconnect the rear right door wire harness connectors R-004 and R-005.
- Using a digital multimeter, check for continuity between the rear right door wire harness connectors R-004 and R-005 according to the table below.

Multimeter Connection	Condition	Specified Condition
R-004 (1) - R-005 (13)	Always	Continuity
R-004 (2) - R-005 (3)	Always	Continuity



- Disconnect the rear right door wire harness connectors R-001 and R-005.
- Using a digital multimeter, check for continuity between the rear right door wire harness connectors R-001 and R-005 according to the table below.

Multimeter Connection	Condition	Specified Condition
R-001 (6) - R-005 (2)	Always	Continuity
R-001 (9) - R-005 (12)	Always	Continuity



44

NG

Repair or replace rear right door wire harness and connector

OK

6 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 the DTCs stored in 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 the DTCs stored in Body Control Module (BCM) again.

h. Read the DTCs.

Result	Proceed to
DTCs B1012-18, B1012-19, B1012-71, B1013-18, B1013-19 and B1013-71 are output	NG
No DTC is output	OK

NG

Replace Body Control Module (BCM)

OK

System is normal

ON-VEHICLE SERVICE

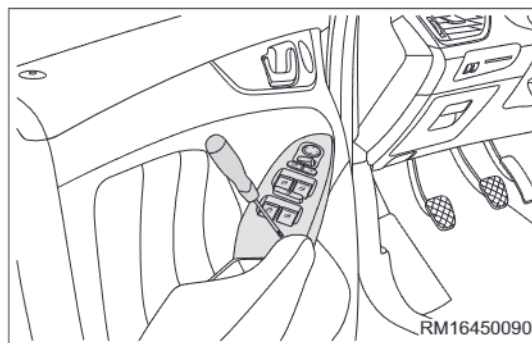
Power Glass Regulating Control Master Switch

Removal

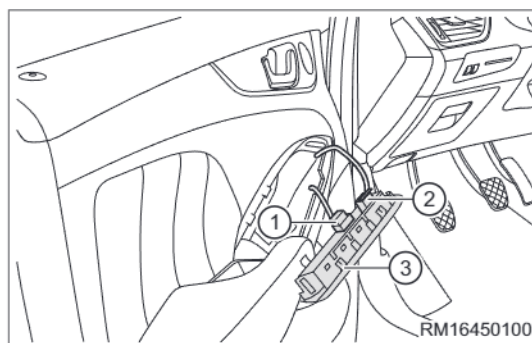
CAUTION

- Be sure to wear safety equipment to prevent accidents, when removing power glass regulating control master switch.
- Appropriate force should be applied when removing power glass regulating control master switch. Be careful not to operate roughly.
- Try to prevent front door inner protector assembly from being scratched, when removing power glass regulating control master switch.

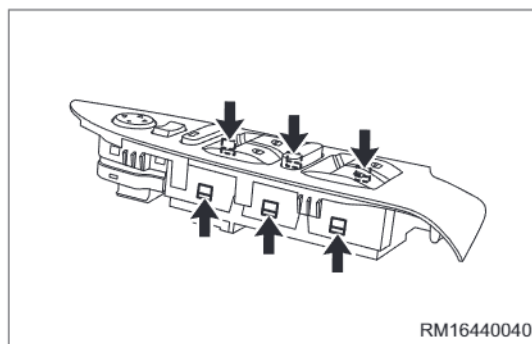
1. Turn off all the electrical equipment and ignition switch.
2. Disconnect the negative battery cable.
3. Remove the power glass regulating control master switch.
 - a. Using a screwdriver wrapped with protective tape, pry up the power glass regulating control master switch assembly.



- 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).



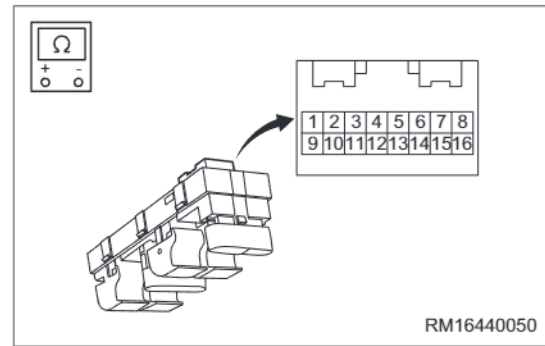
- e. Using a screwdriver wrapped with protective tape, detach the claws (arrow) from power glass regulating control master switch, and remove the power glass regulating control master switch.



Inspection

1. Check the power glass regulating control master switch.
 - a. Using a digital multimeter, check for continuity between terminals of power glass regulating control master switch according to the table below.

Component	Multimeter Connection	Switch Condition	Specified Condition
Front left door glass regulating switch	Terminal 6 - Terminal 12	UP	220 Ω
		OFF	No continuity
	Terminal 6 - Terminal 12	DOWN	Continuity
		OFF	No continuity
Front right door glass regulating switch	Terminal 5 - Terminal 12	UP	220 Ω
		OFF	No continuity
	Terminal 5 - Terminal 12	DOWN	Continuity
		OFF	No continuity
Rear left door glass regulating switch	Terminal 4 - Terminal 12	UP	220 Ω
		OFF	No continuity
	Terminal 4 - Terminal 12	DOWN	Continuity
		OFF	No continuity
Rear right door glass regulating switch	Terminal 3 - Terminal 12	UP	220 Ω
		OFF	No continuity
	Terminal 3 - Terminal 12	DOWN	Continuity
		OFF	No continuity
Power window lock switch	Terminal 7 - Terminal 11	Pushed	Continuity
		Free	No continuity

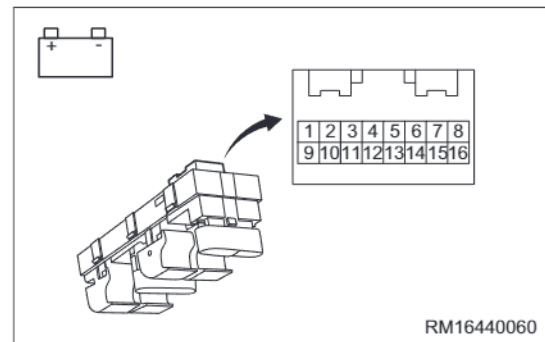


If result is not as specified, replace the power glass regulating control master switch.

2. Check the power glass regulating control master switch illumination.
 - a. Apply battery voltage to the terminals of power glass regulating control master switch connector, and check the operation of power glass regulating control master switch according to the table below.

Measurement Condition		Specified Condition
Battery positive (+)	Battery negative (-)	
Terminal 13	Terminal 8	LED comes on

If not as specified, replace the power glass regulating control master switch.



Installation

Installation is in the reverse order of removal.

CAUTION

- Check if connector is correctly installed, when installing power glass regulating control master switch.
- Check if power glass regulating control master switch can be operated normally after installation.

Front Door Weather Bar

Removal

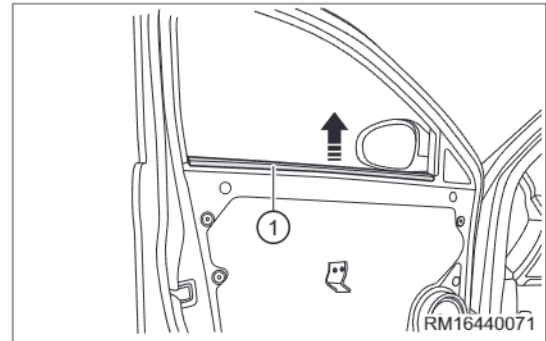
HINT:

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

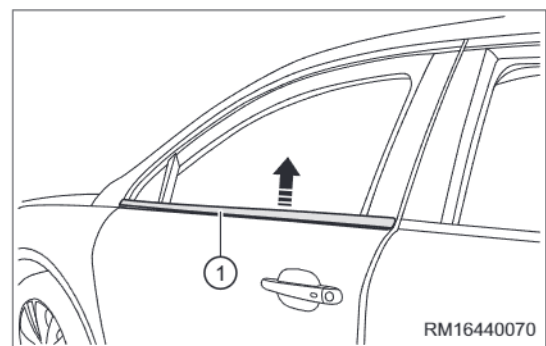
CAUTION

- Be sure to wear safety equipment to prevent accidents, when removing front door weather bars.
- Appropriate force should be applied when removing front door weather bars. Be careful not to operate roughly.
- Try to prevent body paint surface from being scratched, when removing front door weather bars.

1. Turn off all electrical equipment and the ignition switch.
2. Disconnect the negative battery cable.
3. Remove the front left door inner weather bar.
 - a. Remove the front left door inner protector assembly ([See page 48-22](#)).
 - b. Using an interior crow plate, remove the front door inner weather bar (1) from trough in the direction of arrow as shown in the illustration.



4. Remove the front left door outer weather bar.
 - a. Remove the outside rear view mirror assembly ([See page 45-18](#)).
 - b. Using an interior crow plate, remove the front door outer weather bar (1) from trough in the direction of arrow as shown in the illustration.



Installation

Installation is in the reverse order of removal.

Front Door Glass Upper Run

Removal

HINT:

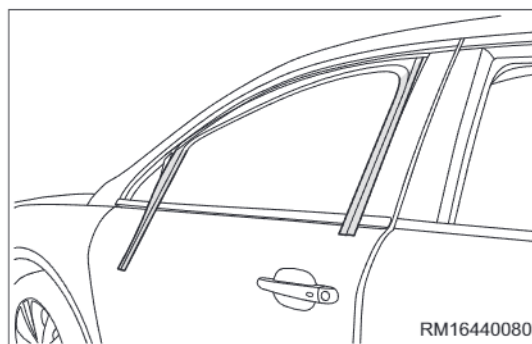
- Use same procedures for right side and left sides.
- Procedures listed below are for left side.

CAUTION

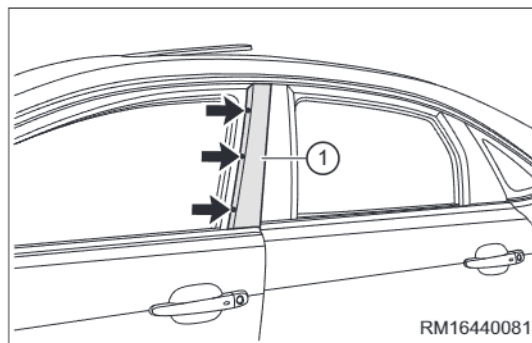
- Be sure to wear safety equipment to prevent accidents, when removing front door glass assembly.
- Appropriate force should be applied when removing front door glass assembly. Be careful not to operate roughly.

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 ([See page 45-18](#)).
5. Remove the front left door outer weather bar ([See page 44-51](#)).
6. Release the front left door glass upper run.

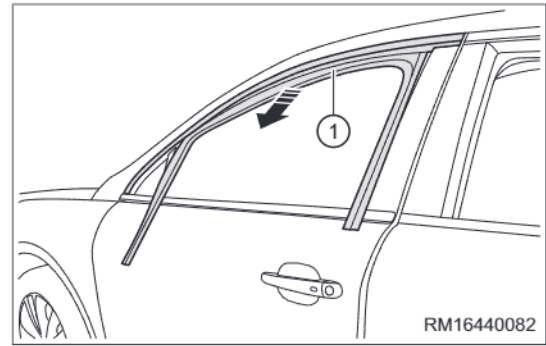
- a. Lower the front door glass assembly and pull the lower part of front door glass upper run out from trough.



- b. Remove 3 fixing screws (arrow) from front left door cover plate and remove the front left door cover plate (1).
(Tightening torque: $1.5 \pm 0.5 \text{ N}\cdot\text{m}$)



- c. Remove the front left door glass upper run (1) from trough in the direction of arrow as shown in the illustration.



Installation

Installation is in the reverse order of removal.

Front Door Glass Assembly

Removal

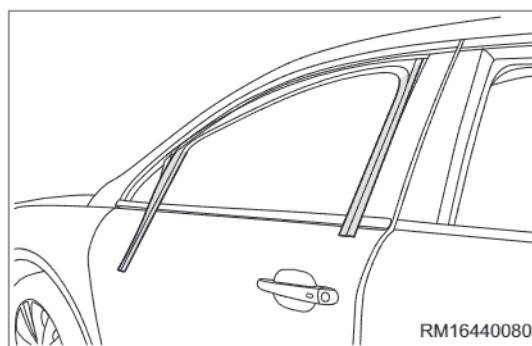
HINT:

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

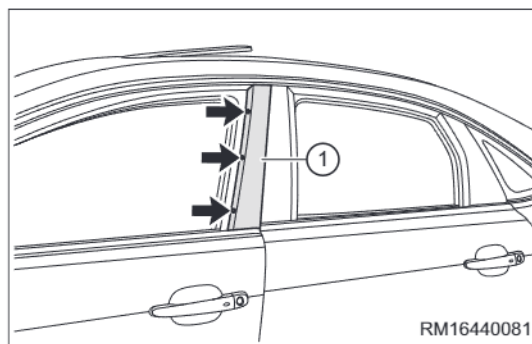
CAUTION

- Be sure to wear safety equipment to prevent accidents, when removing front door glass assembly.
- Appropriate force should be applied when removing front door glass assembly. Be careful not to operate roughly.
- Prevent window glass from dropping which will cause damage, when removing front door glass assembly.

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 (See page 45-18).
5. Remove the front left door metal bracket (See page 48-26).
6. Remove the front left door protective film assembly (See page 48-26).
7. Remove the front left door outer weather bar (See page 44-51).
8. Release the front left door glass upper run.
 - a. Lower the front left door glass assembly and pull the lower part of front left door glass upper run out from trough.

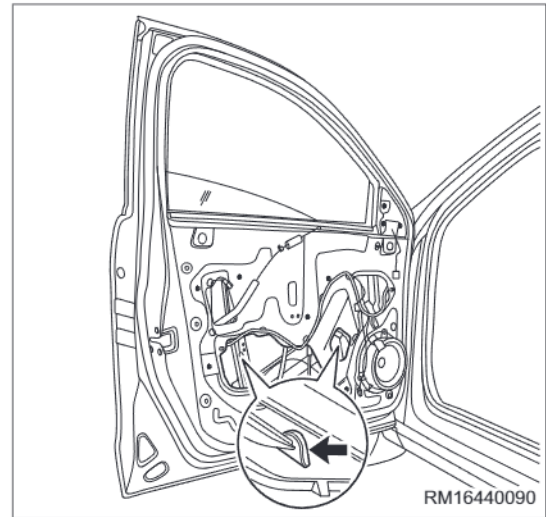


9. Remove the front left door cover plate.
 - a. Remove 3 fixing screws (arrow) from front left door cover plate and remove the front left door cover plate (1).
(Tightening torque: $1.5 \pm 0.5 \text{ N}\cdot\text{m}$)



10. Remove the front left door glass assembly.
 - a. Raise the front left door glass assembly to a proper position.

- b. Using a screwdriver wrapped with protective tape, detach the fixing clips (arrow) from front left door glass assembly and remove the front left door glass assembly.



Installation

Installation is in the reverse order of removal.

Front Door Glass Rear Guide Rail Assembly

Removal

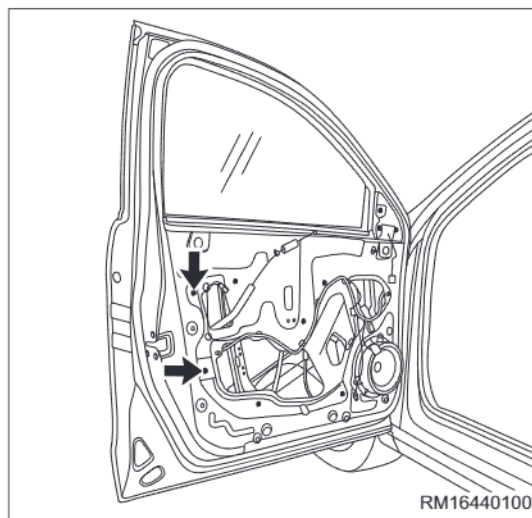
HINT:

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

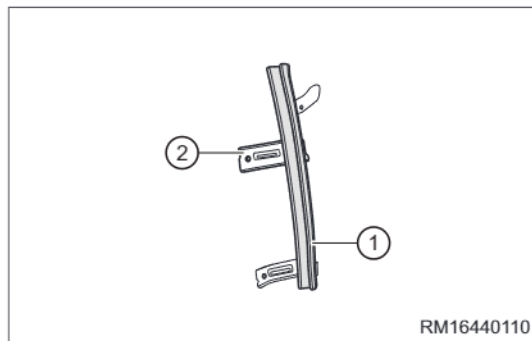
CAUTION

- Be sure to wear safety equipment to prevent accidents, when removing front door glass rear guide rail assembly.
- Appropriate force should be applied when removing front door glass rear guide rail assembly. Be careful not to operate roughly.

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 front left door metal bracket ([See page 48-26](#)).
5. Remove the front left door protective film assembly ([See page 48-26](#)).
6. Remove the front left door glass rear guide rail assembly.
 - a. Remove 2 fixing bolts (arrow) from front door glass rear guide rail assembly and remove the front left door glass rear guide rail assembly. (Tightening torque: 7 ± 1 N·m)



- b. Remove the front door B-pillar glass lower run (1) from front door glass rear guide rail assembly (2).



Installation

Installation is in the reverse order of removal.

CAUTION

- After installing front door glass rear guide rail assembly, make sure that window glass can go up and down smoothly and freely without any vibration, chattering or shock loading, etc.

Front Door Power Glass Regulator

Removal

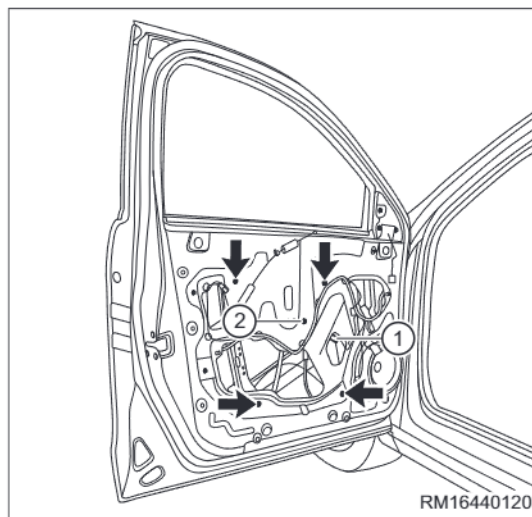
HINT:

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

CAUTION

- Be sure to wear safety equipment to prevent accidents, when removing front door power glass regulator.
- Appropriate force should be applied when removing front door power glass regulator. Be careful not to operate roughly.

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 front left door metal bracket ([See page 48-26](#)).
5. Remove the front left door protective film assembly ([See page 48-26](#)).
6. Remove the front left door glass assembly ([See page 44-54](#)).
7. Remove the front left door power glass regulator.
 - a. Disconnect the connector (1) from front left door power glass regulator.
 - b. Remove the fixing bolt (2) from front left door power glass regulator.
(Tightening torque: 7 ± 1 N·m)
 - c. Remove 4 fixing nuts (arrow) from front door power glass regulator and remove the front left door power glass regulator.
(Tightening torque: 7 ± 1 N·m)

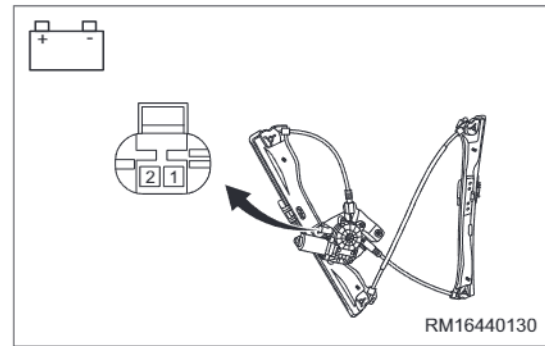


Inspection

1. Check the front door power glass regulator.
 - a. Apply battery voltage to the terminals of power glass regulator motor connector, and check the operation of front door power glass regulator motor according to the table below.

Measurement Condition		Specified Condition
Battery positive (+)	Battery negative (-)	
Terminal 2	Terminal 1	UP smoothly
Terminal 1	Terminal 2	DOWN smoothly

If result is not as specified, replace the front door power glass regulator.



Installation

Installation is in the reverse order of removal.

CAUTION

- After installing front left door power glass regulator is installed, make sure that window glass can go up and down smoothly and freely without any vibration, chattering or shock loading, etc.

Power Glass Regulating Switch

Removal

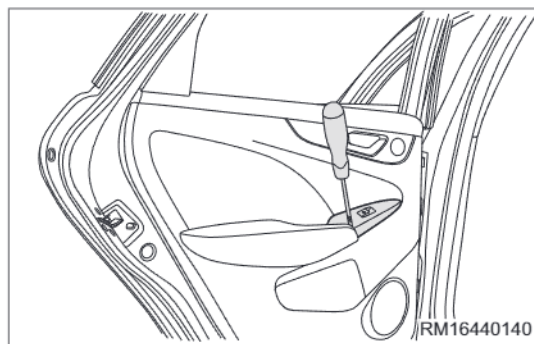
HINT:

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

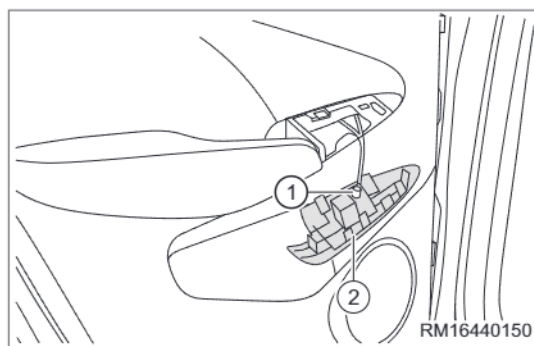
CAUTION

- Be sure to wear safety equipment to prevent accidents, when removing power glass regulating switch.
- Appropriate force should be applied when removing power glass regulating switch. Be careful not to operate roughly.
- Try to prevent door inner protector assembly from being scratched, when removing power glass regulating switch.

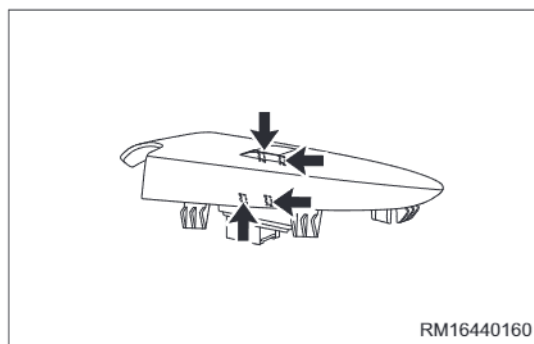
1. Turn off all electrical equipment and the ignition switch.
2. Disconnect the negative battery cable.
3. Remove the left power glass regulating switch.
 - a. Using a screwdriver wrapped with protective tape, pry up the power glass regulating switch assembly.



- b. Disconnect the power glass regulating switch connector (1).
- c. Remove the power glass regulating switch assembly (2).



- d. Using a screwdriver wrapped with protective tape, detach the claws (arrow) from power glass regulating switch and remove the power glass regulating switch.



Inspection

1. Check the power glass regulating switch.
 - a. Using a digital multimeter, check for continuity between terminals of power glass regulating switch according to the table below.

Component	Multimeter Connection	Switch Condition	Specified Condition
Front right door glass regulating switch	Terminal 6 - Terminal 9	UP	220 Ω
		OFF	No continuity
	Terminal 6 - Terminal 9	DOWN	Continuity
		OFF	No continuity
Rear left door glass regulating switch	Terminal 6 - Terminal 9	UP	220 Ω
		OFF	No continuity
	Terminal 6 - Terminal 9	DOWN	Continuity
		OFF	No continuity
Rear right door glass regulating switch	Terminal 6 - Terminal 9	UP	220 Ω
		OFF	No continuity
	Terminal 6 - Terminal 9	DOWN	Continuity
		OFF	No continuity

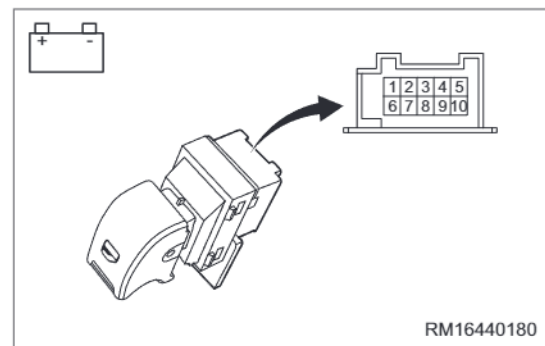
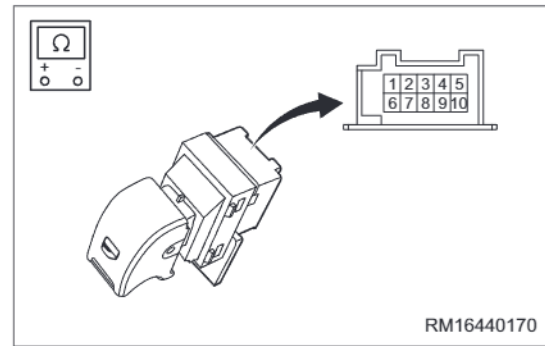
If result is not as specified, replace the power glass regulating switch.

2. Check the power glass regulating switch illumination (for front right door side).

- a. Apply battery voltage to the terminals of power glass regulating switch connector, and check the operation of power glass regulating switch according to the table below.

Measurement Condition		Specified Condition
Battery positive (+)	Battery negative (-)	
Terminal 1	Terminal 3	LED comes on

If result is not as specified, replace the power glass regulating switch.



Installation

Installation is in the reverse order of removal.

CAUTION

- Check if connector is installed in place, when installing power glass regulating switch.
- Check if power glass regulating switch can be operated normally after installation.

Rear Door Weather Bar

Removal

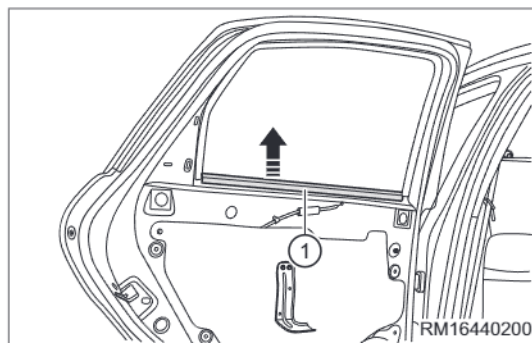
HINT:

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

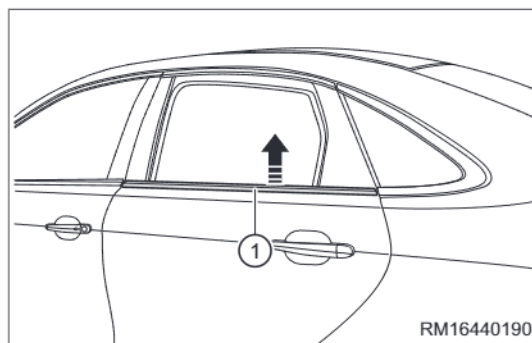
CAUTION

- Be sure to wear safety equipment to prevent accidents, when removing rear door weather bars.
- Appropriate force should be applied when removing rear door weather bars. Be careful not to operate roughly.

1. Turn off all electrical equipment and the ignition switch.
2. Disconnect the negative battery cable.
3. Remove the rear left door inner weather bar.
 - a. Remove the rear left door inner protector assembly ([See page 48-34](#)).
 - b. Using an interior crow plate, remove the rear door inner weather bar (1) from trough in the direction of arrow as shown in the illustration.



4. Remove the rear left door outer weather bar.
 - a. Using an interior crow plate, remove the rear door outer weather bar (1) from trough in the direction of arrow as shown in the illustration.



Installation

Installation is in the reverse order of removal.

Rear Door Glass Upper Run

Removal

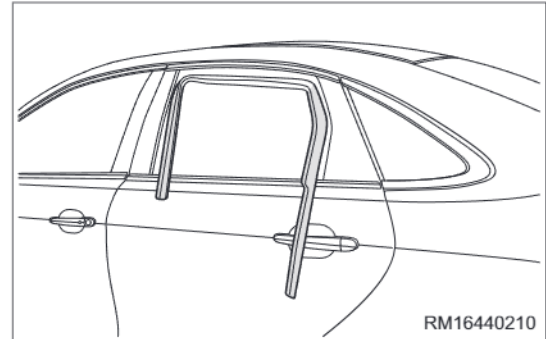
HINT:

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

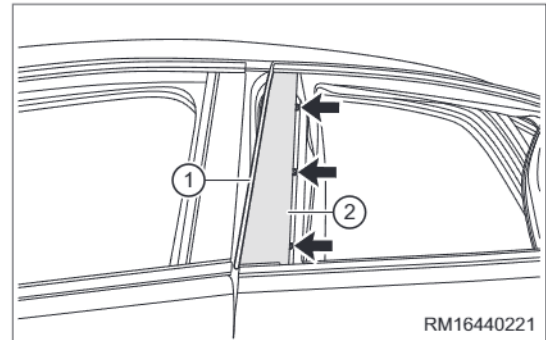
CAUTION

- Be sure to wear safety equipment to prevent accidents, when removing rear door glass upper run.
- Appropriate force should be applied when removing rear door glass upper run. Be careful not to operate roughly.

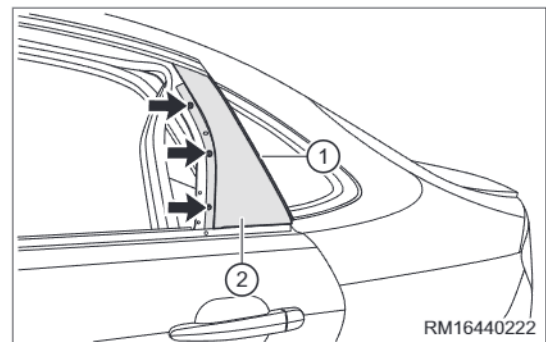
1. Turn off all electrical equipment and the ignition switch.
2. Disconnect the negative battery cable.
3. Remove the rear left door outer weather bar (See page 44-62).
4. Release the rear left door glass upper run.
 - a. Lower the rear door glass assembly and pull the lower part of rear door glass upper run out from trough.



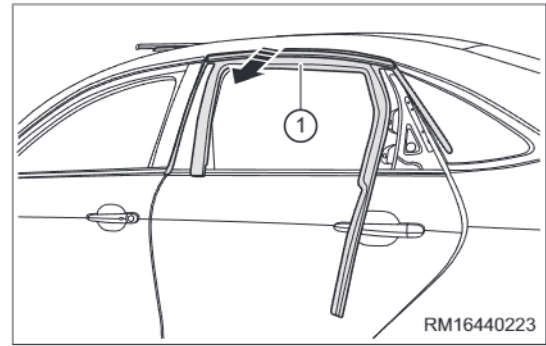
- b. Pull the rear door glass upper run side weatherstrip (1) out from rear door cover plate.
- c. Remove 3 fixing screws (arrow) from rear left door cover plate and remove the rear left door cover plate (2).
(Tightening torque: $1.5 \pm 0.5 \text{ N}\cdot\text{m}$)



- d. Pull the rear door glass upper run side weatherstrip (1) out from rear door C-pillar cover plate assembly.
- e. Remove 3 fixing screws (arrow) from rear door C-pillar cover plate assembly and remove the rear left door C-pillar cover plate assembly (2).
(Tightening torque: $1.5 \pm 0.5 \text{ N}\cdot\text{m}$)



- f. Remove the rear left door glass upper run (1) from trough in the direction of arrow as shown in the illustration.



Installation

Installation is in the reverse order of removal.

Rear Door Glass Assembly

Removal

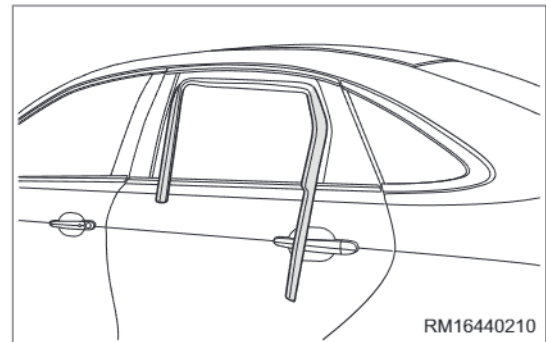
HINT:

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

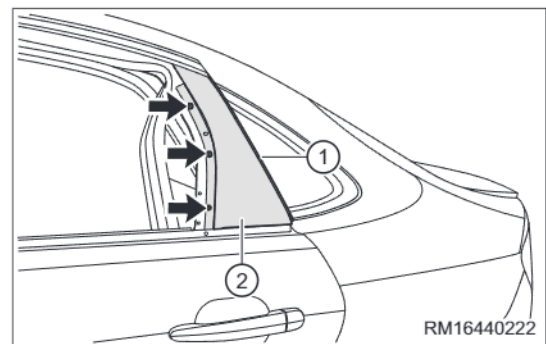
CAUTION

- Be sure to wear safety equipment to prevent accidents, when removing rear door glass assembly.
- Appropriate force should be applied when removing rear door glass assembly. Be careful not to operate roughly.
- Prevent window glass from dropping and becoming damaged, when removing rear door glass assembly.

1. Turn off all electrical equipment and the ignition switch.
2. Disconnect the negative battery cable.
3. Remove the rear left door inner protector assembly (See page 48-34).
4. Remove the rear left door metal bracket (See page 48-37).
5. Remove the rear left door protective film assembly (See page 48-37).
6. Remove the rear left door outer weather bar (See page 44-62).
7. Release the rear left door glass upper run.
 - a. Lower the rear door glass assembly and pull the lower part of rear door glass upper run out from trough.

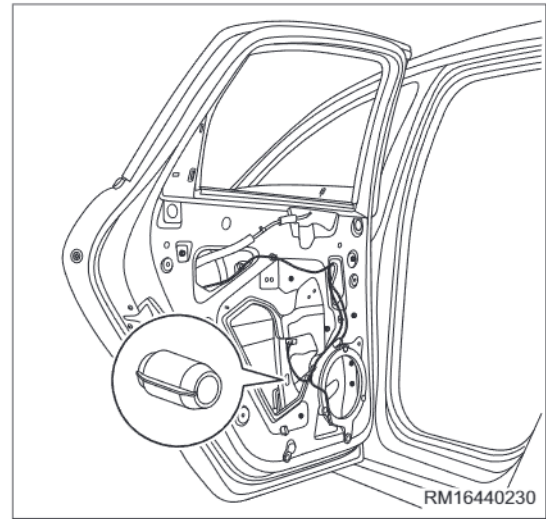


8. Remove the rear left door C-pillar cover plate assembly.
 - a. Pull the rear door glass upper run side weatherstrip (1) out from rear door C-pillar cover plate assembly.
 - b. Remove 3 fixing screws (arrow) from rear door C-pillar cover plate assembly and remove the rear left door C-pillar cover plate assembly (2).
(Tightening torque: 1.5 ± 0.5 N·m)

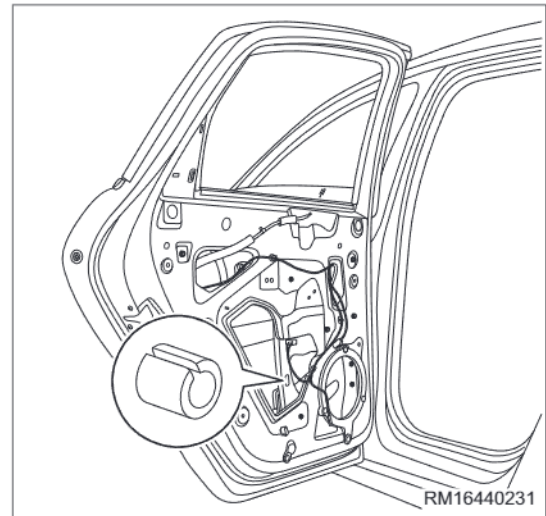


9. Remove the rear left door glass assembly.
 - a. Raise the rear door glass assembly to a proper position.

- b. Detach the inner snap pin from rear door glass assembly.



- c. Detach the outer snap pin from rear door glass assembly and remove the rear left door glass assembly.



Installation

44 Installation is in the reverse order of removal.

CAUTION

- Prevent window glass from dropping which will cause damage, when installing rear door glass assembly.

Rear Door Glass Guide Rail Assembly

Removal

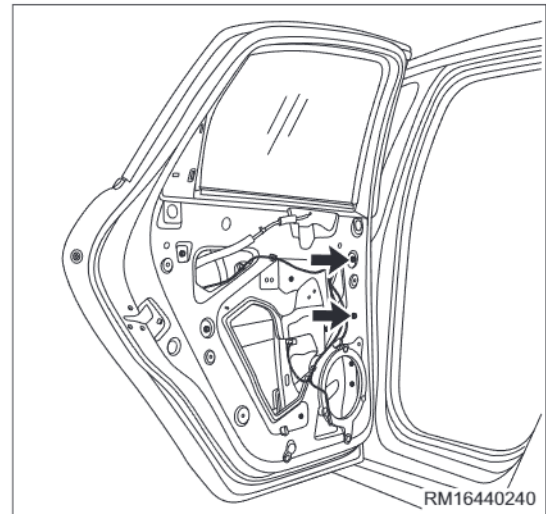
HINT:

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

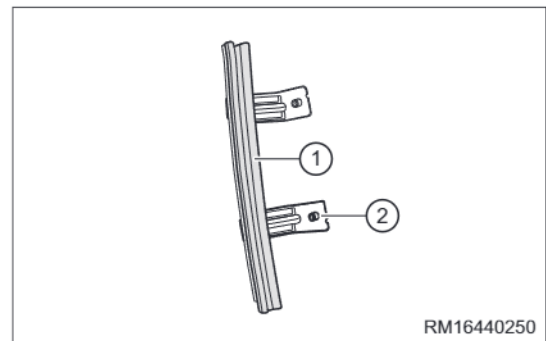
CAUTION

- Be sure to wear safety equipment to prevent accidents, when removing rear door glass guide rail assembly.
- Appropriate force should be applied when removing rear door glass guide rail assembly. Be careful not to operate roughly.

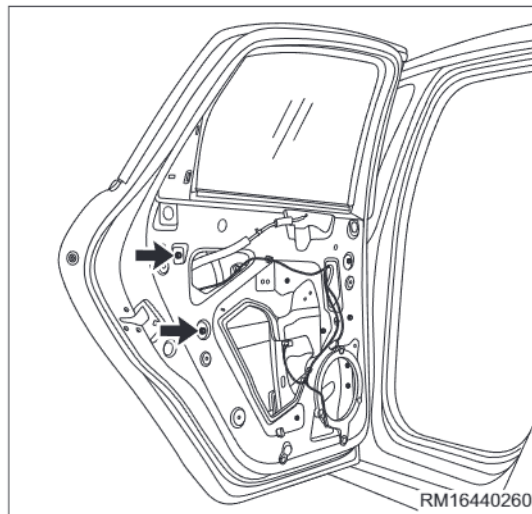
1. Turn off all electrical equipment and the ignition switch.
2. Disconnect the negative battery cable.
3. Remove the rear left door inner protector assembly ([See page 48-34](#)).
4. Remove the rear left door metal bracket ([See page 48-37](#)).
5. Remove the rear left door protective film assembly ([See page 48-37](#)).
6. Remove the rear left door glass front guide rail assembly.
 - a. Remove 2 fixing bolts (arrow) from rear door glass front guide rail assembly and remove the rear left door glass front guide rail assembly.
(Tightening torque: 7 ± 1 N·m)



- b. Remove the rear door B-pillar glass lower run (1) from rear door glass front guide rail assembly (2).



7. Remove the rear left door glass rear guide rail assembly.
 - a. Pull the lower part of rear door glass upper run out from rear door glass rear guide rail assembly.
 - b. Remove 2 fixing bolts (arrow) from rear door glass rear guide rail assembly and remove the rear left door glass rear guide rail assembly.
(Tightening torque: 7 ± 1 N·m)



Installation

Installation is in the reverse order of removal.

CAUTION

- After installing window glass regulating system, make sure that window glass can go up and down smoothly and freely without any vibration, chattering or shock loading, etc.

Rear Door Power Glass Regulator

Removal

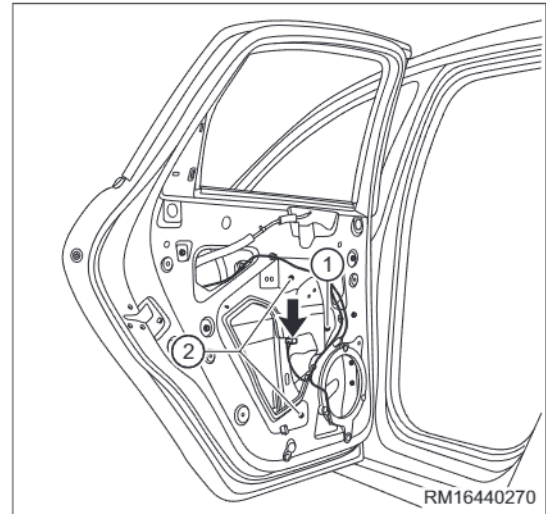
HINT:

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

CAUTION

- Be sure to wear safety equipment to prevent accidents, when removing rear door power glass regulator.
- Appropriate force should be applied when removing rear door power glass regulator. Be careful not to operate roughly.

1. Turn off all electrical equipment and the ignition switch.
2. Disconnect the negative battery cable.
3. Remove the rear left door inner protector assembly ([See page 48-34](#)).
4. Remove the rear left door metal bracket ([See page 48-37](#)).
5. Remove the rear left door protective film assembly ([See page 48-37](#)).
6. Remove the rear left door glass assembly ([See page 44-65](#)).
7. Remove the rear left door power glass regulator.
 - a. Disconnect the connector (arrow) from rear door power glass regulator.
 - b. Remove the fixing bolt (1) from rear door power glass regulator.
(Tightening torque: $7 \pm 1 \text{ N}\cdot\text{m}$)
 - c. Remove 2 fixing nuts (arrow) from rear door power glass regulator and remove the rear left door power glass regulator.
(Tightening torque: $7 \pm 1 \text{ N}\cdot\text{m}$)

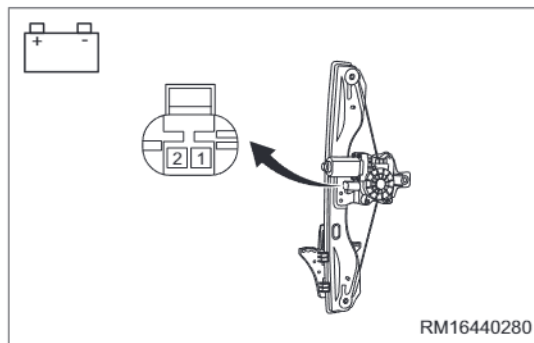


Inspection

1. Check the rear door power glass regulator.
 - a. Apply battery voltage to the terminals of rear door power glass regulator motor connector, and check the operation of rear door power glass regulator motor according to the table below.

Measurement Condition		Specified Condition
Battery positive (+)	Battery negative (-)	
Terminal 2	Terminal 1	UP smoothly
Terminal 1	Terminal 2	DOWN smoothly

If result is not as specified, replace the rear door power glass regulator assembly.



Installation

Installation is in the reverse order of removal.

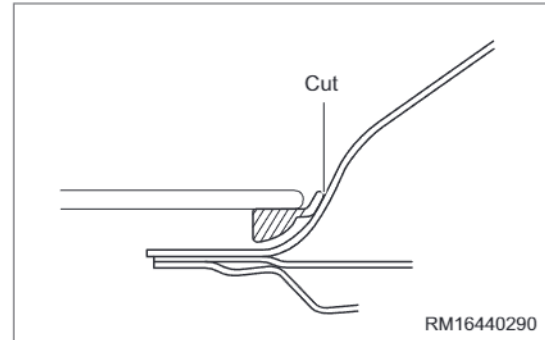
CAUTION

- After installing rear door power glass regulator, make sure that window glass can go up and down smoothly and freely without any vibration, chattering or shock loading, etc.

Rear Door Triangular Window Glass Assembly

Removal

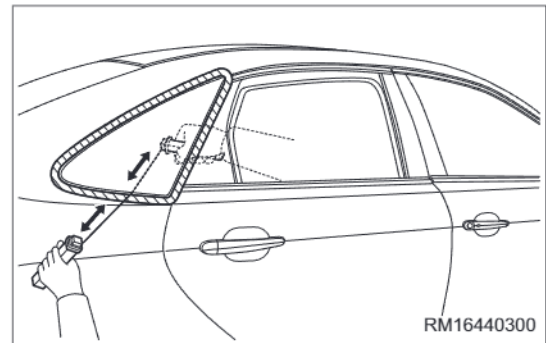
1. Turn off all electrical equipment and the ignition switch.
2. Disconnect the negative battery cable.
3. Remove the C-pillar upper protector assembly (See page 50-24).
4. Remove the rear door triangular window glass assembly.
 - a. Using a knife, cut off the adhesive.



CAUTION

- Try to prevent body paint surface from being scratched, when cutting off the adhesive.

- b. Apply protective tape to the outer surface of body to prevent scratches.
- c. Pass a piano wire through the seam between body and rear door triangular window glass assembly.
- d. Tie wooden blocks or similar objects to both piano wire ends, cut off the adhesive by pulling the piano wire around rear door triangular window glass assembly, and remove the rear door triangular window glass assembly.

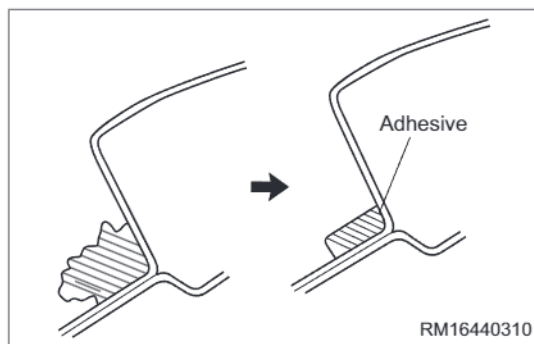


CAUTION

- When removing rear door triangular window glass assembly, an assistant is needed.
- When removing rear door triangular window glass assembly, prevent it from dropping.
- Leave as much adhesive on the body as possible, when cutting off the adhesive.
- When separating rear door triangular window glass assembly from vehicle, be careful not to damage body paint, interior and exterior ornaments.

5. Clean the vehicle body.

- a. Using a knife, cut off any excess adhesive on the contact surface of vehicle body as shown in the illustration.



CAUTION

- Try to prevent body paint surface from being scratched, when cutting off the adhesive.
- Leave as much adhesive on the body as possible, when cutting off the adhesive.

- b. Clean the contact surface of vehicle body with cleaner.

CAUTION

- Even if all adhesive has been removed, cleaning of vehicle would be necessary.

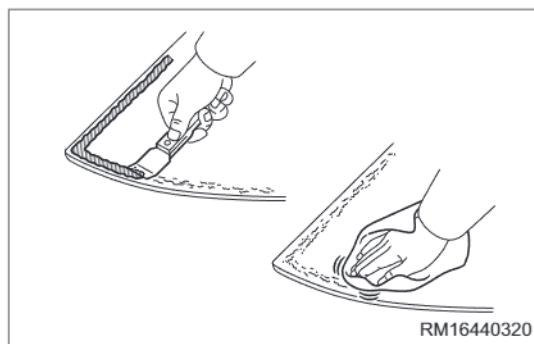
6. Clean the removed glass.

CAUTION

- DO NOT touch the glass after cleaning it.
- Even if a new glass is used, it is necessary to clean it with glass cleaner.

44

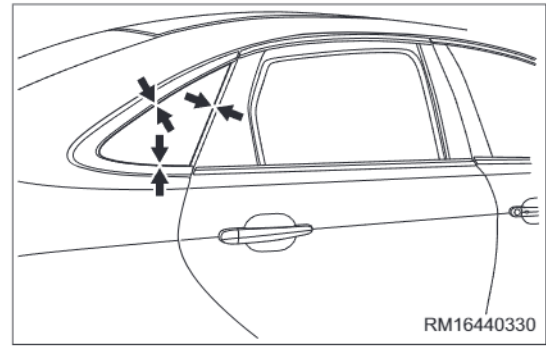
- a. Using a scraper, remove the adhesive sticking to glass.
- b. Clean the outer edges of glass with cleaner.



Installation

1. Position the rear door triangular window glass assembly.
 - a. Align the clips with metal plate installation holes of body.
 - b. Check if whole contact surface of glass edge is perfectly even.

- c. Place matchmarks on the rear door triangular window glass assembly and body at the positions shown in the illustration.



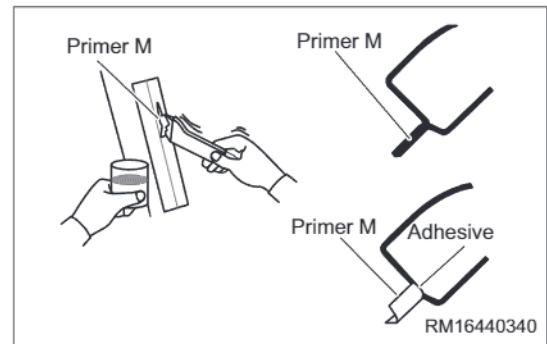
- d. Remove the rear door triangular window glass assembly.

2. Apply a coat of primer M to the contact surface of vehicle body.

CAUTION

- Allow primer to dry for at least 3 minutes.
- DO NOT apply primer to the adhesive.
- DO NOT apply too much primer.
- DO NOT keep any opened primer M for later use.

- a. Using a brush, apply a coat of primer M to the contact surface of vehicle body.
b. Width of primer is 13 to 15 mm.

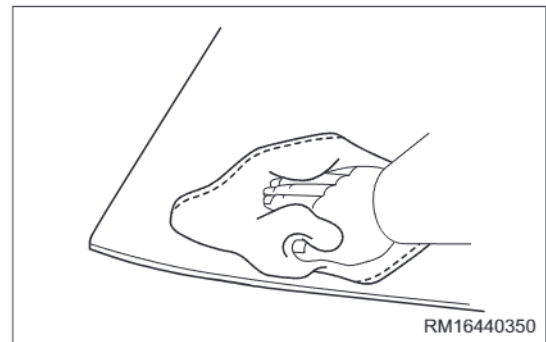


3. Clean the contact surface of rear door triangular window glass.

CAUTION

- DO NOT touch the surface of rear door triangular window glass after cleaning it.

- a. Remove any residue on the contact surface of rear door triangular window glass assembly with a clean, lint-free cloth soaked with cleaner.

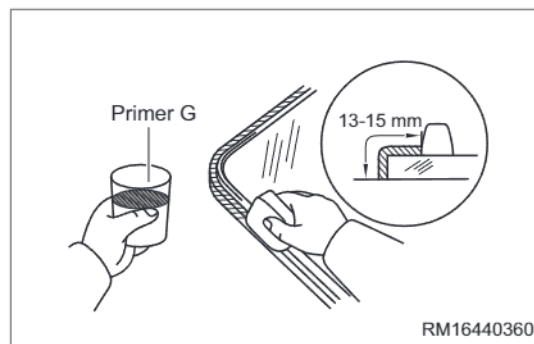


4. Apply a coat of primer G to the contact surface of rear door triangular window glass assembly.

CAUTION

- Allow primer to dry for at least 3 minutes.
- DO NOT apply primer to the adhesive.
- DO NOT apply too much primer.
- DO NOT keep any opened primer G for later use.

- Using a brush, apply a coat of primer G to the glass edge and contact surface.
- Wipe off any excess primer with a clean cloth before drying.
- Width of primer is 13 to 15 mm.

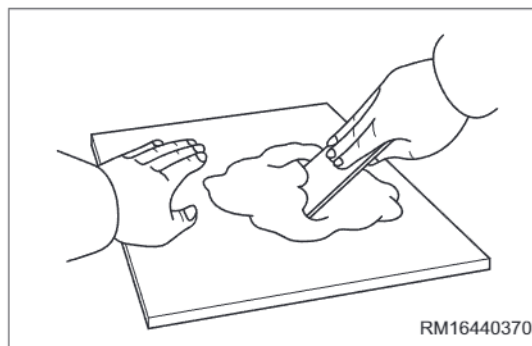


5. Mix the adhesive.

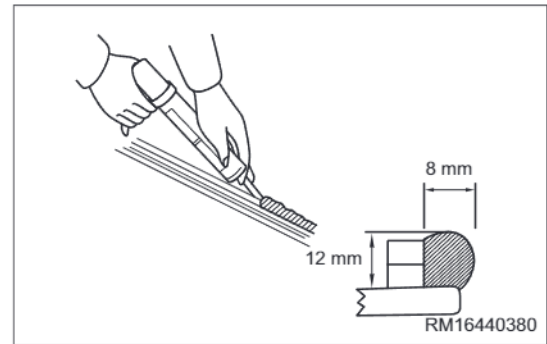
CAUTION

- Adhesive should be mixed thoroughly within 5 minutes.

- Using a solvent, thoroughly clean the mixing board and scraper.
- Using a scraper, thoroughly mix 500 g main adhesive and 75 g hardener on the mixing board.



6. Apply the adhesive.
 - a. Cut off the tip of cartridge nozzle and add adhesive.
 - b. Install the cartridge to sealer gun.
 - c. Apply adhesive evenly to the rear door triangular window glass assembly as shown in the illustration.
Adhesive width: 8 mm
Adhesive height: 12 mm

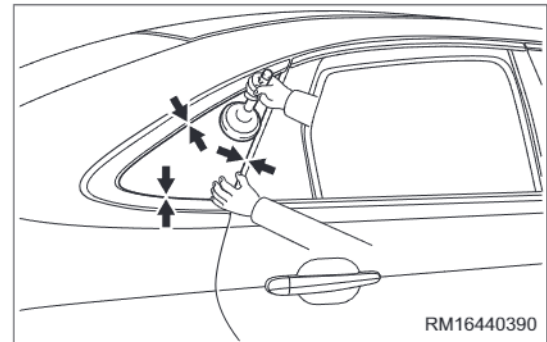


7. Install the rear door triangular window glass assembly.

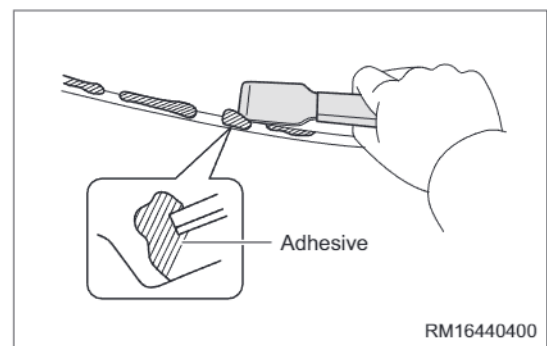
CAUTION

- Check that lower/upper clearance and right/left clearance of rear door triangular window glass are uniform.

- a. Align the matchmarks on glass and vehicle body, and gently press in glass along the edge.



- b. Using a scraper, uniformly apply adhesive to the glass edge.
- c. Remove any excess or spilled adhesive with the scraper.



- d. Apply tape all the way around, and do not remove them until the adhesive hardens.
8. Check and repair the sealing of glass.
 - a. Check glass for leakage after the adhesive has completely hardened.
 - b. If it leaks, seal the leaks by adding adhesive.
 9. Install the C-pillar upper protector assembly.
 10. Connect the negative battery cable.

Front Windshield Assembly

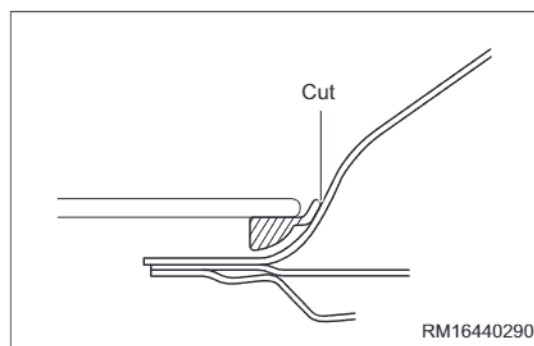
Removal

1. Turn off all electrical equipment and the ignition switch.
2. Disconnect the negative battery cable.
3. Remove the roof assembly (See page 50-28).

HINT:

It is not necessary to completely remove the roof assembly. Lower the front part of roof assembly, so that front windshield assembly can be removed.

4. Remove the inside rear view mirror assembly (See page 45-22).
5. Remove the front wiper arm assembly (See page 37-25).
6. Remove the front windshield lower support assembly (See page 49-33).
7. Remove the front windshield weatherstrip.
8. Remove the front windshield assembly.
 - a. Using a knife, cut off the adhesive.



CAUTION

- Try to prevent body paint surface from being scratched, when cutting off the adhesive.

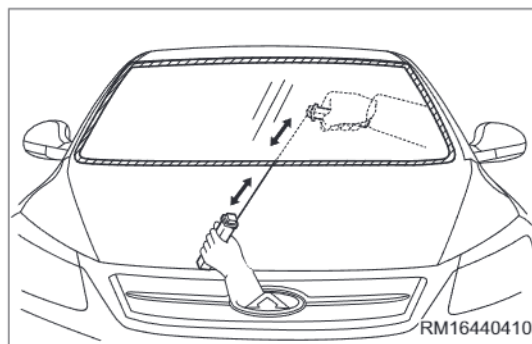
44

- b. Apply protective tape to the outer surface of body to prevent scratches.

CAUTION

- To prevent instrument panel upper body assembly from being scratched, place a plastic sheet between piano wire and instrument panel upper body assembly.

- c. Pass a piano wire through the seam between body and front windshield assembly.
- d. Tie wooden blocks or similar objects to both piano wire ends, cut off the adhesive by pulling the piano wire around front windshield assembly, and remove the front windshield assembly.

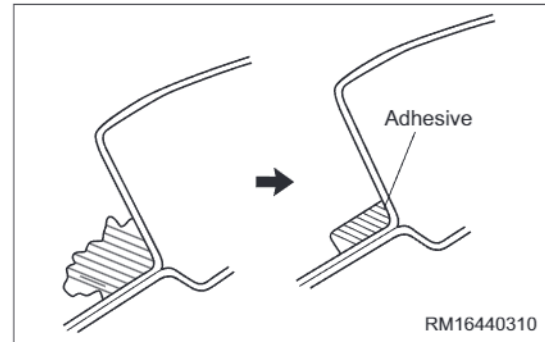


CAUTION

- When removing front windshield assembly, an assistant is needed.
- When removing front windshield assembly, prevent it from dropping.
- Leave as much adhesive on the body as possible when cutting off the adhesive.
- When separating front windshield assembly from vehicle, be careful not to damage body paint, interior and exterior ornaments.

9. Clean the vehicle body.

- Using a knife, cut off any excess adhesive on the contact surface of vehicle body as shown in the illustration.

**CAUTION**

- Try to prevent body paint surface from being scratched, when cutting off the adhesive.
- Leave as much adhesive on the body as possible, when cutting off the adhesive.

- Clean the contact surface of vehicle body with cleaner.

CAUTION

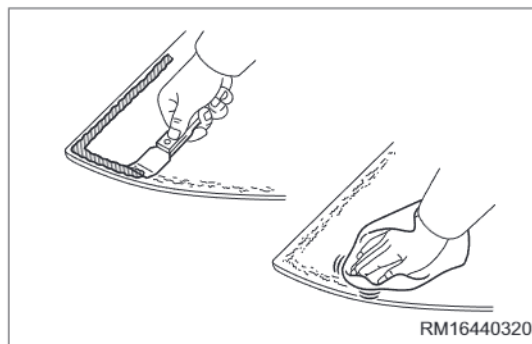
- Even if all adhesive has been removed, cleaning of vehicle would be necessary.

10. Clean the removed glass.

CAUTION

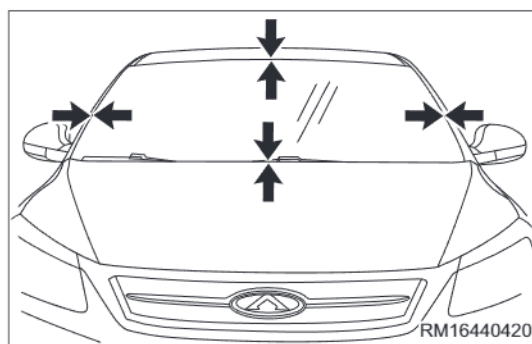
- DO NOT touch the glass after cleaning it.
- Even if a new glass is used, it is necessary to clean it with glass cleaner.

- Using a scraper, remove the adhesive sticking to glass.
- Clean the outer edges of glass with cleaner.



Installation

- Position the front windshield assembly.
 - Align the positioning blocks with metal plate installation holes of body.
 - Check if whole contact surface of glass edge is perfectly even.
 - Place matchmarks on the front windshield assembly and body at the positions shown in the illustration.



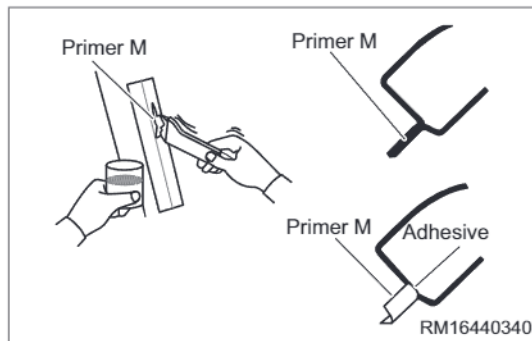
- Remove the front windshield assembly.
- Apply a coat of primer M to the contact surface of vehicle body.

CAUTION

- Allow primer to dry for at least 3 minutes.
- DO NOT apply primer to the adhesive.
- DO NOT apply too much primer.
- DO NOT keep any opened primer M for later use.

44

- Using a brush, apply a coat of primer M to the contact surface of vehicle body.
- Width of primer is 13 to 15 mm.

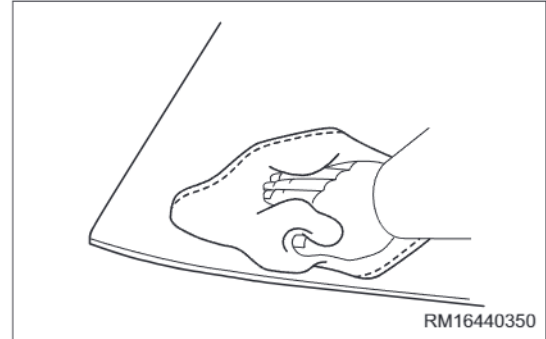


3. Clean the contact surface of front windshield assembly.

CAUTION

- DO NOT touch the glass surface after cleaning it.

- a. Remove any residue on the contact surface of front windshield assembly with a clean, lint-free cloth soaked with cleaner.

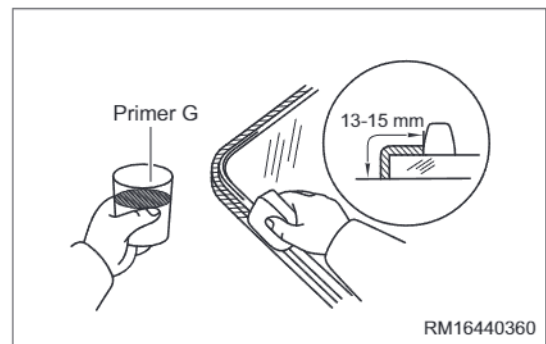


4. Apply a coat of primer G to the contact surface of front windshield assembly.

CAUTION

- Allow primer to dry for at least 3 minutes.
- DO NOT apply primer to the adhesive.
- DO NOT apply too much primer.
- DO NOT keep any opened primer G for later use.

- a. Using a brush, apply a coat of primer G to the contact surface of vehicle body.
 b. Wipe off any excess primer with a clean cloth before drying.
 c. Width of primer is 13 to 15 mm.



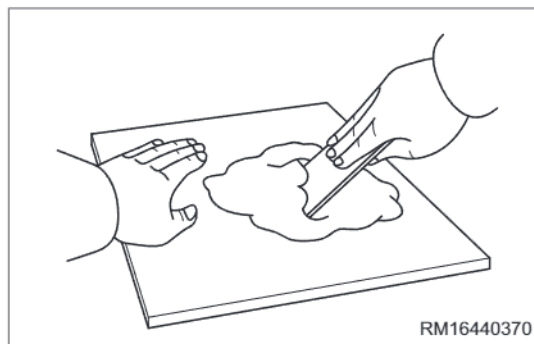
5. Install the front windshield weatherstrip.

6. Mix the adhesive.

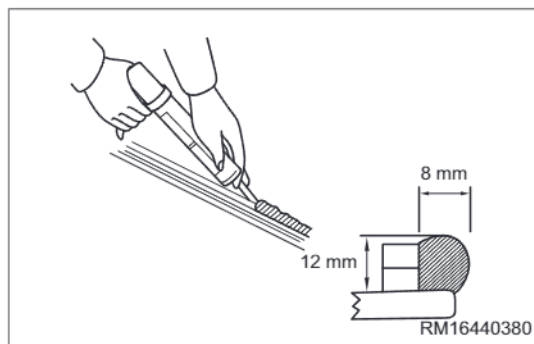
CAUTION

- Adhesive should be mixed thoroughly within 5 minutes.

- a. Using a solvent, thoroughly clean the mixing board and scraper.
- b. Using a scraper, thoroughly mix 500 g main adhesive and 75 g hardener on the mixing board.



7. Apply the adhesive.
 - a. Cut off the tip of cartridge nozzle and add adhesive.
 - b. Install the cartridge to sealer gun.
 - c. Apply adhesive evenly to the front windshield assembly as shown in the illustration.
Adhesive width: 8 mm
Adhesive height: 12 mm



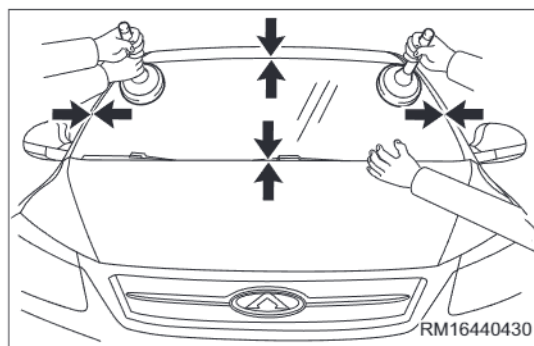
8. Install the front windshield assembly.

CAUTION

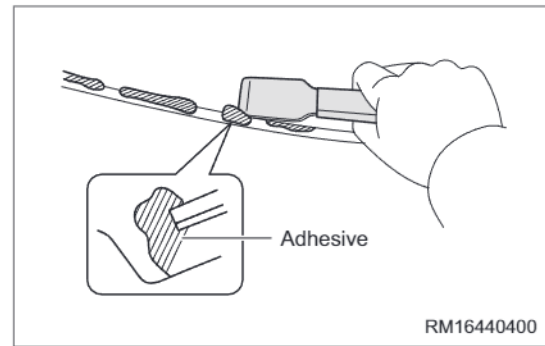
- Check that lower/upper clearance and right/left clearance of front windshield assembly are uniform, to ensure good fitting with weatherstrips all around.

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- a. Align the matchmarks on glass and vehicle body, and gently press in glass along the edge.



- b. Using a scraper, uniformly apply adhesive to the glass edge.
- c. Remove any excess or spilled adhesive with the scraper.



- d. Apply tape all the way around, and do not remove them until the adhesive becomes hard.
- 9. Check and repair the sealing of glass.
 - a. Check glass for leakage after the adhesive has completely hardened.
 - b. If it leaks, seal the leaks by adding adhesive.
 - 10. Remove the front windshield lower support assembly.
 - 11. Remove the wiper arm assembly.
 - 12. Remove the inside rear view mirror assembly.
 - 13. Remove the roof assembly.
 - 14. Connect the negative battery cable.

Rear Windshield Assembly

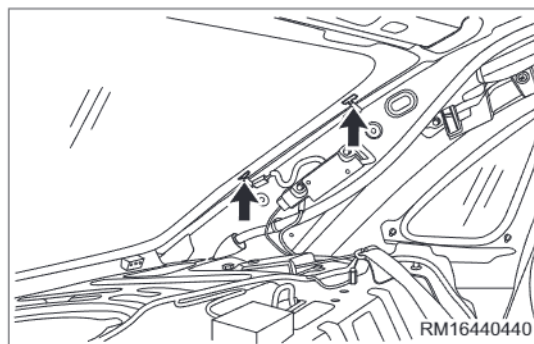
Removal

1. Turn off all electrical equipment and the ignition switch.
2. Disconnect the negative battery cable.
3. Remove the tonneau cover assembly (See page 50-37).
4. Remove the roof assembly (See page 50-28).

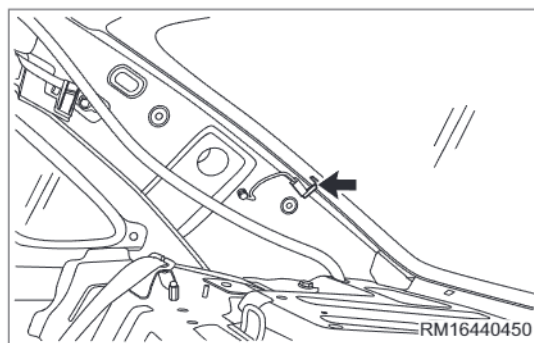
HINT:

It is not necessary to completely remove the roof assembly. Lower the rear part of roof assembly, so that rear windshield assembly can be removed.

5. Remove the defroster wire harness assembly.
 - a. Remove the left defroster connectors (arrow).

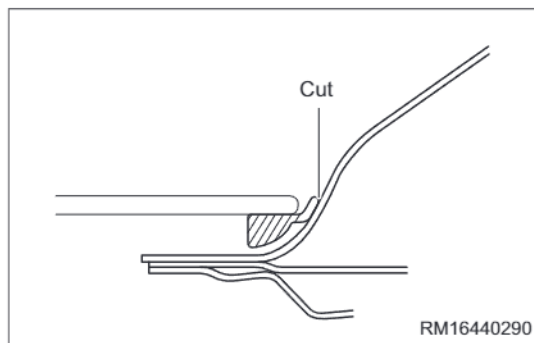


- b. Remove the right defroster connector (arrow).



44

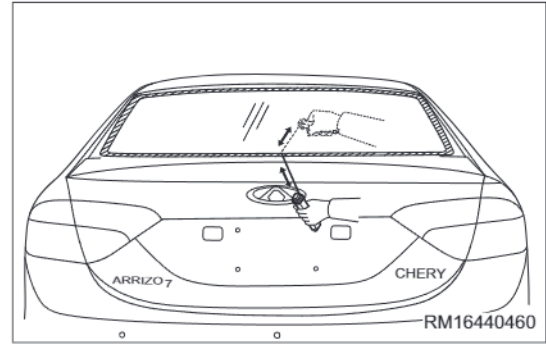
6. Remove the rear windshield weatherstrip.
7. Remove the rear windshield assembly.
 - a. Using a knife, cut off the adhesive.



CAUTION

- Try to prevent body paint surface from being scratched, when cutting off the adhesive.

- b. Apply protective tape to the outer surface of body to prevent scratches.
- c. Pass a piano wire through the seam between body and rear windshield assembly.
- d. Tie wooden blocks or similar objects to both piano wire ends, cut off the adhesive by pulling the piano wire around rear windshield assembly, and remove the rear windshield assembly.

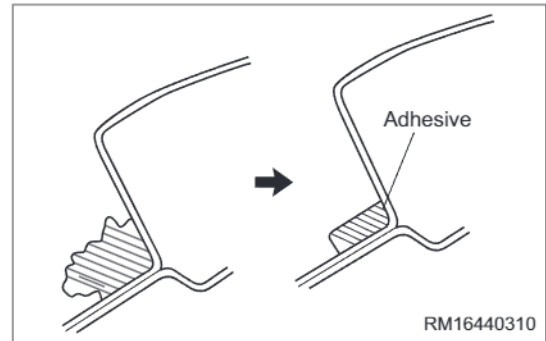


CAUTION

- When removing rear windshield assembly, an assistant is needed.
- When removing rear windshield assembly, prevent it from dropping.
- Leave as much adhesive on the body as possible when cutting off the adhesive.
- When separating rear windshield assembly from vehicle, be careful not to damage body paint, interior and exterior ornaments.

8. Clean the vehicle body.

- a. Using a knife, cut off any excess adhesive on the contact surface of vehicle body as shown in the illustration.



CAUTION

- Try to prevent body paint surface from being scratched. when cutting off the adhesive.
- Leave as much adhesive on the body as possible, when cutting off the adhesive.

- b. Clean the contact surface of vehicle body with cleaner.

CAUTION

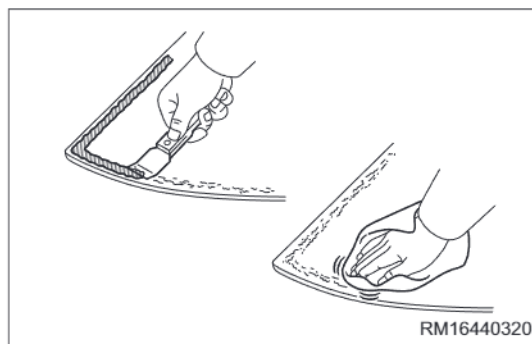
- Even if all adhesive has been removed, cleaning of vehicle would be necessary.

9. Clean the removed glass.

CAUTION

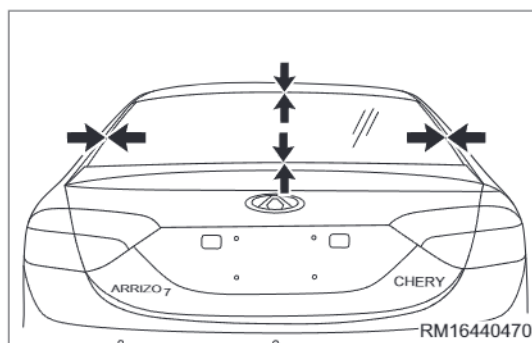
- DO NOT touch the glass after cleaning it.
- Even if a new glass is used, it is necessary to clean it with glass cleaner.

- Using a scraper, remove the adhesive sticking to glass.
- Clean the outer edges of glass with glass cleaner.



Installation

- Position the rear windshield assembly.
 - Align the positioning blocks with metal plate installation holes of body.
 - Check if whole contact surface of glass edge is perfectly even.
 - Place matchmarks on the rear windshield assembly and body at the positions shown in the illustration.



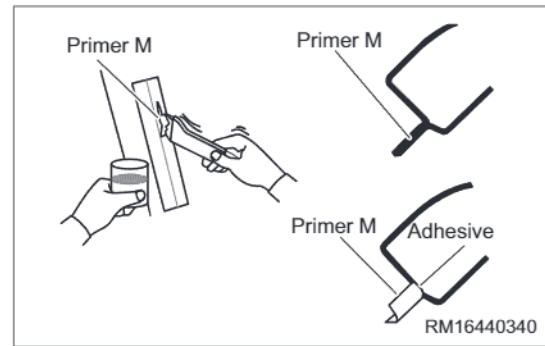
44

- Remove the rear windshield assembly.
- Apply a coat of primer M to the contact surface of vehicle body.

CAUTION

- Allow primer to dry for at least 3 minutes.
- DO NOT apply primer to the adhesive.
- DO NOT apply too much primer.
- DO NOT keep any opened primer M for later use.

- a. Using a brush, apply a coat of primer M to the contact surface of vehicle body.
- b. Width of primer is 13 to 15 mm.

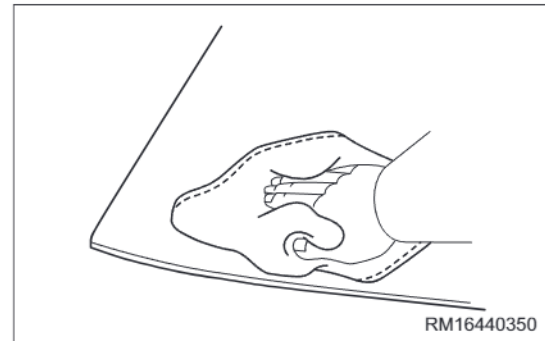


3. Clean the contact surface of rear windshield.

CAUTION

- DO NOT touch the surface of rear windshield after cleaning it.

- a. Remove any residue on the contact surface of rear windshield with a clean, lint-free cloth soaked with cleaner.

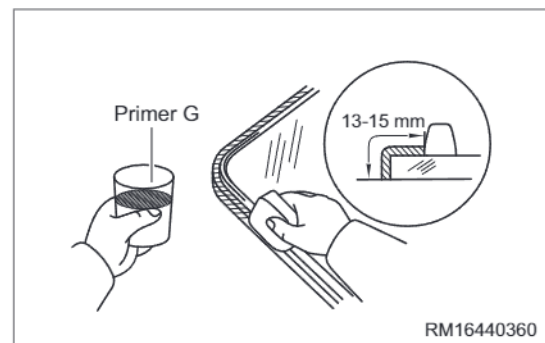


4. Apply a coat of primer G to the contact surface of rear windshield assembly.

CAUTION

- Allow primer to dry for at least 3 minutes.
- DO NOT apply primer to the adhesive.
- DO NOT apply too much primer.
- DO NOT keep any opened primer G for later use.

- a. Using a brush, apply a coat of primer G to the contact surface of vehicle body.
- b. Wipe off any excess primer with a clean cloth before drying.
- c. Width of primer is 13 to 15 mm.



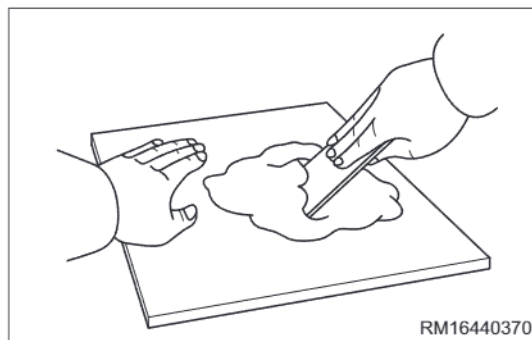
5. Install the rear windshield weatherstrip.

6. Mix the adhesive.

CAUTION

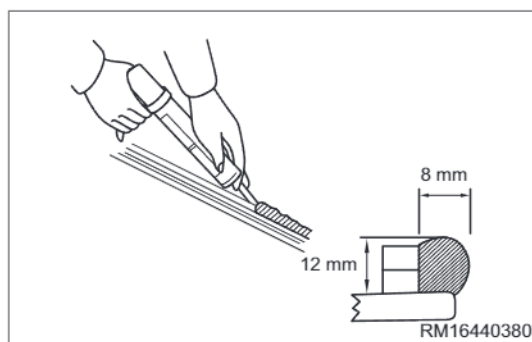
- Adhesive should be mixed thoroughly within 5 minutes.

- Using a solvent, thoroughly clean the mixing board and scraper.
- Using a scraper, thoroughly mix 500 g main adhesive and 75 g hardener on the mixing board.



7. Apply the adhesive.

- Cut off the tip of cartridge nozzle and add adhesive.
- Install the cartridge to sealer gun.
- Apply adhesive evenly to the rear windshield assembly as shown in the illustration.
Adhesive width: 8 mm
Adhesive height: 12 mm



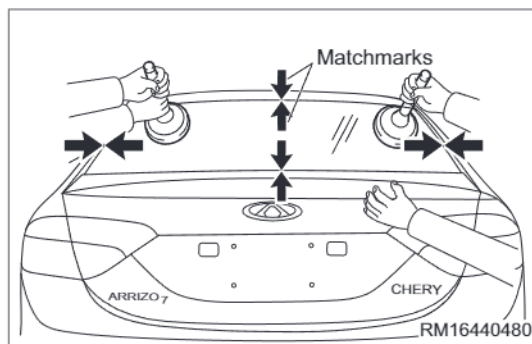
8. Install the rear windshield assembly.

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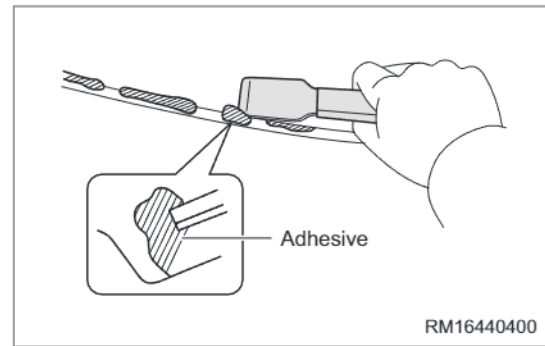
CAUTION

- Check that lower/upper clearance and right/left clearance of rear windshield assembly are uniform, to ensure good fitting with weatherstrips all around.

- Align the matchmarks on glass and vehicle body, and gently press in glass along the edge.



- b. Using a scraper, uniformly apply adhesive to the glass edge.
- c. Remove any excess or spilled adhesive with the scraper.

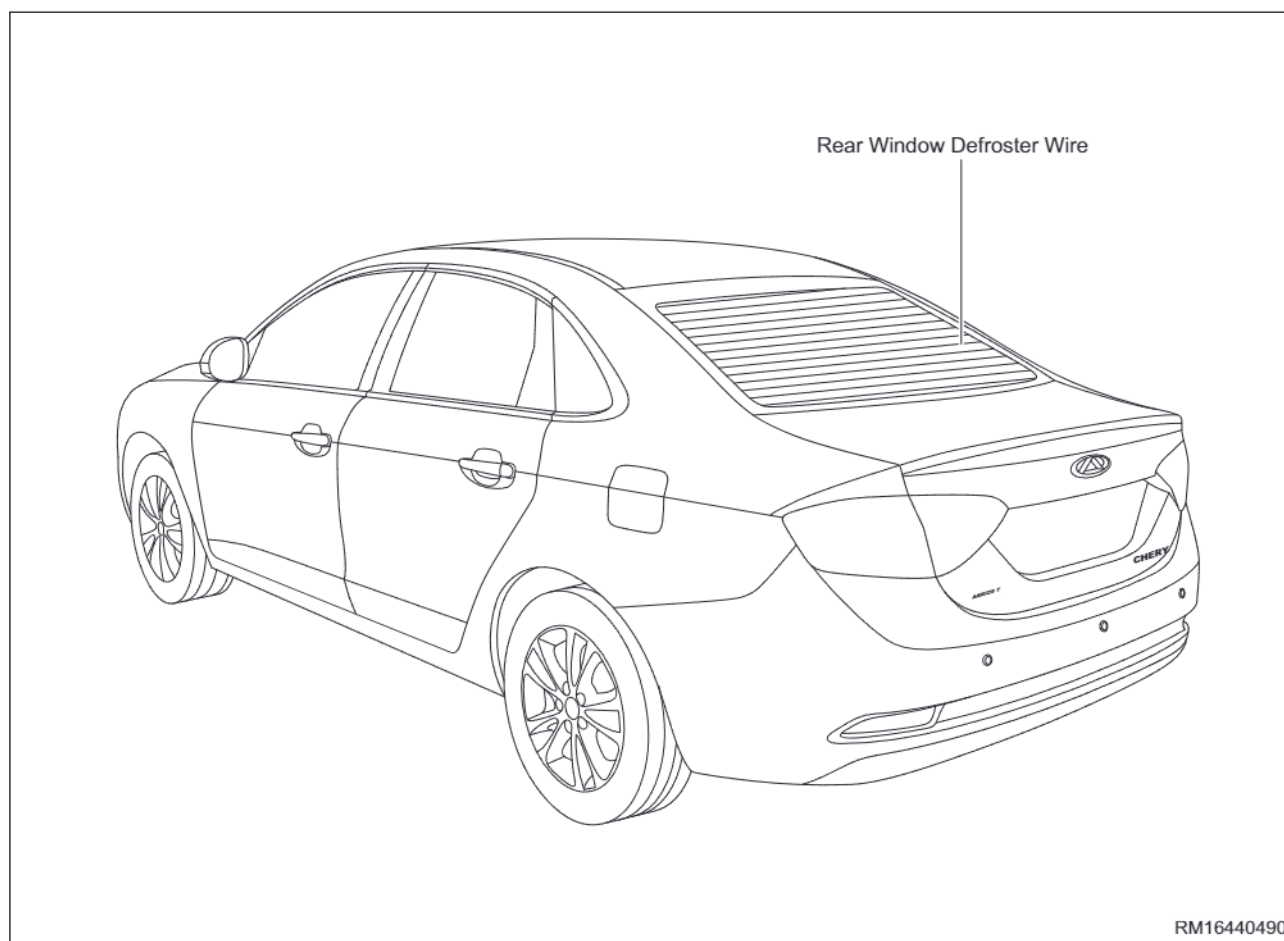


- d. Apply tape all the way around, and do not remove them until the adhesive hardens.
- 9. Check and repair the sealing of glass.
 - a. Check the glass for leakage after adhesive has completely hardened.
 - b. If it leaks, seal the leaks by adding adhesive.
 - 10. Remove the tonneau cover assembly.
 - 11. Remove the roof assembly.
 - 12. Connect the negative battery cable.

Rear Window Defroster

General Information

Description



44 When rear window defroster switch is turned on, rear window defroster wire is heated to remove the fog, frost or water vapor on rear windshield, thus realizing a clear view.

To turn on the rear window defroster, it is necessary to turn ignition switch to ON and press rear window defroster switch. The rear window defroster switch indicator comes on, while the rear window defroster starts to work. The rear window defroster stops and the indicator goes off after pressing the rear window defroster switch again.

Rear Window Defroster System



Problem Symptoms Table

Symptom	Suspected Area	See page
Rear window defroster switch is turned on but does not operate (indicator on)	Fuse	53-36
	Rear window defroster switch	44-99
	Rear window defroster wire	-
	Wire harness or connector	-
Rear window defroster switch is turned on but does not operate (indicator off)	Fuse	53-36
	Rear window defroster switch	44-99
	Wire harness or connector	-
Rear window defroster has intermittent problem	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 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 a digital multimeter:

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

Diagnostic Help

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1. 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.
2. Confirm that malfunction is present, and carry out diagnostic test and repair procedures.
3. If DTC cannot be cleared, the malfunction is present.
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 window defroster control system ground points related to the latest DTC.
8. If multiple 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 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 related circuit signal is interrupted.
- If possible, try to duplicate the conditions under which the DTC was set.

- Look for the data that has changed or the DTC to reset during wiggle test.
- Look for broken, bent, protruded or corroded terminals.
- Inspect the mounting areas of rear window defroster, wire harnesses or wire harness connectors and so on for damage, foreign matter, etc. that will cause incorrect signals.
- Check and clean all wire harness connectors and ground points related to DTC.
- Remove the Body Control Module (BCM) from malfunctioning vehicle, then 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 circuit diagrams to look for any common ground circuit or power supply circuit applied to the DTC.
- Refer to any Technical Bulletin that may apply to the malfunction.

Ground Inspection

Groundings are very important to entire circuit system, which are normal or not can seriously affect the entire circuit system. Groundings are often exposed to moisture, dirt and other corrosive environments. Corrosion (rust) and oxidation may increase load resistance. In such cases, the normal circuit operation will be seriously affected. Check the ground points as follows:

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 terminal, check for proper crimps. Make sure all the wire harnesses are clean, securely fastened to provide a good ground line.

Diagnosis Procedure

HINT:

Use following procedures to troubleshoot the rear window defroster control system.

1	Vehicle brought to workshop
----------	------------------------------------

NEXT

44

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

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Diagnostic Trouble Code (DTC) Chart

DTC Code	DTC Definition
B101A-12	Rear Defroster Control Circuit Short to Battery
B101A-13	Rear Defroster Control Circuit Open

DTC	B101A-12	Rear Defroster Control Circuit Short to Battery
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DTC	B101A-13	Rear Defroster Control Circuit Open
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Self-diagnosis Detection Logic

DTC Code	DTC Definitions	DTC Detection Conditions	Suspected Area
B101A-12	Rear Defroster Control Circuit Short to Battery	Ignition switch ON	- Wire harness or connector - Body Control Module (BCM)
B101A-13	Rear Defroster Control Circuit Open		

DTC Confirmation Procedure

Confirm that battery voltage is 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 vehicle electronic module through the data network.
- Turn ignition switch to ON.
- Use X-431 3G diagnostic tester to record and clear the DTCs stored in Body Control Module (BCM) system.
- 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 current DTC is present. Go to Diagnosis Procedure - Step 1.
- If DTC is not detected, the malfunction indicated by the DTC is intermittent ([See page 44-14](#)).

CAUTION

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

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Diagnosis Procedure

1	Check rear window defroster
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- Check rear window defroster for tarnish, dirt or rust.
- Check if rear window defroster wire is broken.

NG

Repair rear window defroster

OK

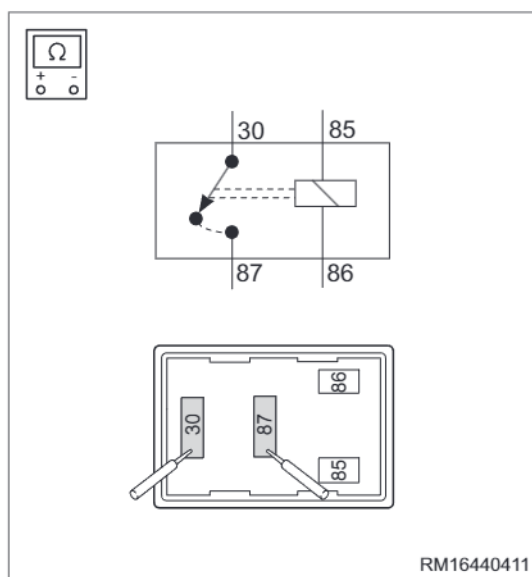
2 Check rear window defroster relay

- Remove the rear window defroster relay from luggage compartment fuse and relay box.
- Check the rear window defroster relay terminals.

Multimeter Connection	Specified Condition
30 - 87	No continuity
30 - 87	Continuity (Battery voltage is applied between terminals 85 and 86)

NG

Replace defroster relay



RM16440411

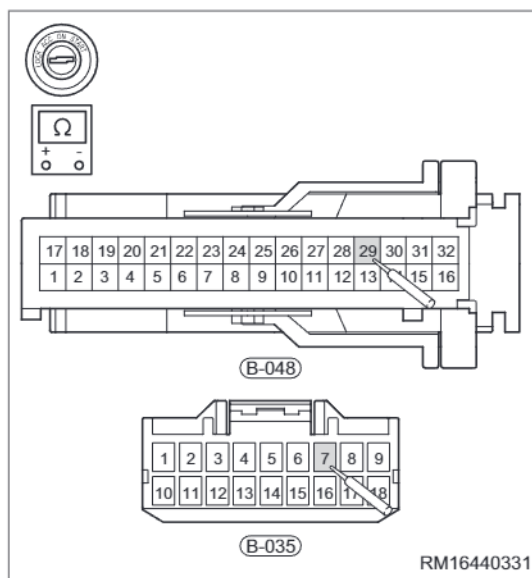
OK

3 Check body wire harness and connector

- Turn ignition switch to LOCK.
- Disconnect the negative battery cable.
- Disconnect the body wire harness connectors B-048 and B-035.
- Using a digital multimeter, check for continuity between body wire harness connectors B-048 and B-035 according to the table below.

44

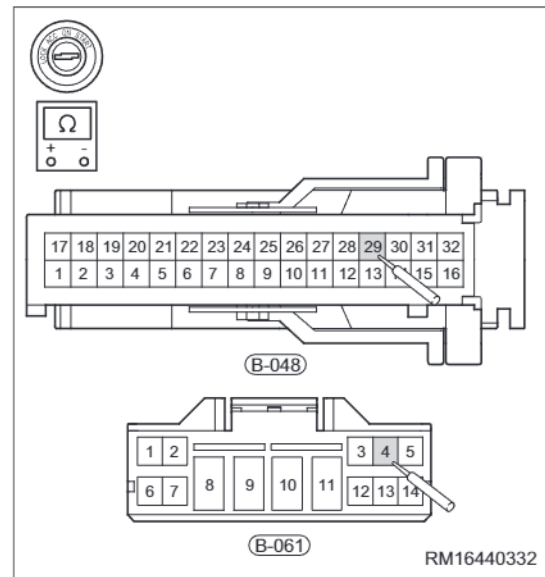
Multimeter Connection	Condition	Specified Condition
B-048 (29) - B-035 (7)	Always	Continuity



RM16440331

- e. Disconnect the body wire harness connectors B-048 and B-061.
- f. Using a digital multimeter, check for continuity between body wire harness connectors B-048 and B-061 according to the table below.

Multimeter Connection	Condition	Specified Condition
B-048 (29) - B-061 (4)	Always	Continuity

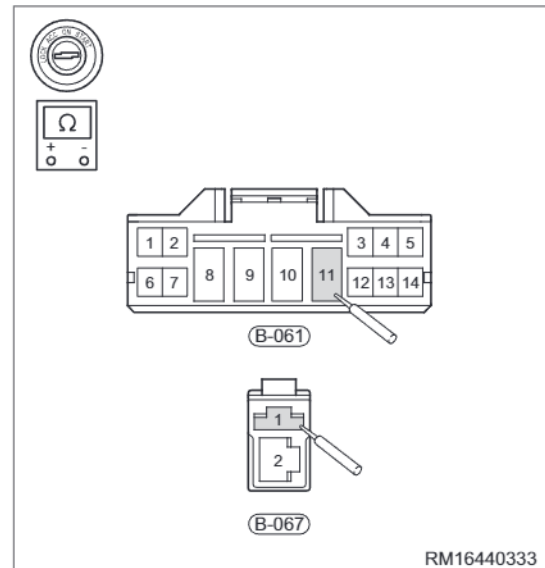


- g. Disconnect the body wire harness connectors B-061 and B-067.
- h. Using a digital multimeter, check for continuity between body wire harness connectors B-061 and B-067 according to the table below.

Multimeter Connection	Condition	Specified Condition
B-061 (11) - B-067 (1)	Always	Continuity

NG

Repair or replace body wire harness and connector



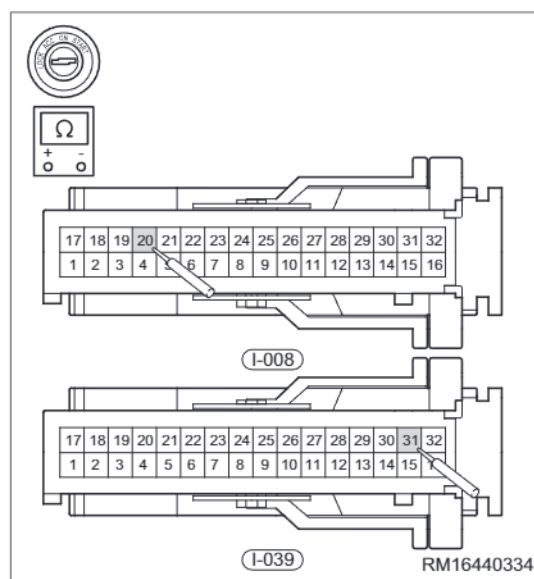
OK

4

Check instrument panel wire harness and connector

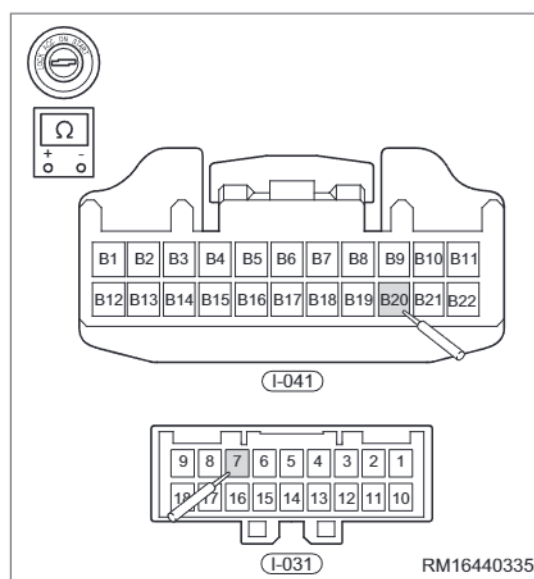
- Turn ignition switch to LOCK.
- Disconnect the negative battery cable.
- Disconnect the instrument panel wire harness connectors I-008 and I-039.
- Using a digital multimeter, check for continuity between instrument panel wire harness connectors I-008 and I-039 according to the table below.

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



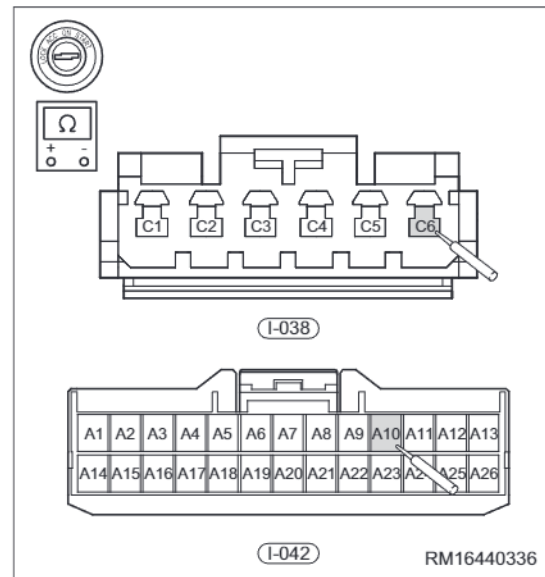
- Disconnect the instrument panel wire harness connectors I-031 and I-041.
- Using a digital multimeter, check for continuity between instrument panel wire harness connectors I-031 and I-041 according to the table below.

Multimeter Connection	Condition	Specified Condition
I-031 (7) - I-041 (B20)	Always	Continuity



- g. Disconnect the instrument panel wire harness connectors I-038 and I-042.
- h. Using a digital multimeter, check for continuity between instrument panel wire harness connectors I-038 and I-042 according to the table below.

Multimeter Connection	Condition	Specified Condition
I-038 (C6) - I-042 (A10)	Always	Continuity

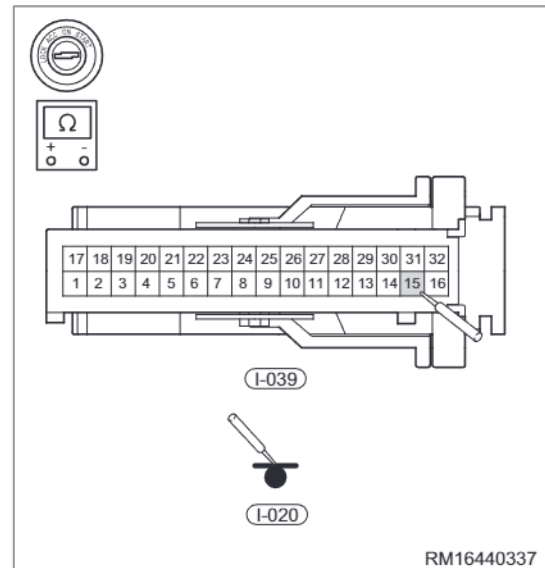


- i. Disconnect the instrument panel wire harness connector I-039 and ground point I-020.
- j. Using a digital multimeter, check for continuity between instrument panel wire harness connector I-039 and ground point I-020 according to the table below.

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

NG

Repair or replace instrument panel wire harness and connector



OK

44

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 the DTCs stored in 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 the DTCs stored in Body Control Module (BCM) again.
- Read the DTCs.



Result	Proceed to
DTCs B101A-12 and B101A-13 are output	NG
No DTC is output	OK

NG

Replace Body Control Module (BCM)

OK

System is normal

Removal & Installation - Rear Window Defroster Switch

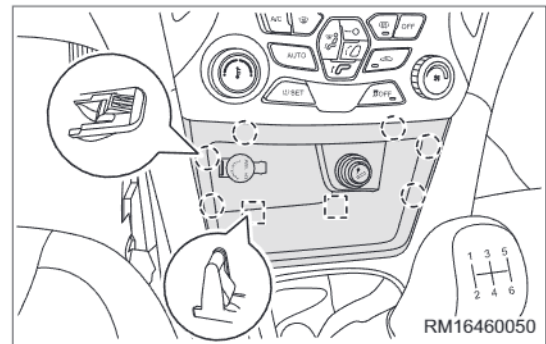
HINT:

Rear window defroster switch is installed on center control integration panel assembly, and cannot be disassembled.

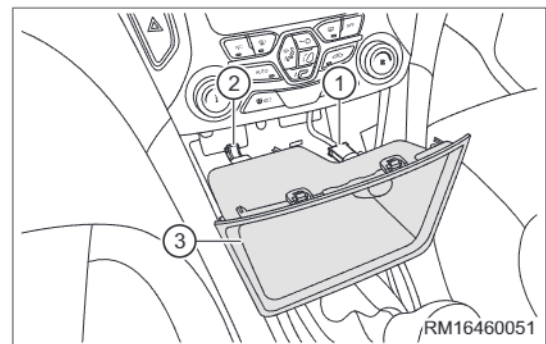
CAUTION

- Be sure to wear safety equipment to prevent accidents, when removing rear window defroster switch.
- Appropriate force should be applied when removing rear window defroster switch. Be careful not to operate roughly.
- When removing rear window defroster switch, prevent interior from being scratched.

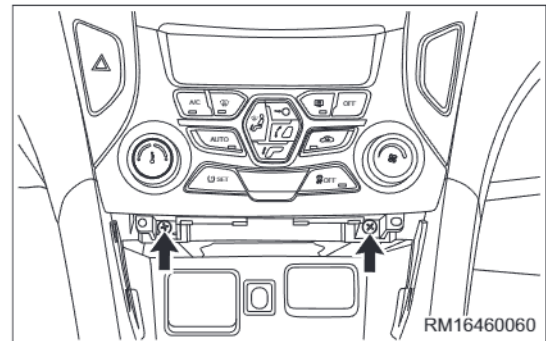
1. Turn off all electrical equipment and the ignition switch.
2. Disconnect the negative battery cable.
3. Remove the lower center storage box assembly.
 - a. Using a screwdriver wrapped with protective tape, pry off the fixing clips on lower center storage box assembly.



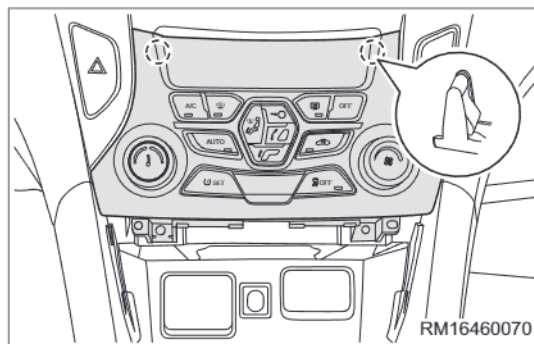
- b. Disconnect the cigarette lighter connector (1) and backup power supply connector (2), and remove the lower center storage box assembly (3).



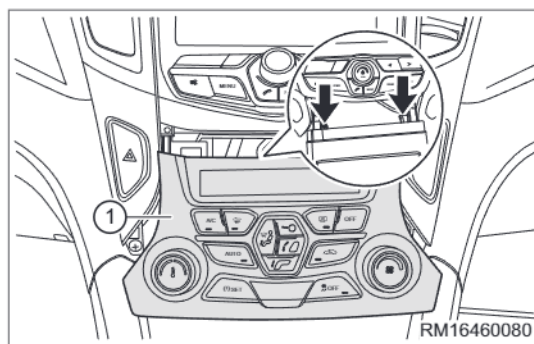
4. Remove the center control integration panel assembly.
 - a. Remove 2 fixing screws (arrow) from center control integration panel assembly. (Tightening torque: 1.5 ± 0.5 N·m)



- b. Using a screwdriver wrapped with protective tape, pry off the clips on center control integration panel assembly.



- c. Disconnect the connectors (arrow) from center control integration panel and remove the center control integration panel assembly (1).



5. Installation is in the reverse order of removal.

CAUTION

- Install the connector in place when installing rear window defroster switch.
- Always operate carefully to prevent components from being damaged, when installing rear window defroster switch.
- Check rear window defroster switch for proper operation after installation.

