

WINDSHIELD/WINDOW GLASS

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GENERAL INFORMATION

Front Windshield

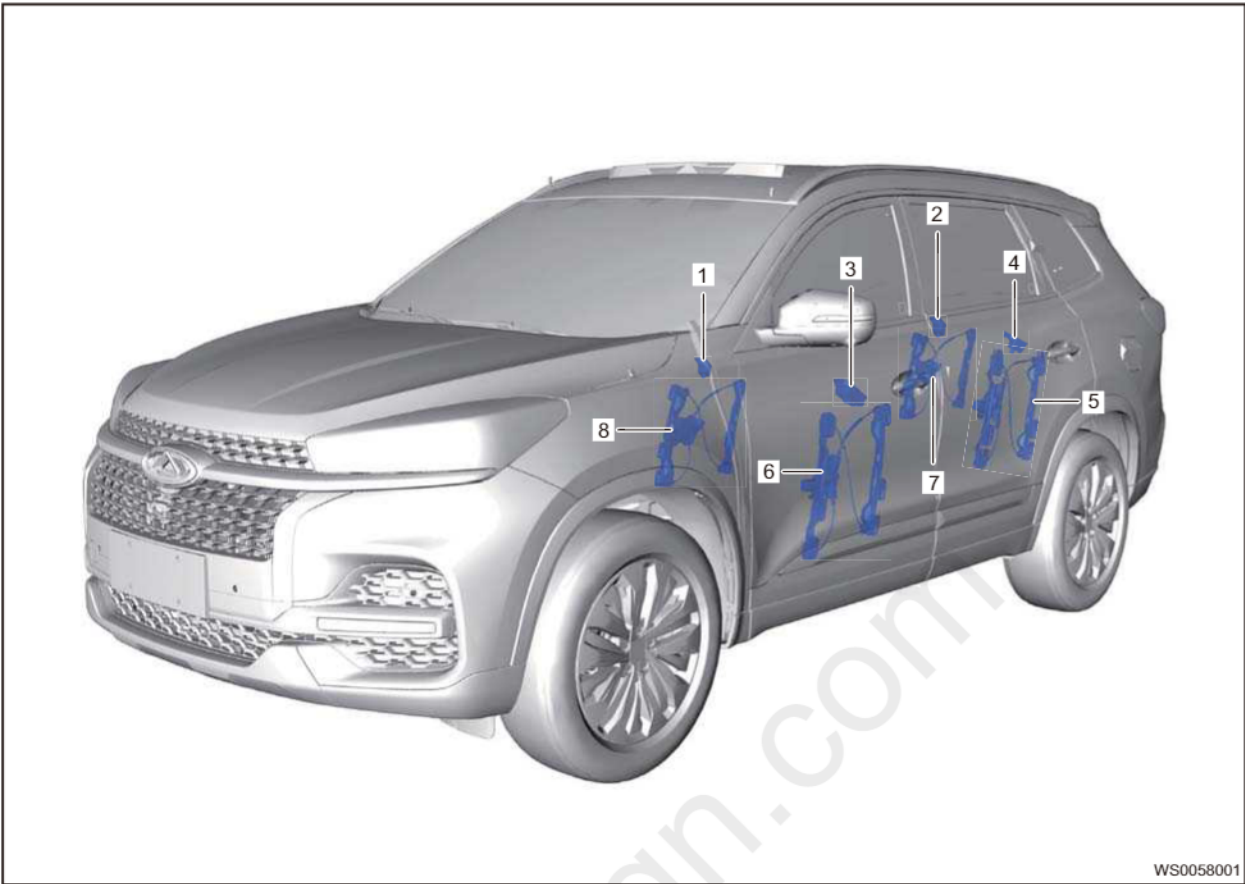
Description



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



WS0058001

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

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

Operation

1. Main Component Function

Description	Description
Power window lock switch	- Located on front left door inner protector assembly. It controls the operation of front and rear passenger side glass regulator switches. - When power window lock switch is in lock position, only driver side glass regulator switch can control UP/DOWN operation of power window glass.
Power Glass Regulator Switch	- Located on door inner protector assembly. - Each power glass regulator switch controls UP/DOWN operation of corresponding power window glass.
Power glass regulator	It can change position of power window glass.

2. System Function

Function	Description
Manual UP function	Power window glass goes up when glass regulator control switch is pulled up and held while it stops as the switch is released.
Manual DOWN function	Power window glass goes down when glass regulator control switch is pushed down and held while it stops as the switch is released.
Automatic DOWN function	Power window glass goes down automatically when glass regulator control switch is pressed shortly. To stop it partway, push or pull the switch again.
Power window LOCK function	Operation of corresponding power window glass is impossible with all passenger side power glass regulator 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 regulator switches, when power window lock switch is pressed.
OK: Operation of front and rear passenger side power glass regulator switches is invalid.
 - (b) Check that front and rear passenger side power window glass can be operated with front and rear passenger power glass regulator switches, when power window lock switch is pressed again.
OK: Operation of front and rear passenger side power glass regulator switches is possible.
2. Check the manual UP/DOWN function.
 - (a) Check that driver side power window glass operates as follows:
OK



Condition	Front Left Door Glass Regulator Switch	Switch Operation	Power Window Glass
Turn ENGINE START STOP switch to "OFF" position	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	Front Left Door Glass Regulator Switch	Switch Operation	Power Window Glass
Turn ENGINE START STOP switch to "OFF" and window lock switch to "OFF" position	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	Front Left Door Glass Regulator Switch	Switch Operation	Power Window Glass
Turn ENGINE START STOP switch to "OFF" position	Driver side	Fully pulled up	UP (close)
		Fully pushed	DOWN (open)

- (b) Check that power window glass other than driver side power window glass operate as follows:
OK

Condition	Front Left Door Glass Regulator Switch	Switch Operation	Power Window Glass
Turn ENGINE START STOP switch to "OFF" and window lock switch to "OFF" position	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)

Window Jam Protection System

Composition

It consists of 1 front left door glass regulator switch, 3 single glass regulator switches, 4 glass regulators and Body Control Module (BCM).

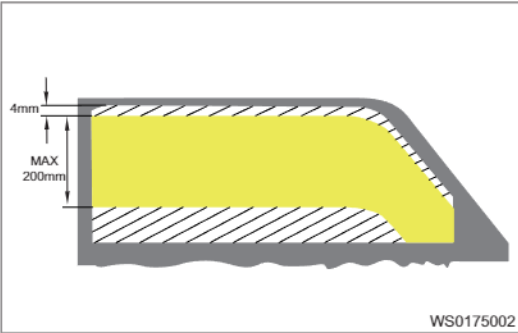
Function Description

"Jam protection" is window regulating system with jam protection function, which mainly reflects on: when operating window auto UP or remote one-button UP, and passenger is caught carelessly by window which raises automatically. Jam protection control module will control glass regulator motor to reverse before motor does not exceed set jam protection force, thus making window glass go down a certain distance, avoiding injury to passenger.

Jam Protection Requirement

Window regulating system with jam protection must meet followings in performance requirements of jam protection system:

1. Jam protection area, which is within 4 mm - 200 mm range of yellow part in following illustration



2. Jam protection force is less than 100 N
3. When jam protection occurs, down distance of window rollback is 150 mm

Operation

Jam protection system achieves jam protection function by controlling rotation of motor. When window is raised automatically, if one passenger is caught, according to motor characteristics, it can be known that current increases quickly, rotation speed decreases, jam protection system collects relevant parameters and performs calculation, which will drive motor to reverse through calculation before jam protection force reaches 100 N, thus achieving "jam protection".

Basic Function

1. General function: UP/DOWN function of normal power glass;
2. Auto window UP: Turn window regulator switch to top. If there is no obstacle, window will go up automatically until reaching top and then stop;
3. Remote one-button window UP: Press remote key lock button once, door will lock automatically and window will go up automatically until reaching top and then stop;
4. Jam protection function:
5. Ignition pause function: As engine starts, window regulating operation will pause to provide large current for assist;
6. Window DOWN by long pressing remotely:
7. Canceling jam protection: When jam protection occurs for twice continuously, auto window UP is canceled (jam protection), ensuring raising window fully when it is necessary to raise window forcibly;
8. Overload heat protection: To avoid damage caused by motor overheat, abnormal operation of window regulating frequently is not allowed;
9. Soft pausing function: To avoid impact and noise because glass goes down to bottom driven by motor, stop going down as glass nearly reaches bottom;
10. Manual learning function: Press window switch, raise glass manually to top and make it be locked for 2 s, then operate glass to bottom manually and make it be locked for 2 s.

General Function

Do not operate window regulator switch for window regulating until ENGINE START STOP switch is turned to ON.

Window regulator switch has delay function, that is window regulator switch can operate if front door is not opened within 120 s after turning key to a position other than ON position; within this period, once any front door is opened, glass regulating function will be prohibited immediately.

Remote One-button Window UP and Auto Window UP Function

Warning:

- To protect window regulating system, window jam protection function will be canceled in some cases, and auto window UP function will also be canceled, to avoid possible potential risk, at this time window only has general regulating function, window regulating function of corresponding door will resume normal after jam protection learning.
- When window is raised automatically or remotely, make sure that there is no obstacle within window raising range, or jam protection will be activated and the window operates in reversing direction, causing the condition that window cannot close normally.
- Jam protection function is a kind of window safety protection function. Do not use any object and informal method to verify jam protection frequently, or it will damage system mechanism (such as motor, glass, regulator and glass guide etc).

Remote Window UP

Turn off ENGINE START STOP switch, remove the key, and close four doors. Vehicle enters armed state when remote lock button or door handle switch is pressed, and four window glass will raise automatically. If lock button, unlock button or door handle switch is pressed again as window glass raises automatically, window glass will stop raising.

Jam Protection Function

If jam protection system operates normally, jam protection function will be activated when the window meets obstacle resistance within jam protection area when window raises automatically or by one-button remotely. Max. allowable jam protection force by system is 100 N while glass will stop automatically and return a certain distance (150 mm). If you want to close window, move away the obstacle, and operate switch again.

When window is nearly closed (within 4 mm), jam protection function will stop sensing, so extremely thin obstacle will not be seen easily during window raising.

Remote Long-press Window DOWN Function

Turn ENGINE START STOP switch to OFF and remove the key with four doors closed, press and hold unlock button on remote key at least for 1.5 seconds, window glass of four doors will go down automatically. Release unlock button on remote key during going down, window glass will stop operating.



Warning:

- Press and hold unlock button on remote key as window goes down remotely. If remote signal suspends due to shaking (including hands tremble, electromagnetic interference etc), remote window DOWN operation will end.

Jam Protection Canceling Conditions

System will cancel jam protection function in following conditions:

1. When jam protection occurs twice continuously (window does not raise to top);
2. Control module cuts off power supply connection during operation or non-operation;
3. Window position calculation judged by system exceeds limit value.
 - (a) If there is obstacle as closing the window within 10 seconds for first jam protection rollback, jam protection function will be activated again, window rollbacks automatically. At this time, only manual window UP function operates. Window provides maximum closing force within 10 seconds, to make window be closed successfully in some extreme cases. Please make sure there is no obstacle during closing, avoiding personal injury.
 - (b) When jam protection is canceled, use the remote one-button window UP function, window will go down to bottom, then raise to the top, thus jam protection learning is completes, system has multiple functions.

Overload Heat Protection Function

If the window is operated repeatedly within a short time, window regulator motor will be burnt due to overheating.

To protect the motor, if window regulating operation is performed about 10 times continuously, control function of corresponding window switch will be disabled actively. After motor temperature resumes to normal, the switch will be able to operate, and this function will not affect the normal use of window regulating function.

Perform jam protection module self-learning in following conditions:

1. After locking occurs for twice continuously
2. After replacing body control module
3. After replacing power glass regulator
4. After vehicle powers off

Learning Function (Jam Protection Module Initialization)

1. When vehicle passes through bumps, hollow road surface during driving, one-button window UP operation is interrupted and window may roll back and go down because door system suffers action of gravity suddenly. Probability of rollback occurrence by mistake is low, and it is normal.
2. Learning function includes manual learning and diagnostic tester learning.

During normal use of window regulating system, such as entering "jam protection canceling" condition without auto window UP (jam protection function), jam protection window regulating system resumes to multiple functions by using manual learning.

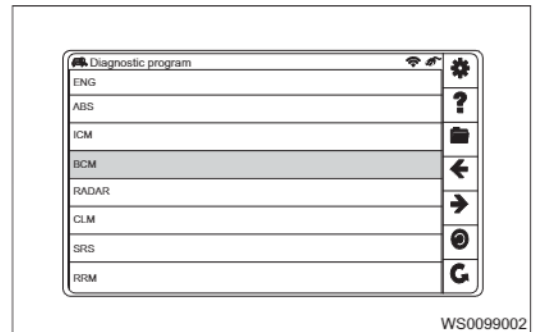
It is necessary to perform diagnostic tester learning when replacing related door regulating system components (such as glass regulator, glass run etc.), to make sure system parameters can be updated after completing learning. After learning, it is necessary to clear DTCs once with diagnostic tester.

Make sure there is no obstacle in window range during learning, manual learning steps are as follows:

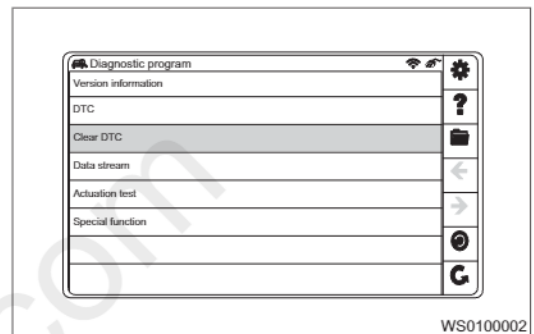
- (a) Turn ENGINE START STOP switch to ON.
- (b) Operate window glass to raise until reaching top manually and lock it for 2 seconds.
- (c) Release the switch.
- (d) Operate window glass to go down until reaching bottom manually and keep it stuck for 2 seconds.
- (e) Release the switch.
- (f) Try the auto window UP function.

Window Jam Protection Learning with Diagnostic Tester

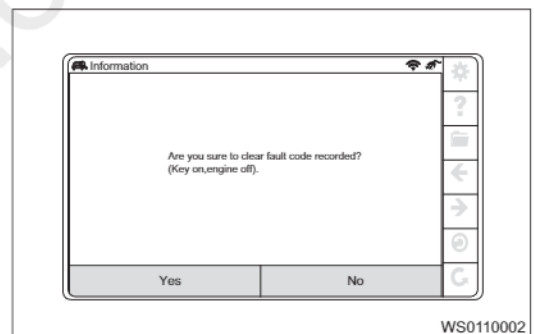
1. Connect diagnostic tester, select T18 model.
2. Select "BCM" on diagnostic program to enter next screen.



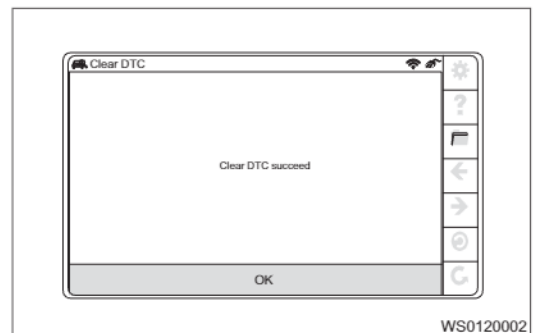
3. Click "Clear DTC".



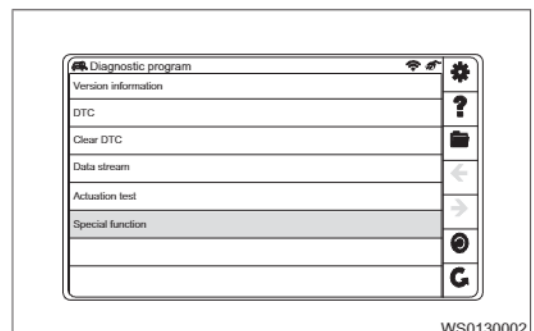
4. "Are you sure to clear fault code recorded? (Key on, engine off)." is displayed on diagnostic tester. Click "Yes" to enter next screen.



5. "Clear DTC succeed" is displayed on diagnostic tester, click "OK".

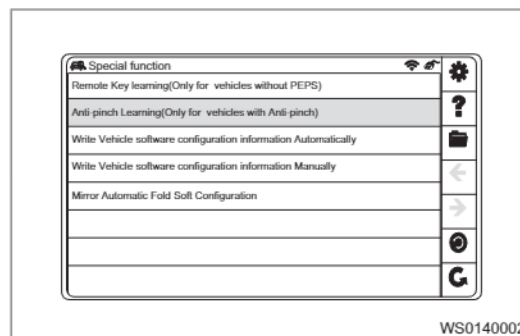


6. Select "Special function" on diagnostic program and click to enter.

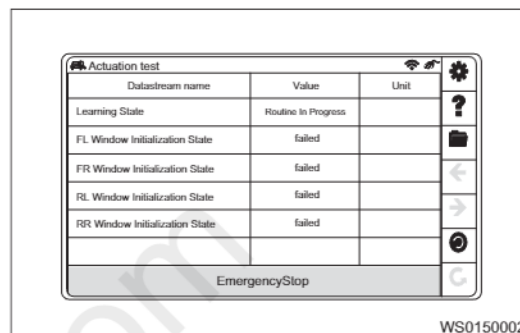


45-WINDSHIELD/WINDOW GLASS

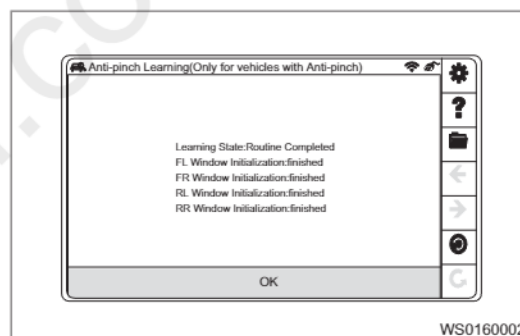
7. Select "Anti-pinch Learning (Only for vehicles with Antipinch)" on diagnostic program and click to enter.



8. At this time, window jam protection will perform learning.



9. Wait a moment, screen will skip to 4 screens which window glass learning is completed.



10. Window glass self-learning is succeeded.

Specifications

Torque Specifications

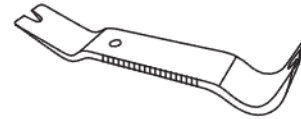
45

Description	Torque (N·m)
Front Door Outer Weather Bar Fixing Screw	1 ± 0.2
Front Door Glass Rear Guide Rail Assembly Fixing Bolt	7 ± 1
Front Door Power Glass Regulator Fixing Nut	7 ± 1
Rear Door Outer Weather Bar Fixing Screw	1 ± 0.2
Rear Door Glass Guide Rail Assembly Fixing Screw	1.5 ± 0.5
Rear Door Glass Guide Rail Assembly Fixing Bolt	7 ± 1
Rear Door Power Glass Regulator Fixing Nut	7 ± 1

Tools

Special Tool

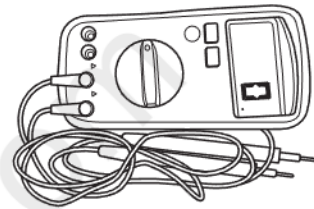
Interior Crow Plate



025

General Tool

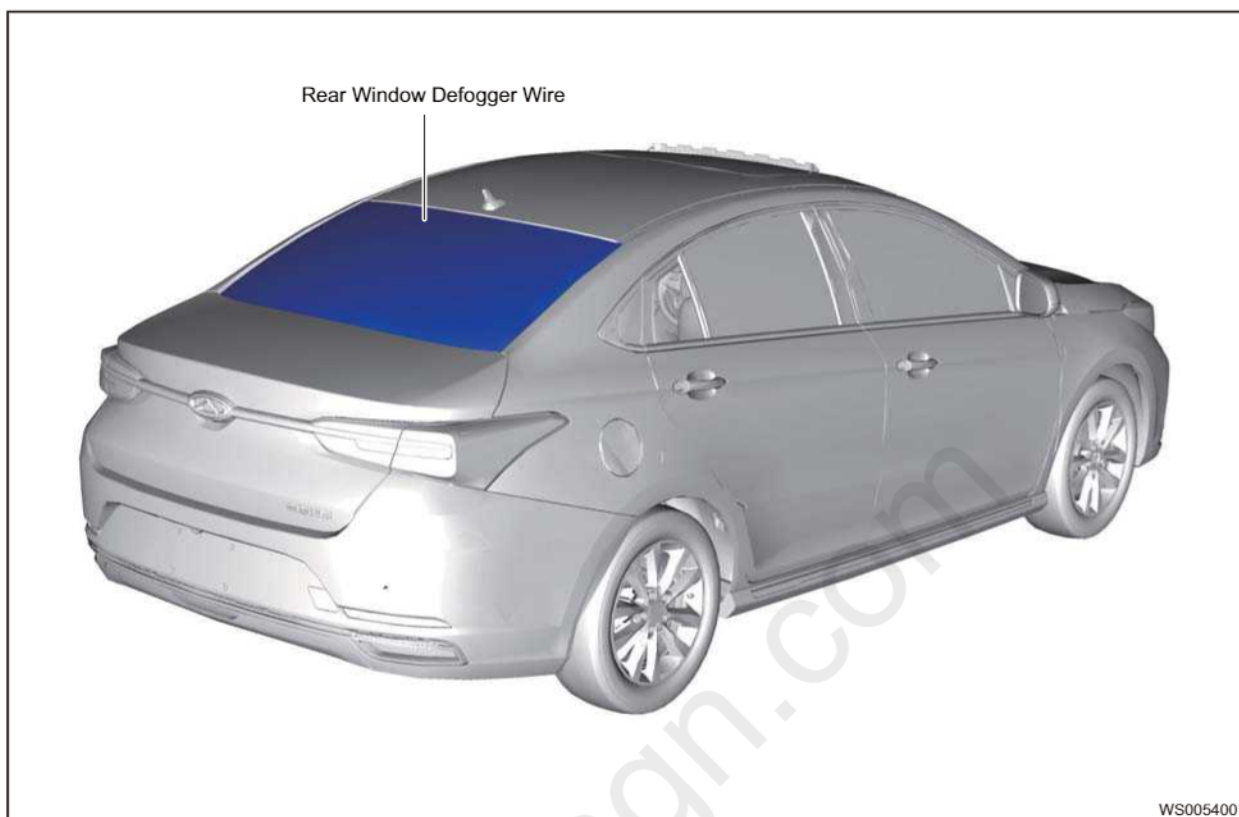
Digital Multimeter



002

Rear Windshield

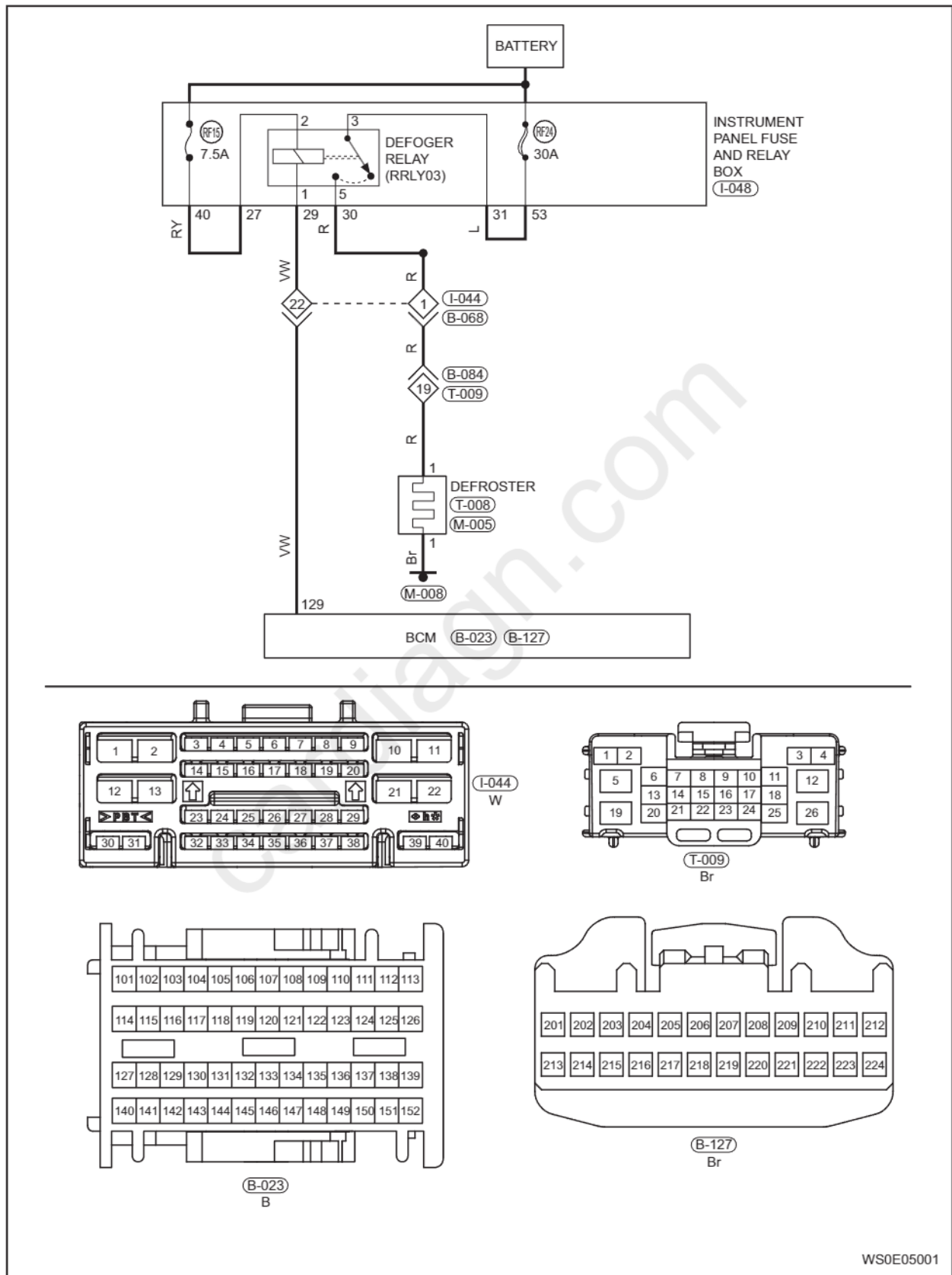
Description



Turn on the rear defroster switch, heat the rear defroster heat wire to remove fog, frost or water steam on the rear windshield, gaining clear view. To turn on the rear defroster, it is necessary to turn ENGINE START STOP switch to OFF and press rear defroster switch. Rear defroster switch indicator comes on, while the indicator on rear defroster switch starts to work. Rear defroster stops operating and the indicator goes off after the rear defroster switch is pressed again.

Circuit Diagram

Power Window Control System (Page 1 of 1)



Problem Symptoms Table

Symptom	Suspected Area
Rear defroster switch is turned on but does not operate	Fuse
	Rear defroster switch
	Rear defroster wire
	Wire harness or connector
	Ground

Diagnosis Tools

Digital Multimeter

Hint:

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

Diagnostic Help

1. Confirm that malfunction is current, and carry out diagnostic test and repair procedures.
2. Only use a digital multimeter to measure voltage of electronic system.
3. Refer to any Technical Bulletin that may apply to this malfunction.
4. Visually check the related wire harness.

Ground Inspection

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

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

45 Diagnosis Procedure

Hint:

Use following procedures to troubleshoot the window glass.

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

Result

Proceed to
Next



2 Check battery voltage

Check if battery voltage is normal.

OK

Standard voltage: Not less than 12 V

Result

Proceed to
OK
NG

NG

Check and repair battery.

OK

3 Customer problem analysis

Result

Proceed to
Next

Next

4 Adjust, repair or replace

Result

Proceed to
Next

Next

5 Conduct test and confirm malfunction has been repaired

Result

Proceed to
Next

Next

End

45



Diagnostic Trouble Code (DTC) Chart

1

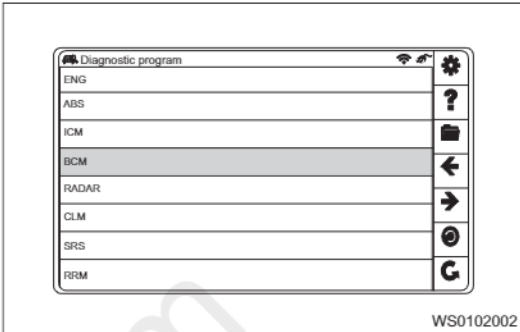
Use diagnostic tester to perform active test for defrost function.

- (a)

Turn ENGINE START STOP switch to ON.
- (b)

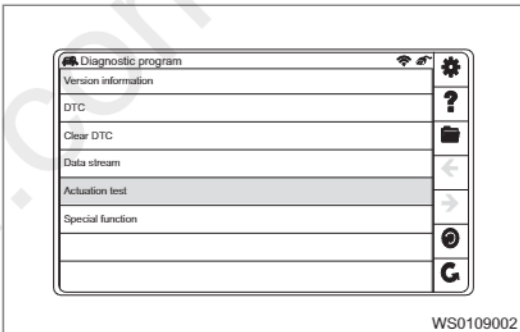
Connect the diagnostic tester and click "T18".
- (c)

Enter the next interface, and click "Vehicle Body Controller System".



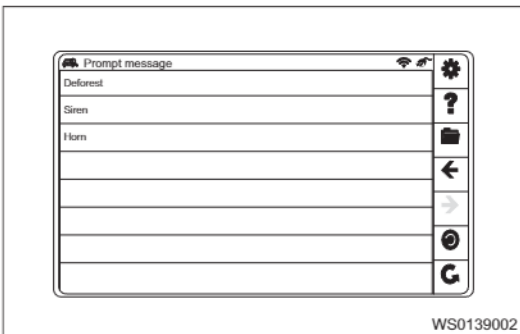
- (d)

Enter the next interface, and click "Read Data Stream".



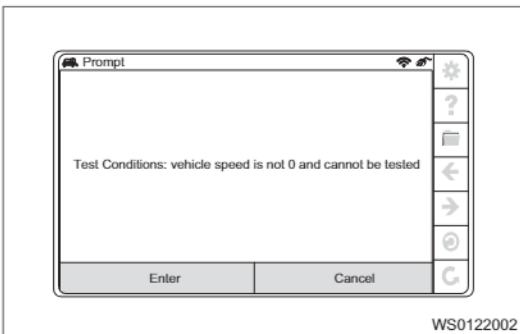
- (e)

Return to the next page and click "Deforest".



- (f)

The diagnostic interface shows "Test Condition: Vehicle Speed is Not 0, Test is Prohibited".



(g) Enter the next interface and click "Open".

WS0141002

(h) Diagnostic tester interface shows open at this time and defroster function of vehicle will be activated too.

WS0142002

(i) Click "Close", diagnostic tester interface shows closed at this time and defroster function of vehicle will be deactivated too.

WS0143002

Result

Proceed to
OK
NG

NG	Check defrost actuation circuit
----	---------------------------------

OK

2 Check control circuit fuse

- (a) Turn ENGINE START STOP switch to OFF.
 (b) Using voltage band of multimeter, check if fuses RF24 (30 A) and RF15 (7.5 A) are normal.

Result

Proceed to
OK
NG

NG	Replace fuse
----	--------------

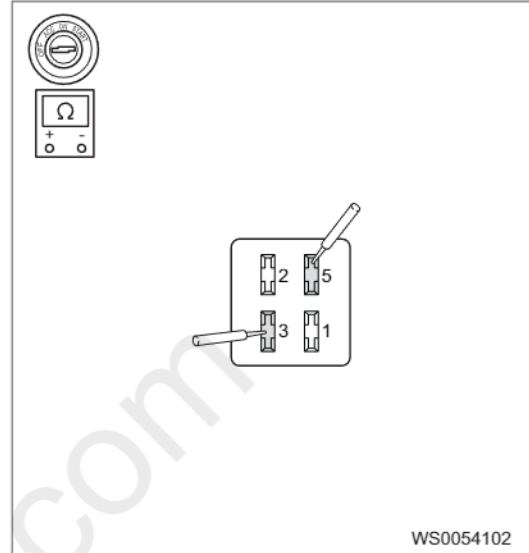


OK

3 Check the rear defroster relay

- (a) Remove rear defroster relay from instrument panel fuse and relay box.
 (b) Check the rear defroster relay.

Multimeter Connection	Condition	Specified Condition
Terminal 3 - Terminal 5	When battery voltage is not applied between terminal 2 and terminal 1	∞
	When battery voltage is applied between terminal 2 and terminal 1	$\leq 1 \Omega$

**Result**

Proceed to
OK
NG

NG

Replace the rear defroster relay

OK

4 Inspect ground

45

- (a) Turn ENGINE START STOP switch to OFF.
 (b) Disconnect negative battery cable, and check rear defroster and Body Control Module (BCM) ground points.

Result

Proceed to
OK
NG

NG

Repair and replace ground point.

OK

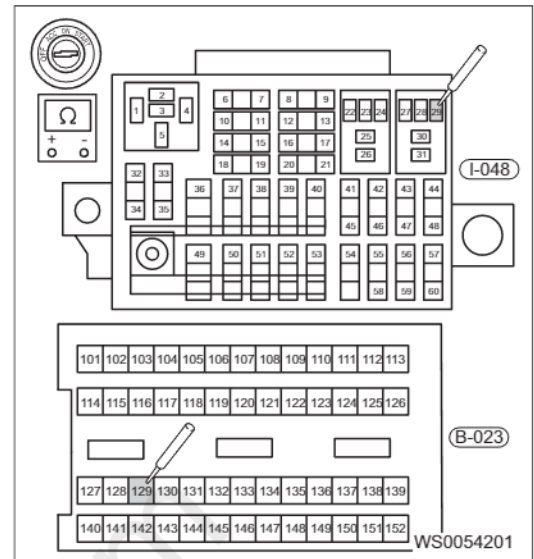
5 Check rear defroster control circuit

- (a) Turn ENGINE START STOP switch to OFF.

- (b) Disconnect the instrument panel fuse and relay box connector I-048 and Body Control Module (BCM) connector B-023.
- (c) Using ohm band of multimeter, check for continuity between I-048 (29) and B-023 (129).

OK

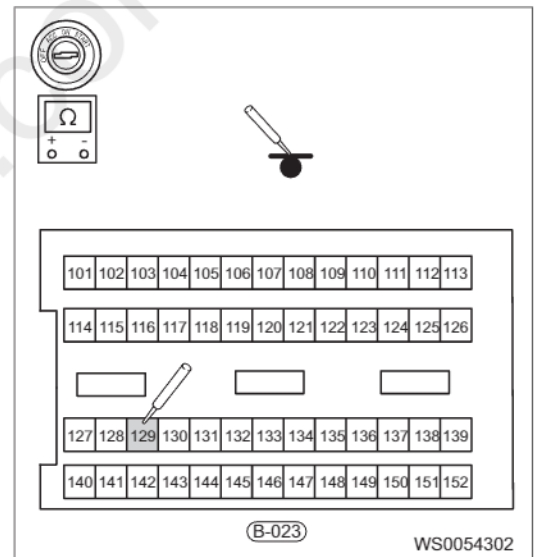
Multimeter Connection	Condition	Specified Condition
I-048 (29) - B-023 (129)	ENGINE START STOP switch OFF	$\leq 1 \Omega$



- (d) Using ohm band of multimeter, check for continuity between B-023 (129) and ground.

OK

Multimeter Connection	Condition	Specified Condition
B-023 (129) - Ground	ENGINE START STOP switch OFF	∞



- (e) Using ohm band of multimeter, check for continuity between B-023 (129) and battery (+).

OK

Multimeter Connection	Condition	Specified Condition
B-023 (129) - Battery (+)	ENGINE START STOP switch OFF	∞

Result

Proceed to
OK
NG

NG

Repair or replace control circuit wire harness and connector.

OK

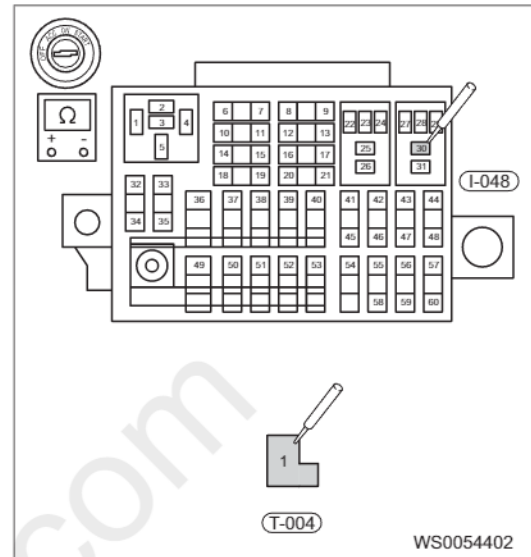


6 Check the rear defroster actuation circuit

- Turn ENGINE START STOP switch to OFF.
- Remove rear defroster relay RRLY 03 and rear defroster connector T-008.
- Using ohm band of multimeter, check for continuity between instrument panel fuse and relay box I-048 (30) and T-008 (1).

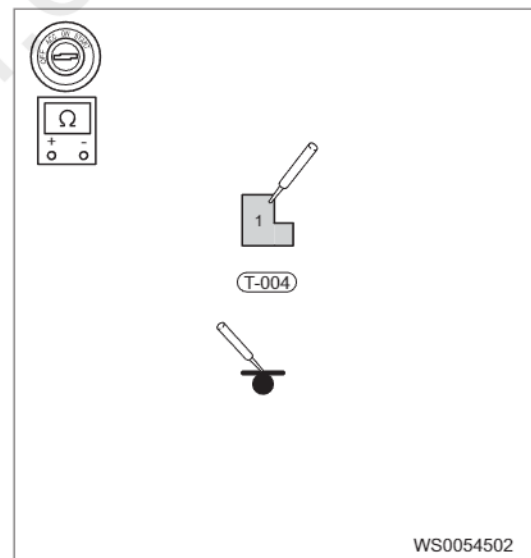
OK

Multimeter Connection	Condition	Specified Condition
I-048 (30) - T-008 (1)	ENGINE START STOP switch OFF	$\leq 1 \Omega$



- Using ohm band of multimeter, check for continuity between T-008 (1) and ground.

Multimeter Connection	Condition	Specified Condition
T-008 (1) - Ground	ENGINE START STOP switch OFF	∞



- Using ohm band of multimeter, check for continuity between T-008 (1) and battery (+).

OK

Multimeter Connection	Condition	Specified Condition
T-008 (1) - Battery (+)	ENGINE START STOP switch OFF	∞

Result

Proceed to
OK
NG

NG

Repair or replace actuation circuit wire harness and connector.

OK

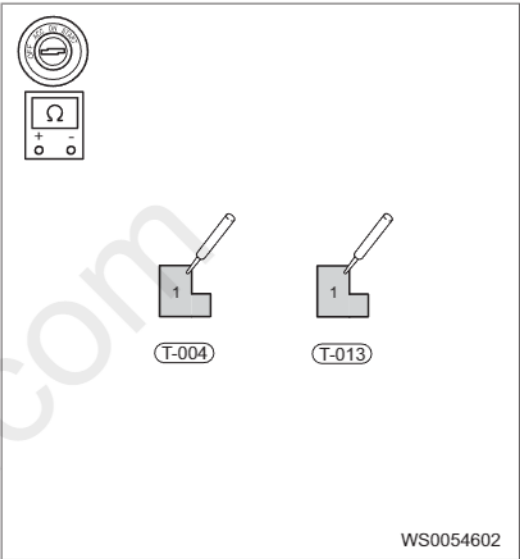
7

Check the rear defroster glass

- (a) Turn ENGINE START STOP switch to OFF, disconnect the negative battery cable.
- (b) Disconnect rear defroster connectors T-008 and M-005.
- (c) Use ohm band of multimeter to detect the continuity between T-008 (1) and M-005 (1).

OK

Multimeter Connection	Condition	Specified Condition
T-008 (1) - M-005 (1)	ENGINE START STOP switch OFF	$\leq 1 \Omega$



Result

Proceed to
OK
NG

OK

Replace BCM assembly

NG

Replace the rear defroster glass assembly

DIAGNOSIS & TESTING

Diagnostic Content

Diagnostic Trouble Code (DTC) Chart

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
Driver side/passenger side power window glass cannot be operated with driver side glass regulator switch	Power supply, fuse
	Driver side glass regulator switch
	Driver side/passenger side power glass regulator
	Wire harness or connector
	Body Control Module (BCM)
Passenger side power window glass cannot be operated with passenger side glass regulator control switch	Power supply, fuse
	Passenger side power glass regulator switch
	Passenger side power glass regulator
	Wire harness or connector
	Body Control Module (BCM)
Power window glass has intermittent problem	Ground
	Wire harness or connector

Diagnosis Tools

Diagnostic Tester

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

Digital Multimeter

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

45

Diagnostic Help

- Connect diagnostic tester (the latest software) to Data Link Connector (DLC), and make it communicate with vehicle electronic module through data network.
- Confirm that malfunction is current, and carry out diagnostic test and repair procedures.
- If DTC cannot be deleted, malfunction is current.
- Only use a digital multimeter to measure voltage of electronic system.
- Refer to any Technical Bulletin that may apply to this malfunction.
- Visually check the related wire harness.
- Check and clean all BCM system grounds related to the latest DTC.
- If multiple trouble codes were set, use circuit diagrams and look for any common ground circuit or power supply circuit applied to DTC.

Intermittent DTC Troubleshooting

If malfunction is intermittent, perform the followings:

- Check if connector is loose.
- Check if wire harness is worn, pierced, pinched or partially broken.
- Wiggle related wire harness and connector and observe if signal in related circuit is interrupted.
- If possible, try to duplicate conditions under which DTC was set.
- Look for data that has changed or DTC to reset during wiggle test.
- Check for broken, bent, protruded or corroded terminals.
- Inspect wheel speed sensors and mounting areas for damage, foreign matter, etc. that will cause incorrect signals.
- Check and clean all wire harness connectors and ground parts related to DTC.
- If multiple trouble codes were set, refer to circuit diagrams to look for any common ground circuit or power supply circuit applied to DTC.
- Refer to any Technical Bulletin that may apply to this malfunction.

Ground Inspection

Ground points are very important to the proper operation of circuits. Ground points are often exposed to moisture, dirt and other corrosive environments. Corrosion (rust) may increase load resistance. This situation may change the way in which a circuit works. Circuits are very sensitive to proper grounding. A loose or corroded ground can affect the control circuit. Check the ground points as follows:

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

DTC Confirmation Procedure

Confirm that battery voltage is not less than 12 V before performing following procedures.

- Confirm that battery voltage is not less than 12 V before performing following procedures.
- Turn ENGINE START STOP switch to OFF.
- Connect diagnostic tester (the latest software) to Data Link Connector (DLC), and make it communicate with vehicle electronic module through data network.
- Turn ENGINE START STOP switch to OFF.
- Use diagnostic tester to record and clear DTCs stored in BCM.
- Turn ENGINE START STOP switch to OFF and wait several seconds.
- Turn ENGINE START STOP switch to OFF and select "Read DTCs".
- If DTC is detected, malfunction indicated by DTC is current. Go to diagnosis procedure - Step 1.
- If DTC is not detected, malfunction indicated by DTC is intermittent.

Diagnosis Procedure

Hint:

Use following procedures to troubleshoot the window glass.

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

Result

Proceed to
Next



Next

2 Check battery voltage

Check if battery voltage is normal.

OK

Standard voltage: Not less than 12 V

Result

Proceed to
OK
NG

NG

Recharge or replace battery.

OK

3 Customer problem analysis**Result**

Proceed to
Next

Next

4 Check for DTCs (current DTC and history DTC)**Result**

Proceed to
No DTC
Current DTC
History DTC

History DTC

5 Problem Repair (No DTC)**Result**

Proceed to
Next

Next

Go to step 7

6 Troubleshoot according to Diagnostic Trouble Code (DTC) chart**Result**

Proceed to
Next

Next **Go to step 7****7** Troubleshoot according to Problem Symptoms Table**Result**

Proceed to
Next

Next **8** Adjust, repair or replace**Result**

Proceed to
Next

Next **9** Conduct test and confirm malfunction has been repaired**Result**

Proceed to
Next

Next **End**

Diagnostic Trouble Code (DTC) Chart

DTC Code	DTC Definition
B100C-13	Front Left Window Up Control Circuit
B100C-71	Front Left Window Up Control Circuit
B100D-13	Front Left Window Down Control Circuit
B100D-71	Front Left Window Down Control Circuit
B100E-13	Front Right Window Up Control Circuit
B100E-71	Front Right Window Up Control Circuit
B100F-13	Front Right Window Down Control Circuit
B100F-71	Front Right Window Down Control Circuit
B1010-13	Rear Left Window Up Control Circuit
B1010-71	Rear left window up control circuit
B1011-13	Rear Left Window Down Control Circuit
B1011-71	Rear Left Window Down Control Circuit
B1012-13	Rear Right Window Up Control Circuit
B1012-71	Rear Right Window Up Control Circuit
B1013-13	Rear Right Window Down Control Circuit
B1013-71	Rear Right Window Down Control Circuit
B1021-17	Anti-pinch Module Power Supply
B1021-16	Anti-pinch Module Power Supply
B1022-71	FL Window Button
B1023-71	FR Window Button
B1033-71	RL Window Button
B1025-71	RR Window Button
B1026-71	Passenger FR Window Button
B1034-71	Passenger RL Window Button
B1028-71	Passenger RR Window Button Short
B1029-71	FL Window Relay
B102A-71	FR Window Relay
B102B-71	RL Window Relay
B102C-71	RR Window Relay
B102D-96	Anti-pinch Module Controller
B102E-86	FL Window Motor Position Signal
B102F-86	FR Window Motor Position Signal
B1030-86	RL Window Motor Position Signal
B1031-86	RR Window Motor Position Signal
B1032-87	Lost Communication With Anti-pinch Module MCU

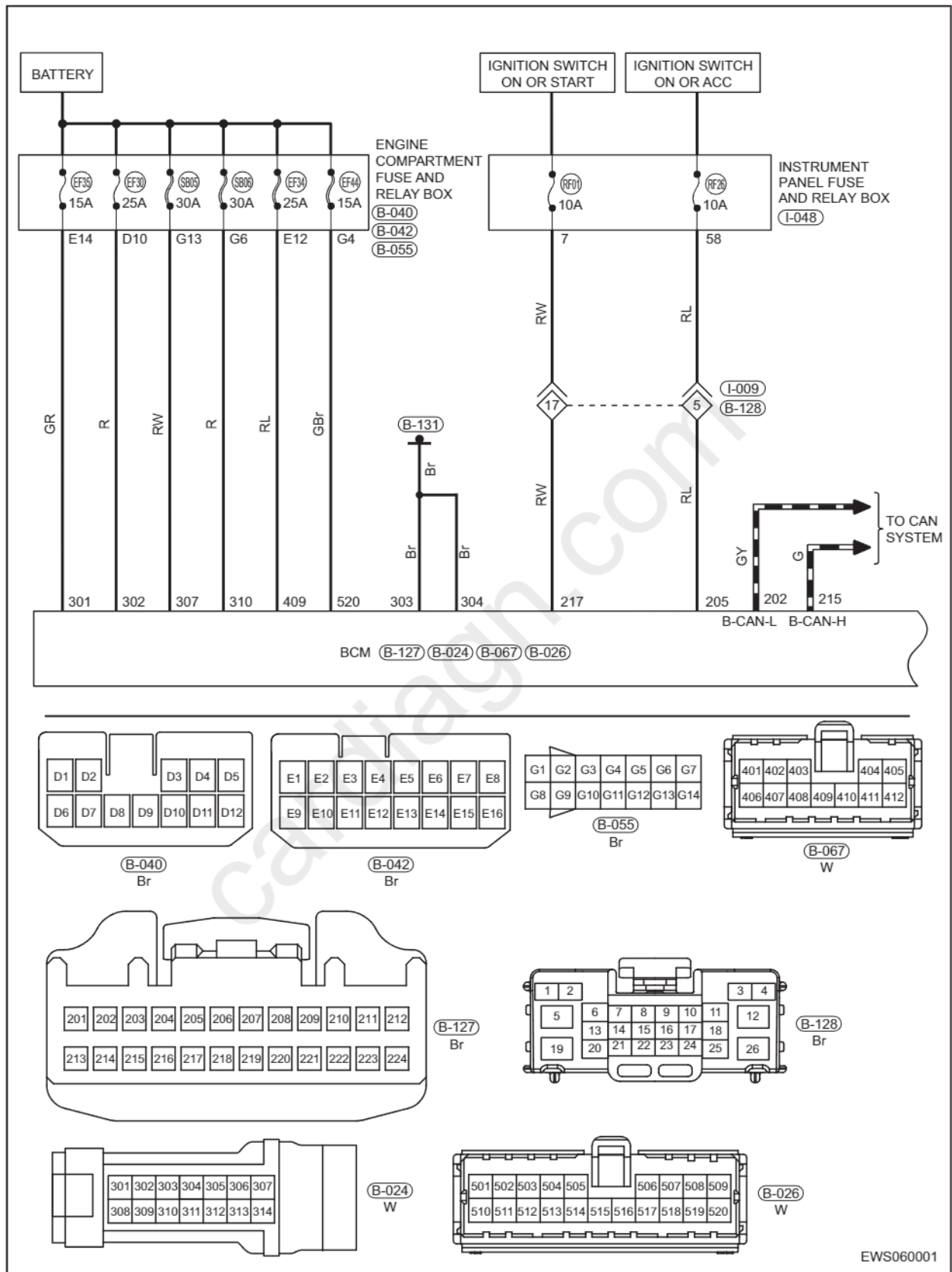
DTC Definition

DTC Type	Description
00	No Subtype Information
11	Circuit Short to Ground
12	Circuit Short to Power Supply
13	Circuit Open
15	Circuit Short to Power Supply or Open
16	Circuit Voltage Below Threshold
17	Circuit Voltage Above Threshold
18	Circuit Current Below Threshold
19	Circuit Current Above Threshold
1A	Circuit Resistance Below Threshold
1B	Circuit Resistance Above Threshold
1E	Circuit Resistance Exceed Range
29	Signal Invalid
47	System Safe Fault
49	Interior Electric Fault
54	No Calibration
55	Configuration Fault
71	Relay Stuck
86	Signal Invalid
87	Message missing
88	Bus OFF
95	Incorrect Assemble
96	Component internal fault



DTC	B1021-17	Anti-pinch Module Power Supply
DTC	B1021-16	Anti-pinch Module Power Supply
DTC	B102D-96	Anti-pinch Module Controller

Circuit Diagram



Description

DTC	DTC Definition	DTC Detection Condition	Possible Cause
B1021-17	Anti-pinch Module Power Supply	ENGINE START STOP switch OFF, engine does not run	- Circuit Voltage Below Threshold - Circuit Voltage Above Threshold - Component internal fault
B1021-16	Anti-pinch Module Power Supply		
B102D-96	Anti-pinch Module Controller		

Caution:

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

Procedure

1 Check battery voltage

- Connect negative battery cable, and turn ENGINE START STOP switch to ON to make engine run normally.
- Using voltage band of multimeter, check the power of battery.

OK

Multimeter Connection	Condition	Specified Condition
Battery (+) - Battery (-)	ENGINE START STOP switch ON	$\geq 12V$

Result

Proceed to
OK
NG

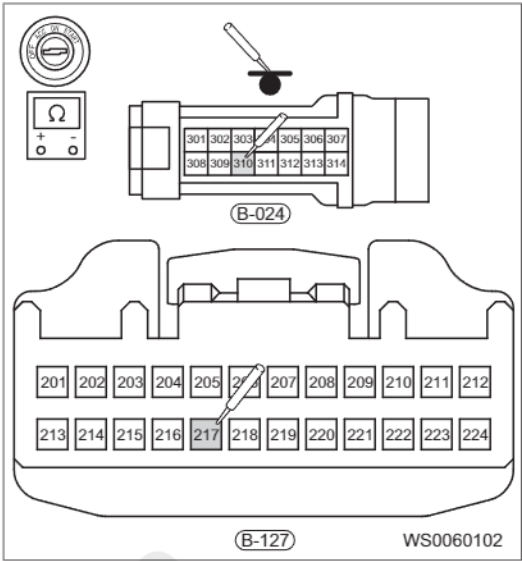
NG**Check battery charging system****OK****2** Check wire harness and connector

- Disconnect negative battery cable, and turn ENGINE START STOP switch to OFF.
- Disconnect the BCM wire harness connectors B-024 and B-127.

- (c) Using ohm band of multimeter, check for continuity between B-024 (310) and ground, B-127 (217) and ground.

OK

Multimeter Connection	Condition	Specified Condition
B-024 (310) - Ground	ENGINE START STOP switch OFF	∞
B-127 (217) - Ground	ENGINE START STOP switch OFF	∞



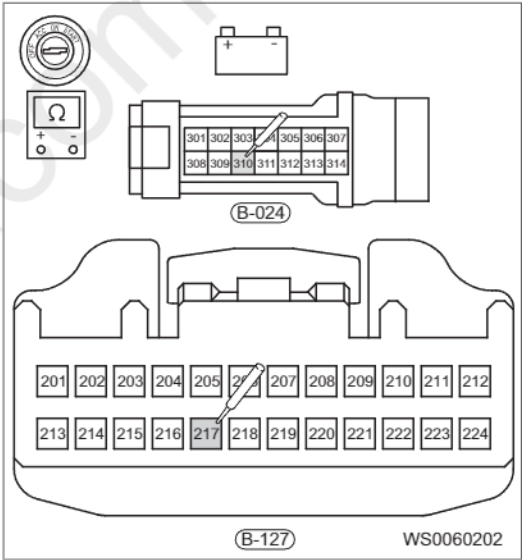
- (d) Using ohm band of multimeter, check for continuity between B-024 (310) and battery (+), B-127 (217) and battery (+).

OK

Multimeter Connection	Condition	Specified Condition
B-024 (310) - Battery (+)	ENGINE START STOP switch OFF	∞
B-127 (217) - Battery (+)	ENGINE START STOP switch OFF	∞

Result

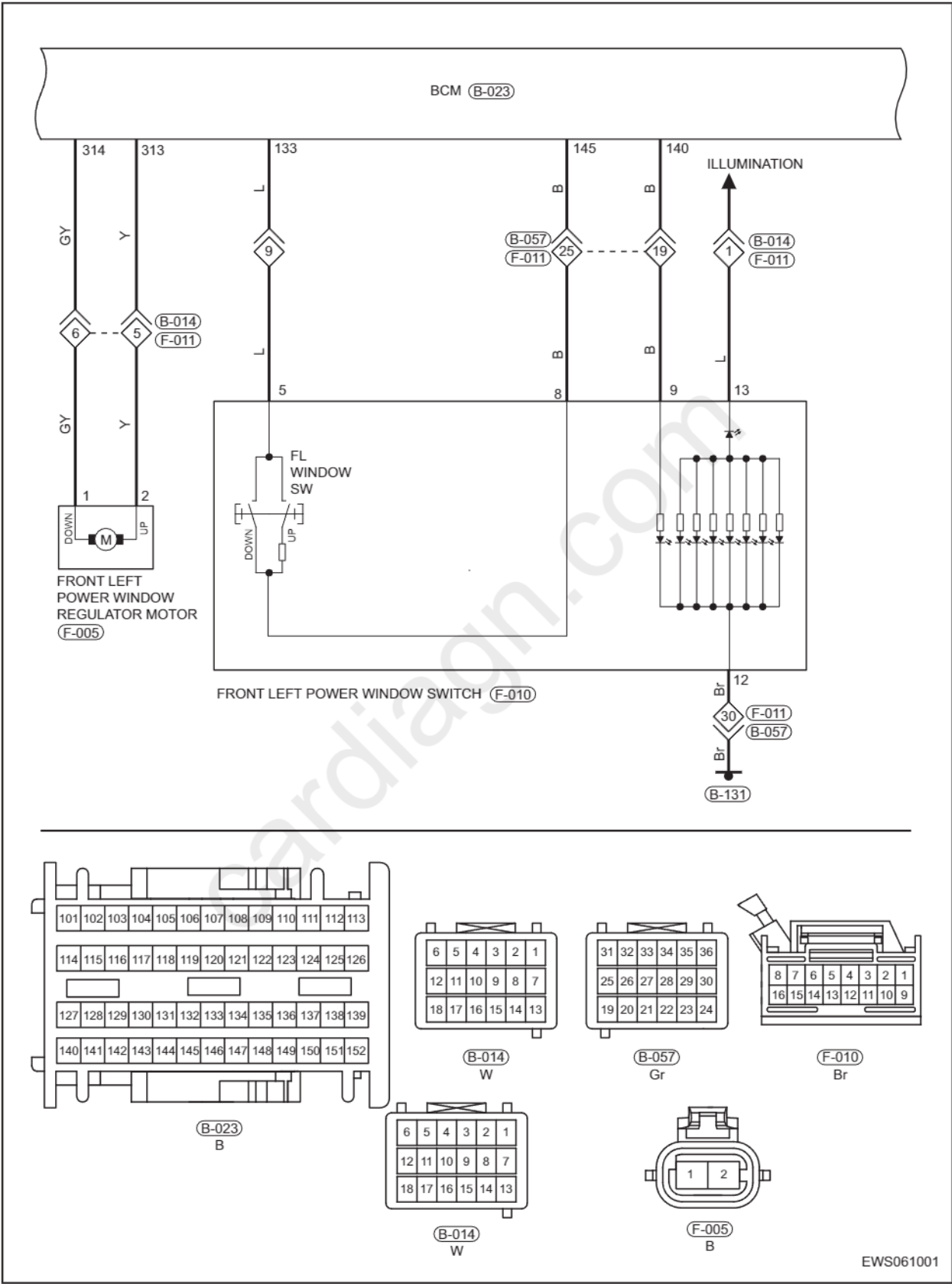
Proceed to
OK
NG



OK	Replace jam protection module assembly
NG	Replace wire harness and connector

DTC	B100C-13	Front Left Window Up Control Circuit
DTC	B100C-71	Front Right Window Up Control Circuit
DTC	B100D-13	Front Right Window Down Control Circuit
DTC	C006B-00	Stability System Active Too Long
DTC	B100D-71	Front Left Window Down Control Circuit
DTC	B1022-71	FL Window Button
DTC	B1029-71	FL Window Relay
DTC	B102E-86	FL Window Motor Position Signal

Circuit Diagram



45-WINDSHIELD/WINDOW GLASS

Description

DTC	DTC Definition	DTC Detection Condition	Possible Cause
B100C-13	Front Left Window Up Control Circuit	ENGINE START STOP switch OFF, engine does not run	• Ground • Line connector • Glass regulator switch • Glass regulator motor • BCM module • Jam protection learning is not performed
B100C-71	Front Left Window Up Control Circuit		
B100D-13	Front Left Window Down Control Circuit		
B100D-71	Front Left Window Down Control Circuit		
B1022-71	FL Window Button		
B1029-71	FL Window Relay		
B102E-86	FL Window Motor Position Signal		

Caution:

When performing electrical equipment diagnosis and test, always refer to circuit diagram for related circuit and component information.

Procedure

1 Check the ground points.

- Disconnect negative battery cable, and turn ENGINE START STOP switch to OFF.
- Check BCM ground point.

Result

Proceed to
OK
NG

NG

Repair or replace ground wire harness or ground point.

OK

45

2 Use diagnostic tester, perform active test for window system

Result

Proceed to
OK
NG

NG

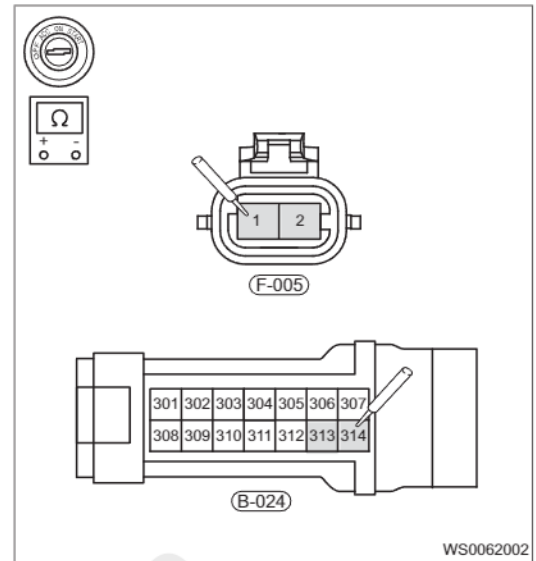
3 Check executive circuit of front left window system.

- Disconnect negative battery cable, and turn ENGINE START STOP switch to OFF.
- Disconnect the front left door glass regulator motor wire harness connector F-005, BCM connector B-024.

- (c) Using ohm band of multimeter, check for continuity between F-005 (1) - B-024 (314) and F-005 (2) - B-024 (313) separately.

OK

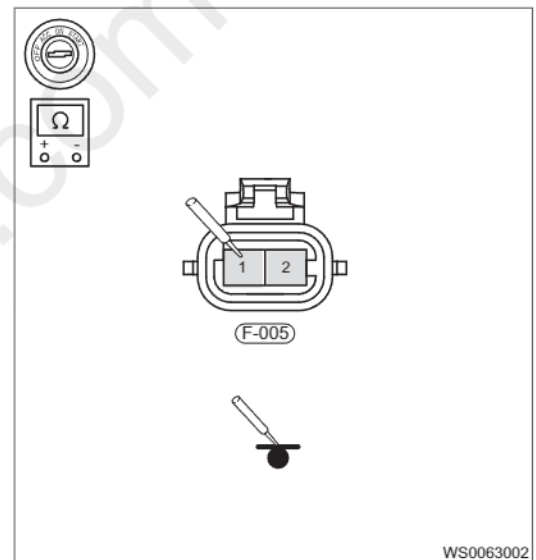
Multimeter Connection	Condition	Specified Condition
F-005 (1) - B-024 (314)	ENGINE START STOP switch OFF	$\leq 1 \Omega$
F-005 (2) - B-024 (313)	ENGINE START STOP switch OFF	$\leq 1 \Omega$



- (d) Using ohm band of multimeter, check for continuity between F-005 (1) and ground, F-005 (2) and ground separately.

OK

Multimeter Connection	Condition	Specified Condition
F-005 (1) - Ground	ENGINE START STOP switch OFF	∞
F-005 (2) - Ground	ENGINE START STOP switch OFF	∞



- (e) Using ohm band of multimeter, check for continuity between F-005 (1) and battery (+), F-005 (2) and battery (+) separately.

OK

Multimeter Connection	Condition	Specified Condition
F-005 (1) - Battery (+)	ENGINE START STOP switch OFF	∞
F-005 (2) - Battery (+)	ENGINE START STOP switch OFF	∞

Result

Proceed to
OK
NG

NG

Replace wire harness and connector

OK



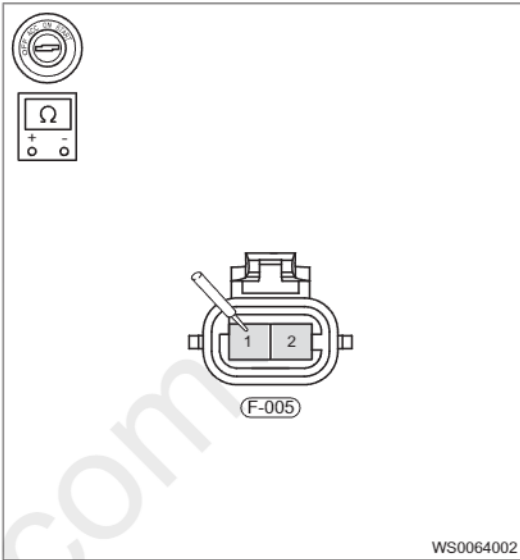
4

Check front left window regulator motor.

- (a) Disconnect negative battery cable, and turn ENGINE START STOP switch to OFF.
- (b) Disconnect the front left window regulator motor connector F-005.
- (c) Using ohm band of multimeter, check resistance between F-005 (1) and F-005 (2).

OK

Multimeter Connection	Condition	Specified Condition
F-005 (1) - F-005 (2)	ENGINE START STOP switch OFF	1 Ω



- (d) Apply 12 V voltage to both terminals of front left window regulator motor connector F-005, observe if operation of window regulator is faulty.

Result

Proceed to
OK
NG

OK

Replace the BCM

NG

Replace front left window regulator motor

45

5

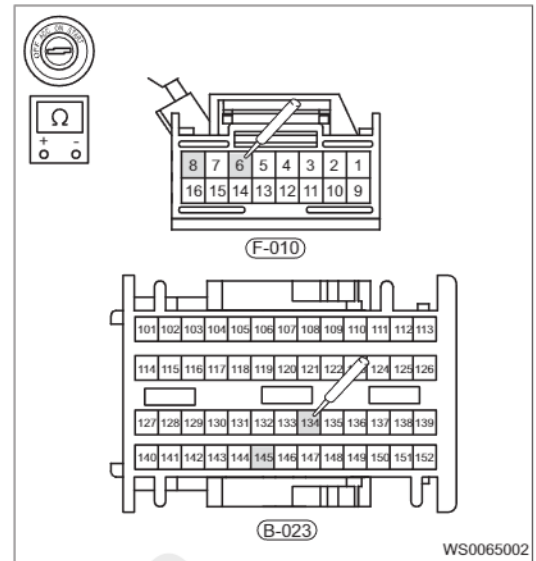
Check front left door glass control circuit.

- (a) Turn ENGINE START STOP switch to OFF, disconnect the negative battery cable.
- (b) Disconnect the front left door glass regulator switch connector F-010 and BCM connector B-023.

- (c) Using ohm band of multimeter, check for continuity between F-010 (6) - B-023 (134) and F-010 (8) - B-023 (145).

OK

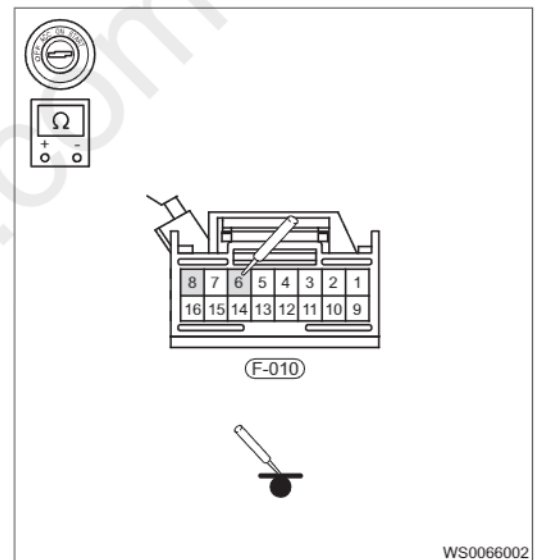
Multimeter Connection	Condition	Specified Condition
F-010 (6) - B-023 (134)	ENGINE START STOP switch OFF	$\leq 1 \Omega$
F-010 (8) - B-023 (145)	ENGINE START STOP switch OFF	$\leq 1 \Omega$



- (d) Using ohm band of multimeter, check for continuity between F-010 (6) and ground, F-010 (8) and ground.

OK

Multimeter Connection	Condition	Specified Condition
F-010 (6) - Ground	ENGINE START STOP switch OFF	∞
F-010 (8) - Ground	ENGINE START STOP switch OFF	∞



- (e) Using ohm band of multimeter, check for continuity between F-010 (6) and battery (+), F-010 (8) and battery (+).

OK

Multimeter Connection	Condition	Specified Condition
F-010 (6) - Battery (+)	ENGINE START STOP switch OFF	∞
F-010 (8) - Battery (+)	ENGINE START STOP switch OFF	∞

Result

Proceed to
OK
NG

NG

Replace wire harness and connector

OK

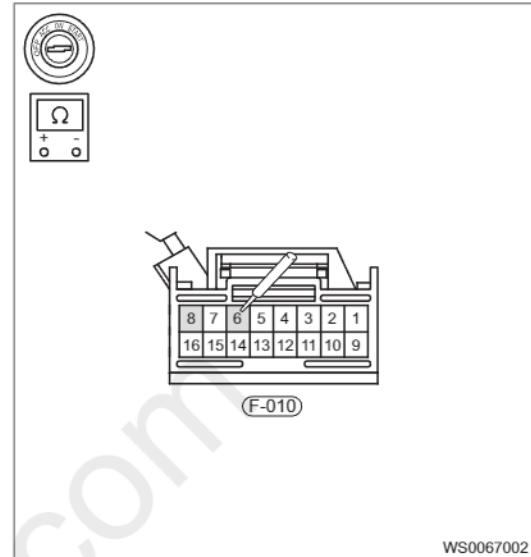


6 Check front left door power glass regulator switch

- (a) Turn ENGINE START STOP switch to OFF, disconnect the negative battery cable.
 (b) Remove front left door power glass regulator switch F-010.
 (c) Use ohm band of multimeter to detect the resistance between F-010 (6) and F-010 (8).

OK

Multimeter Connection	Condition	Specified Condition
F-010 (6) - F-010 (8)	Not pushed	∞
	Pushed	325.36 Ω - 343.64 Ω
	Fully pushed	$\leq 5 \Omega$
	Pulled	2940 Ω - 3060 Ω
	Fully pulled up	980 Ω - 1020 Ω



- (d) Check glass regulator switch for stuck, damage.

Result

Proceed to
OK
NG

NG

Replace front left door glass regulator switch

OK**45 7 Reconfirm DTCs**

- (a) Connect all connectors.
 (b) Connect the negative battery cable.
 (c) Turn ENGINE START STOP switch to OFF.
 (d) Use diagnostic tester (the latest software) to read the DTCs stored in body control system again.

Result

Proceed to
OK
NG

OK

System operates normally

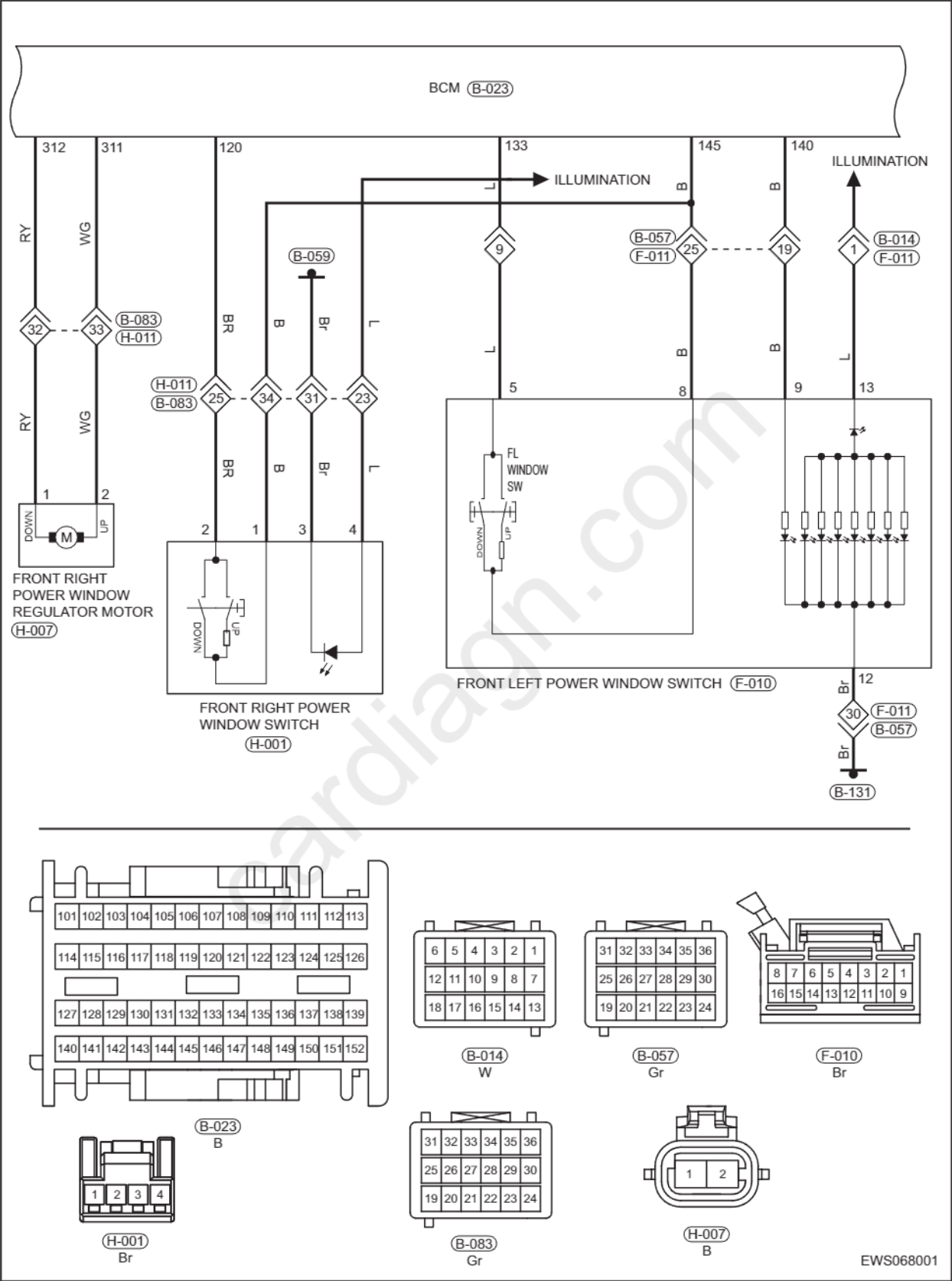
NG

Replace Body Control Module (BCM)

DTC	B100E-13	Front Right Window Up Control Circuit
DTC	B100E-71	Front Right Window Up Control Circuit
DTC	B100F-13	Front Right Window Down Control Circuit
DTC	B100F-71	Front Right Window Down Control Circuit
DTC	B1023-71	FR Window Button
DTC	B1026-71	Passenger FR Window Button
DTC	B102A-71	FR Window Relay
DTC	B102F-86	FR Window Motor Position Signal



Circuit Diagram



Description

DTC	DTC Definition	DTC Detection Condition	Possible Cause
B100E-13	Front Right Window Up Control Circuit	ENGINE START STOP switch OFF, engine does not run	• Ground • Line connector • Glass regulator switch • Glass regulator motor • BCM module • Jam protection learning is not performed
B100E-71	Front Right Window Up Control Circuit		
B100F-13	Front Right Window Down Control Circuit		
B100F-71	Front Right Window Down Control Circuit		
B1023-71	FR Window Button		
B1026-71	Passenger FR Window Button		
B102A-71	FR Window Relay		
B102F-86	FR Window Motor Position Signal		

Procedure**1 Check the ground points.**

- (a) Disconnect negative battery cable, and turn ENGINE START STOP switch to OFF.
 (b) Check BCM ground point.

Result

Proceed to
OK
NG

NG

Repair or replace ground wire harness or ground point.

OK**2 Use diagnostic tester, perform active test for window system****Result**

Proceed to
OK
NG

NG**3 Check executive circuit of front right window system.**

- (a) Disconnect negative battery cable, and turn ENGINE START STOP switch to OFF.
 (b) Disconnect the front right door glass regulator motor wire harness connector H-007, BCM connector B-024.

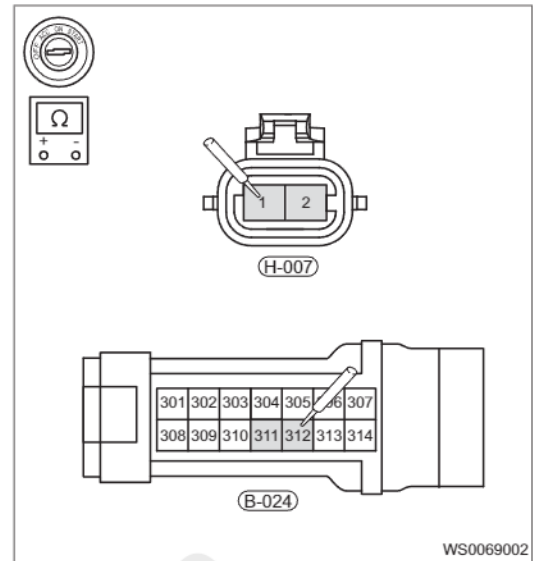


45-WINDSHIELD/WINDOW GLASS

- (c) Using ohm band of multimeter, check for continuity between H-007 (1) - B-024 (312) and H-007 (2) - B-024 (311) separately.

OK

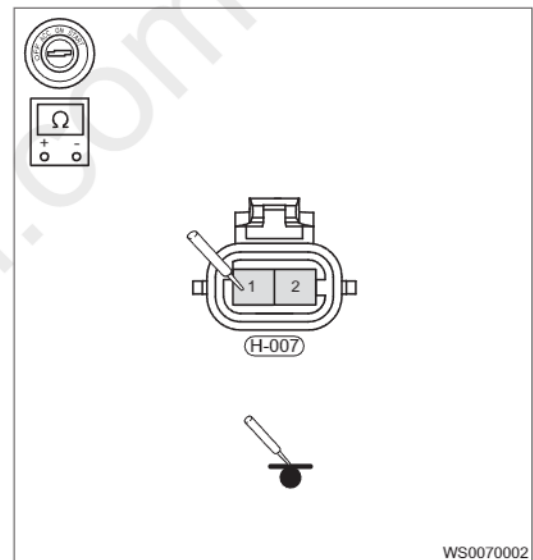
Multimeter Connection	Condition	Specified Condition
H-007 (1) - B-024 (312)	ENGINE START STOP switch OFF	$\leq 1 \Omega$
H-007 (2) - B-024 (311)	ENGINE START STOP switch OFF	$\leq 1 \Omega$



- (d) Using ohm band of multimeter, check for continuity between H-007 (1) and ground, H-007 (2) and ground separately.

OK

Multimeter Connection	Condition	Specified Condition
H-007 (1) - Ground	ENGINE START STOP switch OFF	∞
H-007 (2) - Ground	ENGINE START STOP switch OFF	∞



- (e) Using ohm band of multimeter, check for continuity between H-007 (1) and battery (+), H-007 (2) and battery (+) separately.

OK

Multimeter Connection	Condition	Specified Condition
H-007 (1) - Battery (+)	ENGINE START STOP switch OFF	∞
H-007 (2) - Battery (+)	ENGINE START STOP switch OFF	∞

Result

Proceed to
OK
NG

NG

Replace wire harness and connector

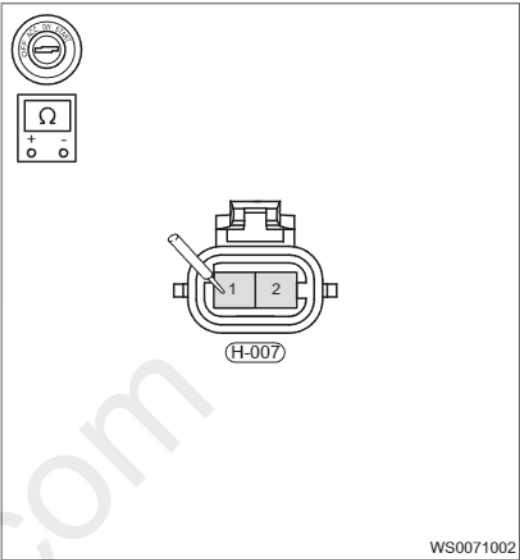
OK

4 Check front right window regulator motor.

- (a) Disconnect negative battery cable, and turn ENGINE START STOP switch to OFF.
- (b) Disconnect the front right window regulator motor connector H-007.
- (c) Using ohm band of multimeter, check resistance between H-007 (1) and H-007 (2).

OK

Multimeter Connection	Condition	Specified Condition
H-007 (1) - H-007 (2)	ENGINE START STOP switch OFF	1 Ω



- (d) Apply 12 V voltage to both terminals of front right window regulator motor connector H-007, observe if operation of window regulator is faulty.

Result

Proceed to
OK
NG

OK

Replace the BCM

NG

Replace front left window regulator motor

5 Check front right glass regulator control circuit

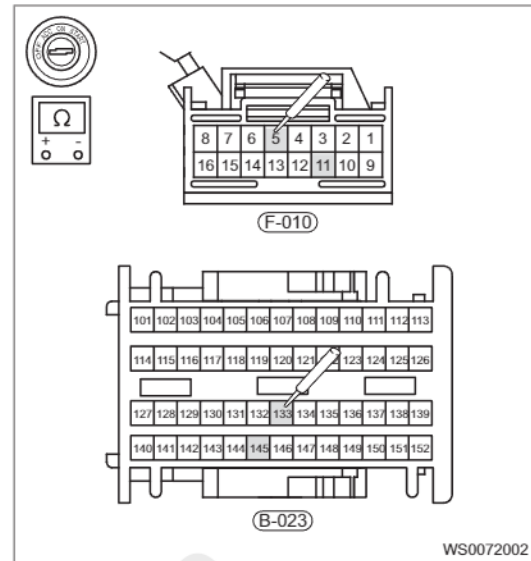
- (a) Turn ENGINE START STOP switch to OFF, disconnect the negative battery cable.
- (b) Disconnect the front left door glass regulator switch connector F-010 and BCM connector B-023.

45-WINDSHIELD/WINDOW GLASS

- (c) Using ohm band of multimeter, check for continuity between F-010 (5) - B-023 (133) and F-010 (11) - B-023 (145).

OK

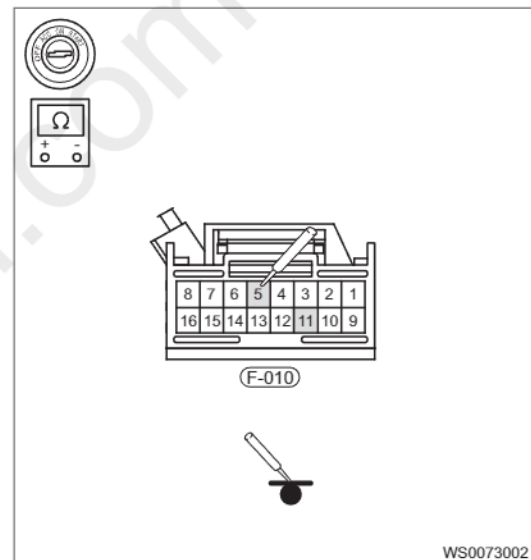
Multimeter Connection	Condition	Specified Condition
F-010 (5) - B-023 (133)	ENGINE START STOP switch OFF	$\leq 1 \Omega$
F-010 (11) - B-023 (145)	ENGINE START STOP switch OFF	$\leq 1 \Omega$



- (d) Using ohm band of multimeter, check for continuity between F-010 (5) and ground, F-010 (11) and ground.

OK

Multimeter Connection	Condition	Specified Condition
F-010 (5) - Ground	ENGINE START STOP switch OFF	∞
F-010 (11) - Ground	ENGINE START STOP switch OFF	∞



- (e) Using ohm band of multimeter, check for continuity between F-010 (5) and battery (+), F-010 (11) and battery (+).

OK

Multimeter Connection	Condition	Specified Condition
F-010 (5) - Battery (+)	ENGINE START STOP switch OFF	∞
F-010 (11) - Battery (+)	ENGINE START STOP switch OFF	∞

Result

Proceed to
OK
NG

NG

Replace wire harness and connector

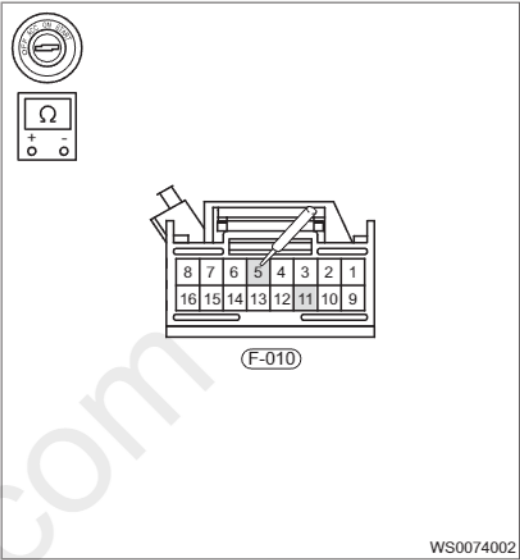
OK

6 Check front left glass regulator switch assembly (which controls front right glass regulator)

- (a) Turn ENGINE START STOP switch to OFF, disconnect the negative battery cable.
- (b) Remove front left door power glass regulator switch F-010.
- (c) Use ohm band of multimeter to detect the resistance between F-010 (5) and F-010 (11).

OK

Multimeter Connection	Condition	Specified Condition
F-010 (5) - F-010 (11)	Not pushed	∞
	Pushed	325.36 Ω - 343.64 Ω
	Fully pushed	$\leq 5 \Omega$
	Pulled	2940 Ω - 3060 Ω
	Fully pulled up	980 Ω - 1020 Ω



- (d) Check glass regulator switch for stuck, damage.

Result

Proceed to
OK
NG

NG

Replace front left door glass regulator switch assembly

OK

7 Check front right door glass control circuit

- (a) Turn ENGINE START STOP switch to OFF, disconnect the negative battery cable.
- (b) Disconnect the front right door glass regulator switch H-001 and BCM connector B-023.

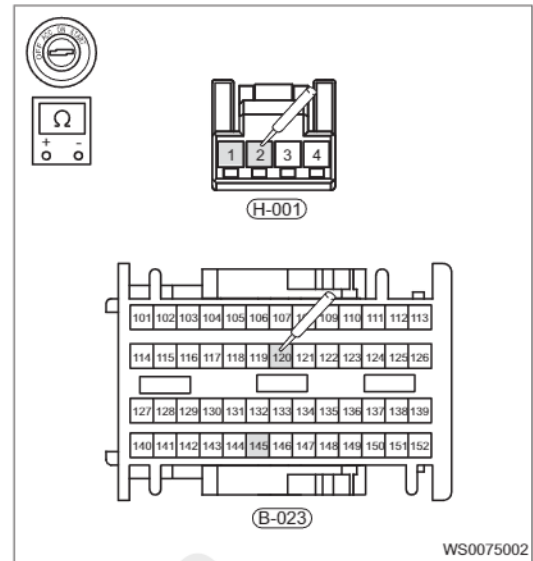


45-WINDSHIELD/WINDOW GLASS

- (c) Using ohm band of multimeter, check for continuity between H-001 (2) - B-023 (120) and H-001 (1) - B-023 (145).

OK

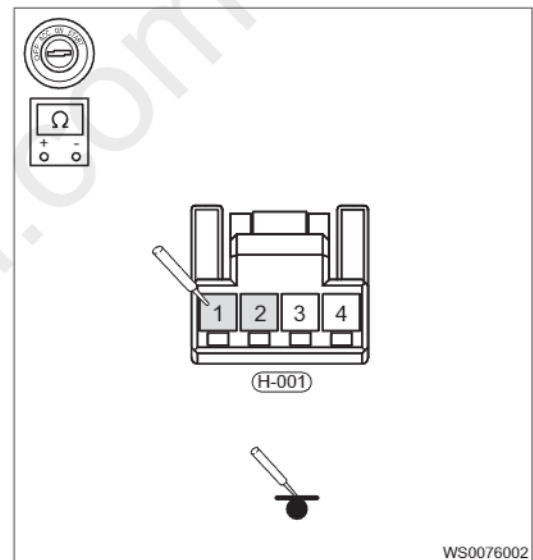
Multimeter Connection	Condition	Specified Condition
H-001 (2) - B-023 (120)	ENGINE START STOP switch OFF	$\leq 1 \Omega$
H-001 (1) - B-023 (145)	ENGINE START STOP switch OFF	$\leq 1 \Omega$



- (d) Using ohm band of multimeter, check for continuity between H-001 (2) and ground, H-001 (1) and ground.

OK

Multimeter Connection	Condition	Specified Condition
H-001 (2) - Ground	ENGINE START STOP switch OFF	∞
H-001 (1) - Ground	ENGINE START STOP switch OFF	∞



- (e) Using ohm band of multimeter, check for continuity between H-001 (2) and battery (+), H-001 (1) and battery (+).

OK

Multimeter Connection	Condition	Specified Condition
H-001 (2) - Battery (+)	ENGINE START STOP switch OFF	∞
H-001 (1) - Battery (+)	ENGINE START STOP switch OFF	∞

Result

Proceed to
OK
NG

NG

Replace wire harness and connector

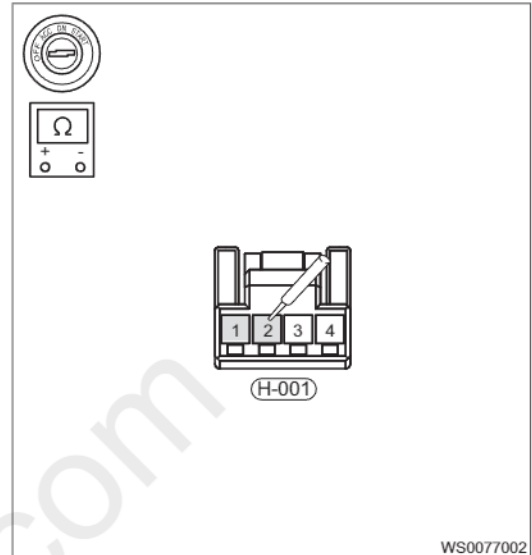
OK

8 Check front right door power glass regulator switch

- Turn ENGINE START STOP switch to OFF, disconnect the negative battery cable.
- Remove front right door power glass regulator switch H-001.
- Use ohm band of multimeter to detect the resistance between H-001 (1) and H-001 (2).

OK

Multimeter Connection	Condition	Specified Condition
H-001 (1) - H-001 (2)	Not pushed	∞
	Pushed	325.36 Ω - 343.64 Ω
	Fully pushed	$\leq 5 \Omega$
	Pulled	2940 Ω - 3060 Ω
	Fully pulled up	980 Ω - 1020 Ω



- Check glass regulator switch for stuck, damage.

Result

Proceed to
OK
NG

NG

Replace front right door glass regulator switch

OK

9 Reconfirm DTCs

45

- Connect all connectors.
- Connect the negative battery cable.
- Turn ENGINE START STOP switch to OFF.
- Use diagnostic tester (the latest software) to read the DTCs stored in body control system again.

Result

Proceed to
OK
NG

OK

System is normal

NG

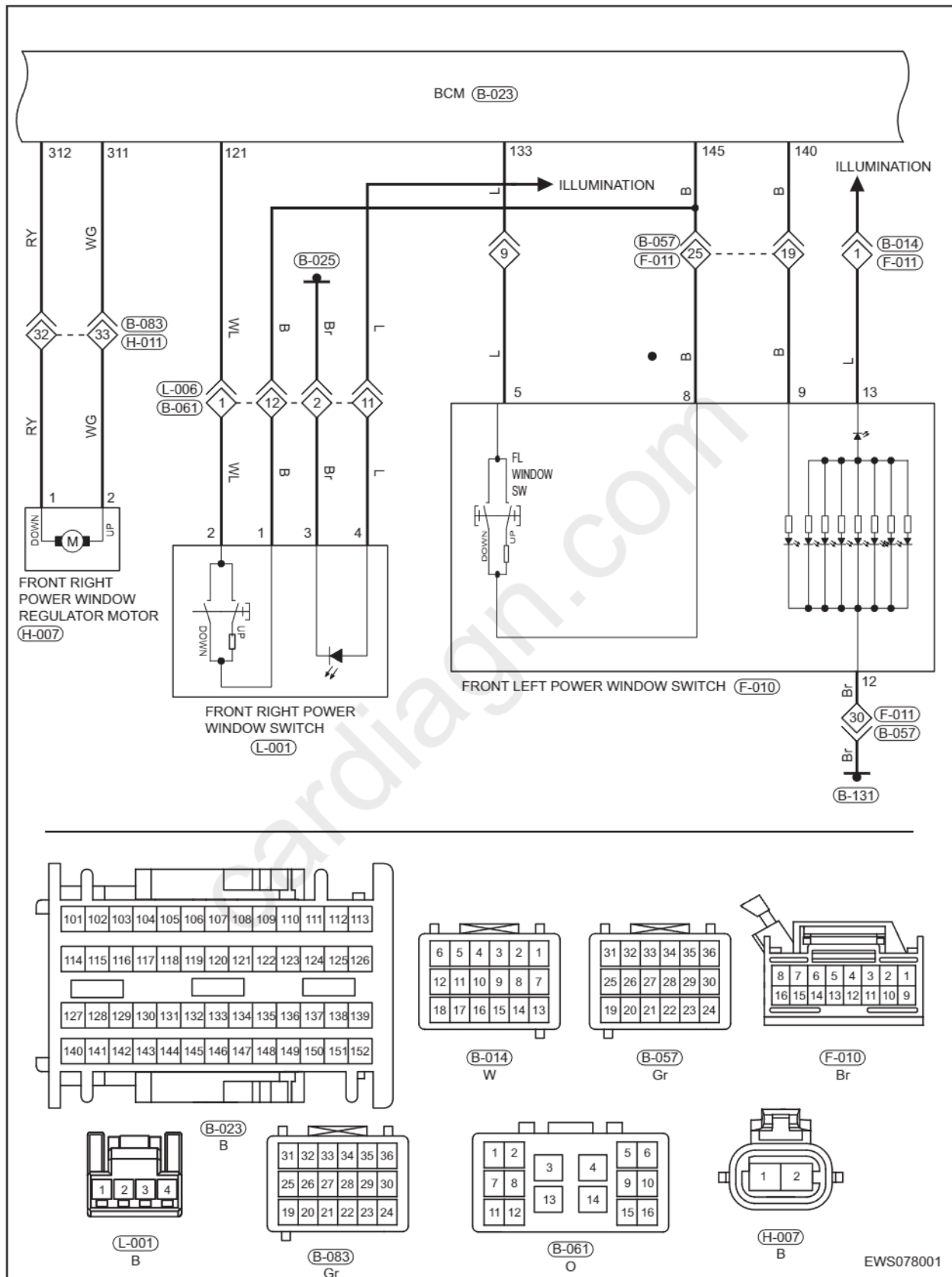
Replace Body Control Module (BCM)



DTC	B1010-13	Rear Left Window Up Control Circuit
DTC	B1010-71	Rear Left Window Up Control Circuit
DTC	B1011-13	Rear Left Window Down Control Circuit
DTC	B1011-71	Rear Left Window Down Control Circuit
DTC	B102B-71	RL Window Relay
DTC	B1030-86	RL Window Motor Position Signal

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Circuit Diagram



45-WINDSHIELD/WINDOW GLASS

Description

DTC	DTC Definition	DTC Detection Condition	Possible Cause
B1010-13	Rear Left Window Up Control Circuit	ENGINE START STOP switch OFF, engine does not run	• Ground • Line connector • Glass regulator switch • Glass regulator motor • BCM module • Jam protection learning is not performed
B1010-71	Rear Left Window Up Control Circuit		
B1011-13	Rear Left Window Down Control Circuit		
B1011-71	Rear Left Window Down Control Circuit		
B102B-71	RL Window Relay		
B1030-86	RL Window Motor Position Signal		

Procedure

1 Check the ground points.

- (a) Disconnect negative battery cable, and turn ENGINE START STOP switch to OFF.
 (b) Check BCM ground point.

Result

Proceed to
OK
NG

NG

Repair or replace ground wire harness or ground point.

OK

2 Use diagnostic tester, perform active test for window system

Result

45

Proceed to
OK
NG

NG

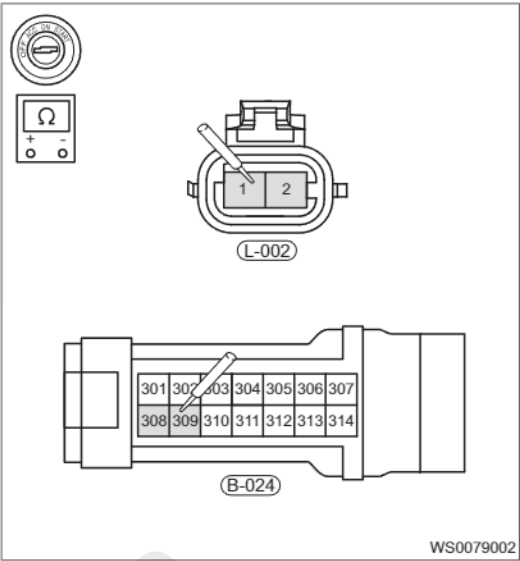
3 Check executive circuit of rear left window system.

- (a) Disconnect negative battery cable, and turn ENGINE START STOP switch to OFF.
 (b) Disconnect the rear left door glass regulator motor connector L-002, BCM connector B-024.

- (c) Using ohm band of multimeter, check for continuity between L-002 (1) - B-024 (309) and L-002 (2) - B-024 (308) separately.

OK

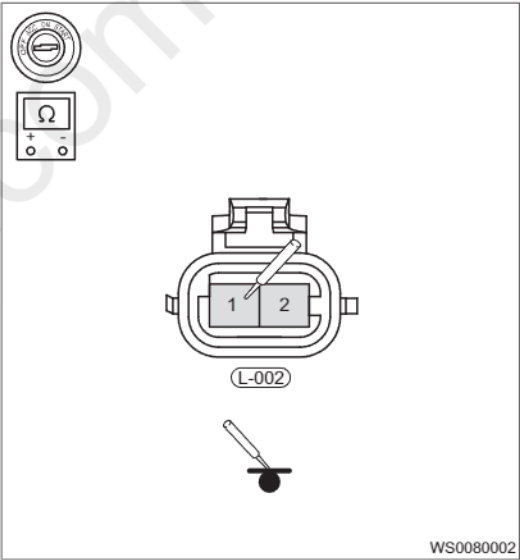
Multimeter Connection	Condition	Specified Condition
L-002 (1) - B-024 (309)	ENGINE START STOP switch OFF	$\leq 1 \Omega$
L-002 (2) - B-024 (308)	ENGINE START STOP switch OFF	$\leq 1 \Omega$



- (d) Using ohm band of multimeter, check for continuity between L-002 (1) and ground, L-002 (2) and ground separately.

OK

Multimeter Connection	Condition	Specified Condition
L-002 (1) - Ground	ENGINE START STOP switch OFF	∞
L-002 (2) - Ground	ENGINE START STOP switch OFF	∞



- (e) Using ohm band of multimeter, check for continuity between L-002 (1) and battery (+), L-002 (2) and battery (+) separately.

OK

Multimeter Connection	Condition	Specified Condition
L-002 (1) - Battery (+)	ENGINE START STOP switch OFF	∞
L-002 (2) - Battery (+)	ENGINE START STOP switch OFF	∞

Result

Proceed to
OK
NG

NG

Replace wire harness and connector

OK



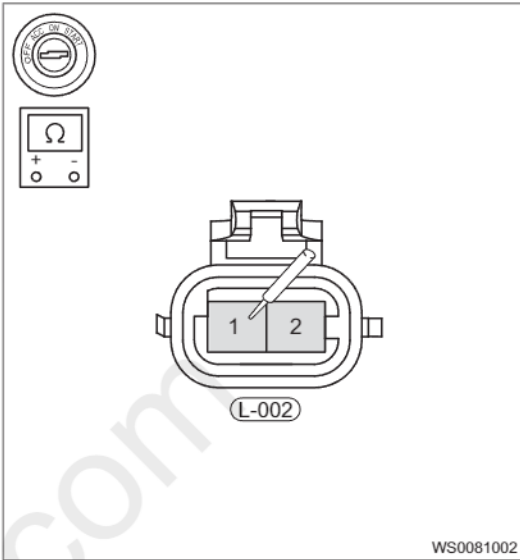
4

Check rear left window regulator motor

- (a) Disconnect negative battery cable, and turn ENGINE START STOP switch to OFF.
- (b) Disconnect the rear left window regulator motor connector L-002.
- (c) Using ohm band of multimeter, check resistance between L-002 (1) and L-002 (2).

OK

Multimeter Connection	Condition	Specified Condition
L-002 (1) - L-002 (2)	ENGINE START STOP switch OFF	1 Ω



- (d) Apply 12 V voltage to both terminals of rear left window regulator motor connector L-002, observe if operation of window regulator is faulty.

Result

Proceed to
OK
NG

OK

Replace BCM

NG

Replace rear left window regulator motor.

45

5

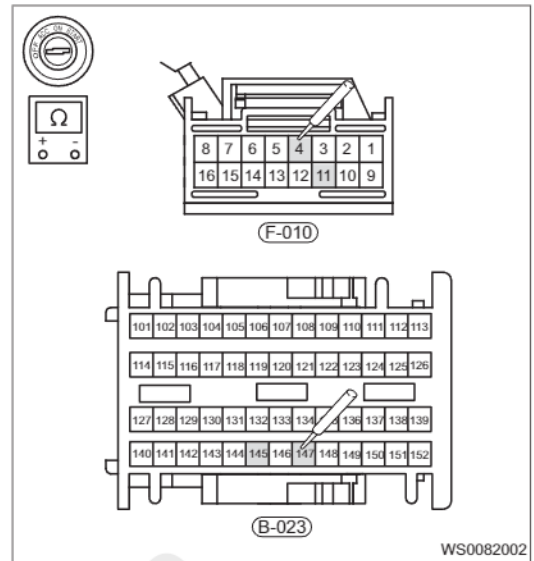
Check rear left glass regulator control circuit

- (a) Turn ENGINE START STOP switch to OFF, disconnect the negative battery cable.
- (b) Disconnect the front left door glass regulator switch connector F-010 and BCM connector B-023.

- (c) Using ohm band of multimeter, check for continuity between F-010 (4) - B-023 (147) and F-010 (11) - B-023 (145).

OK

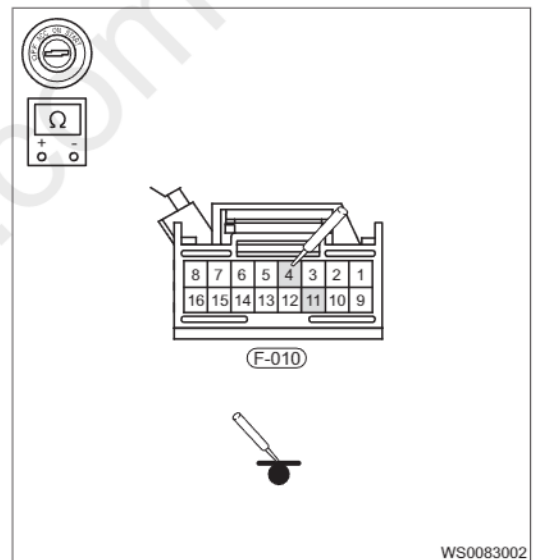
Multimeter Connection	Condition	Specified Condition
F-010 (4) - B-023 (147)	ENGINE START STOP switch OFF	$\leq 1 \Omega$
F-010 (11) - B-023 (145)	ENGINE START STOP switch OFF	$\leq 1 \Omega$



- (d) Using ohm band of multimeter, check for continuity between F-010 (4) and ground, F-010 (11) and ground.

OK

Multimeter Connection	Condition	Specified Condition
F-010 (4) - Ground	ENGINE START STOP switch OFF	∞
F-010 (11) - Ground	ENGINE START STOP switch OFF	∞



- (e) Using ohm band of multimeter, check for continuity between F-010 (4) and battery (+), F-010 (11) and battery (+).

OK

Multimeter Connection	Condition	Specified Condition
F-010 (4) - Battery (+)	ENGINE START STOP switch OFF	∞
F-010 (11) - Battery (+)	ENGINE START STOP switch OFF	∞

Result

Proceed to
OK
NG

NG

Replace wire harness and connector

OK



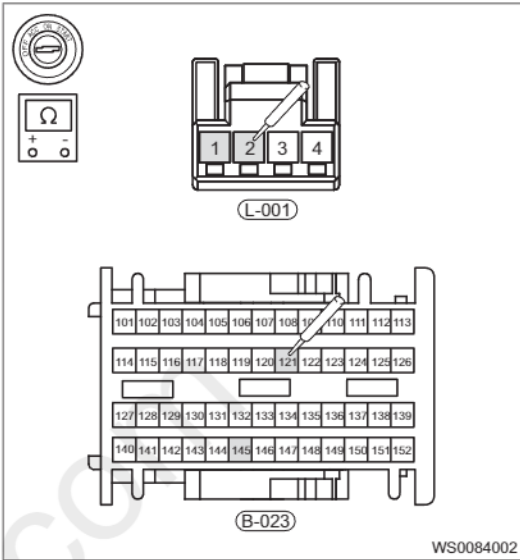
6

Check rear left door glass control circuit

- (a) Turn ENGINE START STOP switch to OFF, disconnect the negative battery cable.
- (b) Disconnect the rear left door glass regulator switch connector L-001 and BCM connector B-023.
- (c) Using ohm band of multimeter, check for continuity between L-001 (2) and B-023 (121), and L-001 (1) and B-023 (145).

OK

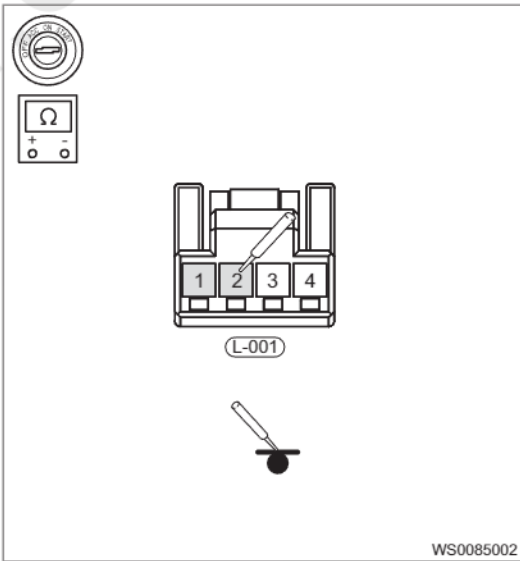
Multimeter Connection	Condition	Specified Condition
L-001 (2) - B-023 (121)	ENGINE START STOP switch OFF	$\leq 1\ \Omega$
L-001 (1) - B-023 (145)	ENGINE START STOP switch OFF	$\leq 1\ \Omega$



- (d) Using ohm band of multimeter, check for continuity between L-001 (2) and ground, L-001 (1) and ground.

Result

Multimeter Connection	Condition	Specified Condition
L-001 (2) - Ground	ENGINE START STOP switch OFF	∞
L-001 (1) - Ground	ENGINE START STOP switch OFF	∞



- (e) Using ohm band of multimeter, check for continuity between L-001 (2) and battery (+), L-001 (1) and battery (+).

Result

Multimeter Connection	Condition	Specified Condition
L-001 (2) - Battery (+)	ENGINE START STOP switch OFF	∞
L-001 (1) - Battery (+)	ENGINE START STOP switch OFF	∞

Result

Proceed to
OK
NG

NG

Replace wire harness and connector

OK

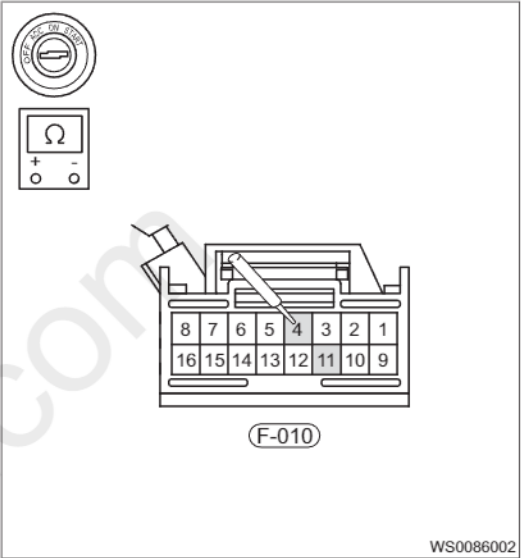
7

Check front left door glass regulator switch assembly (which controls rear left glass regulator)

- (a) Turn ENGINE START STOP switch to OFF, disconnect the negative battery cable.
(b) Remove front left door power glass regulator switch F-010.
(c) Use ohm band of multimeter to detect the resistance between F-010 (4) and F-010 (11).

OK

Multimeter Connection	Condition	Specified Condition
F-010 (4) - F-010 (11)	Not pushed	∞
	Pushed	325.36 Ω - 343.64 Ω
	Fully pushed	$\leq 5 \Omega$
	Pulled	2940 Ω - 3060 Ω
	Fully pulled up	980 Ω - 1020 Ω



- (d) Check glass regulator switch for stuck, damage.

Result

Proceed to
OK
NG

NG

Replace front left door glass regulator switch assembly

OK

45

8

Check front right door power glass regulator switch

- (a) Turn ENGINE START STOP switch to OFF, disconnect the negative battery cable.
(b) Remove rear left door power glass regulator switch L-001.

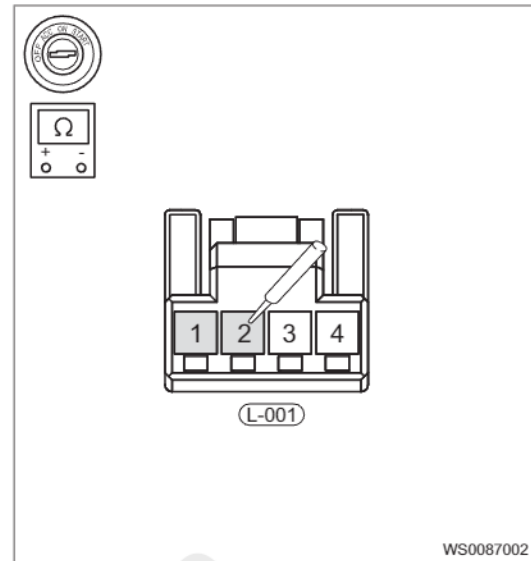


45-WINDSHIELD/WINDOW GLASS

- (c) Use ohm band of multimeter to detect the resistance between L-001 (1) - L-001 (2).

OK

Multimeter Connection	Condition	Specified Condition
L-001 (1) - L-001 (2)	Not pushed	∞
	Pushed	325.36 Ω - 343.64 Ω
	Fully pushed	$\leq 5 \Omega$
	Pulled	2940 Ω - 3060 Ω
	Fully pulled up	980 Ω - 1020 Ω



- (d) Check glass regulator switch for stuck, damage.

Result

Proceed to
OK
NG

NG → **Replace rear left door glass regulator switch**

OK

9 Reconfirm DTCs

- (a) Connect all connectors.
 (b) Connect the negative battery cable.
 (c) Turn ENGINE START STOP switch to OFF.
 (d) Use diagnostic tester (the latest software) to read the DTCs stored in body control system again.

Result

Proceed to
OK
NG

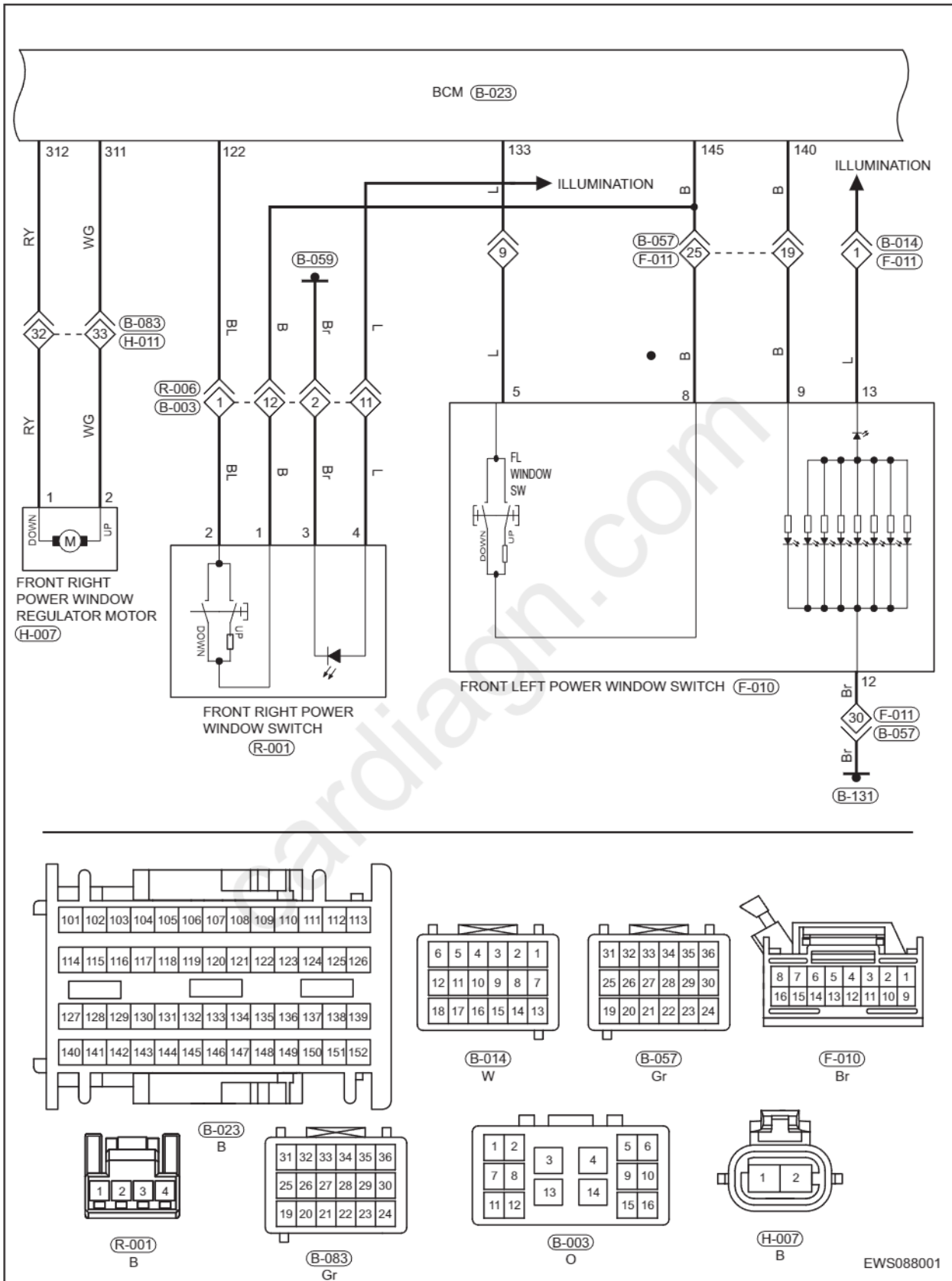
OK → **System is normal**

NG → **Replace Body Control Module (BCM)**

DTC	B1012-13	Rear Right Window Up Control Circuit
DTC	B1012-71	Rear Right Window Up Control Circuit
DTC	B1013-13	Rear Right Window Down Control Circuit
DTC	B1013-71	Rear Right Window Down Control Circuit
DTC	B1025-71	RR Window Button
DTC	B1028-71	Passenger RR Window Button Short
DTC	B102C-71	RR Window Relay
DTC	B1031-86	RR Window Motor Position Signal



Circuit Diagram



Description

DTC	DTC Definition	DTC Detection Condition	Possible Cause
B1012-13	Rear Right Window Up Control Circuit	ENGINE START STOP switch OFF, engine does not run	• Ground • Line connector • Glass regulator switch • Glass regulator motor • BCM module • Jam protection learning is not performed
B1012-71	Rear Right Window Up Control Circuit		
B1013-13	Rear Right Window Down Control Circuit		
B1013-71	Rear Right Window Down Control Circuit		
B1025-71	RR Window Button		
B1028-71	Passenger RR Window Button Short		
B102C-71	RR Window Relay		
B1031-86	RR Window Motor Position Signal		

1 Check the ground points.

- (a) Disconnect negative battery cable, and turn ENGINE START STOP switch to OFF.
 (b) Check BCM ground point.

Result

Proceed to
OK
NG

NG

Repair or replace ground wire harness or ground point.

OK**2 Use diagnostic tester, perform active test for window system****Result**

Proceed to
OK
NG

NG**3 Check executive circuit of rear right window system.**

- (a) Disconnect negative battery cable, and turn ENGINE START STOP switch to OFF.
 (b) Disconnect the rear right door glass regulator motor connector R-004, BCM connector B-024.

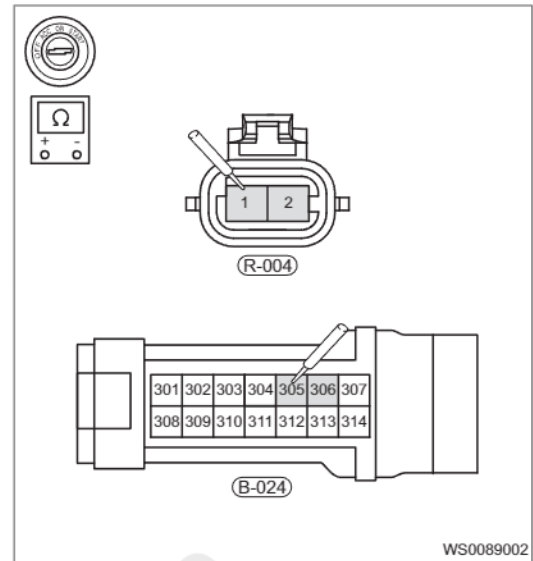


45-WINDSHIELD/WINDOW GLASS

- (c) Using ohm band of multimeter, check for continuity between R-004 (1) - B-024 (305) and R-004 (2) - B-024 (306) separately.

OK

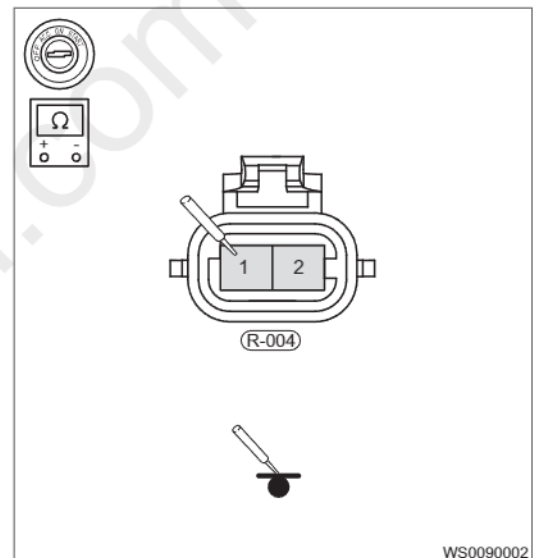
Multimeter Connection	Condition	Specified Condition
R-004 (1) - B-024 (305)	ENGINE START STOP switch OFF	$\leq 1 \Omega$
R-004 (2) - B-024 (306)	ENGINE START STOP switch OFF	$\leq 1 \Omega$



- (d) Using ohm band of multimeter, check for continuity between R-004 (1) and ground, R-004 (2) and ground separately.

OK

Multimeter Connection	Condition	Specified Condition
R-004 (1) - Ground	ENGINE START STOP switch OFF	∞
R-004 (2) - Ground	ENGINE START STOP switch OFF	∞



- (e) Using ohm band of multimeter, check for continuity between R-004 (1) and battery (+), R-004 (2) and battery (+) separately.

OK

Multimeter Connection	Condition	Specified Condition
R-004 (1) - Battery (+)	ENGINE START STOP switch OFF	∞
R-004 (2) - Battery (+)	ENGINE START STOP switch OFF	∞

Result

Proceed to
OK
NG

NG

Replace wire harness and connector

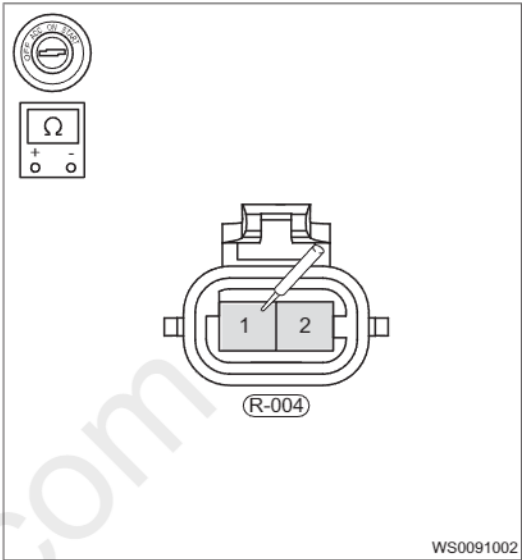
OK

4 Check rear right window regulator motor.

- (a) Disconnect negative battery cable, and turn ENGINE START STOP switch to OFF.
- (b) Disconnect the rear right window regulator motor connector R-004.
- (c) Using ohm band of multimeter, check resistance between R-004 (1) and R-004 (2).

OK

Multimeter Connection	Condition	Specified Condition
R-004 (1) - R-004 (2)	ENGINE START STOP switch OFF	1 Ω



- (d) Apply 12 V voltage to both terminals of rear right window regulator motor connector R-004, observe if operation of window regulator is faulty.

Result

Proceed to
OK
NG

OK	Replace the BCM
NG	Replace the rear right window regulator motor

5 Check rear right glass regulator control circuit

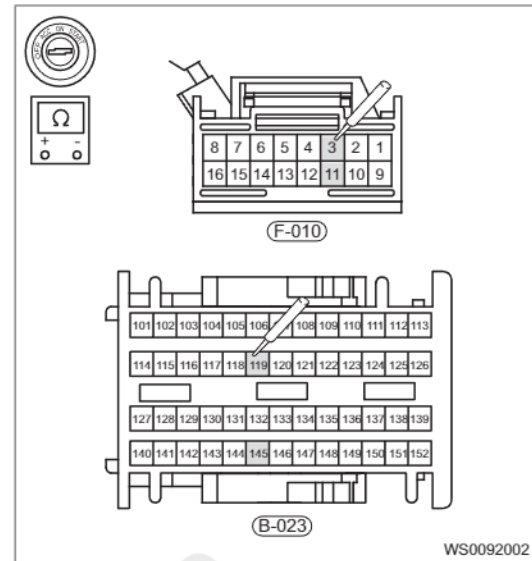
- (a) Turn ENGINE START STOP switch to OFF, disconnect the negative battery cable.
- (b) Disconnect the front left door glass regulator switch connector F-010 and BCM connector B-023.

45-WINDSHIELD/WINDOW GLASS

- (c) Using ohm band of multimeter, check for continuity between F-010 (3) - B-023 (119) and F-010 (11) - B-023 (145).

OK

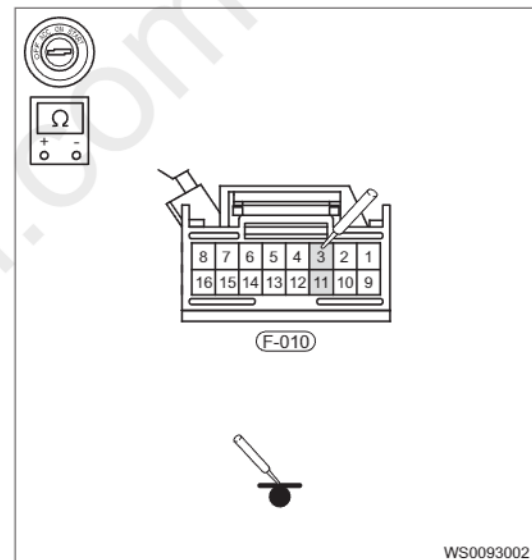
Multimeter Connection	Condition	Specified Condition
F-010 (3) - B-023 (119)	ENGINE START STOP switch OFF	$\leq 1 \Omega$
F-010 (11) - B-023 (145)	ENGINE START STOP switch OFF	$\leq 1 \Omega$



- (d) Using ohm band of multimeter, check for continuity between F-010 (3) and ground, F-010 (11) and ground.

OK

Multimeter Connection	Condition	Specified Condition
F-010 (3) - Ground	ENGINE START STOP switch OFF	∞
F-010 (11) - Ground	ENGINE START STOP switch OFF	∞



- (e) Using ohm band of multimeter, check for continuity between F-010 (3) and battery (+), F-010 (11) and battery (+).

OK

Multimeter Connection	Condition	Specified Condition
F-010 (3) - Battery (+)	ENGINE START STOP switch OFF	∞
F-010 (11) - Battery (+)	ENGINE START STOP switch OFF	∞

Result

Proceed to
OK
NG

NG

Replace wire harness and connector

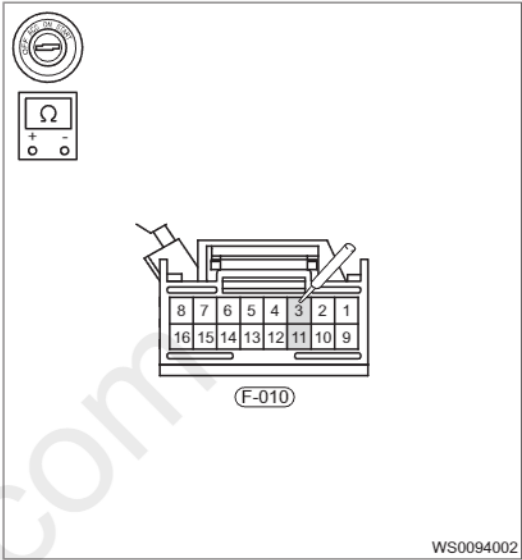
OK

6 Check front left door glass regulator switch assembly (which controls rear right glass regulator)

- (a) Turn ENGINE START STOP switch to OFF, disconnect the negative battery cable.
- (b) Remove front left door power glass regulator switch F-010.
- (c) Use ohm band of multimeter to detect the resistance between F-010 (3) and F-010 (11).

OK

Multimeter Connection	Condition	Specified Condition
F-010 (3) - F-010 (11)	Not pushed	∞
	Pushed	325.36 Ω - 343.64 Ω
	Fully pushed	$\leq 5 \Omega$
	Pulled	2940 Ω - 3060 Ω
	Fully pulled up	980 Ω - 1020 Ω



- (d) Check glass regulator switch for stuck, damage.

Result

Proceed to
OK
NG

NG

Replace front left door glass regulator switch assembly

OK

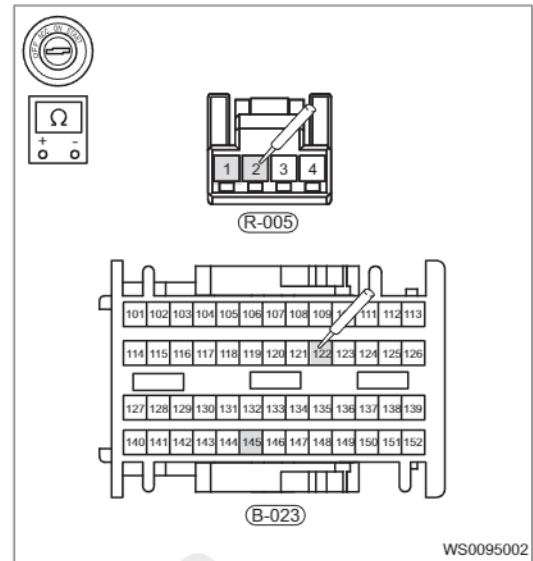
7 Check rear right door glass control circuit

- (a) Turn ENGINE START STOP switch to OFF, disconnect the negative battery cable.
- (b) Disconnect the rear right door glass regulator switch connector R-001 and BCM connector B-023.

- (c) Using ohm band of multimeter, check for continuity between R-001 (2) and B-023 (122), and R-001 (1) and B-023 (145).

OK

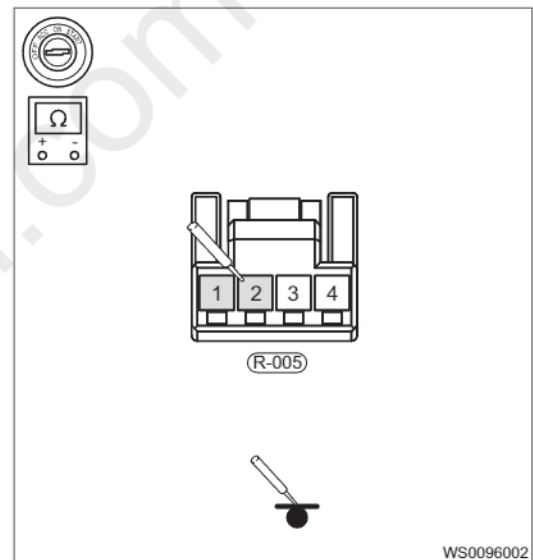
Multimeter Connection	Condition	Specified Condition
R-001 (2) - B-023 (122)	ENGINE START STOP switch OFF	$\leq 1 \Omega$
R-001 (1) - B-023 (145)	ENGINE START STOP switch OFF	$\leq 1 \Omega$



- (d) Using ohm band of multimeter, check for continuity between R-001 (2) and ground, R-001 (1) and ground.

OK

Multimeter Connection	Condition	Specified Condition
R-001 (2) - Ground	ENGINE START STOP switch OFF	∞
R-001 (1) - Ground	ENGINE START STOP switch OFF	∞



- (e) Using ohm band of multimeter, check for continuity between R-001 (2) and battery (+), R-001 (1) and battery (+).

OK

Multimeter Connection	Condition	Specified Condition
R-001 (2) - Battery (+)	ENGINE START STOP switch OFF	∞
R-001 (1) - Battery (+)	ENGINE START STOP switch OFF	∞

Result

Proceed to
OK
NG

NG

Replace wire harness and connector

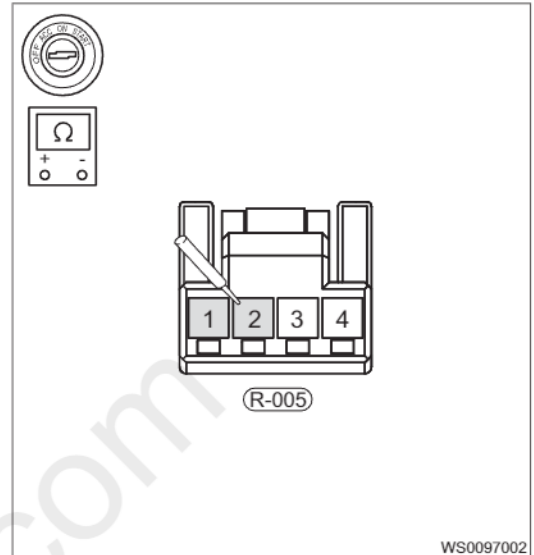
OK

8 Check rear right door power glass regulator switch

- Turn ENGINE START STOP switch to OFF, disconnect the negative battery cable.
- Remove rear right door power glass regulator switch R-001.
- Use ohm band of multimeter to detect the resistance between R-001 (1) and R-001 (2).

OK

Multimeter Connection	Condition	Specified Condition
R-001 (1) - R-001 (2)	Not pushed	∞
	Pushed	325.36 Ω - 343.64 Ω
	Fully pushed	$\leq 5 \Omega$
	Pulled	2940 Ω - 3060 Ω
	Fully pulled up	980 Ω - 1020 Ω



- Check glass regulator switch for stuck, damage.

Result

Proceed to
OK
NG

NG

Replace rear right door glass regulator switch

OK

9 Reconfirm DTCs

45

- Connect all connectors.
- Connect the negative battery cable.
- Turn ENGINE START STOP switch to OFF.
- Use diagnostic tester (the latest software) to read the DTCs stored in body control system again.

Result

Proceed to
OK
NG

OK

System is normal

NG

Replace Body Control Module (BCM)



ON-VEHICLE SERVICE

Front Left Door Power Glass Regulator Switch

Removal

Warning/Caution/Hint

Caution:

- Be sure to wear safety equipment to prevent accidents, when removing front left door power glass regulator switch.
 - Appropriate force should be applied when removing front left door glass regulator switch. Be careful not to operate roughly.
 - Try to prevent door inner protector assembly from being scratched, when removing front left door glass regulator switch.
1. Turn off all electrical equipment and the ENGINE START STOP switch.
 2. Disconnect the negative battery cable.
 3. Remove the front left door glass regulator switch
 - (a) Using an interior crow plate, pry off front left door inside handle screw block cover (1).



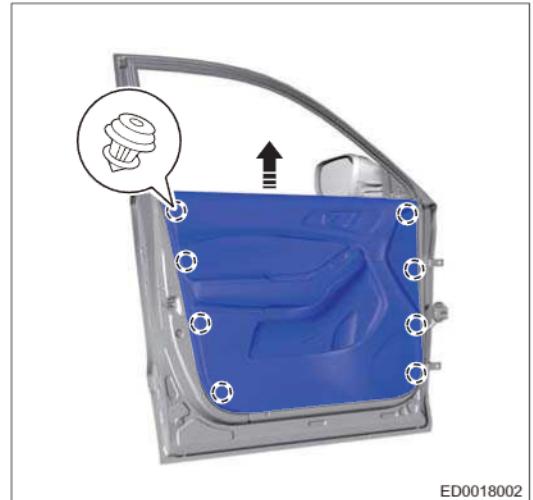
- (b) Remove 4 fixing screws (arrow) from front door inner protector assembly.

Tightening torque

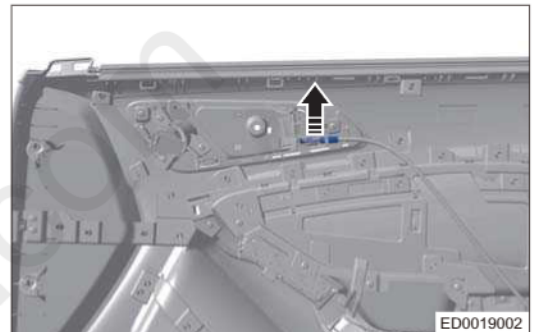
$1.5 \pm 0.5 \text{ N}\cdot\text{m}$



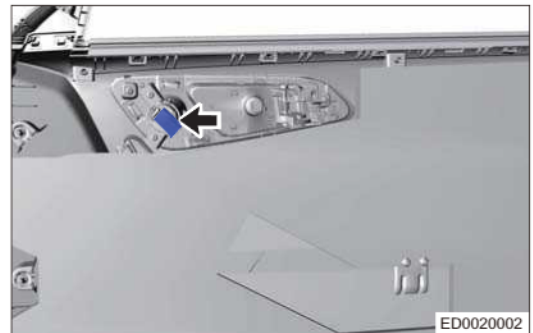
- (c) Using an interior crow plate, pry up the clips on front door inner protector assembly, and loosen the front door inner protector assembly in direction of arrow.



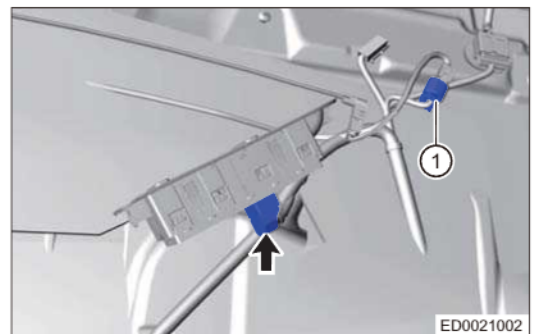
- (d) Disengage front door inside handle cable (arrow) from front door inside handle.



- (e) Disconnect the tweeter connector (arrow).

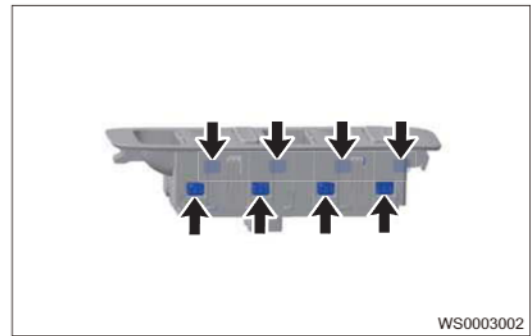


- (f) Disconnect front door power glass regulator switch connector plug (arrow) and atmosphere light plug (1).



- (g) Remove front left glass switch after removing front left door inner protector assembly.

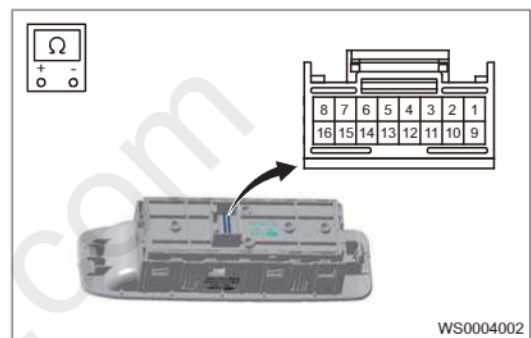
- (h) Using a screwdriver wrapped with protective tape, detach claws (arrow) from front left door glass regulator switch assembly and remove front left door glass regulator switch.



Inspection

1. Check the front left door glass regulator switch
 - (a) Using a digital multimeter, check for continuity between terminals of front left door glass regulator switch according to the table below.

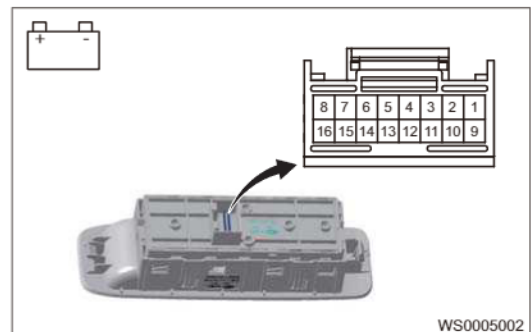
Part	Multimeter Connection	Switch Condition	Specified Condition
Front left door glass regulator switch	6 - 8	Pushed	325.36 Ω - 343.64 Ω
		Fully pushed	$\leq 5 \Omega$
	6 - 8	Pulled	2940 Ω - 3060 Ω
		Fully pulled up	980 Ω - 1020 Ω
Front right door glass regulator switch	5 - 11	Pushed	325.36 Ω - 343.64 Ω
		Fully pushed	$\leq 5 \Omega$
	5 - 11	Pulled	2940 Ω - 3060 Ω
		Fully pulled up	980 Ω - 1020 Ω
Rear left door glass regulator switch	4 - 11	Pushed	325.36 Ω - 343.64 Ω
		Fully pushed	$\leq 5 \Omega$
	4 - 11	Pulled	2940 Ω - 3060 Ω
		Fully pulled up	980 Ω - 1020 Ω
Rear right door glass regulator switch	3 - 11	Pushed	325.36 Ω - 343.64 Ω
		Fully pushed	$\leq 5 \Omega$
	3 - 11	Pulled	2940 Ω - 3060 Ω
		Fully pulled up	980 Ω - 1020 Ω



2. Check the front left door glass regulator switch illumination light
 - (a) Apply battery voltage to terminals of front left door glass regulator switch connector, and check operation of front left door glass regulator switch according to the table below.

Battery positive (+)	Battery negative (-)	Specified Condition
13	12	Background light illuminates

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



Installation

1. Installation is in the reverse order of removal.

Caution:

- Check if connector is correctly installed, when installing front left door glass regulator switch.
- Check if front left door glass regulator switch can be operated normally after installation.

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Front Door Weather Bar

Removal

Warning/Caution/Hint

Hint:

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

Caution:

- Be sure to wear safety equipment to prevent accidents, when removing 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.

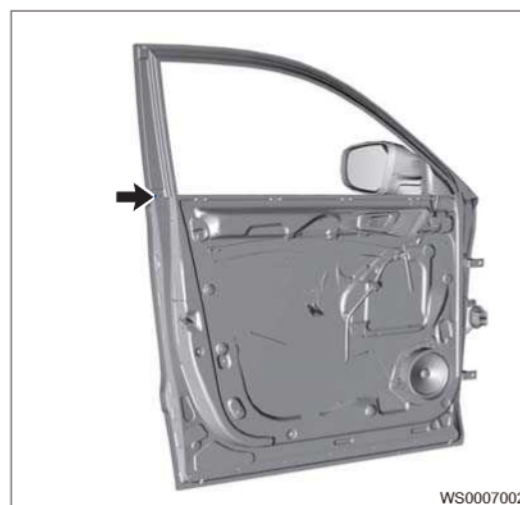
1. Turn off all electrical equipment and the ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the front left door inner weather bar.
 - (a) Remove the front left door inner protector assembly (See page 49-68).
 - (b) Using an interior crow plate, remove front door inner weather bar (1) in the direction of arrow.



4. Remove the front left door outer weather bar.
 - (a) Remove the outside rear view mirror assembly (See page 46-9).
 - (b) Remove the fixing screw (arrow).

Tightening torque

$1 \pm 0.2 \text{ N}\cdot\text{m}$



- (c) Using an interior crow plate, remove front door outer weather bar (1) in the direction of arrow.



Installation

1. Installation is in the reverse order of removal.

Front Door Upper Glass Run

Removal

Warning/Caution/Hint

Hint:

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

Caution:

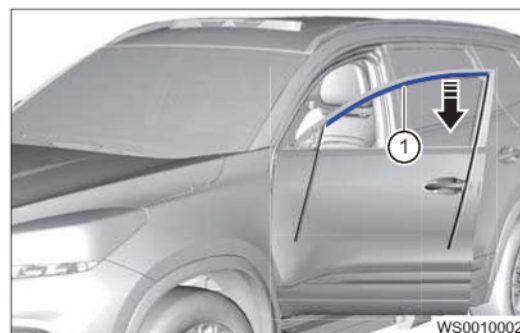
- Be sure to wear safety equipment to prevent accidents, when removing front door glass assembly.
- Appropriate force should be applied when removing front door glass assembly. Be careful not to operate roughly.

1. Turn off all electrical equipment and the ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the front left door inner protector assembly (See page 49-68).
4. Remove the left outside rear view mirror assembly (See page 46-9).
5. Remove the front left door weather bar (See page 45-70).
6. Release and remove 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 in direction of arrow.



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



Installation

1. Installation is in the reverse order of removal.

Front Door Glass Assembly

Removal

Warning/Caution/Hint

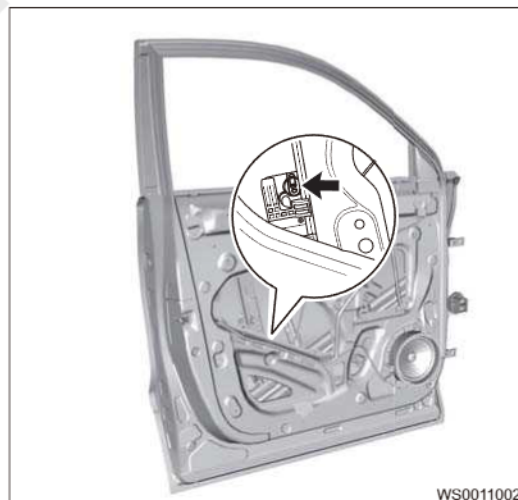
Hint:

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

Caution:

- Be sure to wear safety equipment to prevent accidents, when removing 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 ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the front left door inner protector assembly (See page 49-68).
4. Remove the rear left door metal bracket.
5. Remove the front left door protective film assembly.
6. Remove the left outside rear view mirror assembly (See page 46-9).
7. Remove the front left door weather bar (See page 45-70).
8. Remove the front left door glass assembly.
 - (a) Raise front door glass assembly to a proper position.
 - (b) Using a screwdriver wrapped with protective tape, detach the fixing clip (arrow) from front door glass assembly and remove the front left door glass assembly.



WS0011002

Installation

1. Installation is in the reverse order of removal.



Front Door Rear Glass Guide Rail Assembly

Removal

Warning/Caution/Hint

Hint:

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

Caution:

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

1. Turn off all electrical equipment and the ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the front left door inner protector assembly (See page 49-68).
4. Remove the rear left door metal bracket.
5. Remove the front left door protective film assembly.
6. Remove the left outside rear view mirror assembly (See page 46-9).
7. Remove the front left door weather bar (See page 45-70).
8. Remove the front left door rear glass assembly.

- (a) Remove fixing bolt (arrow) from front door rear glass guide rail assembly and remove front left door rear glass guide rail assembly.

Tightening torque

$7 \pm 1 \text{ N}\cdot\text{m}$



Installation

1. Installation is in the reverse order of removal.

Caution:

- After installing front door rear glass 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

Warning/Caution/Hint

Hint:

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

Caution:

- Be sure to wear safety equipment to prevent accidents, when removing 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 ENGINE START STOP switch.
 2. Disconnect the negative battery cable.
 3. Remove the front left door inner protector assembly (See page 49-68).
 4. Remove the rear left door metal bracket.
 5. Remove the front left door protective film assembly.
 6. Remove the left outside rear view mirror assembly (See page 46-9).
 7. Remove the front left door weather bar (See page 45-70).
 8. Remove the front left door glass assembly (See page 45-73).
 9. Remove the front left door power glass regulator.
 - (a) Disconnect connector (1) from front door power glass regulator.
 - (b) Remove 5 fixing nuts (arrow) from front door power glass regulator and remove front left door power glass regulator assembly.

Tightening torque

$7 \pm 1 \text{ N}\cdot\text{m}$



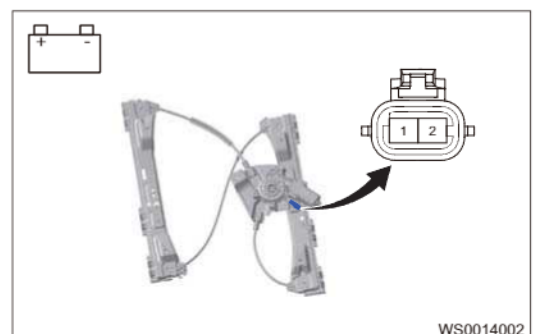
WS0013002

45

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.

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



WS0014002



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

Installation

1. 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.

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Rear Left Door Power Glass Regulator Switch

Removal

Warning/Caution/Hint

Hint:

- Use same procedures for front right, rear right and rear left sides.
 - Procedures listed below are for rear left side.
 - Be sure to wear safety equipment to prevent accidents, when removing power glass regulator switch.
 - Appropriate force should be applied when removing power door glass regulator switch. Be careful not to operate roughly.
 - Try to prevent door inner protector assembly from being scratched, when removing power glass regulator switch.
1. Turn off all electrical equipment and the ENGINE START STOP switch.
 2. Disconnect the negative battery cable.
 3. Remove the rear left power glass regulator switch.
 - (a) Pry off rear left door inner handle screw plug and inner handle plug (1) with interior crow plate.



- (b) Remove 4 fixing screws (arrow) from rear left door inner protector assembly.

Tightening torque

$1.5 \pm 0.5 \text{ N}\cdot\text{m}$



- (c) Using an interior crow plate, pry up clips on rear door inner protector assembly, and loosen rear door inner protector assembly in direction of arrow.



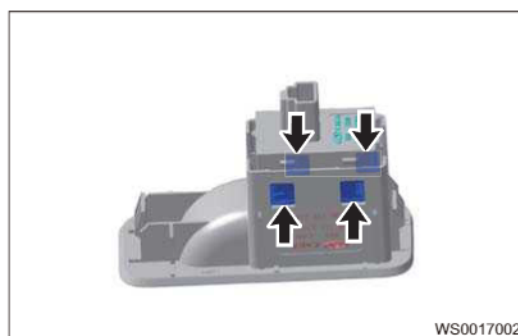
- (d) Disconnect the connector from rear door power glass regulator switch (arrow).



- (e) Detach handle cable (arrow) from rear door inner handle, and remove inner protector assembly.



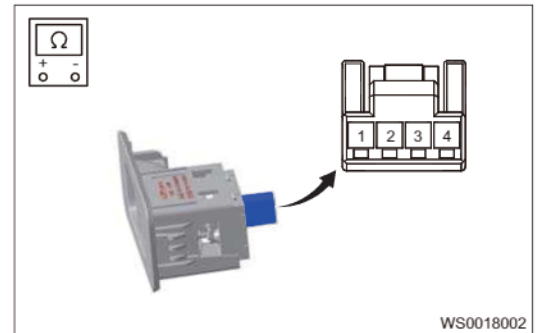
- (f) Remove the rear left door glass regulator assembly.
- (g) Using a screwdriver wrapped with protective tape, detach four claws (arrow) from power glass regulator switch and remove the power glass regulator switch.



Inspection

1. Check power glass regulator switch
 - (a) Using a digital multimeter, check for continuity between terminals of other three power glass regulator switches according to the table below.

Part	Multimeter Connection	Switch Condition	Specified Condition
Front right door glass regulator switch	2 - 1	Pushed	325.36 Ω - 343.64 Ω
		Fully pushed	$\leq 5 \Omega$
		Pulled	2940 Ω - 3060 Ω
		Fully pulled up	980 Ω - 1020 Ω
Front left door glass regulator switch	2 - 1	Pushed	325.36 Ω - 343.64 Ω
		Fully pushed	$\leq 5 \Omega$
		Pulled	2940 Ω - 3060 Ω
		Fully pulled up	980 Ω - 1020 Ω
Rear left door glass regulator switch	2 - 1	Pushed	325.36 Ω - 343.64 Ω
		Fully pushed	$\leq 5 \Omega$
		Pulled	2940 Ω - 3060 Ω
		Fully pulled up	980 Ω - 1020 Ω
Rear right door glass regulator switch	2 - 1	Pushed	325.36 Ω - 343.64 Ω
		Fully pushed	$\leq 5 \Omega$
		Pulled	2940 Ω - 3060 Ω
		Fully pulled up	980 Ω - 1020 Ω



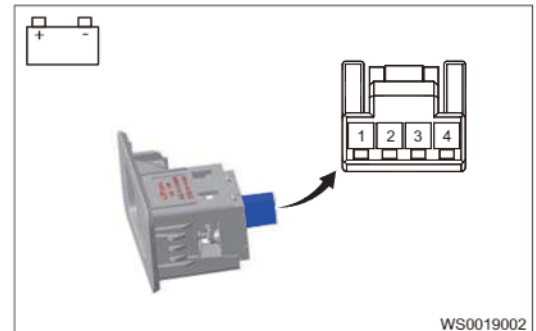
If result is not as specified, replace the power glass regulator switch.

2. Check the power glass regulator switch illumination (for rear left door side)

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

Battery positive (+)	Battery negative (-)	Specified Condition
4	3	Background light illuminates

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



Installation

1. Installation is in the reverse order of removal.

Caution:

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



Rear Door Weather Bar

Removal

Warning/Caution/Hint

Hint:

- 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 ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the rear left inner outer weather bar.
 - (a) Remove the rear left door inner protector assembly ([See page 45-77](#)).
 - (b) Using an interior crow plate, remove rear door inner weather bar (1) from trough in the direction of arrow.



4. Remove the rear left door outer weather bar.
 - (a) Remove 2 fixing screws (arrow).

Tightening torque

$1 \pm 0.2 \text{ N}\cdot\text{m}$



- (b) Using an interior crow plate, remove rear door outer weather bar (1) in the direction of arrow.

Installation

1. Installation is in the reverse order of removal.

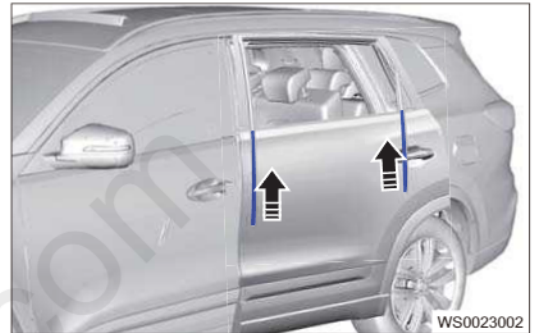
Rear Door Upper Glass Run

Removal

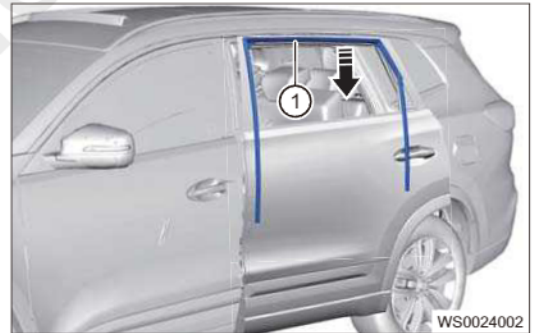
Warning/Caution/Hint

Hint:

- Use same procedures for right and left sides.
 - Procedures listed below are for left side.
1. Turn off all electrical equipment and the ENGINE START STOP switch.
 2. Disconnect the negative battery cable.
 3. Remove the rear left door weather bar ([See page 45-80](#)).
 4. Remove the rear left door upper glass run.
 - (a) Lower rear door glass assembly and pull lower part of rear door glass upper run out from trough.



- (b) Remove rear left door glass upper run (1) in direction of arrow as shown in illustration.



Installation

1. Installation is in the reverse order of removal.

Rear Door Glass Assembly

Removal

Warning/Caution/Hint

Hint:

- Use same procedures for right and left sides.
 - Procedures listed below are for left side.
1. Turn off all electrical equipment and the ENGINE START STOP switch.
 2. Disconnect the negative battery cable.
 3. Remove the rear left door inner protector assembly (See page 45-77).
 4. Remove the rear left door metal bracket.
 5. Remove the rear left door protective film assembly.
 6. Remove the rear left door weather bar (See page 45-80).
 7. Remove the rear left door upper glass run (See page 45-81).
 8. Remove the rear left door glass rear guide rail assembly.

Caution:

- It is not necessary to remove all rear left door weather bars. There are 2 fixing screws hidden in rear weather bar.
- (a) Remove 2 fixing screws and fixing bolt (arrow) from rear left door guide rail, and remove rear left door glass guide rail.

Tightening torque

$1.5 \pm 0.5 \text{ N}\cdot\text{m}$

Tightening torque

$7 \pm 1 \text{ N}\cdot\text{m}$



WS0025002

- 45** 9. Remove the rear left door glass assembly.

Caution:

- Prevent window glass from dropping and becoming damaged, when removing rear door glass assembly.
- (a) Raise front door glass assembly to a proper position.

- (b) Detach snap pin from rear door glass assembly, and remove rear left door glass assembly.



Installation

1. 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 Power Glass Regulator

Removal

Warning/Caution/Hint

Hint:

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

Caution:

- Be sure to wear safety equipment to prevent accidents, when removing 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 ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the rear left door inner protector assembly (See page 45-77).
4. Remove the rear left door metal bracket.
5. Remove the rear left door protective film assembly.
6. Remove the rear left door weather bar (See page 45-80).
7. Remove the rear left door glass assembly (See page 45-82).
8. Remove the rear left door power glass regulator.
 - (a) Disconnect the rear door power glass regulator connector (1).
 - (b) Remove 5 fixing nuts (arrow) from rear door power glass regulator.

Tightening torque
 $7 \pm 1 \text{ N}\cdot\text{m}$



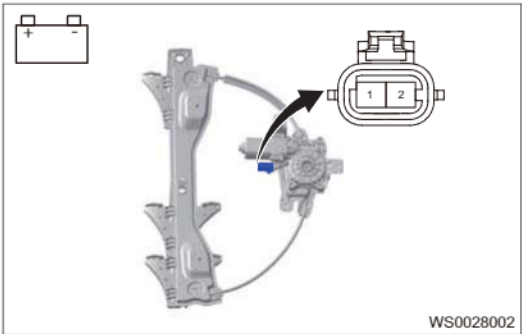
45

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.

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

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



Installation

1. 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.

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Front Windshield Assembly

Removal

1. Turn off all electrical equipment and the ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the roof assembly (See page 51-24).

Caution:

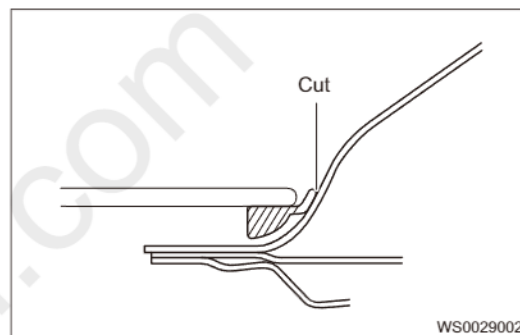
- It is not necessary to completely remove the roof assembly. Lower the front part of roof assembly, so that front windshield assembly can be removed.

4. Remove the inside rear view mirror assembly (See page 46-14).
5. Remove the wiper arm assembly (See page 35-14).
6. Remove the front windshield lower support assembly (See page 50-16).
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.



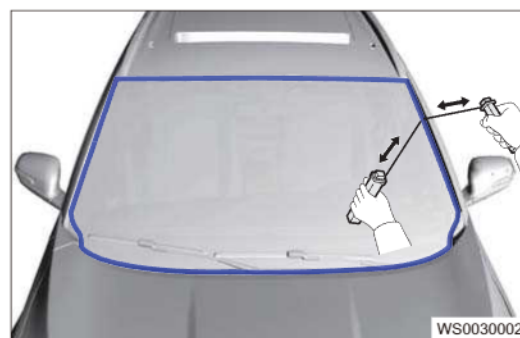
- (b) Apply protective tape to the outer surface of body to prevent scratches.

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:

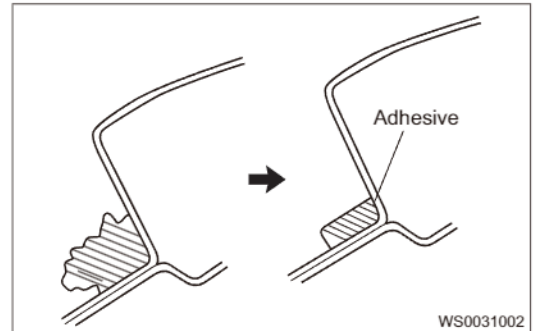
- When removing front windshield assembly, an assistant is needed.
- When removing front windshield assembly, prevent it from dropping.
- Leave as much adhesive on the body as possible when cutting off the adhesive.
- When separating front windshield assembly from vehicle, be careful not to damage body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

9. Clean the vehicle body.

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

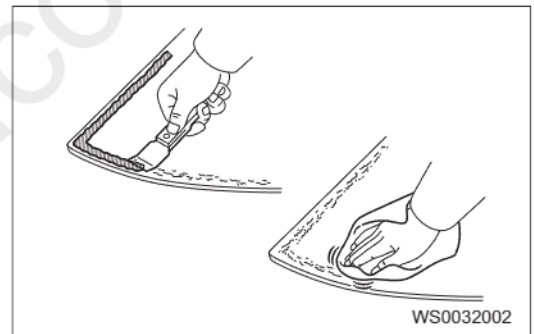
- Even if all adhesive has been removed, cleaning of vehicle would be necessary.

10. Clean the removed glass.

Caution:

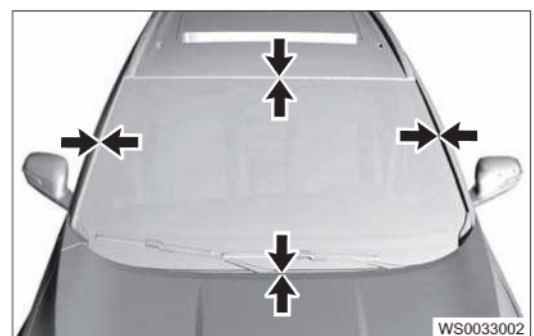
- DO NOT touch the glass after cleaning it.
- Even if a new glass is used, it is necessary to clean it with glass cleaner.

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

**Installation**

1. Position the front windshield assembly.

- (a) Align positioning blocks with metal plate installation holes of body.
- (b) Check if whole contact surface of glass edge is perfectly flat.
- (c) Place match marks on front windshield and body at the positions shown in illustration.



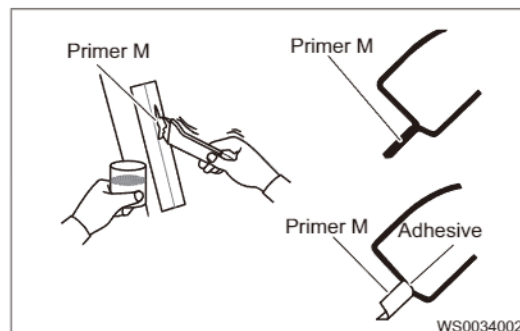
2. Apply a coat of primer to the contact surface of vehicle body.

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 for later use.



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

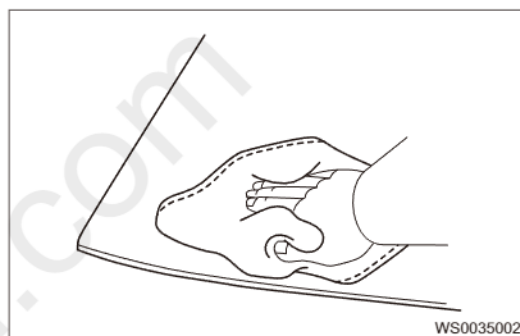


3. Clean the contact surface of front windshield assembly.

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.

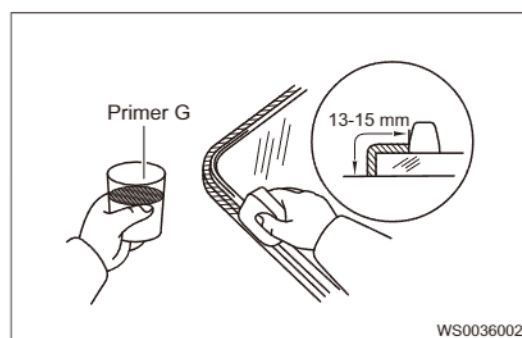


4. Apply a coat of primer to the contact surface of front windshield assembly.

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 for later use.

- (a) Using a brush, apply a coat of primer 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.

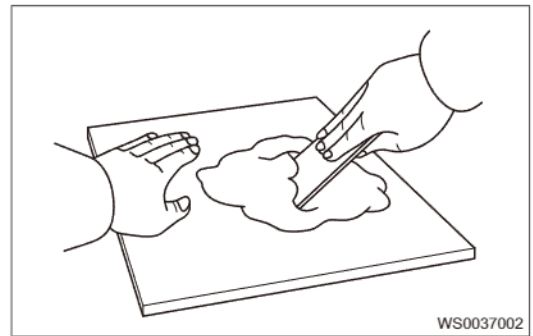


5. Mix the adhesive.

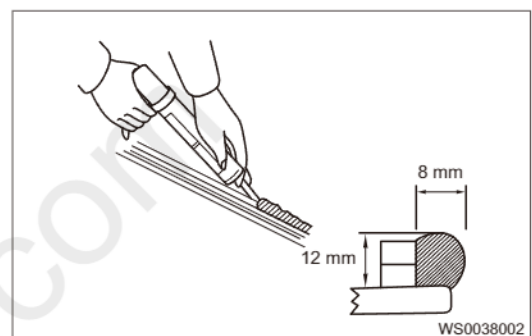
Caution:

- 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.



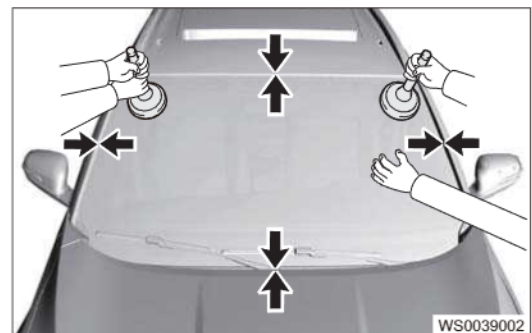
6. Apply the adhesive.
- Cut off the tip of cartridge nozzle and add adhesive.
 - Install the cartridge to sealer gun.
 - Apply adhesive evenly to front windshield assembly as shown in illustration.
Adhesive width: 8 mm
Adhesive height: 12 mm



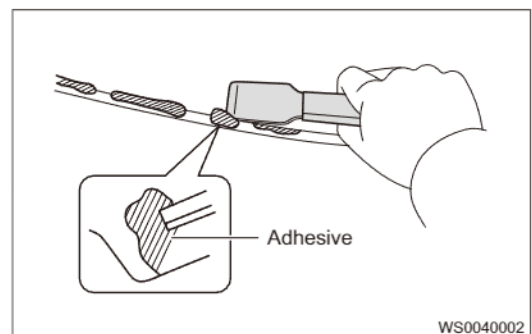
7. Install the front windshield assembly.

Caution:

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



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. Install the front windshield lower trim board assembly ([See page 50-17](#)).
11. Install the rear wiper arm assembly ([See page 35-15](#)).
12. Install the inside rear view mirror assembly ([See page 46-14](#)).
13. Install the roof assembly ([See page 51-25](#)).
14. Connect the negative battery cable.

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Triangular Window Glass Assembly

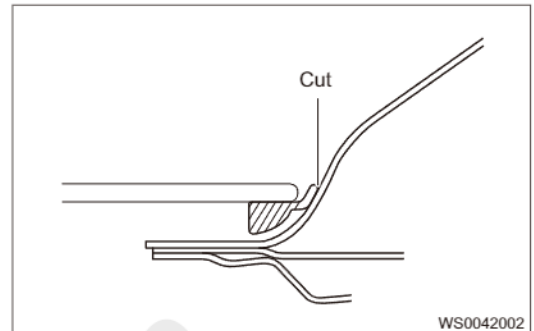
Removal

Warning/Caution/Hint

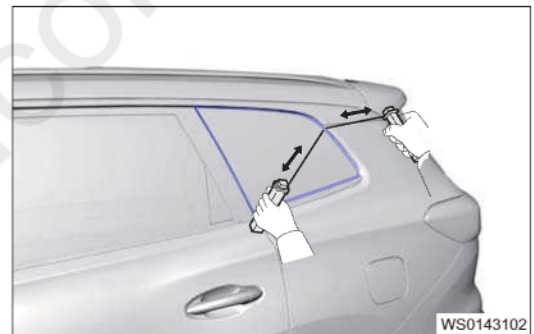
- Try to prevent body paint surface from being scratched. when cutting off the adhesive.

1. Remove the triangular window glass assembly

- (a) Using a knife, cut 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 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 triangular window glass assembly, and remove the rear triangular window glass assembly.



Warning:

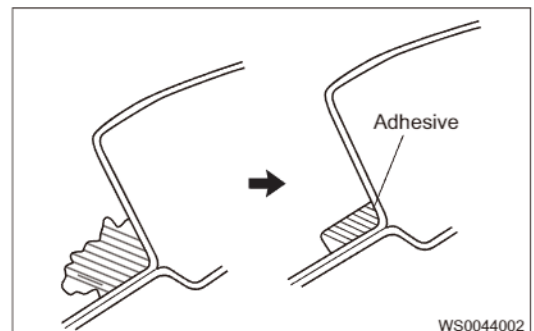
- When removing assembly, an assistant is needed.
- When removing triangular window glass assembly, prevent it from dropping.
- Leave as much adhesive on the body as possible when cutting off the adhesive.
- When separating triangular window glass assembly from vehicle, be careful not to damage body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

2. Clean the vehicle body.

- (a) Using a knife, cut off any excess adhesive on the contact surface of vehicle body.

Warning:

- 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.

Warning:

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

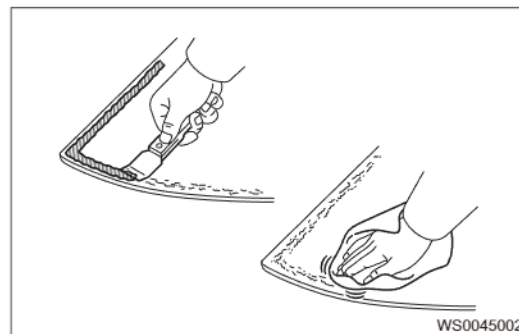
3. Clean the removed triangular window glass assembly.

- (a) Using a scraper, remove the adhesive sticking to glass.

- (b) Clean the outer edges of glass with glass cleaner.

Warning:

- DO NOT touch the glass after cleaning it.



Installation

1. Assembly Condition

- Check if glass and bright bar has any scratches or other defects. Check if 3 fixing clips are missed. Never install unqualified glass to vehicle.
- Check if gum application surface on the metal plate is flat before assembly;
- After glass is applied with gum, check if the glass gum is applied uniformly, especially at the corner of glass. Never load the glass of which gum is not applied uniformly.

2. Assembly Order:

- Wipe the primer area with alcohol cloth and width is 20 - 24 mm;

- Apply sheet metal primer A11-4105013 to the center position of sheet metal installation area and make sure application width is 19 - 21 mm; Do not expose it in the air before applying the sheet metal primer. (Sheet metal application area is shown in the illustration)

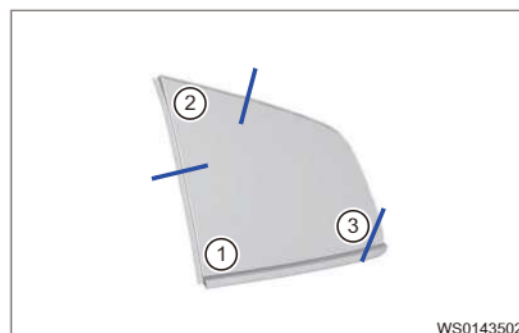


- Using cleaner A11-4105017 (accelerant), clean the area around gum application and make sure cleaning width is 15 - 17 mm;
- Apply A11-4105015 (windshield primer) around rear left and right windshield. Make sure application width is 13 - 15 mm. Apply gum along application line. Make sure the gum width is 7 - 9 mm, height is 11 - 13 mm and the height after being compressed is 5 - 7 mm. There should be no uneven gum and gum deviation from application line. There also no gum leakage or fluid overflowing;

- Align 3 clips of glass with the corresponding holes on quarter sheet metal after gum is applied on the glass. Engage clips firmly in the order of 1-2-3. Apply 3 pieces of tape with 150 - 200 mm around glass and sheet metal to prevent glass from shaking. (As shown in illustration)

Warning:

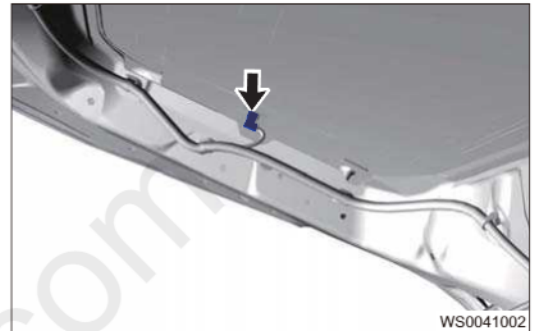
- When applying tapes, press glass against vehicle to prevent glass from extruding and causes improper installation.



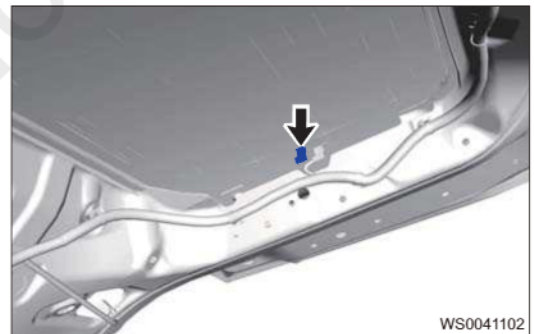
Rear Windshield Assembly

Removal

1. Turn off all electrical equipment and the ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the rear door protector assembly (See page 49-90).
4. Remove the rear wiper arm assembly (See page 35-19).
5. Remove the rear wiper motor assembly (See page 35-20).
6. Remove the rear spoiler assembly (See page 50-21).
7. Remove the defroster wire harness assembly.
 - (a) Remove the left defroster connector (arrow).



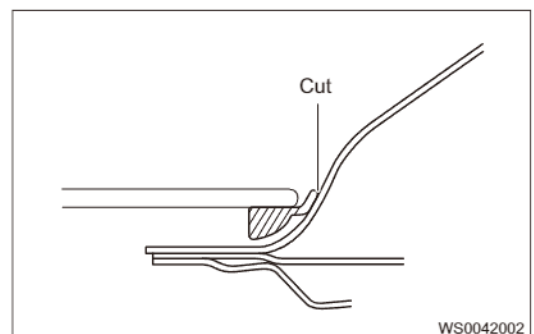
- (b) Remove the right defroster connector (arrow).



8. Remove the rear windshield weatherstrip.
9. 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.

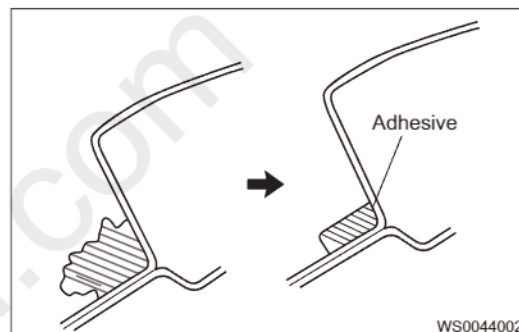


10. Clean the vehicle body.

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

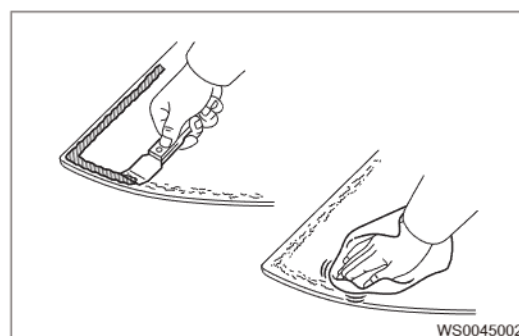
Caution:

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

11. Clean the removed glass.

Caution:

- DO NOT touch the glass after cleaning it.
- (a) Using a scraper, remove the adhesive sticking to glass.
- (b) Clean the outer edges of glass with glass cleaner.



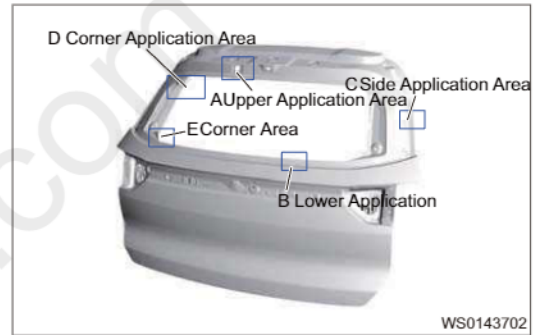
Installation

1. Detailed description and technology requirements during assembly

- (a) Before assembling, check the number of accessories and whether stopper is lost and whether small cracks or bubbles exist around windshield. Never install unqualified windshield to vehicle.
- (b) Check if gum application surface on the metal plate is flat before assembly.
- (c) After glass is applied with gum, check if the glass gum is applied uniformly, especially at the corner of glass. Never load the glass of which gum is not applied uniformly.

2. Assembly Order:

- (a) Wipe the primer area with alcohol cloth and width is 20 - 24 mm;
- (b) Apply sheet metal primer A11-4105013 to the center position of sheet metal installation area and make sure application width is 19 - 21 mm; Do not expose it in the air before applying the sheet metal primer;
- (c) Using cleaner A11-4105017 (accelerant), clean the area around gum application and make sure cleaning width is 15 - 17 mm;
- (d) Apply A11-4105015 windshield primer (tolerance ± 1 mm) on the application position around rear windshield. Make sure application width is 13 - 15 mm. Apply gum A11-4105011 from center lower position along application line. Make sure the gum width is 7 - 9 mm, height is 11 - 13 mm and the height after being compressed is 5 - 7 mm. There should be no uneven gum and gum deviation from application line. There also no gum leakage or fluid overflowing; if gum overflowing from glass occurs, it is necessary to remove it;
- (e) Align dowel pins of rear back door with corresponding set holes for windshield installation on sheet metal of back door outside panel. Install the windshield (be careful to avoid impact to the glass during assembly);
- (f) Fine tuning glass to make sure clearance between glass edges is uniformly. Slightly tap four sides of glass to install glass into place (height after being compressed is 5 - 7 mm) and apply tape (length of tape is 150 - 200 mm) to prevent glass from shaking.



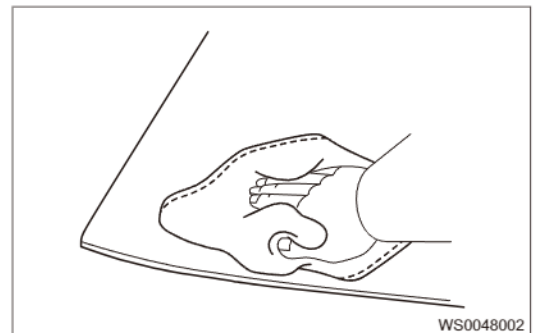
- (g) After installation, connect wire harness connector and tongue on the glass. Check the installing condition.

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.



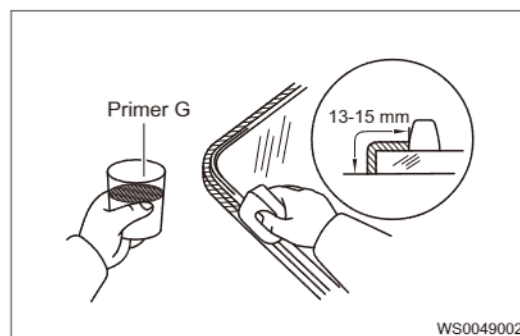
4. Apply a coat of primer to the contact surface of rear windshield assembly.

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 for later use.
- (a) Using a brush, apply a coat of primer to the contact surface of vehicle body.
 - (b) Wipe off any excess primer with a clean cloth before drying.



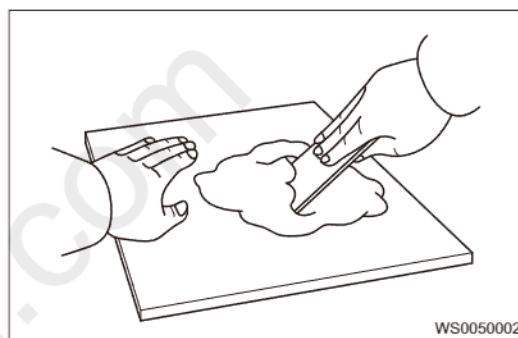
- (c) Width of primer is 13 to 15 mm.



5. Mix the adhesive.

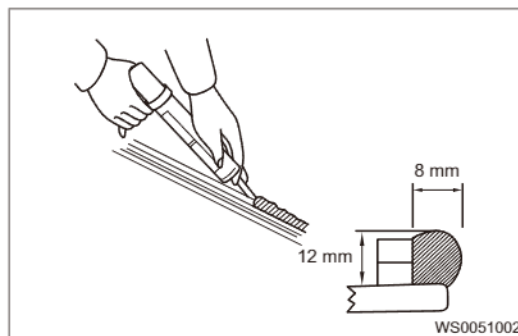
Caution:

- 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.



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 rear windshield assembly as shown in illustration.
Adhesive width: 8 mm
Adhesive height: 12 mm

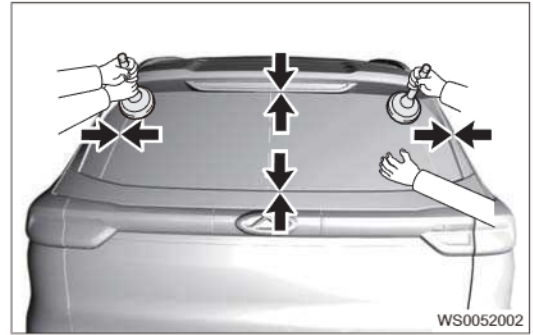


7. Install the rear windshield assembly

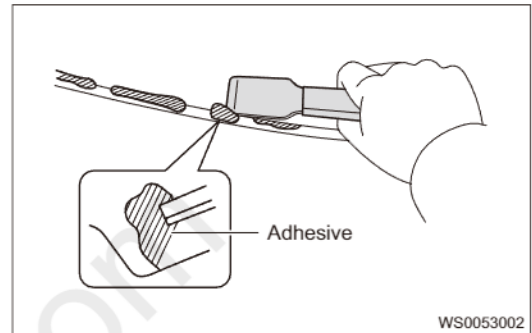
Caution:

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

- (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 the glass for leakage after adhesive has completely hardened.
(b) If it leaks, seal the leaks by adding adhesive.
9. Connect the negative battery cable.

Rear defroster switch

Removal

Warning/Caution/Hint

Hint:

- Rear defroster switch is installed on the center control integration panel assembly and it cannot be disassembled.

Caution:

- Be sure to wear safety equipment to prevent accidents, when removing rear defroster switch.
 - Appropriate force should be applied when removing rear defroster switch. Be careful not to operate roughly.
 - Avoid necessary injury when removing rear defroster switch.
1. Turn off all electrical equipment and the ENGINE START STOP switch.
 2. Disconnect the negative battery cable.
 3. Remove the center control integration panel assembly.
 - (a) Using a screwdriver wrapped with protective tape, pry off the auxiliary fascia console.



- (b) Remove the connector (arrow) from center control panel.



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Installation

1. Installation is in the reverse order of removal.

Caution:

- Connect connectors in place when installing the rear defroster switch.
- Operate carefully to prevent damage to other components, when installing the rear defroster switch.
- Check if switch can be operated normally after installing rear defroster switch.