
BODY ELECTRICAL

41.1	Window/Sliding Roof	1596
1	Warnings and Precautions	1596
1.1	Warnings	1596
1.2	Precautions	1596
2	System Overview	1597
2.1	System Components Diagram	1597
2.2	System Schematic Diagram	1600
3	Component Operation Description	1600
3.1	Glass assembly	1600
3.2	Glass regulator	1600
3.3	Operation	1601
4	DIAGNOSIS & TEST	1601
4.1	Problem Symptoms Table	1601
4.2	Diagnosis procedure	1602
4.3	DTC Confirmation Procedure	1604
4.4	Intermittent DTC Troubleshooting	1604
4.5	Ground Inspection	1604
4.6	Diagnostic Trouble Code (DTC) Chart	1605
4.7	DTC Diagnosis Procedure	1605
5	ON-VEHICLE SERVICE	1624
5.1	Tools	1624
5.2	Jam Protection Learning	1624
5.3	Replacement of Front Left Door Power Glass Regulator Switch	1625
5.4	Replacement of Front Door Inner Weather Bar	1629
5.5	Replacement of Front Door Outer Weather Bar	1630
5.6	Replacement of Front Door Upper Glass Run	1631
5.7	Replacement of Front Door Glass Assembly	1632
5.8	Replacement of Front Door Glass Rear Lower Guide Rail Assembly	1633
5.9	Replacement of Front Door Power Glass Regulator	1634
5.10	Replacement of Rear Left Door Power Glass Regulator Switch	1635
5.11	Replacement of Rear Door Inner Weather Bar	1639
5.12	Replacement of Rear Door Outer Weather Bar	1640
5.13	Replacement of Rear Left Door Run	1641
5.14	Replacement of Rear Door Glass Assembly	1642
5.15	Replacement of Rear Door Power Glass Regulator	1643
5.16	Replacement of Front Windshield Assembly	1644
5.17	Replacement of Rear Windshield Assembly	1646
5.18	Replacement of Sliding Roof Switch Assembly	1650
5.19	Replacement of Sliding Roof Glass Motor	1651
5.20	Replacement of Sun Visor Motor Assembly	1652
5.21	Replacement of Sliding Roof Front Glass	1654
5.22	Replacement of Sliding Roof Rear Glass	1654
5.23	Replacement of Sliding Roof Front Left Drain Hose	1655
5.24	Replacement of Sliding Roof Front Right Drain Hose	1657

BODY ELECTRICAL

5.25	Replacement of Sliding Roof Rear Drain Hose	1658
5.26	Replacement of Sliding Roof Assembly	1660

cardiagn.com

41.1 Window/Sliding Roof

1 Warnings and Precautions

1.1 Warnings

Be sure to observe following instructions before servicing any parts in this section to avoid possible asset loss, personal injury or even death.

- (1) 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 after jam protection learning.
- (2) When removing/installing sliding roof fixing bracket, an assistant is needed to hold it. During operation, prevent the sliding roof fixing bracket from dropping, which may cause an accident.

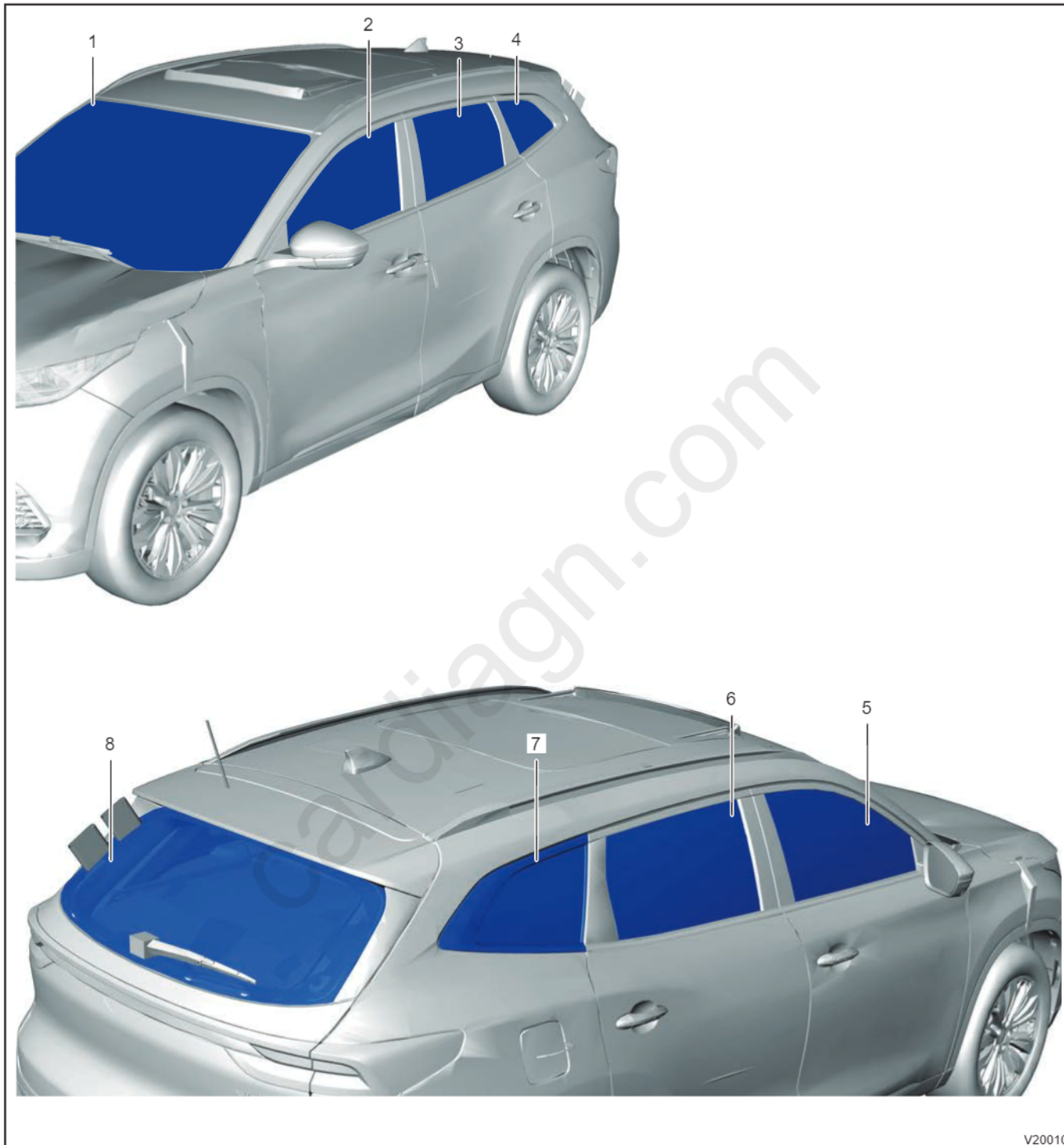
1.2 Precautions

In order to avoid dangerous operation and damage to the vehicle before repair in this section, the following instructions must be observed.

- (1) Be sure to wear safety equipment to prevent accidents, when removing glass regulator switch.
- (2) Prevent window glass from dropping which will cause damage, when removing front and rear door glass assembly.
- (3) When removing front windshield assembly, two persons are required and prevent it from dropping.
- (4) When removing rear windshield assembly, two persons are required and prevent it from dropping.
- (5) Appropriate force should be applied, when removing sliding roof front and rear glass. Be careful not to operate roughly, to avoid damage to sliding roof glass.

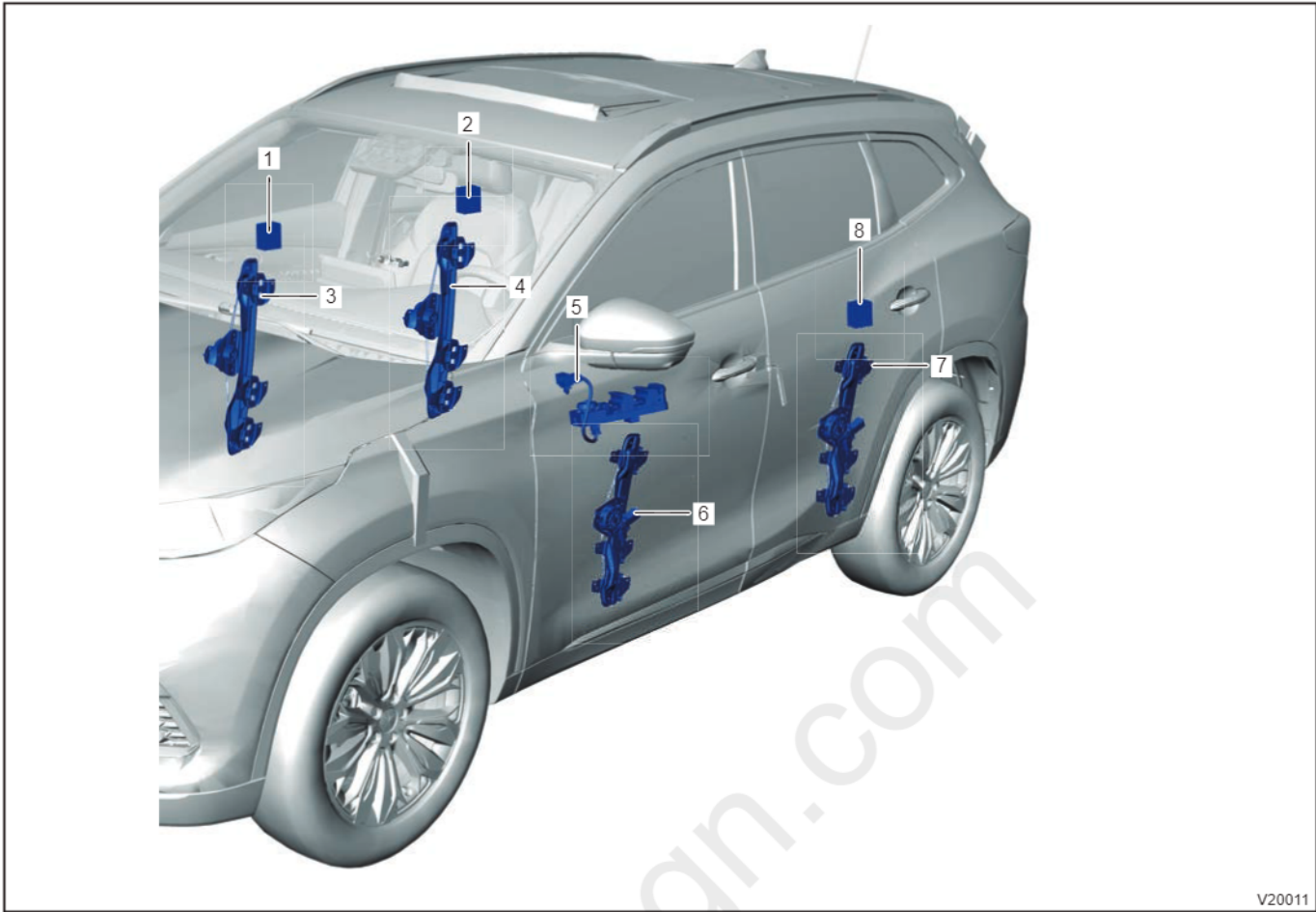
2 System Overview

2.1 System Components Diagram



V20010

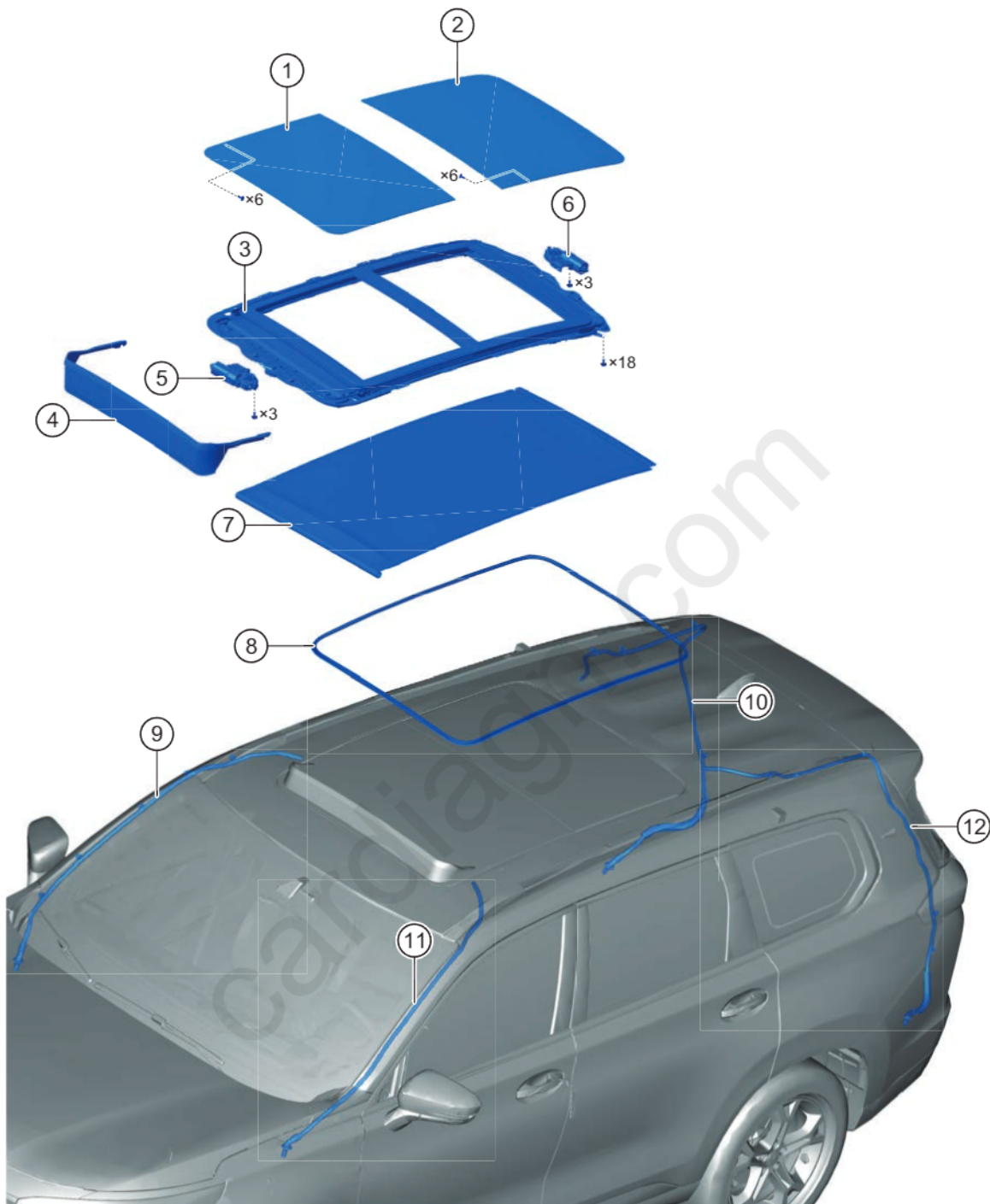
1	Front Windshield Assembly	2	Front Left Door Glass Assembly
3	Rear Left Door Glass Assembly	4	Left Triangular Window Glass Assembly
5	Front Right Door Glass Assembly	6	Rear Right Door Glass Assembly
7	Right Triangular Window Glass Assembly	8	Rear Windshield Assembly



V20011

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

Power window control system controls each window glass UP/DOWN function by operating the glass regulator 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 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.



V20140

1	Sliding Roof Front Glass Assembly	2	Sliding Roof Rear Glass Assembly
3	Sliding Roof Frame	4	Sliding Roof Wind Screen
5	Sliding Roof Glass Motor	6	Sliding Roof Sun Visor Motor
7	Sliding Roof Sun Visor Assembly	8	Sliding Roof Weatherstrip

9	Front Right Sliding Roof Drain Hose Assembly	10	Rear Right Sliding Roof Drain Hose Assembly
11	Front Left Sliding Roof Drain Hose Assembly	12	Rear Left Sliding Roof Drain Hose Assembly

On this model, panoramic sliding roof consists of sliding roof switch, sliding roof glass, electronic sun visor, glass motor, sun visor motor, control module, wire harness and sliding roof drain hose.

2.2 System Schematic Diagram

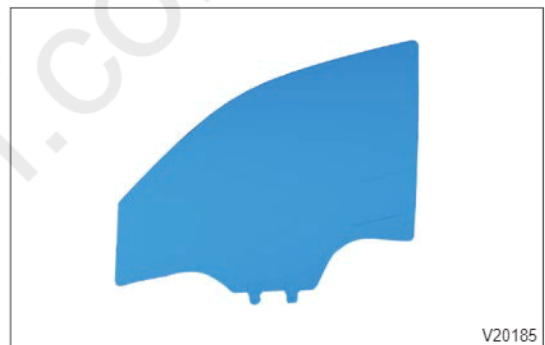
Battery provides 12 V power supply to BCM, four door glass regulator switches send UP/DOWN signals to BCM. BCM controls operation of power glass regulator. So that glass can perform UP/DOWN operation. A/C control panel sends rear defroster request signal to BCM, BCM controls rear defrost relay to engage, and rear defroster performs defrost operation. After that, BCM sends rear defroster feedback signal to A/C control panel, and A/C control panel operation indicator illuminates. Battery provides 12 V power supply to sliding roof module. When sliding roof module receives switch information, sliding roof module drive motor starts to perform open and close.

3 Component Operation Description

3.1 Glass assembly

■ Main function

Vehicle glass is indispensable in vehicle body accessories, which is mainly used to provide protective function. There are four types of vehicle glasses classified by location: Front windshield glass, side window glass, rear windshield glass and sliding roof glass.



3.2 Glass regulator

■ Main function

Vehicle glass regulator is a door accessory used to perform up and down movements of door glass in the door system. It is a special component to adjust door glass opening amount, which has a function to ensure stable operation as well as normal opening and closing operation of door glass.



3.3 Operation

■ Main component function

Components	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.

■ 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	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.

4 DIAGNOSIS & TEST

4.1 Problem Symptoms Table

Caution

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

Symptom	Suspected Area
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
Sliding roof water leakage	Sliding roof weatherstrip damaged
	Drain hose clogged or folded
	Distance between sliding roof glass and roof hole is extremely large or height of glass is poor
Wind noise from sliding roof	Poor fixation of sliding roof glass and roof
Abnormal starting and operation	Poor connection in wire harness, fuse or ground wire
	Poor sliding roof control unit, sliding roof motor
	Sun visor control unit, sun visor fault
	Improper installation position between sun visor mounting
	Sun visor comes off from guide rail
	Foreign matters in guide rail
Incorrect starting	Sun visor switch fault
	Poor sliding roof motor
	Sun visor comes off from guide rail, guide rail is scratched with trim strip after it is damaged
	Sun visor module fault
	Sun visor motor fault
Operating noise of sun visor	Operation is resisted when sun visor comes off from guide rail or trim strip is damaged
	Lack of grease in guide rail of sun visor
	Impact between drain hose and vehicle body
	Distance between sliding roof glass and roof hole is extremely large or height of glass is poor
	Sun visor mounting bracket deformed or position incorrect

4.2 Diagnosis procedure

Hint:

Use following procedures to troubleshoot the control system.

1 Vehicle brought to workshop

NEXT

2 Check battery voltage

Check if battery voltage is normal.

OK

Standard voltage: Not less than 12 V.

Result

NG

Replace battery

OK

3 Customer problem analysis

Next

4 Read DTCs

Result

Result	Go to
DTC is output	A
No DTC	B

B

Perform repair according to problem symptoms table

A

5 Read DTCs (current DTC and history DTC)

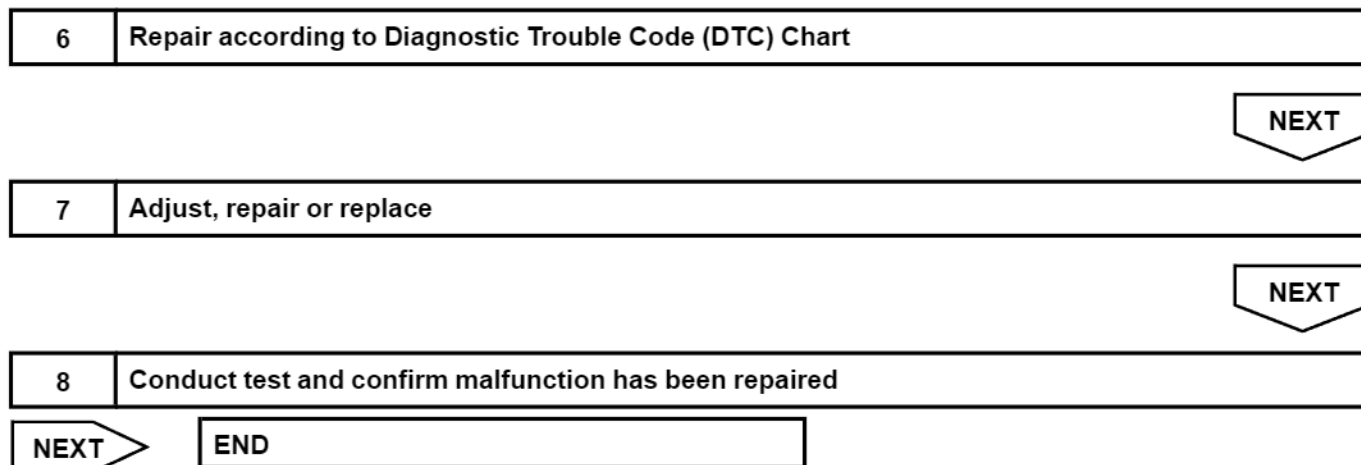
Result

Result	Go to
DTC is output	A
No DTC	B

B

Troubleshoot according to intermittent DTCs malfunction procedures

A



4.3 DTC Confirmation Procedure

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

- (1) Turn ENGINE START STOP switch to OFF.
- (2) Connect the diagnostic tester (the latest software).
- (3) Turn ENGINE START STOP switch to ON.
- (4) Use the diagnostic tester to record and clear DTCs stored in the system.
- (5) Turn ENGINE START STOP switch to OFF and wait several seconds.
- (6) Turn ENGINE START STOP switch to ON and check the DTCs in system again.
- (7) If DTC is detected, it indicates current malfunction.
- (8) If no DTC is detected, malfunction indicated by the DTC is intermittent.

4.4 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.
- Monitor diagnostic tester (the latest software) data that is related to this circuit.
- Wiggle related wire harnesses and connectors and observe if signal is interrupt in related circuit.
- If possible, try to duplicate the conditions under which DTC was set.
- Look for data that has changed or DTC to reset during wiggle test.
- Look for broken, bent, protruded or corroded terminals.
- 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.

4.5 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 operates. Circuits are very sensitive to proper grounding. A loose or corroded ground can seriously 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 contact is in good condition.
- (4) Reinstall ground bolt or nut securely.
- (5) Check if any additional accessories interfere with ground circuit.
- (6) If several wire harnesses are crimped into one ground terminal, check for proper crimp condition. Make sure that all wire harnesses are clean and securely fastened while providing a proper ground path.

4.6 Diagnostic Trouble Code (DTC) Chart

DTC	DTC Definition
B100C13	Front Left Window Circuit Open
B100C71	Front Left Window Relay Stuck
B100D13	Front Right Window Circuit Open
B100D71	Front Right Window Relay Stuck
B100E13	Rear Left Window Circuit Open
B100E71	Rear Left Window Relay Stuck
B100F13	Rear Right Window Circuit Open
B100E71	Rear Left Window Relay Stuck
B100F13	Rear Right Window Circuit Open
B100F71	Rear Right Window Relay Stuck
B103A87	APM Controller Internal Fault
B103287	Lost Communication With APM MCU

4.7 DTC Diagnosis Procedure

DTC	B100C13	Front Left Window Circuit Open
DTC	B100C71	Front Left Window Relay Stuck

■ Description

DTC	DTC Definition	Possible Cause
B100C13	Front Left Window Circuit Open	• Ground • Line connector • Glass regulator switch • Glass regulator motor • BCM module
B100C71	Front Left Window Relay Stuck	

■ DTC Confirmation Procedure

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

- Turn ENGINE START STOP switch to OFF.
- Connect the diagnostic tester (the latest software).
- Start engine and warm it up, and then read DTC again. If DTC is detected, malfunction is current.
- If DTC is not detected, malfunction is intermittent.

Hint:

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

1	Check ground point
---	--------------------

(a) Disconnect negative battery cable, and turn ENGINE START STOP switch to OFF.

(b) Check the BCM ground point.

NG

Repair or replace ground wire harness or ground point.

OK

2 Use diagnostic tester to perform active test for window system

OK

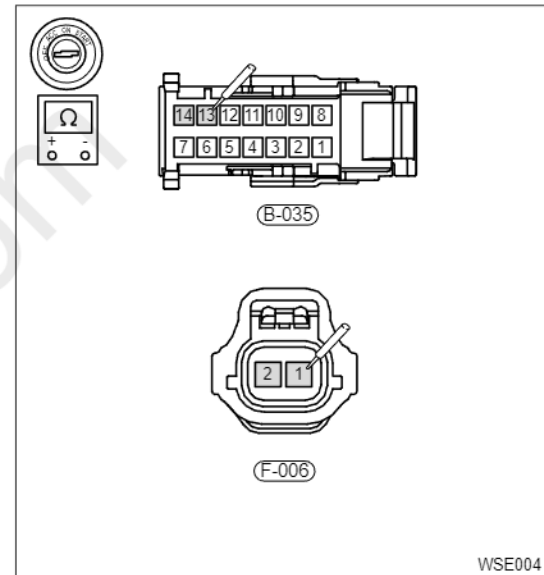
Go to step 5: Check control circuit of front left door glass.

NG

3 Check actuation circuit of front left window system

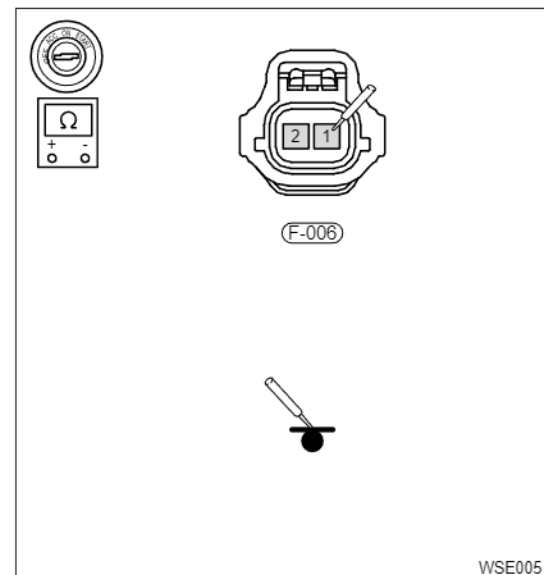
- (a) Disconnect negative battery cable, and turn ENGINE START STOP switch to OFF.
- (b) Disconnect front left door glass regulator motor wire harness connector F-006 and BCM connector B-035.
- (c) Using ohm band of multimeter, check for continuity between F-006 (1) - B-035 (13) and F-006 (2) - B-035 (14) separately.

Digital Multimeter	Condition	Specified Condition
F-006 (1) - B-035 (13)	Always	$\leq 1 \Omega$
F-006 (2) - B-035 (14)		$\leq 1 \Omega$



- (d) Using ohm band of multimeter, check for continuity between F-006 (1) and ground, F-006 (2) and ground separately to check if it is short to ground.

Digital Multimeter	Condition	Specified Condition
F-006 (1) - Ground	Always	∞
F-006 (2) - Ground		∞



- (e) Using ohm band of multimeter, check for continuity between F-006 (1) and power supply (+), F-006 (2) and power supply (+) separately to check if it is short to power supply.

Digital Multimeter	Condition	Specified Condition
F-006 (1) - Power Supply (+)	Always	∞
F-006 (2) - Power Supply (+)		∞

NG

Replace wire harness and connector.

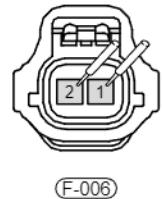
OK

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-006.
- (c) Using ohm band of multimeter, check resistance between F-006 (1) and F-006 (2).

Digital Multimeter	Condition	Specified Condition
F-006 (1) - F-006 (2)	Always	$\leq 1 \Omega$



WSE00

- (d) Apply 12 V voltage to both terminals (1) and (2) of front left window regulator motor connector F-006, and observe if regulator motor operates.

NG

Replace front left window regulator motor.

OK

Replace BCM.

5

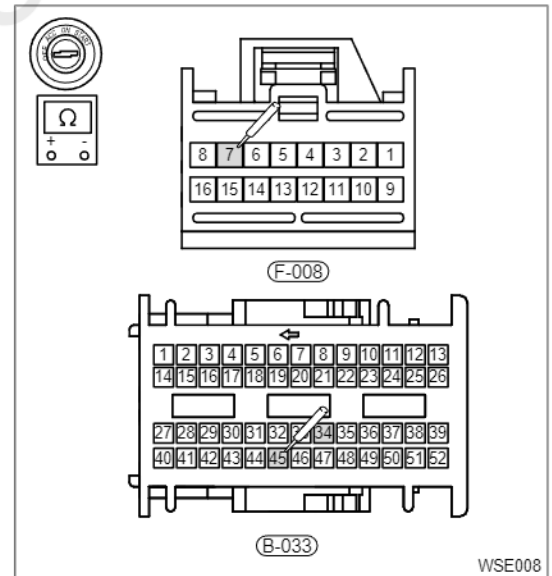
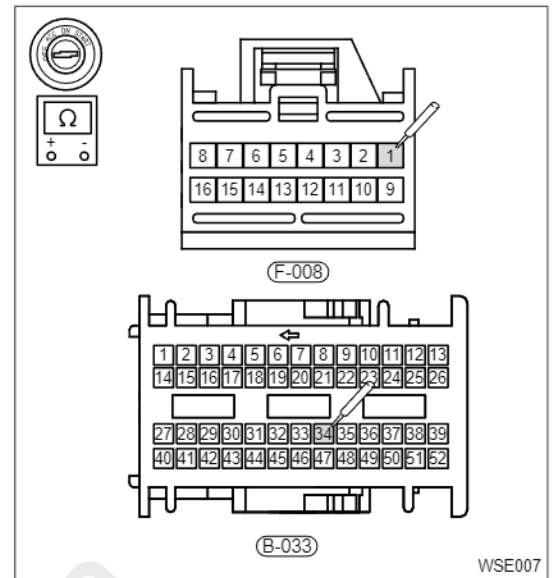
Check front left door glass control circuit

- Turn ENGINE START STOP switch to ON.
- Check if fuse MF03 (125A) of engine compartment main fuse and relay box is blown.
- Check if fuses RF52 (30A), RF51 (30A), RF54 (20A) of instrument panel fuse and relay box are blown.
- Using voltage band of multimeter, measure if the voltage of terminal C5-1, C5-2, C3-6 of front compartment fuse and relay box is 12 V.
- Using voltage band of multimeter, measure if the voltage of terminal BCM B-035 (07), B-035 (10), B-037 (20) is 12 V.
- Turn ENGINE START STOP switch to OFF, disconnect the negative battery cable.
- Disconnect front left door glass regulator switch connector F-008 and BCM connector B-033.
- Using ohm band of multimeter, check for continuity between F-008 (1) and B-033 (34).

Digital Multimeter	Condition	Specified Condition
F-008 (1) - B-033 (34)	Always	$\leq 1 \Omega$

- Using ohm band of multimeter, check for continuity between F-008 (7) and B-033 (45).

Digital Multimeter	Condition	Specified Condition
F-008 (7) - B-033 (45)	Always	$\leq 1 \Omega$



NG

Replace wire harness and connector.

OK

6

Check the front left door power glass regulator switch

- (a) Turn ENGINE START STOP switch to OFF, disconnect the negative battery cable.
- (b) Remove the front left door power regulator switch F-008.
- (c) Using ohm band of multimeter, measure resistance between front left power window regulator switch F-008 (1) and F-008 (7).

Digital Multimeter	Condition	Specified Condition
F-008 (1) - F-008 (7)	Manual DOWN	$\approx 332 \Omega$
	Automatic DOWN	$\approx 0 \Omega$
	Manual UP	$\approx 3000 \Omega$
	Auto UP	$\approx 1500 \Omega$

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

NG

Replace front left door glass regulator switch.

OK

7

Reconfirm DTCs

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

NG

Replace Body Control Module (BCM).

OK

System operates normally.

DTC	B100D13	Front Right Window Circuit Open
DTC	B100D71	Front Right Window Relay Stuck

■ Description

DTC	DTC Definition	Possible Cause
B100D13	Front Right Window Circuit Open	- Ground - Line connector - Glass regulator switch - Glass regulator motor - BCM module
B100D71	Front Right Window Relay Stuck	

■ DTC Confirmation Procedure

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

- Turn ENGINE START STOP switch to OFF.
- Connect the diagnostic tester (the latest software).
- Start engine and warm it up, and then read DTC again. If DTC is detected, malfunction is current.
- If DTC is not detected, malfunction is intermittent.

Hint:

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

1

Check ground point

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

NG

Repair or replace ground wire harness or ground point.

OK

2

Use diagnostic tester to perform active test for window system

OK

Go to step 5: Check control circuit of front left door glass.

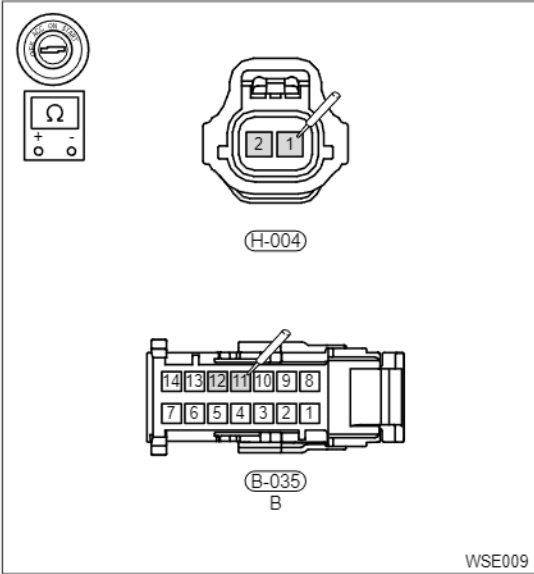
NG

3

Check actuation circuit of front left window system

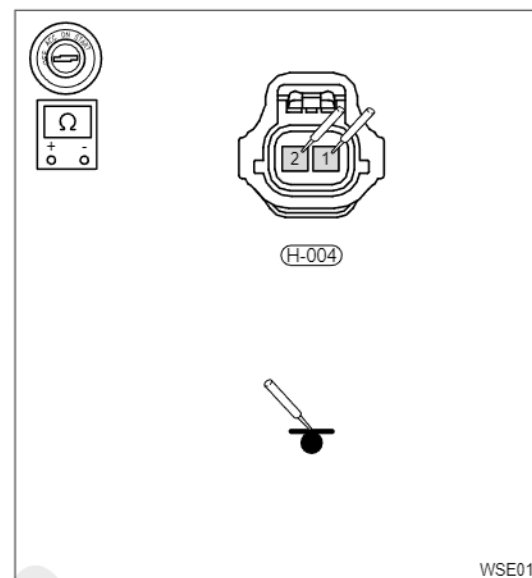
- (a) Disconnect negative battery cable, and turn ENGINE START STOP switch to OFF.
- (b) Disconnect front right door glass regulator motor connector H-004 and BCM connector B-035.
- (c) Using ohm band of multimeter, check for continuity between H-004 (1) and B-035 (11), H-004 (2) and B-035 (12) separately.

Multimeter Connection	Condition	Specified Condition
H-004 (1) - B- 035 (11)	Always	$\leq 1 \Omega$
H-004 (2) - B- 035 (12)		$\leq 1 \Omega$



- (d) Using ohm band of multimeter, check for continuity between H-004 (1) and ground, H -004 (2) and ground separately to check if it is short to ground.

Multimeter Connection	Condition	Specified Condition
H-004 (1) - Ground	Always	∞
H-004 (2) - Ground		∞



- (e) Using ohm band of multimeter, check for continuity between H-004 (1) and power supply (+), H-004 (2) and power supply (+) separately to check for short circuit to power supply.

Multimeter Connection	Condition	Specified Condition
H-004 (1) - Power Supply (+)	Always	∞
H-004 (2) - Power Supply (+)		∞

NG

Replace wire harness and connector.

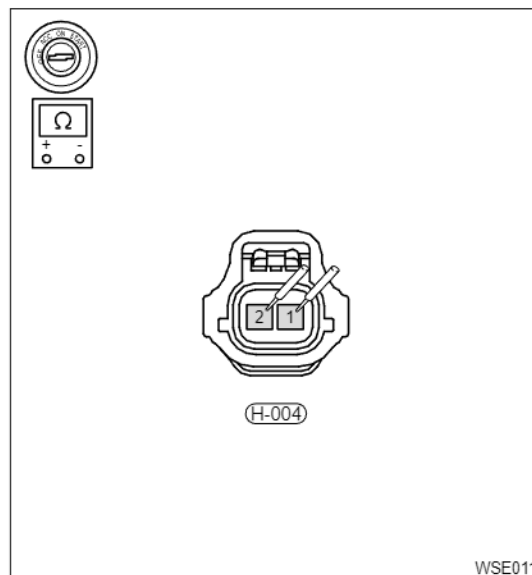
OK

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-004.
- (c) Using ohm band of multimeter, check resistance between H-004 (1) and H-004 (2).

Multimeter Connection	Condition	Specified Condition
H-004 (1) - H- 004 (2)	Always	$\leq 1 \Omega$



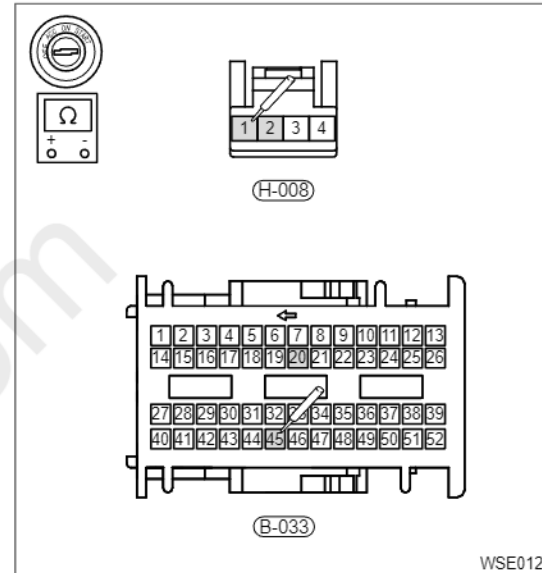
- (d) Apply 12 V voltage to terminals (1) and (2) of front right window regulator motor connector H-004, and observe if the regulator motor moves.

NG	Replace the front right window regulator motor.
OK	Replace BCM.

5 Check control circuit of front right glass regulator

- (a) Turn ENGINE START STOP switch to OFF, disconnect the negative battery cable.
- (b) Disconnect the front right door regulator switch connector H-008 and BCM connector B-033.
- (c) Using ohm band of multimeter, check for continuity between H-008 (1) and B-033 (45), H-008 (2) and B-033 (20) separately.

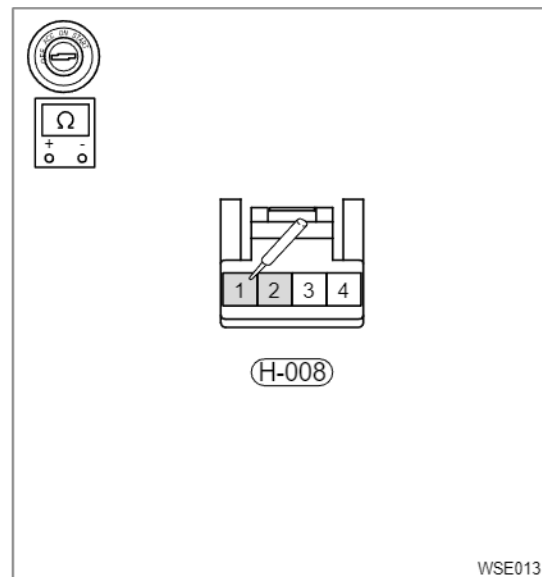
Multimeter Connection	Condition	Specified Condition
H-008 (1) - B- 033 (45)	Always	$\leq 1 \Omega$
H-008 (2) - B- 033 (20)	Always	$\leq 1 \Omega$



WSE012

- (d) Using ohm band of multimeter, check for continuity between H-008 (1) and ground, H-008 (2) and ground.

Multimeter Connection	Condition	Specified Condition
H-008 (1) - Ground	Always	∞
H-008 (2) - Ground	Always	∞



WSE013

- (e) Using ohm band of multimeter, check for continuity between H-008 (1) and battery (+), H-008 (2) and battery (+).

Multimeter Connection	Condition	Specified Condition
H-008 (1) - Power Supply (+)	Always	∞
H-008 (2) - Power Supply (+)	Always	∞

NG

Replace wire harness and connector.

OK

6

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

- (a) Turn ENGINE START STOP switch to OFF, disconnect the negative battery cable.
 (b) Remove the front left door power regulator switch F-008.
 (c) Using ohm band of multimeter, measure resistance between front left power window regulator switch F-008 (2) and F-008 (7).

Multimeter Connection	Condition	Specified Condition
F-008 (2) - F-008 (7)	Manual DOWN	$\approx 332 \Omega$
	Automatic DOWN	$\approx 0 \Omega$
	Manual UP	$\approx 3000 \Omega$
	Auto UP	$\approx 1500 \Omega$

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

NG

Replace front left door glass regulator switch.

OK

7

Check front right door power glass regulator switch

- (a) Turn ENGINE START STOP switch to "ON", disconnect the negative battery cable.
 (b) Check glass regulator switch for stuck and damage.
 (c) Remove the front right door power glass regulator switch connector H-008.
 (d) Use ohm band of multimeter to measure resistance between H-008 (1) and H-008 (2).

Multimeter Connection	Condition	Specified Condition
H-008 (1) - H-008 (2)	Manual DOWN	$\approx 332 \Omega$
	Automatic DOWN	$\approx 0 \Omega$
	Manual UP	$\approx 3000 \Omega$

Multimeter Connection	Condition	Specified Condition
	Auto UP	$\approx 1500 \Omega$

NG

Replace front right door glass regulator switch.

OK

8

Reconfirm DTCs

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

NG

Replace Body Control Module (BCM).

OK

System operates normally.

DTC	B100E13	Rear Left Window Circuit Open
DTC	B100E71	Rear Left Window Relay Stuck

■ Description

DTC	DTC Definition	Possible Cause
B100E13	Rear Left Window Circuit Open	- Ground - Line connector - Glass regulator switch - Glass regulator motor - BCM module
B100E71	Rear Left Window Relay Stuck	

■ DTC Confirmation Procedure

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

- Turn ENGINE START STOP switch to OFF.
- Connect the diagnostic tester (the latest software).
- Start engine and warm it up, and then read DTC again. If DTC is detected, malfunction is current.
- If DTC is not detected, malfunction is intermittent.

Hint:

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

1

Check ground point

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

NG

Repair or replace ground wire harness or ground point.

OK

2 Use diagnostic tester to perform active test for window system

OK

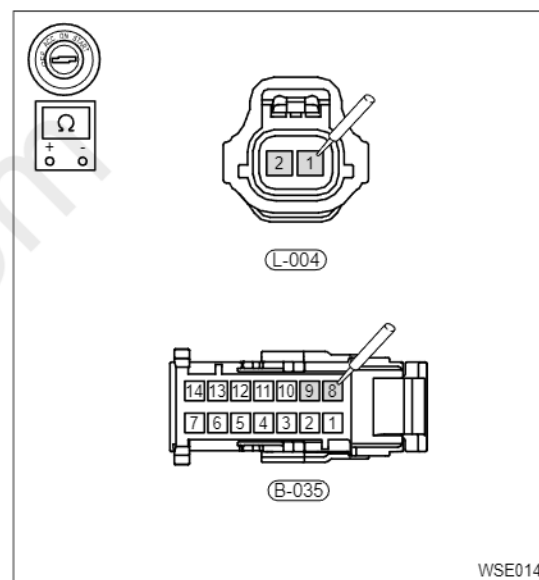
Go to step 5: Check rear left door glass control circuit.

NG

3 Check executive circuit of rear left window system

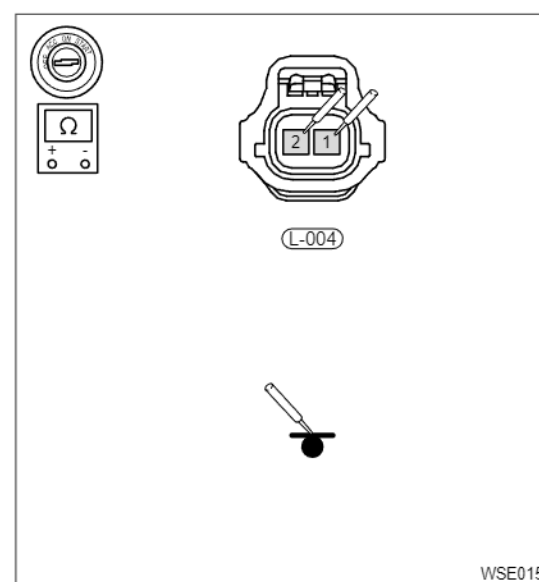
- (a) Disconnect negative battery cable, and turn ENGINE START STOP switch to OFF.
- (b) Disconnect rear left door glass regulator motor connector L-004 and BCM connector B-035.
- (c) Using ohm band of multimeter, check for continuity between L-004 (1) and B-035 (8), L-004 (2) and B-035 (9) separately.

Multimeter Connection	Condition	Specified Condition
L-004 (1) - B-035 (8)	Always	$\leq 1 \Omega$
L-004 (2) - B-035 (9)		$\leq 1 \Omega$



- (d) Using ohm band of multimeter, check for continuity between L-004 (1) and ground, L-004 (2) and ground separately to check if it is short to ground.

Multimeter Connection	Condition	Specified Condition
L-004 (1) - Ground	Always	∞
L-004 (2) - Ground		∞



- (e) Using ohm band of multimeter, check for continuity between L-004 (1) - battery (+), L-004 (2) - battery (+) separately to check for short circuit to power supply.

Multimeter Connection	Condition	Specified Condition
L-004 (1) - battery (+)	Always	∞
L-004 (2) - battery (+)		∞

NG

Replace wire harness and connector.

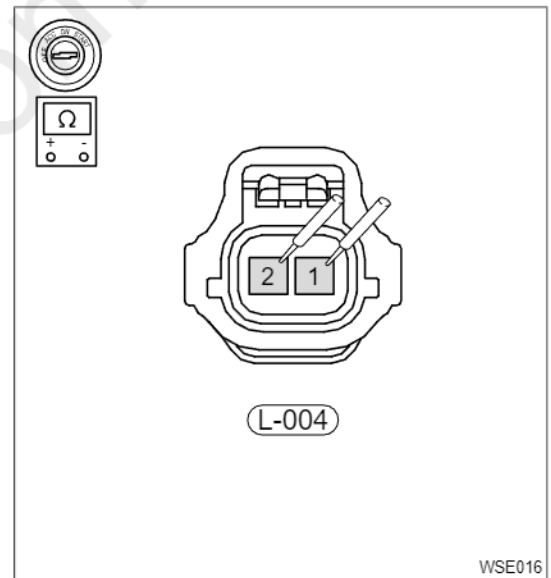
OK

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-004.
- (c) Using ohm band of multimeter, check resistance between L-004 (1) and L-004 (2).

Multimeter Connection	Condition	Specified Condition
L-004 (1) - L-004 (2)	Always	$\leq 1 \Omega$



WSE016

- (d) Apply 12 V voltage to both terminals of rear left window regulator motor connector L-004, observe if the regulator motor is moving.

NG

Replace rear left window regulator assembly.

OK

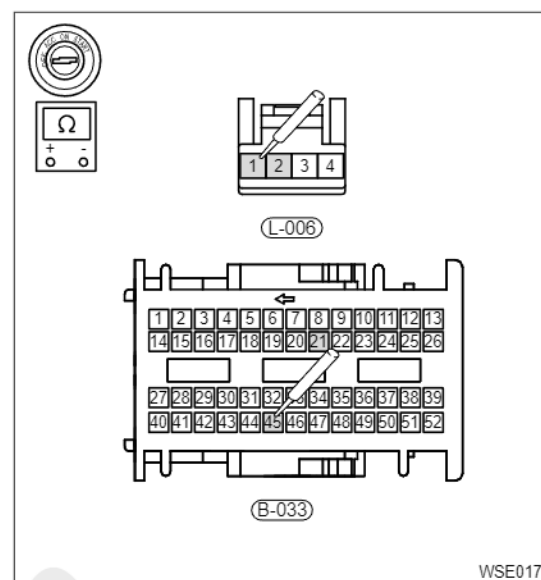
Replace BCM.

5

Check control circuit of rear left glass regulator

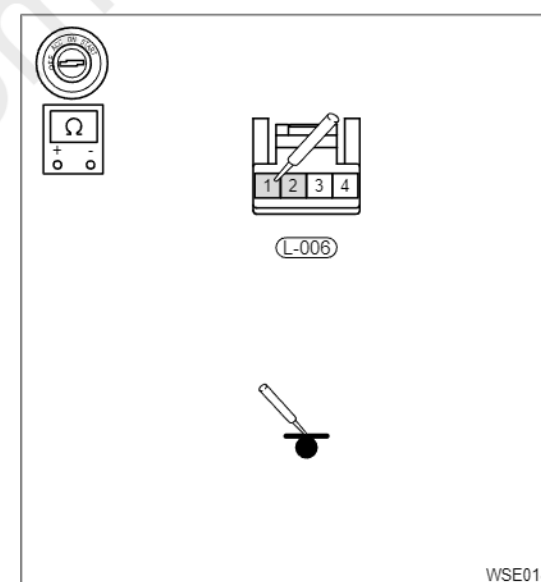
- (a) Turn ENGINE START STOP switch to OFF, disconnect the negative battery cable.
- (b) Disconnect rear left door glass regulator switch connector L-006 and BCM connector B-033.
- (c) Using ohm band of multimeter, check for continuity between L-006 (2) and B-033 (21), and L-006 (1) and B-033 (45).

Multimeter Connection	Condition	Specified Condition
L-006 (2) - B-033 (21)	Always	$\leq 1 \Omega$
L-006 (1) - B-033 (45)		$\leq 1 \Omega$



- (d) Using ohm band of multimeter, check for continuity between L-006 (1) - ground and L-006 (2) - ground to check for short circuit to ground.

Multimeter Connection	Condition	Specified Condition
L-006 (1) - Ground	Always	∞
L-006 (2) - Ground	Always	∞



- (e) Using ohm band of multimeter, check for continuity between L-006 (1) - battery (+) and L-006 (2) - battery (+) to check for short circuit to ground.

Multimeter Connection	Condition	Specified Condition
L-006 (1) - battery (+)	Always	∞
L-006 (2) - battery (+)	Always	∞

NG

Replace wire harness and connector.

OK

6

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 the front left door power glass regulator switch connector F-008.
- (c) Using ohm band of multimeter, measure resistance between F-008 (3) and F-008 (7).

Multimeter Connection	Condition	Specified Condition
F-008 (3) - F-008 (7)	Manual DOWN	$\approx 332 \Omega$
	Automatic DOWN	$\approx 0 \Omega$
	Manual UP	$\approx 3000 \Omega$
	Auto UP	$\approx 1500 \Omega$

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

NG

Replace front left door glass regulator switch assembly.

OK

7 Check rear left door power glass regulator switch

- (a) Turn ENGINE START STOP switch to OFF, disconnect the negative battery cable.
- (b) Check glass regulator switch for stuck and damage.
- (c) Remove the rear left door power glass regulator switch L-006.
- (d) Using ohm band of multimeter, measure resistance between L-006 (1) and L-006 (2).

Multimeter Connection	Condition	Specified Condition
L-006 (1) - L-006 (2)	Manual DOWN	$\approx 332 \Omega$
	Automatic DOWN	$\approx 0 \Omega$
	Manual UP	$\approx 3000 \Omega$
	Auto UP	$\approx 1500 \Omega$

NG

Replace rear left door glass regulator switch.

OK

8 Reconfirm DTCs

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

NG

Replace Body Control Module (BCM).

OK

System operates normally.

DTC	B100F13	Rear Right Window Circuit Open
DTC	B100F71	Rear Right Window Relay Stuck

■ Description

DTC	DTC Definition	Possible Cause
B100F13	Rear Right Window Circuit Open	• Ground • Line connector • Glass regulator switch • Glass regulator motor • BCM module
B100F71	Rear Right Window Relay Stuck	

■ DTC Confirmation Procedure

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

- Turn ENGINE START STOP switch to OFF.
- Connect the diagnostic tester (the latest software).
- Start engine and warm it up, and then read DTC again. If DTC is detected, malfunction is current.
- If DTC is not detected, malfunction is intermittent.

Hint:

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

1 Check ground point

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

NG

Repair or replace ground wire harness or ground point.

OK

2 Use diagnostic tester to perform active test for window system

OK

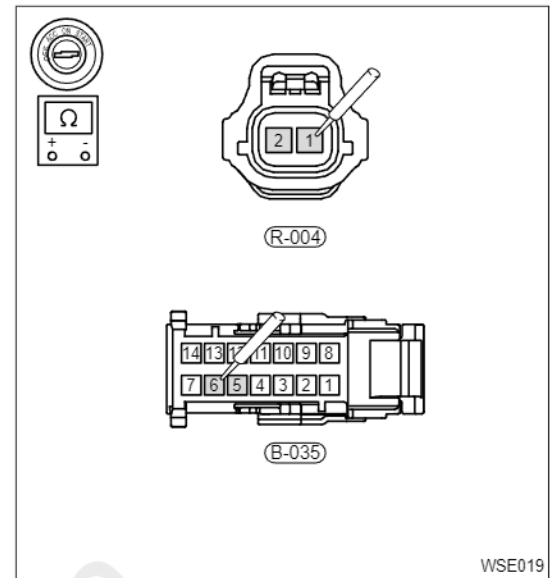
Go to step 5: Check rear right door glass control circuit.

NG

3 Check executive circuit of rear right window system

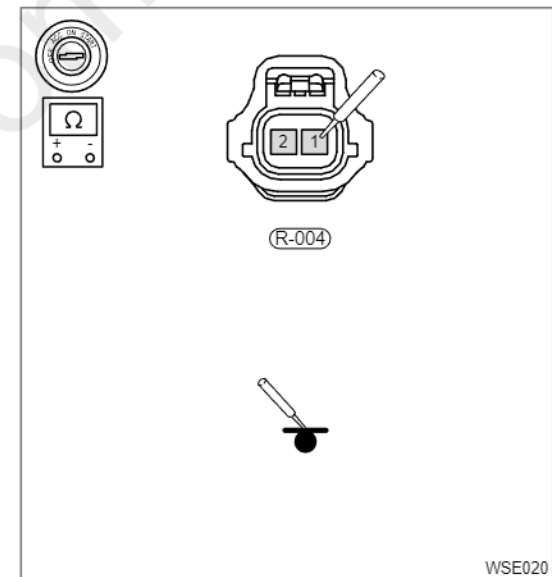
- (a) Disconnect negative battery cable, and turn ENGINE START STOP switch to OFF.
- (b) Disconnect rear right door glass regulator motor connector R-004 and BCM connector B-035.
- (c) Using ohm band of multimeter, check for continuity between R-004 (1) and B-035 (6), R-004 (2) and B-035 (5) separately.

Multimeter Connection	Condition	Specified Condition
R-004 (1) - B- 035 (6)	Always	$\leq 1 \Omega$
R-004 (2) - B- 035 (5)		$\leq 1 \Omega$



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

Multimeter Connection	Condition	Specified Condition
R-004 (1) - Ground	Always	∞
R-004 (2) - Ground		∞



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

Multimeter Connection	Condition	Specified Condition
R-004 (1) - battery (+)	Always	∞
R-004 (2) - battery (+)		∞

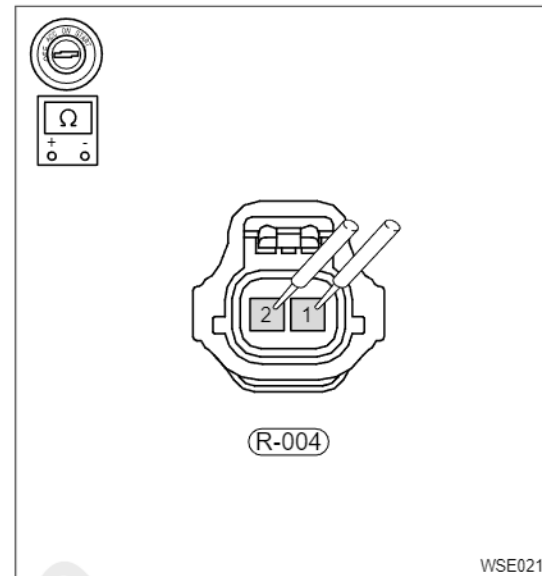
NG

Replace wire harness and connector.

OK

- (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).

Multimeter Connection	Condition	Specified Condition
R-004 (1) - R- 004 (2)	Always	$\leq 1 \Omega$



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

NG

Replace rear right window regulator motor.

OK

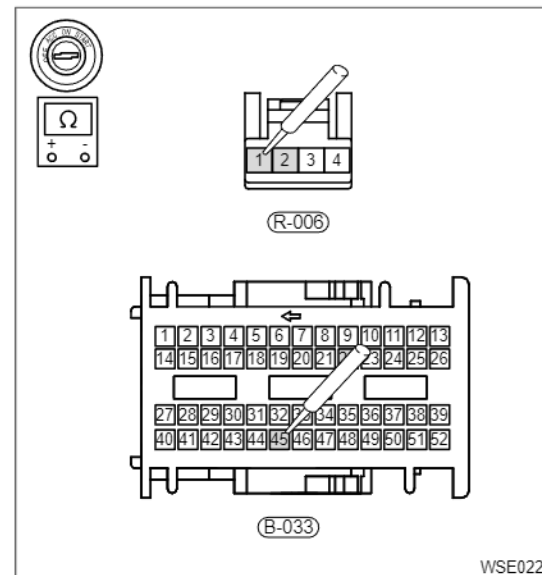
Replace BCM.

5

Check control circuit of rear right door glass regulator

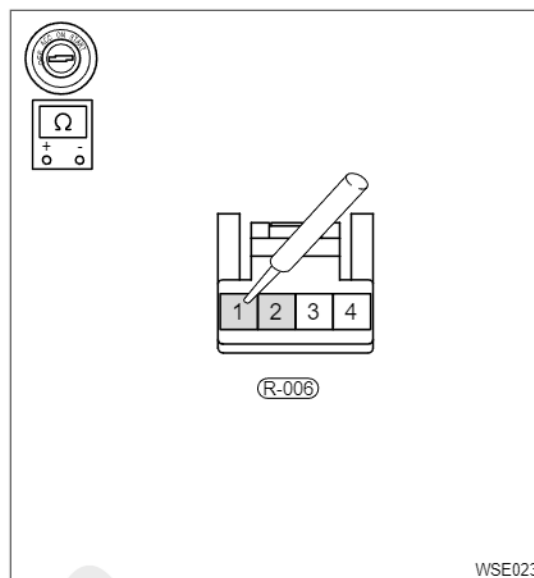
- (a) Turn ENGINE START STOP switch to OFF, disconnect the negative battery cable.
- (b) Disconnect rear right door glass regulator switch connector R-006 and BCM connector B-033.
- (c) Using ohm band of multimeter, check for continuity between R-006 (1) and B-033 (45), and R-006 (2) and B-033 (22).

Multimeter Connection	Condition	Specified Condition
R-006 (1) - B- 033 (45)	Always	$\leq 1 \Omega$
R-006 (2) - B- 033 (22)		$\leq 1 \Omega$



- (d) Using ohm band of multimeter, check for continuity between R-006 (1) and ground, R-006 (2) and ground to check for short circuit to ground.

Multimeter Connection	Condition	Specified Condition
R-006 (1) - Ground	Always	∞
R-006 (2) - Ground	Always	∞



- (e) Using ohm band of multimeter, check for continuity between R-006 (1) and power supply (+), R-006 (2) - power supply (+) to check for short circuit to power supply.

Multimeter Connection	Condition	Specified Condition
R-006 (1) - battery (+)	Always	∞
R-006 (2) - battery (+)	Always	∞

NG

Replace wire harness and connector.

OK

6

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

- (a) Turn ENGINE START STOP switch to OFF, disconnect the negative battery cable.
 (b) Remove the front left door power regulator switch F-008.
 (c) Using ohm band of multimeter, measure resistance between F-008 (4) and F-008 (7).

Multimeter Connection	Condition	Specified Condition
F-008 (4) - F-008 (7)	Manual DOWN	$\approx 332 \Omega$
	Automatic DOWN	$\approx 0 \Omega$
	Manual UP	$\approx 3000 \Omega$
	Auto UP	$\approx 1500 \Omega$

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

NG

Replace front left door glass regulator switch.

OK

7 Check rear right door power glass regulator switch

- (a) Turn ENGINE START STOP switch to OFF, disconnect the negative battery cable.
- (b) Check glass regulator switch for stuck and damage.
- (c) Remove the rear right door power glass regulator switch connector R-006.
- (d) Using ohm band of multimeter, measure resistance between R-006 (1) and R-006 (2).

Multimeter Connection	Condition	Specified Condition
R-006 (1) - R- 006 (2)	Manual DOWN	$\approx 332 \Omega$
	Automatic DOWN	$\approx 0 \Omega$
	Manual UP	$\approx 3000 \Omega$
	Auto UP	$\approx 1500 \Omega$

- (e) Check glass regulator switch for stuck and damage.

NG

Replace rear right door glass regulator switch.

OK

8 Reconfirm DTCs

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

NG

Replace Body Control Module (BCM).

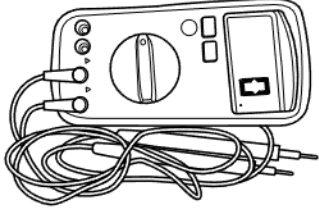
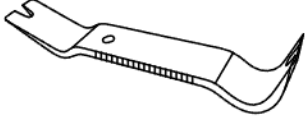
OK

System operates normally.

5 ON-VEHICLE SERVICE

5.1 Tools

■ General Tool

Tool Name	Tool Drawing
Digital multimeter	 S00002
Diagnostic tester	 S00001
Interior crow plate	 S00020

5.2 Jam Protection Learning

Jam protection learning

■ 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 will cut power regardless of work or non-work status.
- (3) Window position calculation judged by system exceeds limit value (Including over 15 times of window up/down not fully closed operations).
- (4) If there is obstacle as window closes within 10 seconds for first jam protection rollback, jam protection function will be activated again, and window will reverse automatically. At this time, only manual window UP function operates. Window provides maximum closing force within 10 seconds, to make window be closed smoothly in some extreme cases. Please make sure there is no obstacle during closing, avoiding personal injury.

■ Jam protection function manual learning (jam protection module initialization)

- (1) 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.

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

- Turn ENGINE START STOP switch to ON mode.
 - Operate window glass to raise until reaching top manually and lock it for 2 seconds.
 - Release the switch.
 - Operate window glass to go down until reaching bottom manually and keep it lock for 2 seconds.
 - Release the switch.
 - Try the auto window UP function.
 - If window cannot close automatically, please repeat the above steps to set.
 - It is necessary to perform diagnostic tester learning when replacing door regulating system related mechanisms (such as glass regulator, glass run etc.), to make sure system parameters can be updated. After completing learning, clear the fault codes using diagnostic tester.
- (2) Perform setting with smart key remote one-button window up function. Lower the window to the bottom, then raise it to the top. Window can be closed normally and setting is successful.

5.3 Replacement of Front Left Door Power Glass Regulator Switch

■ Removal

Hint

- **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 front door inner protector assembly from being scratched, when removing front left door glass regulator switch.**

- (1) Turn off all electrical equipment and ENGINE START STOP switch.
- (2) Disconnect the negative battery cable.
- (3) Using a interior crow plate, carefully remove front door triangular block assembly.



V20187

- (4) Using an interior crow plate, carefully pry off front door protector block cover.

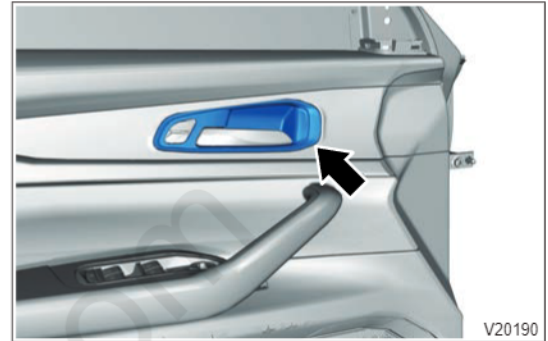


V20188

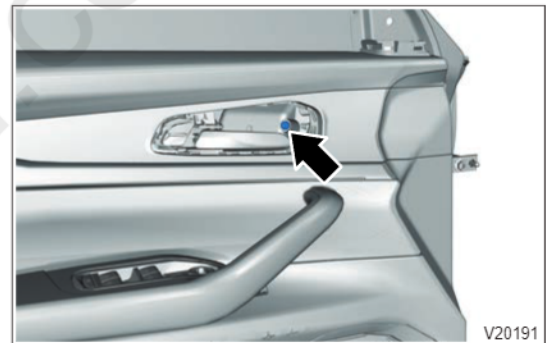
- (5) Remove fixing bolt from the rear side of front door protector block cover.



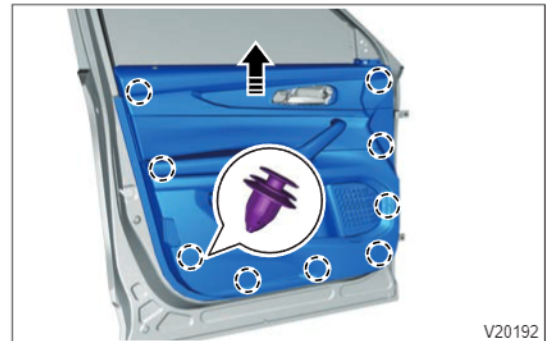
- (6) Remove the front door protector and disconnect the central control switch connector.



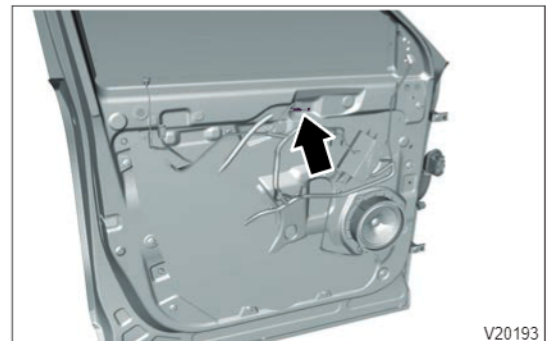
- (7) Remove fixing bolt from the rear side of front door protector.



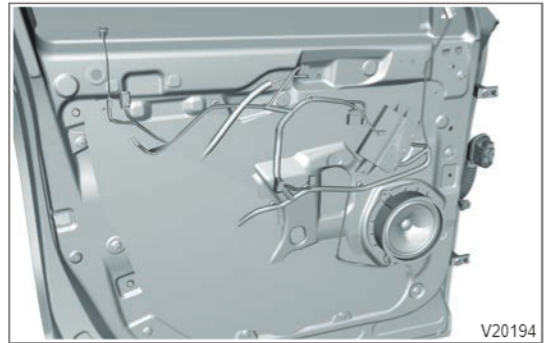
- (8) Using an interior crow plate, carefully pry off clips on front door inner protector assembly, and loosen front door inner protector assembly in direction of arrow as shown in illustration.



- (9) Disengage front door inside handle cable from front door inside handle.



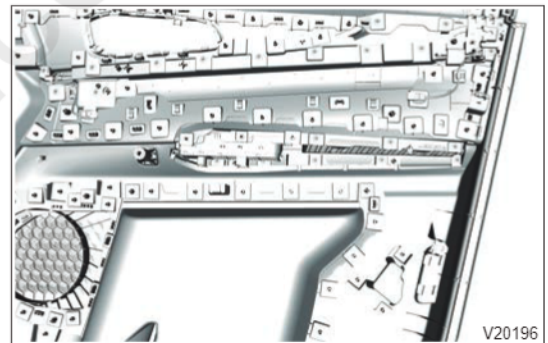
- (10) Disconnect ambient light connector, anti-theft indicator light connector and regulator switch connector.



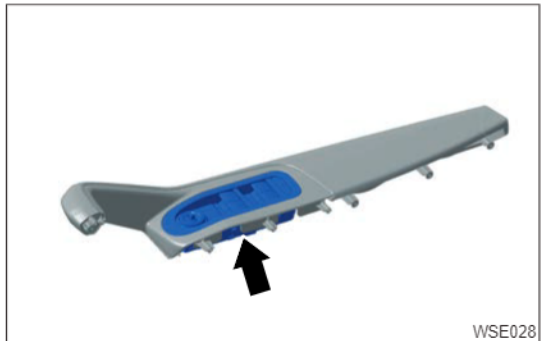
- (11) Remove the front left door protector assembly.



- (12) Remove fixing screw from power glass regulator switch that fixed on door protector assembly.



- (13) Separate the power glass regulator switch.



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



■ Inspection

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

Component	Multimeter Connection	Switch Condition	Specified Condition
Front left door glass regulator switch	1 - 7	Manual DOWN	$\approx 332 \Omega$
		Automatic DOWN	$\approx 0 \Omega$
	1 - 7	Manual UP	$\approx 3000 \Omega$
		Auto UP	$\approx 1500 \Omega$
Front right door glass regulator switch	2 - 7	Manual DOWN	$\approx 332 \Omega$
		Automatic DOWN	$\approx 0 \Omega$
	2 - 7	Manual UP	$\approx 3000 \Omega$
		Auto UP	$\approx 1500 \Omega$
Rear left door glass regulator switch	3 - 7	Manual DOWN	$\approx 332 \Omega$
		Automatic DOWN	$\approx 0 \Omega$
	3 - 7	Manual UP	$\approx 3000 \Omega$
		Auto UP	$\approx 1500 \Omega$
Rear right door glass regulator switch	4 - 7	Manual DOWN	$\approx 332 \Omega$
		Automatic DOWN	$\approx 0 \Omega$
	4 - 7	Manual UP	$\approx 3000 \Omega$
		Auto UP	$\approx 1500 \Omega$

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

■ Installation

Caution

- Check if front left door glass regulator switch can be operated normally after installation.

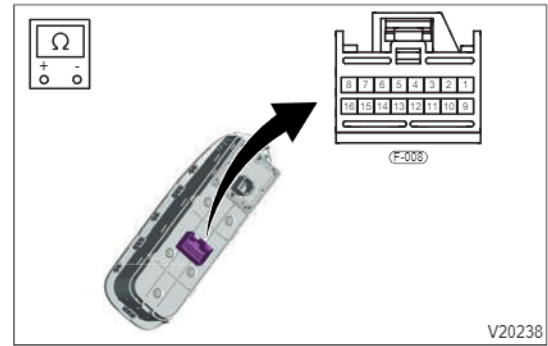
- (1) Install power glass regulator switch to proper position of door protector handle.
- (2) Install fixing screw to door protector handle.

Tightening torque: $1.5 \pm 0.5 \text{ N}\cdot\text{m}$

- (3) Install door protector handle to proper position of door protector, and install fixing bolt.

Tightening torque: $1.5 \pm 0.5 \text{ N}\cdot\text{m}$

- (4) Connect ambient light connector, anti-theft indicator light connector and regulator switch connector.



- (5) Install front door inside handle cable to front door inside handle.
- (6) Install front door inner protector to proper position of body panel and fasten the clip.
- (7) Install fixing bolt to rear side of front door protector.

Tightening torque: $5 \pm 1.0 \text{ N}\cdot\text{m}$

- (8) Install front door protector and connect central control switch connector.
- (9) Install fixing bolt to rear side of front door protector block cover.

Tightening torque: $5 \pm 1.0 \text{ N}\cdot\text{m}$

- (10) Install the front door protector block cover.
- (11) Install the front door triangular block assembly.
- (12) Connect the negative battery cable.

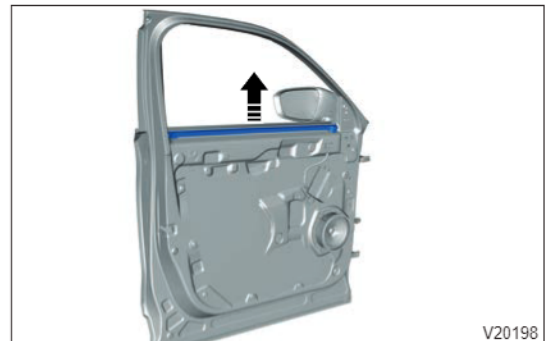
5.4 Replacement of Front Door Inner Weather Bar

■ Removal

Caution

- **Be sure to wear safety equipment to prevent accidents, when removing front door inner weather bars.**
- **Appropriate force should be applied when removing front door inner weather bars. Be careful not to operate roughly.**
- **Try to prevent body paint surface from being scratched, when removing front door inner weather bars.**
- **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 front left door inner protector assembly.
- (4) Using an interior crow plate, remove front door inner weather bar from slot in direction of arrow.



V20198

■ Installation

- (1) Install front door inner weather bar to proper position of door.
- (2) Install the front left door inner protector assembly.
- (3) Install the negative battery cable.

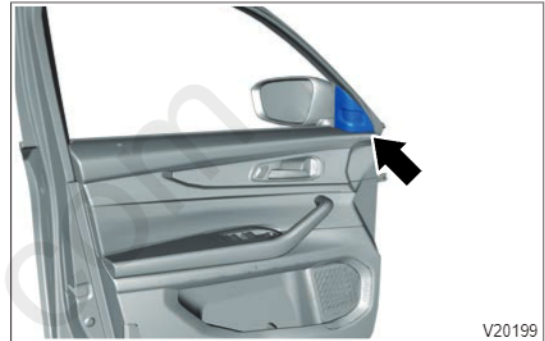
5.5 Replacement of Front Door Outer Weather Bar

■ Removal

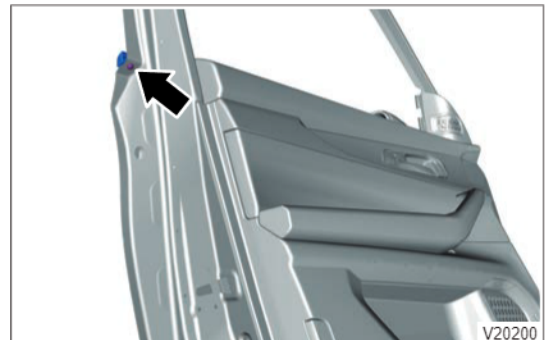
CAUTION

- Be sure to wear safety equipment to prevent accidents, when removing front door outer weather bars.
- Appropriate force should be applied when removing front door outer weather bars. Be careful not to operate roughly.
- Try to prevent body paint surface from being scratched, when removing front door outer weather bars.
- Use same procedures for right and left sides, procedures listed below are for left side.

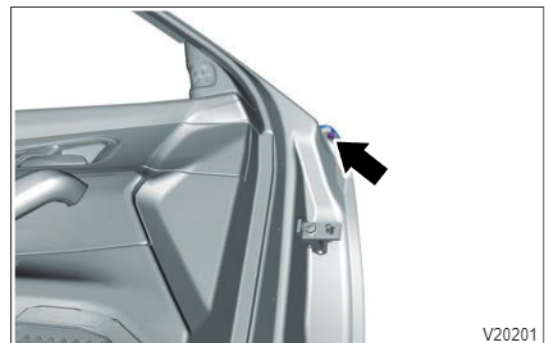
- (1) Turn off all electrical equipment and the ENGINE START STOP switch.
- (2) Disconnect the negative battery cable.
- (3) Remove the front door inner triangular block assembly.



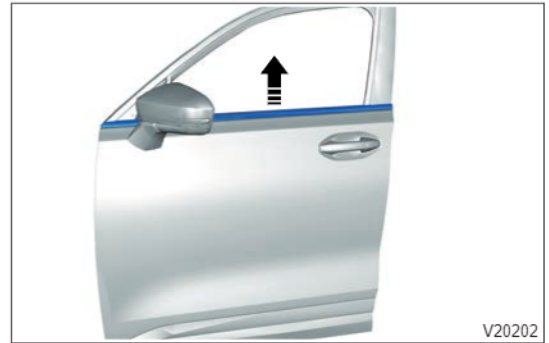
- (4) Remove 1 fixing screw from front left triangular block assembly.
- (5) Using a interior crow plate, carefully pry off front left triangular block assembly.
- (6) Remove 1 fixing screw from left side of front left door outer weather bar.



- (7) Remove 1 fixing screw from right side of front left door outer weather bar.



- (8) Using an interior crow plate, remove front door outer weather bar from slot in direction of arrow.



■ Installation

- (1) Install front door outer weather bar to proper position of door.
- (2) Install 2 fixing screws to front left door outer weather bar.

Tightening torque: $1.5 \pm 0.5 \text{ N}\cdot\text{m}$

- (3) Install the front left triangular block assembly.
- (4) Install 1 fixing screw to front left triangular block assembly.

Tightening torque: $1.5 \pm 0.5 \text{ N}\cdot\text{m}$

- (5) Install the front door inner triangular block assembly.
- (6) Connect the negative battery cable.

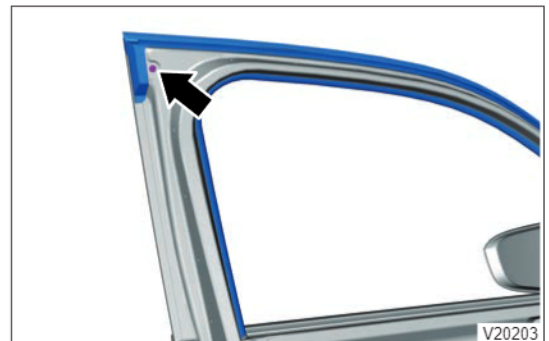
5.6 Replacement of Front Door Upper Glass Run

■ Removal

Caution

- Be sure to wear safety equipment to prevent accidents, when removing upper glass run.
- Appropriate force should be applied when removing upper glass run. Be careful not to operate roughly.
- Try to prevent body paint surface from being scratched, when removing upper glass run.
- 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 front left door inner protector assembly.
- (4) Remove the front left door weather bar.
- (5) Remove the front door glass assembly.
- (6) Remove 1 fixing screw from front door upper glass run.



- (7) Remove front left door upper glass run from slot in direction of arrow as shown in illustration.



■ Installation

- (1) Install upper glass run to proper position of door.
- (2) Install 1 fixing screw to front door upper glass run.

Tightening torque: $1.5 \pm 0.5 \text{ N}\cdot\text{m}$

- (3) Install the front door glass assembly.
- (4) Install the front left door weather bar.
- (5) Install the front left door inner protector assembly.
- (6) Connect the negative battery cable.

5.7 Replacement of Front Door Glass Assembly

■ Removal

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.**
- **Try to prevent window glass from dropping which will cause damage, when removing front door glass assembly.**
- **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 front left door inner protector assembly.
- (4) Remove the front left door protective film assembly.
- (5) Remove the front left door weather bar.
- (6) Raise front door glass assembly to a proper position.
- (7) Remove 2 fixing bolts from glass bracket and remove front left door glass assembly.



■ Installation

- (1) Install front door glass to proper position of door and install 2 fixing bolts to glass bracket.

Tightening torque: 7 ± 1 N·m

Caution

- **When it is installed in place, power on the regulator to operate it for two cycles. Check if glass runs smoothly.**

- (2) Install the front left door weather bar.
- (3) Install the front left door protective film assembly.
- (4) Install the front left door inner protector assembly.
- (5) Connect the negative battery cable.

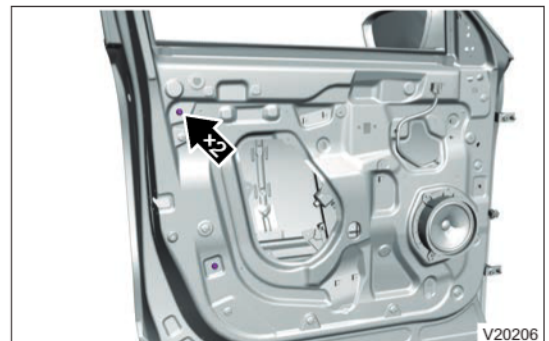
5.8 Replacement of Front Door Glass Rear Lower Guide Rail Assembly

■ Removal

Caution

- **Be sure to wear safety equipment to prevent accidents, when removing front door glass rear lower guide rail assembly.**
- **Appropriate force should be applied when removing front door glass rear lower guide rail assembly. Be careful not to operate roughly.**
- **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 front left door inner protector assembly.
- (4) Remove the front left door protective film assembly.
- (5) Remove the front left door weather bar.
- (6) Remove the front left door glass assembly.
- (7) Remove 2 fixing bolts from front door glass rear lower guide rail assembly.



■ Installation

Caution

Check guide rail before assembling. Direction of lower guide rail tongue should be parallel to guide rail body.

- (1) Install front door glass rear lower guide rail assembly to proper position of vehicle body.
- (2) Installation 2 fixing bolts of front door glass rear lower guide rail assembly.

Tightening torque: 7 ± 1 N·m

- (3) Install the front left door glass assembly.
- (4) Install the front left door weather bar.
- (5) Install the front left door protective film assembly.
- (6) Install the front left door inner protector assembly.
- (7) Connect the negative battery cable.

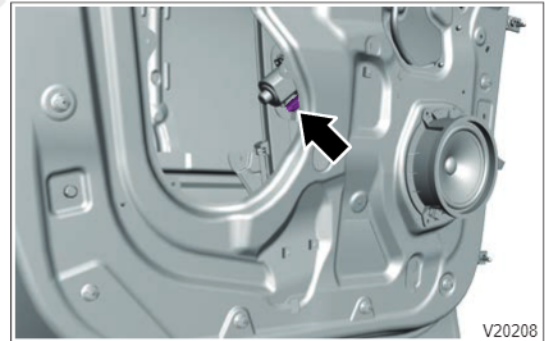
5.9 Replacement of Front Door Power Glass Regulator

■ Removal

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

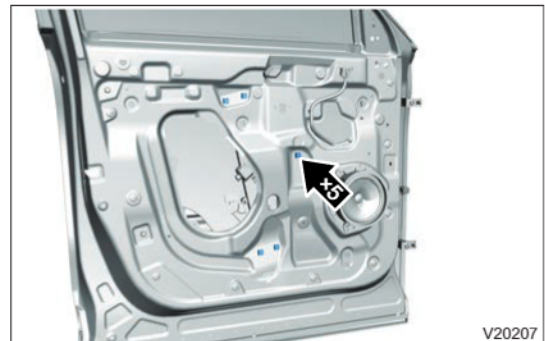
- (1) Turn off all electrical equipment and the ENGINE START STOP switch.
- (2) Disconnect the negative battery cable.
- (3) Remove the front left door inner protector assembly.
- (4) Remove the front left door protective film assembly.
- (5) Remove the front left door weather bar.
- (6) Remove the front left door glass assembly.
- (7) Disconnect the front left door power glass regulator connector.



- (8) Remove 5 fixing nuts from front left door power glass regulator, and remove front left door power glass regulator assembly.

Caution

Hold the glass regulator assembly with one hand when removing the last nut to avoid falling and damaging the motor.

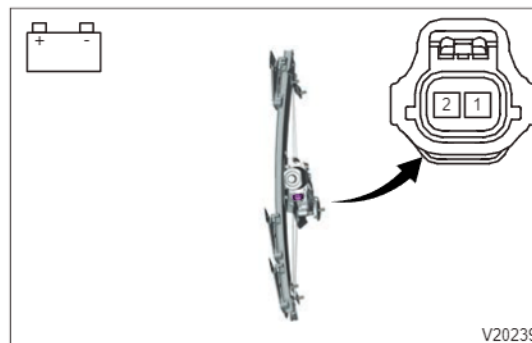


■ Inspection

- (1) 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 table below.

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

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



V20239

■ Installation

Caution

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

- (1) Install the power glass regulator to proper position of the door.
- (2) Install 5 fixing nuts to front door power glass regulator.

Tightening torque: $9 \pm 1.5 \text{ N}\cdot\text{m}$

Caution

Hold the glass regulator assembly with one hand when installing the first nut to avoid falling and damaging the motor.

- (3) Connect the front door power glass regulator connector.
- (4) Install the front left door glass assembly.
- (5) Install the front left door weather bar.
- (6) Install the front left door protective film assembly.
- (7) Install the front left door inner protector assembly.
- (8) Connect the negative battery cable.

5.10 Replacement of Rear Left Door Power Glass Regulator Switch

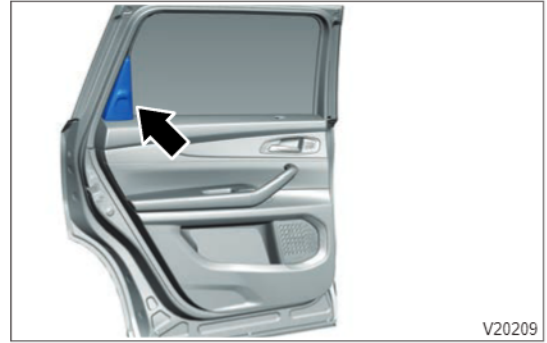
■ Removal

Warning

- **Be sure to wear safety equipment to prevent accidents, when removing power glass regulator switch.**
- **Appropriate force should be applied when removing power 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.**
- **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 inside triangular block assembly.



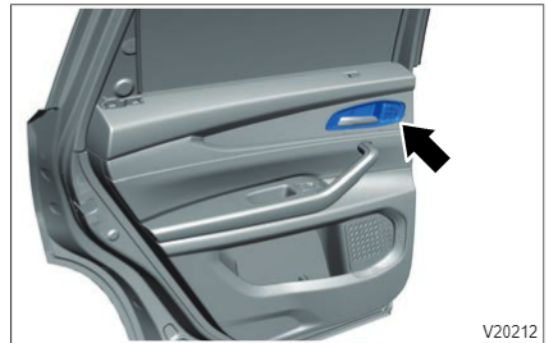
- (4) Remove the rear left door protector block cover (middle).



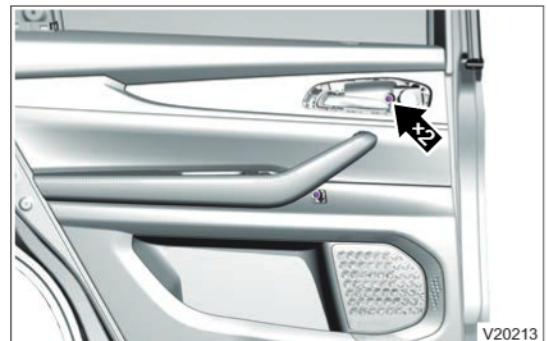
- (5) Remove the rear left door handle box block cover.



- (6) Remove the rear left door front cover.



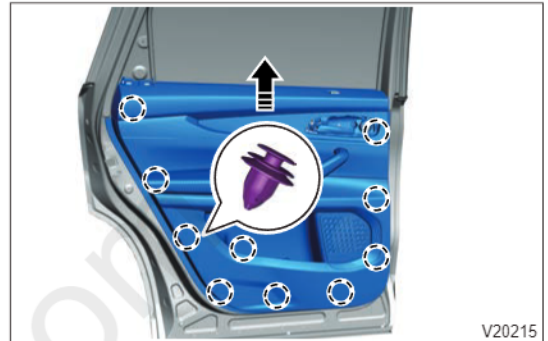
- (7) Remove rear left door front cover and rear left door protector block cover (middle) rear fixing bolt.



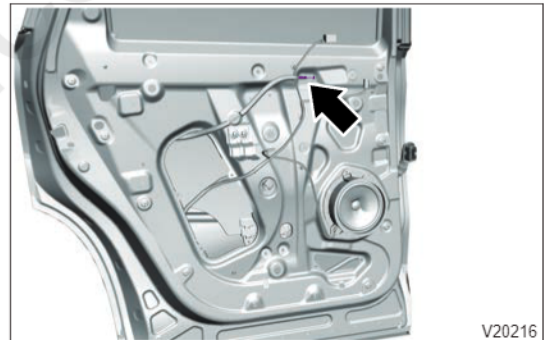
- (8) Remove fixing screw from rear side of rear left door handle box block cover.



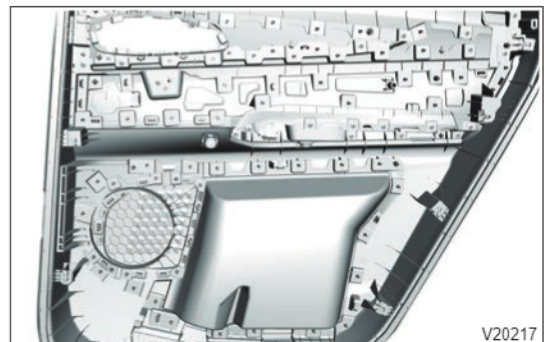
- (9) Using an interior crow plate, pry up clips on rear door inner protector assembly, and remove rear door inner protector assembly in direction of arrow as shown in illustration.



- (10) Disengage rear door inside handle cable from rear door inside handle.



- (11) Disconnect DOW, high pitched horn and glass regulator switch wire harness connector.
- (12) Remove fixing screw from power glass regulator switch that fixed on door protector assembly.



- (13) Remove the fixing screws.
- (14) Separate the power glass regulator switch.
- (15) Using a screwdriver wrapped with protective tape, detach 4 claws from power glass regulator switch and remove the power glass regulator switch.

■ Inspection

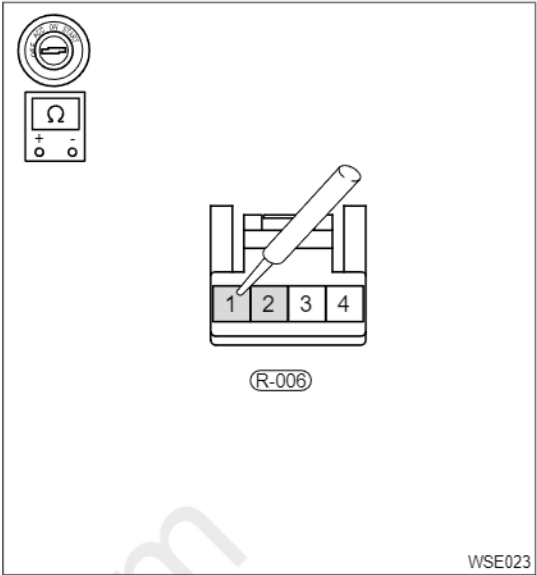
- (1) Using a digital multimeter, measure continuity between terminals of three power glass regulator switches according to table below.

Component	Multimeter Connection	Switch Condition	Specified Condition
Front right door glass regulator switch	2 - 1	Manual DOWN	$\approx 332\ \Omega$
		Automatic DOWN	$\approx 0\ \Omega$
	2 - 1	Manual UP	$\approx 3000\ \Omega$
		Auto UP	$\approx 1500\ \Omega$
Rear left door glass regulator switch	2 - 1	Manual DOWN	$\approx 332\ \Omega$
		Automatic DOWN	$\approx 0\ \Omega$
	2 - 1	Manual UP	$\approx 3000\ \Omega$
		Auto UP	$\approx 1500\ \Omega$
Rear right door glass regulator switch	2 - 1	Manual DOWN	$\approx 332\ \Omega$
		Automatic DOWN	$\approx 0\ \Omega$
	2 - 1	Manual UP	$\approx 3000\ \Omega$
		Auto UP	$\approx 1500\ \Omega$

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

■ Installation

Caution
Check if rear left door glass regulator switch can be operated normally after installation.



- (1) Install power glass regulator switch to proper position of door protector handle.

- (2) Install 2 fixing screws.

Tightening torque: $1.5 \pm 0.5 \text{ N}\cdot\text{m}$

- (3) Install door protector handle to proper position of door protector, and install 16 fixing screws.

Tightening torque: $1.5 \pm 0.5 \text{ N}\cdot\text{m}$

- (4) Install rear left door protector assembly to proper position of door and connect DOW, high pitched horn and glass regulator switch wire harness connector.

- (5) Connect rear door inside handle cable to rear door inside handle.

- (6) Align with the clip and press door protector firmly.

- (7) Install the fixing screw to rear side of rear left door handle box block cover.

Tightening torque: $1.5 \pm 0.5 \text{ N}\cdot\text{m}$

- (8) Install rear left door front cover and rear left door protector block cover (middle) rear fixing bolt.

Tightening torque: $5 \pm 1.0 \text{ N}\cdot\text{m}$

- (9) Install the rear left door front cover.

- (10) Install the rear left door handle box block cover.

- (11) Install the rear left door protector block cover (middle).

- (12) Install the rear left door inner triangular block assembly.

- (13) Connect the negative battery cable.

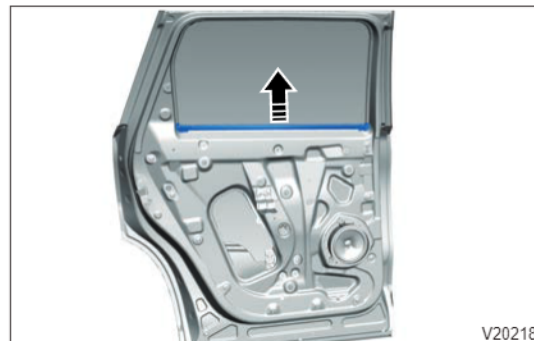
5.11 Replacement of Rear Door Inner Weather Bar

■ Removal

Warning

- **Be sure to wear safety equipment to prevent accidents, when removing rear door inner weather bars.**
- **Appropriate force should be applied when removing rear door inner weather bars. Be careful not to operate roughly.**
- **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.
- (4) Using an interior crow plate, remove rear door inner weather bar from slot in direction of arrow.



V20218

■ Installation

- (1) Install rear door inner weather bar to proper position of door.
- (2) Install the rear left door inner protector assembly.
- (3) Connect the negative battery cable.

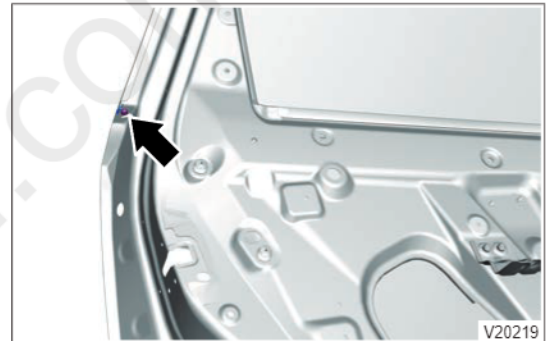
5.12 Replacement of Rear Door Outer Weather Bar

■ Removal

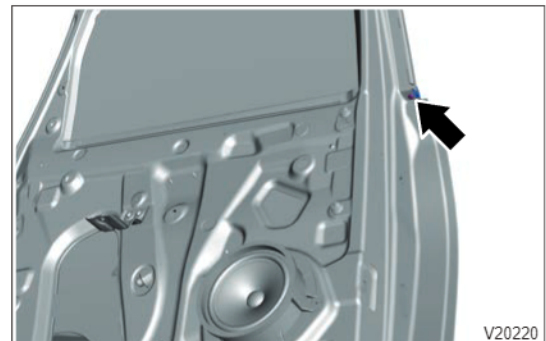
Warning

- **Be sure to wear safety equipment to prevent accidents, when removing rear door outer weather bars.**
- **Appropriate force should be applied when removing rear door outer weather bars. Be careful not to operate roughly.**
- **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 1 fixing screw from left side of rear door outer weather bar.



- (4) Remove 1 fixing screw from right side of rear door outer weather bar.



- (5) Using an interior crow plate, remove rear door outer weather bar from slot in direction of arrow.



■ Installation

- (1) Install rear door outer weather bar to proper position of door.
- (2) Install 1 fixing screw to right side of rear door outer weather bar.

Tightening torque: 1.5 ± 0.5 N·m

- (3) Installation 1 fixing screw to left side of rear door outer weather bar.

Tightening torque: 1.5 ± 0.5 N·m

- (4) Connect the negative battery cable.

5.13 Replacement of Rear Left Door Run

■ Removal

Warning

- 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.
- (4) Remove the rear left door glass assembly.
- (5) Remove 2 fixing screws from rear left door run.



- (6) Remove rear left door upper glass run from slot in direction of arrow as shown in illustration.



■ Installation

- (1) Install rear left door upper glass run to proper position of door.
- (2) Install 2 fixing screws to rear left door run.

Tightening torque: 1.5 ± 0.5 N·m

- (3) Install the rear left door glass assembly.
- (4) Install the rear left door frame weatherstrip.
- (5) Install the rear left door inner protector assembly.
- (6) Connect the negative battery cable.

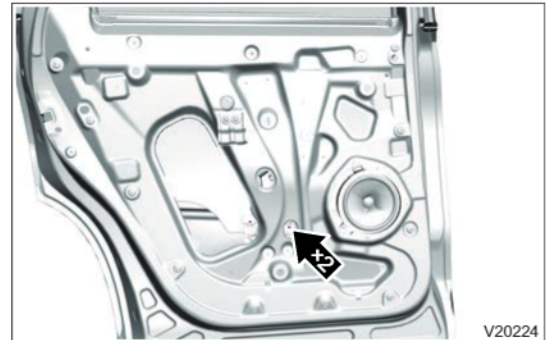
5.14 Replacement of Rear Door Glass Assembly

■ Removal

Warning

- **Be sure to wear safety equipment to prevent accidents, when removing rear door glass assembly.**
- **Appropriate force should be applied when removing rear door glass assembly. Be careful not to operate roughly.**
- **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.
- (4) Remove the rear left door protective film assembly.
- (5) Remove 2 fixing bolts from rear left door glass bracket.



- (6) Remove the rear left door glass.

■ Installation

- (1) Install rear left door glass assembly to proper position of door and install 2 fixing bolts to rear left door glass bracket.

Tightening torque: 7 ± 1 N·m

Caution

- **When it is installed in place, power on the regulator to operate it for two cycles. Check if glass runs smoothly.**
- **Lower the glass to the bottom for the subsequent installation of B pillar cover plate.**

- (2) Install the rear left door protective film assembly.
- (3) Install the rear left door inner protector assembly.
- (4) Connect the negative battery cable.

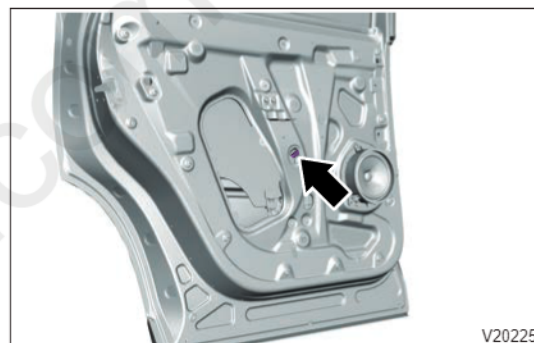
5.15 Replacement of Rear Door Power Glass Regulator

■ Removal

Warning

- **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.**
- **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.
- (4) Remove the rear left door protective film assembly.
- (5) Remove the rear left door glass assembly.
- (6) Disconnect the rear door power glass regulator connector.



- (7) Remove 5 fixing nuts from rear door power glass regulator.

Caution

Hold the glass regulator assembly with one hand when removing the last nut to avoid falling and damaging the motor.



- (8) Remove the rear door power glass regulator.

■ Installation

- (1) Install the rear door power glass regulator to proper position of door.
- (2) Install 5 fixing nuts to rear door power glass regulator.

Tightening torque: $9 \pm 1.5 \text{ N}\cdot\text{m}$

Caution

- **Hold the glass regulator assembly with one hand when installing the first nut to avoid falling and damaging the motor.**

- (3) Connect the rear door power glass regulator connector.
- (4) Install the rear left door glass assembly.
- (5) Install the rear left door protective film assembly.
- (6) Install the rear left door inner protector assembly.
- (7) Install the negative battery cable.

5.16 Replacement of Front Windshield Assembly

■ Removal

Warning

- **Be sure to wear safety equipment to prevent accidents, when removing front windshield assembly.**
- **Appropriate force should be applied when removing front windshield 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 roof assembly.

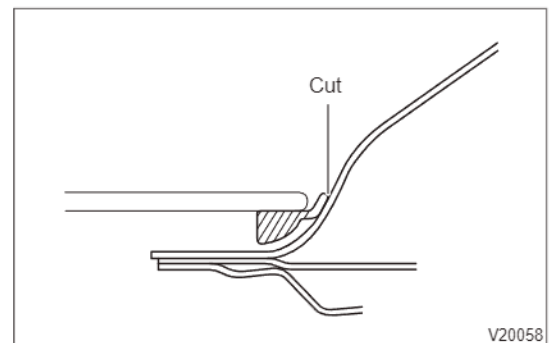
Hint

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

- (4) Remove the inside rear view mirror assembly.
- (5) Remove the wiper arm assembly.
- (6) Remove the front windshield lower support assembly.
- (7) Using a knife, cut off the adhesive.

Caution

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



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

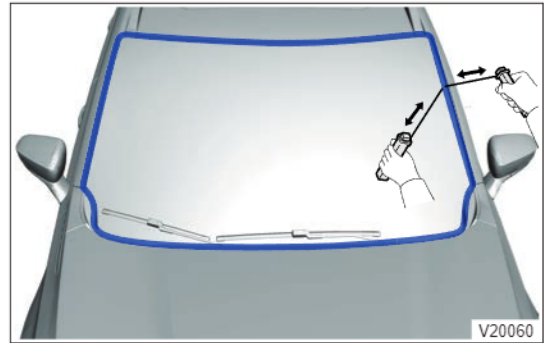
Caution

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

- (9) Pass a piano wire through the seam between body and front windshield assembly. 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

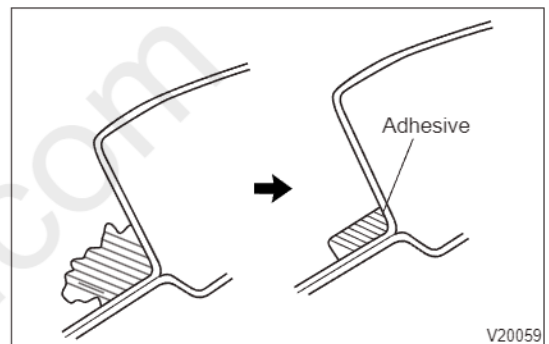
- When removing front windshield assembly, an assistant is needed.
- When removing front windshield assembly, prevent it from dropping.
- Leave as much adhesive on the body as possible when cutting off the adhesive.
- When separating front windshield assembly from vehicle, be careful not to damage body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



- (10) Clean the vehicle body. 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.



- (11) Clean the contact surface of vehicle body with cleaner.

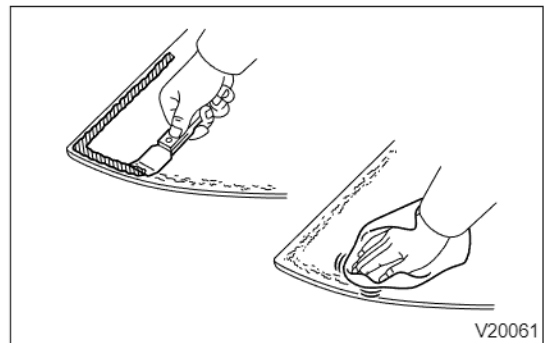
Hint

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

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

Hint

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



■ Installation

- (1) Check for small cracks or bubbles exist around windshield, and appearance defects such as scratches on the surface. Check whether any assembly part is missed. Avoid installing an unqualified windshield glass on the vehicle.
- (2) Wipe the primer area with alcohol cloth and width is $18 \approx 20$ mm.
- (3) Apply sheet metal primer (A11-4105013A) to installation area and make sure application width is $9 \approx 11$ mm (edging size: 18 mm); Do not expose it in the air before applying sheet metal primer.
- (4) Using cleaner (A11-4105017 accelerant), clean the area around gum application and make sure cleaning width is $14 \approx 16$ mm.
- (5) Apply A11-4105015 windshield primer on the application position around front windshield. Make sure application width is $12 \approx 14$ mm. Apply gum (A11-4105011) along application line, make sure the gum width is 8 ± 1 mm, height is $11.5 \text{ mm} \pm 1 \text{ mm}$, the height after being compressed is 5 mm, there is no gum leakage or fluid overflowing.
- (6) Align dowel pins of front windshield with corresponding set holes separately for windshield installation on sheet metal of top panel. Install the windshield.
- (7) Adjust glasses to left and right slightly, so as to make the clearance between glass and quarter meet the requirements of DTS; Use center positioning fixture as necessary.
- (8) Slightly tap four sides of glass to install glass in place (height after being compressed is 5 mm) and apply tape (length of tape is $150 \approx 200$ mm) to prevent glass from sliding down.
- (9) Check and repair the sealing of glass.
- (10) Install the front windshield lower trim board assembly.
- (11) Install the wiper arm assembly.
- (12) Install the inside rear view mirror assembly.
- (13) Install the roof assembly.
- (14) Connect the negative battery cable.

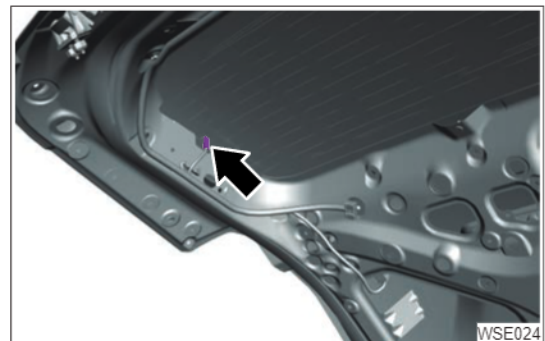
5.17 Replacement of Rear Windshield Assembly

■ Removal

Warning

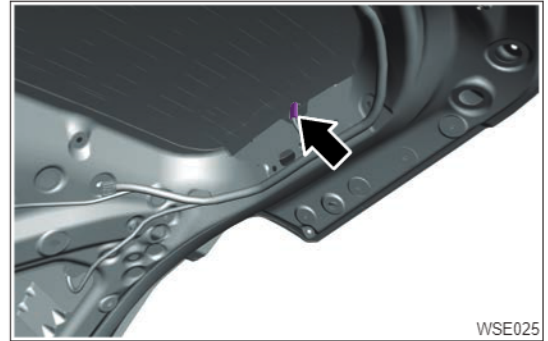
- **Be sure to wear safety equipment to prevent accidents, when removing rear windshield assembly.**
- **Appropriate force should be applied when removing rear windshield assembly. Be careful not to operate roughly.**

- (1) Turn off all electrical equipment and the ENGINE START STOP switch.
- (2) Disconnect the negative battery cable.
- (3) Remove the rear door protector assembly.
- (4) Remove the rear wiper arm assembly.
- (5) Remove the rear wiper motor assembly.
- (6) Remove the rear spoiler assembly.
- (7) Remove the defroster wire harness assembly.
- (8) Remove the left defroster connector.



WSE024

(9) Remove the right defroster connector.

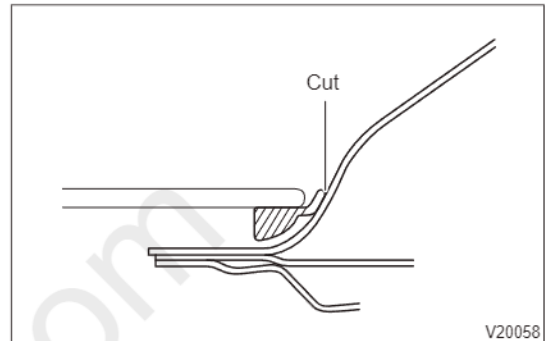


WSE025

(10) Using a knife, cut off the adhesive.

Caution

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

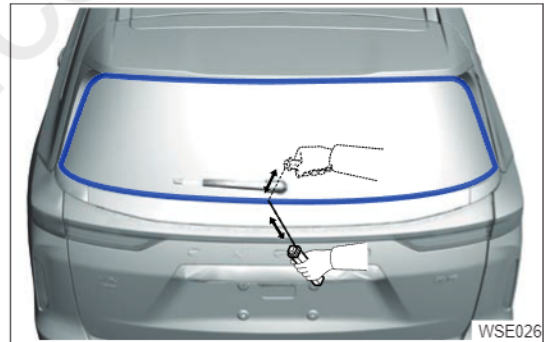


V20058

(11) Apply protective tape to the outer surface of body to prevent scratches. Pass a piano wire through the seam between vehicle body and rear windshield assembly. 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.

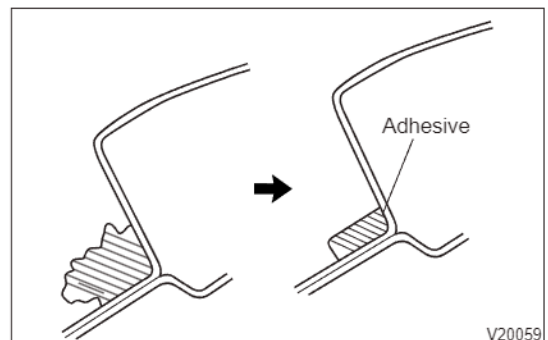


WSE026

(12) Clean the vehicle body. 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.



V20059

(13) Clean the contact surface of vehicle body with cleaner.

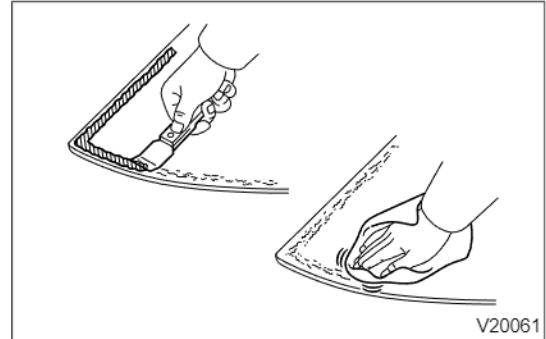
HINT

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

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

Hint

- **DO NOT touch the glass after cleaning it.**



■ Assembly order:

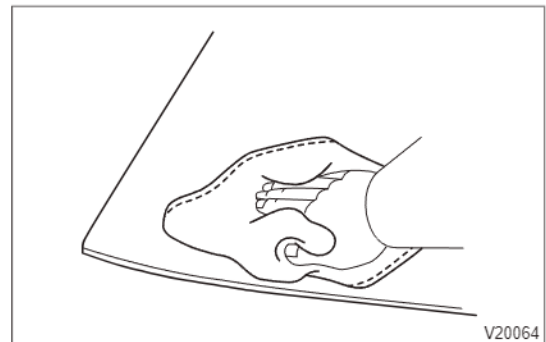
- (1) Check for small cracks or bubbles exist around windshield, and appearance defects such as scratches on the surface. Check whether any assembly part is missed. Avoid installing an unqualified windshield glass on the vehicle.
- (2) Wipe the primer area with alcohol cloth and width is $18 \approx 20$ mm.
- (3) Apply sheet metal primer (A11-4105013A) to installation area and make sure application width is $9 \approx 11$ mm (edging size: 18 mm); Do not expose it in the air before applying sheet metal primer.
- (4) Using cleaner (A11-4105017 accelerant), clean the area around gum application and make sure cleaning width is $14 \approx 16$ mm.
- (5) Apply A11-4105015 windshield primer on the application position around rear windshield. Make sure application width is $12 \approx 14$ mm. Apply gum (A11-4105011) along application line, make sure the gum width is 8 ± 1 mm, height is $11.5 \text{ mm} \pm 1 \text{ mm}$, the height after being compressed is 5 mm, there is no gum leakage or fluid overflowing.
- (6) Align dowel pins of rear windshield with corresponding set holes separately for windshield installation on sheet metal of top panel. Install the windshield.
- (7) Adjust glasses to left and right slightly, so as to make the clearance between glass and quarter meet the requirements of DTS; Use center positioning fixture as necessary.
- (8) Slightly tap four sides of glass to install glass in place (height after being compressed is 5 mm) and apply tape (length of tape is $150 \approx 200$ mm) to prevent glass from sliding down.
- (9) Apply tape separately on left and right side of rear windshield (length of tape is $150 \approx 200$ mm); Apply 2 tapes on rear windshield upper side (length of tape is $150 \approx 200$ mm).

■ Installation

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

Hint

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



- (2) Apply a coat of primer on the contact surface of rear windshield assembly. Using a brush, apply a coat of primer on the edge and contact surface of glass. Wipe off excess primer with a clean cloth before drying. Width of primer is 13 to 15 mm.

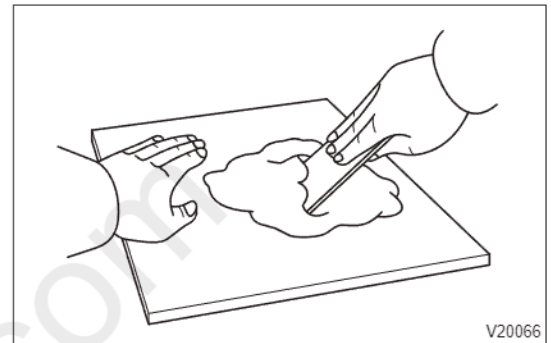
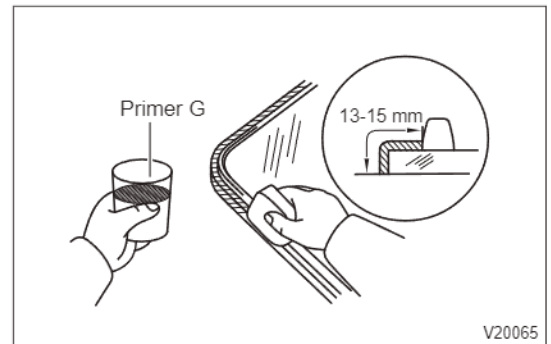
Hint

- 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.

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

Hint

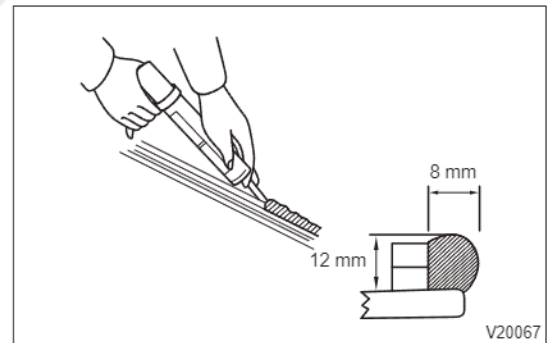
- Adhesive should be mixed thoroughly within 5 minutes.



- (4) Apply the adhesive. Cut off the tip of cartridge nozzle and add adhesive. Install the cartridge to sealer gun.
- (5) Apply adhesive evenly to rear windshield assembly as shown in illustration.

Adhesive width: 8 mm

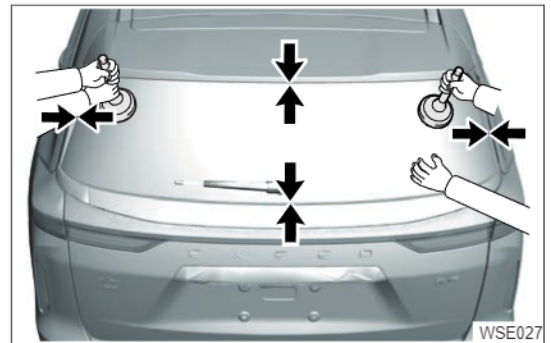
Adhesive height: 12 mm



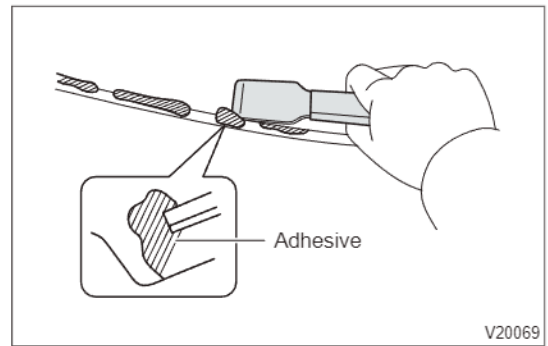
- (6) Install the rear windshield assembly. Align the matchmarks on glass and vehicle body, and gently press in glass along the edge.

Hint

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



- (7) Using a scraper, uniformly apply adhesive to the glass edge.



- (8) Remove any excess or spilled adhesive with the scraper.
- (9) Apply tape all the way around, and do not remove them until the adhesive hardens.
- (10) Check and repair the sealing of glass.
Check the glass for leakage after adhesive has completely hardened.
If it leaks, seal the leaks by adding adhesive.
- (11) Connect the negative battery cable.

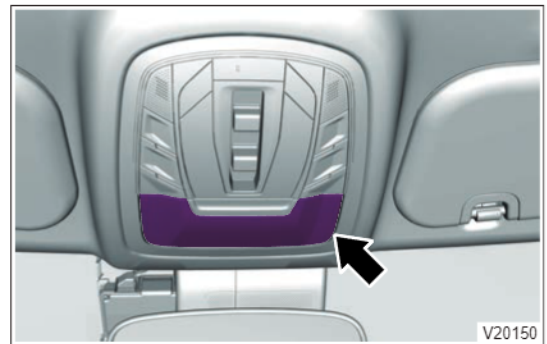
5.18 Replacement of Sliding Roof Switch Assembly

■ Removal

Warning

- **Be sure to wear safety equipment to prevent accidents, when removing sliding roof switch assembly.**
- **Try to prevent interior from being scratched during operation, when removing sliding roof switch assembly.**

- (1) Turn off all electrical equipment and the ENGINE START STOP switch.
- (2) Disconnect the negative battery cable.
- (3) Open the glasses box on front dome light as shown in illustration.



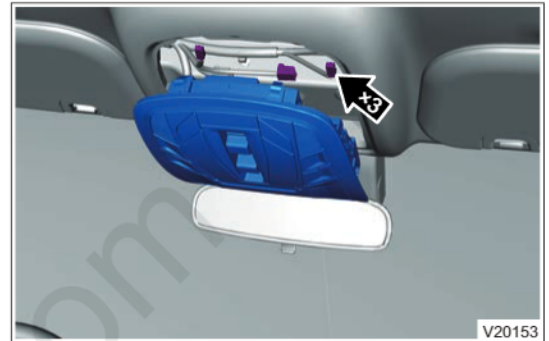
- (4) Remove 2 fixing screws.



- (5) Using an interior crow plate, carefully pry off clips from sliding roof switch assembly.



- (6) Disconnect each wire harness connector, and remove sliding roof switch assembly.



■ Installation

Caution

- **Connect connector in place and tighten fixing nut to specified torque, when installing sliding roof switch assembly.**
- **Make sure that sliding roof switch functions properly, after installing sliding roof switch assembly.**

- (1) Install sliding roof switch to proper position of roof and connect wire harness connector.
- (2) Install the sliding roof switch.
- (3) Install 2 fixing screws.

Tightening torque: $2.5 \pm 0.5 \text{ N}\cdot\text{m}$

- (4) Close the glasses box.
- (5) Connect the negative battery cable.

5.19 Replacement of Sliding Roof Glass Motor

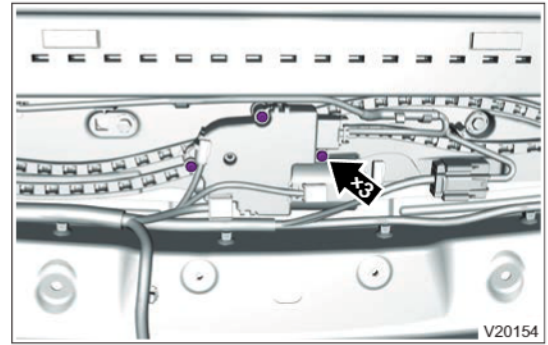
■ Removal

Warning

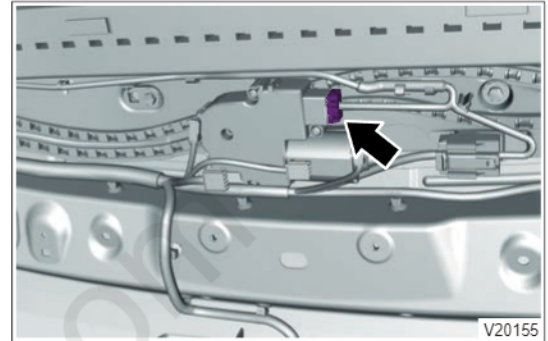
- **Be sure to wear safety equipment to prevent accidents, when removing sliding roof glass motor.**
- **Appropriate force should be applied, when removing sliding roof glass motor. Be careful not to operate roughly.**

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

- (4) Remove 3 fixing screws from sliding roof glass motor assembly.



- (5) Disconnect wire harness connector from sliding roof glass motor assembly.



- (6) Remove the sliding roof glass motor assembly.

■ Installation

Caution

- Connect connector in place and tighten fixing screw to specified torque, when installing sliding roof glass motor assembly.
- After sliding roof glass motor is installed, there should be no abnormal noise and resistance when opening and closing the sliding roof glass.

- (1) Install sliding roof glass motor to proper position of sliding roof.
- (2) Connect sliding roof glass motor assembly wire harness connector.
- (3) Install 3 fixing screws to sliding roof glass motor assembly.

Tightening torque: $2.5 \pm 0.5 \text{ N}\cdot\text{m}$

- (4) Install the roof.
- (5) Connect the negative battery cable.

5.20 Replacement of Sun Visor Motor Assembly

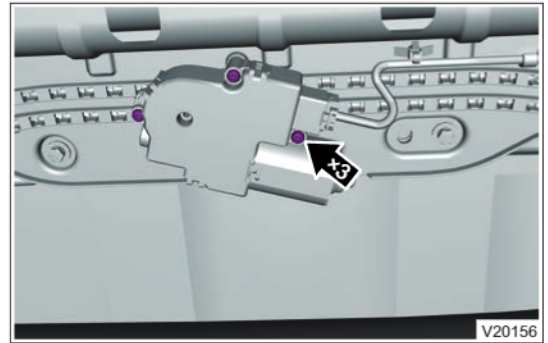
■ Removal

Warning

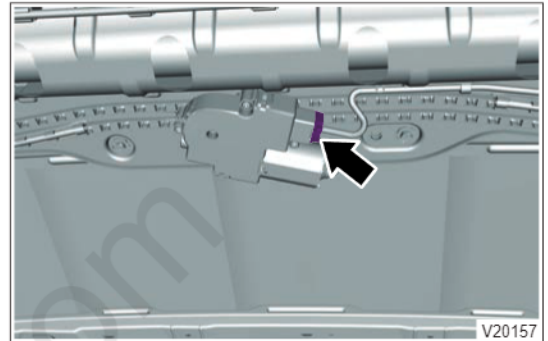
- Be sure to wear safety equipment to prevent accidents, when removing sun visor motor assembly.
- Try to prevent interior from being scratched during operation, when removing sun visor motor assembly.

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

- (4) Remove 3 fixing screws from sun visor motor assembly.



- (5) Disconnect wire harness connector from sun visor motor assembly.



- (6) Remove the sun visor motor assembly.

■ Installation

Caution

- Connect connector in place and tighten fixing screw to specified torque, when installing sun visor motor assembly.
- After sun visor motor is installed, there should be no abnormal noise and resistance when opening and closing the sun visor.

- (1) Install sun visor motor assembly to proper position of sliding roof.
- (2) Connect the sun visor motor assembly wire harness connector.
- (3) Install 3 fixing screws to sun visor motor assembly.

Tightening torque: $2.5 \pm 0.5 \text{ N}\cdot\text{m}$

- (4) Install the roof.
- (5) Connect the negative battery cable.

■ Matching

- (1) Sunshade losing initial position

- Definition: Sunshade cannot be opened, closed normally or closed to a normal position and initial movement for sunshade cannot be performed after power off. When there is such problem in sunshade, movement process for sunshade will be disordered, and sunshade initial position is lost.

- (2) Solution Method

- Press and hold glass CLOSE button, when sliding roof glass reaches mechanical zero point and returns → sun visor reaches mechanical zero point and returns → sun visor opens and reaches full open position → sliding roof glass opens and reaches full open position → sliding roof glass closes and reaches full closed position → sun visor closes and reaches full closed position, reinitialization is forced to be completed, then normal condition resumes.

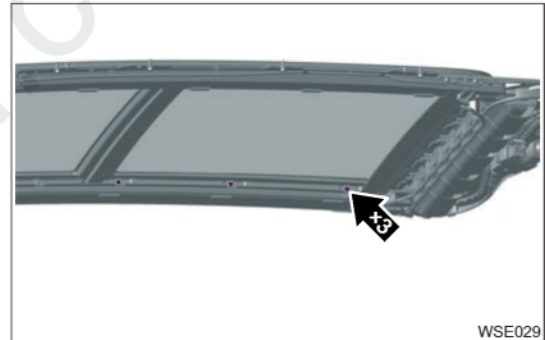
Caution

- Make sure that power supply shall not be shut off during operation. Confirm that no hard objects (- various obstacles) that block running of sliding mechanism are in sliding roof guide rail and sunshade guide rail.
- The sunshade of this model has no anti-pinch function. Pay attention to safety during operation to avoid accidents.

5.21 Replacement of Sliding Roof Front Glass**■ Removal****Warning**

- Be sure to wear safety equipment to prevent accidents, when removing sliding roof front glass.
- Appropriate force should be applied, when removing sliding roof front glass. Be careful not to operate roughly, to avoid damage to sliding roof glass.
- Before removing the sliding roof front glass, press the sliding roof switch to open sun visor to a proper position and adjust sliding roof glass to the maximum tilt status.

- (1) Turn off all electrical equipment and the ENGINE START STOP switch.
- (2) Disconnect the negative battery cable.
- (3) Remove the sliding roof weatherstrip.
- (4) Remove 3 fixing bolts from left side of sliding roof front glass (use same method for right side).



- (5) Jack front glass assembly to a certain height from bottom, and carefully remove sliding roof front glass assembly.

■ Installation

- (1) Install front glass assembly to proper position of vehicle body.
- (2) Install 3 fixing bolts to left side of sliding roof front glass (use same method for right side).

Tightening torque: $4.5 \pm 0.5 \text{ N}\cdot\text{m}$

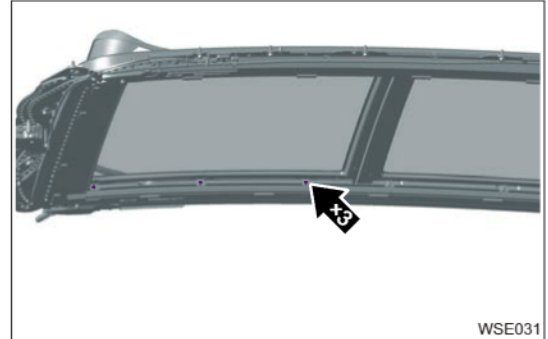
- (3) Install the sliding roof weatherstrip.
- (4) Connect the negative battery cable.

5.22 Replacement of Sliding Roof Rear Glass**■ Removal****Warning**

- Be sure to wear safety equipment to prevent accidents, when removing sliding roof rear glass.
- Try to prevent interior from being scratched during operation, when removing sliding roof rear glass.

- (1) Open the sun visor.

- (2) Turn off all electrical equipment and ENGINE START STOP switch.
- (3) Disconnect the negative battery cable.
- (4) Remove the roof.
- (5) Remove the sliding roof fixing bracket.
- (6) Remove 3 fixing bolts from left side of sliding roof rear glass (use same method for right side).



- (7) Remove the sliding roof rear glass.

■ Installation

- (1) Install sliding roof rear glass to proper position of sliding roof .
- (2) Install 3 fixing bolts to left side of sliding roof rear glass (use same method for right side).

Tightening torque: $4.5 \pm 0.5 \text{ N}\cdot\text{m}$

- (3) Install the sliding roof fixing bracket.
- (4) Install the roof assembly.
- (5) Connect the negative battery cable.

5.23 Replacement of Sliding Roof Front Left Drain Hose

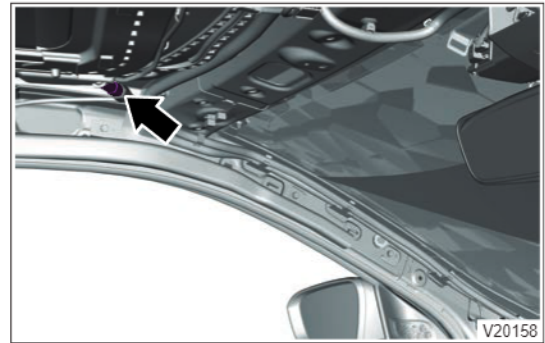
■ Removal

Warning

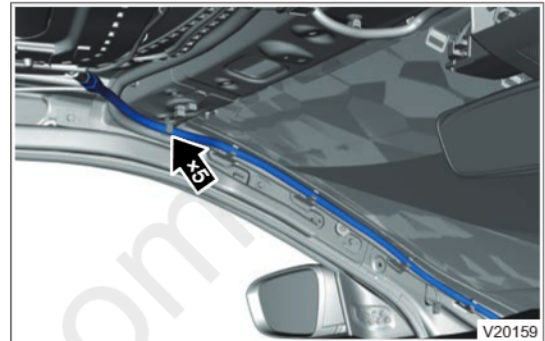
- **Be sure to wear safety equipment to prevent accidents, when removing sliding roof front left drain hose.**
- **Prevent interior from being scratched during operating, when removing sliding roof front left drain hose.**

- (1) Turn off all electrical equipment and ENGINE START STOP switch.
- (2) Disconnect the negative battery cable.
- (3) Remove the front windshield lower support assembly.
- (4) Remove the left A-pillar upper protector assembly.
- (5) Remove the left B-pillar upper protector assembly.
- (6) Remove the left C-pillar upper protector assembly
- (7) Remove the roof assembly.

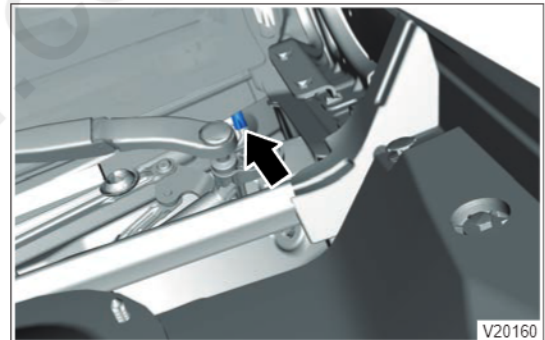
- (8) Detach front left drain hose joint from drain outlet of sliding roof side.



- (9) Detach front left drain hose from wire harness clip.



- (10) Detach water drain valve of front left drain hose from body panel.



- (11) Remove the sliding roof front left drain hose.

■ Installation

- (1) Install sliding roof front left drain hose to proper position of body.
- (2) Clamp water drain valve of front left drain hose to body panel.
- (3) Clamp front left drain hose to wire harness clip.
- (4) Insert front left drain hose joint into drain outlet of sliding roof side.
- (5) Install the roof assembly.
- (6) Install the left C-pillar upper protector assembly.
- (7) Install the left B-pillar upper protector assembly.
- (8) Install the left A-pillar upper protector assembly.
- (9) Install the front windshield lower trim board assembly.
- (10) Connect the negative battery cable.

5.24 Replacement of Sliding Roof Front Right Drain Hose

■ Removal

Warning

- **Be sure to wear safety equipment to prevent accidents, when removing sliding roof front right drain hose.**
- **Prevent interior from being scratched during operating, when removing sliding roof front right drain hose.**

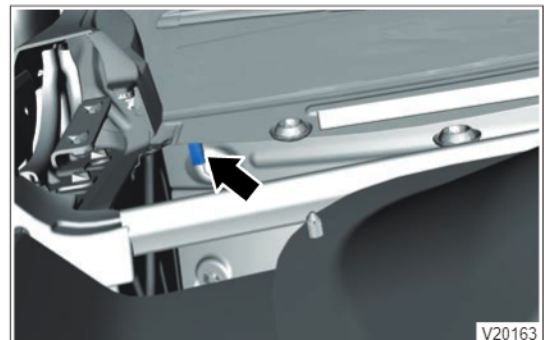
- (1) Turn off all electrical equipment and ENGINE START STOP switch.
- (2) Disconnect the negative battery cable.
- (3) Remove the front windshield lower support assembly.
- (4) Remove the left A-pillar upper protector assembly.
- (5) Remove the left B-pillar upper protector assembly.
- (6) Remove the left C-pillar upper protector assembly
- (7) Remove the roof assembly.
- (8) Detach front right drain hose joint from drain outlet of sliding roof side.



- (9) Using an interior crow plate, carefully pry off front right drain hose clip.



- (10) Detach water drain valve of front right drain hose from body panel.



- (11) Remove the sliding roof front right drain hose.

■ Installation

- (1) Install sliding roof front right drain hose to proper position of body.
- (2) Clamp water drain valve of front right drain hose to body panel.
- (3) Clamp front right drain hose clip to corresponding vehicle body in order.
- (4) Insert front right drain hose joint into drain outlet of sliding roof side.
- (5) Install the roof assembly.
- (6) Install the left C-pillar upper protector assembly.
- (7) Install the left B-pillar upper protector assembly.
- (8) Install the left A-pillar upper protector assembly.
- (9) Install the front windshield lower trim board assembly.
- (10) Connect the negative battery cable.

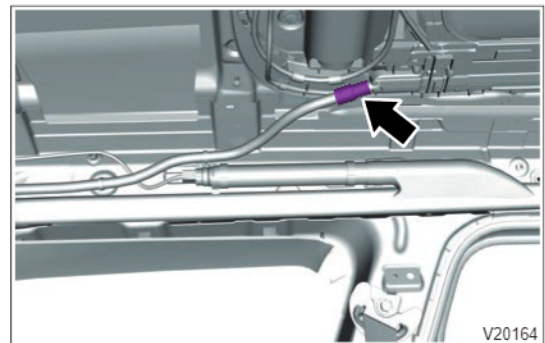
5.25 Replacement of Sliding Roof Rear Drain Hose

■ Removal

Warning

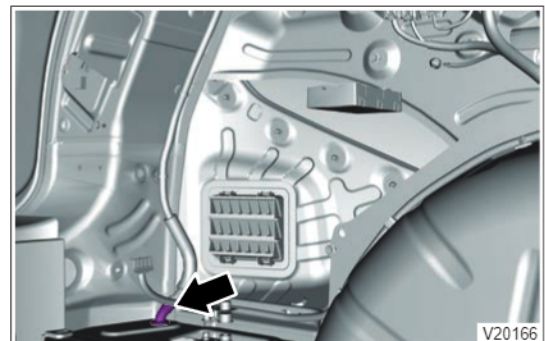
- **Be sure to wear safety equipment to prevent accidents, when removing sliding roof rear drain hose.**
- **Prevent interior from being scratched during operating, when removing sliding roof rear drain hose.**
- **Use same procedures for right and left sides, procedures listed below are for left side.**

- (1) Turn off all electrical equipment and ENGINE START STOP switch.
- (2) Disconnect the negative battery cable.
- (3) Remove the left A-pillar upper protector assembly.
- (4) Remove the left B-pillar upper protector assembly.
- (5) Remove the left C-pillar upper protector assembly.
- (6) Remove the roof assembly.
- (7) Detach rear left drain hose joint from drain outlet of sliding roof side.



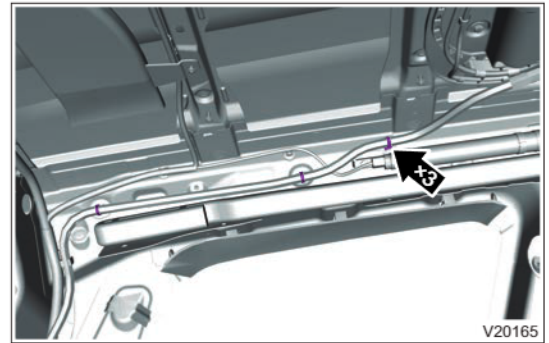
V20164

- (8) Detach lower part of rear left drain hose from corresponding mounting hole on vehicle body.

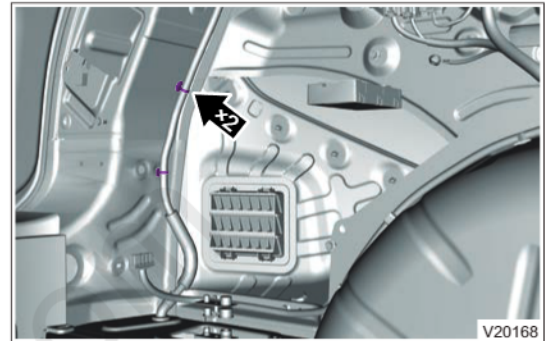


V20166

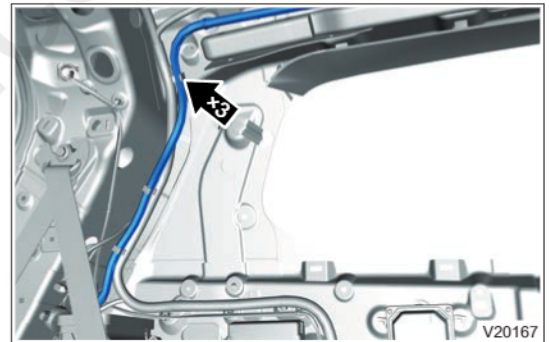
- (9) Using an interior crow plate, carefully pry off rear left drain hose clip.



- (10) Using an interior crow plate, carefully pry off rear left drain hose clip.



- (11) Detach rear left drain hose from wire harness clip.



- (12) Remove the rear left drain hose.

■ Installation

- (1) Install rear left drain hose to proper position of vehicle body.
- (2) Secure rear left drain hose to wire harness clip (After it is secured with wire harness clip, check if water hose is bent. If it is bent, it is necessary to smooth the water hose under the bending, and install it only after confirming that it is not bent).
- (3) Clamp rear left drain hose clip to corresponding vehicle body in order.
- (4) Insert rear left drain hose joint into drain outlet of sliding roof side.
- (5) Clamp water drain valve of rear left drain hose to body panel.
- (6) Install the roof assembly.
- (7) Install the left C-pillar upper protector assembly.
- (8) Install the left B-pillar upper protector assembly.
- (9) Install the left A-pillar upper protector assembly.
- (10) Connect the negative battery cable.

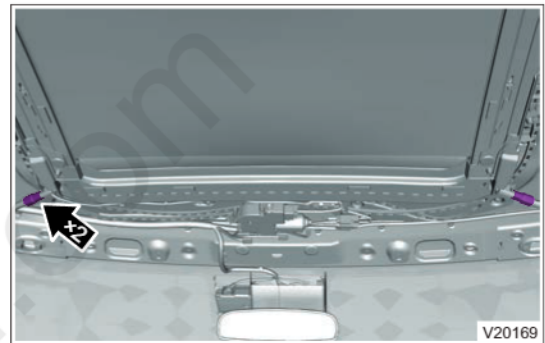
5.26 Replacement of Sliding Roof Assembly

■ Removal

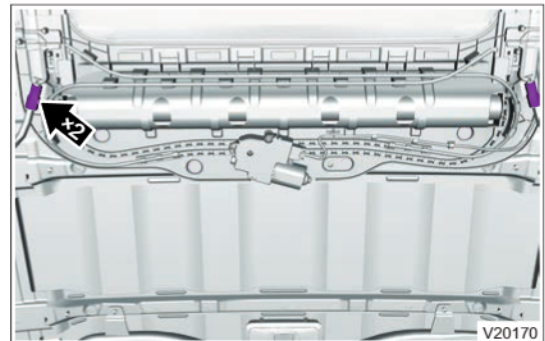
Warning

- **Be sure to wear safety equipment to prevent accidents, when removing sliding roof assembly.**
- **Try to prevent interior from being scratched during operation, when removing sliding roof assembly.**
- **When removing sliding roof assembly, an assistant is needed to hold sliding roof fixing bracket. During operation, prevent the sliding roof fixing bracket from dropping, which may cause an accident.**

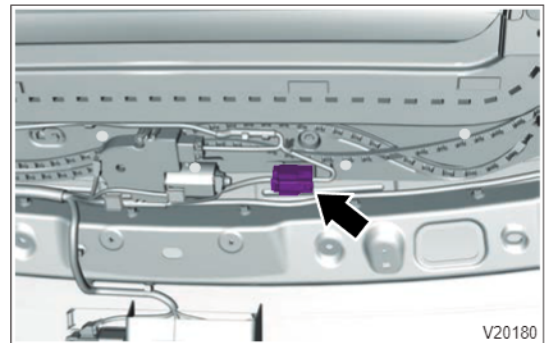
- (1) Turn off all electrical equipment and ENGINE START STOP switch.
- (2) Disconnect the negative battery cable.
- (3) Remove the interior front dome light assembly.
- (4) Remove the roof assembly.
- (5) Detach joints of front left drain hose and front right drain hose from drain outlet of sliding roof side.



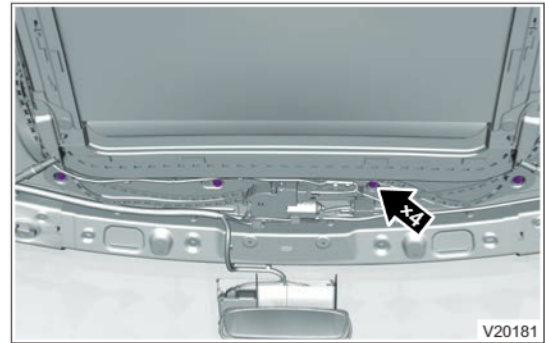
- (6) Detach joints of rear left drain hose and rear right drain hose from drain outlet of sliding roof side.



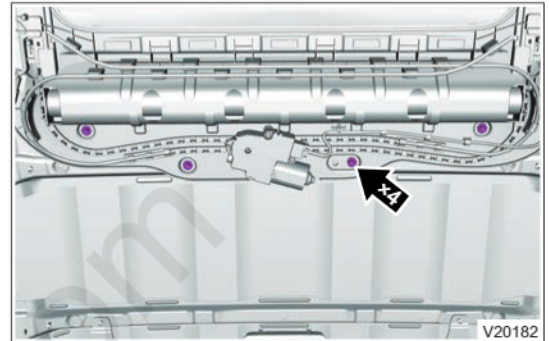
- (7) Disconnect the sliding roof wire harness connector.



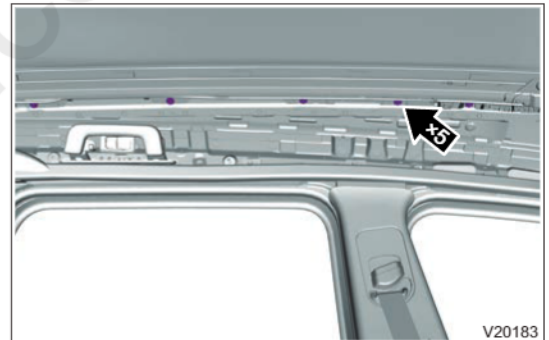
- (8) Remove 4 fixing bolts between sliding roof assembly front side and roof.



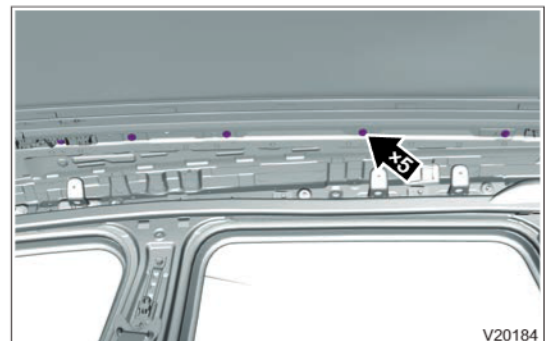
- (9) Remove 4 fixing bolts between sliding roof assembly rear side and roof.



- (10) Remove 5 fixing bolts between sliding roof assembly left side and roof.



- (11) Remove 5 fixing bolts between sliding roof assembly right side and roof.



- (12) Remove the sliding roof assembly.

■ Installation

Caution

When installing sliding roof fixing bracket, an assistant is needed to hold it. During operation, prevent the sliding roof fixing bracket from dropping, which may cause an accident.

- (1) Put sliding roof on the auxiliary tool, and check if dowel pin is on sliding roof.
- (2) Use auxiliary tool to push sliding roof to vehicle interior through front windshield entrance.
- (3) Align sliding roof with roof opening. Raise it up and make sure left and right dowel pins are inserted into corresponding locating holes of sliding roof mounting plate. Be aware not to drop or deform sliding roof weatherstrip due to crush while raising the sliding roof.
- (4) Hold the auxiliary tool in stationary. Tighten 4 diagonal fixing bolts first.

Tightening torque: $9 \pm 1.5 \text{ N}\cdot\text{m}$

- (5) Loosen and remove the auxiliary tool.
- (6) Install remaining 14 fixing bolts.

Tightening torque: $9 \pm 1.5 \text{ N}\cdot\text{m}$

- (7) Connect the sliding roof wire harness connector.
- (8) Insert left and right front drain hose joints into drain outlet of sliding roof side.
- (9) Insert rear left and right drain hose joints into drain outlet of sliding roof side.
- (10) Install the roof assembly.
- (11) Install the interior front dome light assembly.
- (12) Connect the negative battery cable.

■ Matching

- (1) Sliding roof remote control function
 - 1) When ENGINE START STOP switch is OFF and all doors are closed, long press smart key unlock button to open panoramic sliding roof automatically.
 - 2) When ENGINE START STOP switch is OFF, all doors are closed and sliding roof is open, press and hold smart key lock button or enable smart key sensing lock function to close panoramic sliding roof automatically.
- (2) Sliding roof losing initial position
 - 1) Definition: sliding roof cannot be opened, closed normally or closed to a normal position, and initial movement for sliding roof cannot be performed. When there is such problem in sliding roof, movement process for sliding roof will be disordered, and sliding roof initial position is lost.
- (3) Solution Method
 - 1) Press and hold glass CLOSE button, when sliding roof glass reaches mechanical zero point and returns → sun visor reaches mechanical zero point and returns → sun visor opens and reaches full open position → sliding roof glass opens and reaches full open position → sliding roof glass closes and reaches full closed position → sun visor closes and reaches full closed position, reinitialization is forced to be completed, then normal condition resumes.