

SLIDING ROOF

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دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



63

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GENERAL INFORMATION

Sliding Roof

Description



RF0001001

1 - Sliding Roof Front Glass Assembly	2 - Sliding Roof Rear Glass Assembly
3 - Sliding Roof Glass Motor Assembly	4 - Sliding Roof Frame
5 - Sliding Roof Sun Visor Motor Assembly	6 - Sliding Roof Guide Plate
7 - Sliding Roof Sun Visor Assembly	8 - Sliding Roof Switch Assembly
9 - Front Right Sliding Roof Drain Hose Assembly	10 - Front Left Sliding Roof Drain Hose Assembly
11 - Rear Right Sliding Roof Drain Hose Assembly	12 - Rear Left Sliding Roof Drain Hose Assembly

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

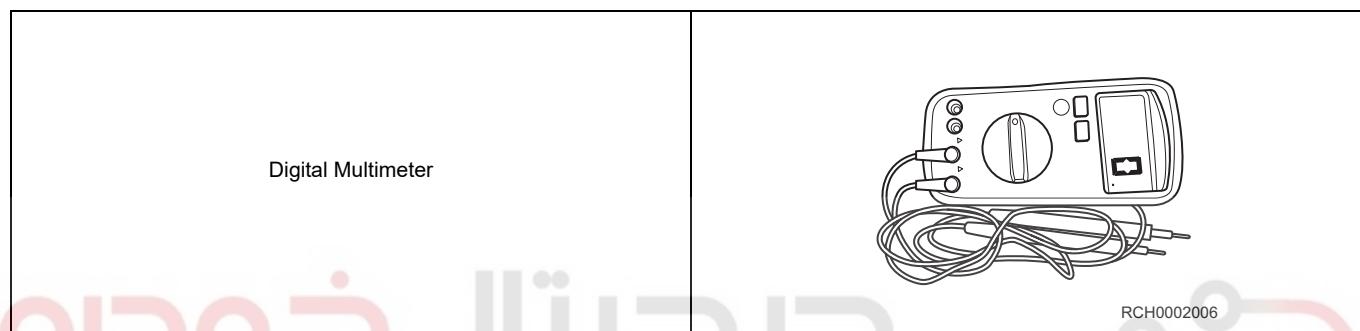
Specifications

Torque Specifications

Description	Torque (N·m)
Sliding Roof Switch Assembly Fixing Screw	2.5 ± 0.5
Sliding Roof Mounting Bracket Fixing Bolt	9.0 ± 1.0
Motor Mounting Screw	4.0 ± 0.5
Glass Assembly Bracket Fixing Screw	5.5 ± 0.5

Tool

General Tool



Inspection

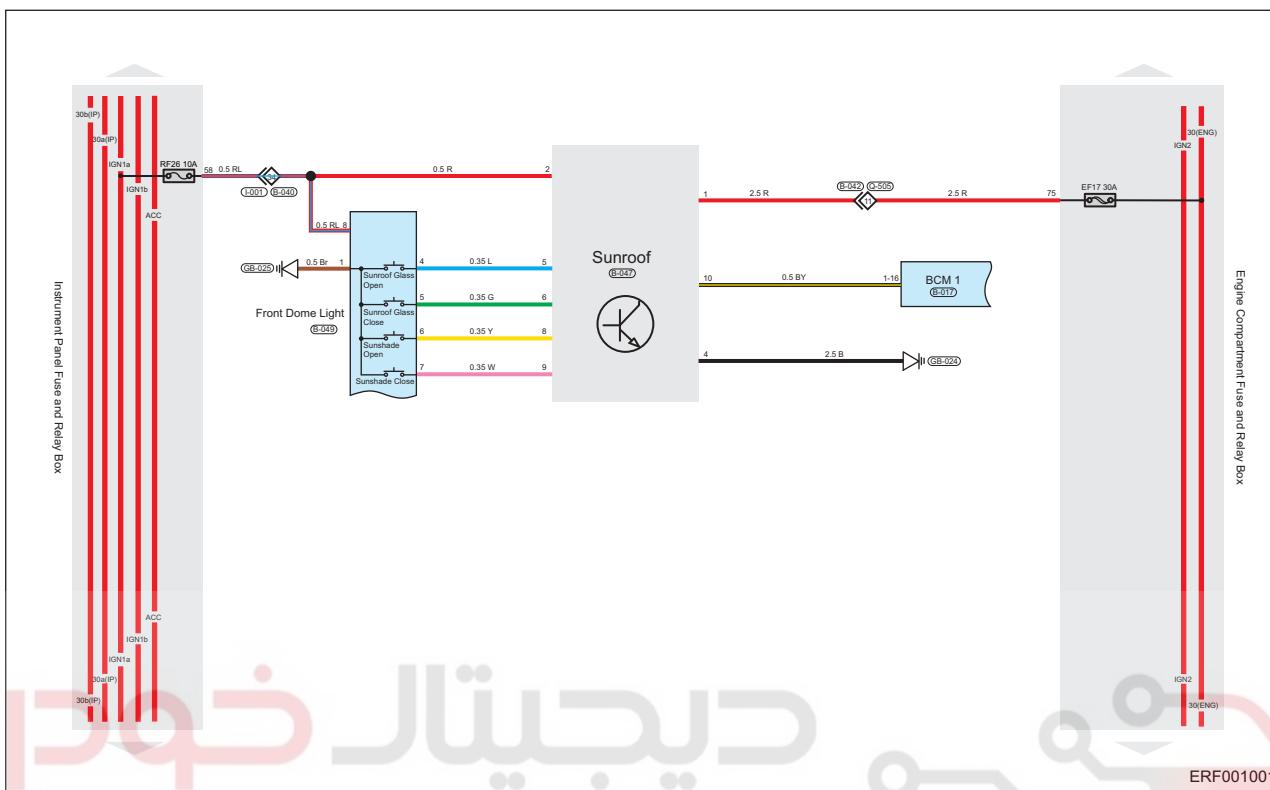
1. Check the sliding roof.

Caution:

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

- (a) Turn ENGINE START STOP switch to OFF.
- (b) Disconnect the sliding roof switch connector B-049.

(c) Using a digital multimeter, check for continuity between terminals of connector B-049 to check if sliding roof switch function is normal according to the table below.



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Multimeter Connection	Condition	Specified Condition
B-049 (1) - B-049 (4)	"Sliding Roof Glass Open" button pressed	$\leq 1 \Omega$
B-049 (1) - B-049 (5)	"Sliding Roof Glass Closed" button pressed	$\leq 1 \Omega$
B-049 (1) - B-049 (6)	"Sun Visor Open" button pressed	$\leq 1 \Omega$
B-049 (1) - B-049 (7)	"Sun Visor Closed" button pressed	$\leq 1 \Omega$

2. If result is not as specified, replace sliding roof switch.

DIAGNOSIS & TESTING

Problem Symptoms Table

Hint:

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

Symptom	Suspected Area	Repair Operation Method
Water leakage	Sliding roof weatherstrip damaged	Replace sliding roof weatherstrip
	Drain hose clogged or folded	Check condition of drain hose
	Excessive distance between sliding roof glass and roof hole or poor height of glass	Adjust relative position of glass
Wind noise from sliding roof	Poor fixation of sliding roof glass and roof	Reinstall glass
Abnormal starting and operation	Poor connection in wire harness, fuse or ground wire	Check wire harness, fuse and ground wire
	Poor sliding roof control unit, sliding roof motor	Replace sliding roof control unit and sliding roof motor after detection
	Sun visor control unit, sun visor fault	Check or replace motor assembly or sun visor assembly
	Improper installation position of sun visor	Adjust relative position of sun visor mounting bracket
	Sun visor comes off from guide rail	Readjust sun visor status
Incorrect starting	Foreign matters in guide rail	Check and remove foreign matters
	Sun visor switch fault	Replace sun visor switch
	Poor sliding roof motor	Replace motor
	Sun visor comes off from guide rail, guide rail is scratched with trim strip after it is damaged	Readjust and install sun visor and reinstall trim strip (replace damaged parts at the same time)
	Sun visor module fault	Replace module assembly
Operating noise of sun visor	Sun visor motor fault	Replace motor assembly
	Operation is resisted when sun visor comes off from guide rail or trim strip is damaged	Readjust and install sun visor; reinstall trim strip (replace damaged parts at the same time)
	Lack of grease in guide rail of sun visor	Lubricate guide rail regularly
	Impact between drain hose and vehicle body	Attach buffer sponge around drain hose
	Distance between sliding roof glass and roof hole is extremely large or height of glass is poor	Readjust height and relative position of glass
	Sun visor mounting bracket deformed or position incorrect	Replace or check and repair sun visor mounting bracket

Sliding Roof Anti-pinch Function

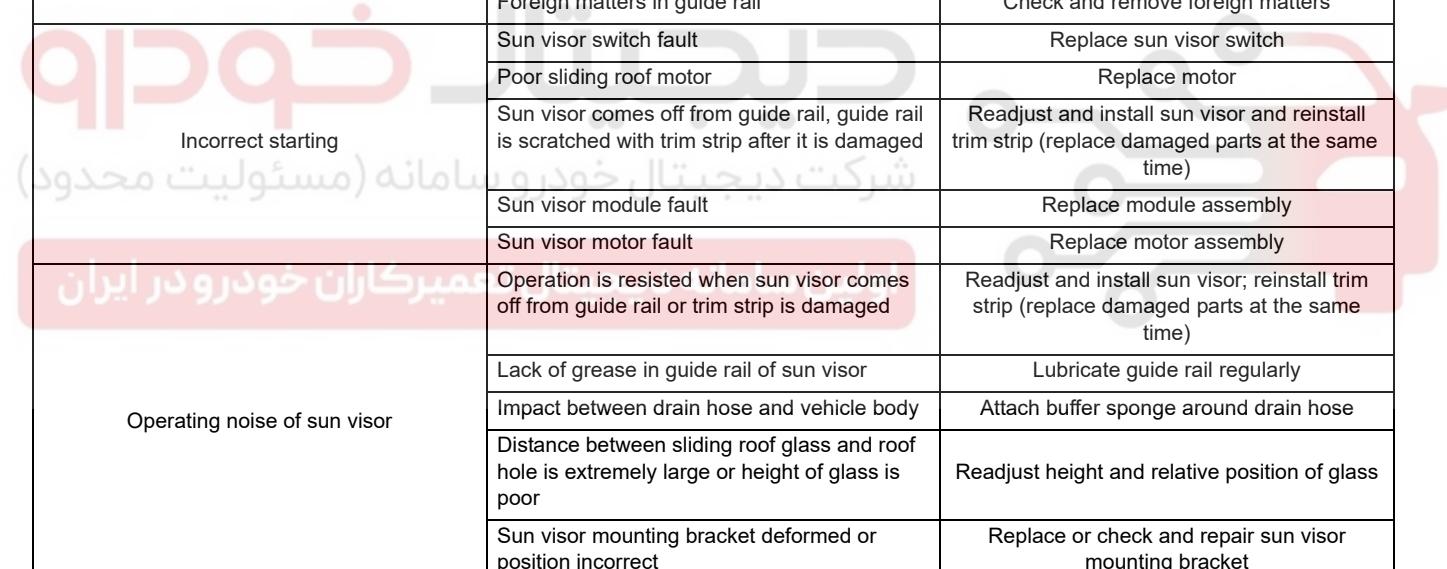
Anti-pinch Function

In process of moving from opening to closing or from tilting to closing status of sliding roof glass, the sliding roof glass will return automatically due to a certain resistance. When anti-pinch occurs in horizontal position, the sliding roof will return and stop near the half open position; when anti-pinch occurs in vertical position, it will return to a position near tilt position.

In process of moving from half open to closing status of sun visor, the sun visor will return automatically due to a certain resistance.

Warning:

Never put any body part or object outside the sliding roof in opening and closing process of sliding roof, even if it is equipped with anti-pitch function.



Manual Self-learning Method for Sliding Roof

1. After operating roof to full close position, long press close button of glass for 10 seconds, “Click” sound of roof motor reset will be heard, roof glass will slightly move back and forth.

⚠ Caution

It is effective that long pressing roof at close position, if operation is unresponsive, or if a rebound is triggered when closed, perform operation in step 2.

2. Operate roof auto open button, release the button. In the process of automatic opening of roof, long press the glass close button for more than 10 seconds, and observe that roof starts from the suspended position to closed position. Keep pressing the close button until “Click” sound of roof motor reset is heard, roof glass will slightly move back and forth.

⚠ Caution

Be sure to release the button during the automatic opening of roof and then close it instantly.

Manual Self-learning Method for Sun Visor

1. After operating sun visor to full close position, long press close button of sun visor for 10 seconds, “Click” sound of sun visor motor reset will be heard and movement will be observed, then the initialization is successful, roof sun visor will slightly move back and forth.

⚠ Caution

It is effective that long pressing sun visor at close position, if operation is unresponsive, or if a rebound is triggered when closed, perform operation in step 2.

2. Operate sun visor auto open button, release the button. In the process of automatic opening of sun visor, long press the sun visor close button for more than 10 seconds, and observe that sun visor starts from the suspended position to closed position. Keep pressing the close button until “Click” sound of sun visor motor reset is heard and movement will be observed, then the initialization is successful, roof sun visor will slightly move back and forth.

⚠ Caution

Be sure to release the button during the automatic opening of sun visor and then close it instantly.

ON-VEHICLE SERVICE

Interior Front Dome Light Assembly

Removal

Warning/Caution/Hint

Caution:

- Be sure to wear safety equipment to prevent accidents, when removing interior front dome light assembly.
- Try to prevent interior from being scratched during operation, when removing interior front dome light assembly.

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.

(a) Open the glasses box (arrow) on front dome light as shown in illustration.



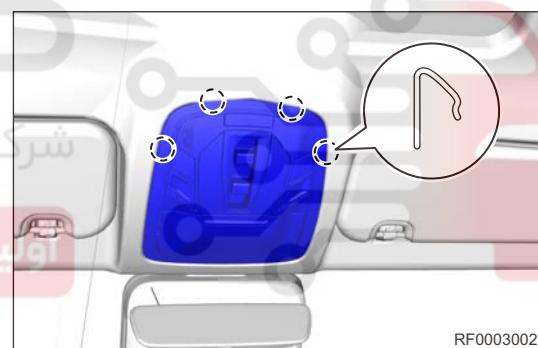
(b) Remove 2 fixing screws (arrow).

Tightening torque

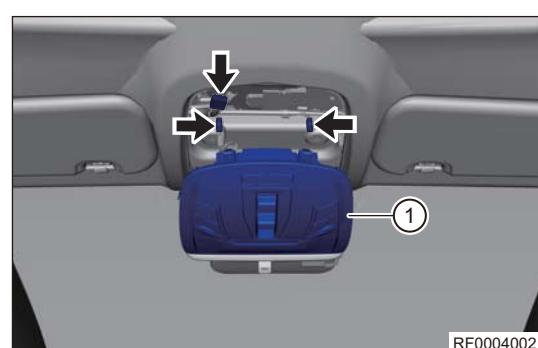
$2 \pm 0.5 \text{ N}\cdot\text{m}$



(c) Using an interior crow plate, careful pry off clips of interior front dome light assembly.



(d) Disconnect all the interior front dome light wire harness connectors (arrow), and remove interior dome light assembly (1).



Installation

1. Installation is in the reverse order of removal.

Caution:

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

Sliding Roof Glass Motor

Removal

Warning/Caution/Hint

Caution:

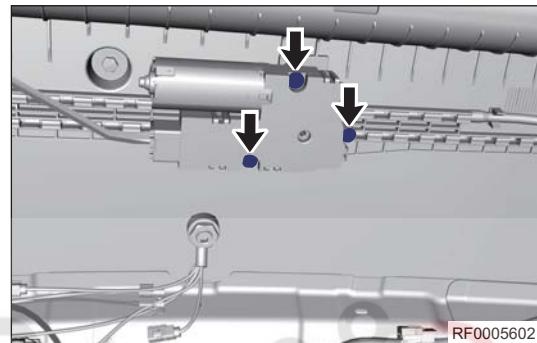
- Be sure to wear safety equipment to prevent accidents, when removing sliding roof glass motor.
- Appropriate force should be applied, when removing sliding roof glass motor. Be careful not to operate roughly.

1. Turn off all electrical equipment and ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the roof.
4. Remove the sliding roof glass motor.

(a) Remove 3 fixing screws (arrow) from sliding roof glass motor assembly.

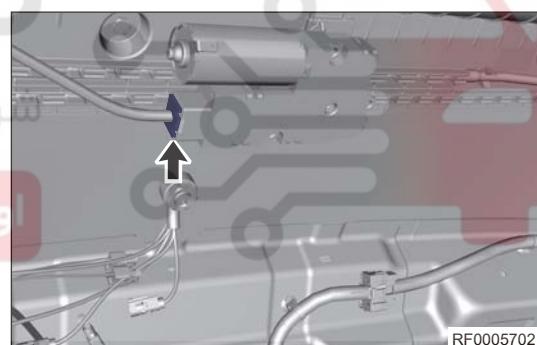
Tightening torque

$4.0 \pm 0.5 \text{ N}\cdot\text{m}$



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(b) Disconnect wire harness connector (arrow) from sliding roof glass motor assembly.



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(c) Remove the sliding roof glass motor assembly.

Installation

1. Installation is in the reverse order of removal.

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.

Sun Visor Motor Assembly

Removal

Warning/Caution/Hint

Caution:

- 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.

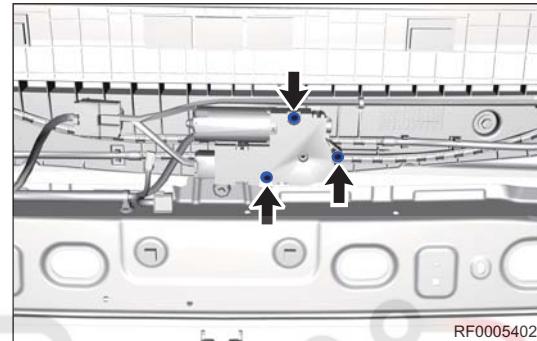
1. Turn off all electrical equipment and ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the roof assembly (See page 62-25).
4. Remove the sun visor motor.

(a) Remove 3 fixing screws (arrow) from sun visor motor assembly.

Tightening torque

$4.0 \pm 0.5 \text{ N}\cdot\text{m}$

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(b) Disconnect wire harness connector (arrow) from sun visor motor assembly.



(c) Remove the sun visor motor assembly.

Installation

1. Installation is in the reverse order of removal.

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.
- After sun visor motor is installed, it is necessary to reset sun visor.

Sliding Roof Front Glass

Removal

Warning/Caution/Hint

Caution:

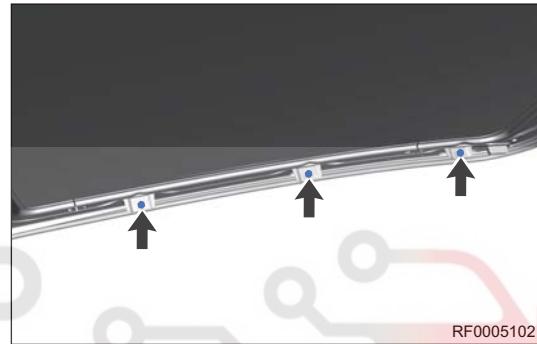
- Be sure to wear safety equipment to prevent accidents, when removing sliding roof front glass.
- Appropriate force should be applied, when removing sliding roof front glass. Be careful not to operate roughly, to avoid damage to sliding roof glass.
- Before removing the sliding roof front glass, press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

1. Open sliding roof to a proper position.
2. Turn off all electrical equipment and ENGINE START STOP switch.
3. Disconnect the negative battery cable.
4. Remove the sliding roof front glass.

(a) Remove 3 fixing bolts (arrow) from left side of sliding roof front glass.

Tightening torque

$5.5 \pm 0.5 \text{ N}\cdot\text{m}$

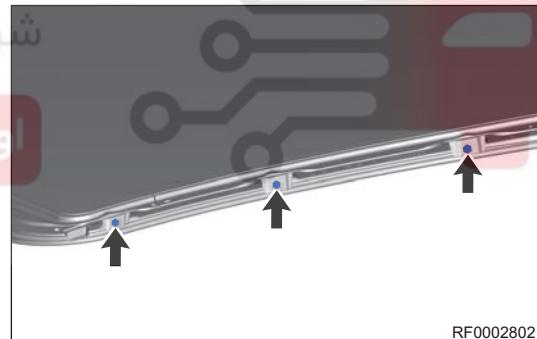


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(b) Remove 3 fixing bolts (arrow) from right side of sliding roof front glass.

Tightening torque

$5.5 \pm 0.5 \text{ N}\cdot\text{m}$



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

Installation

1. Installation is in the reverse order of removal.

Sliding Roof Rear Glass

Removal

Warning/Caution/Hint

Caution:

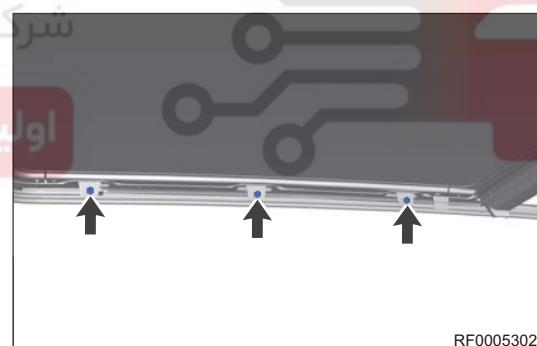
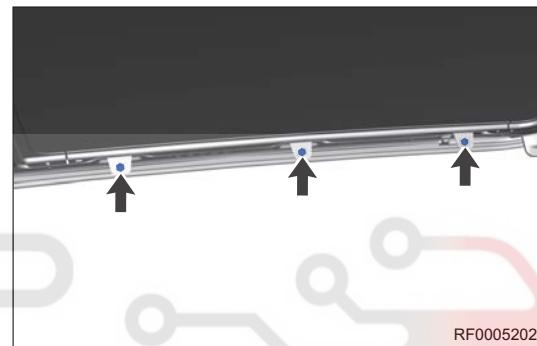
- Be sure to wear safety equipment to prevent accidents, when removing sliding roof rear glass.
- Try to prevent interior from being scratched during operation, when removing sliding roof rear glass.

1. Open the sun visor fully.
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.
6. Remove the sliding roof rear glass.
 - (a) Remove the sliding roof weatherstrip.
 - (b) Remove 3 fixing bolts (arrow) from left side of sliding roof rear glass.

Tightening torque

$5.0 \pm 0.5 \text{ N}\cdot\text{m}$

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- (c) Remove 3 fixing bolts (arrow) from right side of sliding roof rear glass.

Tightening torque

$5.0 \pm 0.5 \text{ N}\cdot\text{m}$

- (d) Remove the sliding roof rear glass.

Installation

1. Installation is in the reverse order of removal.

Sliding Roof Drain Hose

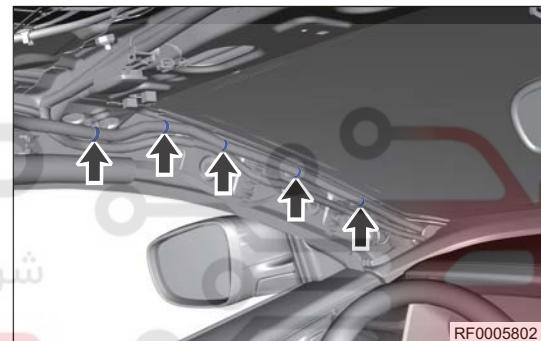
Removal

Warning/Caution/Hint

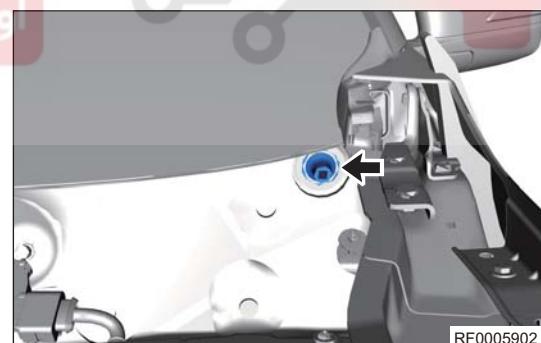
Caution:

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

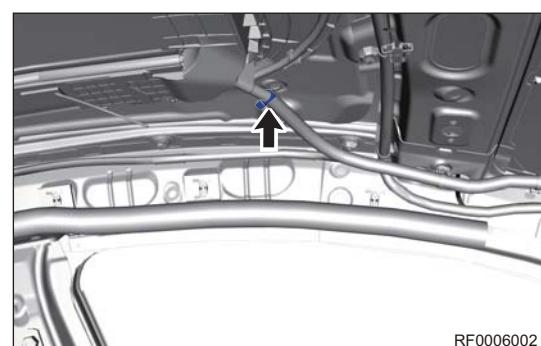
1. Turn off all electrical equipment and ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the front windshield lower support assembly (See page 61-18).
4. Remove the left A-pillar upper protector assembly.
5. Remove the left B-pillar upper protector assembly (See page 62-17).
6. Remove the left C-pillar upper protector assembly (See page 62-21).
7. Remove the roof assembly (See page 62-25).
8. Remove the sliding roof front drain hose assembly.
 - (a) Using an interior pry bar, pry off fixing clips (arrow) from sliding roof front drain hose.
 - (b) Disengage lower part of sliding roof front drain hose from corresponding mounting hole (arrow) on body.
 - (c) Loosen fixing clamp (arrow) and remove sliding roof front drain hose.



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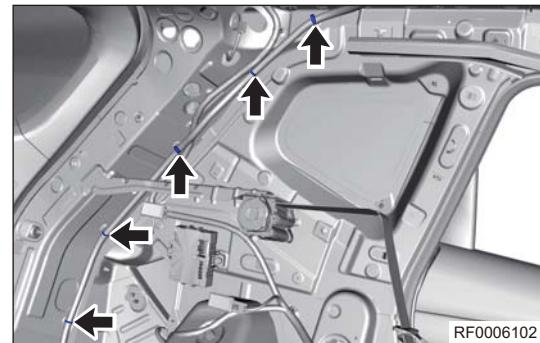
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9. Remove the sliding roof rear drain hose assembly.

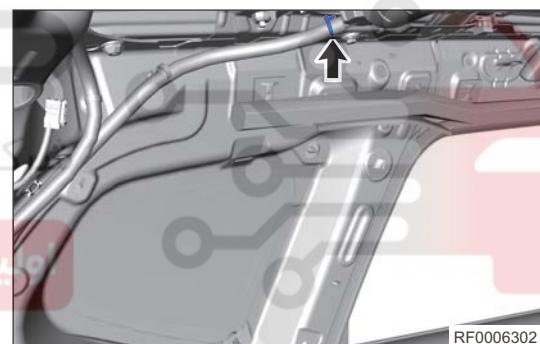
(a) Using an interior crow plate, pry off fixing clips (arrow) from sliding roof rear drain hose.



(b) Disengage lower part of sliding roof rear drain hose from corresponding mounting hole (arrow) on body.



(c) Loosen fixing clamp (arrow) and remove sliding roof rear drain hose.



Installation

1. Installation is in the reverse order of removal.
2. Make sure drain hose is installed smoothly without any deformation.

Sliding Roof Fixing Bracket

Removal

Warning/Caution/Hint

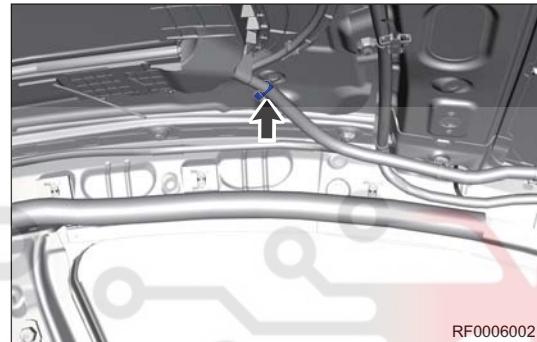
Caution:

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

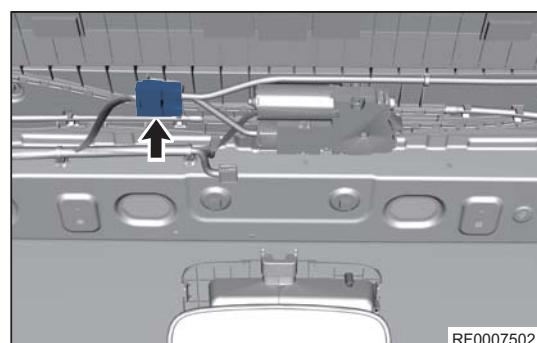
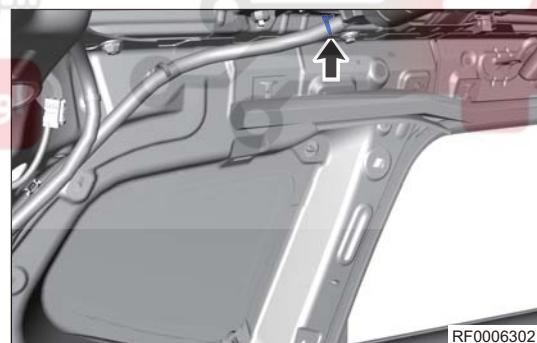
Caution:

When removing sliding roof fixing bracket, an assistant is needed to hold it. This can prevent sliding roof fixing bracket from dropping during operation, 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. (See page 63-7).
4. Remove the roof assembly (See page 62-25).
5. Remove the sliding roof fixing bracket assembly.
 - (a) Remove fixing clamp (arrow) from sliding roof glass front drain hose (use same method for right side).
 - (b) Remove fixing clamp (arrow) from sliding roof glass rear drain hose (use same method for right side).
 - (c) Disconnect the sliding roof wire harness connector (arrow).



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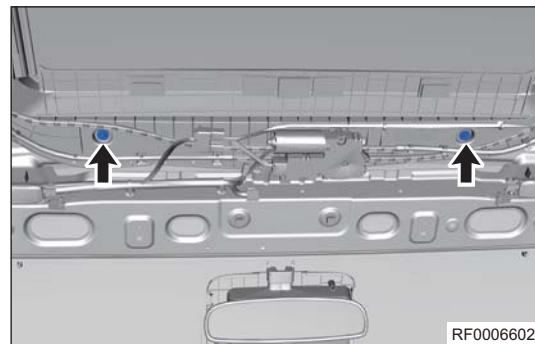


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(d) Remove 2 fixing bolts (arrow) between front end of sliding roof fixing bracket and roof.

Tightening torque

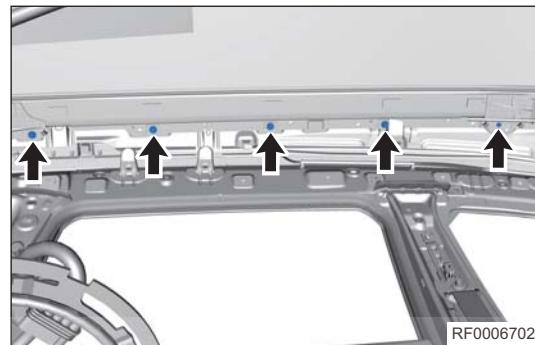
$9.0 \pm 1.0 \text{ N}\cdot\text{m}$



(e) Remove 5 fixing bolts (arrow) between left side of sliding roof fixing bracket and roof.

Tightening torque

$9.0 \pm 1.0 \text{ N}\cdot\text{m}$

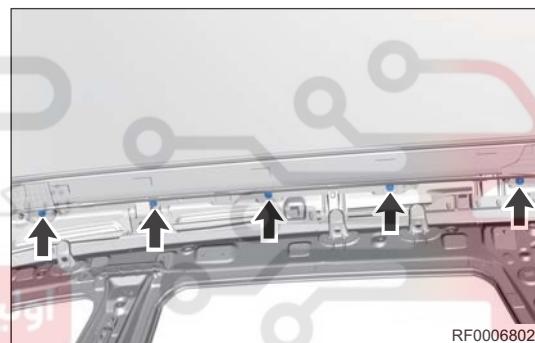


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(f) Remove 5 fixing bolts (arrow) between right side of sliding roof fixing bracket and roof.

Tightening torque

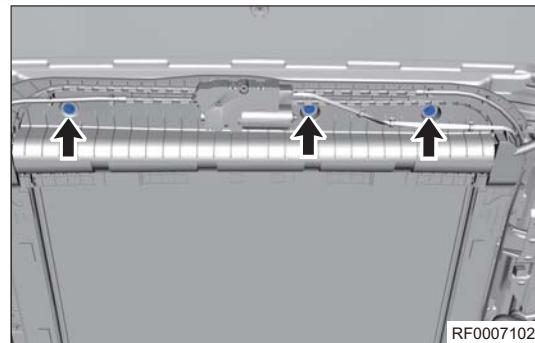
$9.0 \pm 1.0 \text{ N}\cdot\text{m}$



(g) Remove 3 fixing bolts (arrow) between rear end of sliding roof fixing bracket and roof.

Tightening torque

$9.0 \pm 1.0 \text{ N}\cdot\text{m}$



(h) Remove the sliding roof fixing bracket assembly.

Installation

1. Installation is in the reverse order of removal.
2. The matching clearance and surface difference between sliding roof glass and tonneau cover meet the DTS requirements (decrease by 0.5mm at front and increase by 0.5mm at rear). The matching clearance between sliding roof glass and tonneau cover is even, and they are flush in appearance without obvious deviation, so that sliding roof can be tilted,滑等, etc.

3. To avoid the accidental failing to close sliding roof problem, perform self-learning of sliding roof once manually. The specific learning method is: In fully closed position, long press the window closing button until the reset action occurs, use the automatic function to operate glass to the half open position, and long press the closing button until it reaches the fully closed position, then the whole self-learning is finished.
4. Sliding roof drain hose should have no any bending after installation. Engage drain hose plug into place and rotate it to the required design position.

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دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

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Sliding Roof Sun Visor

Removal

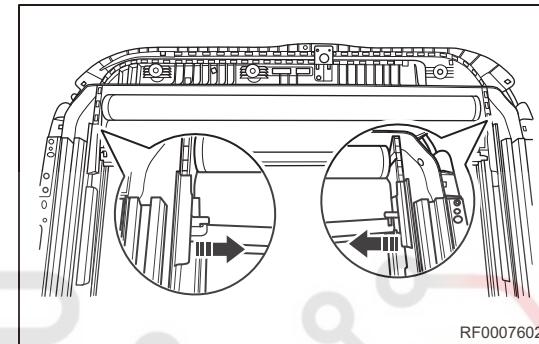
Warning/Caution/Hint

Caution:

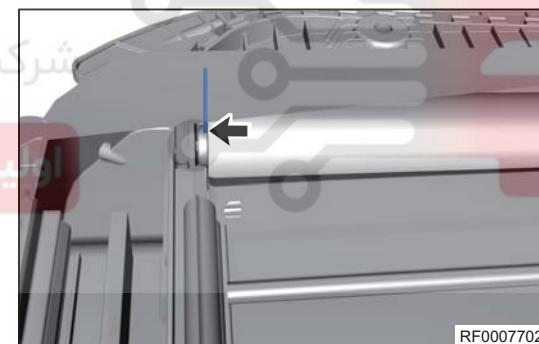
- Be sure to wear safety equipment to prevent accidents, when removing sliding roof sun visor.
- Try to prevent interior from being scratched during operation, when removing sliding roof sun visor.

1. Turn off all electrical equipment and ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the roof.
4. Remove the sliding roof.
5. Open sun visor, and remove rear glass assembly from sliding roof.
6. Remove the sun visor assembly.
 - (a) Remove sun visor drive plate clip in direction of arrow.

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(b) Insert a pin into right hole (arrow) on sun visor (to prevent spring from releasing force).



(c) Using a screwdriver wrapped with protective tape, hold against the position (arrow) shown in illustration.



(d) Remove the sun visor assembly.

Installation

1. Installation is in the reverse order of removal.