

## SLIDING ROOF

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# دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



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# دیجیتال خودرو

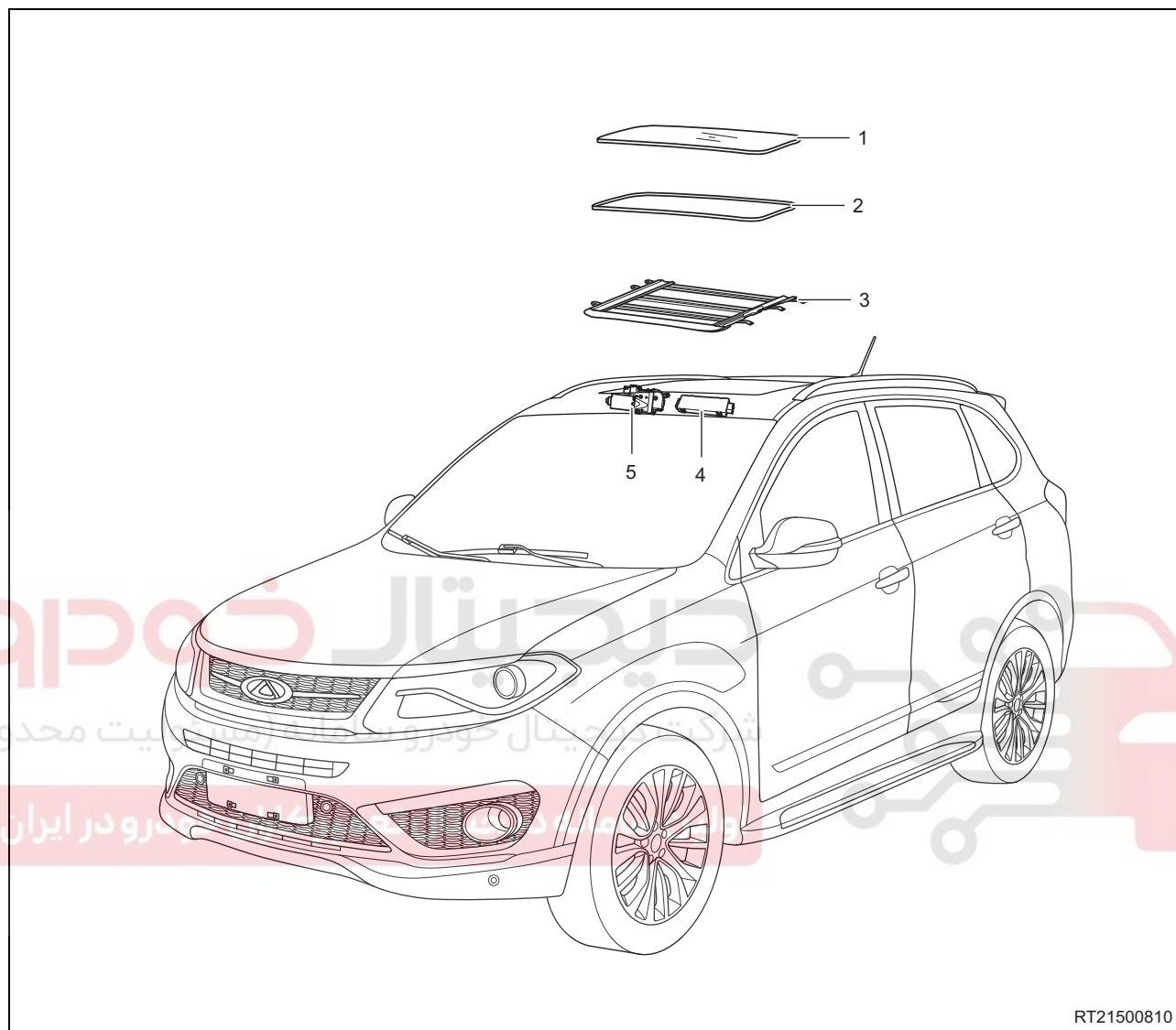
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## GENERAL INFORMATION

### Description



1 - Roof Glass	2 - Roof Sun Visor
3 - Roof Bracket	4 - Roof Control Unit
5 - Roof Motor	

The roof is optional equipment which has the following functions: auto slide open and close, auto tilt up.

### Auto Slide Open and Close

When the ignition switch is ON, press the "SLIDE OPEN" side on the switch and the roof will open fully. To stop it partway, briefly press the "SLIDE OPEN" side or "TILT UP" side on the switch. Press the "TILT UP" side on the switch, and the roof will automatically close fully. To stop it partway, briefly press the "SLIDE OPEN" side or "TILT UP" side on the switch.

### Auto Tilt Up

When the ignition switch is ON, press the "TILT UP" side on the switch and the roof will automatically tilt up fully. To stop it partway, briefly press the "SLIDE OPEN" side or "TILT UP" side on the switch. Press the "TILT UP" side on the switch, and the roof will automatically tilt down fully. To stop it partway, briefly press the "SLIDE OPEN" side or "TILT UP" side on the switch.

## Operation

The roof control unit monitors the roof switch input. The roof control unit controls the roof motor output, moving the roof glass to the required position. The sliding roof operates only when the ignition switch is turned ON.

## Specifications

### Torque Specifications

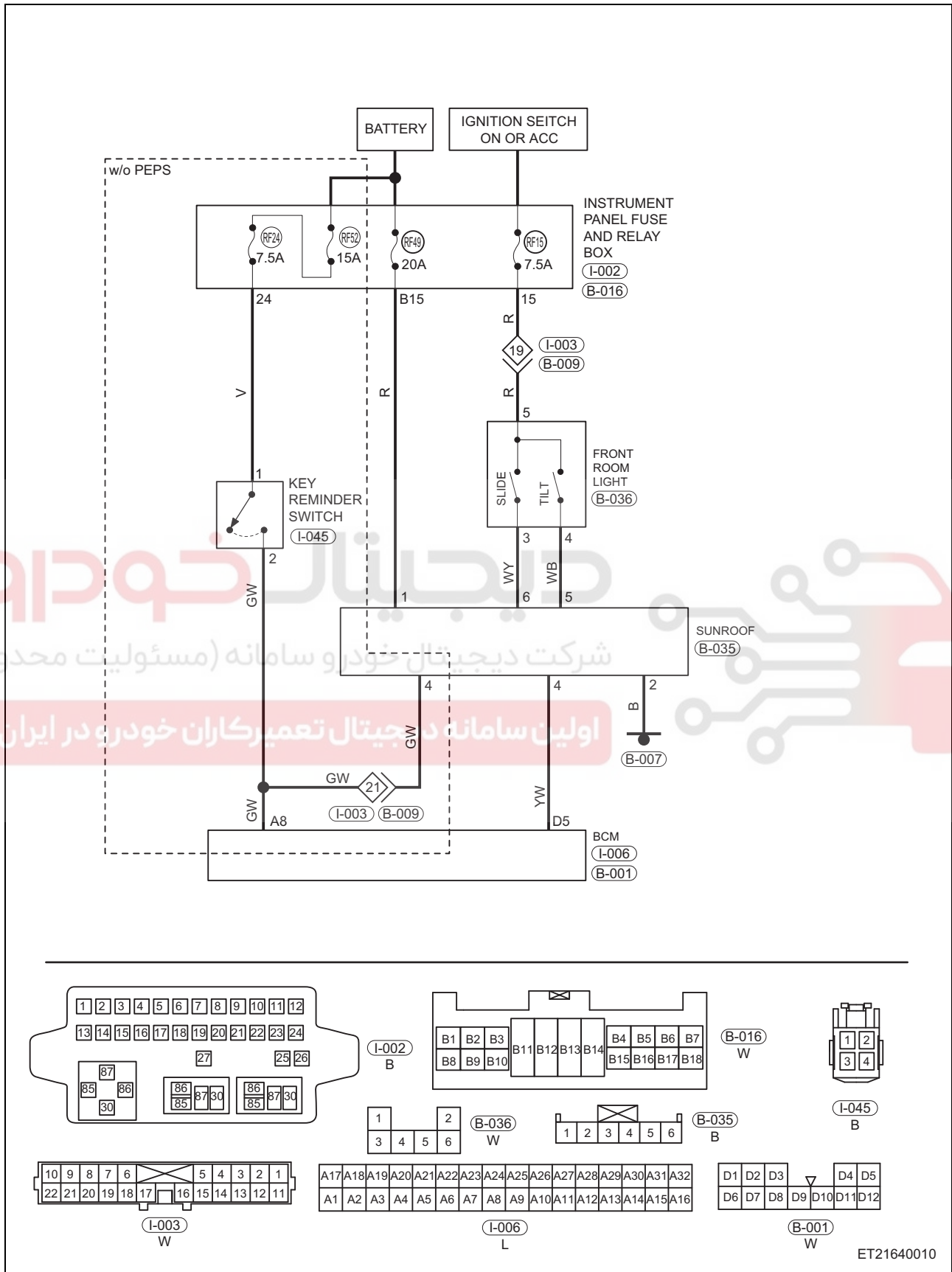
Description	Torque (N·m)
Roof Switch Fixing Screw	1.5 ± 0.5
Roof Glass Fixing Bolt	5 ± 1
Roof Bracket Fixing Bolt	9 ± 1

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# Circuit Diagram



## DIAGNOSIS & TESTING

### Initialization

If any of the following conditions occurs, the roof should be initialized:

#### 1. Roof power supply malfunction

If the power supply is malfunctioning during the roof operation (the roof control unit will store the malfunction), the roof should be initialized.

If the power supply is malfunctioning within 5 seconds after the normal operation stops, the roof control unit will not have enough time to store the parameter and the roof should be initialized.

#### 2. Roof mechanical malfunction

If the roof is used for certain time and cannot close in place (there is a gap between the mechanical components), the roof should be initialized. Generally, the roof should be initialized approximately every two years.

### Roof Initialization Step

Press and hold the tilt switch for more than 15 seconds.

If the ignition switch is turned off during operation, the initialization will be failed.

### Problem Symptoms Table

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#### HINT:

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

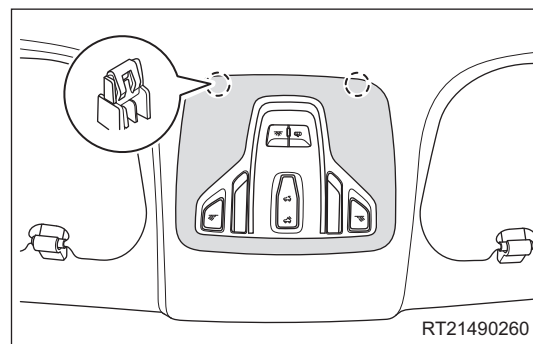
Symptom	Suspected Area	See page
Roof window cannot be operated with roof switch	Fuse	68-37
	Roof switch	64-7
	Roof motor	64-9
	Wire harness or connector	-
	Roof control unit	64-10
Roof window cannot return its initial position when the key is removed	Wire harness or connector	-
	Key switch	-
	BCM	-

## ON-VEHICLE SERVICE

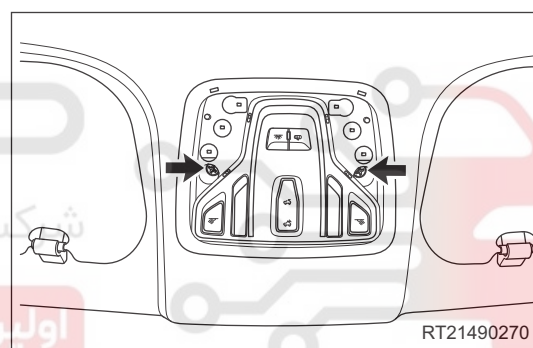
### Roof Switch Assembly

#### Removal

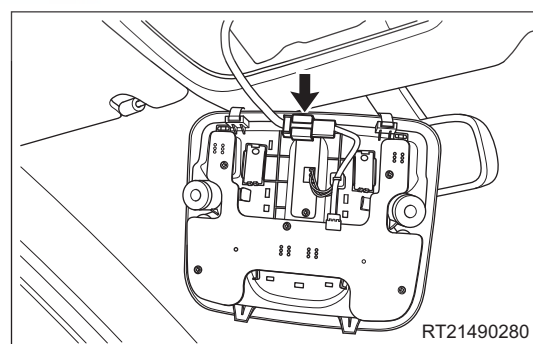
1. Turn off all electrical equipment and the ignition switch.
2. Disconnect the negative battery cable.
3. Remove the roof switch assembly.
  - a. Using a flat tip screwdriver wrapped with protective tape, remove the roof switch assembly cover.



- b. Remove 2 fixing screws (arrow) from roof switch set. (Tightening torque:  $1.5 \pm 0.5 \text{ N}\cdot\text{m}$ )



- c. Disconnect roof switch assembly wire harness connector (arrow), and move it away.



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#### Installation

Installation is in the reverse order of removal.

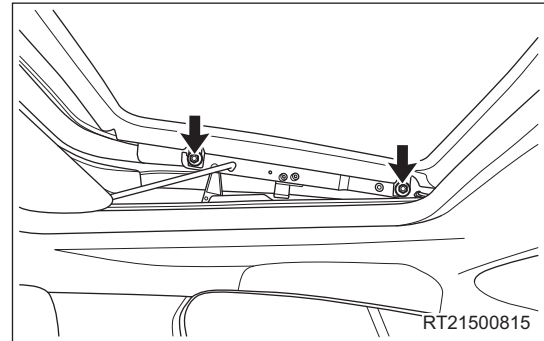
## Roof Glass

### Removal

#### HINT:

Before removing the roof glass, operate the roof switch first to open the roof to a fully tilted position.

1. Turn off all the electrical equipment and ignition switch.
2. Disconnect the negative battery cable.
3. Remove the roof glass.
  - a. Remove 2 fixing bolts (arrow) on the left side.  
(Tightening torque:  $5 \pm 1$  N·m)



- b. Remove 2 fixing bolts on the right side.  
(Tightening torque:  $5 \pm 1$  N·m)
  - c. Remove the roof glass.

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### Installation

Installation is in the reverse order of removal.

#### CAUTION

- The flatness tolerance between front part of roof glass and top roof is  $1 \sim -2$  mm, the flatness tolerance between rear part of roof glass and top roof is  $-1 \sim 2$  mm.
- The gap between roof glass and top roof is  $3.5 \pm 0.5$  mm.
- Check the open and close operations of the roof after installation to ensure that there is no abnormality.



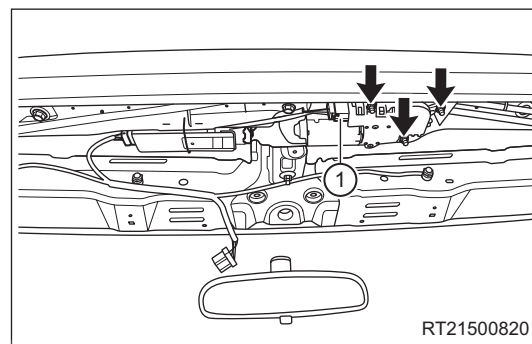
## Roof Motor

### Removal

#### HINT:

Before disassembly, operate the roof to fully closed position.

1. Turn off all the electrical equipment and ignition switch.
2. Disconnect the negative battery cable.
3. Remove the roof assembly (See page 63-32).
4. Remove the roof motor.
  - a. Disconnect the roof motor connector (1) and remove the 3 roof motor fixing nuts (arrow).



- b. Remove the roof motor.

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### Installation

Installation is in the reverse order of removal.

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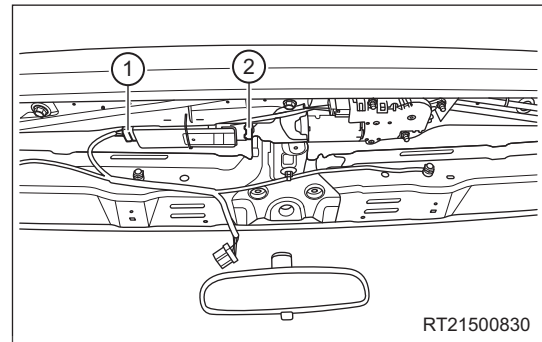
## Roof Control Unit

### Removal

#### HINT:

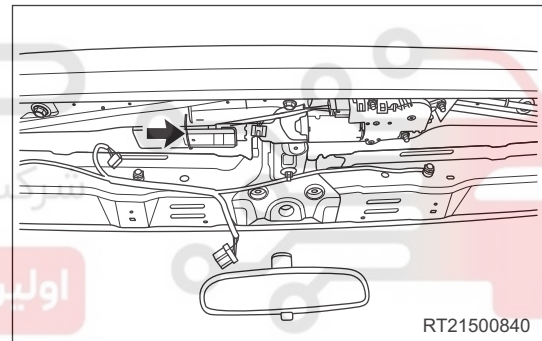
Before disassembly, operate the roof to fully closed position.

1. Turn off all the electrical equipment and ignition switch.
2. Disconnect the negative battery cable.
3. Remove the roof assembly (See page 63-32).
4. Remove the roof control unit.
  - a. Disconnect the connectors (1) and (2) from roof control unit.



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- b. Remove the nylon cable tie (arrow) from roof control unit.



- c. Remove the roof control unit.

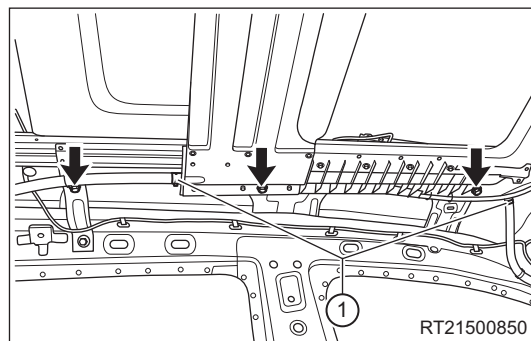
### Installation

Installation is in the reverse order of removal.

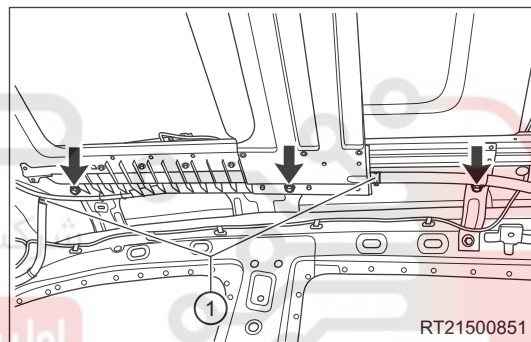
## Sliding Roof Bracket

### Removal

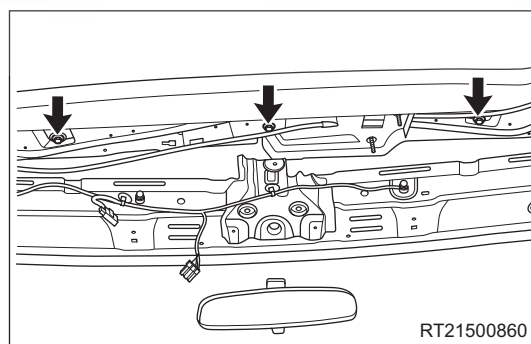
1. Turn off all the electrical equipment and ignition switch.
2. Disconnect the negative battery cable.
3. Remove the roof glass (See page 64-8).
4. Remove the roof assembly (See page 63-32).
5. Remove the sliding roof bracket.
  - a. Remove 3 fixing bolts (arrow) on the left side of the sliding roof bracket, loosen the 2 clamps (1) and disconnect the left side drain hose. (Tightening torque:  $9 \pm 1$  N·m)



- b. Remove 3 fixing bolts (arrow) on the right side of the sliding roof bracket, loosen the 2 clamps (1) and disconnect the right side drain hose. (Tightening torque:  $9 \pm 1$  N·m)



- c. Remove 3 fixing bolts (arrow) on the front side of the sliding roof bracket. (Tightening torque:  $9 \pm 1$  N·m)



- d. Remove the sliding roof bracket.
6. Remove 2 positioning clamps and remove the sun visor.

## Installation

Installation is in the reverse order of removal.

### CAUTION

- Check the open and close operations of the roof after installation to ensure that there is no abnormality.
- Check the sliding roof for water leakage.

