

# SUNROOF SYSTEM

7340-00/7340-01/7340-02/  
7340-04/7340-05/7770-20/

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## SUNROOF SYSTEM

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# دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

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**SUNROOF SYSTEM****7340-00****GENERAL INFORMATION****1. SPECIFICATIONS**

Operating voltage	9 ~ 16V
Operating current (open & close)	Max. 6 A
At no load	Approx. 3 A
Leakage current	Max. 1 mA or less
Roof motor operating speed (at opening and closing)	1.4 ± 0.5 sec./100 mm
Motor overload stop conditions	Current for 25 A or higher and torque (load) for 7.5 Nm or above
2-step opening amount	1st step sliding open: 370 ± 5 mm
	2nd step sliding open: 450 ± 5 mm
Vertical/horizontal tolerance for sunroof glass panel	± 2mm

**2. CAUTIONS**

## ► Cautions during work

**⚠ CAUTION**

- Wear a clean work clothes and gloves.
- Any unauthorized modification or operational test is not allowed since the sunroof motor and control unit are preset at the factory.
- Take care not to drop or stack vertically when removing the sunroof. This may cause the moving parts to be damaged.

Modification basis	
Application basis	
Affected VIN	

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## OVERVIEW AND OPERATING PROCESS

### 1. SYSTEM LAYOUT



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## 2. OPERATING PROCESS

### 1) Sunroof Switch

#### ► Sunroof switch

The sunroof switches are included in the overhead console switches and consists of the TILT, CLOSE and OPEN switches.



#### ▷ TILT

Opens only rear section of the sunroof.

#### ▷ CLOSE

Closes the sunroof.

#### ▷ OPEN

Opens the sunroof.



#### ► Sunroof glass

The sunroof glass can be open in two steps and can be tilted by the switch operation.

#### ► Sun shade panel

This can be closed or open manually to block sunlight when the sunroof function is not in use.

Modification basis	
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## 2) Sunroof Sliding Opening/Closing

### Open: 2-step open



- Push up the switch

#### - Push up the switch briefly: 2-step auto sliding open

When pushing up the switch briefly, the sunroof is automatically opened. Opening is carried out in 2 steps. In first step, the area 5 cm behind the sunroof is not opened. Push up the switch once again in order to open the sunroof completely. The sunroof operation stops if you operate the switch during its operation.

#### - Push up and hold the switch: manual sliding open

The sunroof is opened as long as pushing up the switch.

### Closing sunroof (Sliding close)



- Pull down the switch

#### - Pull down the switch briefly: auto sliding close



When pulling down the switch briefly, the sunroof is automatically closed. To stop the closing sunroof, operate the switch to either direction.


#### - Pull down and hold the switch: manual sliding close

The sunroof is closed as long as pulling down the switch.

### 3) Sunroof Tilt Up/Down

This function is to raise or lower the rear section of the sunroof.

Tilt Up	
	
<p>- Pull down the switch</p>	
<p>- The rear side of the sunroof is tilted up when pulling down the sunroof switch with the sunroof closed.</p>	

Tilt Down	
	
<p>- Push up the switch</p>	
<p>- The rear side of the sunroof is tilted down when pushing up the sunroof switch with the sunroof tilted up.</p>	

#### CAUTION

When leaving the vehicle, make sure the sunroof is completely closed. The sunroof may look closed but it might be tilted up.

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#### 4) Sunroof Safety Function

To prevent any body parts from being trapped by the sliding sunroof, an Anti-Pinch Function automatically opens the sunroof when an object is trapped.

##### CAUTION

The anti-pinch function is deactivated just before the sunroof closes.

The sunroof safety function is just a safety supplementary system which cannot replace driver's care and caution. Moreover, it may not be able to operate due to electric part or other conditions.

##### ► Wind buffeting

- When you drive this vehicle with the window or sunroof open at a certain position, you may feel some pressure upon your ears or hear some noises similar to those from a helicopter. This happens because of an influx in air through the window or sunroof and its resonance effect. If this happens, adjust by opening the window or sunroof.

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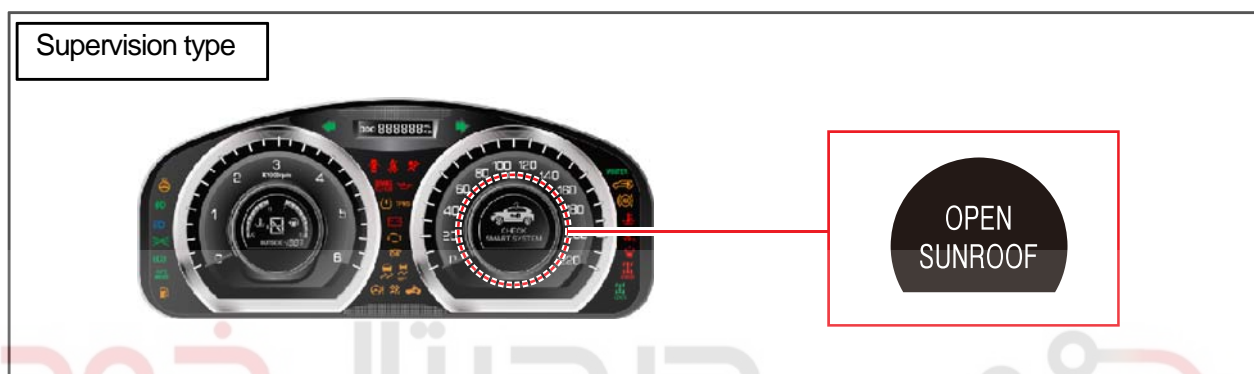
### 3. SUNROOF OPEN WARNING

#### 1) Warning Sound

When removing the key and then opening the door with the sunroof open, the warning sound is heard. Closing the door stops the warning sound.

#### 2) Message on Instrument Cluster

The following message is displayed on the screen in the instrument cluster.



#### CAUTION

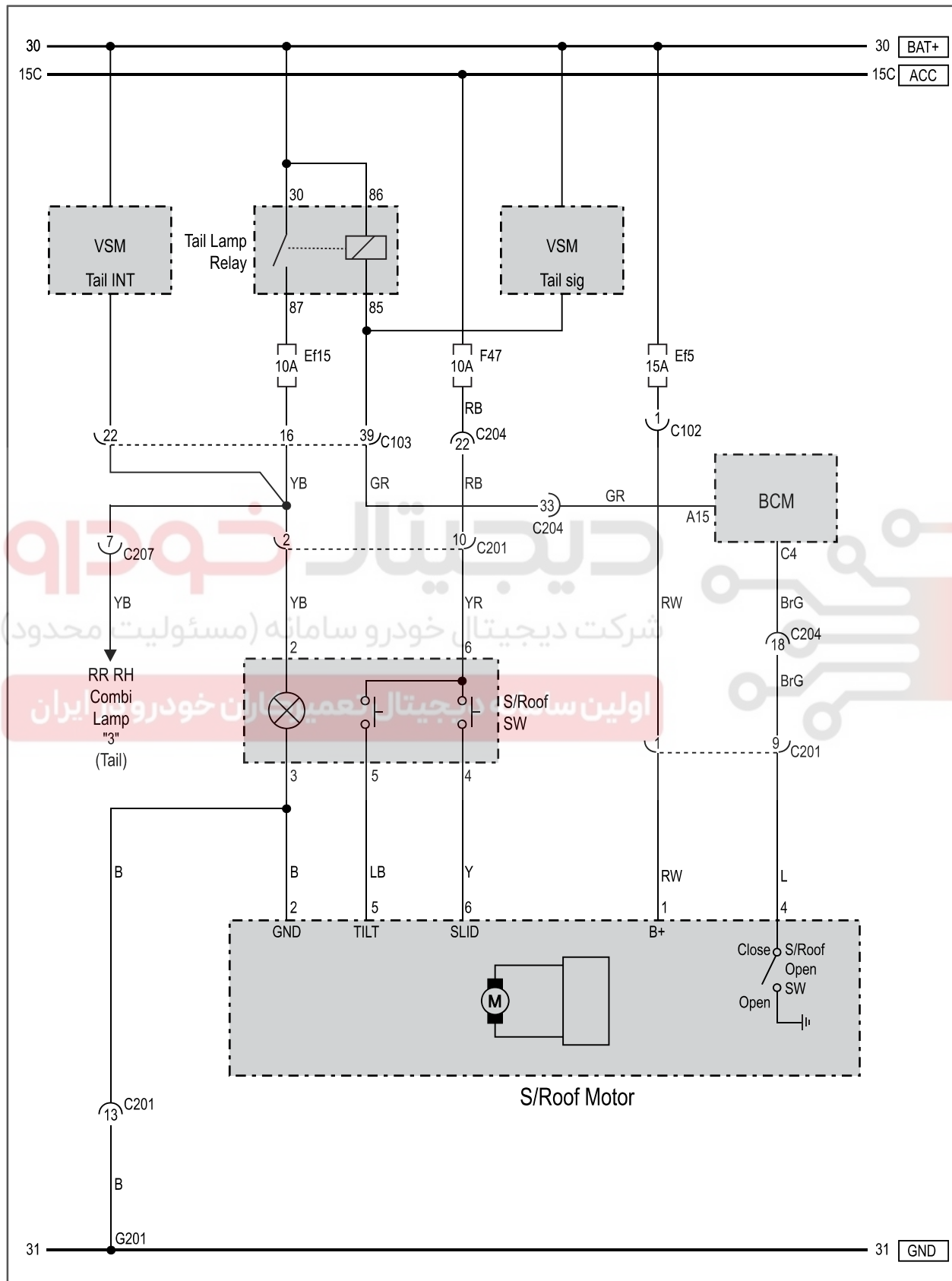
##### General precaution for sunroof

- Even though the sunroof can be operated when the engine is not running, operating the sunroof repeatedly with the engine turned off will run down the battery. Operate the sunroof while the engine is running.
- When the sunroof operation is completed, release the switch. Keeping pressing the switch can result in malfunction.  
Especially in winter, never operate the sunroof if operation areas are iced. Wait until melted. Make sure that the sunroof is completely closed when leaving the vehicle. Leaving the vehicle with
- the sunroof open result in a theft. In addition, rain or snow can get into the vehicle through the open sunroof.  
When the sunroof is fully open, wind buffeting symptom can be worse. In this case, try to adjust
- the sunroof position manually or open the sunroof into 1st first step until the wind buffeting is disappeared.  
Parts of the body can be trapped in the sunroof and can be struck by passing objects. Do not stick
- hands, head or anything else out of the openings.  
Remove any dirt and foreign material stuck on the edge of the sunroof glass periodically.
- Noise can occur due to friction when operating the sunroof.

Modification basis	
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Affected VIN	

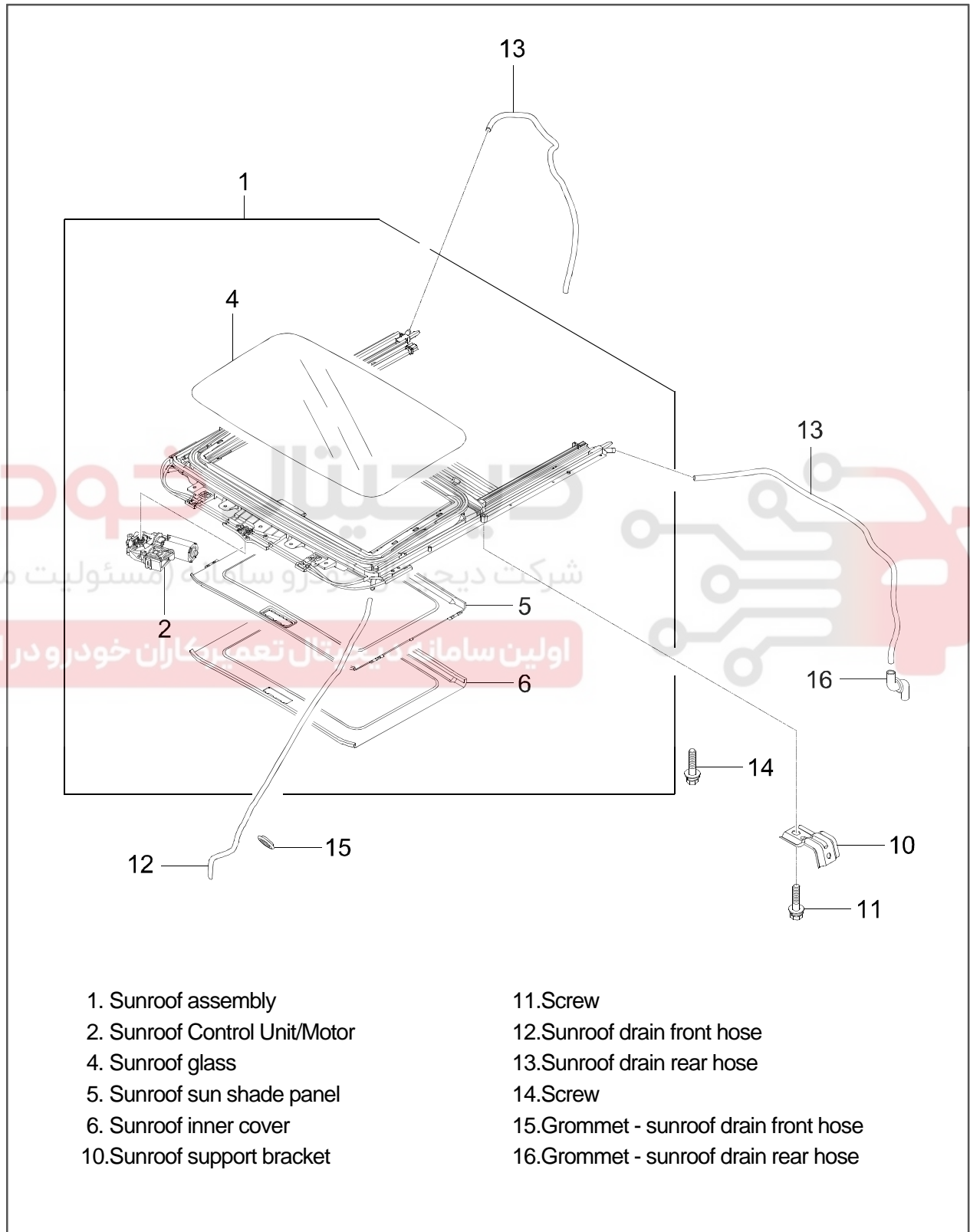


## 4. CIRCUIT DIAGRAM



## CONFIGURATION AND FUNCTION

## 7340-00 COMPONENTS



Modification basis	
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## 7340-02 SUNROOF CONTROL UNIT (SCU)

### 1) Mounting Location



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### 2) Functions

#### (1) Sunroof switch & soft stop position

	OPEN switch	TILT switch		Location
Slide soft stop	X	Auto, Manual	X: Not operated Auto: One-touch Manual: as long as operating switch Soft stop: 370 mm	450 mm
Slide	Auto, Manual	Auto, Manual		0 ~ 450 mm
Close	Auto, Manual	Auto, Manual		0 mm
Tilt	Manual	Auto, Manual		-43 ~ 0 mm
Tilt soft stop	Manual	X		-43 mm

#### (2) General conditions

##### ► Switch debounce time

- Operating the switch for less than 40 msec ( $\pm 5$  msec) is overridden.

##### ► Automatic stop position

- The sunroof automatically stops at the following positions:
- Slide 1st stop (370 mm), Slide soft stop (450 mm), Close, Tilt soft stop

### ► Restriction

- If the running speed drops below the set value due to restriction or overload during operation, the motor is stopped for protection.

### ► Overload

- If the motor does not rotate for certain period of time after power is supplied, the motor is stopped for protection.

### ► Limitation of max. operating time

- If the motor operates to one direction for over 20 seconds, the unit considers this as malfunction and stops the motor.

### ► Initialization

#### - Clearing position information

When pressing and holding the TILT switch for over 5 seconds (resetting) provided that the sunroof panel does not move any longer, it will move again.

#### - Zero-point setting

When you press the TILT switch in all the way so that the motor is restrained at the end of tilting position, the relay is automatically cut off and the zero point setting is carried out. When the CLOSE switch is pressed again, the motor stops at the closed position.

## (3) Normal mode operation

- When the switch is pressed for more than 500 msec ( $\pm 50$  msec), the sunroof is operated until the switch is released.

## (4) One-touch operation

- If the switch is pressed for more than 40 msec ( $\pm 5$  msec) of debounce time and less than 500 msec ( $\pm 50$  msec), the sunroof keeps moving even without pressing the switch. When the sunroof reaches the soft stop position or any switch is pressed while the sunroof is operating, it will stop.

If the sunroof is closed in this mode, anti pinch function is activated.

## (5) Soft stop

- The sunroof stops at 370 mm automatically during opening.

## (6) Sunroof open warning

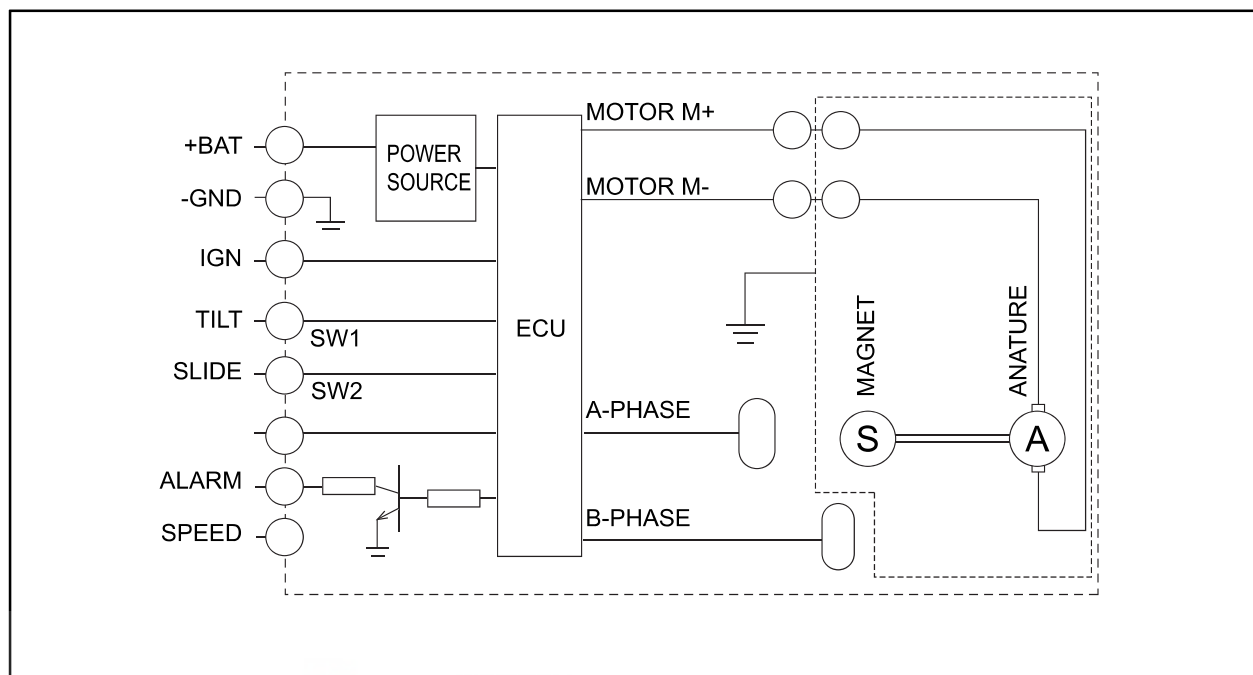
- When the sunroof is opened, the alarm signal is sent to the instrument cluster (supervision type) and a buzzer sounds to inform the driver of this.

## (7) Anti pinch mode

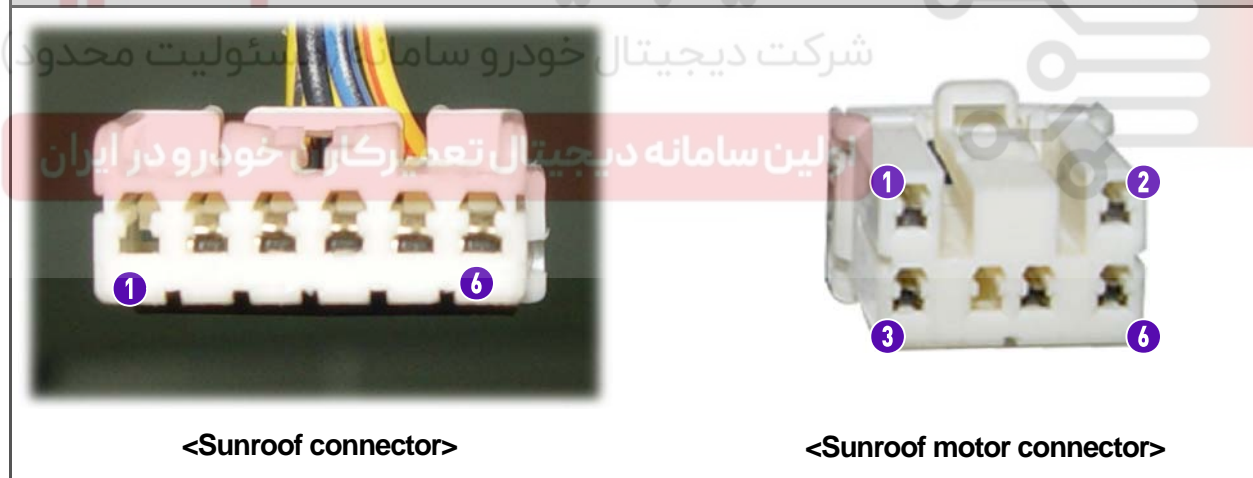
- The sunroof stops automatically and then moves to the original position when an obstacle is detected while the sunroof is being closed.

Modification basis	
Application basis	
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### 3) Circuit Diagram



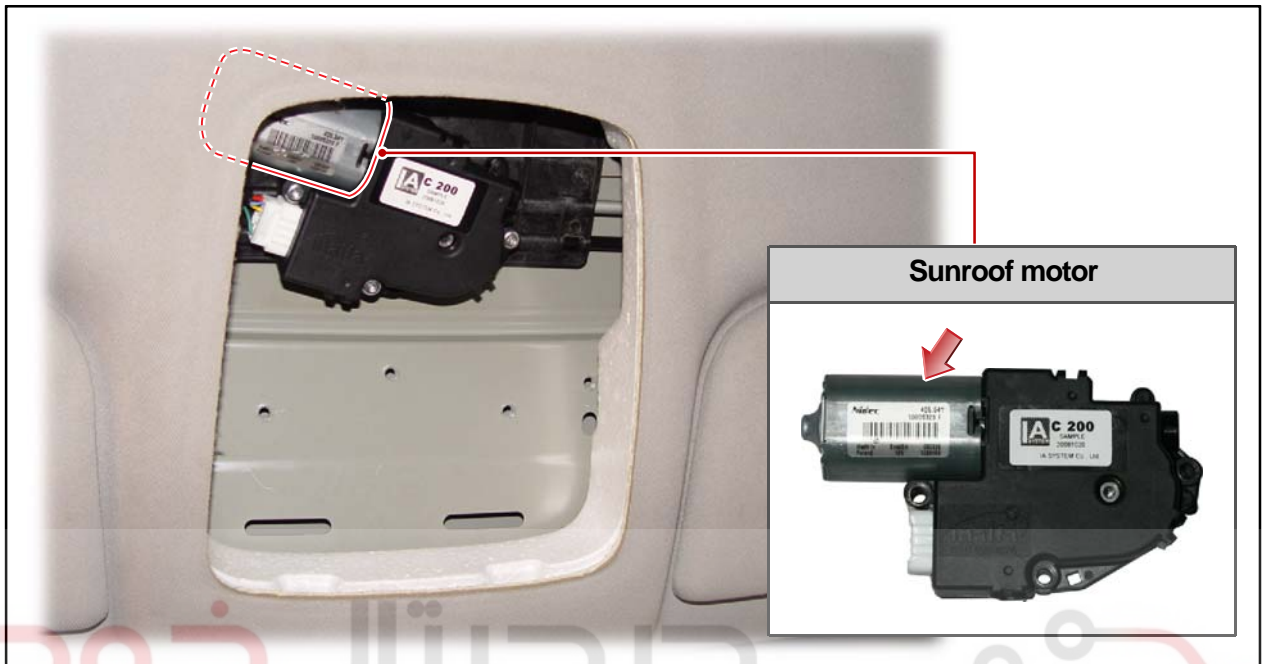
Sunroof connector



Pin No.	Function
1	-
2	ILL (+)
3	ILL (-)
4	Slide
5	Tilt
6	IGN

Pin No.	Function
1	B+
2	GND
3	-
4	Alarm signal
5	Tilt
6	Slide

S.G.N.

**7340-02 SUNROOF MOTOR****1) Mounting Location****2) Function****NOTE**

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The sunroof motor moves the glass panel to the certain position according to the input signal (open, close and tilt) from the sunroof switch.

**(1) Emergency Operation**

- ▷ If the sunroof becomes out of order while it is open or tilted, the sunroof can be operated through the motor operating hole of the sunroof motor.

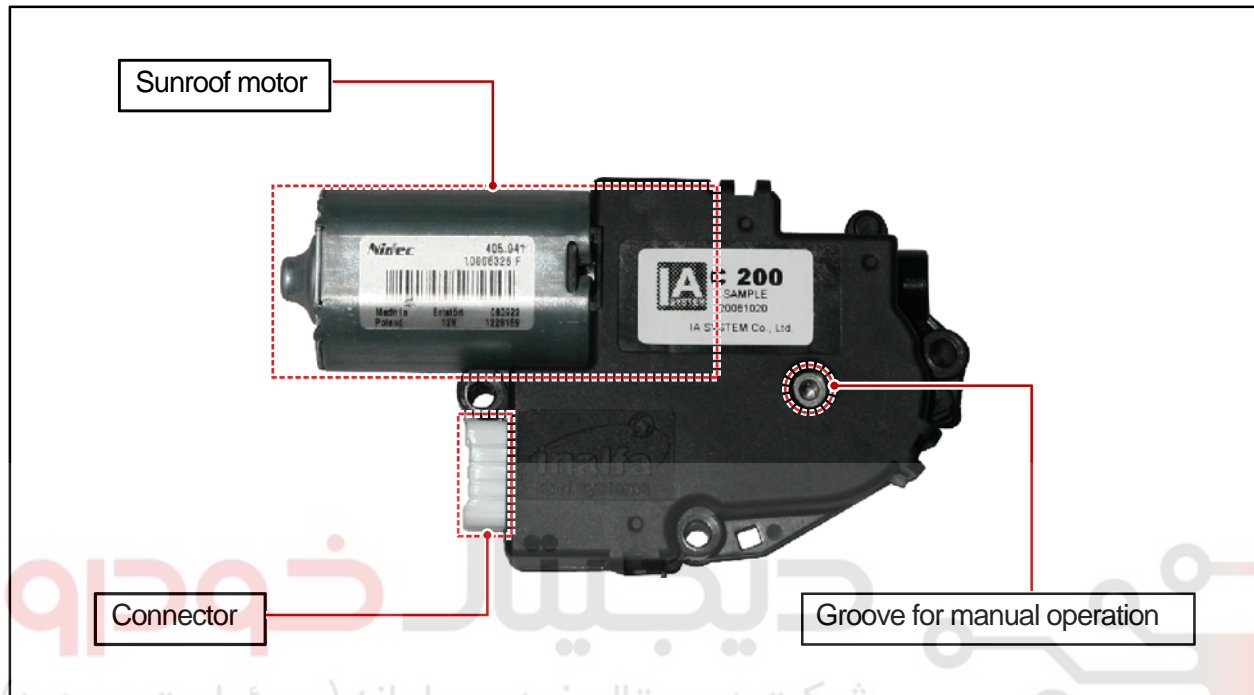
Modification basis	
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#### 4) Configuration

The sunroof motor has the worm gear type reduction gear. It has also the hall type position sensor which detects the position of the sunroof glass and micro switch which limits the rotation range on the upper part of the ring gear.



#### NOTE

##### Hall sensor

This is the sensor using the hall effect, in which a potential difference is formed in a direction perpendicular to that of the current flow depending on the change of magnetic field.



## REMOVAL AND INSTALLATION

S.G.N.

## 7340-00 TROUBLESHOOTING

Symptom	Cause	Action	Remark
During operation when driving	Noise resulting from improper height difference opening sunroof	Check the height difference.	-
	Noise resulting from interferences between body roof and wind deflector when closing sunroof	Check the wind deflector for deformation and proper installation.	-
	Friction noise between body roof and sunroof during operation	Remove the foreign materials on the glass sealing parts and the body roof, and then apply silicon oil.	When applying oil, do not use any types of grease.
	Interference with mechanism causes abnormal noise during operation because of foreign materials (e.g. sand and dust) stuck in the guide rail	Remove the foreign materials from the guide rail and apply grease.	-
	Rattling noise during operation	Check the motor.	Check that sunroof is assembled correctly.
	Noise from motor	Replace the motor.	Stop the sunroof operation and check for any noise after 30 minutes. - Abnormal noise due to overload can occur when sunroof is operated several times consecutively.

Modification basis	
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Symptom	Cause	Action	Remark
Abnormal noise when driving	Noise resulting from dislocation of cover mechanism	Reinstall or replace the cover mechanism.	-
	Noise when driving on bumps and rough road with sunroof closed	Remove the foreign materials on the glass sealing parts and the body roof, and then apply silicon oil.	When applying oil, do not use any types of grease.
	Improper height difference between glass panel and body roof	Adjusting height difference	Follow how to adjust height difference in order to adjust it.
	Noise when driving on bumps and rough road	Reinstall the sunroof.	Reassemble the sunroof mounting bracket parts.
	Abnormal noise from around sun shade panel while driving with it closed.	Apply grease to the sun shade panel tap.	Attach the pad for sun shade panel tap.
	Different noises from sunroof	Check the wiring harness around the head lining for interference and check the dual lock.	



Symptom	Cause	Action	Remark
Abnormal noise when driving	Clash or other noises	Check the body reinforcement parts.	Check the mounting section engaged with the sunroof.
	Dislocation of sun shade	Check and replace the sun shade panel.	
	Dislocation of drain channel	Check and replace the drain channel.	
Malfunction	Broken cover mechanism	Replace	
	Improper operation of motor	Replace	
	SCU malfunction	Replace	Exact diagnosis is required when servicing because SCU and motor have similar types of malfunction.
	Opened again while being closed	Remove the foreign materials Remove foreign materials	
	Switch malfunction	Replace	Might be confused with sunroof malfunction. Exact diagnosis required when servicing.
Leakage	1. Damaged seal 2. Damaged molding of seal 3. Broken glass panel	Replace the glass panel.	
	Glass panel jolted forward or backward with sunroof closed	Adjust the clearance and height difference.	
	Leaks at the rear of glass panel when washing	Check and reinstall the drain hose.	
	Leaks on pillar	Check and reinstall the drain hose.	

Modification basis	
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## 1) Emergency Action

If the sunroof becomes out of order while it is open or tilted, the sunroof can be operated through the motor operating hole of the sunroof motor.

### (1) Cautions for malfunction

- Faulty sunroof motor or sunroof control unit
- Broken sunroof cable and faulty mechanical parts
- Open or short circuit in sunroof switch and corresponding wiring

### (2) Symptoms

- Sunroof does not operate.
- Sunroof does not tilt down or close when operating it.

### (3) Action required



1. Remove the overhead console.



#### NOTE

See "OVERHEAD CONSOLE" under "REMOVAL AND INSTALLATION" in "LAMP SYSTEM" chapter.



2. Turn the groove (A) for manual operation of the sun roof motor clockwise using a tool.

## 2) Reset of Sunroof Zero Point (Initialization)

### Preceding work

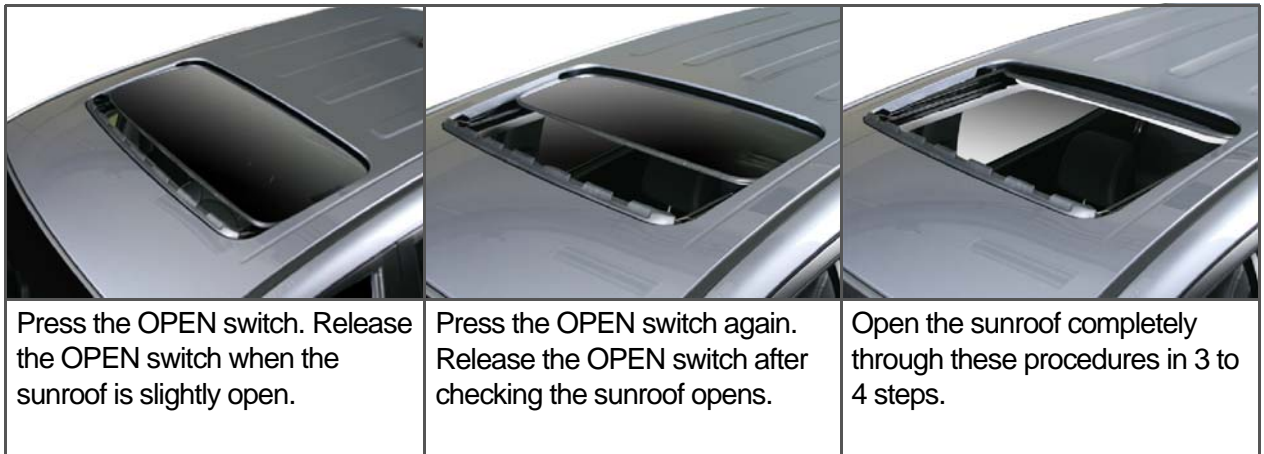
1. Park the vehicle in a safe place.
  2. Start the engine to prevent battery discharge.
1. Pull down and hold the sunroof switch to enter the sunroof tilt process mode until the tilting operation is completed.



2. When the tilting operation is completed, release the TILT switch and then press the TILT switch again.



3. Press the OPEN switch 3 or 4 times to open the sunroof in 3 or 4 steps manually. Check that the sunroof is slid open.



Press the OPEN switch. Release the OPEN switch when the sunroof is slightly open.

Press the OPEN switch again. Release the OPEN switch after checking the sunroof opens.

Open the sunroof completely through these procedures in 3 to 4 steps.

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4. Check the sunroof one-touch operation after the above initialization process is completed.

	
	<p><b>1</b> One-touch closing Briefly pull down the switch with the sunroof open</p> <p><b>2</b> Tilting Briefly pull down the switch with the sunroof closed</p>
	
	<p>One-touch opening check (sliding open)</p> <p>A. Briefly push up the OPEN switch B. Briefly push up the OPEN switch again</p>

5. If the sunroof one-touch operation is normally performed, check for its manual operation (operation during the switch is pressed).

6. If the sunroof normally operates, reset the sunroof starting point again.



### 3) Zero-Point Setting of Motor

This allows you to operate the sunroof normally when the motor needs to be replaced due to malfunction or deactivation after setting the zero point or when the operation error occurs due to an unauthorized mechanic's operation.

#### (1) Zero point setting off when:

- 1) Any component of the sunroof (e.g. motor, SCU) is faulty
- 2) Setting off by the operator with poor operational test when replacing the sunroof assembly or components (e.g. motor, SCU)
- 3) The components are damaged due to short circuit and electric leak caused by traffic accident, etc.

#### (2) Symptoms when zero point setting off:

- 1) The one-touch operation cannot be activated even after the sunroof setting has been calibrated.
- 2) The sunroof is tilted or slid even after the sunroof setting has been calibrated.
- 3) The sunroof opening and tilting level is significantly low even after the sunroof setting has been calibrated.
- 4) The sunroof does not operate properly or operates only during the switch operation even after the sunroof setting has been calibrated.

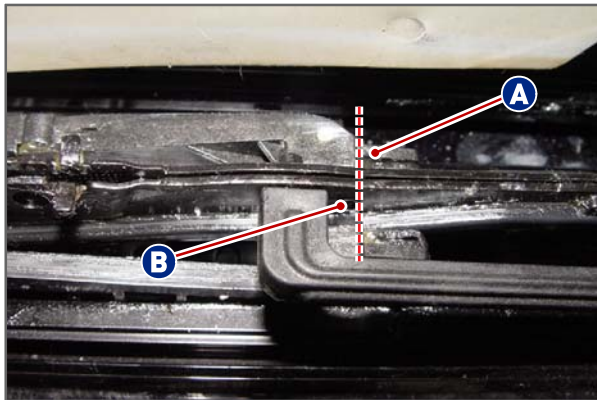
#### (3) How to set zero-point of motor



- 1) Press the CLOSE switch so that the sunroof glass is in the tilt up position.
- 2) Press and hold the CLOSE switch for more than 5 seconds.
- 3) If so, the gear on the motor moves slightly while knocking.
- 4) This indicates that zero-point setting is completed.
- 5) After the reset is completed, check that the sunroof operates normally.

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#### (4) How to set zero-point of mechanism



- 1) Remove the sunroof motor.
- 2) Align the mechanism with the small hole.

#### (5) Actions after reset

- 1) If the sunroof does not operate properly, replace the sunroof control unit.
- 2) If the sunroof does not operate at all, check the power supply system.
- 3) If the sunroof does not operate at all with good power supply system, replace the sunroof control unit.
- 4) If the sunroof operates only during the switch operation, check if the ground circuit of switch is proper and reset the sunroof system.



#### NOTE

- The malfunction can be rectified by resetting the sunroof. The motor is usually replaced when the sunroof does not work at all due to its fault.
- Do not turn the switch on with only the sunroof control unit connected in order to check if the sunroof operates properly. To prevent this, it is recommended to avoid operating the sunroof without permission when replacing the motor.
- When the motor is removed, the glass panel on the sunroof may be moved with some force. Therefore, never touch any components of the sunroof under any circumstances, if the motor has been removed.

## 4) Abnormal Noise From Dual Lock

The following action can be used when the rattling noise is heard while driving on the rough roads.

### 1. Cause for the rattling noise

- 1) Poor assembly - when the dual lock attached to the headlining is not fully inserted to the dual lock attached to the sunroof.

### 2. Symptoms

- 1) Intermittent noise - when driving on rough roads.
- 2) When the mechanic pulls out or pushes the end of the headlining in contact with the end of the sunroof.
- 3) Similar to the sounds from steel plate hitting by wire.

### 3. Action

- 1) Reassemble dual lock - Reassemble head lining by checking attach points.  
Do not remove the head lining completely, reassemble the edge (dual lock mounting part) of the sunroof glass only.
- 2) If the noise can't be eliminated due to partial damage, apply spray adhesive and press it to in place securely.

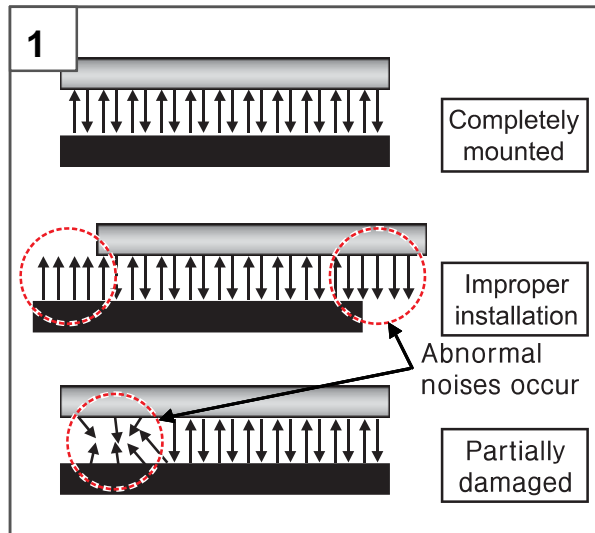


#### NOTE

- When the entire or some part of the dual lock is broken due to improperly assembled headlining, the same abnormal noise can also be heard. So, you should assemble the dual lock very carefully. Since the position can be changed while assembling, you should tighten it point by point.

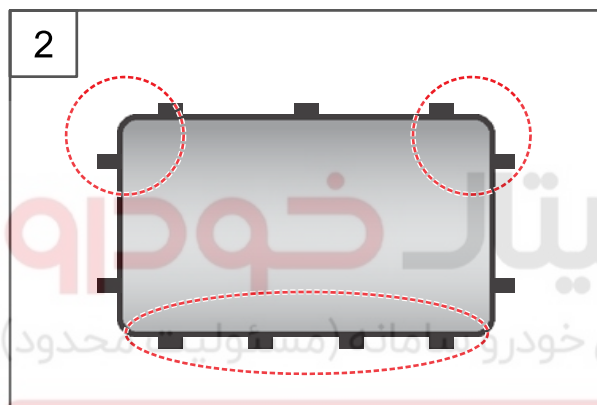
Modification basis	
Application basis	
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1. Remove the headlining (dual lock mounting part).

- a. Check service history: replacement history of head lining
- b. Check attachment (Red dotted line in the figure)



2. After removing, attach it point by point.

- a. Attach it point by point completely with some space left over.



#### NOTE

- Many breakaways occur in the areas shown with dotted lines.

## 5) Friction Noise Between Glass Panel Seal and Body Roof

The following action can be used when it seems that the noise is heard from the glass panel seal during the sunroof is closed from tilting.

### 1. Abnormal noise from seal when

- 1) Foreign materials - abnormal noise due to interference caused by foreign materials caught between the glass panel seal and the roof panel.
- 2) Improper installation - abnormal noise due to excessive interference caused by incorrect installation when fitting or replacing the sunroof.
- 3) Exterior coating - when exterior coating has been applied excessively between the seal and the body.

### 2. Symptoms

- 1) Intermittent noise - when driving on rough roads (similar to the sounds from steel plate hitting by wire).
- 2) Symptom reproduced when the operator pulls out or pushes glass panel by hand.
- 3) Rubbing sound during operation.

### 3. Action

- 1) Wipe off the glass panel seal and the interfered roof panel with clean cloth.
- 2) Use the silicon oil to facilitate lubrication for the seal and body roof panel.



#### NOTE

- Do not apply the grease to the glass panel seal to eliminate the noise since it could be damaged. For the vehicle with the glass panel replaced, wash the roof surface before fitting it.
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Modification basis	
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1. Check that the noise is heard from the glass panel seal.

- a. Check service history: replacement history of glass panel
- b. Check abnormal noise: Opening the glass panel can solve the problem, if the noise is heard from the glass panel seal.



2. Wipe off the glass panel seal and the interferences in the roof panel.

- a. Wipe off the glass panel seal and remove the foreign materials in the roof panel by opening or tilting the glass panel.

3. Inform the customer that the noise can be occurred by the foreign materials in the glass panel seal.

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## 6) Foreign Materials In Guide Channel

The following action can be used when the foreign materials in the guide prevent proper operation or make abnormal noise.

### 1. Cause

- 1) Owner's fault: When you throw out the waste material through the sunroof, it might be caught in the operation resulting in limited operation or abnormal noise.
- 2) Leaves or other things brought inside: The branches, leaves or similar can be brought into the vehicle when the sunroof is open.
- 3) External contaminants: When driving on the off-road with the sunroof opened or driving on a dusty road, the dust is accumulated on the operation part, which can make abnormal noise during operation.

### 2. Symptoms

- 1) Malfunction: Does not work properly (poor action or malfunction)  
Ex) Does not work when the CLOSE switch is pressed
- 2) Noise: Same type of noises such as squeak are repeated from the same position.

### 3. Action

- 1) Remove foreign materials

It is not advisable to apply the grease or similar when an abnormal noise is heard. Doing so only causes the damage since the oils in those materials attract the foreign materials.

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1. Remove the glass panel.



2. Remove the foreign materials in the guide by operating the sunroof switch (opening the sunroof).

- a. The center part (i.e. mechanism's moving part) does not need lubricant. Check it for any oil, grease or other lubricants, and remove it if any. Do not use any cleaning agent.
- b. For the inner side shown with the arrow, remove the foreign materials using the small swab but leave the charged oil.

### CAUTION

- Avoid using the cleaning agent such as WD40.



3. Remove the foreign materials in the mechanism.

- a. Press the sunroof switch so that the sunroof is in the tilted position. Then, remove the foreign materials in the mechanism.

4. Install the glass panel.

## 7) Juddering Of Drain Channel

The following can be used in the event of the drain channel juddering when driving on the rough roads or opening and closing the door.

### 1. Cause

- 1) Incorrect drain channel dimensions: If the drain channel dimensions are not correct, there is clearance between the guide and drain channel, which results in juddering.
- 2) Poor assembly: Defective mechanism or twist when assembling the sunroof

### 2. Symptoms

- 1) Juddering occurs at the top when driving on rough roads
- 2) Juddering occurs due to impact when opening and closing door

### 3. Action

- 1) Replace the drain channel if its dimensions are not correct.
- 2) If the sunroof is not assembled correctly, remove and reassemble it.

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## OVERHEAD CONSOLE SWITCH

Preceding work

- Disconnect the negative cable from the battery.



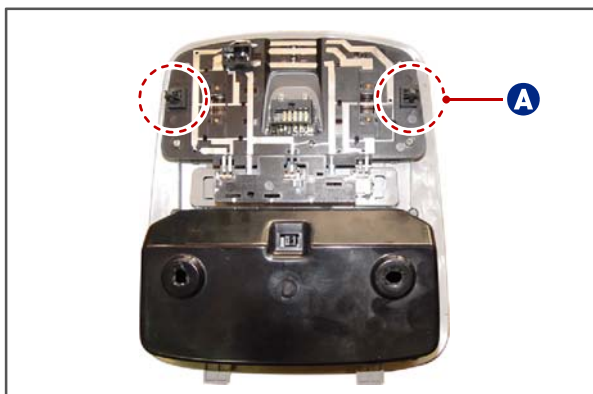
1. Unscrew the two mounting bolts (A, 10 mm).



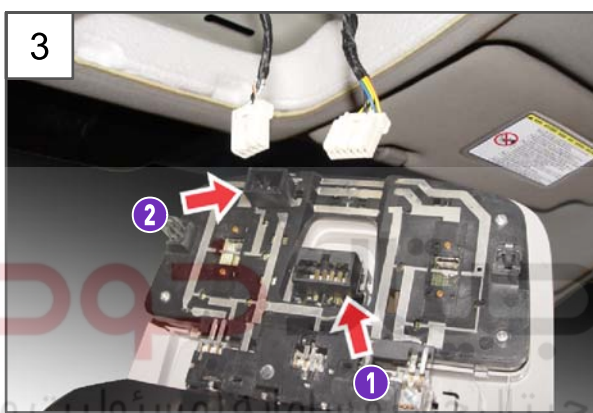
2. Remove the overhead console clip section (A) carefully as shown in the picture.

Modification basis	
Application basis	
Affected VIN	



**reference**

Overhead console clip section (A)



3. Disconnect the front room lamp connector (1) and the sunroof switch connector (2), and remove the overhead console switch.



4. Installation is in the reverse order of removal.

Modification basis	
Application basis	
Affected VIN	

SUNROOF SYSTEM

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7340-02

## SUNROOF CONTROL UNIT (SCU) / MOTOR

## Preceding work

- Disconnect the negative cable from the battery.
- Remove the overhead console switch.



1. Unscrew the 4 mounting bolts (10 mm) for the overhead console mounting bracket.



2. Remove the overhead console mounting bracket by pulling down the headlining clip section (A) slightly.

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Modification basis	
Application basis	
Affected VIN	



3. Unscrew the bolts with the three mounting Torx bit sockets (T25) on the sunroof control unit and remove the SCU.



4. Disconnect the sunroof module connectors A and B.



5. Remove the sunroof control unit from the sunroof rail.



6. Installation is in the reverse order of removal.

Modification basis	
Application basis	
Affected VIN	



04-36

7340-00

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**7340-00 WIND DEFLECTOR**

Preceding work

- Open the sunroof in the sliding way.



1. Press the wind deflector to the direction (1) and the lift it to the direction (2).



2. Remove the wind deflector by lifting it up.  
3. Install in the reverse order of removal.



SUNROOF SYSTEM

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Modification basis	
Application basis	
Affected VIN	

S.G.N.

## 7340-00 DRAIN CHANNEL

Preceding work

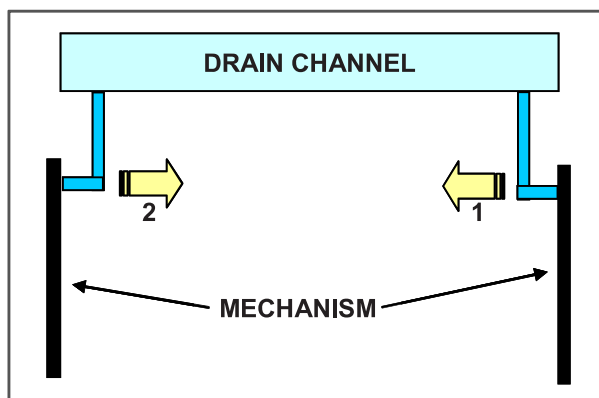
- Remove the sunroof glass.



1. Release the mechanism engagement in the drain channel.

**CAUTION**

- If it is broken, the small pieces (i.e. damaged parts) come into the operation, which leads to malfunction.
- Since it is easily detached with a small force, do not use excessive force.

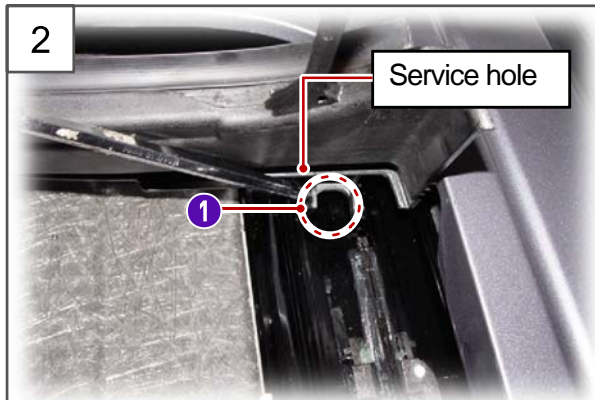


Modification basis	
Application basis	
Affected VIN	

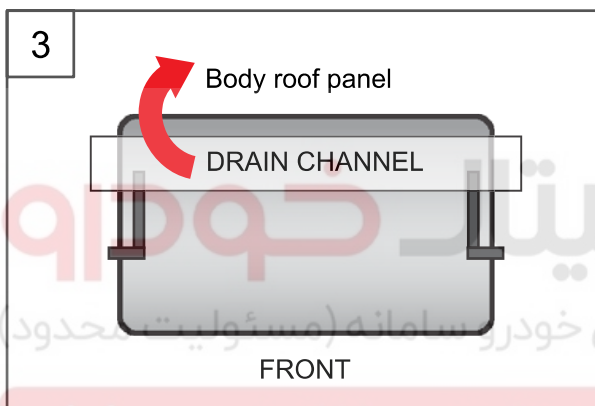
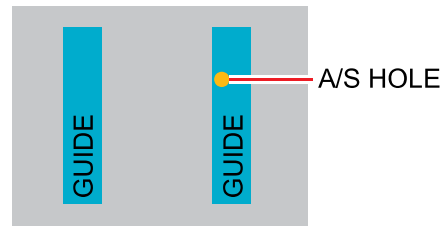
SUNROOF SYSTEM

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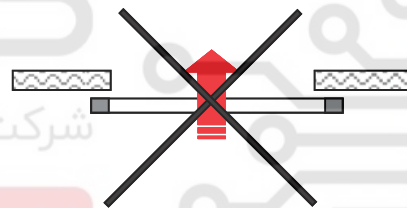




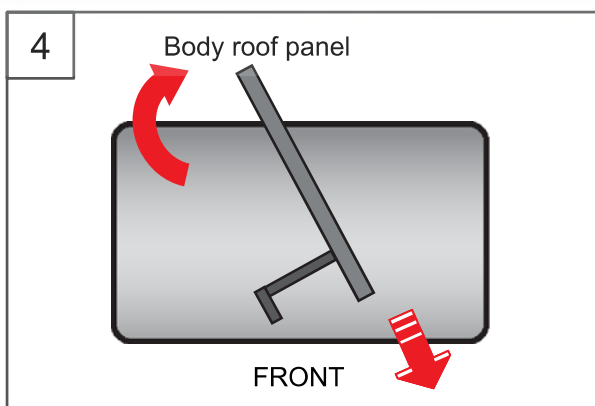
2. Disconnect the fixed part (1) from the rail through the service hole on the guide.
  - a. Disconnect the other side drain channel from the rail with the same method.



3. Since the drain channel is bigger than the opening of sunroof, you should rotate it under the roof (i.e. between roof panel and head lining) to remove it.



4. Rotate and lift out the drain channel in the direction of the arrow.



#### ⚠ CAUTION

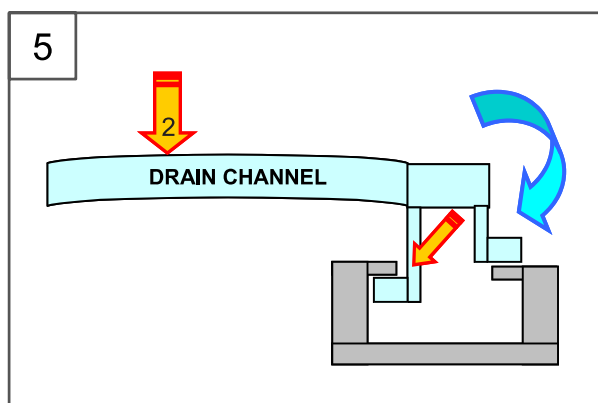
Make sure that the drain channel is not damaged when rotating it.

- a. Lift out the drain channel with the front side facing rearward.

#### ⚠ CAUTION

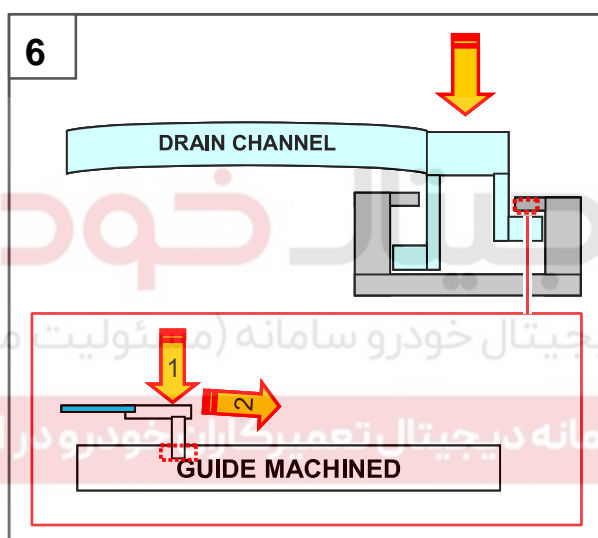
- Great care must be also taken when removing the drain channel in the direction of the arrow to ensure that the mechanism connections (marked in blue) are not caught in other parts or wiring.
- Take care not to contaminate the head lining surface e.g. by oils or dust in the headliner.

## ► Assembling



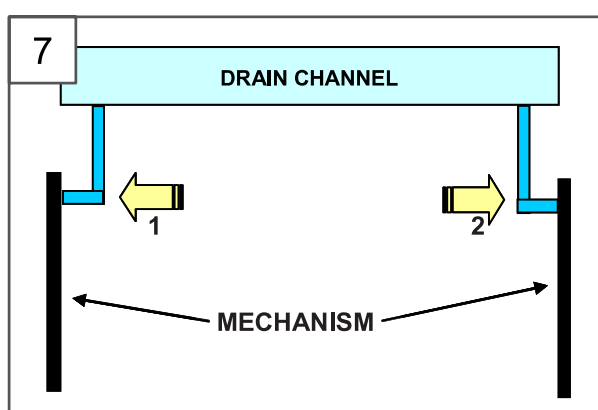
5. Carry out the steps No. 7 and 6 so that the drain channel is in the guide inserting position (service hole).

- a. Insert the inner part of the insert structures into the rail in the figure. One side can be inserted easily by hooking it as indicated by the arrow. Insert the other side while pressing the center of the drain channel. See the red arrow.



6. Insert the drain channel completely through the service hole.

- a. Insert the drain channel completely by pushing it backwards on the guide, while pressing down it.
- b. Perform the same procedures to the other side.



7. Secure the drain channel removed in the step (4) to the mechanism.

**CAUTION**

- Insert it into the bigger one (located inside) of the two holes.
- Avoid applying excessive force since it can be inserted easily.
- Make sure that it does not get contaminated.

Modification basis	
Application basis	
Affected VIN	

S.G.N.

7340-04

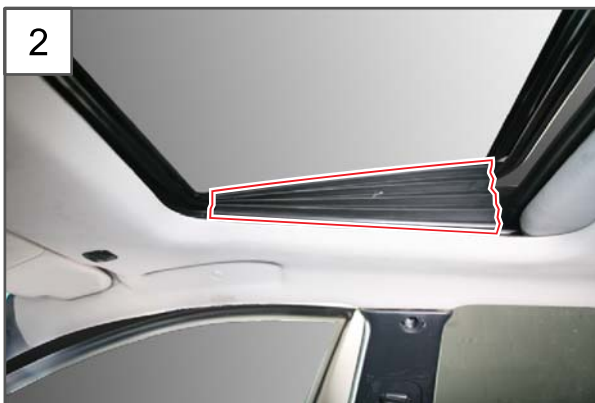
## SUNROOF GLASS PANEL ASSEMBLY

## Preceding work

- Disconnect the negative cable from the battery.



1. Tilt up the sunroof glass panel with the switch as shown in the figure.



2. Remove the upper part of the bellows cover indoors.

**CAUTION**

The removal should be carried out from the rear (tilted up side), and note the mounting position before removing it.

Modification basis	
Application basis	
Affected VIN	



3. Unscrew the 4 bolts (two on each side) securing the glass panel.

**CAUTION**

Make sure to use a star wrench (25 T) when removing the bolts. If you use other tools, the glass panel can be moved around.



4. Remove the glass panel.

**CAUTION**

- It is best that two workers lift the glass panel. If only one worker is available, raise it in the sequence shown in the arrows. The glass reinforcement attached to the glass panel is made of the steel. Be careful during the work as it can scratch the exterior paint.



5. Lower the glass panel gently from the opposite side of the worker in the reverse order.

**CAUTION**

Make sure you do not mix up the glass for the front and rear side. The logo is on the rear side.

Modification basis	
Application basis	
Affected VIN	



6. Install the glass panel with bolts. Place the bolt in position without tightening it to adjust the height difference.

#### CAUTION

It is convenient to use a magnet tool when installing the glass panel bolt.

- Be careful not to drop the bolt between the mechanisms.

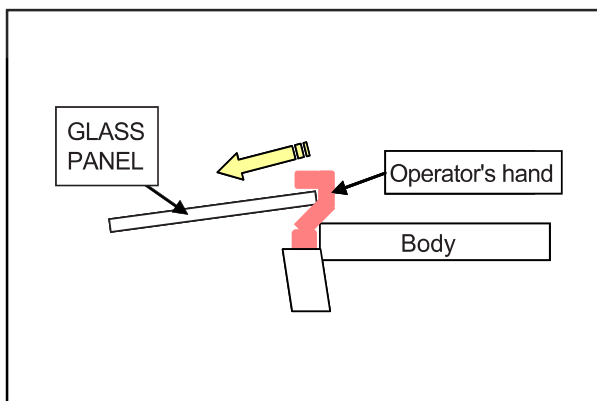


#### ► Adjusting height difference

7. Tighten the bolt while securing the glass panel by hand in the figure below.

#### CAUTION

- Tighten the one of two bolts on the front first, and then tighten the ones in the other side. Push the glass panel slightly so that the gap has the ratio of 4:6. This ratio should be exact.



#### CAUTION

Tighten the bolts, while pulling your hand out of the tilted body and applying some force forward.





8. Use the switch to close the sunroof completely.



9. Two people should work together to adjust the height difference.

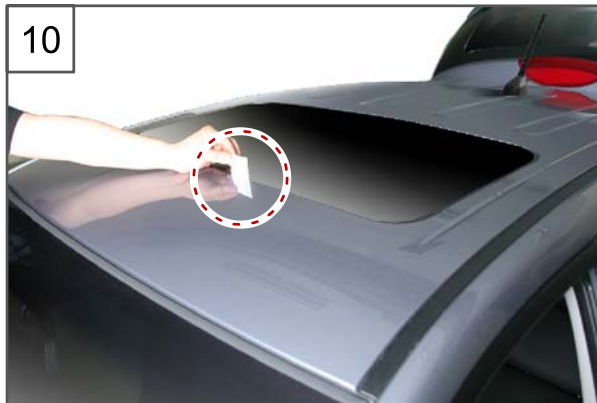
- a. Slacken off the two rear bolts tightened in the step 7.
- b. One person adjust the upside of the glass with one hand and underside with other hand so that there is no height difference between the rear edge and body and one person tighten the bolts. Tighten the bolts on the other side in the
- c. same manner.
- d. Screw in the two rear bolts completely and unscrew the front bolts (on both sides) tightened in the step 7 to adjust the gap. Then, adjust the height difference and tighten the bolts in the same say as that of rear side.



#### CAUTION

- It is OK to adjust the height difference several times, but only one bolt of the 4 mounting bolts should be removed at a time. When you remove more than one bolt, there
- is a risk that the height difference adjusted in the step 7 is changed.

Modification basis	
Application basis	
Affected VIN	



10. Check the clearance using a card or similar.

- Check that the same clearance is maintained at 4 to 8 sites by inserting and moving the card.

If there is a difference between those clearances, set the clearance and height difference exactly by working again from the step 6.

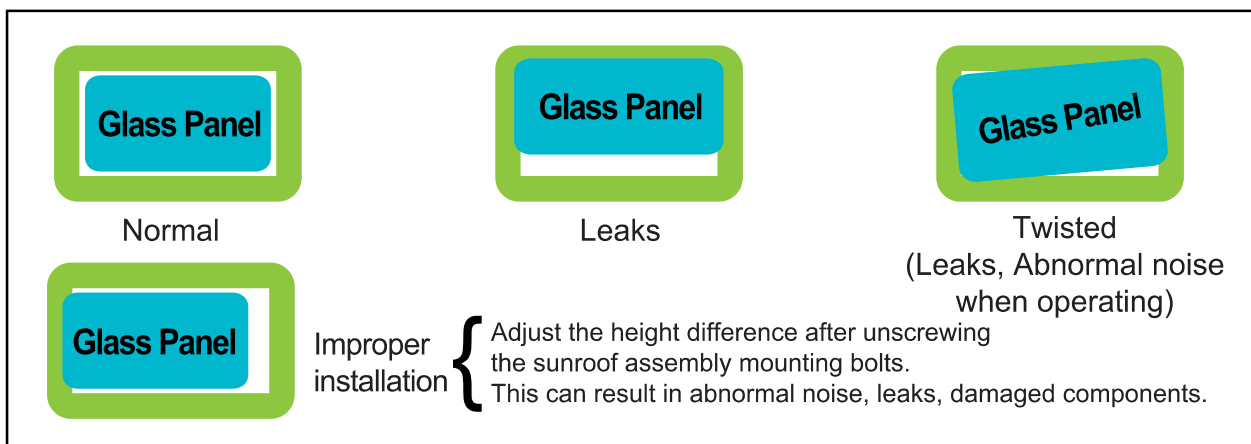
- The ratio of clearance in the left and right sides should be 5:5. If the clearance is not the same, it means that you fitted the sunroof assembly incorrectly, so you can't adjust the clearance by moving the glass only.



#### ► Reducing abnormal noise

11. Check the clearance using a card or similar.

- Make sure that the clearance ratio between front and rear sides is 4:6.
- The ratio of clearance in the left and right sides should be 5:5. If the clearance is not the same, it means that you fitted the sunroof assembly incorrectly, so you can't adjust the clearance by moving the glass only.





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12. Install the bellows cover with the sunroof is closed.

- Push in the 3 sites, assemble them and check the installation by moving the wrinkled part.



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13. Set the position of the bellows cover the sunroof closed.

- Ensure the state, before the cover mechanism is removed, is obtained by moving forward and rearward it.

14. Operation test

- Check for abnormal noise by carrying out the operation test.
- If the noise is heard when closing the tilted sunroof, work again from the step 7.

Modification basis	
Application basis	
Affected VIN	

S.G.N.

7340-01

## SUNROOF ASSEMBLY

## Preceding work

- Disconnect the negative cable from the battery.
- Remove the sunroof glass panel.
- Remove the headlining.



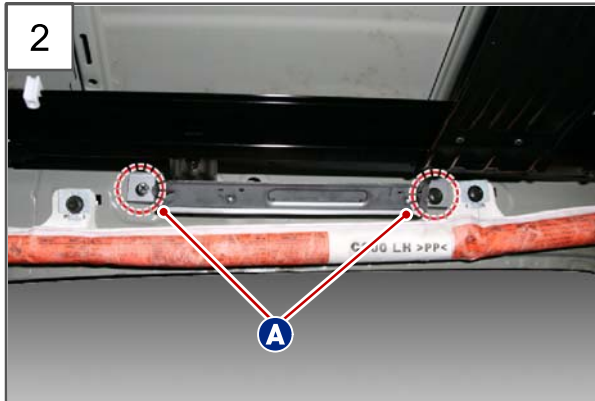
1. Disconnect the front/rear sunroof drain hoses (4 off) with the sunroof closed.

**CAUTION**

When connecting or disconnecting the drain hose, make sure it is not bent and damaged by the panel or vehicle body.

Modification basis	
Application basis	
Affected VIN	

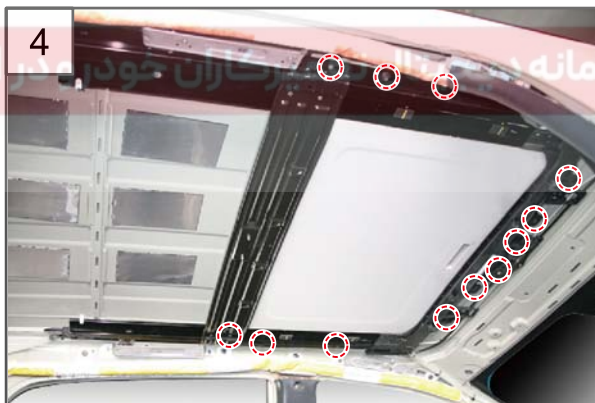




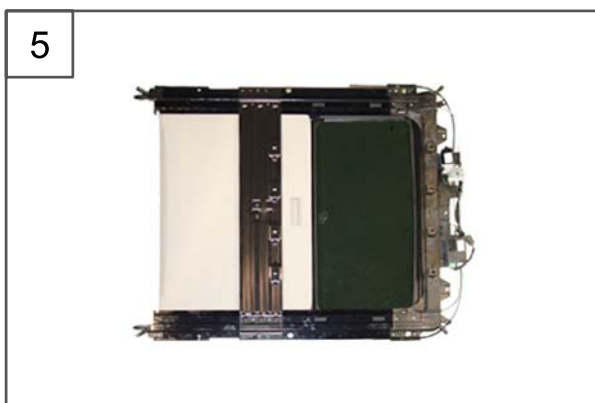
2. Remove the two handle bracket mounting bolts (10 mm) on each side.



3. Remove the left and right side handle brackets and unscrew the two sunroof bracket mounting bolts (10 mm).



4. Unscrew the 12 sunroof assembly mounting bolts (10 mm).



5. Remove the sunroof assembly.

6. Installation is in the reverse order of removal.

Modification basis	
Application basis	
Affected VIN	



04-48

7340-05

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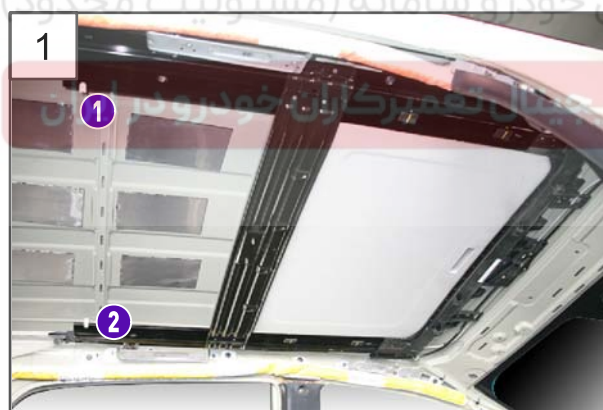
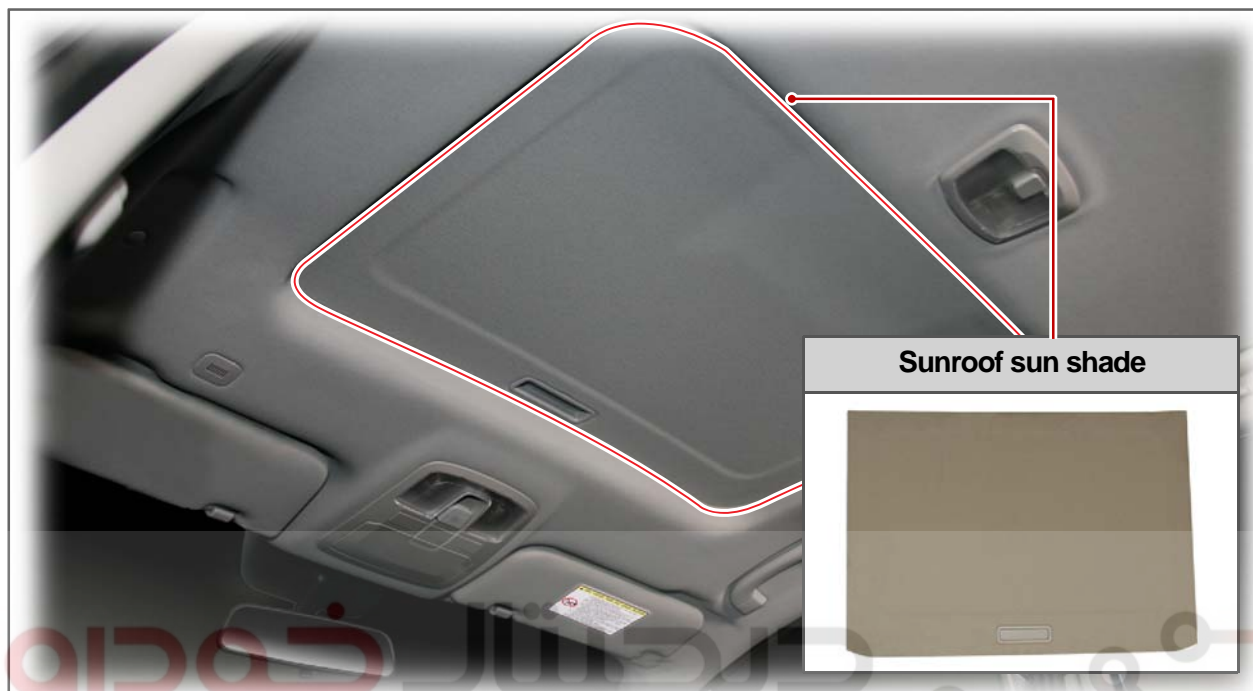
S.G.N.

7340-05

## SUNROOF SUN SHADE PANEL ASSEMBLY

Preceding work

- Remove the headlining.



1. Remove the left and right mounting clips (1 and 2).



2. Remove the sun shade panel.

3. Installation is in the reverse order of removal.

SUNROOF SYSTEM

KORANDO 2013.08

Modification basis	
Application basis	
Affected VIN	