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PROCESS**

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دیجیتال خودرو

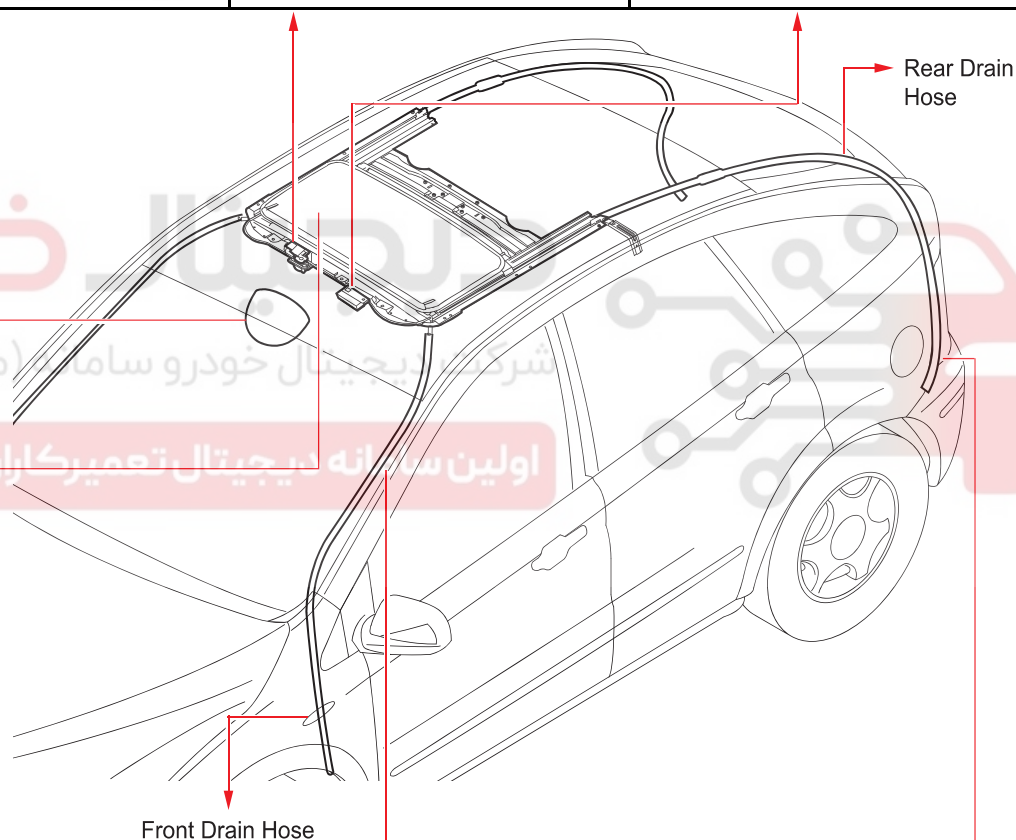
شرکت دیجیتال خودرو سامانه (مسئولیت محدود)




اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



SUNROOF**7340-01****OVERVIEW AND OPERATION PROCESS****1. COMPONENTS AND LOCATIONS**

Sunroof Switch	Sunroof Motor	Sunroof Control Unit (SCU)
		



Sunroof Assembly	Front Drain Hose	Rear Drain Hose
		

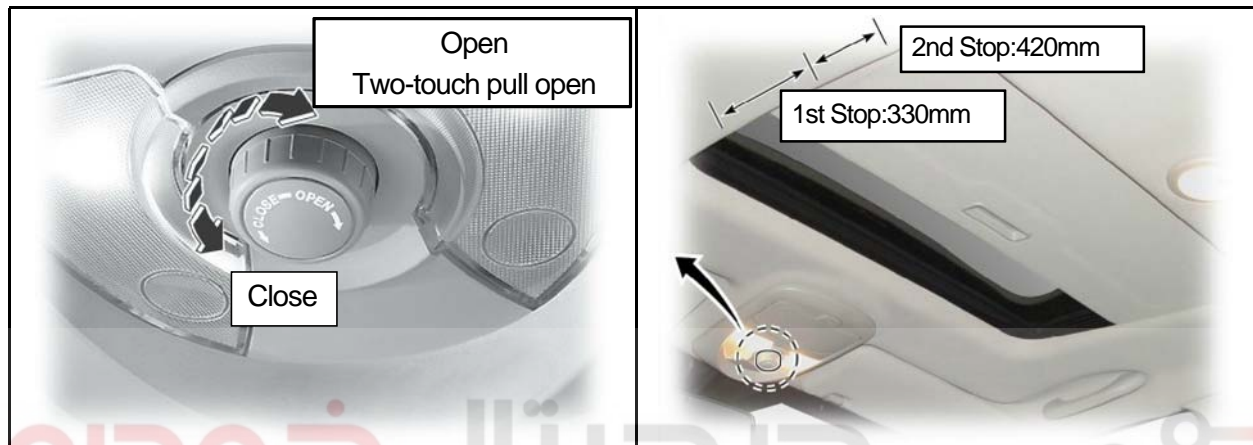
Modification basis	
Application basis	
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SUNROOF

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2. OPERATION AND FUNCTION

When driving the 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 (wind buffeting effect). 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. Actyon introduced two-touch function to the sunroof. When the sunroof is at the 1st stop position, it minimizes the wind buffeting effect. To open the sunroof fully, move the switch to the second stop.



1) Sunroof Sliding Operation

(1) Two-touch Open

If you rotate the sunroof switch clockwise (OPEN direction) for less than 0.5 seconds, the sunroof slides back and opens until it reaches at the 1st stop position (330 mm). Then, if you continue to rotate the switch to its stop, the sunroof is pull opened (420 mm). To stop the operation while moving, operate the sunroof switch to any direction.

(2) Close

To fully close the sunroof, briefly (for approx. 0.5 sec.) rotate the sunroof switch counterclockwise (CLOSE direction) with the sunroof open. To partially close the sunroof, rotate and hold the sunroof switch until it reaches at the desired position.

2) Sunroof Tilting Operation

(1) Tilt-up

To tilt-up the sunroof, rotate the sunroof switch counterclockwise (CLOSE direction) with the sunroof fully closed.

(2) Tilt-down

To tilt-down the sunroof, rotate the sunroof switch clockwise (OPEN direction) with the sunroof tilted-up.



3) Anti-trap Function

To prevent any body parts from being trapped by the sliding sunroof, an Anti-Trap function automatically opens the sunroof when an object is trapped. However, if the Anti-Trap function operates 3 times consecutively, the function switches to the manual operation and the sunroof goes back to the original position.

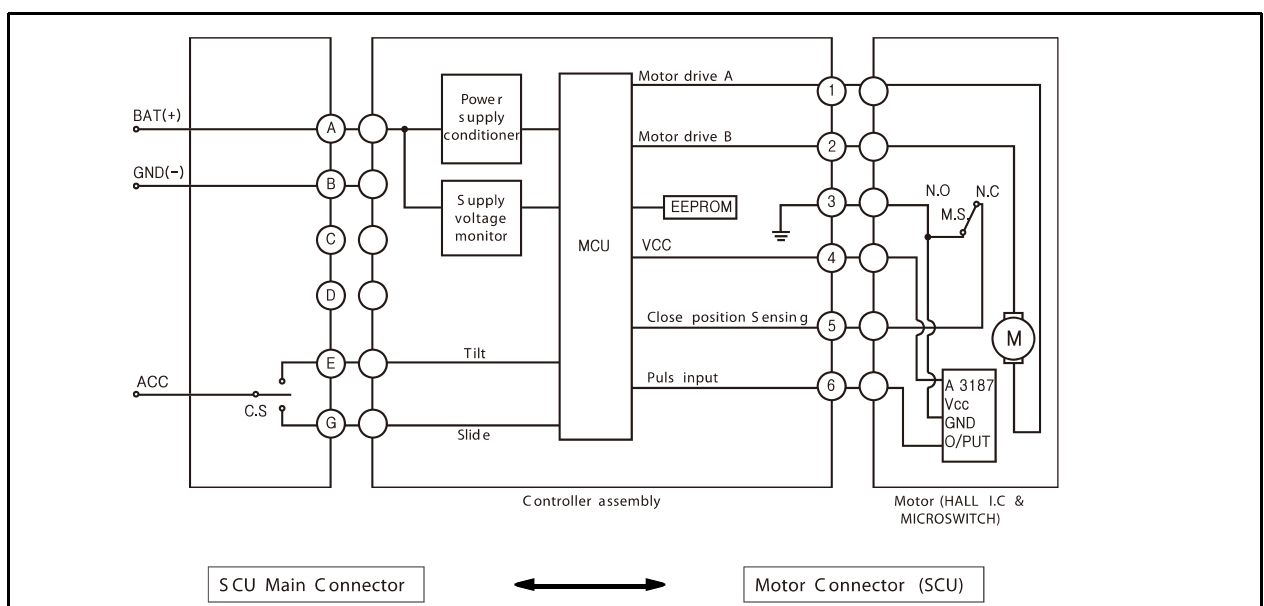
However, if the force against the sunroof is less than the specified value or the continuous resistance is detected, the Anti-Trap function doesn't operate. Therefore, make sure that there is no obstacle such as hand, head or part of body before operating the sunroof.



4) Hazard (Manual) Operation

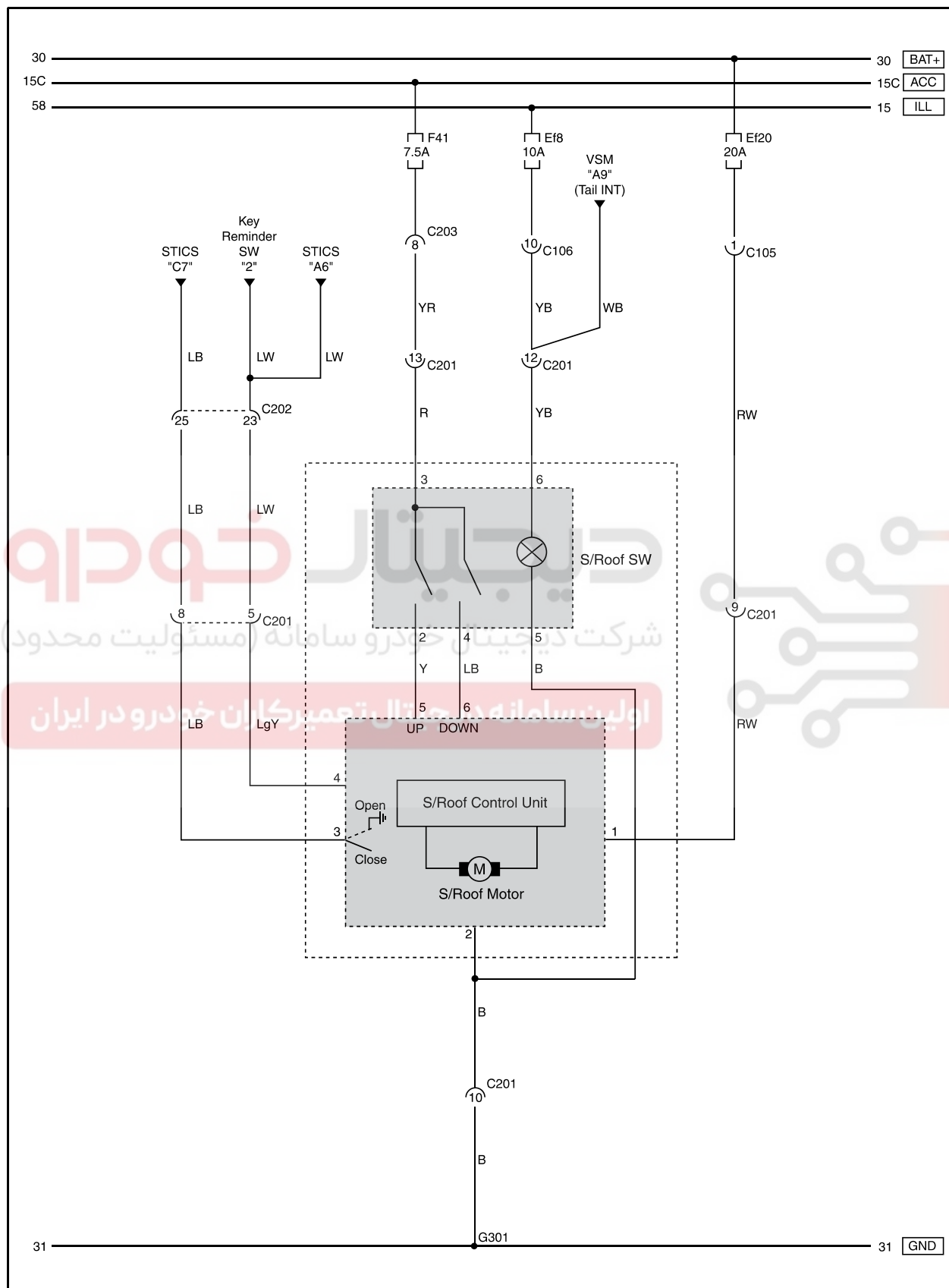
The sunroof can be operated by rotating the screw in motor operating hole on the sunroof motor with a proper tool.

5) Circuit Diagram of Sunrroff Motor and SCU



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6) Circuit Diagram of Sunroof



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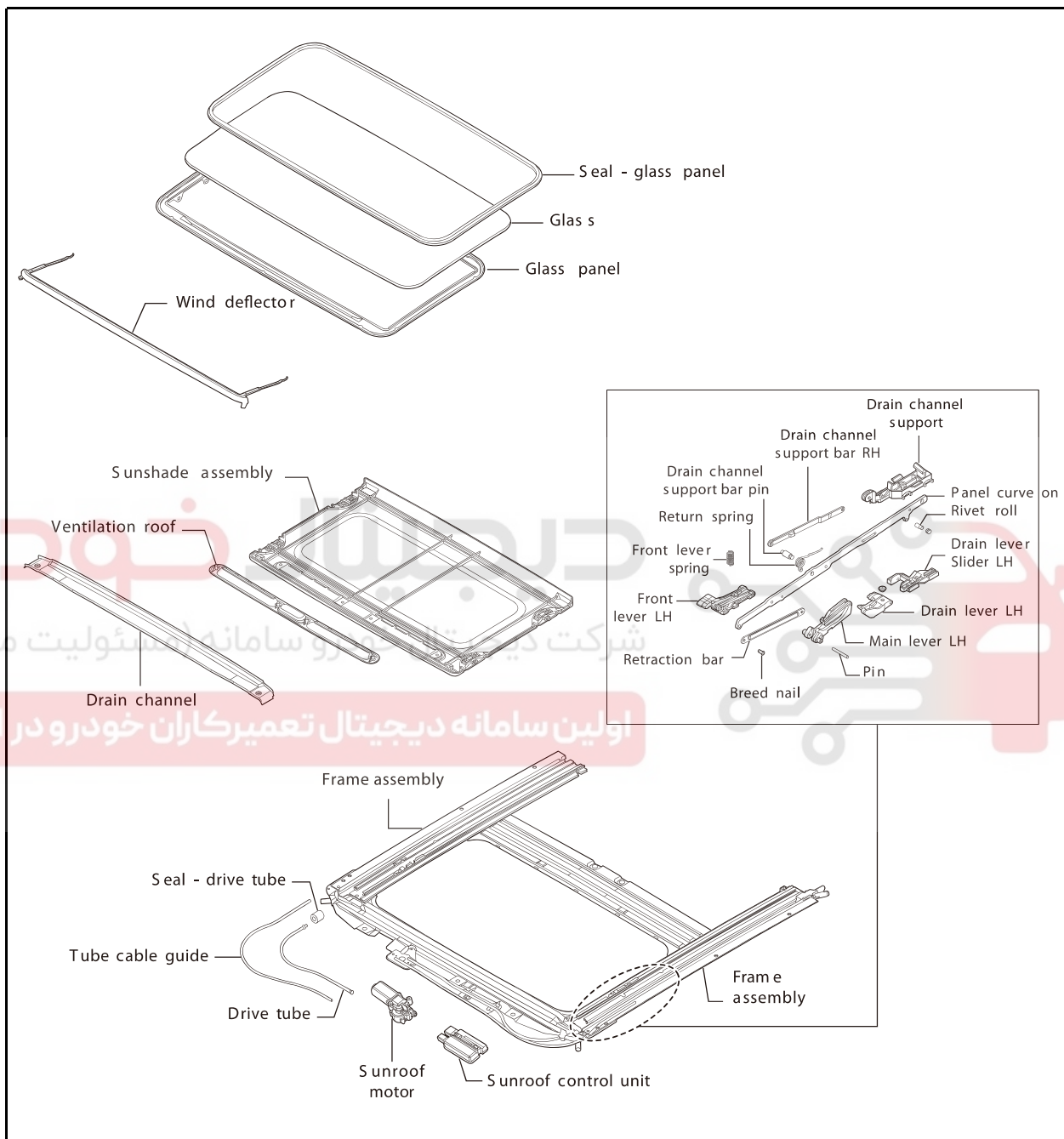
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CONFIGURATION AND FUNCTION

S.G.N.

7340-01

COMPONENTS OF SUNROOF



Modification basis	
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SUNROOF

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REMOVAL AND INSTALLATION

S.G.N.

7340-01 RESETTING OF SUNROOF CONTROL UNIT

If the sunroof does not operate properly, check and reset the sunroof control unit.

► **To prevent any parts damage and personal injury, the sunroof setting is canceled**

- 1) When the battery voltage is not provided, the fuse is blown, or the abrupt voltage drop occurs due to deteriorated battery while operating the sunroof.
- 2) When an undesired cancellation occurs due to mistake by a technical person during repairing the sunroof system.
- 3) When parts damage, shorted circuit, or electric leakage occurs.
- 4) When keeping the sunroof switch at "OPEN" position.

► **Symptoms when the sunroof setting is canceled**

- 1) The one-touch operation cannot be activated.
- 2) The sunroof is tilted even after completion of closing operation when closing it.
- 3) The sunroof opening and tilting level is significantly low.
- 4) The sunroof does not operate properly when operating the sunroof switch.

► **[0] point reset of sunroof**

- 1) Close the sunroof with the sunroof switch and keep the position for approx. 10 seconds. If the [0] point setting is successfully completed, the sunroof should be properly opened from this position. Check if the sunroof is fully closed. Tilt the sunroof with the sunroof switch and keep it at the position for 10 seconds ([0] point setting).
Close the sunroof with the sunroof switch.
- 3)

► **Checking after reset**

- 1) If the sunroof does not operate properly, check the power supply system.
If the sunroof does not operate when the power supply system is in normal conditions, check the sunroof motor and sunroof control unit and replace the defective component as necessary.
Replace the sunroof control unit first and operate the sunroof. If the problem still exists, replace the sunroof motor.
- 2) If the sunroof operates only when the switch is operated, check the ground circuit of switch and reset the sunroof system again.

S.G.N.

7340-01 TROUBLE DIAGNOSIS

Symptom	Cause	Action
Water leaks	Clogged or bent drain hose	Check and correct drain hose conditions.
	Improper gap and clearance between panel and glass	Readjust glass location.
Wind noise	Improper gap and clearance between panel and glass	Readjust glass location.
Improper operations	Defective wire, fuse or ground	Check and replace/repair.
	Defective relay, motor or unit	Replace the defective component.
	Damaged side cover by dislocation of sun shade	Reinstall sun shade and side cover. (Replace the damaged parts.)
	Foreign material in rail	Remove foreign material.
Malfunction	Caught side cover by dislocation of sun shade	Reinstall sun shade and side cover. (Replace the damaged parts.)
	Improper operation of anti-trap function	Check interference of body and wind deflector. (Relieve the spring tension.)
	Defective motor	Replace it.
Operation noise	Caught side cover by dislocation of sun shade	Reinstall sun shade and side cover. (Replace the damaged parts.)
	Interference between drain hose and vehicle body	Attach a sponge on drain hose.
	Interference between vehicle body and roof panel	Apply sealant between vehicle body and roof panel.
	Improper gap and clearance between roof panel and glass	Readjust glass location.

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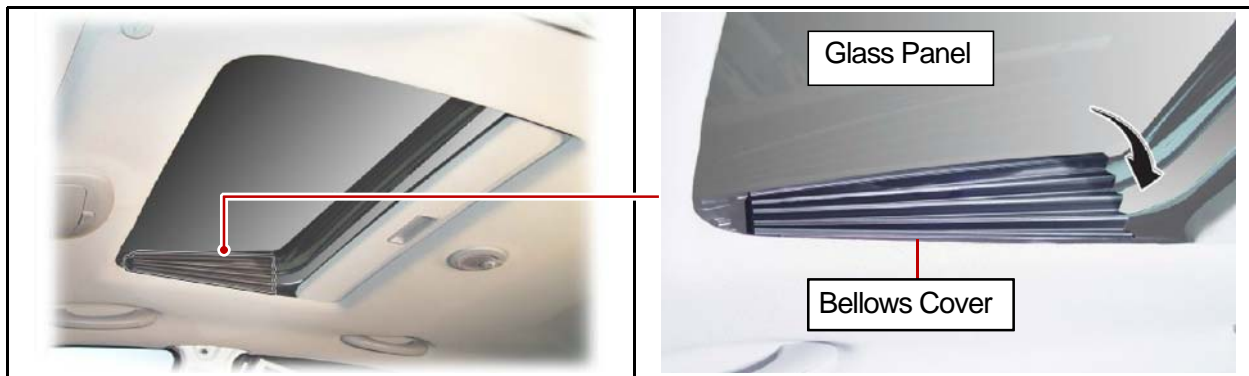
S.G.N.

7340-04 GLASS PANEL ASSEMBLY

⚠ CAUTION Work only when the sunroof is tilted-up.

1) Removal of Glass Panel

1. Separate the upper side of the bellows cover from the glass panel while the sunroof is tilted up.



2. Slide the bellows cover backward (to the tailgate side) and remove two mounting bolts (TORX bolt) on the glass panel with a Torx wrench (25 T).



3. Remove the glass panel.



2) Installation of Glass Panel



1. Place the glass panel with the sunroof tilted-up and temporarily tighten two TORX bolts (T25) at both sides. At this moment, the logo on the glass panel should face the rear side of the vehicle.



2. Completely close the sunroof using the sunroof switch.



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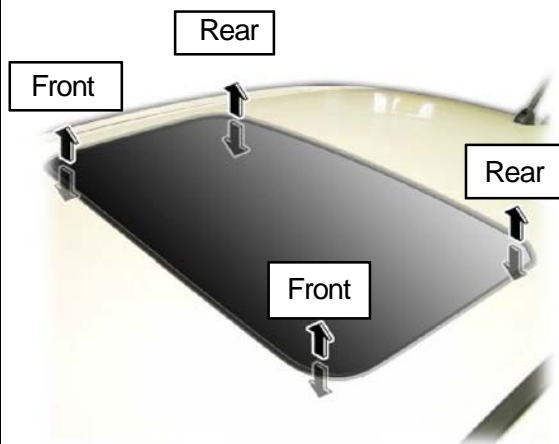
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3. Adjust the following items with the specified value and tighten the bolts.

Gap Between Front and Rear Glass Panel

Gap: Distance from roof panel to glass



1) Front gap (-1 ~ 0 mm)



2) Rear gap (0 ~ 1 mm)



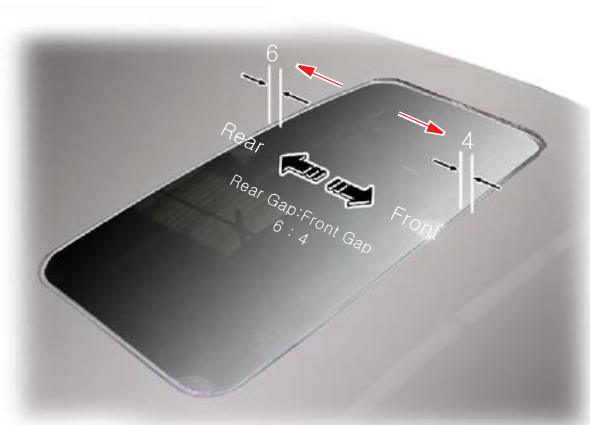
CAUTION

To prevent the wind noise during high speed driving (over 100 km/h), the rear gap should be greater than front gap.



Front/Rear Gap of Glass Panel

To avoid the abnormal noise due to interference between roof panel and rear section of sunroof glass panel while driving, the installation gap should be maintained the ratio of 4:6 (front:rear) when installation.



CAUTION

Install the glass panel by pressing the glass panel to the front side while checking the gap. This work should be done by two operators.

After Assembly

Measure the interference between roof and glass panel while moving the glass panel.

Gap between roof and glass panel should be approx. 5 mm. If this gap is too small, the glass panel may be scratched or the interfering noise may sound.

AIR
CONDITIO

AIR BAG

SEAT

SUNROO
FBODY
INTERIORBODY
EXTERIOBODY
REPAIR

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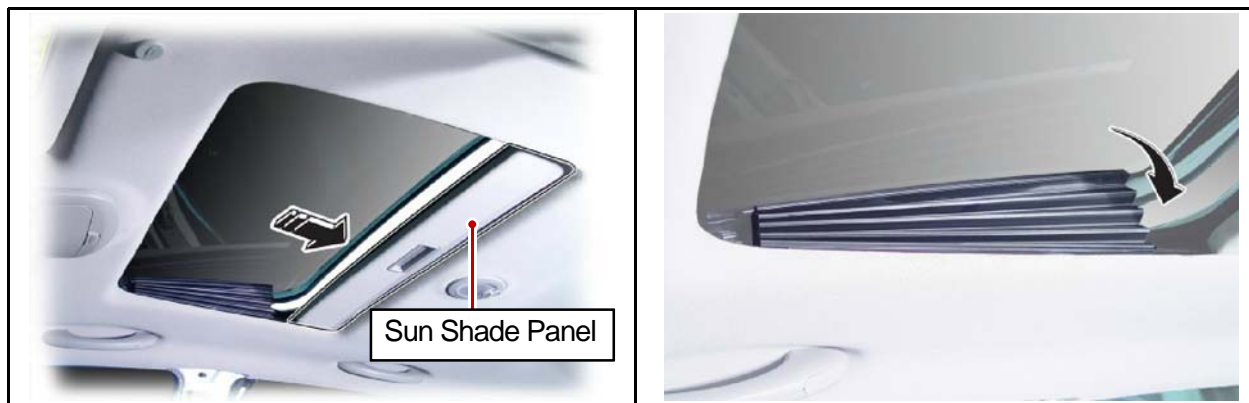
Modification basis	
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S.G.N. 7340-05 BELLOWS COVER

1. Open the sun shade panel and separate the upper side of the bellows cover from the glass panel.



2. Slide the sunroof halfway back using the sunroof switch.



3. Remove the bellows cover by pulling it forward. When installing it, inserting the bellows cover to the groove of the sunroof mechanism.



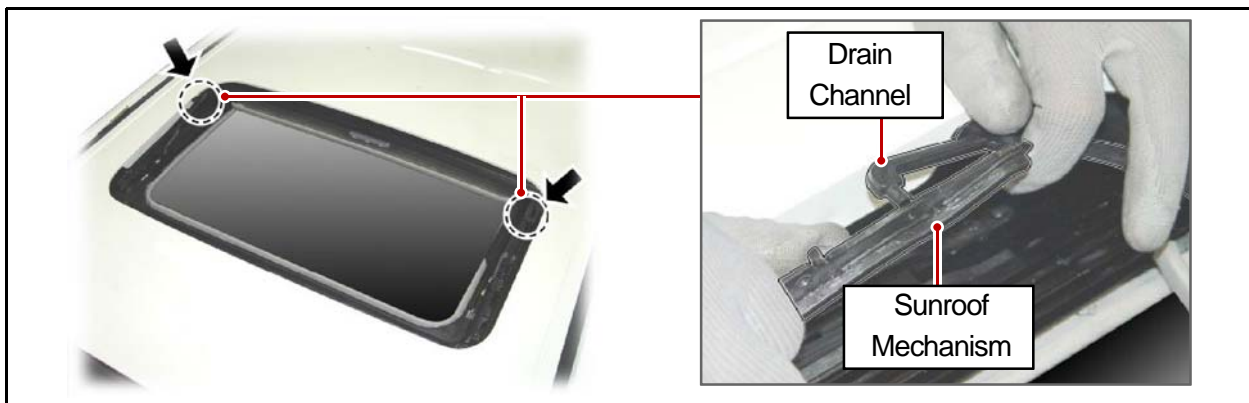
S.G.N.

7340-12 DRAIN CHANNEL

Preceding work

1. Remove the glass panel.

1. Separate the locks of drain channel from the sunroof mechanism mounting holes at both sides.



2. Lift one lock above the drain channel mounting hole and separate the lower lock of the drain channel.



3. Remove the drain channel.



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S.G.N.

7340-05

SUN SHADE PANEL

Preceding work

1. Fully close the sunroof with sunroof switch.
2. Remove the headlining assembly.

1. Remove the mounting clip (small picture) with the headlining removed.



2. Remove the sun shade panel through the sunroof mechanism rail.

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SUNROOF CONTROL UNIT(SCU) AND MOTOR

Preceding work

1. Fully close the sunroof with sunroof switch.
2. Remove the headlining.

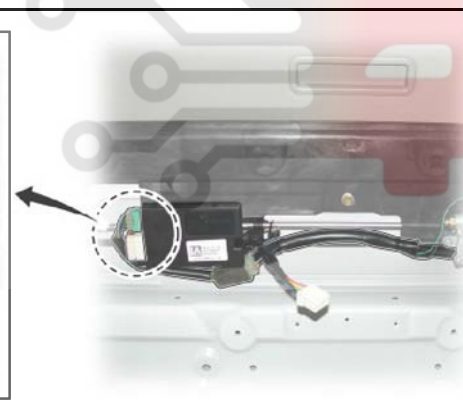
1) SCU Assembly



1. Remove four mounting bolts between SCU and motor and remove the protective panel.



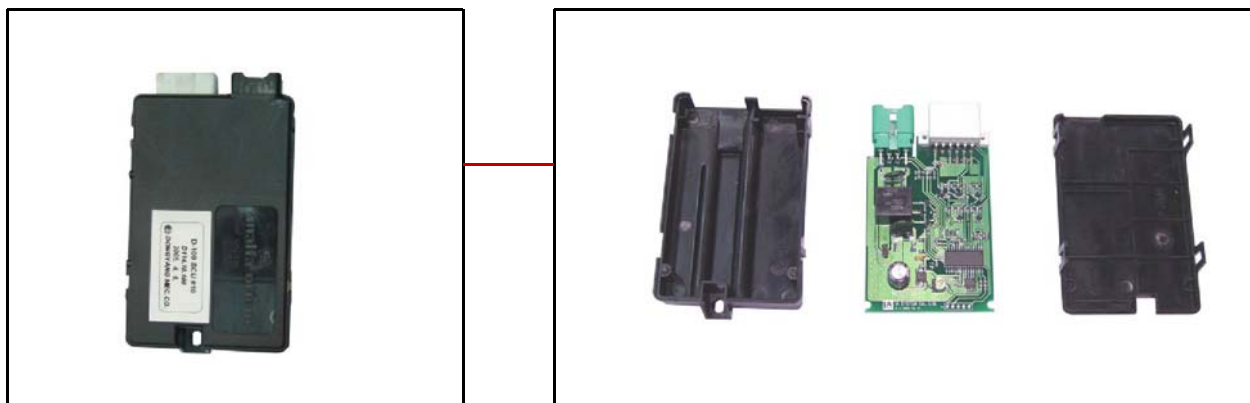
2. Disconnect the connector from the sunroof control unit.



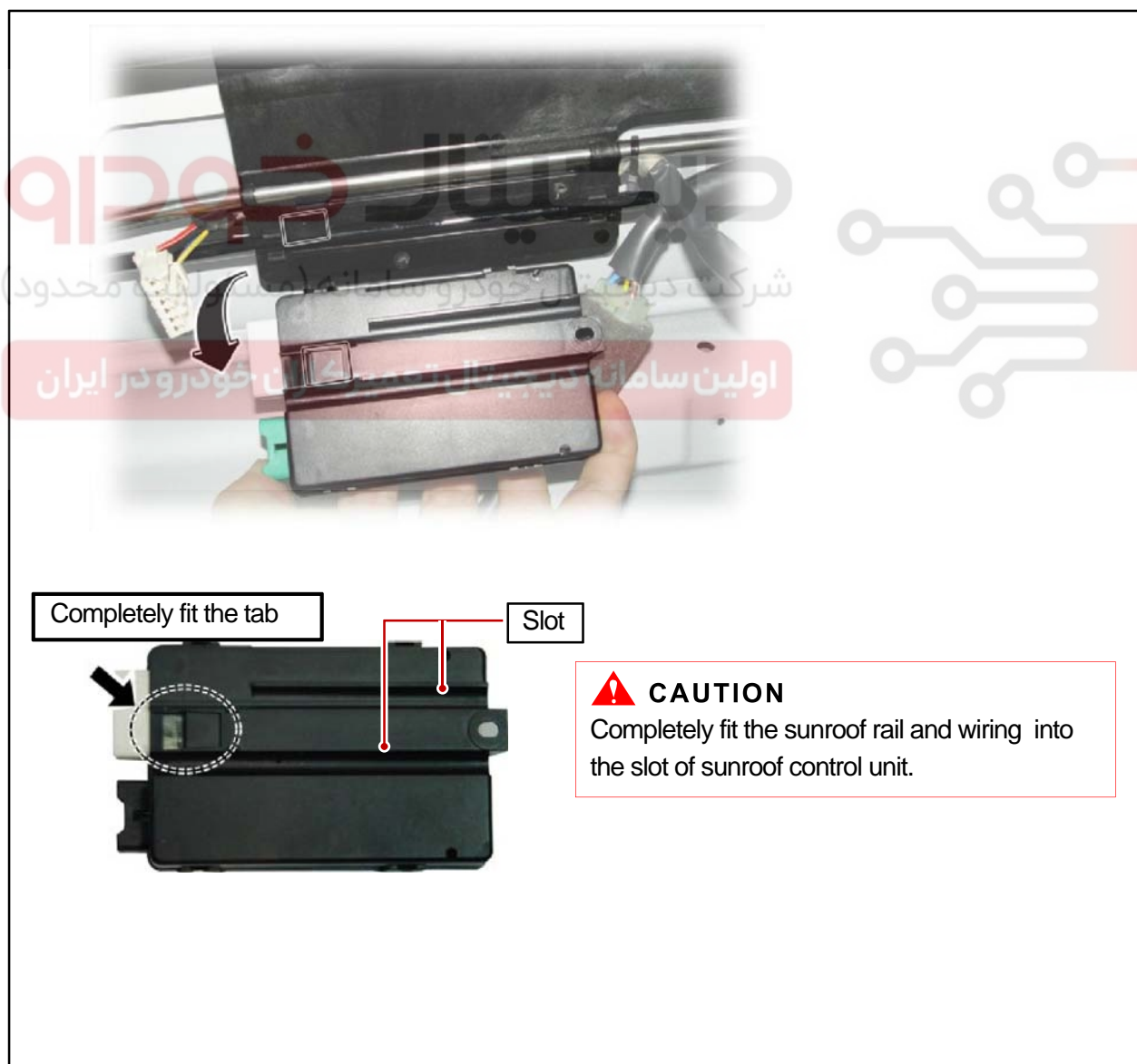
3. Remove the SCU mounting bolt (TORX bolt) using a Torx wrench.

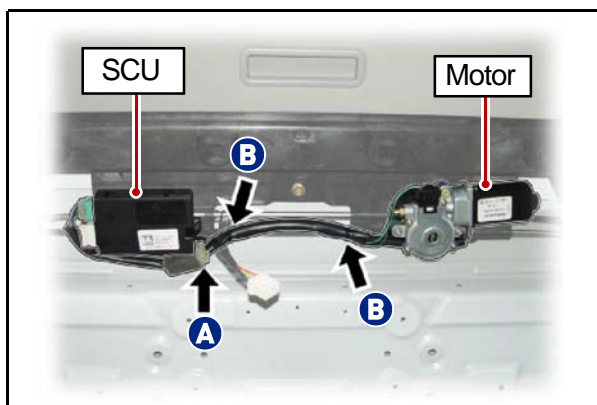
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4. Remove the SCU from the sunroof rail.



5. When installing, completely fit the sunroof rail into the slot of sunroof control unit and tighten the screw.

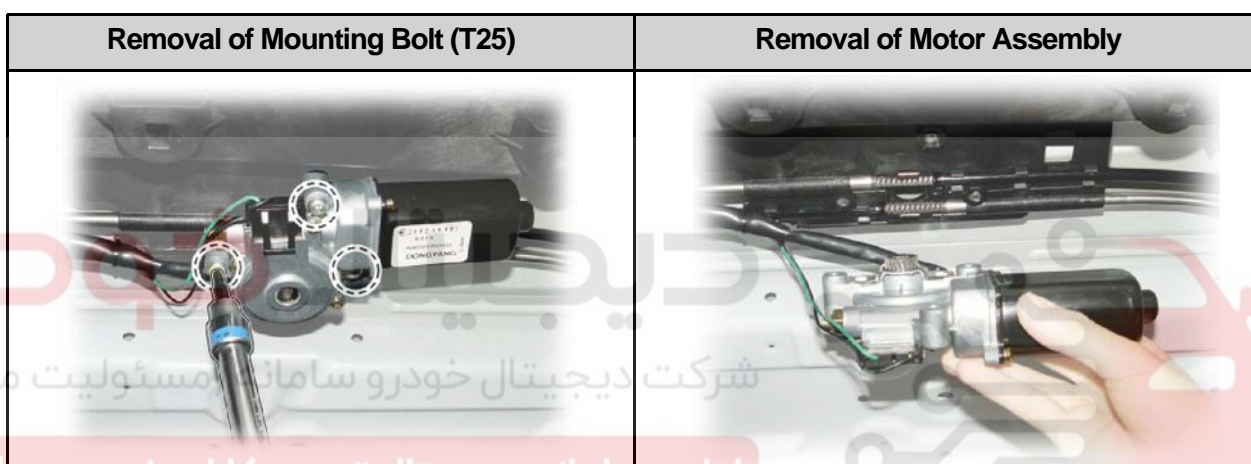




2) Motor Assembly

1. Separate the connector (A) and the mounting clamp (B) from the SCU with the protective panel removed.

2. Unscrew the three mounting bolts (25T) with a Torx wrench and remove the motor assembly from the sunroof rail.



⚠ CAUTION

To make the motor positioning easier, do not operate the motor (even for the testing) before installation.



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7340-12 SUNROOF DRAIN HOSE

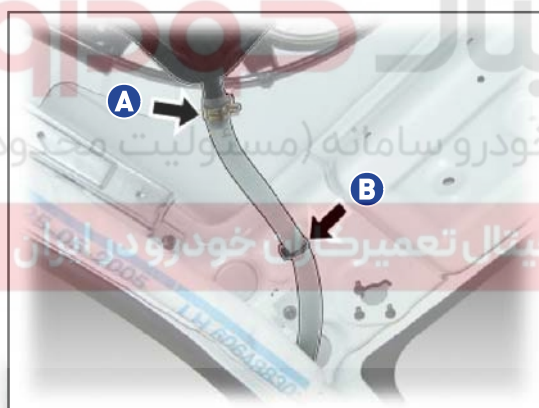
Preceding work

1. Remove the headlining.
2. Remove the rear quarter panels (LH/RH).

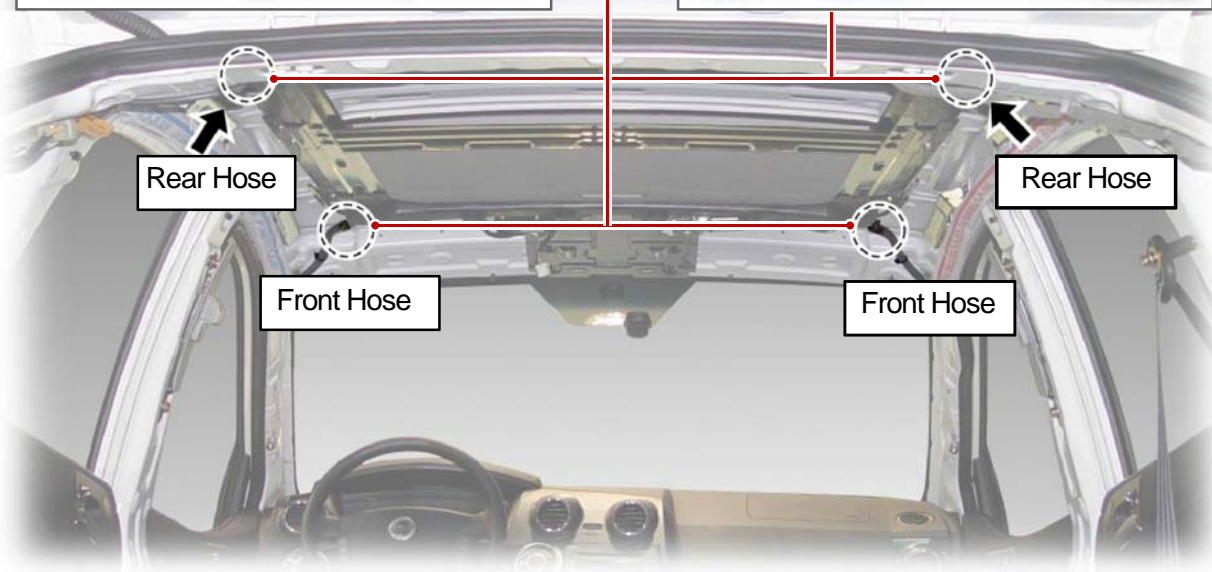
**CAUTION**

Be careful not to bend and damage the hose by sheet metal (vehicle body).

1. Separate the clamp (A) and mounting piece (B) from the front drain hose and remove the hose.



2. Remove the clamp from the rear drain hose.



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3. The rear drain hose can be removed after removing the fasteners as shown in the figure.

AIR
CONDITIO

AIR BAG

SEAT

SUNROO
FBODY
INTERIORBODY
EXTERIOBODY
REPAIR

Modification basis	
Application basis	
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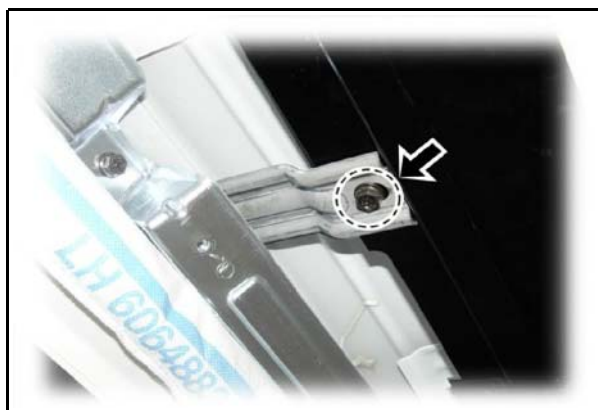
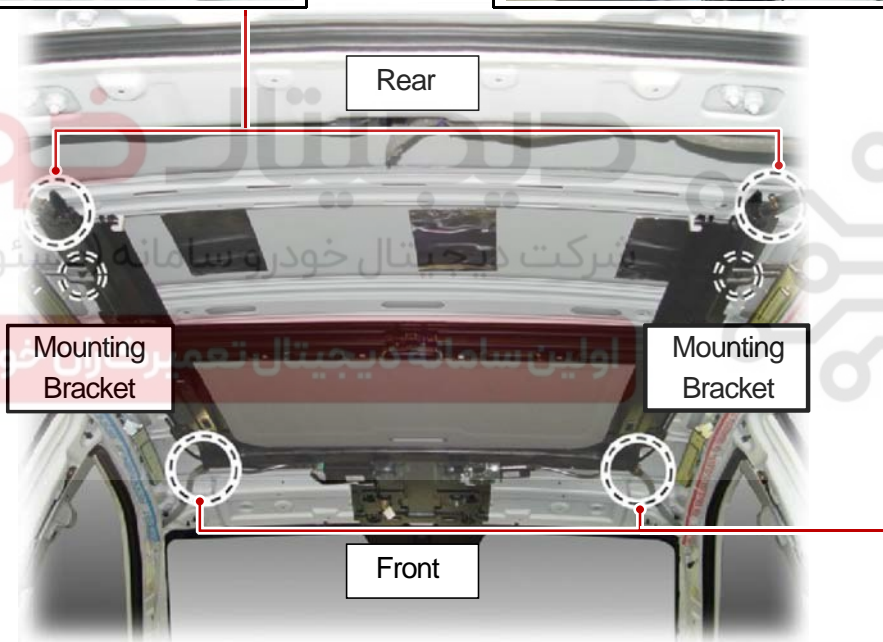
SUNROOF

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S.G.N.

7340-01 SUNROOF ASSEMBLY**Preceding work****1. Removal of headlining**

1. Separate the front and rear drain hoses with the sunroof closed.

Rear Drain Hose Clamp**Front Drain Hose Clamp**

2. Unscrew two bracket mounting bolts at both sides.

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3. Unscrew seven mounting bolts and remove the sunroof assembly.



Sunroof Assembly



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Memo

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