

Sunroof / Moonroof: Service and Repair

Repair Procedures

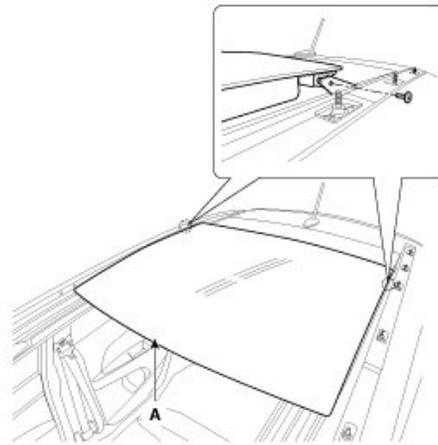
Replacement

Movable Glass Replacement

1. Remove the roof rack and roof molding.
2. Open the movable glass.
3. Loosen the movable glass (A) mounting screw.

CAUTION:

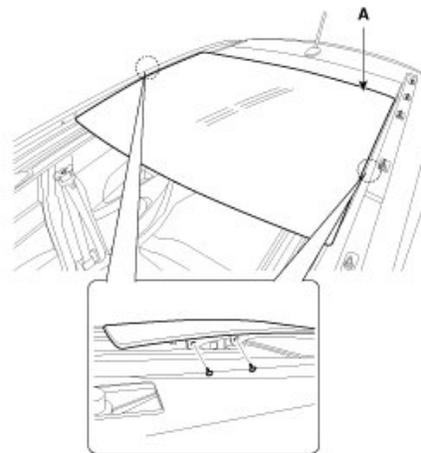
- Do not damage the screw.



4. After loosening the mounting screws, then remove the movable glass (A).

CAUTION:

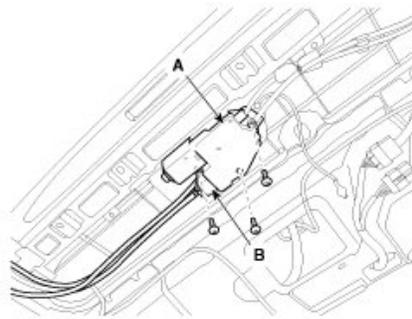
- Do not damage the screw.



5. Installation is the reverse of removal.

Motor Replacement

1. Remove the roof trim.
2. Disconnect the connector (B).
3. Remove the panorama roof motor after removing screws from the panorama roof motor (A).



4. Installation is the reverse of removal.

CAUTION:

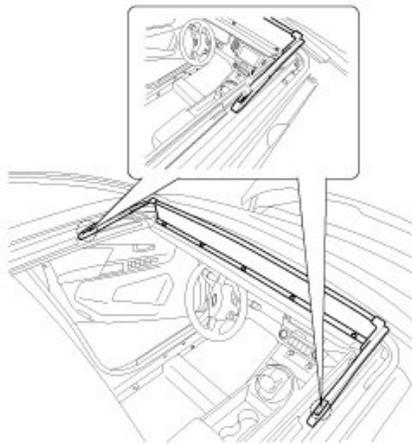
- Make sure to initialize the motor.

Wind Deflector Replacement

1. Open the movable glass fully.
2. Using a star wrench, the wind deflector loosening the mounting screw.

CAUTION:

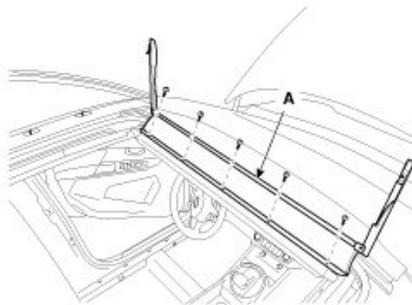
- Do not damage the screw.



3. After loosening the mounting screws, then remove the wind deflector (A).

CAUTION:

- Do not damage the screw.



4. Installation is the reverse of removal.

Roll Blind Replacement

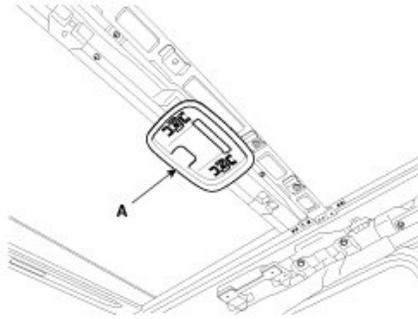
Removal

1. Remove the following items.
 - A. Roof trim

B. Movable glass

C. Motor

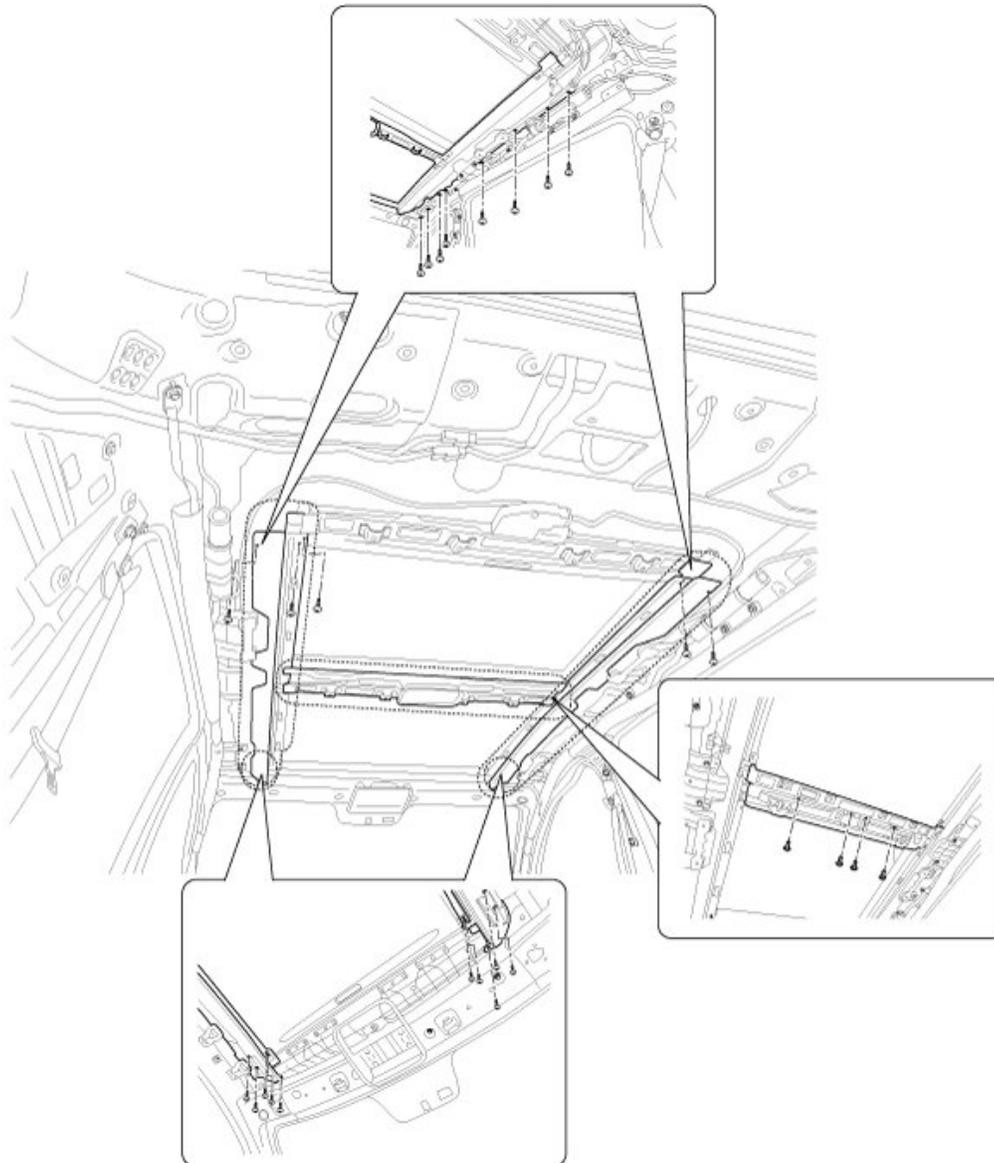
- Using a screwdriver or remover, remove the room lamp bracket (A).



- Remove the mechanism rail assembly loosening the mounting screw, and then remove the mechanism rail assembly (A).

CAUTION:

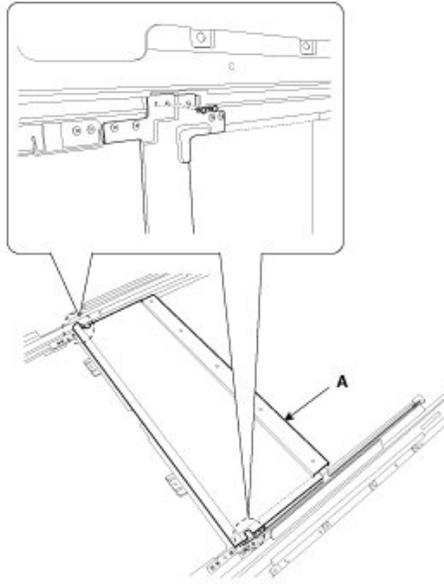
- Do not damage the screws.



- Cut the tension wire (A) to prevent the injury.



5. After loosening the roil blind mounting screws, and removing the rivet, remove the roil blind (A).

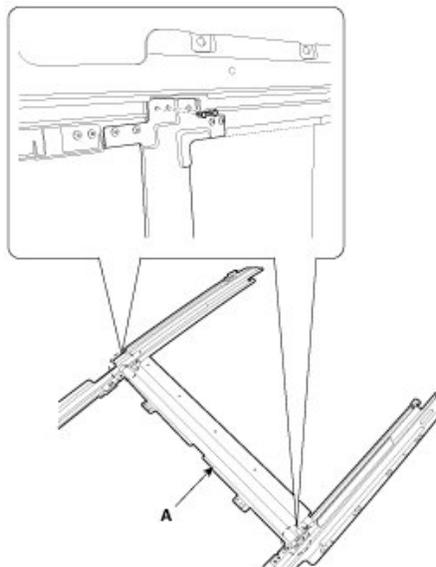


Installation

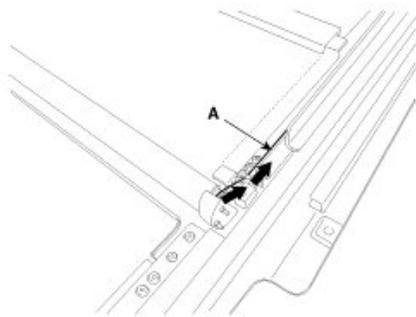
1. Installation the roil blind (A).

NOTE:

- Insert the part of fabric both ends to guide.



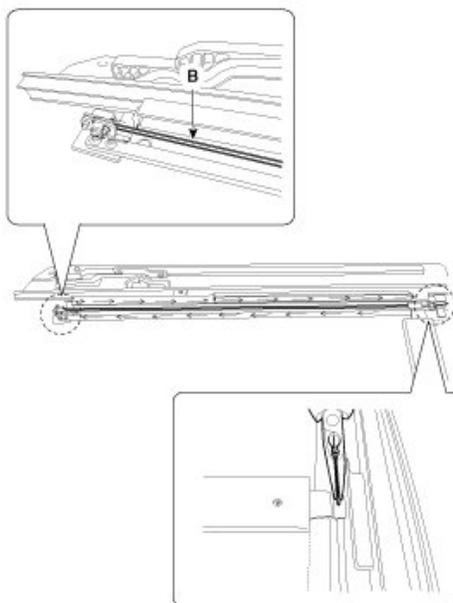
2. Install the wire (A) in arrow direction.



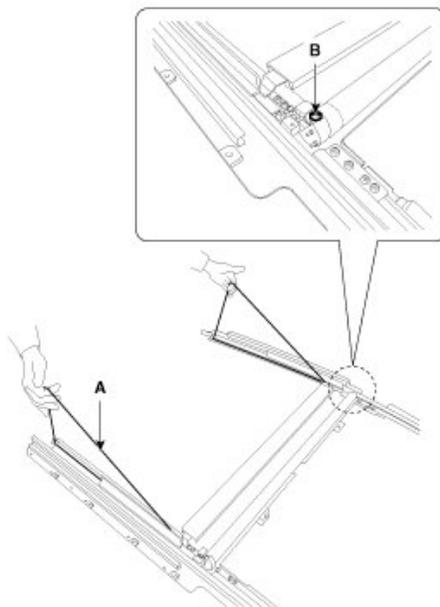
3. Install the wire (B) in arrow direction.

NOTE:

- Insert the wire into the cover completely when installing.



4. Pull the wire (A) as below picture.
5. Lay down the wire (A) slowly after removing the clip (B).

**NOTE:**

- Satisfy the coherence condition of roll blind is 6.9 - 25.5 N.m (0.7 - 2.6 kgf.m, 5.1 - 18.8 lb-ft)

6. Installation the following items.

- A. Motor
- B. Movable glass
- C. Roof trim

Panorama roof Assembly Replacement

[Removal]

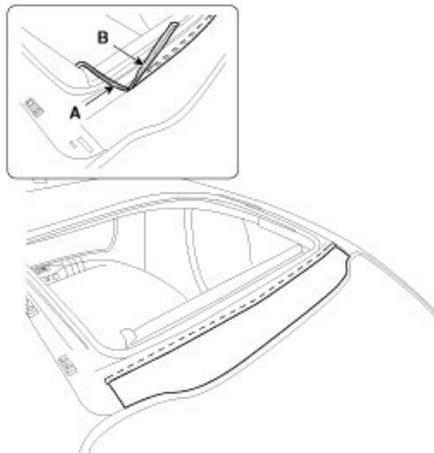
1. Remove the following items :

- A. Front seat
- B. Rear seat
- C. Interior trim
- D. Roof trim
- E. Roof antenna
- F. Roof rack & Roof molding
- G. Wind deflector

NOTE:

- To protect the interior, cover the interior before starting removing the panorama roof.

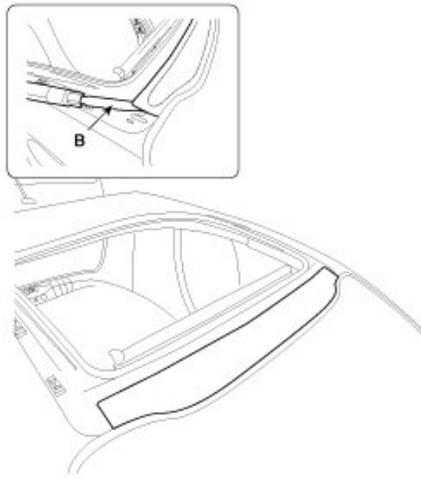
2. Using a cutter knife (B), remove the front glass weatherstrip (A).



3. Open the space between chassis and front glass using flathead screwdriver, and then cut the sealant of rear and side using a tool (09816-2P127) (B).

NOTE:

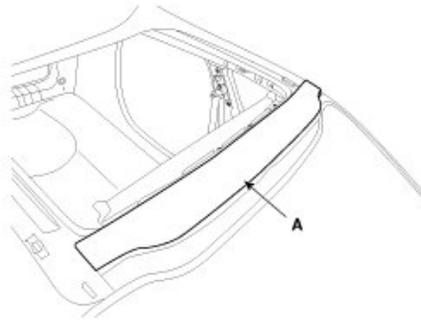
- Be careful not to damage the front glass when open the space between chassis and front glass using flathead screwdriver.



4. Remove the front glass (A).

NOTE:

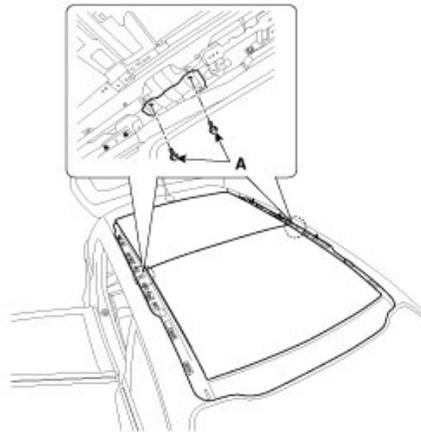
- Front glass is need to changed to new product surely.



5. Remove the panorama roof panel mounting bracket loosening the mounting bolts (A).

Tightening torque :

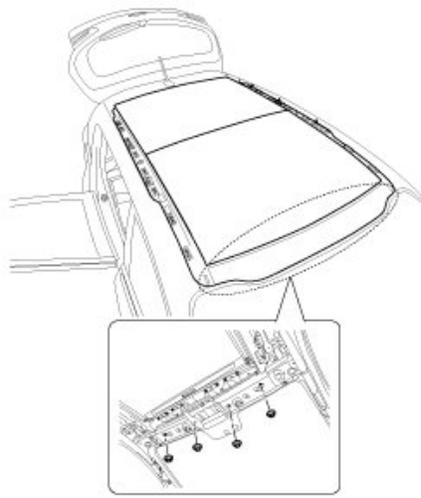
19.6 - 29.4 N.m (2.0 - 3.0 kgf.m, 14.5 - 21.7 lb-ft)



6. Loosen the panorama roof panel mounting nuts.

Tightening torque :

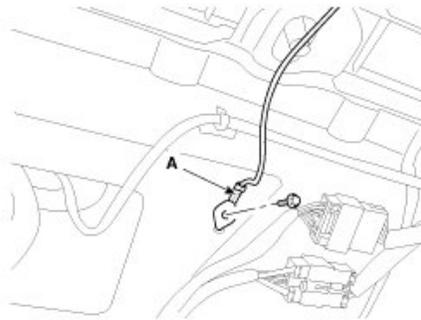
19.6 - 29.4 N.m (2.0 - 3.0 kgf.m, 14.5 - 21.7 lb-ft)



7. Disconnect the ground wire (A) by removing the bolt

Tightening torque :

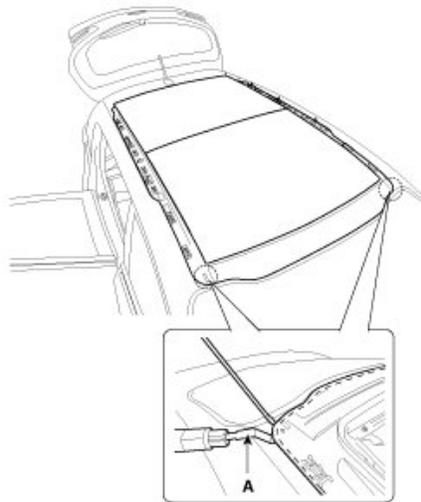
10.8 - 13.7 N.m (1.1 - 1.4 kgf.m, 8.0 - 10.1 lb-ft)



8. Open the space between chassis and panorama roof using flathead screwdriver, and then cut the sealant of edge using a tool (09816-2P130) (A).

NOTE:

- Be careful not to damage the panorama roof when inserting tools between the chassis and panorama roof.

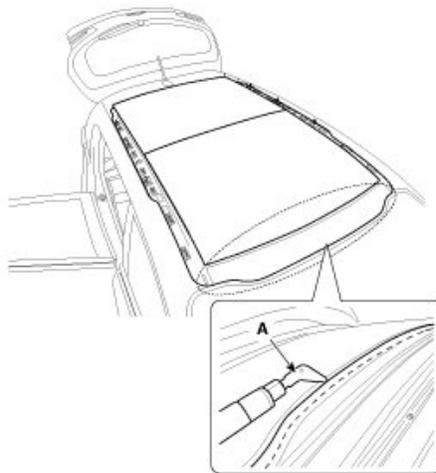


9. Open the space between chassis and panorama roof using flathead screwdriver, and then cut the sealant of front using a tool (09816-2P121, 09816-2P122) (A).

NOTE:

- This blade has a inclination to push upward.
(09816-2P121, 09816-2P122)
- This blade has a inclination to push downward.

(09816-2P123, 09816-2P124)

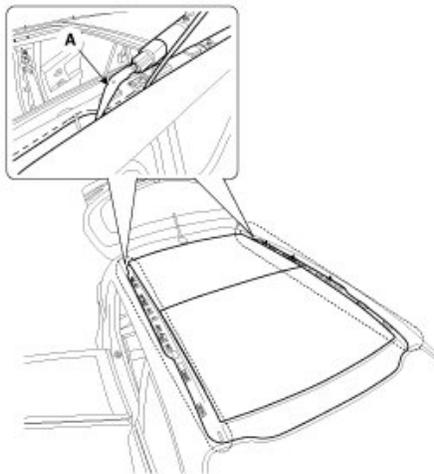
**CAUTION:**

- Be careful not to damage the panorama roof when inserting tools between the chassis and panorama roof.

10. Open the space between chassis and panorama roof using flathead screwdriver, and then cut the sealant of side using a tool (09816-2P121, 09816-2P122) (A).

NOTE:

- This blade has a inclination to push upward.
(09816-2P121, 09816-2P122)
- This blade has a inclination to push downward.
(09816-2P123, 09816-2P124)

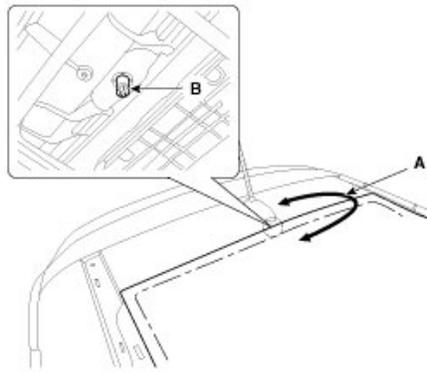
**CAUTION:**

- Be careful not to damage the panorama roof when inserting tools between the chassis and panorama roof.

11. Cut off the sealant by pulling the piano wire (A) around the back panorama roof assembly.

NOTE:

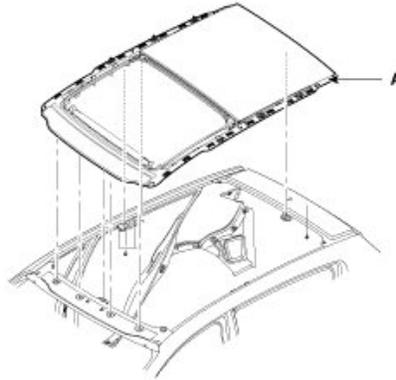
- Be careful of center hole (B) break.



12. Cut the sealant between the panorama roof and the body, remove the panorama roof (A).

NOTE:

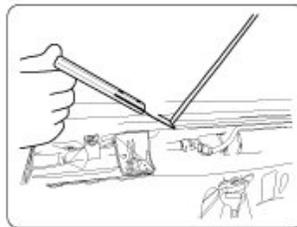
- Work with a minimum of four persons when lifting the panorama roof on or off the vehicle.

**[Installation]**

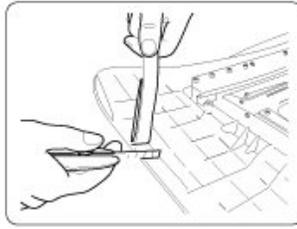
1. With a knife, scrape the old adhesive smooth to a thickness of about 2mm (0.08 in.) on the bonding surface around the entire panorama roof opening flange

CAUTION:

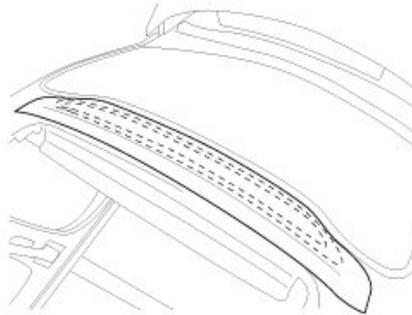
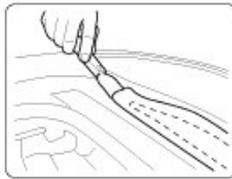
- Do not scrape down to the painted surface of the body; damaged paint will interfere with proper bonding.
- Remove the rubber dam and fasteners from the body.
- Mask off surrounding surfaces before painting.



2. Clean the body bonding surface with a sponge dampened in alcohol. After cleaning, keep oil, grease and water from getting on the clean surface.



3. Remove front glass of the panorama roof by using a cutter knife.



4. With a sponge, apply a light coat of body primer to the original adhesive remaining around the windshield opening flange. Let the body primer dry for at least 10 minutes :

CAUTION:

- Do not apply glass primer to the body, and be careful not to mix up glass and body primer sponges.
- Never touch the primed surfaces with your hands.
- Mask off surrounding surfaces before painting.



5. Apply a light coat of glass primer to the outside of the fasteners.

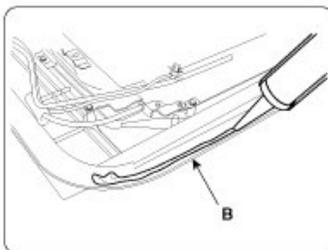
CAUTION:

- Never touch the primed surface with your hand. If you do, the adhesive may not bond to the glass properly, causing a leak after the windshield glass is installed.
- Do not apply body primer to the glass.

- Keep water, dust, and abrasive materials away from the primer.



6. Pack adhesive into the cartridge without air pockets to ensure continuous delivery. Put the cartridge in a caulking gun, and run a bead of sealant (B) around the edge of the panorama roof (A) as shown. Apply the adhesive within 30 minutes after applying the glass primer. Make a slightly thicker bead at each corner.



7. Fix the panorama roof to center hall (A) of body, install carefully the panorama roof to the body frame.

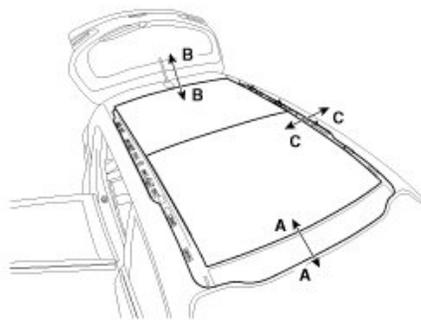
NOTE:

- Work with a minimum of four persons when lifting the panorama roof on or off the vehicle.



8. Check the Clearance and gap for each side after installing the panorama roof.

	Section	Gap	Clearance
Front edge	A-A	5.7mm (0.2244in)	0.9mm (0.0354in)
Rear edge	B-B	5mm (0.1969in)	2mm (0.0787in)
Side edge	C-C	10mm (0.3937in)	1.2mm (0.0472in)

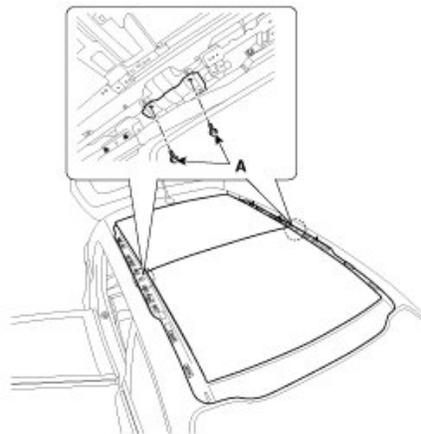


9. Install the bolts (A), to the panorama roof panel mounting bracket.

Tightening torque :

19.6 - 29.4 N.m (2.0 - 3.0 kgf.m, 14.5 - 21.7lb-ft)

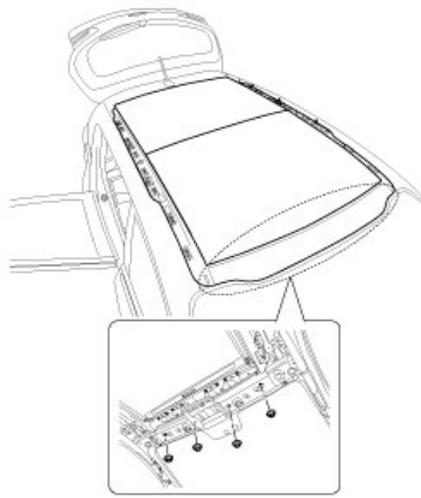
[Front]



10. Install the nuts to the panorama roof.

Tightening torque :

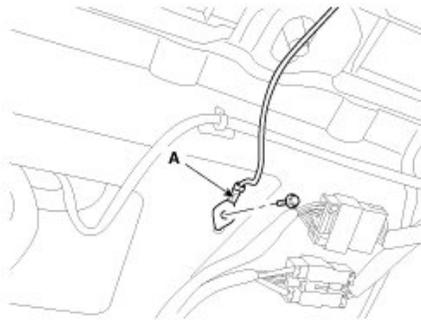
19.6 - 29.4 N.m (2.0 - 3.0 kgf.m, 14.5 - 21.7lb-ft)



11. Install the ground wire (A) mounting bolt.

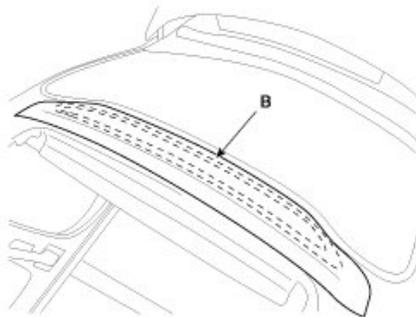
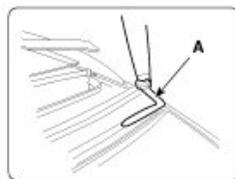
Tightening torque :

10.8 - 13.7 N.m (1.1 - 1.4 kgf.m, 8.0 - 10.1 lb-ft)

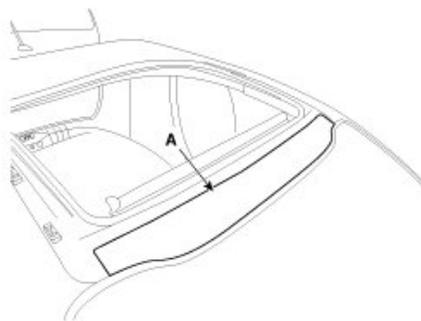


12. Install the roof rack and roof molding.

13. Pack adhesive into the cartridge without air pockets to ensure continuous delivery. Put the cartridge in a caulking gun, and run a bead of sealant (A) around the edge of the panorama roof panel (B) as shown. Apply the adhesive within 30 minutes after applying the glass primer. Make a slightly thicker bead at each corner.

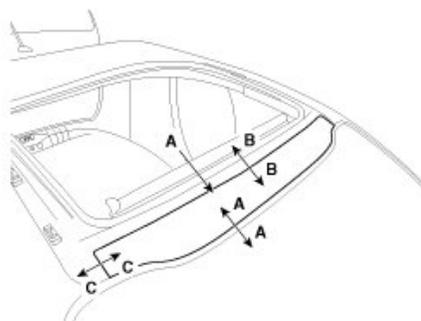


14. Install the front glass (A).



15. Close the movable glass fully.
16. Check the Clearance and gap for each side after installing the front glass (A).

	Section	Gap	Clearance
Front edge	A-A	5.7mm (0.2244 in)	0.9mm (0.0354 in)
Rear edge	B-B	7mm (0.2756 in)	1.2mm (0.0472 in)
Side edge	C-C	0mm	0mm



17. Scrape or wipe the excess adhesive off with a putty knife or towel. To remove adhesive from a painted surface or the windshield, wipe with a soft shop towel dampened with alcohol.
18. Let the adhesive dry for at least one hour, then spray water over the roof and check for leaks. If a leak occurs, let it dry, then seal with sealant :
 - A. Let the vehicle stand for at least four hours after windshield installation. If the vehicle must be driven within 4 hours, it must be driven slowly.
 - B. Keep the windshield dry for the first hour after installation.
19. Reinstall all remaining removed parts. Install the rearview mirror after the adhesive has dried thoroughly. Advise the customer not to do the following things for two the three days :
 - A. Slam the door with all the windows rolled up.
 - B. Twist the body excessively (such as when going in and out of driveways at an angle or driving over rough, uneven roads).
20. Installation the following items
 - A. Wind deflector
 - B. Roof antenna
 - C. Roof trim
 - D. Interior trim
 - E. Rear seat
 - F. Front seat

Adjustment

Inspect Glass Alignment

1. Check for abnormal noise or bending during operation.
2. With the sunroof fully closed, check for water leakage.
3. The roof panel (B) should be even with the movable glass (A) weatherstrip, to within the standard value "E" all the way around. If not, make the

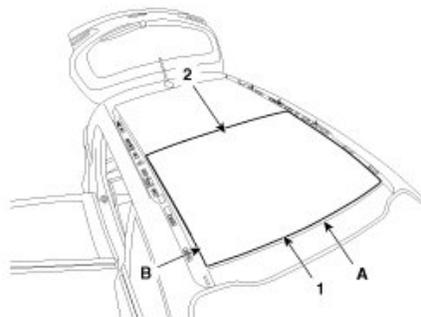
following adjustment.

Tightening torque :

Standard value "E" [mm(in.)]

(1) Front edge : 1.2mm (0.0472 in)

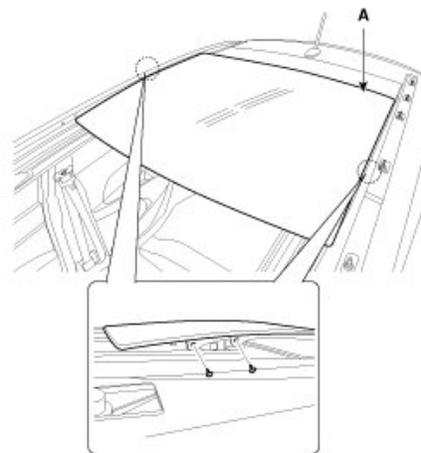
(2) Rear edge : 1.0mm (0.0394 in)



- If the position is not as specified, lightly loosen the glass adjusting screws (A) to adjust the glass height and tighten it.

CAUTION:

- Do not damage the screws.



How To Initialize Motor

Whenever the battery is disconnected, discharged or the related fuse is replaced or reinstalled, the panorama roof system must be reset according to the procedure below.

- Turn the ignition key to the ON position and then close the panorama roof completely.
- Release the panorama roof control leveraging the switch.
- Press and hold the CLOSE button for more than 10 seconds until the sunroof has moved slightly.
- Release the panorama roof control lever.
- Press and hold the CLOSE button once again until the sunroof do as follows.
 - Tilt -> Slide Open -> Slide Close
 Then, release the lever.
- Reset procedure of panorama system is finished.

When To Initialize The Motor

- At the time of manufacture.
- If the Initial setting is erased due to loss of power.
- After using the manual handle.

Operating The Panorama roof Emergency Handle

- Use the panorama roof emergency handle to close and open the panorama roof manually for the following case only.
 - To close the panorama roof before driving a vehicle in a rainy day or on the highway if the panorama roof can not be closed due to failure of the panorama roof motor or controller.
- Operating method.
 - Remove the roof trim

- B. Push the emergency handle up into the hexagonal drive of the panorama roof motor. You must push hard enough to disengage the motor clutch; otherwise the emergency handle will slip due to incomplete fit in the motor.
- C. Carefully turn the emergency handle clockwise to close the panorama roof.
- D. After closing the sunroof, wiggle the handle back and forth as you remove the tool from the motor, to ensure the motor clutch reengages.
- E. A 5mm hex socket may be used in place of the emergency handle, with a "Speeder" type handle.

CAUTION:

- Do not use power tools to operate the panorama roof.
- Damaged to the components may occur.

