

SUNROOF

42600010017

GENERAL

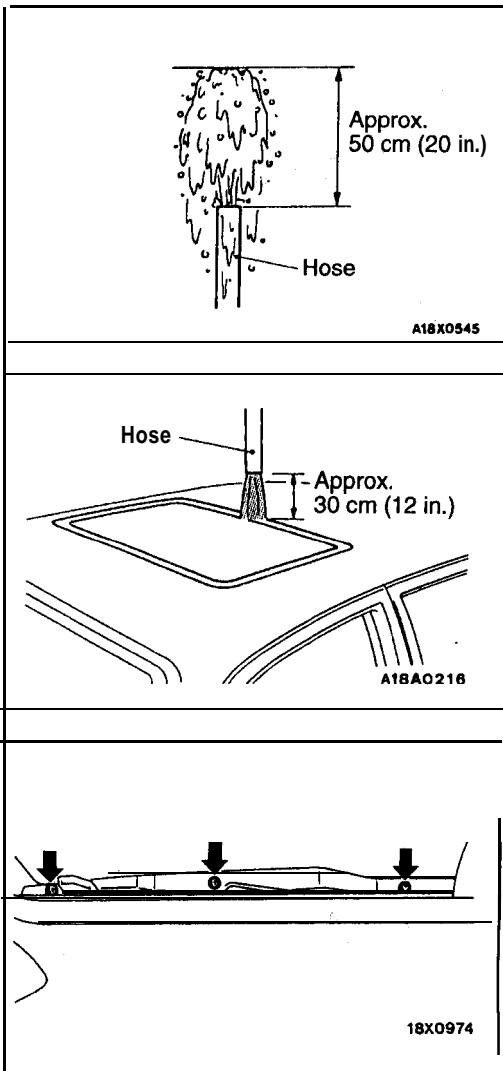
A motor-driven outer slide-type glass sunroof with a tilt-up mechanism is provided as an option for all models. Even when the sunroof is fully closed,

a sufficient amount of lighting and a feeling of openness can still be obtained by opening the sunroof sunshade.

SEALANT AND ADHESIVE

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Items	Specified sealant and adhesive
Sunroof glass attaching screws	Loctite Small Screw Threadlocker 222 or equivalent
Sunroof glass sealing	Loctite 410 Black Toughened Instant Adhesive or equivalent



ON-VEHICLE SERVICE

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WATER TEST

1. Close the roof lid tightly.
2. Hold the hose upward and adjust water fountain to about 50 cm (20 in.) high.
3. Pour water over the roof from about 30 cm (12 in.) above roof for more than 5 minutes.
4. While pouring water, check, for leak around the roof lid.
5. In the event of leakage, check the drain pipe, weatherstrip contact and others.

SUNROOF FIT ADJUSTMENT

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With the sunroof in the closed position, adjust the sunroof glass to 1 mm (.04 in.) below roof surface at front of the glass and 1 mm (.04 in.) above roof surface at rear of the glass and tighten the sunroof glass attaching screws.

OPERATION CHECK

Check the following items. If defective, replace the sunroof control unit.

Caution

Check that the following items are normal before carrying out this operation check.

- (1) Installation condition of the sunroof assembly
- (2) Installation condition, deforms and foreign material of the sunroof drive cable
- (3) Unfitted sunroof lid glass
- (4) Sunroof switch and sunroof motor

No.	Sunroof initial position	Switch operation	Judgment (normal)
01	Fully closed	Ignition switch: ON 1. Sunroof switch: Open 2. Sunroof switch: Release the open button	1. Sunroof tilts up. 2. Sunroof stops before tilt-up finishes.
02	From fully closed position to tilted position	Ignition switch: ON • Sunroof switch: Close	• Sunroof closes fully and stops
03	Fully closed	Ignition switch: ON • Sunroof switch: Open	• Sunroof tilts up and stops.
04	Fully closed	Ignition switch: ON • Sunroof switch: Open Block the sunroof between fully closed position and tilted position	• Sunroof moves until the blocking force reaches 98N (22.0 lbs.). At this time check the current to the sunroof motor. If the motor stops at more than 15 A, the motor is normal. [approx. 15 A at 98 N (22.0 lbs.)]
05	Tilt	Ignition switch: ON • Sunroof switch: Open Block the sunroof between fully tilted position* and fully open position.	• Sunroof moves until the blocking force reaches 98 N (22.0 lbs.). Sunroof stops when the force has reached 98 N (22.0 lbs.).
16	Fully open	Ignition switch: ON • Sunroof switch: Close Block the sunroof at 200 mm (7.9 in.) before the sunroof is fully closed.	• Sunroof moves until the blocking force reaches 98 N (22.0 lbs.). Sunroof stops in one seconds after the blocking force has reached 98 N (22.6) lbs.).
17	Fully open	Ignition switch: ON • Sunroof switch: Close Block the sunroof at 5 mm (.20 in.) before the sunroof is fully closed.	• Sunroof moves toward close until the blocking force reaches 98 N (22.0 lbs.). Then the sunroof moves back toward open when the blocking force reaches 98 N (22.0 lbs.) and stops after second.
18	Fully open	Ignition switch: ON • Sunroof switch: Close Block the sunroof at 3 mm (.12 in.) before the sunroof is fully closed.	• Sunroof moves toward close until the blocking force reaches 98 N (22.0 lbs.). Then the sunroof stops when the blocking force reaches 98 N (22.0 lbs.). (The sunroof does not move back toward open.)
19	Fully open	Ignition switch: ON • Sunroof switch: Close Block the sunroof at 18 mm (.71 in.) before the sunroof is fully closed.	• Sunroof moves toward close before the blocking force reaches 98 N (22.0 lbs.). Then the sunroof moves back toward open when the blocking force reaches 98 N (22.0 lbs.) and stops after one second.

NOTE

*: "Fully tilted position" is the position where the sunroof has tilted up and begins sliding.

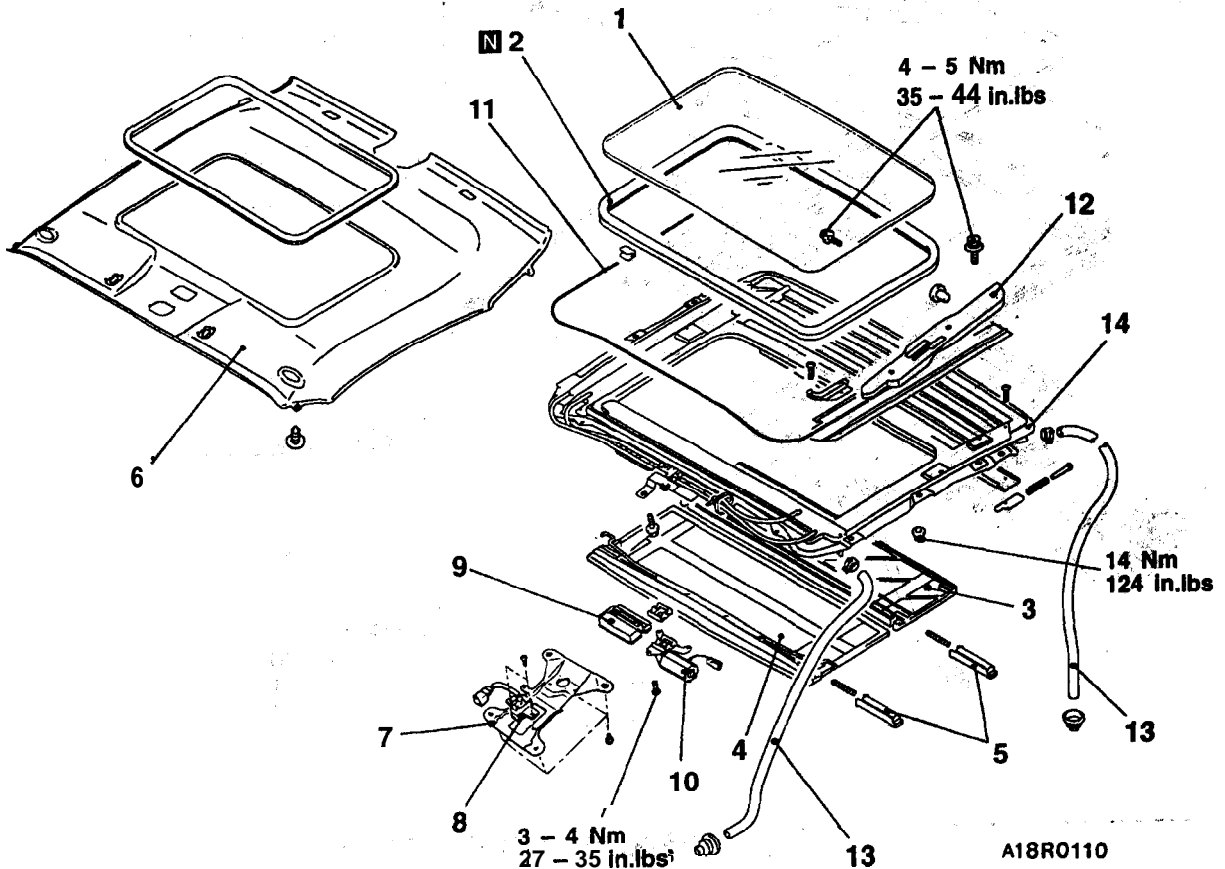
No.	Sunroof initial position	Switch operation	Judgment (normal)
10	Fully open	Ignition switch: ON • Sunroof switch: Close Block the sunroof at 16 mm (.63 in.) before the sunroof is fully closed.	<ul style="list-style-type: none"> • Sunroof moves toward close until the blocking force reaches 98 N (22.0 lbs.) Then the sunroof stops when the blocking force reaches 98 N (22.0 lbs.) (The sunroof does not move back toward open.)
11	Fully closed	Ignition switch: ON 1. Sunroof switch: Open 2. Sunroof switch: Release the open button	<ol style="list-style-type: none"> 1. Sunroof tilts up. 2. Sunroof stops before tilt-up finishes.
12	Tilt up	Ignition switch: ON 1. Sunroof switch: Open 2. Ignition switch: OFF (before the sunroof is fully open)	<ol style="list-style-type: none"> 1. Sunroof moves toward open. 2. Sunroof stops.
13	Fully open	Ignition switch: ON 1. Sunroof switch: Close 2. Ignition switch: OFF (before tilt-up finishes)	<ol style="list-style-type: none"> 1. Sunroof tilts up. 2. Sunroof stops
14	Tilt up	Ignition switch: ON • Sunroof switch: Open Block the sunroof between fully tilted position and fully open position.	<ul style="list-style-type: none"> • Sunroof moves toward close until the blocking force reaches 98 N (22.0 lbs.). Then the sunroof stops when the blocking force reaches 98 N (22.0 lbs.).

SUNROOF

REMOVAL AND INSTALLATION

Post-installation Operation

- Sunroof Fit Adjustment (Refer to P.42-82.)
- Water Test (Refer to P.42-82.)



Sunroof glass seal removal steps

- A
F
1. Sunroof glass
B
E
2. Sunroof glass seal

Sunroof sunshade removal steps

- A
F
1. Sunroof glass
C
C
3. Rear sunroof sunshade
C
C
4. Front sunroof sunshade
D
C
5. Sunshade slide block

Sunroof switch

6. Headlining (Refer to GROUP 52A - Headlining.)
7. Bracket
8. Sunroof switch

Sunroof control unit

6. Headlining (Refer to GROUP 52A - Headlining.)
E
D
9. Sunroof control unit

Sunroof motor removal steps

6. Headlining (Refer to GROUP 52A - Headlining.)
7. Bracket
10. Sunroof motor

Sunroof guide assembly removal steps

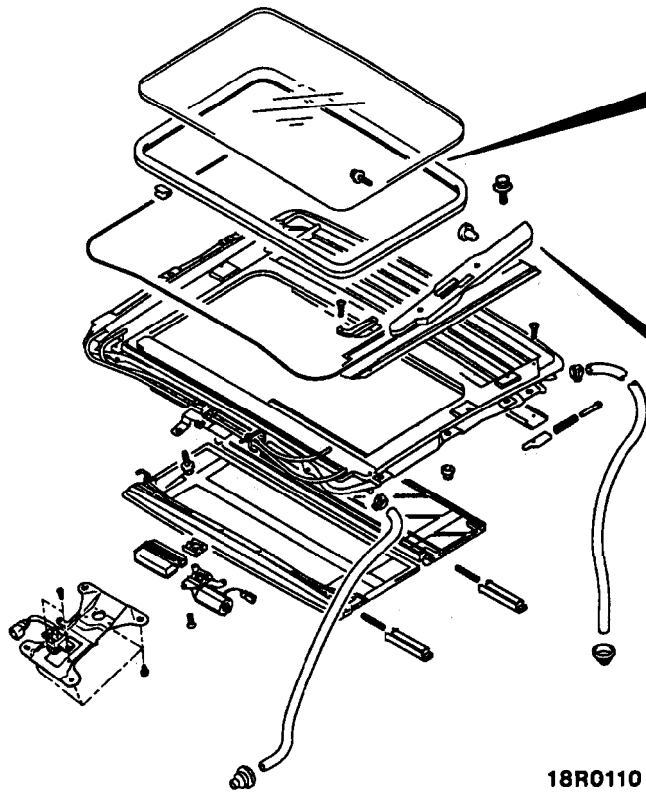
- A
F
1. Sunroof glass
C
C
3. Rear sunroof sunshade
C
C
4. Front sunroof sunshade
F
B
11. Sunroof drive cables connection
G
12. Sunroof guide assembly

Sunroof assembly

6. Headlining (Refer to GROUP 52A - Headlining.)
7. Bracket

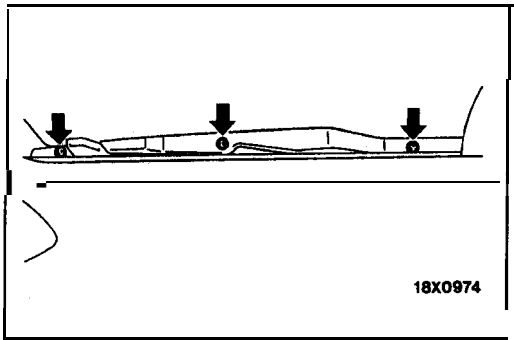
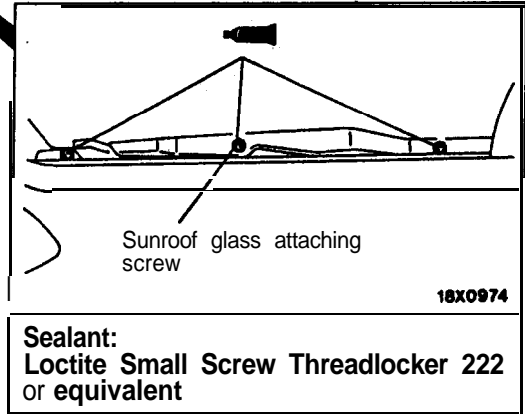
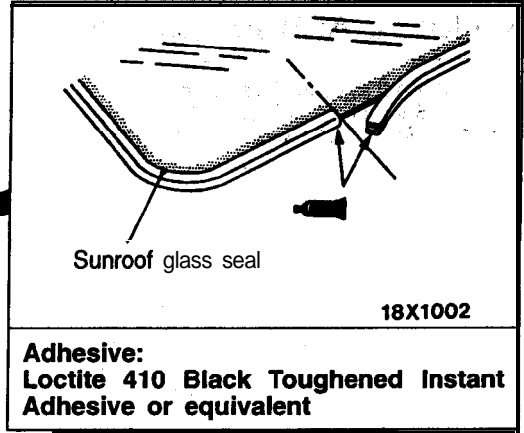
- H
A
13. Drain hose
14. Sunroof assembly

ADHESION POINTS



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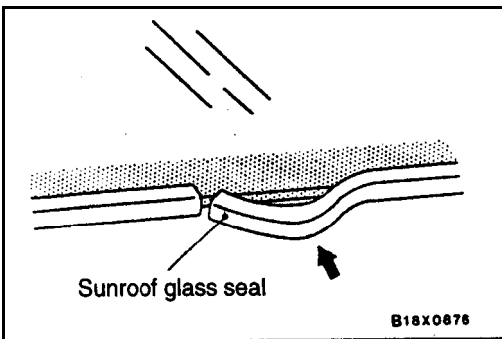
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REMOVAL SERVICE POINTS

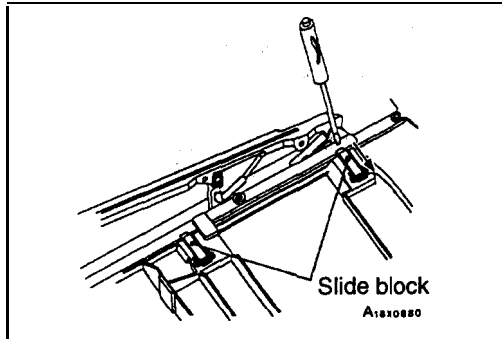
◀A▶ SUNROOF GLASS REMOVAL

- (1) Tilt the sunroof.
- (2) Remove the screws attaching sunroof glass to the guide assemblies, and then lift the glass out of roof opening.



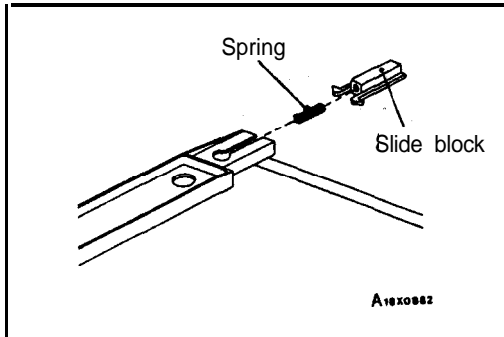
◀B▶ SUNROOF GLASS SEAL REMOVAL

Remove the seal by pulling it off of glass starting at the splice joint.



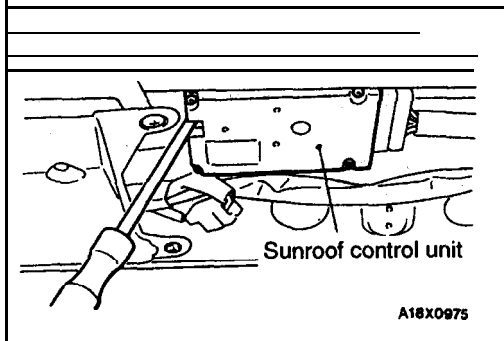
◀C▶ REAR 'SUNROOF SUNSHADE/FRONT SUNROOF SUNSHADE REMOVAL

- (1) Remove the rear sunroof sunshade first by pushing in the slide blocks to release them from the sunroof guide assembly on one side of the sunshade. Remove the rear sunroof sunshade out of roof opening.
- (2) Repeat the step (1) for the front 'sunroof sunshade.



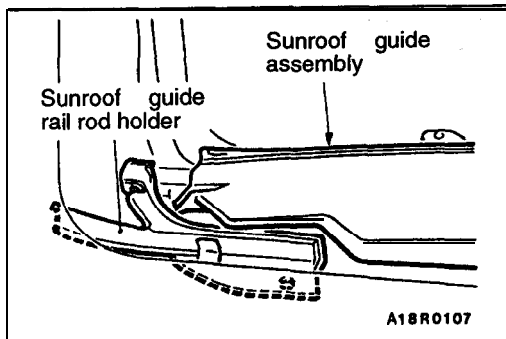
◀D▶ SUNSHADE SLIDE BLOCK REMOVAL

Squeeze together your fingers on inboard end of the slide block to allow the slide block to slide out of its channel, and then remove the slide block and spring.



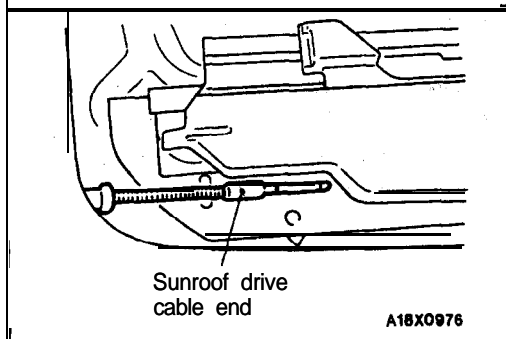
◀E▶ SUNROOF CONTROL UNIT REMOVAL

- (1) Close the sunroof glass fully.
- (2) Insert a flat-tipped screwdriver, place it on the tab, and then press it to the right.
- (3) Lower sunroof control unit and slide to left.

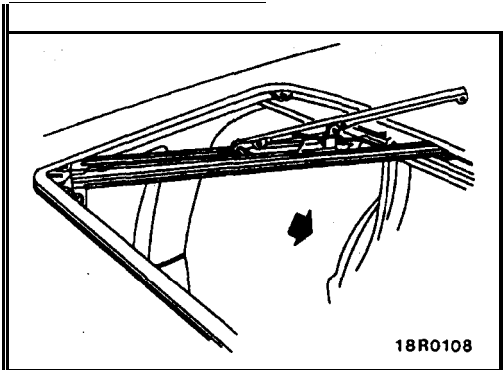


◀F▶ SUNROOF DRIVE CABLES REMOVAL

- (1) Tilt the sunroof guide assembly and then remove the sunroof guide rail rod holder.

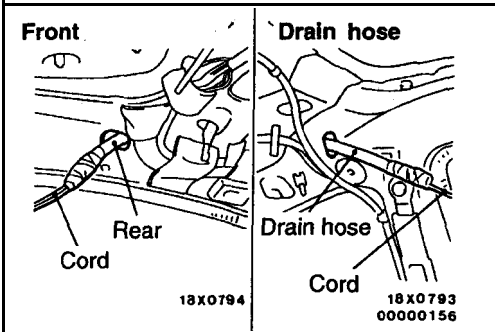


- (2) Close the sunroof guide assembly and disconnect the sunroof drive cable end from the sunroof guide assembly.



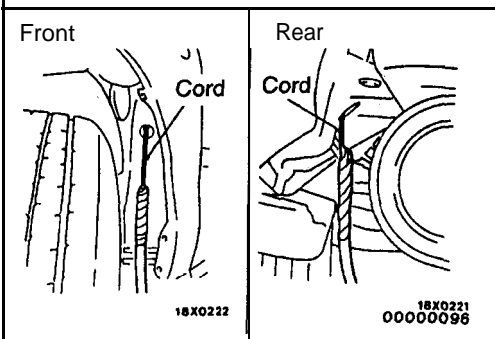
◀G▶ SUNROOF GUIDE ASSEMBLY REMOVAL

- (1) Slide the roof drip rear channel backward, and then remove the guide assembly screws, the rear screw and spacer.
- (2) Slide the rear of the guide assembly toward center of the vehicle and remove the guide assembly.



◀H▶ DRAIN HOSE REMOVAL

Remove the grommet. Tie a cord to the end of the drain hose, wind plastic tape around it so that there is no unevenness, and pull the drain hose out into the wheel house.

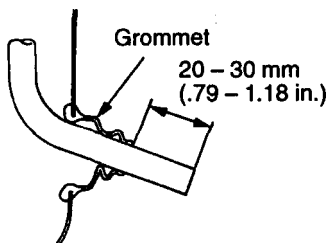


INSTALLATION SERVICE POINTS

▶A◀ DRAIN HOSE INSTALLATION

- (1) Tie the cord that was used during removal to the end of the drain hose, and wind the plastic tape around it so that there is no unevenness.
- (2) Pull the cord to pull through the drain hose.

- (3) Make the protrusion from the drain hose grommet as shown in the illustration.

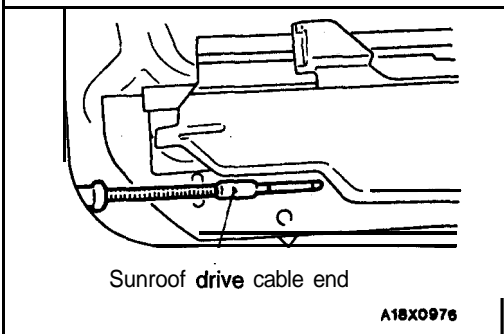


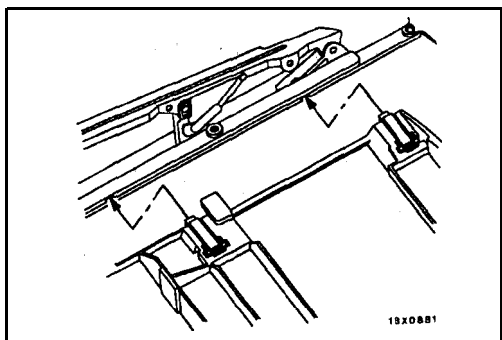
▶B◀ SUNROOF DRIVE CABLES INSTALLATION

Caution

If cables are kinked, replace them. Always replace the cables in pair and grease them before installation.

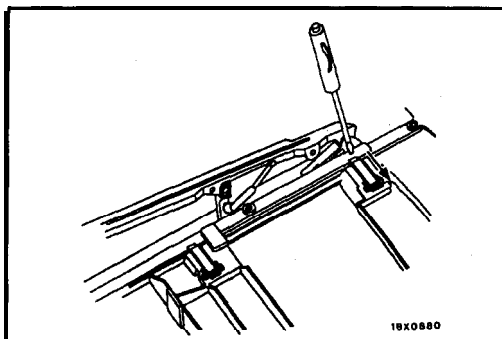
Close the sunroof guide assembly and install the sunroof drive cable end to the sunroof guide assembly.



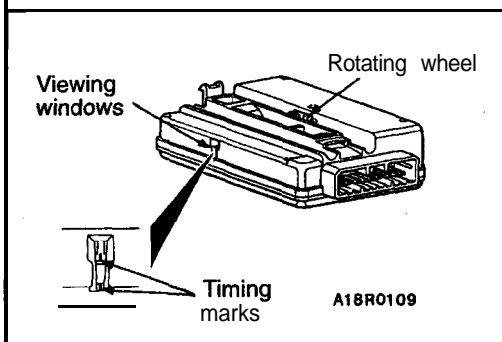


►C◄ FRONT SUNROOF SUNSHADE/REAR SUNROOF SUNSHADE INSTALLATION

- (1) Install the front sunroof sunshade first by inserting the slide blocks on the right side of the sunshade into the lower slide position of the right guide assembly.
- (2) Push the sunshade slide blocks on the left side of the sunshade into the sunshade to allow the front sunroof sunshade to drop into position. Once in position, engage the slide blocks into the lower channel of the left guide assembly.

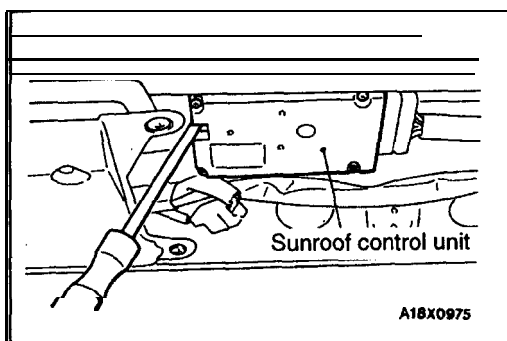


- (3) Push the front sunroof sunshade to full forward position.
- (4) Position the rear sunroof sunshade so that the stop tabs are against the stop bumpers on the guide assembly. Engage the right side slide blocks of the upper half of the sunshade into the upper channel on the right guide assembly. Engage the slide blocks on the left side of the sunshade into the upper channel in the left guide assembly.
- (5) Slide the sunshade back and forth to check that it functions smoothly.

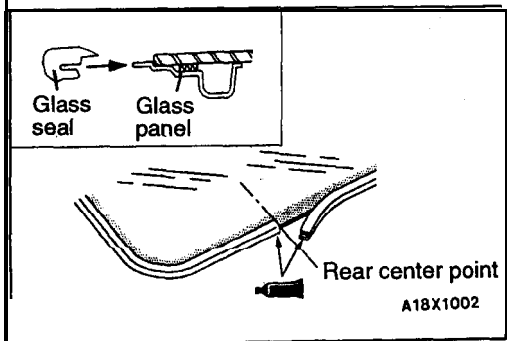


►D◄ SUNROOF CONTROL UNIT INSTALLATION

- (1) Look into the “viewing windows” while turning the rotating wheel. Turn the rotating wheel until the white timing marks appear. When the white timing marks appear in the “viewing windows” at the same time; stop turning the rotating wheel.
- (2) Close the sunroof fully. **Install** the timed sunroof control unit. Make sure that the sunroof cable is properly-inserted into the control unit.



- (3) Insert a flat-tipped screwdriver, place it on the tab, and press it to the right, being careful not to pinch wiring.



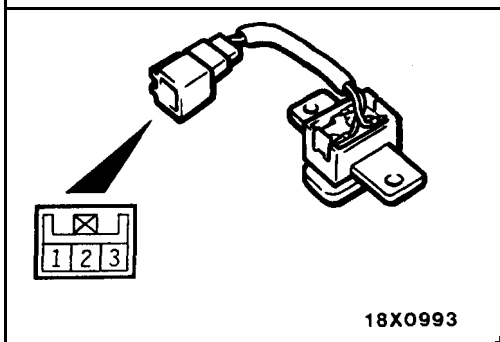
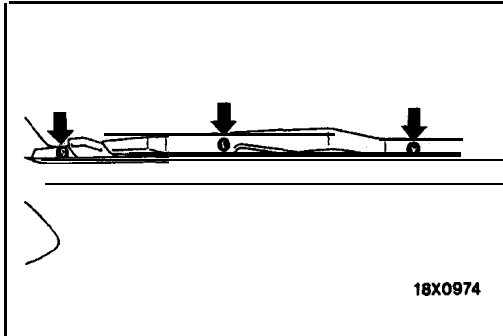
►E◄ SUNROOF GLASS SEAL INSTALLATION

- (1) Starting at the rear center of the sunroof glass, begin installing the seal by pushing it onto the edge of the glass panel and gently pulling on it while installing.
- (2) Approximately 102 mm (4 in.) before completing installation, lay the end of the seal over top of the beginning of the seal. Cut the seal so there is an extra 3.18 mm (1/8 in.) of the seal past the point where the seal lines up with the beginning of the seal.
- (3) Apply the specified adhesive to the splice joint area where two ends of the seal meet.

Specified adhesive:

Loctite 410 Black Toughened Instant Adhesive or equivalent

- (4) With the approximately 102 mm (4 in.) of the seal unattached, push two ends of the seal together at glue joint.
- (5) Install remainder of the seal by pushing **the seal** onto the edge of the glass panel. The 3.18 mm (1/8") of extra seal material should strengthen the seal at the splice joint.



►F◀ SUNROOF GLASS INSTALLATION

- (1) Position the sunroof glass onto the guide assemblies and align the mounting holes.
- (2) Apply the specified sealant to the sunroof glass attaching screws and install them, going to the next step before tightening.

Specified sealant:

Loctite Small Screw Threadlocker 222 or equivalent

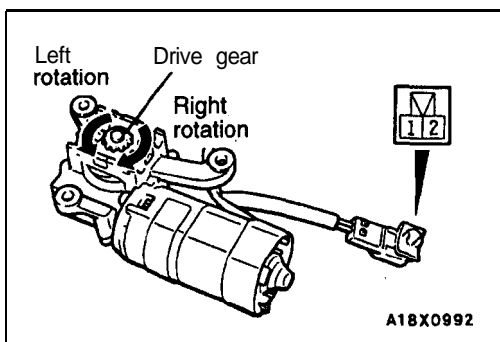
INSPECTION

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SUNROOF SWITCH CHECK

Operate the sunroof switch and check the continuity between each of the terminals.

Switch position	Terminal No.		
	1	2	3
OPEN	0	0	
OFF			
CLOSE		0	0



SUNROOF MOTOR CHECK

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Check the rotation direction of the drive gear when the battery is connected to the connector.

Terminal 1	Terminal 2	Drive gear rotation direction
	+	Right
+	--	Left