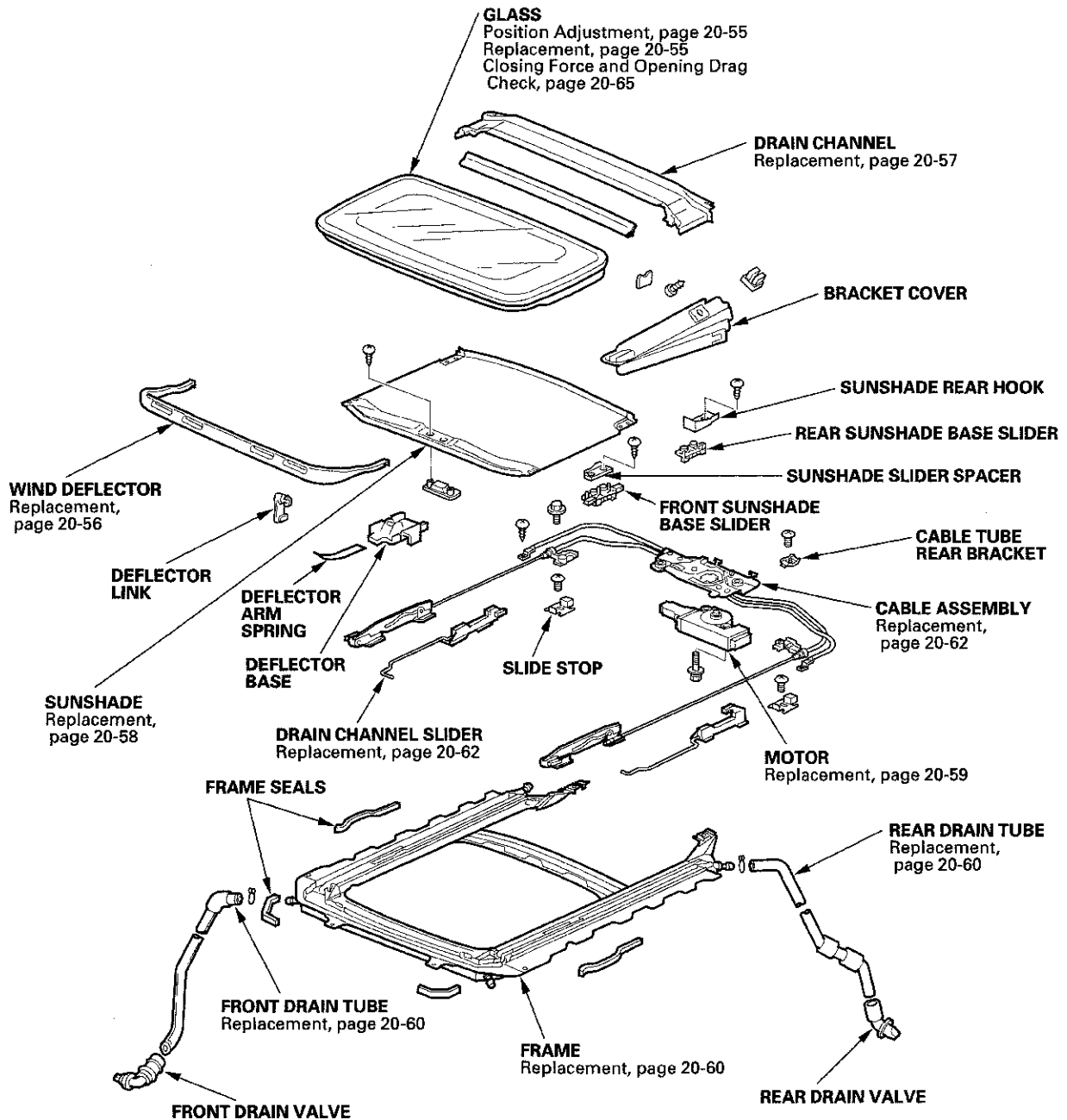




Component Location Index



Moonroof

Symptom Troubleshooting Index

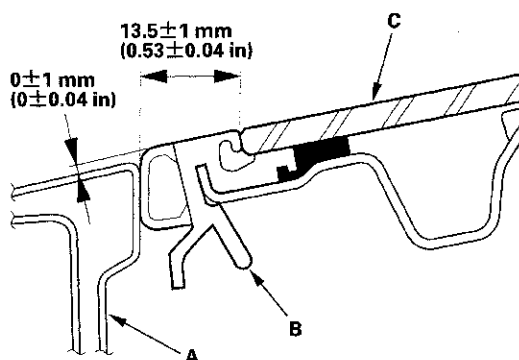
Symptom	Diagnostic procedure
Water leaks from moonroof	1. Check for a clogged or detached drain tube. 2. Check for a gap between the glass weatherstrip and the roof panel (see page 20-55). 3. Check for a defective or an improperly installed glass weatherstrip or drain channel. 4. Check for a gap between the drain seal and the roof panel.
Wind noise from moonroof	1. Check for excessive clearance between the glass weatherstrip and the roof panel. 2. Check the glass position adjustment (see page 20-55).
Motor noise from moonroof	1. Check for a loose motor. 2. Check for a worn gear or bearing. 3. Check for a deformed cable assembly. 4. Check for dirt or debris.
Moonroof glass does not move, but motor turns	1. Check for a defective gear or inner cable. 2. Check for foreign matter stuck between the guide rail and the slider. 3. Check for a loose inner cable. 4. Make sure the cable assembly is attached properly.
Moonroof glass does not move and motor does not turn (glass can be moved with 5 mm hex wrench)	1. Check for a blown fuse. 2. Check for a faulty moonroof switch. 3. Check for a run down battery. 4. Check for a defective motor control unit.
Moonroof glass does not stop at proper flush closed position	1. Reset the moonroof control unit (see page 22-432). 2. Check glass position adjustment (see page 20-55).
Moonroof glass moves in a jerking motion (moves 40 mm (1.57 in), stops for 0.4 seconds, and repeats)	Reset the moonroof control unit (see page 22-432).
During auto close operation, moonroof glass reverses when no object is trapped	1. Check for dirt and debris in the track. 2. Reset the moonroof control unit (see page 22-432).
Moonroof glass moves, but there is no AUTO function	Reset the moonroof control unit (see page 22-432).



Glass Position Adjustment

The roof panel (A) should be even with the glass weatherstrip (B), to within $0 \pm 1/-1$ mm ($0 \pm 0.04/-0.04$ in) all the way around, and to within $13.5 \pm 1/-1$ mm ($0.53 \pm 0.04/-0.04$ in) between the roof panel and the front edge of the glass (C). If not, make the following adjustment:

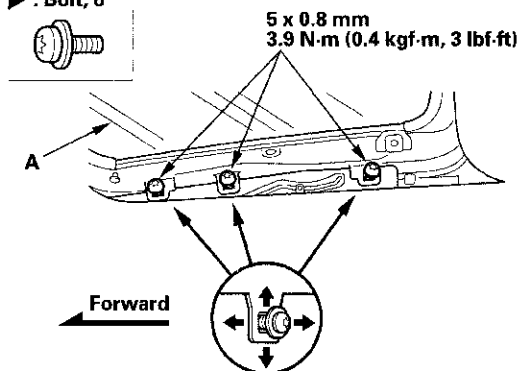
NOTE: Reset the moonroof control unit (see page 22-432). If glass position is still incorrect go to step 1.



1. Remove the bracket cover (see step 3 on page 20-55).
2. Using a TORX T25 bit, loosen the bolts on each side, and adjust the glass (A).

Fastener Locations

► : Bolt, 6

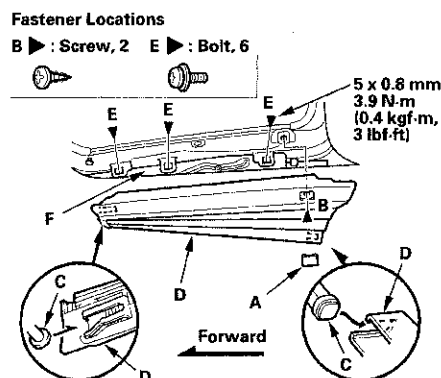


3. Tighten all bolts securely.
4. If necessary, repeat on the opposite side.

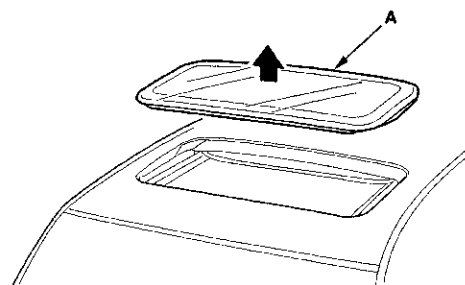
NOTE: After glass position is mechanically adjusted. Reset the moonroof control unit (see page 22-432).

Glass Replacement

1. Close the glass fully.
2. Slide the sunshade all the way back.
3. Pry out the lid (A), remove the screws (B), and release the pins (C), then remove both bracket covers (D). Using a TORX T25 bit, remove the bolts (E) from both glass brackets (F).



4. Remove the glass (A) by lifting it up. Do not damage the roof panel.



5. Install the glass in the reverse order of removal, and note these items:

- Apply liquid thread lock to the glass mounting bolts before reinstallation.
- Reset the moonroof control unit (see page 22-432).
- Do the glass position alignment procedure (see page 20-55).

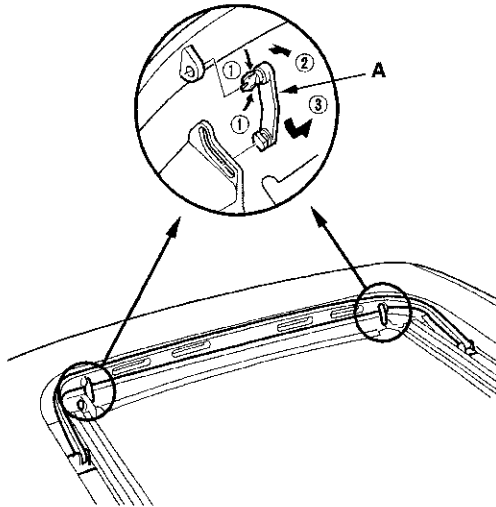
6. Check for water leaks (see step 8 on page 20-34). Use free-flowing water from a hose without a nozzle. Do not use high-pressure water.

NOTE: It is normal for some water to seep past the moonroof into the moonroof frame, and exit through the drains.

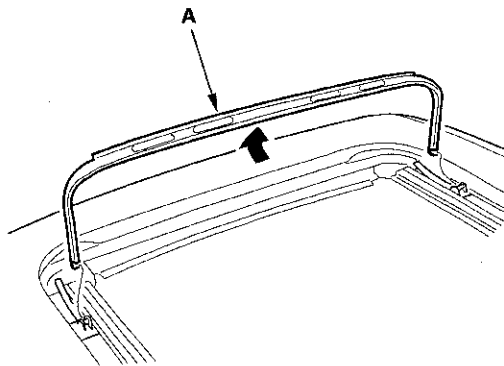
Moonroof

Wind Deflector Replacement

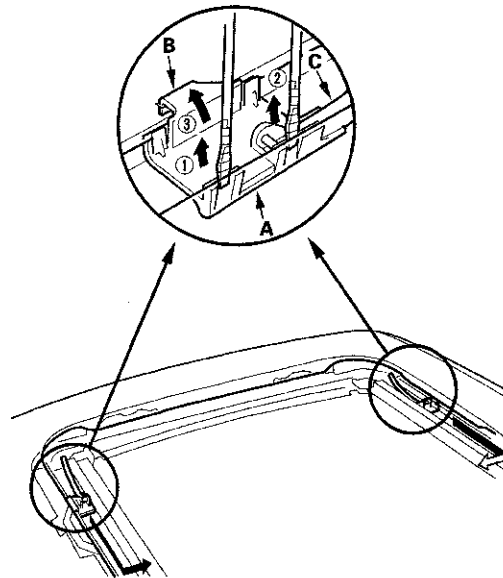
1. Open the glass fully.
2. Remove the links (A) from both sides.



3. Remove the wind deflector (A).



4. Pry up on the deflector bases (A) and release the hooks (B), then remove the bases with springs (C) from both sides.



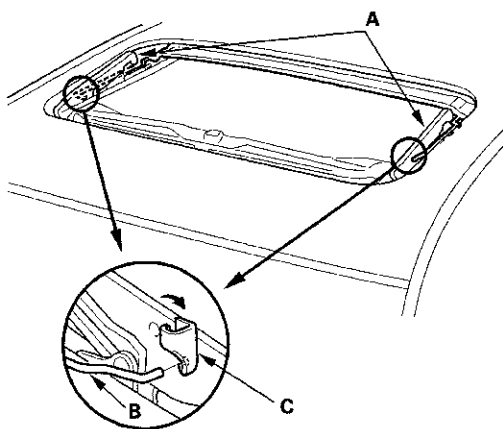
5. Install the deflector in the reverse order of removal.
6. Reset the moonroof control unit (see page 22-432).



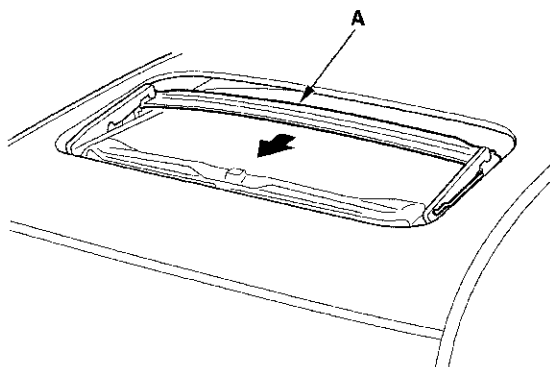
Drain Channel Replacement

1. Remove the glass (see page 20-55).
2. With the moonroof wrench, move both glass brackets (A) to the position where the moonroof normally tilts up, and disconnect the drain channel rods (B) from the joint bushings (C) on both sides.

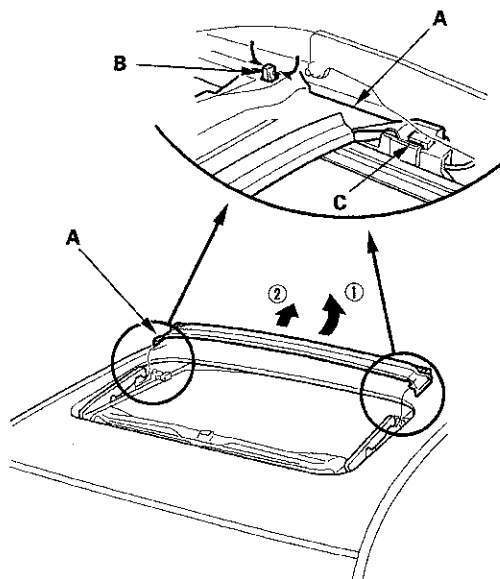
NOTE: Check the bushings for damage, and replace them if necessary.



3. Slide the drain channel (A) forward.



4. Pull the rear edge of the drain channel (A) up while pushing both clips (B), and release the channel from both hooks (C) of the drain channel slider by pulling it rearward.



5. Remove the drain channel.
6. Install the channel in the reverse order of removal, and note these items:
 - Push the clips into place securely.
 - Check the glass position adjustment (see page 20-55).
7. Reset the moonroof control unit (see page 22-432).
8. Check for water leaks (see step 8 on page 20-34). Let the water run freely from a hose without a nozzle. Do not use a high-pressure spray.

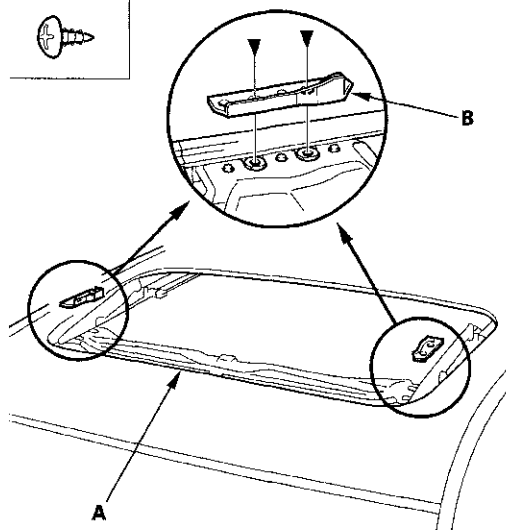
Moonroof

Sunshade Replacement

1. Remove the drain channel (see page 20-57).
2. Slide the sunshade (A) until you can see both sunshade slider spacers (B).

Fastener Locations

► : Screw, 4

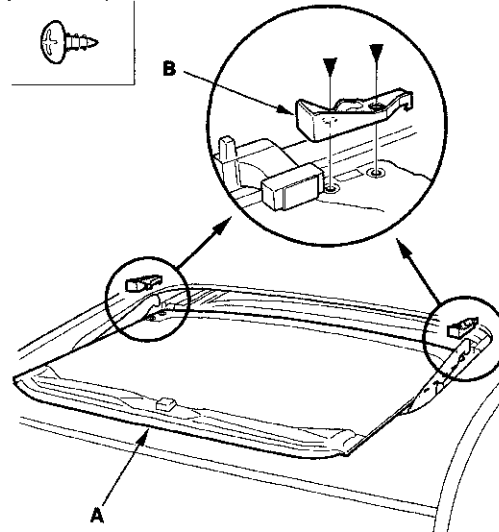


3. Remove the screws, then remove both spacers.

4. While lifting the front portion of the sunshade (A), move the sunshade forward until you can see both sunshade rear hooks (B). Do not damage the sunshade and the hooks.

Fastener Locations

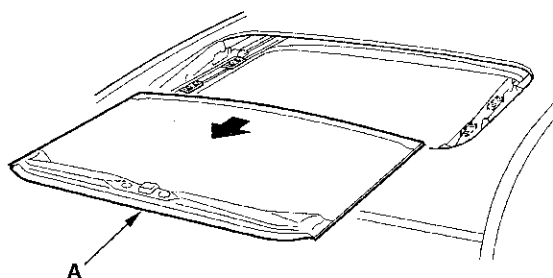
► : Screw, 4



5. Remove the screws, then remove both hooks.

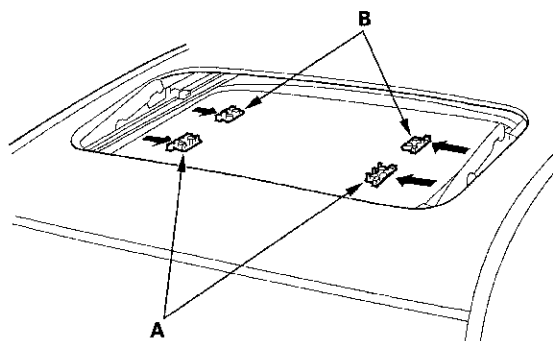


6. Remove the sunshade (A).



Sunshade base slider removal

7. If necessary, remove both front sunshade base sliders (A) and both rear sunshade base sliders (B).



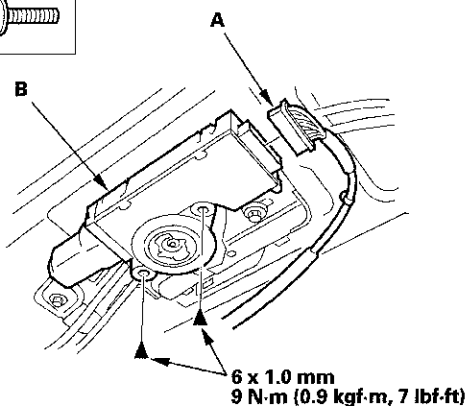
8. Install the sunshade in the reverse order of removal, and check the glass position adjustment (see page 20-55).
9. Reset the moonroof control unit (see page 22-432).
10. Check for water leaks (see step 8 on page 20-34). Let the water run freely from a hose without a nozzle. Do not use a high-pressure spray.

Motor Replacement

1. Remove the headliner (see page 20-86).
2. Put on gloves to protect your hands. Disconnect the connector (A), and remove the bolts, then remove the motor (B).

Fastener Locations

► : Bolt, 2



3. Install the motor in the reverse order of removal, and note these items:

- Make sure the connector is plugged in properly.
- Reset the moonroof control unit (see page 22-432).
- Check the motor operation.

Moonroof

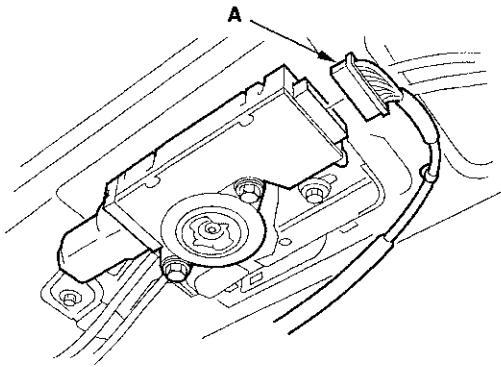
Frame and Drain Tube Replacement

SRS components are located in this area. Review the SRS component locations (see page 24-12) and the precautions and procedures (see page 24-14) before doing repairs or service.

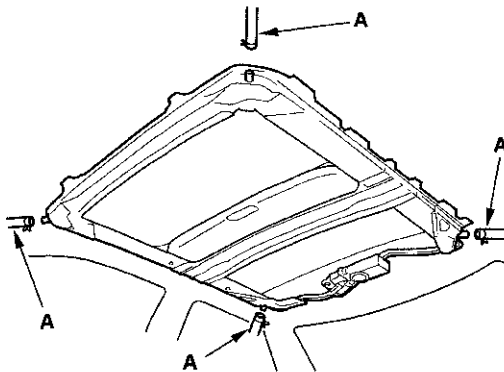
1. Remove these items:

- Headliner (see page 20-86)
- Moonroof glass (see page 20-55)

2. Put on gloves to protect your hands. Disconnect the motor connector (A).



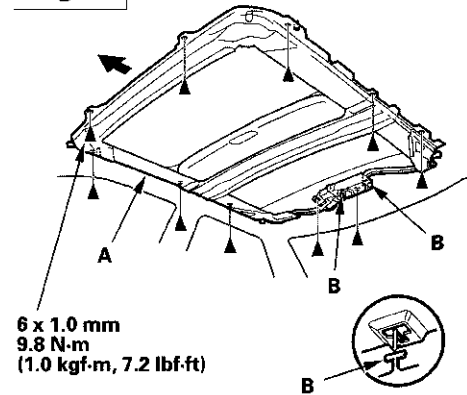
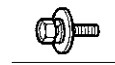
3. Disconnect the drain tubes (A).



4. With an assistant holding the frame (A), remove the bolts, starting at the rear, and release the rear hooks (B) by moving the frame forward.

Fastener Locations

► : Bolt, 10





Front Drain Tube

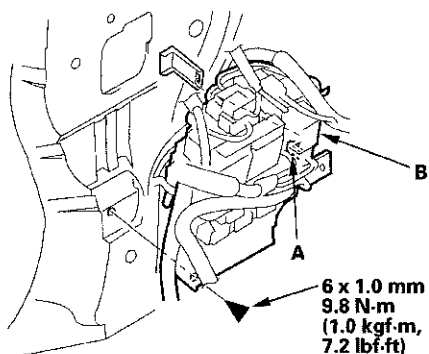
5. Remove these items:

- Front door sill trim (see page 20-67)
- Kick panel (see page 20-67)
- Driver's dashboard undercover (see page 20-100)

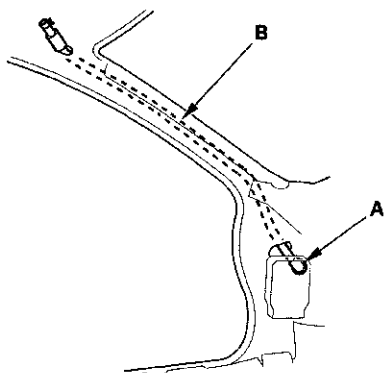
6. Driver's side: Remove the bolt, and release the hook (A), then move the fuse box (B) as needed.

Fastener Location

► : Bolt, 1



7. To remove a front drain valve (A) from the body, tie a string to the top end of the drain tube, then pull the front drain tube (B) down out of the A-pillar. Leave the string in the pillar to use when reinstalling the drain tube.

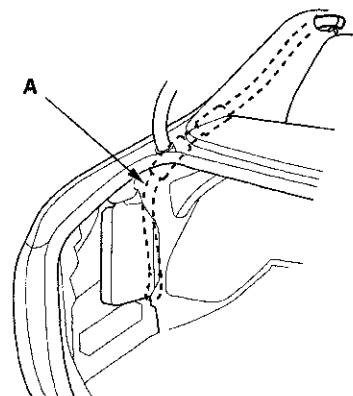


Rear Drain Tube

8. Remove these items:

- Trunk floor lid (see page 20-83)
- Trunk front trim panel (see page 20-83)
- Trunk rear trim panel (see page 20-83)
- Trunk side trim panel (see page 20-83)

9. Tie a string to the top end of the rear drain tube (A), then pull the drain tube down out of the pillar. Leave the string in the pillar to use when reinstalling the drain tube.

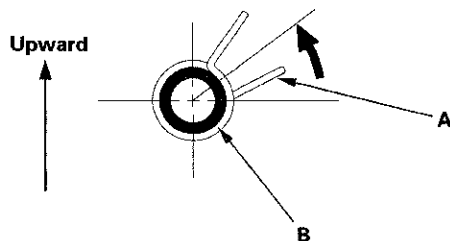


(cont'd)

Moonroof

Frame and Drain Tube Replacement (cont'd)

10. Install the frame and the drain tube in the reverse order of removal, and note these items:
 - Before installing the frame, clear the drain tubes and the drain valves using compressed air.
 - When installing a front drain tube, tie the string that was left in the pillar to the top end of a new drain tube and pull it up into the roof.
 - Check the frame seal.
 - Clean the surface of the frame.
 - When installing the frame, first attach the rear hooks into the body holes.
 - Make sure the connectors are plugged in properly.
 - When connecting the drain tubes, slide them over the frame nozzles at least 10 mm (0.39 in).
 - Install the tube clips (A) on the drain tubes (B) as shown.
 - After all parts are installed, including the headliner, reset the moonroof control unit (see page 22-432).
 - Do the glass position adjustment (see page 20-55).



11. Check for water leaks (see step 8 on page 20-34). Let the water run freely from a hose without a nozzle. Do not use a high-pressure spray.

Drain Channel Slider and Cable Assembly Replacement

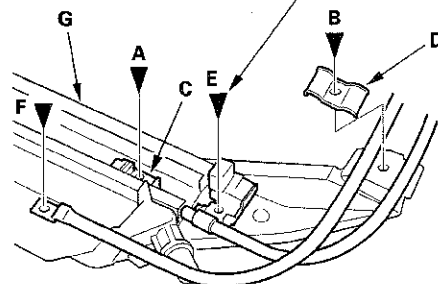
1. Remove the frame (see page 20-60).
2. Remove these parts from the frame:
 - Sunshade (see page 20-58)
 - Moonroof motor (see page 20-59)
3. Put on gloves to protect your hands. Remove the screws (A, B) securing the slide stops (C), and the cable tube rear brackets (D). Remove the cable tube side bracket mounting bolts (E) and the cable tube mounting screws (F) from both sides of the frame (G).

Fastener Locations

A ► : Screw, 2 B ► : Screw, 2 E ► : Bolt, 2

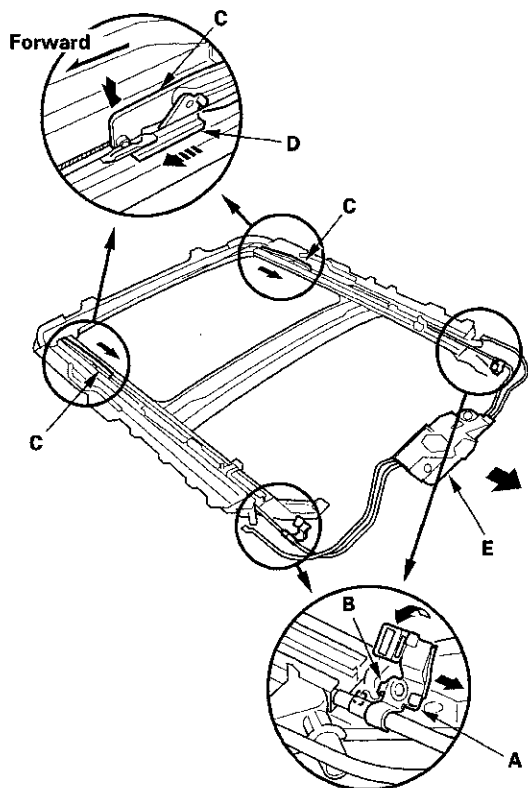
F ► : Screw, 2

6 x 1.0 mm
9.8 N·m
(1.0 kgf·m, 7.2 lbf·ft)





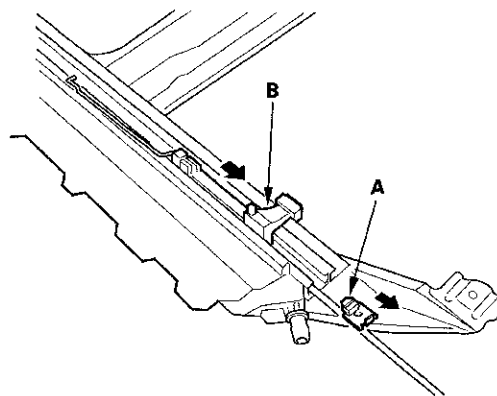
4. Turn both cable tube side brackets (A) up to release the hooks (B) from the holes in both sides of the frame.



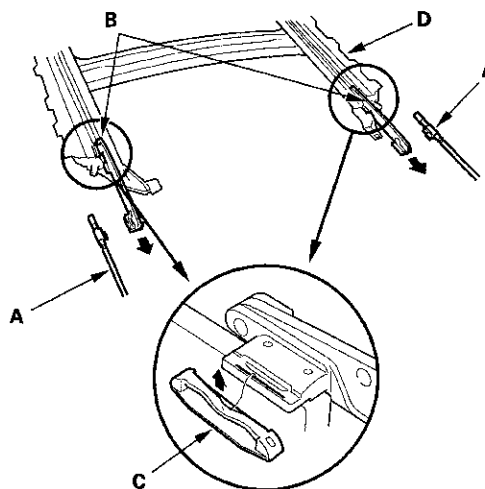
5. Pivot the glass brackets (C) down by sliding the link lifters (D) back, then slide both glass brackets back with the link lifters.

6. Slide the cable assembly (E) half-way.

7. Remove the slide stops (A) and the drain channel sliders (B) from both sides.



8. Slide the cable assembly (A) and both glass brackets (B) back, remove the deflector sliders (C) from both glass brackets, then remove them from the frame (D).



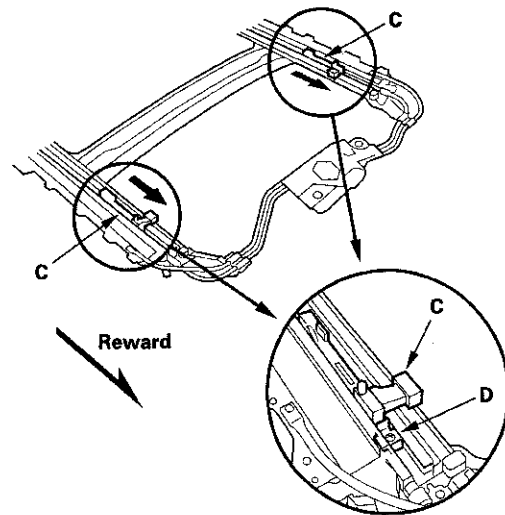
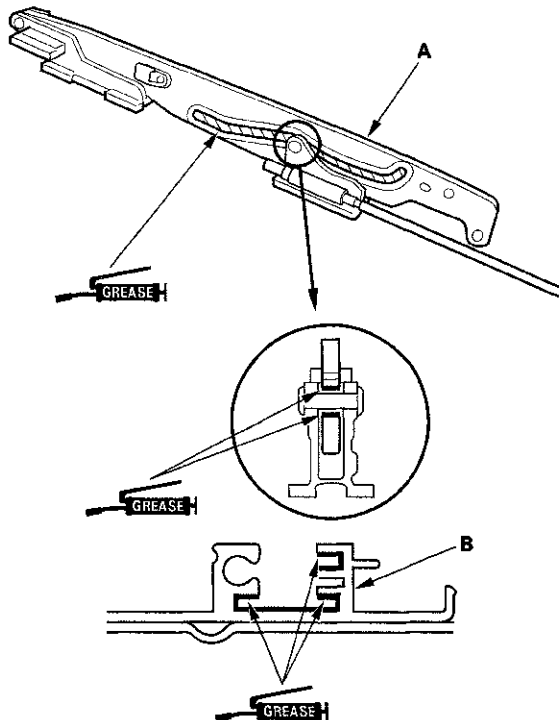
(cont'd)

Moonroof

Drain Channel Slider and Cable Assembly Replacement (cont'd)

9. Install the slider and the cable assembly in the reverse order of removal, and note these items:

- Damaged parts should be replaced.
- Apply molybdenum grease to the glass bracket (A) and the guide rail portion of the frame (B) indicated by the arrows.
- Before reinstalling the motor, make sure both link lifters are parallel, and in the fully closed position.
- Before reinstalling the motor, slide both drain channel sliders (C) rearward fully until the slider portions of the inner cable contact the slide stops (D) on the guide rail to slide both drain channel sliders.
- Before reinstalling the motor, install the frame and the glass, then check the opening drag (see page 20-65).
- After reinstalling the motor, reset the moonroof control unit (see page 22-432).





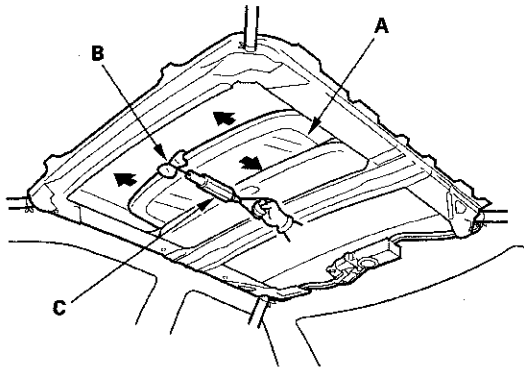
Closing Force and Opening Drag Check

1. Remove the headliner (see page 20-86).

2. Closing force check:

- Cover the leading edge of the glass (A) with a shop towel (B), and attach a spring scale (C) as shown.
- Have an assistant hold the switch to close the glass while you measure the force required to stop it.
- Read the force as soon as the glass stops moving, then immediately release the switch and the spring scale.

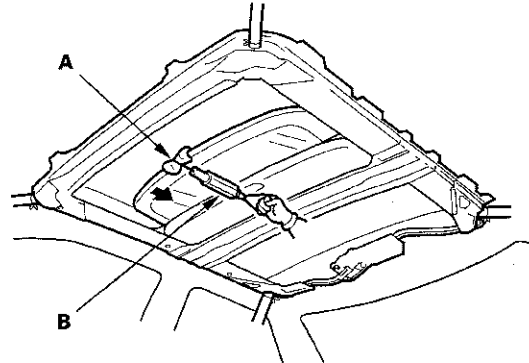
Closing force: 200—290 N (20—30 kgf, 44—66 lbf)



3. If the force is not within specification, remove the moonroof motor (see page 20-59), and check the following items:

- Check the gear teeth and the inner cable for breakage and damage. If the gear teeth are broken, replace the motor. If the inner cable is damaged, remove the frame (see page 20-60), and replace the cable (see page 20-62).
- Check the moonroof motor for damage, and do the moonroof control unit input test (see page 22-435). If the motor is damaged, fails to run, or does not turn smoothly, replace it.
- Check the opening drag. Go to step 4.

4. Opening drag check: Protect the leading edge of the glass with a shop towel (A). Measure the effort required to open the glass using a spring scale (B) as shown.



5. If the load is over 40 N (4 kgf, 9 lbf), check:

- The side clearance and glass position adjustment (see page 20-55).
- For broken or damaged sliding parts. If any sliding parts are damaged, replace them.

6. Reset the moonroof control unit (see page 22-432) after reinstalling the moonroof motor.