

2002 ACCESSORIES & EQUIPMENT

Sliding Roof System - RAV4

BODY ELECTRICAL SYSTEM

PRECAUTION

NOTE: Take care to observe the following precautions when performing inspections or removal and replacement of body electrical related parts.

1. Headlight System

Halogen bulbs have pressurized gas inside and require special handling. They can burst if scratched or dropped. Hold a bulb only by its plastic or metal case.

Don't touch the glass part of a bulb with bare hands.

2. SRS (Supplemental Restraint System)

The RAV4 is equipped with an SRS (Supplemental Restraint System) such as the driver airbag and front passenger airbag, failure to carry out service operation in the correct sequence could cause the SRS to unexpectedly deploy during servicing, possibly leading to a serious accident. Before servicing (including removal or installation of parts, inspection or replacement), be sure to read the precautionary notices in **AIR BAG SAFETY PRECAUTIONS**.

3. Audio System

If the negative (-) terminal cable is disconnected from the battery, the preset AM, FM1 and FM2 stations stored in memory are erased, so be sure to note the stations and reset them after the battery terminal is reconnected.

4. Mobile Communication System

If the vehicle is equipped with a mobile communication system, refer to precautions in **IF VEHICLE IS EQUIPPED WITH MOBILE COMMUNICATION SYSTEM**.

SLIDING ROOF SYSTEM

TROUBLESHOOTING

1. 1 Sliding roof reverses during close (down) operation .

- Start
- Perform forced operation

NOTE: Holding the CLOSE/UP (OPEN/DOWN) switch pressed inhibits the jam protection function at approx. 10 sec. after starting the reverse operation. If the switch remains pressed any longer, the sliding door starts close operation and it stops when detecting the fully closed position.

- Medical check
- Replace sliding roof motor and limit switch

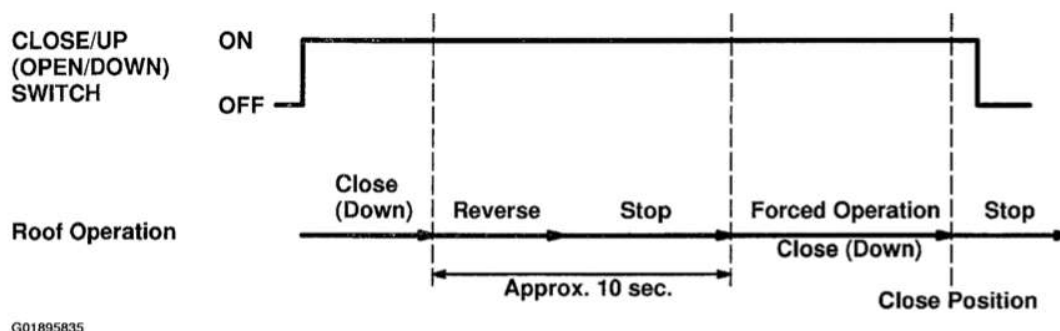
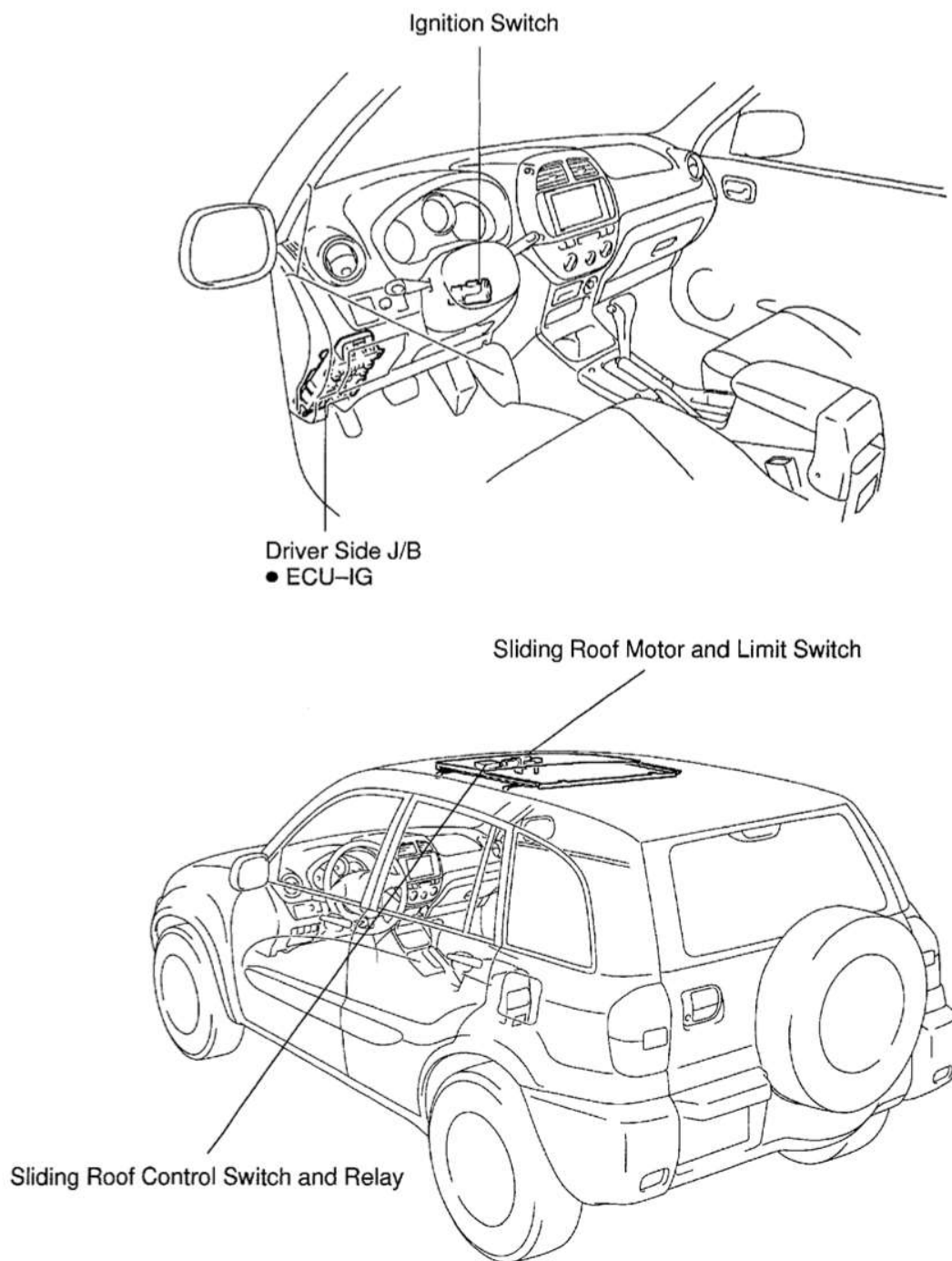


Fig. 1: Identifying Sliding Roof System Operation Parameters
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: At approx. 10 sec. after starting the reverse operation, it is switched to the forced close (down) operation.

LOCATION



P

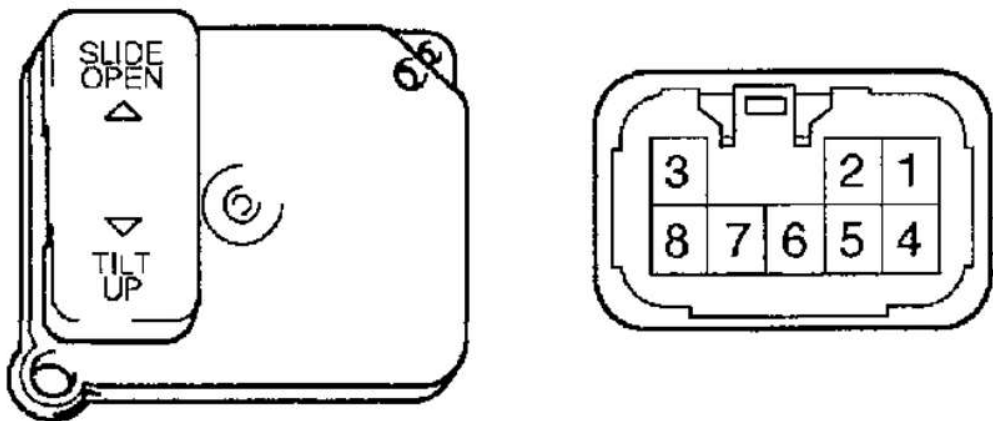
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Fig. 2: Displaying Sliding Roof System Components Location

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION

- 1. Inspect sliding roof control switch .



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Fig. 3: Displaying Sliding Roof Control Switch Terminals
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Switch position	Tester connection	Specified condition
SLIDE OPEN	2 – 3	Continuity
TILT UP	2 – 7	Continuity

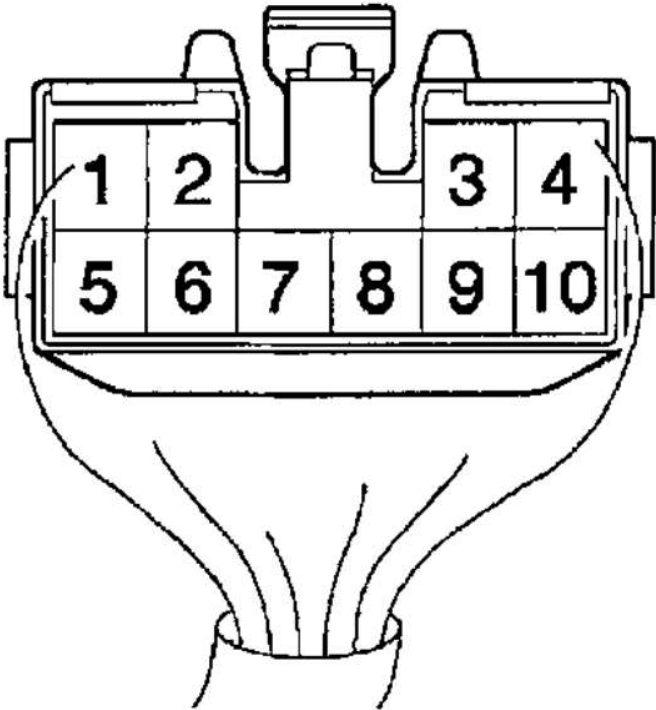
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Fig. 4: Displaying Sliding Roof Control Switch Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

If continuity is not as specified, replace the switch.

- 2. Inspect sliding roof control relay circuit .

Disconnect the connector from the relay and switch and inspect the connector on the wire harness side, as shown in the table.



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Fig. 5: Identifying Sliding Roof Control Relay Connector Terminals
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

1 – Ground	Slide roof control switch OFF	No continuity
	Slide roof control switch SLIDE OPEN	Continuity
5 – Ground	Slide roof control switch OFF	No continuity
	Slide roof control switch TILT UP	Continuity
2 – Ground	Constant	Continuity
6 – Ground	Ignition switch OFF or ACC	*No voltage
	Ignition switch ON	Battery voltage

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Fig. 6: Displaying Sliding Roof Control Relay Terminal Specifications

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: * Exceptions: For 60 seconds after the ignition switch is turned ON OFF (ACC) or until driver or passenger door is opened after the ignition switch is turned ON OFF (ACC).

If the circuit is not as specified, replace the sliding roof control switch and relay.

3. **Inspect sliding roof motor circuit breaker operation .**

- a. With the sliding roof in the fully opened position, hold the sliding roof switch in "SLIDE OPEN" position and check that there is a circuit breaker operation noise within 10 to 60 seconds.

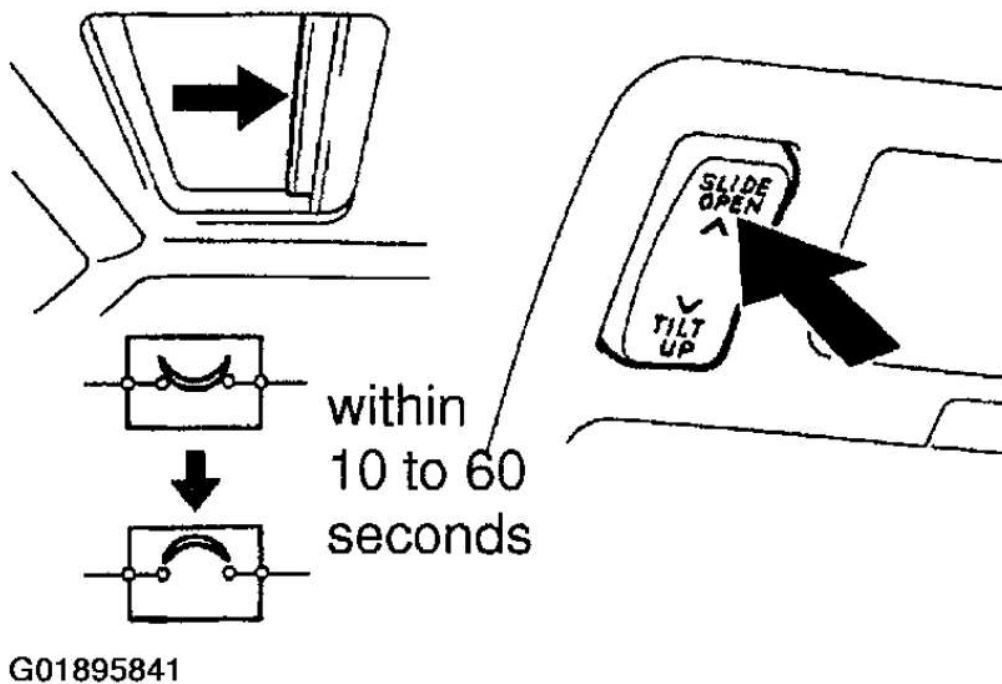


Fig. 7: Checking For Circuit Breaker Operation

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. With the sliding roof in the fully opened position, hold the sliding roof switch in "TILT UP" position and check that the sliding roof begins to close within 60 seconds.

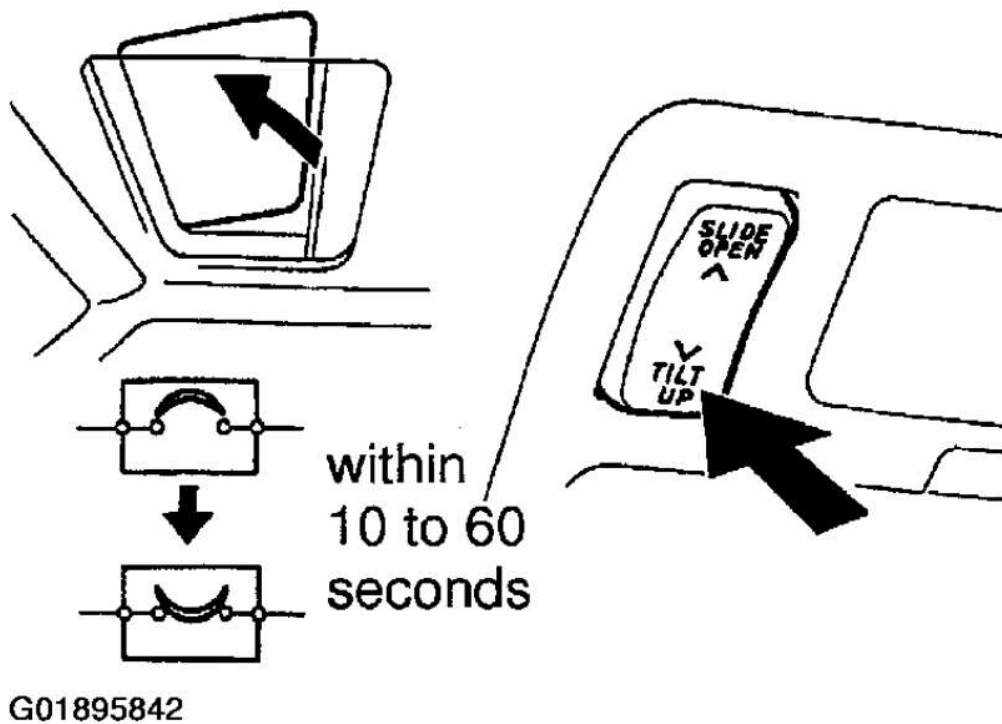


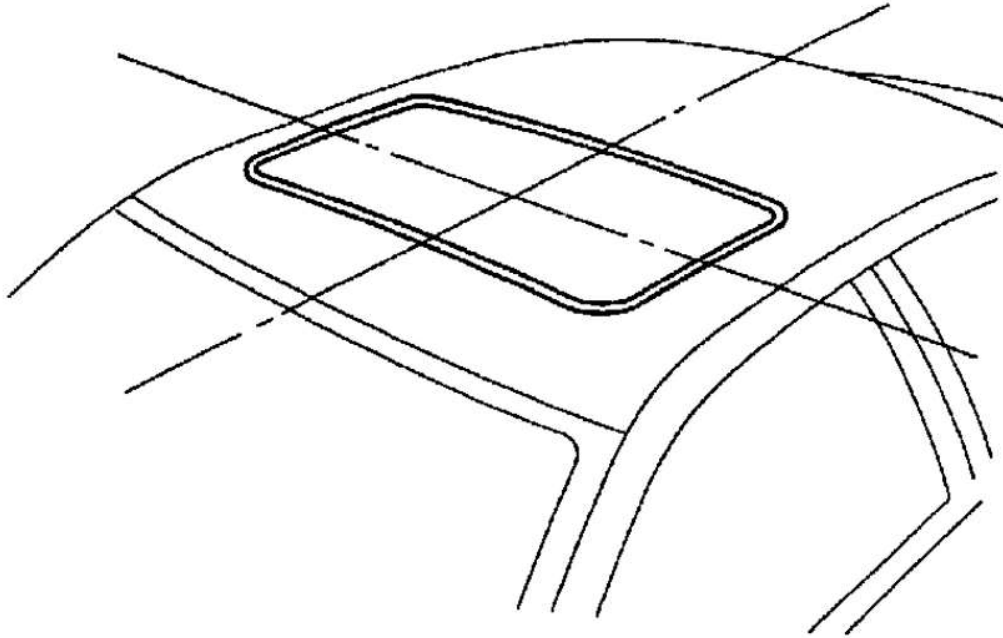
Fig. 8: Checking Sliding Roof Begins To Close
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

If operation is not as specified, replace the motor.

SLIDING ROOF

ON-VEHICLE INSPECTION

Inspect Sliding Roof Glass Alignment



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Fig. 9: Identifying Sliding Roof Glass Alignment

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Start the engine and check the operation time of the sliding roof.

Operation time: Approx. 6 secs.

- b. Check for abnormal noise or binding during operation.
- c. With the sliding roof fully closed, check for water leakage.
- d. Check for a difference in level between the sliding roof weatherstrip and roof panel.

Front end and rear end:

0 +/-P 1.5 mm (0 +/-P 0.059 in.)

COMPONENTS

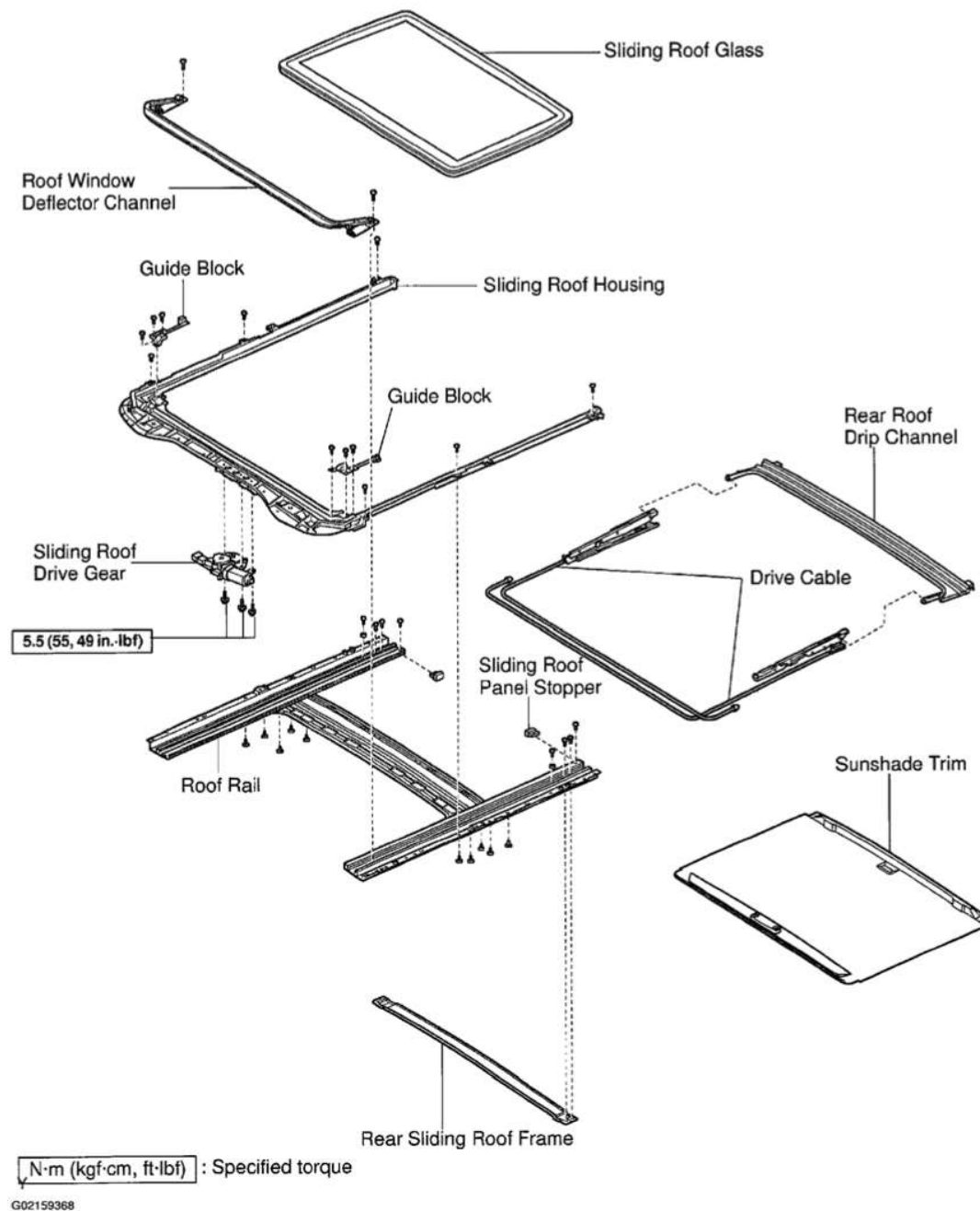


Fig. 10: Identifying Sliding Roof Components
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

1. Remove rear seats .
2. Remove rear floor finish plate .

3. **Remove rear door scuff plates .**
4. **Remove room light and cover .**
 - a. Using a screwdriver, remove the cover.

NOTE: Tape the screwdriver tip before use.

- b. Remove the screw and room light, then disconnect the connector.
5. **Remove assist grips and covers .**
6. **Remove front door scuff plates .**
7. **Remove sun visors .**

Remove the 4 screws and 2 sun visors.

8. **Remove inner rear view mirror .**
9. **Remove roof console box .**
 - a. Using a screwdriver, remove the roof console box cover.

NOTE: Tape the screwdriver tip before use.

- b. Remove the 3 screws and roof console box, then disconnect the connector.
10. **Remove deck side trims .**
 - a. Remove the bolt and rear seat outer belt floor anchor.

Torque: 43 N.m (440 kgf.cm, 32 ft.lbf)

- b. Remove the 5 screws.
 - c. Using a screwdriver, remove the deck side trim.

NOTE: Tape the screwdriver tip before use.

- d. Employ the same manner described above to the other side.
 - e. LH side:

Disconnect the connector.

11. **Remove roof side inner garnishes .**
 - a. Remove the bolt and rear seat outer belt shoulder anchor.

Torque: 43 N.m (440 kgf.cm, 32 ft.lbf)

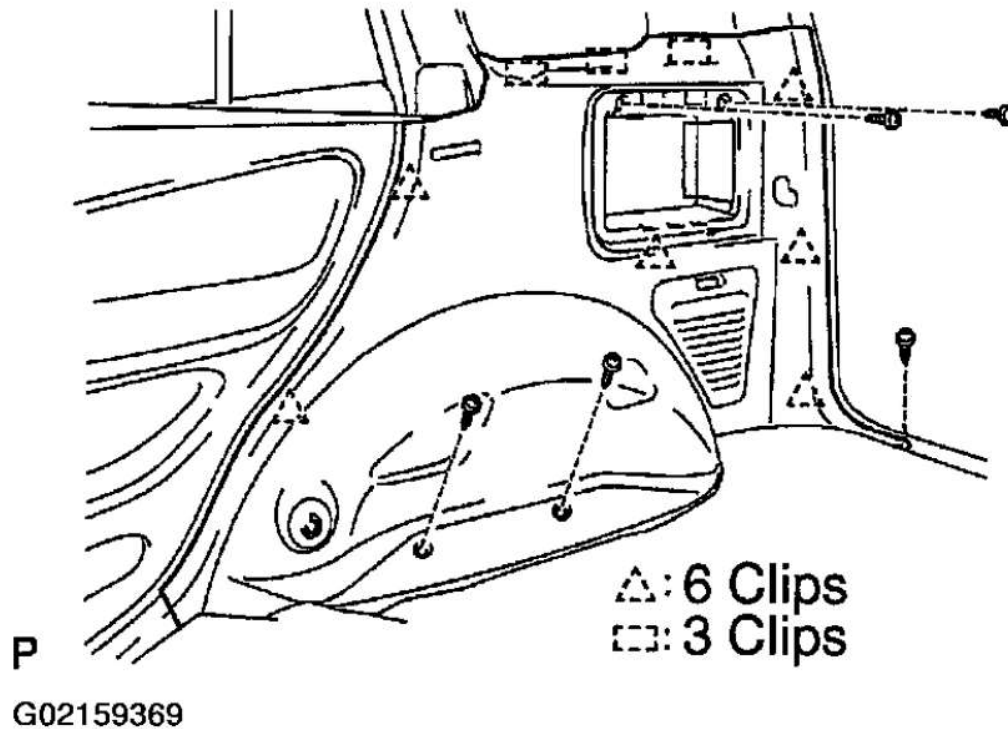


Fig. 11: Locating Deck Side Trim Fasteners
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Remove the 3 clips.
- c. Using a screwdriver, remove the roof side inner garnish.

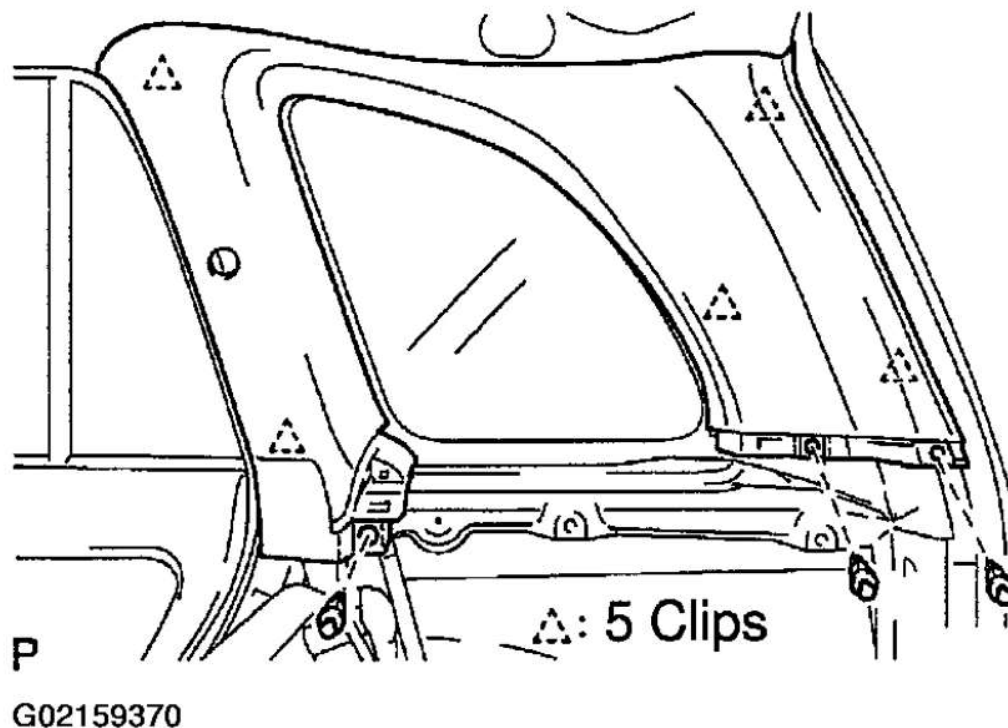


Fig. 12: Locating Roof Side Inner Garnish Fasteners
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Tape the screwdriver tip before use.

12. Remove center pillar lower garnishes .
 - a. Remove the bolt and front seat outer belt floor anchor.

Torque: 43 N.m (440 kgf.cm, 32 ft.lbf)

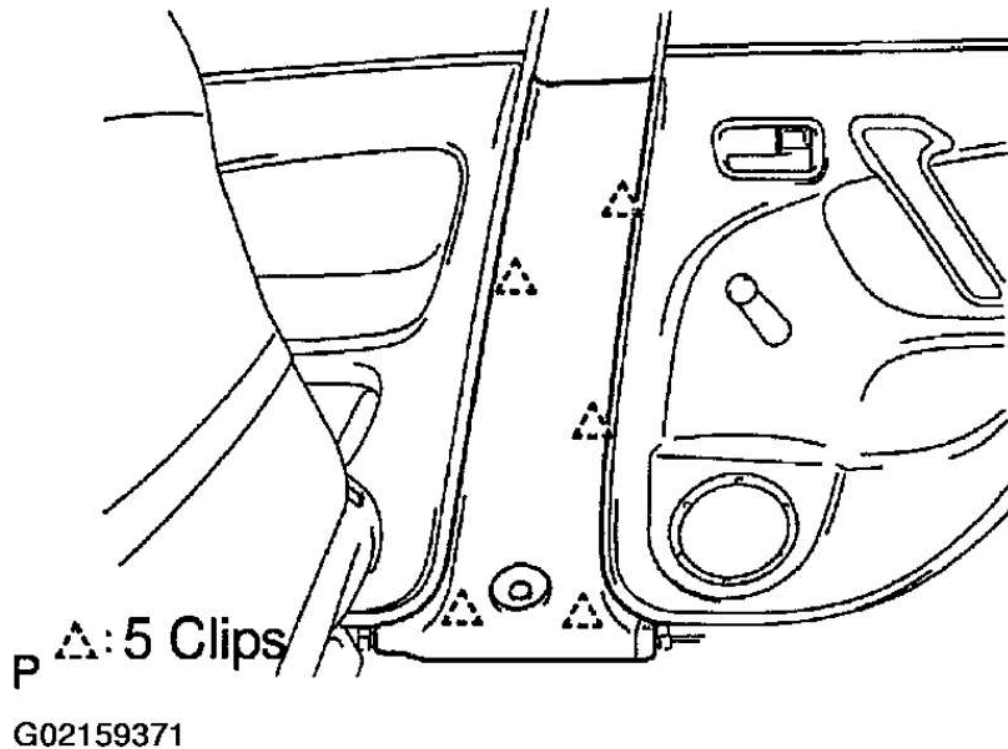


Fig. 13: Removing Center Pillar Lower Garnishes
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Pull the center pillar lower garnish upward to remove it.
 - c. Employ the same manner described above to the other side.
13. **Remove center pillar upper garnishes .**
- a. Remove the bolt and front seat outer belt shoulder anchor.

Torque: 43 N.m (440 kgf.cm, 32 ft.lbf)

- b. Using a screwdriver, remove the center pillar upper garnish.

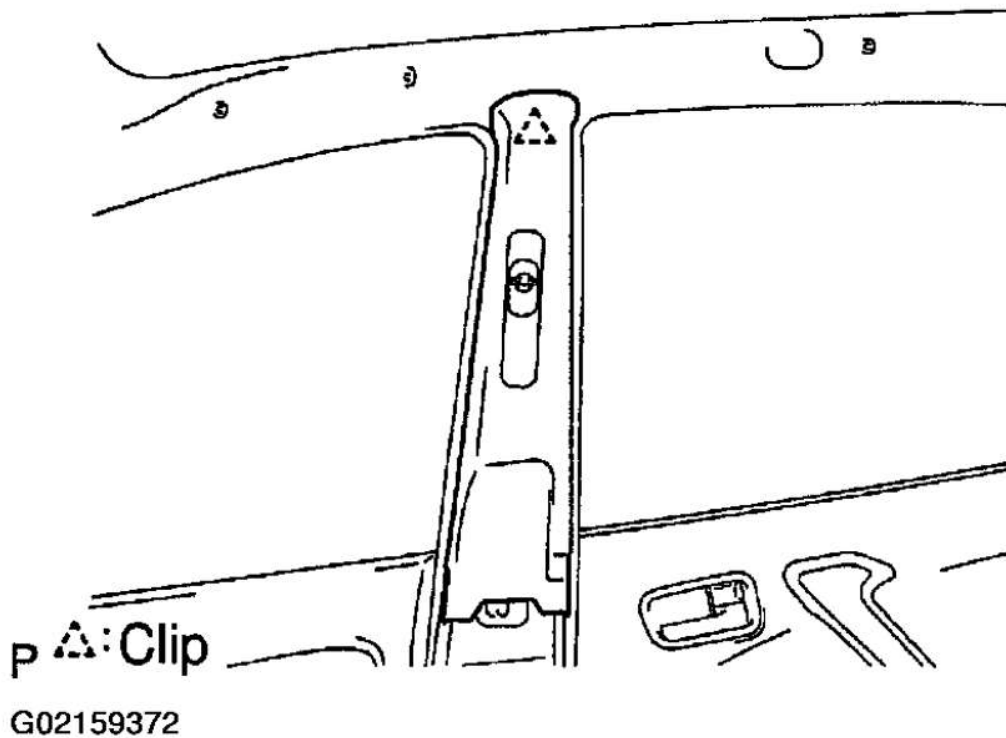


Fig. 14: Removing Center Pillar Upper Garnishes
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Tape the screwdriver tip before use.

- c. Employ the same manner described above to the other side.
- 14. **Remove front pillar garnishes .**
 - a. Using a screwdriver, remove the front pillar garnish.

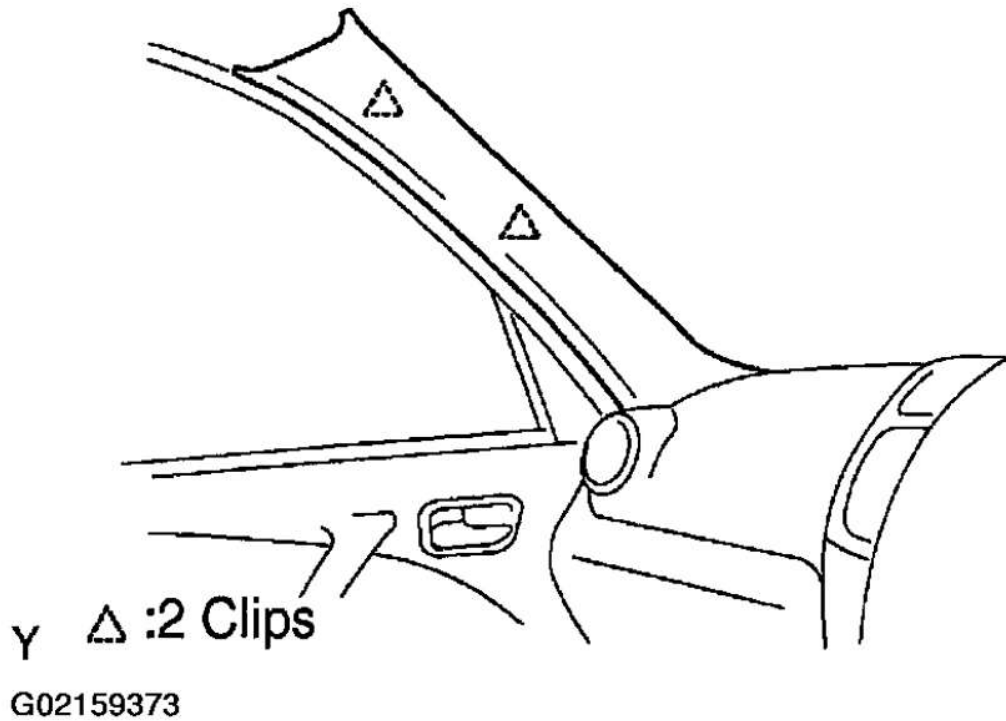


Fig. 15: Removing Front Pillar Garnish
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Tape the screwdriver tip before use.

- b. Employ the same manner described above to the other side.
- 15. **Remove roof headlining .**
 - a. Using a screwdriver, remove the roof headlining trim garnish.

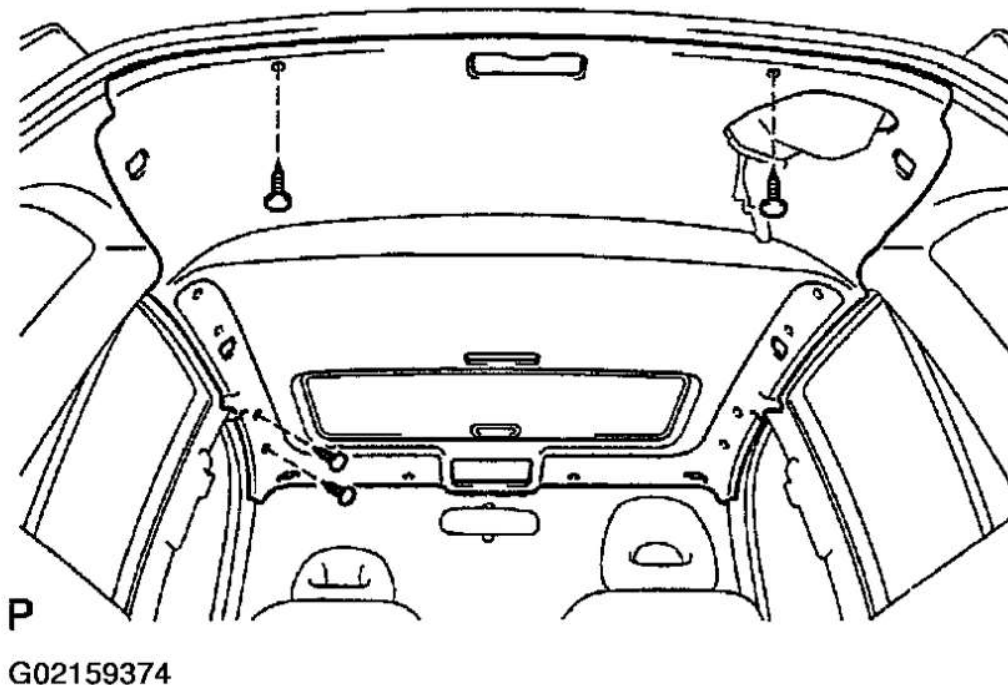


Fig. 16: Removing Roof Headlining Trim Garnish
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Tape the screwdriver tip before use.

- b. Remove the 2 sun visor holders.
- c. Remove the 4 room partition net hooks.
- d. Remove the 4 clips and roof headlining.

NOTE: At the time of installation, please refer to the following item. When installing the roof headlining, put the fastener tapes.

16. Remove sliding roof glass .

- a. Using a torx wrench, remove the torx screws.

Torque: 4.0 N.m (40 kgf.cm, 36 in..lbf)

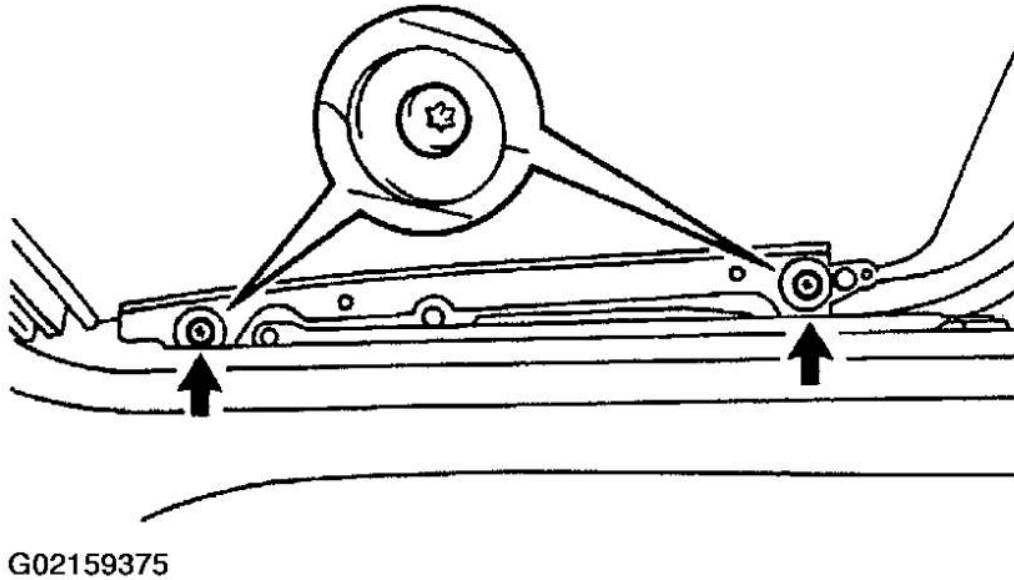


Fig. 17: Removing Sliding Roof Glass

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Pull the glass upward to remove it.
- 17. **Remove sliding roof drive gear .**
 - a. Disconnect the 2 connectors.
 - b. Remove the 3 bolts and drive gear.

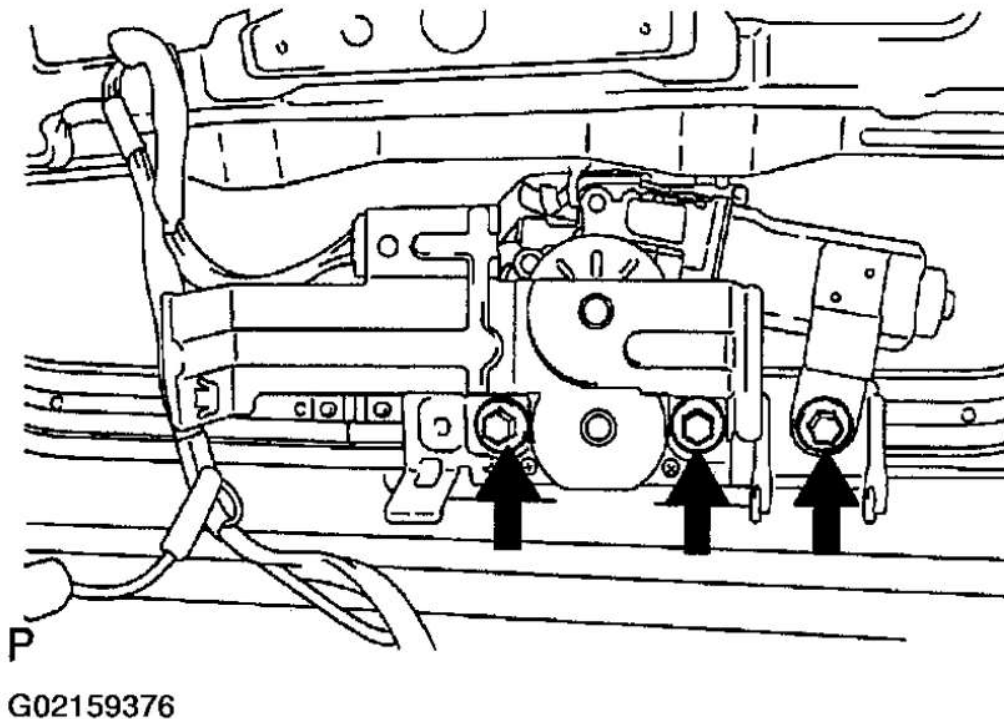


Fig. 18: Removing Bolts & Drive Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Torque: 5.5 N.m (55 kgf.cm, 49 in..lbf)

NOTE: At the time of installation, please refer to the following item. Apply adhesive to 2 gear side bolts.

Part No. 08833-00070, THREE BOND 1324 or equivalent

- c. Remove the screw and cam plate cover.
- d. Remove the large screw, washers and shims.
- e. Turn the drive shaft with a screwdriver to align the housing and gear point mark as shown.
- f. Install the cam plate cover with the screw.

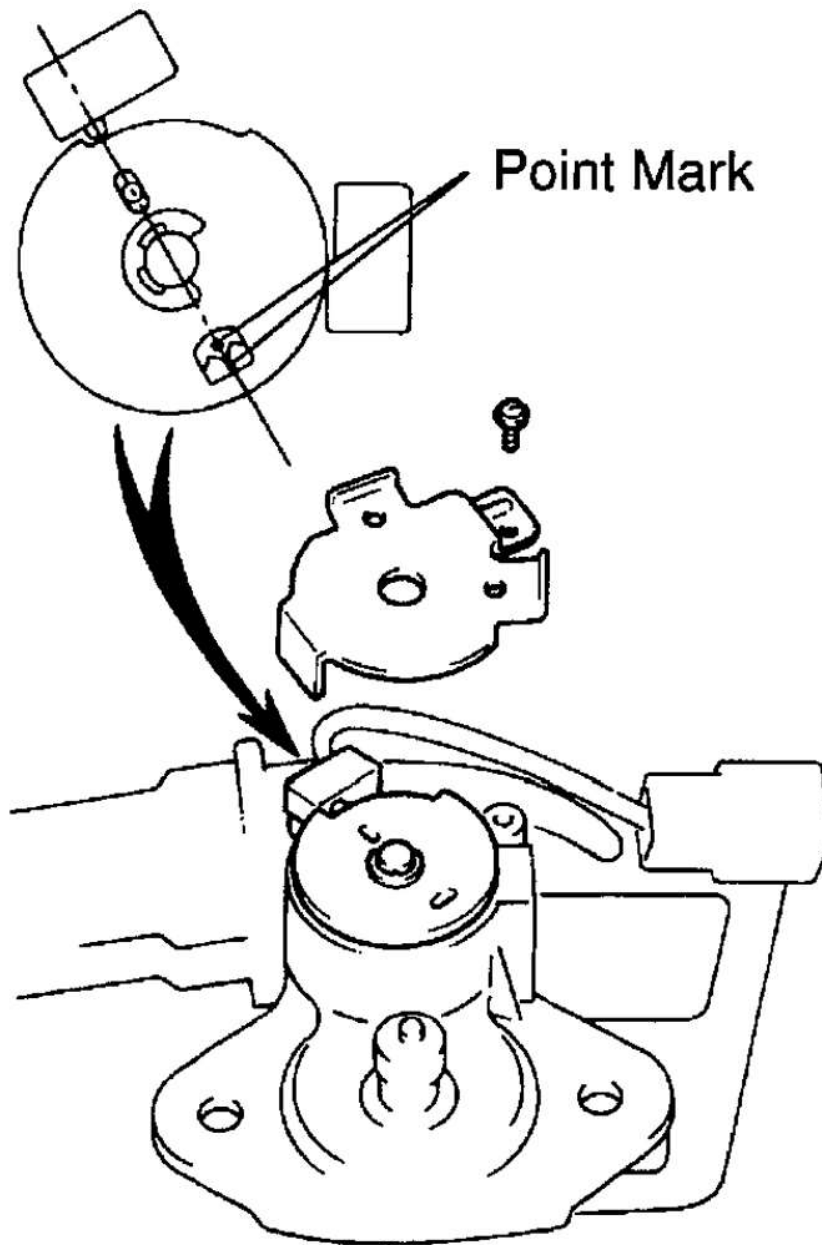


Fig. 19: Installing Cam Plate Cover With Screw
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

18. Remove sliding roof housing .

- a. Disconnect the 4 drain hoses from the housing.

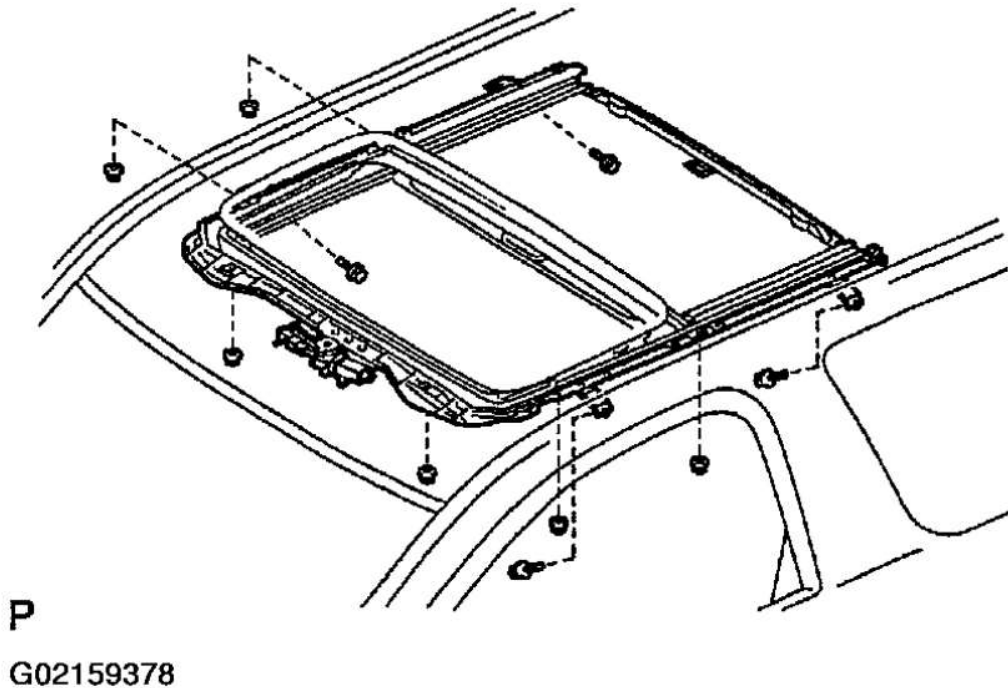


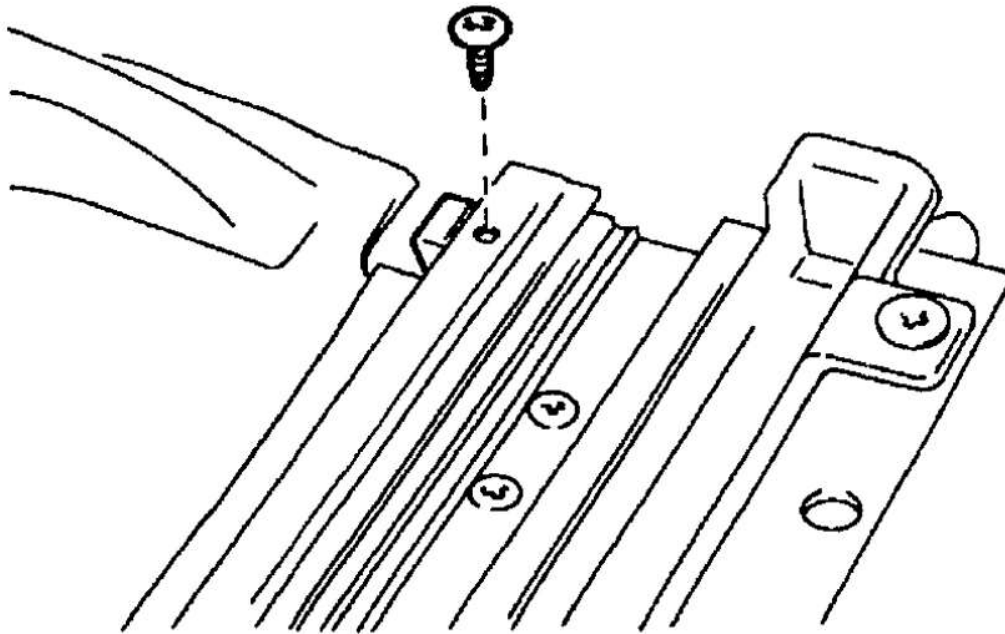
Fig. 20: Removing Sliding Roof Housing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Remove the 6 nuts and 4 bolts, then remove the housing, as shown in the illustration.

Torque: 5.5 N.m (55 kgf.cm, 49 in..lbf)

DISASSEMBLY

1. **Remove sliding roof panel stoppers .**
 - a. Remove the screw and stopper.

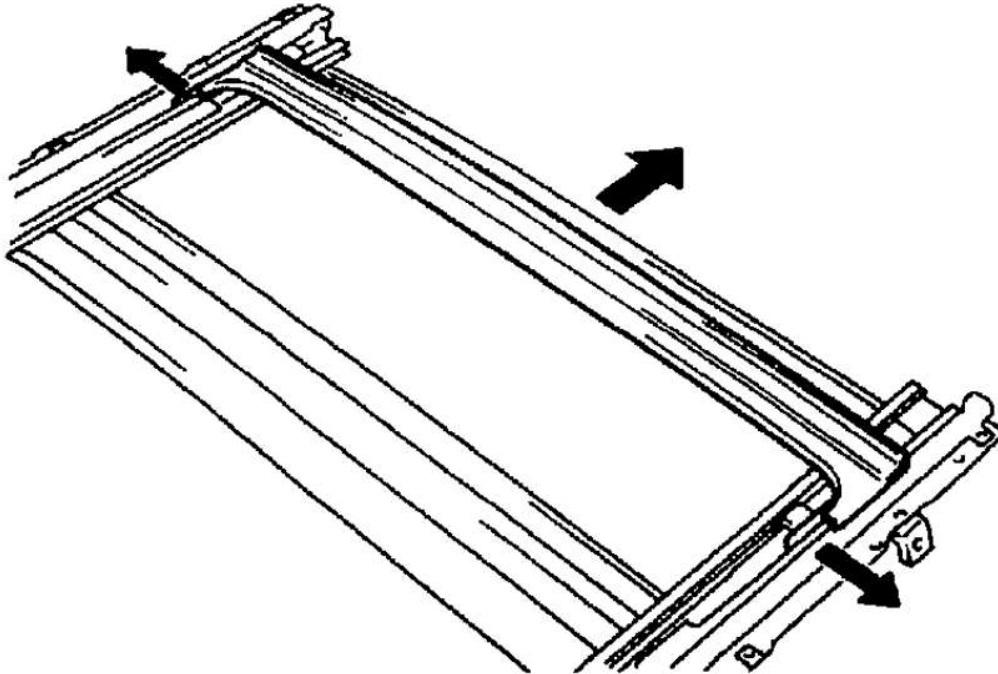


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Fig. 21: Removing Sliding Roof Panel Stoppers
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Employ the same manner described above to the other side.
2. **Remove sunshade trim .**
3. **Remove rear roof drip channel .**

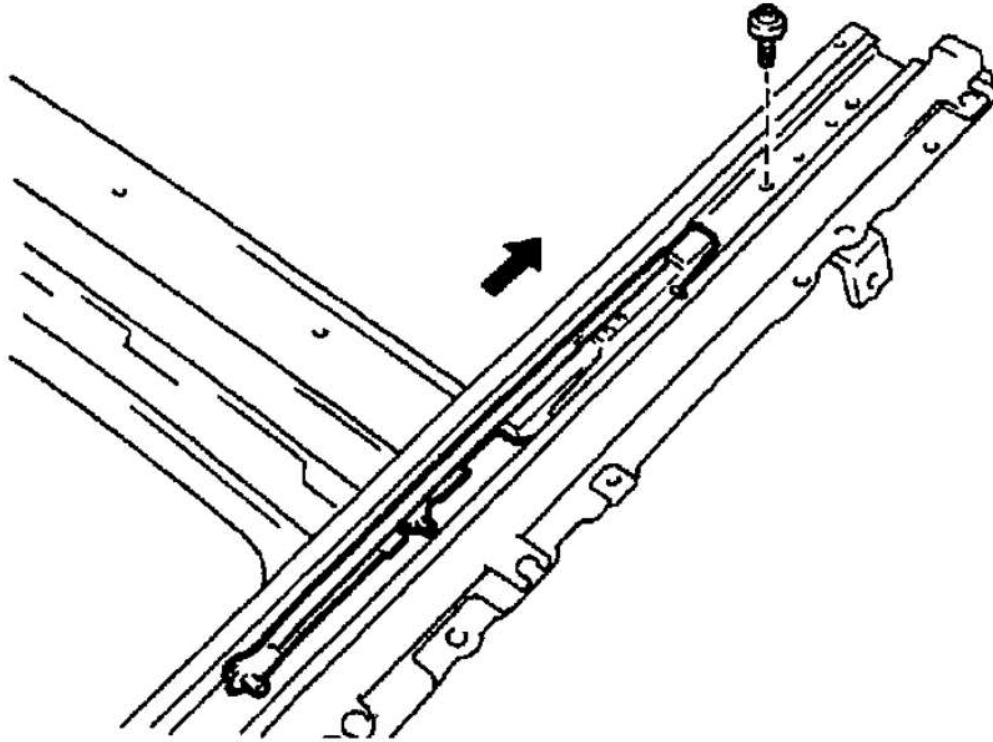
Remove the rear roof drip channel as shown in the illustration.



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Fig. 22: Removing Rear Roof Drip Channel
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. **Remove drive cable .**
 - a. Remove the screw and guide rail stopper.
 - b. Slide the drive cable rearward, then remove it.



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Fig. 23: Removing Drive Cable

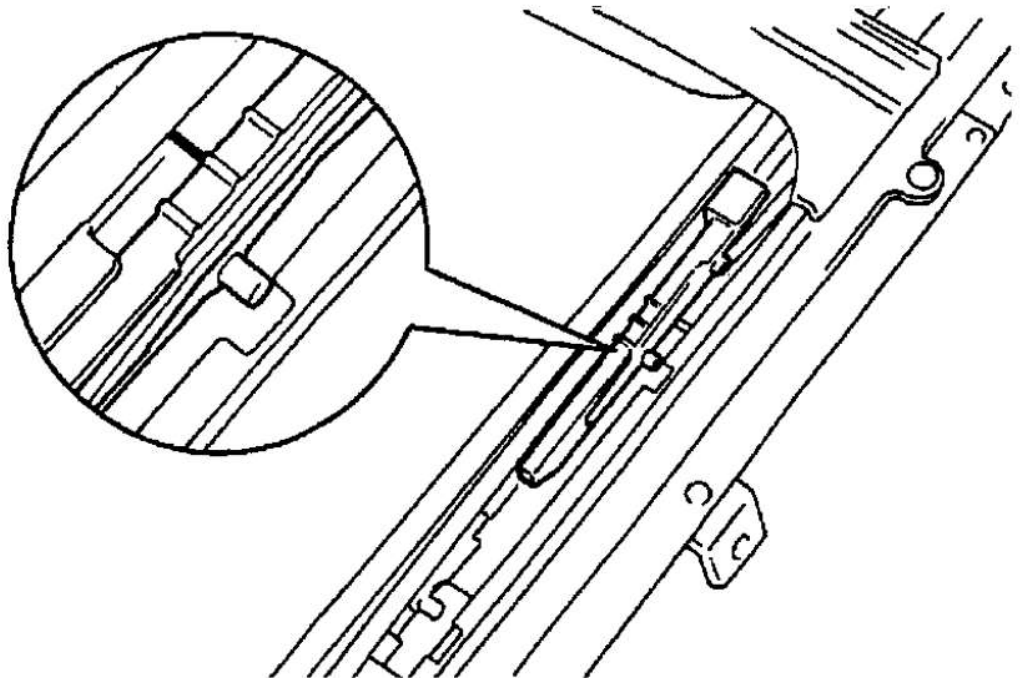
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. Remove rear sliding roof frame .

- a. Remove the 4 screws and rear sliding roof frame.

NOTE: At the time of reassembly, please refer to the following items.

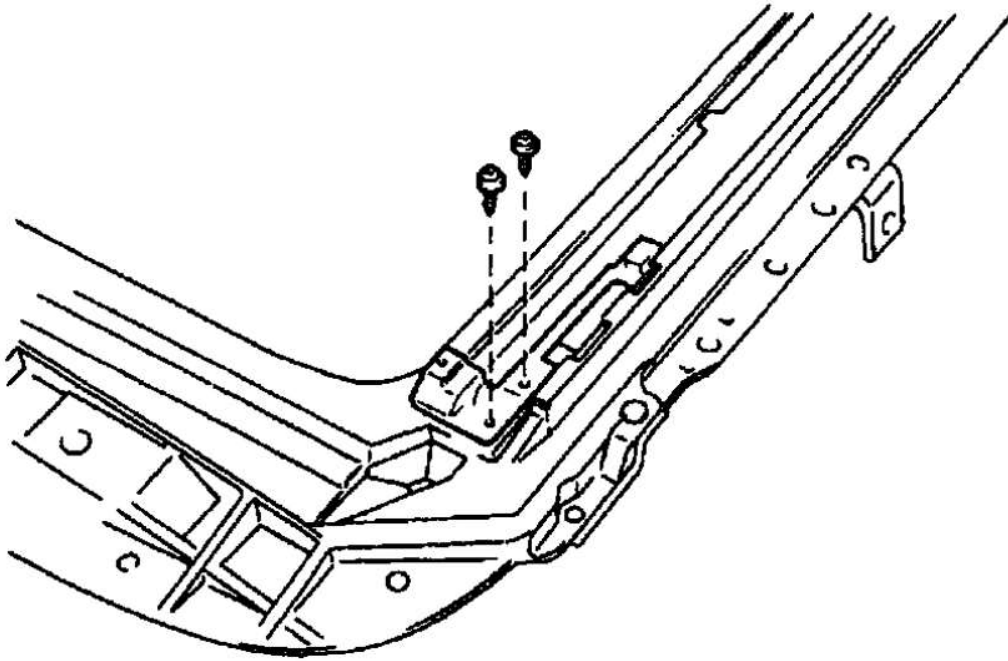
- Adjust the drive cable to a closed and tilted down position.
- Slide the cable forward or backward to align the 2 marks as shown in F 24 .



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Fig. 24: Removing Rear Sliding Roof Frame
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- Slide the cable to the forefront with your hand.
 - b. Employ the same manner described above to the other side.
6. **Remove roof window deflector panel .**
 7. **Remove guide blocks .**
 - a. Remove the 2 screws and guide block.

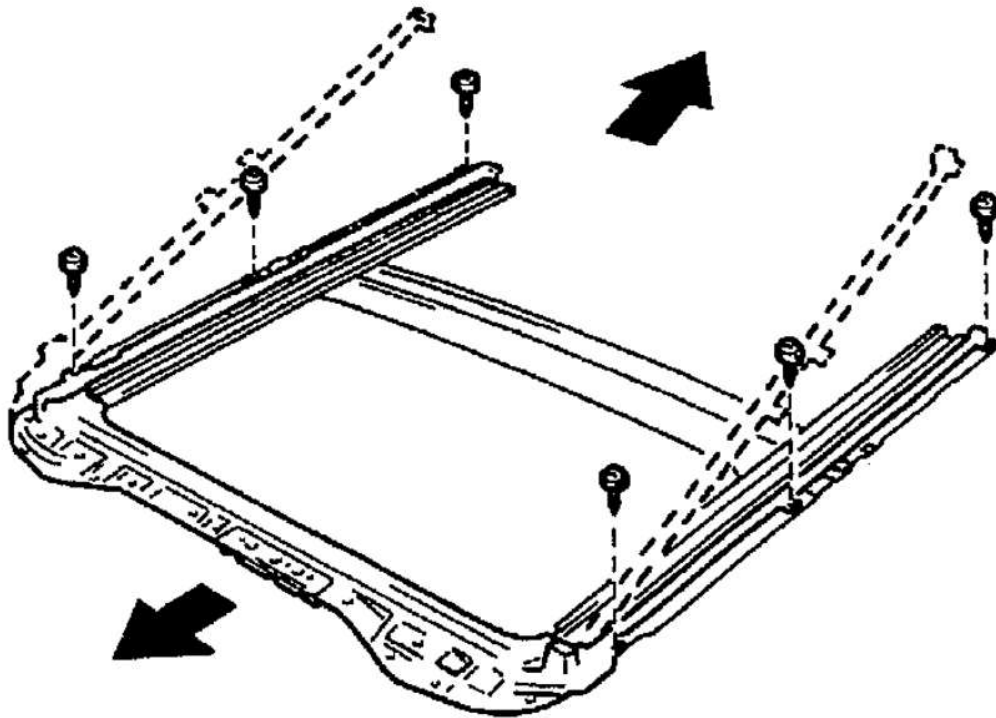


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Fig. 25: Removing Guide Blocks

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Employ the same manner described above to the other side.
- 8. **Remove sliding roof housing .**



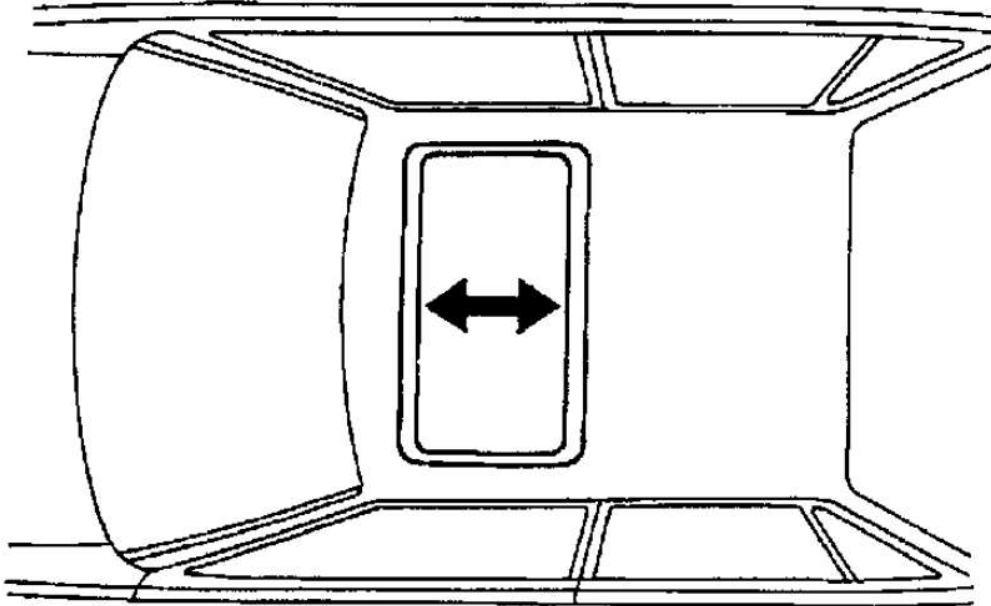
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Fig. 26: Removing Sliding Roof Housing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Remove the 6 screws and sliding roof housing.

ADJUSTMENT

1. **Adjust forward or rearward .**
 - a. Using a torx wrench, loosen the sliding roof glass installation screws.
 - b. Adjust the sliding roof glass forward and rearward.



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Fig. 27: Adjusting Forward Or Rearward
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. Adjust clearance .

(Difference in left and right clearance) .

- a. When the front or rear alignment is not correct, remove the drive gear and sliding roof glass, then adjust the drive rail.

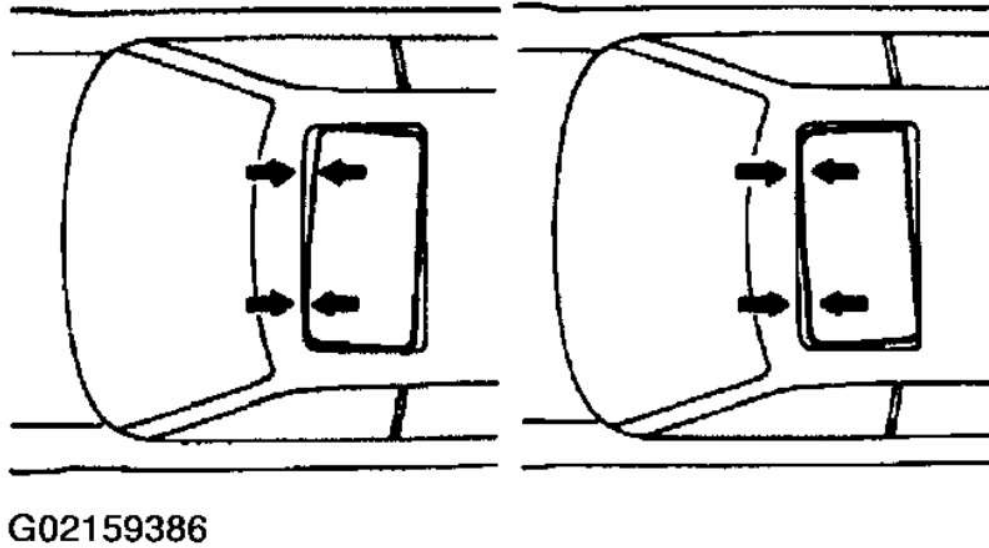
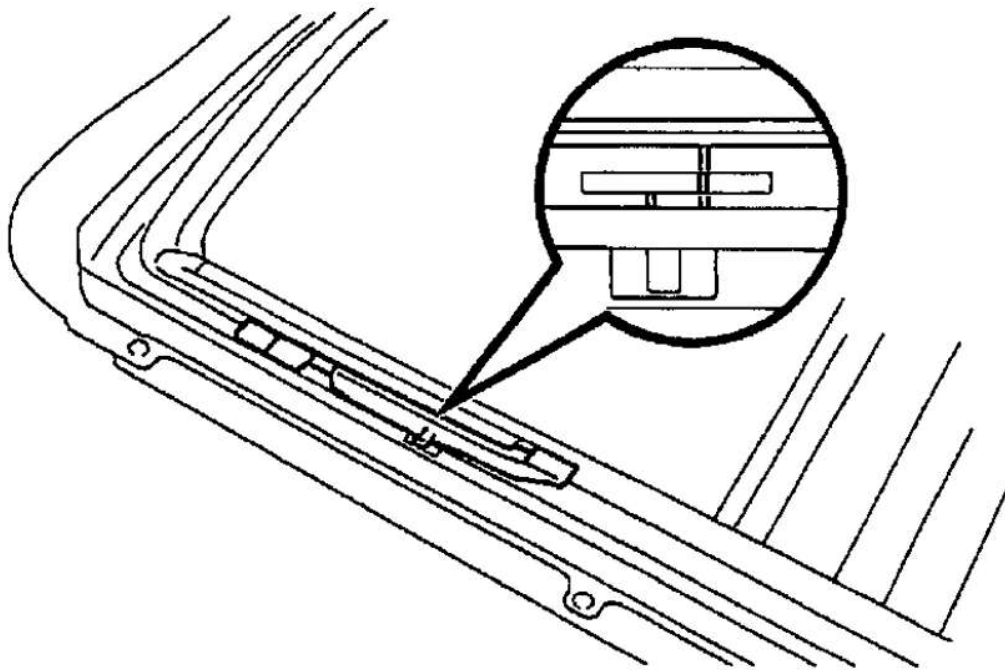


Fig. 28: Adjusting Drive Rail

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Remove the drive gear with sliding roof fully closed.

- b. Adjust by sliding the cable forward or rearward to align the 2 marks as shown in the illustration.



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Fig. 29: Adjusting Cable To Align Marks
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. Install the drive gear and sliding roof glass.

REASSEMBLY

Reassembly is in the reverse order of disassembly (See DISASSEMBLY) .

INSTALLATION

Installation is in the reverse order of removal (See REMOVAL) .