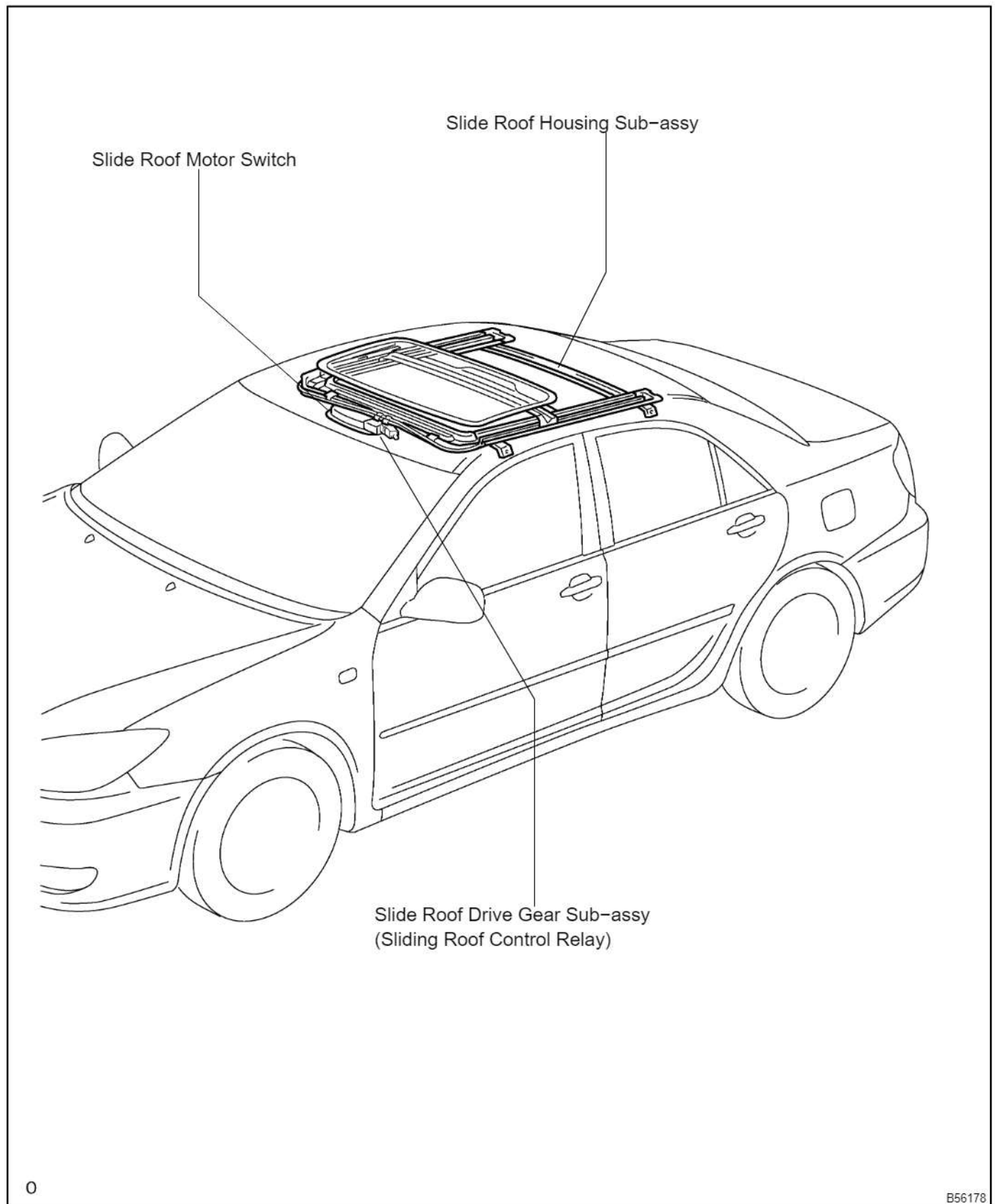


SLIDING ROOF SYSTEM LOCATION

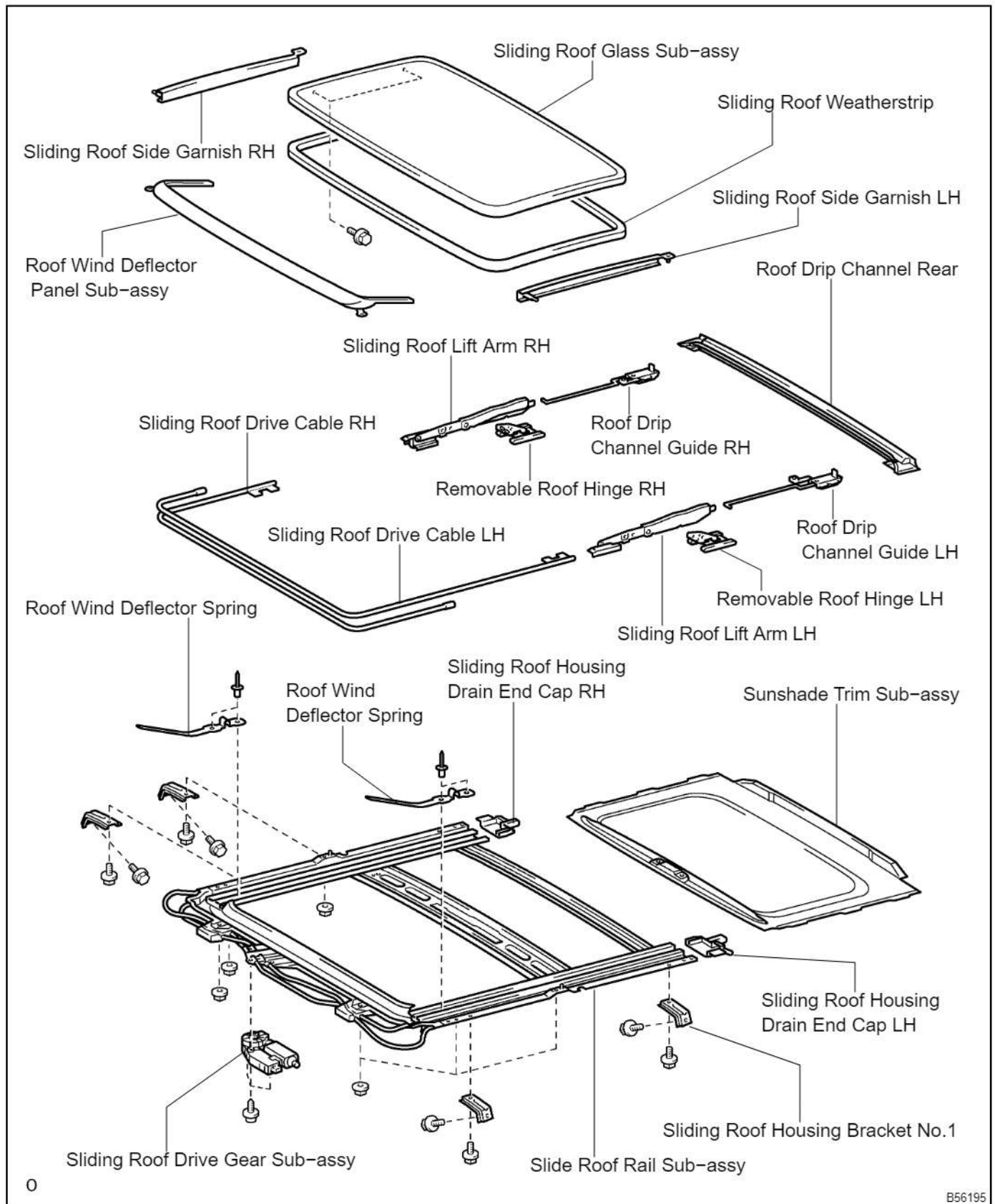
7403Y-03



SLIDING ROOF (TMMK Made)

COMPONENTS

74042-03



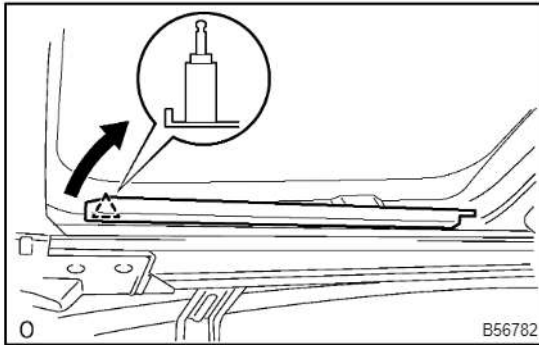
B56195

REPLACEMENT

HINT:

The installation is in the reverse order of the removal. However, when there is a special point concerning the installation, it is indicated.

74043-06



1. REMOVE SLIDING ROOF GLASS SUB-ASSY

- (a) Disengage the claws and turn the sliding roof side garnish as shown in the illustration.
- (b) Using a torx wrench (T25), remove the 4 screws and sliding roof glass.

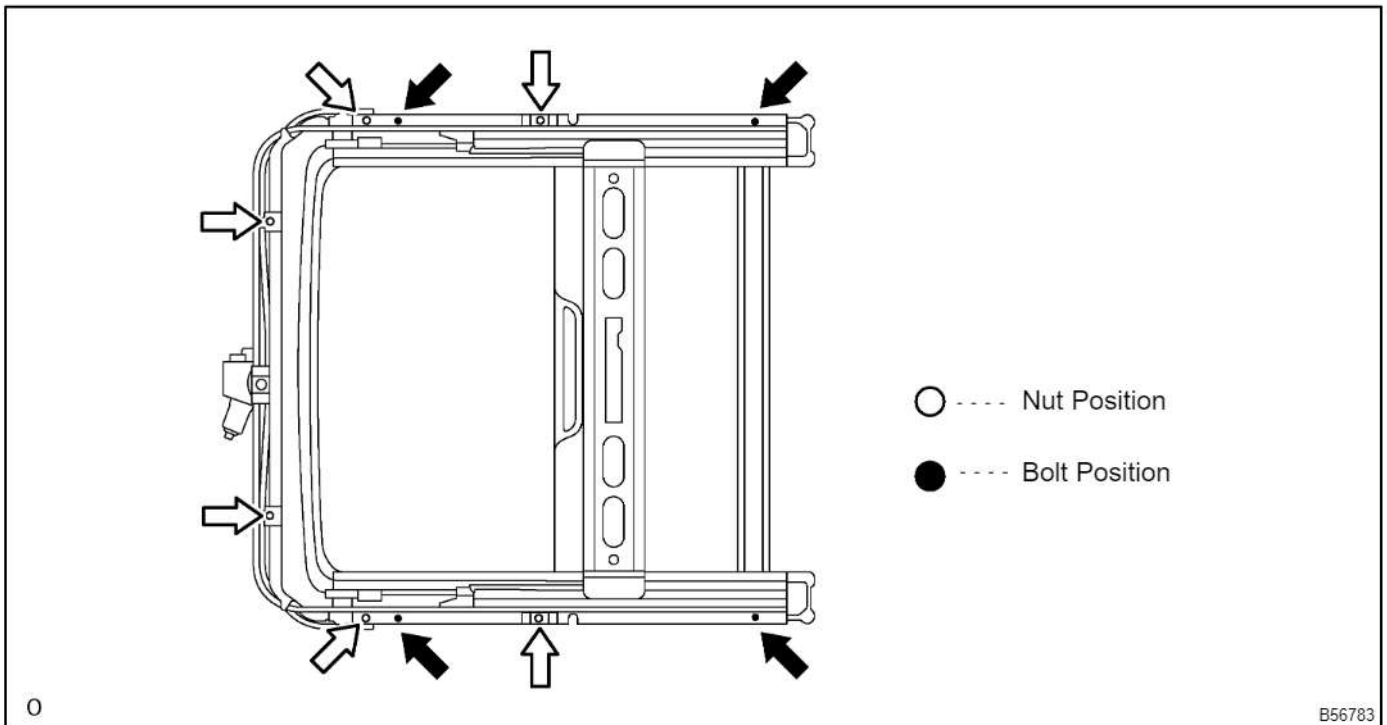
2. REMOVE SLIDING ROOF WEATHERSTRIP

3. REMOVE SLIDING ROOF DRIVE GEAR SUB-ASSY

- (a) Using a torx wrench (T25), remove the 3 screws and sliding roof drive gear.

4. REMOVE SLIDE ROOF RAIL SUB-ASSY

- (a) Disconnect the 4 drain hoses from the housing.
- (b) Remove the 6 nuts and 4 bolts, then remove the slide roof rail as shown in the illustration.



5. REMOVE SLIDING ROOF SIDE GARNISH RH

- (a) Using a screwdriver, remove the sliding roof side garnish.

HINT:

Tape the screwdriver tip before use.

- (b) Use the same procedures described above on the other side.

6. REMOVE SLIDING ROOF SIDE GARNISH LH**7. REMOVE ROOF DRIP CHANNEL REAR**

- (a) Remove the 2 screws and roof drip channel rear.

8. REMOVE SLIDING ROOF HOUSING DRAIN END CAP RH

- (a) Using a screwdriver, remove the sliding roof housing drain end cap.

HINT:

Tape the screwdriver tip before use.

- (b) Use the same procedures described above on the other side.

9. REMOVE SLIDING ROOF HOUSING DRAIN END CAP LH**10. REMOVE SUNSHADE TRIM SUB-ASSY**

- (a) Pull out the sunshade trim in the vehicle rear direction.

11. REMOVE ROOF DRIP CHANNEL GUIDE RH

- (a) Disengage the roof drip channel guide and sliding roof lift arm, and then pull out the roof drip channel guide in the vehicle rear direction.

- (b) Use the same procedures described above on the other side.

12. REMOVE ROOF DRIP CHANNEL GUIDE LH**13. REMOVE REMOVABLE ROOF HINGE RH**

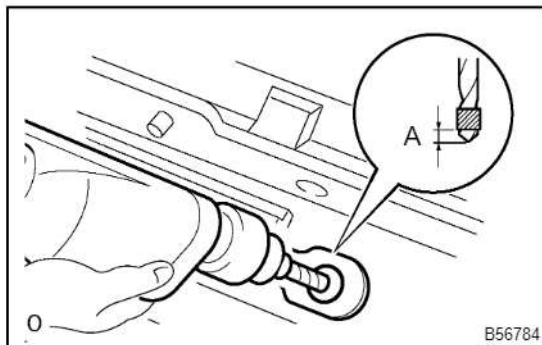
- (a) Remove the stopper screw and removable roof hinge.

- (b) Use the same procedures described above on the other side.

14. REMOVE REMOVABLE ROOF HINGE LH**15. REMOVE SLIDING ROOF DRIVE CABLE RH****16. REMOVE SLIDING ROOF DRIVE CABLE LH****17. REMOVE SLIDING ROOF LIFT ARM RH**

- (a) Pull out the sliding roof lift arm in the vehicle rear direction.

- (b) Use the same procedures described above on the other side.

18. REMOVE SLIDING ROOF LIFT ARM LH**19. REMOVE ROOF WIND DEFLECTOR SPRING**

- (a) Remove the rivet.

- (1) Use a drill of less than $\varnothing$ 4 mm (0.16 in.).

- (2) Gently and vertically place the drill tip onto the rivet, and cut the rivet flanges.

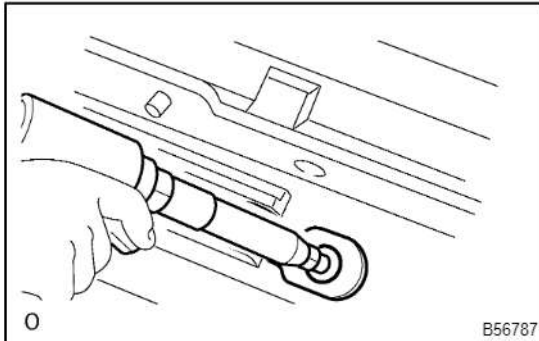
A: 5 mm (0.20 in.)

NOTICE:

- Prizing the hole with a drill can lead to damage to the rivet hole or the drill itself.
- Be careful when undertaking this task as the cut rivet is hot.
- (3) Even if the flange is taken off, continue drilling and push-cut the remaining fragments with the drill.

20. REMOVE ROOF WIND DEFLECTOR PANEL SUB-ASSY**21. REMOVE SLIDING ROOF HOUSING BRACKET NO.1**

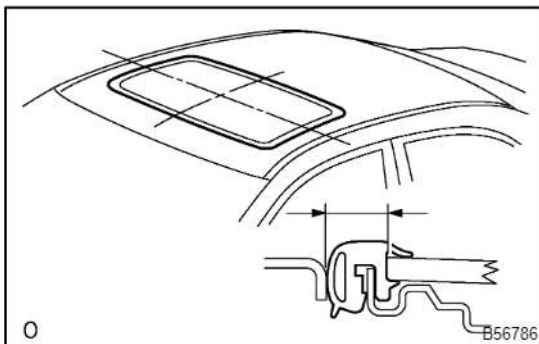
- (a) Remove the 4 bolts and 4 sliding roof housing bracket.

**22. INSTALL ROOF WIND DEFLECTOR SPRING**

- (a) Using an air riveter or hand riveter with a nose piece, strike the rivets into the body panel.

NOTICE:

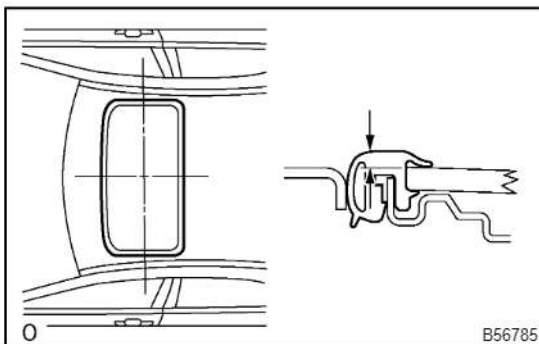
- If the rivet is not positioned perpendicularly, it will bend the mandrel.
- When the trigger is pulled, it may damage SST.

**23. INSTALL SLIDING ROOF GLASS SUB-ASSY**

- (a) Check for a difference in level between the sliding roof (weatherstrip) and roof panel.

Corner of rear side:

$0 \pm 1.5 \text{ mm}$ ($0 \pm 0.059 \text{ in.}$)



- (b) Check for a difference in level between the sliding roof (glass) and roof panel.

NOTICE:

The clearance should be thoroughly even.

- (c) Adjust the roof panel.

- (1) Using a torx→ driver T25, loosen the screw to adjust the sliding roof panel position.
When the adjustment has done, tighten the screw there.

24. RESET THE SLIDING ROOF POSITION (See page 74-7)**25. INSPECT FOR LEAKS**

- (a) Adjusting the sliding roof, check there is no water leak.
(b) In case of water leak, readjust the sliding roof.

PROBLEM SYMPTOMS TABLE

Symptom	Suspected Area	See page
Sliding roof system does not operate	1. PWR NO.1 fuse	–
	2. Sliding roof motor switch	74-6
	3. Sliding roof drive gear	74-3
	4. Wire harness	74-3
	5. Faulty sliding of sliding roof	–
Sliding roof operation is abnormal	1. Sliding roof motor switch	74-6
	2. Sliding roof drive gear	74-3
	3. Wire harness	–
Sliding roof system stops operation halfway (No foreign object is caught in the motor)	1. Sliding roof motor switch	74-6
	2. Sliding roof drive gear	74-3
	3. Wire harness	–
	4. Sliding roof relay	74-7

ON-VEHICLE INSPECTION

1. INSPECTION SLIDING ROOF FUNCTION

- (a) Check the AUTO sliding open operation function.
 - (1) Turn the ignition switch ON.
 - (2) Slide close and tilt down the roof glass to the fully closed position.
 - (3) Check that the roof glass automatically slides open and stops just before the roof glass is fully opened by operating the sliding roof switch OPEN for 0.3 seconds or more.
- (b) Check the AUTO sliding close operation function.
 - (1) Turn the ignition switch ON.
 - (2) Check that the roof glass automatically slides close to the fully closed position by operating the sliding roof switch CLOSE for 0.3 seconds or more.
 - (3) The roof glass stops sliding when the sliding roof switch is operated CLOSE or OPEN while the glass is moving.
- (c) Check the AUTO tilting UP operation function.
 - (1) Turn the ignition switch ON.
 - (2) Slide close and tilt down the roof glass to the fully closed position.
 - (3) Check that the roof glass automatically tilts up to the fully up position by operating the sliding roof switch UP for 0.3 seconds or more.
- (d) Check the AUTO tilting DOWN operation function.
 - (1) Turn the ignition switch ON.
 - (2) Check that the roof glass automatically tilts down by operating the sliding roof switch DOWN when the roof glass is in the up position.
- (e) Check the operation function after key-OFF.
 - (1) After turning the ignition switch from ON to OFF, check that the roof glass can be operated via the sliding roof switch. However, operation is disabled after either of the front doors is opened.
 - (2) When approximately 45 seconds have passed after the ignition switch is turned from ON to OFF, check that the roof glass can not be operated via the sliding roof switch.
 - (3) After turning the ignition switch from ON to OFF with either of the front doors open, check that AUTO operation stops immediately.
- (f) Check the jam protection function.

NOTICE:

- **Do not check this function using a part of your body such as a hand.**
- **Pay thorough attention that nothing gets caught by accident in this process.**
- **The roof might be deformed if something hard, such as a handle of hammer, is inserted in between.**

HINT:

The jam protection functions operate only during the following AUTO operations; AUTO close or AUTO down operation and AUTO close or AUTO down operation after key-OFF.

- (1) Fully close the roof glass.
- (2) Insert the handle of the hammer when the roof glass is almost in the fully closed position.

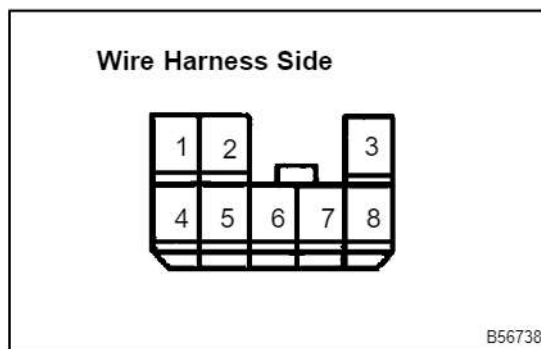
HINT:

Wrap the hammer handle well with cloth or something before use.

- (3) When trying to operate the roof glass to the fully closed position via the AUTO close or down function, check that the glass movement is reversed by detecting the handle, so that the hammer handle is not caught

HINT:

- The reverse movement when the roof glass is sliding close stops when the glass slides open 200 mm or before the glass reaches the fully open position (for a maximum 20 seconds).
- The reverse movement when the roof glass is tilting down stops when the glass is in the fully up position or 2 seconds have passed.



2. INSPECT SLIDING ROOF RELAY AND SWITCH (TMMK MADE)

- (a) Inspect the sliding roof relay and switch.
- (1) Disconnect the connector from the sliding roof relay and inspect the connector on the wire harness side.

Standard:

Terminals No.	Wiring color	Condition	Specified condition
5 ⇌ Body ground	W-B ⇌ -	Constant	Continuity
7 ⇌ 5	L-W ⇌ W-B	Constant	10 – 14 V
3 ⇌ 5	R-L ⇌ W-B	Ignition switch OFF → ON	0 V → 10 – 14 V
1 ⇌ 5	R-W ⇌ W-B	Sliding roof switch → OPEN or DOWN	No continuity → Continuity
2 ⇌ 5	R-Y ⇌ W-B	Sliding roof switch → CLOSE or UP	No continuity → Continuity

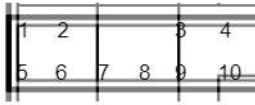
If the value is not as specified, there may be a malfunction on the wire harness side.

- (2) Connect the connector, and inspect the voltage between the terminals of the connector.

Standard:

Terminals No.	Wiring color	Condition	Specified condition
1 ⇌ 5	R-W ⇌ W-B	Ignition switch OFF → ON Sliding roof switch → OPEN or DOWN	10 – 14 V → 0 V
2 ⇌ 5	R-Y ⇌ W-B	Ignition switch OFF → ON Sliding roof switch → CLOSE or UP	10 – 14 V → 0 V

If the value is not as specified, the sliding roof drive gear may be defective.

Wire Harness Side

B52070

3. INSPECT SLIDING ROOF CONTROL ECU (TMC MADE)

- (a) Inspect the sliding roof control ECU.
- (1) Disconnect the connector from the ECU.
 - (2) Inspect the connector on the wire harness side.

Standard:

Symbols (Terminals No.)	Wiring color	Condition	Specified condition
E (7) ⇔ Body ground	W-B ⇔ -	Constant	Continuity
B (5) ⇔ E (7)	L-W ⇔ W-B	Constant	10 - 14 V
IG (8) ⇔ E (7)	R-L ⇔ W-B	Ignition switch OFF → ON	0 V → 10 - 14 V
DWN (9) ⇔ E (7)	R-W ⇔ W-B	Sliding roof switch → OPEN or DOWN	No continuity → Continuity
UP (10) ⇔ E (7)	R-Y ⇔ W-B	Sliding roof switch → CLOSE or UP	No continuity → Continuity

If the value is not as specified, there may be a malfunction on the wire harness side.

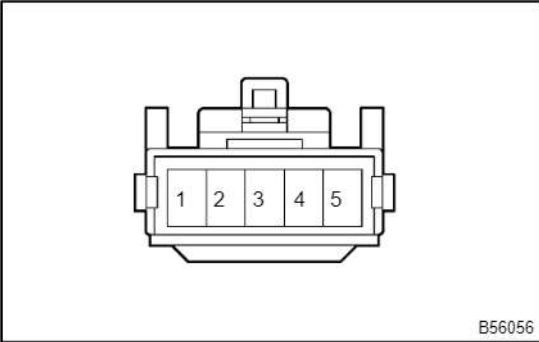
- (3) Connect the connector, and inspect the voltage between the terminals of the connector.

Standard:

Symbols (Terminals No.)	Wiring color	Condition	Specified condition
DWN(9) ⇔ E (7)	R-W ⇔ W-B	Ignition switch OFF → ON Sliding roof switch → OPEN or DOWN	10 - 14 V → 0 V
UP(10) ⇔ E (7)	R-Y ⇔ W-B	Ignition switch OFF → ON Sliding roof switch → CLOSE or UP	10 - 14 V → 0 V

If the value is not as specified, sliding roof drive gear or communication line may be defective.

INSPECTION



1. INSPECT SLIDE ROOF MOTOR SWITCH

- (a) Check the slide roof motor switch continuity.

Standard:

Terminals No.	Switch position	Specified condition
2 ⇄ 4	CLOSE/UP	Continuity
2 ⇄ 3	OPEN/DOWN	Continuity

If the continuity is not as specified, replace the switch.

RESET

1. RESET SLIDING ROOF POSITION

NOTICE:

When the battery negative (–) terminal is disconnected or PWR No.1 fuse is removed due to the repair, the sliding roof position memory is erased. After reconnecting the battery negative (–) terminal, make sure to reset the zero point.

If the sliding roof has not been reset, the sliding roof AUTO operation functions will not operate.

Vehicle type	Condition	Proceed to
TMC made CAMRY	● Battery negative (–) terminal is disconnected. ● Component parts of sliding roof are replaced. ● PWR No.1 fuse is removed.	Reset A
	● Sliding roof does not stop at the fully closed position even if AUTO close switch is operated.	Reset B
TMMK made CAMRY	● Battery negative (–) terminal is disconnected. ● PWR No.1 fuse is removed.	Reset A
	● Component parts of sliding roof are replaced. ● Sliding roof does not stop at the fully closed position even if AUTO close switch is operated.	Reset C

(a) Reset A

- (1) To reset the sliding roof to the zero point, push and hold the switch on the TILT UP position until the sliding roof tilts all the way up and tilts down a little automatically.
- (2) Confirm "one-touch side open and close" and "one-touch tilt up and down" functions by pushing the switch briefly to the SLIDE/OPEN position and TILT/UP position.

(b) Reset B

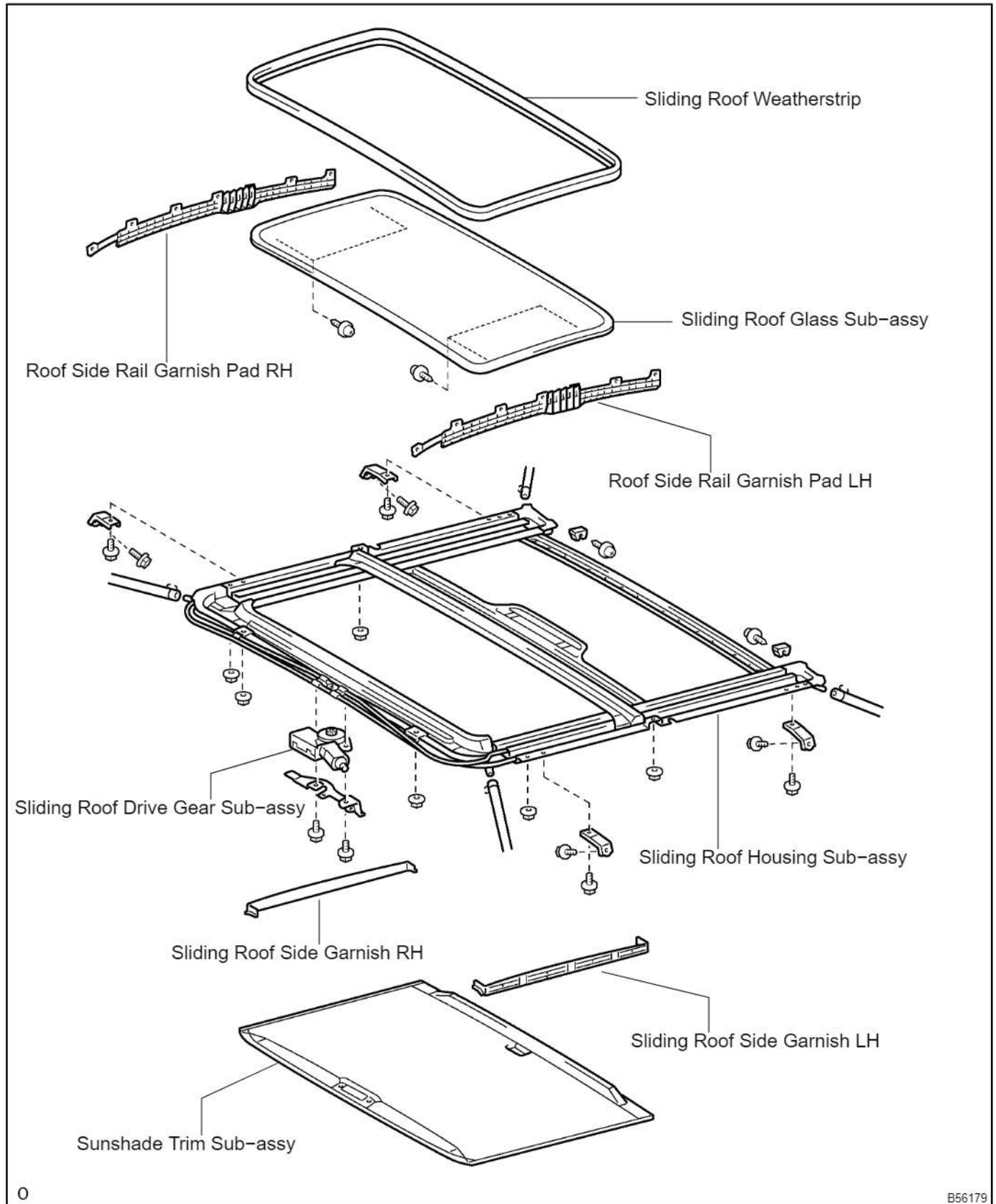
- (1) Push and hold the switch on the TILT UP/CLOSE position until the sliding roof stops.
- (2) Continue to push and hold the switch on the TILT UP/CLOSE position for 10 seconds or more. The sliding roof closes to the fully closed position.
- (3) Continue to push and hold the switch on the TILT UP/CLOSE position until the sliding roof tilts all the way up and tilts down a little automatically.
- (4) Confirm "one-touch side open and close" and "one-touch tilt up and down" functions by pushing the switch briefly to the SLIDE/OPEN position and TILT/UP position.

(c) Reset C

- (1) To reset the sliding roof to the zero point, push and hold the switch on the TILT UP position until the sliding roof tilts all the way up and tilts down a little automatically.
- (2) Release the switch. Within 5 seconds, re-push and hold the switch on the TILT UP/CLOSE position.
- (3) The sliding roof automatically moves to the fully open position and then reverses towards the closed position.
- (4) Release the switch.
- (5) Confirm "one-touch side open and close" and "one-touch tilt up and down" functions by pushing the switch briefly to the SLIDE/OPEN position and TILT/UP position.

SLIDING ROOF (TMC Made) COMPONENTS

74044-03

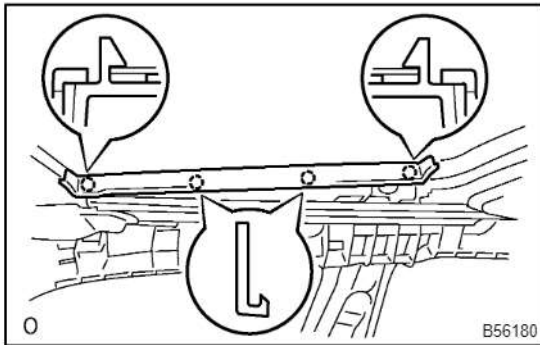


REPLACEMENT

HINT:

The installation is in the reverse order of the removal. However, when there is a special point concerning the installation, it is indicated.

1. **REMOVE ROOF HEADLINING ASSY (See page 76-22)**
2. **REMOVE ROOF SIDE RAIL GARNISH PAD RH (W/O CURTAIN SHIELD AIR BAG)**
 - (a) Remove the 7 screws and roof side rail garnish pad.
 - (b) Use the same procedures described above on the other side.
3. **REMOVE ROOF SIDE RAIL GARNISH PAD LH (W/O CURTAIN SHIELD AIR BAG)**



4. **REMOVE SLIDING ROOF SIDE GARNISH RH**

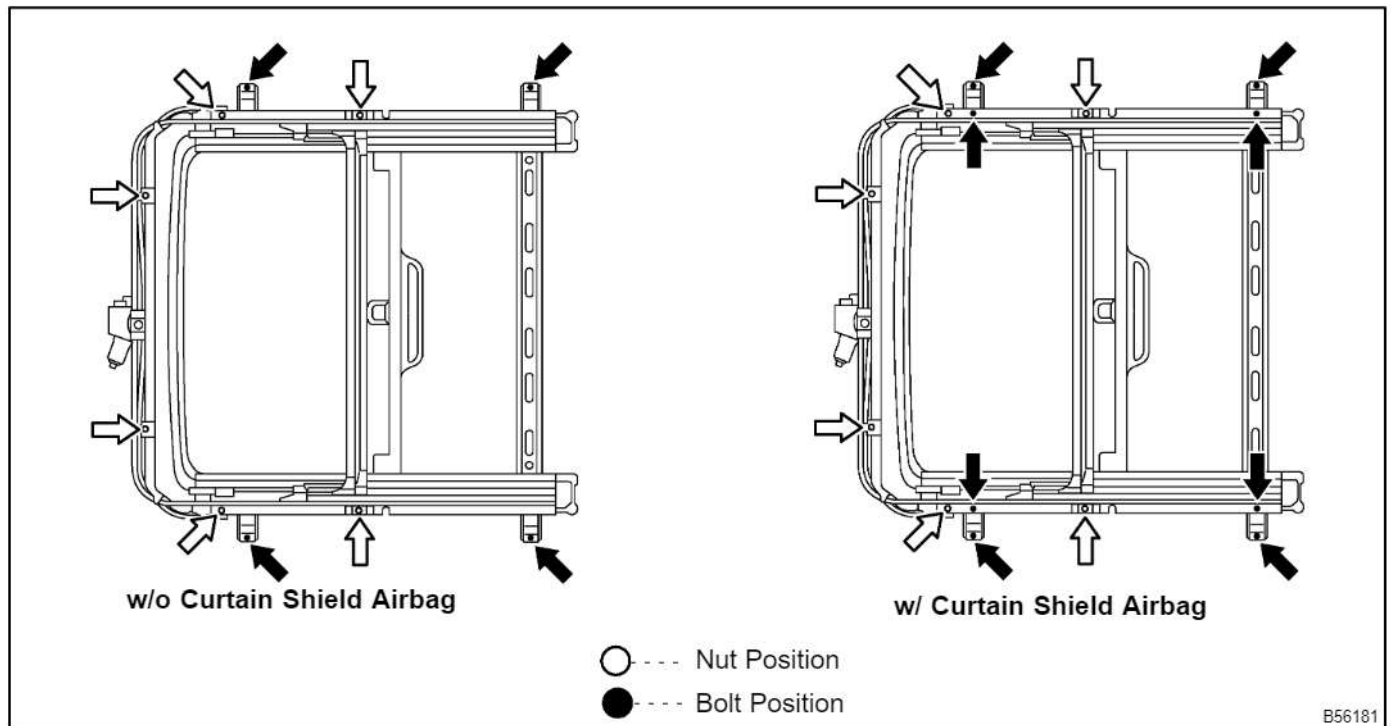
- (a) Using a screwdriver, remove the sliding roof side garnish.

HINT:

Tape the screwdriver tip before use.

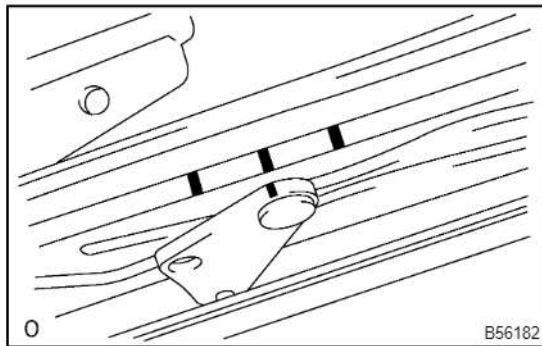
- (b) Use the same procedures described above on the other side.

5. **REMOVE SLIDING ROOF SIDE GARNISH LH**
6. **REMOVE SLIDING ROOF GLASS SUB-ASSY**
 - (a) Using a torx wrench (T25), remove the 4 screws and sliding roof glass.
7. **REMOVE SLIDING ROOF WEATHERSTRIP**
8. **REMOVE SLIDING ROOF DRIVE GEAR SUB-ASSY**
 - (a) Remove the 2 bolts.
 - (b) Disconnect the clamp and then remove the sliding roof drive gear.
9. **REMOVE SLIDING ROOF HOUSING SUB-ASSY**
 - (a) Disconnect the 4 drain hoses from the housing.
 - (b) w/o curtain shield airbag:
Remove the 6 nuts and 4 bolts, then remove the housing as shown in the illustration.
 - (c) w/ curtain shield airbag:
Remove the 6 nuts and 8 bolts, then remove the housing as shown in the illustration.



10. REMOVE SUNSHADE TRIM SUB-ASSY

- Remove the screw and stopper.
- Remove the sunshade trim.
- Use the same procedures described above on the other side.

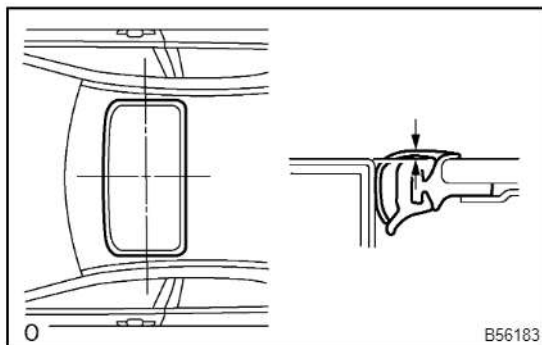


11. ADJUST FULLY CLOSED POSITION

- Using a screwdriver, slide the drive cable of the sliding roof to align the matchmarks.

HINT:

Tape the tip of the screwdriver before use.

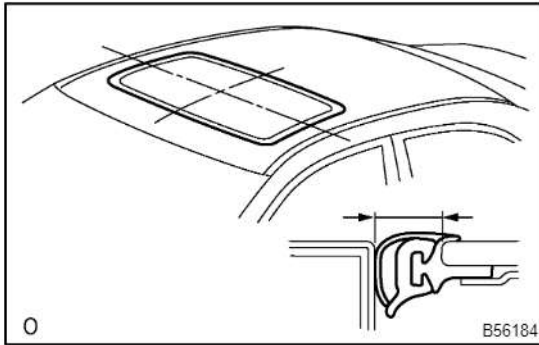


12. INSTALL SLIDING ROOF GLASS SUB-ASSY

- Check for a difference in level between the sliding roof (weatherstrip) and roof panel.

Corner of rear side:

$0 \pm 1.5 \text{ mm}$ ($0 \pm 0.059 \text{ in.}$)



- (b) Check for a difference in level between the sliding roof (glass) and roof panel.

NOTICE:

The clearance should be thoroughly even.

- (c) Adjust the roof panel.
- (1) Using a torque driver T25, loosen a screw to adjust the sliding roof panel position. When the adjustment has done, tighten the screw there.

13. RESET THE SLIDING ROOF POSITION (See page 74-7)

14. INSPECT FOR LEAKS

- (a) Adjusting the sliding roof, check there is no water leak.
- (b) In case of water leak, readjust the sliding roof.