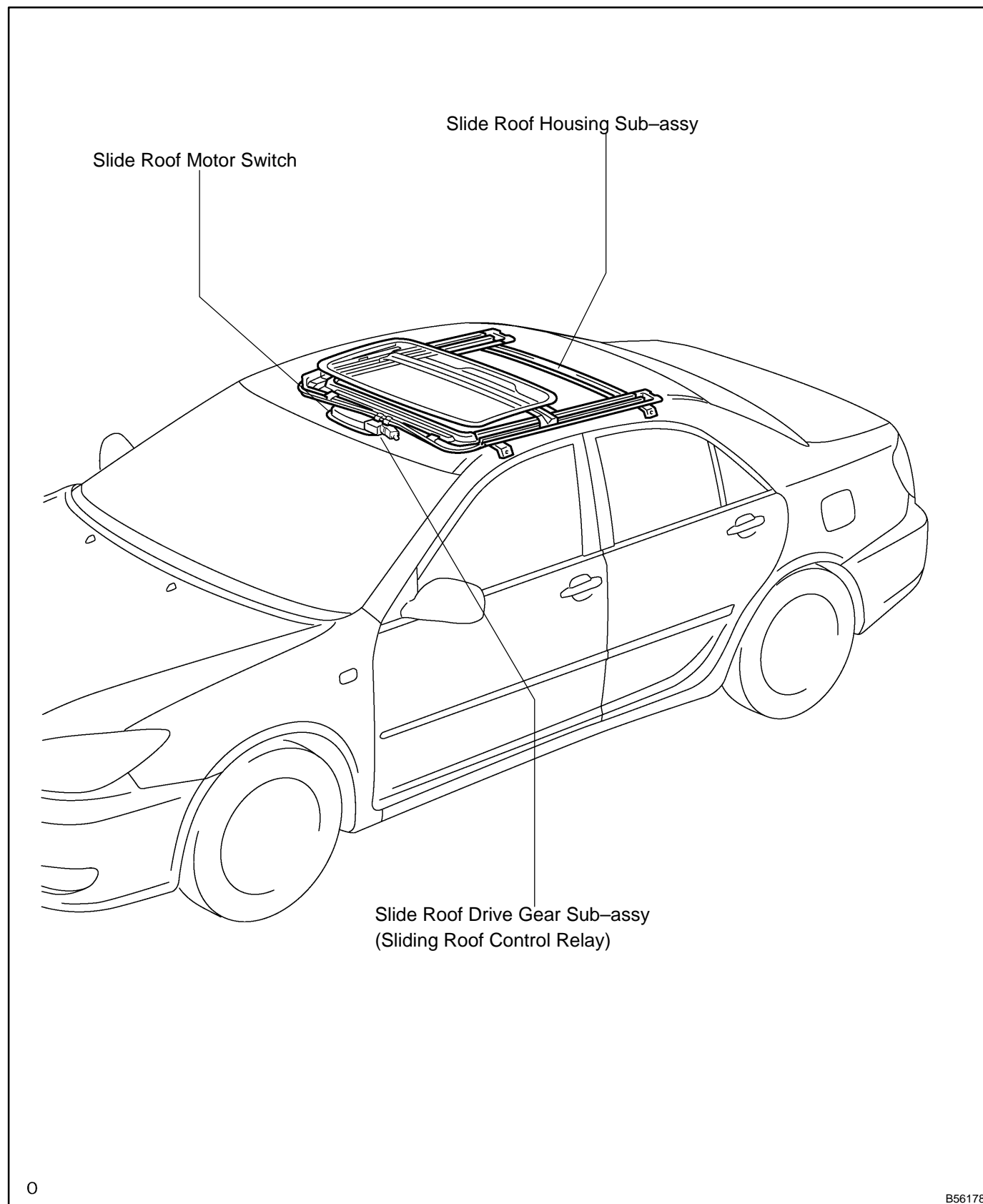


SLIDING ROOF SYSTEM LOCATION

7403Y-02



ON-VEHICLE INSPECTION

1. INSPECTION SLIDING ROOF FUNCTION

- (a) Check the automatic sliding open operation.
 - (1) Turn the ignition switch ON.
 - (2) Slide close and tilt down the roof glass to the fully close position.
 - (3) Check that the roof glass will slide open automatically and stop just before the fully open position by pressing the sliding roof switch OPEN for 0.3 seconds or more.
- (b) Check the automatic sliding close operation.
 - (1) Turn the ignition switch ON.
 - (2) Check that the roof glass will slide close to the fully close position automatically by pressing the sliding roof switch CLOSE for 0.3 seconds or more.
 - (3) The roof glass will stop sliding if the sliding roof switch is turned to CLOSE or OPEN while the glass is moving.
- (c) Check the automatic tilting UP operation.
 - (1) Turn the ignition switch ON.
 - (2) Slide close and tilt down the roof glass to the fully close position.
 - (3) Check that the roof glass will tilt up automatically to the fully up position by pressing the sliding roof switch UP for 0.3 seconds or more.
- (d) Check the automatic tilting DOWN operation.
 - (1) Turn the ignition switch ON.
 - (2) Check that the roof glass will tilt down by pressing the sliding roof switch DOWN when the roof glass is up.
- (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 the operation will be impossible after the driver's or passenger's door 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 the driver's or passenger's door open, check that the AUTO operation will stop immediately.
- (f) Check the jam protection function.

NOTICE:

- **Never insert any part of your body, such as hand, in between.**
- **Pay thorough attention not to get caught in there.**
- **The roof might be deformed if something hard, such as a handle of hammer, is inserted in between.**

HINT:

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

- (1) Fully close the roof glass.
- (2) Set a handle of hammer around the fully close position.

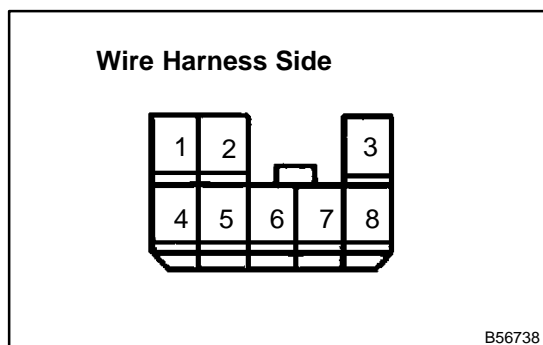
HINT:

Wrap the handle well with cloth or something before setting.

- (3) When operating the roof glass to the fully close position via the AUTO close or down, check that the glass movement will be reversed by detecting the handle, and keep moving by about 200 mm open or up and stop then.

HINT:

- The reverse movement when the glass is sliding will stop in 200 mm open or before the fully open position (in max. 20 seconds).
- The reverse movement when the glass is tilting down will stop in the fully up position or in 2 seconds.



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

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

Standard:

Terminal No.	Wiring color	Condition	Specified condition
5 ⇔ Body ground	W-B ⇔ Body ground	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

HINT:

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

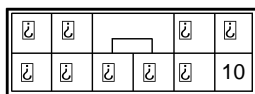
- (2) Connect the connector, and inspect the voltage and continuity between each terminal of the connector and the body ground.

Standard:

Terminal 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

HINT:

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 (Terminal No.)	Wiring color	Condition	Specified condition
E (7) ⇔ Body ground	W-B ⇔ Body ground	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 in the wire harness side.

- (3) Connect the connector, and inspect the voltage and continuity between each terminal of connector and body ground.

Standard:

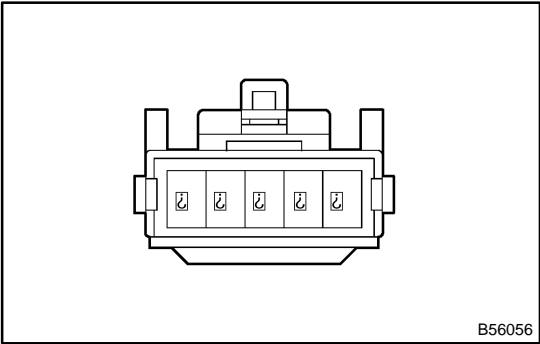
Symbols (Terminal No.)	Wiring color	Condition	Specified condition
DWN(9) ⇔ E (7)	R-W ⇔ W-B	Ignition switch OFF → ON Sliding roof switch → OPEN/DOWN	10 – 14 V → 0 V
UP(10) ⇔ E (7)	R-Y ⇔ W-B	Ignition switch OFF → ON Sliding roof switch → CLOSE/UP	10 – 14 V → 0 V

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

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	74-2
	4. Wire harness	74-2
	5. Faulty sliding of sliding roof	–
Sliding roof operation is abnormal	1. Sliding roof motor switch	74-6
	2. Sliding roof drive gear	74-2
	3. Wire harness	–
Sliding roof system stops operation half way (No foreign object is in the motor)	1. Sliding roof motor switch	74-6
	2. Sliding roof drive gear	74-2
	3. Wire harness	–
	4. sliding roof relay	74-7

INSPECTION



1. INSPECT SLIDE ROOF MOTOR SWITCH

(a) Check the slide roof motor switch continuity.

Standard:

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

If 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 reset is not performed, the sliding roof automatic operation will not function.

Vehicle	Condition	Procedure for reset
TMC made CAMRY	<ul style="list-style-type: none"> • When the Battery negative (–) terminal is disconnected. • When component parts of sliding roof are replaced. • When the "PWR No.1" fuse is removed. 	Reset A
	• When the sliding roof dose not stop at the fully closed position even if the auto close switch is operated.	Reset B
TMMK made CAMRY	<ul style="list-style-type: none"> • When the Battery negative (–) terminal is disconnected. • When the "PWR No.1" fuse is removed. 	Reset A
	<ul style="list-style-type: none"> • When component parts of sliding roof are replaced. • When the sliding roof dose not stop at the fully closed position even if the auto close switch is operated. 	Reset C

(a) Reset A

- (1) To reset the zero point for the sliding roof, push and hold the switch on the "TILT UP" side until the sliding roof tilts all the way up and 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" and "TILT-UP" sides.

(b) Reset B

- (1) Push and hold the switch on the "TILT UP/CLOSE" side until the sliding roof stops.
- (2) Continue to push and hold the switch on the "TILT UP/CLOSE" side for 10 seconds or more. The sliding roof will close to the fully closed position.
- (3) Continue to push and hold the switch on the "TILT UP/CLOSE" side until the sliding roof tilts all the way up and 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" and "TILT-UP" sides.

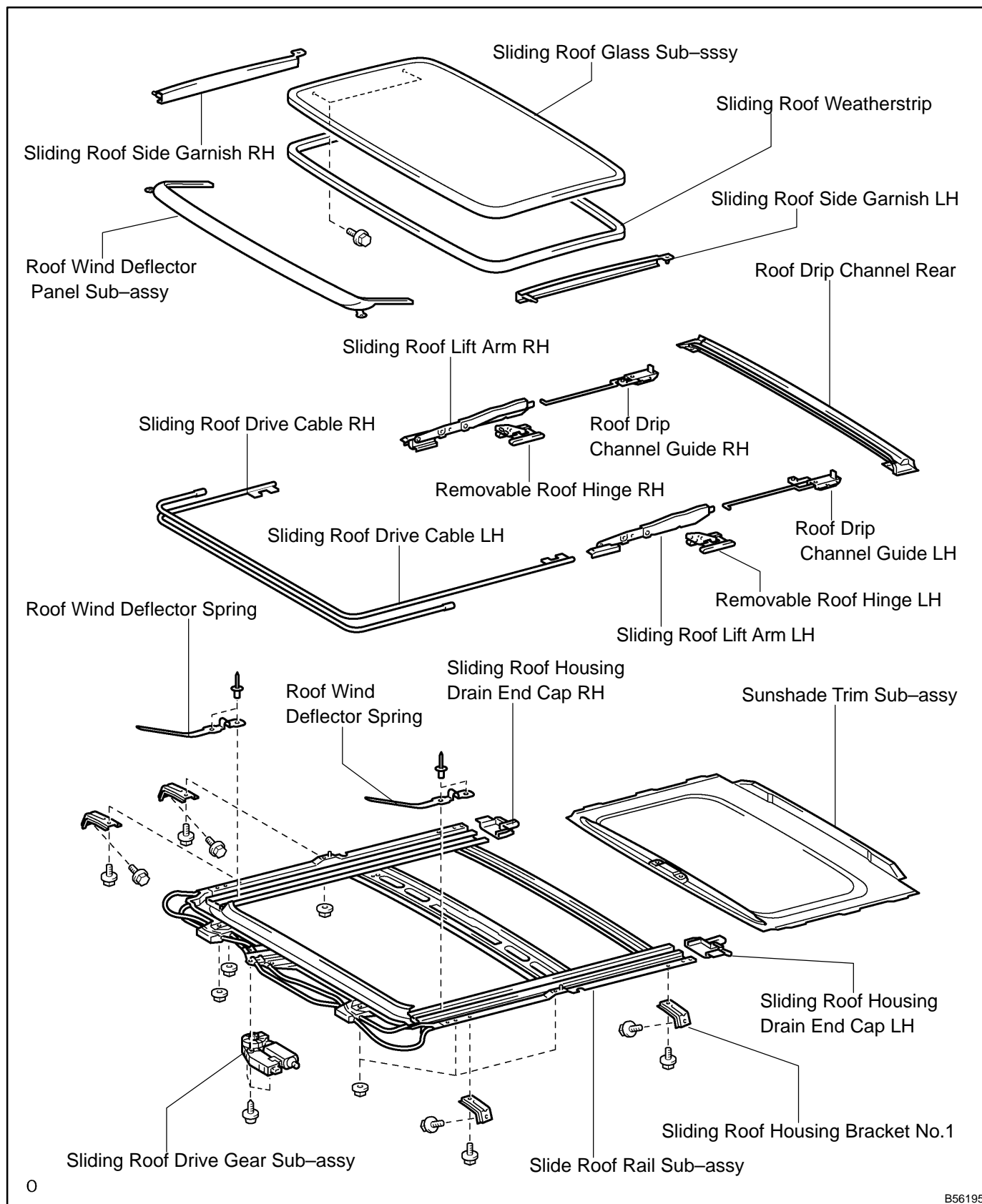
(c) Reset C

- (1) To reset the zero point for the sliding roof, push and hold the switch on the "TILT UP" side until the sliding roof tilts all the way up and down a little automatically.
- (2) Release the switch, and within 5 seconds re-push and hold the switch on the "TILT UP/CLOSE" side.
- (3) The sliding roof will automatically move to full slide open and then reverse to the close 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" and "TILT-UP" sides.

SLIDING ROOF (TMMK Made)

COMPONENTS

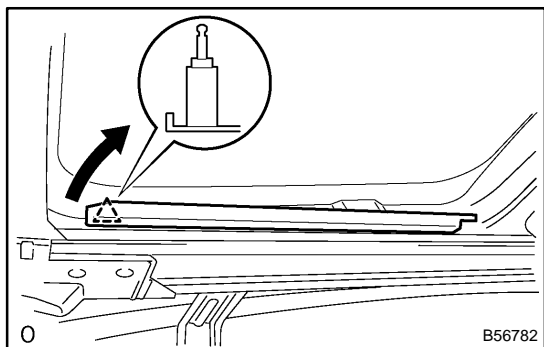
74042-02



REPLACEMENT

HINT:

Installation is in the reverse order of removal. But the installation is indicated only when it has a point.



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.

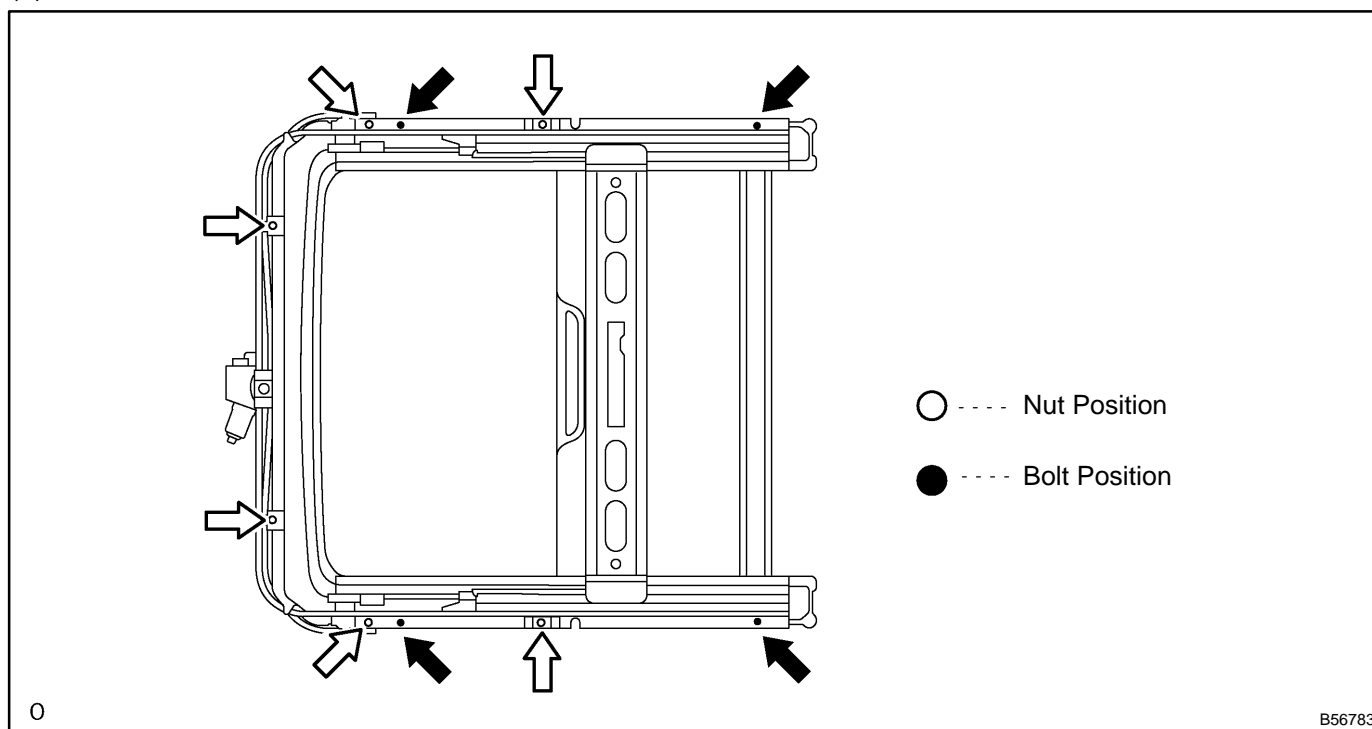
2. REMOVE SLIDING ROOF WEATHERSTRIP

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) Employ the same manner described above to 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) Employ the same manner described above to 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's 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's rear direction.

- (b) Employ the same manner described above to 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.

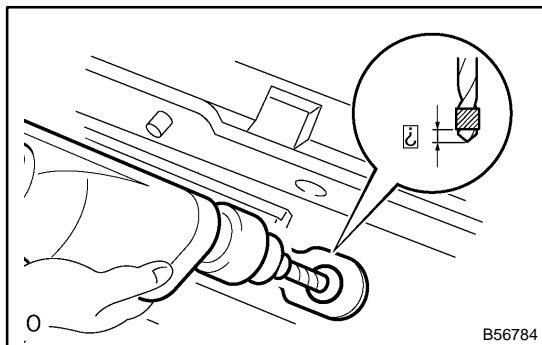
- (b) Employ the same manner described above to the other side.

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's rear direction.

- (b) Employ the same manner described above to 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 $\phi 4$ 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.)

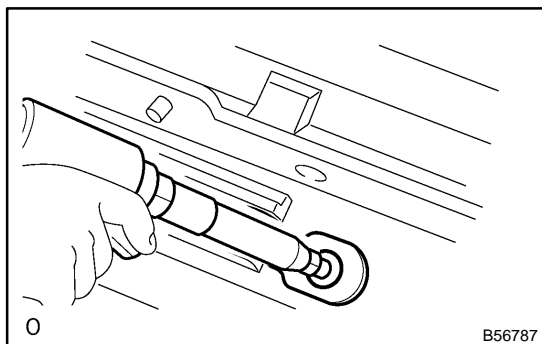
NOTICE:

- **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 remaining fragment 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.

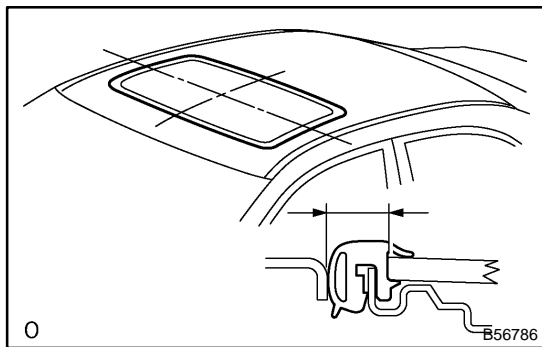


22. INSTALL ROOF WIND DEFLECTOR SPRING

- (a) Using an air riveter or hand riveter with nose piece, strike 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 the SST.**

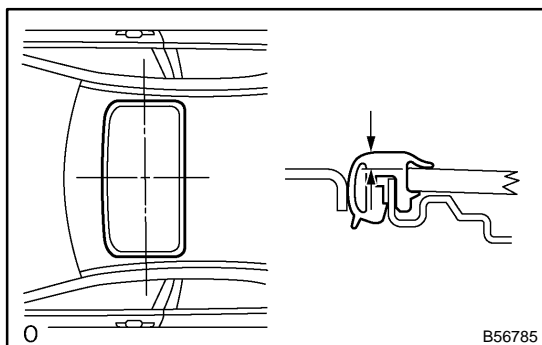


23. INSTALL SLIDING ROOF GLASS SUB-ASSY

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

Corner of rear side:

0 ± 1.5 mm (0 ± 0.059 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 a screw to adjust the sliding roof panel position.
When the adjustment has done, tighten the screw there.

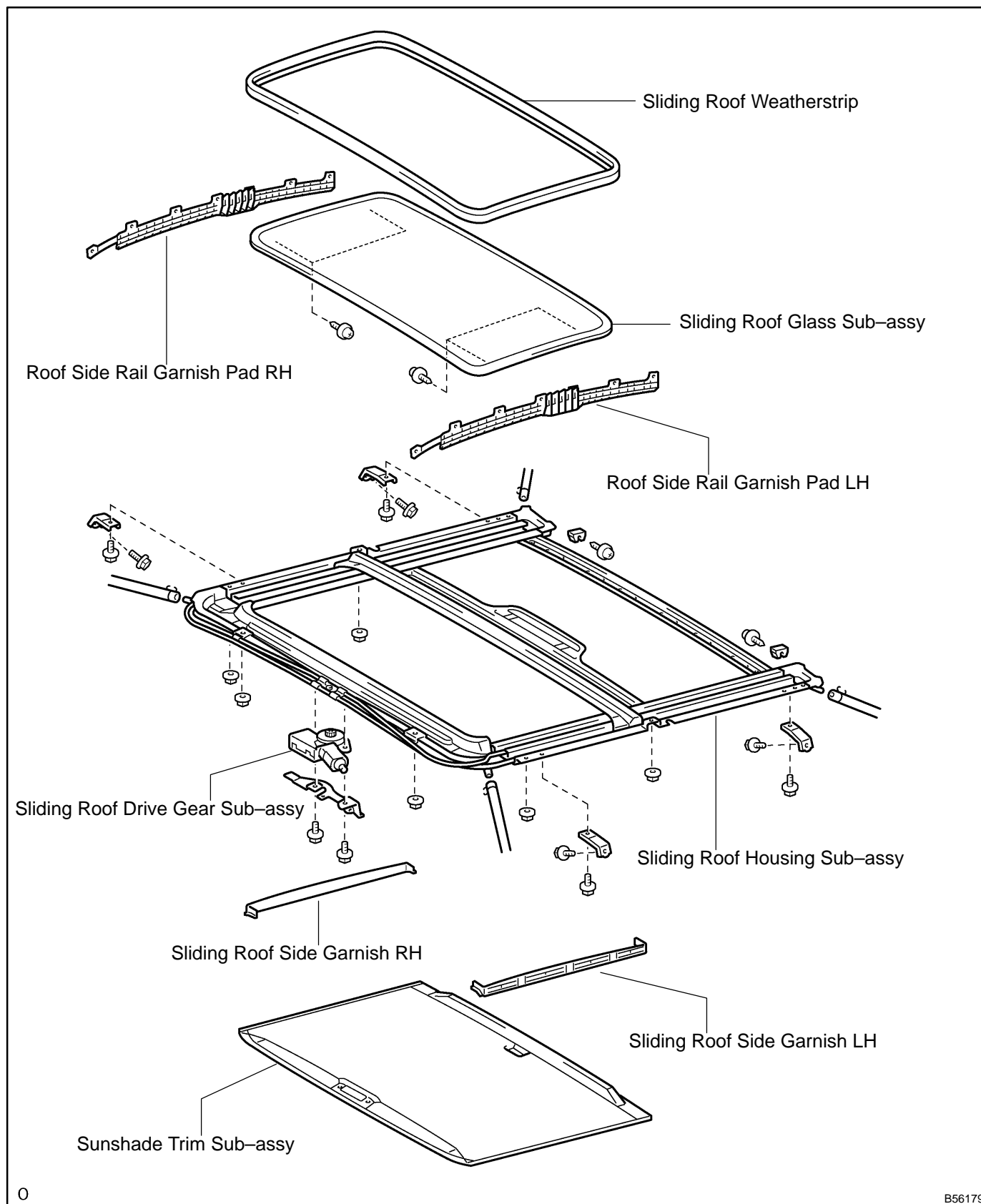
24. RESET THE SLIDING ROOF POSITION(See page74-7)

25. INSPECT FOR LEAK

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

SLIDING ROOF (TMC Made) COMPONENTS

74044-02



REPLACEMENT

HINT:

Installation is in the reverse order of the removal. But the installation is indicated only when it has a point.

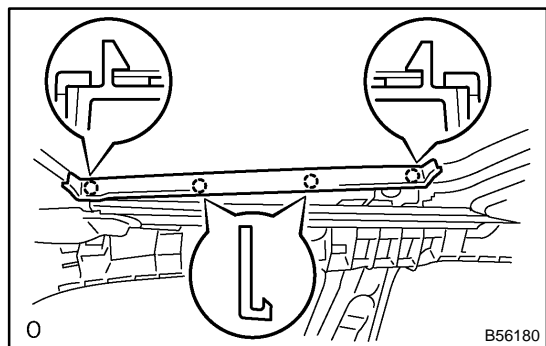
1. REMOVE ROOF HEADLINING ASSY

(See page 76-20)

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) Employ the same manner described above to 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) Employ the same manner described above to 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.

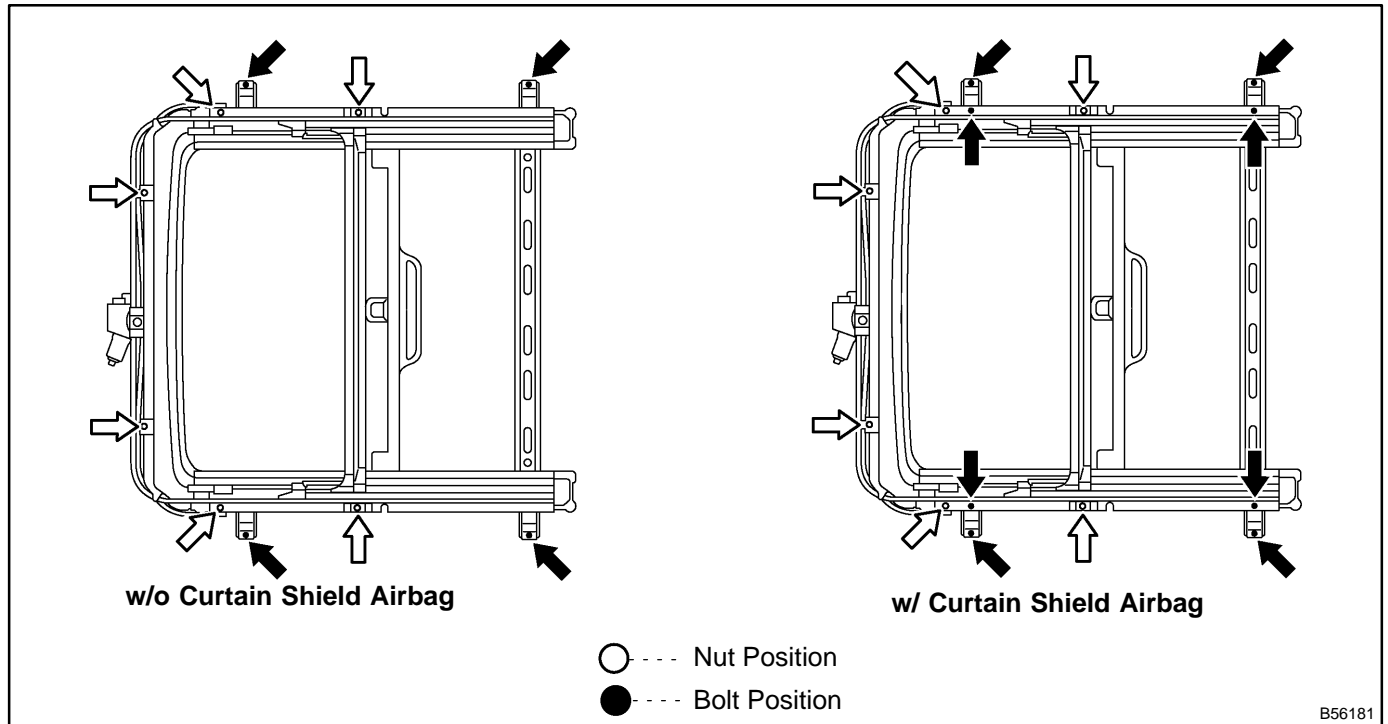
7. REMOVE SLIDING ROOF WEATHERSTRIP

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.

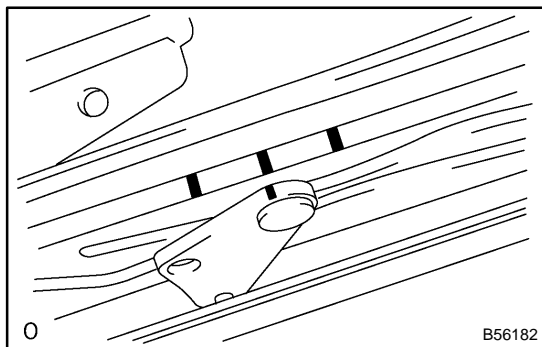
9. REMOVE SLIDING ROOF HOUSING SUB-ASSY

- (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.



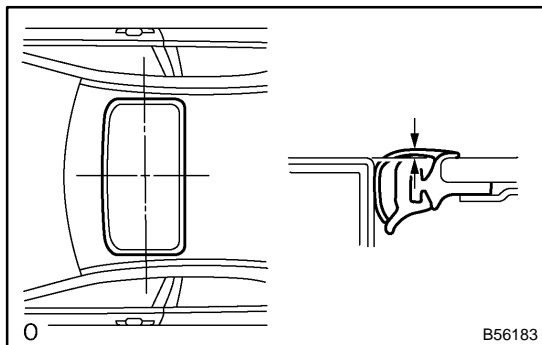
10. REMOVE SUNSHADE TRIM SUB-ASSY

- (a) Remove the screw and stopper.
- (b) Remove the sunshade trim.
- (c) Employ the same manner described above to the other side.



11. ADJUST THE FULLY CLOSED POSITION

- (a) By using a screwdriver which tip is taped around, slide the drive cable of the sliding roof to align the matchmarks.

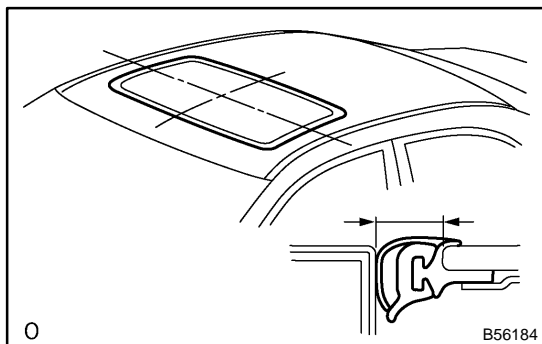


12. INSTALL SLIDING ROOF GLASS SUB-ASSY

- (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) Adjustment 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 page74-7)

14. INSPECT FOR LEAK

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