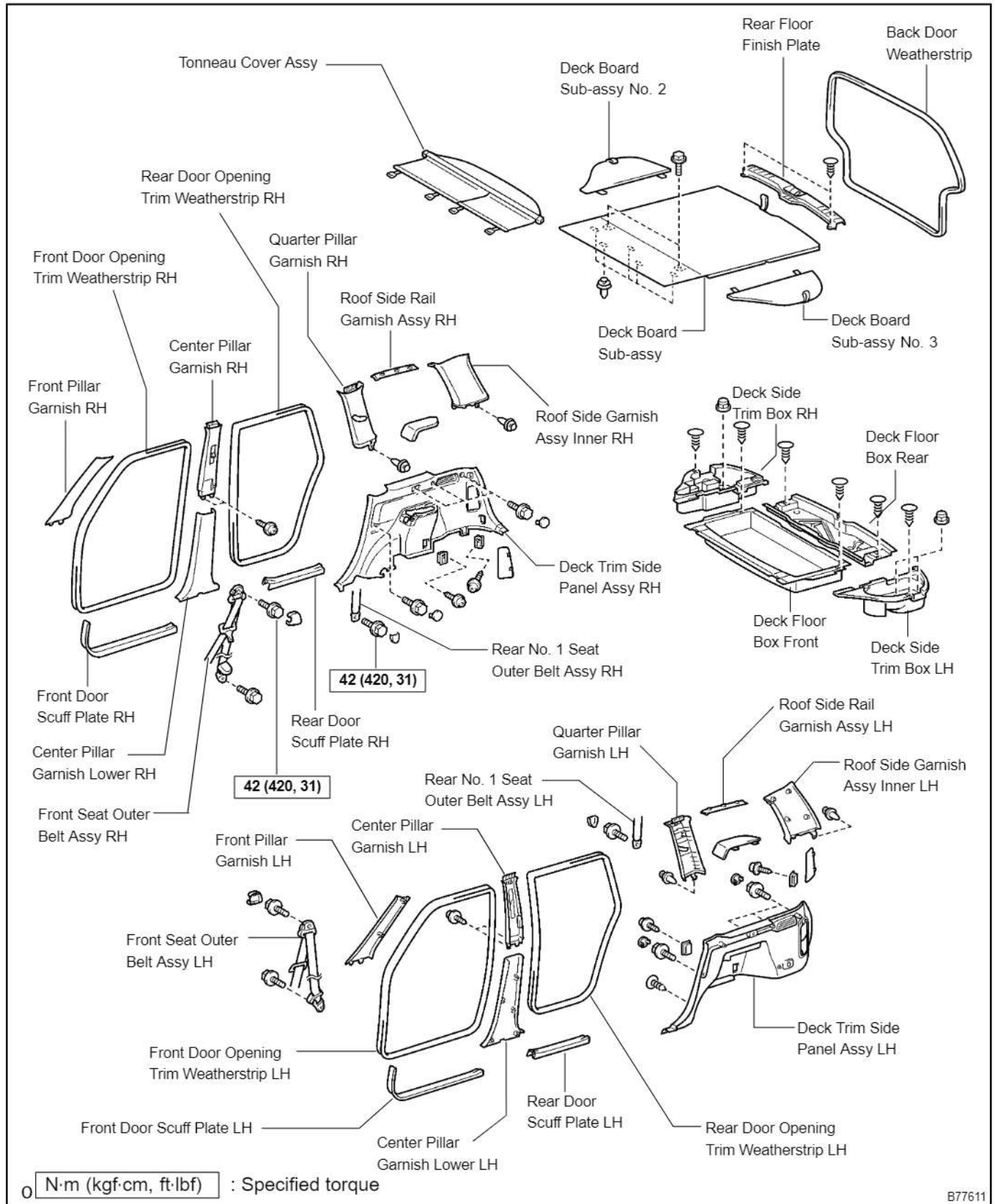


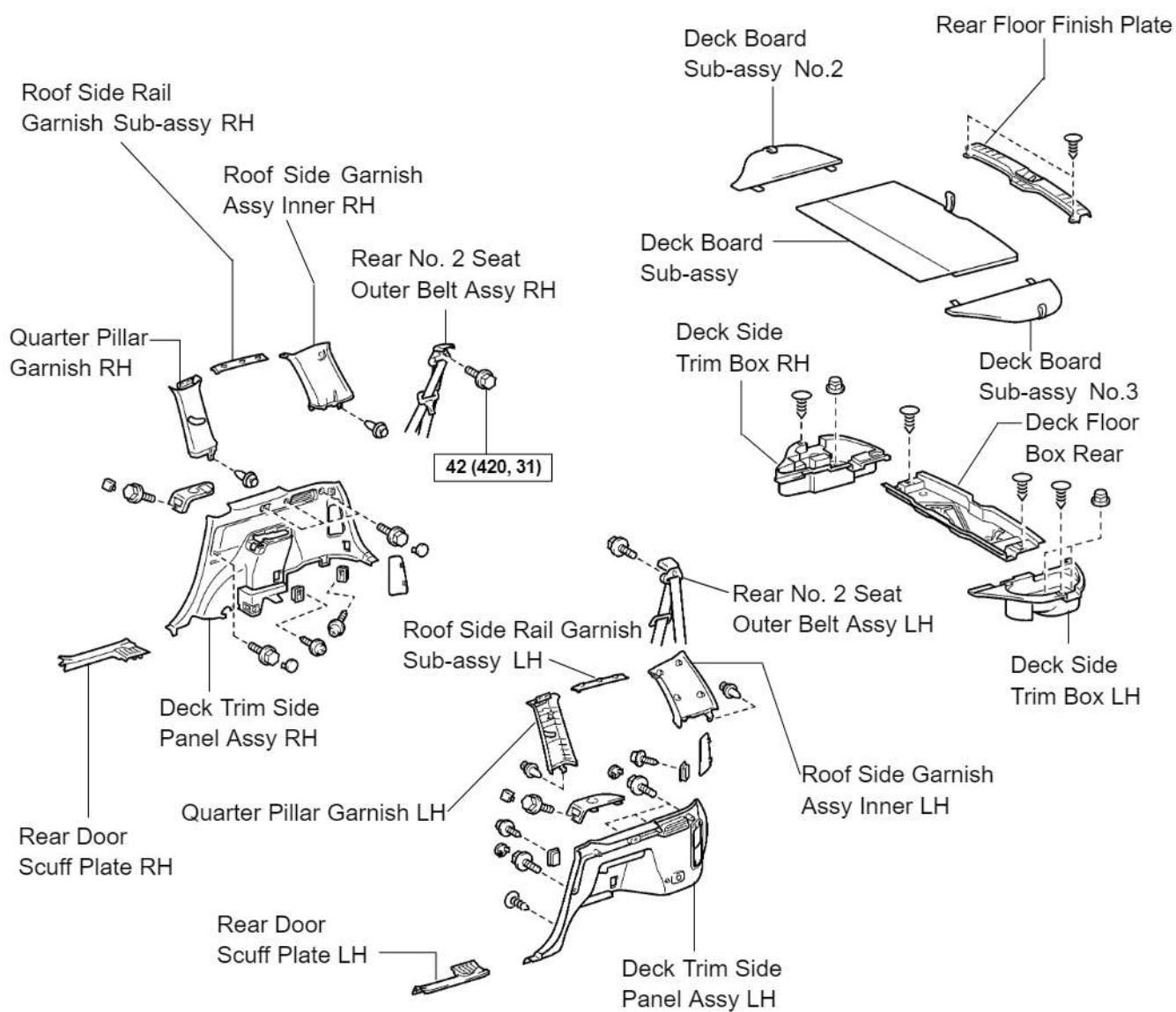
SLIDING ROOF COMPONENTS

740EF-01



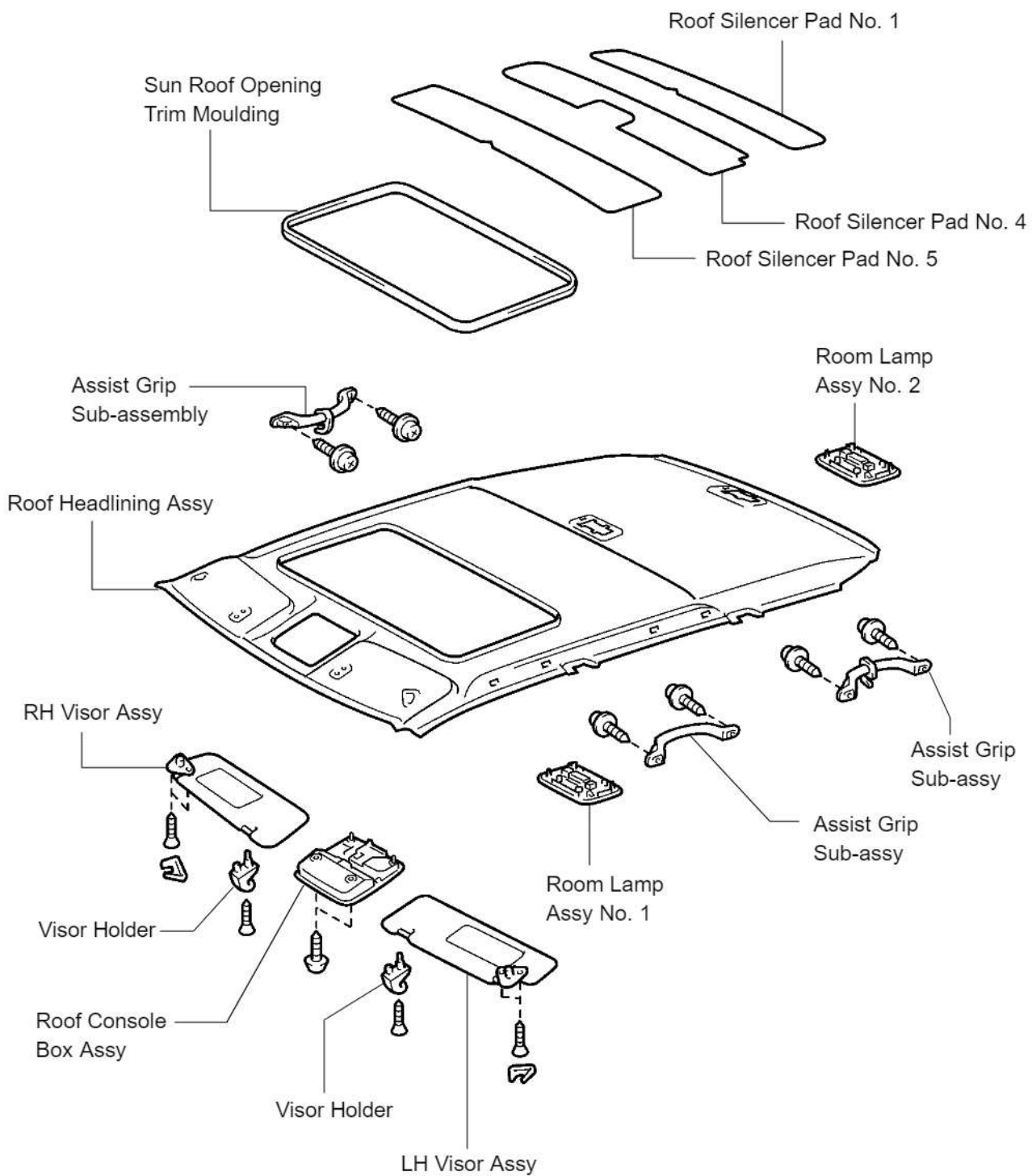
B77611

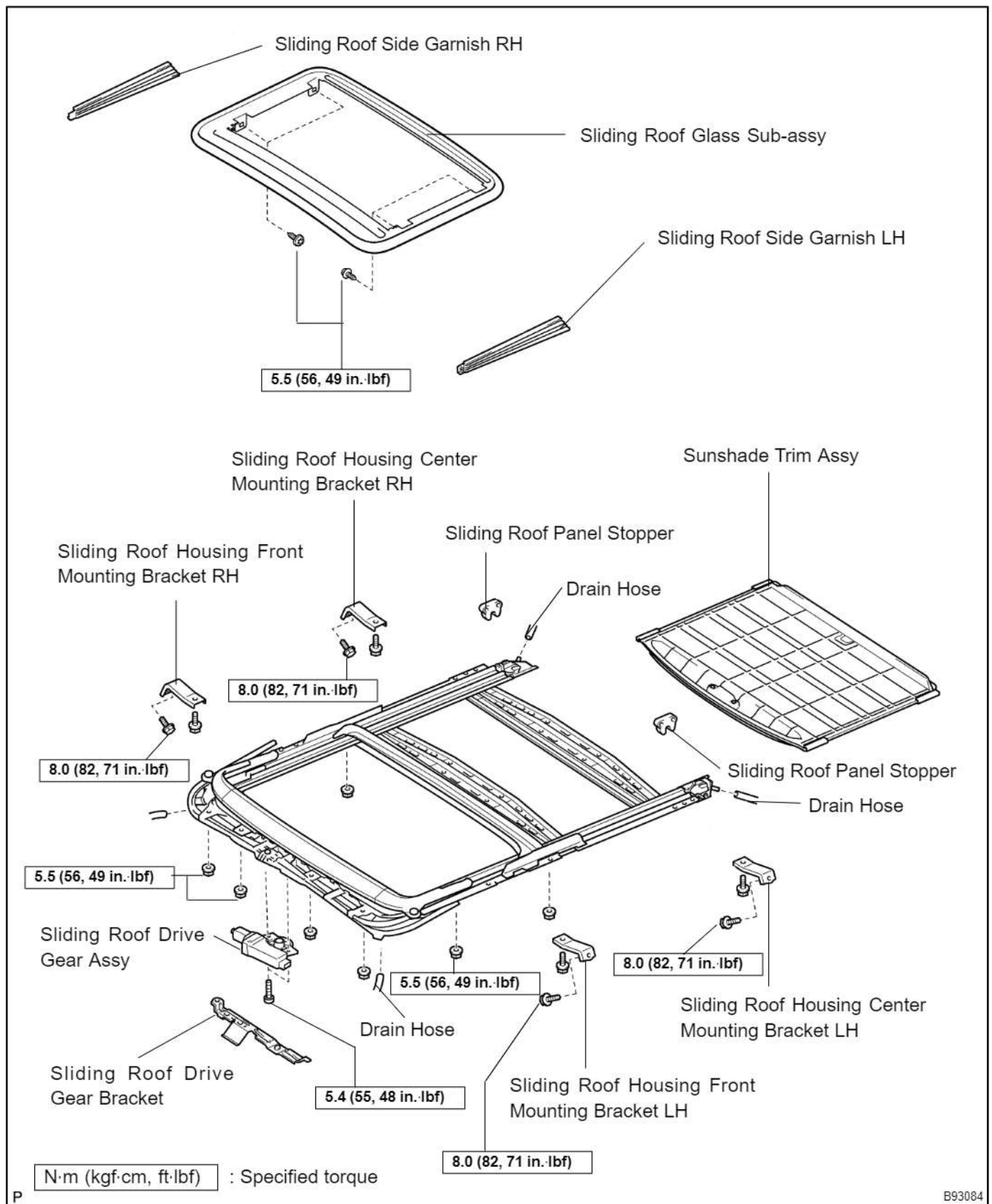
w/ Rear No. 2 Seat

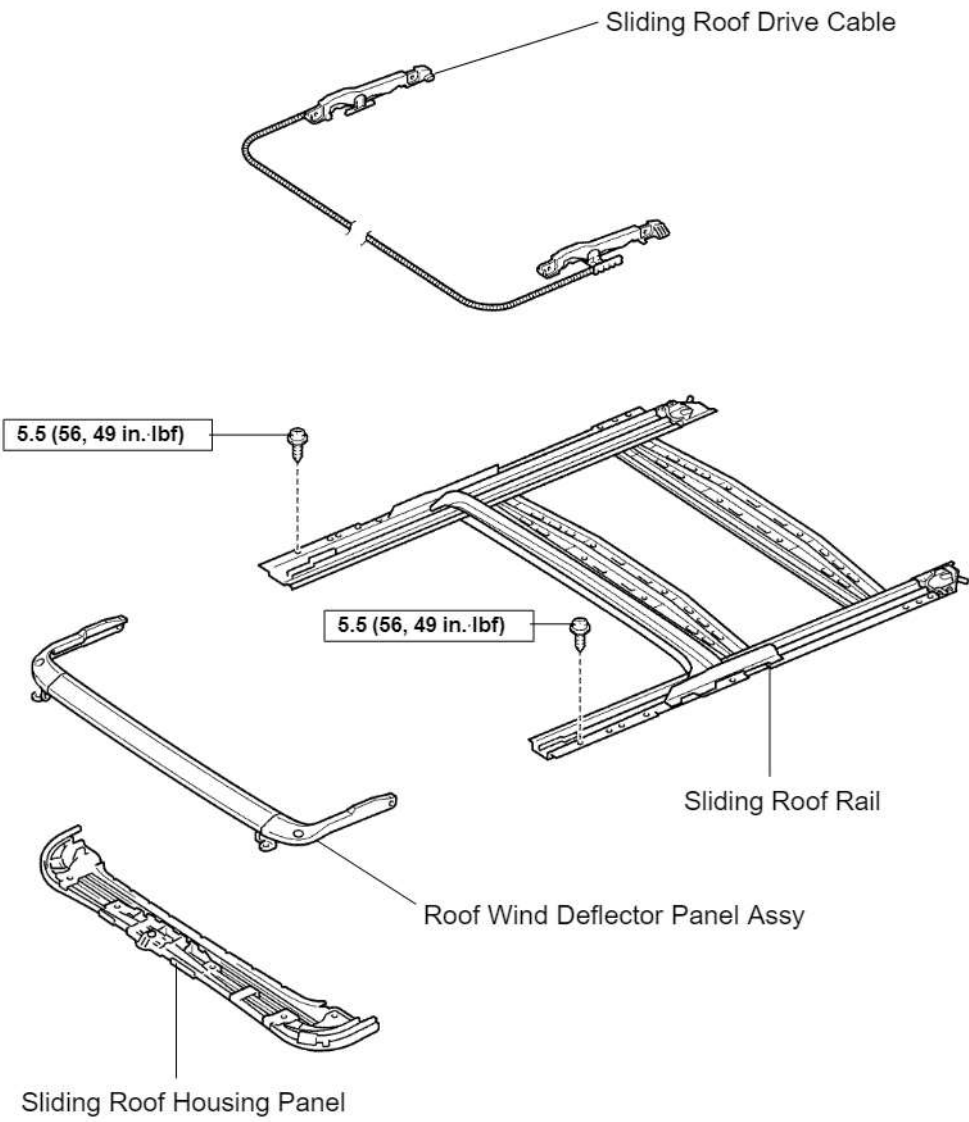


0 N·m (kgf·cm, ft·lbf) : Specified torque

B77612







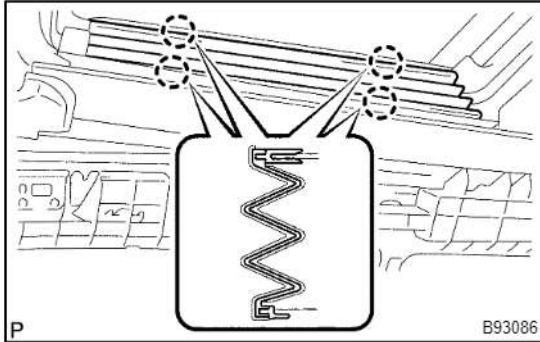
N·m (kgf·cm, ft·lbf) : Specified torque

P

B93085

OVERHAUL

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL
2. REMOVE ROOF HEADLINING ASSY (See page 76-21)



3. REMOVE SLIDING ROOF SIDE GARNISH RH

- (a) Using a screwdriver, detach the 4 claws and remove the garnish.

HINT:

Tape the screwdriver tip before use.

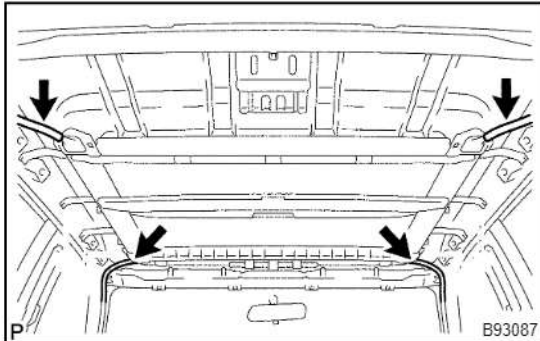
4. REMOVE SLIDING ROOF SIDE GARNISH LH

HINT:

Use the same procedures described for the RH side.

5. REMOVE SLIDING ROOF GLASS SUB-ASSY

- (a) Using a T25 "torx" driver, remove the 4 screws and glass.
- (b) Pull the glass upward to remove it.

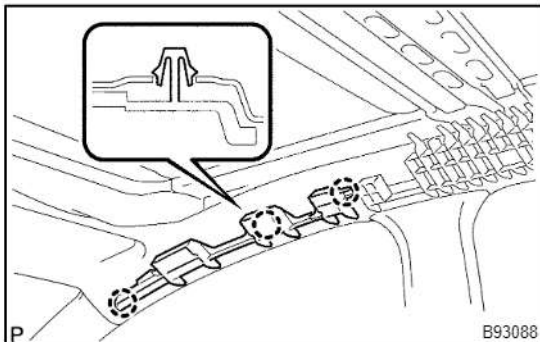


6. DISCONNECT SLIDING ROOF DRAIN HOSE

- (a) Disconnect the 4 drain hoses.

7. REMOVE CURTAIN SHIELD AIRBAG RH (w/ Curtain Shield Airbag) (See page 60-38)

8. REMOVE CURTAIN SHIELD AIRBAG LH (w/ Curtain Shield Airbag) (See page 60-38)



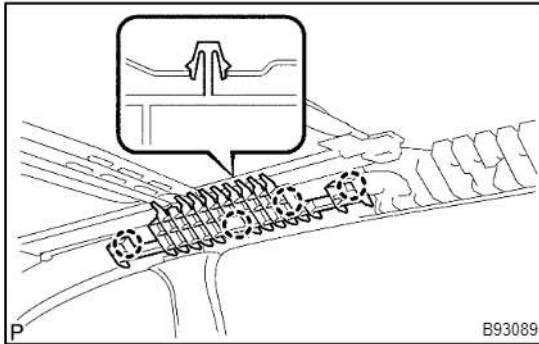
9. REMOVE FRONT SIDE RAIL SPACER RH (w/o Curtain Shield Airbag)

- (a) Detach the 3 claws and remove the rail spacer.

10. REMOVE FRONT SIDE RAIL SPACER LH (w/o Curtain Shield Airbag)

HINT:

Use the same procedures described for the RH side.

**11. REMOVE REAR SIDE RAIL SPACER RH (w/o Curtain Shield Airbag)**

- (a) Detach the 4 claws and remove the rail spacer.

12. REMOVE REAR SIDE RAIL SPACER LH (w/o Curtain Shield Airbag)

HINT:

Use the same procedures described for the RH side.

13. REMOVE SLIDING ROOF HOUSING FRONT MOUNTING BRACKET RH

- (a) Remove the 2 bolts and bracket.

14. REMOVE SLIDING ROOF HOUSING FRONT MOUNTING BRACKET LH

HINT:

Use the same procedures described for the RH side.

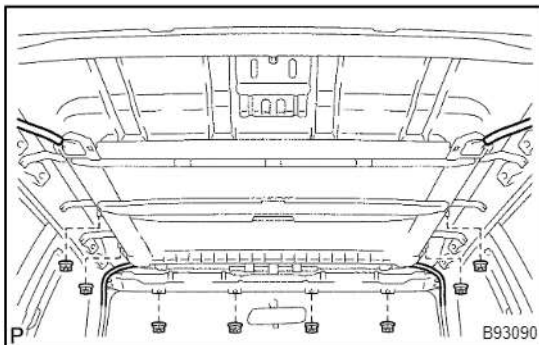
15. REMOVE SLIDING ROOF HOUSING CENTER MOUNTING BRACKET RH

- (a) Remove the 2 bolts and bracket.

16. REMOVE SLIDING ROOF HOUSING CENTER MOUNTING BRACKET LH

HINT:

Use the same procedures described for the RH side.

**17. REMOVE SLIDING ROOF HOUSING SUB-ASSY**

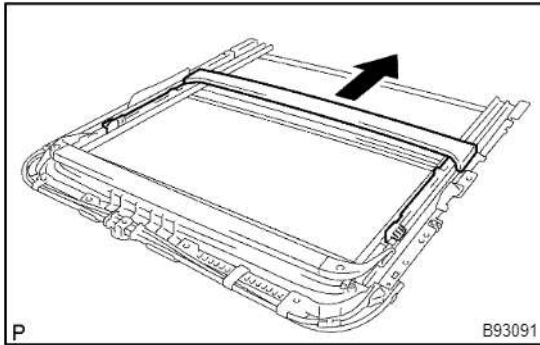
- (a) Disconnect the drive gear connector.
- (b) Remove the 8 nuts and roof housing.

18. REMOVE SLIDING ROOF DRIVE GEAR SUB-ASSY

- (a) Remove the bracket.
- (b) Remove the 2 bolts and drive gear.

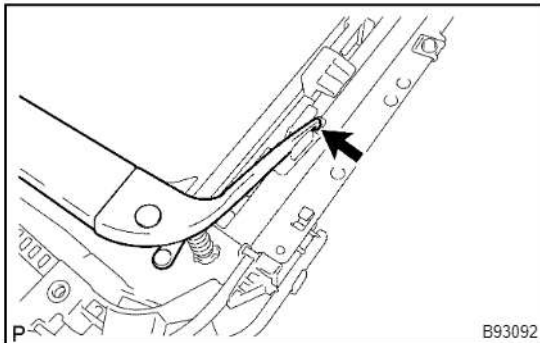
19. REMOVE SUNSHADE TRIM SUB-ASSY

- (a) Remove the 2 stoppers.
- (b) Slide and remove the sunshade trim.

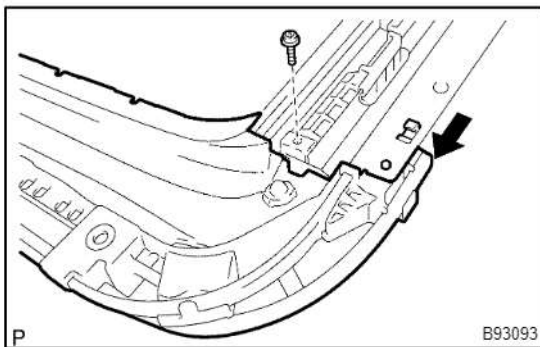


20. REMOVE ROOF WIND DEFLECTOR PANEL SUB-ASSY

- (a) Using a screwdriver, slide the drive cable.



- (b) Detach the claw, and remove the deflector panel.



21. REMOVE SLIDING ROOF HOUSING PANEL

- (a) Remove the screw and housing panel.

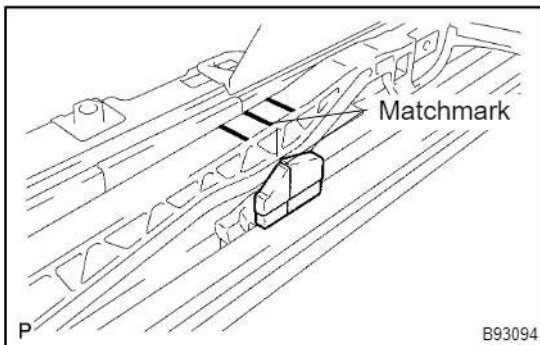
22. REMOVE SLIDING ROOF DRIVE CABLE

- (a) Using a screwdriver, slide the drive cables backward and remove them.

HINT:

Tape the screwdriver tip before use.

23. INSTALL SLIDING ROOF DRIVE CABLE



24. ADJUST FULLY CLOSED POSITION

- (a) Using a screwdriver, slide the sliding roof drive cable LH and RH to align the matchmarks.

HINT: Tape the screwdriver tip before use.

25. INSTALL SLIDING ROOF HOUSING PANEL

- (a) Engage the 2 claws.
(b) Install the housing panel with the 2 screws.

Torque: 5.5 N·m (56 kgf·cm, 49 in·lbf)

26. INSTALL ROOF WIND DEFLECTOR PANEL SUB-ASSY

- (a) Engage the claw, and install the deflector panel.

27. INSTALL SUNSHADE TRIM SUB-ASSY

- (a) Insert the sunshade trim into the sliding roof housing.
(b) Install the 2 stoppers.

28. INSTALL SLIDING ROOF DRIVE GEAR SUB-ASSY

- (a) Install the drive gear with the 2 bolts.
Torque: 5.4 N·m (55 kgf·cm, 48 in.·lbf)
(b) Install the bracket to the drive gear.

29. INSTALL SLIDING ROOF HOUSING SUB-ASSY

- (a) Install the roof housing with the 8 nuts.
Torque: 5.5 N·m (56 kgf·cm, 49 in.·lbf)

- (b) Connect the drive gear connector.

30. INSTALL SLIDING ROOF HOUSING CENTER MOUNTING BRACKET RH

- (a) Install the bracket with the 2 bolts.
Torque: 8.0 N·m (82 kgf·cm, 71 in.·lbf)

31. INSTALL SLIDING ROOF HOUSING CENTER MOUNTING BRACKET LH

HINT:

Use the same procedures described for the RH side.

32. INSTALL SLIDING ROOF HOUSING FRONT MOUNTING BRACKET RH

- (a) Install the bracket with the 2 bolts.
Torque: 8.0 N·m (82 kgf·cm, 71 in.·lbf)

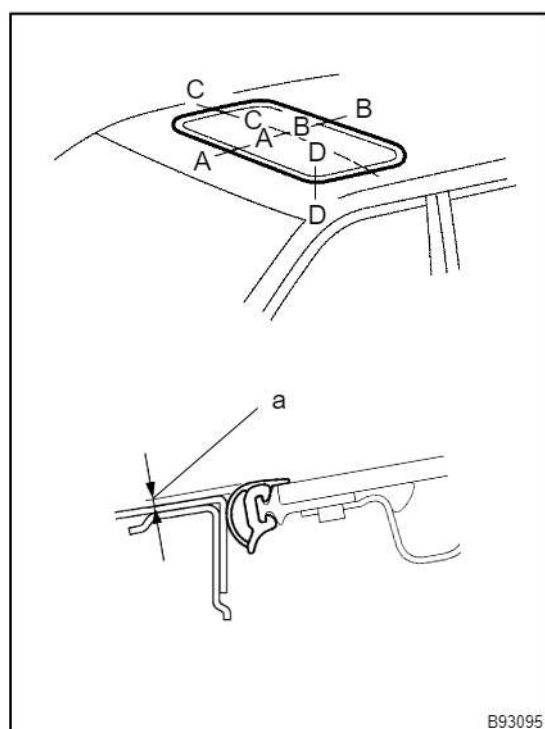
33. INSTALL SLIDING ROOF HOUSING FRONT MOUNTING BRACKET LH

HINT:

Use the same procedures described for the RH side.

34. CONNECT SLIDING ROOF DRAIN HOSE

- (a) Connect the 4 drain hoses.

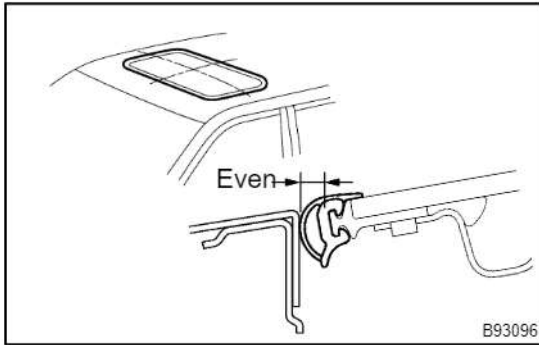
**35. INSTALL SLIDING ROOF GLASS SUB-ASSY**

- (a) Using a T25 "torx driver, temporarily install the sliding roof glass with the 4 screws."
(b) Perform a level check.

Check the difference in level for "a" between the roof panel and the upper surface of the weatherstrip when the sliding roof glass is fully closed.

Standard measurement

Area	Specified Condition
A - A	0 + 1.00 - 2.0 mm 0 + 0.0039 - 0.0079 in.
B - B	0 + 2.00 - 1.0 mm 0 + 0.0079 - 0.0039 in.
C - C	0 ± 1.5 mm 0 ± 0.0059 in.
D - D	0 + 1.50 - 1.0 mm 0 + 0.0059 - 0.0039 in.



- (c) Perform a gap check.

Check the gap between the roof panel and roof glass.

NOTICE:

The gap must be even all around.

- (d) Using a T25 "torx" driver, install the sliding roof glass with the 4 screws.

36. INSTALL SLIDING ROOF SIDE GARNISH RH

- (a) Attach the 4 claws to install the garnish.

37. INSTALL SLIDING ROOF SIDE GARNISH LH

HINT:

Use the same procedures described for the RH side.

38. CHECK FOR WATER LEAKS

- (a) Adjust the sliding roof glass, and check for water leaks.
 (b) If there are any leaks, readjust the sliding roof glass.

39. INSTALL REAR SIDE RAIL SPACER RH (w/o Curtain Shield Airbag)

- (a) Attach the 4 claws to install the rail spacer.

40. INSTALL REAR SIDE RAIL SPACER LH (w/o Curtain Shield Airbag)

HINT:

Use the same procedures described for the RH side.

41. INSTALL FRONT SIDE RAIL SPACER RH (w/o Curtain Shield Airbag)

- (a) Attach the 3 claws to install rail spacer.

42. INSTALL FRONT SIDE RAIL SPACER LH (w/o Curtain Shield Airbag)

HINT:

Use the same procedures described for the RH side.

43. INSTALL CURTAIN SHIELD AIRBAG RH (w/ Curtain Shield Airbag) (See page 60-38)

44. INSTALL CURTAIN SHIELD AIRBAG LH (w/ Curtain Shield Airbag) (See page 60-38)

45. INSTALL ROOF HEADLINING ASSY (See page 76-21)

46. CABLE TO NEGATIVE BATTERY TERMINAL

DATA LIST/ACTIVE TEST

1. CHECK USING INTELLIGENT TESTER

- (a) Connect the intelligent tester to the DLC3.
- (b) Select the DATA LIST mode on the intelligent tester.

Sliding roof ECU:

Item	Switch condition	Standard value
OPEN SW	Pressed → Unpressed	ON/OFF
CLOSE SW	Pressed → Unpressed	ON/OFF
Position detection SW 1	Do sliding and tilting operation	ON/OFF
Position detection SW 2	Do sliding and tilting operation	ON/OFF
HALL IC condition	Do sliding and tilting operation	Normal/ Abnormal
HALL IC out put	Do sliding and tilting operation	ON/OFF
IG	Ignition Switch ON → OFF	ON/OFF
IG line signal	Ignition Switch ON → OFF	ON/OFF
Operation possible after key-OFF	Ignition Switch ON → OFF	ON/OFF

- (c) The active test will indicate if the part is normal or malfunctioning.

Sliding roof ECU:

Item	Condition
Sliding Roof	CLOSE/ UP
Sliding Roof	OPEN/DOWN

HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

Troubleshoot in accordance with the procedures on the following pages.

1 VEHICLE BROUGHT TO WORKSHOP



2 CUSTOMER PROBLEM ANALYSIS



3 PROBLEM SYMPTOM CONFIRMATION

- (a) If the symptom does not occur, proceed to A.
- (b) If the symptom occurs, proceed to B.

A

SYMPTOM SIMULATION

B

4 PROBLEM SYMPTOM TABLE



5 CIRCUIT INSPECTION



6 IDENTIFICATION OF PROBLEM



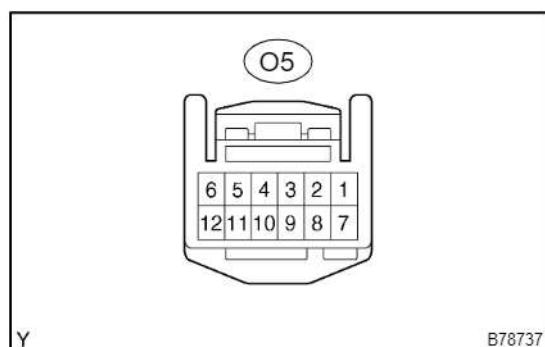
7 REPAIR OR REPLACE



8 CONFIRMATION TEST



END



INSPECTION

1. INSPECT SLIDING ROOF SWITCH ASSY

- (a) Disconnect the sliding roof switch connector, and check the voltage or continuity of each terminal of the connector.

Standard

Symbols (Terminal No.)	Wiring color	Condition	Specified condition
UP (O5 - 6) ⇔ Body ground	G ⇔ -	Each switch OFF	Continuity
DOWN (O5 - 4) ⇔ Body ground	W ⇔ -	Each switch OFF	Continuity
UP (O5 - 6) ⇔ Body ground	G ⇔ -	• Ignition switch ON • Sliding roof fully closed • Slide open switch OFF → ON (Slide open side)	0 V → 10 to 14 V
DOWN (O5 - 4) ⇔ Body ground	W ⇔ -	• Ignition switch ON • Sliding roof fully closed • Slide open switch OFF → ON (Slide open side)	0 V → 10 to 14 V
IG (O5 - 9) ⇔ Body ground	GR ⇔ -	Ignition switch ON	0 V → 10 to 14 V
GND (O5 - 1) ⇔ Body ground	W - B ⇔ -	Constant	Continuity

ON-VEHICLE INSPECTION

1. CHECK AUTO OPERATION

HINT:

When pressing the switch for 0.3 seconds or less, the roof glass moves but auto operation does not operate.

- (a) Turn the ignition switch ON.
- (b) When the roof glass is fully closed, check that pressing the slide roof open side of the sliding roof switch for 0.3 seconds or more causes the roof glass to slide and stop at the fully open position.

HINT:

If the slide open side of the sliding roof switch is pressed again, the roof glass will move 45 mm beyond the stored fully open position.

- (c) When the roof glass is fully open, check that pressing the tilt up side of the sliding roof switch for 0.3 seconds or more causes the roof glass to slide to the fully closed position.
- (d) When the roof glass is for 0.3 seconds or more causes the roof glass to tilt to the fully tilted up position. fully closed, check that pressing the tilt up side of the sliding switch
- (e) When roof glass is fully tilted up, check that pressing the slide open side of the sliding roof switch for 0.3 seconds or more causes the roof glass to tilt to the fully tilted down position.
- (f) During auto function operation (slide open/ close, tilt up/down), check that operating the sliding roof switch stops the roof glass.

2. CHECK SLIDING ROOF OPERATION AFTER IGNITION SWITCH IS TURNED OFF (KEY-OFF OPERATION)

- (a) Turn the ignition switch from ON to OFF, and check that the sliding roof operates. Then open the driver side door once, and check that the sliding roof does not operate.
- (b) Turn the ignition switch from ON to OFF and wait for approximately 43 seconds. Check that the sliding roof does not operate.
- (c) Operate the auto (SLIDE OPEN or TILT UP) operation. While the roof glass is in motion, turn the ignition switch from ON to OFF. Check that the auto operation continues until the roof glass opens or closes fully. After the auto operation is completed, check that the sliding roof operation cannot be performed.

3. CHECK JAM PROTECTION FUNCTION (Overload Reverse Operation)

CAUTION:

- Do not use a part of your body, for example, your hand, to check the jam protection.
- Do not allow anything to become caught in the sliding roof by accident in this procedure.
- Perform the inspection from the inside of the vehicle.

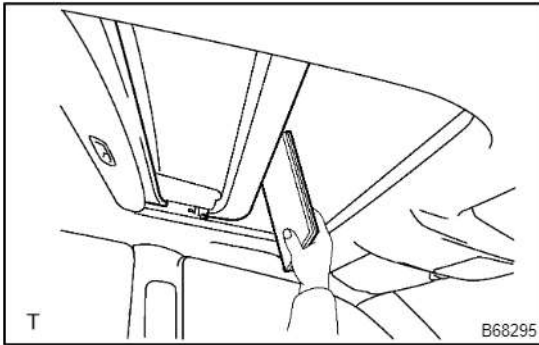
NOTICE:

- Do not use hand objects, such as a hammer, to avoid damage to the roof.
- If the jam protection does not operate, reset the sliding roof drive gear (motor).

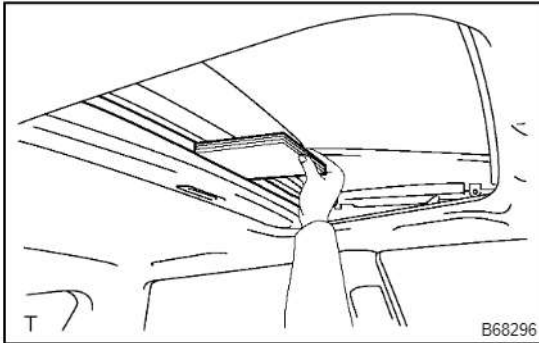
HINT:

The jam protection function operates in any of the following condition:

- AUTO operation
- MANUAL operation
- Sliding close or tiling down roof glass by AUTO operation after key-off operation



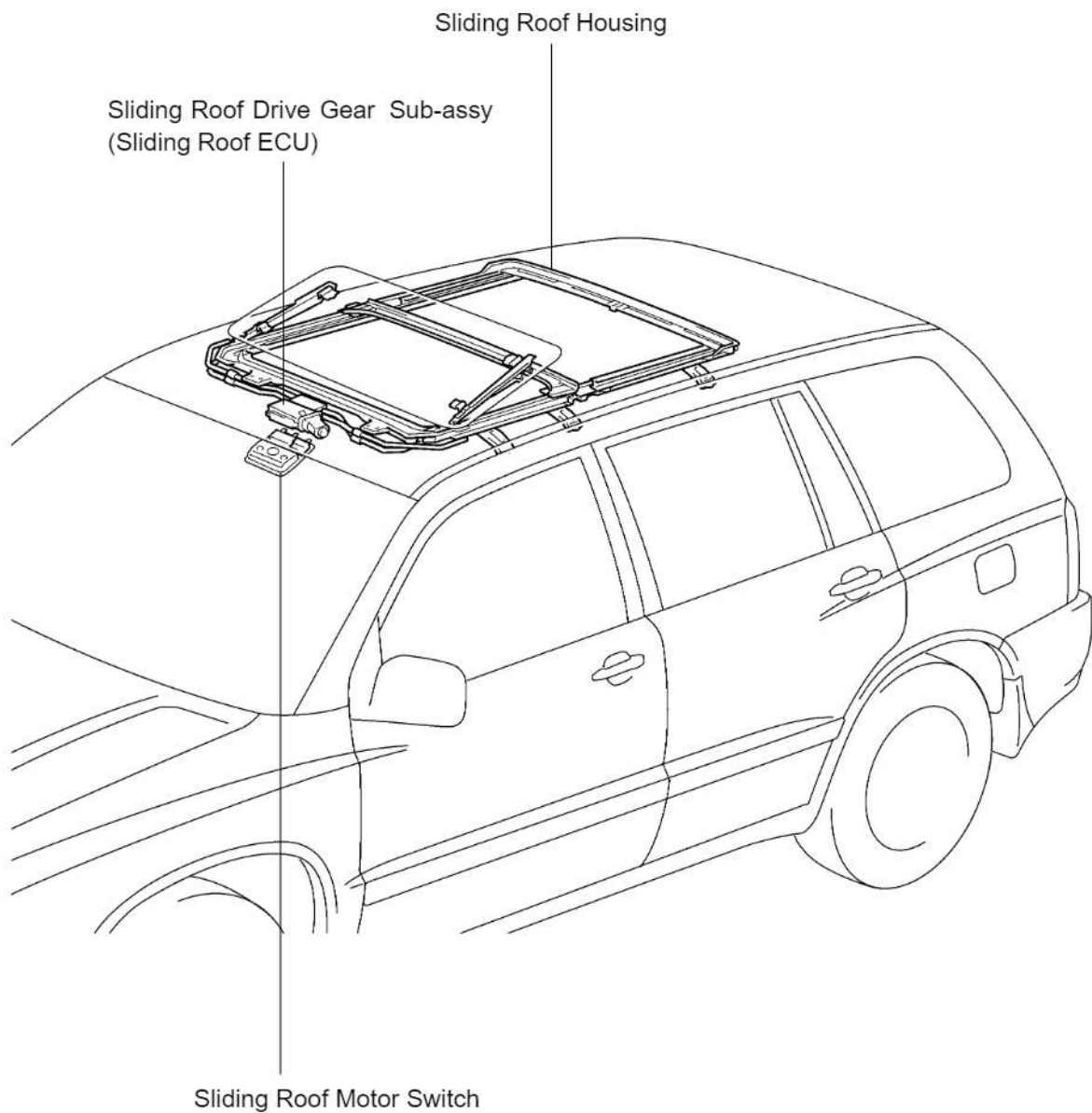
- (a) When the sliding roof auto operation is operating and an object is caught between the vehicle body and glass, check that the roof glass opens a distance of 115 mm (4.53 in.) from the point of contact with the object, or opens fully if an opening distance of 115 mm (4.53 in.) is not available (the maximum operation duration: 20 seconds).



- (b) When the TILT UP DOWN function is operating, and an object is caught between the vehicle body and the roof glass, check that the sliding roof tilts up fully, or tilts up for 2 seconds.
- (c) After the jam protection function operates, check that the roof glass closes fully by the manual operation when the TILT UP switch is pressed for 10 seconds or more.

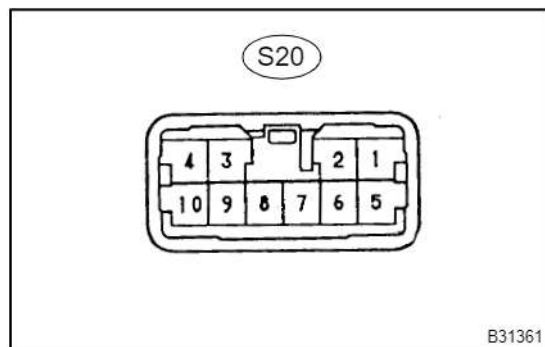
SLIDING ROOF SYSTEM LOCATION

740EB-01



PROBLEM SYMPTOMS TABLE

Symptom	Suspected area	See page
Sliding roof system operates abnormally.	1. Slide roof control switch	74-8
	2. Slide roof drive gear sub-assy	74-4
	3. Wire harness	-
Sliding roof system stops operation half-way. (No foreign materials are trapped in motor assy)	1. Slide roof control switch	74-8
	2. Slide roof drive gear sub-assy	74-4
	3. Wire harness	-



TERMINALS OF ECU

1. **CHECK SLIDING ROOF DRIVE GEAR SUB-ASSY (SLIDING ROOF ECU)**
 - (a) Disconnect the sliding roof ECU connector, and check the voltage or continuity of each terminal of the wire harness side connector.

Symbols (terminal No.)	Wire color	Condition	Specified condition
ECUB (S20 - 5) - Body ground	B ⇔ -	Constant	10 to 14 V
B (S20 - 7) - Body ground	L ⇔ -	Constant	10 to 14 V
E (S20 - 7) - Body ground	W - B ⇔ -	Constant	Continuity

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