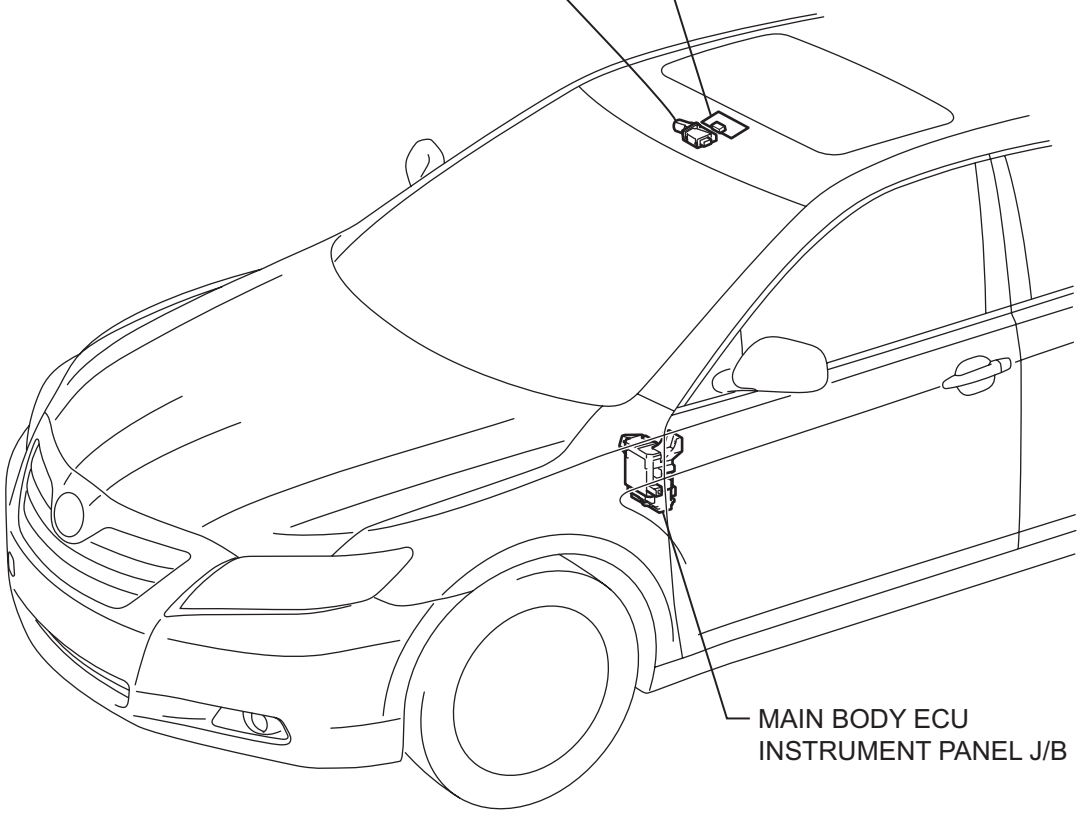
SLIDING ROOF SYSTEM

PARTS LOCATION



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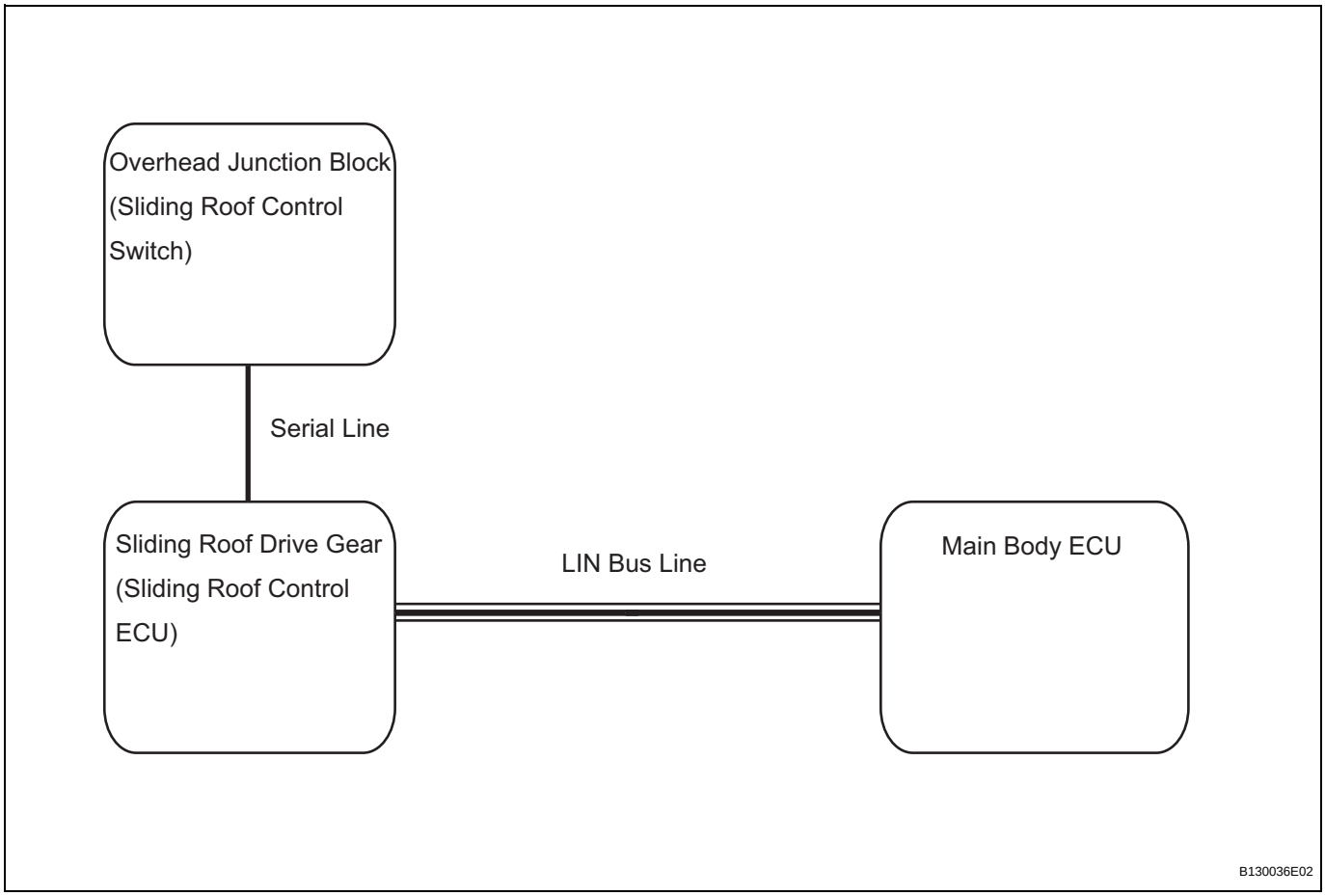
RF

SYSTEM DIAGRAM



Communication table

Sender	Receiver	Signal	Line
Main Body ECU	Sliding Roof Control ECU	Key-off operation signal	LIN

SYSTEM DESCRIPTION

1. GENERAL

This system has the following functions: manual slide open and close; auto slide open and close; manual tilt up and down; auto tilt up and down; jam protection; and key off operation.

2. FUNCTION OF MAIN COMPONENT

Component	Outline
Sliding Roof Drive Gear Sub-assembly (Sliding roof ECU)	Sliding roof ECU controls sliding roof motor to rotate forward and backward, which tilts or slides sliding roof glass.
Overhead Junction Block	Output of operation signals from built-in sliding roof switch to sliding roof ECU is handled by overhead junction block.

3. SYSTEM OPERATION

The sliding roof has the following features:

Function	Outline
Manual slide open and close	This function causes sliding roof to open (or close) when OPEN/CLOSE switch is pressed for a maximum of 0.3 seconds. Sliding roof stops as soon as the switch is released.
Auto slide open and close	This function causes sliding roof to fully open (or close) when OPEN/CLOSE switch is pressed for a minimum of 0.3 seconds.
Manual tilt up and down	This function causes sliding roof to tilt up (or tilt down) when UP/DOWN switch is pressed for a maximum of 0.3 seconds.
Auto tilt up and down	This function enables sliding roof to tilt up (or down) when UP/DOWN switch is pressed for a minimum of 0.3 seconds.
Jam protection	The jam protection function automatically stops sliding roof, or stops sliding roof and makes it open halfway (or fully tilted up) if a foreign object gets jammed in sliding roof during auto close operation (or auto tilt down operation).
Key off operation	Key off operation function makes it possible to operate sliding roof for approximately 43 seconds after ignition switch is turned off, if front doors are not opened.

HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

- Use the following procedures to troubleshoot the sliding roof system.
- *: Use the intelligent tester.

1 VEHICLE BROUGHT TO WORKSHOP

NEXT

2 INSPECT BATTERY VOLTAGE

Standard voltage:
11 to 14 V

If the voltage is below 11 V, recharge or replace the battery before proceeding to the next step.

NEXT

3 INSPECT COMMUNICATION FUNCTION OF CAN COMMUNICATION SYSTEM*

(a) Using the intelligent tester, check if the CAN communication system is functioning normally.

Result

Result	Proceed to
DTC is not output	A
DTC is output	B

B → **Go to CAN COMMUNICATION SYSTEM**

A

4 PROBLEM SYMPTOMS TABLE

Result

Result	Proceed to
Fault is not listed in problem symptoms table	A
Fault is listed in problem symptoms table	B

B → **Go to step 6**

A

5 OVERALL ANALYSIS AND TROUBLESHOOTING*

1. Data List / Active Test (See page RF-9)
2. Terminals of ECU (See page RF-5)
3. On-vehicle Inspection (See page RF-11)

NEXT

6	**ADJUST, REPAIR OR REPLACE**

NEXT

7	**CONFIRMATION TEST**

NEXT

END

INITIALIZATION

1. INITIALIZE SLIDING ROOF DRIVE GEAR SUB-ASSEMBLY

NOTICE:

When replacing the sliding roof drive gear, the sliding roof drive gear requires initialization. If a reset is not executed, the following functions do not operate: auto operation and key off operation.

(a) Turn the ignition switch on (IG).

(b) Make sure that the sliding roof is fully closed.

(c) Push and hold the CLOSE switch or the UP switch until the following movement finishes: Tilt up → approximately 1 second → tilt down → slide open → slide closed.

(d) Check that the sliding roof stops at the fully closed position.

(e) Finish the initialization.

(f) Check that the AUTO operation works normally.

NOTICE:

If the following conditions occur during initialization procedure, initialization will fail.

- **Ignition switch is turned off.**
- **Sliding roof control switch is released while sliding roof is operating.**
- **Vehicle speed is 5 km/h (3 mph) or more.**
- **Communication is cut off.**
- **Another switch is turned on during initialization.**
- **The vehicle experiences a strong vibration during initialization, such as the slamming of a door.**

HINT:

- If the sliding roof cannot be fully closed or its position has become misaligned, perform initialization again.
- If the roof glass stops moving or starts moving in the opposite direction while the CLOSE or UP switch is held down, continue to hold the switch for another 10 seconds or more to return the sliding roof control ECU to an uninitialized condition. Then perform the initialization procedure again.
- If the AUTO operation function and jam protection function do not operate after the drive gear has been reset, replace the sliding roof drive gear (sliding roof ECU).

RF

PROBLEM SYMPTOMS TABLE

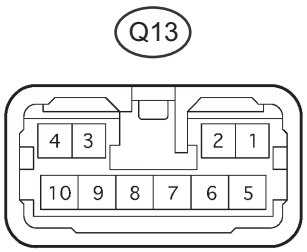
HINT:
Use the table below to help determine the cause of the problem symptom. The potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.
Inspect the fuses and relays related to this system before inspecting the suspected areas below.

Sliding Roof System

Symptom	Suspected area	See page
Sliding function and tilt function do not operate	Sliding roof ECU power source circuit	RF-28
Either sliding function or tilt function does not operate	Sliding roof control switch circuit	RF-25

TERMINALS OF ECU

1. CHECK SLIDING ROOF DRIVE GEAR SUB-ASSEMBLY (SLIDING ROOF CONTROL ECU) (TMC MADE)



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(a) Disconnect the Q13 ECU connector.
(b) Measure the resistance and voltage according to the value(s) in the table below.

RF

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
B (Q13-1) - E (Q13-2)	B - W-B	+B power supply	Always	10 to 14 V
IG (Q13-5) - E (Q13-2)	Y - W-B	Ignition switch power supply	Ignition switch off	Below 1 V
IG (Q13-5) - E (Q13-2)	Y - W-B	Ignition switch power supply	Ignition switch on (IG)	10 to 14 V
OPN (Q13-7) - E (Q13-2)	BR - W-B	Sliding roof motor open	OPEN switch OFF	10 kΩ or higher
OPN (Q13-7) - E (Q13-2)	BR - W-B	Sliding roof motor open	OPEN switch ON	Below 1 Ω
CLS (Q13-9) - E (Q13-2)	L - W-B	Sliding roof motor closed	CLOSE switch OFF	10 kΩ or higher
CLS (Q13-9) - E (Q13-2)	L - W-B	Sliding roof motor closed	CLOSE switch ON	Below 1 Ω
UP (Q13-10) - E (Q13-2)	W - W-B	Sliding roof motor up	UP switch OFF	10 kΩ or higher
UP (Q13-10) - E (Q13-2)	W - W-B	Sliding roof motor up	UP switch ON	Below 1 Ω
DWN (Q13-8) - E (Q13-2)	G - W-B	Sliding roof motor down	DOWN switch OFF	10 kΩ or higher
DWN (Q13-8) - E (Q13-2)	G - W-B	Sliding roof motor down	DOWN switch ON	Below 1 Ω
E (Q13-2) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω

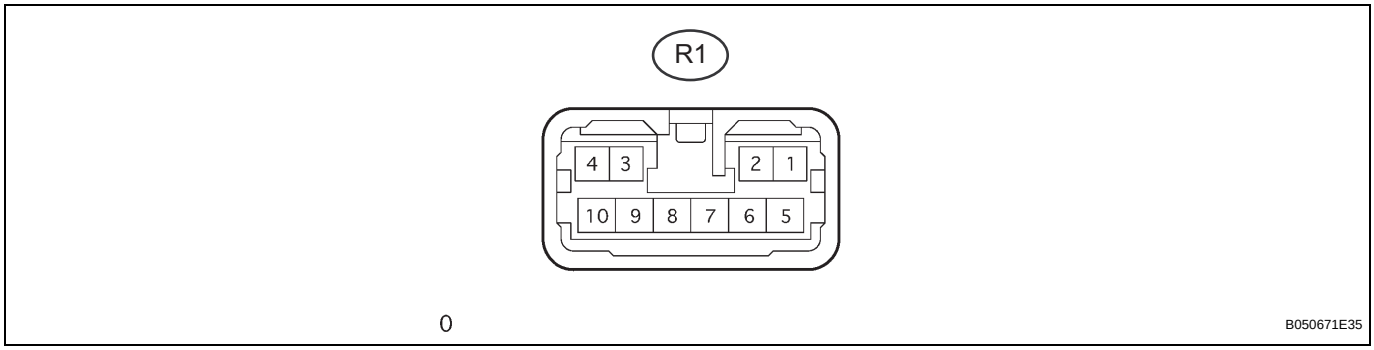
If the result is not as specified, there may be a malfunction on the wire harness side.
(c) Reconnect the Q13 ECU connector.
(d) Measure the voltage according to the value(s) in the table below.

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
OPN (Q13-7) - E (Q13-2)	BR - W-B	Sliding roof motor open	Ignition switch on (IG), sliding roof closed, OPEN switch OFF	Below 1 V
OPN (Q13-7) - E (Q13-2)	BR - W-B	Sliding roof motor open	Ignition switch on (IG), sliding roof closed, OPEN switch ON	10 to 14 V
CLS (Q13-9) - E (Q13-2)	L - W-B	Sliding roof motor closed	Ignition switch on (IG), sliding roof open, CLOSE switch OFF	Below 1 V
CLS (Q13-9) - E (Q13-2)	L - W-B	Sliding roof motor closed	Ignition switch on (IG), sliding roof open, CLOSE switch ON	10 to 14 V
UP (Q13-10) - E (Q13-2)	W - W-B	Sliding roof motor up	Ignition switch on (IG), sliding roof tilted downward, UP switch OFF	Below 1 V

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
UP (Q13-10) - E (Q13-2)	W - W-B	Sliding roof motor up	Ignition switch on (IG), sliding roof tilted downward, UP switch ON	10 to 14 V
DWN (Q13-8) - E (Q13-2)	G - W-B	Sliding roof motor down	Ignition switch on (IG), sliding roof tilted upward, DOWN switch OFF	Below 1 V
DWN (Q13-8) - E (Q13-2)	G - W-B	Sliding roof motor down	Ignition switch on (IG), sliding roof tilted upward, DOWN switch ON	10 to 14 V

If the result is not as specified, the ECU may have a malfunction.

2. CHECK SLIDING ROOF DRIVE GEAR SUB-ASSEMBLY (SLIDING ROOF CONTROL ECU) (TMMK MADE)



(a) Disconnect the R1 ECU connector.
(b) Measure the resistance and voltage according to the value(s) in the table below.

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
B (R1-1) - E (R1-2)	B - W-B	+B power supply	Always	10 to 14 V
IG (R1-5) - E (R1-2)	Y - W-B	Ignition switch power supply	Ignition switch off	Below 1 V
IG (R1-5) - E (R1-2)	Y - W-B	Ignition switch power supply	Ignition switch on (IG)	10 to 14 V
OPN (R1-10) - E (R1-2)	BR - W-B	Sliding roof motor open	OPEN switch OFF	10 kΩ or higher
OPN (R1-10) - E (R1-2)	BR - W-B	Sliding roof motor open	OPEN switch ON	Below 1 Ω
CLS (R1-8) - E (R1-2)	L - W-B	Sliding roof motor closed	CLOSE switch OFF	10 kΩ or higher
CLS (R1-8) - E (R1-2)	L - W-B	Sliding roof motor closed	CLOSE switch ON	Below 1 Ω
UP (R1-9) - E (R1-2)	W - W-B	Sliding roof motor up	UP switch OFF	10 kΩ or higher
UP (R1-9) - E (R1-2)	W - W-B	Sliding roof motor up	UP switch ON	Below 1 Ω
DWN (R1-7) - E (R1-2)	G - W-B	Sliding roof motor down	DOWN switch OFF	10 kΩ or higher
DWN (R1-7) - E (R1-2)	G - W-B	Sliding roof motor down	DOWN switch ON	Below 1 Ω
E (R1-2) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω

If the result is not as specified, there may be a malfunction on the wire harness side.
(c) Reconnect the R1 ECU connector.
(d) Measure the voltage according to the value(s) in the table below.

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
OPN (R1-10) - E (R1-2)	BR - W-B	Sliding roof motor open	Ignition switch on (IG), sliding roof closed, OPEN switch OFF	Below 1 V

RF

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
OPN (R1-10) - E (R1-2)	BR - W-B	Sliding roof motor open	Ignition switch on (IG), sliding roof closed, OPEN switch ON	10 to 14 V
CLS (R1-8) - E (R1-2)	L - W-B	Sliding roof motor closed	Ignition switch on (IG), sliding roof open, CLOSE switch OFF	Below 1 V
CLS (R1-8) - E (R1-2)	L - W-B	Sliding roof motor closed	Ignition switch on (IG), sliding roof open, CLOSE switch ON	10 to 14 V
UP (R1-9) - E (R1-2)	W - W-B	Sliding roof motor up	Ignition switch on (IG), sliding roof tilted downward, UP switch OFF	Below 1 V
UP (R1-9) - E (R1-2)	W - W-B	Sliding roof motor up	Ignition switch on (IG), sliding roof tilted downward, UP switch ON	10 to 14 V
DWN (R1-7) - E (R1-2)	G - W-B	Sliding roof motor down	Ignition switch on (IG), sliding roof tilted upward, DOWN switch OFF	Below 1 V
DWN (R1-7) - E (R1-2)	G - W-B	Sliding roof motor down	Ignition switch on (IG), sliding roof tilted upward, DOWN switch ON	10 to 14 V

RF

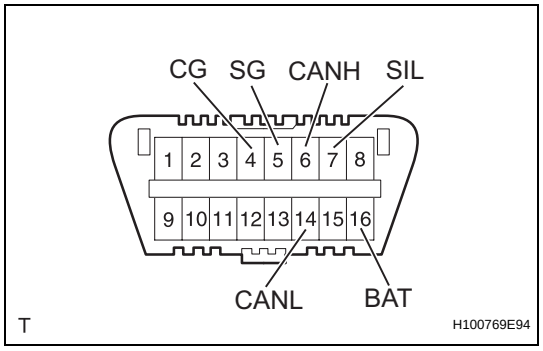
If the result is not as specified, the ECU may have a malfunction.

DIAGNOSIS SYSTEM

1. DESCRIPTION

(a) Sliding roof system data and Diagnostic Trouble Codes (DTCs) can be read through the vehicle's Data Link Connector 3 (DLC3). When the system seems to be malfunctioning, use the intelligent tester to check for malfunctions and perform repairs.

2. CHECK DLC3



HINT:

The ECU uses ISO 15765-4 for communication. The terminal arrangement of the DLC3 complies with SAE J1962 and matches the ISO 15765-4 format. If the result is not as specified, the DLC3 may have a malfunction. Repair or replace the harness and connector.

RF

Symbols (Terminals No.)	Terminal Description	Condition	Specified Condition
SIL (7) - SG (5)	Bus "+" line	During transmission	Pulse generation
CG (4) - Body ground	Chassis ground	Always	Below 1 Ω
SG (5) - Body ground	Signal ground	Always	Below 1 Ω
BAT (16) - Body ground	Battery positive	Always	11 to 14 V
CANH (6) - CANL (14)	CAN bus line	Ignition switch off*	54 to 69 Ω
CANH (6) - CG (4)	CAN bus line	Ignition switch off*	200 Ω or higher
CANL (14) - CG (4)	CAN bus line	Ignition switch off*	200 Ω or higher
CANH (6) - BAT (16)	CAN bus line	Ignition switch off*	6 kΩ or higher
CANL (14) - BAT (16)	CAN bus line	Ignition switch off*	6 kΩ or higer

NOTICE:

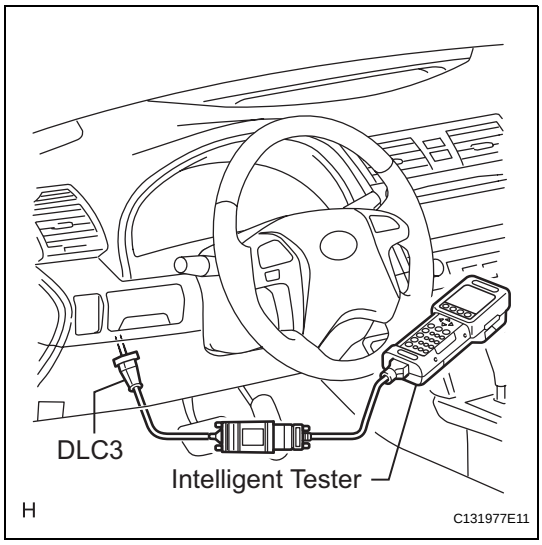
***: Before measuring the resistance, leave the vehicle as is for at least 1 minute and do not operate the ignition switch, any other switches or the doors.**

If the result is not as specified, the DLC3 may have a malfunction. Repair or replace the harness and connector.

HINT:

Connect the cable of the intelligent tester to the DLC3, turn the ignition switch on (IG) and attempt to use the tester. If the display indicates that a communication error has occurred, there is a problem either with the vehicle or with the tester.

- If communication is normal when the tester is connected to another vehicle, inspect the DLC3 of the original vehicle.
- If communication is still not possible when the tester is connected to another vehicle, the problem may be in the tester itself. Consult the Service Department listed in the tester's instruction manual.



3. INSPECT BATTERY VOLTAGE

Standard voltage:

11 to 14 V

If the voltage is below 11 V, recharge or replace the battery before proceeding to the next step.

DATA LIST / ACTIVE TEST

1. READ DATA LIST

HINT:

Using the intelligent tester's Data List allows switch, sensor, actuator and other item values to be read without removing any parts. Reading the Data List early in troubleshooting is one way to save time.

(a) Connect the intelligent tester to the DLC3.
(b) Turn the ignition switch on (IG).
(c) Read the Data List according to the display on the tester.

SLIDE ROOF:

Item	Measurement Item/Display (Range)	Normal Condition	Diagnostic Note
OPEN SW	Slide switch open signal/ON or OFF	ON: OPEN switch is pressed. OFF: OPEN switch is not pressed.	-
CLOSE SW	Slide switch close signal/ON or OFF	ON: CLOSE switch is pressed. OFF: CLOSE switch is not pressed.	-
UP SW	Tilt switch up signal/ON or OFF	ON: UP switch is pressed. OFF: UP switch is not pressed.	-
DOWN SW	Tilt switch down signal/ON or OFF	ON: DOWN switch is pressed. OFF: DOWN switch is not pressed.	-
HALL IC1 STATUS	Sliding roof operation signal/ NORMAL or LOCK	NORMAL: Sliding roof motor is operating. LOCK: Sliding roof motor is not operating.	-
HALL IC1 PULSE	Sliding roof operation signal/LO or HI	LO: Sliding roof motor is not operating. HI: Sliding roof motor is operating.	-
HALL IC2 STATUS	Sliding roof operation signal/ NORMAL or LOCK	NORMAL: Sliding roof motor is operating. LOCK: Sliding roof motor is not operating.	-
HALL IC2 PULSE	Sliding roof operation signal/LO or HI	LO: Sliding roof motor is not operating. HI: Sliding roof motor is operating.	-
D-DOOR WARN SW	Driver's door courtesy light switch signal/ON or OFF	ON: Driver's door is open. OFF: Driver's door is closed.	-
IG (MPX)	Ignition switch signal (MPX signal)/ON or OFF	ON: Ignition switch on (IG) OFF: Ignition switch off	-
IG (DIRCT SIG)	Ignition switch signal/ON or OFF	ON: Ignition switch on (IG) OFF: Ignition switch off	-
KEY OFF PERMS	Key-OFF sliding roof operation permit signal (Current)/ON or OFF	ON: Driver's side door is not closed within 45 sec. after ignition switch is turned off. OFF: Any status except "ON" status	-
CURRENT DOWN SW	Down switch failure signal (Current)/Fail or Not Fail	Fail: Sliding roof tilt down signal failure (Current) Not Fail: Sliding roof tilt down signal not fail (Current)	-
CURRENT UP SW	Up switch failure signal (Current)/ Fail or Not Fail	Fail: Sliding roof tilt up signal failure (Current) Not Fail: Sliding roof tilt up signal not fail (Current)	-

Item	Measurement Item/Display (Range)	Normal Condition	Diagnostic Note
CURRENT CLS SW	Close switch failure signal (Current)/Fail or Not Fail	Fail: Sliding roof close signal failure (Current) Not Fail: Sliding roof close signal not fail (Current)	-
CURRENT OPN SW	Open switch failure signal (Current)/Fail or Not Fail	Fail: Sliding roof open signal failure (Current) Not Fail: Sliding roof open signal not fail (Current)	-
PAST DOWN SW	Down switch failure signal (Past)/ Fail or Not Fail	Fail: Sliding roof tilt down signal failure (Past) Not Fail: Sliding roof tilt down signal not fail (Past)	-
PAST UP SW	Up switch failure signal (Past)/ Fail or Not Fail	Fail: Sliding roof tilt up signal failure (Past) Not Fail: Sliding roof tilt up signal not fail (Past)	-
PAST CLS SW	Close switch failure signal (Past)/ Fail or Not Fail	Fail: Sliding roof close signal failure (Past) Not Fail: Sliding roof close signal not fail (Past)	-
PAST OPN SW	Open switch failure signal (Past)/ Fail or Not Fail	Fail: Sliding roof open signal failure (Past) Not Fail: Sliding roof open signal not fail (Past)	-
#CODE	Number of trouble code	Number of trouble code	-

RF

2. PERFORM ACTIVE TEST

HINT:

Performing the intelligent tester's Active Test allows relay, VSV, actuator and other items to be operated without removing any parts. Performing the Active Test early in troubleshooting is one way to save time. The Data List can be displayed during the Active Test.

(a) Connect the intelligent tester to the DLC3.
(b) Turn the ignition switch on (IG).
(c) Perform the Active Test according to the display on the tester.

SLIDE ROOF:

Item	Test Details	Diagnostic Note
SLIDE ROOF	Operate sliding roof SLIDE CLOSE/TILT UP CLOS/UP: Sliding roof SLIDE CLOSE or TILT UP operation occurs. OFF: Sliding roof is not operating	-
SLIDE ROOF	Operate sliding roof SLIDE OPEN/TILT DOWN OPEN/DWN: Sliding roof SLIDE OPEN or TILT DOWN operation occurs OFF: Sliding roof is not operating	-

DIAGNOSTIC TROUBLE CODE CHART

If any trouble code is displayed during DTC check, check the circuit corresponding to the code in the table below. Proceed to the page given for the circuit.

Sliding Roof System

DTC No.	Detection Item	Trouble Area	See page
B2341	Sensor (Motor) Failure	1. Sliding roof drive gear sub-assembly (Sliding roof control ECU) 2. Roof console box assembly (Sliding roof control switch) 3. Wire harness	RF-14
B2342	Switch Failure	1. Sliding roof drive gear sub-assembly (Sliding roof control ECU) 2. Roof console box assembly (Sliding roof control switch) 3. Wire harness	RF-18
B2343	Position Initialization Incomplete	1. Sliding roof drive gear sub-assembly (Sliding roof control ECU) 2. Roof console box assembly (Sliding roof control switch) 3. Wire harness	RF-22
B2344	Position Failure	1. Sliding roof drive gear sub-assembly (Sliding roof control ECU) 2. Roof console box assembly (Sliding roof control switch) 3. Wire harness	RF-14

ON-VEHICLE INSPECTION

1. CHECK AUTO OPERATION

(a) Turn the ignition switch on (IG).

(b) When the roof glass is fully closed, press the OPEN switch for 0.3 seconds or more. Check that the roof glass automatically slides until it is fully opened.

(c) When the roof glass is fully open, press the CLOSE switch for 0.3 seconds or more. Check that the roof glass automatically slides until it is fully closed.

(d) When the roof glass is fully closed, press the UP switch for 0.3 seconds or more. Check that the roof glass automatically tilts until it is fully tilted upward.

(e) When the roof glass is fully open, press the DOWN switch for 0.3 seconds or more. Check that the roof glass automatically tilts until it is fully tilted downward.

(f) When the auto operation is operating, check that pressing any personal light switch stops the roof glass operation.

HINT:

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

2. CHECK SLIDING ROOF OPERATION AFTER IGNITION SWITCH IS TURNED OFF

(a) Turn the ignition switch from on (IG) to off, and check that the sliding roof operates. Then open and close the driver's side door once, and check that the sliding roof does not operate.

(b) Turn the ignition switch from on (IG) to off and wait for approximately 43 seconds. Check that the sliding roof does not operate.

(c) Operate the auto (SLIDE OPEN/CLOSE or TILT UP/DOWN) operation. While the roof glass is in motion, turn the ignition switch from on (IG) to off. Check that the auto operation continues until the roof glass opens or closes fully.

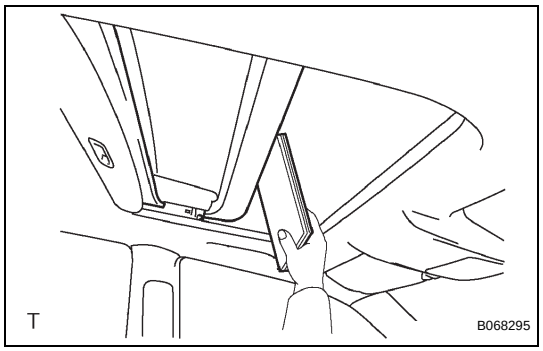
3. CHECK JAM PROTECTION FUNCTION

CAUTION:

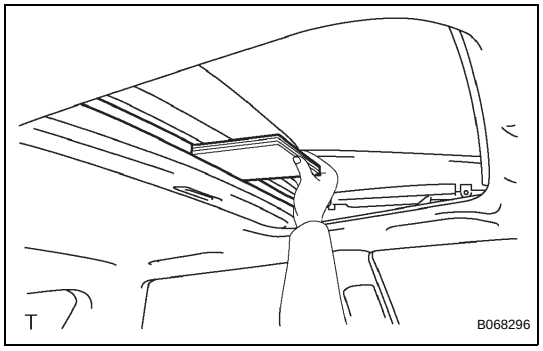
- **Do not use a part of your body, for example, your hand, to check the jam protection.**
- **Do not allow anything to become caught in the sliding roof by accident in this procedure.**
- **Perform the inspection from the inside of the vehicle.**

NOTICE:

- **Do not use hard 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).**



(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 218 mm (8.58 in.) from the point of contact with the object, or opens fully if there is not an opening distance of 218 mm (8.58 in.).



(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.

DTC	B2341	Sensor (Motor) Failure

DTC	B2344	Position Failure

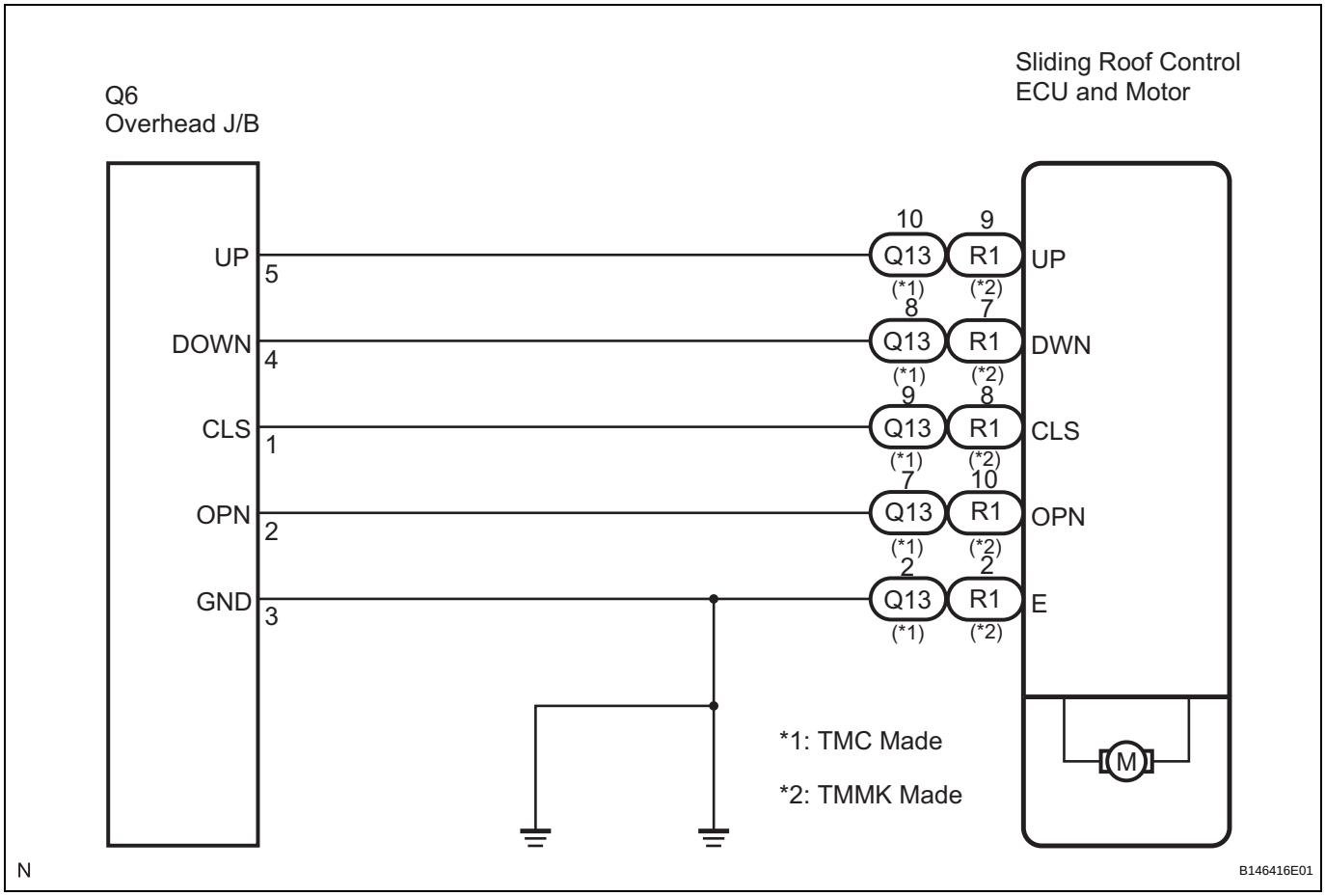
DESCRIPTION

When the sliding roof drive gear sub-assembly (sliding roof control ECU) detects malfunctions in the motor, and the sliding roof operation is stopped, DTC B2341 is output. When the sliding roof drive gear sub-assembly (sliding roof control ECU) detects malfunctions in the gear, and the sliding roof operation is stopped, DTC B2344 is output.

DTC No.	DTC Detection Condition	Trouble Area
B2341	Sensor (motor) Failure	• Sliding roof drive gear sub-assembly (sliding roof control ECU) • Roof console box assembly (sliding roof control switch) • Wire harness
B2344	Position Failure	• Sliding roof drive gear sub-assembly (sliding roof control ECU) • Roof console box assembly (sliding roof control switch) • Wire harness

RF

WIRING DIAGRAM



INSPECTION PROCEDURE

1	CHECK SLIDING ROOF FUNCTION

(a) Check the auto operation with the OPEN, DOWN, CLOSE and UP switches (See page RF-11).
OK:
Auto operation operates normally with OPEN, DOWN, CLOSE and UP switches.

NG → **Go to step 3**

OK

2	DELETE DTC

(a) Delete the DTCs (See page RF-8).

NEXT

END

3	INITIALIZE SLIDING ROOF DRIVE GEAR SUB-ASSEMBLY (SLIDING ROOF CONTROL ECU)

(a) Check that the sliding roof drive gear sub-assembly can be initialized (See page RF-4).
OK:
Sliding roof drive gear sub-assembly can be initialized.

NG → **Go to step 6**

OK

4	CHECK SLIDING ROOF FUNCTION

(a) Check the auto operation with the OPEN, DOWN, CLOSE and UP switches (See page RF-11).
OK:
Auto operation operates normally with OPEN, DOWN, CLOSE and UP switches.

NG → **REPLACE SLIDING ROOF DRIVE GEAR SUB-ASSEMBLY (SLIDING ROOF CONTROL ECU)**

OK

5	DELETE DTC

(a) Delete the DTCs (See page RF-8).

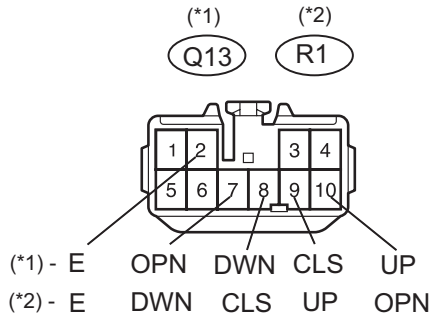
RF

NEXT

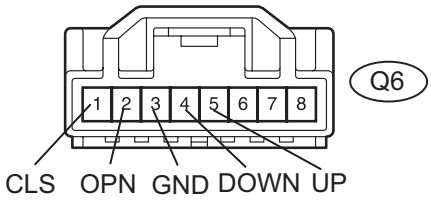
END

6 CHECK WIRE HARNESS (SLIDING ROOF CONTROL ECU - ROOF CONSOLE BOX ASSEMBLY)

Sliding Roof Control ECU Connector:



Roof Console Box Assembly Connector:



N B131169E02

(a) Disconnect the Q13 (*1) or R1 (*2) and Q6 connectors.
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
Q13-2 (E) - Q6-3 (GND) (*1)	Always	Below 1 Ω
Q13-7 (OPN) - Q6-2 (OPN) (*1)	Always	Below 1 Ω
Q13-8 (DWN) - Q6-4 (DOWN) (*1)	Always	Below 1 Ω
Q13-9 (CLS) - Q6-1 (CLS) (*1)	Always	Below 1 Ω
Q13-10 (UP) - Q6-5 (UP) (*1)	Always	Below 1 Ω
R1-2 (E) - Q6-3 (GND) (*2)	Always	Below 1 Ω
R1-7 (DWN) - Q6-4 (DOWN) (*2)	Always	Below 1 Ω
R1-8 (CLS) - Q6-1 (CLS) (*2)	Always	Below 1 Ω
R1-9 (UP) - Q6-5 (UP) (*2)	Always	Below 1 Ω
R1-10 (OPN) - Q6-2 (OPN) (*2)	Always	Below 1 Ω
Q6-1 (CLS) - Body ground	Always	10 kΩ or higher
Q6-2 (OPN) - Body ground	Always	10 kΩ or higher
Q6-3 (GND) - Body ground	Always	Below 1 Ω
Q6-4 (DOWN) - Body ground	Always	10 kΩ or higher
Q6-5 (UP) - Body ground	Always	10 kΩ or higher

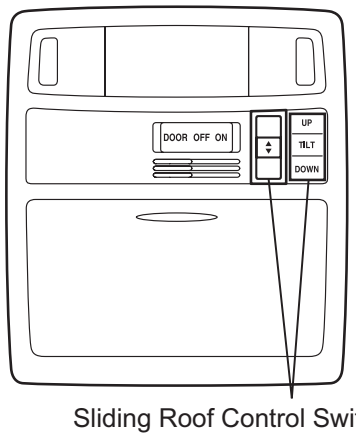
HINT:
- *1: TMC made
- *2: TMMK made

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

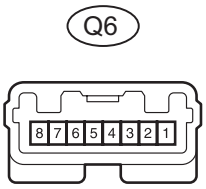
OK

7	INSPECT ROOF CONSOLE BOX ASSEMBLY (SLIDING ROOF CONTROL SWITCH)

Roof Console Box Assembly Connector:



Sliding Roof Control Switch



N B131165E02

(a) Remove the roof console box assembly.
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Switch Position	Specified Condition
Q6-1 (CLS) - Q6-3 (GND)	CLOSE	Below 100 Ω
Q6-2 (OPN) - Q6-3 (GND)	OPEN	Below 100 Ω
Q6-4 (DOWN) - Q6-3 (GND)	DOWN	Below 100 Ω
Q6-5 (UP) - Q6-3 (GND)	UP	Below 100 Ω
Q6-1 (CLS) - Q6-3 (GND)	OPEN	1 kΩ or higher
Q6-2 (OPN) - Q6-3 (GND)	CLOSE	1 kΩ or higher
Q6-4 (DOWN) - Q6-3 (GND)	UP	1 kΩ or higher
Q6-5 (UP) - Q6-3 (GND)	DOWN	1 kΩ or higher

RF

NG → **REPLACE ROOF CONSOLE BOX ASSEMBLY (SLIDING ROOF CONTROL SWITCH)**

OK

REPLACE SLIDING ROOF DRIVE GEAR SUB-ASSEMBLY (SLIDING ROOF CONTROL ECU)

DTC	B2342	Switch Failure

DESCRIPTION

This DTC is output when the sliding roof drive gear sub-assembly (sliding roof control ECU) detects that the OPEN, CLOSE, UP or DOWN switch in the roof console box assembly (sliding roof control switch) is stuck for 30 seconds or more.

DTC No.	DTC Detection Condition	Trouble Area
B2342	Sliding roof drive gear sub-assembly (sliding roof control ECU) detects OPEN, CLOSE, UP or DOWN switch in overhead junction block is stuck for 30 seconds or more	• Sliding roof drive gear sub-assembly (sliding roof control ECU) • Roof console box assembly (sliding roof control switch) • Wire harness

WIRING DIAGRAM

Refer to DTC B2341 (See page RF-14).

RF

INSPECTION PROCEDURE

1	READ VALUE OF INTELLIGENT TESTER (SLIDE OPEN AND TILT UP SWITCH)

(a) Use the DATA LIST to check if the sliding roof switch is functioning properly.

Sliding roof ECU

Item	Measurement Item/Range (Display)	Normal Condition	Diagnostic Note
OPEN SW	Slide switch open signal/ON or OFF	ON: OPEN switch is pressed. OFF: OPEN switch is not pressed.	-
CLOSE SW	Slide switch close signal/ON or OFF	ON: CLOSE switch is pressed. OFF: CLOSE switch is not pressed.	-
UP SW	Tilt switch up signal/ON or OFF	ON: UP switch is pressed. OFF: UP switch is not pressed.	-
DOWN SW	Tilt switch down signal/ON or OFF	ON: DOWN switch is pressed. OFF: DOWN switch is not pressed.	-

OK:

The intelligent tester displays as shown in the table according to the operation of each switch.

NG → **Go to step 4**

OK

2	CHECK SLIDING ROOF FUNCTION

(a) Check the auto operation with the OPEN, CLOSE, UP and DOWN switches (See page RF-11).

OK:

Auto operation operates normally with OPEN, CLOSE, UP and DOWN switches.

NG → **Go to step 7**

OK

3	DELETE DTC

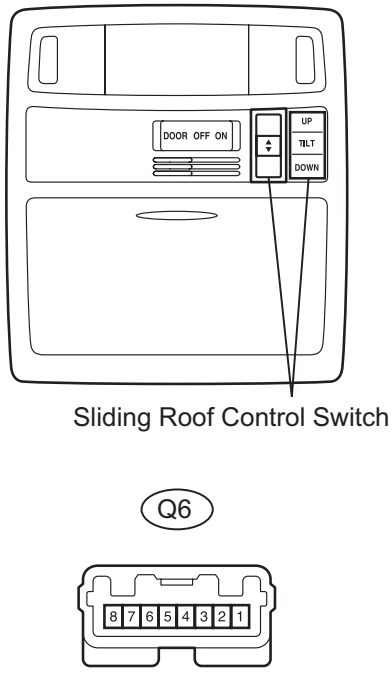
(a) Delete the DTCs (See page RF-8).

NEXT

END

4	INSPECT ROOF CONSOLE BOX ASSEMBLY (SLIDING ROOF CONTROL SWITCH)

Roof Console Box Assembly Connector:



Sliding Roof Control Switch

(a) Remove the roof console box assembly.
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Switch Position	Specified Condition
Q6-1 (CLS) - Q6-3 (GND)	CLOSE	Below 100 Ω
Q6-2 (OPN) - Q6-3 (GND)	OPEN	Below 100 Ω
Q6-4 (DOWN) - Q6-3 (GND)	DOWN	Below 100 Ω
Q6-5 (UP) - Q6-3 (GND)	UP	Below 100 Ω
Q6-1 (CLS) - Q6-3 (GND)	OPEN	1 kΩ or higher
Q6-2 (OPN) - Q6-3 (GND)	CLOSE	1 kΩ or higher
Q6-4 (DOWN) - Q6-3 (GND)	UP	1 kΩ or higher
Q6-5 (UP) - Q6-3 (GND)	DOWN	1 kΩ or higher

OK → Go to step 10

NG

5	REPLACE ROOF CONSOLE BOX ASSEMBLY (SLIDING ROOF CONTROL SWITCH)

(a) Temporarily replace the roof console box assembly (sliding roof control switch) with a new one or normally functioning one (See page LI-105).

NEXT

RF

6	DELETE DTC

(a) Delete the DTCs (See page RF-8).

NEXT

END

7	INITIALIZE SLIDING ROOF DRIVE GEAR SUB-ASSEMBLY (SLIDING ROOF CONTROL ECU)

(a) Check that the sliding roof drive gear sub-assembly can be initialized (See page RF-4).

OK:

Sliding roof drive gear sub-assembly can be initialized.

NG → **Go to step 10**

OK

8	CHECK SLIDING ROOF FUNCTION

(a) Check the auto operation with the OPEN, CLOSE, UP and DOWN switches (See page RF-11).

OK:

Auto operation operates normally with OPEN, CLOSE, UP and DOWN switches.

NG → **REPLACE SLIDING ROOF DRIVE GEAR SUB-ASSEMBLY (SLIDING ROOF CONTROL ECU)**

OK

9	DELETE DTC

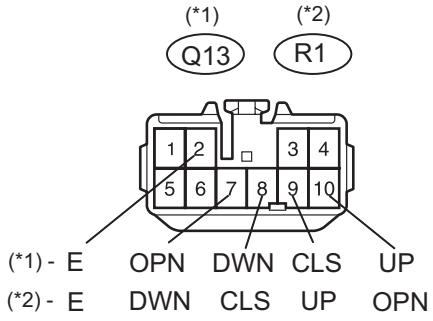
(a) Delete the DTCs (See page RF-8).

NEXT

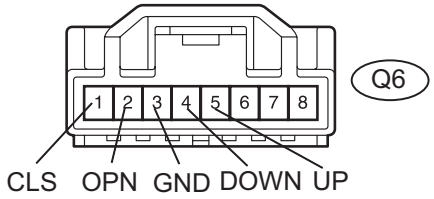
END

10	CHECK WIRE HARNESS (SLIDING ROOF CONTROL ECU - ROOF CONSOLE BOX ASSEMBLY)

Sliding Roof Control ECU Connector:



Roof Console Box Assembly Connector:



N B131169E02

(a) Disconnect the Q13 (*1) or R1 (*2) and Q6 connectors.
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
Q13-2 (E) - Q6-3 (GND) (*1)	Always	Below 1 Ω
Q13-7 (OPN) - Q6-2 (OPN) (*1)	Always	Below 1 Ω
Q13-8 (DWN) - Q6-4 (DOWN) (*1)	Always	Below 1 Ω
Q13-9 (CLS) - Q6-1 (CLS) (*1)	Always	Below 1 Ω
Q13-10 (UP) - Q6-5 (UP) (*1)	Always	Below 1 Ω
R1-2 (E) - Q6-3 (GND) (*2)	Always	Below 1 Ω
R1-7 (DWN) - Q6-4 (DOWN) (*2)	Always	Below 1 Ω
R1-8 (CLS) - Q6-1 (CLS) (*2)	Always	Below 1 Ω
R1-9 (UP) - Q6-5 (UP) (*2)	Always	Below 1 Ω
R1-10 (OPN) - Q6-2 (OPN) (*2)	Always	Below 1 Ω
Q6-1 (CLS) - Body ground	Always	10 kΩ or higher
Q6-2 (OPN) - Body ground	Always	10 kΩ or higher
Q6-3 (GND) - Body ground	Always	Below 1 Ω
Q6-4 (DOWN) - Body ground	Always	10 kΩ or higher
Q6-5 (UP) - Body ground	Always	10 kΩ or higher

HINT:
- *1: TMC made
- *2: TMMK made

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

REPLACE SLIDING ROOF DRIVE GEAR SUB-ASSEMBLY (SLIDING ROOF CONTROL ECU)

RF

DTC	B2343	Position Initialization Incomplete

DESCRIPTION

This DTC is output when the sliding roof drive gear sub-assembly (sliding roof control ECU) has not been initialized.

DTC No.	DTC Detection Condition	Trouble Area
B2343	Sliding roof drive gear sub-assembly (sliding roof control ECU) has not been initialized	• Sliding roof drive gear sub-assembly (sliding roof control ECU) • Roof console box assembly (sliding roof control switch) • Wire harness

WIRING DIAGRAM

Refer to DTC B2341 (See page RF-14).

INSPECTION PROCEDURE

RF

1	INITIALIZE SLIDING ROOF DRIVE GEAR SUB-ASSEMBLY (SLIDING ROOF CONTROL ECU)

(a) Check that the sliding roof drive gear sub-assembly can be initialized (See page RF-4).

OK:

Sliding roof drive gear sub-assembly can be initialized.

NG → **Go to step 3**

OK

2	CHECK SLIDING ROOF FUNCTION

(a) Check the auto operation with the OPEN, CLOSE, UP and DOWN switches (See page RF-11).

OK:

Auto operation operates normally with OPEN, CLOSE, UP and DOWN switches.

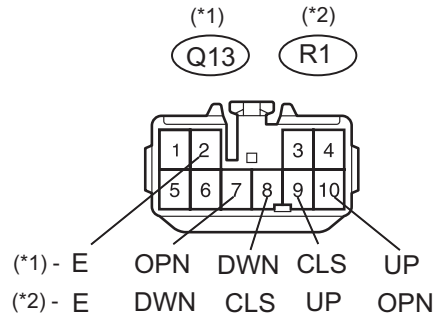
NG → **REPLACE SLIDING ROOF DRIVE GEAR SUB-ASSEMBLY (SLIDING ROOF CONTROL ECU)**

OK

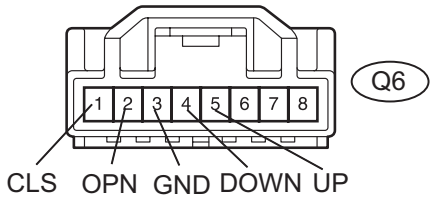
END

3 CHECK WIRE HARNESS (SLIDING ROOF DRIVE GEAR - OVERHEAD JUNCTION BLOCK)

Sliding Roof Control ECU Connector:



Roof Console Box Assembly Connector:



N B131169E02

(a) Disconnect the Q13 (*1) or R1 (*2) and Q6 connectors.
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
Q13-2 (E) - Q6-3 (GND) (*1)	Always	Below 1 Ω
Q13-7 (OPN) - Q6-2 (OPN) (*1)	Always	Below 1 Ω
Q13-8 (DWN) - Q6-4 (DOWN) (*1)	Always	Below 1 Ω
Q13-9 (CLS) - Q6-1 (CLS) (*1)	Always	Below 1 Ω
Q13-10 (UP) - Q6-5 (UP) (*1)	Always	Below 1 Ω
R1-2 (E) - Q6-3 (GND) (*2)	Always	Below 1 Ω
R1-7 (DWN) - Q6-4 (DOWN) (*2)	Always	Below 1 Ω
R1-8 (CLS) - Q6-1 (CLS) (*2)	Always	Below 1 Ω
R1-9 (UP) - Q6-5 (UP) (*2)	Always	Below 1 Ω
R1-10 (OPN) - Q6-2 (OPN) (*2)	Always	Below 1 Ω
Q6-1 (CLS) - Body ground	Always	10 kΩ or higher
Q6-2 (OPN) - Body ground	Always	10 kΩ or higher
Q6-3 (GND) - Body ground	Always	Below 1 Ω
Q6-4 (DOWN) - Body ground	Always	10 kΩ or higher
Q6-5 (UP) - Body ground	Always	10 kΩ or higher

HINT:
- *1: TMC made
- *2: TMMK made

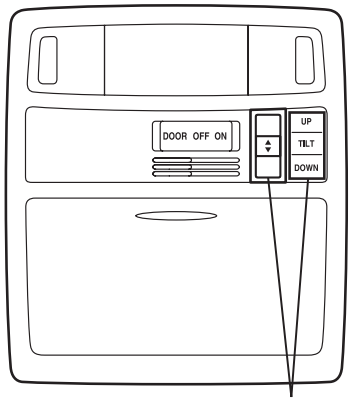
NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

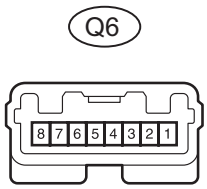
RF

4	INSPECT ROOF CONSOLE BOX ASSEMBLY (SLIDING ROOF CONTROL SWITCH)

Roof Console Box Assembly Connector:



Sliding Roof Control Switch



N B131165E02

(a) Remove the roof console box assembly.
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Switch Position	Specified Condition
Q6-1 (CLS) - Q6-3 (GND)	CLOSE	Below 100 Ω
Q6-2 (OPN) - Q6-3 (GND)	OPEN	Below 100 Ω
Q6-4 (DOWN) - Q6-3 (GND)	DOWN	Below 100 Ω
Q6-5 (UP) - Q6-3 (GND)	UP	Below 100 Ω
Q6-1 (CLS) - Q6-3 (GND)	OPEN	1 kΩ or higher
Q6-2 (OPN) - Q6-3 (GND)	CLOSE	1 kΩ or higher
Q6-4 (DOWN) - Q6-3 (GND)	UP	1 kΩ or higher
Q6-5 (UP) - Q6-3 (GND)	DOWN	1 kΩ or higher

NG → **REPLACE ROOF CONSOLE BOX ASSEMBLY (SLIDING ROOF CONTROL SWITCH)**

OK

REPLACE SLIDING ROOF DRIVE GEAR SUB-ASSEMBLY (SLIDING ROOF CONTROL ECU)

RF

Sliding Roof Control Switch Circuit

DESCRIPTION

The sliding roof drive gear sub-assembly (sliding roof control ECU) receives slide switch and tilt switch signals and drives its built-in motor.

WIRING DIAGRAM

Refer to DTC B2341 (See page RF-14).

INSPECTION PROCEDURE

1	PERFORM ACTIVE TEST BY INTELLIGENT TESTER (SLIDING ROOF OPERATION)

(a) Select the ACTIVE TEST, use the intelligent tester to generate a control command, and then check that the sliding roof slides open/close and tilts up/down.

Sliding roof ECU

Item	Test Details	Diagnostic Note
SLIDING ROOF	Operate sliding roof SLIDE CLOSE/TILT UP CLOS/UP: Sliding roof SLIDE CLOSE or TILT UP operation occurs OFF: Sliding roof is not operating	-
SLIDING ROOF	Operate sliding roof SLIDE OPEN/TILT DOWN OPEN/DOWN: Sliding roof SLIDE OPEN or TILT DOWN operation occurs OFF: Sliding roof is not operating	-

OK:

Sliding roof operates normally.

NG → **REPLACE SLIDING ROOF DRIVE GEAR SUB-ASSEMBLY (SLIDING ROOF CONTROL ECU)**

OK

2	READ VALUE OF INTELLIGENT TESTER (SLIDING ROOF SWITCH)

(a) Use the DATA LIST to check if the sliding roof switch is functioning properly.

Sliding roof ECU

Item	Measurement Item/Range (Display)	Normal Condition	Diagnostic Note
OPEN SW	Slide switch open signal/ON or OFF	ON: OPEN switch is pressed. OFF: OPEN switch is not pressed.	-
CLOSE SW	Slide switch close signal/ON or OFF	ON: CLOSE switch is pressed. OFF: CLOSE switch is not pressed.	-
UP SW	Tilt switch up signal/ON or OFF	ON: UP switch is pressed. OFF: UP switch is not pressed.	-
DOWN SW	Tilt switch down signal/ON or OFF	ON: DOWN switch is pressed. OFF: DOWN switch is not pressed.	-

OK:

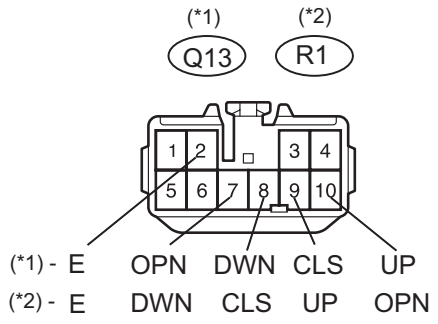
The intelligent tester displays as shown in the table according to the operation of each switch.

OK → **REPLACE SLIDING ROOF DRIVE GEAR SUB-ASSEMBLY (SLIDING ROOF CONTROL ECU)**

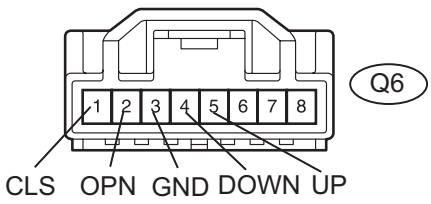
NG

3	CHECK WIRE HARNESS (SLIDING ROOF CONTROL ECU - ROOF CONSOLE BOX ASSEMBLY)

Sliding Roof Control ECU Connector:



Roof Console Box Assembly Connector:



N B131169E02

(a) Disconnect the Q13 (*1) or R1 (*2) and Q6 connectors.
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
Q13-2 (E) - Q6-3 (GND) (*1)	Always	Below 1 Ω
Q13-7 (OPN) - Q6-2 (OPN) (*1)	Always	Below 1 Ω
Q13-8 (DWN) - Q6-4 (DOWN) (*1)	Always	Below 1 Ω
Q13-9 (CLS) - Q6-1 (CLS) (*1)	Always	Below 1 Ω
Q13-10 (UP) - Q6-5 (UP) (*1)	Always	Below 1 Ω
R1-2 (E) - Q6-3 (GND) (*2)	Always	Below 1 Ω
R1-7 (DWN) - Q6-4 (DOWN) (*2)	Always	Below 1 Ω
R1-8 (CLS) - Q6-1 (CLS) (*2)	Always	Below 1 Ω
R1-9 (UP) - Q6-5 (UP) (*2)	Always	Below 1 Ω
R1-10 (OPN) - Q6-2 (OPN) (*2)	Always	Below 1 Ω
Q6-1 (CLS) - Body ground	Always	10 kΩ or higher
Q6-2 (OPN) - Body ground	Always	10 kΩ or higher
Q6-3 (GND) - Body ground	Always	Below 1 Ω
Q6-4 (DOWN) - Body ground	Always	10 kΩ or higher
Q6-5 (UP) - Body ground	Always	10 kΩ or higher

HINT:
- *1: TMC made
- *2: TMMK made

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

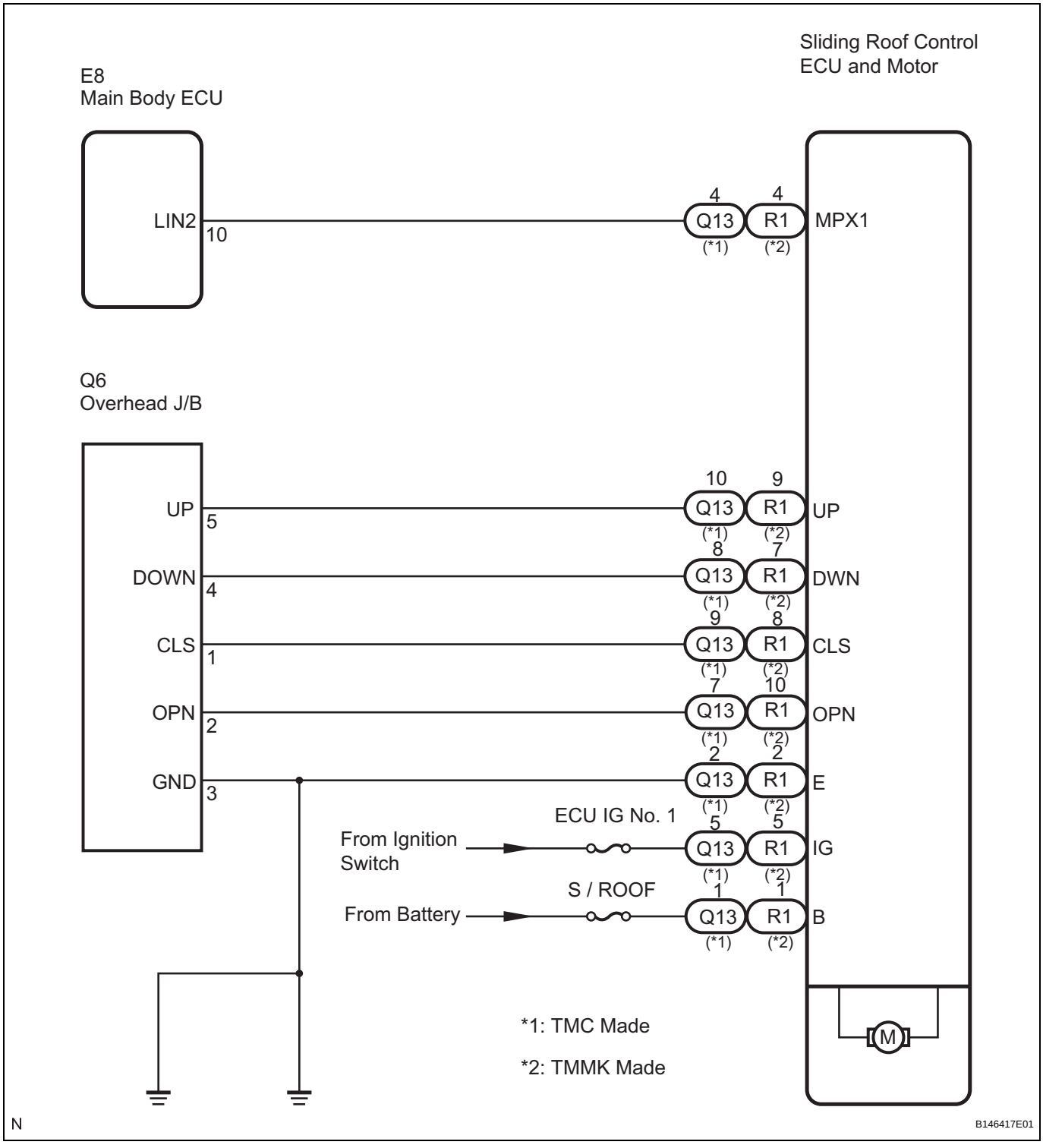
REPLACE ROOF CONSOLE BOX ASSEMBLY (SLIDING ROOF CONTROL SWITCH)

Sliding Roof ECU Power Source Circuit

DESCRIPTION

The sliding roof drive gear sub-assembly (sliding roof control ECU) receives signals from the sliding roof switch and activates the sliding roof. However, malfunctions in the fuse, wire harness or sliding roof drive gear sub-assembly (sliding roof control ECU) may cause the sliding roof system to stop operating.

WIRING DIAGRAM



INSPECTION PROCEDURE

1	PERFORM ACTIVE TEST BY INTELLIGENT TESTER (SLIDING ROOF OPERATION)

(a) Select the ACTIVE TEST, use the intelligent tester to generate a control command, and then check that the sliding roof slides open/close and tilts up/down.

Sliding roof ECU

Item	Test Details	Diagnostic Note
SLIDING ROOF	Operate sliding roof SLIDE CLOSE/TILT UP CLOS/UP: Sliding roof SLIDE CLOSE or TILT UP operation occurs OFF: Sliding roof is not operating	-
SLIDING ROOF	Operate sliding roof SLIDE OPEN/TILT DOWN OPEN/DOWN: Sliding roof SLIDE OPEN or TILT DOWN operation occurs OFF: Sliding roof is not operating	-

OK:
Sliding roof operates normally.

NG → **Go to step 2**

OK →

REPLACE SLIDING ROOF DRIVE GEAR SUB-ASSEMBLY (SLIDING ROOF CONTROL ECU)

2	INSPECT FUSE (S/ROOF, ECU-IG NO. 1)

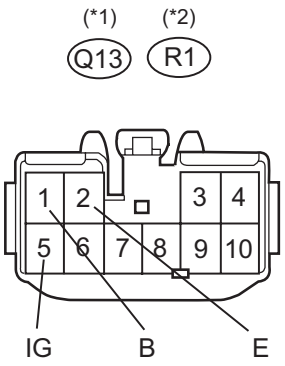
(a) Remove the S/ROOF and ECU-IG No. 1 fuses from the instrument panel J/B.
(b) Measure the resistance of the fuses.
Standard resistance:
Below 1 Ω

NG → **REPLACE FUSE**

OK →

3	CHECK WIRE HARNESS (SLIDING ROOF CONTROL ECU - BATTERY AND BODY GROUND)

Sliding Roof Control ECU Connector:



(a) Disconnect the Q13 (*1) or R1 (*2) connectors.
(b) Measure the voltage and resistance according to the value(s) in the table below.

Standard voltage

Tester Connection	Condition	Specified Condition
B (Q13-1) - Body ground (*1)	Always	10 to 14 V
IG (Q13-5) - Body ground (*1)	Ignition switch on (IG)	10 to 14 V
IG (Q13-5) - Body ground (*1)	Ignition switch off	Below 1 V
B (R1-1) - Body ground (*2)	Always	10 to 14 V
IG (R1-5) - Body ground (*2)	Ignition switch on (IG)	10 to 14 V
IG (R1-5) - Body ground (*2)	Ignition switch off	Below 1 V

HINT:
- *1: TMC made
- *2: TMMK made

Standard resistance

Tester Connection	Specified Condition
E (Q13-2) - Body ground (*1)	Below 1 Ω
E (R1-2) - Body ground (*2)	Below 1 Ω

HINT:
- *1: TMC made
- *2: TMMK made

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

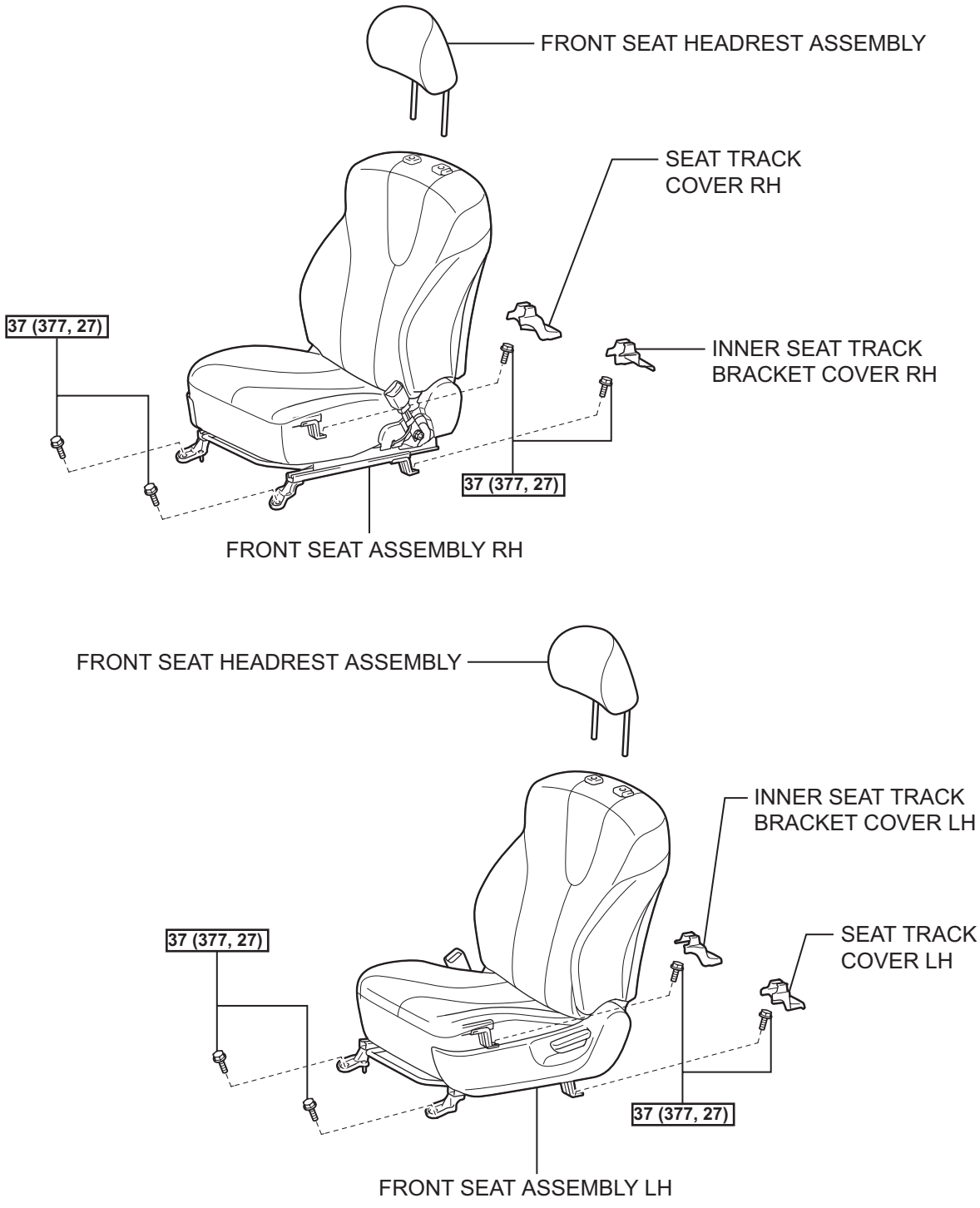
OK

REPLACE SLIDING ROOF DRIVE GEAR SUB-ASSEMBLY (SLIDING ROOF CONTROL ECU)

SLIDING ROOF HOUSING

COMPONENTS

for Manual Seat:



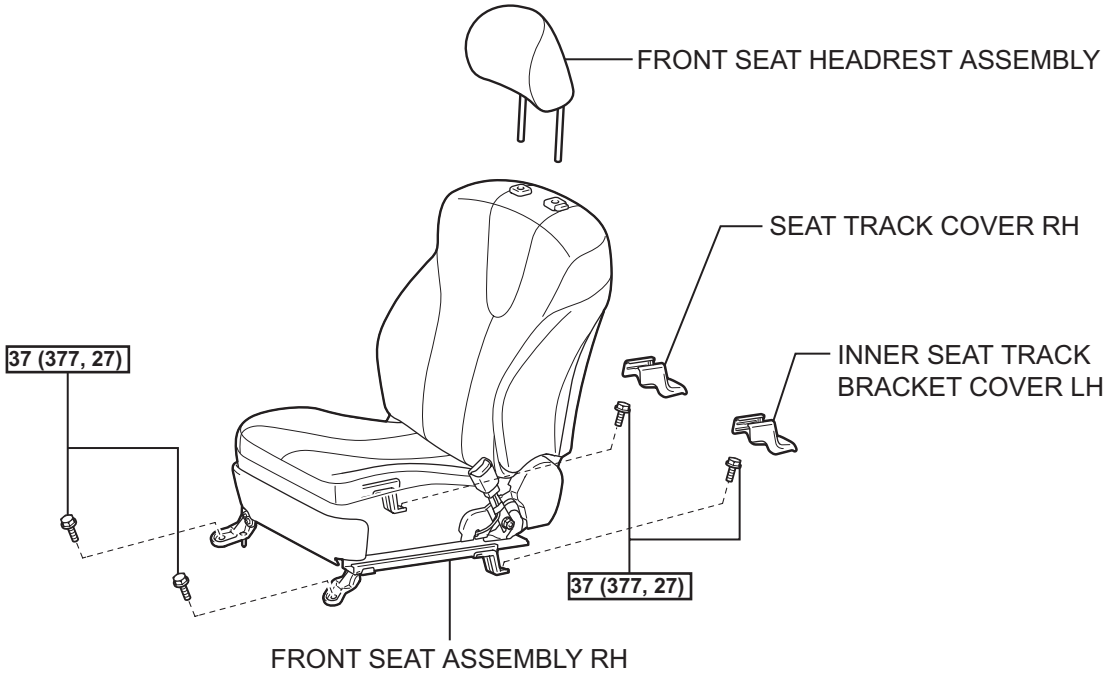
N*m (kgf*cm, ft.*lbf) : Specified torque

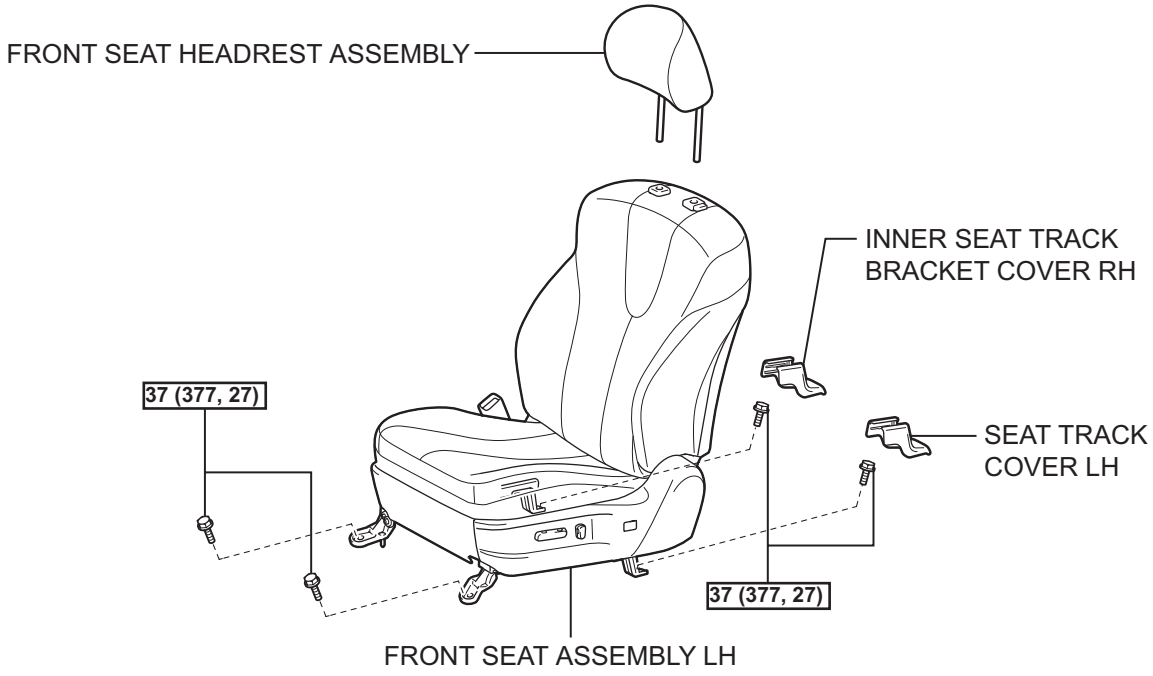
P

B132048E01

RF

for Power Seat:



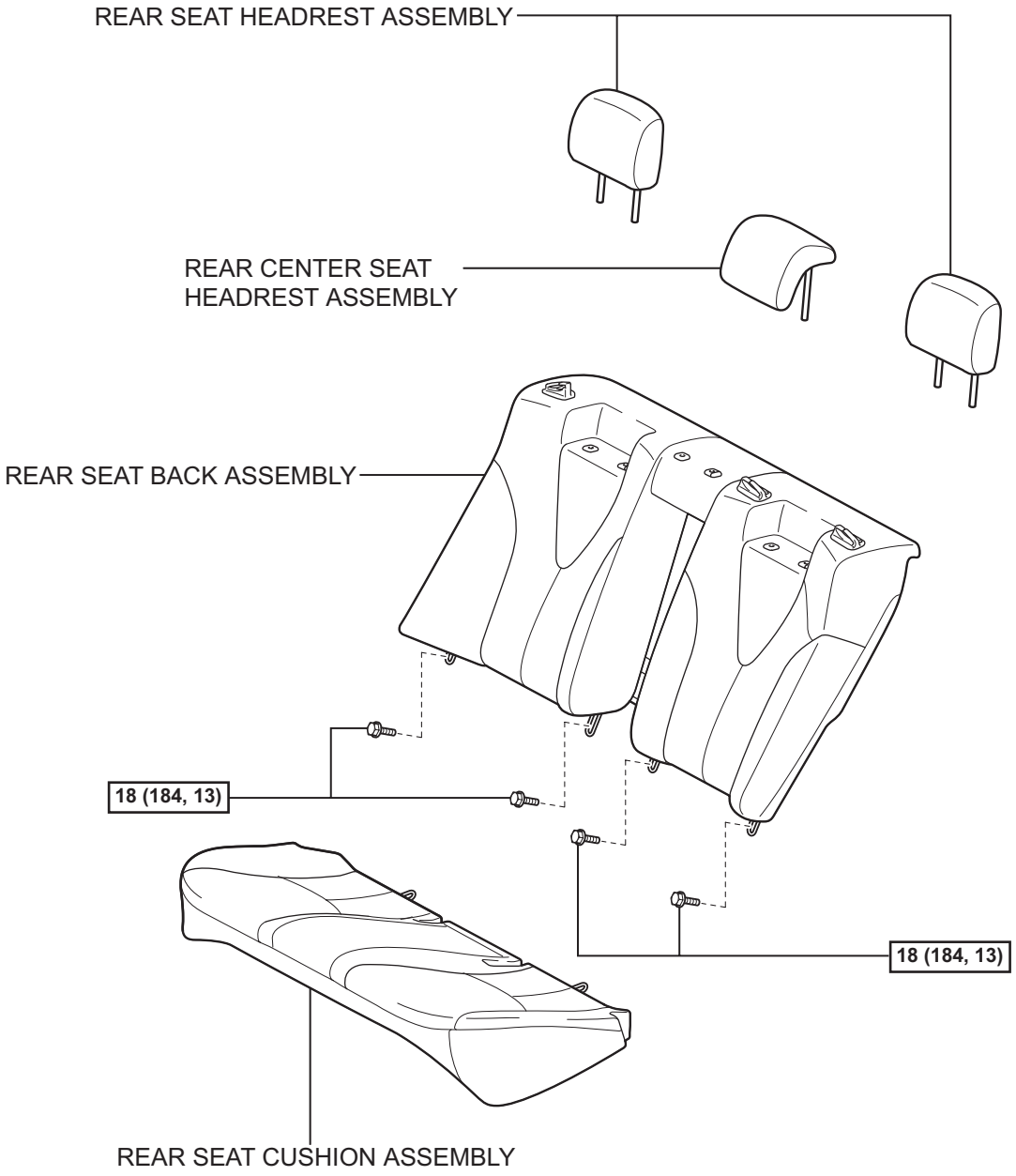


N*m (kgf*cm, ft.*lbf): Specified torque

P

B132047E01

for Fixed Seat Type:



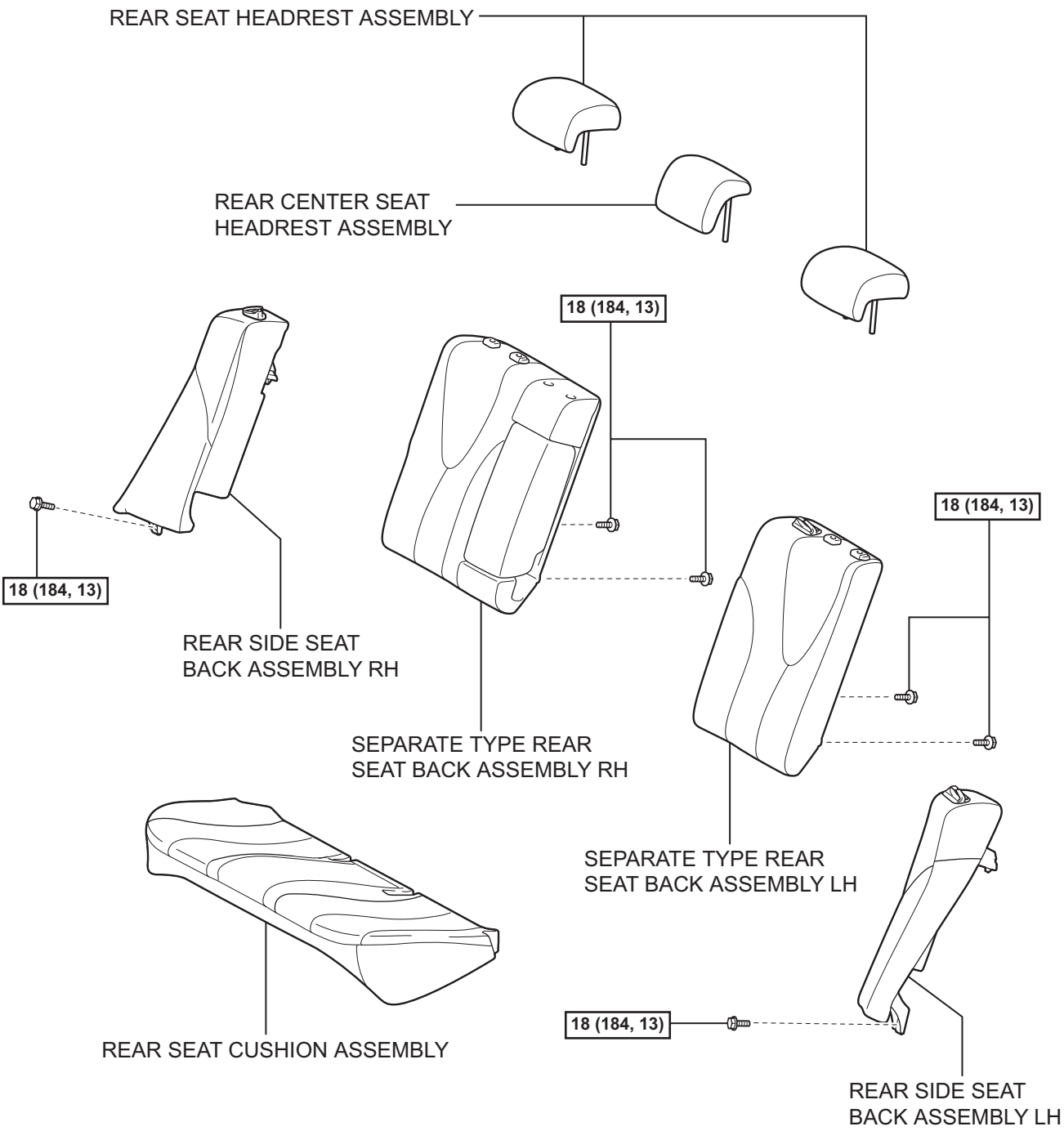
N*m (kgf*cm, ft.*lbf): Specified torque

P

B136589E02

RF

for Fold Down Seat Type:

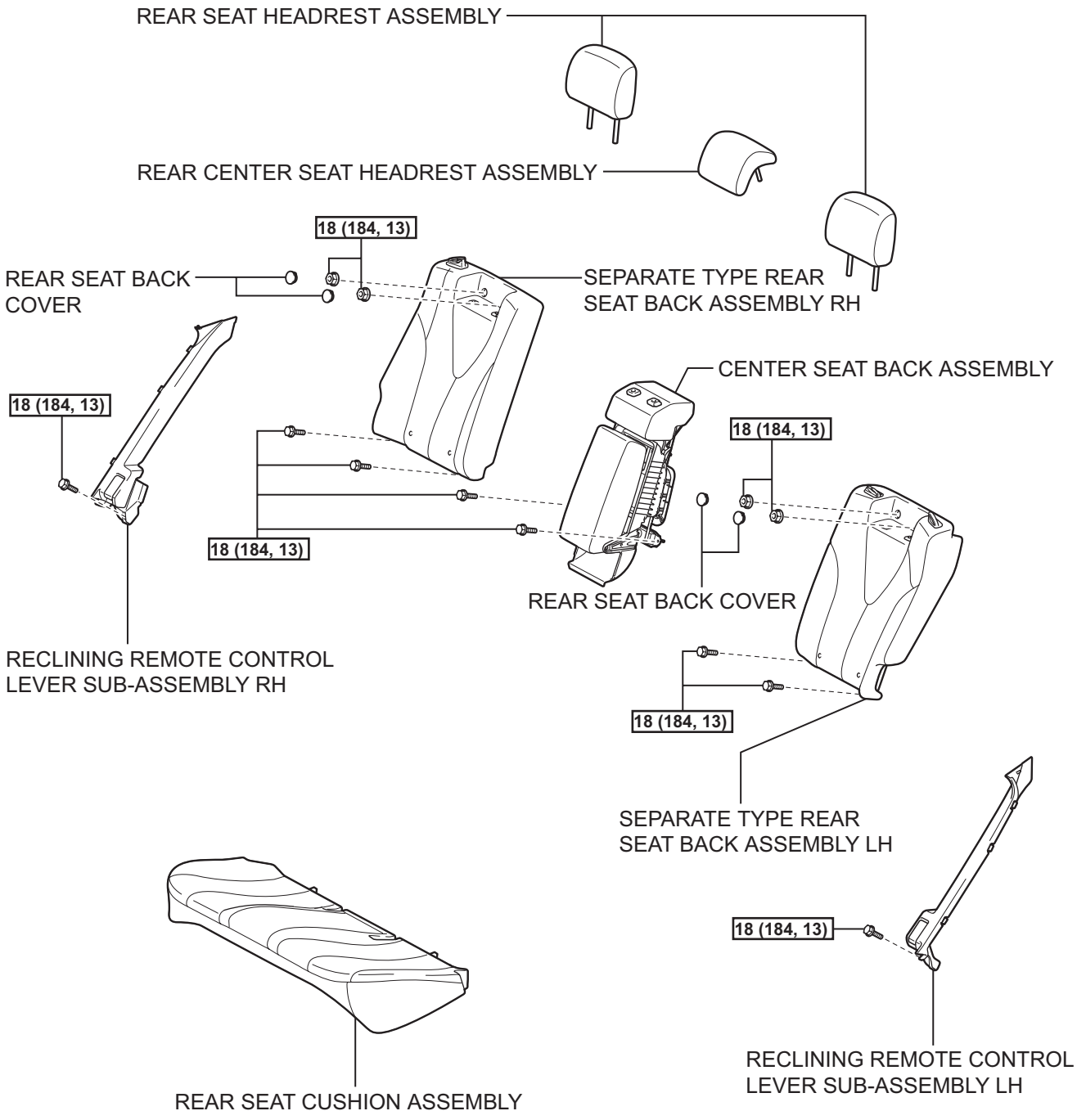


N*m (kgf*cm, ft.*lbf) : Specified torque

P

B136564E02

for Reclining Seat Type:

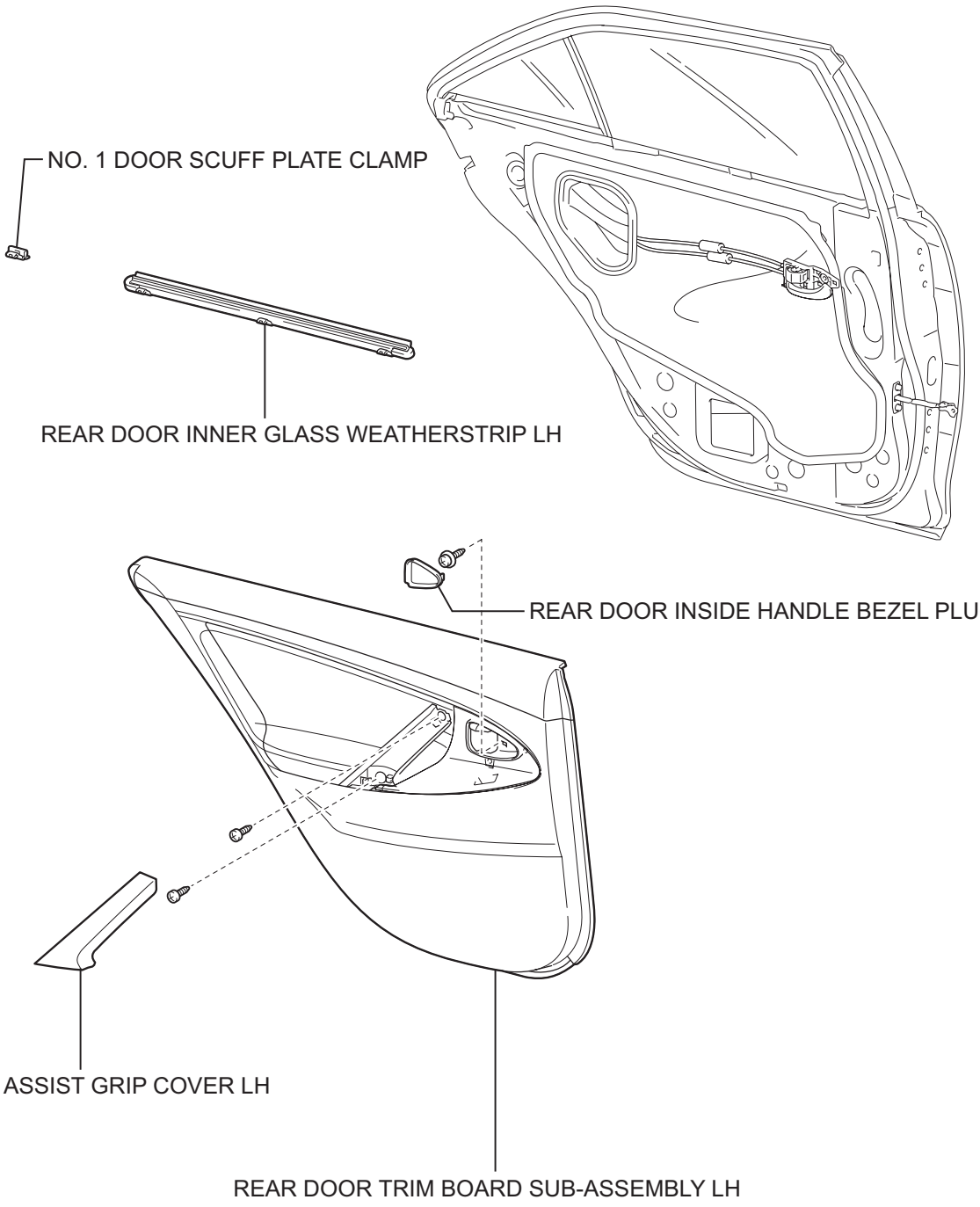


N*m (kgf*cm, ft.*lbf): Specified torque

P

B139577E01

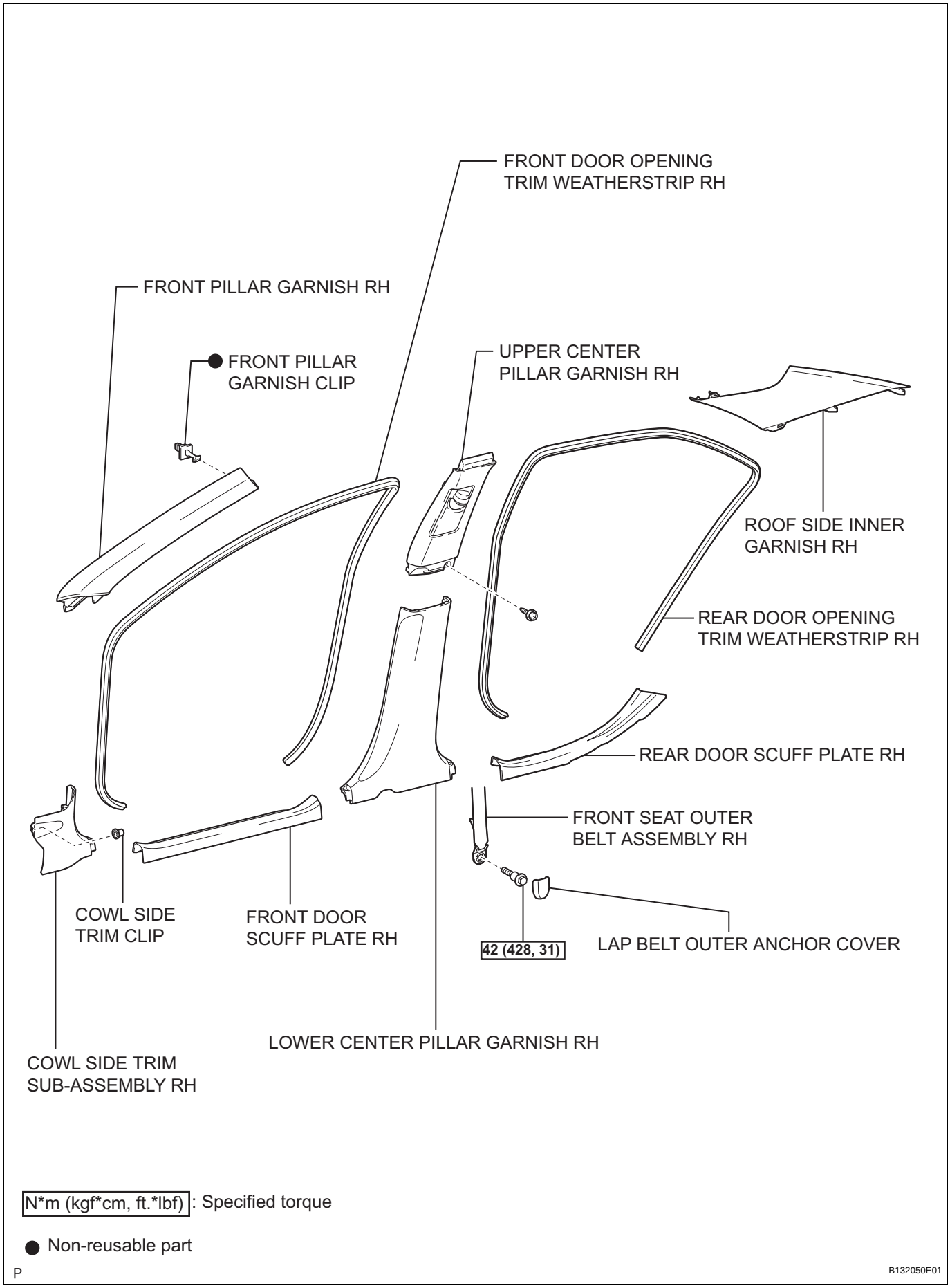
RF



RF

P

B139576E01



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

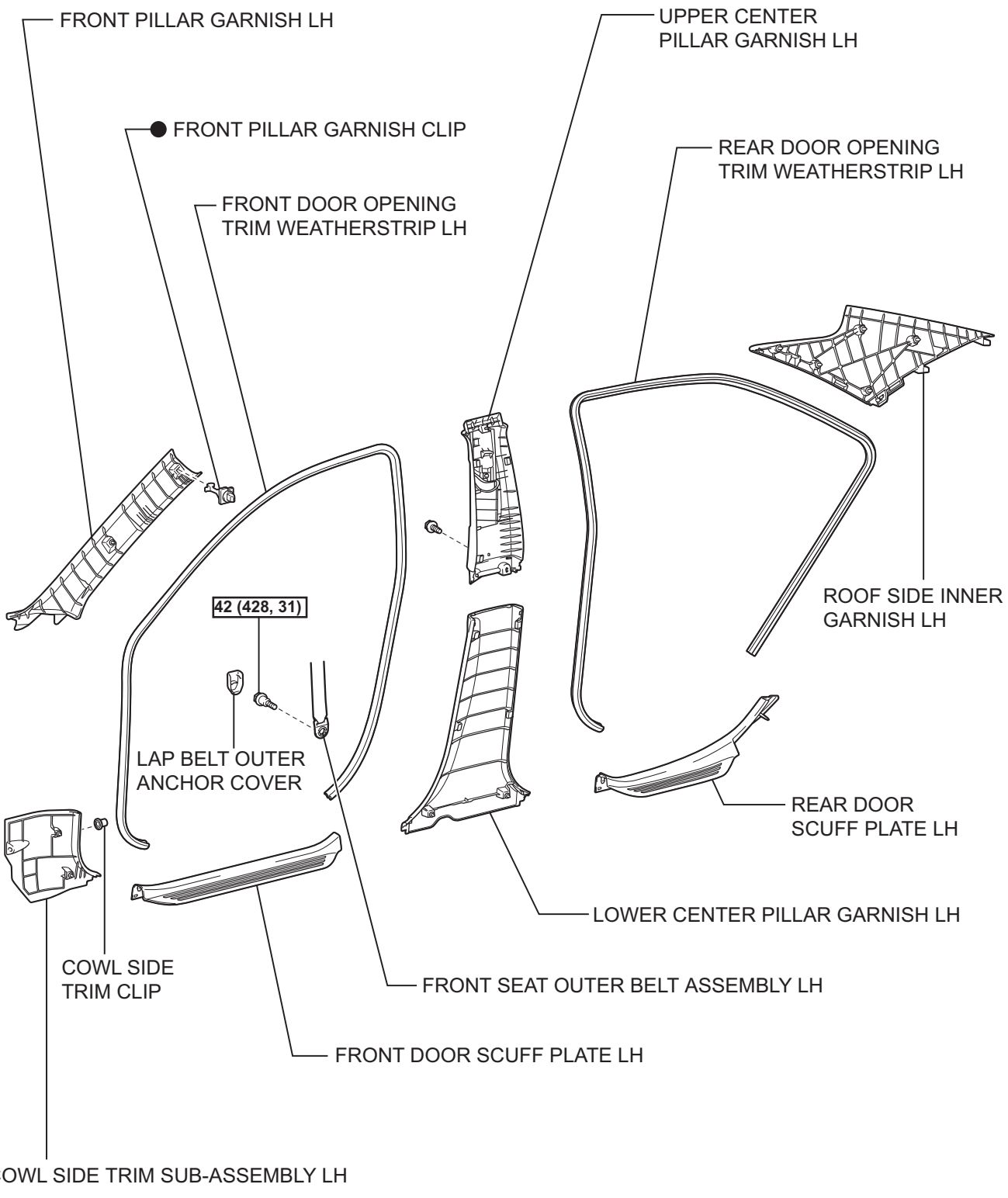
● Non-reusable part

P

B132050E01

RF

RF

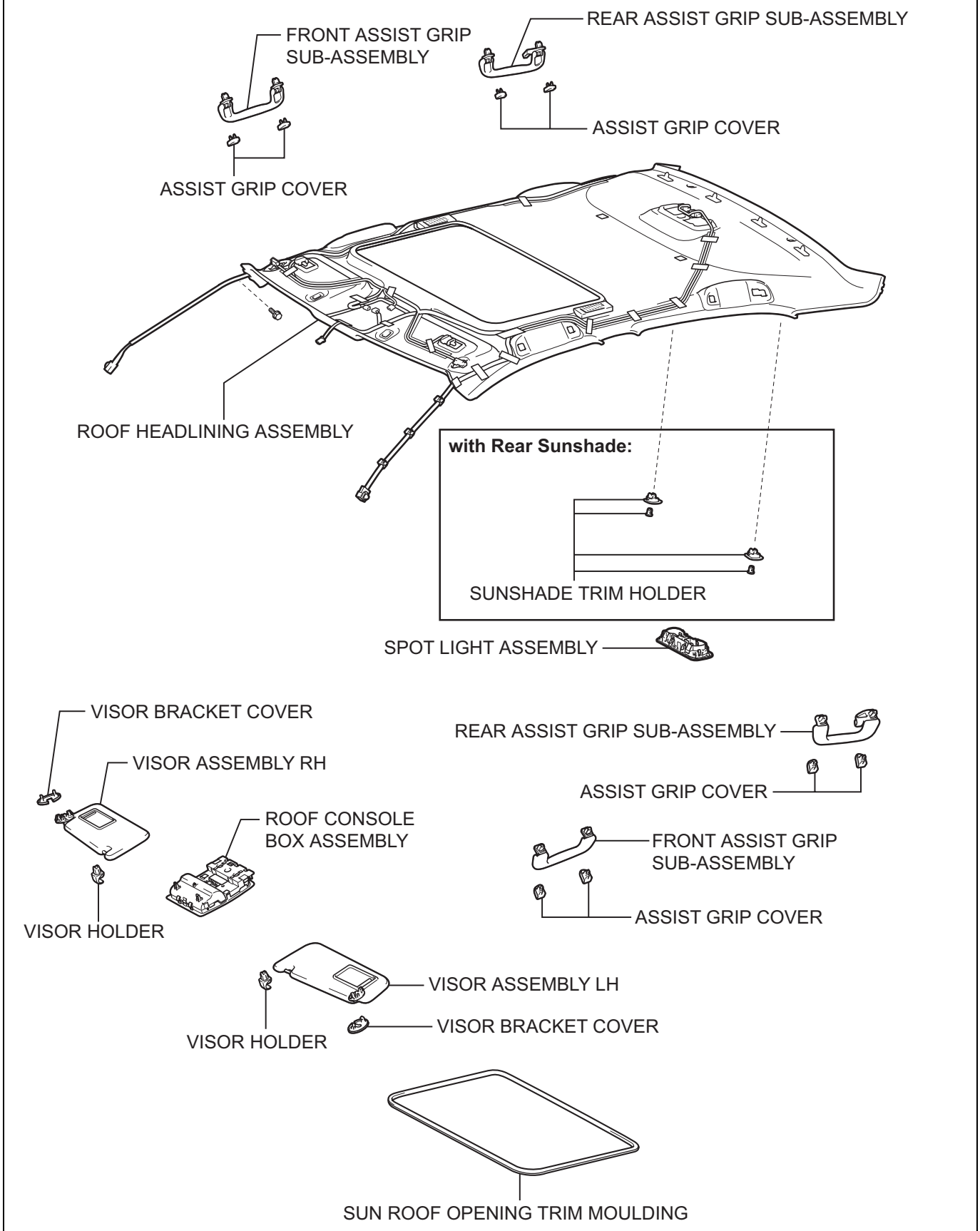


N*m (kgf*cm, ft.*lbf) : Specified torque

● Non-reusable part

P

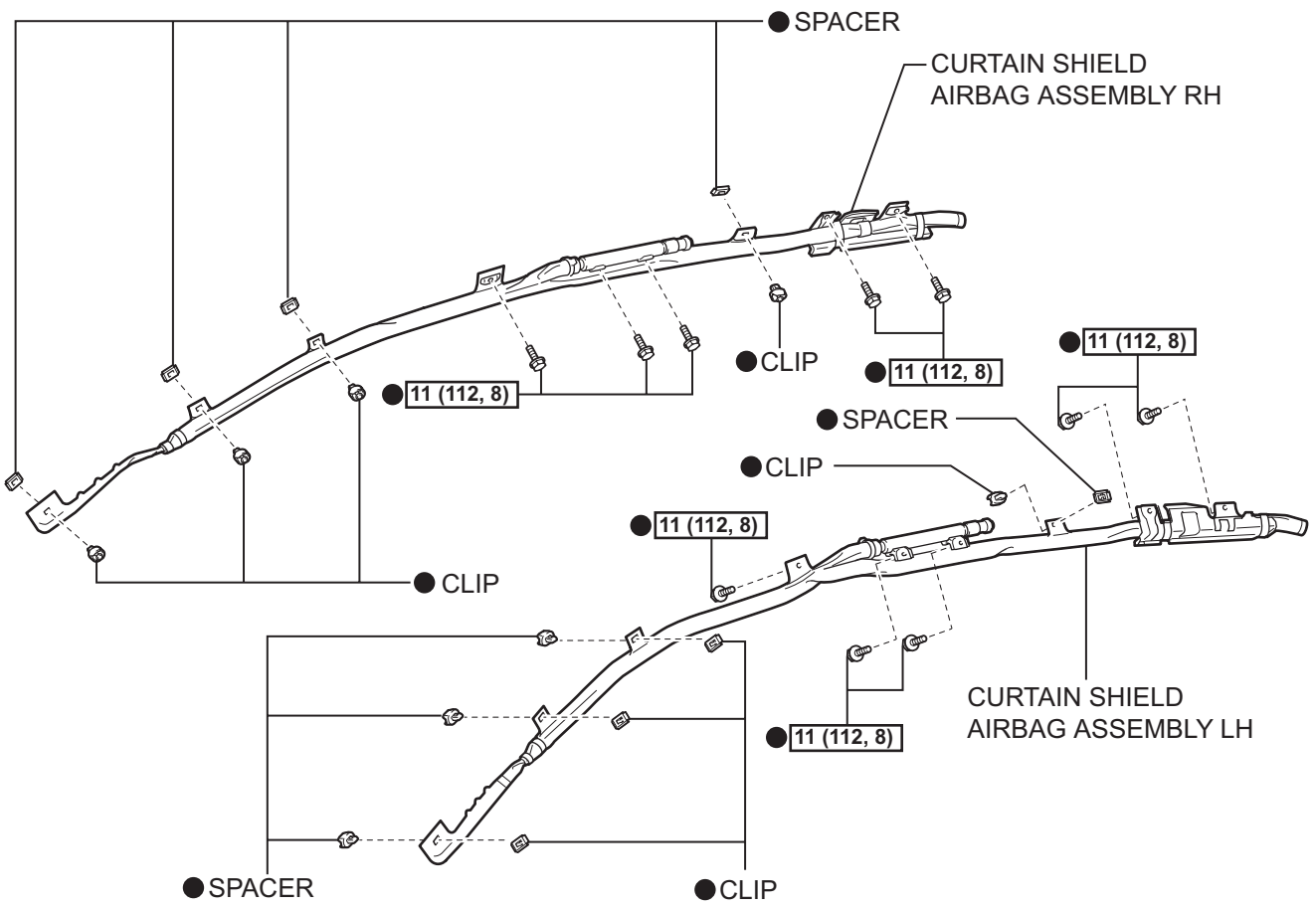
B132049E01



RF

P

B132052E02



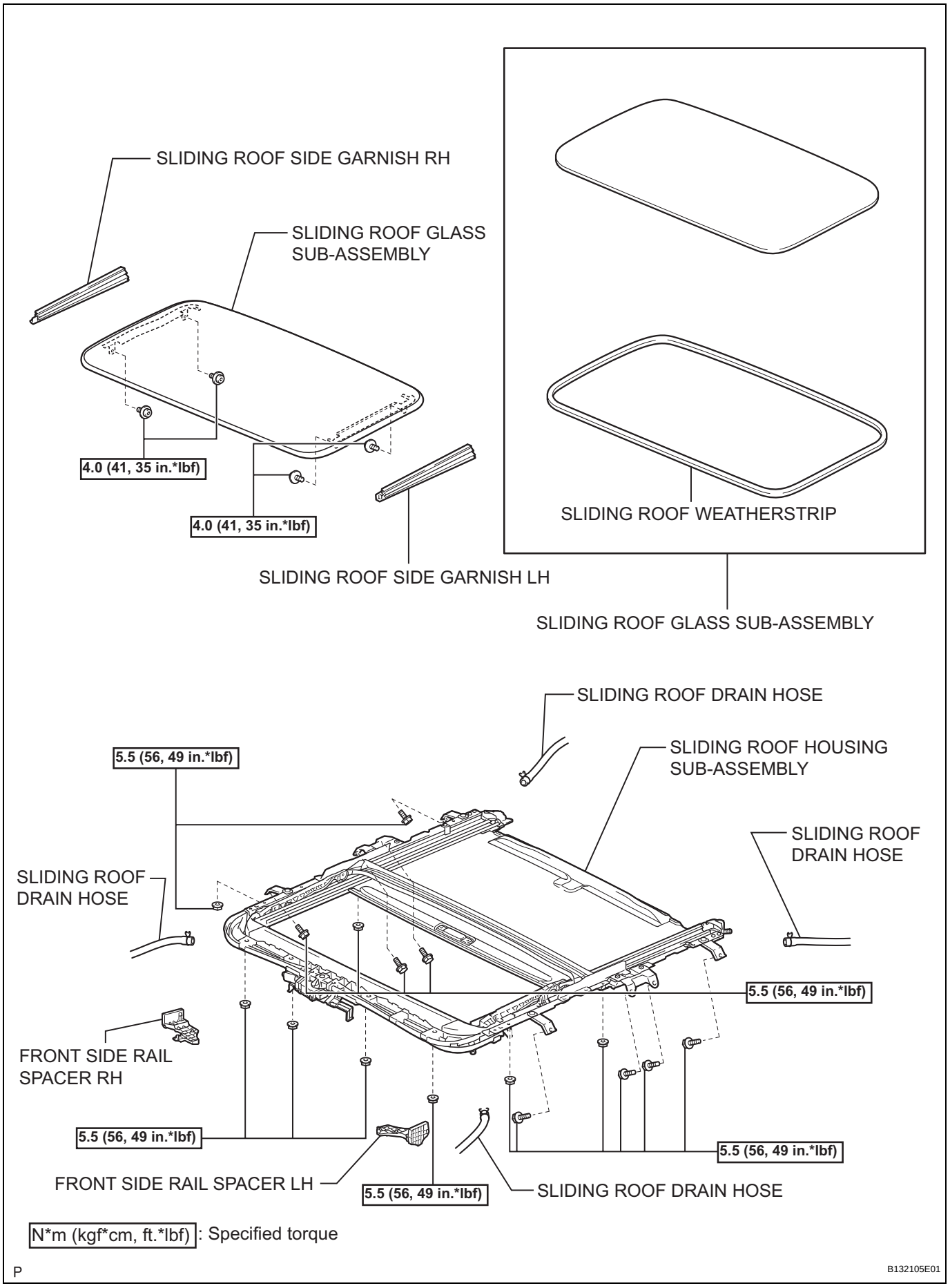
N*m (kgf*cm, ft.*lbf): Specified torque

● Non-reusable part

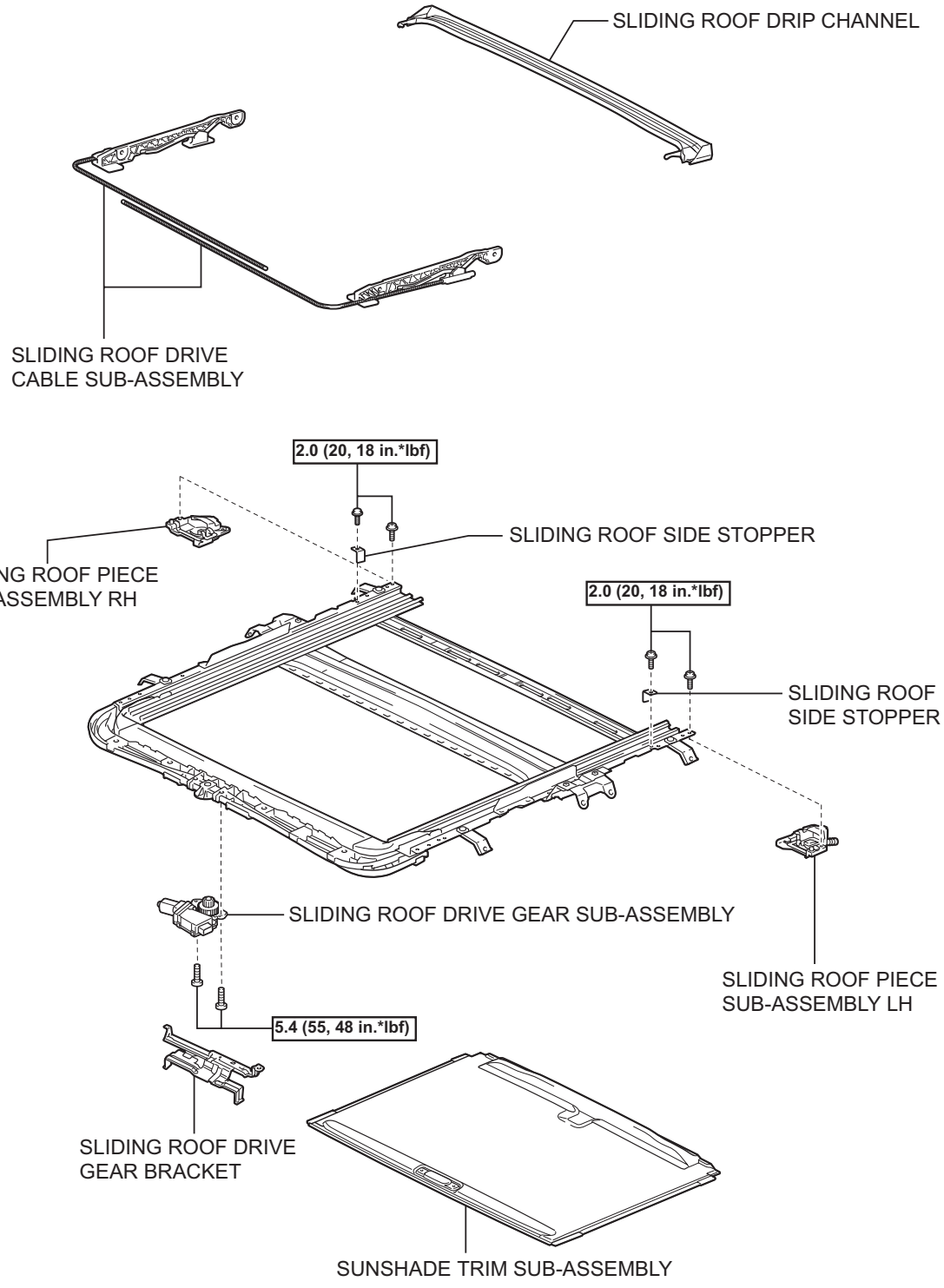
P

B132107E01

RF


SLIDING ROOF SIDE GARNISH RH
SLIDING ROOF GLASS SUB-ASSEMBLY
4.0 (41, 35 in.*lbf)
4.0 (41, 35 in.*lbf)
SLIDING ROOF SIDE GARNISH LH
SLIDING ROOF WEATHERSTRIP
SLIDING ROOF GLASS SUB-ASSEMBLY
SLIDING ROOF DRAIN HOSE
5.5 (56, 49 in.*lbf)
SLIDING ROOF HOUSING SUB-ASSEMBLY
SLIDING ROOF DRAIN HOSE
SLIDING ROOF DRAIN HOSE
5.5 (56, 49 in.*lbf)
FRONT SIDE RAIL SPACER RH
5.5 (56, 49 in.*lbf)
5.5 (56, 49 in.*lbf)
FRONT SIDE RAIL SPACER LH
5.5 (56, 49 in.*lbf)
SLIDING ROOF DRAIN HOSE
N*m (kgf*cm, ft.*lbf): Specified torque
P
B132105E01

RF



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

P

B132106E01

REMOVAL

1. **DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL (for Manual Seat)**
   CAUTION:
   Wait for 90 seconds after disconnecting the cable to prevent airbag deployment (See page RS-1).
2. **REMOVE FRONT SEAT HEADREST ASSEMBLY (for Manual Seat)**
3. **REMOVE SEAT TRACK COVER LH (for Manual Seat) (See page SE-16)**
4. **REMOVE INNER SEAT TRACK BRACKET COVER LH (for Manual Seat) (See page SE-16)**
5. **REMOVE FRONT SEAT ASSEMBLY LH (for Manual Seat) (See page SE-16)**
6. **REMOVE FRONT SEAT HEADREST ASSEMBLY (for Power Seat)**
7. **REMOVE SEAT TRACK COVER LH (for Power Seat) (See page SE-30)**
8. **REMOVE INNER SEAT TRACK BRACKET COVER RH (for Power Seat) (See page SE-30)**
9. **REMOVE FRONT SEAT ASSEMBLY LH (for Power Seat) (See page SE-30)**
10. **REMOVE FRONT SEAT HEADREST ASSEMBLY (for Manual Seat)**
11. **REMOVE SEAT TRACK COVER RH (for Manual Seat)**
    HINT:
    Use the same procedures for the RH side and the LH side.
12. **REMOVE INNER SEAT TRACK BRACKET COVER RH (for Manual Seat)**
    HINT:
    Use the same procedures for the RH side and the LH side.
13. **REMOVE FRONT SEAT ASSEMBLY RH (for Manual Seat)**
    HINT:
    Use the same procedures for the RH side and the LH side.
14. **REMOVE FRONT SEAT HEADREST ASSEMBLY (for Power Seat)**
15. **REMOVE SEAT TRACK COVER RH (for Power Seat)**
    HINT:
    Use the same procedures for the RH side and the LH side.

16. **REMOVE INNER SEAT TRACK BRACKET COVER LH (for Power Seat)**
HINT:
Use the same procedures for the RH side and the LH side.

17. **REMOVE FRONT SEAT ASSEMBLY RH (for Power Seat)**
HINT:
Use the same procedures for the RH side and the LH side.

18. **REMOVE REAR SEAT CUSHION ASSEMBLY (See page SE-77)**

19. **REMOVE REAR SEAT HEADREST ASSEMBLY**

20. **REMOVE REAR CENTER SEAT HEADREST ASSEMBLY**

21. **REMOVE REAR SEAT BACK ASSEMBLY (for Fixed Seat Type) (See page SE-77)**

22. **REMOVE SEPARATE TYPE REAR SEAT BACK ASSEMBLY LH (for Fold Down Seat Type) (See page SE-47)**

23. **REMOVE SEPARATE TYPE REAR SEAT BACK ASSEMBLY RH (for Fold Down Seat Type) (See page SE-47)**

24. **REMOVE REAR SIDE SEAT BACK ASSEMBLY LH (for Fold Down Seat Type) (See page SE-48)**

25. **REMOVE REAR SIDE SEAT BACK ASSEMBLY RH (for Fold Down Seat Type) (See page SE-48)**

26. **REMOVE REAR SEAT BACK COVER (for Reclining Seat Type) (See page SE-63)**

27. **REMOVE SEPARATE TYPE REAR SEAT BACK ASSEMBLY LH (for Reclining Seat Type) (See page SE-63)**

28. **REMOVE SEPARATE TYPE REAR SEAT BACK ASSEMBLY RH (for Reclining Seat Type) (See page SE-64)**

29. **REMOVE CENTER SEAT BACK ASSEMBLY (for Reclining Seat Type) (See page SE-64)**

30. **REMOVE REAR DOOR SCUFF PLATE LH (See page IR-24)**

31. **REMOVE REAR DOOR OPENING TRIM WEATHERSTRIP LH**

32. **REMOVE REAR DOOR SCUFF PLATE RH (See page IR-24)**

33. **REMOVE REAR DOOR OPENING TRIM WEATHERSTRIP RH**

34. REMOVE RECLINING REMOTE CONTROL LEVER SUB-ASSEMBLY LH (for Reclining Seat Type) (See page SE-68)
35. REMOVE RECLINING REMOTE CONTROL LEVER SUB-ASSEMBLY RH (for Reclining Seat Type)
36. REMOVE REAR DOOR INSIDE HANDLE BEZEL PLUG LH (See page ED-38)
37. REMOVE DOOR ASSIST GRIP COVER LH (See page ED-38)
38. REMOVE REAR DOOR TRIM BOARD SUB-ASSEMBLY LH (See page ED-39)
39. REMOVE REAR DOOR INNER GLASS WEATHERSTRIP LH (See page ED-40)
40. REMOVE FRONT DOOR SCUFF PLATE LH (See page IR-24)
41. REMOVE COWL SIDE TRIM SUB-ASSEMBLY LH (See page IR-25)
42. REMOVE FRONT DOOR OPENING TRIM WEATHERSTRIP LH
43. REMOVE LAP BELT OUTER ANCHOR COVER (See page IR-25)
44. DISCONNECT FRONT SEAT OUTER BELT ASSEMBLY LH (See page IR-25)
45. REMOVE LOWER CENTER PILLAR GARNISH LH (See page IR-26)
46. REMOVE UPPER CENTER PILLAR GARNISH LH (See page IR-26)
47. REMOVE FRONT DOOR SCUFF PLATE RH (See page IR-26)
48. REMOVE COWL SIDE TRIM SUB-ASSEMBLY RH (See page IR-26)
49. REMOVE FRONT DOOR OPENING TRIM WEATHERSTRIP RH
50. REMOVE LAP BELT OUTER ANCHOR COVER (See page IR-26)
51. DISCONNECT FRONT SEAT OUTER BELT ASSEMBLY RH (See page IR-26)
52. REMOVE LOWER CENTER PILLAR GARNISH RH (See page IR-26)
53. REMOVE UPPER CENTER PILLAR GARNISH RH (See page IR-26)
54. REMOVE ROOF SIDE INNER GARNISH LH (See page IR-26)
55. REMOVE ROOF SIDE INNER GARNISH RH (See page IR-26)

56. **REMOVE FRONT PILLAR GARNISH LH (See page IR-27)**

57. **REMOVE FRONT PILLAR GARNISH RH (See page IR-27)**

58. **REMOVE ROOF CONSOLE BOX ASSEMBLY (See page IR-28)**

59. **REMOVE VISOR ASSEMBLY LH (See page IR-28)**

60. **REMOVE VISOR ASSEMBLY RH (See page IR-29)**

61. **REMOVE VISOR HOLDER (See page IR-29)**

62. **REMOVE FRONT ASSIST GRIP SUB-ASSEMBLY (See page IR-29)**

63. **REMOVE REAR ASSIST GRIP SUB-ASSEMBLY (See page IR-29)**

64. **REMOVE SPOT LIGHT ASSEMBLY (See page IR-30)**

65. **REMOVE SUN ROOF OPENING TRIM MOULDING (See page IR-31)**

66. **REMOVE SUNSHADE TRIM HOLDER (w/ Rear Sunshade) (See page IR-31)**

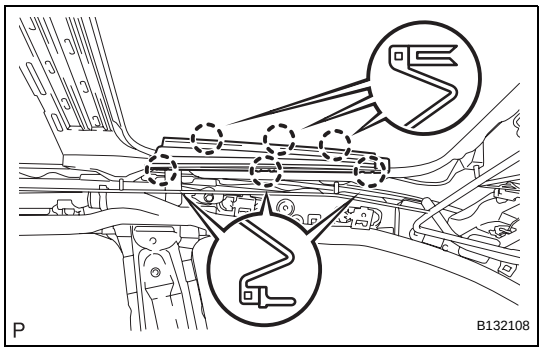
67. **REMOVE ROOF HEADLINING ASSEMBLY (See page IR-32)**

68. **REMOVE FRONT SIDE RAIL SPACER LH**
    (a) Disengage the 2 claws and remove the front side rail spacer LH.

69. **REMOVE FRONT SIDE RAIL SPACER RH**
    HINT:
    Use the same procedures for the RH side and the LH side.

70. **REMOVE CURTAIN SHIELD AIRBAG ASSEMBLY LH**

71. **REMOVE CURTAIN SHIELD AIRBAG ASSEMBLY RH**
    HINT:
    Use the same procedures for the RH side and the LH side.

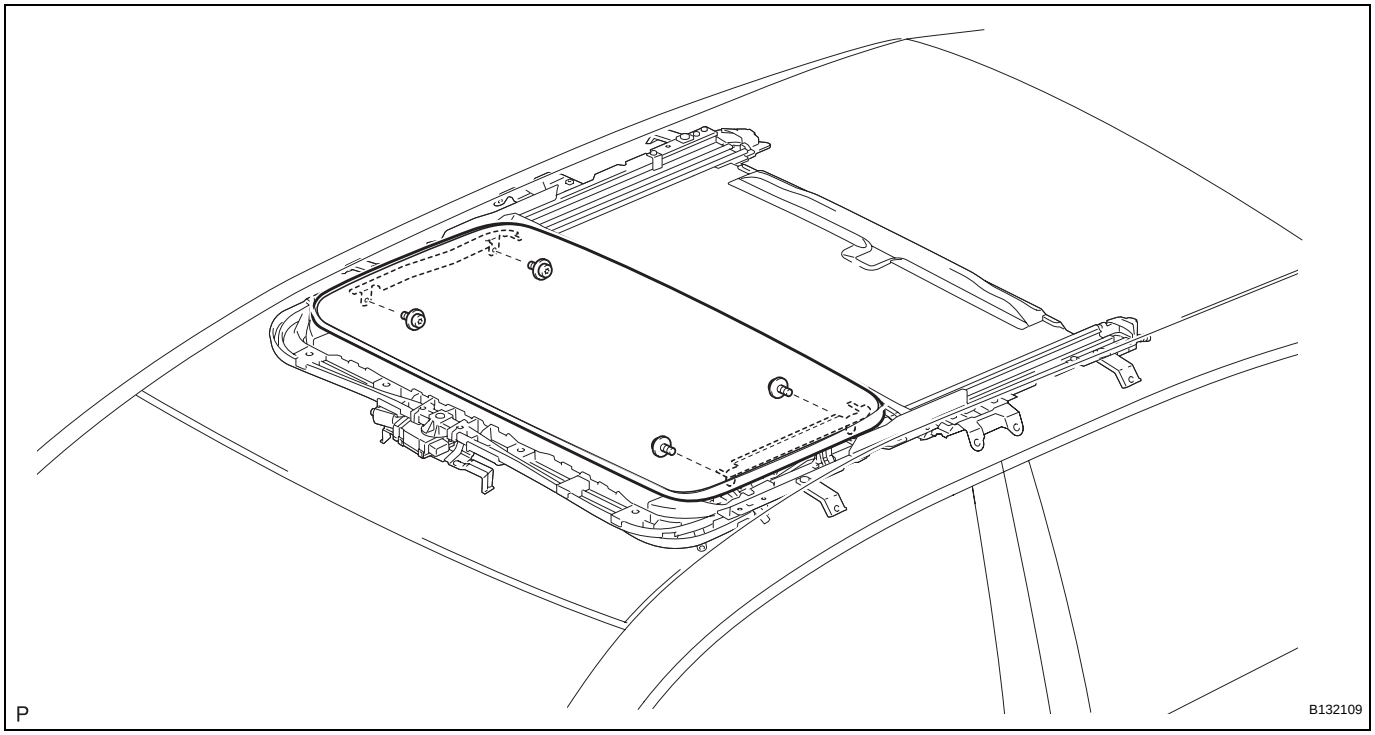


72. **REMOVE SLIDING ROOF SIDE GARNISH LH**
    (a) Disengage the 5 claws and remove the sliding roof side garnish LH.

73. **REMOVE SLIDING ROOF SIDE GARNISH RH**
    HINT:
    Use the same procedures for the RH side and the LH side.

74. REMOVE SLIDING ROOF GLASS SUB-ASSEMBLY

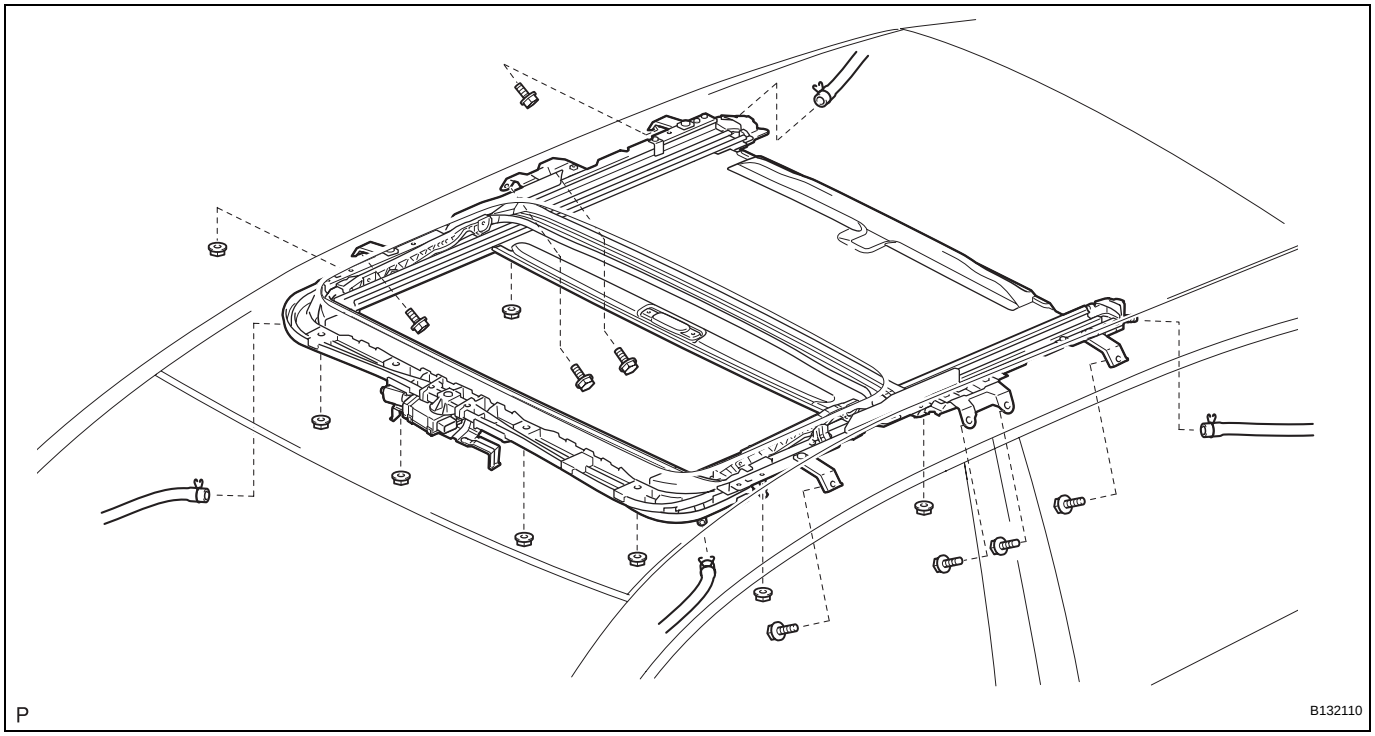
(a) Using a T25 "TORX" driver, remove the 4 screws and sliding roof glass sub-assembly.



75. REMOVE SLIDING ROOF HOUSING SUB-ASSEMBLY

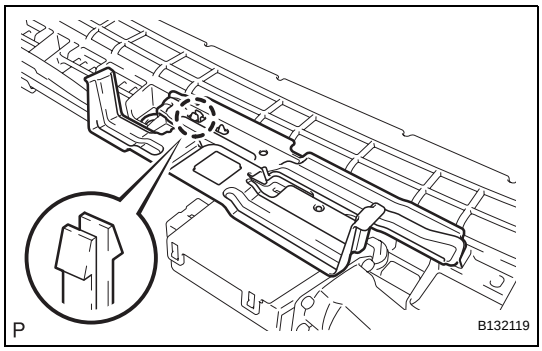
(a) Disconnect the 4 sliding roof drain hoses.

(b) Remove the 8 bolts, 8 nuts, and sliding roof housing sub-assembly.



76. REMOVE SLIDING ROOF WEATHERSTRIP

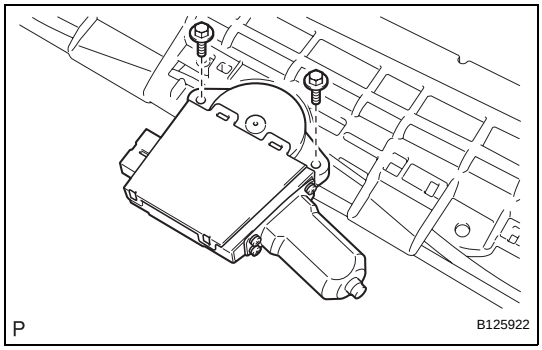
(a) Remove the sliding roof weatherstrip from the sliding roof housing sub-assembly.



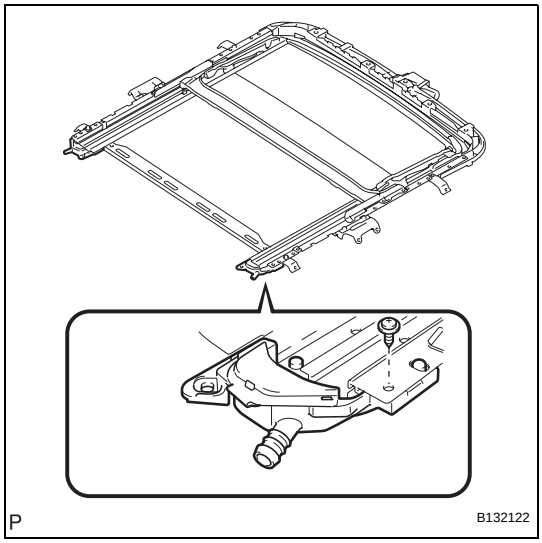
DISASSEMBLY

1. REMOVE SLIDING ROOF DRIVE GEAR SUB-ASSEMBLY

(a) Disengage the claw and remove the sliding roof drive gear bracket.



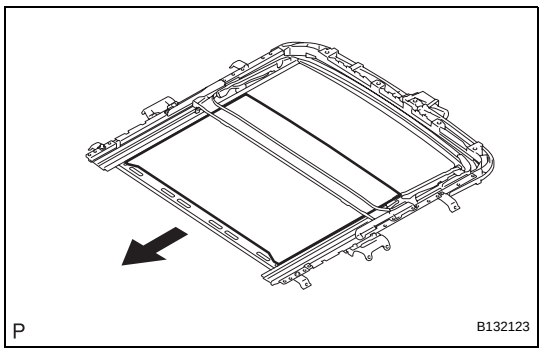
(b) Remove the 2 bolts and sliding roof drive gear sub-assembly.



2. REMOVE SUNSHADE TRIM SUB-ASSEMBLY

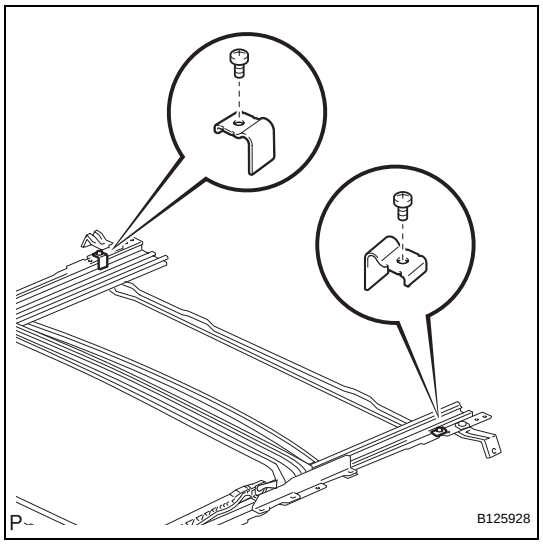
(a) Remove the screw and sliding roof piece sub-assembly LH.
HINT:
Use the same procedures for the RH side and the LH side.

(b) Slide and remove the sunshade trim sub-assembly.

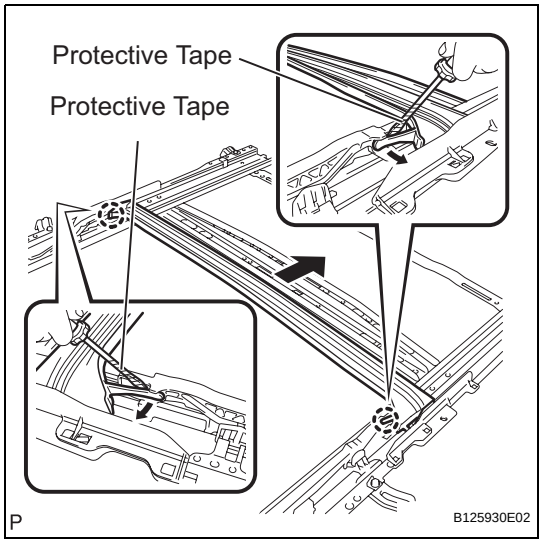


3. REMOVE SLIDING ROOF DRIVE CABLE SUB-ASSEMBLY

NOTICE:
Do not disassemble the sliding roof drive cable sub-assembly except when replacing it.

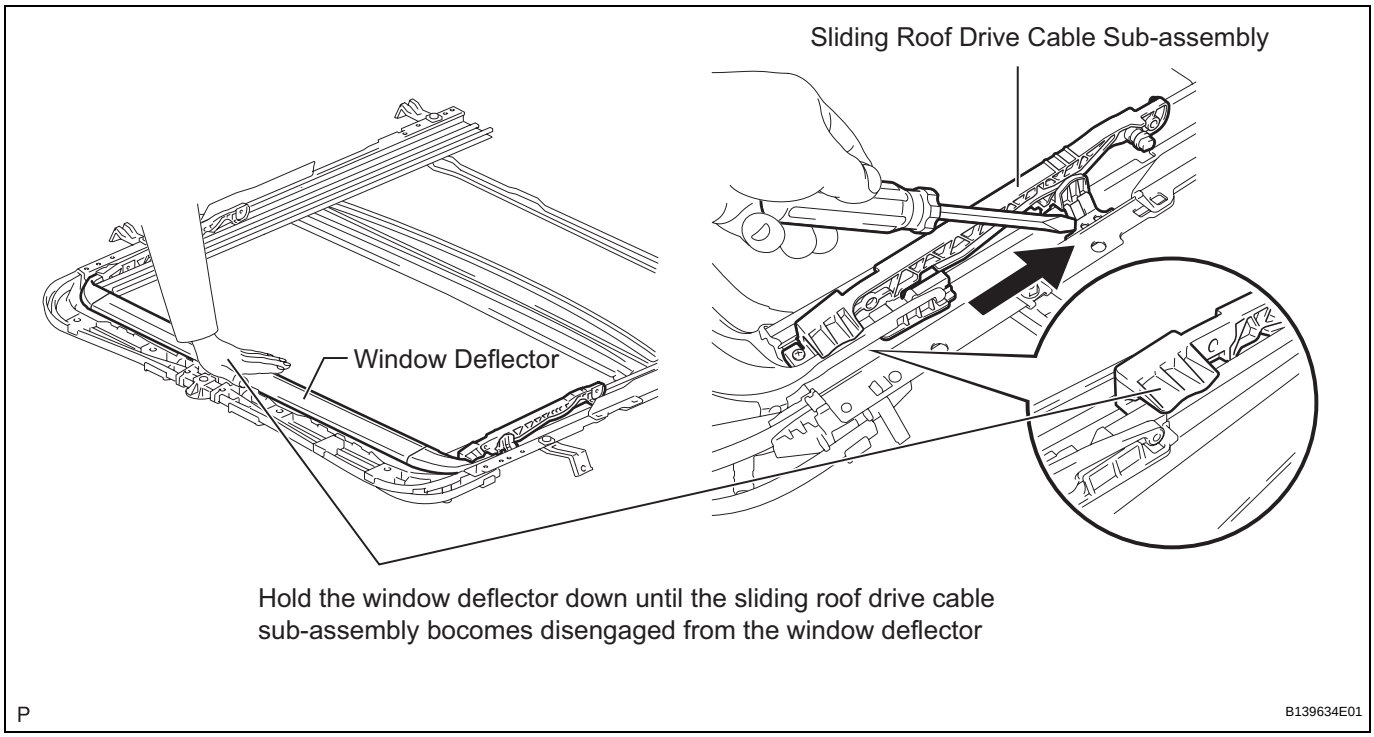


(a) Remove the 2 screws and sliding roof side stoppers.



(b) Using a screwdriver, disengage the 2 claws. Then slide the sliding roof drip channel rearward to remove it.
HINT:
Tape the screwdriver tip before use.

(c) Using a screwdriver, slide the sliding roof drive cable sub-assembly in the direction indicated by the arrow in the illustration to remove it.

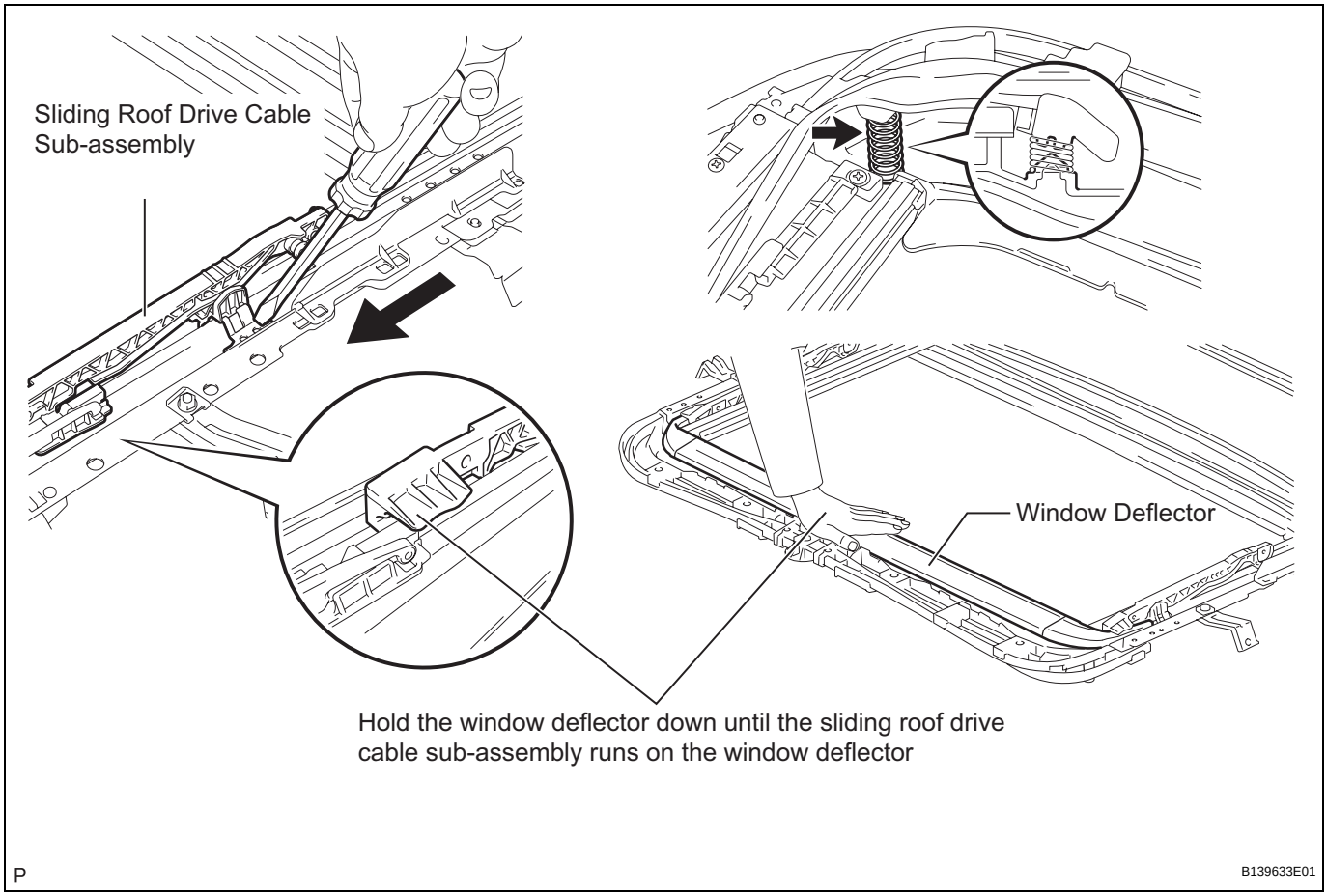


HINT:
Hold the window deflector down, as shown in the illustration, until the sliding roof drive cable sub-assembly becomes disengaged from the window deflector.

REASSEMBLY

1. INSTALL SLIDING ROOF DRIVE CABLE SUB-ASSEMBLY

(a) Using a screwdriver, slide the sliding roof drive cable sub-assembly in the direction indicated by the arrow in the illustration to install it.



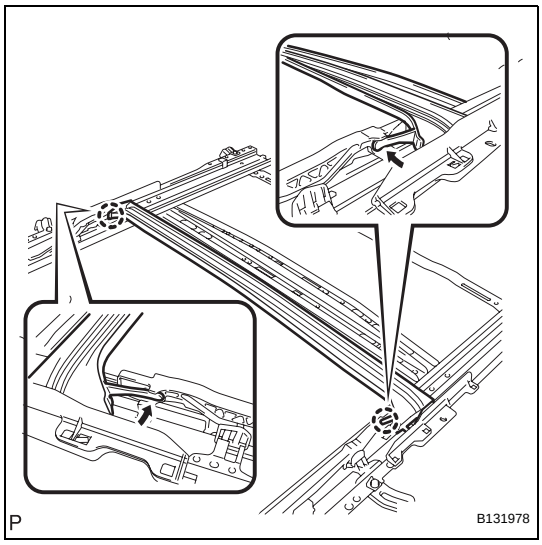
NOTICE:

Make sure that the spring indicated by the arrow in the illustration is securely installed.

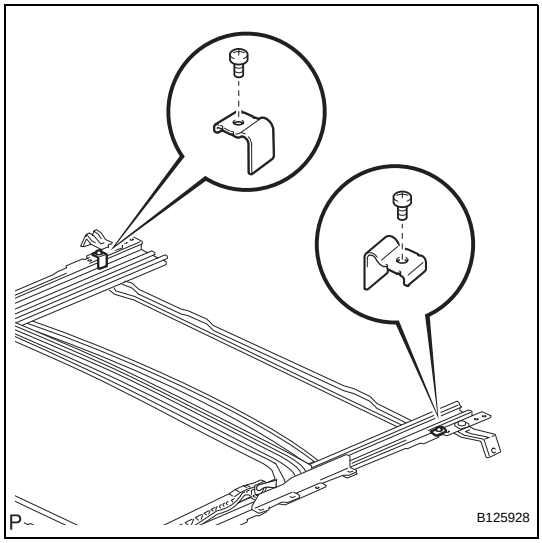
HINT:

Hold the window deflector down, as shown in the illustration, until the sliding roof drive cable sub-assembly runs on the window deflector.

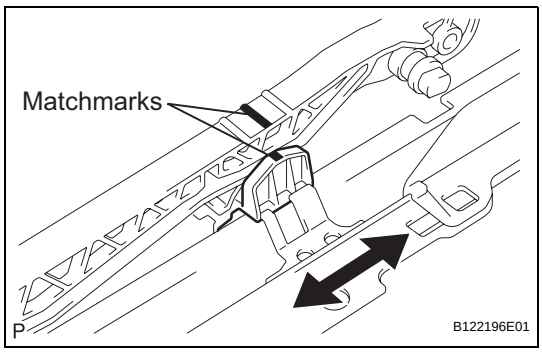
RF



(b) Engage the 2 claws and install the sliding roof drip channel.

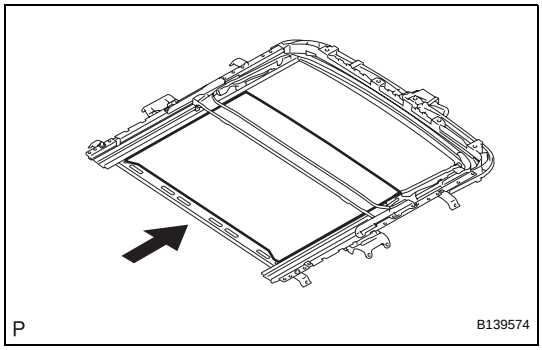


(c) Install the 2 sliding roof side stoppers with the 2 screws.
Torque: 2.0 N*m (20 kgf*cm, 18 in.*lbf)



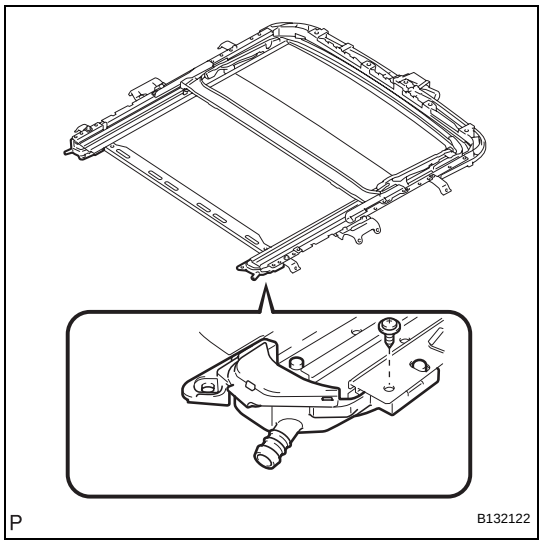
2. ADJUST FULLY CLOSED POSITION

(a) Using a screwdriver, slide the sliding roof drive cable sub-assembly in either direction as indicated by the arrows in the illustration and align the matchmarks.
HINT:
Tape the screwdriver tip before use.

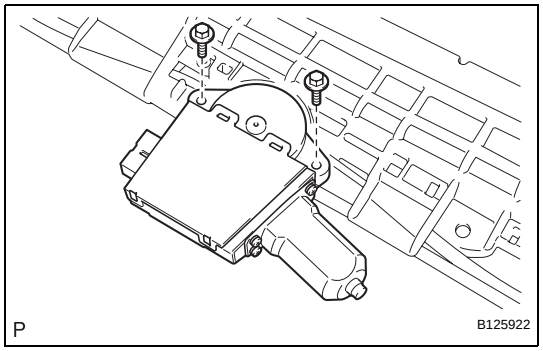


3. INSTALL SUNSHADE TRIM SUB-ASSEMBLY

(a) Insert the sunshade trim into the sliding roof housing sub-assembly.

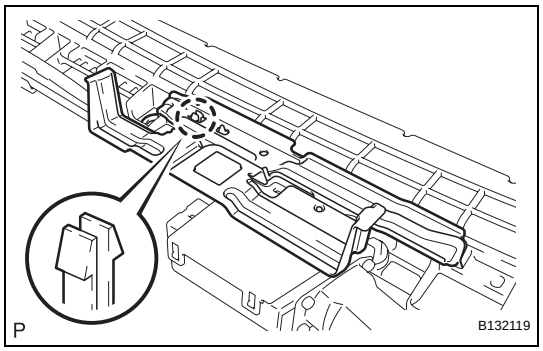


(b) Install the sliding roof piece sub-assemblies LH and RH with the 2 screws.
Torque: 2.0 N*m (20 kgf*cm, 18 in.*lbf)



4. INSTALL SLIDING ROOF DRIVE GEAR SUB-ASSEMBLY

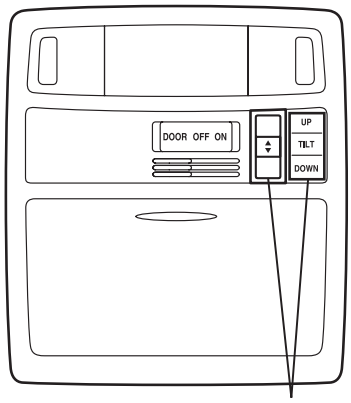
(a) Install the sliding roof drive gear sub-assembly with the 2 bolts.
Torque: 5.4 N*m (55 kgf*cm, 48 in.*lbf)



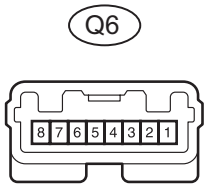
(b) Engage the claw and install the sliding roof drive gear bracket.

RF

Roof Console Box Assembly Connector:



Sliding Roof Control Switch



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SLIDING ROOF SWITCH ASSEMBLY

ON-VEHICLE INSPECTION

1. INSPECT ROOF CONSOLE BOX ASSEMBLY

(a) Remove the roof console box assembly.

(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Switch Position	Specified Condition
Q6-1 (CLS) - Q6-3 (GND)	CLOSE	Below 100 Ω
Q6-2 (OPN) - Q6-3 (GND)	OPEN	Below 100 Ω
Q6-4 (DOWN) - Q6-3 (GND)	DOWN	Below 100 Ω
Q6-5 (UP) - Q6-3 (GND)	UP	Below 100 Ω
Q6-1 (CLS) - Q6-3 (GND)	OPEN	1 kΩ or higher
Q6-2 (OPN) - Q6-3 (GND)	CLOSE	1 kΩ or higher
Q6-4 (DOWN) - Q6-3 (GND)	UP	1 kΩ or higher
Q6-5 (UP) - Q6-3 (GND)	DOWN	1 kΩ or higher

If the result is not as specified, replace the roof console box assembly.

INSTALLATION

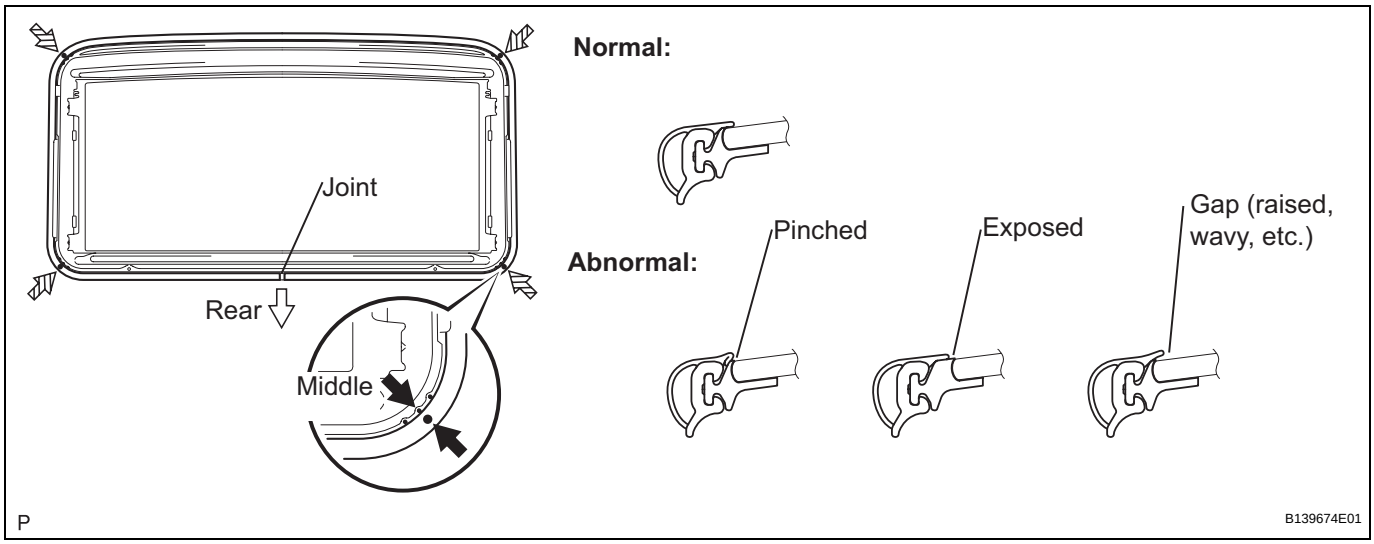
1. INSTALL SLIDING ROOF WEATHERSTRIP

(a) Install the sliding roof weatherstrip as follows:

(1) Position the joint of the weatherstrip at the rear center.

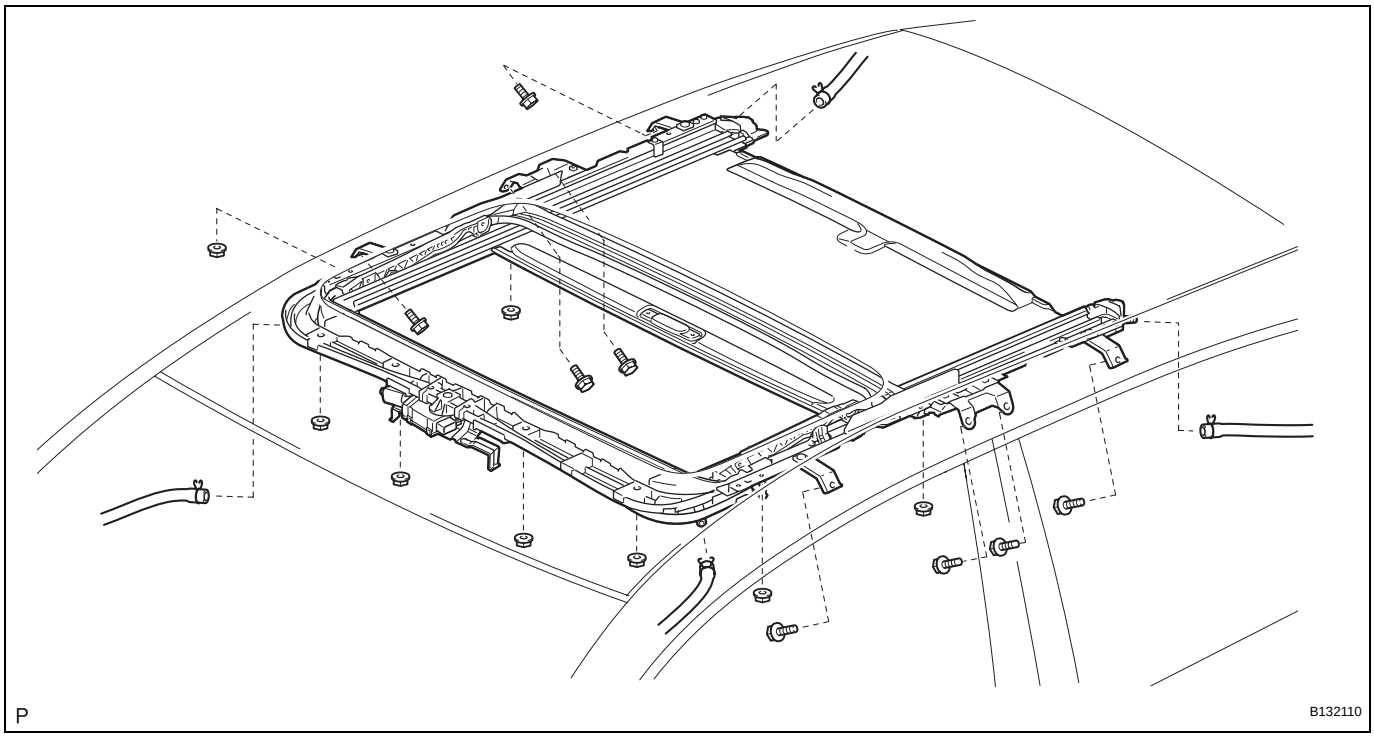
(2) Align the marks on the weatherstrip with the middle marks at the corners of the sliding roof panel and install the weatherstrip.

(3) Install the lip of the weatherstrip firmly.

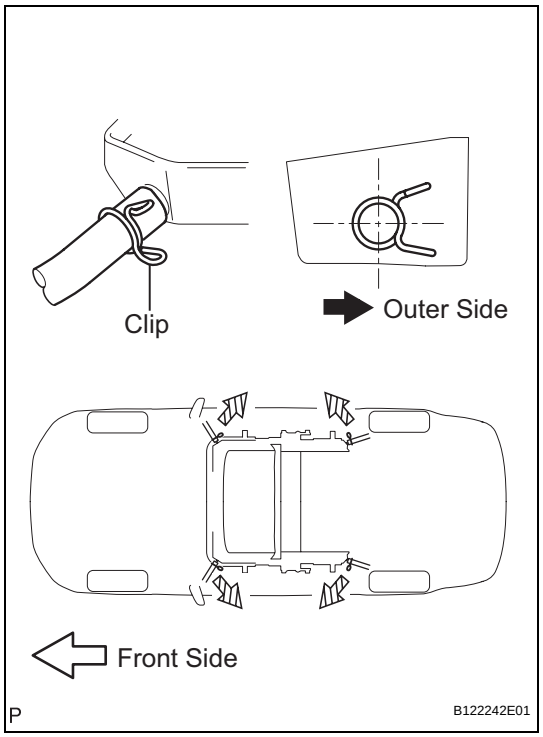


2. INSTALL SLIDING ROOF HOUSING SUB-ASSEMBLY

(a) Install the sliding roof housing sub-assembly with the 8 bolts and 8 nuts.



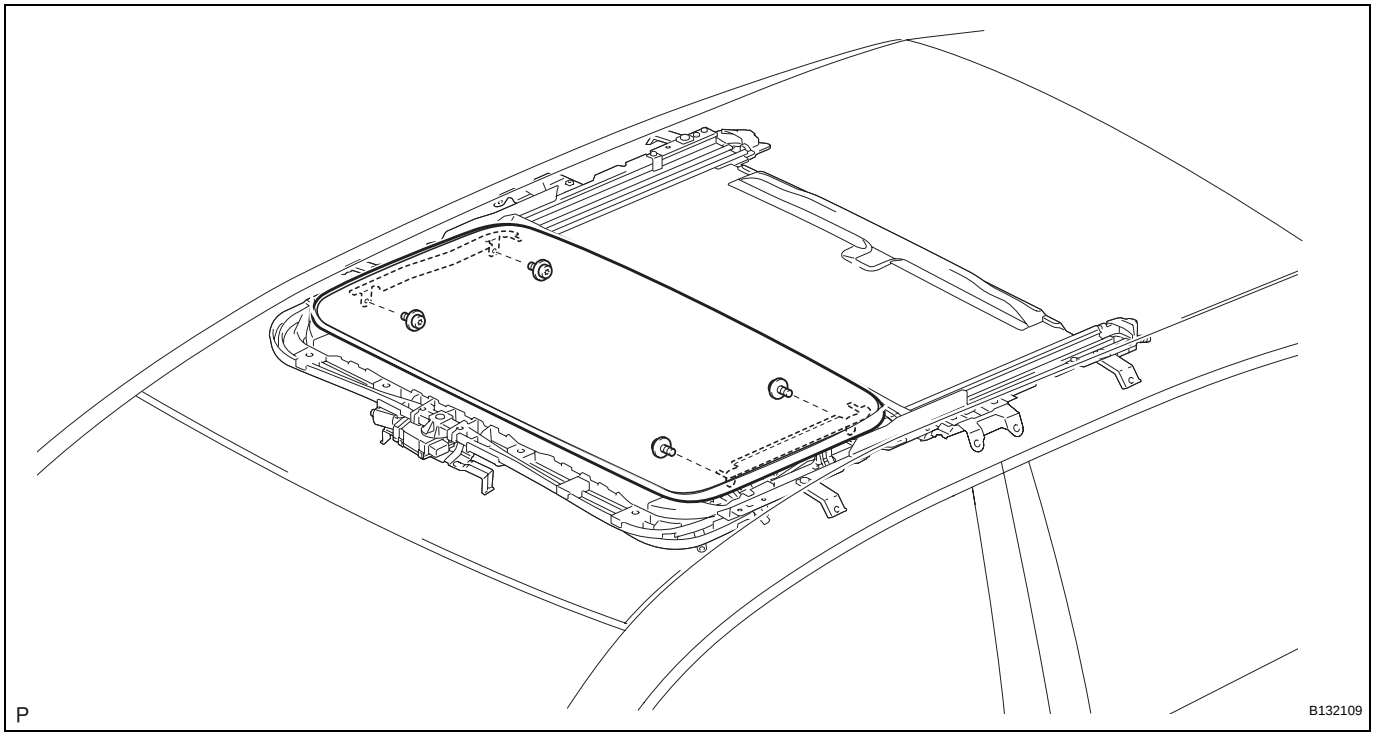
Torque: 5.5 N*m (56 kgf*cm, 49 in.*lbf)

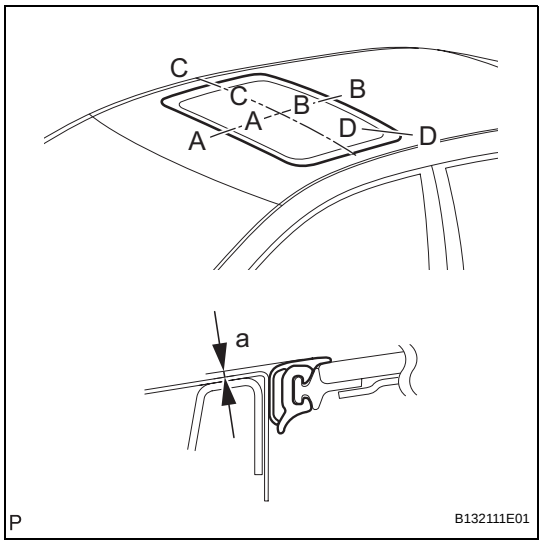


(b) Connect the 4 sliding roof drain hoses.
NOTICE:
The clip must face toward the outside of the vehicle and also be above the lower surface of the sliding roof housing when installing the drain hoses.

3. INSTALL SLIDING ROOF GLASS SUB-ASSEMBLY

(a) Using a T25 "TORX" driver, temporarily install the sliding roof glass sub-assembly with the 4 screws.

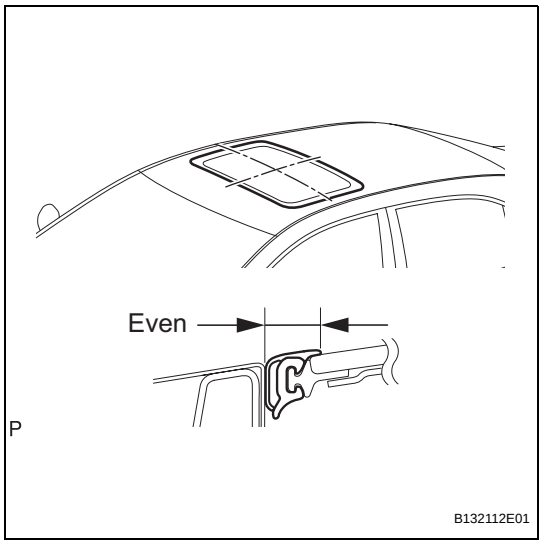




(b) Perform a level check.
(1) Check the difference in level for "a" between the roof panel and the upper surface of the weatherstrip when the sliding roof glass is fully closed.
Standard

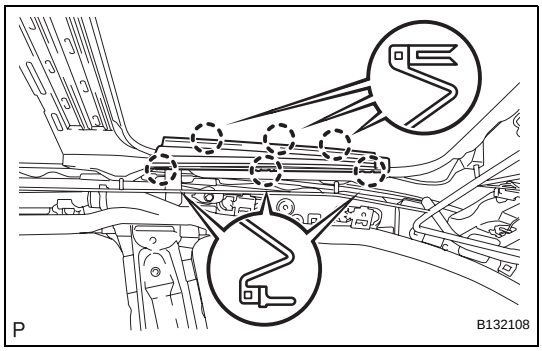
Area	Measurement
A - A	0 + 1.0 mm (0 + 0.039 in.) 0 - 2.0 mm (0 - 0.079 in.)
B - B	0 + 2.0 mm (0 + 0.079 in.) 0 - 1.0 mm (0 - 0.039 in.)
C - C	0 + 1.5 mm (0 + 0.059 in.) 0 - 1.5 mm (0 - 0.059 in.)
D - D	0 + 1.5 mm (0 + 0.059 in.) 0 - 1.0 mm (0 - 0.039 in.)

HINT:
"+" represents the condition that the glass is above the panel level. "-" represents the condition that the glass is below the panel level.



(c) Perform a gap check.
(1) Check the gap between the roof panel and roof glass.
NOTICE:
The gap must be even all around.
(d) After adjusting the sliding roof glass, using a T25 "TORX" driver, install the sliding roof glass sub-assembly with the 4 screws.
Torque: 4.0 N*m (41 kgf*cm, 35 in.*lbf)

4. CHECK FOR WATER LEAKS
(a) After adjusting the sliding roof glass sub-assembly, check for water leaks.
(b) If there are any leaks, readjust the sliding roof glass sub-assembly.



5. INSTALL SLIDING ROOF SIDE GARNISH LH
(a) Engage the 6 claws and install the sliding roof side garnish LH.

6. INSTALL SLIDING ROOF SIDE GARNISH RH
HINT:
Use the same procedures for the RH side and the LH side.

7. INSTALL CURTAIN SHIELD AIRBAG ASSEMBLY LH
(See page RS-421)

8. INSTALL CURTAIN SHIELD AIRBAG ASSEMBLY RH
HINT:
Use the same procedures for the RH side and the LH side.

9. INSTALL FRONT SIDE RAIL SPACER LH
(a) Engage the 2 claws and install the front side rail spacer LH.

10. **INSTALL FRONT SIDE RAIL SPACER RH**
HINT:
Use the same procedures for the RH side and the LH side.
11. **INSTALL ROOF HEADLINING ASSEMBLY (See page IR-46)**
12. **INSTALL SUNSHADE TRIM HOLDER (w/ Rear Sunshade) (See page IR-47)**
13. **INSTALL SUN ROOF OPENING TRIM MOULDING (See page IR-47)**
14. **INSTALL SPOT LIGHT ASSEMBLY (See page IR-48)**
15. **INSTALL FRONT ASSIST GRIP SUB-ASSEMBLY (See page IR-49)**
16. **INSTALL REAR ASSIST GRIP SUB-ASSEMBLY (See page IR-49)**
17. **INSTALL VISOR HOLDER (See page IR-49)**
18. **INSTALL VISOR ASSEMBLY LH (See page IR-50)**
19. **INSTALL VISOR ASSEMBLY RH (See page IR-50)**
20. **INSTALL ROOF CONSOLE BOX ASSEMBLY (See page IR-50)**
21. **INSTALL FRONT PILLAR GARNISH LH (See page IR-51)**
22. **INSTALL FRONT PILLAR GARNISH RH (See page IR-52)**
23. **INSTALL ROOF SIDE INNER GARNISH LH (See page IR-52)**
24. **INSTALL ROOF SIDE INNER GARNISH RH (See page IR-52)**
25. **INSTALL UPPER CENTER PILLAR GARNISH LH (See page IR-53)**
26. **INSTALL LOWER CENTER PILLAR GARNISH LH (See page IR-53)**
27. **CONNECT FRONT SEAT OUTER BELT ASSEMBLY LH (See page IR-53)**
28. **INSTALL LAP BELT OUTER ANCHOR COVER (See page IR-53)**
29. **INSTALL FRONT DOOR OPENING TRIM WEATHERSTRIP LH (See page IR-54)**
30. **INSTALL COWL SIDE TRIM SUB-ASSEMBLY LH (See page IR-54)**
31. **INSTALL FRONT DOOR SCUFF PLATE LH (See page IR-54)**
32. **INSTALL UPPER CENTER PILLAR GARNISH RH (See page IR-54)**

33. **INSTALL LOWER CENTER PILLAR GARNISH RH (See page IR-54)**
34. **CONNECT FRONT SEAT OUTER BELT ASSEMBLY RH (See page IR-54)**
35. **INSTALL LAP BELT OUTER ANCHOR COVER (See page IR-54)**
36. **INSTALL FRONT DOOR OPENING TRIM WEATHERSTRIP RH (See page IR-55)**
37. **INSTALL COWL SIDE TRIM SUB-ASSEMBLY RH (See page IR-55)**
38. **INSTALL FRONT DOOR SCUFF PLATE RH (See page IR-55)**
39. **INSTALL REAR DOOR INNER GLASS WEATHERSTRIP LH (See page ED-54)**
40. **INSTALL REAR DOOR TRIM BOARD SUB-ASSEMBLY LH (See page ED-55)**
41. **INSTALL DOOR ASSIST GRIP COVER LH (See page ED-56)**
42. **INSTALL REAR DOOR INSIDE HANDLE BEZEL PLUG LH (See page ED-56)**
43. **INSTALL RECLINING REMOTE CONTROL LEVER SUB-ASSEMBLY LH (for Reclining Seat Type) (See page SE-69)**
44. **INSTALL RECLINING REMOTE CONTROL LEVER SUB-ASSEMBLY RH (for Reclining Seat Type)**
    HINT:
    Use the same procedures for the RH side and the LH side.
45. **INSTALL REAR DOOR OPENING TRIM WEATHERSTRIP LH (See page IR-55)**
46. **INSTALL REAR DOOR SCUFF PLATE LH (See page IR-56)**
47. **INSTALL REAR DOOR OPENING TRIM WEATHERSTRIP RH (See page IR-56)**
48. **INSTALL REAR DOOR SCUFF PLATE RH (See page IR-56)**
49. **INSTALL CENTER SEAT BACK ASSEMBLY (for Reclining Seat Type) (See page SE-71)**
50. **INSTALL SEPARATE TYPE REAR SEAT BACK ASSEMBLY LH (for Reclining Seat Type) (See page SE-72)**
51. **INSTALL SEPARATE TYPE REAR SEAT BACK ASSEMBLY RH (for Reclining Seat Type) (See page SE-71)**
52. **INSTALL REAR SEAT BACK COVER (for Reclining Seat Type)**

53. **INSTALL REAR SIDE SEAT BACK ASSEMBLY LH (for Fold Down Seat Type) (See page SE-57)**

54. **INSTALL REAR SIDE SEAT BACK ASSEMBLY RH (for Fold Down Seat Type)**
HINT:
Use the same procedures for the RH side and the LH side.

55. **INSTALL SEPARATE TYPE REAR SEAT BACK ASSEMBLY LH (for Fold Down Seat Type) (See page SE-57)**

56. **INSTALL SEPARATE TYPE REAR SEAT BACK ASSEMBLY RH (for Fold Down Seat Type) (See page SE-57)**

57. **INSTALL REAR SEAT BACK ASSEMBLY (for Fixed Seat Type) (See page SE-84)**

58. **INSTALL REAR CENTER SEAT HEADREST ASSEMBLY**

59. **INSTALL REAR SEAT HEADREST ASSEMBLY**

60. **INSTALL REAR SEAT CUSHION ASSEMBLY (See page SE-84)**

61. **INSTALL FRONT SEAT ASSEMBLY LH (for Power Seat) (See page SE-41)**

62. **INSTALL INNER SEAT TRACK BRACKET COVER RH (for Power Seat) (See page SE-42)**

63. **INSTALL SEAT TRACK COVER LH (for Power Seat) (See page SE-42)**

64. **INSTALL FRONT SEAT HEADREST ASSEMBLY (for Power Seat)**

65. **INSTALL FRONT SEAT ASSEMBLY LH (for Manual Seat) (See page SE-24)**

66. **INSTALL INNER SEAT TRACK BRACKET COVER LH (for Manual Seat) (See page SE-25)**

67. **INSTALL SEAT TRACK COVER LH (for Manual Seat) (See page SE-25)**

68. **INSTALL FRONT SEAT HEADREST ASSEMBLY (for Manual Seat)**

69. **INSTALL FRONT SEAT ASSEMBLY RH (for Power Seat)**
HINT:
Use the same procedures for the RH side and the LH side.

70. **INSTALL INNER SEAT TRACK BRACKET COVER LH (for Power Seat)**
HINT:
Use the same procedures for the RH side and the LH side.

71. **INSTALL SEAT TRACK COVER RH (for Power Seat)**
HINT:
Use the same procedures for the RH side and the LH side.

72. **INSTALL FRONT SEAT HEADREST ASSEMBLY (for Power Seat)**

73. **INSTALL FRONT SEAT ASSEMBLY RH (for Manual Seat)**
HINT:
Use the same procedures for the RH side and the LH side.

74. **INSTALL INNER SEAT TRACK BRACKET COVER RH (for Manual Seat)**
HINT:
Use the same procedures for the RH side and the LH side.

75. **INSTALL SEAT TRACK COVER RH (for Manual Seat)**
HINT:
Use the same procedures for the RH side and the LH side.

76. **INSTALL FRONT SEAT HEADREST ASSEMBLY (for Manual Seat)**

77. **CONNECT CABLE TO NEGATIVE BATTERY TERMINAL**

78. **PERFORM ZERO POINT CALIBRATION AND SENSITIVITY CHECK (for Front Passenger Seat)**
(See page RS-242)

79. **INSPECT SRS WARNING LIGHT**
(See page RS-32)

80. **RESET SLIDING ROOF DRIVE GEAR SUB-ASSEMBLY**
(See page RF-4)

81. **CHECK SLIDING ROOF SYSTEM**
(See page RF-11)

82. **INSPECT FRONT SEAT ASSEMBLY (for Power Seat)**
(See page SE-42)

83. **INSPECT FRONT SEAT ADJUSTER ASSEMBLY (for Manual Seat)**