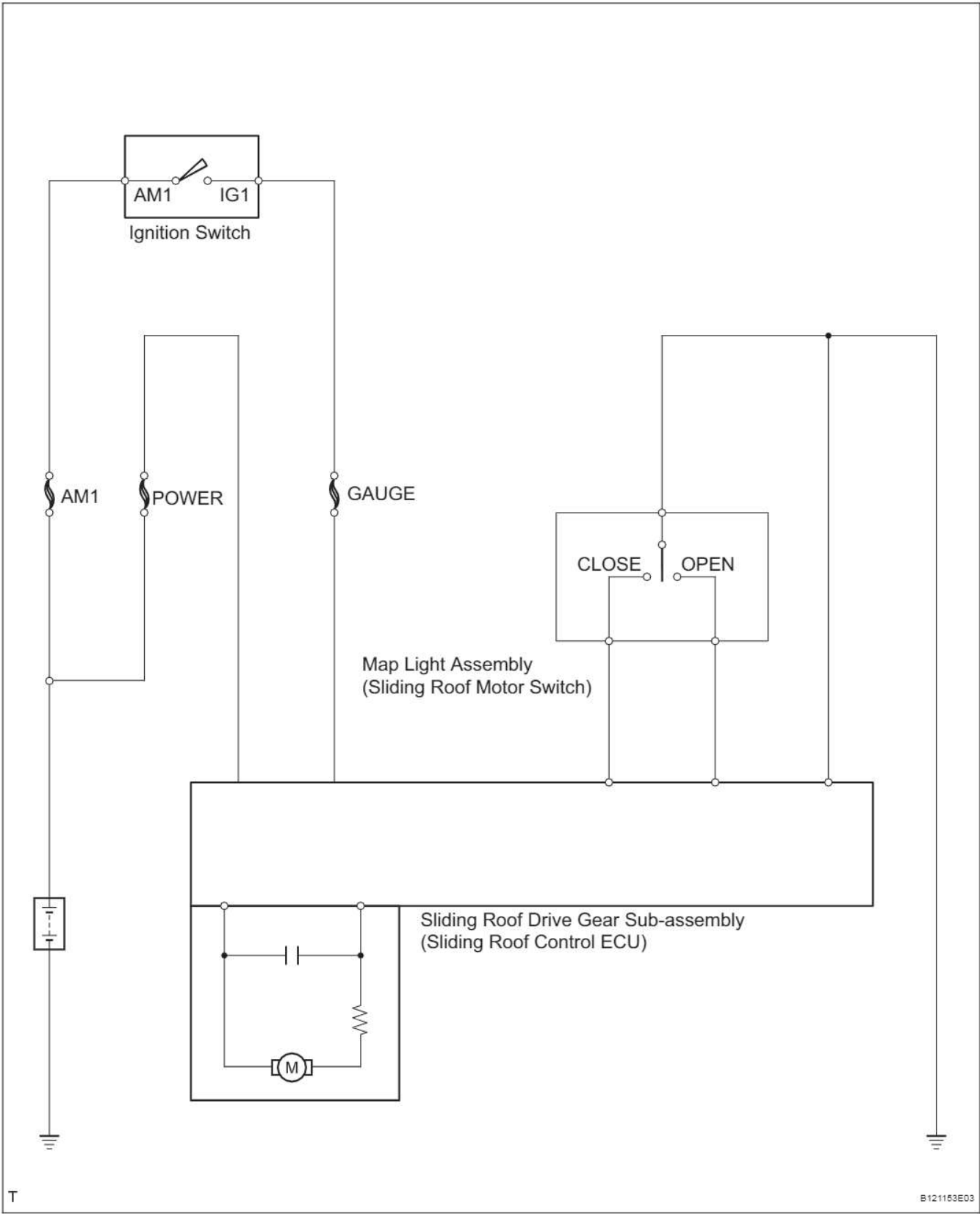


SLIDING ROOF – SLIDING ROOF SYSTEM

RF-3

SYSTEM DIAGRAM



RF

INITIALIZATION

1. RESET SLIDING ROOF DRIVE GEAR (MOTOR)

NOTICE:

The sliding roof drive gear (motor) must be reset (pulse sensor's location must be set) when one of the following occurs: 1) the battery cable has been disconnected, 2) the drive gear connector is connected/disconnected, or 3) the sliding roof is replaced or installed/removed. If the drive gear is not reset, the **AUTO** function will not operate.

(a) The sliding roof AUTO operation and the jam protection function may not operate normally if the battery cable is disconnected/reconnected, or the battery is replaced or recharged. Initialize the sliding roof system using the method below.

(1) Turn the ignition switch ON.

(2) Fully open the sliding roof.

(3) Press and hold the sliding roof motor switch on the SLIDE/OPEN side for 2 seconds or more. The sliding roof control ECU built into the drive gear will memorize the position of the sliding roof. Initialization is now complete.

HINT:

If the battery cable is disconnected, the sliding roof control ECU may not detect the position of the roof glass. If the sliding roof AUTO operation is still disabled even after the drive gear has been initialized, the Hall IC may be malfunctioning. The Hall IC is built into the drive gear and detects the roof glass position. If the result is not as specified, replace the drive gear assembly (sliding roof control ECU).

2. INSPECT SLIDING ROOF FUNCTION (See page [RF-5](#))

HINT:

- If the jam protection function is not operating, reset the drive gear.
- If the AUTO operation function and jam protection function do not operate after the drive gear has been reset, replace the drive gear assembly (sliding roof control ECU).

SLIDING ROOF – SLIDING ROOF SYSTEM**RF-5****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.

Sliding roof system

Symptom	Suspected area	See page
Sliding roof does not operate	1. GAUGE fuse	RF-1
	2. POWER H-fuse	RF-1
	3. AM1 H-fuse	RF-1
	4. Map light assembly	RF-12
	5. Sliding roof drive gear sub-assembly	RF-5
	6. Wire harness	-
	7. Faulty sliding of sliding roof	-
Sliding roof operation is abnormal	1. Map light assembly	RF-12
	2. Sliding roof drive gear sub-assembly	RF-5
	3. Wire harness	-
Sliding roof system stops operation halfway even when no foreign object is in motor	1. Map light assembly	RF-12
	2. Sliding roof drive gear sub-assembly	RF-5
	3. Wire harness	-
	4. Sliding roof drive gear sub-assembly (must be reset)	RF-4
AUTO function is inoperative	1. Sliding roof drive gear sub-assembly (must be reset)	RF-4
	2. Sliding roof drive gear sub-assembly (sliding roof control ECU)	RF-10
Jam protection function is inoperative	1. Sliding roof drive gear sub-assembly (must be reset)	RF-4
	2. Sliding roof drive gear sub-assembly (sliding roof control ECU)	RF-10

RF

ON-VEHICLE INSPECTION

NOTICE:

The drive gear (motor) must be reset (pulse sensor's location must be set) when one of the following occurs: 1) the battery cable has been disconnected from the negative (-) battery terminal, 2) the drive gear connector is connected/disconnected, or 3) the sliding roof is replaced or installed/removed. If the drive gear is not reset, the AUTO function will not operate.

1. CHECK AUTO SLIDE-OPEN/CLOSE FUNCTION

- (a) Check the AUTO slide OPEN operation function.
 - (1) Turn the ignition switch ON.
 - (2) If the roof glass is not fully closed, slide or tilt it so that it is fully closed.
 - (3) With the roof glass fully closed, press the sliding roof motor OPEN switch for 0.3 seconds or more. The roof glass will begin opening through the AUTO operation and stop 35 mm (1.38 in.) from the fully open position. If the switch is pressed again, the roof glass will fully slide open.
- (b) Check the AUTO slide CLOSE operation function.
 - (1) Turn the ignition switch ON.
 - (2) Press the sliding roof motor CLOSE switch for 0.3 seconds or more. The roof glass will automatically close.
 - (3) If the CLOSE or OPEN switch is pressed while the roof glass is in motion, the roof will stop moving.

2. CHECK JAM PROTECTION FUNCTION

HINT:

When the sliding roof AUTO operation is being used, the jam protection prevents objects from being caught between the vehicle body and the roof glass.

Operates during:

AUTO CLOSE 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 in this procedure.
 - The jam protection function may not operate with an object that is less than 5 mm (0.20 in.) in width.
- (a) When the sliding roof CLOSE operation is being performed and an object is caught between the vehicle body and the roof glass, the roof glass should open a distance of 200 mm (7.87 in.) from the point of contact with the object, or open fully if 200 mm (7.87 in.) of opening distance is not available.

SLIDING ROOF – SLIDING ROOF SYSTEM

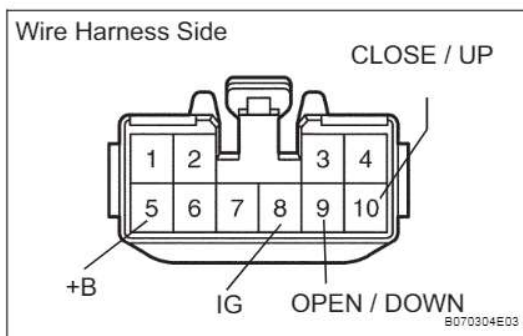
RF-7

3. CHECK FAIL-SAFE FUNCTION

- (a) If the sliding roof does not close because the jam protection function operates improperly, press the sliding roof motor switch on the SLIDE/OPEN side and hold it until the sliding roof is in the fully slided open position. Then, you can manually close the sliding roof.

4. CHECK SLIDING ROOF DRIVE GEAR SUB-ASSEMBLY

- (a) Disconnect the drive gear connector.
 (b) Measure the voltage and resistance of the wire harness side connector.

**Standard voltage**

Tester Connection	Condition	Specified Condition
5 (+B) - Body ground	Always	10 to 14 V
8 (IG) - Body ground	Ignition switch OFF	Below 1 V
8 (IG) - Body ground	Ignition switch ON	10 to 14 V

Standard resistance

Tester Connection	Condition	Specified Condition
9 (OPEN/DOWN) - Body ground	Sliding roof motor switch ON	Below 1 Ω
10 (CLOSE/UP) - Body ground	Sliding roof motor switch ON	Below 1 Ω

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

- (c) Reconnect the drive gear connector.
 (d) Initialize the sliding roof gear (see page RF-4).
 (e) Measure the voltage of the connector.

Standard voltage

Tester Connection	Condition	Specified Condition
9 (OPEN) - Body ground	Ignition switch ON and OPEN switch ON	0 V
9 (OPEN) - Body ground	Ignition switch ON and OPEN switch OFF	10 to 14 V
10 (CLOSE) - Body ground	Ignition switch ON and CLOSE switch ON	0 V
10 (CLOSE) - Body ground	Ignition switch ON and CLOSE switch OFF	10 to 14 V

If the result is not as specified, the drive gear sub-assembly (sliding roof control ECU) may have a malfunction.

RF

SLIDING ROOF – SLIDING ROOF HOUSING

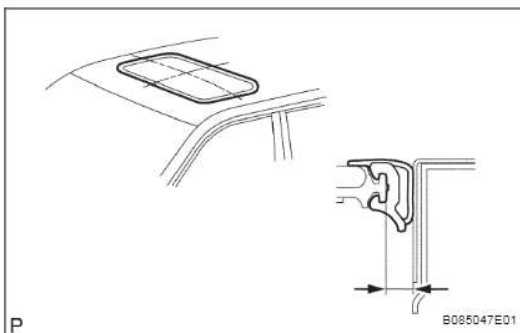
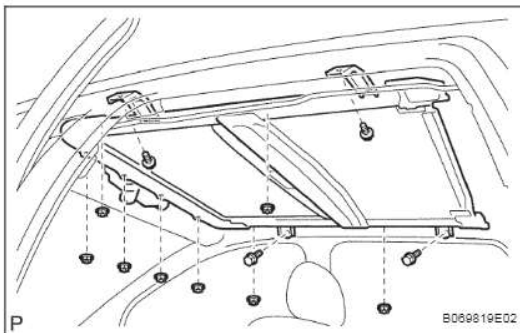
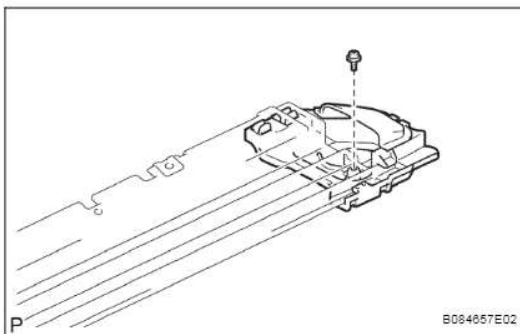
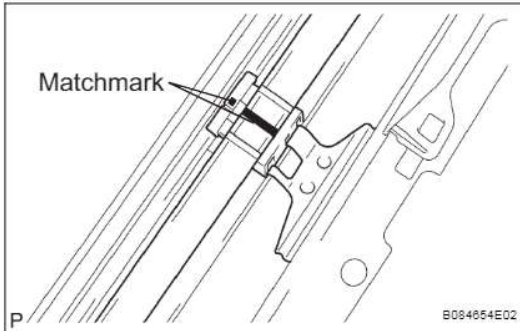
RF-11

REASSEMBLY

1. **INSTALL SLIDING ROOF DRIVE CABLE LH**
2. **INSTALL SLIDING ROOF DRIVE CABLE RH**
3. **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.
4. **INSTALL SUNSHADE TRIM SUB-ASSEMBLY**
5. **INSTALL SLIDING ROOF DRIVE GEAR SUB-ASSEMBLY**
 - (a) Install the driver gear with the 2 bolts.
6. **INSTALL SLIDING ROOF DRAIN HOSE JOINT LH**
 - (a) Install the joint with the screw.
7. **INSTALL SLIDING ROOF DRAIN HOSE JOINT RH**

HINT:
Use the same procedures described for the LH side.



INSTALLATION

1. **INSTALL SLIDING ROOF HOUSING ASSEMBLY**
 - (a) Install the housing with the 4 bolts and 8 nuts.
Torque: 5.5 N*m (55 kgf*cm, 49 in.*lbf) for bolt
4.0 N*m (41 kgf*cm, 35 in.*lbf) for nut
2. **CONNECT SLIDING ROOF DRAIN HOSE**
 - (a) Connect the 4 drain hoses.
3. **INSTALL SLIDING ROOF WEATHERSTRIP**
4. **INSTALL SLIDING ROOF GLASS SUB-ASSEMBLY**
 - (a) Install the glass.
 - (b) Using a T25 "torx" driver, install the 4 screws.
5. **ADJUST SLIDING ROOF GLASS SUB-ASSEMBLY**
 - (a) Check the clearance between the roof glass and roof panel. Using a T25 "torx" driver, loosen the 4 screws and adjust the sliding roof panel position.

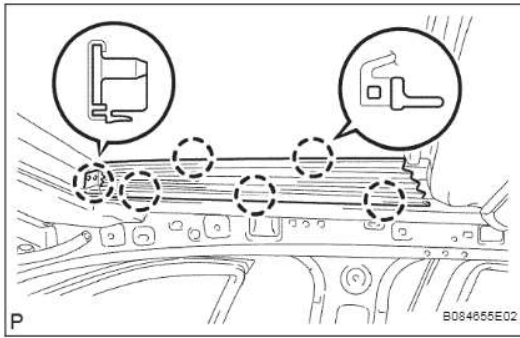
Standard clearance:
0 +5.1 mm (0 +0.20 in.)

NOTICE:
The difference should be even all around.

RF

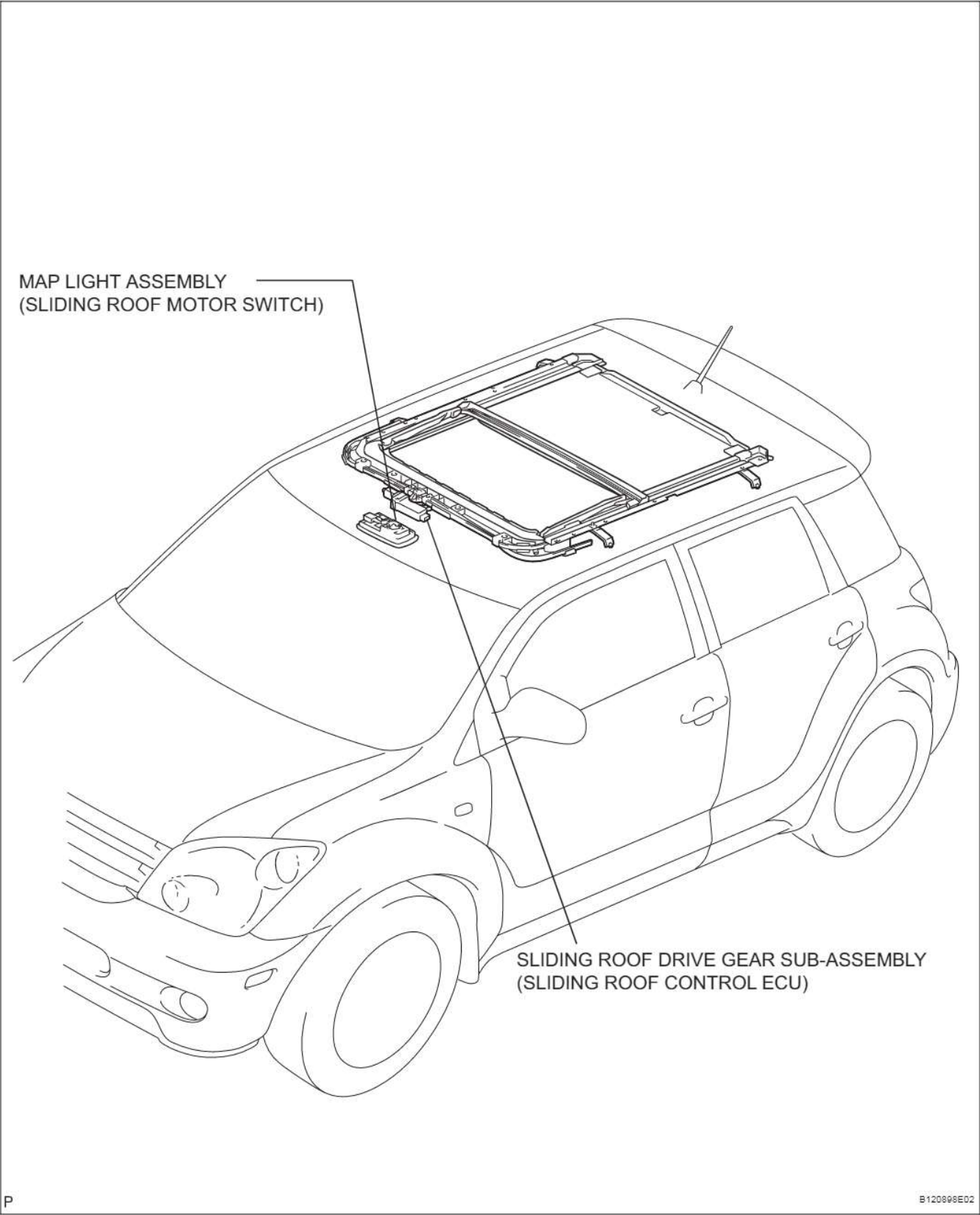
RF-12

SLIDING ROOF – SLIDING ROOF HOUSING



6. **INSTALL SLIDING ROOF SIDE GARNISH LH**
(a) Attach the 6 claws to install the garnish.
7. **INSTALL SLIDING ROOF SIDE GARNISH RH**
HINT:
Use the same procedures described for the LH side.
8. **INSTALL ROOF HEADLINING ASSEMBLY**
(a) Install the roof headlining (see page [IR-12](#)).
9. **CHECK FOR WATER LEAKS**
(a) If a leak is found, readjust the sliding roof.
10. **CONNECT CABLE TO NEGATIVE BATTERY TERMINAL**
11. **PERFORM INITIALIZATION**
(a) Perform initialization (see page [IN-23](#)).
NOTICE:
Certain systems need to be initialized after disconnecting and reconnecting the cable from the negative (-) battery terminal.
12. **CHECK SRS WARNING LIGHT**
(a) Check the SRS warning light (see page [RS-28](#)).

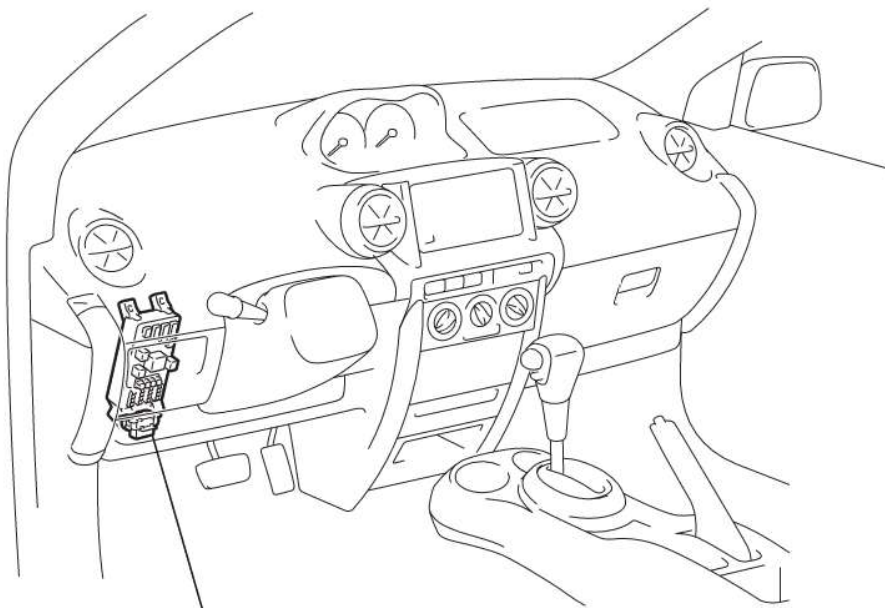
SLIDING ROOF SYSTEM
PARTS LOCATION



RF

RF-2

SLIDING ROOF – SLIDING ROOF SYSTEM



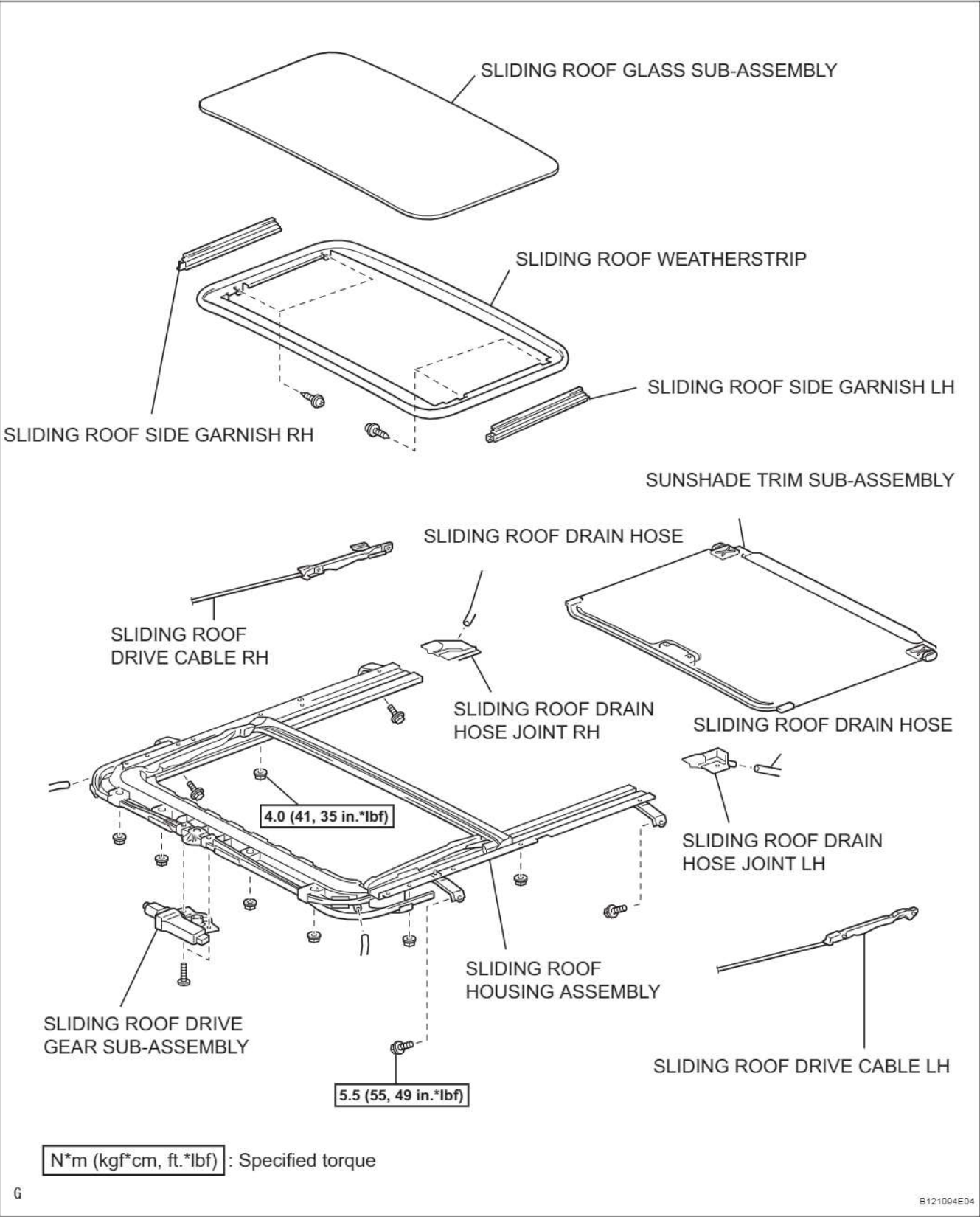
INSTRUMENT PANEL JUNCTION BLOCK

- GAUGE FUSE
- POWER H-FUSE
- AM1 H-FUSE

RF

B121152E03

SLIDING ROOF HOUSING
COMPONENTS



REMOVAL

1. **DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL**

CAUTION:

Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to prevent airbag and seat belt pretensioner activation.

2. **REMOVE ROOF HEADLINING ASSEMBLY**

(a) Remove the roof headlining (see page [IR-7](#)).

3. **REMOVE SLIDING ROOF SIDE GARNISH LH**

(a) Using a screwdriver, detach the 6 claws and remove the garnish.

HINT:

Tape the screwdriver tip before use.

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

HINT:

Use the same procedures described for the LH side.

5. **REMOVE SLIDING ROOF GLASS SUB-ASSEMBLY**

(a) Using a T25 "torx" driver, remove the 4 screws and glass.

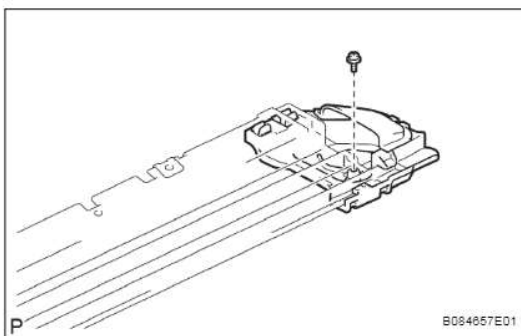
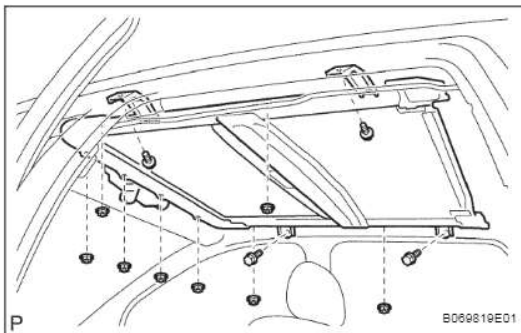
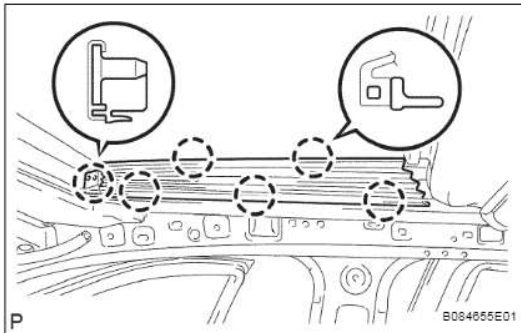
6. **REMOVE SLIDING ROOF WEATHERSTRIP**

7. **DISCONNECT SLIDING ROOF DRAIN HOSE**

(a) Disconnect the 4 drain hoses.

8. **REMOVE SLIDING ROOF HOUSING ASSEMBLY**

(a) Remove the 4 bolts, 8 nuts and housing.



DISASSEMBLY

1. **REMOVE SLIDING ROOF DRAIN HOSE JOINT LH**

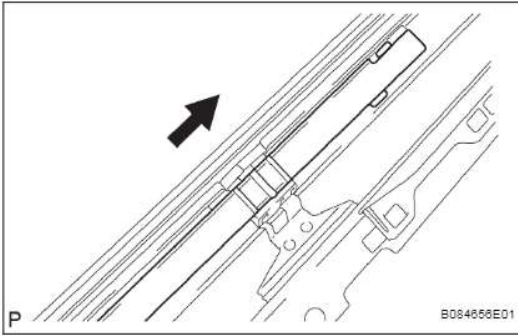
(a) Remove the screw and joint.

2. **REMOVE SLIDING ROOF DRAIN HOSE JOINT RH**

HINT:

Use the same procedures described for the LH side.

RF

RF-10**SLIDING ROOF – SLIDING ROOF HOUSING**

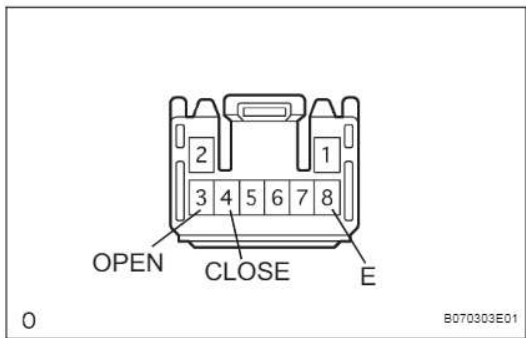
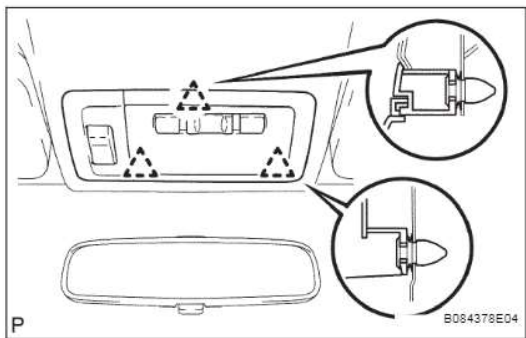
- 3. REMOVE SLIDING ROOF DRIVE CABLE LH**
 - (a) Using a screwdriver, slide the drive cable backward and remove it.
HINT:
Tape the screwdriver tip before use.
- 4. REMOVE SLIDING ROOF DRIVE CABLE RH**
HINT:
Use the same procedures described for the LH side.
- 5. REMOVE SLIDING ROOF DRIVE GEAR SUB-ASSEMBLY**
 - (a) Remove the 2 bolts and driver gear.
- 6. REMOVE SUNSHADE TRIM SUB-ASSEMBLY**

RF

SLIDING ROOF SWITCH ASSEMBLY

REMOVAL

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL
CAUTION:
Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to prevent airbag and seat belt pretensioner activation.
2. REMOVE MAP LIGHT ASSEMBLY
(a) Using a clip remover, detach the 3 clips and remove the light.
HINT:
Tape the clip remover tip before use.
(b) Disconnect the map light connector.



INSPECTION

1. INSPECT MAP LIGHT ASSEMBLY
(a) Measure the resistance of the switch.
Standard resistance

Tester Connection	Switch Condition	Specified Condition
3 (OPEN) - 8 (E)	OPEN	Below 1 Ω
4 (CLOSE) - 8 (E)	CLOSE	Below 1 Ω
3 (OPEN) - 8 (E)	OFF	10 kΩ or higher
4 (CLOSE) - 8 (E)	OFF	10 kΩ or higher

If the result is not as specified, replace the map light assembly.

INSTALLATION

1. INSTALL MAP LIGHT ASSEMBLY
(a) Connect the map light connector.
(b) Attach the 3 clips to install the map light.
2. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL
3. PERFORM INITIALIZATION
(a) Perform initialization (see pageIN-23).
NOTICE:
Certain systems need to be initialized after disconnecting and reconnecting the cable from the negative (-) battery terminal.
4. CHECK SRS WARNING LIGHT
(a) Check the SRS warning light (see pageRS-28).

