

BODY SECTION

This service manual has been prepared to provide SUBARU service personnel with the necessary information and data for the correct maintenance and repair of SUBARU vehicles.

This manual includes the procedures for maintenance, disassembling, reassembling, inspection and adjustment of components and diagnostics for guidance of experienced mechanics.

Please peruse and utilize this manual fully to ensure complete repair work for satisfying our customers by keeping their vehicle in optimum condition. When replacement of parts during repair work is needed, be sure to use SUBARU genuine parts.

All information, illustration and specifications contained in this manual are based on the latest product information available at the time of publication approval.

**HVAC SYSTEM
(HEATER, VENTILATOR AND A/C)** AC

**HVAC SYSTEM (AUTO A/C)
(DIAGNOSTICS)** AC

AIRBAG SYSTEM AB

AIRBAG SYSTEM (DIAGNOSTICS) AB

SEAT BELT SYSTEM SB

LIGHTING SYSTEM LI

WIPER AND WASHER SYSTEMS WW

ENTERTAINMENT ET

COMMUNICATION SYSTEM COM

GLASS/WINDOWS/MIRRORS GW

BODY STRUCTURE BS

INSTRUMENTATION/DRIVER INFO IDI

SEATS SE

SECURITY AND LOCKS SL

IMMOBILIZER (DIAGNOSTICS) IM

**SUNROOF/T-TOP/CONVERTIBLE TOP
(SUNROOF)** SR

EXTERIOR/INTERIOR TRIM EI

BODY SECTION

EXTERIOR BODY PANELS

EB

CRUISE CONTROL SYSTEM

CC

**CRUISE CONTROL SYSTEM
(DIAGNOSTICS)**

CC

SUNROOF/T-TOP/CONVERTIBLE TOP (SUNROOF)

SR

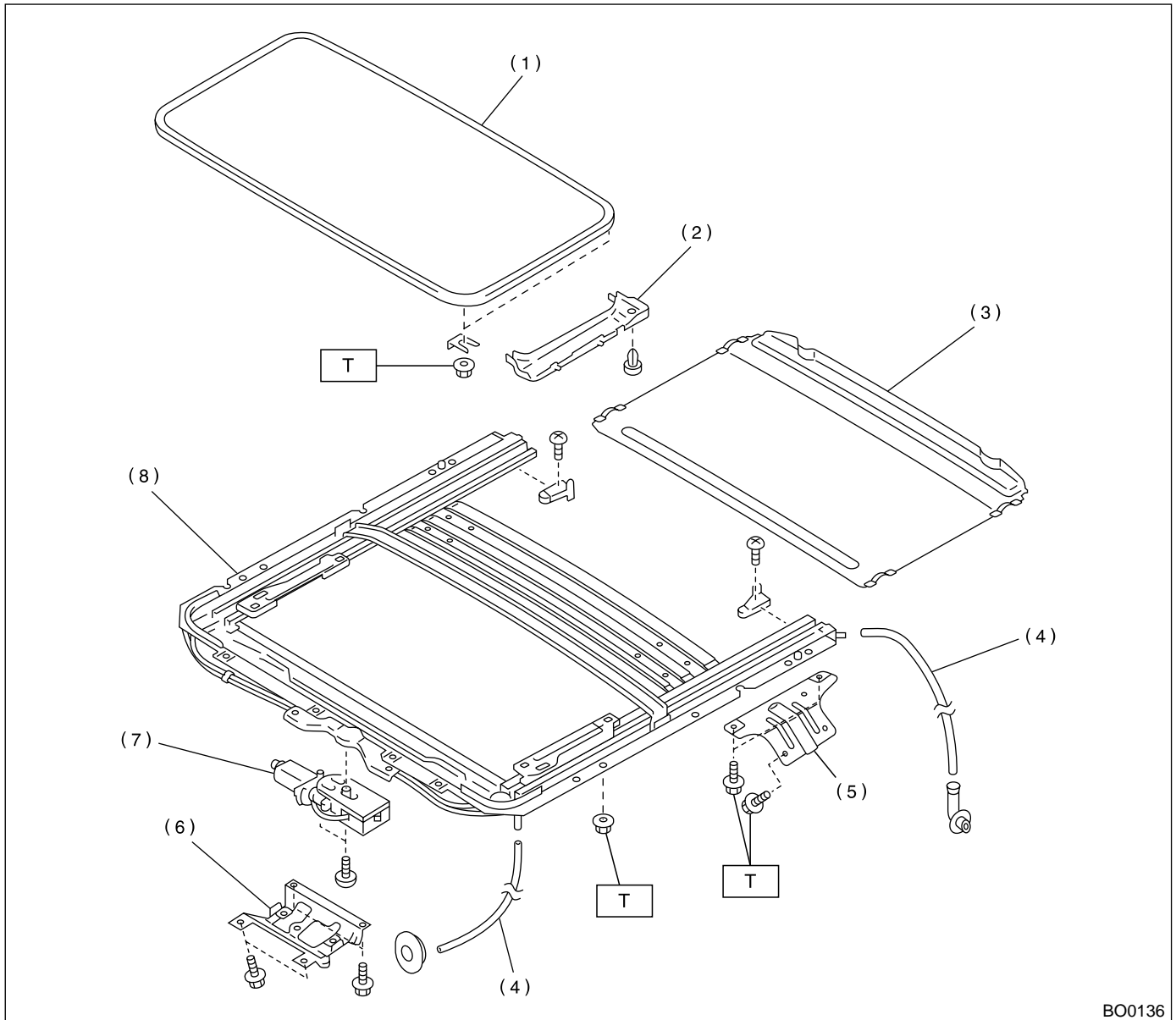
	Page
1. General Description	2
2. Sunroof Control System	4
3. Sunroof Lid.....	6
4. Sunroof Assembly	7
5. Sunroof Motor	9
6. Sunroof Switch	11

GENERAL DESCRIPTION

SUNROOF/T-TOP/CONVERTIBLE TOP (SUNROOF)

1. General Description

A: COMPONENT



BO0136

- (1) Glass lid
- (2) Guide rail cover
- (3) Sunshade
- (4) Drain tube
- (5) Sunroof bracket

- (6) Motor cover
- (7) Motor ASSY
- (8) Frame ASSY

Tightening torque: N·m (kgf·m, ft·lb)
T: 7.4 (0.75, 5.4)

GENERAL DESCRIPTION

SUNROOF/T-TOP/CONVERTIBLE TOP (SUNROOF)

B: CAUTION

- Before disassembling or reassembling parts, always disconnect battery ground cable. When replacing radio, control module, and other parts provided with memory functions, record memory contents before disconnecting the battery ground cable. Otherwise, the memory will be erased.
- Reassemble in reverse order of disassembly, unless otherwise indicated.
- Adjust parts to the given specifications.
- Connect connectors and hoses securely during reassembly.
- After reassembly, make sure functional parts operate smoothly.

C: PREPARATION TOOL

1. GENERAL TOOLS

TOOL NAME	REMARKS
Circuit Tester	Used for measuring resistance and voltage.

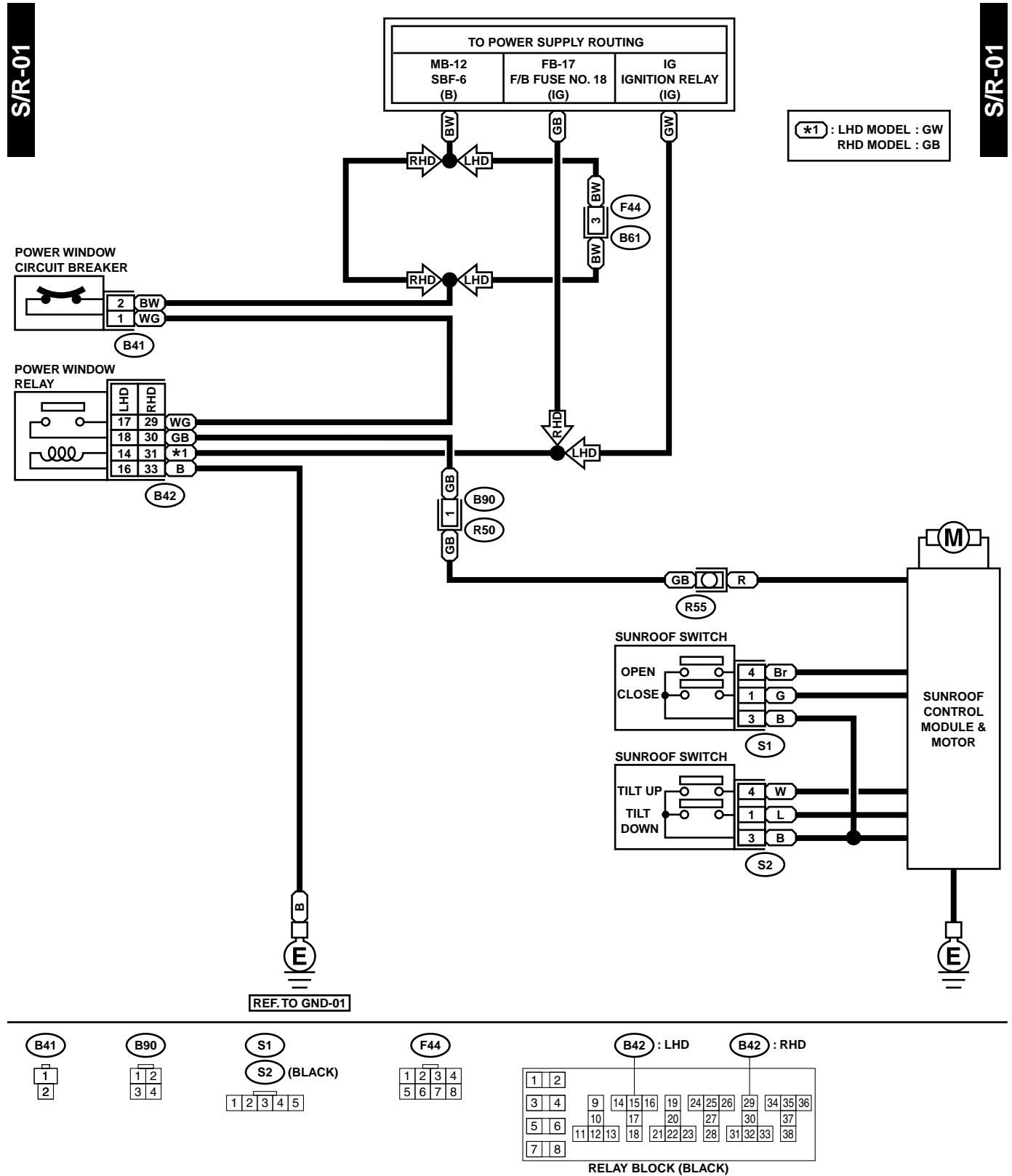
SUNROOF CONTROL SYSTEM

SUNROOF/T-TOP/CONVERTIBLE TOP (SUNROOF)

2. Sunroof Control System

A: SCHEMATIC

1. SUNROOF



SUNROOF CONTROL SYSTEM

SUNROOF/T-TOP/CONVERTIBLE TOP (SUNROOF)

B: INSPECTION

Symptom	Checking order
Water leaks.	(1) Check roof panel and sunroof lid for improper or poor sealing. (2) Check drain tube for clogging. (3) Check sunroof frame seal and body for improper fit.
Booming noise	(1) Check sunroof lid and roof panel for improper clearance. (2) Check sunshade and roof trim for improper clearance.
Abnormal motor noise	(1) Check motor for looseness. (2) Check gears and bearings for wear. (3) Check cables for wear. (4) Check cable pipe for deformities.
Failure of sunroof (Motor operates properly.)	(1) Check guide rail for foreign particles. (2) Check guide rail for improper installation. (3) Check parts for mutual interference. (4) Check cable slider for improper clinching. (5) Check cable for improper installation. (6) Check clutch adjustment nut for improper tightness.
Motor does not rotate or rotates improperly.	(1) Check fuse for blow-out. (2) Check switch for improper function. (3) Check motor for incorrect terminal voltage. (4) Check relay for improper operation. (5) Check poor grounding system. (6) Check harness for open or short and terminals for poor connections. (7) Check limit switch for improper operation.

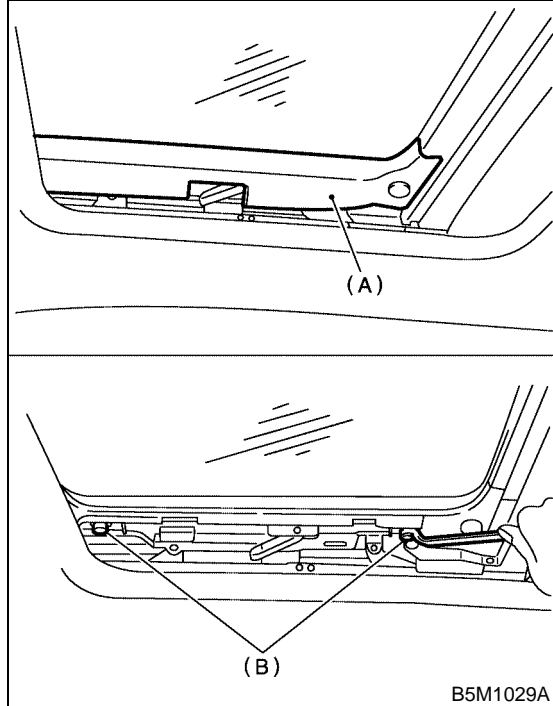
SUNROOF LID

SUNROOF/T-TOP/CONVERTIBLE TOP (SUNROOF)

3. Sunroof Lid

A: REMOVAL

- 1) Completely close rear sunroof lid and open sunshade.
- 2) Disconnect ground cable from battery.
- 3) Remove covers (A) then remove nuts (B).



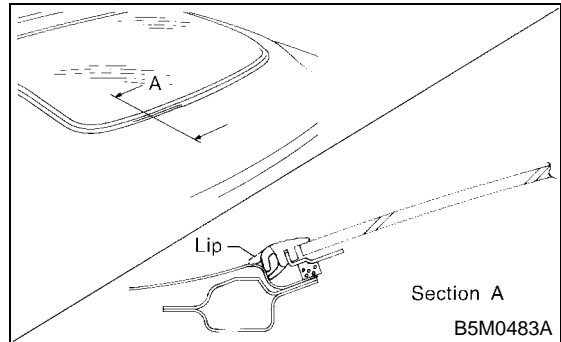
- 4) Remove the sunroof lid carefully.

B: INSTALLATION

Install in the reverse order of removal.

CAUTION:

When installing sunroof lid, be careful not to pinch the lip of lid.



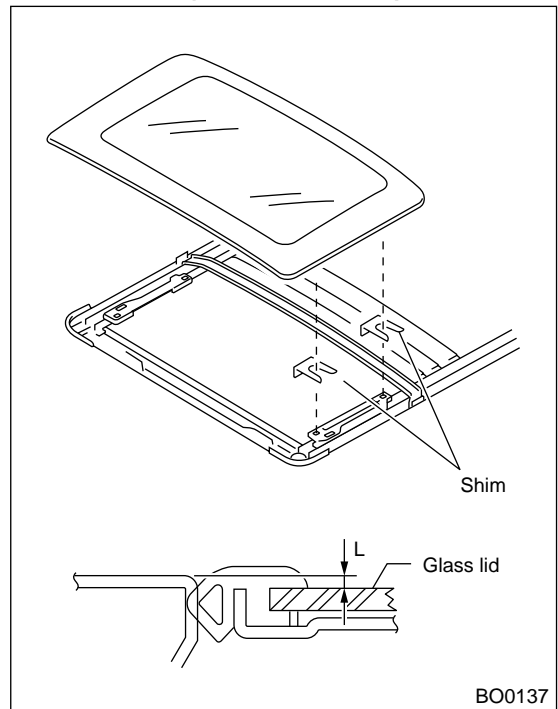
C: ADJUSTMENT

1. ALIGNMENT OF HEIGHT BETWEEN SUNROOF LID AND ROOF PANEL

Loosen sunroof lid installation nuts and then adjust height by adding (max: two pieces) or extracting (max: one piece) shims (standard: one piece) between sunroof lid and body.

Difference in height between sunroof lid and roof panel: L

L: 2.0 ± 0.5 mm (0.079 ± 0.020 in)



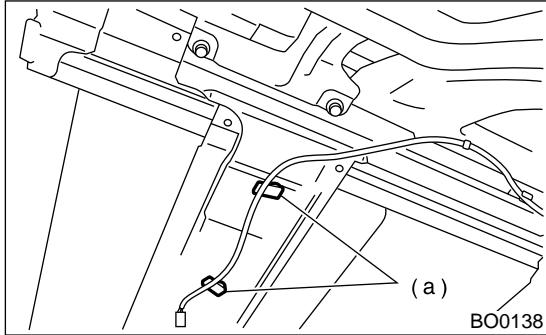
SUNROOF ASSEMBLY

SUNROOF/T-TOP/CONVERTIBLE TOP (SUNROOF)

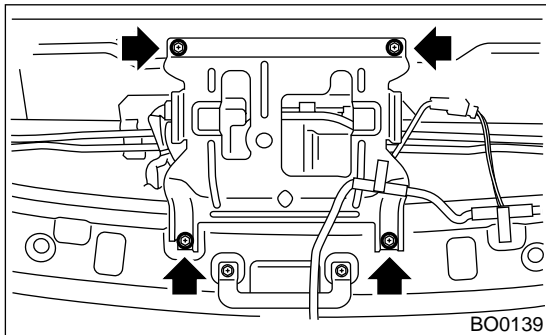
4. Sunroof Assembly

A: REMOVAL

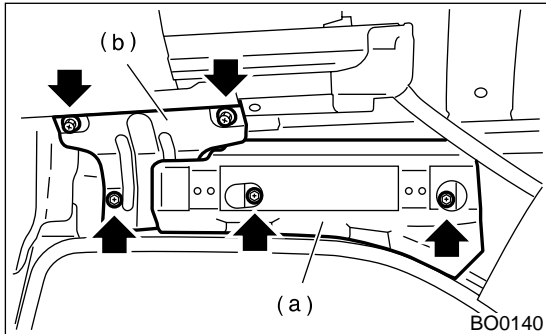
- 1) Remove roof trim. <Ref. to EI-33, REMOVAL, Roof Trim.>
- 2) Remove sunroof lid. <Ref. to SR-6, REMOVAL, Sunroof Lid.>
- 3) Disconnect drain tubes from sunroof frame.
- 4) Remove room lamp harness clip (a).



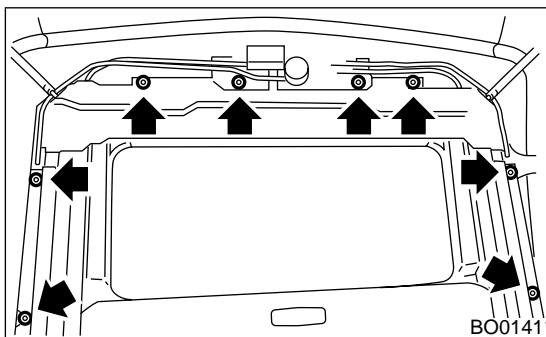
- 5) Disconnect sunroof harness connector.
- 6) Remove motor cover.



- 7) Remove assist grip bracket (a) and sunroof bracket (b).



- 8) Remove nuts then detach the sunroof frame.



B: INSTALLATION

Install in the reverse order of removal.

CAUTION:

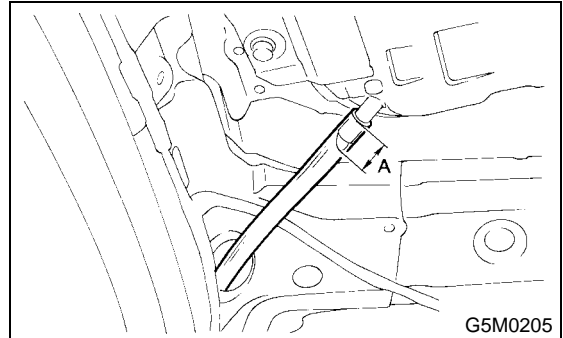
Be careful not to snag the harness.

NOTE:

- Make sure to connect harness connector.
- When installing drain tube, insert it securely onto drain pipe.

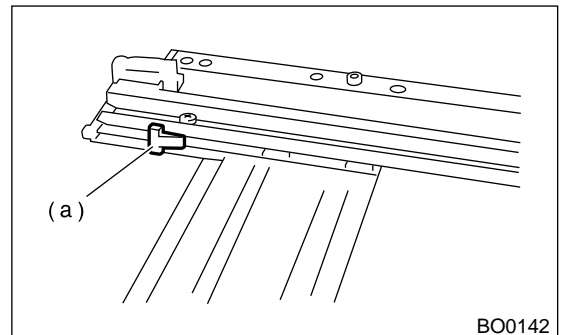
Length A:

15 mm (0.59 in) or more

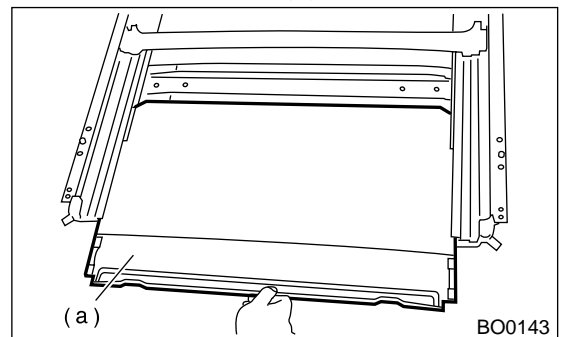


C: DISASSEMBLY

- 1) Remove sunroof frame.
- 2) Remove rail stoppers (a).



- 3) Pull out the sunshade (a) from sunroof frame.



D: ASSEMBLY

Assemble in the reverse order of disassembly.

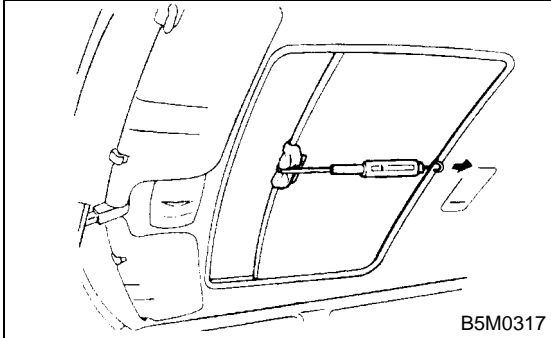
SUNROOF ASSEMBLY

SUNROOF/T-TOP/CONVERTIBLE TOP (SUNROOF)

E: INSPECTION

1. CHECK FOR MOVEMENT OF SUNSHADE

1) Place a cloth on sunshade, and attach a spring scale to sunshade edge using a cloth.



2) Pull spring scale to measure force required to move the sunshade.

Force required to move rear sunshade:

Less than 24.5 ± 4.9 N (2.5 ± 0.5 kgf, 55 ± 1.1 lb)

NOTE:

Considerable force is required to start sunshade moving, so take a scale reading when it begins to move smoothly.

3) If the force required exceeds specifications, check the following points:

Sunroof lid, sunshade and guide rail assembly for improper installation

SUNROOF MOTOR

SUNROOF/T-TOP/CONVERTIBLE TOP (SUNROOF)

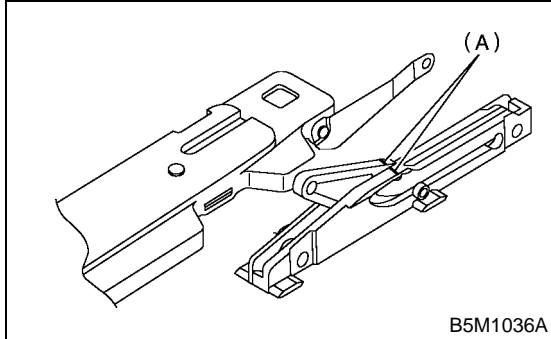
5. Sunroof Motor

A: REMOVAL

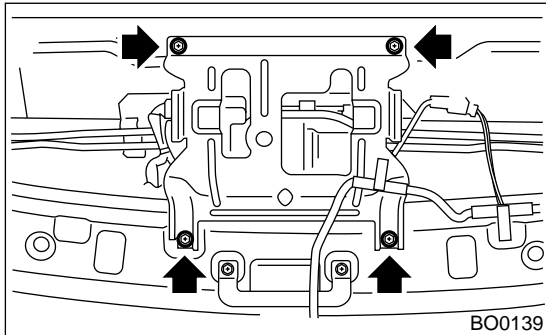
CAUTION:

When removing clip, use great care to not damage the roof trim.

- 1) Completely close the sunroof.
- 2) Remove sunroof lid. <Ref. to SR-6, REMOVAL, Sunroof Lid.>
- 3) Confirm the matching mark of sunroof bracket link and the guide from sunroof opening. (If the mark does not match, adjust to match the mark.)



- 4) Remove roof trim. <Ref. to EI-33, REMOVAL, Roof Trim.>
- 5) Remove motor cover.



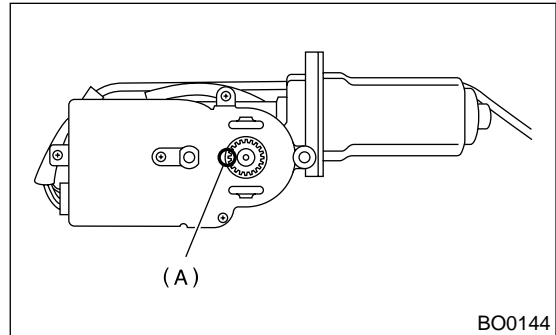
- 6) Disconnect harness connector and remove sunroof motor mounting screw.

B: INSTALLATION

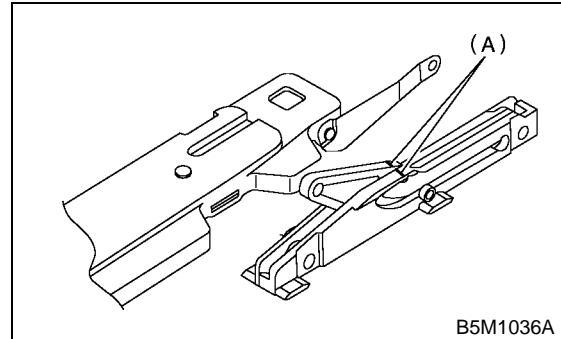
CAUTION:

- Never rotate the sunroof motor while removed.
- Be careful not to move the sunroof cable when installing sunroof motor.

- 1) Check the matching mark (A) of sunroof motor.



- 2) Confirm the matching mark (A) of sunroof bracket link.

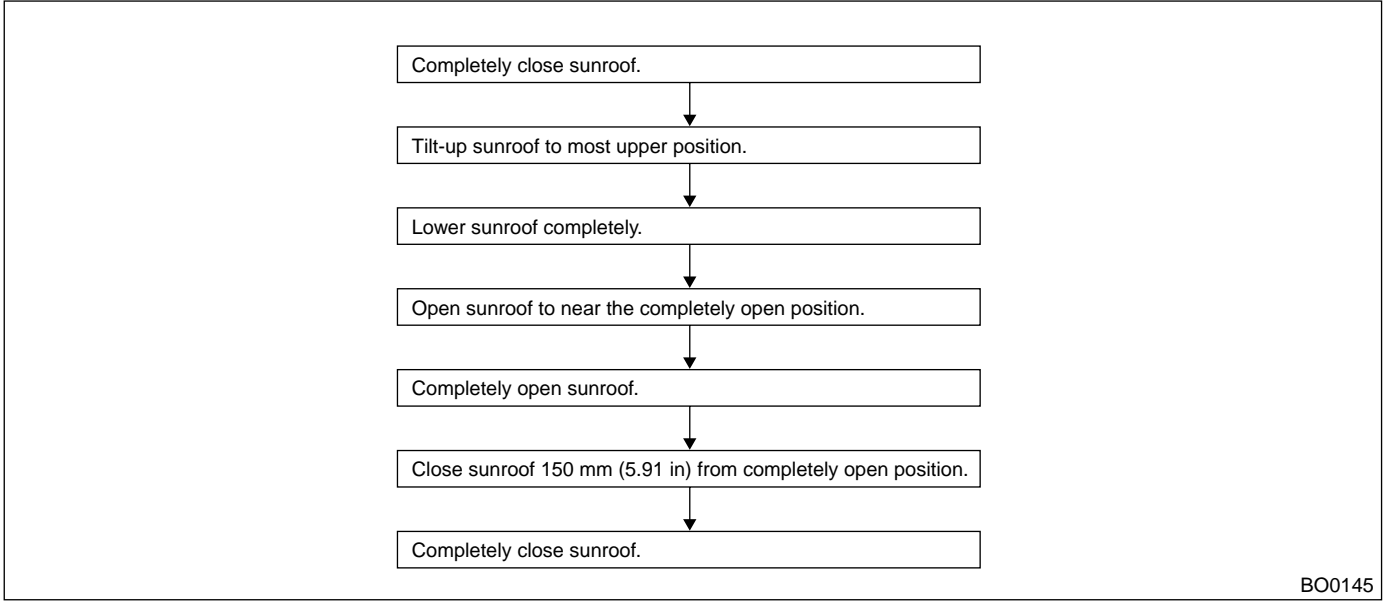


- 3) Install sunroof motor.
- 4) After installing the motor, reconfirm the matching marks of motor side and sunroof bracket link side.
- 5) Connect sunroof motor harness connector and then connect battery ground cable.
- 6) Operate the sunroof switch, and check the sunroof stop position.
- 7) Move sunroof to completely closed position and install sunroof lid.

SUNROOF MOTOR

SUNROOF/T-TOP/CONVERTIBLE TOP (SUNROOF)

8) Check the sunroof operation with the procedure as shown in the figure.



9) Install trims in the reverse order of removal.

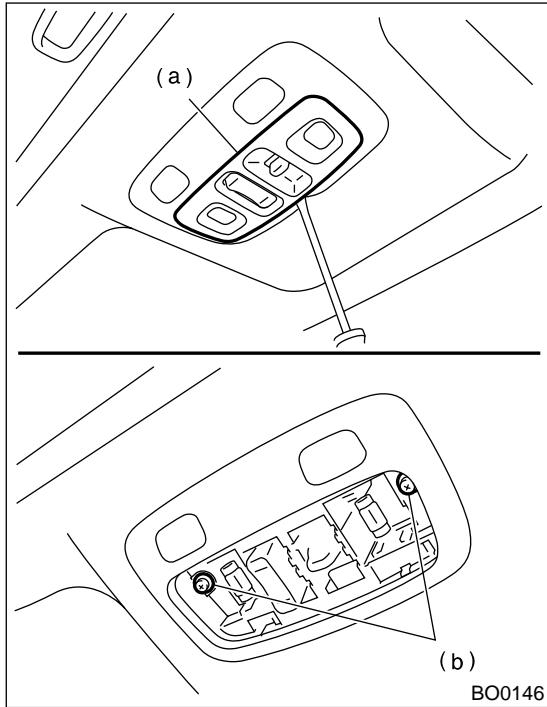
SUNROOF SWITCH

SUNROOF/T-TOP/CONVERTIBLE TOP (SUNROOF)

6. Sunroof Switch

A: REMOVAL

- 1) Disconnect ground cable from battery.
- 2) Remove spot light lens (A) and sunroof switch mounting screw (B).

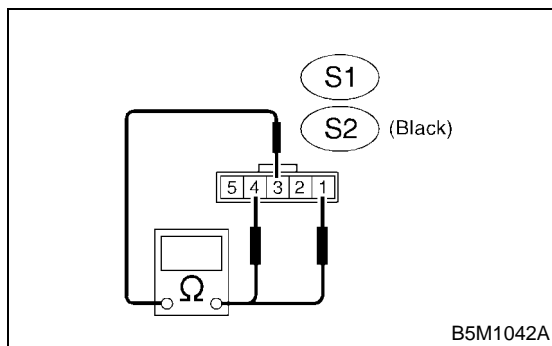


- 3) Disconnect harness connectors and remove sunroof switch.

B: INSTALLATION

Install in the reverse order of removal.

C: INSPECTION



Check continuity between terminals when operating the switch.

Switch position	Tester connection	Specified condition
Open	S1: 3 — 4	Continuity
Close	S1: 1 — 3	Continuity
Tilt-up	S2: 3 — 4	Continuity
Tilt-down	S2: 1 — 3	Continuity

SUNROOF SWITCH

SUNROOF/T-TOP/CONVERTIBLE TOP (SUNROOF)
